

Green Building

Building with environment in mind is trend in design-building community.

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Staff Reporter

It's America, land of freedom and opportunities. It's also a land of carbon dioxide, smog and contamination. As America develops, its land is slowly wasting away.

But maybe that's not so not anymore. There is a new trend in the design-build arena and it's called building green, using sustainable green technologies to maximize energy efficiency and minimize waste. Two years ago, the U.S. Green Building Council developed a Leadership in Energy and Environmental Design For Homes program, setting LEED guidelines, goals and providing a much-needed nationally applicable tool for the mainstream home-building industry to build environmentally sound, healthy and resource-efficient places.

The National Association of Home Builders has a similar program called National Green Building Standards.

"A green home should have five benefits," said Jay Hall, acting director for LEED for Homes, "health, comfort, durability, energy efficiency and environmental responsibility."

Green builds are not necessarily high-tech. In fact, they are quite the opposite, according to Jared Spahn, managing partner of Old Town Construction in Ellicott City, a company that specializes in creating projects that respect the land. It's taking known scientific principles and adapting them into modern technological advances.

Before the advent of electricity, Mr. Spahn said, "We understood that if the house was pointed in a certain direction you'd get solar heat, we knew the sun could heat water, and that we could ventilate with fresh air. Green building isn't this great new technological marvel. It's using what we've known for thousands of years, just a little fancier."

And it's certainly a growing industry

Lights Out

A bill signed last month by President Bush will phase out conventional incandescent bulbs, starting in 2012 with 100-watt bulbs, and ultimately ceding the light market to more efficient fluorescent bulbs and light-emitting diodes (LEDs).

The commercial building industry could be transformed by new incentives for energy-efficient windows, equipment and design. The federal government is supposed to make all its buildings carbon neutral by 2030. □

trend. According to Dr. Hall, 50 percent of USGBC members considered themselves green builders in 2006. It's estimated that by 2010, 50 percent of new homes will qualify as green through LEED or NGBS.

Why are builders — and consumers — thinking green? For a number of

reasons, say the experts.

Architect and builder Lisa A. London, managing member of Edifice, which focuses on environmentally sustainable residential design-build projects, cited rising energy prices as an important factor.

She also noted concerns over global warming and fears of increased carbon dioxide emissions. Dr. Hall also cited anxieties over the changing climate and oil dependence after the terrorist attacks of Sept. 11, 2001 and the current war against Iraq as reasons for the shift toward green.

The United States, said Ms. London, has long operated with little awareness of its effect on the planet.

"For decades we considered our conveniences as progress," she said. "It is only in the last five to 10 years there has become some general awareness that we are doing serious and perhaps irreparable damage to the planet, that our resources are limited."

She cited a recent U.S. Department of Energy study that claims the residential sector accounts for 22 percent of the energy and 74 percent of the water consumed in the United States. These statistics, she said, result partly because of inefficient plumbing fixtures and less efficient appliances than are available today.

And she added that while folks in the building industry are thinking greener, there is much education still needed about how to design and construct sustainable buildings.

Reducing Expenses

The technologies, as Mr. Spahn indicated, are not as complicated, however, as one might imagine.

Ms. London provided a short list for improving both commercial and residential properties. It included high-efficiency electrical and plumbing fixtures, installing Energy Star windows and appliances, using lumber from sustainable forests (those certified by the Forest Stewardship Council), putting in carpeting made of



Jared Spahn stands atop Waverly Gardens, a senior living center he developed. The building's hot water is heated by these solar panels.

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recycled materials and a programmable thermostat, switching to compact fluorescent bulbs, plugging air leaks around doors and windows, getting a dual flush toilet, and requiring BGE to provide electrical power from the sun, wind or other renewable sources.

“When replacing a roof, consider a lighter color roof that is more reflective,” she said, “perhaps a roof made of recycled materials.”

You can purchase shingles made of recycled tires that suggest natural slate, said Ms. London, but those are still rather expensive.

