Blackdown

Green Roof Systems

Intensive, Semi-Intensive, Bio-Diverse and Extensive Green Roofs offer a variety of environmental benefits.

Blackdown are horticultural experts and offer a single source solution – growing, supplying, installing and maintaining green roofs that comprise of plants ideally suited to the UK's climate. These systems are fully compatible with Alumasc's root-resistant waterproofing membranes.

blackdown greenroofs

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Blackdown

Green Roof Systems

Blackdown specialises in plant production, component supply, full system installation and maintenance of extensive, semi-intensive, bio-diverse and intensive roof planting systems.

With nurseries in the Blackdown Hills in Somerset, and a long established background in horticulture, Blackdown offers clients expert advice on the most appropriate planting strategy for their project.

A holistic approach ensures the long-term success of Blackdown's green roof installations, with the same care shown for plants on the roof as is shown during plant production at the nurseries.

An impressive track record of high profile projects alongside technical expertise and an innovative approach to overcoming problems, ensures Blackdown remains a market leader.

Grow – plants are cultivated in and tailored to suit the UK's climate.

Supply – an extensive range of Blackdown green roof systems and components.

Install – cost-effective, high quality installations.

Maintain – affordable maintenance for long-term plant wellbeing.

Approvals – Blackdown green roofs comply with the UK's GRO Green Roof Code of Best Practice 2014 and the German Landscaping and Landscape Development Research Facility (FLL) Guidelines.

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A Single Source Offer

Grow
By producing our own vegetation we can ensure that quality control procedures are maintained at each stage of the production process. This ensures that only high quality vegetation is used on our roofs.

Supply
The Blackdown supply offer includes all of the components necessary for a high quality green roof system, delivered throughout the UK.

With our horticultural, roofing and contracting expertise, we appreciate the importance of on-time, in-full deliveries.

Install
Blackdown are able to offer a full installation service from simple extensive roofs to complex intensive roofs which can incorporate hard and soft landscaping, automated irrigation and lighting systems.

Maintain
Maintenance planning is essential to achieving a healthy plant community and a green roof that delivers its long-term objectives. With an increasing tendency for buildings to be procured on a lifecycle basis, Blackdown offers a single source, whole-life green roof solution: grown, supplied, installed and maintained by Blackdown.

Benefits of a Green Roof

Urban Heat Island Effect
Temperatures are known to be higher in urban areas relative to surrounding rural areas, due to the higher quantity of impermeable, reflective surfaces and increased population density.

Green roofs reverse this effect by returning moisture to the environment through evapotranspiration, reducing solar gain and improving air quality.

Stormwater Management
There is an increased need in the UK for Sustainable Urban Drainage Systems (SUDS). The Flood and Water Management Act 2010 and recent increased flooding drives designers to consider and provide solutions to reduce the effect of construction on existing drainage systems.

Green roofs are recognised as a measure that can be used to provide a level of additional SUDS capacity.

Carbon Capture
CO_2 capture is one of the primary legislative drivers for including a green roof on a building.

As vegetation consumes carbon during photosynthesis, green roofs positively remove emissions, helping arrest climate change. Air pollution levels are also reduced by the green roof's ability to trap harmful particulates and capture gases.

Habitat Provision
Green roofs can provide food, habitat, nesting opportunities or resting places for creatures displaced by urban development, such as spiders, beetles, butterflies, birds and other invertebrates. Replacing lost habitat or creating areas of bio-diversity, potentially aids planning applications or helps contribute towards BREEAM.

Planting Options

Planting is all about the cultivation of plants which are wind, frost and drought resistant, require very little maintenance and are self-propagating. This type of vegetation will consist primarily of sedums, but can include herbaceous plants and grasses if the substrate depth and location are suitable.

Intensive: Hard and Soft Landscaping
Intensive green roof systems are often a mixture of hard and soft elements; this may include a variety of planting types, from semi-mature trees, lawns, shrubs and herbaceous borders to vegetable beds. Substrate depths can vary from 400-1500mm. With this variety of planting an automated irrigation system is usually essential.

Ponds, paving, lighting, seating and planters can all be accommodated to suit requirements.

