



# GREEN SHIELD

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High-performance extensive  
green roof systems



since 1895



We are a market-leading manufacturer of high-quality roofing and waterproofing systems for commercial, residential, industrial and public sectors

Working in partnership with Surveyors, Architects and Facilities Managers, we deliver robust, proactive & long-term waterproofing solutions for all roofing assets.

councils and private companies across the UK, as a single point of contact to each customer.

For 20 years, our dedicated Technical Managers have developed partnerships with over 4,500 schools, NHS trusts,

## We offer

- ✓ Government Grant and Funding application support
- ✓ New build, refurbishment and preventive maintenance solutions
- ✓ Dedicated Technical Manager throughout your project
- ✓ Complimentary rooftop survey and condition reports
- ✓ A diverse product range including metal, modified bitumen, liquid coatings and green systems
- ✓ Bespoke specifications and detail drawings
- ✓ Cloud-based roof asset management services



**I recommend Garland UK for the quality of technical advice and expertise we receive. We always get the best result for our projects.**

**Mr D Garvey**  
Contracts Manager, Crowne Service



# GREEN SHIELD

At Garland we design our waterproofing systems with performance and longevity in mind to provide our customers with a sustainable solution.

Combining our StressPly membrane systems with Green Shield extensive green roofing systems, specifiers can deliver long lasting waterproofing and multiple environmental benefits for both refurbishment and new build projects.

Green Shield systems are the sustainable solution to enhance the environmental credentials of your building. There are numerous benefits to installing a green roof system including a positive impact on sustainability, improved biodiversity through the development of new habitats and by the attenuation of storm water.

Designed with specifiers in mind, Green Shield's high-performance range of green roof systems provide a new value to the role of buildings, reducing energy consumption, improving air quality, increasing rainwater retention and creating a visually appealing environment for the occupants.

## Diverse Systems

Through continuous research and development, Green Shield's customisable features support buildability and confidently meet your Green, Blue and Solar Panel PV (photovoltaic) design requirements, without compromising the waterproofing integrity of the roof.



# Why Choose Green Shield?



The way in which a building is designed can have a significant environmental impact.

The environmental impact of a building is now a vital aspect of design, from the initial construction phases, through to the daily operations of the site.

With the breadth of environmental benefits that Green Shield has to offer,

there are many advantages to be gained by incorporating a green roof system into your building design, addressing the important issues affecting the built environment today, such as energy consumption, stormwater management and urban heat island effects.

## Benefits



### Temperature Regulation

Green roof systems help to keep buildings cool in the summer and warm in the winter, reducing energy costs.



### Improved Air Quality

Vegetation absorbs pollutants and releases oxygen, improving the quality of the air.



### Rainwater Retention

Green and Blue systems absorb water, alleviating the pressure on local rainwater drainage systems.



### Waterproofing Protection

Green roofs protect the waterproofing system from harmful UV rays and temperature fluctuations which can reduce the lifespan of the roof.



### Provide Natural Habitats

Reduce the impact of development by encouraging wildlife and nature to thrive in urban environments.



### Stimulating Aesthetics

Green roofs create a visually appealing environment for building occupants and the neighbouring buildings.

# Design Considerations

Green Shield systems support a range of environmental initiatives, from building operational targets to optimising the overall building lifecycle



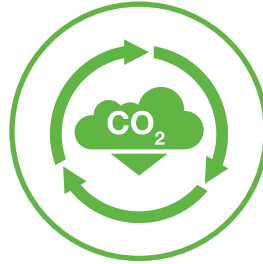
## NET CARBON ZERO

Green Shield can support a building's net-zero carbon operational targets with the generation of on-site renewable energy and improved thermal efficiency.



## LOCAL CLIMATE

Green Shield systems support your local climate design considerations, with flexibility across the range to factor in seasonal temperatures, rainfall, sunlight and shading.



## EMBODIED CARBON

As a longer life system, Green Shield ensures that less carbon is required to make replacement parts or refurbishments, compared to other short-term roofing solutions in the market.



## THERMAL EFFICIENCY

New-build or refurbishment projects can see an EPC rating uplift, thanks to the built up layers of Green Shield and the overall waterproofing system.

## Green Shield Environmental Credentials



Compliant green roof system



Code for a sustainable environment



Achieved Fire Certification in accordance with BS EN 13501-5:2005

# Garland's Single-Point Guarantee

Our Single-Point Guarantee gives you complete peace of mind, with no hidden surprises. Garland UK is a 100% employee-owned subsidiary of Garland Industries and we are one of the oldest and most financially stable manufacturers in the construction industry.



