

# BAUDER



## SOLAR PV

- BAUDERSOLAR  
Flat Roof PV System
- BAUDER BIOSOLAR  
Green Roof Integrated PV System

# OUR COMPANY

## Who We Are

Bauder is one of Europe's leading manufacturers of flat roof waterproofing membranes, insulation materials, green roofs and photovoltaic systems. Our clients work with us continually because of the way in which we do business, the way we treat every project individually and how we work alongside specifiers and constructors to deliver the best solution for a building.

We have an enviable reputation and track record for delivering the highest quality materials and service through designing, supplying, project managing and monitoring the installation of our premier flat roof systems.



*"Manufacturing the highest quality roofing materials is one thing, but here at Bauder it is our commitment and passion to work closely with our clients to successfully deliver every project to the highest possible standard, that sets us above the rest."*



**Andrew Mackenzie**  
Managing Director  
Bauder Ltd

## What We Do

We approach each client relationship as unique; taking time to fully understand the needs of everyone involved and the intricacies of the project to be delivered. Once we comprehend the scope of the brief, we impartially match the criteria against our extensive portfolio of roofing systems. These include bitumen, single ply, hot melt, cold liquid applied, insulation, green roofs and PV, to recommend the right solution for every project, whether new build or refurbishment.

## Technical Expertise

At Bauder we pride ourselves on being much more than just a manufacturer and supplier. Our technical managers play a vital role in the success of every project. Your dedicated technical manager will work closely with you, the specifier, to develop the most appropriate and practical solution for your project. They will work alongside our highly experienced technical department to provide a bespoke specification package tailor made to your individual project. The technical manager will remain involved with your project from initial design to completion of roofing works on site, providing you with a dedicated single point of contact.

## Assured Quality

To ensure a consistent and proficient service, Bauder approved contractors are the only people fully trained and certified to install our products. We only approve contracting companies that possess the technical expertise and the organisational capacity to maintain an efficient and well-run site.

We have always operated a policy to train and approve the individual installer and not simply the contracting roof company. By taking installers with proven experience and demonstrating the techniques particular to our system, we can ensure the quality of workmanship that meets our clients' expectations.

Every operative receives an identity badge providing proof of competence, which is available for inspection at all times.

## Guaranteed Satisfaction

Our comprehensive range of guarantees give total reassurance for the performance of a building's roof.

Unlike others in the market, our choice of guarantees map to the buildings' and your requirements to give complete satisfaction. We issue our guarantees unreservedly as part of our service because we monitor quality every step of the way from manufacture to installation.

A credible guarantee is vital; but never needing to call upon it is our aim.

# SOLAR PV SYSTEMS



*Committed to utilising the very latest manufacturing technology, Bauder invests in a programme of continuous research and development to ensure every product and installation is ahead of industry standards, and that the needs of the environment are always kept in focus.*

# OVERVIEW OF SOLAR PV





Our photovoltaic solutions are specifically designed to deliver the most efficient energy generation solution on flat and green roofs. Our systems are designed to ensure the waterproofing system beneath remains completely intact and without compromise, which can occur when mechanical fixing methods are used that penetrate the roof.

The entire installation process of both of our photovoltaic systems is quick and simple and only our approved contractors, engineers and installers are fully trained and certified to install our unified rooftop solutions.

Through our systems we guarantee the entire specified roof package rather than a separate element, giving single source point of contact and responsibility to reduce risk.

We have two systems within our photovoltaic portfolio:

### BauderSOLAR for Flat Roofs

Our BauderSOLAR flat roof PV solution is suitable for new build and retrofit projects and features a mounting system that is secured to the roof using membrane-to-membrane welding techniques on our bituminous or single ply waterproofing.

The modules are positioned at a 12° angle to maximise energy generation and can be installed in both south facing and east/west orientations, pending site requirements.

### Bauder BioSOLAR for Green Roofs

Bauder BioSOLAR is a unified solution for mounting solar PV arrays on a green roof where the substrate and vegetation provide the ballast to secure the array.

The combination of systems and the height at which the panels are positioned allow for vegetation to establish across the entire roof area helping the building achieve enhanced BREEAM ratings and meet planning targets for both the green roof and solar PV requirements.

### Benefits of Bauder Solar PV Systems

- Single source supply for clarity of guarantee for both the waterproofing and PV system.
- Our PV systems are installed without penetrating fixings to the flat roof, thus maintaining the integrity of the waterproofing system and preserving the validity of the guarantee.
- Quick and simple installations.
- High reliability and low maintenance as our solar PV systems have no moving parts and require only minimal maintenance.
- Puts vacant rooftop space to good use.
- Bauder BioSOLAR allows for the entire roof to qualify as a green roof and gain BREEAM points.
- Funding options available.

#### Specification Support



**Specification downloads:**  
[www.bauder.co.uk/technical-centre](http://www.bauder.co.uk/technical-centre)



**Telephone helpline:**  
 0845 271 8800



# ENVIRONMENTAL AND TECHNICAL



## Environmental Credentials

# breeam

### BREEAM 2014 Accreditation

The BREEAM assessment method evaluates the sustainability of built environments through the different stages of their life cycle. The schemes include:

- BREEAM Communities for the master-planning of a larger community of buildings.
- BREEAM New Construction for new build, domestic and non-domestic buildings.
- BREEAM In-use for existing non-domestic buildings in-use.
- BREEAM Refurbishment for domestic and non-domestic building fit-outs and refurbishments.

