

## HARDWOOD DECKING INSTALLATION GUIDE

Exotic hardwood decking such as Ipe (Brazilian Walnut) and Garapa (Brazilian Ash) are among of the most durable natural wood decking available. When properly installed and maintained, you should have a beautiful deck that should last for decades.

The following guidelines have been prepared to help the installer achieve the best results with your deck installation. East Teak has tried to accumulate and present the best information possible.

Due to the variance in nature-grown products, as well as general disagreement among professionals, we can only advise and make recommendations based on our own personal experience as well as feedback from suppliers and contractors who have used these methodologies.

It is the sole responsibility of the installer and owner to adequately test and determine final applications. Follow all manufacturers' recommended application instructions when using proprietary products.

### SAFETY

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- First and foremost, always check and follow local building codes.
- Proper safety equipment should be worn at all times.
- Wear safety glasses when working with hardwoods.
- Warning: dust masks are required when cutting and sanding hardwoods, as hardwood dust can potentially cause breathing problems.
- Be careful lifting hardwood lumber. Its density is much greater than domestic woods, and therefore heavier.
- Always use the proper tooling when working with hardwoods.

## TOOLS

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- Use carbide-tipped saw blades when sawing.
- Pre-drill pilot holes when working with dense hardwoods such as Ipe and Garapa. Only use high quality drill bits that are recommended for hardwoods. Keep the bits cool and keep shavings out of the hole. Dipping the bit in cutting oil will keep it cooler, however be careful not to get any oil on the deck surface as it can stain it.
- Use bending tools such as the BoWrench to straighten crooked or bowed boards and hold them in place while fastening.
- Use only high quality stainless steel trim head screws or hidden fastener system. #2 Square bit drivers are recommended to minimize screw head stripping.

## MATERIAL HANDLING & STORAGE

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- Ipe and Garapa deck boards supplied by East Teak Fine Hardwoods, Inc. are for outdoor use only.
- Store out of direct sunlight and keep dry by covering. Covering also prevents premature oxidation and fading.
- Stored decking should be kept off the ground at least 4" (used 2x4's for dunnage, or scrap pieces of lumber).
- Use dunnage (separating sticks) between rows of stacked lumber for ventilation during acclimation.
- Stack deck boards with the longest lengths on the bottom, building to the shortest lengths on top. Hardwood decking is heavy, so do not stack more than several feet high. Use enough support dunnage (such as 2x4 studs) so that you stack does not sag from its weight. Line your dunnage up vertically for maximum stabilization.
- Allow wood to acclimate and stabilize to installation environment humidity levels before installation! The wood will lose some moisture while air drying.
- Allow a minimum of two weeks to properly acclimate the wood. Failing to properly acclimate the wood before installation could cause the wood to crack, buckle, warp, etc. after installation.
- Wood will naturally darken upon exposure. There may be lighter/darker areas on boards (i.e. - where banding straps have been) that will darken and even out with the rest of the board after exposure.

## CUTTING

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- Use all safety precautions when using tools, including wearing safety glasses and breathing mask.
- Carbide-tipped saw blades are recommended for smooth cuts.
- Due to the density of the wood, go slower as you cut through the wood to get a smooth cut without excess dulling of the blade. This will minimize splintering on the bottom of the board.
- It is recommended that you use a 10" to 12" compound miter saw to ensure smooth, straight cuts.
- Always cut with the good face up to minimize end-cut splintering.
- Seal all fresh-cut ends with an end-sealer such as AnchorSeal immediately after cutting in order to minimize splitting.

## INSTALLING

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- Ipe or Garapa should never be attached to a solid surface such as concrete. Sleepers, stringers or joists should be used to fasten the deck boards to the structure. Proper drainage and ventilation should be considered to avoid movement, cupping and checking.
- Ventilation - Allow for air flow underneath and between the deck boards in your design for maximum long-term stability. Follow proper gapping/spacing recommendations below for best results. Decks should be built at least 24" above the underlying surface and have open ventilation from three sides.
- Spanning - For minimal waste, we recommend that you build your deck on 12" spans. Otherwise, follow these standard spans for installation for minimal deflection of the deck surface:

<b>Ipe</b>	
Nominal Size	100 psf Span
1x4	16" on center
1x6	16" on center
5/4x4	24" on center
5/4x6	24" on center
2x4	24" on center
2x6	24" on center
2x8	24" on center

### Garapa

Nominal Size	100 psf Span
1x4	16" on center
1x6	16" on center
5/4x4	24" on center
5/4x6	24" on center

- Gapping - Allow a 1/8" gap between board widths on 4" wide decking, and 3/16" gap between board widths on 6" wide decking for drainage, airflow and expansion. Use 1/8" and 3/16" strips of scrap plywood or nails with equivalent shank size for gauging.
- Expansion - Hardwood decking may expand by as much as 1/8" on 6" wide boards and 1/16" on 4" wide boards during times of high moisture, thus proper gapping is recommended.
- Shrinkage - Air dried hardwood decking can shrink laterally approximately 1/16" on 4" wide boards, and up to 1/8" on 6" wide boards. Shrinkage will be less on kiln-dried (KD) boards. Expect more shrinkage of width in hot or dry areas.

