

SOUTHERN PINE SPAN TABLES

Maximum Spans
given in feet and inches

Table 38 Rafters – 20 psf live load, 15 psf dead load, $\ell/180$, $C_D=1.25$

Medium roofing; No finished ceiling; Construction load

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

Table 39 Rafters – 20 psf live load, 20 psf dead load, $\ell/180$, $C_D=1.25$

Heavy roofing; No finished ceiling; Construction load

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

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 180 and is based on live load only. The load duration factor, C_D , is 1.25 for construction 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 40 Wet-Service Floor Joists – 40 psf live load, 10 psf dead load, $\ell/360$

Decks; Moisture content exceeds 19%

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

Table 41 Wet-Service Floor Joists – 60 psf live load, 10 psf dead load, $\ell/360$

Decks; Moisture content exceeds 19%

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

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 to apply where the moisture content in use will 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 360 and is based on live load only. Check sources of supply for availability of lumber in lengths greater than 20'-0".

These grades are the most commonly available.