

TREMBLING ASPEN

Botanical Name:

Populus tremuloides Michx.



TREMBLING ASPEN

Trembling aspen – grouped together with balsam poplar – makes up approximately 3 to 4% of British Columbia's forests. The tree often appears in pure stands and grows in many soil conditions from sea level to 3000 metres. This tree grows up to 25 metres tall and 25 cm in diameter, but has a shorter lifespan than most trees due to its susceptibility to decay.

Common Uses

Aspen is the most commonly used wood species for oriented strand board (OSB). It is suitable for the production of high quality laminated veneer lumber (LVL) for use as headers, joists, beams and planks. Aspen lumber has gained moderate acceptance in the construction market as studs. There is interest in marketing aspen for appearance applications due to its bright white colour.

Aspen 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	374
	Air Dry	408
SPECIFIC GRAVITY (12% M.C.)	Standard	0.37
HARDNESS (N)	Side	2140
	End	2820
MOE (Mpa)	Green	9030
	Air Dry	11200
MOR (Mpa)	Green	37.6
	Air Dry	67.6
COMPRESSION PARALLEL (Mpa)	Air Dry	36.3
COMPRESSION PERPENDICULAR (Mpa)	Air Dry	3.52
SHEAR (Mpa)	Air Dry	6.76
CLEAVAGE (N/mm Width)	Air Dry	45.5
SHRINKAGE OD = oven dry air = air dry 12%	Radial (OD)	3.6%
	Tangential (OD)	6.6%
	Volumetric (OD)	11.8%
	Volumetric (air)	8.3%
	Tang / Rad ratio	1.8

VISUAL PROPERTIES	
COLOUR	
Heartwood	Varies from off-white to creamy to light greyish-brown.
Sapwood	Nearly white.
Heartwood / Sapwood Contrast	There is no distinct colour boundary between sapwood and heartwood to clearly delineate one from the other.
Latewood / Earlywood Contrast	The diffuse porous nature of this species makes growth ring recognition difficult.
GRAIN	
Straight-grained, fine and even-textured.	
FIGURE	
Plainsawn lumber or rotary-cut veneer: Faint growth rings. Quartersawn lumber or quarter-sliced veneer: None.	
KNOTS	
Discolouration above and below knots form and a "comet-tail" or "keyhole".	
OTHER	
It has a characteristic disagreeable odour when wet, but is odourless when dry. Wood is soft and light. It weathers to a light grey with a pronounced silky lustre.	



WORKING PROPERTIES		
PROCESS	PERFORMANCE	COMMENTS
MACHINING		
Planing	Good planing quality	Recommended planer settings: 12° or 20° hook angle and 16 or 20 kmpi (knife marks per inch).
Turning	Good surface quality	Common defects: torn out grain and, less severe, fuzzy grain. Sanding usually eliminate these defects.
Sawing	Resistance to sawing varies widely	Moderately good when compared to other lower-density wood species but poor when compared to higher-density hardwoods (e.g. maple).
Boring	Moderate quality	Recommended settings: use brad point bit.
Mortising	Very good	Very good mortising quality when using a hollow chisel mortise.
Shaping	Very good	
Veneering	Easy	
Sanding	Good	Heavily affected by fuzzy grain. Recommended settings: finer sandpaper after the initial sanding to eliminate fuzzy grain and the sandpaper frequently changed.
FASTENING		
Screwing	Good	Good holding. Good resistance to splitting. Average screw retention: 482 lb.
Nailing	Satisfactory	Good resistance to splitting.
Gluing	Moderately easy	Good adhesion.
FINISHING		
Staining	Good	Finishes well. Blotches appear as the stains become darker. Recommended: light to medium stains.
Painting	Good	
Lacquering	Good	Performed well in the tape test.
Waxing	Satisfactory	Best when using light-coloured waxes (e.g. Mellow Pine).
HEARTWOOD DURABILITY		
Natural Decay Resistance	Low	Low decay resistance limits age of trees.
Treatability	Very good	Very permeable wood.

Commercial Availability

Aspen is currently sawn into studs for construction lumber under National Lumber Grades Authority (NLGA) rules. However, the main interest is to increase the production of aspen for millwork applications. Appearance and millworking grades can be produced according to National Hardwood Lumber Association (NHLA) rules.



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.