



West Coast Lumber Inspection Bureau

"Builds Stronger, Easier"

SIMPLIFIED SPAN TABLES

FOR LIGHT FRAME CONSTRUCTION

REVISED JANUARY 1, 2001

WEST COAST LUMBER INSPECTION BUREAU

is a not for profit service organization which exists for the benefit of both consumers and producers of lumber. A primary objective of the WCLIB is the development and maintenance of uniform lumber standards. WCLIB publishes standard grading specifications and allowable properties for several domestic and imported softwood lumber species in Standard Grading Rules No. 17. The published grade rules and applicable allowable properties have been approved by the American Lumber Standard Committee Board of Review as complying with the American Softwood Lumber Standard (DOC PS20-99) promulgated by the U.S. Department of Commerce.

Mills which manufacture lumber to the grading standards of WCLIB and which utilize WCLIB grade inspection and quality control services are permitted to mark their lumber with grade stamps which include the official trademarked logo of the West Coast Lumber Inspection Bureau. Dimension lumber so grade marked will also contain the following information in the grade stamp: 1) the mill name or identification number, 2) the grade name, 3) the species or species group designation, and 4) the moisture content classification at the time of surfacing.

Typical examples of WCLIB grade stamp markings are shown, accompanied by a brief description of use.



Applied to Stud grade lumber manufactured from a mixture of Western Woods and surfaced unseasoned (moisture content exceeded 19% at the time of surfacing) to standard sizes.



Applied to Select Structural grade lumber in board sizes manufactured from a mixture of Western Hemlock and true firs, and which was dried to a maximum of 19% moisture content when surfaced to standard sizes. The abbreviation "SRB" (stress

rated boards) indicates that the boards have been graded under the Dimension grade rules.



Applied to No. 1 grade Douglas fir lumber dried to 19% maximum moisture content and surfaced to the standard dry size.



Applied to Construction grade lumber manufactured from Spruce-Pine-Fir South species group which was dried in a kiln to a maximum of 19% moisture content at the time of surfacing to the standard surfaced dry size.

The **simplified span tables** which appear in this booklet have been prepared by the WCLIB to facilitate the use and specification of selected domestic and imported softwood species in common Joist, Rafter, and Decking installations for light frame construction. The species covered are those listed in Standard Grading Rules No. 17, and include the following **domestic and imported species**:

Domestic species:

Douglas fir, Hem-Fir, Spruce-Pine-Fir South, Western Woods, and Western Cedars.

Imported species:

Austrian spruce from Austria and Czech Republic
Norway spruce from Finland
Norway spruce from Lithuania
Norway spruce from Germany*

* (Does not include Saarland nor Baden Wurttemberg)

Scots Pine from Austria and Czech Republic
Scots Pine from Finland
Scots Pine from Lithuania and/or Estonia
Scots Pine from Germany*

* (Does not include Saarland nor Baden Wurttemberg)

Douglas fir/European Larch from Austria, the Czech Republic, and Bavaria**

** (Allowable properties approved for 2x4 size only)

Combination Domestic and Imported species:

Douglas fir/Douglas fir North
Hem-Fir/Hem-Fir North
Spruce-Pine-Fir/Spruce-Pine-Fir South

Notes: Tables for determining allowable spans for joists, rafters, and decking are presented in tabular form as feet and inches. For other spacings and loading criteria, please refer to the AF&PA span tables listed in the references. For more information on decking spans, refer to AITC publication 112-93 which is also listed in the references.

REFERENCES

STANDARD GRADING RULES NO. 17

Contains the official rules for grading West Coast Lumber. Available from the West Coast Lumber Inspection Bureau, PO Box 23145, Portland, Oregon 97281-3145. Phone: 503-639-0651 / Fax: 503-684-8928 / email: info@wclib.org

SPAN TABLES for Joists and Rafters (1993 ed.)

Available from the American Forest & Paper Association, 1111 19th Avenue NW, Suite 800, Washington, D.C. 20036. Ph: 202-463-2766 / Fax: 202-463-2791 / email: awcinfo@afandpa.org

NATIONAL DESIGN SPECIFICATION

Available from the American Forest & Paper Association, 1111 19th Avenue NW, Suite 800, Washington, D.C. 20036. Ph: 202-463-2766 / Fax: 202-463-2791 / email: awcinfo@afandpa.org

Standard for Tongue and Groove Heavy Timber Decking (AITC 112-93)

Available from the American Institute for Timber Construction, 7012 S. Revere Parkway, Suite 140, Englewood, Colorado 80112. Ph: 303-792-9559 / Fax: 303-792-0669 / email: info@aitc-glulam.org



THE QUALITY STAMP

JOIST SPANS

SPANS ARE JOISTS OVER A SINGLE SPAN AND ARE FOR USE IN COVERED STRUCTURES.
 SPANS APPLY TO LUMBER SURFACED "GREEN" OR SURFACED "DRY" WHICH CONFORMS TO
 PS20-99 SIZES. APPLICABLE DESIGN CRITERIA ARE SHOWN IN THE HEADING FOR EACH TABLE

JOIST		Douglas Fir					HEM-FIR					Spruce-Pine-Fir South				Western Woods				Western Cedars			
Size (in.)	Spac. (in.)	Sel. Str.	No. 1 & Btr.	No. 1	No. 2	No. 3	Sel. Str.	No. 1 & Btr.	No. 1	No. 2	No. 3	Sel. Str.	No. 1	No. 2	No. 3	Sel. Str.	No. 1	No. 2	No. 3	Sel. Str.	No. 1	No. 2	No. 3

FLOOR JOISTS - 10 PSF Dead Load/40 PSF Live Load

2x6	12	11 - 4	11 - 2	10 - 11	10 - 9	8 - 11	10 - 9	10 - 6	10 - 6	10 - 0	8 - 8	10 - 0	9 - 9	9 - 6	8 - 3	9 - 9	9 - 2	7 - 6	9 - 6	9 - 2	9 - 2	7 - 9	
	16	10 - 4	10 - 2	9 - 11	9 - 9	7 - 9	9 - 9	9 - 6	9 - 6	9 - 1	7 - 6	9 - 1	8 - 10	8 - 7	7 - 2	8 - 10	8 - 7	8 - 4	6 - 6	8 - 7	8 - 4	8 - 4	6 - 9
	24	9 - 0	8 - 10	8 - 8	8 - 3	6 - 4	8 - 6	8 - 4	8 - 4	7 - 11	6 - 2	7 - 11	7 - 9	7 - 6	5 - 10	7 - 9	7 - 2	7 - 2	5 - 4	7 - 6	7 - 3	7 - 3	5 - 6
2x8	12	15 - 0	14 - 8	14 - 5	14 - 2	11 - 3	14 - 2	13 - 10	13 - 10	13 - 2	11 - 0	13 - 2	12 - 10	12 - 6	10 - 5	12 - 10	12 - 6	12 - 1	9 - 6	12 - 6	12 - 1	12 - 1	9 - 10
	16	13 - 7	13 - 4	13 - 1	12 - 9	9 - 9	12 - 10	12 - 7	12 - 7	12 - 0	9 - 6	12 - 0	11 - 8	11 - 4	9 - 0	11 - 8	11 - 1	11 - 0	8 - 3	11 - 4	11 - 0	11 - 0	8 - 6
	24	11 - 11	11 - 8	11 - 0	10 - 5	8 - 0	11 - 3	11 - 0	10 - 10	10 - 2	7 - 9	10 - 6	10 - 2	9 - 8	7 - 5	10 - 2	9 - 0	9 - 0	6 - 9	9 - 11	9 - 4	9 - 2	6 - 11
2x10	12	19 - 1	18 - 9	18 - 5	18 - 0	13 - 10	18 - 0	17 - 8	17 - 8	16 - 10	13 - 5	16 - 10	16 - 5	15 - 11	12 - 9	16 - 5	15 - 8	15 - 5	11 - 8	-	-	-	-
	16	17 - 4	17 - 0	16 - 5	15 - 7	11 - 11	16 - 5	16 - 0	16 - 0	15 - 2	11 - 8	15 - 3	14 - 11	14 - 6	11 - 0	14 - 11	13 - 6	13 - 6	10 - 1	-	-	-	-
	24	15 - 2	14 - 9	13 - 5	12 - 9	9 - 9	14 - 4	14 - 0	13 - 3	12 - 5	9 - 6	13 - 4	12 - 7	11 - 10	9 - 0	12 - 9	11 - 1	11 - 1	8 - 3	-	-	-	-
2x12	12	23 - 3	22 - 10	22 - 0	20 - 11	16 - 0	21 - 11	21 - 6	21 - 6	20 - 4	15 - 7	20 - 6	19 - 11	19 - 4	14 - 9	19 - 11	18 - 1	18 - 1	13 - 6	-	-	-	-
	16	21 - 1	20 - 9	19 - 1	18 - 1	13 - 10	19 - 11	19 - 6	18 - 10	17 - 7	13 - 6	18 - 7	17 - 10	16 - 10	12 - 10	18 - 1	15 - 8	15 - 8	11 - 8	-	-	-	-
	24	18 - 5	17 - 1	15 - 7	14 - 9	11 - 3	17 - 5	16 - 4	15 - 5	14 - 4	11 - 0	16 - 3	14 - 7	13 - 9	10 - 5	14 - 9	12 - 10	12 - 10	9 - 6	-	-	-	-

CEILING JOISTS - 10 PSF Dead Load/20 PSF Live Load/Drywall Ceiling/Limited Attic Storage

2x4	16	8 - 3	8 - 1	8 - 0	7 - 10	6 - 10	7 - 10	7 - 8	7 - 8	7 - 3	6 - 8	7 - 3	7 - 1	6 - 11	6 - 4	7 - 1	6 - 11	6 - 8	5 - 9	6 - 11	6 - 8	6 - 8	5 - 11
	24	7 - 3	7 - 1	7 - 0	6 - 10	5 - 7	6 - 10	6 - 8	6 - 8	6 - 4	5 - 5	6 - 4	6 - 2	6 - 0	5 - 2	6 - 2	6 - 0	5 - 10	4 - 8	6 - 0	5 - 10	5 - 10	4 - 10
2x6	16	13 - 0	12 - 9	12 - 6	12 - 3	10 - 0	12 - 3	12 - 0	12 - 0	11 - 5	9 - 8	11 - 5	11 - 2	10 - 10	9 - 3	11 - 2	10 - 10	10 - 6	8 - 5	10 - 10	10 - 6	10 - 6	8 - 8
	24	11 - 4	11 - 2	10 - 11	10 - 8	8 - 2	10 - 9	10 - 6	10 - 6	10 - 0	7 - 11	10 - 0	9 - 9	9 - 6	7 - 6	9 - 9	9 - 3	9 - 2	6 - 11	9 - 6	9 - 2	9 - 2	7 - 1
2x8	16	17 - 2	16 - 10	16 - 6	16 - 2	12 - 7	16 - 2	15 - 10	15 - 10	15 - 1	12 - 4	15 - 1	14 - 8	14 - 3	11 - 8	14 - 8	14 - 3	13 - 10	10 - 8	14 - 3	13 - 10	13 - 10	11 - 0
	24	15 - 0	14 - 8	14 - 2	13 - 6	10 - 3	14 - 2	13 - 10	13 - 10	13 - 1	10 - 0	13 - 2	12 - 10	12 - 6	9 - 6	12 - 10	11 - 8	11 - 8	8 - 8	12 - 6	12 - 1	11 - 11	9 - 0
2x10	16	21 - 10	21 - 6	21 - 1	20 - 2	15 - 5	20 - 8	20 - 2	20 - 2	19 - 3	15 - 0	19 - 3	18 - 9	18 - 3	14 - 3	18 - 9	17 - 6	17 - 6	13 - 1	-	-	-	-
	24	19 - 1	18 - 9	17 - 4	16 - 5	12 - 7	18 - 0	17 - 8	17 - 2	16 - 0	12 - 3	16 - 10	16 - 3	15 - 3	11 - 8	16 - 5	14 - 3	14 - 3	10 - 8	-	-	-	-
2x12	16	26 - 7	26 - 1	24 - 8	23 - 4	17 - 10	25 - 1	24 - 7	24 - 4	22 - 8	17 - 5	23 - 5	22 - 10	21 - 8	16 - 6	22 - 10	20 - 3	20 - 3	15 - 1	-	-	-	-
	24	23 - 3	22 - 0	20 - 1	19 - 1	14 - 7	21 - 11	21 - 1	19 - 10	18 - 6	14 - 3	20 - 6	18 - 10	17 - 8	13 - 6	19 - 1	16 - 6	16 - 6	12 - 4	-	-	-	-

CEILING JOISTS - 5 PSF Dead Load/10 PSF Live Load/Drywall Ceiling/No Attic Storage

2x4	16	10 - 5	10 - 3	10 - 0	9 - 10	9 - 5	9 - 10	9 - 8	9 - 8	9 - 2	8 - 11	9 - 2	8 - 11	8 - 8	8 - 5	8 - 11	8 - 8	8 - 5	8 - 1	8 - 8	8 - 5	8 - 5	8 - 1
	24	9 - 1	8 - 11	8 - 9	8 - 7	7 - 10	8 - 7	8 - 5	8 - 5	8 - 0	7 - 8	8 - 0	7 - 10	7 - 7	7 - 3	7 - 10	7 - 7	7 - 4	6 - 8	7 - 7	7 - 4	7 - 4	6 - 10
2x6	16	16 - 4	16 - 1	15 - 9	15 - 6	14 - 1	15 - 6	15 - 2	15 - 2	14 - 5	13 - 9	14 - 5	14 - 1	13 - 8	13 - 0	14 - 1	13 - 8	13 - 3	11 - 11	13 - 8	13 - 3	13 - 3	12 - 3
	24	14 - 4	14 - 1	13 - 9	13 - 6	11 - 6	13 - 6	13 - 3	13 - 3	12 - 7	11 - 2	12 - 7	12 - 3	11 - 11	10 - 8	12 - 3	11 - 11	11 - 7	9 - 9	11 - 11	11 - 7	11 - 7	10 - 0
2x8	16	21 - 7	21 - 2	20 - 10	20 - 5	17 - 10	20 - 5	19 - 11	19 - 11	19 - 0	17 - 5	19 - 0	18 - 6	18 - 0	16 - 6	18 - 6	18 - 0	17 - 5	15 - 1	18 - 0	17 - 5	17 - 5	15 - 7
	24	18 - 10	18 - 6	18 - 2	17 - 10	14 - 7	17 - 10	17 - 5	17 - 5	16 - 7	14 - 2	16 - 7	16 - 2	15 - 9	13 - 6	16 - 2	15 - 9	15 - 3	12 - 4	15 - 9	15 - 3	15 - 3	12 - 8
2x10	16	27 - 6	27 - 1	26 - 6	26 - 0	21 - 10	26 - 0	25 - 5	25 - 5	24 - 3	21 - 3	24 - 3	23 - 8	22 - 11	20 - 2	23 - 8	22 - 11	22 - 3	18 - 5	-	-	-	-
	24	24 - 1	23 - 8	23 - 2	22 - 9	17 - 10	22 - 9	22 - 3	22 - 3	21 - 2	17 - 4	21 - 2	20 - 8	20 - 1	16 - 5	20 - 8	20 - 1	19 - 5	15 - 1	-	-	-	-
2x12	16	33 - 6	32 - 11	32 - 3	31 - 8	25 - 3	31 - 8	30 - 11	30 - 11	29 - 6	24 - 8	29 - 6	28 - 9	27 - 11	23 - 4	28 - 9	27 - 11	27 - 1	21 - 4	-	-	-	-
	24	29 - 3	28 - 9	28 - 2	27 - 0	20 - 7	27 - 8	27 - 1	27 - 1	25 - 9	20 - 1	25 - 9	25 - 1	24 - 5	19 - 1	25 - 1	23 - 4	23 - 4	17 - 5	-	-	-	-

SPANS ARE CALCULATED USING REPETITIVE MEMBER VALUES.

