



# CLIMATE CHANGE

Proud to have received London Stock Exchange's Green Economy Mark



# EXPLORE

# ALUMASC ROOFING ON CLIMATE CHANGE

We aren't experts in climate change, but we are leaders in environmentally focussed roofing solutions. We want to make a difference in our industry and it's impact on the future planet. So, we have put together this guide with factual information from leading sources, along with information on what we are doing as a company to contribute positively towards climate change.

All Alumasc Roofing's product information, facts and figures detailed within can be supported by evidence provided by Alumasc Roofing and their responsibly sourced partners, please contact us if you require further information.

Special thanks to the below experts for the factual sources of information on the climate change topics featured within this guide:

[www.metoffice.co.uk](http://www.metoffice.co.uk)

[www.bbc.co.uk](http://www.bbc.co.uk)

[www.bregroup.com](http://www.bregroup.com)

[www.london.gov.uk](http://www.london.gov.uk)

[www.glasgow.gov.uk](http://www.glasgow.gov.uk)

[www.greenpeace.org.uk](http://www.greenpeace.org.uk)

[www.worldgbc.org](http://www.worldgbc.org)

[www.carbonbrief.org](http://www.carbonbrief.org)

[www.gov.uk](http://www.gov.uk)

[www.ukgbc.org](http://www.ukgbc.org)

[www.rspb.org.uk](http://www.rspb.org.uk)

[www.nbn.org.uk](http://www.nbn.org.uk)

[www.constructionmanagement.co.uk](http://www.constructionmanagement.co.uk)



‘Climate change is happening and is due to human activity, this includes global warming and greater risk of flooding, droughts and heat waves.’

Source: [www.gov.uk](http://www.gov.uk)





# CLIMATE CHANGE IN THE BUILDING AND CONSTRUCTION INDUSTRY

## *Introduction*

Building and construction are responsible for 39% of all carbon emissions in the world, with operational emissions (from energy used to heat, cool and light buildings) accounting for 28%. The remaining 11% comes from embodied carbon emissions, or 'upfront' carbon that is associated with materials and construction processes throughout the whole building life cycle.

Source: [www.worldgbc.org](http://www.worldgbc.org)

## *Climate change made 2022's UK heatwave at least 10 times more likely'*

The record breaking UK heatwave of 18-19 July 2022 was made "at least 10 times more likely" by human caused climate change, a new "rapid attribution" study finds. Read more [here](#).

Source: [www.carbonbrief.org](http://www.carbonbrief.org)



# 10 TIPS TO REDUCE THE ENVIRONMENTAL IMPACT OF A COMMERCIAL BUILDING



Source recycled building materials over raw when constructing.



Adopt renewable energy technologies such as solar.



Look at HVAC efficiency and reduce excess energy waste.



Think light - use natural lighting or LED over standard commercial lighting.



Consider if your supply, treatment and usage of water is working correctly and is effective.



Introduce green spaces for natural air cooling, purification and habitat preservation.



Effectively insulate your building to protect against heat loss, solar gain and noise reduction.



Dispose of site and office waste correctly and effectively.



Select environmentally considerate products over less kind alternatives.



Analyse the true life cycle cost of the solutions you implement.



# HEAT LOSS FROM BUILDINGS

‘Heating accounts for approximately 37% of the UK’s carbon footprint when including industrial processes.’

Source: [www.ukgbc.co.uk](http://www.ukgbc.co.uk)



# HEAT LOSS FROM BUILDINGS





## *Did you know?*

Approximately 25% of the heat in a building will escape through the roof of a poorly insulated structure. About 35% of the heat will escape through the walls and gaps that feature and around windows and doors, and about 10% of heat will disappear through the floor.




Heat naturally moves from a warmer area to a colder area. So, if your building is not properly insulated and sealed correctly, or there are gaps and cracks in it, it means that warmth will be lost from the building through the less protected areas of the structure.



## *Issues that arise from Heat Loss*

-  Unnecessary expense in energy bills.
-  Inconsistent heating and cold spots.
-  Excessive wear on HVAC system.
-  Uncomfortable environment for building occupants.

## *Tips to help with Heat Loss*

-  Arrange a building energy audit, including thermal imaging.
-  Improve the seal of your building envelope structure.
-  Add insulation to poor or non-insulated areas.



# TACKLING HEAT LOSS WITH ALUMASC ROOFING

We can help detect heat loss via a roof survey from one of our Technical Manager's. They use a variety of survey methods including core sampling, moisture mapping, drone, and thermographic surveys to detect the issue and provide a full report of what is found. Following this they can provide solution advice on how to remedy the issue for not only compliance, but also the comfort of the building's occupants.

