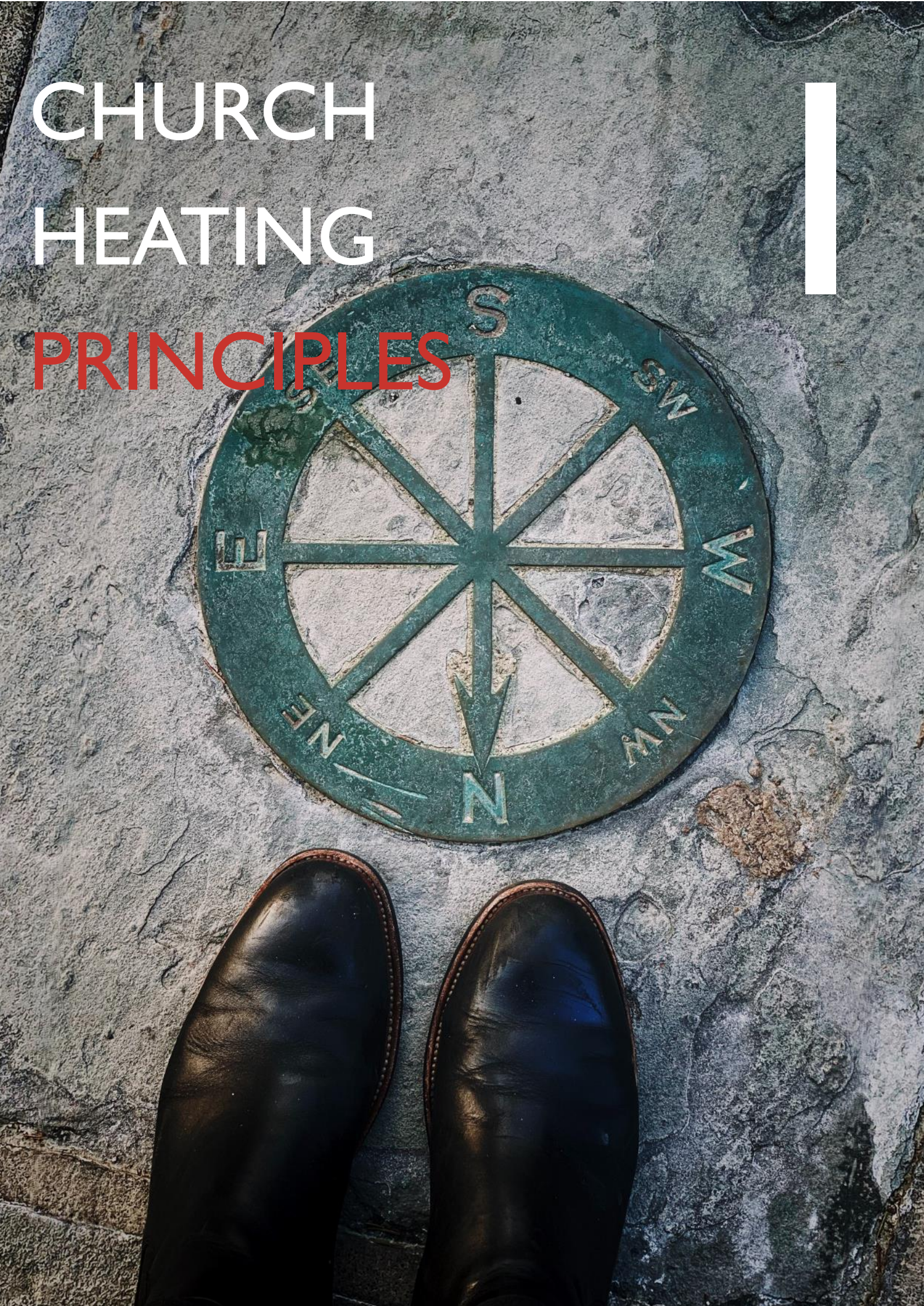
CHURCH HEATING PRINCIPLES



CHURCH HEATING

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PRINCIPLES

The way our churches are heated is vitally important for comfort, for the climate, and for conservation. It can also be complicated, with a variety of sometimes conflicting objectives. Different people understandably put different emphasis on aspects of church heating.

To help guide dioceses and churches through this, a set of principles was agreed by the Church Buildings Council in February 2020. These aim to help staff, both centrally and in the dioceses, develop their heating guidance.

The principles can also help individual churches when thinking about their own heating.

1a Our starting point: people, clean energy, and the climate crisis

Heating guidance needs to focus not primarily on boilers or heaters, but instead on people, and how they use the building.

It is people who feel comfort or discomfort and people who are the focus of the mission of the church. A warm and welcoming building is ideal, but realistically many churches struggle to achieve this; space heating to 18°C or higher is often aimed for, but is expensive, doesn't always make people comfortable, and can be environmentally unsustainable. What is more, inappropriate heating may cause significant damage to the historic building fabric and to artefacts, which can result in further considerable costs for the PCC to repair or conserve. Many churches across the country are now introducing other cost-effective ways of achieving comfort that are also more conducive to the conservation of the fabric

The decisions we take about our heating exist in the current environmental context—a growing awareness of the climate crisis and its devastating effects on people worldwide.

