

Deckdrain

A guide to the selection and specification of ABG Deckdrain high performance structural drainage geocomposite

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Deckdrain

Deckdrain is a high performance geocomposite drainage layer that replaces stone filter layers with distinct benefits. Deckdrain structural drainage systems have been specifically developed to provide high flow capacity and added protection to waterproofing.

Deckdrain consists of a high strength flexible polyethylene cusped core with a nonwoven geotextile bonded onto either one or both sides.

The polypropylene geotextile will filter a wide range of materials and is bonded to the core to ensure that it does not deform into the drainage passages under the action of backfill material. The geotextile allows water to percolate into the core whilst supporting the backfill material. The collected water is transported along the core to a discharge point.

The single cusped HDPE core acts as a high performance drainage medium, with the spacing between the dimples designed to ensure an excellent support for the geotextile filter. Optimum compressive strength and resistance to creep ensure that the core will maintain its drainage capability under a wide variety of compressive loadings. The unique core design has clear passageways to allow flow in all directions.

Deckdrain is durable and sufficiently robust to resist the mechanical stresses imposed during installation and throughout the design life. Use of Deckdrain will eliminate the need for further protection of the waterproofing membrane.



Applications

A strong, robust geocomposite layer designed to relieve external water pressure from buried structures. Drainage behind retaining walls, potable water reservoir roofs and walls, tunnels, roof gardens and block paving drainage. Relief of uplift pressure beneath tanks, slabs and culverts. Capillary break layer below base slabs. It can be applied horizontally on roofs and below base slabs or vertically against walls.

Advantages

Compared with the mineral drainage layers, Deckdrain geocomposites are much thinner while having superior flow capacity. This reduces dead load and the required thickness of the roof slab. The 4.4 metre wide Deckdrain composites are especially suited for rapid installation on large block paving or roof drainage projects. Deckdrain will enhance the performance of the structural waterproofing by providing an additional barrier that prevents the majority of the water reaching the liner. The high CBR puncture resistance of Deckdrain provides protection and prolongs the life of the waterproofing.

Benefits

- Low cost.
- Allows us of lower specification backfill materials.
- Reduced excavation and backfill.
- Technically defined filter properties and extremely high impact and crush strength.
- Long life performance and high flow capacity.

- Compatible with waterproofing systems. Provides protection layer to waterproofing membranes.
- Easy and quick to install.

Installation

Deckdrain is easy to handle and is rapidly installed without the need for specialist plant. The 4.4m wide rolls are ideal for coverage of large areas.

Deckdrain has a built in geotextile overlap.

Health, Safety and Environment

All components of deckdrain are inert and do not present a health hazard.

Chemical Resistance

Deckdrain has excellent resistance to petrol, oils, acid, alkalis, leachate and all common chemicals.

Supply

Deckdrain is available in 1.1 or 4.4 metre wide rolls, 50 or 100 metre in length. The cores are manufactured in 4mm, 6mm, 7mm, 12mm and 25mm thickness to accommodate even very high flows.



Structural Drainage Applications

Deckdrain geocomposite drainage layer is ideal for structural drainage applications. It will provide sub-surface drainage with higher performance and lower cost than conventional granular filters. Deckdrain has been specially designed to be compatible with structural waterproofing and to give the optimum performance over the whole life of the structure. Deckdrain will enhance the performance of the waterproofing systems by providing an additional barrier that prevents the majority of the water reaching the structure. Deckdrain geocomposite drainage system has a proven record in structural drainage. Deckdrain has a 120 year design life.

Buried Structures

Deckdrain installed on all external faces of a buried structure, will collect and drain percolated ground water from the backfill material. Deckdrain will form the basis of a very efficient drainage system. Installed with the flat face of the core



against the structure and dimpled face against the backfill, Deckdrain will also provide a high level of protection to the waterproofing system.

