SmartTech TIMBER

Instalation Guide

Thermally Modified Decking

Before Installation

- **Acclimatization:** Allow the wood to adjust to its environment for a minimum of **two weeks** prior to installation.
- **Proper Storage:** Stack boards **off the ground**, protected from direct sunlight and moisture. Use **spacers between layers** to promote optimal airflow.

During Installation

- **Ventilation & Drainage:** Provide sufficient airflow behind and beneath the wood to **prevent moisture buildup and** promote longevity.
- **Careful Handling:** Thermally modified wood may be more brittle than untreated wood—**handle with care** to avoid breakage or damage.
- **Fastening:** Always use **stainless steel fasteners**. **Pre-drill holes** to minimize the risk of splitting.
- **Spacing:** Leave appropriate **expansion gaps** between boards to accommodate seasonal movement. Refer to product-specific installation guides for exact spacing requirements.
- **Board Orientation:** Install boards with the **bark side up** (rainbow grain orientation) to reduce surface checking and cracking.
- **End Sealing:** Apply **end sealant** to all cut ends to limit moisture absorption and reduce checking.
- **Color Considerations:** Thermally modified wood naturally weathers to a **silver-gray patina** when exposed to sunlight, particularly on horizontal surfaces. This process can be slowed with **UV-resistant pigmented finishes or** reversed with **cleaning or sanding**—see the Finishing Guide for recommendations.

Troubleshooting

- **Checking & Cracking:** These are natural characteristics of wood and can be minimized by following proper installation and finishing guidelines.
- **Cupping:** Often a sign of **moisture imbalance**—review ventilation and drainage systems.
- **Splitting, Shelling, or Grain Lift:** These may require product assessment—**contact the manufacturer** for guidance.
- **Over-Expansion:** Typically caused by **insufficient spacing**, poor drainage, or inadequate ventilation—inspect installation conditions accordingly.

Decking Installation Guide

Overview

SmartTechTimber™ Thermally Modified Wood Decking is designed for ease of installation and long-lasting performance. The boards feature a **symmetrical profile** compatible with **DeckWise® ThermoClip™ fasteners**, allowing flexibility in orientation. With the optional **Structural End Match**, boards can be installed similarly to flooring, with **end joints floating between joists**, minimizing waste and reducing installation time.

Acclimation

- **Duration:** Allow decking boards to **acclimate for a minimum of two weeks** before installation.
- **Method:** Stack boards with **spacers (stickers)** between layers to enhance airflow and promote even conditioning.

UV Exposure

- Avoid **direct sunlight** on the boards before installation, as **UV rays can prematurely lighten the wood's color**.

Handling

- Thermally modified wood is **more brittle** than unmodified wood. **Handle with care** to prevent cracking or chipping during transport and installation.

Storage

- If not installed immediately, **store the wood indoors** when possible. When stored outdoors, **elevate off the ground** and **cover with a waterproof tarp**.
- Ensure the **ends of the tarp remain open** to allow ventilation and prevent moisture buildup.

Color Characteristics

- The thermal modification process **caramelizes natural sugars in the wood**, creating rich, through-body color tones.
- **SmartTechTimber™** is a natural material, so expect **variations in weight, grain, color, and density** from board to board.
- Over time, **unfinished boards exposed to the elements will weather to a silver-gray patina**, which does **not affect performance**.
- To preserve the original color, apply **Cutek Extreme® with a UV Colortone** (as Cutek Extreme® alone is not UV-resistant).
- Surface silvering can be reversed with **light sanding** or by applying **Cutek Proclean**.
- **Product color and factory-applied finishes are not covered under the warranty.**

Grain Patterns, Checks, & Hairline Cracks

- **Grain variation** is natural and expected with **SmartTechTimber™**.
- Occasional **small surface checks or hairline cracks** may occur and are **normal characteristics**, not grounds for a warranty claim.
- Regular application of **Cutek Extreme®** can help minimize surface hairline cracks and maintain the wood's appearance.

