New Design Values & Analysis

February 15, 2013

SOUTHERN FOREST PRODUCTS ASSOCIATION®

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www.SouthernPine.com

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February 15, 2013

[1]Based on new design values for <u>all</u> sizes and grades of visually graded Southern Pine dimension lumber as published by the Southern Pine Inspection Bureau (SPIB) on February 11, 2013 in *Supplement No.13* to the *2002 Standard Grading Rules for Southern Pine Lumber*. The new design values become effective June 1, 2013 to provide time for an orderly transition.

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- **Maximum Span Comparisons by Species: New Southern Pine vs. Current Other Species** (SFPA Table B)

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- **Maximum Spans for Southern Pine Machine Stress Rated (MSR) Lumber** (SFPA Table C2)

  Maximum Spans for the 28 Southern Pine Machine Stress Rated (MSR) lumber grades in Supplement No.12 to the 2002 SPIB Standard Grading Rules for Southern Pine Lumber. Includes seven tables with common loading conditions for floor joists, ceiling joists and rafters.

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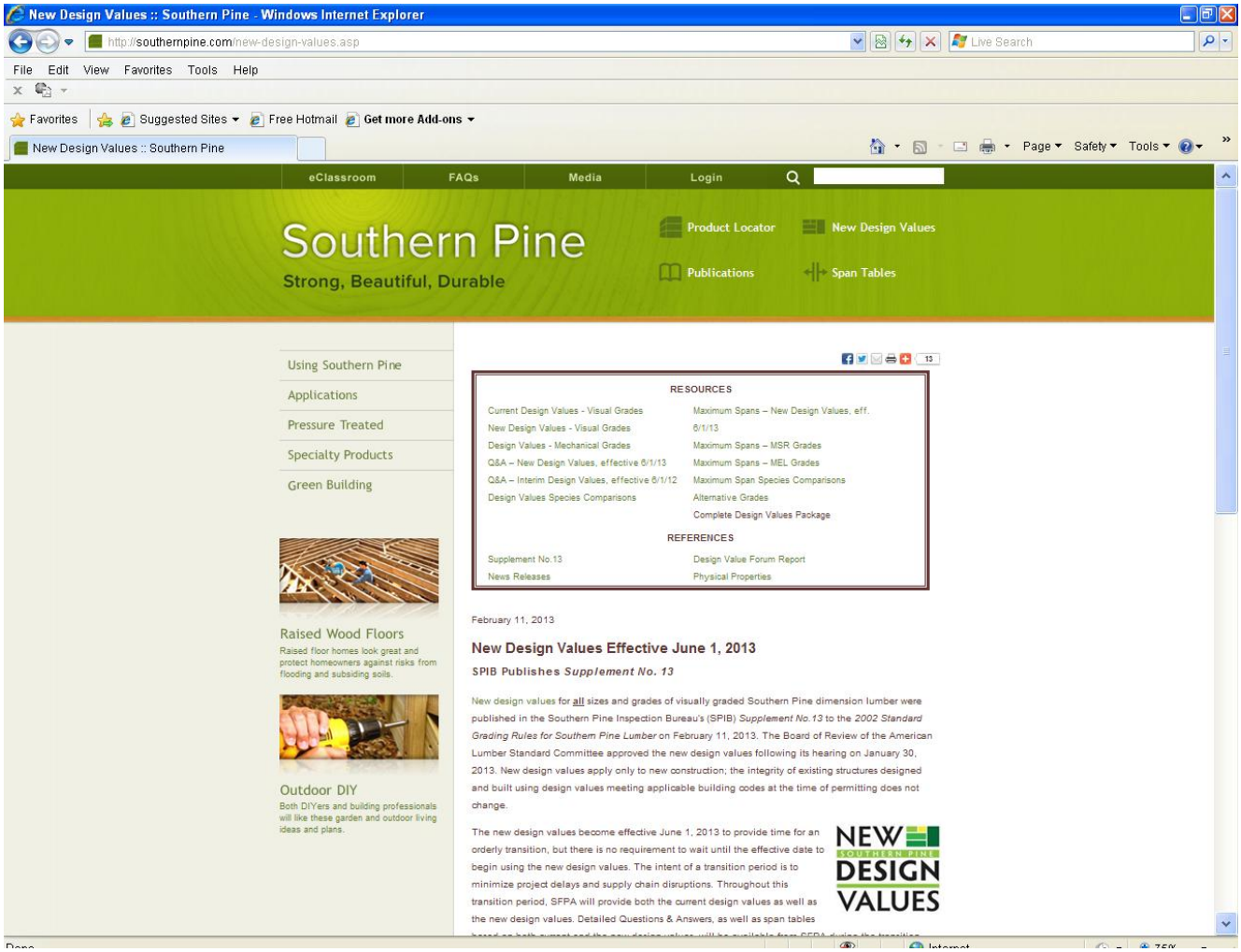
  Maximum Spans for the 38 Southern Pine Machine Evaluated Lumber (MEL) grades in Supplement No.12 to the 2002 SPIB Standard Grading Rules for Southern Pine Lumber. Includes seven tables with common loading conditions for floor joists, ceiling joists and rafters.

www.southernpine.com **Landing Page: New Design Values**



SOUTHERN FOREST PRODUCTS ASSOCIATION®

NEWS

FOR IMMEDIATE RELEASE

February 15, 2013

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New Design Values Effective June 1, 2013

SPIB Publishes Supplement No.13

New design values for ALL sizes and grades of visually graded Southern Pine dimension lumber were published in the Southern Pine Inspection Bureau's (SPIB) *Supplement No.13* to the *2002 Standard Grading Rules for Southern Pine Lumber* on February 11, 2013. The Board of Review of the American Lumber Standard Committee approved the new design values following its hearing on January 30, 2013. New design values apply only to new construction; the integrity of existing structures designed and built using design values meeting applicable building codes at the time of permitting does not change.

The new design values become effective June 1, 2013 to provide time for an orderly transition, but there is no requirement to wait until the effective date to begin using the new design values. The intent of a transition period is to minimize project delays and supply chain disruptions by providing time to manage design value changes. Producers and key customer groups should use this period to evaluate and prepare for the potential impact on their businesses. Establishing implementation plans will aid in a successful transition to this second set of new design values.

The Southern Forest Products Association (SFPA) will continue to facilitate dialog among key industry segments to provide a unified approach to implementation of these new design values. "Throughout this transition period, SFPA will provide both the current design values as well as the new design values," says Cathy Kaake, SFPA's vice president of technical marketing. "Detailed Q&As, as well as span tables based on both current and the new design values, will be available from SFPA at www.southernpine.com during the transition period," Cathy adds.

The American Wood Council (AWC) will work with the International Code Council to incorporate the new design values into span tables in the *2015 International Building Code* and *2015 International Residential Code*. AWC will also develop addenda and other updates to use with new construction designed in accordance with its standards and design tools, as well as recommended revisions to previous code editions.

Rigorous Process

As a rules-writing agency, SPIB must follow a rigorous approval process to establish design values for Southern Pine lumber. SPIB and Timber Products Inspection worked cooperatively to complete a full In-Grade testing matrix as required by consensus standard ASTM D1990. More than 7,400 full-size samples of commercially produced Southern Pine were destructively tested in a two-step process.

No.2 2x4s were tested in the first step of the process, resulting in design value changes for Southern Pine sized 2" to 4" wide and 2" to 4" thick in No.2 Dense and lower grades ONLY for use on an interim basis.

Interim design values for those sizes and grades became effective June 1, 2012, as published by SPIB in *Supplement No.9* to the *2002 Standard Grading Rules for Southern Pine Lumber*.

SPIB's *Supplement No.13* incorporates *Supplement No.9's* interim design values with minor changes due to rounding effects. This means that interim design values for the sizes and grades in *Supplement No.9* are replaced by the new design values for those sizes and grades in *Supplement No.13* effective June 1, 2013.

Encouraging, Better-Than-Expected Results

Select Structural (SS) 2x4s, No.2 and SS 2x8s, and No.2 and SS 2x10s were tested in the second step of the process to complete the full In-Grade testing matrix, resulting in more than 300,000 data points. SPIB completed the data analysis in cooperation with the USDA Forest Products Laboratory (FPL) who provided technical review throughout the entire design value approval process.

The analysis of the full In-Grade testing matrix combined all data from steps one and two to provide the best estimates of design values. The results were encouraging and better-than-expected for Southern Pine lumber producers and users. The analysis of the full In-Grade testing matrix showed smaller reductions than originally projected from tests of only No.2 2x4s. The result was upward revisions to almost all of the *Supplement No.9* design values that became effective June 1, 2012 for use on an interim basis. The full analysis also showed smaller reductions for the wider widths and higher grades as compared to the No.2 2x4 only analysis, and even some small increases as compared to current design values.

No change was proposed for the current Southern Pine specific gravity value of 0.55; design values for shear and compression perpendicular-to-grain did not change.

Southern Pine is Strong and Dependable

Southern Pine's strength and stiffness remain comparable to other softwood species used in residential and commercial construction. Southern Pine users have many available product options including visually graded dimension lumber and an increasing supply of mechanically graded lumber. From framing a house to building a deck, Southern Pine continues to be a dependable product for any project.

SFPA does not test lumber or establish design values. SFPA's primary function is to market lumber products and to help users understand Southern Pine grading rules and design values. Complete information about Southern Pine design values can be found by visiting www.southernpine.com.

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QUESTIONS & ANSWERS
New Design Values
for All Sizes and Grades of Visually Graded Southern Pine Dimension Lumber
Effective June 1, 2013

New design values for **all** sizes and grades of visually graded Southern Pine dimension lumber were published in the Southern Pine Inspection Bureau's (SPIB) *Supplement No.13* to the *2002 Standard Grading Rules for Southern Pine Lumber* on February 11, 2013. The new design values become effective June 1, 2013 to provide time for an orderly transition.

As a rules-writing agency, SPIB must follow a rigorous approval process to establish design values for Southern Pine lumber. SPIB and Timber Products Inspection worked cooperatively to complete a full In-Grade testing matrix as required by consensus standard ASTM D1990, *Standard Practice for Establishing Allowable Properties for Visually-Graded Dimension Lumber from In-Grade Tests of Full-Size Specimens*.

More than 7,400 full-size samples of commercially-produced Southern Pine were destructively tested in a two-step process. No.2 2x4s were tested in the first step, resulting in design value changes for Southern Pine sized 2" to 4" wide and 2" to 4" thick in No.2 Dense and lower grades **only** for use on an interim basis. Interim design values for **only** those sizes and grades became effective June 1, 2012, as published by SPIB in *Supplement No.9* to the *2002 Standard Grading Rules for Southern Pine Lumber*.

In the second step, Select Structural (SS) 2x4s, No.2 and SS 2x8s, and No.2 and SS 2x10s were tested to complete the full In-Grade testing matrix.

SPIB and Timber Products began the process for establishing design values by collecting test specimens according to a sampling plan approved by the Board of Review of the American Lumber Standard Committee (ALSC). They conducted the destructive tests in bending, tension and compression, plus gathered stiffness and other property data, all in accordance with ASTM International standards. SPIB then analyzed more than 300,000 data points generated from the complete In-Grade testing matrix. The data analysis was completed in cooperation with the USDA Forest Products Laboratory (FPL) who provided technical review throughout the entire design value approval process. FPL concluded the resulting proposed design values that SPIB submitted to the ALSC Board of Review "...have been developed using ASTM standards or other technically sound criteria and, as such, represent an appropriate estimate of the Southern Pine design values at this time."

QUESTIONS & ANSWERS
New Design Values
for All Sizes and Grades of Visually Graded Southern Pine Dimension Lumber
Effective June 1, 2013

Following a hearing on January 30, 2013, the ALSC Board of Review approved SPIB's design values as submitted.

SPIB's *Supplement No.13* provides new design values for **all** sizes and grades, incorporating *Supplement No.9's* interim design values with minor changes due to rounding effects. This means that interim design values for the sizes and grades in *Supplement No.9* are replaced by the new design values for those sizes and grades in *Supplement No.13* effective June 1, 2013. For more information about *Supplement No.9* interim design values, refer to *Questions & Answers – Interim Design Values for Southern Pine 2x2s through 4x4s in No.2 Dense and Lower Visual Grades Only, Effective June 1, 2012 for Use on an Interim Basis*.

Southern Pine's strength and stiffness remain comparable to other softwood species used in residential and commercial construction. Southern Pine users have many available product options including visually graded dimension lumber and an increasing supply of mechanically graded lumber. From framing a house to building a deck, Southern Pine continues to be a dependable product with superior treatability against decay and termites.

The Southern Forest Products Association (SFPA) facilitated a task group of industry leaders representing key customer groups to develop answers to the most commonly asked questions regarding new design values and their implementation.

Southern Pine design values are published by the Southern Pine Inspection Bureau after approval by the Board of Review of the American Lumber Standard Committee. The Southern Forest Products Association (SFPA) does not test lumber or establish design values. Accordingly, neither SFPA, nor its members, warrant that design values are correct, and disclaim responsibility for injury or damage resulting from the use of such design values.

Reference design values are based on normal load duration and dry service conditions. Because the strength of wood varies with conditions under which it is used, these design values should only be applied in conjunction with appropriate design and service recommendations from the *National Design Specification® (NDS®) for Wood Construction* published by the American Wood Council.

The conditions under which lumber is used in construction may vary widely, as does the quality of workmanship. Neither SFPA, nor its members, have knowledge of the quality of the materials, workmanship or construction methods used on any construction project, and, accordingly, do not warrant the technical data, design or performance of the lumber in completed structures.

QUESTIONS & ANSWERS
New Design Values
for <u>All</u> Sizes and Grades of Visually Graded Southern Pine Dimension Lumber
Effective June 1, 2013

1 **Q: Why do design values change?**

A: Design values have changed multiple times over the years based on available test data. The lumber industry conducts ongoing testing and invests millions of dollars to provide the most accurate and reliable design values for structural lumber. Comprehensive lumber testing is conducted as new technology becomes available or as warranted by changing resource data. The first significant lumber tests began in the 1920s, resulting in design values based on the strength of small clear-wood specimens. The last major change occurred in 1991 when design values for Southern Pine and other North American species were first published based on In-Grade testing of full-size samples of commercially produced lumber. SPIB did not specifically study why a change occurred this time, but a change in the timber resource mix is one of many variables that can affect the strength of structural lumber.

2 **Q: How did design values for the lower-grade 2x4s change?**

The analysis of the full In-Grade testing matrix combined all data from steps one and two to provide the best estimates of design values. This resulted in upward revisions to almost all of the interim design values that became effective June 1, 2012 based only on No.2 2x4 data. For No.2 2x4s for example, bending increased from 1050 to 1100 psi (pounds per square inch), tension increased from 650 to 675 psi, compression increased from 1100 to 1450 psi and modulus of elasticity remained the same at 1.4 million psi.

Table 1 provides generalized adjustments to the June 1, 2012 interim design values for Southern Pine sized 2" to 4" wide and 2" to 4" thick in No.2 Dense and lower grades **<u>only</u>**.

Table 1 – Approximate Design Value Adjustments* for Southern Pine 2x4s (No.2 Dense and lower grades)

Property	Approximate Design Value Adjustments*
Bending	+5% to +10%
Tension	No change to +5%
Compression Parallel	+20% to +40%
Modulus of Elasticity	No change to +100,000 psi

*Compared to interim design values effective June 1, 2012 based only on No.2 2x4 tests.

3 **Q: How did design values for wider widths and higher grades change?**

A: The analysis of the full In-Grade test data showed smaller reductions for the wider widths and higher grades as compared to the No.2 2x4 only analysis, and even some small increases as compared to current design values. These results are encouraging, better-than-expected news for Southern Pine lumber producers and users. Generalized ranges of change for the wider widths and higher grades are provided in Table 2.

Table 2 – Approximate Design Value Changes* for Southern Pine 2x6s through 2x12s (all visual grades) and 2x4s (SS and No.1)

Property	Approximate Design Value Changes*
Bending	-10% to -30%
Tension	-150 psi to +200 psi
Compression Parallel	-10% to -15%
Modulus of Elasticity	-200,000 psi to No change
Shear	No change
Compression Perpendicular	No change

* Compared to current design values that were not changed based only on No.2 2x4 tests.

4 **Q: What property values did not change?**

A: Design values for shear parallel-to-grain and compression perpendicular-to-grain did not change.

5 **Q: Does Southern Pine continue to be a competitive building material?**

A: Yes. Southern Pine lumber is one of the best construction products on the market today. Southern Pine's strength and stiffness remain comparable to other softwood lumber species used in residential and commercial construction. Southern Pine users have many available product options including visually graded dimension lumber and an increasing supply of mechanically graded lumber. From framing a house to building a deck, Southern Pine continues to be a dependable product with superior treatability against decay and termites.

QUESTIONS & ANSWERS
New Design Values
for All Sizes and Grades of Visually Graded Southern Pine Dimension Lumber
Effective June 1, 2013

6 **Q: Do new design values affect existing homes?**

A: No. New design values only apply to new construction, not existing construction. Like other building materials, wood products used in construction must meet building code requirements enforced at the time. The integrity of existing structures designed and built using design values meeting applicable building codes at the time of permitting does not change.

When properly designed and built, light-frame wood construction includes repetitive structural systems for continued performance. Refer to the *Southern Pine Design Value Forum Report* that includes a review of the margin of safety for in-market lumber.

7 **Q: When will new design values for all sizes and grades of visually graded Southern Pine dimension lumber based on the full In-Grade testing matrix become effective?**

A: June 1, 2013, as published in SPIB's *Supplement No.13* to the *2002 Standard Grading Rules for Southern Pine Lumber*.

8 **Q: What should happen during the transition period between now and the June 1, 2013 effective date?**

A: The intent of a transition period is to minimize project delays and supply chain disruptions by providing time to manage design value changes. Producers and key customer groups should use this time to evaluate and prepare for the potential impact on their businesses. Establishing implementation plans will aid in a successful transition to this second set of new design values.

9 **Q: Some of the new design values in *Supplement No.13* are higher than the interim design values in *Supplement No.9* and some are lower. Do I need to wait until the June 1, 2013 effective date to begin using all of the new design values?**

A: No. The new design values have been approved by the ASLC Board of Review and published by SPIB. There is no requirement to wait until the effective date of June 1, 2013 to begin using the new design values.

SFPA will provide span tables and other information based on both current design values and the new design values during the transition period.

QUESTIONS & ANSWERS
New Design Values
for All Sizes and Grades of Visually Graded Southern Pine Dimension Lumber
Effective June 1, 2013

10 **Q: How are design values implemented into the building codes?**

A: Building codes reference design values certified by the ALSC Board of Review in accordance with *American Softwood Lumber Standard DOC PS 20*. The American Wood Council (AWC) publishes these design values in a supplement to the code-referenced *National Design Specification® (NDS®) for Wood Construction,* titled *Design Values for Wood Construction.* AWC will develop addenda and other updates to use with new construction designed in accordance with its standards and design tools.

11 **Q: When will the new design values be enforced?**

A: Building codes are enforced by the state, regional or local jurisdiction, so exactly when enforcement begins can vary by jurisdiction. Users relying on prescriptive code requirements should use new span tables based on the new design values effective June 1, 2013.

12 **Q: How do design value changes affect span tables and other prescriptive requirements in the building codes?**

A: Prescriptive code requirements based on old design values need to be amended to reflect new design values. This includes ceiling joist, rafter and header span tables. AWC will work with the International Code Council to incorporate the new design values into span tables in the *2015 International Building Code* and *2015 International Residential Code*. AWC will also develop recommended revisions to previous code editions. Visit www.awc.org to learn more.

13 **Q: What is the practical impact on joists, rafters and headers?**

A: The impact is smaller than originally projected due to smaller reductions for the wider widths commonly used for joists, rafters and headers. Refer to SFPA's table, *Maximum Span Comparisons by Species,* for sample comparisons.

SFPA continues to update its easy-to-use tables for specific sizes and grades of Southern Pine lumber. Refer to SFPA's span tables for visual, MSR and MEL grades. SFPA will also update its publication *Southern Pine Headers & Beams*, providing simplified span tables for lumber and glulam headers, beams and girders.

QUESTIONS & ANSWERS
New Design Values
for All Sizes and Grades of Visually Graded Southern Pine Dimension Lumber
Effective June 1, 2013

14 **Q: How can I get similar load-carrying capacities as before?**

A: Southern Pine users continue to have many available product options. One option is to specify a larger size and/or higher grade of visually graded Southern Pine lumber. Another option is to specify an increasing supply of mechanically graded lumber which includes Machine Stress Rated (MSR) lumber and Machine Evaluated Lumber (MEL). Refer to SFPA's table, *Southern Pine Mechanically Graded Lumber (MSR & MEL) Grades & Design Values,* for a complete listing from *Supplement No.12* to the *SPIB Standard Grading Rules for Southern Pine Lumber*. Also refer to SFPA's table listing sample Southern Pine grade substitutions for comparable spans.

15 **Q: What happens to existing inventories of lumber in the supply chain on an effective date for new design values?**

A: Visually graded lumber is identified with a grade mark that includes the grade name (e.g. No.2), but not the specific design values associated with that grade name. Therefore, new design values will be associated with **all** sizes and grades of visually graded Southern Pine dimension lumber in inventory on June 1, 2013.

16 **Q: What about Prime lumber grades?**

A: Design values for the Prime grades are tied to their corresponding dimension lumber grade. Therefore, No.2 Prime has new design values identical to No.2 dimension lumber. Similarly, No.1 Prime has new design values identical to No.1 dimension lumber.

17 **Q: Did design values for other Southern Pine lumber products change?**

A: No. Design values for other Southern Pine lumber products covered by the SPIB's Grading Rules – such as mechanically graded lumber, timbers, Radius Edge Decking and other specialty items – are derived differently.

18 **Q: Are design properties for glulam beams affected by a change in lumber design values?**

A: No. Laminating lumber has more stringent grading rules that have not changed. Glulam beams use special grades of laminating lumber evaluated based on more restrictive characteristics, particularly in the critical outer lamination. For more information, refer to the October 12, 2011 white paper, *Changes to Lumber Design Values and Their Effect on Structural Glued Laminated Timber (Glulam)*, published by

the American Institute of Timber Construction and APA – The Engineered Wood Association.

19 **Q: What is the impact of the new design values have on homes built in the future?**

A: Homeowners should not notice much difference, but building designers may configure the individual pieces of lumber differently in the structural system. Building materials used in construction have guidelines for proper use. Wood construction incorporating new design values will continue to include a series of safety factors and checks and balances to ensure that wood products – specifically Southern Pine lumber – are safe and effective when used properly in the construction of a residential or commercial building. Refer to the *Southern Pine Design Value Forum Report* that includes a review of the margin of safety for in-market lumber.

20 **Q: How will I know when updated information on new design values is available?**

A: To aid users in the transition to new design values, the wood products industry will continue to publish helpful design information as it becomes available. Click here to receive update notices from the Southern Forest Products Association. Or visit industry association websites for:

- Southern Pine design values, span tables & product use information from the Southern Forest Products Association
- Codes and Standards from the American Wood Council
- Southern Pine Grading Rules from the Southern Pine Inspection Bureau

21 **Q: Should I continue to use Southern Pine?**

A: Yes. Southern Pine lumber is one of the best construction products on the market today. Southern Pine lumber provides great value in a wide variety of applications. From framing a house to building a deck, Southern Pine continues to be a dependable product with superior treatability against decay and termites.

Southern Pine forests are some of the most productive and sustainable timberlands in the world, capturing large amounts of carbon from the air and storing it in lumber used every day.

Southern Pine is grown and manufactured in the U.S. South, further improving local economies, reducing transportation costs and minimizing impacts on the environment.

QUESTIONS & ANSWERS
Interim Design Values

for Southern Pine 2x2s through 4x4s in No.2 Dense and Lower Visual Grades Only
Effective June 1, 2012 for Use on an Interim Basis

New design values for **all** sizes and grades of visually graded Southern Pine dimension lumber were published in the Southern Pine Inspection Bureau's (SPIB) *Supplement No.13* to the *2002 Standard Grading Rules for Southern Pine Lumber* on February 11, 2013. The new design values become effective on June 1, 2013 to provide time for an orderly transition.

The new design values for **all** sizes and grades result from destructively testing more than 7,400 full-size samples of commercially-produced Southern Pine in a two-step process to complete a full In-Grade testing matrix. No.2 2x4s were tested in the first step of the process, resulting in design value changes for Southern Pine sized 2" to 4" wide and 2" to 4" thick in No.2 Dense and lower grades **only** for use on an interim basis. Interim design values for those sizes and grades became effective June 1, 2012, as published by SPIB in *Supplement No.9* to the *2002 Standard Grading Rules for Southern Pine Lumber*.

SPIB's *Supplement No.13* incorporates *Supplement No.9's* interim design values with minor changes due to rounding effects. This means that interim design values for the sizes and grades in *Supplement No.9* are replaced by the new design values for those sizes and grades in *Supplement No.13* effective June 1, 2013.

For more information on *Supplement No.13's* new design values, refer to *Questions & Answers – New Design Values for All Sizes and Grades of Visually Graded Southern Pine Dimension Lumber, Effective June 1, 2013.*

Southern Pine is one of the best construction products on the market today. Southern Pine lumber provides great value in a wide variety of applications. From framing a house to building a deck, Southern Pine continues to be a dependable product for any project.

Southern Pine forests are some of the most productive and sustainable timberlands in the world, capturing large amounts of carbon from the air and storing it in lumber used every day.

Southern Pine is grown and manufactured in the U.S. South, further improving local economies, reducing transportation costs and minimizing impacts on the environment.

Visit www.southernpine.com to learn more.

QUESTIONS & ANSWERS
Interim Design Values

NEW SOUTHERN PINE DESIGN VALUES

for Southern Pine 2x2s through 4x4s in No.2 Dense and Lower Visual Grades Only

Effective June 1, 2012 for Use on an Interim Basis

SPIB's *Supplement No.9* to the *Standard Grading Rules for Southern Pine Lumber* lists the following interim design values, effective June 1, 2012 for use on an interim basis:

Southern Pine & Mixed Southern Pine[1]
Reference Design Values

values in psi (pounds per square inch)

	Bending F_b	Tension Parallel to Grain F_t	Shear Parallel to Grain F_v[2]	Compression Perpendicular to Grain $F_{c\perp}$[2]	Compression Parallel to Grain F_c	Modulus of Elasticity E
2" to 4" Thick, 2" to 4" Wide Only						
No.2 Dense[1]	1150	750	175	660	1250	1,500,000
No.2	1050	650	175	565	1100	1,400,000
No.2 N[1]	975	575	175	480	1050	1,200,000
No.3 & Stud	600	375	175	565	625	1,200,000
Construction	800	500	175	565	1150	1,300,000
Standard	450	275	175	565	950	1,200,000
Utility	200	125	175	565	625	1,100,000

1) No.2 Dense and No.2 NonDense grades apply to Southern Pine, but not Mixed Southern Pine.
2) Shear and Compression Perpendicular-to-Grain design values did not change.

The Southern Forest Products Association (SFPA) facilitated a task group of industry leaders representing key customer groups to develop answers to the most commonly asked questions regarding new design values and their implementation.

Southern Pine design values are published by the Southern Pine Inspection Bureau after approval by the Board of Review of the American Lumber Standard Committee. SFPA does not test lumber or establish design values. Accordingly, neither SFPA, nor its members, warrant that the data or design values herein are correct, and disclaim responsibility for injury or damage resulting from the use of such design values.

Reference design values are based on normal load duration and dry service conditions. Because the strength of wood varies with conditions under which it is used, these design values should only be applied in conjunction with appropriate design and service recommendations from the *National Design Specification® (NDS®) for Wood Construction* published by the American Wood Council.

The conditions under which lumber is used in construction may vary widely, as does the quality of workmanship. Neither SFPA, nor its members, have knowledge of the quality of the materials, workmanship or construction methods used on any construction project, and, accordingly, do not warrant the technical data, design or performance of the lumber in completed structures.

QUESTIONS & ANSWERS
Interim Design Values

for Southern Pine 2x2s through 4x4s in No.2 Dense and Lower Visual Grades <u>Only</u>

Effective June 1, 2012 for Use on an Interim Basis

Information is presented in Q&A format in two sections:

***IMPACT** of the interim design values effective June 1, 2012*

***BACKGROUND** – important reference information, definitions and rationale behind design value changes*

IMPACT
QUESTIONS & ANSWERS

1 **Q: Why were <u>only</u> some sizes and grades affected on June 1, 2012?**

A: Only No.2 2x4s were tested in the initial phase completed by SPIB and Timber Products Inspection. ASTM D1990, the standard for determination of design values based on tests of full-size pieces of lumber, requires a minimum of two grades and three widths in order to model grade and size performance. No.2 Dense and lower grades were affected because design values for those grades are projected from No.2 test data.

2 **Q: Has there been more testing of other grades and sizes of Southern Pine lumber?**

A: Yes. In compliance with ASTM D1990, SPIB and Timber Products Inspection completed the full In-Grade matrix by testing Select Structural 2x4s, No.2 and Select Structural 2x8s, and No.2 and Select Structural 2x10s. They conducted tests in bending, tension parallel-to-grain and compression parallel-to-grain, plus gathered stiffness and other property data. More than 7,400 full-size samples of commercially produced Southern Pine lumber were destructively tested in the two-step process, resulting in more than 300,000 data points.

3 **Q: Are there additional design value changes based on the completed In-Grade testing matrix?**

A: Yes. On February 11, 2013, SPIB published new design values for **<u>all</u>** sizes and grades of visually graded Southern Pine dimension lumber in *Supplement No.13* to the *2002 Standard Grading Rules for Southern Pine Lumber*. The analysis of the full In-Grade testing matrix combined all data to provide the best estimates of design values. The

results were encouraging, better-than-expected news for Southern Pine lumber producers and users.

The analysis of the full In-Grade testing matrix resulted in upward revisions to almost all of the interim design values that became effective June 1, 2012 based only on No.2 2x4 data. For No.2 2x4s for example, bending increased from 1050 to 1100 psi (pounds per square inch), tension increased from 650 to 675 psi, compression increased from 1100 to 1450 psi and modulus of elasticity remained the same at 1.4 million psi.

