SPAN TABLES FOR WOOD JOISTS, RAFTERS AND BEAMS

1971

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Associate Committee on the National Building Code
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1971

Calculated by the Forest Products Laboratory, Ottawa,
of the Department of Fisheries and Forestry
for the
Associate Committee on the National Building Code
National Research Council of Canada

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PREFACE

Recent changes in lumber sizes, allowable stresses, grading rules and grade descriptions have necessitated the recalculation of the span tables for wood joists, rafters and beams used in conjunction with Part 9 of the National Building Code of Canada. The revised tables have been prepared by the Forest Products Laboratory, Ottawa, of the Department of Fisheries and Forestry at the request of the Associate Committee on the National Building Code which gratefully acknowledges this assistance. The tables are presented in this printed form together with the new lumber grade mark facsimiles as a convenience to users of the Code.

These tables apply to lumber manufactured to the new standard sizes as specified in CSA O141-1970, "Softwood Lumber". The allowable spans have been calculated in accordance with the requirements for loads in Part 9 of the National Building Code and in conformance with the design procedures in CSA O86-1970, "Code of Recommended Practice for Engineering Design in Timber". They are based on grade descriptions contained in "1971 NLGA Standard Grading Rules for Canadian Lumber" published by the National Lumber Grades Authority.

The Associate Committee also wishes to acknowledge the assistance of the Canadian Wood Council in providing information in relation to the development of this material.

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SPAN TABLES FOR WOOD JOISTS, RAFTERS AND BEAMS

GENERAL NOTES CONCERNING SPAN TABLES AND THEIR USE

In 1971 new grading rules and new standards were introduced which affected sizes, grade descriptions and allowable stresses for lumber. These changes rendered the existing span tables in the 1970 edition of the National Building Code obsolete for lumber manufactured to these new requirements. At the request of the Associate Committee on the National Building Code, the Forest Products Laboratory, Ottawa, of the Department of Fisheries and Forestry recalculated the span tables in the light of these new grading rules and standards. These span tables are shown as Tables 1 to 11 of this publication.

Scope

The spans for rafters, roof joists and ceiling joists in this publication apply to all buildings covered by the requirements in Section 9.23, "Wood Frame Construction," of the National Building Code of Canada 1970 (i.e. buildings up to 3 storeys in height having an area in any floor not exceeding 6000 sq ft and classified as Residential, Business and Personal Service, Mercantile or Low or Medium Hazard Industrial Occupancy).

In these span tables, the term "rafter" refers to a sloping wood framing member which supports the roof sheathing but does not support a ceiling, and encloses an attic space. The term "roof joist" refers to a horizontal or sloping wood framing member that supports the roof sheathing and the ceiling finish but does not enclose an attic space.

Where rafters or roof joists are intended for use in a locality having a higher design roof snow load than shown in the tables, the maximum member spacing may be calculated as the product of the member spacing and snow load shown in the span tables divided by the design roof snow load for the locality being considered. The following are examples of how this principle can be applied:

1) *For a 60 psf design snow load,* use spans for 30 psf and 24 in. o.c. spacing but space members 12 in. o.c., or use spans for 40 psf and 24 in. o.c. spacing but space members 16 in. o.c.
2) *For a 70 psf design snow load,* use spans for 50 psf and 24 in. o.c. spacing but space members 16 in. o.c.
3) *For an 80 psf design snow load,* use spans for 40 psf and 24 in. o.c. spacing but space members 12 in. o.c.

The spans for floor joists apply only to buildings covered in Section 9.23 of the National Building Code of Canada 1970, but are limited to floors that are not required to be designed to resist concentrated loads as specified in Section 9.4, "Loads", of the Code. The span tables for wood floor joists apply to the design live loads shown in the span tables.

The spans for wood beams apply to built-up wood beams in basements, cellars or crawl spaces in one- and two-storey dwellings only. Spans for wood joists, rafters and beams which fall outside the scope of these span tables must be calculated in conformance with CSA O86-1970 which is contained in Supplement No. 4 to the National Building Code of Canada 1970.

Design Basis

The design loads and deflection limits used in calculating the span tables are those specified in Section 9.4, "Loads", of the National Building Code.

The lumber sizes assumed in the calculations are those dressed to Canadian standard sizes for yard lumber in accordance with CSA O141-1970. These sizes, based on lumber having a moisture content of 19 per cent, are as follows:

Nominal Size	Dressed Size (at 19% M.C.)
2 in. x 4 in.	1-1/2 in. x 3-1/2 in.
2 in. x 6 in.	1-1/2 in. x 5-1/2 in.
2 in. x 8 in.	1-1/2 in. x 7-1/4 in.
2 in. x 10 in.	1-1/2 in. x 9-1/4 in.
2 in. x 12 in.	1-1/2 in. x 11-1/4 in.

For moisture contents other than 19%, provision is made in CSA O141-1970 to allow for the size variations that occur as a result of changes in lumber moisture content.

The descriptions of the grades of lumber specified in the span tables are contained in the "1971 NLGA Standard Grading Rules for Canadian Lumber," published by the National Lumber Grades Authority, Vancouver. The design stresses used in calculating the span tables have been determined in conformance with CSA O86-1970.

Use of Tables

The allowable spans in the following table are measured from face or edge of support to face or edge of support.

In the case of sloping roof framing members, the spans are expressed in terms of the horizontal distance between supports rather than the length of the sloping member. The snow loads are also expressed in terms of the horizontal projection of the sloping roof. Spans for odd-size lumber (i.e. 2 in. x 5 in., 2 in. x 7 in., etc.) may be estimated by straight line interpolation in the tables. Spans for 2 in. x 5 in. lumber of Construction, Standard, or Utility grades may be 30 per cent greater than the spans for 2 in. x 4 in. lumber.

Grade Marking of Lumber

Facsimiles of typical grade marks of lumber associations and grading agencies certified by the Canadian Lumber Standards (CLS) Administrative Board to grade mark lumber in Canada are shown on pages 10 to 12. Certification by the CLS Administrative Board applies to the inspection, grading and grade marking of lumber, including mill supervisory service, in accordance with CSA Standard O141-1970, Softwood Lumber.

The grade mark of a CLS certified agency on a piece of lumber indicates its assigned grade, species or species combination, moisture condition at time of surfacing, the responsible grader or mill of origin, and the CLS certified agency under whose supervision the grading and marking was done.

Canadian lumber is graded to the NLGA Standard Grading Rules for Canadian Lumber, published by the National Lumber Grades Authority. The NLGA rules specify standard grade names and grade name abbreviations for use in grade marks, to provide positive identification of lumber grades. In a similar fashion, standard species names or standard species abbreviations, symbols or marks are provided in the rules for use in grade marks.

Beginning in 1971, grade marks will denote the moisture content of lumber at the time of surfacing. "S-DRY" in the mark indicates the lumber was surfaced at a moisture content not exceeding 19 per cent. "MC 15" indicates a moisture content not exceeding 15 per cent. "S-GRN" in the grade mark signifies that the lumber was surfaced at a moisture content higher than 19 per cent at a size to allow for natural shrinkage during seasoning.

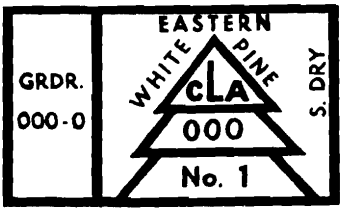
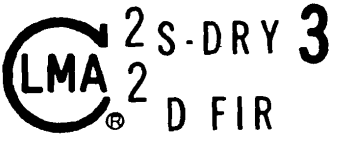
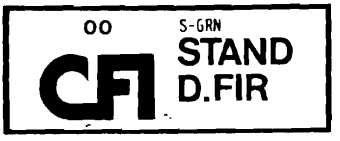
Each mill or grader is assigned a permanent number. The point of origin of lumber is identified in the grade mark by use of mill or grader number, or by the mill name or abbreviation. The CLS certified agency under whose supervision the lumber was grade marked is identified in the mark by the registered symbol of the agency, e.g. AFPA, CLA, CLMA.

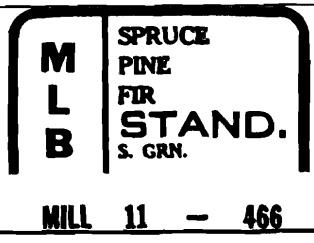
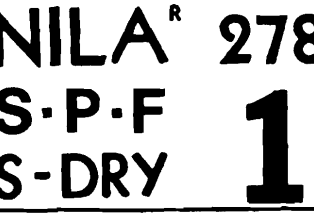
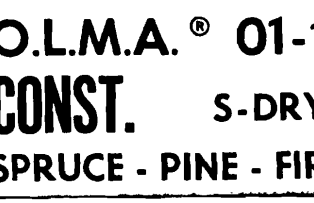
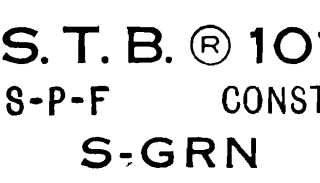
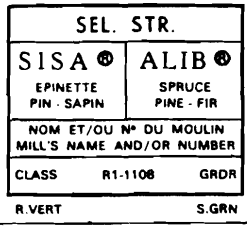
Lumber species in Tables 1 to 11 are identified by the standard commercial names for individual species given in CSA Standard O141-1970, Softwood Lumber. Since a number of

these species are marketed together, certain combinations of species are given a single species designation on grade marks. The maximum allowable spans for such species combination are those for the lowest valued individual species in the combination.

The names of various Canadian species and species combinations in the "NLGA Standard Grading Rules for Canadian Lumber" and their standard abbreviations, either of which may appear on the grade marks, are shown in the following table.

Commercial Designation of Species or Species Combination	Abbreviation Permitted on Grade Stamps	Species Included
Douglas fir-Larch	D Fir-L	Douglas fir, Western larch
Hem-Fir	Hem-Fir	Western hemlock, Amabilis fir Grand fir
Eastern hemlock-Tamarack	Hem-Tam	Eastern hemlock, Tamarack
Pacific coast yellow cedar	Y Cedar	Pacific coast yellow cedar
Jack pine	–	Jack pine
Spruce-Pine-Fir	S-P-F	White spruce Engelmann spruce Black spruce Red spruce Lodgepole pine Jack pine Alpine fir Balsam fir
Coast sitka spruce	C Sit Spr	Sitka spruce
Ponderosa pine	P Pine	Ponderosa pine
Red pine	–	Red pine
Western white pine	W W Pine	Western (Idaho) white pine
Eastern white pine	East. White Pine	Eastern white pine
Western cedars	W Cedar	Western red cedar Pacific coast yellow cedar
Poplar	–	Aspen poplar Large-tooth aspen Balsam poplar

Facsimile of Grade Mark	Association or Agency
A.F.P.A.® 00 S-GRN S-P-F CONST	Alberta Forest Products Association, 10428 – 123rd Street, Edmonton 40, Alberta.
	Canadian Lumbermen's Association, 27 Goulbourn Avenue Ottawa 2, Ontario.
	Cariboo Lumber Manufacturers Association, Box 863, Williams Lake, B.C.
	Council of the Forest Industries of British Columbia, 1500 Guinness Tower, 1055 West Hastings Street, Vancouver 1, B.C.
DOUG FIR-L ILMA93 CONST S GRN	Interior Lumber Manufacturers Association, Suite 4, 44 West Padmore St., Penticton, B.C.
M.F.P.A.20 S-P-F S-GRN STUD	Manitoba Forest Products Association, 559 Oxford Street, Winnipeg 9, Manitoba.

Facsimile of Grade Mark	Association or Agency
	Maritime Lumber Bureau, P.O. Box 459, Amherst, Nova Scotia.
	Northern Interior Lumbermen's Association, 514 The Royal Bank Building, 550 Victoria Street, Prince George, B.C.
	Ontario Lumber Manufacturers Association, 85 St. Clair Avenue, East, Toronto 7, Ontario.
	Saskatchewan Timber Board, M and C Building, Prince Albert, Sask.
	Service d'inspection des sciages de l'Atlantique, Atlantic Lumber Inspection Bureau, A Branch of Quebec Lumber Manufacturers Association, P.O. Box 657, 5 du Parloir Street, Quebec 4, P.Q.
	California Lumber Inspection Service, San Jose, California, 95125 (Branch Office: Kamloops, B.C.)

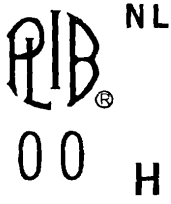
Facsimile of Grade Mark	Association or Agency
	MacDonald Inspection, 125 East 4th Avenue, Vancouver 10, B.C.
	Pacific Lumber Inspection Bureau, White-Henry-Stuart Building, Seattle, Washington. 98101 B.C. Division Office, 1460-1055 West Hastings St., Vancouver 1, B.C.
	N.W.T. Grade Stamping Agency, P.O. Box 2157, Yellowknife, N.W.T.

TABLE 1

CEILING JOISTS – ATTIC NOT ACCESSIBLE BY A STAIRWAY
(LIVE LOAD 10 lb per sq ft)

Species	Grade	Nominal Size, inches	Gypsum Board or Plastered Ceiling								Other Ceilings							
			Joist spacing								Joist spacing							
			12 IN.		16 IN.		20 IN.		24 IN.		12 IN.		16 IN.		20 IN.		24 IN.	
			FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.
Douglas Fir Western Larch	Select Structural	2 X 4	11	6	10	5	9	8	9	1	13	2	11	11	11	1	10	5
		2 X 6	18	1	16	5	15	3	14	4	20	8	18	10	17	5	16	5
		2 X 8	23	10	21	8	20	1	18	11	27	4	24	10	23	0	21	8
		2 X 10	30	5	27	8	25	8	24	2	34	10	31	8	29	5	27	8
		2 X 12	37	0	33	8	31	3	29	4	42	5	38	6	35	9	33	8
	No. 1	2 X 4	11	6	10	5	9	8	9	1	13	2	11	11	11	1	10	5
		2 X 6	18	1	16	5	15	3	14	4	20	8	18	10	17	5	16	5
		2 X 8	23	10	21	8	20	1	18	11	27	4	24	10	23	0	21	8
		2 X 10	30	5	27	8	25	8	24	2	34	10	31	8	29	5	27	8
		2 X 12	37	0	33	8	31	3	29	4	42	5	38	6	35	9	33	8
	No. 2	2 X 4	11	1	10	1	9	4	8	10	12	8	11	7	10	9	10	1
		2 X 6	17	6	15	10	14	9	13	10	20	0	18	2	16	5	15	0
		2 X 8	23	0	20	11	19	5	18	3	26	4	23	11	21	8	19	9
		2 X 10	29	5	26	8	24	9	23	4	33	8	30	7	27	7	25	2
		2 X 12	35	9	32	6	30	2	28	4	40	11	37	2	33	7	30	8
	No. 3	2 X 4	10	8	9	5	8	5	7	8	10	11	9	5	8	5	7	8
		2 X 6	16	1	13	11	12	5	11	4	16	1	13	11	12	5	11	4
		2 X 8	21	3	18	4	16	5	15	0	21	3	18	4	16	5	15	0
		2 X 10	27	1	23	5	21	0	19	2	27	1	23	5	21	0	19	2
		2 X 12	32	11	28	6	25	6	23	3	32	11	28	6	25	6	23	3
	Construction	2 X 4	10	8	9	8	9	0	8	5	12	2	10	9	9	7	8	9
	Standard	2 X 4	9	2	7	11	7	1	6	5	9	2	7	11	7	1	6	5
	Utility	2 X 4	6	5	5	7	5	0	4	7	6	5	5	7	5	0	4	7

TABLE 1 (Cont'd)

CEILING JOISTS – ATTIC NOT ACCESSIBLE BY A STAIRWAY
(LIVE LOAD 10 lb per sq ft)

Species	Grade	Nominal Size, inches	Gypsum Board or Plastered Ceiling								Other Ceilings							
			Joist spacing								Joist spacing							
			12 IN.		16 IN.		20 IN.		24 IN.		12 IN.		16 IN.		20 IN.		24 IN.	
			FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.
Pacific Coast Hemlock Amabilis Fir Grand Fir	Select Structural	2 X 4	10	10	9	10	9	2	8	7	12	5	11	3	10	6	9	10
		2 X 6	17	1	15	6	14	4	13	6	19	6	17	9	16	6	15	6
		2 X 8	22	6	20	5	19	0	17	10	25	9	23	5	21	9	20	5
		2 X 10	28	8	26	1	24	2	22	9	32	10	29	10	27	9	26	1
		2 X 12	34	11	31	9	29	5	27	8	40	0	36	4	33	9	31	9
	No. 1	2 X 4	10	10	9	10	9	2	8	7	12	5	11	3	10	6	9	10
		2 X 6	17	1	15	6	14	4	13	6	19	6	17	7	15	9	14	5
		2 X 8	22	6	20	5	19	0	17	10	25	9	23	3	20	9	19	0
		2 X 10	28	8	26	1	24	2	22	9	32	10	29	8	26	6	24	3
		2 X 12	34	11	31	9	29	5	27	8	40	0	36	1	32	3	29	5
	No. 2	2 X 4	10	6	9	6	8	10	8	4	12	0	10	11	9	10	8	11
		2 X 6	16	6	14	11	13	11	12	9	18	1	15	8	14	0	12	9
		2 X 8	21	9	19	9	18	4	16	10	23	11	20	8	18	6	16	10
		2 X 10	27	9	25	2	23	4	21	6	30	6	26	5	23	7	21	6
		2 X 12	33	9	30	8	28	5	26	2	37	1	32	1	28	9	26	2
	No. 3	2 X 4	9	2	7	11	7	1	6	5	9	2	7	11	7	1	6	5
		2 X 6	13	9	11	11	10	8	9	9	13	9	11	11	10	8	9	9
		2 X 8	18	2	15	9	14	1	12	10	18	2	15	9	14	1	12	10
		2 X 10	23	2	20	1	17	11	16	5	23	2	20	1	17	11	16	5
		2 X 12	28	2	24	5	21	10	19	11	28	2	24	5	21	10	19	11
	Construction	2 X 4	10	1	9	2	8	2	7	5	10	7	9	2	8	2	7	5
	Standard	2 X 4	7	11	6	10	6	1	5	7	7	11	6	10	6	1	5	7
	Utility	2 X 4	5	3	4	7	4	1	3	8	5	3	4	7	4	1	3	8

TABLE 1 (Cont'd)

CEILING JOISTS – ATTIC NOT ACCESSIBLE BY A STAIRWAY
(LIVE LOAD 10 lb per sq ft)

Species	Grade	Nominal Size, inches	Gypsum Board or Plastered Ceiling								Other Ceilings							
			Joist spacing								Joist spacing							
			12 IN.		16 IN.		20 IN.		24 IN.		12 IN.		16 IN.		20 IN.		24 IN.	
			FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.
Spruce (all species) Balsam Fir Alpine Fir Lodgepole Pine Ponderosa Pine	Select Structural	2 X 4	10	2	9	3	8	7	8	1	11	8	10	7	9	10	9	3
		2 X 6	16	0	14	7	13	6	12	9	18	4	16	8	15	6	14	7
		2 X 8	21	2	19	3	17	10	16	9	24	3	22	0	20	5	19	3
		2 X 10	27	0	24	6	22	9	21	5	30	11	28	1	26	1	24	6
		2 X 12	32	10	29	10	27	8	26	1	37	7	34	2	31	9	29	10
	No. 1	2 X 4	10	2	9	3	8	7	8	1	11	8	10	7	9	10	9	3
		2 X 6	16	0	14	7	13	6	12	9	18	4	16	8	15	1	13	9
		2 X 8	21	2	19	3	17	10	16	9	24	3	22	0	19	11	18	2
		2 X 10	27	0	24	6	22	9	21	5	30	11	28	1	25	5	23	2
		2 X 12	32	10	29	10	27	8	26	1	37	7	34	2	30	11	28	2
	No. 2	2 X 4	9	10	8	11	8	4	7	10	11	3	10	3	9	4	8	7
		2 X 6	15	6	14	1	13	1	12	4	17	7	15	3	13	8	12	5
		2 X 8	20	5	18	7	17	3	16	3	23	3	20	1	18	0	16	5
		2 X 10	26	1	23	9	22	0	20	9	29	8	25	8	23	0	21	0
		2 X 12	31	9	28	10	26	9	25	2	36	1	31	3	27	11	25	6
	No. 3	2 X 4	9	2	7	11	7	1	6	5	9	2	7	11	7	1	6	5
		2 X 6	13	1	11	4	10	2	9	3	13	1	11	4	10	2	9	3
		2 X 8	17	4	15	0	13	5	12	3	17	4	15	0	13	5	12	3
		2 X 10	22	1	19	2	17	1	15	7	22	1	19	2	17	1	15	7
		2 X 12	26	11	23	3	20	10	19	0	26	11	23	3	20	10	19	0
	Construction	2 X 4	9	6	8	7	7	11	7	3	10	3	8	10	7	11	7	3
	Standard	2 X 4	7	11	6	10	6	1	5	7	7	11	6	10	6	1	5	7
	Utility	2 X 4	5	3	4	7	4	1	3	8	5	3	4	7	4	1	3	8

TABLE 1 (Cont'd)

