

## Stable MSR lumber design values for nearly 50 years

MSR (Machine Stress Rated) lumber grades were introduced in the U.S. in the '60s with grades and design values established for structural applications.

MSR design values have been stable since the beginning, across a wide variety of resources, species, growing conditions, high and low consumption rates, and throughout North America.

### How?

Each piece of MSR lumber produced by Metriguard equipment is individually tested in the production line; its stiffness (E) value is measured and a load is applied that is about equal to the design value assigned to the grade. (No lumber scanning process does this part, only Metriguard.) Further, several boards are taken from production each shift and tested to verify that the lumber has the stiffness and strength to meet the grade requirements. Over the past ten years alone some 750,000 boards have been tested to verify that the lumber produced met the grade requirements. This is in sharp contrast to visually graded lumber which does not have either a mechanical test of each individual piece or an ongoing lumber design value verification process. The American Lumber Standards Committee (ALSC) has strict criteria to ensure that MSR lumber design values are maintained:

- E (Stiffness) average shall be equal or greater than the grade E value, and;
- The fifth percentile of the E distribution shall be no less than 82% of the grade E value, and;
- The fifth percentile of the bending strength distribution shall be no less than 2.1 times the design bending strength, and optionally;
- The fifth percentile of the tensile strength distribution shall be no less than 2.1 times the design tensile strength. (Verification required for MEL grades.)

If the optional tensile strength test is done the tensile design value can be included on the MSR grade stamp.

MEL (Machine Evaluated Lumber) grades can also be produced with the Metriguard system, with minor adjustments. Grade combinations with both MEL and MSR grades can be made simultaneously.

### The result:

The principle design values for E, bending (Fb) and tension (Ft) for MSR grades have not changed since they were introduced, nor do we expect them to change, ever.

That's 50 years of stable, verified lumber design properties, unmatched in the industry.

Metriguard has been producing and servicing robust, reliable MSR equipment since 1972. We can have an MSR lumber system running and producing within two weeks of delivery. Contact Metriguard to find out how our structural lumber grading system can help you obtain and maintain stability and reliability in your lumber grading.



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