



### Framing Span Tables for 1500Fb-1.8E Grade MSR Lumber

Traditionally, Machine Stress-Rated (MSR) Lumber is used in making wood trusses. The MSR process tests the stiffness of the lumber, providing an assessment of the strength of each piece.

While a majority of MSR lumber is used in wood trusses, the products also can be used in other structural applications, such as framing. Since each piece is physically tested as part of the quality control in the manufacturing process, MSR lumber can be used

in framing applications where consistent structural performance is demanded or desired.

The tables below provide 1500Fb-1.8E grade MSR lumber spans for typical framing applications. These MSR lumber framing spans apply to all Western species.

For additional information on MSR lumber, review the WWPA publication *Machine Stress-Rated Lumber* (TG-4) or go to the WWPA Online Lumber Technical Guide at [www.wwpa.org/techguide](http://www.wwpa.org/techguide).

#### FLOOR JOISTS - Allowable Spans (ft-in.) for 1500Fb-1.8E Grade MSR Lumber

Design Criteria				2x8				2x10				2x12			
Live Load PSF	Dead Load PSF	Load Type, DOL	Live Load Deflection L/Factor	Joist Spacing (in.)											
				12"	16"	19.2"	24"	12"	16"	19.2"	24"	12"	16"	19.2"	24"
30	10	normal 1.0	360	16-2	14-8	13-10	12-10	20-8	18-9	17-8	16-5	25-1	22-10	21-6	19-11
30	25	normal 1.0	360	16-2	14-4	13-1	11-9	20-8	18-4	16-9	14-11	25-1	22-3	20-4	18-2
40	10	normal 1.0	360	14-8	13-4	12-7	11-8	18-9	17-0	16-0	14-11	22-10	20-9	19-6	18-1
40	20	normal 1.0	360	14-8	13-4	12-7	11-3	18-9	17-0	16-0	14-4	22-10	20-9	19-6	17-5
40	25	normal 1.0	360	14-8	13-2	12-1	10-9	18-9	16-10	15-5	13-9	22-10	20-6	18-8	16-9
50	10	normal 1.0	360	13-8	12-5	11-8	10-10	17-5	15-10	14-11	13-10	21-2	19-3	18-1	16-10
50	20	normal 1.0	360	13-8	12-5	11-7	10-5	17-5	15-10	14-10	13-3	21-2	19-3	18-0	16-1
50	25	normal 1.0	360	13-8	12-4	11-3	10-0	17-5	15-8	14-4	12-10	21-2	19-1	17-5	15-7
30	10	normal 1.0	480	14-8	13-4	12-7	11-8	18-9	17-0	16-0	14-11	22-10	20-9	19-6	18-1
30	25	normal 1.0	480	14-8	13-4	12-7	11-8	18-9	17-0	16-0	14-11	22-10	20-9	19-6	18-1
40	10	normal 1.0	480	13-4	12-2	11-5	10-7	17-0	15-6	14-7	13-6	20-9	18-10	17-9	16-5
40	20	normal 1.0	480	13-4	12-2	11-5	10-7	17-0	15-6	14-7	13-6	20-9	18-10	17-9	16-5
40	25	normal 1.0	480	13-4	12-2	11-5	10-7	17-0	15-6	14-7	13-6	20-9	18-10	17-9	16-5
50	10	normal 1.0	480	12-5	11-3	10-7	9-10	15-10	14-4	13-6	12-7	19-3	17-6	16-5	15-3
50	20	normal 1.0	480	12-5	11-3	10-7	9-10	15-10	14-4	13-6	12-7	19-3	17-6	16-5	15-3
50	25	normal 1.0	480	12-5	11-3	10-7	9-10	15-10	14-4	13-6	12-7	19-3	17-6	16-5	15-3

