

**RULES
OF
THE TENNESSEE DEPARTMENT OF AGRICULTURE
DIVISION OF FORESTRY**

**CHAPTER 0080-07-07
NATIVE SPECIES LUMBER**

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0080-07-07-.01 SCOPE.

- (1) Certification of native lumber under this chapter applies to any species growing within the state of Tennessee and to operators of any commercial sawmill desiring certification to grade lumber under the Tennessee Native Species Act, T.C.A. § 43-28-313.
- (2) This chapter only applies to dimension lumber 2 inches to 4 inches in nominal thickness and 2 inches and wider.

Authority: T.C.A. §§ 4-3-203 and 43-28-313. **Administrative History:** New rules filed May 24, 2022; effective August 22, 2022.

0080-07-07-.02 DEFINITIONS.

- (1) Bow means a deviation flatwise from a straight line drawn from end to end of the piece measured at the point of greatest distance from the straight line.
- (2) Check means a separation of the wood that normally occurs across the wood growth rings, usually caused by the drying or seasoning process.
- (3) Chip marks means shallow depressions typically caused by shavings getting imbedded in the surface during the planing process.
- (4) Cup means a deviation in the face of a piece, from a straight line drawn from edge to edge of the piece across the wide face measured as the point of greatest distance from the straight line.
- (5) Hole means holes resulting from insects or sloughing of loose knots.
- (6) Incipient decay means the early stage of decay where disintegration of the fibers has begun, and the wood has discolored but has not yet disintegrated to the point that it is significantly softened.
- (7) Knot means a portion of a branch or a limb that is overgrown by the tree and has become incorporated into the piece of lumber.
- (8) Split means a separation of the wood due to the tearing apart of the wood cells that occurs through the piece to the opposite or an adjacent surface.

(Rule 0080-07-07-.02, continued)

- (9) Pitch means an accumulation of resinous material, a well-defined accumulation of pitch in a streak.
- (10) Pocket means an opening between annual growth rings, developed as the tree grows, that typically contains pitch or bark.
- (11) Scant means lumber that is slightly less than the required size.
- (12) Shake means lengthwise separation of the wood that occurs commonly between the growth rings.
- (13) Slope of grain means the grain of the wood is not parallel to the edge of the piece.
- (14) Skips means places in surfaced lumber where the piece has failed to surface cleanly.
- (15) Stain means a variation from the natural color of the wood that may result from fungal sapstain or bacterial action, or due to enzymatic oxidation (e.g., sticker stain). Stain does not significantly affect strength. Wood that is "stained" must be sound. If the wood appears to be weakened, it is unsound.
- (16) Twist means a deviation flatwise or a combination of flatwise and edgewise, in the form of a curve or spiral measured as the point of distance that the edge of a piece is raised above a flat surface where both edges of the opposite end of the same piece are resting against the same flat surface.
- (17) Unsound wood means decay resulting from the attack of wood by wood-destroying fungi that leaves wood in a disintegrated condition indicated by a loss of hardness and color change.
- (18) Wane means bark or the absence of wood from any cause except eased edges.
- (19) Warp means any deviation from a true or flat plane surface.

Authority: T.C.A. §§ 4-3-203 and 43-28-313. **Administrative History:** New rules filed May 24, 2022; effective August 22, 2022.

0080-07-07-.03 CERTIFICATION.

- (1) Certification is open to sawmill owners or their employees. Only those completing the one-day training course and passing the skills test will be certified.
- (2) Training courses will be held biannually in each of the three grand divisions of Tennessee, unless demand is so low that no courses are held. If no courses are offered locally in the upcoming 6 months, an individual can request a training course or skills test.
- (3) The day-long training will conclude with a skills test. Failure to pass the skills test with a score less than 75% will require retaking the skills test at a future training session.
- (4) Passing the skills test enables participants to sell graded lumber.
- (5) Certification is valid for two years. Recertification requires passing the skills test at one of the training sessions.

Authority: T.C.A. §§ 4-3-203 and 43-28-313. **Administrative History:** New rules filed May 24, 2022; effective August 22, 2022.

