Deutsches Institut für Bautechnik

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Bautechnisches Prüfamt

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General Part

Technical Assessment Body issuing the European Technical Assessment:	Deutsches Institut für Bautechnik
Trade name of the construction product	"Sedum Carpet", "Rockery Type Plants", "Heather with Lavender", "Roof Garden"
Product family to which the construction product belongs	Kits for Green Roofs
Manufacturer	ZinCo GmbH Lise-Meitner-Straße 2 72622 Nürtingen DEUTSCHLAND
Manufacturing plant	ZinCo GmbH Lise-Meitner-Straße 2 72622 Nürtingen DEUTSCHLAND
This European Technical Assessment contains	19 pages including 1 annex which form an integral part of this assessment
This European Technical Assessment is issued in accordance with Regulation (EU) No 305/2011, on the basis of	EAD 220009-01-0401
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Specific part

1 Definition of the construction product

This European Technical Assessment applies to the kits for green roofs with the following designations:

- Extensive Green Roof – Type 1 "Sedum Carpet"
- Extensive Green Roof – Type 2 "Rockery Type Plants"
- Basic intensive Green Roof – Type 3 "Heather with Lavender"
- Intensive Green Roof – Type 4 "Roof Garden"

The kits consist of the components specified in table 1, which are factory-made by the approval holder or a supplier. The kits are manufactured on site from these components.

The European Technical Assessment has been issued for the products on the basis of agreed data/information, deposited with Deutsches Institut für Bautechnik, which identifies the products that have been assessed. The European Technical Assessment applies only to products corresponding to this agreed data/information.

The kits are placed above the roof covering on flat roofs and sloped roofs, respectively with a roof pitch of a maximum of 15°.

The roof covering and the greening (plants) are not included in the kit.

Table 1: Components of the kits for green roofs

	Components (bottom – up)	Kit (Type)	Type of material	Dimensions, Thickness, mass surface density
Root barrier layer **(optional)**	Root barrier layer WSB 100-PO	1,2,3,4	flexible Polyolefin (FPO), reinforced with polyester fabric	2.40 m x 30.5 m; Thickness: 1.1 mm; mass surface density: 1.13 kg/m²
Protection mat	Moisture Retention/Protection Mat SSM 45	1,2,3	approx. 70 % Polyester / approx. 30 % Polypropylene (both pre consumer recycled material)	2.00 m x 50.00 m; Thickness: approx. 5 mm; mass surface density: approx. 470 g/m²
	Insulation protection mat ISM 50	4	approx. 70 % Polyester / approx. 30 % Polypropylene (both pre consumer recycled material)	2.00 m x 25.00 m; Thickness: approx. 6 mm; mass surface density: approx. 850 g/m²
	Separation and protection mat TSM 32	1,2	Polyester (pre consumer recycled material)	2.00 m x 50.00 m; Thickness: approx. 3 mm; mass surface density: approx. 320 g/m²
	Irrigation and protection mat BSM 64	3	approx. 70 % Polyester / approx. 30 % Polypropylene (both pre consumer recycled material)	2.00 m x 25.00 m; Thickness: approx. 7 mm; mass surface density: approx. 650 g/m²

	Components (bottom – up)	Kit (Type)	Type of material	Dimensions, Thickness, mass surface density
Drainage element	Floradrain FD 25	1,2	Polyethylene (HDPE) made from regenerated material	1.00 m x 2.00 m; Thickness: approx. 25 mm; mass surface density: approx. 1.7 kg/m²
	Floradrain FD 40	1,2,3,4	Polyethylene (HDPE) made from regenerated material	1.00 m x 2.00 m; Thickness: approx. 40 mm; mass surface density: approx. 2.2 kg/m²
	Fixodrain XD 20	1,2	Polyethylene (HDPE) made from regenerated material, with laminated geotextile made of polypropylene (PP)	1.00 m x 20.00 m; Thickness: approx. 20 mm; mass surface density: approx. 1.0 kg/m²
	Floradrain FD 60	3, 4	Polyethylene (HDPE) made from regenerated material	1.03 m x 2.30 m; Thickness: approx. 60 mm; mass surface density: approx. 2.2 kg/m²
Filter fleece	System filter SF	1,2,3,4	Polypropylene (PP)	2.00 m x 100.00 m; Thickness: approx. 0.6 mm; mass surface density: approx. 0.10 kg/m²
Vegetation support layer	Sedum Carpet	1	-	60 – 80 mm, approx. 68 - 90 kg/m²
	Sedum Carpet - Light	1	-	60 – 80 mm, approx. 55 - 74 kg/m²
	Rockery Type Plants	2	-	70 – 100 mm, approx. 70 - 100 kg/m²
	Rockery Type Plants - Light	2	-	70 – 100 mm, approx. 56 - 80 kg/m²
	Heather with Lavender	3	-	100 – 200 mm, ca. 100 – 200 kg/m²

