SPAN TABLES FOR WOOD JOISTS, RAFTERS, TRUSSES AND BEAMS

1975

Issued by the
Associate Committee on the National Building Code
National Research Council of Canada
Ottawa

Price $1.00

NRCC 14396

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SPAN TABLES FOR WOOD JOISTS, RAFTERS, TRUSSES AND BEAMS

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First Edition 1970
Second Edition 1975

Printed in Canada

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PREFACE

The 1975 edition of this publication includes for the first time span tables for wood roof trusses. These truss spans have been calculated for the Associate Committee on the National Building Code by the Division of Building Research of the National Research Council of Canada from information supplied by the Division and by the Eastern Forest Products Laboratory of the Federal Department of the Environment, Ottawa, and are designed to meet the performance criteria for roof trusses described in Part 9 of the National Building Code of Canada 1975.

The Tables of allowable spans for wood joists, rafters and beams have also been prepared for the Associate Committee by the Eastern Forest Products Laboratory. These spans have been calculated in accordance with the requirements for loads in Part 9 of the National Building Code and with the design procedures in CSA O86-1970, "Code of Recommended Practice for Engineering Design in Timber."

All span tables in this document apply to lumber manufactured to the standard sizes as specified in CSA O141-1970, "Softwood Lumber." They are based on grade descriptions contained in "1970 NLGA Standard Grading Rules for Canadian Lumber," published by the National Lumber Grades Authority. As a convenience to the users of these Tables, facsimiles of the latest grade stamps have been included.

The Associate Committee wishes to acknowledge the assistance of the agencies mentioned above and the Canadian Wood Council in providing information for the development of this material.

Le Code national du bâtiment, ses suppléments et les documents qui s'y rattachent sont disponibles en français. On peut se les procurer en s'adressant au Secrétaire, Comité associé du Code national du bâtiment, Conseil national de recherches du Canada, Ottawa, Ontario K1A 0R6.

SECTION 1

REQUIREMENTS CONCERNING SPAN TABLES AND THEIR USE

Scope

The spans for rafters, joists, beams and roof trusses in this publication apply to buildings covered by the requirements in Section 9.23, "Wood Frame Construction," of the National Building Code of Canada 1975.

The spans for roof trusses are applicable to roof trusses having a span of not more than 40 ft and spaced not more than 24 in. o.c. for the species and grades of lumber described in the roof truss Span Tables.

Floor joist spans 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.

Wood-beam spans apply to built-up wood beams in basements, cellars or crawl spaces in 1- and 2-storey dwellings.

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, "Code of Recommended Practice for Engineering Design in Timber."

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 in Table 1-B. 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 the 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.

Grade marks 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 a 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.

Lumber species in Tables 2-A to 2-K in Section 2 and 3-A to 3-F in Section 3 are identified by the standard commercial names for individual species given in CSA 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 Table 1-A.

TABLE 1-A

SPECIES DESIGNATIONS AND ABBREVIATIONS

Commercial Designation of Species or Species Combination	Abbreviation Permitted on Grade Stamps	Species Included
Douglas Fir-Larch (North)	D Fir-L (N)	Douglas Fir, Western Larch
Hem-Fir (North)	Hem-Fir (N)	Western Hemlock, Amabilis Fir
Eastern Hemlock-Tamarack (North)	Hem-Tam (N)	Eastern Hemlock, Tamarack
Western Cedars (North)	W Cedar (N)	Pacific Coast Yellow Cedar Western Red Cedar
Jack Pine (North)	J Pine (N)	Jack Pine
Spruce-Pine-Fir	S-P-F or Spruce-Pine-Fir	White Spruce, Lodgepole Pine Engelmann Spruce, Jack Pine Black Spruce, Alpine Fir Red Spruce, Balsam Fir
Coast Sitka Spruce	C Sitka	Coast Sitka Spruce
Ponderosa Pine	P Pine	Ponderosa Pine
Red Pine (North)	R Pine (N)	Red Pine
Western White Pine	WW Pine	Western White Pine
Eastern White Pine (North)	East White Pine (N) EW Pine (N)	Eastern White Pine
Northern Aspen	N Aspen	Aspen Poplar, Large Toothed Aspen Poplar, Balsam Poplar
Coast species	Coast species	Douglas Fir, Larch, Western Hemlock, Amabalis Fir, Coast Sitka Spruce
Northern species	North species	Any Canadian softwood covered by the NLGA Standard Grading Rules

TABLE 1-B

FACSIMILES OF GRADE MARKS USED BY CANADIAN LUMBER MANUFACTURING ASSOCIATIONS AND AGENCIES AUTHORIZED TO GRADE MARK LUMBER IN CANADA

