

PONDEROSA PINE

Botanical Name:
Pinus ponderosa

Ponderosa pine is the characteristic tree of the southern Interior of British Columbia. It is the largest of the western pine species, and is found on semi-arid plateaus and slopes in the southern Interior, sometimes in almost pure stands. At higher elevations it grows with Interior Douglas-fir. Ponderosa pine is a large-crowned tree with a straight trunk, usually about 25 to 30 metres tall, but sometimes reaching a height of 50 metres and a diameter of 2 metres. Ponderosa pine accounts for 1.3% of British Columbia's total growing stock.

Common Uses

Knotty ponderosa pine is used for interior woodwork. It is used mainly for furniture, sashes, frames, door mouldings, panelling, cabinet work, as well as panelling and shelving. The wood is commonly used in kitchen furniture, turnery and doors, otherwise the timber is used for building, light and medium construction, window frames, and interior trim. The lumber is also used to a lesser extent for piles, poles, posts, veneer, railroad crossties, and mine timbers. Low-grade lumber is used for boxes and crates. Much intermediate or low-grade lumber is used for sheathing, sub-flooring and roof boards.



PONDEROSA PINE

Ponderosa 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	438
	Air Dry	459
SPECIFIC GRAVITY (12% M.C.)	Standard	0.44
HARDNESS (N)	Side	2640
	End	3360
MOE (Mpa)	Green	7790
	Air Dry	9510
MOR (Mpa)	Green	39.3
	Air Dry	73.3
COMPRESSION PARALLEL (Mpa)	Air Dry	42.3
COMPRESSION PERPENDICULAR (Mpa)	Air Dry	5.22
SHEAR (Mpa)	Air Dry	7.03
CLEAVAGE (N/mm Width)	Air Dry	48.3
SHRINKAGE OD = oven dry air = air dry 12%	Radial (OD)	4.6%
	Tangential (OD)	5.9%
	Volumetric (OD)	10.5%
	Volumetric (air)	6.1%
	Tang / Rad ratio	1.3



VISUAL PROPERTIES	
COLOUR	
Heartwood	From yellow/orange to a reddish-brown.
Sapwood	Nearly white to pale yellow.
Heartwood / Sapwood Contrast	Sapwood is wide and distinct from the heartwood.
Latewood / Earlywood Contrast	There is a noticeable distinction between earlywood and latewood.
GRAIN	
Wood is generally straight-grained and uniform in texture.	
FIGURE	
Plainsawn lumber or rotary-cut veneer: Distinct, to inconspicuous growth ring. Quartersawn lumber or quarter-sliced veneer: Distinctly darker with striping.	
KNOTS	
Widely spaced large knots common.	
OTHER	
Wood is resinous, possible pitch pockets present. Pitch can be set by proper drying.	

WORKING PROPERTIES

The wood dries rapidly with small dimensional movement and little tendency to check. The wood is known for its ease of working. It works easily and smoothly, and takes nails and screws well. While it glues satisfactorily and can be painted, its high resin content can be troublesome when finishing. It is the most resinous of the Canadian commercial pines.

PROCESS	PERFORMANCE	COMMENTS
MACHINING		
Planing	Easy, with fair to good results	Pitch build-up on tools could be a problem.
Turning	Easy	Yields a good surface quality.
Sawing	Easy to work with both hand and power tools	Resin exudation may gum up saw teeth. Slight to moderate blunting effect.
Boring	Easy, with fair to good results	
Mortising	Good mortising quality	
Shaping	Good shaping quality	
Veneering	N/A	
Sanding	Easy, with good sanding	
FASTENING		
Screwing	Easy	Good holding. Excellent splitting resistance.
Nail Retention	Moderate	
Lateral Nail Holding	Moderate	Good holding. Excellent splitting resistance.
Gluing	Glues well	Bonds well with a fairly wide range of adhesives under a moderately wide range of bonding conditions.
FINISHING		
Staining	Good	Good staining properties for light colours and poor for dark ones.
Painting	Average to good paint holding ability	The presence of knots makes painting difficult. Resin content can cause difficulties.
Lacquering	Good results with satin water borne acrylic (low gloss clear)	Performed well in the tape test (i.e. small flakes of the coating were detached at intersections of cuts) and in the pull-off test (i.e. average strength of 29 kg/cm ²).
Waxing	Fair to good results	
DRYING		
Ease of Drying	Easy to moderately easy	Little tendency to warp or twist.
HEARTWOOD DURABILITY		
Natural Decay Resistance	Non-durable to slightly durable	Not appropriate for prolonged outdoor exposure.
Treatability	Impermeable	Sapwood is permeable, but heartwood is impermeable.

Commercial Availability

Ponderosa pine is marketed on its own primarily as a millwork species under NLGA grade rules. Clears, shop lumber and moulding stock are most common, though there are many potential appearance grades that can be produced.



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.