ALUMASC ROOFING

Sustainable
Roofing Solutions

www.alumascroofing.com

Contents

Alumasc Group plc have received London Stock Exchange's Green Economy Mark, recognising Alumasc's contribution to the global green economy.

CONTENTS

Reducing the Impact of Construction on the Climate

The construction sector is responsible for 39% of global energy-related carbon emissions, with approximately 28% produced by building operations such as heating, cooling and power.[1] These emissions continue to rise, making climate goals harder to reach.

By 2060, global floor area is expected to double.[2] This means billions of square metres will be built well before the 2050 net zero deadline, highlighting the need for more sustainable approaches across the industry.

To meet this challenge, the industry must embrace low-carbon solutions and sustainable systems. Alumasc Roofing is helping to drive this shift, delivering products and systems that address climate impacts and support a more resilient built environment.

[1] Source: World Green Building Council, Embodied Carbon.
[2] Source: World Green Building Council, What is a Sustainable Built Environment.

- Stormwater Management
- Green Roof Solutions
- Solar PV Systems
- Bituminous Membranes
- Hot Melt Waterproofing

INTRODUCTION

Heavy Rainfall & Flooding

Climate change is driving an increase in the frequency and intensity of storms, bringing heavier rainfall and greater risk of flooding across urban environments. Hard landscaping and impermeable surfaces reduce natural infiltration and often leave conventional drainage systems unable to cope with rapid surges in stormwater.

The Alumasc Bluroof system is engineered to mitigate flood risk by attenuating stormwater via controlled discharge over a 48-hour period at roof level.

Blue Roof Design

Blue roof design is tailored to the unique requirements of each project, taking into account the size and complexity of the building. This ranges from simple areas with limited access and loading restrictions to more complex podium zones that must support heavy loads such as fire tender access.

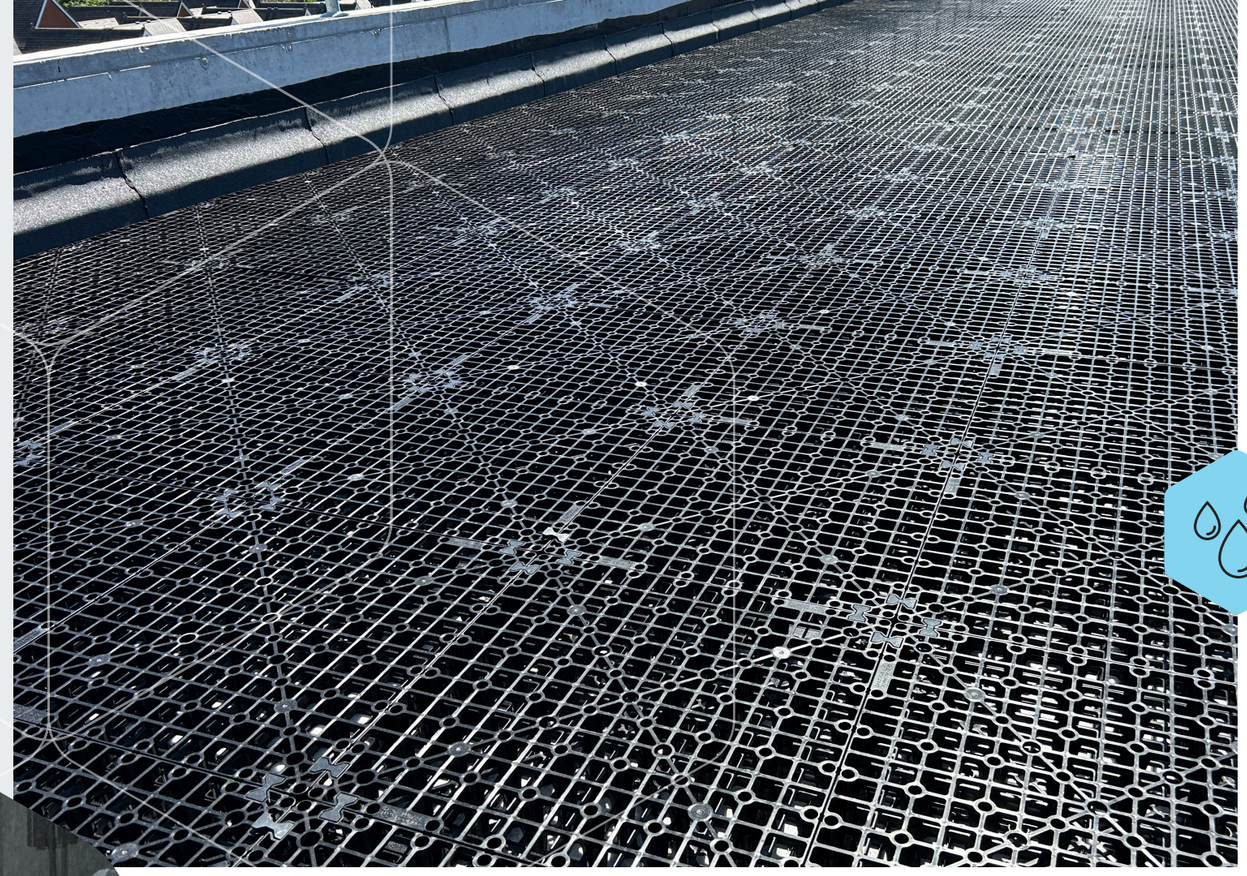
Each design is guided by key stormwater planning factors, including geographical location, building orientation, and performance needs like varying discharge rates and provisions for climate change.

