



**System Solutions for thriving Green Roofs**



**Engineering+Green Roof Systems**

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# The Roofs of the Future are Green



Roofs are more than just “functional components” for the protection of the building structure. Roofs give character to individual buildings and entire city districts. Beyond that, roofs are more and more considered as open resource areas. They attract urban planners looking for socially responsible concepts that counteract the loss of natural living space and provide solutions for issues such as stormwater management and urban heat island effect in densely populated cities.

Green Roofs are extending the formal language of contemporary architecture and confer a new significance and value on the concept of “Roof Landscape”:  
Nature – increasingly ousted by buildings and paved surfaces – returns as an attractive green element in residential, recreational and working environments.

ZinCo - as the global market leader - are pioneers and innovators in the field of extensive and intensive roof greening. Research projects and innovative systems developed by ZinCo inspire architects and demanding clients to plan both private and large public buildings in a holistic and sustainable way.

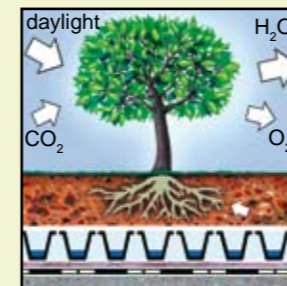
ZinCo are based in Germany, with offices in over 22 countries throughout Europe, Asia and the Americas. We install over 1,5 million square meters of Green Roof systems annually on commercial, residential, industrial and institutional buildings. Our lightweight, durable Green Roof systems leverage German-engineered technology to imitate the beauty of nature and deliver superior environmental and economic benefits to building owners and communities all over the world.

People, their relationship to nature and to life in an ecologically intact environment – this is what matters to us.



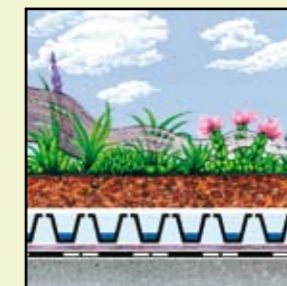
# Why have a Green Roof?

Beyond their attractive visual nature, Green Roofs offer many undisputable benefits, both ecological and economical, provided they are built with the right system.



Green Roofs cool and humidify the surrounding air. Thus they create a beneficial microclimate within their immediate areas and contribute to improving the microclimate in urban centres. This cooling effect significantly increases the performance of air-conditioning systems, reducing carbon emissions.

## Binds Dust And Toxic Particles



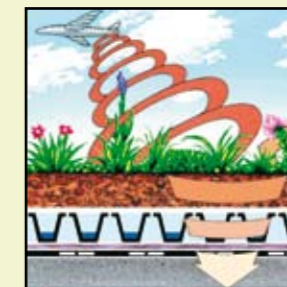
Green Roof vegetation helps to filter out dust and smog particles. Nitrates and other harmful materials are absorbed by the plants out of the air and rainfall and bound within the substrate.

## Increases Water Retention



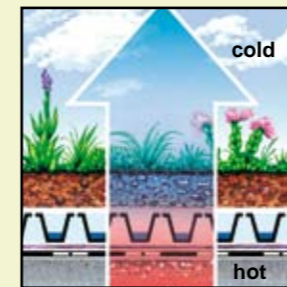
A Green Roof can reduce water run-off by 50-90 %; any remaining water flows from the roof with a delay. Outlets, pipes and drains can be reduced in capacity, thereby saving construction costs; sewer costs can be reduced in some areas.

## Improves Noise Protection



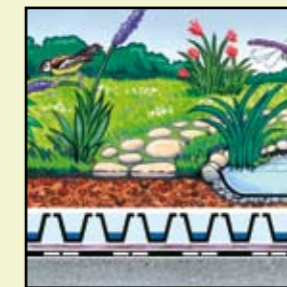
Planted areas are natural sound insulators and absorb more sound than hard surfaces. Green Roofs reduce reflective sound by up to 3 dB and improve sound insulation by up to 8 dB. This is very effective for buildings near airports, or noisy nightclubs and factories.

## Reduces Energy Costs



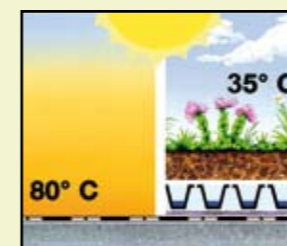
A Green Roof has the ability to buffer temperature extremes and improve the buildings energy performance. What is more, Green Roofs like DUO-Roof with Floratherm®, that has accredited thermal insulating values, add to the building's insulation.

## Offers A Natural Habitat

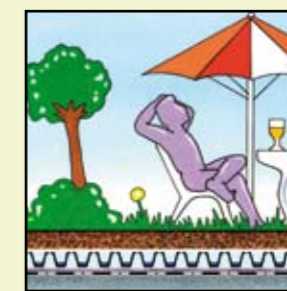


Landscaped roofs compensate for green spaces, which are lost to building development and provide natural habitats for birds, insects etc..It is a possibility to bring nature into the cities.

## Reduces Renovation Costs



A Green Roof protects the waterproofing from climate extremes, UV exposure and mechanical damage. This greatly increases the life expectancy of the waterproofing, which results in reduced maintenance and replacement costs.



Green Roofs offer additional space for numerous uses. Whether you want a relaxing garden, a playground or a golf course, it all can be achieved without having to spend money on new and expensive grounds.

# Types of Green Roofs

There are two basic types of Green Roofs with a number of variations.

## Extensive Green Roofs



Extensive landscaped roofs are an ecological alternative to conventional surface protection or ballast layers such as gravel and pavers. They are lightweight and have a shallow build-up height. Suitable plants include various Sedum species, herbs and some grasses. After establishment of the vegetation, the maintenance is limited to one or two inspections a year.

## Intensive Green Roofs



Intensive Green Roofs can most easily be compared to building a garden on a roof. They are usually multifunctional and accessible. They require more weight and a deeper system build-up. The maintenance is regular and depends on the landscape design and the chosen plant material. Anything is possible from lawns, perennials, shrubs, trees including other landscape options such as ponds, pergolas and patios.

### Extensive Landscape:

#### minimal maintenance required

- inspection 1-2 x / year
- supply of water and nutrients mostly by natural processes

#### adapted plant communities

- undemanding, drought-tolerant
- self-regenerating

#### little weight and shallow build-up height

- mainly mineral substrate in layers up to 120 mm
- weight approx. 50 - 150 kg/m<sup>2</sup>

➔ surface protection with ecological functions

### Intensive Landscape:

#### regular maintenance required

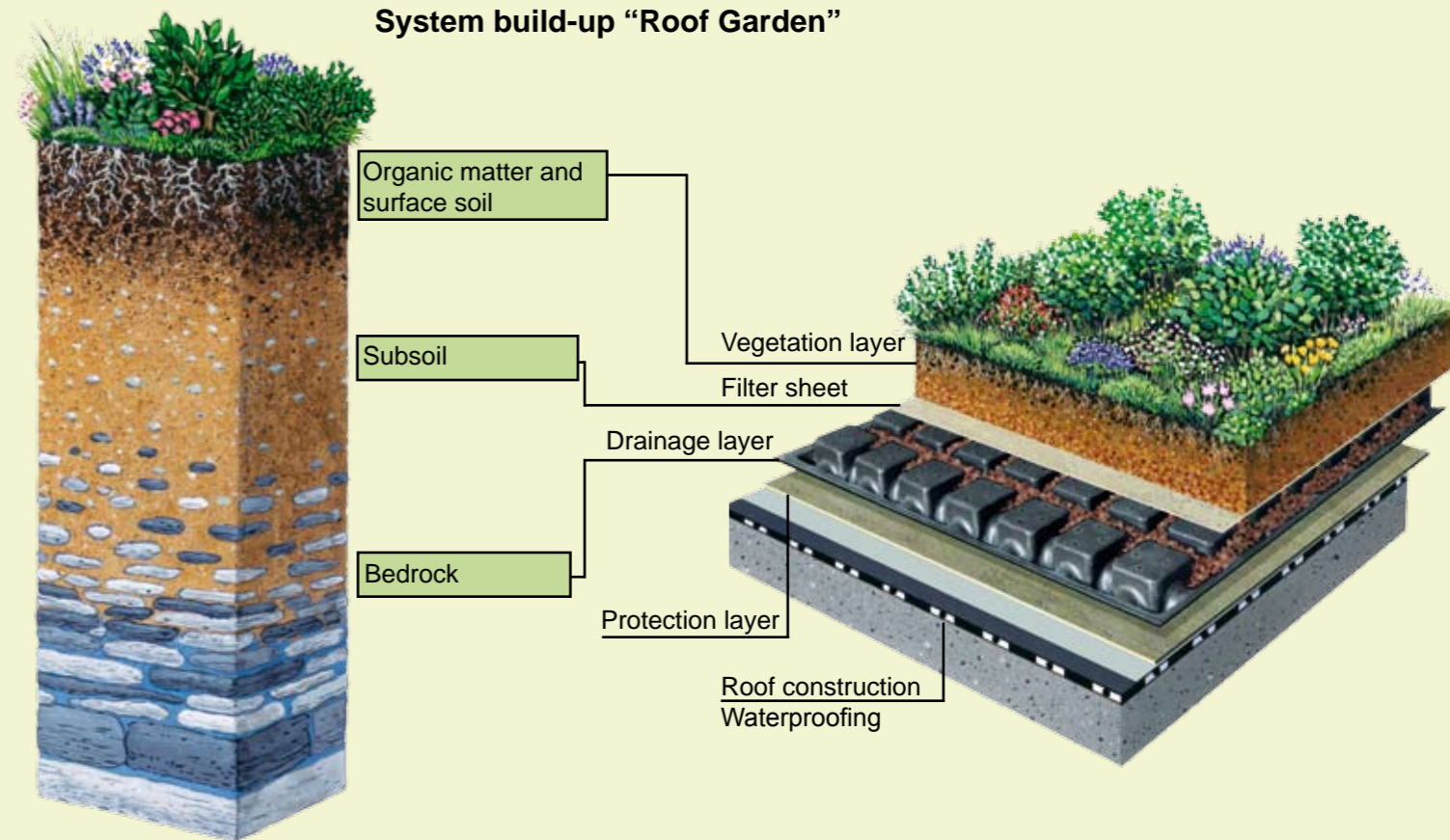
- garden maintenance such as mowing, fertilizing, watering, weeding etc

#### weight and build-up height depending on plant selection

- e. g. ornamental lawn, summer flowers, demanding shrubs, bushes and trees
- substrate with a higher amount of organic material in layers > 150 mm
- weight >150 kg/m<sup>2</sup>

➔ well kept Roof Garden

# Replicating Nature on Roofs



## The Challenge

When designing and installing a Green Roof it is important to provide a growing environment as close as possible to the plant's natural environment. The most important factor is to compensate for the lack of subsoil.



