blackdown
greenroofs

design
grow
supply
install
maintain

contents

Blackdown was established in 1999 specifically to design, grow and install green roofs that provide solutions to many of the challenges that face the UK's modern built environment.

Testimonials

Blackdown Greenroofs completed their operations at The Zone, Temple Quay, Bristol in a very professional manner to produce an impressive 5th floor Roof Garden at this award winning development.

Robert W Haycock
Construction Manager - Special Projects
Barratt Homes - Bristol

We would like to congratulate Blackdown Horticultural Consultants Ltd for the efficient way in which they designed and installed the sedum roof for our award winning new Centre for Disability Studies. Their careful choice of the plants has given us the maximum environmental advantage.

Stuart Kirk
Project Manager, Disability Essex

Today's problems cannot be solved if we still think the way we thought when we created them

Albert Einstein

Cover photograph:
The Snow Centre, Hemel Hempstead

Blackdown is a unique company consisting of horticultural, roofing and contracting experts. Working together with clients, specifiers, contractors and waterproofing partners we design extensive, biodiverse and intensive green roofing systems to meet the individual requirements of every project.

Design:
Technical & specification support ensuring the green roof meets the project's requirements

Grow:
Cultivation of a wide range of high quality plants at our nurseries

Supply:
Providing high quality green roof components backed by expert training

Install:
Cost-effective, high quality green roof installations from our experienced contracts team

Maintain:
Affordable maintenance programmes ensure the development of long-term plant communities; guaranteed.

Blackdown has been at the forefront of the green roofing industry since 1999. With over 40 years in horticulture, 50 years in roofing and 40 years in contracting, the Blackdown team bring unparalleled knowledge and experience together to provide:

The right solution...
Blackdown systems have been developed following extensive research into important areas, such as plant density, species co-habitation, flowering characteristics, wildlife attraction, water consumption, growing media composition and depths etc, therefore facilitating long-lasting, self-sustaining plant communities that can meet biodiversity action plans, score BREEAM points, overcome planning constraints or fulfil the client's objectives.

to the highest quality standards...
with a diverse range of plants in cultivation, and our ability to contract grow additional species, we advise our clients on the most appropriate planting strategy for the project; tailoring the green roof to suit the brief, not compromising the brief to suit a limited range of green roof plant options.

providing best value...
our high quality plants, grown at our own nurseries in the UK, are supported by purposely-designed growing media, drainage and protection layers as part of long-term, flourishing green roof systems. When contracted to install a green roofing system our experienced contracts teams identify the optimum method of installation, overseeing each project, and aiming to deliver a high quality installation in compliance with the specification, project programme and budget.

for the life of the building...
a well designed, cultivated and installed green roof is only as good as the ongoing maintenance it receives. Blackdown takes a holistic approach to green roof installations, aiming to ensure long-term success by providing aftercare that matches the care taken during cultivation. Our experienced maintenance teams compile and conduct tailored maintenance programmes for clients that ensure the long term health of the plant systems.

designers, growers, suppliers, installers, maintainers

design support

Disability Essex: Centre for Disability Studies

for clients, planners, ecologists, specifiers, consultants, manufacturers and contractors

PLANT STRATEGIES
- Biodiversity
- BREEAM
- Instant greening
- Low structural loads
- Aesthetic appeal
- Patterned designs
- Budget constraints
- Amenity & recreation

Holistic solutions for new and refurbishment projects
Green roofing is our passion and we believe that our experience in cultivating plants in the UK's climate, our roofing knowledge and contracting experience set us apart when advising on the suitability of a green roof and its planting strategy; assessing vegetative needs against conditions prevailing in a roof's particular micro-climate.

We are always happy to discuss and advise on green roofs at concept stage, providing design and specification support and supplying budget estimates. Simply put, our mission is to green the UK's roofs - new and old - with high quality roof planting systems aiming to restore the natural balance.

