

Ventilation and Draught Proofing

If you're not ready to switch to a new heating system yet, one way to reduce your carbon footprint is to make the existing one run as efficiently as possible. Reducing heat loss from your building by draught proofing is one way to do this, though it's important to maintain ventilation to prevent issues such as condensation or timber rot.

Ventilation

Ventilation refers to air movement (air moving around a space) and air exchange (air moving between different spaces, including internal/external exchange). Good air movement and exchange helps to prevent a buildup of humidity in a building. High relative humidity can lead to mould growth, powdering and flaking of stone and plaster or cracking of paint. Fluctuations in relative humidity can also cause damage to timber as it expands and contracts.

Air movement helps moisture evaporate faster and causes heat to be lost from surfaces. These effects can be welcome during hot weather but can lead to people feeling cold or uncomfortable during colder weather. It can be caused by air moving through an open window or door, through fans or because of a poorly designed heating system, with warm air rising to the roof, cooling and falling back down.

Air exchange can be between two internal rooms or internal/external. When introducing new air into a space, you are also introducing all the environmental elements (wet or dry, hot or cold) of that air, which can have positive or negative consequences. The humidity and temperature of external air is also more variable than the air inside a church- introducing this increases the risks to building fabric and furnishings, as detailed above.

Our forebears (particularly Victorian Methodists) were very good at understanding and applying practical solutions to efficiently ventilate our church buildings (particularly those of pre-1919 construction) and thus it is important to fully understand any existing ventilation system before making alterations or changes to it. This may include wall ventilators or roof ventilators which can still (often with some renovation) contribute to a well ventilated space. Any changes need to take into account, therefore, a whole building approach utilising existing systems.

Draught proofing

To effectively draught proof, by improving thermal comfort and energy efficiency while avoiding the risk of poor ventilation, there are a few elements to consider.

1. Establish what you want to achieve, e.g. improved comfort, improved energy efficiency
2. Identify the source of problematic draughts, such as gaps in the external envelope or internal spaces being ventilated between each other
3. Check if stopping this air movement could unintentionally cause any damage
4. Is the draught proofing required year round, or is a temporary measure that can be used and removed as needed more suitable
5. If your building is listed then consider any impact on significance and the need for any formal consents. Draught proofing or secondary glazing is much preferred to window replacement. You can find more on our [Historic Places of Worship and Climate Change](#) page.

Common draught proofing measures include;

- Adding door curtains
- Draught excluders
- Repairing cracks in walls or ceilings
- Repairing windows or installing secondary glazing
- [Draught proofing windows and doors](#)