At Alumasc, we offer a complete design service, providing detailed reports that clearly show how our blue roof solutions meet the specific SuDS requirements of your project.

- Analysis is typically based on 1-100 year risk + 40% climate change
- Area of roof contribution and actual storage area
- Rainfall data models used: Flood Estimation Handbook (FEH)
- A series of storm duration from 5 minutes to 48 hours are analyses to determine the critical duration which will result in the maximum volume of storage
- Rainfall is attenuated for no more than a 48hr period
- Retention volume is to be at least half empty in a 24hr period

Surcharge

To protect roof integrity, every blue roof design includes sufficient overflow capacity. In the event of extreme rainfall exceeding design parameters or operational blockages, overflow occurs instantaneously once the predetermined maximum volume is reached. This ensures that the roof remains safe and structurally sound under all conditions.



Structural Loading

The additional loads imposed by a blue roof are directly related to the maximum specified water depth, a key design parameter that can be adjusted to meet both the hydraulic performance requirements and the structural capacity of the roof. The Alumasc Bluroof system is designed to accommodate extra loads from heavy plant, vehicle access or maintenance on podium decks, using varying void former volumes and loading capacities. These components are integrated into the design to reduce roof penetrations and maintain the integrity of the waterproofing.

Waterproofing

Effective attenuation relies on robust waterproofing. Only third party British Board of Agrément certified waterproofing systems approved for use with blue roofs should be specified. These include our Derbigum reinforced bituminous membrane and Hydrotech 6125 hot melt.

Our Bluroof system is a fully warranted waterproofing and sustainable drainage solution that plays a vital role in managing key risks and achieving the objectives associated with this type of system.

Did you know?

Green roofs also reduce flood risk by retaining and storing rainfall, which slows surface runoff and lowers demand on urban drainage systems. When integrated with a blue roof design, they provide additional stormwater attenuation and temporary storage capacity, improving overall water management.

Urban Heat Island Effect

The urban heat island effect is a phenomenon where urban areas experience higher temperatures than surrounding rural locations. It occurs as a result of human activity and the built environment, where hard surfaces such as concrete and asphalt absorb and retain solar radiation. Densley populated city areas can be up to 12°C warmer than the surrounding countryside.[3]

Green roofs play a critical role in reducing the Urban Heat Island Effect by naturally cooling buildings and their surroundings through the process of evapotranspiration, in which plants and substrates release moisture into the atmosphere, lowering ambient air temperatures and improving local microclimates.

