

# Urbanscape<sup>®</sup> Green Roof System



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# Urbanscape® Architecture



**Urbanscape®** is the blanket term for a range of new innovative products, concepts and systems for urban green infrastructure. They combine the key aspects for enhancing the urban environment by making it healthier for the residents.

We have been part of the green roof and landscaping industry for over 25 years, delivering high quality rock mineral wool growing media to growers, installers and investors around the globe.

**Urbanscape® - Fighting for a better, greener and healthier environment.**

## Our Green Solutions

Green Roof System



Green Wall System



SafetyPro System



Landscaping System



Horticulture



HUF HAUS Model House, Hartenfels, Germany



Dubai Opera Garden – Burj Khalifa Complex, Dubai, UAE



Highway belt on A33 motorway, Bielefeld, Germany



## Why green roofs?

The design of buildings has evolved over the years, but the function has remained constant: protection, comfort, warmth in winter and coolness in summer. In recent years, however, the environmental impacts of buildings and green roof solutions are becoming increasingly important.

With the development of a more comprehensive view of sustainability, it is critical to remember that, from a building lifecycle perspective, the environmental impact of every building is the result of its energy consumption during the time it is used, the use of renewable energy and the use of sustainable materials.

Green roofs go beyond contemporary architecture and give new value to the role of buildings within urban planning. They are designed not only to reintroduce the element of nature in the urban environment but also to provide solutions for important issues like urban heat island and stormwater management.

Sky View Parc, NYC, USA



Karolinska Hospital, Stockholm, Sweden



## What are the main benefits?



Complete solution



Low construction height



Improved root growth



High water absorption and retention



Lightness



Sustainable solution



Rainwater purification



Fast and easy installation



Instant green



Cleaner air



Strong plants

Customised solutions, designs and concepts for customer-specific projects, different local needs and environments.

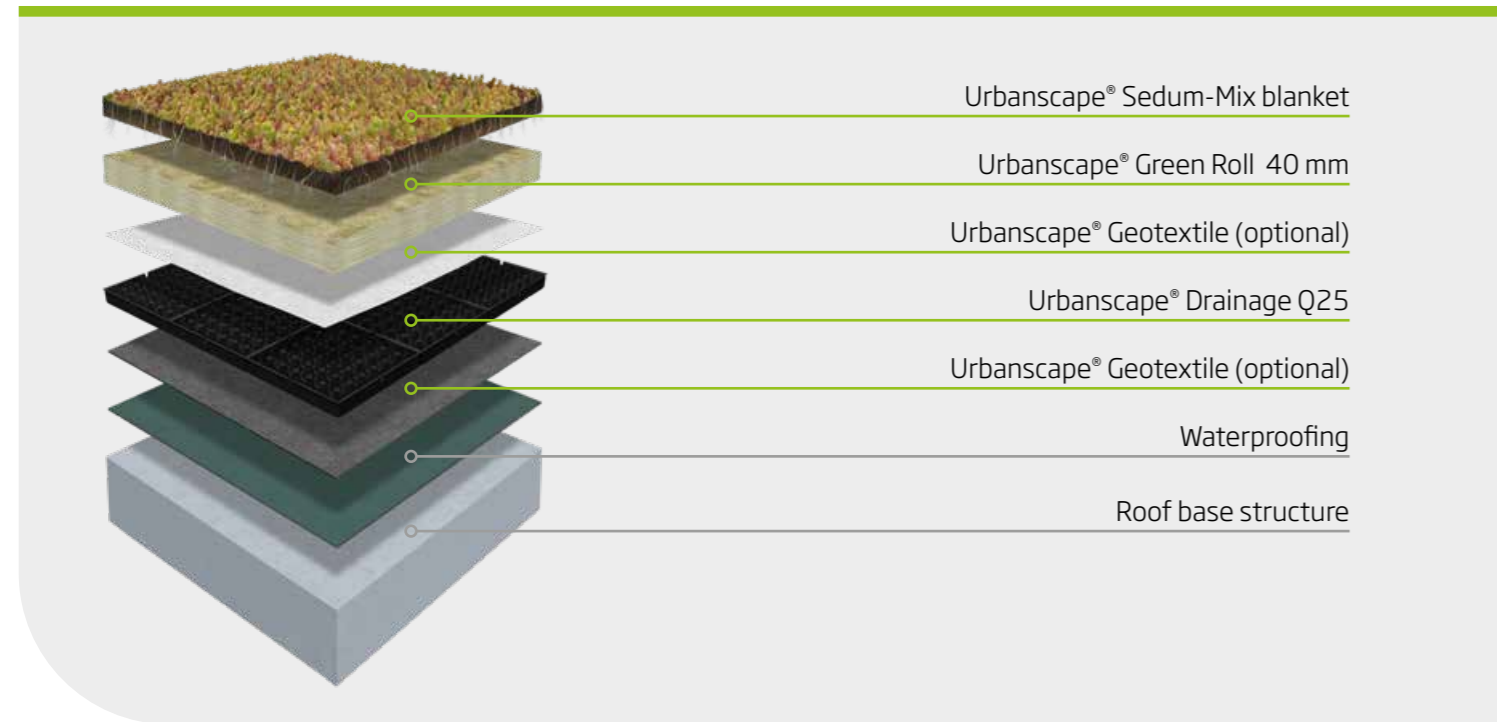


# Urbanscape<sup>®</sup> Extensive Flat Green Roof Systems

Ypsilon - multi-apartment residential building, Ljubljana, Slovenia  
Photo: Danilo Bevk

# Urbanscape® Extensive Flat Green Roof Systems

Urbanscape® Extensive Flat Green Roof Systems represent the core product range featuring a **modular layer design** consisting of 3-4 core layers.



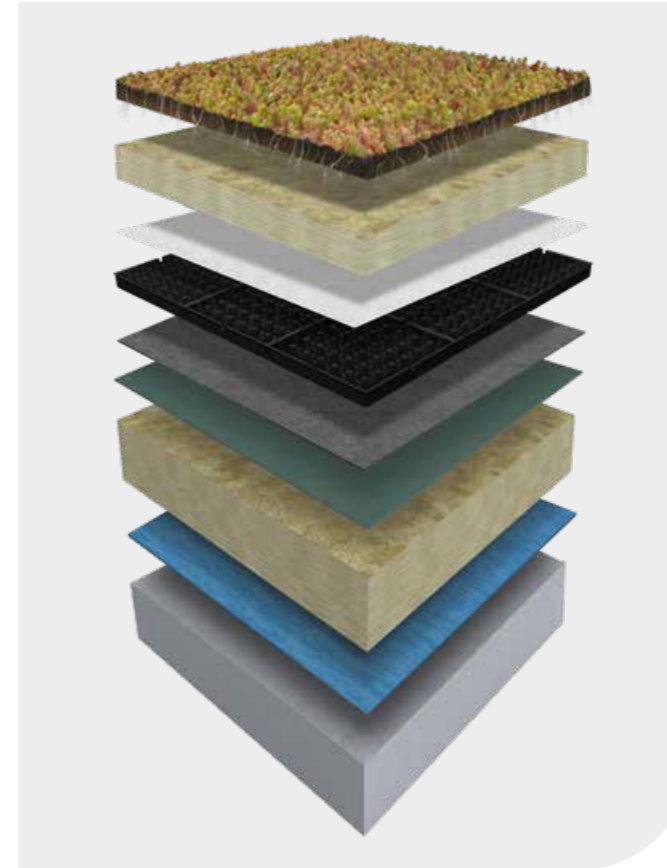
Our core focus are systems with pre-grown vegetation which guarantee the best benefits for the customer, immediately resulting in the final appearance without having to wait months for the green roof to actually become green.

All our systems can be easily modified and adapted to specific climates by combining different layer types (and thicknesses). Each Urbanscape® Green Roof System is always made up of 3 core elements (from top to bottom):

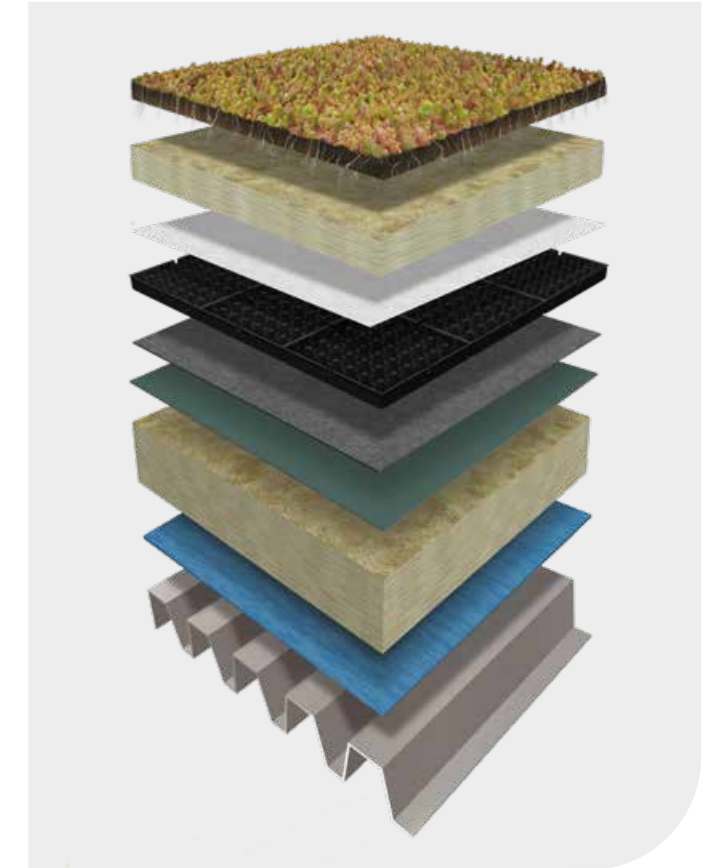
1. Pre-grown vegetation blanket
2. Urbanscape® Green Roll multipurpose growing media
3. Drainage

The Urbanscape® Extensive Green Roof System consists of a 2 or 4 cm thick layer of Urbanscape® Green Roll growing media, which can (optionally) also be combined with an additional layer of extensive substrate. The thickness of the substrate usually does not exceed 10 cm. The advantage of such a system is that, despite its low weight, it can store large amounts of rainwater, which is later available to plants and at the same time serves as a cooling medium (evapotranspiration).

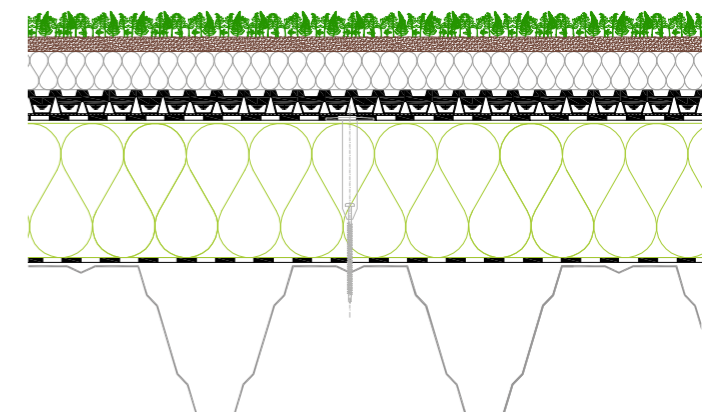
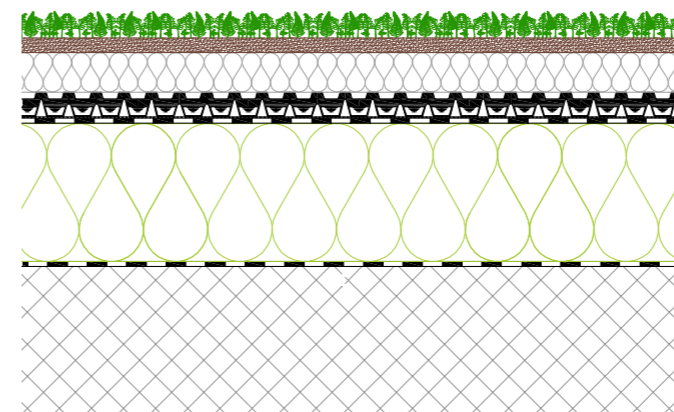
Urbanscape® Green Roof Systems can be installed on any type of roof construction: concrete, steel deck, wooden deck, inverted roof constructions or any other type of materials used in roofs. The green roof elements stay the same for every application, and only the insulation requirements and the position of waterproofing membrane are adjusted.



