INSULATION, DOUBLE GLAZING AND DRAUGHT PROOFING

BUILDINGS





www.ecochurch.arocha.org.uk



Insulation

WHY?

Insulating and draught-proofing churches can make financial savings, reduce your carbon footprint and perhaps, most importantly, make your congregation warmer and happier!

However, be sure to take advice on these topics as it's not always straightforward to insulate and draught-proof churches, especially heritage buildings where insulation may actually be damaging to the fabric.

HOW?

INSULATION

Churches are extremely varied in construction, often using multiple materials, some with little inherent thermal insulation.

Two main points to consider whilst insulating are:

- The transportation of hot water around the building, to ensure we heat people and not unused spaces. The boiler room, pipes, valves and joints can all lose heat rather than conveying it to the place it is meant to be. As well as stopping waste heat, insulating these areas helps prevent frozen and burst pipes in cold winters.
- 2. The 'envelope' of the building (walls, lofts, roofs, floors). Keeping the heat in is really beneficial. Newer buildings with lower ceilings and cavity walls are much easier to insulate than older structures. Buildings built before 1914 are usually solid construction so can't be insulated; in fact, insulation can be counter-productive as it may lead to moisture damage to the fabric of the church by preventing it from 'breathing'. Professional advice is essential.

Sometimes there are roof voids which can be investigated, or perhaps, like St James the Less in London, you can create a false ceiling to mimic the original roof and insulate in that space?







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Thermal imaging can be useful to determine where the heat is leaking from so you can focus your efforts on that area. (It can also be used to find damp patches and cracks in walls.) The Anglican Diocese of Guildford has bought a thermal camera for their parishes to use!

https://www.buildingconservation.com/articles/thermal-imaging/thermal-imaging.htm

There is masses of advice available for heritage buildings: <u>https://www.spab.org.uk/advice/knowledge-base</u> (choose energy efficiency).

https://historicengland.org.uk/advice/technical-advice/energy-efficiency-and-historicbuildings/ - insulation.

https://www.historicenvironment.scot/advice-and-support/your-property/saving-energy-intraditional-buildings/insulate-your-property/

If you want to find a commercial installer, look at the National Insulation Association for some in your locality: <u>https://www.nia-uk.org/</u>

The type of insulation you use has an environmental impact in itself – the raw materials, the energy to make the product, the life expectancy, disposal, the supply chain:

- Conventional insulation (fibreglass, rockwool, polystyrene) is made from petrochemicals, is not biodegradable but is cheap to buy and install and is often considered to have better performance, thus reducing the need for heating.
- Ecological or natural insulation comes from materials like wool, hemp, cellulose, wood, wool and cork. They have a number of advantages such as being recyclable or biodegradable, using little energy in the production process, and being safer to work with. Some are expensive and some are not suitable for damp environments.







Insulation

For information about eco-friendly materials: <u>https://www.insulation-info.co.uk/eco-friendly-insulation</u>

http://www.sustainablebuild.co.uk/insulationmaterials.html

DRAUGHT-PROOFING AND DOUBLE GLAZING

Glass is a major source of heat loss. Double or secondary glazing makes a big difference, so consider this for peripheral areas such as offices, other rooms, the manse or vicarage and church hall as well as where possible the church itself.

For double glazing of non-heritage buildings, the Energy Saving Trust has more detailed advice: <u>https://energysavingtrust.org.uk/advice/windows-and-doors/</u>

The Glass and Glazing Federation and Certass register suppliers to promote best practice and give customers assurance. You can search for suppliers local to you on their websites: <u>https://www.ggf.org.uk/ or https://www.certass.co.uk/</u>

Secondary glazing in an historic building is often complicated, so do take professional advice. However there are various approaches to protecting historic glass which also have an insulating effect: <u>https://www.buildingconservation.com/articles/protective-glazing/protective-glazing.</u> <u>htm</u>

Other ways to reduce heat loss might be insulated blinds, shutters, filling the gaps in floorboards, door curtains on exterior doors, draught excluders on frames, etc. <u>https://historicengland.org.uk/</u> <u>advice/your-home/saving-energy/making-changes-to-save-energy/draught-proofing/</u>

https://www.historicenvironment.scot/advice-and-support/your-property/saving-energy-intraditional-buildings/draught-proof-your-property/







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OTHER CREATIVE WAYS TO REDUCE HEAT LOSS

Here are a few other creative ways to consider reducing heat loss:

- Seating use cushions (maybe heated ones see case study).
- Floors use floor rugs or carpet. Here is some useful thinking about carpeting from the Anglican Diocese of Exeter: <u>https://exeter.anglican.org/wp-content/uploads/2014/10/</u> <u>Carpeting-2016.pdf</u>
- Insulate under pew platforms in older churches.
- Use curtains to draught-proof an entrance lobby, tower door or windows.
- Perhaps put up a secondary structure within the main room. Christ Church Toxteth Park (Eco Church Gold Award) have done just that and use it in the winter to avoid heating the entire draughty building: <u>https://www.christchurchtoxtethpark.org/</u>

LONGER READS & OTHER RESOURCES

https://www.which.co.uk/reviews/insulation/article/guides

Ecclesiastical Insurance have a video with helpful points on preparing for winter: <u>https://www.youtube.com/watch?v=mSzSZUIIW6I&t=53s</u>

Building Conservation have valuable resources for conservation, restoration and repairs of heritage buildings, including information about contractors: <u>https://www.buildingconservation.com/</u>







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CASE STUDIES

Pew heating from Holy Trinity, Whitfield: <u>https://www.hrballiance.org.uk/news/roving-reporter/heated-pew-cushions/</u>

Salisbury Cathedral (Eco Church Gold Award) used isothermal glazing primarily to protect its stained glass. They say 'In our Silver application we deemed this question non-applicable. On reflection, we should acknowledge that we do in effect have double-glazed glass in the cathedral. For the protection of our stained glass after repair and renovation, we installed an outer layer of isothermal glazing to protect it from wind and water penetration. It also eliminates drafts and helps conservation of interior heat. The area of glass treated this way, including the whole of the great west window, is great enough to have some effect on heat retention.' http://www.salisburycathedralstainedglass.co.uk/protection

Most of us can't use hot spring water like Bath Abbey: <u>https://www.bathabbey.org/underfloor-heating-paves-the-way-to-a-greener-bath-abbey/</u>

STRATEGIC DEVELOPMENT GOALS

Taking action on this topic will contribute to these UN Strategic Development Goals:





