



Designation: D7470 – 21

Standard Practice for Evaluating Elevated Temperature Performance of End-Jointed Lumber Studs¹

This standard is issued under the fixed designation D7470; 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 practice is to be used to evaluate the elevated temperature performance of end-jointed lumber studs.

1.2 A symmetric wall assembly containing end-jointed lumber studs is exposed to a standard fire exposure specified in Test Methods E119.

1.3 End-jointed lumber studs are deemed qualified if the wall assembly resists a standard fire exposure specified in Test Methods E119 for a period of 60 min or more. Qualification of end-jointed lumber studs are restricted to the joint configuration and adhesive tested.

1.4 This practice is used to evaluate the performance of end-jointed lumber studs to heat and flame under controlled conditions, but does not by itself incorporate all factors required for fire hazard or fire risk assessment under actual fire conditions.

1.5 The values stated in inch-pound units are to be regarded as the standard. The values given in parentheses are for information only.

1.6 *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.*

1.7 *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.*

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. Referenced Documents

2.1 ASTM Standards:²

- C1396/C1396M Specification for Gypsum Board
- D9 Terminology Relating to Wood and Wood-Based Products
- D4688 Test Method for Evaluating Structural Adhesives for Finger Jointing Lumber
- D6513 Practice for Calculating the Superimposed Load on Wood-frame Walls for Standard Fire-Resistance Tests
- E119 Test Methods for Fire Tests of Building Construction and Materials
- F1667 Specification for Driven Fasteners: Nails, Spikes, and Staples

2.2 Other Standards:

- ANSI/AWC NDS National Design Specification for Wood Construction³

3. Terminology

3.1 Definitions:

3.1.1 For general definitions of terms related to wood, refer to Terminology D9.

3.2 Definitions of Terms Specific to This Standard:

3.2.1 *end joint, n*—joint formed by adhesive bonding of machined, mated surfaces at the ends of two pieces of lumber.

3.2.1.1 *Discussion*—Typical end-joint configurations include finger joints and scarf joints.

3.2.2 *end-jointed lumber, n*—lumber containing one or more end joints.

3.2.3 *finger joint, n*—end joint formed by multiple interlocking tapered profiles (“fingers”).

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), 1111 Nineteenth Street, NW, Suite 800, Washington, DC 20036, <http://www.awc.org>.