

GLOSSARY & ABBREVIATIONS

10

700.0 GLOSSARY

Throughout these rules various words and terms are used with meanings specifically applicable to lumber. In the use of these rules a full understanding of the words and terms in this Glossary is essential. An index to the Glossary follows:

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DEFINITIONS

702.0 BURL — A distortion of grain, usually caused by abnormal growth due to injury of the tree. The effect of burls is assessed in relation to knots.

704.0 CHECKS — A separation of the wood normally occurring across or through the rings of annual growth and usually as a result of seasoning.

(a) A **surface check** occurs on a face of a piece.

(b) A **through check** extends from one surface of a piece to the opposite or adjoining surface.

(c) **Small checks** are not over 1/32" wide and not over 4" long.

(d) **Medium checks** are not over 1/32" wide and not over 10" long.

(e) **Large checks** are more than 1/32" wide or longer than 10" or both.

(f) A **roller check** is a crack in the wood structure caused by a piece of cupped lumber being flattened in passing between the machine rollers.

A **light roller check** is a perceptible opening not over 2' long.

A **medium roller check** is a perceptible opening over 2' long, but not exceeding 4' in length.

A **heavy roller check** is over 4' in length.

706.0 COMPRESSION WOOD — Abnormal wood that forms on the underside of leaning and crooked coniferous trees. It is characterized, aside from its distinguishing color, by being hard and brittle and by its relatively lifeless appearance. Compression wood shall be limited in effect to other appearance or strength reducing characteristics permitted in the grade.

708.0 DECAY (UN SOUND WOOD) — A disintegration of the wood substance due to action of wood-destroying fungi, and is also known as dote or rote. Some examples are as follows:

(a) **Heart center decay** is localized decay developing along the pith in some species and is detected by visual inspection. The limitation for heart

center decay applies to Southern Pine. Heart center decay develops in the living tree and does not progress further after the tree is cut.

(b) **White specks** are small white or brown pits or spots in wood caused by the fungus "Fomes pini." It develops in the living tree and does not develop further in wood in service. Where permitted in these rules it is so limited that it has no more effect on the intended use of the pieces than other characteristics permitted in the same grade. Pieces containing white speck are no more subject to decay than pieces which do not contain it. NOTE: "Firm" in relation to white speck infers that it will not crumble readily under thumb pressure and cannot be easily picked out.

(c) **Honeycomb** is similar to white speck but the pockets are larger. Where permitted in the rules it is so limited that it has no more effect on the intended use of the piece than other characteristics permitted in the same grade. Pieces containing honeycomb are no more subject to decay than pieces which do not contain it. NOTE: "Firm" in relation to honeycomb infers that it will not crumble readily under thumb pressure and cannot be easily picked out.

(d) **Incipient decay** is an early stage of decay in which disintegration of the wood fibers has not proceeded far enough to soften or otherwise change the hardness of the wood perceptibly. It is usually accompanied by a slight discoloration or bleaching of the wood.

(e) **Peck** is channeled or pitted areas or pockets found in cedar and cypress. Wood tissue between pecky areas remains unaffected in appearance and strength. All further growth of the fungus causing peckiness ceases after the trees are felled.

710.0 EDGE — There are three meanings for edge (1) The narrow face of rectangular-shaped pieces. (2) The corner of a piece at the intersection of two longitudinal faces. (3) In stress grades that part of the wide face nearest the corner of the piece.

(a) **Eased edges** means slightly rounded surfacing on pieces of lumber to remove sharp corners. The

standard radius for 1", 2", 3" and 4" nominal thickness lumber shall not exceed 1/16", 1/8", 3/16" and 1/4" respectively. NOTE: Lumber 4" or less in thickness is frequently shipped with eased edges unless otherwise specified.

(b) **Square edged** means free from wane and without eased edges.

(c) **Free of wane** means without wane, but has either eased or square edges. (See WANE definition.)

(d) **Square corners** means without eased edges, but has an allowance for wane in certain grades.

(e) To "**destroy the nailing edge**" shall mean (1) the decay occupies more of the narrow face than the allowable maximum wane in thickness when in streak form, or (2) the decay occupies more than twice the length of the allowable knot hole when a spot occurs completely through the narrow face.

712.0 GRAIN — The fibers in wood and their direction, size, arrangement, appearance or quality.

(a) **Slope of grain** is the deviation of the line of fibers from a straight line parallel to the sides of the piece. For method of measurement, see Para. 43.0.

(b) **Summerwood** is the portion of the annual growth ring formed during the latter part of the yearly growth ring. It is darker in color, more dense, and stronger mechanically than springwood.

(c) **Springwood** is the portion of the annual growth ring formed during the early part of the yearly growth period. It is lighter in color, less dense, and not as strong mechanically as summerwood.

(d) **Vertical grain (VG) (Edge grain EG) (Rift grain)** lumber is a piece or pieces sawn at approximately right angles to the annual growth rings so that the rings form an angle of 45 degrees or more with the surface of the piece.

(e) **Flat grain (FG) (Slash grain SG)** lumber is a piece or pieces sawn approximately parallel to the annual growth rings so that all or some of the rings form an angle of less than 45 degrees with the surface of the piece.