Vegetation and substrate layers absorb less solar radiation than materials such as concrete or asphalt, minimising surface heat gain and acting as a thermal insulation layer, reducing the amount of heat absorbed by the building. This helps maintain comfortable indoor conditions and lowers energy demand for cooling during warmer periods.

When designing a green roof, it is important to first determine the type based on the intended objectives, as this will influence the underlying component build-up, its weight and depth.

Alumasc Roofing provides fully integrated green roof systems designed to meet a wide range of project and environmental goals. Available in extensive, extensive biodiverse, semi-intensive, and intensive configurations, each system is engineered to address key design considerations such as biodiversity targets, structural loading, aesthetics, and maintenance needs.

The waterproofing layer and its suitability for use within a green roof system must be assured. Only third party British Board of Agrément certified waterproofing systems approved for use in green roof applications should be specified, such as our Derbigum reinforced bituminous membrane, Hydrotech 6125 hot melt, Caltech cold-applied liquids, and Aluply single ply membranes.

Did you know?

When combined with biosolar systems, such as our Bio-Solacell range, the roof also benefits from additional shading provided by the solar panels. This reduces surface heat absorption while simultaneously producing renewable energy for the building.

[3] Source: The UK Green Building Council, How the urban heat island effect makes cities vulnerable to climate change.

Loss of Habitats & Biodiversity

Urbanisation and infrastructure development continue to drive the decline of natural habitats. As built environments expand, the replacement of green spaces with impermeable surfaces fragments habitats and reduces species resilience.

To address this decline, Biodiversity Net Gain (BNG) legislation, introduced through the Environment Act, requires that any lost habitat is restored to its original ecological value, with an additional 10% net gain delivered either on-site or at an approved alternative location. These principles align with BREEAM assessment criteria, which reward developments that enhance ecological value and promote sustainable site design

Extensive Green Roofs

Extensive green roofs feature a shallow substrate and hardy, drought-tolerant vegetation such as sedum. Designed for environmental performance, they create valuable habitats within limited roof spaces, enhancing ecological diversity and improving surface water management.

Extensive Biodiverse Green Roofs

Extensive biodiverse green roofs are designed to promote biodiversity through planting and habitat features. With undulating substrate depths of 150-180mm, they support a wider range of species, creating dynamic ecosystems and strengthen local ecological networks.

