

# Business Magazine Greenville®



Todd Usher, President  
Addison Homes

**GEAR  
SOLAR**  
Sunlight ► Savings

# GREENING Greenville's Homes

July 2011



www.greenvillebusinessmag.com

STATEWIDE  
SECTION



**The Fight for the  
Right to Work**





Both pages: The Hendersons' energy efficient home at The Cliffs at Falls South was designed by Johnston Design Group. Photos by Kevin Meechan.



# Greening Greenville's Homes

BY BRANDY WOODS SNOW

**G**reen. Sustainable. Efficient. High Performance. There are a variety of monikers applied to homes specifically designed and constructed to negate environmental impact and reduce occupants' carbon footprint. Though the knowledge of global warming and the severe detriment to the Earth caused by our lifestyles has been around for quite some time, it has been within the last few years that "green thinking" has really begun to take off in the residential home construction industry. Previously, many homeowners were hesitant to proceed with green design, believing, usually inaccurately, that the cost was just too high. Now homeowners are realizing that the ROI generated from creating a more energy efficient domicile more than pays for itself in a very short time period while also lessening their impact on the surrounding environment. Builders across the globe and right here in the Greenville market are looking to educate potential homebuyers on the positives of committing to a greener lifestyle while offering those interested in building or even reinventing their established home a voice of reason and an expert opinion on how to "go green to save green."





## WHAT IS GREEN BUILDING AND DESIGN?

Todd and Michelle Usher started Addison Homes in 2002 and have built their work portfolio around a desire to impart high performance features into the homes they build. Both started out their careers at Milliken, where they were introduced through the company's green efforts – including zero landfill, recycling and positive environmental stewardship – to the quality standards embraced in 5S and TQM models in manufacturing. Todd Usher began remodeling homes on the side in 1996 but realized upon starting Addison Homes full-time that there was little standardization in the home construction sector.

“Shortly after starting Addison Homes, I attended an EarthCraft House builder training course, which was my ‘ah-ha!’ moment,” says Usher. “The standards in the program became the obvious backbone of our company’s quality system and the rest is history for us.”

Usher says that a dedication to high performance building standards places a heavier focus on living harmoniously with the environment, increasing energy efficiency, improving indoor air quality and occupant health, as well as augmenting homeowner value.

“The difference in taking the ‘green’ approach versus ‘traditional’ residential design and construction is that we follow a framework of best practices and most effective methods to achieve our specific goals rather than rely on ‘the way we’ve always done it,’” says Usher. “Embracing change and continuous improvement is a cornerstone of high performance building and design.”

Scott Johnston, owner of Johnston Design Group, started his company a decade ago after working previously in another downtown firm. His love of the outdoors, involvement with Upstate Forever and past experience in design made pursuing a green niche an obvious choice for him.

“I define green or sustainable design and construction by three main principles – wellbeing, economy and ecology,” says Johnston. “First, every home ought to enhance the occupants’ health, and we can do this by being mindful of fresh air and daylight. Secondly, we improve economic benefits through conservation, especially through energy and water. The standard building codes are not the most cost-efficient models. And finally, a home







Photos on these two pages show the work done by Addison Homes on two energy efficient Fountain Inn properties.

Pictured on the opposite page are Addison Homes owners Todd and Michelle Usher.