	Components (bottom – up)	Kit (Type)	Type of material	Dimensions, Thickness, mass surface density
	Heather with Lavender - Light	3	-	100 – 200 mm, approx. 80 - 160 kg/m²
	Lawn	4	-	≥ 200 mm, ≥ 190 kg/m²
	Roof garden	4	-	≥ 200 mm, ≥ 200 kg/m²

2 Specification of the intended use in accordance with the applicable European Assessment Document

The Kits are used for the production of green roofs. They protect the roof covering from UV radiation, temperature differences, and mechanical damage.

By the use of the Kits, a part of the incoming perceptible water can be held back and thus costs for the drainage systems will be reduced.

The selection of the Kits in conjunction with an appropriate planting depends on the concrete conditions at the place of installation and is not the subject of this European Technical Assessment.

The performance according to section 3 only applies if the Kits and the components are installed according to the manufacture's installation instructions and planning guidelines and according to annex A and if they are protected by appropriate measures (e.g. packaging or covering) from weathering, solar radiation (UV) and mechanical damage during transport, storage and installation.

The verifications and assessment methods on which this European Technical Assessment is based lead to the assumption of a working life of the Kits of at least 25 years. The indications given on the working life cannot be interpreted as a guarantee given by the producer, but are to be regarded only as a means for choosing the right products in relation to the expected economically reasonable working life of the works.

3 Performance of the product and references to the methods used for its assessment

For sampling, conditioning and testing the provisions of the EAD No. 220009-00-0401 "kits for green roofs" apply.

3.1 Performance of the assembled system / kit for green roofs

3.1.1 Mechanical resistance and stability (BWR 1)

Not applicable.

3.1.2 Safety in case of fire (BWR 2)

Essential characteristic	**Performance**
External fire performance	No performance assessed

3.1.3 Hygiene, health and the environment (BWR 3)

Essential characteristic	Performance
Content, emission and/or release of dangerous substances	No performance assessed.
The filter fleece "System filter SF" contains UV stabilizers.	

3.1.4 Safety and accessibility (BWR 4)

Essential characteristic	Performance
Discharge coefficient / Runoff reference value C test acc. to Annex 2 of the "Green Roofing Guideline" - Guideline for the Planning, Construction and Maintenance of Green Roofing (FLL)	applicable to roof slopes ≤ 5° with the given roof build-up (up – bottom)
≥ 70 mm Sedum Carpet System filter SF Fixodrain XD 20	C = 0.6 for rainfall with 300 l/(s x ha) / duration: 15 min
≥ 85 mm Rockery Type Plants System filter SF Floradrain FD 25 Protection mat SSM 45	C = 0.6 for rainfall with 300 l/(s x ha) / duration: 15 min
≥ 150 mm heather with lavender System filter SF Floradrain FD 40 Protection mat SSM 45	C = 0.45 for rainfall with 300 l/(s x ha) / duration: 15 min
≥ 250 mm Roof garden System filter SF Floradrain FD 60 Insulation protection mat ISM 50	C = 0.2 for rainfall with 300 l/(s x ha) / duration: 15 min

3.1.5 Protection against noise (BWR 5)

Not applicable.

3.1.6 Energy economy and heat retention (BWR 6)

Not applicable.

3.1.7 Sustainable use of natural resources (BWR 7)

For the sustainable use of natural resources no performance was investigated for this product.

3.2 Performance of the individual components

3.2.1 Root barrier layer

3.2.1.1 Mechanical resistance and stability (BWR 1)

Not applicable.

3.2.1.2 Safety in case of fire (BWR 2)

Essential characteristic	**Performance**
Reaction to fire	No performance assessed.

3.2.1.3 Hygiene, health and the environment (BWR 3)

Essential characteristic	**Performance**
Content, emission and/or release of dangerous substances	No performance assessed.

