

*Sustainable Alternatives*

# What Kind of Green Footprint Are You Leaving?

BY DOUG HANNA

The building and construction industry is in the process of making one of the largest changes in its professional direction in a long time, a change that is gaining momentum and in a few years will be the standard by which all building and renovations projects will be judged.



Green construction is a movement that is well under way in the United States. The philosophy and practice is in the early stages of realigning how the industry reacts to the urgent need that we change the way that we build.

When Cambridge, Mass.-based S&H Construction was asked to install a geo-thermal well for a new residential construction project, the company's interest was piqued. Understanding how the existing heat from the ground could become a source of energy to pre-heat water was an eye-opener. Simply stated, the renewable energy source allows for partial or total heating and cooling of a structure by "grabbing" thermal units from the constant warmth of the earth. For S&H, that experience dovetailed

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into a phenomenon we now hear about daily: going "green." But what exactly does green mean? Its catch phrases are: energy saving, environmental responsibility, recyclable materials, carbon footprint reduction, health and conservation. For many companies, incorporating those ideas and turning them into their normal operating procedures can define their future success.

Consciousness about green building has grown, especially in the last year. Inquires from potential customers asking for help in realizing how to minimize the carbon emissions in their homes are becoming ever more frequent. "I know I want a green building," they will say. "But what does that mean?" Providing people with know-how and means will be crucial to ensure the future of the building and construction industry. It's up to us to respond.

### Practical Steps

So how does it begin? How does a company move with the times? The first stage of green construction begins with providing customers with an energy audit of their home or business. Professional energy auditors using LEED (Leadership in Energy and Environmental Design) standards can recommend ways to reduce energy use and practical steps to incorporate renewable energy sources. Replacement of old electrical appliances, poor insulation, inefficient lighting and leaky windows and doors are the obvious first steps to reducing energy use. An audit will determine how much energy a house is wasting versus how much energy it needs to run efficiently and with minimum impact to the environment. It is remarkable the immediate effect to a house's energy use a few simple changes can make.

But it's in renovations and new construction where the lion's share of effective change can be made. By utilizing responsible materials (for example, using lumber approved by the Forest Stewardship Council, an association that determines the environmental merits of how lumber has been cultivated and harvested, formaldehyde-free plywood and carpeting as well as low-VOC [volatile organic compounds] paints and caulking) a structure's carbon footprint can be greatly lessened. In addition, there is the use of recycled materials, such as composition decking made from saw dust and plastic bags, glass-crete from asphalt and ground-glass and imitation slate from used tires.

However, innovation comes with a price. Until those materials become widely used, their cost will be somewhat higher than conventional materials. The price for certified lumber is roughly 10 percent to 15 percent greater than conventional wood. Generally, this has not been a deterrent to customers. The common realization is that going green is a long-term investment and not a fad. People are willing to pay for what they believe to be a better way to live. And as green materials become the standard, the costs will equalize.

Considering what a house is built with is one aspect. How it creates its energy is another. Photovoltaic (PV) solar panels convert sunlight directly into electricity. Solar thermal panels or tubes collect heat in a liquid medium and transfer the energy to heating or cooling systems or domestic hot water. Those two methods of generating energy are being adopted by an increasing number of homeowners and businesses. The president of S&H is in the process of installing solar PV panels on his own house. The cost of the sys-

tem installed is about \$25,000 but, after rebates and state and federal tax credits amounting to \$10,000 and through savings on his energy bill, the system will have paid for itself in approximately 15 years. It is anticipated that within the next three to five years solar technology will have made major advances in efficiency through nanotechnology, which will artificially change the optical properties of materials to allow light to be trapped in solar cells. Nanotechnology will greatly reduce the cost of solar energy. Researchers are finding ways to incorporate the technology into paint and roofing materials so that the house itself will become a solar energy-producing structure.

Assisting people with reducing the energy load of their homes requires expertise. Capitalizing on project managers operating with a green mentality should be encouraged. Along with this comes training for workers in many of the skills associated with new techniques and specifications. Educating the workforce will yield immediate dividends and bring about a smoother transition.

The green movement is a team effort involving builders, designers and government officials. Sustainable architecture in conjunction with green construction and interior design is a potent force for bringing about change. In this country, California leads the way. Policymakers pushed by their constituents are making enormous strides in this movement. In Massachusetts, we're hoping to do the same. Gov. Deval Patrick had made renewable energy and conservation one of his priorities. This can only help this state keep up with the times and reap the environmental rewards.

We're about to undergo a huge change. It's just not about leaving the world the way we found it. It's about leaving it better. ■



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