#### CEILING JOISTS - Allowable Spans (ft-in.) for 1500Fb-1.8E Grade MSR Lumber

Design Criteria				2x8				2x10				2x12			
Live Load PSF	Dead Load PSF	Load Type, DOL	Live Load Deflection L/Factor	Joist Spacing (in.)											
				12"	16"	19.2"	24"	12"	16"	19.2"	24"	12"	16"	19.2"	24"
20	10	normal 1.0	360	18-6	16-10	15-10	14-8	23-8	21-6	20-2	18-9	28-9	26-1	24-7	22-10
20	10	normal 1.0	240	21-2	19-3	17-9	15-10	27-1	24-7	22-8	20-3	32-11	29-11	27-6	24-8
10	10	normal 1.0	360	23-4	21-2	19-11	18-6	29-9	27-1	25-5	23-8	36-2	32-11	30-11	28-9
10	5	normal 1.0	240	26-9	24-3	22-10	21-2	34-1	31-0	29-2	27-1	41-5	37-8	35-5	32-11

## ROOF RAFTERS - Allowable Spans (ft-in.) for 1500Fb-1.8E Grade MSR Lumber

Design Criteria				2x8				2x10				2x12			
Live Load PSF	Dead Load PSF	Roof Load Type, DOL	Live Load Deflection L/Factor	Rafter Spacing (in.)											
				12"	16"	19.2"	24"	12"	16"	19.2"	24"	12"	16"	19.2"	24"
20	10	live 1.25	240	21 - 2	19 - 3	18 - 2	16 - 10	27 - 1	24 - 7	23 - 1	21 - 6	32 - 11	29 - 11	28 - 2	26 - 1
20	15	live 1.25	180	23 - 3	20 - 1	18 - 4	16 - 5	29 - 8	25 - 8	23 - 5	21 - 0	36 - 1	31 - 3	28 - 6	25 - 6
20	15	live 1.25	240	21 - 2	19 - 3	18 - 2	16 - 5	27 - 1	24 - 7	23 - 1	21 - 0	32 - 11	29 - 11	28 - 2	25 - 6
20	15	live 1.25	360	18 - 6	16 - 10	15 - 10	14 - 8	23 - 8	21 - 6	20 - 2	18 - 9	28 - 9	26 - 1	24 - 7	22 - 10
20	25	live 1.25	240	20 - 6	17 - 9	16 - 2	14 - 6	26 - 2	22 - 8	20 - 8	18 - 6	31 - 10	27 - 6	25 - 2	22 - 6
20	30	live 1.25	360	18 - 6	16 - 10	15 - 4	13 - 9	23 - 8	21 - 6	19 - 7	17 - 6	28 - 9	26 - 1	23 - 10	21 - 4
20	10	snow 1.15	240	21 - 2	19 - 3	18 - 2	16 - 10	27 - 1	24 - 7	23 - 1	21 - 6	32 - 11	29 - 11	28 - 2	26 - 1
25	10	snow 1.15	180	21 - 8	19 - 4	17 - 7	15 - 9	27 - 8	24 - 7	22 - 6	20 - 1	33 - 7	29 - 11	27 - 4	24 - 5
25	10	snow 1.15	240	19 - 8	17 - 11	16 - 10	15 - 7	25 - 1	22 - 10	21 - 6	19 - 11	30 - 6	27 - 9	26 - 1	24 - 3
30	10	snow 1.15	240	18 - 6	16 - 10	15 - 10	14 - 8	23 - 8	21 - 6	20 - 2	18 - 9	28 - 9	26 - 1	24 - 7	22 - 10
40	10	snow 1.15	240	16 - 10	15 - 3	14 - 5	13 - 2	21 - 6	19 - 6	18 - 4	16 - 10	26 - 1	23 - 9	22 - 4	20 - 5
60	10	snow 1.15	240	14 - 8	13 - 4	12 - 5	11 - 2	18 - 9	17 - 0	15 - 11	14 - 3	22 - 10	20 - 9	19 - 4	17 - 3
