MAGICAL BAMBOO

Suddenly, bamboo is all the rage in North America. You have seen it your whole life, quiet and unnoticed, in common items such as fishing poles, garden stakes, tiki torches and wind chimes. Over the past few years, you’ve probably started seeing a fair number of bamboo floors and staircases, blinds and floor mats; perhaps fences; even cutting boards and cooking utensils. Why the recent growth spurt in bamboo’s popularity?

One explanation is that bamboo is considered more environmentally friendly than wood. With its high rate of photosynthesis, bamboo can regenerate its mass many times faster than traditional hardwoods, and doesn’t require replanting once it’s harvested. Because it is a readily renewable resource that looks a lot like wood, some consumers have begun choosing it over wood products.

Some craftsmen have found the use of bamboo in their projects to be a selling point. Max Hunter of Western Dovetail offers his dove-tailed drawers in bamboo, even though they cost slightly more than the same drawers made with maple. High-end furniture makers offer “eco-friendly” bamboo tables and chairs that cost thousands of dollars, touting bamboo as a responsible and rapidly renewable – not to mention strong and flexible – resource.

But perhaps it’s not all just environmental hype. Bamboo is also very straight and dimensionally stable, available in a variety of sizes and colors. It can be finished with almost any type of product. For these reasons and others, the company Green Building Supply calls bamboo plywood “a woodworker’s dream.”

Immense forests of the hollow, woody grass (yes, it’s a grass) thrive on the opposite side of the planet. The Chinese call it the friend of the people,” and the first known reference to its use by humans
is found in the *I Ching*, a sacred Chinese text 4,800 years old. Long stalks of bamboo, properly called culms, serve as everything from scaffolding to dinnerware all across Asia. Bamboo shoots are used extensively in cooking. In rural areas of China, bridges are often built of bamboo. Its modern and historical uses are endless and fascinating, including buildings, musical instruments, gas pipelines, basketry, furniture and paper.

Yes, the east has taken advantage of bamboo’s strength and abundance for millennia, but only in the last couple of decades has bamboo gained the respect it deserves as a building material in the western hemisphere.

### Engineered lumber

Generally, there are two ways craftsmen can work with bamboo, and those two ways are as different as night and day. Intact bamboo poles can be purchased or grown, dried and pest-proofed for use in projects. But far more similar to working with wood is working with engineered bamboo lumber, which can be thought of as a high-grade, very hard, laminated plywood.

Flooring, stair treads, molding, and plywood sheets are a few of the forms of bamboo lumber available in the U.S. Most are manufactured in China from moso bamboo, a species that grows up to 65’ tall and 7” in diameter. It is ready for harvest in about five years, developing a thick, woody wall.

To make bamboo lumber, these culms are split into long strands of relatively equal size. The strands are treated for protection against termites and powder post beetles — a necessity since pests love the starchy interior of the culm walls. The strands are squared off and shortened, kiln-dried, then laminated side-by-side. The strips are commonly laminated two different ways to produce horizontal (sometimes called flat) and vertical orientation. See the illustration and photos on the following page for details. Either way, the nodes are visible and the grain is rigidly straight, but horizontal orientation looks more obviously like bamboo.

It is also common to see thicker bamboo plywood with a vertical solid core between two horizontal layers. Some craftsmen use the ends of this material decoratively, rather than covering it up with edge banding. Bamboo veneer with a paper backing is also available.

There are even “end grain” boards available, which are said to wear well as flooring and make good cutting boards.

A newer product on the market is oriented strand plywood and flooring, which is made of strands of shredded bamboo and adhesive, highly compressed to form a very dense laminate. This type of bamboo lumber looks the most like...
Plyboo, a California manufacturer of bamboo flooring and plywood, also sells a "neopolitan" version with contrasting light and dark browns. It looks a bit like solid zebrawood. Dried, processed moso bamboo is a light blonde color. Manufacturers also apply heat to bamboo, which turns it a rich amber. This is called carbonizing, also known as caramelizing. Most suppliers offer both colors along with a choice of vertical and horizontal orientation. Some also offer finished and unfinished versions.

