A Hardwood Decking Primer

Selective buying and a few tricks make hardwood affordable

by Rob Arnold

To my way of thinking, there's nothing like the look and feel of a fresh hardwood deck with a natural finish. I must not be alone in that view. All the while composite and PVC decking have been gaining market share, my local wood suppliers have been stocking more species, grades, and profiles of hardwood decking. Most of the decks my company builds incorporate at least some hardwood. In 2008 and 2009, 51 percent of our decks combined hardwoods with composites or PVC, 33 percent used all hardwoods, and just 16 percent used all plastic materials.

Until the last couple of years, hardwood decks were generally more expensive than composite decks, due to the labor and the cost of the material. That's changed, and my company can now offer hardwood at a composite price point. The hardwoods I use are garapa gold ($2.05/linear foot (lf)), red meranti ($2.49/lf), air-dried cumaru ($2.89/lf), tigerwood ($2.79/lf), and most commonly, ipe (air-

dried, $3.09/lf; kiln-dried, $4/lf). In comparison, low-end composite decking can be purchased for a little over $2/lf, and PVC decking ranges from $2.89 to $4.10/lf.

One benefit of using hardwood decking is the span rating. As long as the deck framing meets design loads, joists can be placed 24 inches apart instead of the 16 inches required for most composites. This means quicker framing, less lumber, less fastening, and fewer hangers — all of which contribute to our being able to build a hardwood deck on a composite budget.

Durability and Appearance

Without treatment, some of these hardwoods can last 25 years or more without unacceptable surface checking and splitting, and with regular maintenance, some may last over 50 years, according to the USDA Forest Products Laboratory. So durability isn't an issue — the problem lies more with what look the customers expect for the long term and how much maintenance they're willing to do. To be sure customers will be happy five years down the road, I'm up front with them about what to expect. Some customers want neither regular maintenance nor a weathered look; I steer those people toward composite or PVC decking, with the caveat that they'll still need to clean the deck regularly.

In my market, the New England coast, a lot of customers like the silvery-gray look of weathered hardwood, particularly those who own boats (a weathered house deck reminds them of a weathered boat deck) or historical homes (weathered decking is in keeping with antique buildings). And if customers want to maintain a fresh wood look, they can, as long as they commit to at least annual cleaning and resealing.

Not All Hardwoods Are Equal

Every year I am contacted by several companies trying to unload a container or two of hardwoods such as garapa gold or ipe at an unbelievable price that sounds great — until you find out the lumber isn't graded, half the container is filled with 6-foot lengths, and the few 16-foot lengths are filled with knots or have serious warping. If you're purchasing hardwoods from a particular supplier for the first time, even a lumberyard, make sure you inspect its material or ask if the wood has been inspected by a third party, so you don't get sent a load of substandard material.

Hardwood grading is generally broken down into three categories: Premium KD, Premium AD, and FEQ/FAS. Premium decking is the highest quality available in hardwoods and has at least one face and two edges free of natural or milling defects. Natural defects are things like tight knots or wormholes. Milling defects include gouges, skipping, scratches, and a rough finish.

The differences between KD and AD are the drying technique and moisture content. KD is kiln dried, while AD is air dried. In my experience, the moisture content of KD material is more reliable than that of AD lumber. KD is especially recommended when using a hidden fastener system, as air-dried hardwood decking can shrink up to 5/16 inch in width, which can loosen fasteners and create large gaps between deck boards down the road, increasing callbacks. Air-dried decking may also have water marks or sticker marks, which will be tough to address when a finish is applied.

FEQ (First Export Quality) and FAS (Firsts and Seconds) decking is generally graded by the mill. These pieces may have water marks, milling defects, visible natural defects, or slight warping. While Premium KD and AD can be pricey, the product will yield a smoother installation and finish. Using FEQ and FAS lumber can cinch the deal, though, if a customer wants a hardwood deck on a composite budget. FEQ and FAS decking may require a little more labor to install and finish, but the product will still look great as long as the installer takes the time to sort through the material and sand the deck before the finish is applied. My local lumberyards' standards for FEQ/FAS are generally 70 percent first quality and 30 percent seconds. However, they often send orders with 85 percent firsts and 15 percent seconds.

