

Building Compliance
Design & Testing

Version 1.0
April 2024

ON-SITE

Ventilation Flow Rate Testing

Reasons for failure and key terms



Ventilation Flow Rate Testing

Reasons for failure and key terms

Reasons for failure

Dependent upon the location of fan system, each air flow measurement test is required to meet certain design target criteria in order to achieve a 'PASS'. The main reasons for a test fail are outlined below.

Reason for failure	Further information
The fan	If the fan is not powerful enough, it will not produce a satisfactory flow rate to achieve Part F compliance. When purchasing an extract, it is important to over-compensate, as with 'off-the-shelf' products, the manufacturers stated ventilation rates are recorded in a laboratory environment and, in many cases, do not represent an accurate level post-installation.
The ducting	If the ducting is flexible and not rigid, there are a number of problems that may arise: Kinks or splits in the ducting (especially in the case of cavity wall constructions); during construction the movement of materials within the wall may have squeezed or crushed the ducting; sometimes the ducting is not cut to length and any excess is left connected, which increases surface area and reduces airflow; and if a letterbox connector is used for long runs it significantly reduces the flow rate due to a smaller diameter.
The outside vent	It is possible for the outside vent to become blocked, or in the case of an incorrect installation it may not be properly connected to the ducting. It is also possible for the vent flaps to 'stick' or in the case of a low ventilation rate, for them not to open due to air resistance. Tile vents may also cause a reduction in the ventilation rate due to their reduced size.
Unknown	Our engineer was unable to determine the cause of failure. It is recommended that you contact your installation engineer to carry out further investigations.

Please note

Our engineers are unable to take apart the fans or ducting to investigate reasons for failure, as they are not qualified installation engineers.





Ventilation Flow Rate Testing

Reference tables for extractor fans

Key terms

The following key terms where used in this guide are shown in **bold**. For other terms, reference should be made to Approved Document F.

Background ventilator is a small ventilation opening designed to provide controllable whole building ventilation.

BCB or building control body is a local authority or an approved inspector.

Continuous mechanical extract ventilation (MEV) is a ventilation system comprising a central ducted continuously running extract fan (or a set of local continuously running extract fans in the wet rooms for de-centralised systems), air being supplied via background ventilators into the habitable rooms.

Continuous mechanical balanced ventilation with heat recovery (MVHR) is a ventilation system that comprises central ducted supply and extract fans, air being supplied into the habitable rooms via a heat recovery unit.

Equivalent area is a measure of the aerodynamic performance of a ventilator. It is the area of a sharp-edged circular orifice which air would pass through at the same volume flow rate, under an identical applied pressure difference, as the opening under consideration.





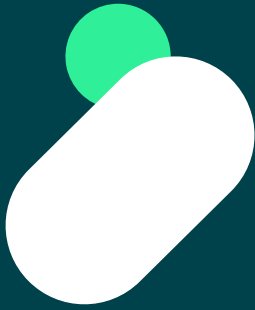
Ventilation Flow Rate Testing

Reference tables for extractor fans

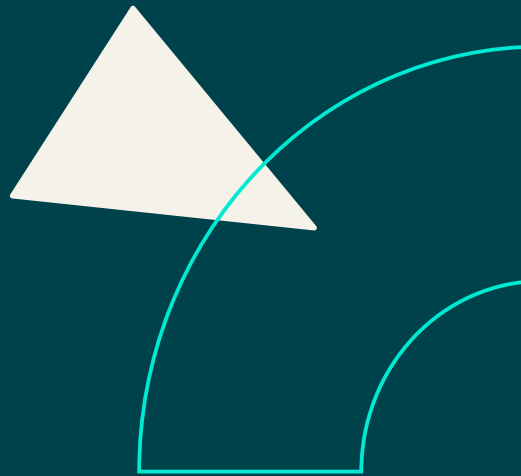
Free area is the geometric open area of a ventilator or terminal. Intermittent extract fan is a mechanical ventilator that does not run all the time, usually only running when there is a particular need to remove pollutants or water vapour (e.g. during cooking or bathing). Intermittent operation may be under either manual control or automatic control.

Passive stack ventilation (PSV) is a ventilation system using ducts from terminals in the ceilings of rooms to terminals on the roof that extract air to outside by a combination of the natural stack effect and the pressure effects of wind passing over the roof of the building.

Single room heat recovery ventilator (SRHRV) is a ventilation system comprising local continuously running balanced supply and extract fans in a single room.



All your compliance
under one roof.
No sub-contractors.
Just our friendly team.



ATSPACE
DELIVERING BEYOND COMPLIANCE

ATSPACE LTD
0345 6465 454
sales@atspaceltd.com
atspaceltd.co.uk

Unit 3 & 4,
The Cokenach Estate
Barkway, Royston
Hertfordshire SG8 8DL