CEILING JOISTS – ATTIC NOT ACCESSIBLE BY A STAIRWAY
(LIVE LOAD 10 lb per sq ft)

Species	Grade	Nominal Size, inches	Gypsum Board or Plastered Ceiling								Other Ceilings							
			Joist spacing								Joist spacing							
			12 IN.		16 IN.		20 IN.		24 IN.		12 IN.		16 IN.		20 IN.		24 IN.	
			FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.
Western Red Cedar Red Pine Western White Pine White Pine	Select Structural	2 X 4	9	10	8	11	8	3	7	9	11	3	10	3	9	6	8	11
		2 X 6	15	6	14	1	13	0	12	3	17	8	16	1	14	11	14	1
		2 X 8	20	5	18	6	17	2	16	2	23	4	21	3	19	8	18	6
		2 X 10	26	0	23	8	21	11	20	8	29	10	27	1	25	2	23	8
		2 X 12	31	8	28	9	26	9	25	2	36	3	32	11	30	7	28	9
	No. 1	2 X 4	9	10	8	11	8	3	7	9	11	3	10	3	9	6	8	11
		2 X 6	15	6	14	1	13	0	12	3	17	8	16	1	14	9	13	5
		2 X 8	20	5	18	6	17	2	16	2	23	4	21	3	19	5	17	9
		2 X 10	26	0	23	8	21	11	20	8	29	10	27	1	24	10	22	8
		2 X 12	31	8	28	9	26	9	25	2	36	3	32	11	30	2	27	7
	No. 2	2 X 4	9	6	8	7	8	0	7	6	10	10	9	10	9	2	8	4
		2 X 6	14	11	13	6	12	7	11	10	17	1	14	10	13	3	12	1
		2 X 8	19	8	17	10	16	7	15	7	22	6	19	7	17	6	15	11
		2 X 10	25	1	22	9	21	2	19	11	28	8	25	0	22	4	20	4
		2 X 12	30	6	27	8	25	9	24	2	34	11	30	4	27	2	24	9
	No. 3	2 X 4	8	9	7	7	6	9	6	2	8	9	7	7	6	9	6	2
		2 X 6	13	1	11	4	10	2	9	3	13	1	11	4	10	2	9	3
		2 X 8	17	4	15	0	13	5	12	3	17	4	15	0	13	5	12	3
		2 X 10	22	1	19	2	17	1	15	7	22	1	19	2	17	1	15	7
		2 X 12	26	11	23	3	20	10	19	0	26	11	23	3	20	10	19	0
	Construction	2 X 4	9	1	8	3	7	8	7	0	9	10	8	7	7	8	7	0
	Standard	2 X 4	7	5	6	5	5	9	5	3	7	5	6	5	5	9	5	3
	Utility	2 X 4	5	3	4	7	4	1	3	8	5	3	4	7	4	1	3	8

TABLE 1 (Cont'd)

CEILING JOISTS – ATTIC NOT ACCESSIBLE BY A STAIRWAY
(LIVE LOAD 10 lb per sq ft)

Species	Grade	Nominal Size, inches	Gypsum Board or Plastered Ceiling								Other Ceilings							
			Joist spacing								Joist spacing							
			12 IN.		16 IN.		20 IN.		24 IN.		12 IN.		16 IN.		20 IN.		24 IN.	
			FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.
Pacific Coast Yellow Cedar Tamarack Jack Pine Eastern Hemlock	Select Structural	2 X 4	10	4	9	4	8	8	8	2	11	10	10	9	10	0	9	4
		2 X 6	16	3	14	9	13	8	12	11	18	7	16	11	15	8	14	9
		2 X 8	21	5	19	5	18	1	17	0	24	6	22	3	20	8	19	5
		2 X 10	27	4	24	10	23	1	21	8	31	4	28	5	26	5	24	10
		2 X 12	33	3	30	3	28	0	26	5	38	1	34	7	32	1	30	3
	No. 1	2 X 4	10	4	9	4	8	8	8	2	11	10	10	9	10	0	9	4
		2 X 6	16	3	14	9	13	8	12	11	18	7	16	11	15	8	14	9
		2 X 8	21	5	19	5	18	1	17	0	24	6	22	3	20	8	19	5
		2 X 10	27	4	24	10	23	1	21	8	31	4	28	5	26	5	24	10
		2 X 12	33	3	30	3	28	0	26	5	38	1	34	7	32	1	30	3
	No. 2	2 X 4	10	0	9	1	8	5	7	11	11	5	10	4	9	7	9	1
		2 X 6	15	8	14	3	13	3	12	5	17	11	16	4	15	2	14	1
		2 X 8	20	8	18	9	17	5	16	5	23	8	21	6	20	0	18	7
		2 X 10	26	5	24	0	22	3	20	11	30	3	27	5	25	6	23	8
		2 X 12	32	1	29	2	27	1	25	6	36	9	33	5	31	0	28	10
	No. 3	2 X 4	9	7	8	8	7	11	7	3	10	3	8	10	7	11	7	3
		2 X 6	15	0	12	11	11	7	10	7	15	0	12	11	11	7	10	7
		2 X 8	19	9	17	1	15	3	13	11	19	9	17	1	15	3	13	11
		2 X 10	25	2	21	10	19	6	17	10	25	2	21	10	19	6	17	10
		2 X 12	30	8	26	7	23	9	21	8	30	8	26	7	23	9	21	8
	Construction	2 X 4	9	7	8	8	8	1	7	7	11	0	10	0	8	11	8	1
	Standard	2 X 4	8	9	7	7	6	9	6	2	8	9	7	7	6	9	6	2
	Utility	2 X 4	5	11	5	1	4	7	4	2	5	11	5	1	4	7	4	2

TABLE 1 (Cont'd)

CEILING JOISTS – ATTIC NOT ACCESSIBLE BY A STAIRWAY
(LIVE LOAD 10 lb per sq ft)

Species	Grade	Nominal Size, inches	Gypsum Board or Plastered Ceiling								Other Ceilings							
			Joist spacing								Joist spacing							
			12 IN.		16 IN.		20 IN.		24 IN.		12 IN.		16 IN.		20 IN.		24 IN.	
			FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.
Aspen Poplar Large Toothed Aspen Poplar Balsam Poplar	Select Structural	2 X 4	9	11	9	0	8	4	7	11	11	5	10	4	9	7	9	0
		2 X 6	15	8	14	2	13	2	12	5	17	11	16	3	15	1	14	2
		2 X 8	20	7	18	9	17	5	16	4	23	7	21	5	19	11	18	9
		2 X 10	26	4	23	11	22	2	20	11	30	2	27	5	25	5	23	11
		2 X 12	32	0	29	1	27	0	25	5	36	8	33	4	30	11	29	1
	No. 1	2 X 4	9	11	9	0	8	4	7	11	11	5	10	4	9	7	9	0
		2 X 6	15	8	14	2	13	2	12	5	17	11	16	3	15	1	13	9
		2 X 8	20	7	18	9	17	5	16	4	23	7	21	5	19	11	18	2
		2 X 10	26	4	23	11	22	2	20	11	30	2	27	5	25	5	23	2
		2 X 12	32	0	29	1	27	0	25	5	36	8	33	4	30	11	28	2
	No. 2	2 X 4	9	7	8	9	8	1	7	7	11	0	10	0	9	3	8	7
		2 X 6	15	1	13	9	12	9	12	0	17	4	15	3	13	8	12	5
		2 X 8	19	11	18	1	16	10	15	10	22	10	20	1	18	0	16	5
		2 X 10	25	5	23	1	21	5	20	2	29	2	25	8	23	0	21	0
		2 X 12	31	0	28	1	26	1	24	7	35	5	31	3	27	11	25	6
	No. 3	2 X 4	9	2	7	11	7	1	6	5	9	2	7	11	7	1	6	5
		2 X 6	13	1	11	4	10	2	9	3	13	1	11	4	10	2	9	3
		2 X 8	17	4	15	0	13	5	12	3	17	4	15	0	13	5	12	3
		2 X 10	22	1	19	2	17	1	15	7	22	1	19	2	17	1	15	7
		2 X 12	26	11	23	3	20	10	19	0	26	11	23	3	20	10	19	0
	Construction	2 X 4	9	3	8	4	7	9	7	3	10	3	8	10	7	11	7	3
	Standard	2 X 4	7	11	6	10	6	1	5	7	7	11	6	10	6	1	5	7
	Utility	2 X 4	5	3	4	7	4	1	3	8	5	3	4	7	4	1	3	8

TABLE 2

FLOOR JOISTS – LIVING QUARTERS
(LIVE LOAD 40 lb per sq ft)

Species	Grade	Nominal Size, inches	All Ceilings							
			Joist spacing							
			12 IN.		16 IN.		20 IN.		24 IN.	
			FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.
Douglas Fir Western Larch	Select Structural	2 X 4	7	3	6	7	6	1	5	9
		2 X 6	11	4	10	4	9	7	9	0
		2 X 8	15	0	13	8	12	8	11	11
		2 X 10	19	2	17	5	16	2	15	2
		2 X 12	23	4	21	2	19	8	18	6
	No. 1	2 X 4	7	3	6	7	6	1	5	9
		2 X 6	11	4	10	4	9	7	9	0
		2 X 8	15	0	13	8	12	8	11	11
		2 X 10	19	2	17	5	16	2	15	2
		2 X 12	23	4	21	2	19	8	18	6
	No. 2	2 X 4	7	0	6	4	5	11	5	6
		2 X 6	11	0	10	0	9	3	8	5
		2 X 8	14	6	13	2	12	3	11	2
		2 X 10	18	6	16	10	15	7	14	3
		2 X 12	22	6	20	5	19	0	17	4
	No. 3	2 X 4	6	2	5	4	4	9	4	4
		2 X 6	9	1	7	10	7	0	6	5
		2 X 8	12	0	10	4	9	3	8	6
		2 X 10	15	4	13	3	11	10	10	10
		2 X 12	18	7	16	1	14	5	13	2
	Construction	2 X 4	6	8	6	1	5	5	4	11
	Standard	2 X 4	5	2	4	5	4	0	3	8
	Utility	2 X 4	3	8	3	2	2	10	2	7

TABLE 2 (Cont'd)

FLOOR JOISTS – LIVING QUARTERS
(LIVE LOAD 40 lb per sq ft)

Species	Grade	Nominal Size, inches	All Ceilings							
			Joist spacing							
			12 IN.		16 IN.		20 IN.		24 IN.	
			FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.
Pacific Coast Hemlock Amabilis Fir Grand Fir	Select Structural	2 X 4	6	10	6	2	5	9	5	5
		2 X 6	10	9	9	9	9	0	8	6
		2 X 8	14	2	12	10	11	11	11	3
		2 X 10	18	1	16	5	15	3	14	4
		2 X 12	22	0	20	0	18	6	17	5
	No. 1	2 X 4	6	10	6	2	5	9	5	5
		2 X 6	10	9	9	9	8	11	8	1
		2 X 8	14	2	12	10	11	9	10	9
		2 X 10	18	1	16	5	15	0	13	8
		2 X 12	22	0	20	0	18	3	16	8
	No. 2	2 X 4	6	7	6	0	5	6	5	0
		2 X 6	10	3	8	10	7	11	7	3
		2 X 8	13	6	11	8	10	5	9	6
		2 X 10	17	3	14	11	13	4	12	2
		2 X 12	20	11	18	2	16	3	14	10
	No. 3	2 X 4	5	2	4	5	4	0	3	8
		2 X 6	7	9	6	9	6	0	5	6
		2 X 8	10	3	8	10	7	11	7	3
		2 X 10	13	1	11	4	10	2	9	3
		2 X 12	15	11	13	10	12	4	11	3
	Construction	2 X 4	5	11	5	2	4	7	4	2
	Standard	2 X 4	4	5	3	10	3	5	3	2
	Utility	2 X 4	2	11	2	7	2	3	2	1

TABLE 2 (Cont'd)

FLOOR JOISTS -- LIVING QUARTERS
(LIVE LOAD 40 lb per sq ft)

Species	Grade	Nominal Size, inches	All Ceilings							
			Joist spacing							
			12 IN.		16 IN.		20 IN.		24 IN.	
			FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.
Spruce (all species) Balsam Fir Alpine Fir Lodgepole Pine Ponderosa Pine	Select Structural	2 X 4	6	5	5	10	5	5	5	1
		2 X 6	10	1	9	2	8	6	8	0
		2 X 8	13	4	12	1	11	3	10	7
		2 X 10	17	0	15	5	14	4	13	6
		2 X 12	20	8	18	9	17	5	16	5
	No. 1	2 X 4	6	5	5	10	5	5	5	1
		2 X 6	10	1	9	2	8	6	7	9
		2 X 8	13	4	12	1	11	3	10	3
		2 X 10	17	0	15	5	14	4	13	1
		2 X 12	20	8	18	9	17	5	15	11
	No. 2	2 X 4	6	2	5	7	5	3	4	10
		2 X 6	9	9	8	7	7	8	7	0
		2 X 8	12	10	11	4	10	2	9	3
		2 X 10	16	5	14	6	13	0	11	10
		2 X 12	20	0	17	8	15	9	14	5
	No. 3	2 X 4	5	2	4	5	4	0	3	8
		2 X 6	7	5	6	5	5	9	5	3
		2 X 8	9	9	8	6	7	7	6	11
		2 X 10	12	6	10	10	9	8	8	10
		2 X 12	15	2	13	2	11	9	10	9
	Construction	2 X 4	5	9	5	0	4	5	4	1
	Standard	2 X 4	4	5	3	10	3	5	3	2
	Utility	2 X 4	2	11	2	7	2	3	2	1

TABLE 2 (Cont'd)

FLOOR JOISTS – LIVING QUARTERS
(LIVE LOAD 40 lb per sq ft)

Species	Grade	Nominal Size, inches	All Ceilings							
			Joist spacing							
			12 IN.		16 IN.		20 IN.		24 IN.	
			FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.
Western Red Cedar Red Pine Western White Pine White Pine	Select Structural	2 X 4	6	2	5	7	5	2	4	11
		2 X 6	9	9	8	10	8	2	7	9
		2 X 8	12	10	11	8	10	10	10	2
		2 X 10	16	5	14	11	13	10	13	0
		2 X 12	19	11	18	1	16	10	15	10
	No. 1	2 X 4	6	2	5	7	5	2	4	11
		2 X 6	9	9	8	10	8	2	7	7
		2 X 8	12	10	11	8	10	10	10	0
		2 X 10	16	5	14	11	13	10	12	10
		2 X 12	19	11	18	1	16	10	15	7
	No. 2	2 X 4	5	11	5	5	5	0	4	8
		2 X 6	9	4	8	4	7	6	6	10
		2 X 8	12	4	11	1	9	10	9	0
		2 X 10	15	9	14	1	12	7	11	6
		2 X 12	19	2	17	2	15	4	14	0
	No. 3	2 X 4	4	11	4	3	3	10	3	6
		2 X 6	7	5	6	5	5	9	5	3
		2 X 8	9	9	8	6	7	7	6	11
		2 X 10	12	6	10	10	9	8	8	10
		2 X 12	15	2	13	2	11	9	10	9
	Construction	2 X 4	5	7	4	10	4	4	3	11
	Standard	2 X 4	4	2	3	8	3	3	2	11
	Utility	2 X 4	2	11	2	7	2	3	2	1

TABLE 2 (Cont'd)

FLOOR JOISTS – LIVING QUARTERS
(LIVE LOAD 40 lb per sq ft)

Species	Grade	Nominal Size, inches	All Ceilings							
			Joist spacing							
			12 IN.		16 IN.		20 IN.		24 IN.	
			FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.
Pacific Coast Yellow Cedar Tamarack Jack Pine Eastern Hemlock	Select Structural	2 X 4	6	6	5	11	5	6	5	2
		2 X 6	10	3	9	3	8	7	8	1
		2 X 8	13	6	12	3	11	4	10	8
		2 X 10	17	2	15	8	14	6	13	8
		2 X 12	20	11	19	0	17	8	16	7
	No. 1	2 X 4	6	6	5	11	5	6	5	2
		2 X 6	10	3	9	3	8	7	8	1
		2 X 8	13	6	12	3	11	4	10	8
		2 X 10	17	2	15	8	14	6	13	8
		2 X 12	20	11	19	0	17	8	16	7
	No. 2	2 X 4	6	3	5	8	5	3	5	0
		2 X 6	9	10	8	11	8	4	7	10
		2 X 8	13	0	11	10	11	0	10	4
		2 X 10	16	7	15	1	14	0	13	2
		2 X 12	20	3	18	4	17	0	16	0
	No. 3	2 X 4	5	9	5	0	4	5	4	1
		2 X 6	8	5	7	4	6	6	6	0
		2 X 8	11	2	9	8	8	8	7	10
		2 X 10	14	3	12	4	11	0	10	1
		2 X 12	17	4	15	0	13	5	12	3
	Construction	2 X 4	6	0	5	6	5	0	4	7
	Standard	2 X 4	4	11	4	3	3	10	3	6
	Utility	2 X 4	3	4	2	10	2	7	2	4

TABLE 2 (Cont'd)

FLOOR JOISTS – LIVING QUARTERS
(LIVE LOAD 40 lb per sq ft)

Species	Grade	Nominal Size, inches	All Ceilings							
			Joist spacing							
			12 IN.		16 IN.		20 IN.		24 IN.	
			FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.
Aspen Poplar Large Toothed Aspen Poplar Balsam Poplar	Select Structural	2 X 4	6	3	5	8	5	3	4	11
		2 X 6	9	10	8	11	8	3	7	10
		2 X 8	13	0	11	9	10	11	10	3
		2 X 10	16	7	15	1	14	0	13	2
		2 X 12	20	2	18	4	17	0	16	0
	No.1	2 X 4	6	3	5	8	5	3	4	11
		2 X 6	9	10	8	11	8	3	7	9
		2 X 8	13	0	11	9	10	11	10	3
		2 X 10	16	7	15	1	14	0	13	1
		2 X 12	20	2	18	4	17	0	15	11
	No. 2	2 X 4	6	0	5	6	5	1	4	9
		2 X 6	9	6	8	7	7	8	7	0
		2 X 8	12	7	11	4	10	2	9	3
		2 X 10	16	0	14	6	13	0	11	10
		2 X 12	19	6	17	8	15	9	14	5
	No. 3	2 X 4	5	2	4	5	4	0	3	8
		2 X 6	7	5	6	5	5	9	5	3
		2 X 8	9	9	8	6	7	7	6	11
		2 X 10	12	6	10	10	9	8	8	10
		2 X 12	15	2	13	2	11	9	10	9
	Construction	2 X 4	5	9	5	0	4	5	4	1
	Standard	2 X 4	4	5	3	10	3	5	3	2
	Utility	2 X 4	2	11	2	7	2	3	2	1

TABLE 3

FLOOR JOISTS – BEDROOMS, AND IN ATTICS ACCESSIBLE BY A STAIRWAY
(LIVE LOAD 30 lb per sq ft)

Species	Grade	Nominal Size, inches	Gypsum Board or Plastered Ceiling								Other Ceilings							
			Joist spacing								Joist spacing							
			12 IN.		16 IN.		20 IN.		24 IN.		12 IN.		16 IN.		20 IN.		24 IN.	
			FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.
Douglas Fir Western Larch	Select Structural	2 X 4	7	11	7	3	6	8	6	4	9	1	8	3	7	8	7	3
		2 X 6	12	6	11	4	10	7	9	11	14	4	13	0	12	1	11	4
		2 X 8	16	6	15	0	13	11	13	1	18	11	17	2	15	11	15	0
		2 X 10	21	1	19	2	17	9	16	9	24	2	21	11	20	4	19	2
		2 X 12	25	8	23	4	21	8	20	4	29	4	26	8	24	9	23	4
	No. 1	2 X 4	7	11	7	3	6	8	6	4	9	1	8	3	7	8	7	3
		2 X 6	12	6	11	4	10	7	9	11	14	4	13	0	11	8	10	7
		2 X 8	16	6	15	0	13	11	13	1	18	11	17	2	15	4	14	0
		2 X 10	21	1	19	2	17	9	16	9	24	2	21	11	19	7	17	11
		2 X 12	25	8	23	4	21	8	20	4	29	4	26	8	23	10	21	9
	No. 2	2 X 4	7	8	7	0	6	6	6	1	8	10	8	0	7	2	6	6
		2 X 6	12	1	11	0	10	2	9	7	13	7	11	9	10	6	9	7
		2 X 8	15	11	14	6	13	5	12	8	17	11	15	6	13	10	12	8
		2 X 10	20	4	18	6	17	2	16	2	22	10	19	9	17	8	16	2
		2 X 12	24	9	22	6	20	11	19	7	27	9	24	1	21	6	19	7
	No. 3	2 X 4	6	11	6	0	5	5	4	11	6	11	6	0	5	5	4	11
		2 X 6	10	3	8	11	7	11	7	3	10	3	8	11	7	11	7	3
		2 X 8	13	7	11	9	10	6	9	7	13	7	11	9	10	6	9	7
		2 X 10	17	4	15	0	13	5	12	3	17	4	15	0	13	5	12	3
		2 X 12	21	1	18	3	16	4	14	11	21	1	18	3	16	4	14	11
	Construction	2 X 4	7	4	6	8	6	1	5	7	7	11	6	10	6	1	5	7
	Standard	2 X 4	5	10	5	1	4	6	4	1	5	10	5	1	4	6	4	1
	Utility	2 X 4	4	1	3	7	3	2	2	11	4	1	3	7	3	2	2	11

