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.

Designation: D6638 – 18

# Standard Test Method for Determining Connection Strength Between Geosynthetic Reinforcement and Segmental Concrete Units (Modular Concrete Blocks)[1]

This standard is issued under the fixed designation D6638; 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 used to determine the connection properties between a layer of geosynthetic reinforcement and segmental concrete block units used in construction of reinforced soil retaining walls. The test is carried out under conditions determined by the user that reproduce the connection system at full scale. The results of a series of tests are used to define a relationship between connection strength for a segmental unit-geosynthetic connection system and normal load.

1.2 This is a performance test used to determine properties for design of retaining wall systems utilizing segmental concrete units and soil reinforcing geosynthetics, either geotextiles or geogrids. The test is performed on a full-scale construction of the connection and may be run in a laboratory or the field.

1.3 The values stated in SI units are regarded as the standard. The values stated in inch-pound units are provided for information only.

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, health, and environmental practices and determine the applicability of regulatory limitations prior to use.*

1.5 *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.*

## 2. Referenced Documents

2.1 *ASTM Standards:*[2]

D448 Classification for Sizes of Aggregate for Road and Bridge Construction

D4354 Practice for Sampling of Geosynthetics and Rolled Erosion Control Products (RECPs) for Testing

D4439 Terminology for Geosynthetics

D4495 Test Method for Impact Resistance of Poly(Vinyl Chloride) (PVC) Rigid Profiles by Means of a Falling Weight

D6637/D6637M Test Method for Determining Tensile Properties of Geogrids by the Single or Multi-Rib Tensile Method

## 3. Terminology

3.1 *Definitions:*

3.1.1 *displacement criteria, n*—a user-prescribed maximum movement, mm (in.), of the geosynthetic reinforcement out from the back of segmental concrete units.

3.1.2 *geosynthetic, n*—a planar product manufactured from polymeric material used with soil, rock, earth, or other geotechnical engineering-related material as an integral part of a manmade project, structure, or system. **D4439**

3.1.3 *granular infill, n*—coarse-grained soil aggregate used to fill the voids in and between segmental concrete units.

3.1.4 *peak connection strength, n*—the maximum tensile capacity of the connection between geosynthetic reinforcement and segmental concrete units.

3.1.5 *segmental concrete unit (modular concrete block), n*—a concrete unit manufactured specifically for mortarless, dry-stack retaining wall construction.

[1] This test method is under the jurisdiction of ASTM Committee D35 on Geosynthetics and is the direct responsibility of Subcommittee D35.01 on Mechanical Properties

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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.

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