

CREATING GREEN COMMUNITIES

Through its careful inspection process, energy efficiency and green building techniques, and development of communities, EarthCraft House is showing the greater Atlanta area that green building can go mainstream.

by **LESA ROSATO**

There's a quiet revolution happening in the Atlanta home-building industry that's having an impact on housing in every price range. This revolution is also beginning to affect the way entire communities are developed.

In 1999 a fledgling voluntary green building program managed to certify eight homes in the Atlanta area. Just six years later, the EarthCraft House program is booming, with to date more than 2,500 homes certified and more than 1,000 homes lined up to be certified this year alone. The key to this phenomenal growth has been the partnerships forged by the original sponsors, the Greater Atlanta Home Builders Association and Southface Energy Institute, an Atlanta-based nonprofit organization dedicated to environmentally friendly building. Alliances with builders, local governments, the DOE Building America program, and leading building product manufacturers and retailers have propelled the EarthCraft House program to its current center stage position in the Atlanta region.

"Southface has done incredible work," says Jim Hackler, the U.S. Green Building Council's (USGBC's) Leadership in Energy and Environmental Design (LEED) for Homes program manager, in explaining the program's success. "They work hard at trying to understand the market and make [green building techniques]



BARBARA WARNER

Westbrook's homes emphasize outdoor areas, with Southern-style porches and courtyards.

accessible and understandable—and they provide a great deal of field support.” Southface Executive Director Dennis Creech emphasizes the importance of creating a program that works for all of the interested parties. “It is essential to make green building profitable to the builder and valuable to the home buyer. EarthCraft House helps builders reduce waste, improve quality, and gain market share. Home buyers save money and time on maintenance, cut energy and water bills, and benefit from a healthier, more comfortable home.”

Green Inspections

Builders who sign on for the certification process get a thorough grounding in green building principles; to some extent, so do their crews. EarthCraft House builders participate in a training workshop and one-on-one design review with the Southface staff before construction begins. Later, an EarthCraft House inspector performs a pre-drywall inspection, often giving him or her an opportunity to interact with trades people on the job, providing continuing hands-on education. The final inspection verifies the items the builder selected to qualify for the EarthCraft House designation, and a blower door test and a duct leakage test are performed to verify the home’s energy efficiency before it can be certified.

EarthCraft House technical staff members are available to perform walk-throughs on homes at any stage of construction, as well as train builders, superintendents, quality managers, or subcontractors at any point along the way.

EarthCraft House began as a single-family, new-construction program, but its success inspired the creation of a renovation program as well as a multifamily homes for affordable living program. Recently, the land development community partnered with EarthCraft House to further expand the criteria and create an EarthCraft Communities program. Guidelines are provided for site development issues such as greenspace preservation, storm water management, pedestrian-oriented design, and community connectivity.

Tracking Performance in EarthCraft Communities

The EarthCraft Communities guidelines have both required and optional measures. The following lists the six performance categories and required measures. Developments must achieve at least 65 points in optional measures in addition to the required measures listed. The full guidelines are located at www.southface.org.

Site Selection

Regional plans. The development must be consistent with local planning agency and regional comprehensive plans.

Water Management

Erosion and sedimentation best management practices (BMPs).

Hold a preliminary erosion and sedimentation meeting before finalizing site plan and submit an erosion and sedimentation plan.

On-call personnel. Designate personnel responsible for responding at any time to erosion and sedimentation control failures.

Post-construction BMPs. Submit a storm water management plan and label all storm water inlets to designate their connection to the watershed and discourage pollution.

Planning and Design

Site analysis. Perform a detailed site analysis before planning, including: hydrology; topography; vegetative cover; soil; existing structures; and historic, cultural, and archeological resources.

Integrated design. Convene a preliminary site planning charrette (brainstorming and planning meeting) with the developer, construction representative, design team, relevant local public officials, and EarthCraft staff. Continue design collaboration throughout the planning and design process.

Bicycle accommodations. Install street signs designating shared bicycle-automobile use on streets and provide bike racks.

Pedestrian accommodations. Provide sidewalks at least 5 ft wide on one side of all streets and on both sides where context and pedestrian traffic warrant. Provide curb cuts and crosswalks at all intersections. Provide benches and trash receptacles at regular intervals.

Preservation Landscape

Due to the integrated design approach required by EarthCraft Communities, the threshold requirements for landscaping are addressed in the other performance categories.

Community Engagement

Community stakeholder participation. Convene an initial planning charrette with community stakeholders.

