A Buyer's Guide to Decking

Wood is still king, but composites are on the rise

BY SCOTT GIBSON

In the good old days, decking retailers sold wood species such as cedar and redwood that naturally resisted decay and insect damage. They still do, but as supplies of old-growth lumber declined in North America, far-ranging forest-products companies began offering a variety of tropical hardwoods, such as ipé, that perform just as well or better than the old standbys.

Suppliers also have pursued a variety of other strategies to improve the outdoor performance of wood: They've juiced it with chemicals that deter insects and rot, baked it in 500°F ovens, infused it with sodium silicate, and pickled it with acetic acid.

And that's before we get to the many wood substitutes: wood-plastic composites in which wood flour is combined with molten plastic and squeezed out of dies like toothpaste, composites wrapped in a layer of protective plastic, and all-plastic decking that contains no wood fiber at all.

If you're not wedded to the look of wood, you also can choose powder-coated aluminum decking, or even modular stone or tile systems.

Composites on the rise

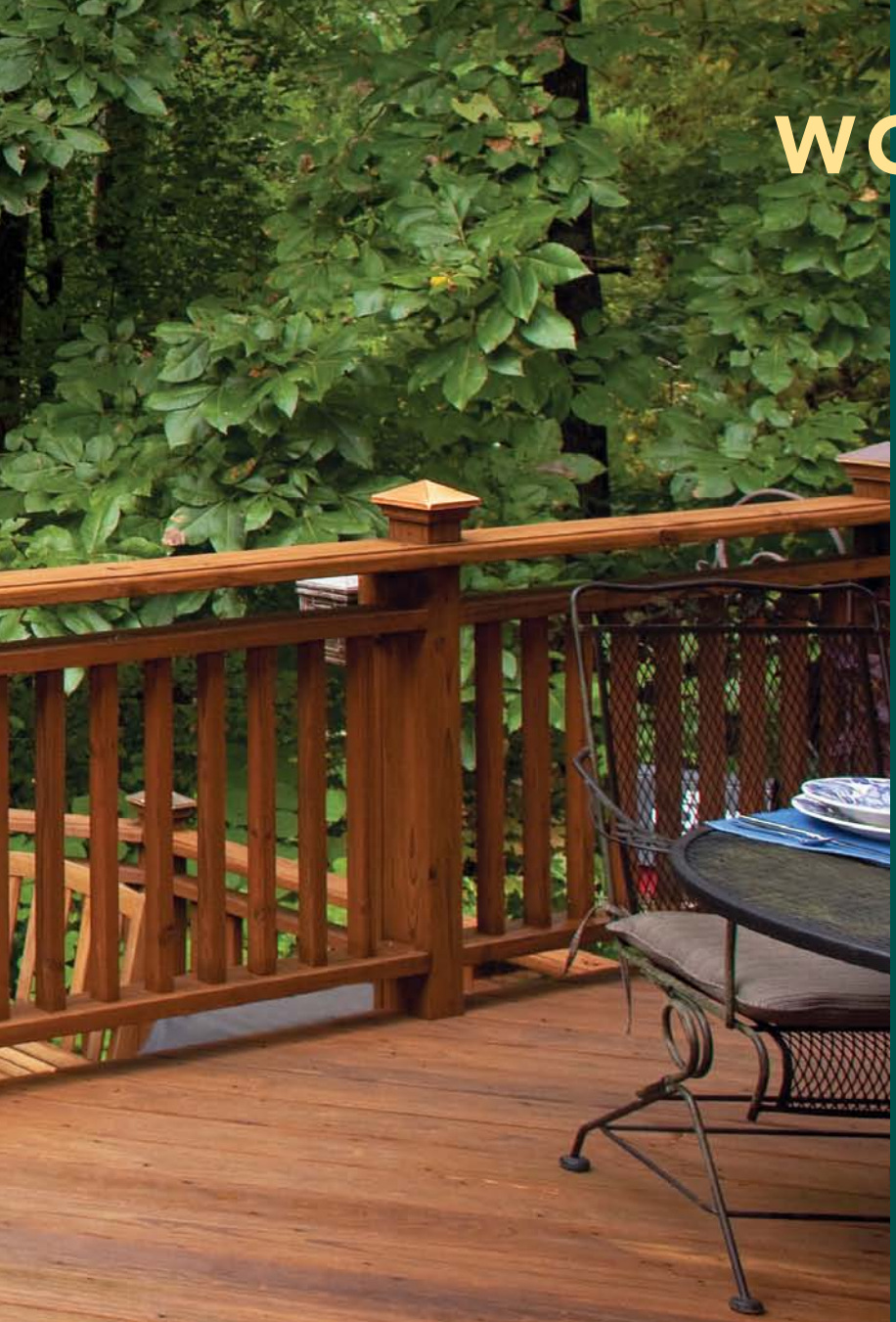
The most significant changes in the decking market have come with synthetics. Manufacturers of synthetic decking have had a steep learning curve over the years: First-generation wood-plastic composites would stain, get moldy, and even rot. But while updating their recipe to prevent these problems, manufacturers also have expanded their lineups with sophisticated alternatives such as cellular-PVC and capstock decking.

