CLIMATE RESILIENT CHURCHES

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CATHEDRAL AND CHURCH BUILDINGS DIVISION

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Cover: **St Edward, Mottingham (2018)**
Opposite: **St Edward, Mottingham (2022)**

Imprint

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Corrections or queries should be brought to the attention of the Environment Team of the Cathedrals and Church Buildings Team

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FOREWORD

Church buildings are often solidly built and, when maintained well, have withstood the weather over the centuries.

However, as the climate changes, and weather events become more extreme, they can become vulnerable. We need to be protect these precious buildings from harm.

At the same time, our churches act as sanctuaries for their communities; they are often built on higher ground and more solidly constructed than the houses around them, so can be a place of safety during a flood, and can act as a cool sanctuary in a heatwave.

Why does climate resilience / adaptation matter?

Even if all greenhouse gas emissions were to stop today, climate change would continue to become more severe for another 30 to 40 years, due to the greenhouse gasses already in the atmosphere. After this period, the climate would slowly start to stabilise.

It is therefore crucial that we protect our communities and buildings from existing and future climate change, and the associated severe weather events which come with it.

We need to become 'Climate Resilient' so we can respond to more extreme, changing weather.

What weather do we need to be ready for?

The following general changes in climate can be expected. The longer we keep releasing greenhouse gasses into the atmosphere, the more severe and frequent they will become.

Headline climate changes:

- Greater risk of warmer, wetter winters
- Greater risk of hotter, drier summers
- Greater risk of severe weather events

Likely changes in severe weather events:

- Increased risk of very hot days and intensity of heatwaves.
- Increased risk and intensity of droughts.
- Increased risk of intensive rainfall and flash (pluvial/ urban) flooding over short periods, mainly during the summer period.
- Increased risk of high daily rainfall totals and (fluvial/ river) flooding, especially during the winter.
- Reduced risk of wintry conditions, snowfall and frost.
- Increasing frequency and severity of severe weather events, including storm surges.
- Increasing rate of sea level rise.

For a more detailed examination of the impacts of climate change in the UK, please see the latest UK Climate Change Risk Assessment (UKCCRA) that can currently be found at https://www.gov.uk/government/publications/uk-climate-change-risk-assessment-2022 and look at the Met Office website.

Opposite: **St Mary, Ellenbrook**

BECOMING A CLIMATE RESILIENT CHURCH

Whilst the process of becoming a Climate Resilient Church may seem initially daunting, this section of the guidance breaks down the process that can be undertaken in any church to begin their resilience journey. There are five key steps every church should take to ensure your church building is climate resilient:

1a Good maintenance

The most important step to managing climate risks to your church building is a maintenance plan that is fit for purpose. Particular areas that should be targeted in such a plan are:

- Areas that prevent damp ingress into the building (e.g. roofs, doors, windows etc.)
- Scheduling regular gutter clearing and checking drains
- Being aware of and fixing damage to the envelope of the building (e.g. broken windows, leaky seals, blown off roof slates).

A regular maintenance routine will limit the accumulation of issues that although individually negligible can, when experienced concurrently, significantly increase the exposure of churches to climate impacts and result in large expenditure in the future.

Maintaining the building's heating envelope (the parts of the building that keep heat in and cold out, e.g. walls roofs and windows) will also have significant comfort benefits, as well as reducing the amount of energy necessary to heat the building (for more information on heating please see the guidance at https://www.churchofengland.org/resources/churchcare/advice-and-guidance-church-buildings/heating).

Action

Ensure your maintenance plan is up to date, reviewed regularly and carried out on the required basis.

Opposite: **Wennington Parish Church**

1b Identifying and discussing potential risks

This guidance provides an overview of some of the key future generic climate risks to buildings, and there is a lot more on the Climate Resilient Church website. You will find an interactive diagram where you can explore all the main risks and the actions to take. Spending a few minutes online exploring this diagram, will help you become more aware of the range of climate risks affecting churches.

However, it is important that you become aware of the issues that particularly affect your church building. The most important knowledge base for this is among your community. Here are some ways it could help:

- Local knowledge on historical weather and more extreme weather events like floods as well as damage and wear of the church building can help to identify key risk factors for your church building.
- Knowing the direction from which flood events have previously occurred can be important in creating response plans, particularly if access can be limited by floodwater.
- Knowledge of other risk factors to your church building. These could include exposure to wind, proximity to and location of drainage, or the date of latest maintenance to the roof.

There are a number of resources available online that may help identify risks that affect your local area:

- Your local authority 'Local Climate Impacts Profile' (for example see Greater Manchester's.
- The National Trust Climate Hazards map is a free resource identifying key climate risks across the UK on a localised level, for factors such as overheating, storm damage and soil heave: National Trust Climate Hazards (arcgis.com)
- GOV.UK long term flood risk data identifies risk as well as potential management strategies across the country that you could use for your church and community: https://www.gov.uk/check-long-term-flood-risk

Action:

Write down the key risks, and discuss them with knowledgeable people in the church community. This is a vital first step in creating a Climate Resilience Action Plan.