Neighborhood association. Establish a neighborhood association open to all residents and charged with maintaining all community features that contribute to EarthCraft Communities points.

Covenants, codes, and restrictions. Require the preservation and maintenance of all amenities and features that contribute to EarthCraft Communities.

Environmental education. Train all project staff on environmental values and practices in place in the community. Instruct each employee on his or her specific responsibilities in implementing best practices.

Green Building

EarthCraft House. Require builders to pursue EarthCraft House certification of all single-family and multifamily units.

In a 2004–2005 pilot phase, five private developers, representing a variety of site and development models, launched the EarthCraft Communities program (see “Tracking Performance in EarthCraft Communities”). Several of these developments will be on tour during the Greenbuild Conference of the USGBC this November in Atlanta, Georgia.

EarthCraft Communities

One of the communities included on the USGBC Greenbuild tour is Glenwood Park. This 28-acre site has been transformed from a blighted industrial eyesore to a meticulously planned urban development that will provide EarthCraft House-certified single family homes, town houses, and flats to over 365 households—all with incredible skyline views and the convenience of city living.

Awarded EarthCraft Community Development of the Year for 2005, Glenwood Park was recognized for its “progressive site design, involving residents in community life, connecting the development to transportation and business districts, and revitalizing a blighted area—not to mention all the high-performance homes,” according to EarthCraft House Development Director Dianne Butler (see “Keeping Glenwood Park Green”).

Just two miles from the heart of downtown Atlanta, residents can picnic on the lushly landscaped green near the cascading waterfall of an urban lake. The lake is actually part of the storm water reclamation system that promises to save about 35,000 gallons of water each week for irrigation of Glenwood Park’s drought resistant landscape. Nearly 1,000 shade trees were planted early in the development process to add beauty and reduce the heat island effect. Retail establishments, with living spaces above, will provide residents places to dine, shop, and play without ever having to step into a car. Situated just a mile from the MARTA train station, and located directly on a bus route,

Glenwood Park is 15 minutes from Atlanta’s Hartsfield-Jackson International Airport.

The location is purely prime real estate—but that wasn’t always the case. “The site was a former industrial building supply yard, and technically a brownfield,” says Walter Brown, vice president of Green Street Properties. He and Charles Brewer, the company’s president, had a vision—and the desire to build something extraordinary that would promote and inspire more urban environmental reclamation.

In the course of construction, Green Street recycled 60,000 cubic yards of concrete. They also recycled granite rubble block—800,000 lb of it—enough to build all the walls in the community’s central park. They recycled 1/4 million lb of metal, and sent 30 million lb of wood chips that had been buried on the site to a waste-to-energy plant, where they produced enough electrical energy (assuming a 33% transmission loss factor) to power 1,355 average-size homes for an entire year, according to Brown.

Glenwood Park is also the home of the 2005 *Southern Living* Magazine Idea House, featuring the extensive use of innovative earth-friendly materials and methods in its construction. Additionally, the Idea House was included in the DOE Building America pro-

gram in partnership with Integrated Building and Construction Solutions (IBACOS) and Southface. (See “Idea House Full of Great Notions,” p. 28.)

Another featured EarthCraft Community is Vickery. This Hedgewood Properties development takes the concept of an urban oasis and transplants it 25 miles north of Atlanta. “It’s something completely different and refreshing—from the streetscapes to the way we build these homes—compared to a typical suburban neighborhood,” says Pam Sessions, co-owner of Hedgewood Properties.

Implementing this vision was challenging and required repeated interaction and site visits with code officials to obtain a variance for street width within the development. One-way streets are 10-ft widths and two-way streets with parking on one side are 20-ft widths. This strategy serves both to calm traffic and to reduce impervious surface in the development.

Vickery’s 3-acre park and green-space is the result of another innovative environmental strategy. Using an underground oil-grit separator to protect a nearby stream from runoff, Hedgewood was able to avoid the need for a retention pond—often an eyesore and maintenance expense to a community. The area saved from a retention pond is equal to the area preserved for

Keeping Glenwood Park Green

Transformed from an industrial eyesore, the 28-acre Glenwood Park community has several green features.

