



ArtWeld Gabion-Faced (M.S.E.) Wall Product Specification

1.0 MECHANICALLY STABILIZED EARTH WALL MATERIALS

1.1 Welded wire fabric for soil reinforcement.

Reinforcing mesh shall be steel welded wire fabric conforming to ASTM A-185 (AASHTO M 55), except that weld shear testing will be required on all welded wire mat configurations. Galvanizing shall be applied after the wire fabric is fabricated in accordance with ASTM A-123 (AASHTO M 111). A minimum coating of 2.0 oz/ft² (605 g/m²) shall be applied.

2.0 GABION MATERIALS

2.1 Basket mesh

Use a 9 ga (W1.7 x W1.7) galvanized wire fabric conforming to ASTM A-185 (AASHTO M 55). Make a weld at each connection that has minimum shear strength of 800 lbf (3560 newtons). A minimum coating of 0.90 oz.ft² (270 g/m²) shall be applied.

2.2 Permanent fasteners

2.2.1 Lacing Wire

Furnish nominal-sized 13.5 ga (2.2-millimeter) diameter wire of the same type, strength, and coating as the basket mesh.

2.2.2 Spiral Binders

Form with wire having at least the same diameter, type, strength, and coating as the basket mesh.

2.2.3 Internal Connecting Wire

Furnish Galvanized Pre-Formed stiffeners (9 ga min.).

Overlapping ring wire fastener. Manufacture overlapping ring wire fastener (hog ring) from 0.12 inch galvanized wire of high tensile strength equal to 260,000 to 280,000 psi. Galvanizing shall conform to ASTM A641, Class 3 Coating. When closed the number of wires to be confined, the free ends of the ring fastener shall overlap a minimum of 1 inch. The pull-apart resistance obtained along the longest axis of the ring (or against the overlap) shall be 600 lbf minimum.

2.3 Revet Mattresses (less than 0.3 meter in the vertical dimension).

Fabricate the mesh from nominal-sized 2.2-millimeter or greater diameter wire.

2.4 Welded Wire Mesh

Weld each connection to obtain a minimum average weld shear strength of 1300 newtons with no value less than 1000 newtons.



HILFIKER RETAINING WALLS

Welded Wire Wall • Eureka Reinforced Soil
Gabion Faced M.S.E. • Reinforced Soil Embankment
ArtWeld Gabions • Spiralnail • Steepened Slope • Trinity Wall

Fabricate revet baskets in the dimensions required with a dimension tolerance of ± 5 percent in length and width and ± 10 percent in height. Where the length of the basket exceeds 0.5 times its width, equally divide the basket into cells less than or equal to 0.5 times the basket width using diaphragms of the same type and size mesh as the mattress panels. Prefabricate each basket with the necessary panels and diaphragms secured so they rotate into place

2.4.1 Welded Wire Mesh for Galvanized-Coated Baskets

Weld each connection to obtain minimum average weld shear strength of 2,600 newtons with no value less than 2000 newtons. Fabricate gabion baskets in the dimensions required with a dimension tolerance of ± 5 percent. Where the length of the basket exceeds 1.5 times its width, equally divide the basket into cells less than or equal to the basket width using diaphragms of the same type and size mesh as the basket panels. Prefabricate each basket with the necessary panels and diaphragms secured so they rotate into place.

3.0 SELECT GRANULAR BACKFILL MATERIALS

As shown on the plans, select granular backfill materials for the **Gabion Faced** wall structure shall be reasonably free from organic and otherwise deleterious materials and shall conform to the following gradation limits as determined by ASTM D-422:

Sieve Designation	Percent by Weight Passing Standard Sieves (AASHTO T 27 & T 11)
6 inches (152.4 mm)	100
3 inches (76.2 mm)	100 - 75
No. 200 (75 μ m)	0 - 15

The backfill shall conform to all of the following additional requirements:

- A. The Plasticity Index (P.I.), as determined by ASTM D-4318 (AASHTO T 90), shall not exceed 6.
- B. The fraction finer than 15 microns (0.015 mm), as determined by ASTM D-422 (AASHTO T-88) shall not exceed 15 percent.
- C. The material shall exhibit an angle of internal friction of not less than 34 degrees, as determined by the standard direct shear test ASTM D-3080-72 (AASHTO T-236), utilizing a sample of the material compacted to 90% percent of ASTM D-1557-92. No testing is required for backfill where 80 percent of the material is greater than $\frac{3}{4}$ inch (19mm). Before construction begins, the borrow selected shall be subject to show conformance with this frictional requirement.

In addition, backfill materials shall also meet the following corrosion requirements:

Resistivity	≥ 3000 OHM-cm (min)	AASHTO T 288
pH	5.0 to 10.0, inclusive	AASHTO T 289
Chlorides	≤ 100 mg/kg (ppm)	AASHTO T 291
Sulfates	≤ 200 mg/kg (ppm)	AASHTO T 290
Organic Content	<1%	AASHTO T267-86

3.1 Acceptance of Material

The Contractor shall furnish to the Owner's Engineer a Certificate of Compliance certifying that the select granular backfill material complies with this section of the specifications. A copy of all test results performed





HILFIKER RETAINING WALLS

*Welded Wire Wall • Eureka Reinforced Soil
Gabion Faced M.S.E. • Reinforced Soil Embankment
ArtWeld Gabions • Spiralnail • Steepened Slope • Trinity Wall*

by the Contractor, which are necessary to assure compliance with the specifications, shall also be furnished to the Owner's Engineer and the MSE supplier.

The frequency of sampling of Select Granular Backfill necessary to assure the above-mentioned requirements shall be directed by the Owner's Engineer.

Backfill not conforming to this specification shall not be used without written consent of the Engineer.

3.2 Free Draining, Permeable Backfill

If the M. S. E. will be subject to water inundation, the following permeable, free-draining backfill material shall be used:

Sieve Designation	Percent by Weight Passing Standard Sieves (AASHTO T 11 and T 27)
6" (76 mm)	100
3/4" (19 mm)	50 - 90
No. 4 (4.75 mm)	20 - 50
No. 200 (75 µm)	0 - 2

• End of Section •

