

Welded Wire Mesh Gabions and Gabion Mattresses Installation Guide

LANE Gabions and Mattresses are factory cut from plain and PVC coated galvanized welded wire mesh. The components are fastened together at our factory with binders, then folded and shipped flat to the job site. No flattening, bending or folding is required in the field. The sides and diaphragms are raised and connected with temporary fasteners. The baskets are then ready to be placed on a prepared foundation. Once the first course is in place, all gabions are permanently secured with “corkscrew” spiral binders the full height of all corners to hold them in place. Next, preformed stiffeners are installed (3' baskets only) and filling can begin. Typically, a 3'x3'x6' gabion takes less than five minutes to assemble and is ready for fill.

The strength of welded wire mesh offers many advantages. It allows machine filling. It is easy to hold the alignment of the face. Also, if a gabion must be cut to fit site conditions, the wire can be cut with bolt cutters without losing structural strength.

NOTE: Installation practices must always comply with local, state and federal codes and safety regulations. The information in this guide is not intended to be used as a direct specification. It is a practical field guide for use in conjunction with competent engineering advice as to its suitability for any specific application.

1

Wall Parts

Figure 1

LANE GABION OR MATTRESS
(SHIPPED FLAT)

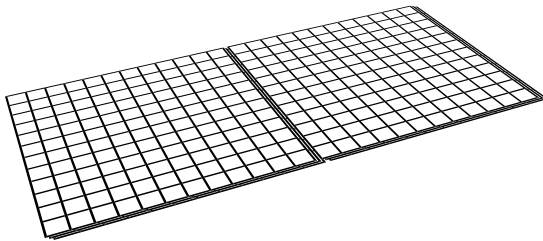


Figure 2

SPIRAL BINDER

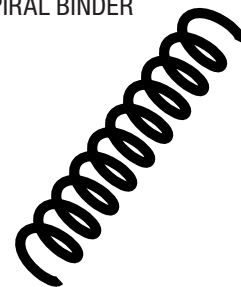


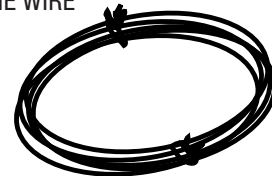
Figure 3

PREFORMED STIFFENER
(3' BASKETS ONLY)



Figure 4

TIE WIRE



2

On-site Assembly Instructions

TOOLS NEEDED: Wire cutting pliers and bolt cutters (light duty).

1. Prepare the foundation by excavation or stripping, if required, or on fill compacted to 95%. The foundation must be reasonably level and capable of supporting imposed loads.
2. Open the gabion out. *See Figure 5.*
3. Stand the sides up and join the edges with temporary fasteners. *See Figure 6.*
4. Raise and attach the diaphragms at 3' intervals with temporary fasteners. *See Figure 6.* The mattress-shaped gabion is similar to the gabion shown in *Figure 6* except that the lid is not factory-attached.
5. Gabions may be field cut to fit curves, culverts or changes in the plans. Reconnect the ends of the boxes the same way you would assemble a standard gabion. *See Figure 7.*
6. Place the first course of gabions on the foundation. Permanently bind the gabions together as shown for the full height of all corners and diaphragms. Crimp ends of all spiral binders. *See Figure 8.*

NOTE: This guide shows assembly with temporary fasteners and spiral binders because it is faster. You may use the wire and half-hitch lacing for all connections if desired. Temporary fasteners are not permanent connections and must be followed by spiral binders or tie wire.

