

# 6 fürs GRÜN

- Green Roofs
- Artificial Turf
- Natural Ponds
- Garden Lighting
- Flat Roofing
- Road Construction

Since more than 30 years  
successful in green roofs

## Our Green Roof Systems





# 6

## fürs GRÜN

- Green Roofs
- Artificial Turf
- Natural Ponds
- Garden Lighting
- Flat Roofing
- Road Construction

## Content

Planning Guide. . . . .	page 3
HYDROTEX - The Simple Solution. . . . .	page 4/5
NE 20 - The Speedy Solution. . . . .	page 6/7
NE 20 V - The very Speedy Solution. . . . .	page 8/9
WE 25/15 - The Pressure-Resistant Solution. . . . .	page 10/11
WE 40/23 - The Water-Storing Solution. . . . .	page 12/13
WE 60 - The Versatile Solution. . . . .	page 14/15
DWS 80 - The Intensive Solution. . . . .	page 16/17
LDW 35 - The Light Solution. . . . .	page 18/19
NE 10 - The Walkable Solution. . . . .	page 20/21
NE 12 - The Car-Accessible Solution. . . . .	page 22/23
WE 25/15 – For Car-Accessible Roofs. . . . .	page 24/25
RE 50B, 80B and 120B - The Blue Solution . . . . .	page 26/27
RE 80 - The Sustainable Solution. . . . .	page 28/29
RE 150 - The Strong Solution. . . . .	page 30/31
Performance of Extensive Green Roofs. . . . .	page 32



# Planning Guide

## Schedule of Layer Compositions



Height in cm



Weight in kg/m<sup>2</sup>



Water Retention in l/m<sup>2</sup>

		Height in cm	Weight in kg/m <sup>2</sup>	Water Retention in l/m <sup>2</sup>
HYDROTEX – The Simple Solution	page 4 / 5	9	132 - 155*	34 - 42*
NE 20 - The Speedy Solution	page 6 / 7	8	95 - 127*	21 - 36*
NE 20 V - The very Speedy Solution	page 8 / 9	8	95 - 127*	21 - 36*
WE 25/15 - The Pressure-Resistant Solution	page 10 / 11	9	104 - 137*	30 - 45*
WE 40/23 - The Water-Storing Solution	page 12/ 13	16	238 - 275*	83 - 89*
WE 60 - The Versatile Solution	page 14 / 15	32	477 - 555*	156 - 168*
DWS 80 - The Intensive Solution	page 16 / 17	34	476 - 554*	152 - 165*
LDW 35 - The Light Solution	page 18 / 19	7	63 - 74*	29 - 34*
NE 10 - The Walkable Solution	page 20 / 21	20	356	---
NE 12 - The Car-Accessible Solution	page 22 / 23	24 - 29**	431 - 532**	---
RE 50B - The Blue Solution	page 26 / 27	14	170 - 213*	66 - 86*
RE 80B - The Blue Solution	page 26 / 27	17	202 - 246*	96 - 116*
RE 120B - The Blue Solution	page 26 / 27	21	244 - 287*	136 - 156*
RE 80 - The Sustainable Solution	page 28/ 29	35 - 44**	444 - 507*	174 - 184*
RE 150 - The Strong Solution	page 30/ 31		506 - 681**	138

\* depending on substrate utilised    \*\* depending on utilisation

# The Multifunction Fleece HYDROTEX

The multifunctional fleece HYDROTEX has a weight of about 850 g/m<sup>2</sup>. It serves as protection layer for the roof waterproofing and as water storage at the same time. It has a storage capacity of up to 6 litres per m<sup>2</sup>.

HYDROTEX is chemically resistant and physiologically harmless.

## Application

- Water storage and protection layer for extensive green roofs
- Also applicable for inverted roofs
- For extensive green roofs with a pitch of  $\geq 2^\circ$



## Data Sheet

Subject	Unit	HYDROTEX
Raw material	---	PET
Weight according EN ISO 9864	g/m <sup>2</sup>	850
Thickness according EN ISO 9863-1	mm	10
Water drainage rates	---	> DIN 4095
Water storage capacity	l/m <sup>2</sup>	6
Fire protection classification according DIN 4102 part 1	---	B2
Permeability horizontal on a load up to 2 kPa i = 1.0 i = 0.02 according EN ISO 12958	l/sm l/sm	2.310 0.174
Value of rain-water-drainage according DIN 1986	total system thickness 7-10 cm	0.5
Classification according to FGSV 1994	GRK	3

## Dimensions

Subject	Unit	HYDROTEX
Length	m	20
Width	m	2.00
m <sup>2</sup> / roll	m <sup>2</sup>	40
Weight / roll	kg	35

\*all values are average results; technical changes remain reserving.

04/2021

# 6 fürs GRÜN

- Green Roofs
- Artificial Turf
- Natural Ponds
- Garden Lighting
- Flat Roofing
- Road Construction

## Layer Composition



Height  
9 cm



Weight  
132 - 155 kg/m<sup>2</sup>\*



Water Retention  
34 - 42 l/m<sup>2</sup>\*

\* depending on substrate utilised

## Our Green Roof System

# HYDROTEX - The Simple Solution



- 1 Planting: Sedum
- 2 Growing medium: Mineral substrate Hydrotop-M, application height 8 cm
- 3 Protection and water storage layer: HYDROTEX

With our HYDROTEX-system you can easily install a green roof: Our multifunctional fleece HYDROTEX with ribbed structure is laid on the root resistant roof waterproofing. The substrate is placed above and the sedum cuttings on top. Your green roof is ready ...

# Drainage and Water Storage Board NE 20

NE 20 is made of HDPE. It is 20 mm high. The NE 20 boards are crush resistant up to 240 kN/m<sup>2</sup>. They are chemically neutral, rot-proof and resistant to moulds and algae. The fire behaviour meets the requirements of fire protection classification B 2 in accordance with DIN 4102.