The full In-Grade data analysis showed smaller reductions for the wider widths and higher grades as compared to the No.2 2x4 only analysis, and even some small increases as compared to current design values. For more information, refer to *Questions & Answers – New Design Values for All Sizes and Grades of Visually Graded Southern Pine Dimension Lumber, Effective June 1, 2013.*

4 **Q: What happens to the interim design values in *Supplement No.9* (2x2s through 4x4s in No.2 Dense and lower visual grades only) that became effective June 1, 2012?**

A: *SPIB's Supplement No.13* incorporates *Supplement No.9's* interim design values with minor changes due to rounding effects. This means that interim design values for the sizes and grades in *Supplement No.9* are replaced by the new design values for those sizes and grades in *Supplement No.13* effective June 1, 2013.

5 **Q: Some of the new design values in *Supplement No.13* are higher than the interim design values in *Supplement No.9* and some are lower. Do I need to wait until the June 1, 2013 effective date to begin using all of the new design values?**

A: No. The new design values have been approved by the ASLC Board of Review and published by SPIB. There is no requirement to wait until the effective date of June 1, 2013 to begin using the new design values.

SFPA will provide span tables and other information based on both current design values and the new design values during the transition period.

6 **Q: Do new design values affect existing homes?**

A: No. New design values only apply to new construction, not existing construction. Like other building materials, wood products used in construction must meet building code requirements enforced at the time. The integrity of existing structures designed and built using design values meeting applicable building codes at the time of permitting does not change.

When properly designed and built, light-frame wood construction includes repetitive structural systems for continued performance. Refer to the *Southern Pine Design Value Forum Report* that includes a review of the margin of safety for in-market lumber.

7 **Q: What happened during the transition period leading up to the June 1, 2012 effective date?**

A: The Board of Review of the American Lumber Standard Committee approved the interim design values in January 2012 with a recommended effective date of June 1, 2012, providing time for an orderly transition. The intent was to minimize project delays and supply chain disruptions by providing time to manage design value changes. The transition period provided the opportunity for producers and key customer groups to evaluate and prepare for the potential impact on their businesses. Southern Pine users were encouraged to establish and begin implementing transition plans as soon as possible. As a result, many producers and customers successfully transitioned to the new design values with minimal disruption to their businesses.

8 **Q: How are design values implemented into the building codes?**

A: Building codes reference design values certified by the Board of Review of the American Lumber Standard Committee in accordance with *American Softwood Lumber Standard DOC PS 20*. The American Wood Council (AWC) publishes these design values in a supplement to the code-referenced *National Design Specification® (NDS®) for Wood Construction,* titled *Design Values for Wood Construction.*

AWC developed addenda and other updates to use with new construction designed in accordance with its standards and design tools. Visit www.awc.org to download AWC's *Addendum* showing the interim design values to use when engineering new construction in accordance with the 2012, 2005 and 2001 versions of the *NDS.*

QUESTIONS & ANSWERS
Interim Design Values

for Southern Pine 2x2s through 4x4s in No.2 Dense and Lower Visual Grades Only

Effective June 1, 2012 for Use on an Interim Basis

9 **Q: When are new design values enforced?**

A: Building codes are enforced by the state, regional or local jurisdiction, so exactly when enforcement begins can vary by jurisdiction. AWC's website, www.awc.org, provides changes needed for the *IRC* and *IBC* span tables to comply with the interim design values. The International Code Council notified regulators of the revised span tables available for downloading from AWC's website.

Users relying on prescriptive code requirements should use revised span tables based on the interim design values effective June 1, 2012.

10 **Q: How do design value changes affect span tables and other prescriptive requirements in the building codes?**

A: Prescriptive code requirements based on old design values for Southern Pine 2x4s in No.2 Dense and lower grades need to be amended to reflect design value changes. This includes ceiling joist, rafter and header span tables in the *International Residential Code* and *International Building Code.* AWC developed recommended revisions to the prescriptive span tables in those codes. Visit www.awc.org for the revised prescriptive code tables for the interim design values, as well as all of the addenda and updates to AWC's standards and design tools effective June 1, 2012.

In addition, SFPA updated its publication *Southern Pine Maximum Spans for Joists & Rafters* that includes easy-to-use tables for specific sizes and grades of Southern Pine lumber. Also updated and available from SFPA is *Southern Pine Headers & Beams*, providing simplified span tables for lumber and glulam headers, beams and girders. Visit www.southernpine.com to obtain these updated span tables.

11 **Q: What is the practical impact on joists, rafters and headers?**

A: Very little lumber sized 2" to 4" wide and 2" to 4" thick is used in joist, rafter or header applications, so the impact of the interim design values effective June 1, 2012 is minimal.

QUESTIONS & ANSWERS
Interim Design Values

for Southern Pine 2x2s through 4x4s in No.2 Dense and Lower Visual Grades Only

Effective June 1, 2012 for Use on an Interim Basis

12 **Q: What is the impact of design value changes on stud tables?**

A: The answer varies for single-family, multi-family or engineered commercial buildings, as well as for tall studs (>10 feet) and for walls subjected to high-wind loads as included in the AWC's *Wood Frame Construction Manual*. For example:

- There is no change for studs based on the *International Residential Code (IRC)*. IRC Section R602.2 Grade states, "Studs shall be a minimum No.3, standard or stud grade lumber". This requirement is prescriptive and based on historical performance, not on a specific species or grade.

- Likewise, there is no change for studs based on the *International Building Code*, IBC Section 2308 Conventional Light-Frame Construction.

- There is a change for tall studs (>10 feet), however, based on *IRC* Table R602.3.1. Footnote b to that table states an assumption which translates to the requirement for a bending value not less than 1140 psi (1310/1.15), and an E value not less than 1,600,000 psi. The interim design values for studs are insufficient to meet this requirement. This IRC table didn't change as a result of design value changes, but the grade required to meet this assumption changed.

- Species-specific stud tables for resisting wind loads (Tables 3.20A, 3.20B etc. in Chapter 3 of AWC's 2012 *Wood Frame Construction Manual*) also changed. Visit www.awc.org to download the *Addendum to the 2012 Wood Frame Construction Manual for One- and Two-Family Dwellings*.

13 Q: What is the impact of design value changes on wall plates?

A: Design value changes have a different impact on lumber used as wall plates depending on whether it is used in conventional or engineered construction. The performance of wall plates in conventional construction is typically governed by compression perpendicular-to-grain. Because design values for compression perpendicular-to-grain have not changed, the overall impact on plate stock used in conventional construction is negligible. If the performance of wall plates in engineered construction is governed by a property such as bending with a design value change, however, then wall plates could be impacted.

Following are more specific answers:

- **Q: What about double top plates?**
  - **A:** For conventional construction: double top plates are applicable to all species as prescriptively specified per the *IRC* and Section 2308 of the *IBC*.
  - **A:** For engineered construction: the capacity of double top plates should be determined using new design values.

- **Q: What about single top plates (e.g. advanced framing and 24" o.c. stud spacing)?**
  - **A:** For conventional construction: single top plates are applicable to all species and prescriptively specified with a limited offset of the joist or rafter from the stud per the *IRC* and Section 2308 of the *IBC*.
  - **A:** For engineered construction: the capacity of a single top plate and spacing requirements should be determined using new design values.

- **Q: What about shear walls and diaphragms?**
  - **A:** For conventional construction: detailing of braced wall panels is independent of species per the *IRC* or Section 2308 of the *IBC.*
  - **A:** For engineered construction: the capacity of studs at ends of shear walls, and the capacity of plates used as chords in diaphragms, should be determined using new design values.

14 **Q: How can I get similar load-carrying capacities as before?**

A: One option is to specify a larger size and/or higher grade of visually graded Southern Pine lumber. Another option is to specify mechanically graded lumber which includes Machine Stress Rated (MSR) lumber and Machine Evaluated Lumber (MEL).

Some possible substitutes for **2x4 No.2** Southern Pine include:

- 2x6 No.2 Southern Pine
- 2x4 No.1 NonDense and better Southern Pine visual grades
- 2x4 MSR or MEL Southern Pine grades shown below

Southern Pine MSR & MEL Reference Design Values

values in psi (pounds per square inch)

Grade	Bending F_b	Tension Parallel to Grain F_t	Shear Parallel to Grain F_v	Compression Perpendicular to Grain $F_{c\perp}$	Compression Parallel to Grain F_c	Modulus of Elasticity E
Machine Stress Rated (MSR)						
1450f – 1.3E	1450	825	175	565	1600	1,300,000
1500f – 1.5E	1500	900	175	565	1650	1,500,000
1500f – 1.6E	1500	900	175	565	1650	1,600,000
1500f – 1.7E	1500	900	175	565	1650	1,700,000
1650f – 1.5E	1650	1020	175	565	1700	1,500,000
1650f – 1.7E	1650	1020	175	565	1750	1,700,000
Machine Evaluated Lumber (MEL)						
M - 38	1500	900	175	565	1650	1,600,000
M - 11	1550	850	175	565	1675	1,500,000
M - 12	1600	850	175	565	1675	1,600,000
M - 13	1600	950	175	565	1675	1,400,000
M - 39	1650	1020	175	565	1750	1,700,000

- Not all of the possible MSR and MEL grades will be produced. The marketplace will eventually determine the most common grades.
- 1500f-1.6E MSR and M-38 MEL are the closest direct substitutes for the old design values associated with No.2 2x4s.

Some possible substitutes for **2x4 No.3 and Stud** Southern Pine include:

- 2x6 No.3 Southern Pine
- 2x4 No.2 NonDense and better Southern Pine visual grades
- 2x4 MSR or MEL Southern Pine grades shown below

Southern Pine MSR & MEL Reference Design Values

values in psi (pounds per square inch)

Grade	Bending F_b	Tension Parallel to Grain F_t	Shear Parallel to Grain F_v	Compression Perpendicular to Grain $F_{c\perp}$	Compression Parallel to Grain F_c	Modulus of Elasticity E
Machine Stress Rated (MSR)						
750f – 1.4E	750	425	175	565	925	1,400,000
850f – 1.4E	850	475	175	565	975	1,400,000
975f – 1.6E	975	550	175	565	1450	1,600,000
Machine Evaluated Lumber (MEL)						
M - 32	750	425	175	565	925	1,400,000
M - 33	850	475	175	565	975	1,400,000
M - 5	900	500	175	565	1050	1,100,000
M - 34	975	550	175	565	1450	1,600,000

- Not all of the possible MSR and MEL grades will be produced. The marketplace will eventually determine the most common grades.
- 850f-1.4E MSR and M-33 are the closest direct substitutes for the old design values associated with No.3 and Stud 2x4s.

15 **Q: What happened to existing inventories of lumber in the supply chain on June 1, 2012?**

A: Visually graded lumber is identified with a grade mark that includes the grade name (e.g. No.2), but not the specific design values associated with that grade name. Therefore, the interim design values are now associated with No.2 Dense and lower grades of 2" to 4" thick and 2" to 4" wide Southern Pine in inventory.

16 **Q: What about Prime lumber grades?**

A: Design values for the Prime grades are tied to their corresponding dimension lumber grade. No.2 Prime, therefore, has interim design values identical to No.2 2x4s. No.1 Prime, on the other hand, retains its current design values until new design values for No.1 become effective.

17 **Q: Did design values for other Southern Pine lumber products change?**

A: No. Design values for other Southern Pine lumber products covered by the SPIB's Grading Rules – such as mechanically graded lumber, timbers and specialty items – are derived differently and did not change.

18 **Q: Are design properties for glulam beams affected by a change in lumber design values?**

A: No. Laminating lumber has more stringent grading rules that have not changed. Glulam beams use special grades of laminating lumber evaluated based on more restrictive characteristics, particularly in the critical outer laminations. For more information, refer to the October 12, 2011 white paper, *Changes to Lumber Design Values and Their Effect on Structural Glued Laminated Timber (Glulam),* published by the American Institute of Timber Construction and APA – The Engineered Wood Association.

19 **Q: What is the impact of design value changes on homes built in the future?**

A: Homeowners should not notice much difference, but building designers may configure the individual pieces of lumber differently in the structural system. Building materials used in construction have guidelines for proper use. Wood product guidelines incorporating design value changes continue to include a series of redundancies and checks and balances. Refer to the *Southern Pine Design Value Forum Report* that includes a review of the margin of safety for in-market lumber.

BACKGROUND

QUESTIONS & ANSWERS

20 **Q: When did the interim design values become effective?**

A: June 1, 2012, as published in SPIB's *Supplement No.9* to the *2002 Standard Grading Rules for Southern Pine Lumber*.

21 **Q: Which sizes and grades are affected by *Supplement No.9*?**

A: The only sizes affected are 2" to 4" wide and 2 to 4" thick. This includes 2x2s, 2x3s, 2x4s, 3x3s, 3x4s and 4x4s.

Only visual grades equivalent to or lower than No.2 Dense Southern Pine are affected. This includes No.2, No.3, Stud, Construction, Standard and Utility grades for Southern Pine and Mixed Southern Pine.

This also includes the No.2 Dense and No.2 NonDense Southern Pine grades. Mixed Southern Pine does not have published Dense and NonDense grades.

22 **Q: What is Southern Pine and Mixed Southern Pine?**

A: Southern Pine is a commercial grouping of individual tree species that includes the four main species of loblolly pine, longleaf pine, shortleaf pine and slash pine. Mixed Southern Pine includes the minor species of Virginia pine and pond pine.

23 **Q: Which lumber properties have design value changes?**

A: Four lumber properties:

- Bending (F_b)
- Tension parallel-to-grain (F_t)
- Compression parallel-to-grain (F_c)
- Modulus of Elasticity (E and E_{min})

24 **Q: What about design values for the other lumber properties?**

A: Design values for two lumber properties have not changed:

- Shear parallel-to-grain (F_V)
- Compression perpendicular-to-grain ($F_{C\perp}$)

25 **Q: Did the Southern Pine Grading Rules change?**

A: No. Lumber grades and the rules that define each grade did not change. Only the design values associated with the affected sizes and grades of visually graded Southern Pine dimension lumber changed.

26 **Q: Did grade stamps change?**

A: No. The grading requirements are unchanged.

27 **Q: How are design values derived?**

A: Design values provide guidance for designers to calculate the performance of a structural system and are assigned to six basic lumber properties. Design values for stiffness, as well as the major strength properties of bending, tension and compression parallel-to-grain, are based on data from destructive testing of samples of commercially-produced structural lumber. Design values for the minor strength properties of shear and compression perpendicular-to-grain are based on published clear-wood properties.

Design values for structural lumber undergo a rigorous approval process. As the rules-writing agency for Southern Pine lumber, SPIB is responsible for developing and publishing design values for Southern Pine. All testing and data analysis must be completed in accordance with approved standards. Proposed design values are submitted to the Board of Review of the American Lumber Standard Committee and approved following a careful review and recommendation from the U.S. Forest Products Laboratory.

28 **Q: Why do design values change?**

A: Design values have changed multiple times over the years based on available test data. The lumber industry conducts ongoing testing and invests millions of dollars to provide the most accurate and reliable design values for structural lumber. Comprehensive lumber testing is conducted as new technology becomes available or as warranted by changing resource data. The first significant lumber tests began in the

1920s, resulting in design values based on the strength of small clear-wood specimens. The last major change occurred in 1991 when design values for Southern Pine and other North American species were published based on In-Grade testing of full-size samples of commercially produced lumber.

29 **Q: What caused the Southern Pine design values to change?**

A: SPIB did not specifically study why a change occurred, but a change in the timber resource mix is one of many variables that can affect the strength of structural lumber.

30 **Q: How will I know when updated information on new design values is available?**

A: To aid users in the transition to new design values, the wood products industry will continue to publish helpful design information as it becomes available. Click here to receive update notices from the Southern Forest Products Association. Or visit industry association websites for:

- Southern Pine design values, span tables & product use information from the Southern Forest Products Association
- Codes and Standards from the American Wood Council
- Southern Pine Grading Rules from the Southern Pine Inspection Bureau

31 **Q: Should I continue to use Southern Pine?**

A: Yes. Southern Pine lumber is one of the best construction products on the market today. Southern Pine's strength and stiffness remain comparable to other softwood lumber species used in residential and commercial construction. Southern Pine users have many available product options including visually graded dimension lumber and an increasing supply of mechanically graded lumber. From framing a house to building a deck, Southern Pine continues to be a dependable product with superior treatability against decay and termites.

Southern Pine forests are some of the most productive and sustainable timberlands in the world, capturing large amounts of carbon from the air and storing it in lumber used every day.

Southern Pine is grown and manufactured in the U.S. South, further improving local economies, reducing transportation costs and minimizing impacts on the environment.

SOUTHERN PINE REFERENCE DESIGN VALUES

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

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

New Design Values Effective June 1, 2012

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

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

NEW SOUTHERN PINE DESIGN VALUES

Effective June 1, 2012

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

SOUTHERN FOREST PRODUCTS ASSOCIATION

New Design Values[1] for Southern Pine
Effective June 1, 2013

NEW SOUTHERN PINE DESIGN VALUES

All Sizes and Grades
of Visually Graded Southern Pine Dimension Lumber

values in psi (pounds per square inch)

	Bending F_b	Tension Parallel to Grain F_t	Shear Parallel to Grain F_v	Compression Perpendicular to Grain $F_{c\perp}$	Compression Parallel to Grain F_c	Modulus of Elasticity E
2" to 4" thick, 2" to 4" wide						
Dense Select Structural	2700	1900	175	660	2050	1,900,000
Select Structural	2350	1650	175	565	1900	1,800,000
NonDense Select Struc.	2050	1450	175	480	1800	1,600,000
No.1 Dense	1650	1100	175	660	1750	1,800,000
No.1	1500	1000	175	565	1650	1,600,000
No.1 NonDense	1300	875	175	480	1550	1,400,000
No.2 Dense	1200	750	175	660	1500	1,600,000
No.2	1100	675	175	565	1450	1,400,000
No.2 NonDense	1050	600	175	480	1450	1,300,000
No.3 and Stud	650	400	175	565	850	1,300,000
Construction	875	500	175	565	1600	1,400,000
Standard	475	275	175	565	1300	1,200,000
Utility	225	125	175	565	850	1,200,000
2" to 4" thick, 5" to 6" wide						
Dense Select Structural	2400	1650	175	660	1900	1,900,000
Select Structural	2100	1450	175	565	1800	1,800,000
NonDense Select Struc.	1850	1300	175	480	1700	1,600,000
No.1 Dense	1500	1000	175	660	1650	1,800,000
No.1	1350	875	175	565	1550	1,600,000
No.1 NonDense	1200	775	175	480	1450	1,400,000
No.2 Dense	1050	650	175	660	1450	1,600,000
No.2	1000	600	175	565	1400	1,400,000
No.2 NonDense	950	525	175	480	1350	1,300,000
No.3 and Stud	575	350	175	565	800	1,300,000
2" to 4" thick, 8" wide						
Dense Select Structural	2200	1550	175	660	1850	1,900,000
Select Structural	1950	1350	175	565	1700	1,800,000
NonDense Select Struc.	1700	1200	175	480	1650	1,600,000
No.1 Dense	1350	900	175	660	1600	1,800,000
No.1	1250	800	175	565	1500	1,600,000
No.1 NonDense	1100	700	175	480	1400	1,400,000
No.2 Dense	975	600	175	660	1400	1,600,000
No.2	925	550	175	565	1350	1,400,000
No.2 NonDense	875	500	175	480	1300	1,300,000
No.3 and Stud	525	325	175	565	775	1,300,000

SOUTHERN FOREST PRODUCTS ASSOCIATION

New Design Values[1] for Southern Pine
Effective June 1, 2013

NEW SOUTHERN PINE DESIGN VALUES

All Sizes and Grades
of Visually Graded Southern Pine Dimension Lumber

values in psi (pounds per square inch)

	Bending F_b	Tension Parallel to Grain F_t	Shear Parallel to Grain F_v	Compression Perpendicular to Grain $F_{c\perp}$	Compression Parallel to Grain F_c	Modulus of Elasticity E
2" to 4" thick, 10" wide						
Dense Select Structural	1950	1300	175	660	1800	1,900,000
Select Structural	1700	1150	175	565	1650	1,800,000
NonDense Select Struc.	1500	1050	175	480	1600	1,600,000
No.1 Dense	1200	800	175	660	1550	1,800,000
No.1	1050	700	175	565	1450	1,600,000
No.1 NonDense	950	625	175	480	1400	1,400,000
No.2 Dense	850	525	175	660	1350	1,600,000
No.2	800	475	175	565	1300	1,400,000
No.2 NonDense	750	425	175	480	1250	1,300,000
No.3 and Stud	475	275	175	565	750	1,300,000
2" to 4" thick, 12" wide						
Dense Select Structural	1800	1250	175	660	1750	1,900,000
Select Structural	1600	1100	175	565	1650	1,800,000
NonDense Select Struc.	1400	975	175	480	1550	1,600,000
No.1 Dense	1100	750	175	660	1500	1,800,000
No.1	1000	650	175	565	1400	1,600,000
No.1 NonDense	900	575	175	480	1350	1,400,000
No.2 Dense	800	500	175	660	1300	1,600,000
No.2	750	450	175	565	1250	1,400,000
No.2 NonDense	700	400	175	480	1250	1,300,000
No.3 and Stud	450	250	175	565	725	1,300,000

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SOUTHERN FOREST PRODUCTS ASSOCIATION

SP Mechanically Graded Lumber (MSR & MEL) Grades & Design Values

Based on the 2002 SPIB Standard Grading Rules for Southern Pine Lumber, including Supplement 12

values in psi (pounds per square inch)

Grade	Bending F_b	Tension Parallel to Grain F_t	Shear Parallel to Grain[1] F_v	Compression Perpendicular to Grain[1] $F_{c\perp}$	Compression Parallel to Grain F_c	Modulus of Elasticity E	Modulus of Elasticity E_{min}
Machine Stress Rated (MSR)							
750f - 1.4E	750	425	175	565	925	1,400,000	710,000
850f – 1.4E	850	475	175	565	975	1,400,000	710,000
975f - 1.6E	975	550	175	565	1450	1,600,000	810,000
1050f - 1.2E	1050	450	175	565	1225	1,200,000	610,000
1050f –1.6E	1050	575	175	565	1500	1,600,000	810,000
1200f –1.3E	1200	600	175	565	1400	1,300,000	660,000
1200f –1.6E	1200	650	175	565	1550	1,600,000	810,000
1250f –1.6E	1250	725	175	565	1600	1,600,000	810,000
1350f - 1.4E	1350	750	175	565	1600	1,400,000	710,000
1450f - 1.3E	1450	825	175	565	1600	1,300,000	660,000
1500f -1.5E	1500	900	175	565	1650	1,500,000	760,000
1500f -1.6E	1500	900	175	565	1650	1,600,000	810,000
1500f -1.7E	1500	900	175	565	1650	1,700,000	860,000
1650f -1.5E	1650	1020	175	565	1700	1,500,000	760,000
1650f -1.7E	1650	1020	175	565	1750	1,700,000	860,000
1800f -1.6E	1800	1175	175	565	1750	1,600,000	810,000
1850f -1.7E	1850	1175	175	565	1850	1,700,000	860,000
1950f -1.5E	1950	1375	175	565	1800	1,500,000	760,000
1950f -1.7E	1950	1375	175	565	1800	1,700,000	860,000
2100f -1.8E[2]	2100	1575	190	805	1875	1,800,000	910,000
2250f -1.9E	2250	1750	190	805	1925	1,900,000	970,000
2400f -2.0E	2400	1925	190	805	1975	2,000,000	1,020,000
2550f -1.8E[2]	2550	1400	190	805	2000	1,800,000	910,000
2550f -2.1E	2550	2050	190	805	2025	2,100,000	1,070,000
2700f -2.2E	2700	2150	190	805	2100	2,200,000	1,120,000
2850f -1.8E[2]	2850	1600	190	805	2100	1,800,000	910,000
2850f -2.3E	2850	2300	190	805	2150	2,300,000	1,170,000
3000f -2.4E	3000	2400	190	805	2200	2,400,000	1,220,000

Not all of the possible MSR and MEL grades will be produced. The marketplace will eventually determine the most common grades.

[1]When a grade is qualified by test and quality controlled for specific gravity, the allowable shear and compression perpendicular-to-grain design values may be higher. [2]When not qualified by test and quality control for specific gravity, the grademark for mechanically graded lumber grades with a 1,800,000 psi modulus of elasticity design value shall include a specific gravity of .55, a shear value of 175 psi, and a compression perpendicular-to-grain value of 565 psi. [3]MEL grades requiring compression parallel-to-grain qualification and quality control.

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SOUTHERN FOREST PRODUCTS ASSOCIATION

SP Mechanically Graded Lumber (MSR & MEL) Grades & Design Values

Based on the 2002 SPIB Standard Grading Rules for Southern Pine Lumber, including Supplement 12

values in psi (pounds per square inch)

Grade	Bending F_b	Tension Parallel to Grain F_t	Shear Parallel to Grain[1] F_v	Compression Perpendicular to Grain[1] $F_{c\perp}$	Compression Parallel to Grain F_c	Modulus of Elasticity E	Modulus of Elasticity E_{min}
Machine Evaluated Lumber (MEL)							
M-32	750	425	175	565	925	1,400,000	650,000
M-33	850	475	175	565	975	1,400,000	650,000
M-5	900	500	175	565	1050	1,100,000	510,000
M-34	975	550	175	565	1450	1,600,000	750,000
M-35	1050	575	175	565	1500	1,600,000	750,000
M-6	1100	600	175	565	1300	1,000,000	470,000
M-7	1200	650	175	565	1400	1,100,000	510,000
M-36	1200	650	175	565	1550	1,600,000	750,000
M-37	1250	725	175	565	1600	1,600,000	750,000
M-8	1300	700	175	565	1500	1,300,000	610,000
M-10	1400	800	175	565	1600	1,200,000	560,000
M-9	1400	800	175	565	1600	1,400,000	650,000
M-38	1500	900	175	565	1650	1,600,000	750,000
M-11	1550	850	175	565	1675	1,500,000	700,000
M-29	1550	850	175	565	1650	1,700,000	790,000
M-12	1600	850	175	565	1675	1,600,000	750,000
M-13	1600	950	175	565	1675	1,400,000	650,000
M-39	1650	1020	175	565	1750	1,700,000	790,000
M-15	1800	1100	175	565	1750	1,500,000	700,000
M-16	1800	1300	175	565	1750	1,500,000	700,000
M-14	1800	1000	175	565	1750	1,700,000	790,000
M-40	1850	1175	175	565	1850	1,700,000	790,000
M-17[3]	1950	1300	175	565	2050	1,700,000	790,000
M-19	2000	1300	175	565	1825	1,600,000	750,000
M-18[2]	2000	1200	190	805	1825	1,800,000	840,000
M-20[3]	2000	1600	190	805	2100	1,900,000	890,000
M-30	2050	1050	175	565	1850	1,700,000	790,000
M-28	2200	1600	175	565	1900	1,700,000	790,000
M-21	2300	1400	190	805	1950	1,900,000	890,000
M-22	2350	1500	175	565	1950	1,700,000	790,000
M-23[2]	2400	1900	190	805	1975	1,800,000	840,000
M-41[2]	2550	1400	190	805	2000	1,800,000	840,000
M-24	2700	1800	190	805	2100	1,900,000	890,000
M-25	2750	2000	190	805	2100	2,200,000	1,030,000
M-26	2800	1800	190	805	2150	2,000,000	930,000
M-42[2]	2850	1600	190	805	2100	1,800,000	840,000
M-31	2850	1600	190	805	2150	1,900,000	890,000
M-27[3]	3000	2000	190	805	2400	2,100,000	980,000

Not all of the possible MSR and MEL grades will be produced. The marketplace will eventually determine the most common grades.

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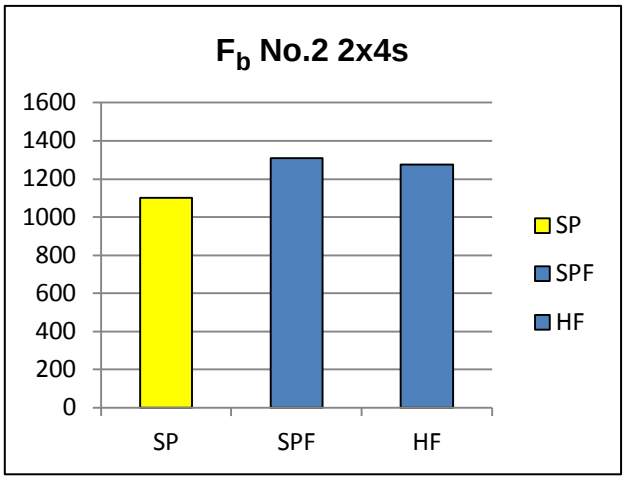
SOUTHERN FOREST PRODUCTS ASSOCIATION

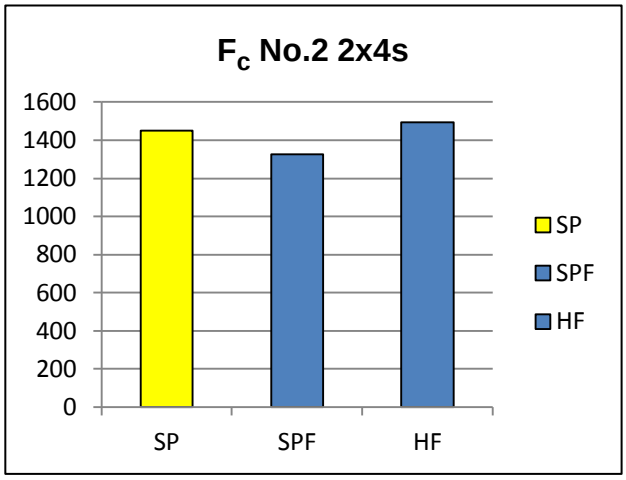
No.2 Design Value Comparisons by Species
New Southern Pine[1] vs. Current Other Species[2]

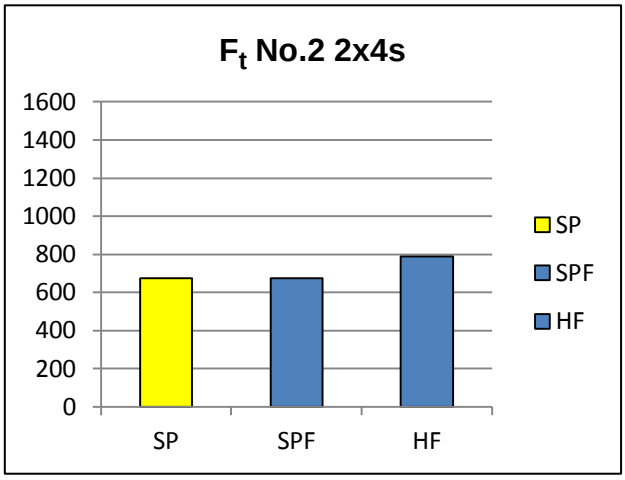
NEW SOUTHERN PINE DESIGN VALUES

[1]Effective June 1, 2013

values in psi (pounds per square inch)







No.2 2x4s			
	SP	SPF	HF
Bending F_b	1100	1315	1275
Tension F_t	675	675	790
Compression F_c	1450	1325	1495

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[2]Current design values for other species as of February 2013. SPF = Spruce-Pine-Fir, HF = Hem-fir.