The Process
We place great importance on establishing close working relations with the entire project team (clients, consultants, specifiers, contractors and waterproofing suppliers) to fully appreciate the requirements when formulating and implementing the design brief. This process is fundamental to delivering the desired outcome whilst maximising the added value that the green roof brings to the project.

Our consultation process establishes the green roof requirements, identifying any structural limitations, key performance requirements, prevailing environmental conditions and installation restrictions such as time scales, building geometry, access etc.

Our broad range of horticultural, ecological and roofing knowledge results in the development of specifications that cover the flora and fauna needs of the project, focused on the roof planting issues and providing solutions appropriately designed to sustain natural life.

Whether seeking to fulfil a biodiversity action plan requirement, potentially increase BREEAM ratings, provide an aesthetic roof covering or overcome a project constraint (structural or budgetary), Blackdown devises solutions that provide the optimum green roof and support it with technical information, data sheets, CAD details and project specific performance specifications.

The appropriate growing medium formulation, drainage and protection layers are carefully selected to suit the plants' needs.

The Next Step
To discuss a concept or a specific project call us on 01460 234582, send an e-mail to technical@blackdown.co.uk or visit our website for further design assistance, including downloads for CAD details and NBS format specifications:
www.blackdown.co.uk

St Martin in the Fields High School for Girls, London

BREEAM
Green roofs are increasingly being specified to improve BRE Environmental Assessment Method (BREEAM) ratings. This assessment method sets the standards for best practice in sustainable performance and facilitates measurement of a building's environmental performance. BREEAM uses a scoring system to assess a wide-range of environmental and sustainability issues, enabling developers and designers to prove the environmental credentials of their buildings to planners and clients.

Blackdown can assist the client, specifier or BREEAM assessor to identify a range of benefits that can be attained across a BRE assessment. These include water attenuation, energy consumption reductions, responsible materials sourcing and life cycle costing. Of particular importance are the credits attainable in the 'Land Use and Ecology' section, especially where biodiverse roofs are tailored to suit the project.

Dependent upon location and application, Blackdown can design green roofs that attain credits via:
1. Replacement of habitat otherwise lost by the development; and
2. Creation of new habitat to enhance the site's ecological value.

Blackdown's extensive experience in identifying the most suitable habitat templates and developing and trialling plant mixes is key to successful biodiverse roof strategies.

Whitford, Stoke Climsland, Devon

blackdown roofs

Pizza Hut, Asda Swindon

Our green roofs are developed, designed and constructed to create self-sustaining plant communities. Using our horticultural expertise, we work with the specifier or ecologist to select the most appropriate planting system that meets the project's requirements and local environment.

Depending on the specification, the planting system will be installed in the form of a pre-grown blanket, plug plants or through hydroplanting with cuttings and seed. The suitable plant species selected from the wide array of those available.

Once the planting strategy is defined, the correct growing medium can be selected. Blackdown growing media are formulated to provide the fundamental root anchorage, nutrient storage and requisite balance of air and water to support the planting strategy whilst working in conjunction with the layers below.

Beneath the growing medium, the relevant combination of filter fleece and/or drainage layer will be selected. Performing the role of sub-soils in natural ground conditions, the filter fleece permits the percolation of water whilst preventing the washing out of the fines from the growing medium. Where required, the fleece can also contribute to the storage of water. The synthetic or mineral drainage layers manage water levels within the build-up, providing storage capacity for periods of prolonged dry weather whilst simultaneously protecting against waterlogging that would risk suffocating the plants' roots.

Finally, depending on the waterproofing system selected, a protection layer may be added.

Throughout the construction process our number one priority is to ensure that waterproofing integrity is not compromised.

We define our landscapes as much as they define us

Anon

New Street Square, London

Green roof definitions

Green roofs largely fall into one of three broad classifications. Each of these provides specific benefits to the built environment and the building's user. Whatever your green roof requirement, Blackdown can devise a scheme to suit. The following pages introduce a selection of the available options.

