



September 2021

ADDENDUM
to the 2021 and previous versions of
DESIGN VALUES FOR JOISTS AND RAFTERS
(a supplement to Span Tables for Joists and Rafters)

<u>Page</u>	<u>Revision</u>
21	Add new design values to TABLE W-1 for Non-North American Visually Graded Dimension Lumber (from Table 4F 2018 NDS Supplement) and for Multi-Species and Country Graded Visually Graded Dimension Lumber (from new Table 4G per the Addendum to the 2018 NDS Supplement).

TABLE W-1 DESIGN VALUES FOR JOISTS AND RAFTERS - NON-NORTH AMERICAN VISUALLY GRADED LUMBER^{1,2}

These F_b values are for use where repetitive members are spaced not more than 24 inches. For wider spacing, F_b values shall be reduced 13%.

Values for surfaced dry or surfaced green lumber apply at 19% maximum moisture content in use.

Species and Grade	Size	Design Value in Bending, F_b			Compression perpendicular to grain, $F_{c\perp}$	Modulus of Elasticity, E	Grading Rules Agency
		Normal Duration	Snow Loading	7-Day Loading			
AUSTRIAN SPRUCE - Austria & The Czech Republic							
Select Structural	2x4	2,590	2,975	3,235	260	1,700,000	WCLIB
No. 1		1,725	1,985	2,155	260	1,600,000	
No. 2		1,595	1,835	1,995	260	1,500,000	
No. 3		905	1,040	1,130	260	1,300,000	
Stud		915	1,055	1,145	260	1,300,000	
Construction		1,210	1,390	1,510	260	1,400,000	
Standard		660	760	825	260	1,300,000	
Utility		315	365	395	260	1,200,000	
Select Structural		2x6	2,245	2,580	2,805	260	
No. 1	1,495		1,720	1,870	260	1,600,000	
No. 2	1,385		1,590	1,730	260	1,500,000	
No. 3	785		905	980	260	1,300,000	
Stud	835	960	1,040	260	1,300,000		
Select Structural	2x8	2,070	2,380	2,590	260	1,700,000	
No. 1		1,380	1,585	1,725	260	1,600,000	
No. 2		1,275	1,470	1,595	260	1,500,000	
No. 3		725	835	905	260	1,300,000	
Select Structural	2x10	1,900	2,180	2,370	260	1,700,000	
No. 1		1,265	1,455	1,580	260	1,600,000	
No. 2		1,170	1,345	1,465	260	1,500,000	
No. 3		665	765	830	260	1,300,000	
Select Structural	2x12	1,725	1,985	2,155	260	1,700,000	
No. 1		1,150	1,325	1,440	260	1,600,000	
No. 2		1,065	1,225	1,330	260	1,500,000	
No. 3		605	695	755	260	1,300,000	
DOUGLAS FIR - France & Germany							
Select Structural	2x4	2,590	2,975	3,235	540	1,900,000	WCLIB
No. 1		1,680	1,935	2,100	540	1,700,000	
No. 2		1,425	1,635	1,780	540	1,500,000	
No. 3		820	940	1,025	540	1,300,000	
Stud		820	945	1,030	540	1,300,000	
Construction		1,065	1,225	1,330	540	1,400,000	
Standard		605	695	755	540	1,300,000	
Utility		290	330	360	540	1,200,000	
Select Structural		2x6	2,245	2,580	2,805	540	
No. 1	1,460		1,675	1,820	540	1,700,000	
No. 2	1,235		1,420	1,540	540	1,500,000	
No. 3	710		815	890	540	1,300,000	
Stud	750	860	935	540	1,300,000		
Select Structural	2x8	2,070	2,380	2,590	540	1,900,000	
No. 1		1,345	1,545	1,680	540	1,700,000	
No. 2		1,140	1,310	1,425	540	1,500,000	
No. 3		655	755	820	540	1,300,000	
Select Structural	2x10	1,900	2,180	2,370	540	1,900,000	
No. 1		1,235	1,420	1,540	540	1,700,000	
No. 2		1,045	1,200	1,305	540	1,500,000	
No. 3		600	690	750	540	1,300,000	
Select Structural	2x12	1,725	1,985	2,155	540	1,900,000	
No. 1		1,120	1,290	1,400	540	1,700,000	
No. 2		950	1,090	1,185	540	1,500,000	
No. 3		545	630	685	540	1,300,000	

TABLE W-1 DESIGN VALUES FOR JOISTS AND RAFTERS - NON-NORTH AMERICAN VISUALLY GRADED LUMBER^{1,2}

These F_b values are for use where repetitive members are spaced not more than 24 inches. For wider spacing, F_b values shall be reduced 13%.

Values for surfaced dry or surfaced green lumber apply at 19% maximum moisture content in use.

Species and Grade	Size	Design Value in Bending, F_b			Compression perpendicular to grain, $F_{c\perp}$	Modulus of Elasticity, E	Grading Rules Agency
		Normal Duration	Snow Loading	7-Day Loading			
DOUGLAS FIR/EUROPEAN LARCH - Austria, The Czech Republic, & Bavaria³							
Select Structural	2x4	2,185	2,515	2,730	440	1,800,000	WCLIB
No. 1		1,610	1,850	2,015	440	1,700,000	
No. 2		1,555	1,785	1,940	440	1,600,000	
No. 3		890	1,025	1,115	440	1,400,000	
Stud		920	1,060	1,150	440	1,400,000	
Construction		1,150	1,325	1,440	440	1,500,000	
Standard		660	760	825	440	1,300,000	
Utility		315	365	395	440	1,300,000	
MONTANE PINE - South Africa							
Select Structural	2x4	1,680	1,935	2,100	325	1,300,000	WCLIB
No. 1		1,120	1,290	1,400	325	1,100,000	
No. 2		1,035	1,190	1,295	325	1,000,000	
No. 3		605	695	755	325	900,000	
Stud		600	690	750	325	900,000	
Construction		775	895	970	325	900,000	
Standard		430	495	540	325	800,000	
Utility		200	230	250	325	800,000	
Select Structural	2x6	1,460	1,675	1,820	325	1,300,000	WCLIB
No. 1		970	1,120	1,215	325	1,100,000	
No. 2		895	1,030	1,120	325	1,000,000	
No. 3		525	600	655	325	900,000	
Stud		545	630	685	325	900,000	
Select Structural	2x8	1,345	1,545	1,680	325	1,300,000	
No. 1		895	1,030	1,120	325	1,100,000	
No. 2		830	950	1,035	325	1,000,000	
No. 3		485	555	605	325	900,000	
Select Structural	2x10	1,235	1,420	1,540	325	1,300,000	
No. 1		820	945	1,030	325	1,100,000	
No. 2		760	875	950	325	1,000,000	
No. 3		445	510	555	325	900,000	
Select Structural	2x12	1,120	1,290	1,400	325	1,300,000	
No. 1		750	860	935	325	1,100,000	
No. 2		690	795	865	325	1,000,000	
No. 3		405	465	505	325	900,000	

TABLE W-1 DESIGN VALUES FOR JOISTS AND RAFTERS - NON-NORTH AMERICAN VISUALLY GRADED LUMBER^{1,2}

These F_b values are for use where repetitive members are spaced not more than 24 inches. For wider spacing, F_b values shall be reduced 13%.

Values for surfaced dry or surfaced green lumber apply at 19% maximum moisture content in use.

Species and Grade	Size	Design Value in Bending, F_b			Compression perpendicular to grain, $F_{c\perp}$	Modulus of Elasticity, E	Grading Rules Agency
		Normal Duration	Snow Loading	7-Day Loading			
NORWAY SPRUCE - Estonia, Latvia, & Lithuania							
Select Structural	2x4	2,070	2,380	2,590	430	1,600,000	WCLIB
No. 1		1,465	1,685	1,835	430	1,400,000	
No. 2		1,380	1,585	1,725	430	1,300,000	
No. 3		775	895	970	430	1,100,000	
Stud		790	910	990	430	1,100,000	
Construction Standard		1,035	1,190	1,295	430	1,200,000	
Utility		575	660	720	430	1,100,000	
Utility		290	330	360	430	1,000,000	
Select Structural	2x6	1,795	2,065	2,245	430	1,600,000	
No. 1		1,270	1,460	1,590	430	1,400,000	
No. 2		1,195	1,375	1,495	430	1,300,000	
No. 3		675	775	840	430	1,100,000	
Stud		720	825	900	430	1,100,000	
Select Structural	2x8	1,655	1,905	2,070	430	1,600,000	
No. 1		1,175	1,350	1,465	430	1,400,000	
No. 2		1,105	1,270	1,380	430	1,300,000	
No. 3		620	715	775	430	1,100,000	
Select Structural	2x10	1,520	1,745	1,900	430	1,600,000	
No. 1		1,075	1,235	1,345	430	1,400,000	
No. 2		1,010	1,165	1,265	430	1,300,000	
No. 3		570	655	710	430	1,100,000	
Select Structural	2x12	1,380	1,585	1,725	430	1,600,000	
No. 1		980	1,125	1,220	430	1,400,000	
No. 2		920	1,060	1,150	430	1,300,000	
No. 3		520	595	645	430	1,100,000	
NORWAY SPRUCE - Finland							
Select Structural	2x4	2,330	2,680	2,910	220	1,500,000	
No. 1		1,465	1,685	1,835	220	1,400,000	
No. 2		1,080	1,240	1,350	220	1,200,000	
No. 3		645	745	810	220	1,100,000	
Stud		725	835	910	220	1,100,000	
Construction Standard		835	960	1,040	220	1,100,000	
Utility		460	530	575	220	1,000,000	
Utility		230	265	290	220	1,000,000	
Select Structural	2x6	2,020	2,320	2,525	220	1,500,000	
No. 1		1,270	1,460	1,590	220	1,400,000	
No. 2		935	1,075	1,170	220	1,200,000	
No. 3		560	645	700	220	1,100,000	
Stud		660	760	825	220	1,100,000	
Select Structural	2x8	1,865	2,140	2,330	220	1,500,000	
No. 1		1,175	1,350	1,465	220	1,400,000	
No. 2		865	990	1,080	220	1,200,000	
No. 3		520	595	645	220	1,100,000	
Select Structural	2x10	1,710	1,965	2,135	220	1,500,000	
No. 1		1,075	1,235	1,345	220	1,400,000	
No. 2		790	910	990	220	1,200,000	
No. 3		475	545	595	220	1,100,000	
Select Structural	2x12	1,555	1,785	1,940	220	1,500,000	
No. 1		980	1,125	1,220	220	1,400,000	
No. 2		720	825	900	220	1,200,000	
No. 3		430	495	540	220	1,100,000	

TABLE W-1 DESIGN VALUES FOR JOISTS AND RAFTERS - NON-NORTH AMERICAN VISUALLY GRADED LUMBER^{1,2}

These F_b values are for use where repetitive members are spaced not more than 24 inches. For wider spacing, F_b values shall be reduced 13%.

Values for surfaced dry or surfaced green lumber apply at 19% maximum moisture content in use.

Species and Grade	Size	Design Value in Bending, F_b			Compression perpendicular to grain, $F_{c\perp}$	Modulus of Elasticity, E	Grading Rules Agency
		Normal Duration	Snow Loading	7-Day Loading			
NORWAY SPRUCE - Germany, NE France, & Switzerland							
Select Structural	2x4	2,070	2,380	2,590	355	1,600,000	WCLIB
No. 1		1,425	1,635	1,780	355	1,400,000	
No. 2		1,250	1,440	1,565	355	1,200,000	
No. 3		735	845	915	355	1,100,000	
Stud		725	835	910	355	1,100,000	
Construction		950	1,090	1,185	355	1,100,000	
Standard		545	630	685	355	1,000,000	
Utility		260	300	325	355	900,000	
Select Structural	2x6	1,795	2,065	2,245	355	1,600,000	
No. 1		1,235	1,420	1,540	355	1,400,000	
No. 2		1,085	1,245	1,355	355	1,200,000	
No. 3		635	730	795	355	1,100,000	
Stud	660	760	825	355	1,100,000		
Select Structural	2x8	1,655	1,905	2,070	355	1,600,000	
No. 1		1,140	1,310	1,425	355	1,400,000	
No. 2		1,000	1,150	1,250	355	1,200,000	
No. 3	585	675	735	355	1,100,000		
Select Structural	2x10	1,520	1,745	1,900	355	1,600,000	
No. 1		1,045	1,200	1,305	355	1,400,000	
No. 2		915	1,055	1,145	355	1,200,000	
No. 3	540	620	670	355	1,100,000		
Select Structural	2x12	1,380	1,585	1,725	355	1,600,000	
No. 1		950	1,090	1,185	355	1,400,000	
No. 2		835	960	1,040	355	1,200,000	
No. 3	490	560	610	355	1,100,000		
NORWAY SPRUCE - Norway							
Select Structural	2x4	2,675	3,075	3,340	360	1,800,000	WCLIB
No. 1		1,725	1,985	2,155	360	1,500,000	
No. 2		1,380	1,585	1,725	360	1,300,000	
No. 3		820	940	1,025	360	1,200,000	
Stud		790	910	990	360	1,200,000	
Construction		1,065	1,225	1,330	360	1,200,000	
Standard		605	695	755	360	1,100,000	
Utility		290	330	360	360	1,000,000	
Select Structural	2x6	2,315	2,665	2,895	360	1,800,000	
No. 1		1,495	1,720	1,870	360	1,500,000	
No. 2		1,195	1,375	1,495	360	1,300,000	
No. 3		710	815	890	360	1,200,000	
Stud	720	825	900	360	1,200,000		
Select Structural	2x8	2,140	2,460	2,675	360	1,800,000	
No. 1		1,380	1,585	1,725	360	1,500,000	
No. 2		1,105	1,270	1,380	360	1,300,000	
No. 3	655	755	820	360	1,200,000		
Select Structural	2x10	1,960	2,255	2,450	360	1,800,000	
No. 1		1,265	1,455	1,580	360	1,500,000	
No. 2		1,010	1,165	1,265	360	1,300,000	
No. 3	600	690	750	360	1,200,000		
Select Structural	2x12	1,785	2,050	2,230	360	1,800,000	
No. 1		1,150	1,325	1,440	360	1,500,000	
No. 2		920	1,060	1,150	360	1,300,000	
No. 3	545	630	685	360	1,200,000		

TABLE W-1 DESIGN VALUES FOR JOISTS AND RAFTERS - NON-NORTH AMERICAN VISUALLY GRADED LUMBER^{1,2}

These F_b values are for use where repetitive members are spaced not more than 24 inches. For wider spacing, F_b values shall be reduced 13%.

Values for surfaced dry or surfaced green lumber apply at 19% maximum moisture content in use.

Species and Grade	Size	Design Value in Bending, F_b			Compression perpendicular to grain, $F_{c\perp}$	Modulus of Elasticity, E	Grading Rules Agency
		Normal Duration	Snow Loading	7-Day Loading			
NORWAY SPRUCE - Romania & Ukraine							
Select Structural	2x4	2,155	2,480	2,695	275	1,500,000	WCLIB
No. 1		1,465	1,685	1,835	275	1,400,000	
No. 2		1,295	1,490	1,615	275	1,200,000	
No. 3		735	845	915	275	1,100,000	
Stud		725	835	910	275	1,100,000	
Construction Standard		980	1,125	1,220	275	1,100,000	
Utility		545	630	685	275	1,000,000	
Utility		260	300	325	275	1,000,000	
Select Structural	2x6	1,870	2,150	2,335	275	1,500,000	
No. 1		1,270	1,460	1,590	275	1,400,000	
No. 2		1,120	1,290	1,400	275	1,200,000	
No. 3		635	730	795	275	1,100,000	
Stud	660	760	825	275	1,100,000		
Select Structural	2x8	1,725	1,985	2,155	275	1,500,000	
No. 1		1,175	1,350	1,465	275	1,400,000	
No. 2		1,035	1,190	1,295	275	1,200,000	
No. 3		585	675	735	275	1,100,000	
Select Structural	2x10	1,580	1,820	1,975	275	1,500,000	
No. 1		1,075	1,235	1,345	275	1,400,000	
No. 2		950	1,090	1,185	275	1,200,000	
No. 3		540	620	670	275	1,100,000	
Select Structural	2x12	1,440	1,655	1,795	275	1,500,000	
No. 1		980	1,125	1,220	275	1,400,000	
No. 2		865	990	1,080	275	1,200,000	
No. 3		490	560	610	275	1,100,000	
NORWAY SPRUCE - Sweden							
Select Structural	2x4	2,155	2,480	2,695	285	1,600,000	WCLIB
No. 1		1,425	1,635	1,780	285	1,400,000	
No. 2		1,165	1,340	1,455	285	1,200,000	
No. 3		690	795	865	285	1,100,000	
Stud		695	800	870	285	1,100,000	
Construction Standard		890	1,025	1,115	285	1,200,000	
Utility		490	560	610	285	1,100,000	
Utility		230	265	290	285	1,000,000	
Select Structural	2x6	1,870	2,150	2,335	285	1,600,000	
No. 1		1,235	1,420	1,540	285	1,400,000	
No. 2		1,010	1,160	1,260	285	1,200,000	
No. 3		600	690	750	285	1,100,000	
Stud	635	725	790	285	1,100,000		
Select Structural	2x8	1,725	1,985	2,155	285	1,600,000	
No. 1		1,140	1,310	1,425	285	1,400,000	
No. 2		930	1,070	1,165	285	1,200,000	
No. 3		550	635	690	285	1,100,000	
Select Structural	2x10	1,580	1,820	1,975	285	1,600,000	
No. 1		1,045	1,200	1,305	285	1,400,000	
No. 2		855	980	1,065	285	1,200,000	
No. 3		505	580	635	285	1,100,000	
Select Structural	2x12	1,440	1,655	1,795	285	1,600,000	
No. 1		950	1,090	1,185	285	1,400,000	
No. 2		775	895	970	285	1,200,000	
No. 3		460	530	575	285	1,100,000	

TABLE W-1 DESIGN VALUES FOR JOISTS AND RAFTERS - NON-NORTH AMERICAN VISUALLY GRADED LUMBER^{1,2}

These F_b values are for use where repetitive members are spaced not more than 24 inches. For wider spacing, F_b values shall be reduced 13%.

Values for surfaced dry or surfaced green lumber apply at 19% maximum moisture content in use.