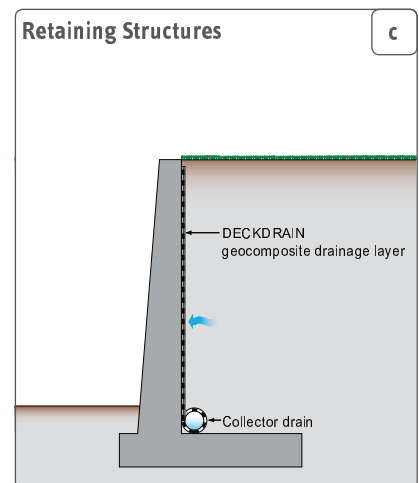
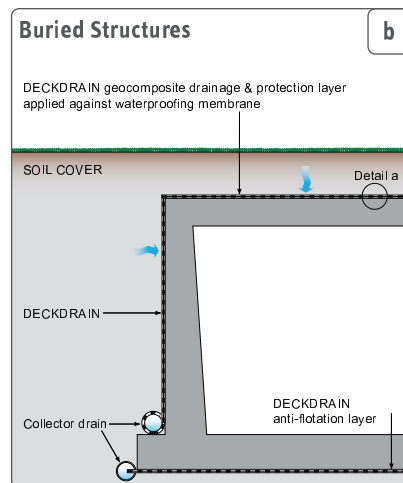
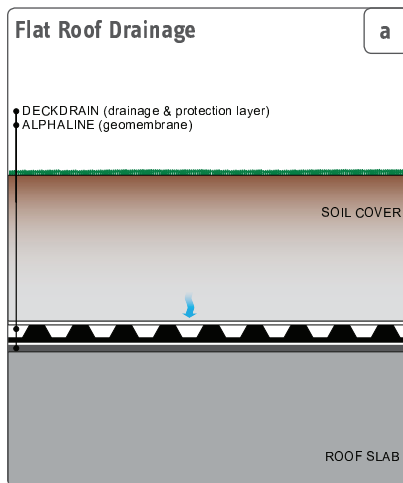
level of protection to the structure. Its drainage capacity is 10 to 50 times better than filter stone.

Applications

Potable water reservoirs, water/sewage treatment plants, pumping stations, basements and many other sub-surface applications. Deckdrain will resist the high loads of extremely deep basements and horizontal applications..

Retaining Structures

Deckdrain behind retaining structures will act as an efficient ground water drainage system. Installed with the flat face of the core against the structure and geotextile side against the backfill, Deckdrain will also provide a high



Block Paving Drainage

Deckdrain is a drainage composite with a specially developed structure and physical properties for use in block paving. It has hydraulic properties designed for reliable and sustainable performance. The mechanical resistance is sufficient to endure installation and long term loading. Its function is to collect and remove seepage water from the sand course below block paving.

The importance of removing this water and preventing saturation of the sand is especially critical where there is traffic loading and the foundation layer is relatively impermeable (e.g. concrete, asphalt, roof decks, etc.). For the sand course (30 - 50mm thick) to provide adequate support to the blocks it must be relatively dry (i.e. optimum moisture content). If the sand becomes almost totally saturated with seepage water, the traffic load will cause the sand to liquefy and pump up through the joints. This condition is easily identified on existing sites by surface staining and open joints. In severe cases the blocks will be loose and uneven.

The solution is to provide Deckdrain below the sand to prevent the sand

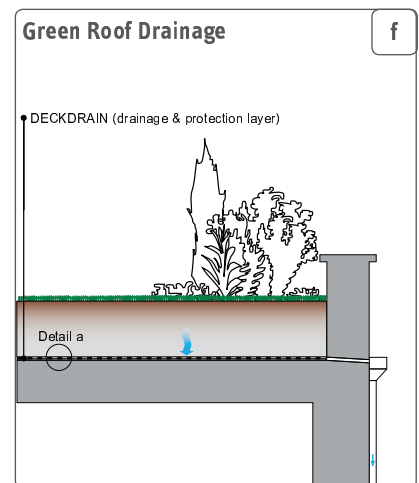
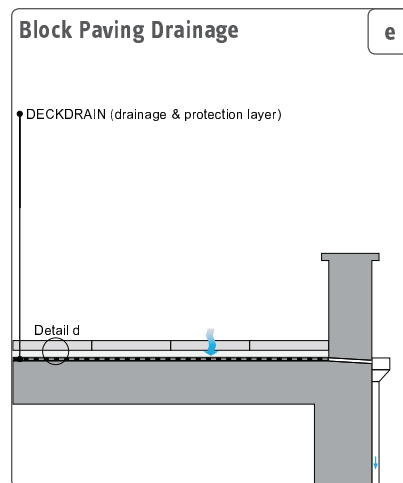
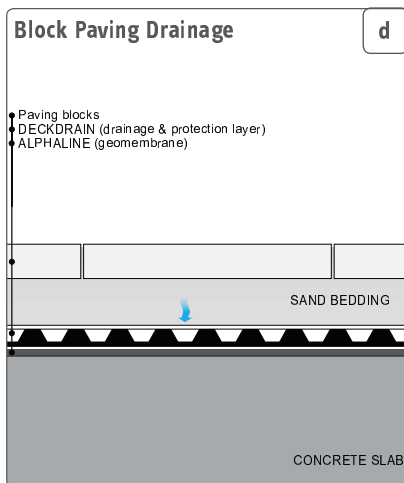


becoming saturated. Deckdrain also provides protection against puncture where a waterproofing membrane is required below the block paving (e.g. roof top car parks).