(f) **Mixed grain (MG)** lumber includes either or both vertical and flat grained pieces.

(g) **Spiral grain** is a deviation in the slope of grain caused when the fibers in a tree take a spiral course around the trunk of the tree, instead of the normal vertical course.

(h) **Diagonal grain** is a deviation in the slope of grain caused by sawing at an angle with the bark of the tree. See slope of grain.

714.0 HEART — (Heartwood) Inner core of the tree trunk comprising the annual rings containing nonliving elements. In some species, heartwood has a prominent color different from sapwood.

(a) **Boxed heart** means with the pith enclosed in the piece.

(b) **Heart center** is the pith or center core of the log.

(c) **Free of heart centers (FOHC)** means without pith (side cut). An occasional piece (see para. 726.0) when showing pith for not more than 1/4 the length on the surface shall be accepted.

(d) **Firm red heart** is a stage of incipient decay characterized by a reddish color in the heartwood, which does not render the wood unfit for the majority of yard purposes.

(e) Heartwood and sapwood of equivalent character are of equal strength. No requirement of heartwood is made when strength alone is the governing factor.

(f) Heartwood is more durable than sapwood. When wood is to be exposed to decay-producing conditions without preservative treatment, it shall be permitted to specify the minimum percentage of heartwood to be present in all pieces in a shipment.

(g) Sapwood takes preservative treatment more readily than heartwood.

716.0 HOLES — Holes either extend partially or wholly through the piece. An alternate designation for holes which extend only partially through the piece is surface pits. Unless otherwise specified holes are measured the same as knots. Holes are classified by size as follows:

(a) A **pin hole** is not over 1/16" in diameter.

(b) A **medium (small) hole** is not over 1/4" in diameter.

- (c) A **large hole** is not over 1" in diameter.
- (d) A **very large hole** is over 1" in diameter.

718.0 KNOTS — A portion of a branch or limb that has become incorporated in a piece of lumber. In lumber, knots are classified as to form, size, quality and occurrence.

(a) A **red knot** is one that results from a live branch growth in the tree and is intergrown with the surrounding wood.

(b) A **black knot** is one that results from a dead branch which the wood growth of the tree has surrounded.

(c) A **round knot** is produced when the limb is cut at approximately a right angle to its long axis.

(d) An **oval knot** is produced when the limb is cut at slightly more than a right angle to the long axis.

(e) A **spike knot** is produced when the limb is cut either lengthwise or diagonally.

(f) A **pin knot** is not over 1/2".

(g) A **small knot** is not over 3/4".

(h) A **medium knot** is not over 1-1/2".

(i) A **large knot** is over 1-1/2".

(j) A **sound knot** contains no decay.

(k) A **pith knot** is sound in all respects except it contains a pith hole not over 1/4" in diameter.

(l) A **hollow knot** is a sound knot containing a hole greater than 1/4" in diameter. Through opening of a hollow knot is limited to the size of other holes permitted.

(m) An **unsound knot** contains decay.

(n) A **firm knot** is solid across its face, but contains incipient decay.

(o) A **tight knot** is so fixed by growth, shape or position that it retains its place in the piece.

(p) An **intergrown knot** is one whose growth rings are partially or completely intergrown on one or more faces with the growth rings of the surrounding wood.

(q) A **watertight knot** has its annual rings completely intergrown with those of the surrounding wood on one surface of the piece, and it is sound on that surface.

(r) An **encased knot** is one which is not intergrown with the growth rings of the surrounding wood.

(s) A **loose** or **not firmly fixed knot** is one not held tightly in place by growth, shape or position.

(t) A **fixed knot** will retain its place in dry lumber under ordinary conditions, but is movable under pressure though not easily pushed out.

(u) A **knot cluster** is two or more knots grouped together as a unit with the fibers of the wood deflected around the entire unit. A group of single knots is not a knot cluster.

(v) A **star-checked knot** has radial checks.

(w) **Well-scattered knots** are not in clusters and each knot is separated from any other by a distance at least equal to the diameter of the smaller of the two.

(x) **Well-spaced knots** means that the sum of the sizes of all knots in any 6" of length of a piece must not exceed twice the size of the largest knot permitted. More than one knot of maximum permissible size must not be in same 6" of length and the combination of knots must not be serious.

720.0 MANUFACTURING IMPERFECTIONS — Means all imperfections or blemishes which are the result of surfacing, such as the following:

(a) **Chipped grain** is a barely perceptible irregularity in the surface of a piece caused when particles of wood are chipped or broken below the line of cut. It is too small to be classed as torn grain and is not considered unless in the excess of 25% of the surface involved.

(b) **Torn grain** is an irregularity in the surface of a piece where wood has been torn or broken out by surfacing. Torn grain is described as follows:

Very light torn grain — not over 1/64" deep.

Light torn grain — not over 1/32" deep.

Medium torn grain — not over 1/16" deep.

Heavy torn grain — not over 1/8" deep.

Very heavy torn grain — over 1/8" deep.

(c) **Raised grain** is a roughened condition of the surface of dressed lumber in which the hard summerwood is raised above the softer springwood, but not torn loose from it.