Warm roof on a concrete deck



Warm roof on steel deck



For any special construction designs or other challenges, please consult our local technical specialist or contact our central technical support team directly.

# Why choose the Urbanscape® Green Roof System?



## Complete solution

The Urbanscape® Green Roof System is provided with complete, easy-to-install layers delivered directly to the customer.



## Fast and easy installation

Usually, a team of three can install up to 500 m² of Urbanscape® Green Roof in a day.



## Low construction height

At Urbanscape® we use Urbanscape® Green Roll that was specifically made to replace soil and further reduce the height of the green roof.



## Instant green

Because we use a sedum-mix blanket, the green roof will look green in no time.



## Lightness of our green roofs

On average, our Urbanscape® Green Roll is 8-10 times lighter than other regular green roof substrates.



## The sustainable solution of our green roofs

Urbanscape® Green Roll is made from various pure rock mixtures which are widely available in nature.



## Improved root growth

After the Urbanscape® Green Roof is installed, if it is properly irrigated, roots quickly sprout and reach the Urbanscape® Green Roll where they have access to the water that is saturated in the Green Roll.



## High water absorption and retention

The demand for watering is not as high as it would be in conventional roof substrate. High water retention gives green roofs an advantage in the reduction of storm water runoff.



## Rainwater purification

And just like in nature, water goes through natural bio-filtration on green roofs. This prevents contaminants and toxins from reaching streams and waterways.



## Strong plants

The sebaceous sedum plants are efficient at storing water in their leaves and are extremely suitable for varying weather conditions.

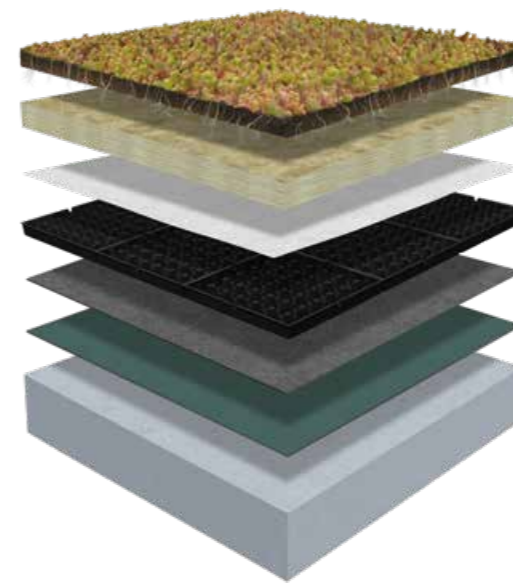
# Urbanscape® Extensive Flat Green Roof Systems variations



The different combinations of layers offer different performances in relation to climate conditions. For optimum stormwater detention characteristics, separate detention layers can be implemented. This makes our systems a state-of-the-art natural stormwater management tool.

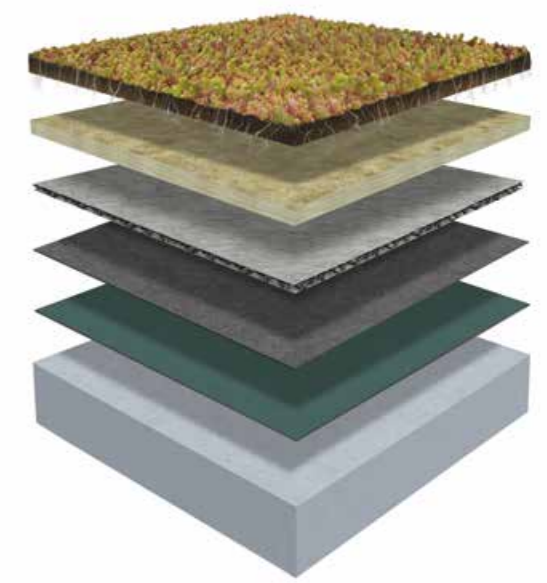
## Urbanscape® Green Roof HIGH Premium/Standard

For **mild** climates.



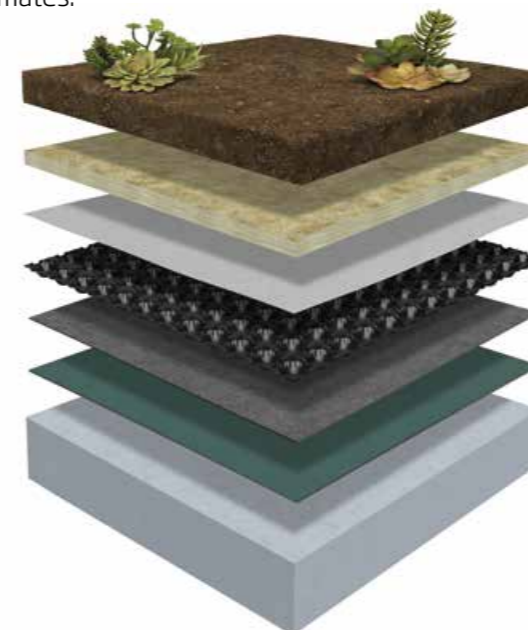
## Urbanscape® Green Roof AIR Premium/Standard

For **wet** climates.



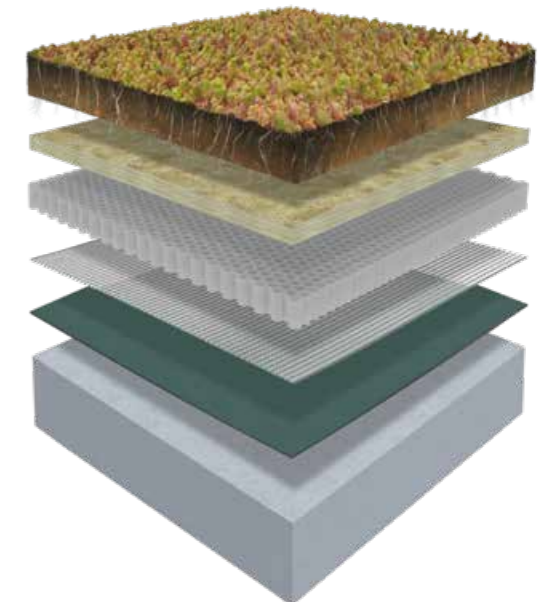
## Urbanscape® Green Roof ECO+

For climates with long **very dry** periods and/or **arid** climates.



## Urbanscape® Detention Green Roof System

For **wet** climates.

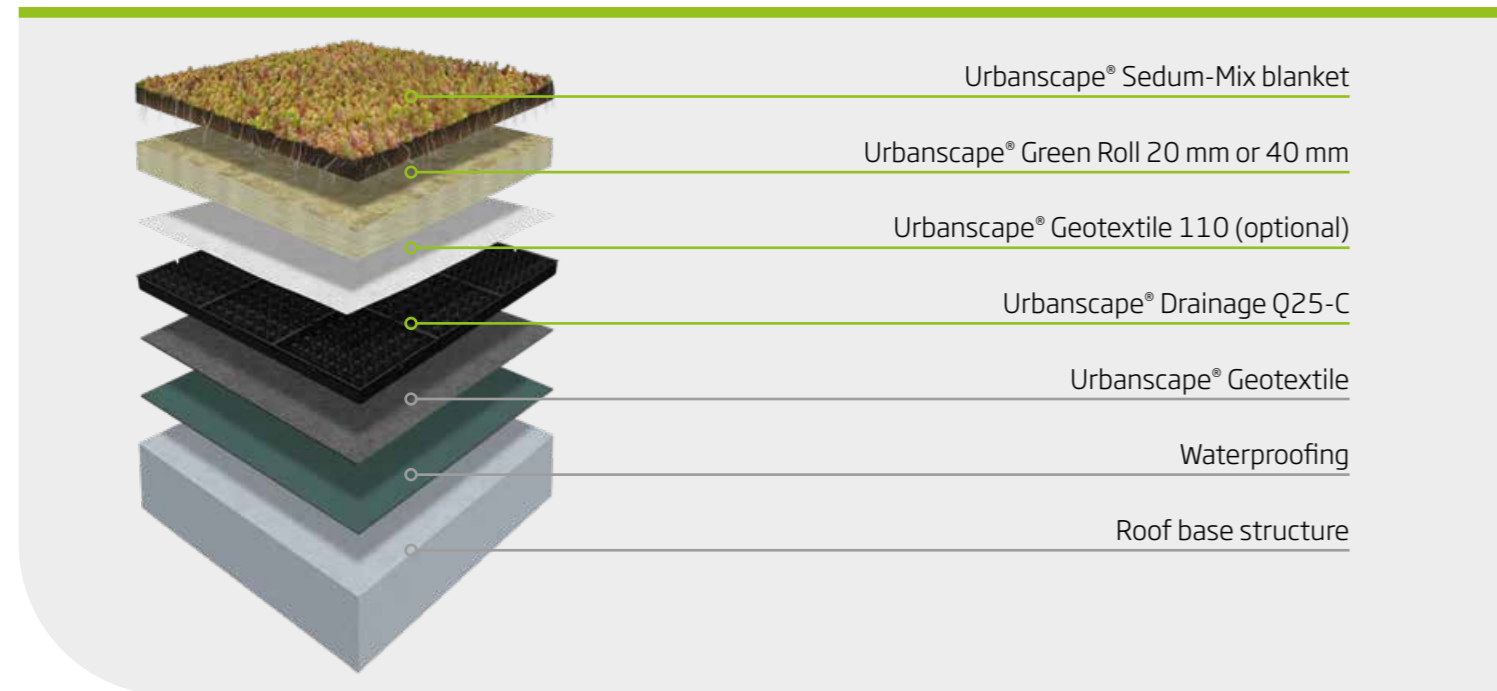


# Urbanscape® Green Roof HIGH Premium and Standard

This set-up of the Urbanscape® Green Roof System is suitable for hot and arid climates as well as for geographies with distinct long dry periods, as the system includes drainage with an extra water buffer.

Combining the superior water retention and detention of the Urbanscape® Green Roll growing media with an additional water reservoir of Urbanscape® Drainage Q25-C, this system provides state-of-the-art stormwater retention capabilities and excellent detention characteristics. When completely dry, the water absorption feature of Urbanscape® Green Roll will utilise the extra water buffer stored in the drainage cavities.