### Energy

#### Ene 04 Low and Zero Carbon Technologies

Compliance CN10

Potential credits 2

A BauderSOLAR and Bauder BioSOLAR Green Roof PV array each create local energy generation from renewable sources which can supply a compliant percentage of energy to the building.

### Aiding Biodiversity and Meeting a Biodiversity Action Plan (BAP)

Our BioSOLAR roof can provide a natural habitat for the local ecology, in which vegetation will establish and provide a home for smaller elements of wildlife as well as insects and invertebrates. The provision of a healthy habitat in a place that could otherwise be empty encourages wildlife to remain in the area, provides support for the natural colonisation of locally arising plants, birds and small animals, boosting a wider spread of species in the area.

### Recycling, End-of-Life and Upcycling of Our Products

In Europe, solar panel disposal falls under the European Union's Waste of Electrical and Electronic Equipment (WEEE) directive and is strictly regulated.



### Photovoltaic Panels and Components

Our module supply partners are all members of PV Cycle framework which is a not-for-profit association managing a fully operational collection and recycling scheme for end-of-life photovoltaic modules. [www.pvcycle.org](http://www.pvcycle.org)

### BauderSOLAR

The individual components of our BauderSOLAR Flat Roof system are single-origin and can be individually removed and completely recycled. The main support structure and locking pin are made from plastic category 05 Polypropylene and is widely recycled; with the base plate, bayonet fitting and module clamp all from plastic category 07 Polyamide which is recycled into plastic lumber and other custom-made products.

### Bauder BioSOLAR

The mounting boards for our BioSOLAR system that provides the water retention and drainage layer for the vegetation beneath the array are made from HDPE which is widely recycled.

The support system for our Bauder BioSOLAR system is made from aluminium; the arms, support rails and clamps can be recycled through melting down and reforming the metal without losing quality.



# CREDENTIALS



## Technical Credentials

### Regulations, Guidelines and Standards

Our products are built in accordance with applicable standards and technical regulations and therefore correspond to all relevant technical standards. This applies to both material selection and structural design.

BSEN 62446 Grid Connected Photovoltaics  
BSEN 61853-1 Defining Solar Photovoltaic Power  
BSEN 1991-1-4 Wind Actions on Structures

The aluminium alloy framed modules are certified through VDE (IEC 61215 Ed. 2, IEC 61730-1 Ed.1 and IEC 61730-2 Ed. 1)

### Array Designs

Bauder PV array proposals are designed to meet MCS requirements and IET Codes of Practice.



### Maximising the Roof Area

Our photovoltaic solutions are designed to allow for the maximum number of modules to be installed on the roof area for both east-west or north-south orientations. This gives prime energy generation from the roof compared to standard 30° fixed tilt solutions.

### Assuring Quality of PV Panels

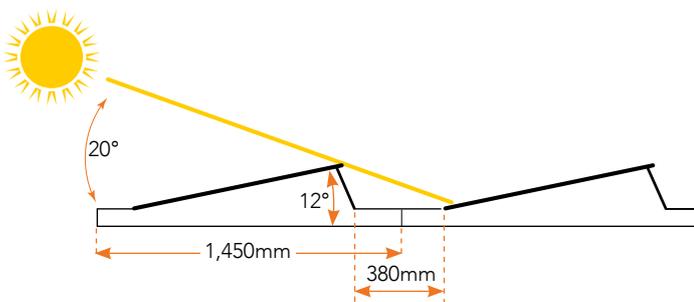
It is all too common that performance and quality can vary dramatically between manufacturers, even if the same cells are used and the modules appear to be similar; and so it becomes increasingly apparent that the reliability of the manufacturer is far more important than selecting modules by output statements alone.

The superior manufacturing and quality testing of the JA Solar modules through high resolution electroluminescence and infrared measurements ensures that quality output and high efficiency is standardised on all our installations.

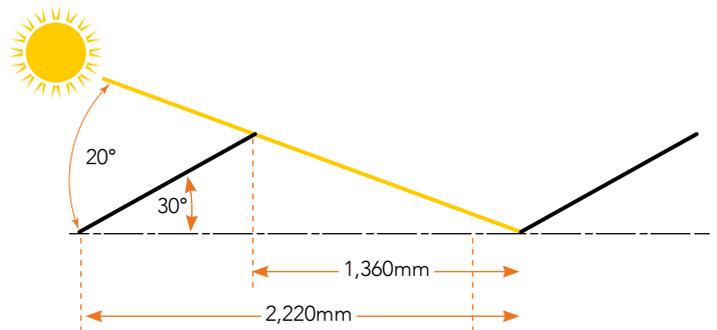
### Increasing Efficiency

The BioSOLAR system has the advantage of increasing the efficiency of the solar array because the vegetation preserves ambient rooftop temperatures, keeping the PV modules at optimal output and increasing energy yields by 5% - 7%.