Very light raised grain is not over 1/64".
Light raised grain is not over 1/32".
Medium raised grain is not over 1/16".
Heavy raised grain is not over 1/8".

(d) **Loosened grain** is a grain separation or loosening between springwood and summerwood without displacement.

Very light loosened grain is not over 1/64" separation.

Light loosened grain is not over 1/32" separation.

Medium loosened grain is not over 1/16" separation.

Heavy loosened grain is not over 1/8" separation.

Very heavy loosened grain is over 1/8" separation.

(e) **Skips** are areas on a piece that failed to surface clean. Skips are described as follows:

Very light skip is not over 1/64" deep.

Light skip is not over 1/32" deep.

Medium skip is not over 1/16" deep.

Heavy skip is not over 1/8" deep.

(f) **Hit and miss** is a series of skips not over 1/16" deep with surfaced areas between.

(g) **Hit or miss** means completely or partly surfaced or entirely rough. Scantness may be 1/16".

(h) **Mismatch** is an uneven fit in worked lumber when adjoining pieces do not meet tightly at all points of contact or when the surface of adjoining pieces are not in the same plane.

Slight mismatch is a barely evident trace of mismatch.

Very light mismatch is not over 1/64".

Light mismatch is not over 1/32".

Medium mismatch is not over 1/16".

Heavy mismatch is not over 1/8".

(i) **Machine burn** is a darkening of the wood due to overheating by machine knives or rolls when pieces are stopped in machine.

(j) **Machine bite** is a depressed cut of the machine knives at the end of the piece.

Very light machine bite is not over 1/64" deep.
Light machine bite is not over 1/32" deep.
Medium machine bite is not over 1/16" deep.
Heavy machine bite is not over 1/8" deep.
Very heavy machine bite is over 1/8" deep.

(k) **Machine gouge** is a groove cut by the machine below the desired line.

Very light machine gouge is not over 1/64" deep.

Light machine gouge is not over 1/32" deep.

Medium machine gouge is not over 1/16" deep.

Heavy machine gouge is not over 1/8" deep.

Very heavy machine gouge is over 1/8" deep.

(l) A **machine offset** is an abrupt dressing variation in the edge surface which usually occurs near the end of the piece and without reducing the width or without changing the plane of the wide surface.

Very light machine offset is a variation not over 1/64".

Light machine offset is a variation not over 1/32".

Medium machine offset is a variation not over 1/16".

Heavy machine offset is a variation not over 1/8".

Very heavy machine offset is a variation over 1/8".

(m) **Chip marks** are shallow depressions or indentations on or in the surface of dressed lumber caused by shavings or chips getting embedded in the surface during dressing.

Very light chip marks are not over 1/64" deep.

Light chip marks are not over 1/32" deep.

Medium chip marks are not over 1/16" deep.

Heavy chip marks are not over 1/8" deep.

(n) **Knife marks** are the imprints or markings of the machine knives on the surface of dressed lumber.

Very slight knife marks are visible only from a favorable angle and are perfectly smooth to the touch.

Slight knife marks are readily visible, but evidence no unevenness to the touch.

(o) **Wavy dressing** involves more uneven dressing than knife marks.

Very light wavy dressing is not over 1/64" deep.

Light wavy dressing is not over 1/32" deep.
Medium wavy dressing is not over 1/16" deep.
Heavy wavy dressing is not over 1/8" deep.
Very heavy wavy dressing is over 1/8" deep.

722.0 CLASSIFICATION OF MANUFACTURING IMPERFECTIONS —

(a) **Standard "A" Manufacture** admits: Very light torn grain; occasional very light chip marks; very slight knife marks.

(b) **Standard "B" Manufacture** admits: Very light torn grain; very light raised grain; very light loosened grain; very light chip marks; average of one very light chip mark per lineal foot, but not more than two in any lineal foot; very slight knife marks; slight mismatch.

(c) **Standard "C" Manufacture** admits: Medium torn grain; light raised grain; light loosened grain; very light machine bite; very light machine gouge; very light machine offset; light chip marks if well-scattered; occasional medium chip marks; very slight knife marks; slight mismatch.

(d) **Standard "D" Manufacture** admits: Heavy torn grain; medium raised grain; very heavy loosened grain; light machine bite; light machine gouge; light machine offset; medium chip marks; slight knife marks; very light mismatch.

(e) **Standard "E" Manufacture** admits: Very heavy torn grain; raised grain; very heavy loosened grain; medium machine bite; machine gouge; medium machine offset; chip marks; knife marks; light wavy dressing; light mismatch.

(f) **Standard "F" Manufacture** admits: Very heavy torn grain; raised grain; very heavy loosened grain; heavy machine bite; machine gouge; heavy machine offset; chip marks; knife marks; medium wavy dressing; medium mismatch.

723.0 METRIC CONVERSION — Metric dimensions listed in these rules are calculated at 25.4 millimeters (mm) times the actual dimension in inches, rounded to the nearest millimeter. In case of a dispute on size measurements, the conventional (inch) method of measurement shall take precedence.

(a) To round to the nearest millimeter: If the digit in the tenths of mm position (the digit after the decimal point) is less than 5, drop all fractional mm digits; if greater than 5 or it is 5 followed by at least one non-zero digit, round one mm higher; if 5 followed by only zeroes, retain the digit in the unit position (the digit before the decimal point) if it is even or increase it one mm if it is odd.