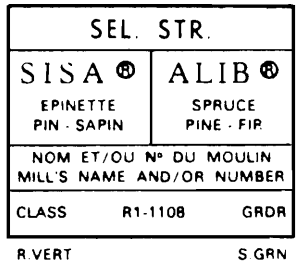
FACSIMILE OF GRADE MARK	ASSOCIATION OR AGENCY
A.F.P.A® 00 S—P—F S-DRY STAND	Alberta Forest Products Assoc. 204 - 11710 Kingsway Avenue Edmonton, Alberta T5G 0X5
	Service d'inspection des sciages de l'Atlantique Atlantic Lumber Inspection Bureau A Branch of Quebec Lumber Manufacturers Association 580 Grande-Allée Est Suite 540 Québec, Québec G1R 2K2
CLA S-P-F 100 No. 1 S-GRN.	Canadian Lumbermen's Association 27 Goulburn Avenue Ottawa, Ontario K1N 8C7
LMA® 1 S-GRN 1 1 D FIR-N	Cariboo Lumber Mfrs. Association 301 - 197 2nd Avenue North Williams Lake, B.C. V2G 1Z5
COFI® W. CEDAR S-GRN.-(N) 100 No 3	Council of Forest Industries of British Columbia 1500 - 1055 West Hastings Street Vancouver, B.C. V6E 2H1

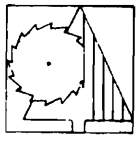
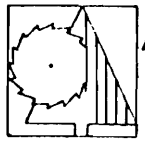
TABLE 1-B (Cont'd)

FACSIMILES OF GRADE MARKS USED BY CANADIAN LUMBER MANUFACTURING ASSOCIATIONS AND AGENCIES AUTHORIZED TO GRADE MARK LUMBER IN CANADA

FACSIMILE OF GRADE MARK	ASSOCIATION OR AGENCY
ILMA® S-DRY 1 00 S—P—F	Interior Lumber Manufacturers Association 295 - 333 Martin Street Penticton, B.C. V2A 5K7
M.F.P.A.® 44 S—P—F S-GRN 2	Manitoba Forest Products Association 14-G 1975 Corydon Avenue Winnipeg, Manitoba R3P 0R1
CFPA® 00 S-P-F S-DRY CONST	Central Forest Products Association 14-G 1975 Corydon Avenue Winnipeg, Manitoba R3P 0R1
M L B SPRUCE PINE FIR STAND S-GRN MILL 11 — 466	Maritime Lumber Bureau P.O. Box 459 Amherst, Nova Scotia. B4H 4A1
NILA® 278 S·P·F S·DRY 1	Northern Interior Lumber Sector 514 - 550 Victoria Street Prince George, B.C. V2L 2K1
O.L.M.A.® 01-1 CONST. S-DRY SPRUCE - PINE - FIR	Ontario Lumber Manufacturers Association Suite 414 - 159 Bay Street Toronto, Ontario M5J 1J7

TABLE 1-B (cont'd)

FACSIMILES OF GRADE MARKS USED BY CANADIAN LUMBER MANUFACTURING ASSOCIATIONS AND AGENCIES AUTHORIZED TO GRADE MARK LUMBER IN CANADA

FACSIMILE OF GRADE MARK	ASSOCIATION OR AGENCY
S. T. B. ® 101 S-P-F CONST. S-GRN	Saskatchewan Forest Products Corporation 101 First Avenue East Prince Albert, Saskatchewan S6V 2A5
 QLMA ® 72 SPRUCE - PINE - FIR CONST. S-DRY	L'association des manufacturiers de bois de sciage du Québec Quebec Lumber Manufacturers Association 580 Grande-Allée Est Suite 540 Québec, Québec G1R 2K2
 AMBSQ ® 62 EPINETTE-PIN-SAPIN Nº 2 R-VERT	L'association des manufacturiers de bois de sciage du Québec Quebec Lumber Manufacturers Association 580 Grande-Allée Est Suite 540 Québec, Québec G1R 2K2
0  0 No 1 S-DRY D FIR-N NLGA RULE	MacDonald Inspection 125 East 4th Avenue Vancouver, B.C. V5T 1G4
RIB NLGA RULE No 1 S-GRN 00 HEM-FIR-N	Pacific Lumber Inspection Bureau Suite 1130 - 1411 Fourth Avenue Bldg. Seattle, Washington 98101 B.C. Division Office 1460-1055 West Hastings Street Vancouver, B.C. V6E 2G8
 NWT 10 CONST S-P-F S-GRN	N.W.T. Grade Stamping Agency P.O. Box 2157 Yellowknife, N.W.T. X0E 1J7

SECTION 2

SPAN TABLES FOR WOOD JOISTS, RAFTERS AND BEAMS

General

In these span tables the term "rafter" refers to a sloping wood framing member which supports the roof sheathing and encloses an attic space but does not support a ceiling. 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.

Design Basis

The design loads and deflection limits used in calculating the span tables are those specified in Section 9.4 of the National Building Code of Canada 1975.

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

Nominal Size	Dressed Size at 19 per cent M.C.
2 in. x 4 in.	1½ in. x 3½ in.
2 in. x 6 in.	1½ in. x 5½ in.
2 in. x 8 in.	1½ in. x 7¼ in.
2 in. x 10 in.	1½ in. x 9¼ in.
2 in. x 12 in.	1½ in. x 11¼ in.

