The genus *Abies* (True Firs) is composed of about 40 species native to North America [9], Central America [7], Africa [2], Europe [1] and Eurasia [25]. *Abies* is the classical Latin name of silver fir (*Abies alba* Mill.) of Europe. The word *grandis* means large.

Other Common Names: Abete bianco americano, abete blanco americano, abeto blanco americano, amerikansk gran, balsam fir, balsam, California great fir, Californische den, giant fir, grand fir, great silver fir, groise tanne, jedle obrovska, kaempegran, kalifornische kustentanne, kalifornische reisentanne, kust-gran, kustgran, lowland fir, lowland white fir, Oregon fir, Oregon white fir, Puget Sound fir, reuzenzilverspar, rough-barked fir, sapin du Vancouver, sapin grandissime, silver fir, tall silver fir, Vancouver den, Vancouver-gran, vancouvergran, western balsam fir, western white fir, white fir, yellow fir.

Distribution: Grand Fir is native to the Northern Rocky Mountain region from southeast British Columbia south to western Montana and central Idaho, northeast from southwest British Columbia and western Washington to northwest California.

The Tree: Grand Fir trees reach heights of 140 feet, with diameters of 4 feet. They may reach heights of 250 feet, with a diameter of 5 feet.

General Wood Characteristics: The wood of Grand Fir ranges from nearly white to reddish brown. The sapwood is indistinguishable from the heartwood. It has a medium to coarse texture and is generally straight grained. It is easy to work and is dimensionally stable when dried. It is moderate to moderately low in strength, stiffness, shock resistance and in nail withdrawal resistance. It is dries easily, but may have problems with wetwood, a bacterial infection. It has good paint holding ability and is easily glued. The heartwood is not durable and is considered

Mechanical Properties (2-inch standard)

	Specific gravity	MOE $x10^6$ lbf/in^2	MOR lbf/in^2	Compression		WML[a] in-lbf/in^3	Hardness lbf	Shear lbf/in^2
				Parallel lbf/in^2	Perpendicular lbf/in^2			
Green	0.35	1.25	5800	2940	270	5.6	360	740
Dry	0.42	1.57	8900	5290	500	7.5	490	900

[a]WML = Work to maximum load.
Reference (56).

Drying and Shrinkage

	Percentage of shrinkage (green to final moisture content)		
Type of shrinkage	0% MC	6% MC	20% MC
Tangential	7.5	6.0	2.5
Radial	3.4	2.7	1.1
Volumetric	11.0	8.8	3.7

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
Standard	T12-E5	NA	T10-E4	T8-A4	T8-A3	L

[a]Reference (28, 185, 74).

Conventional temperature/time-controlled schedules[a]

	Lower grades			Upper grades			
Condition	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	291	291	291	294	294	294	288

[a]References (28, 185).

High temperature[a]

Condition	4/4, 5/4 stock	6/4 stock	8/4 stock	Other products
Standard	400	400	400	NA

[a]References (28, 185).

Working Properties: Grand Fir is easy to work, is moderately low in nail withdrawal resistance, is good in paint holding properties and is easily glued.

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

Preservation: Penetration by preservatives is difficult.

Uses: Lumber, plywood, pulp for paper, framing, sheathing, subflooring, concrete forms, decking, planking, beams, posts, siding, paneling, millwork, prefabricated buildings and structural members, industrial crating and shook, furniture parts, mobile homes, fresh fruit and vegetable containers.

Toxicity: The fresh wood may cause contact dermatitis (3,8&13)

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