



# Structural Building Components Association

6300 Enterprise Lane | Madison, WI 53719 | 608/274-4849 | 608/274-3329 (fax) | www.sbcindustry.com | sbca@sbcindustry.com

## Southern Pine Lumber Potential Design Value Reductions An End Use Customer's Point of View

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### Recent notices from both SPIB and SFPA.

In the past week, the Structural Building Components Association (SBCA) has received multiple communications/notices from both the Southern Pine Inspection Bureau (SPIB) and Southern Forest Products Association (SFPA). The notices advise of the potential reduction of grade-marked Southern Pine lumber design values for all structural end uses (including site built construction and lumber remanufactured products, such as trusses, solid sawn I-joist flanges, header framing, wall framing, etc.). This possible design value reduction furthermore applies to all Southern Pine grades and sizes commonly used today in light frame construction. According to SPIB and SFPA, the proposed reduction in design values may be (a) approved at the upcoming American Lumber Standards Committee (ALSC) meeting to be held on October 20, 2011, and (b) thereafter formally published by SPIB.

### What are SPIB and SFPA specifically saying with respect to proposed lumber design value changes?

Both organizations are stating the design values for visually graded Southern Pine dimension lumber **may be reduced** for four of the six basic lumber properties: (1) Bending (Fb); (2) Tension parallel-to-grain (Ft); (3) Compression parallel-to-grain (Fc); and (4) Modulus of Elasticity (E and Emin). Proposed new design values for these four properties may be reduced as summarized in the table below<sup>1</sup>.

<i>Proposed New Design Values for Visually Graded Southern Pine Dimension Lumber</i>	<i>CHANGE (approximate)</i>
Bending	-30%
Tension	-20%
Compression	-35%
Modulus of Elasticity	-200,000 psi
Shear	No Change
Compression Perpendicular	No Change
Specific Gravity	No Change

Both organizations are also stating that the ALSC Board of Review must approve the proposed new design values before they become effective. If ALSC in fact approves the suggested changes, we anticipate that SPIB will publish new design values for visually graded Southern Pine lumber. These new values will have an effective date when the SPIB published *Supplement No.9* becomes effective. For the time being, the only published design values available to use are published by SPIB, the National Design Specification (NDS) Wood Construction in the NDS Supplement – Design Values for Wood Construction, and/or the building code.

### How are lumber design values used in light frame construction and design?

Since 1924, the light frame construction industry has followed a standard design practice to safely construct buildings. This practice consists of builders, specifiers, and building designers (i.e., architects and engineers) using and/or specifying structural lumber in appropriate applications to resist building code defined loads. Such

<sup>1</sup> From the October 7, 2011 SFPA *Questions & Answers About Proposed New Design Values for Visually Graded Southern Pine Dimension Lumber* press release.



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designers make their lumber end use decisions based on the design values assigned to the grade-marked lumber as applied by the lumber producers through their visual grading procedures. The light frame construction industry is built upon the foundation that load resistant framing design can be undertaken with confidence in the structural reliability provided by those assigning design value properties to each unit of lumber produced.

When Southern Pine lumber producers provide a grade-mark on lumber, the grade-mark that is utilized establishes the set of design values that exist and the capacity of that lumber to resist loads. Neither users nor designers of Southern Pine can be expected to anticipate or define for themselves either a higher or lower design value for the lumber selected and build or design with a value other than what has been published by SPIB.

More importantly, should lumber design values change in a material manner, it is reasonable to expect the entire lumber producing industry, including their grading agencies and NDS, would immediately respond with transition guidance for the end user action(s) to take that would correspond with the changing lumber design values.

### **What are the October, 2011 notices from SPIB and SFPA NOT saying?**

The recent notices from SPIB and SFPA neglected to inform of a July 2010 bulletin published by SPIB regarding an investigation and action planned by SPIB with regard to lumber design values, and other communications thereafter provided to the marketplace by both ALSC and SBCA.