For moisture contents other than 19 per cent provision is made in CSA O141-1970, "Softwood Lumber," 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 1970 "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, "Code of Recommended Practice for Engineering Design in Timber."

Use of Tables

The allowable spans in the following tables 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 listed for 2-in. x 4-in. lumber.

These span tables may be used where members support a uniform live load only. Where the members are required to be designed to support a concentrated load, the members must be designed in conformance with Section 4.3 of the National Building Code of Canada 1975.

Grade Marking of Lumber

Facsimiles are shown in Section 1 of typical grade marks of lumber, graded by associations and grading agencies certified by the Canadian Lumber Standards Administrative Board to grade mark lumber in Canada in accordance with the 1970 "NLGA Standard Grading Rules for Canadian Lumber."

TABLE 2-A

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

Species	Grade	Nominal Size, in.	LIVE LOAD 10 lb per sq ft													
			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
	Con-struction	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
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
	Con-struction	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

Continued on next page

TABLE 2-A (Cont'd)

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

Species	Grade	Nominal Size.	LIVE LOAD 10 lb per sq ft													
			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.	
		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
	Con-struction	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
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
	Con-struction	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

Continued on next page

TABLE 2-A (Cont'd)

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

Species	Grade	Nominal Size.	LIVE LOAD 10 lb per sq ft													
			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.	
		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
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-B

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

Species	Grade	Nominal Size,	LIVE LOAD 40 lb per sq ft							
			All Ceilings							
			Joist Spacing							
			12 in.		16 in.		20 in.		24 in.	
		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
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	9
	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

Continued on next page

TABLE 2-B (Cont'd)

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

Species	Grade	Nominal Size, in.	LIVE LOAD 40 lb per sq ft — 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
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

Continued on next page

TABLE 2-B (Cont'd)

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

Species	Grade	Nominal Size,	LIVE LOAD 40 lb per sq ft							
			All Ceilings							
			Joist Spacing							
			12 in.		16 in.		20 in.		24 in.	
		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
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 2-C

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

Species	Grade	Nominal Size, in.	LIVE LOAD 30 lb per sq ft													
			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
	Con-struction	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
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
	Con-struction	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

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TABLE 2-C (Cont'd)

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

Species	Grade	Nominal Size,	LIVE LOAD 30 lb per sq ft											
			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.	
		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
	Con-struction	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
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
	Con-struction	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

Continued on next page

TABLE 2-C (Cont'd)

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

Species	Grade	Nominal Size, in.	LIVE LOAD 30 lb per sq ft													
			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
	Con-struction	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
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
	Con-struction	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 2-D

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

Species	Grade	Nominal Size, in.	LIVE LOAD 50 lb per sq ft													
			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
	Con-struction	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
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
	Con-struction	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

Continued on next page

TABLE 2-D (Cont'd)

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

Species	Grade	Nominal Size, in.	LIVE LOAD 50 lb per sq ft											
			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 Pine 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
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

Continued on next page

TABLE 2-D (Cont'd)

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

Species	Grade	Nominal Size, in.	LIVE LOAD 50 lb per sq ft													
			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
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 2-E

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

Species	Grade	Nominal Size, in.	LIVE LOAD 40 lb per sq ft													
			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
	Con-struction	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
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
	Con-struction	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

Continued on next page

TABLE 2-E (Cont'd)

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

Species	Grade	Nominal Size,	LIVE LOAD 40 lb per sq ft													
			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.	
		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
	Con-struction	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
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
	Con-struction	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

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TABLE 2-E (Cont'd)

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

Species	Grade	Nominal Size, in.	LIVE LOAD 40 lb per sq ft													
			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
	Con-struction	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	0	3	9	5	3	4	7	4	0	3	9
	Utility	2 x 4	3	7	3	1	2	9	2	6	3	7	3	1	2	9	2	6
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
	Con-struction	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 2-F

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

Species	Grade	Nominal Size, in.	LIVE LOAD 30 lb per sq ft													
			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
	Con-struction	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
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
	Con-struction	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

Continued on next page

TABLE 2-F (Cont'd)

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

Species	Grade	Nominal Size, in.	LIVE LOAD 30 lb per sq ft													
			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
	Con-struction	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
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
	Con-struction	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

Continued on next page

TABLE 2-F (Cont'd)

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

Species	Grade	Nominal Size,	LIVE LOAD 30 lb per sq ft													
			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.	
		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
		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. 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
	Con-struction	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
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
	Con-struction	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 2-G

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

Species	Grade	Nominal Size, in.	LIVE LOAD 20 lb per sq ft													
			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
	Con-struction	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
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
	Con-struction	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

Continued on next page

TABLE 2-G (Cont'd)

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

Species	Grade	Nominal Size,	LIVE LOAD 20 lb per sq ft													
			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.	
		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
	Con-struction	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
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
	Con-struction	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

Continued on next page

TABLE 2-G (Cont'd)

