INTERPRETATIONS
&
THE EUROPEAN UNION EXPORT VISUAL GRADE REQUIREMENTS ANNEX

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PREFACE

NATIONAL LUMBER GRADES AUTHORITY STANDARD GRADING RULES FOR CANADIAN LUMBER

(NLGA)
INTERPRETATIONS

The limiting provisions of the NLGA Rules are quite specific in delineating the characteristics permitted. Because lumber is manufactured from trees which have developed naturally and responsively to their environment and every piece is different it is not possible to anticipate in a grade description all of the possible combinations or types of characteristics which a grader will encounter. The following interpretations were developed to provide additional information to the grader/inspector in the application of the rules.

The NLGA Interpretations incorporate the National Grading Rule (NGR) for Softwood Dimension Lumber Interpretations in their entirety. For other than the NGR portions of the NLGA Rules, NLGA has prepared Interpretations for those portions.

PART 1: National Grading Rule (NGR) for Softwood Dimension Lumber Interpretations. Approved November 4, 2004 by the National Grading Rule Committee.

PART 2: National Lumber Grades Authority (NLGA) Interpretations for portions other than the NGR. Approved September 22, 2006 by the National Lumber Grades Authority.

PART 3: European Union Export Visual Grade Requirements Annex

Supersedes all editions, revisions and supplements previous to January 1, 2014

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PART 1

NATIONAL GRADING RULE FOR SOFTWOOD DIMENSION LUMBER INTERPRETATIONS

Approved November 4, 2004

1.0 GENERAL

The limiting provisions of the National Grading Rule are quite specific in delineating the characteristics permitted. Because lumber is manufactured from trees which have developed naturally and responsively to their environment and every piece is different it is not possible to anticipate in a grade description all of the possible combinations or types of characteristics which a grader will encounter. These National Grading Rule Interpretations provide additional information to the grader/inspector in the application of the National Grading Rule. These interpretations have been approved by the National Grading Rule Committee and shall be considered a mandatory part of the National Grading Rule.

All measurements are based on actual size unless otherwise specified except splits and warp are based on nominal.

The limitations on knot sizes and other characteristics governing strength shall not be exceeded.

1.1 BARK AND PITCH POCKETS

Bark or pitch pockets are not restricted as to number.

1.2 BEVEL SAWING

Limited on the basis of equivalent loss of wood from wane.

1.3 CELL COLLAPSE

Cell collapse shall be evaluated as either wane or skip.

1.4 CHIP AND SAW CHANNELS (RABBETED EDGE)

Is limited on a basis of wane except in those instances in which the depth or width of the cut exceeds the full length wane provisions, the limitation shall be on a basis of equivalent loss of wood from maximum natural wane.

1.5 COMPRESSION WOOD AND TIMBER BREAKS

Separations resulting from seasoning which occur in allowable bands of compression wood shall not be evaluated as timber breaks or compression failures.

Compression wood shall be limited in effect to other appearance or strength reducing characteristics permitted in the grade.

Compression failures and timber breaks are permitted only in the grades of Standard, No. 3, Utility and Stud. They are limited to the size of the allowable knot hole.

1.6 HOLES

1.6. 1 Insect Holes: Pin holes, grub holes and teredo holes are handled on an "equivalent smaller" basis. Equivalent smaller shall mean that the area occupied by all pin, grub and teredo holes shall be added together and treated as the maximum size hole permitted. For example, twelve $^{1}/_{4}$" holes shall be accepted as equivalent to a single 1" hole. The poorest face shall govern.

1.6.2 Manufactured Holes: The area of a manufactured hole shall not exceed the equivalent area of the knot hole permitted and is limited to one manufactured hole in 12' of length, or two in longer lengths. The following length restrictions shall apply:

- **SELECT STRUCTURAL:** equal in length to diameter of hole permitted
- **NO. 1 and CONSTRUCTION:** equal in length to 1-1/2 times diameter of hole permitted.
- **NO. 2 and STANDARD:** equal in length to width of piece.
- **NO. 3, UTILITY and STUD:** equal in length to 1-1/2 times width of piece.

Manufactrued holes are defects caused by the manufacturing process that are specifically listed in the grading rule (e.g. dog holes, log turner marks, debarker damage, etc.). The length of manufactured holes shall be the entire length of the defect encountered and limited to the frequency and length restrictions as listed.

Manufactured holes that have no more effect on the grade of the piece than wane shall be assessed and limited as wane but not a combination of the wane and manufactured hole limitations. The listed limitations for manufactured holes shall not be used to exceed the maximum wane limitations of the of the grade.

1.7 KNOTS

1.7.1 **Knot Measurement**: Knots appearing on wide faces are measured between lines enclosing the knot drawn parallel to the edge (**Figure 1**). Knot size is equal to the average of the two wide face measurements (**Figure 2**).

Figure 1

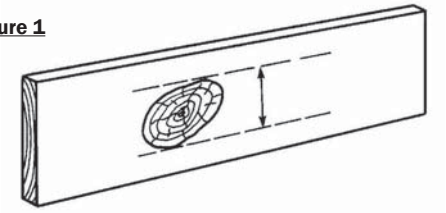
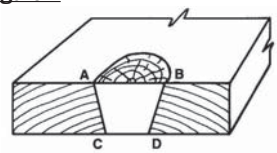


Figure 2



$$\text{Knot size} = \frac{AB + CD}{2}$$

Except as otherwise provided, in these interpretations for knots on narrow faces, the cross sectional area displacement shall not exceed that of the maximum knot allowed at the edge of the wide face (see chart in **Figure 3** for allowable displacement percentages).

1.7.2 **Spike Knots**

Narrow face knots (spike knots) shall be measured according to the formulas depicted in **Figure 4.** The measurement of wide face knots overlapping one or two edges is demonstrated in **Figure 5**.

Figure 3: Allowable Displacement of Narrow Face Knots
(in percentage)

	LIGHT FRAMING			STRUCTURAL LIGHT FRAMING				STRUCTURAL JOISTS & PLANKS			
Nom Width	Const	Stand	Util	SS	No.1	No.2	Stud No.3	SS	No.1	No.2	No.3
2"	50	67	83	25	33	42	50				
3"	50	60	80	20	30	35	50				
4"	43	57	71	21	29	36	50				
5"								22	28	36	50
6"								20	27	34	50
8"								21	28	34	48
10"								20	27	35	49
12"								20	27	33	49
14"								18	24	31	45

Figure 4: Spike Knots

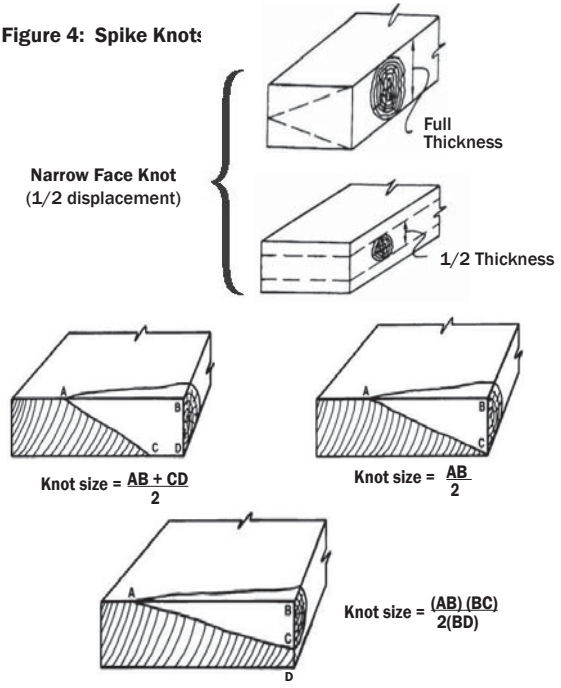
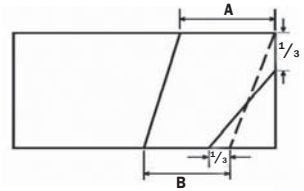
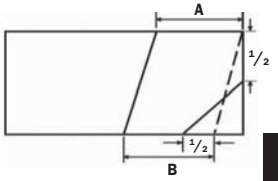


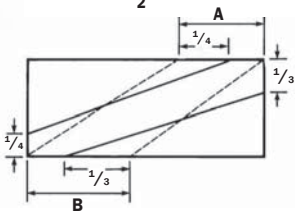
Figure 5 **3 - Face Knots**





Knot size = $\frac{A + B}{2}$

4 - Face Knot



1.7.3 Knot Location

The allowable size for knots on wide faces, when appearing away from the edge, shall be proportionately increased from the size specified for knots located at the edge of the wide face to the size specified for knots located along the centerline. The increase shall start at a distance from the edge equal to 1/2 the diameter of the allowable edge knot (**Figure 6**).

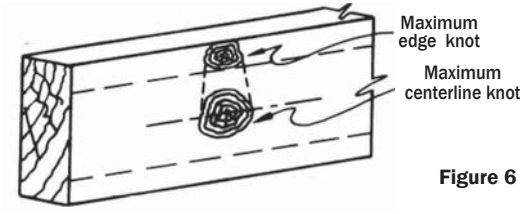
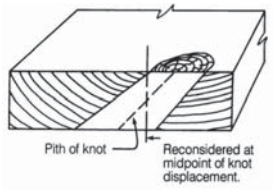


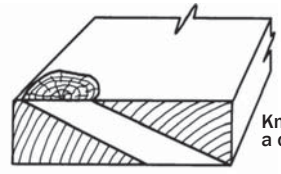
Figure 6

The size of knots on wide faces are permitted to be increased proportionately from the size permitted at the edge to the size permitted at the centerline.

Knots appearing on the wide faces shall be considered as located at the '**Midpoint**' of its displacement (**Figure 7**).

Figure 7



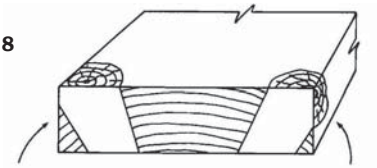


Knot shall be considered as a centerline knot

A wide face knot overlapping part of the edge shall be considered an **Edge knot** if it occupies more than 1/2 the thickness (**Figure 8**).

Figure 4: Narrow Face Knots

Figure 8

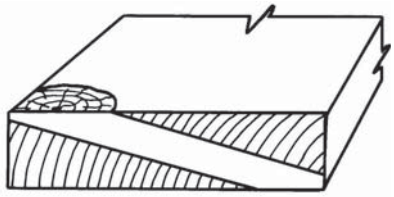


Knots overlapping less than 1/2 the narrow face shall be increased proportionately to centerline knot size.

Knots overlapping more than 1/2 the narrow face are considered edge knots.

The allowable size for diagonal knots that only involve the wide face shall be proportionately increased to the size specified for knots located along the centerline (Figure 7). Diagonal knots involving both narrow faces are equated to an **Edge Knot** (**Figure 9**).

Figure 9



Knot located at edge of wide face

1.7.4 Knot Spacing

When two or more knots appear in the same cross-section the sum of their sizes or displacement shall not exceed the maximum size specified for the centerline knot (**Figure 10**).

When reference is made to knots in the same cross section, the cross-section is the area across the width of a piece equal to the diameter of the largest knot present (**Figure 11**).

If loose knots, fixed knots or holes on the edge are involved, the sum of their sizes or displacement is limited to the maximum edge knot size.

