

Moisture Effects on Weyerhaeuser Engineered Wood Products and Oriented Strand Board

Often, builders, designers, and homeowners have questions or concerns regarding the effect of moisture on Weyerhaeuser oriented strand board (OSB) and engineered wood products (EWP) including TimberStrand® LSL, Parallam® PSL, Microllam® LVL, and TJI® joists. These five products are manufactured at a moisture content that is typically less than 10% and are intended for dry-use applications as specified in the product's ICC-ES or CCMC evaluation report for EWP, and PS-2 bond classification for OSB. This document provides guidelines for moisture exposure scenarios and some best practices when dealing with moisture.

Moisture Exposure Scenarios

Weyerhaeuser EWP and OSB will tolerate moisture exposure under typical construction conditions including rain exposure. However, moisture, due to conditions such as improper storage, long construction delays, flooding and building envelope failure can create significant safety issues. Each exposure scenario is unique, and it is very difficult to develop a universal rule to capture all situations. When a high or extended moisture exposure scenario occurs, it is important to keep in mind:

- General wood research shows strength and stiffness reductions occur at elevated moisture contents making it important to ensure that the product is dry in application for proper product performance and to prevent decay.
- Stiffness degradation for structural composite lumber at elevated moisture contents can approach 50% in some cases. If an EWP member or OSB panel is loaded in this state, significant deflection may occur. Furthermore, if the EWP or OSB eventually dries in this condition, the deflection may be permanent.
- Strength degradation occurs at elevated moisture contents. Determining the amount of degradation is difficult because each exposure scenario is unique. When strength degradation is a concern, contact a design professional for site specific evaluation.
- When a wood structure is subject to high moisture conditions such as a long construction delay, it is important to inspect all the wood components, not just the EWP and OSB. Wood framing members are also critical components of the structural system and are similarly susceptible to decay and strength degradation.
- When in doubt, the best practice is to replace the EWP member or OSB panel; or get it evaluated by a building design professional.

Best Practices

- Avoid installing wet product.
- If material becomes wet during installation, brace and support the member until it is dry. Deflection that occurs in a wet member may result in permanent sag when dried. Always ensure material is dried prior to closing the structure.
- Dimensional change will occur if products become wet. Depending on the degree of moisture exposure, some of the dimensional change will be recoverable upon drying. *Note: Do not alter the cross section of an EWP member without consulting a design professional. Touch sanding is acceptable on OSB panels after drying.*
- Painting, staining, and field application of preservatives is not a substitute for protecting Weyerhaeuser EWP or OSB from exposure to moisture. For beam or column applications exposed to weather or high moisture, a preservative treated product – such as Treated Parallam® Plus PSL – may be an option.
- Properly store Weyerhaeuser OSB and EWP products such that they are protected from moisture. Refer to Figure 1 on the following page for images depicting proper storage practices. Additional information may be found in *Product Transportation, Handling, and Storage* ([Technical Resource Sheet 1507](#)).
- When in doubt, replace weathered product or contact a design professional for product and application evaluation.

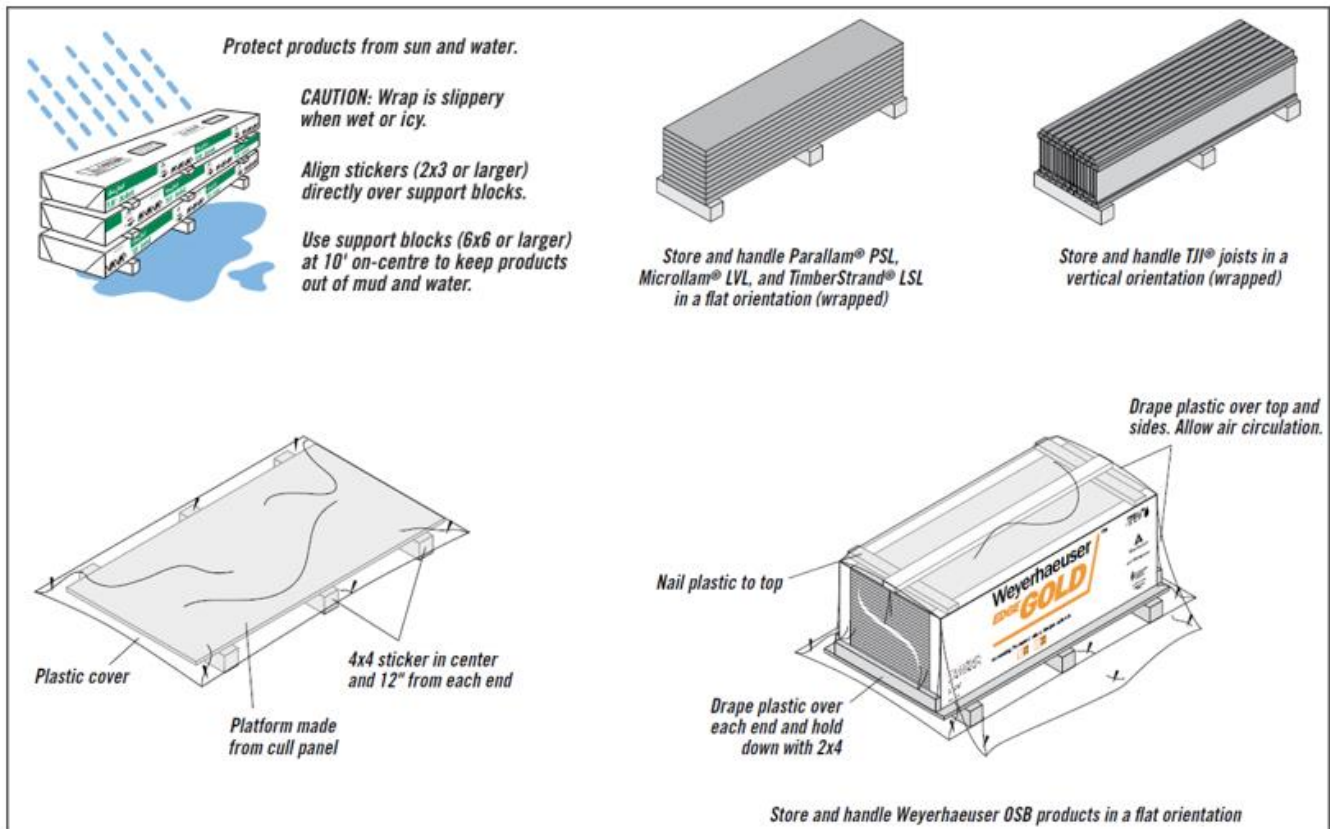


Figure 1: Proper storage of Weyerhaeuser EWP and OSB.

If you have any questions, please contact your Weyerhaeuser representative.