Working with bamboo boards

Anything that can be done with hardwood can be done with engineered bamboo, says Chris Miller of Northwest Bamboo, who has been importing and building with the products for seven years. Because it’s very hard, engineered bamboo dulls blades and bits more quickly than wood. Miller also suggests pre-drilling screw holes, and cautions against taking too big a bite at once with a router, because the material could chip. Otherwise, treat engineered bamboo as you would any hardwood, including the finish. “I have yet to hear of a finish that will not take,” Miller says, although he does not recommend straight polyurethane. “Waterborne polys over a sanding sealer work well, lacquers and oil-based polys like Seal-a-Cell work well. The most successful...
CHEW ON THIS ...

• Panda bears eat 40 lbs. of bamboo every day, chowing down for 12 to 16 hours.

• “Lucky bamboo” might be lucky, but it’s not bamboo! It’s a member of the dracaena family. That’s why those curly house plants called lucky bamboo don’t grow as quickly as the real thing.

• There are probably at least 1,600 species of bamboo.

Colorful cousins: red, golden and black bamboo varieties

• The first commercially manufactured lightbulb, designed by Thomas Edison, had a bamboo filament.

• The Chinese used bamboo as a structural material in airplanes flown in World War II.

• Bamboo flowers very infrequently – some species only once every 120 years – and dies immediately afterward.

• More than 1 billion people worldwide live in a bamboo house.

stains we have found, when changing colors, are tung oil stains. They provide a good even color and penetration,” he said. Bamboo reacts to staining somewhat differently from wood, so test a scrap piece first.

Two other advantages of bamboo lumber should be pointed out. For one, it is relatively lightweight for its hardness. This hardness is due to a high density of silica, a natural chemical compound found in some plants, but also in sand and quartz. The silica gives bamboo its structure and its strength, but it’s also what plays havoc with your sawblades and knives.

Finally, bamboo can be nice to work with if you would rather not glue up multiple boards of hardwood for a large project. You’d be hard pressed to find other sheet materials that look as good as bamboo lumber.

But that pro can be a con, too. Most sheets of bamboo are only available in large sizes and can be pricey. I found that a 4’ x 8’ sheet cost $150-$180. Some sheets are available with a plywood core and cost slightly less. For his small sushi tray project on page 32 of this issue, Ralph Bagnall purchased a single stair riser.

Many woodworkers have, quite reasonably, wondered why the cost of bamboo products is so high when bamboo is reported to be so plentiful. The answer lies partially in the quality of the material – birch plywood, for example, is not nearly as hard or durable as engineered bamboo, even though bamboo is more plentiful than birch. But Miller says it’s also a matter of supply and demand. “It’s still a new exotic. There are only five or six companies that bring it in, and there’s a limited supply.”

Bamboo culms

Most bamboo that grows in North America was imported from Asia sometime in the past 200 years. Only three species are native. A number of nurseries sell common and rare species of the plants, which are planted for landscaping or for cultivation as a building material. “Running” types of bamboo, as opposed to “clumping,” can be invasive because they have a long rhizome, or root system, which travels underground. Fresh shoots can emerge from the rhizome many feet from the existing culms. This behavior is similar to that of willow trees and some kinds of ferns.

Since bamboo grows quite well – rampantly, even – in many areas of North America, some of you probably have access to large stands of fresh bamboo. These groves might or might not be considered...
a nuisance; if you know someone who has bamboo on his or her property, you are probably welcome to all of it you can clear away. Since I’ve already told you about the popularity and value of engineered bamboo lumber, you might have dollar signs in your eyes. Well, not so fast. Taking bamboo from its natural state to processed lumber requires expensive, specialized, large machinery. In fact, most U.S. companies who supply bamboo lumber for flooring or furniture import the fully manufactured product from China.