Semi-Intensive: Wildflower Mat, Plugs or Seed
As the depth of the substrate is typically 150-200mm on a semi-intensive system, the range of plants that can be utilised on the roof includes a variety of wild flowers, sedum, herbs, grasses and alpines in the form of mat, plugs, seeds and bulbs. A 40mm drainage layer is used to help increase and retain additional moisture for the plants. Semi-intensive green roofs can offer a more natural look to a planted roof. As with extensive green roofs, a semi-intensive green roof is not designed to be trafficked or to have a permanent irrigation system.

Bio-Diverse: Natural Habitat
Randomly graduated substrate, from 80-200mm, interspersed variably with shelter stones, aggregate piles, shallow pools and logs in conjunction with specialist seed mixes replicates specific habitats. The objective is to attract specific wildlife species, in accordance with the project's bio-diversity plan.

Sedum NatureMat®
NatureMat® is a composite vegetated mat consisting of a biodegradable base layer, a specially formulated substrate layer and a 90% mature plant cover comprising 6 core and 13 randomly sown species (predominantly sedums), grown to maturity in Blackdown's fields in Somerset.

Laid onto a Blackdown substrate and drainage layer, NatureMat® is particularly suited to pitched or curved roofs.

Extensive Sedum Plug
A diverse selection of over 25 species of hardy succulent plug plants, supported by a minimum of 70mm of Blackdown's extensive substrate and 25mm drainage layer, provides attractive plant cover with a range of colours, shapes, heights and flowering times and periods.

A variety of wild flowers, herbs, grasses, alpines and bulbs can equally be incorporated; varying the substrate depth to suit (70-150mm).

Extensive Sedum Hydro-plant
A mix of sedum cuttings, seeds, tackifier and fertiliser are applied through hydroplanting, onto the prepared Blackdown substrate and drainage layer. The plant cover will establish and grow (typically over 1 to 2 growing seasons) to deliver the long-term benefits of a green roof. Particularly suited to restricted budgets and large roof areas.

Blackdown System Selector

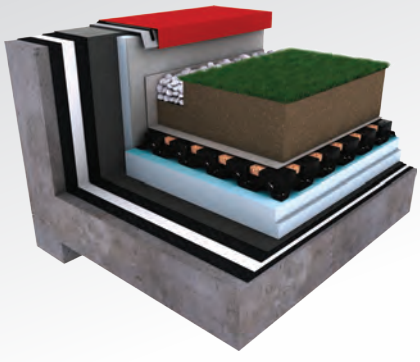
	Extensive Green Roof	Bio-Diverse Green Roof	Semi-Intensive Green Roof	Intensive Green Roof
Vegetation	Hardy succulent vegetation such as: sedum, herbs, grasses	To reflect desired habitat: wildflower, herbs and grasses	To reflect desired habitat: perennials, small woody shrubs, grasses	Hard or soft landscape typically comprising: lawns, shrubs, hedges, small trees, water features
Substrate	Blackdown Extensive Substrate 50-80mm dependent on planting	Blackdown Bio-Diverse Substrate 80-200mm dependent on planting	Blackdown Semi-Intensive Substrate 150-200mm dependent on planting	Blackdown Intensive Substrate 400-1500mm dependent on planting
Filter Sheet	Integrated with drainage layer	Integrated with drainage layer	Integrated with drainage layer	Blackdown Filter Sheet
Drainage Layer	Blackdown 25mm 3 in 1 Drainage layer* Blackdown 25+FS Drainage layer**	Blackdown 40mm 3 in 1 Drainage layer* Blackdown 40+FS Drainage layer**	Blackdown 40mm 3 in 1 Drainage layer* Blackdown 40+FS Drainage layer**	Blackdown 60mm Drainage Layer
Protection/Moisture Retention Fleece	Integrated with 3 in 1 drainage layer	Integrated with 3 in 1 drainage layer	Integrated with 3 in 1 drainage layer	Blackdown Protection Fleece (not required on inverted roofs)
Irrigation Required	None required after establishment	None required after establishment	Optional, dependent on planting	Permanent
Maintenance Required	Low	Low	Periodic	Regular