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

Species	Grade	Nominal Size, in.	LIVE LOAD 20 lb per sq ft													
			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
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 2-H

RAFTERS — NOT SUPPORTING CEILING
(LIVE LOADS 50 AND 40 lb per sq ft)

Species	Grade	Nominal Size, in.	LIVE LOAD 50 lb per sq ft — Rafter Spacing								LIVE LOAD 40 lb per sq ft — 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
	Con-struction	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
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
	Con-struction	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

Continued on next page

TABLE 2-H (Cont'd)

RAFTERS — NOT SUPPORTING CEILING
(LIVE LOADS 50 AND 40 lb per sq ft)

Species	Grade	Nominal Size,	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.	
		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
	Con-struction	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
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
	Con-struction	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

Continued on next page

TABLE 2-H (Cont'd)

RAFTERS — NOT SUPPORTING CEILING
(LIVE LOADS 50 AND 40 lb per sq ft)

Species	Grade	Nominal Size,	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.	
		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
	Con-struction	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
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
	Con-struction	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 2-I

RAFTERS — NOT SUPPORTING CEILING
(LIVE LOADS 30 AND 20 lb per sq ft)

Species	Grade	Nominal Size,	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.	
		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
	Con-struction	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
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
	Con-struction	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

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TABLE 2-I (Cont'd)

RAFTERS — NOT SUPPORTING CEILING
(LIVE LOADS 30 AND 20 lb per sq ft)

Species	Grade	Nominal Size, in.	LIVE LOAD 30 lb. per sq. ft. — Rafter Spacing								LIVE LOAD 20 lb. per sq. ft. — 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
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

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TABLE 2-I (Cont'd)

RAFTERS — NOT SUPPORTING CEILING
(LIVE LOADS 30 AND 20 lb per sq ft)

Species	Grade	Nominal Size,	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.	
		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
	Con-struction	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
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
	Con-struction	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 2-J
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, in. [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
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 Spruce (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
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

Notes to Table 2-J:

(1) Graded in conformance with 1970 "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 1 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 Subsection 9.23.8. of the National Building Code of Canada 1975.

TABLE 2-K
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, in. [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
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 Spruce (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
Western Red Cedar Red Pine Western White Pine White Pine	No. 1	8	6	9	8	6	8	7	10	10	10	5	13	2
		10	5	7	7	1	7	2	9	1	8	9	11	0
		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
	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

Notes to Table 2-K:

[1] Graded in conformance with 1970 "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.

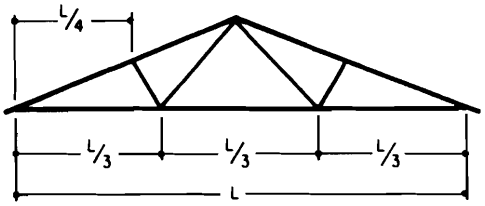
[8] Where built-up wood beams are continued over more than 1 span, and where lengths of individual pieces are less than the total length of the complete beam, the location of butt joints shall conform to Subsection 9.23.8. of the National Building Code of Canada 1975.

SECTION 3

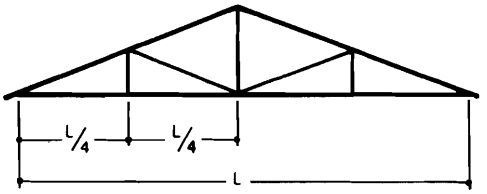
SPAN TABLES FOR WOOD ROOF TRUSSES

General

In these tables the term "Fink" truss refers to the common "W" type truss. The term "Howe" truss refers to the type which has a vertical member extending from the peak of the truss. Schematic drawings of the simplest version of each type are shown in the following diagrams. Each type may have web members additional to those shown, so that the distances between panel points are decreased in these cases.



Fink Truss



Howe Truss

The span tables in this Section have been calculated for wood species equivalent in strength to Spruce, Balsam Fir, Lodgepole Pine, Ponderosa Pine and Alpine Fir. The spans can therefore be safely used for the stronger species such as Douglas Fir, Western Larch, Pacific Coast Hemlock, Amabilis Fir, Grand Fir, Pacific Coast Yellow Cedar, Tamarack, Jack Pine and Eastern Hemlock. The spans are not appropriate for the weaker species, which include Western Red Cedar, Red Pine, Western White Pine, Eastern White Pine, Poplar and Eastern White Cedar.

These spans are not intended to be the only spans permissible for Fink and Howe type trusses. Spans for such trusses may be designed in conformance with accepted timber design practices or be shown to be capable of conforming to the criteria described in Article 9.23.13.16. of the National Building Code of Canada 1975.

When the spans shown in this Section are used, the connecting plates must be designed in conformance with the requirements in CSA O86-1970, "Code of Recommended Practice for Engineering Design in Timber."

The minimum web member sizes indicated in the notes to the span tables may be reduced provided such reductions can be justified on the basis of calculations.

