DEC-TECHNICAL
BULLETIN

Bulletin No: TB005 Version: v.02 Effective Date: 2018-10-19

Subject: STRUCTURAL RECOMMENDATIONS – FOOTINGS & FRAMING

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

Target Audience: All

Reason for Bulletin: Provide structural design and construction recommendations.

Details:
A strong foundation and properly constructed base structure are 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 structural 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.

Footings: (if applicable)

1.) Check to see if the footings design compliant with local building codes and acceptable practices.
2.) Consider how support posts/columns are installed and secured (Pilings, on a slab, on blocks, or otherwise) and how seasonal conditions such as frost might affect movement or shifting of the structure.
3.) Check for damage, weak wood and rot with particular attention around the base of footings and along the support posts.
4.) Check to see if Pressure Treated (PT) lumber is present. The use of pressure treated lumber is NOT recommended due to its high moisture content which can cause the 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.

Framing:

1.) Check to see if the framing design compliant with local building codes and acceptable practices.
Dec-Tec recommendations:
General Condition: Inspect the joist system for signs of damage. (Wood rot, infestation, badly twisted, cracks, splits, etc.).
Joist Spacing: 16" / 400mm o.c. (max).
Framing Lumber: 2x8 (min), kiln-dried, crown sides up. All structural components should be comprised of untreated natural wood products. The use of pressure treated (PT) wood is NOT recommended due to its high moisture content which can cause the 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.
Structural Deflection: L/360 min.*****
Slope: 2% positive slope = ¼"/ft. to prevent ponding.
Moisture: Has the joist system adequately dried out? Pay special attention to new construction. 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 the wood to acclimate or come in balance with the relative humidity (RH) at its end-use location will result in any 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 MC in this range, therefore, is considered sufficiently dry for exterior in-service wood.

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.

Drainage: Install drain(s) at points of maximum deflection (low spot). Make sure there are no beams, joists, columns, or other impediments located where the drain is to be installed. Any required overflows should be installed in close proximity to the drain(s) and located no more than 2" above the deck surface and lower than any building openings.

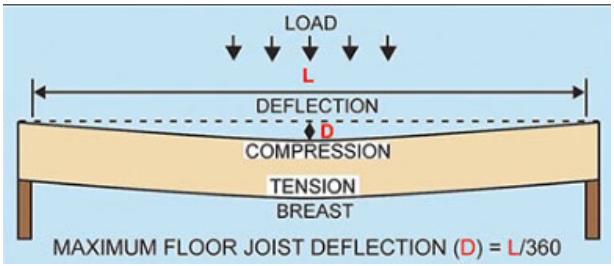
Door Openings: Rough door openings to be 3.5" to 6" (90mm to 150mm) above the elevation of the finished deck. Install the Dec-Tec membrane up the wall and onto the sill plate to achieve optimum waterproofing. Lower rough opening elevations to accommodate handicap accessible doors are acceptable. Contact your Dec-Tec technical team for installation instruction.

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.) TB006 - SUBSTRATE RECOMMENDATIONS
2.) TB007 - SUBSTRATE RECOMMENDATIONS – COVERING UNSUITABLE SUBSTRATE
3.) 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

Structural Deflection*: L/360 min.
Structural deflection is usually expressed as a fraction; clear span in inches **(L)** over a given number. For example, a floor joist appropriately selected to span 10 feet with an **L/360** limit will deflect no more than 120"/360 = 1/3 inches under maximum design loads. ... Typical deflection limits referenced in codebooks are **L/360**, L/240 or L/180.



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