

OF THE 60,000 new homes that sprout up annually in the Metro Atlanta region, the greenest of them are part of the EarthCraft House program. "We (businesses and organizations) started having round-tables in 1996," says Ken Patterson, president of the Construction Materials Recycling Association and founder of Packer Industries Inc. "Our main concern was that there was so much clean construction waste that could be recycled that was going to landfills. And recycling those materials is cost competitive on top of it." Nearly two million tons of construction related debris such as lumber, gypsum wallboard, bricks and cinder blocks, were generated in Georgia in 2000, according to the Southface Energy Institute, an Atlanta-based nonprofit organization dedicated to offering education, research and technical assistance programs on sustainable energy and environmental technologies.

From the roundtables, the idea for an environmentally friendly, resource efficient home building program was born. At that time, the National Association of Home Builders (NAHB) was offering grants for green building pilot programs. The 4,000 member Greater Atlanta Home Builder's Association (GAHBA) received one of the grants and began to study both mandatory and voluntary green building programs in the United States. "We wanted to try to write a program that would work for the entire Southeast," says Pam Sessions, president of GAHBA and Hedgewood Properties Inc. A strong alliance between the GAHBA green building committee members, many of whom attended the original roundtables, and Southface Energy Institute was formed. Together, the team created the EarthCraft House program. "We are nontraditional partners who came together to create something with lasting value," Sessions reflects. "Our partnership with them (Southface) really became almost as important as the initial green building planning phase."

SMART GROWTH MANAGEMENT

The goal of EarthCraft House is to position Atlanta's homebuilders as leaders in smart growth management and environmental stewardship. Packer, one of the grand sponsors of the EarthCraft House program and Sessions, who is known for building homes in some of Atlanta's most sought-after neighborhoods, were involved in the initial building of six pilot homes that incorporated different combinations of energy, water and air saving techniques. After the program was underway, Sessions made a commitment to build only EarthCraft Houses.

EarthCraft is considered one of the most progressive home building programs in the country. Introduced in the fall of 1999, more than 100 builders have joined the program. It is a voluntary green building program that serves as a blueprint for healthy, com-

Wood Processing
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ON-THE-JOB RECYCLING

GREEN BUILDING SHINES IN ATLANTA

Regional manufacturers, construction firms and organizations partner for affordable, earth-friendly homes and communities in the EarthCraft program.

Amy Satkofsky

fortable homes that reduce utility bills and protect the environment. "At the heart of the program is a different way to think about homebuilding," Sessions says. "It includes both mainstream and innovative ways to be a part of the bigger solution to improve air and water quality — issues that are big in Atlanta and across the country."



More than 85 percent of construction and demolition debris is reusable or recyclable. Drywall, wood, asphalt, brick and block, and roofing shingles can all be ground and used again on-site.

ON-SITE RECYCLING

Without reusing or recycling, the NAHB says on average (and depending on the builder), 6,000 to 10,000 pounds of material per home ends up in landfills. Patterson says that more than 85 percent of the material generated is reusable or recyclable, therefore only 900 to 1,100 pounds per 2,050 square foot home would have to be land-filled, reducing the environmental impact significantly. Wood and drywall make up more than two-thirds of the residential con-

struction waste stream by weight, according to NAHB statistics. Georgia enacted "no burn, no bury" legislation for construction waste about three years ago, which has given a boost to recycling these feedstocks, adds Patterson.

To facilitate on-site recycling, Packer Industries designed two horizontal grinders in the early 1990s that can handle green wood residuals, construction and demolition (C&D) debris, masonry, gypsum drywall, brick and block, asphalt, asphalt roofing shingles and municipal solid waste. Wood with nails or metal bracing can be processed; a magnet at the end of the grinder's conveyor belt separates the metal from the wood mulch. Existing vegetation removed for construction also is ground.

Sediment runoff from construction sites has been identified as the "number one non-point source pollutant in Georgia's waterways," Patterson explains. The state requires that two to three-inches of mulch has to cover the entire site during construction. In addition, mulch is put in berms around a site's perimeter to control sediment runoff. It also is used around trees on the properties, and to build walking paths around the house, allowing prospective buyers easy and safe access to the house even in inclement

weather. "It's great even for construction crews in muddy weather," Patterson says.

The drywall is applied as a soil amendment, either spread on top or incorporated into the soil. Cement blocks and bricks are used in driveways or in landscaping designs, and in trail systems in housing subdivisions.

Reusing the materials is cost competitive to traditional landfilling. In the metro Atlanta area, tipping fees are about \$27/ton. When builders are spending \$15,000 to \$20,000/month in tipping fees, they start to look at alternatives. "When a builder realizes the economic benefit, as well as the

additional marketing advantage recycling gives them, they will try the service," Patterson says.

WHAT MAKES AN EARTHCRAFT HOUSE?

Southface and the GAHBA determined that rapid growth, such as what Atlanta is experiencing, takes a toll on general home quality. They used that information as a hook to interest builders. "That factor alone opened up a dialog between EarthCraft and homebuilders," Sessions explains. So far, more than 300 EarthCraft homes have been built and almost 1,000 more are scheduled to be built in the near future.