TABLE 3 (Cont'd)

FLOOR JOISTS – BEDROOMS, AND IN ATTICS ACCESSIBLE BY A STAIRWAY
(LIVE LOAD 30 lb per sq ft)

Species	Grade	Nominal Size, inches	Gypsum Board or Plastered Ceiling								Other Ceilings							
			Joist spacing								Joist spacing							
			12 IN.		16 IN.		20 IN.		24 IN.		12 IN.		16 IN.		20 IN.		24 IN.	
			FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.
Pacific Coast Hemlock Amabilis Fir Grand Fir	Select Structural	2 X 4	7	6	6	10	6	4	5	11	8	7	7	10	7	3	6	9
		2 X 6	11	10	10	9	9	11	9	4	13	6	12	2	10	11	9	11
		2 X 8	15	7	14	2	13	2	12	4	17	10	16	1	14	4	13	1
		2 X 10	19	11	18	1	16	9	15	9	22	9	20	6	18	4	16	9
		2 X 12	24	2	22	0	20	5	19	2	27	8	24	11	22	4	20	4
	No. 1	2 X 4	7	6	6	10	6	4	5	11	8	7	7	9	6	11	6	4
		2 X 6	11	10	10	9	9	11	9	2	13	0	11	3	10	1	9	2
		2 X 8	15	7	14	2	13	2	12	2	17	2	14	10	13	4	12	2
		2 X 10	19	11	18	1	16	9	15	6	21	11	19	0	17	0	15	6
		2 X 12	24	2	22	0	20	5	18	10	26	8	23	1	20	8	18	10
	No. 2	2 X 4	7	3	6	7	6	1	5	9	8	1	7	0	6	3	5	9
		2 X 6	11	5	10	0	9	0	8	2	11	7	10	0	9	0	8	2
		2 X 8	15	1	13	3	11	10	10	10	15	3	13	3	11	10	10	10
		2 X 10	19	2	16	11	15	1	13	9	19	6	16	11	15	1	13	9
		2 X 12	23	4	20	7	18	4	16	9	23	9	20	7	18	4	16	9
	No. 3	2 X 4	5	10	5	1	4	6	4	1	5	10	5	1	4	6	4	1
		2 X 6	8	10	7	7	6	10	6	3	8	10	7	7	6	10	6	3
		2 X 8	11	7	10	1	9	0	8	2	11	7	10	1	9	0	8	2
		2 X 10	14	10	12	10	11	6	10	6	14	10	12	10	11	6	10	6
		2 X 12	18	1	15	7	14	0	12	9	18	1	15	7	14	0	12	9
	Construction	2 X 4	6	9	5	10	5	3	4	9	6	9	5	10	5	3	4	9
	Standard	2 X 4	5	1	4	4	3	11	3	7	5	1	4	4	3	11	3	7
	Utility	2 X 4	3	4	2	11	2	7	2	4	3	4	2	11	2	7	2	4

TABLE 3 (Cont'd)

FLOOR JOISTS – BEDROOMS, AND IN ATTICS ACCESSIBLE BY A STAIRWAY
(LIVE LOAD 30 lb per sq ft)

Species	Grade	Nominal Size, inches	Gypsum Board or Plastered Ceiling								Other Ceilings							
			Joist spacing								Joist spacing							
			12 IN.		16 IN.		20 IN.		24 IN.		12 IN.		16 IN.		20 IN.		24 IN.	
			FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.
Spruce (all species) Balsam Fir Alpine Fir Lodgepole Pine Ponderosa Pine	Select Structural	2 X 4	7	1	6	5	5	11	5	7	8	1	7	4	6	10	6	5
		2 X 6	11	1	10	1	9	4	8	10	12	9	11	7	10	6	9	7
		2 X 8	14	8	13	4	12	4	11	7	16	9	15	3	13	10	12	8
		2 X 10	18	9	17	0	15	9	14	10	21	5	19	6	17	8	16	2
		2 X 12	22	9	20	8	19	2	18	1	26	1	23	8	21	6	19	7
	No. 1	2 X 4	7	1	6	5	5	11	5	7	8	1	7	4	6	8	6	1
		2 X 6	11	1	10	1	9	4	8	10	12	6	10	9	9	8	8	10
		2 X 8	14	8	13	4	12	4	11	7	16	5	14	3	12	9	11	7
		2 X 10	18	9	17	0	15	9	14	10	21	0	18	2	16	3	14	10
		2 X 12	22	9	20	8	19	2	18	1	25	6	22	1	19	9	18	1
	No. 2	2 X 4	6	10	6	2	5	9	5	5	7	9	6	8	6	0	5	5
		2 X 6	10	9	9	9	8	9	7	11	11	3	9	9	8	9	7	11
		2 X 8	14	2	12	10	11	6	10	6	14	10	12	10	11	6	10	6
		2 X 10	18	1	16	5	14	8	13	5	19	0	16	5	14	8	13	5
		2 X 12	22	0	20	0	17	11	16	4	23	1	20	0	17	11	16	4
	No. 3	2 X 4	5	10	5	1	4	6	4	1	5	10	5	1	4	6	4	1
		2 X 6	8	5	7	3	6	6	5	11	8	5	7	3	6	6	5	11
		2 X 8	11	1	9	7	8	7	7	10	11	1	9	7	8	7	7	10
		2 X 10	14	2	12	3	10	11	10	0	14	2	12	3	10	11	10	0
		2 X 12	17	2	14	11	13	4	12	2	17	2	14	11	13	4	12	2
	Construction	2 X 4	6	6	5	8	5	1	4	7	6	6	5	8	5	1	4	7
	Standard	2 X 4	5	1	4	4	3	11	3	7	5	1	4	4	3	11	3	7
	Utility	2 X 4	3	4	2	11	2	7	2	4	3	4	2	11	2	7	2	4

TABLE 3 (Cont'd)

FLOOR JOISTS – BEDROOMS, AND IN ATTICS ACCESSIBLE BY A STAIRWAY
(LIVE LOAD 30 lb per sq ft)

Species	Grade	Nominal Size, inches	Gypsum Board or Plastered Ceiling								Other Ceilings							
			Joist spacing								Joist spacing							
			12 IN.		16 IN.		20 IN.		24 IN.		12 IN.		16 IN.		20 IN.		24 IN.	
			FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.
Western Red Cedar Red Pine Western White Pine White Pine	Select Structural	2 X 4	6	10	6	2	5	9	5	5	7	9	7	1	6	7	6	2
		2 X 6	10	9	9	9	9	0	8	6	12	3	11	2	10	3	9	5
		2 X 8	14	2	12	10	11	11	11	2	16	2	14	8	13	7	12	5
		2 X 10	18	0	16	5	15	3	14	4	20	8	18	9	17	4	15	10
		2 X 12	21	11	19	11	18	6	17	5	25	2	22	10	21	1	19	3
	No. 1	2 X 4	6	10	6	2	5	9	5	5	7	9	7	1	6	5	5	10
		2 X 6	10	9	9	9	9	0	8	6	12	2	10	6	9	5	8	7
		2 X 8	14	2	12	10	11	11	11	2	16	1	13	11	12	5	11	4
		2 X 10	18	0	16	5	15	3	14	4	20	6	17	9	15	11	14	6
		2 X 12	21	11	19	11	18	6	17	5	24	11	21	7	19	4	17	8
	No. 2	2 X 4	6	7	5	11	5	6	5	2	7	6	6	6	5	10	5	4
		2 X 6	10	4	9	4	8	6	7	9	10	11	9	6	8	6	7	9
		2 X 8	13	7	12	4	11	2	10	2	14	5	12	6	11	2	10	2
		2 X 10	17	4	15	9	14	3	13	0	18	5	16	0	14	3	13	0
		2 X 12	21	2	19	2	17	5	15	10	22	5	19	5	17	5	15	10
	No. 3	2 X 4	5	7	4	10	4	4	3	11	5	7	4	10	4	4	3	11
		2 X 6	8	5	7	3	6	6	5	11	8	5	7	3	6	6	5	11
		2 X 8	11	1	9	7	8	7	7	10	11	1	9	7	8	7	7	10
		2 X 10	14	2	12	3	10	11	10	0	14	2	12	3	10	11	10	0
		2 X 12	17	2	14	11	13	4	12	2	17	2	14	11	13	4	12	2
	Construction	2 X 4	6	4	5	5	4	11	4	5	6	4	5	5	4	11	4	5
	Standard	2 X 4	4	9	4	1	3	8	3	4	4	9	4	1	3	8	3	4
	Utility	2 X 4	3	4	2	11	2	7	2	4	3	4	2	11	2	7	2	4

TABLE 3 (Cont'd)

FLOOR JOISTS – BEDROOMS, AND IN ATTICS ACCESSIBLE BY A STAIRWAY
(LIVE LOAD 30 lb per sq ft)

Species	Grade	Nominal Size, inches	Gypsum Board or Plastered Ceiling								Other Ceilings							
			Joist spacing								Joist spacing							
			12 IN.		16 IN.		20 IN.		24 IN.		12 IN.		16 IN.		20 IN.		24 IN.	
			FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.
Pacific Coast Yellow Cedar Tamarack Jack Pine Eastern Hemlock	Select Structural	2 X 4	7	2	6	6	6	0	5	8	8	2	7	5	6	11	6	6
		2 X 6	11	3	10	3	9	6	8	11	12	11	11	8	10	10	10	3
		2 X 8	14	10	13	6	12	6	11	9	17	0	15	5	14	4	13	6
		2 X 10	18	11	17	2	16	0	15	0	21	8	19	8	18	3	17	2
		2 X 12	23	1	20	11	19	5	18	3	26	5	24	0	22	3	20	11
	No. 1	2 X 4	7	2	6	6	6	0	5	8	8	2	7	5	6	11	6	6
		2 X 6	11	3	10	3	9	6	8	11	12	11	11	8	10	10	9	11
		2 X 8	14	10	13	6	12	6	11	9	17	0	15	5	14	4	13	1
		2 X 10	18	11	17	2	16	0	15	0	21	8	19	8	18	3	16	9
		2 X 12	23	1	20	11	19	5	18	3	26	5	24	0	22	3	20	4
	No. 2	2 X 4	6	11	6	3	5	10	5	6	7	11	7	2	6	8	6	2
		2 X 6	10	10	9	10	9	2	8	7	12	5	11	0	9	10	9	0
		2 X 8	14	4	13	0	12	1	11	4	16	5	14	7	13	0	11	11
		2 X 10	18	3	16	7	15	5	14	6	20	11	18	7	16	7	15	2
		2 X 12	22	3	20	3	18	9	17	8	25	6	22	7	20	3	18	5
	No. 3	2 X 4	6	6	5	8	5	1	4	7	6	6	5	8	5	1	4	7
		2 X 6	9	7	8	3	7	5	6	9	9	7	8	3	7	5	6	9
		2 X 8	12	8	10	11	9	9	8	11	12	8	10	11	9	9	8	11
		2 X 10	16	2	14	0	12	6	11	5	16	2	14	0	12	6	11	5
		2 X 12	19	7	17	0	15	2	13	10	19	7	17	0	15	2	13	10
	Construction	2 X 4	6	8	6	0	5	7	5	2	7	4	6	4	5	8	5	2
	Standard	2 X 4	5	7	4	10	4	4	3	11	5	7	4	10	4	4	3	11
	Utility	2 X 4	3	9	3	3	2	11	2	8	3	9	3	3	2	11	2	8

TABLE 3 (Cont'd)

FLOOR JOISTS – BEDROOMS, AND IN ATTICS ACCESSIBLE BY A STAIRWAY
(LIVE LOAD 30 lb per sq ft)

Species	Grade	Nominal Size, inches	Gypsum Board or Plastered Ceiling								Other Ceilings							
			Joist spacing								Joist spacing							
			12 IN.		16 IN.		20 IN.		24 IN.		12 IN.		16 IN.		20 IN.		24 IN.	
			FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.
Aspen Poplar Large Toothed Aspen Poplar Balsam Poplar	Select Structural	2 X 4	6	10	6	3	5	10	5	5	7	11	7	2	6	8	6	3
		2 X 6	10	10	9	10	9	2	8	7	12	5	11	3	10	5	9	7
		2 X 8	14	3	13	0	12	1	11	4	16	4	14	10	13	9	12	8
		2 X 10	18	3	16	7	15	5	14	6	20	11	19	0	17	7	16	2
		2 X 12	22	2	20	2	18	9	17	7	25	5	23	1	21	5	19	7
	No. 1	2 X 4	6	10	6	3	5	10	5	5	7	11	7	2	6	8	6	1
		2 X 6	10	10	9	10	9	2	8	7	12	5	10	9	9	8	8	10
		2 X 8	14	3	13	0	12	1	11	4	16	4	14	3	12	9	11	7
		2 X 10	18	3	16	7	15	5	14	6	20	11	18	2	16	3	14	10
		2 X 12	22	2	20	2	18	9	17	7	25	5	22	1	19	9	18	1
	No. 2	2 X 4	6	8	6	0	5	7	5	3	7	7	6	8	6	0	5	5
		2 X 6	10	6	9	6	8	9	7	11	11	3	9	9	8	9	7	11
		2 X 8	13	10	12	7	11	6	10	6	14	10	12	10	11	6	10	6
		2 X 10	17	8	16	0	14	8	13	5	19	0	16	5	14	8	13	5
		2 X 12	21	5	19	6	17	11	16	4	23	1	20	0	17	11	16	4
	No. 3	2 X 4	5	10	5	1	4	6	4	1	5	10	5	1	4	6	4	1
		2 X 6	8	5	7	3	6	6	5	11	8	5	7	3	6	6	5	11
		2 X 8	11	1	9	7	8	7	7	10	11	1	9	7	8	7	7	10
		2 X 10	14	2	12	3	10	11	10	0	14	2	12	3	10	11	10	0
		2 X 12	17	2	14	11	13	4	12	2	17	2	14	11	13	4	12	2
	Construction	2 X 4	6	5	5	8	5	1	4	7	6	6	5	8	5	1	4	7
	Standard	2 X 4	5	1	4	4	3	11	3	7	5	1	4	4	3	11	3	7
	Utility	2 X 4	3	4	2	11	2	7	2	4	3	4	2	11	2	7	2	4

TABLE 4

ROOF JOISTS – SUPPORTING CEILING
(LIVE LOAD – 50 lb per sq ft)

Species	Grade	Nominal Size, inches	Gypsum Board or Plastered Ceiling								Other Ceilings							
			Joist spacing								Joist spacing							
			12 IN.		16 IN.		20 IN.		24 IN.		12 IN.		16 IN.		20 IN.		24 IN.	
			FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.
Douglas Fir Western Larch	Select Structural	2 X 4	6	8	6	1	5	8	5	4	7	8	7	0	6	6	6	1
		2 X 6	10	7	9	7	8	11	8	4	12	1	11	0	10	2	9	7
		2 X 8	13	11	12	8	11	9	11	1	15	11	14	6	13	5	12	8
		2 X 10	17	9	16	2	15	0	14	1	20	4	18	6	17	2	16	2
		2 X 12	21	8	19	8	18	3	17	2	24	9	22	6	20	11	19	8
	No. 1	2 X 4	6	8	6	1	5	8	5	4	7	8	7	0	6	6	6	1
		2 X 6	10	7	9	7	8	11	8	4	12	1	11	0	10	1	9	2
		2 X 8	13	11	12	8	11	9	11	1	15	11	14	6	13	3	12	1
		2 X 10	17	9	16	2	15	0	14	1	20	4	18	6	16	11	15	6
		2 X 12	21	8	19	8	18	3	17	2	24	9	22	6	20	7	18	10
	No. 2	2 X 4	6	6	5	11	5	5	5	2	7	5	6	9	6	2	5	8
		2 X 6	10	2	9	3	8	7	8	1	11	8	10	2	9	1	8	3
		2 X 8	13	5	12	3	11	4	10	8	15	5	13	5	12	0	10	11
		2 X 10	17	2	15	7	14	6	13	7	19	8	17	1	15	3	13	11
		2 X 12	20	11	19	0	17	7	16	7	23	11	20	9	18	7	17	0
	No. 3	2 X 4	6	0	5	2	4	8	4	3	6	0	5	2	4	8	4	3
		2 X 6	8	11	7	8	6	10	6	3	8	11	7	8	6	10	6	3
		2 X 8	11	9	10	2	9	1	8	3	11	9	10	2	9	1	8	3
		2 X 10	15	0	13	0	11	7	10	7	15	0	13	0	11	7	10	7
		2 X 12	18	3	15	9	14	1	12	10	18	3	15	9	14	1	12	10
	Construction	2 X 4	6	3	5	8	5	3	4	10	6	10	5	11	5	3	4	10
	Standard	2 X 4	5	0	4	4	3	11	3	7	5	0	4	4	3	11	3	7
	Utility	2 X 4	3	7	3	1	2	9	2	6	3	7	3	1	2	9	2	6

TABLE 4 (Cont'd)

ROOF JOISTS – SUPPORTING CEILING
(LIVE LOAD – 50 lb per sq ft)

Species	Grade	Nominal Size, inches	Gypsum Board or Plastered Ceiling								Other Ceilings							
			Joist spacing								Joist spacing							
			12 IN.		16 IN.		20 IN.		24 IN.		12 IN.		16 IN.		20 IN.		24 IN.	
			FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.
Pacific Coast Hemlock Amabilis Fir Grand Fir	Select Structural	2 X 4	6	4	5	9	5	4	5	0	7	3	6	7	6	1	5	9
		2 X 6	9	11	9	0	8	5	7	11	11	5	10	4	9	5	8	7
		2 X 8	13	2	11	11	11	1	10	5	15	0	13	8	12	5	11	4
		2 X 10	16	9	15	3	14	2	13	4	19	2	17	5	15	10	14	6
		2 X 12	20	5	18	6	17	2	16	2	23	4	21	3	19	3	17	7
	No. 1	2 X 4	6	4	5	9	5	4	5	0	7	3	6	7	6	0	5	5
		2 X 6	9	11	9	0	8	5	7	11	11	3	9	9	8	8	7	11
		2 X 8	13	2	11	11	11	1	10	5	14	10	12	10	11	6	10	6
		2 X 10	16	9	15	3	14	2	13	4	18	11	16	5	14	8	13	5
		2 X 12	20	5	18	6	17	2	16	2	23	1	20	0	17	10	16	4
	No. 2	2 X 4	6	1	5	6	5	2	4	10	7	0	6	1	5	5	4	11
		2 X 6	9	7	8	8	7	9	7	1	10	0	8	8	7	9	7	1
		2 X 8	12	8	11	5	10	3	9	4	13	2	11	5	10	3	9	4
		2 X 10	16	2	14	7	13	1	11	11	16	10	14	7	13	1	11	11
		2 X 12	19	8	17	9	15	11	14	6	20	6	17	9	15	11	14	6
	No. 3	2 X 4	5	0	4	4	3	11	3	7	5	0	4	4	3	11	3	7
		2 X 6	7	7	6	7	5	11	5	4	7	7	6	7	5	11	5	4
		2 X 8	10	0	8	8	7	9	7	1	10	0	8	8	7	9	7	1
		2 X 10	12	10	11	1	9	11	9	1	12	10	11	1	9	11	9	1
		2 X 12	15	7	13	6	12	1	11	0	15	7	13	6	12	1	11	0
	Construction	2 X 4	5	10	5	0	4	6	4	1	5	10	5	0	4	6	4	1
	Standard	2 X 4	4	4	3	9	3	4	3	1	4	4	3	9	3	4	3	1
	Utility	2 X 4	2	11	2	6	2	3	2	0	2	11	2	6	2	3	2	0

TABLE 4 (Cont'd)

ROOF JOISTS – SUPPORTING CEILING
(LIVE LOAD – 50 lb per sq ft)

