MACDRAIN® W, M and N
GEOCOMPOSITE FOR STRUCTURAL / GROUND DRAINAGE

Maccaferri Drainage Composites **MacDrain®** can be used in a range of applications for structural and ground drainage. This leaflet provides general guidelines for the successful installation of the **MacDrain®** range of drainage composites.

1. Fixing the drainage composite to structures

The drainage composite must be held in position while backfilling is in progress. Any of the following methods can be used:

- Nailing (see Accessories) through wooden battens is probably the easiest method of fixing onto concrete (strength >40 N/mm^2). Care must be taken to avoid striking the reinforcement.
- Where direct nailing is not suitable or recommended, fixings (see Accessories) can be driven into pre-drilled holes.
- Scaffold poles can be temporarily suspended horizontally from the top of the structure.

2. Backfilling procedure

Because the filtering characteristics of the filtering geotextiles are pre-determined and factory-controlled, backfill can be selected from a wide range of materials. In all cases, the fill material must not form a barrier by becoming less permeable than the soil being drained.

- Place pipe-surround material.
- Backfill with suitable excavated, or other material. Ensure there are no voids between the side of the trench and the drainage composite which would result in uneven stress.

Precautions

Care must be taken to ensure that large stones/objects are not present which would damage the geotextile surface.

To avoid scuffing by the wheel rims of compaction equipment, the drainage composite can be temporarily protected by scaffold boards or similar.

3. Horizontal Applications

The selection of **MacDrain®** Drainage Composite can be critical in this situation. The potential flow through the drainage composite can be effected by blockages or undulations within its plane. Therefore:

- Once unrolled, it is recommended to temporarily secure adjacent rolls with sand bags, bricks or any other ballast, before covering with soil;
- The drainage composite must be laid without lumps or undulations to prevent “ponding” of water in use;
- All jointing needs to be carefully implemented;
- Ensure there is adequate fall on the geocomposite to ensure water flow;
- Sufficient drainage outlets must be provided at frequent intervals to suit the expected water throughput;
- Select the Maccaferri Drainage Composite which has the appropriate capacity and flow rate.

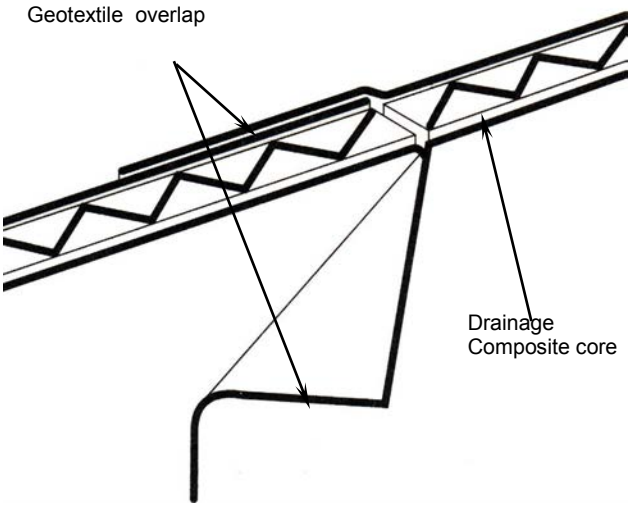
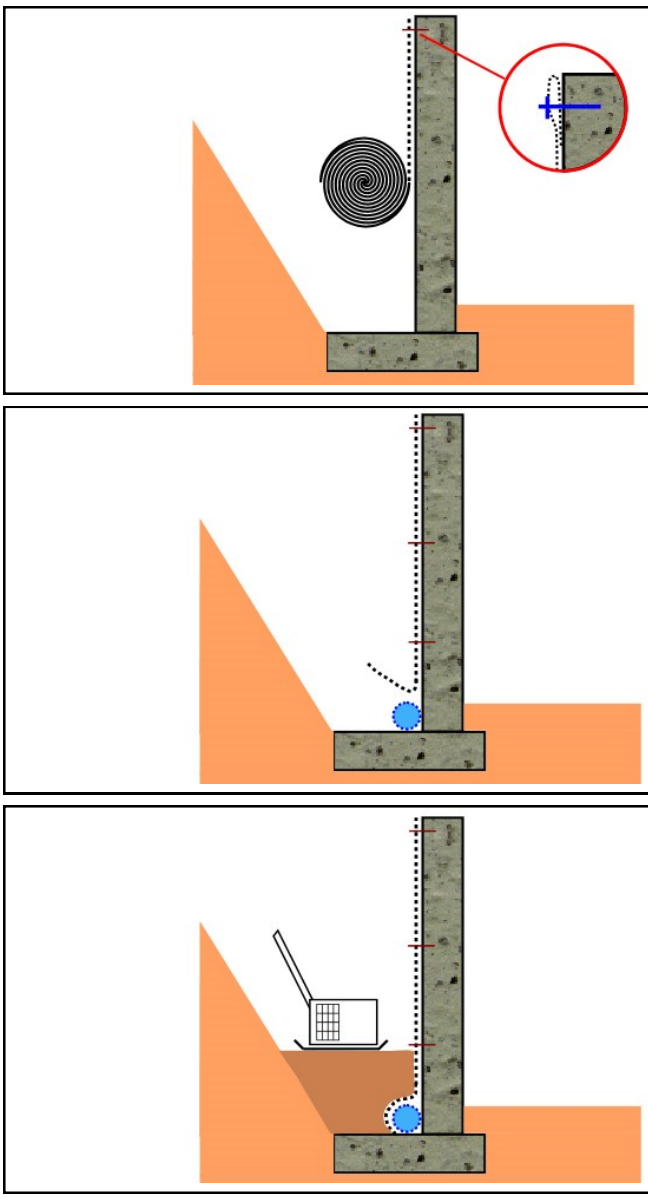