But for woodworkers, free access to a bamboo grove can still be a boon. There are many ways to incorporate bamboo into your projects, and its natural beauty and unique characteristics make it a pleasurable challenge to work with.

**DIY bamboo basics**

Saying there is only one way to build with bamboo is like saying there is only one way to cook. There are some common principles developed over thousands of years, but beyond these much is a matter of opinion.

Most agree that bamboo must reach at least 3 years of age before it can be used in building projects (a year or two earlier, it is good for splitting into strips for weaving baskets). Some say that winter is the best time to harvest culms, while others advise spring is better, just after the plant has dedicated most of its starch resources to new shoots.

A low level of starch helps with the first chore you face after sawing down the tall culms with a sharp saw, as close to the ground as possible. Older bamboo is a favorite food of powder post beetles and termites, so you must simultaneously dry the bamboo and treat it for bugs. Leaving the poles to dry upright, with their leaves still attached to pull out the starch, is one option, but you might have to use a chemical bug treatment. Some soak bamboo in water for 90 days before drying for two weeks, and some use heat to quickly dry and debug fresh bamboo. Some recommend knocking out the diaphragms, or thin discs, at each node with a long implement to prevent air from expanding inside the internode (see drawing, previous page) and cracking the culm. Others say this weakens the structural integrity of any culm that will be used to support weight.

You can also purchase dried and treated poles in a vast array of sizes and colors. The rarer species and larger poles can be pricey.

You can carbonize your bamboo culms, turning them a deep amber color, over a hot fire, turning and wiping them constantly.

Bamboo culms can also be finished with some dyes, stains and sealers. It can easily be bent using heat, and holds its bent position well when cooled.

Bamboo poses a special problem for woodworkers because of their varying widths and wall thicknesses. To work with them, you must be willing to measure as you go and appreciate their occasional flaws. Joinery can be especially tricky. It’s too complex a topic to cover here, but let it suffice to say there are hundreds of ways to join two or more bamboo poles at any angle imaginable.

Craftsmen use whole culms for projects, but they also split and/or flatten culms to weave together or to make textured surfaces. A miter box, a very sharp knife and a fine-toothed backsaw are essentials if you embark on a project.

— *Sarah Brady and Udo Schmidt are contributing editors to Woodcraft Magazine.*

**Resources**

Complete instructions for harvesting and using bamboo culms, with 30 projects: *The Craft and Art of Bamboo* by Carol Stangler. [craftandartofbamboo.com](http://craftandartofbamboo.com)

Bamboo flooring, stair treads and plywood: Northwest Bamboo. [nwbamboo.com](http://nwbamboo.com)

Lectures, resources, periodicals and 1,400 members: American Bamboo Society. [americanbamboo.org](http://americanbamboo.org)

More history, usage and fascinating facts: *The Book of Bamboo* by David Farrelly.

Lively discussion forum covering design, tools, cultivation, events and more: [bamboocraft.net](http://bamboocraft.net)
FREE YEAR!

2 YEARS for $29.99!

go to woodcraftmagazine.com and click SUBSCRIBE

-or-

Complete the form below and mail in an envelope addressed to:

WOODCRAFT MAGAZINE
PO BOX 7020
PARKERSBURG WV 26102-9916

☐ Payment Enclosed  ☐ Bill Me

Name ____________________________

Address ____________________________

City ____________________________

State __________ Zip __________

Country ____________________________

E-mail ____________________________

Send in now to get

2 Years for $29.99!

or go to woodcraftmagazine.com and click SUBSCRIBE

By providing my e-mail address, I am indicating I’d like to receive information about my subscription and other offers from Woodcraft Magazine via e-mail.

Outside of the U.S and Canada add $30 for postage.

Foreign orders must be prepaid. Payment in U.S. Funds only.