724.0 MOISTURE CONTENT — The weight of the water in wood expressed in percentage of the weight of the oven-dry wood.

726.0 OCCASIONAL PIECES — Means not more than 10% of the pieces in a parcel or shipment.

728.0 PITCH — Is an accumulation of resinous material.

(a) **Light pitch** is the light, but evident presence of pitch.

(b) **Medium pitch** is a somewhat more evident presence of pitch than is the light.

(c) **Heavy pitch** is a very evident accumulation of pitch showing by its color and consistency.

(d) **Massed pitch** is a clearly defined accumulation of solid pitch in a body by itself.

730.0 PITCH STREAK — Is a well-defined accumulation of pitch in the wood cells in a streak. Pitch streaks are described as follows, with equivalent areas being permissible:

(a) A **very small pitch streak** is 3/8" in width and 15" in length.

(b) A **small pitch streak** is 1/12 the width and 1/6 the length of the piece.

(c) A **medium pitch streak** is 1/6 the width and 1/3 the length of the piece.

(d) A **large pitch streak** is not over 1/4 the width by 1/2 the length of the surface.

(e) A **very large pitch streak** is over 1/4 the width by 1/2 the length of the surface.

(f) A **pitch seam** is a shake or check which contains pitch.

732.0 PITH — Pith is the small soft core in the structural center of a log.

(a) A **very small pith** is not over 1/8" wide and occupies on face surface not over 1/4 square inch (1/8" wide by 2" long or 1/16" by 4").

(b) **Small pith** occupies not over 3/4 square inch (1/4" by 3", 3/16" by 4", 1/8" by 6", or 1/16" by 12").

(c) **Free of pith** means that pith on or within the body of the piece is prohibited.

734.0 POCKET — A well-defined opening between the rings of annual growth which develops during the growth of the tree. It usually contains pitch or bark. Pockets are described as follows with equivalent areas being permissible:

a) A **very small pocket** is 1/16" in width and 3" in length, or 1/8" in width and 2" in length.

(b) A **small pocket** is 1/16" in width and 6" in length, or 1/8" in width and 4" in length, or 1/4" in width and 2" in length.

(c) A **medium pocket** is 1/16" in width and 12" in length, or 1/8" in width and 8" in length, or 3/8" in width and 4" in length.

(d) A **large pocket** is not over 4 square inches in area.

(e) A **very large pocket** is over 4 square inches in area.

(f) A **closed pocket** has an opening on one surface only.

(g) A **through or open pocket** has an opening on opposite surfaces, and the through opening is considered the same as a through hole of equal size.

736.0 PLUGS AND FILLERS — Wood plugs and fillers are inserted into pieces of lumber to improve their appearance and usefulness. Lumber containing plugs and fillers shall only be shipped when the order, acknowledgement and invoice carry reference to the inserts. Quality of the inserts and workmanship must be in keeping with the quality of the grade. In dimension and other lumber graded for strength, inserts are limited to the same size and location as knots.

738.0 SAPWOOD — Outer layers of growth between the bark and the heartwood which contain the sap.

(a) **Bright sapwood** shows no stain and is not limited in any grade unless specifically stated in the grade description.

(b) **Sapwood restrictions waived** means that any restrictions in a rule on the amount of sapwood permitted in pieces graded under that rule are not to apply.

(c) **Bright sapwood no defect (BSND)** means that bright sapwood is permitted in each piece in any amount.

740.0 SHAKE — A lengthwise separation of the wood which occurs between or through the rings of annual growth.

(a) A **light shake** is not over 1/32" wide.

(b) A **medium shake** is not over 1/8" wide.

(c) A **surface shake** occurs on only one surface of a piece.

(d) A **through shake** extends from one surface of a piece to the opposite or to an adjoining surface.

(e) A **pith shake (or heart shake or heart check)** extends through the growth rings from or through the pith towards the surface of a piece, and is distinguished from a seasoning check by the fact that its greatest width is nearest the pith, whereas the greatest width of a season check in a pith-centered piece is farthest from the pith.

(f) A **ring shake** occurs between the growth rings to partially or wholly encircle the pith.

742.0 SPLITS — A separation of the wood through the piece to the opposite surface or to an adjoining surface due to the tearing apart of the wood cells.

(a) A **very short split** is equal in length to 1/2 the width of the piece.

(b) A **short split** is equal in length to the width of the piece and in no case exceeds 1/6 the length.

(c) A **medium split** is equal in length to twice the width of the piece and in no case exceeds 1/6 the length.

(d) A **long split** is longer than a medium split.

744.0 STAINED WOOD

(a) **Stained Heartwood and Firm Red Heart** — Stained Heartwood or Firm Red Heart is a marked variation from the natural color. NOTE: It ranges from pink to brown. It is not to be confused with natural red heart. Natural color is usually uniformly distributed through certain annual rings, whereas stains are usually in irregular patches. In grades where it is permitted, it has no more effect on the intended use of the piece than other characteristics permitted in the grade.

(b) **Stained Sapwood** — Stained Sapwood similarly has no effect on the intended use of the pieces in which it is permitted, but affects appearance in varying degrees.

