

Standard Test Method for Diagonal Tension (Shear) in Masonry Assemblages¹

This standard is issued under the fixed designation E 519; 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.

This standard has been approved for use by agencies of the Department of Defense.

1. Scope*

1.1 This test method covers determination of the diagonal tensile or shear strength of 1.2 by 1.2-m (4 by 4-ft) masonry assemblages by loading them in compression along one diagonal (see Fig. 1), thus causing a diagonal tension failure with the specimen splitting apart parallel to the direction of load.

1.2 Annex A1 provides requirements regarding the determination of the diagonal-tension strength of masonry under combined diagonal-tension and compressive loading.

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

1.4 *This standard may involve hazardous materials, operations, and equipment. This standard does not purport to address all of the safety problems, 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:

C 67 Test Methods for Sampling and Testing Brick and Structural Clay Tile²

C 109 Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 2-in. or 50-mm Cube Specimens)³

C 140 Test Methods for Sampling and Testing Concrete Masonry Units and Related Units²

C 1019 Test Method for Sampling and Testing Grout²

E 4 Practices for Force Verification of Testing Machines⁴

E 575 Practice for Reporting Data from Structural Tests of Building Constructions, Elements, Connections, and Assemblies⁵



FIG. 1 Apparatus for Determination of Diagonal Tensile or Shear Strength Masonry Assemblages

3. Significance and Use

3.1 This test method was developed to measure more accurately the diagonal tensile (shear) strength of masonry than was possible with other available methods. The specimen size was selected as being the smallest that would be reasonably representative of a full-size masonry assemblage and that would permit the use of testing machines such as are used by many laboratories.

¹ This test method is under the jurisdiction of ASTM Committee C15 on Manufactured Masonry Units and is the direct responsibility of Subcommittee C15.04 on Research.

Current edition approved Dec. 10, 2002. Published April 2003. Originally approved 1974. Last previous edition approved in 2000 as E 519-00.

² Annual Book of ASTM Standards, Vol 04.05.

³ Annual Book of ASTM Standards, Vol 04.01.

⁴ Annual Book of ASTM Standards, Vol 03.01.

⁵ Annual Book of ASTM Standards, Vol 04.07.

*A Summary of Changes section appears at the end of this standard.

