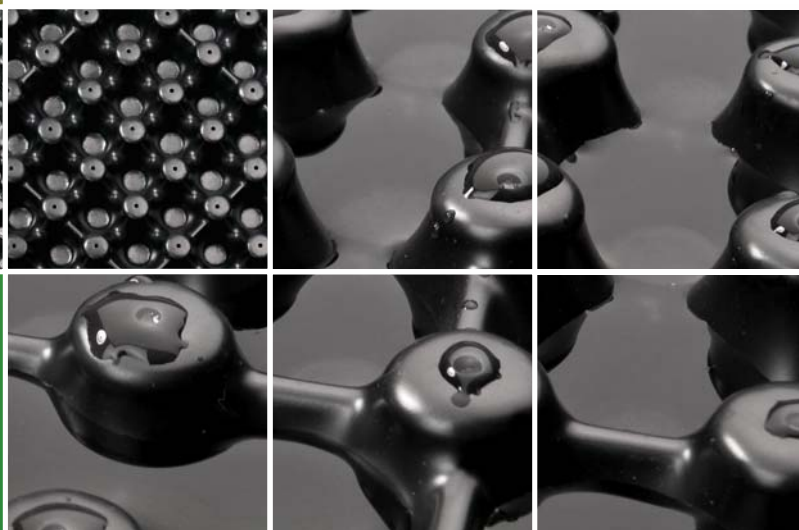


Promoting Nature



SedumDrain® 25



Tested ■ Certified ■ Works

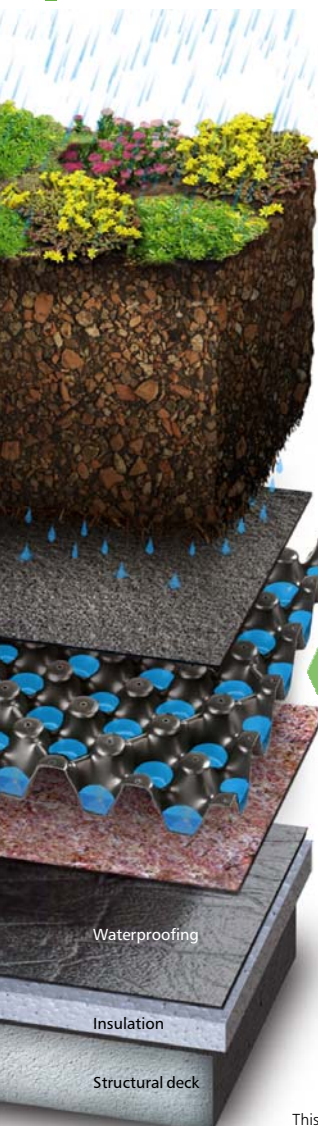
SedumDrain[®] 25

WATER RETENTION AND MULTI-LEVEL DRAINAGE BOARD



SedumDrain[®] 25 is the result of extensive research and testing in the quest for the optimal water reservoir and drainage layer for green roofs. The outcome is an unmatched 25 mm high, lightweight water retention and multi-level drainage board, manufactured from recycled high impact polystyrene (HIPS) and is black in colour. The surface is thermoformed on both sides with unrivalled centralised perforations on the top.

The ArchiGreen[®] build-up for green roofs



Carefully selected vegetation

In the case of an extensive green roof, droughttolerant herbaceous perennial plants and sedum species are selected to suit the local conditions; whereas in the case of an intensive green roof, depending on the depth of the build-up, a wide variety of plants can be selected ranging from lawn, shrubs to small deciduous trees and conifers.

ArchiGreen[®] SDS / TDS substrate

These are specially engineered lightweight green roof media with minimum compressibility to create the ideal setting for each type of green roof. Among the properties of these media are: proper pH values, outstanding and consistent drainage and aeration, sufficient water retention capacity and excellent long-term performance and permeability.

FL 150 / FL 200 black-coloured filter layer

The pore size of these CE certified filter layers are chosen in such way that fine particles are retained but water and air circulation is unrestricted.

