

SOUTHERN PINE REFERENCE DESIGN VALUES

Based on SPIB Grading Rules and AWC National Design Specification®
Values in pounds per square inch (psi)

Table 1 Dimension Lumber – 2" to 4" thick, 2" and wider

New Design Values
Effective June 1, 2012

Based on Normal Load Duration and Dry Service ($MC \leq 19\%$) — See Tables A-1 thru A-4 for Adjustment Factors



Size	Grade	Bending	Tension	Shear	Compression	Compression	Modulus of Elasticity	
		F_b	Parallel to Grain F_t	Parallel to Grain F_v	Perpendicular to Grain $F_{c\perp}$	Parallel to Grain F_c	E	E_{min}
2" to 4" thick, 2" to 4" wide Includes: 2x2 2x3 2x4 3x3 3x4 4x4	Dense Select Structural	3050	1650	175	660	2250	1,900,000	690,000
	Select Structural	2850	1600	175	565	2100	1,800,000	660,000
	NonDense Select Struc	2650	1350	175	480	1950	1,700,000	620,000
	No.1 Dense	2000	1100	175	660	2000	1,800,000	660,000
	No.1	1850	1050	175	565	1850	1,700,000	620,000
	No.1 NonDense	1700	900	175	480	1700	1,600,000	580,000
	No.2 Dense	1150	750	175	660	1250	1,500,000	550,000
	No.2	1050	650	175	565	1100	1,400,000	510,000
	No.2 NonDense	975	575	175	480	1050	1,200,000	440,000
	No.3 and Stud	600	375	175	565	625	1,200,000	440,000
	Construction	800	500	175	565	1150	1,300,000	470,000
	Standard	450	275	175	565	950	1,200,000	440,000
	Utility ¹	200	125	175	565	625	1,100,000	400,000
2" to 4" thick, 5" to 6" wide Includes: 2x5 2x6 3x5 3x6 4x5 4x6	Dense Select Structural	2700	1500	175	660	2150	1,900,000	690,000
	Select Structural	2550	1400	175	565	2000	1,800,000	660,000
	NonDense Select Struc	2350	1200	175	480	1850	1,700,000	620,000
	No.1 Dense	1750	950	175	660	1900	1,800,000	660,000
	No.1	1650	900	175	565	1750	1,700,000	620,000
	No.1 NonDense	1500	800	175	480	1600	1,600,000	580,000
	No.2 Dense	1450	775	175	660	1750	1,700,000	620,000
	No.2	1250	725	175	565	1600	1,600,000	580,000
	No.2 NonDense	1150	675	175	480	1500	1,400,000	510,000
	No.3 and Stud	750	425	175	565	925	1,400,000	510,000
2" to 4" thick, 8" wide Includes: 2x8 3x8 4x8 ²	Dense Select Structural	2450	1350	175	660	2050	1,900,000	690,000
	Select Structural	2300	1300	175	565	1900	1,800,000	660,000
	NonDense Select Struc	2100	1100	175	480	1750	1,700,000	620,000
	No.1 Dense	1650	875	175	660	1800	1,800,000	660,000
	No.1	1500	825	175	565	1650	1,700,000	620,000
	No.1 NonDense	1350	725	175	480	1550	1,600,000	580,000
	No.2 Dense	1400	675	175	660	1700	1,700,000	620,000
	No.2	1200	650	175	565	1550	1,600,000	580,000
	No.2 NonDense	1100	600	175	480	1450	1,400,000	510,000
	No.3 and Stud	700	400	175	565	875	1,400,000	510,000
2" to 4" thick, 10" wide Includes: 2x10 3x10 4x10 ²	Dense Select Structural	2150	1200	175	660	2000	1,900,000	690,000
	Select Structural	2050	1100	175	565	1850	1,800,000	660,000
	NonDense Select Struc	1850	950	175	480	1750	1,700,000	620,000
	No.1 Dense	1450	775	175	660	1750	1,800,000	660,000
	No.1	1300	725	175	565	1600	1,700,000	620,000
	No.1 NonDense	1200	650	175	480	1500	1,600,000	580,000
	No.2 Dense	1200	625	175	660	1650	1,700,000	620,000
	No.2	1050	575	175	565	1500	1,600,000	580,000
	No.2 NonDense	950	550	175	480	1400	1,400,000	510,000
	No.3 and Stud	600	325	175	565	850	1,400,000	510,000
2" to 4" thick, 12" wide³ Includes: 2x12 3x12 4x12 ²	Dense Select Structural	2050	1100	175	660	1950	1,900,000	690,000
	Select Structural	1900	1050	175	565	1800	1,800,000	660,000
	NonDense Select Struc	1750	900	175	480	1700	1,700,000	620,000
	No.1 Dense	1350	725	175	660	1700	1,800,000	660,000
	No.1	1250	675	175	565	1600	1,700,000	620,000
	No.1 NonDense	1150	600	175	480	1500	1,600,000	580,000
	No.2 Dense	1150	575	175	660	1600	1,700,000	620,000
	No.2	975	550	175	565	1450	1,600,000	580,000
	No.2 NonDense	900	525	175	480	1350	1,400,000	510,000
	No.3 and Stud	575	325	175	565	825	1,400,000	510,000

(1) For Utility, the F_b , F_t and F_c values apply to 4" wide lumber only.
 (2) For lumber 4" thick and 8" or wider, multiply the F_b value by $C_F = 1.1$.
 (3) For lumber wider than 12", multiply these 12" width values by $C_F = .90$ for F_b , F_t , and F_c values.

Effective June 1, 2012