



The best solution for wood protection

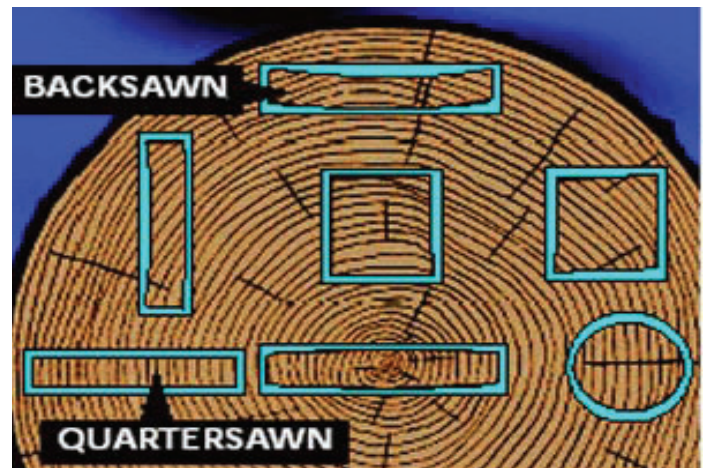
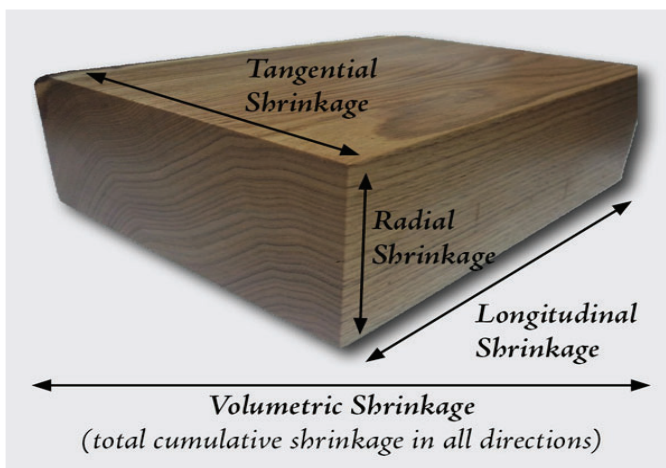
Important Information: Shrinkage and Movement

Shrinkage and Swelling

Shrinkage and swelling may occur in wood when the moisture content changes.

Dried lumber that is protected 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.

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 (in the direction of) the growth rings. Shrinkage from the pith outwards, or radially (across the growth rings), is usually considerably less than tangential shrinkage, while longitudinal (along the grain) shrinkage is so slight that it is usually inconsequential. The longitudinal shrinkage ranges from 0.1 to 0.3%, in contrast to tangential shrinkage which ranges from 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. This is why quartersawn lumber is considered more stable, as the thickness of the board is where the majority of the volume change occurs, with minimal change to the width of the board. Shrinkage varies in the different species of wood and can be typically 5 to 10% in the tangential direction and 2 to 6% in the radial direction.



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.