

# TECHNICAL BULLETIN

## Fastening Black Label™ Decking

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### Fastening

Fastener selection plays a crucial role in the success of any deck installation. With numerous fastening options and systems available, it's essential to choose the right fastener for the specific deck material. Once a fastening system is chosen, the responsibility for fastening performance shifts to the specifier, fastener company, or contractor, not the decking manufacturer. Therefore, it's vital to carefully consider your options and adhere to both the manufacturer's and fastener company's guidelines.

### Selecting Screw Material

For superior durability and to prevent galvanic reactions between naturally durable wood and treated softwood substructures, use high-quality T304 or T316 stainless steel fasteners. T316 stainless steel is particularly effective in reducing staining caused by the interaction between the wood's natural tannins and lower-grade stainless steel. In coastal environments, where salt spray can cause corrosion, T316 stainless steel is the best choice. Its strength can be increased by using a thicker screw shank; for instance, a #8 T316 screw is approximately as strong as a #7 T305 stainless screw. Regardless of the fastening system chosen, it is up to the specifier or installer to evaluate and select the appropriate one.

### Selecting Screw Diameter, Length, Head Type, and Drive Type

As a general guideline, screws should penetrate the substrate to a depth at least equal to the thickness of the decking. The recommended minimum shank diameter and screw length based on the net deck thickness are as follows:

- Nominal 1X and 5/4X Grooved for Hidden Fastener: #7x1-5/8" – Trim Head, Black Head Coat
- Nominal 1X and 5/4X Drill, Screw and Plug: #8x2.5" Pro Plug Screw
- Nominal 1X (net .75"): #8 x 2"-2.5" – Trim Head Countersunk
- Nominal 5/4X (net 1"): #8 x 2.25"-2.5" – Trim Head Countersunk
- Nominal 2X (net 1-1/2"): #12 x 3-4" – Flat Head Countersunk
- Nominal 3X (Net 2.-1/2"): #14 x 5-6" – Flat Head Countersunk

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### Pre-Drill, Countersink, and Screw Method

To ensure a strong connection, pre-drill and countersink two holes at each deck stringer intersection. Use self-drilling trim heads or flat head screws for installation. Drilling and screwing through the face of the deck boards provides the most robust mechanical attachment. This method also allows the boards to expand and contract uniformly, keeping the gaps between them consistent. It is advisable to pre-drill and countersink the boards, especially at the ends, to prevent splitting, as the ends are most prone to it.

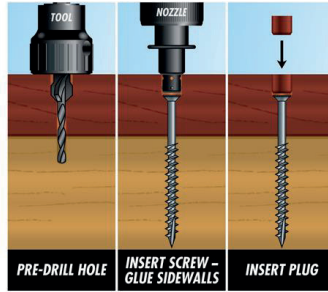
Tools like the smart bit drill and countersink tool, along with the bit system, ensure a precise depth of countersink every time. Set the drill bit depth to match the thickness of your decking to avoid drilling into the treated substructure. For hardwood substructures, you may need to drill through the deck and into the stringer. Be careful not to over-torque the screws, as this can split the board. The depth setter System helps prevent over-countersinking and over-torquing. Typically, commercial decks are built using the face screw method. Stainless steel fasteners are available in natural stainless (silver) for a weathered look or with brown-coated heads to match the wood decking.



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### Drill, Screw, and Plug Method

The drill, screw, and plug method offers the same mechanical benefits as the face screw method, with deeper countersinks to accommodate adhesive and wood plugs that cover the screw heads. Commonly used in wood boat construction, this method provides a distinctive finish. The plug system facilitates quick installation with smart bit, Glue Injector Cap (which controls glue volume), and Tapered Wood Plugs, eliminating the need for trimming and sanding after installation. Whether finished or left to weather, wood plugs will blend with the deck surface color. Like face screwing, this method allows the deck boards to expand and contract uniformly, maintaining consistent gaps between them.



## Hidden Deck Clips

Often called “hidden fasteners,” this method involves grooving or biscuit-cutting the decking along the side of the board and using clips to connect the decking to the stringers. There are two types of clip systems available: Mechanically Connected and Non-Mechanically Connected.

### Mechanically Connected Systems

These systems create a structural connection between the board and the stringer by drilling a hole through one side of the board and securing a screw through the clip and board into the stringer. This allows the board to expand and contract towards and away from the mechanically connected edge, keeping the spacing between boards consistent. Boards should never share a clip that doesn't permit screws to penetrate both boards at butt joints.

### Deck Clip System

The Deck Clip System state-of-the-art design and materials deliver a hidden deck fastening system that outperforms the competition. One clip, one spacing. The deck clip creates a 3/16” gap. The clip's 1.5” length provides a longer holding surface than the competition. The unique three-hole design allows the clips to be applied with one screw for connection to center joists and two screws at butt joints by providing an aligned, solid fastening platform that ties abutting boards together. This unique design eliminates the potential for movement (snaking) at butt joints and down the length of the deck boards.



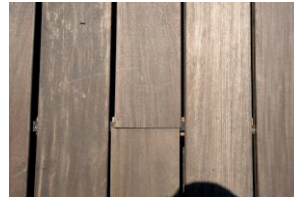
Pre-drilling hardwood decking for hidden fasteners is always recommended. The deck clip system includes a Drilling Guide, ensuring the installer pre-drills holes at the proper angle for installation, preventing improper fastener installation that can occur with clips leaving the drilling angle to the installer. It's crucial to avoid drilling into the joist by setting your drill bit to the correct depth to prevent over-drilling.

It's important to note that hidden fasteners are not completely hidden; you will see the fastener and screw head between the boards. We recommend using kiln-dried hardwood decking only when utilizing hidden fasteners. For poorly ventilated decks, use kiln-dried 5/4x4 decking, and for well-ventilated decks, use kiln-dried 5/4x6 decking. We do not recommend using air-dried hardwood decking with hidden fasteners, as shrinkage may reduce the contact surface between the clip and the deck. Some markets use 1x4 and 1x6 KD grooved decking, but clips are more visible with 1X nominal decking due to the decreased shadow line and less board for fasteners to penetrate. We strongly advise against using air-dried grooved decking with hidden fasteners, as it is more likely to cup and shrink, making it challenging for the clips to keep the deck boards in place.

Certain clip systems do not create a mechanical or structural connection between the deck board and the stringer, which prevents lateral movement. It's important to remember that boards naturally bow or curve as the natural tension in the wood fiber is released. Non-mechanically connected systems allow the boards to move towards or away from the adjoining boards, potentially resulting in inconsistent or irregular spacing between boards. This movement is exaggerated at butt joints and with air-dried decking. Therefore, we do not recommend clips that do not require one side of the deck board to be drilled and mechanically connected to the stringer.



Mechanical Connection



Non-Mechanical Connection

## Wood Deck to Metal Framing

Attaching wood decking to metal framing involves a unique set of challenges. Hidden fasteners that create a mechanical connection between the decking and the stringer are nearly impossible to install because you need to pre-drill the metal framing, and the drill bit tends to wander when drilling at a 45-degree angle.

While you can use clips that don't create a mechanical connection, this approach reintroduces the issue of snaking. Therefore, face fastening is your best option for securing wood decking to metal framing. Pre-drill and countersink the decking, then use a self-tapping 410 stainless steel flat head screw. The strength of 410 stainless steel allows the screws to self-drill, and using stainless steel reduces the potential for a galvanic reaction between the fasteners and the steel stringers.