0080-07-07-.04 SPECIFICATIONS.

(1) Characteristics allowed and limiting provisions:

(a) Knots:

1. The size of a knot is measured directly as the diameter (in inches) for a round knot, and for other than round knots (e.g., spike knots and oval knots) the equivalent diameter size is estimated by averaging the measurements (in inches) of the maximum width of the knot on its narrow axis and the maximum length on its long axis.
2. Sound, firm, and encased knots, if tight and well-spaced, are permitted in sizes not to exceed the equivalent of 25% of the nominal width of the wide face of the piece. Knots appearing on the thickness faces of the piece are permitted in the same quality and size shown on Table 1.
3. A sound knot contains no decay.
4. A firm knot is solid across its face but has incipient decay.
5. An encased knot is a knot, which is not intergrown with the growth rings of the surrounding wood.
6. A tight knot is so fixed by growth, shape, or position that it retains its place or is held in place in the piece, while a loose knot or a not firmly fixed knot is one which is not so fixed by growth, shape or position that it will not be held tightly in place in the piece.
7. Well-spaced knots mean that the sum of the sizes of knots in any 6-inch length cannot equal or exceed twice the size of the largest permitted knot.

(b) Holes:

1. A hole may extend completely or partially through the piece.
2. Hole sizes are measured as knots are. Holes are caused by unsound wood except wane, unsound knots, loose knots, and not firmly fixed knots.
3. Holes are not to exceed the equivalent of 25% of the nominal width of the piece or equivalent smaller holes per 2 lineal feet.
4. Holes appearing on the thickness faces of the piece including unsound wood except wane, unsound knots, loose knots, and not firmly fixed knots are permitted in the same size or equivalent smaller as shown in Table 1.

Table 1 Knot and Hole Limits

Nominal Width of Lumber (Inches)	Knot or Hole Maximum Size or Equivalent (Inches)
2	1/2
2 1/2	5/8
3	3/4
3 1/2	7/8

(Rule 0080-07-07-.04, continued)

4	1
4 1/2	1 1/8
5	1 1/4
6	1 1/2
8	2
10	2 1/2
12	3
Knots: sound, firm, encased & pith knots if tight and well-spaced	
Holes: includes all unsound wood, except wane and unsound or loose knots	

- (c) Unsound wood, except wane, is not permitted.
- (d) Wane of 1/3 the thickness and 1/3 the width, full length, or equivalent, on each face, combined is not to exceed 1/2 the thickness or 1/2 the width at any point.
- (e) Shakes on the surface can occur on only one surface of the piece of lumber.
- (f) The slope of grain deviation is expressed as a ratio of the deviation over the length. For example, for 1 in 8 slope in grain there is 1 inch in deviation between the grain of the wood and the lumber's edge for every 8 inches of length.
- (g) Shake through at ends are limited as splits. Away from ends, shakes including through shakes up to 2 feet long are permitted.
- (h) Splits are limited in the length to twice the width of the piece.
- (i) Checks – Drying checks on the face or edge are not limited.
 - 1. Through checks at end are limited as splits. Surface checks occur on a wide or thickness face of a piece.
 - 2. A through check will extend from one surface face to an opposite or adjoining surface.
 - 3. A through shake will extend from one surface face to an opposite or adjoining surface.
- (j) Warp limits are included in Table 2.

Table 2 Warp Limits

Twist	Lumber Nominal Width (Inches)					
	Lumber Length (Feet)					
	2	3 & 4	5 & 6	8	10	12 +
Twist Limit (Inches)						
6	1/8	1/4	3/8	1/2	5/8	3/4
8	1/4	1/2	3/4	1	1 1/4	1 1/2
10	5/16	5/8	7/8	1 1/4	1 1/2	1 7/8
12	3/8	3/4	1 1/4	1 1/2	1 7/8	2 1/4
14	7/16	7/8	1 1/4	1 3/4	2 1/4	2 5/8

(Rule 0080-07-07-.04, continued)

