Installation Guide: Roofdrain

General Advice

These instructions should be read in conjunction with the contract specification and drawings. They are intended to provide guidance in normal installation situations and are addressed to the installer on site. If there are any questions related to the design, unusual installation challenges, or any doubt, consult ABG for further advice. In all situations, responsibility for installation remains with the Installer.

Description

ABG Roofdrain is a geocomposite roof drainage and water reservoir layer. It's always laid with the cup shapes facing upwards to collect water, enabling water storage for hydration of plants. To achieve this, the **Roofdrain** must be turned over after un-rolling. The void on the underside between the cusps, transmits excess rainwater away. Its main application is in a lightweight, extensive flat roof construction. (**Fig. 1**).

Roofdrain is available in four formats (**Fig. 2**):

1) **SS**. Sheet form comprising a perforated cuspated HDPE core with a lightweight filter geotextile bonded to the flat side and with a second (usually heavier) geotextile bonded to the cuspated side of the core.

2) **T**. Sheet form comprising a perforated cuspated HDPE core with a lightweight filter geotextile bonded to the flat side.

3) **T**. Sheet form comprising a perforated cuspated HDPE core (usually 60mm thickness)

4) **W**. Narrow widths of perforated HDPE core fully wrapped in geotextile.

Supply

Roofdrain is supplied wrapped in UV light-proof wrap that should only be removed just before installation.

Roofdrain can be carried or rolled, but should not be dragged. Rolls should be harnessed when lifted by crane. Rolls are typically 1.3m in diameter x 0.9m wide & weigh approx. 75 kg. (**Fig. 3**).

Fig. 1: ABG Roofdrain roof drainage geocomposite, light filter geotextile on the flat side and heavier geotextile on the cuspated side of the core.

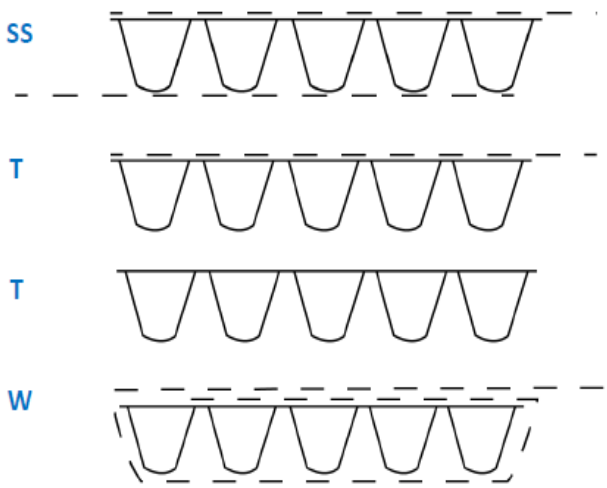

Fig. 2: Four different **ABG Roofdrain** formats available.

Fig. 3: ABG Roofdrain is supplied in a UV light-proof wrap, to be removed just before installation. Typically 1.3m in diameter x 0.9m wide.

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Equipment Required (Fig. 4)

- Safety knife
- Sand bags or fill material for ballasting
- Jointing tape
- **Terrex** geotextile strip

Fig. 4: Equipment Required.

Installation guidance

Step 1

Roofdrain is laid with the flat side facing up (with the holes in the core at the top), ready to receive the soil backfill. The cuspated side is laid against the roof's waterproofing. (**Fig. 5**).

In choosing the commencing point and direction of laying, consider the intended access point for placing backfill material to avoid any unnecessary need to traffic over the **Roofdrain**.

Fig. 5: Lay with geotextile filter & cuspate openings facing up.

Step 2

Roofdrain is supplied in strips of the appropriate width when used on standing seam metal roof systems and the strips are simply unrolled into position, cut to length and turned over. (**Fig. 6**).

Step 3

Roofdrain will unroll with the flat side facing down, so the rolls must be turned over before laying.

Step 4

Put the first toll of **Roofdrain** into position such that the geotextile flaps lap up onto a side wall. Rolls can be cut to length with a safety knife. The flap can be held in position with mastic or jointing tape.

Fig. 6: Manufactured to the appropriate width for use on standing seam metal roof systems.

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Step 5
The adjacent roll is placed such that the cores butt together. The geotextile flap overlaps the adjacent sheet.

Installation continues to the far wall where a **Terrex** 300-500mm wide geotextile strip is used to flap over the core and up to the wall. If necessary, the textile strip can be held in place temporarily with jointing tape. (**Fig. 7**).

Step 6
On gently sloping roofs, the **Roofdrain** must be a continuous length over the apex of the roof with equal lengths both sides, otherwise an anchorage must be provided at the apex of the roof. (**Fig. 8**).

Step 7
On steeply sloping roofs, a high strength geogrid such as **Trigrid** will be required above the **Roofdrain** to transmit the forces back to an anchorage point. (**Fig. 9**).

Step 8
When a **Roofdrain** with no 'upper' geotextile is used, large cups are filled with Leca or gravel before a non-woven geotextile is laid over the whole area.

