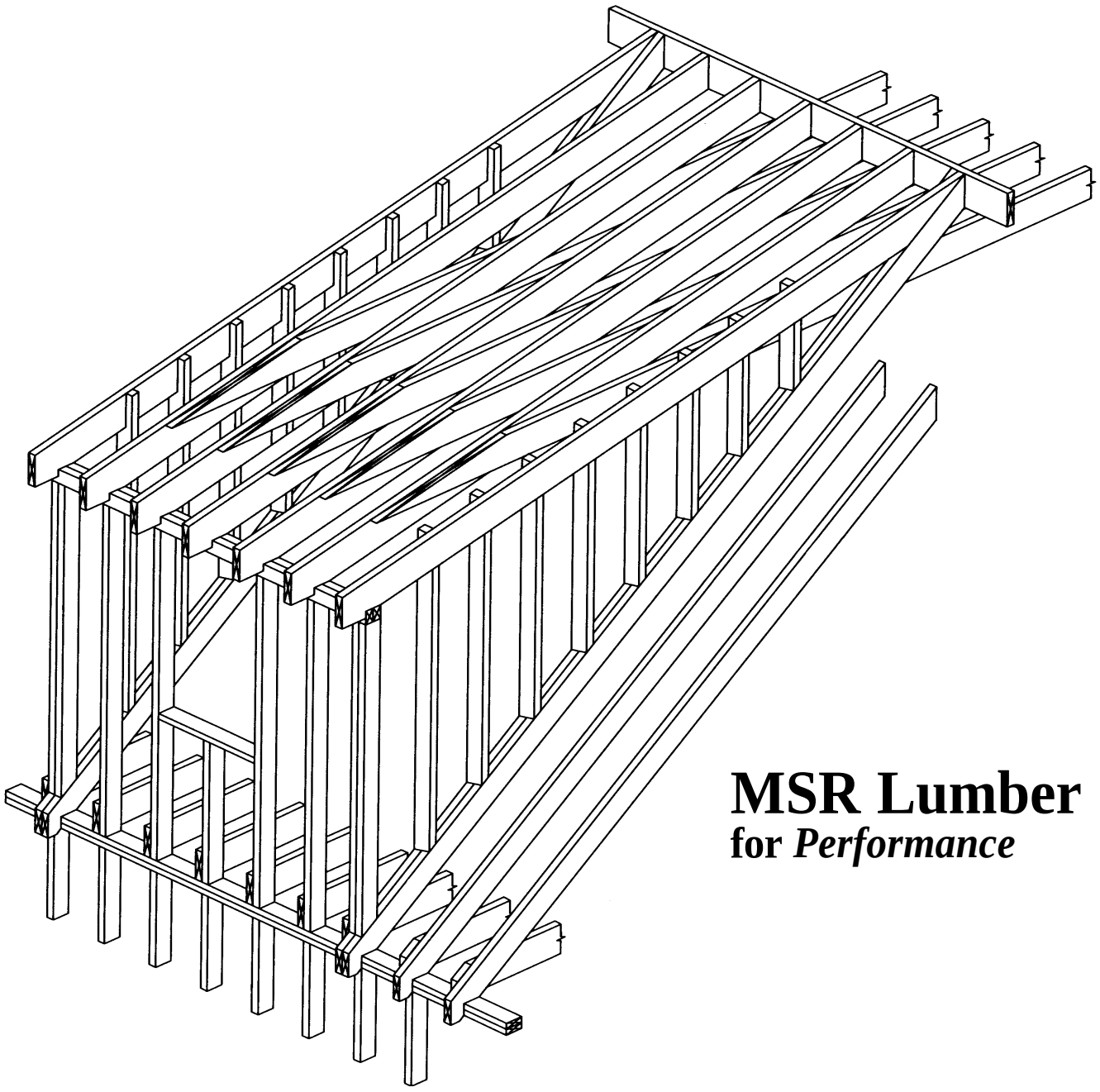
Maximum Span Tables
for Joists and Rafters



MSR Lumber
for *Performance*

Figure provided courtesy of the American Forest & Paper Association

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Purpose and Introduction

The purpose of this publication is to provide an easy-to-use reference for Machine Stress Rated lumber joist and rafter spans. The maximum spans provided in these tables were determined using the same wood design equations as those given in the code-recognized *Span Tables for Joists and Rafters, 1993 Edition*, published by the American Forest & Paper Association (AF&PA). Machine Stress Rated Lumber design values were taken from the *1991 National Design Specification® (NDS®) Supplement for Lumber Design Values*, published by AF&PA.

Background

All structural wood design for load supporting wood members, their bracing and connection systems, shall conform to the requirements set forth in the *National Design Specification® (NDS®) for Wood Construction*, published by AF&PA.

Tabulated Load Conditions

The loading conditions used to calculate the spans are given in the heading of each table. The live and dead loads are provided in psf (pounds per square foot). Structures in heavy snow load areas should be analyzed thoroughly using accepted engineering practice. For rafters with roof live loads less than 20 psf, see AF&PA's *Span Tables for Joists and Rafters, 1993 Edition* for adjustment factors.

The estimated dead loads for rafters are based on the type of roof covering provided. These include:

Condition	Dead Load	Covering
Light Roofing	10 psf	Up to 2 courses of asphalt shingles, or wood shakes/shingles
Medium Roofing	15 psf	2" clay book tile
Heavy Roofing	20 psf	3" clay book tile

All dead loads include the weight of the framing members.

Lumber Dimensions

Lumber size is typically referenced by its nominal size, e.g. 2x4. These span tables are based on actual lumber dimensions as provided by the American Softwood Lumber Standard PS 20-94.

Span Computations

The maximum spans were computed using standard engineering design formulas for simple span beams with uniform loads. It was assumed that at least three joists or rafters were located next to each other and spaced no more than 24" on center. The calculations also assume fully supported members that are properly sheathed, with sheathing nailed to the top edge of the joist or rafter. These spans do not include composite action between the sheathing and the joist due to nailing or nailing and adhesives.

The horizontal projected distance from face to face of supports in feet and inches defines the maximum spans provided in the tables. This represents the actual length of floor joists and ceiling joists. For sloping rafters, the span is also measured along the horizontal projection. The actual rafter length must be calculated based on the slope of the member.

These span tables were developed by checking three design conditions: bending, deflection, and compression perpendicular-to-grain. For live loads greater that 60 psf, an additional check for shear parallel-to-grain (horizontal shear) was included. The controlling length rounded to the nearest inch is shown in the tables. Listed spans have been limited to a maximum of 26'-0", given the typical available length of dimension lumber. All values in these tables are intended for use in covered structures or where member moisture content will not exceed 19% for an extended period of time.

Wood has the ability to carry greater loads for short loading durations. Design values for the lumber used to calculate the maximum spans apply to normal loading conditions and may be multiplied by a load duration factor, C_D. This factor is covered in detail in the *NDS®* and is permitted to be used by established engineering design criteria and building code regulations.

Floor and ceiling joists are based on the normal ten-year load duration and have a C_D of 1.0. Rafters typically have a C_D of either 1.15 for two-month duration (snow loads) or 1.25 for 7-day duration (construction loads). Tables 10-25 are based on snow loads. Tables 26-31 are based on construction loads. All rafter tables are designated with the appropriate load duration factor.

