

Information on Proposed Design Values for Visually Graded Dimension Lumber

The SPIB has received inquiries as to the scope of Supplement 9 to the 2002 Standard Grading Rules for Southern Pine. The attached supplement was approved on 26 August, 2011 by the Board of Governors of the Southern Pine Inspection Bureau to serve as interim design values, based upon a reasonable estimate projected from testing of No.2 2x4 lumber, until the minimum testing on three sizes and two grades is completed.

The Board of Governors deemed it necessary to put forward these values based upon testing of a combined tension and bending of over 800 2x4 No.2 specimens. This testing indicated a reduction in tension and bending values of approximately 25% and 30%.

The below listed tables are for information only. The proposed design values have not been approved by the Board of Review of the American Lumber Standard Committee and will not be certified as American Lumber Standard design values for Southern Pine until that time.

TABLE 1.A – STRUCTURAL LIGHT FRAMING, STRUCTURAL JOISTS AND PLANKS, AND STUDS - 2" TO 4" THICK (Each width has a separate set of design values)

GRADE	Extreme Fiber in Bending (psi) "F _b "	Tension Parallel To Grain (psi) "F _t "	Horizontal Shear (psi) "F _v "	Compression Perpendicular to Grain (psi) "F _{c⊥} "	Compression Parallel to Grain (psi) "F _c "	Modulus of Elasticity (million psi) "E"
Kiln Dried or S-Dry, MC 15, MC 19						
APPLIES TO 2" - 4" THICK – 2" - 4" WIDE ONLY						
Select Structural	2050	1250	175	565	1400	1.6
No. 1	1300	800	175	565	1200	1.5
No. 2	1050	650	175	565	1100	1.4
No. 3 and Stud	600	375	175	565	625	1.2

TABLE 1.B – STRUCTURAL LIGHT FRAMING, STRUCTURAL JOISTS AND PLANKS, AND STUDS - 2" TO 4" THICK (Each width has a separate set of design values)

GRADE	Extreme Fiber in Bending (psi) "F _b "	Tension Parallel to Grain (psi) "F _t "	Horizontal Shear (psi) "F _v "	Compression Perpendicular To Grain (psi) "F _{c⊥} "	Compression Parallel to Grain (psi) "F _c "	Modulus of Elasticity (million psi) "E"
Kiln Dried or S-Dry, MC 15, MC 19						
APPLIES TO 2" - 4" THICK – 5" - 6" WIDE ONLY						
Select Structural	1800	1100	175	565	1350	1.6
No. 1	1150	700	175	565	1150	1.5
No. 2	925	575	175	565	1000	1.4
No. 3 and Stud	525	325	175	565	600	1.2

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TABLE 1.C – STRUCTURAL LIGHT FRAMING, STRUCTURAL JOISTS AND PLANKS, AND STUDS - 2" TO 4" THICK (Each width has a separate set of design values)

GRADE	Extreme Fiber in Bending (psi) "F _b "	Tension Parallel to Grain (psi) "F _t "	Horizontal Shear (psi) "F _v "	Compression Perpendicular to Grain (psi) "F _{c⊥} "	Compression Parallel to Grain (psi) "F _{c∥} "	Modulus of Elasticity (million psi) "E"
Kiln Dried or S-Dry, MC 15, MC 19						
APPLIES TO 2" - 4" THICK – 8" WIDE ONLY (1)						
Select Structural	1650	1000	175	565	1300	1.6
No. 1	1050	650	175	565	1100	1.5
No. 2	850	525	175	565	975	1.4
No. 3 and Stud	500	300	175	565	575	1.2

TABLE 1.D – STRUCTURAL LIGHT FRAMING, STRUCTURAL JOISTS AND PLANKS, AND STUDS - 2" TO 4" THICK (Each width has a separate set of design values)

GRADE	Extreme Fiber in Bending (psi) "F _b "	Tension Parallel to Grain (psi) "F _t "	Horizontal Shear (psi) "F _v "	Compression Perpendicular to Grain (psi) "F _{c⊥} "	Compression Parallel to Grain (psi) "F _{c∥} "	Modulus of Elasticity (million psi) "E"
Kiln Dried or S-Dry, MC 15, MC 19						
APPLIES TO 2" - 4" THICK – 10" WIDE ONLY (1)						
Select Structural	1450	875	175	565	1250	1.6
No. 1	925	575	175	565	1050	1.5
No. 2	725	450	175	565	950	1.4
No. 3 and Stud	425	275	175	565	550	1.2

TABLE 1.E – STRUCTURAL LIGHT FRAMING, STRUCTURAL JOISTS AND PLANKS, AND STUDS - 2" TO 4" THICK (Each width has a separate set of design values)