## How we guarantee our Green Shield System

### VEGETATION LAYER

The living elements of your roof are also covered by our market-leading, Single-Point Guarantee for the length of your maintenance contract with an approved contractor. Combined with this yearly maintenance contract, the living elements of your green roof will be guaranteed in perpetuity.

**UNLIMITED**

with annual maintenance

### SYSTEM COMPONENTS

The non-living components of our green roof systems are covered by a 6 year guarantee on both installation and product failure.

**6 YEAR**

Non-living components

### WATERPROOFING SYSTEM

The waterproofing layer of a Garland Green Roof is guaranteed for 25 years, protecting your building for the long term.

**25 YEAR**

StressPly Waterproofing System



Learn more about how we protect your assets with our industry leading Single-Point Guarantees

# Industry leading service

As a partner for the life of your building, our Technical Managers work tirelessly to provide expert advice and support services.

We are committed to raising standards in the industry, and work closely with you to ensure your project delivers on its environmental initiatives.

## PartnerCare

Giving you long-term confidence in a Garland system, PartnerCare takes the unknowns out of your roofing project, delivering market-leading support and solutions through your expert local Technical Manager.

[Read more >](#)



## Why choose Garland?

- ✓ Protected against design, system and installation liability
- ✓ Garland UK take 100% ownership of any issue with your roof system
- ✓ Provides you the customer with complete peace of mind
- ✓ Simple and direct process to rectify any issues





# Sedum



## Features

- Lightweight
- Ecological protection layer instead of gravel covering
- Minimum maintenance
- Suitable for flat and 8° slope roofs

Green Shield Sedum, is a standard build up for extensive green roofs with an attractive 'back to nature appearance'. Benefitting from recycled elements, including the Floradrain FD 25-E® drainage and water storage element, Green Shield Sedum incorporates sustainable features that are also recyclable at the end of its natural life.

With compressive strength and low profile height and little weight, Green Shield Sedum is highly durable and requires little maintenance.

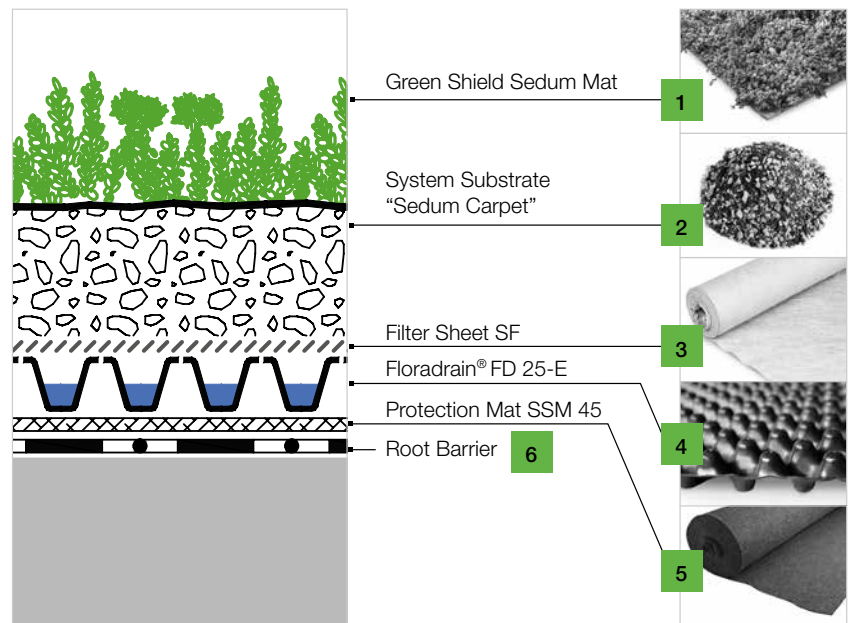
## Design Considerations

- Proven system build-up especially for roofs with low design demands
- Sedum species come in a great variety of different colours and vegetative styles
- Planting with precultivated sedum mats or plug plants

## Technical Data

Build-up height	ca. 90mm
Maximum Roof Pitch	8°
Weight, saturated	ca. 95kg/m <sup>2</sup>
Water storage capacity	ca. 25l/m <sup>2</sup>

## System Components



[Click to view full technical information >](#)

# Wildflower



## Features

- High drainage capacity
- Choice and flexibility of flowering
- Suitable for flat and 8° slope roofs

Wildflower is a semi-intensive green roof, perfect for urban spaces requiring increased plant life. Offering a naturally beautiful finish, Green Shield Wildflower attracts a wide range of pollinating insects and birds with significant ecological benefits. Incorporating the Floradrain FD 25-E® drainage and water storage element, Green Shield Wildflower includes recycled polyolefin for use on extensive and intensive green roofs with or without slope.