Synthetics need less maintenance than wood, but they're not foolproof. Some have the unmistakable look of plastic. They're generally more expensive than basic wood decking, and they're not completely impervious to the effects of weather. There have been reports, for example, of swelling in the ends of capstock decking when water reaches the unprotected composite core.

No decking is perfect, but the sheer number of natural-wood and synthetic products is giving builders and homeowners a long list of options.

Scott Gibson is a contributing writer to *Fine Homebuilding*.

Photo: courtesy of Behr



WOOD is used on three-quarters or more of the decks built in the United States. It includes a broad range of choices, from pressure-treated softwoods to imported exotics and domestic species that are naturally resistant to insect and moisture damage. Newer options include acetylated, silica-treated, and heat-treated lumber.

Cost, durability, and surface appearance vary quite a bit. In general, however, wood is a familiar material that's easy to work with standard carpentry tools, and it's readily available in a range of prices.

PRESSURE-TREATED SOFTWOOD

Southern yellow pine treated with chemical preservatives is fairly inexpensive and widely available in the Eastern United States. In the West, other species of softwoods are used. Decking is available in different grades and standard lengths. It's typically sold in a nominal thickness of 5/4 in., with an actual thickness of 1 in.

Common chemical treatments include copper azole and alkaline copper quaternary (abbreviated as CA and ACQ, respectively), which have taken the place of chromated copper arsenate. The compounds are forced into wood fibers under pressure and offer long-term protection against fungal attack, rot, and wood-eating insects. Lumber with higher concentrations of preservatives can be used in direct contact with the ground, but be sure to check the label. Because of the copper content of the preservatives, it's important to use galvanized, stainless-steel, or other approved fasteners.

Freshly pressure-treated pine has a characteristic green hue that fades with exposure to rain and sunlight to brown and then to gray. Pressure-treated pine can twist or develop end and surface checks with exposure to weather. A regular application of stain or wood preservative can extend the life of decking and give it a more uniform appearance (photo left).

There also is nonmetallic pressure-treated decking that contains no copper, so it's noncorrosive for fasteners and can't leach toxic metals into the environment. Two brands are Wolmanized L3 (www.wolmanized.com) and EcoLife (www.treatedwood.com/ecolife).

PROS	CONS
Natural wood look; widely available; some grades are inexpensive	Relatively soft; clear grades are expensive; needs finish to maintain color and to minimize checking

SOURCES

Online retailers, home centers, lumberyards

NATURALLY RESISTANT WOOD

Some species of softwoods harvested in North America resist decay and insects without chemical treatment. They include redwood (photo right) and several types of cedar. These species are not especially dense or hard; as a result, they are not as scratch or impact resistant as some other options. They range in color from deep red to light yellow, depending on species, and weather to gray.

A variety of grades are available, differing somewhat by species. Choices range from clear vertical grain and clear all heart to grades in which tight knots are permitted. The best grades are relatively expensive. Only the heartwood of these species offers any protection from the elements. Sapwood, which is permitted in some grades, is not decay resistant.