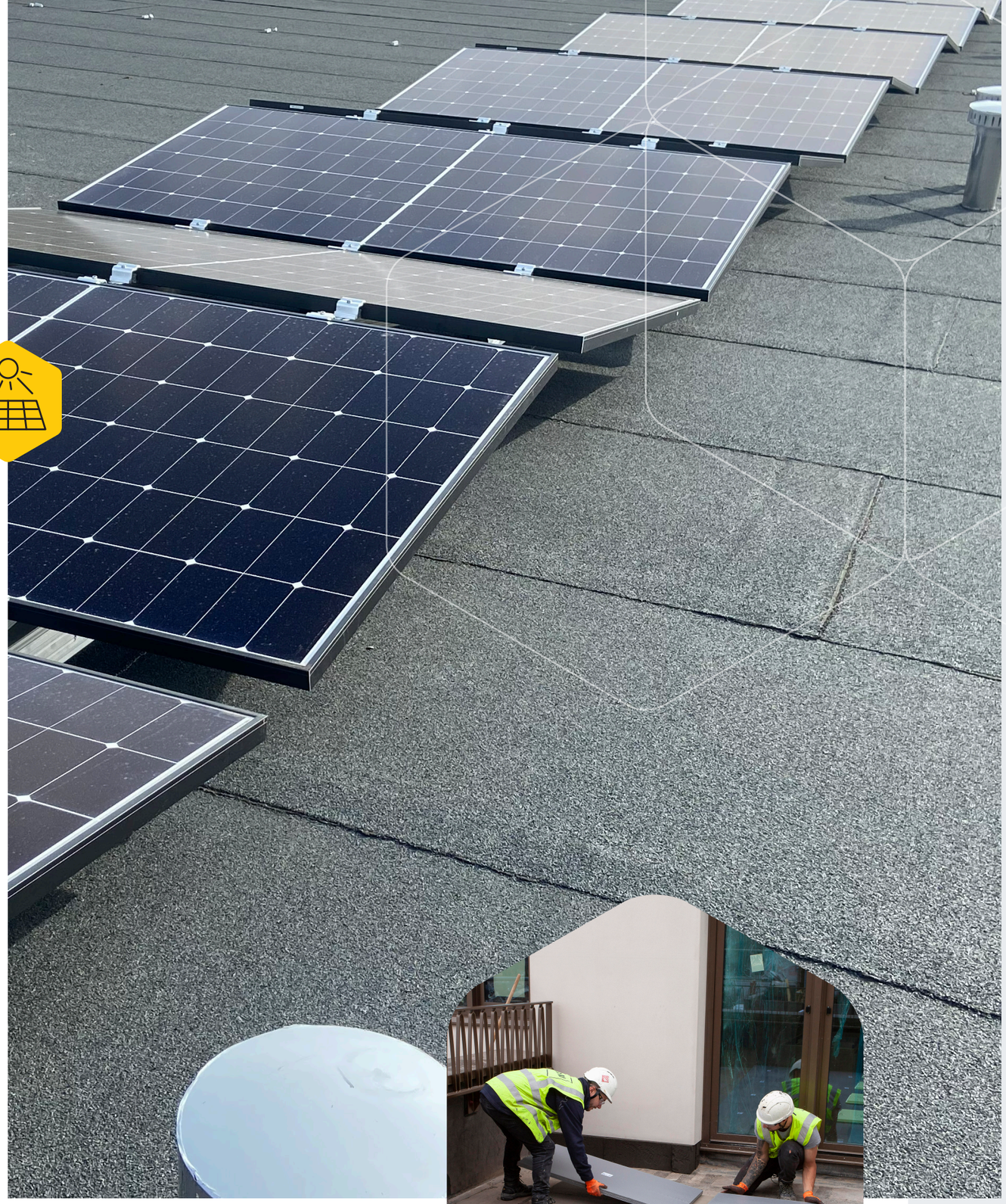
Semi-Intensive Green Roofs

Semi-intensive green roofs feature a deeper substrate layer to support a wider range of planting, including grasses, wildflowers, and herbaceous species. These systems combine visual interest with ecological value, providing a balanced solution between low-maintenance extensive roofs and more landscaped intensive designs.

Intensive Green Roofs

Intensive green roofs are designed for recreational use, incorporating lawns, shrubs, trees, and hard landscaping elements. These systems require deeper substrates and increased structural loading capacity to support both the planting and regular pedestrian access.

ADDRESSING CLIMATE IMPACTS



Energy Efficiency

Improving energy efficiency is one of the most effective ways to reduce carbon emissions across the built environment. The energy required for heating and cooling buildings remains one of the largest contributors to operational carbon.

As energy demand continues to rise due to population growth and urbanisation, the need for well insulated, high-performance buildings is now central to sustainable design. Enhancing thermal efficiency and integrating renewable technologies are key measures in reducing energy use and supporting net zero targets.

Insulating Buildings

Insulation selection will vary depending on whether the roof is constructed as a warm or inverted system, as well as the building use, specific project requirements, and the thermal performance standards set out in Part L of the Building Regulations.

In warm roof systems, insulation is installed above the structural deck and encapsulated within the waterproofing. Boards can be mechanically fixed or bonded, with types selected to suit the waterproofing system and project performance requirements.

In inverted roof systems, insulation is installed above the waterproofing and secured with ballast or a chosen surface finish, such as paving, a green roof, or a biosolar PV system. A Water Flow Reducing Layer (WFRL), in accordance with BS 6229, is included to limit water movement around the insulation and improve overall thermal performance.