## Layer structure of Urbanscape® Green Roof Premium HIGH and Standard HIGH



## Performance characteristics of the system components

System components	Weight (kg/m <sup>2</sup> )		Height (mm)	Water storage capacity (L/m <sup>2</sup> )
	Dry	Wet		
Urbanscape® Sedum-Mix	approx. 15.0	approx. 23.0	approx. 20-40	approx. 8
Urbanscape® Green Roll (Standard)	2.2	approx. 19.2	20	approx. 17
Urbanscape® Green Roll (Premium)	4.4	approx. 33.4	40	approx. 29
Urbanscape® Drainage Q25-C	1.4	up to 16.4	25	up to 15
<b>Urbanscape® GR Premium High 25-C System</b>	<b>20.8</b>	<b>72.8</b>	<b>approx. 85-105</b>	<b>up to approx. 52</b>
<b>Urbanscape® GR Standard High 25-C System</b>	<b>18.6</b>	<b>58.6</b>	<b>approx. 65-85</b>	<b>up to approx. 40</b>

Urbanscape® Geotextile 300-REC: dry weight 0.30 kg/m<sup>2</sup>; saturated weight 1.56 kg/m<sup>2</sup>; water storage capacity of up to 1.26 kg/m<sup>2</sup>  
 Urbanscape® Geotextile 110: dry weight 0.11 kg/m<sup>2</sup>; saturated weight 0.56 kg/m<sup>2</sup>; water storage capacity of up to 0.45 kg/m<sup>2</sup>

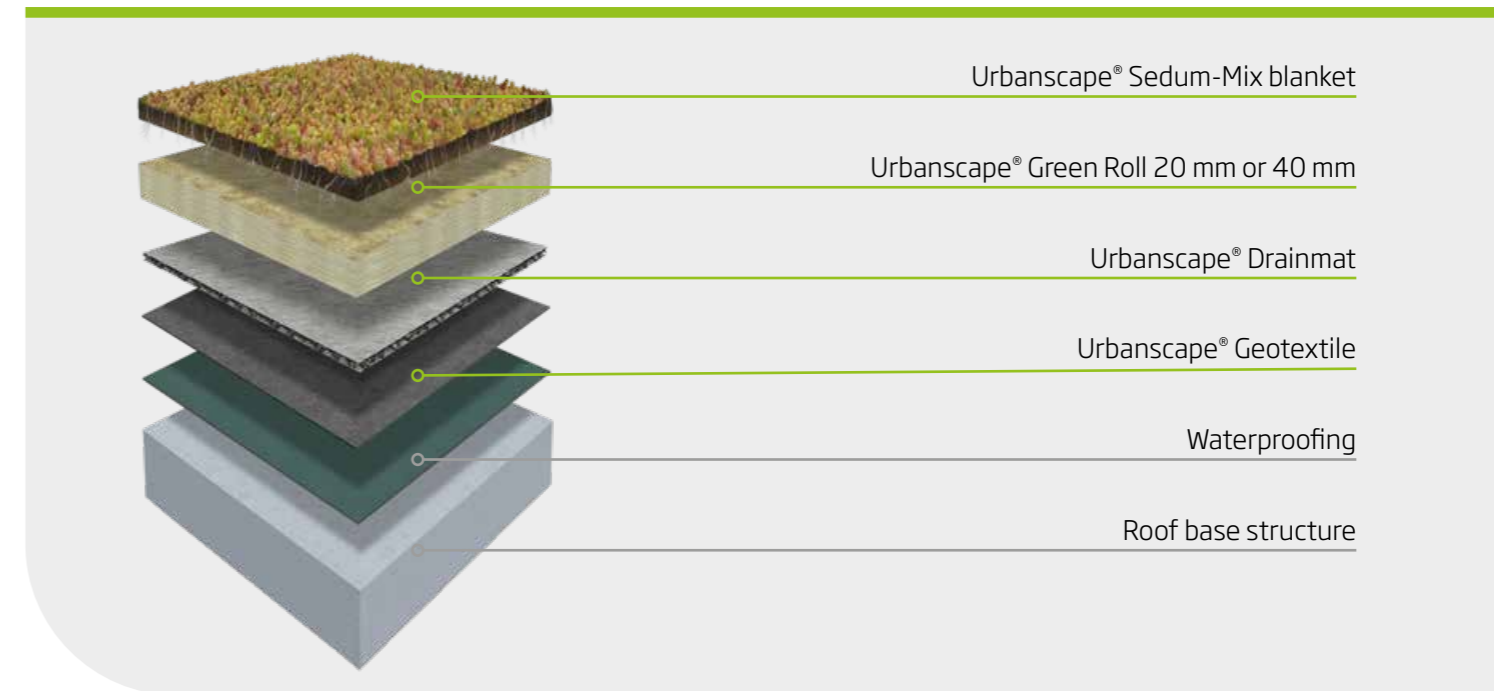
For systems with higher water storage capacity, please consult with our local representative or our central team.

# Urbanscape® Green Roof AIR Premium and Standard

Depending on the market requirements, when the weight of the green roof is an issue, Urbanscape® Green Roof AIR systems are a perfect solution for the challenge with its lightweight structure. Urbanscape® Green Roof AIR systems use Urbanscape® Drainmat instead of the drainage with buffer. With this, the weight of the Urbanscape® Green Roof AIR system can be reduced below 50 kg/m<sup>2</sup>, even when fully saturated.

Thanks to the Urbanscape® Drainmat, in addition to its low weight, the system offers improved drainage characteristics and airflow underneath the growing media. Urbanscape® Green Roof AIR systems are more suitable for wet climates.

## Layer structure of Urbanscape® Green Roof Premium AIR and Standard AIR



## Performance characteristics of the system components

System components	Weight (kg/m <sup>2</sup> )		Height (mm)	Water storage capacity (L/m <sup>2</sup> )
	Dry	Wet		
Urbanscape® Sedum-Mix	approx. 15.0	approx. 23.0	approx. 20-40	approx. 8
Urbanscape® Green Roll (Standard)	2.2	approx. 19.2	20	approx. 17
Urbanscape® Green Roll (Premium)	4.4	approx. 33.4	40	approx. 29
Urbanscape® Drainmat	0.7	up to 0.7	20	–
<b>Urbanscape® GR Premium Air System</b>	<b>20.1</b>	<b>57.1</b>	<b>approx. 80-100</b>	<b>37</b>
<b>Urbanscape® GR Standard Air System</b>	<b>17.9</b>	<b>42.9</b>	<b>approx. 60-80</b>	<b>25</b>

Urbanscape® Geotextile 300-REC: dry weight 0.30 kg/m<sup>2</sup>; saturated weight 1.56 kg/m<sup>2</sup>; water storage capacity of up to 1.26 kg/m<sup>2</sup>  
 Urbanscape® Geotextile 110: dry weight 0.11 kg/m<sup>2</sup>; saturated weight 0.56 kg/m<sup>2</sup>; water storage capacity of up to 0.45 kg/m<sup>2</sup>

For a more detailed explanation, please consult our local representative or our central team.

# Urbanscape® Green Roof ECO+

Despite the advantages of pre-vegetated roofs, in specific cases, hydroseeding or hydromulching is the preferred option. Hydroseeding allows for the relatively quick establishment of the vegetation cover with the appropriate species on roofs with small slopes.

Hydroseeding is the preferred option to traditional seeding since there is no need for specific substrate preparations and can be carried out during the rainy season. Hydroseeding is the hydraulic application of water as a carrier of seeds and fertiliser spraying onto the seedbed through a nozzle or hose.

With hydromulching, the mixture of water, cuttings, seeds and fertiliser is enhanced with a fibre-mulch which promotes plant germination and growth. This method is more appropriate for severe climates and serves as a temporary, thin erosion-control layer.



## Performance characteristics of the system components

System components	Weight (kg/m <sup>2</sup> )		Height (mm)	Water storage capacity (L/m <sup>2</sup> )
	Dry	Wet		
Urbanscape® Sedum Cuttings	0.1	0.1		
Green roof substrate	approx. 50.0	approx. 62.5	approx. 50	approx. 12.5
Urbanscape® Green Roll (Standard)	2.2	19.2	20	approx. 17
Urbanscape® Green Roll (Premium)	4.4	33.4	40	approx. 29
Urbanscape® OG Drainage FKD-20	0.9	up to 6.9	20	up to 6
<b>Urbanscape® GR ECO+ Standard</b>	<b>53.2</b>	<b>88.7</b>	<b>approx. 90</b>	<b>up to approx. 35.5</b>
<b>Urbanscape® GR ECO+ Premium</b>	<b>55.4</b>	<b>102.8</b>	<b>approx. 110</b>	<b>up to approx. 47.5</b>

5 cm substrate  
 Urbanscape® Geotextile 300-REC: dry weight 0.30 kg/m<sup>2</sup>; saturated weight 1.56 kg/m<sup>2</sup>; water storage capacity of up to 1.26 kg/m<sup>2</sup>  
 Urbanscape® Geotextile 110: dry weight 0.11 kg/m<sup>2</sup>; saturated weight 0.56 kg/m<sup>2</sup>; water storage capacity of up to 0.45 kg/m<sup>2</sup>

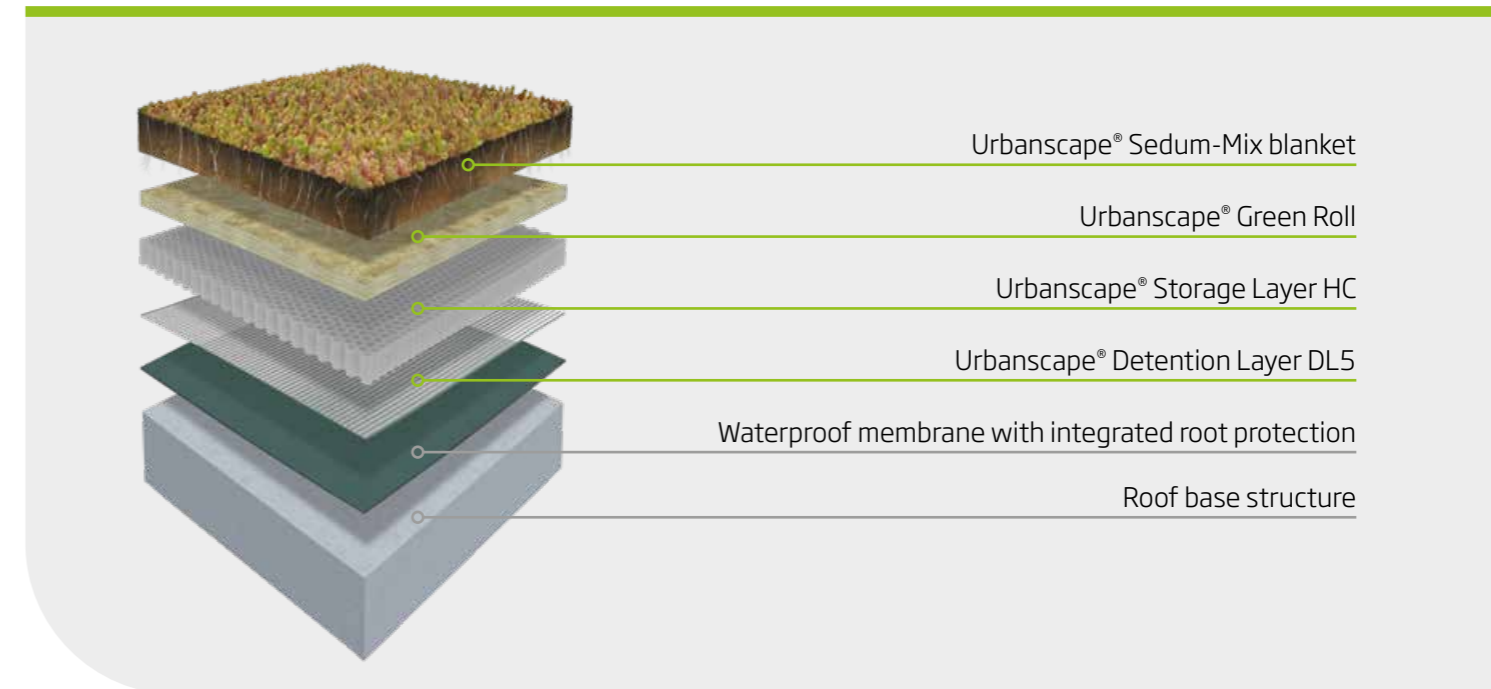
For systems with higher water storage capacity, please consult our local representative or our central team.

# Urbanscape® Detention Green Roof System

**Urbanscape® Detention Green Roof System** – an innovative, easy-to-install green roof design with the key purpose to maximise water retention and at the same time optimise water detention during peak storms. Urbanscape® Detention Green Roof has been evaluated and tested by Green Roof Diagnostics.

It pioneers detention for effective green roof stormwater management. It is the optimal solution for short, intense storms with limited rainwater volumes. It delays runoff and reduces peak runoff intensity in order to comply with stormwater detention requirements for design storms.

Urbanscape® Detention Green Roof first captures (and retains) the water and at the same time slows down the water flow, still allowing it to drain. The additional detention layer used in the Urbanscape® Detention Green Roof System significantly increases friction and slows down the water runoff, which means it is always ready for the next storm.