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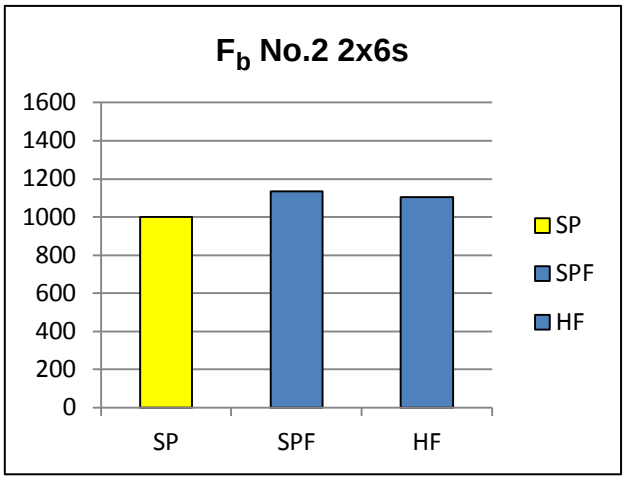
SOUTHERN FOREST PRODUCTS ASSOCIATION

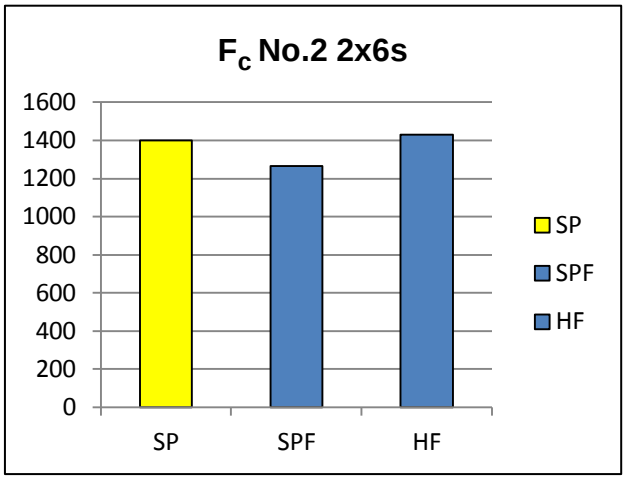
No.2 Design Value Comparisons by Species
New Southern Pine[1] vs. Current Other Species[2]

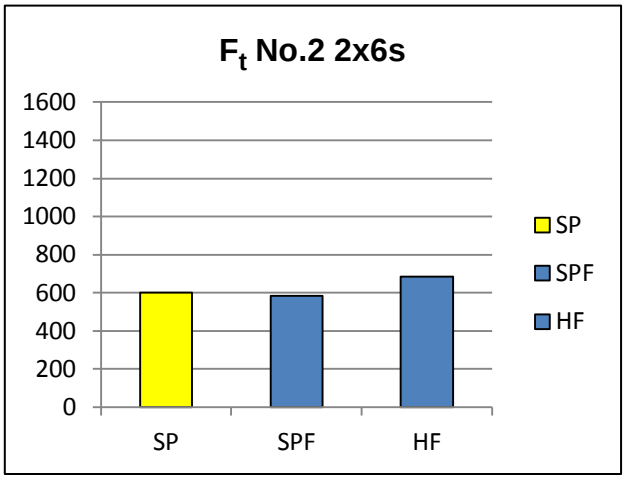
NEW SOUTHERN PINE DESIGN VALUES

[1]Effective June 1, 2013

values in psi (pounds per square inch)







No.2 2x6s			
	SP	SPF	HF
Bending F_b	1000	1140	1105
Tension F_t	600	585	685
Compression F_c	1400	1265	1430

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[2]Current design values for other species as of February 2013. SPF = Spruce-Pine-Fir, HF = Hem-fir.

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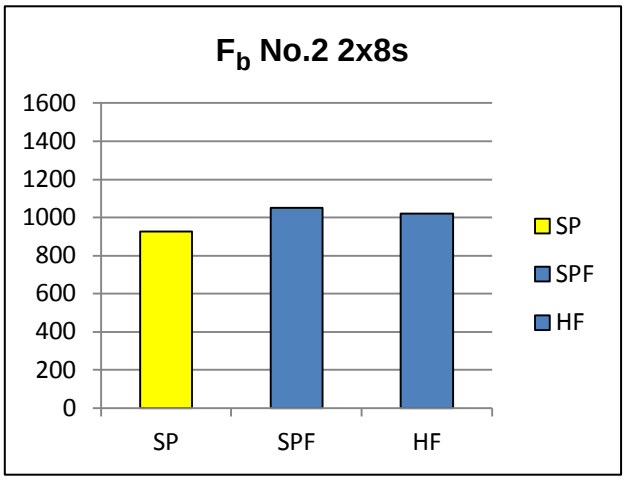
No.2 Design Value Comparisons by Species
New Southern Pine[1] vs. Current Other Species[2]

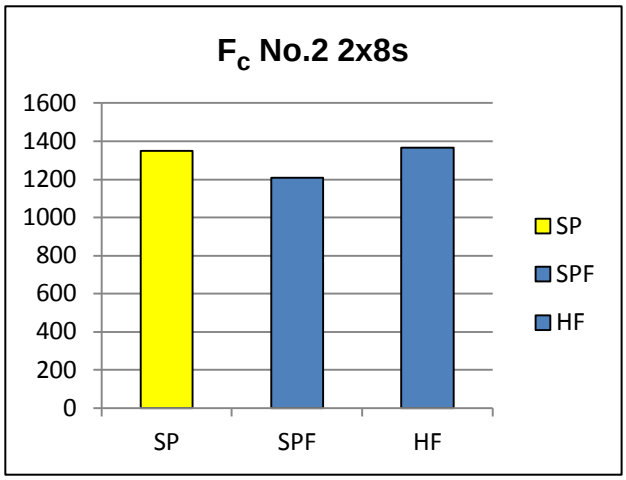
SOUTHERN FOREST PRODUCTS ASSOCIATION

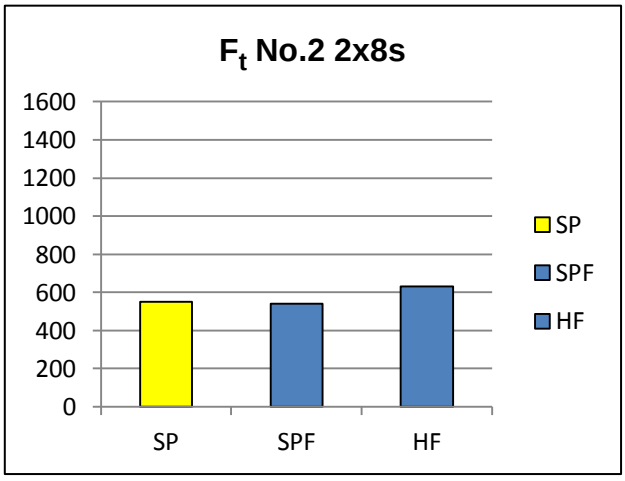
NEW SOUTHERN PINE DESIGN VALUES

[1]Effective June 1, 2013

values in psi (pounds per square inch)







No.2 2x8s			
	SP	SPF	HF
Bending F_b	925	1050	1020
Tension F_t	550	540	630
Compression F_c	1350	1210	1365

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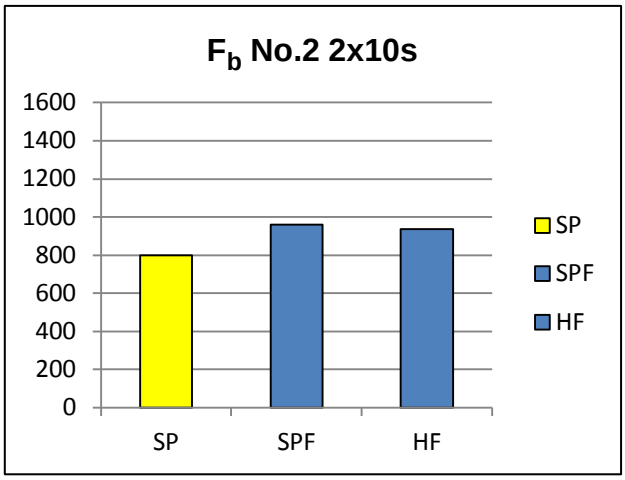
SOUTHERN FOREST PRODUCTS ASSOCIATION

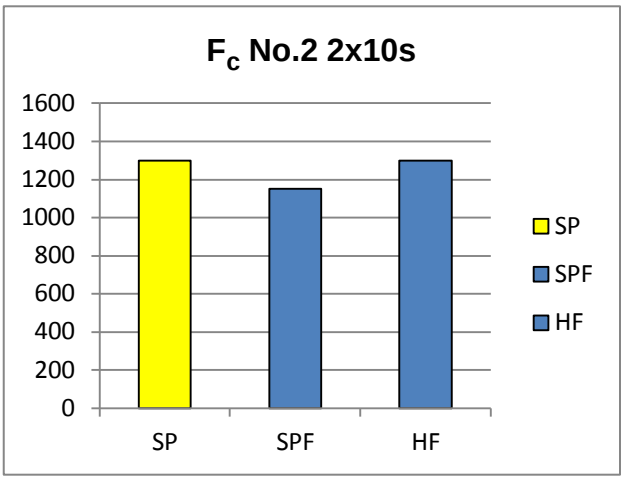
No.2 Design Value Comparisons by Species
New Southern Pine[1] vs. Current Other Species[2]

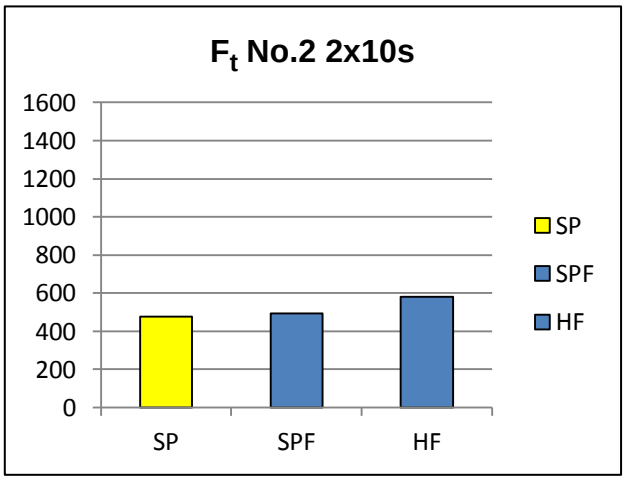
NEW SOUTHERN PINE DESIGN VALUES

[1]Effective June 1, 2013

values in psi (pounds per square inch)







No.2 2x10s			
	SP	SPF	HF
Bending F_b	800	965	935
Tension F_t	475	495	580
Compression F_c	1300	1150	1300

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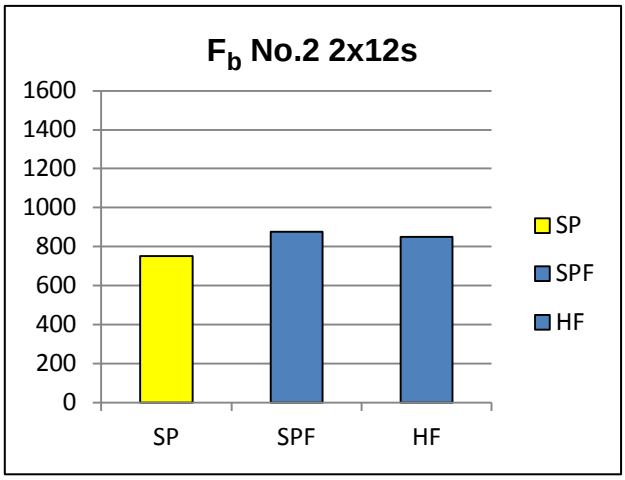
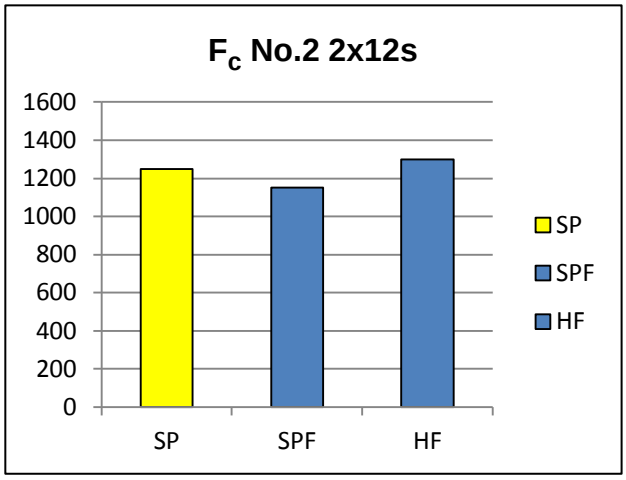
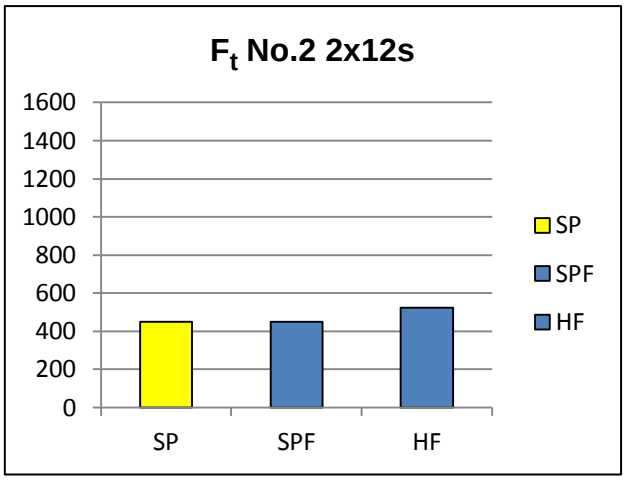
No.2 Design Value Comparisons by Species
New Southern Pine[1] vs. Current Other Species[2]

[1]Effective June 1, 2013

values in psi (pounds per square inch)







No.2 2x12s			
	SP	SPF	HF
Bending F_b	750	875	850
Tension F_t	450	450	525
Compression F_c	1250	1150	1300

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[2]Current design values for other species as of February 2013. SPF = Spruce-Pine-Fir, HF = Hem-fir.

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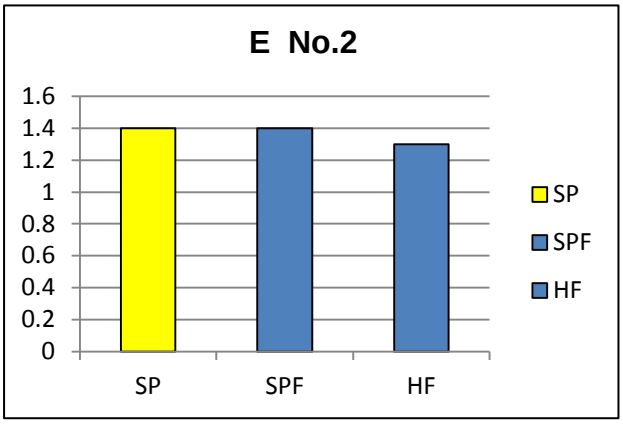
SOUTHERN FOREST PRODUCTS ASSOCIATION

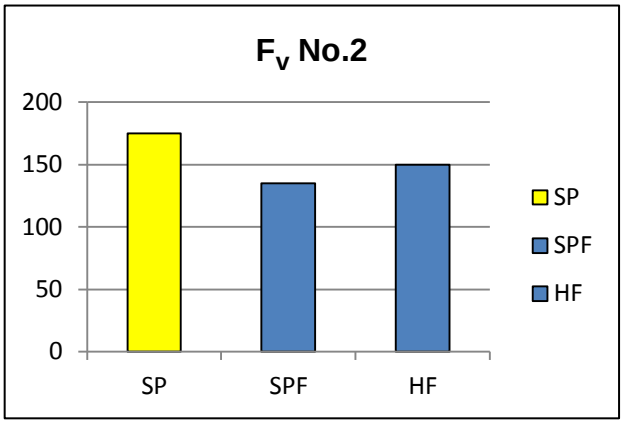
No.2 Design Value Comparisons by Species
New Southern Pine[1] vs. Current Other Species[2]

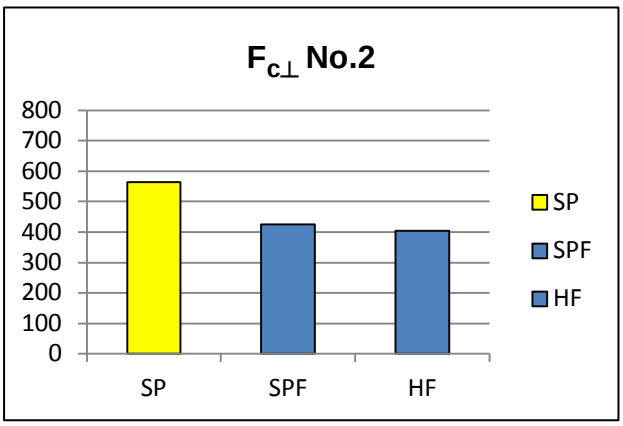
NEW SOUTHERN PINE DESIGN VALUES

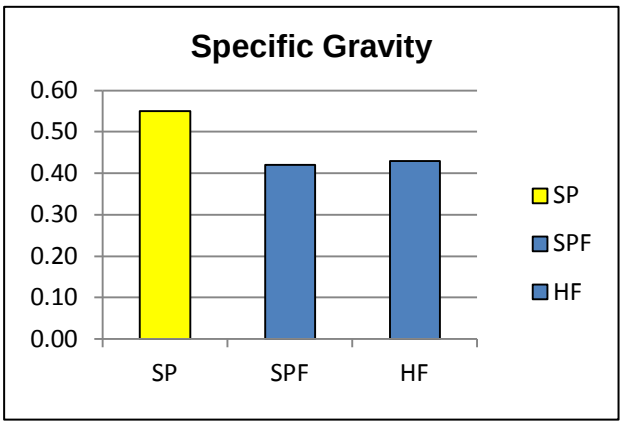
[1]Effective June 1, 2013

values in psi (pounds per square inch)









No.2			
	SP	SPF	HF
Modulus of Elasticity E	1.4	1.4	1.3
Compression Perpendicular $F_{c\perp}$	565	425	405
Shear F_v	175	135	150
Specific Gravity	0.55	0.42	0.43

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SOUTHERN FOREST PRODUCTS ASSOCIATION

Maximum Span Comparisons by Species

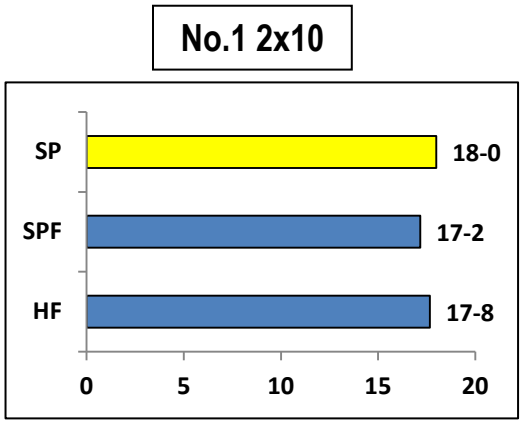
New Southern Pine[1] vs. Current Other Species[2]

NEW SOUTHERN PINE DESIGN VALUES

[1]Effective June 1, 2013

Maximum spans in feet-inches, spacing 16 inches on center

Table 1 FLOOR JOISTS – 30 psf Live Load, 10 psf Dead Load, 360 Deflection



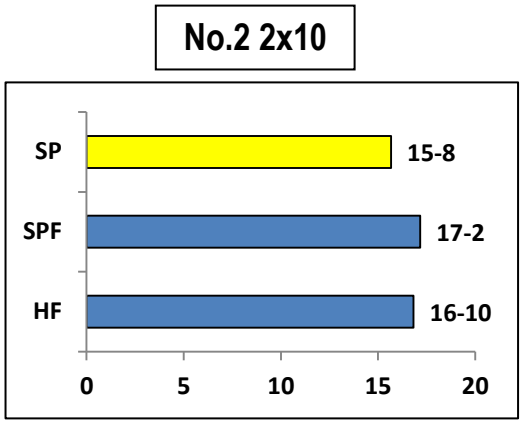
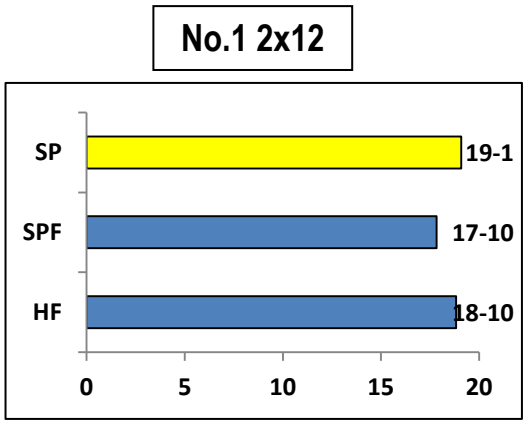
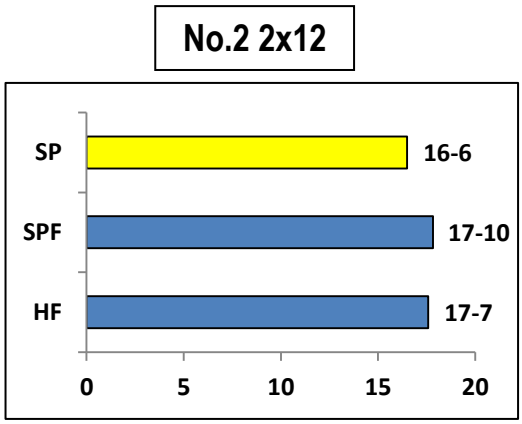


Table 2 FLOOR JOISTS – 40 psf Live Load, 10 psf Dead Load, 360 Deflection





[1]On February 11, 2013, the Southern Pine Inspection Bureau published new design values for all sizes and grades of visually graded Southern Pine dimension lumber in *Supplement No.13* to the *2002 Standard Grading Rules for Southern Pine Lumber*. The Southern Pine spans in these graphs were calculated using the new design values which become effective June 1, 2013.

[2]The spans for other species in these graphs were calculated using current design values for those species as of February 2013. SPF = Spruce-Pine-Fir, HF = Hem-fir.

SOUTHERN FOREST PRODUCTS ASSOCIATION

Maximum Span Comparisons by Species

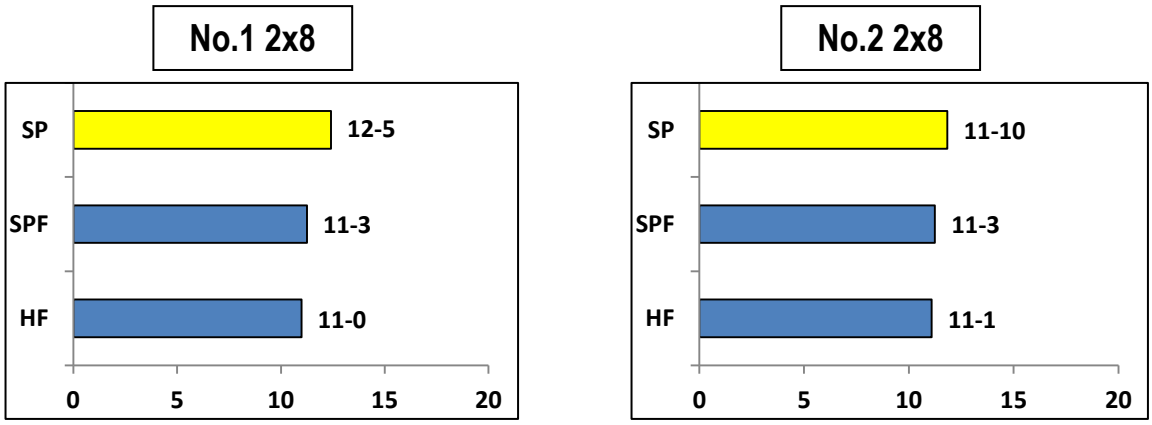
New Southern Pine[1] vs. Current Other Species[2]

NEW SOUTHERN PINE DESIGN VALUES

[1]Effective June 1, 2013

Maximum spans in feet-inches, spacing 16 inches on center

Table 12 WET-SERVICE FLOOR JOISTS – MC>19%
40 psf Live Load, 10 psf Dead Load, 360 Deflection



[1]On February 11, 2013, the Southern Pine Inspection Bureau published new design values for all sizes and grades of visually graded Southern Pine dimension lumber in *Supplement No.13* to the *2002 Standard Grading Rules for Southern Pine Lumber*. The Southern Pine spans in these graphs were calculated using the new design values which become effective June 1, 2013.

[2]The spans for other species in these graphs were calculated using current design values for those species as of February 2013. SPF = Spruce-Pine-Fir, HF = Hem-fir.

SOUTHERN FOREST PRODUCTS ASSOCIATION

Maximum Span Comparisons by Species

New Southern Pine[1] vs. Current Other Species[2]

NEW SOUTHERN PINE DESIGN VALUES

[1]Effective June 1, 2013

Maximum spans in feet-inches, spacing 16 inches on center

Table 15 CEILING JOISTS – 10 psf Live Load, 5 psf Dead Load, 240 Deflection

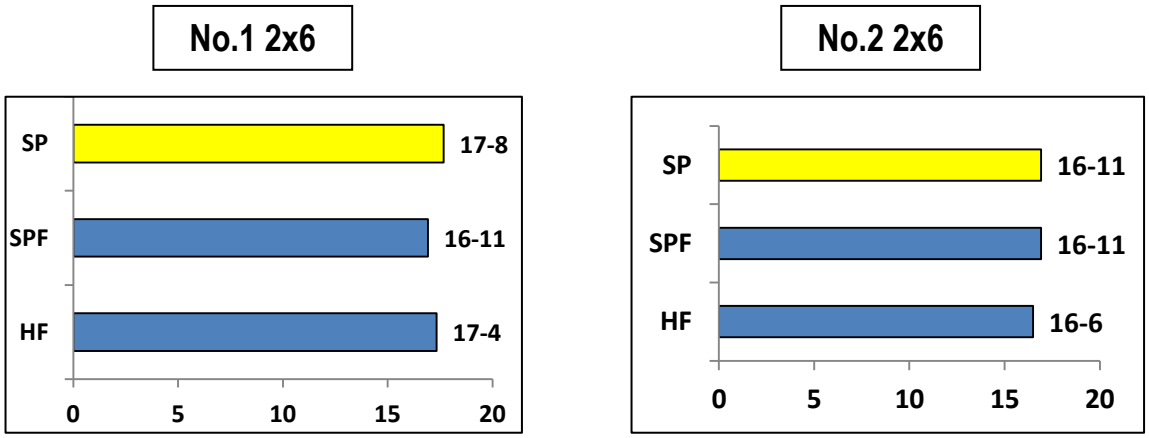
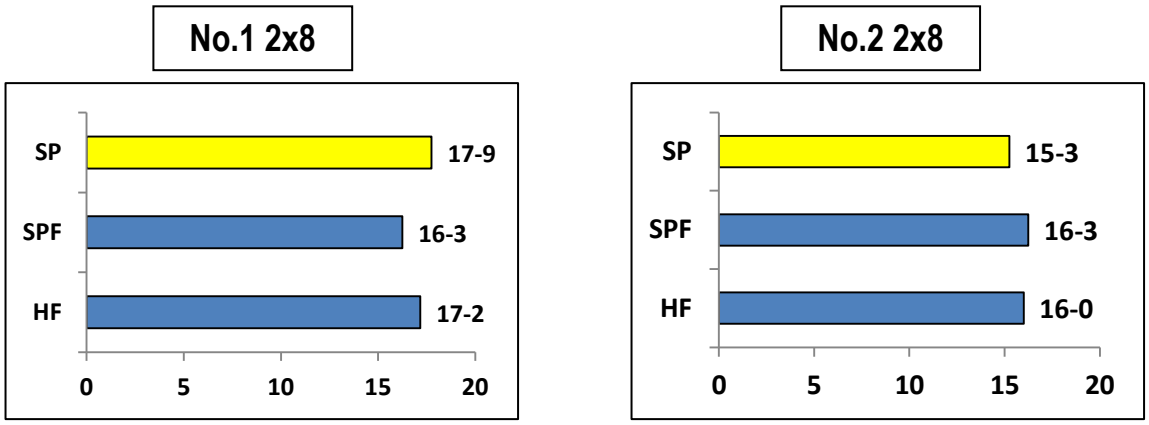


Table 16 CEILING JOISTS – 20 psf Live Load, 10 psf Dead Load, 240 Deflection



[1]On February 11, 2013, the Southern Pine Inspection Bureau published new design values for all sizes and grades of visually graded Southern Pine dimension lumber in *Supplement No.13* to the *2002 Standard Grading Rules for Southern Pine Lumber*. The Southern Pine spans in these graphs were calculated using the new design values which become effective June 1, 2013.