## Application

- Drainage and water storage element for extensive green roofs
- Water diversion in tunnel construction
- Diversion of percolation and ground water
- Also applicable for inverted roofs
- For extensive green roofs with a pitch of  $\geq 0^\circ$



## Data Sheet

Subject	Unit	NE 20
Raw Material	---	HDPE
Weight (Tolerance +/-10%)	g/m <sup>2</sup>	1000
Colour	---	black
Height	mm	20
Crush Resistance unfilled (according DIN EN ISO 25619-2)	kN/m <sup>2</sup>	240
Temperature Resistance	°C	-40 bis +80
Water Storage Capacity (unfilled)	l/m <sup>2</sup>	6.0
Drainage Capacity (j=1) hard/hard on 20 kPa load (DIN EN ISO 12958 : 1999)	l/sm	10.61
Fire Protection Classification (acc. DIN 4102)	---	B2

Data: certificated concerning ISO 9001; technical data are liable to a constant outside control according DIN 18200

## Dimensions

Subject	Unit	NE 20
Length	m	2.40
Width	m	1.20
m <sup>2</sup> / Board	m <sup>2</sup>	2.88
Weight / Board	kg	2.88

\*all values are average results; technical changes remain reserving.

07/2020



# 6 fürs GRÜN

- Green Roofs
- Artificial Turf
- Natural Ponds
- Garden Lighting
- Flat Roofing
- Road Construction

## Layer Composition



Height  
8 cm



Weight  
95 - 127 kg/m<sup>2</sup>\*



Water Retention  
21 - 36 l/m<sup>2</sup>\*

\* depending on substrate utilised

## Our Green Roof System

# NE 20 - The Speedy Solution



- 1 Planting: Sedum cuttings
- 2 Growing medium: Extensive substrate Hydrotop-E, application height 6 cm
- 3 Filtering layer: Quality fleece PP 100 g/m<sup>2</sup>, GRK 2
- 4 Drainage and water storage board: NE 20
- 5 Protection layer: Geotextile Standard PES/PP 300 g/m<sup>2</sup>

The system NE 20 - The Speedy Solution - our system for beautiful extensive green roofs and a quick installation! With a size of 2.88 m<sup>2</sup> the boards of NE 20 are quickly laid out. NE 20 allows to bridge puddles up to a height of 20 mm on flat roofs.

7

# Drainage and Water Storage Board NE 20 V

NE 20 V is made of a HDPE drainage and water storage board and a laminated PP filter layer on top. The NE 20 V boards are crush resistant up to 240 kN/m<sup>2</sup>. They are chemically neutral, rot-proof and resistant to moulds and algae.

## Application

- Drainage and water storage element for extensive green roofs
- Water diversion in tunnel construction
- Diversion of percolation and ground water
- Also applicable for inverted roofs
- For extensive green roofs with a pitch of  $\geq 0^\circ$



## Data Sheet

Subject	Unit	NE 20 V
Raw Material Drainage Layer Raw Material Filter Layer	---	HDPE PP
Weight (Tolerance +/-10%)	g/m <sup>2</sup>	1140
Colour of Drainage Layer Colour of Filter Layer	---	black grey
Height	mm	20
Crush Resistance unfilled (according DIN EN ISO 25619-2)	kN/m <sup>2</sup>	240
Temperature Resistance	°C	-40 bis +80
Water Storage Capacity (unfilled)	l/m <sup>2</sup>	6.0
Drainage Capacity (j=1) hard/hard on 20 kPa load (DIN EN ISO 12958 : 1999)	l/sm	10.61

Data: certificated concerning ISO 9001; technical data are liable to a constant outside control according DIN 18200

## Dimensions

Subject	Unit	
Length	m	12.50
Width	m	2.00
m <sup>2</sup> / Roll	m <sup>2</sup>	25.00
Weight / Roll	kg	28.50

\*all values are average results; technical changes remain reserving.

09/2021

# 6 fürs GRÜN

- Green Roofs
- Artificial Turf
- Natural Ponds
- Garden Lighting
- Flat Roofing
- Road Construction

## Layer Composition



Height  
8 cm



Weight  
95 - 127 kg/m<sup>2</sup>\*



Water Retention  
21 - 36 l/m<sup>2</sup>\*

\* depending on substrate utilised

## Our Green Roof System

# NE 20 V - The very Speedy Solution



- 1 Planting: Sedum cuttings
- 2 Growing medium: Extensive substrate Hydrotop-E, application height 6 cm
- 3 Drainage und water storage board: NE 20 V with laminated Filtering layer PP 136 g/m<sup>2</sup> GRK 2
- 4 Protection layer: Geotextile Standard PES/PP 300 g/m<sup>2</sup>

The system NE 20 V – The very Speedy Solution – our system for beautiful extensive green roofs and a very quick installation! With a size of 25 m<sup>2</sup> and a laminated filter layer on top the rolls of NE 20 V are extremely speedily laid out. NE 20 V allows to bridge puddles up to a height of 20 mm on flat roofs.

# Drainage and Water Storage Board Water Retention Element WE 25/15

The water retention element WE 25/15 reduces due to its discharge delay effect the top discharge coefficients of extreme rain. It discharges the public sewerage system thus it redounds to flood prevention.

The three-level drainage system with integrated branch drains cares for a high drainage capacity. The water storage and drainage board WE 25/15 is thus also suitable for vacuum sewer systems.

## Application

- Without infill as drainage and water storage board for extensive green roofs
- For green roofs with intention of flood prevention by the effect of discharge delay
- Also suitable for vacuum sewer systems
- With infill as drainage board under flagging
- With an appropriate overfill also applicable as drainage under vehicle accessible areas
- Also applicable for inverted roofs
- For extensive green roofs with a pitch of  $\geq 0^\circ$



## Data Sheet

Subject	Unit	Tolerance	WE 25/15
Raw material	---	---	Recycling-Polystyrene (high impact)
Weight	gr/m <sup>2</sup>	± 100	1360
Colour	---	---	black
Height	mm	± 2	25
Crush resistance unfilled (EN ISO 25619)	kN/m <sup>2</sup>	± 40	398
Crush resistance with infill on 8 % compression (EN ISO 25619)	kN/m <sup>2</sup>	± 80	775
Maximum crush resistance (EN ISO 25619)	kN/m <sup>2</sup>	± 80	3741
Filling volume	l/m <sup>2</sup>	±	15
Water storage capacity (without infill)	l/m <sup>2</sup>	± 0.8	15
Drainage capacity (EN ISO 12958)			
on 1 % incline	l/m · s	- 0.05	0.64
on 2 % incline	l/m · s	- 0.05	0.94
Overlap	%	---	2
Storage	protected against UV radiation; has to be covered within 24 hours after installation		

1213-CPR-7716 CE

## Dimensions

Subject	Unit	Tolerance	WE 25/15
Length	m	± 0.01	1.995
Width	m	± 0.01	1.003
m <sup>2</sup> /board	m <sup>2</sup>	± 0.03	2.000
Weight/board	kg	± 0.2	2.72

\* all values are average results; technical changes remain reserving.

