

SOUTHERN PINE SPAN TABLES

Maximum Spans
given in feet and inches

Table 18 Rafters – 20 psf live load, 20 psf dead load, $\ell/240$, $C_D=1.15$

Heavy roofing; Drywall ceiling; Snow load

| Size inches | Spacing inches on center | Grade | | | | | | | | | |
|----------------|--------------------------------|-------------------------------|----------------------|----------------------------------|----------------|-------|-------------------|----------------|-------|-------------------|-------|
| | | Dense Select Structural | Select Structural | NonDense Select Structural | No. 1 Dense | No. 1 | No. 1 NonDense | No. 2 Dense | No. 2 | No. 2 NonDense | No. 3 |
| 2 x 6 | 12 | 16-4 | 16-1 | 15-9 | 16-1 | 15-9 | 15-6 | 15-7 | 14-5 | 13-10 | 11-2 |
| | 16 | 14-11 | 14-7 | 14-4 | 14-7 | 14-4 | 13-8 | 13-6 | 12-6 | 12-0 | 9-8 |
| | 24 | 13-0 | 12-9 | 12-6 | 12-1 | 11-9 | 11-2 | 11-0 | 10-2 | 9-9 | 7-11 |
| 2 x 8 | 12 | 21-7 | 21-2 | 20-10 | 21-2 | 20-10 | 19-10 | 20-2 | 18-8 | 17-10 | 14-3 |
| | 16 | 19-7 | 19-3 | 18-11 | 18-11 | 18-0 | 17-2 | 17-5 | 16-2 | 15-5 | 12-4 |
| | 24 | 17-2 | 16-10 | 16-6 | 15-5 | 14-9 | 14-0 | 14-3 | 13-2 | 12-7 | 10-1 |
| 2 x 10 | 12 | 26-0* | 26-0* | 26-0* | 26-0* | 24-9 | 23-10 | 23-10 | 22-3 | 21-2 | 16-10 |
| | 16 | 25-0 | 24-7 | 24-1 | 22-8 | 21-5 | 20-7 | 20-7 | 19-3 | 18-4 | 14-7 |
| | 24 | 21-10 | 21-6 | 20-11 | 18-6 | 17-6 | 16-10 | 16-10 | 15-9 | 15-0 | 11-11 |
| 2 x 12 | 12 | 26-0* | 26-0* | 26-0* | 26-0* | 26-0* | 26-0* | 26-0* | 26-0* | 25-1 | 20-0 |
| | 16 | 26-0* | 26-0* | 26-0* | 26-0* | 25-7 | 24-6 | 24-6 | 22-7 | 21-8 | 17-4 |
| | 24 | 26-0* | 25-9 | 24-8 | 21-9 | 20-10 | 20-0 | 20-0 | 18-5 | 17-9 | 14-2 |