## *We can help you with*



A free of charge, bespoke roof condition report to identify the problem.



Advice on product solutions to achieve minimum U-values for building regulations.



Supply of insulation and recommended waterproofing to rectify the issue.

## *Planning Tip*

For extra protection from heat loss and added green credentials, you could consider a **Green Roof** for extra protection on the top layer of the roof, which also helps habitat development and retention. Green roofs can cut energy use by 10 to 15 per cent. In cities such as Athens, there is evidence that they can reduce high cooling loads in buildings by 66 per cent.

**Source:** [www.ukgbc.org](http://www.ukgbc.org)

# HEAT ISLAND & SOLAR GAIN IN BUILDINGS

The government has introduced new building regulations in which all new buildings will need to generate 30% fewer CO<sub>2</sub> emissions than the current regulations allow.

Source: [www.gov.uk](http://www.gov.uk)







# HEAT ISLAND & SOLAR GAIN IN BUILDINGS






## *Did you know?*

The new legislation means the thermal regulations for windows and openings are likely changing. The current U-values for the thermal transmittance of windows and openings into all settings (new and existing buildings) are to be upgraded as detailed in these documents which advise on the specific changes in U-value per application. They can be viewed here [Volume 1](#), [Volume 2](#).

### ***Problems that arise from Heat Island & Solar Gain***

-  Discomfort of building occupants.
-  Inconsistent heating and cooling in the environment.
-  Large expense on HVAC solutions.
-  Excessive wear on HVAC system.

### ***Tips to help Heat Island & Solar Gain***

-  Plant trees and green areas to deflect sunlight.
-  Use bright colours which deflect sunlight on your façade and roof.
-  Use adequate insulation that can stop heat getting in as well as escaping.
-  Install ventilation that will aid the escape of heat.
-  Install effective shading for the windows.



# REDUCING HEAT ISLAND & SOLAR GAIN WITH ALUMASC ROOFING

Alumasc Roofing have a number of solutions to help with solar gain and heat island effect including [Alumasc Caltech](#) and [Alkorplan Single-Ply](#) roofing membranes and solutions that can be supplied in light colouring to reflect sun from buildings whilst protecting them.

The subsequent result is 'passive cooling' within the building to keep it at a lower ambient temperature and saving the building owner or maintenance team large financial investments in HVAC systems and further adaptations necessary later down the line.

Also, our range of green, brown, and biodiverse roofs can also help to create 'breaks' in the built-up concrete and glass city dwellings on or around the roofs and landscaping. Green roof spaces create shading from natural sources whilst also introducing recreational, exercise and well-being areas alongside the habitat benefits for birds, bees, and insects.

## We can help you with



Advice on product solutions to create passive cooling and comfortable building climates.



Information and supply of [Green Roof](#) Solutions that could provide extra shading and recreation areas.



Supply of light coloured membrane solutions to reflect solar rays such as [Alumasc Caltech](#) or [Alkorplan Single-Ply](#).

## Planning Tip

For extra protection from heat island & solar gain and to add to your green credentials, you could consider a [Green Roof](#) for extra protection on the top layer of the roof as well as recreation areas, which also helps habitat introduction and retention.

# STORMWATER MANAGEMENT FOR BUILDINGS

Climate change means we expect to see warmer and wetter winters, hotter and drier summers, and more frequent and intense weather extremes.

Source: [www.metoffice.gov.uk](http://www.metoffice.gov.uk)




# STORMWATER MANAGEMENT FOR BUILDINGS

## *Did you know?*



Stormwater runoff is 9 times higher in urban areas vs. undeveloped, raw terrains. Urban flooding is a major problem in many parts of the world and is one of the most natural disastrous events which takes place every year, especially in the coastal cities.

It is anticipated that river flooding will increase in 85% of cities between 2050 and 2100. Urban flooding is a natural disaster that cannot be avoided; however, the losses occurring due to flooding can be reduced with flood mitigation preparation.

### *Problems that arise from flooding*

-  Damage and destruction to people, wildlife, buildings, and land.
-  Floods cause sedimentation and erosion to land.
-  Floods carry contamination and spread diseases.

### *Tips to help with Stormwater Management:*

-  Integrate sustainable drainage into your building design.
-  Introduce green roofs to slow rainwater runoff.
-  Install **BluRoof Stormwater Management** for a water infiltration and attenuation solution.