Figure 1



Installation sequence; Vertical drainage

General Guidance

1. Orientation of the Drainage Composite

The flow characteristics are generally similar in length and width direction. Refer to the specific product Technical Data Sheet for performance characteristics prior to installation.

2. Cutting

The drainage composite is easy to cut with a sharp knife (e.g. Stanley or similar). Some drainage composites can be carefully cut in their rolled form ("log" fashion) with a hand saw, with appropriate blade.

3. Jointing

All **MacDrain®** Drainage Composites are provided with overlap edges of the filter geotextile to facilitate butt-jointing (see figure 1 and figure 2).

Stapling provides positive fixing, but tape will perform adequately in dry weather conditions. N.B. Due to the frequency of jointing, it is difficult to provide a totally impermeable surface when using Drainage Composites with an impermeable sheet on one side.

A jointing method for "impermeable" type **MacDrain W 1XXM** is illustrated in figure 2. Well formed and enclosed butt-joints are considered essential where flow continuity is required.

4 Edge sealing

Should edge sealing be required, the alternatives available are:

- Peel back the filter from the edge, by 75 mm (approx.). Cut away the exposed core and use the exposed filter fabric to tuck over and seal the open end of the core.
- Utilize the overlap along the long-edge of the Drainage Composite, by tucking it over and sealing the open side of the core.

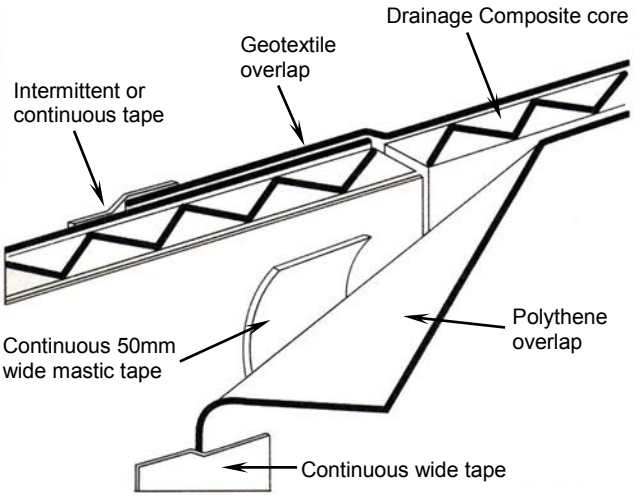
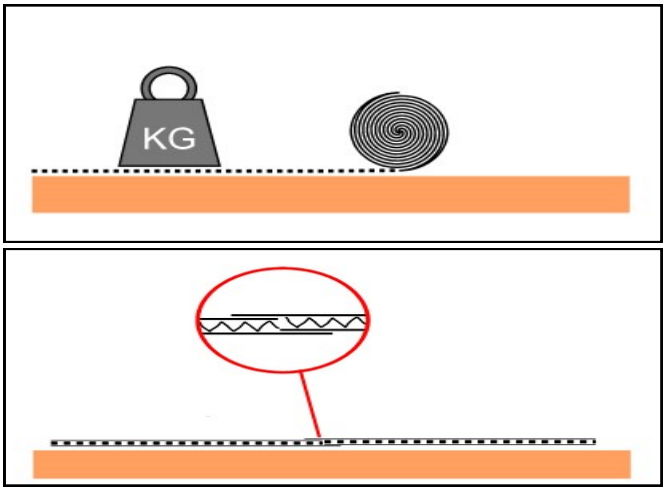


Figure 2



Installation sequence; Horizontal drainage

Recommended Accessories

Nails: Typical specification: Hilti NK 27 S2 nail with 36mm washer (or similar) installed with appropriate cartridge tool.

Fixings: Typical specification: Hilti IDP 0/2 "through fastening" (or similar) into predrilled holes.

Staplers: An appropriate stapling device is the Rosetto Carbon Stapler model DWS 27 (or similar).

Tape: To fix geotextile-to-geotextile, geotextile-to-polythene, or polythene-to-polythene, use discrete spots/ strips:

- Scapatape 0310 adhesive strip (or similar) 2 mm x 12 mm

To produce waterproof joints:

- Standard Denso Tape (or similar)

To tape polythene to polythene:

- Scapatape, heavy duty polythene tape 1408 (or similar)

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