Design Assumptions

The span tables for wood roof trusses have been calculated for 20, 30, 40 and 50 psf design roof snow loads assuming the design roof snow load to be 60 per cent of the ground snow load, and are designed to meet the performance criteria in Article 9.23.13.16. of the National Building Code of Canada 1975. Originally, the criteria were based on a design snow load of 80 per cent of the ground snow load, using a factor of safety of 2.0. Subsequent roof snow load observations indicated a factor of 60 per cent of the ground snow load to be more appropriate, and in order to maintain the same degree of safety, the factor of safety was increased from 2.0 to 2⅓. The following table provides a comparison between the ground snow load and the roof snow load.

Roof snow load, psf	20	30	40	50
Equivalent ground snow load, psf	33	50	67	83

Where wood roof trusses are intended for use in a locality having a design roof snow load higher than shown in the tables, the maximum truss spacing may be calculated as the product of the truss spacing and snow load in the span tables divided by the design snow load for the locality where the trusses are to be used. The following are examples of how this principle can be applied:

(1) For 60 psf design snow load, use spans for 30 psf design snow load but space trusses 12 in. o.c., or use spans for 40 psf design snow load but space trusses 16 in. o.c.

(2) For 70 psf design snow load, use spans for 50 psf design snow load but space trusses 16 in. o.c.

(3) For 80 psf design snow load, use spans for 40 psf but space trusses 12 in. o.c.

Where wood roof trusses are to be used in an area where the design roof snow load falls between the values shown in the tables, the spans may be interpolated between the spans shown in the tables.

The truss spans in these tables are valid only where the design live load on the lower chord does not exceed 10 psf of ceiling area. This applies to trusses in buildings whose attics have limited access and not to attics that are accessible by stairways. The spans do not apply to trusses which may be subject to concentrated loads such as those required to support hoisting equipment. In addition the top members of the trusses must be constructed so as to prevent lateral buckling by the provision of roof sheathing or by other suitable bracing.

TABLE 3-A
MAXIMUM SPANS[1] FOR WOOD FINK TRUSSES WITH 2-in. BY 4-in. BOTTOM MEMBER SIZE FOR SPECIES LISTED IN NOTE (2) AND WITH TRUSSES SPACED 24 in. o.c.

Lumber Grade	Top Member Size, in.[3], [4]	Roof Slope	Roof Snow Load, psf			
			20 ft in.	30 ft in.	40 ft in.	50 ft in.
No. 1	2 x 4	2½/12	22 — 2	16 — 0	—	—
		3/12	31 — 5	26 — 8	19 — 9	14 — 11
		4/12	31 — 6	29 — 0	25 — 0	22 — 2
		5/12	32 — 2	29 — 8	25 — 7	22 — 9
	2 x 5	2½/12	26 — 2	19 — 5	13 — 0	—
		3/12	31 — 5	28 — 5	23 — 7	18 — 3
		4/12	34 — 7	32 — 0	28 — 11	26 — 2
		5/12	36 — 9	32 — 6	31 — 8	29 — 2
	2 x 6	2½/12	29 — 2	22 — 1	15 — 6	—
		3/12	31 — 5	28 — 5	25 — 0	20 — 10
		4/12	34 — 7	32 — 0	28 — 11	26 — 2
		5/12	36 — 9	34 — 5	31 — 8	29 — 2
No. 2	2 x 4	2½/12	19 — 2	13 — 2	—	—
		3/12	26 — 4	23 — 5	17 — 0	12 — 5
		4/12	29 — 3	25 — 3	21 — 8	19 — 2
		5/12	29 — 11	25 — 10	22 — 3	19 — 9
	2 x 5	2½/12	22 — 10	16 — 6	—	—
		3/12	26 — 4	23 — 6	20 — 6	15 — 8
		4/12	29 — 5	26 — 11	24 — 0	21 — 7
		5/12	31 — 5	29 — 3	26 — 7	24 — 4
	2 x 6	2½/12	24 — 3	19 — 1	12 — 8	—
		3/12	26 — 4	23 — 6	20 — 6	18 — 0
		4/12	29 — 5	26 — 11	24 — 0	21 — 7
		5/12	31 — 5	29 — 3	26 — 7	24 — 4

Notes to Table 3-A:

(1) Spans are measured as the clear span between the interior wall faces of the exterior wall supports.

(2) Spans apply to all species except Poplar, Eastern White Pine, Western White Pine, Red Pine, Western Red Cedar and Eastern White Cedar.

(3) Where the length of compression web members exceeds 6 ft, such web members shall be provided with continuous bracing to prevent buckling. Such bracing shall consist of not less than 1-in. by 4-in. lumber nailed at right angles to the web members near their centres with at least two 2½-in. nails for each member. Web members shall be at least 2-in. by 4-in. lumber of not less than No. 2 grade.

(4) Where a roof truss supports a ceiling and the unsupported length of the bottom members between the truss panel points exceeds 10 ft, the members shall be at least 2 in. by 5 in., and when the unsupported length of the bottom member exceeds 12 ft between panel points, the member shall be at least 2 in. by 6 in. in size.

