

Climate-Change-Ready Rooftops: NFRC Policy Position

The recent [Climate Change Committee Report](#) on the UK's progress in adapting to climate change warns that plans for coping with flooding, drought, and heatwaves are inadequate. Existing safeguards will continue to falter as extreme weather grows more frequent. One overlooked yet vital defence is sustainable roofing, which can help shield buildings from the mounting stresses of a warming climate.

The report's executive summary stated, *"Adaptation is needed **now** to ensure that the UK is prepared for today's extreme weather as well as the rapidly increasing severity of future risks... The costs of these impacts are already being felt, and the risks **will continue** to grow **even if** international targets to limit global warming are met. Action is needed now whilst we still have the opportunity to address these risks in a way that is both cost-effective and timely."*

The roofing sector is already investing in solving these problems. In 2021, the NFRC conducted [research](#) with the University of Southampton, examining how climate change will affect the roofs that protect current and future buildings. It found that climate change must be considered within the government's home building and infrastructure targets. How we construct, maintain, and upgrade our roofs will be pivotal for adaptation to a wetter, warmer climate.

The research also underscores the potential for roofing technologies to:

- Passively cool buildings and surrounding environments.
- Retain and store rainwater runoff before it reaches the ground.
- Generate renewable energy through solar photovoltaic (PV) systems.

Roofs remain one of the most underutilised climate and environmental assets in the built environment. Strong leadership and strategic investment would make them vital platforms for delivering benefits supporting climate change mitigation and adaptation. NFRC and its Members welcome the opportunity to engage further and share project data, technical expertise, and stakeholder insights with parties interested in safeguarding the UK's future. This document outlines the benefits of sustainable solutions like solar, green, and blue roofs alongside real-world examples. It also proposes action areas which would support critical progress.

Function	Climate Benefit	Socio-economic benefit
Urban Cooling	↓ peak urban temp 2-4 °C	↓ AC demand protects vulnerable groups
Water retention (SuDS)	Holds ≥50 % stormwater on-site with potential for water re-use	↓ Sewer surcharge costs
Biodiversity	Habitat connectivity in grey space	Meets Biodiversity Net Gain targets
Solar PV	Generates up to 10 MWh/1,000 m ²	Cuts tenant bills; revenue stream
Circular materials	40-year membranes + recyclability	Deferred capital spend

Urgent Action Areas:

1. Policy Alignment

- Mandate or incentivise greater green infrastructure in new builds and retrofits.
- Embed green and solar roofing requirements in planning and building regulations.
- Align Net Zero, Biodiversity Net Gain, and climate adaptation strategies with green roofing solutions.

2. Funding Mechanisms

- Provide grants or tax incentives for enhanced roof systems.
- Create ring-fenced funding for local authority retrofitting.
- Support innovation and demonstration projects.

3. Training and Skills Development

- Fund green upskilling programmes for roofers, planners, and design professionals.
- Integrate nature-based solutions and roof-based technologies into vocational syllabi.

4. Research and Evidence Building

- Invest in UK-specific studies on long-term environmental, social, and cost impacts of climate change.
- Standardise metrics for biodiversity value, thermal benefit, and water management.

Case Studies: Multifunctional roofs support climate change mitigation and adaptation while delivering environmental and social value to communities. The following case studies are just some of the success stories NFRC Members and our partners have contributed to.

1. London Green Roof Policy & TfL Headquarters

Location: Southwark, London

Type: Green roof retrofit on public building

Outcomes:

- Over 1,000 m² of green roof installed
- Reduces building cooling demand by ~20%
- Improves stormwater attenuation (~50% retained on-site during storms)
- Supports wildflower biodiversity and pollinator species

Relevance: Demonstrates scalability of green infrastructure in dense urban environments; retrofit compatibility.

2. Denbighshire Council

- **Location:** Denbighshire, North Wales

Type: Full-pitched roof system, with integrated solar panels, installed on 110 homes.

Outcomes

- Incorporated solar technology to help tenants cut energy bills.
- Minimises roof maintenance costs, reducing the likelihood of future repairs
- Supported the client in meeting carbon reduction targets.

Relevance: Illustrates the benefits of integrated rooftop solar into existing homes, cost-effectively, to help tackle growing fuel poverty.

3. Cambridge University, Department of Civil Engineering

Location: Cambridge

Type: Integrated green roof + solar PV (bio-solar)

Outcomes:

- ~9.91MWh PV generation in the first year with improved panel efficiency due to the cooling effect of vegetation
- Biodiverse substrate supports urban invertebrates
- Passively cooling the temperature of a building

Relevance: Shows compatibility between energy generation and environmental benefit.

4. 90 Long Acre, Covent Garden

Location: London WC2

Type: Blue-green roof for stormwater management and amenity

Outcomes:

- Delayed stormwater runoff improves nearby flood resilience
- Visual and thermal benefits of eight large accessible roof terrace spaces
- Providing intercity Sustainable urban Drainage Systems (SuDS)

Relevance: Highlights SuDS and resilience benefits in accessible rooftop spaces.

5. Moorgate Exchange

Location: City of London

Type: Extensive green roof on commercial office block

Outcomes:

- Over 1,300 m² green coverage
- Achieved BREEAM 'Excellent'
- Notable increase in recorded bee species within two years

Relevance: Biodiversity and ESG alignment for private sector development.

6. Bow School

Location: Tower Hamlets, London

Type: Green roof + outdoor learning space

Outcomes:

- Provided outdoor classroom and ecology resources for students
- Improved indoor thermal comfort in upper-floor classrooms
- Encouraged student involvement in biodiversity monitoring

Relevance: Health, education, and resilience co-benefits.

These case studies highlight what's possible when roofing technology is deployed effectively to counter burgeoning climate change impacts. These solutions are scalable, but real buy-in from policy intervention is essential if the UK is to benefit properly. NFRC and its Members welcome the opportunity to engage further and share project data, technical expertise, and stakeholder insights with those interested in safeguarding the UK's future. Contact policy@nfrc.co.uk for more information or to collaborate.

This Policy Position was developed by NFRC Technical, Safety, Health & Environment Officer Gary Walpole, with valuable input from Tom Raftery, Head of Sustainability at Bauder; Stuart Nicholson, Director of Roof Systems at Marley; Neill Robinson-Welsh, Blue Roof Consultant at ACO Building Drainage; and Sue Illman, Managing Director of Illman Young.