Deflection

Many of the spans listed in the accompanying tables are controlled by deflection. Deflection limits are expressed as a fraction of the span length in inches. These limits are generally applied only to the live load criteria, following standard engineering practice for the design of joists and rafters. Typical deflection limits include:

Floor joists	*l*/360
Ceiling joists	*l*/240
Rafters with a drywall ceiling	*l*/240
Rafters with no finished ceiling	*l*/180

These deflection limits provide for minimum deflection performance. Where a more rigid ceiling or floor is desired, a more restrictive deflection limit—such as *l*/480—should be used.

Bending

The spans in these tables assume each member is spaced a maximum of 24" on-center and fully supported with properly applied sheathing nailed to the top edge of the joist or rafter. The repetitive member factor, C_R, of 1.15 was used in all tables. The load duration factor, C_D, was also applied as noted in each table.

Compression Perpendicular-to-Grain

Compression perpendicular-to-grain was checked assuming Hem-Fir joists/rafters and a minimum bearing length of 2". This design property rarely controlled the span length. Shorter bearing lengths (e.g., 1.5" ledger conditions) need to be checked to ensure the member meets compression perpendicular-to-grain design values.

Horizontal Shear

Horizontal shear rarely controls the spans shown in these tables except under heavy live load conditions (i.e., 60 psf or greater). In these cases a shear check was performed using the allowable shear stress for Spruce-Pine-Fir. All loads within a distance from supports equal to the depth of the members were neglected in these calculations. A shear stress factor, C_H, of 1.5 was also used. This follows the guidelines provided in the *NDS®*.

Contents

1. Floor Joists – 30 psf live, 10 psf dead, *l*/360, C_D = 1.00

Consult building code for specific load requirements

Size	Spacing (in. o.c.)	2400f 2.0E	2250f 1.9E	2100f 1.8E	1950f 1.7E	1800f 1.6E	1650f 1.5E
2x4	12.0	8-01		7-10		7-06	7-04
	16.0	7-04		7-01		6-10	6-08
	19.2	6-11		6-08		6-05	6-03
	24.0	6-05		6-02		6-00	5-10
2x5	12.0		10-03	10-00			9-05
	16.0		9-03	9-01			8-07
	19.2		8-09	8-07			8-01
	24.0		8-01	8-00			7-06
2x6	12.0	12-09		12-03	12-00	11-10	
	16.0	11-07		11-02	10-11	10-09	
	19.2	10-10		10-06	10-04	10-01	
	24.0	10-01		9-09	9-07	9-04	
2x8	12.0	16-09	16-06		15-10		
	16.0	15-03	15-00		14-05		
	19.2	14-04	14-01		13-07		
	24.0	13-04	13-01		12-07		
2x10	12.0		21-00		20-03		
	16.0		19-01		18-05		
	19.2		18-00		17-04		
	24.0		16-08		16-01		
2x12	12.0		25-07		24-08		
	16.0		23-03		22-05		
	19.2		21-10		21-01		
	24.0		20-03		19-07		

2. Floor Joists – 40 psf live, 10 psf dead, *l*/360, C_D = 1.00

Consult building code for specific load requirements

Size	Spacing (in. o.c.)	2400f 2.0E	2250f 1.9E	2100f 1.8E	1950f 1.7E	1800f 1.6E	1650f 1.5E
2x4	12.0	7-04		7-01		6-10	6-08
	16.0	6-08		6-05		6-02	6-01
	19.2	6-03		6-01		5-10	5-09
	24.0	5-10		5-08		5-05	5-04
2x5	12.0		9-03	9-01			8-07
	16.0		8-05	8-03			7-10
	19.2		7-11	7-10			7-04
	24.0		7-04	7-03			6-10
2x6	12.0	11-07		11-02	10-11	10-09	
	16.0	10-06		10-02	9-11	9-09	
	19.2	9-10		9-06	9-04	9-02	
	24.0	9-02		8-10	8-08	8-06	
2x8	12.0	15-03	15-00		14-05		
	16.0	13-10	13-07		13-01		
	19.2	13-00	12-10		12-04		
	24.0	12-01	11-11		11-05		
2x10	12.0		19-01		18-05		
	16.0		17-04		16-09		
	19.2		16-04		15-09		
	24.0		15-02		14-07		
2x12	12.0		23-03		22-05		
	16.0		21-01		20-04		
	19.2		19-10		19-02		
	24.0		18-05		17-09		

3. Floor Joists – 50 psf live, 10 psf dead, *l*/360, C_D = 1.00

Consult building code for specific load requirements

Size	Spacing (in. o.c.)	2400f 2.0E	2250f 1.9E	2100f 1.8E	1950f 1.7E	1800f 1.6E	1650f 1.5E
2x4	12.0	6-10		6-07		6-04	6-02
	16.0	6-02		6-00		5-09	5-08
	19.2	5-10		5-08		5-05	5-04
	24.0	5-05		5-03		5-00	4-11
2x5	12.0		8-07	8-06			8-00
	16.0		7-10	7-08			7-03
	19.2		7-04	7-03			6-10
	24.0		6-10	6-09			6-04
2x6	12.0	10-09		10-04	10-02	9-11	
	16.0	9-09		9-05	9-03	9-01	
	19.2	9-02		8-10	8-08	8-06	
	24.0	8-06		8-03	8-01	7-11	
2x8	12.0	14-02	13-11		13-05		
	16.0	12-10	12-07		12-02		
	19.2	12-01	11-11		11-05		
	24.0	11-03	11-00		10-08		
2x10	12.0		17-09		17-01		
	16.0		16-01		15-06		
	19.2		15-02		14-07		
	24.0		14-01		13-07		
2x12	12.0		21-07		20-09		
	16.0		19-07		18-10		
	19.2		18-05		17-09		
	24.0		17-01		16-06		

4. Floor Joists – 60 psf live, 10 psf dead, L/360, C_D = 1.00

Consult building code for specific load requirements (max. 1.5" lt. wt. concrete)

Size	Spacing (in. o.c.)	2400f 2.0E	2250f 1.9E	2100f 1.8E	1950f 1.7E	1800f 1.6E	1650f 1.5E
2x4	12.0	6-05		6-02		6-00	5-10
	16.0	5-10		5-08		5-05	5-04
	19.2	5-06		5-04		5-01	5-00
	24.0	5-01		4-11		4-09	4-08
2x5	12.0		8-01	8-00			7-06
	16.0		7-04	7-03			6-10
	19.2		6-11	6-10			6-05
	24.0		6-05	6-04			5-11
2x6	12.0	10-01		9-09	9-07	9-04	
	16.0	9-02		8-10	8-08	8-06	
	19.2	8-08		8-04	8-02	8-00	
	24.0	8-00		7-09	7-07	7-05	
2x8	12.0	13-04	13-01		12-07		
	16.0	12-01	11-11		11-05		
	19.2	11-04	11-02		10-09		
	24.0	10-07	10-05		10-00		
2x10	12.0		16-08		16-01		
	16.0		15-02		14-07		
	19.2		14-03		13-09		
	24.0		13-03		12-09		
2x12	12.0		20-03		19-07		
	16.0		18-05		17-09		
	19.2		17-04		16-09		
	24.0		16-01		15-06		

5. Floor Joists – 40 psf live, 20 psf dead, L/360, C_D = 1.00

Consult building code for specific load requirements (max. 1.5" lt. wt. concrete)