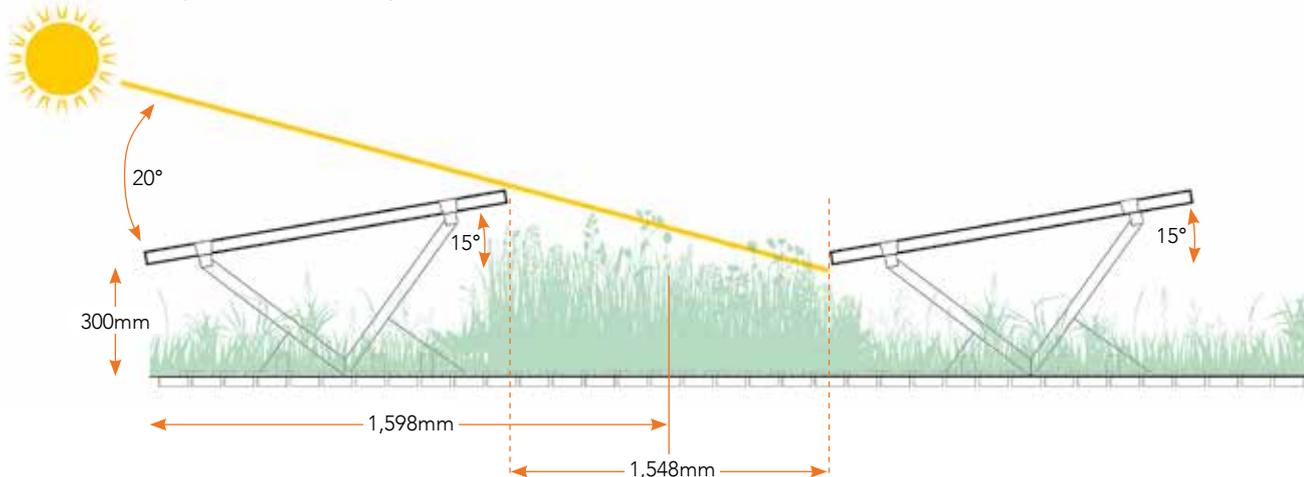
BauderSOLAR panels installed at 12° on a flat roof



Typical panels installed at 30°



Bauder BioSOLAR panels installed at 15 degrees



# BAUDERSOLAR Photovoltaic Energy for Flat Roofs

Our flat roof solar PV solution is an aerodynamically optimised system for framed modules suitable for both new build and retrofit projects. The mounting units are secured to the roof using membrane-to-membrane welding techniques on our bituminous or single ply waterproofing systems. This installation method means that the roof is not compromised by penetrations for fixings nor is it ballasted, which would add significant weight loading to the roof.

## Key Features and Benefits

- Risk-free installation due to penetration free fixing methods to the flat roof waterproofing.
- Tool free installation of modules is quick and simple.
- High output to roof space ratio.
- Range of PV modules available to suit client needs and budget.
- Lightweight system 9-12.5Kg/m<sup>2</sup>, depending on the module selected.
- Aerodynamic to reduce the impact of wind uplift.
- Low profile with modules set at 12°, which can overcome some planning challenges.
- Single source for complete design of waterproofing and PV array with clear accountability.

Our combined solar array and waterproofing offer provides a single-source solution with clear accountability to reduce risk and bring peace of mind through all aspects of the flat roof.

The BauderSOLAR solution utilises high efficiency JA Solar and Aleo Solar modules with a range of panel options to suit client needs and budget.

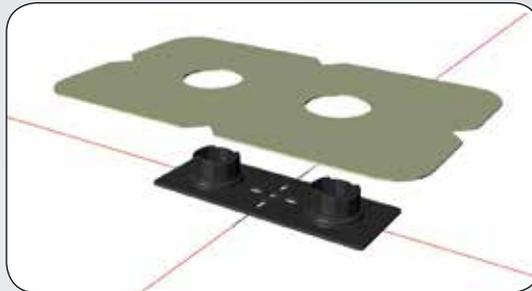
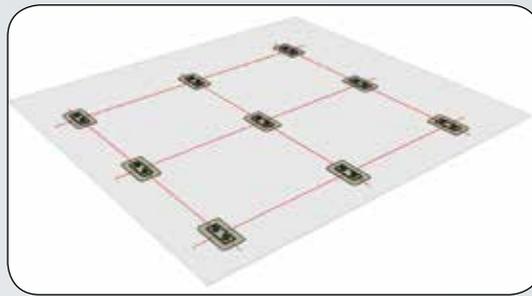


# BauderSOLAR Flat Roof Installation

## RISK-FREE INSTALLATION

The distinctive element of our lightweight PV energy system is the pre-fabricated Bauder membrane sleeves which slip over the mounting plates and are welded into position, anchoring the plates to the surface of the Bauder waterproofing system. Once this is completed, the rest of the PV installation is simply locked into place without any requirement for tools or sharp fixings.

The attachment of the mounting components is very stable so that even in extreme weather the entire array is secure on the roof. Any minor movement of the panels, which is generally created by wind uplift, is easily tolerated and does not affect the fixings, or waterproofing system.



### 1. Positioning the Baseplates

The baseplates are plotted and measured out to ensure correct positioning according to the array design.

### 2. Attaching to Roof Surface

The waterproofing membrane sleeves are placed over each of the baseplates and welded into position.

The large attachment footprint is very stable and the entire array is secure on the roof even in extreme weather.

### 3. Installing the Substructures

The substructures are positioned over the mounting plates and locked into place.

The distance between the module rows is always 1450mm due to the fixed length of the substructures.

### 4. Placement of the PV Modules

The PV modules are placed onto the substructure mounting system and mechanically secured using a tool free fixing method.