When directly opposite spike knots in boxed heart pieces are involved, the sum of their sizes or displacement shall not exceed the allowable centerline knot.

Figure 10

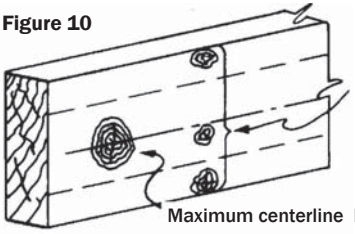
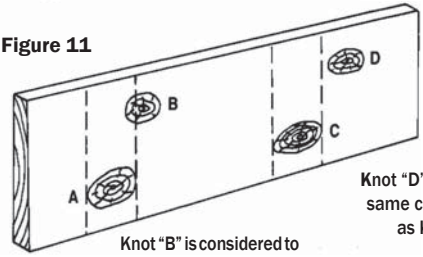


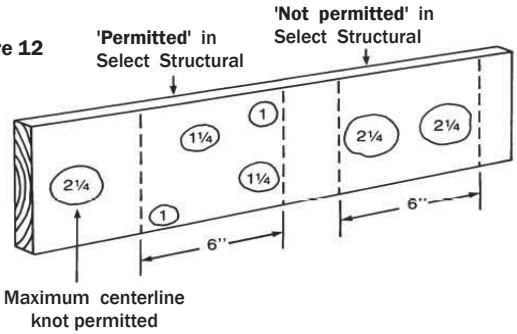
Figure 11



The sum of the sizes of all knots within any 6" of length shall not exceed twice the diameter of the allowable centerline knot (**Figure 12**). No two centerline knots *of* maximum size may appear in the same 6" of length.

Example for a Select Structural 2 X 8

Figure 12



Two maximum edge knots appearing on opposite edges shall be spaced at least a lengthwise distance equal to **twice** the size of the allowable edge knot (**Figure 13**).

Figure 13

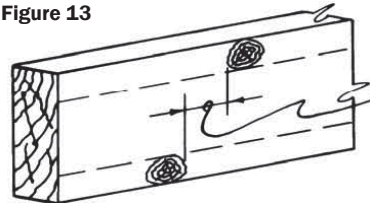
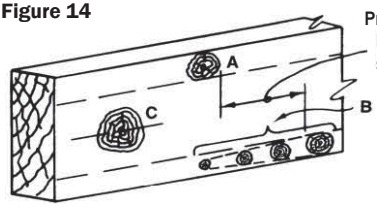


Figure 14



When **"A"** plus **"B"** exceeds the diameter of **"C"** but either or both are less than the maximum allowed, the lengthwise separation is proportionate

When the sum of knots at opposite edges on a wide face exceeds the allowable size of the centerline knot but either or both are less than the size allowed at edge of wide face, the lengthwise spacing shall be proportionate (**Figure 14**).

1.7.5 Assessment of Grain Deviations Around Knots:

Abnormal distortion is defined as grain deviation associated with a knot which is greater than that associated with a typical knot of the same size. When abnormal grain distortion is evident, the measurement of the knot size shall include the extent of distortion.

1.8 PLANER TEARS

Planer or chipper tears are permitted in No. 2/Standard and higher grades provided they are not more than the width of the piece in length and not more than $^1/_4$" in depth. In No. 3, Utility, and Stud grades, tears shall not exceed the allowable hole size in depth, nor the permissible split in length.

1.9 ROLLER CHECKS

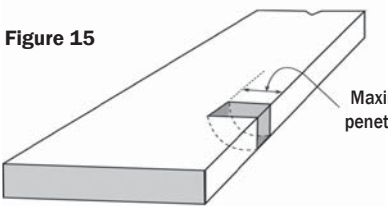
If through at the end, treat equivalent to a split. When away from ends, treat as shake.

1.10 SAW CUTS (SAW KERFS)

This characteristic occurs in two ways:

1) the cut passes completely through the thickness and extends across a portion of the width (**Figure 15**).

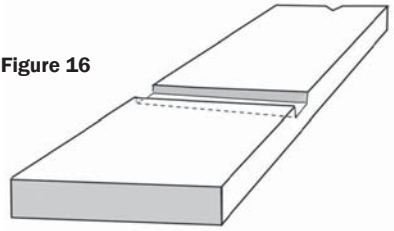
Figure 15



For Figure 15 saw cuts, the "**Maximum**" penetration across the width is restricted to 1/2 the allowable edge knot size.

2) the cut does not pass completely through the thickness & extends completely or partially across the width (**Figure 16**).

Figure 16



The penetration of the saw cut described in Item 2 above, as depicted by Figure 16 is restricted to 1/2 the equivalent edge knot displacement.

Note: Generally no saw kerfs would be permitted in *Select Structural and No. I grades.*

1.11 SHAKE

A shake is "**well separated**" or "**scattered**" (i.e. not continuous) if there is evidence of wood separating the shakes.

A surface shake is not permitted to extend into an adjacent or opposite face.

In No. 2 and Standard, shake through from one wide face to the other is **not** permitted to extend into the edge. A shake showing on only one wide face extending into the edge shall be limited to a depth of 3/4 the thickness and a length of 2'.

Shake extending from one wide face through the edge to the other wide face is permitted in No. 3, Utility and Stud and is measured from the point at which the shake enters the piece as illustrated below (**Figures 17** & **18**). The shake shall not extend across the wide face more than the width of the allowable hole. The shake is limited in length to 1/6 the length of the piece in No. 3, and Utility, and 1/3 the length of the piece in Stud grade.

1.11.1 Method of Measuring Shake

Shake limitations are stated in the rule. Measure shakes parallel to the wide face.

Figure 17

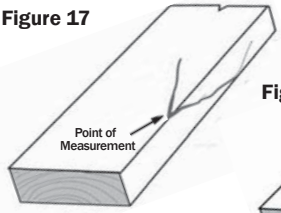


Figure 18

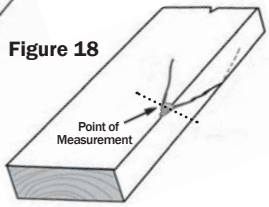
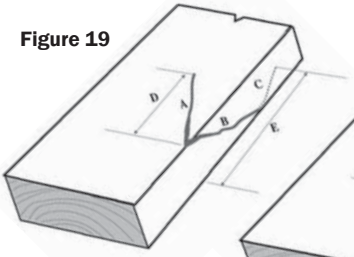
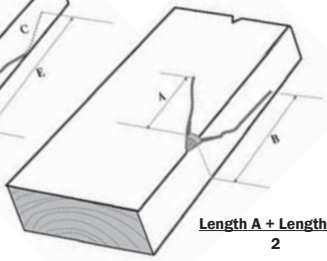


Figure 19



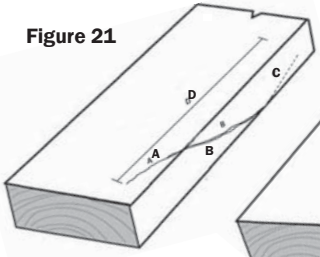
$$\frac{\text{Length D + Length E}}{2}$$

Figure 20



$$\frac{\text{Length A + Length B}}{2}$$

Figure 21



Measure
Length D

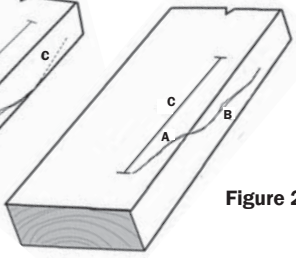


Figure 22

Measure
Length C

1.12 SKIPS

"**Hit & Miss**" skip is defined as a series of skips not over $^{1}/_{16}$" deep with surfaced areas between. Where this degree of skip is permitted, it shall be further clarified to include that the "**hits**" shall average one hit per four lineal feet of length.

A "**hit**" is a plainly visible surfaced area approximately 1/2 the width or more and 2" or more in length. No piece shall have less than two hits.

"**Hit or Miss**" provisions shall not be used to permit surfacing below specified minimum sizes.

When skips appear on opposing faces the combined scantness shall not exceed the depth permitted.

In **Select Structural**, **No. I** & **Construction**, one medium skip 2' in length is not to be included in the limitation of "10% hit & miss."

In **No. 3** & **Utility**, the maximum skip must never appear on both the wide face and narrow face in the same cross section.

Skips permitted on the surfaced face of resawn Stress Rated Boards is limited according to the rules under which it is graded, independent of the variation in thickness permitted in resawn boards.

1.13 SLOPE OF GRAIN

Slope of Grain on Narrow Faces and Local Deviations:

In 1" stress-rated boards or similar small sizes of stress-rated lumber, a general slope of grain anywhere in the length shall not pass completely through the thickness of the piece in a longitudinal distance in inches less than the number expressing the specified permissible slope. Where such a slope varies across the width of the board, its average shall be taken, except when the slope of grain occurs in a way that effects the piece more than other permitted strength reducing grade characteristics. Slope of grain on narrow faces of 2" in nominal thickness and thicker shall be measured on the same basis as on wide faces.

Local deviations must be considered in small sizes, and if a local deviation occurs in a piece less than 4" nominal in width or on the narrow face of a piece less than 2" nominal in thickness, and is not associated with a permissible knot in the piece, the measurement of slope shall include the local deviation.

1.14 SPLITS

Splits are measured by average penetration. One maximum allowable split is permitted on each end of the piece. No increase in length of split in overlength pieces is permited as well as no increase outside of middle 1/2 of width.

1.15 UNSOUND WOOD

Note: **"Heart Center Streaks"** is a localized decay peculiar to Southern Yellow Pine and the limitation applies to that species.

Note: **"Peck"** is a type of decay peculiar to species of cedar and applies to those species.

Note: **"Honeycomb"** is found in most softwood species and is similar to "white speck" except the pitted areas are more elongated or channeled.

Note: **"Firm"** in relation to white speck and honeycomb provisions infers that it will not crumble readily under thumb pressure and cannot be easily picked out.

In **No. 2** and **Standard**, white speck "**1/3 face or equivalent**" is a volume restriction. When white speck appears, it is limited to the following or equivalent area:

a) a maximum of 1/3 the length for the full width of the face; or

b) a maximum of 1/3 the width of the face for the full length.

In **No. 2** and **Standard**, firm honeycomb or peck on the narrow face that occupies the entire thickness shall **not** penetrate more than 1/6 the width of the wide face and such peck is restricted to not longer than twice the knot hole size in length.

In **No. 3, Utility** and **Stud**, "**spots or streaks**" of soft decay occurring on one face shall **not** be limited in length; if through two faces; each streak is limited to 1/6 the length of the piece. Measurement shall be taken in the through portion of the streak.

1.16 WANE

In reference to Para. 750, wane is permitted to extend partially or completely through the narrow face **provided** it does **not** displace more area than the allowable hole and does not exceed in length more than twice the allowable hole diameter.

Wane is permitted to extend partially or completely across any face **provided** it does **not** exceed the depth of the specified skip **nor** exceed one foot in length.