Size	Spacing (in. o.c.)	2400f 2.0E	2250f 1.9E	2100f 1.8E	1950f 1.7E	1800f 1.6E	1650f 1.5E
2x4	12.0	7-04		7-01		6-10	6-08
	16.0	6-08		6-05		6-02	6-01
	19.2	6-03		6-01		5-10	5-09
	24.0	5-10		5-08		5-05	5-04
2x5	12.0		9-03	9-01			8-07
	16.0		8-05	8-03			7-10
	19.2		7-11	7-10			7-04
	24.0		7-04	7-03			6-10
2x6	12.0	11-07		11-02	10-11	10-09	
	16.0	10-06		10-02	9-11	9-09	
	19.2	9-10		9-06	9-04	9-02	
	24.0	9-02		8-10	8-08	8-06	
2x8	12.0	15-03	15-00		14-05		
	16.0	13-10	13-07		13-01		
	19.2	13-00	12-10		12-04		
	24.0	12-01	11-11		11-05		
2x10	12.0		19-01		18-05		
	16.0		17-04		16-09		
	19.2		16-04		15-09		
	24.0		15-02		14-07		
2x12	12.0		23-03		22-05		
	16.0		21-01		20-04		
	19.2		19-10		19-02		
	24.0		18-05		17-09		

6. Floor Joists – 50 psf live, 20 psf dead, L/360, C_D = 1.00

Consult building code for specific load requirements

Size	Spacing (in. o.c.)	2400f 2.0E	2250f 1.9E	2100f 1.8E	1950f 1.7E	1800f 1.6E	1650f 1.5E
2x4	12.0	6-10		6-07		6-04	6-02
	16.0	6-02		6-00		5-09	5-08
	19.2	5-10		5-08		5-05	5-04
	24.0	5-05		5-03		5-00	4-11
2x5	12.0		8-07	8-06			8-00
	16.0		7-10	7-08			7-03
	19.2		7-04	7-03			6-10
	24.0		6-10	6-09			6-04
2x6	12.0	10-09		10-04	10-02	9-11	
	16.0	9-09		9-05	9-03	9-01	
	19.2	9-02		8-10	8-08	8-06	
	24.0	8-06		8-03	8-01	7-11	
2x8	12.0	14-02	13-11		13-05		
	16.0	12-10	12-07		12-02		
	19.2	12-01	11-11		11-05		
	24.0	11-03	11-00		10-08		
2x10	12.0		17-09		17-01		
	16.0		16-01		15-06		
	19.2		15-02		14-07		
	24.0		14-01		13-07		
2x12	12.0		21-07		20-09		
	16.0		19-07		18-10		
	19.2		18-05		17-09		
	24.0		17-01		16-06		

7. Floor Joists – 60 psf live, 20 psf dead, L/360, C_D = 1.00

Consult building code for specific load requirements (max. 1.5" lt. wt. concrete)

Size	Spacing (in. o.c.)	2400f 2.0E	2250f 1.9E	2100f 1.8E	1950f 1.7E	1800f 1.6E	1650f 1.5E
2x4	12.0	6-05		6-02		6-00	5-10
	16.0	5-10		5-08		5-05	5-04
	19.2	5-06		5-04		5-01	5-00
	24.0	5-01		4-11		4-09	4-08
2x5	12.0		8-01	8-00			7-06
	16.0		7-04	7-03			6-10
	19.2		6-11	6-10			6-05
	24.0		6-05	6-04			5-11
2x6	12.0	10-01		9-09	9-07	9-04	
	16.0	9-02		8-10	8-08	8-06	
	19.2	8-08		8-04	8-02	8-00	
	24.0	8-00		7-09	7-07	7-05	
2x8	12.0	13-04	13-01		12-07		
	16.0	12-01	11-11		11-05		
	19.2	11-04	11-02		10-09		
	24.0	10-07	10-05		10-00		
2x10	12.0		16-08		16-01		
	16.0		15-02		14-07		
	19.2		14-03		13-09		
	24.0		13-03		12-09		
2x12	12.0		20-03		19-07		
	16.0		18-05		17-09		
	19.2		17-04		16-09		
	24.0		15-02		15-02		

8. Ceiling Joists – 10 psf live, 5 psf dead, //240, C_D = 1.00

Drywall ceiling

Size	Spacing (in. o.c.)	2400f 2.0E	2250f 1.9E	2100f 1.8E	1950f 1.7E	1800f 1.6E	1650f 1.5E
2x4	12.0	13-04		12-11		12-05	12-02
	16.0	12-02		11-09		11-03	11-00
	19.2	11-05		11-00		10-07	10-04
	24.0	10-07		10-03		9-10	9-08
2x5	12.0		16-11	16-07			15-07
	16.0		15-04	15-01			14-02
	19.2		14-05	14-02			13-04
	24.0		13-05	13-02			12-05
2x6	12.0	21-00		20-03	19-11	19-06	
	16.0	19-01		18-05	18-01	17-08	
	19.2	17-11		17-04	17-00	16-08	
	24.0	16-08		16-01	15-09	15-06	
2x8	12.0	27-08	27-02		26-02		
	16.0	25-02	24-08		23-10		
	19.2	23-08	23-03		22-05		
	24.0	21-11	21-07		20-10		
2x10	12.0		34-08		33-05		
	16.0		31-06		30-05		
	19.2		29-08		28-07		
	24.0		27-06		26-06		
2x12	12.0		42-02		40-08		
	16.0		38-04		36-11		
	19.2		36-01		34-09		
	24.0		33-06		32-03		

9. Ceiling Joists – 20 psf live, 10 psf dead, //240, C_D = 1.00

Drywall ceiling

Size	Spacing (in. o.c.)	2400f 2.0E	2250f 1.9E	2100f 1.8E	1950f 1.7E	1800f 1.6E	1650f 1.5E
2x4	12.0	10-07		10-03		9-10	9-08
	16.0	9-08		9-04		8-11	8-09
	19.2	9-01		8-09		8-05	8-03
	24.0	8-05		8-01		7-10	7-08
2x5	12.0		13-05	13-02			12-05
	16.0		12-02	11-11			11-03
	19.2		11-05	11-03			10-07
	24.0		10-08	10-05			9-10
2x6	12.0	16-08		16-01	15-09	15-06	
	16.0	15-02		14-07	14-04	14-01	
	19.2	14-03		13-09	13-06	13-03	
	24.0	13-03		12-09	12-06	12-03	
2x8	12.0	21-11	21-07		20-10		
	16.0	19-11	19-07		18-11		
	19.2	18-09	18-05		17-09		
	24.0	17-05	17-02		16-06		
2x10	12.0		27-06		26-06		
	16.0		25-00		24-01		
	19.2		23-07		22-08		
	24.0		21-10		21-01		
2x12	12.0		33-06		32-03		
	16.0		30-05		29-04		
	19.2		28-08		27-07		
	24.0		26-07		25-07		