3.2.1.4 Safety and accessibility (BWR 4)

Essential characteristic	**Performance**
Resistance to root penetration test acc. to EN 13948:2008 WSB 100-PO	root-resistant
Resistance to rhizomes test acc. to Annex 3 of the "Green Roofing Guideline" - Guideline for the Planning, Construction and Maintenance of Green Roofing (FLL) WSB 100-PO	rhizome-resistant to couch grass
Behaviour after storage on bitumen	No performance assessed.
Resistance to ozone	No performance assessed.
Long-term exposure under temperature and humidity load test acc. to EN 12311-2:2010 tensile strength before and after the following conditionings 28 days at 70 ± 2 °C (acc. to EN 1296:2001) 28 days at 60 ± 2 °C (acc. to EN 1847:2010) WSB 100-PO	The tensile strength of the root barrier layer is reduced by no more than 5 % after the temperature and moisture load.
Microbiological resistance	No performance assessed.
Tensile strength	No performance assessed.

3.2.1.5 Protection against noise (BWR 5)

Not applicable.

3.2.1.6 Energy economy and heat retention (BWR 6)

Not applicable.

3.2.1.7 Sustainable use of natural resources (BWR 7)

For the sustainable use of natural resources no performance was investigated for this product.

3.2.2 Protection mat

3.2.2.1 Mechanical resistance and stability (BWR 1)

Not applicable.

3.2.2.2 Safety in case of fire (BWR 2)

Essential characteristic	**Performance**
Reaction to fire	No performance assessed.

3.2.2.3 Hygiene, health and the environment (BWR 3)

Essential characteristic	**Performance**
Content, emission and/or release of dangerous substances	No performance assessed.

3.2.2.4 Safety and accessibility (BWR 4)

Essential characteristic	**Performance**
Protection efficiency test acc. to EN ISO 13428:2005 Separation and protection mat "TSM 32" Moisture Retention/Protection Mat "SSM 45" Irrigation and protection mat "BSM 64" Insulation protection mat "ISM 50"	Residual thickness s_r ≥ 20 % ≥ 25 % ≥ 30 % ≥ 40 %
Behaviour under point loads test acc. to EN ISO 12236:2006 Separation and protection mat "TSM 32" Moisture Retention/Protection Mat "SSM 45" Irrigation and protection mat "BSM 64" Insulation protection mat "ISM 50"	 F_P ≥ 2.0 kN F_P ≥ 2.0 kN F_P ≥ 3.0 kN F_P ≥ 3.5 kN
Tensile strength	No performance assessed.
Durability test acc. to EN 13252:2000+A1:2005 (Annex B) and EAD, Annex B Resistance to weathering acc. to EN 12224:2000 (430 h weathering) Separation and protection mat "TSM 32" Moisture Retention/Protection Mat "SSM 45" Irrigation and protection mat "BSM 64" Insulation protection mat "ISM 50" Resistance to hydrolysis acc. to EN 12447:2001 (28 d exposure) Separation and protection mat "TSM 32" Moisture Retention/Protection Mat "SSM 45" Irrigation and protection mat "BSM 64" Insulation protection mat "ISM 50"	Tensile strength of the protection mats, tested according to EN 29073-3:1992 before and after each aging conditioning. The tensile strength after aging amounts to at least 50 % of the initial value. The tensile strength after aging amounts to at least 50 % of the initial value.

3.2.2.5 Protection against noise (BWR 5)

Not applicable.

3.2.2.6 Energy economy and heat retention (BWR 6)

Not applicable.

3.2.2.7 Sustainable use of natural resources (BWR 7)

For the sustainable use of natural resources no performance was investigated for this product.

3.2.3 Drainage element (without thermal insulating properties)

3.2.3.1 Mechanical resistance and stability (BWR 1)

Not applicable.

3.2.3.2 Safety in case of fire (BWR 2)

Essential characteristic	**Performance**
Reaction to fire	No performance assessed.

3.2.3.3 Hygiene, health and the environment (BWR 3)

Essential characteristic	**Performance**
Content, emission and/or release of dangerous substances	No performance assessed.

3.2.3.4 Safety and accessibility (BWR 4)

Essential characteristic	**Performance**
Water flow capacity in the plane test acc. to EN ISO 12958:2010 (with the given boundary conditions)	
Floradrain FD 25 (rigid/rigid, 20 kPa)	i = 0.01 : 0.377 l/(m s) i = 0.02 : 0.541 l/(m s) i = 0.10 : 1.250 l/(m s) i = 1.00 : 4.272 l/(m s)
Floradrain FD 40 (rigid/rigid, 20 kPa)	i = 0.01 : 0.896 l/(m s) i = 0.02 : 1.282 l/(m s) i = 0.10 : 3.040 l/(m s) i = 1.00 : 10.25 l/(m s)
Fixodrain XD 20 (soft / rigid, 20 kPa)	i = 0.01 : 0.36 l/(m s) i = 0.02 : 0.53 l/(m s) i = 0.10 : 1.27 l/(m s) i = 1.00 : 4.42 l/(m s)
Floradrain FD 60 (rigid/rigid, 20 kPa)	i = 0.01 : 1.09 l/(m s) i = 0.02 : 1.59 l/(m s)