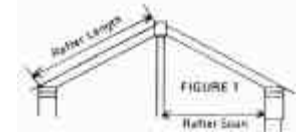
SPANS ARE SHOWN IN FEET - INCHES.



Rafter Spans - Domestic Species

RAFTER SPANS

SPANS ARE FOR RAFTERS USED IN COVERED STRUCTURES. SPANS APPLY TO LUMBER SURFACED "GREEN" OR OR SURFACED "DRY" WHICH CONFORMS TO PS20-99 SIZES. APPLICABLE DESIGN CRITERIA ARE SHOWN IN THE HEADING FOR EACH TABLE. RAFTER SPANS ARE MEASURED ALONG THE HORIZONTAL PROJECTION (SEE FIGURE 1).



JOIST		Douglas Fir					HEM-FIR					Spruce-Pine-Fir South				Western Woods			Western Cedars				
Size (in.)	Spac. (in.)	Sel. Str.	No. 1 & Btr.	No. 1	No. 2	No. 3	Sel. Str.	No. 1 & Btr.	No. 1	No. 2	No. 3	Sel. Str.	No. 1	No. 2	No. 3	Sel. Str.	No. 1	No. 2	No. 3	Sel. Str.	No. 1	No. 2	No. 3

RAFTER SPANS -- 15 PSF Dead Load/20 PSF Live Load/Drywall Ceiling/All Slopes

2x6	16	14 - 11	14 - 7	13 - 8	12 - 11	9 - 11	14 - 1	13 - 9	13 - 6	12 - 7	9 - 8	13 - 1	12 - 9	12 - 0	9 - 2	12 - 9	11 - 3	11 - 3	8 - 4	12 - 5	11 - 7	11 - 5	8 - 7
	24	13 - 0	12 - 2	11 - 2	10 - 7	8 - 1	12 - 3	11 - 8	11 - 0	10 - 3	7 - 10	11 - 5	10 - 5	9 - 10	7 - 6	10 - 7	9 - 2	9 - 2	6 - 10	10 - 10	9 - 6	9 - 4	7 - 0
2x8	16	19 - 7	18 - 11	17 - 3	16 - 4	12 - 6	18 - 6	18 - 1	17 - 1	15 - 11	12 - 2	17 - 3	16 - 2	15 - 2	11 - 7	16 - 4	14 - 2	14 - 2	10 - 7	16 - 4	14 - 8	14 - 5	10 - 11
	24	17 - 2	15 - 5	14 - 1	13 - 4	10 - 3	16 - 2	14 - 9	13 - 11	13 - 0	10 - 0	15 - 1	13 - 2	12 - 5	9 - 5	13 - 4	11 - 7	11 - 7	8 - 8	14 - 1	12 - 0	11 - 9	8 - 11
2x10	16	25 - 0	23 - 1	21 - 1	20 - 0	15 - 4	23 - 8	22 - 1	20 - 10	19 - 5	14 - 11	22 - 1	19 - 9	18 - 7	14 - 2	20 - 0	17 - 4	17 - 4	12 - 11	-	-	-	-
	24	21 - 1	18 - 10	17 - 3	16 - 4	12 - 6	20 - 4	18 - 1	17 - 0	15 - 10	12 - 2	19 - 3	16 - 1	15 - 2	11 - 7	16 - 4	14 - 2	14 - 2	10 - 7	-	-	-	-
2x12	16	29 - 11	26 - 9	24 - 5	23 - 2	17 - 9	28 - 9	25 - 8	24 - 2	22 - 6	17 - 3	26 - 10	22 - 10	21 - 6	16 - 5	23 - 2	20 - 1	20 - 1	15 - 0	-	-	-	-
	24	24 - 5	21 - 10	20 - 0	18 - 11	14 - 6	23 - 7	20 - 11	19 - 9	18 - 5	14 - 1	22 - 9	18 - 8	17 - 7	13 - 5	18 - 11	16 - 5	16 - 5	12 - 3	-	-	-	-

RAFTER SPANS -- 15 PSF Dead Load/30 PSF Live Load/Drywall Ceiling/All Slopes

2x6	16	13 - 0	12 - 9	12 - 0	11 - 5	8 - 9	12 - 3	12 - 0	11 - 11	11 - 1	8 - 6	11 - 5	11 - 2	10 - 7	8 - 1	11 - 2	9 - 11	9 - 11	7 - 5	10 - 10	10 - 3	10 - 1	7 - 7
	24	11 - 4	10 - 9	9 - 10	9 - 4	7 - 1	10 - 9	10 - 4	9 - 8	9 - 1	6 - 11	10 - 0	9 - 2	8 - 8	6 - 7	9 - 4	8 - 1	8 - 1	6 - 0	9 - 6	8 - 4	8 - 3	6 - 2
2x8	16	17 - 2	16 - 8	15 - 3	14 - 5	11 - 0	16 - 2	15 - 10	15 - 0	14 - 0	10 - 9	15 - 1	14 - 3	13 - 5	10 - 3	14 - 5	12 - 6	12 - 6	9 - 4	14 - 3	13 - 0	12 - 9	9 - 8
	24	15 - 0	13 - 7	12 - 5	11 - 9	9 - 0	14 - 2	13 - 0	12 - 3	11 - 6	8 - 9	13 - 2	11 - 8	10 - 11	8 - 4	11 - 9	10 - 3	10 - 3	7 - 7	12 - 5	10 - 7	10 - 5	7 - 10
2x10	16	21 - 10	20 - 4	18 - 7	17 - 8	13 - 6	20 - 8	19 - 6	18 - 5	17 - 2	13 - 2	19 - 3	17 - 5	16 - 5	12 - 6	17 - 8	15 - 4	15 - 4	11 - 5	-	-	-	-
	24	18 - 7	16 - 8	15 - 2	14 - 5	11 - 0	18 - 0	15 - 11	15 - 0	14 - 0	10 - 9	16 - 10	14 - 3	13 - 5	10 - 2	14 - 5	12 - 6	12 - 6	9 - 4	-	-	-	-
2x12	16	26 - 5	23 - 7	21 - 7	20 - 5	15 - 7	25 - 1	22 - 7	21 - 3	19 - 11	15 - 3	23 - 5	20 - 2	19 - 0	14 - 6	20 - 5	17 - 9	17 - 9	13 - 2	-	-	-	-
	24	21 - 7	19 - 3	17 - 7	16 - 8	12 - 9	20 - 10	18 - 6	17 - 5	16 - 3	12 - 5	20 - 1	16 - 6	15 - 6	11 - 10	16 - 8	14 - 6	14 - 6	10 - 9	-	-	-	-

RAFTER SPANS -- 15 PSF Dead Load/40 PSF Live Load/Drywall Ceiling/All Slopes

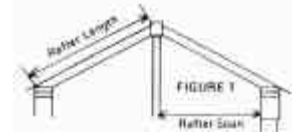
2x6	16	11 - 10	11 - 7	10 - 10	10 - 4	7 - 11	11 - 2	10 - 11	10 - 9	10 - 0	7 - 8	10 - 5	10 - 2	9 - 7	7 - 4	10 - 2	8 - 11	8 - 11	6 - 8	9 - 10	9 - 3	9 - 1	6 - 4
	24	10 - 4	9 - 9	8 - 11	8 - 5	6 - 5	9 - 9	9 - 4	8 - 9	8 - 2	6 - 3	9 - 1	8 - 4	7 - 10	5 - 11	8 - 5	7 - 4	7 - 4	5 - 5	8 - 7	7 - 7	7 - 5	5 - 7
2x8	16	15 - 7	15 - 1	13 - 9	13 - 1	10 - 0	14 - 8	14 - 5	13 - 7	12 - 8	9 - 9	13 - 9	12 - 11	12 - 1	9 - 3	13 - 1	11 - 4	11 - 4	8 - 5	13 - 0	11 - 9	11 - 6	8 - 8
	24	13 - 7	12 - 4	11 - 3	10 - 8	8 - 2	12 - 10	11 - 9	11 - 1	10 - 4	7 - 11	12 - 0	10 - 6	9 - 11	7 - 6	10 - 8	9 - 3	9 - 3	6 - 11	11 - 3	9 - 7	9 - 5	7 - 1
2x10	16	19 - 10	18 - 5	16 - 10	15 - 11	12 - 3	18 - 9	17 - 8	16 - 8	15 - 6	11 - 11	17 - 6	15 - 9	14 - 10	11 - 3	15 - 11	13 - 10	13 - 10	10 - 4	-	-	-	-
	24	16 - 10	15 - 1	13 - 9	13 - 0	10 - 0	16 - 3	14 - 5	13 - 7	12 - 8	9 - 9	15 - 3	12 - 10	12 - 1	9 - 3	13 - 0	11 - 4	11 - 4	8 - 5	-	-	-	-
2x12	16	23 - 11	21 - 4	19 - 6	18 - 6	14 - 2	22 - 10	20 - 5	19 - 3	18 - 0	13 - 9	21 - 3	18 - 3	17 - 2	13 - 1	18 - 6	16 - 0	16 - 0	11 - 11	-	-	-	-
	24	19 - 6	17 - 5	15 - 11	15 - 1	11 - 6	18 - 10	16 - 8	15 - 9	14 - 8	11 - 3	18 - 2	14 - 11	14 - 0	10 - 8	15 - 1	13 - 1	13 - 1	9 - 9	-	-	-	-

SPANS ARE CALCULATED USING REPETITIVE MEMBER VALUES INCREASED BY 15% FOR TWO MONTH DURATION OF LOADING AS FOR SNOW. SPANS ARE SHOWN IN FEET - INCHES.



RAFTER SPANS

SPANS ARE FOR RAFTERS USED IN COVERED STRUCTURES. SPANS APPLY TO LUMBER SURFACED "GREEN" OR OR SURFACED "DRY" WHICH CONFORMS TO PS20-99 SIZES. APPLICABLE DESIGN CRITERIA ARE SHOWN IN THE HEADING FOR EACH TABLE. RAFTER SPANS ARE MEASURED ALONG THE HORIZONTAL PROJECTION (SEE FIGURE 1).



JOIST		Douglas Fir					HEM-FIR					Spruce-Pine-Fir South				Western Woods			Western Cedars				
Size (in.)	Spac. (in.)	Sel. Str.	No. 1 & Btr.	No. 1	No. 2	No. 3	Sel. Str.	No. 1 & Btr.	No. 1	No. 2	No. 3	Sel. Str.	No. 1	No. 2	No. 3	Sel. Str.	No. 1	No. 2	No. 3	Sel. Str.	No. 1	No. 2	No. 3

RAFTER SPANS -- 10 PSF Dead Load/20 PSF Live Load/No Finish Ceiling/3:12 or Less Slope

2x6	16	14 - 11	14 - 7	14 - 4	14 - 0	10 - 8	14 - 1	13 - 9	13 - 9	13 - 1	10 - 5	13 - 1	12 - 9	12 - 5	9 - 10	12 - 9	12 - 1	12 - 0	9 - 0	12 - 5	12 - 0	12 - 0	9 - 4
	24	13 - 0	12 - 9	12 - 0	11 - 5	8 - 9	12 - 3	12 - 0	11 - 11	11 - 1	8 - 6	11 - 5	11 - 2	10 - 7	8 - 1	11 - 2	9 - 11	9 - 11	7 - 5	10 - 10	10 - 3	10 - 1	7 - 7
2x8	16	19 - 7	19 - 3	18 - 8	17 - 8	13 - 6	18 - 6	18 - 2	18 - 2	17 - 2	13 - 2	17 - 3	16 - 10	16 - 4	12 - 6	16 - 10	15 - 4	15 - 4	11 - 5	16 - 4	15 - 10	15 - 7	11 - 9
	24	17 - 2	16 - 8	15 - 3	14 - 5	11 - 0	16 - 2	15 - 10	15 - 0	14 - 0	10 - 9	15 - 1	14 - 3	13 - 5	10 - 3	14 - 5	12 - 6	12 - 6	9 - 4	14 - 3	13 - 0	12 - 9	9 - 8
2x10	16	25 - 0	24 - 7	22 - 9	21 - 7	16 - 6	23 - 8	23 - 2	22 - 6	21 - 0	16 - 1	22 - 1	21 - 4	20 - 1	15 - 3	21 - 6	18 - 9	18 - 9	14 - 0	-	-	-	-
	24	21 - 10	20 - 4	18 - 7	17 - 8	13 - 6	20 - 8	19 - 6	18 - 5	17 - 2	13 - 2	19 - 3	17 - 5	16 - 5	12 - 6	17 - 8	15 - 4	15 - 4	11 - 5	-	-	-	-
2x12	16	30 - 5	28 - 11	26 - 5	25 - 1	19 - 2	28 - 9	27 - 8	26 - 1	24 - 4	18 - 8	26 - 10	24 - 8	23 - 3	17 - 9	25 - 1	21 - 8	21 - 8	16 - 2	-	-	-	-
	24	26 - 5	23 - 7	21 - 7	20 - 5	15 - 7	25 - 1	22 - 7	21 - 3	19 - 11	15 - 3	23 - 5	20 - 2	19 - 0	14 - 6	20 - 5	17 - 9	17 - 9	13 - 2	-	-	-	-

RAFTER SPANS -- 10 PSF Dead Load/30 PSF Live Load/No Finish Ceiling/3:12 or Less Slope

