

# Framing Lumber

## BEAMS & STRINGERS DESIGN VALUES<sup>1</sup>

Table 4

5" and thicker, width more than 2" greater than thickness<sup>2</sup>

Grades described in Sections 53.00 and 70.00 of *Western Lumber Grading Rules*

Species or Group	Grade	Extreme Fiber Stress in Bending	Tension Parallel to Grain	Horizontal Shear <sup>3</sup>	Compression		Modulus of Elasticity <i>E</i>
		Single Member <i>F<sub>b</sub></i>	<i>F<sub>t</sub></i>		Perpendicular <i>F<sub>c⊥</sub></i>	Parallel to Grain <i>F<sub>c</sub></i>	
Douglas Fir-Larch	Dense Select Structural	1900	1100	170	730	1300	1,700,000
	Dense No. 1	1550	775	170	730	1100	1,700,000
	Dense No. 2	1000	500	170	730	700	1,400,000
	Select Structural	1600	950	170	625	1100	1,600,000
	No. 1	1350	675	170	625	925	1,600,000
No. 2	875	425	170	625	600	1,300,000	
Douglas Fir-South	Select Structural	1550	900	165	520	1000	1,200,000
	No. 1	1300	625	165	520	850	1,200,000
	No. 2	825	425	165	520	550	1,000,000
Hem-Fir	Select Structural	1300	750	140	405	925	1,300,000
	No. 1	1050	525	140	405	750	1,300,000
	No. 2	675	350	140	405	500	1,100,000
Mountain Hemlock	Select Structural	1350	775	170	570	875	1,100,000
	No. 1	1100	550	170	570	725	1,100,000
	No. 2	725	375	170	570	475	900,000
Sitka Spruce	Select Structural	1200	675	140	435	825	1,300,000
	No. 1	1000	500	140	435	675	1,300,000
	No. 2	650	325	140	435	450	1,100,000
Spruce-Pine-Fir (South)	Select Structural	1050	625	125	335	675	1,200,000
	No. 1	900	450	125	335	550	1,200,000
	No. 2	575	300	125	335	375	1,000,000
Western Cedars	Select Structural	1150	675	140	425	875	1,000,000
	No. 1	975	475	140	425	725	1,000,000
	No. 2	625	325	140	425	475	800,000
Western Hemlock	Select Structural	1400	825	170	410	1000	1,400,000
	No. 1	1150	575	170	410	850	1,400,000
	No. 2	750	375	170	410	550	1,100,000
Western Woods (and White Woods)	Select Structural	1050	625	125	345	750	1,100,000
	No. 1	900	450	125	345	625	1,100,000
	No. 2	575	300	125	345	425	900,000

<sup>1</sup> Design Values in pounds per square inch. See Sections 100.00 through 180.00 in the *Western Lumber Grading Rules* for additional information on these values.

<sup>2</sup> When the depth of a sawn lumber member exceeds 12 inches, the design value for extreme fiber stress in bending (*F<sub>b</sub>*) shall be multiplied by the size factor in Table J.

<sup>3</sup> All horizontal shear values are assigned in accordance with ASTM standards, which include a reduction to compensate for any degree of shake, check or split that might develop in a piece.

## POSTS & TIMBERS DESIGN VALUES<sup>1</sup>

Table 5

5" × 5" and larger, width not more than 2" greater than thickness<sup>2</sup>

Grades described in Sections 53.00 and 80.00 of *Western Lumber Grading Rules*

Species or Group	Grade	Extreme Fiber Stress in Bending	Tension Parallel to Grain	Horizontal Shear <sup>3</sup>	Compression		Modulus of Elasticity <i>E</i>
		Single Member <i>F<sub>b</sub></i>	<i>F<sub>t</sub></i>		Perpendicular <i>F<sub>c⊥</sub></i>	Parallel to Grain <i>F<sub>c</sub></i>	
Douglas Fir-Larch	Dense Select Structural	1750	1150	170	730	1350	1,700,000
	Dense No. 1	1400	950	170	730	1200	1,700,000
	Dense No. 2	850	550	170	730	825	1,400,000
	Select Structural	1500	1000	170	625	1150	1,600,000
	No. 1	1200	825	170	625	1000	1,600,000
No. 2	750	475	170	625	700	1,300,000	
Douglas Fir-South	Select Structural	1450	950	165	520	1050	1,200,000
	No. 1	1150	775	165	520	925	1,200,000
	No. 2	675	450	165	520	650	1,000,000
Hem-Fir	Select Structural	1200	800	140	405	975	1,300,000
	No. 1	975	650	140	405	850	1,300,000
	No. 2	575	375	140	405	575	1,100,000
Mountain Hemlock	Select Structural	1250	825	170	570	925	1,100,000
	No. 1	1000	675	170	570	800	1,100,000
	No. 2	625	400	170	570	550	900,000
Sitka Spruce	Select Structural	1150	750	140	435	875	1,300,000
	No. 1	925	600	140	435	750	1,300,000
	No. 2	550	350	140	435	525	1,100,000
Spruce-Pine-Fir (South)	Select Structural	1000	675	125	335	700	1,200,000
	No. 1	875	550	125	335	625	1,200,000
	No. 2	475	325	125	335	425	1,000,000
Western Cedars	Select Structural	1100	725	140	425	925	1,000,000
	No. 1	875	600	140	425	800	1,000,000
	No. 2	550	350	140	425	550	800,000
Western Hemlock	Select Structural	1300	875	170	410	1100	1,400,000
	No. 1	1050	700	170	410	950	1,400,000
	No. 2	650	425	170	410	650	1,100,000
Western Woods (and White Woods)	Select Structural	1000	675	125	345	800	1,100,000
	No. 1	800	525	125	345	700	1,100,000
	No. 2	475	325	125	345	475	900,000

<sup>1</sup> Design Values in pounds per square inch. See Sections 100.00 through 180.00 in the *Western Lumber Grading Rules* for additional information on these values.

<sup>2</sup> When the depth of a sawn lumber member exceeds 12 inches, the design value for extreme fiber stress in bending (*F<sub>b</sub>*) shall be multiplied by the size factor in Table J.

<sup>3</sup> All horizontal shear values are assigned in accordance with ASTM standards, which include a reduction to compensate for any degree of shake, check or split that might develop in a piece.