



Standard Practice for Assigning Allowable Properties for Mechanically Graded Lumber¹

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1. Scope

1.1 This practice covers the methodology of grade qualification, assignment of design properties, and requirements for the quality control of mechanically graded solid sawn lumber.

1.2 This practice acknowledges alternative methods for the assignment of specific properties. These methods are assignment by test, relationship to other properties, and by procedures in other appropriate standards.

2. Referenced Documents

2.1 ASTM Standards:²

- D9 Terminology Relating to Wood and Wood-Based Products
- D143 Test Methods for Small Clear Specimens of Timber
- D198 Test Methods of Static Tests of Lumber in Structural Sizes
- D245 Practice for Establishing Structural Grades and Related Allowable Properties for Visually Graded Lumber
- D1165 Nomenclature of Commercial Hardwoods and Softwoods
- D1990 Practice for Establishing Allowable Properties for Visually-Graded Dimension Lumber from In-Grade Tests of Full-Size Specimens
- D2395 Test Methods for Specific Gravity of Wood and Wood-Based Materials
- D2555 Practice for Establishing Clear Wood Strength Values
- D2915 Practice for Sampling and Data-Analysis for Structural Wood and Wood-Based Products
- D3737 Practice for Establishing Allowable Properties for Structural Glued Laminated Timber (Glulam)
- D4442 Test Methods for Direct Moisture Content Measurement of Wood and Wood-Base Materials

D4444 Test Method for Laboratory Standardization and Calibration of Hand-Held Moisture Meters

D4761 Test Methods for Mechanical Properties of Lumber and Wood-Base Structural Material

2.2 ANSI Standards:³

ANSI/AITC A190.1 American National Standard for Wood Products—Structural Glued Laminated Timber

ANSI/AF&PA NDS National Design Specification for Wood Construction

2.3 Canadian Standards Association Standard:⁴

CSA O141 Softwood Lumber

2.4 National Institute of Standards and Technology Standard:⁵

PS 20 Voluntary Product Standard, American Softwood Lumber Standard

3. Terminology

3.1 *Definitions*—For definitions of terms related to wood, refer to Terminology D9.

3.2 Definitions of Terms Specific to This Standard:

3.2.1 *mechanical evaluation, n*—identification and appraisal of one or more physical or mechanical lumber characteristics as part of the lumber segregation process.

3.2.2 *mechanically graded lumber, n*—solid sawn lumber graded by mechanical evaluation. Visual evaluation also may be required. The material has assigned design properties and is manufactured for use as structural members.

3.2.3 *qualified agency, n*—an organization, hereafter referred to as the agency, that has trained personnel and procedures to ensure the system evaluations and grades comply with all applicable requirements of this practice.

3.2.3.1 *Discussion*—The agency shall have no financial interest in, nor shall be financially dependent upon, any single company manufacturing the product being inspected or tested; and shall not be owned, operated, or controlled by any such company.

¹ This practice is under the jurisdiction of ASTM Committee D07 on Wood and is the direct responsibility of Subcommittee D07.02 on Lumber and Engineered Wood Products.

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² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

³ Available from American National Standards Institute (ANSI), 25 W. 43rd St., 4th Floor, New York, NY 10036, <http://www.ansi.org>.

⁴ Available from Canadian Standards Association (CSA), 5060 Spectrum Way, Mississauga, ON L4W 5N6, Canada, <http://www.csa.ca>.

⁵ Available from National Institute of Standards and Technology (NIST), 100 Bureau Dr., Stop 1070, Gaithersburg, MD 20899-1070, <http://www.nist.gov>.