

DEC-TECHNICAL BULLETIN



Bulletin No: TB006 Version: v.04

Effective Date: 2018-10-31

Subject: SUBSTRATE RECOMMENDATIONS - WOOD

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

Target Audience: All

Reason for Bulletin: Provide substrate recommendations.

Details:

A strong foundation and properly constructed base structure is essential to the success and longevity of the installation. The following should be inspected carefully ensuring conformance to local building codes. Failure to recognize and remedy undesirable substrate conditions can potentially lead to issues affecting the quality of the overall installation.

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.

Recommended Plywood:

Thickness: 23/32in. (18.25mm)

Classification: Exterior

Grade: T&G, B-C Grade or better

Species: North American Group 1 (Douglas-fir)

"Exterior" rated plywood is made with fully water-proof adhesives and, in addition, is composed of C-Grade or better veneers throughout. This combination provides maximum resistance to the effects of daily cyclic variations of moisture and temperature caused by permanent exposure to weather.

Acceptable Plywood:

Thickness: 19/32in. (15.5mm)

Classification: Exposure 1

Grade: T&G, C-D Grade or better

Species: North American Group 2 SPF (Spruce-Pine-Fir)

"Exposure 1" rated sheathing is made with the same fully water-proof adhesives as exterior rated plywood's but may include D-Grade veneers. Because of the veneer grades used, panels that are subjected to prolonged severe moisture conditions may occasionally develop limited, highly localized glue-line delamination's coincident with grade characteristics. These concerns are negated however when exposure to the outdoor elements is on the under-side only making "C-D Exposure 1" (aka CDX) rated plywood's a compatible and approved substrate.

Note: CDX is not the name of a plywood grade. C-D refers to the appearance and treatment of the veneers (faces) of the plywood. One is rated "C" grade and the other side is rated "D" grade. The letter "X" refers to the rating of the adhesives used in the plywood. Where "X" = Exterior rated.

Dec-Tec does NOT approve of ANY wood substrate not listed above. Use of any wood substrate other than those listed above may VOID any warranty expressed or implied. Dec-Tec acknowledges there may be other suitable wood substrates and is prepared to review and possibly test alternative substrates at its sole discretion.

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 help reduce 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.

Unacceptable Substrates:

Oriented strand board (OSB), particle board, poplar plywood, luaun, panels with medium density overlay (MDO) or high density overlay (HDO), or any type of treated plywood (i.e.: fire treated, pressure treated, or panels with field and/or edge sealants) either factory or field applied are NOT recommended.

Oriented Strand Board (OSB) also known as flakeboard, 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. Oriented Strand Board (OSB) is an approved substrate for use on vertical surfaces ONLY. OSB is NOT approved as a substrate on horizontal surfaces.

Note: Plywood dries out faster than OSB. Both types of panels will swell around the edges as they get wet, but plywood returns nearly to its original thickness (state) as it dries while OSB swelling is irreversible.

Plywood Surface Preparation:

Substrate preparation is key! Every successful installation begins with a properly prepared substrate. The entire 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:** Plywood panels should 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.
- 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:** Recommend 1-3/4” (min) yellow zinc coated exterior wood deck screw. 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.

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.) TB007 - SUBSTRATE COMMENDATIONS – COVERING UNSUITABLE SUBSTRATE
- 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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