Finally the cable support system and electrical connections conclude the installation.

# BAUDER BioSOLAR Integrated Photovoltaic Green Roof

Our BioSOLAR is an integrated solution for mounting photovoltaic renewable energy on a green roof where the substrate and vegetation provide the ballasted installation mechanism to secure the array. The system is suitable for both new build construction and retrofit projects.

This system allows for the entire roof area to qualify as a green roof, and if a biodiversity vegetation finish is elected for, this can further enhance the BREEAM credit rating for the roof element.

## Key Features and Benefits

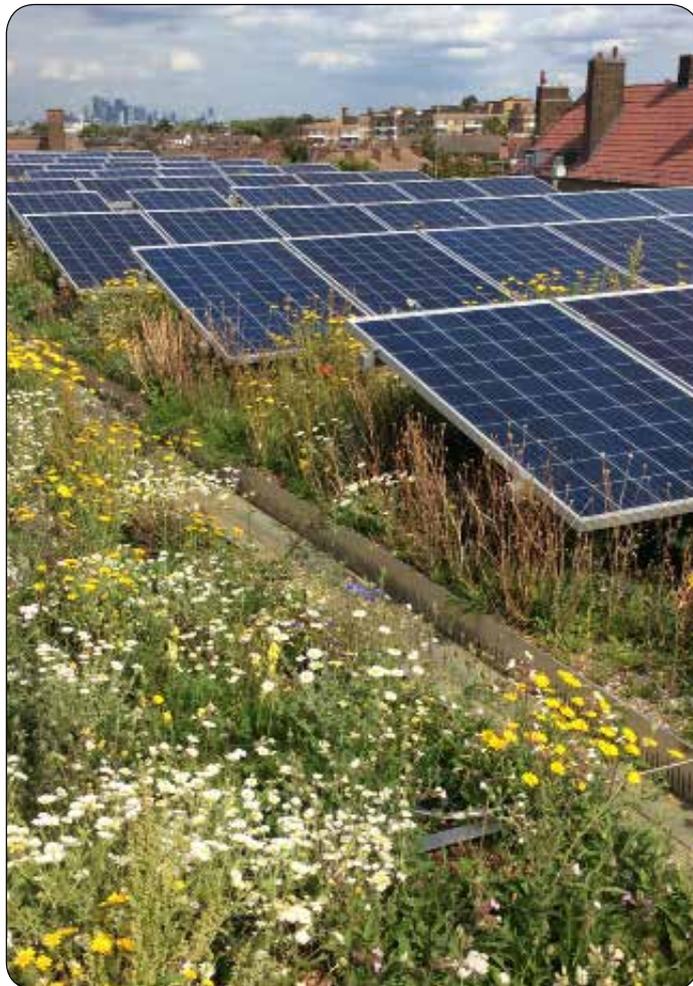
- No roof penetrations as substrate and vegetation ballast the PV array.
- Entire roof qualifies as biodiverse green roof.
- Maximises solar energy generation as green roof preserves ambient rooftop temperatures, keeping the modules at optimal output. The cooling effect increases panel output by up to 5%.
- Raised modules allow light and moisture under the panels and the creation of a variety of habitats supporting a greater range of plant species and small invertebrates.
- System can be retrofitted on many roofs without structural modification to the building.
- Single point responsibility for the waterproofing, green roof and PV installation.
- Increased module space between substrate and panels reduce risk of panel damage during green roof maintenance.

## Varied Habitats for Flora and Fauna

The panels create a mixture of sunny, shaded and sheltered areas and together with a variable depth of FLL compliant extensive substrate the roof gives a matrix of different habitats, which allow a broader range of plant species to thrive, and small invertebrates to seek refuge from strong wind and rain. Additionally undulations in substrate can be created to enrich the rooftop growing conditions for an even broader mix of flowering vegetation, providing a rich foraging environment for bees and insects.

## Symbiotic Relationship

A key element of the BioSOLAR system is that the front edge of the PV panel is set at around 300mm above the level of the substrate, which allows liberal growing room for the extensive vegetation without blocking light to the crystalline solar cells that would otherwise reduce the efficiency of the modules. This height setting also enables light and moisture to reach beneath the panel to support the plants below.



## Specification Support



Specification downloads:  
[www.bauder.co.uk/technical-centre](http://www.bauder.co.uk/technical-centre)



Telephone helpline:  
0845 271 8800

# Bauder BioSOLAR Green Roof Installation

## SAFEGUARDED INSTALLATION

The mounting board for the PV green roof is a bespoke moulded landscaping component manufactured from HDPE with a deep recessed profile that provides water storage and multidirectional drainage whilst also providing a repository for the green roof substrate. A support profile is formed in the centre of the board to which the mounting arms are attached.

The boards are positioned on the top of separation and protection layers which prevent mechanical damage to the waterproofing, just as they would be specified on a conventional green roof.



## 1. Positioning the Mounting Boards

The mounting boards are positioned according to the array design with any areas between boards or around the perimeter finished using our DSE 40 drainage board.

## 2. Attaching the Railing System

The aluminium arms and carrier rails are fixed in to position.

## 3. Installing the Substrate and Vegetation

The substrate is poured into the mounting board and vegetation is introduced according to the specified desired finish.

## 4. Placement of the PV Modules

The PV panels are secured to the carrier rails with clamps.