TABLE 3-B
MAXIMUM SPANS[1] FOR WOOD FINK TRUSSES WITH 2-in. BY 5-in. BOTTOM MEMBER SIZE FOR SPECIES LISTED IN NOTE (2) AND WITH TRUSSES SPACED 24 in. o.c.

Lumber Grade	Top Member Size, in.[3], [4]	Roof Slope	Roof Snow Load, psf			
			20 ft in.	30 ft in.	40 ft in.	50 ft in.
No. 1	2 x 4	2½/12	25 — 5	18 — 10	12 — 5	—
		3/12	30 — 5	28 — 0	23 — 2	18 — 0
		4/12	31 — 6	29 — 0	25 — 0	22 — 2
		5/12	32 — 2	29 — 8	25 — 7	22 — 9
	2 x 5	2½/12	30 — 5	22 — 11	16 — 3	10 — 10
		3/12	39 — 1	33 — 7	27 — 10	21 — 11
		4/12	40 — 0	34 — 11	30 — 0	28 — 5
		5/12	40 — 0	35 — 9	30 — 10	29 — 3
	2 x 6	2½/12	34 — 4	26 — 2	19 — 0	13 — 11
		3/12	40 — 0	36 — 6	31 — 7	25 — 1
		4/12	40 — 0	40 — 0	36 — 8	32 — 6
		5/12	40 — 0	40 — 0	37 — 8	33 — 5
No. 2	2 x 4	2½/12	22 — 2	15 — 11	—	—
		3/12	28 — 2	24 — 2	20 — 2	15 — 4
		4/12	29 — 3	25 — 3	21 — 8	19 — 2
		5/12	29 — 11	25 — 10	22 — 3	19 — 9
	2 x 5	2½/12	26 — 8	19 — 10	13 — 5	—
		3/12	33 — 10	30 — 4	24 — 5	19 — 0
		4/12	35 — 3	30 — 4	27 — 10	24 — 7
		5/12	36 — 1	31 — 2	28 — 7	25 — 5
	2 x 6	2½/12	30 — 3	22 — 10	16 — 2	10 — 9
		3/12	33 — 11	30 — 4	26 — 4	21 — 11
		4/12	37 — 9	34 — 7	30 — 11	27 — 9
		5/12	40 — 0	37 — 7	32 — 9	31 — 0

Notes to Table 3-B:

(1) Spans are measured as the clear span between the interior wall faces of the exterior wall supports.

(2) Spans apply to all species except Poplar, Eastern White Pine, Western White Pine, Red Pine, Western Red Cedar and Eastern White Cedar.

(3) Where the length of compression web members exceeds 6 ft, such web members shall be provided with continuous bracing to prevent buckling. Such bracing shall consist of not less than 1-in. by 4-in. lumber nailed at right angles to the web members near their centres with at least two 2½-in. nails for each member. Web members shall be at least 2-in. by 4-in. lumber of not less than No. 2 grade.

(4) Where a roof truss supports a ceiling and the unsupported length of the bottom members between the truss panel points exceeds 10 ft, the members shall be at least 2 in. by 5 in., and when the unsupported length of the bottom member exceeds 12 ft between panel points, the member shall be at least 2 in. by 6 in. in size.

TABLE 3-C
MAXIMUM SPANS[1] FOR WOOD FINK TRUSSES WITH 2-in. BY 6-in. BOTTOM MEMBER SIZE FOR SPECIES LISTED IN NOTE (2) AND WITH TRUSSES SPACED 24 in. o.c.

Lumber Grade	Top Member Size, in.[3]	Roof Slope	Roof Snow Load, psf			
			20 ft in.	30 ft in.	40 ft in.	50 ft in.
No. 1	2 x 4	2½/12	27 — 11	20 — 10	14 — 5	—
		3/12	30 — 5	28 — 0	23 — 11	19 — 4
		4/12	31 — 6	29 — 0	25 — 0	22 — 2
		5/12	32 — 2	29 — 8	25 — 7	22 — 9
	2 x 5	2½/12	33 — 7	25 — 7	18 — 6	13 — 5
		3/12	39 — 1	33 — 7	29 — 11	23 — 9
		4/12	40 — 0	34 — 11	30 — 0	28 — 5
		5/12	40 — 0	35 — 9	30 — 10	29 — 3
	2 x 6	2½/12	38 — 4	29 — 5	21 — 8	16 — 5
		3/12	40 — 0	40 — 0	34 — 3	27 — 4
		4/12	40 — 0	40 — 0	36 — 8	32 — 6
		5/12	40 — 0	40 — 0	37 — 8	33 — 5
No. 2	2 x 4	2½/12	24 — 5	17 — 11	11 — 5	—
		3/12	28 — 2	24 — 2	20 — 8	16 — 8
		4/12	29 — 3	25 — 3	21 — 8	19 — 2
		5/12	29 — 11	25 — 10	22 — 3	19 — 9
	2 x 5	2½/12	29 — 7	22 — 3	15 — 8	—
		3/12	33 — 10	31 — 1	26 — 5	20 — 8
		4/12	35 — 3	31 — 1	27 — 10	24 — 7
		5/12	36 — 1	31 — 2	28 — 7	25 — 5
	2 x 6	2½/12	33 — 11	25 — 9	18 — 8	13 — 7
		3/12	40 — 0	35 — 6	30 — 3	24 — 0
		4/12	40 — 0	37 — 1	31 — 9	30 — 1
		5/12	40 — 0	38 — 1	32 — 9	31 — 0

Notes to Table 3-C:

(1) Spans are measured as the clear span between the interior wall faces of the exterior wall supports.