# STORMWATER MANAGEMENT WITH ALUMASC ROOFING

Stormwater management is becoming ever more important in urban areas with the apparent increase in the frequency of flooding incidences. This combined with the increased need for runoff collection and treatment to mitigate against the spread of disease and contaminated waste is of particular importance. Stormwater management, in combination with sustainable drainage systems (SuDS) can provide appropriate solutions for heavily urbanised areas.

**Green Roofs** help to mitigate flood risk by collecting and slowing rainfall, reducing the runoff. The larger, more intensive the green roof, the greater the reduction in flood risk.

**BluRoof Stormwater Management** is a sustainable drainage solution designed to alleviate flood risk, or where ground-based attenuation systems are limited, by attenuating stormwater via controlled discharge over a 24-hour period at roof level.

Blue roofs are rated as one of the most sustainable, 'at source' SuDS techniques, and can often meet all four of the objectives for good SuDS design (Water quantity, water quality, amenity & biodiversity). Installing the blue roof system has a positive impact on the quality of the water discharge. Water is treated to such a degree that it usually reaches the level required in treatment drain stage, which is one of the SuDS processes, allowing water to be released from the roof directly into the river or sewer systems.

## *We can help you with*



Advice on the Green Roof solution most suitable for your application.



Supply a blue roof sustainable drainage solution designed to alleviate flood risk, or where ground-based attenuation systems are limited.



Provide a single source, fully warranted waterproofing and drainage solution for stormwater management.

## *Planning Tip*

Specifying Green Roofs combined with the BluRoof drainage solution at design stage maximises the slowing of water that can be achieved, reducing impact on the drainage system in urban areas.

# HABITAT LOSS IN CONSTRUCTION

Biodiversity is under threat in the UK. Statistics from the National Biodiversity Network (NBN) State of Nature report in 2019 found that more species are decreasing (41%) than increasing (26%) over the last 50 years.

Source: [www.nbn.org.uk](http://www.nbn.org.uk)

# HABITAT LOSS IN CONSTRUCTION

## *Did you know?*




The UK has lost more natural wildlife and wild spaces due to human activity than any other G7 country, according to a recent Royal Society for the Protection of Birds (RSPB) report. Owing to its unique position at the forefront of this issue, the construction industry has a responsibility to play its part in mitigating habitat destruction. **Source:** [www.rspb.org.uk](http://www.rspb.org.uk)

As the demand for more and more green areas to build on increases, the loss of habitat continues to worsen. The most responsible action that developers can take is to provide reciprocal places and spaces where habitat can flourish and continue to grow. This is now becoming a growing demand from industry bodies, from customers, and from government initiatives including the London Plan, Glasgow G2, and at the COP26 conference.

## ***Problems that arise from Habitat Loss***

-  Endangerment of species and risk of extinction.
-  Loss of biodiversity.
-  Mass deforestation and loss of landscape.

## ***Tips to reduce Habitat Loss in Construction***

-  Introduce and commit to reciprocal habitat initiatives.
-  Include green spaces in your construction plans.
-  Reintroduce habitat once your project's complete.



# REDUCING HABITAT LOSS WITH ALUMASC ROOFING

Green roofs have many connections with a host of economic, environmental and well being benefits.

They can play a huge part in the future of construction to reciprocally give back to the future of the planet. Not only do they break up the mass of concrete and glass in heat island effect, but they are fundamental for habitat protection and reintroduction. Other environmental benefits include a reduction of carbon footprint and energy consumption,

management of water runoff for flood prevention, and reduction of air pollution by acting as air filters. We supply a large range of Green roofs depending on the requirement of the space.

Our **Intensive Green Roofs** offer the benefits of a small urban park and support a wide range of plants, trees and shrubs. They provide recreational space for people and a rich habitat for wildlife.

**Biodiverse Green Roofs** adopt many of the features of an extensive green roof and can be planted with vegetation to replace or replicate a lost habitat or allowed to naturally develop over time. They are light to medium weight with relatively shallow substrate depths.

Whilst **Extensive Green Roofs** are lightweight with a relatively shallow substrate, providing a versatile range of planting generally comprising of drought tolerant succulents such as sedum, rockery and alpine plants.

## We can help you with



Advice on the Green Roof solution most suitable for your application.

## Planning Tip

To add to your green credentials, you could consider a **Green Roof** for extra protection on the top layer of the roof as well as for recreation areas, which also helps habitat introduction and retention.

# CARBON REDUCTION IN THE BUILDING & CONSTRUCTION INDUSTRY

An aerial photograph of a dense, vibrant green forest. A dark, winding river or stream flows through the center of the forest, reflecting the surrounding greenery. A small, light-colored boat is visible on the river. The forest is thick with various shades of green, suggesting a healthy, mature ecosystem. The overall scene is peaceful and emphasizes the importance of nature and environmental conservation.