# SOLAR PV CASE STUDIES

## Sheringham High School

Sheringham High School is a secondary school with academy status located in Norfolk that underwent significant refurbishment to repair a number of its failing roofs. The client wanted the school's campus to act as a benchmark for sustainability and therefore saw this as the perfect opportunity to achieve this with the addition of solar panels.

Working closely with the surveyor PCH Associates, Bauder performed a comprehensive roof evaluation survey to identify the full extent of water ingress being experienced and to confirm the suitability of adding solar. The bespoke Bauder survey report highlighted that many of the roof areas needed to be stripped back to the screed, before being waterproofed with 1,500m<sup>2</sup> of Bauder's reinforced bitumen system by R T Roofing.

The school then had 150 BauderSOLAR PV modules fitted onto the roof by electrical installer Joju Solar. As a result of this PV install the school will be able to generate at least 34.61 Megawatt Hours of solar power each year, all without any capital expenditure or any disruptions to the school term. Funding for the solar PV array was provided through a community share offer, The Schools' Energy Co-operative, ensuring both the school and the local community benefited financially from the solar installation whilst also providing clean renewable energy.

### BAUDER BUILDING BOARD

Project:	Sheringham High School
Location:	Sheringham, Norfolk
Roof Area:	1,500m <sup>2</sup>
Surveyor:	PCH Associates
Approved Contractor:	R T Roofing
PV Installer:	Joju Solar
Fundraising Specialist:	Energy4All

### APPLIED PRODUCTS

- Bauder Total Roof System has a life expectancy in excess of 40 years.
- 150 BauderSOLAR PV modules were fitted, achieving a kilowatt peak of 39.00.



## UWE Enterprise Zone

The University of the West of England (UWE) quadrupled its solar generating capacity through the installation of 1,731 solar panels, enabling it to produce over 400 MWh of electricity each year and making it the largest solar panel array in the UK university sector.

The solar array was installed on the roof of the University Enterprise Zone and the Bristol Robotics Laboratory, which both underwent extensive refurbishment as part of the required works. Prior to the PV being installed, approved contractor Mitie Tilley Roofing overlaid the original single ply waterproofing with over 12,000m<sup>2</sup> of Bauder's lightweight, robust PVC single ply waterproofing system Thermofol. The solar modules, which weigh less than 12Kg/m<sup>2</sup>, were then fitted using a unique penetration-free method by renewable energy specialists Dulas.

The PV system should generate enough electricity each year to cover half of the energy usage within the building, save around 200 tonnes of carbon and provide annual savings of over £50,000 a year. The university is committed to sustainability and this project is just part of a much wider plan to achieve its carbon reduction goals.

**Fabia Jeddere-Fisher**, Energy Engineer at UWE: *"The system we chose means the panels are welded into place, reducing load, and the need for roof penetrations and thereby risk of leaks. The University will use 100% of the power generated, equal to the amount of nearly 200 homes with solar panels. As a large organisation we want to set an example for others to undertake similar projects."*



### BAUDER BUILDING BOARD

Project:	UWE Enterprise Zone
Location:	Bristol
Roof Size:	12,000m <sup>2</sup>
Client:	University of the West of England
Main Contractor:	BAM Construction
Specifier:	Parsons Brinckerhoff
Approved Contractor:	Mitie Tilley Roofing
PV Installer:	Dulas

### APPLIED PRODUCTS

- 1,713 BauderSOLAR PV modules were fitted generating at least 402 Megawatt Hours of solar power each year.

# BIOSOLAR CASE STUDY

## Clapham Park

The regeneration at Clapham Park involved the demolition of old housing stock to make way for new affordable homes. The 5-storey building with 21 dwellings incorporating the latest rooftop technology which blends a biodiverse green roof and unified solar PV array. This approach met the planning requirements and maximised the limited roof space to generate energy for the residents. The development was certified BREEAM 'Outstanding' due to its environmental, economic and social sustainability attributes.

