

# FORESTRY FACTS



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## **Hardwood Lumber Kiln Schedules**

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The following information has been assembled from many different sources, including drying texts and industrial contacts. (A major source was *Dry Kiln Schedules for Commercial Woods* which is available from the Forest Products Society in Madison, WI.) The intent of this report is to provide up-to-date information on how hardwood lumber is being dried today, 1996. This listing, therefore, incorporates current market requirements for the various species, as well as the current quality of the lumber resource itself. The common lumber name is used throughout. The schedules are all moisture content based, using the moisture content of the wettest half of the kiln samples. The schedule designations use the popular U.S. Forest Products Laboratory designations. A small "m" after the designation indicates that the wet-bulb temperatures have been adjusted to avoid temperatures below 90°F. See the above mentioned publication for details. A free BASIC program to convert the designations into actual temperatures and humidities is available from the author.

Always use adequate samples representing both the wettest and driest lumber in the dryer. MC values in the kiln schedules are based on the wettest half of the kiln samples. Always avoid conditions that add moisture back to the lumber, especially during start-up. Low temperatures can be used for an extra safety margin on greener lumber. A maximum 45°F depression often produces better lumber. For DH kilns, use the same RH, but lower the temperature to the typical operating temperature for the compressor, raise temperature to steam values when convenient and possible.

Equalizing and conditioning are required for almost all hardwood lumber. For equalizing, use an EMC 2% below the target MC at 170°F. For conditioning, use an EMC 4% above the target MC at 180°F.

Lumber Name	Thickness		Comments
	4/4, 5/4, 6/4	8/4	
Alder, red	T9-D4	T8-D3	Standard “honey” color
	T5-D5		Lighter color
	T11-D3		Darker color
Apple	T5-C3	T3-C2	
Ash, black	T7-D4	T5-D3	Normal color; some darkening
	T5-D5	T2-D4	Light color
Ash, white, green, Oregon	T7-C3	T5-C2	Normal color; some darkening
	T5-B5	T2-B4	Light color
Aspen	T11-E7	T9-E6	Low quality uses; some darkening
	T7-E7	T5-E6	Higher quality uses; lighter color
	T3-E5m		Collapse prone wood
Basswood	T11-E7	T9-E6	Some browning likely
	T9-E7	T7-E6	Lighter color
	T5-E7	T5-E6	Lightest color
Beech	T7-C2	T5-C1	
Birch, yellow	T7-C4	T5-C3	Normal color
	T5-C5	T2-C4	Lighter color
Birch, paper and others	T9-C4	T7-C3	Low quality uses
Blackgum (see Tupelo, black)			
Boxelder	T7-D4	T5-C3	
Buckeye	T9-E4	T7-E3	
Butternut	T9-E4	T7-E3	
Cherry, black	T8-B4	T5-B3	
Cottonwood	T9-F5	T7-F4	Normal wood w/o wet streaks
	T5-D5	T5-C4	Wet streak material; collapse likely; steam at end to recover collapse; watch MC variability
Cucumber	T11-D4	T9-D3	Lower quality uses
Dogwood, Eastern	T5-C3	T3-C2	
Elm, American, red, slippery	T5-D4	T5-D3	
Elm, rock, winged	T5-B3	T3-B2	
Hackberry	T7-C4	T5-C3	Some stain likely
	T5-C5	T2-C4	Whiter color
Hickory & Pecan	T7-D3	T5-D1	Normal color
	T5-D4	T3-D2	Whiter color
Holly	T5-D4	T3-C3	
Hophornbeam	T5-B3	T3-B1	
Ironwood (see Hophornbeam)			
Laurel, California	T5-A4	T5-A3	
Locust, black	T5-A3	T3-A1	
Madrone	T3-B2	T3-B1	
Magnolia	T9-D4	T7-D3	
Maple, hard	T7-C3	T5-C2	Some darkening likely; some stain
	T3-C5	T2-C4	Whiter color; difficult to achieve in summer; some risk of cracking with 8/4 – try T1-C4
	T1-C5		Whitest color; difficult in summer
Maple, soft, Oregon	T7-D4	T5-C3	Some darkening possible
	T5-D5	T3-C4	Whiter color

Lumber Name	Thickness		Comments
	4/4, 5/4, 6/4	8/4	
Myrtle, Oregon (see Laurel, California)			
Oak, California black, Oregon white, canyon live	T3-B1	T3-B1	
Oak, red, upland (often called Appalachian or Northern)	T3-D2	T3-D1	Use T3-D1 for 6/4
	T3-C2m	T2-B1m	Lumber with preexisting checks
Oak, red, lowland (often called Southern)	T2-C1		Shed dry 6/4 and 8/4; then T2-B1m
Oak, white, upland (often called Appalachian or Northern)	T3-C2	T3-C1	Use T3-C1 for 6/4
	T3-B2m	T2-B1m	Lumber with preexisting checks
Oak, white, lowland (often called Southern)	T2-C1		Shed dry 6/4 and 8/4; then T2-B1m
Osage-orange	T5-A2	T3-A1	
Pecan – see Hickory			
Persimmon	T5-C3	T3-C2	
Sap gum (sweetgum sapwood)	T7-F5	T7-D4	
Sassafras	T7-D4		
Sweetgum	T7-C4	T5-C3	
Sycamore	T5-D2	T3-D1	
Tanoak	T3-B1	T3-B1	
Tupelo, black	T7-E5	T7-D3	
Tupelo, swamp	T7-E3	T7-D2	
Tupelo, water	T5-H2		
Walnut, black	T5-D4	T3-D3	
Willow, black	T7-F4	T7-F3	
Yellow-poplar	T7-D5	T7-D4	

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