12/2023

# 6 fürs GRÜN

- Green Roofs
- Artificial Turf
- Natural Ponds
- Garden Lighting
- Flat Roofing
- Road Construction

## Layer Composition



Height  
9 cm



Weight  
104 - 137 kg/m<sup>2</sup>\*



Water Retention  
30 - 45 l/m<sup>2</sup>\*

\* depending on substrate utilised



## Our Green Roof System

# WE 25/15 - The Pressure-Resistant Solution



- 1 Planting: Sedum, modest perennials
- 2 Growing medium: Extensive substrate Hydrotop-E, application height 6 cm
- 3 Filter layer: Quality fleece PP 100 g/m<sup>2</sup>, GRK 2
- 4 Drainage and water storage board: WE 25/15
- 5 Protection layer: Geotextile Standard PES/PP 300 g/m<sup>2</sup>

Our system WE 25/15 – The Pressure-Resistant Solution – is the ideal alternative to a simple sedum green roof. Modest perennials from one of our diverse plant assortments can be chosen instead. In addition paths can be designed or patios can be build. WE 25/15 – The Pressure-Resistant Solution – is a stable underground for flagging; likewise WE 25/15 functions as water storage for sedum and perennials.

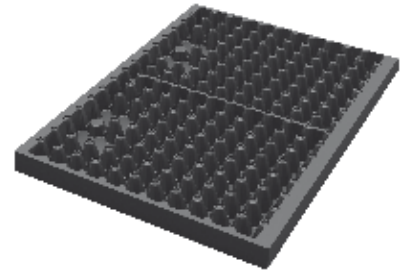
# Drainage and Water Storage Board Water Retention Element WE 40/23

The drainage and water storage board WE 40/23 is made of high impact recycling polystyrene. It stores up to 23.3 l/m<sup>2</sup> of water. It thus exceedingly guarantees the water supply for the plants of an intensive green roof. Due to the extreme crush resistance of 625 kN/m<sup>2</sup> green surfaces can easily be combined with patios and paths.

The three-level drainage system with integrated branch drains cares for a high drainage capacity. The water storage and drainage board WE 40/23 is thus also suitable for sewer systems.

## Application

- As drainage and water storage board for intensive green roofs
- Also suitable for vacuum sewer systems
- With infill as drainage board under flagging
- With an appropriate overfill also applicable as drainage under vehicle accessible areas
- Also applicable for inverted roofs
- For intensive green roofs with a pitch of  $\geq 0^\circ$



## Data Sheet

Subject	Unit	Tolerance	WE 40/23
Raw material	---	---	Recycling-Polystyrene (high impact)
Weight	gr/m <sup>2</sup>	± 100	1920
Colour	---	---	black
Height	mm	± 4	40
Crush resistance unfilled (EN ISO 25619)	kN/m <sup>2</sup>	± 40	280
Crush resistance with infill on 5 % compression (EN ISO 25619)	kN/m <sup>2</sup>	± 80	625
Filling volume	l/m <sup>2</sup>	± 0.8	23.8
Water storage capacity (without infill)	l/m <sup>2</sup>	± 0.8	23.3
Drainage capacity (EN ISO 12958)			
bei 1 % incline	l/m · s	- 0.05	0.85
bei 2 % incline	l/m · s	- 0.05	1.22
Overlap	%	---	3
Storage	protected against UV radiation; has to be covered within 24 hours after installation		

1213-CPR-7716 CE

## Dimensions

Subject	Unit	Tolerance	WE 40/23
Length	m	± 0.01	1.995
Width	m	± 0.01	1.003
m <sup>2</sup> /board	m <sup>2</sup>	± 0.03	2.000
Weight/board	kg	± 0.2	3.84

\*all values are average results; technical changes remain reserving.

12/2023

# 6 fürs GRÜN

- Green Roofs
- Artificial Turf
- Natural Ponds
- Garden Lighting
- Flat Roofing
- Road Construction



## Layer Composition



Height  
16 cm



Weight  
238 - 275 kg/m<sup>2</sup>\*



Water Retention  
83 - 89 l/m<sup>2</sup>\*

\* depending on substrate utilised

## Our Green Roof System

# WE 40/23 - The Water-Storing Solution



- 1 Planting: Bushes, grass, herbs, perennials, sedum
- 2 Growing medium: Intensive substrate Hydrotop-I, application height 12 cm
- 3 Filter layer: Quality fleece PP 150 g/m<sup>2</sup>, GRK 3
- 4 Drainage and water storage board: WE 40/23
- 5 Protection layer: Geotextile Standard PES/PP 300 g/m<sup>2</sup>

With our WE 40/23 system - The Water-Storing Solution - you can realise intensive green roofs with a high variety of perennials and bushes. With a water storage capacity of 23.3 l/m<sup>2</sup> WE 40/23 provides a considerable rain water retention. It thus exceedingly guarantees the water supply of the plants.

As WE 40/23 is made of pressure-resistant HIPS it is also applicable as drainage under paths and patios. WE 40/23 – a real all-rounder!

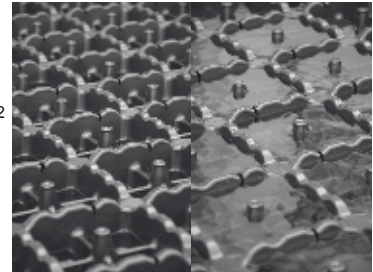
# Drainage and Water Storage Board WE 60 and WE 60 UG

The drainage and water storage board WE 60 is made of high impact recycling polystyrene. It guarantees the drainage in accordance with DIN 4095. WE 60 has a filling volume of up to 35 l/m<sup>2</sup> and stores up to 30.5 l/m<sup>2</sup> of water. It is chemically neutral, rot-proof and resistant to moulds and algae. The big diffusion slots in the division bars of the boards allow for a long-term aeration without hinderance and improve the microbiological conditions for the plants.

