technology transfer *fact sheet*

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Sequoia sempervirens (D. Don)
Family: Taxodiaceae
Redwood

The genus Sequoia is represented by one species (*S. sempervirens*). A related tree, the giant sequoia (*Sequoiadenrdon giganteum*) is also called redwood, big tree or giant redwood. The word sequoia was selected to honor Sequoyah (also spelled Sequoia), or George Guess (1770?-1843), Native American inventor of the Cherokee alphabet. The name was unexplained by its author, an Austrian linguist and botanist. The name *sempervirens* means evergreen.

Other Common Names: Amerikansk sekvoja, California cedar, California redwood, Californische redwood, coast redwood, corla, giant-of-the-forest, Humboldt redwood, ledwood, Mexican cherry, palo colorado, pin rouge d'ambrique, pin rouge d'Amerique, pino rosso d'america, redwood, sequoia, sequoia de California, sequoia roja, sequoia rossa, sequoia toujours vert, sequoie, vavona, vavona burr.

Distribution: Redwood is native to the Pacific Coast region from extreme southwestern Oregon (Curry County) south to central California (Monterey County).

The Tree: Redwood trees reach heights of 200 to 300 feet, with diameters of 6 to 12 feet. The record is 376 feet tall, with a 20 foot diameter and an age of 2,200 years, and represents the world's tallest tree.

General Wood Characteristics: The sapwood of is white, while the heartwood is a dark reddish brown. The heartwood has no characteristic odor or taste. It has exceptionally straight grain, high dimensional stability and is resistant to warping. It is moderately strong in bending, strong in endwise compression, stiff, moderately low in shock resistance and holds paint well.

Weight

Moisture content	Specific gravity	Weight lb/ft^3
Old Growth		
Green	0.38[a]	50[b]
12%	0.40[a]	28[b]
Ovendry	0.42[b]	NA
Second Growth		
Green	0.34[a]	42[c]
12%	0.35[a]	24[c]
Ovendry	0.36[c]	NA

[a]Reference (15).
[b]Reference (14).
[c]Reference (9).

Mechanical Properties[a]

Property	Green	Dry
Old Growth		
MOE	1.18 ¥ 10^6 lbf/in^2	1.34 ¥ 10^6 lbf/in^2
MOR	7.50 ¥ 10^3 lbf/in^2	10.00 ¥ 10^3 lbf/in^2
$C_{\|\|}$	4.20 ¥ 10^3 lbf/in^2	6.15 ¥ 10^3 lbf/in^2
C∧	0.42 ¥ 10^3 lbf/in^2	0.70 ¥ 10^3 lbf/in^2

WML	7.4 in-lbf/in^3	6.9 in-lbf/in^3
Hardness	410 lbf	480 lbf
Shear$_{\|\|}$	0.80 ¥ 10^3 lbf/in^2	0.94 ¥ 10^3 lbf/in^2
Second Growth		
MOE	0.96 ¥ 10^6 lbf/in^2	1.10 ¥ 10^6 lbf/in^2
MOR	5.90 ¥ 10^3 lbf/in^2	7.90 ¥ 10^3 lbf/in^2
C$_{\|\|}$	3.11 ¥ 10^3 lbf/in^2	5.22 ¥ 10^3 lbf/in^2
C^	0.27 ¥ 10^3 lbf/in^2	0.52 ¥ 10^3 lbf/in^2
WML	5.7 in-lbf/in^3	5.2 in-lbf/in^3
Hardness	350 lbf	420 lbf
Shear$_{\|\|}$	0.89 ¥ 10^3 lbf/in^2	1.11 ¥ 10^3 lbf/in^2

Drying and shrinkage

	Percentage of shrinkage (green to final moisture content)		
Type of shrinkage	0%MC[a]	6%MC[b]	20%MC[b]
Old Growth			
Tangential	4.4	3.5	1.5
Radial	2.6	2.1	0.9
Volumetric	6.8	5.4	2.3
Second Growth			
Tangential	4.9	NA	NA
Radial	2.2	NA	NA
Volumetric	7.0	NA	NA

[a]Reference (15).

[b]Reference (14).

Kiln Drying Schedules[a]

Conventional Temperatures/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
Light	T5-D6	NA	T5-D4	T5-C4	T5-C3	K
Heavy	T4-F5	T3-F5	T3-F4	NA	NA	NA

[a]Reference (2&13).

Conventional Temperatures/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
Light	289	288	b	289	288	b	NA
Medium & Heavy	c	c	c	c	c	c	NA

[a]References (2&13).

[b]Air dry to 20% MC, then dry using table 286 (13).

[c] Air dry to 20% MC, then dry using table 289. Prone to collapse(13).

Working Properties: Redwood works easily with both hand and machine tools, with little dulling effect on tools. It planes well, provided the cutters are sharp and it splinters easily when working on the end grain. It holds nails well, and paints and finishes satisfactorily. It also stains well, but glues best with alkaline adhesives.

Durability: Redwood is rated as resistant to very resistant to heartwood decay.

Preservation: Redwood is moderately resistant to preservative treatments.

Uses: High value building construction, heavy beams, bridge timbers, planks, siding, sash, doors, veneer, furniture, cooling equipment, plywood, pulping, particle board, shakes, shingles, grape stakes, posts and novelties (from burl wood).

Toxicity: Working with redwood may cause allergic reactions (4,10&16).

Additional Reading and References Cited (in parentheses)

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