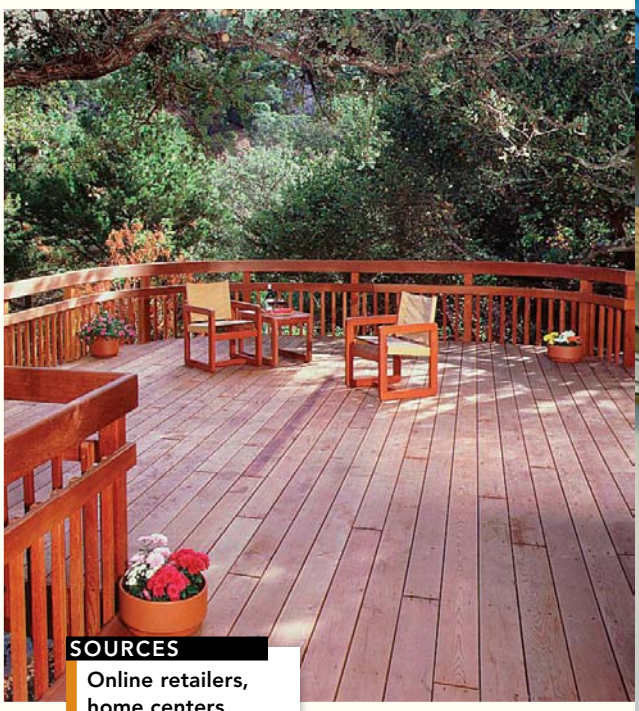
The best redwood, Alaskan yellow cedar, and western red cedar traditionally were harvested in old-growth forests on the West Coast of the United States and in southwest Canada. Today, all redwood lumber comes from young-growth private forests and is managed under the California Forest Practice Act, the most stringent forest-management regime in North America. Studies have shown redwood and cedar to be superior to plastic-based decking in terms of global-warming potential, energy consumption, and pollution.

PROS

Natural wood look; widely available; some grades inexpensive

CONS

Relatively soft; clear grades expensive; needs finish to maintain color and to minimize checking



SOURCES

Online retailers, home centers, lumberyards

IMPORTED EXOTICS

A variety of tropical hardwoods imported from South America and the Far East are milled into decking. The list is long and includes mahogany, ipé, Tigerwood, garapa, massaranduba, and cumaru.

These hardwoods carry a higher risk of being irresponsibly harvested, but many are available as FSC-certified products. Some are sold under trade names (Tigerwood, for example, is really goncalo alves), and some names could mean the lumber is one of several possible species (ipé, for instance).

Exotics are much harder than weather-resistant domestic species, making them more impact and scratch resistant. As a rule of thumb, many of these species are extremely durable, even with little or no maintenance.

Decking is typically clear and knot-free. Colors are often rich, reddish browns that fade with exposure to weather to a silver gray. Applying a finish can help to maintain the color, but it must be reapplied periodically. Tropical hardwood decking is a little harder to work with than domestic species. For one, it's noticeably heavier. Because it's so dense, cutting tools wear more quickly, and installers must drill pilot holes for fasteners.

A more recent addition to the vast array of available exotics is bamboo decking. Technically a grass rather than a hardwood, bamboo gained popularity as a sustainable choice for indoor flooring. In recent years, it has gained some popularity as a decking option as well.

PROS

Dense; hard; resistant to rot and insects without chemical treatment; dramatic color and grain

CONS

FSC certification adds to cost; needs sealing to maintain color; harder to work

SOURCES

Lumber retailers and many online sources, including:

ABS Wood
www.abswood.com

Advantage Trim & Lumber
(photo left)
www.advantagelumber.com

Ipé Decking
www.ipedecking.com

Photos this page: top, courtesy of the California Redwood Association; bottom, courtesy of Advantage Lumber. Photo facing page: courtesy of Accoya.

NONCHEMICALLY TREATED

PROS

Nontoxic; noncorrosive to fasteners; long warranties; more stable than chemically treated wood; resistant to insects and fungi

CONS

Limited availability; expensive

Several types of wood decking are designed to offer protection against insect and weather damage without the use of chemical preservatives.