WE 60 is available with slots on top of the bars and with slots in the bottom.  
In combination both boards can be used as a 120 mm retention element.

## Application

- Drainage and water storage board for intensive green roofs \*1
- With infill as drainage board under flagging \*2
- With an appropriate overfill also applicable as drainage under vehicle accessible areas\*2
- Rain water accumulation possible\*1
- Applicable as retention element for green roofs with rain water accumulation
- Also applicable for inverted roofs
- For green roofs with a pitch of  $\geq 0^\circ$



## Data Sheet

Subject	Unit	WE 60
Raw material	---	Recycling-Polystyrene
Weight	g/m <sup>2</sup>	2200
Colour	---	black
Height	mm	60
Maximum crush resistance unfilled (EN ISO 25619-2 06.2009)	kN/m <sup>2</sup>	122
Maximum crush resistance with infill (EN ISO 25619-2 : 2009)	kN/m <sup>2</sup>	1316
Water storage capacity (without substrate)	l/m <sup>2</sup>	30.5
Filling volume	l/m <sup>2</sup>	35.0
Drainage capacity on 20 kPa load (EN 12958)	i = 1.00 i = 0.02 i = 0.05	l/ms l/ms l/ms
Fire protection classification (EN 13501-1)	---	E

\*1 slotted on top (Type WE 60) \*2 slotted in the bottom (Type WE 60 UG)

CE

1213-CPR-6076

## Dimensions

Subject	Unit	WE 60
Length	m	1.94
Width	m	0.94
m <sup>2</sup> / board	m <sup>2</sup>	1.82
Weight / board	kg	4.01

14 \*all values are average results; technical changes remain reserving.

12/2023



# 6 fürs GRÜN

- Green Roofs
- Artificial Turf
- Natural Ponds
- Garden Lighting
- Flat Roofing
- Road Construction

## Layer Composition



Height  
32 cm



Weight  
477 - 555 kg/m<sup>2</sup>\*



Water Retention  
156 - 168 l/m<sup>2</sup>\*

\* depending on substrate utilised



## Our Green Roof System WE 60 - The Versatile Solution



- 1 Planting: Trees, bushes, grass, herbs, perennials
- 2 Growing medium: Intensive substrate Hydrotop-I, application height 25 cm
- 3 Filter layer: Quality fleece PP 200 g/m<sup>2</sup>, GRK 3
- 4 Drainage and water storage board: WE 60
- 5 Protection layer: Geotextile Standard PES/PP 800 g/m<sup>2</sup>

Our WE 60 system makes it easy to realise intensive green roofs with trees, shrubs, perennials or grasses. Also in combination with temporary car accessible green areas such as parking places or emergency access roads you can let your imagination run wild. Thanks to the extremely high water storage capacity WE 60 cares for an optimal supply of the plants. Combined with the quick water-evacuation underneath of the boards you have free choice among all kinds of plantations. WE 60 – The Versatile Solution.

# Water Storage Board DWS 80

The drainage and water storage board DWS 80 has an extremely high water storage capacity of 27 l/m<sup>2</sup>. It is thus suitable for challenging intensive green roofs. DWS 80 is made of environment-neutral HD-PE. It is 80 mm high. Due to its high load capacity of 204 kN/m<sup>2</sup> DWS 80 is especially suitable for subterranean garages and parking decks.

## Application

- Water storage board for intensive green roofs
- Particularly suitable for underground garages and parking levels
- Also applicable for inverted roofs
- For intensive green roofs with a pitch of  $\geq 0^\circ$



## Data Sheet

Subject	Unit	DWS 80
Raw material	---	HD-PE
Weight	g/m <sup>2</sup>	5060
Colour	---	black
Height	mm	80
Crush resistance unfilled	kN/m <sup>2</sup>	204
Filling volume	l/m <sup>2</sup>	60.0
Water storage capacity (without substrate)	l/m <sup>2</sup>	27.0
Drainage capacity	l/ms	2.8

## Dimensions

Subject	Unit	DWS 80
Length	m	0.57
Width	m	0.38
m <sup>2</sup> / pallet	m <sup>2</sup>	62.40
Weight / board	kg	1.10

\*all values are average results; technical changes remain reserving.

07/2020

# 6 fürs GRÜN

- Green Roofs
- Artificial Turf
- Natural Ponds
- Garden Lighting
- Flat Roofing
- Road Construction

## Layer Composition



Height  
34 cm



Weight  
476 - 554 kg/m<sup>2</sup>\*



Water Retention  
152 - 165 l/m<sup>2</sup>\*

\* depending on substrate utilised

## Our Green Roof System DWS 80 - The Intensive Solution



- 1 Planting: Trees, bushes, grass, herbs, perennials
- 2 Growing medium: Intensive substrate Hydrotop-I, application height 25 cm
- 3 Filter layer: Quality fleece PP 200 g/m<sup>2</sup>, GRK 3
- 4 Drainage and water storage board: DWS 80
- 5 Protection layer: Geotextile Standard PES/PP 800 g/m<sup>2</sup>

Our DWS 80 system - The Intensive Solution - is a real all-rounder for intensive green roofs. DWS 80 is ideal for all kind of plantations even for bushes, trees or palms. It also provides a solid base for patios, driveways or paths. So our DWS 80 covers all scopes for creating a roof garden.

# Water storage board LDW 35

The water storage board LDW 35 consists of compound cellular material. Due to its structure it is very well applicable for green roofs with a small load capacity.

## Application

- Water storage board and rooting space for extensive green roofs
- Extensive green roofs with total weight up to 70 kg/m<sup>2</sup>
- Also applicable for inverted roofs
- For extensive green roofs with a pitch until 2°



## Data Sheet

Subject	Unit	LDW 35
Raw material	---	compound cellular material VB 80
Height	mm	35
Net density	kg/m <sup>3</sup>	80
Water storage capacity	l/m <sup>2</sup>	17.0
Hardness (DIN EN ISO 845)	kPa 40%	13.0
Certification	---	awarded according to "Öko-Tex Standard 100" TEXTILES VERTRAUEN pollutant-proofed textiles

## Dimensions

Subject	Unit	LDW 35
Length	m	1.00
Width	m	1.00
m <sup>2</sup> / board	m <sup>2</sup>	1.00

\*all values are average results; technical changes remain reserving.