Above: **Wennington graveyard following fire**

1c Create and discuss a Future Climate Action Plan

Once you are aware of the potential risk factors that affect your church building you should ask yourself the questions below, and use the answers to create a Future Climate Action Plan for your church building:

- What harm could this risk cause to the church or the community?
- What action could we take in response?
- Who is responsible for these actions?
- When does the action needs to happen? (It may be a one-off date, or a regular task like clearing the gutters.)
- Who else should be made aware of this?

A template for this is available on the Climate Resilient Church website. A simple worked example is also shown at the end of this guidance.

This plan should set out current and future actions for how to minimise identified climate impacts and what to do in the event of extreme weather events. As part of this plan, everyone involved should be aware of their roles and responsibilities should they be required. (For example, when there is a flood, who moves the chairs and altar table onto the mezzanine level? How do they know it needs to be done?)

It is also important that the information from your Future Climate Action Plan should be integrated into your regular maintenance and inspection plans, as well as considered when Faculty applications or works are carried out on the church buildings. By being aware of future risks you can ensure that money spent on the building is spent well on materials and equipment that will last and be fit for purpose long into the future.

Action:

Use the template and the worked example to create a Future Climate Action Plan for your church, and discuss it with your PCC. Share it with other churches so we can learn from each other (details for sharing on the Climate Resilient Church website).

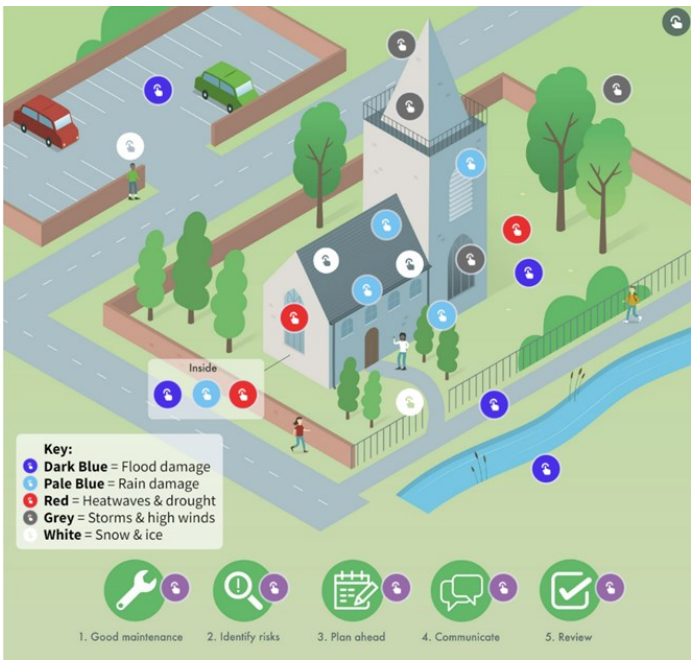
1d Communicating expectations

It is important that those with a role in maintaining or managing the church building are well informed of the Future Climate Action Plan. However, it is also important to keep the wider community connected and aware of this work. Climate change will not just impact churches but be felt across the community so by sharing the work done to protect the church it may help others to help protect themselves. You may also find expertise that is helpful in identifying new climate risks that you were previously unaware of.

Integrating the wider church community in climate resilience work is also important as this will be an ongoing, and evolving process that will inevitably underpin many of the decisions made about the future of the church building. Sharing this information will create capacity and allow others to continue planning and maintenance regimes into the future.

Action:

Identify ways to speak with community members about your Future Climate Action Plan.



Above: **Climate Resilient Church diagram**

1e Undertake a regular review process

Guidance surrounding climate resilience and adaptation in churches is currently evolving rapidly. Updated guidance as new knowledge becomes available will be found on the Climate Resilient Church page, or alternatively through organisations such as Historic England or Historic Environment Scotland.

Secondly the local built and natural environment surrounding the church may change over time creating new climate risk and eliminating others. Examples of this may include:

- Increased tarmacking of the surrounding environment increasing vulnerability to flash flooding in periods of extensive rainfall
- Growing/new trees in the vicinity of the church increasing risks of wind damage
- New housing developments impacting flood plans and shifting direction and degree of river-based flood risk

It is important to remember that the surrounding environment is vital to our understanding of climate risk, as well as changes to the fabric of the church. For example, guttering replacement may decrease the risk to damp ingress, but without adequate surface drainage increase risks associated with standing water.

Action:

Consider your Action Plan annually, or as often as reasonably possible.

Real Example: Climate Risks at St Michael's and All Angels, Tirley

- The Severn River overtopping it's banks, flooding the church and surrounding area.
- Cold in winter making church access and heating extremely difficult.
- High winds blowing off slates
- Potential damp ingress through rainfall and aged cladding preventing breathability.

Below**: Wennington Parish Church**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CREATING CLIMATE RESILIENT COMMUNITIES

Dealing with the impacts of climate change is going to be, if it is not already, one of the largest and cross cutting challenges of the next century. It will impact every single person across the globe and importantly in our parishes. Whilst the changes in weather will likely negatively impact most people in the UK, there is an important opportunity for churches to take practical, missional steps to increase the resilience of not just their building but their community.