20	7	snow 1.15	180	23 - 4	21 - 2	19 - 11	17 - 11	29 - 9	27 - 1	25 - 5	22 - 11	36 - 2	32 - 11	30 - 11	27 - 10
25	7	snow 1.15	180	21 - 8	19 - 8	18 - 5	16 - 6	27 - 8	25 - 1	23 - 6	21 - 0	33 - 7	30 - 6	28 - 7	25 - 7
30	7	snow 1.15	180	20 - 5	18 - 6	17 - 2	15 - 4	26 - 0	23 - 8	21 - 10	19 - 7	31 - 8	28 - 9	26 - 7	23 - 9
40	7	snow 1.15	180	18 - 6	16 - 8	15 - 2	13 - 7	23 - 8	21 - 3	19 - 5	17 - 4	28 - 9	25 - 10	23 - 7	21 - 1
60	7	snow 1.15	180	16 - 1	13 - 11	12 - 9	11 - 5	20 - 7	17 - 10	16 - 3	14 - 6	25 - 0	21 - 8	19 - 9	17 - 8
80	7	snow 1.15	180	14 - 2	12 - 3	11 - 2	10 - 0	18 - 0	15 - 7	14 - 3	12 - 9	21 - 11	19 - 0	17 - 4	15 - 6
100	7	snow 1.15	180	12 - 9	11 - 0	10 - 1	9 - 0	16 - 3	14 - 1	12 - 10	11 - 6	19 - 9	17 - 2	15 - 8	14 - 0
20	15	snow 1.15	180	22 - 3	19 - 4	17 - 7	15 - 9	28 - 5	24 - 7	22 - 6	20 - 1	34 - 7	29 - 11	27 - 4	24 - 5
25	15	snow 1.15	180	20 - 10	18 - 1	16 - 6	14 - 9	26 - 7	23 - 0	21 - 0	18 - 10	32 - 4	28 - 0	25 - 7	22 - 10
30	15	snow 1.15	180	19 - 8	17 - 0	15 - 6	13 - 11	25 - 1	21 - 9	19 - 10	17 - 9	30 - 6	26 - 5	24 - 1	21 - 7
40	15	snow 1.15	180	17 - 9	15 - 5	14 - 1	12 - 7	22 - 8	19 - 8	17 - 11	16 - 0	27 - 7	23 - 11	21 - 10	19 - 6
60	15	snow 1.15	180	15 - 3	13 - 2	12 - 0	10 - 9	19 - 5	16 - 10	15 - 4	13 - 9	23 - 7	20 - 5	18 - 8	16 - 8
80	15	snow 1.15	180	13 - 6	11 - 9	10 - 8	9 - 7	17 - 3	14 - 11	13 - 8	12 - 2	21 - 0	18 - 2	16 - 7	14 - 10
100	15	snow 1.15	180	12 - 4	10 - 8	9 - 9	8 - 8	15 - 8	13 - 7	12 - 5	11 - 1	19 - 1	16 - 6	15 - 1	13 - 6
20	15	snow 1.15	240	21 - 2	19 - 3	17 - 7	15 - 9	27 - 1	24 - 7	22 - 6	20 - 1	32 - 11	29 - 11	27 - 4	24 - 5
25	15	snow 1.15	240	19 - 8	17 - 11	16 - 6	14 - 9	25 - 1	22 - 10	21 - 0	18 - 10	30 - 6	27 - 9	25 - 7	22 - 10
30	15	snow 1.15	240	18 - 6	16 - 10	15 - 6	13 - 11	23 - 8	21 - 6	19 - 10	17 - 9	28 - 9	26 - 1	24 - 1	21 - 7
40	15	snow 1.15	240	16 - 10	15 - 3	14 - 1	12 - 7	21 - 6	19 - 6	17 - 11	16 - 0	26 - 1	23 - 9	21 - 10	19 - 6
60	15	snow 1.15	240	14 - 8	13 - 2	12 - 0	10 - 9	18 - 9	16 - 10	15 - 4	13 - 9	22 - 10	20 - 5	18 - 8	16 - 8
80	15	snow 1.15	240	13 - 4	11 - 9	10 - 8	9 - 7	17 - 0	14 - 11	13 - 8	12 - 2	20 - 9	18 - 2	16 - 7	14 - 10
100	15	snow 1.15	240	12 - 4	10 - 8	9 - 9	8 - 8	15 - 8	13 - 7	12 - 5	11 - 1	19 - 1	16 - 6	15 - 1	13 - 6
20	25	snow 1.15	240	19 - 8	17 - 0	15 - 6	13 - 11	25 - 1	21 - 9	19 - 10	17 - 9	30 - 6	26 - 5	24 - 1	21 - 7