(1) **Light stained sapwood** is so slightly discolored that it does not affect natural finishes.

(2) **Medium stained sapwood** has a pronounced difference in coloring. NOTE: Sometimes the usefulness for natural finishes, but not for paint finishes, is affected.

(3) **Heavy stained sapwood** has so pronounced a difference as to obscure the grain of the wood, but the lumber containing it is acceptable for paint finishes.

(c) **Discoloration** through exposure to the elements is admitted in all grades of framing and sheathing lumber.

746.0 STRESS GRADES — Lumber grades having assigned working stress and modulus of elasticity values in accordance with accepted basic principles of strength grading, and the provisions of sections 6.3.2.1 and 6.3.2.2 of Voluntary Product Standard 20.

748.0 TRIM —

(a) **Trimming of lumber** is the act of cross-cutting a piece to a given length.

(b) **Double end trimmed (DET)** NOTE: It is intended that DET lumber be trimmed square on both ends. Tolerances are found in certified grading rules.

(c) **Precision end trimmed (PET)** lumber is trimmed square on both ends to uniform lengths with a manufacturing tolerance of 1/16" over or under in length in 20% of the pieces.

(d) **Square end trimmed** lumber is trimmed square having a manufacturing tolerance of 1/64" for each nominal 2" of thickness or width.

750.0 WANE —

(a) **Bark or lack** of wood from any cause, except eased edges, on the edge or corner of a piece of lumber.

(b) **Wane Dip** - Wane away from ends extending partially or completely across any face is permitted for one foot if no more serious than skips in dressing allowed or across a narrow face if no more damaging than the knot hole allowed (not to exceed in length twice the diameter of the maximum knot hole allowed in the grade) and is limited to one occurrence in each piece. These variations shall not be allowed in more than 5% of the pieces. (This provision applies only to the National Grading Rule for Dimension Lumber).

752.0 WARP — Any deviation from a true or plane surface, including bow, crook, cup and twist or any combination thereof. Warp restrictions are based on the average form of warp as it occurs normally, and any variation from this average form, such as short kinks, shall be appraised according to its equivalent effect. Pieces containing two or more forms shall be appraised according to the combined effect in determining the amount permissible. In these rules warp is classified as very light, light, medium, and heavy, and applied to each width and length as set forth in the various grades in accordance with the following provisions and tables:

(a) **Bow** is a deviation flatwise from a straight line drawn from end to end of a piece. It is measured at the point of greatest distance from the straight line. The maximum amount of bow allowed in a grade is as follows: If under 2" thick, three times as much as crook for 2" faces. If 2" thick and under 3", twice as much crook for 2" faces. If 3" thick and over, the same as the amount of crook for that thickness.

(b) **Crook** is a deviation edgewise from a straight line drawn from end to end of a piece. It is measured at the point of greatest distance from the straight line. The maximum amount of crook allowed shall be that shown in the crook tables published within this section.

(c) **Cup** is a deviation in the face of a piece from a straight line drawn from edge to edge of a piece. It is measured at the point of greatest distance from the straight line. The maximum amount of cup allowed shall be that shown in the following table:

CUP TABLE						
Cup	Face Width					
	2" & 3"	4"	5" & 6"	8"	10"	12"
Very light	1/32"	1/32"	1/32"	1/16"	3/32"	1/8"
Light	1/32"	1/32"	1/16"	1/8"	3/16"	1/4"
Medium	1/32"	1/16"	1/8"	3/16"	1/4"	3/8"
Heavy	1/16"	1/8"	3/16"	1/4"	3/8"	1/2"
14" and Wider proportionately more.						

(d) **Twist** is a deviation flatwise, or a combination of flatwise and edgewise, in the form of a curl or spiral, and the amount is the distance an edge of a piece at one end is raised above a flat surface against which both edges at the opposite end are resting snugly. The maximum amount of twist allowed shall be that shown in the Twist table published within this section.

754.0 COMBINATION GRADES — Product Standard PS 20 permits grouping the highest two grades in a grade category, and grade marking the combination as an "& Better" grade. The combined grade is assigned the allowable property values of the lower grade unless allowable property values have been assigned to the combination.