10. Rafters – 20 psf live, 10 psf dead, //240, C_D = 1.15

Light roofing; Drywall ceiling; Snow load

Size	Spacing (in. o.c.)	2400f 2.0E	2250f 1.9E	2100f 1.8E	1950f 1.7E	1800f 1.6E	1650f 1.5E
2x4	12.0	10-07		10-03		9-10	9-08
	16.0	9-08		9-04		8-11	8-09
	19.2	9-01		8-09		8-05	8-03
	24.0	8-05		8-01		7-10	7-08
2x5	12.0		13-05	13-02			12-05
	16.0		12-02	11-11			11-03
	19.2		11-05	11-03			10-07
	24.0		10-08	10-05			9-10
2x6	12.0	16-08		16-01	15-09	15-06	
	16.0	15-02		14-07	14-04	14-01	
	19.2	14-03		13-09	13-06	13-03	
	24.0	13-03		12-09	12-06	12-03	
2x8	12.0	21-11	21-07		20-10		
	16.0	19-11	19-07		18-11		
	19.2	18-09	18-05		17-09		
	24.0	17-05	17-02		16-06		
2x10	12.0		27-06		26-06		
	16.0		25-00		24-01		
	19.2		23-07		22-08		
	24.0		21-10		21-01		
2x12	12.0		33-06		32-03		
	16.0		30-05		29-04		
	19.2		28-08		27-07		
	24.0		26-07		25-07		

11. Rafters – 30 psf live, 10 psf dead, //240, C_D = 1.15

Light roofing; Drywall ceiling; Snow load

Size	Spacing (in. o.c.)	2400f 2.0E	2250f 1.9E	2100f 1.8E	1950f 1.7E	1800f 1.6E	1650f 1.5E
2x4	12.0	9-03		8-11		8-07	8-05
	16.0	8-05		8-01		7-10	7-08
	19.2	7-11		7-08		7-04	7-02
	24.0	7-04		7-01		6-10	6-08
2x5	12.0		11-08	11-06			10-10
	16.0		10-08	10-05			9-10
	19.2		10-00	9-10			9-03
	24.0		9-03	9-01			8-07
2x6	12.0	14-07		14-01	13-09	13-06	
	16.0	13-03		12-09	12-06	12-03	
	19.2	12-05		12-00	11-09	11-07	
	24.0	11-07		11-02	10-11	10-09	
2x8	12.0	19-02	18-10		18-02		
	16.0	17-05	17-02		16-06		
	19.2	16-05	16-01		15-06		
	24.0	15-03	15-00		14-05		
2x10	12.0		24-01		23-02		
	16.0		21-10		21-01		
	19.2		20-07		19-10		
	24.0		19-01		18-05		
2x12	12.0		29-03		28-02		
	16.0		26-07		25-07		
	19.2		25-00		24-01		
	24.0		23-03		22-05		

12. Rafters – 40 psf live, 10 psf dead, l/240, C_D = 1.15

Light roofing; Drywall ceiling; Snow load

Size	Spacing (in. o.c.)	2400f 2.0E	2250f 1.9E	2100f 1.8E	1950f 1.7E	1800f 1.6E	1650f 1.5E
2x4	12.0	8-05		8-01		7-10	7-08
	16.0	7-08		7-05		7-01	6-11
	19.2	7-02		6-11		6-08	6-06
	24.0	6-08		6-05		6-02	6-01
2x5	12.0		10-08	10-05			9-10
	16.0		9-08	9-06			8-11
	19.2		9-01	8-11			8-05
	24.0		8-05	8-03			7-10
2x6	12.0	13-03		12-09	12-06	12-03	
	16.0	12-00		11-07	11-05	11-02	
	19.2	11-04		10-11	10-08	10-06	
	24.0	10-06		10-02	9-11	9-09	
2x8	12.0	17-05	17-02		16-06		
	16.0	15-10	15-07		15-00		
	19.2	14-11	14-08		14-01		
	24.0	13-10	13-07		13-01		
2x10	12.0		21-10		21-01		
	16.0		19-10		19-02		
	19.2		18-08		18-00		
	24.0		17-04		16-09		
2x12	12.0		26-07		25-07		
	16.0		24-02		23-03		
	19.2		22-09		21-11		
	24.0		21-01		20-04		

13. Rafters – 50 psf live, 10 psf dead, l/240, C_D = 1.15

Light roofing; Drywall ceiling; Snow load

Size	Spacing (in. o.c.)	2400f 2.0E	2250f 1.9E	2100f 1.8E	1950f 1.7E	1800f 1.6E	1650f 1.5E
2x4	12.0	7-10		7-06		7-03	7-01
	16.0	7-01		6-10		6-07	6-05
	19.2	6-08		6-05		6-02	6-01
	24.0	6-02		6-00		5-09	5-08
2x5	12.0		9-10	9-08			9-01
	16.0		9-00	8-10			8-03
	19.2		8-05	8-03			7-10
	24.0		7-10	7-08			7-03
2x6	12.0	12-03		11-10	11-08	11-05	
	16.0	11-02		10-09	10-07	10-04	
	19.2	10-06		10-02	9-11	9-09	
	24.0	9-09		9-05	9-03	9-01	
2x8	12.0	16-02	15-11		15-04		
	16.0	14-08	14-05		13-11		
	19.2	13-10	13-07		13-01		
	24.0	12-10	12-07		12-02		
2x10	12.0		20-03		19-07		
	16.0		18-05		17-09		
	19.2		17-04		16-09		
	24.0		16-01		15-06		
2x12	12.0		24-08		23-09		
	16.0		22-05		21-07		
	19.2		21-01		20-04		
	24.0		19-07		18-10		

14. Rafters – 20 psf live, 15 psf dead, l/240, C_D = 1.15

Medium roofing; Drywall ceiling; Snow load

Size	Spacing (in. o.c.)	2400f 2.0E	2250f 1.9E	2100f 1.8E	1950f 1.7E	1800f 1.6E	1650f 1.5E
2x4	12.0	10-07		10-03		9-10	9-08
	16.0	9-08		9-04		8-11	8-09
	19.2	9-01		8-09		8-05	8-03
	24.0	8-05		8-01		7-10	7-08
2x5	12.0		13-05	13-02			12-05
	16.0		12-02	11-11			11-03
	19.2		11-05	11-03			10-07
	24.0		10-08	10-05			9-10
2x6	12.0	16-08		16-01	15-09	15-06	
	16.0	15-02		14-07	14-04	14-01	
	19.2	14-03		13-09	13-06	13-03	
	24.0	13-03		12-09	12-06	12-03	
2x8	12.0	21-11	21-07		20-10		
	16.0	19-11	19-07		18-11		
	19.2	18-09	18-05		17-09		
	24.0	17-05	17-02		16-06		
2x10	12.0		27-06		26-06		
	16.0		25-00		24-01		
	19.2		23-07		22-08		
	24.0		21-10		21-01		
2x12	12.0		33-06		32-03		
	16.0		30-05		29-04		
	19.2		28-08		27-07		
	24.0		26-07		25-07		