SedumDrain[®] 25 drainage and reservoir layer

Specially developed for green roofs, this CE certified drainage board drains away excess water to the outlets while retaining sufficient water for the plants during dry periods.

PL 300 / PL 500 multi-coloured protection layer

The GRK3/GRK4 robustness class protection mats guard the root barrier or the root-resistant waterproofing from mechanical damage. Moreover, these mats also absorb a portion of the excess water that they release back to the plants through diffusion during dry periods.

Support

A root-resistant waterproofing separates the living roof system from the insulated building below. (If the waterproofing is not root-resistant then the use of the ArchiGreen[®] RB root barrier is advised.)

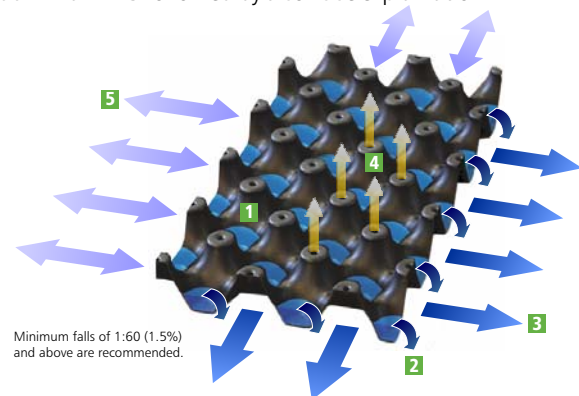
This build-up is shown for illustrative purposes only. Copyright © 2018. ArchiGreen[®]. All rights reserved.

Technical data

Material: Recycled high impact polystyrene (HIPS)	
Height	25 mm
Board size/ area	1.915 x 0.96 m / 1.838 m ²
Mass empty	1.36 kg/m ²
Diffusion perforation	2 mm
Water retention capacity	10.1 l/m ²
Filling volume (filled with substrate)	12.2 l/m ²
Maximum compressive strength EN ISO 802:1995	
Empty	434 kN/m ²
Infilled (grain size 4-8 mm)	>500 kN/m ²
Horizontal water discharge capacity EN ISO 12958 at 20 kPa	
i=0.01 (1 % fall)	0.80 l/m·s
i=0.02 (2 % fall)	1.40 l/m·s
i=0.03 (3 % fall)	1.85 l/m·s
i=1	15.38 l/m·s
Rate of drainage through perforations	
Under 5 mm permanent water pressure	0.092 l/m ² ·s

Operational Principal

The diagram below shows the operational principle of SedumDrain[®] 25 followed by a concise explanation:



Minimum falls of 1:60 (1.5%) and above are recommended.

- 1 A good green roof substrate will act as a buffer in the case of urban flash flooding and will absorb water to the point it gets saturated thereby, mitigating stormwater runoff. This temporary effect of runoff delay and reduction is known as vertical detention and depends on the physical characteristics of the substrate. Once the substrate is saturated, rainwater percolating through the FL filter layer is stored in the precipitation retention cells of SedumDrain[®] 25.
- 2 When a precipitation retention cell is filled, excess water flows over the brim of the cell to the adjacent cells and this process continues until the waterflow reaches the edges of the drainage and reservoir board. The waterflow then crosses the edges of the board flowing over to the adjoining boards that are jointly connected by the overlapping of the corrugations at the edges of the adjoining boards. In this manner, from one drainage board to the other, the waterflow continues its path until it reaches the outlet. Meanwhile, the rate at which the waterflow travels is being reduced constantly with every raised brim of the retention cells present on the double-sided drainage and reservoir layer. This phenomenon is known as horizontal detention and plays a key role in combatting urban flash flooding and freeing the sewage system from overloading.
- 3 During times of torrential rains or prolonged rainfalls, water may leak between the overlapping gaps formed by the overlapping corrugations at the edges of the board to the PL protection layer beneath the drainage board. Some of the leaked water is absorbed by the protection mat while the remaining unabsorbed water flows to the roof outlets through the drainage passages underneath the drainage layer.
- 4 As the drainage layer dries out through vegetation usage and evaporation, the damp PL protection mat releases its moisture gradually through the diffusion openings helping to keep the substrate moist.
- 5 Jointly with the diffusion openings, the bottom channel system of the drainage and reservoir layer ensure the aeration of the root space preventing it from getting stuffy. Consequently, these diffusion openings are sometimes referred to as venting holes.