16+	1/2	1	1 1/2	2	2 1/2	3
Crook	Lumber Nominal Width (Inches)					
Lumber Length (Feet)	2	3 & 4	5 & 6	8	10	12 +
	Crook Limit (Inches)					
6	1/4	1/4	3/16	1/8	1/16	1/16
8	3/8	3/8	5/16	1/4	3/16	1/8
10	3/4	1/2	7/16	3/8	1/4	3/16
12	1	11/16	5/8	1/2	7/16	3/8
14	1 1/4	7/8	3/4	5/8	1/2	3/8
16+	1 5/8	1	7/8	3/4	5/8	1/2
Cup	Lumber Nominal Width (Inches)					
	2	3 & 4	5 & 6	8	10	12 +
	Cup Limit (Inches)					
All lengths	1/16	1/16	1/16	1/4	3/16	1/4
Bow	Lumber Nominal Thickness (Inches)					
Lumber Length (Feet)	2			3 & 4		
	Bow Limit (Inches)					
6	1/2			1/4		
8	3/4			3/8		
10	1 1/2			3/4		
12	2			1		
14	2 1/2			1 1/4		
16+	3 1/4			1 5/8		

- (k) Twists are measured as the point of distance that the edge of a piece is raised above a flat surface where both edges of the opposite end of the same piece are resting against the same flat surface. Limits are included in Table 2.
- (l) Manufacturing defects not greater than 1/8th inch are permitted
- (m) Pitch and pitch streaks are permitted.
- (n) Pockets, pitch or bark, are not limited.
- (o) Stains are not limited.
- (p) Surfaced lumber may have skips or scant in places up to 1/8 inch deep. If it is rough lumber, there may be scant in places up to 1/8 inch scant. The areas of skip or scant are not to exceed 2 feet in length in any one place.
- (q) Lumber included in the Tennessee Native species lumber Number 2 and Better Grade is to reasonably represent the mill-run of dimension lumber produced at least meeting these requirements and limiting provisions, without sort-out removal of higher-grade

(Rule 0080-07-07-.04, continued)

dimension lumber. This is not to constrain the simultaneous production of appearance grade boards and other lumber products other than dimension.

Authority: T.C.A. §§ 4-3-203 and 43-28-313. **Administrative History:** New rules filed May 24, 2022; effective August 22, 2022.

0080-07-07-.05 MOISTURE CONTENT, SURFACE CONDITIONS, STANDARD SIZES AND TALLY PRACTICES.

(1) Wood moisture content and drying

- (a) Moisture content (MC) of wood is measured by weighing a sample of wood before and after drying it in a hot oven (103C/220F). The percent of MC is calculated as (wet weight-dry weight)/dry weight x 100.
- (b) Lumber shall be designated as green lumber or dry lumber.
 1. Green lumber has a MC more than 19% including lumber that is graded just after sawing with a high moisture content and lumber that has been stickered and dried but still has moisture content above 19%.
 2. Dry lumber is dried to a maximum moisture content of 19% MC. No more than 5% of the pieces in a shipment shall have a MC of 19%. Lumber sold as dry lumber may be either kiln dried or air dried.
 3. Kiln dried (KD) means that lumber has been dried in a drying chamber. The designation of KD may be used as amplification to the dry lumber designation provided in the certification.
 4. In the oven-dry method it is acceptable to use electrical meters to estimate the moisture content.

(c) Wood surface conditions

1. Lumber shall be designated as surfaced lumber, sawn-to-size lumber, or rough lumber.
2. Surfaced lumber, or dressed lumber, is lumber that has been surfaced by a machine to attain smoothness of surface and uniformity of size. Lumber grades refer to lumber that is surfaced four sides (S4S) and actual dressed sizes equal the minimum thicknesses and widths for surfaced lumber as shown in Table 3.