Such wane permitted in the grade description shall be measured at the point that wane exceeds the maximum thickness or width provision as stated in the grade. Wane extending partially or completely across any face shall be included in the assessment of equivalent wane. "Away from ends" means such wane shall not appear on the end section of the piece. (See **Figure 23**)

WANE EXAMPLES - THICKNESS - No. 2 & Standard Grades

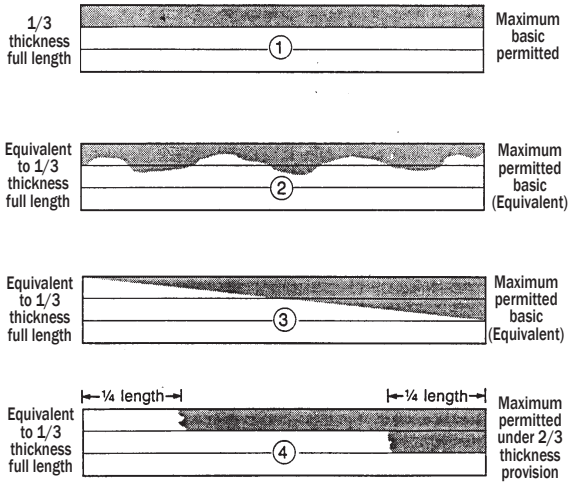


Figure 23

1) Basic
2) Equivalent to basic
3) Equivalent to basic
4) Equivalent to basic. Maximum amount of incremental wane permitted

Basic wane is maximum full length wane as stated in the NGR. The same concept of equivalent wane in thickness and width applies to all grades within their respective stated limitations.

1.17 WARP

1.17.1 Measurement of Crook, Twist and Bow when in Combination

When two or more forms of warp are both present in the same piece, only proportionate amounts of each are permitted. Maximum warp is based on gradual deviation from one end of the piece to the other.

1.17.2 Bow is limited according to thickness, not width.

1.17.3 Other Forms of Warp are limited according to width.

PART 2

NATIONAL LUMBER GRADES AUTHORITY (NLGA)
INTERPRETATIONS

1.0 GENERAL

Unless otherwise specified the following NLGA Interpretations shall apply to all portions of the NLGA Grade Rule other than the NGR portion.

The limitations on knot sizes and other characteristics governing strength shall not be exceeded.

1.1 BEVEL SAWING

The loss of wood shall not exceed the equivalent of either the wane or skip permitted. Limited to occasional pieces.

1.2 CHIP AND SAW CHANNELS (RABBETED EDGE)

In rough lumber, such channels, tracking or stepping marks must not exceed $^{1}/_{16}$" variation from the intended line of cut. Deeper channels shall not exceed the equivalent of either the wane or skip permitted, and shall be limited to occasional pieces. Channels which are equivalent to the full length wane provisions of a given grade shall be dropped to the next lower grade and limited to occasional pieces.

1.3 GRUB AND TEREDO HOLES

Grub and Teredo holes are evaluated on an equivalent smaller basis; Twelve $^{1}/_{4}$" grub or teredo holes shall be accepted as an equivalent to a 1" hole. Grub and Teredo holes shall be counted on the worst face, and there shall be no increase permitted in concentrated areas.

1.4 "HIT & MISS" SKIP

The "**Hits**" shall be plainly visible surfaced areas approximately 1/2 the width of the piece or more and 2" or more in length. "**Hits**" on the narrow face shall be completely across the narrow face and 2" or more in length. There shall be a minimum of one hit per 4 lineal feet and no piece shall have less than two "hits".

1.5 PIN HOLES

Handle on an equivalent basis - use judgement based on the general appearance of the piece.

a) Limited - Approximately 30 per square foot. - Concentrated area - 50% more if balance of piece better (25% more in Clears).

b) Scattered - Approximately 15 per square foot. - Concentrated area - as per a) above.

1.6 SKIPS ON FACE OF RESAWN BOARDS

Skips are permitted on the surfaced face of resawn boards as limited in the rules for the various grades, independent of the variation in thickness permitted in resawn boards.

1.7 SPLITS

Unless otherwise specified, the length of a split on a face shall be limited to the length as stated in the grade for the face under consideration.

2.0 SPECIFIC GRADE INTERPRETATIONS

2.1 PARA. 108 INDUSTRIAL CLEARS

2.1.1 Faces graded

For pieces 5" & narrower - the best face includes both edges.
For pieces 6" & wider - the best face includes one edge.
(*A grader may combine the face with the edge which yields the highest grade, i.e. best face and worst edge*).

2.1.2 Basic size

The description of characteristics permitted in the grades are based on a piece 8" wide by 12' long (96 surface units - 96 SU). Larger pieces may permit more characteristics and smaller pieces permit fewer characteristics.

Example

A piece 4" x 12' (48 surface units) would be one half (1/2) the basic size and thus would permit only one half (1/2) the listed characteristics.

2.1.3 Calculating Characteristics Permitted in Pieces Other Than Basic Size

To determine the number of characteristics permissible on the face of a piece that is other than basic size (96 surface units) use the following formula:

$$\frac{\text{Surface Units (SU) of Piece}}{\text{96 SU}} \times \text{Number of Characteristics Permitted in Basic Size} = \text{Number of Characteristics Permitted in Piece}$$

Example:

In "**D**" clear, four - 1" knots are permitted. In a piece of 2 x 6 - 12':

$$\frac{\text{72 SU (6 x 12)}}{\text{96 SU (8 x 12)}} \times \text{4 knots per basic size} = \text{3 - 1" knots permitted in a piece this size}$$

When the calculation gives an answer such as 2.5 then the grade permits characteristics whose combined total is equal to two (2) full size and 1 half size (.5) characteristic, 3 in total.

Where characteristics are permitted to be equivalent smaller, the number of characteristics may be increased provided their combined size does not exceed the combined size of the characteristics allowed and each individual characteristic is less than the maximum size permitted.

Example:

The face of a "**D**" Clear of basic size, 4 - 1" knots or 8 **equivalent smaller** knots are permitted.

For a piece 6" x 10' (60 SU):

$$\frac{\text{60 SU (6 x 10)}}{\text{96 SU (basic size)}} \times \text{8 - } 1/2\text{" knots as equivalent smaller} = \text{5 - } 1/2\text{" knots or 2.5 total inches}$$

Therefore, any combination of five knots totalling $2\,1/2$" or less may be permitted as long as no single knot exceeds the maximum knot size of 1". (ie. 1 - 1" & 2 - $3/4$" or 1 - $7/8$" & 2 - $3/4$" or 5 - $1/2$" , etc.

The grade limit for knots is eight (8) equivalent smaller per basic size, the knots may **not** be broken down further;

i.e. you could **not** take 10 - $1/4$" knots as equivalent.

2.1.4 Equivalent Characteristics

In "**C**" Clear and better, characteristics such as knots (in "C" Clear only), pin holes, pockets and streaks are restricted to one or the other, or an equal combination:

ie. - A "**C**" Clear may contain: 2 small knots; or 1 small knot & 2 small pockets; or 4 pin holes & 1/2 small streak; or an equivalent combination of characteristics. A "**D**" Clear permits all characteristics listed to occur in the same piece.

2.1.5 Knots

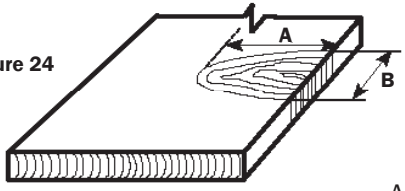
2.1.5.1 Round and Oval Knots: are measured by averaging the largest and smallest diameters on the face they occur.

2.1.5.2 Irregular Knots: are measured as the average dimension of the smallest rectangle which will enclose the knot.

2.1.5.3 Spike Knots: are measured by adding the length of the knot and the width of the knot at its widest point and taking the average. (**Figure 24**)

(ie. (5" + 1") ÷2 = 3" knot).

Figure 24



Spike knot size = $\frac{A + B}{2}$

Example of Knot allowances:

- Based on a **basic size** piece.
- On the face of a "**C**" Clear, 3 knots whose combined size does not exceed $1\frac{1}{2}$" are permitted, providing no knot is greater than $\frac{3}{4}$". These knots must be sound and tight.
- The face of a "**D**" Clear permits up to 8 knots whose combined size shall not exceed 4", of which none shall exceed 1". These knots may be unsound, but they must be fixed (Para. 718r).

- The back of "**D**" Clear permits characteristics larger **or** more numerous knots. Thus the back may contain up to 8 knots totalling 5" of combined knots provided no knot exceeds $1\frac{1}{4}$" **or** may permit up to 10 knots as more numerous totalling 5" of combined knots provided no knot exceeds 1".

2.1.6 Pockets

Pockets are restricted by their individual size and the combined length in inches. The total length of pockets permitted is based on the length of a $\frac{1}{8}$" wide pocket in each of the pocket size classifications.

If the grade permits 4 small pockets, this means **any** number of pockets whose combined length in inches is equal to that of 4 small (4 x 4" = 16") is permitted. No pocket shall exceed the maximum individual size specified for that classification of pocket.

A pocket may be $\frac{1}{16}$" x 6" and would be acceptable as a small pocket, but as in the above example the total lengthallowance shall not exceed 16".

Example 1: A 2 x 8 - 12' (Basic Size) "C" Clear permits 4 small pockets:

4 (No. of small pockets allowed) **X** **4** (per $\frac{1}{8}$" pocket) **=** **16"** (of pockets permitted)

The grade permits any number or combination of small pockets ($\frac{1}{4}$" x 2" or $\frac{1}{8}$" x 4" or $\frac{1}{16}$" x 6") whose combined length is less than 16".

Example 2: A 2 x 6 - 12' (3/4 of Basic Size) on the face of a "C" Clear permits:

3/4 (fraction of basic size) **X** **4** (No. of small pockets permitteded) **X** **4** (per $\frac{1}{8}$" pocket) **=** **12"** (of pockets permitted)

The grade permits: **Six** - $\frac{1}{4}$" x 2" pockets; or **two** - $\frac{1}{16}$" x 6"; or **twelve** - $\frac{1}{8}$" x 1"; or **one** - $\frac{1}{16}$" x 6" **+ one** - $\frac{1}{8}$" x 4" **+ one** - $\frac{1}{4}$" x 2"; etc.

Knot Measurement for Para. 108 Industrial Clears

Figure 25

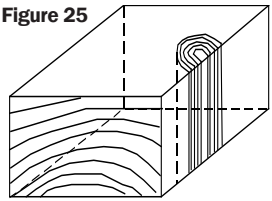


Figure 26

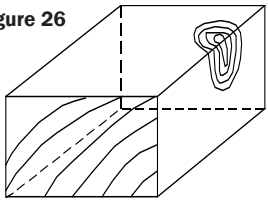


Figure 27

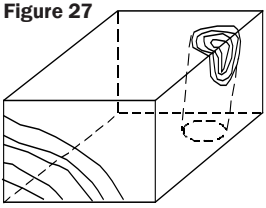
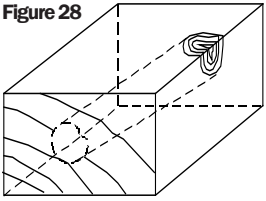
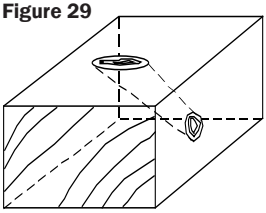


Figure 28



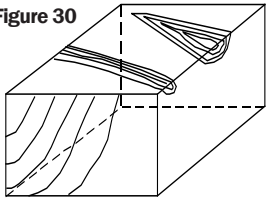
Single knots (Figures. 25, 26, 27 & 28) - measure as average size on the wide face. The width of the knot on the edge cannot exceed the allowable knot size. Disregard the edge size in "D" Clear.

