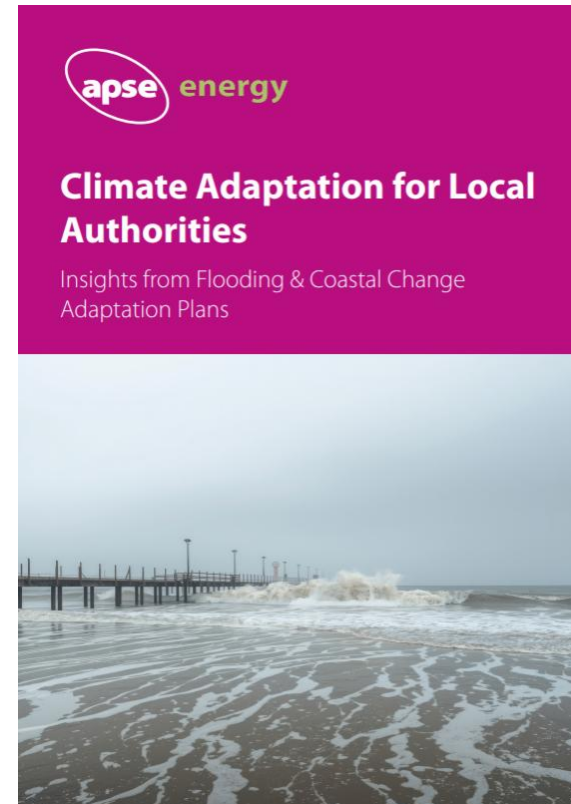




APSE Southern Region Climate Action & Sustainability Network

Insights from APSE Energy's latest publications

Thursday 08 October 2026





Reducing overheating in UK buildings – A guide for local authorities

What is covered in the report?

- understanding the drivers and impacts of building overheating;
- recognising the hierarchy of passive and active mitigation measures;
- methods of assessment to identify building overheating risk;
- why solution design must consider cost, carbon, comfort and operational feasibility;
- example case studies;
- identifying practical next steps for commissioning technical support and progressing projects.





Reducing overheating in UK buildings – A guide for local authorities

What are the drivers of building overheating?

- Increasing levels of greenhouse gases in the atmosphere mean that the extreme heat that we experienced this summer will become increasingly common;
- The Urban Heat Island Effect;
- UK Building Construction and Architecture;
- Lack of knowledge about reducing overheating;
- Lack off passive and active cooling strategies.





Reducing overheating in UK buildings – A guide for local authorities

Assessment methods

- To assess a building's risk of overheating, building surveys and overheating assessments can be undertaken;
- Dynamic thermal simulation modelling software can be used to help understand the heating and cooling requirements of building;
- As well as the current climate, software can use future weather forecasts to model how existing buildings within local authority estates will perform in the climate forecast in 2050 in the UK

High risk building types

Building type	Typical risk factors	Value of Assessments
Schools	High occupancy, solar gains, limited mechanical cooling, term-time use during hotter months.	Assessment can balance factors such as learning conditions, ventilation, safeguarding and capital cost.
Care homes and supported housing	Vulnerable occupants, 24-hour occupation, limited night-time cooling.	Technical input helps prioritise safety-critical zones and avoid whole-building over-specification.
Libraries and community hubs	Mixed public use, legacy buildings, variable occupancy, often used by vulnerable residents during heatwaves.	Analysis can identify low-disruption passive measures and targeted cooling if required.
Offices and civic buildings	ICT loads, glazing, poor controls, changing patterns of occupancy.	Modelling and controls review can improve comfort without unnecessary cooling investment.
Leisure centres	High humidity and internal gains, complex plant, public-facing services, high-energy workouts.	Integrated building services analysis is needed to avoid energy penalties.