Table 3 Board Footage of Lumber

Board Foot Volume of 2" Nominal Thickness of Varying Width and Length						
Length	Width in Inches					
	2	4	6	8	10	12
Feet	Board Feet per Piece (BF)					
6	2.0	4.0	6.0	8.0	10.0	12.0
7	2.3	4.7	7.0	9.3	11.7	14.0
8	2.7	5.3	8.0	10.7	13.3	16.0
9	3.0	6.0	9.0	12.0	15.0	18.0
10	3.3	6.7	10.0	13.3	16.7	20.0

(Rule 0080-07-07-.05, continued)

11	3.7	7.3	11.0	14.7	18.3	22.0
12	4.0	8.0	12.0	16.0	20.0	24.0
13	4.3	8.7	13.0	17.3	21.7	26.0
14	4.7	9.3	14.0	18.7	23.3	28.0
15	5.0	10.0	15.0	20.0	25.0	30.0
16	5.3	10.7	16.0	21.3	26.7	32.0
17	5.7	11.3	17.0	22.7	28.3	34.0
18	6.0	12.0	18.0	24.0	30.0	36.0
19	6.3	12.7	19.0	25.3	31.7	38.0
20	6.7	13.3	20.0	26.7	33.3	40.0

Board Foot Volume of 4" Nominal Thickness of Varying Width and Length						
Length	Width in Inches					
	2	4	6	8	10	12
Feet	Board Feet per Piece (BF)					
6	4.0	8.0	12.0	16.0	20.0	24.0
7	4.7	9.3	14.0	18.7	23.3	28.0
8	5.3	10.7	16.0	21.3	26.7	32.0
9	6.0	12.0	18.0	24.0	30.0	36.0
10	6.7	13.3	20.0	26.7	33.3	40.0
11	7.3	14.7	22.0	29.3	36.7	44.0
12	8.0	16.0	24.0	32.0	40.0	48.0
13	8.7	17.3	26.0	34.7	43.3	52.0
14	9.3	18.7	28.0	37.3	46.7	56.0
15	10.0	20.0	30.0	40.0	50.0	60.0
16	10.7	21.3	32.0	42.7	53.3	64.0
17	11.3	22.7	34.0	45.3	56.7	68.0
18	12.0	24.0	36.0	48.0	60.0	72.0
19	12.7	25.3	38.0	50.7	63.3	76.0
20	13.3	26.7	40.0	53.3	66.7	80.0

3. Sawn-to-size lumber is lumber uniformly sawn to the dressed size for surfaced lumber but not planed on the faces.
4. Rough lumber has not been surfaced. It differs from sawn-to-size lumber because rough lumber is oversized to allow for shrinkage or to allow surfacing.

Authority: T.C.A. §§ 4-3-203 and 43-28-313. **Administrative History:** New rules filed May 24, 2022; effective August 22, 2022.

0080-07-07-.06 STANDARD LUMBER SIZES.

- (1) The nominal and actual thickness and width of graded lumber is the same as lumber graded according to American Softwood Lumber Standard Table 4.

(Rule 0080-07-07-.06, continued)

Table 4 Nominal and Minimum Actual Thickness and Width

Minimum Thickness (inches)						Minimum Width (inches)				
	Surfaced or Sawn-to-Size		Rough				Surfaced or Sawn-to-Size		Rough	
Nominal Thickness	Dry	Green	Dry	Green (suggested)		Nominal Width	Dry	Green	Dry	Green (suggested)
2	1 1/2	1 9/16	1 5/8	1 11/16		2	1 1/2	1 9/16	1 5/8	1 11/16
2 ½	2	2 1/16	2 1/8	2 1/4		2 ½	2	2 1/16	2 1/8	2 1/4
3	2 1/2	2 9/16	2 5/8	2 3/4		3	2 1/2	2 9/16	2 5/8	2 3/4
3 ½	3	3 1/16	3 1/8	3 1/4		3 ½	3	3 1/16	3 1/8	3 1/4
4	3 1/2	3 9/16	3 5/8	3 13/16		4	3 1/2	3 9/16	3 5/8	3 13/16
4 ½	4	4 1/16	4 1/8	4 5/16		4 ½	4	4 1/16	4 1/8	4 5/16
						5	4 1/2	4 5/8	4 5/8	4 13/16
						6	5 1/2	5 5/8	5 5/8	5 7/8
						8	7 1/4	7 1/2	7 3/8	7 3/4
						10	9 1/4	9 1/2	9 3/8	9 3/4
						12	11 1/4	11 1/2	11 3/8	11 7/8
						14	13 1/4	13 1/2	13 3/8	13 15/16
						16	15 1/4	15 1/2	15 3/8	16

- (2) Lumber shall be six feet and longer and be in two-foot length increments unless the purchase agreement specifically stipulates different lengths.
- (3) Lumber should have clean, sound ends but it does not have to be double-end-trimmed to precise length. If not double-end-trimmed, there should be sufficient overlength to allow square end-trimming the lumber to its nominal length.