Providing an attractive mix of wildflowers, herbs and flowering perennials, Green Shield Wildflower offers flowering heights from 30 to 100cm, encouraging unique landscaping opportunities and natural design styles and requires limited maintenance throughout the year.

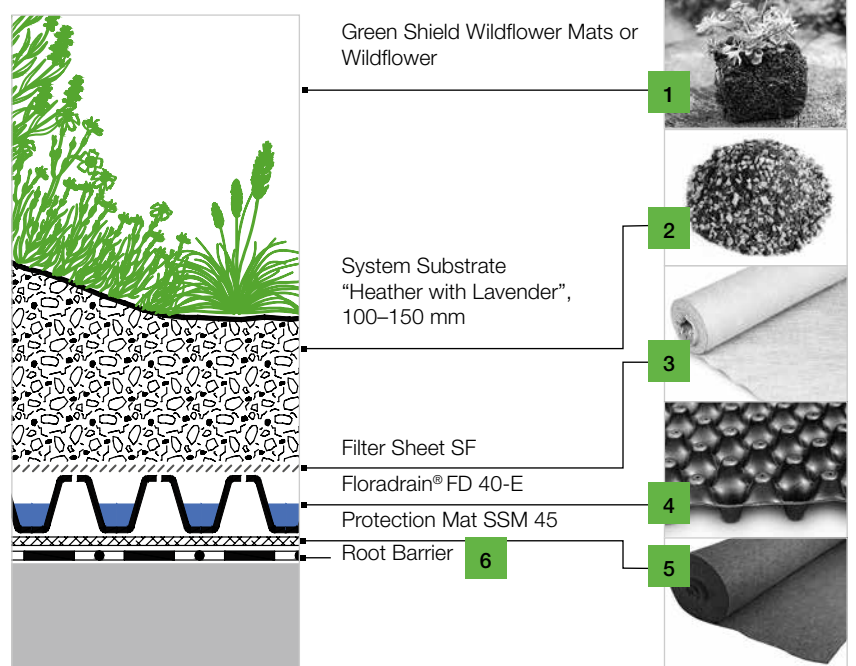
## Design Considerations

- Combinations with walkways and patios
- Planted with pre cultivated wildflower mats or plug plants and seeds for individual design

## Technical Data

Build-up height	ca. 170mm
Maximum Roof Pitch	8°
Weight, saturated	ca. 200kg/m <sup>2</sup>
Water storage capacity	ca. 73l/m <sup>2</sup>

## System Components



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# Storm Defence



## Features

- Hybrid benefits of green roof and stormwater management in one system
- Stormwater builds up to a predetermined depth and drains at a desired maximum rate
- Sedum carpet, rockery type plants or heather with lavender can be applied.

Storm Defence is a blue roof system that helps to address how the changes in climate and the expansion of urban areas can affect a building's water management. Specifically designed for flood control, Green Shield Storm Defence retains up to 80 l/m<sup>2</sup> of rainwater on a roof, before slowly releasing over a 24 hour period, mitigating the extensive damage that can be caused in cities by overloaded drainage systems. The space required for the increased precipitation storage is created by a grid spacer situated beneath the actual green roof build-up.

Virtually all types of roof utilisation are possible above the stormwater retention space, once structurally permitted, from an extensive green roof to a roof garden with pathways and driveways.