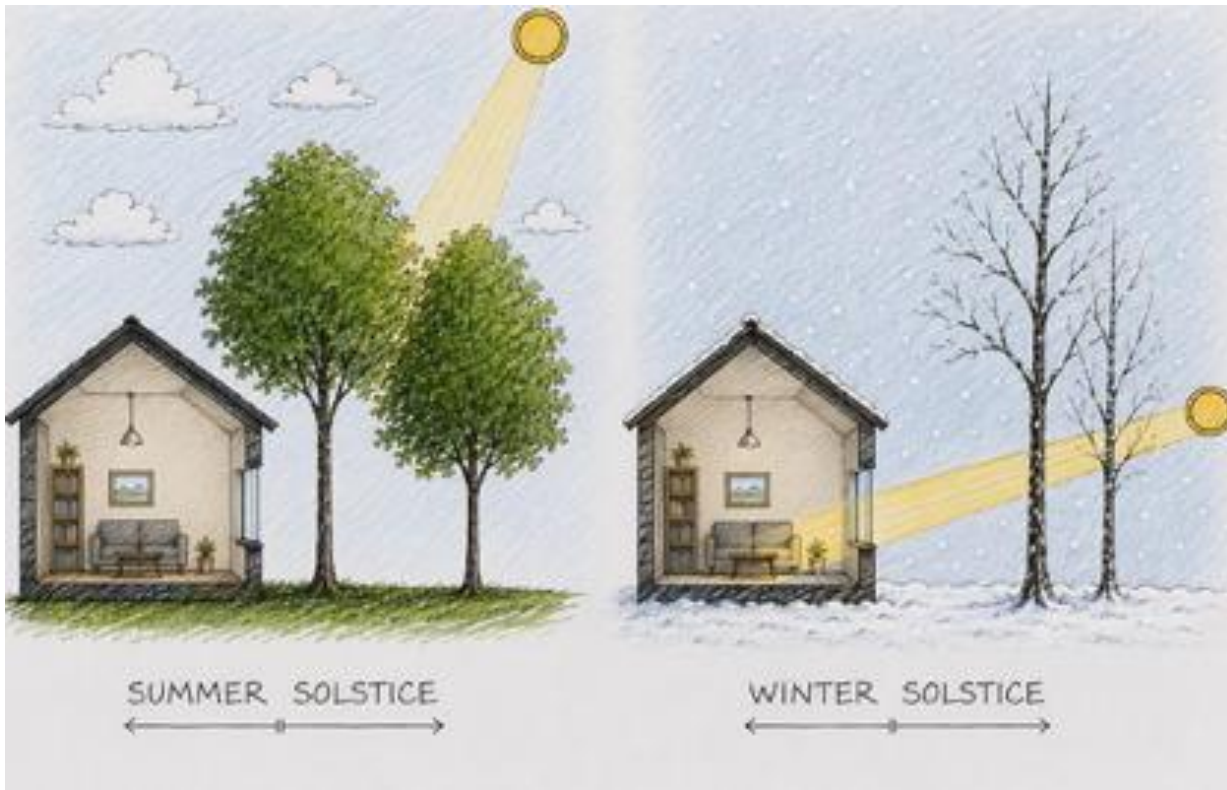
Reducing overheating in UK buildings – A guide for local authorities

