

Fruits, vegetables,
herbs – healthy food
from your roof!

OPTIGREEN'S URBAN FARMING

Urban Farming on roofs, naturally.

OPTIGREEN[®]
ROOF GREENING

Urban Farming on roofs, naturally.



Many unused roofs in urban areas could be utilised for local and sustainable food production. The city can provide for itself in an efficient and visually attractive way.

Urban Farming on the roof allows an additional use of land that has already been lost to development by offering the unique possibility of food production within the city. This also brings food production nearer to the consumer thereby reducing transportation costs and vehicle pollution.

Urban Farming using unused roof areas can be an integral part of sustainable and forward thinking urban planning policy. Roof greening is an important countermeasure to the loss of land due to development. Greened roofs have many other advantages such as providing additional living space for recreation or sports as well as places where people can get closer to nature. Green roofs can also contribute to better working and living conditions as well improving local air quality and providing sound absorption.

Please note the following when using Urban Farming on roofs

During the roof planning stages for specific purposes, the following issues have to be taken into account:

- › Roof waterproofing according to DIN EN 18195.
- › Root barrier membrane according to FLL or DIN EN 13948.
- › Little or no pitch for eventual water accumulation.
- › Suitable structural statics (loads due to snow and circulation, roof structure and eventual concentrated loads).
- › Flower beds with higher borders or more closely situated (raised flower beds for better working conditions or persons on wheel-chairs).
- › Safety gear to prevent falls (e.g. SkyGard).
- › Water supply connection (suitably dimensioned and adequate for the watering strategy employed).
- › Access areas and dedicated pathways according to use.
- › If necessary, barrier-free accesses (e.g. hospitals, senior citizen's housing and similar institutions with therapeutic gardens).
- › Green roof build-up according to the plants and load-reserves.
- › If necessary, measures against wind up-drift and thermal loss.

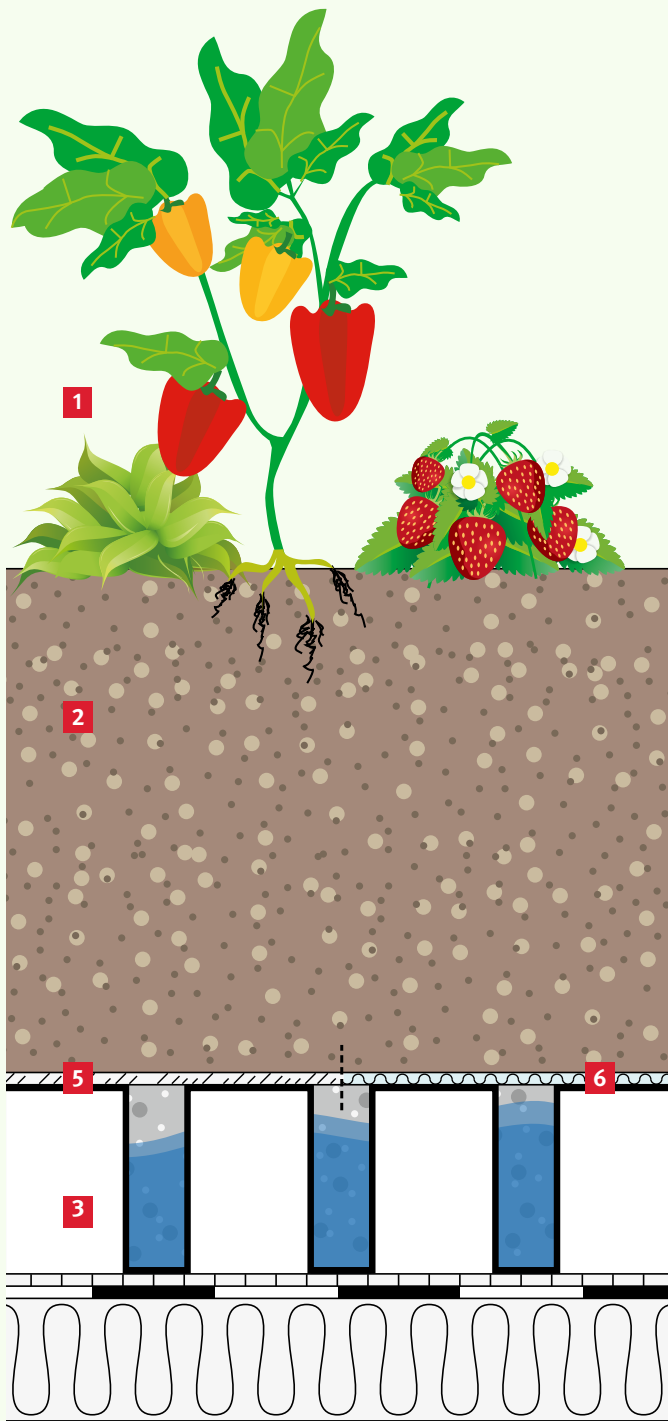
Practical examples of Urban Farming on Optigreen roofs