Authority: T.C.A. §§ 4-3-203 and 43-28-313. **Administrative History:** New rules filed May 24, 2022; effective August 22, 2022.

0080-07-07-.07 TALLY.

Lumber volume is measured in Board Feet, which is a unit equal to a piece one inch thick and one-foot square. Lumber volume can be tallied as:

- (1) Board Feet (BF) = (nominal thickness [inches] x nominal width [inches] x standard length [feet])/12.
- (2) Fractions can be rounded to the nearest 1/10th of a board foot. Table 3 lists some board foot volumes for lumber of common sizes.

Authority: T.C.A. §§ 4-3-203 and 43-28-313. **Administrative History:** New rules filed May 24, 2022; effective August 22, 2022.

0080-07-07-.08 SELLING AND USING CERTIFIED LUMBER.

- (1) The sawmill providing graded lumber shall provide a written summary that includes the following information:
- (a) A declaration that the lumber has been graded by a certified grader.
 - (b) The name of the wood species, and its design value group as shown on Table 5.

Table 5 Design Values of Species Groups for #2 and Better Grade

Species Group Name	Design Values (psi)							Specific Gravity G (od m/v)
	Bending	Tension Parallel to Grain	Shear Parallel to Grain	Compression Perpendicular to Grain	Compression Parallel to Grain	Modulus of Elasticity		
	F _b	F _t	F _v	F _{c⊥}	F _c	E	E _{min}	
Bald Cypress	825	450	160	615	900	1,300,000	470,000	0.47
Beech-Birch-Hickory	1,000	600	195	715	750	1,500,000	550,000	0.71
Cottonwood	625	350	125	320	475	1,100,000	400,000	0.41
Eastern Softwoods	575	275	140	335	825	1,100,000	400,000	0.36
Mixed Maple	700	425	195	620	550	1,100,000	400,000	0.55
Mixed Oak	800	475	170	800	625	900,000	330,000	0.68
Mixed Southern Pine	750	450	175	565	1,250	1,400,000	510,000	0.51
Yellow Poplar	700	400	145	420	575	1,300,000	470,000	0.43

- (c) The quantity of lumber, the date it was cut and graded, and the name of the grader and the sawmill.
 - (d) The size (nominal or actual), whether it is rough-sawn or surface/planed, and the moisture content of the lumber when graded.
- (2) Upon request, the end user shall provide a copy of the summary, and information about the design values of the lumber shown on Table 5 based on its designated species group shown on Table 6.

Table 6 Species Groups and Component Species, including Species not in the National Design Supplement (*TN Species)

Species Group	Common Name	Scientific Name	Grading Agency***
Baldcypress	Baldcypress	<i>Taxodium distichum</i>	SPIB
Beech - Birch - Hickory	American Beech	<i>Fagus grandifolia</i>	NELMA
	Bitternut Hickory	<i>Carya cordiformis</i>	
	Mockernut Hickory	<i>Carya tomentosa</i>	

(Rule 0080-07-07-.08, continued)

