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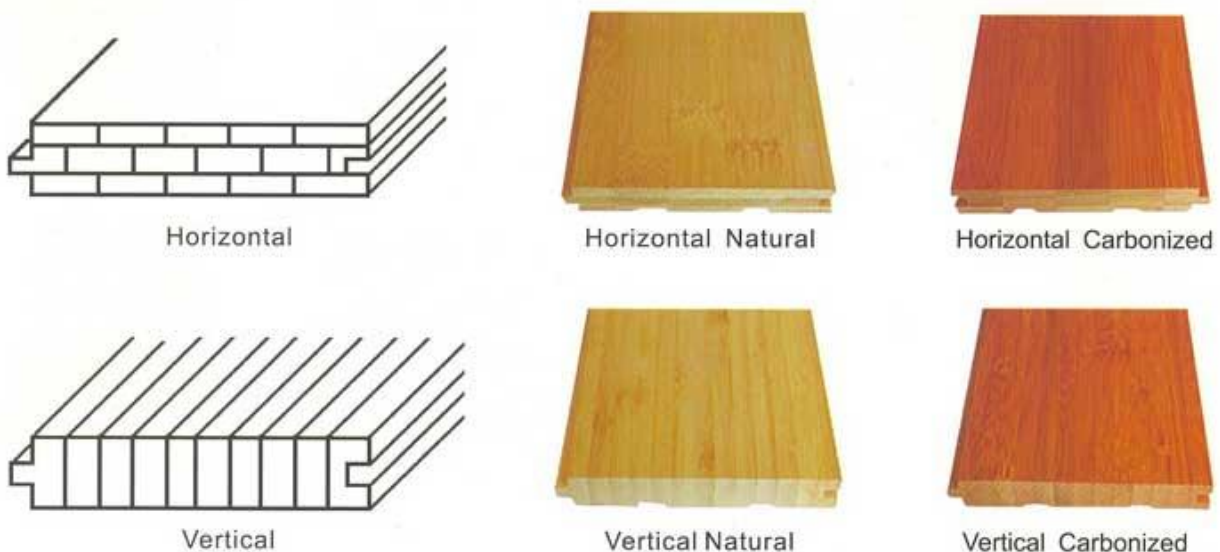
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# The History of Bamboo Flooring in North America

To truly be comfortable with the potential use of bamboo flooring in a home or office, one should understand the basic history of bamboo flooring in their market so they can understand which types of bamboo will work properly for their situation and which won't. There is an abundance of misinformation out there so it's important to be informed before making an important decision such as a hardwood/bamboo flooring purchase.

## Solid (Traditional) Bamboo

When bamboo flooring started being exported into North America almost 20 years ago, it was in the form of solid, aka traditional, bamboo in either vertical grain or horizontal grain. This was produced by milling the bamboo into  $\frac{1}{4} \times \frac{3}{4}$ " strips and edge gluing them together as shown below.



Picture courtesy of: <http://www.export-forum.com/china/bamboo-flooring/images/Bamboo-Flooring-Models.jpg>

This kind of bamboo flooring led to quick growth in the bamboo flooring industry which was good in the sense that it established bamboo as a viable alternative in the hardwood flooring market and began to provide economic opportunity to a number of people looking for work. However, the "gold rush" inevitably attracted speculators (defined as people/organizations with a dangerous lack of technical knowledge lured into the industry by quick profits), which inevitably led to poor manufacturing and dubious to outright false sales and marketing claims. The single biggest problem was (and actually still



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is!) the lack of proper drying, which caused a lot of problems with excessive shrinking or expansion , which causes gapping, buckling, cupping, delamination and all kinds of other horror stories! The second biggest problem is probably the marketing claims about the hardness of bamboo. Many folks who bought solid bamboo flooring were quickly made aware of the falseness of those claims by their loyal dogs, who ripped up the flooring in a matter of days (ouch ☹).

Myth: Bamboo doesn't work in our climate

Fact: It can work just as well or better than locally available hardwoods if it's manufactured properly. An oak floor wouldn't "work in our climate" if it was shipped to you at 18% moisture content either.

Myth: Traditional bamboo is 35% harder than Red Oak

Fact: Those results are based on Janka Ball Test results which are misleading. Further, they are for the strongest kind of bamboo (natural colour, horizontal grain), while the weakest bamboo flooring is ironically the best seller (carbonized colour, vertical grain). Generally speaking, an oak or maple floor actually wears better over time than a traditional bamboo floor.

