



Changes to Lumber Design Values and Their Effect on Structural Glued Laminated Timber (Glulam)

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The allowable design values for visually graded Southern Pine dimension lumber, such as No. 2 Southern Pine, are being proposed for reduction by the Southern Pine Inspection Bureau (SPIB) by about 25% to 30%. Since some structural glued laminated timbers (glulams) are made of visually graded Southern Pine dimension lumber, some glulam users may be concerned whether the design properties for glulam beams will be affected by the change. **They will not.** This paper is intended to address this issue.

1. Changes in lumber design properties are applicable to visually graded Southern Pine dimension lumber only

While glulams are made of dimension lumber, not all laminating lumber is visually graded. There are many glulam products that are made of “E-rated” laminating lumber, which is graded by a mechanical means to differentiate the lumber strength in accordance with the modulus of elasticity (MOE) of the lumber. The proposed changes for reduced Southern Pine allowable design values do not apply to mechanically graded lumber.

2. Grading rules for laminating lumber have been and will continue to be more stringent than standard dimension lumber grading rules

The laminating lumber used in manufacturing glulams has always been graded in accordance with specific laminating lumber grading rules published by American Institute of Timber Construction (AITC) and adopted by the glulam industry. Glulam beams use special grades of laminating lumber that are evaluated based on more restrictive characteristics, such as density, slope of grain, juvenile wood, and knots, than required for visually graded dimension lumber, particularly in the critical outer laminations. The requirements for laminating lumber remain unchanged.

3. Glulam design values are not derived from published lumber design values

Design values for glulam beams are developed in a completely different manner than those for dimension lumber. Glulam design values are therefore not directly associated with the published design values for dimension lumber.

4. Glulam components are subject to stringent daily quality control

In addition to the grading requirements of the laminating lumber, critical components of glulams, such as finger joints and face bonds are tested on a daily basis to verify both strength and durability. Advanced techniques including statistical process control are used to ensure that glulam beam performance meets or exceeds stated design values.

Glulams are made of specially graded laminating lumber, which is finger-jointed and face-bonded together with exterior adhesives. All steps in the manufacturing process are subject to stringent daily quality assurance. Laminating lumber will continue to be graded to the same restrictive grading rules subject to rigorous third-party inspection by AITC and APA, so designers and users of glulam products can continue to use the current design values with confidence.