To be certified as an EarthCraft House, builders must be members of the GAHBA, complete a comprehensive training course, submit detailed worksheets that outline re-

EarthCraft Houses are designed to save money, energy and the environment.

source choices, pass a final on-site inspection, and score 150 points during the inspection for green concepts and products used in the house. The role of the final inspector is not just to ensure that builders meet the program's guidelines, but to act as a consultant, helping builders improve their homes, preventing callbacks from new homeowners, explains Jim Hackler, director of the EarthCraft House program at Southface Energy Institute.

EarthCraft Houses are designed to save money, energy and the environment. They can range in size from small, low-income homes built by Habitat for Humanity to \$2 million mansions. The building envelope is



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BUILDING INSPECTION CRITERIA

WHAT does a builder learn in the mandatory GAHBA training course and what does the inspector look for once a house is finished? The EarthCraft home design is based on Building America's "whole house" systems engineering approach, which considers a house a complete system, instead of separate components, to improve health and safety, enhance comfort, and increase durability and affordability — all while optimizing energy efficiency. Building America is an organization that helps builders meet performance-based energy-efficient criteria without raising the cost of construction. The national approach is taken one step further by EarthCraft with a rating system that fully analyzes 12 areas of homebuilding: Site planning;

Building envelope and systems; Appliances and lighting; Resource efficient design; Resource efficient building materials; Waste management; Indoor air quality; Indoor water quality; Outdoor water quality; Homeowner education; Builder operations; and Bonus points.

Based on a point system, the builder outlines how points for environmental value will be achieved. A builder must score 150 points to pass the inspection. The most points are given out for easily implemented practices that have high environmental impact. At least 75 of those points must come from an energy-efficient building envelope and energy-efficient systems. To test this, EarthCraft inspectors use special fans to pressurize the house and the ductwork. How hard the fans work to pro-

duce a pressure change determines how leaky a house is. A house that meets EarthCraft specifications for being airtight is about twice as tight as a typical home, according to inspectors. Builders can have a maximum five percent leakage to pass a duct blast test and can have no more than 0.35 air changes per hour to pass a blower door test. Inspections are about three hours long and most first-time builders don't pass on the first try. Southface Energy provides the inspections for free to the builders through funding from the Pollution Prevention Assistance Division (P2AD) of the Georgia Department of Natural Resources and the Georgia Environmental Facilities Authority. A builder scores bonus points by using innovative green building techniques.

“When a builder realizes the economic benefits and marketing advantages that recycling gives, they will try the service.”

an essential component and many homes are built using Tyvek Weatherization Systems insulator from DuPont to create an airtight building. Air ducts are carefully sealed with insulation and plastic so air cannot escape and the water heater is insulated — none of this can be done incorrectly or the builder won't pass the inspection. Energy-efficient home appliances and windows are installed. Although it is estimated that initial costs for an EarthCraft house are 0.5 to three percent higher than a regular house, the difference is made up in utility bills (an estimated 30 percent savings annually), maintenance, mortgage payments, insurance and health costs related to air quality, notes Hackler. Saving energy also translates into a significant reduction in released air pollutants — an estimated 3,163 lbs. of carbon, 78 lbs. of sulfur dioxide, and 23 lbs. of nitrogen oxides per home won't enter the atmosphere. Carpet manufactured from recycled plastic, low volatile organic compound (VOC) paints, radon detection systems, high efficiency lighting, concrete made of fly ash and xeriscaping are all EarthCraft features builders can choose to implement. Fannie Mae offers low mortgage rates for homes that utilize green building techniques and is a grand sponsor of the EarthCraft House program.

MARKETING STRATEGIES

The benefits of EarthCraft Houses are pitched differently to builders and potential homebuyers. Manufacturing partners such as TechShield, DuPont, Whirlpool, Icynene, Inc., Northwest Exterminating and The Home Depot donate money for marketing. Many of the companies already work with builders and can promote the EarthCraft program through existing relationships. Lower monthly disposal bills are also a big draw. However, the most effective market-

ing tactic is that the program is voluntary, Sessions says. Should a similar program become mandatory, clients actively seeking green builders would be able to go to any company, and the marketing advantage would be lost.

For consumers, the number one pitch is a reduction in energy costs. “Some people want EarthCraft homes for the altruistic appeal, but the energy savings is concrete — people want that,” Sessions says. Hedgewood Properties, for example, had a special promotion offering free utilities to buyers for two years to attract attention to the energy-saving advantages of an EarthCraft home. Air quality is another selling point and consumers like the use of low VOC paints and carpets. Hedgewood also markets technical features that enhance air quality, such as filtered fresh air intakes and sealed ducts. Satisfied customers also play a role in the marketing. Word of mouth can't be beaten when homeowners are singing the praise of EarthCraft homes. Ads are also strategically placed on television shows, radio stations and in newspapers.

FUTURE DIRECTION

EarthCraft is working on developing criteria for traditional design housing developments with even more built-in advantages. Stormwater management, erosion control, land planning and energy are all factors currently being analyzed. Low energy public lighting is “just the tip of the iceberg,” Sessions says. “We want to do electric charging stations for cars in each garage.” The program is also looking into renovating houses to meet EarthCraft standards.

Information about the EarthCraft House program is available at www.earthcraft-house.com or by calling the Greater Atlanta Home Builders Association at (770) 938-9900. ■