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NOT JUST YOUR AVERAGE LUMBER

CONSIDERING ALTERNATIVE MATERIALS FOR DECK CONSTRUCTION

MADISON, Wis.— For decades, deciding what material to build a deck out of was a fairly simple process, as choices were mainly limited to pressure treated lumber or naturally decay-resistant species such as cedar or redwood. But in today's market choices abound, and it can be difficult to decide what material is best for your project.

U.S. Forest Service Forest Products Laboratory (FPL) botanist Alex Wiedenhoef and chemical engineer Dr. Nicole Stark are experts on two of the more common new alternatives in decking materials: tropical wood species and wood-plastic composites.

One increasingly popular tropical species used in decking is ipe. Known for its natural resistance to decay, ipe is a strong and naturally durable material. However, according to Wiedenhoef, these properties alone do not make ipe a perfect choice.

“Our research shows that ipe heartwood really is as decay resistant as everyone claims,” says Wiedenhoef. “Unfortunately, ipe is often brought into the country green, then processed and even installed without being properly dried. This gives rise to noticeable shrinkage after installation as the wood dries. Therefore, ipe is much more likely to fail as a deck because the material shrinks, causing cracks, splits and cups, rather than failing due to decay.”

Another tropical species often considered is meranti, also known as Phillipine mahogany. These come from the genus Shorea which includes more than 400 species, not all of which are suitable for deck construction.

“Shorea is generally categorized into five groups of timbers: white merantis, yellow merantis, light red merantis, dark red merantis and the balau group,” says Wiedenhoef. “For decking, only the dark red group and balau group should be considered. The other groups of Shorea probably do not have sufficient natural durability for decking applications.”

Wiedenhoef also comments that the balau group is higher-density material and often experiences many of the same problems found with ipe, such as cracking.

For those looking to build a deck that doesn't require a lot of maintenance, lumber made from wood-plastic composites is a good alternative to solid wood. With over 30 brand name products available in North America, composite decking is catching on in today's market.

Generally composed of 50 to 60 percent wood fiber combined with plastic (mainly polyethylene), composite decking is appealing for several reasons. "People are attracted to this material is because it is low-maintenance, won't splinter or crack, and is available in a wide variety of colors and surface patterns," says Stark. But she also mentions that composites are not without their drawbacks, namely that they are more expensive than wood, are heavier and not as stiff as wood, and the color can fade.

According to Stark, upcoming trends for composite decking include the development of railing lines to match the decking, improved color stability, and production of a lighter deck board. For consumers desiring a more natural appearance, color streaking and embossing a grain pattern on the lumber will help composites look more like solid wood.

Stark has been researching decking for several years as a part of the Engineered Composites Sciences research work unit at FPL (<http://www.fpl.fs.fed.us/rwu4706>). If you decide to use this material, she offers a few important tips for successfully constructing and maintaining a composite deck:

- Carefully follow the installation instructions and maintain the recommended gap and spacing of boards, including the joist spacing.
- For a cleaner look, use a color coated deck screw or hidden fastener system.
- Clean the deck as recommended. Periodic cleaning is necessary to keep mold and mildew at bay.

Both Stark and Wiedenhoefl agree that it's best to do a little leg work before deciding on a decking material; weigh the pros and cons carefully, and you're sure to find a product that will suit your needs.

For more information on the properties of hundreds of wood species, visit our website at <http://www2.fpl.fs.fed.us/TechSheets/techmenu.html>

For more information on composite products, visit our website at <http://www.fpl.fs.fed.us/documnts/techline/outdoor-durability-of-wood-plastic-composite-lumber.pdf>
http://www.fpl.fs.fed.us/documnts/techline/wood-plastic_composites.pdf

The U.S. Forest Service Forest Products Laboratory was established in 1910 in Madison, Wis., with the mission to conserve and extend the country's wood resources. Today, FPL's research scientists work with academic and industrial researchers and other government agencies in exploring ways to promote healthy forests and clean water and improve papermaking and recycling processes. Through FPL's Advanced Housing Research Center, researchers also work to improve homebuilding technologies and materials. Information is available at FPL's Web site: www.fpl.fs.fed.us.

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