[2]The spans for other species in these graphs were calculated using current design values for those species as of February 2013. SPF = Spruce-Pine-Fir, HF = Hem-fir.

SOUTHERN FOREST PRODUCTS ASSOCIATION

Maximum Span Comparisons by Species

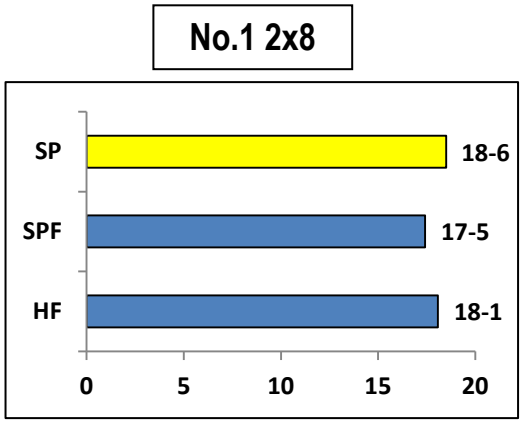
New Southern Pine[1] vs. Current Other Species[2]

NEW SOUTHERN PINE DESIGN VALUES

[1]Effective June 1, 2013

Maximum spans in feet-inches, spacing 16 inches on center

Table 17 RAFTERS – 20 psf Live Load, 10 psf Dead Load, 240 Deflection C_D = 1.15 (snow load)



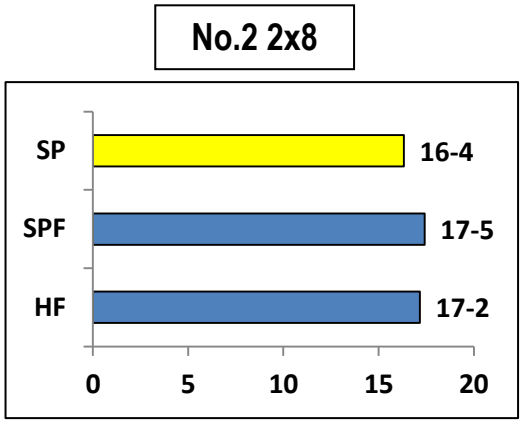
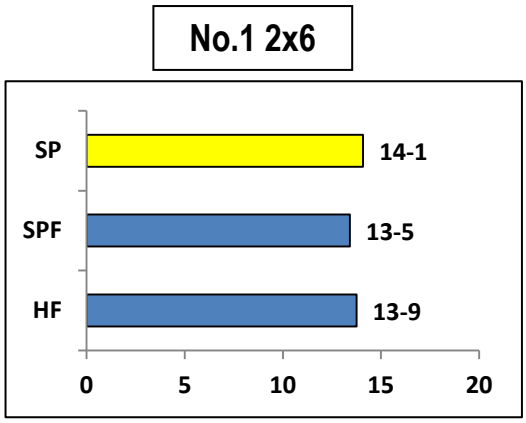
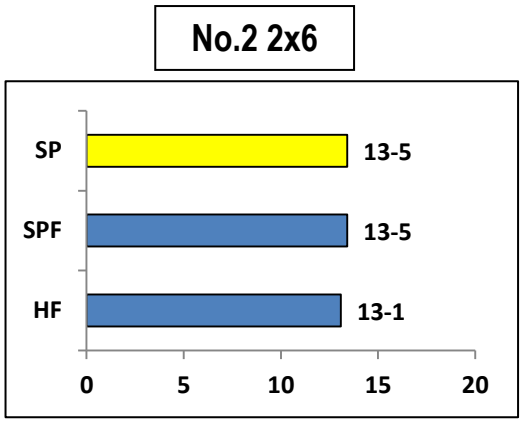


Table 41 RAFTERS – 20 psf Live Load, 10 psf Dead Load, 240 Deflection C_D = 1.25





[1]On February 11, 2013, the Southern Pine Inspection Bureau published new design values for all sizes and grades of visually graded Southern Pine dimension lumber in *Supplement No.13* to the *2002 Standard Grading Rules for Southern Pine Lumber*. The Southern Pine spans in these graphs were calculated using the new design values which become effective June 1, 2013.

[2]The spans for other species in these graphs were calculated using current design values for those species as of February 2013. SPF = Spruce-Pine-Fir, HF = Hem-fir.

SOUTHERN FOREST PRODUCTS ASSOCIATION

Sample Alternate Southern Pine Grades[1]
Based on Maintaining the Current Maximum Span[3] for a No.2 Grade of a Selected Size

NEW SOUTHERN PINE DESIGN VALUES

[5]Maximum spans in feet-inches, spacing 16 inches on center

Table 1 FLOOR JOISTS – 30 psf Live Load, 10 psf Dead Load, 360 Deflection				
Size	**Grade**	**Bending F_b (psi)**	**Modulus of Elasticity E (psi)**	**Maximum Span[5]**
2x10	**No.2[3]**	**1050**	**1,600,000**	**18-0**
2x10	**M-35[4]**	1050	1,600,000	18-0
2x10	**1050f-1.6E[4]**	1050	1,600,000	18-0
2x10	**No.1[2]**	1050	1,600,000	18-0
2x10	**1200f-1.6E[4]**	1200	1,600,000	18-0
2x10	**M-12[4]**	1600	1,600,000	18-0
2x10	**M-29[4]**	1550	1,700,000	18-5
2x10	**Select Structural[2]**	1700	1,800,000	18-9
2x10	**2100f-1.8E[4]**	2100	1,800,000	18-9
2x10	**M-23[4]**	2400	1,800,000	18-9
2x10	**2400f-2.0E[4]**	2400	2,000,000	19-5

[1]This table includes a sample of the Southern Pine visual, Machine Stress Rated (MSR) and Machine Evaluated Lumber (MEL) grades that will meet or exceed the maximum span based on current design values for a selected size of No.2 Southern Pine. There are many other Southern Pine grades that will continue to meet or exceed this span, but not all of the possible Southern Pine grades will be produced. The marketplace will eventually determine the most common grades.

[2]On February 11, 2013, the Southern Pine Inspection Bureau published new design values for all sizes and grades of visually graded Southern Pine dimension lumber in *Supplement No.13* to the *2002 Standard Grading Rules for Southern Pine Lumber*. That includes the visual grades of Select Structural, No.1, No.2 and No.3. The maximum spans for the Select Structural and No.1 visual grades in this table were calculated using those new design values. The new design values become effective June 1, 2013 to provide time for an orderly transition.

[3]The maximum span for the No.2 visual grade in this table was calculated using current published design values. The maximum span for No.2 calculated using the new design values will be lower.

[4]Design values and spans for mechanically graded lumber (MSR and MEL) do not change.

SOUTHERN FOREST PRODUCTS ASSOCIATION

Sample Alternate Southern Pine Grades[1]
Based on Maintaining the Current Maximum Span[3] for a No.2 Grade of a Selected Size

NEW SOUTHERN PINE DESIGN VALUES

[5]Maximum spans in feet-inches, spacing 16 inches on center

Table 2 FLOOR JOISTS – 40 psf Live Load, 10 psf Dead Load, 360 Deflection				
Size	**Grade**	**Bending F_b (psi)**	**Modulus of Elasticity E (psi)**	**Maximum Span[5]**
2x12	**No. 2[3]**	**975**	**1,600,000**	**18-10**
2x12	**M-34[4]**	975	1,600,000	18-10
2x12	**975f-1.6E[4]**	975	1,600,000	18-10
2x12	**No. 1[2]**	1000	1,600,000	19-1
2x12	**1650f-1.5E[4]**	1650	1,500,000	19-6
2x12	**M-12[4]**	1600	1,600,000	19-11
2x12	**M-29[4]**	1550	1,700,000	20-4
2x12	**Select Structural[2]**	1600	1,800,000	20-9
2x12	**2100f-1.8E[4]**	2100	1,800,000	20-9
2x12	**M-23[4]**	2400	1,800,000	20-9
2x12	**2400f-2.0E[4]**	2400	2,000,000	21-6

[1]This table includes a sample of the Southern Pine visual, Machine Stress Rated (MSR) and Machine Evaluated Lumber (MEL) grades that will meet or exceed the maximum span based on current design values for a selected size of No.2 Southern Pine. There are many other Southern Pine grades that will continue to meet or exceed this span, but not all of the possible Southern Pine grades will be produced. The marketplace will eventually determine the most common grades.

[2]On February 11, 2013, the Southern Pine Inspection Bureau published new design values for all sizes and grades of visually graded Southern Pine dimension lumber in *Supplement No.13* to the *2002 Standard Grading Rules for Southern Pine Lumber*. That includes the visual grades of Select Structural, No.1, No.2 and No.3. The maximum spans for the Select Structural and No.1 visual grades in this table were calculated using those new design values. The new design values become effective June 1, 2013 to provide time for an orderly transition.

[3]The maximum span for the No.2 visual grade in this table was calculated using current published design values. The maximum span for No.2 calculated using the new design values will be lower.

[4]Design values and spans for mechanically graded lumber (MSR and MEL) do not change.

SOUTHERN FOREST PRODUCTS ASSOCIATION

Sample Alternate Southern Pine Grades[1]
Based on Maintaining the Current Maximum Span[3] for a No.2 Grade of a Selected Size

NEW SOUTHERN PINE DESIGN VALUES

[5]Maximum spans in feet-inches, spacing 16 inches on center

Table 12 WET-SERVICE FLOOR JOISTS – MC>19% 40 psf Live Load, 10 psf Dead Load, 360 Deflection				
Size	**Grade**	**Bending F_b (psi)**	**Modulus of Elasticity E (psi)**	**Maximum Span[5]**
2x8	**No.2[3]**	**1200**	**1,600,000**	**12-5**
2x8	**M-36[4]**	1200	1,600,000	12-5
2x8	**1200f-1.6E[4]**	1200	1,600,000	12-5
2x8	**No.1[2]**	1250	1,600,000	12-5
2x8	**M-12[4]**	1600	1,600,000	12-5
2x8	**M-29[4]**	1550	1,700,000	12-8
2x8	**1650f-1.7E[4]**	1650	1,700,000	12-8
2x8	**Select Structural[2]**	1950	1,800,000	12-11
2x8	**2100f-1.8E[4]**	2100	1,800,000	12-11
2x8	**M-23[4]**	2400	1,800,000	12-11
2x8	**2400f-2.0E[4]**	2400	2,000,000	13-4

[1]This table includes a sample of the Southern Pine visual, Machine Stress Rated (MSR) and Machine Evaluated Lumber (MEL) grades that will meet or exceed the maximum span based on current design values for a selected size of No.2 Southern Pine. There are many other Southern Pine grades that will continue to meet or exceed this span, but not all of the possible Southern Pine grades will be produced. The marketplace will eventually determine the most common grades.

[2]On February 11, 2013, the Southern Pine Inspection Bureau published new design values for all sizes and grades of visually graded Southern Pine dimension lumber in *Supplement No.13* to the *2002 Standard Grading Rules for Southern Pine Lumber*. That includes the visual grades of Select Structural, No.1, No.2 and No.3. The maximum spans for the Select Structural and No.1 visual grades in this table were calculated using those new design values. The new design values become effective June 1, 2013 to provide time for an orderly transition.

[3]The maximum span for the No.2 visual grade in this table was calculated using current published design values. The maximum span for No.2 calculated using the new design values will be lower.

[4]Design values and spans for mechanically graded lumber (MSR and MEL) do not change.

SOUTHERN FOREST PRODUCTS ASSOCIATION

Sample Alternate Southern Pine Grades[1]
Based on Maintaining the Current Maximum Span[3] for a No.2 Grade of a Selected Size

NEW SOUTHERN PINE DESIGN VALUES

[5]Maximum spans in feet-inches, spacing 16 inches on center

Table 15 CEILING JOISTS – 10 psf Live Load, 5 psf Dead Load, 240 Deflection				
Size	**Grade**	**Bending F_b (psi)**	**Modulus of Elasticity E (psi)**	**Maximum Span[5]**
2x6	**No. 2[3]**	**1250**	**1,600,000**	**17-8**
2x6	**M-37[4]**	1250	1,600,000	17-8
2x6	**1250f-1.6E[4]**	1250	1,600,000	17-8
2x6	**M-36[4]**	1200	1,600,000	17-8
2x6	**1200f-1.6E[4]**	1200	1,600,000	17-8
2x6	**No.1[2]**	1350	1,600,000	17-8
2x6	**M-12[4]**	1600	1,600,000	17-8
2x6	**1650f-1.7E[4]**	1650	1,700,000	18-1
2x6	**M-14[4]**	1800	1,700,000	18-1
2x6	**Select Structural[2]**	2100	1,800,000	18-5
2x6	**2400f-2.0E[4]**	2400	2,000,000	19-1

[1]This table includes a sample of the Southern Pine visual, Machine Stress Rated (MSR) and Machine Evaluated Lumber (MEL) grades that will meet or exceed the maximum span based on current design values for a selected size of No.2 Southern Pine. There are many other Southern Pine grades that will continue to meet or exceed this span, but not all of the possible Southern Pine grades will be produced. The marketplace will eventually determine the most common grades.

[2]On February 11, 2013, the Southern Pine Inspection Bureau published new design values for all sizes and grades of visually graded Southern Pine dimension lumber in *Supplement No.13* to the *2002 Standard Grading Rules for Southern Pine Lumber*. That includes the visual grades of Select Structural, No.1, No.2 and No.3. The maximum spans for the Select Structural and No.1 visual grades in this table were calculated using those new design values. The new design values become effective June 1, 2013 to provide time for an orderly transition.

[3]The maximum span for the No.2 visual grade in this table was calculated using current published design values. The maximum span for No.2 calculated using the new design values will be lower.

[4]Design values and spans for mechanically graded lumber (MSR and MEL) do not change.

SOUTHERN FOREST PRODUCTS ASSOCIATION

Sample Alternate Southern Pine Grades[1]
Based on Maintaining the Current Maximum Span[3] for a No.2 Grade of a Selected Size

NEW SOUTHERN PINE DESIGN VALUES

[5]Maximum spans in feet-inches, spacing 16 inches on center

Table 16 CEILING JOISTS – 20 psf Live Load, 10 psf Dead Load, 240 Deflection				
Size	**Grade[2]**	**Bending F_b (psi)**	**Modulus of Elasticity E (psi)**	**Maximum Span[5]**
2x8	**No. 2[3]**	**1200**	**1,600,000**	**17-5**
2x8	**M-36[4]**	1200	1,600,000	17-5
2x8	**1200f-1.6E[4]**	1200	1,600,000	17-5
2x8	**No.1[2]**	1250	1,600,000	17-9
2x8	**1650f-1.5E[4]**	1650	1,500,000	18-2
2x8	**M-12[4]**	1600	1,600,000	18-6
2x8	**M-29[4]**	1550	1,700,000	18-11
2x8	**Select Structural[2]**	1950	1,800,000	19-3
2x8	**2100f-1.8E[4]**	2100	1,800,000	19-3
2x8	**M-23[4]**	2400	1,800,000	19-3
2x8	**2400f-2.0E[4]**	2400	2,000,000	19-11

[1]This table includes a sample of the Southern Pine visual, Machine Stress Rated (MSR) and Machine Evaluated Lumber (MEL) grades that will meet or exceed the maximum span based on current design values for a selected size of No.2 Southern Pine. There are many other Southern Pine grades that will continue to meet or exceed this span, but not all of the possible Southern Pine grades will be produced. The marketplace will eventually determine the most common grades.

[2]On February 11, 2013, the Southern Pine Inspection Bureau published new design values for all sizes and grades of visually graded Southern Pine dimension lumber in *Supplement No.13* to the *2002 Standard Grading Rules for Southern Pine Lumber*. That includes the visual grades of Select Structural, No.1, No.2 and No.3. The maximum spans for the Select Structural and No.1 visual grades in this table were calculated using those new design values. The new design values become effective June 1, 2013 to provide time for an orderly transition.

[3]The maximum span for the No.2 visual grade in this table was calculated using current published design values. The maximum span for No.2 calculated using the new design values will be lower.

[4]Design values and spans for mechanically graded lumber (MSR and MEL) do not change.

SOUTHERN FOREST PRODUCTS ASSOCIATION

Sample Alternate Southern Pine Grades[1]
Based on Maintaining the Current Maximum Span[3] for a No.2 Grade of a Selected Size

NEW SOUTHERN PINE DESIGN VALUES

[5]Maximum spans in feet-inches, spacing 16 inches on center

Table 17 RAFTERS – 20 psf Live Load, 10 psf Dead Load, 240 Deflection

Size	Grade	Bending F_b (psi)	Modulus of Elasticity E (psi)	Maximum Span[5]
2x8	**No. 2[3]**	**1200**	**1,600,000**	**18-6**
2x8	**M-36[4]**	1200	1,600,000	18-6
2x8	**1200f-1.6E[4]**	1200	1,600,000	18-6
2x8	**No.1[2]**	1250	1,600,000	18-6
2x8	**M-12[4]**	1600	1,600,000	18-6
2x8	**M-29[4]**	1550	1,700,000	18-11
2x8	**1850f-1.7E[4]**	1850	1,700,000	18-11
2x8	**Select Structural[2]**	1950	1,800,000	19-3
2x8	**2100f-1.8E[4]**	2100	1,800,000	19-3
2x8	**M-23[4]**	2400	1,800,000	19-3
2x8	**2400f-2.0E[4]**	2400	2,000,000	19-11

[1]This table includes a sample of the Southern Pine visual, Machine Stress Rated (MSR) and Machine Evaluated Lumber (MEL) grades that will meet or exceed the maximum span based on current design values for a selected size of No.2 Southern Pine. There are many other Southern Pine grades that will continue to meet or exceed this span, but not all of the possible Southern Pine grades will be produced. The marketplace will eventually determine the most common grades.

[2]On February 11, 2013, the Southern Pine Inspection Bureau published new design values for all sizes and grades of visually graded Southern Pine dimension lumber in *Supplement No.13* to the *2002 Standard Grading Rules for Southern Pine Lumber*. That includes the visual grades of Select Structural, No.1, No.2 and No.3. The maximum spans for the Select Structural and No.1 visual grades in this table were calculated using those new design values. The new design values become effective June 1, 2013 to provide time for an orderly transition.

[3]The maximum span for the No.2 visual grade in this table was calculated using current published design values. The maximum span for No.2 calculated using the new design values will be lower.

[4]Design values and spans for mechanically graded lumber (MSR and MEL) do not change.

SOUTHERN FOREST PRODUCTS ASSOCIATION

Sample Alternate Southern Pine Grades[1]
Based on Maintaining the Current Maximum Span[3] for a No.2 Grade of a Selected Size

NEW SOUTHERN PINE DESIGN VALUES

[5]Maximum spans in feet-inches, spacing 16 inches on center

Table 41 RAFTERS – 20 psf Live Load, 10 psf Dead Load, 240 Deflection				C_D = 1.25
Size	**Grade**	**Bending F_b (psi)**	**Modulus of Elasticity E (psi)**	**Maximum Span[5]**
2x6	**No. 2[3]**	**1250**	**1,600,000**	**14-1**
2x6	**M-37[4]**	1250	1,600,000	14-1
2x6	**1250f-1.6E[4]**	1250	1,600,000	14-1
2x6	**M-36[4]**	1200	1,600,000	14-1
2x6	**1200f-1.6E[4]**	1200	1,600,000	14-1
2x6	**No.1[2]**	1350	1,600,000	14-1
2x6	**M-12[4]**	1600	1,600,000	14-1
2x6	**1650f-1.7E[4]**	1650	1,700,000	14-4
2x6	**M-14[4]**	1800	1,700,000	14-4
2x6	**Select Structural[2]**	2100	1,800,000	14-7
2x6	**2400f-2.0E[4]**	2400	2,000,000	15-2

[1]This table includes a sample of the Southern Pine visual, Machine Stress Rated (MSR) and Machine Evaluated Lumber (MEL) grades that will meet or exceed the maximum span based on current design values for a selected size of No.2 Southern Pine. There are many other Southern Pine grades that will continue to meet or exceed this span, but not all of the possible Southern Pine grades will be produced. The marketplace will eventually determine the most common grades.

[2]On February 11, 2013, the Southern Pine Inspection Bureau published new design values for all sizes and grades of visually graded Southern Pine dimension lumber in *Supplement No.13* to the *2002 Standard Grading Rules for Southern Pine Lumber*. That includes the visual grades of Select Structural, No.1, No.2 and No.3. The maximum spans for the Select Structural and No.1 visual grades in this table were calculated using those new design values. The new design values become effective June 1, 2013 to provide time for an orderly transition.

[3]The maximum span for the No.2 visual grade in this table was calculated using current published design values. The maximum span for No.2 calculated using the new design values will be lower.

[4]Design values and spans for mechanically graded lumber (MSR and MEL) do not change.

SOUTHERN FOREST PRODUCTS ASSOCIATION

Maximum Spans[1] for Southern Pine
Effective June 1, 2013

NEW SOUTHERN PINE DESIGN VALUES

All Sizes and Grades
of Visually Graded Southern Pine Dimension Lumber

Maximum spans in feet-inches

Table 1 Floor Joists – 30 psf live load, 10 psf dead load, 360 deflection

Size	Spacing In. o.c.	Dense Select Structural	Select Structural	NonDense Select Structural	No.1 Dense	No.1	No.1 NonDense	No.2 Dense	No.2	No.2 NonDense	No.3
2x4	12	7-11	7-10	7-6	7-10	7-6	7-2	7-6	7-2	7-0	6-2
	16	7-3	7-1	6-10	7-1	6-10	6-6	6-10	6-6	6-4	5-4
	24	6-4	6-2	6-0	6-2	6-0	5-8	5-11	5-8	5-7	4-4
2x6	12	12-6	12-3	11-10	12-3	11-10	11-3	11-10	11-3	11-0	9-2
	16	11-4	11-2	10-9	11-2	10-9	10-3	10-8	10-3	10-0	7-11
	24	9-11	9-9	9-4	9-9	9-4	8-11	8-9	8-6	8-4	6-5
2x8	12	16-6	16-2	15-7	16-2	15-7	14-11	15-7	14-11	14-6	11-6
	16	15-0	14-8	14-2	14-8	14-2	13-6	13-7	13-3	12-10	10-0
	24	13-1	12-10	12-4	12-10	12-4	11-9	11-1	10-10	10-6	8-2
2x10	12	21-0	20-8	19-10	20-8	19-10	19-0	18-8	18-1	17-6	13-11
	16	19-1	18-9	18-0	18-9	18-0	17-1	16-2	15-8	15-2	12-1
	24	16-8	16-5	15-9	15-8	14-8	13-11	13-2	12-10	12-5	9-10
2x12	12	25-7	25-1	24-2	25-1	24-2	23-1	22-0	21-4	20-7	16-6
	16	23-3	22-10	21-11	22-4	21-4	20-3	19-1	18-6	17-10	14-4
	24	20-3	19-11	19-2	18-3	17-5	16-6	15-7	15-1	14-7	11-8

[1]On February 11, 2013, the Southern Pine Inspection Bureau published new design values for all sizes and grades of visually graded Southern Pine dimension lumber in *Supplement No.13* to the *2002 Standard Grading Rules for Southern Pine Lumber*. These maximum spans were calculated using the new design values which become effective June 1, 2013. Applied loads are given in psf (pounds per square foot). Deflection is limited to the span in inches divided by 360 or 240 and is based on live load only. The load duration factor, C_D, is 1.0 unless shown as 1.15 for snow loads or 1.25 for construction loads. An asterisk (*) indicates the listed span has been limited to 26'0" based on availability; check sources of supply for lumber longer than 20'.

The Southern Forest Products Association (SFPA) does not test lumber or establish design values. Accordingly, neither SFPA, nor its members, warrant that the design values on which the span tables are based are correct, and disclaim responsibility for injury or damage resulting from the use of such span tables.

SOUTHERN FOREST PRODUCTS ASSOCIATION

Maximum Spans[1] for Southern Pine
Effective June 1, 2013

NEW SOUTHERN PINE DESIGN VALUES

All Sizes and Grades
of Visually Graded Southern Pine Dimension Lumber

Maximum spans in feet-inches

Table 2 Floor Joists – 40 psf live load, 10 psf dead load, 360 deflection

Size	Spacing In. o.c.	Dense Select Structural	Select Structural	NonDense Select Structural	No.1 Dense	No.1	No.1 NonDense	No.2 Dense	No.2	No.2 NonDense	No.3
2x4	12	7-3	7-1	6-10	7-1	6-10	6-6	6-10	6-6	6-4	5-6
	16	6-7	6-5	6-2	6-5	6-2	5-11	6-2	5-11	5-9	4-9
	24	5-9	5-8	5-5	5-8	5-5	5-2	5-4	5-1	5-0	3-11
2x6	12	11-4	11-2	10-9	11-2	10-9	10-3	10-9	10-3	10-0	8-2
	16	10-4	10-2	9-9	10-2	9-9	9-4	9-7	9-4	9-1	7-1
	24	9-0	8-10	8-6	8-10	8-6	8-2	7-10	7-7	7-5	5-9
2x8	12	15-0	14-8	14-2	14-8	14-2	13-6	14-0	13-6	13-2	10-3
	16	13-7	13-4	12-10	13-4	12-10	12-3	12-2	11-10	11-6	8-11
	24	11-11	11-8	11-3	11-8	11-3	10-6	9-11	9-8	9-5	7-3
2x10	12	19-1	18-9	18-0	18-9	18-0	17-3	16-8	16-2	15-8	12-6
	16	17-4	17-0	16-5	17-0	16-1	15-3	14-6	14-0	13-7	10-10
	24	15-2	14-11	14-4	14-0	13-1	12-6	11-10	11-5	11-1	8-10
2x12	12	23-3	22-10	21-11	22-10	21-11	20-11	19-8	19-1	18-5	14-9
	16	21-1	20-9	19-11	20-0	19-1	18-1	17-1	16-6	16-0	12-10
	24	18-5	18-1	17-5	16-4	15-7	14-9	13-11	13-6	13-0	10-5

[1]On February 11, 2013, the Southern Pine Inspection Bureau published new design values for all sizes and grades of visually graded Southern Pine dimension lumber in *Supplement No.13* to the *2002 Standard Grading Rules for Southern Pine Lumber*. These maximum spans were calculated using the new design values which become effective June 1, 2013. Applied loads are given in psf (pounds per square foot). Deflection is limited to the span in inches divided by 360 or 240 and is based on live load only. The load duration factor, C_D, is 1.0 unless shown as 1.15 for snow loads or 1.25 for construction loads. An asterisk (*) indicates the listed span has been limited to 26'0" based on availability; check sources of supply for lumber longer than 20'.

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SOUTHERN FOREST PRODUCTS ASSOCIATION

Maximum Spans[1] for Southern Pine
Effective June 1, 2013

NEW SOUTHERN PINE DESIGN VALUES

All Sizes and Grades
of Visually Graded Southern Pine Dimension Lumber

Maximum spans in feet-inches

Table 12 Wet-Service Floor Joists (MC>19%) – 40 psf live load, 10 psf dead load, 360 deflection

Size	Spacing In. o.c.	Dense Select Structural	Select Structural	NonDense Select Structural	No.1 Dense	No.1	No.1 NonDense	No.2 Dense	No.2	No.2 NonDense	No.3
2x4	12	7-0	6-10	6-7	6-10	6-7	6-4	6-7	6-4	6-2	5-6
	16	6-4	6-3	6-0	6-3	6-0	5-9	6-0	5-9	5-7	4-9
	24	5-6	5-5	5-3	5-5	5-3	5-0	4-11	5-0	4-11	3-11
2x6	12	11-0	10-9	10-4	10-9	10-4	9-11	10-4	9-11	9-8	8-2
	16	10-0	9-9	9-5	9-9	9-5	9-0	9-5	9-0	8-9	7-1
	24	8-8	8-7	8-3	8-7	8-2	7-8	7-10	7-7	7-5	5-9
2x8	12	14-5	14-2	13-8	14-2	13-8	13-1	13-8	13-1	12-9	10-3
	16	13-2	12-11	12-5	12-11	12-5	11-10	12-2	11-10	11-6	8-11
	24	11-6	11-3	10-10	10-9	10-4	10-4	9-11	9-8	9-5	7-3
2x10	12	18-5	18-1	17-5	18-1	17-5	16-8	16-8	16-2	15-8	12-6
	16	16-9	16-5	15-10	15-10	15-10	15-2	14-6	14-0	13-7	10-10
	24	14-8	14-4	13-10	12-11	13-1	12-6	11-10	11-5	11-1	8-10
2x12	12	22-5	22-0	21-2	22-0	21-2	20-3	19-8	19-1	18-5	14-9
	16	20-4	20-0	19-3	20-0	19-1	18-1	17-1	16-6	16-0	12-10
	24	17-10	17-6	16-10	16-4	15-7	14-9	13-11	13-6	13-0	10-5

[1]On February 11, 2013, the Southern Pine Inspection Bureau published new design values for all sizes and grades of visually graded Southern Pine dimension lumber in *Supplement No.13* to the *2002 Standard Grading Rules for Southern Pine Lumber*. These maximum spans were calculated using the new design values which become effective June 1, 2013. Applied loads are given in psf (pounds per square foot). Deflection is limited to the span in inches divided by 360 or 240 and is based on live load only. The load duration factor, C_D, is 1.0 unless shown as 1.15 for snow loads or 1.25 for construction loads. An asterisk (*) indicates the listed span has been limited to 26'0" based on availability; check sources of supply for lumber longer than 20'.

