



Western Red Cedar Quick Facts

WESTERN RED CEDAR

Western Red Cedar (*Thuja plicata*) is one of North America's great renewable resources. Slow growing and naturally durable, Western Red Cedar has one of the longest life spans of any North American softwood. It produces long lengths of timber with true, straight grain. It is free from pitch and its heartwood has natural decay resistance. Its low density gives it an insulation value superior to most other wood species. Light weight, easy to work, easy to finish, possessing outstanding dimensional stability. Western Red Cedar is a preferred wood for nearly all purposes where attractive appearance or resistance to weather is important.

FEATURES OF WESTERN RED CEDAR

Acoustic properties:	Cedar tends to dampen sound transmission.
Density (12% mc):	23 lb/ft
Specific gravity (12% mc) :	0.34
Durability:	Durable species.
Fasteners:	Corrosion resistant only (aluminum, hot-dipped galvanized, brass, etc.)
Finishing:	Paints, stains, varnishes, oils and waxes all work well.
Flame spread Rating:	69 (Class II)
Smoke developed Classification:	98
K value (12% mc):	0.74 BTU in./ft ² h°F.
R value:	1.35/in. of thickness.
Stability:	Cedar is most stable softwood species.
Workability:	Easy to cut, saw, nail and glue.

PHYSICAL PROPERTIES

DENSITY

One of the lightest commercial softwoods, the density of Western Red Cedar at 12% moisture content is approximately 23 pounds per cubic foot with a relative density (specific gravity) of 0.34. The density of oven-dry material is 21 pounds per cubic foot.

Cedar's low density enhances its insulation value and makes it an easy wood to transport and handle.

DIMENSIONAL STABILITY

Like all woods, Western Red Cedar is hygroscopic and will absorb or discharge moisture to attain equilibrium with the surrounding atmosphere. However, it has a very low shrinkage factor and is superior to all other coniferous woods in its resistance to warping, twisting and checking. Shrinkage in both the radial and tangential directions is given in Table 1.

DECAY RESISTANCE

One of Western Red Cedar's most valuable characteristics is its well-known high resistance to decay. It is one of the most durable coniferous species and can be counted on to give long and trouble free service under most conditions.

Cedar's decay resistance comes from the presence of naturally occurring fungicidal compounds in the wood called thujaplicins. Another extractive present in the wood, thujic acid, helps make the wood resistant to insect attack.

Properly finished and maintained, cedar will deliver decades of trouble-free service. If exposed for prolonged periods to conditions where decay could be a factor, such as where the wood is in contact with the ground, cedar should be treated with suitable wood preservatives.

THERMAL CONDUCTIVITY

Wood is an excellent thermal insulator. This is an important characteristic since good thermal insulators help keep buildings cool in the summer and reduce heating costs in the winter.

The conduction of heat in wood is directly related to its density. Woods with low density have the highest thermal insulating value because such woods contain a high proportion of cell cavities. In dry wood, these cavities are filled with air which is one of the best known thermal insulators.

With its low density and high proportion of air spaces, Western Red Cedar is the best thermal insulator among the commonly available softwood species and is far superior to brick, concrete and steel. It has a coefficient of the thermal conductivity (k value) at 12% mc of 0.74 BTU in./ft²h°F.