Species and Grade	Size	Design Value in Bending, F_b			Compression perpendicular to grain, $F_{c\perp}$	Modulus of Elasticity, E	Grading Rules Agency
		Normal Duration	Snow Loading	7-Day Loading			
SCOTS PINE - Austria & The Czech Republic, Romania, & Ukraine							
Select Structural	2x4	2,245	2,580	2,805	270	1,700,000	WCLIB
No. 1		1,555	1,785	1,940	270	1,600,000	
No. 2		1,335	1,535	1,670	270	1,400,000	
No. 3		775	895	970	270	1,300,000	
Stud		760	875	950	270	1,300,000	
Construction Standard		1,005	1,155	1,260	270	1,300,000	
Utility		575	660	720	270	1,200,000	
Utility		260	300	325	270	1,100,000	
Select Structural	2x6	1,945	2,235	2,430	270	1,700,000	
No. 1		1,345	1,545	1,680	270	1,600,000	
No. 2		1,160	1,330	1,450	270	1,400,000	
No. 3		675	775	840	270	1,300,000	
Stud	690	795	865	270	1,300,000		
Select Structural	2x8	1,795	2,065	2,245	270	1,700,000	
No. 1		1,240	1,430	1,555	270	1,600,000	
No. 2		1,070	1,230	1,335	270	1,400,000	
No. 3		620	715	775	270	1,300,000	
Select Structural	2x10	1,645	1,890	2,055	270	1,700,000	
No. 1		1,140	1,310	1,425	270	1,600,000	
No. 2		980	1,125	1,225	270	1,400,000	
No. 3		570	655	710	270	1,300,000	
Select Structural	2x12	1,495	1,720	1,870	270	1,700,000	
No. 1		1,035	1,190	1,295	270	1,600,000	
No. 2		890	1,025	1,115	270	1,400,000	
No. 3		520	595	645	270	1,300,000	
SCOTS PINE - Estonia, Latvia, & Lithuania							
Select Structural	2x4	1,985	2,280	2,480	430	1,500,000	WCLIB
No. 1		1,380	1,585	1,725	430	1,400,000	
No. 2		1,295	1,490	1,615	430	1,200,000	
No. 3		735	845	915	430	1,100,000	
Stud		725	835	910	430	1,100,000	
Construction Standard		980	1,125	1,220	430	1,100,000	
Utility		545	630	685	430	1,000,000	
Utility		260	300	325	430	1,000,000	
Select Structural	2x6	1,720	1,975	2,150	430	1,500,000	
No. 1		1,195	1,375	1,495	430	1,400,000	
No. 2		1,120	1,290	1,400	430	1,200,000	
No. 3		635	730	795	430	1,100,000	
Stud	660	760	825	430	1,100,000		
Select Structural	2x8	1,585	1,825	1,985	430	1,500,000	
No. 1		1,105	1,270	1,380	430	1,400,000	
No. 2		1,035	1,190	1,295	430	1,200,000	
No. 3		585	675	735	430	1,100,000	
Select Structural	2x10	1,455	1,675	1,820	430	1,500,000	
No. 1		1,010	1,165	1,265	430	1,400,000	
No. 2		950	1,090	1,185	430	1,200,000	
No. 3		540	620	670	430	1,100,000	
Select Structural	2x12	1,325	1,520	1,655	430	1,500,000	
No. 1		920	1,060	1,150	430	1,400,000	
No. 2		865	990	1,080	430	1,200,000	
No. 3		490	560	610	430	1,100,000	

TABLE W-1 DESIGN VALUES FOR JOISTS AND RAFTERS - NON-NORTH AMERICAN VISUALLY GRADED LUMBER^{1,2}

These F_b values are for use where repetitive members are spaced not more than 24 inches. For wider spacing, F_b values shall be reduced 13%.

Values for surfaced dry or surfaced green lumber apply at 19% maximum moisture content in use.

Species and Grade	Size	Design Value in Bending, F_b			Compression perpendicular to grain, $F_{c\perp}$	Modulus of Elasticity, E	Grading Rules Agency
		Normal Duration	Snow Loading	7-Day Loading			
SCOTS PINE - Finland							
Select Structural	2x4	2,245	2,580	2,805	210	1,500,000	WCLIB
No. 1		1,640	1,885	2,050	210	1,400,000	
No. 2		1,595	1,835	1,995	210	1,300,000	
No. 3		905	1,040	1,130	210	1,200,000	
Stud		915	1,055	1,145	210	1,200,000	
Construction Standard		1,210	1,390	1,510	210	1,200,000	
Utility		690	795	865	210	1,100,000	
Utility		315	365	395	210	1,000,000	
Select Structural	2x6	1,945	2,235	2,430	210	1,500,000	
No. 1		1,420	1,635	1,775	210	1,400,000	
No. 2		1,385	1,590	1,730	210	1,300,000	
No. 3		785	905	980	210	1,200,000	
Stud	835	960	1,040	210	1,200,000		
Select Structural	2x8	1,795	2,065	2,245	210	1,500,000	
No. 1		1,310	1,510	1,640	210	1,400,000	
No. 2		1,275	1,470	1,595	210	1,300,000	
No. 3		725	835	905	210	1,200,000	
Select Structural	2x10	1,645	1,890	2,055	210	1,500,000	
No. 1		1,200	1,380	1,500	210	1,400,000	
No. 2		1,170	1,345	1,465	210	1,300,000	
No. 3		665	765	830	210	1,200,000	
Select Structural	2x12	1,495	1,720	1,870	210	1,500,000	
No. 1		1,095	1,255	1,365	210	1,400,000	
No. 2		1,065	1,225	1,330	210	1,300,000	
No. 3		605	695	755	210	1,200,000	
SCOTS PINE - Germany⁴							
Select Structural	2x4	2,070	2,380	2,590	395	1,600,000	WCLIB
No. 1		1,380	1,585	1,725	395	1,400,000	
No. 2		1,210	1,390	1,510	395	1,100,000	
No. 3		690	795	865	395	1,000,000	
Stud		695	800	870	395	1,000,000	
Construction Standard		920	1,060	1,150	395	1,100,000	
Utility		520	595	645	395	1,000,000	
Utility		260	300	325	395	900,000	
Select Structural	2x6	1,795	2,065	2,245	395	1,600,000	
No. 1		1,195	1,375	1,495	395	1,400,000	
No. 2		1,045	1,205	1,310	395	1,100,000	
No. 3		600	690	750	395	1,000,000	
Stud	635	725	790	395	1,000,000		
Select Structural	2x8	1,655	1,905	2,070	395	1,600,000	
No. 1		1,105	1,270	1,380	395	1,400,000	
No. 2		965	1,110	1,210	395	1,100,000	
No. 3		550	635	690	395	1,000,000	
Select Structural	2x10	1,520	1,745	1,900	395	1,600,000	
No. 1		1,010	1,165	1,265	395	1,400,000	
No. 2		885	1,020	1,105	395	1,100,000	
No. 3		505	580	635	395	1,000,000	
Select Structural	2x12	1,380	1,585	1,725	395	1,600,000	
No. 1		920	1,060	1,150	395	1,400,000	
No. 2		805	925	1,005	395	1,100,000	
No. 3		460	530	575	395	1,000,000	

TABLE W-1 DESIGN VALUES FOR JOISTS AND RAFTERS - NON-NORTH AMERICAN VISUALLY GRADED LUMBER^{1,2}

These F_b values are for use where repetitive members are spaced not more than 24 inches. For wider spacing, F_b values shall be reduced 13%.

Values for surfaced dry or surfaced green lumber apply at 19% maximum moisture content in use.

Species and Grade	Size	Design Value in Bending, F_b			Compression perpendicular to grain, $F_{c\perp}$	Modulus of Elasticity, E	Grading Rules Agency
		Normal Duration	Snow Loading	7-Day Loading			
SCOTS PINE - Sweden							
Select Structural	2x4	2,330	2,680	2,910	410	1,700,000	WCLIB
No. 1		1,425	1,635	1,780	410	1,500,000	
No. 2		990	1,140	1,240	410	1,200,000	
No. 3		560	645	700	410	1,100,000	
Stud		570	655	710	410	1,100,000	
Construction Standard		750	860	935	410	1,200,000	
Utility		430	495	540	410	1,100,000	
Utility		200	230	250	410	1,000,000	
Select Structural	2x6	2,020	2,320	2,525	410	1,700,000	
No. 1		1,235	1,420	1,540	410	1,500,000	
No. 2		860	990	1,075	410	1,200,000	
No. 3		485	560	605	410	1,100,000	
Stud	520	595	645	410	1,100,000		
Select Structural	2x8	1,865	2,140	2,330	410	1,700,000	
No. 1		1,140	1,310	1,425	410	1,500,000	
No. 2		795	915	990	410	1,200,000	
No. 3	450	515	560	410	1,100,000		
Select Structural	2x10	1,710	1,965	2,135	410	1,700,000	
No. 1		1,045	1,200	1,305	410	1,500,000	
No. 2		725	835	910	410	1,200,000	
No. 3	410	475	515	410	1,100,000		
Select Structural	2x12	1,555	1,785	1,940	410	1,700,000	
No. 1		950	1,090	1,185	410	1,500,000	
No. 2		660	760	825	410	1,200,000	
No. 3	375	430	465	410	1,100,000		
SILVER FIR (<i>Abies alba</i>) - Germany, NE France, & Switzerland							
Select Structural	2x4	1,640	1,885	2,050	400	1,500,000	WCLIB
No. 1		1,250	1,440	1,565	400	1,400,000	
No. 2		1,250	1,440	1,565	400	1,300,000	
No. 3		735	845	915	400	1,100,000	
Stud		725	835	910	400	1,100,000	
Construction Standard		950	1,090	1,185	400	1,200,000	
Utility		545	630	685	400	1,100,000	
Utility		260	300	325	400	1,000,000	
Select Structural	2x6	1,420	1,635	1,775	400	1,500,000	
No. 1		1,085	1,245	1,355	400	1,400,000	
No. 2		1,085	1,245	1,355	400	1,300,000	
No. 3		635	730	795	400	1,100,000	
Stud	660	760	825	400	1,100,000		
Select Structural	2x8	1,310	1,510	1,640	400	1,500,000	
No. 1		1,000	1,150	1,250	400	1,400,000	
No. 2		1,000	1,150	1,250	400	1,300,000	
No. 3	585	675	735	400	1,100,000		
Select Structural	2x10	1,200	1,380	1,500	400	1,500,000	
No. 1		915	1,055	1,145	400	1,400,000	
No. 2		915	1,055	1,145	400	1,300,000	
No. 3	540	620	670	400	1,100,000		
Select Structural	2x12	1,095	1,255	1,365	400	1,500,000	
No. 1		835	960	1,040	400	1,400,000	
No. 2		835	960	1,040	400	1,300,000	
No. 3	490	560	610	400	1,100,000		

TABLE W-1 DESIGN VALUES FOR JOISTS AND RAFTERS - NON-NORTH AMERICAN VISUALLY GRADED LUMBER^{1,2}

These F_b values are for use where repetitive members are spaced not more than 24 inches. For wider spacing, F_b values shall be reduced 13%.

Values for surfaced dry or surfaced green lumber apply at 19% maximum moisture content in use.

Species and Grade	Size	Design Value in Bending, F_b			Compression perpendicular to grain, $F_{c\perp}$	Modulus of Elasticity, E	Grading Rules Agency
		Normal Duration	Snow Loading	7-Day Loading			
SOUTHERN PINE - Misiones Argentina							
Select Structural	2x4	1,900	2,180	2,370	440	1,200,000	SPIB
No. 1		1,335	1,535	1,670	440	1,100,000	
No. 2		1,250	1,440	1,565	440	1,100,000	
No. 3		735	845	915	440	900,000	
Stud		725	835	910	440	900,000	
Construction		950	1,090	1,185	440	1,000,000	
Standard		545	630	685	440	900,000	
Utility		260	300	325	440	800,000	
Select Structural	2x6	1,645	1,890	2,055	440	1,200,000	
No. 1		1,160	1,330	1,450	440	1,100,000	
No. 2		1,085	1,245	1,355	440	1,100,000	
No. 3		635	730	795	440	900,000	
Stud	660	760	825	440	900,000		
Select Structural	2x8	1,520	1,745	1,900	440	1,200,000	
No. 1		1,070	1,230	1,335	440	1,100,000	
No. 2		1,000	1,150	1,250	440	1,100,000	
No. 3		585	675	735	440	900,000	
Select Structural	2x10	1,390	1,600	1,740	440	1,200,000	
No. 1		980	1,125	1,225	440	1,100,000	
No. 2		915	1,055	1,145	440	1,100,000	
No. 3		540	620	670	440	900,000	
Select Structural	2x12	1,265	1,455	1,580	440	1,200,000	
No. 1		890	1,025	1,115	440	1,100,000	
No. 2		835	960	1,040	440	1,100,000	
No. 3		490	560	610	440	900,000	
SOUTHERN PINE - Misiones Argentina, Free of Heart Center and Medium Grain Density							
Select Structural	2x4	2,935	3,370	3,665	710	1,500,000	SPIB
No. 1		1,985	2,280	2,480	710	1,500,000	
No. 2		1,725	1,985	2,155	710	1,500,000	
No. 3		990	1,140	1,240	710	1,400,000	
Stud		1,010	1,165	1,265	710	1,400,000	
Construction		1,325	1,520	1,655	710	1,400,000	
Standard		750	860	935	710	1,300,000	
Utility		345	395	430	710	1,200,000	
Select Structural	2x6	2,540	2,925	3,175	710	1,500,000	
No. 1		1,720	1,975	2,150	710	1,500,000	
No. 2		1,495	1,720	1,870	710	1,500,000	
No. 3		860	990	1,075	710	1,400,000	
Stud	920	1,060	1,150	710	1,400,000		
Select Structural	2x8	2,345	2,700	2,935	710	1,500,000	
No. 1		1,585	1,825	1,985	710	1,500,000	
No. 2		1,380	1,585	1,725	710	1,500,000	
No. 3		795	915	990	710	1,400,000	
Select Structural	2x10	2,150	2,475	2,690	710	1,500,000	
No. 1		1,455	1,675	1,820	710	1,500,000	
No. 2		1,265	1,455	1,580	710	1,500,000	
No. 3		725	835	910	710	1,400,000	
Select Structural	2x12	1,955	2,250	2,445	710	1,500,000	
No. 1		1,325	1,520	1,655	710	1,500,000	
No. 2		1,150	1,325	1,440	710	1,500,000	
No. 3		660	760	825	710	1,400,000	

^{1,2} See Table W1 FOOTNOTES

³ Design values are applicable only for 2x4 dimensional lumber.

⁴ Does not include states of Baden-Wuerttemberg and Saarland.

TABLE W-1 DESIGN VALUES FOR JOISTS AND RAFTERS - MULTI-SPECIES AND COUNTRY GRADEMARKED VISUALLY GRADED LUMBER^{1,2}

These F_b values are for use where repetitive members are spaced not more than 24 inches. For wider spacing, F_b values shall be reduced 13%. Values for surfaced dry or surfaced green lumber apply at 19% maximum moisture content in use.

Multi-Species Country Grademark and Grade	Size	Design Value in Bending, F_b			Compression perpendicular to grain, $F_{c\perp}$	Modulus of Elasticity, E	Grading Rules Agency
		Normal Duration	Snow Loading	7-Day Loading			
As-N Spr-Sc P (I) AUS ROM UKR							
Select Structural	2x4	2,155	2,480	2,695	260	1,500,000	PLIB
No. 1		1,465	1,685	1,835	260	1,400,000	
No. 2		1,250	1,440	1,565	260	1,200,000	
No. 3		735	845	915	260	1,100,000	
Stud		725	835	910	260	1,100,000	
Construction		980	1,125	1,220	260	1,100,000	
Standard		545	630	685	260	1,000,000	
Utility		260	300	325	260	1,000,000	
Select Structural	2x6	1,870	2,150	2,335	260	1,500,000	
No. 1		1,270	1,460	1,590	260	1,400,000	
No. 2		1,085	1,245	1,355	260	1,200,000	
No. 3		635	730	795	260	1,100,000	
Stud		660	760	825	260	1,100,000	
Select Structural	2x8	1,725	1,985	2,155	260	1,500,000	
No. 1		1,175	1,350	1,465	260	1,400,000	
No. 2		1,000	1,150	1,250	260	1,200,000	
No. 3		585	675	735	260	1,100,000	
Select Structural	2x10	1,580	1,820	1,975	260	1,500,000	
No. 1		1,075	1,235	1,345	260	1,400,000	
No. 2		915	1,055	1,145	260	1,200,000	
No. 3		540	620	670	260	1,100,000	
Select Structural	2x12	1,440	1,655	1,795	260	1,500,000	
No. 1		980	1,125	1,220	260	1,400,000	
No. 2		835	960	1,040	260	1,200,000	
No. 3		490	560	610	260	1,100,000	
AS-Sc P (I) AUS							
Select Structural	2x4	2,245	2,580	2,805	260	1,700,000	PLIB
No. 1		1,555	1,785	1,940	260	1,600,000	
No. 2		1,335	1,535	1,670	260	1,400,000	
No. 3		775	895	970	260	1,300,000	
Stud		760	875	950	260	1,300,000	
Construction		1,005	1,155	1,260	260	1,300,000	
Standard		575	660	720	260	1,200,000	
Utility		260	300	325	260	1,100,000	
Select Structural	2x6	1,945	2,235	2,430	260	1,700,000	
No. 1		1,345	1,545	1,680	260	1,600,000	
No. 2		1,160	1,330	1,450	260	1,400,000	
No. 3		675	775	840	260	1,300,000	
Stud		690	795	865	260	1,300,000	
Select Structural	2x8	1,795	2,065	2,245	260	1,700,000	
No. 1		1,240	1,430	1,555	260	1,600,000	
No. 2		1,070	1,230	1,335	260	1,400,000	
No. 3		620	715	775	260	1,300,000	
Select Structural	2x10	1,645	1,890	2,055	260	1,700,000	
No. 1		1,140	1,310	1,425	260	1,600,000	
No. 2		980	1,125	1,225	260	1,400,000	
No. 3		570	655	710	260	1,300,000	
Select Structural	2x12	1,495	1,720	1,870	260	1,700,000	
No. 1		1,035	1,190	1,295	260	1,600,000	
No. 2		890	1,025	1,115	260	1,400,000	
No. 3		520	595	645	260	1,300,000	

TABLE W-1 DESIGN VALUES FOR JOISTS AND RAFTERS - MULTI-SPECIES AND COUNTRY GRADEMARKED VISUALLY GRADED LUMBER^{1,2}

These F_b values are for use where repetitive members are spaced not more than 24 inches. For wider spacing, F_b values shall be reduced 13%. Values for surfaced dry or surfaced green lumber apply at 19% maximum moisture content in use.

Multi-Species Country Grademark and Grade	Size	Design Value in Bending, F_b			Compression perpendicular to grain, $F_{c\perp}$	Modulus of Elasticity, E	Grading Rules Agency
		Normal Duration	Snow Loading	7-Day Loading			
AS/NSPR/SCOTP(I)AUS/GER							
Select Structural	2x4	2,070	2,380	2,590	260	1,600,000	TP
No. 1		1,380	1,585	1,725	260	1,400,000	
No. 2		1,210	1,390	1,510	260	1,100,000	
No. 3		690	795	865	260	1,000,000	
Stud		695	800	870	260	1,000,000	
Construction Standard		920	1,060	1,150	260	1,100,000	
Standard		520	595	645	260	1,000,000	
Utility		260	300	325	260	900,000	
Select Structural	2x6	1,795	2,065	2,245	260	1,600,000	
No. 1		1,195	1,375	1,495	260	1,400,000	
No. 2		1,045	1,205	1,310	260	1,100,000	
No. 3		600	690	750	260	1,000,000	
Stud		635	725	790	260	1,000,000	
Select Structural	2x8	1,655	1,905	2,070	260	1,600,000	
No. 1		1,105	1,270	1,380	260	1,400,000	
No. 2		965	1,110	1,210	260	1,100,000	
No. 3		550	635	690	260	1,000,000	
Select Structural	2x10	1,520	1,745	1,900	260	1,600,000	
No. 1		1,010	1,165	1,265	260	1,400,000	
No. 2		885	1,020	1,105	260	1,100,000	
No. 3		505	580	635	260	1,000,000	
Select Structural	2x12	1,380	1,585	1,725	260	1,600,000	
No. 1		920	1,060	1,150	260	1,400,000	
No. 2		805	925	1,005	260	1,100,000	
No. 3		460	530	575	260	1,000,000	

TABLE W-1 DESIGN VALUES FOR JOISTS AND RAFTERS - MULTI-SPECIES AND COUNTRY GRADEMARKED VISUALLY GRADED LUMBER^{1,2}

These F_b values are for use where repetitive members are spaced not more than 24 inches. For wider spacing, F_b values shall be reduced 13%. Values for surfaced dry or surfaced green lumber apply at 19% maximum moisture content in use.

