

TABLE 2308.7.2(1)—continued
RAFTER SPANS FOR COMMON LUMBER SPECIES
 (Roof live load = 20 psf, ceiling not attached to rafters, $L/\Delta = 180$)

| RAFTER SPACING (inches) | SPECIES AND GRADE | | DEAD LOAD = 10 psf | | | | | DEAD LOAD = 20 psf | | | | |
|-------------------------------|-------------------|----|-----------------------------------|-------------|-------------|-------------|-------------|--------------------|-------------|-------------|-------------|-------------|
| | | | 2 × 4 | 2 × 6 | 2 × 8 | 2 × 10 | 2 × 12 | 2 × 4 | 2 × 6 | 2 × 8 | 2 × 10 | 2 × 12 |
| | | | Maximum rafter spans ^a | | | | | | | | | |
| | | | (ft. - in.) | (ft. - in.) | (ft. - in.) | (ft. - in.) | (ft. - in.) | (ft. - in.) | (ft. - in.) | (ft. - in.) | (ft. - in.) | (ft. - in.) |
| 24 | Douglas Fir-Larch | SS | 9-1 | 14-4 | 18-10 | 23-4 | Note b | 8-11 | 13-1 | 16-7 | 20-3 | 23-5 |
| | Douglas Fir-Larch | #1 | 8-7 | 12-6 | 15-10 | 19-5 | 22-6 | 7-5 | 10-10 | 13-9 | 16-9 | 19-6 |
| | Douglas Fir-Larch | #2 | 8-0 | 11-9 | 14-10 | 18-2 | 21-0 | 6-11 | 10-2 | 12-10 | 15-8 | 18-3 |
| | Douglas Fir-Larch | #3 | 6-1 | 8-10 | 11-3 | 13-8 | 15-11 | 5-3 | 7-8 | 9-9 | 11-10 | 13-9 |
| | Hem-Fir | SS | 8-7 | 13-6 | 17-10 | 22-9 | Note b | 8-7 | 12-10 | 16-3 | 19-10 | 23-0 |
| | Hem-Fir | #1 | 8-4 | 12-3 | 15-6 | 18-11 | 21-11 | 7-3 | 10-7 | 13-5 | 16-4 | 19-0 |
| | Hem-Fir | #2 | 7-11 | 11-7 | 14-8 | 17-10 | 20-9 | 6-10 | 10-0 | 12-8 | 15-6 | 17-11 |
| | Hem-Fir | #3 | 6-1 | 8-10 | 11-3 | 13-8 | 15-11 | 5-3 | 7-8 | 9-9 | 11-10 | 13-9 |
| | Southern Pine | SS | 8-11 | 14-1 | 18-6 | 23-8 | Note b | 8-11 | 13-10 | 17-6 | 20-10 | 24-8 |
| | Southern Pine | #1 | 8-7 | 12-9 | 16-2 | 18-11 | 22-6 | 7-5 | 11-1 | 14-0 | 16-5 | 19-6 |
| | Southern Pine | #2 | 7-4 | 11-0 | 13-11 | 16-6 | 19-6 | 6-4 | 9-6 | 12-1 | 14-4 | 16-10 |
| | Southern Pine | #3 | 5-8 | 8-4 | 10-6 | 12-9 | 15-1 | 4-11 | 7-3 | 9-1 | 11-0 | 13-1 |
| | Spruce-Pine-Fir | SS | 8-5 | 13-3 | 17-5 | 21-8 | 25-2 | 8-4 | 12-2 | 15-4 | 18-9 | 21-9 |
| | Spruce-Pine-Fir | #1 | 8-0 | 11-9 | 14-10 | 18-2 | 21-0 | 6-11 | 10-2 | 12-10 | 15-8 | 18-3 |
| | Spruce-Pine-Fir | #2 | 8-0 | 11-9 | 14-10 | 18-2 | 21-0 | 6-11 | 10-2 | 12-10 | 15-8 | 18-3 |
| | Spruce-Pine-Fir | #3 | 6-1 | 8-10 | 11-3 | 13-8 | 15-11 | 5-3 | 7-8 | 9-9 | 11-10 | 13-9 |

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

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

- 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. Where ceiling joists or rafter ties are located higher in the attic space, the rafter spans shall be multiplied by the following factors:

| H_C/H_R | Rafter Span Adjustment Factor |
|---------------|-------------------------------|
| 1/3 | 0.67 |
| 1/4 | 0.76 |
| 1/5 | 0.83 |
| 1/6 | 0.90 |
| 1/7.5 or 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. Span exceeds 26 feet in length.