Lakeland Ltd, Alexandra Building, Windermere

Extensive Green Roofs

An ecological cover that delivers a range of financial and environmental benefits. Extensive green roofs require minimal maintenance. They are suitable for flat or pitched roofing over a variety of waterproofing systems. Vegetation is selected from a range of drought tolerant plants including hardy succulents, grasses, herbaceous perennials, native wildflowers, alpines and bulbs.

Read more on pages 8-9

St Nicholas School, Exeter

Biodiverse Roofs

Similar in composition to Extensive Roofs, Biodiverse Roofs utilise a growing medium that is tailored to the local environment and the planting strategy. Habitat can be created by installing the substrate with variable depth to form uneven surfaces with additional features such as lying timber, shelter stones, insect hotels, bird/bat boxes and gravel or sand mounds included to create particular habitats. Bare (brown) roofs can be installed for subsequent self-colonisation, or native plant species can be introduced at the outset for instant results.

Read more on pages 10-13

Edge Hill University, Ormskirk

Intensive Green Roofs

Akin to a traditional garden, but on the roof. Intensive roofs often replicate the features and benefits of a domestic garden or city park, providing space for recreation and amenity. Applications can 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.

Blackdown can assist the client or landscape architect with the design requirements to ensure planting is successful at roof level.

extensive green roofs

Old Rectory, Rotherwick

Lightweight extensive green roofs comprise a shallow layer of specially formulated growing media above filtration, drainage and waterproofing protection layers. The vegetation is selected from a range of drought tolerant plants including hardy succulents, grasses, herbaceous perennials, native wildflowers, alpines and bulbs.

Suitable for both new build and retrofitting, they are designed to replicate the benefits derived from open green spaces. Living roofs are virtually self-sustaining; requiring minimal maintenance (typically once or twice a year) and, in the vast majority of projects, no irrigation.

Extensive roofs provide benefits that contribute towards buildings' aesthetics, rainwater management, thermal regulation, pollution control, acoustic performance and biodiversity enhancement. They reduce whole life costs by extending the life of the waterproofing, lowering energy costs and increasing the building's value. Blackdown extensive green roofs can be achieved in a number of ways.

We shall require a substantially new manner of thinking if mankind is to survive

Albert Einstein

Blackdown Extensive Green Roofs

We firmly believe that each green roof should be tailored to the environment in which it is to be installed in order to achieve the objectives sought from it. Below, we present 4 different types of extensive green roof, each affording a particular benefit or fulfilling a requirement.

House for the Future, St Fagans National History Museum, Wales

Instant Greening: NatureMat®

Nature Mat® is a pre-grown vegetated mat consisting of a biodegradable base layer, a specially formulated substrate layer and a minimum 90% mature plant cover comprising 6-8 species (predominantly sedums) randomly grown to maturity in our fields in Somerset. Installed over a Blackdown substrate-based system, Nature Mat® is quick and simple to install, providing instant green coverage for flat, pitched or curved roofs.

Pizza Hut, Asda Swindon

Species Diversity: Plug Planted

A diverse selection of sedum plug plants is supported by 70 mm of Blackdown's extensive growing medium installed over a filter fleece, drainage and protection layer. An attractive plant cover can be custom-designed to achieve specific colour-related themes, maximum winter aesthetics and varied flowering periods; calling on up to 50 species – affording a diversity of colour, height and flowering times.

Dulverton Sure Start Nursery

Low Structural Load: Featherweight System

For roofs that have limited structural capacity, a more limited range of sedum plug plants, capable of flourishing in 45 mm of Blackdown's extensive growing medium, has been established following extensive research trials. Affording the ecological benefits of plug planted green roofs, the thin soil layer minimises the loads imposed by the green roof on the building's structure. An irrigated system using less substrate is also available.

