

# Appendix 1:

## Insulation: Risks and Mitigation

This highlights some of the key risks and mitigation factors associated with insulating historic buildings; the level of risk may be determined depending on the church in question. Please note that this is in no way exhaustive; a full risk management process should be undertaken prior to any works being undertaken.

Risk	Level of risk	Mitigation
Disturbance of habitat of bats / nesting birds		Undertake a bat survey by a chartered ecologist prior to works. Follow recommendations. More information on bats in churches available at <a href="https://www.churchofengland.org/more/church-resources/churchcare/advice-and-guidance-church-buildings/bats-churches">https://www.churchofengland.org/more/church-resources/churchcare/advice-and-guidance-church-buildings/bats-churches</a>
Risk to construction workers from asbestos or other hazardous materials		Verify whether there is any asbestos in roof structure, pipe lagging etc. Have asbestos removed by an asbestos removal specialist Ensure appropriate PPE is provided
Damage to building fabric over time due to condensation		Oversee procurement to ensure that all materials used are vapour permeable and appropriate provision is made for ventilation within the building structure. Ducts and pipes passing through insulation are carefully detailed Un-flued gas heaters not to be used in church buildings.
Airtightness of insulation materials not achieved		Strategy for filling gaps and sealing joints devised. Consider air pressure testing to ensure air tightness, and remedy failure points within insulation
Occurrence of thermal bridging		Works carefully detailed by a qualified professional. Works undertaken by accredited professionals with experience of working with heritage buildings and natural building materials.
Damage to roof structure due to weight of insulation		Consider a structural appraisal of roof. Reinforce roof structure if required.

Concealment of historic details		Historic details identified. Insulation design to minimise visual obstruction of these details. Materials chosen to allow flexibility around detailing.
Loss of internal space		Benefits of insulation weighted against loss of internal space. Loss of space minimised through design and material choices
Loss of access for maintenance of wiring, lighting, sockets etc		Embed wiring in appropriate ducting or conduit, ensuring adequate consideration is given to heat produced by cables. All wiring installation to comply with the most recent version of BS 7671.
Failure to obtain appropriate permissions for retrofit work		Develop a full list of statutory and community stakeholders and devise appropriate consultation processes to develop the project. Ensure early consultation with relevant authorities (planning committees, diocesan advisory committee, local residents). Ensure that designs correspond to planning regulations and are sympathetic to historic character of building
Damage to existing roof coverings		Ensure that appropriate access is provided for works on roof to minimise traffic on roof coverings. If coverings require removal, ensure that this is performed by specialist, and ensure that appropriate storage is provided for any coverings between removal and reinstatement.
Insulation compromised by future works to building		Make a record of works including drawings and photographs, to be maintained with building records
Objects of Archaeological significance are disturbed by works to the building		Stop work and take expert advice if any artefacts are discovered while working on the building.