

Green homes start with green building materials

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Strawbale. Insulated concrete forms. SIPs.

Green builders know all about these alternative construction materials, but to the average homeowner, the terms might sound strange. Choosing which one to build with can also seem very challenging.

Many of these alternative building materials have been around longer than most people think. Essentially, homeowners and builders have to weigh the advantages and disadvantages of each material, and make a judgment call based on their specific needs.

Let's look at the most common choices for framing, structural and exterior work in green building.

Wood

From logging to lumber production, wood is often the target of criticism. But wood is so easy to work with, from design to construction to remodeling. What really matters is where the wood comes from and how it is put together.

Several environmentally friendly wood choices exist. Forest Stewardship Council-certified wood has been harvested in an environmentally friendly manner and certified by a third party. Reclaimed, recycled and salvaged lumber also conserves forest resources. Engineered lumber and Oriented Strand Board make use of wood that might otherwise be overlooked in favor of precious old-growth forests.

How the wood is used also makes a big difference. First of all, certain designs will result in energy savings down the road. Passive solar architecture, for example, maximizes sun exposure in the winter and minimizes it in the summer. Second, advanced framing techniques reduce the amount of lumber necessary to construct a house.

Strawbale, cordwood

Strawbale and cordwood construction methods make use of natural products — straw and wood. Strawbale construction consists of stacking tightly packed bales of straw on top of one another, reinforcing them with thread and steel rods, and then adding a stucco finish. The end result is rot-proof, costs little, blocks out sound and insulates twice as well as traditional insulation.

Cordwood masonry involves spacing short logs width-wise within a mortar, resulting in natural-looking, fire-retardant walls. This is a great option for homeowners who will have an abundance of timber cleared from their building site. Cordwood structures have been around for centuries in Europe.

Structural insulated panels

Structural insulated panels are often called SIPs. They consist of a foam core sandwiched between two panels of wood, and they are attached to a wooden frame. They insulate the home very well, resulting in excellent energy efficiency, and they are soundproof. They can also be put up quickly, with little waste. Although they will result in long-term savings realized from utility bills, the initial cost will be higher than traditional building materials. Some criticize the panels for their non-natural polystyrene foam, the difficulty in recycling used panels, and the difficulty of running plumbing and electrical wires through the panels.

Insulated concrete forms

Insulated concrete forms use hollow foam blocks that are stacked together to form a structural shell, which is then filled with concrete. This results in a very strong, highly insulated building. The concrete also provides thermal mass, a concept that describes a material's ability to absorb and store heat.

Like structural insulated panels, insulated concrete forms cost more than traditional building materials but result in energy savings that make them profitable in the long run. Making concrete is also an energy-intensive process, but proponents say the overall energy savings are worth the initial investment of natural resources.

Mark Vanderhoff is a freelance writer and a real estate agent for Coldwell Banker Kasey and Associates. For more information about green building materials contact the WNC Green Building Council at www.wncgbc.org. Contact the WNCGBC with any questions at the Green Building Hotline at 254-1995 or e-mail info@wncgbc.org

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