Notes: *Blackdown 3 in 1 Drainage layers have integrated filter sheet and protection/moisture retention fleece
**for use over inverted insulation only
See Product Data table and separate Product Data Sheets for full product descriptions

Perimeter/Penetrations

	Extensive Green Roof	Bio-Diverse Green Roof	Semi-Intensive Green Roof	Intensive Green Roof
Protection Fleece	Blackdown upstand Protection Fleece	Blackdown upstand Protection Fleece	Blackdown upstand Protection Fleece	Blackdown upstand Protection Fleece
Stone Vegetation Barrier	Blackdown 20-40mm washed pebbles	Blackdown 20-40mm washed pebbles	Blackdown 20-40mm washed pebbles	To architect's specification
Containment	Blackdown aluminium containment size to suit substrate depth	Blackdown aluminium containment size to suit substrate depth	Blackdown aluminium containment size to suit substrate depth	To architect's specification

Typical Applications



Intensive Green Roof

Blackdown Vegetation – e.g. lawn, shrubs, herbaceous planting

Blackdown Irrigation System – manual or fully automated

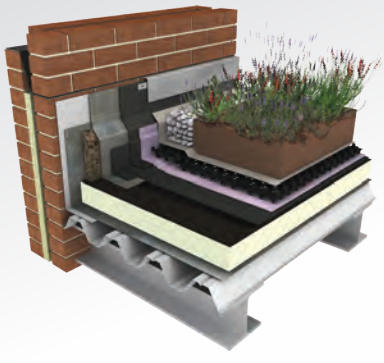
Blackdown Substrate – 400-1500mm blend of organic and non-organic materials

Blackdown Filter Sheet – 110g polypropylene filter sheet

Blackdown Infill Material – Clean crushed brick 0-15mm

Blackdown Drainage Layer – 60mm, single cuspation HDPE

Blackdown Protection Fleece – 300g polypropylene protection fleece



Semi-Intensive Green Roof

Blackdown Vegetation – drought tolerant planting, typically plug plants or seed

Blackdown Irrigation System – manual or fully automated

Blackdown Substrate – 150-200mm blend of organic and non-organic materials

Blackdown Filter Sheet – 110g polypropylene filter sheet

Blackdown Drainage Layer – 40mm, cuspated, recycled high HDPE

Blackdown Protection Fleece – 300g polypropylene protection fleece

Bio-Diverse Green Roof

Blackdown Vegetation – mixture of wildflower plug plants and/or seed

Blackdown Habitat Incidentals – shelter stones, lying timbers, perches, piles of mixed aggregates

Blackdown Substrate – 80-200mm blend of organic and non-organic materials

Blackdown Filter Sheet – 110g polypropylene filter sheet

Blackdown Drainage Layer – 40mm, cuspated, recycled HDPE

Blackdown Protection Fleece – 300g polypropylene protection fleece

Extensive Green Roof

Blackdown Vegetation – drought tolerant sedums, such as mat, plugs or cuttings (hydroplant)

Blackdown Mulch – Bio-degradable mulch required as part of hydroplant system

Blackdown Substrate – 50-80mm blend of organic and non-organic materials

Blackdown Filter Sheet – 110g polypropylene filter sheet

Blackdown Drainage Layer – 25mm, cuspated, recycled HDPE

Blackdown Protection Fleece – 300g polypropylene protection fleece

Intensive Green Roof

Blackdown intensive green roofs offer all the features and benefits of a domestic garden or city park, providing areas for recreation and amenity. Intensive green roofs are becoming more and more common in highly populated city centres, driven by sustainability and water attenuation requirements, along with the need to create usable space.

They range from providing outdoor roof space at restaurants and office blocks, to creating ground-level landscaping above subterranean car parks at shopping centres or residential developments.

