



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

Optigreen's Garden Roof for Fruits and Vegetables

“Urban Farming”
on roofs, naturally.

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ROOF GREENING

“Urban Farming” on roofs, naturally.



Many of the yet fallow roofs in urban areas may be developed and used for local and sustainable production of food. The city provides for itself – in a sustainable, efficient and vivid way.

Urban Farming on the roof permits a second use of the already acquired plot of ground, by providing the unique possibility of food production within the city. By relocating the production sites to the city, and thus nearer to the consumers, there is a reduction in transportation costs, which is a further contribution to environmental protection.

The planting of fruits and vegetables is a vivid experience which provides, not only healthy and conscientious nourishment, but brings people together, contributing to social networking.

Urban Farming on the roof is an integral component of a sustainable, future-oriented urban planning. Roof-greening is an important countermeasure to the persistent soil-sealing. Greened roofs have many further advantages, like additional space for living, recreation or sports areas, as well as near-to-nature meeting points for persons of all generations. Greened roofs contribute to better working and living conditions, to the climate of the surroundings, to noise reduction due to good sound-absorption and also to effective rain-water retention.

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).
- › Accesses and consolidated paths according to use.
- › If necessary, barrier-free accesses (e.g. hospitals, senior citizen’s housing and similar institutions with therapeutic gardens).
- › Green-roof structure 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



New!
Optigreen system solution
„Compact w Wall Garden“ as
„Herbs and Greens Wall“.

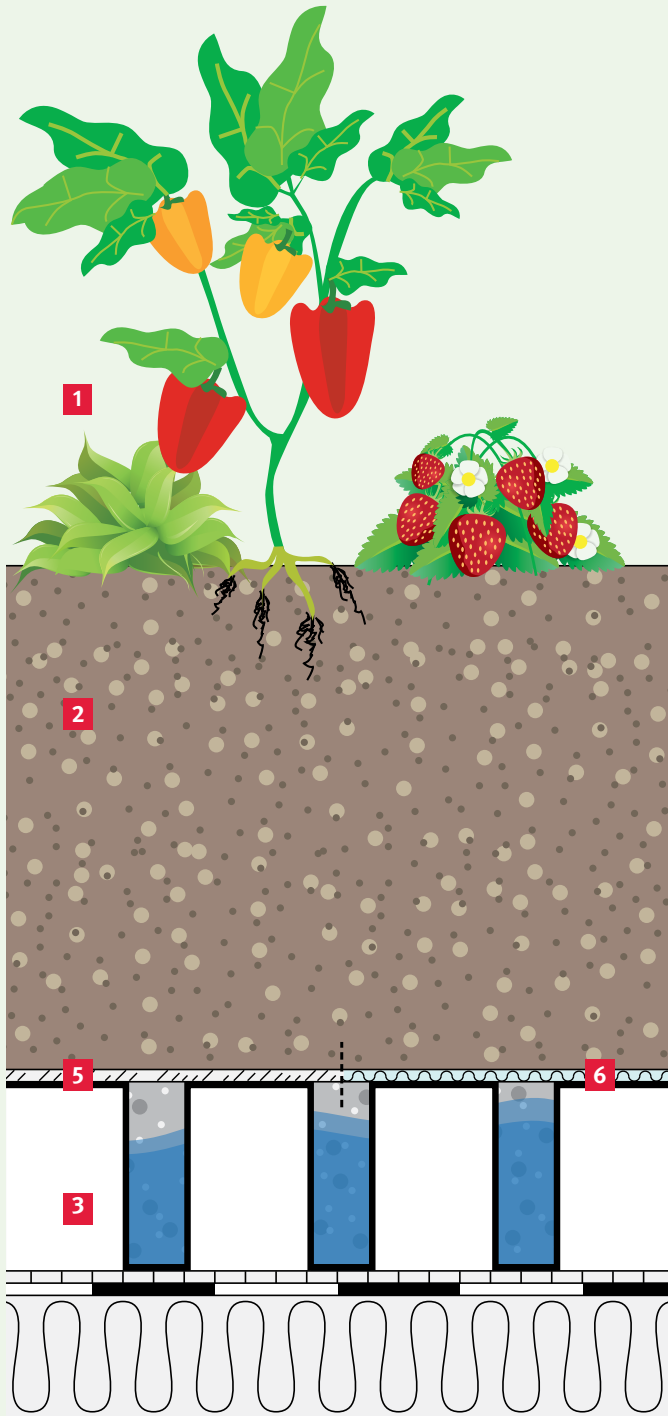
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Optigreen system solution “Garden Roof Fruits & Vegetables”