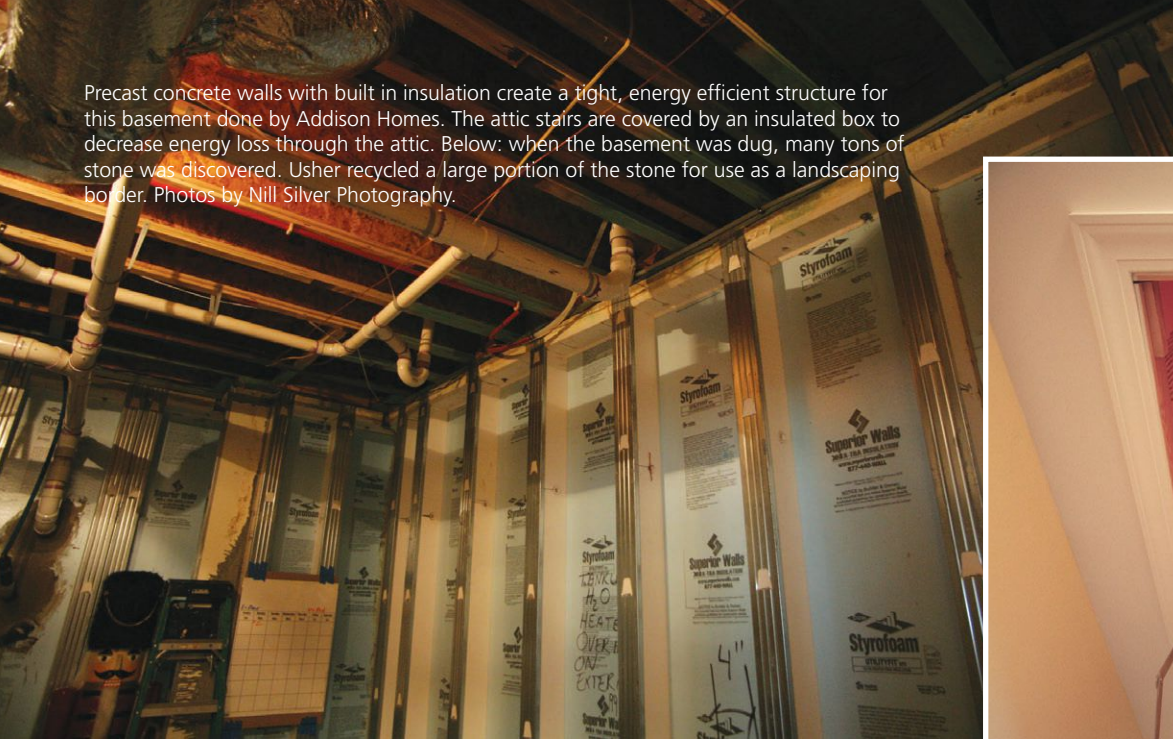
Photos by Nill Silver Photography.



should enhance the ecology of the site by sourcing local products and incorporating an Earth-friendly design.”

There are a number of organizations in the United States that provide different standards of quality assurance through a system of third-party checks and balances. These organizations denote certifications and labels for what constitutes green or energy efficient measures. The U.S. Green Building Council is owner of the popular Leadership in Energy and Environmental Design (LEED) points-based system that promotes sustainable building and development practices through a suite of rating systems, developed through a consensus-based process led by LEED committees and volunteers representing a cross-section of the industry. Energy Star is a joint program of the U.S. Environmental Protection Agency (EPA) and the Department of Energy designed to utilize efficient products and practices guidelines to save money and reduce environmental impact. According to their website, Americans employing Energy Star products and practices saved enough energy in 2010 to avoid greenhouse gas emissions equivalent to those from 33 million cars while saving nearly \$18 billion on utility bills. Developed in 1999 by the Greater Atlanta Home Builders Association and Southface, EarthCraft House is a green building program that allows builders to select sustainability measures best suited for their project via a points-based worksheet of guidelines specifically established to address the climate conditions of the Southeast.





Precast concrete walls with built in insulation create a tight, energy efficient structure for this basement done by Addison Homes. The attic stairs are covered by an insulated box to decrease energy loss through the attic. Below: when the basement was dug, many tons of stone was discovered. Usher recycled a large portion of the stone for use as a landscaping border. Photos by Nill Silver Photography.



The International Code Council's (ICC) National Green Building Standard (ICC 700) is the first and only residential green building rating system to receive approval from the American National Standards Institute (ANSI). The Standard defines green building for single and multifamily homes, residential remodeling projects, and site development projects while still allowing for the flexibility required for regionally appropriate best green practices. Certification to the standard is provided by the National Association of Homebuilders Research Center.

### LATEST TRENDS IN SUSTAINABLE DESIGN

Though there are more common green applications typically used in home construction, there are also many more extensive and newer technologies

becoming available that raise the bar on sustainability and high performance. The key lies within how far the homeowner is willing and able to go to create the most efficient lifestyle of their choosing.

"Each client brings their own specific ecological goals to the table," says Johnston. "Common requests included native, low-maintenance landscaping, rainwater collection and either the installation of renewable energy modules or a preparation for future upgrades. Our goal is to make every home we touch readily and easily upgradeable to the latest technologies."

