



Designation: E2127 – 01a (Reapproved 2022)

# Standard Methods of Static Load Test for Combined Tensile and Transverse Load Resistance of Paneled Wall Systems in Building Construction<sup>1</sup>

This standard is issued under the fixed designation E2127; 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 ( $\epsilon$ ) indicates an editorial change since the last revision or reapproval.

## 1. Scope

1.1 These test methods cover the procedures for determining the resistance of paneled wall systems subjected to combined lateral loads and axial loads.

1.2 These test methods involve the simultaneous application of transverse (lateral wind) and tensile (wind uplift) loads to paneled wall system assemblies anchored at both ends with hold-down connectors.

1.3 These test methods are suitable for determining the structural adequacy of the design, system, and wall fabrication technique, and are not intended to evaluate the strength capacity of the hold-down connectors.

1.4 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 Recom-*

*mendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

## 2. Referenced Documents

2.1 *ASTM Standards:*<sup>2</sup>

[E575 Practice for Reporting Data from Structural Tests of Building Constructions, Elements, Connections, and Assemblies](#)

[E631 Terminology of Building Constructions](#)

## 3. Terminology

3.1 *Definitions*—For definitions of general terms used in this test method, refer to Terminology [E631](#).

## 4. Summary of Test Method

4.1 The tensile and bending capacity of the paneled wall system is determined by applying a simultaneous tensile and transverse load to a wall specimen. This is accomplished by anchoring one end of the specimen and applying a tensile load to the opposing end while applying a transverse load; see [Figs. 1 and 2](#). The forces required to deflect the specimen and the corresponding displacements at each load interval are measured.

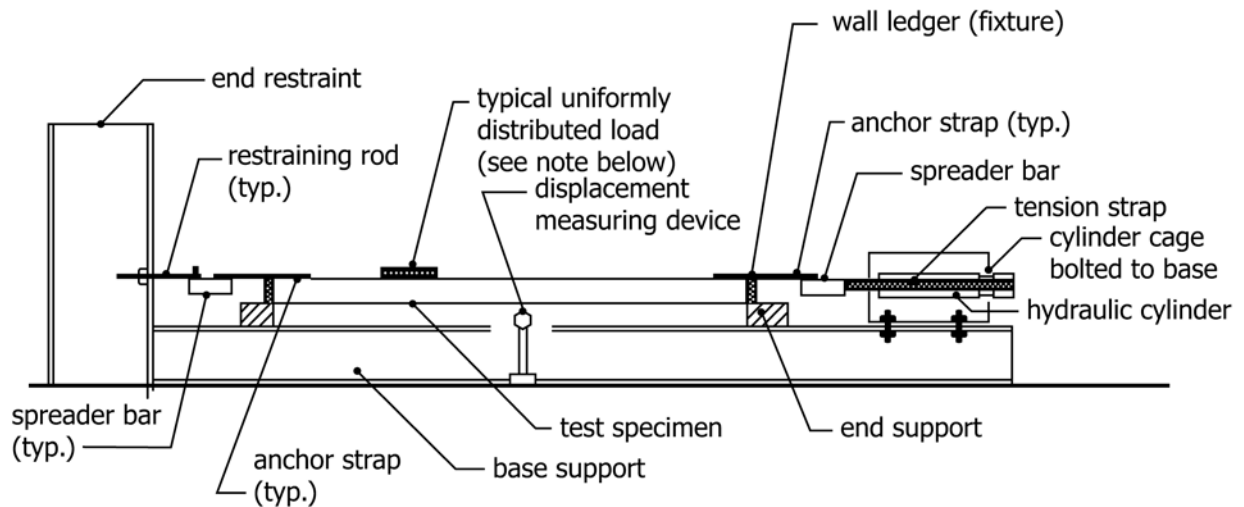
## 5. Significance and Use

5.1 The procedures described will test the behavior of segments of paneled wall system construction under conditions representative of those encountered in service. Performance criteria based on data from those procedures can verify structural adequacy and service life.

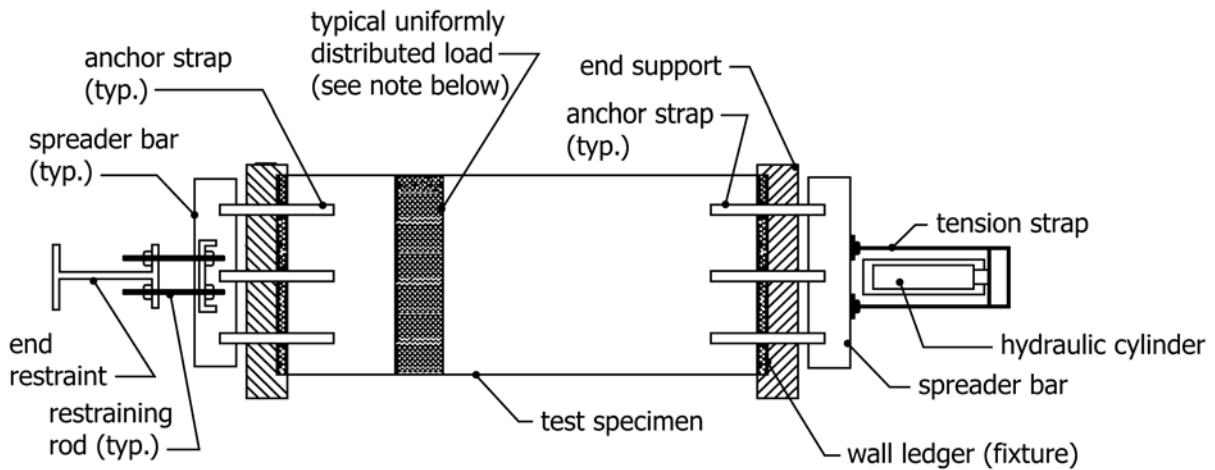
<sup>1</sup> These test methods are under the jurisdiction of ASTM Committee [E06](#) on Performance of Buildings and are the direct responsibility of Subcommittee [E06.11](#) on Horizontal and Vertical Structures/Structural Performance of Completed Structures.

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<sup>2</sup> For referenced ASTM standards, visit the ASTM website, [www.astm.org](http://www.astm.org), or contact ASTM Customer Service at [service@astm.org](mailto:service@astm.org). For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.



SIDE VIEW



TOP VIEW

TEST SPECIMEN AND FIXTURE

**STRAPS UP**

Note: Partial uniformly distributed load shown for simplification purposes.

FIG. 1 Test Specimen and Fixture, Straps Up

**6. Test Apparatus**

6.1 *Test Assembly:*

6.1.1 *General*—Tests shall be made on three like specimens for each orientation. All system elements shall be fastened in a manner to conform with the wall specifications. The wall system shall be representative of actual building construction.

6.1.2 *Connections*—The performance of the wall is influenced by the type and spacing of the anchoring to the upper and lower ends of the wall.

6.1.3 *Paneled Wall System Requirements*—The paneled wall system specimen shall be comprised of members and connectors representative of those used in building construction,