RED ALDER

Botanical Name: *Alnus rubra* Bong.

Red alder is the most plentiful hardwood on the Coast of British Columbia, though hardwoods make up only 5.4% of the province's total growing stock. It is a short-lived tree – with an average life span of 40 to 60 years that tends to grow in pure stands. A medium-sized broad-leaf tree, it grows up to 24 metres tall and 60 cm in diameter. Red alder is a fast growing tree that does not tolerate shade, and therefore, occupies a site quickly after a disturbance.

RED ALDER

Common Uses

Red alder has been increasing in popularity over the past few years. It is a very important local species for furniture, flooring, cabinets, turnery, decorative veneer, and other home decorations, as well as craft products such as domestic woodenware and toys. Other high value products produced from red alder are doors, shutters, mouldings, panel stock and carvings. Lower grade wood is often used in plywood core stock, chips for pulp and paper, as well as for firewood, charcoal, and chips for smoke curing.

Red alder lumber is dried according to end-use and customer specifications. Kiln drying inhibits natural staining of the wood, enhances its appearance, and increases its resistance to decay and attack by insects.

PHYSICAL PROPERTIES		
DENSITY (kg/m^3)	Green	373
	Air Dry	390
SPECIFIC GRAVITY (12% M.C.)	Standard	0.37
HARDNESS (N)	Side	2490
	End	4360
MOE (Mpa)	Green	8270
	Air Dry	10100
MOR (Mpa)	Green	43.4
	Air Dry	73.8
COMPRESSION PARALLEL (Mpa)	Air Dry	40.0
COMPRESSION PERPENDICULAR (Mpa)	Air Dry	4.00
SHEAR (Mpa)	Air Dry	7.96
CLEAVAGE (N/mm Width)	Air Dry	53.4
SHRINKAGE	Radial (OD)	4.2%
OD = oven dry	Tangential (OD)	7.0%
air = air dry 12%	Volumetric (OD)	11.7%
	Volumetric (air)	8.0%
	Tang / Rad ratio	1.7

VISUAL PROPERTIES	
COLOUR	
Heartwood	Pale pinkish-brown.
Sapwood	Similar to heartwood.
Heartwood / Sapwood Contrast	No visible boundary between heartwood and sapwood.
Latewood / Earlywood Contrast	The annual growth rings are indistinct as it is a diffuse-porous wood.
GRAIN	
The wood has fairly straight grain, and is fine-grained and even-textured.	
FIGURE	
Plainsawn lumber or rotary-cut veneer: Faint growth ring. Quartersawn lumber or quarter-sliced veneer: Scattered large flakes from compound rays (sometimes entirely absent).	
KNOTS	
Few live knots in stem.	

WORKING PROPERTIES

Red alder is light in weight with medium strength and hardness, and it is well known for its working properties. The wood dries well, but care must be taken to control the colour. 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	Excellent planing quality	Recommended planer settings: 20° hook angle and 12, 16 or 20 kmpi (knife marks per inch). No major defects.
Turning	Medium to good surface quality	
Sawing	Easy to work with tools	
Boring	Medium	Medium to good boring quality with brad point bits and lower quality with single twist bits.
Mortising	Good to moderate	Good mortising quality when using a hollow chisel mortise.
Shaping	Good shaping quality	Recommended: the use of a counter piece for end-grain shaping.
Veneering	N/A	
Sanding	Good	Excellent sanding quality.
FASTENING		
Screwing	Good -moderate	Average screw retention: 518 lb.
Lateral Nail Holding	N/A	
Nail Retention	Good	
Gluing	Easy	Bonds very easily with adhesives of a wide range of properties and under a wide range of bonding conditions.
FINISHING		
Staining	Easy to moderately easy	Attractive natural colour. Light stain works well. Blotchy when dark stain used. Smooth finish achieved.
Painting	Average to good paint holding ability	
Lacquering	Good	Performed well in the tape test (i.e. edges of the cuts were completely smooth; none of the squares of the lattice was detached) and in the pull-off test (i.e. average strength of 29 kg/cm^2).
Waxing	Good	Excellent results are obtained when using light- to dark-coloured waxes (e.g. Mellow Pine, Chestnut, and Jacobean).
DRYING		
Ease of Drying	Moderate	The colour of the wood is affected by the temperature and humidity of the schedule.
HEARTWOOD DURABILITY		
Natural Decay Resistance	Non-durable	Logs should be processed quickly, particularly during warm weather, as decay proceeds rapidly. Green lumber should be carefully stacked for air-drying or promptly kiln dried to prevent damage from microbial stain.
Treatability	N/A	

Commercial Availability

Red alder is the most available of BC hardwoods. Appearance and millworking grades are produced according to National Hardwood Lumber Association (NHLA) rules. Common grades include Select and better, #1 shop, and framegrade. A number of proprietary grades also exist.

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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.