Upgrading Insulation on an Existing Roof

Upgrading insulation during roof refurbishment enhances thermal efficiency, minimises heat loss, and ensures compliance with current Building Regulations. Careful detailing is essential to reduce thermal bridging at junctions and perimeters.

Alumasc Roofing provides a full range of insulation solutions, including fire-rated options, for warm and inverted roofs. Each solution is fully compatible with Alumasc waterproofing systems and designed to deliver long-term performance. As part of the specification service, Alumasc provides U-value calculations, energy assessments, and ongoing technical support throughout the project.

Incorporating Solar PV Systems into the Roof Design

Flat roofs provide an ideal platform for solar PV systems, enabling on-site generation of renewable electricity. Integrating PV technology into roof design reduces grid dependency, supports net zero targets, and lowers operational energy costs. When combined with energy efficiency measures, solar PV provides a practical way to achieve or exceed Part L standards.

Solacell and Bio-Solacell non-penetrative PV mounting systems are designed to maintain the integrity of the underlying Alumasc waterproofing system. Both are compatible with most deck types, subject to structural load assessment.

The Bio-Solacell system integrates photovoltaic modules within biodiverse or extensive green roofs, combining renewable energy generation with green roof functionality. The shade-tolerant vegetation helps lower ambient temperatures around the panels, enhancing efficiency while supporting biodiversity and habitat creation. This design enhances sustainability and contributes to potential BREEAM credits.

Carbon Footprint

As the construction industry moves towards net zero, reducing the carbon footprint of roofing systems is a key consideration in specification. Both embodied and operational carbon are important factors to consider across the roof's lifecycle, from material sourcing through to long-term performance.

Alumasc Roofing provides Environmental Product Declarations (EPDs) for its waterproofing systems, ensuring transparency in material lifecycle performance. Within the range Derbigum Olivine and Derbigum NT are specifically engineered to minimise environmental impact through recycled content and carbon-neutralising properties.