## Performance characteristics of the system components

System components	Weight (kg/m <sup>2</sup> )		Height (mm)	Water storage capacity (L/m <sup>2</sup> )
	Dry	Wet		
Urbanscape® Sedum-Mix	approx. 15.00	approx. 23.00	approx. 20-40	approx. 8
Soil/Substrate 5 cm	approx. 60	approx. 80		up to approx. 20
Urbanscape® Green Roll Premium	4.4	33.4	40	approx. 29
Urbanscape® Storage Layer HC 40 (Urbanscape® Storage Layer HC 60)	2.6 (3.9)	up to 37.6 (up to 55.9)	40 (60)	up to 35 (up to 52)
Urbanscape® Detention Layer	0.5	up to 4.5	5	up to 4
<b>Urbanscape® GR Detention</b>	<b>up to 82.5 (up to 83.8)</b>	<b>up to 178.5 (up to 196.8)</b>	<b>175 (195)</b>	<b>up to approx. 96 (up to approx. 113)</b>

Urbanscape® Geotextile 300-REC: dry weight 0.30 kg/m<sup>2</sup>; saturated weight 1.56 kg/m<sup>2</sup>; water storage capacity of up to 1.26 kg/m<sup>2</sup>  
 Urbanscape® Geotextile 110: dry weight 0.11 kg/m<sup>2</sup>; saturated weight 0.56 kg/m<sup>2</sup>; water storage capacity of up to 0.45 kg/m<sup>2</sup>





# Urbanscape<sup>®</sup> Extensive Flat Green Roof System Layers

Nanterre residential buildings, France

# Urbanscape® Extensive Flat Green Roof System layers

## Urbanscape® Sedum-Mix blankets

**Urbanscape® Sedum-Mix blankets** comprise from up to six to eight different species of sedum. The blankets boast at least 85% coverage upon delivery. The sebaceous sedum plants are efficient at storing water in their leaves and are extremely suitable for varying weather conditions. The blankets and plant species can differ depending on the place of growth and type of roof installation. Our blankets are grown in different locations in Europe, Asia and North America in order to adapt to specific local climates.



Property	Unit	Value
Thickness	mm	20-40
Coverage	%	85
Standard size	m	1 × 1.2    0.8 × 1.2
Max roll length	m	20-25
Weight dry	kg/m <sup>2</sup>	15
Weight saturated	kg/m <sup>2</sup>	23
Water storage capacity	l/m <sup>2</sup>	8

Please consult our technical team to select the Urbanscape® Sedum-Mix blankets most suitable for specific regions/climates or types of application (flat or pitched roofs).

## Core sedum species in our blankets

Variety	Flowering	Not flowering	Variety	Flowering	Not flowering
<b>Sedum Acre</b> Flowering period: June to July Maximum height: 5cm Flower colour: yellow			<b>Sedum sexangulare</b> Flowering period: June to July Maximum height: 5cm Flower colour: yellow		
<b>Sedum album Coral Carpet</b> Flowering period: June to July Maximum height: 10cm Flower colour: white			<b>Sedum hispanicum</b> Flowering period: June to August Maximum height: 5cm Flower colour: white pink		
<b>Sedum album Wall</b> Flowering period: June to July Maximum height: 10cm Flower colour: white			<b>Sedum floriferum</b> Flowering period: June to July Maximum height: 15cm Flower colour: yellow		
<b>Sedum hybridum</b> Flowering period: July to August Maximum height: 15cm Flower colour: yellow			<b>Sedum Kamtschaticum</b> Flowering period: June to August Maximum height: 15cm Flower colour: yellow		

In the scope of our Green Roof System range, we also supply and offer consultancy on alternative plants (grasses, shrubs, herbs, creepers) depending on climate specifics or local legislative requirements.



Roppongi Boatrace Office Building, Japan

## Urbanscape® Sedum Cuttings and Propagation Plugs

In certain cases, pre-grown Urbanscape® Green Roof Systems can be combined with alternative plant propagation options (e.g. sedum cuttings and/or propagation plugs).

The Urbanscape® Green Roof set-up for cuttings and plugs is designed to provide the optimum moisture content for optimum and fast plant growth which can be up to 20% faster compared to alternative growing media.



Hikarigaoka, Nerima-Ku, Tokyo, Japan



## Urbanscape® Green Roll

**Urbanscape® Green Roll** is a lightweight, multipurpose growing media. The product is made exclusively from virgin rock mineral fibres without additives. Urbanscape® Green Roll ensures excellent water retention and conservation characteristics in green roofs and can retain the required amounts of minerals needed for plant happiness. Up to 80% of water containing nutrients stored in the Green Roll is easily accessible to the plants.



Property	Thickness (mm)	Water retention (l/m <sup>2</sup> )	Weight (kg/m <sup>2</sup> )
Green Roll	20	17	2.2
Green Roll	40	29	4.4

Property	Unit	Value	Standard
Width	m	1	EN 822
Length	m	3-6	EN 822
Thickness	mm	20-40	EN 823 (50Pa)
Normal density*	kg/m <sup>3</sup>	100-110	EN 1602
Reaction to fire		Euroclass A1	EN 13501-1

**Declare.**  
Urbanscape® Green Roll is Red List Free.



Urbanscape® Green Roof System:  
Residential Villa in Brasschaat  
(Belgium)  
© by Architect Kristof van Hoof -  
Zandhoven (B)

## Urbanscape® Drainage Q25-C, Q40-C

**Urbanscape® Drainage with buffer Q25-C, Q40-C** is a drainage and reservoir board (25 mm height) made from recycled polystyrene with excellent load-bearing capacity specifically designed for green roofs. The panels are perforated on one side to allow installation with the holes on the upper side for water retention. It is designed for flat and sloped green-roof systems with a slope of up to 20°.

The drainage complies with the FLL Guidelines for the Planning, Execution and Upkeep of Green-Roof Sites.



Property	Unit	Value	
		Q25-C	Q40-C
Height	mm	25	40
Width	m	1	1
Length	m	2	2
Max. rainwater retention capacity.	l/m <sup>2</sup>	15	23.3
Packaging	pcs/pallet	250	180
	m <sup>2</sup> /piece	2	2
	m <sup>2</sup> /pallet	500	360
Pallet size (L × W × H)	m	2.0 × 1.0 × 1.3	2.0 × 1.0 × 1.35
Weight	kg/m <sup>2</sup>	1.36	1.92
Pallet weight	kg/pallet	705	716.2
Water flow capacity	l/m <sup>2</sup> s	Water flow capacity i=0.01': 0.64 Water flow capacity i=0.02': 0.94	Water flow capacity i=0.01': 0.68 Water flow capacity i=0.02': 1.01
C value		0.24**	0.05***
Compressive strength (unfilled)	kN/m <sup>2</sup>	398	280

\*water flow under the sheet.  $\sigma = 20$  kPa | \*\*build-up installation with 8 cm substrate | \*\*\*build-up installation with Green Roll 40. 4 cm substrate & Sedum-Mix blanket

## Urbanscape® OG Drainage with buffer FKD-20

**Urbanscape® OG Drainage with buffer FKD-20** is made from deep-drawn regenerated HDPE with water storage function, a channel system on the underside for drainage, as well as diffusion and drainage holes. For use with extensive green roofs in multi-layer construction. Suitable for use on inverted roofs.



Property	Unit	Urbanscape® OG Drainage with buffer FKD-20	
Material		Recycled HDPE	
Nominal thickness	mm	approx. 20	
Surface weight	g/m <sup>2</sup>	approx. 900	
Colour		black/grey	
Compression strength	kN/m <sup>2</sup>	approx. 120	
Filling volume	l/m <sup>2</sup>	for backfilling flush with the top of the panel approx. 6.0	
Drainage capacity	l/(m <sup>2</sup> s)	i = 0.01 (=1% roof slope): 0.68 i = 0.02 (=2% roof slope): 0.97	i = 0.1 (=10% roof slope): 2.29 i = 1 (vertical): 7.62
Buffer, unfilled	l/m <sup>2</sup>	approx. 5.3	
Buffer, filled	l/m <sup>2</sup>	approx. 1.6	
Quantity/delivery unit	m <sup>2</sup> /pallet	2 m <sup>2</sup> /board = 2 × 1 m 500 units = 1,000 m <sup>2</sup> /pallet	
Delivery form	m	one-way pallet 2.05 × 1.05	
Pallet size L×W×H	mm	2000 × 1000 × 1000	
Weight		approx. 1.8 kg/piece - approx. 925.0 kg/pallet	



Houseboats in Amsterdam, Holland



Sky View Parc, NYC, USA

## Urbanscape® Geotextile 300-REC, 500-REC

This mechanical protection layer protects the surface of the waterproofing layer from physical damage. **Urbanscape® 300-REC and 500-REC** are thermally treated on both sides, made of 100% synthetic fibres. Install Urbanscape® Geotextile 300-REC, 500-REC with an overlap of at least 10 cm.



Property	Unit	Value		Norm
		300-REC	500-REC	
Roll width	m	2	2	
Roll length	m	50	50	
Roll size	m <sup>2</sup>	100	100	EN 29073-1
Roll weight	kg	30	50	EN ISO 9073-2
Roll diameter	cm	approx. 40	approx. 45	EN 29073-3
Surface weight	g/m <sup>2</sup>	300	500	EN ISO 9864
Thickness	mm	1.8	2.5	EN ISO 9863-1
Tensile strength MD	KN/m	6.0	10.0	EN ISO 10319
Tensile strength CMD	KN/m	7.0	15.0	EN ISO 10319
Elongation MD	%	45	45	EN ISO 10319
Elongation CMD	%	40	40	EN ISO 10319
CBR puncture	kN	1.5	3	EN ISO 12236
Cone drop test	mm	12	1.8	EN ISO 13433
Characteristic opening size O90	µm	78	79	EN ISO 12956
Water permeability normal to the plane VIH50	l/(m <sup>2</sup> s)	80	80	EN ISO 11058
Robustness class		GRK 3	GRK 4	
Material		PE	PE	

Specifications are subject to change without notice.



Dubai Opera (Utility house) - Burj Khalifa Complex, UAE

## Urbanscape® Geotextile 110

Urbanscape® Geotextile 110 is a non-woven geotextile made of UV stabilised polypropylene fibres. The Urbanscape® Geotextile 110 can be used for filtering and separating purposes on extensive green roofs, since polypropylene filter membranes inhibit the leaching of fine particles from the soil into the drainage layer.



Property	Unit	Urbanscape® Geotextile 110	Norm
Surface weight	g/m <sup>2</sup>	110	EN ISO 9864
Thickness	mm	0.65	
Tensile strength MD	KN/m	6.5	EN ISO 10319
Tensile strength CMD	KN/m	6.5	EN ISO 10319
Elongation MD	%	50	EN ISO 10319
Elongation CMD	%	60	EN ISO 10319
CBR puncture	N	1200	EN IS 12236
Cone drop test	mm	32	EN ISO 13433
Characteristic opening size O90	µm	90	EN ISO 12956
Water permeability perpendicular to the level	m/s	0.08	EN ISO 11058
Packaging	m <sup>2</sup> /roll	200	
Gross weight	kg/roll	22	
Colour		white	



ZAC des Montagnes, Champniers, France

## Urbanscape® Drainmat/Drainmat PVT

**Urbanscape® Drainmat/Drainmat PVT** is a three-dimensional, light and flexible composite matting made up of a drainage core of looped polypropylene filaments, which gives it a high drainage capacity, provided on both sides with a non-woven filter fabric. The components are thermally bonded together over the entire contact area. The top non-woven filter extends 100 mm to one side of the core. This ensures that the joint is covered when Urbanscape® Drainmats are installed adjacent to one another with an additional geotextile overlap of 10 cm.



Property	Unit	Drainmat PVT	Standard
Weight	g/m <sup>2</sup>	650	EN ISO 9864
Thickness	mm	20	EN ISO 9863-1
Polymer		PP	
Colour		black/white	
Water flow capacity	l/(s × m)	0.12 (10 KPa; i=0.01)	EN ISO 12958
		0.3 (10 KPa; i=0.03)	
Tensile strength	KN/m	16/16	EN ISO 10319

### Dimensions & Weights

Mattings	Unit	Drainmat PVT
Width	m	1.2
Length	m	20
Area	m <sup>2</sup>	24

Rolls	Unit	Drainmat PVT
Diameter	m	0.63
Length	m	1.25
Gross weight	kg	16



Riga, Latvia

## Urbanscape® Root Membrane

**Urbanscape® Root Membrane** is made from black regenerated LD polyethylene foil used to prevent root penetration in green roofs. Root membrane is always used when waterproofing is not root resistant.



