



# INSTALLATION GUIDELINE

## **ALVEODRAIN®** geocomposite

Vertical drainage system for foundation walls, permanent formwork and tunnels

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#### **General Description**

ALVEODRAIN<sup>®</sup> geocomposite consists of a dimpled polypropylene geotextile drainage layer associated on one side with a thermally bonded non-woven polypropylene filter layer.

It provides a vertical drainage of foundations, buried walls, abutments, tunnels. ALVEODRAIN<sup>®</sup> is also used as permanent external left in place formwork. The concrete is then poured directly on the dimpled geotextile drainage layer. The specific texture of the dimpled geotextile facilitates the use of shotcrete on the product.

#### **1** HANDLIND AND STORAGE

Rolls of ALVEODRAIN<sup>®</sup> geocomposite shall be shipped to the job site in a manner that will not cause damage to the rolls. The rolls shall be stored flat on a smooth surface (no wooden pallets) away from dirt, mud and excessive heat. For more detailed handling and storage information, please refer to ASTM D4873. The contractor shall handle the rolls so that they are not damaged in any way.

#### 2 ALVEODRAIN<sup>®</sup> DESCRIPTION

ALVEODRAIN<sup>®</sup> geocomposite is supplied on rolls 1.10 m (3.6 ft.) wide and 50 m (164 ft.) long (figures 1).



Figures 1: ALVEODRAIN® structure



#### **3** FOUNDATION WALL DRAINAGE

#### 3.1 Preparation

ALVEODRAIN<sup>®</sup> is cut to the height to be drained plus twice the diameter of the collector pipe used at the base of the construction. On top of the product, the dimpled geotextile will be peeled on 50 mm (2 in.) and cut. The filter will be folded back to avoid clogging of the drainage structure (figures 2 & 3).



Figure 2: Geotextile filter flap



Figure 3: ALVEODRAIN<sup>®</sup> installation

#### 3.2 Installation

Depending on the use and site conditions, the contractor chooses the direction in which the ALVEODRAIN<sup>®</sup> is laid. For ease of installation and access, the geocomposite can be laid in horizontal strips. ALVEODRAIN<sup>®</sup> will then be fixed by nails or glue every 1.10 m (3.6 ft.) which is the height of the product.

When installing ALVEODRAIN<sup>®</sup> horizontally or vertically, the filter edge of the adjacent panel must overlap the next panel by 100 mm to ensure continuity of the filtration function when two strips are installed.



ALVEODRAIN<sup>®</sup> can be fixed mechanically or by gluing. It is installed with the dimpled geotextile drainage layer in contact with the wall.



Mechanical fastener head is achieved using concrete nails as described on figures 4.

Figures 4: Mechanical fixation

ALVEODRAIN<sup>®</sup> can also be glued. The glue is then applied to the wall using a glue gun:

- On top, a strip of 100 mm (4 in.),
- At the bottom, just above the collector pipe,
- For height greater than 3 m (10 ft.), apply a seam of glue approximately every 2 m (6 ft.),

Support must be dry and clean. For better adhesion, wait several minutes before applying the ALVEODRAIN<sup>®</sup> (figures 5).



Figures 5: Adhesive fixation



#### **3.3** *Connection to the collector pipe*

ALVEODRAIN<sup>®</sup> is connected to the collector pipe without the need of granular material (figure 6):

- Peel off the filter from the drainage core,
- Insert the collector pipe,
- Fold the filter back over the collector pipe.



Figure 6: Connection to the collector pipe

#### 3.4 Backfilling

The backfill must be made in compact layers of 600 mm (2 ft) maximum, without significant settlements. In addition, in case of adhesive fixing, backfilling must be done no earlier than 12 hours after application of the product. For mechanical fastening, backfilling can be done immediately.

#### **4 PERMANENT FORMWORK APPLICATION**

#### 4.1 Preparation

ALVEODRAIN<sup>®</sup> is prepared the same way as for foundation wall drainage (see paragraph 3.1).

#### 4.2 Installation

The geocomposite is installed with the geotextile filtration layer in contact with the soil. The overlaps between geocomposite panels are at least 100 mm (4 in.) wide of the dimpled geotextile drainage layer (Figure 7)





Figure 7: Overlap between geocomposite panels

The geocomposite is secured with nails or rods every meter (one every 3 ft.) as shown on figures 8.



Figures 8: Installation of the panels horizontally or vertically

The reinforcing wire mesh is then installed on the product (figure 9). Always place a collector pipe at the base of the construction to collect and evacuate the water drained by the product.



Figure 9: Reinforcing wire mesh installation



#### 4.3 Concrete work

The concrete can be poured or shot directly against the ALVÉODRAIN<sup>®</sup> (figure 10).



Figures 10: Shotcrete

The specific texture of the dimpled geotextile drainage layer increases the contact between the shotcrete and the product (figures 11).



Figures 11: ALVEODRAIN<sup>®</sup> / concrete contact

#### **5** TUNNEL APPLICATION

#### 5.1 Preparation

ALVEODRAIN<sup>®</sup> is prepared the same way as for foundation wall drainage (see paragraph 3.1).

#### 5.2 Full surface installation

The installation of ALVEODRAIN<sup>®</sup> on a full surface is similar to the application in permanent formwork (see paragraph 4.2). The flexibility of the geocomposite allows it to adapt to very irregular surfaces (figure 12).





Figure 12: Full surface installation

Any waterproofing geomembrane is installed directly on the geocomposite. ALVEODRAIN<sup>®</sup> provides mechanical protection of the geomembrane.

The concrete work on the geocomposite is similar to the permanent formwork application (see paragraph 4.3).

#### 5.1 Installation in stips

The geocomposite is installed with the filtration geotextile layer in contact with the wall. Any overlaps between geocomposite panels are at least 100 mm (4 in.) wide of the dimpled geotextile drainage layer.

The mechanical fastening at the head and on the eventual overlaps between the strips is achieved with nails or screws depending on the type of support. The maximum distance between mechanical fasteners is 600 mm (2 ft.). Additional fasteners may be used depending on the substrate to ensure a good contact of the geocomposite with the wall.

Connections of the strips of ALVEODRAIN<sup>®</sup> to the outlet drain can be achieve using the SOLDRAIN 4000 geocomposite, placed horizontally at the foot of the wall. The height of the SOLDRAIN 4000 geocomposite is 300 mm (1 ft.). It is placed between the wall and the ALVEODRAIN<sup>®</sup> (figure 13), with the top of the dimples facing outwards. The entire system is held in place by mechanical fasteners.





Figures 13: ALVEODRAIN® and SOLDRAIN 4000

Pipe outlets or other equivalent systems will be installed regularly on the strips of ALVEODRAIN<sup>®</sup> (figure 14).



Figure 14: Pipe outlets

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The concrete work on the geocomposite is similar to the permanent formwork application (see paragraph 4.3).



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