Derbigum Olivine

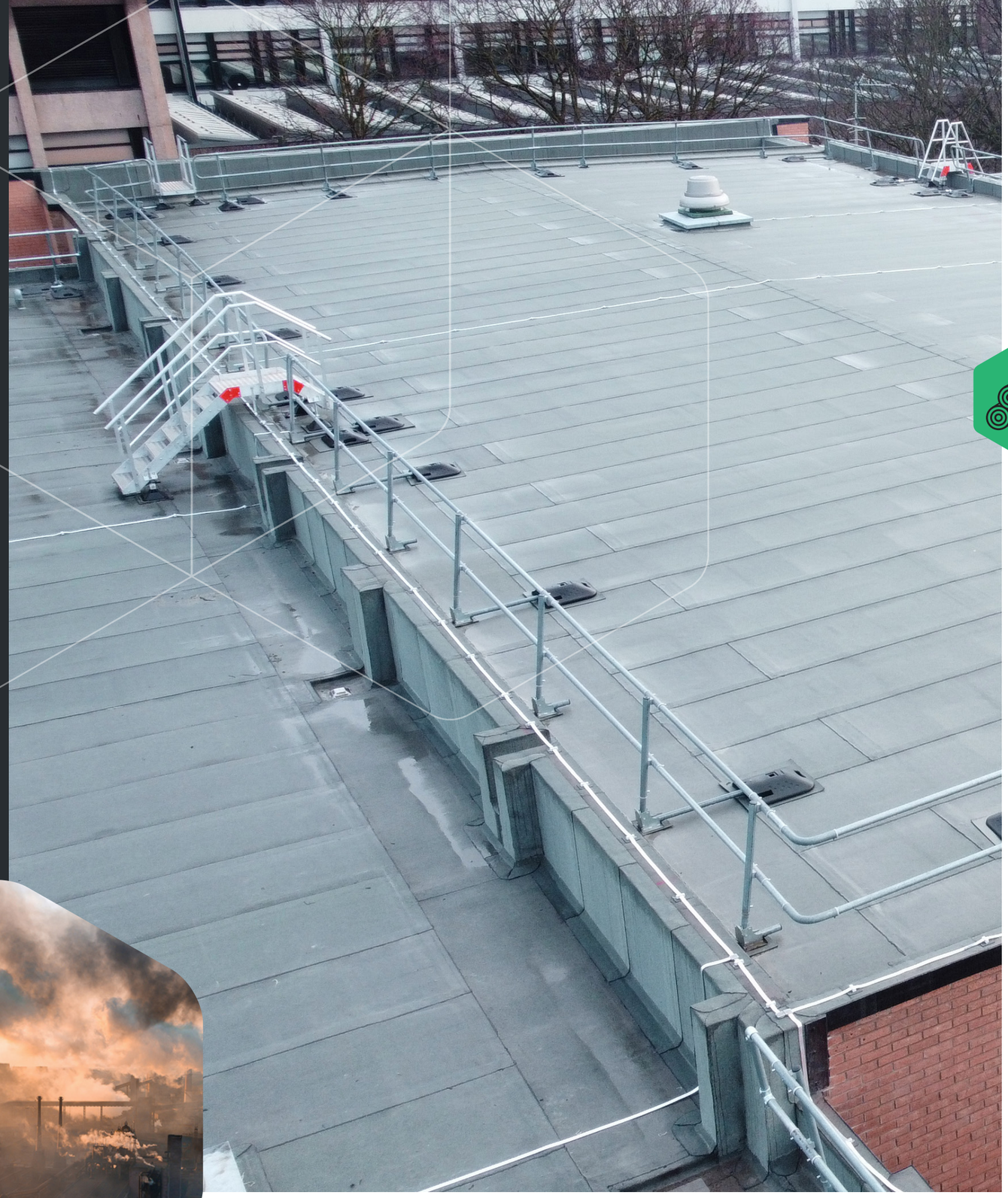
Utilising depolluting roofing systems such as Derbigum Olivine helps reduce a building's carbon footprint. Derbigum Olivine features a natural mineral surface that neutralises carbon dioxide via an irreversible chemical reaction when it comes into contact with rainfall. The membrane contains 1.4 kg/m^2 of olivine, providing the capacity to neutralise approximately 1.75 kg CO_2/m^2. Manufactured using 100% green electricity, Derbigum Olivine is BBA certified with a proven service life exceeding 50 years.