Passive cooling methods



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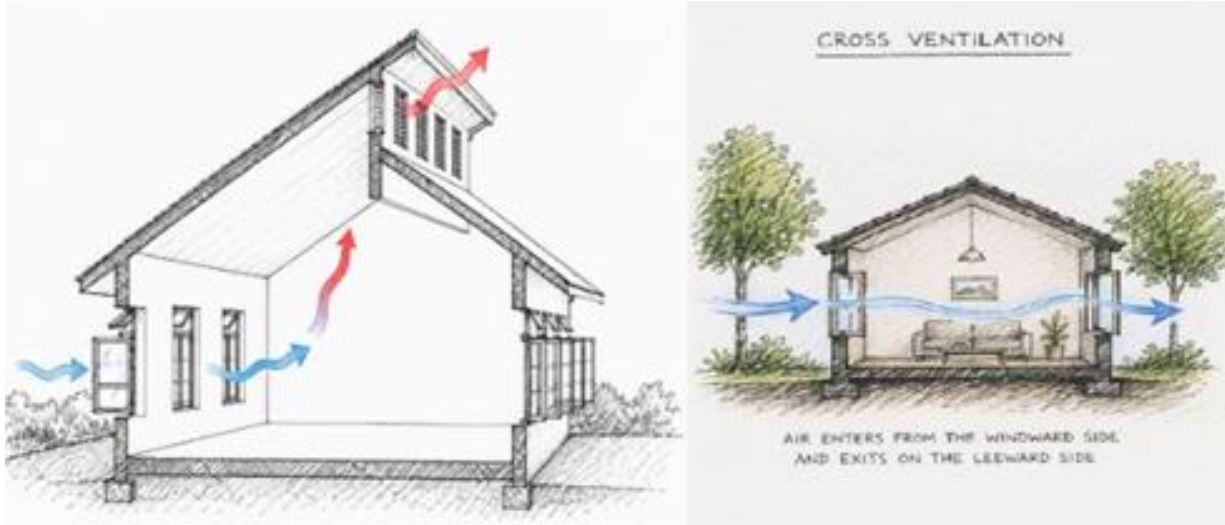
Planting deciduous tree to reduce solar gain in summer



Planting deciduous trees allows solar heating in the winter having shed their leaves as well as blocking solar gain in the summer. The benefits of planting trees will not be realised immediately but it is highly recommended that local authorities prioritise plantation across their estates now to see the benefits by the 2050s.

Reducing overheating in UK buildings – A guide for local authorities

Overheating – a newer phenomenon for the UK



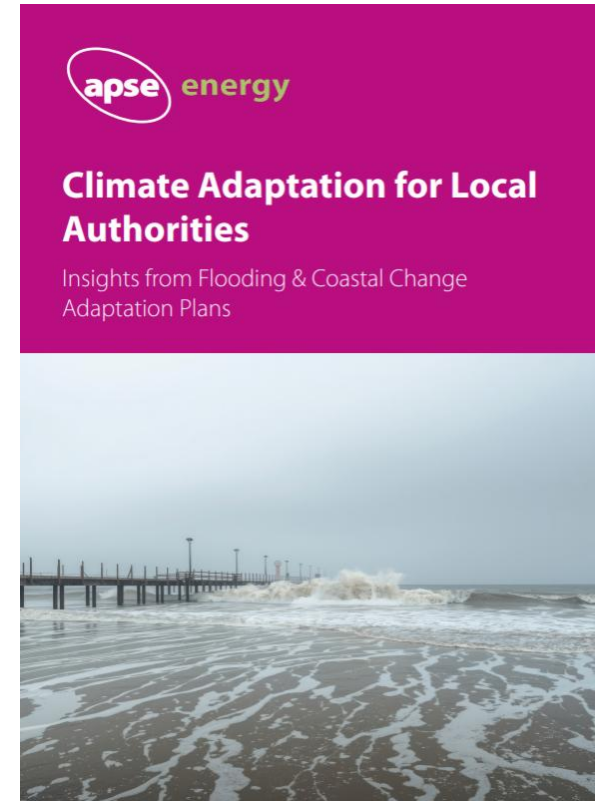
- Cross ventilation - the arrangement of inlets to the space being located on the side of the building facing the prevailing wind, and outlets are placed on the opposite side to promote a natural difference in pressure to drive air flow.
- Stack ventilation - combining cross ventilation with high level outlets such as skylights it works via buoyancy. This allows hot air to escape and helps to drive the flow of air through the building to cool occupants.



Climate Adaptation for Local Authorities

What is covered in the report?

