



Pinus monticola Dougl. Ex D. Don

Family: Pinaceae

Western White Pine

The genus *Pinus* is composed of about 100 species native to temperate and tropical regions of the world. Wood of pine can be separated microscopically into the white, red and yellow pine groups. The word *pinus* is the classical Latin name. The word *monticola* means inhabiting mountains.

Other Common Names: Berg-tall, Columbia pijn, finger-cone pine, Idaho white pine, little sugar pine, mountain pine, mountain white pine, Norway white pine, pin argente, pin argente americain, pino bianco americano, pino blanco americano, silver pine, soft pine, vasterns Weymouth-tall, western white pine, Weymouth berg-pijn, Weymouth mountain pine, white pine, yellow pine.

Distribution: Western white pine is native to the mountains from northwestern Montana, extreme southwestern Alberta and southern British Columbia, south to Washington, Oregon and California through the Sierra Nevada to western Nevada and central California.

The Tree: Western white pine trees reach heights of 180 feet, with a clear bole for 70 to 100 feet and diameters of 3.5 feet. Over mature trees may reach heights of 197 feet, with diameters of almost 6 feet. They may grow for 300 to 400 years.

General Wood Characteristics: The sapwood of western white pine is nearly white to pale yellow, while the heartwood is cream to light reddish brown and may turn darker upon exposure. The wood has a slight resinous odor, but no characteristic taste. It is straight grained and has a rather coarse texture. It is also soft, light, is moderately weak in bending, moderately strong in end compression and moderately low in shock resistance. It works well with tools, glues well and holds paint very well. It does not split when nailed, but has medium nail holding ability. It is easy to dry, has moderate shrinkage and stays in place well after proper drying. It is low in decay resistance.

Mechanical Properties (2-inch standard)

	Specific gravity	MOE GPa	MOR MPa	Compression		WML ^a Kj/m ³	Hardness N	Shear MPa
				Parallel MPa	Perpendicular MPa			
Green	0.35	8.20	32.4	16.7	1.31	34.5	1160	4.69
Dry	0.42	10.1	66.9	34.7	3.24	60.7	1870	7.17

^aWML = Work to maximum load.
Reference (56).

Drying and Shrinkage

Type of shrinkage	Percentage of shrinkage (green to final moisture content)

	0% MC	6% MC	20% MC
Tangential	7.4	5.9	2.5
Radial	4.1	3.3	1.4
Volumetric	11.8	9.4	3.9
References: (178, 56, 192).			

Kiln Drying Schedules^a

Conventional temperature/moisture content-controlled schedules^a

Condition	4/4, 5/4 stock	6/4 stock	8/4 stock	10/4 stock	12/4 stock	British schedule 4/4 stock
Lower grades	T9-C6	NA	T7-C6	NA	NA	NA
Upper grades	T9-C5	T7-C5	T7-C4	T5-C4	T8-C3	L

^aReference (28, 185).

Conventional temperature/time-controlled schedules^a

Condition	Lower grades			Upper grades			
	4/4, 5/4 stock	6/4 stock	8/4 stock	4/4, 5/4 stock	6/4 stock	8/4 stock	12/4, 16/4 stock
Standard	295	301	301	295	301	301	NA

^aReferences (28, 185).

Working Properties: It works well with tools, glues well and holds paint very well. It does not split when nailed, but has medium nail holding ability.

Durability: It is rated as slightly or nonresistant to heartwood decay.

Preservation: No information available at this time.

Uses: Matches, boxes, crates, wall and roof sheathing, interior paneling, windows, panel doors, trim, moldings, cut stock, foundry patterns, furniture, laminated roof decking, plywood, veneer, pulp, paper and particle board.

Toxicity: In general, working with pine wood may cause dermatitis, allergic bronchial asthma or rhinitis in some individuals (5,9&13).

Additional Reading and References Cited (in parentheses)

1. Boone, R. S.; Kozlik, C. J.; Bois, P. J., and Wengert, E. M. Dry kiln schedules for commercial woods - temperate and tropical. Madison, WI: USDA Forest Service, FPL-GTR-57; 1988.
2. Dallimore, W.; Jackson, A. B., and Harrison, S. G. A handbook of Coniferae and Ginkgoaceae. London, UK: Edward Arnold Ltd.; 1966.
3. Elias, T. S. The complete trees of North America, field guide and natural history. New York, NY: van Nostrand Reinhold Co.; 1980.
4. Graham, R. T. *Pinus monticola* Dougl. ex D. Don. Western White Pine. in: Burns, R. M. and Honkala, B. H., tech. coords. Silvics of North America. Volume 1, Conifers. Washington, DC: USDA Forest Service; 1990; pp. 385-394.
5. Hausen, B. M. Woods injurious to human health. A manual. New York, NY: Walter de Gruyter; 1981.
6. Henderson, F. Y. A handbook of softwoods. London: HMSO; 1977.
7. Little, jr. E. L. Checklist of United States trees (native and naturalized). Washington, DC: USGPO, USDA Forest Service, Ag. Handbook No. 541; 1979.
8. Lowery, D. P. Western White Pine, an American wood. Washington, DC, USA.: USDA Forest Service, FS-258.; 1984.

9. Mitchell, J. and Rook, A. Botanical dermatology: plants and plant products injurious to the skin. Vancouver, BC: Greenglass Ltd.; 1979.
10. Simpson, W. T. Dry kiln operator's manual. Madison, WI: USDA Forest Service, FPL Ag. Handbook No. 188; 1991.
11. Summitt, R. and Sliker, A. CRC handbook of materials science. Vol. 4. Boca Raton, FL: CRC Press, Inc.; 1980.
12. USDA. Wood handbook: wood as an engineering material. Madison, WI: USDA Forest Service, FPL Ag. Handbook No. 72; 1974.
13. Woods, B. and Calnan, C. D. Toxic woods. British Journal of Dermatology. 1976; 95(13):1-97.