Designation: D198 – 15

Standard Test Methods of Static Tests of Lumber in Structural Sizes[1]

This standard is issued under the fixed designation D198; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

INTRODUCTION

Numerous evaluations of structural members of sawn lumber have been conducted in accordance with Test Methods D198. While the importance of continued use of a satisfactory standard should not be underestimated, the original standard (1927) was designed primarily for sawn lumber material, such as bridge stringers and joists. With the advent of structural glued laminated (glulam) timbers, structural composite lumber, prefabricated wood I-joists, and even reinforced and prestressed timbers, a procedure adaptable to a wider variety of wood structural members was required and Test Methods D198 has been continuously updated to reflect modern usage.

The present standard provides a means to evaluate the flexure, compression, tension, and torsion strength and stiffness of lumber and wood-based products in structural sizes. A flexural test to evaluate the shear stiffness is also provided. In general, the goal of the D198 test methods is to provide a reliable and repeatable means to conduct laboratory tests to evaluate the mechanical performance of wood-based products. While many of the properties tested using these methods may also be evaluated using the field procedures of Test Methods D4761, the more detailed D198 test methods are intended to establish practices that permit correlation of results from different sources through the use of more uniform procedures. The D198 test methods are intended for use in scientific studies, development of design values, quality assurance, or other investigations where a more accurate test method is desired. Provision is made for varying the procedure to account for special problems.

1. Scope

1.1 These test methods cover the evaluation of lumber and wood-based products in structural sizes by various testing procedures.

1.2 The test methods appear in the following order:

	Sections
Flexure	4 – 11
Compression (Short Specimen)	13 – 20
Compression (Long Specimen)	21 – 28
Tension	29 – 36
Torsion	37 – 44
Shear Modulus	45 – 52

1.3 Notations and symbols relating to the various testing procedures are given in Appendix X1.

1.4 The values stated in inch-pound units are to be regarded as standard. The values given in parentheses are mathematical conversions to SI units that are provided for information only and are not considered standard.

1.5 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 *ASTM Standards:*[2]

D9 Terminology Relating to Wood and Wood-Based Products

D1165 Nomenclature of Commercial Hardwoods and Softwoods

D2395 Test Methods for Density and Specific Gravity (Relative Density) of Wood and Wood-Based Materials

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-Based Materials

[1] These test methods are under the jurisdiction of ASTM Committee D07 on Wood and are the direct responsibility of Subcommittee D07.01 on Fundamental Test Methods and Properties.

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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.

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