



Cupping of Versa-Lam[®] LVL

Cupping occurs in laminated veneer lumber (LVL) when a differential in moisture content exists between faces. Single ply LVL may cup if exposed to conditions where one face is wetter than the other. Multiple-ply LVL beams may cup after installation if the plies are wet at the time of installation. Plies that are wet to the same degree on both faces will lie flat, making it possible for beam assembly. However, the wet beam will begin to dry once it has been installed and the building is dried-in. The beam will dry first on the outside, where more surface area is exposed to open air, and then eventually dry throughout its thickness.

The outside surfaces of the plies will shrink as they dry, resulting in cupping. The cupping will be greatest when the difference is greatest between the moisture contents of the inside and outside surfaces of the beam. After that, the cupping will decrease until the beam has dried through its thickness and the cupping has disappeared. How long this process takes depends upon the size of the beam, how wet the beam was to begin with, the relative humidity in the atmosphere, and ambient temperature. The range will normally be a few weeks to a few months.

No attempt shall be made to flatten the beam plies by clamping them or drawing them together with bolts or screws. The force required to flatten the plies will most likely split the LVL along its length. Beams where a gap greater than 3/8" exists between plies on either edge shall not be fastened together until the plies are allowed to dry to a relatively even moisture content.

Cupped LVL plies and beams can be avoided by protecting Versa-Lam[®] LVL from moisture with good storage practices in the yard and at the job site. Beam plies that are suspected of being wet should be placed in an area where they are protected from the weather and have free air circulation on all sides for as long as possible before they are assembled into a beam.

