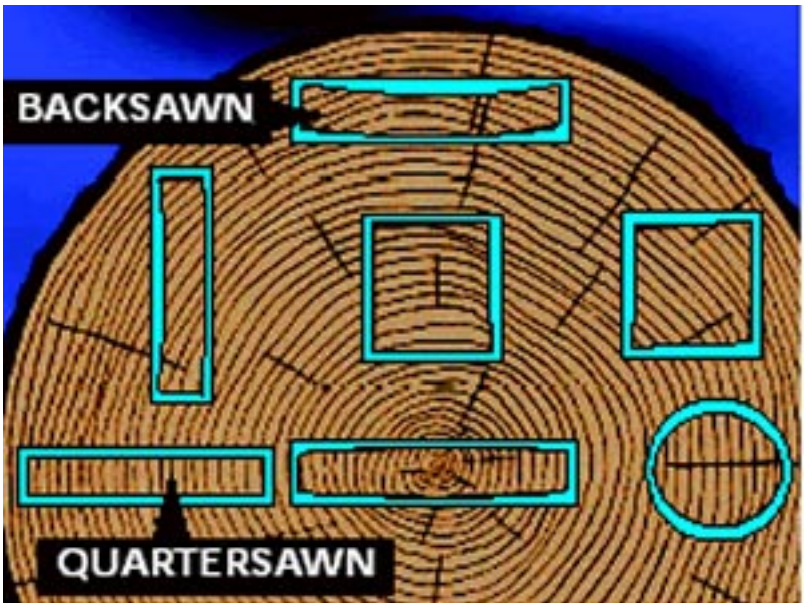
CUTEK™ The best solution for wood protection

Important Information: Shrinkage and Movement

Shrinkage and Swelling

Shrinkage and swelling may occur in wood when the moisture content is changed. Shrinkage occurs as moisture content decreases, while swelling takes place when it increases. Volume change is not equal in all directions. The greatest dimensional change occurs in a direction tangential to the growth rings. Shrinkage from the pith outwards, or radially, is usually considerably less than tangential shrinkage, while longitudinal (along the grain) shrinkage is so slight as to be usually neglected. The longitudinal shrinkage is 0.1 to 0.3%, in contrast to transverse shrinkages, which is 2-10%. Tangential shrinkage is often about twice as great as in the radial direction, although in some species it may be as much as five times as great. The shrinkage is species dependent and can be typically 5 to 10% in the tangential direction and 2 to 6% in the radial direction. Dried lumber that is coated with CUTEK™EXTREME is less susceptible to dimensional changes because the deeply penetrating hydrophobic (water resisting) nature of CUTEK™EXTREME minimizes the free absorption and desorption of liquid and gas phase moisture therefore assisting with maintaining the dimensional integrity of moisture stabilized lumber.



Factors Affecting the Dried Appearance, and Dimensional Integrity of Wood

Factors that significantly affect the drying, appearance and dimensional integrity of dried lumber are:

- The species; because of the variations in physical, mechanical and moisture transport properties between species.

- The thickness of the wood; because the drying time is approximately proportional to thickness and, to some extent, is also influenced by the width of the wood.
- Whether the lumber boards are quarter-sawn, back-sawn or mixed-sawn; because sawing pattern influences the distortion due to tangential and radial shrinkage. This leads to warping, cupping, bowing, twisting, spring and diamonding. (see image)
- Defects that arise due to uneven drying such as rupture of the wood tissue, checks (surface, end and internal), end splits, honey-combing, case hardening and collapse.