- Fresh-air intakes for all heating and cooling systems with ventilation timers
- 13-SEER heating and cooling equipment properly sized to maximize comfort and efficiency
- Blown-in cellulose insulation (a 100% recycled product)
- Light colored roofing materials and R-31 roof insulation
- Insulated, low-e windows (U=0.29 and SHGC= 0.32)
- Party walls between units fully filled with cellulose in cavities for sound and infiltration control
- Low-VOC paints and carpets
- Rapidly renewable bamboo flooring for all units
- 100% recycled content drywall from a local resource and many other high-quality recycled content products
- Energy Star appliances and energy-efficient lighting fixtures
- Over 75% reduction in the amount of construction waste generated through material separation and on-site grinding; chipped-wood waste used for soil stabilization
- Phase II buildings will qualify for the Energy Star Advanced Lighting Package



Vickery's streets are narrow, which reduces impervious surface in the development while also calming traffic.

the park and greenspace. An outdoor fire pit in the park serves as a gathering place where young and old enjoy weekend community and conversation.

Vickery will have 125 town houses, lofts, and live-work homes as well as 431 single-family homes at build out. Of the total 214 acres, 75 have been preserved as greenspace and parks. A 150,000 ft² retail and office area will provide shopping opportunities close to home. Hedgewood has also incorporated green building certification into the commercial development of the project. The 50,000 ft² YMCA will be a community gathering place and is pursuing LEED certification.

Vickery demonstrates through its vertical development strategies and mixed-use approach that a high-performance suburban project can have a great impact on the lifestyle of its communities. Residents have embraced the concept and have taken the opportunity to leave cars behind for activities that no longer require transportation.

The EarthCraft Communities program helps developers adopt practical land use principles. By requiring green building certification, EarthCraft Communities also helps reduce the environmental impact of homes. According to Pam Sessions, "We've been building 100% EarthCraft House homes since January 2000. When you find a way of

doing something that's better for the customer and better for the environment, it's a good business decision." As participants in the EarthCraft House pilot program in 1999, Hedgewood tracked results and tested the market before making the commitment to build only EarthCraft House homes.

Energy Innovations and EarthCraft Communities

In a smaller development a few miles away, Hedgewood has created another green community. Westbrook, a 150-home swim-tennis subdivision, reinvents traditional suburban development where large lots, expansive turf areas, and cul-de-sac streets discourage neighborhood connectivity. Westbrook clustered the homes to create a village feel that encourages walking, and preserved enough greenspace to create seven wooded parks and passive recreation areas. Each home emphasizes outdoor-living areas ranging from Southern-style porches to private courtyards.

The model home for Westbrook is very unique for a suburban community. In addition to over 50 energy and environmental technologies, the Westbrook model home has a 2 kW PV solar-electric system. This cuts energy

costs over 40% and was a demonstration in the DOE's Building America program, representing a collaboration among IBACOS, Southface, and Hedgewood. A full case study of the home is available at www.southface.org.

PV alone won't contribute significantly to a home's energy needs if the house is an energy hog. That's why the Westbrook homes, like all EarthCraft Community homes, are highly energy efficient. "One of the things we use on the roof is Tech Shield, which is a radiant barrier. It's plywood with foil on the underside, toward the attic," says Larry Gunner, project manager for Hedgewood Properties at Westbrook. "This keeps the attic about 20°F cooler than conventional plywood. The cost is about \$2 more per sheet, which adds up to \$200–\$300 more per house."

The houses are also super sealed, through the use of Sole Sil foam strips. "We use Sole Sil foam strips under the bottom plate, either against the slab or subfloor, which keeps out all the air, bugs, and rodents," says Gunner. "We seal all the openings—every wire hole, HVAC opening, and plumbing penetration—after the house is framed and the mechanical systems are in. Then we wrap everything with house wrap and all windows are foamed." Gunner says that they also build an insulated box that fits down over the attic stairs, which is hinged on one side to allow it to be easily moved aside for attic access.

Organic Gardening at Clark's Grove

Clark's Grove is an EarthCraft Community that features an organic neighborhood garden where neither pesticides nor synthetic fertilizers are used. Families in this community—almost 300 of them at build out—can tend their own garden plots for growing flowers or vegetables. Randy Vinson, town planner and project manager for Clark's Grove, a development by Clark's Grove, LLC, says many earth-friendly procedures were followed dur-

ing initial development. “We brought in a portable saw mill and milled the timber for our community pavilion, garden shed, and pool house with trees we had to cut down. Some of the smaller trees were ground into mulch and used for storm water management,” he says. The granite they had to blast away to make room for the sewer lines was recycled to build retaining walls. The remainder was crushed and used for riprap and road base. “We also practiced balanced grading, so we didn’t have to haul dirt off site, or bring dirt in,” says Vinson. One of the more innovative moves was to install a pair of 3,000-gallon tanks under the pool deck to catch storm water runoff. The recycled rainwater is used to irrigate the community’s ball field.

