



SET A NATURAL EXAMPLE...

Green roofs for residential properties

OPTIGREEN[®]
ROOF GREENING

Suggest Optigreen Residential Solution: standard build-up

Products and designs for green roof construction



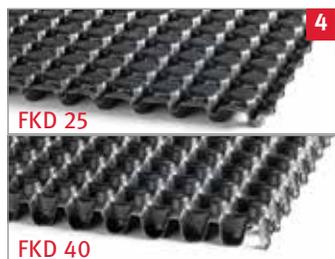
1 Optigreen pre-cultivated Mat
Pre-cultivated sedum/moss mat for the fast establishment of vegetation against wind erosion, with decomposable carrier.



2 Optigreen Extensive Substrate type E (60-80 mm)
Growing medium which is a special blend suitable for use with green roofs.



3 Optigreen filter fleece type 105
Prevents fine particles from being flushed out of the substrate into the drainage layer.



4 Optigreen Drainage Board Type FKD 25 (25 mm)
Water reservoir and drainage layer for discharging excess water. Prevents waterlogging.

Optigreen Drainage Board Type FKD 40 (40mm)
Can be used as an alternative to FKD 25 where a higher level of water retention is required, i.e. wildflower roofs



5 Optigreen protective fleece type RMS 300
Protects the root-resistant waterproofing or Optigreen root-resistant sheeting against damage.

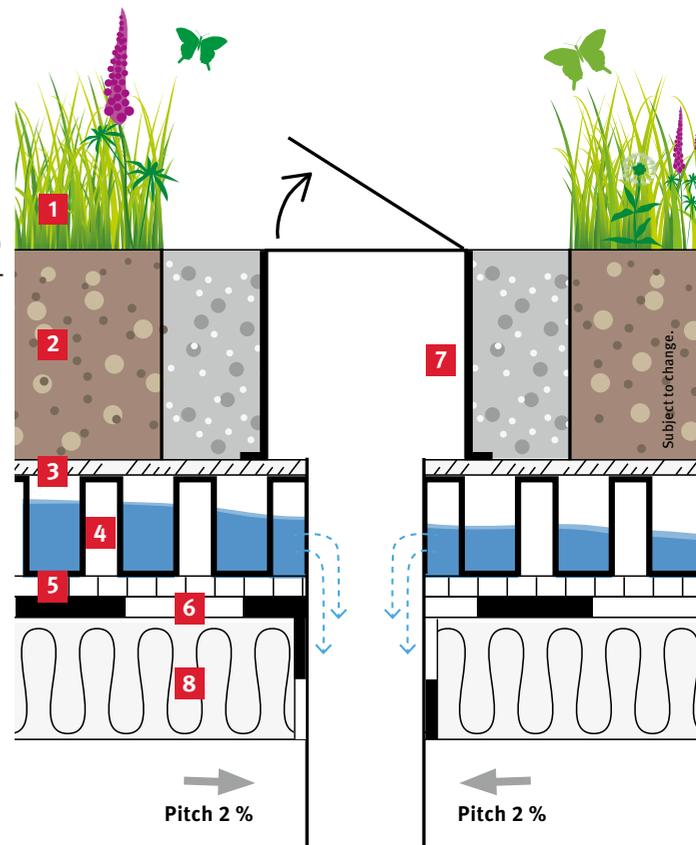


6 Optigreen Root Protection Sheet
Prevents roots from penetrating the structure (only necessary if waterproofing is not root resistant)



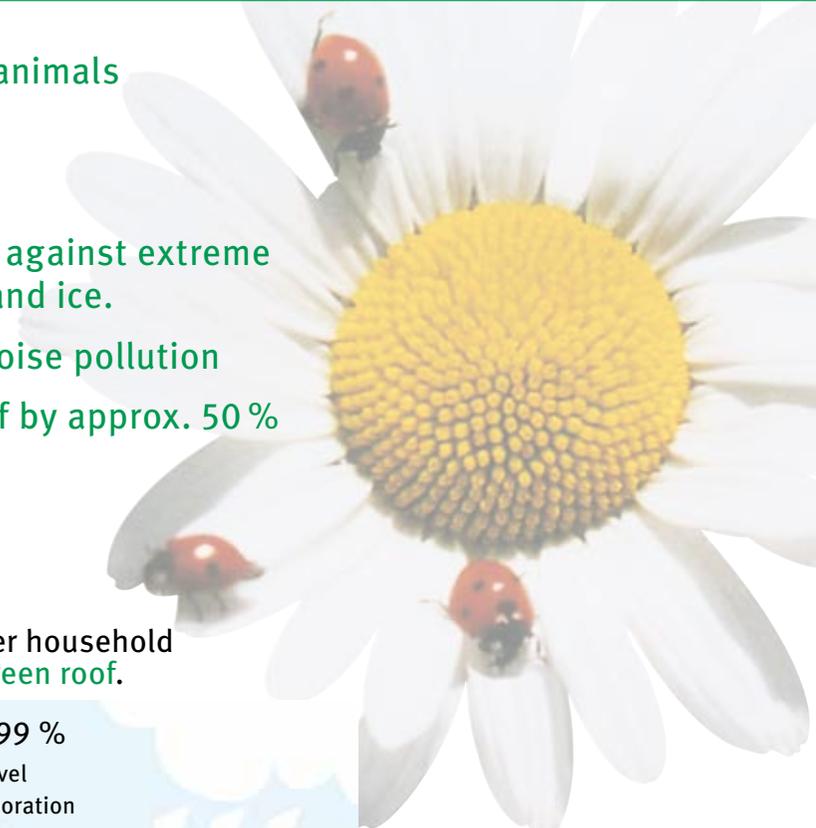
7 Optigreen small-area inspection chamber
Protects the roof drain from contamination. Lid removable for routine checks.