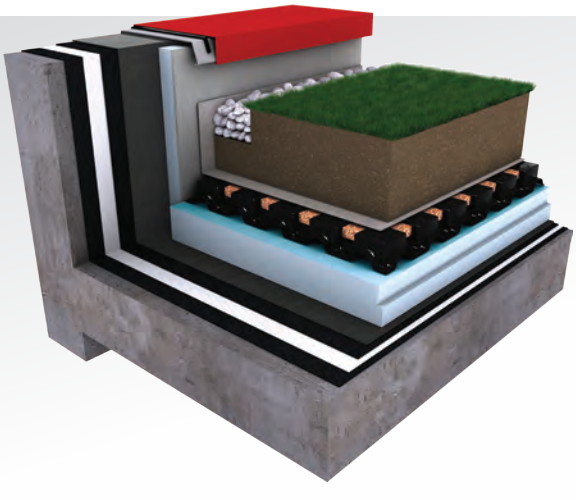
Vegetation
Can include lawns, shrubs, edible plants, perennials and grasses, small deciduous trees and conifers. Planting type and size determines the required irrigation system and soil depth.

Key Features

Substrate
A Blackdown intensive substrate is required which contains a high level of organic matter in order to support a wide variety of plants and trees.

Waterproofing
Root-resistant waterproofing options include Hydrotech hot-melt structural waterproofing and suitable bituminous membranes from the Derbigum and Euroroof ranges.

Warranty
Warranties are available for the Alumasc waterproofing system used in the green roof build-up.



Build-up height	460-1560mm
Drainage layer	60mm
Saturated weight	500-1830 kg per m^2
Plant coverage at installation	100%
Maximum pitch	Zero degrees
Irrigation requirements	Permanent
Maintenance requirements	Regular to high

Semi-Intensive Green Roof

Blackdown semi-intensive green roofs provide the opportunity to increase the range of plant species used on the roof environment without having to specify an intensive system. Wildflower and drought tolerant planting can be used to great effect to provide increased bio-diversity and, at the same time, offer an aesthetically pleasing look.

Applications can include office, retail and residential blocks. Semi-intensive green roofs can also be used to blend in buildings within a rural setting.

Vegetation
A wide range of planting options is available, typically in the form of plugs, but can be larger if required. Drought tolerant wildflowers, herbs, grasses and sedums are suitable, along with annual and specialist seed mixes that will replicate habitats such as chalk downland.

Key Features

Substrate
A Blackdown semi-intensive substrate is required for this range of plants. This offers good water holding capacity whilst still providing sufficient air and granulometric distribution to encourage strong root growth. Includes slightly lower levels of organic matter and nutrients than intensive substrates.

Waterproofing
Typical waterproofing options include suitable root-resistant bituminous membranes from the Derbigum and Euroroof ranges along with standing seam metal roofing.

Warranty
Warranties are available for the Alumasc waterproofing system used in the green roof build-up.

Build-up height	190-240mm
Drainage layer	40mm
Saturated weight	180-240 kg per m^2
Plant coverage at installation	10-100%
Maximum pitch	15 degrees
Irrigation requirements	Optional – once plant material is established
Maintenance requirements	Twice a year minimum

Bio-Diverse Green Roof

Blackdown bio-diverse green roofs provide the ideal opportunity to recreate or replace lost or missing habitat. Having a defined goal, i.e. re-establishment of birds such as the Black Redstart or encouraging the digger wasp *Nysson trimaculatus*, helps Blackdown specifically tailor the bio-diverse specification to those needs.

Vegetation
A wide range of plants can be incorporated into a bio-diverse green roof depending on what is to be attracted to the roof. Typically the planting will be in the form of plugs, including drought tolerant wildflowers, herbs and grasses. Specialist seed mixes that will help replicate a specific habitat can also be used.

Key Features

Substrate
Blackdown bio-diverse substrate is ideally suited for this type of habitat re-creation. The substrate will be composed of recycled clean crushed bricks with a very wide granulometric distribution and a mineral based soil.

By mounding the substrate and including habitat incidentals i.e. shelter stones, piles of mixed aggregates and partially buried logs etc, the completed installation can be made both eye-catching and varied.

Waterproofing
Waterproofing options typically include suitable root-resistant bituminous membranes from the Derbigum and Euroroof ranges.

Warranty
Warranties are available for the Alumasc waterproofing system used in the green roof build-up.