(2) Spans apply to all species except Poplar, Eastern White Pine, Western White Pine, Red Pine, Western Red Cedar and Eastern White Cedar.

(3) Where the length of compression web members exceeds 6 ft, such web members shall be provided with continuous bracing to prevent buckling. Such bracing shall consist of not less than 1-in. by 4-in. lumber nailed at right angles to the web members near their centres with at least two 2½-in. nails for each member. Web members shall be at least 2-in. by 4-in. lumber of not less than No. 2 grade.

TABLE 3-D
MAXIMUM SPANS[1] FOR WOOD HOWE TRUSSES
WITH 2-in. BY 4-in. BOTTOM MEMBER SIZE
FOR
SPECIES LISTED IN NOTE (2) AND WITH TRUSSES SPACED 24 in. o.c.

Lumber Grade	Top Member Size, in.[3]	Roof Slope	Roof Snow Load, psf			
			20 ft in.	30 ft in.	40 ft in.	50 ft in.
No. 1	2 x 4	2½/12	31 — 0	24 — 0	18 — 0	13 — 11
		3/12	31 — 0	27 — 11	23 — 11	21 — 1
		4/12	31 — 5	29 — 0	24 — 11	22 — 1
		5/12	32 — 1	29 — 8	25 — 7	22 — 9
	2 x 5	2½/12	33 — 5	27 — 2	20 — 7	16 — 2
		3/12	36 — 9	32 — 4	27 — 9	24 — 1
		4/12	40 — 0	34 — 11	30 — 0	28 — 5
		5/12	40 — 0	35 — 9	30 — 9	29 — 2
	2 x 6	2½/12	33 — 5	28 — 8	22 — 8	17 — 11
		3/12	36 — 9	32 — 4	27 — 9	24 — 1
		4/12	40 — 0	37 — 8	33 — 2	29 — 5
		5/12	40 — 0	40 — 0	37 — 3	33 — 5
No. 2	2 x 4	2½/12	27 — 3	21 — 2	15 — 8	11 — 11
		3/12	28 — 1	24 — 2	20 — 7	18 — 2
		4/12	29 — 2	25 — 2	21 — 7	19 — 2
		5/12	29 — 10	25 — 10	22 — 3	19 — 9
	2 x 5	2½/12	27 — 5	23 — 6	18 — 0	14 — 0
		3/12	30 — 5	26 — 6	22 — 5	19 — 4
		4/12	34 — 11	30 — 3	27 — 2	23 — 11
		5/12	36 — 0	31 — 1	28 — 7	25 — 4
	2 x 6	2½/12	27 — 5	23 — 6	19 — 7	15 — 7
		3/12	30 — 5	26 — 6	22 — 5	19 — 4
		4/12	34 — 11	31 — 3	27 — 2	23 — 11
		5/12	38 — 1	34 — 9	30 — 10	27 — 7

Notes to Table 3-D:

(1) Spans are measured as the clear span between the interior wall faces of the exterior wall supports.

(2) Spans apply to all species except Poplar, Eastern White Pine, Western White Pine, Red Pine, Western Red Cedar and Eastern White Cedar.

(3) Where the length of compression web members exceeds 6 ft, such web members shall be provided with continuous bracing to prevent buckling. Such bracing shall consist of not less than 1-in. by 4-in. lumber nailed at right angles to the web members near their centres with at least two 2½-in. nails for each member. Web members shall be at least 2-in. by 4-in. lumber of not less than No. 2 grade.

TABLE 3-E
MAXIMUM SPANS[1] FOR WOOD HOWE TRUSSES WITH 2-in. BY 5-in. BOTTOM MEMBER SIZE FOR SPECIES LISTED IN NOTE (2) AND WITH TRUSSES SPACED 24 in. o.c.

