

## BEAMS AND STRINGERS ALL WEST COAST SPECIES

Rough or Surfaced  
5" and Thicker, Rectangular  
width more than 2" greater than thickness

5

130. There are five grades of Beams and Stringers: "SELECT STRUCTURAL," "NO. 1 STRUCTURAL," "STANDARD," "NO. 2 STRUCTURAL" and "UTILITY." Three of these grades, "SELECT STRUCTURAL," "NO. 1 STRUCTURAL" and "NO. 2 STRUCTURAL" are stress grades with working stress values assigned. In Douglas fir only, both "SELECT STRUCTURAL" and "NO. 1 STRUCTURAL" may be obtained with an additional specification for density. For design values, see table 10, Para. 200, and Para. 200-g.

Pieces 5"x5" and larger, with the width not more than 2" greater than the thickness, may be graded under this paragraph provided all faces are graded as narrow faces. Pieces so graded will have a fiber stress similar to that of the following grades. If grade stamped, they will be stamped with stamps showing only the appropriate fiber stress in bending "f."

In addition to the following specific provisions applicable to Beams and Stringers, the appropriate provisions in all other paragraphs in the rules apply. For measurement of knots see Para. 201-c.

130-aa. "DENSE SELECT STRUCTURAL" — BEAMS and STRINGERS (Douglas fir only).

Conforms to all the grade provisions of Para. 130-a with the additional requirement of density as defined in Para. 204-c.

130-a. "SELECT STRUCTURAL" — BEAMS and STRINGERS.

Timbers of this grade have very high strength properties and are of finest appearance. They are recommended for use in bridges, docks, warehouses and heavy construction of all kinds where superior strength is required. They are also recommended for exposed framing where fine appear-

## BEAMS AND STRINGERS ALL WEST COAST SPECIES

---

ance is demanded. Because of their size they are highly fire resistive. These timbers are graded primarily for members stressed in bending but may also be used as tension and compression members. Appropriate working stresses for all these uses are assigned to the grade.

Characteristics and limiting provisions are:

Stained sapwood.

Firm heart stain — 10% of width or equivalent.

Splits approximately 1/2 the width or equivalent of end checks.

Seasoning checks in areas at ends, single or opposite each other, are limited to a sum total of 1/4 the thickness.

Limited pin holes.

Heavy torn grain.

Pitch streaks.

Medium grain (Douglas fir only).

Slope of grain in middle 1/3 of length not to exceed 1 in 15, balance of piece may be 1 in 12.

Occasional skips, 1/16"x2' or equivalent.

Medium pitch pockets.

Wane 1/8 of any face or equivalent slightly more for a short distance.

Shake approximately 1/6 the thickness on end.

Knots, sound, tight and well spaced, may be present in the following approximate sizes:

Nominal Face Width	On Narrow Face and Edge of Wide Face In Middle 1/3 of Length	At Ends and Along Centerline of Wide Face
5"	1-1/4"	
6"	1-1/2"	
8"	1-7/8"	2"
10"	2"	2-5/8"
12"	2-1/4"	3-1/8"
14"	2-3/8"	3-3/8"
16"		3-5/8"
18"		3-5/8"

## BEAMS AND STRINGERS ALL WEST COAST SPECIES

---

Increase in knot sizes:

The size of knots permitted on the narrow face and at edge of wide face are the same and are determined by the width of the narrow face. These may be increased proportionately from the size permitted in the middle 1/3 of the length to twice that size at the ends of the piece, except that the size of no knot shall exceed the size permitted at the center of the wide face.

On the wide faces, the sizes of knots are proportionate from the sizes at edges of the face to the permissible size along the centerline of the wide face.

130-bb. "DENSE NO. 1 STRUCTURAL" – BEAMS and STRINGERS (Douglas fir only).

5

Conforms to all the grade provisions of Para. 130-b with the additional requirement of density as defined in Para. 204-c.

130-b. "No. 1 STRUCTURAL" – BEAMS and STRINGERS.

Timbers of this grade are in great demand because of their excellent strength and appearance.

In these respects they rank only slightly below the "SELECT STRUCTURAL" grade and are recommended for similar uses wherever appearance is a less exacting factor but high strength is a requirement. Like the "SELECT STRUCTURAL" grade, these timbers are graded primarily for members stressed in bending, but may also be used as tension and compression members. Appropriate working stresses for all these uses are assigned to the grade.