CROOK TABLE FOR FRAMING

Length in Ft	Crook	Width							
		2"	3"	4"	5" & 6"	8"	10"	12"	
4	Very Light	1/8	1/8	1/8	1/8	1/16	1/16	1/16	
	& Light	1/4	1/4	1/4	3/16	1/8	1/16	1/16	
	Medium	3/8	3/8	3/8	1/4	3/16	1/8	1/8	
6	Heavy	1/2	1/2	1/2	3/8	1/4	3/16	3/16	
	8	Very Light	1/4	1/4	3/16	1/8	1/8	1/16	1/16
		Light	3/8	3/8	3/8	5/16	1/4	3/16	1/8
Medium		1/2	1/2	1/2	1/2	3/8	1/4	3/16	
10	Heavy	3/4	3/4	3/4	5/8	1/2	3/8	1/4	
	12	Very Light	3/8	5/16	1/4	3/16	3/16	1/8	1/8
		Light	3/4	5/8	1/2	7/16	3/8	1/4	3/16
Medium		1-3/8	1	3/4	5/8	1/2	7/16	3/8	
14	Heavy	1-3/4	1-1/4	1-1/8	1	7/8	3/4	5/8	
	16	Very Light	1/2	3/8	3/8	5/16	1/4	1/4	3/16
		Light	1	3/4	11/16	5/8	1/2	7/16	3/8
Medium		1-1/2	1-1/8	1	7/8	13/16	3/4	9/16	
18	Heavy	2	1-1/2	1-3/8	1-1/4	1-1/8	1	13/16	
	20	Very Light	5/8	1/2	7/16	3/8	5/16	1/4	3/16
		Light	1-1/4	1	7/8	3/4	5/8	1/2	3/8
Medium		2	1-1/2	1-1/4	1-1/8	1	7/8	3/4	
22	Heavy	2-3/4	2	1-3/4	1-1/2	1-1/4	1-1/8	1	
	24	Very Light	3/4	5/8	1/2	7/16	3/8	5/16	1/4
		Light	1-5/8	1-1/4	1	7/8	3/4	5/8	1/2
Medium		2-1/2	1-7/8	1-1/2	1-3/8	1-1/8	1	7/8	
26	Heavy	3-1/4	2-1/2	2	1-3/4	1-1/2	1-1/4	1-1/8	
	28	Very Light	1	3/4	5/8	1/2	7/16	3/8	5/16
		Light	2	1-3/8	1-1/8	1	7/8	3/4	5/8
Medium		3	2-1/16	1-5/8	1-1/2	1-1/4	1-1/8	1	
30	Heavy	4	2-3/4	2-1/4	2	1-3/4	1-1/2	1-1/4	
	32	Very Light	1-1/8	7/8	3/4	5/8	1/2	7/16	3/8
		Light	2-1/4	1-1/2	1-3/8	1-1/4	1	7/8	3/4
Medium		3-3/8	2-1/4	2-1/16	1-7/8	1-1/2	1-5/16	1-1/8	
34	Heavy	4-1/2	3	2-3/4	2-1/2	2	1-3/4	1-1/2	
	36	Very Light	1-1/4	1	7/8	3/4	5/8	1/2	7/16
		Light	2-1/2	1-3/4	1-5/8	1-1/2	1-1/4	1	7/8
Medium		3-3/4	2-5/8	2-7/16	2-1/4	1-7/8	1-1/2	1-1/4	
38	Heavy	5	3-1/2	3-1/4	3	2-1/2	2	1-3/4	
	40	Very Light	1-1/2	1-1/8	1	7/8	3/4	5/8	1/2
		Light	3	2	1-7/8	1-3/4	1-1/2	1-1/4	1
Medium		4-1/2	3	2-3/4	2-5/8	2-1/4	1-7/8	1-5/8	
42	Heavy	6	4	3-3/4	3-1/2	3	2-1/2	2-1/4	

*The term "and longer" implies listed twist restrictions apply to all lengths equal to or greater than 24 feet.

**CROOK TABLE
FOR NELMA EASTERN WHITE PINE
BOARD GRADES**

Length	Face Width					
	3"	4"	6"	8"	10"	12"
6 Feet						
C&D Sel.	1/8	1/8	1/8	1/16	1/16	1/16
Fin.	1/4	1/4	3/16	1/8	1/16	1/16
Prem.	3/8	3/8	1/4	3/16	1/8	1/8
Stand.	1/2	1/2	3/8	1/4	3/16	3/16
8 Feet						
C&D Sel.	1/4	3/16	1/8	1/8	1/16	1/16
Fin.	3/8	3/8	5/16	1/4	3/16	1/8
Prem.	1/2	1/2	1/2	3/8	1/4	3/16
Stand.	3/4	3/4	5/8	1/2	3/8	1/4
10 Feet						
C&D Sel.	5/16	1/4	3/16	3/16	1/8	1/8
Fin.	5/8	1/2	7/16	3/8	1/4	3/16
Prem.	1	3/4	5/8	1/2	7/16	3/8
Stand.	1-1/4	1-1/8	1	7/8	3/4	5/8
12 Feet						
C&D Sel.	3/8	3/8	5/16	1/4	1/4	3/16
Fin.	3/4	11/16	5/8	1/2	7/16	3/8
Prem.	1-1/8	1	7/8	13/16	3/4	9/16
Stand.	1-1/2	1-3/8	1-1/4	1-1/8	1	13/16
14 Feet						
C&D Sel.	1/2	7/16	3/8	5/16	1/4	3/16
Fin.	1	7/8	3/4	5/8	1/2	3/8
Prem.	1-1/2	1-1/4	1-1/8	1	7/8	3/4
Stand.	2	1-3/4	1-1/2	1-1/4	1-1/8	1
16 Feet						
C&D Sel.	5/8	1/2	7/16	3/8	5/16	1/4
Fin.	1-1/4	1	7/8	3/4	5/8	1/2
Prem.	1-7/8	1-1/2	1-3/8	1-1/8	1	7/8
Stand.	2-1/2	2	1-3/4	1-1/2	1-1/4	1-1/8

CROOK TABLE for SELECTS (WWPA RULES)

