

Climate Adaptation and Resilience

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The impacts of climate change are increasingly being felt across the globe, from increased rain and flooding to wildfires and droughts. In the UK, 2022 was the warmest year [on record](#) and whilst June 2023 was the warmest June [on record](#), Northern Ireland and much of North-West England then had their wettest July [on record](#). Europe has also experienced some of the hottest temperatures on record, with wildfires in Greece prevalent and some of the worst in recent years. Therefore, it's important to ensure that climate adaptation and resilience are being accounted for within decision-making.



Climate adaptation and resilience are often used interchangeably, however 'adaptation' is when there are adjustments or changes made in response to climate change impacts to be able to live with the new change. It can take on many forms, at a country, region, community or organisational level. For example, at a macro level it can be building flood defences, planting drought resistant crops, setting up early warning systems for cyclones. At a micro level it can be building houses that are shielded from burning debris in the event of a wildfire. Whereas 'resilience' describes the capacity or ability to anticipate and cope with shocks and changes, and to recover from the impact and bounce back to the original state. It looks at the capacity of social, economic and ecosystems to cope with a hazardous event, trend or disturbance related to climate change.

In the context of restoration, conservation and refurbishment of heritage buildings and structures along with new build (design, supply and installation of stonework and other hard bodied materials) climate adaptation and resilience can be viewed and integrated at all stages: from sourcing materials, engaging with the supply chain for manufacture, distribution and logistics, to installation and ongoing maintenance. As global temperature increases, it's expected that much of the globe will experience more rainfall. This is because warmer air can hold more water, so rainfall is expected to increase and become more intense in many areas. The Met Office [predict](#) that the UK will see warmer and wetter winters, alongside hotter and drier summers. So, there's an increasing frequency of low impact events expected in the UK over the coming years. Shifts in weather conditions can have an impact on the buildings we live and work in, especially when they're made of stone and similar materials. Whilst generally reliably durable, stone discolouration and dullness from air quality and carbon emissions can occur, and along with algae growth, damage from excessive water evaporation and freeze-thaw cycles can lead to cracks, gaps and crystallisation. It's likely that this will become more prevalent with an increase in wet weather. Especially for historic buildings, there's likely to be increased potential for water to penetrate into the fabric of buildings if there's less opportunity for drying between rainfall



events, combined with increased flooding. In addition, increased thermal stress during hotter drier summers could lead to subsidence. Climate adaptation and resilience therefore need to be considered when designing, constructing and maintaining buildings.

Embodied and operational carbon

Thinking about both operational and embodied carbon is imperative when demonstrating carbon adaptation and resilience. The built environment is one of the major contributors to carbon emissions and so reducing both the operational and embodied carbon associated with buildings is key in order to achieve the UK Government's commitment of net zero by 2050 and a reduction of 78% by 2035, on a 1990 baseline. Embodied carbon is the carbon dioxide equivalent (CO₂e) from the non-operational phase of a project, such as extraction, manufacturing, transportation, deconstruction, disposal and end of life. However operational carbon is from the energy and water consumed and the waste produced while the building is occupied.

Using low carbon materials, as well as secondary materials or those that have been reused or have recycled content is a good way of reducing carbon emissions associated with buildings. For example, typically stone, granite, marble and hempcrete have much lower embodied carbon than cement or brick. It's important to think about the right material for the job and making recommendations to clients that have lower embodied carbon choices.

Responsible sourcing and supply chain stability

Supply chain disruptions due to geopolitical issues and supply assurance are two of the top risks facing procurement [this year](#). Geopolitical issues can be influenced by climate change and so ensuring that there's minimal disruption and a reliable supply chain are integral to climate adaptation and resilience. This could be demonstrated by having a local supply chain or having a close working relationship with key priority suppliers and ensuring that you're aware of all potential risks.

Sustainable procurement practices aligned to [ISO 20400](#) are best practice and ensure that risks are managed effectively. When it comes to modern slavery and human rights risks in material supply chain, it's important to think about climate change migration and the impact it may have on increased numbers of modern slavery, as refugees seek work. Being mindful of this when procuring work with suppliers globally

can reduce risk and increase supply chain stability, especially in regions where modern slavery and human rights violations are more prevalent, for example in quarries in [India](#), [DRC](#) and [the Far East](#). A 'Just Transition' seeks to green the economy and move away from fossil fuels in a way that is as fair and inclusive as possible, creating decent work opportunities and leaving no one behind. This concept should be woven into all responsible sourcing processes and methods.

Bringing climate adaptation and resilience together into a robust and bespoke sustainability strategy that engages all key stakeholder and has clear commitments, objectives, targets and actions demonstrates a mature approach to climate change. It helps to manage impacts both now and in the future, illustrating how organisations are properly incorporating climate adaptation and resilience into their decision-making.

Additionally, sustainable procurement should be used as a lever to achieve sustainability commitments. Best practice is to have a robust sustainable procurement policy, having identified



through heatmapping what and where your hotspots are, incorporating key sustainability requirements into tenders and contracts, having a Supply Chain Charter that clearly sets out the requirements of the supply chain, and to be collecting supply chain performance data that informs an ongoing relationship with suppliers. This enables relationships, supply, and projects to adapt to ongoing climate changes, and to be resilient to cope with the impacts of climate change.