Why is SedumDrain® 25 the ultimate choice?

Certified, eco-friendly and guaranteed

- The performance of CE marked SedumDrain® 25 exceeds by far the requirements set forth in German Building Standard DIN 4095¹, EN 13252:2000/A1:2005², and the Guidelines for the Planning, Execution and Upkeep of Green Roof Sites set out by the FLL³.
- Production is certified according to ISO 9001 quality certificate and ISO 14001 as part of our continuous improvement policy towards energy efficiency and less emissions.
- A 25-year warranty is offered by the Manufacturer reflecting the durability of the product backed by the results of the microbiological resistance test EN12225:2000.

Immense storage and drainage capacities

- With a depth of only 25 mm, this double-sided drainage layer allows for more than 10 l/m² of water storage when installed flat – a storage capacity exceeding that of most of its rivals.
- Test results obtained from internationally accredited hydrologic laboratories attest that the drainage values of the board exceed the drainage requirements of DIN standard 4095 and the FLL guidelines.



Unrivalled centralised perforations

Proper diffusion perforations on a drainage board are vital to ensure sufficient aeration of the root space and in dry conditions to allow for the diffusion of moisture from the damp protection fleece into the substrate, helping to keep it moist. Using state-of-the-art technology in thermoformed plastic production, the outcome is a perfectly homogeneous 2mm diameter centralised perforations setting new challenges for perforated double-sided drainage manufacturers globally.



Smart geometrical structure

- The dimples of the board are formed as cones to ensure extremely high compressive strength enabling it to take the weight of pedestrian and even heavy vehicle traffic. The compressive strength can be maximised by infilling the profile with cement, mortar or loose fill dependent upon the application.
- The double-sided form allows for water storage and simultaneously, ensures multi-level drainage of the water.
- The structure of the board allows it to be stacked in its own profile to reduce the space taken up on transport (555 m² on a single pallet). Additionally, the pallets are also stackable.



Selection of the optimal raw material

- Unlike high density polyethylene (HDPE), products made of HIPS have higher creep resistance, thus do not deform when exposed to high compressive strength in the long-run. A property which helps architects and engineers to calculate with precise drainage rates and to incorporate SedumDrain® 25 more readily when designing SUDS⁴ as part of contemporary storm water management in urban areas.
- Whilst very lightweight, the compressive strength of HIPS is many times that of HDPE.
- HIPS does not react with other substances commonly present in the substrate.



Excellent environmental credentials

- SedumDrain® 25 is manufactured of 100 % high impact recycled polystyrene and is fully recyclable ensuring total compatibility of the product with the environment.
- Our commitment to the environment is also reflected in the production process of SedumDrain® 25 certified according to ISO 14001, a standard that counts as the most significant international requirement for companies in the environmental sector.
- During the production, SedumDrain® 25 offcuts produced as by-product are readily recycled and used over again.
- Raw materials required for the production of SedumDrain® 25 are manufactured within the same unit as the product itself, thereby decreasing our carbon footprint.



¹ DIN 4095: Planning, design and installation of drainage systems protecting structures against water in the ground

² EN 13252:2000/A1:2005: Geotextiles and geotextile-related products - Characteristics required for use in drainage systems

³ FLL (Forschungsgesellschaft Landschaftsentwicklung Landschaftsbau e.V) is the German based Landscaping and Landscape Development Research Society located in Bonn, which is currently the recognised European voice for green roof standards. www.fll.de

⁴ Sustainable Urban Drainage Systems

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M 4017/2011
EN 13252:2000/A1:2005



„VITUKI” Environmental and Water Management
Research Institute Non-Profit Ltd



Approval number: Marketing 78/2011
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Disclaimer:

SedumDrain® 25 Product brochure

Part number: TB1200/2018-07-02

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