Depending on the surface load, the planned watering strategy and the desired fruits and vegetables, we offer the following alternatives:

Fruit and Vegetable Roof – Heavy duty Fruit and Vegetable Roof – Light

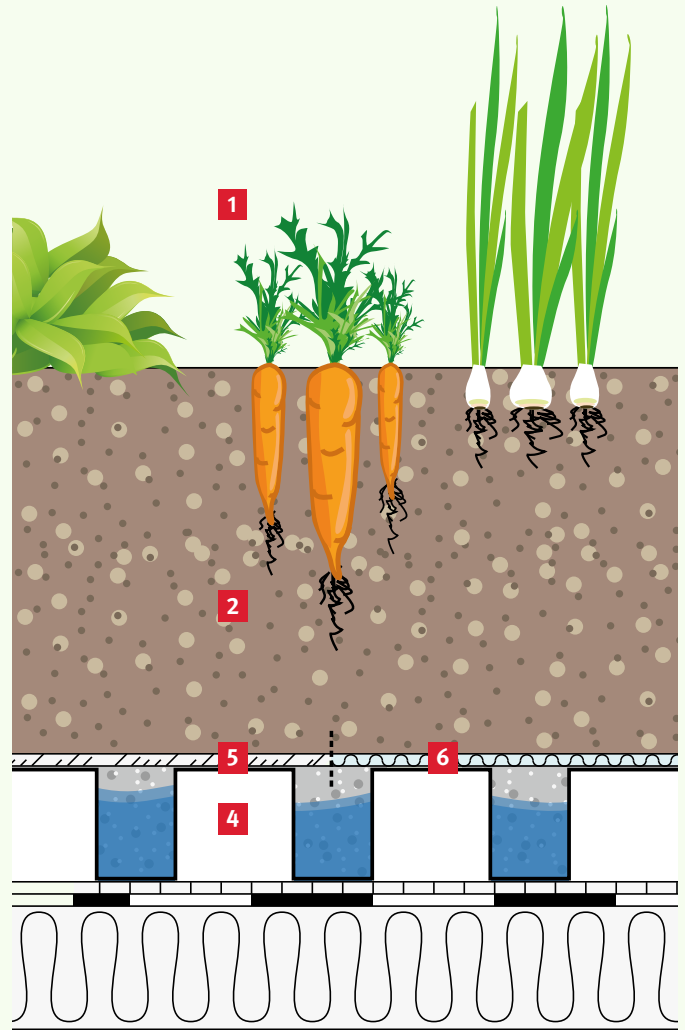
The difference lies in their drainage layer and therefore their weight, and also their possible watering methods. The substrate layers, either the Optigreen Intensive Substrate Type i or Optigreen’s in-house developed substrate type “Urban Farming”, can be applied in layers between 70 – 350 mm depth.



Fruit and Vegetable Roof – Heavy duty

TECHNICAL DATA

Weight:	320 – 600 kg/m ² or 3.2 – 6.0 N/m ²	
Layer height:	260 – 460 mm	
Roof pitch:	0 – 5° (0 – 9 %)	
Vegetation form:	vegetables, berry-shrubs, fruit trees	
Water retention / discharge coefficient / water storage	70 – 95 %	ca. 110 – 130 l/m ²
Ecological quality rating:	■■■■■□	
Maintenance effort:	■■■■■□	



Fruit and Vegetable Roof – Light

TECHNICAL DATA

Weight:	150 – 375 kg/m ² or 1.5 – 3.75 N/m ²	
Layer height:	120 – 300 mm	
Roof pitch:	0 – 5° (0 – 9 %)	
Vegetation form:	herbs, vegetables, greens, berry-shrubs	
Water retention / discharge coefficient / water storage	60 – 95 %	ca. 40 – 90 l/m ²
Ecological quality rating:	■■■■■□	
Maintenance effort:	■■■■■□	

Optigreen System Solution Fruits & Vegetables – System advantages

When using roof greening for cultivation of fruits and vegetables, there are some very important details to be taken into account. Not every roof structure is suitable. Please give special consideration to the following issues.