Characteristics and limiting provisions are:

Stained sapwood.

Firm stained heartwood.

Splits approximately equal to the width or equivalent end checks.

**BEAMS AND STRINGERS  
ALL WEST COAST SPECIES**

---

Seasoning checks in areas at ends, single or opposite each other, are limited to a sum total of 1/4 the thickness.

Pin holes limited.

Heavy torn grain.

Medium grain (Douglas fir only).

Slope of grain in middle 1/3 of length not to exceed 1 in 10, balance of piece may be 1 in 8.

Pitch streaks.

Occasional skips 1/8" deep and 2' long are permitted.

Pitch pockets.

Wane 1/4 any face or equivalent slightly more for short distance.

Shake approximately 1/6 the thickness on end.

Knots, sound, tight and well spaced, may be present in the following approximate sizes:

**5**

Nominal Face Width	On Narrow Face and Edge of Wide Face In Middle 1/3 of Length	At Ends and Along Centerline of Wide Face
5"	1-7/8"	
6"	2-1/4"	
8"	2-5/8"	3"
10"	2-7/8"	3-3/4"
12"	3-1/4"	4-1/2"
14"	3-1/2"	5"
16"		5-1/4"
18"		5-5/8"

In cedar species, holes from any cause 1/2 the size of allowable knots are permitted.

Increase in knot sizes:

The sizes of knots permitted on the narrow face and at edge of wideface are the same and are determined by the width of the narrow face.

These may be increased proportionately from the size permitted in the middle 1/3 of the length to twice that

## BEAMS AND STRINGERS ALL WEST COAST SPECIES

---

size at the ends of the piece, except that the size of no knot shall exceed the size permitted at the center of the wide face.

On wide faces, the sizes of knots are proportionate from the sizes at edges of the face to the permissible size along the centerline of the wide face.

130-c. "STANDARD" — BEAMS and STRINGERS.  
Graded under Para. 131-c.

130-cc. "NO. 2 STRUCTURAL" — BEAMS and STRINGERS.

Timbers of this grade are for use in general construction where higher strength properties are not needed and where serviceability is important. Appropriate working stresses are assigned.

5

Characteristics and limiting provisions are:

Stained wood.

Splits, medium or equivalent end checks.

Seasoning checks.

Torn grain.

Pitch streaks.

Slope of grain 1 in 6 full length.

Skips, 1/8" deep and 2' in length or 1/16" scant full length.

Pitch or bark pockets.

Wane 1/3 of any face or equivalent, slightly more for a short distance.

Firm white specks, 1/3 width or equivalent.

Shake, 1/2 length, 1/2 thickness. If through at ends, limited as splits.

Small spots of unsound wood, well scattered, 1/6 the face width.

This section is part of Standard Grading Rules for West Coast Lumber No. 17 (2004 edition) published by West Coast Lumber Inspection Bureau ([www.wclib.org](http://www.wclib.org)). Other sections and provisions of the grade rules may be applicable to the information and specifications provided here. Please refer to the table of contents for additional cross reference information.

**BEAMS AND STRINGERS  
ALL WEST COAST SPECIES**

---

Knots, sound, not firmly fixed or holes, well spaced, may be present in the following approximate sizes:

Nominal Face Width	On Narrow Face and Edge of Wide Face in Middle 1/3 of Length	At Ends and Along Centerline of Wide Face
5"	2-5/8"	
6"	3-1/4"	
8"	4-1/2"	4-1/2"
10"	5-5/8"	5-5/8"
12"	6-7/8"	6-7/8"
14"	8-1/8"	7-1/2"
16"		8-1/8"
18"		8-5/8"

5

Unsound knots are limited to 1/2 the size of other knots.

Increase in knot sizes:

The size of knots permitted on the narrow face and edge of wide face are the same and are determined by the width of the narrow face. These may be increased proportionately from the size permitted in the middle 1/3 of the length to twice that size at the ends of the piece, except that the size of no knot shall exceed the size permitted at the center of the wide face.

On wide faces, the sizes of knots are proportionate from the sizes at the edges of the face to the permissible size along the centerline of the wide face.

130-d. "UTILITY" — BEAMS and STRINGERS.  
Graded under Para. 131-d.