The Snow Centre, Hemel Hempstead

Cost Saving: Hydroplanted System

A mix of sedum cuttings, seeds, mulch and fertiliser are applied, through hydroplanting, on to the prepared Blackdown growing medium, filter fleece, drainage and protection layer. The plant cover will germinate and grow (typically over 1 to 2 growing seasons) to deliver the long-term benefits of a green roof. Particularly suited to large roof areas where a fast installation method and low initial supply cost are sought.

biodiverse roofs

Street Ash, Somerset

Biodiverse roofs, sometimes referred to as brown or rubble roofs, are increasingly included within planning conditions as a method of reducing the building's impact on the environment, replacing or enhancing the habitat lost to the building's footprint.

Biodiverse roofs focus on replacing and/or enhancing habitat lost during the construction process. Species diversity is particularly low in urban areas, where hard surfaces have replaced soft, green landscapes. Whilst not directly replacing ground-based habitats, biodiverse roofs can be designed to provide species-rich habitat for a wide range of desirable flora and fauna.

Delivering valuable environmental benefits consistent with the surrounding landscape and attracting local or targeted wildlife, biodiverse roofs can attain BREEAM credits under the Land & Ecology category (see page 5).

By their very nature, biodiverse roofs can include a vast array of planting, components and features - tailored to the specific objectives sought. Blackdown liaises with all relevant stakeholders - ecologists, planners, clients and architects - to formulate robust solutions that are consistent with the biodiversity hypothesis.

Our broad experience in biodiverse green roofing, developed from our unique horticultural and roofing knowledge, has enabled us to support GRO (the Green Roofing Organisation), Livingroofs.org and the University of Sheffield in the creation of the GRO 'Green Roof Code of Best Practice for the UK 2011'. Included in this are the 2 high level categories detailed on these pages and the more detailed planting categories on pages 12 & 13. Electonic copies of the Code are available from our website.

Whatever your biodiverse roof concepts, Blackdown can help bring it to life.

Student Flats, Falmouth Maritime

Pinhoe School, Exeter

Native-Planted Roof Schemes
Native plant species, such as wildflowers, grasses, herbaceous perennials bulbs and sedums, are carefully selected to provide immediate biodiversity potential and to actualise habitat recreation. Blackdown can advise on plant selection to provide the appropriate food and basking resources that will attract desirable wildlife species.

Brown Roof Schemes
Constructed without vegetation, brown roofs self-colonise with native plants over time. Depending on the building's local environment, plant coverage may take 18 to 24 months to establish. Blackdown's expertise enables us to establish the most appropriate substrate to ensure that the roof delivers its long-term biodiverse objectives.

Deilephila Elpenor (Elephant Hawk Moth Caterpillar), Shortwood Primary School

customised biodiverse

Apis Mellifera (Honey Bee) and Rhagonycha Fulva (Soldier Beetle) on Achillea Millefolium (Yarrow)

BENEFITS
- Tailored to the local climate
- Ability to replace or enhance pre-development footprint
- BREEAM credits
- Health & wellbeing

Blackdown can advise on plant selection to provide adequate feeding resources and habitat provision that will attract desirable wildlife species, customised to specific requirements. Native plant species, such as wildflowers, grasses, hardy succulents, herbaceous perennials and bulbs, are carefully selected to provide maximum biodiversity potential.

Appropriate substrate types, depths and moundings, alongside wildlife attracting roofscape habitat furniture and case specific habitat-template recreation all converge to deliver applications that fulfil specification requirements.

Design can be led by wildlife-specific targeting and/or by native habitat recreation – with an option to focus on a single aspect or on a mosaic of important elements.

It is that range of biodiversity that we must care for - the whole thing - rather than just one or two stars

Sir David Attenborough

Bombus Lucorum (White Tailed Bumble Bee) sipping from Echium Vulgare (Viper's Bugloss)

Dry Grassland:
A suitable template for habitat recreation on a green roof due to the physiology of the plant species, the soil depths upon which they grow, and the aesthetic and functional benefits provided. Options include calcareous (chalk and limestone), neutral, acidic and rocky/ stoney grassland types dependent upon exact specification. These habitats support a wide variety of endangered wildlife species and a high diversity of wildflowers.

