

Common causes of seam failure

When it comes to a successful caulking job, all manufacturers echo a common theme: Seam preparation is the key. Each product tested calls for seams to be not only clean and free of old caulk (ideally taken back to new wood), but also dry and oil free. That's a particularly interesting proposition considering the oily nature of teak. Caulking uncleaned teak can mean early seam failure, even if all other product directions are followed correctly.

Sealant failure in teak deck seams can typically be classified as either adhesive failure, substrate failure (the caulk maintains its adhesiveness, but the seam sides fail due to splits or cracks in the teak), or cohesive failure (the caulk splits or tears apart).

Proper joint design is as critical as caulk selection. According to Teak Decking Systems literature, "Failure occurs when the design of the joint exceeds the ability of the sealant to function properly, or when the material is applied incorrectly or carelessly."

A teak deck seam is simply a groove cut atop the crack between each plank to provide a cavity for the caulk. Seams can vary in width, depth, and shape (V, square, round, etc.). However, to be functional, they must have enough depth and width to hold sufficient amounts of caulking material to withstand deck movement, expansion, and contraction without failure. Razor-thin seams may look professional, but they'll be nothing but trouble in the long run. They will eventually pull away from the seam sides.

A 1/8-inch seam is realistically the thinnest that should be used, and 1/4-inch is typically the widest from an aesthetic standpoint—however, this depends on deck plank size (wider planks need wider seams due to their greater expansion and contraction).

Teak, like all wood, expands when



There were no signs of seam failure during our adhesiveness test when each seam was subjected to 35 pounds of pull.

it's wet and contracts when it's dry, a factor you can use to your advantage. When caulking a deck, move the boat indoors, if possible, or at least cover the decks, letting them dry out for a few months. This not only ensures the seams are dry (a basic requirement no matter which product you use), but also allows maximum shrinkage of the teak planks. Once exposed to moisture, the planks will expand (squeezing the caulk in the seams between them) rather than shrink, which causes the seams to open, possibly pulling the caulk away from the seam sides. If caulked while the deck is completely dry, the seams will always be pushed together.

All this movement is the reason manufacturers stress the need to apply bond-breaker tape to the bottom of each seam prior to caulking (epoxy backing adhesive may also serve the same purpose in the case of glued teak overlays). Yes, it's a pain in the poop deck and adds yet another step to the project, however, it's a step you skip at your own peril.

A seam with no breaker-bond tape suffers from three-way adhesion, a situation where the caulk adheres to both the sides and the bottom of the seam. Caulk needs to be able to expand horizontally to keep up with seam expansion and contraction. Once adhered to the bottom of the seam, the caulk loses this flexibility, causing the sealant to pull away from the sides during deck movement, starting the downward spiral of failure.