Multi-Species Country Grademark and Grade	Size	Design Value in Bending, F_b			Compression perpendicular to grain, $F_{c\perp}$	Modulus of Elasticity, E	Grading Rules Agency
		Normal Duration	Snow Loading	7-Day Loading			
DF/DF-N							
DF-L/DF-L(N)							
DF-L/DF(N)							
Select Structural	2x4	2,330	2,680	2,910	625	1,900,000	PLIB, TP, WWPA
No. 1 & Btr		1,985	2,280	2,480	625	1,800,000	
No. 1		1,465	1,685	1,835	625	1,600,000	
No. 2		1,465	1,685	1,835	625	1,600,000	
No. 3		820	940	1,025	625	1,400,000	
Stud		820	945	1,030	625	1,400,000	
Construction		1,095	1,255	1,365	625	1,500,000	
Standard		605	695	755	625	1,400,000	
Utility		290	330	360	625	1,300,000	
Select Structural	2x6	2,020	2,320	2,525	625	1,900,000	
No. 1 & Btr		1,720	1,975	2,150	625	1,800,000	
No. 1		1,270	1,460	1,590	625	1,600,000	
No. 2		1,270	1,460	1,590	625	1,600,000	
No. 3		710	815	890	625	1,400,000	
Stud	750	860	935	625	1,400,000		
Select Structural	2x8	1,865	2,140	2,330	625	1,900,000	
No. 1 & Btr		1,585	1,825	1,985	625	1,800,000	
No. 1		1,175	1,350	1,465	625	1,600,000	
No. 2		1,175	1,350	1,465	625	1,600,000	
No. 3	655	755	820	625	1,400,000		
Select Structural	2x10	1,710	1,965	2,135	625	1,900,000	
No. 1 & Btr		1,455	1,675	1,820	625	1,800,000	
No. 1		1,075	1,235	1,345	625	1,600,000	
No. 2		1,075	1,235	1,345	625	1,600,000	
No. 3		600	690	750	625	1,400,000	
Select Structural	2x12	1,555	1,785	1,940	625	1,900,000	
No. 1 & Btr		1,325	1,520	1,655	625	1,800,000	
No. 1		980	1,125	1,220	625	1,600,000	
No. 2		980	1,125	1,220	625	1,600,000	
No. 3		545	630	685	625	1,400,000	

TABLE W-1 DESIGN VALUES FOR JOISTS AND RAFTERS - MULTI-SPECIES AND COUNTRY GRADEMARKED VISUALLY GRADED LUMBER^{1,2}

These F_b values are for use where repetitive members are spaced not more than 24 inches. For wider spacing, F_b values shall be reduced 13%. Values for surfaced dry or surfaced green lumber apply at 19% maximum moisture content in use.

Multi-Species Country Grademark and Grade	Size	Design Value in Bending, F_b			Compression perpendicular to grain, $F_{c\perp}$	Modulus of Elasticity, E	Grading Rules Agency
		Normal Duration	Snow Loading	7-Day Loading			
D Fir-L-HF							
DF-HF							
Select Structural	2x4	2,415	2,775	3,020	405	1,600,000	PLIB
No. 1 & Btr		1,900	2,180	2,370	405	1,500,000	
No. 1		1,680	1,935	2,100	405	1,500,000	
No. 2		1,465	1,685	1,835	405	1,300,000	
No. 3		865	990	1,080	405	1,200,000	
Stud		855	980	1,065	405	1,200,000	
Construction		1,120	1,290	1,400	405	1,300,000	
Standard		635	725	790	405	1,200,000	
Utility		290	330	360	405	1,100,000	
Select Structural		2x6	2,095	2,405	2,615	405	
No. 1 & Btr	1,645		1,890	2,055	405	1,500,000	
No. 1	1,460		1,675	1,820	405	1,500,000	
No. 2	1,270		1,460	1,590	405	1,300,000	
No. 3	750		860	935	405	1,200,000	
Stud	775	895	970	405	1,200,000		
Select Structural	2x8	1,930	2,220	2,415	405	1,600,000	
No. 1 & Btr		1,520	1,745	1,900	405	1,500,000	
No. 1		1,345	1,545	1,680	405	1,500,000	
No. 2		1,175	1,350	1,465	405	1,300,000	
No. 3	690	795	865	405	1,200,000		
Select Structural	2x10	1,770	2,035	2,215	405	1,600,000	
No. 1 & Btr		1,390	1,600	1,740	405	1,500,000	
No. 1		1,235	1,420	1,540	405	1,500,000	
No. 2		1,075	1,235	1,345	405	1,300,000	
No. 3		635	725	790	405	1,200,000	
Select Structural	2x12	1,610	1,850	2,015	405	1,600,000	
No. 1 & Btr		1,265	1,455	1,580	405	1,500,000	
No. 1		1,120	1,290	1,400	405	1,500,000	
No. 2		980	1,125	1,220	405	1,300,000	
No. 3		575	660	720	405	1,200,000	

TABLE W-1 DESIGN VALUES FOR JOISTS AND RAFTERS - MULTI-SPECIES AND COUNTRY GRADEMARKED VISUALLY GRADED LUMBER^{1,2}

These F_b values are for use where repetitive members are spaced not more than 24 inches. For wider spacing, F_b values shall be reduced 13%. Values for surfaced dry or surfaced green lumber apply at 19% maximum moisture content in use.

Multi-Species Country Grademark and Grade	Size	Design Value in Bending, F_b			Compression perpendicular to grain, $F_{c\perp}$	Modulus of Elasticity, E	Grading Rules Agency
		Normal Duration	Snow Loading	7-Day Loading			
DF-HF-SPF							
Select Structural	2x4	2,155	2,480	2,695	405	1,500,000	PLIB
No. 1		1,510	1,735	1,885	405	1,400,000	
No. 2		1,465	1,685	1,835	405	1,300,000	
No. 3		865	990	1,080	405	1,200,000	
Stud		855	980	1,065	405	1,200,000	
Construction Standard		1,120	1,290	1,400	405	1,300,000	
Standard		635	725	790	405	1,200,000	
Utility		290	330	360	405	1,100,000	
Select Structural	2x6	1,870	2,150	2,335	405	1,500,000	
No. 1		1,310	1,505	1,635	405	1,400,000	
No. 2		1,270	1,460	1,590	405	1,300,000	
No. 3		750	860	935	405	1,200,000	
Stud		775	895	970	405	1,200,000	
Select Structural	2x8	1,725	1,985	2,155	405	1,500,000	
No. 1		1,210	1,390	1,510	405	1,400,000	
No. 2		1,175	1,350	1,465	405	1,300,000	
No. 3		690	795	865	405	1,200,000	
Select Structural	2x10	1,580	1,820	1,975	405	1,500,000	
No. 1		1,105	1,275	1,385	405	1,400,000	
No. 2		1,075	1,235	1,345	405	1,300,000	
No. 3		635	725	790	405	1,200,000	
Select Structural	2x12	1,440	1,655	1,795	405	1,500,000	
No. 1		1,005	1,155	1,260	405	1,400,000	
No. 2		980	1,125	1,220	405	1,300,000	
No. 3		575	660	720	405	1,200,000	
DF-HF-SPF(S)							
Select Structural	2x4	2,245	2,580	2,805	335	1,300,000	PLIB
No. 1		1,510	1,735	1,885	335	1,200,000	
No. 2		1,335	1,535	1,670	335	1,100,000	
No. 3		775	895	970	335	1,000,000	
Stud		760	875	950	335	1,000,000	
Construction Standard		1,005	1,155	1,260	335	1,000,000	
Standard		575	660	720	335	900,000	
Utility		260	300	325	335	900,000	
Select Structural	2x6	1,945	2,235	2,430	335	1,300,000	
No. 1		1,310	1,505	1,635	335	1,200,000	
No. 2		1,160	1,330	1,450	335	1,100,000	
No. 3		675	775	840	335	1,000,000	
Stud		690	795	865	335	1,000,000	
Select Structural	2x8	1,795	2,065	2,245	335	1,300,000	
No. 1		1,210	1,390	1,510	335	1,200,000	
No. 2		1,070	1,230	1,335	335	1,100,000	
No. 3		620	715	775	335	1,000,000	
Select Structural	2x10	1,645	1,890	2,055	335	1,300,000	
No. 1		1,105	1,275	1,385	335	1,200,000	
No. 2		980	1,125	1,225	335	1,100,000	
No. 3		570	655	710	335	1,000,000	
Select Structural	2x12	1,495	1,720	1,870	335	1,300,000	
No. 1		1,005	1,155	1,260	335	1,200,000	
No. 2		890	1,025	1,115	335	1,100,000	
No. 3		520	595	645	335	1,000,000	

TABLE W-1 DESIGN VALUES FOR JOISTS AND RAFTERS - MULTI-SPECIES AND COUNTRY GRADEMARKED VISUALLY GRADED LUMBER^{1,2}

These F_b values are for use where repetitive members are spaced not more than 24 inches. For wider spacing, F_b values shall be reduced 13%. Values for surfaced dry or surfaced green lumber apply at 19% maximum moisture content in use.

Multi-Species Country Grademark and Grade	Size	Design Value in Bending, F_b			Compression perpendicular to grain, $F_{c\perp}$	Modulus of Elasticity, E	Grading Rules Agency
		Normal Duration	Snow Loading	7-Day Loading			
D Fir-SPF							
DF-L-SPF							
Select Structural	2x4	2,155	2,480	2,695	425	1,500,000	PLIB
No. 1		1,510	1,735	1,885	425	1,400,000	
No. 2		1,510	1,735	1,885	425	1,400,000	
No. 3		865	990	1,080	425	1,200,000	
Stud		855	980	1,065	425	1,200,000	
Construction		1,150	1,325	1,440	425	1,300,000	
Standard		635	725	790	425	1,200,000	
Utility		315	365	395	425	1,100,000	
Select Structural	2x6	1,870	2,150	2,335	425	1,500,000	
No. 1		1,310	1,505	1,635	425	1,400,000	
No. 2		1,310	1,505	1,635	425	1,400,000	
No. 3		750	860	935	425	1,200,000	
Stud		775	895	970	425	1,200,000	
Select Structural	2x8	1,725	1,985	2,155	425	1,500,000	
No. 1		1,210	1,390	1,510	425	1,400,000	
No. 2		1,210	1,390	1,510	425	1,400,000	
No. 3		690	795	865	425	1,200,000	
Select Structural	2x10	1,580	1,820	1,975	425	1,500,000	
No. 1		1,105	1,275	1,385	425	1,400,000	
No. 2		1,105	1,275	1,385	425	1,400,000	
No. 3		635	725	790	425	1,200,000	
Select Structural	2x12	1,440	1,655	1,795	425	1,500,000	
No. 1		1,005	1,155	1,260	425	1,400,000	
No. 2		1,005	1,155	1,260	425	1,400,000	
No. 3		575	660	720	425	1,200,000	

TABLE W-1 DESIGN VALUES FOR JOISTS AND RAFTERS - MULTI-SPECIES AND COUNTRY GRADEMARKED VISUALLY GRADED LUMBER^{1,2}

These F_b values are for use where repetitive members are spaced not more than 24 inches. For wider spacing, F_b values shall be reduced 13%. Values for surfaced dry or surfaced green lumber apply at 19% maximum moisture content in use.

Multi-Species Country Grademark and Grade	Size	Design Value in Bending, F_b			Compression perpendicular to grain, $F_{c\perp}$	Modulus of Elasticity, E	Grading Rules Agency
		Normal Duration	Snow Loading	7-Day Loading			
DF-N Spr (I) N FRA							
Select Structural	2x4	2,070	2,380	2,590	355	1,600,000	PLIB
No. 1		1,425	1,635	1,780	355	1,400,000	
No. 2		1,250	1,440	1,565	355	1,200,000	
No. 3		735	845	915	355	1,100,000	
Stud		725	835	910	355	1,100,000	
Construction Standard		950	1,090	1,185	355	1,100,000	
Standard		545	630	685	355	1,000,000	
Utility		260	300	325	355	900,000	
Select Structural	2x6	1,795	2,065	2,245	355	1,600,000	
No. 1		1,235	1,420	1,540	355	1,400,000	
No. 2		1,085	1,245	1,355	355	1,200,000	
No. 3		635	730	795	355	1,100,000	
Stud		660	760	825	355	1,100,000	
Select Structural	2x8	1,655	1,905	2,070	355	1,600,000	
No. 1		1,140	1,310	1,425	355	1,400,000	
No. 2		1,000	1,150	1,250	355	1,200,000	
No. 3		585	675	735	355	1,100,000	
Select Structural	2x10	1,520	1,745	1,900	355	1,600,000	
No. 1		1,045	1,200	1,305	355	1,400,000	
No. 2		915	1,055	1,145	355	1,200,000	
No. 3		540	620	670	355	1,100,000	
Select Structural	2x12	1,380	1,585	1,725	355	1,600,000	
No. 1		950	1,090	1,185	355	1,400,000	
No. 2		835	960	1,040	355	1,200,000	
No. 3		490	560	610	355	1,100,000	

TABLE W-1 DESIGN VALUES FOR JOISTS AND RAFTERS - MULTI-SPECIES AND COUNTRY GRADEMARKED VISUALLY GRADED LUMBER^{1,2}

These F_b values are for use where repetitive members are spaced not more than 24 inches. For wider spacing, F_b values shall be reduced 13%. Values for surfaced dry or surfaced green lumber apply at 19% maximum moisture content in use.

Multi-Species Country Grademark and Grade	Size	Design Value in Bending, F_b			Compression perpendicular to grain, $F_{c\perp}$	Modulus of Elasticity, E	Grading Rules Agency
		Normal Duration	Snow Loading	7-Day Loading			
DF/NSPR/SCOTP(I)GER/ROM/SW/UKR							
Select Structural	2x4	2,070	2,380	2,590	270	1,500,000	TP
No. 1		1,380	1,585	1,725	270	1,400,000	
No. 2		990	1,140	1,240	270	1,100,000	
No. 3		560	645	700	270	1,000,000	
Stud		570	655	710	270	1,000,000	
Construction Standard		750	860	935	270	1,100,000	
Standard		430	495	540	270	1,000,000	
Utility		200	230	250	270	900,000	
Select Structural	2x6	1,795	2,065	2,245	270	1,500,000	
No. 1		1,195	1,375	1,495	270	1,400,000	
No. 2		860	990	1,075	270	1,100,000	
No. 3		485	560	605	270	1,000,000	
Stud		520	595	645	270	1,000,000	
Select Structural	2x8	1,655	1,905	2,070	270	1,500,000	
No. 1		1,105	1,270	1,380	270	1,400,000	
No. 2		795	915	990	270	1,100,000	
No. 3		450	515	560	270	1,000,000	
Select Structural	2x10	1,520	1,745	1,900	270	1,500,000	
No. 1		1,010	1,165	1,265	270	1,400,000	
No. 2		725	835	910	270	1,100,000	
No. 3		410	475	515	270	1,000,000	
Select Structural	2x12	1,380	1,585	1,725	270	1,500,000	
No. 1		920	1,060	1,150	270	1,400,000	
No. 2		660	760	825	270	1,100,000	
No. 3		375	430	465	270	1,000,000	
DF/NSPR/SCOTP(I)GER							
Select Structural	2x4	2,070	2,380	2,590	355	1,600,000	TP
No. 1		1,380	1,585	1,725	355	1,400,000	
No. 2		1,210	1,390	1,510	355	1,100,000	
No. 3		690	795	865	355	1,000,000	
Stud		695	800	870	355	1,000,000	
Construction Standard		920	1,060	1,150	355	1,100,000	
Standard		520	595	645	355	1,000,000	
Utility		260	300	325	355	900,000	
Select Structural	2x6	1,795	2,065	2,245	355	1,600,000	
No. 1		1,195	1,375	1,495	355	1,400,000	
No. 2		1,045	1,205	1,310	355	1,100,000	
No. 3		600	690	750	355	1,000,000	
Stud		635	725	790	355	1,000,000	
Select Structural	2x8	1,655	1,905	2,070	355	1,600,000	
No. 1		1,105	1,270	1,380	355	1,400,000	
No. 2		965	1,110	1,210	355	1,100,000	
No. 3		550	635	690	355	1,000,000	
Select Structural	2x10	1,520	1,745	1,900	355	1,600,000	
No. 1		1,010	1,165	1,265	355	1,400,000	
No. 2		885	1,020	1,105	355	1,100,000	
No. 3		505	580	635	355	1,000,000	
Select Structural	2x12	1,380	1,585	1,725	355	1,600,000	
No. 1		920	1,060	1,150	355	1,400,000	
No. 2		805	925	1,005	355	1,100,000	
No. 3		460	530	575	355	1,000,000	

TABLE W-1 DESIGN VALUES FOR JOISTS AND RAFTERS - MULTI-SPECIES AND COUNTRY GRADEMARKED VISUALLY GRADED LUMBER^{1,2}

These F_b values are for use where repetitive members are spaced not more than 24 inches. For wider spacing, F_b values shall be reduced 13%. Values for surfaced dry or surfaced green lumber apply at 19% maximum moisture content in use.

