

The Speed Frame Solution to Achieving

Part F1

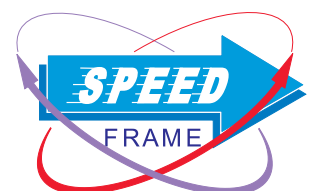
of the Building Regulations
Means of Ventilation

Part F1 the facts

- Part F applies to plans submitted from April 06
- Part F compliance is difficult to achieve technically and aesthetically without a vented head
- We closely followed the progress of Part F and have improved our cavity closer system to exceed the specified equivalent areas
- Do your buildings comply to **PART F**

Goldthorpe Industrial Estate, Goldthorpe, Rotherham S63 9BL
Tel: 01709 882903 Fax: 01709 882918
www.speedframe.co.uk

This document is released by Speed Frame as a guide to some of the issues for builders. Whilst every effort has been made to express accurately the content of Part F1 of the Building Regulation 2006, we strongly recommend clients review the official documents issued by the ODPM



Introduction

Recent changes to Part F of The Building Regulations means that there is a legal requirement to provide increased ventilation in newbuild properties. In this document, Speed Frame explain how compliance is achieved and the products available to meet these requirements.

Requirement

Means of ventilation

F1 – There shall be adequate means of ventilation provided for people in the building.

Limits on application

Requirement F1 does not apply to a building or space within a building :

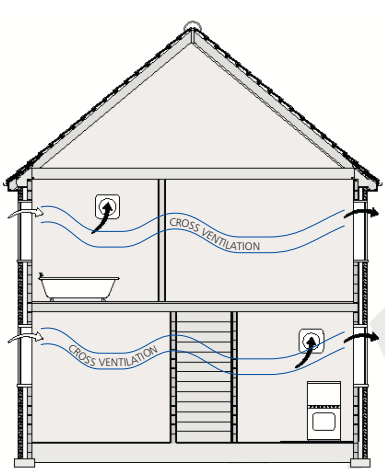
- into which people do not normally go; or
- which is used solely for storage; or
- which is a garage used solely in connection with a single dwelling

Terminology

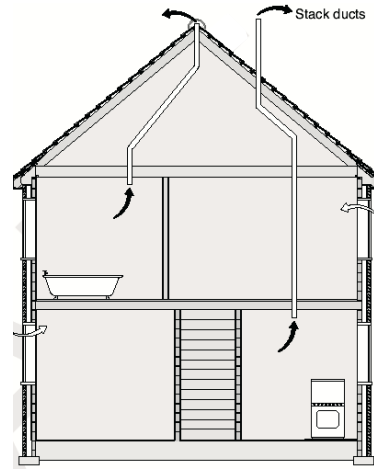
- Trickle ventilators are classed as background ventilators
- The term FREE AREA is no longer used, EQUIVALENT AREA is the measured performance of a trickle ventilator
- A new European Standard BS EN 13141-1:2004 (Clause 4), includes a method of measuring the equivalent area of background ventilator openings.

Methods of Compliance

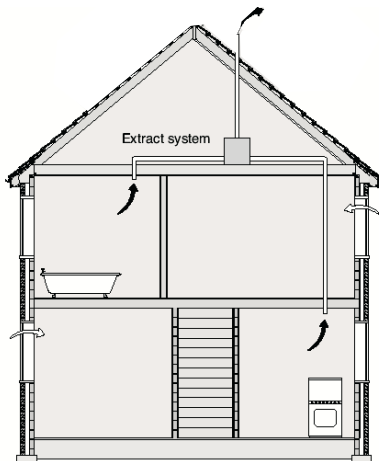
There are 4 systems that can be used to comply with the requirement.



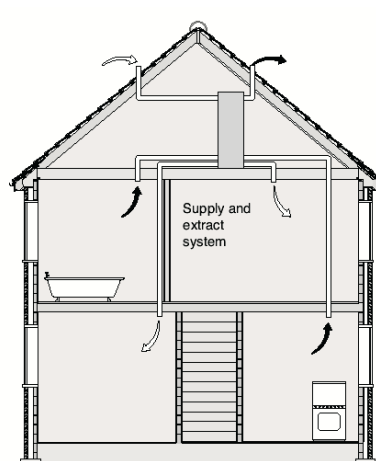
System 1 : Background ventilators and intermittent extract fans



System 2 : Passive stack ventilation



System 3 : Continuous mechanical extract



System 4 : Continuous mechanical supply and extract with heat recovery

Background ventilators (trickle ventilators)

For dwellings with more than one exposed façade:

- for multi-storey dwellings, and single storey dwellings more than four storeys above ground level, the total equivalent area for the dwelling is given in the table below; or
- for single storey dwellings, up to four storeys above ground level, take the total equivalent area for the dwelling from the table below and add 5,000 mm².