2x6	16	13 - 0	12 - 9	12 - 6	12 - 1	9 - 3	12 - 3	12 - 0	12 - 0	11 - 5	9 - 0	11 - 5	11 - 2	10 - 10	8 - 7	11 - 2	10 - 6	10 - 6	7 - 10	10 - 10	10 - 6	10 - 6	8 - 1
	24	11 - 4	11 - 2	10 - 5	9 - 10	7 - 7	10 - 9	10 - 6	10 - 3	9 - 7	7 - 4	10 - 0	9 - 9	9 - 2	7 - 0	9 - 9	8 - 7	8 - 7	6 - 5	9 - 6	8 - 10	8 - 9	6 - 7
2x8	16	17 - 2	16 - 10	16 - 2	15 - 4	11 - 8	16 - 2	15 - 10	15 - 10	14 - 11	11 - 5	15 - 1	14 - 8	14 - 3	10 - 10	14 - 8	13 - 3	13 - 3	9 - 11	14 - 3	13 - 9	13 - 6	10 - 3
	24	15 - 0	14 - 5	13 - 2	12 - 6	9 - 7	14 - 2	13 - 10	13 - 0	12 - 2	9 - 4	13 - 2	12 - 4	11 - 7	8 - 10	12 - 6	10 - 10	10 - 10	8 - 1	12 - 6	11 - 3	11 - 0	8 - 4
2x10	16	21 - 10	21 - 6	19 - 9	18 - 9	14 - 4	20 - 8	20 - 2	19 - 6	18 - 2	13 - 11	19 - 3	18 - 6	17 - 5	13 - 3	18 - 9	16 - 3	16 - 3	12 - 1	-	-	-	-
	24	19 - 1	17 - 8	16 - 1	15 - 3	11 - 8	18 - 0	16 - 11	15 - 11	14 - 10	11 - 5	16 - 10	15 - 1	14 - 2	10 - 10	15 - 3	13 - 3	13 - 3	9 - 11	-	-	-	-
2x12	16	26 - 7	25 - 1	22 - 10	21 - 8	16 - 7	25 - 1	24 - 0	22 - 7	21 - 1	16 - 2	23 - 5	21 - 5	20 - 2	15 - 4	21 - 8	18 - 9	18 - 9	14 - 0	-	-	-	-
	24	22 - 10	20 - 5	18 - 8	17 - 9	13 - 6	21 - 11	19 - 7	18 - 5	17 - 3	13 - 2	20 - 6	17 - 6	16 - 5	12 - 6	17 - 9	15 - 4	15 - 4	11 - 5	-	-	-	-

RAFTER SPANS -- 10 PSF Dead Load/40 PSF Live Load/No Finish Ceiling/3:12 or Less Slope

2x6	16	11 - 10	11 - 7	11 - 5	10 - 10	8 - 3	11 - 2	10 - 11	10 - 11	10 - 5	8 - 1	10 - 5	10 - 2	9 - 10	7 - 8	10 - 2	9 - 5	9 - 5	7 - 0	9 - 10	9 - 6	9 - 6	7 - 3
	24	10 - 4	10 - 2	9 - 4	8 - 10	6 - 9	9 - 9	9 - 6	9 - 2	8 - 7	6 - 7	9 - 1	8 - 9	8 - 2	6 - 3	8 - 10	7 - 8	7 - 8	5 - 9	8 - 7	7 - 11	7 - 9	5 - 11
2x8	16	15 - 7	15 - 3	14 - 5	13 - 8	10 - 6	14 - 8	14 - 5	14 - 3	13 - 4	10 - 3	13 - 9	13 - 4	12 - 9	9 - 8	13 - 4	11 - 10	11 - 10	8 - 10	13 - 0	12 - 4	12 - 1	9 - 2
	24	13 - 7	12 - 11	11 - 9	11 - 2	8 - 7	12 - 10	12 - 4	11 - 8	10 - 10	8 - 4	12 - 0	11 - 0	10 - 5	7 - 11	11 - 2	9 - 8	9 - 8	7 - 3	11 - 4	10 - 0	9 - 10	7 - 5
2x10	16	19 - 10	19 - 4	17 - 8	16 - 9	12 - 10	18 - 9	18 - 4	17 - 5	16 - 3	12 - 6	17 - 6	16 - 6	15 - 7	11 - 10	16 - 9	14 - 6	14 - 6	10 - 10	-	-	-	-
	24	17 - 4	15 - 9	14 - 5	13 - 8	10 - 6	16 - 5	15 - 1	14 - 3	13 - 3	10 - 2	15 - 3	13 - 6	12 - 8	9 - 8	13 - 8	11 - 10	11 - 10	8 - 10	-	-	-	-
2x12	16	24 - 2	22 - 5	20 - 5	19 - 5	14 - 10	22 - 10	21 - 5	20 - 2	18 - 10	14 - 6	21 - 3	19 - 2	18 - 0	13 - 9	19 - 5	16 - 10	16 - 10	12 - 6	-	-	-	-
	24	20 - 5	18 - 4	16 - 8	15 - 10	12 - 1	19 - 9	17 - 6	16 - 6	15 - 5	11 - 10	18 - 7	15 - 7	14 - 8	11 - 2	15 - 10	13 - 9	13 - 9	10 - 3	-	-	-	-

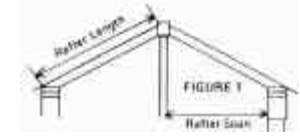
SPANS ARE CALCULATED USING REPETITIVE MEMBER VALUES INCREASED BY 15% FOR TWO MONTH DURATION OF LOADING AS FOR SNOW SPANS ARE SHOWN IN FEET - INCHES.



Rafter Spans - Domestic Species

RAFTER SPANS

SPANS ARE FOR RAFTERS USED IN COVERED STRUCTURES. SPANS APPLY TO LUMBER SURFACED "GREEN" OR OR SURFACED "DRY" WHICH CONFORMS TO PS20-99 SIZES. APPLICABLE DESIGN CRITERIA ARE SHOWN IN THE HEADING FOR EACH TABLE. RAFTER SPANS ARE MEASURED ALONG THE HORIZONTAL PROJECTION (SEE FIGURE 1).



JOIST		Douglas Fir					HEM-FIR					Spruce-Pine-Fir South				Western Woods				Western Cedars			
Size (in.)	Spac. (in.)	Sel. Str.	No. 1 & Btr.	No. 1	No. 2	No. 3	Sel. Str.	No. 1 & Btr.	No. 1	No. 2	No. 3	Sel. Str.	No. 1	No. 2	No. 3	Sel. Str.	No. 1	No. 2	No. 3	Sel. Str.	No. 1	No. 2	No. 3

RAFTER SPANS -- 7 PSF Dead Load/20 PSF Live Load/Light Roof/Slope Over 3:12

2x4	16	10 - 5	10 - 3	10 - 0	9 - 10	7 - 8	9 - 10	9 - 8	9 - 8	9 - 2	7 - 6	9 - 2	8 - 11	8 - 8	7 - 1	8 - 11	8 - 8	8 - 5	6 - 6	8 - 8	8 - 5	8 - 5	6 - 9
	24	9 - 1	8 - 11	8 - 8	8 - 3	6 - 3	8 - 7	8 - 5	8 - 5	8 - 0	6 - 1	8 - 0	7 - 10	7 - 7	5 - 10	7 - 10	7 - 1	7 - 1	5 - 4	7 - 7	7 - 4	7 - 3	5 - 6
2x6	16	16 - 4	16 - 1	15 - 6	14 - 9	11 - 3	15 - 6	15 - 2	15 - 2	14 - 4	11 - 0	14 - 5	14 - 1	13 - 8	10 - 5	14 - 1	12 - 9	12 - 9	9 - 6	13 - 8	13 - 3	13 - 0	9 - 10
	24	14 - 4	13 - 11	12 - 8	12 - 0	9 - 2	13 - 6	13 - 3	12 - 6	11 - 8	9 - 0	12 - 7	11 - 10	11 - 2	8 - 6	12 - 0	10 - 5	10 - 5	7 - 9	11 - 11	10 - 10	10 - 7	8 - 0
2x8	16	21 - 7	21 - 2	19 - 8	18 - 8	14 - 3	20 - 5	19 - 11	19 - 5	18 - 1	13 - 11	19 - 0	18 - 5	17 - 4	13 - 2	18 - 6	16 - 2	16 - 2	12 - 0	18 - 0	16 - 9	16 - 5	12 - 5
	24	18 - 10	17 - 7	16 - 1	15 - 3	11 - 8	17 - 10	16 - 10	15 - 10	14 - 10	11 - 4	16 - 7	15 - 0	14 - 2	10 - 9	15 - 3	13 - 2	13 - 2	9 - 10	15 - 9	13 - 8	13 - 5	10 - 2
2x10	16	27 - 6	26 - 4	24 - 0	22 - 9	17 - 5	26 - 0	25 - 2	23 - 9	22 - 2	17 - 0	24 - 3	22 - 6	21 - 2	16 - 1	22 - 9	19 - 9	19 - 9	14 - 9	-	-	-	-
	24	24 - 0	21 - 6	19 - 7	18 - 7	14 - 3	22 - 9	20 - 7	19 - 5	18 - 1	13 - 10	21 - 2	18 - 4	17 - 3	13 - 2	18 - 7	16 - 2	16 - 2	12 - 0	-	-	-	-

RAFTER SPANS -- 7 PSF Dead Load/30 PSF Live Load/Light Roof/Slope Over 3:12

2x4	16	9 - 1	8 - 11	8 - 9	8 - 7	6 - 7	8 - 7	8 - 5	8 - 5	8 - 0	6 - 5	8 - 0	7 - 10	7 - 7	6 - 1	7 - 10	7 - 5	7 - 4	5 - 7	7 - 7	7 - 4	7 - 4	5 - 9
	24	7 - 11	7 - 10	7 - 5	7 - 0	5 - 4	7 - 6	7 - 4	7 - 4	6 - 10	5 - 3	7 - 0	6 - 10	6 - 6	5 - 0	6 - 10	6 - 1	6 - 1	4 - 6	6 - 8	6 - 4	6 - 2	4 - 8
2x6	16	14 - 4	14 - 1	13 - 3	12 - 7	9 - 7	13 - 6	13 - 3	13 - 1	12 - 3	9 - 4	12 - 7	12 - 3	11 - 8	8 - 11	12 - 3	10 - 11	10 - 11	8 - 2	11 - 11	11 - 4	11 - 1	8 - 5
	24	12 - 6	11 - 10	10 - 10	10 - 3	7 - 10	11 - 10	11 - 4	10 - 8	10 - 0	7 - 8	11 - 0	10 - 2	9 - 6	7 - 3	10 - 3	8 - 11	8 - 11	6 - 8	10 - 5	9 - 3	9 - 1	6 - 10
2x8	16	18 - 10	18 - 5	16 - 9	15 - 11	12 - 2	17 - 10	17 - 5	16 - 7	15 - 6	11 - 10	16 - 7	15 - 8	14 - 9	11 - 3	15 - 11	13 - 10	13 - 10	10 - 3	15 - 9	14 - 4	14 - 1	10 - 7
	24	16 - 6	15 - 0	13 - 8	13 - 0	9 - 11	15 - 7	14 - 5	13 - 6	12 - 8	9 - 8	14 - 6	12 - 10	12 - 1	9 - 2	13 - 0	11 - 3	11 - 3	8 - 5	13 - 8	11 - 8	11 - 6	8 - 8
2x10	16	24 - 1	22 - 6	20 - 6	19 - 5	14 - 11	22 - 9	21 - 6	20 - 3	18 - 11	14 - 6	21 - 2	19 - 2	18 - 1	13 - 9	19 - 5	16 - 11	16 - 11	12 - 7	-	-	-	-
	24	20 - 6	18 - 4	16 - 9	15 - 11	12 - 2	19 - 10	17 - 7	16 - 7	15 - 5	11 - 10	18 - 6	15 - 8	14 - 9	11 - 3	15 - 11	13 - 9	13 - 9	10 - 3	-	-	-	-

RAFTER SPANS -- 7 PSF Dead Load/40 PSF Live Load/Light Roof/Slope Over 3:12

2x4	16	8 - 3	8 - 1	8 - 0	7 - 8	5 - 10	7 - 10	7 - 8	7 - 8	7 - 3	5 - 8	7 - 3	7 - 1	6 - 11	5 - 5	7 - 1	6 - 7	6 - 7	4 - 11	6 - 11	6 - 8	6 - 8	5 - 1
	24	7 - 3	7 - 1	6 - 7	6 - 3	4 - 9	6 - 10	6 - 8	6 - 6	6 - 1	4 - 8	6 - 4	6 - 2	5 - 4	4 - 5	6 - 2	5 - 5	5 - 5	4 - 0	6 - 0	5 - 7	5 - 6	4 - 2
2x6	16	13 - 0	12 - 9	11 - 9	11 - 2	8 - 6	12 - 3	12 - 0	11 - 7	10 - 10	8 - 4	11 - 5	11 - 0	10 - 4	7 - 11	11 - 2	9 - 8	9 - 8	7 - 3	10 - 10	10 - 0	9 - 10	7 - 5
	24	11 - 4	10 - 6	9 - 7	9 - 1	7 - 0	10 - 9	10 - 1	9 - 6	8 - 10	6 - 9	10 - 0	9 - 0	8 - 6	6 - 5	9 - 1	7 - 11	7 - 11	5 - 11	9 - 6	8 - 2	8 - 0	6 - 1
2x8	16	17 - 2	16 - 4	14 - 11	14 - 2	10 - 10	16 - 2	15 - 7	14 - 8	13 - 9	10 - 6	15 - 1	13 - 11	13 - 1	10 - 0	14 - 2	12 - 3	12 - 3	9 - 1	14 - 3	12 - 8	12 - 6	9 - 5
	24	14 - 11	13 - 4	12 - 2	11 - 6	8 - 10	14 - 2	12 - 9	12 - 0	11 - 3	8 - 7	13 - 2	11 - 5	10 - 8	8 - 2	11 - 6	10 - 0	10 - 0	7 - 5	12 - 2	10 - 4	10 - 2	7 - 8
2x10	16	21 - 10	19 - 11	18 - 2	17 - 3	13 - 3	20 - 8	19 - 1	18 - 0	16 - 9	12 - 10	19 - 3	17 - 0	16 - 0	12 - 2	17 - 3	15 - 0	15 - 0	11 - 2	-	-	-	-
	24	18 - 2	16 - 3	14 - 10	14 - 1	10 - 9	17 - 7	15 - 7	14 - 8	13 - 8	10 - 6	16 - 10	13 - 11	13 - 1	10 - 0	14 - 1	12 - 3	12 - 3	9 - 1	-	-	-	-

SPANS ARE CALCULATED USING REPETITIVE MEMBER VALUES INCREASED BY 15% FOR TWO MONTH DURATION OF LOADING AS FOR SNOW. SPANS ARE SHOWN IN FEET - INCHES.