## Solid Strand Woven Bamboo

The response to the complaints about the softness of bamboo was met with a new technology commonly referred to as strand woven bamboo. Strand bamboo is made by shredding the bamboo strips, dipping them in phenolic resin and pressing the bamboo into an iron mould with 2,000 tonnes of pressure to create a log which is milled into flooring.



An example of carbonized solid strand woven bamboo, courtesy of: <http://image.made-in-china.com/2f0j00sCmaDJLyrRgl/Strand-Woven-Bamboo-Flooring.jpg>



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In respect to hardness and dent resistance, strand woven bamboo more than compensated, with hardness comparable to species like Brazilian Walnut. This product again suffered through a speculation phase with participants flooding the market with improperly dried and improperly cured products that would suffer surface checking and also cupping problems. Pressing bamboo when it's wet is much easier than when its dry and takes less time so it incentivizes manufacturers to cut those corners. Another problem is that in their haste, many manufacturers didn't consider that finishes take differently to strand woven bamboo than to traditional bamboo. Hence they didn't modify their finish formulations and that led to finishes that would scratch and flake quite easily. There are also a few fundamental problems that affect all solid strand woven flooring, like the difficulty of installation (almost impossible to nail down) and the need for long periods of acclimation (two weeks minimum).

Some companies have marketed click-lock floating systems for solid strand woven bamboo in order to get around the problems that solid strand woven bamboo had with nail down installations. What they failed to consider is that a floating floor moves as one piece, meaning that instead of having small gaps between the boards, you stand a good chance of having one large gap on the outside of your floor in the winter. Solid flooring (in any species) simply expands and contracts too much to be used as a floating floor. I have drawn the incredibly complex diagram below to illustrate this point 😊:

Fig 1



Fig 2

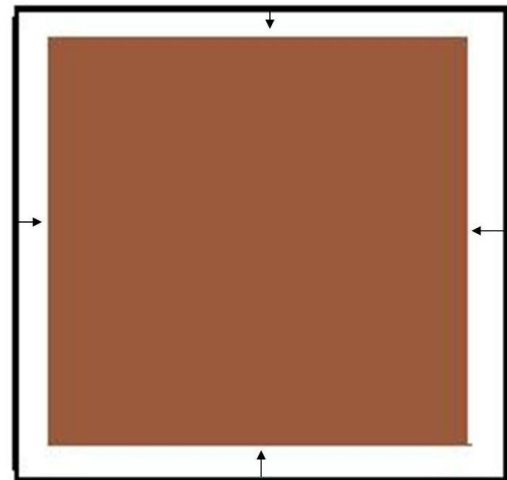


Figure 1 shows the beautifully illustrated bamboo flooring installed tightly to the wall and Figure 2 shows how the said floor would move as one piece away from the wall during the dry season, causing large unsightly gaps between the edge of the floor and the baseboards. The inverse is also applicable, if the flooring was installed during dry season, it would naturally expand during the humid season and push against the walls causing buckling.

Myth: Strand woven bamboo is so full of glue that it doesn't move with changes in relative humidity!

Fact: Strand woven bamboo is generally composed of 95% bamboo and 5% resin and does move. Strand bamboo has a dimensional change coefficient\* of 0.0022, hard maple is 0.00353, Brazilian Cherry is



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0.003, Black Walnut is 0.00274 and engineered floors get a reading of under 0.001.

\* The dimensional change coefficient is used to calculate how much a product will move in the format of inch in width/% change in relative humidity, so it can give us a very good idea of how much one floor will move vs another

## Engineered Bamboo Flooring

After going through the trials and tribulations of solid strand woven bamboo, the natural progression should be to go to an engineered bamboo floor that you could float and that wouldn't move nearly as much as solid strand woven bamboo. Surprisingly this type of flooring wasn't as subject to speculators and still isn't as available today as traditional or solid strand woven bamboo flooring. Perhaps they realized it would be a lot of work to develop a truly good floor, more expensive to produce and therefore the quick buck that they so desire wouldn't be there. Whatever the reason, people quickly realized that strand woven bamboo on a plywood back can suffer terribly from many problems. One is that the glue inside most strand woven bamboo is too brittle to endure the tension between the plywood and the bamboo, which results in surface checking during the dry season. Another is that the bamboo and the plywood are considerably different materials and without a balanced backing, the boards are subject to bow, warp, cup, etc.

However these problems have been solved with Symmetry Structure, which is detailed on the "Why Symmetry Bamboo Flooring" section of our website, which can be accessed from the main page.