Species	Grade	Nominal Size, inches	Gypsum Board or Plastered Ceiling								Other Ceilings							
			Joist spacing								Joist spacing							
			12 IN.		16 IN.		20 IN.		24 IN.		12 IN.		16 IN.		20 IN.		24 IN.	
			FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.
Spruce (all species) Balsam Fir Alpine Fir Lodgepole Pine Ponderosa Pine	Select Structural	2 X 4	5	11	5	5	5	0	4	9	6	10	6	2	5	9	5	5
		2 X 6	9	4	8	6	7	11	7	5	10	9	9	9	9	0	8	3
		2 X 8	12	4	11	3	10	5	9	10	14	2	12	10	11	11	10	11
		2 X 10	15	9	14	4	13	4	12	6	18	1	16	5	15	3	13	11
		2 X 12	19	2	17	5	16	2	15	3	22	0	20	0	18	6	17	0
	No. 1	2 X 4	5	11	5	5	5	0	4	9	6	10	6	2	5	9	5	3
		2 X 6	9	4	8	6	7	11	7	5	10	9	9	4	8	4	7	7
		2 X 8	12	4	11	3	10	5	9	10	14	2	12	4	11	0	10	0
		2 X 10	15	9	14	4	13	4	12	6	18	1	15	8	14	1	12	10
		2 X 12	19	2	17	5	16	2	15	3	22	0	19	1	17	1	15	7
	No. 2	2 X 4	5	9	5	3	4	10	4	7	6	7	5	9	5	2	4	9
		2 X 6	9	1	8	3	7	6	6	10	9	9	8	5	7	6	6	10
		2 X 8	11	11	10	10	9	11	9	1	12	10	11	1	9	11	9	1
		2 X 10	15	3	13	10	12	8	11	7	16	5	14	2	12	8	11	7
		2 X 12	18	7	16	10	15	5	14	1	20	0	17	3	15	5	14	1
	No. 3	2 X 4	5	0	4	4	3	11	3	7	5	0	4	4	3	11	3	7
		2 X 6	7	3	6	3	5	7	5	1	7	3	6	3	5	7	5	1
		2 X 8	9	7	8	3	7	5	6	9	9	7	8	3	7	5	6	9
		2 X 10	12	3	10	7	9	5	8	8	12	3	10	7	9	5	8	8
		2 X 12	14	10	12	10	11	6	10	6	14	10	12	10	11	6	10	6
	Construction	2 X 4	5	6	4	11	4	4	4	0	5	8	4	11	4	4	4	0
	Standard	2 X 4	4	4	3	9	3	4	3	1	4	4	3	9	3	4	3	1
	Utility	2 X 4	2	11	2	6	2	3	2	0	2	11	2	6	2	3	2	0

TABLE 4 (Cont'd)

ROOF JOISTS – SUPPORTING CEILING
(LIVE LOAD – 50 lb per sq ft)

Species	Grade	Nominal Size, inches	Gypsum Board or Plastered Ceiling								Other Ceilings							
			Joist spacing								Joist spacing							
			12 IN.		16 IN.		20 IN.		24 IN.		12 IN.		16 IN.		20 IN.		24 IN.	
			FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.
Western Red Cedar Red Pine Western White Pine White Pine	Select Structural	2 X 4	5	9	5	2	4	10	4	6	6	7	6	0	5	6	5	2
		2 X 6	9	0	8	2	7	7	7	2	10	4	9	5	8	9	8	1
		2 X 8	11	11	10	10	10	0	9	5	13	8	12	5	11	6	10	8
		2 X 10	15	3	13	10	12	10	12	1	17	5	15	10	14	8	13	8
		2 X 12	18	6	16	10	15	7	14	8	21	2	19	3	17	10	16	8
	No. 1	2 X 4	5	9	5	2	4	10	4	6	6	7	6	0	5	6	5	0
		2 X 6	9	0	8	2	7	7	7	2	10	4	9	1	8	2	7	5
		2 X 8	11	11	10	10	10	0	9	5	13	8	12	0	10	9	9	10
		2 X 10	15	3	13	10	12	10	12	1	17	5	15	4	13	9	12	6
		2 X 12	18	6	16	10	15	7	14	8	21	2	18	8	16	8	15	3
	No. 2	2 X 4	5	6	5	0	4	8	4	4	6	4	5	8	5	0	4	7
		2 X 6	8	8	7	11	7	4	6	8	9	6	8	2	7	4	6	8
		2 X 8	11	6	10	5	9	8	8	10	12	6	10	10	9	8	8	10
		2 X 10	14	8	13	4	12	4	11	3	15	11	13	10	12	4	11	3
		2 X 12	17	10	16	2	15	0	13	8	19	5	16	10	15	0	13	8
	No. 3	2 X 4	4	10	4	2	3	9	3	5	4	10	4	2	3	9	3	5
		2 X 6	7	3	6	3	5	7	5	1	7	3	6	3	5	7	5	1
		2 X 8	9	7	8	3	7	5	6	9	9	7	8	3	7	5	6	9
		2 X 10	12	3	10	7	9	5	8	8	12	3	10	7	9	5	8	8
		2 X 12	14	10	12	10	11	6	10	6	14	10	12	10	11	6	10	6
	Construction	2 X 4	5	4	4	9	4	3	3	10	5	5	4	9	4	3	3	10
	Standard	2 X 4	4	1	3	7	3	2	2	11	4	1	3	7	3	2	2	11
	Utility	2 X 4	2	11	2	6	2	3	2	0	2	11	2	6	2	3	2	0

TABLE 4 (Cont'd)

ROOF JOISTS – SUPPORTING CEILING
(LIVE LOAD – 50 lb per sq ft)

Species	Grade	Nominal Size, inches	Gypsum Board or Plastered Ceiling								Other Ceilings							
			Joist spacing								Joist spacing							
			12 IN.		16 IN.		20 IN.		24 IN.		12 IN.		16 IN.		20 IN.		24 IN.	
			FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.
Pacific Coast Yellow Cedar Tamarack Jack Pine Eastern Hemlock	Select Structural	2 X 4	6	0	5	6	5	1	4	9	6	11	6	3	5	10	5	6
		2 X 6	9	6	8	7	8	0	7	6	10	10	9	10	9	2	8	7
		2 X 8	12	6	11	4	10	7	9	11	14	4	13	0	12	1	11	4
		2 X 10	16	0	14	6	13	6	12	8	18	3	16	7	15	5	14	6
		2 X 12	19	5	17	8	16	5	15	5	22	3	20	3	18	9	17	8
	No. 1	2 X 4	6	0	5	6	5	1	4	9	6	11	6	3	5	10	5	6
		2 X 6	9	6	8	7	8	0	7	6	10	10	9	10	9	2	8	7
		2 X 8	12	6	11	4	10	7	9	11	14	4	13	0	12	1	11	4
		2 X 10	16	0	14	6	13	6	12	8	18	3	16	7	15	5	14	6
		2 X 12	19	5	17	8	16	5	15	5	22	3	20	3	18	9	17	7
	No. 2	2 X 4	5	10	5	3	4	11	4	7	6	8	6	0	5	7	5	3
		2 X 6	9	2	8	4	7	9	7	3	10	6	9	6	8	6	7	9
		2 X 8	12	1	11	0	10	2	9	7	13	10	12	7	11	3	10	3
		2 X 10	15	5	14	0	13	0	12	3	17	8	16	0	14	4	13	1
		2 X 12	18	9	17	0	15	10	14	11	21	6	19	6	17	6	15	11
	No. 3	2 X 4	5	7	4	11	4	4	4	0	5	8	4	11	4	4	4	0
		2 X 6	8	3	7	2	6	5	5	10	8	3	7	2	6	5	5	10
		2 X 8	10	11	9	5	8	5	7	8	10	11	9	5	8	5	7	8
		2 X 10	13	11	12	1	10	9	9	10	13	11	12	1	10	9	9	10
		2 X 12	17	0	14	8	13	2	12	0	17	0	14	8	13	2	12	0
	Construction	2 X 4	5	7	5	1	4	8	4	5	6	4	5	6	4	11	4	6
	Standard	2 X 4	4	10	4	2	3	9	3	5	4	10	4	2	3	9	3	5
	Utility	2 X 4	3	3	2	10	2	6	2	3	3	3	2	10	2	6	2	3

TABLE 4 (Cont'd)

ROOF JOISTS – SUPPORTING CEILING
(LIVE LOAD – 50 lb per sq ft)

Species	Grade	Nominal Size, inches	Gypsum Board or Plastered Ceiling								Other Ceilings							
			Joist spacing								Joist spacing							
			12 IN.		16 IN.		20 IN.		24 IN.		12 IN.		16 IN.		20 IN.		24 IN.	
			FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.
Aspen Poplar Large Toothed Aspen Poplar Balsam Poplar	Select Structural	2 X 4	5	10	5	3	4	11	4	7	6	8	6	0	5	7	5	3
		2 X 6	9	2	8	3	7	8	7	3	10	5	9	6	8	10	8	3
		2 X 8	12	1	10	11	10	2	9	7	13	9	12	6	11	7	10	11
		2 X 10	15	5	14	0	13	0	12	2	17	7	16	0	14	10	13	11
		2 X 12	18	9	17	0	15	9	14	10	21	5	19	6	18	1	17	0
	No. 1	2 X 4	5	10	5	3	4	11	4	7	6	8	6	0	5	7	5	3
		2 X 6	9	2	8	3	7	8	7	3	10	5	9	4	8	4	7	7
		2 X 8	12	1	10	11	10	2	9	7	13	9	12	4	11	0	10	0
		2 X 10	15	5	14	0	13	0	12	2	17	7	15	8	14	1	12	10
		2 X 12	18	9	17	0	15	9	14	10	21	5	19	1	17	1	15	7
	No. 2	2 X 4	5	7	5	1	4	9	4	5	6	5	5	9	5	2	4	9
		2 X 6	8	10	8	0	7	5	6	10	9	9	8	5	7	6	6	10
		2 X 8	11	8	10	7	9	10	9	1	12	10	11	1	9	11	9	1
		2 X 10	14	10	13	6	12	6	11	7	16	5	14	2	12	8	11	7
		2 X 12	18	1	16	5	15	3	14	1	20	0	17	3	15	5	14	1
	No. 3	2 X 4	5	0	4	4	3	11	3	7	5	0	4	4	3	11	3	7
		2 X 6	7	3	6	3	5	7	5	1	7	3	6	3	5	7	5	1
		2 X 8	9	7	8	3	7	5	6	9	9	7	8	3	7	5	6	9
		2 X 10	12	3	10	7	9	5	8	8	12	3	10	7	9	5	8	8
		2 X 12	14	10	12	10	11	6	10	6	14	10	12	10	11	6	10	6
	Construction	2 X 4	5	4	4	11	4	4	4	0	5	8	4	11	4	4	4	0
	Standard	2 X 4	4	4	3	9	3	4	3	1	4	4	3	9	3	4	3	1
	Utility	2 X 4	2	11	2	6	2	3	2	0	2	11	2	6	2	3	2	0

TABLE 5

ROOF JOISTS – SUPPORTING CEILING
(LIVE LOAD – 40 lb per sq ft)

Species	Grade	Nominal Size, inches	Gypsum Board or Plastered Ceiling								Other Ceilings							
			Joist spacing								Joist spacing							
			12 IN.		16 IN.		20 IN.		24 IN.		12 IN.		16 IN.		20 IN.		24 IN.	
			FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.
Douglas Fir Western Larch	Select Structural	2 X 4	7	3	6	7	6	1	5	9	8	3	7	6	7	0	6	7
		2 X 6	11	4	10	4	9	7	9	0	13	0	11	10	11	0	10	4
		2 X 8	15	0	13	8	12	8	11	11	17	2	15	7	14	6	13	8
		2 X 10	19	2	17	5	16	2	15	2	21	11	19	11	18	6	17	5
		2 X 12	23	4	21	2	19	8	18	6	26	8	24	3	22	6	21	2
	No. 1	2 X 4	7	3	6	7	6	1	5	9	8	3	7	6	7	0	6	7
		2 X 6	11	4	10	4	9	7	9	0	13	0	11	10	11	0	10	1
		2 X 8	15	0	13	8	12	8	11	11	17	2	15	7	14	6	13	3
		2 X 10	19	2	17	5	16	2	15	2	21	11	19	11	18	6	16	11
		2 X 12	23	4	21	2	19	8	18	6	26	8	24	3	22	6	20	7
	No. 2	2 X 4	7	0	6	4	5	11	5	6	8	0	7	3	6	9	6	2
		2 X 6	11	0	10	0	9	3	8	9	12	7	11	1	9	11	9	1
		2 X 8	14	6	13	2	12	3	11	6	16	7	14	8	13	1	12	0
		2 X 10	18	6	16	10	15	7	14	8	21	2	18	9	16	9	15	3
		2 X 12	22	6	20	5	19	0	17	10	25	9	22	9	20	4	18	7
	No. 3	2 X 4	6	7	5	8	5	1	4	8	6	7	5	8	5	1	4	8
		2 X 6	9	9	8	5	7	6	6	10	9	9	8	5	7	6	6	10
		2 X 8	12	10	11	1	9	11	9	1	12	10	11	1	9	11	9	1
		2 X 10	16	5	14	2	12	8	11	7	16	5	14	2	12	8	11	7
		2 X 12	20	0	17	3	15	5	14	1	20	0	17	3	15	5	14	1
	Construction	2 X 4	6	8	6	1	5	8	5	3	7	6	6	6	5	10	5	3
	Standard	2 X 4	5	6	4	9	4	3	3	11	5	6	4	9	4	3	3	11
	Utility	2 X 4	3	11	3	4	3	0	2	9	3	11	3	4	3	0	2	9

TABLE 5 (Cont'd)

ROOF JOISTS – SUPPORTING CEILING
(LIVE LOAD – 40 lb per sq ft)

Species	Grade	Nominal Size, inches	Gypsum Board or Plastered Ceiling								Other Ceilings							
			Joist spacing								Joist spacing							
			12 IN.		16 IN.		20 IN.		24 IN.		12 IN.		16 IN.		20 IN.		24 IN.	
			FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.
Pacific Coast Hemlock Amabilis Fir Grand Fir	Select Structural	2 X 4	6	10	6	2	5	9	5	5	7	10	7	1	6	7	6	2
		2 X 6	10	9	9	9	9	0	8	6	12	3	11	2	10	4	9	5
		2 X 8	14	2	12	10	11	11	11	3	16	2	14	9	13	7	12	5
		2 X 10	18	1	16	5	15	3	14	4	20	8	18	9	17	4	15	10
		2 X 12	22	0	20	0	18	6	17	5	25	2	22	10	21	2	19	3
	No. 1	2 X 4	6	10	6	2	5	9	5	5	7	10	7	1	6	7	6	0
		2 X 6	10	9	9	9	9	0	8	6	12	3	10	8	9	6	8	8
		2 X 8	14	2	12	10	11	11	11	3	16	2	14	1	12	7	11	6
		2 X 10	18	1	16	5	15	3	14	4	20	8	18	0	16	1	14	8
		2 X 12	22	0	20	0	18	6	17	5	25	2	21	10	19	7	17	10
	No. 2	2 X 4	6	7	6	0	5	6	5	3	7	6	6	8	5	11	5	5
		2 X 6	10	4	9	5	8	6	7	9	11	0	9	6	8	6	7	9
		2 X 8	13	8	12	5	11	2	10	3	14	6	12	6	11	2	10	3
		2 X 10	17	5	15	10	14	4	13	1	18	6	16	0	14	4	13	1
		2 X 12	21	3	19	3	17	5	15	11	22	6	19	5	17	5	15	11
	No. 3	2 X 4	5	6	4	9	4	3	3	11	5	6	4	9	4	3	3	11
		2 X 6	8	4	7	3	6	5	5	11	8	4	7	3	6	5	5	11
		2 X 8	11	0	9	6	8	6	7	9	11	0	9	6	8	6	7	9
		2 X 10	14	1	12	2	10	10	9	11	14	1	12	2	10	10	9	11
		2 X 12	17	1	14	10	13	3	12	1	17	1	14	10	13	3	12	1
	Construction	2 X 4	6	4	5	6	4	11	4	6	6	5	5	6	4	11	4	6
	Standard	2 X 4	4	9	4	2	3	8	3	4	4	9	4	2	3	8	3	4
	Utility	2 X 4	3	2	2	9	2	5	2	3	3	2	2	9	2	5	2	3

TABLE 5 (Cont'd)

ROOF JOISTS – SUPPORTING CEILING
(LIVE LOAD – 40 lb per sq ft)

Species	Grade	Nominal Size, inches	Gypsum Board or Plastered Ceiling								Other Ceilings							
			Joist spacing								Joist spacing							
			12 IN.		16 IN.		20 IN.		24 IN.		12 IN.		16 IN.		20 IN.		24 IN.	
			FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.
Spruce (all species) Balsam Fir Alpine Fir Lodgepole Pine Ponderosa Pine	Select Structural	2 X 4	6	5	5	10	5	5	5	1	7	4	6	8	6	2	5	10
		2 X 6	10	1	9	2	8	6	8	0	11	7	10	6	9	9	9	1
		2 X 8	13	4	12	1	11	3	10	7	15	3	13	10	12	10	12	0
		2 X 10	17	0	15	5	14	4	13	6	19	6	17	8	16	5	15	3
		2 X 12	20	8	18	9	17	5	16	5	23	8	21	6	20	0	18	7
	No. 1	2 X 4	6	5	5	10	5	5	5	1	7	4	6	8	6	2	5	9
		2 X 6	10	1	9	2	8	6	8	0	11	7	10	3	9	2	8	4
		2 X 8	13	4	12	1	11	3	10	7	15	3	13	6	12	1	11	0
		2 X 10	17	0	15	5	14	4	13	6	19	6	17	3	15	5	14	1
		2 X 12	20	8	18	9	17	5	16	5	23	8	20	11	18	9	17	1
	No. 2	2 X 4	6	2	5	7	5	3	4	11	7	1	6	4	5	8	5	2
		2 X 6	9	9	8	10	8	3	7	6	10	8	9	3	8	3	7	6
		2 X 8	12	10	11	8	10	10	9	11	14	1	12	2	10	11	9	11
		2 X 10	16	5	14	11	13	10	12	8	18	0	15	7	13	11	12	8
		2 X 12	20	0	18	2	16	10	15	5	21	10	18	11	16	11	15	5
	No. 3	2 X 4	5	6	4	9	4	3	3	11	5	6	4	9	4	3	3	11
		2 X 6	7	11	6	10	6	2	5	7	7	11	6	10	6	2	5	7
		2 X 8	10	6	9	1	8	1	7	5	10	6	9	1	8	1	7	5
		2 X 10	13	5	11	7	10	4	9	5	13	5	11	7	10	4	9	5
		2 X 12	16	4	14	1	12	7	11	6	16	4	14	1	12	7	11	6
	Construction	2 X 4	5	11	5	4	4	9	4	4	6	2	5	4	4	9	4	4
	Standard	2 X 4	4	9	4	2	3	8	3	4	4	9	4	2	3	8	3	4
	Utility	2 X 4	3	2	2	9	2	5	2	3	3	2	2	9	2	5	2	3

TABLE 5 (Cont'd)
ROOF JOISTS – SUPPORTING CEILING
(LIVE LOAD – 40 lb per sq ft)

Species	Grade	Nominal Size, inches	Gypsum Board or Plastered Ceiling								Other Ceilings							
			Joist spacing								Joist spacing							
			12 IN.		16 IN.		20 IN.		24 IN.		12 IN.		16 IN.		20 IN.		24 IN.	
			FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.
Western Red Cedar Red Pine Western White Pine White Pine	Select Structural	2 X 4	6	2	5	7	5	2	4	11	7	1	6	5	6	0	5	7
		2 X 6	9	9	8	10	8	2	7	9	11	2	10	1	9	5	8	10
		2 X 8	12	10	11	8	10	10	10	2	14	8	13	4	12	5	11	8
		2 X 10	16	5	14	11	13	10	13	0	18	9	17	1	15	10	14	11
		2 X 12	19	11	18	1	16	10	15	10	22	10	20	9	19	3	18	1
	No. 1	2 X 4	6	2	5	7	5	2	4	11	7	1	6	5	6	0	5	6
		2 X 6	9	9	8	10	8	2	7	9	11	2	10	0	8	11	8	2
		2 X 8	12	10	11	8	10	10	10	2	14	8	13	2	11	9	10	9
		2 X 10	16	5	14	11	13	10	13	0	18	9	16	10	15	0	13	9
		2 X 12	19	11	18	1	16	10	15	10	22	10	20	6	18	4	16	8
	No. 2	2 X 4	5	11	5	5	5	0	4	9	6	10	6	2	5	6	5	0
		2 X 6	9	4	8	6	7	11	7	4	10	4	9	0	8	0	7	4
		2 X 8	12	4	11	3	10	5	9	8	13	8	11	10	10	7	9	8
		2 X 10	15	9	14	4	13	4	12	4	17	6	15	1	13	6	12	4
		2 X 12	19	2	17	5	16	2	15	0	21	3	18	5	16	5	15	0
	No. 3	2 X 4	5	3	4	7	4	1	3	9	5	3	4	7	4	1	3	9
		2 X 6	7	11	6	10	6	2	5	7	7	11	6	10	6	2	5	7
		2 X 8	10	6	9	1	8	1	7	5	10	6	9	1	8	1	7	5
		2 X 10	13	5	11	7	10	4	9	5	13	5	11	7	10	4	9	5
		2 X 12	16	4	14	1	12	7	11	6	16	4	14	1	12	7	11	6
	Construction	2 X 4	5	9	5	2	4	7	4	3	6	0	5	2	4	7	4	3
	Standard	2 X 4	4	6	3	11	3	6	3	2	4	6	3	11	3	6	3	2
	Utility	2 X 4	3	2	2	9	2	5	2	3	3	2	2	9	2	5	2	3

TABLE 5 (Cont'd)

ROOF JOISTS – SUPPORTING CEILING
(LIVE LOAD – 40 lb per sq ft)

