

# TROPICAL

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## Allowable Design Values - Technical Bulletin

### Design Values

Design Values are assigned to lumber in a scientific manner to provide material of predictable strength properties to meet the requirements of engineering design based on clearly defined Lumber Grading Rules, Lumber Moisture Content and ASTM D – 143 Physical and Mechanical Properties Testing.

### Lumber Grading Rules

Lumber Grading Rules are, in effect specifications of quality in that the maximum knots, slope of grain and other strength reducing characteristics are described in sufficient detail so that the procedures of ASTM D - 143 test data can be applied and working stresses assigned to the specified quality.

### Lumber Moisture Content

Lumber Moisture Content variations above the fiber saturation point have no effect on the strength of wood. As wood dries below the saturation point strength increases.

### Allowable Design Values

Allowable Design values ASTM D-245 are assigned to lumber in a scientific manner by calculating in a variety of pre-established reduction factors under, established grading rules and moisture content to ASTM D – 143 test established maximum design values which include

- 1) Static Bending Properties
  - a) Fiber Stress and Bending
  - b) Modules of Rupture
  - c) Modules of Elasticity
- 2) Compression Parallel to Grain
- 3) Compression Perpendicular to Grain
- 4) Hardness
- 5) Shear Parallel to Grain
- 6) Shear Perpendicular to Grain

When wood products are specified or purchased without Scientifically Established Allowable Design Values, such wood can only be considered for aesthetic and not structural applications.

Tropical Forest Products developed and published proprietary grading rules, allowable design values and specification language for design professionals which have set the standards for over 40 years. The availability of Certified Compliance Standards have become synonymous with the Tropical Forest Products brand.

We strongly encourage specifiers and consumers to utilize these standards in their decision making process and to specifically reference these standards in their purchase orders. Consumers and design professionals should not specify wood products for structural use that do not carry Certified Allowable Design Values and Decking, Lumber and Timber Load and Span Tables.