

What Thermal Modification of Wood Does

Thermal Modification is a specialized process where wood is heated to very high temperature to transform it on a molecular level into a highly-durable outdoor material. The only ingredients are heat, steam, and time (about 28-30 hours).

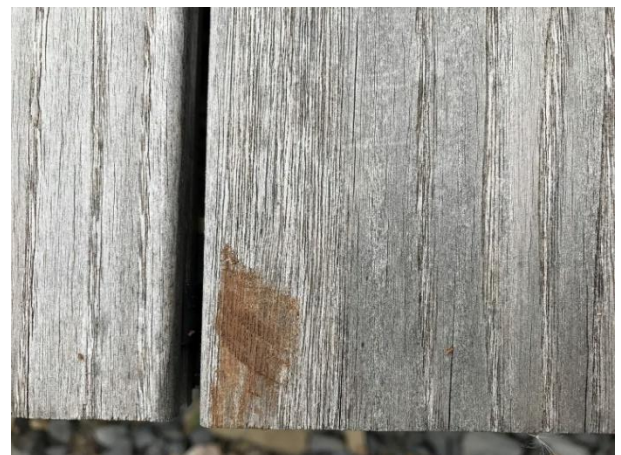
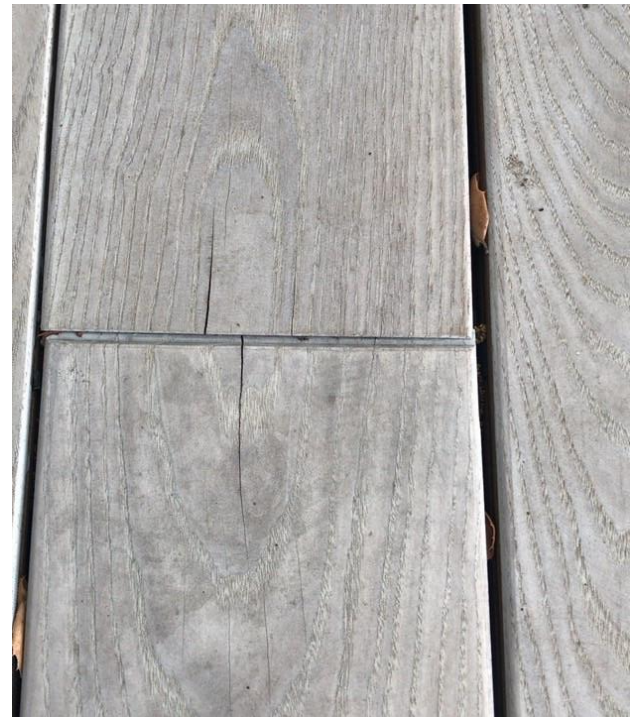
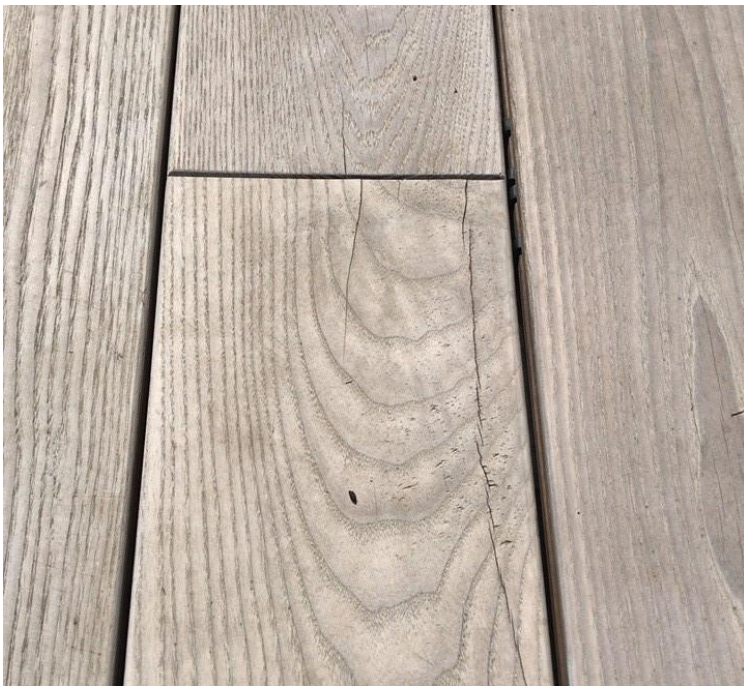
Thermal Modification turns the wood a chocolate brown, which indicates that the wood has reached the proper temperature (around 400-410°F). At that point, the wood undergoes a fundamental change where the sugars & starches caramelize, making the wood a non-food-source. Also, the wood cell walls lock into place, preventing the wood from absorbing water like unmodified wood does. Overall durability is multiplied many times, giving Thermally Modified wood a 25+ year lifespan outdoors without chemicals or anything else manmade.

The wood is still wood, and Thermal Modification doesn't solve all the world's problems. Without any kind of protectant, the wood will lighten up and turn silver pretty fast. After a few wet/dry cycles, some boards will show superficial checking, and occasional cracks will manifest usually near the ends of boards. There's no rhyme or reason to it. Every board is different, which frankly is part of the charm of using a natural product. None of these occurrences indicate product failure; rather, it is the wood adapting to its new environment. The checks and cracks do not get worse over time after this initial seasoning.

If you want to preserve the brown color (and reduce the checking/cracking), you can apply a penetrating UV protectant like Penofin or Cutek Extreme. It is a commitment, usually requiring reapplication every 6 months for the first couple years, then annually thereafter. Always follow the UV protectant manufacturer's instructions.

Thermally Modified Wood Guidelines

- Primary purpose of Thermal Modification is durability (resistance to rot, increased lifespan, resistance to insect damage). Thermal Modification give the wood Class 1 durability (25+ years).
 - Threshold for effective Modification is about 205-210°C (400-410°F). Below this, the wood has not fully transformed.
- Secondary benefits of Thermal Modification:
 - Superior dimensional stability (minimal cupping, warping, twisting)
 - Brown color (requires regular application of penetrating UV protectant to remain brown)
- What to expect after installation:
 - Wood will "season", adapting to its environment
 - Superficial checking
 - Occasional cracks usually near ends of boards
 - Checks and cracks do not get worse over time after initial seasoning.
 - Does not indicate product failure. These adaptations are common to all woods.
 - Without UV protectant, the wood will lighten and eventually turn silver. This takes 6-12 months depending on sun exposure.
 - Most UV protectants also resist water and allow it to evaporate before penetrating wood, which in turn reduces checking.
 - Recommended UV protectants:
 - Cutek Extreme (pigment needed for UV protection - ask Cutek)
 - Penofin for Hardwoods
 - Seal-Once NanoGuard
 - Messmer's UV Plus
 - For best results, we recommend applying UV protectant on all sides & ends before installation. This is not required, however, to maintain Class 1 durability.
- If allowed to silver, the brown color can be restored by sanding and applying UV protectant. Power washing alone does not remove the silvering.
- Wood requires pre-drilling for screws/nails. Use stainless steel fasteners only.
- No ground contact.
- Wood must be well-ventilated. Trapped moisture severely impacts performance and longevity.



Photos show wood after routine seasoning
(1-2 years after installation).

Silvering is superficial, shown at right.