Multi-Species Country Grademark and Grade	Size	Design Value in Bending, F_b			Compression perpendicular to grain, $F_{c\perp}$	Modulus of Elasticity, E	Grading Rules Agency
		Normal Duration	Snow Loading	7-Day Loading			
ES-LP							
Select Structural	2x4	2,245	2,580	2,805	335	1,300,000	PLIB, WWPA
No. 1		1,510	1,735	1,885	335	1,200,000	
No. 2		1,335	1,535	1,670	335	1,100,000	
No. 3		775	895	970	335	1,000,000	
Stud		760	875	950	335	1,000,000	
Construction Standard		1,005	1,155	1,260	335	1,000,000	
Standard		575	660	720	335	900,000	
Utility		260	300	325	335	900,000	
Select Structural	2x6	1,945	2,235	2,430	335	1,300,000	
No. 1		1,310	1,505	1,635	335	1,200,000	
No. 2		1,160	1,330	1,450	335	1,100,000	
No. 3		675	775	840	335	1,000,000	
Stud		690	795	865	335	1,000,000	
Select Structural	2x8	1,795	2,065	2,245	335	1,300,000	
No. 1		1,210	1,390	1,510	335	1,200,000	
No. 2		1,070	1,230	1,335	335	1,100,000	
No. 3		620	715	775	335	1,000,000	
Select Structural	2x10	1,645	1,890	2,055	335	1,300,000	
No. 1		1,105	1,275	1,385	335	1,200,000	
No. 2		980	1,125	1,225	335	1,100,000	
No. 3		570	655	710	335	1,000,000	
Select Structural	2x12	1,495	1,720	1,870	335	1,300,000	
No. 1		1,005	1,155	1,260	335	1,200,000	
No. 2		890	1,025	1,115	335	1,100,000	
No. 3		520	595	645	335	1,000,000	
ES-LP-AF							
Select Structural	2x4	1,555	1,785	1,940	335	1,200,000	
No. 1		1,165	1,340	1,455	335	1,100,000	
No. 2		1,165	1,340	1,455	335	1,000,000	
No. 3		645	745	810	335	900,000	
Stud		665	765	830	335	900,000	
Construction Standard		890	1,025	1,115	335	1,000,000	
Standard		490	560	610	335	900,000	
Utility		230	265	290	335	800,000	
Select Structural	2x6	1,345	1,545	1,680	335	1,200,000	
No. 1		1,010	1,160	1,260	335	1,100,000	
No. 2		1,010	1,160	1,260	335	1,000,000	
No. 3		560	645	700	335	900,000	
Stud		605	695	755	335	900,000	
Select Structural	2x8	1,240	1,430	1,555	335	1,200,000	
No. 1		930	1,070	1,165	335	1,100,000	
No. 2		930	1,070	1,165	335	1,000,000	
No. 3		520	595	645	335	900,000	
Select Structural	2x10	1,140	1,310	1,425	335	1,200,000	
No. 1		855	980	1,065	335	1,100,000	
No. 2		855	980	1,065	335	1,000,000	
No. 3		475	545	595	335	900,000	
Select Structural	2x12	1,035	1,190	1,295	335	1,200,000	
No. 1		775	895	970	335	1,100,000	
No. 2		775	895	970	335	1,000,000	
No. 3		430	495	540	335	900,000	

TABLE W-1 DESIGN VALUES FOR JOISTS AND RAFTERS - MULTI-SPECIES AND COUNTRY GRADEMARKED VISUALLY GRADED LUMBER^{1,2}

These F_b values are for use where repetitive members are spaced not more than 24 inches. For wider spacing, F_b values shall be reduced 13%. Values for surfaced dry or surfaced green lumber apply at 19% maximum moisture content in use.

Multi-Species Country Grademark and Grade	Size	Design Value in Bending, F_b			Compression perpendicular to grain, $F_{c\perp}$	Modulus of Elasticity, E	Grading Rules Agency
		Normal Duration	Snow Loading	7-Day Loading			
HF/DF-N/SPF/SPF-S							
Select Structural	2x4	2,155	2,480	2,695	335	1,300,000	TP
No. 1		1,465	1,685	1,835	335	1,200,000	
No. 2		1,335	1,535	1,670	335	1,100,000	
No. 3		775	895	970	335	1,000,000	
Stud		760	875	950	335	1,000,000	
Construction		1,005	1,155	1,260	335	1,000,000	
Standard		575	660	720	335	900,000	
Utility		260	300	325	335	900,000	
Select Structural	2x6	1,870	2,150	2,335	335	1,300,000	
No. 1		1,270	1,460	1,590	335	1,200,000	
No. 2		1,160	1,330	1,450	335	1,100,000	
No. 3		675	775	840	335	1,000,000	
Stud		690	795	865	335	1,000,000	
Select Structural	2x8	1,725	1,985	2,155	335	1,300,000	
No. 1		1,175	1,350	1,465	335	1,200,000	
No. 2		1,070	1,230	1,335	335	1,100,000	
No. 3		620	715	775	335	1,000,000	
Select Structural	2x10	1,580	1,820	1,975	335	1,300,000	
No. 1		1,075	1,235	1,345	335	1,200,000	
No. 2		980	1,125	1,225	335	1,100,000	
No. 3		570	655	710	335	1,000,000	
Select Structural	2x12	1,440	1,655	1,795	335	1,300,000	
No. 1		980	1,125	1,220	335	1,200,000	
No. 2		890	1,025	1,115	335	1,100,000	
No. 3		520	595	645	335	1,000,000	

TABLE W-1 DESIGN VALUES FOR JOISTS AND RAFTERS - MULTI-SPECIES AND COUNTRY GRADEMARKED VISUALLY GRADED LUMBER^{1,2}

These F_b values are for use where repetitive members are spaced not more than 24 inches. For wider spacing, F_b values shall be reduced 13%. Values for surfaced dry or surfaced green lumber apply at 19% maximum moisture content in use.

Multi-Species Country Grademark and Grade	Size	Design Value in Bending, F_b			Compression perpendicular to grain, $F_{c\perp}$	Modulus of Elasticity, E	Grading Rules Agency
		Normal Duration	Snow Loading	7-Day Loading			
HF/HF(N)							
HF/HF-N							
Select Structural	2x4	2,245	2,580	2,805	405	1,600,000	PLIB, TP, WWPA
No. 1 & Btr		1,900	2,180	2,370	405	1,500,000	
No. 1		1,680	1,935	2,100	405	1,500,000	
No. 2		1,465	1,685	1,835	405	1,300,000	
No. 3		865	990	1,080	405	1,200,000	
Stud		855	980	1,065	405	1,200,000	
Construction		1,120	1,290	1,400	405	1,300,000	
Standard		635	725	790	405	1,200,000	
Utility		290	330	360	405	1,100,000	
Select Structural	2x6	1,945	2,235	2,430	405	1,600,000	PLIB, TP, WWPA
No. 1 & Btr		1,645	1,890	2,055	405	1,500,000	
No. 1		1,460	1,675	1,820	405	1,500,000	
No. 2		1,270	1,460	1,590	405	1,300,000	
No. 3		750	860	935	405	1,200,000	
Stud	775	895	970	405	1,200,000		
Select Structural	2x8	1,795	2,065	2,245	405	1,600,000	PLIB, TP, WWPA
No. 1 & Btr		1,520	1,745	1,900	405	1,500,000	
No. 1		1,345	1,545	1,680	405	1,500,000	
No. 2		1,175	1,350	1,465	405	1,300,000	
No. 3	690	795	865	405	1,200,000		
Select Structural	2x10	1,645	1,890	2,055	405	1,600,000	PLIB, TP, WWPA
No. 1 & Btr		1,390	1,600	1,740	405	1,500,000	
No. 1		1,235	1,420	1,540	405	1,500,000	
No. 2		1,075	1,235	1,345	405	1,300,000	
No. 3	635	725	790	405	1,200,000		
Select Structural	2x12	1,495	1,720	1,870	405	1,600,000	PLIB, TP, WWPA
No. 1 & Btr		1,265	1,455	1,580	405	1,500,000	
No. 1		1,120	1,290	1,400	405	1,500,000	
No. 2		980	1,125	1,220	405	1,300,000	
No. 3	575	660	720	405	1,200,000		

TABLE W-1 DESIGN VALUES FOR JOISTS AND RAFTERS - MULTI-SPECIES AND COUNTRY GRADEMARKED VISUALLY GRADED LUMBER^{1,2}

These F_b values are for use where repetitive members are spaced not more than 24 inches. For wider spacing, F_b values shall be reduced 13%. Values for surfaced dry or surfaced green lumber apply at 19% maximum moisture content in use.

Multi-Species Country Grademark and Grade	Size	Design Value in Bending, F_b			Compression perpendicular to grain, $F_{c\perp}$	Modulus of Elasticity, E	Grading Rules Agency
		Normal Duration	Snow Loading	7-Day Loading			
HF-SS							
Select Structural	2x4	2,245	2,580	2,805	335	1,300,000	PLIB
No. 1		1,510	1,735	1,885	335	1,200,000	
No. 2		1,335	1,535	1,670	335	1,100,000	
No. 3		775	895	970	335	1,000,000	
Stud		760	875	950	335	1,000,000	
Construction		1,005	1,155	1,260	335	1,000,000	
Standard		575	660	720	335	900,000	
Utility		260	300	325	335	900,000	
Select Structural	2x6	1,945	2,235	2,430	335	1,300,000	
No. 1		1,310	1,505	1,635	335	1,200,000	
No. 2		1,160	1,330	1,450	335	1,100,000	
No. 3		675	775	840	335	1,000,000	
Stud		690	795	865	335	1,000,000	
Select Structural	2x8	1,795	2,065	2,245	335	1,300,000	
No. 1		1,210	1,390	1,510	335	1,200,000	
No. 2		1,070	1,230	1,335	335	1,100,000	
No. 3		620	715	775	335	1,000,000	
Select Structural	2x10	1,645	1,890	2,055	335	1,300,000	
No. 1		1,105	1,275	1,385	335	1,200,000	
No. 2		980	1,125	1,225	335	1,100,000	
No. 3		570	655	710	335	1,000,000	
Select Structural	2x12	1,495	1,720	1,870	335	1,300,000	
No. 1		1,005	1,155	1,260	335	1,200,000	
No. 2		890	1,025	1,115	335	1,100,000	
No. 3		520	595	645	335	1,000,000	
N Spr (I) EST FIN GER LTH NOR SW							
Select Structural	2x4	2,070	2,380	2,590	220	1,500,000	PLIB
No. 1		1,425	1,635	1,780	220	1,400,000	
No. 2		1,080	1,240	1,350	220	1,200,000	
No. 3		645	745	810	220	1,100,000	
Stud		695	800	870	220	1,100,000	
Construction		835	960	1,040	220	1,100,000	
Standard		460	530	575	220	1,000,000	
Utility		230	265	290	220	900,000	
Select Structural	2x6	1,795	2,065	2,245	220	1,500,000	
No. 1		1,235	1,420	1,540	220	1,400,000	
No. 2		935	1,075	1,170	220	1,200,000	
No. 3		560	645	700	220	1,100,000	
Stud		635	725	790	220	1,100,000	
Select Structural	2x8	1,655	1,905	2,070	220	1,500,000	
No. 1		1,140	1,310	1,425	220	1,400,000	
No. 2		865	990	1,080	220	1,200,000	
No. 3		520	595	645	220	1,100,000	
Select Structural	2x10	1,520	1,745	1,900	220	1,500,000	
No. 1		1,045	1,200	1,305	220	1,400,000	
No. 2		790	910	990	220	1,200,000	
No. 3		475	545	595	220	1,100,000	
Select Structural	2x12	1,380	1,585	1,725	220	1,500,000	
No. 1		950	1,090	1,185	220	1,400,000	
No. 2		720	825	900	220	1,200,000	
No. 3		430	495	540	220	1,100,000	

TABLE W-1 DESIGN VALUES FOR JOISTS AND RAFTERS - MULTI-SPECIES AND COUNTRY GRADEMARKED VISUALLY GRADED LUMBER^{1,2}

These F_b values are for use where repetitive members are spaced not more than 24 inches. For wider spacing, F_b values shall be reduced 13%. Values for surfaced dry or surfaced green lumber apply at 19% maximum moisture content in use.

Multi-Species Country Grademark and Grade	Size	Design Value in Bending, F_b			Compression perpendicular to grain, $F_{c\perp}$	Modulus of Elasticity, E	Grading Rules Agency
		Normal Duration	Snow Loading	7-Day Loading			
N Spr-Sc P(I) EST	2x4						PLIB, TP
N Spr-Sc P(I) LAT							
N Spr-Sc P(I) LTH							
NSPR/SCOTP(I)LAT/LTH							
Select Structural		1,985	2,280	2,480	430	1,500,000	
No. 1		1,380	1,585	1,725	430	1,400,000	
No. 2		1,295	1,490	1,615	430	1,200,000	
No. 3		735	845	915	430	1,100,000	
Stud		725	835	910	430	1,100,000	
Construction Standard		980	1,125	1,220	430	1,100,000	
Utility	545	630	685	430	1,000,000		
		260	300	325	430	1,000,000	
Select Structural	2x6	1,720	1,975	2,150	430	1,500,000	PLIB, TP
No. 1		1,195	1,375	1,495	430	1,400,000	
No. 2		1,120	1,290	1,400	430	1,200,000	
No. 3		635	730	795	430	1,100,000	
Stud		660	760	825	430	1,100,000	
Select Structural	2x8	1,585	1,825	1,985	430	1,500,000	PLIB, TP
No. 1		1,105	1,270	1,380	430	1,400,000	
No. 2		1,035	1,190	1,295	430	1,200,000	
No. 3		585	675	735	430	1,100,000	
Select Structural	2x10	1,455	1,675	1,820	430	1,500,000	PLIB, TP
No. 1		1,010	1,165	1,265	430	1,400,000	
No. 2		950	1,090	1,185	430	1,200,000	
No. 3		540	620	670	430	1,100,000	
Select Structural	2x12	1,325	1,520	1,655	430	1,500,000	PLIB, TP
No. 1		920	1,060	1,150	430	1,400,000	
No. 2		865	990	1,080	430	1,200,000	
No. 3		490	560	610	430	1,100,000	

TABLE W-1 DESIGN VALUES FOR JOISTS AND RAFTERS - MULTI-SPECIES AND COUNTRY GRADEMARKED VISUALLY GRADED LUMBER^{1,2}

These F_b values are for use where repetitive members are spaced not more than 24 inches. For wider spacing, F_b values shall be reduced 13%. Values for surfaced dry or surfaced green lumber apply at 19% maximum moisture content in use.

Multi-Species Country Grademark and Grade	Size	Design Value in Bending, F_b			Compression perpendicular to grain, $F_{c\perp}$	Modulus of Elasticity, E	Grading Rules Agency
		Normal Duration	Snow Loading	7-Day Loading			
N Spr-Sc P(I) FIN							
Select Structural	2x4	2,245	2,580	2,805	210	1,500,000	PLIB
No. 1		1,425	1,635	1,780	210	1,400,000	
No. 2		1,080	1,240	1,350	210	1,200,000	
No. 3		645	745	810	210	1,100,000	
Stud		725	835	910	210	1,100,000	
Construction Standard		835	960	1,040	210	1,100,000	
Standard		460	530	575	210	1,000,000	
Utility		230	265	290	210	1,000,000	
Select Structural	2x6	1,945	2,235	2,430	210	1,500,000	
No. 1		1,235	1,420	1,540	210	1,400,000	
No. 2		935	1,075	1,170	210	1,200,000	
No. 3		560	645	700	210	1,100,000	
Stud	660	760	825	210	1,100,000		
Select Structural	2x8	1,795	2,065	2,245	210	1,500,000	
No. 1		1,140	1,310	1,425	210	1,400,000	
No. 2		865	990	1,080	210	1,200,000	
No. 3		520	595	645	210	1,100,000	
Select Structural	2x10	1,645	1,890	2,055	210	1,500,000	
No. 1		1,045	1,200	1,305	210	1,400,000	
No. 2		790	910	990	210	1,200,000	
No. 3		475	545	595	210	1,100,000	
Select Structural	2x12	1,495	1,720	1,870	210	1,500,000	
No. 1		950	1,090	1,185	210	1,400,000	
No. 2		720	825	900	210	1,200,000	
No. 3		430	495	540	210	1,100,000	
N Spr-Sc P(I) GER							
Select Structural	2x4	2,070	2,380	2,590	355	1,600,000	PLIB
No. 1		1,380	1,585	1,725	355	1,400,000	
No. 2		1,210	1,390	1,510	355	1,100,000	
No. 3		690	795	865	355	1,000,000	
Stud		695	800	870	355	1,000,000	
Construction Standard		920	1,060	1,150	355	1,100,000	
Standard		520	595	645	355	1,000,000	
Utility		260	300	325	355	900,000	
Select Structural	2x6	1,795	2,065	2,245	355	1,600,000	
No. 1		1,195	1,375	1,495	355	1,400,000	
No. 2		1,045	1,205	1,310	355	1,100,000	
No. 3		600	690	750	355	1,000,000	
Stud	635	725	790	355	1,000,000		
Select Structural	2x8	1,655	1,905	2,070	355	1,600,000	
No. 1		1,105	1,270	1,380	355	1,400,000	
No. 2		965	1,110	1,210	355	1,100,000	
No. 3		550	635	690	355	1,000,000	
Select Structural	2x10	1,520	1,745	1,900	355	1,600,000	
No. 1		1,010	1,165	1,265	355	1,400,000	
No. 2		885	1,020	1,105	355	1,100,000	
No. 3		505	580	635	355	1,000,000	
Select Structural	2x12	1,380	1,585	1,725	355	1,600,000	
No. 1		920	1,060	1,150	355	1,400,000	
No. 2		805	925	1,005	355	1,100,000	
No. 3		460	530	575	355	1,000,000	

TABLE W-1 DESIGN VALUES FOR JOISTS AND RAFTERS - MULTI-SPECIES AND COUNTRY GRADEMARKED VISUALLY GRADED LUMBER^{1,2}

These F_b values are for use where repetitive members are spaced not more than 24 inches. For wider spacing, F_b values shall be reduced 13%. Values for surfaced dry or surfaced green lumber apply at 19% maximum moisture content in use.

Multi-Species Country Grademark and Grade	Size	Design Value in Bending, F_b			Compression perpendicular to grain, $F_{c\perp}$	Modulus of Elasticity, E	Grading Rules Agency
		Normal Duration	Snow Loading	7-Day Loading			
N Spr-Sc P(I) ROM							
N Spr-Sc P(I) ROM-UKR							
Select Structural	2x4	2,155	2,480	2,695	270	1,500,000	PLIB
No. 1		1,465	1,685	1,835	270	1,400,000	
No. 2		1,250	1,440	1,565	270	1,200,000	
No. 3		735	845	915	270	1,100,000	
Stud		725	835	910	270	1,100,000	
Construction Standard		980	1,125	1,220	270	1,100,000	
Utility		545	630	685	270	1,000,000	
Utility		260	300	325	270	1,000,000	
Select Structural	2x6	1,870	2,150	2,335	270	1,500,000	
No. 1		1,270	1,460	1,590	270	1,400,000	
No. 2		1,085	1,245	1,355	270	1,200,000	
No. 3		635	730	795	270	1,100,000	
Stud		660	760	825	270	1,100,000	
Select Structural	2x8	1,725	1,985	2,155	270	1,500,000	
No. 1		1,175	1,350	1,465	270	1,400,000	
No. 2		1,000	1,150	1,250	270	1,200,000	
No. 3		585	675	735	270	1,100,000	
Select Structural	2x10	1,580	1,820	1,975	270	1,500,000	
No. 1		1,075	1,235	1,345	270	1,400,000	
No. 2		915	1,055	1,145	270	1,200,000	
No. 3		540	620	670	270	1,100,000	
Select Structural	2x12	1,440	1,655	1,795	270	1,500,000	
No. 1		980	1,125	1,220	270	1,400,000	
No. 2		835	960	1,040	270	1,200,000	
No. 3		490	560	610	270	1,100,000	

TABLE W-1 DESIGN VALUES FOR JOISTS AND RAFTERS - MULTI-SPECIES AND COUNTRY GRADEMARKED VISUALLY GRADED LUMBER^{1,2}

These F_b values are for use where repetitive members are spaced not more than 24 inches. For wider spacing, F_b values shall be reduced 13%. Values for surfaced dry or surfaced green lumber apply at 19% maximum moisture content in use.

