

Choosing green materials



Popular bark siding. Highland Craftsman photo

□ BY MAGGIE LESLIE □

There are so many products and companies out there that claim to be green it makes it very difficult to tell which products really are green and which are not. The truth is, there aren't many products that are completely sustainable. Instead, decisions should be based on a list of criteria. The Environmental Building News' Greenspec® product directory breaks products down into a few basic categories, and I added a few extra criteria that I think are also important to consider:

- Products made with salvaged, recycled or agricultural waste.
- Products that conserve natural resources.
- Products that save energy or water.
- Products that contribute to a safe, healthy built environment.
- Locally manufactured products.
- Fair trade.
- Carbon neutral.
- Minimally packaged.

A great way to assess the true impact of a product is to look at it in terms of a lifecycle assessment, which analyzes the product from resource extraction, through production, use and disposal. According to Greenspec, a lifecycle assessment is "the science of the examining the environmental and health impacts of products ... A green product is one whose life cycle impacts are low." Unfortunately, life cycle assessments are very difficult to do using comprehensive and consistent protocols and therefore not widely available yet.

Products made with salvaged, recycled or agricultural waste

This category comes first, because it is always better to reuse and recycle products before creating new ones. Considering that buildings create 136 million tons of construction and demolition waste in the U.S. (approximately 2.8 lbs per person, daily), efforts to reuse and recycle could have a huge impact on reducing waste. Salvaged flooring, for example, is beautiful plus adds character to a home that new

materials cannot. Some products can reduce the need for other products – for example, concrete floors can be stained to look very attractive and there is no need for an additional layer of material. Next, look for recycled content materials. Post-consumer recycled content means the waste used can no longer be used for its original intended purpose, such as carpet made of old soda bottles. Pre-consumer or "post-industrial" means waste diverted during the manufacturing process. Choose post-consumer over post-industrial materials wherever possible.

Products that conserve natural resources

Products made from rapidly renewable materials are the next best options. These materials can be harvested and then renew themselves quickly (typically under 10 years), unlike hardwoods which can take hundreds of years to return, if ever. Cork and bamboo floorings are examples of products made from rapidly renewable resources (though the products are shipped great distances).

Some lumber has been third party certified to have been sustainably harvested. The two most common certifications for sustainable wood

Summary of Greenspec Product Standards

Products made with salvaged, recycled or agricultural waste content

- Salvaged products
- Products with post-consumer recycled content
- Products with pre-consumer recycled content
- Products made from agricultural waste material

Products that Conserve Natural Resources

- Products that reduce material use
- Products with exceptional durability or low maintenance
- Rapidly Renewable Products

Products that avoid toxic or other emissions

- Natural or minimally processed
- Alternatives to ozone depleting substances
- Alternatives to hazardous products
- Reduces or eliminates pesticide treatments
- Reduces stormwater pollution
- Reduces impacts from construction/demolition

Products that save energy or water

- Building components that reduce heating and cooling loads
- Equipment that conserves energy
- Renewable energy
- Fixtures and equipment that conserve water

Products that contribute to a safe, healthy indoor environment

- Products that don't release significant pollutants into the building
- Products that block introduction, production or spread of contaminants
- Products that remove indoor pollutants
- Products that warn occupants of health hazardous
- Products that improve light quality
- Products that help control noise
- Products that enhance community well being

Great Resources for Choosing Green Materials

- *Cradle to Cradle: Remaking the Way We Make Things*, by William McDonough
- www.BuildingGreen.com
- www.GreenHomeGuide.com

are Forest Stewardship Council Certified (FSC) and Sustainable Forestry Initiative Certified (SFI). SFI certified wood is second party certified, not third, and is currently not recognized as a sustainably harvested wood by the U.S. Green Building Council's LEED standards, though SFI is a good option if FSC is not available, is cost prohibitive or shipped from great distances.

Durable products are also in the natural resource conservation category. If you build the greenest home in America and then it rots from moisture problems and the materials are sent to the landfill, we are no better off. This is why some people even consider vinyl siding to be a green product. It is toxic to produce



Bar top. (above) JAG Construction photo
Bamboo balusters.
Cady & Guyton Construction photo



with a high-embodied energy (energy intensive to manufacture) and may never biodegrade, but it is very durable and low maintenance.

Products that contribute to a safe, healthy indoor environment

Natural and minimally processed materials typically have less chemical additives that can have a huge impact on human and environmental health. Formaldehyde is common in many engineered products because it acts as a binding agent. There are increasing efforts to replace formaldehyde with less toxic binding agents, for example cabinet grade formaldehyde-free plywood, for instance, is available and manufactured locally in Old Fort.

Almost every chemically based product from paints to adhesives is now available in a low VOC (volatile organic compound) version. Plus there are natural and locally manufactured products available.

GreenSeal is a third party certification to look for that is available on many products such as paints and finishes. Additionally, Scientific Certification Systems (SCS) has certified many low toxic materials through its Environmentally Preferable Products and Sustainable Choice certification programs. Filtration products that can reduce indoor air pollution are also in this category. In addition to GreenSeal, also look for Greenguard certification on products such as insulation, Green Label Certification on carpets and the SCS indoor air certifications on flooring and furniture.

Products that save energy or water

Some products are considered green not because of their raw materials, but because once you install them they reduce the environmental footprint of the building. This includes materials such as low flow fixtures that save water or insulation and light bulbs that reduce the energy needs of a building. Look for the Energy Star label on lighting an appliance options and the EPA's WaterSense label on low flow, water saving faucets, fixtures and toilets. Once you have reduced the overall energy and water needs, consider renewable energy equipment that actually produces energy, such as photovoltaic panels.

Fair trade, fair wage, carbon neutral and local

This category may come last, but it is certainly not least. Many green materials fulfill the environmental tenant of the definition of sustain-

ability, but true sustainability addresses social and economic sustainability as well. Purchasing products that are produced by companies that pay workers a fair wage, and/or that support the local economy means growing a sustainable economy and a sustainable community. Plus, locally produced products help cut our carbon footprint by reducing the transportation impacts and support our local economy.

Currently we can't buy everything locally, but you can still choose products that are making positive impact somewhere, like developing sustainable economies or creating social equity in other countries. Many companies are now purchasing Carbon Offsets or Renewable Energy Credits, claiming that their products are produced with 100 percent renewable energy. This is a great step, but make sure their claims are legitimate and that they are working to minimize their impact, as well as offset it.

Now that we have addressed the different criteria for materials, let's apply them to insulation as an example.

■ Spray Foam – saves energy, contributes to a healthy indoor environment.

■ Blown Cellulose – saves energy, recycled content, avoids toxic emissions.

■ Recycled Blue Jean Batts – saves energy, recycled content, avoids toxic emissions.

■ Formaldehyde-free Fiberglass – saves energy, some recycled content, avoids toxic emissions

Now, apply these to the needs of your own home. Could moisture be an issue or are you worried about drafts? Consider spray foam insulation, it creates an air tight envelope and inhibits mold growth. Are you most concerned about your environmental impact? Consider recycled blue jean batts. Too expensive? Consider cellulose, it is recycled and easily installed. Unfortunately, when it comes to green products there are few perfect products but by considering the impacts of your choices you can reduce the impact on the environment substantially plus create (or renovate) a healthy and unique home.

Something on the menu for everyone!

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