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SOUTHERN FOREST PRODUCTS ASSOCIATION

Maximum Spans[1] for Southern Pine
Effective June 1, 2013

NEW SOUTHERN PINE DESIGN VALUES

All Sizes and Grades
of Visually Graded Southern Pine Dimension Lumber

Maximum spans in feet-inches

Table 15 Ceiling Joists – 10 psf live load, 5 psf dead load, 240 deflection

Size	Spacing In. o.c.	Dense Select Structural	Select Structural	NonDense Select Structural	No.1 Dense	No.1	No.1 NonDense	No.2 Dense	No.2	No.2 NonDense	No.3
2x4	12	13-2	12-11	12-5	12-11	12-5	11-10	12-5	11-10	11-7	10-1
	16	11-11	11-9	11-3	11-9	11-3	10-9	11-3	10-9	10-6	8-9
	24	10-5	10-3	9-10	10-3	9-10	9-5	9-8	9-3	9-1	7-2
2x6	12	20-8	20-3	19-6	20-3	19-6	18-8	19-6	18-8	18-2	14-11
	16	18-9	18-5	17-8	18-5	17-8	16-11	17-5	16-11	16-6	12-11
	24	16-4	16-1	15-6	16-1	15-6	14-9	14-3	13-11	13-7	10-7
2x8	12	26-0*	26-0*	25-8	26-0*	25-8	24-7	25-7	24-7	24-0	18-9
	16	24-8	24-3	23-4	24-3	23-4	22-4	22-2	21-7	21-0	16-3
	24	21-7	21-2	20-5	21-2	20-5	19-3	18-1	17-7	17-2	13-3
2x10	12	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	22-9
	16	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	25-7	24-10	19-9
	24	26-0*	26-0*	26-0	25-7	23-11	22-9	21-7	20-11	20-3	16-1
2x12	12	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*
	16	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	23-4
	24	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	25-5	24-8	23-9	19-1

[1]On February 11, 2013, the Southern Pine Inspection Bureau published new design values for all sizes and grades of visually graded Southern Pine dimension lumber in *Supplement No.13* to the *2002 Standard Grading Rules for Southern Pine Lumber*. These maximum spans were calculated using the new design values which become effective June 1, 2013. Applied loads are given in psf (pounds per square foot). Deflection is limited to the span in inches divided by 360 or 240 and is based on live load only. The load duration factor, C_D, is 1.0 unless shown as 1.15 for snow loads or 1.25 for construction loads. An asterisk (*) indicates the listed span has been limited to 26'0" based on availability; check sources of supply for lumber longer than 20'.

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SOUTHERN FOREST PRODUCTS ASSOCIATION

Maximum Spans[1] for Southern Pine
Effective June 1, 2013

NEW SOUTHERN PINE DESIGN VALUES

All Sizes and Grades
of Visually Graded Southern Pine Dimension Lumber

Maximum spans in feet-inches

Table 16 Ceiling Joists – 20 psf live load, 10 psf dead load, 240 deflection

Size	Spacing In. o.c.	Dense Select Structural	Select Structural	NonDense Select Structural	No.1 Dense	No.1	No.1 NonDense	No.2 Dense	No.2	No.2 NonDense	No.3
2x4	12	10-5	10-3	9-10	10-3	9-10	9-5	9-8	9-3	9-1	7-2
	16	9-6	9-4	8-11	9-4	8-11	8-7	8-5	8-0	7-10	6-2
	24	8-3	8-1	7-10	8-0	7-8	7-2	6-10	6-7	6-5	5-1
2x6	12	16-4	16-1	15-6	16-1	15-6	14-9	14-3	13-11	13-7	10-7
	16	14-11	14-7	14-1	14-7	14-0	13-2	12-4	12-0	11-9	9-2
	24	13-0	12-9	12-3	12-0	11-5	10-9	10-1	9-10	9-7	7-5
2x8	12	21-7	21-2	20-5	21-2	20-5	19-3	18-1	17-7	17-2	13-3
	16	19-7	19-3	18-6	18-5	17-9	16-8	15-8	15-3	14-10	11-6
	24	17-2	16-10	16-2	15-1	14-6	13-7	12-10	12-6	12-1	9-5
2x10	12	26-0*	26-0*	26-0	25-7	23-11	22-9	21-7	20-11	20-3	16-1
	16	25-0	24-7	23-8	22-2	20-9	19-9	18-8	18-1	17-6	13-11
	24	21-10	21-6	20-3	18-1	16-11	16-1	15-3	14-9	14-4	11-5
2x12	12	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	25-5	24-8	23-9	19-1
	16	26-0*	26-0*	26-0*	25-10	24-8	23-4	22-0	21-4	20-7	16-6
	24	26-0*	25-5	23-9	21-1	20-1	19-1	18-0	17-5	16-10	13-6

[1]On February 11, 2013, the Southern Pine Inspection Bureau published new design values for all sizes and grades of visually graded Southern Pine dimension lumber in *Supplement No.13* to the *2002 Standard Grading Rules for Southern Pine Lumber*. These maximum spans were calculated using the new design values which become effective June 1, 2013. Applied loads are given in psf (pounds per square foot). Deflection is limited to the span in inches divided by 360 or 240 and is based on live load only. The load duration factor, C_D, is 1.0 unless shown as 1.15 for snow loads or 1.25 for construction loads. An asterisk (*) indicates the listed span has been limited to 26'0" based on availability; check sources of supply for lumber longer than 20'.

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SOUTHERN FOREST PRODUCTS ASSOCIATION

Maximum Spans[1] for Southern Pine
Effective June 1, 2013

NEW SOUTHERN PINE DESIGN VALUES

All Sizes and Grades
of Visually Graded Southern Pine Dimension Lumber

Maximum spans in feet-inches

Table 17 Rafters – 20 psf live load, 10 psf dead load, 240 deflection, C_D = 1.15

Size	Spacing In. o.c.	Dense Select Structural	Select Structural	NonDense Select Structural	No.1 Dense	No.1	No.1 NonDense	No.2 Dense	No.2	No.2 NonDense	No.3
2x4	12	10-5	10-3	9-10	10-3	9-10	9-5	9-10	9-5	9-2	7-8
	16	9-6	9-4	8-11	9-4	8-11	8-7	8-11	8-7	8-4	6-7
	24	8-3	8-1	7-10	8-1	7-10	7-6	7-4	7-0	6-10	5-5
2x6	12	16-4	16-1	15-6	16-1	15-6	14-9	15-3	14-9	14-5	11-4
	16	14-11	14-7	14-1	14-7	14-1	13-5	13-3	12-11	12-7	9-9
	24	13-0	12-9	12-3	12-9	12-3	11-7	10-10	10-7	10-3	8-0
2x8	12	21-7	21-2	20-5	21-2	20-5	19-6	19-5	18-11	18-5	14-3
	16	19-7	19-3	18-6	19-3	18-6	17-9	16-10	16-4	15-11	12-4
	24	17-2	16-10	16-2	16-2	15-6	14-7	13-9	13-4	13-0	10-1
2x10	12	26-0*	26-0*	26-0	26-0*	25-8	24-5	23-1	22-5	21-9	17-3
	16	25-0	24-7	23-8	23-9	22-3	21-2	20-0	19-5	18-10	15-0
	24	21-10	21-6	20-8	19-5	18-2	17-3	16-4	15-10	15-4	12-3
2x12	12	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	25-6	20-5
	16	26-0*	26-0*	26-0*	26-0*	26-0*	25-1	23-7	22-10	22-1	17-9
	24	26-0*	26-0*	25-1	22-7	21-7	20-5	19-3	18-8	18-0	14-6

[1]On February 11, 2013, the Southern Pine Inspection Bureau published new design values for all sizes and grades of visually graded Southern Pine dimension lumber in *Supplement No.13* to the *2002 Standard Grading Rules for Southern Pine Lumber*. These maximum spans were calculated using the new design values which become effective June 1, 2013. Applied loads are given in psf (pounds per square foot). Deflection is limited to the span in inches divided by 360 or 240 and is based on live load only. The load duration factor, C_D, is 1.0 unless shown as 1.15 for snow loads or 1.25 for construction loads. An asterisk (*) indicates the listed span has been limited to 26'0" based on availability; check sources of supply for lumber longer than 20'.

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SOUTHERN FOREST PRODUCTS ASSOCIATION

Maximum Spans[1] for Southern Pine
Effective June 1, 2013

NEW SOUTHERN PINE DESIGN VALUES

All Sizes and Grades
of Visually Graded Southern Pine Dimension Lumber

Maximum spans in feet-inches

Table 41 Rafters – 20 psf live load, 10 psf dead load, 240 deflection, C_D = 1.25

Size	Spacing In. o.c.	Dense Select Structural	Select Structural	NonDense Select Structural	No.1 Dense	No.1	No.1 NonDense	No.2 Dense	No.2	No.2 NonDense	No.3
2x4	12	10-5	10-3	9-10	10-3	9-10	9-5	9-10	9-5	9-2	8-0
	16	9-6	9-4	8-11	9-4	8-11	8-7	8-11	8-7	8-4	6-11
	24	8-3	8-1	7-10	8-1	7-10	7-6	7-8	7-4	7-2	5-8
2x6	12	16-4	16-1	15-6	16-1	15-6	14-9	15-6	14-9	14-5	11-9
	16	14-11	14-7	14-1	14-7	14-1	13-5	13-10	13-5	13-1	10-2
	24	13-0	12-9	12-3	12-9	12-3	11-9	11-3	11-0	10-9	8-4
2x8	12	21-7	21-2	20-5	21-2	20-5	19-6	20-3	19-6	19-0	14-10
	16	19-7	19-3	18-6	19-3	18-6	17-9	17-6	17-1	16-7	12-10
	24	17-2	16-10	16-2	16-10	16-2	15-2	14-4	13-11	13-7	10-6
2x10	12	26-0*	26-0*	26-0	26-0*	26-0	24-10	24-1	23-5	22-8	18-0
	16	25-0	24-7	23-8	24-7	23-2	22-1	20-10	20-3	19-7	15-7
	24	21-10	21-6	20-8	20-3	18-11	18-0	17-0	16-6	16-0	12-9
2x12	12	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	21-4
	16	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	24-8	23-10	23-0	18-6
	24	26-0*	26-0*	25-1	23-7	22-6	21-4	20-1	19-6	18-10	15-1

[1]On February 11, 2013, the Southern Pine Inspection Bureau published new design values for all sizes and grades of visually graded Southern Pine dimension lumber in *Supplement No.13* to the *2002 Standard Grading Rules for Southern Pine Lumber*. These maximum spans were calculated using the new design values which become effective June 1, 2013. Applied loads are given in psf (pounds per square foot). Deflection is limited to the span in inches divided by 360 or 240 and is based on live load only. The load duration factor, C_D, is 1.0 unless shown as 1.15 for snow loads or 1.25 for construction loads. An asterisk (*) indicates the listed span has been limited to 26'0" based on availability; check sources of supply for lumber longer than 20'.

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SOUTHERN FOREST PRODUCTS ASSOCIATION

Maximum Spans
SP Machine Stress Rated (MSR)

NEW SOUTHERN PINE DESIGN VALUES

Based on the 2002 SPIB Standard Grading Rules for Southern Pine Lumber, including Supplement 12

Maximum spans in feet-inches

Table 1 Floor Joists – 30 psf live load, 10 psf dead load, 360 deflection — Part 1 of 2

Size	Spacing In. o.c.	3000f-2.4E	2850f-2.3E	2850f-1.8E	2700f-2.2E	2550f-2.1E	2550f-1.8E	2400f-2.0E	2250f-1.9E	2100f-1.8E	1950f-1.7E	1950f-1.5E	1850f-1.7E	1800f-1.6E	1650f-1.7E
2x4	12	8-7	8-6	7-10	8-4	8-3	7-10	8-1	7-11	7-10	7-8	7-4	7-8	7-6	7-8
	16	7-10	7-8	7-1	7-7	7-6	7-1	7-4	7-3	7-1	7-0	6-8	7-0	6-10	7-0
	24	6-10	6-9	6-2	6-8	6-6	6-2	6-5	6-4	6-2	6-1	5-10	6-1	6-0	6-1
2x6	12	13-6	13-4	12-3	13-1	12-11	12-3	12-9	12-6	12-3	12-0	11-7	12-0	11-10	12-0
	16	12-3	12-1	11-2	11-11	11-9	11-2	11-7	11-4	11-2	10-11	10-6	10-11	10-9	10-11
	24	10-9	10-7	9-9	10-5	10-3	9-9	10-1	9-11	9-9	9-7	9-2	9-7	9-4	9-7
2x8	12	17-10	17-7	16-2	17-4	17-0	16-2	16-9	16-6	16-2	15-10	15-3	15-10	15-7	15-10
	16	16-2	15-11	14-8	15-9	15-6	14-8	15-3	15-0	14-8	14-5	13-10	14-5	14-2	14-5
	24	14-2	13-11	12-10	13-9	13-6	12-10	13-4	13-1	12-10	12-7	12-1	12-7	12-4	12-7
2x10	12	22-9	22-5	20-8	22-1	21-9	20-8	21-5	21-0	20-8	20-3	19-5	20-3	19-10	20-3
	16	20-8	20-4	18-9	20-1	19-9	18-9	19-5	19-1	18-9	18-5	17-8	18-5	18-0	18-5
	24	18-0	17-9	16-5	17-6	17-3	16-5	17-0	16-8	16-5	16-1	15-5	16-1	15-9	16-1
2x12	12	26-0*	26-0*	25-1	26-0*	26-0*	25-1	26-0	25-7	25-1	24-8	23-7	24-8	24-2	24-8
	16	25-1	24-9	22-10	24-5	24-0	22-10	23-7	23-3	22-10	22-5	21-6	22-5	21-11	22-5
	24	21-11	21-7	19-11	21-4	21-0	19-11	20-8	20-3	19-11	19-7	18-9	19-7	19-2	19-7

Applied loads are given in psf (pounds per square foot). Deflection is limited to the span in inches divided by 360 or 240 and is based on live load only. The load duration factor, C_D, is 1.0 unless shown as 1.15 for snow loads or 1.25 for construction loads. Not all of the possible lumber grades will be produced. The marketplace will eventually determine the most common grades. An asterisk (*) indicates the listed span has been limited to 26'-0" based on availability; check sources of supply for lumber longer than 20'.

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SOUTHERN FOREST PRODUCTS ASSOCIATION

Maximum Spans
SP Machine Stress Rated (MSR)

NEW SOUTHERN PINE DESIGN VALUES

Based on the 2002 SPIB Standard Grading Rules for Southern Pine Lumber, including Supplement 12

Maximum spans in feet-inches

Table 1 Floor Joists – 30 psf live load, 10 psf dead load, 360 deflection														Part 2 of 2
Size	**Spacing In. o.c.**	**1650f-1.5E**	**1500f-1.7E**	**1500f-1.6E**	**1500f-1.5E**	**1450f-1.3E**	**1350f-1.4E**	**1250f-1.6E**	**1200f-1.6E**	**1200f-1.3E**	**1050f-1.6E**	**1050f-1.2E**	**975f-1.6E**	**850f-1.4E**	**750f-1.4E**
2x4	12	7-4	7-8	7-6	7-4	7-0	7-2	7-6	7-6	7-0	7-6	6-10	7-6	7-1	6-8
	16	6-8	7-0	6-10	6-8	6-4	6-6	6-10	6-10	6-4	6-10	6-2	6-7	6-1	5-9
	24	5-10	6-1	6-0	5-10	5-7	5-8	6-0	5-11	5-7	5-7	5-5	5-4	5-0	4-8
2x6	12	11-7	12-0	11-10	11-7	11-0	11-3	11-10	11-10	11-0	11-10	10-9	11-10	11-1	10-5
	16	10-6	10-11	10-9	10-6	10-0	10-3	10-9	10-9	10-0	10-8	9-9	10-4	9-7	9-0
	24	9-2	9-7	9-4	9-2	8-9	8-11	9-4	9-4	8-9	8-9	8-6	8-5	7-10	7-4
2x8	12	15-3	15-10	15-7	15-3	14-6	14-11	15-7	15-7	14-6	15-7	14-2	15-7	14-8	13-9
	16	13-10	14-5	14-2	13-10	13-2	13-6	14-2	14-2	13-2	14-1	12-10	13-7	12-8	11-11
	24	12-1	12-7	12-4	12-1	11-6	11-10	12-4	12-4	11-6	11-6	11-3	11-1	10-4	9-9
2x10	12	19-5	20-3	19-10	19-5	18-6	19-0	19-10	19-10	18-6	19-10	18-0	19-10	18-8	17-6
	16	17-8	18-5	18-0	17-8	16-10	17-3	18-0	18-0	16-10	18-0	16-5	17-4	16-2	15-2
	24	15-5	16-1	15-9	15-5	14-8	15-1	15-9	15-8	14-8	14-8	14-4	14-2	13-2	12-5
2x12	12	23-7	24-8	24-2	23-7	22-6	23-1	24-2	24-2	22-6	24-2	21-11	24-2	22-8	21-4
	16	21-6	22-5	21-11	21-6	20-6	21-0	21-11	21-11	20-6	21-10	19-11	21-1	19-8	18-6
	24	18-9	19-7	19-2	18-9	17-11	18-4	19-2	19-1	17-11	17-10	17-5	17-2	16-1	15-1

Applied loads are given in psf (pounds per square foot). Deflection is limited to the span in inches divided by 360 or 240 and is based on live load only. The load duration factor, C_D, is 1.0 unless shown as 1.15 for snow loads or 1.25 for construction loads. Not all of the possible lumber grades will be produced. The marketplace will eventually determine the most common grades. An asterisk (*) indicates the listed span has been limited to 26'-0" based on availability; check sources of supply for lumber longer than 20'.

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SOUTHERN FOREST PRODUCTS ASSOCIATION

Maximum Spans
SP Machine Stress Rated (MSR)

NEW SOUTHERN PINE DESIGN VALUES

Based on the 2002 SPIB Standard Grading Rules for Southern Pine Lumber, including Supplement 12

Maximum spans in feet-inches

Table 2 Floor Joists – 40 psf live load, 10 psf dead load, 360 deflection — Part 1 of 2

Size	Spacing In. o.c.	3000f-2.4E	2850f-2.3E	2850f-1.8E	2700f-2.2E	2550f-2.1E	2550f-1.8E	2400f-2.0E	2250f-1.9E	2100f-1.8E	1950f-1.7E	1950f-1.5E	1850f-1.7E	1800f-1.6E	1650f-1.7E
2x4	12	7-10	7-8	7-1	7-7	7-6	7-1	7-4	7-3	7-1	7-0	6-8	7-0	6-10	7-0
	16	7-1	7-0	6-5	6-11	6-9	6-5	6-8	6-7	6-5	6-4	6-1	6-4	6-2	6-4
	24	6-2	6-1	5-8	6-0	5-11	5-8	5-10	5-9	5-8	5-6	5-4	5-6	5-5	5-6
2x6	12	12-3	12-1	11-2	11-11	11-9	11-2	11-7	11-4	11-2	10-11	10-6	10-11	10-9	10-11
	16	11-2	11-0	10-2	10-10	10-8	10-2	10-6	10-4	10-2	9-11	9-6	9-11	9-9	9-11
	24	9-9	9-7	8-10	9-6	9-4	8-10	9-2	9-0	8-10	8-8	8-4	8-8	8-6	8-8
2x8	12	16-2	15-11	14-8	15-9	15-6	14-8	15-3	15-0	14-8	14-5	13-10	14-5	14-2	14-5
	16	14-8	14-6	13-4	14-3	14-1	13-4	13-10	13-7	13-4	13-1	12-7	13-1	12-10	13-1
	24	12-10	12-8	11-8	12-6	12-3	11-8	12-1	11-11	11-8	11-5	11-0	11-5	11-3	11-5
2x10	12	20-8	20-4	18-9	20-1	19-9	18-9	19-5	19-1	18-9	18-5	17-8	18-5	18-0	18-5
	16	18-9	18-6	17-0	18-3	17-11	17-0	17-8	17-4	17-0	16-9	16-0	16-9	16-5	16-9
	24	16-5	16-2	14-11	15-11	15-8	14-11	15-5	15-2	14-11	14-7	14-0	14-7	14-4	14-7
2x12	12	25-1	24-9	22-10	24-5	24-0	22-10	23-7	23-3	22-10	22-5	21-6	22-5	21-11	22-5
	16	22-10	22-6	20-9	22-2	21-10	20-9	21-6	21-1	20-9	20-4	19-6	20-4	19-11	20-4
	24	19-11	19-8	18-1	19-4	19-1	18-1	18-9	18-5	18-1	17-9	17-0	17-9	17-5	17-9

Applied loads are given in psf (pounds per square foot). Deflection is limited to the span in inches divided by 360 or 240 and is based on live load only. The load duration factor, C_D, is 1.0 unless shown as 1.15 for snow loads or 1.25 for construction loads. Not all of the possible lumber grades will be produced. The marketplace will eventually determine the most common grades. An asterisk (*) indicates the listed span has been limited to 26'-0" based on availability; check sources of supply for lumber longer than 20'.

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SOUTHERN FOREST PRODUCTS ASSOCIATION

Maximum Spans
SP Machine Stress Rated (MSR)

NEW SOUTHERN PINE DESIGN VALUES

Based on the 2002 SPIB Standard Grading Rules for Southern Pine Lumber, including Supplement 12

Maximum spans in feet-inches

Table 2 Floor Joists – 40 psf live load, 10 psf dead load, 360 deflection														Part 2 of 2
Size	**Spacing In. o.c.**	**1650f-1.5E**	**1500f-1.7E**	**1500f-1.6E**	**1500f-1.5E**	**1450f-1.3E**	**1350f-1.4E**	**1250f-1.6E**	**1200f-1.6E**	**1200f-1.3E**	**1050f-1.6E**	**1050f-1.2E**	**975f-1.6E**	**850f-1.4E**	**750f-1.4E**
2x4	12	6-8	7-0	6-10	6-8	6-4	6-6	6-10	6-10	6-4	6-10	6-2	6-9	6-4	5-11
	16	6-1	6-4	6-2	6-1	5-9	5-11	6-2	6-2	5-9	6-1	5-8	5-10	5-6	5-2
	24	5-4	5-6	5-5	5-4	5-1	5-2	5-5	5-4	5-1	5-0	4-11	4-9	4-6	4-2
2x6	12	10-6	10-11	10-9	10-6	10-0	10-3	10-9	10-9	10-0	10-9	9-9	10-8	9-11	9-4
	16	9-6	9-11	9-9	9-6	9-1	9-4	9-9	9-9	9-1	9-7	8-10	9-3	8-7	8-1
	24	8-4	8-8	8-6	8-4	7-11	8-2	8-6	8-4	7-11	7-10	7-9	7-6	7-0	6-7
2x8	12	13-10	14-5	14-2	13-10	13-2	13-6	14-2	14-2	13-2	14-2	12-10	14-0	13-1	12-4
	16	12-7	13-1	12-10	12-7	12-0	12-3	12-10	12-10	12-0	12-7	11-8	12-2	11-4	10-8
	24	11-0	11-5	11-3	11-0	10-6	10-9	11-3	11-0	10-6	10-3	10-2	9-11	9-3	8-8
2x10	12	17-8	18-5	18-0	17-8	16-10	17-3	18-0	18-0	16-10	18-0	16-5	17-11	16-8	15-8
	16	16-0	16-9	16-5	16-0	15-3	15-8	16-5	16-5	15-3	16-1	14-11	15-6	14-6	13-7
	24	14-0	14-7	14-4	14-0	13-4	13-8	14-4	14-0	13-4	13-1	13-0	12-8	11-10	11-1
2x12	12	21-6	22-5	21-11	21-6	20-6	21-0	21-11	21-11	20-6	21-11	19-11	21-9	20-4	19-1
	16	19-6	20-4	19-11	19-6	18-7	19-1	19-11	19-11	18-7	19-7	18-1	18-10	17-7	16-6
	24	17-0	17-9	17-5	17-0	16-3	16-8	17-5	17-1	16-3	16-0	15-10	15-5	14-4	13-6

Applied loads are given in psf (pounds per square foot). Deflection is limited to the span in inches divided by 360 or 240 and is based on live load only. The load duration factor, C_D, is 1.0 unless shown as 1.15 for snow loads or 1.25 for construction loads. Not all of the possible lumber grades will be produced. The marketplace will eventually determine the most common grades. An asterisk (*) indicates the listed span has been limited to 26'-0" based on availability; check sources of supply for lumber longer than 20'.

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SOUTHERN FOREST PRODUCTS ASSOCIATION

Maximum Spans
SP Machine Stress Rated (MSR)

NEW SOUTHERN PINE DESIGN VALUES

Based on the 2002 SPIB Standard Grading Rules for Southern Pine Lumber, including Supplement 12

Maximum spans in feet-inches

Table 12 Wet-Service Floor Joists (MC>19%) – 40 psf live load, 10 psf dead load, 360 deflection **Part 1 of 2**

Size	Spacing In. o.c.	3000f-2.4E	2850f-2.3E	2850f-1.8E	2700f-2.2E	2550f-2.1E	2550f-1.8E	2400f-2.0E	2250f-1.9E	2100f-1.8E	1950f-1.7E	1950f-1.5E	1850f-1.7E	1800f-1.6E	1650f-1.7E
2x4	12	7-6	7-5	6-10	7-4	7-3	6-10	7-1	7-0	6-10	6-9	6-5	6-9	6-7	6-9
	16	6-10	6-9	6-3	6-8	6-7	6-3	6-5	6-4	6-3	6-1	5-10	6-1	6-0	6-1
	24	6-0	5-11	5-5	5-10	5-9	5-5	5-8	5-6	5-5	5-4	5-1	5-4	5-3	5-4
2x6	12	11-10	11-8	10-9	11-6	11-4	10-9	11-2	11-0	10-9	10-7	10-2	10-7	10-4	10-7
	16	10-9	10-7	9-9	10-5	10-4	9-9	10-2	10-0	9-9	9-7	9-2	9-7	9-5	9-7
	24	9-5	9-3	8-7	9-2	9-0	8-7	8-10	8-8	8-7	8-5	8-0	8-5	8-3	8-5
2x8	12	15-7	15-5	14-2	15-2	14-11	14-2	14-8	14-5	14-2	13-11	13-4	13-11	13-8	13-11
	16	14-2	14-0	12-11	13-9	13-7	12-11	13-4	13-2	12-11	12-8	12-2	12-8	12-5	12-8
	24	12-5	12-3	11-3	12-1	11-10	11-3	11-8	11-6	11-3	11-1	10-7	11-1	10-10	11-1
2x10	12	19-11	19-8	18-1	19-4	19-1	18-1	18-9	18-5	18-1	17-9	17-0	17-9	17-5	17-9
	16	18-1	17-10	16-5	17-7	17-4	16-5	17-0	16-9	16-5	16-2	15-6	16-2	15-10	16-2
	24	15-10	15-7	14-4	15-4	15-2	14-4	14-11	14-8	14-4	14-1	13-6	14-1	13-10	14-1
2x12	12	24-3	23-11	22-0	23-7	23-2	22-0	22-10	22-5	22-0	21-7	20-9	21-7	21-2	21-7
	16	22-0	21-9	20-0	21-5	21-1	20-0	20-9	20-4	20-0	19-8	18-10	19-8	19-3	19-8
	24	19-3	19-0	17-6	18-8	18-5	17-6	18-1	17-10	17-6	17-2	16-5	17-2	16-10	17-2

Applied loads are given in psf (pounds per square foot). Deflection is limited to the span in inches divided by 360 or 240 and is based on live load only. The load duration factor, C_D, is 1.0 unless shown as 1.15 for snow loads or 1.25 for construction loads. Not all of the possible lumber grades will be produced. The marketplace will eventually determine the most common grades. An asterisk (*) indicates the listed span has been limited to 26'-0" based on availability; check sources of supply for lumber longer than 20'.

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SOUTHERN FOREST PRODUCTS ASSOCIATION

Maximum Spans
SP Machine Stress Rated (MSR)

NEW SOUTHERN PINE DESIGN VALUES

Based on the 2002 SPIB Standard Grading Rules for Southern Pine Lumber, including Supplement 12

Maximum spans in feet-inches

Table 12 Wet-Service Floor Joists (MC>19%) – 40 psf live load, 10 psf dead load, 360 deflection Part 2of 2

Size	Spacing In. o.c.	1650f-1.5E	1500f-1.7E	1500f-1.6E	1500f-1.5E	1450f-1.3E	1350f-1.4E	1250f-1.6E	1200f-1.6E	1200f-1.3E	1050f-1.6E	1050f-1.2E	975f-1.6E	850f-1.4E	750f-1.4E
2x4	12	6-5	6-9	6-7	6-5	6-2	6-4	6-7	6-7	6-2	6-7	6-0	6-7	6-4	5-11
	16	5-10	6-1	6-0	5-10	5-7	5-9	6-0	6-0	5-7	6-0	5-5	5-10	5-6	5-2
	24	5-1	5-4	5-3	5-1	4-11	5-0	5-0	4-11	4-11	5-0	4-9	4-9	4-6	4-2
2x6	12	10-2	10-7	10-4	10-2	9-8	9-11	10-4	10-4	9-8	10-4	9-5	10-4	9-11	9-4
	16	9-2	9-7	9-5	9-2	8-9	9-0	9-5	9-5	8-9	9-5	8-7	9-3	8-7	8-1
	24	8-0	8-5	8-3	8-0	7-8	7-10	7-10	7-8	7-8	7-10	7-6	7-6	7-0	6-7
2x8	12	13-4	13-11	13-8	13-4	12-9	13-1	13-8	13-8	12-9	13-8	12-5	13-8	13-1	12-4
	16	12-2	12-8	12-5	12-2	11-7	11-10	12-5	12-5	11-7	12-5	11-3	12-2	11-4	10-8
	24	10-7	11-1	10-10	10-7	10-1	10-4	10-4	10-2	10-1	10-3	9-10	9-11	9-3	8-8
2x10	12	17-0	17-9	17-5	17-0	16-3	16-8	17-5	17-5	16-3	17-5	15-10	17-5	16-8	15-8
	16	15-6	16-2	15-10	15-6	14-9	15-2	15-10	15-10	14-9	15-10	14-4	15-6	14-6	13-7
	24	13-6	14-1	13-10	13-6	12-11	13-3	13-2	12-11	12-11	13-1	12-7	12-8	11-10	11-1
2x12	12	20-9	21-7	21-2	20-9	19-9	20-3	21-2	21-2	19-9	21-2	19-3	21-2	20-3	19-1
	16	18-10	19-8	19-3	18-10	17-11	18-5	19-3	19-3	17-11	19-3	17-6	18-10	17-7	16-6
	24	16-5	17-2	16-10	16-5	15-8	16-1	16-1	15-9	15-8	16-0	15-3	15-5	14-4	13-6

Applied loads are given in psf (pounds per square foot). Deflection is limited to the span in inches divided by 360 or 240 and is based on live load only. The load duration factor, C_D, is 1.0 unless shown as 1.15 for snow loads or 1.25 for construction loads. Not all of the possible lumber grades will be produced. The marketplace will eventually determine the most common grades. An asterisk (*) indicates the listed span has been limited to 26'-0" based on availability; check sources of supply for lumber longer than 20'.

