

9-27 CRIBBING**9-27.1 Vacant****9-27.2 Vacant****9-27.3 Gabion Cribbing****9-27.3(1) Gabion Fabric**

Gabions may be fabricated from either hexagonal twisted wire mesh or from welded wire mesh. Only one type of mesh and protective coating shall be used throughout a structure.

Baskets shall be furnished in the required dimensions with a dimensional tolerance of plus or minus 5 percent.

Wire for construction of gabions shall be either galvanized steel wire conforming to ASTM A 641, Class 3, Soft Temper, or aluminized steel wire conforming to ASTM A 809, Soft Temper. The wire shall have a minimum tensile strength of 60,000 psi when tested in accordance with ASTM A 370.

9-27.3(2) Gabion Baskets

Gabion baskets 1-foot or greater in the vertical dimension shall have mesh openings with nominal dimensions not to exceed 4½-inches and the maximum area of any mesh opening shall not exceed 10 square inches.

1. Hexagon Twisted Wire Mesh
 - a. Wire for galvanized or aluminized hexagonal twisted wire mesh shall be nominal sized 0.120-inch galvanized steel wire or aluminized steel wire.
 - b. Hexagonal wire mesh be formed from galvanized or aluminized wire in a uniform hexagonal pattern with nonraveling double twist. The perimeter edges of the mesh for each panel shall be tied to a selvage wire of the same composition as the body mesh and have a minimum diameter of 0.150-inch so that the selvage is at least the same strength as the body of the mesh.
2. Welded Wire Mesh
 - a. Welded wire mesh shall be fabricated from galvanized steel wire having a diameter of 0.106-inch. Wire shall be galvanized prior to fabrication.
 - b. Welded wire mesh shall be formed in a uniform square pattern with openings 3-inches by 3-inches with a resistance weld at each connection in accordance with ASTM A 185.
 - c. If required, a PVC coating shall be fusion bonded onto the welded wire mesh to provide a nominal coating thickness of 0.0216-inch per side with a minimum of 0.0150-inch.
3. PVC Coating (for welded wire mesh only)

Acceptance of PVC coating material shall be by certified test reports of an independent laboratory. The initial properties of PVC coating material shall have a demonstrated ability to conform to the following requirements:

 - a. Specific Gravity — In the range of 1.2 to 1.4, when tested according to ASTM D 792.
 - b. Tensile Strength — Not less than 2,275 psi, when tested according to ASTM D 638.

- c. Modulus of Elasticity — Not less than 1,980 psi at 100 Strain, when testing according to ASTM D 638.
- d. Hardness — Shore “A” not less than 75 when tested according to ASTM D 2240.
- e. Brittleness Temperature — Not higher than 15°F when tested according to ASTM D 746.
- f. Resistance to Abrasion — The percentage of the mass loss shall be less than 12 percent when tested according to ASTM D 1242, Method B at 200 cycles, CSI-A Abrader Tape, 80 Grit.
- g. Salt Spray Exposure and Ultraviolet Light Exposure – The PVC shall show no effect after 3,000 hours of salt spray exposure according to ASTM B 117. The PVC shall show no effect of exposure to ultraviolet light with test exposure of 3,000 hours using apparatus Type E and 63°C, when tested according to Practice D 1499 and Practice G 23. After the salt spray test and exposure to ultraviolet light as specified above, the PVC coating shall not show cracks, blister, split, nor show a noticeable change of color. In addition, the specific gravity, tensile strength, modulus of elasticity, and resistance to abrasion shall not change more than 6, 25, 25, and 10 percent respectively from their initial values.

9-27.3(3) Gabion Mattresses

Gabion baskets less than 1-foot in the vertical dimension shall have mesh openings with nominal dimensions not to exceed 3.3-inches, and the maximum area of any mesh opening shall not exceed 6 square inches.

1. Hexagonal Twisted Wire Mesh
 - a. Wire for galvanized or aluminized hexagonal twisted wire mesh shall be nominal sized 0.086-inch galvanized steel wire or aluminized steel wire.
 - b. Hexagonal wire mesh shall be formed from galvanized or aluminized wire in a uniform hexagonal pattern with nonraveling double twisted. The perimeter edges of the mesh for each panel shall be tied to a selvage wire of the same composition as the body mesh and have a minimum diameter of 0.1062-inch so that the selvage is at least the same strength as the body of the mesh.
2. Welded Wire Mesh
 - a. Welded wire mesh shall be fabricated from galvanized steel wire having a diameter of 0.080-inch. Wire shall be galvanized prior to fabrication.
 - b. Welded wire mesh shall be formed in a uniform rectangular pattern with openings 1½-inches by 3-inches with a resistance weld at each connection in accordance with ASTM A 185.
 - c. If required, a PVC coating shall be fusion bonded onto the welded wire mesh to provide a nominal coating thickness of 0.0216-inch per side with a minimum of 0.0150-inch. The PVC coating shall be in conformance with Section 9-27.3(2).

9-27.3(4) Fasteners for Basket Assembly

The lacing wire shall be a nominal sized 0.0866-inch galvanized steel wire or aluminized steel wire. Lacing wire shall have the same coating as the basket mesh.

Spiral binders, if used for joining welded wire panels shall be formed from 0.106-inch nominal diameter steel wire with a 3-inch pitch having the same Specifications and coating as the wire mesh. Lacing wire may be used in lieu of spiral binders.

Alternate fasteners for basket assembly shall remain closed when subjected to a 600 pound tensile force when confining the maximum number of wires to be confined. Installation procedures and test results for alternate fasteners shall be submitted for approval.

Internal connecting wires shall be the same as required for lacing wire. Alternate stiffeners acceptable to the gabion manufacturer may be used.

9-27.3(5) Nonraveling Construction

The wire mesh shall be fabricated in a manner to be nonraveling. This is defined as the ability to resist pulling apart at any of the connections forming the mesh when a single strand in a section of mesh is cut.

9-27.3(6) Stone

Stone for filling gabions shall have a Degradation Factor of at least 30. The stone shall be dense enough to pass the unit weight test described in Section 8-24.3(3)F. Stone shall meet the following requirements for gradation:

Sieve Size	Percent Passing
8" square	100
6" square	75-90
4" square	0-10
% Fracture	75 min.

All percentages are by weight.