- Why climate adaptation is required
- The role of local authorities across the UK
- Key areas where adaptation is required: *coastal change, flood risk management, landslides and ground instability, drought and water resources stress, extreme heat, parks and greenspaces, transport and critical infrastructure*
- Case study examples of local authorities taking action

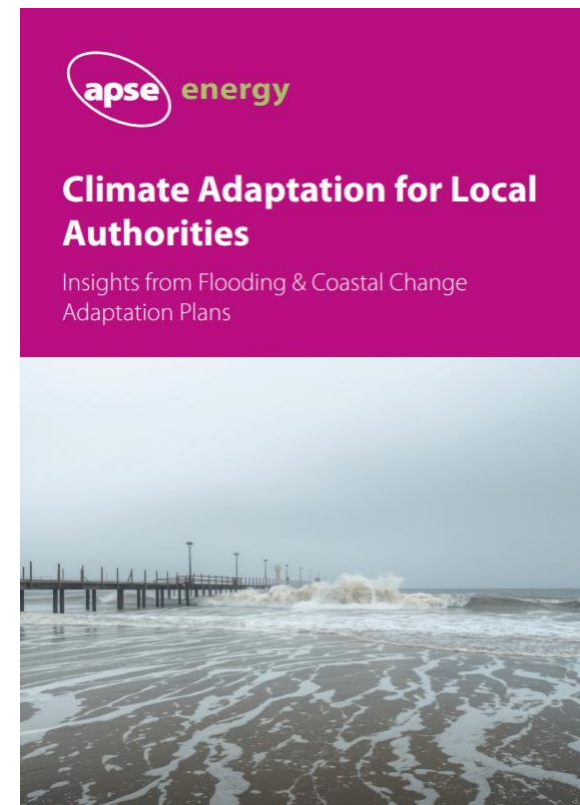




Climate Adaptation for Local Authorities

Why is climate adaptation required?

- While mitigation is essential to prevent the worst impacts, adaptation is also required because the UK is already experiencing significant changes to its climate;
- The UK has warmed by approximately 1.2°C since pre-industrial times;
- Sea levels around the UK have risen by 16cm since 1900 and are projected to rise further;
- The frequency and intensity of extreme rainfall events have increased, driving more surface water and river flooding;
- The number of extreme heat days is rising;
- Without planned adaptation, councils face rising emergency costs, unplanned loss of property and assets, and widening inequalities between communities.





Climate Adaptation for Local Authorities

Key areas where adaptation is required:

Flood risk management

- Flood risk is increasing across the UK as more intense rainfall, rising river levels and overwhelmed drainage systems drive frequent and severe flooding.
- Local authorities play a central role in managing this risk through planning policy, sustainable drainage, catchment partnerships and emergency response.

Managing and Adapting to Coastal Change

- Coastal change isn't limiting the altering the coastline. Coastal erosion and flooding have major social and economic impacts, including the destruction of properties and infrastructure located close to coastlines.
- A Dynamic Adaptive Pathways Approach (DAPA) is used by a number of coastal authorities.

The DAPA approach acknowledges that:

- The future is uncertain – sea-level rise, storm frequency, erosion rates and funding availability will all change over time.
- Decisions need to be flexible – because what is the “right” option today may not be viable in 10, 20 or 50 years.



Climate Adaptation for Local Authorities

Key areas where adaptation is required:

Drought and Water Resources Stress

- Rising temperatures increase evaporation, reduce soil moisture and place pressure on reservoirs, aquifers and chalk streams, many of which are already over-abstracted;
- These conditions heighten risks to public water supply, agriculture, ecosystems and industry, while also intensifying heat stress in urban areas;
- To combat the impacts of water stress, the Greater Manchester Combined Authority has developed a “Resilient Cities” programme.

Extreme Heat and Public Health

- Extreme heat poses a growing public-health risk in the UK with increasing rates of heat exhaustion, heatstroke, dehydration and cardiovascular stress;
- High temperatures disproportionately affect older people, young children, those with chronic health conditions and residents in poorly insulated or densely built urban areas.
- Adapting to extreme heat will require a coordinated approach to ensure that there is targeted support for the most vulnerable groups.

Contact details

James Jefferson, Principal Policy Lead - Energy

Email: jjefferson@apse.org.uk

Association for Public Service Excellence

3rd floor, Trafford House, Chester Road,
Old Trafford, Manchester M32 0RS.

telephone: 0161 772 1810

web: www.apse.org.uk