Vegetated Sea-Cliffs:
A scheme for exposed maritime areas where marine erosion has led to the formation of steep sloping coastlines. Includes a range of location specific native plant species as part of a planting strategy that replicates natural plant communities, the Vegetated Sea-Cliffs system utilises some of the most suitable native plants for roof greening, thereby affording long flowering periods (early Spring to late Autumn). Inland Vegetated Rocky Outcrops can also be specified.

Wildflower Habitat Meadow:
A scheme designed to provide food sources to primarily attract Lepidoptera (i.e. moths, butterflies etc) within a wildflower meadow setting. Through identification of species present in the local area as part of a biodiversity hypothesis/analysis, designs can be tuned specifically to attract the appropriate butterfly and moth species through a balance of primary and secondary food resources and nectar plants. Alternatively, a Nocturnal Habitat Meadow strategy can be specified to provide invertebrate feeding resources for bats.

Nectar Stream:
An optimal flow of seasonal nectar plants is assured through a combination of native wildflower species and hardy succulent plants. The excellent vegetative coverage provides an abundant supply of nectar and pollen that attracts a variety of species, such as bumble bees, butterflies, hoverflies and day flying moths (including species identified to be at risk of extinction in certain Biodiversity Action Plans).

support from blackdown

Blackdown support key objectives aimed at enhancing the sustainability of the built environment. These include pressing issues such as sustainable water management, reducing loss & fragmentation of biodiversity and reducing greenhouse gases.

To achieve these goals we:

- provide educational CPD seminars for clients, specifiers and contractors.
- consult one to one on projects, by telephone, e-mail and face to face, advising on the most appropriate green roof design for the project's objectives/constraints.
- develop specifications using our extensive horticultural and roofing experience.
- conduct continual research and development into green roof systems that support plant life at roof level.
- supply green roof systems and components to specialist green roofing companies and roofing contractors.
- train estimators, designers, contracts managers, supervisors and installers.
- install green roofs through Blackdown Contracts, an internal department that directly employs highly skilled installation teams.
- take on maintenance and remedial works through Blackdown Maintenance.
- guarantee the work we undertake for as long as a maintenance agreement is in place.

We even have a range of green roof kits for the domestic and small works markets.

blackdown contracts – adding value

Transport for London, West Ham Bus Garage

Blackdown Contracts
Our in house contracts department represents a single source green roof solution that aims to deliver a high quality green roof on time and to budget.

With a proven track record of installing quality green roofs since 1999, Blackdown Contracts have accumulated unrivalled experience, building upon horticultural, roofing and contracting expertise.

Our NEBOSH qualified staff helps us to achieve high safety standards, both in house and on site. Our experienced site teams fine-tune our installation methodologies by recognising the most suitable installation method for substrates and plants alike; maximising value within the supply chain.

In recognition of our professional contracting expertise, we are CHAS accredited and the first green roofing contractors to become members of the NFRC (National Federation of Roofing Contractors).

Membership Registration No. 5231

Accredited Contractor

We oversee the entire project:

- Establishing the most suitable of the different installation methods;
- Fully scheduling works to comply with the programme;
- Agreeing installation schedules with confidence thanks to the unique ability to control the supply chain;
- Delivering quality green roof installations with unrivalled horticultural expertise.

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

Blackdown devises planned and preventative programmes of maintenance (PPPM) specifically for the green roof configuration, location, climate etc at each specific project. Variable term contracts are available, ranging from short-term agreements (typically 2 years) to long-term contracts (e.g. 10 years or more).

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Blackdown is a unique company consisting of horticultural, roofing and contracting experts working together to bring high quality horticulture based green roof systems to the built environment. Working with clients, specifiers, ecologists, contractors and waterproofing partners we design green roof systems to meet the individual requirements of every project.

For further information, design and specification support, educational CPD seminars, green roof training, supply only or supply and fix quotations, remedial consultation or maintenance programmes please contact us using the details below.

Telephone numbers

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Technical	01460 230106
Estimating	01460 230106
Contracts	01460 230105
Supply	01460 230103
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