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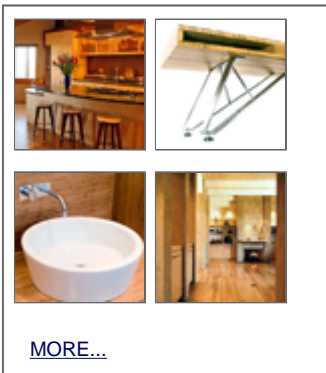
Bamboo leads green revolution This once-exotic material is showing up everywhere. It's durable, plentiful, very quick to grow and a good source of oxygen.

Allison Serrell, Special to The Chronicle
Wednesday, November 29, 2006

In case you haven't noticed, bamboo -- that "green" material cropping up all over the place -- has outgrown its kitschy, tropical look. Thanks to advanced engineering and technology, today's bamboo interiors are warm and sophisticated. Now a popular choice for flooring and finishes, bamboo has entered the big league of home decor.

Sure bamboo is trendy, but what you may not know is that the plant of a thousand uses -- you can build with it, eat it, make cloth from it, and it even cleans the air -- just may change the way America furnishes and builds its homes. Or even what we sleep in. DreamSacks Inc., a company in Ashland, Ore., is offering a line of bamboo wear that includes pants, tops and pajamas, and sheets. Its Bamboo Dreams clothing collection is 95 percent bamboo fiber, 5 percent Lycra, according to its Web site.

The facts about bamboo are impressive. A grass, not wood, bamboo is the fastest growing plant on the planet -- some species can grow up to 1 meter per day. It matures and can be harvested every six years (a lumber tree can take 20 years), does not need to



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be replanted (it's generated from a system of roots), and grows on six continents, all of which makes bamboo a highly sustainable and rapidly renewable alternative to more traditional hardwoods. And then there's its strength: Bamboo is stronger than steel in tension, stronger than concrete in compression, and more stable than red oak.

Bamboo is also a critical element in the balance of oxygen and carbon dioxide in the atmosphere as it helps restore degraded areas and generates more oxygen than an equivalent stand of trees. Bamboo lowers light intensity and protects against ultraviolet rays and is an atmospheric and soil purifier.

As the desire for green living increases, there will undoubtedly be more bamboo in the home. Since it was introduced in the mid-1990s, bamboo flooring is fast becoming a mainstream feature, replacing traditional woods like oak or maple. For durability, it holds up well compared with these woods and is comparable in price.

Bamboo was once distributed by a small number of U.S. manufacturers who imported it from China. But flooring importers have exploded in numbers; bamboo is now brokered online, and even Home Depot carries it.

"There are a lot of misunderstandings about bamboo," said Ann Knight, executive vice president of Teragren, a leading manufacturer of bamboo flooring in Washington. "There is no grading system for bamboo like there is for hardwoods." Consequently, quality varies enormously.

Prices for bamboo flooring range from about \$1.99 to \$8 per square foot. Knight said you get what you pay for. Bamboo can be as soft as fir or harder than maple, depending on when it is harvested. If it is harvested too early, say after three years instead of the preferable five or six, the bamboo will produce an inferior floor, Knight said. When shopping around, ask the manufacturer for data on the hardness of the wood.

Environmental concerns are also key. It's important to note not only when the bamboo was harvested but what kind of adhesive is used during the manufacturing process. In the United States, companies like Smith & Fong in South San Francisco and Teragren have set high standards, using glues with negligible levels of formaldehyde, a known carcinogen.

"Our products are well below the Occupational Safety and Health Administration standards," Teragren's Knight said. But inferior products from less stringent sellers are common in the marketplace. "The adhesive used in China is very high in formaldehyde, and it's a lot cheaper," Knight said. "There are no (mandatory) controls in China." Teragren's factory in China is certified for best practices by the International Organization for Standardization.

