

TABLE R802.5.1(3)
RAFTER SPANS FOR COMMON LUMBER SPECIES
 (Ground snow load=30 psf, ceiling not attached to rafters, L/Δ=180)

RAFTER SPACING (inches)	SPECIE AND GRADE	DEAD LOAD = 10 psf					DEAD LOAD = 20 psf					
		2x4	2x6	2x8	2x10	2x12	2x4	2x6	2x8	2x10	2x12	
		Maximum rafter spans ^a										
		(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)
12	Douglas fir-larch SS	10-0	15-9	20-9	Note ^b	Note ^b	10-0	15-9	20-1	24-6	Note ^b	
	Douglas fir-larch #1	9-8	14-9	18-8	22-9	24-8	9-0	13-2	16-8	20-4	23-7	
	Douglas fir-larch #2	9-5	13-9	17-5	21-4	18-8	8-5	12-4	15-7	19-1	22-1	
	Douglas fir-larch #3	7-1	10-5	13-2	16-1	Note ^b	6-4	9-4	11-9	14-5	16-8	
	Hem-fir SS	9-6	14-10	19-7	25-0	25-9	9-6	14-10	19-7	24-1	Note ^b	
	Hem-fir #1	9-3	14-4	18-2	22-2	24-4	8-9	12-10	16-3	19-10	23-0	
	Hem-fir #2	8-10	13-7	17-2	21-0	18-8	8-4	12-2	15-4	18-9	21-9	
	Hem-fir #3	7-1	10-5	13-2	16-1	Note ^b	6-4	9-4	11-9	14-5	16-8	
	Southern pine SS	9-10	15-6	20-5	Note ^b	Note ^b	9-10	15-6	20-5	Note ^b	Note ^b	
	Southern pine #1	9-8	15-2	20-0	24-9	Note ^b	9-8	14-10	18-8	22-2	Note ^b	
	Southern pine #2	9-6	14-5	18-8	22-3	20-0	9-0	12-11	16-8	19-11	23-4	
	Southern pine #3	7-7	11-2	14-3	16-10	Note ^b	6-9	10-0	12-9	15-1	17-11	
	Spruce-pine-fir SS	9-3	14-7	19-2	24-6	24-8	9-3	14-7	18-8	22-9	Note ^b	
	Spruce-pine-fir #1	9-1	13-9	17-5	21-4	24-8	8-5	12-4	15-7	19-1	22-1	
Spruce-pine-fir #2	9-1	13-9	17-5	21-4	18-8	8-5	12-4	15-7	19-1	22-1		
Spruce-pine-fir #3	7-1	10-5	13-2	16-1		6-4	9-4	11-9	14-5	16-8		
16	Douglas fir-larch SS	9-1	14-4	18-10	23-9	Note ^b	9-1	13-9	17-5	21-3	24-8	
	Douglas fir-larch #1	8-9	12-9	16-2	19-9	22-10	7-10	11-5	14-5	17-8	20-5	
	Douglas fir-larch #2	8-2	11-11	15-1	18-5	21-5	7-3	10-8	13-6	16-6	19-2	
	Douglas fir-larch #3	6-2	9-0	11-5	13-11	16-2	5-6	8-1	10-3	12-6	14-6	
	Hem-fir SS	8-7	13-6	17-10	22-9	Note ^b	8-7	13-6	17-1	20-10	24-2	
	Hem-fir #1	8-5	12-5	15-9	19-3	22-3	7-7	11-1	14-1	17-2	19-11	
	Hem-fir #2	8-0	11-9	14-11	18-2	21-1	7-2	10-6	13-4	16-3	18-10	
	Hem-fir #3	6-2	9-0	11-5	13-11	16-2	5-6	8-1	10-3	12-6	14-6	
	Southern pine SS	8-11	14-1	18-6	23-8	Note ^b	8-11	14-1	18-6	23-8	Note ^b	
	Southern pine #1	8-9	13-9	18-1	21-5	25-7	8-8	12-10	16-2	19-2	22-10	
	Southern pine #2	8-7	12-6	16-2	19-3	22-7	7-10	11-2	14-5	17-3	20-2	
	Southern pine #3	6-7	9-8	12-4	14-7	17-4	5-10	8-8	11-0	13-0	15-6	
	Spruce-pine-fir SS	8-5	13-3	17-5	22-1	25-7	8-5	12-9	16-2	19-9	22-10	
	Spruce-pine-fir #1	8-2	11-11	15-1	18-5	21-5	7-3	10-8	13-6	16-6	19-2	
Spruce-pine-fir #2	8-2	11-11	15-1	18-5	21-5	7-3	10-8	13-6	16-6	19-2		
Spruce-pine-fir #3	6-2	9-0	11-5	13-11	16-2	5-6	8-1	10-3	12-6	14-6		
19.2	Douglas fir-larch SS	8-7	13-6	17-9	21-8	25-2	8-7	12-6	15-10	19-5	22-6	
	Douglas fir-larch #1	7-11	11-8	14-9	18-0	20-11	7-1	10-5	13-2	16-1	18-8	
	Douglas fir-larch #2	7-5	10-11	13-9	16-10	19-6	6-8	9-9	12-4	15-1	17-6	
	Douglas fir-larch #3	5-7	8-3	10-5	12-9	14-9	5-0	7-4	9-4	11-5	13-2	
	Hem-fir SS	8-1	12-9	16-9	21-4	24-8	8-1	12-4	15-7	19-1	22-1	
	Hem-fir #1	7-9	11-4	14-4	17-7	20-4	6-11	10-2	12-10	15-8	18-2	
	Hem-fir #2	7-4	10-9	13-7	16-7	19-3	6-7	9-7	12-2	14-10	17-3	
	Hem-fir #3	5-7	8-3	10-5	12-9	14-9	5-0	7-4	9-4	11-5	13-2	
	Southern pine SS	8-5	13-3	17-5	22-3	Note ^b	8-5	13-3	17-5	22-0	25-9	
	Southern pine #1	8-3	13-0	16-6	19-7	23-4	7-11	11-9	14-9	17-6	20-11	
	Southern pine #2	7-11	11-5	14-9	17-7	20-7	7-1	10-2	13-2	15-9	18-5	
	Southern pine #3	6-0	8-10	11-3	13-4	15-10	5-4	7-11	10-1	11-11	14-2	
	Spruce-pine-fir SS	7-11	12-5	16-5	20-2	23-4	7-11	11-8	14-9	18-0	20-11	