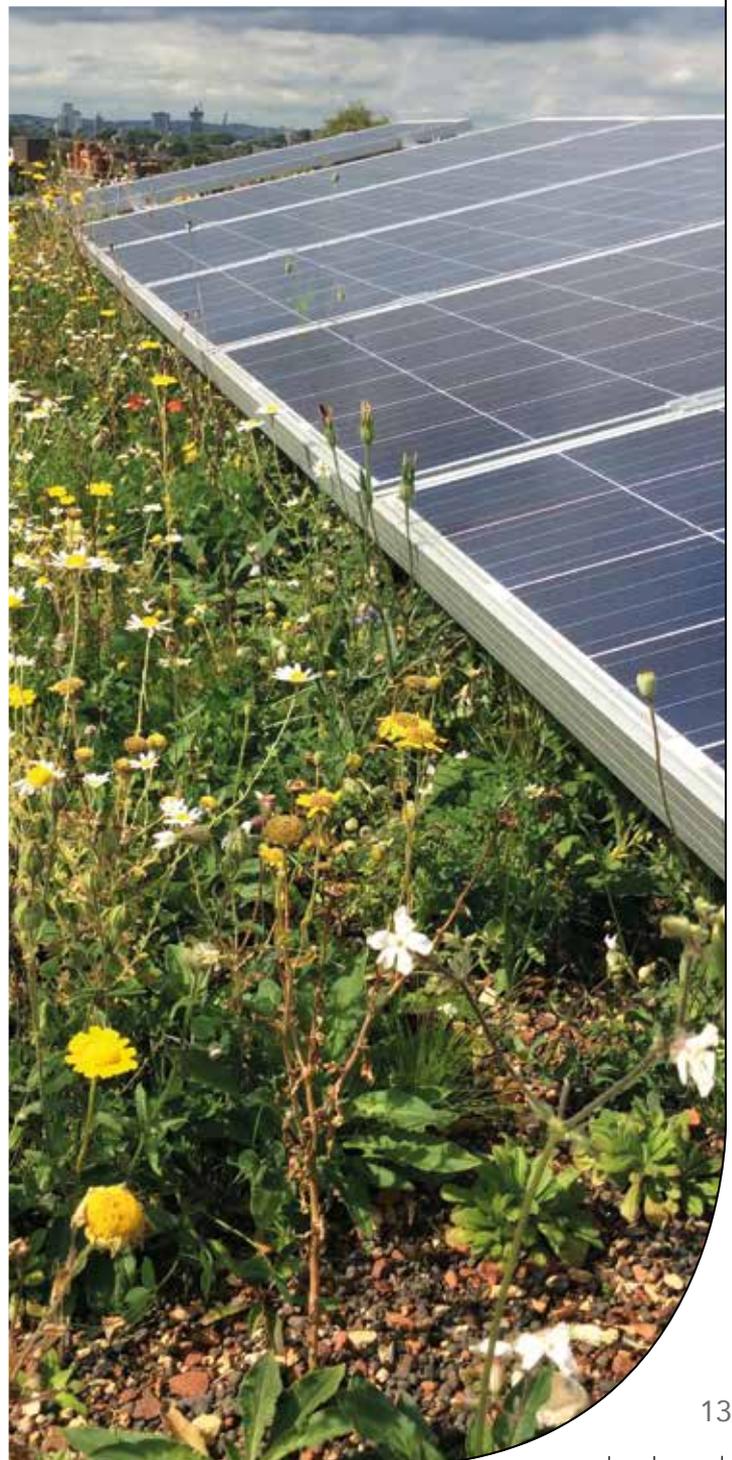
One of the major challenges of the project was the roof area, which at only 500m<sup>2</sup> needed to include a green roof as well as a renewable energy system to meet the main objectives of sustainability and energy efficiency of the development highlighted by the planning committee. The roof contributed towards requirements under National Planning Policy Framework (NPPF) Chapter 11: Conserving and enhancing the natural environment and The London Plan 2011 Policy 5.2 – Minimising Carbon Dioxide Emissions, Policy 5.3 – Sustainable Design and Construction and Policy 5.7 – Renewable Energy. The green roof is layered with a raised PV array so that the entire roof qualifies as a green roof whilst also providing energy generation.



The Bauder BioSOLAR system has National House Building Control (NHBC) approval and meets local authority building control (LABC) requirements. The system was installed on zero falls roof deck, making it a very cost-effective solution.

The biodiverse green roof which includes 35 plant species recognised by the RHS as Perfect for Pollinators, covers the totality of the roof area and offers a large variety of vegetation. The building reduces its carbon impact with the highly efficient PIR insulation and generates approximately 10% of the flats usage with a maximum possible output of 75kWp from the 70 PV modules. The solar PV mounting units are ballasted by the substrate and vegetation, removing the need for any penetrating products in the waterproofing.

Visit [bauder.co.uk/biosolar](http://bauder.co.uk/biosolar) for more information on the system.



## BAUDER BUILDING BOARD

Project:	Clapham Park
Location:	Clapham Park, Lambeth, London
Roof Area:	500m <sup>2</sup> green roof layered with 116m <sup>2</sup> of PV
Specifier:	PJMA Architects
Approved Contractor:	EJ Roberts Ltd
PV Installer:	M & M Electrical Ltd

## APPLIED PRODUCTS

- Bauder Total Green Roof System is a premier bituminous waterproofing with a life expectancy of over 40 years.
- Bauder BioSOLAR integrates a green roof and photovoltaics into one system drawing the maximum potential from a flat roof.
- Flora 3 Seed Mix is a blend of 49 British native species seed, to maximise diversity of vegetation on green roofs

# OUR SERVICE

Your project is important to us and our service is dedicated to providing a photovoltaic solution that fully understands all the individual issues of the project and answers the waterproofing needs of the building, as well as any green roof requirements.

## New Build Construction

Your roof design and PV array can be complex, especially if it has countless elements of equipment sited on the roof; we work with you to ensure all the roof detailing is robust and accurate. Our technical managers meet you and can produce, alongside our technical department, a specification package for the waterproofing and a solar PV technical report including roof layout, wind load calculations and system engineering ready for the tendering process.