Species	Grade	Nominal Size, inches	Gypsum Board or Plastered Ceiling								Other Ceilings							
			Joist spacing								Joist spacing							
			12 IN.		16 IN.		20 IN.		24 IN.		12 IN.		16 IN.		20 IN.		24 IN.	
			FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.
Pacific Coast Yellow Cedar Tamarack Jack Pine Eastern Hemlock	Select Structural	2 X 4	6	6	5	11	5	6	5	2	7	5	6	9	6	3	5	11
		2 X 6	10	3	9	3	8	7	8	1	11	8	10	7	9	10	9	3
		2 X 8	13	6	12	3	11	4	10	8	15	5	14	0	13	0	12	3
		2 X 10	17	2	15	8	14	6	13	8	19	8	17	11	16	7	15	8
		2 X 12	20	11	19	0	17	8	16	7	24	0	21	9	20	3	19	0
	No. 1	2 X 4	6	6	5	11	5	6	5	2	7	5	6	9	6	3	5	11
		2 X 6	10	3	9	3	8	7	8	1	11	8	10	7	9	10	9	3
		2 X 8	13	6	12	3	11	4	10	8	15	5	14	0	13	0	12	3
		2 X 10	17	2	15	8	14	6	13	8	19	8	17	11	16	7	15	8
		2 X 12	20	11	19	0	17	8	16	7	24	0	21	9	20	3	19	0
	No. 2	2 X 4	6	3	5	8	5	3	5	0	7	2	6	6	6	0	5	8
		2 X 6	9	10	8	11	8	4	7	10	11	4	10	3	9	4	8	6
		2 X 8	13	0	11	10	11	0	10	4	14	11	13	6	12	4	11	3
		2 X 10	16	7	15	1	14	0	13	2	19	0	17	3	15	9	14	4
		2 X 12	20	3	18	4	17	0	16	0	23	2	21	0	19	2	17	6
	No. 3	2 X 4	6	0	5	4	4	9	4	4	6	2	5	4	4	9	4	4
		2 X 6	9	1	7	10	7	0	6	5	9	1	7	10	7	0	6	5
		2 X 8	12	0	10	4	9	3	8	5	12	0	10	4	9	3	8	5
		2 X 10	15	3	13	3	11	10	10	9	15	3	13	3	11	10	10	9
		2 X 12	18	7	16	1	14	5	13	2	18	7	16	1	14	5	13	2
	Construction	2 X 4	6	0	5	6	5	1	4	9	6	11	6	0	5	5	4	11
	Standard	2 X 4	5	3	4	7	4		3	9	5	3	4	7	4		3	9
	Utility	2 X 4	3	7	3	1	2	9	2	6	3	7	3	1	2	9	2	6

TABLE 5 (Cont'd)

ROOF JOISTS – SUPPORTING CEILING
(LIVE LOAD – 40 lb per sq ft)

Species	Grade	Nominal Size, inches	Gypsum Board or Plastered Ceiling								Other Ceilings							
			Joist spacing								Joist spacing							
			12 IN.		16 IN.		20 IN.		24 IN.		12 IN.		16 IN.		20 IN.		24 IN.	
			FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.
Aspen Poplar Large Toothed Aspen Poplar Balsam Poplar	Select Structural	2 X 4	6	3	5	8	5	3	4	11	7	2	6	6	6	0	5	8
		2 X 6	9	10	8	11	8	3	7	10	11	3	10	3	9	6	8	11
		2 X 8	13	0	11	9	10	11	10	3	14	10	13	6	12	6	11	9
		2 X 10	16	7	15	1	14	0	13	2	19	0	17	3	16	0	15	1
		2 X 12	20	2	18	4	17	0	16	0	23	1	21	0	19	6	18	4
	No. 1	2 X 4	6	3	5	8	5	3	4	11	7	2	6	6	6	0	5	8
		2 X 6	9	10	8	11	8	3	7	10	11	3	10	3	9	2	8	4
		2 X 8	13	0	11	9	10	11	10	3	14	10	13	6	12	1	11	0
		2 X 10	16	7	15	1	14	0	13	2	19	0	17	3	15	5	14	1
		2 X 12	20	2	18	4	17	0	16	0	23	1	20	11	18	9	17	1
	No. 2	2 X 4	6	0	5	6	5	1	4	9	6	11	6	3	5	8	5	2
		2 X 6	9	6	8	8	8	0	7	6	10	8	9	3	8	3	7	6
		2 X 8	12	7	11	5	10	7	9	11	14	1	12	2	10	11	9	11
		2 X 10	16	0	14	7	13	6	12	8	18	0	15	7	13	11	12	8
		2 X 12	19	6	17	8	16	5	15	5	21	10	18	11	16	11	15	5
	No. 3	2 X 4	5	6	4	9	4	3	3	11	5	6	4	9	4	3	3	11
		2 X 6	7	11	6	10	6	2	5	7	7	11	6	10	6	2	5	7
		2 X 8	10	6	9	1	8	1	7	5	10	6	9	1	8	1	7	5
		2 X 10	13	5	11	7	10	4	9	5	13	5	11	7	10	4	9	5
		2 X 12	16	4	14	1	12	7	11	6	16	4	14	1	12	7	11	6
	Construction	2 X 4	5	10	5	3	4	9	4	4	6	2	5	4	4	9	4	4
	Standard	2 X 4	4	9	4	2	3	8	3	4	4	9	4	2	3	8	3	4
	Utility	2 X 4	3	2	2	9	2	5	2	3	3	2	2	9	2	5	2	3

TABLE 6

ROOF JOISTS – SUPPORTING CEILING
(LIVE LOAD 30 lb per sq ft)

Species	Grade	Nominal Size, inches	Gypsum Board or Plastered Ceiling								Other Ceilings							
			Joist spacing								Joist spacing							
			12 IN.		16 IN.		20 IN.		24 IN.		12 IN.		16 IN.		20 IN.		24 IN.	
			FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.
Douglas Fir Western Larch	Select Structural	2 X 4	7	11	7	3	6	8	6	4	9	1	8	3	7	8	7	3
		2 X 6	12	6	11	4	10	7	9	11	14	4	13	0	12	1	11	4
		2 X 8	16	6	15	0	13	11	13	1	18	11	17	2	15	11	15	0
		2 X 10	21	1	19	2	17	9	16	9	24	2	21	11	20	4	19	2
		2 X 12	25	8	23	4	21	8	20	4	29	4	26	8	24	9	23	4
	No. 1	2 X 4	7	11	7	3	6	8	6	4	9	1	8	3	7	8	7	3
		2 X 6	12	6	11	4	10	7	9	11	14	4	13	0	12	1	11	3
		2 X 8	16	6	15	0	13	11	13	1	18	11	17	2	15	11	14	10
		2 X 10	21	1	19	2	17	9	16	9	24	2	21	11	20	4	18	11
		2 X 12	25	8	23	4	21	8	20	4	29	4	26	8	24	9	23	1
	No. 2	2 X 4	7	8	7	0	6	6	6	1	8	10	8	0	7	5	6	11
		2 X 6	12	1	11	0	10	2	9	7	13	10	12	5	11	1	10	2
		2 X 8	15	11	14	6	13	5	12	8	18	3	16	5	14	8	13	5
		2 X 10	20	4	18	6	17	2	16	2	23	4	20	11	18	9	17	1
		2 X 12	24	9	22	6	20	11	19	8	28	4	25	6	22	9	20	9
	No. 3	2 X 4	7	4	6	4	5	8	5	2	7	4	6	4	5	8	5	2
		2 X 6	10	11	9	5	8	5	7	8	10	11	9	5	8	5	7	8
		2 X 8	14	4	12	5	11	1	10	2	14	4	12	5	11	1	10	2
		2 X 10	18	4	15	11	14	2	13	0	18	4	15	11	14	2	13	0
		2 X 12	22	4	19	4	17	3	15	9	22	4	19	4	17	3	15	9
	Construction	2 X 4	7	4	6	8	6	3	5	10	8	5	7	3	6	6	5	11
	Standard	2 X 4	6	2	5	4	4	9	4	4	6	2	5	4	4	9	4	4
	Utility	2 X 4	4	4	3	9	3	4	3	1	4	4	3	9	3	4	3	1

TABLE 6 (Cont'd)

ROOF JOISTS – SUPPORTING CEILING
(LIVE LOAD 30 lb per sq ft)

Species	Grade	Nominal Size, inches	Gypsum Board or Plastered Ceiling								Other Ceilings							
			Joist spacing								Joist spacing							
			12 IN.		16 IN.		20 IN.		24 IN.		12 IN.		16 IN.		20 IN.		24 IN.	
			FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.
Pacific Coast Hemlock Amabilis Fir Grand Fir	Select Structural	2 X 4	7	6	6	10	6	4	5	11	8	7	7	10	7	3	6	10
		2 X 6	11	10	10	9	9	11	9	4	13	6	12	3	11	5	10	6
		2 X 8	15	7	14	2	13	2	12	4	17	10	16	2	15	0	13	11
		2 X 10	19	11	18	1	16	9	15	9	22	9	20	8	19	2	17	9
		2 X 12	24	2	22	0	20	5	19	2	27	8	25	2	23	4	21	7
	No. 1	2 X 4	7	6	6	10	6	4	5	11	8	7	7	10	7	3	6	8
		2 X 6	11	10	10	9	9	11	9	4	13	6	11	11	10	8	9	9
		2 X 8	15	7	14	2	13	2	12	4	17	10	15	9	14	1	12	10
		2 X 10	19	11	18	1	16	9	15	9	22	9	20	1	18	0	16	5
		2 X 12	24	2	22	0	20	5	19	2	27	8	24	6	21	10	20	0
	No. 2	2 X 4	7	3	6	7	6	1	5	9	8	4	7	5	6	8	6	1
		2 X 6	11	5	10	4	9	6	8	8	12	3	10	7	9	6	8	8
		2 X 8	15	1	13	8	12	6	11	5	16	2	14	0	12	6	11	5
		2 X 10	19	2	17	5	16	0	14	7	20	8	17	11	16	0	14	7
		2 X 12	23	4	21	3	19	5	17	9	25	2	21	9	19	5	17	9
	No. 3	2 X 4	6	2	5	4	4	9	4	4	6	2	5	4	4	9	4	4
		2 X 6	9	4	8	1	7	3	6	7	9	4	8	1	7	3	6	7
		2 X 8	12	4	10	8	9	6	8	8	12	4	10	8	9	6	8	8
		2 X 10	15	8	13	7	12	2	11	1	15	8	13	7	12	2	11	1
		2 X 12	19	1	16	7	14	10	13	6	19	1	16	7	14	10	13	6
	Construction	2 X 4	7	0	6	2	5	6	5	0	7	2	6	2	5	6	5	0
	Standard	2 X 4	5	4	4	8	4	2	3	9	5	4	4	8	4	2	3	9
	Utility	2 X 4	3	7	3	1	2	9	2	6	3	7	3	1	2	9	2	6

TABLE 6 (Cont'd)

ROOF JOISTS – SUPPORTING CEILING
(LIVE LOAD 30 lb per sq ft)

Species	Grade	Nominal Size, inches	Gypsum Board or Plastered Ceiling								Other Ceilings							
			Joist spacing								Joist spacing							
			12 IN.		16 IN.		20 IN.		24 IN.		12 IN.		16 IN.		20 IN.		24 IN.	
			FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.
Spruce (all species) Balsam Fir Alpine Fir Lodgepole Pine Ponderosa Pine	Select Structural	2 X 4	7	1	6	5	5	11	5	7	8	1	7	4	6	10	6	5
		2 X 6	11	1	10	1	9	4	8	10	12	9	11	7	10	9	10	1
		2 X 8	14	8	13	4	12	4	11	7	16	9	15	3	14	2	13	4
		2 X 10	18	9	17	0	15	9	14	10	21	5	19	6	18	1	17	0
		2 X 12	22	9	20	8	19	2	18	1	26	1	23	8	22	0	20	8
	No. 1	2 X 4	7	1	6	5	5	11	5	7	8	1	7	4	6	10	6	5
		2 X 6	11	1	10	1	9	4	8	10	12	9	11	5	10	3	9	4
		2 X 8	14	8	13	4	12	4	11	7	16	9	15	1	13	6	12	4
		2 X 10	18	9	17	0	15	9	14	10	21	5	19	3	17	3	15	8
		2 X 12	22	9	20	8	19	2	18	1	26	1	23	5	20	11	19	1
	No. 2	2 X 4	6	10	6	2	5	9	5	5	7	10	7	1	6	4	5	9
		2 X 6	10	9	9	9	9	1	8	5	11	11	10	4	9	3	8	5
		2 X 8	14	2	12	10	11	11	11	1	15	9	13	8	12	2	11	1
		2 X 10	18	1	16	5	15	3	14	2	20	1	17	5	15	7	14	2
		2 X 12	22	0	20	0	18	7	17	3	24	6	21	2	18	11	17	3
	No. 3	2 X 4	6	2	5	4	4	9	4	4	6	2	5	4	4	9	4	4
		2 X 6	8	11	7	8	6	10	6	3	8	11	7	8	6	10	6	3
		2 X 8	11	9	10	2	9	1	8	3	11	9	10	2	9	1	8	3
		2 X 10	15	0	13	0	11	7	10	7	15	0	13	0	11	7	10	7
		2 X 12	18	3	15	9	14	1	12	10	18	3	15	9	14	1	12	10
	Construction	2 X 4	6	7	5	11	5	4	4	11	6	11	6	0	5	4	4	11
	Standard	2 X 4	5	4	4	8	4	2	3	9	5	4	4	8	4	2	3	9
	Utility	2 X 4	3	7	3	1	2	9	2	6	3	7	3	1	2	9	2	6

TABLE 6 (Cont'd)

ROOF JOISTS – SUPPORTING CEILING
(LIVE LOAD 30 lb per sq ft)

Species	Grade	Nominal Size, inches	Gypsum Board or Plastered Ceiling								Other Ceilings							
			Joist spacing								Joist spacing							
			12 IN.		16 IN.		20 IN.		24 IN.		12 IN.		16 IN.		20 IN.		24 IN.	
			FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.
Western Red Cedar Red Pine Western White Pine White Pine	Select Structural	2 X 4	6	10	6	2	5	9	5	5	7	9	7	1	6	7	6	2
		2 X 6	10	9	9	9	9	0	8	6	12	3	11	2	10	4	9	9
		2 X 8	14	2	12	10	11	11	11	2	16	2	14	8	13	8	12	10
		2 X 10	18	0	16	5	15	3	14	4	20	8	18	9	17	5	16	5
		2 X 12	21	11	19	11	18	6	17	5	25	2	22	10	21	2	19	11
	No. 1	2 X 4	6	10	6	2	5	9	5	5	7	9	7	1	6	7	6	2
		2 X 6	10	9	9	9	9	0	8	6	12	3	11	2	10	0	9	1
		2 X 8	14	2	12	10	11	11	11	2	16	2	14	8	13	2	12	0
		2 X 10	18	0	16	5	15	3	14	4	20	8	18	9	16	10	15	4
		2 X 12	21	11	19	11	18	6	17	5	25	2	22	10	20	6	18	8
	No. 2	2 X 4	6	7	5	11	5	6	5	2	7	6	6	10	6	2	5	8
		2 X 6	10	4	9	4	8	8	8	2	11	7	10	0	9	0	8	2
		2 X 8	13	7	12	4	11	6	10	9	15	4	13	3	11	10	10	10
		2 X 10	17	4	15	9	14	8	13	9	19	6	16	11	15	1	13	10
		2 X 12	21	2	19	2	17	10	16	9	23	9	20	7	18	5	16	10
	No. 3	2 X 4	5	11	5	1	4	7	4	2	5	11	5	1	4	7	4	2
		2 X 6	8	11	7	8	6	10	6	3	8	11	7	8	6	10	6	3
		2 X 8	11	9	10	2	9	1	8	3	11	9	10	2	9	1	8	3
		2 X 10	15	0	13	0	11	7	10	7	15	0	13	0	11	7	10	7
		2 X 12	18	3	15	9	14	1	12	10	18	3	15	9	14	1	12	10
	Construction	2 X 4	6	4	5	9	5	2	4	9	6	8	5	9	5	2	4	9
	Standard	2 X 4	5	0	4	4	3	11	3	7	5	0	4	4	3	11	3	7
	Utility	2 X 4	3	7	3	1	2	9	2	6	3	7	3	1	2	9	2	6

TABLE 6 (Cont'd)

ROOF JOISTS – SUPPORTING CEILING
(LIVE LOAD 30 lb per sq ft)

Species	Grade	Nominal Size, inches	Gypsum Board or Plastered Ceiling								Other Ceilings							
			Joist spacing								Joist spacing							
			12 IN.		16 IN.		20 IN.		24 IN.		12 IN.		16 IN.		20 IN.		24 IN.	
			FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.
Pacific Coast Yellow Cedar Tamarack Jack Pine Eastern Hemlock	Select Structural	2 X 4	7	2	6	6	6	0	5	8	8	2	7	5	6	11	6	6
		2 X 6	11	3	10	3	9	6	8	11	12	11	11	8	10	10	10	3
		2 X 8	14	10	13	6	12	6	11	9	17	0	15	5	14	4	13	6
		2 X 10	18	11	17	2	16	0	15	0	21	8	19	8	18	3	17	2
		2 X 12	23	1	20	11	19	5	18	3	26	5	24	0	22	3	20	11
	No. 1	2 X 4	7	2	6	6	6	0	5	8	8	2	7	5	6	11	6	6
		2 X 6	11	3	10	3	9	6	8	11	12	11	11	8	10	10	10	3
		2 X 8	14	10	13	6	12	6	11	9	17	0	15	5	14	4	13	6
		2X 10	18	11	17	2	16	0	15	0	21	8	19	8	18	3	17	2
		2 X 12	23	1	20	11	19	5	18	3	26	5	24	0	22	3	20	11
	No. 2	2 X 4	6	11	6	3	5	10	5	6	7	11	7	2	6	8	6	3
		2 X 6	10	10	9	10	9	2	8	7	12	5	11	4	10	5	9	6
		2 X 8	14	4	13	0	12	1	11	4	16	5	14	11	13	9	12	7
		2 X 10	18	3	16	7	15	5	14	6	20	11	19	0	17	7	16	1
		2 X 12	22	3	20	3	18	9	17	8	25	6	23	2	21	5	19	7
	No. 3	2 X 4	6	8	6	0	5	4	4	11	6	11	6	0	5	4	4	11
		2 X 6	10	2	8	9	7	10	7	2	10	2	8	9	7	10	7	2
		2 X 8	13	5	11	7	10	4	9	5	13	5	11	7	10	4	9	5
		2 X 10	17	1	14	9	13	3	12	1	17	1	14	9	13	3	12	1
		2 X 12	20	9	18	0	16	1	14	8	20	9	18	0	16	1	14	8
	Construction	2 X 4	6	8	6	0	5	7	5	3	7	7	6	9	6	0	5	6
	Standard	2 X 4	5	11	5	1	4	7	4	2	5	11	5	1	4	7	4	2
	Utility	2 X 4	4	0	3	5	3	1	2	10	4	0	3	5	3	1	2	10

TABLE 6 (Cont'd)

ROOF JOISTS – SUPPORTING CEILING
(LIVE LOAD 30 lb per sq ft)

Species	Grade	Nominal Size, inches	Gypsum Board or Plastered Ceiling								Other Ceilings							
			Joist spacing								Joist spacing							
			12 IN.		16 IN.		20 IN.		24 IN.		12 IN.		16 IN.		20 IN.		24 IN.	
			FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.
Aspen Poplar Large Toothed Aspen Poplar Balsam Poplar	Select Structural	2 X 4	6	10	6	3	5	10	5	5	7	11	7	2	6	8	6	3
		2 X 6	10	10	9	10	9	2	8	7	12	5	11	3	10	5	9	10
		2 X 8	14	3	13	0	12	1	11	4	16	4	14	10	13	9	13	0
		2 X 10	18	3	16	7	15	5	14	6	20	11	19	0	17	7	16	7
		2 X 12	22	2	20	2	18	9	17	7	25	5	23	1	21	5	20	2
	No. 1	2 X 4	6	10	6	3	5	10	5	5	7	11	7	2	6	8	6	3
		2 X 6	10	10	9	10	9	2	8	7	12	5	11	3	10	3	9	4
		2 X 8	14	3	13	0	12	1	11	4	16	4	14	10	13	6	12	4
		2 X 10	18	3	16	7	15	5	14	6	20	11	19	0	17	3	15	8
		2 X 12	22	2	20	2	18	9	17	7	25	5	23	1	20	11	19	1
	No. 2	2 X 4	6	8	6	0	5	7	5	3	7	7	6	11	6	4	5	9
		2 X 6	10	6	9	6	8	10	8	4	11	11	10	4	9	3	8	5
		2 X 8	13	10	12	7	11	8	10	11	15	9	13	8	12	2	11	1
		2 X 10	17	8	16	0	14	10	14	0	20	1	17	5	15	7	14	2
		2 X 12	21	5	19	6	18	1	17	0	24	6	21	2	18	11	17	3
	No. 3	2 X 4	6	2	5	4	4	9	4	4	6	2	5	4	4	9	4	4
		2 X 6	8	11	7	8	6	10	6	3	8	11	7	8	6	10	6	3
		2 X 8	11	9	10	2	9	1	8	3	11	9	10	2	9	1	8	3
		2 X 10	15	0	13	0	11	7	10	7	15	0	13	0	11	7	10	7
		2 X 12	18	3	15	9	14	1	12	10	18	3	15	9	14	1	12	10
	Construction	2 X 4	6	5	5	10	5	4	4	11	6	11	6	0	5	4	4	11
	Standard	2 X 4	5	4	4	8	4	2	3	9	5	4	4	8	4	2	3	9
	Utility	2 X 4	3	7	3	1	2	9	2	6	3	7	3	1	2	9	2	6