Step 9
Sand bags or similar must be used as ballast to hold the **Roofdrain** in place in windy conditions.

Step 10
Roofdrain can be cut and sealed around columns and other roof slab penetrations. (**Fig. 10**).

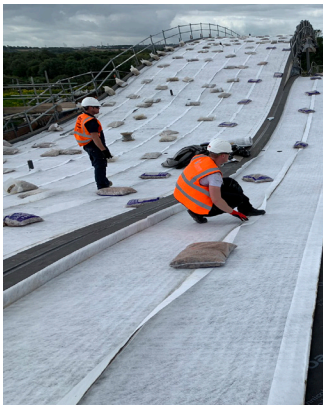

Fig. 7: Butt rolls together with overlap and lap geotextile flap up edges / walls.

Fig. 8: Roofdrain installed to gently sloping roof, anchored at the apex.

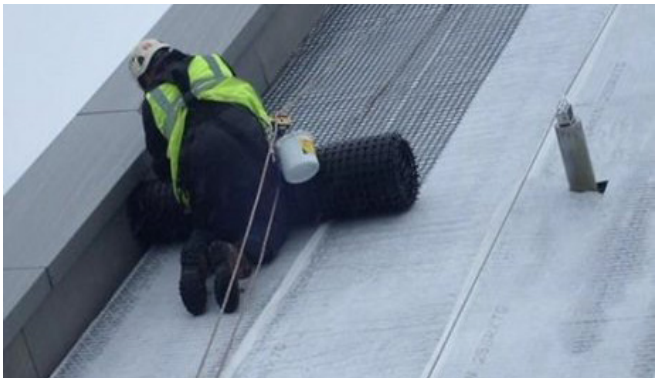

Fig. 9: Roofdrain installed to steep roofs (additional **Trigrid** layer shown for anchoring in place).

Fig. 10: Roofdrain cut around penetrations (e.g. vent chimney & roof light).

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Step 11
Non-load bearing walls and planters can be built off **Roofdrain** by providing a concrete pad that limits the compressive stress to 50 kPa. Otherwise, the cusps must first be filled with mortar. To do this the geotextile must be cut at one side, peeled back and mortar hand placed into the cusps, taking care that mortar does not fall through the holes in the core. Finally the geotextile is replaced and the wall construction can commence. (**Fig. 11**).

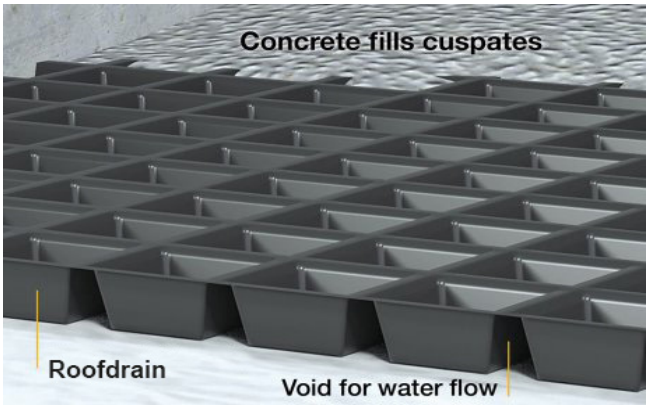

Fig. 11: Roofdrain can be filled with mortar for construction of non-load bearing walls and beneath planters.

Step 12
Before backfilling, inspect the installation to make sure that there are no gaps in the geotextile where soil can enter the core. Ensure that water can exit freely from the **Roofdrain** if the outlets are along the ends or sides. Backfill with good quality growing media for planted areas, or sand for feature paved pedestrian areas. **(Fig. 12).**

At least 150mm of temporary backfill material should be maintained over the **Roofdrain** where mechanical plant is working. Temporary access routes over **Roofdrain** for mechanical plant should be protected with boards.

Fig. 12: Backfill with growing media (planted areas) or sand (paved areas).

Step 13
On steeply sloping roofs, the growing media may require containment in a geocell such as **Erosaweb GWX**.

Step 14
If the **Roofdrain** geotextile cover is damaged, small areas can be repaired using a patch of similar textile at least 300mm larger than the damaged area. Damaged drainage core is cut out locally and a similar shaped replacement is inserted. (**Fig. 13**).

Fig. 13: Replacing a section of damaged core.

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Notes

1. Do not drive directly on the **Roofdrain**
2. Avoid prolonged time between laying **Roofdrain** and back-filling so as to reduce the risk of wind damage
3. Place growing media evenly
4. Interface sheer strength is key on very steep roofs. Seek technical advice
5. Collect all off-cuts and disperse safely
6. There are no known COSHH hazards associated with the installation of **Roofdrain**. Download MSDS @:https://abg-geosynthetics.com/wp-content/uploads/ABG_Roofdrain_April_2017_MSDS.pdf

Terms and Conditions

Site specific engineering design should be carried out after site investigation has provided all the necessary information. The assessment of suitable safety factors in relation to each particular project must always remain the responsibility of the design engineer.

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