Introducing Bauder

It's been more than 160 years since the first roof related products were created in our company.

Today, Bauder stands for high-quality, top performance roofs that are durable, cost-effective, and sustainable.

OUR COMPANY

A family business in the fourth generation

Bauder is one of Europe's leading manufacturers and suppliers of modern waterproofing, thermal insulation, green and blue roofs, and photovoltaic systems for flat roofs.

Customers choose us because of the way in which we do business, the way we treat every project individually and how we work alongside clients to deliver the best solution for a building.

Our People

A successful project requires teamwork, and our people give a unified approach to delivering a flat roof project.

We maintain high standards throughout the business by offering a high level of commitment to our employees ensuring they are valued, supported, rewarded, empowered to be accountable and take full ownership for their areas of responsibility. This in turn results in a motivated, team-driven culture, encouraging initiative and job satisfaction. It is the strong people focus that enables us to maintain a reputation that is second to none, and one which continues to drive us forward as a strong, high calibre market leader.

Our History and Future

Combining tradition and innovation has made our company what it is today. As an owner managed company for over 160 years, we are not under pressure to deliver maximised short-term profit, but continue to develop our business steadily and on a long-term basis.

Markets are continually changing, and so are the demands that our customers place on us. We see this as an opportunity for healthy growth. Recognising the individual requirements of the markets and developing tailor-made, innovative solutions is our strength.

Plant Safety and Environmental Responsibility

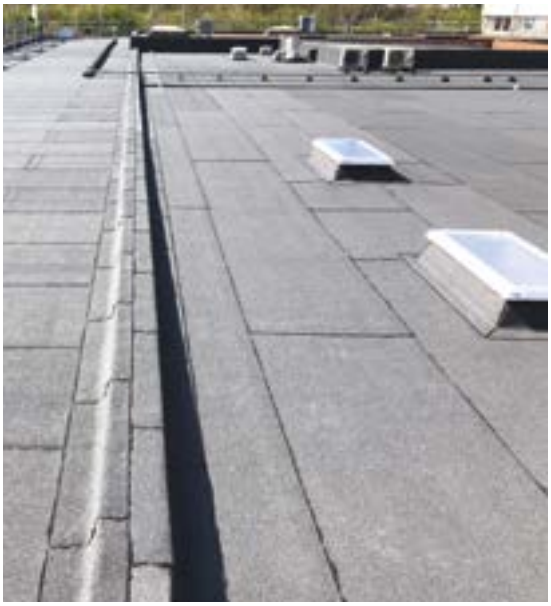
For Bauder, plant safety and environmental responsibility mean that the production facilities and processes are designed to be safe so that protection for people and the environment is ensured at all times. Constantly optimizing the safety of our processes and facilities, as well as the careful use of natural resources and raw materials and the improvement of energy efficiency are part of our environmental and energy management system. Caring for our environment, our employees and our neighbourhood is part of our corporate culture and is part of our long-term company success.

Sustainability is one of our most important corporate goals.

IT'S ALL ABOUT THE ROOF

The right solution for every flat roof project

Our focus is centred on providing a waterproofing system for a flat roof which can combine, where needed by the client or project, with our additional systems for a green roof, blue roof or photovoltaic array.



Our Portfolio

We offer a single-source for design of waterproofing on flat roofs from our wide range of systems, materials and accessories; insulation for thermal integrity and performance; components for a green roof and its vegetated finish; a blue roof for SuDS and solar PV for rooftop energy generation.

The roofs we deliver are designed to meet the needs and budgets of new build construction or refurbishment works on a current building; and our rounded approach gives, specifiers, designers, planners, main contractors and clients the peace of mind that they are making the right decisions for the roof.

Our Approach

Our professional practices give you the best possible technical support for each and every project.

Our expert technical managers advise on the right solution and specification for the project and can also deliver bespoke CPD seminars helping clients enhance their knowledge of designing flat roofs and when to specify the different systems. Our technical department draws together all the documents and drawings required for tender before the project goes to site.

Project Delivery

You can be assured that whatever work is performed on your building's roof it will be of the highest quality, as we only allow fully trained Bauder approved contractors to install our roofing systems. Our dedicated team of site technicians monitor the installation as it progresses and confirm when the roof is satisfactorily complete before the guarantee is released.

Guaranteed to Perform

Our comprehensive range of guarantees give total reassurance for the performance of your Bauder roof.

Unlike others in the market, our choice of guarantees map to the building's and client's requirements to give complete satisfaction and can cover design, products and workmanship and are not reliant on the size of the roof.

FLAT ROOF SOLUTIONS

Unrivalled system portfolio

Bitumen Membrane Systems

Our long-established and fully integrated roof systems incorporate modified bitumen membranes and high performance insulation. The systems' application feature torch-free and torch-safe installation techniques for detailing on, or adjacent to combustible construction materials.

Bituminous membrane roofing systems are durable and long lasting. They are suitable for new build and refurbishment projects. We have seven systems within our bituminous membrane portfolio.

Single Ply Systems

Single ply roofing systems are particularly advantageous if the project has weight and load bearing considerations. The membranes are durable and resistant to European climate conditions, tears and punctures, yet incredibly lightweight, typically 2-3kg per square metre.

We have two systems within our single ply portfolio – Thermofol PVC and Thermoplan FPO, both are suitable for roofs of all shapes and sizes and can support green roofs and photovoltaic arrays.

Hot Melt

This monolithic system is designed to last the lifetime of a roof structure and ideally suited as a solution beneath paved or ballasted surfacing, car parks, podiums, plazas, green roofs and substructures

The waterproofing solution can also be specified with our green roofs, BauderBLUE Roof System and Bauder BioSOLAR.

Cold Liquid Applied

Our cold liquid applied systems are based on the most advanced PMMA technology. They are simple to install, fast curing and long lasting; making them suitable for use in all kinds of flat roof, balcony, walkway, and terrace waterproofing and surfacing applications.

TRANSFORMING ROOFS

Making a difference

Green Roofs

We successfully deliver all types of green roofs by combining the finished planting scheme and all its supportive components with a high quality and secure waterproofing system to give you the best results every time.

An integrated approach is crucial for the design and specification of both the waterproofing and landscaping components to achieve the best results. and ensure that your green roof project comes to fruition beautifully.