(continued)

TABLE R802.5.1(3)—continued
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 (Ground snow load=30 psf, ceiling not attached to rafters, L/Δ=180)

RAFTER SPACING (inches)	SPECIE AND GRADE	DEAD LOAD = 10 psf					DEAD LOAD = 20 psf				
		2x4	2x6	2x8	2x10	2x12	2x4	2x6	2x8	2x10	2x12
		Maximum rafter spans ^a									
		(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)
19.2	Spruce-pine-fir #1	7-5	10-11	13-9	16-10	19-6	6-8	9-9	12-4	15-1	17-6
	Spruce-pine-fir #2	7-5	10-11	13-9	16-10	19-6	6-8	9-9	12-4	15-1	17-6
	Spruce-pine-fir #3	5-7	8-3	10-5	12-9	14-9	5-0	7-4	9-4	11-5	13-2
	Douglas fir-larch SS	7-11	12-6	15-10	19-5	22-6	7-8	11-3	14-2	17-4	20-1
	Douglas fir-larch #1	7-1	10-5	13-2	16-1	18-8	6-4	9-4	11-9	14-5	16-8
	Douglas fir-larch #2	6-8	9-9	12-4	15-1	17-6	5-11	8-8	11-0	13-6	15-7
	Douglas fir-larch #3	5-0	7-4	9-4	11-5	13-2	4-6	6-7	8-4	10-2	11-10
24	Hem-fir SS	7-6	11-10	15-7	19-1	22-1	7-6	11-0	13-11	17-0	19-9
	Hem-fir #1	6-11	10-2	12-10	15-8	18-2	6-2	9-1	11-6	14-0	16-3
	Hem-fir #2	6-7	9-7	12-2	14-10	17-3	5-10	8-7	10-10	13-3	15-5
	Hem-fir #3	5-0	7-4	9-4	11-5	13-2	4-6	6-7	8-4	10-2	11-10
	Southern pine SS	7-10	12-3	16-2	20-8	25-1	7-10	12-3	16-2	19-8	23-0
	Southern pine #1	7-8	11-9	14-9	17-6	20-11	7-1	10-6	13-2	15-8	18-8
	Southern pine #2	7-1	10-2	13-2	15-9	18-5	6-4	9-2	11-9	14-1	16-6
	Southern pine #3	5-4	7-11	10-1	11-11	14-2	4-9	7-1	9-0	10-8	12-8
	Spruce-pine-fir SS	7-4	11-7	14-9	18-0	20-11	7-1	10-5	13-2	16-1	18-8
	Spruce-pine-fir #1	6-8	9-9	12-4	15-1	17-6	5-11	8-8	11-0	13-6	15-7
	Spruce-pine-fir #2	6-8	9-9	12-4	15-1	17-6	5-11	8-8	11-0	13-6	15-7
	Spruce-pine-fir #3	5-0	7-4	9-4	11-5	13-2	4-6	6-7	8-4	10-2	11-10

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot = 0.0479 kN/m².

a. The tabulated rafter spans assume that ceiling joists are located at the bottom of the attic space or that some other method of resisting the outward push of the rafters on the bearing walls, such as rafter ties, is provided at that location. When ceiling joists or rafter ties are located higher in the attic space, the rafter spans shall be multiplied by the factors given below:

H_C/H_R	Rafter Span Adjustment Factor
2/3 or greater	0.50
1/2	0.58
1/3	0.67
1/4	0.76
1/5	0.83
1/6	0.90
1/7.5 and less	1.00

where: H_C = Height of ceiling joists or rafter ties measured vertically above the top of the rafter support walls.

H_R = Height of roof ridge measured vertically above the top of the rafter support walls.

b. Check sources for availability of lumber in lengths greater than 20 feet.