



Designation: D6815 – 22a

Standard Specification for Evaluation of Duration of Load and Creep Effects of Wood and Wood-Based Products¹

This standard is issued under the fixed designation D6815; 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.

1. Scope

1.1 This specification provides a procedure for testing and evaluating duration of load and creep effects of wood and wood-based materials relative to an accepted duration of load adjustment model. This specification was created for products that are currently covered by a consensus standard (for example, lumber, structural composite lumber, and structural-use panels). This procedure is intended to demonstrate the engineering equivalence to the duration of load and creep effects of visually graded lumber as specified in Practice D245 for a product under evaluation used in dry service conditions. This procedure is not intended to evaluate the performance of products under impact loading. Quantification of specific duration of load or creep factors is beyond the scope of this specification. For further guidance regarding the applicability of this specification refer to X1.1 in the Commentary.

1.2 Use of the procedure in this specification to determine equivalence to the Practice D245 duration of load relationship is limited to solid wood and wood-based products whose long term load behavior is similar to that of solid wood. Equivalence demonstrated in this specification is dependent upon evaluation of a product's 90-day (minimum) creep-rupture performance. In this evaluation, three criteria must be satisfied: (1) adequate strength over a 90-day period, (2) decreasing creep rate, and (3) limited fractional deflection. A summary of the development of these criteria and the underlying assumptions behind them is provided in the Commentary in Appendix X1 and Appendix X2.

1.3 Long term degradation phenomena not described by a creep-rupture model are not addressed in this specification (see Commentary X1.2.4).

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 This specification is under the jurisdiction of ASTM Committee D07 on Wood and is the direct responsibility of Subcommittee D07.01 on Fundamental Test Methods and Properties.

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1.5 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

2. Referenced Documents

2.1 ASTM Standards:²

- D9 Terminology Relating to Wood and Wood-Based Products
- 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
- D1037 Test Methods for Evaluating Properties of Wood-Base Fiber and Particle Panel Materials
- D2915 Practice for Sampling and Data-Analysis for Structural Wood and Wood-Based Products
- D3043 Test Methods for Structural Panels in Flexure
- D4442 Test Methods for Direct Moisture Content Measurement of Wood and Wood-Based Materials
- D4761 Test Methods for Mechanical Properties of Lumber and Wood-Based Structural Materials
- E4 Practices for Force Calibration and Verification of Testing Machines
- E6 Terminology Relating to Methods of Mechanical Testing
- E177 Practice for Use of the Terms Precision and Bias in ASTM Test Methods

2.2 Other References:

- ANSI/AWS NDS National Design Specification (NDS) for Wood Construction³

3. Terminology

3.1 *Definitions*—See Terminologies D9 and E6 and Practices E4 and E177 for definitions of terms used in this specification.

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 Wood Council (AWC), 222 Catoctin Circle SE, Suite 201, Leesburg, VA 20175, <https://www.awc.org>.