Lumber Grade	Top Member Size, in.[3]	Roof Slope	Roof Snow Load, psf			
			20 ft in.	30 ft in.	40 ft in.	50 ft in.
No. 1	2 x 4	2½/12	31 — 7	26 — 9	20 — 3	15 — 10
		3/12	31 — 7	27 — 11	23 — 11	21 — 1
		4/12	31 — 7	29 — 0	24 — 11	22 — 1
		5/12	32 — 1	29 — 8	25 — 7	22 — 9
	2 x 5	2½/12	37 — 10	30 — 9	23 — 5	18 — 7
		3/12	39 — 0	33 — 6	30 — 9	27 — 2
		4/12	40 — 0	34 — 11	30 — 9	28 — 5
		5/12	40 — 0	35 — 9	30 — 9	29 — 2
	2 x 6	2½/12	40 — 0	33 — 10	25 — 11	20 — 8
		3/12	40 — 0	40 — 0	35 — 1	30 — 11
		4/12	40 — 0	40 — 0	36 — 8	32 — 6
		5/12	40 — 0	40 — 0	37 — 7	33 — 5
No. 2	2 x 4	2½/12	27 — 3	23 — 4	17 — 9	13 — 9
		3/12	28 — 1	24 — 2	20 — 7	18 — 2
		4/12	29 — 2	25 — 2	21 — 7	19 — 2
		5/12	29 — 10	25 — 10	22 — 3	19 — 9
	2 x 5	2½/12	32 — 8	27 — 3	20 — 7	16 — 2
		3/12	33 — 9	31 — 0	26 — 6	23 — 4
		4/12	35 — 2	31 — 0	27 — 9	24 — 7
		5/12	36 — 0	31 — 1	28 — 7	25 — 4
	2 x 6	2½/12	35 — 3	30 — 1	22 — 10	18 — 1
		3/12	39 — 1	34 — 1	28 — 10	24 — 11
		4/12	40 — 0	37 — 0	31 — 9	30 — 1
		5/12	40 — 0	38 — 0	32 — 8	31 — 0

Notes to Table 3-E:

(1) Spans are measured as the clear span between the interior wall faces of the exterior wall supports.

(2) Spans apply to all species except Poplar, Eastern White Pine, Western White Pine, Red Pine, Western Red Cedar and Eastern White Cedar.

(3) Where the length of compression web members exceeds 6 ft, such web members shall be provided with continuous bracing to prevent buckling. Such bracing shall consist of not less than 1-in. by 4-in. lumber nailed at right angles to the web members near their centres with at least two 2½-in. nails for each member. Web members shall be at least 2-in. by 4-in. lumber of not less than No. 2 grade.

TABLE 3-F
MAXIMUM SPANS[1] FOR WOOD HOWE TRUSSES WITH 2-in. BY 6-in. BOTTOM MEMBER SIZE FOR SPECIES LISTED IN NOTE (2) AND WITH TRUSSES SPACED 24 in. o.c.

Lumber Grade	Top Member Size, in.[3]	Roof Slope	Roof Snow Load, psf			
			20 ft in.	30 ft in.	40 ft in.	50 ft in.
No. 1	2 x 4	2½/12	31 — 7	27 — 1	23 — 1	18 — 6
		3/12	31 — 7	27 — 11	23 — 11	21 — 1
		4/12	31 — 7	29 — 0	24 — 11	22 — 1
		5/12	32 — 1	29 — 8	25 — 7	22 — 9
	2 x 5	2½/12	37 — 10	32 — 6	27 — 5	21 — 11
		3/12	39 — 0	33 — 6	30 — 9	27 — 2
		4/12	40 — 0	34 — 11	30 — 9	28 — 5
		5/12	40 — 0	35 — 9	30 — 9	29 — 2
	2 x 6	2½/12	40 — 0	39 — 8	30 — 8	24 — 8
		3/12	40 — 0	40 — 0	35 — 1	30 — 11
		4/12	40 — 0	40 — 0	36 — 8	32 — 6
		5/12	40 — 0	40 — 0	37 — 7	33 — 5
No. 2	2 x 4	2½/12	27 — 3	23 — 4	19 — 10	16 — 2
		3/12	28 — 1	24 — 2	20 — 7	18 — 2
		4/12	29 — 2	25 — 2	21 — 7	19 — 2
		5/12	29 — 10	25 — 10	22 — 3	19 — 9
	2 x 5	2½/12	32 — 8	30 — 0	24 — 3	19 — 3
		3/12	33 — 9	31 — 0	26 — 6	23 — 4
		4/12	35 — 2	31 — 0	27 — 9	24 — 7
		5/12	36 — 0	31 — 1	28 — 7	25 — 4
	2 x 6	2½/12	39 — 11	34 — 2	27 — 3	21 — 9
		3/12	40 — 0	35 — 5	30 — 2	28 — 6
		4/12	40 — 0	37 — 0	31 — 9	30 — 1
		5/12	40 — 0	38 — 0	32 — 8	31 — 0

Notes to Table 3-F:

(1) Spans are measured as the clear span between the interior wall faces of the exterior wall supports.

(2) Spans apply to all species except Poplar, Eastern White Pine, Western White Pine, Red Pine, Western Red Cedar and Eastern White Cedar.

(3) Where the length of compression web members exceeds 6 ft, such web members shall be provided with continuous bracing to prevent buckling. Such bracing shall consist of not less than 1-in. by 4-in. lumber nailed at right angles to the web members near their centres with at least two 2½-in. nails for each member. Web members shall be at least 2-in. by 4-in. lumber of not less than No. 2 grade.