## The answer is the ZinCo technology

ZinCo systems have the structure to retain the necessary quantities of water to support the plants, whilst draining off the excess. The required amount of water is determined by the plant type, geographical region and the roof itself. Apart from creating the correct Green Roof system to support the plants, it is very important to protect the waterproofing from both mechanical damage and attack from plant roots. ZinCo systems provide a number of solutions to these problems. ZinCo Green Roof Systems have been designed to function naturally. The plants receive a stable environment without adversely affecting the waterproofing.

ZinCo Green Roof systems embrace leading edge technologies in the three key elements that combine to ensure successful Green Roofs:

### Consulting

- Horticulture & Ecology
- Materials Science
- Building and Landscape Architecture
- Roofing Membranes
- Landscape Contractors

### Manufacturing & Design

- Extensive Green Roofs
- Intensive Green Roofs
- Hybrid Solutions

### Education & Training

- Seminars, Symposiums, Workshops
- Product Data Sheets, Samples, Design

# Extensive Green Roofs

## System build-up “Sedum Carpet”



The “Sedum Carpet” is a standard build-up for extensive Green Roofs. It is a shallow and lightweight Green Roof type with an attractive “back-to-nature” appearance, that requires little maintenance. Floradrain® FD 25-E is the appropriate drainage and waterstorage element for this system. It has the necessary compressive strength, a low profile height, little weight and is walkable. Proven Sedum species, in combination with the adapted substrate and system build-up, guarantee a durable Green Roof. The system substrate “Sedum Carpet” is particularly suitable for extensive Green Roofs as well as the plant community “Sedum Carpet”, containing various low-growing Sedum species that are wind and frost-resistant.

The main blooming time is early summer with yellow, red and white flowers dominating. During the year, “Sedum Carpet” is represented in various shades of green. Red shades show particularly in autumn and are a nice change in the Green Roof’s appearance.

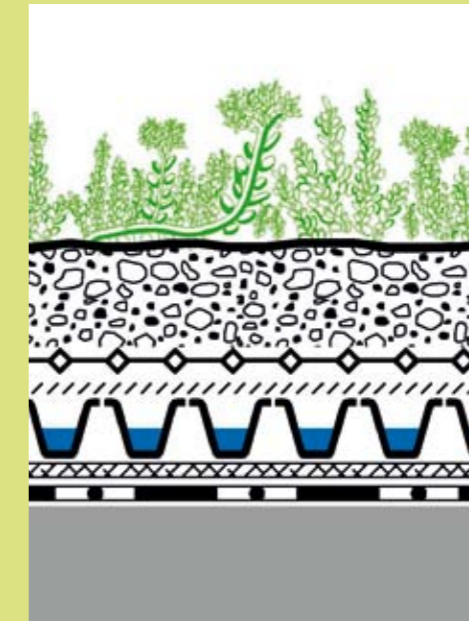
Sedum cuttings are produced by cutting off the shoot tips of selected types of Sedum. This is only possible during the non-flowering period (spring or autumn), as flowering shoots do not easily grow roots. With Sedum cuttings, good ground cover is achieved within 2-3 years. A faster ground coverage is achieved with plug planting.



## System build-up “Sedum Carpet”

### Benefits:

- Ecological protection layer instead of gravel covering.
- Requires minimum care and attention.
- For roofs without standing water and with a slight slope up to 8°.



Plug Plants FB 50 “Sedum Carpet”  
16 pcs/m<sup>2</sup> or  
Sedum Cuttings 60 g/m<sup>2</sup>

System Substrate “Sedum Carpet”  
≥ 60 mm

Fallnet®  
Filter Sheet SF

Floradrain® FD 25-E

Protection Mat SSM 45

Root Barrier WSF 40,  
if waterproofing is not root-resistant.



	Art.-No.	Unit
Sedum Cuttings	8020	bag of 2 kg
Plug Plants FB 50 “Sedum Carpet”	8110	tray with 50 pcs.



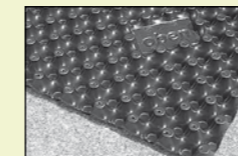
Substrate	Unit	Art.-No.	Unit	Art.-No.	Unit	Art.-No.
“Sedum Carpet”	big bag	6121	bulk	6122	silos	6123



This system build-up allows the integration of the Fallnet® Fixing Device for roofs with slopes up to 5° (see page 30-31)



Filter Sheet SF	Art.-No.	Dimensions	Unit	Pallet
	2100	ca. 2.00 m x 100.00 m	200 m <sup>2</sup> -roll	4600 m <sup>2</sup>
	2102	ca. 1.00 m x 100.00 m	100 m <sup>2</sup> -roll	2500 m <sup>2</sup>
	2101	ca. 2.00 m x 10.00 m	20 m <sup>2</sup>	



Floradrain® FD 25-E	Art.-No.	Dimensions	Unit	Pallet
Floradrain® FD 25-R (Roll)	3028	ca. 1.00 m x 2.00 m	2 m <sup>2</sup> -board	200 boards
Floradrain® FD 25-RV (Roll & Filter Sheet)	3023	ca. 1.00 m x 15.00 m	15 m <sup>2</sup> -roll	
	3022	ca. 1.00 m x 15.00 m	15 m <sup>2</sup> -roll	



Protection Mat SSM 45	Art.-No.	Dimensions	Unit
	2045	ca. 2.00 m x 50.00 m	100 m <sup>2</sup> -roll



Root Barrier WSF 40	Art.-No.	Dimensions	Unit	Pallet
	1040	ca. 8.00 m x 25.00 m	200 m <sup>2</sup> -roll	4600 m <sup>2</sup>
	1041	ca. 6.25 m x 20.00 m	125 m <sup>2</sup> -roll	2500 m <sup>2</sup>
	1044	ca. 3.00 m x 33.50 m	100.5 m <sup>2</sup> -roll	2211 m <sup>2</sup>
	1043	ca. 2.00 m x 50.00 m	100 m <sup>2</sup> -roll	2600 m <sup>2</sup>
	41040	ca. 6.25 m x 3.20 m	20 m <sup>2</sup>	600 m <sup>2</sup>

# Extensive Green Roofs

## System build-up “Rockery Type Plants”



Extensive Green Roofs call for plant communities that can easily deal with sun, wind and drought. The system build-up “Rockery Type Plants” leads to an extensive Green Roof with sophisticated design and individual character. The substrate is a minimum of 70 mm in depth and vegetation consists of various species which provide a long blooming period and allow for different accents throughout the vegetation period.

Water and nutrients are mostly supplied through natural processes. Rainfall collects in the Floradrain® storage cells and roots are provided with water through diffusion. Water is also stored in the protection mat. Excess water is drained away by the Floradrain® element.

Sedum species and other perennials are primarily used as a ground cover. The installation of “Rockery Type Plants” is achieved by root ball plants, hand planted to ensure the design agrees with the landscaping drawings.



### System build-up “Rockery Type Plants”

#### Benefits:

- Extensive Green Roof with a large variety of species as an ecological protection layer instead of gravel covering.
- Plantings with plug plants according to plant list “Rockery Type Plants”.
- For roofs without standing water and with a slight slope up to 8°.
- Requires minimum care and attention; various designs and combinations with walkways and patios are possible.



Plug Plants FB 50 “Rockery Type Plants”  
16 pcs/m<sup>2</sup> or  
Sedum Cuttings 60 g/m<sup>2</sup>

System Substrate “Rockery Type Plants”  
≥ 70 mm

Fallnet®  
Filter Sheet SF

Floradrain® FD 25-E

Protection Mat SSM 45  
Root Barrier WSF 40,  
if waterproofing is not root-resistant.



**Plug Plants FB 50  
“Rockery Type Plants”**

Art.-No.	Unit
8120	tray with 50 pcs.



**Substrate  
“Rockery Type Plants”**

Unit	Art.-No.	Unit	Art.-No.	Unit	Art.-No.
big bag	6121	bulk	6122	silos	6123



**This system build-up allows the integration of the Fallnet® Fixing Device for roofs with slopes up to 5° (see page 30-31)**



**Filter Sheet SF**

Art.-No.	Dimensions	Unit	Pallet
2100	ca. 2.00 m x 100.00 m	200 m <sup>2</sup> -roll	4600 m <sup>2</sup>
2102	ca. 1.00 m x 100.00 m	100 m <sup>2</sup> -roll	2500 m <sup>2</sup>
2101	ca. 2.00 m x 10.00 m	20 m <sup>2</sup>	



**Floradrain® FD 25-E  
Floradrain® FD 25-R (Roll)  
Floradrain® FD 25-RV (Roll & Filter Sheet)**

Art.-No.	Dimensions	Unit	Pallet
3028	ca. 1.00 m x 2.00 m	2 m <sup>2</sup> -board	200 boards
3023	ca. 1.00 m x 15.00 m	15 m <sup>2</sup> -roll	
3022	ca. 1.00 m x 15.00 m	15 m <sup>2</sup> -roll	



**Protection Mat SSM 45**

Art.-No.	Dimensions	Unit
2045	ca. 2.00 m x 50.00 m	100 m <sup>2</sup> -roll



**Root Barrier WSF 40**

Art.-No.	Dimensions	Unit	Pallet
1040	ca. 8.00 m x 25.00 m	200 m <sup>2</sup> -roll	4600 m <sup>2</sup>
1041	ca. 6.25 m x 20.00 m	125 m <sup>2</sup> -roll	2500 m <sup>2</sup>
1044	ca. 3.00 m x 33.50 m	100.5 m <sup>2</sup> -roll	2211 m <sup>2</sup>
1043	ca. 2.00 m x 50.00 m	100 m <sup>2</sup> -roll	2600 m <sup>2</sup>
41040	ca. 6.25 m x 3.20 m	20 m <sup>2</sup>	600 m <sup>2</sup>

# Extensive Green Roofs

## System build-up "Meadow Scents"



As a general rule, flat roofs should be laid to fall of at least 2°. This is particularly important when designing an extensive Green Roof with a shallow drainage and soil layer as any deflection in the deck allowing water to pond above the drainage layer will be harmful to the plants.

However, Green Roofs can be installed on zero degree roofs where deeper puddles remain, provided that the correct build-up is designed to avoid the danger of drowning the plants. The standard system build-up "Sedum Carpet" is to be adapted to these requirements. By using Floraset®, a deeper drainage element (50 or 75 mm), the necessary distance between the water level and the vegetation layer is ensured. The system build-up is higher, but not heavier compared to a standard build-up.