Decking Installation Guide

Finishing

- **Pre-finishing** all deck boards **prior to installation** is the only way to ensure full protection—coating **all four sides evenly**.
- It is **strongly recommended** to treat all wood with **Cutek Extreme®** on all sides before assembly. This helps the material **acclimate uniformly** and reduces the risk of **surface checking and dimensional movement**.
- Even if your goal is to allow the wood to **naturally weather to a silver patina**, pre-finishing provides critical protection during the most vulnerable period—**immediately after installation**.
- To maintain the original tone and enhance color, apply **Cutek Extreme® with a UV Colortone** of your choice to the **visible surfaces** after installation.

Deck Framing

- **Joist Spacing:**
    - Maximum **16" on center** when decking is installed **perpendicular** to joists.
    - Maximum **12" on center** when decking is installed **diagonally**.
- For best performance with **1 x 6 SmartTechTimber™ Decking**, **12" on center** is recommended. While not required, it provides a **more stable and solid surface** with minimal added material cost.
- **Minimum ground clearance** is **12 inches**. Proper airflow is essential—**do not restrict ventilation**.
- **Never install** directly over **concrete slabs** or **roof membranes** without ensuring **adequate ventilation and drainage** underneath.
- **Maximum overhang** for decking and stair treads is **1/4 inch**.

Care & Maintenance

- Keep the surface of the decking **clean and free of debris**. Organic material such as **pollen, dirt, and leaves** can encourage staining and support mold or fungal growth.
- In shaded or damp environments, **surface mold or discoloration** may appear. This does **not affect the structural integrity** of SmartTechTimber™, but requires more frequent cleaning.
- This kind of surface staining can occur on **any exterior material**, including **stone, PVC, glass, and composites**.
- To clean and restore the appearance of your deck:
    - Use a **gentle pressure wash** in combination with a **deck cleaning solution or renewing agent**.

SmartTechTimber™ Hidden Fastener System – Installation Instructions

https://www.deckwise.com/ipe-clip-hidden-deck-fastener.html

Note: Stair treads and edge/perimeter boards **must be installed using traditional face fastening**. **Do not use clips** on stair treads or in high-stress applications.

Step 1: Prepare the Joists

- **Optional but Recommended:** Apply joist tape (e.g., DeckWise® JoistTape™ or equivalent) to the **top of all joists**. This tape helps:
  - Prevent moisture-related **rot**.
  - Create a better **seal around screw holes**.
  - **Reduce squeaking** caused by uneven joist movement over time.

Step 2: Pre-Drill a 1/8” Pilot Hole

- Use a **1/8” drill bit** to create a pilot hole at each fastener location.
- Drill **only through the deck board**, not into the joist, to minimize splitting.

Step 3: Create a 3/8” Countersink Hole *(for Plug Installations Only)*

- Use a **3/8” countersink bit** to bore a hole approximately **1/4” to 3/8” deep**, depending on the board thickness.
- This hole will accommodate a **wood plug**, providing a **clean, concealed finish**.
- Ensure the countersink bit is **sharp and precise** to avoid damaging the board surface.

Skip this step if using trim head screws without plugs.

Step 4: Drive the Deck Screw

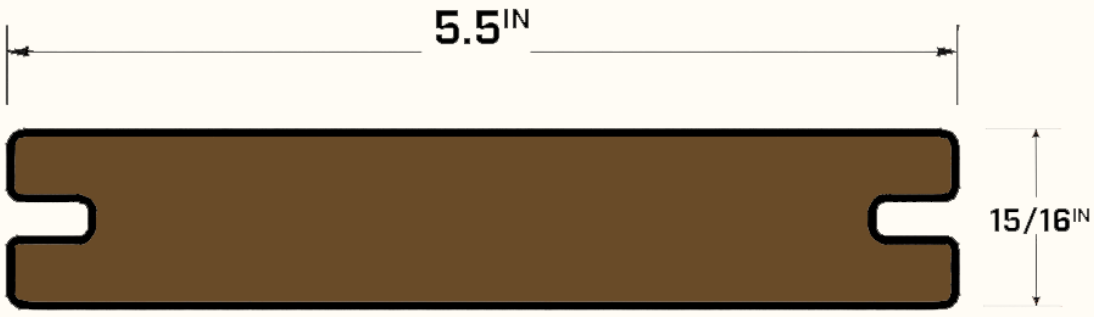
- Insert a **stainless steel deck screw** into the countersunk or pilot hole and drive it securely into the joist.
- Screws are included in **SmartTechTimber™ Hidden Fastener kits (175 count and above)** for use on starter boards or face-fastened ends.