### ENERGY AUDITS

Dean Benton, owner of Benton Green Energy has a Home Energy Rating System (HERS) certification

and a Building Performance Institute, Inc. (BPI) certification, allowing him to go in with builders to ensure an Energy Star designation as well as audit existing structures and determine reasonable energy efficiency methods to be applied, respectively. Benton touts the importance of enlisting a certified individual to conduct an energy audit in order to discover and prioritize energy-loss culprits in existing homes. "An energy







Dean Benton points out an air filtration system used in the house constructed for the Upstate Homeless Coalition. Below: the 800 sq. ft. house has an average power bill of \$35. Photos by Kristi Keenan

audit gives the homeowner a ‘cookbook’ approach with a full blueprint of needed upgrades, out-of-pocket costs and estimated ROI. We quantify what needs to be done to create a more efficient home and give the homeowner a prioritized list that clearly illustrates the low-hanging fruit,” says Benton.

Benton’s energy audits include a blower door test, duct leakage test, efficiency test on heat pump or air conditioning units, and a summary of baseline energy usage. For those wanting a more comprehensive picture, they also offer a HERS rating and infrared digital photos to pinpoint air leaks. These audits

not only give homeowners an actionable green plan, but they can also be valuable in discovering energy saps or dangerous situations, such as mildew or radon gas seepage into the home that can be harmful to health.

### RENEWABLE ENERGIES

Johnston notes geothermal heating and cooling, solar thermal water heating and photovoltaic systems as the most common requests he fulfills in renewable energies applications. Geothermal heat pumps only use electricity to move heat from the Earth into the structure, significantly raising efficiency levels. According

to the GEOEXCHANGE® website, “a geothermal heat pump can move up to four units of heat for every unit of electricity needed to power the system, resulting in a practical equivalence of over 400% efficiency.” Likewise, solar thermal water heating, which uses the sun’s rays to warm the home’s cold water from the regular water line, provides quite an ROI. According to the Consumer Energy Center, “typically, a homeowner relying on electricity to heat water could save up to \$500 in the first year of operation by installing a solar water heating system. The average system pays for itself in four to seven years.” A photovoltaic (PV) system uses solar panels to convert sunlight into electricity, which is then utilized for household needs.

### WATER CONSERVATION

Many homeowners use low-flow faucets and toilets as a means of conserving in-home water usage. Another new trend in water conservation is the plumbing of homes to accommodate rainwater harvesting and reuse. Harvesting systems channel rainfall upon the roof into a series of pipelines that carry the water into storage tanks. The collected rainwater can be used as a cost-efficient and Earth-friendly way to irrigate the landscape surrounding the home. Addison Homes has developed a design to also use collected rainwater to flush toilets in the home.

### INDOOR AIR QUALITY

Radon is one of the leading causes of lung cancer in the U.S. and allergies plague millions of households every year. Both of these ailments can be directly linked back to air quality inside the home. The use of fresh air ventilation systems and the assurance of efficiently designed and installed duct work dramatically reduce the moisture, dust and allergens allowed to invade the home. According to Johnston, “Most of our clients have experienced some type of health issues caused by inadequate daylight and allergies. It really becomes a quality of life issue for these homeowners and finding ways to reduce indoor air pollutants significantly augments their total wellness.”

Paints and finishes used within the home are also leading health risks. According to the EPA, indoor air is three times more polluted than outdoor air and is considered one of the top five hazards to human health. Volatile Organic







Solar panels top the roof of the Upstate Homeless Coalition home and water for landscaping is collected in a backyard cistern (below). Photos by Kristi Keenan

a hardwood tree planting program, an emphasis on construction recycling, and a stringent erosion control plan to impede storm water runoff – we are doing what we can to efficiently establish a leading green community.”

**SMART GRID TECHNOLOGY**

According to Gigaom.com, a smart grid “will utilize wireless sensor networks, software and computing to enable utilities to see how much and where energy is being consumed, and if there are problems or blackouts in the network. Homeowners are able to see how much energy they’ve consumed and adjust their consumption habits accordingly. Smart meters will pave the way for real-time pricing, which utilities can use to better manage the loads on the grid while homeowners can use it to cut their monthly utility bills.” Benton also says that iPhone applications can also be utilized to control the utilities in the home while homeowners are away.

