



Standard Practice for Estimating the Percentage of Wood Failure in Adhesive Bonded Joints¹

This standard is issued under the fixed designation D5266; 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 provides procedures for estimating the percentage of wood failure that occurs in plywood-shear, block-shear, finger joint test specimens, or any other bondline involving wood.

1.2 The values stated in SI units are to be regarded as the standard. The values in parentheses are provided for information only.

1.3 *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

D905 Test Method for Strength Properties of Adhesive Bonds in Shear by Compression Loading

D906 Test Method for Strength Properties of Adhesives in Plywood Type Construction in Shear by Tension Loading

D2559 Specification for Adhesives for Bonded Structural Wood Products for Use Under Exterior Exposure Conditions

D4688 Test Method for Evaluating Structural Adhesives for Finger Jointing Lumber

D5572 Specification for Adhesives Used for Finger Joints in Nonstructural Lumber Products

D5751 Specification for Adhesives Used for Laminate Joints in Nonstructural Lumber Products

2.2 American National Standards:

ANSI/HPVA HP-1-2009 American National Standard for Hardwood and Decorative Plywood³

ANSI A190.1-2012 American National Standard for Wood Products—Structural Glued, Laminated Timber³

2.3 Other Documents:

American Plywood Association Proposed Standard Method for Estimating Percentage Wood Failure on Plywood Shear Specimens⁴

PS 1 U.S. Product Standard for Construction and Industrial Plywood⁴

CSA O112.9 Evaluation of Adhesives for Structural Wood Products (Exterior Exposure)⁴

General Technical Report FPL-GTR-190⁵

Inspection Bureau Memorandum No. 1 Interpretation of Wood Failure⁴

2.4 ASTM Adjunct:

Photographs for Visually Estimating the Percentage of Wood Failure in Standard Adhesively Bonded Specimens⁶

3. Terminology

3.1 Definitions:

3.1.1 *deep wood failure, n*—failure that is invariably several to many cells away from the adhesive layer, in which the fracture path is strongly influenced by the grain angle and growth-ring structure.

3.1.2 *shallow wood failure, n*—failure that is invariably within the first one or two layers of cells beyond the adhesive layer in which the fracture path is not influenced by the wood-grain angle or growth-ring structure (see 7.7 and 8.1).

¹ This practice is under the jurisdiction of ASTM Committee D14 on Adhesives and is the direct responsibility of Subcommittee D14.30 on Wood Adhesives.

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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.

³ Available from Hardwood Plywood & Veneer Association, 1825 Michael Faraday Drive, P.O. Box 2789, Reston, VA 20190, www.hpva.org.

⁴ Available from APA – The Engineered Wood Association, 7011 South 19th St., Tacoma, WA 98466, www.apawood.org.

⁵ *Wood Handbook: Wood as an Engineering Material*, Madison, WI: U. S. Department of Agriculture, Forest Service, Forest Products Laboratory, 508 p. 2010.

⁶ Available from ASTM International Headquarters. Request Adjunct No. ADJD5266. Original adjunct produced in 1991.