technology transfer *fact sheet*

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Pinus palustris Mill.
Family: Pinaceae
Longleaf 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. Longleaf pine is in the yellow pine group. The word *pinus* is the classical Latin name and *palustris* means "of marshes". Longleaf pine is also in a group called the southern pines, which includes Shortleaf pine (*P. echinata* Mill.), Loblolly pine (*P. taeda* L.) and Slash pine (*P. elliottii* Engelm.).

Other Common Names: American pitch pine, Amerikaanse pitchpine, broom pine, brown pine, fat pine, figured-tree, Florida longleaf pine, Florida pine, Florida yellow pine, Georgia heart pine, Georgia longleaf pine, Georgia pine, Georgia pitch pine, Georgia yellow pine, Gulf Coast pitch pine, hard pine, heart pine, hill pine, langbarrig tall, longleaf, longleaf pine, long-leaf pitch pine, longleaf yellow pine, longleaf yellow pine, longleaved pitch pine, longstraw pine, madera pino, moeras-pijn, North Carolina pitch pine, palustris pine, pin de Boston, pin des marais, pino del sur, pino giallo, pino grasso, pino palustre, pino pantano, pino pece, pino tea, pino tea roja, pitch pine, pitchpin, pitchpin americain, red pine, Rosemary pine, soderns gul-all, southern hard pine, southern heart pine, southern pine, southern pitch pine, southern yellow pine, sump-all, sumpf kiefer, sydstaternas gul-tall, tea pine, Texas longleaf pine, Texas yellow pine turpentine pine, yellow pine.

Distribution: Longleaf pine is native to the southeastern United States, in the Coastal Plain from southeastern Virginia to central Florida and west to eastern Texas.

The Tree: Longleaf pine trees reach heights of 100 feet, with a diameter of 3 feet.

General Wood Characteristics: The sapwood of longleaf pine is a yellowish white, while the heartwood is a reddish brown. The sapwood is usually wide in second growth stands. Heartwood begins to form when the tree is about 20 years old. In old, slow-growth trees, sapwood may be only 1 to 2 inches in width. The wood of longleaf pine is very heavy and strong, very stiff, hard and moderately high in shock resistance. It also has a straight grain, medium texture and is difficult to work with hand tools. It ranks high in nail holding capacity, but there may be difficulty in gluing. All the southern pines have moderately large shrinkage but are stable when properly seasoned. The heartwood is rated as moderate to low in resistance to decay. The sapwood is more easily impregnated with preservatives.

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	0.54	1.59	8500	4320	480	8.9	590	1040
Dry	0.62	1.98	14500	8470	960	11.8	870	1510

[a]WML = 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	7.5	6.0	2.5
Radial	5.1	4.1	1.7
Volumetric	12.2	9.8	4.1

References: (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	T13-C6	T12-C5	T12-C5	T10-C4	T10-C4	L
Highest Quality	279	279	279	T10-C4	T10-C4	NA

[a]Reference (28, 185).

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	281	NA	282	281	NA	282	284

[a]References (28, 185).

High temperature[a]

Condition	4/4, 5/4 stock	6/4 stock	8/4 stock	Other products
Standard	401/402	NA	NA	2 by 4's 403
				2 by 10's 403
				4 by 4's 404

[a]References (28, 185).

Working Properties: Longleaf pine is difficult to work with hand tools.

Durability: It is rated as moderately resistant to heartwood decay (13).

Preservation: The sapwood is permeable to preservative treatments.

Uses: The denser and higher strength southern pine is used extensively in construction of factories, warehouses, bridges, trestles, and docks in the form of stringers, and for roof trusses, beams, posts, joists, and piles. Lumber of lower density and strength finds many uses for building material, such as interior finish, sheathing, subflooring, and joists and for boxes, pallets, and crates. Southern pine is used also for tight and slack cooperage. When used for railroad crossties, piles, poles and mine timbers, it is usually treated with

preservatives. The manufacture of structural grade plywood from southern pine has become a major wood-using industry.

Toxicity: Working with longleaf pine may cause dermatitis, allergic bronchial asthma or rhinitis (7,10&14)

Additional Reading and References Cited (in parentheses)

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