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.

Designation: D7147 – 21

# Standard Specification for Testing and Establishing Allowable Loads of Joist Hangers[1]

This standard is issued under the fixed designation D7147; 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 covers a procedure for evaluating metal devices used for wood-to-wood, wood-to-concrete, wood-to-concrete masonry, and wood-to-steel connections. This method is intended for use with devices used to connect joists, beams, and girders together. These devices are commonly described as joist hangers.

1.2 This specification describes test methods for evaluating the capacities of joist hangers subject to vertical and torsional loading.

1.3 This specification provides a method of assigning allowable loads to joist hangers based on measured strength and deformation characteristics. Information obtained by the provisions of this specification is applicable to design when using the Allowable Stress Design method.

1.4 *Units*—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, health, and environmental practices and determine the applicability of regulatory limitations prior to use.*

1.6 *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]

C31/C31M Practice for Making and Curing Concrete Test Specimens in the Field

C39/C39M Test Method for Compressive Strength of Cylindrical Concrete Specimens

C90 Specification for Loadbearing Concrete Masonry Units

C270 Specification for Mortar for Unit Masonry

C1314 Test Method for Compressive Strength of Masonry Prisms

D245 Practice for Establishing Structural Grades and Related Allowable Properties for Visually Graded Lumber

D9 Terminology Relating to Wood and Wood-Based Products

D1038 Terminology Relating to Veneer, Plywood, and Wood Structural Panels

D1761 Test Methods for Mechanical Fasteners in Wood and Wood-Based Materials

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

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

D5055 Specification for Establishing and Monitoring Structural Capacities of Prefabricated Wood I-Joists

D5456 Specification for Evaluation of Structural Composite Lumber Products

D7438 Practice for Field Calibration and Application of Hand-Held Moisture Meters

E4 Practices for Force Verification of Testing Machines

E8/E8M Test Methods for Tension Testing of Metallic Materials

E575 Practice for Reporting Data from Structural Tests of Building Constructions, Elements, Connections, and Assemblies

F606/F606M Test Methods for Determining the Mechanical Properties of Externally and Internally Threaded Fasteners, Washers, Direct Tension Indicators, and Rivets

F1470 Practice for Fastener Sampling for Specified Mechanical Properties and Performance Inspection

F1575 Test Method for Determining Bending Yield Moment of Nails

[1] This specification is under the jurisdiction of ASTM Committee D07 on Wood and is the direct responsibility of Subcommittee D07.05 on Wood Assemblies.

Current edition approved July 1, 2021. Published August 2021. Last previous edition approved in 2018 as D7147– 11 (2018). DOI: 10.1520/D7147-21.

[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.

Copyright © ASTM International, 100 Barr Harbor Drive, PO Box C700, West Conshohocken, PA 19428-2959. United States