TABLE 7

ROOF JOISTS – SUPPORTING CEILING
(LIVE LOAD 20 lb per sq ft)

Species	Grade	Nominal Size, inches	Gypsum Board or Plastered Ceiling								Other Ceilings							
			Joist spacing								Joist spacing							
			12 IN.		16 IN.		20 IN.		24 IN.		12 IN.		16 IN.		20 IN.		24 IN.	
			FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.
Douglas Fir Western Larch	Select Structural	2 X 4	9	1	8	3	7	8	7	3	10	5	9	6	8	10	8	3
		2 X 6	14	4	13	0	12	1	11	4	16	5	14	11	13	10	13	0
		2 X 8	18	11	17	2	15	11	15	0	21	8	19	8	18	3	17	2
		2 X 10	24	2	21	11	20	4	19	2	27	8	25	1	23	4	21	11
		2 X 12	29	4	26	8	24	9	23	4	33	8	30	7	28	4	26	8
	No. 1	2 X 4	9	1	8	3	7	8	7	3	10	5	9	6	8	10	8	3
		2 X 6	14	4	13	0	12	1	11	4	16	5	14	11	13	10	13	0
		2 X 8	18	11	17	2	15	11	15	0	21	8	19	8	18	3	17	2
		2 X 10	24	2	21	11	20	4	19	2	27	8	25	1	23	4	21	11
		2 X 12	29	4	26	8	24	9	23	4	33	8	30	7	28	4	26	8
	No. 2	2 X 4	8	10	8	0	7	5	7	0	10	1	9	2	8	6	8	0
		2 X 6	13	10	12	7	11	8	11	0	15	10	14	4	12	10	11	9
		2 X 8	18	3	16	7	15	5	14	6	20	11	18	11	16	11	15	5
		2 X 10	23	4	21	2	19	8	18	6	26	8	24	2	21	7	19	9
		2 X 12	28	4	25	9	23	11	22	6	32	6	29	5	26	4	24	0
	No. 3	2 X 4	8	5	7	4	6	7	6	0	8	6	7	4	6	7	6	0
		2 X 6	12	7	10	11	9	9	8	11	12	7	10	11	9	9	8	11
		2 X 8	16	7	14	4	12	10	11	9	16	7	14	4	12	10	11	9
		2 X 10	21	2	18	4	16	5	15	0	21	2	18	4	16	5	15	0
		2 X 12	25	9	22	4	20	0	18	3	25	9	22	4	20	0	18	3
	Construction	2 X 4	8	5	7	8	7	1	6	8	9	8	8	5	7	6	6	10
	Standard	2 X 4	7	2	6	2	5	6	5	0	7	2	6	2	5	6	5	0
	Utility	2 X 4	5	0	4	4	3	11	3	7	5	0	4	4	3	11	3	7

TABLE 7 (Cont'd)

ROOF JOISTS – SUPPORTING CEILING
(LIVE LOAD 20 lb per sq ft)

Species	Grade	Nominal Size, inches	Gypsum Board or Plastered Ceiling								Other Ceilings							
			Joist spacing								Joist spacing							
			12 IN.		16 IN.		20 IN.		24 IN.		12 IN.		16 IN.		20 IN.		24 IN.	
			FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.
Pacific Coast Hemlock Amabilis Fir Grand Fir	Select Structural	2 X 4	8	7	7	10	7	3	6	10	9	10	8	11	8	4	7	10
		2 X 6	13	6	12	3	11	5	10	9	15	6	14	1	13	1	12	2
		2 X 8	17	10	16	2	15	0	14	2	20	5	18	7	17	3	16	0
		2 X 10	22	9	20	8	19	2	18	1	26	1	23	8	22	0	20	6
		2 X 12	27	8	25	2	23	4	22	0	31	9	28	10	26	9	24	11
	No. 1	2 X 4	8	7	7	10	7	3	6	10	9	10	8	11	8	4	7	9
		2 X 6	13	6	12	3	11	5	10	9	15	6	13	9	12	4	11	3
		2 X 8	17	10	16	2	15	0	14	2	20	5	18	2	16	3	14	10
		2 X 10	22	9	20	8	19	2	18	1	26	1	23	3	20	9	18	11
		2 X 12	27	8	25	2	23	4	22	0	31	9	28	3	25	3	23	1
	No. 2	2 X 4	8	4	7	6	7	0	6	7	9	6	8	7	7	8	7	0
		2 X 6	13	1	11	10	11	0	10	0	14	2	12	3	11	0	10	0
		2 X 8	17	3	15	8	14	6	13	2	18	8	16	2	14	6	13	2
		2 X 10	22	0	20	0	18	6	16	10	23	10	20	8	18	6	16	10
		2 X 12	26	9	24	4	22	6	20	6	29	0	25	2	22	6	20	6
	No. 3	2 X 4	7	2	6	2	5	6	5	0	7	2	6	2	5	6	5	0
		2 X 6	10	9	9	4	8	4	7	7	10	9	9	4	8	4	7	7
		2 X 8	14	3	12	4	11	0	10	0	14	3	12	4	11	0	10	0
		2 X 10	18	2	15	8	14	1	12	10	18	2	15	8	14	1	12	10
		2 X 12	22	1	19	1	17	1	15	7	22	1	19	1	17	1	15	7
	Construction	2 X 4	8	0	7	2	6	5	5	10	8	3	7	2	6	5	5	10
	Standard	2 X 4	6	2	5	4	4	9	4	4	6	2	5	4	4	9	4	4
	Utility	2 X 4	4	1	3	7	3	2	2	11	4	1	3	7	3	2	2	11

TABLE 7 (Cont'd)

ROOF JOISTS – SUPPORTING CEILING
(LIVE LOAD 20 lb per sq ft)

Species	Grade	Nominal Size, inches	Gypsum Board or Plastered Ceiling								Other Ceilings							
			Joist spacing								Joist spacing							
			12 IN.		16 IN.		20 IN.		24 IN.		12 IN.		16 IN.		20 IN.		24 IN.	
			FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.
Spruce (all species) Balsam Fir Alpine Fir Lodgepole Pine Ponderosa Pine	Select Structural	2 X 4	8	1	7	4	6	10	6	5	9	3	8	5	7	10	7	4
		2 X 6	12	9	11	7	10	9	10	1	14	7	13	3	12	3	11	7
		2 X 8	16	9	15	3	14	2	13	4	19	3	17	5	16	2	15	3
		2 X 10	21	5	19	6	18	1	17	0	24	6	22	3	20	8	19	6
		2 X 12	26	1	23	8	22	0	20	3	29	10	27	1	25	2	23	8
	No. 1	2 X 4	8	1	7	4	6	10	6	5	9	3	8	5	7	10	7	4
		2 X 6	12	9	11	7	10	9	10	1	14	7	13	2	11	10	10	9
		2 X 8	16	9	15	3	14	2	13	4	19	3	17	5	15	7	14	3
		2 X 10	21	5	19	6	18	1	17	0	24	6	22	3	19	11	18	2
		2 X 12	26	1	23	8	22	0	20	8	29	10	27	1	24	2	22	1
	No. 2	2 X 4	7	10	7	1	6	7	6	2	8	11	8	2	7	4	6	8
		2 X 6	12	4	11	2	10	4	9	9	13	9	11	11	10	8	9	9
		2 X 8	16	3	14	9	13	8	12	10	18	2	15	9	14	1	12	10
		2 X 10	20	9	18	10	17	6	16	5	23	3	20	1	18	0	16	5
		2 X 12	25	2	22	11	21	3	20	0	28	3	24	6	21	10	20	0
	No. 3	2 X 4	7	2	6	2	5	6	5	0	7	2	6	2	5	6	5	0
		2 X 6	10	3	8	11	7	11	7	3	10	3	8	11	7	11	7	3
		2 X 8	13	7	11	9	10	6	9	7	13	7	11	9	10	6	9	7
		2 X 10	17	4	15	0	13	5	12	3	17	4	15	0	13	5	12	3
		2 X 12	21	1	18	3	16	4	14	10	21	1	18	3	16	4	14	10
	Construction	2 X 4	7	6	6	10	6	2	5	8	8	0	6	11	6	2	5	8
	Standard	2 X 4	6	2	5	4	4	9	4	4	6	2	5	4	4	9	4	4
	Utility	2 X 4	4	1	3	7	3	2	2	11	4	1	3	7	3	2	2	11

TABLE 7 (Cont'd)

ROOF JOISTS – SUPPORTING CEILING
(LIVE LOAD 20 lb per sq ft)

Species	Grade	Nominal Size, inches	Gypsum Board or Plastered Ceiling								Other Ceilings							
			Joist spacing								Joist spacing							
			12 IN.		16 IN.		20 IN.		24 IN.		12 IN.		16 IN.		20 IN.		24 IN.	
			FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.
Western Red Cedar Red Pine Western White Pine White Pine	Select Structural	2 X 4	7	9	7	1	6	7	6	2	8	11	8	1	7	6	7	1
		2 X 6	12	3	11	2	10	4	9	9	14	1	12	9	11	10	11	2
		2 X 8	16	2	14	8	13	8	12	10	18	6	16	10	15	7	14	8
		2 X 10	20	8	18	9	17	5	16	5	23	8	21	6	19	11	18	9
		2 X 12	25	2	22	10	21	2	19	11	28	9	26	2	24	3	22	10
	No. 1	2 X 4	7	9	7	1	6	7	6	2	8	11	8	1	7	6	7	1
		2 X 6	12	3	11	2	10	4	9	9	14	1	12	9	11	6	10	6
		2 X 8	16	2	14	8	13	8	12	10	18	6	16	10	15	3	13	11
		2 X 10	20	8	18	9	17	5	16	5	23	8	21	6	19	5	17	9
		2 X 12	25	2	22	10	21	2	19	11	28	9	26	2	23	8	21	7
	No. 2	2 X 4	7	6	6	10	6	4	5	11	8	7	7	10	7	2	6	6
		2 X 6	11	10	10	9	9	11	9	4	13	5	11	7	10	4	9	6
		2 X 8	15	7	14	2	13	2	12	4	17	8	15	4	13	8	12	6
		2 X 10	19	11	18	1	16	9	15	9	22	7	19	6	17	6	15	11
		2 X 12	24	2	22	0	20	5	19	2	27	5	23	9	21	3	19	5
	No. 3	2 X 4	6	10	5	11	5	3	4	10	6	10	5	11	5	3	4	10
		2 X 6	10	3	8	11	7	11	7	3	10	3	8	11	7	11	7	3
		2 X 8	13	7	11	9	10	6	9	7	13	7	11	9	10	6	9	7
		2 X 10	17	4	15	0	13	5	12	3	17	4	15	0	13	5	12	3
		2 X 12	21	1	18	3	16	4	14	10	21	1	18	3	16	4	14	10
	Construction	2 X 4	7	3	6	7	6	0	5	5	7	9	6	8	6	0	5	5
	Standard	2 X 4	5	10	5	0	4	6	4	1	5	10	5	0	4	6	4	1
	Utility	2 X 4	4	1	3	7	3	2	2	11	4	1	3	7	3	2	2	11

TABLE 7 (Cont'd)

ROOF JOISTS – SUPPORTING CEILING
(LIVE LOAD 20 lb per sq ft)

Species	Grade	Nominal Size, inches	Gypsum Board or Plastered Ceiling								Other Ceilings							
			Joist spacing								Joist spacing							
			12 IN.		16 IN.		20 IN.		24 IN.		12 IN.		16 IN.		20 IN.		24 IN.	
			FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.
Pacific Coast Yellow Cedar Tamarack Jack Pine Eastern Hemlock	Select Structural	2 X 4	8	2	7	5	6	11	6	6	9	4	8	6	7	11	7	5
		2 X 6	12	11	11	8	10	10	10	3	14	9	13	5	12	5	11	8
		2 X 8	17	0	15	5	14	4	13	6	19	5	17	8	16	5	15	5
		2 X 10	21	8	19	8	18	3	17	2	24	10	22	7	20	11	19	8
		2 X 12	26	5	24	0	22	3	20	11	30	3	27	5	25	6	24	0
	No. 1	2 X 4	8	2	7	5	6	11	6	6	9	4	8	6	7	11	7	5
		2 X 6	12	11	11	8	10	10	10	3	14	9	13	5	12	5	11	8
		2 X 8	17	0	15	5	14	4	13	6	19	5	17	8	16	5	15	5
		2 X 10	21	8	19	8	18	3	17	2	24	10	22	7	20	11	19	8
		2 X 12	26	5	24	0	22	3	20	11	30	3	27	5	25	6	24	0
	No. 2	2 X 4	7	11	7	2	6	8	6	3	9	1	8	3	7	7	7	2
		2 X 6	12	5	11	4	10	6	9	10	14	3	12	11	12	0	11	0
		2 X 8	16	5	14	11	13	10	13	0	18	9	17	1	15	10	14	6
		2 X 10	20	11	19	0	17	8	16	7	24	0	21	9	20	3	18	7
		2 X 12	25	6	23	2	21	6	20	3	29	2	26	6	24	7	22	7
	No. 3	2 X 4	7	7	6	11	6	2	5	8	8	0	6	11	6	2	5	8
		2 X 6	11	9	10	2	9	1	8	3	11	9	10	2	9	1	8	3
		2 X 8	15	5	13	5	12	0	10	11	15	5	13	5	12	0	10	11
		2 X 10	19	9	17	1	15	3	13	11	19	9	17	1	15	3	13	11
		2 X 12	24	0	20	9	18	7	17	0	24	0	20	9	18	7	17	0
	Construction	2 X 4	7	7	6	11	6	5	6	0	8	8	7	9	7	0	6	4
	Standard	2 X 4	6	10	5	11	5	3	4	10	6	10	5	11	5	3	4	10
	Utility	2 X 4	4	7	4	0	3	7	3	3	4	7	4	0	3	7	3	3

TABLE 7 (Cont'd)

ROOF JOISTS – SUPPORTING CEILING
(LIVE LOAD 20 lb per sq ft)

Species	Grade	Nominal Size, inches	Gypsum Board or Plastered Ceiling								Other Ceilings							
			Joist spacing								Joist spacing							
			12 IN.		16 IN.		20 IN.		24 IN.		12 IN.		16 IN.		20 IN.		24 IN.	
			FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.
Aspen Poplar Large Toothed Aspen Poplar Balsam Poplar	Select Structural	2 X 4	7	11	7	2	6	8	6	3	9	0	8	2	7	7	7	2
		2 X 6	12	5	11	3	10	5	9	10	14	2	12	11	12	0	11	3
		2 X 8	16	4	14	10	13	9	13	0	18	9	17	0	15	10	14	10
		2 X 10	20	11	19	0	17	7	16	7	23	11	21	9	20	2	19	0
		2 X 12	25	5	23	1	21	5	20	2	29	1	26	5	24	6	23	1
	No. 1	2 X 4	7	11	7	2	6	8	6	3	9	0	8	2	7	7	7	2
		2 X 6	12	5	11	3	10	5	9	10	14	2	12	11	11	10	10	9
		2 X 8	16	4	14	10	13	9	13	0	18	9	17	0	15	7	14	3
		2 X 10	20	11	19	0	17	7	16	7	23	11	21	9	19	11	18	2
		2 X 12	25	5	23	1	21	5	20	2	29	1	26	5	24	2	22	1
	No. 2	2 X 4	7	7	6	11	6	5	6	0	8	9	7	11	7	4	6	8
		2 X 6	12	0	10	11	10	1	9	6	13	9	11	11	10	8	9	9
		2 X 8	15	10	14	4	13	4	12	7	18	1	15	9	14	1	12	10
		2 X 10	20	2	18	4	17	0	16	0	23	1	20	1	18	0	16	5
		2 X 12	24	7	22	4	20	9	19	6	28	1	24	6	21	10	20	0
	No. 3	2 X 4	7	2	6	2	5	6	5	0	7	2	6	2	5	6	5	0
		2 X 6	10	3	8	11	7	11	7	3	10	3	8	11	7	11	7	3
		2 X 8	13	7	11	9	10	6	9	7	13	7	11	9	10	6	9	7
		2 X 10	17	4	15	0	13	5	12	3	17	4	15	0	13	5	12	3
		2 X 12	21	1	18	3	16	4	14	10	21	1	18	3	16	4	14	10
	Construction	2 X 4	7	4	6	8	6	2	5	8	8	0	6	11	6	2	5	8
	Standard	2 X 4	6	2	5	4	4	9	4	4	6	2	5	4	4	9	4	4
	Utility	2 X 4	4	1	3	7	3	2	2	11	4	1	3	7	3	2	2	11

TABLE 8

RAFTERS – NOT SUPPORTING CEILINGS
(LIVE LOADS 50 AND 40 lb per sq ft)

Species	Grade	Nominal Size, inches	LIVE LOAD 50 lb per sq ft								LIVE LOAD 40 lb per sq ft							
			Rafter spacing								Rafter spacing							
			12 IN.		16 IN.		20 IN.		24 IN.		12 IN.		16 IN.		20 IN.		24 IN.	
			FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.
Douglas Fir Western Larch	Select Structural	2 X 4	8	5	7	8	7	1	6	8	9	1	8	3	7	8	7	3
		2 X 6	13	4	12	1	11	3	10	4	14	4	13	0	12	1	11	4
		2 X 8	17	7	15	11	14	10	13	8	18	11	17	2	15	11	15	0
		2 X 10	22	5	20	4	18	11	17	5	24	2	21	11	20	4	19	2
		2 X 12	27	3	24	9	23	0	21	3	29	4	26	8	24	9	23	4
	No. 1	2 X 4	8	5	7	8	7	1	6	6	9	1	8	3	7	8	7	2
		2 X 6	13	4	11	8	10	5	9	6	14	4	12	10	11	6	10	6
		2 X 8	17	7	15	4	13	9	12	6	18	11	17	0	15	2	13	10
		2 X 10	22	5	19	7	17	7	16	0	24	2	21	8	19	4	17	8
		2 X 12	27	3	23	10	21	4	19	6	29	4	26	4	23	7	21	6
	No. 2	2 X 4	8	2	7	2	6	5	5	10	8	10	7	11	7	1	6	5
		2 X 6	12	2	10	6	9	5	8	7	13	5	11	7	10	4	9	5
		2 X 8	16	0	13	10	12	5	11	4	17	8	15	3	13	8	12	6
		2 X 10	20	5	17	8	15	10	14	5	22	6	19	6	17	5	15	11
		2 X 12	24	10	21	6	19	3	17	7	27	5	23	9	21	3	19	5
	No. 3	2 X 4	6	3	5	5	4	10	4	5	6	10	5	11	5	4	4	10
		2 X 6	9	2	8	0	7	1	6	6	10	2	8	9	7	10	7	2
		2 X 8	12	2	10	6	9	5	8	7	13	5	11	7	10	4	9	6
		2 X 10	15	6	13	5	12	0	10	11	17	1	14	10	13	3	12	1
		2 X 12	18	10	16	4	14	7	13	4	20	10	18	0	16	1	14	8
	Construction	2 X 4	7	1	6	2	5	6	5	0	7	10	6	9	6	1	5	6
	Standard	2 X 4	5	3	4	6	4	0	3	8	5	9	5	0	4	5	4	1
	Utility	2 X 4	3	8	3	2	2	10	2	7	4	1	3	6	3	2	2	10

TABLE 8 (Cont'd)

RAFTERS – NOT SUPPORTING CEILINGS
(LIVE LOADS 50 AND 40 lb per sq ft)

Species	Grade	Nominal Size, inches	LIVE LOAD 50 lb per sq ft								LIVE LOAD 40 lb per sq ft							
			Rafter spacing								Rafter spacing							
			12 IN.		16 IN.		20 IN.		24 IN.		12 IN.		16 IN.		20 IN.		24 IN.	
			FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.
Pacific Coast Hemlock Amabilis Fir Grand Fir	Select Structural	2 X 4	8	0	7	3	6	7	6	0	8	7	7	10	7	3	6	8
		2 X 6	12	7	10	11	9	9	8	11	13	6	12	0	10	9	9	10
		2 X 8	16	7	14	4	12	10	11	9	17	10	15	10	14	2	12	11
		2 X 10	21	2	18	4	16	5	15	0	22	9	20	3	18	1	16	6
		2 X 12	25	9	22	4	20	0	18	3	27	8	24	8	22	0	20	1
	No. 1	2 X 4	8	0	6	11	6	2	5	8	8	7	7	8	6	10	6	3
		2 X 6	11	8	10	1	9	0	8	3	12	10	11	2	9	11	9	1
		2 X 8	15	4	13	4	11	11	10	10	17	0	14	8	13	2	12	0
		2 X 10	19	7	17	0	15	2	13	10	21	8	18	9	16	9	15	4
		2 X 12	23	10	20	8	18	6	16	10	26	4	22	10	20	5	18	7
	No. 2	2 X 4	7	3	6	3	5	7	5	1	8	0	6	11	6	2	5	8
		2 X 6	10	4	9	0	8	0	7	4	11	5	9	11	8	10	8	1
		2 X 8	13	8	11	10	10	7	9	8	15	1	13	1	11	8	10	8
		2 X 10	17	5	15	1	13	6	12	4	19	3	16	8	14	11	13	7
		2 X 12	21	3	18	5	16	5	15	0	23	5	20	3	18	2	16	7
	No. 3	2 X 4	5	3	4	6	4	0	3	8	5	9	5	0	4	5	4	1
		2 X 6	7	10	6	10	6	1	5	7	8	8	7	6	6	9	6	2
		2 X 8	10	5	9	0	8	0	7	4	11	6	9	11	8	10	8	1
		2 X 10	13	3	11	6	10	3	9	4	14	8	12	8	11	4	10	4
		2 X 12	16	2	14	0	12	6	11	5	17	10	15	5	13	10	12	7
	Construction	2 X 4	6	0	5	3	4	8	4	3	6	8	5	9	5	2	4	8
	Standard	2 X 4	4	6	3	11	3	6	3	2	5	0	4	4	3	10	3	6
	Utility	2 X 4	3	0	2	7	2	4	2	1	3	4	2	10	2	7	2	4

