

DEC-TECHNICAL BULLETIN



Bulletin No: TB007 Version: v.03

Effective Date: 2018-10-31

Subject: SUBSTRATE RECOMMENDATIONS – COVERING UNSUITABLE SUBSTRATE

Product Pre-Installation Installation Repair Maintenance Other
 External Internal Use Internal Use Only

Target Audience: All

Reason for Bulletin: Recommendations for covering unsuitable substrate.

Details:

A strong foundation and properly constructed base structure are essential to the success and longevity of the installation. Failure to recognize and remedy undesirable substrate conditions can potentially lead to issues affecting the quality of the overall installation.

A two (2) layer subfloor system is recommended when there is a need to cover unsuitable substrate.

In a typical installation, the Dec-Tec walkable PVC membrane is installed over the top of a recommended plywood substrate where 5/8" plywood is acceptable, but 3/4" is recommended as it provides a stronger surface with less bounce and less warping. *Refer to: Technical Bulletin TB006 Substrate Recommendations - Wood.*

Acceptable Overlay Options:

If an installed plywood substrate is present that does not meet Dec-Tec's recommended standards or the plywood is of poor quality, then it MUST be removed and upgraded or overlaid with an approved plywood. Dec-Tec recommends an overlay plywood of NO LESS THAN 1/2" since 1/4" or 3/8" plywood is more susceptible to warping due to absorption of moisture from the atmosphere. For the best possible surface, Dec-Tec recommends use of 5/8" or preferably 3/4" plywood for overlay purposes. In any case, the deck must be secure, well supported, clean, smooth, and free of depressions, waves, and projections, as well as properly sloped to drains, valleys, or eaves.

Unacceptable Overlay Options:

- 1.) Dec-Tec does NOT recommend overlaying or applying new Dec-Tec PVC membrane directly or indirectly over top of any existing waterproofed or sealed base layer.
 - a. The existing membrane or sealer must be removed.
 - b. Inspect the condition of the underlying substrate and if needed either replace it or overlay it with an approved plywood cover.
 - c. A thorough inspection is recommended in cases where Dec-Tec is being installed over any existing system that has failed. The underlying structure and substrate must be thoroughly inspected for rot, weakness of plywood, delamination of plywood, and loose panels.

- 2.) Dec-Tec does NOT recommend overlaying on top of or any use of Oriented Strand Board (OSB) as a horizontal substrate. OSB (also known as flake board, sterling board, and aspenite), is a type of engineered lumber like particle board formed by adding adhesives and then compressing layers of wood strands (flakes) in specific orientations. OSB is acceptable for use on vertical surfaces ONLY and is NOT approved as a substrate on horizontal surfaces due to its moisture absorbency and irreversible swelling characteristics.

Plywood Surface Preparation:

Substrate preparation is key! Every successful installation begins with a properly prepared substrate.

All substrate must be structurally sound, dry, solid, and stable. The substrate should be clean and free of dust, dirt, oil grease, paint, curing agents, sealers, loosely bonded toppings, loose particles, old adhesive residues, and any other substance or condition that may prevent or reduce adhesion.

- 1.) Sand all plywood joints and rows of fasteners with a floor edger or belt sander.
- 2.) Install any necessary flashing or trim ensuring they will not impede the flow of water (recessing the Dec-Clad – Drip Edge using a planer is the recommended practice).
- 3.) Fill in all plywood joints, knotholes, depressions, damaged areas as needed with Dec-Patch II.
- 4.) Seal all darker colored knots with 2 coats of Zinsser Bin Shellac Based Primer Sealer.
- 5.) Seal all manufacturer’s synthetic patches on top of the substrate with 2 coats of Zinsser Bin Shellac Based Primer Sealer.
- 6.) Seal all wood veneer patches, pitch pockets, pitch streaks, red chalk, ink, construction adhesive, wood filler, etc. with 2 coats of Zinsser Bin Shellac Based Primer Sealer.
- 7.) Sand all areas that Dec-Patch II was applied once it has “thoroughly” dried.
- 8.) Use a broom or blower to clean off all debris. Do a final inspection to ensure the deck is suitable for the application of the Dec-Tec membrane.

