



Designation: D 198 – 99

Standard Test Methods of Static Tests of Lumber in Structural Sizes¹

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INTRODUCTION

Numerous evaluations of structural members of solid sawn lumber have been conducted in accordance with ASTM Test Methods D 198 – 27. While the importance of continued use of a satisfactory standard should not be underestimated, the original standard (1927) was designed primarily for sawn material such as solid wood bridge stringers and joists. With the advent of laminated timbers, wood-plywood composite members, and even reinforced and prestressed timbers, a procedure adaptable to a wider variety of wood structural members is required.

The present standard expands the original standard to permit its application to wood members of all types. It provides methods of evaluation under loadings other than flexure in recognition of the increasing need for improved knowledge of properties under such loadings as tension to reflect the increasing use of dimensions lumber in the lower chords of trusses. The standard establishes practices that will permit correlation of results from different sources through the use of a uniform procedure. Provision is made for varying the procedure to take account of special problems.

1. Scope

1.1 These test methods cover the evaluation of lumber in structural size by various testing procedures.

1.2 The test methods appear in the following order:

	Sections
Flexure	4 to 11
Compression (Short Column)	12 to 19
Compression (Long Member)	20 to 27
Tension	28 to 35
Torsion	36 to 43
Shear Modulus	44 to 51

1.3 Notations and symbols relating to the various testing procedures are given in Table X1.1.

1.4 *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:

D 9 Terminology Relating to Wood²

¹ These methods are under the jurisdiction of ASTM Committee D-7 on Wood and are the direct responsibility of Subcommittee D07.01 on Fundamental Test Methods and Properties.

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² *Annual Book of ASTM Standards*, Vol 04.10.

D 1165 Nomenclature of Domestic Hardwoods and Softwoods²

D 2395 Test Methods for Specific Gravity of Wood and Wood-Base Materials²

D 4442 Test Methods for Direct Moisture Content Measurement of Wood and Wood-Base Materials²

E 4 Practices for Force Verification of Testing Machines³

E 6 Terminology Relating to Methods of Mechanical Testing³

E 83 Practice for Verification and Classification of Extensometers³

3. Terminology

3.1 *Definitions*—See Terminology E 6, Terminology D 9, and Nomenclature D 1165. A few related terms not covered in these standards are as follows:

3.1.1 *span*—the total distance between reactions on which a beam is supported to accommodate a transverse load (Fig. 1).

3.1.2 *shear span*—two times the distance between a reaction and the nearest load point for a symmetrically loaded beam (Fig. 1).

3.1.3 *depth of beam*—that dimension of the beam which is perpendicular to the span and parallel to the direction in which the load is applied (Fig. 1).

3.1.4 *span-depth ratio*—the numerical ratio of total span divided by beam depth.

3.1.5 *shear span-depth ratio*—the numerical ratio of shear span divided by beam depth.

³ *Annual Book of ASTM Standards*, Vol 03.01.