02/2024

# 6 fürs GRÜN

- Green Roofs
- Artificial Turf
- Natural Ponds
- Garden Lighting
- Flat Roofing
- Road Construction

## Layer Composition



Height  
7 cm



Weight  
63 - 74 kg/m<sup>2</sup>\*



Water Retention  
29 - 34 l/m<sup>2</sup>\*

\* depending on substrate utilised

## Our Green Roof System LDW 35 – The Light Solution



- 1 Planting: Sedum blankets
- 2 Growing medium: Extensive substrate Hydrotop-E light, application height 2 cm
- 3 Filter layer: Quality fleece PP 150 g/m<sup>2</sup>, GRK 3
- 4 Growing medium / water storage: LDW 35

With our LDW 35 system - The Light Solution – you can realise a green roof with a water saturated total weight of less than 70 kg/m<sup>2</sup>. This is important for subsequent applications where the statics are not designed for the load of a green roof. The LDW 35 system is suitable for roofs with a pitch up to 2°.

# Drainage NE 10 V with Geotextile

The drainage NE 10 V is made of dimpled PE-HD membrane with a laminated filter layer on top. Due to a crush resistance of up to 420 kN/m<sup>2</sup> it is highly versatile for example as drainage under patios and pavements. With an appropriate overfill it is as well suitable as drainage under vehicle accessible areas. Depending on the set-up of the layers, an impact sound reduction of up to 33 dB can be achieved.

The drainage NE 10 V with filter layer is harmless to drinking water, chemically neutral, root resistant, rot-proof and resistant to mould and bacteria.

## Application

- as drainage on roofs with a pitch
- as drainage under roof patios
- as drainage under walkable areas
- with appropriate overfill as drainage under vehicle accessible areas
- for roofs with a pitch of  $\geq 0^\circ$



## Data

Subject	Unit	NE 10 V
Raw material membrane	---	PE-HD
Raw material geotextile	---	PP
Weight membrane		600
Weight geotextile	g/m <sup>2</sup>	136
Total weight		740
Colour membrane	---	black
Colour geotextile	---	silver grey
Height of dimples	mm	10
Quantity of dimples	pro m <sup>2</sup>	3 364
Drainage capacity (according to EN ISO 12958, i=1)	l/ms	3.5
Opening size geotextile (according to EN ISO 11058)	10 <sup>3</sup> m/s	50
Crush resistance (according EN ISO 25619-2)	kN/m <sup>2</sup>	420 (42 t/m <sup>2</sup> )
Temperature resistance	°C	-40 up to + 80
Impact sound reduction	db	up to 33

## Dimensions

Subject	Unit	NE 10 V
Length	m	12.5
Width	m	2
m <sup>2</sup> / roll	m <sup>2</sup>	25
Weight / roll	kg	18.5

\* All values are average values. Technical changes remain reserving.

02/2024

# 6 fürs GRÜN

- Green Roofs
- Artificial Turf
- Natural Ponds
- Garden Lighting
- Flat Roofing
- Road Construction

## Layer Composition



Height  
20 cm



Weight  
356 kg/m<sup>2</sup>



Water Retention  
—

suitable for walkable areas

## Our Green Roof System NE 10 – The Walkable Solution



- 1 Top layer: Concrete paving stones 6 cm
- 2 Bedding: Chippings (0/4), application height 3 cm
- 3 Base layer: Crushed stones (0/32), application height 10 cm
- 4 Drainage: NE 10 V, drainage with geotextile
- 5 Separation, sliding and protection layer: TGL 550, GRK 5

The system NE 10 – for walkable areas on green roofs and for patios  
NE 10 – The Walkable Solution – is excellent in use as drainage under patios and balconies. It is as well the ideal solution under all kind of walkable areas on green roofs and other pavements that require a drainage underneath.

# Drainage NE 12 VF with Geotextile and Foil

The drainage NE 12 VF is made of dimpled PE-HD membrane with a laminated filter layer on top and a sliding foil underneath. Due to a crush resistance of up to 1160 kN/m<sup>2</sup> it is eminent suitable as drainage and protective layer under car and lorry accessible areas. Depending on the set-up of the layers, an impact sound reduction of up to 33 dB can be achieved.

The drainage NE 12 VF with filter layer and sliding foil is harmless to drinking water, chemically neutral, root resistant, rot-proof and resistant to mould and bacteria.



## Application

- as drainage under vehicle accessible areas
- for roofs with a pitch of  $\geq 0^\circ$

## Data

Subject	Unit	NE 12 VF
Raw material membrane	---	PE-HD
Raw material geotextile	---	PP
Weight membrane	g/m <sup>2</sup>	1000
Weight geotextile		136
Weight foil		100
Total weight		1240
Colour membrane	---	black
Colour geotextile	---	silver grey
Height of dimples	mm	10
Quantity of dimples	pro m <sup>2</sup>	3368
Drainage capacity on 20 kPa load (according DIN EN ISO 12958, rigid/soft)	i = 1.00 i = 0.01 i = 0.02 i = 0.05	l/ms 3.48 0.33 0.45 0.71
Opening size geotextile (according to EN ISO 11058)	10 <sup>3</sup> m/s	50
Crush resistance (according EN ISO 25619-2)	kN/m <sup>2</sup>	1160 (116 t/m <sup>2</sup> )
Temperature resistance	°C	-40 up to + 80
Impact sound reduction	db	up to 33

## Dimensions

Subject	Unit	NE 12 VF
Length	m	12.5
Width	m	2
m <sup>2</sup> / roll	m <sup>2</sup>	25
Weight / roll	kg	31



# 6 fürs GRÜN

- Green Roofs
- Artificial Turf
- Natural Ponds
- Garden Lighting
- Flat Roofing
- Road Construction

## Layer Composition



Height  
24 - 29 cm\*



Weight  
431 - 532 kg/m<sup>2</sup>\*



Water Retention  
—

\*depending on utilisation

## Our Green Roof System NE 12 - The Car-Accessible Solution



- 1 Top layer: Concrete paving stones 8 - 10 cm
- 2 Bedding: Chippings (0/4), application height 3 cm
- 3 Base layer: Crushed stones (0/32), application height 12 - 15 cm
- 4 Drainage: NE 12 VF with geotextile and sliding foil
- 5 Separation, sliding and protection layer: TGL 550, GRK 5
- 6 Sliding layer: Construction foil PE-LD 0.2 mm

The system NE 12 – for car-accessible areas on subterranean garages and parking decks  
NE 12 – The Car-Accessible Solution shows an excellent drainage performance and a high crush resistance. On basis of the values it is suitable for any application whether for parking decks on subterranean garages, access roads to neighbouring buildings or emergency access roads.

