Building AMERICA U.S. Department of Energy

CARB NEWS

Consortium for Advanced Residential Buildings Vol. 6, No. 4 - October 2002

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

First Affordable ENERGY STAR Development

Melrose Commons II, a one-square-block CARB development of 30 three-family affordable homes designed for first-time buyers in the Melrose section in the South Bronx, will be formally dedicated October 25th. The **New York City Department of Housing Preservation and Development (NYCHPD)** through the **New York City Partnership (NYCP)** helped fund the project, which was developed by **MC II Associates**. The general contractor is **Blue Sea Construction Corporation**.

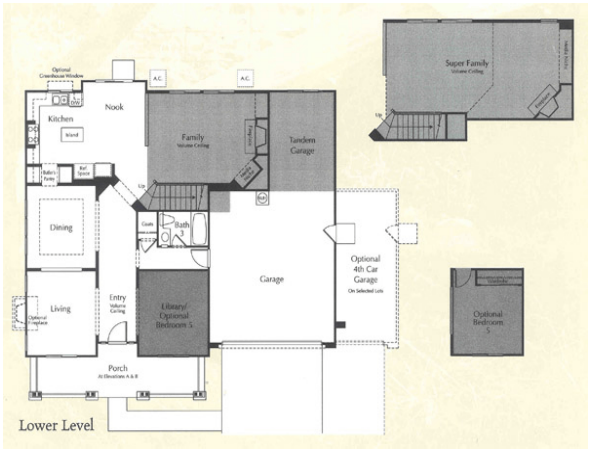
Melrose is a groundbreaking project in terms of energy conservation. REM/Design models by Steven Winter Associates (SWA) indicate that heating usage at Melrose will be less than 5 Btu/ft^2/HDD (a full 75% *less* than typical affordable housing in New York City), and domestic hot water fuel usage will be 90% *less* than typical affordable housing. The units also feature ENERGY STAR lighting fixtures and appliances throughout, resulting in estimated electricity usage per unit that is 15% below the per unit average in the Big Apple. Melrose Commons II is an historic success as well: it's the first affordable housing development and the first three-family housing development in the city to receive an ENERGY STAR rating. To help others to repeat Melrose's success, SWA is now working with NYCP to produce a design guidebook for developers on meeting and exceeding ENERGY STAR in affordable housing.

Moisture: Where, How, Why?

Moisture that forms on the interior of basement walls can be unsightly and a nuisance, not to mention the possibility of it contributing to mold growth. CARB is now working with team members **Owens-Corning** and **Cambridge Homes** to study how different interior basement insulation systems perform in regard to moisture formation. SWA and Owens Corning developed a plan to test the side-by-side performance of a variety of interior insulation systems including several potential new Owens Corning products. As part of the engineering, testing and evaluation services provided by SWA, temperature and relative humidity sensors are being positioned at various locations in different basement insulation assemblies in a house by Cambridge Homes in Chicago. These sensors will be used to determine if and when condensation occurs, from where it originates, and where it accumulates. Long-term monitoring will commence soon after to evaluate summer and winter moisture performance. Results will be reported here in *CARB-NEWS*.

How Do You Measure Success?

One of the benchmarks for success in the **U. S. Department of Energy's Building America** program is how extensively energy-conservation strategies have been adopted by builders. But when a large production builder adopts lessons from a Building America project across the board, and makes those changes part of its basic specifications for homebuilding, then Building America has hit a bull's eye. That's what happened with **Beazer Homes' Southern California Regional Division**, which worked with CARB to design, build, and publicize a high-efficiency production model home in Simi Valley, California. CARB's efforts in Simi Valley have culminated in the adoption of a wide range of high-performance, CARB-inspired specifications across the division's entire production of more than 700 homes annually. The first CARB-inspired modifications to Beazer's basic specifications occurred in two steps: initial prototype construction and side-by-side evaluation followed by production implementation. Beazer's Roseman model, a two-story, four-bedroom 2,734-square-feet home was selected as the base design for implementing the CARB specifications. A systems engineering analysis conducted on the Roseman arrived at the best combination of specifications to enhance performance. DOE 2.1 computer modeling shows that the total HVAC capacity required to meet peak cooling load could be reduced from 7.5 tons to 4.5 tons, while annual heating and cooling costs could be cut from $1,614 to $1,048--a savings of 35%. After a cost and production review, Beazer began implementing many of the prototype specifications division-wide. CARB is now working with Beazer on the next generation of systems engineering building improvements. Primary to this work is the study and implementation of a strategy to bury HVAC ducts under insulation, along with a single-zoned HVAC system in lieu of a dual non-zoned system. SWA's research shows that an average half-ton of HVAC system capacity can be saved through peak-load reduction using buried ducts. Assuming constant capacity, the single-zoned configuration could save up to $1,500 per home without affecting overall comfort or performance.



CARB-NEWS Index is Now Online

Have you ever tried to find a *CARB-NEWS* story that you know you read just a month, or two, or three ago? It can be maddening. Well, now there's a handy index to all of the *CARB-NEWS* issues, accessible from the CARB site (www.carb-swa.com/carbnews-index.html). The new index is organized by general category. The index entries describe the article's contents rather than listing its title, making it easier to target the information you want. The index will be updated monthly.

CARB NEWS is published monthly by the Consortium for Advanced Residential Buildings, part of the **Building America Program**, sponsored in part by the **U.S. Department of Energy** through the **National Renewable Energy Laboratory.** For further information and suggestions for inclusion in *CARB-NEWS*, please contact Michael J. Crosbie, Steven Winter Associates, Inc., 50 Washington St., Norwalk, CT 06854; 203-857-0200, 203-852-0741 (fax); swinter@carb-swa.com (e-mail). **CARB** Primary Team Members are: Steven Winter Associates, Ryan Homes, Del Webb Corp., Beazer Homes USA, Crosswinds Communities, Mitchell Homes, Mercedes Homes, McStain Enterprises, Cambridge Homes, D.R. Horton, Unibilt Industries, Don Simon Homes, Tindall Homes, Wausau Homes, and William Ryan Homes. Also Weyerhaeuser, Andersen Windows, Owens Corning, Honeywell, Whirlpool Corp., DuPont, Simpson Strong-Tie, Steel Floors, LLC, CertainTeed Corp., and Trus Joist MacMillan. More **CARB** information is available on its web site: www.carb-swa.com.