JOIST SPANS

SPANS ARE JOISTS OVER A SINGLE SPAN AND ARE FOR USE IN COVERED STRUCTURES.
 SPANS APPLY TO LUMBER SURFACED "GREEN" OR SURFACED "DRY" WHICH CONFORMS TO
 PS20-99 SIZES. APPLICABLE DESIGN CRITERIA ARE SHOWN IN THE HEADING FOR EACH TABLE

JOIST		Aus. spr. - Austria/Czech Rep.					Norway spruce - Finland					Norway spruce - Germany				Norway spruce - Lithuania/Estonia				Norway spruce - Sweden			
Size (in.)	Spac. (in.)	Sel. Str.	No. 1	No. 2	No. 3	Sel. Str.	No. 1	No. 2	No. 3	Sel. Str.	No. 1	No. 2	No. 3	Sel. Str.	No. 1	No. 2	No. 3	Sel. Str.	No. 1	No. 2	No. 3		

FLOOR JOISTS - 10 PSF Dead Load/40 PSF Live Load

2x6	12	10 - 9	10 - 6	10 - 0	8 - 6	10 - 6	10 - 3	9 - 9	7 - 6	10 - 9	10 - 3	9 - 6	7 - 6	10 - 6	10 - 3	9 - 9	7 - 9	10 - 9	10 - 3	9 - 9	7 - 9
	16	9 - 9	9 - 6	9 - 1	7 - 4	9 - 6	9 - 4	8 - 5	6 - 6	9 - 9	9 - 4	8 - 7	6 - 6	9 - 6	9 - 4	8 - 10	6 - 9	9 - 9	9 - 4	8 - 9	6 - 9
	24	8 - 6	8 - 4	7 - 11	6 - 0	8 - 4	7 - 11	6 - 10	5 - 4	8 - 6	7 - 9	7 - 0	5 - 4	8 - 4	7 - 9	7 - 3	5 - 6	8 - 6	7 - 11	7 - 2	5 - 6
2x8	12	14 - 2	13 - 10	13 - 2	10 - 9	13 - 10	13 - 6	12 - 4	9 - 6	14 - 2	13 - 6	12 - 6	9 - 6	13 - 10	13 - 6	12 - 10	9 - 10	14 - 2	13 - 6	12 - 9	9 - 10
	16	12 - 10	12 - 7	12 - 0	9 - 3	12 - 7	12 - 3	10 - 8	8 - 3	12 - 10	12 - 1	10 - 10	8 - 3	12 - 7	12 - 1	11 - 3	8 - 6	12 - 10	12 - 3	11 - 1	8 - 6
	24	11 - 3	10 - 9	10 - 0	7 - 7	11 - 0	10 - 0	8 - 8	6 - 9	11 - 3	9 - 10	8 - 10	6 - 9	11 - 0	9 - 10	9 - 2	6 - 11	11 - 3	10 - 0	9 - 0	6 - 11
2x10	12	18 - 0	17 - 8	16 - 10	13 - 1	17 - 8	17 - 3	15 - 1	11 - 8	18 - 0	17 - 0	15 - 4	11 - 8	17 - 8	17 - 0	15 - 11	12 - 0	18 - 0	17 - 3	15 - 8	12 - 0
	16	16 - 5	16 - 0	15 - 0	11 - 4	16 - 0	15 - 0	13 - 0	10 - 1	16 - 5	14 - 9	13 - 3	10 - 1	16 - 0	14 - 9	13 - 9	10 - 5	16 - 5	15 - 0	13 - 6	10 - 5
	24	14 - 4	13 - 1	12 - 3	9 - 3	14 - 0	12 - 3	10 - 8	8 - 3	14 - 4	12 - 0	10 - 10	8 - 3	14 - 0	12 - 0	11 - 3	8 - 6	14 - 4	12 - 3	11 - 1	8 - 6
2x12	12	21 - 11	21 - 6	20 - 0	15 - 2	21 - 6	20 - 0	17 - 5	13 - 6	21 - 11	19 - 8	17 - 9	13 - 6	21 - 6	19 - 8	18 - 5	13 - 11	21 - 11	20 - 0	18 - 1	13 - 11
	16	19 - 11	18 - 7	17 - 4	13 - 2	19 - 6	17 - 4	15 - 1	11 - 8	19 - 11	17 - 1	15 - 5	11 - 8	19 - 6	17 - 1	16 - 0	12 - 1	19 - 11	17 - 4	15 - 8	12 - 1
	24	17 - 5	15 - 2	14 - 2	10 - 9	17 - 0	14 - 2	12 - 4	9 - 6	17 - 5	13 - 11	12 - 7	9 - 6	17 - 0	13 - 11	13 - 0	9 - 10	17 - 5	14 - 2	12 - 10	9 - 10

CEILING JOISTS - 10 PSF Dead Load/20 PSF Live Load/Drywall Ceiling/Limited Attic Storage

2x4	16	7 - 10	7 - 8	7 - 3	6 - 6	7 - 8	7 - 6	7 - 1	5 - 9	7 - 10	7 - 6	6 - 4	5 - 9	7 - 8	7 - 6	7 - 1	5 - 11	7 - 10	7 - 6	7 - 1	5 - 11
	24	6 - 10	6 - 8	6 - 4	5 - 3	6 - 8	6 - 6	6 - 1	4 - 8	6 - 10	6 - 6	6 - 0	4 - 8	6 - 8	6 - 6	6 - 2	4 - 10	6 - 10	6 - 6	6 - 2	4 - 10
2x6	16	12 - 3	12 - 0	11 - 5	9 - 6	12 - 0	11 - 9	10 - 10	8 - 5	12 - 3	11 - 9	10 - 10	8 - 5	12 - 0	11 - 9	11 - 2	8 - 8	12 - 3	11 - 9	11 - 2	8 - 8
	24	10 - 9	10 - 6	10 - 0	7 - 9	10 - 6	10 - 2	8 - 10	6 - 11	10 - 9	10 - 0	9 - 0	6 - 11	10 - 6	10 - 0	9 - 5	7 - 1	10 - 9	10 - 2	9 - 3	7 - 1
2x8	16	16 - 2	15 - 10	15 - 1	12 - 0	15 - 10	15 - 6	13 - 9	10 - 8	16 - 2	15 - 6	14 - 0	10 - 8	15 - 10	15 - 6	14 - 7	11 - 0	16 - 2	15 - 6	14 - 3	11 - 0
	24	14 - 2	13 - 10	12 - 11	9 - 9	13 - 10	12 - 11	11 - 3	8 - 8	14 - 2	12 - 8	11 - 5	8 - 8	13 - 10	12 - 8	11 - 11	9 - 0	14 - 2	12 - 11	11 - 8	9 - 0
2x10	16	20 - 8	20 - 2	19 - 3	14 - 8	20 - 2	19 - 4	16 - 10	13 - 1	20 - 8	19 - 0	17 - 1	13 - 1	20 - 2	19 - 0	17 - 9	13 - 5	20 - 8	19 - 4	17 - 6	13 - 5
	24	18 - 0	16 - 11	15 - 9	12 - 0	17 - 8	15 - 9	13 - 9	10 - 8	18 - 0	15 - 6	14 - 0	10 - 8	17 - 8	15 - 6	14 - 6	11 - 0	18 - 0	15 - 9	14 - 3	11 - 0
2x12	16	25 - 1	24 - 0	22 - 4	17 - 0	24 - 7	22 - 4	19 - 6	15 - 1	25 - 1	22 - 0	19 - 10	15 - 1	24 - 7	22 - 0	20 - 7	15 - 7	25 - 1	22 - 4	20 - 3	15 - 7
	24	21 - 11	19 - 7	18 - 3	13 - 10	21 - 6	18 - 3	15 - 11	12 - 4	21 - 11	18 - 0	16 - 3	12 - 4	21 - 6	18 - 0	16 - 10	12 - 9	21 - 11	18 - 3	16 - 6	12 - 9

CEILING JOISTS - 5 PSF Dead Load/10 PSF Live Load/Drywall Ceiling/No Attic Storage

2x4	16	9 - 10	9 - 8	9 - 2	8 - 11	9 - 8	9 - 5	8 - 11	8 - 2	9 - 10	9 - 5	8 - 8	8 - 2	9 - 8	9 - 5	8 - 11	8 - 5	9 - 10	9 - 5	8 - 11	8 - 5
	24	8 - 7	8 - 5	8 - 0	7 - 6	8 - 5	8 - 3	7 - 10	6 - 8	8 - 7	8 - 3	7 - 7	6 - 8	8 - 5	8 - 3	7 - 10	6 - 10	8 - 7	8 - 3	7 - 10	6 - 10
2x6	16	15 - 6	15 - 2	14 - 5	13 - 5	15 - 2	14 - 9	14 - 1	11 - 11	15 - 6	14 - 9	13 - 8	11 - 11	15 - 2	14 - 9	14 - 1	12 - 3	15 - 6	14 - 9	14 - 1	12 - 3
	24	13 - 6	13 - 3	12 - 7	10 - 11	13 - 3	12 - 11	12 - 3	9 - 9	13 - 6	12 - 11	11 - 11	9 - 9	13 - 3	12 - 11	12 - 3	10 - 0	13 - 6	12 - 11	12 - 3	10 - 0
2x8	16	20 - 5	19 - 11	19 - 0	16 - 11	19 - 11	19 - 6	18 - 6	15 - 1	20 - 5	19 - 6	18 - 0	15 - 1	19 - 11	19 - 6	18 - 6	15 - 7	20 - 5	19 - 6	18 - 6	15 - 7
	24	17 - 10	17 - 5	16 - 7	13 - 10	17 - 5	17 - 0	15 - 10	12 - 4	17 - 10	17 - 0	15 - 9	12 - 4	17 - 5	17 - 0	16 - 2	12 - 8	17 - 10	17 - 0	16 - 2	12 - 8
2x10	16	26 - 0	25 - 5	24 - 3	20 - 9	25 - 5	24 - 10	23 - 8	18 - 5	26 - 0	24 - 10	22 - 11	18 - 5	25 - 5	24 - 10	23 - 8	19 - 0	26 - 0	24 - 10	23 - 8	19 - 0
	24	22 - 9	22 - 3	21 - 2	16 - 11	22 - 3	21 - 9	19 - 5	15 - 1	22 - 9	21 - 9	19 - 9	15 - 1	22 - 3	21 - 9	20 - 6	15 - 6	22 - 9	21 - 9	20 - 2	15 - 6
2x12	16	31 - 8	30 - 11	29 - 6	24 - 0	30 - 11	30 - 3	27 - 6	21 - 4	31 - 8	30 - 3	27 - 11	21 - 4	30 - 11	30 - 3	28 - 9	22 - 0	31 - 8	30 - 3	28 - 7	22 - 0
	24	27 - 8	27 - 1	25 - 9	19 - 7	27 - 1	25 - 10	22 - 6	17 - 5	27 - 8	25 - 5	22 - 11	17 - 5	27 - 1	25 - 5	23 - 9	18 - 0	27 - 8	25 - 10	23 - 4	18 - 0

SPANS ARE CALCULATED USING REPETITIVE MEMBER VALUES.
 SPANS ARE SHOWN IN FEET - INCHES.



Joist Spans - International Species

JOIST SPANS

SPANS ARE JOISTS OVER A SINGLE SPAN AND ARE FOR USE IN COVERED STRUCTURES.
SPANS APPLY TO LUMBER SURFACED "GREEN" OR SURFACED "DRY" WHICH CONFORMS TO PS20-99 SIZES. APPLICABLE DESIGN CRITERIA ARE SHOWN IN THE HEADING FOR EACH TABLE

JOIST		Scots pine - Austria/Czech Rep.				Scots pine - Finland				Scots pine - Germany				Scots pine - Lithuania/Estonia				Douglas fir - European Larch - Austria/Czech Republic/Germany			
Size (in.)	Spac. (in.)	Sel. Str.	No. 1	No. 2	No. 3	Sel. Str.	No. 1	No. 2	No. 3	Sel. Str.	No. 1	No. 2	No. 3	Sel. Str.	No. 1	No. 2	No. 3	Sel. Str.	No. 1	No. 2	No. 3

FLOOR JOISTS - 10 PSF Dead Load/40 PSF Live Load

2x6	12	10 - 11	10 - 6	10 - 0	7 - 9	10 - 6	10 - 3	10 - 0	8 - 11	10 - 9	10 - 3	9 - 6	7 - 9	10 - 6	10 - 0	9 - 6	7 - 6	-	-	-	-
	16	9 - 11	9 - 6	8 - 11	6 - 9	9 - 6	9 - 4	9 - 1	7 - 9	9 - 9	9 - 4	8 - 7	6 - 9	9 - 6	9 - 1	8 - 7	6 - 6	-	-	-	-
	24	8 - 8	8 - 0	7 - 3	5 - 6	8 - 4	8 - 2	7 - 11	6 - 4	8 - 6	7 - 9	7 - 3	5 - 6	8 - 4	7 - 6	7 - 0	5 - 4	-	-	-	-
2x8	12	14 - 5	13 - 10	13 - 0	9 - 10	13 - 10	13 - 6	13 - 2	11 - 3	14 - 2	13 - 6	12 - 6	9 - 10	13 - 10	13 - 2	12 - 6	9 - 6	-	-	-	-
	16	13 - 1	12 - 5	11 - 3	8 - 6	12 - 7	12 - 3	12 - 0	9 - 9	12 - 10	12 - 1	11 - 3	8 - 6	12 - 7	11 - 8	10 - 10	8 - 3	-	-	-	-
	24	11 - 5	10 - 2	9 - 2	6 - 11	11 - 0	10 - 9	10 - 6	8 - 0	11 - 3	9 - 10	9 - 2	6 - 11	11 - 0	9 - 6	8 - 10	6 - 9	-	-	-	-
2x10	12	18 - 5	17 - 6	15 - 11	12 - 0	17 - 8	17 - 3	16 - 10	13 - 10	18 - 0	17 - 0	15 - 11	12 - 0	17 - 8	16 - 5	15 - 4	11 - 8	-	-	-	-
	16	16 - 9	15 - 2	13 - 9	10 - 5	16 - 0	15 - 8	15 - 3	11 - 11	16 - 5	14 - 9	13 - 9	10 - 5	16 - 0	14 - 3	13 - 3	10 - 1	-	-	-	-
	24	14 - 7	12 - 5	11 - 3	8 - 6	14 - 0	13 - 1	12 - 11	9 - 9	14 - 4	12 - 0	11 - 3	8 - 6	14 - 0	11 - 8	10 - 10	8 - 3	-	-	-	-
2x12	12	22 - 5	20 - 4	18 - 5	13 - 11	21 - 6	21 - 0	20 - 6	16 - 0	21 - 11	19 - 8	18 - 5	13 - 11	21 - 6	19 - 1	17 - 9	13 - 6	-	-	-	-
	16	20 - 4	17 - 7	16 - 0	12 - 1	19 - 6	18 - 7	18 - 4	13 - 10	19 - 11	17 - 1	16 - 0	12 - 1	19 - 6	16 - 6	15 - 5	11 - 8	-	-	-	-
	24	17 - 9	14 - 4	13 - 0	9 - 10	17 - 0	15 - 2	15 - 0	11 - 3	17 - 1	13 - 1	13 - 0	9 - 10	16 - 4	13 - 6	12 - 7	9 - 6	-	-	-	-

CEILING JOISTS - 10 PSF Dead Load/20 PSF Live Load/Drywall Ceiling/Limited Attic Storage