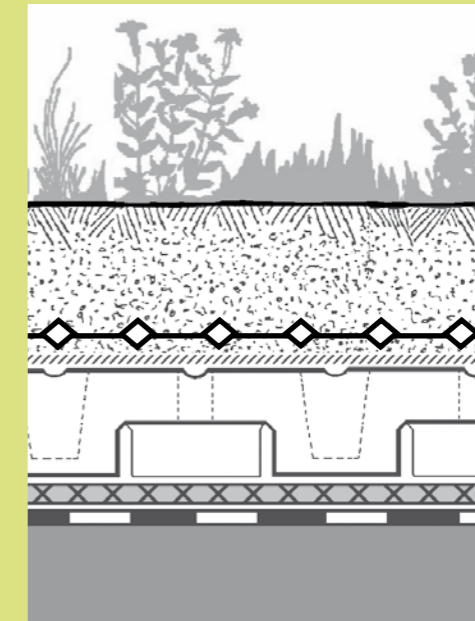
The Floraset® elements are made of expanded recycled polystyrene thus they are light-weight. They are walkable and can be used both on extensive and intensive Green Roofs.



## System build-up "Meadow Scents"

### Benefits:

- For 0°-Roofs with standing water; can also be used for roofs with a slight slope up to 10°.
- The plant covering is realized by sowing a seed mixture of "Meadow Scents" and Sedum Cuttings.
- Extensive Green Roofs requires minimum care and attention; with a great variety of species or with drought resistant grasses.



Seed mixture "Meadow Scents" 15 g/m<sup>2</sup> and Sedum Cuttings 25 g/m<sup>2</sup>

System Substrate "Rockery Type Plants" ≥ 70 mm

Fallnet®  
Filter Sheet SF

Floraset® FS 50 (FS 75)

Protection Mat TSM 32  
Root Barrier WSF 40,  
if waterproofing is not root-resistant.



	Art.-No.	Unit
<b>Seed Mixture "Meadow Scents"</b>	8003	bag of 0.5 kg



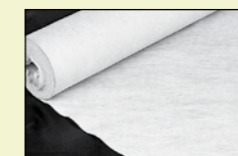
	Art.-No.	Unit
<b>Sedum Cuttings</b>	8020	bag of 2 kg



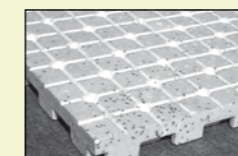
Substrate	Unit	Art.-No.	Unit	Art.-No.	Unit	Art.-No.
<b>"Rockery Type Plants"</b>	big bag	6121	bulk	6122	silos	6123



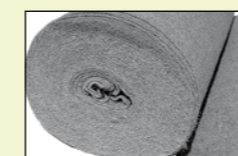
This system build-up allows the integration of the Fallnet® Fixing Device for roofs with slopes up to 5° (see page 30-31)



Filter Sheet SF	Art.-No.	Dimensions	Unit	Pallet
	2100	ca. 2.00 m x 100.00 m	200 m <sup>2</sup> -roll	4600 m <sup>2</sup>
	2102	ca. 1.00 m x 100.00 m	100 m <sup>2</sup> -roll	2500 m <sup>2</sup>
	2101	ca. 2.00 m x 10.00 m	20 m <sup>2</sup>	



Floraset® FS 50	Art.-No.	Dimensions	Unit	Pallet
<b>Floraset® FS 50</b>	3050	ca. 1,00 m x 1,00 m	1 m <sup>2</sup> -board	54 boards
<b>Floraset® FS 75</b>	3075	ca. 1,00 m x 1,00 m	1 m <sup>2</sup> -board	36 boards
<b>Floraset® FS 100</b>	3101	ca. 1,00 m x 1,00 m	1 m <sup>2</sup> -board	40 boards



Protection Mat TSM 32	Art.-No.	Dimensions	Unit
	2032	ca. 2.00 m x 50.00 m	100 m <sup>2</sup> -roll



Root Barrier WSF 40	Art.-No.	Dimensions	Unit	Pallet
	1040	ca. 8.00 m x 25.00 m	200 m <sup>2</sup> -roll	4600 m <sup>2</sup>
	1041	ca. 6.25 m x 20.00 m	125 m <sup>2</sup> -roll	2500 m <sup>2</sup>
	1044	ca. 3.00 m x 33.50 m	100.5 m <sup>2</sup> -roll	2211 m <sup>2</sup>
	1043	ca. 2.00 m x 50.00 m	100 m <sup>2</sup> -roll	2600 m <sup>2</sup>
	41040	ca. 6.25 m x 3.20 m	20 m <sup>2</sup>	600 m <sup>2</sup>

# Extensive Green Roofs

## “Rockery Type Plants” on Inverted Roofs



The characteristic of an inverted roof is that the insulation is above the waterproofing. The extruded polystyrene insulation (XPS) which is used for this kind of roof is impervious to water, but not to water vapour. Forming a vapour barrier directly above it when installing a Green Roof must therefore be avoided.

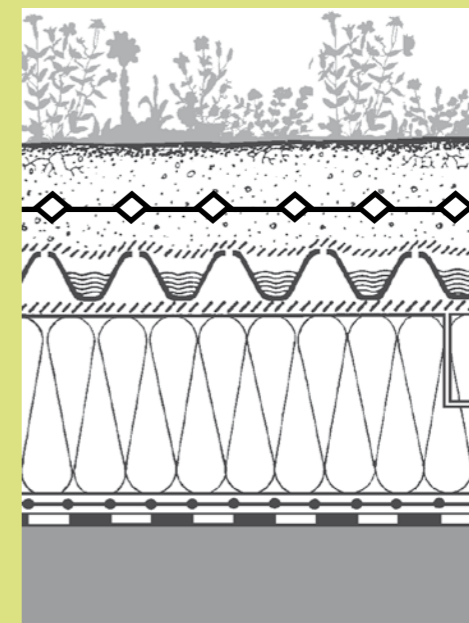
Layers that prevent moisture from diffusing out should not be installed over the thermal insulating XPS boards and the layer above should be vapour permeable. No protection mat is to be used and if a root barrier is required, it has to be placed below the insulation directly onto the waterproofing. A deeper substrate layer compensates for the water retention capacity of the missing protection mat and prevents wind uplift of the insulation boards.



### System build-up “Rockery Type Plants” on Inverted Roofs

#### Benefits:

- Build-up for inverted roofs allowing diffusion and vaporisation.
- Extensive Green Roof with a large variety of species as an ecological protection layer instead of gravel covering.
- Planting with Plug Plants according to plant list “Rockery Type Plants”.
- For roofs without standing water and with a slight slope up to 8°. Requires minimum care and attention; various designs and combinations with walkways and patios are possible.



Plug Plants FB 50 “Rockery Type Plants”  
16 pcs/m<sup>2</sup>

System Substrate “Rockery Type Plants”  
≥ 80 mm

Fallnet®  
Filter Sheet SF  
Floradrain® FD 25-E  
Separation Membrane TGV 21

Thermal insulation XPS

Root Barrier WSF 40,  
if waterproofing is not root-resistant.



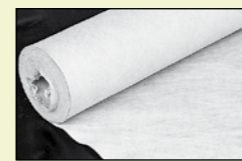
	Art.-No.	Unit
<b>Plug Plants FB 50 “Rockery Type Plants”</b>	8120	tray with 50 pcs.



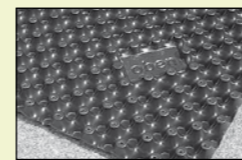
Substrate	Unit	Art.-No.	Unit	Art.-No.	Unit	Art.-No.
<b>“Rockery Type Plants”</b>	big bag	6121	bulk	6122	silos	6123



**This system build-up allows the integration of the Fallnet® Fixing Device for roofs with slopes up to 5° (see page 30-31)**



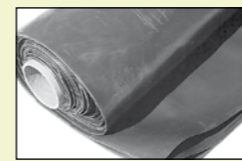
Filter Sheet SF	Art.-No.	Dimensions	Unit	Pallet
	2100	ca. 2.00 m x 100.00 m	200 m <sup>2</sup> -roll	4600 m <sup>2</sup>
	2102	ca. 1.00 m x 100.00 m	100 m <sup>2</sup> -roll	2500 m <sup>2</sup>
	2101	ca. 2.00 m x 10.00 m	20 m <sup>2</sup>	



Floradrain® FD 25-E Floradrain® FD 25-R (Roll) Floradrain® FD 25-RV (Roll & Filter Sheet)	Art.-No.	Dimensions	Unit	Pallet
	3028	ca. 1.00 m x 2.00 m	2 m <sup>2</sup> -board	200 boards
	3023	ca. 1.00 m x 15.00 m	15 m <sup>2</sup> -roll	
	3022	ca. 1.00 m x 15.00 m	15 m <sup>2</sup> -roll	



Separation Membrane TGV 21	Art.-No.	Dimensions	Unit	Pallet
	2180	ca. 1.60 m x 250.00 m	400 m <sup>2</sup> -roll	3600 m <sup>2</sup>
	2185	ca. 1.60 m x 50.00 m	80 m <sup>2</sup> -roll	1600 m <sup>2</sup>



Root Barrier WSF 40	Art.-No.	Dimensions	Unit	Pallet
	1040	ca. 8.00 m x 25.00 m	200 m <sup>2</sup> -roll	4600 m <sup>2</sup>
	1041	ca. 6.25 m x 20.00 m	125 m <sup>2</sup> -roll	2500 m <sup>2</sup>
	1044	ca. 3.00 m x 33.50 m	100.5 m <sup>2</sup> -roll	2211 m <sup>2</sup>
	1043	ca. 2.00 m x 50.00 m	100 m <sup>2</sup> -roll	2600 m <sup>2</sup>
	41040	ca. 6.25 m x 3.20 m	20 m <sup>2</sup>	600 m <sup>2</sup>



# Extensive Green Roofs

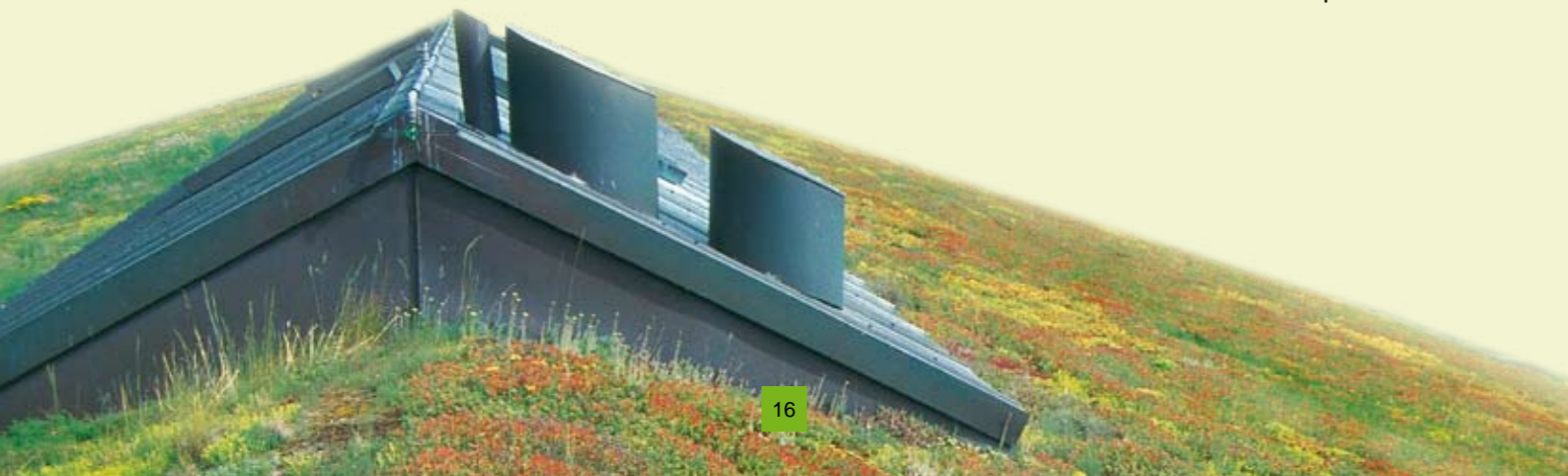
## System build-up “Pitched Green Roof”



According to general regulations for roofs with waterproofing, flat roofs should have a fall of at least 2%. Pitched roofs, as described in this brochure, start with a slope of 10° (18%). From 10° on, the Green Roof system build-up differs significantly from system build-ups below 10°. Shear forces increase with the roof slope and have to be transferred into stable beams. The substrate layer has to be protected against erosion. Plant selection and planting methods are to be adjusted to the relevant slope and exposure.