Figure 5

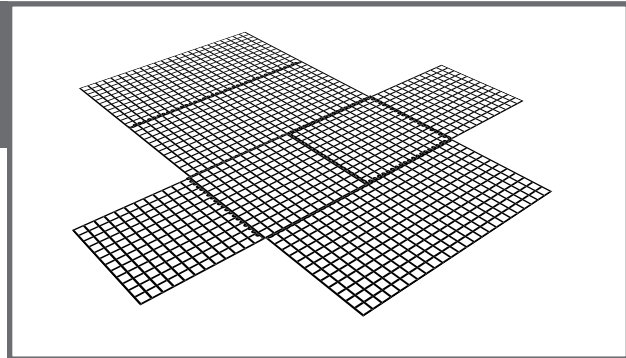


Figure 6

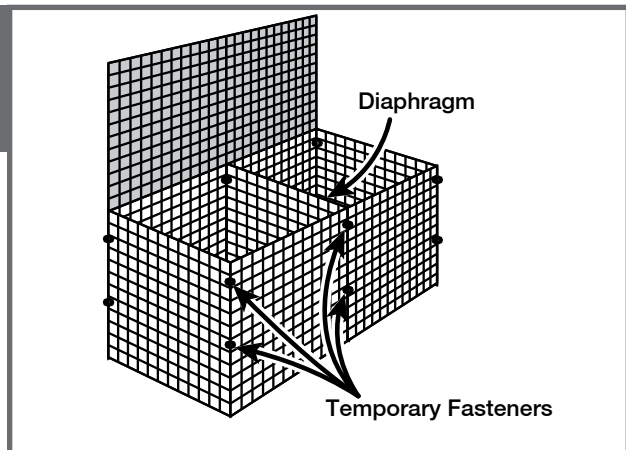


Figure 7

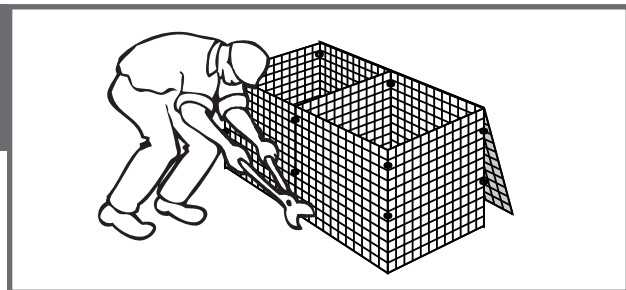
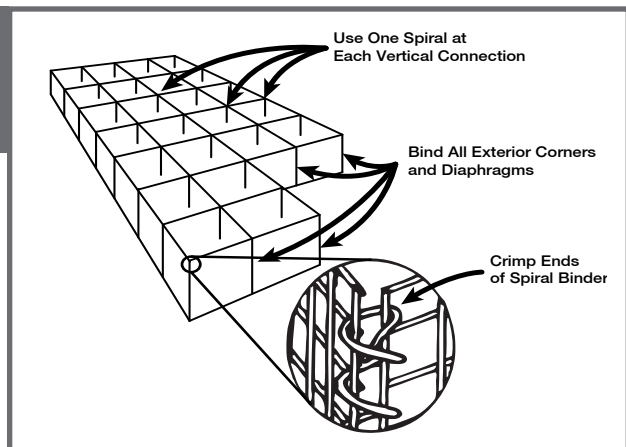


Figure 8



3 Filling

IMPORTANT FILL RECOMMENDATIONS:

Placement and filling of gabions should be done according to job specifications, following sound engineering and construction requirements. Use only stone approved by the project engineer, of the authorized size range and placed in a logical manner for the specific site conditions. There should be no void present that is larger than the smallest size stone being used. It is recommended that the fill in a cell never be more than 12" higher than the fill in an adjoining cell. See Figure 9.

NOTE: Per ASTM D6711 (Standard Practice for Specifying Rock to Fill Gabions, Revet Mattresses, and Gabion Mattresses): Sizes of rock are chosen on the basis of mesh sizes, the structure's thickness, and the limits shown in Section 7.4. In general, the rock shall be large enough to prevent individual pieces from passing through the mesh openings (rock sizes of 3"-5" when the gabion thickness is 9" or less 4"-8" otherwise). Rock fragments are angular to round, durable and not subject to weathering or eroding. The standard contains percentage provisions for undersized, oversized or both.