## POSTS AND TIMBERS ALL WEST COAST SPECIES

Rough or Surfaced  
5"x5" and Larger

Width not more than 2" greater than thickness

131. There are five grades of Posts and Timbers: "SELECT STRUCTURAL," "NO. 1 STRUCTURAL," "STANDARD," "NO. 2 STRUCTURAL" and "UTILITY." Three of these grades, "SELECT STRUCTURAL," "NO. 1 STRUCTURAL" and "NO. 2 STRUCTURAL" are stress graded with working stress values assigned. In Douglas fir, both "SELECT STRUCTURAL" and "NO. 1 STRUCTURAL" may be obtained with an additional specification for density. For design values, see table 11, Para. 200.

In addition to the following specific provisions applicable to Posts and Timbers, the appropriate provisions in all other paragraphs of the rules apply. For measurement of knots, see Para. 201-d.

5

131-aa. "DENSE SELECT STRUCTURAL" — POSTS and TIMBERS (Douglas fir only).

Conforms to all the grade provisions of Para. 131-a with the additional requirement of density as defined in Para. 204-c.

131-a. "SELECT STRUCTURAL" — POSTS and TIMBERS.

Timbers of this grade have very high strength properties and are of finest appearance. They are recommended for columns, posts and struts in heavy construction such as warehouses, docks, and other large structures where superior strength is required. They are also recommended for exposed framing where fine appearance is demanded. Because of their size they are highly fire resistive. These timbers are graded primarily for compression parallel to the grain but may also be used for members stressed in tension or bending. Appropriate working stresses for these uses are assigned to the grade.

**POSTS AND TIMBERS  
ALL WEST COAST SPECIES**

---

Characteristics and limiting provisions are:

Stained sapwood.

Firm heart stain — 10% of width or equivalent.

Splits equal to 3/4 the thickness or equivalent end checks.

Seasoning checks in areas at ends, single or opposite each other, are limited to a sum total of 1/2 the thickness.

Limited pin holes.

Heavy torn grain.

Medium grain (Douglas fir only).

Slope of grain full length not to exceed 1 in 12.

Pitch streaks.

Medium pitch pocket

Occasional skips 1/16" deep and 2' long or equivalent.

Wane approximately 1/8 of any face or equivalent slightly more for short distance.

Shake approximately 1/3 the thickness on end.

Knots are sound, tight and well spaced. They may be present anywhere in the piece in the following approximate sizes:

Nominal Width	Approx. knot size	Nominal Width	Approx. knot size
5"	1"	12"	2-3/8"
6"	1-1/4"	14"	2-1/2"
8"	1-5/8"	16"	2-3/4"
10"	2"	18"	3"

In rectangular sizes the wider face determines the size of knots. Proportionately larger knots are permitted in sizes 20" and wider or thicker.

Assigned stress values do not apply to pieces 20" and larger or 50' and longer.

131-bb. "DENSE NO. 1 STRUCTURAL" — POSTS and TIMBERS (Douglas fir only).

Conforms to all the grade provisions of Para. 131-b with the additional requirement of density as defined in Para. 204-c.



**POSTS AND TIMBERS  
ALL WEST COAST SPECIES**

---

131-b. “NO. 1 STRUCTURAL”—POSTS and TIMBERS.

Timbers of this grade are in great demand because of their excellent strength and appearance. In these respects they rank only slightly below the “SELECT STRUCTURAL” grade and are recommended for similar uses wherever appearance is a less exacting factor but high strength is a requirement. Like the “SELECT STRUCTURAL” grade, these timbers are graded primarily for compression parallel to the grain but may also be used for members stressed in tension or bending. Appropriate working stresses for these uses are assigned to the grade.

Characteristics and limiting provisions are:

- Stained sapwood.
- Firm stained heartwood.
- Short splits or equivalent end checks.
- Seasoning checks in areas at ends, single or opposite each other, are limited to a sum of 1/2 the thickness.
- Pin holes — limited.
- Heavy torn grain.
- Medium grain (Douglas fir only).
- Slope of grain full length not to exceed 1 in 10.
- Occasional skips 1/8" deep and 2' long or equivalent are permitted.
- Pitch streaks.
- Pitch pockets.
- Wane approximately 1/4 of any face or equivalent slightly more for short distance.
- Shake approximately 1/3 the thickness on end.
- Knots are sound, tight and well spaced. They may be present anywhere in the piece in the following approximate sizes:

Nominal Width	Approx. Knot Size	Nominal Width	Approx. Knot Size
5"	1-1/2"	12"	3-3/4"
6"	1-7/8"	14"	4"
8"	2-1/2"	16"	4-1/4"
10"	3-1/8"	18"	4-1/2"

## POSTS AND TIMBERS ALL WEST COAST SPECIES

---

\* In rectangular sizes 8" x 10" nominal and smaller, the wide face determines the size of knots. Larger sizes, knot size is determined for each face width.