Figure 29



Any amount of wood between the knots and they are counted as two knots. On the wide face measure average diameter. On the narrow face measure the width only.

Figure 30



Single knot - Measure as average of the length and widest width of the knot.

2.1.7 Skips

Skips, 1/2 width or less, they may be accepted twice as long.

2.1.8 Wane

Wane on the face and the edge of "**D**" Clear is evaluated separately. "**D**" Clear wane on the face may be equivalented for width and length (total area governing). Do not exceed the thickness allowance unless the wane will be accepted for the back.

50% more wane on the back of "**D**" Clear means a full 50% increase in allowable wane in face area or in depth or equivalent combination of smaller wane increases in both.

2.1.9 Machine Burn

Machine Burn is acceptable providing it is not deeper than the torn grain permitted in the grade and the discoloration does not exceed the following conditions:

- "B & Btr" - barely visible. Can be removed with a light sanding to be suitable for a natural finish.
- "C" Clear - colour is not controlled. Only slightly felt depth which is suitable for paint finishes.
- "D" Clear - colour is not controlled. Depth can be readily felt.

2.1.10 Cut-outs

If a 3" cut-out does not completely remove a characteristic, the remaining amount of the characteristic must be acceptable in the gradeof "D" Clear.

This clause can be applied to eliminate or reduce a single oversize characteristic or to reduce the total number of characteristics to that allowed.

2.2 Para 112 SELECTS

Any piece of lumber in the Select grades showing a serious combination of the listed characteristics which might impair its intended use is excluded from the grade.

Bow - The following amounts of bow are permitted in the various grades:

- 4/4 - Twice as much as crook permitted for 8" widths.
- 5/4 & 6/4 - $1^1/_2$ times as much as crook permitted for 8" widths.

- Measure laying flat and natural with bow up.

2.2.1 Knots in Para 112 SELECTS

It is recommended that the number and size of knots be reduced when in combination with other characteristics which detract from the overall appearance of the piece.

NLGA INTERPRETATIONS

The following charts give the approximate number of 1/4" knots that are permitted in each size and grade.

Up to 3/4" count 3, up to 1/2" count 2, up to 1/4" count 1.

B & Btr - Allows two 1/2" knots or as equivalent, four 1/4" knots, in the basic size. That is one 1/4" knot per 24 units.

B & Btr	No. of 1/4" Knots								Maximum Size Knot Permitted
Width	Length								
	6'	8'	10'	12'	14'	16'	18'	20'	
4"		1	1	2	2	2	3	3	3/8"
6"	1	2	2	3	3	4	4	5	1/2"
8"	2	2	3	4	4	5	6	6	1/2"
10"	2	3	4	5	5	6	7	8	1/2"
12"	3	4	5	6	7	8	9	10	5/8"

C Select - Allows two 3/4" knots or as equivalent, six 1/4" knots, in the basic size. That is one 1/4" knot per 16 units.

C Select	No. of 1/4" Knots								Maximum Size Knot Permitted
Width	Length								
	6'	8'	10'	12'	14'	16'	18'	20'	
4"	1	2	2	3	3	4	4	5	1/2"
6"	2	3	3	4	5	6	6	7	5/8"
8"	3	4	5	6	7	8	9	10	3/4"
10"	3	5	6	7	8	10	11	12	7/8"
12"	4	6	7	9	10	12	13	15	1"

D Select - Allows four 3/4" knots or as equivalent, twelve 1/4" knots in the basic size. That is one 1/4" knot per 8 units.

D Select	No. of 1/4" Knots								Maximum Size Knot Permitted
Width	Length								
	6'	8'	10'	12'	14'	16'	18'	20'	
4"	3	4	5	6	7	8	9	10	1/2"
6"	4	6	7	9	10	12	13	15	5/8"
8"	6	8	10	12	14	16	18	20	3/4"
10"	7	10	12	15	17	20	22	25	7/8"
12"	9	12	15	18	21	24	27	30	1"

Knots should be spread out over the entire width and length of the piece.

Maximum characteristics should not be in combination within the same piece - a clear appearance must be evident.

Basic Size = 1" x 8" x 12' 96 units.

2.2.2 Para 112b. B & BETTER (SUPREME)

Wane - If maximum - should be held to pieces that are otherwise high grade. May extend across the reverse face only for approximately 1/12 the width.

Knots - Must be sound and tight, and only in very high grade pieces and scattered over entire board. (See chart on previous page for breakdown).

2.2.3 Para 112c. C SELECT (CHOICE)

Pin Holes - 1 in lieu of each pitch or bark pocket permitted.

Knots - Must be sound and tight and well scattered throughout piece.

- One fixed pin knot is permitted in 8" & wider x 12' pieces in otherwise high grade pieces (see chart on previous page for number).

2.2.4 Para 112d. D SELECT (QUALITY)

Pin Holes - 2 in lieu of each pitch or bark pocket permitted.

- on reverse face: scattered in otherwise C Select & Btr type pieces.

Reverse Face - Common back.

2.3 Para 113 COMMONS

Any piece judged to contain a serious combination of characteristics, even though some of the characteristics may not be limiting by themselves, is excluded from the grade. Likewise, an otherwise high grade piece may be placed in a grade even though one or two of its characteristics may slightly exceed the limitation described in the rules.

2.3.1 Para 113a. No. 1 COMMON (COLONIAL)

Checked Knots - An occasional red knot showing a barely perceptible check.

Black Knots - Should be held to 4 for each 12' of length in otherwise high grade pieces.

Pin Holes - 6 scattered in a 1" x 8" x 12'

Roller Check - A light roller check on back, not to exceed **2'** or **1/8** the length whichever is less.

2.3.2 Para 113b. No. 2 COMMON (STERLING)

Wormholes - 1 small not through - occasional pieces.

Slough Knots - Up to 3 equivalent smaller not over **1/2** the thickness of the piece.

Branch or Spike Knots - Should be held to approximately **1/3** the width of the piece and approx. **$1^{1}/_{4}$"** wide - **3** per 12'. Must be smooth and sound.

2.3.3 Para 113c. No. 3 COMMON (STANDARD)

Knots Broken in Dressing - Equivalent to holes.

Breaks on Edge - Equivalent to holes. If the breaks show lengthwise splitting, the aggregate of the splits shall not exceed $^{1}/_{16}$" wide and the width of piece in length.

Branch or Spike Knots - **1/2** width of piece approx. 4 in 12'.

2.3.4 Para 113d. No. 4 COMMON (UTILITY)

Honeycomb - Firm - 100%. Not Firm - equal to the unsound wood permitted.

Loose Knots and /or Holes - 3 of maximum size per 12'. Any number of equivalent smaller knots or holes provided their total size does not exceed the maximum amount of knot hole/loose knot permitted.

Unsound Knots - Restricted in size only. Must not exceed the size of loose knots permitted.

Shake - Scattered full length. The piece shall hold together in normal handling. Single shakes shall be held to 1/2 the length in otherwise high-line pieces.

Skips - In otherwise high-line pieces, skips may also include scantness up to $^{1}/_{8}$" in thickness for 2', maximum 2 occurrences per 12' of length.

Splits - Limited to 1/3 the length on face and 1/2 the length on back.

Unsound Wood - The maximum size of spots of unsound wood shall be held to the area of the fixed knot allowed and the total area of all spots shall not exceed 1/4 the face area.

Wane - On back - wane may go through the thickness, however, the through portion must not exceed the area of the hole allowed. May extend across the width if equal to the skip allowed and no longer in length than twice the width of the piece.

2.3.5 Para 113e. No. 5 COMMON (INDUSTRIAL)

Knots & Holes - Approximately 75% of cross section in size - providing that piece will not break under ordinary handling.

Unsound Wood - Approximately 75% of cross section - must have fastening surface sufficient to hold.

Shake - Full length - piece must be usable.

Wane - Through wane equivalent to holes allowed.

- Reverse side - $^1/_8$" deep full width.

White Speck & Honeycomb - Not restricted - must have fastening surface sufficient to hold.

Skip - $^1/_4$" in thickness and $^1/_2$" in width in otherwise #3 Common & Btr type pieces; and $^1/_8$" in thickness and $^1/_2$" in width in otherwise No. 4 or No. 5 Common type pieces.

Splits - Two or three - **1/2** the length - longer if fewer in number - as long as piece is usable.

A serious combination of the above irregularities is not permissible. Pieces must be usable full length.

2.4 Para 114 BOARDS

2.4.1 Para 114a. Select Merchantable Boards

Seasoning Checks - Any number of medium checks, none through.

Broken Tongue or Lap - 6"

Pitch Pockets - Not limited as to number. Should be well distributed and not open through.
Skips - 20% of any face - occasional pieces.
Mismatched Material - $^{1}/_{32}$" mismatch.
Star Checked Knots - May be accepted, if tight.
Pin Holes - Limited (30 per square foot).

2.4.2 Para 114b. Construction Boards

Pitch Pockets - Not limited as to number, but should be well distributed.
Skips - 20% of face and edges in occasional pieces
Mismatched Material - $^{1}/_{32}$" mismatch
Broken Tongue or Lap - 1'

2.4.3 Para 114c. Standard Boards

Shake - Individual through shakes may be accepted up to 1/4 the length of the piece but must not run into the edge in such a manner that the piece will break during normal handling. On the ends, shake is limited the same as splits.
Unsound Wood - On reverse face - equivalent to Utility & must not be through.
Mismatched Material - $^{1}/_{32}$" mismatch.
Medium Skips - Hold to two medium in 12' of length on face side.
Wane - Utility wane on reverse face, limited to 3/4 the thickness.
Broken Tongue or Lap - 2'

2.4.4 Para 114d. Utility Boards

Unsound Wood - Spots $1^{1}/_{2}$" wide by nominal width of piece - 1 per 2' or equivalent 1 streak 1/3 width x 10% of length.
Shake - Separated through shakes may be permitted full length of piece if adequately bonded for ordinary handling without coming apart.

Broken Tongue or Lap - 3'
Honeycomb - Must be firm. Pieces must hold nails.
Mismatched Material - $^{1}/_{16}$" mismatch.

2.5 Para 116, 117 & 118 BOARDS

2.5.1 Pitch - Red Pine

The term "Due to the inherent nature of the species, allowable pitch for red pine is much greater" is interpreted to mean:
- Natural pitch streaks surrounding knots are disregarded.

2.5.2 Para 117b. D Select

Reverse face of a D Select - Para. 118, 3 Common Type Back

2.6 Para 118 COMMONS

Knot descriptions are given in Para. 718. Because most Board lumber is produced from the inner portion of the log, the size of a knot may not be the determining factor in establishing a particular grade. Therefore, some pieces of a lower grade may have smaller knots than some pieces of a higher grade. It is generally the character or condition of the knot and not the size that determines the grade of the piece.

Except for limitation of the grade, spike knots are permitted in all grades of Board lumber less than 6/4 in thickness providing the knot or knots have not more effect than the other knots permitted.