- Check your alignment before you begin to fill. Install lower preformed stiffeners across the corners of the gabion before filling the first 12" layer. Two rows of stiffeners (4 per cell) are required on the front face. Install a single row (2 per cell) on the back face at the mid-point of the basket. No stiffeners are required in the interior cells. See Figure 10.
- Be sure the stiffeners are hooked at **crossing wires**. Crimp both ends of the stiffeners closed. See Figure 11.
- Continue filling the gabions and connecting stiffeners by 12" lifts until the gabions are filled.
- Overfill the gabion slightly over the top to allow for future settlement. See Figure 12.

Figure 9

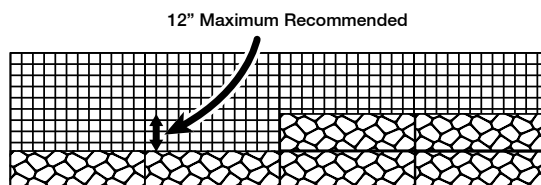


Figure 10

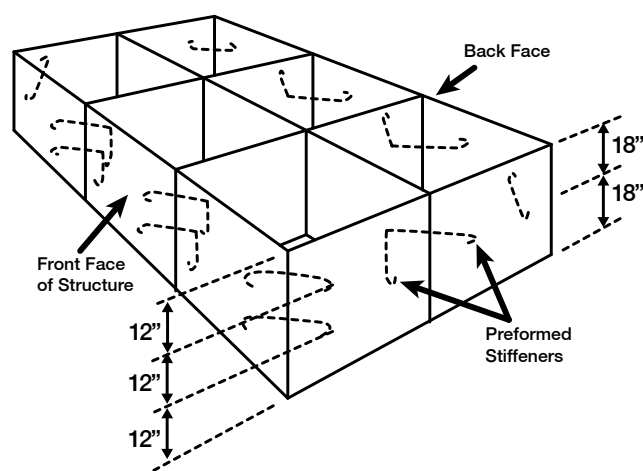


Figure 11

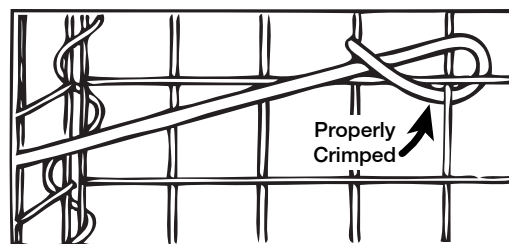
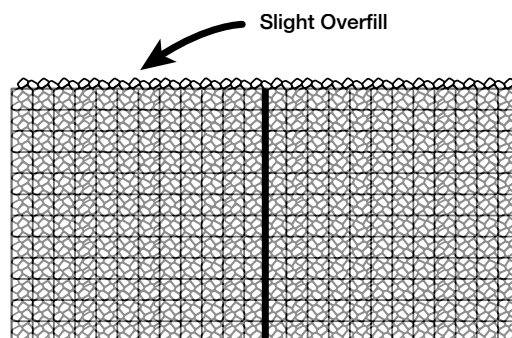


Figure 12



11. Lower the lids on the gabions. Bind them along all edges and at the diaphragms using tie wire as described in step 14. *See Figure 13.*
12. Place the next course of empty gabions on top of the filled ones. Courses are usually staggered so the vertical sides do not coincide. Using tie wire, bind the empty gabions to the filled ones at all the external bottom edges. *See Figure 14.*
13. Bind the vertical edges together as in step 6. Repeat steps 7 through 12 to the top of the gabion structure.