Length	Face Width				
	4"	6"	8"	10"	12"
8 Feet					
C Select	1/4	1/4	3/16	3/16	1/8
D Select	3/8	3/8	5/16	5/16	1/4
10 Feet					
C Select	3/8	5/16	5/16	1/4	3/16
D Select	9/16	9/16	1/2	7/16	3/8
12 Feet					
C Select	9/16	1/2	7/16	3/8	5/16
D Select	7/8	3/4	11/16	5/8	9/16
14 Feet					
C Select	3/4	11/16	9/16	1/2	3/8
D Select	1-1/8	1-1/16	15/16	7/8	3/4
16 Feet					
C Select	1	7/8	3/4	5/8	1/2
D Select	1-1/2	1-3/8	1-1/4	1-1/8	1

In the grades of Selects, maximum crook is limited to the amount shown in the above table for the appropriate length, width and grade. Pieces differing in length and width from these basic sizes may have crook in proportion to the amount shown. Maximum crook is limited to occasional pieces of any item.

**CROOK TABLE for COMMON BOARDS
(WWPA RULES)**

Length	Face Width				
	4"	6"	8"	10"	12"
8 Feet					
2 & Btr. Common	1/2	7/16	3/8	5/16	1/4
3 Common	13/16	3/4	11/16	5/8	1/2
4 Common	1	15/16	7/8	13/16	3/4
10 Feet					
2 & Btr. Common	13/16	11/16	9/16	1/2	3/8
3 Common	1-1/4	1-3/16	1-1/16	1	13/16
4 Common	1-9/16	1-7/16	1-3/8	1-1/4	1-3/16
12 Feet					
2 & Btr. Common	1-1/8	1	1-7/8	11/16	9/16
3 Common	1-13/16	1-11/16	1-9/16	1-7/16	1-1/8
4 Common	2-1/4	2-1/8	2	1-13/16	1-11/16
14 Feet					
2 & Btr. Common	1-9/16	1-5/16	1-1/8	15/16	3/4
3 Common	2-1/2	2-5/16	2-1/8	1-15/16	1-9/16
4 Common	3-1/16	2-7/8	2-11/16	2-1/2	2-5/16
16 Feet					
2 & Btr. Common	2	1-3/4	1-1/2	1-1/4	1
3 Common	3-1/4	3	2-3/4	2-1/2	2
4 Common	4	3-3/4	3-1/2	3-1/4	3

Maximum crook is limited to the amount shown in the above table for the appropriate length, width and grade. Pieces differing in length and width from these basic sizes may have crook in proportion to the amounts shown. Maximum crook is limited to occasional pieces of any item.

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TWIST TABLE

Length In Feet	Twist	Face Width						
		2"	3" & 4"	5" & 6"	8"	10"	12"	
4	Very Light	1/16	1/8	3/16	1/4	5/16	3/8	
	Light	1/8	1/4	3/8	1/2	5/8	3/4	
	Medium	3/16	3/8	1/2	3/4	7/8	1-1/8	
	Heavy	1/4	1/2	3/4	1	1-1/4	1-1/2	
	6	Very Light	3/32	3/16	5/16	3/8	7/16	9/16
		Light	3/16	3/8	1/2	3/4	7/8	1-1/8
Medium		9/32	1/2	3/4	1-1/8	1-3/8	1-5/8	
	Heavy	3/8	3/4	1-1/8	1-1/2	1-7/8	2-1/4	
	8	Very Light	1/8	1/4	3/8	1/2	5/8	3/4
		Light	1/4	1/2	3/4	1	1-1/4	1-1/2
Medium		3/8	3/4	1-1/8	1-1/2	1-7/8	2-1/4	
	Heavy	1/2	1	1-1/2	2	2-1/2	3	
	10	Very Light	5/32	5/16	7/16	5/8	3/4	15/16
		Light	5/16	5/8	7/8	1-1/4	1-1/2	1-7/8
Medium		1/2	7/8	1-3/8	1-7/8	2-3/8	2-3/4	
	Heavy	5/8	1-1/4	1-7/8	2-1/2	3-1/8	3-3/4	
	12	Very Light	3/16	3/8	9/16	3/4	15/16	1-1/8
		Light	3/8	3/4	1-1/8	1-1/2	1-7/8	2-1/4
Medium		9/16	1-1/8	1-5/8	2-1/4	2-3/4	3-3/8	
	Heavy	3/4	1-1/2	2-1/4	3	3-3/4	4-1/2	
	14	Very Light	7/32	7/16	5/8	7/8	1-1/16	1-5/16
		Light	7/16	7/8	1-1/4	1-3/4	2-1/8	2-5/8
Medium		5/8	1-1/4	1-7/8	2-5/8	3-1/4	3-7/8	
	Heavy	7/8	1-3/4	2-5/8	3-1/2	4-3/8	5-1/4	
	16	Very Light	1/4	1/2	3/4	1	1-1/4	1-1/2
		Light	1/2	1	1-1/2	2	2-1/2	3
Medium		3/4	1-1/2	2-1/4	3	3-3/4	4-1/2	
	Heavy	1	2	3	4	5	6	
	18	Very Light	5/16	9/16	13/16	1-1/8	1-7/16	1-11/16
		Light	9/16	1-1/8	1-5/8	2-1/4	2-3/4	3-3/8
Medium		7/8	1-5/8	2-1/2	3-3/8	4-1/4	5	
	Heavy	1-1/8	2-1/4	3-3/8	4-1/2	5-5/8	6-3/4	
	20*	Very Light	5/16	5/8	15/16	1-1/4	1-9/16	1-7/8
		Light	5/8	1-1/4	1-7/8	2-1/2	3-1/8	3-3/4
Longer		1	1-7/8	2-3/4	3-3/4	4-5/8	5-5/8	
	Heavy	1-1/4	2-1/2	3-3/4	5	6-1/4	7-1/2	