Property	Unit	Value	Standard
		6M	
Average thickness	mm	0.5	EN 1849-2
Width	m	6 (+/-2%)	ISO 4592/2
Length	m	25 (+/-3%)	
Roll weight	kg	71	
Units	rolls/pallet	15	
Size	m <sup>2</sup> /roll	150	
	m <sup>2</sup> /pallet	2250	
Pallet size (L × W × H)	cm	120 × 150 × 120	
Surface weight	kg/m <sup>2</sup>	0.47	
Pallet weight	kg /pallet	1085	
Tensile strength - length direction	mm	330 N/50	EN 12311-1
Tensile strength - transverse direction	mm	310 N/50	EN 12311-1
Tear resistance - length direction	N	>100	EN 12310-1
Tear resistance - transverse direction	N	>100	EN 12310-1
Density	g/cm <sup>3</sup>	0.94	ISO 1849-2



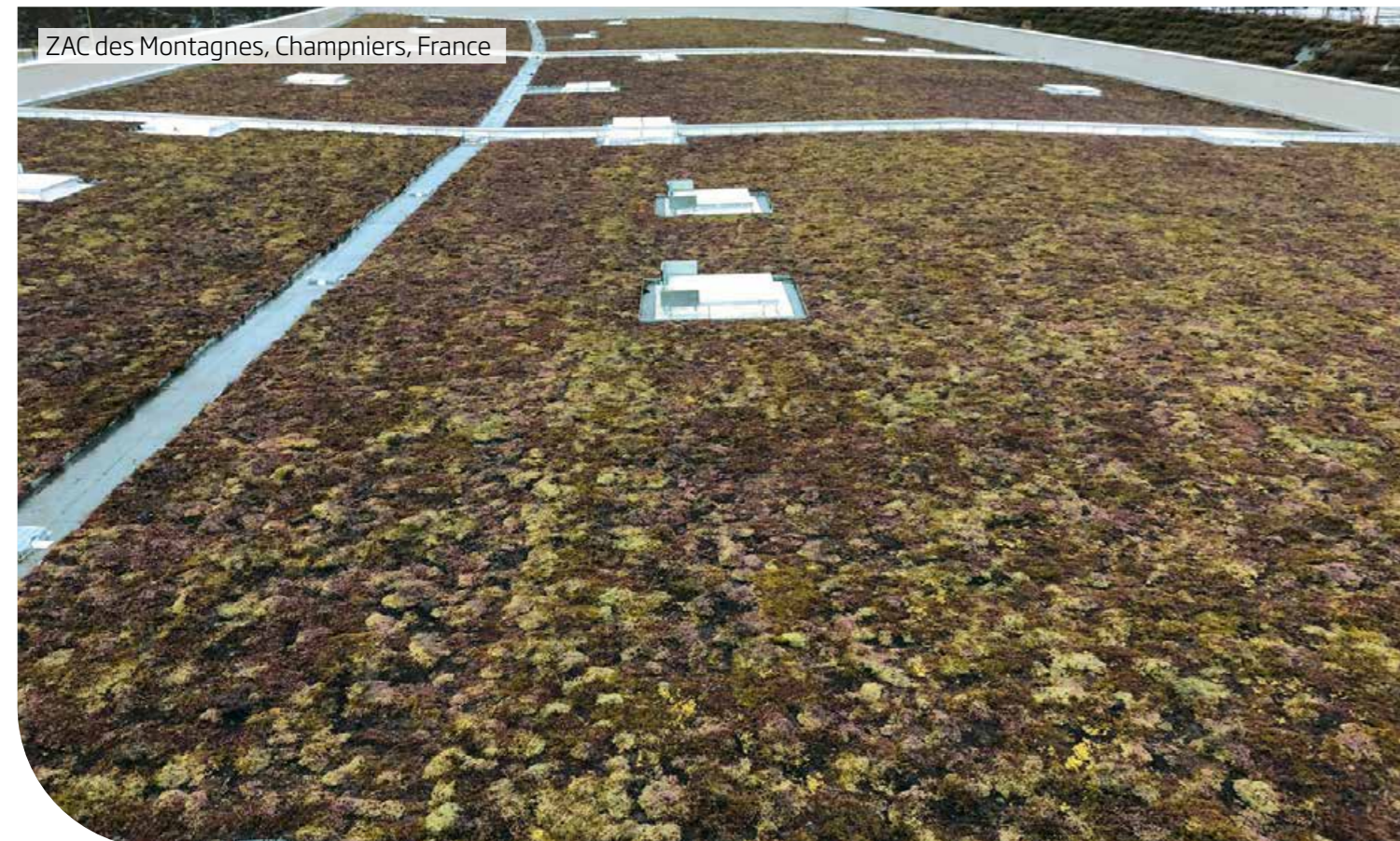
Nanterre residential buildings, France

## Urbanscape® Storage Layer HC

**Urbanscape® Storage Layer HC** is part of the Urbanscape® Detention Green Roof System assembly. Storage Layer HC is a panel of small diameter, solid-wall tubes, vertically oriented, and fused as a panel. This honeycomb structure is almost entirely macropore space (>90% void space) with negligible horizontal water flow. The sheet is made entirely of stable material: polypropylene (94%) and rigid HDPE polyester (4%), which makes the sheet both recyclable and inert.



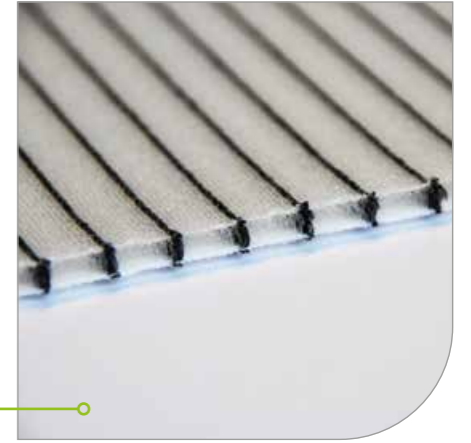
Property	Unit	Specification	
		40	60
Material		Extruded polypropylene honeycombs	Extruded polypropylene honeycombs
Tare weight	kg/m <sup>2</sup>	2.6	3.9
Dimensions	mm	2400 × 1200	2400 × 1200
Panel thickness	mm	40	60
Cell size	mm	8	8
Colour		White	White
Polyester non-woven (side 1)	g/m <sup>2</sup>	Thermally bonded 25	Thermally bonded 25
Water storage capacity	l/m <sup>2</sup>	35	52
Temperature behaviour		U.V.- and frost-resistant	U.V.- and frost-resistant
Compressive strength	t/m <sup>2</sup>	> 100	> 100



ZAC des Montagnes, Champniers, France

## Urbanscape® Detention Layer DL5

**Urbanscape® Detention Layer DL5** is part of the Urbanscape® Detention Green Roof System assembly. The sheet is made entirely of nylon. Both the top and bottom of the sheet are tightly woven and function as a root-resistant and filtering layer. In between there is a machine-woven pattern of vertical threads that cause friction, which creates a delay in draining water.



Weight	Weight/roll	Thickness	Standard roll size	Drain rate	Thread count	Compressive resistance
500 g/m <sup>2</sup>	27 kg	5 mm	1.00 m × 50.00 m	Project specific	280 threads per cm <sup>2</sup>	10% compression loss when 2000 kg/ m <sup>2</sup> weight applied

This product is supplied in a roll of 1 by 50 metres.



Nanterre residential buildings, France



# Special Green Roof Solutions

Ypsilon - multi-apartment residential building, Ljubljana, Slovenia  
Photo: Danilo Bevk



# Urbanscape® Extensive Inclined (up to 20°) and Pitched Green Roof Systems (20°–45°)

Vegetated inclined or pitched roofs offer many benefits to the public, private, economic and social sectors. Particularly important are the aesthetic aspects of greening, which is much more delicate compared to traditional flat green roofs.

Technical performance may vary by region, climate and green roof design. Compared with flat roofs, inclined or pitched roofs retain less water. At the same time, the amount of moisture from the ridge to the lower edge also varies. Precisely because of this, optimal moisture distribution in inclined roofs represents one of the main challenges in green roof design.

Due to the high water storage capacity of the Green Roll growing media, Urbanscape® systems ensure a much more uniform distribution of water at the roof pitch compared to conventional sloping roofs with exclusively soil-based substrates.

The most critical component of any sloping green roof is the system that holds the growing media and the vegetation layer in place during the early stages of roof development. Because of the low weight and at the same time high water storage capacity with uniform water distribution, Urbanscape® Inclined and Pitched Green Roof Systems are an excellent and reliable solution for all roof pitches of up to 20°. For roofs with pitches of more than 20°, please contact the Urbanscape® Green Solutions team technical support.



For inclined roofs up to 20° technical data, such as dry weight and saturated weight, are the same as for other flat Urbanscape® Green Roof Systems

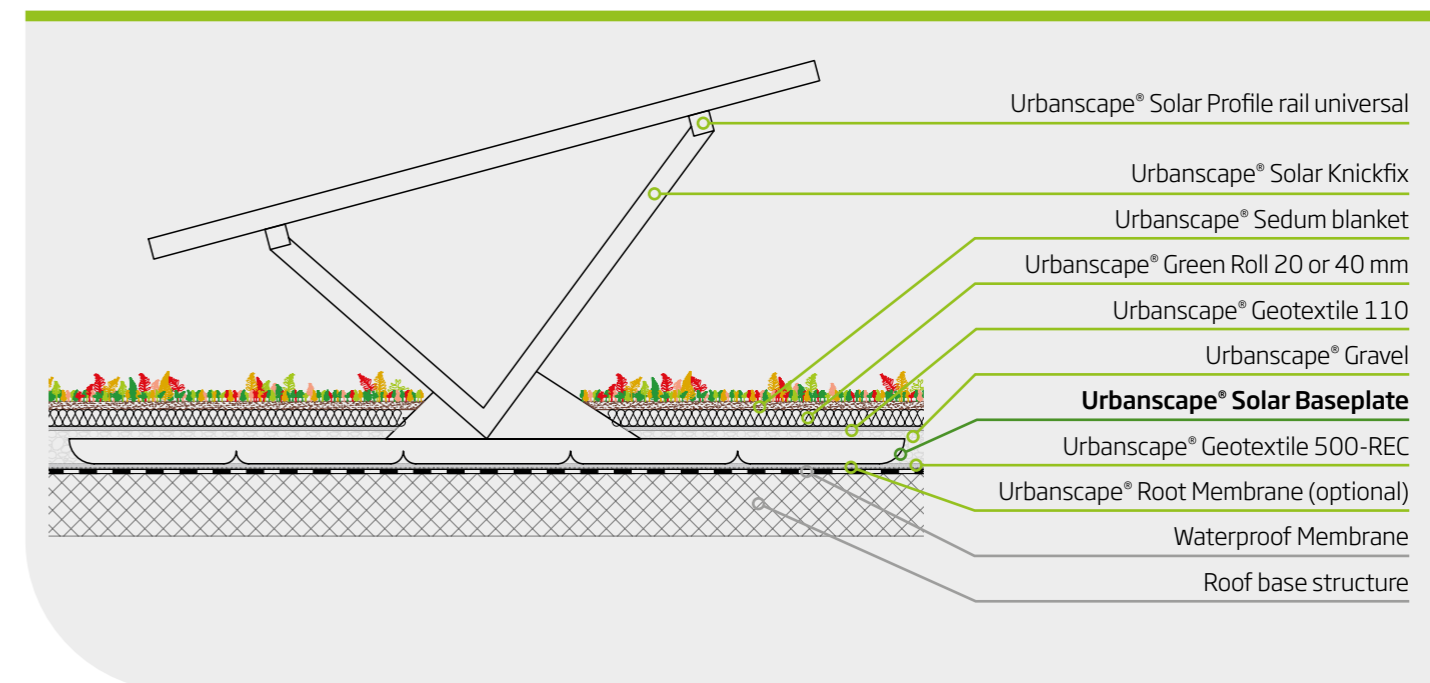
System components Urbanscape® Pitched Green Roof Systems (20°-45°)	Weight [kg/m²]		Height [mm]	Water storage capacity [l/m²]
	Dry	Wet		
Urbanscape® Sedum-Mix	approx. 15	approx. 23	approx. 20-40	approx. 8
Urbanscape® Substrate 50/75	50/75	62.5/93.8	*in combination with substrate holder	approx. 12.5/18.8
Urbanscape® Substrate Holder S75	2.2	2.2	75	0
Urbanscape® Substrate Holder S50	1.7	1.7	50	0
Urbanscape® Green Roll (Premium)	4.4	approx. 33.4	40	approx. 29
Urbanscape® Pitched Roof S75	96.6	152.4	approx. 135-155	approx. 49.5
Urbanscape® Pitched Roof S50	71.1	120.6	approx. 110-130	approx. 55.8