Hardwood usually comes in random lengths from 6 feet to 20 feet. Before framing the deck, have your supplier tell you what percentage of each

Ventilation

Keeping moisture out of hardwood is the key to a long deck life. For most hardwoods, it's recommended to have at least 12 inches of clearance to the ground for ventilation. In some situations (like a rooftop deck on sleepers), a 12-inch air space isn't possible. We've replaced five-year-old rotted mahogany and meranti decks that were installed on sleepers, and we've noticed some cupping with garapa gold decking. In those circumstances, we've had the best luck with tigerwood, cumaru, and ipe.

length the delivery will consist of so you can plan your framing and your deck design accordingly (**Figure 1**).

Working With Hardwood

Rule No. 1 with hardwood installation: Keep the wood dry. We store it off the ground and wrap the stack with plastic if it's going to rain. If we have to work in the rain, we set up the cutting station under a pop-up tent. Working with wet hardwood can instantly lead to problems with tools, finishing, and splitting wood. Even if sharp blades are used, cutting wet hardwood can shred or chip the ends of the material and lead to issues sandpaper can't fix.

Cutting hardwoods can be tough (**Figure 2**). For cutting decking, my crew uses circular saws 99 percent of the time, always with a 16-tooth carbide blade. Both ends of a piece of hardwood decking from the mill usually need to be squared. The fine dust from many species can be harmful, and a dust mask and gloves are recommended.

Unlike a router, a saw doesn't have an adjustable speed. Hardwoods burn easily, and if you put too much pressure on a fast-spinning blade, you'll get burn marks on the end cuts of your deck, which the homeowner will notice. To avoid that complaint, we always picture-frame hardwood decks. Even if you don't burn the wood, the picture frame makes a nice clean border around the perimeter of the deck. Another way to hide hardwood burns is to install trim on the rim of the deck, flush with the top of the decking.

Circular-saw blades are usually changed once every 200 square feet of decking. When cutting hardwood balusters, posts, and rail sections, we always use a chop saw with a 40-tooth carbide Freud blade. For ripping, we use a 40-tooth carbide rip blade in the table saws. As with any other finish work you do, make sure you set up your miter saw and table saw properly. A good saw stand with plenty of material support decreases the chance of binding and burning a finish cut.

Whether we're installing PVC or hardwoods, we always round over the end cuts of the decking with a small router and a fresh 1/8-inch round-over bit. Just like cutting hardwoods, routing hardwoods has its learning curve. Hardwoods overall are very dense, but density can vary greatly between species, and each will require a different router speed and feed rate.

To avoid burns on hardwoods, always test several pieces before you start routing the decking. Let the tool pull its way through the material. Also, never slow down or stop the router during its pass on the material, because slowing down the feed rate will lead to a visible burn mark. Finally, make a couple of passes instead of trying to rout everything in one shot.

When starting a hardwood deck, pick the straightest pieces from the

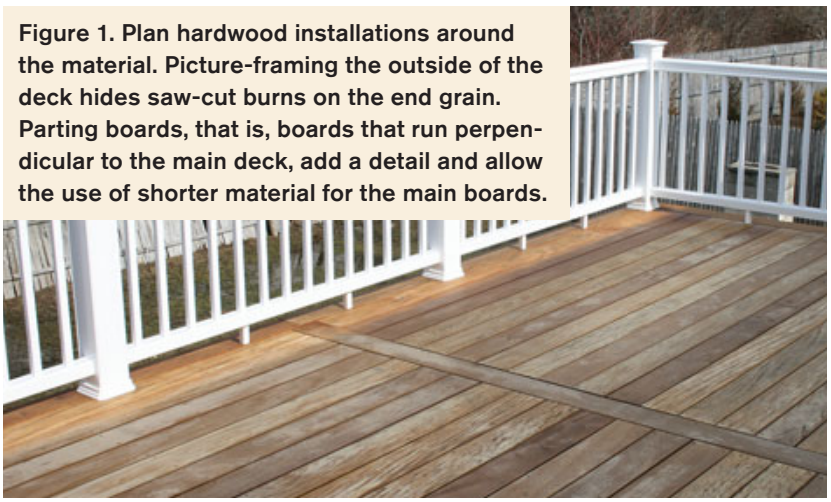

Figure 1. Plan hardwood installations around the material. Picture-framing the outside of the deck hides saw-cut burns on the end grain. Parting boards, that is, boards that run perpendicular to the main deck, add a detail and allow the use of shorter material for the main boards.