Build-up height	120-240mm
Drainage layer	40mm
Saturated weight	130-290 kg per m^2
Plant coverage at installation	0 to 5-10 %
Maximum pitch	15 degrees
Irrigation requirements	Not required once plant material established
Maintenance requirements	Twice a year

Extensive Green Roof

Blackdown extensive green roofs provide a lightweight, drought tolerant and low maintenance planting solution. They are suitable for lightweight roof decks, inaccessible roofs, flat or sloping roofs. Ongoing maintenance will keep extensive green roofs looking healthy and attractive

Vegetation
Extensive green roofs rely on hardy, drought tolerant sedum plants to form the majority of the planting. The sedums that Blackdown select and grow at the nursery in Somerset represent years of experience and horticultural knowledge.

There are three planting options to choose from – sedum NatureMat®, plugs or hydroplant (sedum cuttings).

Key Features

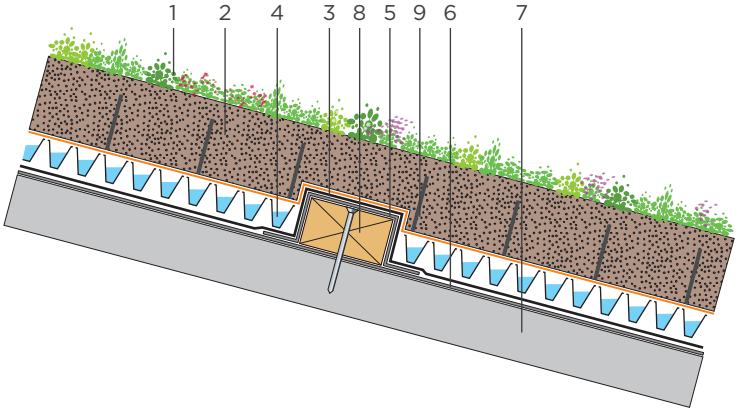
Substrate
Blackdown extensive substrates are made from carefully selected organic and inorganic materials. These materials are then blended to very specific proportions which enables plant material to establish as quickly as possible.

Waterproofing
Typical waterproofing options include suitable root-resistant bituminous membranes from the Derbigum and Euroroof ranges along with standing seam metal roofing.

Warranty
Warranties are available for the Alumasc waterproofing system used in the green roof build-up.

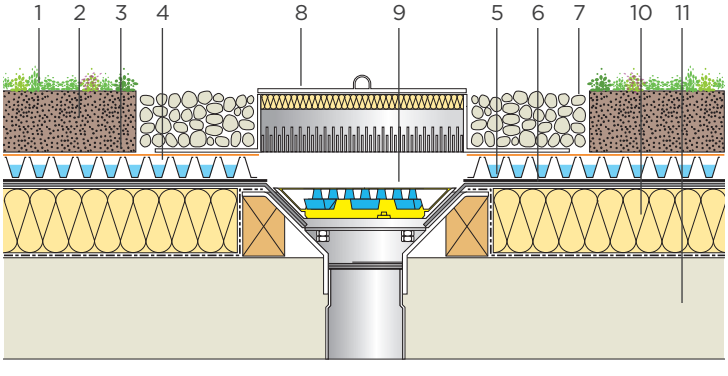
Build-up height	100mm
Drainage layer	25mm
Saturated weight	95-100 kg per m^2
Plant coverage at installation	<5 to 90%
Maximum pitch	45 degrees
Irrigation requirements	Not required once plant material is established
Maintenance requirements	Twice a year

Application Details



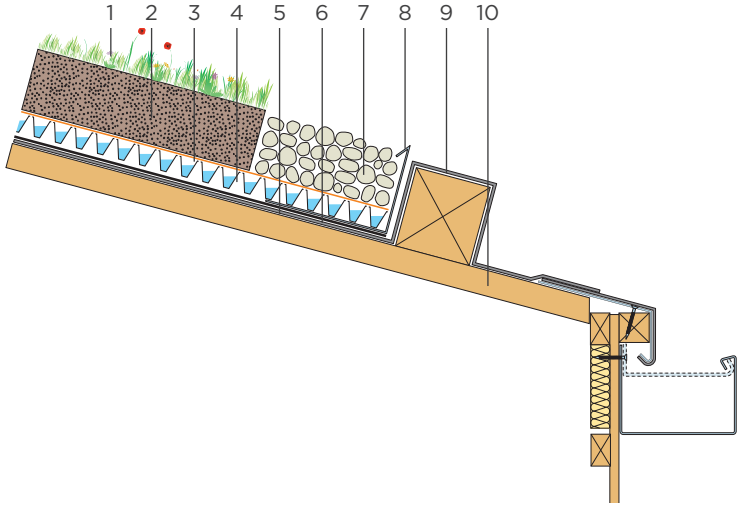
Extensive NatureMat® with Substrate Retention System