Many of the above translate well to the commercial sector, she said, but there are others new companies should consider. Among the biggies is keeping commercial sites more permeable.

“A shopping center, for example, has a large expanse of parking lot. When it rains, the roofs of the buildings and the lots won’t absorb water back into the ground. That disrupts the natural cycle and all that water pollutes the Chesapeake Bay. ... Have parking garages so the parking footprint is smaller,” she said. “Get permeable paving of asphalt or concrete, which will help to mimic the drainage system found in nature.”

She also mentioned the importance of shading parking lots so as not to change the microclimate around the building, disrupting the biohabitat of the birds and other animals around there.

Existing structures are more expensive to green, said Ms. London. However, building a new building on an existing site with roads, water, sewer and gas infrastructure, and using as much of the already existing building can reduce waste. She said approximately 60 percent of everything that goes into landfills is from construction demolition and waste. Her construction sites sort materials for recycling and many municipalities now have recycling programs in place for these materials.

These ideas may have to be put into play sooner than entrepreneurs think, said Ms. London, as many cities are requiring any buildings with public money meet green standards. She said there’s rumbling that Baltimore City will go forward with this soon, though Dr. Hall said his sense is “nothing is happening in the short term.”

The cost-benefit analysis is striking. On the commercial side, according to

Mr. Spahn, folks can expect a 2 percent increase in initial construction costs, but he says employers make the money back and then some. Since Old Town moved into a green building, it’s had greater employee retention, and those staff members have had a reduced number of sick days.

“From a business owner’s standpoint, employee retention and absenteeism are two of the biggest expenses. We are able to dramatically reduce both of those expenses,” he said, noting that additionally the cost of his 6,000-square-foot office’s electric bill is half of his home’s bill, an 80-year-old structure in Guilford.

In terms of residential, Dr. Hall said there is a 3 to 5 percent increase in initial construction for a certified LEED home, the lowest level of green, which for an average-sized home amounts to around \$10,000, or \$60 to \$70 per month over the life of a 30-year mortgage. However, he said, the utility savings are proportional, about \$60 to \$70 per month.

“The mortgage payment goes up, but the utility costs go down,” he said. “If the net cost is the same, which one would you choose?”

The industry, said Mr. Spahn, is reflective of consumer wants and what they are willing to purchase. As consumers become more knowledgeable of what it is to have a green home, a healthy home and one that is more energy-efficient, the building industry will have to react to those desires, and prices will go down. It’s always about money, said Dr. Hall.

“I worked as a consultant for Energy Star for homes for 15 years. Even though it’s a program of the Environ-

Lisa London visits the site of her next project at the Ridge of Ruxton, which will be both LEED and NGBS rated.



mental Protection Agency, we never talk about the environmental benefits. No one cares. We focus on the financial

benefits of energy efficiency,” he said.

According to Dr. Hall, Energy Star has grown to be one of the best market transformation programs out there. Last year, it achieved 12 percent market penetration.

But be cautious when going green, warned Mr. Spahn. If you are about to break ground on a new home or office, be sure to do your research.

“Find out what qualifies the builder as green,” said Mr. Spahn. “It’s like anything else. Chips that say they are one-third less fat are still chips, and potato chips aren’t good for you even with one-third less fat. Don’t be fooled by someone using the term green. Make sure you understand what makes [the builder] green and that his goals meet your goals.” □

Well Insulated

According to a 2007 survey by the American Institute of Architects, residential architects report energy conservation features top the list of homeowner priorities when selecting housing design features. General interest in sustainable “green” features is on the rise.

Topping the list of popular features were alternative home insulation techniques such as structural insulation panels and spray-foam insulation; almost two-thirds of respondents indicated this feature was growing in popularity. Close behind was adding extra insulation in the attic.

Energy management systems and geothermal heating/cooling systems were rated as increasing in popularity by most of the respondents. Automated lighting controls — also a means of managing home energy costs — continue to be a popular option for homeowners. □

Source: *American Institute of Architects AIA.org*