	Nutmeg Hickory	<i>Carya myristiciformis</i>	
	Pecan Hickory	<i>Carya illinoensis</i>	
	Pignut Hickory	<i>Carya glabra</i>	
	Shagbark Hickory	<i>Carya ovata</i>	
	Shellbark Hickory	<i>Carya laciniosa</i>	
	Sweet Birch	<i>Betula lenta</i>	
	Water Hickory	<i>Carya aquatica</i>	
	Yellow Birch	<i>Betula alleghaniensis</i>	
	Black Walnut	<i>Juglans nigra</i>	*TN Species
	Black Locust	<i>Robinia pseudoacacia</i>	
	Honeylocust	<i>Gleditsia triacanthos</i>	
Cottonwood	Cottonwood	<i>Populus deltoides</i>	NSLB
	Basswood	<i>Tilia americana</i>	*TN Species
Eastern Softwoods	Balsam Fir	<i>Abies balsamea</i>	NELMA, NSLB
	Black Spruce	<i>Picea mariana</i>	
	Eastern Hemlock	<i>Tsuga canadensis</i>	
	Eastern White Pine	<i>Pinus strobus</i>	
	Jack Pine	<i>Pinus banksiana</i>	
	Red Pine	<i>Pinus resinosa</i>	
	Pitch Pine	<i>Pinus rigida</i>	
	Red Spruce	<i>Picea rubens</i>	
	Tamarack	<i>Larix laricina</i>	
	White Spruce	<i>Picea glauca</i>	
Mixed Maple	Black Maple	<i>Acer nigrum</i>	NELMA
	Red Maple	<i>Acer rubrum</i>	
	Silver Maple	<i>Acer saccharinum</i>	
	Sugar Maple	<i>Acer saccharum</i>	
			*TN Species
	Sycamore	<i>Platanus occidentalis</i>	
	Black Tupelo	<i>Nyssa sylvatica</i>	
	Water Tupelo	<i>Nyssa aquatica</i>	
	Southern Magnolia	<i>Magnolia grandiflora</i>	
	Cucumbertree	<i>Magnolia acuminata</i>	
	Hackberry	<i>Celtis occidentalis</i>	
	American Elm	<i>Ulmus americana</i>	
	Rock Elm	<i>Ulmus thomasi</i>	
	Slippery Elm	<i>Ulmus rubra</i>	
	Black Cherry	<i>Prunus serotina</i>	

(Rule 0080-07-07-.08, continued)

Mixed Oak	Black Oak	<i>Quercus velutina</i>	NELMA
	Cherrybark Oak	<i>Quercus falcata</i> var. <i>pagodaefolia</i>	
	Northern Red Oak	<i>Quercus rubra</i>	
	Southern Red Oak	<i>Quercus falcata</i>	
	Laurel Oak	<i>Quercus laurifolia</i>	
	Pin Oak	<i>Quercus palustris</i>	
	Scarlet Oak	<i>Quercus coccinea</i>	
	Water Oak	<i>Quercus nigra</i>	
	Chestnut Oak	<i>Quercus prinus</i>	
	Live Oak	<i>Quercus virginiana</i>	
	Post Oak	<i>Quercus stellata</i>	
	Swamp Chestnut Oak	<i>Quercus michauxii</i>	
	White Oak	<i>Quercus alba</i>	
	Bur Oak	<i>Quercus macrocarpa</i>	
	Overcup Oak	<i>Quercus lyrata</i>	
	Swamp White Oak	<i>Quercus bicolor</i>	
Mixed Southern Pine	Longleaf Pine	<i>Pinus palustris</i>	SPIB
	Slash Pine	<i>Pinus elliotti</i>	
	Shortleaf Pine	<i>Pinus echinata</i>	
	Loblolly Pine	<i>Pinus taeda</i>	
	Pond Pine	<i>Pinus serotina</i>	
	Virginia Pine	<i>Pinus virginiana</i>	
Yellow Poplar	Yellow Poplar	<i>Liriodendron tulipifera</i>	NSLB
	Sweetgum	<i>Liquidambar styraciflua</i>	*TN Species
	Honeylocust	<i>Gleditsia triacanthos</i>	
	Blue Ash	<i>Fraxinus quadrangulata</i>	
	Black Ash	<i>Fraxinus nigra</i>	
	Green Ash	<i>Fraxinus pennsylvanica</i>	
	White Ash	<i>Fraxinus americana</i>	

Authority: T.C.A. §§ 4-3-203 and 43-28-313. **Administrative History:** New rules filed May 24, 2022; effective August 22, 2022.