Multi-Species Country Grademark and Grade	Size	Design Value in Bending, F_b			Compression perpendicular to grain, $F_{c\perp}$	Modulus of Elasticity, E	Grading Rules Agency
		Normal Duration	Snow Loading	7-Day Loading			
N Spr-Sc P(I) SW							
Select Structural	2x4	2,155	2,480	2,695	285	1,600,000	PLIB
No. 1		1,425	1,635	1,780	285	1,400,000	
No. 2		990	1,140	1,240	285	1,200,000	
No. 3		560	645	700	285	1,100,000	
Stud		570	655	710	285	1,100,000	
Construction Standard		750	860	935	285	1,200,000	
Standard		430	495	540	285	1,100,000	
Utility		200	230	250	285	1,000,000	
Select Structural	2x6	1,870	2,150	2,335	285	1,600,000	
No. 1		1,235	1,420	1,540	285	1,400,000	
No. 2		860	990	1,075	285	1,200,000	
No. 3		485	560	605	285	1,100,000	
Stud		520	595	645	285	1,100,000	
Select Structural	2x8	1,725	1,985	2,155	285	1,600,000	
No. 1		1,140	1,310	1,425	285	1,400,000	
No. 2		795	915	990	285	1,200,000	
No. 3		450	515	560	285	1,100,000	
Select Structural	2x10	1,580	1,820	1,975	285	1,600,000	
No. 1		1,045	1,200	1,305	285	1,400,000	
No. 2		725	835	910	285	1,200,000	
No. 3		410	475	515	285	1,100,000	
Select Structural	2x12	1,440	1,655	1,795	285	1,600,000	
No. 1		950	1,090	1,185	285	1,400,000	
No. 2		660	760	825	285	1,200,000	
No. 3		375	430	465	285	1,100,000	

TABLE W-1 DESIGN VALUES FOR JOISTS AND RAFTERS - MULTI-SPECIES AND COUNTRY GRADEMARKED VISUALLY GRADED LUMBER^{1,2}

These F_b values are for use where repetitive members are spaced not more than 24 inches. For wider spacing, F_b values shall be reduced 13%. Values for surfaced dry or surfaced green lumber apply at 19% maximum moisture content in use.

Multi-Species Country Grademark and Grade	Size	Design Value in Bending, F_b			Compression perpendicular to grain, $F_{c\perp}$	Modulus of Elasticity, E	Grading Rules Agency
		Normal Duration	Snow Loading	7-Day Loading			
N Spr-S Fir (I) GER	2x4						PLIB
N Spr-S Fir (I) N FRA							
N Spr-S Fir(I) GER N FRA							
Select Structural		1,640	1,885	2,050	355	1,500,000	
No. 1		1,250	1,440	1,565	355	1,400,000	
No. 2		1,250	1,440	1,565	355	1,200,000	
No. 3		735	845	915	355	1,100,000	
Stud		725	835	910	355	1,100,000	
Construction Standard		950	1,090	1,185	355	1,100,000	
Utility		545	630	685	355	1,000,000	
		260	300	325	355	900,000	
Select Structural	2x6	1,420	1,635	1,775	355	1,500,000	PLIB
No. 1		1,085	1,245	1,355	355	1,400,000	
No. 2		1,085	1,245	1,355	355	1,200,000	
No. 3		635	730	795	355	1,100,000	
Stud		660	760	825	355	1,100,000	
Select Structural	2x8	1,310	1,510	1,640	355	1,500,000	PLIB
No. 1		1,000	1,150	1,250	355	1,400,000	
No. 2		1,000	1,150	1,250	355	1,200,000	
No. 3		585	675	735	355	1,100,000	
Select Structural	2x10	1,200	1,380	1,500	355	1,500,000	PLIB
No. 1		915	1,055	1,145	355	1,400,000	
No. 2		915	1,055	1,145	355	1,200,000	
No. 3		540	620	670	355	1,100,000	
Select Structural	2x12	1,095	1,255	1,365	355	1,500,000	PLIB
No. 1		835	960	1,040	355	1,400,000	
No. 2		835	960	1,040	355	1,200,000	
No. 3		490	560	610	355	1,100,000	

TABLE W-1 DESIGN VALUES FOR JOISTS AND RAFTERS - MULTI-SPECIES AND COUNTRY GRADEMARKED VISUALLY GRADED LUMBER^{1,2}

These F_b values are for use where repetitive members are spaced not more than 24 inches. For wider spacing, F_b values shall be reduced 13%. Values for surfaced dry or surfaced green lumber apply at 19% maximum moisture content in use.

Multi-Species Country Grademark and Grade	Size	Design Value in Bending, F_b			Compression perpendicular to grain, $F_{c\perp}$	Modulus of Elasticity, E	Grading Rules Agency
		Normal Duration	Snow Loading	7-Day Loading			
N Spr-Sc P-DF (I) GER							
Select Structural	2x4	2,070	2,380	2,590	355	1,600,000	PLIB
No. 1		1,380	1,585	1,725	355	1,400,000	
No. 2		1,210	1,390	1,510	355	1,100,000	
No. 3		690	795	865	355	1,000,000	
Stud		695	800	870	355	1,000,000	
Construction		920	1,060	1,150	355	1,100,000	
Standard		520	595	645	355	1,000,000	
Utility		260	300	325	355	900,000	
Select Structural	2x6	1,795	2,065	2,245	355	1,600,000	
No. 1		1,195	1,375	1,495	355	1,400,000	
No. 2		1,045	1,205	1,310	355	1,100,000	
No. 3		600	690	750	355	1,000,000	
Stud		635	725	790	355	1,000,000	
Select Structural	2x8	1,655	1,905	2,070	355	1,600,000	
No. 1		1,105	1,270	1,380	355	1,400,000	
No. 2		965	1,110	1,210	355	1,100,000	
No. 3		550	635	690	355	1,000,000	
Select Structural	2x10	1,520	1,745	1,900	355	1,600,000	
No. 1		1,010	1,165	1,265	355	1,400,000	
No. 2		885	1,020	1,105	355	1,100,000	
No. 3		505	580	635	355	1,000,000	
Select Structural	2x12	1,380	1,585	1,725	355	1,600,000	
No. 1		920	1,060	1,150	355	1,400,000	
No. 2		805	925	1,005	355	1,100,000	
No. 3		460	530	575	355	1,000,000	
N Spr-Sc P-DF-L (I) GER							
Select Structural	2x4	2,070	2,380	2,590	355	1,600,000	PLIB
No. 1		1,380	1,585	1,725	355	1,400,000	
No. 2		1,210	1,390	1,510	355	1,100,000	
No. 3		690	795	865	355	1,000,000	
Stud		695	800	870	355	1,000,000	
Construction		920	1,060	1,150	355	1,100,000	
Standard		520	595	645	355	1,000,000	
Utility		260	300	325	355	900,000	
Select Structural	2x6	1,795	2,065	2,245	355	1,600,000	
No. 1		1,195	1,375	1,495	355	1,400,000	
No. 2		1,045	1,205	1,310	355	1,100,000	
No. 3		600	690	750	355	1,000,000	
Stud		635	725	790	355	1,000,000	
Select Structural	2x8	1,655	1,905	2,070	355	1,600,000	
No. 1		1,105	1,270	1,380	355	1,400,000	
No. 2		965	1,110	1,210	355	1,100,000	
No. 3		550	635	690	355	1,000,000	
Select Structural	2x10	1,520	1,745	1,900	355	1,600,000	
No. 1		1,010	1,165	1,265	355	1,400,000	
No. 2		885	1,020	1,105	355	1,100,000	
No. 3		505	580	635	355	1,000,000	
Select Structural	2x12	1,380	1,585	1,725	355	1,600,000	
No. 1		920	1,060	1,150	355	1,400,000	
No. 2		805	925	1,005	355	1,100,000	
No. 3		460	530	575	355	1,000,000	

TABLE W-1 DESIGN VALUES FOR JOISTS AND RAFTERS - MULTI-SPECIES AND COUNTRY GRADEMARKED VISUALLY GRADED LUMBER^{1,2}

These F_b values are for use where repetitive members are spaced not more than 24 inches. For wider spacing, F_b values shall be reduced 13%. Values for surfaced dry or surfaced green lumber apply at 19% maximum moisture content in use.

Multi-Species Country Grademark and Grade	Size	Design Value in Bending, F_b			Compression perpendicular to grain, $F_{c\perp}$	Modulus of Elasticity, E	Grading Rules Agency
		Normal Duration	Snow Loading	7-Day Loading			
N Spr-Sc P-DF-S Fir (I) GER							
Select Structural	2x4	1,640	1,885	2,050	355	1,500,000	PLIB
No. 1		1,250	1,440	1,565	355	1,400,000	
No. 2		1,210	1,390	1,510	355	1,100,000	
No. 3		690	795	865	355	1,000,000	
Stud		695	800	870	355	1,000,000	
Construction Standard		920	1,060	1,150	355	1,100,000	
Standard		520	595	645	355	1,000,000	
Utility		260	300	325	355	900,000	
Select Structural	2x6	1,420	1,635	1,775	355	1,500,000	
No. 1		1,085	1,245	1,355	355	1,400,000	
No. 2		1,045	1,205	1,310	355	1,100,000	
No. 3		600	690	750	355	1,000,000	
Stud		635	725	790	355	1,000,000	
Select Structural	2x8	1,310	1,510	1,640	355	1,500,000	
No. 1		1,000	1,150	1,250	355	1,400,000	
No. 2		965	1,110	1,210	355	1,100,000	
No. 3		550	635	690	355	1,000,000	
Select Structural	2x10	1,200	1,380	1,500	355	1,500,000	
No. 1		915	1,055	1,145	355	1,400,000	
No. 2		885	1,020	1,105	355	1,100,000	
No. 3		505	580	635	355	1,000,000	
Select Structural	2x12	1,095	1,255	1,365	355	1,500,000	
No. 1		835	960	1,040	355	1,400,000	
No. 2		805	925	1,005	355	1,100,000	
No. 3		460	530	575	355	1,000,000	

TABLE W-1 DESIGN VALUES FOR JOISTS AND RAFTERS - MULTI-SPECIES AND COUNTRY GRADEMARKED VISUALLY GRADED LUMBER^{1,2}

These F_b values are for use where repetitive members are spaced not more than 24 inches. For wider spacing, F_b values shall be reduced 13%. Values for surfaced dry or surfaced green lumber apply at 19% maximum moisture content in use.

Multi-Species Country Grademark and Grade	Size	Design Value in Bending, F_b			Compression perpendicular to grain, $F_{c\perp}$	Modulus of Elasticity, E	Grading Rules Agency
		Normal Duration	Snow Loading	7-Day Loading			
NSPR/SCOTP(I)EST/FIN/GER/LIT/ROM /SW/UKR							
Select Structural	2x4	1,985	2,280	2,480	210	1,500,000	TP
No. 1		1,380	1,585	1,725	210	1,400,000	
No. 2		990	1,140	1,240	210	1,100,000	
No. 3		560	645	700	210	1,000,000	
Stud		570	655	710	210	1,000,000	
Construction		750	860	935	210	1,100,000	
Standard		430	495	540	210	1,000,000	
Utility		200	230	250	210	900,000	
Select Structural	2x6	1,720	1,975	2,150	210	1,500,000	
No. 1		1,195	1,375	1,495	210	1,400,000	
No. 2		860	990	1,075	210	1,100,000	
No. 3		485	560	605	210	1,000,000	
Stud		520	595	645	210	1,000,000	
Select Structural	2x8	1,585	1,825	1,985	210	1,500,000	
No. 1		1,105	1,270	1,380	210	1,400,000	
No. 2		795	915	990	210	1,100,000	
No. 3		450	515	560	210	1,000,000	
Select Structural	2x10	1,455	1,675	1,820	210	1,500,000	
No. 1		1,010	1,165	1,265	210	1,400,000	
No. 2		725	835	910	210	1,100,000	
No. 3		410	475	515	210	1,000,000	
Select Structural	2x12	1,325	1,520	1,655	210	1,500,000	
No. 1		920	1,060	1,150	210	1,400,000	
No. 2		660	760	825	210	1,100,000	
No. 3		375	430	465	210	1,000,000	

TABLE W-1 DESIGN VALUES FOR JOISTS AND RAFTERS - MULTI-SPECIES AND COUNTRY GRADEMARKED VISUALLY GRADED LUMBER^{1,2}

These F_b values are for use where repetitive members are spaced not more than 24 inches. For wider spacing, F_b values shall be reduced 13%. Values for surfaced dry or surfaced green lumber apply at 19% maximum moisture content in use.

Multi-Species Country Grademark and Grade	Size	Design Value in Bending, F_b			Compression perpendicular to grain, $F_{c\perp}$	Modulus of Elasticity, E	Grading Rules Agency
		Normal Duration	Snow Loading	7-Day Loading			
NSPR/SCOTP(D)GER/ROM/SW/UKR							
Select Structural	2x4	2,070	2,380	2,590	270	1,500,000	TP
No. 1		1,380	1,585	1,725	270	1,400,000	
No. 2		990	1,140	1,240	270	1,100,000	
No. 3		560	645	700	270	1,000,000	
Stud		570	655	710	270	1,000,000	
Construction Standard		750	860	935	270	1,100,000	
Standard		430	495	540	270	1,000,000	
Utility		200	230	250	270	900,000	
Select Structural	2x6	1,795	2,065	2,245	270	1,500,000	
No. 1		1,195	1,375	1,495	270	1,400,000	
No. 2		860	990	1,075	270	1,100,000	
No. 3		485	560	605	270	1,000,000	
Stud	520	595	645	270	1,000,000		
Select Structural	2x8	1,655	1,905	2,070	270	1,500,000	
No. 1		1,105	1,270	1,380	270	1,400,000	
No. 2		795	915	990	270	1,100,000	
No. 3		450	515	560	270	1,000,000	
Select Structural	2x10	1,520	1,745	1,900	270	1,500,000	
No. 1		1,010	1,165	1,265	270	1,400,000	
No. 2		725	835	910	270	1,100,000	
No. 3		410	475	515	270	1,000,000	
Select Structural	2x12	1,380	1,585	1,725	270	1,500,000	
No. 1		920	1,060	1,150	270	1,400,000	
No. 2		660	760	825	270	1,100,000	
No. 3		375	430	465	270	1,000,000	

TABLE W-1 DESIGN VALUES FOR JOISTS AND RAFTERS - MULTI-SPECIES AND COUNTRY GRADEMARKED VISUALLY GRADED LUMBER^{1,2}

These F_b values are for use where repetitive members are spaced not more than 24 inches. For wider spacing, F_b values shall be reduced 13%. Values for surfaced dry or surfaced green lumber apply at 19% maximum moisture content in use.

Multi-Species Country Grademark and Grade	Size	Design Value in Bending, F_b			Compression perpendicular to grain, $F_{c\perp}$	Modulus of Elasticity, E	Grading Rules Agency
		Normal Duration	Snow Loading	7-Day Loading			
NSPR/SCOTP(D)GER/SW							
Select Structural	2x4	2,070	2,380	2,590	285	1,600,000	TP
No. 1		1,380	1,585	1,725	285	1,400,000	
No. 2		990	1,140	1,240	285	1,100,000	
No. 3		560	645	700	285	1,000,000	
Stud		570	655	710	285	1,000,000	
Construction Standard		750	860	935	285	1,100,000	
Standard		430	495	540	285	1,000,000	
Utility		200	230	250	285	900,000	
Select Structural	2x6	1,795	2,065	2,245	285	1,600,000	
No. 1		1,195	1,375	1,495	285	1,400,000	
No. 2		860	990	1,075	285	1,100,000	
No. 3		485	560	605	285	1,000,000	
Stud		520	595	645	285	1,000,000	
Select Structural	2x8	1,655	1,905	2,070	285	1,600,000	
No. 1		1,105	1,270	1,380	285	1,400,000	
No. 2		795	915	990	285	1,100,000	
No. 3		450	515	560	285	1,000,000	
Select Structural	2x10	1,520	1,745	1,900	285	1,600,000	
No. 1		1,010	1,165	1,265	285	1,400,000	
No. 2		725	835	910	285	1,100,000	
No. 3		410	475	515	285	1,000,000	
Select Structural	2x12	1,380	1,585	1,725	285	1,600,000	
No. 1		920	1,060	1,150	285	1,400,000	
No. 2		660	760	825	285	1,100,000	
No. 3		375	430	465	285	1,000,000	
NSPR/SCOTP(I)SW							
Select Structural	2x4	2,155	2,480	2,695	285	1,600,000	
No. 1		1,425	1,635	1,780	285	1,400,000	
No. 2		990	1,140	1,240	285	1,200,000	
No. 3		560	645	700	285	1,100,000	
Stud		570	655	710	285	1,100,000	
Construction Standard		750	860	935	285	1,200,000	
Standard		430	495	540	285	1,100,000	
Utility		200	230	250	285	1,000,000	
Select Structural	2x6	1,870	2,150	2,335	285	1,600,000	
No. 1		1,235	1,420	1,540	285	1,400,000	
No. 2		860	990	1,075	285	1,200,000	
No. 3		485	560	605	285	1,100,000	
Stud		520	595	645	285	1,100,000	
Select Structural	2x8	1,725	1,985	2,155	285	1,600,000	
No. 1		1,140	1,310	1,425	285	1,400,000	
No. 2		795	915	990	285	1,200,000	
No. 3		450	515	560	285	1,100,000	
Select Structural	2x10	1,580	1,820	1,975	285	1,600,000	
No. 1		1,045	1,200	1,305	285	1,400,000	
No. 2		725	835	910	285	1,200,000	
No. 3		410	475	515	285	1,100,000	
Select Structural	2x12	1,440	1,655	1,795	285	1,600,000	
No. 1		950	1,090	1,185	285	1,400,000	
No. 2		660	760	825	285	1,200,000	
No. 3		375	430	465	285	1,100,000	

TABLE W-1 DESIGN VALUES FOR JOISTS AND RAFTERS - MULTI-SPECIES AND COUNTRY GRADEMARKED VISUALLY GRADED LUMBER^{1,2}

These F_b values are for use where repetitive members are spaced not more than 24 inches. For wider spacing, F_b values shall be reduced 13%. Values for surfaced dry or surfaced green lumber apply at 19% maximum moisture content in use.