A professionally waterproofed roof surface, e.g. with bituminous or highpolymer membranes, is a precondition for a durable long-lasting Green Roof. The waterproofing should be root resistant and a protection mat with high water storage is needed. Floraset® FS 75, a multi-functional drainage element of 100% recycled expanded polystyrene is the perfect element for Pitched Green Roofs.

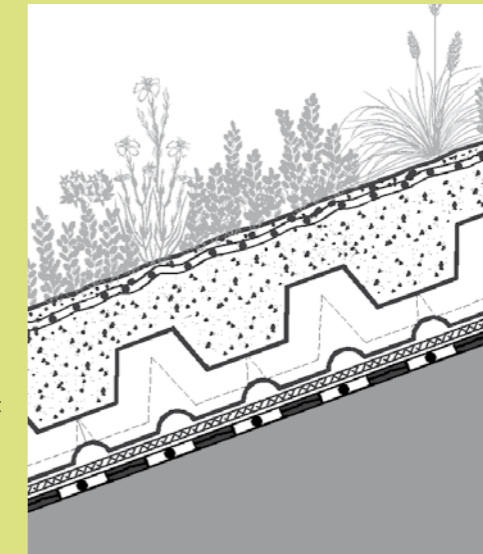
It is very important to take the Green Roof upkeep and maintenance aspects into account from the early planning stage of the project on. Skylights can be installed as access for the maintenance personnel.



## System build-up “Pitched Green Roof”

### Benefits:

- Proven system, low maintenance, requires root-proof waterproofing on roofs with slopes between 10° and 25°.
- Floraset® elements retain the substrate and prevent it from sliding off.
- The elements transfer shear forces into the roof construction; eaves and shear barriers have to be in compliance with the structural design.



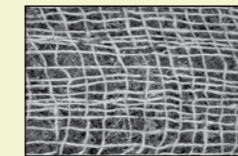
Plug Plants FB 50 “Pitched Roof”  
24 pcs/m<sup>2</sup>

Jute Anti-Erosion Net JEG (> 15° slope)  
System Substrate “Rockery Type  
Plants” quantity / m<sup>2</sup> ≥ 50 mm above  
element

Floraset® FS 75  
Protection Mat BSM 64



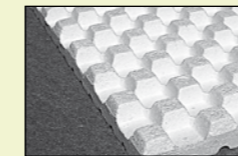
	Art.-No.	Unit
<b>Plug Plants FB 50 “Pitched Roof”</b>	8121	tray with 50 pieces



	Art.-No.	Dimensions	Unit	Pallet
<b>Jute Anti-Erosion Net JEG</b>	2856	ca. 70.00 m x 1.22 m	85,4 m <sup>2</sup> -bale	683.2 m <sup>2</sup>



	Unit	Art.-No.	Unit	Art.-No.	Unit	Art.-No.
<b>Substrate “Rockery Type Plants”</b>	big bag	6121	bulk	6122	silos	6123



	Art.-No.	Dimensions	Unit	Pallet
<b>Floraset® FS 75</b>	3075	ca. 1.00 m x 1.00 m	1 m <sup>2</sup> -board	36 boards



	Art.-No.	Dimensions	Unit
<b>Protection Mat BSM 64</b>	2064	ca. 2.00 m x 25.00 m	50 m <sup>2</sup> -roll



	Art.-No.	Unit
<b>Support Bracket TSH 60</b>	9560	piece
<b>Support Bracket TSH 100</b>	9565	piece

\* see below comment Shear Fix



	Art.-No.	Dimensions	Unit
<b>Eaves Profile TRP 140</b>	7782	length 3 m	piece



	Art.-No.	Unit
<b>Shear Fix</b>	9568	piece

A structural engineer is to determine whether support brackets are sufficient or shear barriers are required.

# Extensive Green Roofs

## System build-up “Steep Pitched Green Roof”



The system build-up “Steep Pitched Green Roof”, based on the ZinCo-Georaster® elements, enables the installation of Green Roofs with slopes exceeding 20° (up to 35°; above 35° special solutions can be designed by the ZinCo engineers). The Georaster® elements are made of recycled polyethylene (HD-PE) and interlock without requiring tools, creating a stable structure. This structure is safely accessible and can be infilled with system substrate. The Georaster® elements cater for plenty of space for the plant root systems to establish and develop. The plant selection has to be well adapted to the extreme conditions of Steep Pitched Green Roofs, where

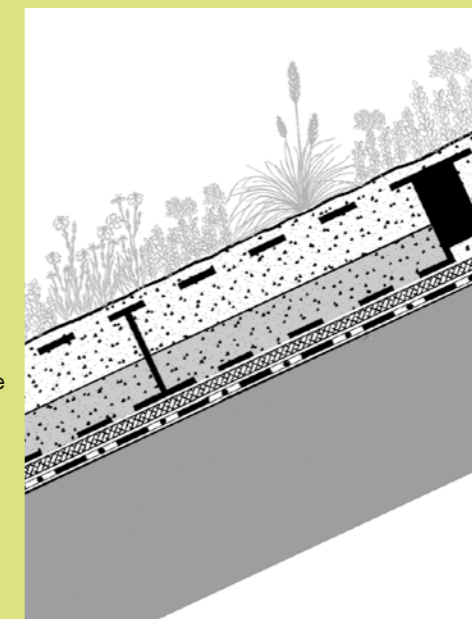
the solar radiation is the highest on the south facing roof side and the water run off is much faster compared to a flat roof. The irrigation should be planned for, even if it is only needed in times of drought. It can avoid gaps in the vegetation coverage, which would lead to erosion. A transfer of existing shear forces into stable eaves and into additional shear barriers is necessary. Georaster® elements can also be installed under reinforced lawns, road constructions, in slope protection and other similar roof constructions.



### System build-up “Steep Pitched Green Roof”

#### Benefits:

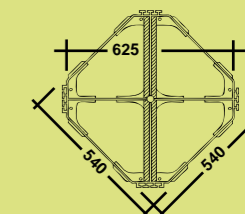
- Attractive pitched Green Roofs for root-proof and waterproofed roofs with slopes between 20° and 35°.
- Georaster® elements transfer the shear forces into the eaves or into additional shear barriers.
- Pitched Green Roofs require periodic care and maintenance. Depending on the location, slope and exposure, additional irrigation may be necessary.



Plug Plants FB 50 “Steep Pitched Green Roof” 32 pcs/m<sup>2</sup> or  
Vegetation Mat “Sedum Carpet” ≥ 30°

System Substrate “Heather with Lavender-light” (ca. 10 mm above Georaster®)  
Georaster®

Protection Mat WSM 150



<b>Plug Plants FB 50 “Steep Pitched Roof”</b>	<b>Art.-No.</b> 8122	<b>Unit</b> tray with 50 pieces
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<b>Substrate “Heather with Lavender-light”</b>	<b>Unit</b> big bag	<b>Art.-No.</b> 6144	<b>Unit</b> bulk	<b>Art.-No.</b> 6145	<b>Unit</b> silo	<b>Art.-No.</b> 6146
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<b>Georaster®</b>	<b>Art.-No.</b> 3400	<b>Dimensions</b> ca. 0.54 m x 0.54 m	<b>Unit</b> piece	<b>Pallet</b> 72 pieces
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<b>Protection Mat WSM 150</b>	<b>Art.-No.</b> 2015	<b>Dimensions</b> ca. 1.00 m x 15.00 m	<b>Unit</b> 15 m <sup>2</sup> -roll
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<b>Support Bracket TSH 60</b>	<b>Art.-No.</b> 9560	<b>Unit</b> piece
<b>Support Bracket TSH 100</b>	<b>Art.-No.</b> 9565	<b>Unit</b> piece

\* see below comment Shear Fix



<b>Eaves Profile TRP 140</b>	<b>Art.-No.</b> 7782	<b>Dimensions</b> length 3 m	<b>Unit</b> piece
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<b>Shear Fix</b>	<b>Art.-No.</b> 9568	<b>Unit</b> piece
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A structural engineer is to determine whether support brackets are sufficient or shear barriers are required.

# Intensive Green Roofs

## System build-up “Heather with Lavender”



“Heather with Lavender” is the ideal build-up for blooming perennials and fragrant herbs. The plant community “Heather with Lavender” contains ground covering plants, fragrant herbs and small shrubs such as thyme, oregano and lavender.

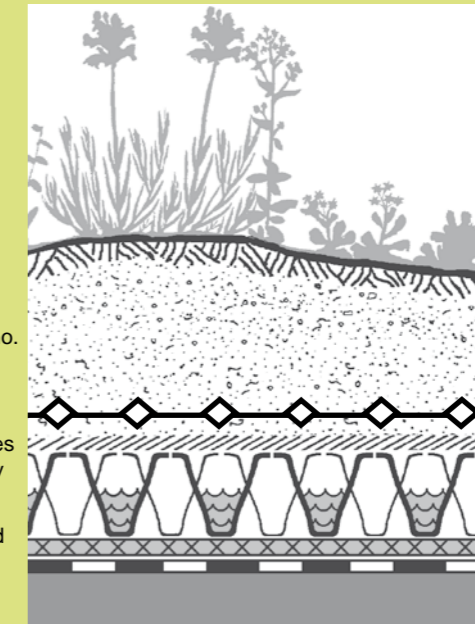
This plant selection forms a drought resistant and visually pleasant vegetation. The “Heather with Lavender” system substrate, specifically designed for this plant community, is used in combination with the water retention and drainage element Floradrain® FD 40-E to create the ideal habitat conditions for this vegetation.