Benton has established a niche in helping established homeowners interested in reducing waste and slashing their energy bills find the most cost-efficient means for reaching their goals. In addition to the aforementioned energy audits, he also can be contracted to complete much of the desired work, including air and duct sealing, insulation and radiant barriers. Benton also has a list of vetted vendors who provide other services when the homeowner needs something outside his expertise, like installing a new HVAC system.

Compounds (VOCs) within such finishes are toxic and can consistently release emissions into the home’s air well after application. In answer to such research, low-VOC paints and finishes have been introduced into the market and are a significant means of reducing indoor air pollution.

**LOW MAINTENANCE LANDSCAPES**

Traditional landscaping methods can cause havoc on the local ecology from the emissions from gas-powered equipment to the excessive watering needs to the required pesticide use. By preserving the native habitat or at least installing new indigenous vegetation, the need for such care requirements are greatly reduced and through preservation of the natural tree canopy, energy bills can also be lowered. Debbie Wallace with Verdae Development

touts the green ambition fervently pursued by Hollingsworth Park at Verdae. “Our community has made a commitment to greening our homes and building smarter. All of the homes within our community are held to the Energy Star standard as a minimum but our builder group often goes above and beyond these requirements at the request of our new homeowners,” says Wallace. In fact, Hollingsworth Park has two LEED certified homes that have recently been completed. One of the major commitments established by the development is to make the best use of the land while protecting its natural beauty. “There are numerous dedicated green spaces throughout the community and homeowners appreciate that lawn and grounds maintenance are completely taken care of,” says Wallace. “Add to that





“Air and duct sealing is usually the most cost-effective actionable measure, especially if the home has reported problems with moisture infiltration. We make sure duct work is properly attached to the registers and seal the entire duct system, which is like making it good as new again. It eliminates all of the tiny holes through which heated or cooled air usually escapes, allowing your HVAC system to work more efficiently. Air sealing works along the same concept but uses Icynene spray foam insulation to seal all holes and cracks located throughout the attic and crawlspace,” says Benton. “These problems can be fixed for \$2,000–3,000 and the project will typically pay for itself in a minimum of three years, which is actually more cost-effective than window replacement.”

Trey Cole, owner of O’Leary Cole says that his company goes beyond sustainable design to also include greening their construction processes. “We’ve always been conscious of building to a green standard but over the last few years, we’ve more aggressively aimed to green our processes as well, bringing home construction full circle. The changes we’ve implemented are practical, common-sense applications but they have tremendous impact on our environment, and that’s what matters most.” Cole’s company has dedicated itself to the green effort, going from up to six dumpsters on one building site down to one-half of a dumpster consumed by successfully recycling 100 percent of shingles, drywall and steel from the site. They have also begun to work in more concentrated local setting as to reduce mileage and transport pollution and by local sourcing to area contractors to provide goods such as stonework and cabinetry to reduce shipping needs. Perhaps one of the company’s biggest green achievements is through the repurposing of older homes and vacant lots rather than the further development of area greenspace.



Scott Johnston, Johnston Design Group. Photo courtesy of Furman University

GEL

Engineering LLC

Environmental ■ Engineering ■ Surveying

864.676.2202
www.gel.com

## Providing quality construction services to the Upstate for more than 25 years.

# BSC

## CONSTRUCTORS

**Commercial office Upfits, Renovations and New Building Construction**

**Licensed SC General Contractor**

Steve Stewart - 864-304-1741      Jerre Carne, 864-303-4313





- We fabricate and install granite, quartz, and solid-surface countertops
- Only Use Premium Grade Stone (Eliminates Call Backs and Breakage)
- 26+ Years of Business
- Largest Fabricator in the Southeast
- State-of-the-art Template and Fabrication
- Plant Tours Welcome



*Certified Installers & Outstanding Customer Service*

1900 Suber Mill Road  
Greer, SC 29650  
864.879.9378

[www.oldcastlesurfaces.com](http://www.oldcastlesurfaces.com)

Usher agrees, saying, “We feel a strong obligation to the Upstate community to do our best to minimize the potential impacts to the local environment of our business and construction operations while providing the maximum value to our clients, developments, and the community alike.”