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

Fruits and Vegetables Roof – Heavy duty Fruits and Vegetables Roof – Light

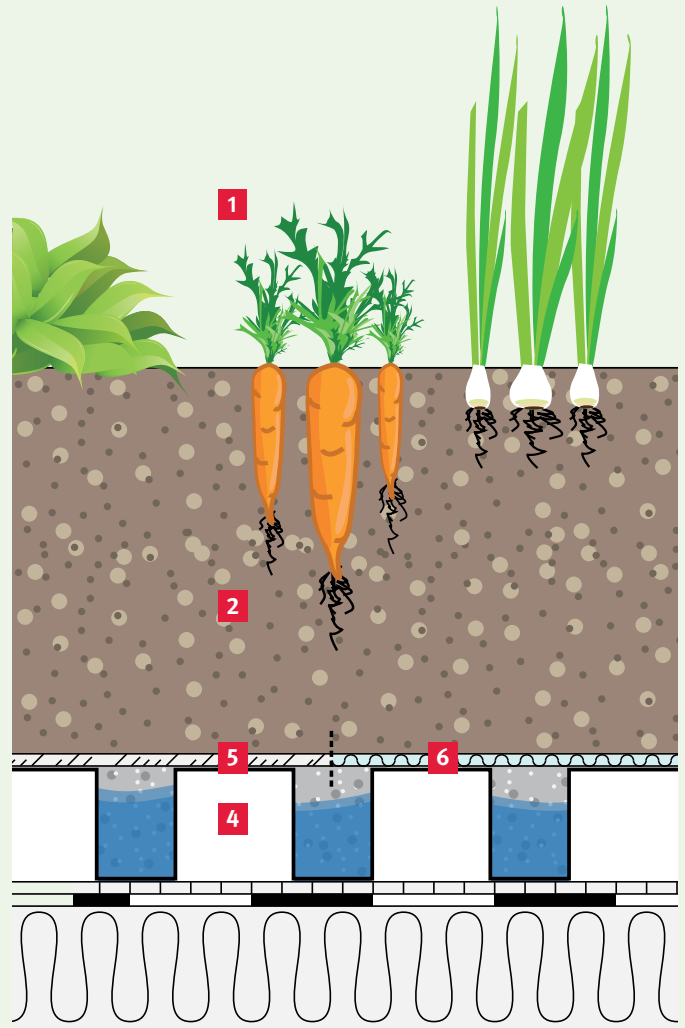
The difference lies in their drainage layer and therefore their weight, and also their possible watering methods. The substrate layers, either the Optigreen Intensive Substrate Type i or Optigreen’s in-house developed substrate type “Urban Farming”, can be applied in layers between 70 – 350 mm depth.



Fruits and Vegetables 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:	■■■■■□	



Fruits and Vegetables 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.

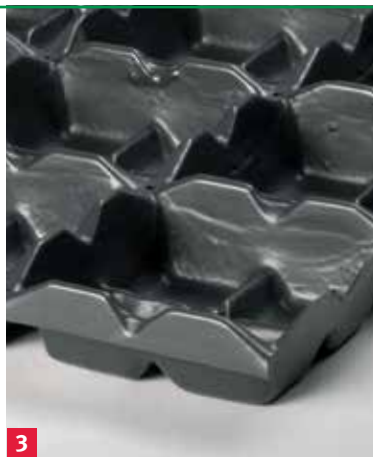


Drainage

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)



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. The Optigreen Area Managers support contracting parties and architects in the very early planning phase and put together complete object-oriented systems – everything from a single provider. Trained Optigreen partner companies take over the tasks of professional implementation 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.



Optigreen-Long-term Fertilizer Natural

This fertilizer is based on sheep’s wool and is therefore natural and organic. It is applied either by working it into the Optigreen Substrate before planting, or spreading it later onto the substrate. The effect of 50 g/m² of Natural fertilizer last approximately 6–12 months.

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