# Drainage Board WE 25/15 for Car-Accessible Roofs

The drainage board WE 25/15 is made of high impact polystyrene. With infill WE 25/15 shows a crush resistance of 775 kN/m<sup>2</sup>. Due to this fact WE 25/15 is also suitable for installation on car-accessible roofs.

The three-level drainage system with integrated branch drains cares for a high drainage capacity under the build-up.

## Application

- With infill as drainage board under flagging
- With an appropriate overfill also applicable as drainage under vehicle-accessible areas
- Also applicable for inverted roofs
- Suitable for roofs with a pitch of  $\geq 0^\circ$



## Data Sheet

Subject	Unit	Tolerance	WE 25/15
Raw material	---	---	Recycling-Polystyrene (high impact)
Weight	gr/m <sup>2</sup>	$\pm 100$	1360
Colour	---	---	black
Height	mm	$\pm 2$	25
Crush resistance unfilled (EN ISO 25619)	kN/m <sup>2</sup>	$\pm 40$	398
Crush resistance with infill on 8 % compression (EN ISO 25619)	kN/m <sup>2</sup>	$\pm 80$	775
Maximum crush resistance (EN ISO 25619)	kN/m <sup>2</sup>	$\pm 80$	3741
Filling volume	l/m <sup>2</sup>	$\pm$	15
Drainage capacity (EN ISO 12958)			
on 1 % incline	l/m·s	- 0.05	0.64
on 2 % incline	l/m·s	- 0.05	0.94
Overlap	%	---	2
Storage	protected against UV radiation; has to be covered within 24 hours after installation		

1213-CPR-7716 CE

## Dimensions

Subject	Unit	Tolerance	WE 25/15
Length	m	$\pm 0.01$	1.995
Width	m	$\pm 0.01$	1.003
m <sup>2</sup> /board	m <sup>2</sup>	$\pm 0.03$	2.000
Weight/board	kg	$\pm 0.2$	2.72

\* all values are average results; technical changes remain reserving.

12/2023

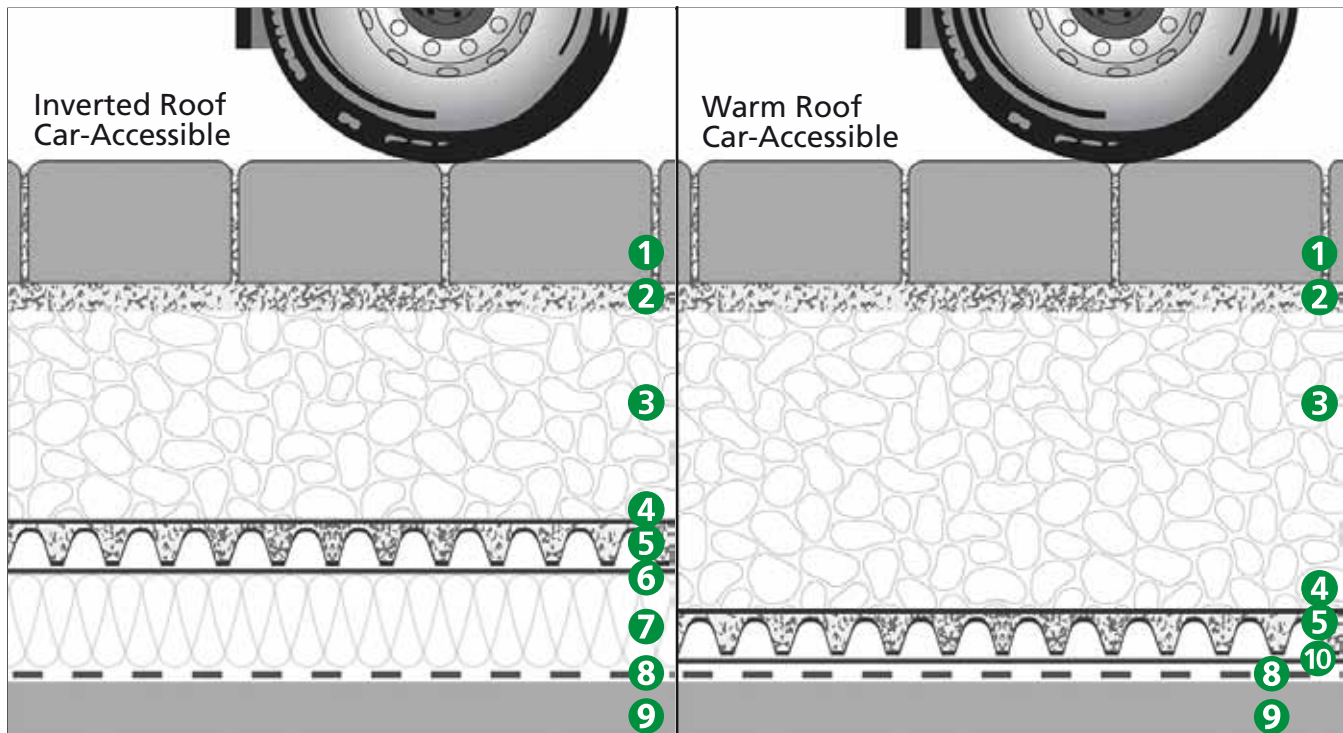
# 6 fürs GRÜN

- Green Roofs
- Artificial Turf
- Natural Ponds
- Garden Lighting
- Flat Roofing
- Road Construction



## Our Green Roof System

# WE 25/15 - The Pressure-Resistant Solution For Car-Accessible Roofs



- 1 Top layer: Concrete paving stones (at least 8 cm)
- 2 Bedding: Chippings (0/4), application height 3 cm
- 3 Base layer: Crushed stones (0/32), application height compacted 12 cm
- 4 Separation and filter layer: Quality fleece PP 150 g/m<sup>2</sup>, GRK 3
- 5 Drainage: WE 25/15 – The Pressure-Resistant Solution, filled with chippings (2/8)
- 6 Separation layer: Quality fleece PP 150 g/m<sup>2</sup>, GRK 3
- 7 Insulation: Thermal insulation, pressure-resistant
- 8 Sliding layer: Construction foil PE-LD 0.2 mm (Inverted roof two layers, warm roof one layer)
- 9 Supporting structure including waterproofing
- 10 Separation, sliding and protection layer: TGL 550, GRK 5

**Recommendation of a system for car-accessible inverted and warm roofs  
(SWL 30 = axle weight rating 10 to or vehicles with a total weight of 30 to)**

# Retention-Elements RE 50B, 80B and 120B

The retention-elements RE 50B, 80B and 120B consist of a basic-element and a top-element. Both elements are placed on top of one another. The dimples of the boards interlock and care for stable connection.