On July 28, 2010, SPIB issued a notice stating among other things the following:

“[SPIB] has received information that some pieces of lumber have tested lower than the values assigned to the visual grade which were developed through the “In-grade” Testing Program. The Bureau has not been provided the data nor the testing protocol used to observe these lower values but we believe the sources to be credible and justify an investigation into this phenomenon.”

...Our investigation will evaluate if there is a need to make some adjustments to either the grading rules or the design values.”

On August 6, 2010, the American Lumber Standards Committee (ALSC) advised SBCA that to the extent there are concerns with published design values or their application, “it is essential that they be addressed by the ALSC in a thorough, professional and prompt manner.” One of the functions of ALSC is to maintain the American Softwood Lumber Standard and to establish a system for lumber manufacturers, distributors, users and consumers to formulate and implement such standard under which softwood lumber is produced and specified. ALSC further advised SBCA at that time that it concurred with SBCA’s concern that “action that is not well thought out” would be “counterproductive.”

The August 6, 2010 letter from ALSC to SBCA also served to remind SBCA that the in-grade test program that is the basis of lumber design values was “based on testing of over 70,000 individual pieces of lumber and has been recognized for almost twenty years.” The reason this is important is that it appears as though SPIB chose not to destructively test lumber over the past twenty years, until after publication of their July 28, 2010 notice.

SBCA finds it implausible that the lumber design value reductions now being suggested by SPIB occurred without previous warning or notice of some type as they were responsible for monitoring lumber properties as required by ASTM D1990 “Establishing Allowable Properties for Visually-Graded Dimension Lumber from In-Grade Tests of Full-Size Specimens.” This standard specifically states in section 4.3 that: “A review and reassessment of values derived from this practice shall be conducted if there is cause to believe that there has

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been a significant change in the raw material resource or product mix. If a change is found to be significant, retesting or re-evaluation, or both, in accordance with the procedures of this practice may be needed.”

The obvious question that needs an answer is: Are we to conclude that a 2x4 with a load resisting value of 1,500 psi changes almost overnight to a value of approximately 1,000 psi?

Prior to the ALSC letter referenced above, on August 5, 2010 SBCA provided a notice to its membership and the marketplace regarding the SPIB July 28, 2010 bulletin. This bulletin stated in pertinent part that lumber grade-marks indicate the existence of a minimum design or strength property, a fact that the component manufacturing industry relies on to conduct its business. SBCA further pointed out that this principle of design values and correlation to the lumber grade stamp (which are then used in truss and component design software programs) is contained in ANSI/TPI 1-2007, the *National Design Standard for Metal Plate Connected Wood Truss Construction*. This standard specifically states: “Design values...for solid sawn lumber...shall be as defined by the grade stamp prior to cross cutting and in accordance with the published values of lumber rules writing agencies approved by the Board of Review of the American Lumber Standards Committee.”

The SBCA August 2010 bulletin further called for the lumber producer industry and its associations (i.e., SPIB and SFPA) to act proactively and responsibly as they undertook work that was to be done as they investigated grading rules and design values which they referred to in their July 2010 bulletin. In pertinent part, the SBCA stated:

**“...SBCA is calling on the senior leadership of the lumber manufacturing industry to respond in one week and to convene a working group to immediately meet with representatives of the structural building component manufacturing industry to discuss the broad range of issues that have been set forth in the SPIB Notice and this SBCA Bulletin. SBCA believes an industry crafted set of options and solutions is appropriate as opposed to manufacturing companies or industry associations taking action that is not well thought out.** The participation and insight of the customer groups of structural lumber, such as the component manufacturing members of SBCA, will provide valuable perspective with respect to providing public assurance that structural lumber will continue to be utilized reliably and safely and will provide design values/properties that allow for even more creative architectural and value engineered applications our country has grown to depend upon. **(Emphasis Added)”**

### **What are SPIB, SFPA, and the Southern Pine Lumber Producers NOT doing?**

During the 14-month period of time after SBCA published its August 2010 bulletin, neither SPIB nor SFPA contacted SBCA to advise as to what testing they were doing, what plans they had in the event design values would prove to be less than published design values, and how SBCA members might be able to react in the event lumber design values were indeed reduced. In other words SPIB and SFPA simply chose to ignore the requests of SBCA for open communication and to take action that was well thought through.

