

Technical Bulletin-Fastening Iron Woods

Fastening

Not all fasteners are created equal. There are many fastening options and systems available in the market today. Fastener selection will have a significant impact on the outcome of any deck installation. It is important to make certain that the fastener is appropriate for the deck material to be installed. Whatever system you chose it is important to remember that once selected liability for fastening performance shifts to the specifier, fastener company or contractor and away from the decking manufacturer, so consider your options carefully and follow the manufacturer's and fastening companies instructions carefully. The use of high quality T305 or T316 stainless steel fasteners is recommended to provide superior service life and avoid potential galvanic reaction issues related to the connection of naturally durable wood products with treated softwood substructures. If screws are to be left exposed on the face of the boards it is best to use T305 or T316 stainless on darker woods like Ipe and T316 stainless on lighter woods like Garapa to avoid staining which may result from the interaction between the natural tannins in the wood and non stainless fasteners. Regardless of the fastening system selected, performance evaluation and selection is the responsibility of the specifier or installer.

Selecting Screw Length

The general rule of thumb is that a screw should penetrate 1.5 times the thickness of the decking into the stringer. Example: 5/4x6 decking with a net thickness of 1 inches will require a minimum screw length of 2.5 inches. Screw Diameter is typically determined by screw length, the longer the screw the larger the diameter.

Pre-Drill, Countersink and Screw Method

Pre-drill and countersink two holes per deck stringer intersection. Install self-drilling trim head screws. Screw penetration to joist should be a minimum of 1-1/2 times the thickness of the deck board. Drilling and screwing through the face of the deck boards provides the strongest mechanical connection. It is always recommended that you pre-drill and pre counter sink the ends of the boards when using any types of system as the ends of the boards are the most susceptible to splitting. Be sure not to over torque the screws as the head may cause the board to split. There are tools like the Smart-Bit System that prevent over countersinking and over torqueing. Typically, commercial decks are constructed using this method. Stainless steel fasteners are now available in both natural stainless if you intend to let the deck weather naturally as well as color head coated which can be used to match finished deck colors.



Self-Drilling/Self-Countersinking Screw Method

Iron Woods® are very hard. The use of self-drilling, self-countersinking screws without pre drilling creates tension or pressure on the wood fibers and increases the possibility of splitting. This doesn't mean that you can't use self-drilling finish head screws... it just means that you will likely split some boards especially if you over torque the self-countersinking screw heads. There is one collated self-drilling screw system that has had good results. The Muro™ Ejector™ Screw and Driver System is designed to remove fiber from the hole as the screw penetrates the deck board reducing pressure on the wood fiber. T305 Stainless Steel Ejector™ Screws are not available with color coated heads.



Drill, Screw and Plug Method

The drill, screw and plug method has all the mechanical benefits of the drill and screw method, however the countersinks are deeper to allow the application of a wood plug and adhesive to cover the screw head. Typically used in wood boat construction this method offers a unique appearance. Drill Screw and Plug systems like Starborn™ Pro Plug™ provide the Smart Bits, Glue Injector Cap that regulates glue volume and tapered wood plugs in a system that facilitates quick installation by eliminating the need to trim and sand plugs after installation.