Blue Roofs

A BauderBLUE roof is a SuDS solution for urban areas where options for ground-based attenuation systems are limited.

The BauderBLUE roof system has no moving parts, is simple to install and easy to maintain. It is designed to slow the release of rainwater into the drainage system, discharging the water completely over a 24-hour period.

BioSOLAR

Bauder BioSOLAR is an integrated mounting solution for photovoltaic renewable energy with a green roof where the substrate and vegetation provide the ballasted installation mechanism, which removes the need for penetrating the waterproofing to secure the mounting units to the roof.

Solar PV

The BauderSOLAR photovoltaic solution for flat roofs features the integrated system in which the solar PV module and the substructure are combined to form a single unit, which is secured to the roof without any penetration of the waterproofing or roof deck. This ensures that the integrity of the roof is upheld throughout the installation of the PV array. The system is designed to be used in conjunction with Bauder single ply or bituminous membranes and is extremely lightweight at 9-12.5 Kg/m², depending on module selected.

WATERPROOFING DESIGN SERVICE

Making roofs secure

We approach each flat roof project as unique; taking time to fully understand the needs of everyone involved, the building and intricacies of the project to be delivered.

Recommending the Right Waterproofing

Once we comprehend the scope of the brief, we match without bias, the criteria against our wide-ranging portfolio of waterproofing systems. These include reinforced bitumen membrane, single ply, hot melt, cold liquid applied, and the correct insulation for a warm or inverted roof construction. Additionally, we can also work with you on the design of a green roof, blue roof and solar PV or a combination of these. This means we can recommend the right solution for every project, whether new build or refurbishment.

Waterproofing Roof Designs

Our design service for waterproofing systems really does take in to account which of the systems will best suit the needs of the building and the client. Our technical managers understand all the waterproofing types in our portfolio of systems which ensures they don't have to impose a particular solution on a building.

Detailing

Our waterproofing designs include CAD drawings of all the rooftop details, and follow the latest recommendations by the Single Ply Roofing Association (SPRA), the Liquid Roofing and Waterproofing Association (LRWA) and the National Federation of Roofing Contractors (NFRC).

Torch-Free Detailing

For all Bauder bituminous membrane waterproofing and hot melt systems, we follow the NFRC 'Safe2Torch' Guidance 2017 where combustible construction materials are identified and the specification accounts for them with self adhered membranes, explicit hot-air welding installation techniques, and exclusion zones for the use of a gas torch.

LET'S GET IT RIGHT

KEY UNDERSTANDINGS FOR THE CORRECT WATERPROOFING TYPE ARE:

- Building use.
- Length of service life expected of the waterproofing.
- Guarantee requirements.
- Levels of rooftop sited plant and equipment.
- Designed penetrations on the roof.
- Access requirements for maintenance etc.
- Structure of the deck and ability to create roof falls.
- Insulation needs and roof construction type.
- Installation stipulations.
- Acceptable weight loading.
- Geographical location and wind load.
- Fire requirements.

YOUR ROOF SOLUTION

OUR SERVICE TO YOU DELIVERS

- Recommended waterproofing specification.
- Illustrated layered build up of the system.
- BIM objects NBS specification or Bauder specification.
- Environmental Product Declarations.
- CAD drawings of the roof details, including torch-free for bituminous systems with exclusion zones.
- Type of insulation to satisfy warm or inverted roof construction.
- U-Value the insulation scheme will achieve and thermal bridging resolution.
- Weight loading of the scheme.
- Roof survey for refurbishment projects with detailed roof plan and marked with torch-free zones where identified.
- List of approved contractors for tendering process.

TECHNICAL SUPPORT

Expert advice for all your projects

We pride ourselves on being much more than just a manufacturer and supplier. Our single point service ensures your roof design is cohesive to reduce risk.

Our technical managers play a vital role in the success of every project. Your dedicated technical manager will work closely with you to develop the most appropriate, budget aware and practical solution for your project. Then, working alongside our highly experienced technical department, a bespoke specification package is created for your individual project. The technical manager will remain involved from initial design through to completion of roofing works on site, providing you with a single point of contact.

Technical Roof Design

Flat roofs can be perceived as simplistic in both their appearance and design, however there is a precision to the detailing that must be adhered to so that the solution remains watertight, endures and resists the elements, and stands the test of time.

Our technical department is highly proficient at interpreting multifaceted or complex designs to create bespoke details for all our waterproofing systems.

U Value and Thermal Bridging

Our team will determine the thickness of insulation required to meet current building regulations as well as ensure that the build-up thickness can be accommodated, that the imposed weight loading on the deck structure is acceptable, the compressive strength will meet requirements of the design, satisfy the acoustic performance needed and be compatible with other roofing components.

Thermal bridging, where heat transfers and is lost through vulnerable points, is minimised in our roof designs and we specify insulated accessories such as outlets and soil vent pipes to further eradicate cold bridging.

Air Leakage

To counteract air leakage, we design our roofs to minimise air permeability, and therefore heat loss, by ensuring the correct detailing and sealing of membranes.

Acoustic Performance

Our acoustically absorbent insulation will reduce noise pollution within the building by attenuating impact noises from rainfall radiating and reverberating through the building. Our technical team will work with you to achieve the performance levels required using our BauderROCK insulation, or a hybrid arrangement with the inclusion of PIR insulation to help reduce the height and weight of the completed roof construction.

Condensation Risk Analysis

The rising levels of insulation included in the roof design can often increase the risk of condensation within the building which can give rise to a range of problems from surface staining of internal finishes to long-term degradation of the structure.

Our assessment on condensation risk for the roof is in accordance with BS 5250 to eliminate any potential condensation problems from occurring in the roof construction.

Wind Load Design

These calculations are of paramount importance within the design of a flat roof to ensure the roof is appropriately secured to the building and able to withstand the anticipated levels of uplift.

Our calculations are based on the Eurocode and UK National Annex methodology for both mechanically fixed and adhered bituminous and single ply systems and we use specialist software to provide the reports.

Drainage Calculations

Roof designs using our outlets come complete with drainage detailing for the building so that water will drain quickly and effectively to clear the roof's surface as rapidly as possible either via internal rainwater outlets and downpipes or via external guttering systems or hoppers.