Derbigum NT

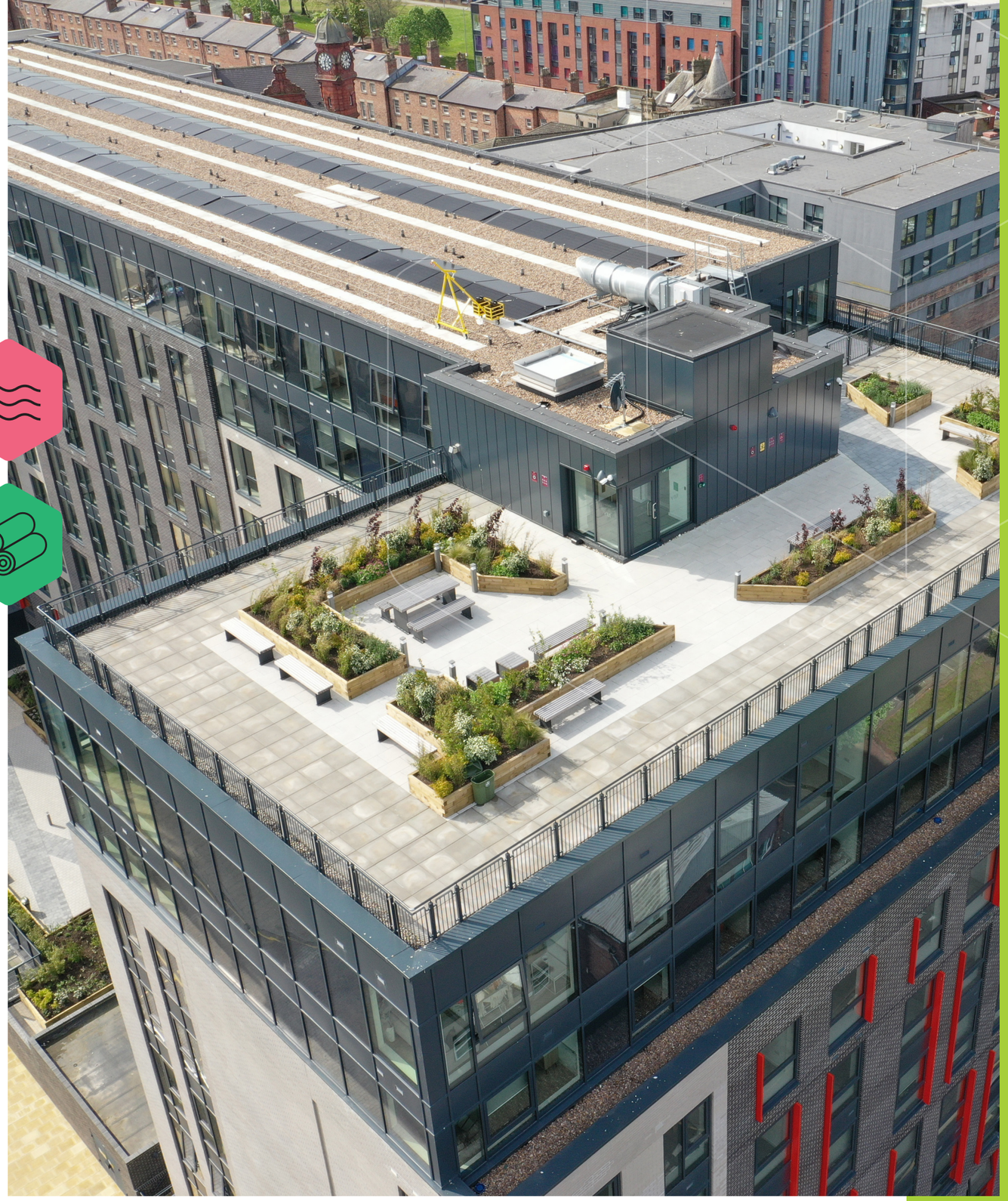
Derbigum NT demonstrates circular economy principles by reprocessing old roofing membranes and production waste into durable waterproofing systems. Containing a minimum of 30% recycled content, as certified by PricewaterhouseCoopers Advisory in 2009, and manufactured using 100% green electricity, it reduces environmental impact across the product lifecycle. Certified Cradle to Cradle Bronze and fully recyclable at end of life, Derbigum NT is BBA certified with a proven service life exceeding 50 years.

Did you know?

Long lasting waterproofing materials help lower carbon emissions by reducing the need for frequent repairs or replacements. Combining this with green roofing further protects and enhances the lifespan of materials. This reduces the manufacturing, transport, and construction work associated with new materials, cutting embodied carbon and waste over the building's lifecycle.



ADDRESSING CLIMATE IMPACTS



Material Durability

Material durability is fundamental to ensuring long-term roof performance and reducing carbon impact. Systems designed for extended service life lower embodied carbon by limiting the need for roof replacement and material consumption.

Hydrotech 6125 Hot Melt

Hydrotech 6125 delivers exceptional performance, supporting material durability objectives with waterproofing designed to last the service life of the roof structure. Its monolithic, self-healing formulation eliminates seams and accommodates structural movement, ensuring lasting integrity. With over 50 years of global use and zero product failures, Hydrotech 6125 offers proven reliability backed by BBA and ETA certification. Containing 30% recycled content, it combines durability with reduced environmental impact and is supported by Alumasc system warranties of up to 40 years.

Derbigum Reinforced Bituminous Membranes

With BBA certification verifying a service life exceeding 50 years, Derbigum reinforced bituminous membranes provide outstanding material durability. The high melt point ensures stability even in extreme temperatures, while the polyester and glass-fibre reinforcement provides outstanding tensile strength and resistance to UV exposure, maintaining long-term waterproofing performance. Alumasc offers warranty cover for up to 35 years, providing further assurance of system reliability.