8 Roof construction including waterproofing
Suitable roof structure with timber, concrete or profiled metal deck with sufficient load bearing capacity and ideally waterproofed with a root resistant membrane (in accordance with FLL/GRO guidelines)

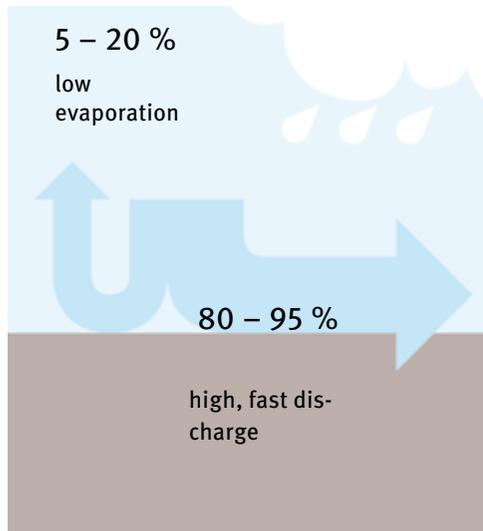


What are the benefits of a green roof?

- More living space for humans and animals
- Ecological compensation
- Improves the microclimate
- Protects the waterproofing system against extreme weather such as hailstones, wind and ice.
- Improves air quality and reduces noise pollution
- Helps to reduce storm water run off by approx. 50 %
- Aesthetic appeal



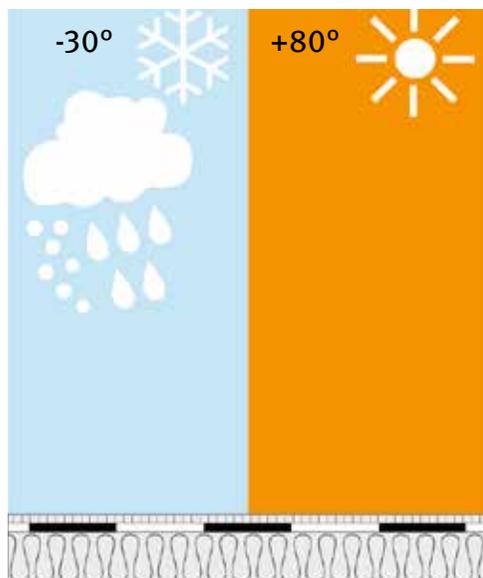
Rainwater on household without a green roof.



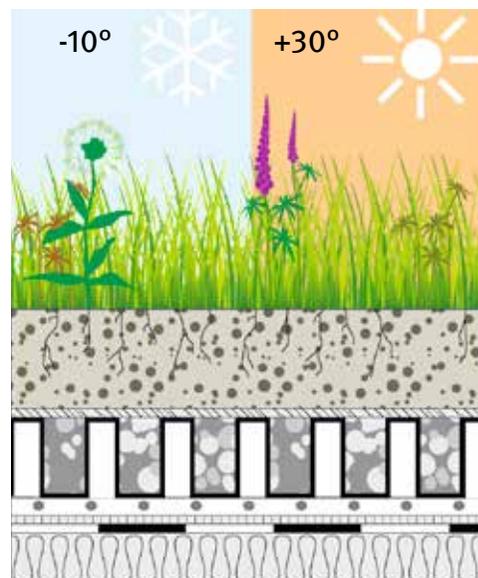
Rainwater household with a green roof.



Burden on waterproofing system without a green roof.



Thermal and mechanical protection of the waterproofing system with a green roof.





Extensive greening



Intensive greening

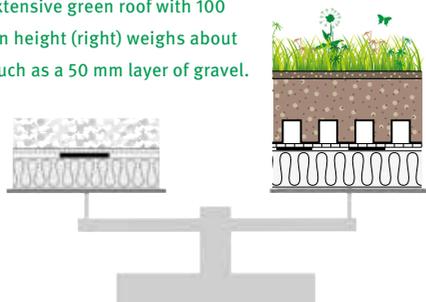
Substructure, roof perimeter detail and drainage

The building structure must be designed for the additional weight of a green roof (see also under › Static and › Green roof construction). The roof edges need to have slightly higher upstand than the planned green roof build-up, which is 100 mm with the Optigreen Residential Solution. We recommend an upstand of 100 mm in accordance with flat roof guidelines. As a basic construction requirement the green roof area must contain an internal rainwater outlet (at the lowest point of the roof pitch) or a lateral rainwater gutter. An emergency overflow should be planned where appropriate. Outlets must enable the efficient discharge of excess water without waterlogging. The internal rainwater outlet should be covered by an inspection chamber (see build-up details on page 2).