*The term "and longer" implies listed twist restrictions apply to all lengths equal to or greater than 20 feet.

10

LUMBER ABBREVIATIONS

AAR	—	Association American Railroads
AD	—	Air-dried
ADF	—	After deduction freight
ALS	—	American Lumber Standard
AVG	—	Average
AW&L	—	All widths and lengths
BD	—	Board
BD. FT	—	Board Feet
BDL	—	Bundle
BEV	—	Bevel
BH	—	Boxed heart
B/L, BL	—	Bill of lading
BM	—	Board measure
B&S	—	Beams and Stringers
BSND	—	Bright Sapwood no defect
BTR	—	Better
CB	—	Center beaded
CF	—	Cost and freight
CIF	—	Cost, insurance and freight
CIFE	—	Cost, insurance, freight, exchange
C/L	—	Carload
CLG	—	Ceiling
CLR	—	Clear
CM	—	Center matched
CS	—	Caulking Seam
CSG	—	Casing
CV	—	Center V
DET	—	Double end trimmed
DIM	—	Dimension
DKG	—	Decking
D/S, DS	—	Drop siding
D&M	—	Dressed and matched
E	—	Edge or modulus of elasticity
EASTERN		
WP-NP	—	Eastern White Pine and Norway Pine
EB1S	—	Edge bead one side
EB2S	—	Edge bead two sides
E&CB2S	—	Edge & center bead two sides
EV1S	—	Edge vee one side

EV2S	—	Edge vee two sides
E&CV1S	—	Edge & center vee one side
E&CV2S	—	Edge & center vee two sides
EE	—	Eased edged
EG	—	Edge (vertical) grain
EM	—	End matched
Fb	—	Allowable fiber stress in bending (also f)
FG	—	Flat or slash grain
FLG	—	Flooring
FOB	—	Free on board (named point)
FOHC	—	Free of heart center
FRT	—	Freight
Ft	—	Foot
FBM	—	Feet board measure (also FT.BM)
FT.SM	—	Feet surface measure
HB	—	Hollow back
H&M	—	Hit and miss
H or M	—	Hit or miss
IN	—	Inch or inches
IND	—	Industrial
J&P	—	Joists and Planks
KD	—	Kiln-dried
LBR	—	Lumber
LCL	—	Less than carload
LF	—	Light framing
LFVC	—	Loaded full visible capacity
LGR	—	Longer
LGTH	—	Length
LIN	—	Lineal
LNG	—	Lining
M	—	Thousand
MBM	—	Thousand (ft.) board measure
MC	—	Moisture content
MG	—	Mixed grain
MLDG	—	Moulding
MOE	—	Modulus of elasticity or "E"
MOR	—	Modulus of Rupture
MSR	—	Machine Stress Rated
NBM	—	Net board measure
NELMA	—	Northeastern Lumber Manufacturers Association, Inc.
NIE	—	Nose one edge

NSLB — Northern Softwood Lumber Bureau
PAD — Partly air-dried
PARA — Paragraph
PART — Partition
PAT — Pattern
PET — Precision end trimmed
P&T — Posts and Timbers
RDM — Random
REG — Regular
RGH — Rough
R/L, RL — Random lengths
R/S — Resawn
R/W, or RW — Random widths
RW/L — Random width, random length
SBIS — Single bead one side
SDG — Siding
SEL — Select
SG — Slash or flat grain
S/L or SL — Shiplap
STD. M — Standard matched
SM — Surface measure
SPIB — Southern Pine Inspection Bureau
SQ — Square
STK — Stock
STPG — Stepping
STR — Structural
S&E — Side and edge
S1E — Surfaced one edge
S2E — Surfaced two edges
S1S — Surfaced one side
S2S — Surfaced two sides
S4S — Surfaced four sides
S1S&CM — Surfaced one side and center matched
S2S&CM — Surfaced two sides and center matched
S4S&CS — Surfaced four sides and caulking seam
S1S1E — Surfaced one side, one edge
S1S2E — Surfaced one side, two edges
S2S1E — Surfaced two sides, one edge
TBR — Timber
T&G — Tongued and grooved
VG — Vertical (edge) grain

WCLIB — West Coast Lumber Inspection Bureau
WDR — Wider
WT — Weight
WTH — Width
WWPA — Western Wood Products Association

SYMBOLS

“ — Inch or inches
 ‘ — Foot or feet
 x — by, as 4 x 4
4/4, 5/4,
6/4, etc. — Nominal thickness expressed in fractions