CBR puncture resistance of Deckdrain protects the waterproofing from backfilling forces and root penetration.

Green Roofs and Podium Decks

Deckdrain offers an effective and reliable drainage system for roof gardens of all sizes. A suitable depth of soil is placed directly onto the Deckdrain. The high



Special Applications

Finesse Deckdrain geocomposites are widely used in structural drainage. High flow capacity and puncture resistance ensure excellent drainage and protection.

Deckdrain provides a more environmentally acceptable solution than crushed stone drainage layers. It is lighter, uses less transport and helps conserve finite natural resources. Due to its high drainage properties Deckdrain often enables low grade recycled material to be used as backfill. The flat side of the Deckdrain core provides an excellent surface for the strong bond with shotcrete in tunnel lining or bored pile wall applications..

Lost Shuttering

Deckdrain as a lost shuttering is installed with the flat face of the core towards the concrete and dimples against the existing soil. Poured concrete fills the dimples and Deckdrain becomes an integral part of the new structure.

The Deckdrain performs as a ground water drainage system whilst providing



a high level of protection to the new structure.

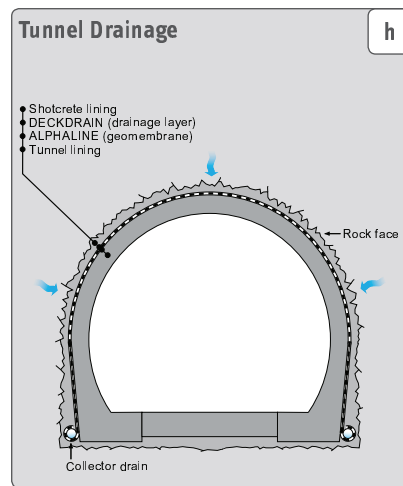
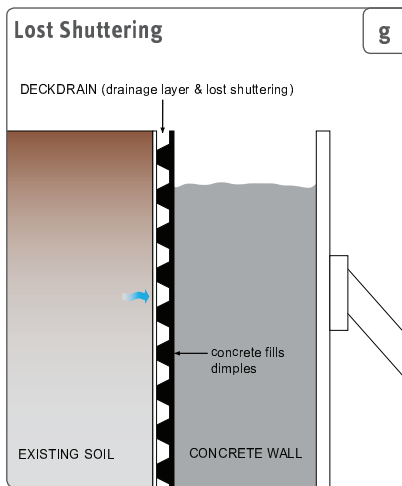
pipes at the base of the rock walls.

Playing Fields and Landscaping

Deckdrain is used conveniently to replace horizontal granular layers in sport turf drainage and landscaping applications. Deckdrain reduces excavation and backfill and provides efficient drainage and separation.

Tunnels

The use of Deckdrain in tunnel lining, provides an economic and effective drainage system. The geotextile side of the Deckdrain is installed against the shotcrete on the rock face and the flat side of the core against the tunnel lining. Deckdrain will collect and drain the seepage water to the perforated



Associated materials

ABG manufacture a complementary range of geosynthetic materials to help solve associated problems.

- Alphaline** Polyethylene and Polypropylene geomembranes
- Claymat** Geosynthetic Clay Liners
- Terrex** Geotextiles for filtration, separation and protection applications
- Cavidrain** Cavity drainage of basements to BS8102
- Gasflow** Methane gas venting from below floor slabs
- Webwall** Soil retaining walls

About ABG

ABG is a market leader in the design, development, manufacture and technical support of high performance geosynthetic systems for use in a wide range of civil engineering, highway, structures, environmental and building projects.

Formed in 1988, based in Meltham, in the heart of the Pennines, ABG have developed an excellent reputation for developing quality products and delivering outstanding service. The ability for rapid product development ensures that the most innovative, up to date and cost effective solution can be found for many engineering problems.

ABG's involvement in geocomposites goes back over twenty five years and we now have the most comprehensive range of products developed specifically for use in this sector. During this period ABG has supplied major projects in the UK and worldwide.

Technical support on ABG systems is provided by our trained and experienced staff, many of whom are Chartered Civil Engineers. This extensive support extends to full design, design validation, feasibility studies, cost advice and advice on meeting regulatory requirements.

Part of this technical support includes developing and driving knowledge within our active markets including working with both international and local regulatory bodies on developing guidance and best practice in the use of innovative geosynthetics to solve complex engineering issues.

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