On receipt of the designer's catchment area figures we can calculate the appropriate Bauder outlet type and number based on BS EN 12056.

Safe Access

All flat roofs will have a requirement for a certain amount of pedestrian access, whether this is for maintenance of the roof and any rooftop plant or as a fire escape route. It is therefore necessary to design any flat roof to allow for safe access and our technical team will create the waterproofing details to accommodate the desired edge protection, mansafe system, and non-fragile rooflights.

NEW BUILD PROJECT SERVICE

Supporting you in the design of a new roof

For new build projects, any of our range of waterproofing systems can be used, with some systems lending themselves to a particular project depending on the design durability, cost and life expectancy.

We work on a one-to-one basis to ensure that the roof specification we generate for you meets the needs of the building and all project stakeholders.

Our technical managers are based nationwide and play a vital role in the success of every new build project from conceptual stage through to hand-over and sign-off of the Bauder installation.

LET'S WORK TOGETHER

WE WORK WITH YOU TO UNDERSTAND AND IDENTIFY

- Building type and usage.
- Drivers for construction and any planning constraints.
- Requirements for adding a green roof, blue roof or solar PV array.
- Building's design life.
- Useable roof space.
- Budget.
- Waterproofing system requirements.
- Funding opportunities available.
- Sustainability targets.
- Guarantee requirements.

YOUR ROOF SOLUTION

OUR SERVICE TO YOU DELIVERS

- Recommended waterproofing system for the building.
- Full design service for green roof, blue roof or solar PV with yield analysis.
- BIM objects.
- Comprehensive detailed specification.
- Thermal analysis and condensation risk calculations.
- Falls and drainage design.
- Wind load and restraint calculations.
- Detail drawings on all roof penetrations, abutments and edge finishes.
- Roof plans.
- Tapered insulation scheme and layout, where required.
- Inclusion of insulated outlets and soil vent pipes.
- Proposed rooflight structures and other rooftop accessories.
- Guarantee options.
- Recommended approved contractors.

Our turnkey service supports you, is without charge, and follows these six simple steps

Brief and Consultation
You give us your remit either at your office or on site. We will discuss the roofing project, your preferred system application, your budget and how the programme of works can be formulated.

Roof Element Proposal
Together we can determine which roofing system and specific build up will be optimal for each individual roof area on your new build project given the construction type, level of access and required performance.

Specification and Detail Design
You will receive the detailed specification package for your project, which answers your brief and meets the needs of the building. This will include detail drawings and all other relevant technical calculations.

Contractor Selection
The Bauder approved contractors best placed to deliver your new roof will competitively price and tender for your project. Our national network of contractors undergo a rigorous selection process and their installers are trained specifically in the application of our systems, so you are ensured an expert installation.

Installation of the Roofing Solution
Once the Bauder approved contractor has been appointed, a pre-contract meeting will make sure that the project delivery is well coordinated. The works are closely monitored by Bauder site technicians with regular inspections and reports to ensure quality and waterproof integrity of the roof.

Sign off and Guarantee
A full final inspection is completed on the works by our site technician team following stringent approval criteria before the guarantee is issued. Our guarantee packages can cover all elements of product, design and installation of the Bauder system.

REFURBISHMENT SERVICE

Reinstating the integrity of a flat roof

We understand that surveying a flat roof to determine its condition can often be challenging, especially when you cannot detect the extent of the issues present through a visual assessment. We can help you by performing technical roof diagnostics that pinpoint the location and levels of moisture within a failing roof, and provide you with all the information and support you need to deliver your flat roof assessment and refurbishment solution.

Roof Evaluation Service - Strip Up or Overlay

There are different options available for refurbishment; stripping up the failing system and replacing it, removing the damaged areas to partially strip the roof, or overlaying the existing system. All options have their benefits, and we can advise you as to which one is most suitable and cost-effective based on the results of your roof survey, which we carry out free of charge.

Our Refurbishment Technical Managers

The service you receive from us is a reflection of our years in the waterproofing manufacturing industry and the decades of working daily on roofs, understanding the issues, the challenges of water ingress and how they impact the building.

LET'S WORK TOGETHER

WE WORK WITH YOU TO UNDERSTAND AND IDENTIFY

- Building type and usage.
- Drivers for refurbishment, scopeof roof failure and any planning constraints.
- Need for additional scientific roof diagnostics.
- Requirement for waterproofing system's design life.
- Opportunities for adding a green roof or solar PV array on the useable roof space.
- Budget.
- Waterproofing system requirements.
- Upgrading insulation to meet building regulations and designer's requirements.
- Funding opportunities available for solar PV.
- Sustainability targets.
- Guarantee requirements.

YOUR ROOF SOLUTION

OUR SERVICE TO YOU DELIVERS

- Roof survey and plans.
- Condition of the existing roof covering and identification of water ingress.
- Recommended waterproofing system for the building.
- Full design service for green roof, blue roof or solar PV with yield analysis.
- Comprehensive detailed specification.
- Upgrade insulation solution.
- Tapered insulation scheme and layout, where required, for falls and drainage.
- Thermal analysis and condensation risk calculations.
- Wind load and restraint calculations.
- Detail drawings on all roof penetrations, abutments and edge finishes.
- Inclusion of insulated outlets and soil vent pipes.
- Proposed rooflight structures and other rooftop accessories.
- Guarantee options.
- Recommended approved contractors.

Our turnkey service supports you, is without charge, and follows these six simple steps

Brief and Consultation
You give us your remit either at your office or on site. We will discuss the roofing project and any historical problems with water ingress, the preferred system application, your budget and how the programme of works can be formulated.

Roof Survey
We will perform an honest and detailed appraisal of all roof areas to assess the current roof covering, insulation type, deck construction and design considerations. Additional technical roof diagnostics can further locate specific areas of water ingress.

Report, Design and Specification Service
You will receive the detailed survey condition report and the specification package for your project, which answers your brief and meets the needs of the building. Together we can then determine which solution best matches your requirements.

Contractor Selection
The Bauder approved contractors best placed to deliver your new roof will competitively price and tender for your project. Our national network of contractors undergo a rigorous selection process and their installers are trained specifically in the application of our systems, so you are ensured an expert installation.