ADDRESSING CLIMATE IMPACTS

Our Service Offer

Alumasc Roofing provides end-to-end project support, from initial design through to specification and installation. As both system designers and suppliers, we work in close collaboration with architects, consultants, and contractors to deliver fully compliant and performance-led roofing solutions tailored to each project.

Each roofing solution is carefully coordinated to comply with relevant Building Regulations, British Standards, and Alumasc warranty criteria. This ensures that all aspects of the system, from material selection to installation methods, meet the required performance, safety, and durability standards.

As part of our service, a dedicated Technical Manager is assigned to each project as the primary point of contact throughout. They oversee design coordination, manage internal resources, and ensure smooth project delivery. Clients benefit from ongoing communication and dedicated support from early project involvement through to completion, ensuring precision and efficiency at every stage.

Site Surveys

Comprehensive roof surveys form a key part of Alumasc Roofing's technical service, providing accurate data to support effective design and specification. Each survey assesses the existing waterproofing, insulation, and drainage performance, using moisture mapping and core sampling to determine roof condition and identify defects. Where access is limited, drone surveys can be carried out to safely inspect the roof.

Survey findings are compiled into a detailed roof condition report with recommendations to support accurate specification, and these include a full review of roof penetrations and interfaces, assessment of structural implications such as weight loading and wind uplift, fixing method guidance, and clear remedial actions. The report also outlines warranty terms, specifies the most appropriate waterproofing system for performance and budget, and recommends a trusted Alumasc registered contractor for installation.

Core Sampling: Small sections of the roof are removed to reveal its construction, allowing detailed analysis of waterproofing layers, insulation, and overall condition.

Moisture Mapping: Uses electronic scanning across the roof surface to detect trapped moisture, providing accurate data to prevent hidden deterioration and structural issues.

Drone: Uses high-resolution aerial imaging to inspect roofs where access is restricted or the deck is unsafe.

Specification Service

Alumasc provides designers and contractors with comprehensive technical support and on-site assistance across its full range of roofing systems. This includes project-specific specifications supported by thermal and condensation analyses, as well as wind uplift, rainwater flow, drainage falls, and carbon assessment calculations.

Registered Installer Network

Alumasc's waterproofing systems are installed by specialist subcontractors. As part of their support team, Alumasc maintains a UK network of registered installers who can provide pricing and carry out installation work for all types of new build and refurbishment projects.

Alumasc Registered Installers undergo comprehensive in-house and on-site training, and a register is kept of all carded operatives within the company. They are assessed for competence and suitability on specific project types prior to selection for tendering opportunities, and their financial stability is also evaluated. Alumasc ensures that Registered Installers receive hands-on support in applying all Alumasc products and systems, along with refresher training whenever required.

Installation Monitoring

Once roofing work begins, our experienced nationwide team of site technicians monitors and inspects the workmanship to ensure it meets our warranty criteria. They also provide progress reports, including any issues identified and recommended actions.

Product Certification

All core products hold British Board of Agrément (BBA) certification and are covered by Environmental Product Declarations (EPDs), with certain products also carrying FM approval. Relevant product groups are CE marked and are covered by European Technical Assessments (ETAs) supported by Declarations of Performance (DoPs) which are available on request, supporting transparency and compliance with industry standards.

Trade Associations

Alumasc are members of the following trade associations, demonstrating our commitment to industry standards and best practices:
NFRC, BFRA, LRWA, GRO, SPRA, CPA.

Warranties

Alumasc provides a comprehensive range of warranties tailored to your system design and project requirements. Our warranties cover products, workmanship and design, with terms of up to 40 years.

Alumasc Roofing, White House Works
Bold Road, St Helens, Merseyside, WA9 4JG

01744 648400
info@alumascroofing.com

www.alumascroofing.com

ALUMASC ROOFING