2.7 Para 128 MACHINE GRADED LUMBER

2.7.1 Visual Quality Level (VQL) Requirements

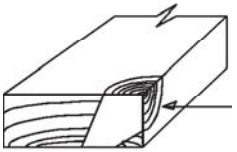
Knots partially or wholly at the edges of the wide faces, shall not occupy more of the net cross-section than those listed in NLGA Para. 128 for Machine Graded lumber and each knot at the edge of the wide faces is treated separately including knots in the same cross-section. Knots in the untested portion of lumber are described in Para. 128.

2.7.1.1 Edge Knot Conditions:

For a knot to be considered an Edge Knot, one of the following conditions shall be present:

a. When a wide face knot overlaps for **more than** 1/2 the thickness (**Figure 31**).

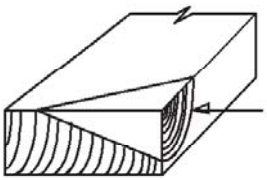
Figure 31



Knots overlapping **more than** 1/2 the narrow face are considered as **EDGE KNOTS.**

b. When a narrow face knot (spike knot) occupies **more than** 1/2 the narrow face (**Figure 32**).

Figure 32a.



Narrow face knots (spike knots) occupying **more than 1/2** the narrow face are considered **EDGE KNOTS.**

***Note**: Knots in Figures 31 and 32 cannot be re-located.*

Not an EDGE KNOT condition: Knot occupies less than 1/2 narrow face.

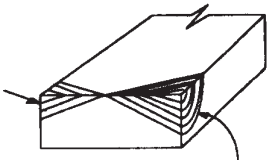


Figure 32b.

EDGE KNOT condition: Knot occupies **more** than **1/2** the narrow **face.**

c. When there is **less than** one-sixth (1/6) the size of the knot of clear, straight grained wood covering the knot. (**Figures 33 & 34**).

Example: *A $^{3}/_{4}$" knot requires the equivalent of $^{1}/_{8}$" of clear, straight grained wood covering the knot.*

(Calculation: $^{3}/_{4}$" x 1/6 = $^{3}/_{24}$" or $^{1}/_{8}$") A $1^{1}/_{2}$" knot would require at least $^{1}/_{4}$" good wood

(Calculation: $1^{1}/_{2}$" X 1/6 = 3/2 x 1/6 = $^{3}/_{12}$" or $^{1}/_{4}$").

Figure 33 **Figure 34**

Less than 1/6 clear wood

2.7.1.2 Non-Edge Knot Conditions

The following are **not** considered Edge Knots:

a. When there is at least **1/6** the size of the knot of clear, straight grained wood covering the knot (**Figures 35 and 36**).

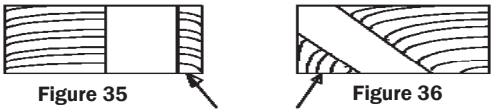


Figure 35 **Figure 36**

More than 1/6 clear wood

Note: *Relocation knots are **NOT** considered edge knots provided the 1/6 clear wood condition in present.*

b. When a narrow face knot (spike knot) occupies **less than** 1/2 the narrow face (**Figures 37, 38 and 39**).

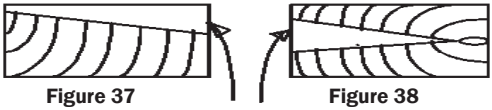
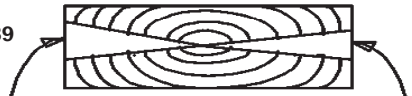


Figure 37 **Figure 38**

Narrow face (spike knots) occupying
less than 1/2 the narrow face.

Figure 39



Combination narrow face (spike knots) are measured individually and each is **less than** 1/2 the narrow face.

2.7.2 Sawcuts (Sawkerfs) in Machine Graded Lumber

This characteristic occurs in two ways as depicted in Part 1, NGR Interpretations - Figures 15 and 16.

Note: *Generally no sawcuts shall be permitted in MGL.*

2.7.3 Timber Breaks

Timber breaks are **not** permitted in MGL lumber.

2.8 Para 130 BEAMS AND STRINGERS

Checks - when checks on ends are deeper than that permitted for the grade, they shall be limited as splits.

Shake - breaking into a face becomes a No. 2 or lower grade depending on severity.
- "or equivalent" means "away from ends" through shakes up to 4' long, well separated".

Soft Honeycomb - limited as unsound wood

Splits - are measured by average penetration.

Unsound Wood - the size of a spot on unsound wood in a No. 2 be held to 1/6 the width square of the face under consideration or equivalent longer.

2.9 Para 131 POSTS & TIMBERS

Checks - when checks on ends are deeper than that permitted for the grade, they shall be limited as splits.

Shake - breaking into a face becomes a No. 2 or lower grade depending on severity.

Soft Honeycomb - limited as unsound wood.

Splits - are measured by average penetration.

Unsound Wood - the size of a spot on unsound wood in a No. 2 be held to 1/6 the width square of the face under consideration or equivalent longer.

2.9.1 Para 131d. Standard

Shake - **"or equivalent"** means "**away from ends**" through shakes up to 4' long, well separated.

Unsound Wood - individual spots shall not exceed an area 1/4 of the width square.

Knots - may exceed 1/2 width on face provided knot does not exceed 50% total displacement.

2.9.2 Para 131e. Utility

Shake - **not through:** a single shake may be full length
- **through:** several, the length of individual through shakes shall not exceed 1/2 the length of piece.

Unsound Wood - individual spots shall not exceed an area 1/2 of the width square.

Knots - may exceed 3/4 width on face provided knot does not exceed 75% total displacement.

PART 3

NLGA EUROPEAN UNION EXPORT VISUAL GRADES REQUIREMENTS ANNEX

(Approved September 22, 2006)

Introduction

For structural lumber graded to the NLGA Grading Rules, Paras. 120 to 124, to be in compliance with European Standards legislation, producers must, in addition to the NLGA Grading Rules and Interpretations, grade to the additional requirements of the European Standards referenced below.

EN 336 - Structural Timber - Coniferous and Poplar - Sizes Permissible Deviations

EN 338 - Structural Timber - Strength Classes

EN 1912 Structural Timber - Strength Classes - Assignment of Visual Grades and Species

EN 14081-1 - Timber structures – Strength Graded Structural Timber with Rectangular Cross-section - Part 1: General Requirements

All sections of the NLGA rules shall apply except for those specific clauses listed in this Annex that exceed the NLGA minimum requirements.

1.1 Size Tolerances

In EN 336, provisions are made for dimensional deviation within two tolerance classes. These tolerances are provided in Table 1.

TABLE 1 - Size Tolerances

Thickness & Widths	Tolerance Class 1	Tolerance Class 2
≤ 100 mm	(+3, -1) mm	(+1, -1) mm
>100 mm & ≤ 300 mm	(+4, -2) mm	(+1.5, -1.5) mm
> 300 mm	(+5, -3) mm	(+2.0, -2.0) mm

Note: *The Tolerance Class to which the lumber has been produced should be indicated on the contract documents. NLGA provisions shall apply to dressed lumber.*

1.2 Measurement

For the purpose of determination of cross-section deviations for lumber ordered to Tolerance Class 1 or 2, the reference moisture content is taken at 20% MC.

The term "**Target Size**" may appear on order contracts. The EN 336 - Clause 3.1 definition for "Target Size" is: "Size specified (at the reference moisture content), and to which the deviations, which would ideally be zero, are to be related."

1.3 Rate of Growth (All Species)

For No. 2 & higher grades - restricted to medium. (See Para. 350)
All Other Grades - average ring width shall not exceed 10 mm.

1.4 Biological Characteristics

No active insect infestation permitted.
Unsound wood (excluding white specks) - not permitted in No. 2 & higher grades.

1.5 Wane

The maximum wane permitted shall not reduce the edge and face dimensions to less than 2/3 of the basic dimensions of the piece.

1.6 Distortion (Warp)

The maximum limits for distortion are provided in Table 2.
- Maximum distortion measured over 2 m of length.

TABLE 2 - Distortion

Type	Max. permissible distortion for each strength class	
	C18 & below	**Above C18**
Bow	20 mm	10 mm
Spring (Crook)	12 mm	8 mm
Twist	2 mm per 25 mm width	1 mm per 25 mm width
Cup	As per NLGA Rules	

1.7 Fissures (Shake, Checks, Splits)

Same as NLGA Rules except in No.2 and Studs: Through shake shall not exceed 600 mm in any 1 m of length. See Table 3.

TABLE 3 - EU Fissures (Shake, Checks, Splits)

Strength class according to EN 338		C18 & below	Above C18
Maximum permitted length of fissures		Fissures less than half the thickness may be ignored	
	Fissures not going through the thickness	Not greater than 1.5 m or 1/2 the length of the piece, whichever is the lesser	Not greater than 1 m or 1/4 the length of the piece, whichever is the lesser
	Fissures going through the thickness	Not greater than 1m or 1/4 the length of the piece, whichever is the lesser. If at the ends, a length not greater than 2 times the width of the piece	Only permitted at the ends with a length not greater than the width of the piece

1.8 Grade Stamp Requirements

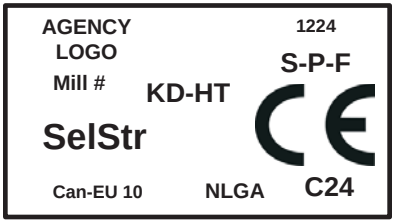
In order to distinguish NLGA structural lumber that complies with the additional EN 14081-1 requirements from NLGA structural lumber that complies to only CLS/ALS requirements, in addition to the grade stamp information required under Para. 39 of the NLGA Grade Rule, lumber graded in accordance with EN 14081-1 shall include:

- Identification number of the Notified Body (eg. TRADA);
- Producer Identification (eg. Agency Logo & Mill number);
- Strength class (eg. C24);
- Code Number to identify documentation (to be supplied by Agency);
- "DRY GRADED" or if applicable, "KD-HT"; [1]
- the stylized "CE" mark.

(See Appendix 1 for grade & strength class designations)

[1] ***Note:*** *"KD" is acceptable as appropriate and is cross-referenced to "Dry Graded" in the "Accompanying Commercial Document" (ACD)*

Below is an Example of a Typical EU Grade Stamp:



Note: *The "Can-EU 10" is a dual function code; as well as being the "ACD identifier", it also indicates "the year the facility" first started applying the CE Mark" (e.g. "Can-EU 09" for facilities starting to CE mark in 2009 and Can-EU 10" for facilities that start CE marking in 2010, etc.)*

1.9 Compliance Statement

The use of the provisions listed in this Annex in conjunction with applicable sections of the NLGA grade rule assure that:

"This standard (NLGA Standard Grading Rules) complies with EN 14081-1 - Timber structures – Strength graded structural timber with rectangular cross section – Part 1 - General requirements."

APPENDIX 1

CEN Strength Classes (Canadian Species) *(In accordance with EN 1912)*					
	Strength Class				
	C14	**C16**	**C18**	**C20**	**C24**
S-P-F	Const Stud	No. 1 No. 2 (GS)		1&Btr	Sel Str (SS)
D Fir-L	Const Stud	No. 1 No. 2 (GS)		1&Btr	Sel Str (SS)
Hem-Fir	Const Stud	No. 1 No. 2 (GS)		1&Btr	Sel Str (SS)
WR Cedar	No. 1 No. 2 (GS)		Sel Str (SS)		
Sitka Spruce	No. 1 No. 2 (GS)		Sel Str (SS)		

Note: SS and GS grades as per BS 4978 are included in this table for information only.

