# DEC-TECHNICAL
## BULLETIN

Bulletin No: TB012 Version: v.01 Effective Date: 2019-03-27

Subject: MOISTURE

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

**Target Audience:** Dec-Tec Professionals, Installers, Territory Builders, Manufacturer Representatives, Customer Service Representatives.

**Reason for Bulletin:** To provide focused awareness of the issues associated to Moisture

**Details:**

MOISTURE IS ARGUABLY THE MOST IMPORTANT factor affecting the installation, performance and service life of walkable thermoplastic deck and roofing membrane systems.

**Possible Sources of Moisture:**

- Structural Framing
- Substrate
- Poor Ventilation
- Dec-Patch that has not been allowed to dry adequately
- Dew / Relative Humidity

**Wood Framing and Substrate Material**

The ideal moisture content (MC) of the framing / joist system components at the time of installation is 9% to 14% @ 70% relative humidity / 68 deg. F (20 deg. C). The acceptable moisture level in wood depends primarily on the final use of the wood and the average relative humidity at the place where the wood is to be used. Other factors may include the wood species and the thickness or size of the wood. In all cases, determining the acceptable moisture level of wood requires the use of an accurate moisture meter.

Failure to allow wood to acclimate or come in balance with the relative humidity (RH) at its end-use location can result in a number of moisture-related problems in the wood – including warping, cracking, buckling, diminished wood strength, corrosion of fasteners, and even fungal growth after the wood products are constructed. In general, for most areas of the United States and Canada, acceptable moisture levels of wood can be in the range of 9% to 14% MC (Moisture Content) for exterior wood or building envelope components within constructed assemblies. Wood moisture content in this range, therefore, is considered sufficiently dry for exterior in-service wood.


- Do NOT install Dec-Tec over a damp or wet substrate.
- Use well-seasoned (dry) substrate material that has never been wet or subjected to conditions where it could swell.
- Ensure substrates are thoroughly dried throughout and not just the surface veneers.
  **Important:** Pay special attention to the edges of the substrate. Plywood absorbs moisture and quicker around the edges as it gets wet, it also takes longer to dry at its edges.

- Pay special attention to new construction, the use of Pressure Treated (PT) lumber is NOT recommended due to its high moisture content which can cause lumber to shrink, twist, warp, etc. as it dries. This, in effect, can have a negative impact on the overall system including the Dec-Tec membrane.
- 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.

- Moisture affects the dimensional movement of wood and wood products; under certain conditions, moisture change can result in major dimensional change. The integrity and strength of adhered (bonded) products can be compromised by swelling-induced stresses that accompany wetting, particularly by large repetitive fluctuations in moisture content.

- Wood and wood products stored within a reasonable range of fluctuating moisture conditions will perform nearly indefinitely. In contrast, without consideration of moisture control wood surfaces can rapidly suffer moisture-induced damage.

**Note:** As trapped water in the substrate heats it begins to turn to water vapor. The vaporized water expands creating pressure within the deck system. As the pressure increases it will find the path of least resistance and if the water vapor cannot dissipate or escape, it can cause bubbles in the deck system.

**Concrete Substrate**

- Only install on fully cured - non-primed – above grade concrete.
- Rule of thumb: New concrete takes ~28 days per inch of thickness to cure. Moisture testing is highly recommended.

**Poor Ventilation**

- Moisture can be absorbed into the structure or substrate due to inadequate ventilation.
- Provide adequate ventilation to the underside of decks that are built close to finished grade. If the substrate is to be installed over living space, airflow must be present below the substrate and above the insulation layer to keep frost and dew from forming on the underside of the substrate.

**Dec-Patch II that has not been allowed to dry adequately**

- There is a potential for trapped moisture within the Dec-Patch II application if not allowed to thoroughly dry.
- Dec-Patch II must be thoroughly hardened to accommodate proper application of Dec-Tec adhesives. Any residual moisture raises the potential for adhesive failures and/or the membrane to bubble.
- Apply per installation instructions to ½" (max) thickness and allow to thoroughly dry – 100%
- Allow to dry naturally and do not attempt to "Force Dry" the Dec-Patch II with thermal heat welders, propane torches, fans etc.

Wet substrate (substrate panel joints & Dec-Patch) effect of previous night's rain

**Dew / Relative Humidity**

Rules of thumb

- If it's hot and dry, the adhesive will set up fast.
- If it's hot and humid, water based adhesives take longer to set.
- If it's cool and dry, make sure you do not apply adhesive below temperature limitations.
- If it's cool and humid, adhesives may not work.

**Preventative Measure**

Dec-Tec recommends Dec-Tec installers take moisture content readings at the time of installation. The use of a Pin-Type LCD Moisture Meter such as a General Seeker (Model No. MMD4E) is advised. 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 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 and accessories.

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