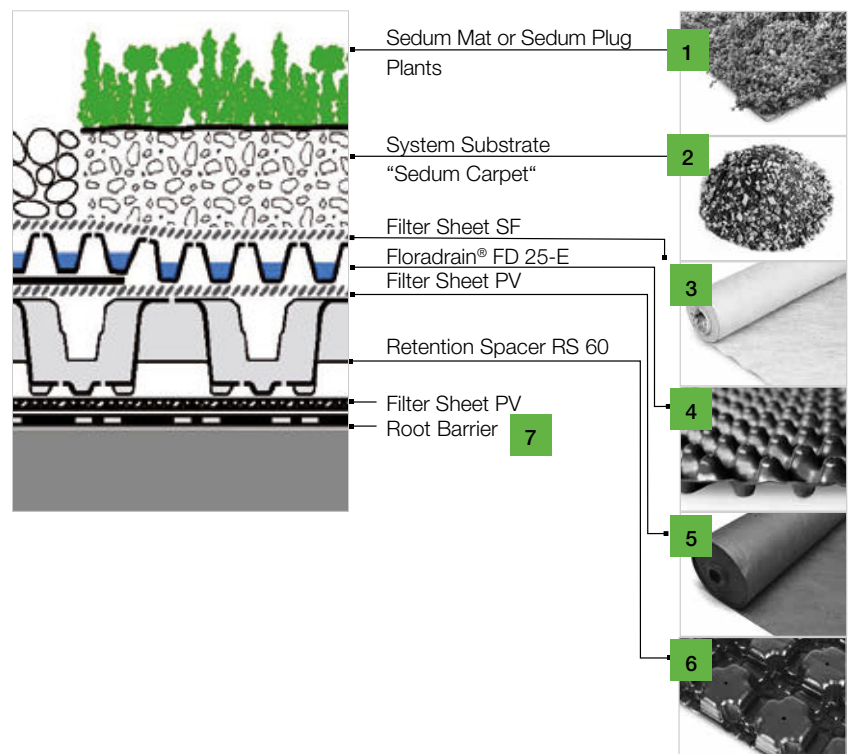
## Design Considerations

- Flow controllers are set to suit the desired drainage rates.
- Retention capacity of l/m<sup>2</sup> of roof is customisable
- Alternative retention spacers can be selected to work on walkway and driveway applications.

## Technical Data

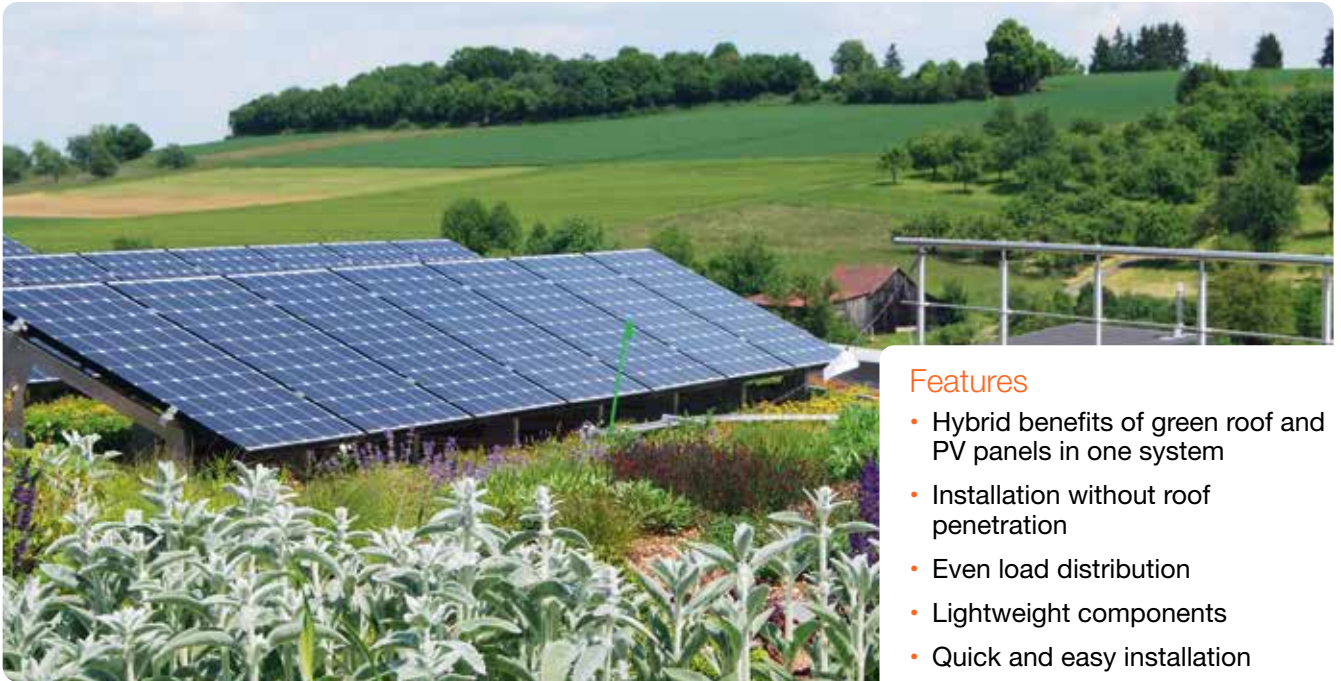
Build-up height	ca. 150mm
Weight, saturated	ca. 155kg/m <sup>2</sup>
Water storage capacity	ca. 80l/m <sup>2</sup>

## System Components



[Click to view full technical information >](#)

# Solar



## Features

- Hybrid benefits of green roof and PV panels in one system
- Installation without roof penetration
- Even load distribution
- Lightweight components
- Quick and easy installation

Green Shield Solar combines a green roof with PV panels, creating an ultra-sustainable roofing system. Engineered to mitigate the carbon footprint of a building, renewable solar energy is generated giving you the opportunity to significantly reduce overall energy consumption, with the additional benefit of a green roof absorbing further carbon emissions from the atmosphere.