1	Blackdown vegetation
2	Blackdown substrate – type and depth to suit planting
3	Blackdown Filter Sheet
4	Blackdown Drainage Layer 25mm deep
5	Blackdown Moisture/Protection Mat
6	Alumasc root-resistant waterproofing
7	Roof deck
8	Treated timber thrust batten
9	Blackdown substrate retention grid



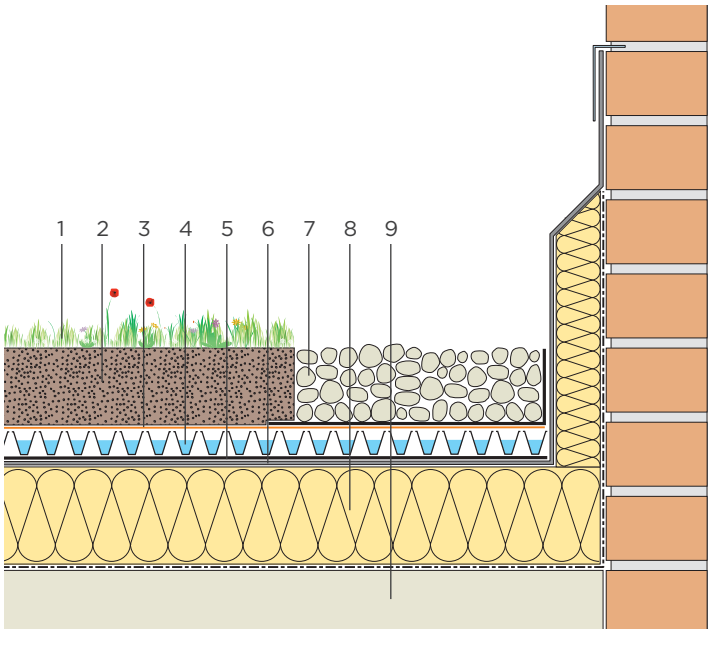
Drainage Outlet Detail

1	Blackdown vegetation
2	Blackdown substrate – type and depth to suit planting
3	Blackdown Filter Sheet
4	Blackdown Drainage Layer
5	Blackdown Moisture/Protection Mat
6	Alumasc root-resistant waterproofing
7	Blackdown 20-40mm washed pebbles
8	Blackdown outlet inspection chamber
9	Harmer AV® outlet with flat grate
10	Alumasc warm roof
11	Roof deck



Eaves Drainage

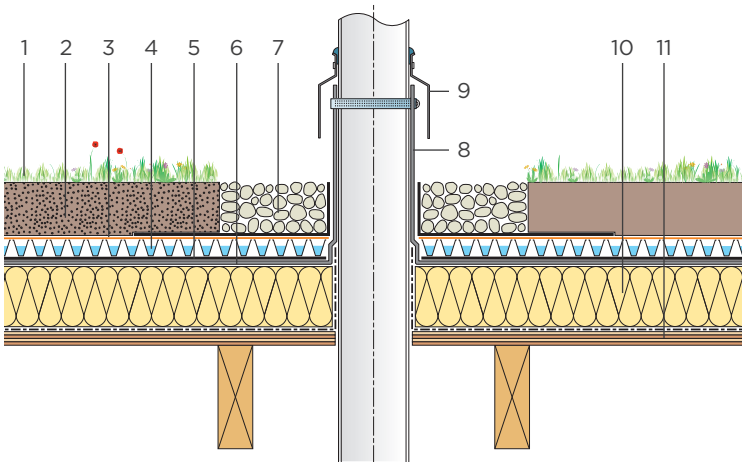
1	Blackdown vegetation
2	Blackdown substrate – type and depth to suit planting
3	Blackdown Filter Sheet
4	Blackdown Drainage Layer
5	Blackdown Moisture/Protection Mat
6	Alumasc root-resistant waterproofing
7	Blackdown 20-40mm washed pebbles
8	Blackdown perforated ballast retaining trim
9	Treated timber upstand
10	Roof deck