2x4	16	8 - 0	7 - 8	7 - 3	5 - 11	7 - 8	7 - 6	7 - 3	6 - 10	7 - 10	7 - 6	6 - 11	5 - 11	7 - 8	7 - 3	6 - 11	5 - 9	8 - 1	8 - 0	7 - 10	6 - 9
	24	7 - 0	6 - 8	6 - 4	4 - 10	6 - 8	6 - 6	6 - 4	5 - 7	6 - 10	6 - 6	6 - 0	4 - 10	6 - 8	6 - 4	6 - 0	4 - 8	7 - 1	7 - 0	6 - 10	5 - 6
2x6	16	12 - 6	12 - 0	11 - 5	8 - 8	12 - 0	11 - 9	11 - 5	10 - 0	12 - 3	11 - 9	10 - 10	8 - 8	12 - 0	11 - 5	10 - 10	8 - 5	-	-	-	-
	24	10 - 11	10 - 4	9 - 5	7 - 1	10 - 6	10 - 3	10 - 0	8 - 2	10 - 9	10 - 0	9 - 5	7 - 1	10 - 6	9 - 8	9 - 0	6 - 11	-	-	-	-
2x8	16	16 - 6	15 - 10	14 - 7	11 - 0	15 - 10	15 - 6	15 - 1	12 - 7	16 - 2	15 - 6	14 - 3	11 - 0	15 - 10	15 - 1	14 - 0	10 - 8	-	-	-	-
	24	14 - 5	13 - 1	11 - 11	9 - 0	13 - 10	13 - 6	13 - 2	10 - 3	14 - 2	12 - 8	11 - 11	9 - 0	13 - 10	12 - 4	11 - 5	8 - 8	-	-	-	-
2x10	16	21 - 1	19 - 7	17 - 9	13 - 5	20 - 2	19 - 9	19 - 3	15 - 5	20 - 8	19 - 0	17 - 9	13 - 5	20 - 2	18 - 5	17 - 1	13 - 1	-	-	-	-
	24	18 - 5	16 - 0	14 - 6	11 - 0	17 - 8	16 - 11	16 - 8	12 - 7	18 - 0	15 - 6	14 - 6	11 - 0	17 - 8	15 - 0	14 - 0	10 - 8	-	-	-	-
2x12	16	25 - 7	22 - 8	20 - 7	15 - 7	24 - 7	24 - 0	23 - 5	17 - 10	25 - 1	22 - 0	20 - 7	15 - 7	24 - 7	21 - 4	19 - 10	15 - 1	-	-	-	-
	24	22 - 5	18 - 6	16 - 10	12 - 9	21 - 6	19 - 7	19 - 4	14 - 7	21 - 11	18 - 0	16 - 10	12 - 9	21 - 1	17 - 5	16 - 3	12 - 4	-	-	-	-

CEILING JOISTS - 5 PSF Dead Load/10 PSF Live Load/Drywall Ceiling/No Attic Storage

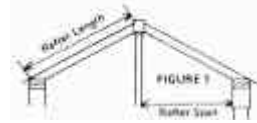
2x4	16	10 - 0	9 - 8	9 - 2	8 - 5	9 - 8	9 - 5	9 - 2	8 - 11	9 - 10	9 - 5	8 - 8	8 - 5	9 - 8	9 - 2	8 - 8	8 - 2	10 - 3	10 - 0	9 - 10	9 - 5
	24	8 - 9	8 - 5	8 - 0	6 - 10	8 - 5	8 - 3	8 - 0	7 - 10	8 - 7	8 - 3	7 - 7	6 - 10	8 - 5	8 - 0	7 - 7	6 - 8	8 - 11	8 - 9	8 - 7	7 - 9
2x6	16	15 - 9	15 - 2	14 - 5	12 - 3	15 - 2	14 - 9	14 - 5	14 - 1	15 - 6	14 - 9	13 - 8	12 - 3	15 - 2	14 - 5	13 - 8	11 - 11	-	-	-	-
	24	13 - 9	13 - 3	12 - 7	10 - 0	13 - 3	12 - 11	12 - 7	11 - 6	13 - 6	12 - 11	11 - 11	10 - 0	13 - 3	12 - 7	11 - 11	9 - 9	-	-	-	-
2x8	16	20 - 10	19 - 11	19 - 0	15 - 7	19 - 11	19 - 6	19 - 0	17 - 10	20 - 5	19 - 6	18 - 0	15 - 7	19 - 11	19 - 0	18 - 0	15 - 1	-	-	-	-
	24	18 - 2	17 - 5	16 - 7	12 - 8	17 - 5	17 - 0	16 - 7	14 - 7	17 - 10	17 - 0	15 - 9	12 - 8	17 - 5	16 - 7	15 - 9	12 - 4	-	-	-	-
2x10	16	26 - 6	25 - 5	24 - 3	19 - 0	25 - 5	24 - 10	24 - 3	21 - 10	26 - 0	24 - 10	22 - 11	19 - 0	25 - 5	24 - 3	22 - 11	18 - 5	-	-	-	-
	24	23 - 2	22 - 3	20 - 6	15 - 6	22 - 3	21 - 9	21 - 2	17 - 10	22 - 9	21 - 9	20 - 1	15 - 6	22 - 3	21 - 2	19 - 9	15 - 1	-	-	-	-
2x12	16	32 - 3	30 - 11	29 - 2	22 - 0	30 - 11	30 - 3	29 - 6	25 - 3	31 - 8	30 - 3	27 - 11	22 - 0	30 - 11	29 - 6	27 - 11	21 - 4	-	-	-	-
	24	28 - 2	26 - 3	23 - 9	18 - 0	27 - 1	26 - 5	25 - 9	20 - 7	27 - 8	25 - 5	23 - 9	18 - 0	27 - 1	24 - 8	22 - 11	17 - 5	-	-	-	-

SPANS ARE CALCULATED USING REPETITIVE MEMBER VALUES.
SPANS ARE SHOWN IN FEET - INCHES.



RAFTER SPANS

SPANS ARE FOR RAFTERS USED IN COVERED STRUCTURES. SPANS APPLY TO LUMBER SURFACED "GREEN" OR OR SURFACED "DRY" WHICH CONFORMS TO PS20-99 SIZES. APPLICABLE DESIGN CRITERIA ARE SHOWN IN THE HEADING FOR EACH TABLE. RAFTER SPANS ARE MEASURED ALONG THE HORIZONTAL PROJECTION (SEE FIGURE 1).



JOIST		Aus. spr. - Austria/Czech Rep.					Norway spruce - Finland				Norway spruce - Germany				Norway spruce - Lithuania/Estonia				Norway spruce - Sweden			
Size (in.)	Spac. (in.)	Sel. Str.	No. 1	No. 2	No. 3	Sel. Str.	No. 1	No. 2	No. 3	Sel. Str.	No. 1	No. 2	No. 3	Sel. Str.	No. 1	No. 2	No. 3	Sel. Str.	No. 1	No. 2	No. 3	

RAFTER SPANS -- 15 PSF Dead Load/20 PSF Live Load/Drywall Ceiling/All Slopes

2x6	16	14 - 1	13 - 3	12 - 5	9 - 5	13 - 9	12 - 5	10 - 9	8 - 4	14 - 1	12 - 2	11 - 0	8 - 4	13 - 9	12 - 2	11 - 5	8 - 7	14 - 1	12 - 5	11 - 3	8 - 7
	24	12 - 3	10 - 10	10 - 1	7 - 8	12 - 0	10 - 1	8 - 10	6 - 10	12 - 3	9 - 11	9 - 0	6 - 10	12 - 0	9 - 11	9 - 4	7 - 0	12 - 3	10 - 1	9 - 2	7 - 0
2x8	16	18 - 6	16 - 10	15 - 8	11 - 11	18 - 2	15 - 8	13 - 8	10 - 7	18 - 6	15 - 5	13 - 11	10 - 7	18 - 2	15 - 5	14 - 5	10 - 11	18 - 6	15 - 8	14 - 2	10 - 11
	24	16 - 2	13 - 9	12 - 10	9 - 9	15 - 10	12 - 10	11 - 2	8 - 8	15 - 9	12 - 7	11 - 4	8 - 8	15 - 5	12 - 7	11 - 9	8 - 11	15 - 9	12 - 10	11 - 7	8 - 11
2x10	16	23 - 8	20 - 7	19 - 2	14 - 7	23 - 2	19 - 2	16 - 8	12 - 11	23 - 7	18 - 10	17 - 0	12 - 11	23 - 1	18 - 10	17 - 8	13 - 4	23 - 7	19 - 2	17 - 4	13 - 4
	24	20 - 8	16 - 9	15 - 8	11 - 11	20 - 0	15 - 8	13 - 8	10 - 7	19 - 3	15 - 5	13 - 11	10 - 7	18 - 10	15 - 5	14 - 5	10 - 11	19 - 3	15 - 8	14 - 2	10 - 11
2x12	16	28 - 9	23 - 10	22 - 2	16 - 10	28 - 2	22 - 2	19 - 4	15 - 0	27 - 4	21 - 10	19 - 9	15 - 0	26 - 9	21 - 10	20 - 5	15 - 6	27 - 4	22 - 2	20 - 1	15 - 6
	24	24 - 0	19 - 5	18 - 2	13 - 9	23 - 2	18 - 2	15 - 9	12 - 3	22 - 4	17 - 10	16 - 1	12 - 3	21 - 10	17 - 10	16 - 8	12 - 8	22 - 4	18 - 2	16 - 5	12 - 8

RAFTER SPANS -- 15 PSF Dead Load/30 PSF Live Load/Drywall Ceiling/All Slopes

2x6	16	12 - 3	11 - 9	10 - 11	8 - 4	12 - 0	10 - 11	9 - 6	7 - 5	12 - 3	10 - 9	9 - 8	7 - 5	12 - 0	10 - 9	10 - 1	7 - 7	12 - 3	10 - 11	9 - 11	7 - 7
	24	10 - 9	9 - 7	8 - 11	6 - 9	10 - 6	8 - 11	7 - 9	6 - 0	10 - 9	8 - 9	7 - 11	6 - 0	10 - 6	8 - 9	8 - 3	6 - 2	10 - 9	8 - 11	8 - 1	6 - 2
2x8	16	16 - 2	14 - 10	13 - 10	10 - 6	15 - 10	13 - 10	12 - 0	9 - 4	16 - 2	13 - 7	12 - 3	9 - 4	15 - 10	13 - 7	12 - 9	9 - 8	16 - 2	13 - 10	12 - 6	9 - 8
	24	14 - 2	12 - 1	11 - 3	8 - 7	13 - 10	11 - 3	9 - 10	7 - 7	13 - 11	11 - 1	10 - 0	7 - 7	13 - 7	11 - 1	10 - 5	7 - 10	13 - 11	11 - 3	10 - 3	7 - 10
2x10	16	20 - 8	18 - 1	16 - 11	12 - 10	20 - 2	16 - 11	14 - 9	11 - 5	20 - 8	16 - 8	15 - 0	11 - 5	20 - 2	16 - 8	15 - 7	11 - 9	20 - 8	16 - 11	15 - 4	11 - 9
	24	18 - 0	14 - 10	13 - 10	10 - 6	17 - 8	13 - 10	12 - 0	9 - 4	17 - 0	13 - 7	12 - 3	9 - 4	16 - 8	13 - 7	12 - 8	9 - 7	17 - 0	13 - 10	12 - 6	9 - 7
2x12	16	25 - 1	21 - 0	19 - 7	14 - 10	24 - 7	19 - 7	17 - 1	13 - 2	24 - 1	19 - 3	17 - 5	13 - 2	23 - 7	19 - 3	18 - 0	13 - 8	24 - 1	19 - 7	17 - 9	13 - 8
	24	21 - 2	17 - 2	16 - 0	12 - 2	20 - 5	16 - 0	13 - 11	10 - 9	19 - 8	15 - 9	14 - 2	10 - 9	19 - 3	15 - 9	14 - 9	11 - 2	19 - 8	16 - 0	14 - 6	11 - 2

RAFTER SPANS -- 15 PSF Dead Load/40 PSF Live Load/Drywall Ceiling/All Slopes

2x6	16	11 - 2	10 - 7	9 - 11	7 - 6	10 - 11	9 - 11	8 - 7	6 - 8	11 - 2	9 - 9	8 - 9	6 - 8	10 - 11	9 - 9	9 - 1	6 - 11	11 - 2	9 - 11	8 - 11	6 - 11
	24	9 - 9	8 - 8	8 - 1	6 - 2	9 - 6	8 - 1	7 - 0	5 - 5	9 - 9	7 - 11	7 - 2	5 - 5	9 - 6	7 - 11	7 - 5	5 - 7	9 - 9	8 - 1	7 - 4	5 - 7
2x8	16	14 - 8	13 - 5	12 - 6	9 - 6	14 - 5	12 - 6	10 - 11	8 - 5	14 - 8	12 - 4	11 - 1	8 - 5	14 - 5	12 - 4	11 - 6	8 - 8	14 - 8	12 - 6	11 - 4	8 - 8
	24	12 - 10	10 - 11	10 - 3	7 - 9	12 - 7	10 - 3	8 - 11	6 - 11	12 - 7	10 - 1	9 - 1	6 - 11	12 - 4	10 - 1	9 - 5	7 - 1	12 - 7	10 - 3	9 - 3	7 - 1
2x10	16	18 - 9	16 - 5	15 - 4	11 - 7	18 - 4	15 - 4	13 - 4	10 - 4	18 - 9	15 - 1	13 - 7	10 - 4	18 - 4	15 - 1	14 - 1	10 - 8	18 - 9	15 - 4	13 - 10	10 - 8
	24	16 - 5	13 - 5	12 - 6	9 - 6	15 - 11	12 - 6	10 - 11	8 - 5	15 - 4	12 - 3	11 - 1	8 - 5	15 - 1	12 - 3	11 - 6	8 - 8	15 - 4	12 - 6	11 - 4	8 - 8
2x12	16	22 - 10	19 - 0	17 - 9	13 - 5	22 - 4	17 - 9	15 - 5	11 - 11	21 - 10	17 - 5	15 - 9	11 - 11	21 - 4	17 - 5	16 - 4	12 - 4	21 - 10	17 - 9	16 - 0	12 - 4
	24	19 - 2	15 - 6	14 - 6	11 - 0	18 - 6	14 - 6	12 - 7	9 - 9	17 - 10	14 - 3	12 - 10	9 - 9	17 - 5	14 - 3	13 - 4	10 - 1	17 - 10	14 - 6	13 - 1	10 - 1

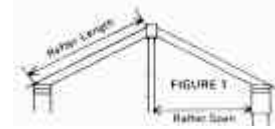
SPANS ARE CALCULATED USING REPETITIVE MEMBER VALUES INCREASED BY 15% FOR TWO MONTH DURATION OF LOADING AS FOR SNOW. SPANS ARE SHOWN IN FEET - INCHES.



Rafter Spans - International Species

RAFTER SPANS

SPANS ARE FOR RAFTERS USED IN COVERED STRUCTURES. SPANS APPLY TO LUMBER SURFACED "GREEN" OR OR SURFACED "DRY" WHICH CONFORMS TO PS20-99 SIZES. APPLICABLE DESIGN CRITERIA ARE SHOWN IN THE HEADING FOR EACH TABLE. RAFTER SPANS ARE MEASURED ALONG THE HORIZONTAL PROJECTION (SEE FIGURE 1).