Plywood Installation:

- 1.) **Moisture Content:** Ideal moisture content (MC) of plywood at the time of installation is 9% to 14% @ 70% relative humidity / 68 deg. F (20 deg. C).
- 2.) **Placement:**
 - a. **Bottom Layer:** Plywood panels to be installed with the surface grain at right angles to the joists. Install the first row of plywood at building side with the “tongue” facing the building. Remove the tongue for a tight fit. End joints shall be supported over 2” wood joists. Install blocking at unsupported joints.
 - b. **Top Layer:** Plywood to be installed parallel to base layer but offset by a half (1/2) panel in both directions
- 3.) **Panel Adhesive:** Ensure plywood sheets are glued together and to the joist system with structural adhesive. Examples include Chemlink M-1, PL 400, and PL Premium.
- 4.) Screw the plywood panels in place, stagger end joints in each succeeding row. Center panels over load-bearing beams, wall, etc. to reduce ridging. Panels should span a minimum of 3 joists.
- 5.) Extend plywood to finish line of the deck (outside edge) including trims, fascia boards, etc.
- 6.) **Fasteners:**
 - a. **Bottom Layer:** Recommend 1-3/4” (min) yellow zinc coated exterior wood deck screw.
 - b. **Top Layer:** Yellow zinc coated exterior wood deck screw fasteners of sufficient length to adequately penetrate the framing members under the bottom layer.
 - c. Slightly countersink all fastener heads.
- 7.) **Fastener Spacing:** Space fasteners 6” (150mm) o.c. along edges and 8” (200mm) o.c. along intermediate supports.
- 8.) **Protection:** Installed Spruce-Pine-Fir (SPF) panels should be waterproofed immediately as they are more prone to face checking when left exposed to the elements. Protect plywood from rain & snow after installation to prevent moisture pickup. Do not place tarps directly on wood. Use sleepers under tarps to allow for air movement.

General Considerations:

- 1.) Fir is recommended over Spruce. Fir plywood is much harder, stronger, and dimensionally more stable than spruce plywood.
- 2.) Plywood described as good one side (G1S) is preferred over construction grade plywood. A smoother surface can help minimize surface repair and can reduce or eliminates the need for Dec-Patch II.
- 3.) Only use well-seasoned (dry) substrate material that has never been wet or subjected to conditions where it could swell. Do NOT install Dec-Tec over a damp or wet substrate. Ensure substrates are thoroughly dried throughout and not just the surface veneers. Pay special attention to the edges of the substrate.
- 4.) Do NOT install Dec-Tec over coated substrates. Installing directly over coated substrates can cause membrane discoloration due to long-term compatibility issues. Coated substrates are not compatible with Dec-Tec's adhesives.
- 5.) Manufactures adhesives used to secure plywood patches, predominantly in grade "A" panels, have been known to stain PVC membranes. Dec-Tec recommends sealing all wood patches with 2 coats of Zinsser Bin Shellac Based Primer Sealer.

Dec-Tec does not supply or install framing or sheathing products. Always refer to the governing building code requirements and manufacturer's instructions/recommendations before constructing or altering supporting structures.

Issues resulting from improper design or construction of the supporting structure, use of improper substrates, improper slope, drainage or ventilation, substrate movement or deflection or from moisture-related problems in the wood are specifically excluded from Dec-Tec's warranty. Please refer to the written warranty for further detail. The manufacturer or supplier of products (not supplied by Dec-Tec) is responsible for ensuring the compatibility and correctness for their use with Dec-Tec PVC membranes.

Additional References:

- 1.) TB005 - STRUCTURAL RECOMMENDATIONS – FOOTINGS & FRAMING
- 2.) TB006 - SUBSTRATE RECOMMENDATIONS - WOOD
- 3.) CM-001 Dec-Tec Basic Installation Guide - Wood Substrate
- 4.) APA (The Engineered Wood Association) (CAN), <https://www.apawood.org/>
- 5.) PS 1-09 Voluntary Product Standard for Structural Plywood (USA), <https://apawood-europe.org/wp-content/uploads/2013/07/PS-1-09-+APA-trademarks.pdf>

If you have any questions concerning this bulletin, please contact Dec-Tec, Technical Support at 1-866-461-3914.

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