In combination with a dam-up element the boards can be used for retention of precipitation under extensive green roofs.

## Application

- Retention-elements for extensive green roofs
- For roofs with a pitch of  $\geq 0^\circ$
- Suitable for maintenance walk ways
- Not suitable for accessible areas



## Technical Data

Subject	Norm	Tolerance	Unit	RE 50B	RE 80B	RE 120B
Raw material	---	---	---	Recycling-Polystyrene (high impact)		
Colour	---	---	---	black		
Weight	---	$\pm 0.1$	kg/m <sup>2</sup>	2.72	3.84	4.40
Height	---	$\pm 2$	mm	50	80	120
Pressure-resistance	EN ISO 25619	$\pm 20 \%$	kN/m <sup>2</sup>	275	225	118
Retention-volume	---	---	l/m <sup>2</sup>	46	76	116
Retention-volume	---	---	%	92	95	97
Storage	---	---	Protected against UV radiation, has to be covered within 24 hours after installation			
Installation	---	---	to be placed on top of one another, installation with butt-joints, blue control line always shows to the top			

## Dimensions

Subject	Norm	Tolerance	Unit	RE 50B	RE 80B	RE 120B
Length	---	$\pm 10$	mm	2360	2360	2360
Width	---	$\pm 10$	mm	540	540	540
m <sup>2</sup> / element	---	$\pm 0.02$	m <sup>2</sup>	1.25	1.25	1.25
Weight / element	---	$\pm 0.2$	kg	3.40	4.80	5.50

\* all values are average results; technical changes remain reserving.

\*03/2024

# 6 fürs GRÜN

- Green Roofs
- Artificial Turf
- Natural Ponds
- Garden Lighting
- Flat Roofing
- Road Construction

## Layer Composition

System	Height	Weight	Water Retention
RE 50B	14 cm*	170 - 213 kg/m <sup>2</sup> *	66 - 86 l/m <sup>2</sup>
RE 80B	17 cm*	202 - 246 kg/m <sup>2</sup> *	96 - 116 l/m <sup>2</sup>
RE120B	21 cm*	244 - 287 kg/m <sup>2</sup> *	136 - 156 l/m <sup>2</sup>

\* depending on substrate utilised

## Our Green Roof System

### RE 50B, 80B and 120B - The Blue Solution



- 1 Plants: Sedum, modest perennials
- 2 Growing medium: Extensive substrate Hydrotop-E, application height 8 cm
- 3 Separation layer: Quality fleece PP 150 g/m<sup>2</sup>, GRK 3
- 4 Retention-element: RE 50B\*/ RE 80B/ RE 120B\* (\*not shown)
- 5 Protection layer: Standard fleece PES/PP 800 g/m<sup>2</sup>

The systems RE 50B, RE 80B and RE 120B – The Blue Solution are in combination with a dam-up element suitable for a large rainwater retention volume under an extensive green roof with maintenance walk ways. Especially in case of heavy rainfall the retention roof cares for an efficient relief of the public sewerage system.

# Retention-Element RE 80

The retention-element RE 80 is made of recycling polypropylene. Combined with a dam-up element it can be used for the retention of precipitation on green roofs. Due to its high pressure-resistance of more than 1000 kN/m<sup>2</sup> RE 80 is also perfectly suitable for installation on subterranean garages and on car-accessible areas of green roofs.

## Application

- Retention-element for green roofs
- For intensive green roofs with a pitch of 0°



## Technical Data

Subject	Unit	RE 80
Raw material	---	recycling polypropylene
Height of base-element	mm	40
Height of top-element	mm	40
Colour	---	black
Pressure-resistance	kN/m <sup>2</sup>	>1000
Retention-volume	l/m <sup>2</sup>	Up to 74
Retention-volume	%	92

## Dimensions

Subject	Unit	RE 80
Length	mm	800
Width	mm	400
Height (Base- and top-element)	mm	80
m <sup>2</sup> / element	m <sup>2</sup>	0.32
Weight / element (Base- and top-element)	kg	2.4

\* all values are average results; technical changes remain reserving.

\*07/2020

# 6 fürs GRÜN

- Green Roofs
- Artificial Turf
- Natural Ponds
- Garden Lighting
- Flat Roofing
- Road Construction

## Layer Composition



Height  
29 cm



Weight  
444 - 507 kg/m<sup>2</sup>\*



Water Retention  
174 - 184 l/m<sup>2</sup>\*

\* depending on substrate utilised

## Our Green Roof System RE 80 – The Sustainable Solution



- 1 Plants: trees, bushes, perennials, grass
- 2 Growing medium: Intensive substrate Hydrotop-I, application height at least 20 cm
- 3 Filter layer: quality fleece PP 150 g/m<sup>2</sup>, GRK 3
- 4 Water storage: retention element RE 80
- 5 Protection layer: standard fleece PP/PES 800 g/m<sup>2</sup>

The system RE 80 – The Sustainable Solution is in combination with a dam-up element suitable for a sustainable retention of excess water on roofs. In case of heavy rainfall the big storage volume of RE 80 cares for an efficient relief of the sewerage system. The retained water can be stored for a long supply of trees, bushes, perennials and grass on an intensive green roof.

The high compression strength of RE 80 – The Sustainable Solution - makes it also applicable on walkable or car accessible roofs.

# Retention-Element RE 150

The retention-element RE 150 is made of recycling polypropylene. Combined with a dam-up element it can be used for retention of precipitation on green roofs. Due to its high pressure-resistance of more than 1000 kN/m<sup>2</sup> RE 150 is also perfectly suitable for installation on subterranean garages and on car-accessible areas of green roofs.