Urbanscape® Geotextile 300-REC: dry weight 0.30 kg/m²; saturated weight 1.56 kg/m²; water storage capacity of up to 1.26 kg/m²  
Urbanscape® Geotextile 110: dry weight 0.11 kg/m²; saturated weight 0.56 kg/m²; water storage capacity of up to 0.45 kg/m²

## Urbanscape® Solar System

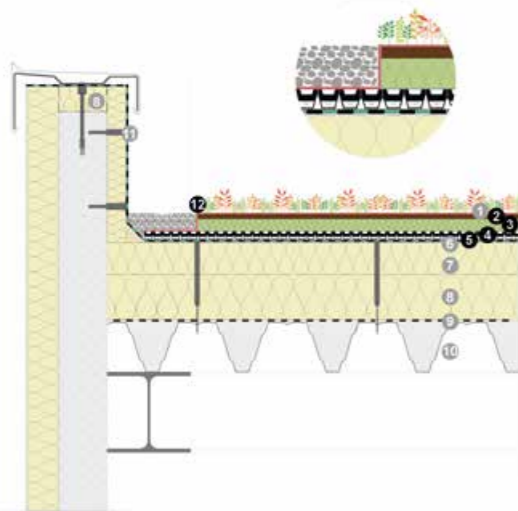
**Urbanscape® Solar** is a substructure system, without photovoltaic panels, for photovoltaic panels on green roofs. It is the perfect solution for the latest guidelines. Both systems - photovoltaic panels and green roofs - complement each other. Photovoltaic panels provide shading for plants and help them survive hot summer days, while vegetation helps cool down photovoltaic panels with its evapotranspiration and thus improves the efficiency of the photovoltaic panels.

The Urbanscape® Solar System comes with many benefits. The Urbanscape® Base Plate is the base element of the photovoltaic substructure system. It helps stabilise the system. Thanks to the Urbanscape® Base Plate the photovoltaic system does not need to be anchored to the roof with permanent fixation and penetration of the waterproofing membrane. With an even distribution of appropriate weight ballast on the plate we can achieve sufficient fixation of the system. In addition to requiring no permanent fixation, the Urbanscape® Solar System in combination with Urbanscape® Green Roll provides better growth conditions for plants. Urbanscape® Green Roll helps with its excellent water absorption and horizontal distribution plants under the photovoltaic panels, which are not a part of the Urbanscape® Solar System, to access fresh rainwater.



## Additional wind fixation

For areas with strong winds, we propose a solution with wire netting that has big holes. One of the examples that can be used is rabbit netting (as seen in the photo). In areas with strong winds, the problem is that strong wind forces can potentially lift up green roof layers. The function of the wire netting is to hold the green roof in place. It is placed over all layers of the green roof. At the edges of the green roof where the gravel strip starts, the netting should go underneath the gravel. With its weight the gravel provides ballast to hold the netting in place.



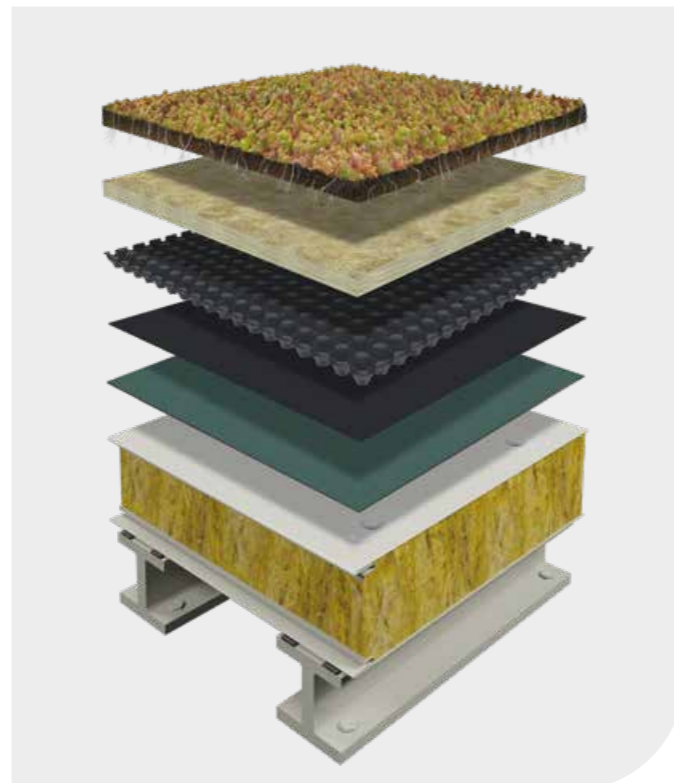
- 1 Wire mesh
- 2 Urbanscape® Sedum-Mix blanket
- 3 Lightweight Green Roll 4cm
- 4 Urbanscape® Drainage layer with buffer
- 5 Urbanscape® root membrane\*
- 6 Waterproofing membrane with root protection
- 7 Rock mineral wool Knauf Insulation DDP, DDP-X
- 8 Rock mineral wool Knauf Insulation DDP - RT Thermal
- 9 Vapour barrier
- 10 High-profiled trapezoidal metal sheet
- 11 Anchor
- 12 Urbanscape® L-profile

## Urbanscape® Green Roof System for industrial sandwich panel buildings and warehouses

High-quality built environments create spaces for living and working as well as for education, art, and commerce – thereby enriching urban life and the cityscape. In the construction of non-residential buildings, prefabricated building elements are widely used. Key requirements which determine the design of such buildings are energy efficiency, low noise pollution and fire safety.

Green roofs have a high potential for improving these kinds of sandwich panel buildings and their flat roofs. They promise a wide variety of benefits for the employees and the owners alike. They:

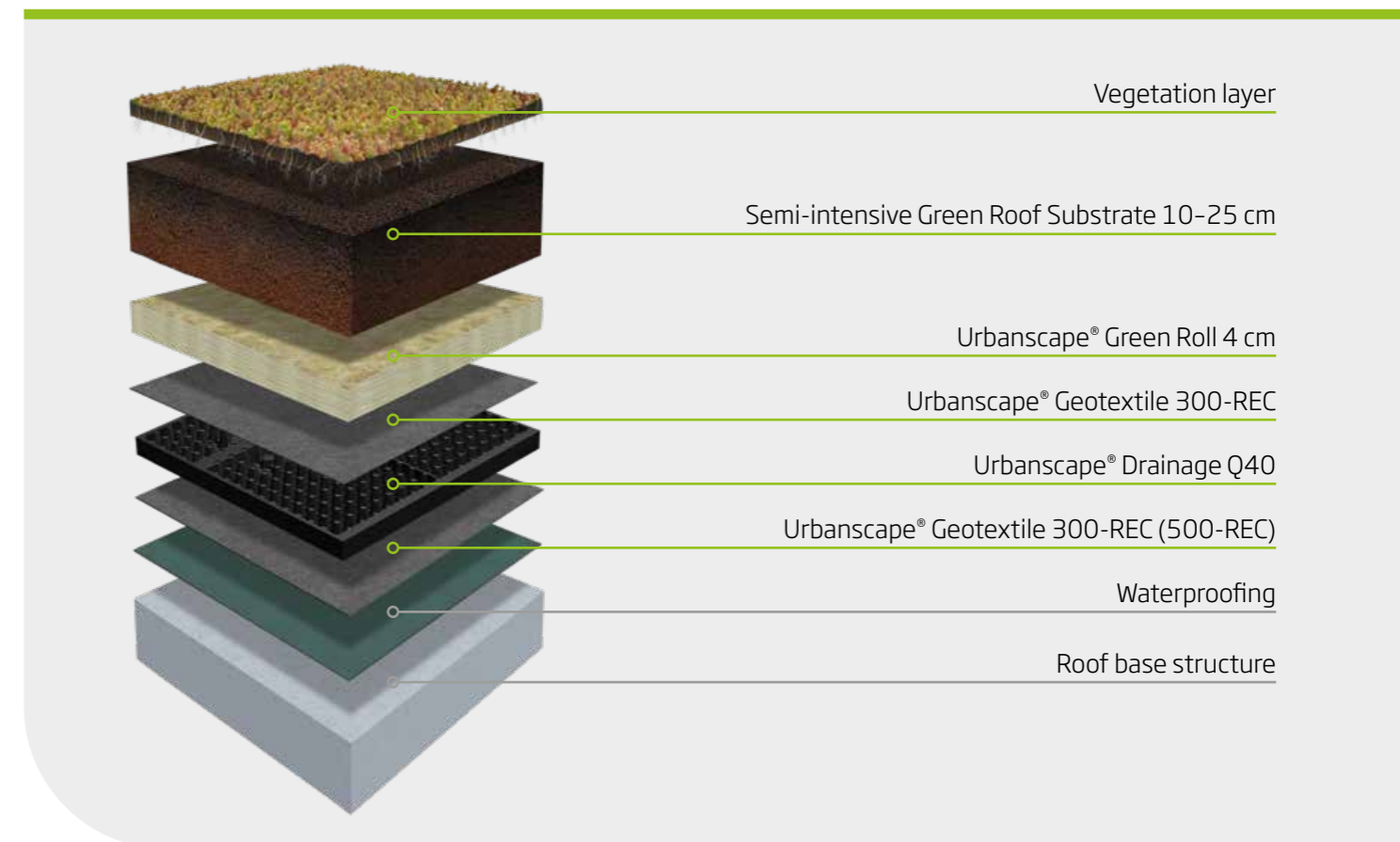
- contribute to climate protection and aspects of nature conservation,
- act as water management tools,
- protect the core roof materials from being damaged by ultraviolet radiation and rapid temperature changes,
- reduce the energy needs of the buildings (for heating and cooling)
- add value to the property itself.



The Urbanscape® Green Roof System is an optimal solution for all flat roof sandwich panel buildings and furthermore, a great idea for converting roofs into a place for rest. At the same time, it enriches the visual urban experience in many ways.

## Urbanscape® Semi-intensive Green Roof Systems

**Semi-intensive green roofs** differ from extensive ones mainly in the thickness of the growing substrate. The thickness of the substrate above the Urbanscape® Green Roll is usually between 10 and 25 cm. This system is able to retain more stormwater than an extensive system and due to the possibility of implementing a wider range of plant species, allows us greater biodiversity. It is characterised by small herbaceous/flowering plants, ground covers, grasses and small shrubs. The maintenance requirement depends on the selected plants and substrate type/thickness. With a semi-intensive green roof, maintenance is not demanding; only watering during longer dry periods is recommended. It is more about aesthetic corrections, insofar as these are necessary.