Figure 13

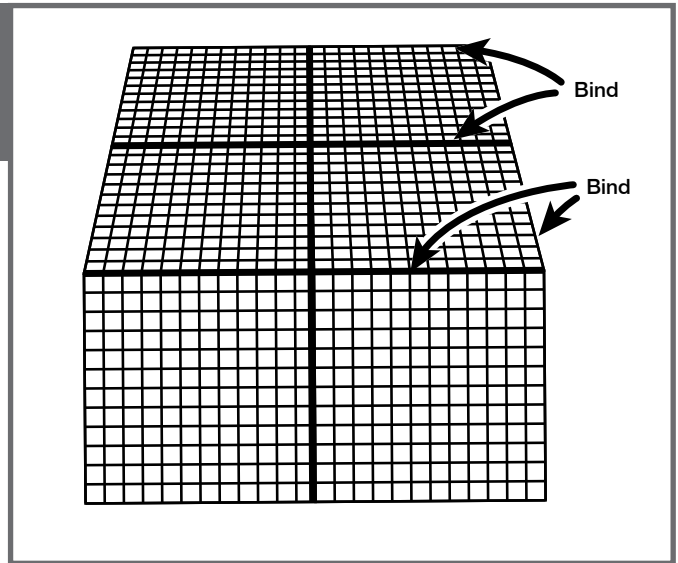
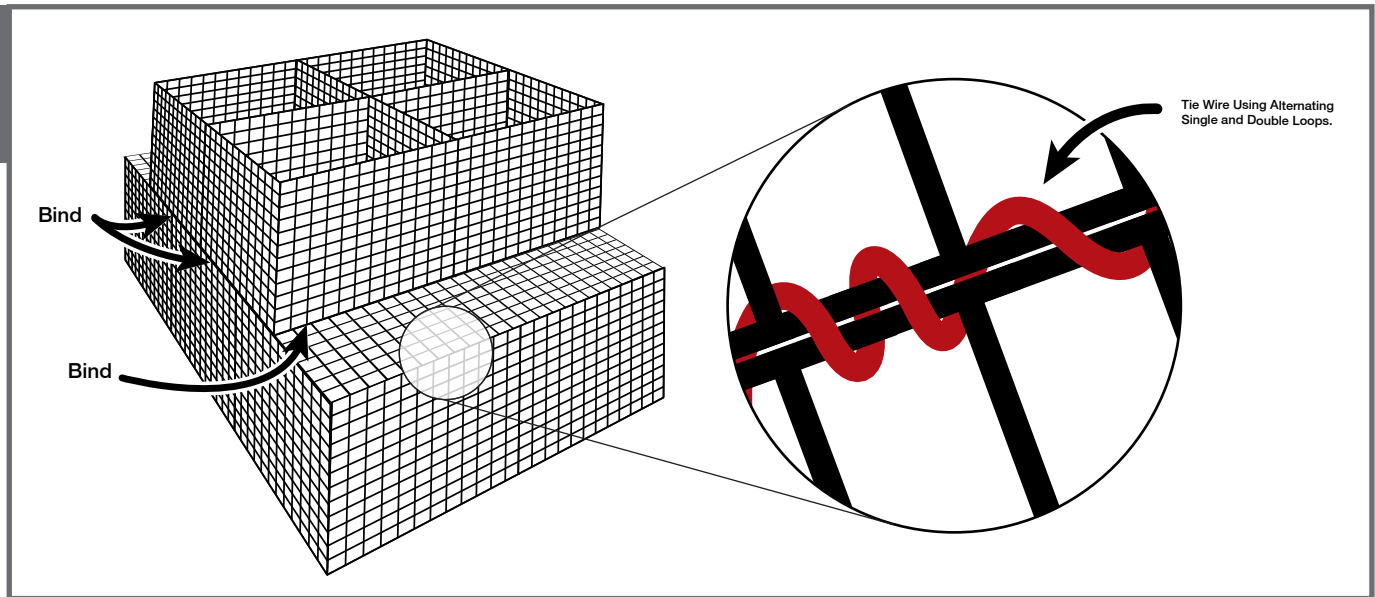


Figure 14



14. To bind adjacent panels, lace with tie wire using **alternating single and double loops** with spacing not to exceed 6". Secure ends with two complete revolutions and finish with a one-half hitch. *See call-out in Figure 14.*

As an added measure to help prevent bulging, additional stiffeners can be created from lacing tie wire by making a loop which could be wound with a rod or flat rock to a desired tension prior to being locked in place by gabion fill.