Installation of the Roofing Solution
Once the Bauder approved contractor has been appointed, a pre-contract meeting will make sure that the project delivery is well coordinated. The works are closely monitored by Bauder site technicians with regular inspections and reports to ensure quality and waterproof integrity of the roof.

Sign off and Guarantee
A full final inspection is completed on the works by our site technician team following stringent approval criteria before the guarantee is issued. Our guarantee can cover all elements of product, design and installation of the Bauder system.

FLAT ROOF SURVEY

Identifying areas of concern

To provide a technical specification proposal for any refurbishment project, you first need to establish the existing roof build up and its condition. Our technical managers will carry out an in-depth roof condition survey where they will assess the current status of the existing roof coverings, structural design and thermal performance.

Establishing the Build Up and Condition

Carrying out core sampling provides information on the material construction of the roof waterproofing, insulation incorporated and deck type whilst also providing evidence where water ingress may have occurred. Core samples are taken at strategic locations on the roof to increase the chance of establishing the exact build up, whether there is tapered insulation present, to find entrapped water in the system and to establish consistency of the build-up on the entire roof area. This usually includes multiple core samples.

Core Sample Analysis

Although water ingress usually accumulates at the low points on a flat roof, it can also be found on the other areas, for example, when an existing roof area is found to contain tapered insulation, then the falls that are visible on the surface of the waterproofing are different to the falls under the tapered boards. This can lead to water accumulation in unexpected locations. Our trained technical mangers will give guidance on this during the survey.

Photographic records of each core sample are taken and used within the finished report for visual evidence and clarification of the located.

The process for the sample taking is:

1. The locations to be sampled are identified. Samples will be taken at high and low points of the roof area.
2. Each core sample is taken by removing an area of the waterproofing, typically 10x10cm to reveal the layers of the build-up down to the deck.
3. Roof layers are recorded for the report and the deck type noted, along other noticeable conditions.
4. The presence of any water within the roof layers is detailed and photographed, and the moisture levels within the insulation measured with a moisture meter.
5. Once the build-up has been photographed and recorded the materials are repositioned and covered with a self-adhesive, liquid applied or heat applied patch to fully seal the trial space.

ROOF SURVEY REPORT

Once all of the information from our roof survey has been collated, our technical managers produce a bespoke survey report. The depth of information in the report can vary based on the client's requirements and nature of what the report is to be used for.

All reports will confirm the findings from the core samples taken and the condition of the roof build-up at the point that the sample was taken. The content of the survey report would then normally encompass:

- The deck
- Existing waterproofing
- Falls
- Drainage
- Upstands and details
- Rooflights
- Plant and equipment
- Associated works

The survey report would then conclude with a roofing system proposal based on the client's requirements and to conform to current regulations. A budget price for the proposed roofing works can also be included, together with health and safety information.

Should the report be required in a specific format or for an explicit reason i.e. funding, then we will strive to accommodate the content and the format. A typical example of this is for academy school funding bids where the format and the volume of content is regulated.

Our survey reports and specification proposals are also supported by technical calculations, which include U value and condensation risk analysis, wind loading calculations, drainage calculations etc.

In addition to the invasive testing of the roof through core samples, we are also able to provide non-invasive testing of roofs utilising our Troxler moisture gauge and thermography - more in-depth information provided on the following page.

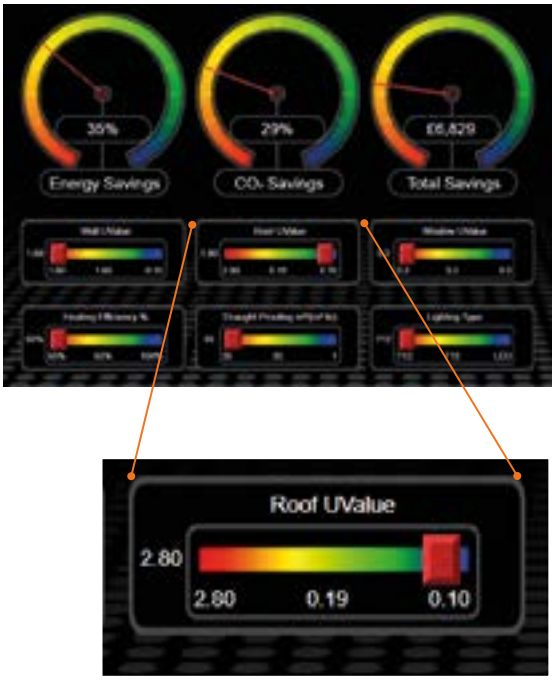
Energy Loss Assessment

Complementing the advanced surveying techniques Bauder can also provide information relating to energy loss though the existing roofing system and give calculated estimates of the energy gains when the insulation is upgraded or replaced with new Bauder insulation.

Using bespoke software, we can provide an estimate of the actual cost saving along with carbon reduction figures and a total energy percentage saving per year.

The software can also be used to estimate energy loss through saturated insulation due to long-term water ingress. When used in conjunction with our moisture mapping service this can be very useful to determine the pay back on the clients investment when upgrading or replacing insulation.

Additionally this software is also used to give cost benefits when the Bauder Solar Photovoltaic System is incorporated within the new proposal. This provides up front guidance on the payback period and expected gains from the new PV system and upgraded insulation.



Project Carbon Dashboard

The original 2000m² roof was uninsulated and only achieving a UValue of 2.8, using the energy loss software we can indicate that by upgrading the roof with an insulated solution to achieve a new UValue of 0.19 estimated annual savings can be gained, as shown on the dials.

ADVANCED SURVEY TECHNIQUES

Scientific roof diagnostics to pinpoint areas of entrapped water

Technical roof diagnostics reports enhance our flat roof survey by verifying the levels and locations of moisture within existing waterproofing systems.

The readings from the testing methods give objective information about the true condition of a roof, eliminating conflicting opinions and advice so that sound decisions can be made on the roofing options without conjecture.

Advantages: Technical Diagnostic Report

- Decisions for roof repair are based on accurate, scientific information rather than assumptions and opinions.
- Precise roof areas are pinpointed for specific remedial action.
- Detailed scope of works ensures that remedial work is only carried out on essential areas.
- Saves money by eliminating unnecessary removal of existing waterproofing which, in turn, reduces waste and disposal of the existing roofing system that have the potential to be overlaid.
- Provides enhanced cost data at an early stage.