Multi-Species Country Grademark and Grade	Size	Design Value in Bending, F_b			Compression perpendicular to grain, $F_{c\perp}$	Modulus of Elasticity, E	Grading Rules Agency
		Normal Duration	Snow Loading	7-Day Loading			
NSPR/SCOTP/SFIR(D)GER							
Select Structural	2x4	1,640	1,885	2,050	355	1,500,000	TP
No. 1		1,250	1,440	1,565	355	1,400,000	
No. 2		1,210	1,390	1,510	355	1,100,000	
No. 3		690	795	865	355	1,000,000	
Stud		695	800	870	355	1,000,000	
Construction		920	1,060	1,150	355	1,100,000	
Standard		520	595	645	355	1,000,000	
Utility		260	300	325	355	900,000	
Select Structural	2x6	1,420	1,635	1,775	355	1,500,000	
No. 1		1,085	1,245	1,355	355	1,400,000	
No. 2		1,045	1,205	1,310	355	1,100,000	
No. 3		600	690	750	355	1,000,000	
Stud	635	725	790	355	1,000,000		
Select Structural	2x8	1,310	1,510	1,640	355	1,500,000	
No. 1		1,000	1,150	1,250	355	1,400,000	
No. 2		965	1,110	1,210	355	1,100,000	
No. 3		550	635	690	355	1,000,000	
Select Structural	2x10	1,200	1,380	1,500	355	1,500,000	
No. 1		915	1,055	1,145	355	1,400,000	
No. 2		885	1,020	1,105	355	1,100,000	
No. 3		505	580	635	355	1,000,000	
Select Structural	2x12	1,095	1,255	1,365	355	1,500,000	
No. 1		835	960	1,040	355	1,400,000	
No. 2		805	925	1,005	355	1,100,000	
No. 3		460	530	575	355	1,000,000	
PP-LP							
Select Structural	2x4	1,555	1,785	1,940	335	1,200,000	PLIB, WWPA
No. 1		1,165	1,340	1,455	335	1,100,000	
No. 2		1,165	1,340	1,455	335	1,000,000	
No. 3		645	745	810	335	900,000	
Stud		665	765	830	335	900,000	
Construction		890	1,025	1,115	335	1,000,000	
Standard		490	560	610	335	900,000	
Utility		230	265	290	335	800,000	
Select Structural	2x6	1,345	1,545	1,680	335	1,200,000	
No. 1		1,010	1,160	1,260	335	1,100,000	
No. 2		1,010	1,160	1,260	335	1,000,000	
No. 3		560	645	700	335	900,000	
Stud	605	695	755	335	900,000		
Select Structural	2x8	1,240	1,430	1,555	335	1,200,000	
No. 1		930	1,070	1,165	335	1,100,000	
No. 2		930	1,070	1,165	335	1,000,000	
No. 3		520	595	645	335	900,000	
Select Structural	2x10	1,140	1,310	1,425	335	1,200,000	
No. 1		855	980	1,065	335	1,100,000	
No. 2		855	980	1,065	335	1,000,000	
No. 3		475	545	595	335	900,000	
Select Structural	2x12	1,035	1,190	1,295	335	1,200,000	
No. 1		775	895	970	335	1,100,000	
No. 2		775	895	970	335	1,000,000	
No. 3		430	495	540	335	900,000	

TABLE W-1 DESIGN VALUES FOR JOISTS AND RAFTERS - MULTI-SPECIES AND COUNTRY GRADEMARKED VISUALLY GRADED LUMBER^{1,2}

These F_b values are for use where repetitive members are spaced not more than 24 inches. For wider spacing, F_b values shall be reduced 13%. Values for surfaced dry or surfaced green lumber apply at 19% maximum moisture content in use.

Multi-Species Country Grademark and Grade	Size	Design Value in Bending, F_b			Compression perpendicular to grain, $F_{c\perp}$	Modulus of Elasticity, E	Grading Rules Agency
		Normal Duration	Snow Loading	7-Day Loading			
R. PINE/NSPR(N)/SPF/SPF(S)							
Select Structural	2x4	1,640	1,885	2,050	335	1,100,000	TP
No. 1		1,080	1,240	1,350	335	1,100,000	
No. 2		1,080	1,240	1,350	335	1,100,000	
No. 3		605	695	755	335	1,000,000	
Stud		600	690	750	335	1,000,000	
Construction		805	925	1,005	335	1,000,000	
Standard		460	530	575	335	900,000	
Utility		200	230	250	335	900,000	
Select Structural	2x6	1,420	1,635	1,775	335	1,100,000	
No. 1		935	1,075	1,170	335	1,100,000	
No. 2		935	1,075	1,170	335	1,100,000	
No. 3		525	600	655	335	1,000,000	
Stud		545	630	685	335	1,000,000	
Select Structural	2x8	1,310	1,510	1,640	335	1,100,000	
No. 1		865	990	1,080	335	1,100,000	
No. 2		865	990	1,080	335	1,100,000	
No. 3		485	555	605	335	1,000,000	
Select Structural	2x10	1,200	1,380	1,500	335	1,100,000	
No. 1		790	910	990	335	1,100,000	
No. 2		790	910	990	335	1,100,000	
No. 3		445	510	555	335	1,000,000	
Select Structural	2x12	1,095	1,255	1,365	335	1,100,000	
No. 1		720	825	900	335	1,100,000	
No. 2		720	825	900	335	1,100,000	
No. 3		405	465	505	335	1,000,000	
Sc P (I) EST FIN GER LTH SW							
Select Structural	2x4	1,985	2,280	2,480	210	1,500,000	PLIB
No. 1		1,380	1,585	1,725	210	1,400,000	
No. 2		990	1,140	1,240	210	1,100,000	
No. 3		560	645	700	210	1,000,000	
Stud		570	655	710	210	1,000,000	
Construction		750	860	935	210	1,100,000	
Standard		430	495	540	210	1,000,000	
Utility		200	230	250	210	900,000	
Select Structural	2x6	1,720	1,975	2,150	210	1,500,000	
No. 1		1,195	1,375	1,495	210	1,400,000	
No. 2		860	990	1,075	210	1,100,000	
No. 3		485	560	605	210	1,000,000	
Stud		520	595	645	210	1,000,000	
Select Structural	2x8	1,585	1,825	1,985	210	1,500,000	
No. 1		1,105	1,270	1,380	210	1,400,000	
No. 2		795	915	990	210	1,100,000	
No. 3		450	515	560	210	1,000,000	
Select Structural	2x10	1,455	1,675	1,820	210	1,500,000	
No. 1		1,010	1,165	1,265	210	1,400,000	
No. 2		725	835	910	210	1,100,000	
No. 3		410	475	515	210	1,000,000	
Select Structural	2x12	1,325	1,520	1,655	210	1,500,000	
No. 1		920	1,060	1,150	210	1,400,000	
No. 2		660	760	825	210	1,100,000	
No. 3		375	430	465	210	1,000,000	

TABLE W-1 DESIGN VALUES FOR JOISTS AND RAFTERS - MULTI-SPECIES AND COUNTRY GRADEMARKED VISUALLY GRADED LUMBER^{1,2}

These F_b values are for use where repetitive members are spaced not more than 24 inches. For wider spacing, F_b values shall be reduced 13%. Values for surfaced dry or surfaced green lumber apply at 19% maximum moisture content in use.

Multi-Species Country Grademark and Grade	Size	Design Value in Bending, F_b			Compression perpendicular to grain, $F_{c\perp}$	Modulus of Elasticity, E	Grading Rules Agency
		Normal Duration	Snow Loading	7-Day Loading			
Sitka Sp/HF							
Select Structural	2x4	2,245	2,580	2,805	335	1,300,000	PLIB
No. 1		1,510	1,735	1,885	335	1,200,000	
No. 2		1,335	1,535	1,670	335	1,100,000	
No. 3		775	895	970	335	1,000,000	
Stud		760	875	950	335	1,000,000	
Construction		1,005	1,155	1,260	335	1,000,000	
Standard		575	660	720	335	900,000	
Utility		260	300	325	335	900,000	
Select Structural	2x6	1,945	2,235	2,430	335	1,300,000	
No. 1		1,310	1,505	1,635	335	1,200,000	
No. 2		1,160	1,330	1,450	335	1,100,000	
No. 3		675	775	840	335	1,000,000	
Stud		690	795	865	335	1,000,000	
Select Structural	2x8	1,795	2,065	2,245	335	1,300,000	
No. 1		1,210	1,390	1,510	335	1,200,000	
No. 2		1,070	1,230	1,335	335	1,100,000	
No. 3		620	715	775	335	1,000,000	
Select Structural	2x10	1,645	1,890	2,055	335	1,300,000	
No. 1		1,105	1,275	1,385	335	1,200,000	
No. 2		980	1,125	1,225	335	1,100,000	
No. 3		570	655	710	335	1,000,000	
Select Structural	2x12	1,495	1,720	1,870	335	1,300,000	
No. 1		1,005	1,155	1,260	335	1,200,000	
No. 2		890	1,025	1,115	335	1,100,000	
No. 3		520	595	645	335	1,000,000	

TABLE W-1 DESIGN VALUES FOR JOISTS AND RAFTERS - MULTI-SPECIES AND COUNTRY GRADEMARKED VISUALLY GRADED LUMBER^{1,2}

These F_b values are for use where repetitive members are spaced not more than 24 inches. For wider spacing, F_b values shall be reduced 13%. Values for surfaced dry or surfaced green lumber apply at 19% maximum moisture content in use.

Multi-Species Country Grademark and Grade	Size	Design Value in Bending, F_b			Compression perpendicular to grain, $F_{c\perp}$	Modulus of Elasticity, E	Grading Rules Agency
		Normal Duration	Snow Loading	7-Day Loading			
SPF/SPF-S	2x4						NLGA, PLIB, TP, WWPA
SPF/SPF(S)							
SPF^S/SPF							
SPF/SPF-s							
S-P-F/SPFs							
Select Structural		2,155	2,480	2,695	335	1,300,000	
No. 1		1,510	1,735	1,885	335	1,200,000	
No. 2		1,335	1,535	1,670	335	1,100,000	
No. 3		775	895	970	335	1,000,000	
Stud		760	875	950	335	1,000,000	
Construction	1,005	1,155	1,260	335	1,000,000		
Standard	575	660	720	335	900,000		
Utility	260	300	325	335	900,000		
Select Structural	2x6	1,870	2,150	2,335	335	1,300,000	NLGA, PLIB, TP, WWPA
No. 1		1,310	1,505	1,635	335	1,200,000	
No. 2		1,160	1,330	1,450	335	1,100,000	
No. 3		675	775	840	335	1,000,000	
Stud		690	795	865	335	1,000,000	
Select Structural	2x8	1,725	1,985	2,155	335	1,300,000	NLGA, PLIB, TP, WWPA
No. 1		1,210	1,390	1,510	335	1,200,000	
No. 2		1,070	1,230	1,335	335	1,100,000	
No. 3		620	715	775	335	1,000,000	
Select Structural	2x10	1,580	1,820	1,975	335	1,300,000	NLGA, PLIB, TP, WWPA
No. 1		1,105	1,275	1,385	335	1,200,000	
No. 2		980	1,125	1,225	335	1,100,000	
No. 3		570	655	710	335	1,000,000	
Select Structural	2x12	1,440	1,655	1,795	335	1,300,000	NLGA, PLIB, TP, WWPA
No. 1		1,005	1,155	1,260	335	1,200,000	
No. 2		890	1,025	1,115	335	1,100,000	
No. 3		520	595	645	335	1,000,000	

TABLE W-1 DESIGN VALUES FOR JOISTS AND RAFTERS - MULTI-SPECIES AND COUNTRY GRADEMARKED VISUALLY GRADED LUMBER^{1,2}

These F_b values are for use where repetitive members are spaced not more than 24 inches. For wider spacing, F_b values shall be reduced 13%. Values for surfaced dry or surfaced green lumber apply at 19% maximum moisture content in use.

Multi-Species Country Grademark and Grade	Size	Design Value in Bending, F_b			Compression perpendicular to grain, $F_{c\perp}$	Modulus of Elasticity, E	Grading Rules Agency
		Normal Duration	Snow Loading	7-Day Loading			
SPF/SPF-S AS/NSPR/SCOTP/SFIR(I)AUS							
/EST/FIN/GER/LTH/SW							
Select Structural	2x4	1,640	1,885	2,050	210	1,300,000	TP
No. 1		1,250	1,440	1,565	210	1,200,000	
No. 2		990	1,140	1,240	210	1,100,000	
No. 3		560	645	700	210	1,000,000	
Stud		570	655	710	210	1,000,000	
Construction		750	860	935	210	1,000,000	
Standard		430	495	540	210	900,000	
Utility		200	230	250	210	900,000	
Select Structural	2x6	1,420	1,635	1,775	210	1,300,000	
No. 1		1,085	1,245	1,355	210	1,200,000	
No. 2		860	990	1,075	210	1,100,000	
No. 3		485	560	605	210	1,000,000	
Stud		520	595	645	210	1,000,000	
Select Structural	2x8	1,310	1,510	1,640	210	1,300,000	
No. 1		1,000	1,150	1,250	210	1,200,000	
No. 2		795	915	990	210	1,100,000	
No. 3		450	515	560	210	1,000,000	
Select Structural		2x10	1,200	1,380	1,500	210	
No. 1	915		1,055	1,145	210	1,200,000	
No. 2	725		835	910	210	1,100,000	
No. 3	410		475	515	210	1,000,000	
Select Structural	2x12	1,095	1,255	1,365	210	1,300,000	
No. 1		835	960	1,040	210	1,200,000	
No. 2		660	760	825	210	1,100,000	
No. 3		375	430	465	210	1,000,000	

TABLE W-1 DESIGN VALUES FOR JOISTS AND RAFTERS - MULTI-SPECIES AND COUNTRY GRADEMARKED VISUALLY GRADED LUMBER^{1,2}

These F_b values are for use where repetitive members are spaced not more than 24 inches. For wider spacing, F_b values shall be reduced 13%. Values for surfaced dry or surfaced green lumber apply at 19% maximum moisture content in use.

Multi-Species Country Grademark and Grade	Size	Design Value in Bending, F_b			Compression perpendicular to grain, $F_{c\perp}$	Modulus of Elasticity, E	Grading Rules Agency
		Normal Duration	Snow Loading	7-Day Loading			
SPF/SPF-S AS/NSPR/SCOTP/SFIR(I)AUS							
/FIN/GER/SW							
Select Structural	2x4	1,640	1,885	2,050	210	1,300,000	TP
No. 1		1,250	1,440	1,565	210	1,200,000	
No. 2		990	1,140	1,240	210	1,100,000	
No. 3		560	645	700	210	1,000,000	
Stud		570	655	710	210	1,000,000	
Construction		750	860	935	210	1,000,000	
Standard		430	495	540	210	900,000	
Utility		200	230	250	210	900,000	
Select Structural	2x6	1,420	1,635	1,775	210	1,300,000	
No. 1		1,085	1,245	1,355	210	1,200,000	
No. 2		860	990	1,075	210	1,100,000	
No. 3		485	560	605	210	1,000,000	
Stud		520	595	645	210	1,000,000	
Select Structural	2x8	1,310	1,510	1,640	210	1,300,000	
No. 1		1,000	1,150	1,250	210	1,200,000	
No. 2		795	915	990	210	1,100,000	
No. 3		450	515	560	210	1,000,000	
Stud							
Select Structural	2x10	1,200	1,380	1,500	210	1,300,000	
No. 1		915	1,055	1,145	210	1,200,000	
No. 2		725	835	910	210	1,100,000	
No. 3		410	475	515	210	1,000,000	
Select Structural	2x12	1,095	1,255	1,365	210	1,300,000	
No. 1		835	960	1,040	210	1,200,000	
No. 2		660	760	825	210	1,100,000	
No. 3		375	430	465	210	1,000,000	

TABLE W-1 DESIGN VALUES FOR JOISTS AND RAFTERS - MULTI-SPECIES AND COUNTRY GRADEMARKED VISUALLY GRADED LUMBER^{1,2}

These F_b values are for use where repetitive members are spaced not more than 24 inches. For wider spacing, F_b values shall be reduced 13%. Values for surfaced dry or surfaced green lumber apply at 19% maximum moisture content in use.

Multi-Species Country Grademark and Grade	Size	Design Value in Bending, F_b			Compression perpendicular to grain, $F_{c\perp}$	Modulus of Elasticity, E	Grading Rules Agency
		Normal Duration	Snow Loading	7-Day Loading			
SPF/SPF-S AS/NSPR/SCOTP/SFIR(I)AUS /GER/ROM/SW/UKR							
Select Structural	2x4	1,640	1,885	2,050	260	1,300,000	TP
No. 1		1,250	1,440	1,565	260	1,200,000	
No. 2		990	1,140	1,240	260	1,100,000	
No. 3		560	645	700	260	1,000,000	
Stud		570	655	710	260	1,000,000	
Construction Standard		750	860	935	260	1,000,000	
Utility		430	495	540	260	900,000	
Utility		200	230	250	260	900,000	
Select Structural	2x6	1,420	1,635	1,775	260	1,300,000	
No. 1		1,085	1,245	1,355	260	1,200,000	
No. 2		860	990	1,075	260	1,100,000	
No. 3		485	560	605	260	1,000,000	
Stud		520	595	645	260	1,000,000	
Select Structural	2x8	1,310	1,510	1,640	260	1,300,000	
No. 1		1,000	1,150	1,250	260	1,200,000	
No. 2		795	915	990	260	1,100,000	
No. 3		450	515	560	260	1,000,000	
Stud		450	515	560	260	1,000,000	
Select Structural	2x10	1,200	1,380	1,500	260	1,300,000	
No. 1		915	1,055	1,145	260	1,200,000	
No. 2		725	835	910	260	1,100,000	
No. 3		410	475	515	260	1,000,000	
Stud		410	475	515	260	1,000,000	
Select Structural	2x12	1,095	1,255	1,365	260	1,300,000	
No. 1		835	960	1,040	260	1,200,000	
No. 2		660	760	825	260	1,100,000	
No. 3		375	430	465	260	1,000,000	
Stud		375	430	465	260	1,000,000	

TABLE W-1 DESIGN VALUES FOR JOISTS AND RAFTERS - MULTI-SPECIES AND COUNTRY GRADEMARKED VISUALLY GRADED LUMBER^{1,2}

These F_b values are for use where repetitive members are spaced not more than 24 inches. For wider spacing, F_b values shall be reduced 13%. Values for surfaced dry or surfaced green lumber apply at 19% maximum moisture content in use.

Multi-Species Country Grademark and Grade	Size	Design Value in Bending, F_b			Compression perpendicular to grain, $F_{c\perp}$	Modulus of Elasticity, E	Grading Rules Agency
		Normal Duration	Snow Loading	7-Day Loading			
SPF/SPF-S AS/NSPR/SCOTP/SFIR(I)AUS /EST/FIN/GER/LTH/ROM/ SW/UKR							
Select Structural	2x4	1,640	1,885	2,050	210	1,300,000	TP
No. 1		1,250	1,440	1,565	210	1,200,000	
No. 2		990	1,140	1,240	210	1,100,000	
No. 3		560	645	700	210	1,000,000	
Stud		570	655	710	210	1,000,000	
Construction		750	860	935	210	1,000,000	
Standard		430	495	540	210	900,000	
Utility		200	230	250	210	900,000	
Select Structural	2x6	1,420	1,635	1,775	210	1,300,000	
No. 1		1,085	1,245	1,355	210	1,200,000	
No. 2		860	990	1,075	210	1,100,000	
No. 3		485	560	605	210	1,000,000	
Stud		520	595	645	210	1,000,000	
Select Structural	2x8	1,310	1,510	1,640	210	1,300,000	
No. 1		1,000	1,150	1,250	210	1,200,000	
No. 2		795	915	990	210	1,100,000	
No. 3		450	515	560	210	1,000,000	
Select Structural		2x10	1,200	1,380	1,500	210	
No. 1	915		1,055	1,145	210	1,200,000	
No. 2	725		835	910	210	1,100,000	
No. 3	410		475	515	210	1,000,000	
Select Structural	2x12	1,095	1,255	1,365	210	1,300,000	
No. 1		835	960	1,040	210	1,200,000	
No. 2		660	760	825	210	1,100,000	
No. 3		375	430	465	210	1,000,000	

TABLE W-1 DESIGN VALUES FOR JOISTS AND RAFTERS - MULTI-SPECIES AND COUNTRY GRADEMARKED VISUALLY GRADED LUMBER^{1,2}

These F_b values are for use where repetitive members are spaced not more than 24 inches. For wider spacing, F_b values shall be reduced 13%. Values for surfaced dry or surfaced green lumber apply at 19% maximum moisture content in use.