Floradrain® FD 40-E is a universal element for both extensive and intensive build-ups. It has a high drainage capacity and is also suitable for roofs without slope, provided residual ponding is less than 40 mm to keep the substrate clear of the water beneath. It is quick and easy to install as well as walkable.

## System build-up “Heather with Lavender”

### Benefits:

- Attractive Green Roof with perennials, grasses and scented herbs such as Lavender, Thyme and Oregano.
- Installation on flat and slightly pitched roofs with a slope up to 8°.
- By shaping the substrate layer, a variety of landscapes with medium maintenance can be created. During dry season additional irrigation is necessary.
- Various designs and combinations with walkways and patios are possible.



Plug Plants FB 50 “Heather with Lavender”  
16 pcs/m<sup>2</sup>

System Substrate “Heather with Lavender”  
≥ 100 mm

Fallnet®  
Filter Sheet SF  
Floradrain® FD 40-E

Protection Mat SSM 45  
Root Barrier WSF 40,  
if waterproofing is not root-resistant.



	Art.-No.	Unit
<b>Plug Plants FB 50 “Heather with Lavender”</b>	8130	tray with 50 pieces



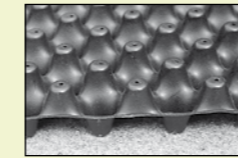
	Unit	Art.-No.	Unit	Art.-No.	Unit	Art.-No.
<b>Substrate “Heather with Lavender”</b>	big bag	6144	bulk	6145	silos	6146



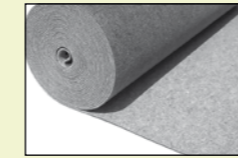
**This system build-up allows the integration of the Fallnet® Fixing Device for roofs with slopes up to 5° (see page 30-31)**



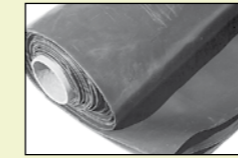
	Art.-No.	Dimensions	Unit	Pallet
<b>Filter Sheet SF</b>	2100	ca. 2.00 m x 100.00 m	200 m <sup>2</sup> -roll	4600 m <sup>2</sup>
	2102	ca. 1.00 m x 100.00 m	100 m <sup>2</sup> -roll	2500 m <sup>2</sup>
	2101	ca. 2.00 m x 10.00 m	20 m <sup>2</sup>	



	Art.-No.	Dimensions	Unit	Pallet
<b>Floradrain® FD 40-E Floradrain® FD 40-R (Roll) Floradrain® FD 40-RV (Roll &amp; Filter Sheet)</b>	3040	ca. 0.96 m x 2.08 m	2 m <sup>2</sup> -board	150 boards
	3043	ca. 0.96 m x 10.40 m	10 m <sup>2</sup> -roll	
	3042	ca. 0.96 m x 10.40 m	10 m <sup>2</sup> -roll	



	Art.-No.	Dimensions	Unit
<b>Protection Mat SSM 45</b>	2045	ca. 2.00 m x 50.00 m	100 m <sup>2</sup> -roll



	Art.-No.	Dimensions	Unit	Pallet
<b>Root Barrier WSF 40</b>	1040	ca. 8.00 m x 25.00 m	200 m <sup>2</sup> -roll	4600 m <sup>2</sup>
	1041	ca. 6.25 m x 20.00 m	125 m <sup>2</sup> -roll	2500 m <sup>2</sup>
	1044	ca. 3.00 m x 33.50 m	100.5 m <sup>2</sup> -roll	2211 m <sup>2</sup>
	1043	ca. 2.00 m x 50.00 m	100 m <sup>2</sup> -roll	2600 m <sup>2</sup>
	41040	ca. 6.25 m x 3.20 m	20 m <sup>2</sup>	600 m <sup>2</sup>

# Intensive Green Roofs

## System build-up "Roof Garden"



The "Roof Garden" is a multifunctional Green Roof build-up with high water storage. It is suitable for lawns, perennial plants, and with deeper system substrate, for shrubs and trees. The roof garden build-up allows a variety of design concepts, even waterfeatures. Integration with hard landscapes, for example walkways, terraces, driveways or play areas, etc. is also possible.

Within the Roof Garden, it is useful to store as much rainwater as possible to reduce the need for additional watering. The spacious channels forming the underside of the Floradrain® FD 60 allow for water storage of 40 mm in depth. The water is stored across the roof



area and reaches the plants by capillary action and diffusion. Water storage can also be easily achieved by installing roof dam elements above the roof outlets. A roof laid at 0° fall is required to include this system, along with a suitable waterproofing membrane for such use. Inspection chambers make it possible to examine and maintain the roof dam elements at any time. With automatic irrigation machines, a minimum water storage can be maintained even in periods of drought.



## System build-up "Roof Garden"

### Benefits:

- Multifunctional Green Roof system build-up with high water retention capacity and roof dam irrigation. Suitable for lawn and perennials; with a deeper substrate level also for bushes, small trees etc.
- Various combinations are possible, for example with walkways, patios, driveways or playgrounds.
- Floradrain® FD 60 can be filled with concrete as a sub-construction for driveways without penetrating the waterproofing.



Lawn and perennials; with a deeper substrate level, bushes and small trees

System Substrate "Roof Garden"

Filter Sheet SF

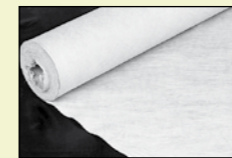
Floradrain® FD 60 with Zincolit Plus infill

Protection Mat ISM 50

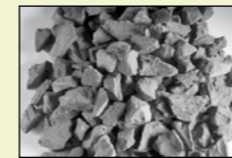
Root Barrier WSB 100-PO, if waterproofing is not root-resistant.



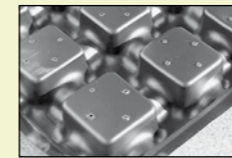
Substrate "Roof Garden"	Unit big bag	Art.-No. 6161	Unit bulk	Art.-No. 6162	Unit silo	Art.-No. 6163
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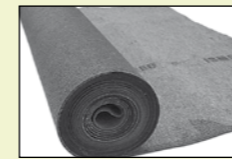
Filter Sheet SF	Art.-No.	Dimensions	Unit	Pallet
	2100	ca. 2.00 m x 100.00 m	200 m <sup>2</sup> -roll	4600 m <sup>2</sup>
	2102	ca. 1.00 m x 100.00 m	100 m <sup>2</sup> -roll	2500 m <sup>2</sup>
	2101	ca. 2.00 m x 10.00 m	20 m <sup>2</sup>	



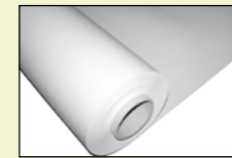
Zincolit Plus	Unit big bag	Art.-No. 6071	Unit bulk	Art.-No. 6072
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Floradrain® FD 60	Art.-No. 3060	Dimensions ca. 1.00 m x 2.00 m	Unit 2 m <sup>2</sup> -board	Pallet 100 boards
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Protection Mat ISM 50	Art.-No. 2050	Dimensions ca. 2.00 m x 25.00 m	Unit 50 m <sup>2</sup> -roll
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Root Barrier WSB 100-PO	Art.-No. 1084	Dimensions ca. 2.44 m x 30.50 m	Unit 74.4 m <sup>2</sup> -roll
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# Hybrid Solutions

## System build-up “Walkways & Driveways”



At a progressing rate, roofs are being used holistically and almost everything that can be realised on the ground is now possible on roofs too. To create long lasting and functioning walkways and driveways on roofs, it is crucial to use the right technique. Walkways and driveways require system build-ups which ensure the continuity of roof functions such as waterproofness, drainage, thermal and sound insulation on one hand, but also must cater for horizontal forces from accelerating, breaking and steering on the other hand.

If walkways and driveways are combined with Green Roofs, not only drainage and compressive strength are important, but also the water retention capacity. Stabilodrain® SD 30 the core piece of this build-up meets all requirements and ensures durable functionality.

Stabilodrain® SD 30 is an extremely stable, high pressure resistant drainage element that is quick and easy to install with its lateral, special shaped connecting profiles. Depending on the installation, it allows for water retention (diffusion holes facing up) or drainage of water (diffusion holes facing down).

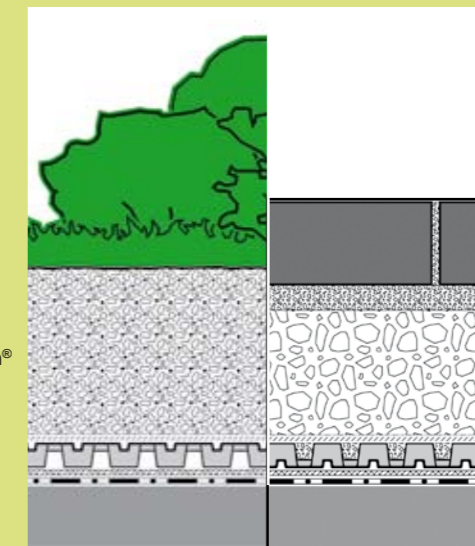
Stabilodrain® SD 30 can also be installed on inverted roofs, where it is essential to avoid creating a vapour barrier above the XPS insulation material.



## System build-up “Walkways and Driveways”

### Benefits:

- Heavy duty Hybrid Solution; suitable for walkways, driveways, lawn and shrubs; with a deeper substrate level, bushes, small trees etc. are also possible. With low substrate level, additional irrigation is necessary.
- It is possible to drive a wheel loader over Stabilodrain® when infilled with mineral aggregate, to install the substrate layer.

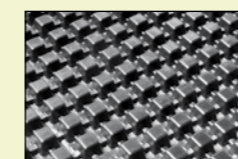


Concrete or natural stone pavers  
30-50 mm bedding layer  
Gravel base layer (only for driveways)  
Filter Sheet TG  
Stabilodrain® SD 30 with infill  
Protection Mat ISM 50  
Root Barrier WSB 100-PO, if waterproofing is not root-resistant

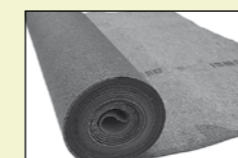
Concrete or natural stone pavers are determined according to the load-bearing capacity demand and should meet the requirements of relevant standards. A greater paver depth results in a greater support surface and in a reduction of a possible distortion of the below bedding material. With driveways on roofs, it is therefore crucial to plan sufficient load distribution, either through the paving surface or through an adequate base layer. Materials for base layers should ensure excellent compactibility and stability. Bedding material can come in different grain sizes, but has to harmonise with the joint material to prevent it from being washed out. The ZinCo Technical Department provides assistance with designing the appropriate build-up. Please contact us for more information



	Art.-No.	Dimensions	Unit	Pallet
<b>Filter Sheet PV</b>	2130	ca. 2.25 m x 50.00 m	112,5 m <sup>2</sup> -roll	1012.5 m <sup>2</sup>



	Art.-No.	Dimensions	Unit	Pallet
<b>Stabilodrain® SD 30</b>	3330	ca. 0.94 m x 2.00 m	1,88 m <sup>2</sup> board	188 m <sup>2</sup>



	Art.-No.	Dimensions	Unit
<b>Protection Mat ISM 50</b>	2050	ca. 2.00 m x 25.00 m	50 m <sup>2</sup> -roll



	Art.-No.	Dimensions	Unit
<b>Root Barrier WSB 100-PO</b>	1084	ca. 2.44 m x 30.50 m	74.4 m <sup>2</sup> -roll


# Hybrid Solutions

## System build-up “Driveways”



Driveways on roofs require both a load-bearing system build-up and a load-bearing roof construction. Moreover, vehicular traffic on a roof deck induces very significant horizontal forces and torsional movements through steering, breaking and accelerating, that must be absorbed.