Once you find a reputable supplier, there are aesthetic choices to make. In general, bamboo flooring falls into a few basic categories. Choose vertical or end grain for a more linear, traditional look; flat grain for a textural, informal appearance. The planks usually come in a natural, golden honey color or a darker "caramelized" version that is heat treated. Stains vary by manufacturer.

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Both Teragren and Smith & Fong offer an extra durable "stranded" bamboo, a flooring version that is molded and compressed to be twice as hard as oak. It resembles bird's-eye maple and is especially suited for commercial or high-traffic areas.

A growing appreciation for bamboo has led to technologies that allow for more sophisticated applications. Smith & Fong manufactures a bamboo plywood (called Plyboo) that can be fashioned into furnishings, paneling and cabinets. Many designers, including Kelly Scott Hill of Factory 1 Design, a design/build company in San Francisco, have embraced Plyboo as well as other innovations (Teragren also makes panels and veneer).

Hill is drawn to the sustainability and durability of bamboo. Also, because quality, color and grain are consistent, there is almost no waste. "We never cut around a grain or knot," he said. Hill also likes Bamboo's "spanning strength" and flexibility. "We can get longer pieces and use fewer leg supports than with traditional wood, so we can be more edgy in our design."

Berkeley Mills recently launched a line of bamboo kitchens featuring sleek custom-designed bamboo cabinetry. "We saw a gap in the market," said marketing director Dan Parlin. "There was a need for good, smart (kitchen) design with warm sustainable materials."

Berkeley Mills cabinets went into Michael and Amy Zanfagna's new Bernal Heights kitchen and they look "fabulous."

The couple decided against a quick "toasting" of the wood in a kiln to give it a darker look and they're pleased with the results. "We wanted to keep it in its natural state and have a lighter feeling in our kitchen," Amy Zanfagna said.

They also were determined to install durable materials because they don't intend to replace them, their idea of sustainability being to "get away from the whole disposable thing," she said.

Bamboo is well suited to the rigors of the kitchen. "Bamboo is almost more trustworthy than certain hardwoods," Parlin said. "We took a piece of bamboo and put it in a hot tub for three weeks. There was no change. The glues didn't come undone." Sereno, as the new kitchen line is called, is warm, elegant -- and practical.

Zanfagna agrees that the bamboo cabinets resist spills: "You just wipe it off. It's like stainless steel."

What does the future hold for bamboo? Architect Michael McDonough, a pioneer in the industry who designed the world's first commercial collection of engineered bamboo furniture in 1997, continues to champion the material. His recently designed Arc House, presented at Wired Magazine's NextFest, features energy-efficient insulating walls made of bamboo plywood. McDonough is working with Smith & Fong to develop structural beams made of bamboo.

"Bamboo is coming into its own," McDonough said. "We've demonstrated that it can be viable and appropriate. Now we can start looking at large-scale building elements that will take us into

the next generation."

For now, McDonough deems bamboo a nearly perfect environmental material. "It helps solve a number of global and environmental problems," he said. "All you have to do is use it."

Indeed. Even La-Z-Boy has tapped into the bamboo boom with its furniture line Todd Oldham by La-Z-Boy, which includes a bamboo cube lamp and credenza.

Resources

Berkeley Mills, (510) 549-2854, www.berkeleymills.com.

Smith & Fong, (866) 835-9859, www.plyboo.com.

Teragren, (800) 929-6333, www.teragren.com.

Factory 1 Design, (415) 640-0154, www.factory1.com.

Totally Bamboo, (818) 765-9000, www.totallybamboo.com.

Bambu, (877) 226-2829, www.bambuhome.com.

DreamSacks, (800) 670-7661, www.dreamsack.com.

La-Z-Boy, www.la-z-boy.com.

How hard is bamboo?

When shopping for bamboo flooring, you'll likely come across something called the Janka hardness rating, which measures the hardness of wood. The test measures the pounds of force required to push a steel ball (diameter .444 inches) half its diameter into the wood, according to the Web site www.sizes.com. For more on the Janka ball test, visit www.sizes.com/units/janka.htm.

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