Multi-Species Country Grademark and Grade	Size	Design Value in Bending, F_b			Compression perpendicular to grain, $F_{c\perp}$	Modulus of Elasticity, E	Grading Rules Agency
		Normal Duration	Snow Loading	7-Day Loading			
S-P-F/ NSpr(N)							
SPF/NSpr(N)							
Select Structural	2x4	1,640	1,885	2,050	410	1,500,000	NLGA
No. 1		1,120	1,290	1,400	410	1,300,000	
No. 2		1,120	1,290	1,400	410	1,300,000	
No. 3		645	745	810	410	1,200,000	
Stud		635	725	790	410	1,200,000	
Construction		835	960	1,040	410	1,200,000	
Standard		460	530	575	410	1,100,000	
Utility		230	265	290	410	1,100,000	
Select Structural	2x6	1,420	1,635	1,775	410	1,500,000	
No. 1		970	1,120	1,215	410	1,300,000	
No. 2		970	1,120	1,215	410	1,300,000	
No. 3		560	645	700	410	1,200,000	
Stud		575	660	720	410	1,200,000	
Select Structural	2x8	1,310	1,510	1,640	410	1,500,000	
No. 1		895	1,030	1,120	410	1,300,000	
No. 2		895	1,030	1,120	410	1,300,000	
No. 3		520	595	645	410	1,200,000	
Select Structural	2x10	1,200	1,380	1,500	410	1,500,000	
No. 1		820	945	1,030	410	1,300,000	
No. 2		820	945	1,030	410	1,300,000	
No. 3		475	545	595	410	1,200,000	
Select Structural	2x12	1,095	1,255	1,365	410	1,500,000	
No. 1		750	860	935	410	1,300,000	
No. 2		750	860	935	410	1,300,000	
No. 3		430	495	540	410	1,200,000	

TABLE W-1 DESIGN VALUES FOR JOISTS AND RAFTERS - MULTI-SPECIES AND COUNTRY GRADEMARKED VISUALLY GRADED LUMBER^{1,2}

These F_b values are for use where repetitive members are spaced not more than 24 inches. For wider spacing, F_b values shall be reduced 13%. Values for surfaced dry or surfaced green lumber apply at 19% maximum moisture content in use.

Multi-Species Country Grademark and Grade	Size	Design Value in Bending, F_b			Compression perpendicular to grain, $F_{c\perp}$	Modulus of Elasticity, E	Grading Rules Agency
		Normal Duration	Snow Loading	7-Day Loading			
S-P-F/ SPFs/NSpr(N)							
Select Structural	2x4	1,640	1,885	2,050	335	1,300,000	NLGA
No. 1		1,120	1,290	1,400	335	1,200,000	
No. 2		1,120	1,290	1,400	335	1,100,000	
No. 3		645	745	810	335	1,000,000	
Stud		635	725	790	335	1,000,000	
Construction Standard		835	960	1,040	335	1,000,000	
Standard		460	530	575	335	900,000	
Utility		230	265	290	335	900,000	
Select Structural	2x6	1,420	1,635	1,775	335	1,300,000	
No. 1		970	1,120	1,215	335	1,200,000	
No. 2		970	1,120	1,215	335	1,100,000	
No. 3		560	645	700	335	1,000,000	
Stud		575	660	720	335	1,000,000	
Select Structural	2x8	1,310	1,510	1,640	335	1,300,000	
No. 1		895	1,030	1,120	335	1,200,000	
No. 2		895	1,030	1,120	335	1,100,000	
No. 3		520	595	645	335	1,000,000	
Select Structural	2x10	1,200	1,380	1,500	335	1,300,000	
No. 1		820	945	1,030	335	1,200,000	
No. 2		820	945	1,030	335	1,100,000	
No. 3		475	545	595	335	1,000,000	
Select Structural	2x12	1,095	1,255	1,365	335	1,300,000	
No. 1		750	860	935	335	1,200,000	
No. 2		750	860	935	335	1,100,000	
No. 3		430	495	540	335	1,000,000	

TABLE W-1 DESIGN VALUES FOR JOISTS AND RAFTERS - MULTI-SPECIES AND COUNTRY GRADEMARKED VISUALLY GRADED LUMBER^{1,2}

These F_b values are for use where repetitive members are spaced not more than 24 inches. For wider spacing, F_b values shall be reduced 13%. Values for surfaced dry or surfaced green lumber apply at 19% maximum moisture content in use.

Multi-Species Country Grademark and Grade	Size	Design Value in Bending, F_b			Compression perpendicular to grain, $F_{c\perp}$	Modulus of Elasticity, E	Grading Rules Agency
		Normal Duration	Snow Loading	7-Day Loading			
SPF/SPF-S NSPR/SCOTP(I)GER							
Select Structural	2x4	2,070	2,380	2,590	335	1,300,000	TP
No. 1		1,380	1,585	1,725	335	1,200,000	
No. 2		1,210	1,390	1,510	335	1,100,000	
No. 3		690	795	865	335	1,000,000	
Stud		695	800	870	335	1,000,000	
Construction Standard		920	1,060	1,150	335	1,000,000	
Standard		520	595	645	335	900,000	
Utility		260	300	325	335	900,000	
Select Structural	2x6	1,795	2,065	2,245	335	1,300,000	
No. 1		1,195	1,375	1,495	335	1,200,000	
No. 2		1,045	1,205	1,310	335	1,100,000	
No. 3		600	690	750	335	1,000,000	
Stud		635	725	790	335	1,000,000	
Select Structural	2x8	1,655	1,905	2,070	335	1,300,000	
No. 1		1,105	1,270	1,380	335	1,200,000	
No. 2		965	1,110	1,210	335	1,100,000	
No. 3		550	635	690	335	1,000,000	
Select Structural	2x10	1,520	1,745	1,900	335	1,300,000	
No. 1		1,010	1,165	1,265	335	1,200,000	
No. 2		885	1,020	1,105	335	1,100,000	
No. 3		505	580	635	335	1,000,000	
Select Structural	2x12	1,380	1,585	1,725	335	1,300,000	
No. 1		920	1,060	1,150	335	1,200,000	
No. 2		805	925	1,005	335	1,100,000	
No. 3		460	530	575	335	1,000,000	

TABLE W-1 DESIGN VALUES FOR JOISTS AND RAFTERS - MULTI-SPECIES AND COUNTRY GRADEMARKED VISUALLY GRADED LUMBER^{1,2}

These F_b values are for use where repetitive members are spaced not more than 24 inches. For wider spacing, F_b values shall be reduced 13%. Values for surfaced dry or surfaced green lumber apply at 19% maximum moisture content in use.

Multi-Species Country Grademark and Grade	Size	Design Value in Bending, F_b			Compression perpendicular to grain, $F_{c\perp}$	Modulus of Elasticity, E	Grading Rules Agency
		Normal Duration	Snow Loading	7-Day Loading			
SPF/SPF-S NSPR/SCOTP(I)GER/ROM /SW/UKR							
Select Structural	2x4	2,070	2,380	2,590	270	1,300,000	TP
No. 1		1,380	1,585	1,725	270	1,200,000	
No. 2		990	1,140	1,240	270	1,100,000	
No. 3		560	645	700	270	1,000,000	
Stud		570	655	710	270	1,000,000	
Construction Standard		750	860	935	270	1,000,000	
Utility		430	495	540	270	900,000	
Utility		200	230	250	270	900,000	
Select Structural	2x6	1,795	2,065	2,245	270	1,300,000	
No. 1		1,195	1,375	1,495	270	1,200,000	
No. 2		860	990	1,075	270	1,100,000	
No. 3		485	560	605	270	1,000,000	
Stud		520	595	645	270	1,000,000	
Select Structural	2x8	1,655	1,905	2,070	270	1,300,000	
No. 1		1,105	1,270	1,380	270	1,200,000	
No. 2		795	915	990	270	1,100,000	
No. 3		450	515	560	270	1,000,000	
Stud		450	515	560	270	1,000,000	
Select Structural	2x10	1,520	1,745	1,900	270	1,300,000	
No. 1		1,010	1,165	1,265	270	1,200,000	
No. 2		725	835	910	270	1,100,000	
No. 3		410	475	515	270	1,000,000	
Stud		410	475	515	270	1,000,000	
Select Structural	2x12	1,380	1,585	1,725	270	1,300,000	
No. 1		920	1,060	1,150	270	1,200,000	
No. 2		660	760	825	270	1,100,000	
No. 3		375	430	465	270	1,000,000	
Stud		375	430	465	270	1,000,000	

TABLE W-1 DESIGN VALUES FOR JOISTS AND RAFTERS - MULTI-SPECIES AND COUNTRY GRADEMARKED VISUALLY GRADED LUMBER^{1,2}

These F_b values are for use where repetitive members are spaced not more than 24 inches. For wider spacing, F_b values shall be reduced 13%. Values for surfaced dry or surfaced green lumber apply at 19% maximum moisture content in use.

Multi-Species Country Grademark and Grade	Size	Design Value in Bending, F_b			Compression perpendicular to grain, $F_{c\perp}$	Modulus of Elasticity, E	Grading Rules Agency
		Normal Duration	Snow Loading	7-Day Loading			
SPF/SPF-S NSPR/SCOTP(I)GER/SW							
Select Structural	2x4	2,070	2,380	2,590	285	1,300,000	TP
No. 1		1,380	1,585	1,725	285	1,200,000	
No. 2		990	1,140	1,240	285	1,100,000	
No. 3		560	645	700	285	1,000,000	
Stud		570	655	710	285	1,000,000	
Construction Standard		750	860	935	285	1,000,000	
Standard		430	495	540	285	900,000	
Utility		200	230	250	285	900,000	
Select Structural	2x6	1,795	2,065	2,245	285	1,300,000	
No. 1		1,195	1,375	1,495	285	1,200,000	
No. 2		860	990	1,075	285	1,100,000	
No. 3		485	560	605	285	1,000,000	
Stud		520	595	645	285	1,000,000	
Select Structural	2x8	1,655	1,905	2,070	285	1,300,000	
No. 1		1,105	1,270	1,380	285	1,200,000	
No. 2		795	915	990	285	1,100,000	
No. 3		450	515	560	285	1,000,000	
Select Structural	2x10	1,520	1,745	1,900	285	1,300,000	
No. 1		1,010	1,165	1,265	285	1,200,000	
No. 2		725	835	910	285	1,100,000	
No. 3		410	475	515	285	1,000,000	
Select Structural	2x12	1,380	1,585	1,725	285	1,300,000	
No. 1		920	1,060	1,150	285	1,200,000	
No. 2		660	760	825	285	1,100,000	
No. 3		375	430	465	285	1,000,000	
SYP/WEST WOODS/NORTH SPECIES							
Select Structural	2x4	1,555	1,785	1,940	335	1,100,000	TP
No. 1		1,080	1,240	1,350	335	1,100,000	
No. 2		1,080	1,240	1,350	335	1,000,000	
No. 3		605	695	755	335	900,000	
Stud		600	690	750	335	900,000	
Construction Standard		805	925	1,005	335	1,000,000	
Standard		460	530	575	335	900,000	
Utility		200	230	250	335	800,000	
Select Structural	2x6	1,345	1,545	1,680	335	1,100,000	
No. 1		935	1,075	1,170	335	1,100,000	
No. 2		935	1,075	1,170	335	1,000,000	
No. 3		525	600	655	335	900,000	
Stud		545	630	685	335	900,000	
Select Structural	2x8	1,240	1,430	1,555	335	1,100,000	
No. 1		865	990	1,080	335	1,100,000	
No. 2		865	990	1,080	335	1,000,000	
No. 3		485	555	605	335	900,000	
Select Structural	2x10	1,140	1,310	1,425	335	1,100,000	
No. 1		790	910	990	335	1,100,000	
No. 2		790	910	990	335	1,000,000	
No. 3		445	510	555	335	900,000	
Select Structural	2x12	1,035	1,190	1,295	335	1,100,000	
No. 1		720	825	900	335	1,100,000	
No. 2		720	825	900	335	1,000,000	
No. 3		405	465	505	335	900,000	

TABLE W-1 DESIGN VALUES FOR JOISTS AND RAFTERS - MULTI-SPECIES AND COUNTRY GRADEMARKED VISUALLY GRADED LUMBER^{1,2}

These F_b values are for use where repetitive members are spaced not more than 24 inches. For wider spacing, F_b values shall be reduced 13%. Values for surfaced dry or surfaced green lumber apply at 19% maximum moisture content in use.

Multi-Species Country Grademark and Grade	Size	Design Value in Bending, F_b			Compression perpendicular to grain, $F_{c\perp}$	Modulus of Elasticity, E	Grading Rules Agency
		Normal Duration	Snow Loading	7-Day Loading			
WH-S Fir							
Select Structural	2x4	2,415	2,775	3,020	405	1,600,000	PLIB
No. 1 & Btr		1,900	2,180	2,370	405	1,500,000	
No. 1		1,680	1,935	2,100	405	1,500,000	
No. 2		1,465	1,685	1,835	405	1,300,000	
No. 3		865	990	1,080	405	1,200,000	
Stud		855	980	1,065	405	1,200,000	
Construction		1,120	1,290	1,400	405	1,300,000	
Standard		635	725	790	405	1,200,000	
Utility		290	330	360	405	1,100,000	
Select Structural	2x6	2,095	2,405	2,615	405	1,600,000	
No. 1 & Btr		1,645	1,890	2,055	405	1,500,000	
No. 1		1,460	1,675	1,820	405	1,500,000	
No. 2		1,270	1,460	1,590	405	1,300,000	
No. 3		750	860	935	405	1,200,000	
Stud	775	895	970	405	1,200,000		
Select Structural	2x8	1,930	2,220	2,415	405	1,600,000	
No. 1 & Btr		1,520	1,745	1,900	405	1,500,000	
No. 1		1,345	1,545	1,680	405	1,500,000	
No. 2		1,175	1,350	1,465	405	1,300,000	
No. 3	690	795	865	405	1,200,000		
Select Structural	2x10	1,770	2,035	2,215	405	1,600,000	
No. 1 & Btr		1,390	1,600	1,740	405	1,500,000	
No. 1		1,235	1,420	1,540	405	1,500,000	
No. 2		1,075	1,235	1,345	405	1,300,000	
No. 3		635	725	790	405	1,200,000	
Select Structural	2x12	1,610	1,850	2,015	405	1,600,000	
No. 1 & Btr		1,265	1,455	1,580	405	1,500,000	
No. 1		1,120	1,290	1,400	405	1,500,000	
No. 2		980	1,125	1,220	405	1,300,000	
No. 3		575	660	720	405	1,200,000	



March 2013

ADDENDUM
to the 2012 and previous versions of
DESIGN VALUES FOR JOISTS AND RAFTERS
(a supplement to *Span Tables for Joists and Rafters*)

Effective June 1, 2013, design values for all grades of visually-graded Southern Pine and Mixed Southern Pine lumber, 2"- 4" thick will change. The design values to use with the *Span Tables for Joists and Rafters* are shown below (values that will change on June 1, 2013 are shown as underlined). These values supersede values published in the AWC March 2012 Addendum.

TABLE W-1 DESIGN VALUES FOR JOISTS AND RAFTERS - VISUALLY GRADED LUMBER^{1,2}

These F_b values are for use where repetitive members are spaced not more than 24 inches. For wider spacing, F_b values shall be reduced 13%. Values for surfaced dry or surfaced green lumber apply at 19% maximum moisture content in use.

Species and Grade	Size	Design Value in Bending, F_b			Compression perpendicular to grain, $F_{c\perp}$	Modulus of Elasticity, E	Grading Rules Agency
		Normal Duration	Snow Loading	7-Day Loading			
MIXED SOUTHERN PINE							
Select Structural	2x4	2,360	2,710	2,945	565	1,600,000	SPIB
No.1		1,670	1,920	2,085	565	1,500,000	
No.2		<u>1,265</u>	<u>1,455</u>	<u>1,580</u>	565	1,400,000	
No.3 and Stud		<u>750</u>	<u>860</u>	<u>935</u>	565	1,200,000	
Construction		<u>980</u>	<u>1,125</u>	<u>1,220</u>	565	1,300,000	
Standard		<u>545</u>	<u>630</u>	<u>685</u>	565	1,200,000	
Utility		<u>260</u>	<u>300</u>	<u>325</u>	565	1,100,000	
Select Structural	2x6	2,130	2,445	2,660	565	1,600,000	
No.1		1,495	1,720	1,870	565	1,500,000	
No.2		<u>1,150</u>	<u>1,325</u>	<u>1,440</u>	565	1,400,000	
No.3 and Stud		<u>660</u>	<u>760</u>	<u>825</u>	565	1,200,000	
Select Structural	2x8	2,015	2,315	2,515	565	1,600,000	
No.1		1,380	1,585	1,725	565	1,500,000	
No.2		<u>1,065</u>	<u>1,225</u>	<u>1,330</u>	565	1,400,000	
No.3 and Stud		<u>605</u>	<u>695</u>	<u>755</u>	565	1,200,000	
Select Structural	2x10	1,725	1,985	2,155	565	1,600,000	
No.1		1,210	1,390	1,510	565	1,500,000	
No.2		<u>920</u>	<u>1,060</u>	<u>1,150</u>	565	1,400,000	
No.3 and Stud		<u>545</u>	<u>630</u>	<u>685</u>	565	1,200,000	
Select Structural	2x12	1,610	1,850	2,015	565	1,600,000	
No.1		1,120	1,290	1,400	565	1,500,000	
No.2		<u>865</u>	<u>990</u>	<u>1,080</u>	565	1,400,000	
No.3 and Stud		<u>520</u>	<u>595</u>	<u>645</u>	565	1,200,000	

TABLE W-1 DESIGN VALUES FOR JOISTS AND RAFTERS - VISUALLY GRADED LUMBER (Cont'd)^{1,2}

These F_b values are for use where repetitive members are spaced not more than 24 inches. For wider spacing, F_b values shall be reduced 13%. Values for surfaced dry or surfaced green lumber apply at 19% maximum moisture content in use.