PART 2

NATIONAL LUMBER GRADES AUTHORITY (NLGA)
INTERPRETATIONS

1.0 GENERAL

Unless otherwise specified the following NLGA Interpretations shall apply to all portions of the NLGA Grade Rule other than the NGR portion.

The limitations on knot sizes and other characteristics governing strength shall not be exceeded.

1.1 BEVEL SAWING

The loss of wood shall not exceed the equivalent of either the wane or skip permitted. Limited to occasional pieces.

1.2 CHIP AND SAW CHANNELS (RABBETED EDGE)

In rough lumber, such channels, tracking or stepping marks must not exceed $^{1}/_{16}$" variation from the intended line of cut. Deeper channels shall not exceed the equivalent of either the wane or skip permitted, and shall be limited to occasional pieces. Channels which are equivalent to the full length wane provisions of a given grade shall be dropped to the next lower grade and limited to occasional pieces.

1.3 GRUB AND TEREDO HOLES

Grub and Teredo holes are evaluated on an equivalent smaller basis; Twelve $^{1}/_{4}$" grub or teredo holes shall be accepted as an equivalent to a 1" hole. Grub and Teredo holes shall be counted on the worst face, and there shall be no increase permitted in concentrated areas.

1.4 "HIT & MISS" SKIP

The "**Hits**" shall be plainly visible surfaced areas approximately 1/2 the width of the piece or more and 2" or more in length. "**Hits**" on the narrow face shall be completely across the narrow face and 2" or more in length. There shall be a minimum of one hit per 4 lineal feet and no piece shall have less than two "hits".

1.5 PIN HOLES

Handle on an equivalent basis - use judgement based on the general appearance of the piece.

a) Limited - Approximately 30 per square foot. - Concentrated area - 50% more if balance of piece better (25% more in Clears).

b) Scattered - Approximately 15 per square foot. - Concentrated area - as per a) above.

1.6 SKIPS ON FACE OF RESAWN BOARDS

Skips are permitted on the surfaced face of resawn boards as limited in the rules for the various grades, independent of the variation in thickness permitted in resawn boards.

1.7 SPLITS

Unless otherwise specified, the length of a split on a face shall be limited to the length as stated in the grade for the face under consideration.

2.0 SPECIFIC GRADE INTERPRETATIONS

2.1 PARA. 108 INDUSTRIAL CLEARS

2.1.1 Faces graded

For pieces 5" & narrower - the best face includes both edges.
For pieces 6" & wider - the best face includes one edge.
(*A grader may combine the face with the edge which yields the highest grade, i.e. best face and worst edge*).

2.1.2 Basic size

The description of characteristics permitted in the grades are based on a piece 8" wide by 12' long (96 surface units - 96 SU). Larger pieces may permit more characteristics and smaller pieces permit fewer characteristics.

Example

A piece 4" x 12' (48 surface units) would be one half (1/2) the basic size and thus would permit only one half (1/2) the listed characteristics.

2.1.3 Calculating Characteristics Permitted in Pieces Other Than Basic Size

To determine the number of characteristics permissible on the face of a piece that is other than basic size (96 surface units) use the following formula:

$$\frac{\text{Surface Units (SU) of Piece}}{\text{96 SU}} \times \text{Number of Characteristics Permitted in Basic Size} = \text{Number of Characteristics Permitted in Piece}$$

Example:

In "**D**" clear, four - 1" knots are permitted. In a piece of 2 x 6 - 12':

$$\frac{\text{72 SU (6 x 12)}}{\text{96 SU (8 x 12)}} \times \text{4 knots per basic size} = \text{3 - 1" knots permitted in a piece this size}$$

When the calculation gives an answer such as 2.5 then the grade permits characteristics whose combined total is equal to two (2) full size and 1 half size (.5) characteristic, 3 in total.

Where characteristics are permitted to be equivalent smaller, the number of characteristics may be increased provided their combined size does not exceed the combined size of the characteristics allowed and each individual characteristic is less than the maximum size permitted.

Example:

The face of a "**D**" Clear of basic size, 4 - 1" knots or 8 **equivalent smaller** knots are permitted.

For a piece 6" x 10' (60 SU):

$$\frac{\text{60 SU (6 x 10)}}{\text{96 SU (basic size)}} \times \text{8 - } 1/2\text{" knots as equivalent smaller} = \text{5 - } 1/2\text{" knots or 2.5 total inches}$$

Therefore, any combination of five knots totalling $2\frac{1}{2}$" or less may be permitted as long as no single knot exceeds the maximum knot size of 1". (ie. 1 - 1" & 2 - $\frac{3}{4}$" or 1 - $\frac{7}{8}$" & 2 - $\frac{3}{4}$" or 5 - $\frac{1}{2}$" , etc.

The grade limit for knots is eight (8) equivalent smaller per basic size, the knots may **not** be broken down further;

i.e. you could **not** take 10 - $\frac{1}{4}$" knots as equivalent.

2.1.4 Equivalent Characteristics

In "**C**" Clear and better, characteristics such as knots (in "C" Clear only), pin holes, pockets and streaks are restricted to one or the other, or an equal combination:

ie. - A "**C**" Clear may contain: 2 small knots; or 1 small knot & 2 small pockets; or 4 pin holes & 1/2 small streak; or an equivalent combination of characteristics. A "**D**" Clear permits all characteristics listed to occur in the same piece.

2.1.5 Knots

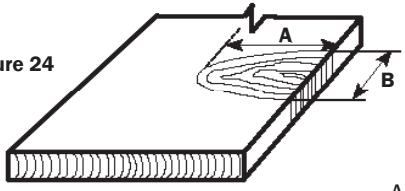
2.1.5.1 Round and Oval Knots: are measured by averaging the largest and smallest diameters on the face they occur.

2.1.5.2 Irregular Knots: are measured as the average dimension of the smallest rectangle which will enclose the knot.

2.1.5.3 Spike Knots: are measured by adding the length of the knot and the width of the knot at its widest point and taking the average. (**Figure 24**)

(ie. (5" + 1") ÷2 = 3" knot).

Figure 24



Spike knot size = $\frac{A + B}{2}$

Example of Knot allowances:

- Based on a **basic size** piece.
- On the face of a "**C**" Clear, 3 knots whose combined size does not exceed $1\frac{1}{2}$" are permitted, providing no knot is greater than $\frac{3}{4}$". These knots must be sound and tight.
- The face of a "**D**" Clear permits up to 8 knots whose combined size shall not exceed 4", of which none shall exceed 1". These knots may be unsound, but they must be fixed (Para. 718r).

- The back of "**D**" Clear permits characteristics larger **or** more numerous knots. Thus the back may contain up to 8 knots totalling 5" of combined knots provided no knot exceeds $1\frac{1}{4}$" **or** may permit up to 10 knots as more numerous totalling 5" of combined knots provided no knot exceeds 1".

2.1.6 Pockets

Pockets are restricted by their individual size and the combined length in inches. The total length of pockets permitted is based on the length of a $\frac{1}{8}$" wide pocket in each of the pocket size classifications.

If the grade permits 4 small pockets, this means **any** number of pockets whose combined length in inches is equal to that of 4 small (4 x 4" = 16") is permitted. No pocket shall exceed the maximum individual size specified for that classification of pocket.

A pocket may be $\frac{1}{16}$" x 6" and would be acceptable as a small pocket, but as in the above example the total lengthallowance shall not exceed 16".

Example 1: A 2 x 8 - 12' (Basic Size) "C" Clear permits 4 small pockets:

4 (No. of small pockets allowed) **X** **4** (per $\frac{1}{8}$" pocket) **=** **16"** (of pockets permitted)

The grade permits any number or combination of small pockets ($\frac{1}{4}$" x 2" or $\frac{1}{8}$" x 4" or $\frac{1}{16}$" x 6") whose combined length is less than 16".

Example 2: A 2 x 6 - 12' (3/4 of Basic Size) on the face of a "C" Clear permits:

3/4 (fraction of basic size) **X** **4** (No. of small pockets permitteded) **X** **4** (per $\frac{1}{8}$" pocket) **=** **12"** (of pockets permitted)

The grade permits: **Six** - $\frac{1}{4}$" x 2" pockets; or **two** - $\frac{1}{16}$" x 6"; or **twelve** - $\frac{1}{8}$" x 1"; or **one** - $\frac{1}{16}$" x 6" **+ one** - $\frac{1}{8}$" x 4" **+ one** - $\frac{1}{4}$" x 2"; etc.

Knot Measurement for Para. 108 Industrial Clears

Figure 25

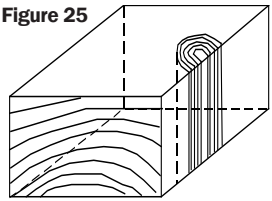


Figure 26

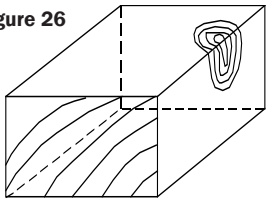


Figure 27

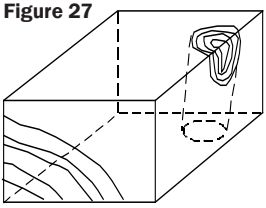
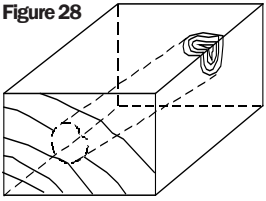
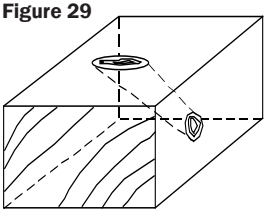


Figure 28



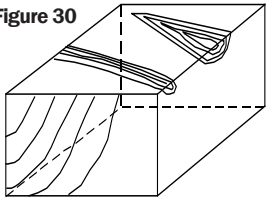
Single knots (Figures. 25, 26, 27 & 28) - measure as average size on the wide face. The width of the knot on the edge cannot exceed the allowable knot size. Disregard the edge size in "D" Clear.

Figure 29



Any amount of wood between the knots and they are counted as two knots. On the wide face measure average diameter. On the narrow face measure the width only.

Figure 30



Single knot - Measure as average of the length and widest width of the knot.

2.1.7 Skips

Skips, 1/2 width or less, they may be accepted twice as long.

2.1.8 Wane

Wane on the face and the edge of "**D**" Clear is evaluated separately. "**D**" Clear wane on the face may be equivalented for width and length (total area governing). Do not exceed the thickness allowance unless the wane will be accepted for the back.

50% more wane on the back of "**D**" Clear means a full 50% increase in allowable wane in face area or in depth or equivalent combination of smaller wane increases in both.

2.1.9 Machine Burn

Machine Burn is acceptable providing it is not deeper than the torn grain permitted in the grade and the discoloration does not exceed the following conditions:

- "B & Btr" - barely visible. Can be removed with a light sanding to be suitable for a natural finish.
- "C" Clear - colour is not controlled. Only slightly felt depth which is suitable for paint finishes.
- "D" Clear - colour is not controlled. Depth can be readily felt.