15. Rafters – 30 psf live, 15 psf dead, l/240, C_D = 1.15

Medium roofing; Drywall ceiling; Snow load

Size	Spacing (in. o.c.)	2400f 2.0E	2250f 1.9E	2100f 1.8E	1950f 1.7E	1800f 1.6E	1650f 1.5E
2x4	12.0	9-03		8-11		8-07	8-05
	16.0	8-05		8-01		7-10	7-08
	19.2	7-11		7-08		7-04	7-02
	24.0	7-04		7-01		6-10	6-08
2x5	12.0		11-08	11-06			10-10
	16.0		10-08	10-05			9-10
	19.2		10-00	9-10			9-03
	24.0		9-03	9-01			8-07
2x6	12.0	14-07		14-01	13-09	13-06	
	16.0	13-03		12-09	12-06	12-03	
	19.2	12-05		12-00	11-09	11-07	
	24.0	11-07		11-02	10-11	10-09	
2x8	12.0	19-02	18-10		18-02		
	16.0	17-05	17-02		16-06		
	19.2	16-05	16-01		15-06		
	24.0	15-03	15-00		14-05		
2x10	12.0		24-01		23-02		
	16.0		21-10		21-01		
	19.2		20-07		19-10		
	24.0		19-01		18-05		
2x12	12.0		29-03		28-02		
	16.0		26-07		25-07		
	19.2		25-00		24-01		
	24.0		23-03		22-05		

16. Rafters – 40 psf live, 15 psf dead, l/240, C_D = 1.15

Medium roofing; Drywall ceiling; Snow load

Size	Spacing (in. o.c.)	2400f 2.0E	2250f 1.9E	2100f 1.8E	1950f 1.7E	1800f 1.6E	1650f 1.5E
2x4	12.0	8-05		8-01		7-10	7-08
	16.0	7-08		7-05		7-01	6-11
	19.2	7-02		6-11		6-08	6-06
	24.0	6-08		6-05		6-02	6-01
2x5	12.0		10-08	10-05			9-10
	16.0		9-08	9-06			8-11
	19.2		9-01	8-11			8-05
	24.0		8-05	8-03			7-10
2x6	12.0	13-03		12-09	12-06	12-03	
	16.0	12-00		11-07	11-05	11-02	
	19.2	11-04		10-11	10-08	10-06	
	24.0	10-06		10-02	9-11	9-09	
2x8	12.0	17-05	17-02		16-06		
	16.0	15-10	15-07		15-00		
	19.2	14-11	14-08		14-01		
	24.0	13-10	13-07		13-01		
2x10	12.0		21-10		21-01		
	16.0		19-10		19-02		
	19.2		18-08		18-00		
	24.0		17-04		16-09		
2x12	12.0		26-07		25-07		
	16.0		24-02		23-03		
	19.2		22-09		21-11		
	24.0		21-01		20-04		

17. Rafters – 50 psf live, 15 psf dead, l/240, C_D = 1.15

Medium roofing; Drywall ceiling; Snow load

Size	Spacing (in. o.c.)	2400f 2.0E	2250f 1.9E	2100f 1.8E	1950f 1.7E	1800f 1.6E	1650f 1.5E
2x4	12.0	7-10		7-06		7-03	7-01
	16.0	7-01		6-10		6-07	6-05
	19.2	6-08		6-05		6-02	6-01
	24.0	6-02		6-00		5-09	5-08
2x5	12.0		9-10	9-08			9-01
	16.0		9-00	8-10			8-03
	19.2		8-05	8-03			7-10
	24.0		7-10	7-08			7-03
2x6	12.0	12-03		11-10	11-08	11-05	
	16.0	11-02		10-09	10-07	10-04	
	19.2	10-06		10-02	9-11	9-09	
	24.0	9-09		9-05	9-03	9-01	
2x8	12.0	16-02	15-11		15-04		
	16.0	14-08	14-05		13-11		
	19.2	13-10	13-07		13-01		
	24.0	12-10	12-07		12-02		
2x10	12.0		20-03		19-07		
	16.0		18-05		17-09		
	19.2		17-04		16-09		
	24.0		16-01		15-06		
2x12	12.0		24-08		23-09		
	16.0		22-05		21-07		
	19.2		21-01		20-04		
	24.0		18-08		18-08		

18. Rafters – 20 psf live, 10 psf dead, l/180, C_D = 1.15

Light roofing; No finished ceiling; Snow load

Size	Spacing (in. o.c.)	2400f 2.0E	2250f 1.9E	2100f 1.8E	1950f 1.7E	1800f 1.6E	1650f 1.5E
2x4	12.0	11-08		11-03		10-10	10-07
	16.0	10-07		10-03		9-10	9-08
	19.2	10-00		9-08		9-03	9-01
	24.0	9-03		8-11		8-07	8-05
2x5	12.0		14-09	14-06			13-08
	16.0		13-05	13-02			12-05
	19.2		12-07	12-05			11-08
	24.0		11-08	11-06			10-10
2x6	12.0	18-04		17-08	17-04	17-00	
	16.0	16-08		16-01	15-09	15-06	
	19.2	15-08		15-02	14-10	14-07	
	24.0	14-07		14-01	13-09	13-06	
2x8	12.0	24-02	23-09		22-11		
	16.0	21-11	21-07		20-10		
	19.2	20-08	20-04		19-07		
	24.0	19-02	18-10		18-02		
2x10	12.0		30-04		29-02		
	16.0		27-06		26-06		
	19.2		25-11		25-00		
	24.0		24-01		23-02		
2x12	12.0		36-10		35-06		
	16.0		33-06		32-03		
	19.2		31-06		30-04		
	24.0		29-03		28-02		

19. Rafters – 30 psf live, 10 psf dead, l/180, C_D = 1.15

Light roofing; No finished ceiling; Snow load

Size	Spacing (in. o.c.)	2400f 2.0E	2250f 1.9E	2100f 1.8E	1950f 1.7E	1800f 1.6E	1650f 1.5E
2x4	12.0	10-02		9-10		9-06	9-03
	16.0	9-03		8-11		8-07	8-05
	19.2	8-09		8-05		8-01	7-11
	24.0	8-01		7-10		7-06	7-04
2x5	12.0		12-11	12-08			11-11
	16.0		11-08	11-06			10-10
	19.2		11-00	10-10			10-02
	24.0		10-03	10-00			9-05
2x6	12.0	16-00		15-06	15-02	14-10	
	16.0	14-07		14-01	13-09	13-06	
	19.2	13-08		13-03	13-00	12-09	
	24.0	12-09		12-03	12-00	11-10	
2x8	12.0	21-01	20-09		20-00		
	16.0	19-02	18-10		18-02		
	19.2	18-01	17-09		17-01		
	24.0	16-09	16-06		15-10		
2x10	12.0		26-06		25-06		
	16.0		24-01		23-02		
	19.2		22-08		21-10		
	24.0		21-00		20-03		
2x12	12.0		32-02		31-00		
	16.0		29-03		28-02		
	19.2		27-06		26-06		
	24.0		25-07		24-08		

20. Rafters – 40 psf live, 10 psf dead, //180, C_D = 1.15

Light roofing; No finished ceiling; Snow load

Size	Spacing (in. o.c.)	2400f 2.0E	2250f 1.9E	2100f 1.8E	1950f 1.7E	1800f 1.6E	1650f 1.5E
2x4	12.0	9-03		8-11		8-07	8-05
	16.0	8-05		8-01		7-10	7-08
	19.2	7-11		7-08		7-04	7-02
	24.0	7-04		7-01		6-10	6-08
2x5	12.0		11-08	11-06			10-10
	16.0		10-08	10-05			9-10
	19.2		10-00	9-10			9-03
	24.0		9-03	9-01			8-07
2x6	12.0	14-07		14-01	13-09	13-06	
	16.0	13-03		12-09	12-06	12-03	
	19.2	12-05		12-00	11-09	11-07	
	24.0	11-07		11-02	10-11	10-09	
2x8	12.0	19-02	18-10		18-02		
	16.0	17-05	17-02		16-06		
	19.2	16-05	16-01		15-06		
	24.0	15-03	15-00		14-05		
2x10	12.0		24-01		23-02		
	16.0		21-10		21-01		
	19.2		20-07		19-10		
	24.0		19-01		18-05		
2x12	12.0		29-03		28-02		
	16.0		26-07		25-07		
	19.2		25-00		24-01		
	24.0		23-03		22-05		

