

SOUTHERN PINE SPAN TABLES

Maximum Spans
given in feet and inches

Table 30 Rafters – 20 psf live load, 20 psf dead load, $\ell/180$, $C_D=1.15$

Heavy roofing; No finished ceiling; Snow load

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

Table 31 Rafters – 30 psf live load, 20 psf dead load, $\ell/180$, $C_D=1.15$

Heavy roofing; No finished ceiling; Snow load

Size inches	Spacing inches on center	Grade											
		Dense Select Structural	Select Structural	NonDense Select Structural	No. 1 Dense	No. 1 NonDense	No. 1 Dense	No. 1 NonDense	No. 2 Dense	No. 2 NonDense	No. 2 Dense	No. 2 NonDense	No. 3
2 x 4	12	10-0	9-10	9-8	9-10	9-8	9-6	9-7	9-0	8-7	6-9	5-10	
	16	9-1	8-11	8-9	8-11	8-8	8-4	8-4	7-9	7-5	5-10	5-0	
	24	7-11	7-10	7-8	7-4	7-1	6-9	6-9	6-4	6-1	4-9	4-1	
2 x 6	12	15-9	15-6	15-2	15-3	14-10	14-2	13-11	12-11	12-5	10-0		
	16	14-4	14-1	13-9	13-3	12-10	12-3	12-1	11-2	10-9	8-8		
	24	12-6	12-3	12-0	10-10	10-6	10-0	9-10	9-1	8-9	7-1		
2 x 8	12	20-9	20-5	20-0	19-7	18-8	17-9	18-0	16-8	15-11	12-9		
	16	18-10	18-6	18-2	16-11	16-2	15-4	15-7	14-5	13-10	11-0		
	24	16-6	16-2	15-7	13-10	13-2	12-6	12-9	11-10	11-3	9-0		
2 x 10	12	26-0*	26-0	25-6	23-5	22-2	21-4	21-4	19-11	18-11	15-1		
	16	24-1	23-8	22-11	20-3	19-2	18-5	18-5	17-3	16-5	13-0		
	24	20-1	19-8	18-8	16-7	15-8	15-1	15-1	14-1	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 180 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 32 Rafters – 40 psf live load, 20 psf dead load, $\ell/180$, $C_D=1.15$

Heavy roofing; No finished ceiling; Snow load

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

Table 33 Rafters – 50 psf live load, 20 psf dead load, $\ell/180$, $C_D=1.15$

Heavy roofing; No finished ceiling; Snow load

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

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 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 1.15 for snow loads. Check sources of supply for availability of lumber in lengths greater than 20'-0".

These grades are the most commonly available.