2.1.10 Cut-outs

If a 3" cut-out does not completely remove a characteristic, the remaining amount of the characteristic must be acceptable in the gradeof "D" Clear.

This clause can be applied to eliminate or reduce a single oversize characteristic or to reduce the total number of characteristics to that allowed.

2.2 Para 112 SELECTS

Any piece of lumber in the Select grades showing a serious combination of the listed characteristics which might impair its intended use is excluded from the grade.

Bow - The following amounts of bow are permitted in the various grades:

- 4/4 - Twice as much as crook permitted for 8" widths.
- 5/4 & 6/4 - $1^1/_2$ times as much as crook permitted for 8" widths.

- Measure laying flat and natural with bow up.

2.2.1 Knots in Para 112 SELECTS

It is recommended that the number and size of knots be reduced when in combination with other characteristics which detract from the overall appearance of the piece.

NLGA INTERPRETATIONS

The following charts give the approximate number of 1/4" knots that are permitted in each size and grade.

Up to 3/4" count 3, up to 1/2" count 2, up to 1/4" count 1.

B & Btr - Allows two 1/2" knots or as equivalent, four 1/4" knots, in the basic size. That is one 1/4" knot per 24 units.

B & Btr	No. of 1/4" Knots								Maximum Size Knot Permitted
Width	Length								
	6'	8'	10'	12'	14'	16'	18'	20'	
4"		1	1	2	2	2	3	3	3/8"
6"	1	2	2	3	3	4	4	5	1/2"
8"	2	2	3	4	4	5	6	6	1/2"
10"	2	3	4	5	5	6	7	8	1/2"
12"	3	4	5	6	7	8	9	10	5/8"

C Select - Allows two 3/4" knots or as equivalent, six 1/4" knots, in the basic size. That is one 1/4" knot per 16 units.

C Select	No. of 1/4" Knots								Maximum Size Knot Permitted
Width	Length								
	6'	8'	10'	12'	14'	16'	18'	20'	
4"	1	2	2	3	3	4	4	5	1/2"
6"	2	3	3	4	5	6	6	7	5/8"
8"	3	4	5	6	7	8	9	10	3/4"
10"	3	5	6	7	8	10	11	12	7/8"
12"	4	6	7	9	10	12	13	15	1"

D Select - Allows four 3/4" knots or as equivalent, twelve 1/4" knots in the basic size. That is one 1/4" knot per 8 units.

D Select	No. of 1/4" Knots								Maximum Size Knot Permitted
Width	Length								
	6'	8'	10'	12'	14'	16'	18'	20'	
4"	3	4	5	6	7	8	9	10	1/2"
6"	4	6	7	9	10	12	13	15	5/8"
8"	6	8	10	12	14	16	18	20	3/4"
10"	7	10	12	15	17	20	22	25	7/8"
12"	9	12	15	18	21	24	27	30	1"

Knots should be spread out over the entire width and length of the piece.

Maximum characteristics should not be in combination within the same piece - a clear appearance must be evident.

Basic Size = 1" x 8" x 12' 96 units.

2.2.2 Para 112b. B & BETTER (SUPREME)

Wane - If maximum - should be held to pieces that are otherwise high grade. May extend across the reverse face only for approximately 1/12 the width.

Knots - Must be sound and tight, and only in very high grade pieces and scattered over entire board. (See chart on previous page for breakdown).

2.2.3 Para 112c. C SELECT (CHOICE)

Pin Holes - 1 in lieu of each pitch or bark pocket permitted.

Knots - Must be sound and tight and well scattered throughout piece.

- One fixed pin knot is permitted in 8" & wider x 12' pieces in otherwise high grade pieces (see chart on previous page for number).

2.2.4 Para 112d. D SELECT (QUALITY)

Pin Holes - 2 in lieu of each pitch or bark pocket permitted.

- on reverse face: scattered in otherwise C Select & Btr type pieces.

Reverse Face - Common back.

2.3 Para 113 COMMONS

Any piece judged to contain a serious combination of characteristics, even though some of the characteristics may not be limiting by themselves, is excluded from the grade. Likewise, an otherwise high grade piece may be placed in a grade even though one or two of its characteristics may slightly exceed the limitation described in the rules.

2.3.1 Para 113a. No. 1 COMMON (COLONIAL)

Checked Knots - An occasional red knot showing a barely perceptible check.

Black Knots - Should be held to 4 for each 12' of length in otherwise high grade pieces.

Pin Holes - 6 scattered in a 1" x 8" x 12'

Roller Check - A light roller check on back, not to exceed **2'** or **1/8** the length whichever is less.

2.3.2 Para 113b. No. 2 COMMON (STERLING)

Wormholes - 1 small not through - occasional pieces.

Slough Knots - Up to 3 equivalent smaller not over **1/2** the thickness of the piece.

Branch or Spike Knots - Should be held to approximately **1/3** the width of the piece and approx. **$1^1/_4$"** wide - **3** per 12'. Must be smooth and sound.

2.3.3 Para 113c. No. 3 COMMON (STANDARD)

Knots Broken in Dressing - Equivalent to holes.

Breaks on Edge - Equivalent to holes. If the breaks show lengthwise splitting, the aggregate of the splits shall not exceed **$^1/_{16}$"** wide and the width of piece in length.

Branch or Spike Knots - **1/2** width of piece approx. 4 in 12'.

2.3.4 Para 113d. No. 4 COMMON (UTILITY)

Honeycomb - Firm - 100%. Not Firm - equal to the unsound wood permitted.

Loose Knots and /or Holes - 3 of maximum size per 12'. Any number of equivalent smaller knots or holes provided their total size does not exceed the maximum amount of knot hole/loose knot permitted.

Unsound Knots - Restricted in size only. Must not exceed the size of loose knots permitted.

Shake - Scattered full length. The piece shall hold together in normal handling. Single shakes shall be held to 1/2 the length in otherwise high-line pieces.

Skips - In otherwise high-line pieces, skips may also include scantness up to $^1/_8$" in thickness for 2', maximum 2 occurrences per 12' of length.

Splits - Limited to 1/3 the length on face and 1/2 the length on back.

Unsound Wood - The maximum size of spots of unsound wood shall be held to the area of the fixed knot allowed and the total area of all spots shall not exceed 1/4 the face area.

Wane - On back - wane may go through the thickness, however, the through portion must not exceed the area of the hole allowed. May extend across the width if equal to the skip allowed and no longer in length than twice the width of the piece.

2.3.5 Para 113e. No. 5 COMMON (INDUSTRIAL)

Knots & Holes - Approximately 75% of cross section in size - providing that piece will not break under ordinary handling.

Unsound Wood - Approximately 75% of cross section - must have fastening surface sufficient to hold.

Shake - Full length - piece must be usable.

Wane - Through wane equivalent to holes allowed.

- Reverse side - $^1/_8$" deep full width.

White Speck & Honeycomb - Not restricted - must have fastening surface sufficient to hold.

Skip - $^1/_4$" in thickness and $^1/_2$" in width in otherwise #3 Common & Btr type pieces; and $^1/_8$" in thickness and $^1/_2$" in width in otherwise No. 4 or No. 5 Common type pieces.

Splits - Two or three - **1/2** the length - longer if fewer in number - as long as piece is usable.

A serious combination of the above irregularities is not permissible. Pieces must be usable full length.

2.4 Para 114 BOARDS

2.4.1 Para 114a. Select Merchantable Boards

Seasoning Checks - Any number of medium checks, none through.

Broken Tongue or Lap - 6"

Pitch Pockets - Not limited as to number. Should be well distributed and not open through.
Skips - 20% of any face - occasional pieces.
Mismatched Material - $^{1}/_{32}$" mismatch.
Star Checked Knots - May be accepted, if tight.
Pin Holes - Limited (30 per square foot).

2.4.2 Para 114b. Construction Boards

Pitch Pockets - Not limited as to number, but should be well distributed.
Skips - 20% of face and edges in occasional pieces
Mismatched Material - $^{1}/_{32}$" mismatch
Broken Tongue or Lap - 1'

2.4.3 Para 114c. Standard Boards

Shake - Individual through shakes may be accepted up to 1/4 the length of the piece but must not run into the edge in such a manner that the piece will break during normal handling. On the ends, shake is limited the same as splits.
Unsound Wood - On reverse face - equivalent to Utility & must not be through.
Mismatched Material - $^{1}/_{32}$" mismatch.
Medium Skips - Hold to two medium in 12' of length on face side.
Wane - Utility wane on reverse face, limited to 3/4 the thickness.
Broken Tongue or Lap - 2'

2.4.4 Para 114d. Utility Boards

Unsound Wood - Spots $1^{1}/_{2}$" wide by nominal width of piece - 1 per 2' or equivalent 1 streak 1/3 width x 10% of length.
Shake - Separated through shakes may be permitted full length of piece if adequately bonded for ordinary handling without coming apart.

Broken Tongue or Lap - 3'
Honeycomb - Must be firm. Pieces must hold nails.
Mismatched Material - $^{1}/_{16}$" mismatch.

2.5 Para 116, 117 & 118 BOARDS

2.5.1 Pitch - Red Pine

The term "Due to the inherent nature of the species, allowable pitch for red pine is much greater" is interpreted to mean:
- Natural pitch streaks surrounding knots are disregarded.

2.5.2 Para 117b. D Select

Reverse face of a D Select - Para. 118, 3 Common Type Back

2.6 Para 118 COMMONS

Knot descriptions are given in Para. 718. Because most Board lumber is produced from the inner portion of the log, the size of a knot may not be the determining factor in establishing a particular grade. Therefore, some pieces of a lower grade may have smaller knots than some pieces of a higher grade. It is generally the character or condition of the knot and not the size that determines the grade of the piece.

Except for limitation of the grade, spike knots are permitted in all grades of Board lumber less than 6/4 in thickness providing the knot or knots have not more effect than the other knots permitted.

2.7 Para 128 MACHINE GRADED LUMBER

2.7.1 Visual Quality Level (VQL) Requirements

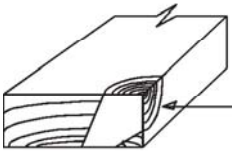
Knots partially or wholly at the edges of the wide faces, shall not occupy more of the net cross-section than those listed in NLGA Para. 128 for Machine Graded lumber and each knot at the edge of the wide faces is treated separately including knots in the same cross-section. Knots in the untested portion of lumber are described in Para. 128.

2.7.1.1 Edge Knot Conditions:

For a knot to be considered an Edge Knot, one of the following conditions shall be present:

a. When a wide face knot overlaps for **more than** 1/2 the thickness (**Figure 31**).

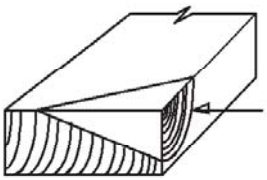
Figure 31



Knots overlapping **more than** 1/2 the narrow face are considered as **EDGE KNOTS.**

b. When a narrow face knot (spike knot) occupies **more than** 1/2 the narrow face (**Figure 32**).

Figure 32a.



Narrow face knots (spike knots) occupying **more than 1/2** the narrow face are considered **EDGE KNOTS.**

***Note**: Knots in Figures 31 and 32 cannot be re-located.*

Not an EDGE KNOT condition: Knot occupies less than 1/2 narrow face.