Residents benefit from the proximity to downtown Covington, according to Thomas Melton, Richport Properties’ vice president of home



RANDY VINSON

Located close to downtown Covington, Georgia, Clark’s Grove features a neighborhood organic garden, with garden beds for more than 300 families living in this EarthCraft Community.

building and sales. “It’s kind of nostalgic, and not far at all from downtown Covington’s streets—it has an old-town feel to it.”

Keeping EarthCraft Affordable

Before the launch of the EarthCraft House program, a team of pioneering

Idea House Full of Great Notions

One of the EarthCraft Communities, Glenwood Park, is home to the *Southern Living* Magazine Idea House, which has a number of green and energy-efficient features.

- Energy recovery ventilator with HEPA filtration and ultraviolet air purification
- 19-SEER air source heat pump
- 94.5 annual fuel utilization efficiency (AFUE) sealed combustion, direct vent furnace (dual fuel system)
- Low-e, argon-filled windows with U-factor 0.28 to 0.36 and SHGC below 0.4
- R-25, 2 x 6 exterior walls with spray foam cavity insulation and foam sheathing
- R-30 sealed, non-vented attic with open cell urethane spray foam
- R-10 fiberglass exterior drainage board
- Sealed, non-vented conditioned crawlspace
- Energy Star appliances, bath fans, and lighting fixtures
- Water-efficient plumbing fixtures and appliances
- Tankless water heating and on-demand hot water system
- 1.25 kW PV system
- Prefinished, recycled wood floors
- Recycled wood fiber exterior trim products
- All-brick exterior
- 50-year metal roofing, approved for clean rainwater collection systems
- Composite wood-plastic decking for all porches
- Low- or no-VOC and bio-resistant paints
- Countertops using bio-sealed composite materials
- Low-VOC floor coverings
- 100% recycled content wallboard
- Mold-resistant tile backer board
- Pervious pavement parking area
- Rainwater harvesting and cistern
- Drought-tolerant landscape design
- On-site waste management and grinding of construction material for ground cover
- Sustainable-harvested wood products and furnishings
- Lighting control system

Southern Living Magazine Idea House: Tim Watson, project manager
Developer: Green Street Properties; Walter Brown, vice president, project manager
Builder: Whitehall Homes; Jon Roby, president
Architect: Historical Concepts; Terry Pylant, project manager
Energy Engineering: IBACOS; Mark Thompson, engineer, John Broniek, project manager
EarthCraft House Certification: Southface; Parker Snyder, project manager



LISA WISE

Green Building

Magnolia Circle is the Southeast's first Energy Star multifamily home development.

design and development professionals created one of the first green cohousing projects in the Southeast—East Lake Commons. Their vision was rewarded with the World Habitat Award in 2000. This 67-unit town house community sits on 12 acres located just four miles from the skyscrapers of downtown Atlanta. Over 60% of the site was preserved as greenspace, including wooded areas, a village green, a pond, and a working organic farm. The site plan emphasizes storm water filtration and retention, barrier-free visit-ability to all homes, a pedestrian layout, and making the entire development accessible by wheelchair.

In 1997, buyers of the town houses began working with the nonprofit East Lake Commons development group and Southface to select energy and environmental features. Many of today's commonplace technologies such as low-e windows and high efficiency equipment commanded a premium price. Numerous homeowners included green technologies, such as advanced air sealing, cellulose wall insulation, and geothermal heat pumps.

EarthCraft House is also hard at work on another multifamily development—Magnolia Circle—in partnership with two nonprofit affordable housing developers, the Initiative for Affordable Housing, Incorporated, and Cooperative Resource Center. Magnolia Circle provides affordable rental housing to 84 seniors with fixed incomes and was the first Energy Star multifamily and green project in the Southeast. The project has also served as a model for the state of Georgia in its efforts to adopt energy and green building standards for its Low Income Housing Tax Credit program. Thanks to Magnolia Circle, over half of all 2005 tax credit applications included energy efficiency and green building measures.

Magnolia Circle emphasized simple measures to qualify for EarthCraft House certification, but these measures make a big difference in quality of life for the residents, according to Lisa Wise, executive director of the Initiative for Affordable Housing. "The payoff for our tenants is that it's good for