

Diocese of London



Shrinking the Footprint HEATING AND ENERGY EFFICIENCY IN CHURCHES

This guidance note is an introduction to how a church's heating can be run efficiently. For fuller information and guidance, visit the Diocese's web page on Generic Building Solutions, at www.london.anglican.org/Shrinking-the-Footprint-Generic-Building-Solutions.

Heating is a major user of energy in any building; according to analysis from the Diocese of London's Parish Annual Returns, it can represent about 80% of your energy consumption, 55% of your energy bills, and 60% of your church's carbon footprint. Churches are stereotypically considered cold buildings. In cases where this is true, it is not usually because they are never heated, but rather because so much heat needs to be emitted in order to warm up the interiors of such large buildings.

Ways of heating churches vary, from traditional 'wet' radiator and pipework systems through to electrical sources of heat. The information contained in this note is intended to offer practical suggestions for reducing your heating energy consumption (and your bills!). Although general in nature, much of the advice will apply to all heating systems.

General tips

- Turn your thermostat down. Heating should meet but not exceed minimum comfort standards – members of the congregation should not expect to be wearing shorts and T-shirts in church in February! Reducing your room temperature by a mere 1°C could cut your heating bills by 8-10 percent.
- Make sure that there are no unnecessary obstructions in front of radiators, heaters and air ducts.
- Bleed and clean your radiators on a regular basis, to ensure water circulates properly. Clean off the fluff and dust from the grill and filters of convector radiators and heaters.
- Install thermostatic radiator valves (TRVs) to prevent spaces from becoming overheated.
- Check for draughts and damage to windows, window frames and doors. Repair any damage and install or maintain draught seals where there are air gaps. Speak to the Diocesan Advisory Committee ([DAC](#)) regarding any repairs to window glazing.
- Make sure that your heaters and boilers are serviced regularly, at least once a year, and ask for a report on combustion efficiency.
- Insulate hot water tanks and piping. You do not want expensive heat leaking out.
- Install the latest time controllers to hot water boilers, immersion heaters and any circulating pumps so that they are set to provide heated water only when needed.
- Co-ordinate your use of the building. For example, if you wish to hold a small meeting, why not use the smallest practical ancillary room which can be heated independently, rather than heating a larger than necessary area?

Roof and wall insulation

Church roofs are often cavernous spaces, through which up to a third of the building's heat can be lost. If your church has an empty loft space, filling it with insulation could prevent the lion's share of this heat escaping.

However, historic buildings require natural ventilation. Care must be taken when considering any insulation in churches to ensure that no harm is done to the building fabric. Please consult your Quinquennial Inspector (QI) and the DAC about any such proposal.

You can also prevent heat loss by investigating the possibility of cavity wall insulation, if there is a gap between your inner and outer walls. Remember, however, that this is rarely possible in pre-1914 church buildings as these are generally of solid construction and do not have cavity walls. Again, consult your QI and the DAC when considering any works.

Replacement heating systems

If your heating system is no longer efficient and due for replacement then you should upgrade to a fuel efficient system. A low constant temperature is generally considered best for churches, as it provides a stable environment for the building fabric. If your building is used only once or twice a week it may be that shorter, stronger bursts of heat are necessary. Take account of the warm-up time, and the heat capacity of the stonework or brickwork – this results in considerable inertia – a church may take many hours to warm up properly. In any case you should consider the energy efficiency of your system.

If your boiler needs replacing why not consider the possibility of installing a biomass boiler? Biomass boilers use cheap sustainable fuels, usually wood pellets or wood chips, and are effective for constant background heating. They readily connect to wet heating systems although, you will need to make sure that there is plenty of space available for on-site fuel storage and delivery – and you should be aware that biomass boilers are not labour free.

When seeking a new heating system the following key factors, in addition to energy efficiency, should be taken into consideration: the way in which the building is used; what is best for the building fabric; and, in the cases of listed buildings, what is visually and architecturally appropriate. You will need to seek professional advice and gain permission for such work. Please see [Making Changes and Faculties](#) web page for further information.

Sources

For Creed and Creation: A simple guidebook for running a greener church, Gillian Straine & Nathan Oxley, Aldgate Press, 2007

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