Table 19 Rafters – 30 psf live load, 20 psf dead load, $\ell/240$, $C_D=1.15$

Heavy roofing; Drywall ceiling; Snow load

| Size inches | Spacing inches on center | Grade | | | | | | | | | |
|----------------|--------------------------------|-------------------------------|----------------------|----------------------------------|----------------|-------|-------------------|----------------|-------|-------------------|-------|
| | | Dense Select Structural | Select Structural | NonDense Select Structural | No. 1 Dense | No. 1 | No. 1 NonDense | No. 2 Dense | No. 2 | No. 2 NonDense | No. 3 |
| 2 x 6 | 12 | 14-4 | 14-1 | 13-9 | 14-1 | 13-9 | 13-6 | 13-9 | 12-11 | 12-5 | 10-0 |
| | 16 | 13-0 | 12-9 | 12-6 | 12-9 | 12-6 | 12-3 | 12-1 | 11-2 | 10-9 | 8-8 |
| | 24 | 11-4 | 11-2 | 10-11 | 10-10 | 10-6 | 10-0 | 9-10 | 9-1 | 8-9 | 7-1 |
| 2 x 8 | 12 | 18-10 | 18-6 | 18-2 | 18-6 | 18-2 | 17-9 | 18-0 | 16-8 | 15-11 | 12-9 |
| | 16 | 17-2 | 16-10 | 16-6 | 16-10 | 16-2 | 15-4 | 15-7 | 14-5 | 13-10 | 11-0 |
| | 24 | 15-0 | 14-8 | 14-5 | 13-10 | 13-2 | 12-6 | 12-9 | 11-10 | 11-3 | 9-0 |
| 2 x 10 | 12 | 24-1 | 23-8 | 23-2 | 23-5 | 22-2 | 21-4 | 21-4 | 19-11 | 18-11 | 15-1 |
| | 16 | 21-10 | 21-6 | 21-1 | 20-3 | 19-2 | 18-5 | 18-5 | 17-3 | 16-5 | 13-0 |
| | 24 | 19-1 | 18-9 | 18-5 | 16-7 | 15-8 | 15-1 | 15-1 | 14-1 | 13-5 | 10-8 |
| 2 x 12 | 12 | 26-0* | 26-0* | 26-0* | 26-0* | 26-0* | 25-4 | 25-4 | 23-4 | 22-5 | 17-11 |
| | 16 | 26-0* | 26-0* | 25-7 | 23-10 | 22-10 | 21-11 | 21-11 | 20-2 | 19-5 | 15-6 |
| | 24 | 23-3 | 22-10 | 22-1 | 19-5 | 18-8 | 17-11 | 17-11 | 16-6 | 15-10 | 12-8 |

These spans are based on the 1993 AFPA (formerly NFPA) Span Tables for Joists and Rafters and the 1991 SPIB Grading Rules. They are intended for use in covered structures or where the moisture content in use does not exceed 19 percent for an extended period of time. Loading conditions are expressed in psf (pounds per square foot). Deflection is limited to span in inches divided by 240 and is based on live load only. The load duration factor, C_D , is 1.15 for snow loads. Check sources of supply for availability of lumber in lengths greater than 20'-0".

*The listed maximum span has been limited to 26'-0" based on material availability.

These grades are the most commonly available.

SOUTHERN PINE SPAN TABLES

Maximum Spans
given in feet and inches

Table 20 Rafters – 40 psf live load, 20 psf dead load, $\ell/240$, $C_D=1.15$

Heavy roofing; Drywall ceiling; Snow load

| Size inches | Spacing inches on center | Grade | | | | | | | | | |
|----------------|--------------------------------|-------------------------------|----------------------|----------------------------------|----------------|-------|-------------------|----------------|-------|-------------------|-------|
| | | Dense Select Structural | Select Structural | NonDense Select Structural | No. 1 Dense | No. 1 | No. 1 NonDense | No. 2 Dense | No. 2 | No. 2 NonDense | No. 3 |
| 2 x 6 | 12 | 13-0 | 12-9 | 12-6 | 12-9 | 12-6 | 12-3 | 12-6 | 11-9 | 11-4 | 9-1 |
| | 16 | 11-10 | 11-7 | 11-5 | 11-7 | 11-5 | 11-2 | 11-0 | 10-2 | 9-9 | 7-11 |
| | 24 | 10-4 | 10-2 | 9-11 | 9-10 | 9-7 | 9-1 | 9-0 | 8-4 | 8-0 | 6-5 |
| 2 x 8 | 12 | 17-2 | 16-10 | 16-6 | 16-10 | 16-6 | 16-2 | 16-5 | 15-3 | 14-7 | 11-7 |
| | 16 | 15-7 | 15-3 | 15-0 | 15-3 | 14-9 | 14-0 | 14-3 | 13-2 | 12-7 | 10-1 |
| | 24 | 13-7 | 13-4 | 13-1 | 12-7 | 12-0 | 11-5 | 11-7 | 10-9 | 10-3 | 8-3 |
| 2 x 10 | 12 | 21-10 | 21-6 | 21-1 | 21-4 | 20-3 | 19-5 | 19-5 | 18-2 | 17-4 | 13-9 |
| | 16 | 19-10 | 19-6 | 19-2 | 18-6 | 17-6 | 16-10 | 16-10 | 15-9 | 15-0 | 11-11 |
| | 24 | 17-4 | 17-0 | 16-9 | 15-1 | 14-4 | 13-9 | 13-9 | 12-10 | 12-3 | 9-9 |
| 2 x 12 | 12 | 26-0* | 26-0* | 25-7 | 25-1 | 24-1 | 23-1 | 23-1 | 21-4 | 20-5 | 16-4 |
| | 16 | 24-2 | 23-9 | 23-3 | 21-9 | 20-10 | 20-0 | 20-0 | 18-5 | 17-9 | 14-2 |
| | 24 | 21-1 | 20-9 | 20-2 | 17-9 | 17-0 | 16-4 | 16-4 | 15-1 | 14-6 | 11-7 |