Step 5: Plug the Hole *(if applicable)*

- Insert a **hardwood plug** into each countersunk hole to cover the screw and provide a **seamless surface appearance**.
- Ensure a snug fit and flush finish for best results.

Recommended Tools

- A **1/8” High-Speed Drill Bit** – typically included in fastener kits.
- A **3/8” Countersink Bit** for plug applications.
- A **T15 Star Drive Tip** or equivalent.
- Optional: Use a **3-in-1 drill and drive tool** (e.g., DeckWise® Drill & Drive™) for faster workflow—includes drill bit, countersink bit, and screw tip in one unit.



Deckwise Hidden Fastener System – Installation Steps (Continued)

Note: Stair treads and perimeter siding boards must be installed using traditional face-fastening methods. **Do not** use ThermoClip™ fasteners in these applications.

Step 5: Insert Wood Plug Into Countersunk Hole
Apply a small amount of wood glue (Gorilla Glue® or similar) into the pre-drilled countersink hole. This helps secure the plug and creates a moisture barrier, sealing the fastener hole. Insert the wood plug while the glue is still wet.

Step 6: Trim Excess Plug Material
Once the plug is set and the adhesive has cured, remove any plug material that extends above the wood surface. A flush-cut pull saw, belt sander, or orbital sander (using 80-grit sandpaper) works well for this.

Step 7: Sand Plug Area Smooth
Sand all plug areas until flush with the surrounding surface. A random orbit sander with 80–120 grit sandpaper is recommended for best results.

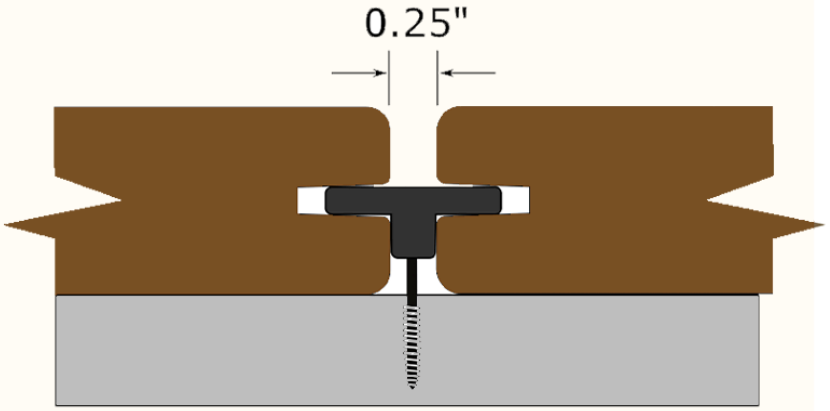
Step 8: Fasten Deck Boards with ThermoClip™
Secure each ThermoClip™ fastener by driving a stainless steel screw straight down through the center of the clip into the joist. Minimal torque is required—just enough to snug the board to the joist. Using a screw gun with a clutch setting helps prevent overdriving.

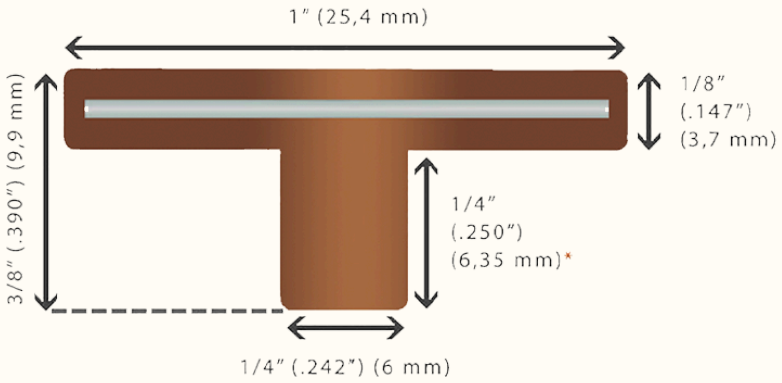
Install **one ThermoClip™ fastener and one screw per joist**.