Thermally modified wood is heated to temperatures approaching 500°F, a process that makes wood sugars inedible to mold, fungi, and insects, according to manufacturers. Producers also say that the process improves the dimensional stability of wood by lowering water absorption. Some brands carry warranties as long as 25 or 30 years. The decking needs no chemical preservatives, although a UV-resistant finish helps to preserve its original color.

A second nontoxic option is decking made by TimberSIL using a proprietary process that infuses wood fibers with sodium silicate. The material is noncorrosive, has class-A fire resistance, and is significantly harder than untreated wood of the same species, according to the manufacturer. It's guaranteed against decay and termite damage for 40 years.

Accoya and Perennial Wood are two examples of wood that is modified in a process called acetylation. Infusing the wood with acetic acid (vinegar in a more diluted form) renders it indigestible to insects and fungi and also reduces the wood's ability to absorb water, making it more dimensionally stable. Accoya is warranted for 50 years in aboveground applications, and Perennial Wood—available unfinished or in four stain colors—is warranted for 25 years. Perennial Wood is currently available only in New England and is being sold through lumberyards and at Lowe's.

SOURCES

Accoya (photo above)
www.accoya.com

Cambia
www.cambiawood.com

EcoVantage
www.ecoprem.com

Perennial Wood
www.perennialwood.com

ThermoForest Products
www.superiorthermowood.com

TimberSIL
www.timbersilwood.com

SYNTHETICS

Although wood is installed on more residential decks than any other material, the number of man-made substitutes has expanded exponentially. The three major categories of synthetic decking are wood/plastic composites, all-plastic planks, and composites wrapped in an outer layer of plastic, called capstock or co-extruded

WOOD/PLASTIC COMPOSITES

Most composites are a mix of wood flour and plastic, usually polypropylene or polyethylene. Of the two, polyethylene blends are more common. The plastic often is recycled, and it's somewhat soft. Consequently, the planks wear more quickly and are floppy before installation.

Polypropylene is a denser and stiffer plastic, and composites made with it can span longer distances than polyethylene blends.

Composites can be cut with standard carpentry tools. In general, they are fairly heavy.

Wood/plastic blends were supposed to overcome problems associated with wood decking, but consumers discovered that composite decking still could support the growth of mold and sometimes even rot. The cellulose in the wood flour could be eaten by fungi. Each manufacturer has its own blend, so the way a plank responds to moisture depends in part on the plank's formulation and wood-flour content. Decking with higher concentrations of wood flour is more likely to absorb water and more likely to develop problems.

PROS

Insect resistant; low maintenance; resists checking and splintering; some brands contain recycled content

CONS

May support mold and mildew; colors may fade

To counter these problems, some manufacturers have tinkered with conventional blends. One substitutes rice hulls for wood flour in its composite, claiming that because rice hulls contain smaller amounts of digestible nutrients, the decking is more resistant to moisture, mold, stains, and insect damage. Another makes a composite from polyethylene and fly ash, a by-product of coal-fired power plants. Bamboo composites also are available.

SOURCES

Cali Bamboo
www.calibamboo.com

Fiberon (shown above)
www.fiberondecking.com

GeoDeck
www.geodeck.com

Latitudes
www.ufpi.com

Moisture Shield
www.moistureshield.com

Rhino Deck
www.rhinodeck.com

TimberTech
www.timbertech.com

Trex
www.trex.com

Photo this page: courtesy of Fiberon. Photos facing page: top, courtesy of Azek; bottom, courtesy of TimberTech.

decking. All are designed to be low-maintenance alternatives to wood that need no finish and won't decay, split, warp, or be attacked by insects. Dozens of companies make synthetic decking, but it's unlikely you'll be able to find all of them where you live. Retailers are more likely to carry just a few brands, so product availability varies.