Table 21 Rafters – 50 psf live load, 20 psf dead load, $\ell/240$, $C_D=1.15$

Heavy roofing; Drywall ceiling; Snow load

| Size inches | Spacing inches on center | Grade | | | | | | | | | |
|----------------|--------------------------------|-------------------------------|----------------------|----------------------------------|----------------|-------|-------------------|----------------|-------|-------------------|-------|
| | | Dense Select Structural | Select Structural | NonDense Select Structural | No. 1 Dense | No. 1 | No. 1 NonDense | No. 2 Dense | No. 2 | No. 2 NonDense | No. 3 |
| 2 x 6 | 12 | 12-1 | 11-10 | 11-8 | 11-10 | 11-8 | 11-5 | 11-8 | 10-11 | 10-6 | 8-5 |
| | 16 | 11-0 | 10-9 | 10-7 | 10-9 | 10-7 | 10-4 | 10-2 | 9-5 | 9-1 | 7-4 |
| | 24 | 9-7 | 9-5 | 9-3 | 9-1 | 8-10 | 8-5 | 8-4 | 7-9 | 7-5 | 6-0 |
| 2 x 8 | 12 | 15-11 | 15-7 | 15-4 | 15-7 | 15-4 | 15-0 | 15-3 | 14-1 | 13-6 | 10-9 |
| | 16 | 14-5 | 14-2 | 13-11 | 14-2 | 13-8 | 13-0 | 13-2 | 12-3 | 11-8 | 9-4 |
| | 24 | 12-7 | 12-5 | 12-2 | 11-8 | 11-2 | 10-7 | 10-9 | 10-0 | 9-6 | 7-7 |
| 2 x 10 | 12 | 20-3 | 19-11 | 19-7 | 19-9 | 18-9 | 18-0 | 18-0 | 16-10 | 16-0 | 12-9 |
| | 16 | 18-5 | 18-1 | 17-9 | 17-2 | 16-3 | 15-7 | 15-7 | 14-7 | 13-11 | 11-0 |
| | 24 | 16-1 | 15-10 | 15-6 | 14-0 | 13-3 | 12-9 | 12-9 | 11-11 | 11-4 | 9-0 |
| 2 x 12 | 12 | 24-8 | 24-3 | 23-9 | 23-3 | 22-4 | 21-5 | 21-5 | 19-9 | 18-11 | 15-2 |
| | 16 | 22-5 | 22-0 | 21-7 | 20-1 | 19-4 | 18-6 | 18-6 | 17-1 | 16-5 | 13-1 |
| | 24 | 19-7 | 19-3 | 18-8 | 16-5 | 15-9 | 15-2 | 15-2 | 13-11 | 13-5 | 10-8 |

These spans are based on the 1993 AFPA (formerly NFPA) Span Tables for Joists and Rafters and the 1991 SPIB Grading Rules. They are intended for use in covered structures or where the moisture content in use does not exceed 19 percent for an extended period of time. Loading conditions are expressed in psf (pounds per square foot). Deflection is limited to span in inches divided by 240 and is based on live load only. The load duration factor, C_D , is 1.15 for snow loads. Check sources of supply for availability of lumber in lengths greater than 20'-0".

*The listed maximum span has been limited to 26'-0" based on material availability.

These grades are the most commonly available.