

YELLOW-CEDAR (YELLOW CYPRESS)

Botanical Name:

Chamaecyparis nootkatensis (D. Don) Spach

Yellow-cedar grows along British Columbia's coastal region. It is a medium-sized tree growing up to 24 metres tall and 90 cm in diameter when mature. It often grows singly or in small clumps in a mixture with conifers such as amabilis fir and western hemlock. It is a beautiful tree that is tough, solid and extremely durable.

Common Uses

Yellow-cedar is one of the world's most durable woods with exceptional longevity. Due to this attribute it is used for shingles, posts, poles, marine pilings, small boat hulls, oars and paddles, water and chemical tanks, exterior doors, and window boxes. Structural grades are commonly used for exterior applications such as bridges, decking, stairs and for landscaping. It is sometimes used in specialty construction projects such as temples and shrines.

Unlike most softwoods, density across single growth rings is quite uniform making this a very good carving and woodworking species. This effect also accounts for the lack of visual grain. This wood is incredibly easy to work and, therefore, is prized for applications such as joinery and carpentry, decorative panelling, furniture, mouldings and cabinetwork. Its fine, even texture makes it a top choice for carvings and turnings.



YELLOW-CEDAR

Yellow-cedar lumber is often sold green due to its unique properties. When dried, lumber is dried according to end-use and customer specifications. Kiln drying inhibits natural staining of the wood, improves its strength and stiffness, enhances its appearance, and increases its resistance to decay and attack by insects.

PHYSICAL PROPERTIES		
DENSITY (kg/m ³)	Green	419
	Air Dry	431
SPECIFIC GRAVITY (12% M.C.)	Standard	0.42
HARDNESS (N)	Side	2510
	End	3960
MOE (Mpa)	Green	9240
	Air Dry	11000
MOR (Mpa)	Green	45.8
	Air Dry	79.7
COMPRESSION PARALLEL (Mpa)	Air Dry	45.9
COMPRESSION PERPENDICULAR (Mpa)	Air Dry	4.74
SHEAR (Mpa)	Air Dry	9.21
CLEAVAGE (N/mm Width)	Air Dry	45.4
SHRINKAGE OD = oven dry air = air dry 12%	Radial (OD)	3.7%
	Tangential (OD)	6.0%
	Volumetric (OD)	9.4%
	Volumetric (air)	5.0%
	Tang / Rad ratio	1.6

VISUAL PROPERTIES	
COLOUR	
Heartwood	Pale yellow to dark yellow.
Sapwood	Pale yellow in fresh wood to greyish-yellow in older wood.
Heartwood / Sapwood Contrast	The sapwood is narrow and there is little contrast between the heartwood and sapwood.
Latewood / Earlywood Contrast	The annual growth rings are very narrow and there is a gradual transition from earlywood to latewood.
GRAIN	
The wood is generally straight-grained and has a fine, even texture.	
FIGURE	
Plainsawn lumber or rotary-cut veneer: Faint growth ring. Quartersawn lumber or quarter-sliced veneer: None.	
KNOTS	
Tight knots.	
OTHER	
Wood of yellow-cedar is aromatic, especially when freshly cut. Free from pitch and resin. Wood tends to develop brown discoloration when it is in contact with iron or iron compounds under damp conditions.	



WORKING PROPERTIES

Yellow-cedar is considerably harder when dry than most commercial softwoods so it is strong. It is known for its exceptional working properties and can be easily machined and finished. It turns, planes and shapes well and can be sanded to a smooth finish. The wood glues satisfactorily, has moderate nail and screw holding ability, and takes a good finish.

PROCESS	PERFORMANCE	COMMENTS
MACHINING		
Planing	Excellent planing quality	Recommended planer settings: 20° hook and 8, 12, 16, or 20 kmpi (knife marks per inch). No major defects. Slight dulling effect on cutting tools.
Turning	Medium to high surface quality	Good surface quality when turned using a rotary knife lathe.
Sawing	Easy to work with tools	Known for its exceptionally good working qualities.
Boring	Moderate	Much better boring quality with brad point bits than with single twist bits.
Mortising	Good to moderate	Excellent mortising quality is found with a hollow chisel mortise.
Shaping	Good shaping quality	Recommended: The use of a counter piece for end-grain shaping.
Veneering	N/A	
Sanding	Excellent	
FASTENING		
Screwing	Moderate	Average screw retention: 476 lb.
Lateral Nail Holding	N/A	
Nail Retention	Good	Equivalent to Douglas-fir.
Gluing	Satisfactorily	Bonds satisfactorily with good-quality adhesives under a moderately wide range of bonding conditions.
FINISHING		
Staining	Moderately easy	Natural finish looks best. As stain gets darker, uneven colour is pronounced. A wash coat would even out colour differences.
Painting	Moderate paint holding ability	Older wood should be wiped with paint thinner to remove surface "greasyness".
Lacquering	Good to moderate	Reasonably smooth results with only two topcoats.
Waxing	Good	Good results are obtained when using light-to medium-coloured waxes (e.g. Mellow Pine, Chestnut).
DRYING		
Ease of Drying	Moderately easy	Dries without difficulty, but there is a tendency for surface checking to occur in thick stock with some end splitting if the drying is forced.
DURABILITY		
Natural Decay Resistance	Durable	Appropriate for outdoor usage.
Treatability	Impermeable	Can be improved by incising.



Commercial Availability

In North America structural grades are in accordance with the National Lumber Grades Authority (NLGA) rules for dimension lumber. Yellow-cedar is currently marketed under the Northern Species group making its official structural design value lower than SPF, Hem-Fir, or DFir-Larch. However, yellow-cedar is used structurally for its appearance and for its decay resistance.

Yellow-cedar is commonly produced in appearance grades according to NLGA rules. Clears, shop lumber and moulding stock are most common. Yellow-cedar is also offered in export grades for Japan and other markets.



Data for this factsheet has been compiled by Forintek Canada Corp. from internal and external scientific sources. Forintek is a not-for-profit technical research institute serving the Canadian forest sector.