 The system build-up for cars employs the extremely stable Elastodrain® EL 202 specifically designed for these applications.



The Elastodrain® EL 202 has a very high compressive strength and distributes the load evenly into the substructure. This system is designed for heavy loads. A precondition is that the slope of the future driveway surface is taken into account in the

planning. Establishing a slope is not a problem, if the waterproofing and surface have the same slope. If the slope has to be integrated into the surface, a gravel base layer is necessary. The slope cannot be created with the bedding layer, as it will result in uneven settlement. Moreover, the pavement thickness must be suitable for this application.

 Occasionally, roofs and their surfaces have to bear exceptionally heavy loads, e.g. in case of delivery or fire brigade access.

The thickness of the pavers or concrete slabs must enable a horizontal absorption of forces. For wheel loads up to 10 tons, a load distributing base layer has to be designed. Extreme stresses require extremely good protection layers in order to protect the waterproofing.

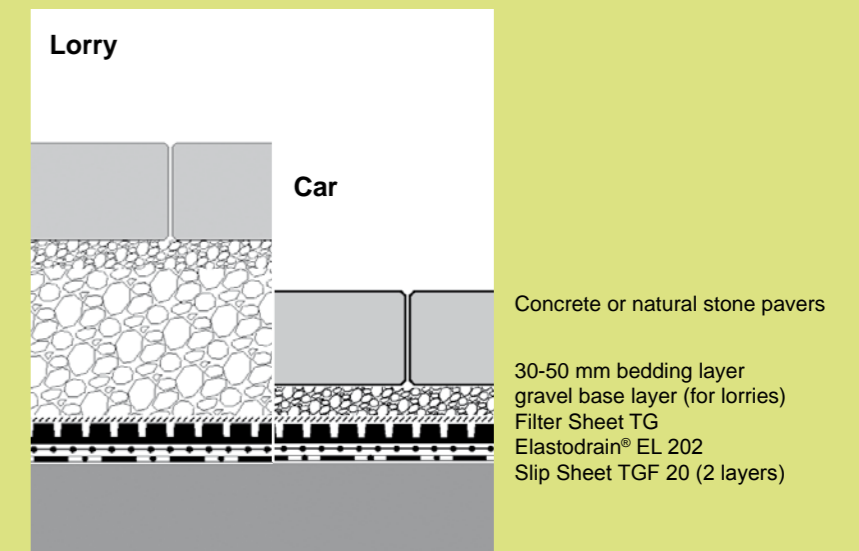


Furthermore, an additional Slip Sheet is used to keep the horizontal forces issued by steering, breaking and accelerating away from the waterproofing level. The edge trim is very important too, as it contributes to the stability of the pavement. Its waterproofing must be sufficiently protected, too.

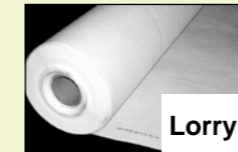
## System build-up “Driveways”

### Benefits:

- A solid base for creative surface designs. With Elastodrain® everything is possible.
- Elastodrain® protects the waterproofing during construction works from mechanical hazards.
- After installation, Elastodrain® represents a durable base for all types of roof landscapes.
- Elastodrain® ensures long lasting drainage, thus it prevents frost damages.



Concrete or natural stone pavers are determined according to the load-bearing capacity demand and should meet the requirements of relevant standards. A greater paver depth results in a greater support surface and in a reduction of a possible distortion of the below bedding material. With driveways on roofs, it is therefore crucial to plan sufficient load distribution, either through the paving surface or through an adequate base layer. Materials for base layers should ensure excellent compactibility and stability. Bedding material can come in different grain sizes, but has to harmonise with the joint material to prevent it from being washed out. The ZinCo Technical Department provides assistance with designing the appropriate build-up. Please contact us for more information



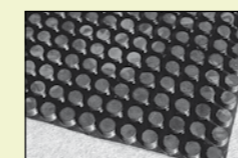
Lorry

	Art.-No.	Dimensions	Unit	Pallet
Filter Sheet PV	2130	ca. 2.25 m x 50.00 m	112,5 m <sup>2</sup> -roll	1012.5 m <sup>2</sup>



Car

	Art.-No.	Dimensions	Unit	Pallet
Filter Sheet TG	2190	ca. 2.25 m x 100.00 m	225 m <sup>2</sup> -roll	2025 m <sup>2</sup>
	2191	ca. 1.12 m x 100.00 m	112 m <sup>2</sup> -roll	1008 m <sup>2</sup>



	Art.-No.	Dimensions	Unit	Pallet
Elastodrain® EL 202	3220	ca. 1.00 m x 1.00 m	1 m <sup>2</sup> board	50 boards
EL 202 Connector 2-holes	3221		bag 100 pieces	



	Art.-No.	Dimensions	Unit	Pallet
Slip Sheet TGF 20	1020	ca. 8.00 m x 25.00 m	200 m <sup>2</sup> -roll	6600 m <sup>2</sup>
	1022	ca. 3.00 m x 33.50 m	100 m <sup>2</sup> -roll	2211 m <sup>2</sup>

# Hybrid Solutions

## Green Roofs with Solar Power



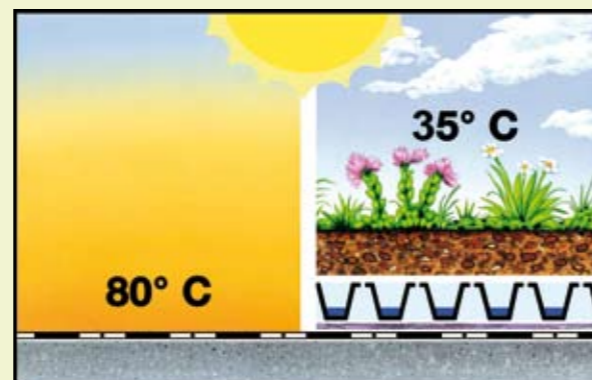
Green Roofs include a range of benefits. They can add thermal insulation, protect the waterproofing, improve biodiversity, retain storm water and improve the micro-climate. ZinCo extend the advantages of Green Roof technology with the development of support bases for solar panels. With the innovative Solar Base, solar energy can be integrated into Green Roof Systems without penetration of the roof membrane, the Green Roof build-up providing the necessary load to keep the structure in place. The Solar Base can be used for photovoltaic as well as for solar water heating applications.

### The efficiency of Solar Panels is improved with a Green Roof.

Photovoltaic panels convert sunlight into electrical current. Their efficiency drops by 0.5 % for every degree above 25° C. The cooling effect of a green roof can significantly improve the efficiency of the solar panel.

The inclusion of solar power can be seen as another valuable ecological benefit and will contribute towards compliance with various building regulations, environmental standards and assessments. Furthermore, this system makes use of synergy effect, as the efficiency of solar panels is significantly improved with a Green Roof.

### Possible surface temperature on a hot summer day:

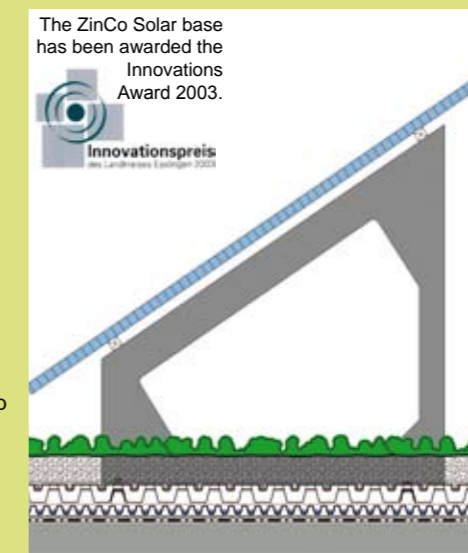


Non-protected roof area:  
Surface temperature above 80°C  
Green Roof area:  
Surface temperature only 35°C

## Green Roofs with Solar Power

### Benefits:

- no penetration of the waterproofing
- even load distribution, no high point loads
- no transport of heavy parts
- no obstruction of drainage
- Green Roof build-up provides necessary load to keep the structure in place
- complete assembly for immediate installation



The ZinCo Solar base has been awarded the Innovations Award 2003.

Solar Panel

Solar Base Frame SGR 35/90

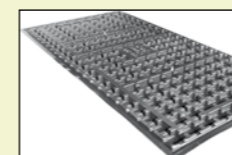
Plug Plants FB 50 "Sedum Carpet" or Sedum Cuttings  
Vegetation Substrate  
ZinCo Solar Base SB 200  
Protection Mat SSM 45,  
Root Barrier WSF 40,  
if waterproofing is not root-resistant



	Art.-No.	Unit
Sedum Cuttings	8020	bag of 2 kg
Plug Plants FB 50 "Sedum Carpet"	8110	tray with 50 pcs.



Substrate "Sedum Carpet"	Unit	Art.-No.	Unit	Art.-No.	Unit	Art.-No.
	big bag	6121	bulk	6122	silos	6123



Solar Base SB 200	Art.-No.	Dimensions	Unit	Pallet
	3460	ca. 2.00 m x 1.00 m	board	30 boards



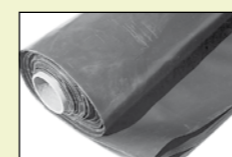
Solar Base Frame SGR Alu 35/90	Art.-No.	Dimensions	Unit
	9700	950 x 350/900 mm	piece



Wind Bracing "Aluminium" SGR Alu 35/90	Art.-No.	Unit
	9710	piece



Protection Mat SSM 45	Art.-No.	Dimensions	Unit
	2045	ca. 2.00 m x 50.00 m	100 m <sup>2</sup> -roll



Root Barrier WSF 40	Art.-No.	Dimensions	Unit	Pallet
	1040	ca. 8.00 m x 25.00 m	200 m <sup>2</sup> -roll	4600 m <sup>2</sup>
	1041	ca. 6.25 m x 20.00 m	125 m <sup>2</sup> -roll	2500 m <sup>2</sup>
	1044	ca. 3.00 m x 33.50 m	100.5 m <sup>2</sup> -roll	2211 m <sup>2</sup>
	1043	ca. 2.00 m x 50.00 m	100 m <sup>2</sup> -roll	2600 m <sup>2</sup>
	41040	ca. 6.25 m x 3.20 m	20 m <sup>2</sup>	600 m <sup>2</sup>

# Hybrid Solutions

## Green Roofs with Fallnet®



Any work on a roof involves risks. It doesn't matter whether it's inspection of technical equipment, upkeep of gravel roofs or maintenance of Green Roofs. Accident prevention can save lives. Therefore, regulations prescribe safety measures, if work is being carried out on roofs with a low parapet.