Plant selection

Plants (see **1** at right) have special demands regarding substrate depth and watering strategy. The below mentioned categories are non-binding examples, their suitability should be checked for every project.

Category 1: substrate depth approximately 70 – 120 mm, for herbs (e.g. thyme, oregano, rosemary, lavender, mache or lamb's lettuce, wild strawberries)

Category 2: substrate depth approximately 130 – 250 mm for vegetables (e.g. garden lettuce, courgettes, tomatoes, carrots) and berry-shrubs.

Category 3: substrate depth approximately 260 – 400 mm for small fruit trees.



Substrate

The specially developed Optigreen Substrate Type “Urban Farming” (see **2** at right) features high water-storage capacity, but also good permeability and sufficient air-pore volume. Additionally, the contents of plant nutrients have been set to suit fruits and vegetables.

The use of selected, ecologically compatible additives is the foundation for healthy and fresh fruits and vegetables. The Optigreen Intensive Substrate Type i, which has been successfully used over many years, is especially suitable for berry-shrubs and small trees and complies with the FLL roof greening guidelines.

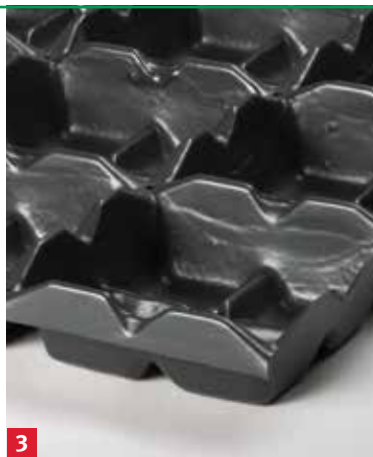


Drainage

The drainage layer is selected according to the surface load and the planned watering strategy. In practice, two methods have been proved useful:

Optigreen Drainage Board Type FKD 60 (see **3** at right)
High water-storage capacity with or without water accumulation (Watering mat is optional)

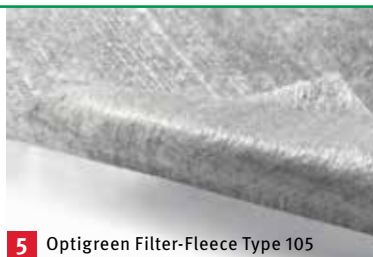
Optigreen Drainage Board Type FKD 40 (see **4** at right)
Lightest version, medium water-storage capacity without water accumulation. (Watering mat is optional)



Water supply

Watering depends on the type of plants, size of the greened area and the wishes of the contracting party, and is determined for each project. Important issues at this stage are maximal surface-load, use of watering circuits (cisterns) as well as maintenance costs and effort:

1. Watering by hand (hose or watering-can)
2. Watering by water accumulation (with or without automatic watering equipment)
3. Optigreen watering mat (see **6** at right)



5 Optigreen Filter-Fleece Type 105

Complementary Optigreen solution-products for Urban Farming

With the complementary Optigreen product solutions the Optigreen Garden Roof Fruits & Vegetables is a complete system, where the components are adapted to each other. Optigreen Area Managers provide support to contractors and architects at design stage and put together bespoke system specifications – everything from a single provider. Trained Optigreen Partner companies can provide professional installation and maintenance.



Optigreen ALU Surround Elements

The Optigreen ALU Surround Elements are an elegant solution for the bordering of flower beds. They possess the following features:

- › Made of aluminium (unmixed recycled material)
- › Modern, linear design
- › Small and medium-sized delimitable areas.
- › Limitless configuration, regarding shape, colour and size. Also round shapes, arches and inclines.
- › Customized, project-oriented manufacture: practically every shape and size.
- › Frost- break- and weatherproof.
- › Easy to transport and install.



Optigreen SkyGard Balustrade System

Optigreen international AG developed the SkyGard Balustrade System to ensure safe circulation on the roof while implementing Urban Farming.

Features:

- › No penetration of the roof membrane, nor interference with the roof structure.
- › Stability due to the weight of the roof greening.
- › Project-oriented calculation of stability and layout.
- › Parts are delivered as required, therefore no cutting is necessary.
- › Straightforward adaptation to slopes and unevenness, due to a ball-jointed foot-plate that can be pivoted freely.
- › Several possibilities are available for these balustrades: either glass or perforated metal plates or metal bars as well as several colours (RAL).
- › Additional anchor points for shade-netting, parasols, etc. are also possible.



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