ALL PLASTIC

PROS

Low maintenance; fade and scratch resistant; lighter in weight than composites; splinter-free

CONS

More expensive than composites; some look like plastic

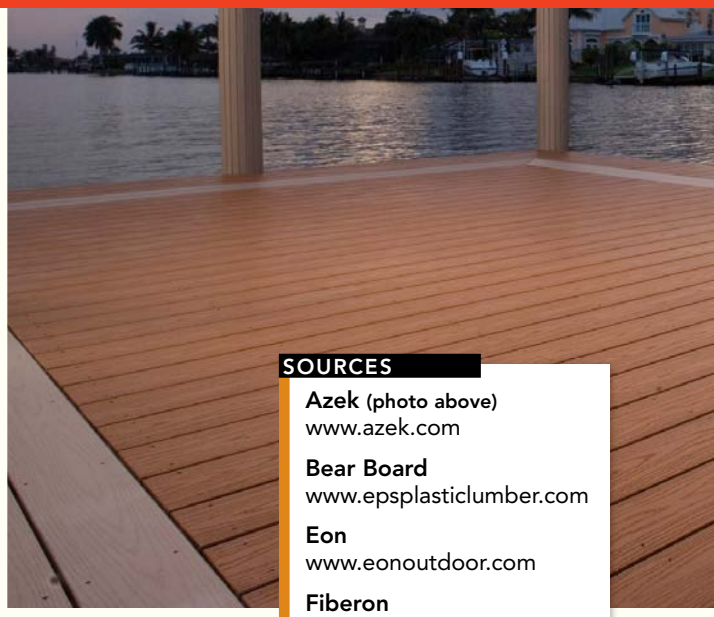
Wood-free synthetic decking is made from a variety of plastics, including polyvinyl chloride (PVC), polypropylene, polystyrene, and polyethylene. Some manufacturers use recycled plastic in their decking, but others do not. Because they contain no wood fiber, these materials don't have the same moisture-related problems as wood and wood/plastic composites.

Wood-free plastics come in several forms, including solid and hollow-core rigid planks, and in 5/4-in. and 2-in. thicknesses. With lengths of up to 20 ft., seams and waste can be kept to a minimum.

Different types of plastic have different properties. High-density polyethylene, for instance, is relatively flexible, so 5/4-in. planks may require joists 12 in. on center. Some 2x PVC planks, however, can span 24 in.

A number of companies now make decking from cellular PVC, which is a solid, foamlike material full of tiny air bubbles. The manufacturing process gives the material roughly the same weight and feel as softwood, such as pine. It works easily with conventional tools and has low water absorption and good stain resistance.

Wood-free plastics don't require any maintenance beyond periodic cleaning, and they weigh less than wood/plastic composites. On the downside, some planks have the unmistakable look of plastic. Beauty, however, is in the eye of the beholder.



SOURCES

Azek (photo above)
www.azek.com

Bear Board
www.epsplasticlumber.com

Eon
www.eonoutdoor.com

Fiberon
www.fiberondecking.com

Genovations
www.solidpvcdecking.com

Gossen
www.gossencorp.com

Trex
www.trex.com

CAPSTOCK

The latest innovation by manufacturers is to cover their composite or PVC boards with a thin layer of hard, tough plastic. These planks are called capstock.

Coatings vary by manufacturer (their exact ingredients are closely guarded secrets), but in general, they are designed to offer more stain, fade, and scratch resistance than conventional composites, and certainly a whole lot more protection than natural wood.

Whatever it's made from, the outer layer of plastic isn't cheap. Capstock decking is the most expensive synthetic-decking option on the market.

In addition to requiring little maintenance—washing with soap and water removes dirt—the planks have realistic grain patterns and colors that look more like real wood than earlier synthetics. They also come with long warranties that may even be transferable if you sell your house.

A potential problem with capstock decking is the uneven absorption of water at the cut ends. Because the core of a capstock plank is more porous than the outer shell, it absorbs more water, causing it to swell. Once the plank swells, it will never return to its original size. Therefore, sealing the cut ends of each capstock board is a must.

PROS

Realistic grain patterns; low maintenance; stain and scratch resistant; long warranties