TABLE 8 (Cont'd)

RAFTERS – NOT SUPPORTING CEILINGS
(LIVE LOADS 50 AND 40 lb per sq ft)

Species	Grade	Nominal Size, inches	LIVE LOAD 50 lb per sq ft								LIVE LOAD 40 lb per sq ft							
			Rafter spacing								Rafter spacing							
			12 IN.		16 IN.		20 IN.		24 IN.		12 IN.		16 IN.		20 IN.		24 IN.	
			FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.
Spruce (all species) Balsam Fir Alpine Fir Lodgepole Pine Ponderosa Pine	Select Structural	2 X 4	7	6	6	10	6	4	5	10	8	1	7	4	6	10	6	5
		2 X 6	11	10	10	6	9	5	8	7	12	9	11	7	10	4	9	5
		2 X 8	15	7	13	10	12	5	11	4	16	9	15	3	13	8	12	6
		2 X 10	19	11	17	8	15	10	14	5	21	5	19	6	17	5	15	11
		2 X 12	24	2	21	6	19	3	17	7	26	1	23	8	21	3	19	5
	No. 1	2 X 4	7	6	6	8	5	11	5	5	8	1	7	4	6	7	6	0
		2 X 6	11	2	9	8	8	8	7	10	12	4	10	8	9	6	8	8
		2 X 8	14	9	12	9	11	5	10	5	16	3	14	1	12	7	11	6
		2 X 10	18	9	16	3	14	6	13	3	20	9	17	11	16	1	14	8
		2 X 12	22	10	19	9	17	8	16	2	25	3	21	10	19	6	17	10
	No. 2	2 X 4	6	11	6	0	5	4	4	11	7	8	6	7	5	11	5	5
		2 X 6	10	1	8	9	7	10	7	1	11	2	9	8	8	7	7	10
		2 X 8	13	4	11	6	10	4	9	5	14	8	12	9	11	4	10	4
		2 X 10	17	0	14	8	13	2	12	0	18	9	16	3	14	6	13	3
		2 X 12	20	8	17	11	16	0	14	7	22	10	19	9	17	8	16	1
	No. 3	2 X 4	5	3	4	6	4	0	3	8	5	9	5	0	4	5	4	1
		2 X 6	7	6	6	6	5	10	5	4	8	3	7	2	6	5	5	10
		2 X 8	9	11	8	7	7	8	7	0	10	11	9	6	8	6	7	9
		2 X 10	12	8	10	11	9	9	8	11	14	0	12	1	10	10	9	10
		2 X 12	15	5	13	4	11	11	10	10	17	0	14	8	13	2	12	0
	Construction	2 X 4	5	10	5	1	4	6	4	1	6	5	5	7	5	0	4	7
	Standard	2 X 4	4	6	3	11	3	6	3	2	5	0	4	4	3	10	3	6
	Utility	2 X 4	3	0	2	7	2	4	2	1	3	4	2	10	2	7	2	4

TABLE 8 (Cont'd)

RAFTERS – NOT SUPPORTING CEILINGS
(LIVE LOADS 50 AND 40 lb per sq ft)

Species	Grade	Nominal Size, inches	LIVE LOAD 50 lb per sq ft								LIVE LOAD 40 lb per sq ft							
			Rafter spacing								Rafter spacing							
			12 IN.		16 IN.		20 IN.		24 IN.		12 IN.		16 IN.		20 IN.		24 IN.	
			FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.
Western Red Cedar Red Pine Western White Pine White Pine	Select Structural	2 X 4	7	3	6	7	6	1	5	8	7	9	7	1	6	7	6	2
		2 X 6	11	5	10	3	9	2	8	5	12	3	11	2	10	2	9	3
		2 X 8	15	0	13	7	12	2	11	1	16	2	14	8	13	5	12	3
		2 X 10	19	2	17	4	15	6	14	2	20	8	18	9	17	1	15	7
		2 X 12	23	4	21	1	18	10	17	3	25	2	22	10	20	10	19	0
	No. 1	2 X 4	7	3	6	5	5	9	5	3	7	9	7	1	6	4	5	9
		2 X 6	10	11	9	5	8	5	7	8	12	0	10	5	9	4	8	6
		2 X 8	14	4	12	5	11	1	10	2	15	10	13	9	12	3	11	2
		2 X 10	18	4	15	11	14	2	13	0	20	3	17	6	15	8	14	4
		2 X 12	22	4	19	4	17	3	15	9	24	8	21	4	19	1	17	5
	No. 2	2 X 4	6	9	5	10	5	3	4	9	7	5	6	5	5	9	5	3
		2 X 6	9	10	8	6	7	7	6	11	10	10	9	4	8	4	7	8
		2 X 8	12	11	11	2	10	0	9	2	14	3	12	4	11	1	10	1
		2 X 10	16	6	14	3	12	9	11	8	18	3	15	9	14	1	12	10
		2 X 12	20	1	17	5	15	7	14	2	22	2	19	2	17	2	15	8
	No. 3	2 X 4	5	0	4	4	3	10	3	6	5	6	4	9	4	3	3	11
		2 X 6	7	6	6	6	5	10	5	4	8	3	7	2	6	5	5	10
		2 X 8	9	11	8	7	7	8	7	0	10	11	9	6	8	6	7	9
		2 X 10	12	8	10	11	9	9	8	11	14	0	12	1	10	10	9	10
		2 X 12	15	5	13	4	11	11	10	10	17	0	14	8	13	2	12	0
	Construction	2 X 4	5	8	4	11	4	4	4	0	6	3	5	5	4	10	4	5
	Standard	2 X 4	4	3	3	8	3	3	3	0	4	8	4	1	3	8	3	4
	Utility	2 X 4	3	0	2	7	2	4	2	1	3	4	2	10	2	7	2	4

TABLE 8 (Cont'd)

RAFTERS – NOT SUPPORTING CEILINGS
(LIVE LOADS 50 AND 40 lb per sq ft)

Species	Grade	Nominal Size, inches	LIVE LOAD 50 lb per sq ft								LIVE LOAD 40 lb per sq ft							
			Rafter spacing								Rafter spacing							
			12 IN.		16 IN.		20 IN.		24 IN.		12 IN.		16 IN.		20 IN.		24 IN.	
			FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.
Pacific Coast Yellow Cedar Tamarack Jack Pine Eastern Hemlock	Select Structural	2 X 4	7	7	6	11	6	5	6	0	8	2	7	5	6	11	6	6
		2 X 6	11	11	10	10	10	1	9	6	12	11	11	8	10	10	10	3
		2 X 8	15	9	14	4	13	4	12	6	17	0	15	5	14	4	13	6
		2 X 10	20	2	18	3	17	0	16	0	21	8	19	8	18	3	17	2
		2 X 12	24	6	22	3	20	8	19	5	26	5	24	0	22	3	20	11
	No. 1	2 X 4	7	7	6	11	6	5	6	0	8	2	7	5	6	11	6	6
		2 X 6	11	11	10	10	9	9	8	11	12	11	11	8	10	9	9	10
		2 X 8	15	9	14	4	12	10	11	9	17	0	15	5	14	2	12	11
		2 X 10	20	2	18	3	16	5	15	0	21	8	19	8	18	1	16	6
		2 X 12	24	6	22	3	20	0	18	3	26	5	24	0	22	0	20	1
	No. 2	2 X 4	7	4	6	8	6	1	5	6	7	11	7	2	6	8	6	1
		2 X 6	11	5	9	10	8	10	8	1	12	5	10	11	9	9	8	11
		2 X 8	15	1	13	0	11	8	10	8	16	5	14	4	12	10	11	9
		2 X 10	19	2	16	8	14	10	13	7	20	11	18	4	16	5	15	0
		2 X 12	23	4	20	3	18	1	16	6	25	6	22	4	20	0	18	3
	No. 3	2 X 4	5	10	5	1	4	6	4	1	6	5	5	7	5	0	4	7
		2 X 6	8	7	7	5	6	7	6	1	9	5	8	2	7	4	6	8
		2 X 8	11	4	9	9	8	9	8	0	12	6	10	10	9	8	8	10
		2 X 10	14	5	12	6	11	2	10	2	15	11	13	9	12	4	11	3
		2 X 12	17	7	15	2	13	7	12	5	19	5	16	9	15	0	13	8
	Construction	2 X 4	6	7	5	8	5	1	4	8	7	3	6	3	5	7	5	1
	Standard	2 X 4	5	0	4	4	3	10	3	6	5	6	4	9	4	3	3	11
	Utility	2 X 4	3	4	2	11	2	7	2	4	3	8	3	2	2	10	2	7

TABLE 8 (Cont'd)

RAFTERS – NOT SUPPORTING CEILINGS
(LIVE LOADS 50 AND 40 lb per sq ft)

Species	Grade	Nominal Size, inches	LIVE LOAD 50 lb per sq ft								LIVE LOAD 40 lb per sq ft							
			Rafter spacing								Rafter spacing							
			12 IN.		16 IN.		20 IN.		24 IN.		12 IN.		16 IN.		20 IN.		24 IN.	
			FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.
Aspen Poplar Large Toothed Aspen Poplar Balsam Poplar	Select Structural	2 X 4	7	4	6	8	6	2	5	10	7	11	7	2	6	8	6	3
		2 X 6	11	6	10	5	9	5	8	7	12	5	11	3	10	4	9	5
		2 X 8	15	2	13	9	12	5	11	4	16	4	14	10	13	8	12	6
		2 X 10	19	5	17	7	15	10	14	5	20	11	19	0	17	5	15	11
		2 X 12	23	7	21	5	19	3	17	7	25	5	23	1	21	3	19	5
	No. 1	2 X 4	7	4	6	8	5	11	5	5	7	11	7	2	6	7	6	0
		2 X 6	11	2	9	8	8	8	7	10	12	4	10	8	9	6	8	8
		2 X 8	14	9	12	9	11	5	10	5	16	3	14	1	12	7	11	6
		2 X 10	18	9	16	3	14	6	13	3	20	9	17	11	16	1	14	8
		2 X 12	22	10	19	9	17	8	16	2	25	3	21	10	19	6	17	10
	No. 2	2 X 4	6	11	6	0	5	4	4	11	7	7	6	7	5	11	5	5
		2 X 6	10	1	8	9	7	10	7	1	11	2	9	8	8	7	7	10
		2 X 8	13	4	11	6	10	4	9	5	14	8	12	9	11	4	10	4
		2 X 10	17	0	14	8	13	2	12	0	18	9	16	3	14	6	13	3
		2 X 12	20	8	17	11	16	0	14	7	22	10	19	9	17	8	16	1
	No. 3	2 X 4	5	3	4	6	4	0	3	8	5	9	5	0	4	5	4	1
		2 X 6	7	6	6	6	5	10	5	4	8	3	7	2	6	5	5	10
		2 X 8	9	11	8	7	7	8	7	0	10	11	9	6	8	6	7	9
		2 X 10	12	8	10	11	9	9	8	11	14	0	12	1	10	10	9	10
		2 X 12	15	5	13	4	11	11	10	10	17	0	14	8	13	2	12	0
	Construction	2 X 4	5	10	5	1	4	6	4	1	6	5	5	7	5	0	4	7
	Standard	2 X 4	4	6	3	11	3	6	3	2	5	0	4	4	3	10	3	6
	Utility	2 X 4	3	0	2	7	2	4	2	1	3	4	2	10	2	7	2	4

TABLE 9

RAFTERS – NOT SUPPORTING CEILINGS
(LIVE LOADS 30 AND 20 lb per sq ft)

Species	Grade	Nominal Size, inches	LIVE LOAD 30 lb per sq ft								LIVE LOAD 20 lb per sq ft							
			Rafter spacing								Rafter spacing							
			12 IN.		16 IN.		20 IN.		24 IN.		12 IN.		16 IN.		20 IN.		24 IN.	
			FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.
Douglas Fir Western Larch	Select Structural	2 X 4	10	0	9	1	8	5	7	11	11	6	10	5	9	8	9	1
		2 X 6	15	9	14	4	13	4	12	6	18	1	16	5	15	3	14	4
		2 X 8	20	10	18	11	17	7	16	6	23	10	21	8	20	1	18	11
		2 X 10	26	7	24	2	22	5	21	1	30	5	27	8	25	8	24	2
		2 X 12	32	4	29	4	27	3	25	8	37	0	33	8	31	3	29	4
	No. 1	2 X 4	10	0	9	1	8	5	7	11	11	6	10	5	9	8	9	1
		2 X 6	15	9	14	4	13	0	11	10	18	1	16	5	15	3	14	0
		2 X 8	20	10	18	11	17	2	15	8	23	10	21	8	20	1	18	5
		2 X 10	26	7	24	2	21	11	20	0	30	5	27	8	25	8	23	6
		2 X 12	32	4	29	4	26	8	24	4	37	0	33	8	31	3	28	7
	No. 2	2 X 4	9	8	8	10	8	0	7	4	11	1	10	1	9	4	8	7
		2 X 6	15	2	13	1	11	9	10	8	17	6	15	5	13	9	12	7
		2 X 8	20	0	17	3	15	5	14	1	23	0	20	4	18	2	16	7
		2 X 10	25	6	22	1	19	9	18	0	29	5	26	0	23	3	21	2
		2 X 12	31	0	26	10	24	0	21	11	35	9	31	7	28	3	25	9
	No. 3	2 X 4	7	9	6	9	6	0	5	6	9	2	7	11	7	1	6	5
		2 X 6	11	6	9	11	8	11	8	1	13	6	11	8	10	6	9	7
		2 X 8	15	2	13	1	11	9	10	8	17	10	15	5	13	10	12	7
		2 X 10	19	4	16	9	15	0	13	8	22	9	19	9	17	8	16	1
		2 X 12	23	6	20	5	18	3	16	8	27	8	24	0	21	5	19	7
	Construction	2 X 4	8	10	7	8	6	10	6	3	10	5	9	0	8	1	7	4
	Standard	2 X 4	6	6	5	8	5	0	4	7	7	8	6	8	5	11	5	5
	Utility	2 X 4	4	7	4	0	3	7	3	3	5	5	4	8	4	2	3	10

TABLE 9 (Cont'd)

RAFTERS – NOT SUPPORTING CEILINGS
(LIVE LOADS 30 AND 20 lb per sq ft)

Species	Grade	Nominal Size, inches	LIVE LOAD 30 lb per sq ft								LIVE LOAD 20 lb per sq ft							
			Rafter spacing								Rafter spacing							
			12 IN.		16 IN.		20 IN.		24 IN.		12 IN.		16 IN.		20 IN.		24 IN.	
			FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.
Pacific Coast Hemlock Amabilis Fir Grand Fir	Select Structural	2 X 4	9	6	8	7	8	0	7	6	10	10	9	10	9	2	8	7
		2 X 6	14	11	13	6	12	2	11	1	17	1	15	6	14	4	13	1
		2 X 8	19	8	17	10	16	0	14	8	22	6	20	5	18	11	17	3
		2 X 10	25	1	22	9	20	6	18	8	28	8	26	1	24	1	22	0
		2 X 12	30	6	27	8	24	11	22	9	34	11	31	9	29	4	26	9
	No. 1	2 X 4	9	6	8	7	7	9	7	1	10	10	9	10	9	1	8	4
		2 X 6	14	6	12	7	11	3	10	3	17	1	14	10	13	3	12	1
		2 X 8	19	2	16	7	14	10	13	7	22	6	19	7	17	6	15	11
		2 X 10	24	6	21	2	18	11	17	4	28	8	24	11	22	4	20	4
		2 X 12	29	9	25	9	23	1	21	1	34	11	30	4	27	2	24	9
	No. 2	2 X 4	9	0	7	10	7	0	6	5	10	6	9	3	8	3	7	6
		2 X 6	12	11	11	2	10	0	9	2	15	3	13	2	11	9	10	9
		2 X 8	17	1	14	9	13	2	12	1	20	1	17	5	15	7	14	2
		2 X 10	21	9	18	10	16	10	15	5	25	8	22	2	19	10	18	1
		2 X 12	26	6	22	11	20	6	18	9	31	2	27	0	24	2	22	0
	No. 3	2 X 4	6	6	5	8	5	0	4	7	7	8	6	8	5	11	5	5
		2 X 6	9	10	8	6	7	7	6	11	11	7	10	0	8	11	8	2
		2 X 8	13	0	11	3	10	0	9	2	15	3	13	3	11	10	10	9
		2 X 10	16	7	14	4	12	10	11	8	19	6	16	11	15	1	13	9
		2 X 12	20	2	17	5	15	7	14	3	23	9	20	6	18	4	16	9
	Construction	2 X 4	7	6	6	6	5	10	5	4	8	10	7	8	6	10	6	3
	Standard	2 X 4	5	8	4	11	4	4	4	0	6	8	5	9	5	2	4	8
	Utility	2 X 4	3	9	3	3	2	11	2	8	4	5	3	10	3	5	3	1

TABLE 9 (Cont'd)

RAFTERS – NOT SUPPORTING CEILINGS
(LIVE LOADS 30 AND 20 lb per sq ft)

Species	Grade	Nominal Size, inches	LIVE LOAD 30 lb per sq ft								LIVE LOAD 20 lb per sq ft							
			Rafter spacing								Rafter spacing							
			12 IN.		16 IN.		20 IN.		24 IN.		12 IN.		16 IN.		20 IN.		24 IN.	
			Ft.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.
Spruce (all species) Balsam Fir Alpine Fir Lodgepole Pine Ponderosa Pine	Select Structural	2 X 4	8	11	8	1	7	6	7	1	10	2	9	3	8	7	8	1
		2 X 6	14	0	12	9	11	9	10	8	16	0	14	7	13	6	12	7
		2 X 8	18	6	16	9	15	5	14	1	21	2	19	3	17	10	16	7
		2 X 10	23	7	21	5	19	9	18	0	27	0	24	6	22	9	21	2
		2 X 12	28	8	26	1	24	0	21	11	32	10	29	10	27	8	25	9
	No. 1	2 X 4	8	11	8	1	7	5	6	9	10	2	9	3	8	7	8	0
		2 X 6	13	11	12	1	10	9	9	10	16	0	14	2	12	8	11	7
		2 X 8	18	4	15	11	14	3	13	0	21	2	18	9	16	9	15	3
		2 X 10	23	5	20	3	18	2	16	7	27	0	23	11	21	4	19	6
		2 X 12	28	6	24	8	22	1	20	2	32	10	29	1	26	0	23	9
	No. 2	2 X 4	8	7	7	6	6	8	6	1	9	10	8	10	7	10	7	2
		2 X 6	12	7	10	11	9	9	8	11	14	10	12	10	11	6	10	6
		2 X 8	16	7	14	4	12	10	11	9	19	7	16	11	15	2	13	10
		2 X 10	21	2	18	4	16	5	15	0	24	11	21	7	19	4	17	8
		2 X 12	25	9	22	4	20	0	18	3	30	4	26	3	23	6	21	5
	No. 3	2 X 4	6	6	5	8	5	0	4	7	7	8	6	8	5	11	5	5
		2 X 6	9	4	8	1	7	3	6	7	11	0	9	7	8	6	7	9
		2 X 8	12	4	10	8	9	7	8	9	14	7	12	7	11	3	10	3
		2 X 10	15	9	13	8	12	3	11	2	18	7	16	1	14	5	13	2
		2 X 12	19	3	16	8	14	10	13	7	22	7	19	7	17	6	16	0
	Construction	2 X 4	7	4	6	4	5	8	5	2	8	7	7	5	6	8	6	1
	Standard	2 X 4	5	8	4	11	4	4	4	0	6	8	5	9	5	2	4	8
	Utility	2 X 4	3	9	3	3	2	11	2	8	4	5	3	10	3	5	3	1

TABLE 9 (Cont'd)

RAFTERS – NOT SUPPORTING CEILINGS
(LIVE LOADS 30 AND 20 lb per sq ft)