MOISTURE MAPPING

Moisture mapping is suited for all roof structures, including those with multiple layers of insulation and previously overlaid waterproofing systems.

Measurements are generally performed in a two metre grid pattern that is plotted on a scaled drawing of the roof. Once readings at all grid points have been recorded, software is used to create a precise moisture map of the roof area and its condition.

The report identifies areas of dry and moisture impeded insulation so that the suitable recommendation can be made and that remedial work is only carried out on essential areas through partial or isolated removal of damaged roof areas rather than a full removal of the entire existing system. The report also identifies if the waterproofing is sound enough to be overlaid entirely without damaging levels of water becoming trapped. This comprehensive analysis enables accurate costings to be put forward for budget certainty.

Moisture Mapping Key Features

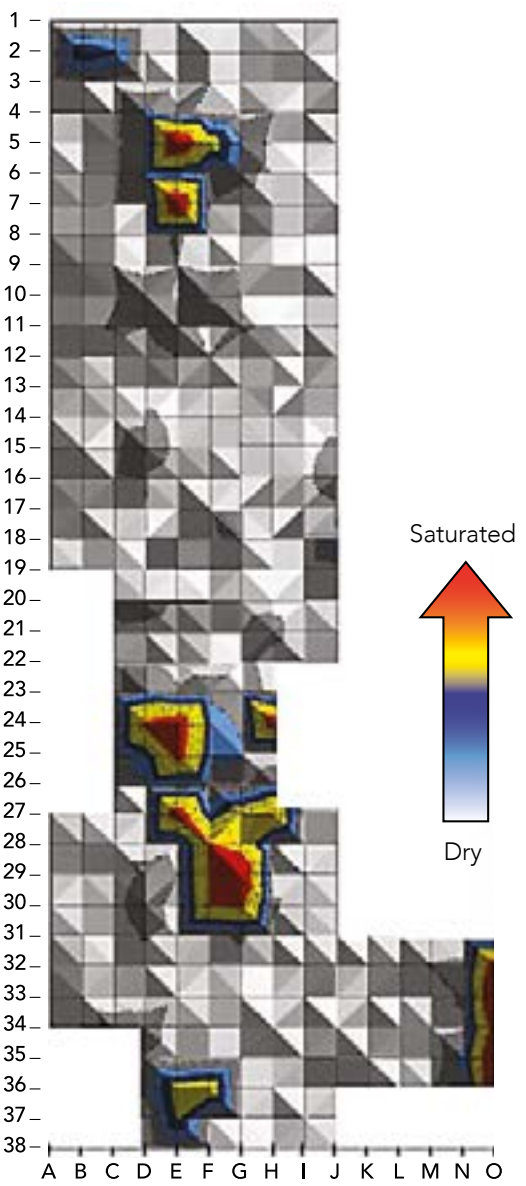
- Identifies moisture in multiple layers of insulation and waterproofing.
- Non-destructive testing of the whole roof.
- Suitable on all types of flat roofing.
- Very reliable and accurate results.
- Unaffected by temperature differential due to solar gain.
- Can be undertaken during the day.

Outline Moisture Mapping Report

The moisture mapping survey on this project (histogram on facing page) comprised 561 gauge readings, with readings ranging from 20-72 recorded.

Four core samples were cut; the first at a low point on the roof at grid reference **e7** where a gauge reading of 125 was recorded and the waterproofing system was found to contain saturated 20mm thickness cork insulation with the underlying first layer of 12mm fibreboard insulation being wet and the lower layer of fibreboard insulation being dry.

The second core sample was cut at low point grid reference **g15** where a gauge reading 34 was recorded and the varying waterproofing system components were all found to be dry. The third core sample was cut at high point grid reference **f27** where a gauge reading 48 was recorded and the waterproofing system was found to contain damp 140mm thickness cork insulation with a layer of standing water under the cork. The fourth core sample was cut at low-midpoint grid reference **d4** where a gauge reading 42 was recorded. The waterproofing system was found to contain damp 50mm thickness cork insulation with the underlying first layer of fibreboard being dry but in a powder format due to having previously been wet. The final layer of fibreboard insulation was found to be dry and in a good stable condition.



Analysis of Data Readings

Using the results, all readings 18-40 showed the waterproofing contained very little moisture, readings with the higher values being associated to changes in the waterproofing materials and not to moisture ingress.

Readings of 41 and above contain varying levels of moisture which rise in line with the increasing gauge readings.

Conclusion and Recommendations

The readings show that the existing built-up bituminous waterproofing system contains several localised areas of moisture where the cork and top 12mm fibreboard contain varying levels of moisture that should be removed and replaced with new dry products prior to installation of the proposed overlay system.

There is no requirement to remove the entire existing waterproofing.

Project Study - Moisture Mapping

The roof on the Hotter Shoes' head office and manufacturing facility in West Lancashire had exceeded its serviceable life and was experiencing significant water ingress.

The roof was surveyed and moisture mapped to identify the extent and locations of water ingress. The solution was to partially strip the existing roof system and overlay with a two layer bitumen membrane solution. The partial strip allowed for an installation that was carried out whilst allowing the factory to remain fully operational throughout.

Andy Glover, Health Safety & Facilities Manager at Hotter Shoes *"The readings from Bauder's moisture mapping survey provided us with objective information and a visual representation of the exact condition of the roof; enabling us to take the best remedial action and save money in the process. The resulting overlay solution was expertly installed, without causing any disruption to ongoing work at our facility. We are delighted with our refurbished roof and the expert technical support we received throughout."*

APPLIED PRODUCTS

- The Bauderflex System is a highly rated bituminous waterproofing system with membranes that are resistant to high levels of structural and thermal movement.
- Bauder rooflights are fully compatible with all Bauder waterproofing systems and hold BBA certification.

BUILDING BOARD

Project:	**Hotter Shoes**
Location:	**Skelmersdale, West Lancashire**
Roof Area:	**12,500m²**
Specifier:	**Gray Scanlan Hill**
Contractor:	**BBR Roofing**

TAPERED INSULATION SCHEMES FOR ROOF FALLS

Creating effective roof drainage

It is generally considered good practice for flat roofs to be designed to clear surface water as rapidly as possible. According to BS 6229 & BS 8217, flat roofs should be designed with minimum falls of 1:40 to ensure a finished fall of 1:80 can be achieved, allowing for any inaccuracies in the construction.