JOIST		Scots pine - Austria/Czech Rep.				Scots pine - Finland				Scots pine - Germany				Scots pine - Lithuania/Estonia				Douglas fir - European Larch - Austria/Czech Republic/Germany			
Size (in.)	Spac. (in.)	Sel. Str.	No. 1	No. 2	No. 3	Sel. Str.	No. 1	No. 2	No. 3	Sel. Str.	No. 1	No. 2	No. 3	Sel. Str.	No. 1	No. 2	No. 3	Sel. Str.	No. 1	No. 2	No. 3

RAFTER SPANS -- 15 PSF Dead Load/20 PSF Live Load/Drywall Ceiling/All Slopes

2x6	16	14 - 4	12 - 7	11 - 5	8 - 7	13 - 9	13 - 3	13 - 1	9 - 11	14 - 1	12 - 2	11 - 5	8 - 7	13 - 9	11 - 10	11 - 0	8 - 4	-	-	-	-
	24	12 - 6	10 - 3	9 - 4	7 - 0	12 - 0	10 - 10	10 - 9	8 - 1	12 - 2	9 - 11	9 - 4	7 - 0	11 - 8	9 - 8	9 - 0	6 - 10	-	-	-	-
2x8	16	18 - 11	15 - 11	14 - 5	10 - 11	18 - 2	16 - 10	16 - 7	12 - 6	18 - 6	15 - 5	14 - 5	10 - 11	18 - 1	14 - 11	13 - 11	10 - 7	-	-	-	-
	24	16 - 1	13 - 0	11 - 9	8 - 11	15 - 10	13 - 9	13 - 7	10 - 3	15 - 5	12 - 7	11 - 9	8 - 11	14 - 9	12 - 2	11 - 4	8 - 8	-	-	-	-
2x10	16	24 - 0	19 - 5	17 - 8	13 - 4	23 - 2	20 - 7	20 - 4	15 - 4	23 - 1	18 - 10	17 - 8	13 - 4	22 - 1	18 - 3	17 - 0	12 - 11	-	-	-	-
	24	19 - 8	15 - 10	14 - 5	10 - 11	19 - 8	16 - 9	16 - 7	12 - 6	18 - 10	15 - 5	14 - 5	10 - 11	18 - 1	14 - 11	13 - 11	10 - 7	-	-	-	-
2x12	16	27 - 11	22 - 6	20 - 5	15 - 6	27 - 11	23 - 10	23 - 6	17 - 9	26 - 9	21 - 10	20 - 5	15 - 6	25 - 8	21 - 2	19 - 9	15 - 0	-	-	-	-
	24	22 - 9	18 - 5	16 - 8	12 - 8	22 - 9	19 - 5	19 - 2	14 - 6	21 - 10	17 - 10	16 - 8	12 - 8	20 - 11	17 - 3	16 - 1	12 - 3	-	-	-	-

RAFTER SPANS -- 15 PSF Dead Load/30 PSF Live Load/Drywall Ceiling/All Slopes

2x6	16	12 - 6	11 - 1	10 - 1	7 - 7	12 - 0	11 - 9	11 - 5	8 - 9	12 - 3	10 - 9	10 - 1	7 - 7	12 - 0	10 - 5	9 - 8	7 - 5	-	-	-	-
	24	10 - 11	9 - 1	8 - 3	6 - 2	10 - 6	9 - 7	9 - 5	7 - 1	10 - 9	8 - 9	8 - 3	6 - 2	10 - 4	8 - 6	7 - 11	6 - 0	-	-	-	-
2x8	16	16 - 6	14 - 0	12 - 9	9 - 8	15 - 10	14 - 10	14 - 8	11 - 0	16 - 2	13 - 7	12 - 9	9 - 8	15 - 10	13 - 2	12 - 3	9 - 4	-	-	-	-
	24	14 - 2	11 - 6	10 - 5	7 - 10	13 - 10	12 - 1	11 - 11	9 - 0	13 - 7	11 - 1	10 - 5	7 - 10	13 - 0	10 - 9	10 - 0	7 - 7	-	-	-	-
2x10	16	21 - 1	17 - 2	15 - 7	11 - 9	20 - 2	18 - 1	17 - 11	13 - 6	20 - 4	16 - 8	15 - 7	11 - 9	19 - 6	16 - 1	15 - 0	11 - 5	-	-	-	-
	24	17 - 4	14 - 0	12 - 8	9 - 7	17 - 4	14 - 10	14 - 7	11 - 0	16 - 8	13 - 7	12 - 8	9 - 7	15 - 11	13 - 2	12 - 3	9 - 4	-	-	-	-
2x12	16	24 - 7	19 - 11	18 - 0	13 - 8	24 - 7	21 - 0	20 - 9	15 - 7	23 - 7	19 - 3	18 - 0	13 - 8	22 - 7	18 - 8	17 - 5	13 - 2	-	-	-	-
	24	20 - 1	16 - 3	14 - 9	11 - 2	20 - 1	17 - 2	16 - 11	12 - 9	19 - 3	15 - 9	14 - 9	11 - 2	18 - 6	15 - 3	14 - 2	10 - 9	-	-	-	-

RAFTER SPANS -- 15 PSF Dead Load/40 PSF Live Load/Drywall Ceiling/All Slopes

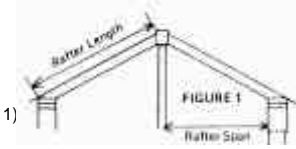
2x6	16	11 - 5	10 - 0	9 - 1	6 - 11	10 - 11	10 - 7	10 - 5	7 - 11	11 - 2	9 - 9	9 - 1	6 - 11	10 - 11	9 - 5	8 - 9	6 - 8	-	-	-	-
	24	9 - 11	8 - 2	7 - 5	5 - 7	9 - 6	8 - 8	8 - 7	6 - 5	9 - 9	7 - 11	7 - 5	5 - 7	9 - 4	7 - 8	7 - 2	5 - 5	-	-	-	-
2x8	16	15 - 0	12 - 8	11 - 6	8 - 8	14 - 5	13 - 5	13 - 3	10 - 0	14 - 8	12 - 4	11 - 6	8 - 8	14 - 5	11 - 11	11 - 1	8 - 5	-	-	-	-
	24	12 - 10	10 - 4	9 - 5	7 - 1	12 - 7	10 - 11	10 - 10	8 - 2	12 - 4	10 - 1	9 - 5	7 - 1	11 - 9	9 - 9	9 - 1	6 - 11	-	-	-	-
2x10	16	19 - 2	15 - 6	14 - 1	10 - 8	18 - 4	16 - 5	16 - 2	12 - 3	18 - 5	15 - 1	14 - 1	10 - 8	17 - 8	14 - 7	13 - 7	10 - 4	-	-	-	-
	24	15 - 8	12 - 8	11 - 6	8 - 8	15 - 8	13 - 5	13 - 3	10 - 0	15 - 1	12 - 3	11 - 6	8 - 8	14 - 5	11 - 11	11 - 1	8 - 5	-	-	-	-
2x12	16	22 - 3	18 - 0	16 - 4	12 - 4	22 - 3	19 - 0	18 - 9	14 - 2	21 - 4	17 - 5	16 - 4	12 - 4	20 - 5	16 - 11	15 - 9	11 - 11	-	-	-	-
	24	18 - 2	14 - 8	13 - 4	10 - 1	18 - 2	15 - 6	15 - 4	11 - 6	17 - 5	14 - 3	13 - 4	10 - 1	16 - 8	13 - 9	12 - 10	9 - 9	-	-	-	-

SPANS ARE CALCULATED USING REPETITIVE MEMBER VALUES INCREASED BY 15% FOR TWO MONTH DURATION OF LOADING AS FOR SNOW. SPANS ARE SHOWN IN FEET - INCHES.



RAFTER SPANS

SPANS ARE FOR RAFTERS USED IN COVERED STRUCTURES. SPANS APPLY TO LUMBER SURFACED "GREEN" OR OR SURFACED "DRY" WHICH CONFORMS TO PS20-99 SIZES. APPLICABLE DESIGN CRITERIA ARE SHOWN IN THE HEADING FOR EACH TABLE. RAFTER SPANS ARE MEASURED ALONG THE HORIZONTAL PROJECTION (SEE FIGURE 1)



JOIST		Aus. spr. - Austria/Czech Rep.				Norway spruce - Finland				Norway spruce - Germany				Norway spruce - Lithuania/Estonia				Norway spruce - Sweden			
Size (in.)	Spac. (in.)	Sel. Str.	No. 1	No. 2	No. 3	Sel. Str.	No. 1	No. 2	No. 3	Sel. Str.	No. 1	No. 2	No. 3	Sel. Str.	No. 1	No. 2	No. 3	Sel. Str.	No. 1	No. 2	No. 3

RAFTER SPANS -- 10 PSF Dead Load/20 PSF Live Load/No Finish Ceiling/3:12 or Less Slope

2x6	16	14 - 1	13 - 9	13 - 1	10 - 2	13 - 9	13 - 5	11 - 8	9 - 0	14 - 1	13 - 2	11 - 10	9 - 0	13 - 9	13 - 2	12 - 4	9 - 4	14 - 1	13 - 5	12 - 1	9 - 4
	24	12 - 3	11 - 9	10 - 11	8 - 4	12 - 0	10 - 11	9 - 6	7 - 5	12 - 3	10 - 9	9 - 8	7 - 5	12 - 0	10 - 9	10 - 1	7 - 7	12 - 3	10 - 11	9 - 11	7 - 7
2x8	16	18 - 6	18 - 2	16 - 11	12 - 10	18 - 2	16 - 11	14 - 9	11 - 5	18 - 6	16 - 8	15 - 0	11 - 5	18 - 2	16 - 8	15 - 7	11 - 9	18 - 6	16 - 11	15 - 4	11 - 9
	24	16 - 2	14 - 10	13 - 10	10 - 6	15 - 10	13 - 10	12 - 0	9 - 4	16 - 2	13 - 7	12 - 3	9 - 4	15 - 10	13 - 7	12 - 9	9 - 8	16 - 2	13 - 10	12 - 6	9 - 8
2x10	16	23 - 8	22 - 2	20 - 9	15 - 9	23 - 2	20 - 9	18 - 0	14 - 0	23 - 8	20 - 4	18 - 4	14 - 0	23 - 2	20 - 4	19 - 1	14 - 5	23 - 8	20 - 9	18 - 9	14 - 5
	24	20 - 8	18 - 1	16 - 11	12 - 10	20 - 2	16 - 11	14 - 9	11 - 5	20 - 8	16 - 8	15 - 0	11 - 5	20 - 2	16 - 8	15 - 7	11 - 9	20 - 8	16 - 11	15 - 4	11 - 9
2x12	16	28 - 9	25 - 9	24 - 0	18 - 2	28 - 2	24 - 0	20 - 11	16 - 2	28 - 9	23 - 7	21 - 3	16 - 2	28 - 2	23 - 7	22 - 1	16 - 8	28 - 9	24 - 0	21 - 8	16 - 8
	24	25 - 1	21 - 0	19 - 7	14 - 10	24 - 7	19 - 7	17 - 1	13 - 2	24 - 1	19 - 3	17 - 5	13 - 2	23 - 7	19 - 3	18 - 0	13 - 8	24 - 1	19 - 7	17 - 9	13 - 8

RAFTER SPANS -- 10 PSF Dead Load/30 PSF Live Load/No Finish Ceiling/3:12 or Less Slope

2x6	16	12 - 3	12 - 0	11 - 5	8 - 10	12 - 0	11 - 7	10 - 1	7 - 10	12 - 3	11 - 5	10 - 3	7 - 10	12 - 0	11 - 5	10 - 8	8 - 1	12 - 3	11 - 7	10 - 6	8 - 1
	24	10 - 9	10 - 2	9 - 6	7 - 2	10 - 6	9 - 6	8 - 3	6 - 5	10 - 9	9 - 4	8 - 5	6 - 5	10 - 6	9 - 4	8 - 9	6 - 7	10 - 9	9 - 6	8 - 7	6 - 7
2x8	16	16 - 2	15 - 9	14 - 8	11 - 2	15 - 10	14 - 8	12 - 9	9 - 11	16 - 2	14 - 5	13 - 0	9 - 11	15 - 10	14 - 5	13 - 6	10 - 3	16 - 2	14 - 8	13 - 3	10 - 3
	24	14 - 2	12 - 10	12 - 0	9 - 1	13 - 10	12 - 0	10 - 5	8 - 1	14 - 2	11 - 9	10 - 8	8 - 1	13 - 10	11 - 9	11 - 0	8 - 4	14 - 2	12 - 0	10 - 10	8 - 4
2x10	16	20 - 8	19 - 3	17 - 11	13 - 8	20 - 2	17 - 11	15 - 7	12 - 1	20 - 8	17 - 8	15 - 11	12 - 1	20 - 2	17 - 8	16 - 6	12 - 6	20 - 8	17 - 11	16 - 3	12 - 6
	24	18 - 0	15 - 8	14 - 8	11 - 1	17 - 8	14 - 8	12 - 9	9 - 11	18 - 0	14 - 5	13 - 0	9 - 11	17 - 8	14 - 5	13 - 6	10 - 2	18 - 0	14 - 8	13 - 3	10 - 2
2x12	16	25 - 1	22 - 3	20 - 9	15 - 9	24 - 7	20 - 9	18 - 1	14 - 0	25 - 1	20 - 5	18 - 5	14 - 0	24 - 7	20 - 5	19 - 2	14 - 6	25 - 1	20 - 9	18 - 9	14 - 6
	24	21 - 11	18 - 2	17 - 0	12 - 10	21 - 6	17 - 0	14 - 9	11 - 5	20 - 11	16 - 8	15 - 1	11 - 5	20 - 5	16 - 8	15 - 7	11 - 10	20 - 11	17 - 0	15 - 4	11 - 10

RAFTER SPANS -- 10 PSF Dead Load/40 PSF Live Load/No Finish Ceiling/3:12 or Less Slope

2x6	16	11 - 2	10 - 11	10 - 4	7 - 10	10 - 11	10 - 4	9 - 0	7 - 0	11 - 2	10 - 2	9 - 2	7 - 0	10 - 11	10 - 2	9 - 6	7 - 3	11 - 2	10 - 4	9 - 5	7 - 3
	24	9 - 9	9 - 1	8 - 6	6 - 5	9 - 6	8 - 6	7 - 4	5 - 9	9 - 9	8 - 4	7 - 6	5 - 9	9 - 6	8 - 4	7 - 9	5 - 11	9 - 9	8 - 6	7 - 8	5 - 11
2x8	16	14 - 8	14 - 1	13 - 1	9 - 11	14 - 5	13 - 1	11 - 5	8 - 10	14 - 8	12 - 11	11 - 8	8 - 10	14 - 5	12 - 11	12 - 1	9 - 2	14 - 8	13 - 1	11 - 10	9 - 2
	24	12 - 10	11 - 6	10 - 9	8 - 2	12 - 7	10 - 9	9 - 4	7 - 3	12 - 10	10 - 7	9 - 6	7 - 3	12 - 7	10 - 7	9 - 10	7 - 5	12 - 10	10 - 9	9 - 8	7 - 5
2x10	16	18 - 9	17 - 2	16 - 1	12 - 2	18 - 4	16 - 1	14 - 0	10 - 10	18 - 9	15 - 9	14 - 3	10 - 10	18 - 4	15 - 9	14 - 9	11 - 2	18 - 9	16 - 1	14 - 6	11 - 2
	24	16 - 5	14 - 0	13 - 1	9 - 11	16 - 0	13 - 1	11 - 5	8 - 10	16 - 1	12 - 11	11 - 7	8 - 10	15 - 9	12 - 11	12 - 1	9 - 1	16 - 1	13 - 1	11 - 10	9 - 1
2x12	16	22 - 10	19 - 11	18 - 7	14 - 1	22 - 4	18 - 7	16 - 2	12 - 6	22 - 10	18 - 4	16 - 6	12 - 6	22 - 4	18 - 4	17 - 1	12 - 11	22 - 10	18 - 7	16 - 10	12 - 11
	24	19 - 11	16 - 3	15 - 2	11 - 6	19 - 5	15 - 2	13 - 2	10 - 3	18 - 8	14 - 11	13 - 6	10 - 3	18 - 4	14 - 11	14 - 0	10 - 7	18 - 8	15 - 2	13 - 9	10 - 7

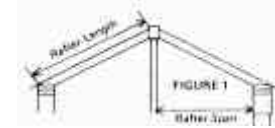
SPANS ARE CALCULATED USING REPETITIVE MEMBER VALUES INCREASED BY 15% FOR TWO MONTH DURATION OF LOADING AS FOR SNOW. SPANS ARE SHOWN IN FEET - INCHES.