CONS

Expensive; prone to swelling at cut ends

SOURCES

Fiberon
www.fiberondecking.com

Latitudes
www.ufpi.com

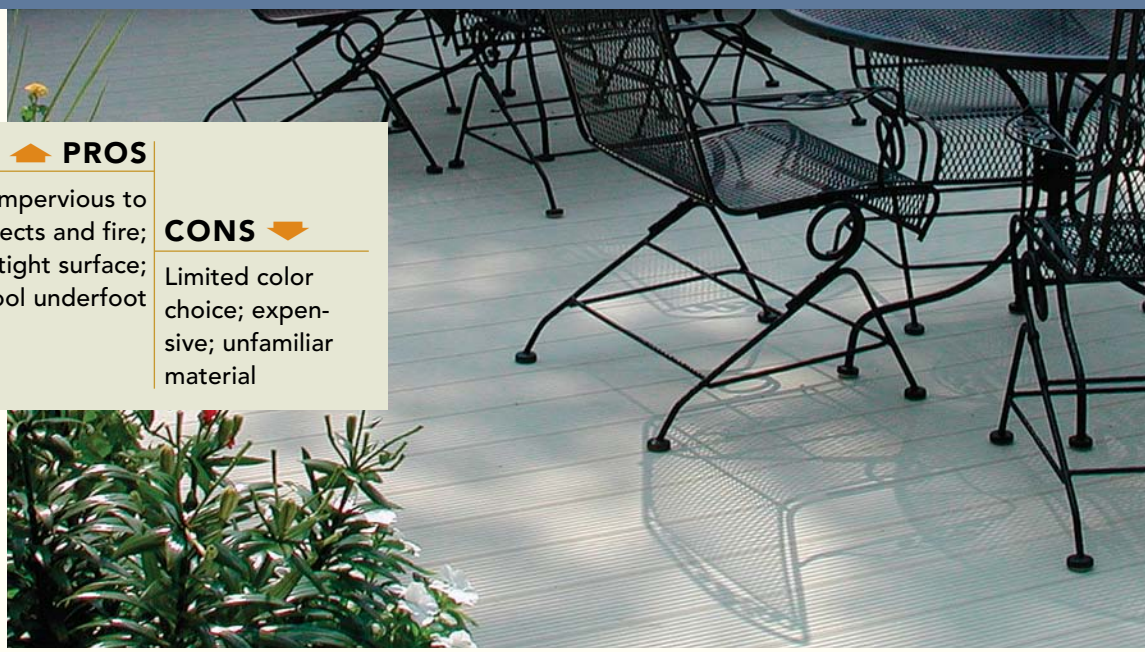
TimberTech (photo left)
www.timbertech.com

Trex
www.trex.com

ALUMINUM & STONE

If you want zero worries about whether the latest synthetic decking will prove as good as the advertiser claims, these low-maintenance options should put your mind at ease.

ALUMINUM



PROS

Impervious to insects and fire; watertight surface; cool underfoot

CONS

Limited color choice; expensive; unfamiliar material

Not all homeowners will respond to the limited choice in colors or the way it sounds when they walk on it, but aluminum's powder-coated surface, made from the same material used to coat pickup-truck beds, is slip resistant and durable.

Aluminum decking has another advantage: Some planks lock together to form a rainproof surface, meaning a dry storage area or even an extra room beneath the deck. Water that does get through the surface of the deck is directed away from the house by small internal gutters. One downside is cost. Aluminum decking is even more expensive than capstock planks.

SOURCES

Last-Deck
www.lastdeck.com

LockDry (photo above)
www.lockdry.com

Versadeck
www.versadeck.com

Wahoo Decks
www.wahoodecks.com

STONE

PROS

Extremely durable surface; unaffected by water; impervious to insects and fire

CONS

Relatively high cost; some systems are labor intensive to install

Also in the ultra-low-maintenance category is a deck made from stone tile. Paverdeck sells a deck frame that consists of 16-ga. galvanized-steel beams and planks designed to be installed on concrete piers. Once in place, the substrate can be capped with stone tile. Decks are designed to last 60 years and come with a structural warranty of 30 years. The steel beams and planks retail for between $12 and $15 per sq. ft.

Another manufacturer, EzyTile, says that its product can be installed over virtually any flat, solid surface. Tiles have interlocking bases that automatically set the spacing. Because there's no grout, water can drain between tiles. The system sells for between $8 and $12 per sq. ft.

SOURCES

EzyTile (photo above)
www.ezytile.com

GratedeX
www.gratedex.com

Paverdeck
www.paverdeck.com

TI-Proboard
www.tileyourdeck.com

Photos: top, courtesy of LockDry; bottom, courtesy of EzyTile.