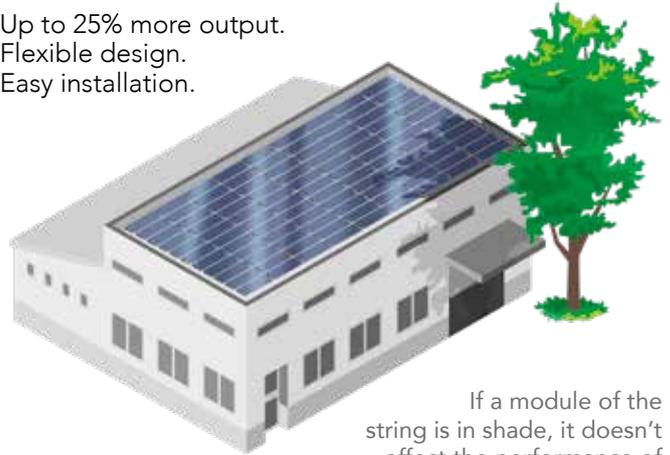
## Retrofit Roof Projects

We will survey and fully inspect your current roof and with the aid of your structural engineer's report and we will propose the right option to suit the building and required energy outputs to maximise your return on investment.

## System Optimisation

The power optimiser replaces the traditional junction box and is responsible for determining the individual MPP of each module. This ensures that shading, for whatever reason does not impact on the entire string.

- Up to 25% more output.
- Flexible design.
- Easy installation.

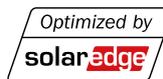


If a module of the string is in shade, it doesn't affect the performance of the other modules of the string.

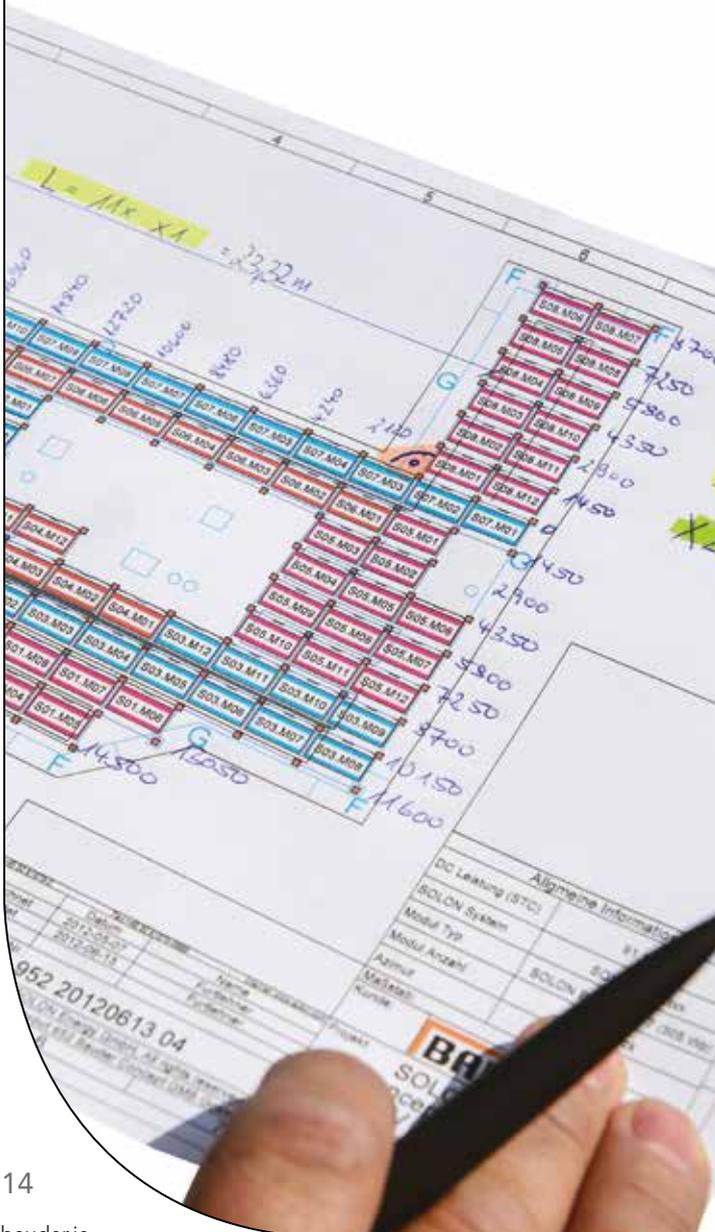
## Remote Monitoring

Web based, module level monitoring increases the reliability by ensuring that problems can be identified and dealt with extremely quickly, providing the most productive performance on a permanent basis.

- Cost effective maintenance.
- Automatic alerts.
- Easy access to real time data.



We strive to specify the best quality, innovative inverters, such as Solar Edge, that have a range of benefits to both the end user and installer. The Solar Edge inverters allow the system to be monitored and managed as easily as possible.



# SIX STEPS



## 1: Brief and Consultation

You give us your remit either at your office or on site. We will discuss the roofing project, your budget and how the programme of works can be formulated to maximise your benefits from the use of PV.

## 2: Design and Specification Service

You will receive the detailed specification package for your project, which answers your brief and includes a technical layout of the PV units and system engineering.

## 3: Grid Connections and Funding Options

Our in depth understanding of energy efficiency funding can help you find the financial package that best suits your circumstances. We can help size the array for optimum return on investment based on electricity consumption data supplied, and assist with necessary paperwork to register the solar installation with the national electricity network.

## 4: Contractor Selection

Your Bauder technical manager will assist in the selection of appropriate contractors from a national network of MCS accredited contractors who are approved in the installation of Bauder's various roof and PV systems. Once the contractor has been appointed, a pre-contract meeting will make sure the project delivery is well coordinated. The works are closely monitored by Bauder site technicians with regular inspections to ensure quality and waterproof integrity of the final scheme.