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SOUTHERN FOREST PRODUCTS ASSOCIATION

Maximum Spans
SP Machine Stress Rated (MSR)

NEW SOUTHERN PINE DESIGN VALUES

Based on the 2002 SPIB Standard Grading Rules for Southern Pine Lumber, including Supplement 12

Maximum spans in feet-inches

Table 15 Ceiling Joists – 10 psf live load, 5 psf dead load, 240 deflection															Part 1 of 2
Size	Spacing In. o.c.	3000f-2.4E	2850f-2.3E	2850f-1.8E	2700f-2.2E	2550f-2.1E	2550f-1.8E	2400f-2.0E	2250f-1.9E	2100f-1.8E	1950f-1.7E	1950f-1.5E	1850f-1.7E	1800f-1.6E	1650f-1.7E
2x4	12	14-2	14-0	12-11	13-9	13-7	12-11	13-4	13-2	12-11	12-8	12-2	12-8	12-5	12-8
	16	12-11	12-9	11-9	12-6	12-4	11-9	12-2	11-11	11-9	11-6	11-0	11-6	11-3	11-6
	24	11-3	11-1	10-3	10-11	10-9	10-3	10-7	10-5	10-3	10-0	9-8	10-0	9-10	10-0
2x6	12	22-4	22-0	20-3	21-8	21-4	20-3	21-0	20-8	20-3	19-11	19-1	19-11	19-6	19-11
	16	20-3	20-0	18-5	19-8	19-5	18-5	19-1	18-9	18-5	18-1	17-4	18-1	17-8	18-1
	24	17-8	17-5	16-1	17-2	16-11	16-1	16-8	16-4	16-1	15-9	15-2	15-9	15-6	15-9
2x8	12	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	25-2	26-0*	25-8	26-0*
	16	26-0*	26-0*	24-3	25-11	25-7	24-3	25-2	24-8	24-3	23-10	22-10	23-10	23-4	23-10
	24	23-4	23-0	21-2	22-8	22-4	21-2	21-11	21-7	21-2	20-10	19-11	20-10	20-5	20-10
2x10	12	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*
	16	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*
	24	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	25-5	26-0*	26-0	26-0*
2x12	12	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*
	16	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*
	24	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*

Applied loads are given in psf (pounds per square foot). Deflection is limited to the span in inches divided by 360 or 240 and is based on live load only. The load duration factor, C_D, is 1.0 unless shown as 1.15 for snow loads or 1.25 for construction loads. Not all of the possible lumber grades will be produced. The marketplace will eventually determine the most common grades. An asterisk (*) indicates the listed span has been limited to 26'-0" based on availability; check sources of supply for lumber longer than 20'.

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SOUTHERN FOREST PRODUCTS ASSOCIATION

Maximum Spans
SP Machine Stress Rated (MSR)

NEW SOUTHERN PINE DESIGN VALUES

Based on the 2002 SPIB Standard Grading Rules for Southern Pine Lumber, including Supplement 12

Maximum spans in feet-inches

Table 15 Ceiling Joists – 10 psf live load, 5 psf dead load, 240 deflection — Part 2 of 2

Size	Spacing In. o.c.	1650f-1.5E	1500f-1.7E	1500f-1.6E	1500f-1.5E	1450f-1.3E	1350f-1.4E	1250f-1.6E	1200f-1.6E	1200f-1.3E	1050f-1.6E	1050f-1.2E	975f-1.6E	850f-1.4E	750f-1.4E
2x4	12	12-2	12-8	12-5	12-2	11-7	11-10	12-5	12-5	11-7	12-5	11-3	12-4	11-6	10-10
	16	11-0	11-6	11-3	11-0	10-6	10-9	11-3	11-3	10-6	11-1	10-3	10-8	10-0	9-5
	24	9-8	10-0	9-10	9-8	9-2	9-5	9-10	9-8	9-2	9-1	8-11	8-9	8-2	7-8
2x6	12	19-1	19-11	19-6	19-1	18-2	18-8	19-6	19-6	18-2	19-6	17-8	19-5	18-2	17-0
	16	17-4	18-1	17-8	17-4	16-6	16-11	17-8	17-8	16-6	17-5	16-1	16-10	15-8	14-9
	24	15-2	15-9	15-6	15-2	14-5	14-9	15-6	15-3	14-5	14-3	14-1	13-9	12-10	12-0
2x8	12	25-2	26-0*	25-8	25-2	24-0	24-7	25-8	25-8	24-0	25-8	23-4	25-7	23-11	22-5
	16	22-10	23-10	23-4	22-10	21-9	22-4	23-4	23-4	21-9	23-0	21-2	22-2	20-8	19-5
	24	19-11	20-10	20-5	19-11	19-0	19-6	20-5	20-1	19-0	18-9	18-6	18-1	16-11	15-10
2x10	12	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*
	16	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	24-10
	24	25-5	26-0*	26-0	25-5	24-3	24-10	26-0	25-7	24-3	23-11	23-8	23-1	21-7	20-3
2x12	12	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*
	16	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*
	24	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	24-8

Applied loads are given in psf (pounds per square foot). Deflection is limited to the span in inches divided by 360 or 240 and is based on live load only. The load duration factor, C_D, is 1.0 unless shown as 1.15 for snow loads or 1.25 for construction loads. Not all of the possible lumber grades will be produced. The marketplace will eventually determine the most common grades. An asterisk (*) indicates the listed span has been limited to 26'-0" based on availability; check sources of supply for lumber longer than 20'.

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SOUTHERN FOREST PRODUCTS ASSOCIATION

Maximum Spans
SP Machine Stress Rated (MSR)

NEW SOUTHERN PINE DESIGN VALUES

Based on the 2002 SPIB Standard Grading Rules for Southern Pine Lumber, including Supplement 12

Maximum spans in feet-inches

Table 16 Ceiling Joists – 20 psf live load, 10 psf dead load, 240 deflection														Part 1 of 2
Size	Spacing In. o.c.	3000f-2.4E	2850f-2.3E	2850f-1.8E	2700f-2.2E	2550f-2.1E	2550f-1.8E	2400f-2.0E	2250f-1.9E	2100f-1.8E	1950f-1.7E	1950f-1.5E	1850f-1.7E	1800f-1.6E	1650f-1.7E
2x4	12	11-3	11-1	10-3	10-11	10-9	10-3	10-7	10-5	10-3	10-0	9-8	10-0	9-10	10-0
	16	10-3	10-1	9-4	9-11	9-9	9-4	9-8	9-6	9-4	9-1	8-9	9-1	8-11	9-1
	24	8-11	8-10	8-1	8-8	8-7	8-1	8-5	8-3	8-1	8-0	7-8	8-0	7-10	8-0
2x6	12	17-8	17-5	16-1	17-2	16-11	16-1	16-8	16-4	16-1	15-9	15-2	15-9	15-6	15-9
	16	16-1	15-10	14-7	15-7	15-5	14-7	15-2	14-11	14-7	14-4	13-9	14-4	14-1	14-4
	24	14-1	13-10	12-9	13-8	13-5	12-9	13-3	13-0	12-9	12-6	12-0	12-6	12-3	12-6
2x8	12	23-4	23-0	21-2	22-8	22-4	21-2	21-11	21-7	21-2	20-10	19-11	20-10	20-5	20-10
	16	21-2	20-11	19-3	20-7	20-3	19-3	19-11	19-7	19-3	18-11	18-2	18-11	18-6	18-11
	24	18-6	18-3	16-10	18-0	17-9	16-10	17-5	17-2	16-10	16-6	15-10	16-6	16-2	16-6
2x10	12	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	25-5	26-0*	26-0	26-0*
	16	26-0*	26-0*	24-7	26-0*	25-10	24-7	25-5	25-0	24-7	24-1	23-2	24-1	23-8	24-1
	24	23-8	23-4	21-6	22-11	22-7	21-6	22-3	21-10	21-6	21-1	20-2	21-1	20-8	21-1
2x12	12	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*
	16	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*
	24	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	25-7	24-7	25-7	25-1	25-7

Applied loads are given in psf (pounds per square foot). Deflection is limited to the span in inches divided by 360 or 240 and is based on live load only. The load duration factor, C_D, is 1.0 unless shown as 1.15 for snow loads or 1.25 for construction loads. Not all of the possible lumber grades will be produced. The marketplace will eventually determine the most common grades. An asterisk (*) indicates the listed span has been limited to 26'-0" based on availability; check sources of supply for lumber longer than 20'.

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SOUTHERN FOREST PRODUCTS ASSOCIATION

Maximum Spans
SP Machine Stress Rated (MSR)

NEW SOUTHERN PINE DESIGN VALUES

Based on the 2002 SPIB Standard Grading Rules for Southern Pine Lumber, including Supplement 12

Maximum spans in feet-inches

Table 16 Ceiling Joists – 20 psf live load, 10 psf dead load, 240 deflection — Part 2 of 2

Size	Spacing In. o.c.	1650f-1.5E	1500f-1.7E	1500f-1.6E	1500f-1.5E	1450f-1.3E	1350f-1.4E	1250f-1.6E	1200f-1.6E	1200f-1.3E	1050f-1.6E	1050f-1.2E	975f-1.6E	850f-1.4E	750f-1.4E
2x4	12	9-8	10-0	9-10	9-8	9-2	9-5	9-10	9-8	9-2	9-1	8-11	8-9	8-2	7-8
	16	8-9	9-1	8-11	8-9	8-4	8-7	8-7	8-5	8-4	7-10	7-10	7-7	7-1	6-8
	24	7-8	7-8	7-8	7-8	7-3	7-3	7-0	6-10	6-10	6-5	6-5	6-2	5-9	5-5
2x6	12	15-2	15-9	15-6	15-2	14-5	14-9	15-6	15-3	14-5	14-3	14-1	13-9	12-10	12-0
	16	13-9	14-4	14-1	13-9	13-1	13-5	13-6	13-2	13-1	12-4	12-4	11-11	11-1	10-5
	24	12-0	12-0	12-0	12-0	11-5	11-5	11-0	10-9	10-9	10-1	10-1	9-8	9-1	8-6
2x8	12	19-11	20-10	20-5	19-11	19-0	19-6	20-5	20-1	19-0	18-9	18-6	18-1	16-11	15-10
	16	18-2	18-11	18-6	18-2	17-3	17-9	17-9	17-5	17-3	16-3	16-3	15-8	14-8	13-9
	24	15-10	15-10	15-10	15-10	15-1	15-1	14-6	14-2	14-2	13-3	13-3	12-10	11-11	11-3
2x10	12	25-5	26-0*	26-0	25-5	24-3	24-10	26-0	25-7	24-3	23-11	23-8	23-1	21-7	20-3
	16	23-2	24-1	23-8	23-2	22-1	22-7	22-8	22-2	22-1	20-9	20-9	20-0	18-8	17-6
	24	20-2	20-3	20-3	20-2	19-3	19-3	18-6	18-1	18-1	16-11	16-11	16-4	15-3	14-4
2x12	12	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	24-8
	16	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	25-3	25-3	24-4	22-8	21-4
	24	24-7	24-8	24-8	24-7	23-5	23-4	22-6	22-0	22-0	20-7	20-7	19-10	18-6	17-5

Applied loads are given in psf (pounds per square foot). Deflection is limited to the span in inches divided by 360 or 240 and is based on live load only. The load duration factor, C_D, is 1.0 unless shown as 1.15 for snow loads or 1.25 for construction loads. Not all of the possible lumber grades will be produced. The marketplace will eventually determine the most common grades. An asterisk (*) indicates the listed span has been limited to 26'-0" based on availability; check sources of supply for lumber longer than 20'.

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SOUTHERN FOREST PRODUCTS ASSOCIATION

Maximum Spans
SP Machine Stress Rated (MSR)

NEW SOUTHERN PINE DESIGN VALUES

Based on the 2002 SPIB Standard Grading Rules for Southern Pine Lumber, including Supplement 12

Maximum spans in feet-inches

Table 17 Rafters – 20 psf live load, 10 psf dead load, 240 deflection, C_D = 1.15 — **Part 1 of 2**

Size	Spacing In. o.c.	3000f-2.4E	2850f-2.3E	2850f-1.8E	2700f-2.2E	2550f-2.1E	2550f-1.8E	2400f-2.0E	2250f-1.9E	2100f-1.8E	1950f-1.7E	1950f-1.5E	1850f-1.7E	1800f-1.6E	1650f-1.7E
2x4	12	11-3	11-1	10-3	10-11	10-9	10-3	10-7	10-5	10-3	10-0	9-8	10-0	9-10	10-0
	16	10-3	10-1	9-4	9-11	9-9	9-4	9-8	9-6	9-4	9-1	8-9	9-1	8-11	9-1
	24	8-11	8-10	8-1	8-8	8-7	8-1	8-5	8-3	8-1	8-0	7-8	8-0	7-10	8-0
2x6	12	17-8	17-5	16-1	17-2	16-11	16-1	16-8	16-4	16-1	15-9	15-2	15-9	15-6	15-9
	16	16-1	15-10	14-7	15-7	15-5	14-7	15-2	14-11	14-7	14-4	13-9	14-4	14-1	14-4
	24	14-1	13-10	12-9	13-8	13-5	12-9	13-3	13-0	12-9	12-6	12-0	12-6	12-3	12-6
2x8	12	23-4	23-0	21-2	22-8	22-4	21-2	21-11	21-7	21-2	20-10	19-11	20-10	20-5	20-10
	16	21-2	20-11	19-3	20-7	20-3	19-3	19-11	19-7	19-3	18-11	18-2	18-11	18-6	18-11
	24	18-6	18-3	16-10	18-0	17-9	16-10	17-5	17-2	16-10	16-6	15-10	16-6	16-2	16-6
2x10	12	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	25-5	26-0*	26-0	26-0*
	16	26-0*	26-0*	24-7	26-0*	25-10	24-7	25-5	25-0	24-7	24-1	23-2	24-1	23-8	24-1
	24	23-8	23-4	21-6	22-11	22-7	21-6	22-3	21-10	21-6	21-1	20-2	21-1	20-8	21-1
2x12	12	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*
	16	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*
	24	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	25-7	24-7	25-7	25-1	25-7

Applied loads are given in psf (pounds per square foot). Deflection is limited to the span in inches divided by 360 or 240 and is based on live load only. The load duration factor, C_D, is 1.0 unless shown as 1.15 for snow loads or 1.25 for construction loads. Not all of the possible lumber grades will be produced. The marketplace will eventually determine the most common grades. An asterisk (*) indicates the listed span has been limited to 26'-0" based on availability; check sources of supply for lumber longer than 20'.

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SOUTHERN FOREST PRODUCTS ASSOCIATION

Maximum Spans
SP Machine Stress Rated (MSR)

NEW SOUTHERN PINE DESIGN VALUES

Based on the 2002 SPIB Standard Grading Rules for Southern Pine Lumber, including Supplement 12

Maximum spans in feet-inches

Table 17 Rafters – 20 psf live load, 10 psf dead load, 240 deflection, C_D = 1.15														Part 2 of 2
Size	**Spacing In. o.c.**	**1650f-1.5E**	**1500f-1.7E**	**1500f-1.6E**	**1500f-1.5E**	**1450f-1.3E**	**1350f-1.4E**	**1250f-1.6E**	**1200f-1.6E**	**1200f-1.3E**	**1050f-1.6E**	**1050f-1.2E**	**975f-1.6E**	**850f-1.4E**	**750f-1.4E**
2x4	12	9-8	10-0	9-10	9-8	9-2	9-5	9-10	9-10	9-2	9-9	8-11	9-4	8-9	8-3
	16	8-9	9-1	8-11	8-9	8-4	8-7	8-11	8-11	8-4	8-5	8-1	8-1	7-7	7-1
	24	7-8	8-0	7-10	7-8	7-3	7-6	7-6	7-4	7-3	6-10	6-10	6-7	6-2	5-10
2x6	12	15-2	15-9	15-6	15-2	14-5	14-9	15-6	15-6	14-5	15-3	14-1	14-9	13-9	12-11
	16	13-9	14-4	14-1	13-9	13-1	13-5	14-1	14-1	13-1	13-3	12-9	12-9	11-11	11-2
	24	12-0	12-6	12-3	12-0	11-5	11-9	11-9	11-7	11-5	10-10	10-10	10-5	9-9	9-2
2x8	12	19-11	20-10	20-5	19-11	19-0	19-6	20-5	20-5	19-0	20-2	18-6	19-5	18-1	17-0
	16	18-2	18-11	18-6	18-2	17-3	17-9	18-6	18-6	17-3	17-5	16-10	16-10	15-8	14-9
	24	15-10	16-6	16-2	15-10	15-1	15-6	15-6	15-3	15-1	14-3	14-3	13-9	12-10	12-0
2x10	12	25-5	26-0*	26-0	25-5	24-3	24-10	26-0	26-0	24-3	25-8	23-8	24-9	23-1	21-9
	16	23-2	24-1	23-8	23-2	22-1	22-7	23-8	23-8	22-1	22-3	21-6	21-5	20-0	18-10
	24	20-2	21-1	20-8	20-2	19-3	19-9	19-10	19-5	19-3	18-2	18-2	17-6	16-4	15-4
2x12	12	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*
	16	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	24-4	22-10
	24	24-7	25-7	25-1	24-7	23-5	24-0	24-1	23-7	23-5	22-1	22-1	21-3	19-11	18-8

Applied loads are given in psf (pounds per square foot). Deflection is limited to the span in inches divided by 360 or 240 and is based on live load only. The load duration factor, C_D, is 1.0 unless shown as 1.15 for snow loads or 1.25 for construction loads. Not all of the possible lumber grades will be produced. The marketplace will eventually determine the most common grades. An asterisk (*) indicates the listed span has been limited to 26'-0" based on availability; check sources of supply for lumber longer than 20'.

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SOUTHERN FOREST PRODUCTS ASSOCIATION

Maximum Spans
SP Machine Stress Rated (MSR)

NEW SOUTHERN PINE DESIGN VALUES

Based on the 2002 SPIB Standard Grading Rules for Southern Pine Lumber, including Supplement 12

Maximum spans in feet-inches

Table 41 Rafters – 20 psf live load, 10 psf dead load, 240 deflection, C_D = 1.25 **Part 1 of 2**

Size	Spacing In. o.c.	3000f-2.4E	2850f-2.3E	2850f-1.8E	2700f-2.2E	2550f-2.1E	2550f-1.8E	2400f-2.0E	2250f-1.9E	2100f-1.8E	1950f-1.7E	1950f-1.5E	1850f-1.7E	1800f-1.6E	1650f-1.7E
2x4	12	11-3	11-1	10-3	10-11	10-9	10-3	10-7	10-5	10-3	10-0	9-8	10-0	9-10	10-0
	16	10-3	10-1	9-4	9-11	9-9	9-4	9-8	9-6	9-4	9-1	8-9	9-1	8-11	9-1
	24	8-11	8-10	8-1	8-8	8-7	8-1	8-5	8-3	8-1	8-0	7-8	8-0	7-10	8-0
2x6	12	17-8	17-5	16-1	17-2	16-11	16-1	16-8	16-4	16-1	15-9	15-2	15-9	15-6	15-9
	16	16-1	15-10	14-7	15-7	15-5	14-7	15-2	14-11	14-7	14-4	13-9	14-4	14-1	14-4
	24	14-1	13-10	12-9	13-8	13-5	12-9	13-3	13-0	12-9	12-6	12-0	12-6	12-3	12-6
2x8	12	23-4	23-0	21-2	22-8	22-4	21-2	21-11	21-7	21-2	20-10	19-11	20-10	20-5	20-10
	16	21-2	20-11	19-3	20-7	20-3	19-3	19-11	19-7	19-3	18-11	18-2	18-11	18-6	18-11
	24	18-6	18-3	16-10	18-0	17-9	16-10	17-5	17-2	16-10	16-6	15-10	16-6	16-2	16-6
2x10	12	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	25-5	26-0*	26-0	26-0*
	16	26-0*	26-0*	24-7	26-0*	25-10	24-7	25-5	25-0	24-7	24-1	23-2	24-1	23-8	24-1
	24	23-8	23-4	21-6	22-11	22-7	21-6	22-3	21-10	21-6	21-1	20-2	21-1	20-8	21-1
2x12	12	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*
	16	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*
	24	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	25-7	24-7	25-7	25-1	25-7

Applied loads are given in psf (pounds per square foot). Deflection is limited to the span in inches divided by 360 or 240 and is based on live load only. The load duration factor, C_D, is 1.0 unless shown as 1.15 for snow loads or 1.25 for construction loads. Not all of the possible lumber grades will be produced. The marketplace will eventually determine the most common grades. An asterisk (*) indicates the listed span has been limited to 26'-0" based on availability; check sources of supply for lumber longer than 20'.

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SOUTHERN FOREST PRODUCTS ASSOCIATION

Maximum Spans
SP Machine Stress Rated (MSR)

NEW SOUTHERN PINE DESIGN VALUES

Based on the 2002 SPIB Standard Grading Rules for Southern Pine Lumber, including Supplement 12

Maximum spans in feet-inches

Table 41 Rafters – 20 psf live load, 10 psf dead load, 240 deflection, C_D = 1.25														Part 2 of 2
Size	Spacing In. o.c.	1650f-1.5E	1500f-1.7E	1500f-1.6E	1500f-1.5E	1450f-1.3E	1350f-1.4E	1250f-1.6E	1200f-1.6E	1200f-1.3E	1050f-1.6E	1050f-1.2E	975f-1.6E	850f-1.4E	750f-1.4E
2x4	12	9-8	10-0	9-10	9-8	9-2	9-5	9-10	9-10	9-2	9-10	8-11	9-9	9-1	8-7
	16	8-9	9-1	8-11	8-9	8-4	8-7	8-11	8-11	8-4	8-9	8-1	8-5	7-11	7-5
	24	7-8	8-0	7-10	7-8	7-3	7-6	7-10	7-8	7-3	7-2	7-1	6-11	6-5	6-1
2x6	12	15-2	15-9	15-6	15-2	14-5	14-9	15-6	15-6	14-5	15-6	14-1	15-4	14-4	13-6
	16	13-9	14-4	14-1	13-9	13-1	13-5	14-1	14-1	13-1	13-10	12-9	13-3	12-5	11-8
	24	12-0	12-6	12-3	12-0	11-5	11-9	12-3	12-0	11-5	11-3	11-2	10-10	10-2	9-6
2x8	12	19-11	20-10	20-5	19-11	19-0	19-6	20-5	20-5	19-0	20-5	18-6	20-3	18-11	17-9
	16	18-2	18-11	18-6	18-2	17-3	17-9	18-6	18-6	17-3	18-2	16-10	17-6	16-4	15-4
	24	15-10	16-6	16-2	15-10	15-1	15-6	16-2	15-10	15-1	14-10	14-8	14-4	13-4	12-7
2x10	12	25-5	26-0*	26-0	25-5	24-3	24-10	26-0	26-0	24-3	26-0	23-8	25-10	24-1	22-8
	16	23-2	24-1	23-8	23-2	22-1	22-7	23-8	23-8	22-1	23-2	21-6	22-4	20-10	19-7
	24	20-2	21-1	20-8	20-2	19-3	19-9	20-8	20-3	19-3	18-11	18-9	18-3	17-0	16-0
2x12	12	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*
	16	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	25-5	23-10
	24	24-7	25-7	25-1	24-7	23-5	24-0	25-1	24-8	23-5	23-0	22-10	22-2	20-9	19-6

Applied loads are given in psf (pounds per square foot). Deflection is limited to the span in inches divided by 360 or 240 and is based on live load only. The load duration factor, C_D, is 1.0 unless shown as 1.15 for snow loads or 1.25 for construction loads. Not all of the possible lumber grades will be produced. The marketplace will eventually determine the most common grades. An asterisk (*) indicates the listed span has been limited to 26'-0" based on availability; check sources of supply for lumber longer than 20'.

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SOUTHERN FOREST PRODUCTS ASSOCIATION

Maximum Spans
SP Machine Evaluated Lumber (MEL)

NEW SOUTHERN PINE DESIGN VALUES

Based on the 2002 SPIB Standard Grading Rules for Southern Pine Lumber, including Supplement 12

Maximum spans in feet-inches

Table 1 Floor Joists – 30 psf live load, 10 psf dead load, 360 deflection — Part 1 of 3

Size	Spacing In. o.c.	M-27 3000-2.1	M-31 2850-1.9	M-42 2850-1.8	M-26 2800-2.0	M-25 2750-2.2	M-24 2700-1.9	M-41 2550-1.8	M-23 2400-1.8	M-22 2350-1.7	M-21 2300-1.9	M-28 2200-1.7	M-30 2050-1.7	M-20 2000-1.9
2x4	12	8-3	7-11	7-10	8-1	8-4	7-11	7-10	7-10	7-8	7-11	7-8	7-8	7-11
	16	7-6	7-3	7-1	7-4	7-7	7-3	7-1	7-1	7-0	7-3	7-0	7-0	7-3
	24	6-6	6-4	6-2	6-5	6-8	6-4	6-2	6-2	6-1	6-4	6-1	6-1	6-4
2x6	12	12-11	12-6	12-3	12-9	13-1	12-6	12-3	12-3	12-0	12-6	12-0	12-0	12-6
	16	11-9	11-4	11-2	11-7	11-11	11-4	11-2	11-2	10-11	11-4	10-11	10-11	11-4
	24	10-3	9-11	9-9	10-1	10-5	9-11	9-9	9-9	9-7	9-11	9-7	9-7	9-11
2x8	12	17-0	16-6	16-2	16-9	17-4	16-6	16-2	16-2	15-10	16-6	15-10	15-10	16-6
	16	15-6	15-0	14-8	15-3	15-9	15-0	14-8	14-8	14-5	15-0	14-5	14-5	15-0
	24	13-6	13-1	12-10	13-4	13-9	13-1	12-10	12-10	12-7	13-1	12-7	12-7	13-1
2x10	12	21-9	21-0	20-8	21-5	22-1	21-0	20-8	20-8	20-3	21-0	20-3	20-3	21-0
	16	19-9	19-1	18-9	19-5	20-1	19-1	18-9	18-9	18-5	19-1	18-5	18-5	19-1
	24	17-3	16-8	16-5	17-0	17-6	16-8	16-5	16-5	16-1	16-8	16-1	16-1	16-8
2x12	12	26-0*	25-7	25-1	26-0	26-0*	25-7	25-1	25-1	24-8	25-7	24-8	24-8	25-7
	16	24-0	23-3	22-10	23-7	24-5	23-3	22-10	22-10	22-5	23-3	22-5	22-5	23-3
	24	21-0	20-3	19-11	20-8	21-4	20-3	19-11	19-11	19-7	20-3	19-7	19-7	20-3

Applied loads are given in psf (pounds per square foot). Deflection is limited to the span in inches divided by 360 or 240 and is based on live load only. The load duration factor, C_D, is 1.0 unless shown as 1.15 for snow loads or 1.25 for construction loads. The bending design value (F_B in psi) and modulus of elasticity (E in million psi) are listed below each grade name. Not all of the possible Southern Pine lumber grades will be produced. The marketplace will eventually determine the most common grades. An asterisk (*) indicates the listed span has been limited to 26'-0" based on availability; check sources of supply for lumber longer than 20'.

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SOUTHERN FOREST PRODUCTS ASSOCIATION

Maximum Spans
SP Machine Evaluated Lumber (MEL)

NEW SOUTHERN PINE DESIGN VALUES

Based on the 2002 SPIB Standard Grading Rules for Southern Pine Lumber, including Supplement 12

Maximum spans in feet-inches

Table 1 Floor Joists – 30 psf live load, 10 psf dead load, 360 deflection — Part 2 of 3

Size	Spacing In. o.c.	M-18 2000-1.8	M-19 2000-1.6	M-17 1950-1.7	M-40 1850-1.7	M-14 1800-1.7	M-16 1800-1.5	M-15 1800-1.5	M-39 1650-1.7	M-12 1600-1.6	M-13 1600-1.4	M-29 1550-1.7	M-11 1550-1.5	M-38 1500-1.6
2x4	12	7-10	7-6	7-8	7-8	7-8	7-4	7-4	7-8	7-6	7-2	7-8	7-4	7-6
	16	7-1	6-10	7-0	7-0	7-0	6-8	6-8	7-0	6-10	6-6	7-0	6-8	6-10
	24	6-2	6-0	6-1	6-1	6-1	5-10	5-10	6-1	6-0	5-8	6-1	5-10	6-0
2x6	12	12-3	11-10	12-0	12-0	12-0	11-7	11-7	12-0	11-10	11-3	12-0	11-7	11-10
	16	11-2	10-9	10-11	10-11	10-11	10-6	10-6	10-11	10-9	10-3	10-11	10-6	10-9
	24	9-9	9-4	9-7	9-7	9-7	9-2	9-2	9-7	9-4	8-11	9-7	9-2	9-4
2x8	12	16-2	15-7	15-10	15-10	15-10	15-3	15-3	15-10	15-7	14-11	15-10	15-3	15-7
	16	14-8	14-2	14-5	14-5	14-5	13-10	13-10	14-5	14-2	13-6	14-5	13-10	14-2
	24	12-10	12-4	12-7	12-7	12-7	12-1	12-1	12-7	12-4	11-10	12-7	12-1	12-4
2x10	12	20-8	19-10	20-3	20-3	20-3	19-5	19-5	20-3	19-10	19-0	20-3	19-5	19-10
	16	18-9	18-0	18-5	18-5	18-5	17-8	17-8	18-5	18-0	17-3	18-5	17-8	18-0
	24	16-5	15-9	16-1	16-1	16-1	15-5	15-5	16-1	15-9	15-1	16-1	15-5	15-9
2x12	12	25-1	24-2	24-8	24-8	24-8	23-7	23-7	24-8	24-2	23-1	24-8	23-7	24-2
	16	22-10	21-11	22-5	22-5	22-5	21-6	21-6	22-5	21-11	21-0	22-5	21-6	21-11
	24	19-11	19-2	19-7	19-7	19-7	18-9	18-9	19-7	19-2	18-4	19-7	18-9	19-2

Applied loads are given in psf (pounds per square foot). Deflection is limited to the span in inches divided by 360 or 240 and is based on live load only. The load duration factor, C_D, is 1.0 unless shown as 1.15 for snow loads or 1.25 for construction loads. The bending design value (F_B in psi) and modulus of elasticity (E in million psi) are listed below each grade name. Not all of the possible Southern Pine lumber grades will be produced. The marketplace will eventually determine the most common grades. An asterisk (*) indicates the listed span has been limited to 26'-0" based on availability; check sources of supply for lumber longer than 20'.