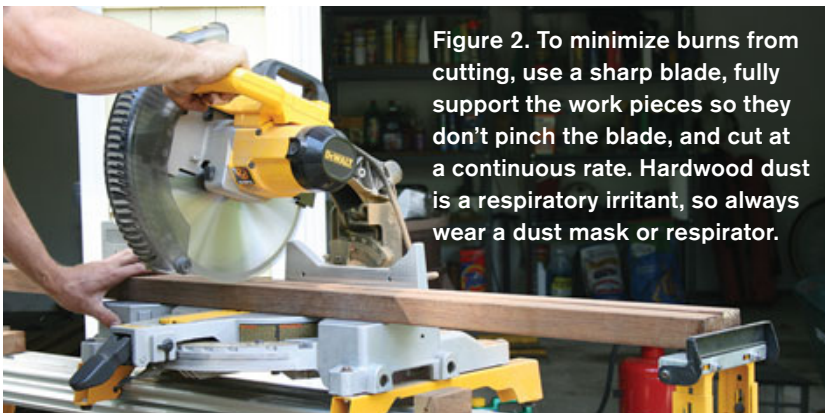

Figure 2. To minimize burns from cutting, use a sharp blade, fully support the work pieces so they don't pinch the blade, and cut at a continuous rate. Hardwood dust is a respiratory irritant, so always wear a dust mask or respirator.

Watch Out for Metal

Even the smallest metal shards from a 304 stainless steel (or galvanized) screw will react with species such as garapa gold or cumaru, leaving black marks that are difficult to sand out. Sweep the deck after each work day and inform your customers to put plastic feet on all of their metal deck furniture.

Figure 3. When attaching hardwood with screws, all the holes must be drilled and countersunk.

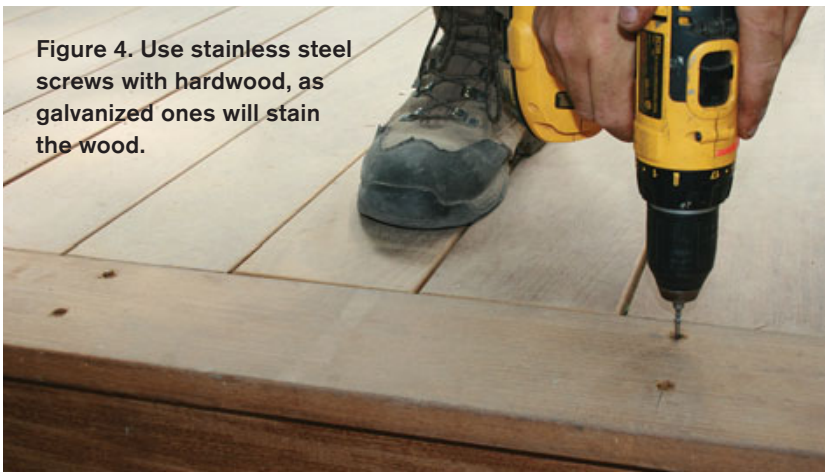

Figure 4. Use stainless steel screws with hardwood, as galvanized ones will stain the wood.

Presealed Decking

An option that one of our vendors offers is decking that comes with oil applied to all surfaces. I've had problems with that system, which might come as a surprise. The first coat of oil on the surface doesn't last very long, due to exposure. While this top coat wears off, though, the bottom stays sealed; therefore when the top gets wet, the decking acts like a holding tank for water and has trouble drying out.

Figure 5. Drilling hardwood generates a lot of heat. Be careful not to touch hot bits to your skin or to any standing water (it can cause the bit to break).

pile. Install the first course to a clean chalk line — take your time, as it's the benchmark for the rest of the installation. Once that's done, snap a reference line every 4 feet, parallel with that course. These lines are used to check each consecutive course during the installation.

I leave a 1/8-inch gap between boards (never go any larger than that with air-dried wood, as there is a great chance of the material shrinking). Butt ends of boards can be set tight (without a gap) whether they're air dried or kiln dried. With butt joints, we usually put a two-degree bevel on each end cut; we install the boards with the long points at the top and butt the long points together. This leaves a nice, clean joint that doesn't soak up as much water. Deck-pulling tools like the BoWrench (Cepco Tool Company; 800/466-9626, cepcotool.com) can be helpful during a hardwood installation.