## 5. Sign Off and Guarantee

A full final inspection is undertaken by the Bauder PV team on completion of the works with the energy performance of the array assessed. Comprehensive guarantees for the roof and PV system are provided.

## 6. Monitoring and Maintenance

Proactive monitoring systems enable us to ensure the maximum possible energy generation and financial return over the system's lifespan, and to identify faults or maintenance requirements remotely. After the project has been successfully completed Bauder can continue to support you with aftercare advice and post occupancy evaluation.

# BAUDER INSTALLATIONS

## Installations

You can be assured that your photovoltaic installation will be of the highest quality as we only allow fully trained and certified Bauder approved contractors to install our rooftop solutions.

## Approved Contractors

Our national network of approved contractors are given all the training, support and expert advice they need in order to deliver a high quality roof installation that we are proud to put our name to.

We look to build strong working relationships with all of our approved contractors, as we recognise just how essential the quality and experience of the installing operative is to ensuring a successful project.

## Bauder Site Technicians

Once your roofing works commence, our experienced team of site technicians will monitor and inspect the workmanship at key stages to ensure that the standards required to meet our guarantee are fulfilled, as well as providing you with easy to understand reports on how the works are progressing.

Our national team is one of the largest of all the manufacturer-suppliers, ensuring all our sites receive the attention they deserve.



# QUALITY GUARANTEED

## Guarantees

A full final inspection is undertaken by the Bauder PV team on completion of the works with the energy performance of the array assessed. Comprehensive guarantees for the roof and PV system are provided.

Your completed roof package will be backed up by what we can confidently claim to be the most comprehensive guarantee range in today's roofing industry, giving you total reassurance with regards to the future performance of your building's roof and the PV installation.

Unlike others in the market, Bauder offers a full range of guarantees that can cover product, design and workmanship. Our guarantee provides you with complete satisfaction and will be bespoke to your project and its requirements.

We issue our guarantees unreservedly as part of our service because we monitor quality every step of the way from manufacture to installation.

## Guarantee Options

- Products supplied by Bauder (exclusions exist).
- Workmanship and installation of Bauder products by our approved contractors.
- Defective design and / or specification where Bauder products are concerned.
- Financial loss from building damage due to faulty manufacture or installation of Bauder products.
- Consequential damage through Bauder waterproofing system failure due to faulty manufacture or installation of Bauder products.



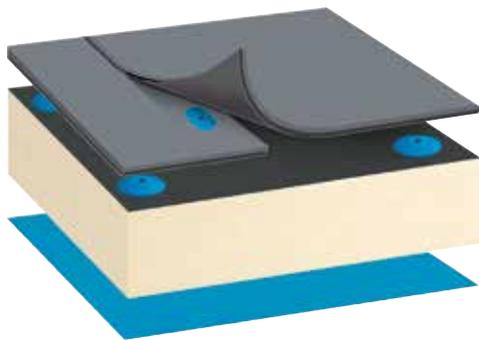
# WATERPROOFING OPTIONS

The Bauder portfolio of waterproofing systems ensures we impartially match the right solution for every project whether new build or refurbishment. These are our further options for roof covering systems to accompany a PV solution:

## Single Ply Systems

Our single ply roofing systems are ideal for lightweight, fast track and cost effective construction projects. The systems provide solutions that are durable, resistant to the natural elements and are able to support extensive green roofs.

- Projects: New build or refurbishment.
- Construction: Warm, cold and inverted roofs.
- PV System: Green roofs and BauderSOLAR flat roof.
- Certification: BBA, FM Approval.
- Guarantees: Full range to accompany the PV system.



## Bitumen Membrane Systems

Our long-established and fully integrated roof systems incorporate SBS modified elastomeric bitumen membranes and highly efficient PIR insulation to give a robust waterproofing solution with long-term durability and life-expectancy. These systems are ideal for all types of green roof scenarios and solar PV.

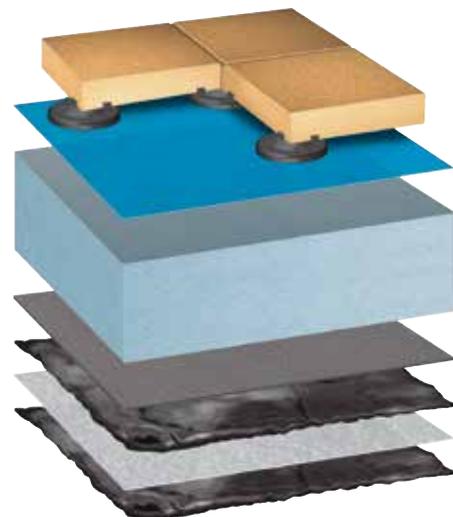
- Projects: New build or refurbishment.
- Construction: Warm, cold and inverted roofs.
- Upgrades: Green roofs and BauderSOLAR flat roof or BioSOLAR photovoltaics.
- Certification: BBA.
- Guarantees: Full range to accompany PV system installed.



## Hot Melt Structural Waterproofing

The Bauder Hot Melt Structural Waterproofing System can be installed on decks with zero degree falls.

- Projects: New build.
- Construction: Cold and inverted roofs.
- Upgrades: Green Roofs and BioSOLAR photovoltaics.
- Guarantees: Full range to accompany BioSOLAR PV system.







**BAUDER**

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