### FASTENING

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- Face screwing - use stainless steel trim head screws for superior corrosion resistance and maximum holding power, driven with a slow speed drill into a pilot hole and countersink to prevent splitting. Use two fasteners to attach decking to each joist, approximately 3/4" from the edge of each side of the board. It takes approximately 3.5 screws to cover 1 square foot, so allow for 350 screws per 100 square feet.
- To determine typical fastener length needed, multiply the wood thickness by 2.5. Many contractors use #7 x 2-1/4" stainless steel screws.
- Pre-drill to the diameter of the screw shank to avoid splitting. The screw tip will bite into the joist below to hold the board in place.
- Trim head screws are recommended as they produce a lower visible profile.
- Pre-drill to avoid splitting. Screws require a pilot hole and countersink. Use of a countersink/drill bit combo is recommended. Judge the depth of the countersink based on the screw head size. Trim heads require little to no countersink, while wider heads require a deeper countersink. Also consider the depth of the countersink if using plugs to hide the screw heads.
- While coated or galvanized steel fasteners have been used, they may stain the wood black and have a shorter service life, and are therefore not recommended.
- In addition to screwing, use a bead of high quality exterior adhesive, similar to PL Premium or PL 500, between the deck boards and joists on all installations.

- **DO NOT USE NAILS.** Hand nailing Ipe will cause the wood to split; pneumatic nail guns tend to curve the nail back out of the wood, and can be extremely dangerous due to the density of the wood.
- Plugging will help conceal the fastener head. Plugging is an aesthetic that is sometimes preferred, however is labor intensive. Use species specific 3/8" diameter plugs (Ipe Plugs for Ipe and Garapa Plugs for Garapa) and set the depth of your countersink using a stop collar to accommodate the plug, approximately 1/4" deep. Using a dab of exterior adhesive, such as PL500 or TightBond2, tap the plug into place using a rubber mallet and allow the adhesive to set. Using an electric hand planer, plane the remaining material nearly flush with the deck board. Go over again with a belt sander, spot sanding where needed to ensure flush plug. Alternately, many contractors use a sharp chisel with the bevel face down parallel with the deck surface and chisel away excess material. While this method is quicker, it will lead to raised and indented areas on the plugs. Spot sanding can minimize this result.
- Hidden fasteners, although labor intensive, can eliminate the screw head from showing on the deck surface if the plugging aesthetic is not desired.
- Most hidden fasteners, such as the EB-TY and Ipe Clip Extreme, are installed from the top side of the deck onto kerf cuts made either by a biscuit joiner or by a three-winged router bit into the side of the deck board. Deck boards are also available "pre-grooved" along both sides of the board for receiving hidden fasteners. Fasteners screwed into the decking from the underside are not recommended because they do not directly anchor the deck boards properly to the joist potentially resulting in failure, nor are they readily accessible for repairs.
- When installing hidden fasteners, angle the screw through the fastener, through the deck board, and into the joist. This will require pre-drilling a pilot hole.
- A drawback to using a hidden fastener system is the difficulty in removing a board for repair. Face screwing requires removing the screws on each individual board that needs to be removed, and possibly removing plugs. Many boards may have to be removed to get to the damaged board that has been installed with hidden fasteners.
- Newer hidden fasteners such as the CAMO system pocket-screw the fastener into the side of the board using an angled jig. This system is less expensive and secures the board to each joist with two screws, providing the best of both methods of face screwing and hidden fasteners. The screws are easily removed thereby making it easy to remove one damaged board.

## SANDING

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- Spot sand where necessary
- Orbital sanding is not recommended as it can leave circular scratches in the grain

## END SEALING

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- End sealing all cross-cut boards with a wax-based product is recommended to minimize cracking, which may occur as moisture escapes the wood.
- It is recommended that fresh cuts be sealed immediately after cutting.
- AnchorSeal2 is one of the better products on the market for this type of application. It goes on much like paint, and dries to a waxy clear finish. It can be applied by brush, sponge, or rag.
- Do not get end sealer on the face of the board, as it will cause staining.
- For best results, follow the manufacturer's instructions on the container.

## CLEANING & MAINTENANCE

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- Periodic cleaning with simple soap and water and a stiff brush will keep your deck looking new.
- Pressure washers are not recommended. Using a pressure washer can have a sand blasting effect and tear wood fibers, causing a coarse and uneven surface. A simple garden hose with a spray nozzle should be sufficient.
- If you need to remove aged or failing stains or finishes, use a good commercial cleaner designed for hardwoods, such as Woodrich Brand EFC-38.
- Use of a cleaning and brightening two-part system, such as Woodrich's EFC-38 Wood Deck and Siding Cleaner/Stripper and Citralic Wood Deck and Siding Restorer to return silver gray wood to its near-original color.
- Solid color stains (if you can't see the wood under the stain) should be removed using Woodrich Brand HD-80.

## FINISHING

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- Before applying finishes, brush and clean the surface to remove dirt and dust
- Some Garapa boards may show small silica particles as little white spots and may become more visible after a finish is applied.
- Due to the density of Ipe and Garapa, sealers or finishes are not necessary. If you require minimal maintenance and choose not to apply a finish, your deck will oxidize and weather naturally to a silver/gray tone. A clear oil-based sealer or a product such as Flood Seasonite may help reduce the potential for surface checking, however it will not protect the wood from graying.

- To maintain the hardwood's rich color, use a transparent penetrating oil-based finish with UV inhibitors
- Due to wood density and subsequent impermeability, apply several thin coats of a finish that is designed for hardwoods such as Ipe and Garapa. Over-application can cause sticky surfaces as a result.
- Fully spot test any oil- or water-based coating before general application to determine compatibility. East Teak recommends Woodrich Brand products that are specially formulated for hardwoods. Other products that have been used successfully by hardwood deck installers include Total Wood Protectant (TWP), Messmer's, Ipe Oil, Ready Seal and Penofin.
- Reapply finishes annually or as needed. Clean the deck thoroughly before re-finishing. Products such as Woodrich Brand Wiping Stains do not need to be stripped if you have regularly maintained your deck.
- Follow all manufacturers' instructions for applying sealers and finishes.
- The lifespan of a finish will vary, depending on the weather extremes, however expect an annual maintenance and perhaps a regular over-coating of high traffic areas.