The plan to reduce all greenhouse gas emissions to net zero by 2050 is a target recommended by the Committee on Climate Change.




Source: [www.gov.uk](http://www.gov.uk)

# CARBON REDUCTION IN THE BUILDING & CONSTRUCTION INDUSTRY

## *Did you know?*

We stated earlier that building and construction are responsible for 39% of all carbon emissions in the world, with operational emissions (from energy used to heat, cool and light buildings) accounting for 28%. The remaining 11% comes from embodied carbon emissions, or 'upfront' carbon that is associated with materials and construction processes throughout the whole building lifecycle. **Source:** [www.worldgbc.org](http://www.worldgbc.org)

### *Problems that arise from Carbon Emissions*

-  43% of Carbon Dioxide produced traps heat and releases it into the atmosphere.
-  Carbon Dioxide is one of the largest contributors to Global Warming.
-  UK emissions are dominated by carbon dioxide, which is estimated to have accounted for about 79% of greenhouse gas emissions in the UK in 2020 (latest figures available on [www.gov.uk](http://www.gov.uk)).

### *Tips to reduce Carbon Emissions*

-  Select recycled over raw materials.
-  Choose durable solutions over short lifespan products.
-  Go flame-free over naked flame.
-  Choose reduced carbon solutions.
-  Introduce green spaces where possible.
-  Use light colours on roofs and external walls.
-  Use rainwater runoff products with drainage attenuation.



# CARBON REDUCTION WITH ALUMASC ROOFING



We have introduced a number of 'Environmentally Focussed' products into our range, to ensure we reciprocally give what we can back to the future of our planet. These solutions have been selected as core offerings in our range to do all we can to help reduce environmental impact with our solutions.

We have highlighted these kinder options as planning tips below, and links to read more on each solution.



Choose reduced carbon solutions - Our [Derbigum by Alumasc](#) [Olivine Membranes](#) have a naturally occurring mineral upper layer that neutralises carbon dioxide via an irreversible chemical reaction when it comes into contact with rainfall.



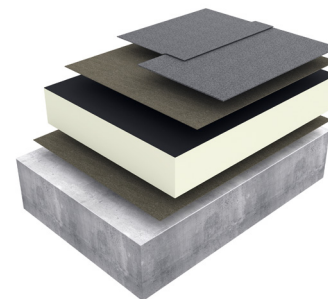
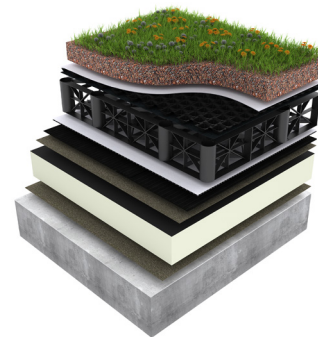
Use rainwater runoff products with drainage attenuation - [BluRoof](#) applies an internationally adopted sustainable drainage technique that can be combined with our [Green Roof solutions](#) to further reduce runoff.



Introduce green spaces where possible – we have a full range of [Green Roofs](#) including intensive, extensive and bio-diverse options, depending on its required use.



Use light colours on roofs and external walls – our light-coloured range of membranes reflect solar rays, keep the building cool and reduce the use of HVAC systems due to natural cooling which in turn reduces germs spreading.





# CARBON REDUCTION WITH ALUMASC ROOFING



Derbigum by Alumasc has a life expectancy of up to 50 years BBA approved, it can be over laid after this time to extend its life expectancy for up to another 50 years.



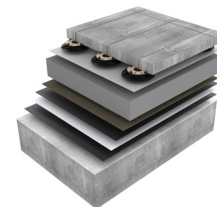
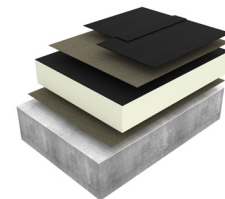
Alumasc Hot Melt has a BBA Approved life expectancy to that of the building. The system offers reduced lifecycle cost due to longevity, and contains 40% of recycled content. As an inverted system, hot melt offers the opportunity for a wide choice of surface finishes such as green roof, blue roof and landscaping.



Go flame-free over naked flame – we have 'a complete flame-free and cold applied roofing solution' for sites where flame-free would be preferable to torch application.



Select recycled over raw materials – Our Derbigum by Alumasc NT Membrane is manufactured with 30% of recycled materials. The entire Derbigum by Alumasc Membranes range are 100% recyclable at the end of life.





## Your Complete Roofing Solution

Environmentally Focussed | Responsibly Sourced | Ethically Driven



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