Green design, once thought to be reserved for the luxury market, is even becoming more readily utilized in the affordable housing arena. In May, the Upstate Homeless Coalition of South Carolina announced an open house for one of its latest homes — an energy-efficient construction built to serve lower-income families. Coalition Housing Developer Joey Hudson says that though the group has always strived to include Energy Star features in their homes, they have taken the latest development a step further, going beyond to include a host of more specific green amenities, including: solar panels for water heating; high energy performance spray insulation; Energy Star windows; low flow shower heads, sinks and toilets; bamboo flooring; energy recovery ventilation (ERV) in conjunction with Energy Star HVAC systems;

rainwater harvesting for lawn irrigation; and a GESPER energy reducing unit.

Says Hudson, “Upstate Homeless Coalition is committed to promoting sustainable building practices and energy-efficient measures in an effort to benefit the families who reside in our homes and to provide a training tool to help them become better stewards of the environment. The green features included in this home not only reduce the occupants’ environmental footprint but also greatly reduce utility costs to help these lower-income families more easily provide for themselves.”

#### ADVANTAGES OF GREEN DESIGN

“My business mission is to create a paradigm shift in people’s minds regarding green practices,” says Benton. “Homeowners need to be fully informed to the tremendous amount of waste created in only one household. Elimination of said waste will create more money in the homeowners’ pockets that will eventually trickle down to the local economy.”

Benton says that homeowners paying more than five-cents per square-foot per month on their home’s total energy bill have hidden energy problems, draining



The Cliffs Cottage at Furman uses an energy efficient design by Johnston Design group. Photo by Rachael Boling



their utilities and their wallets. Johnston says in most cases, homeowners have seen their total monthly utility usage cut to around \$100. Hudson says green efficient homes in the affordable housing sector should operate on an energy budget of \$40-\$50 total per month. Cole says one of his clients enjoys a monthly electric bill under \$10.

But green initiatives afford comforts not only for the pocketbook but also for the occupants themselves. “The benefits are numerous and depend on the particular high performance features incorporated into each home,” says Usher. “Some of the most significant benefits we hear from our clients include improved indoor air quality with the elimination of allergies and improved comfort inside the home with more even temperatures throughout.” Additional noted benefits include reduced noise pollution and less dust inside the home due to improved air filtration and reduced air leakage.

### **SOUTH CAROLINA'S GREEN PROGRESS**

The Green Cities Initiative of the The Sustainability Institute from Charleston gives a comprehensive look at the state's

energy situation via information from the U.S. Energy Information Administration (EIA) website. “Per capita, electricity use in South Carolina is higher than the nationwide average, due in part to high air-conditioning demand during the hot summer months and the widespread use of electricity for home heating in winter. The state ranks 18th in the nation for per capita electricity consumption and 19th for total per capita energy consumption. In the last few years our electricity rates have risen past the national average. What this means for S.C. residents is that as electricity rates continue to rise, our high consumption patterns will continue to cause greater strain on our families and communities. The best case scenario is to improve efficiency and reduce consumption now to lessen the burden of rising electricity rates in the future.”

Benton says that Greenville is implementing a solid infrastructure to continue progressing its green initiatives but still needs more emphasis on educating local residents about the availability and affordability of sustainable projects. He sees an investment in the green sector as a win-win situation, saying, “Not only will area homeowners and the environment

benefit, but the green sector promises to be a self-sustaining economic engine of home performance contractors.”

Usher says that though the Upstate market has seen comparatively slow growth with regard to new certified green projects, that looking to more established green hubs will provide a good example on how to move the area forward to the benefit of both the ecology and the economy of our area.

“Unfortunately, green statistics are difficult to precisely track due to the fact that the focus on them is relatively new. Markets where green building practices have been common for some time – such as Atlanta, Seattle and Portland – have made changes to the real estate multiple listing service systems to incorporate fields indicating whether a home was built and/or certified to a green building standard,” says Usher. “Statistics coming from more established markets show that the resale of certified green homes not only result in higher selling prices, but far fewer days on the market for sale than comparable homes not carrying a green certification.” **GBM**



## Ways to Make Your Home Earth-Friendly

1. Inspect, clean & seal your ducts.
2. Install radon vent & CO detection.
3. Seal openings to attic & crawl space.
4. Install energy efficient lighting.
5. Upgrade insulation & heat barrier.
6. Install solar thermal water heater.
7. Replace with efficient HVAC.
8. Replace with Energy Star appliances.
9. Install water efficient appliances & fixtures.
10. Install rain water collection & native plants.

Courtesy of Johnston Design Group