25	25	snow 1.15	240	18 - 8	16 - 2	14 - 9	13 - 2	23 - 9	20 - 7	18 - 10	16 - 10	28 - 11	25 - 1	22 - 10	20 - 5
30	25	snow 1.15	240	17 - 9	15 - 5	14 - 1	12 - 7	22 - 8	19 - 8	17 - 11	16 - 0	27 - 7	23 - 11	21 - 10	19 - 6
40	25	snow 1.15	240	16 - 4	14 - 2	12 - 11	11 - 7	20 - 10	18 - 1	16 - 6	14 - 9	25 - 4	22 - 0	20 - 1	17 - 11
60	25	snow 1.15	240	14 - 4	12 - 5	11 - 4	10 - 1	18 - 3	15 - 10	14 - 5	12 - 11	22 - 2	19 - 3	17 - 6	15 - 8
80	25	snow 1.15	240	12 - 10	11 - 2	10 - 2	9 - 1	16 - 5	14 - 3	13 - 0	11 - 7	20 - 0	17 - 3	15 - 9	14 - 1
100	25	snow 1.15	240	11 - 9	10 - 3	9 - 4	8 - 4	15 - 1	13 - 0	11 - 11	10 - 8	18 - 4	15 - 10	14 - 6	12 - 11
20	15	snow 1.15	360	18 - 6	16 - 10	15 - 10	14 - 8	23 - 8	21 - 6	20 - 2	18 - 9	28 - 9	26 - 1	24 - 7	22 - 10
25	15	snow 1.15	360	17 - 2	15 - 7	14 - 8	13 - 8	21 - 11	19 - 11	18 - 9	17 - 5	26 - 8	24 - 3	22 - 10	21 - 2
30	15	snow 1.15	360	16 - 2	14 - 8	13 - 10	12 - 10	20 - 8	18 - 9	17 - 8	16 - 5	25 - 1	22 - 10	21 - 6	19 - 11
40	15	snow 1.15	360	14 - 8	13 - 4	12 - 7	11 - 8	18 - 9	17 - 0	16 - 0	14 - 11	22 - 10	20 - 9	19 - 6	18 - 1
60	15	snow 1.15	360	12 - 10	11 - 8	11 - 0	10 - 2	16 - 5	14 - 11	14 - 0	13 - 0	19 - 11	18 - 1	17 - 0	15 - 10
80	15	snow 1.15	360	11 - 8	10 - 7	10 - 0	9 - 3	14 - 11	13 - 6	12 - 9	11 - 10	18 - 1	16 - 5	15 - 6	14 - 4
100	15	snow 1.15	360	10 - 10	9 - 10	9 - 3	8 - 7	13 - 10	12 - 7	11 - 10	11 - 0	16 - 10	15 - 3	14 - 4	13 - 4
20	30	snow 1.15	360	18 - 6	16 - 2	14 - 9	13 - 2	23 - 8	20 - 7	18 - 10	16 - 10	28 - 9	25 - 1	22 - 10	20 - 5
25	30	snow 1.15	360	17 - 2	15 - 5	14 - 1	12 - 7	21 - 11	19 - 8	17 - 11	16 - 0	26 - 8	23 - 11	21 - 10	19 - 6
30	30	snow 1.15	360	16 - 2	14 - 8	13 - 5	12 - 0	20 - 8	18 - 9	17 - 2	15 - 4	25 - 1	22 - 10	20 - 11	18 - 8
40	30	snow 1.15	360	14 - 8	13 - 4	12 - 5	11 - 2	18 - 9	17 - 0	15 - 11	14 - 3	22 - 10	20 - 9	19 - 4	17 - 3
60	30	snow 1.15	360	12 - 10	11 - 8	11 - 0	9 - 10	16 - 5	14 - 11	14 - 0	12 - 6	19 - 11	18 - 1	17 - 0	15 - 3
80	30	snow 1.15	360	11 - 8	10 - 7	9 - 11	8 - 11	14 - 11	13 - 6	12 - 8	11 - 4	18 - 1	16 - 5	15 - 5	13 - 9
100	30	snow 1.15	360	10 - 10	9 - 10	9 - 2	8 - 2	13 - 10	12 - 7	11 - 8	10 - 5	16 - 10	15 - 3	14 - 2	12 - 8

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