We know heating makes up over 80% of a church's energy use on average, and so 'decarbonising' this heat is critical if we are to cut our carbon footprint. This means moving away from oil wherever we can, a shift towards electric heating powered by 'green' electricity, and other potential solutions such as district heating and a future move from gas to hydrogen. As UK power stations have

moved away from coal and towards renewables, the national grid has begun to 'decarbonise', making electricity cleaner.

Church heating can be a somewhat dry, technical area, but decarbonizing heat is critical to the Church fulfilling its fifth mark of mission:

To strive to safeguard the integrity of creation, and sustain and renew the life of the earth.

Currently, we burn fossil fuels in our churches to heat them: the very fossil fuels which are contributing to climate change. Therefore, finding outcomes which offer an acceptable combination of comfort, conservation, affordability, and environmental care is vital.

1b Ten heating principles

1 For all churches, not wasting energy and optimising the system they already have are key places to start

This involves, for example, maintaining gutters and roofs to avoid damp, draught-proofing doors, lagging pipes, insulating lofts, having broken windows repaired, zoning the heating, and setting the heating controls correctly. In this way, heat loss can be significantly reduced, reducing the demand for heat input from the heating system, and cutting energy use. It can also mean behavioural change; encouraging people to sit away from problematic draughts, turning off heaters and lights that aren't needed, and keeping track of energy use more closely, in order to spot any waste.

2 The approach to heating needs to find the right balance, for each particular church, of five things

- Church-users being comfortable, so the church is welcoming and usable,
- Historic fabric and materials not being harmed,
- Affordability (to install, maintain and run),
- The feasibility of, and appetite for, change, and, last but certainly not least,
- Reducing greenhouse gas emissions, which contribute to the climate crisis.

3 Consider how the church space is used throughout the week and throughout the year, who the users are (e.g. children, the elderly, visitors, congregation), and how they use the space

4 Different solutions apply to different churches—there is no 'one size fits all'

Every heating solution must be designed around the individual church's use and nature. Those churches which get used for one or two services on a Sunday with the odd hour mid-week for the bell-ringers and/or choir make up a substantial number of the churches in the country. The efficient heating solution in such a church is radically different to those churches which have activities occurring in them 5 days a week for 6 to 8 hours a day.

The heating advice must therefore be rooted in a clear understanding of how each individual church is used, now and in the future.

5 However, for the majority of churches, focusing on keeping people comfortable will be a better approach than trying to warm the whole space

Spaces are large, ceilings high and warm air rises. Comfort can be increased through reducing heat loss from the building, from simple 'soft' changes such as cushions, mats and door curtains, through temporary or permanent partitions, and through localised heating such as panel heaters or pew heaters.

6 For those churches with historic interiors and building fabric, which are susceptible to changes in environmental conditions, expert advice must be sought

This is to ensure any new heating regime or changes to an existing system does not cause added harm to the historic fabric and interiors.

7 Guidance must acknowledge where we are starting from (oil/gas boilers, wet-system radiators, issues with electricity supply in some places, and very little funding for changes) but also move towards where we need to be: a future where our churches are 'net-zero'

A net zero carbon building is highly energy efficient with all remaining energy from on-site and/or off-site renewable sources; this requires us to picture a future very different from now.

8 Getting to this future will take time and can only move at the pace feasible for each church

The progress will be limited by the affordability of the equipment, the price of electricity vs gas, the existing supplies and electrics of the church, its listing, and many other factors. **An options appraisal of some kind is vital.** For some churches, having fully assessed their options, there may currently be no feasible solution other than replacing gas-with-gas or even, in exceptional cases, oil-with-oil, but they can try to be ready for a future retro-fit when technology and the grid has progressed.

9 Consider a wide range of options including non-fossil-fuel-based heating

In keeping with our commitment to radically reducing the Church's greenhouse gas emissions, churches should be expected to have **at least carefully considered** the option of moving away from fossil-fuel based heating (gas and oil boilers) towards electric-based heating (such as air- or ground-source heat pumps, pew heaters, and far-infra-red radiant heaters), with these being powered by 'green' electricity. Other options to be considered include hybrid boilers, which combine a heat pump and a conventional boiler, and – if well implemented – biomass.

10 Consultation is vital

Early consultation with their local DAC is invaluable and to be encouraged, as is expert advice from appropriate heating consultants, who need to be well informed about the full range of heating options, in the context of historic buildings.

1c Overview of heating approaches

Applying these principles, it is clear that different heating approaches and energy sources achieve different outcomes. Each church will need to consider what balance they want to achieve between three key outcomes.

Our suite of heating guidance leads you through these choices. We suggest you next read Section 2 on heating perspectives and Section 3 on heating approaches.

Below: **An overview of heating approaches**