21. Rafters – 50 psf live, 10 psf dead, //180, C_D = 1.15

Light roofing; No finished ceiling; Snow load

Size	Spacing (in. o.c.)	2400f 2.0E	2250f 1.9E	2100f 1.8E	1950f 1.7E	1800f 1.6E	1650f 1.5E
2x4	12.0	8-07		8-04		8-00	7-10
	16.0	7-10		7-06		7-03	7-01
	19.2	7-04		7-01		6-10	6-08
	24.0	6-10		6-07		6-04	6-01
2x5	12.0		10-10	10-08			10-00
	16.0		9-10	9-08			9-01
	19.2		9-03	9-01			8-07
	24.0		8-07	8-06			7-10
2x6	12.0	13-06		13-01	12-10	12-06	
	16.0	12-03		11-10	11-08	11-05	
	19.2	11-07		11-02	10-11	10-09	
	24.0	10-09		10-04	10-02	9-11	
2x8	12.0	17-10	17-06		16-10		
	16.0	16-02	15-11		15-04		
	19.2	15-03	15-00		14-05		
	24.0	14-02	13-11		13-05		
2x10	12.0		22-04		21-06		
	16.0		20-03		19-07		
	19.2		19-01		18-05		
	24.0		17-09		17-01		
2x12	12.0		27-02		26-02		
	16.0		24-08		23-09		
	19.2		23-03		22-05		
	24.0		20-03		20-03		

22. Rafters – 20 psf live, 15 psf dead, //180, C_D = 1.15

Medium Roofing; No finished ceiling; Snow load

Size	Spacing (in. o.c.)	2400f 2.0E	2250f 1.9E	2100f 1.8E	1950f 1.7E	1800f 1.6E	1650f 1.5E
2x4	12.0	11-08		11-03		10-10	10-07
	16.0	10-07		10-03		9-10	9-08
	19.2	10-00		9-08		9-03	8-11
	24.0	9-03		8-11		8-04	8-00
2x5	12.0		14-09	14-06			13-08
	16.0		13-05	13-02			12-05
	19.2		12-07	12-05			11-06
	24.0		11-08	11-06			10-03
2x6	12.0	18-04		17-08	17-04	17-00	
	16.0	16-08		16-01	15-09	15-06	
	19.2	15-08		15-02	14-10	14-07	
	24.0	14-07		14-01	13-08	13-01	
2x8	12.0	24-02	23-09		22-11		
	16.0	21-11	21-07		20-10		
	19.2	20-08	20-04		19-07		
	24.0	19-02	18-10		18-00		
2x10	12.0		30-04		29-02		
	16.0		27-06		26-06		
	19.2		25-11		25-00		
	24.0		24-01		22-11		
2x12	12.0		36-10		35-06		
	16.0		33-06		32-03		
	19.2		31-06		30-04		
	24.0		29-03		27-11		

23. Rafters – 30 psf live, 15 psf dead, //180, C_D = 1.15

Medium Roofing; No finished ceiling; Snow load

Size	Spacing (in. o.c.)	2400f 2.0E	2250f 1.9E	2100f 1.8E	1950f 1.7E	1800f 1.6E	1650f 1.5E
2x4	12.0	10-02		9-10		9-06	9-03
	16.0	9-03		8-11		8-07	8-05
	19.2	8-09		8-05		8-01	7-10
	24.0	8-01		7-10		7-04	7-00
2x5	12.0		12-11	12-08			11-11
	16.0		11-08	11-06			10-10
	19.2		11-00	10-10			10-01
	24.0		10-03	10-00			9-00
2x6	12.0	16-00		15-06	15-02	14-10	
	16.0	14-07		14-01	13-09	13-06	
	19.2	13-08		13-03	13-00	12-09	
	24.0	12-09		12-03	12-00	11-07	
2x8	12.0	21-01	20-09		20-00		
	16.0	19-02	18-10		18-02		
	19.2	18-01	17-09		17-01		
	24.0	16-09	16-06		15-10		
2x10	12.0		26-06		25-06		
	16.0		24-01		23-02		
	19.2		22-08		21-10		
	24.0		21-00		20-03		
2x12	12.0		32-02		31-00		
	16.0		29-03		28-02		
	19.2		27-06		26-06		
	24.0		25-07		24-07		

24. Rafters – 40 psf live, 15 psf dead, l/180, C_D = 1.15

Medium Roofing; No finished ceiling; Snow load

Size	Spacing (in. o.c.)	2400f 2.0E	2250f 1.9E	2100f 1.8E	1950f 1.7E	1800f 1.6E	1650f 1.5E
2x4	12.0	9-03		8-11		8-07	8-05
	16.0	8-05		8-01		7-10	7-08
	19.2	7-11		7-08		7-04	7-01
	24.0	7-04		7-01		6-08	6-04
2x5	12.0		11-08	11-06			10-10
	16.0		10-08	10-05			9-10
	19.2		10-00	9-10			9-02
	24.0		9-03	9-01			8-02
2x6	12.0	14-07		14-01	13-09	13-06	
	16.0	13-03		12-09	12-06	12-03	
	19.2	12-05		12-00	11-09	11-07	
	24.0	11-07		11-02	10-10	10-05	
2x8	12.0	19-02	18-10		18-02		
	16.0	17-05	17-02		16-06		
	19.2	16-05	16-01		15-06		
	24.0	15-03	15-00		14-04		
2x10	12.0		24-01		23-02		
	16.0		21-10		21-01		
	19.2		20-07		19-10		
	24.0		19-01		18-03		
2x12	12.0		29-03		28-02		
	16.0		26-07		25-07		
	19.2		25-00		24-01		
	24.0		22-01		22-01		

25. Rafters – 50 psf live, 15 psf dead, l/180, C_D = 1.15

Medium Roofing; No finished ceiling; Snow load

Size	Spacing (in. o.c.)	2400f 2.0E	2250f 1.9E	2100f 1.8E	1950f 1.7E	1800f 1.6E	1650f 1.5E
2x4	12.0	8-07		8-04		8-00	7-10
	16.0	7-10		7-06		7-03	7-01
	19.2	7-04		7-01		6-10	6-07
	24.0	6-10		6-07		6-01	5-10
2x5	12.0		10-10	10-08			10-00
	16.0		9-10	9-08			9-01
	19.2		9-03	9-01			8-05
	24.0		8-07	8-06			7-06
2x6	12.0	13-06		13-01	12-10	12-06	
	16.0	12-03		11-10	11-08	11-05	
	19.2	11-07		11-02	10-11	10-09	
	24.0	10-09		10-04	10-00	9-07	
2x8	12.0	17-10	17-06		16-10		
	16.0	16-02	15-11		15-04		
	19.2	15-03	15-00		14-05		
	24.0	14-02	13-11		13-02		
2x10	12.0		22-04		21-06		
	16.0		20-03		19-07		
	19.2		19-01		18-05		
	24.0		17-09		16-10		
2x12	12.0		27-02		26-02		
	16.0		24-08		23-09		
	19.2		23-03		22-05		
	24.0		18-08		18-08		