Perimeter Wall Upstand

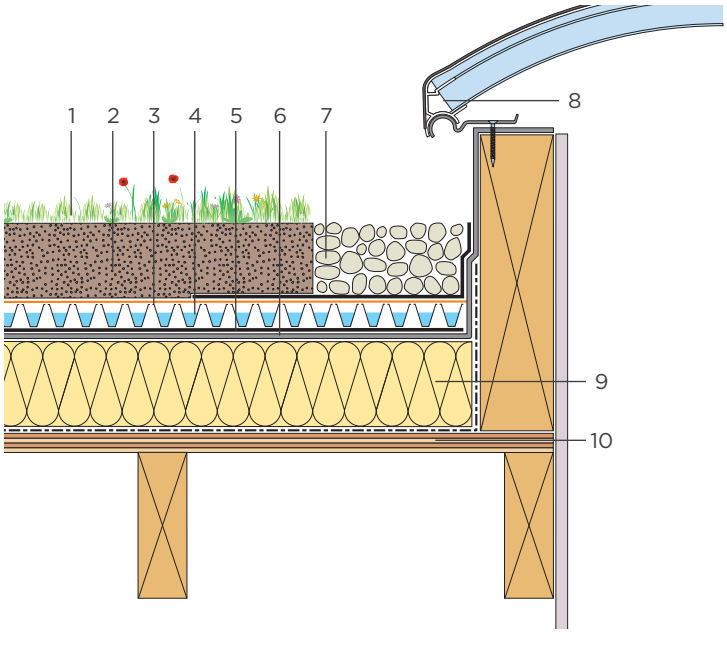
1	Blackdown vegetation
2	Blackdown substrate – type and depth to suit planting
3	Blackdown Filter Sheet
4	Blackdown Drainage Layer
5	Blackdown Moisture/Protection Mat
6	Alumasc root-resistant waterproofing
7	Blackdown 20-40mm washed pebbles
8	Alumasc warm roof
9	Roof deck

Application Details



Pipe Penetration

1	Blackdown vegetation
2	Blackdown substrate – type and depth to suit planting
3	Blackdown Filter Sheet
4	Blackdown Drainage Layer
5	Blackdown Moisture/Protection Mat
6	Alumasc root-resistant waterproofing
7	Blackdown 20-40mm washed pebbles
8	Cold pipe
9	Stainless steel Jubilee clip
10	Alumasc warm roof
11	Roof deck



Rooflight Penetration

1	Blackdown vegetation
2	Blackdown substrate – type and depth to suit planting
3	Blackdown Filter Sheet
4	Blackdown Drainage Layer
5	Blackdown Moisture/Protection Mat
6	Alumasc root-resistant waterproofing
7	Blackdown 20-40mm washed pebbles
8	Alumasc rooflight
9	Alumasc warm roof
10	Roof deck