In cedar species, holes from any cause 1/2 the size of allowable sound and tight knots are permitted.

Proportionately larger knots are permitted in sizes 20" and wider or thicker.

Assigned stress values do not apply to pieces 20" and larger or 50' and longer.

5

131-c. "STANDARD" — POSTS and TIMBERS (NO. 1 MINING).

Timbers of this grade are recommended for general construction. Where they occur, the natural characteristics of lumber are so limited that each piece of this grade may be used in the form in which it is shipped.

Pieces of this grade may have:

Stained wood.

Medium splits or equivalent end checks.

Seasoning checks.

Torn grain.

Pitch streaks.

Skips 1/8" deep and 2' in length or 1/16" scant full length.

Pitch or bark pockets.

Wane 1/3 of any face or equivalent slightly more for short distance.

Firm white specks, 1/3 width or equivalent.

Shake, 1/2 length, 1/2 thickness. If through at ends, limited as splits.

Small spots of unsound wood, well scattered, 1/4 the face width.

Knots, unsound, not firmly fixed, or holes not larger than approximately 1/2 the width of the face.

All or nearly all of the permissible characteristics of the grade are never present in maximum size or number in any

## POSTS AND TIMBERS ALL WEST COAST SPECIES

---

one piece. Any piece with an unusual combination of characteristics which seriously affects normal serviceability is excluded from the grade.

131-cc. "NO. 2 STRUCTURAL" - POSTS and TIMBERS.

Timbers of this grade are for use in general construction where higher strength properties are not needed and where serviceability is important. Appropriate working stresses are assigned.

Characteristics and limiting provisions are:

- Stained wood.
- Splits, medium or equivalent end checks.
- Seasoning checks.
- Torn grain.
- Pitch streaks.
- Slope of grain 1 in 6 full length.
- Skips, 1/8" deep and 2' in length or 1/16" scant full length.
- Pitch or bark pockets.
- Wane 1/3 of any face or equivalent, slightly more for a short distance.
- Firm white specks, 1/3 width or equivalent.
- Shake, 1/2 length, 1/2 thickness. If through at ends, limited as splits.
- Small spots of unsound wood, well scattered, 1/6 the face width.
- Knots sound, not firmly fixed or holes, well spaced.  
They may be present anywhere in the piece in the following approximate sizes:

Nominal Width	Approx. Knot Size	Nominal Width	Approx. Knot Size
5"	2-1/2"	12"	6"
6"	3"	14"	6-1/2"
8"	3-3/4"	16"	7"
10"	5"	18"	7-1/2"

## POSTS AND TIMBERS ALL WEST COAST SPECIES

---

Unsound knots are limited to 1/2 the size of other knots. In rectangular sizes the wider face determines the size of knots.

### 131-d. "UTILITY" — POSTS and TIMBERS (NO. 2 MINING)

Timbers of this grade are recommended for rough general construction. Where they occur, the natural characteristics of lumber are so limited that each piece of this grade may be used in the form in which it is shipped.

5

Pieces of this grade may have:

- Stained wood.
- Splits approximately 1/4 the length.
- Seasoning checks.
- Torn grain.
- Pitch streaks.
- Approximately 1/8" scant in both width and thickness if surfaced, or approximately 1/2" if rough.
- Pitch or bark pockets.
- Wane approximately 1/3 of any face.
- White specks and firm honeycomb.
- Shake full length if not continuous.
- Unsound wood, scattered.
- Knots, large, unsound or not firmly fixed, or holes from any cause, not larger than approximately 3/4 the width of the face.

All or nearly all of the permissible characteristics of the grade are never present in maximum size or number in any one piece. Any piece with an unusual combination of characteristics which seriously affects normal serviceability is excluded from the grade.