Rafter Spans - International Species

RAFTER SPANS

SPANS ARE FOR RAFTERS USED IN COVERED STRUCTURES. SPANS APPLY TO LUMBER SURFACED "GREEN" OR OR SURFACED "DRY" WHICH CONFORMS TO PS20-99 SIZES. APPLICABLE DESIGN CRITERIA ARE SHOWN IN THE HEADING FOR EACH TABLE. RAFTER SPANS ARE MEASURED ALONG THE HORIZONTAL PROJECTION (SEE FIGURE 1).



JOIST		Scots pine - Austria/Czech Rep.					Scots pine - Finland					Scots pine - Germany					Scots pine - Lithuania/Estonia					Douglas fir - European Larch - Austria/Czech Republic/Germany				
Size (in.)	Spac. (in.)	Sel. Str.	No. 1	No. 2	No. 3	Sel. Str.	No. 1	No. 2	No. 3	Sel. Str.	No. 1	No. 2	No. 3	Sel. Str.	No. 1	No. 2	No. 3	Sel. Str.	No. 1	No. 2	No. 3					

RAFTER SPANS -- 10 PSF Dead Load/20 PSF Live Load/No Finish Ceiling/3:12 or Less Slope

2x6	16	14 - 4	13 - 7	12 - 4	9 - 4	13 - 9	13 - 5	13 - 1	10 - 8	14 - 1	13 - 2	12 - 4	9 - 4	13 - 9	12 - 9	11 - 10	9 - 0	-	-	-	-
	24	12 - 6	11 - 1	10 - 1	7 - 7	12 - 0	11 - 9	11 - 5	8 - 9	12 - 3	10 - 9	10 - 1	7 - 7	12 - 0	10 - 5	9 - 8	7 - 5	-	-	-	-
2x8	16	18 - 11	17 - 2	15 - 7	11 - 9	18 - 2	17 - 9	17 - 3	13 - 6	18 - 6	16 - 8	15 - 7	11 - 9	18 - 2	16 - 2	15 - 0	11 - 5	-	-	-	-
	24	16 - 6	14 - 0	12 - 9	9 - 8	15 - 10	14 - 10	14 - 8	11 - 0	16 - 2	13 - 7	12 - 9	9 - 8	15 - 10	13 - 2	12 - 3	9 - 4	-	-	-	-
2x10	16	24 - 1	21 - 0	19 - 1	14 - 5	23 - 2	22 - 2	21 - 11	16 - 6	23 - 8	20 - 4	19 - 1	14 - 5	23 - 2	19 - 9	18 - 4	14 - 0	-	-	-	-
	24	21 - 1	17 - 2	15 - 7	11 - 9	20 - 2	18 - 1	17 - 11	13 - 6	20 - 4	16 - 8	15 - 7	11 - 9	19 - 6	16 - 1	15 - 0	11 - 5	-	-	-	-
2x12	16	29 - 4	24 - 4	22 - 1	16 - 8	28 - 2	25 - 9	25 - 5	19 - 2	28 - 9	23 - 7	22 - 1	16 - 8	27 - 8	22 - 10	21 - 3	16 - 2	-	-	-	-
	24	24 - 7	19 - 11	18 - 0	13 - 8	24 - 7	21 - 0	20 - 9	15 - 7	23 - 7	19 - 3	18 - 0	13 - 8	22 - 7	18 - 8	17 - 5	13 - 2	-	-	-	-

RAFTER SPANS -- 10 PSF Dead Load/30 PSF Live Load/No Finish Ceiling/3:12 or Less Slope

2x6	16	12 - 6	11 - 9	10 - 8	8 - 1	12 - 0	11 - 9	11 - 5	9 - 3	12 - 3	11 - 5	10 - 8	8 - 1	12 - 0	11 - 0	10 - 3	7 - 10	-	-	-	-
	24	10 - 11	9 - 7	8 - 9	6 - 7	10 - 6	10 - 2	10 - 0	7 - 7	10 - 9	9 - 4	8 - 9	6 - 7	10 - 6	9 - 0	8 - 5	6 - 5	-	-	-	-
2x8	16	16 - 6	14 - 11	13 - 6	10 - 3	15 - 10	15 - 6	15 - 1	11 - 8	16 - 2	14 - 5	13 - 6	10 - 3	15 - 10	14 - 0	13 - 0	9 - 11	-	-	-	-
	24	14 - 5	12 - 2	11 - 0	8 - 4	13 - 10	12 - 10	12 - 8	9 - 7	14 - 2	11 - 9	11 - 0	8 - 4	13 - 10	11 - 5	10 - 8	8 - 1	-	-	-	-
2x10	16	21 - 1	18 - 2	16 - 6	12 - 6	20 - 2	19 - 3	19 - 0	14 - 4	20 - 8	17 - 8	16 - 6	12 - 6	20 - 2	17 - 1	15 - 11	12 - 1	-	-	-	-
	24	18 - 4	14 - 10	13 - 6	10 - 2	17 - 8	15 - 8	15 - 6	11 - 8	17 - 8	14 - 5	13 - 6	10 - 2	16 - 11	13 - 11	13 - 0	9 - 11	-	-	-	-
2x12	16	25 - 7	21 - 1	19 - 2	14 - 6	24 - 7	22 - 3	22 - 0	16 - 7	25 - 1	20 - 5	19 - 2	14 - 6	24 - 0	19 - 10	18 - 5	14 - 0	-	-	-	-
	24	21 - 3	17 - 3	15 - 7	11 - 10	21 - 3	18 - 2	18 - 0	13 - 6	20 - 5	16 - 8	15 - 7	11 - 10	19 - 7	16 - 2	15 - 1	11 - 5	-	-	-	-

RAFTER SPANS -- 10 PSF Dead Load/40 PSF Live Load/No Finish Ceiling/3:12 or Less Slope

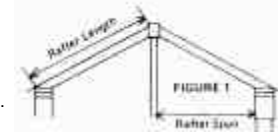
2x6	16	11 - 5	10 - 6	9 - 6	7 - 3	10 - 11	10 - 8	10 - 5	8 - 3	11 - 2	10 - 2	9 - 6	7 - 3	10 - 11	9 - 10	9 - 2	7 - 0	-	-	-	-
	24	9 - 11	8 - 7	7 - 9	5 - 11	9 - 6	9 - 1	9 - 0	6 - 9	9 - 9	8 - 4	7 - 9	5 - 11	9 - 6	8 - 1	7 - 6	5 - 9	-	-	-	-
2x8	16	15 - 0	13 - 4	12 - 1	9 - 2	14 - 5	14 - 1	13 - 9	10 - 6	14 - 8	12 - 11	12 - 1	9 - 2	14 - 5	12 - 6	11 - 8	8 - 10	-	-	-	-
	24	13 - 1	10 - 10	9 - 10	7 - 5	12 - 7	11 - 6	11 - 4	8 - 7	12 - 10	10 - 7	9 - 10	7 - 5	12 - 4	10 - 3	9 - 6	7 - 3	-	-	-	-
2x10	16	19 - 2	16 - 3	14 - 9	11 - 2	18 - 4	17 - 2	17 - 0	12 - 10	18 - 9	15 - 9	14 - 9	11 - 2	18 - 4	15 - 3	14 - 3	10 - 10	-	-	-	-
	24	16 - 5	13 - 3	12 - 1	9 - 1	16 - 0	14 - 0	13 - 10	10 - 6	15 - 9	12 - 11	12 - 1	9 - 1	15 - 1	12 - 6	11 - 7	8 - 10	-	-	-	-
2x12	16	23 - 3	18 - 10	17 - 1	12 - 11	22 - 4	19 - 11	19 - 8	14 - 10	22 - 5	18 - 4	17 - 1	12 - 11	21 - 5	17 - 9	16 - 6	12 - 6	-	-	-	-
	24	19 - 1	15 - 5	14 - 0	10 - 7	19 - 1	16 - 3	16 - 1	12 - 1	18 - 4	14 - 11	14 - 0	10 - 7	17 - 6	14 - 6	13 - 6	10 - 3	-	-	-	-

SPANS ARE CALCULATED USING REPETITIVE MEMBER VALUES INCREASED BY 15% FOR TWO MONTH DURATION OF LOADING AS FOR SNOW. SPANS ARE SHOWN IN FEET - INCHES.



RAFTER SPANS

SPANS ARE FOR RAFTERS USED IN COVERED STRUCTURES. SPANS APPLY TO LUMBER SURFACED "GREEN" OR OR SURFACED "DRY" WHICH CONFORMS TO PS20-99 SIZES. APPLICABLE DESIGN CRITERIA ARE SHOWN IN THE HEADING FOR EACH TABLE. RAFTER SPANS ARE MEASURED ALONG THE HORIZONTAL PROJECTION (SEE FIGURE 1).



JOIST		Aus. spr. - Austria/Czech Rep.					Norway spruce - Finland					Norway spruce - Germany					Norway spruce - Lithuania/Estonia					Norway spruce - Sweden				
Size (in.)	Spac. (in.)	Sel. Str.	No. 1	No. 2	No. 3	Sel. Str.	No. 1	No. 2	No. 3	Sel. Str.	No. 1	No. 2	No. 3	Sel. Str.	No. 1	No. 2	No. 3	Sel. Str.	No. 1	No. 2	No. 3	Sel. Str.	No. 1	No. 2	No. 3	

RAFTER SPANS -- 7 PSF Dead Load/20 PSF Live Load/Light Roof/Slope Over 3:12

2x4	16	9 - 10	9 - 8	9 - 2	7 - 4	9 - 8	9 - 5	8 - 5	6 - 6	9 - 10	9 - 5	8 - 7	6 - 6	9 - 8	9 - 5	8 - 10	6 - 9	9 - 10	9 - 5	8 - 9	6 - 9				
	24	8 - 7	8 - 5	7 - 10	6 - 0	8 - 5	7 - 10	6 - 10	5 - 4	8 - 7	7 - 9	7 - 0	5 - 4	8 - 5	7 - 9	7 - 3	5 - 6	8 - 7	7 - 10	7 - 1	5 - 6				
2x6	16	15 - 6	15 - 1	14 - 1	10 - 9	15 - 2	14 - 1	12 - 3	9 - 6	15 - 6	13 - 11	12 - 6	9 - 6	15 - 2	13 - 11	13 - 0	9 - 10	15 - 6	14 - 1	12 - 9	9 - 10				
	24	13 - 6	12 - 4	11 - 6	8 - 9	13 - 3	11 - 6	10 - 0	7 - 9	13 - 6	11 - 4	10 - 3	7 - 9	13 - 3	11 - 4	10 - 7	8 - 0	13 - 6	11 - 6	10 - 5	8 - 0				
2x8	16	20 - 5	19 - 2	17 - 10	13 - 7	19 - 11	17 - 10	15 - 6	12 - 0	20 - 5	17 - 7	15 - 10	12 - 0	19 - 11	17 - 7	16 - 5	12 - 5	20 - 5	17 - 10	16 - 2	12 - 5				
	24	17 - 10	15 - 8	14 - 7	11 - 1	17 - 5	14 - 7	12 - 8	9 - 10	17 - 10	14 - 4	12 - 11	9 - 10	17 - 5	14 - 4	13 - 5	10 - 2	17 - 10	14 - 7	13 - 2	10 - 2				
2x10	16	26 - 0	23 - 5	21 - 10	16 - 7	25 - 5	21 - 10	19 - 0	14 - 9	26 - 0	21 - 6	19 - 4	14 - 9	25 - 5	21 - 6	20 - 1	15 - 2	26 - 0	21 - 10	19 - 9	15 - 2				
	24	22 - 9	19 - 1	17 - 10	13 - 6	22 - 3	17 - 10	15 - 6	12 - 0	21 - 11	17 - 6	15 - 10	12 - 0	21 - 6	17 - 6	16 - 5	12 - 5	21 - 11	17 - 10	16 - 2	12 - 5				

RAFTER SPANS -- 7 PSF Dead Load/30 PSF Live Load/Light Roof/Slope Over 3:12

2x4	16	8 - 7	8 - 5	8 - 0	6 - 3	8 - 5	8 - 3	7 - 2	5 - 7	8 - 7	8 - 1	7 - 4	5 - 7	8 - 5	8 - 1	7 - 7	5 - 9	8 - 7	8 - 3	7 - 5	5 - 9				
	24	7 - 6	7 - 3	6 - 9	5 - 1	7 - 4	6 - 9	5 - 10	4 - 6	7 - 6	6 - 7	6 - 0	4 - 6	7 - 4	6 - 7	6 - 2	4 - 8	7 - 6	6 - 9	6 - 1	4 - 8				
2x6	16	13 - 6	12 - 11	12 - 1	9 - 2	13 - 3	12 - 1	10 - 6	8 - 2	13 - 6	11 - 10	10 - 8	8 - 2	13 - 3	11 - 10	11 - 1	8 - 5	13 - 6	12 - 1	10 - 11	8 - 5				
	24	11 - 10	10 - 7	9 - 10	7 - 6	11 - 7	9 - 10	8 - 7	6 - 8	11 - 10	9 - 8	8 - 9	6 - 8	11 - 7	9 - 8	9 - 1	6 - 10	11 - 10	9 - 10	8 - 11	6 - 10				
2x8	16	17 - 10	16 - 4	15 - 3	11 - 7	17 - 5	15 - 3	13 - 3	10 - 3	17 - 10	15 - 0	13 - 6	10 - 3	17 - 5	15 - 0	14 - 1	10 - 7	17 - 10	15 - 3	13 - 10	10 - 7				
	24	15 - 7	13 - 4	12 - 5	9 - 5	15 - 3	12 - 5	10 - 10	8 - 5	15 - 4	12 - 3	11 - 1	8 - 5	15 - 0	12 - 3	11 - 6	8 - 8	15 - 4	12 - 5	11 - 3	8 - 8				
2x10	16	22 - 9	20 - 0	18 - 8	14 - 2	22 - 3	18 - 8	16 - 3	12 - 7	22 - 9	18 - 4	16 - 6	12 - 7	22 - 3	18 - 4	17 - 2	13 - 0	22 - 9	18 - 8	16 - 11	13 - 0				
	24	19 - 10	16 - 4	15 - 3	11 - 7	19 - 5	15 - 3	13 - 3	10 - 3	18 - 9	15 - 0	13 - 6	10 - 3	18 - 4	15 - 0	14 - 0	10 - 7	18 - 9	15 - 3	13 - 9	10 - 7				