Species and Grade	Size	Design Value in Bending, F_b			Compression perpendicular to grain, $F_{c\perp}$	Modulus of Elasticity, E	Grading Rules Agency
		Normal Duration	Snow Loading	7-Day Loading			
SOUTHERN PINE							
Dense Select Structural	2x4	<u>3,105</u>	<u>3,570</u>	<u>3,880</u>	660	1,900,000	SPIB
Select Structural		<u>2,705</u>	<u>3,110</u>	<u>3,380</u>	565	1,800,000	
Non-Dense Select Structural		<u>2,360</u>	<u>2,710</u>	<u>2,945</u>	480	<u>1,600,000</u>	
No.1 Dense		<u>1,900</u>	<u>2,180</u>	<u>2,370</u>	660	1,800,000	
No.1		<u>1,725</u>	<u>1,985</u>	<u>2,155</u>	565	<u>1,600,000</u>	
No.1 Non-Dense		<u>1,495</u>	<u>1,720</u>	<u>1,870</u>	480	<u>1,400,000</u>	
No.2 Dense		<u>1,380</u>	<u>1,585</u>	<u>1,725</u>	660	<u>1,600,000</u>	
No.2		<u>1,265</u>	<u>1,455</u>	<u>1,580</u>	565	<u>1,400,000</u>	
No.2 Non-Dense		<u>1,210</u>	<u>1,390</u>	<u>1,510</u>	480	<u>1,300,000</u>	
No.3 and Stud		<u>750</u>	<u>860</u>	<u>935</u>	565	<u>1,300,000</u>	
Construction Standard		<u>1,005</u>	<u>1,155</u>	<u>1,260</u>	565	<u>1,400,000</u>	
Utility		<u>545</u>	<u>630</u>	<u>685</u>	565	<u>1,200,000</u>	
			<u>260</u>	<u>300</u>	<u>325</u>	565	
Dense Select Structural	2x6	<u>2,760</u>	<u>3,175</u>	<u>3,450</u>	660	1,900,000	
Select Structural		<u>2,415</u>	<u>2,775</u>	<u>3,020</u>	565	1,800,000	
Non-Dense Select Structural		<u>2,130</u>	<u>2,445</u>	<u>2,660</u>	480	<u>1,600,000</u>	
No.1 Dense		<u>1,725</u>	<u>1,985</u>	<u>2,155</u>	660	1,800,000	
No.1		<u>1,555</u>	<u>1,785</u>	<u>1,940</u>	565	<u>1,600,000</u>	
No.1 Non-Dense		<u>1,380</u>	<u>1,585</u>	<u>1,725</u>	480	<u>1,400,000</u>	
No.2 Dense		<u>1,210</u>	<u>1,390</u>	<u>1,510</u>	660	<u>1,600,000</u>	
No.2		<u>1,150</u>	<u>1,325</u>	<u>1,440</u>	565	<u>1,400,000</u>	
No.2 Non-Dense		<u>1,095</u>	<u>1,255</u>	<u>1,365</u>	480	<u>1,300,000</u>	
No.3 and Stud	<u>660</u>	<u>760</u>	<u>825</u>	565	<u>1,300,000</u>		
Dense Select Structural	2x8	<u>2,530</u>	<u>2,910</u>	<u>3,165</u>	660	1,900,000	
Select Structural		<u>2,245</u>	<u>2,580</u>	<u>2,805</u>	565	<u>1,800,000</u>	
Non-Dense Select Structural		<u>1,955</u>	<u>2,250</u>	<u>2,445</u>	480	1,600,000	
No.1 Dense		<u>1,555</u>	<u>1,785</u>	<u>1,940</u>	660	<u>1,800,000</u>	
No.1		<u>1,440</u>	<u>1,655</u>	<u>1,795</u>	565	<u>1,600,000</u>	
No.1 Non-Dense		<u>1,265</u>	<u>1,455</u>	<u>1,580</u>	480	<u>1,400,000</u>	
No.2 Dense		<u>1,120</u>	<u>1,290</u>	<u>1,400</u>	660	<u>1,600,000</u>	
No.2		<u>1,065</u>	<u>1,225</u>	<u>1,330</u>	565	<u>1,400,000</u>	
No.2 Non-Dense		<u>1,005</u>	<u>1,155</u>	<u>1,260</u>	480	<u>1,300,000</u>	
No.3 and Stud		<u>605</u>	<u>695</u>	<u>755</u>	565	<u>1,300,000</u>	

TABLE W-1 DESIGN VALUES FOR JOISTS AND RAFTERS - VISUALLY GRADED LUMBER (Cont'd)^{1,2}

These F_b values are for use where repetitive members are spaced not more than 24 inches. For wider spacing, F_b values shall be reduced 13%. Values for surfaced dry or surfaced green lumber apply at 19% maximum moisture content in use.

Species and Grade	Size	Design Value in Bending, F_b			Compression perpendicular to grain, $F_{c\perp}$	Modulus of Elasticity, E	Grading Rules Agency
		Normal Duration	Snow Loading	7-Day Loading			
SOUTHERN PINE (Cont'd)							
Dense Select Structural	2x10	<u>2,245</u>	<u>2,580</u>	<u>2,805</u>	660	1,900,000	SPIB
Select Structural		<u>1,955</u>	<u>2,250</u>	<u>2,445</u>	565	1,800,000	
Non-Dense Select Structural		<u>1,725</u>	<u>1,985</u>	<u>2,155</u>	480	<u>1,600,000</u>	
No.1 Dense		<u>1,380</u>	<u>1,585</u>	<u>1,725</u>	660	1,800,000	
No.1		<u>1,210</u>	<u>1,390</u>	<u>1,510</u>	565	<u>1,600,000</u>	
No.1 Non-Dense		<u>1,095</u>	<u>1,255</u>	<u>1,365</u>	480	<u>1,400,000</u>	
No.2 Dense		<u>980</u>	<u>1,125</u>	<u>1,220</u>	660	<u>1,600,000</u>	
No.2		<u>920</u>	<u>1,060</u>	<u>1,150</u>	565	<u>1,400,000</u>	
No.2 Non-Dense		<u>865</u>	<u>990</u>	<u>1,080</u>	480	<u>1,300,000</u>	
No.3 and Stud		<u>545</u>	<u>630</u>	<u>685</u>	565	<u>1,300,000</u>	
Dense Select Structural	2x12	<u>2,070</u>	<u>2,380</u>	<u>2,590</u>	660	1,900,000	
Select Structural		<u>1,840</u>	<u>2,115</u>	<u>2,300</u>	565	1,800,000	
Non-Dense Select Structural		<u>1,610</u>	<u>1,850</u>	<u>2,015</u>	480	<u>1,600,000</u>	
No.1 Dense		<u>1,265</u>	<u>1,455</u>	<u>1,580</u>	660	1,800,000	
No.1		<u>1,150</u>	<u>1,325</u>	<u>1,440</u>	565	<u>1,600,000</u>	
No.1 Non-Dense		<u>1,035</u>	<u>1,190</u>	<u>1,295</u>	480	<u>1,400,000</u>	
No.2 Dense		<u>920</u>	<u>1,060</u>	<u>1,150</u>	660	<u>1,600,000</u>	
No.2		<u>865</u>	<u>990</u>	<u>1,080</u>	565	<u>1,400,000</u>	
No.2 Non-Dense		<u>805</u>	<u>925</u>	<u>1,005</u>	480	<u>1,300,000</u>	
No.3 and Stud		<u>520</u>	<u>595</u>	<u>645</u>	565	<u>1,300,000</u>	

See *Span Tables for Joists and Rafters* for footnotes to Table W-1.



March 2012

ADDENDUM
to the 2012 and previous versions of
DESIGN VALUES FOR JOISTS AND RAFTERS
(a supplement to *Span Tables for Joists and Rafters*)

Effective June 1, 2012, design values for No. 2 Dense and lower grades of visually-graded Southern Pine and No. 2 and lower grades of visually-graded Mixed Southern Pine lumber, 2"- 4" thick, 2"- 4" wide, will change. The design values to use with the *Span Tables for Joists and Rafters* are shown below (values that will change on June 1, 2012 are shown as underlined):

TABLE W-1 DESIGN VALUES FOR JOISTS AND RAFTERS - VISUALLY GRADED LUMBER^{1,2}

These F_b values are for use where repetitive members are spaced not more than 24 inches. For wider spacing, F_b values shall be reduced 13%. Values for surfaced dry or surfaced green lumber apply at 19% maximum moisture content in use.

Species and Grade	Size	Design Value in Bending, F_b			Compression perpendicular to grain, $F_{c\perp}$	Modulus of Elasticity, E	Grading Rules Agency
		Normal Duration	Snow Loading	7-Day Loading			
MIXED SOUTHERN PINE							
No.2	2x4	<u>1,210</u>	<u>1,390</u>	<u>1,510</u>	565	1,400,000	SPIB
No.3 and Stud		<u>690</u>	<u>795</u>	<u>865</u>	565	1,200,000	
Construction		<u>920</u>	<u>1,060</u>	<u>1,150</u>	565	1,300,000	
Standard		<u>520</u>	<u>595</u>	<u>645</u>	565	1,200,000	
Utility		<u>230</u>	<u>265</u>	<u>290</u>	565	1,100,000	
SOUTHERN PINE							
No.2 Dense	2x4	<u>1,325</u>	<u>1,520</u>	<u>1,655</u>	660	<u>1,500,000</u>	SPIB
No.2		<u>1,210</u>	<u>1,390</u>	<u>1,510</u>	565	<u>1,400,000</u>	
No.2 Non-Dense		<u>1,120</u>	<u>1,290</u>	<u>1,400</u>	480	<u>1,200,000</u>	
No.3 and Stud		<u>690</u>	<u>795</u>	<u>865</u>	565	<u>1,200,000</u>	
Construction		<u>920</u>	<u>1,060</u>	<u>1,150</u>	565	<u>1,300,000</u>	
Standard		<u>520</u>	<u>595</u>	<u>645</u>	565	<u>1,200,000</u>	
Utility		<u>230</u>	<u>265</u>	<u>290</u>	565	<u>1,100,000</u>	

See *Span Tables for Joists and Rafters* for footnotes to Table W-1.



January, 1993

1993 ERRATA/ADDENDUM

to

February, 1992 Edition of***DESIGN VALUES FOR JOISTS AND RAFTERS*****Add the following to TABLE W-1 DESIGN VALUES FOR JOISTS AND RAFTERS
VISUALLY GRADED LUMBER**

Species ¹	Compression design value perpendicular to grain, psi “F _{c⊥} ”	Species ¹	Compression design value perpendicular to grain, psi “F _{c⊥} ”
Aspen	265	Red Oak	820
Beech-Birch-Hickory	715	Redwood	
Cottonwood	320	Clear Structural, Select	650
Douglas Fir-Larch	625	Structural, No.1, No.2, No.3	
Douglas Fir-Larch (North)	625	Open grain, Stud, Construction,	425
Douglas Fir-South	520	Standard, Utility	
Eastern Hemlock-Tamarack	555	Southern Pine	
Eastern Softwoods	335	Dense	660
Eastern White Pine	350	Select Structural, No.1, No.2,	565
Hem-Fir	405	No.3, Stud, Construction,	
Hem-Fir (North)	370	Standard, Utility	
Mixed Maple	620	Non-Dense	480
Mixed Oak	800	Spruce-Pine-Fir	425
Mixed Southern Pine	565	Spruce-Pine-Fir (South)	335
Northern Red Oak	885	Western Cedars	425
Northern Species	350	Western Woods	335
Northern White Cedar	370	White Oak	800
Red Maple	615	Yellow Poplar	420

1. Design values apply to all grades for the species listed unless otherwise indicated in the table above.

1995 ADDENDUM to February, 1992 Edition of DESIGN VALUES FOR JOISTS AND RAFTERS

Revise as follows:

TABLE W-2 DESIGN VALUES FOR JOISTS AND RAFTERS MECHANICALLY GRADED LUMBER

These "F_b" values are for use where repetitive members are spaced not more than 24 inches. For wider spacing, the "F_b" values shall be reduced 13%.

Values for surfaced dry or surfaced green lumber apply at 19% maximum moisture content in use.

Grade Designation	Size Classification	Design values in Bending, "F _b "			Modulus of Elasticity E	Grading Rules Agency	
		Normal Duration	Snow Loading	7-Day Loading			
MACHINE STRESS RATED (MSR) LUMBER							
900f-1.0E	2" & less in thickness	1040	1190	1290	1,000,000	WCLIB, WWPA	
1200f-1.2E		1380	1590	1730	1,200,000	NLGA, SPIB, WCLIB, WWPA	
1250f-1.4E		<u>1440</u>	<u>1650</u>	<u>1800</u>	<u>1,400,000</u>	WCLIB	
1350f-1.3E		1550	1790	1940	1,300,000	NLGA, SPIB, WCLIB, WWPA	
1400f-1.2E		<u>1610</u>	<u>1850</u>	<u>2010</u>	<u>1,200,000</u>	NLGA, SPIB	
1450f-1.3E		1670	1920	2080	1,300,000	NLGA, WCLIB, WWPA	
1500f-1.3E		2" & wider	1730	1980	2160	1,300,000	SPIB
1500f-1.4E			1730	1980	2160	1,400,000	NLGA, SPIB, WCLIB, WWPA
1600f-1.4E			<u>1840</u>	<u>2120</u>	<u>2300</u>	<u>1,400,000</u>	NLGA, SPIB
1650f-1.3E			<u>1900</u>	<u>2180</u>	<u>2370</u>	<u>1,300,000</u>	NLGA
1650f-1.4E			1900	2180	2370	1,400,000	SPIB
1650f-1.5E			1900	2180	2370	1,500,000	NLGA, SPIB, WCLIB, WWPA
1650f-1.6E			<u>1900</u>	<u>2180</u>	<u>2370</u>	<u>1,600,000</u>	WCLIB
1800f-1.5E			2070	2380	2590	1,500,000	NLGA, SPIB
1800f-1.6E			2070	2380	2590	1,600,000	NLGA, SPIB, WCLIB, WWPA
1950f-1.5E			2240	2580	2800	1,500,000	SPIB
1950f-1.7E		2240	2580	2800	1,700,000	NLGA, SPIB, WWPA	
2000f-1.6E		<u>2300</u>	<u>2650</u>	<u>2880</u>	<u>1,600,000</u>	NLGA, SPIB	
2100f-1.8E		2420	2780	3020	1,800,000	NLGA, SPIB, WCLIB, WWPA	
2250f-1.6E		2" & wider	2590	2980	3230	1,600,000	SPIB
2250f-1.7E			<u>2590</u>	<u>2980</u>	<u>3230</u>	<u>1,700,000</u>	NLGA, SPIB
2250f-1.8E			<u>2590</u>	<u>2980</u>	<u>3230</u>	<u>1,800,000</u>	NLGA
2250f-1.9E			2590	2980	3230	1,900,000	NLGA, SPIB, WWPA
2400f-1.7E			2760	3170	3450	1,700,000	SPIB
2400f-1.8E			<u>2760</u>	<u>3170</u>	<u>3450</u>	<u>1,800,000</u>	NLGA, SPIB
2400f-2.0E			2760	3170	3450	2,000,000	NLGA, SPIB, WCLIB, WWPA
2500f-2.2E			<u>2880</u>	<u>3310</u>	<u>3590</u>	<u>2,200,000</u>	WCLIB
2550f-2.1E			2930	3370	3670	2,100,000	NLGA, SPIB, WWPA
2700f-2.0E			<u>3110</u>	<u>3570</u>	<u>3880</u>	<u>2,000,000</u>	WCLIB
2700f-2.2E		3110	3570	3880	2,200,000	NLGA, SPIB, WCLIB, WWPA	
2850f-2.3E		3280	3770	4100	2,300,000	NLGA, SPIB, WWPA	
3000f-2.4E		3450	3970	4310	2,400,000	NLGA, SPIB	
3150f-2.5E		3620	4170	4530	2,500,000	SPIB	
3300f-2.6E	3800	4360	4740	2,600,000	SPIB		
900f-1.2E	2" & less in thickness	1040	1190	1290	1,200,000	NLGA, WCLIB	
1200f-1.5E		1380	1590	1730	1,500,000	NLGA, WCLIB	
1350f-1.8E		<u>1550</u>	<u>1790</u>	<u>1940</u>	<u>1,800,000</u>	NLGA	
1500f-1.8E		1730	1980	2160	1,800,000	WCLIB	
1800f-2.1E		2070	2380	2590	2,100,000	NLGA, WCLIB	
MACHINE EVALUATED LUMBER (MEL)							
M-10	2" & less in thickness	1610	1850	2010	1,200,000	NLGA, SPIB	
M-11		1780	2050	2230	1,500,000	NLGA, SPIB	
M-12		1840	2120	2300	1,600,000	NLGA, SPIB	
M-13		1840	2120	2300	1,400,000	NLGA, SPIB	
M-14		2070	2380	2590	1,700,000	NLGA, SPIB	
M-15		2070	2380	2590	1,500,000	NLGA, SPIB	
M-16		2070	2380	2590	1,500,000	SPIB	
M-17		2240	2580	2800	1,700,000	SPIB	
M-18		2300	2650	2880	1,800,000	NLGA, SPIB	
M-19		2300	2650	2880	1,600,000	NLGA, SPIB	
M-20		2300	2650	2880	1,900,000	SPIB	
M-21		2650	3040	3310	1,900,000	NLGA, SPIB	
M-22		2700	3110	3380	1,700,000	NLGA, SPIB	
M-23		2760	3170	3450	1,800,000	NLGA, SPIB	
M-24		3110	3570	3880	1,900,000	NLGA, SPIB	
M-25		3160	3640	3950	2,200,000	NLGA, SPIB	
M-26		3220	3700	4030	2,000,000	NLGA, SPIB	
M-27		3450	3970	4310	2,100,000	SPIB	

TABLE W1-FOOTNOTES

Revise Table W-1 Footnotes as follows:

1. When dimension lumber is used where moisture content will exceed 19% for an extended time period, F_b shall be multiplied by 0.85 if F_b exceeds 1150 psi, ~~and~~ E shall be multiplied by 0.9, and F_c^{\wedge} shall be multiplied by 0.67.
2. Following is a list of agencies . . .

National Lumber Grades Authority (NLGA)

~~260 1055 W. Hastings Street, Vancouver, BC, Canada V6E 2E9~~

103, 4400 Dominion Street, Burnaby, BC, Canada V5G 4G3

TABLE W2-FOOTNOTES

Add Table W-2 Footnotes as follows:

1. Design values for compression perpendicular to grain, F_c^{\wedge} , are identical to the design values given in Table W1 for visually graded lumber of the appropriate species. When the " F_c^{\wedge} " values shown on the grade stamp differ from the values shown in Table W1, the values shown on the grade stamp shall be used for design.
2. For any given bending design value, F_b , the average modulus of elasticity, E , design value may vary depending upon species, timber source or other variables. The " E " values included in the " F_b - E " grade designations in Table W2 are those usually associated with each " F_b " level. Grade stamps may show higher or lower values if machine rating indicates the assignment is appropriate. When the " E " value shown on a grade stamp differs from the values in Table W2, the values shown on the grade stamp shall be used for design. The tabulated " F_b " value associated with the designated " F_b " value shall be used for design.