Falls in the roof structure can be achieved by adjusting the height of the supporting beams or purlins, by using tapered supports, or by the addition of firring pieces before the deck is laid. In the case of a cast in-situ concrete slab, falls are normally provided by use of a screed. However, many roofs are being designed with the falls created using tapered insulation which reduces construction costs considerably. Having no falls is not recommended with the exception of some ballasted roofs where back falls must be avoided.

Tapered insulation is a lightweight, convenient and cost effective method of providing falls to the roof. The tapered schemes are quick to install and as the insulation and falls are applied in a single operation, site times are greatly reduced.

Advantages of Tapered Insulation

- Reduced costs and installation time particularly compared to screed to falls where drying time is a significant factor.
- Greater flexibility where complex fall configurations are required.
- Reduced weight, particularly when compared to cement screeds.
- Can be retrofitted on an existing building where drainage falls are insufficient.

Tapered Scheme Design Service

Our technical department will design the bespoke tapered insulation scheme in accordance with the latest building standards; BS 6229:2018 for falls on flat roof surfaces, and BS 5250 for control of condensation in a building. This team can also provide bespoke U-value calculations in accordance with BS 6946 Annex E (Calculation method) to confirm the thickness required and/or U value achieved and will also provide a layout design service to aid installation on site.

LET'S WORK TOGETHER

WE WORK WITH YOU TO UNDERSTAND AND IDENTIFY

- Roof area, shape and size, dimensions of roof features such as rooflights, and any overhanging roof areas.
- Where falls are to be designed and the drainage aspects.
- Height restrictions at roof details.
- Location of rooftop plant and equipment.
- Any backfalls on a current roof or new slab.
- Condensation risk from any existing insulation identified above or below the deck.
- Required U Value to meet building regulations and the designer's requirements.

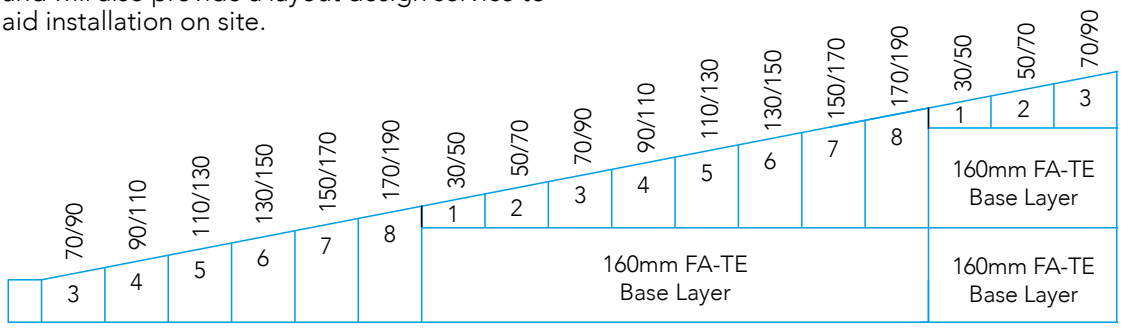
YOUR ROOF SOLUTION

OUR SERVICE TO YOU DELIVERS

- Roof survey for refurbishment projects with detailed roof plan.
- Preliminary design, if required, for maximum heights and budget costs.
- Full layout of final
- Direction and gradient of falls.
- U-Value the tapered scheme will achieve.
- Thermal bridging resolution.
- Type of insulation to satisfy warm inverted roof construction.
- Weight loading of the scheme.

Multi-Layered Schemes

The tapered boards are used in a step-and-repeat manner when multi-layered designs are required. In these situations the BauderPIR FA-TE 160mm foil-faced boards are used to form the required base layer beneath the tapered boards, see below.



Ridge Image and Thickness Dimensions

Valley Image and Thickness Dimensions

The BauderPIR FA Tapered Insulation is faced on both sides with black aluminium foil to increase thermal efficiency and is available in various thicknesses to achieve the required fall and the desired thermal requirements. The patent-pending unique ridge and valley infill boards are combined in conjunction with the Bauder FA Tapered boards to simplify the scheme and installation.

Most tapered schemes will use a 3-board, 70-90mm, at its lowest point, to meet thermal requirements under building regulations.

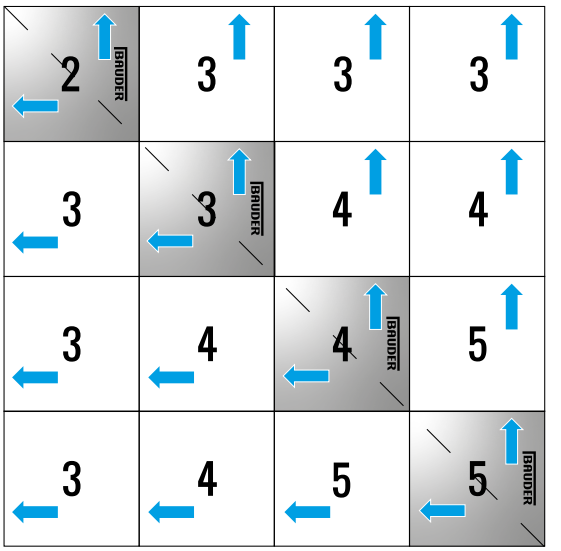
The FA Tapered Boards

The tapered boards are numbered 1-8 for ease of installation, are 1200 x 1200mm with a 1:60 gradient on each board, and span in height from 30mm at the front edge of a 1-board to 190mm at the back edge of an 8-board.

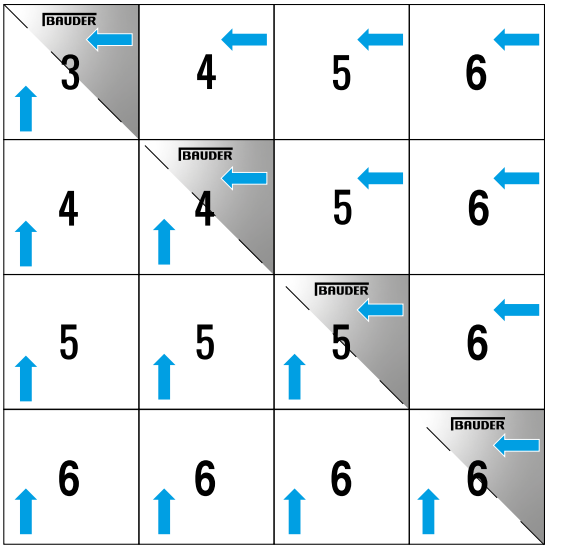
Ridge and Valley Solution

The unique ridge and valley infill boards are used in conjunction with our tapered boards to simplify the scheme and installation.