RAFTER SPANS -- 7 PSF Dead Load/40 PSF Live Load/Light Roof/Slope Over 3:12

2x4	16	7 - 10	7 - 8	7 - 3	5 - 7	7 - 8	7 - 4	6 - 4	4 - 11	7 - 10	7 - 2	6 - 6	4 - 11	7 - 8	7 - 2	6 - 9	5 - 1	7 - 10	7 - 4	6 - 7	5 - 1				
	24	6 - 10	6 - 5	6 - 0	4 - 6	6 - 8	6 - 0	5 - 2	4 - 0	6 - 10	5 - 10	5 - 4	4 - 0	6 - 8	5 - 10	5 - 6	4 - 2	6 - 10	6 - 0	5 - 5	4 - 2				
2x6	16	12 - 3	11 - 6	10 - 8	8 - 1	12 - 0	10 - 8	9 - 4	7 - 3	12 - 3	10 - 6	9 - 6	7 - 3	12 - 0	10 - 6	9 - 10	7 - 5	12 - 3	10 - 8	9 - 8	7 - 5				
	24	10 - 9	9 - 4	8 - 9	6 - 8	10 - 6	8 - 9	7 - 7	5 - 11	10 - 9	8 - 7	7 - 9	5 - 11	10 - 6	8 - 7	8 - 0	6 - 1	10 - 9	8 - 9	7 - 11	6 - 1				
2x8	16	16 - 2	14 - 6	13 - 6	10 - 3	15 - 10	13 - 6	11 - 9	9 - 1	16 - 2	13 - 4	12 - 0	9 - 1	15 - 10	13 - 4	12 - 6	9 - 5	16 - 2	13 - 6	12 - 3	9 - 5				
	24	14 - 2	11 - 10	11 - 1	8 - 5	13 - 10	11 - 1	9 - 7	7 - 5	13 - 7	10 - 11	9 - 10	7 - 5	13 - 4	10 - 11	10 - 2	7 - 8	13 - 7	11 - 1	10 - 0	7 - 8				
2x10	16	20 - 8	17 - 9	16 - 7	12 - 7	20 - 2	16 - 7	14 - 5	11 - 2	20 - 4	16 - 3	14 - 8	11 - 2	19 - 11	16 - 3	15 - 3	11 - 6	20 - 4	16 - 7	15 - 0	11 - 6				
	24	17 - 11	14 - 6	13 - 6	10 - 3	17 - 3	13 - 6	11 - 9	9 - 1	16 - 7	13 - 3	12 - 0	9 - 1	16 - 3	13 - 3	12 - 5	9 - 5	16 - 7	13 - 6	12 - 3	9 - 5				

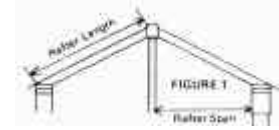
SPANS ARE CALCULATED USING REPETITIVE MEMBER VALUES INCREASED BY 15% FOR TWO MONTH DURATION OF LOADING AS FOR SNOW. SPANS ARE SHOWN IN FEET - INCHES.



Rafter Spans - International Species

RAFTER SPANS

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JOIST		Scots pine - Austria/Czech Rep.				Scots pine - Finland				Scots pine - Germany				Scots pine - Lithuania/Estonia				Douglas fir - European Larch - Austria/Czech Republic/Germany			
Size (in.)	Spac. (in.)	Sel. Str.	No. 1	No. 2	No. 3	Sel. Str.	No. 1	No. 2	No. 3	Sel. Str.	No. 1	No. 2	No. 3	Sel. Str.	No. 1	No. 2	No. 3	Sel. Str.	No. 1	No. 2	No. 3

RAFTER SPANS -- 7 PSF Dead Load/20 PSF Live Load/Light Roof/Slope Over 3:12

2x4	16	10 - 0	9 - 8	8 - 10	6 - 9	9 - 8	9 - 5	9 - 2	7 - 6	9 - 10	9 - 5	8 - 8	6 - 9	9 - 8	9 - 2	8 - 7	6 - 6	10 - 3	10 - 0	9 - 10	7 - 7
	24	8 - 9	8 - 0	7 - 3	5 - 6	8 - 5	8 - 3	8 - 0	6 - 3	8 - 7	7 - 9	7 - 3	5 - 6	8 - 5	7 - 6	7 - 0	5 - 4	8 - 11	8 - 4	8 - 3	6 - 3
2x6	16	15 - 9	14 - 4	13 - 0	9 - 10	15 - 2	14 - 9	14 - 5	11 - 3	15 - 6	13 - 11	13 - 0	9 - 10	15 - 2	13 - 5	12 - 6	9 - 6	-	-	-	-
	24	13 - 9	11 - 8	10 - 7	8 - 0	13 - 3	12 - 4	12 - 2	9 - 2	13 - 6	11 - 4	10 - 2	8 - 0	13 - 3	11 - 0	10 - 3	7 - 9	-	-	-	-
2x8	16	20 - 10	18 - 1	16 - 5	12 - 5	19 - 11	19 - 2	18 - 11	14 - 3	20 - 5	17 - 7	16 - 5	12 - 5	19 - 11	17 - 0	15 - 10	12 - 0	-	-	-	-
	24	18 - 2	14 - 10	13 - 5	10 - 2	17 - 5	15 - 8	15 - 5	11 - 8	17 - 7	14 - 4	13 - 5	10 - 2	16 - 10	13 - 11	12 - 11	9 - 10	-	-	-	-
2x10	16	26 - 6	22 - 2	20 - 1	15 - 2	25 - 5	23 - 5	23 - 1	17 - 5	26 - 0	21 - 6	20 - 1	15 - 2	25 - 2	20 - 9	19 - 4	14 - 9	-	-	-	-
	24	22 - 4	18 - 1	16 - 5	12 - 5	22 - 3	19 - 1	18 - 10	14 - 3	21 - 6	17 - 6	16 - 5	12 - 5	20 - 7	17 - 0	15 - 10	12 - 0	-	-	-	-

RAFTER SPANS -- 7 PSF Dead Load/30 PSF Live Load/Light Roof/Slope Over 3:12

2x4	16	8 - 9	8 - 4	7 - 7	5 - 9	8 - 5	8 - 3	8 - 0	6 - 7	8 - 7	8 - 1	7 - 7	5 - 9	8 - 5	7 - 10	7 - 4	5 - 7	8 - 11	8 - 9	8 - 7	6 - 6
	24	7 - 8	6 - 10	6 - 2	4 - 8	7 - 4	7 - 2	7 - 0	5 - 4	7 - 6	6 - 7	6 - 2	4 - 8	7 - 4	6 - 5	6 - 0	4 - 6	7 - 10	7 - 2	7 - 0	5 - 4
2x6	16	13 - 9	12 - 3	11 - 1	8 - 5	13 - 3	12 - 11	12 - 7	9 - 7	13 - 6	11 - 10	11 - 1	8 - 5	13 - 3	11 - 6	10 - 8	8 - 2	-	-	-	-
	24	12 - 0	10 - 0	9 - 1	6 - 10	11 - 7	10 - 7	10 - 5	7 - 10	11 - 10	9 - 8	9 - 1	6 - 10	11 - 4	9 - 4	8 - 9	6 - 8	-	-	-	-
2x8	16	18 - 2	15 - 6	14 - 1	10 - 7	17 - 5	16 - 4	16 - 2	12 - 2	17 - 10	15 - 0	14 - 1	10 - 7	17 - 5	14 - 6	13 - 6	10 - 3	-	-	-	-
	24	15 - 8	12 - 8	11 - 6	8 - 8	15 - 3	13 - 4	13 - 2	9 - 11	15 - 0	12 - 3	11 - 6	8 - 8	14 - 5	11 - 10	11 - 1	8 - 5	-	-	-	-
2x10	16	23 - 2	18 - 11	17 - 2	13 - 0	22 - 3	20 - 0	19 - 9	14 - 11	22 - 6	18 - 4	17 - 2	13 - 0	21 - 6	17 - 9	16 - 6	12 - 7	-	-	-	-
	24	19 - 1	15 - 5	14 - 0	10 - 7	19 - 1	16 - 4	16 - 1	12 - 2	18 - 4	15 - 0	14 - 0	10 - 7	17 - 7	14 - 6	13 - 6	10 - 3	-	-	-	-

RAFTER SPANS -- 7 PSF Dead Load/40 PSF Live Load/Light Roof/Slope Over 3:12

2x4	16	8 - 0	7 - 5	6 - 9	5 - 1	7 - 8	7 - 6	7 - 3	5 - 10	7 - 10	7 - 2	6 - 9	5 - 1	7 - 8	7 - 0	6 - 6	4 - 11	8 - 1	7 - 9	7 - 8	5 - 9
	24	7 - 0	6 - 1	5 - 6	4 - 2	6 - 8	6 - 5	6 - 4	4 - 9	6 - 10	5 - 10	5 - 6	4 - 2	6 - 8	5 - 8	5 - 4	4 - 0	7 - 1	6 - 4	6 - 3	4 - 9
2x6	16	12 - 6	10 - 10	9 - 10	7 - 5	12 - 0	11 - 6	11 - 4	8 - 6	12 - 3	10 - 6	9 - 10	7 - 5	12 - 0	10 - 2	9 - 6	7 - 3	-	-	-	-
	24	10 - 11	8 - 10	8 - 0	6 - 1	10 - 6	9 - 4	9 - 3	7 - 0	10 - 6	8 - 7	8 - 0	6 - 1	10 - 1	8 - 4	7 - 9	5 - 11	-	-	-	-
2x8	16	16 - 6	13 - 9	12 - 6	9 - 5	15 - 10	14 - 6	14 - 4	10 - 10	16 - 2	13 - 4	12 - 6	9 - 5	15 - 7	12 - 11	12 - 0	9 - 1	-	-	-	-
	24	13 - 10	11 - 3	10 - 2	7 - 8	13 - 10	11 - 10	11 - 8	8 - 10	13 - 4	10 - 11	10 - 2	7 - 8	12 - 9	10 - 6	9 - 10	7 - 5	-	-	-	-
2x10	16	20 - 9	16 - 9	15 - 3	11 - 6	20 - 2	17 - 9	17 - 6	13 - 3	19 - 11	16 - 3	15 - 3	11 - 6	19 - 1	15 - 9	14 - 8	11 - 2	-	-	-	-
	24	16 - 11	13 - 8	12 - 5	9 - 5	16 - 11	14 - 6	14 - 4	10 - 9	16 - 3	13 - 3	12 - 5	9 - 5	15 - 7	12 - 10	12 - 0	9 - 1	-	-	-	-

SPANS ARE CALCULATED USING REPETITIVE MEMBER VALUES INCREASED BY 15% FOR TWO MONTH DURATION OF LOADING AS FOR SNOW. SPANS ARE SHOWN IN FEET - INCHES.



2" DECKING SPANS

Listed spans are for decking 2" to 4" thick, 4" and wider graded under Paragraph 127 of Standard Grading Rules No. 17 used in covered structures. Spans apply to lumber surfaced "Green" or surfaced "Dry" which conforms to PS20-99 sizes.

LAY-UP PATTERN	DOUGLAS FIR		HEM - FIR		SITKA SPRUCE		WESTERN CEDAR	
	SELECT DEX	COMM. DEX	SELECT DEX	COMM. DEX	SELECT DEX	COMM. DEX	SELECT DEX	COMM. DEX
FLOOR DECKING 10 PSF Dead Load/40 PSF Live Load/l/360 Deflection Limit								
SIMPLE SPAN	6 - 1	6 - 0	5 - 9	5 - 7	5 - 9	5 - 6	5 - 2	5 - 0
RANDOM	6 - 8	6 - 6	6 - 3	6 - 1	6 - 3	6 - 0	5 - 8	5 - 6
ROOF DECKING 10 PSF Dead Load/20 PSF Live Load/l/240 Deflection Limit								
SIMPLE SPAN	8 - 9	8 - 7	8 - 3	8 - 1	8 - 3	7 - 11	7 - 5	7 - 3
RANDOM	9 - 7	9 - 5	9 - 0	8 - 10	9 - 0	8 - 7	8 - 2	7 - 11
ROOF DECKING 10 PSF Dead Load/30 PSF Live Load/l/240 Deflection Limit								
SIMPLE SPAN	7 - 8	7 - 6	7 - 3	7 - 1	7 - 3	6 - 11	6 - 6	6 - 4
RANDOM	8 - 4	8 - 2	7 - 11	7 - 8	7 - 11	7 - 6	7 - 1	6 - 11
ROOF DECKING 10 PSF Dead Load/40 PSF Live Load/l/240 Deflection Limit								
SIMPLE SPAN	7 - 0	6 - 10	6 - 7	6 - 5	6 - 7	6 - 3	5 - 11	5 - 9
RANDOM	7 - 7	7 - 5	7 - 2	7 - 0	7 - 2	6 - 10	6 - 5	6 - 3

JOIST & PLANK GRADES 8" AND NARROWER RUN TO PATTERN MAY BE USED AS FOLLOWS:

NO. 2 Grade -

Douglas fir use HEM-FIR Select Dex spans
 HEM-FIR use Sitka Spruce Commercial Dex spans
 SPF-S use Western Cedars Select Dex spans
 Other species use Western Cedars Commercial Dex spans

No. 3 Grade -

Douglas fir use HEM-FIR Commercial Dex spans
 HEM-FIR use Western Cedars Select Dex spans
 SPF-S use Western Cedars Commercial Dex spans
 Other species use Western Cedars Commercial Dex spans less 3 inches

SPAN RATED DECKING

Decking 5/4" to 2" in thickness graded under Paragraph 126 or Paragraph 126-r of Standard Grading Rules No. 17 is recommended for flatwise load applications where the design loading does not exceed 60 PSF uniform load or 220 lb. mid-span point load, and the span does not exceed 16" on center. A maximum span rating of 24" on center is permitted for qualified products when specifically indicated on the grade stamp.

Other useful literature and work aids published by the West Coast Lumber Inspection Bureau are:

◆ **BUYER'S GUIDE**

A manual listing all major producing lumber mills and sales outlets for West Coast Lumber, plus other information important to lumber buyers.

◆ **GRADING AND DRESSING RULES NO. 17**

A comprehensive pocket size book containing the official, ALSC-approved Standard Grading and Dressing Rules for the five major species of West Coast Lumber.
(Price - \$5.00)

◆ **GRADE STAMP MANUAL**

Pamphlet illustrating example facsimiles of official grade stamps for West Coast Lumber. A helpful guide for anyone who, buys, sells or distributes lumber.



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