Exterior Exposure Policy for Engineered Wood Products

Boise Cascade engineered wood products are manufactured with adhesives which comply with ASTM D2559: *Standard Specification for Adhesives for Structural Laminated Wood Products for Use Under Exterior (Wet Use) Exposure Conditions* for BCI® / AJS® joists and Versa-Lam® LVL, and ANSI 405-2013: *Standard for Adhesives for Use in Structural Glued Laminated Timber* for BOISE GLULAM®. The purpose of exterior grade adhesives is to ensure that the structural integrity of the products is not compromised while directly exposed to weather during typical construction time periods.

The building code evaluation reports that govern the use of engineered wood products refer to approval for "conditions of dry use". Dry use conditions are those environmental conditions where the wood's moisture content does not exceed 16 percent. Products installed in interior conditioned space are dry use.

Non-conditioned-but-protected applications can be defined as areas where members are exposed to outside air but typically do not have contact with moisture from precipitation. Such an application may be a roof over a carport or deck where the products in question are protected from direct exposure to the weather above by a roof membrane and from the side by fascia and/or overhang. A protected member supporting a deck, which includes a waterproof membrane, may be another acceptable application.

Though most non-conditioned-but-protected applications qualify as conditions of dry use, specific geographic regions with higher moisture conditions shall be reviewed by the project's design professional(s) of record. For further information on specific regions, please consult:

- *Use of Non-Preservative Treated Engineered Wood Products in Protected, Non-Conditioned Applications*, Wood I-Joist Manufacturers Association, www.i-joist.org.
- Chapter 13: Drying and Control of Moisture Content and Dimensional Changes, *Wood Handbook – Wood as an Engineering Material*, USDA Forest Service General Technical Report FPL-GTR-190.

Boise Cascade I-joists, beams and columns are not intended, or code approved for permanent exposure to the weather (with the exception of BOISE GLULAM® Cedar products in some applications). Permanent wet exposure voids Boise Cascade's product warranty. An application that allows members to absorb moisture from typical precipitation events would be considered permanent exposure. Members used for roof or ceiling framing over high humidity areas, such as swimming pool covers, may also void the product warranty if the moisture content exceeds 16 percent.

Pressure treatment for direct weather exposure is not allowed on BCI® / AJS® joists and Versa-Lam® LVL products (see BOISE GLULAM® technical literature for further information regarding glulam). Painting or staining members that are directly exposed to weather is not allowed. Wrapping the members by means that allows moisture absorption, either through leakage or condensation is not allowed. Any of the preceding applications would void Boise Cascade's product warranty.

If I-joists, beams, and columns are protected from precipitation exposure to wet-dry cycling in environments where the moisture content does not exceed 16 percent, the products will perform according to their published reference design values. Boise Cascade engineered wood products shall be used in applications with proper ventilation, normal humidity levels, and protection from precipitation and other sources of moisture, such as those applications that are allowed per the authority having jurisdiction for non-preservative treated, non-durable species lumber products.

The key to the successful, long-term performance of engineered wood products is protection from direct moisture exposure for the duration of their intended use. Exposure during construction is expected and the adhesives contained within Boise Cascade engineered wood products maintain structural integrity during this period.

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