26. Rafters – 20 psf live, 10 psf dead, l/240, C_D = 1.25

Light roofing; Drywall ceiling; Construction load

Size	Spacing (in. o.c.)	2400f 2.0E	2250f 1.9E	2100f 1.8E	1950f 1.7E	1800f 1.6E	1650f 1.5E
2x4	12.0	10-07		10-03		9-10	9-08
	16.0	9-08		9-04		8-11	8-09
	19.2	9-01		8-09		8-05	8-03
	24.0	8-05		8-01		7-10	7-08
2x5	12.0		13-05	13-02			12-05
	16.0		12-02	11-11			11-03
	19.2		11-05	11-03			10-07
	24.0		10-08	10-05			9-10
2x6	12.0	16-08		16-01	15-09	15-06	
	16.0	15-02		14-07	14-04	14-01	
	19.2	14-03		13-09	13-06	13-03	
	24.0	13-03		12-09	12-06	12-03	
2x8	12.0	21-11	21-07		20-10		
	16.0	19-11	19-07		18-11		
	19.2	18-09	18-05		17-09		
	24.0	17-05	17-02		16-06		
2x10	12.0		27-06		26-06		
	16.0		25-00		24-01		
	19.2		23-07		22-08		
	24.0		21-10		21-01		
2x12	12.0		33-06		32-03		
	16.0		30-05		29-04		
	19.2		28-08		27-07		
	24.0		26-07		25-07		

27. Rafters – 20 psf live, 15 psf dead, l/240, C_D = 1.25

Medium roofing; Drywall ceiling; Construction load

Size	Spacing (in. o.c.)	2400f 2.0E	2250f 1.9E	2100f 1.8E	1950f 1.7E	1800f 1.6E	1650f 1.5E
2x4	12.0	10-07		10-03		9-10	9-08
	16.0	9-08		9-04		8-11	8-09
	19.2	9-01		8-09		8-05	8-03
	24.0	8-05		8-01		7-10	7-08
2x5	12.0		13-05	13-02			12-05
	16.0		12-02	11-11			11-03
	19.2		11-05	11-03			10-07
	24.0		10-08	10-05			9-10
2x6	12.0	16-08		16-01	15-09	15-06	
	16.0	15-02		14-07	14-04	14-01	
	19.2	14-03		13-09	13-06	13-03	
	24.0	13-03		12-09	12-06	12-03	
2x8	12.0	21-11	21-07		20-10		
	16.0	19-11	19-07		18-11		
	19.2	18-09	18-05		17-09		
	24.0	17-05	17-02		16-06		
2x10	12.0		27-06		26-06		
	16.0		25-00		24-01		
	19.2		23-07		22-08		
	24.0		21-10		21-01		
2x12	12.0		33-06		32-03		
	16.0		30-05		29-04		
	19.2		28-08		27-07		
	24.0		26-07		25-07		

28. Rafters – 20 psf live, 20 psf dead, l/240, C_D = 1.25

Heavy roofing; Drywall ceiling; Construction load

Size	Spacing (in. o.c.)	2400f 2.0E	2250f 1.9E	2100f 1.8E	1950f 1.7E	1800f 1.6E	1650f 1.5E
2x4	12.0	10-07		10-03		9-10	9-08
	16.0	9-08		9-04		8-11	8-09
	19.2	9-01		8-09		8-05	8-03
	24.0	8-05		8-01		7-10	7-08
2x5	12.0		13-05	13-02			12-05
	16.0		12-02	11-11			11-03
	19.2		11-05	11-03			10-07
	24.0		10-08	10-05			9-10
2x6	12.0	16-08		16-01	15-09	15-06	
	16.0	15-02		14-07	14-04	14-01	
	19.2	14-03		13-09	13-06	13-03	
	24.0	13-03		12-09	12-06	12-03	
2x8	12.0	21-11	21-07		20-10		
	16.0	19-11	19-07		18-11		
	19.2	18-09	18-05		17-09		
	24.0	17-05	17-02		16-06		
2x10	12.0		27-06		26-06		
	16.0		25-00		24-01		
	19.2		23-07		22-08		
	24.0		21-10		21-01		
2x12	12.0		33-06		32-03		
	16.0		30-05		29-04		
	19.2		28-08		27-07		
	24.0		26-07		25-07		

29. Rafters – 20 psf live, 10 psf dead, l/180, C_D = 1.25

Light roofing; No finished ceiling; Construction load

Size	Spacing (in. o.c.)	2400f 2.0E	2250f 1.9E	2100f 1.8E	1950f 1.7E	1800f 1.6E	1650f 1.5E
2x4	12.0	11-08		11-03		10-10	10-07
	16.0	10-07		10-03		9-10	9-08
	19.2	10-00		9-08		9-03	9-01
	24.0	9-03		8-11		8-07	8-05
2x5	12.0		14-09	14-06			13-08
	16.0		13-05	13-02			12-05
	19.2		12-07	12-05			11-08
	24.0		11-08	11-06			10-10
2x6	12.0	18-04		17-08	17-04	17-00	
	16.0	16-08		16-01	15-09	15-06	
	19.2	15-08		15-02	14-10	14-07	
	24.0	14-07		14-01	13-09	13-06	
2x8	12.0	24-02	23-09		22-11		
	16.0	21-11	21-07		20-10		
	19.2	20-08	20-04		19-07		
	24.0	19-02	18-10		18-02		
2x10	12.0		30-04		29-02		
	16.0		27-06		26-06		
	19.2		25-11		25-00		
	24.0		24-01		23-02		
2x12	12.0		36-10		35-06		
	16.0		33-06		32-03		
	19.2		31-06		30-04		
	24.0		29-03		28-02		

30. Rafters – 20 psf live, 15 psf dead, l/180, C_D = 1.25

Medium roofing; No finished ceiling; Construction load

Size	Spacing (in. o.c.)	2400f 2.0E	2250f 1.9E	2100f 1.8E	1950f 1.7E	1800f 1.6E	1650f 1.5E
2x4	12.0	11-08		11-03		10-10	10-07
	16.0	10-07		10-03		9-10	9-08
	19.2	10-00		9-08		9-03	9-01
	24.0	9-03		8-11		8-07	8-04
2x5	12.0		14-09	14-06			13-08
	16.0		13-05	13-02			12-05
	19.2		12-07	12-05			11-08
	24.0		11-08	11-06			10-08
2x6	12.0	18-04		17-08	17-04	17-00	
	16.0	16-08		16-01	15-09	15-06	
	19.2	15-08		15-02	14-10	14-07	
	24.0	14-07		14-01	13-09	13-06	
2x8	12.0	24-02	23-09		22-11		
	16.0	21-11	21-07		20-10		
	19.2	20-08	20-04		19-07		
	24.0	19-02	18-10		18-02		
2x10	12.0		30-04		29-02		
	16.0		27-06		26-06		
	19.2		25-11		25-00		
	24.0		24-01		23-02		
2x12	12.0		36-10		35-06		
	16.0		33-06		32-03		
	19.2		31-06		30-04		
	24.0		29-03		28-02		