System components Urbanscape® Semi-intensive Green roof Systems	Weight [kg/m <sup>2</sup> ]		Height [mm]	Water storage capacity [l/m <sup>2</sup> ]
	Dry	Wet		
Semi-intensive Green Roof Substrate 10 cm	approx. 100	approx. 125	approx. 100	approx. 25
Semi-intensive Green Roof Substrate 25 cm	approx. 250	approx. 312.5	approx. 250	approx. 62.5
Urbanscape® Green Roll (Premium)	4.4	approx. 33.4	40.0	approx. 29
Urbanscape® Drainage Q40-C	1.9	up to 25.2	40.0	up to 23.3
Urbanscape® Semi-intensive GR System 10 cm	106.3	183.6	approx. 180	up to approx. 77.3
Urbanscape® Semi-intensive GR System 25 cm	256.3	371.1	approx. 330	up to approx. 114.8

Urbanscape® Geotextile 300-REC: dry weight 0.30 kg/m<sup>2</sup>; saturated weight 1.56 kg/m<sup>2</sup>; water storage capacity of up to 1.26 kg/m<sup>2</sup>  
Urbanscape® Geotextile 500-REC: dry weight 0.50 kg/m<sup>2</sup>; saturated weight 2.50 kg/m<sup>2</sup>; water storage capacity of up to 2.00 kg/m<sup>2</sup>



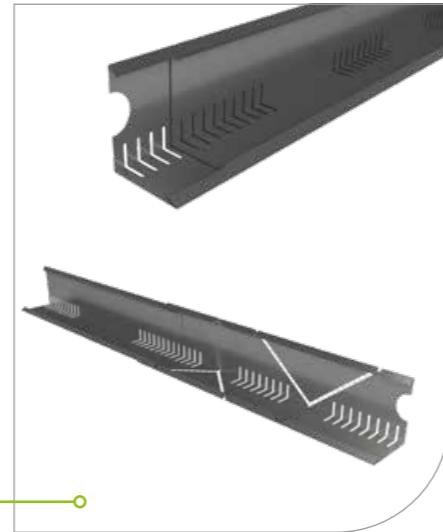
# Urbanscape® Green Roof Systems Accessories

# Urbanscape® Green Roof Systems accessories

## Urbanscape® GALV profile and corner profile

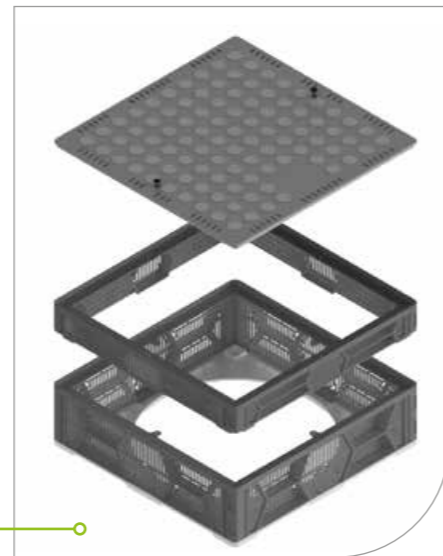
Length-adjustable and lockable green roof edge profile and separation board bent along 3 edges, with perforation for drainage, constructed from hot-dipped galvanised steel. Supplied with two locking clips, two optional heights of 8 or 10 cm, fixed by ballast (no roof structure penetration). Suitable for flat and gentle incline green roof systems. Profiles can be extended up to 3.9 m.

Delivery dimensions: 200×8×10 cm (L×W×H); Weight: 4.8 kg/pcs, 1.2 kg/lm.



## Urbanscape® QuickBox

The Urbanscape® QuickBox is installed over the outlets on extensive green roofs as part of the Urbanscape® Green Roof System. According to FLL Guidelines, drainage outlets have to be accessible at all times. The Urbanscape® QuickBox allows the inspection and maintenance of drainage outlets. The box consists of a high-quality polypropylene base with weight distribution footprints and a lockable lid with openings to secure the drainage of overflow from the green roof build-up as well as surface water from the vegetation layer. The custom-designed inspection box also prevents contamination and stops plants from growing over the outlet.



## Urbanscape® Biodiversity Kit

The Urbanscape® Biodiversity Kit has been carefully assembled to improve the biodiversity of extensive green roofs, thereby also increasing their ecological value. The biodiversity package is supplied on a pallet. The Urbanscape® Biodiversity Kit requires a construction area of 6m².

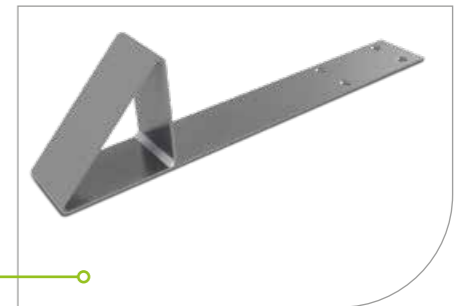
The Urbanscape® Biodiversity Kit is supplied on a pallet and includes the following products:

- Biodiverse Roof Garden Substrate
- Sand
- Gravel
- Multi-coloured Maas River boulders
- Oak logs
- Insect hotel
- Biodiverse plant selection consisting of perennials, herbs and grasses



## Urbanscape® profile holder

Urbanscape® profile holder to support edge profiles (Urbanscape® L-profile) placed at the edge of roofs with a pitch over 12°.



## Urbanscape® Substrate holder

The Anti-Shear Urbanscape® Substrate Holder is a plastic grid made of recycled HDPE/LDPE. It can be supplied in types S50 and S75, depending on the applied system build-up scheme.




# Foolproof and super-fast installation




More info:

The modular layer principle used throughout the entire Urbanscape® Green Roof range is the foundation for foolproof and super-fast installation. Usually, a team of three can install up to 500 m<sup>2</sup> of Urbanscape® Green Roof in one day by simply following the steps below.


**Step 1** Clean the roof and check that the waterproofing membrane is not damaged.




**Step 2** If the waterproofing membrane is not resistant to root penetration, protect it with Urbanscape® Root Membrane.




**Step 3** Recommendation: Lay the protection layer of Urbanscape® Geotextile.




**Step 4** Lay the selected drainage crosswise on top of the protective layer (if used), covering the entire area where the green roof will be set up.




**Step 5** Set up edge profiles around the green roof.




**Step 6** Recommendation: Lay the protection layer of Urbanscape® Geotextile 110 crosswise on top of drainage.




**Step 7** Roll out Urbanscape® Green Roll crosswise on top of Urbanscape® Drainage (or crosswise on top of Geotextile 110 if used).




**Step 8** If irrigation is needed, install it directly on top of Urbanscape® Green Roll.




**Step 9** Roll out the Urbanscape® Sedum-Mix blanket crosswise on top of Urbanscape® Green Rolls.



**Step 10** Fertilize the green roof with the Urbanscape® Conditioner.



**Step 11** Water the vegetation until the system is fully saturated.



# Green Roof maintenance

## Important

Essential emergency watering in case of prolonged dry and hot periods (e.g. in the summer) according to local climate conditions. Recommended watering with sprinklers, drip irrigation system or manually. Provide an adequate amount of water (full saturation of the substrate - follow the installation guidelines).

An irrigation system is recommended and could be essential in a hot/arid climate. By adding the irrigation system, the human error factor can be minimised. The need for irrigation strongly depends on the climate.

Intensive and excessive walking on plants (more than is normally required for maintenance) can damage plants to such an extent that they cannot recover.

## Maintenance

The number of inspections depends on the surroundings and the conditions on the roof. Regular maintenance of the roof includes, as a minimum, biannual roof inspection (early spring and early autumn), during which minor maintenance work is performed. This includes:

### 1. FERTILISING

We recommend fertilising twice a year (preferably in spring and autumn) with a suitable fertiliser with a prolonged effect. We recommend using the Urbanscape® Sedum Conditioner. Spread the fertiliser evenly over the green area before the precipitation. Carry out the first fertilisation no later than 6 months after installation, depending on the condition of the vegetation. Scatter approx. 1 kg of Urbanscape® Sedum Conditioner per 40 m<sup>2</sup>.

### 2. REMOVING WEEDS/IN-BLOWN SEEDS IF GROWN

Seeds of invasive and other plant species could potentially damage the performance of the Urbanscape® Green Roof System.

### 3. RE-PLANTING EMPTY PATCHES IF THEY OCCUR

Fill possible empty spots in the Urbanscape® Sedum-Mix blankets with pieces of vegetation (sedum species). Restore the Green Roof substrate in case of wind or water erosion. Fill bare spots with adequate amount of lightweight Green Roof substrate and replant with vegetation.



More info:

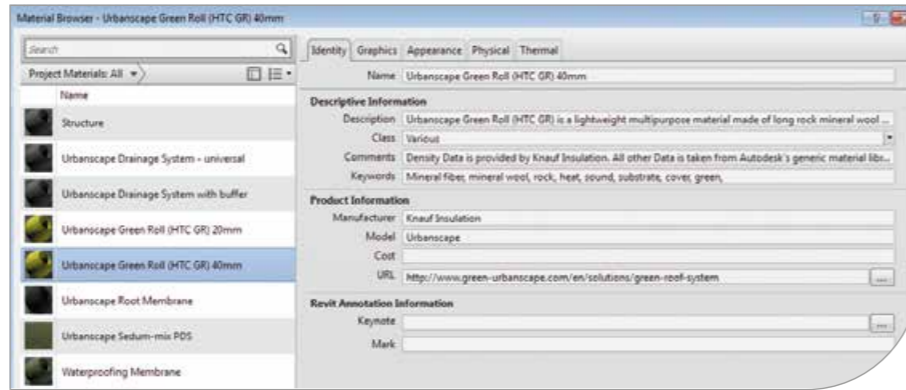
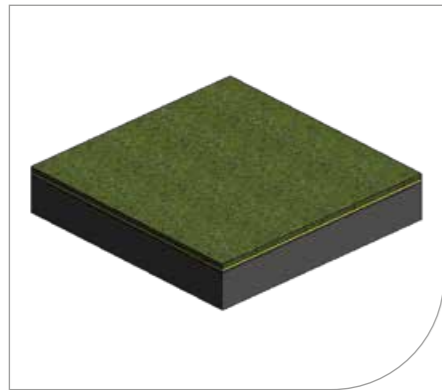
Sky View Parc, New York City, US

# Building Information Modelling (BIM) for the Urbanscape® Extensive Green Roof System

To assist and support architects, engineers and other users, the Urbanscape® Green Solutions Team has developed a detailed BIM object of the Urbanscape® Extensive Green Roof System, which contains all of the necessary geometric, material, physical and functional characteristics of different Urbanscape® systems and layers.



More info:



With this parametric Urbanscape® BIM object, users can quickly and easily design not only the physical representation of an extensive green roof, but also all the key green roof-related information, such as static load, stormwater retention and detention characteristics, compressive strength, height/total thickness of packaging etc.

All data are automatically integrated into the project package and require no additional technical documentation. Our BIM object for the Urbanscape® Green Roof System can be downloaded from our website.

## How green roofs contribute to final green building ratings

The green construction industry is quickly developing while the popularity of green building rating tools is growing. Using green roofs earns points in different green building rating systems, such as LEED (Leadership in Energy and Environmental Design) and BREEAM (Building Research Establishment Environmental Assessment).

We will help you optimise your points for your LEED, BREAM or any other certification that might apply in your country (DGNB, GOLD STAR, etc.). We will use our advanced modelling and evaluation tools (such as the PET tool) to provide sufficient data to become eligible for additional points from sustainable certifiers.



LEED certification

More info:



BREEAM certification

More info:

# Urbanscape® Green Roof System EPD



More info:

When it comes to information about the environmental impact of the Green Roof System, we are at the cutting edge of innovation.

Not only is our Environmental Product Declaration (EPD) process faster, easier and more detailed than ever, but we are now taking EPDs to a whole new level by launching the industry's first 'system EPD' for an Extensive Green Roof System.

The EPD – based on information required for our innovative Green Roof Solution Urbanscape® – is a major breakthrough because it examines the environmental impact of several different components that contribute to a 'system solution'. Previously, EPDs only examined the impact of individual components, not combinations.

Our sustainability teams have also contributed their innovative expertise to the German programme operator IBU (Institut Bauen und Umwelt) in order to draw up the product category rules (PCR) that form the backbone of the new system EPD.

A highly important aspect of the entire process has been ensuring that other manufacturers can use the PCR to verify their own Extensive Green Roof System EPDs.

**This EPD breakthrough is also good news for specifiers.**

Our Urbanscape EPD can provide additional points in green building rating systems. For example, in LEED version 4, there is one point if there are 20 EPDs for a complete building from five different manufacturers and in the new April 2016 version of BREEAM, there is one point for just five EPDs for a building. For architects/specifiers who now want to achieve EPD points for extensive green roofs, our new Urbanscape® System EPD offers the only source of detailed environmental impact information.