## Application

- Retention-element for green roofs
- for intensive green roofs with a pitch 0°



## Technical Data

Subject	Unit	RE 150
Raw material	---	recycling polypropylene
Height of base-element	mm	110
Height of top-element	mm	40
Colour	---	black
Pressure-resistance	kN/m <sup>2</sup>	>1000
Retention-volume	l/m <sup>2</sup>	Up to 138
Retention-volume	%	92

## Dimensions

Subject	Unit	RE 150
Length	mm	800
Width	mm	400
Height (Base and top-element)	mm	150
m <sup>2</sup> / element	m <sup>2</sup>	0.32
Weight / element (Base- and top-element)	kg	3.90

\* all values are average results; technical changes remain reserving.

\*01/2022



# 6 fürs GRÜN

- Green Roofs
- Artificial Turf
- Natural Ponds
- Garden Lighting
- Flat Roofing
- Road Construction

## Layer Composition



Height  
35 - 44 cm\*



Weight  
506 - 681 kg/m<sup>2</sup>\*



Water Retention  
138 l/m<sup>2</sup>

\*depending on utilisation

## Our Green Roof System RE 150 – The Strong Solution



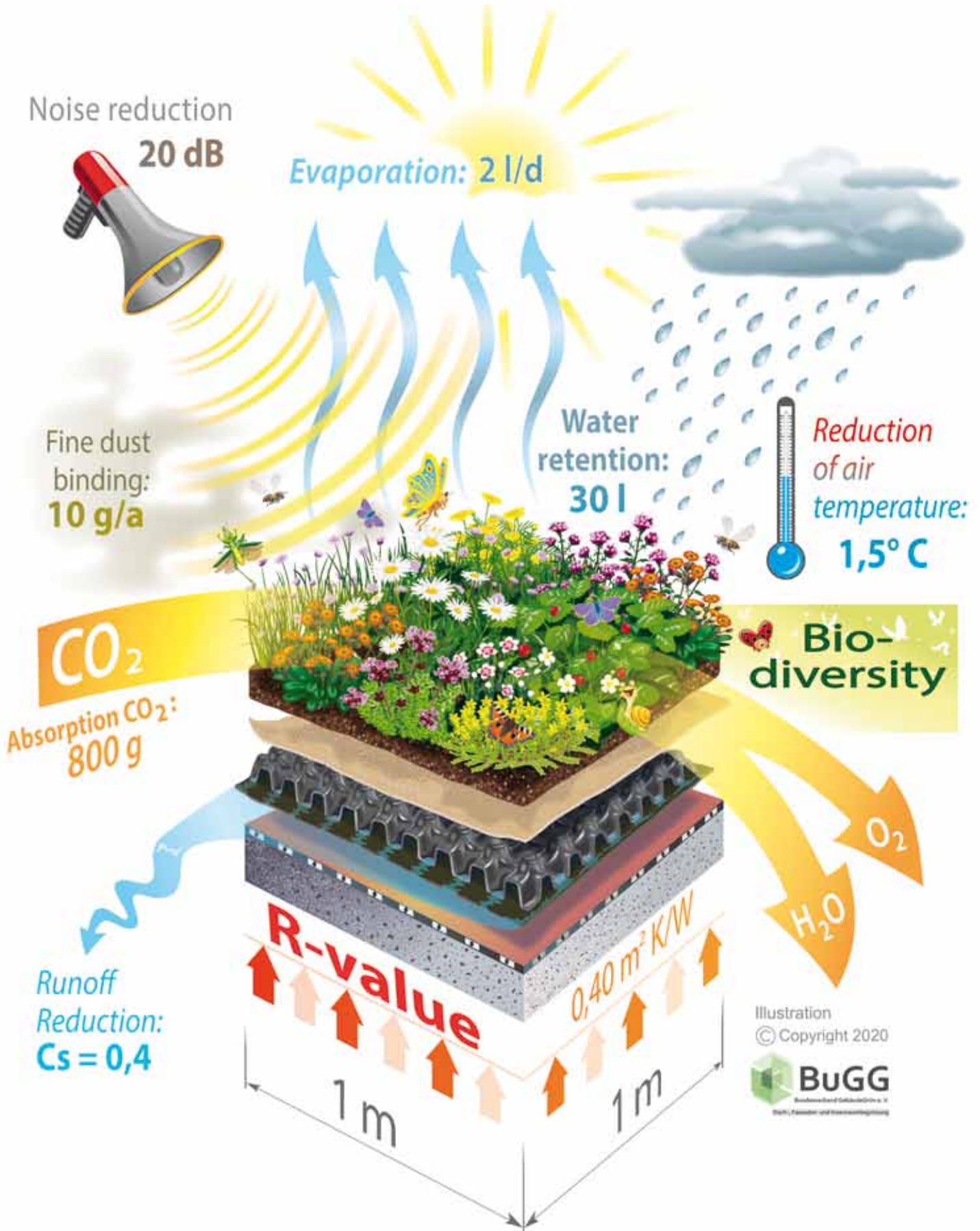
- 1 Top layer: concrete paving stones, thickness 8 to 10 cm
- 2 Bedding: chippings 0/5, application height 3 to 5 cm
- 3 Base layer: crushed stones 0/32 or 0/45, application height 10 to 15 cm
- 4 Filter layer: quality fleece PP 350 g/m<sup>2</sup>, GRK 5
- 5 Water storage: retention-element RE 150
- 6 Protection, separation and sliding layer: TGL 550, GRK 5
- 7 Sliding layer: construction foil PE-LD 0.2 mm

The system RE 150 – The Strong Solution is in combination with a dam-up element suitable for a sustainable retention of excess water on roofs. The big storage volume of RE 150 cares for an efficient relief of the sewerage system.

No matter if RE 150 – The Strong Solution is applied under a green roof or under accessible surfaces. RE 150 is a strong system – it bears high load-capacities, stores big quantities of water and relieves effectively the public sewerage system.

# EXTENSIVE ROOF GREENING

## PERFORMANCE OF ONE SQUARE-METRE





# 6

fürs  
**GRÜN**

- Green Roofs
- Artificial Turf
- Natural Ponds
- Garden Lighting
- Flat Roofing
- Road Construction

Since more than 30 years  
successful in green roofs



Print: 03/2024