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SOUTHERN FOREST PRODUCTS ASSOCIATION

Maximum Spans
SP Machine Evaluated Lumber (MEL)

NEW SOUTHERN PINE DESIGN VALUES

Based on the 2002 SPIB Standard Grading Rules for Southern Pine Lumber, including Supplement 12

Maximum spans in feet-inches

Table 1 Floor Joists – 30 psf live load, 10 psf dead load, 360 deflection — Part 3 of 3

Size	Spacing In. o.c.	M-9 1400-1.4	M-10 1400-1.2	M-8 1300-1.3	M-37 1250-1.6	M-36 1200-1.6	M-7 1200-1.1	M-6 1100-1.0	M-35 1050-1.6	M-34 975-1.6	M-5 900-1.1	M-33 850-1.4	M-32 750-1.4
2x4	12	7-2	6-10	7-0	7-6	7-6	6-8	6-5	7-6	7-6	6-8	7-1	6-8
	16	6-6	6-2	6-4	6-10	6-10	6-0	5-10	6-10	6-7	6-0	6-1	5-9
	24	5-8	5-5	5-7	6-0	5-11	5-3	5-1	5-7	5-4	5-2	5-0	4-8
2x6	12	11-3	10-9	11-0	11-10	11-10	10-5	10-1	11-10	11-10	10-5	11-1	10-5
	16	10-3	9-9	10-0	10-9	10-9	9-6	9-2	10-8	10-4	9-6	9-7	9-0
	24	8-11	8-6	8-9	9-4	9-4	8-3	8-0	8-9	8-5	8-1	7-10	7-4
2x8	12	14-11	14-2	14-6	15-7	15-7	13-9	13-4	15-7	15-7	13-9	14-8	13-9
	16	13-6	12-10	13-2	14-2	14-2	12-6	12-1	14-1	13-7	12-6	12-8	11-11
	24	11-10	11-3	11-6	12-4	12-4	10-11	10-7	11-6	11-1	10-8	10-4	9-9
2x10	12	19-0	18-0	18-6	19-10	19-10	17-6	17-0	19-10	19-10	17-6	18-8	17-6
	16	17-3	16-5	16-10	18-0	18-0	15-11	15-5	18-0	17-4	15-11	16-2	15-2
	24	15-1	14-4	14-8	15-9	15-8	13-11	13-6	14-8	14-2	13-7	13-2	12-5
2x12	12	23-1	21-11	22-6	24-2	24-2	21-4	20-8	24-2	24-2	21-4	22-8	21-4
	16	21-0	19-11	20-6	21-11	21-11	19-4	18-9	21-10	21-1	19-4	19-8	18-6
	24	18-4	17-5	17-11	19-2	19-1	16-11	16-5	17-10	17-2	16-6	16-1	15-1

Applied loads are given in psf (pounds per square foot). Deflection is limited to the span in inches divided by 360 or 240 and is based on live load only. The load duration factor, C_D, is 1.0 unless shown as 1.15 for snow loads or 1.25 for construction loads. The bending design value (F_B in psi) and modulus of elasticity (E in million psi) are listed below each grade name. Not all of the possible Southern Pine lumber grades will be produced. The marketplace will eventually determine the most common grades. An asterisk (*) indicates the listed span has been limited to 26'-0" based on availability; check sources of supply for lumber longer than 20'.

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SOUTHERN FOREST PRODUCTS ASSOCIATION

Maximum Spans
SP Machine Evaluated Lumber (MEL)

NEW SOUTHERN PINE DESIGN VALUES

Based on the 2002 SPIB Standard Grading Rules for Southern Pine Lumber, including Supplement 12

Maximum spans in feet-inches

Table 2 Floor Joists – 40 psf live load, 10 psf dead load, 360 deflection — Part 1 of 3

Size	Spacing In. o.c.	M-27 3000-2.1	M-31 2850-1.9	M-42 2850-1.8	M-26 2800-2.0	M-25 2750-2.2	M-24 2700-1.9	M-41 2550-1.8	M-23 2400-1.8	M-22 2350-1.7	M-21 2300-1.9	M-28 2200-1.7	M-30 2050-1.7	M-20 2000-1.9
2x4	12	7-6	7-3	7-1	7-4	7-7	7-3	7-1	7-1	7-0	7-3	7-0	7-0	7-3
	16	6-9	6-7	6-5	6-8	6-11	6-7	6-5	6-5	6-4	6-7	6-4	6-4	6-7
	24	5-11	5-9	5-8	5-10	6-0	5-9	5-8	5-8	5-6	5-9	5-6	5-6	5-9
2x6	12	11-9	11-4	11-2	11-7	11-11	11-4	11-2	11-2	10-11	11-4	10-11	10-11	11-4
	16	10-8	10-4	10-2	10-6	10-10	10-4	10-2	10-2	9-11	10-4	9-11	9-11	10-4
	24	9-4	9-0	8-10	9-2	9-6	9-0	8-10	8-10	8-8	9-0	8-8	8-8	9-0
2x8	12	15-6	15-0	14-8	15-3	15-9	15-0	14-8	14-8	14-5	15-0	14-5	14-5	15-0
	16	14-1	13-7	13-4	13-10	14-3	13-7	13-4	13-4	13-1	13-7	13-1	13-1	13-7
	24	12-3	11-11	11-8	12-1	12-6	11-11	11-8	11-8	11-5	11-11	11-5	11-5	11-11
2x10	12	19-9	19-1	18-9	19-5	20-1	19-1	18-9	18-9	18-5	19-1	18-5	18-5	19-1
	16	17-11	17-4	17-0	17-8	18-3	17-4	17-0	17-0	16-9	17-4	16-9	16-9	17-4
	24	15-8	15-2	14-11	15-5	15-11	15-2	14-11	14-11	14-7	15-2	14-7	14-7	15-2
2x12	12	24-0	23-3	22-10	23-7	24-5	23-3	22-10	22-10	22-5	23-3	22-5	22-5	23-3
	16	21-10	21-1	20-9	21-6	22-2	21-1	20-9	20-9	20-4	21-1	20-4	20-4	21-1
	24	19-1	18-5	18-1	18-9	19-4	18-5	18-1	18-1	17-9	18-5	17-9	17-9	18-5

Applied loads are given in psf (pounds per square foot). Deflection is limited to the span in inches divided by 360 or 240 and is based on live load only. The load duration factor, C_D, is 1.0 unless shown as 1.15 for snow loads or 1.25 for construction loads. The bending design value (F_B in psi) and modulus of elasticity (E in million psi) are listed below each grade name. Not all of the possible Southern Pine lumber grades will be produced. The marketplace will eventually determine the most common grades. An asterisk (*) indicates the listed span has been limited to 26'-0" based on availability; check sources of supply for lumber longer than 20'.

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SOUTHERN FOREST PRODUCTS ASSOCIATION

Maximum Spans
SP Machine Evaluated Lumber (MEL)

NEW SOUTHERN PINE DESIGN VALUES

Based on the 2002 SPIB Standard Grading Rules for Southern Pine Lumber, including Supplement 12

Maximum spans in feet-inches

Table 2 Floor Joists – 40 psf live load, 10 psf dead load, 360 deflection — Part 2 of 3

Size	Spacing In. o.c.	M-18 2000-1.8	M-19 2000-1.6	M-17 1950-1.7	M-40 1850-1.7	M-14 1800-1.7	M-16 1800-1.5	M-15 1800-1.5	M-39 1650-1.7	M-12 1600-1.6	M-13 1600-1.4	M-29 1550-1.7	M-11 1550-1.5	M-38 1500-1.6
2x4	12	7-1	6-10	7-0	7-0	7-0	6-8	6-8	7-0	6-10	6-6	7-0	6-8	6-10
	16	6-5	6-2	6-4	6-4	6-4	6-1	6-1	6-4	6-2	5-11	6-4	6-1	6-2
	24	5-8	5-5	5-6	5-6	5-6	5-4	5-4	5-6	5-5	5-2	5-6	5-4	5-5
2x6	12	11-2	10-9	10-11	10-11	10-11	10-6	10-6	10-11	10-9	10-3	10-11	10-6	10-9
	16	10-2	9-9	9-11	9-11	9-11	9-6	9-6	9-11	9-9	9-4	9-11	9-6	9-9
	24	8-10	8-6	8-8	8-8	8-8	8-4	8-4	8-8	8-6	8-2	8-8	8-4	8-6
2x8	12	14-8	14-2	14-5	14-5	14-5	13-10	13-10	14-5	14-2	13-6	14-5	13-10	14-2
	16	13-4	12-10	13-1	13-1	13-1	12-7	12-7	13-1	12-10	12-3	13-1	12-7	12-10
	24	11-8	11-3	11-5	11-5	11-5	11-0	11-0	11-5	11-3	10-9	11-5	11-0	11-3
2x10	12	18-9	18-0	18-5	18-5	18-5	17-8	17-8	18-5	18-0	17-3	18-5	17-8	18-0
	16	17-0	16-5	16-9	16-9	16-9	16-0	16-0	16-9	16-5	15-8	16-9	16-0	16-5
	24	14-11	14-4	14-7	14-7	14-7	14-0	14-0	14-7	14-4	13-8	14-7	14-0	14-4
2x12	12	22-10	21-11	22-5	22-5	22-5	21-6	21-6	22-5	21-11	21-0	22-5	21-6	21-11
	16	20-9	19-11	20-4	20-4	20-4	19-6	19-6	20-4	19-11	19-1	20-4	19-6	19-11
	24	18-1	17-5	17-9	17-9	17-9	17-0	17-0	17-9	17-5	16-8	17-9	17-0	17-5

Applied loads are given in psf (pounds per square foot). Deflection is limited to the span in inches divided by 360 or 240 and is based on live load only. The load duration factor, C_D, is 1.0 unless shown as 1.15 for snow loads or 1.25 for construction loads. The bending design value (F_B in psi) and modulus of elasticity (E in million psi) are listed below each grade name. Not all of the possible Southern Pine lumber grades will be produced. The marketplace will eventually determine the most common grades. An asterisk (*) indicates the listed span has been limited to 26'-0" based on availability; check sources of supply for lumber longer than 20'.

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SOUTHERN FOREST PRODUCTS ASSOCIATION

Maximum Spans
SP Machine Evaluated Lumber (MEL)

NEW SOUTHERN PINE DESIGN VALUES

Based on the 2002 SPIB Standard Grading Rules for Southern Pine Lumber, including Supplement 12

Maximum spans in feet-inches

Table 2 Floor Joists – 40 psf live load, 10 psf dead load, 360 deflection — Part 3 of 3

Size	Spacing In. o.c.	M-9 1400-1.4	M-10 1400-1.2	M-8 1300-1.3	M-37 1250-1.6	M-36 1200-1.6	M-7 1200-1.1	M-6 1100-1.0	M-35 1050-1.6	M-34 975-1.6	M-5 900-1.1	M-33 850-1.4	M-32 750-1.4
2x4	12	6-6	6-2	6-4	6-10	6-10	6-0	5-10	6-10	6-9	6-0	6-4	5-11
	16	5-11	5-8	5-9	6-2	6-2	5-6	5-4	6-1	5-10	5-6	5-6	5-2
	24	5-2	4-11	5-1	5-5	5-4	4-9	4-8	5-0	4-9	4-7	4-6	4-2
2x6	12	10-3	9-9	10-0	10-9	10-9	9-6	9-2	10-9	10-8	9-6	9-11	9-4
	16	9-4	8-10	9-1	9-9	9-9	8-7	8-4	9-7	9-3	8-7	8-7	8-1
	24	8-2	7-9	7-11	8-6	8-4	7-6	7-3	7-10	7-6	7-3	7-0	6-7
2x8	12	13-6	12-10	13-2	14-2	14-2	12-6	12-1	14-2	14-0	12-6	13-1	12-4
	16	12-3	11-8	12-0	12-10	12-10	11-4	11-0	12-7	12-2	11-4	11-4	10-8
	24	10-9	10-2	10-6	11-3	11-0	9-11	9-7	10-3	9-11	9-6	9-3	8-8
2x10	12	17-3	16-5	16-10	18-0	18-0	15-11	15-5	18-0	17-11	15-11	16-8	15-8
	16	15-8	14-11	15-3	16-5	16-5	14-6	14-0	16-1	15-6	14-6	14-6	13-7
	24	13-8	13-0	13-4	14-4	14-0	12-8	12-3	13-1	12-8	12-2	11-10	11-1
2x12	12	21-0	19-11	20-6	21-11	21-11	19-4	18-9	21-11	21-9	19-4	20-4	19-1
	16	19-1	18-1	18-7	19-11	19-11	17-7	17-0	19-7	18-10	17-7	17-7	16-6
	24	16-8	15-10	16-3	17-5	17-1	15-4	14-11	16-0	15-5	14-9	14-4	13-6

Applied loads are given in psf (pounds per square foot). Deflection is limited to the span in inches divided by 360 or 240 and is based on live load only. The load duration factor, C_D, is 1.0 unless shown as 1.15 for snow loads or 1.25 for construction loads. The bending design value (F_B in psi) and modulus of elasticity (E in million psi) are listed below each grade name. Not all of the possible Southern Pine lumber grades will be produced. The marketplace will eventually determine the most common grades. An asterisk (*) indicates the listed span has been limited to 26'-0" based on availability; check sources of supply for lumber longer than 20'.

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SOUTHERN FOREST PRODUCTS ASSOCIATION

Maximum Spans
SP Machine Evaluated Lumber (MEL)

NEW SOUTHERN PINE DESIGN VALUES

Based on the 2002 SPIB Standard Grading Rules for Southern Pine Lumber, including Supplement 12

Maximum spans in feet-inches

Table 12 Wet-Service Floor Joists (MC>19%) – 40 psf live load, 10 psf dead load, 360 deflection **Part 1 of 3**

Size	Spacing In. o.c.	M-27 3000-2.1	M-31 2850-1.9	M-42 2850-1.8	M-26 2800-2.0	M-25 2750-2.2	M-24 2700-1.9	M-41 2550-1.8	M-23 2400-1.8	M-22 2350-1.7	M-21 2300-1.9	M-28 2200-1.7	M-30 2050-1.7	M-20 2000-1.9
2x4	12	7-3	7-0	6-10	7-1	7-4	7-0	6-10	6-10	6-9	7-0	6-9	6-9	7-0
	16	6-7	6-4	6-3	6-5	6-8	6-4	6-3	6-3	6-1	6-4	6-1	6-1	6-4
	24	5-9	5-6	5-5	5-8	5-10	5-6	5-5	5-5	5-4	5-6	5-4	5-4	5-6
2x6	12	11-4	11-0	10-9	11-2	11-6	11-0	10-9	10-9	10-7	11-0	10-7	10-7	11-0
	16	10-4	10-0	9-9	10-2	10-5	10-0	9-9	9-9	9-7	10-0	9-7	9-7	10-0
	24	9-0	8-8	8-7	8-10	9-2	8-8	8-7	8-7	8-5	8-8	8-5	8-5	8-8
2x8	12	14-11	14-5	14-2	14-8	15-2	14-5	14-2	14-2	13-11	14-5	13-11	13-11	14-5
	16	13-7	13-2	12-11	13-4	13-9	13-2	12-11	12-11	12-8	13-2	12-8	12-8	13-2
	24	11-10	11-6	11-3	11-8	12-1	11-6	11-3	11-3	11-1	11-6	11-1	11-1	11-6
2x10	12	19-1	18-5	18-1	18-9	19-4	18-5	18-1	18-1	17-9	18-5	17-9	17-9	18-5
	16	17-4	16-9	16-5	17-0	17-7	16-9	16-5	16-5	16-2	16-9	16-2	16-2	16-9
	24	15-2	14-8	14-4	14-11	15-4	14-8	14-4	14-4	14-1	14-8	14-1	14-1	14-8
2x12	12	23-2	22-5	22-0	22-10	23-7	22-5	22-0	22-0	21-7	22-5	21-7	21-7	22-5
	16	21-1	20-4	20-0	20-9	21-5	20-4	20-0	20-0	19-8	20-4	19-8	19-8	20-4
	24	18-5	17-10	17-6	18-1	18-8	17-10	17-6	17-6	17-2	17-10	17-2	17-2	17-10

Applied loads are given in psf (pounds per square foot). Deflection is limited to the span in inches divided by 360 or 240 and is based on live load only. The load duration factor, C_D, is 1.0 unless shown as 1.15 for snow loads or 1.25 for construction loads. The bending design value (F_B in psi) and modulus of elasticity (E in million psi) are listed below each grade name. Not all of the possible Southern Pine lumber grades will be produced. The marketplace will eventually determine the most common grades. An asterisk (*) indicates the listed span has been limited to 26'-0" based on availability; check sources of supply for lumber longer than 20'.

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SOUTHERN FOREST PRODUCTS ASSOCIATION

Maximum Spans
SP Machine Evaluated Lumber (MEL)

NEW SOUTHERN PINE DESIGN VALUES

Based on the 2002 SPIB Standard Grading Rules for Southern Pine Lumber, including Supplement 12

Maximum spans in feet-inches

Table 12 Wet-Service Floor Joists (MC>19%) – 40 psf live load, 10 psf dead load, 360 deflection **Part 2 of 3**

Size	Spacing In. o.c.	M-18 2000-1.8	M-19 2000-1.6	M-17 1950-1.7	M-40 1850-1.7	M-14 1800-1.7	M-16 1800-1.5	M-15 1800-1.5	M-39 1650-1.7	M-12 1600-1.6	M-13 1600-1.4	M-29 1550-1.7	M-11 1550-1.5	M-38 1500-1.6
2x4	12	6-10	6-7	6-9	6-9	6-9	6-5	6-5	6-9	6-7	6-4	6-9	6-5	6-7
	16	6-3	6-0	6-1	6-1	6-1	5-10	5-10	6-1	6-0	5-9	6-1	5-10	6-0
	24	5-5	5-3	5-4	5-4	5-4	5-1	5-1	5-4	5-3	5-0	5-4	5-1	5-3
2x6	12	10-9	10-4	10-7	10-7	10-7	10-2	10-2	10-7	10-4	9-11	10-7	10-2	10-4
	16	9-9	9-5	9-7	9-7	9-7	9-2	9-2	9-7	9-5	9-0	9-7	9-2	9-5
	24	8-7	8-3	8-5	8-5	8-5	8-0	8-0	8-5	8-3	7-10	8-5	8-0	8-3
2x8	12	14-2	13-8	13-11	13-11	13-11	13-4	13-4	13-11	13-8	13-1	13-11	13-4	13-8
	16	12-11	12-5	12-8	12-8	12-8	12-2	12-2	12-8	12-5	11-10	12-8	12-2	12-5
	24	11-3	10-10	11-1	11-1	11-1	10-7	10-7	11-1	10-10	10-4	11-1	10-7	10-10
2x10	12	18-1	17-5	17-9	17-9	17-9	17-0	17-0	17-9	17-5	16-8	17-9	17-0	17-5
	16	16-5	15-10	16-2	16-2	16-2	15-6	15-6	16-2	15-10	15-2	16-2	15-6	15-10
	24	14-4	13-10	14-1	14-1	14-1	13-6	13-6	14-1	13-10	13-3	14-1	13-6	13-10
2x12	12	22-0	21-2	21-7	21-7	21-7	20-9	20-9	21-7	21-2	20-3	21-7	20-9	21-2
	16	20-0	19-3	19-8	19-8	19-8	18-10	18-10	19-8	19-3	18-5	19-8	18-10	19-3
	24	17-6	16-10	17-2	17-2	17-2	16-5	16-5	17-2	16-10	16-1	17-2	16-5	16-10

Applied loads are given in psf (pounds per square foot). Deflection is limited to the span in inches divided by 360 or 240 and is based on live load only. The load duration factor, C_D, is 1.0 unless shown as 1.15 for snow loads or 1.25 for construction loads. The bending design value (F_B in psi) and modulus of elasticity (E in million psi) are listed below each grade name. Not all of the possible Southern Pine lumber grades will be produced. The marketplace will eventually determine the most common grades. An asterisk (*) indicates the listed span has been limited to 26'-0" based on availability; check sources of supply for lumber longer than 20'.

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SOUTHERN FOREST PRODUCTS ASSOCIATION

Maximum Spans
SP Machine Evaluated Lumber (MEL)

NEW SOUTHERN PINE DESIGN VALUES

Based on the 2002 SPIB Standard Grading Rules for Southern Pine Lumber, including Supplement 12

Maximum spans in feet-inches

Table 12 Wet-Service Floor Joists (MC>19%) – 40 psf live load, 10 psf dead load, 360 deflection Part 3 of 3

Size	Spacing In. o.c.	M-9 1400-1.4	M-10 1400-1.2	M-8 1300-1.3	M-37 1250-1.6	M-36 1200-1.6	M-7 1200-1.1	M-6 1100-1.0	M-35 1050-1.6	M-34 975-1.6	M-5 900-1.1	M-33 850-1.4	M-32 750-1.4
2x4	12	6-4	6-0	6-2	6-7	6-7	5-10	5-8	6-7	6-7	5-10	6-4	5-11
	16	5-9	5-5	5-7	6-0	6-0	5-3	5-1	6-0	5-10	5-3	5-6	5-2
	24	5-0	4-9	4-11	5-0	4-11	4-7	4-6	5-0	4-9	4-7	4-6	4-2
2x6	12	9-11	9-5	9-8	10-4	10-4	9-2	8-10	10-4	10-4	9-2	9-11	9-4
	16	9-0	8-7	8-9	9-5	9-5	8-4	8-0	9-5	9-3	8-4	8-7	8-1
	24	7-10	7-6	7-8	7-10	7-8	7-3	7-0	7-10	7-6	7-3	7-0	6-7
2x8	12	13-1	12-5	12-9	13-8	13-8	12-1	11-8	13-8	13-8	12-1	13-1	12-4
	16	11-10	11-3	11-7	12-5	12-5	10-11	10-7	12-5	12-2	10-11	11-4	10-8
	24	10-4	9-10	10-1	10-4	10-2	9-7	9-3	10-3	9-11	9-6	9-3	8-8
2x10	12	16-8	15-10	16-3	17-5	17-5	15-4	14-11	17-5	17-5	15-4	16-8	15-8
	16	15-2	14-4	14-9	15-10	15-10	14-0	13-6	15-10	15-6	14-0	14-6	13-7
	24	13-3	12-7	12-11	13-2	12-11	12-2	11-10	13-1	12-8	12-2	11-10	11-1
2x12	12	20-3	19-3	19-9	21-2	21-2	18-8	18-1	21-2	21-2	18-8	20-3	19-1
	16	18-5	17-6	17-11	19-3	19-3	17-0	16-5	19-3	18-10	17-0	17-7	16-6
	24	16-1	15-3	15-8	16-1	15-9	14-10	14-4	16-0	15-5	14-9	14-4	13-6

Applied loads are given in psf (pounds per square foot). Deflection is limited to the span in inches divided by 360 or 240 and is based on live load only. The load duration factor, C_D, is 1.0 unless shown as 1.15 for snow loads or 1.25 for construction loads. The bending design value (F_B in psi) and modulus of elasticity (E in million psi) are listed below each grade name. Not all of the possible Southern Pine lumber grades will be produced. The marketplace will eventually determine the most common grades. An asterisk (*) indicates the listed span has been limited to 26'-0" based on availability; check sources of supply for lumber longer than 20'.

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SOUTHERN FOREST PRODUCTS ASSOCIATION

Maximum Spans
SP Machine Evaluated Lumber (MEL)

NEW SOUTHERN PINE DESIGN VALUES

Based on the 2002 SPIB Standard Grading Rules for Southern Pine Lumber, including Supplement 12

Maximum spans in feet-inches

Table 15 Ceiling Joists – 10 psf live load, 5 psf dead load, 240 deflection — Part 1 of 3

Size	Spacing In. o.c.	M-27 3000-2.1	M-31 2850-1.9	M-42 2850-1.8	M-26 2800-2.0	M-25 2750-2.2	M-24 2700-1.9	M-41 2550-1.8	M-23 2400-1.8	M-22 2350-1.7	M-21 2300-1.9	M-28 2200-1.7	M-30 2050-1.7	M-20 2000-1.9
2x4	12	13-7	13-2	12-11	13-4	13-9	13-2	12-11	12-11	12-8	13-2	12-8	12-8	13-2
	16	12-4	11-11	11-9	12-2	12-6	11-11	11-9	11-9	11-6	11-11	11-6	11-6	11-11
	24	10-9	10-5	10-3	10-7	10-11	10-5	10-3	10-3	10-0	10-5	10-0	10-0	10-5
2x6	12	21-4	20-8	20-3	21-0	21-8	20-8	20-3	20-3	19-11	20-8	19-11	19-11	20-8
	16	19-5	18-9	18-5	19-1	19-8	18-9	18-5	18-5	18-1	18-9	18-1	18-1	18-9
	24	16-11	16-4	16-1	16-8	17-2	16-4	16-1	16-1	15-9	16-4	15-9	15-9	16-4
2x8	12	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*
	16	25-7	24-8	24-3	25-2	25-11	24-8	24-3	24-3	23-10	24-8	23-10	23-10	24-8
	24	22-4	21-7	21-2	21-11	22-8	21-7	21-2	21-2	20-10	21-7	20-10	20-10	21-7
2x10	12	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*
	16	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*
	24	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*
2x12	12	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*
	16	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*
	24	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*

Applied loads are given in psf (pounds per square foot). Deflection is limited to the span in inches divided by 360 or 240 and is based on live load only. The load duration factor, C_D, is 1.0 unless shown as 1.15 for snow loads or 1.25 for construction loads. The bending design value (F_B in psi) and modulus of elasticity (E in million psi) are listed below each grade name. Not all of the possible Southern Pine lumber grades will be produced. The marketplace will eventually determine the most common grades. An asterisk (*) indicates the listed span has been limited to 26'-0" based on availability; check sources of supply for lumber longer than 20'.

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SOUTHERN FOREST PRODUCTS ASSOCIATION

Maximum Spans
SP Machine Evaluated Lumber (MEL)

NEW SOUTHERN PINE DESIGN VALUES

Based on the 2002 SPIB Standard Grading Rules for Southern Pine Lumber, including Supplement 12

Maximum spans in feet-inches

Table 15 Ceiling Joists – 10 psf live load, 5 psf dead load, 240 deflection — Part 2 of 3

Size	Spacing In. o.c.	M-18 2000-1.8	M-19 2000-1.6	M-17 1950-1.7	M-40 1850-1.7	M-14 1800-1.7	M-16 1800-1.5	M-15 1800-1.5	M-39 1650-1.7	M-12 1600-1.6	M-13 1600-1.4	M-29 1550-1.7	M-11 1550-1.5	M-38 1500-1.6
2x4	12	12-11	12-5	12-8	12-8	12-8	12-2	12-2	12-8	12-5	11-10	12-8	12-2	12-5
	16	11-9	11-3	11-6	11-6	11-6	11-0	11-0	11-6	11-3	10-9	11-6	11-0	11-3
	24	10-3	9-10	10-0	10-0	10-0	9-8	9-8	10-0	9-10	9-5	10-0	9-8	9-10
2x6	12	20-3	19-6	19-11	19-11	19-11	19-1	19-1	19-11	19-6	18-8	19-11	19-1	19-6
	16	18-5	17-8	18-1	18-1	18-1	17-4	17-4	18-1	17-8	16-11	18-1	17-4	17-8
	24	16-1	15-6	15-9	15-9	15-9	15-2	15-2	15-9	15-6	14-9	15-9	15-2	15-6
2x8	12	26-0*	25-8	26-0*	26-0*	26-0*	25-2	25-2	26-0*	25-8	24-7	26-0*	25-2	25-8
	16	24-3	23-4	23-10	23-10	23-10	22-10	22-10	23-10	23-4	22-4	23-10	22-10	23-4
	24	21-2	20-5	20-10	20-10	20-10	19-11	19-11	20-10	20-5	19-6	20-10	19-11	20-5
2x10	12	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*
	16	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*
	24	26-0*	26-0	26-0*	26-0*	26-0*	25-5	25-5	26-0*	26-0	24-10	26-0*	25-5	26-0
2x12	12	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*
	16	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*
	24	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*

Applied loads are given in psf (pounds per square foot). Deflection is limited to the span in inches divided by 360 or 240 and is based on live load only. The load duration factor, C_D, is 1.0 unless shown as 1.15 for snow loads or 1.25 for construction loads. The bending design value (F_B in psi) and modulus of elasticity (E in million psi) are listed below each grade name. Not all of the possible Southern Pine lumber grades will be produced. The marketplace will eventually determine the most common grades. An asterisk (*) indicates the listed span has been limited to 26'-0" based on availability; check sources of supply for lumber longer than 20'.