Step 9: Install the Next Board
Slide the next SmartTechTimber™ board into the exposed ThermoClip™ fasteners on the previously installed board. Then, repeat the fastener installation process on the opposite edge of the new board.

End-to-End Installation (Butt Joints)
For joints where two boards meet on a single joist, the recommended method is to install a **sister joist** parallel to the main joist. Install two ThermoClip™ fasteners—one into each joist at the meeting point. Alternatively, if only one joist is available, install a single centered fastener.

> **Tip:** Use DeckWise® Deck Spacer tools during installation to maintain consistent spacing and prevent fastener damage. Remove the spacers immediately after fastening each board.





Installing Boards with Structural End Match (Optional Feature)

SmartTechTimber™ boards with the Structural End Match profile do not require end-to-end alignment on a joist. However, boards must extend across at least **two joists** on both sides of the joint for structural integrity. These joints can be staggered and randomized like tongue-and-groove flooring for a seamless appearance.

Step 10: Install the Final Board
The last board will need to be face-fastened since clips cannot be used. Secure the outer edge using stainless steel screws. For a clean finish:

- Pre-drill a 3/8” countersink hole.
- Insert wood plugs (included).
- Optionally, apply a small bead of construction adhesive on the outer joist for additional hold.

Note: The maximum overhang for SmartTechTimber™ boards is **1/4 inch**.

SmartTechTimber™ Face Fastening Instructions for Non-Grooved Boards

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Step 1: Prepare the Furring Strips or Wall Substructure

For best results, apply **DeckWise® JoistTape™** (recommended but not required) to the top surfaces of furring strips or framing members. This self-adhesive tape:

- Helps prevent water intrusion and rot in the underlying structure.
- Seals around screw penetrations.
- Reduces potential squeaking caused by structural movement over time.

Note: Maximum siding overhang should not exceed **1/4 inch**.

Step 2: Pre-Drill and Countersink

Pre-drill pilot holes and create countersinks at the correct depth for your selected face screws. For a cleaner, concealed finish, use systems like the **Starborn® Pro Plug Tool for Wood** (optional).

Be sure to remove all sawdust and debris from the drilled hole before proceeding.

Step 3: Drive Stainless Steel Screws

Insert a **high-quality stainless steel screw** into the countersunk hole and drive it into the structural member behind.

- Do **not overtighten** the screw to avoid damage or distortion.
- Maintain a consistent **1/4-inch spacing between boards**, using spacers if needed to allow for expansion and contraction.

Structural End Match Installation (Optional Feature)

Boards with SmartTechTimber™'s **Structural End Match** profile do not need to terminate directly on a framing member. Instead:

- Ensure boards on both sides of the end match span at least **two framing members**.
- Structural End Matches can be installed in a staggered layout, similar to tongue-and-groove interior paneling.

Step 4: Apply Glue to Countersunk Hole

If using wood plugs for a concealed finish:

- Fit the glue nozzle to the bottle and insert into the countersunk hole.
- While applying light pressure, squeeze and rotate the bottle slightly to ensure glue coats the side walls of the hole evenly.

Step 5: Insert the Wood Plug

Place the plug into the glued hole, aligning the grain of the plug with the grain of the siding board.
Tap gently using a smooth-faced hammer until the plug is flush with the board's surface.

Step 6: Sand Flush

Use a **random orbit sander** with **80–120 grit sandpaper** to smooth all plug areas until they are even with the surrounding surface. This ensures a seamless and professional finish.

Mitered Corner Details

Mitered corners provide a clean, sophisticated look—but outdoor wood installations must accommodate natural movement. To avoid long-term issues:

- **Gap mitered corners** by approximately **1/8 inch** to allow for expansion and contraction.
- Use a **1/8-inch radius router bit** to gently round over (or "pillow") the cut ends.
- For a tighter visual connection, consider **toe-in cutting the ends at 44°** rather than a standard 45°, reducing visible gaps over time.