Essential characteristic	Performance
Compression behaviour test acc. to EN ISO 25619-2:2008 Floradrain FD 25 Floradrain FD 40 Fixodrain XD 20 Floradrain FD 60	compressive strength ≥ 150 kPa ≥ 115 kPa ≥ 115 kPa ≥ 70 kPa
Compressive creep	No performance assessed.
Durability test acc. to EN 13252:2000+A1:2005 (Annex B) and EAD, Annex B Resistance to weathering acc. to EN 12224:2000 (430 h weathering) Floradrain FD 25 Floradrain FD 40 Fixodrain XD 20 Floradrain FD 60 Oxidation stability acc. to EN 13438:2004 Floradrain FD 25 Floradrain FD 40 Fixodrain XD 20 Floradrain FD 60	Compressive strength of the drainage element, tested according to EN ISO 25619-2:2008 before and after each aging conditioning. The compressive strength after aging amounts to at least 50 % of the initial value. The compressive strength after aging amounts to at least 50 % of the initial value.
Tensile strength	No performance assessed.

3.2.3.5 Protection against noise (BWR 5)

Not applicable.

3.2.3.6 Energy economy and heat retention (BWR 6)

Not applicable.

3.2.3.7 Sustainable use of natural resources (BWR 7)

For the sustainable use of natural resources no performance was investigated for this product.

3.2.4 Filter fleece

3.2.4.1 Mechanical resistance and stability (BWR 1)

Not applicable.

3.2.4.2 Safety in case of fire (BWR 2)

Essential characteristic	Performance
Reaction to fire	No performance assessed.

3.2.4.3 Hygiene, health and the environment (BWR 3)

Essential characteristic	**Performance**
Content, emission and/or release of dangerous substances	No performance assessed.
The filter fleece "System filter SF" contains UV stabilizers.	

3.2.4.4 Safety and accessibility (BWR 4)

Essential characteristic	**Performance**
Characteristic properties acc. to EN 13252 test acc. to EN 13252:2016	
System filter SF	
Tensile strength test acc. to EN ISO 10319	7 kN/m
Static puncture test (CBR test) test acc. to EN ISO 12236	1100 N
Dynamic perforation test test acc. to EN ISO 13433	35 mm
Characteristic opening size test acc. to EN ISO 12956	95 µm
Water permeability characteristics (normal to the plane) test acc. to EN ISO 11058	0.07 m/s
Durability test acc. to EN 13252, Annex B	Maximum duration of exposure 2 weeks

3.2.4.5 Protection against noise (BWR 5)
Not applicable.

3.2.4.6 Energy economy and heat retention (BWR 6)
Not applicable.

3.2.4.7 Sustainable use of natural resources (BWR 7)
For the sustainable use of natural resources no performance was investigated for this product.

3.2.5 Vegetation support layer

3.2.5.1 Mechanical resistance and stability (BWR 1)
Not applicable.

3.2.5.2 Safety in case of fire (BWR 2)

Essential characteristic	**Performance**
Reaction to fire	No performance assessed.

3.2.5.3 Hygiene, health and the environment (BWR 3)

Essential characteristic	**Performance**
Content, emission and/or release of dangerous substances	No performance assessed.

3.2.5.4 Safety and accessibility (BWR 4)

Essential characteristic	**Performance**
Particle size distribution test acc. to EN 933-1:2012	
Rockery Type Plants	
maximum particle size	13.0 mm
Fraction of particles ≤ 0,063 mm (plus ± 10 % tolerance)	7 % by mass
Fraction of particles > 4 mm (plus ± 10 % tolerance)	56 % by mass
Rockery Type Plants - Light	
maximum particle size	8.0 mm
Fraction of particles ≤ 0,063 mm (plus ± 10 % tolerance)	8,5 % by mass
Fraction of particles > 4 mm (plus ± 10 % tolerance)	52 % by mass
Roof garden	
maximum particle size	13.0 mm
Fraction of particles ≤ 0,063 mm (plus ± 10 % tolerance)	13 % by mass
Fraction of particles > 4 mm (plus ± 10 % tolerance)	30 % by mass
Sedum Carpet	
maximum particle size	12.5 mm
Fraction of particles ≤ 0,063 mm (plus ± 10 % tolerance)	5 % by mass
Fraction of particles > 4 mm (plus ± 10 % tolerance)	73 % by mass
Sedum Carpet - Light	
maximum particle size	12.5 mm
Fraction of particles ≤ 0,063 mm (plus ± 10 % tolerance)	6 % by mass
Fraction of particles > 4 mm (plus ± 10 % tolerance)	61 % by mass
Heather with Lavender	
maximum particle size	8.0 mm
Fraction of particles ≤ 0,063 mm (plus ± 10 % tolerance)	8 % by mass
Fraction of particles > 4 mm (plus ± 10 % tolerance)	51 % by mass