Species	Grade	Nominal Size, inches	LIVE LOAD 30 lb per sq ft								LIVE LOAD 20 lb per sq ft							
			Rafter spacing								Rafter spacing							
			12 IN.		16 IN.		20 IN.		24 IN.		12 IN.		16 IN.		20 IN.		24 IN.	
			FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.
Western Red Cedar Red Pine Western White Pine White Pine	Select Structural	2 X 4	8	7	7	9	7	3	6	10	9	10	8	11	8	3	7	9
		2 X 6	13	6	12	3	11	5	10	6	15	6	14	1	13	0	12	3
		2 X 8	17	10	16	2	15	0	13	10	20	5	18	6	17	2	16	2
		2 X 10	22	9	20	8	19	2	17	8	26	0	23	8	21	11	20	8
		2 X 12	27	8	25	2	23	4	21	6	31	8	28	9	26	9	25	2
	No. 1	2 X 4	8	7	7	9	7	2	6	6	9	10	8	11	8	3	7	8
		2 X 6	13	6	11	9	10	6	9	7	15	6	13	10	12	5	11	4
		2 X 8	17	10	15	6	13	11	12	8	20	5	18	3	16	4	14	11
		2 X 10	22	9	19	10	17	9	16	2	26	0	23	4	20	10	19	1
		2 X 12	27	8	24	1	21	7	19	8	31	8	28	5	25	5	23	2
	No. 2	2 X 4	8	3	7	4	6	6	5	11	9	6	8	7	7	8	7	0
		2 X 6	12	3	10	7	9	6	8	8	14	5	12	6	11	2	10	2
		2 X 8	16	2	14	0	12	6	11	5	19	0	16	5	14	8	13	5
		2 X 10	20	7	17	10	15	11	14	7	24	3	21	0	18	9	17	2
		2 X 12	25	1	21	8	19	5	17	8	29	6	25	6	22	10	20	10
	No. 3	2 X 4	6	3	5	5	4	10	4	5	7	4	6	4	5	8	5	2
		2 X 6	9	4	8	1	7	3	6	7	11	0	9	7	8	6	7	9
		2 X 8	12	4	10	8	9	7	8	9	14	7	12	7	11	3	10	3
		2 X 10	15	9	13	8	12	3	11	2	18	7	16	1	14	5	13	2
		2 X 12	19	3	16	8	14	10	13	7	22	7	19	7	17	6	16	0
	Construction	2 X 4	7	1	6	1	5	5	5	0	8	4	7	2	6	5	5	10
	Standard	2 X 4	5	4	4	7	4	1	3	9	6	3	5	5	4	10	4	5
	Utility	2 X 4	3	9	3	3	2	11	2	8	4	5	3	10	3	5	3	1

TABLE 9 (Cont'd)

RAFTERS – NOT SUPPORTING CEILINGS
(LIVE LOADS 30 AND 20 lb per sq ft)

Species	Grade	Nominal Size, inches	LIVE LOAD 30 lb per sq ft								LIVE LOAD 20 lb per sq ft							
			Rafter spacing								Rafter spacing							
			12 IN.		16 IN.		20 IN.		24 IN.		12 IN.		16 IN.		20 IN.		24 IN.	
			FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.
Pacific Coast Yellow Cedar Tamarack Jack Pine Eastern Hemlock	Select Structural	2 X 4	9	0	8	2	7	7	7	2	10	4	9	4	8	8	8	2
		2 X 6	14	2	12	11	11	11	11	3	16	3	14	9	13	8	12	11
		2 X 8	18	8	17	0	15	9	14	10	21	5	19	5	18	1	17	0
		2 X 10	23	10	21	8	20	2	18	11	27	4	24	10	23	1	21	8
		2 X 12	29	1	26	5	24	6	23	1	33	3	30	3	28	0	26	5
	No. 1	2 X 4	9	0	8	2	7	7	7	2	10	4	9	4	8	8	8	2
		2 X 6	14	2	12	11	11	11	11	1	16	3	14	9	13	8	12	11
		2 X 8	18	8	17	0	15	9	14	8	21	5	19	5	18	1	17	0
		2 X 10	23	10	21	8	20	2	18	8	27	4	24	10	23	1	21	8
		2 X 12	29	1	26	5	24	6	22	9	33	3	30	3	28	0	26	5
	No. 2	2 X 4	8	8	7	11	7	4	6	11	10	0	9	1	8	5	7	11
		2 X 6	13	8	12	4	11	0	10	1	15	8	14	3	13	0	11	10
		2 X 8	18	1	16	3	14	6	13	3	20	8	18	9	17	1	15	7
		2 X 10	23	1	20	9	18	7	16	11	26	5	24	0	21	10	19	11
		2 X 12	28	0	25	3	22	7	20	7	32	1	29	2	26	7	24	3
	No. 3	2 X 4	7	4	6	4	5	8	5	2	8	7	7	5	6	8	6	1
		2 X 6	10	8	9	3	8	3	7	7	12	7	10	11	9	9	8	11
		2 X 8	14	1	12	3	10	11	10	0	16	7	14	4	12	10	11	9
		2 X 10	18	0	15	7	13	11	12	9	21	2	18	4	16	5	15	0
		2 X 12	21	11	19	0	17	0	15	6	25	9	22	4	20	0	18	3
	Construction	2 X 4	8	3	7	1	6	4	5	10	9	7	8	4	7	6	6	10
	Standard	2 X 4	6	3	5	5	4	10	4	5	7	4	6	4	5	8	5	2
	Utility	2 X 4	4	2	3	8	3	3	2	11	4	11	4	3	3	10	3	6

TABLE 9 (Cont'd)

RAFTERS – NOT SUPPORTING CEILINGS
(LIVE LOADS 30 AND 20 lb per sq ft)

Species	Grade	Nominal Size, inches	LIVE LOAD 30 lb per sq ft								LIVE LOAD 20 lb per sq ft							
			Rafter spacing								Rafter spacing							
			12 IN.		16 IN.		20 IN.		24 IN.		12 IN.		16 IN.		20 IN.		24 IN.	
			FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.
Aspen Poplar Large Toothed Aspen Poplar Balsam Poplar	Select Structural	2 X 4	8	8	7	11	7	4	6	10	9	11	9	0	8	4	7	11
		2 X 6	13	8	12	5	11	6	10	8	15	8	14	2	13	2	12	5
		2 X 8	18	0	16	4	15	2	14	1	20	7	18	9	17	5	16	4
		2 X 10	23	0	20	11	19	5	18	0	26	4	23	11	22	2	20	11
		2 X 12	28	0	25	5	23	7	21	11	32	0	29	1	27	0	25	5
	No. 1	2 X 4	8	8	7	11	7	4	6	9	9	11	9	0	8	4	7	11
		2 X 6	13	8	12	1	10	9	9	10	15	8	14	2	12	8	11	7
		2 X 8	18	0	15	11	14	3	13	0	20	7	18	9	16	9	15	3
		2 X 10	23	0	20	3	18	2	16	7	26	4	23	11	21	4	19	6
		2 X 12	28	0	24	8	22	1	20	2	32	0	29	1	26	0	23	9
	No. 2	2 X 4	8	5	7	6	6	8	6	1	9	7	8	9	7	10	7	2
		2 X 6	12	7	10	11	9	9	8	11	14	10	12	10	11	6	10	6
		2 X 8	16	7	14	4	12	10	11	9	19	7	16	11	15	2	13	10
		2 X 10	21	2	18	4	16	5	15	0	24	11	21	7	19	4	17	8
		2 X 12	25	9	22	4	20	0	18	3	30	4	26	3	23	6	21	5
	No. 3	2 X 4	6	6	5	8	5	0	4	7	7	8	6	8	5	11	5	5
		2 X 6	9	4	8	1	7	3	6	7	11	0	9	7	8	6	7	9
		2 X 8	12	4	10	8	9	7	8	9	14	7	12	7	11	3	10	3
		2 X 10	15	9	13	8	12	3	11	2	18	7	16	1	14	5	13	2
		2 X 12	19	3	16	8	14	10	13	7	22	7	19	7	17	6	16	0
	Construction	2 X 4	7	4	6	4	5	8	5	2	8	7	7	5	6	8	6	1
	Standard	2 X 4	5	8	4	11	4	4	4	0	6	8	5	9	5	2	4	8
	Utility	2 X 4	3	9	3	3	2	11	2	8	4	5	3	10	3	5	3	1

TABLE 10

MAXIMUM SPANS FOR BUILT-UP WOOD BEAMS IN BASEMENTS, CELLARS AND CRAWL SPACES ONE STOREY HOUSES[2][5]

Species	Grade[1]	Supported Joist Length Ft.[3][4]	Size of built-up beam, inches[6][7][8]											
			3 – 2 x 8		4 – 2 x 8		3 – 2 x 10		4 – 2 x 10		3 – 2 x 12		4 – 2 x 12	
			FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.
Douglas Fir Western Larch	No. 1	8	12	0	13	10	15	4	17	8	18	7	21	6
		10	10	9	12	5	13	8	15	10	16	8	19	3
		12	9	9	11	4	12	6	14	5	15	2	17	7
		14	8	10	10	5	11	4	13	4	13	9	16	3
		16	7	11	9	9	10	1	12	6	12	3	15	2
	No. 2	8	10	10	12	6	13	9	15	11	16	9	19	5
		10	9	8	11	2	12	4	14	3	15	0	17	4
		12	8	10	10	2	11	3	13	0	13	8	15	10
		14	8	2	9	5	10	5	12	0	12	8	14	8
		16	7	7	8	10	9	9	11	3	11	10	13	8
Pacific Coast Hemlock Amabilis Fir Grand Fir	No. 1	8	10	4	12	0	13	3	15	4	16	1	18	7
		10	9	3	10	9	11	10	13	8	14	5	16	8
		12	8	6	9	9	10	10	12	6	13	2	15	2
		14	7	7	9	1	9	8	11	7	11	9	14	1
		16	6	9	8	6	8	8	10	10	10	6	13	2
	No. 2	8	9	3	10	8	11	9	13	7	14	4	16	7
		10	8	3	9	6	10	6	12	2	12	10	14	10
		12	7	6	8	8	9	7	11	1	11	8	13	6
		14	7	0	8	1	8	11	10	3	10	10	12	6
		16	6	6	7	6	8	4	9	7	10	1	11	8

TABLE 10 (Cont'd)

MAXIMUM SPANS FOR BUILT-UP WOOD BEAMS IN BASEMENTS, CELLARS AND CRAWL SPACES ONE STOREY HOUSES[2][5]

Species	Grade[1]	Supported Joist Length Ft.[3][4]	Size of built-up beam, inches[6][7][8]											
			3 – 2 x 8		4 – 2 x 8		3 – 2 x 10		4 – 2 x 10		3 – 2 x 12		4 – 2 x 12	
			FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.
Pacific Coast Yellow Cedar Tamarack Jack Pine Eastern Hemlock	No. 1	8	11	2	12	11	14	4	16	6	17	5	20	1
		10	10	0	11	7	12	10	14	9	15	7	18	0
		12	9	2	10	7	11	8	13	6	14	2	16	5
		14	8	5	9	9	10	9	12	6	13	1	15	2
		16	7	6	9	2	9	7	11	8	11	8	14	2
	No. 2	8	10	2	11	9	13	0	15	0	15	9	18	3
		10	9	1	10	6	11	7	13	5	14	1	16	4
		12	8	3	9	7	10	7	12	3	12	10	14	10
		14	7	8	8	10	9	9	11	4	11	11	13	9
		16	7	2	8	3	9	2	10	7	11	2	12	10
Balsam Fir Lodgepole Pine Ponderosa Pine Spruces (all species) Alpine Fir Aspen Poplar Large-toothed Aspen Poplar Balsam Poplar	No. 1	8	9	11	11	6	12	8	14	8	15	5	17	10
		10	8	4	10	3	10	8	13	1	13	0	15	11
		12	7	2	9	2	9	2	11	8	11	1	14	3
		14	6	4	8	0	8	0	10	3	9	9	12	5
		16	5	8	7	2	7	3	9	2	8	10	11	1
	No. 2	8	9	0	10	4	11	6	13	3	13	11	16	1
		10	8	0	9	3	10	3	11	10	12	6	14	5
		12	7	2	8	6	9	2	10	10	11	1	13	2
		14	6	4	7	10	8	0	10	0	9	9	12	2
		16	5	8	7	2	7	3	9	2	8	10	11	1

TABLE 10 (Cont'd)

MAXIMUM SPANS FOR BUILT-UP WOOD BEAMS
IN BASEMENTS, CELLARS AND CRAWL SPACES
ONE STOREY HOUSES[2][5]

Species	Grade[1]	Supported Joist Length Ft.[3][4]	Size of built-up beam, inches[6][7][8]											
			3 – 2 x 8		4 – 2 x 8		3 – 2 x 10		4 – 2 x 10		3 – 2 x 12		4 – 2 x 12	
			FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.
Western Red Cedar Red Pine Western White Pine White Pine	No. 1	8	9	8	11	2	12	5	14	4	15	1	17	5
		10	8	8	10	0	11	1	12	10	13	6	15	7
		12	7	8	9	2	9	9	11	8	11	11	14	2
		14	6	9	8	6	8	7	10	10	10	5	13	2
		16	6	0	7	8	7	8	9	9	9	4	11	11
	No. 2	8	8	9	10	1	11	2	12	10	13	7	15	8
		10	7	10	9	0	10	0	11	6	12	1	14	0
		12	7	1	8	3	9	1	10	6	11	1	12	9
		14	6	7	7	7	8	5	9	9	10	3	11	10
		16	6	0	7	1	7	8	9	1	9	4	11	1

(1) "1971 NLGA Standard Grading Rules for Canadian Lumber" published by the National Lumber Grades Authority, Vancouver.

(2) These tables provide maximum allowable spans for main beams or girders which are built up from nominal 2 in. members in the species, sizes and grades indicated. Allowable spans for solid wood beams, glued-laminated wood beams, or built-up beams in sizes or grades other than shown, shall be determined from standard engineering formulae.

(3) Supported joist length means ½ the sum of the joist spans on both sides of the beam.

(4) For supported joist lengths intermediate between those shown in the tables, straight line interpolation may be used in determining the maximum beam span.

(5) Beams for 1½ storey houses shall be taken from the table for 2 storey houses.

(6) The 2 in. members shall be laid on edge and fastened together with a double row of common nails not less than 3½ in. in length. Nails shall be spaced not more than 18 in. apart in each row with the end nails placed 4 in. to 6 in. from the end of each piece.

(7) Where built up wood beams are employed over a single span, the length of each individual piece used to fabricate the beam shall equal the length of the beam.

(8) Where built up wood beams are continued over more than one span and where lengths of individual pieces are less than the total length of the complete beam, the location of butt joints shall conform to Articles 9.23.8.3. and 9.23.8.4. of the National Building Code of Canada (1970).

TABLE 11

MAXIMUM SPANS FOR BUILT-UP WOOD BEAMS IN BASEMENTS, CELLARS AND CRAWL SPACES TWO STOREY HOUSES[2][5]

Species	Grade[1]	Supported Joist Length Ft.[3][4]	Size of built-up beam, inches[6][7][8]											
			3 – 2 x 8		4 – 2 x 8		3 – 2 x 10		4 – 2 x 10		3 – 2 x 12		4 – 2 x 12	
			FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.
Douglas Fir Western Larch	No. 1	8	8	10	10	5	11	4	13	4	13	9	16	3
		10	7	4	9	4	9	4	11	11	11	5	14	6
		12	6	4	8	0	8	0	10	3	9	9	12	5
		14	5	7	7	0	7	1	9	0	8	8	10	11
		16	5	0	6	4	6	5	8	0	7	10	9	9
	No. 2	8	8	2	9	5	10	5	12	0	12	8	14	8
		10	7	3	8	5	9	4	10	9	11	4	13	1
		12	6	4	7	8	8	0	9	10	9	9	11	11
		14	5	7	7	0	7	1	9	0	8	8	10	11
		16	5	0	6	4	6	5	8	0	7	10	9	9
Pacific Coast Hemlock Amabilis Fir Grand Fir	No. 1	8	7	7	9	1	9	8	11	7	11	9	14	1
		10	6	4	8	0	8	0	10	3	9	9	12	5
		12	5	5	6	10	6	11	8	9	8	6	10	8
		14	4	10	6	1	6	2	7	9	7	6	9	5
		16	4	4	5	5	5	7	6	11	6	10	8	6
	No. 2	8	7	0	8	1	8	11	10	3	10	10	12	6
		10	6	3	7	2	7	11	9	2	9	8	11	2
		12	5	5	6	7	6	11	8	5	8	6	10	2
		14	4	10	6	1	6	2	7	9	7	6	9	5
		16	4	4	5	5	5	7	6	11	6	10	8	6

TABLE 11 (Cont'd)

MAXIMUM SPANS FOR BUILT-UP WOOD BEAMS IN BASEMENTS, CELLARS AND CRAWL SPACES TWO STOREY HOUSES[2][5]

Species	Grade[1]	Supported Joist Length Ft.[3][4]	Size of built-up beam, inches[6][7][8]									
			3 – 2 x 8		4 – 2 x 8		3 – 2 x 10		4 – 2 x 10		3 – 2 x 12		4 – 2 x 12	
			FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.
Pacific Coast Yellow Cedar Tamarack Jack Pine Eastern Hemlock	No. 1	8	8	5	9	9	10	9	12	6	13	1	15	2
		10	7	0	8	9	8	11	11	2	10	10	13	7
		12	6	0	7	7	7	8	9	9	9	4	11	10
		14	5	4	6	8	6	10	8	7	8	3	10	5
		16	4	10	6	0	6	2	7	8	7	6	9	4
	No. 2	8	7	8	8	10	9	9	11	4	11	11	13	9
		10	6	10	7	11	8	9	10	1	10	8	12	4
		12	6	0	7	3	7	8	9	3	9	4	11	3
		14	5	4	6	8	6	10	8	6	8	3	10	5
		16	4	10	6	0	6	2	7	8	7	6	9	4
Balsam Fir Lodgepole Pine Ponderosa Pine Spruces (all species) Alpine Fir Aspen Poplar Large-toothed Aspen Poplar Balsam Poplar	No. 1	8	6	4	8	0	8	0	10	3	9	9	12	5
		10	5	3	6	8	6	9	8	6	8	2	10	4
		12	4	7	5	9	5	10	7	4	7	2	8	11
		14	4	1	5	1	5	3	6	6	6	5	7	11
		16	3	9	4	7	4	9	5	10	5	10	7	2
	No. 2	8	6	4	7	10	8	0	10	0	9	9	12	2
		10	5	3	6	8	6	9	8	6	8	2	10	4
		12	4	7	5	9	5	10	7	4	7	2	8	11
		14	4	1	5	1	5	3	6	6	6	5	7	11
		16	3	9	4	7	4	9	5	10	5	10	7	2

TABLE 11 (Cont'd)

MAXIMUM SPANS FOR BUILT-UP WOOD BEAMS IN BASEMENTS, CELLARS AND CRAWL SPACES TWO STOREY HOUSES[2][5]

Species	Grade[1]	Supported Joist Length Ft.[3][4]	Size of built-up beam, inches[6][7][8]											
			3 – 2 x 8		4 – 2 x 8		3 – 2 x 10		4 – 2 x 10		3 – 2 x 12		4 – 2 x 12	
			FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.
Western Red Cedar	No. 1	8	6	9	8	6	8	7	10	10	10	5	13	2
Red Pine		10	5	7	7	1	7	2	9	1	8	9	11	0
Western White Pine		12	4	10	6	1	6	3	7	10	7	7	9	6
White Pine		14	4	4	5	5	5	7	6	11	6	9	8	5
		16	3	11	4	10	5	1	6	3	6	2	7	7
	No. 2	8	6	7	7	7	8	5	9	9	10	3	11	10
		10	5	7	6	10	7	2	8	8	8	9	10	7
		12	4	10	6	1	6	3	7	10	7	7	9	6
		14	4	4	5	5	5	7	6	11	6	9	8	5
		16	3	11	4	10	5	1	6	3	6	2	7	7

(1) "1971 NLGA Standard Grading Rules for Canadian Lumber" published by the National Lumber Grades Authority, Vancouver.

(2) These tables provide maximum allowable spans for main beams or girders which are built up from nominal 2 in. members in the species, sizes and grades indicated. Allowable spans for solid wood beams, glued-laminated wood beams, or built-up beams in sizes or grades other than shown, shall be determined from standard engineering formulae.

(3) Supported joist length means ½ the sum of the joist spans on both sides of the beam.

(4) For supported joist lengths intermediate between those shown in the tables, straight line interpolation may be used in determining the maximum beam span.

(5) Beams for 1½ storey houses shall be taken from the table for 2 storey houses.

(6) The 2 in. members shall be laid on edge and fastened together with a double row of common nails not less than 3½ in. in length. Nails shall be spaced not more than 18 in. apart in each row with the end nails placed 4 in. to 6 in. from the end of each piece.

(7) Where built up wood beams are employed over a single span, the length of each individual piece used to fabricate the beam shall equal the length of the beam.

(8) Where built up wood beams are continued over more than one span and where lengths of individual pieces are less than the total length of the complete beam, the location of butt joints shall conform to Articles 9.23.8.3. and 9.23.8.4. of the National Building Code of Canada (1970).