Churches have had a well-documented role in supporting communities historically and now through schooling, food provision and debt relief. As climate change starts to have a wider impact in the UK there are a number of key ways that you could consider using your church building to support the wider community, particularly vulnerable members of your community, from climate impacts.

Opposite: **A Climate Resilience workshop**
Right**: Emergency equipment at St Michael and All Angels, Tirley**

2a A refuge from extreme weather events

Many church buildings, particularly those built in the medieval period, are situated on the highest ground in the local area. If your church is, and you have identified flooding as a potential climate risk, you may like to consider the possibility of using your church as a place of refuge for those displaced by flooding. Churches have been used for this purpose for centuries and your church may be able to continue this tradition of refuge.

There are a number of practical considerations to engage with before such an event would occur, or if considering the reordering process:

Considerations of food and hygiene provision for a large number of people. What facilities may you have currently? How would they cope under the pressure of continual usage?

- Spatial requirements for sleeping a large number of people. Do you have areas of open space? Are there carpeted or insulated areas?
- The cost of heating the building over a long period of time may need to be covered, although some local councils have previously been able to issue emergency grants.
- Access to bedding and other useful materials.

It would also be helpful to be aware of the households most prone to flooding and integrate this possibility into your existing disaster management plan.

2b A base for the emergency services

One way that some churches have been used during extreme weather events is as an emergency response centre. Without providing overnight support, emergency services and local communities may benefit from using space in the church as a distribution centre for food, water and clothing supplies. Particularly in areas where flooding or land slippage may isolate communities, PCCs should be aware that their church buildings may represent the only significant storage space and be prepared to adapt the regular function of the church to support this usage.

These issues should be considered in advance before an emergency situation occurs:

- Health and safety issues related to delivery, storage, and transport of heavy items
- Strategies that allow the spiritual life of your church could continue whilst being used for other purposes
- The potential for refrigerated storage
- Adequate heating arrangements
- Identifying and training a liaison person for the emergency services, to ensure maintenance of communication channels

Real Example: Flood Refuge at St Laurence Priory, Snaith

- Historic flood event caused church to be used to house large numbers of community members and emergency service people.
- Church provided hot drinks, meals and clothing to those most affected.
- Needed more sanitation provision and donations of time and money from the community to keep running.
- Has become a key missional point for the church now and in the future.

2c A sanctuary from overheating

Churches are uniquely positioned in many urban and rural areas as a building that will stay cool for a significantly longer period due to the very high heat capacity of the stonework and high ceilings.

Whilst the thermal capacity causes significant challenges for heating in winter, in the near future it will be extremely valuable as a 'Cool Space' of sanctuary in summer for many communities. As summers in the UK will continue to get hotter on average and heatwaves will increase in both duration and frequency, your church may be able to offer space that can be used by those most at risk from heat, particularly the elderly, the very young, or those in poorly insulated housing, until temperatures return to a safe level.

This is an activity that many churches have already undertaken, although on a largely spontaneous basis. There is a significant advantage in planning for these events for:

- Ensuring availability of volunteers
- Access to refrigeration
- Creation of comfortable seating and work spaces, including Wi-Fi considerations
- Most importantly ensuring that the community is aware that such a space is available.

If this is something that your church may consider we recommend engaging with your local council, many of which run their own 'Cool Spaces' or similarly named programme and may provide advice and publish your buildings availability (the Greater London version of this programme can be found at https://www.london.gov.uk/what-we-do/environment/climate-change/climate-adaptation/cool-spaces).

Real Example: Cool Space at St Mary's, Ellenbrook

- During summer heatwaves, opened church to community as a meeting, co-working and spiritual space.
- Building was able to stay cool until the end of the heatwave period.
- Provided cold drinks and frozen treats to the community.
- Gained national media attention and increased visibility within local community.

2d Worked Example of Future Climate Action Plan

	Risk Description	Impact (H/M/L)	Probability (H/M/L)	Actions Taken	Future Actions	Manager	Last Reviewed
1	Flooding of the Itch impacting the local community	Low	High	Aware of local flooding patterns and alert system	Consider need for more open space suitable for storage	[Church Warden]	10/09/22
2	Flooding of the Itch causing the church to flood	High	Low	Sandbags stored in local houses and bell tower	Be aware of flood patterns and warnings	[Church Warden]	10/09/22
3	Damp entering the church	Medium	Medium	Examination of walls for damp Checked windows and doors for gaps	Update guttering Check bell tower	[PCC member]	30/09/22
4	Wind damage to roof and windows	High	Low	Inspected current windows Fixed latch on window	Wait for quinquennial report on roof Follow up any recommendations	[Church Warden]	10/09/22
5	Potential of damage from falling trees in high wind	High	Low	N/A	Ongoing checking of nearby trees	[Church Warden]	10/09/22
6	Overheating in community during heatwave	Low	High	N/A	Gauge community interest in using church building	[Church Warden]	10/09/22
7	Community heating homes in energy crisis and cold weather	Low	High	Discussed suitability of church building Stored blankets and warm clothes in vestry	Establish volunteer group to call round and check on vulnerable community members	[Vicar]	3/10/22

Below: **St Michael and All Angels, Tirley**