Essential characteristic	Performance
Heather with Lavender - Light	
maximum particle size	12.5 mm
Fraction of particles ≤ 0,063 mm (plus ± 10 % tolerance)	10 % by mass
Fraction of particles > 4 mm (plus ± 10 % tolerance)	38 % by mass
Lawn	
maximum particle size	8.0 mm
Fraction of particles ≤ 0,063 mm (plus ± 10 % tolerance)	8 % by mass
Fraction of particles > 4 mm (plus ± 10 % tolerance)	36 % by mass
Bulk density test acc. to EN 1097-3:1998	
Rockery Type Plants	0.95 – 1.05 g/cm³
Rockery Type Plants - Light	0.80 – 0.90 g/cm³
Roof garden	0.95 – 1.05 g/cm³
Sedum Carpet	1.00 – 1.10 g/cm³
Sedum Carpet - Light	0.80 – 0.90 g/cm³
Heather with Lavender	0.95 – 1.05 g/cm³
Heather with Lavender - Light	0.70 – 0.80 g/cm³
Lawn	0.85 – 0.95 g/cm³
Determination of the pH-value test acc. to EN 13037:2011	
Rockery Type Plants	7.0 – 9.0
Rockery Type Plants - Light	7.0 – 9.0
Roof garden	7.0 – 9.0
Sedum Carpet	7.5 – 9.5
Sedum Carpet - Light	7.0 – 9.0
Heather with Lavender	7.0 – 9.0
Heather with Lavender - Light	7.0 – 9.0
Lawn	7.5 – 9.5
Organic matter content test acc. to EN 13039:2011	
Rockery Type Plants	≤ 2.5 % by mass
Rockery Type Plants - Light	≤ 5.0 % by mass
Roof garden	≤ 6.5 % by mass
Sedum Carpet	≤ 2.5 % by mass
Sedum Carpet - Light	≤ 2.5 % by mass
Heather with Lavender	≤ 5.5 % by mass
Heather with Lavender - Light	≤ 8.5 % by mass
Lawn	≤ 5.0 % by mass

Essential characteristic	**Performance**
Soluble nutrients content test acc. to EN 13651:2001	(plus ± 10 % tolerance)
Rockery Type Plants	
N	21 mg/l
P_2O_5	57 mg/l
K_2O	205 mg/l
Mg	88 mg/l
Rockery Type Plants - Light	
N	16 mg/l
P_2O_5	74 mg/l
K_2O	520 mg/l
Mg	212 mg/l
Roof garden	
N	7 mg/l
P_2O_5	70 mg/l
K_2O	343 mg/l
Mg	128 mg/l
Sedum Carpet	
N	19 mg/l
P_2O_5	25 mg/l
K_2O	347 mg/l
Mg	132 mg/l
Sedum Carpet - Light	
N	16 mg/l
P_2O_5	42 mg/l
K_2O	338 mg/l
Mg	150 mg/l
Heather with Lavender	
N	16 mg/l
P_2O_5	63 mg/l
K_2O	505 mg/l
Mg	269 mg/l
Heather with Lavender - Light	
N	17 mg/l
P_2O_5	109 mg/l
K_2O	610 mg/l
Mg	225 mg/l

