Ryan Homes and the Consortium for Advanced Residential Buildings

Through Building America's unique collaborative process, Ryan Homes, the U.S. Department of Energy, the National Renewable Energy Laboratory, and the Consortium for Advanced Residential Buildings worked together to identify ways to incorporate money-saving energy features throughout the Carborne house.

Design innovations deliver a new level of energy efficiency, quality, and performance... at an affordable price

The Carborne house, located in Ryan Homes' Beaver Creek development near Rochester, New York, incorporates a handful of unique, interrelated features that combine to achieve significant energy savings without increasing costs. The design innovations found in this home were conceived through the U.S. Department of Energy's Building America Program, an industry-led partnership program to develop and integrate affordable, energy-saving building processes and technologies into new home designs. In addition to lowering utility bills, these innovations improve the comfort, quality, performance, and durability of a home.

BUILDING AMERICA AND RYAN HOMES: REENGINEERING THE AMERICAN HOME FOR ENERGY EFFICIENCY AND AFFORDABILITY

The Carborne house features a number of Building America innovations:

- Open floor plan with fewer interior partitions provides options for greater flexibility in use of space.
- Panelized full basement is fully insulated and waterproof.
- Windows with energy-efficient glazing have lower heat loss for better comfort.
- 92% efficient furnace results in lower utility bills.
- Energy-efficient duct layout results in less wasted heat and more comfort.
- Ultra-value engineered wood framing provides increased thermal performance and economy.

BUILDINGS FOR THE 21ST CENTURY

Buildings that are more energy-efficient, comfortable, and affordable ... that's the goal of DOE's Office of Building Technology, State and Community Programs (BTS). To accelerate the development and wide application of energy efficiency measures, BTS:

- Conducts R&D on technologies and concepts for energy efficiency, working closely with the building industry and with manufacturers of materials, equipment, and appliances
- Promotes energy/money saving opportunities to both builders and buyers of homes and commercial buildings
- Works with State and local regulatory groups to improve building codes, appliance standards, and guidelines for efficient energy use
- Provides support and grants to States and communities for deployment of energy-efficient technologies and practices

The Program

The U.S. Department of Energy's Building America Program is reengineering the American home for energy efficiency and affordability. Building America works with the residential building industry to develop and implement innovative building processes and technologies — innovations that save builders and homeowners millions of dollars in construction and energy costs. This industry-led, cost-shared partnership program uses a systems engineering approach to reduce energy use, construction time, and construction waste by as much as 50 percent. The program aims to:

- Build 2,000 of these efficient, affordable homes by the year 2000
- Facilitate the adoption of a systems engineering approach to design and construction in 70 percent of the new housing market within 10 years

The Approach

Building America's systems engineering approach unites segments of the building industry that have traditionally worked independently of one another. It forms teams of architects, engineers, builders, equipment manufacturers, material suppliers, community planners, mortgage lenders, and contractor trades. There are four teams comprising more than 80 different companies:

- Integrated Building and Construction Solutions (IBACOS)
- Consortium for Advanced Residential Buildings (CARB)
- Building Science Consortium (BSC)
- Hickory Consortium

The teams design houses from the ground up, considering the interaction between the site, building envelope, mechanical systems, and other factors. This approach enables the teams to incorporate energy-saving strategies at no extra cost: new techniques for tightening the building envelope, for example, enable builders to install smaller, less expensive heating and cooling systems. These savings can then be reinvested in high-performance windows that further reduce energy use and costs.

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Or call the Energy Efficiency and Renewable Energy Clearinghouse at: 1-800-DOE-3732

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