

WESTERN WHITE PINE

Botanical Name:
Pinus monticola Dougl.



WESTERN WHITE
PINE

Western white pine is commonly found in the drier parts of Vancouver Island, the adjacent mainland Coast and in the wetter parts of the southern Interior, particularly at low elevations. It is a large tree, up to 60 metres high and 2 metres in diameter. It may form nearly pure stands, but is usually found in mixture with other species. Western white pine only constitutes 0.1% of British Columbia's total growing stock.

Common Uses

Western white pine is generally sawn into lumber, which finds its main use in windows, doors, matches, boxes, patterns, as well as construction lumber. Lower-grade boards are often used for sheathing, knotty panelling and sub-flooring. The high-grade material is used for applications such as siding of various kinds, both exterior and interior woodwork, and millwork.



Western white pine 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	355
	Air Dry	383
SPECIFIC GRAVITY (12% M.C.)	Standard	0.36
HARDNESS (N)	Side	1700
	End	2280
MOE (Mpa)	Green	8200
	Air Dry	10100
MOR (Mpa)	Green	33.3
	Air Dry	64.1
COMPRESSION PARALLEL (Mpa)	Air Dry	36.1
COMPRESSION PERPENDICULAR (Mpa)	Air Dry	3.23
SHEAR (Mpa)	Air Dry	6.34
CLEAVAGE (N/mm Width)	Air Dry	35.4
SHRINKAGE OD = oven dry air = air dry 12%	Radial (OD)	3.7%
	Tangential (OD)	6.8%
	Volumetric (OD)	10.7%
	Volumetric (air)	6.0%
	Tang / Rad ratio	1.8

VISUAL PROPERTIES	
COLOUR	
Heartwood	Cream coloured to light reddish-brown.
Sapwood	White to pale yellow.
Heartwood / Sapwood Contrast	Little contrast between heartwood and sapwood.
Latewood / Earlywood Contrast	Faint growth rings.
GRAIN	
The wood is generally straight-grained with even, uniform texture.	
FIGURE	
Plainsawn lumber or rotary-cut veneer: None Quartersawn lumber or quarter-sliced veneer: None	
KNOTS	
The knots are usually intergrown.	
OTHER	
Wood of western white pine has a slight resinous odour especially when green. Has fine brown lines appearing on longitudinal surfaces due to resin ducts. Wood is resinous, pitch pockets are infrequent.	



WORKING PROPERTIES

Western white pine is moderately light in weight and moderately low in strength, but it has good working properties. The wood dries rapidly with small dimensional movement and little tendency to check. It is relatively easy to work, with good machining qualities. It turns, planes and shapes well and can be sanded to a smooth finish. The wood glues easily, has moderate nail and screw holding ability, and takes a good finish.

PROCESS	PERFORMANCE	COMMENTS
MACHINING		
Planing	Good planing quality	Recommended planer settings 12° or 20° hook angle and 20 kmpi (knife marks per inch).
Turning	Good to low surface quality	Excellent results with rotary-knife lathe and poor results with single-point lathe.
Sawing	Very easy to work	Cutting edges should be sharp. Resin exudation can sometimes negatively affect sawing properties.
Boring	Medium to well	Medium boring quality with both brad and single twist bits.
Mortising	Good	Good mortising quality when using a hollow chisel mortise.
Shaping	Good to excellent shaping quality	
Veneering	Good	Slight tendency to split during drying.
Sanding	Good	
FASTENING		
Screwing	Moderate - Good	Average screw retention: 378 lb.
Lateral Nail Holding	N/A	
Nail Retention	Moderate	
Gluing	Easy	Bonds very easily with adhesives of a wide range of properties, and under a wide range of bonding conditions.
FINISHING		
Staining	Easy	Wood is soft and produces a grainy appearance. Dark stains appear blotchy. Recommended: light stains and natural finish.
Painting	Good paint holding ability	
Lacquering	Good	Multiple coats of clear or a clear coat with a high build is recommended.
Waxing	Good	Best results are obtained when using light coloured waxes (e.g. Mellow Pine).
DRYING		
Ease of Drying	Easy to moderately easy	Stable after drying, moderately high shrinkage.
HEARTWOOD DURABILITY		
Natural Decay Resistance	Slightly durable	Not appropriate for prolonged outdoor exposure.
Treatability	Impermeable to extremely impermeable	Can be improved by incising.

Commercial Availability

Western white pine is of limited availability. It is produced for millwork applications under NLGA rules for clears, shop lumber and moulding stock.



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.