31. Rafters – 20 psf live, 20 psf dead, l/180, C_D = 1.25

Heavy roofing; No finished ceiling; Construction load

Size	Spacing (in. o.c.)	2400f 2.0E	2250f 1.9E	2100f 1.8E	1950f 1.7E	1800f 1.6E	1650f 1.5E
2x4	12.0	11-08		11-03		10-10	10-07
	16.0	10-07		10-03		9-10	9-06
	19.2	10-00		9-08		9-01	8-08
	24.0	9-03		8-09		8-02	7-09
2x5	12.0		14-09	14-06			13-08
	16.0		13-05	13-02			12-03
	19.2		12-07	12-05			11-02
	24.0		11-08	11-03			10-00
2x6	12.0	18-04		17-08	17-04	17-00	
	16.0	16-08		16-01	15-09	15-06	
	19.2	15-08		15-02	14-10	14-03	
	24.0	14-07		13-10	13-03	12-09	
2x8	12.0	24-02	23-09		22-11		
	16.0	21-11	21-07		20-10		
	19.2	20-08	20-04		19-07		
	24.0	19-02	18-10		17-06		
2x10	12.0		30-04		29-02		
	16.0		27-06		26-06		
	19.2		25-11		25-00		
	24.0		24-00		22-04		
2x12	12.0		36-10		35-06		
	16.0		33-06		32-03		
	19.2		31-06		30-04		
	24.0		29-02		27-02		

32. Floor Joists – 75 psf live, 10 psf dead, *l*/360, C_D = 1.00

Consult building code for specific load requirements

Size	Spacing (in. o.c.)	2400f 2.0E	2250f 1.9E	2100f 1.8E	1950f 1.7E	1800f 1.6E	1650f 1.5E
2x4	12.0	6-00		5-09		5-06	5-05
	16.0	5-05		5-03		5-00	4-11
	19.2	5-01		4-11		4-09	4-08
	24.0	4-09		4-07		4-05	4-04
2x5	12.0		7-06	7-05			7-00
	16.0		6-10	6-09			6-04
	19.2		6-05	6-04			5-11
	24.0		6-00	5-10			5-06
2x6	12.0	9-04		9-01	8-10	8-08	
	16.0	8-06		8-03	8-01	7-11	
	19.2	8-00		7-09	7-07	7-05	
	24.0	7-05		7-02	7-01	6-11	
2x8	12.0	12-04	12-02		11-08		
	16.0	11-03	11-00		10-08		
	19.2	10-07	10-05		10-00		
	24.0	9-10	9-08		9-03		
2x10	12.0		15-06		14-11		
	16.0		14-01		13-07		
	19.2		13-03		12-09		
	24.0		12-03		11-10		
2x12	12.0		18-10		18-02		
	16.0		17-01		16-06		
	19.2		16-01		15-06		
	24.0		14-04		14-04		

33. Floor Joists – 80 psf live, 10 psf dead, *l*/360, C_D = 1.00

Consult building code for specific load requirements

Size	Spacing (in. o.c.)	2400f 2.0E	2250f 1.9E	2100f 1.8E	1950f 1.7E	1800f 1.6E	1650f 1.5E
2x4	12.0	5-10		5-08		5-05	5-04
	16.0	5-04		5-01		4-11	4-10
	19.2	5-00		4-10		4-08	4-06
	24.0	4-08		4-06		4-04	4-02
2x5	12.0		7-04	7-03			6-10
	16.0		6-08	6-07			6-02
	19.2		6-04	6-02			5-10
	24.0		5-10	5-09			5-05
2x6	12.0	9-02		8-10	8-08	8-06	
	16.0	8-04		8-00	7-11	7-09	
	19.2	7-10		7-07	7-05	7-03	
	24.0	7-03		7-00	6-11	6-09	
2x8	12.0	12-01	11-11		11-05		
	16.0	11-00	10-10		10-05		
	19.2	10-04	10-02		9-09		
	24.0	9-07	9-05		9-01		
2x10	12.0		15-02		14-07		
	16.0		13-09		13-03		
	19.2		12-11		12-06		
	24.0		12-00		11-07		
2x12	12.0		18-05		17-09		
	16.0		16-09		16-02		
	19.2		15-09		15-02		
	24.0		13-06		13-06		

34. Floor Joists – 90 psf live, 10 psf dead, *l*/360, C_D = 1.00

Consult building code for specific load requirements

Size	Spacing (in. o.c.)	2400f 2.0E	2250f 1.9E	2100f 1.8E	1950f 1.7E	1800f 1.6E	1650f 1.5E
2x4	12.0	5-07		5-05		5-02	5-01
	16.0	5-01		4-11		4-09	4-08
	19.2	4-10		4-08		4-05	4-04
	24.0	4-05		4-04		4-02	4-01
2x5	12.0		7-01	7-00			6-07
	16.0		6-05	6-04			5-11
	19.2		6-01	5-11			5-07
	24.0		5-08	5-06			5-02
2x6	12.0	8-10		8-06	8-04	8-02	
	16.0	8-00		7-09	7-07	7-05	
	19.2	7-06		7-03	7-02	7-00	
	24.0	7-00		6-09	6-08	6-06	
2x8	12.0	11-07	11-05		11-00		
	16.0	10-07	10-05		10-00		
	19.2	9-11	9-09		9-05		
	24.0	9-03	9-01		8-09		
2x10	12.0		14-07		14-00		
	16.0		13-03		12-09		
	19.2		12-06		12-00		
	24.0		11-07		11-02		
2x12	12.0		17-09		17-01		
	16.0		16-01		15-06		
	19.2		15-02		14-07		
	24.0		12-02		12-02		

35. Floor Joists – 100 psf live, 10 psf dead, *l*/360, C_D = 1.00

Consult building code for specific load requirements

Size	Spacing (in. o.c.)	2400f 2.0E	2250f 1.9E	2100f 1.8E	1950f 1.7E	1800f 1.6E	1650f 1.5E
2x4	12.0	5-05		5-03		5-00	4-11
	16.0	4-11		4-09		4-07	4-06
	19.2	4-08		4-06		4-04	4-02
	24.0	4-02		4-02		4-00	3-11
2x5	12.0		6-10	6-09			6-04
	16.0		6-03	6-01			5-09
	19.2		5-10	5-09			5-05
	24.0		5-04	5-04			5-00
2x6	12.0	8-06		8-03	8-01	7-11	
	16.0	7-09		7-06	7-04	7-02	
	19.2	7-03		7-00	6-11	6-09	
	24.0	6-07		6-06	6-05	6-03	
2x8	12.0	11-03	11-00		10-08		
	16.0	10-02	10-00		9-08		
	19.2	9-07	9-05		9-01		
	24.0	8-07	8-07		8-05		
2x10	12.0		14-01		13-07		
	16.0		12-09		12-04		
	19.2		12-00		11-07		
	24.0		11-00		10-09		
2x12	12.0		17-01		16-06		
	16.0		15-07		15-00		
	19.2		13-10		13-10		
	24.0		11-01		11-01		

The MSR Lumber Producers Council is a Non-Profit Corporation of the State of Washington and was established November 9, 1987.

MSR Lumber Producers Council Represents the interest of MSR Lumber Producers in the manufacturing, marketing, promotion, utilization, and technical aspects of machine stress-rated lumber.

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