Essential characteristic	Performance
Lawn	
N	13 mg/l
P_2O_5	46 mg/l
K_2O	376 mg/l
Mg	225 mg/l
Salt content test acc. to EN 13038:2011	
Rockery Type Plants	≤ 2.5 g/l
Rockery Type Plants - Light	≤ 3.0 g/l
Roof garden	≤ 2,0 g/l
Sedum Carpet	≤ 3.5 g/l
Sedum Carpet - Light	≤ 3.5 g/l
Heather with Lavender	≤ 2.5 g/l
Heather with Lavender - Light	≤ 3.0 g/l
Lawn	≤ 3.5 g/l
Water permeability test acc. to Annex 2 of the "Green Roofing Guideline" - Guideline for the Planning, Construction and Maintenance of Green Roofing (FLL)	
Rockery Type Plants	0.019 cm/s
Rockery Type Plants - Light	No performance assessed.
Roof garden	No performance assessed.
Sedum Carpet	No performance assessed.
Sedum Carpet - Light	No performance assessed.
Heather with Lavender	No performance assessed.
Heather with Lavender - Light	No performance assessed.
Lawn	No performance assessed.
Maximum water capacity test acc. to Annex 2 of the "Green Roofing Guideline" - Guideline for the Planning, Construction and Maintenance of Green Roofing (FLL)	
Rockery Type Plants	42.0 % by volume
Rockery Type Plants - Light	No performance assessed.
Roof garden	No performance assessed.
Sedum Carpet	No performance assessed.
Sedum Carpet - Light	No performance assessed.
Heather with Lavender	No performance assessed.
Heather with Lavender - Light	No performance assessed.
Lawn	No performance assessed.

3.2.5.5 Protection against noise (BWR 5)

Not applicable.

3.2.5.6 Energy economy and heat retention (BWR 6)

Not applicable.

3.2.5.7 Sustainable use of natural resources (BWR 7)

For the sustainable use of natural resources no performance was investigated for this product.

4 Assessment and verification of constancy of performance (AVCP) system applied, with reference to its legal base

In accordance with EAD No 220009-00-0401 "kits for green roofs" the applicable European legal act is:
Commission Decision 98/436/EC and 2001/596/EC (reaction to fire).

The following systems to be applied are:

Essential characteristic	System
Content, emission and/or release of dangerous substances	3
All other characteristics of the products	4

5 Technical details necessary for the implementation of the AVCP system, as provided for in the applicable EAD

Technical details necessary for the implementation of the AVCP system are laid down in the control plan deposited with Deutsches Institut für Bautechnik.

Issued in Berlin on 12 June 2018 by Deutsches Institut für Bautechnik

Prof. Gunter Hoppe
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beglaubigt:
Getzlaff

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ANNEX A

The given performances for the kits and the individual components in clause 3 apply, if the following conditions regarding the structural assembly are met:

It will be used only components which are specified in clause 1 and which are compatible with each other.

To protect the roof waterproofing from root penetration a root barrier layer will be arranged, provided that no "root-resistant" roof waterproofing was performed. The entire roof including connections to other building components, penetrations, etc. will be carried out root-resistant.

The root barrier layer will be covered immediately after laying in order to avoid a longer weathering. The joints of the layers will be connected in a suitable manner.

Depending on the roof waterproofing executed, a suitable protection mat will be used.

It will be used only substrate which not contain any significant impurities.

Depending on the compressive strength of the drainage elements, these will be protected during the execution such that they will not be damaged.

For the protection mats, filter fleece and drainage elements, the following maximum durations of exposure after installation will be observed:

Table 2: Maximum duration of exposure of the protection mats, filter fleece and drainage elements

Protection mat /drainage element / filter fleece	Maximum duration of exposure
System filter SF	2 weeks
Moisture Retention/Protection Mat SSM 45	2 weeks
Insulation protection mat ISM 50	2 weeks
Irrigation and protection mat BSM 64	2 weeks
Separation and protection mat TSM 32	2 weeks
Floradrain FD 25	1 month
Floradrain FD 40	1 month
Fixodrain XD 20	1 month
Floradrain FD 60	1 month

The roof will be equipped with an appropriate drainage. For roofs with a roof pitch less than 2 % special requirements for dewatering and drainage are required.

The roof will be designed such that no stagnant water will develop over a longer period of time. The roof structure, the roof pitch and the planting of the green roof will be coordinated.

The execution of the drainage will be carried out in accordance with EN 12056-3:2001 considering national provisions.

It will ensure that the roof system executed provides a sufficient resistance to wind load (wind suction), depending on the location of the building. The roof structure is designed such that it can transfer the additional loads from the green roof.

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Only undamaged products will be used. The kits will be laid on surfaces which are sufficiently flat. The components will be laid single-layer.

When using plants with a strong rhizome growth (e.g. different types of bamboo), this will be taken into account by special measures in addition to the root barrier layer when executing.

Depending on the green roof carried out and the existing vegetation regular maintenance of the green roof is required (e.g. cleaning, removing unwanted vegetation, control of drainage, plant care).