OPTIGRÜN®
ROOF GREENING

# SUSTAINABLE GREEN BUILDINGS RESILIENT TO DROUGHT AND HEAVY RAIN.

## Creating value with green roofs and retention roofs.

### The retention roof

A retention roof is a sustainable solution for coping with extreme weather conditions. It can safely absorb and regulate even heavy rainfall events that only occur every 100 years. This protects buildings and the surrounding infrastructure from flooding. At the same time, a retention roof ensures that green spaces remain intact – without the use of drinking water. Thanks to clever water storage and distribution, the greenery is irrigated without the need for additional irrigation systems. The retention roof thus combines environmental protection and climate adaptation in one efficient system. The sponge city principle therefore uses various techniques to store and evaporate rainwater or to return it to the environment with a delay.



**An urban neighbourhood of the future –** the Eberhardshöfe in Nuremberg.



### How a retention roof works

A rainwater storage tank is located directly under the green roof, which collects and provides the water that accumulates. With the help of sophisticated capillary technology, this water is transported directly to the vegetation so that the plants are always optimally supplied – without the need for additional water. Excess rainwater that is not required is slowly drained away by sophisticated and patented throttle systems. This prevents too much water from entering the sewerage system at once, which significantly reduces the risk of flooding. A retention roof combines sustainability, water management and protection in one. a well thought-out concept.

### Eberhardshöfe Nuremberg: A showcase project for sustainable rainwater management (see property photo above)

The Eberhardshöfe in Nuremberg are setting standards in rainwater management. Thanks to comprehensive rainwater management, not a drop of rainwater flows out of the neighbourhood – which means there are no discharge fees. Everything is efficiently managed and utilised directly on site. This solution not only provides protection against flooding, but also ensures permanent green and lively vegetation that enhances the entire neighbourhood. The high cooling capacity of the plants significantly reduces the ambient temperature, which ensures a more pleasant climate, especially on hot summer days. At the same time, the natural water balance is restored, making an important contribution to the environment and climate protection.

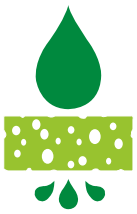
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## The key advantages of retention roofs.



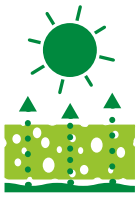
WATER RETENTION,
WATER STORAGE

Storage and retention of rainwater, which would otherwise flow directly into the sewerage system.



REDUCTION OF RUNOFF VOLUMES AND FLOOD PROTECTION

Delayed release of rainwater into the sewage system during heavy rainfall events.



UNIQUE CAPILLARY CONNECTION

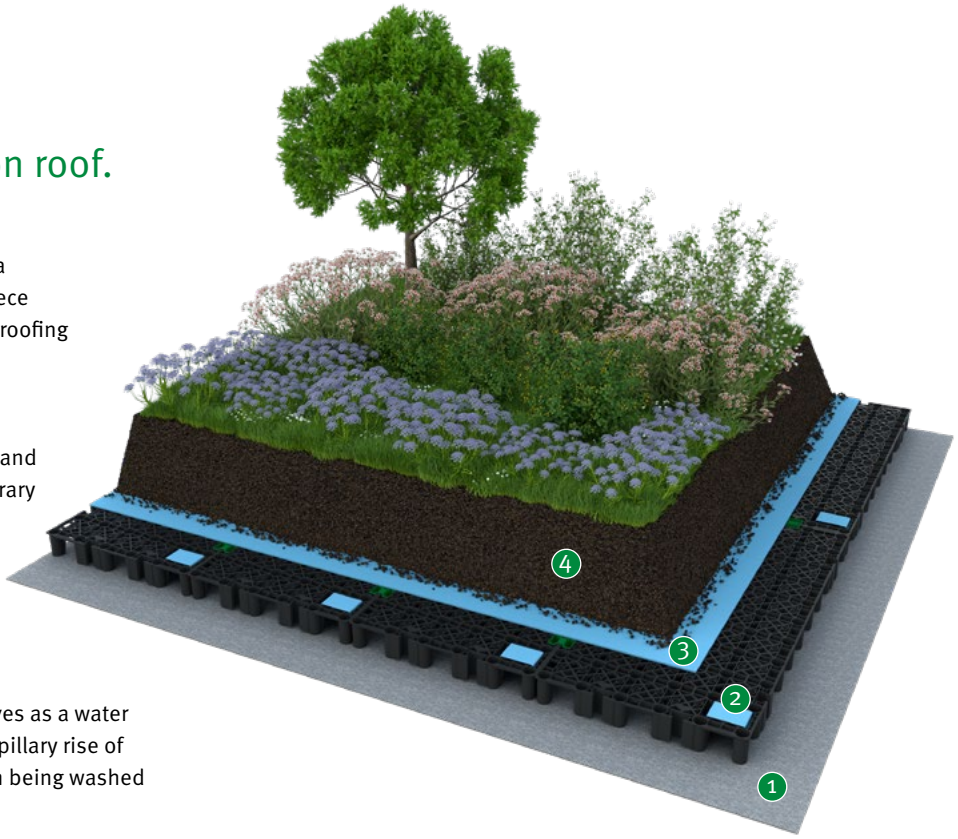
Stored rainwater is utilised via the capillary connection.



EVAPORATIVE COOLING

Especially for heat islands in highly sealed urban centres.

## The structure of a retention roof.




1. The lowest layer of a retention roof is a separating, protective and storage fleece that primarily protects the roof waterproofing from damage and stores water.
2. A water retention box with low weight and high pressure stability ensures temporary and permanent storage of rainwater. Inserted capillary bridges ensure the transport of accumulated rainwater to the substrate level.
3. An absorbent and capillary fleece serves as a water distribution layer and supports the capillary rise of water. It also prevents the sludge from being washed into the retention level.
4. A substrate with a high water storage capacity and good air pore volume that is matched to the system solution provides an optimum basis for multi-faceted vegetation.

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