Waterproofing systems and root resistance

In an ideal case the roof intended for greening would already have had root resistant waterproofing membrane installed by the roofing contractor in accordance with applicable FLL/GRO guidelines (FLL = German Research Institute for Landscape Development, GRO = Green Roof Organisation). Depending on the use of the building, the owner may decide to use other materials (such as TPO single ply membranes sheeting, PE root resistant) to achieve the required level of impermeability and root protection.

An extensive green roof with 100 mm in height (right) weighs about as much as a 50 mm layer of gravel.



The Optigreen PE root resistant sheeting shown on page 2 is not waterproof and is only used for root protection in conjunction with extensive greening. An Optigreen partner company or roofing contractor should be appointed to install the waterproofing or root resistant covering in accordance with applicable FLL guidelines.

Roof gradient

An additional load of approx. 100 kg/m² for extensive roof greening should be added to the calculated allowance for snow loads. (See also › Green roof construction).

The green roof build-up will become waterlogged if standing water reaches a depth of more than 20 mm. The roof should therefore have a slight gradient of around 2 % towards the roof outlets or gutter. The Optigreen Residential solution is designed for flat roofs with an incline between 1° and 5°.

The Optigreen drainage mat type 800 is used for pitches of more than 5° up to 15 degrees instead of the Optigreen drainage board FKD 25 and the Optigreen filter fleece type 105. Construction measures against shear force and slippage are required for steep roofs with a pitch of more than 15°. We have several solutions within our range for pitched green roofs and we would strongly recommend that you contact our technical department for specific advice on this type of roof application.

Green roof construction

What does "extensive greening" mean?

- low build-up height (80 – 150 mm)
- low load (from 80 kg/m²)
- low-growing plants
- low care and maintenance (typically twice annually)

What does "intensive greening" mean?

- higher build-up (250 – 500 mm)
- heavier load (300 – 600 kg/m²)
- larger plant selection
- typically twice annually
- requires more care and maintenance
- utilizable and walkable

There are two types of green roofs: extensive and intensive. The Optigreen Residential Roof Solution on page 2 illustrates an extensive green roof: with a low build-up height (approx. 100 mm), low load (from approx. 100 kg/m²), low-growing plants and low maintenance.

In contrast, intensive green roofs (roof gardens) have a higher build-up (250 – 500 mm), are heavier (300 – 600 kg/m²) and require more maintenance. Their advantage lies in a much greater selection of plants, i.e. many shrubs and bushes that grow in the garden can also be planted on the roof. The green roof can be used as an additional „garden“ area.

Plants and planting

Planting can be achieved using a pre-cultivated vegetation mat which provides instant greening. The mats are available with either sedum or a mixture of sedum and wildflower species and are generally available throughout most of the year. Good watering is very important after laying and the substrate should always be kept moist during the first few weeks. It should be noted that where planting takes place in the winter months the plants on the vegetation mats will remain relatively dormant until the Spring.

Location

Sunny locations are best for extensive greening. Semi-shaded and shaded positions can also be successfully greened when plants are selected carefully and when the area is not prone to standing water.

Care & Maintenance

Watering: regular watering during the germinating and early growth phases, then only during extended dry periods.

Fertilization: A long-term fertilizer is applied to extensive green roofs in the spring (e. g. 50 g/m² of Optigreen Opti-cote).

Pruning: Plants that have grown too high are cut back in autumn and any undesired growth removed.

Miscellaneous: The drainage installations are checked for proper working order, i.e. free from plants and debris, during every roof inspection. Roots that have grown behind the root protection sheet around the roof edges must be removed.

Planning Permission

In general, you should always consult your local authority with regard to any planning permission that may be required before installing a green roof.



Cost and service

Need installation? One of our Optigreen partner companies will be pleased to submit a quote for the complete job. To order materials for DIY green roofs visit our online shop www.green-roof-online.co.uk. Alternatively, phone or email the office and we will be happy to assist you.

Many solutions for small and large roof areas



Extensive greening on flat and pitched roofs



Extensive green roof in conjunction with PV panels



Extensive roofs to commercial properties



Intensive green roofs with lawns for recreation



Plant containers as green islands on a terrace

About Optigreen

Optigreen has decades of experience in roof greening. The Optigreen partner companies who install our systems undertake regular training and are familiar with the latest technology.

We can provide full technical support during the specification and planning stage and can arrange for your green roof to be installed by one of our experienced Optigreen Partner contractors, if required. You can contact us on the telephone number below or visit our online shop on:

www.green-roof-online.co.uk

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