The Green Shield Solar system incorporates solar energy into green roofs and creates synergies, whether it is for generating electricity (photovoltaic) or for heating and hot water applications (solar thermal). The PV panels are installed without penetrations, protecting the roof deck and reducing the chances of any water ingress. Our team of technical experts will work with you to understand your detailed requirements in-terms of yield required from a PV system and how this energy is going to be stored and used across your building.

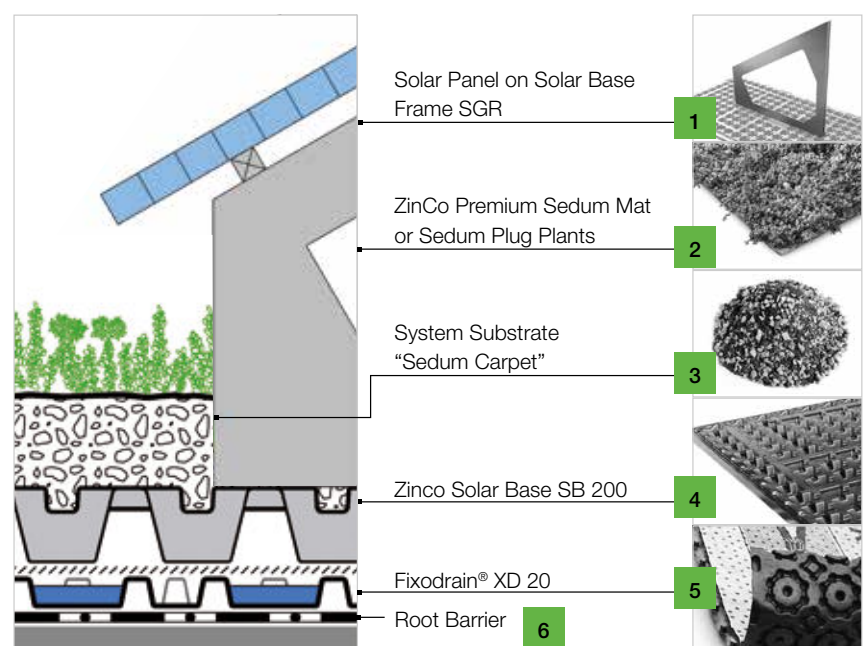
## Design Considerations

- Designed for southern exposure, with maximal energy yield during midday period
- East-west orientation supplies more evenly distributed energy yield

## Technical Data

Build-up height	ca. 120mm
Maximum Roof Pitch	5°
Weight, saturated	ca. 120kg/m <sup>2</sup>
Water storage capacity	ca. 26l/m <sup>2</sup>

## System Components



[Click to view full technical information >](#)

# Case Study

## Wimbledon Grounds, Plough Lane

A vibrant combination of green and blue roof systems bring nature back to London's urban landscape

As part of London's wider regeneration master-plan, Wimbledon Grounds is a 51,000m<sup>2</sup> residential development scheme, designed to sit alongside and complement the new purpose built AFC Wimbledon Stadium.

Boasting 600 new homes, community spaces, leisure facilities and prime retail lets, Wimbledon Grounds had approximately 15,692m<sup>2</sup> of green and blue roofing system requirements.

Designed with four large blue roof podiums with landscaped gardens, the green and blue roofs were considerably designed to sit above a car park and main entrance to aesthetically improve the otherwise bland spaces, as well as

provide a leafy community space for residents to reside in the otherwise urban surrounds.

The apartment blocks saw 26 blue roof systems with a green roof installed on top, each benefiting from a biodiverse mix of native wildflowers, sedum and grasses, as well as effective stormwater management and a sustainable drainage system to prevent flooding and wider pollution.





**Our mission is to consistently act in a sustainable and ethical manner. Through continuous research and development, Green Shield not only provides a new value to the role of buildings, but has been designed to help address the environmental issues we face today**

**Tim Jones**  
Managing Director, Garland UK



# Contact your local expert today.

Our Technical Managers are on hand to assist and provide technical advice on your building envelope and roofing systems.



[contact@garlanduk.com](mailto:contact@garlanduk.com)



01174 401050



[garlanduk.com](http://garlanduk.com)