Designation: D4688/D4688M – 14

Standard Test Method for Evaluating Structural Adhesives for Finger Jointing Lumber[1]

This standard is issued under the fixed designation D4688/D4688M; 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 test method is designed to evaluate adhesives for finger jointing lumber used in the manufacture of a variety of bonded structural wood products such as structural glued laminated timber. It tests the tensile strength of joints under the following treatments: dry with no treatment, wet after one vacuum-pressure soak treatment, and wet after cyclic boil-dry treatment.

1.2 This test method is intended neither for quality control as the test assemblies are selected for the absence of defects usually found in run-of-the-mill finger joints nor as a substitute for in-plant qualification of end joints, including full-scale joint tests.

NOTE 1—This test method is specifically designed to evaluate adhesives for use in finger jointing lumber using small scale test specimens cut from carefully selected finger joint assemblies. In contrast, plant qualification and quality control require tests of full scale end joints selected randomly from production, designed to evaluate parameters beyond adhesive performance which affect the performance of the end use product.

1.3 The values stated in either SI units or inch-pound units are to be regarded separately as standard. The values stated in each system may not be exact equivalents; therefore, each system shall be used independently of the other. Combining values from the two systems may result in non-conformance with the standard.

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:*[2]

D907 Terminology of Adhesives

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

D5266 Practice for Estimating the Percentage of Wood Failure in Adhesive Bonded Joints

E4 Practices for Force Verification of Testing Machines

3. Terminology

3.1 *Definitions*—Many terms in this test method are defined in Terminology D907.

3.2 *Definitions of Terms Specific to This Standard:*

3.2.1 *billet, n*—a piece cut from a vertical finger joint assembly as an intermediate step in making specimens.

3.2.2 *horizontal finger joint, n*—a joint formed by bonding two precut members shaped like fingers where the profile is visible on the edge of the lumber (see Fig. 1a).

3.2.3 *vertical finger joint, n*—a joint formed by bonding two precut members shaped like fingers where the profile is on the wide face of the lumber (see Fig. 1b).

3.2.4 *finger joint assembly, n*—a short portion of two boards joined at their ends by an adhesively bonded finger joint to create a longer piece, frequently referred to as an *assembly*.

3.2.5 *sample, n*—a group of finger joint assemblies obtained from a finger joint production line or laboratory prepared finger joints selected for statistical purposes.

3.2.6 *specimen, n*—an individual test piece prepared to specific dimensions for the purpose of determining the adhesive performance in accordance with the tension tests described in this test method.

4. Significance and Use

4.1 This test method is specifically designed to measure the performance of adhesives in finger joints manufactured under production line conditions.

4.1.1 The test method can be adapted to evaluate the adhesive performance of laboratory produced finger joints using commercial finger joint cutting heads with finger joints produced following the adhesive manufacturers recommendations. The conditions under which the finger joints were produced, including any limitations, are to be reported in 9.1.2.2 (see Note 2).

[1] This test method is under the jurisdiction of ASTM Committee D14 on Adhesives and is the direct responsibility of Subcommittee D14.30 on Wood Adhesives.

Current edition approved Nov. 1, 2014. Published January 2015. Originally approved in 1987. Last previous edition approved in 2013 as D4688 – 99 (2013). DOI: 10.1520/D4688_D4688M-14.

[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