Immediately after cutting hardwood, we apply Anchorseal (U-C Coatings Corp.; 716/833-9366, uccoatings.com) to the end grain. Anchorseal is a wax that keeps ends from drying too quickly and splitting. If it's not applied, the ends of the decking can actually split within one hour of being cut. Be careful not to get it on the exposed face of the decking, especially if the homeowner wants the deck to weather. I have seen Anchorseal at joints of decking that has weathered for 13 years; it can be an eyesore.

Fastening Decking

Fastening systems for hardwoods are similar to systems for composite and PVC decking, except you must predrill everything (**Figure 3**). Face-screwing is my preferred way to fasten. We predrill all decking with Smart-bit #7 countersink bits (Starborn Industries; 800/596-7747,starbornindustries.com)and use 316 stainless steel trim-head screws (Swan Secure; 800/999-5099, swansecure.com). The Smart-bit comes set up to drill perfect countersinks for trim-head screws, which is great for less-experienced crew members.

Installing screws well in hardwood takes a little experience (**Figure 4**). If a crew member doesn't have the feel for the wood, he or she will strip the heads on a handful of screws. In most species, the darker the piece, the harder the wood. Drilling or countersinking wet wood can make chips or gouges — leaving a larger hole than necessary — and can ruin bits. Drilling through hardwood heats up the typical 1/8-inch bit quickly (**Figure 5**). If the hot bit then touches a few drops of cold water, the bit may snap.

On some jobs, we make and use wood plugs to hide screws. Once the plugs are sanded and finished, they're barely noticeable (**Figure 6**).

Unlike with composite and PVC decking, installing hidden fasteners in hardwoods can be quicker than face-screwing, due to the time predrilling takes. The quickest hidden fastening system for hardwoods is the TC-G Gun (Tiger Claw; 800/928-4437, deckfastener.com) used with pre-grooved decking. Many of our local suppliers can order decking pregrooved, but the fastening system must be specified before the decking is grooved. If time isn't an issue, you can groove the decking yourself with a biscuit joiner or powerful router. Picture-framed pieces, however, must still be face-screwed.

When installing hardwood trim such as stair risers and skirts, even the hardest species can be fastened with a finish gun. We find that hardwoods are much more stable than composites and PVC and are less likely to pull away from the framing. In most cases, we wait until the end to install any trim on a deck. This lets the pressure-treated framing dry a little longer, and there is less chance of movement after the trim is installed. I have been told by several well-known craftsmen to avoid miters outside, but we haven't had any issues with mitered trim as long as we glue all the joints with polyurethane glue.

Figure 6. One option with hardwood is to drill oversized countersinks and plug them.

Figure 7. Before finishing hardwood, give it a quick sanding with 80-grit paper in an orbital sander.

Figure 8. A two-man finishing crew minimizes lap marks. One works the finish between the boards with a brush while the second crew member quickly coats the field using a sponge.

Finishing

Most homeowners want to preserve the fresh hardwood look. Treating and finishing a deck is an article in itself, and what works best varies with the climate. In Rhode Island, which sees both hot, dry summers and cold, wet winters, some customers with less-exposed hardwood decks can go three years without treating them. Other decks need a fresh coat every year, especially if they are in direct sunlight.

Before finishing a new deck, we sand it with 80-grit paper and an orbital sander — just a quick back-and-forth motion with the orbital and a wipe-down with a damp cloth will prep the deck (**Figure 7**). Generally, we coat a deck three to seven months after it's installed, then pressure wash it and apply another coat three to seven months later (depending on exposure), then pressure wash and apply a third coat three to seven months after that (**Figure 8**). At that point, the hardwood will usually hold the oil finish for a year or two. Finishes we've had good luck with include UV Plus (Messmer's; 801/569-2426, messmers.com) and Sikkens products (866/745-5367, www.nam.sikkens.com).

Hardwood may not be the best choice for every deck, but it fits the traditional, weathered wood architecture of the New England coast well, and it can be had and installed at a reasonable cost. Just make sure your customers know how hardwood will perform. Whether they expect the wood to weather or to look freshly installed for years, the key to their satisfaction is fully preparing them for living with whatever decking they choose. ❖

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