

*Adequate ventilation provision is vital in providing pleasant, comfortable internal conditions with suitable air quality in both domestic and non-domestic buildings. Ventilation may be provided by natural or mechanical means, or by a combination of the two (mixed mode/hybrid ventilation). It is important that ventilation requirements are met whilst minimising the energy use of the building.*

*This Technical Note discusses ventilation requirements in the UK, and how they may be achieved, concentrating on ventilation through the façade.*

## **Introduction**

It has been estimated that up to eighty per cent of our time is spent indoors. With the introduction of more airtight building construction, and modern lifestyles generating increased amounts of moisture and air pollution within both domestic and commercial buildings, ventilation has become more of a concern. Heating, smoking, cooking and breathing are all sources of atmospheric pollutants and water vapour. It has been shown that adequate ventilation is essential for the well being and health of building occupants and to the fabric of the building itself. Correct ventilation of domestic and commercial buildings is therefore essential.

Ventilation is simply the removal of stale indoor air from a building and its replacement with fresh outside air.

Ventilation is required for one or more of the following purposes;

- Provision of fresh air for breathing,
- Dilution and removal of airborne pollutants, including odours,
- Control of excess humidity,
- Provision of air for fuel-burning appliances (covered under Building Regulations Approved Document J (ADJ)).

Ventilation may also provide a means to control thermal comfort.

In domestic properties the building façade, especially the window element, provides the designer with the means of supplying ventilation to the building and its occupants.

Commercial buildings generally benefit from an integrated approach that commonly

incorporates some form of air handling plant together with air conditioning; however the use of natural ventilation in commercial buildings is becoming increasingly popular in order to reduce their energy use/carbon emissions.

Different buildings require different levels of ventilation. Guidance on ensuring sufficient ventilation is given in Building Regulations Approved Document F (ADF), Means of ventilation, 2010. The Building Regulations are discussed further in Appendix A

Equivalent guidance in Scotland is given in Technical Handbook 3, 2010 for guidance on ventilation requirements and Technical Handbook 6, 2010 for guidance on mechanical ventilation and air conditioning. Readers in Northern Ireland should refer to Technical Booklet K, 1998.

## **Types of ventilation**

The ventilation types identified in the Approved Documents are:

- Purge ventilation,
- Background ventilation,
- Extract ventilation,
- Permanent ventilation.

## **Definitions**

### **Purge ventilation**

Manually controlled ventilation of rooms or spaces at a relatively high rate to rapidly dilute pollutants and or water vapour.

Purge ventilation may be provided by natural means (for example by openable windows) or by mechanical means.