

Technical Note No. 32

Ventilation



Introduction

It has been estimated that up to 90 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 sleeping are all sources of atmospheric pollutants and water vapour. It has been proven 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.

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.

The level of ventilation required to each building type is covered within The Building Regulations 'Approved Document F' for England and Wales. Readers in Scotland should refer to the Building Standards (Scotland) Regulations for guidance on ventilation requirements, and readers in Northern Ireland should refer to 'Northern Ireland Building Regulations'.

It should be noted that buildings which house specialist activities such as schools, workspaces, hospitals plant rooms and smoking rooms will require specialist design to the standards listed within Section 2 of 'Approved Document F'.

Types of Ventilation

The ventilation types identified in the Approved Documents are:

- Rapid ventilation (e.g. opening windows).
- Background ventilation.
- Extract ventilation

- Permanent ventilation

Definitions:

Rapid ventilation

Rapid ventilation is defined as "one or more ventilation openings with some part at high level (typically 1.75m above floor level) such as an opening window."

Background ventilation

Background ventilation is defined as a ventilation opening (or openings) e.g. trickle ventilators or airbricks, fitted with a 'hit-and-miss' type grille, and where appropriate a suitably designed opening window (acceptable for domestic applications). The ventilation openings should be reasonably secure, adjustable and located typically 1.75m above floor level so as to avoid discomfort to the occupants from cold draughts.

Extract ventilation

Mechanical extract ventilation operated manually and/or by sensor or controller. For the purposes of this technical note refer to the Building regulations 'Approved document F' for guidance on the design requirements for mechanical extract rates.

It should be noted that extract ventilation is a requirement of Approved document F for kitchens bathrooms and utility rooms even if natural ventilation is provided.

Passive Stack Ventilation systems are acceptable forms of extract ventilation provided that such a system is suitably designed and certified by an approved or recognised body.