Product Data

Product	Characteristic	Size	Performance Data
Planting & Nutrients			
Blackdown NatureMat®	Pre-planted sedum mat	1.0 x 1.5m roll	Pre-grown sedum mat – 90% coverage
Blackdown Sedum Plug Plants	Sedum plug plants	104 plants per tray	Planting rate dependent on specification
Blackdown Meadow Mat	Pre-planted meadow flower mat	1.0 x 1.5m roll	Pre-grown meadow mat – 90% coverage
Blackdown Wildflower Seed	Bespoke seed mix	100 g	1 g/m² or more, depending on specification
Blackdown Intensive Roof Nutrients	Effective for 8-9 months (intensive)	25 kg	25-50 g/m²
Blackdown Exact Low Start Nutrients	Effective for 16-19 months (extensive)	25 kg	25-50 g/m²
Vegetation Barrier			
Blackdown Washed Pebbles	Washed ballast – 20/40mm	1m³ bulk bag or 25 l sack	
Substrates			
Blackdown Extensive Substrate	Crushed brick based	1m³ bulk bag or 25 l sack	Approx 20% settlement
Blackdown Extensive Substrate	Vulkatec volcanic mineral based	1.25m³ bulk bag or 20 l sack	Approx 20% settlement
Blackdown Bio-Diverse Substrate	Crushed brick/organic matter based	1m³ bulk bag or 25 l sack	Approx 20% settlement
Blackdown Semi-Intensive Substrate	Crushed brick/organic matter based	1m³ bulk bag or 25 l sack	Approx 25% settlement
Blackdown Intensive Substrate	Crushed brick/organic matter based	1m³ bulk bag or 25 l sack	Approx 30% settlement
Blackdown Intensive Substrate	Vulkatec volcanic mineral and organic matter based	1.25m³ bulk bag or 20 l sack	Approx 30% settlement
Blackdown Clean Crushed Brick	0-15mm crushed brick for drainage infill	1m³ bulk bag or 25 l sack	23 litres/m² for 60mm drainage layer
Filter Sheets			
Blackdown Filter Sheet	Filter sheet for 60mm drainage board	2.25 or 4.5m x 100m roll	110 g/m²
Blackdown Upstand Filter Sheet	300mm upstand filter sheet	0.30 x 100m roll	110 g/m²
Intensive Green Roof Drainage Layers			
Blackdown 60mm Drainage Layer	60mm single cuspate	0.92 x 15.2 roll	Water capacity (infilled) – 11 l/m²
Semi-Intensive & Bio-Diverse Green Roof Drainage Layers			
Blackdown 40mm Drainage Layer	40mm with filter sheet	0.92 x 20m roll	Water capacity – 14.0 l/m²
Blackdown 3 in 1 Drainage Layer	40mm with filter sheet and moisture retention fleece	0.92 x 20m roll	Water capacity – 14.0 l/m²
Extensive Green Roof Drainage Layers			
Blackdown 25mm Drainage Layer	25mm with filter sheet	0.92 x 50m roll	Water capacity – 4.3 l/m²
Blackdown SS300 Drainage Layer	25mm with filter sheet	0.285 x 50m roll	For 300mm spaced standing seam
Blackdown SS400 Drainage Layer	25mm with filter sheet	0.385 x 50m roll	For 400mm spaced standing seam
Blackdown 3 in 1 Drainage Layer	25mm with filter sheet and moisture retention fleece	0.92 x 50m roll	Water capacity – 4.3 l/m²
Fleeces			
Blackdown Protection/Moisture Retention Fleece	Moisture retention fleece	2.0 x 50m roll	300 g/m² – water capacity – 3.0 l/m²
Blackdown Upstand Protection Fleece	300mm upstand protection fleece	0.30 x 50m roll	300 g/m²
Containment			
Aluminium Retention Angle – 50mm	50mm high containment angle	2.4m linear m	Retains perimeter ballast of up to 50mm
Aluminium Retention Angle – 75mm	75mm high containment angle	2.4m linear m	Retains perimeter ballast of up to 75mm
Aluminium Retention Angle – 100mm	100mm high containment angle	2.4m linear m	Retains perimeter ballast of up to 100mm
Aluminium Retention Angle – 120mm	120mm high containment angle	2.4m linear m	Retains perimeter ballast of up to 120mm
Recycled HDPE Blackdown Retention System – 40mm	40mm substrate retention for pitched roofs >25°	500 x 500mm	4 interlocking blocks per m²
Recycled HDPE Blackdown Retention System – 70mm	70mm substrate retention for pitched roofs >25°	500 x 500mm	4 interlocking blocks per m²
Outlets/Chambers			
Inspection Chamber	Inspection chamber and base with locking lid	300 x 300mm	
Blackdown Scupper	Aluminium ballast retention angle for chute outlets	238mm wide	
Blackdown Weir	Aluminium link for thrust battens with drainage slot	400mm wide	
Void Former			
Blackdown Void Former	100mm void former	1.2 x 2.4m	Compressive strength – 20kpa