

Shades of Green

THE GREEN MOVEMENT

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Green from the Inside Out

The Role of Wood Structural Framing in Environmentally Friendly Homes

A 2007 report by McGraw-Hill Construction predicts that the market for green homes will increase up to tenfold over the next five years—growing from \$2 billion to as high as \$20 billion. Even so, the big question on everyone's mind is, "what does 'green' really mean?"

Building green can involve a wide range of actions, including: incorporating designs, materials and appliances that use less energy; using recycled and salvaged materials, where possible; utilizing water recycling systems; selecting materials and products with low or non-toxic emissions; choosing sustainably harvested natural products; obtaining materials, where possible, from local sources; incorporating landscaping that is climate-appropriate; and implementing building practices that minimize construction waste.

With a multitude of approaches, it should come as no surprise that the McGraw-Hill report also found that the biggest obstacles to green building are education and awareness, which ranked even higher than perceived costs. As more homeowners and builders become interested in sustainable construction, lumber and building material dealers can position themselves for new business by being a knowledgeable resource in this growing market.

Many professional dealers have wood products as a core of their business, and this can provide a solid foundation for supporting environmentally sustainable homes. Wood offers multiple green building benefits: it comes from a renewable, natural resource, is energy efficient and helps sequester carbon dioxide (CO₂)—a greenhouse gas implicated in global warming. The key for dealers is to expand their existing knowledge and experience with wood to include how it can be used in green building. And, for dealers who want to work more closely with builders in providing construction solutions, ready-to-install wood structural framing helps reduce jobsite materials waste, taking green construction to a new level.

Green Attributes of Wood

Various surveys show that energy efficiency is homeowners' top concern for green building. With increasing energy costs and a greater environmental awareness, more homeowners are asking builders to help reduce the energy used for heating and cooling. Unlike alternative structural framing materials, wood is a good natural insulator with low thermal conductivity. According to the Canadian Wood Council, steel conducts heat about 400 times faster than wood, which leads to higher energy usage and the need for additional insulation above what is required for wood framing.

Wood also is a sound environmental choice since it comes from a renewable, natural resource and requires less energy to produce than other materials. A study by the Consortium for Research on Renewable Industrial Materials (CORRIM) found that a typical home framed with wood requires about 17 percent less energy than steel framing and about 16 percent less energy than concrete framing (from extraction through maintenance).

Another unique attribute of wood as a framing material is that it helps reduce CO₂ in the atmosphere. Trees absorb CO₂ during photosynthesis, which helps offset greenhouse gas emissions from other human activities. After the tree is harvested, nearly one-third of the carbon remains stored in the wood products.

While wood products offer several inherent environmental advantages, an important additional factor to consider is whether they were obtained from forests managed to sustainability standards. Such forests are harvested using actions that protect water quality and wildlife habitat and are replanted promptly at rates that ensure forest availability for future generations. Third-party certification under programs such as the Sustainable Forestry Initiative (SFI) standard or the Canadian Standards Association (CSA) standards provides dealers and their customers with the confidence that the wood products they are



using come from responsible sources.

Dealers also should be aware if the question arises that using wood for home construction is not depleting forests. According to the American Forest and Paper Association and Clemson University, annual forest growth has exceeded harvest since the 1940s and the United States today has nearly the same amount of forestland as it did in 1920, even though tens of millions of homes have been built in past decades.

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Optimized Material Use

In addition to wood's natural advantages, engineered wood products (EWPs) offer further benefits. EWPs can be made from logs that are too small for conventional solid-sawn lumber and the manufacturing processes use virtually every portion of every log to produce strong, straight and consistent framing members. Many manufacturing plants also use bark and other wood byproducts for fuel (See "Company Generates Energy" in April *SHELTER*, page 10.), which reduces reliance on other fuels and helps efficiently use raw materials. EWPs also can be designed to do more work with fewer materials. For example, wood I-joists have a structurally efficient shape that can carry loads using less material than a rectangular joist.

Dealers who wish to go a step further in supporting builders with green building can help them optimize the use of both lumber and EWPs. By providing ready-to-install framing materials—from pre-cut, bundled and labeled materials up to pre-built framing components—they add value by helping builders reduce jobsite waste, as well as reduce construction cycle time and improve quality.

Because dealers work with large inventories, cutting materials based on the building plan prior to delivery makes better use of these materials than is typically possible at the jobsite. Considering the numerous individual pieces in a structural frame, the increased efficiencies can dramatically decrease the waste going to landfills. Pre-built or panelized components can reduce jobsite waste further by helping eliminate the need for builders to order extra product to cover losses due to framing errors, material damage or theft. In addition, ready-to-install framing is enabled by support services and advanced design software that can specify optimized combinations of materials throughout the frame.

As with many areas of residential construction, dealers play an important role in making construction more efficient and cost-effective. By showing builders how wood structural framing can be an important part of a green home, and being a knowledgeable resource to answer questions and offer solutions, dealers can bridge their historic strengths with where the market is headed. 