## Wind uplift

Wind can cause inconveniences. Because of this, tests were carried out in a wind tunnel, in order to evaluate the wind resistance of the Urbanscape® Green Roofing system. Tests have proved, that in its "dry" state, the Urbanscape® roofing system can withstand wind speeds of up to 185 km/h.

## Fire safety

Roof fire safety should not be neglected. An efficient way of prevention of fire on roofs is the use of fireproof material. Urbanscape® Green Roll has an A1 classification for reaction to fire, according to standard EN 13501-1. Additionally, a test has been conducted for external fire exposure acc. to EN 13501-5, Broof(T1).

# PET tool for Urbanscape®

The PET tool is an important part of the technical support Knauf Insulation Green Solutions offers stakeholders. This software tool optimises the green roof design process, assisting with energy and water management performance and the evaluation of the comparative advantages of green roofs compared to ordinary or existing flat roofs without vegetation.

This is completed via the arbitrary modelling of a lightweight or massive referential flat roof and the URBANSCAPE® Green Roof System for the selected climate in a selected city regardless of the continent. Our customers will receive a three-page report useful in providing for an improved green building rating.

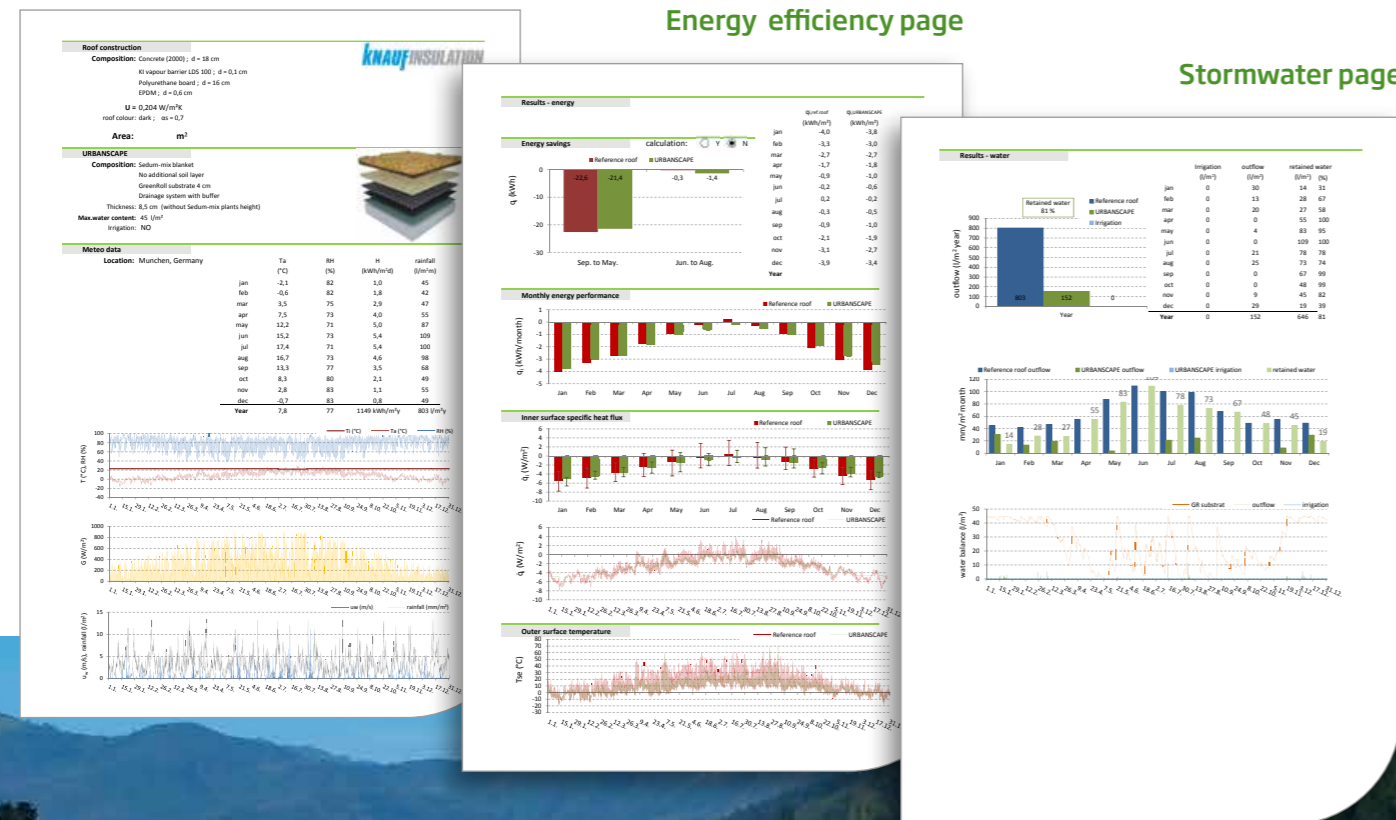


More info:

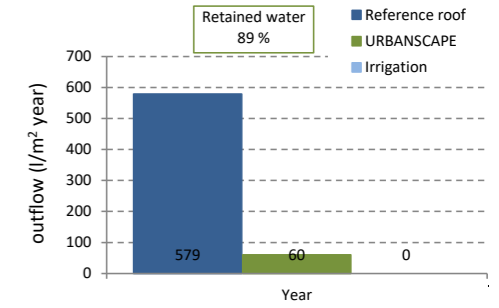
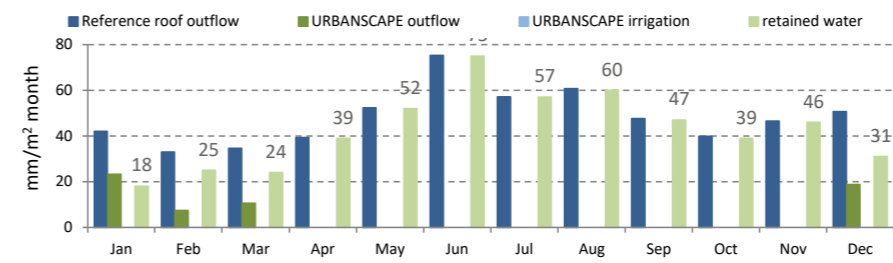
## System page with climate data

## Energy efficiency page

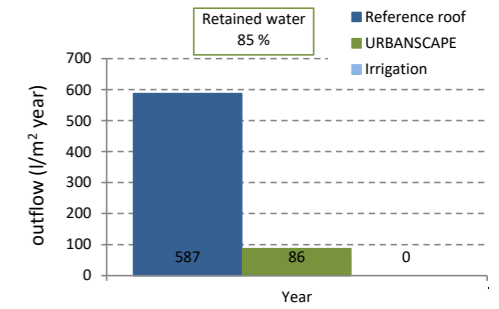
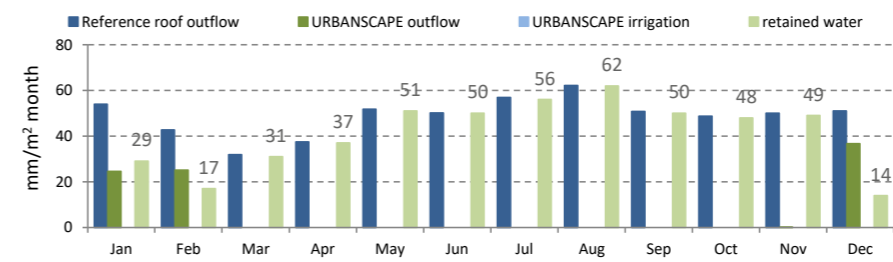
## Stormwater page



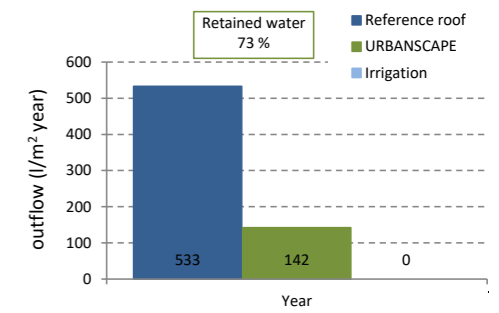
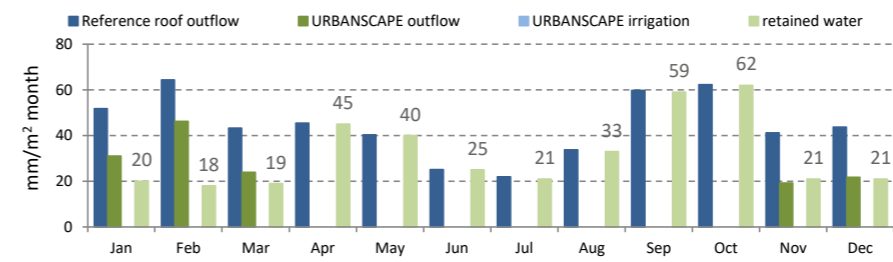
## Berlin, Germany



## Paris, France



## London, United Kingdom



AMPO facility, Idiazabal, Spain



# Basic delivery guidelines and procedures

Please try to follow these guidelines to make our everyday work and co-operation better and easier.



## 1. CANCELLATIONS or CHANGES TO THE ORDER (including DELIVERY DATE)

Possible only a min. of **5 working days before planned delivery**

## 2. ORDER DETAILS / CONTENT

### Orders must contain:

- Material Code No., Quantity in m<sup>2</sup> or pieces, agreed/offered price, terms of delivery (according to Incoterms), payment terms, or any other special agreements with the salesperson
- Address & requested date of delivery (usually we deliver between Tuesdays and Thursdays)
- Name & phone no. of the contact person for delivery

Please check the contents of our order confirmation carefully to make sure it corresponds to the information provided and inform us immediately in case any modifications need to be made. If any information is missing, our customer service department will contact you; consequently, the delivery time may be extended (due to coordination and incomplete data).



## 3. DELIVERY DATE

- Shipments smaller than 1,000 m<sup>2</sup>: within **10 working days** after receipt of order
- Shipments larger than 1,000 m<sup>2</sup>: within **20 working days** after receipt of order



## 4. DELIVERY TIME

- Time of delivery: during the working day hours (08.00-16.00)\*  
\*Required delivery in a 2 hour time slot also possible, but with an additional payment of €150



## 5. MINIMUM ORDER QUANTITY

1 pallet = 25 m<sup>2</sup> of system or 50 m<sup>2</sup> of only Sedum

## 6. MANAGING CLAIMS / COMPLAINTS

### All claims need to be reported to the contact person in your region.

- For sedum: within 24 hours after delivery with a picture of the unrolled sedum and a brief description; all further details will be communicated to the contact person.
- For other components of the system or any issues with delivery: Report within 8 days after delivery with pictures included (according to the General Terms); transportation remarks and damage and other issues must also be noted on the delivery document (CMR).



**7. New Customer Service phone number:** +386 4 5114 182 (official working hours 08:00-16.00)

**E-mail:** ordersurbanscape@knaufinsulation.com

# Varied colours all year long!

Thanks to the 12 sedum varieties, Urbanscape® Green Roof will surprise you with the variety of shades that it takes on through the year: red, green or brown, with white, pink, yellow or red flowers between June and September. The colours of Urbanscape® Green Roof vary based on weather conditions, season, irrigation and maintenance quality.





## About Knauf Insulation

Knauf Insulation is one of the leading and fastest growing manufacturers of insulation materials; our mission is to become the world leader in energy efficient systems for buildings. Building on over 40 years of expertise in energy efficiency, we are focused on providing a comprehensive range of solutions for residential and non-residential buildings and industrial customers. We are committed to providing building materials that deliver real performance to improve sustainable construction.



Living with a Green Heart is an initiative that focuses on the importance of a balanced and proactive contribution towards achieving all 17 Sustainable Development Goals of the United Nations 2030 Agenda for Sustainable Development. It presents a unique story, approach and solutions that promote human transformation from mechanical into conscious and responsible individuals, building homes from natural materials that boost well-being and a better world for ALL.

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