The Ridge Infill pieces split the direction of falls so that the water can run off the roof in opposing directions.



The Valley Infill pieces ensure the water can run off the roof in one direction.



GREEN ROOF DESIGN

Achieving the green roof you envisage

There are fundamental principles that apply to the design of a green roof, regardless of the proposed landscaping, location or climate. The specified solution must replicate nature within the build up and be able to support the desired vegetation.

Our design team can support you through all the considerations when configuring a green roof for your project. We will assist you from the conceptual stage in developing a practical solution which will be cost-effective whilst also delivering long-term performance.

Designing to protect the building's construction and flat roof waterproofing is vital when delivering a green roof as many additional forces can affect the structure. Green roofs are installed on roof pitches ranging from 1° to around 30°. Fundamentally it's about finding the balance between requirements for water storage, drainage and irrigation; sufficient depth of growing medium to support the intended vegetation and weight loading levels; as well as meeting the regulatory needs for construction, fire, safe access and the duty for maintenance.

Our Green Roof Design Service

Our complete green roof design service encompasses initial design advice on waterproofing or landscaping related issues through to a detailed and comprehensive specification package supplied in National Building Specification (NBS) or BIM format.

The Bauder Green Roof Promise

Our Green Roof Promise links with our Maintenance Agreement to ensure the continuous health of the Bauder supplied vegetation and that all aspects of the green roof remains healthy and established with the appropriate vegetation.

These documents are bound together and work in unison to give clients peace of mind, knowing that the entire green roof is in safe hands.

LET'S WORK TOGETHER

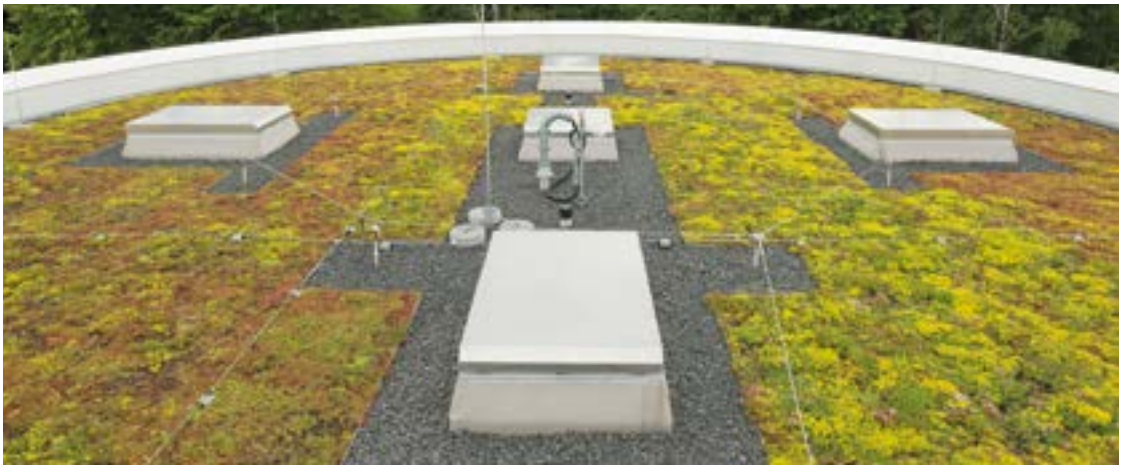
WE WORK WITH YOU TO UNDERSTAND AND IDENTIFY

- Why the green roof is required and what performance is expected.
- Landscape finish to be achieved.
- Levels of access required for the roof.
- Planning constraints.
- How to meet a Biodiversity Action Plan, where required.
- Project location, climate and roof size.
- Loading limitations.
- Levels of rainwater retention or irrigation requirements to support the vegetation.
- Drainage for the roof.
- Budget.
- Ongoing maintenance requirements.

YOUR ROOF SOLUTION

OUR SERVICE TO YOU DELIVERS

- Recommended waterproofing system beneath the green roof.
- Combination of green roof components for water storage and drainage, protection layers.
- Substrate depth and type required.
- Vegetation proposal and planting scheme for extensive and biodiverse roofs.
- Irrigation requirements.
- Weight loading of the system.
- Wind uplift resolutions.
- Ongoing maintenance programme or management plan.
- Specification complete with compatible waterproofing system, green roof layers and landscaping.



BLUE ROOF DESIGN

Creating rooftop SuDS for stormwater management

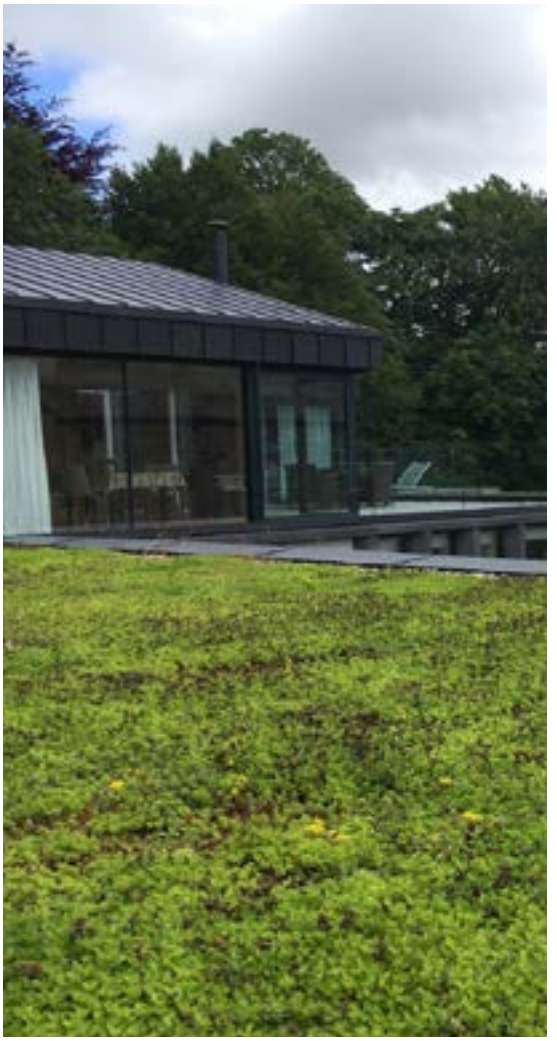
Fundamentally, a blue roof is a sustainable urban drainage solution (SuDS) designed to attenuate storm water at roof level, slowing down the release of rainwater in to the drainage system. The principle of SuDS is to try and replicate the natural drainage pattern prior to construction.