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SOUTHERN FOREST PRODUCTS ASSOCIATION

Maximum Spans
SP Machine Evaluated Lumber (MEL)

NEW SOUTHERN PINE DESIGN VALUES

Based on the 2002 SPIB Standard Grading Rules for Southern Pine Lumber, including Supplement 12

Maximum spans in feet-inches

Table 15 Ceiling Joists – 10 psf live load, 5 psf dead load, 240 deflection **Part 3 of 3**

Size	Spacing In. o.c.	M-9 1400-1.4	M-10 1400-1.2	M-8 1300-1.3	M-37 1250-1.6	M-36 1200-1.6	M-7 1200-1.1	M-6 1100-1.0	M-35 1050-1.6	M-34 975-1.6	M-5 900-1.1	M-33 850-1.4	M-32 750-1.4
2x4	12	11-10	11-3	11-7	12-5	12-5	10-11	10-7	12-5	12-4	10-11	11-6	10-10
	16	10-9	10-3	10-6	11-3	11-3	9-11	9-8	11-1	10-8	9-11	10-0	9-5
	24	9-5	8-11	9-2	9-10	9-8	8-8	8-5	9-1	8-9	8-5	8-2	7-8
2x6	12	18-8	17-8	18-2	19-6	19-6	17-2	16-8	19-6	19-5	17-2	18-2	17-0
	16	16-11	16-1	16-6	17-8	17-8	15-7	15-2	17-5	16-10	15-7	15-8	14-9
	24	14-9	14-1	14-5	15-6	15-3	13-8	13-3	14-3	13-9	13-2	12-10	12-0
2x8	12	24-7	23-4	24-0	25-8	25-8	22-8	21-11	25-8	25-7	22-8	23-11	22-5
	16	22-4	21-2	21-9	23-4	23-4	20-7	19-11	23-0	22-2	20-7	20-8	19-5
	24	19-6	18-6	19-0	20-5	20-1	18-0	17-5	18-9	18-1	17-5	16-11	15-10
2x10	12	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*
	16	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	25-5	26-0*	26-0*	26-0*	26-0*	24-10
	24	24-10	23-8	24-3	26-0	25-7	22-11	22-3	23-11	23-1	22-2	21-7	20-3
2x12	12	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*
	16	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*
	24	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	24-8

Applied loads are given in psf (pounds per square foot). Deflection is limited to the span in inches divided by 360 or 240 and is based on live load only. The load duration factor, C_D, is 1.0 unless shown as 1.15 for snow loads or 1.25 for construction loads. The bending design value (F_B in psi) and modulus of elasticity (E in million psi) are listed below each grade name. Not all of the possible Southern Pine lumber grades will be produced. The marketplace will eventually determine the most common grades. An asterisk (*) indicates the listed span has been limited to 26'-0" based on availability; check sources of supply for lumber longer than 20'.

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SOUTHERN FOREST PRODUCTS ASSOCIATION

Maximum Spans
SP Machine Evaluated Lumber (MEL)

NEW SOUTHERN PINE DESIGN VALUES

Based on the 2002 SPIB Standard Grading Rules for Southern Pine Lumber, including Supplement 12

Maximum spans in feet-inches

Table 16 Ceiling Joists – 20 psf live load, 10 psf dead load, 240 deflection — Part 1 of 3

Size	Spacing In. o.c.	M-27 3000-2.1	M-31 2850-1.9	M-42 2850-1.8	M-26 2800-2.0	M-25 2750-2.2	M-24 2700-1.9	M-41 2550-1.8	M-23 2400-1.8	M-22 2350-1.7	M-21 2300-1.9	M-28 2200-1.7	M-30 2050-1.7	M-20 2000-1.9
2x4	12	10-9	10-5	10-3	10-7	10-11	10-5	10-3	10-3	10-0	10-5	10-0	10-0	10-5
	16	9-9	9-6	9-4	9-8	9-11	9-6	9-4	9-4	9-1	9-6	9-1	9-1	9-6
	24	8-7	8-3	8-1	8-5	8-8	8-3	8-1	8-1	8-0	8-3	8-0	8-0	8-3
2x6	12	16-11	16-4	16-1	16-8	17-2	16-4	16-1	16-1	15-9	16-4	15-9	15-9	16-4
	16	15-5	14-11	14-7	15-2	15-7	14-11	14-7	14-7	14-4	14-11	14-4	14-4	14-11
	24	13-5	13-0	12-9	13-3	13-8	13-0	12-9	12-9	12-6	13-0	12-6	12-6	13-0
2x8	12	22-4	21-7	21-2	21-11	22-8	21-7	21-2	21-2	20-10	21-7	20-10	20-10	21-7
	16	20-3	19-7	19-3	19-11	20-7	19-7	19-3	19-3	18-11	19-7	18-11	18-11	19-7
	24	17-9	17-2	16-10	17-5	18-0	17-2	16-10	16-10	16-6	17-2	16-6	16-6	17-2
2x10	12	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*
	16	25-10	25-0	24-7	25-5	26-0*	25-0	24-7	24-7	24-1	25-0	24-1	24-1	25-0
	24	22-7	21-10	21-6	22-3	22-11	21-10	21-6	21-6	21-1	21-10	21-1	21-1	21-10
2x12	12	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*
	16	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*
	24	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	25-7	26-0*	25-7	25-7	26-0*

Applied loads are given in psf (pounds per square foot). Deflection is limited to the span in inches divided by 360 or 240 and is based on live load only. The load duration factor, C_D, is 1.0 unless shown as 1.15 for snow loads or 1.25 for construction loads. The bending design value (F_B in psi) and modulus of elasticity (E in million psi) are listed below each grade name. Not all of the possible Southern Pine lumber grades will be produced. The marketplace will eventually determine the most common grades. An asterisk (*) indicates the listed span has been limited to 26'-0" based on availability; check sources of supply for lumber longer than 20'.

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SOUTHERN FOREST PRODUCTS ASSOCIATION

Maximum Spans
SP Machine Evaluated Lumber (MEL)

NEW SOUTHERN PINE DESIGN VALUES

Based on the 2002 SPIB Standard Grading Rules for Southern Pine Lumber, including Supplement 12

Maximum spans in feet-inches

Table 16 Ceiling Joists – 20 psf live load, 10 psf dead load, 240 deflection — Part 2 of 3

Size	Spacing In. o.c.	M-18 2000-1.8	M-19 2000-1.6	M-17 1950-1.7	M-40 1850-1.7	M-14 1800-1.7	M-16 1800-1.5	M-15 1800-1.5	M-39 1650-1.7	M-12 1600-1.6	M-13 1600-1.4	M-29 1550-1.7	M-11 1550-1.5	M-38 1500-1.6
2x4	12	10-3	9-10	10-0	10-0	10-0	9-8	9-8	10-0	9-10	9-5	10-0	9-8	9-10
	16	9-4	8-11	9-1	9-1	9-1	8-9	8-9	9-1	8-11	8-7	9-1	8-9	8-11
	24	8-1	7-10	8-0	8-0	8-0	7-8	7-8	8-0	7-10	7-6	7-9	7-8	7-8
2x6	12	16-1	15-6	15-9	15-9	15-9	15-2	15-2	15-9	15-6	14-9	15-9	15-2	15-6
	16	14-7	14-1	14-4	14-4	14-4	13-9	13-9	14-4	14-1	13-5	14-4	13-9	14-1
	24	12-9	12-3	12-6	12-6	12-6	12-0	12-0	12-6	12-3	11-9	12-3	12-0	12-0
2x8	12	21-2	20-5	20-10	20-10	20-10	19-11	19-11	20-10	20-5	19-6	20-10	19-11	20-5
	16	19-3	18-6	18-11	18-11	18-11	18-2	18-2	18-11	18-6	17-9	18-11	18-2	18-6
	24	16-10	16-2	16-6	16-6	16-6	15-10	15-10	16-6	16-2	15-6	16-2	15-10	15-10
2x10	12	26-0*	26-0	26-0*	26-0*	26-0*	25-5	25-5	26-0*	26-0	24-10	26-0*	25-5	26-0
	16	24-7	23-8	24-1	24-1	24-1	23-2	23-2	24-1	23-8	22-7	24-1	23-2	23-8
	24	21-6	20-8	21-1	21-1	21-1	20-2	20-2	21-1	20-8	19-9	20-7	20-2	20-3
2x12	12	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*
	16	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*
	24	26-0*	25-1	25-7	25-7	25-7	24-7	24-7	25-7	25-1	24-0	25-0	24-7	24-8

Applied loads are given in psf (pounds per square foot). Deflection is limited to the span in inches divided by 360 or 240 and is based on live load only. The load duration factor, C_D, is 1.0 unless shown as 1.15 for snow loads or 1.25 for construction loads. The bending design value (F_B in psi) and modulus of elasticity (E in million psi) are listed below each grade name. Not all of the possible Southern Pine lumber grades will be produced. The marketplace will eventually determine the most common grades. An asterisk (*) indicates the listed span has been limited to 26'-0" based on availability; check sources of supply for lumber longer than 20'.

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SOUTHERN FOREST PRODUCTS ASSOCIATION

Maximum Spans
SP Machine Evaluated Lumber (MEL)

NEW SOUTHERN PINE DESIGN VALUES

Based on the 2002 SPIB Standard Grading Rules for Southern Pine Lumber, including Supplement 12

Maximum spans in feet-inches

Table 16 Ceiling Joists – 20 psf live load, 10 psf dead load, 240 deflection — Part 3 of 3

Size	Spacing In. o.c.	M-9 1400-1.4	M-10 1400-1.2	M-8 1300-1.3	M-37 1250-1.6	M-36 1200-1.6	M-7 1200-1.1	M-6 1100-1.0	M-35 1050-1.6	M-34 975-1.6	M-5 900-1.1	M-33 850-1.4	M-32 750-1.4
2x4	12	9-5	8-11	9-2	9-10	9-8	8-8	8-5	9-1	8-9	8-5	8-2	7-8
	16	8-7	8-1	8-4	8-7	8-5	7-11	7-8	7-10	7-7	7-3	7-1	6-8
	24	7-5	7-1	7-2	7-0	6-10	6-10	6-7	6-5	6-2	5-11	5-9	5-5
2x6	12	14-9	14-1	14-5	15-6	15-3	13-8	13-3	14-3	13-9	13-2	12-10	12-0
	16	13-5	12-9	13-1	13-6	13-2	12-5	12-0	12-4	11-11	11-5	11-1	10-5
	24	11-8	11-2	11-2	11-0	10-9	10-9	10-4	10-1	9-8	9-4	9-1	8-6
2x8	12	19-6	18-6	19-0	20-5	20-1	18-0	17-5	18-9	18-1	17-5	16-11	15-10
	16	17-9	16-10	17-3	17-9	17-5	16-4	15-10	16-3	15-8	15-1	14-8	13-9
	24	15-4	14-8	14-9	14-6	14-2	14-2	13-7	13-3	12-10	12-4	11-11	11-3
2x10	12	24-10	23-8	24-3	26-0	25-7	22-11	22-3	23-11	23-1	22-2	21-7	20-3
	16	22-7	21-6	22-1	22-8	22-2	20-10	20-2	20-9	20-0	19-3	18-8	17-6
	24	19-7	18-9	18-10	18-6	18-1	18-1	17-4	16-11	16-4	15-8	15-3	14-4
2x12	12	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	24-8
	16	26-0*	26-0*	26-0*	26-0*	26-0*	25-4	24-7	25-3	24-4	23-4	22-8	21-4
	24	23-9	22-10	22-11	22-6	22-0	22-0	21-1	20-7	19-10	19-1	18-6	17-5

Applied loads are given in psf (pounds per square foot). Deflection is limited to the span in inches divided by 360 or 240 and is based on live load only. The load duration factor, C_D, is 1.0 unless shown as 1.15 for snow loads or 1.25 for construction loads. The bending design value (F_B in psi) and modulus of elasticity (E in million psi) are listed below each grade name. Not all of the possible Southern Pine lumber grades will be produced. The marketplace will eventually determine the most common grades. An asterisk (*) indicates the listed span has been limited to 26'-0" based on availability; check sources of supply for lumber longer than 20'.

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SOUTHERN FOREST PRODUCTS ASSOCIATION

Maximum Spans
SP Machine Evaluated Lumber (MEL)

NEW SOUTHERN PINE DESIGN VALUES

Based on the 2002 SPIB Standard Grading Rules for Southern Pine Lumber, including Supplement 12

Maximum spans in feet-inches

Table 17 Rafters – 20 psf live load, 10 psf dead load, 240 deflection, C_D = 1.15 — **Part 1 of 3**

Size	Spacing In. o.c.	M-27 3000-2.1	M-31 2850-1.9	M-42 2850-1.8	M-26 2800-2.0	M-25 2750-2.2	M-24 2700-1.9	M-41 2550-1.8	M-23 2400-1.8	M-22 2350-1.7	M-21 2300-1.9	M-28 2200-1.7	M-30 2050-1.7	M-20 2000-1.9
2x4	12	10-9	10-5	10-3	10-7	10-11	10-5	10-3	10-3	10-0	10-5	10-0	10-0	10-5
	16	9-9	9-6	9-4	9-8	9-11	9-6	9-4	9-4	9-1	9-6	9-1	9-1	9-6
	24	8-7	8-3	8-1	8-5	8-8	8-3	8-1	8-1	8-0	8-3	8-0	8-0	8-3
2x6	12	16-11	16-4	16-1	16-8	17-2	16-4	16-1	16-1	15-9	16-4	15-9	15-9	16-4
	16	15-5	14-11	14-7	15-2	15-7	14-11	14-7	14-7	14-4	14-11	14-4	14-4	14-11
	24	13-5	13-0	12-9	13-3	13-8	13-0	12-9	12-9	12-6	13-0	12-6	12-6	13-0
2x8	12	22-4	21-7	21-2	21-11	22-8	21-7	21-2	21-2	20-10	21-7	20-10	20-10	21-7
	16	20-3	19-7	19-3	19-11	20-7	19-7	19-3	19-3	18-11	19-7	18-11	18-11	19-7
	24	17-9	17-2	16-10	17-5	18-0	17-2	16-10	16-10	16-6	17-2	16-6	16-6	17-2
2x10	12	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*
	16	25-10	25-0	24-7	25-5	26-0*	25-0	24-7	24-7	24-1	25-0	24-1	24-1	25-0
	24	22-7	21-10	21-6	22-3	22-11	21-10	21-6	21-6	21-1	21-10	21-1	21-1	21-10
2x12	12	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*
	16	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*
	24	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	25-7	26-0*	25-7	25-7	26-0*

Applied loads are given in psf (pounds per square foot). Deflection is limited to the span in inches divided by 360 or 240 and is based on live load only. The load duration factor, C_D, is 1.0 unless shown as 1.15 for snow loads or 1.25 for construction loads. The bending design value (F_B in psi) and modulus of elasticity (E in million psi) are listed below each grade name. Not all of the possible Southern Pine lumber grades will be produced. The marketplace will eventually determine the most common grades. An asterisk (*) indicates the listed span has been limited to 26'-0" based on availability; check sources of supply for lumber longer than 20'.

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SOUTHERN FOREST PRODUCTS ASSOCIATION

Maximum Spans
SP Machine Evaluated Lumber (MEL)

NEW SOUTHERN PINE DESIGN VALUES

Based on the 2002 SPIB Standard Grading Rules for Southern Pine Lumber, including Supplement 12

Maximum spans in feet-inches

Table 17 Rafters – 20 psf live load, 10 psf dead load, 240 deflection, C_D = 1.15 — Part 2 of 3

Size	Spacing In. o.c.	M-18 2000-1.8	M-19 2000-1.6	M-17 1950-1.7	M-40 1850-1.7	M-14 1800-1.7	M-16 1800-1.5	M-15 1800-1.5	M-39 1650-1.7	M-12 1600-1.6	M-13 1600-1.4	M-29 1550-1.7	M-11 1550-1.5	M-38 1500-1.6
2x4	12	10-3	9-10	10-0	10-0	10-0	9-8	9-8	10-0	9-10	9-5	10-0	9-8	9-10
	16	9-4	8-11	9-1	9-1	9-1	8-9	8-9	9-1	8-11	8-7	9-1	8-9	8-11
	24	8-1	7-10	8-0	8-0	8-0	7-8	7-8	8-0	7-10	7-6	8-0	7-8	7-10
2x6	12	16-1	15-6	15-9	15-9	15-9	15-2	15-2	15-9	15-6	14-9	15-9	15-2	15-6
	16	14-7	14-1	14-4	14-4	14-4	13-9	13-9	14-4	14-1	13-5	14-4	13-9	14-1
	24	12-9	12-3	12-6	12-6	12-6	12-0	12-0	12-6	12-3	11-9	12-6	12-0	12-3
2x8	12	21-2	20-5	20-10	20-10	20-10	19-11	19-11	20-10	20-5	19-6	20-10	19-11	20-5
	16	19-3	18-6	18-11	18-11	18-11	18-2	18-2	18-11	18-6	17-9	18-11	18-2	18-6
	24	16-10	16-2	16-6	16-6	16-6	15-10	15-10	16-6	16-2	15-6	16-6	15-10	16-2
2x10	12	26-0*	26-0	26-0*	26-0*	26-0*	25-5	25-5	26-0*	26-0	24-10	26-0*	25-5	26-0
	16	24-7	23-8	24-1	24-1	24-1	23-2	23-2	24-1	23-8	22-7	24-1	23-2	23-8
	24	21-6	20-8	21-1	21-1	21-1	20-2	20-2	21-1	20-8	19-9	21-1	20-2	20-8
2x12	12	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*
	16	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*
	24	26-0*	25-1	25-7	25-7	25-7	24-7	24-7	25-7	25-1	24-0	25-7	24-7	25-1

Applied loads are given in psf (pounds per square foot). Deflection is limited to the span in inches divided by 360 or 240 and is based on live load only. The load duration factor, C_D, is 1.0 unless shown as 1.15 for snow loads or 1.25 for construction loads. The bending design value (F_B in psi) and modulus of elasticity (E in million psi) are listed below each grade name. Not all of the possible Southern Pine lumber grades will be produced. The marketplace will eventually determine the most common grades. An asterisk (*) indicates the listed span has been limited to 26'-0" based on availability; check sources of supply for lumber longer than 20'.

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SOUTHERN FOREST PRODUCTS ASSOCIATION

Maximum Spans
SP Machine Evaluated Lumber (MEL)

NEW SOUTHERN PINE DESIGN VALUES

Based on the 2002 SPIB Standard Grading Rules for Southern Pine Lumber, including Supplement 12

Maximum spans in feet-inches

Table 17 Rafters – 20 psf live load, 10 psf dead load, 240 deflection, C_D = 1.15 Part 3 of 3

Size	Spacing In. o.c.	M-9 1400-1.4	M-10 1400-1.2	M-8 1300-1.3	M-37 1250-1.6	M-36 1200-1.6	M-7 1200-1.1	M-6 1100-1.0	M-35 1050-1.6	M-34 975-1.6	M-5 900-1.1	M-33 850-1.4	M-32 750-1.4
2x4	12	9-5	8-11	9-2	9-10	9-10	8-8	8-5	9-9	9-4	8-8	8-9	8-3
	16	8-7	8-1	8-4	8-11	8-11	7-11	7-8	8-5	8-1	7-10	7-7	7-1
	24	7-6	7-1	7-3	7-6	7-4	6-11	6-8	6-10	6-7	6-4	6-2	5-10
2x6	12	14-9	14-1	14-5	15-6	15-6	13-8	13-3	15-3	14-9	13-8	13-9	12-11
	16	13-5	12-9	13-1	14-1	14-1	12-5	12-0	13-3	12-9	12-3	11-11	11-2
	24	11-9	11-2	11-5	11-9	11-7	10-10	10-6	10-10	10-5	10-0	9-9	9-2
2x8	12	19-6	18-6	19-0	20-5	20-5	18-0	17-5	20-2	19-5	18-0	18-1	17-0
	16	17-9	16-10	17-3	18-6	18-6	16-4	15-10	17-5	16-10	16-2	15-8	14-9
	24	15-6	14-8	15-1	15-6	15-3	14-3	13-10	14-3	13-9	13-2	12-10	12-0
2x10	12	24-10	23-8	24-3	26-0	26-0	22-11	22-3	25-8	24-9	22-11	23-1	21-9
	16	22-7	21-6	22-1	23-8	23-8	20-10	20-2	22-3	21-5	20-7	20-0	18-10
	24	19-9	18-9	19-3	19-10	19-5	18-3	17-8	18-2	17-6	16-10	16-4	15-4
2x12	12	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*
	16	26-0*	26-0*	26-0*	26-0*	26-0*	25-4	24-7	26-0*	26-0*	25-1	24-4	22-10
	24	24-0	22-10	23-5	24-1	23-7	22-2	21-6	22-1	21-3	20-5	19-11	18-8

Applied loads are given in psf (pounds per square foot). Deflection is limited to the span in inches divided by 360 or 240 and is based on live load only. The load duration factor, C_D, is 1.0 unless shown as 1.15 for snow loads or 1.25 for construction loads. The bending design value (F_B in psi) and modulus of elasticity (E in million psi) are listed below each grade name. Not all of the possible Southern Pine lumber grades will be produced. The marketplace will eventually determine the most common grades. An asterisk (*) indicates the listed span has been limited to 26'-0" based on availability; check sources of supply for lumber longer than 20'.

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SOUTHERN FOREST PRODUCTS ASSOCIATION

Maximum Spans
SP Machine Evaluated Lumber (MEL)

NEW SOUTHERN PINE DESIGN VALUES

Based on the 2002 SPIB Standard Grading Rules for Southern Pine Lumber, including Supplement 12

Maximum spans in feet-inches

Table 41 Rafters – 20 psf live load, 10 psf dead load, 240 deflection, C_D = 1.25 — Part 1 of 3

Size	Spacing In. o.c.	M-27 3000-2.1	M-31 2850-1.9	M-42 2850-1.8	M-26 2800-2.0	M-25 2750-2.2	M-24 2700-1.9	M-41 2550-1.8	M-23 2400-1.8	M-22 2350-1.7	M-21 2300-1.9	M-28 2200-1.7	M-30 2050-1.7	M-20 2000-1.9
2x4	12	10-9	10-5	10-3	10-7	10-11	10-5	10-3	10-3	10-0	10-5	10-0	10-0	10-5
	16	9-9	9-6	9-4	9-8	9-11	9-6	9-4	9-4	9-1	9-6	9-1	9-1	9-6
	24	8-7	8-3	8-1	8-5	8-8	8-3	8-1	8-1	8-0	8-3	8-0	8-0	8-3
2x6	12	16-11	16-4	16-1	16-8	17-2	16-4	16-1	16-1	15-9	16-4	15-9	15-9	16-4
	16	15-5	14-11	14-7	15-2	15-7	14-11	14-7	14-7	14-4	14-11	14-4	14-4	14-11
	24	13-5	13-0	12-9	13-3	13-8	13-0	12-9	12-9	12-6	13-0	12-6	12-6	13-0
2x8	12	22-4	21-7	21-2	21-11	22-8	21-7	21-2	21-2	20-10	21-7	20-10	20-10	21-7
	16	20-3	19-7	19-3	19-11	20-7	19-7	19-3	19-3	18-11	19-7	18-11	18-11	19-7
	24	17-9	17-2	16-10	17-5	18-0	17-2	16-10	16-10	16-6	17-2	16-6	16-6	17-2
2x10	12	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*
	16	25-10	25-0	24-7	25-5	26-0*	25-0	24-7	24-7	24-1	25-0	24-1	24-1	25-0
	24	22-7	21-10	21-6	22-3	22-11	21-10	21-6	21-6	21-1	21-10	21-1	21-1	21-10
2x12	12	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*
	16	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*
	24	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	25-7	26-0*	25-7	25-7	26-0*

Applied loads are given in psf (pounds per square foot). Deflection is limited to the span in inches divided by 360 or 240 and is based on live load only. The load duration factor, C_D, is 1.0 unless shown as 1.15 for snow loads or 1.25 for construction loads. The bending design value (F_B in psi) and modulus of elasticity (E in million psi) are listed below each grade name. Not all of the possible Southern Pine lumber grades will be produced. The marketplace will eventually determine the most common grades. An asterisk (*) indicates the listed span has been limited to 26'-0" based on availability; check sources of supply for lumber longer than 20'.

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SOUTHERN FOREST PRODUCTS ASSOCIATION

Maximum Spans
SP Machine Evaluated Lumber (MEL)

NEW SOUTHERN PINE DESIGN VALUES

Based on the 2002 SPIB Standard Grading Rules for Southern Pine Lumber, including Supplement 12

Maximum spans in feet-inches

Table 41 Rafters – 20 psf live load, 10 psf dead load, 240 deflection, C_D = 1.25 — Part 2 of 3

Size	Spacing In. o.c.	M-18 2000-1.8	M-19 2000-1.6	M-17 1950-1.7	M-40 1850-1.7	M-14 1800-1.7	M-16 1800-1.5	M-15 1800-1.5	M-39 1650-1.7	M-12 1600-1.6	M-13 1600-1.4	M-29 1550-1.7	M-11 1550-1.5	M-38 1500-1.6
2x4	12	10-3	9-10	10-0	10-0	10-0	9-8	9-8	10-0	9-10	9-5	10-0	9-8	9-10
	16	9-4	8-11	9-1	9-1	9-1	8-9	8-9	9-1	8-11	8-7	9-1	8-9	8-11
	24	8-1	7-10	8-0	8-0	8-0	7-8	7-8	8-0	7-10	7-6	8-0	7-8	7-10
2x6	12	16-1	15-6	15-9	15-9	15-9	15-2	15-2	15-9	15-6	14-9	15-9	15-2	15-6
	16	14-7	14-1	14-4	14-4	14-4	13-9	13-9	14-4	14-1	13-5	14-4	13-9	14-1
	24	12-9	12-3	12-6	12-6	12-6	12-0	12-0	12-6	12-3	11-9	12-6	12-0	12-3
2x8	12	21-2	20-5	20-10	20-10	20-10	19-11	19-11	20-10	20-5	19-6	20-10	19-11	20-5
	16	19-3	18-6	18-11	18-11	18-11	18-2	18-2	18-11	18-6	17-9	18-11	18-2	18-6
	24	16-10	16-2	16-6	16-6	16-6	15-10	15-10	16-6	16-2	15-6	16-6	15-10	16-2
2x10	12	26-0*	26-0	26-0*	26-0*	26-0*	25-5	25-5	26-0*	26-0	24-10	26-0*	25-5	26-0
	16	24-7	23-8	24-1	24-1	24-1	23-2	23-2	24-1	23-8	22-7	24-1	23-2	23-8
	24	21-6	20-8	21-1	21-1	21-1	20-2	20-2	21-1	20-8	19-9	21-1	20-2	20-8
2x12	12	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*
	16	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*
	24	26-0*	25-1	25-7	25-7	25-7	24-7	24-7	25-7	25-1	24-0	25-7	24-7	25-1

Applied loads are given in psf (pounds per square foot). Deflection is limited to the span in inches divided by 360 or 240 and is based on live load only. The load duration factor, C_D, is 1.0 unless shown as 1.15 for snow loads or 1.25 for construction loads. The bending design value (F_B in psi) and modulus of elasticity (E in million psi) are listed below each grade name. Not all of the possible Southern Pine lumber grades will be produced. The marketplace will eventually determine the most common grades. An asterisk (*) indicates the listed span has been limited to 26'-0" based on availability; check sources of supply for lumber longer than 20'.

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SOUTHERN FOREST PRODUCTS ASSOCIATION

Maximum Spans
SP Machine Evaluated Lumber (MEL)

NEW SOUTHERN PINE DESIGN VALUES

Based on the 2002 SPIB Standard Grading Rules for Southern Pine Lumber, including Supplement 12

Maximum spans in feet-inches

Table 41 Rafters – 20 psf live load, 10 psf dead load, 240 deflection, C_D = 1.25 — Part 3 of 3

Size	Spacing In. o.c.	M-9 1400-1.4	M-10 1400-1.2	M-8 1300-1.3	M-37 1250-1.6	M-36 1200-1.6	M-7 1200-1.1	M-6 1100-1.0	M-35 1050-1.6	M-34 975-1.6	M-5 900-1.1	M-33 850-1.4	M-32 750-1.4
2x4	12	9-5	8-11	9-2	9-10	9-10	8-8	8-5	9-10	9-9	8-8	9-1	8-7
	16	8-7	8-1	8-4	8-11	8-11	7-11	7-8	8-9	8-5	7-11	7-11	7-5
	24	7-6	7-1	7-3	7-10	7-8	6-11	6-8	7-2	6-11	6-8	6-5	6-1
2x6	12	14-9	14-1	14-5	15-6	15-6	13-8	13-3	15-6	15-4	13-8	14-4	13-6
	16	13-5	12-9	13-1	14-1	14-1	12-5	12-0	13-10	13-3	12-5	12-5	11-8
	24	11-9	11-2	11-5	12-3	12-0	10-10	10-6	11-3	10-10	10-5	10-2	9-6
2x8	12	19-6	18-6	19-0	20-5	20-5	18-0	17-5	20-5	20-3	18-0	18-11	17-9
	16	17-9	16-10	17-3	18-6	18-6	16-4	15-10	18-2	17-6	16-4	16-4	15-4
	24	15-6	14-8	15-1	16-2	15-10	14-3	13-10	14-10	14-4	13-9	13-4	12-7
2x10	12	24-10	23-8	24-3	26-0	26-0	22-11	22-3	26-0	25-10	22-11	24-1	22-8
	16	22-7	21-6	22-1	23-8	23-8	20-10	20-2	23-2	22-4	20-10	20-10	19-7
	24	19-9	18-9	19-3	20-8	20-3	18-3	17-8	18-11	18-3	17-6	17-0	16-0
2x12	12	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*
	16	26-0*	26-0*	26-0*	26-0*	26-0*	25-4	24-7	26-0*	26-0*	25-4	25-5	23-10
	24	24-0	22-10	23-5	25-1	24-8	22-2	21-6	23-0	22-2	21-4	20-9	19-6

Applied loads are given in psf (pounds per square foot). Deflection is limited to the span in inches divided by 360 or 240 and is based on live load only. The load duration factor, C_D, is 1.0 unless shown as 1.15 for snow loads or 1.25 for construction loads. The bending design value (F_B in psi) and modulus of elasticity (E in million psi) are listed below each grade name. Not all of the possible Southern Pine lumber grades will be produced. The marketplace will eventually determine the most common grades. An asterisk (*) indicates the listed span has been limited to 26'-0" based on availability; check sources of supply for lumber longer than 20'.

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