



Designation: D 6711 – 01

Standard Practice for Specifying Rock to Fill Gabions, Revet Mattresses, and Gabion Mattresses¹

This standard is issued under the fixed designation D 6711; 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 covers the sizes and quality of rock to fill gabions and mattresses. The term mattress as used in this standard shall include the terminology of gabion mattresses and revet mattresses used in Specifications A 974 and A 975.

1.2 This practice does not cover the sizes and quality of rock for other erosion control uses such as riprap or drainfall.

1.3 This practice does not cover the material properties or construction of gabions or mattresses.

1.4 The values in this practice are in English units and are to be regarded as the standard. SI units are given.

1.5 *This practice offers a set of instructions for performing one or more specific operations. This document cannot replace professional judgement. Not all aspects of this practice may be applicable in all circumstances. This ASTM standard is not intended to represent or replace the standard of care by which the adequacy of a given professional service must be judged, nor should this document be applied without consideration of a project's many unique aspects. The word "Standard" in the title of this document means only that the document has been approved through the ASTM consensus process.*

1.6 *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:

A 974 Specification for Welded Wire Fabric Gabions and Gabion Mattresses (Metallic-Coated or Poly Vinyl Chloride (PVC) Coated)²

A 975 Specification for Double-Twisted Hexagonal Mesh Gabions and Revet Mattresses (Metallic-Coated Steel Wire or Metallic-Coated Steel Wire with Poly Vinyl Chloride (PVC Coating)²

D 4992 Practice for Evaluation of Rock to be Used for Erosion Control³

D 5519 Test Method for Particle Size Analysis of Natural and Manmade Riprap Materials³

3. Terminology

3.1 *gabion, n*—a wire mesh container of variable size and interconnected with other similar containers. It is filled with rock to form flexible, permeable, monolithic structures.

3.2 *mattress, n*—a wire mesh container uniformly partitioned into internal cells with relatively small height in relation to other dimensions. Mattresses have smaller mesh opening than the mesh used for gabions.

4. Summary of Practice

4.1 The designer shall establish the suitable sizes, weight, and quality of rock for project use, and examine sources to ensure that the required rock is available.

4.2 Rock shall be delivered to the work site in a manner to minimize its reduction in sizes (breakdown) during the handling of the rock, and then placed and secured within the assembled and interconnected gabion or mattress.

5. Significance and Use

5.1 Gabions and mattresses, described in Specifications A 974 and A 975, are placed on sites for stability and to prevent soil erosion. Their ability to function properly depends on their stability, which is partly dependent upon the rocks filling them. Rock sizes should be chosen to prevent them from falling through the mesh of the gabions or mattresses. The rock also has to withstand natural weathering processes during the life of the project that would cause it to breakdown to sizes smaller than the wire mesh opening dimensions.

6. Bulk Filling Materials

6.1 Rock to fill gabions or mattresses may be any natural deposit of the required sizes, or may be crushed rock produced by any suitable method and by the use of any device that yields the required size limits chosen in 7.

¹ This guide is under the jurisdiction of ASTM Committee D18 on Soil and Rock and is the direct responsibility of Subcommittee D18.25 on Erosion and Sediment Control Technology.

Current edition approved August 10, 2001. Published November 2001.

² *Annual Book of ASTM Standards*, Vol 01.06.

³ *Annual Book of ASTM Standards*, Vol 04.08.