Bauder Blue Roof Design Service

By the nature of how a blue roof needs to perform and the weight loading implications, the design can create many challenges for the architect as it will require careful consideration and specialist calculations for it to be a success.

The calculations for drainage requirements are a specialist discipline and should only be carried out by a specialist. We produce roof specific discharge reports for the blue roof specifications we are engaged with.

We will work with the client, architect and drainage engineer to provide a single point solution for the waterproofing, blue roof and green roof layers, and guarantee. Our specialist report and calculations will determine the most effective scheme for the project.



LET'S WORK TOGETHER

WE WORK WITH YOU TO UNDERSTAND AND IDENTIFY

- Project's roof size.
- Allowable site rainwater discharge rate.
- Planning constraints.
- Maximum attenuation volume on the roof.
- Geographical location.
- Inclusion of emergency overflows.

YOUR ROOF SOLUTION

OUR SERVICE TO YOU DELIVERS

- A detailed report.
- Appropriate form of waterproofing.
- Specialist calculations to determine the most effective scheme for the project.
- Roof discharge report.
- 1:100 year storm profile for the roof (+40% factor for limate change).
- Number of outlets required, complete with an assigned number of control holes, restricting the flow of water in line with the discharge rate for site.
- Maximum attenuation volume of the roof.
- The depth of void required on the roof on to which any landscaping finish can be installed (referred to as the H-Max).
- Detailing for the blue roof including the flow restrictor outlets and emergency overflows.
- Specification for the project complete with compatible waterproofing layers, blue roof system and landscaping/green roof layers.

DESIGNING SOLAR PV ARRAYS FOR FLAT, GREEN AND BLUE ROOFS

Roofs to provide energy generation

A flat roof is often a wasted resource and unlikely to be shaded which makes it the ideal location for a PV array. Large commercial or public buildings can often have flat roofs and anm energy profile to maximise benefit from a Solar PV array. Additionally, most flat roofs are not at eye level and so the PV array is generally hidden from view at street level.

Solar PV and BioSOLAR Design Service

Successfully designing and delivering a PV system can be a complicated process and our team of dedicated solar PV specialists, area technical managers and roof technicians can help you every step of the way.

Our service assists designers and specifiers on new build and retrofit refurbishment projects, as our solar PV systems are suitable for both scenarios

LET'S WORK TOGETHER

WE WORK WITH YOU TO UNDERSTAND AND IDENTIFY

- Drivers for solar PV installation.
- Building's energy consumption.
- Useable non-shaded roof space.
- Budget.
- Waterproofing system requirements.
- Funding opportunities available.
- Meeting planning constraints.
- Energy generation requirements.

YOUR ROOF SOLUTION

OUR SERVICE TO YOU DELIVERS

- A detailed PV specification package.
- Proposed waterproofing system.
- Array layout roof plan.
- Number of panels and their orientation.
- System output.
- Carbon saving.
- Wind load calculations.
- Inverter sizing and specification.
- Full electrical design.
- Grid application assistance.
- Budget costing.
- Information on funding options.
- Green or blue roof integration and vegetation scheme for BioSOLAR installations.

Our turnkey service supports you, is without charge, and follows these six simple 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 benefits from your 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.

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.

INSTALLATION EXPERTISE

Delivering a first-rate roof

Design and quality of the roofing materials contribute greatly to the performance of a flat roof, as well as the quality and experience of the installer. You can be assured that the waterproofing, PV, green roof, and blue roof will be of the highest standard as we only allow trained and certified Bauder approved contractors to install our roofing solutions.

Approved Contractors

Our approved contractors are evaluated to ensure the company possesses the technical expertise required and organisational facilities to manage and maintain an efficient and well-run site.

We look to build strong relationships with our approved contractors by providing them with training, support and expert advice in order to deliver a high-quality roof installation.

Certified Installers

Excellent workmanship is crucial to the guarantee that accompanies Bauder installations and so we have always operated a policy to train and approve the individual installer, and not simply the contracting roofing company.

Each operative installing our systems receives individual tuition, both in-house and on-site, and following successful assessment receives an identity badge providing proof of competence. We also provide upskilling and refresher training as and when product or method improvements occur.

Our site technicians check the ID and approval status of all operatives installing our systems on site using our Bauder App.

Training

Our head office has full training facilities for green roof and solar PV solutions as well as for all our waterproofing systems. We are approved to offer the following Basic Competency Programme (BCP) training which is a gateway for achieving NVQ Level 2.

- RBM systems.
- Single ply systems.
- Cold liquid applied and hot melt systems.

Installation Monitoring

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 concise reports on how the works are progressing, including confirmation of issues or actions required.

Our site technician team provides national coverage ensuring all our sites receive the attention they deserve. The team support installers with practical and specialist technical knowledge. Whether it is helping to resolve installation or detailing challenges they are available to help and provide guidance.

Installation and Completion of a Green or Blue Roof

A full inspection sign-off on the waterproofing takes place on the completed waterproofing, prior to the installation of any green roof components, blue roof void forming products, or any landscaping.

This confirms that the installation of the waterproofing system is in accordance with our recommendations and specification and meets the criteria for guarantee.

GUARANTEED QUALITY

Comprehensive package your projects

Your new completed roof 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 roof.

Unlike others in the market, Bauder offers a full range of guarantees that match the building's and your requirements to give complete satisfaction. We issue our guarantees 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.

Guarantee Cover Options

- Products supplied by Bauder.
- Workmanship of Bauder products installed 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.