With their innovative Fallnet® solutions specifically designed for the use on Green Roofs, ZinCo offer a maximum of security to people and buildings. Since the launch of the Fallnet® product family during the Galabau 1998 (International Trade Fair For Urban Green and Open Spaces), the success story of those non-membrane penetrating fall protection systems has run its course.

There are various types of Fallnet® Fixing Devices, all of them non-roof penetrating and based on the idea of using the actual Green Roof build-up as necessary surcharge. For instance, the Fallnet® SR Fixing Device for fall protection consists of interlocking grid elements and a

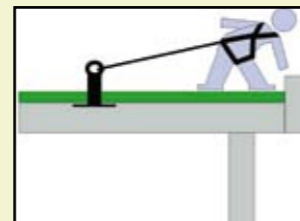
centralised fixing point made from stainless steel. It offers new dimensions in terms of flexibility and can be adapted to nearly any construction requirement and geometry. Light domes, drainage outlet and roof penetrations can be smartly embedded in the Fallnet SR. The grid system is simply laid over the drainage layer and is held in place by the weight of the substrate layer.

All Fallnet® systems offer attractive solutions for providing anchorage points for safety harnesses, without penetrating the waterproofing membrane. Whatever the substructure, their installation is possible on most flat roofs with slopes up to 5%, provided the load bearing capacity allows for a minimum of 120 kg/m².

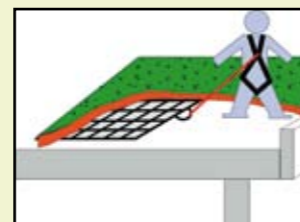
The Fallnet® systems comply with the European Standard EN 795 Class E. They can be supplemented by wall-mounted fall anchors, personal protective equipments (ZinCo PPE-Set), as well as ZinCo Railing Systems.

### Fallnet benefits

- no roof penetration
- quick and easy installation, no specific tools required
- suitable for all roofs with load-bearing capacity
- independant of the substructure
- neutral with regards to building physics (no cold / heat bridges)
- no visual nuisance
- certified according to European Standard EN 795 Class E

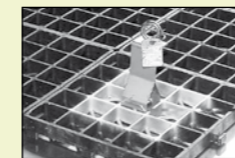
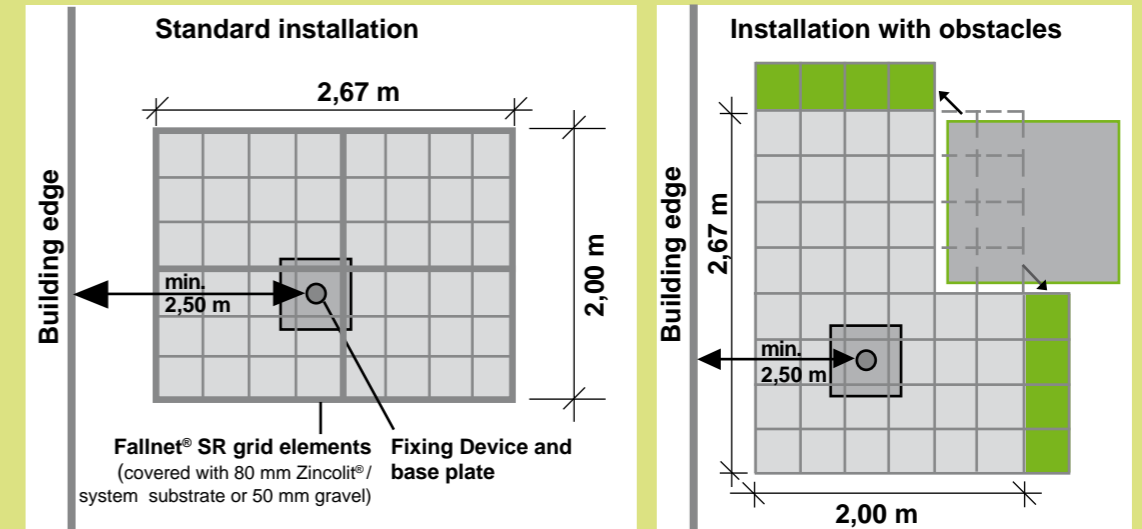


Certified anchorage points can be used if no edge protection, scaffoldings or safety net is available.



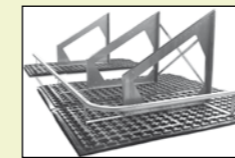
If no permanent fixing points are available, anchorage facilities can be created when installing the Green Roof.

## Green Roofs with Fallnet®



**Fallnet® SR**

Fixing Device, consisting of single grid elements which are plugged together to one unit and to be covered with min. 90 kg/m² superimposed load.



**Fallnet® SR Rail**

Fixing Device, consisting of grid elements which are plugged together to one unit with a centrally placed rail support. Modular expandable horizontal rail solution with a permanent sliding runner.



**Fallnet® SB-200 Rail**

Fixing Device to be installed in combination with the Solar Base SB 200 or the Guardrail Base GB. Installed without any roof penetration using superimposed load.



**Fall Anchor**

Single Fixing Device according to EN 795 Class A, for temporary work with a personal protective equipment (e.g. ZinCo Fallnet® PPE-Set, Order No. 9024). Application on vertical and sloped areas of concrete, brick wall, timber and steel constructions.



**Fallnet® PPE-Set**

Personal protective equipment according to European Standard EN 363 for work on roofs, compatible with the ZinCo Fixing Device Fallnet® and Fall Anchor. It consists of a safety harness, connectors, rope, rope shortener, shock absorber and instruction manual stored in a stable sheet metal case.



# Hybrid Solutions

## System build-up “DUO-Roof”



The System build-up DUO-Roof has its core element Floratherm® approved as additional thermal insulation.

How does it work?

Floratherm® elements that are certified by the construction supervision authorities, are used as drainage layer. Floratherm® elements are available in 65 and 120 mm heights, with different thermal resistance values. They replace up to 90 mm of common thermal insulation material, reduce energy consumption and help your building get in line with energy-saving regulations.

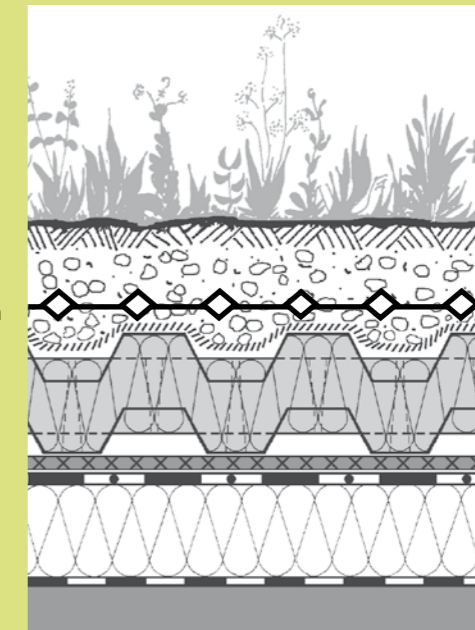
### DUO-Roof, the perfect system build-up for roof refurbishment



Prior to commencement of installation, the roof should be cleaned and the waterproofing membrane checked. It must be ensured that any detected faults are corrected before starting with installing the Green Roof. If the waterproofing is not root-resistant, Root Barrier WSF 40 is to be laid directly over the existing waterproofing. Then the protection mat is rolled out, and the Floratherm® elements are installed to form a continuous layer over the roof deck. The filter sheet is to be laid above the drainage layer, then the substrate layer can be applied. The final step is installing the plants or Sedum cuttings.



## System build-up “DUO-Roof”



### Benefits:

- The Floratherm® elements are certified by construction supervision authorities and have thermal resistance values.
- The insulation layer above and underneath the waterproofing creates a favourable DUO-Roof in terms of building physics.
- “Sedum Carpet” is a reliable Green Roof plant mixture which requires minimum care and attention.

Plug Plants FB 50 “Sedum Carpet”  
16 pcs/m<sup>2</sup> or Sedum Cuttings 60 g/m<sup>2</sup>  
System Substrate “Sedum Carpet”  
≥ 60 mm  
Fallnet®  
Filter Sheet SF  
Floratherm® WD (Type in accordance with required thermal resistance values)  
Protection Mat SSM 45  
Root Barrier WSF 40,  
if waterproofing is not root-resistant.



	Art.-No.	Unit
<b>Sedum Cuttings</b>	8020	bag of 2 kg
<b>Plug Plants FB 50</b>	8110	tray with 50 pcs.



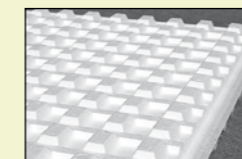
	Unit	Art.-No.	Unit	Art.-No.	Unit	Art.-No.
<b>Substrate “Sedum Carpet”</b>	big bag	6121	bulk	6122	silos	6123



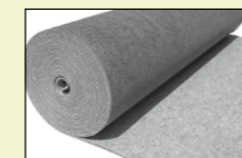
This system build-up allows the integration of the Fallnet® Fixing Device for roofs with slopes up to 5° (see page 29)



	Art.-No.	Dimensions	Unit	Pallet
<b>Filter Sheet SF</b>	2100	ca. 2.00 m x 100.00 m	200 m <sup>2</sup> -roll	4600 m <sup>2</sup>
	2102	ca. 1.00 m x 100.00 m	100 m <sup>2</sup> -roll	2500 m <sup>2</sup>
	2101	ca. 2.00 m x 10.00 m	20 m <sup>2</sup>	



	Art.-No.	Dimensions	Unit	Pallet
<b>Floratherm® WD 65</b>	3065	ca. 1,00 m x 1,00 m	1 m <sup>2</sup> -board	40 boards
<b>Floratherm® WD 65-H green</b>	3066	ca. 1,00 m x 1,00 m	1 m <sup>2</sup> -board	40 boards
<b>Floratherm® WD 120</b>	3120	ca. 1,00 m x 1,00 m	1 m <sup>2</sup> -board	24 boards
<b>Floratherm® WD 120-H green</b>	3121	ca. 1,00 m x 1,00 m	1 m <sup>2</sup> -board	24 boards



	Art.-No.	Dimensions	Unit
<b>Protection Mat SSM 45</b>	2045	ca. 2.00 m x 50.00 m	100 m <sup>2</sup> -roll

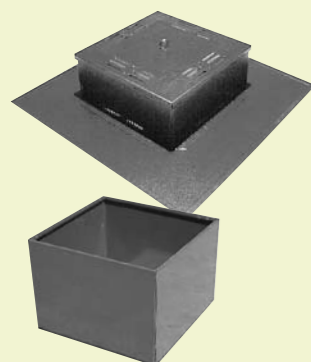


	Art.-No.	Dimensions	Unit	Pallet
<b>Root Barrier WSF 40</b>	1040	ca. 8.00 m x 25.00 m	200 m <sup>2</sup> -roll	4600 m <sup>2</sup>
	1041	ca. 6.25 m x 20.00 m	125 m <sup>2</sup> -roll	2500 m <sup>2</sup>
	1044	ca. 3.00 m x 33.50 m	100.5 m <sup>2</sup> -roll	2211 m <sup>2</sup>
	1043	ca. 2.00 m x 50.00 m	100 m <sup>2</sup> -roll	2600 m <sup>2</sup>
	41040	ca. 6.25 m x 3.20 m	20 m <sup>2</sup>	600 m <sup>2</sup>

# ZinCo Green Roof Accessories

The success of a Green Roof depends on the details. They have to be accurate and well-thought out, but the visual aspects is important, too. Along with their Green Roof Systems, ZinCo provide a full line of accessories that have been developed through their many year of experience, for the design of technically and aesthetically sound detail solutions. Here's a selection.

