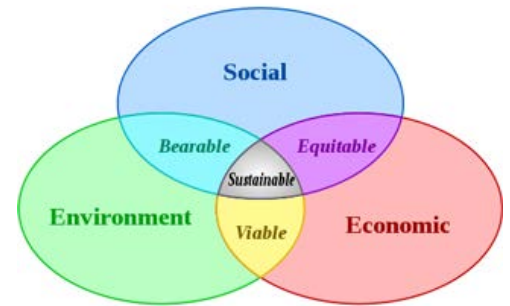


Why Choose a Green Roof

Sustainability is the capacity to endure, and for the construction industry delivering sustainability means accepting the long-term responsibility for contributing positively towards balancing the three pillars of sustainability (social, environment & economic responsibilities) within the built environment.

Through the adoption of concepts such as green roofing and green walling, together with responsible management of resource use, the construction industry can help ensure that biological systems destroyed by construction are replaced or replicated. Green roofs help the natural environment remain diverse and productive over time, a necessary precondition for the well-being of humans and other organisms, in a wide variety of ways.



The 3 Pillars of Sustainability

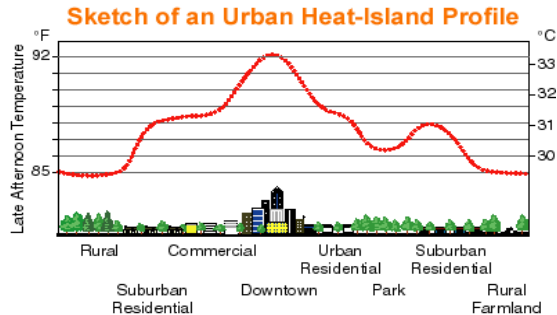
Economic Benefits of a Green Roof

Improved Thermal Performance	Thermal Benefits	The thermal mass of a green roof provides additional thermal benefits over and above the roof insulation: delivering additional insulation value in winter & summer thereby reducing heating and cooling (air conditioning) costs. Numerous worldwide studies demonstrate the actual benefits but due to continued variations in moisture content levels throughout the year it is currently not possible to include these benefits in thermal calculations.
	Acoustic Benefits	The mass a green roof provides above the roofing system provides acoustic properties to the building, reducing transfer of noise pollution into or out of the building and eradicating 'drumming' during rainfall. The planting will also reduce the passage of airborne noise which, as noise travels in straight lines, is broken by the variable heights and mass of the plants.
	Increased Waterproofing Lifespan	A green roof prevents the waterproofing material being degraded by UV light and stabilises the temperature of the waterproofing, avoiding the thermal processes (expansion and contraction) that contribute to waterproofing failure. As a general rule of thumb the addition of a green roof to a suitable waterproofing material will double the life of the waterproofing: avoiding the cost and disruption of replacement and reducing whole life costs.
Improved BREEAM/Code for Sustainable Homes ratings		A green roof can make a significant contribution to the points scored in a BREEAM or Code for Sustainable Home assessment. Points can be accrued under a variety of headings including POL5, LE4, LE5, LE6 and others.
Planning Permission		With increasing constraint demand for green roofs being part of planning legislation, Local Authority planning departments are looking favourably at developments that include a green roof. The UK is yet to reach the position of some European Countries - some German regions allow for an increased building footprint, and Basel in Switzerland requires green roofs on all new construction. Green roofs are required within the London Plan and in other regional planning guidelines.

Social Benefits of a Green Roof

Amenity Space	<p>Due to the ever increasing density of city populations demand for extra outdoor spaces is on the rise. Green roofs provide amenity solutions that can be used on new and refurbishment projects including:</p> <ul style="list-style-type: none"> - Sports facilities such as football, tennis or running courts. - Social areas such as lawns, decks and terraces. - Relaxing areas that benefit mental well being and relaxation
Food Production	<p>Green roofs can be used to provide areas to grow food, similar to an allotment, thereby reducing the ecological footprint of an urban area and supporting local sustainable produce production.</p>
Aesthetics	<p>Green roofs visibly change the roofscape of the built environment, taking away dark colour roof surfaces and replacing them with natural colours that change with the seasons: green, reds, browns etc. This replacement of the 'concrete jungle' with a vista that replicates nature has significant visual, environmental and health benefits and can help blend a building into its natural environment, particularly in rural settings.</p>

Environmental Benefits of a Green Roof

Air Pollution	<p>Air pollution in cities is said to contribute to a great many premature deaths in the UK annually. The plant matter on a green roof helps filtrate pollutants, absorb carbon dioxide and transfer moisture vapour back into the atmosphere, just as the rainforests are seen as the lungs of the world.</p>
Urban Heat Island Effect	<p>The Albedo or Urban Heat Island effect is the phenomena by which cities are typically 3° hotter than the outlying areas, this is principally due to the vegetation being replaced by hard surfaces such as roads, pavements and roofs. Green roofs provide a means to re-vegetate city and urban areas thereby reducing temperatures and improving air quality.</p>  <p>Sketch of an Urban Heat-Island Profile</p> <p>The graph shows 'Late Afternoon Temperature' on the y-axis with scales in °F (85 to 92) and °C (30 to 33). The x-axis represents different urban areas: Rural, Suburban Residential, Commercial, Downtown, Urban Residential, Park, Suburban Residential, and Rural Farmland. A red line graph shows temperature peaks over 'Downtown' and 'Urban Residential' areas, indicating higher temperatures in these urban centers compared to surrounding areas like 'Park' and 'Rural Farmland'.</p>
Carbon Reduction	<p>Established plants capture and store carbon dioxide. Studies in the USA indicate that once established 50m² of extensive sedum green roof will capture roughly the same amount of carbon as a broad leaf tree.</p>
Water Attenuation / Flood Risk Reduction	<p>Green roofs both detain and retain rainfall (precipitation) at the point of impact, mitigating flood risk by reducing water loads on drainage systems (SuDS). Quality of water runoff is also improved by the removal of heavy metals and pollutants, bringing benefit to rivers and water courses.</p>
Biodiversity	<p>Green roofs can be designed specifically to replicate specific ground conditions, replacing habitat lost through the construction process and improving ecology. Through careful design they can replace lost habitat for flora and fauna, meet specific Biodiversity Action Plan (BAP) requirements for invertebrates, Bird and Bat species and/or create niche habitats that can support the preservation of rare species.</p>