Instead, on October 3, 2011 SBCA was notified by SFPA that SPIB had completed some destructive testing of Southern Pine No. 2 2x4 and that SPIB intended to publish new design values for visually graded Southern Pine that were 25 to 30 percent less across the board, and that the ALSC Board of Review approval may take place as early as October 20, 2011 after a scheduled ALSC meeting.

With respect to the issue of consequences to SBCA members and downstream purchasers, designers, and users of Southern Pine, SFPA merely stated at that time “Because component manufacturers are an important Southern Pine customer, SFPA is hosting this conference call with the purpose of providing accurate information directly from SPIB and SFPA. We look forward to your participation in this conference call.” Since

the conference call, SPIB and SFPA have blanketed the marketplace with one implausible notice followed by another.

In addition to the failed communication with SBCA and others and working to craft options and solutions suitable to its customers, such as the members of SBCA, and to the Southern Pine consuming public generally, SPIB and others have further failed to provide Southern Pine users and designers with the means to utilize and design with lumber that does not possess reduced design values. This could be done for example by (i) lumber producers culling out juvenile wood (e.g., wide growth rings, medium grain, pith center, etc.) which is well known in the literature to have lower lumber design values and/or (ii) verifying design values for each unit of lumber through the use of mechanical grading techniques. While either process may in the short term involve added cost and possibly some manufacturing inefficiencies, the economic impact on the designers and contractor and builder end-users of Southern Pine lumber, as well as the public generally, would be far less.

The unintended economic impact to designers, lumber remanufacturers such as the members of SBCA, and contractor and builder end-users might very well become significant. These include but are not limited to:

1. Possible stoppage and delays to thousands of single-family, multi-family and commercial construction projects directly resulting from a publication of new design values for Southern Pine;
2. Buildings, units of buildings, and entire projects that may have to be re-designed directly relating to the publication of new Southern Pine design values;
3. A significant reduction in Southern Pine lumber inventory economic value overnight for component manufacturers, lumber yards, builders, and homeowners; and
4. An inadequate supply of Southern Pine lumber with sufficient design properties to meet the growing construction demand for use in roof and floor trusses (and roof rafters and floor joists) and wall panels and conventionally framed walls by builders and contractors who prefer to construct with Southern Pine.

Project stoppage and delays or the cost of the needed re-design to ensure the building code expected level of safe performance could also very well impact the employment of hundreds of thousands of site construction workers and those companies who supply site construction. Project stoppage and delays will result in huge economic losses to project owners, contractors, subcontractors and suppliers who are ill-prepared to absorb further losses from an already dismal construction marketplace.

The light frame construction industry is built upon the concept that load resistant framing design can be undertaken with confidence in the structural reliability provided by those assigning design value properties to each unit of lumber produced. This confidence is being undermined by the actions taken on the part of SPIB and SFPA. The process by which lumber design values have been monitored yet not changed over a period of twenty years, to be followed with suggested design value reductions of up to 25-30% on few weeks' notice needs to be carefully investigated.

The Southern Pine industry, and perhaps the lumber industry as a whole, furthermore needs to develop or have developed by others (e.g., through legislation or regulation), a transparent process and procedure for systematically testing and confirming lumber design values on at least an annual basis. This process would need to further provide that the design value changes if any occurring from such process and procedure be implemented in a fair, reasonable, and time specific manner.

The Southern Pine users and designers, and the consuming public generally otherwise are subject to unintended adverse economic consequences when lumber design values thought to be reliable, turn out to be unreliable for the fact that the lumber producers and their grading agencies and marketing associations are not undertaking their business in a reasonable and accountable manner.