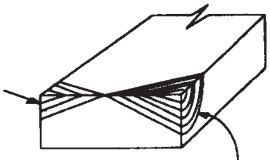


Figure 32b.

EDGE KNOT condition: Knot occupies **more** than **1/2** the narrow **face.**

c. When there is **less than** one-sixth (1/6) the size of the knot of clear, straight grained wood covering the knot. (**Figures 33 & 34**).

Example: *A $^{3}/_{4}$" knot requires the equivalent of $^{1}/_{8}$" of clear, straight grained wood covering the knot.*

(Calculation: $^{3}/_{4}$" x 1/6 = $^{3}/_{24}$" or $^{1}/_{8}$") A $1^{1}/_{2}$" knot would require at least $^{1}/_{4}$" good wood

(Calculation: $1^{1}/_{2}$" X 1/6 = 3/2 x 1/6 = $^{3}/_{12}$" or $^{1}/_{4}$").

Figure 33 **Figure 34**

Less than 1/6 clear wood

2.7.1.2 Non-Edge Knot Conditions

The following are **not** considered Edge Knots:

a. When there is at least **1/6** the size of the knot of clear, straight grained wood covering the knot (**Figures 35 and 36**).

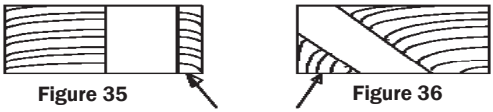


Figure 35 **Figure 36**

More than 1/6 clear wood

Note: *Relocation knots are **NOT** considered edge knots provided the 1/6 clear wood condition in present.*

b. When a narrow face knot (spike knot) occupies **less than** 1/2 the narrow face (**Figures 37, 38 and 39**).

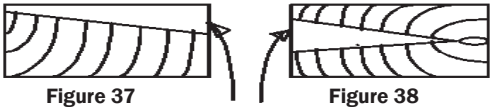
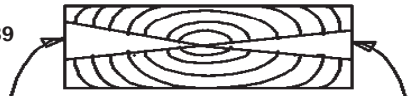


Figure 37 **Figure 38**

Narrow face (spike knots) occupying
less than 1/2 the narrow face.

Figure 39



Combination narrow face (spike knots) are measured individually and each is **less than** 1/2 the narrow face.

2.7.2 Sawcuts (Sawkerfs) in Machine Graded Lumber

This characteristic occurs in two ways as depicted in Part 1, NGR Interpretations - Figures 15 and 16.

Note: *Generally no sawcuts shall be permitted in MGL.*

2.7.3 Timber Breaks

Timber breaks are **not** permitted in MGL lumber.

2.8 Para 130 BEAMS AND STRINGERS

Checks - when checks on ends are deeper than that permitted for the grade, they shall be limited as splits.

Shake - breaking into a face becomes a No. 2 or lower grade depending on severity.
- "or equivalent" means "away from ends" through shakes up to 4' long, well separated".

Soft Honeycomb - limited as unsound wood

Splits - are measured by average penetration.

Unsound Wood - the size of a spot on unsound wood in a No. 2 be held to 1/6 the width square of the face under consideration or equivalent longer.

2.9 Para 131 POSTS & TIMBERS

Checks - when checks on ends are deeper than that permitted for the grade, they shall be limited as splits.

Shake - breaking into a face becomes a No. 2 or lower grade depending on severity.

Soft Honeycomb - limited as unsound wood.

Splits - are measured by average penetration.

Unsound Wood - the size of a spot on unsound wood in a No. 2 be held to 1/6 the width square of the face under consideration or equivalent longer.

2.9.1 Para 131d. Standard

Shake - **"or equivalent"** means "**away from ends**" through shakes up to 4' long, well separated.

Unsound Wood - individual spots shall not exceed an area 1/4 of the width square.

Knots - may exceed 1/2 width on face provided knot does not exceed 50% total displacement.

2.9.2 Para 131e. Utility

Shake - **not through:** a single shake may be full length
- **through:** several, the length of individual through shakes shall not exceed 1/2 the length of piece.

Unsound Wood - individual spots shall not exceed an area 1/2 of the width square.

Knots - may exceed 3/4 width on face provided knot does not exceed 75% total displacement.

PART 3

NLGA EUROPEAN UNION EXPORT VISUAL GRADES REQUIREMENTS ANNEX

(Approved September 22, 2006)

Introduction

For structural lumber graded to the NLGA Grading Rules, Paras. 120 to 124, to be in compliance with European Standards legislation, producers must, in addition to the NLGA Grading Rules and Interpretations, grade to the additional requirements of the European Standards referenced below.

EN 336 - Structural Timber - Coniferous and Poplar - Sizes Permissible Deviations

EN 338 - Structural Timber - Strength Classes

EN 1912 Structural Timber - Strength Classes - Assignment of Visual Grades and Species

EN 14081-1 - Timber structures – Strength Graded Structural Timber with Rectangular Cross-section - Part 1: General Requirements

All sections of the NLGA rules shall apply except for those specific clauses listed in this Annex that exceed the NLGA minimum requirements.

1.1 Size Tolerances

In EN 336, provisions are made for dimensional deviation within two tolerance classes. These tolerances are provided in Table 1.

TABLE 1 - Size Tolerances

Thickness & Widths	Tolerance Class 1	Tolerance Class 2
≤ 100 mm	(+3, -1) mm	(+1, -1) mm
>100 mm & ≤ 300 mm	(+4, -2) mm	(+1.5, -1.5) mm
> 300 mm	(+5, -3) mm	(+2.0, -2.0) mm

Note: *The Tolerance Class to which the lumber has been produced should be indicated on the contract documents. NLGA provisions shall apply to dressed lumber.*

1.2 Measurement

For the purpose of determination of cross-section deviations for lumber ordered to Tolerance Class 1 or 2, the reference moisture content is taken at 20% MC.

The term "**Target Size**" may appear on order contracts. The EN 336 - Clause 3.1 definition for "Target Size" is: "Size specified (at the reference moisture content), and to which the deviations, which would ideally be zero, are to be related."

1.3 Rate of Growth (All Species)

For No. 2 & higher grades - restricted to medium. (See Para. 350)
All Other Grades - average ring width shall not exceed 10 mm.

1.4 Biological Characteristics

No active insect infestation permitted.
Unsound wood (excluding white specks) - not permitted in No. 2 & higher grades.

1.5 Wane

The maximum wane permitted shall not reduce the edge and face dimensions to less than 2/3 of the basic dimensions of the piece.

1.6 Distortion (Warp)

The maximum limits for distortion are provided in Table 2.
- Maximum distortion measured over 2 m of length.

TABLE 2 - Distortion

Type	Max. permissible distortion for each strength class	
	C18 & below	**Above C18**
Bow	20 mm	10 mm
Spring (Crook)	12 mm	8 mm
Twist	2 mm per 25 mm width	1 mm per 25 mm width
Cup	As per NLGA Rules	

1.7 Fissures (Shake, Checks, Splits)

Same as NLGA Rules except in No.2 and Studs: Through shake shall not exceed 600 mm in any 1 m of length. See Table 3.

TABLE 3 - EU Fissures (Shake, Checks, Splits)

Strength class according to EN 338		C18 & below	Above C18
Maximum permitted length of fissures		Fissures less than half the thickness may be ignored	
	Fissures not going through the thickness	Not greater than 1.5 m or 1/2 the length of the piece, whichever is the lesser	Not greater than 1 m or 1/4 the length of the piece, whichever is the lesser
	Fissures going through the thickness	Not greater than 1m or 1/4 the length of the piece, whichever is the lesser. If at the ends, a length not greater than 2 times the width of the piece	Only permitted at the ends with a length not greater than the width of the piece

1.8 Grade Stamp Requirements

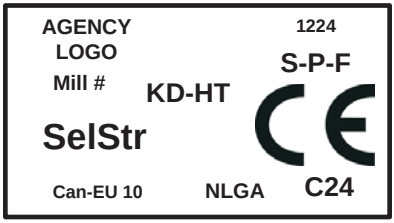
In order to distinguish NLGA structural lumber that complies with the additional EN 14081-1 requirements from NLGA structural lumber that complies to only CLS/ALS requirements, in addition to the grade stamp information required under Para. 39 of the NLGA Grade Rule, lumber graded in accordance with EN 14081-1 shall include:

- Identification number of the Notified Body (eg. TRADA);
- Producer Identification (eg. Agency Logo & Mill number);
- Strength class (eg. C24);
- Code Number to identify documentation (to be supplied by Agency);
- "DRY GRADED" or if applicable, "KD-HT"; [1]
- the stylized "CE" mark.

(See Appendix 1 for grade & strength class designations)

[1] ***Note:*** *"KD" is acceptable as appropriate and is cross-referenced to "Dry Graded" in the "Accompanying Commercial Document" (ACD)*

Below is an Example of a Typical EU Grade Stamp:



Note: *The "Can-EU 10" is a dual function code; as well as being the "ACD identifier", it also indicates "the year the facility" first started applying the CE Mark" (e.g. "Can-EU 09" for facilities starting to CE mark in 2009 and Can-EU 10" for facilities that start CE marking in 2010, etc.)*

1.9 Compliance Statement

The use of the provisions listed in this Annex in conjunction with applicable sections of the NLGA grade rule assure that:

"This standard (NLGA Standard Grading Rules) complies with EN 14081-1 - Timber structures – Strength graded structural timber with rectangular cross section – Part 1 - General requirements."

APPENDIX 1

CEN Strength Classes (Canadian Species) *(In accordance with EN 1912)*					
	Strength Class				
	C14	**C16**	**C18**	**C20**	**C24**
S-P-F	Const Stud	No. 1 No. 2 (GS)		1&Btr	Sel Str (SS)
D Fir-L	Const Stud	No. 1 No. 2 (GS)		1&Btr	Sel Str (SS)
Hem-Fir	Const Stud	No. 1 No. 2 (GS)		1&Btr	Sel Str (SS)
WR Cedar	No. 1 No. 2 (GS)		Sel Str (SS)		
Sitka Spruce	No. 1 No. 2 (GS)		Sel Str (SS)		

Note: SS and GS grades as per BS 4978 are included in this table for information only.

PREFACE

NATIONAL LUMBER GRADES AUTHORITY STANDARD GRADING RULES FOR CANADIAN LUMBER

(NLGA)
INTERPRETATIONS

The limiting provisions of the NLGA Rules are quite specific in delineating the characteristics permitted. Because lumber is manufactured from trees which have developed naturally and responsively to their environment and every piece is different it is not possible to anticipate in a grade description all of the possible combinations or types of characteristics which a grader will encounter. The following interpretations were developed to provide additional information to the grader/inspector in the application of the rules.

The NLGA Interpretations incorporate the National Grading Rule (NGR) for Softwood Dimension Lumber Interpretations in their entirety. For other than the NGR portions of the NLGA Rules, NLGA has prepared Interpretations for those portions.

PART 1: National Grading Rule (NGR) for Softwood Dimension Lumber Interpretations. Approved November 4, 2004 by the National Grading Rule Committee.

PART 2: National Lumber Grades Authority (NLGA) Interpretations for portions other than the NGR. Approved September 22, 2006 by the National Lumber Grades Authority.

PART 3: European Union Export Visual Grade Requirements Annex

Supersedes all editions, revisions and supplements previous to January 1, 2013

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