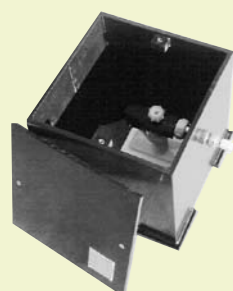
## Inspection Chamber KS 5 / KS 8 / KS 12 / Extension Pieces



Inspection chambers made of galvanized and plastic-coated steel, used on top of drainage elements or within the substrate layer, with thermally insulated solid steel cover, high load bearing capacity; fits all outlet sizes. The drainage channels SR 75 or SR 50 can be flange-mounted by connection pieces. The additional use of extension pieces KSA allows a higher system build-up. Weight ca. 3 kg; cover dimensions ca. 250 mm x 250 mm; flange ca. 500 mm x 500 mm.

	Art.-No.	Height	Unit
<b>KS 5</b>	4266	ca. 50 mm	piece
<b>KS 8</b>	4286	ca. 80 mm	piece
<b>KS 12</b>	4296	ca. 120 mm	piece
<b>Extension Piece KSA 10</b>	4249	ca. 100 mm	piece
<b>Extension Piece KSA 20</b>	4250	ca. 200 mm	piece

## Irrigation Unit B 32

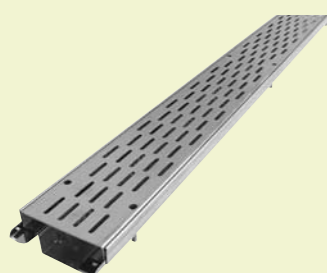


Irrigation unit made of durable polyethylene; solid design; with lockable cover; mechanical swimmer-control; valve in accordance with European Standard EN 1717 to be provided by the customer. If necessary, the Irrigation Unit B 32 is available with vertically adjustable membrane collar for continuous installation of the filter sheet (see page 40, KS 30). Colour black; connection 1/2" – tube or hose pipeline; weight ca. 7 kg; dimensions ca. 300 mm x 300 mm.

	Art.-No.	Height	Unit
<b>B 32</b>	4031	ca. 300 mm	piece
<b>Extension Piece for B 32</b>	4016	ca. 150 mm	piece

The B 32 is available in stainless steel upon request.

## Drainage Channel BTR – Stainless Steel



Vertically adjustable channel made of premium stainless steel; grill with long slots, channel body slotted underneath and on the sides; includes connectors and integrated gridlock. Channel width ca. 100 mm; vertically adjustable from ca. 47 to 57 mm.

	Art.-No.	Length	Unit
<b>Drainage Channel BTR</b>	4771	ca. 1000 mm	piece
<b>90°-Corner for BTR</b>	4775	ca. 220 x 220 mm	piece

## Elefeet®- Pedestals

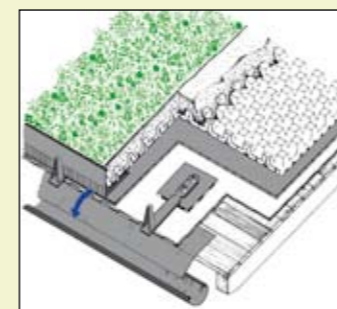


Continuously vertically adjustable pedestal, made of solid polypropylene for trouble-free installation of slab pavement on flat and sloped areas. Integrated 3 mm thick joint spacers assure a linear appearance of the slabs and good drainage function. The adjustable heights from 40 to 400 mm can be reached with four different standard types (heights of 40, 50, 80 and 140 mm) as well as two extension pieces (25 and 60 mm). The Elefeet® base plate with a diameter of 200 mm distributes the load evenly over the sub-construction.

	Art.-No.	Unit	Pack
<b>Elefeet® H 40</b> vertically adjustable from 42 to 65 mm	<b>9639</b>	piece	40 pieces
<b>Elefeet® H 50</b> vertically adjustable from 52 to 82 mm	<b>9640</b>	piece	30 pieces
<b>Elefeet® H 80</b> vertically adjustable from 84 to 140 mm	<b>9641</b>	piece	40 pieces
<b>Elefeet® H 140</b> vertically adjustable from 140 to 230 mm	<b>9643</b>	piece	40 pieces

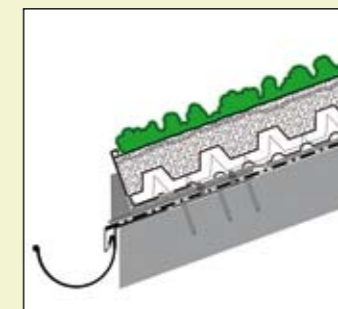
# ZinCo Application Details

## Pitched Green Roof



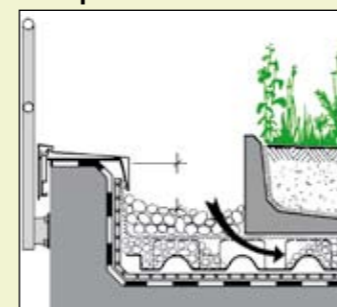
The discharge of rain water on pitched Green Roofs is mainly transferred into gutters. The shear forces, caused by the Green Roof system build-up, need to be diverted into the roof construction either by the slotted Eaves Profile TRP 140 complimented with support brackets, or by eaves.

## Shear forces



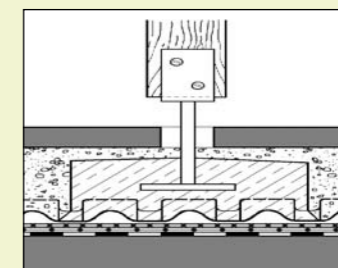
Pitched Green Roofs are often designed right to the edge. Using Shear Fix, waterproofed shear barriers can often be replaced.

## Low profile roofs



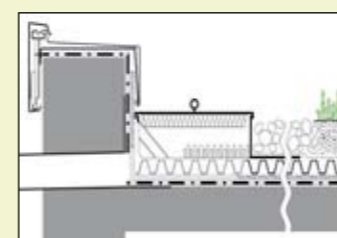
Even with low perimeter upstands, intensive Green Roofs with higher build-ups can be installed. Concrete L-shaped kerbs or stainless steel profiles, used to border the plant area, allow for greater depth of substrate. They also ensure continuous and effective drainage.

## Foundations for supporting structures



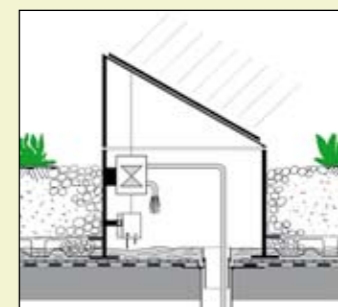
Floradrain® FD 60 can locally be used as a formwork where firm foundations are required without penetration of the roof membrane. The channel system on the underside of the element ensures the unimpeded drainage of excess water.

## Water spout with Inspection Chamber



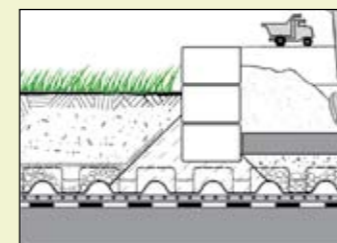
On flat roofs, water can be via edge outlets or discharged edge water spouts. The inspection chamber ensures the accessibility of the outlets at any time, and can be cleaned easily, if necessary.

## Roof dam irrigation



Apart from floatcontrolled systems, ZinCo "Hydro Solar" electronically controlled machines obtain their energy directly from solar panels.

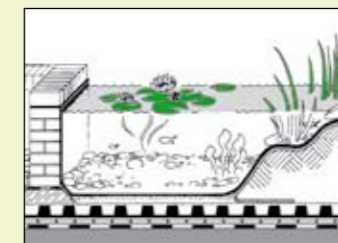
## Transitions



Provided there are safety rails at the perimeters, it is possible to construct playgrounds with slides and sandpits on roofs. Timber planks, for example, are a suitable border between sandpit and area. Concrete

paving slabs placed at the bottom of the sandpit, above the drainage element, provide an additional protective barrier for the waterproofing and also enable an easy replacement of the sand, if needed. Of course, safety regulations regarding roofs and underground garage decks must be taken into account; the play equipment must be well anchored and their foundations sufficiently covered or secured by fall protection slabs.

## Ponds and pools



With the correct design, ponds and pools can be installed on roof decks. They should be placed above the drainage layer and lined separately with a special plastic membrane; should the pool ever leak,

the water will flow into the regular roof drainage. On high and exposed buildings, It is recommended to have a min. 300 mm higher water level compensate for the higher evaporation rate.

# What ZinCo can do for you

ZinCo provide a comprehensive package of environmentally sound Green Roof Systems and customized project support, based on:

- 30+ years of experience in Green Roofs
- Tested & proven Green Roof Systems
- Exceeding quality standards & permanent innovation through research and development
- Compliance with relevant international standards
- Experts in structural engineering, landscape architecture, horticulture, material and soil science, ...
- Support from planning to completion (design, specifications, CAD, consultancy, on-site)
- An international network of partners
- Comprehensive warranties

To date, ZinCo Green Roof solutions have inspired planners and contractors throughout the world, providing them with the necessary flexibility to accommodate a wide range of designs and building needs.

**Tell us about your project!**  
**We've got the expertise to bring it to life.**



Technical statements are subject to alterations and printing errors.



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