GRADE	Extreme Fiber in Bending (psi) "F _b "	Tension Parallel to Grain (psi) "F _t "	Horizontal Shear (psi) "F _v "	Compression Perpendicular to Grain (psi) "F _{c⊥} "	Compression Parallel to Grain (psi) "F _{c∥} "	Modulus of Elasticity (million psi) "E"
Kiln Dried or S-Dry, MC 15, MC 19						
APPLIES TO 2" - 4" THICK – 12" WIDE ONLY (1), (2)						
Select Structural	1350	825	175	565	1200	1.6
No. 1	875	525	175	565	1050	1.5
No. 2	700	425	175	565	925	1.4
No. 3 and Stud	400	250	175	565	525	1.2

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TABLE 3 – LIGHT FRAMING -- 2” TO 4” THICK

GRADE	Extreme Fiber in Bending (psi) “F _b ”	Tension Parallel to Grain (psi) “F _t ”	Horizontal Shear (psi) “F _v ”	Compression Perpendicular to Grain (psi) “F _{c⊥} ”	Compression Parallel to Grain (psi) “F _{c∥} ”	Modulus of Elasticity (million psi) “E”
Kiln Dried or S-Dry, MC 15, MC 19						
APPLIES TO 2” - 4” THICK – 2” - 4” WIDE						
Construction	800	500	175	565	1150	1.3
Standard	450	275	175	565	950	1.2
Utility *	200	125	175	565	625	1.1

*Design values apply to 4” widths only.

**TABLE 6 – MIXED SOUTHERN PINE (Virginia Pine and Pond Pine)
STRUCTURAL LIGHT FRAMING, STRUCTURAL JOISTS AND PLANKS, AND STUDS - 2” TO 4” THICK
(Each width has a separate set of design values)**

GRADE	Extreme Fiber in Bending (psi) “F _b ”	Tension Parallel To Grain (psi) “F _t ”	Horizontal Shear (psi) “F _v ”	Compression Perpendicular to Grain (psi) “F _{c⊥} ”	Compression Parallel to Grain (psi) “F _{c∥} ”	Modulus of Elasticity (million psi) “E”
Kiln Dried or S-Dry, MC 15, MC 19						
APPLIES TO 2” - 4” THICK – 2” - 4” WIDE ONLY						
Select Structural	2050	1250	175	565	1400	1.6
No. 1	1300	800	175	565	1200	1.5
No. 2	1050	650	175	565	1100	1.4
No. 3 and Stud	600	375	175	565	625	1.2
APPLIES TO 2” - 4” THICK – 5” - 6” WIDE ONLY						
Select Structural	1800	1100	175	565	1350	1.6
No. 1	1150	700	175	565	1150	1.5
No. 2	925	575	175	565	1000	1.4
No. 3 and Stud	525	325	175	565	600	1.2
APPLIES TO 2” - 4” THICK – 8” WIDE ONLY (1)						
Select Structural	1650	1000	175	565	1300	1.6
No. 1	1050	650	175	565	1100	1.5
No. 2	850	525	175	565	975	1.4
No. 3 and Stud	500	300	175	565	575	1.2
APPLIES TO 2” - 4” THICK – 10” WIDE ONLY (1)						
Select Structural	1450	875	175	565	1250	1.6
No. 1	925	575	175	565	1050	1.5
No. 2	725	450	175	565	950	1.4
No. 3 and Stud	425	275	175	565	550	1.2

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**TABLE 6 – MIXED SOUTHERN PINE (Virginia Pine and Pond Pine) (continued)
STRUCTURAL LIGHT FRAMING, STRUCTURAL JOISTS AND PLANKS, AND STUDS - 2" TO 4" THICK
(Each width has a separate set of design values)**

APPLIES TO 2" - 4" THICK – 12" WIDE ONLY (1), (2)

Select Structural	1350	825	175	565	1200	1.6
No. 1	875	525	175	565	1050	1.5
No. 2	700	425	175	565	925	1.4
No. 3 and Stud	400	250	175	565	525	1.2

TABLE 7 – MIXED SOUTHERN PINE (Virginia Pine and Pond Pine) LIGHT FRAMING -- 2" TO 4" THICK

GRADE	Extreme Fiber in Bending (psi) "F _b "	Tension Parallel to Grain (psi) "F _t "	Horizontal Shear (psi) "F _v "	Compression Perpendicular to Grain (psi) "F _{c⊥} "	Compression Parallel to Grain (psi) "F _{c∥} "	Modulus of Elasticity (million psi) "E"
Kiln Dried or S-Dry, MC 15, MC 19						
APPLIES TO 2" - 4" THICK – 2" - 4" WIDE						
Construction	800	500	175	565	1150	1.3
Standard	450	275	175	565	950	1.2
Utility *	200	125	175	565	625	1.1

*Design values apply to 4" widths only.