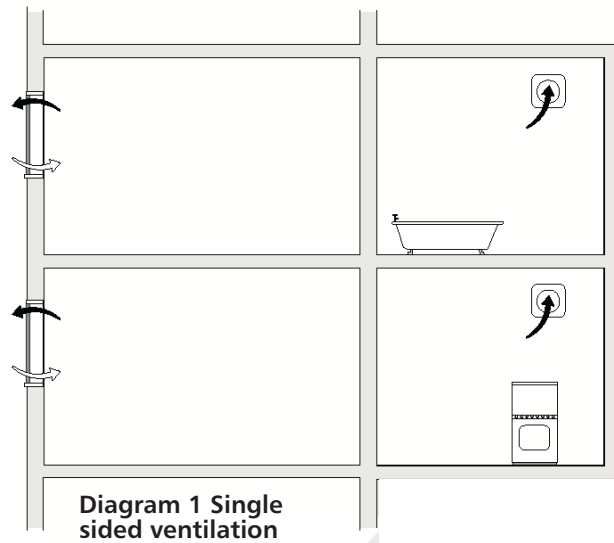
For a dwelling with only a single exposed façade :

Cross ventilation is not possible using this type of ventilation system and an alternative is required.

In this case, background ventilators should be located at both high and low positions in the façade to provide single-sided ventilation.

The total equivalent area at a high position (typically 1.7 m above floor level) for all dwelling types (i.e. all storey-heights) is given in the main table.

In addition, the same total equivalent ventilator area should be repeated and located at least 1.0 m below the high ventilators. See Diagram 1. Single sided ventilation is most effective if the dwelling is designed so that the habitable rooms are on the exposed façade, and these rooms are no greater than 6 m in depth.



Equivalent ventilator area^b for dwellings, mm²

Total floor area (m ²)	Number of bedrooms ^a				
	1	2	3	4	5
≤50	25,000	35,000	45,000		
51 – 60	25,000	30,000	40,000		
61 – 70	30,000	30,000	30,000	45,000	55,000
71 – 80	35,000	35,000	35,000		
81 – 90	40,000	40,000	40,000		
91 – 100	45,000	45,000	45,000		
> 100	Add 5,000 mm ² for every additional 10m ² floor area				

Notes:

- This is based on two occupants in the main bedroom and a single occupant in all other bedrooms. For greater level of occupancy assume greater number of bedrooms (i.e. assume an extra bedroom per additional person). For more than five bedrooms, add an additional 10,000 mm² per bedroom.
- The equivalent area of a background ventilator should be determined at a 1Pa pressure difference, using the appropriate test method.

Background ventilator locations

They should be located in the following rooms:

System 1 : Background ventilators and intermittent extract fans : Located in all rooms. Minimum of 5,000 mm² equivalent area in all habitable rooms. If a habitable room has no external walls, follow guidance in **Ventilation of habitable rooms through another room or a conservatory**.

Minimum of 2,500 mm² equivalent area in all wet rooms with an external wall. If a wet room has no external walls, follow the guidance for mechanical intermittent extract. The background ventilators should be at least 0.5 m from the extract fan.

The total equivalent area should be at least that given in the *Equivalent ventilator area for dwellings table*.

System 2 : Passive stack ventilation: Located in all rooms except within the same room as a passive stack ventilator. Minimum of 5,000 mm² in all habitable rooms. If a habitable room has no external walls, follow guidance in **Ventilation of habitable rooms through another room or a conservatory**

System 3 : Continuous mechanical extract: Located in each habitable room. The need for background ventilators will depend on the air permeability of the dwelling, and this is not normally known at the design stage. Therefore, as a precaution, it is recommended that controllable background ventilators having a minimum equivalent area of 2,500 mm² are fitted in each room, except wet rooms from which air is extracted. Where this approach causes difficulties (eg. on a noisy site) seek expert advice.

System 4 : Continuous mechanical supply and extract with heat recovery: No background ventilators required.

In addition, background ventilators should be:

All Systems: Located so as to avoid draughts; e.g. typically 1.7 m above floor level. For System 1, if dwelling has a single exposed façade, the low ventilators should be below this level

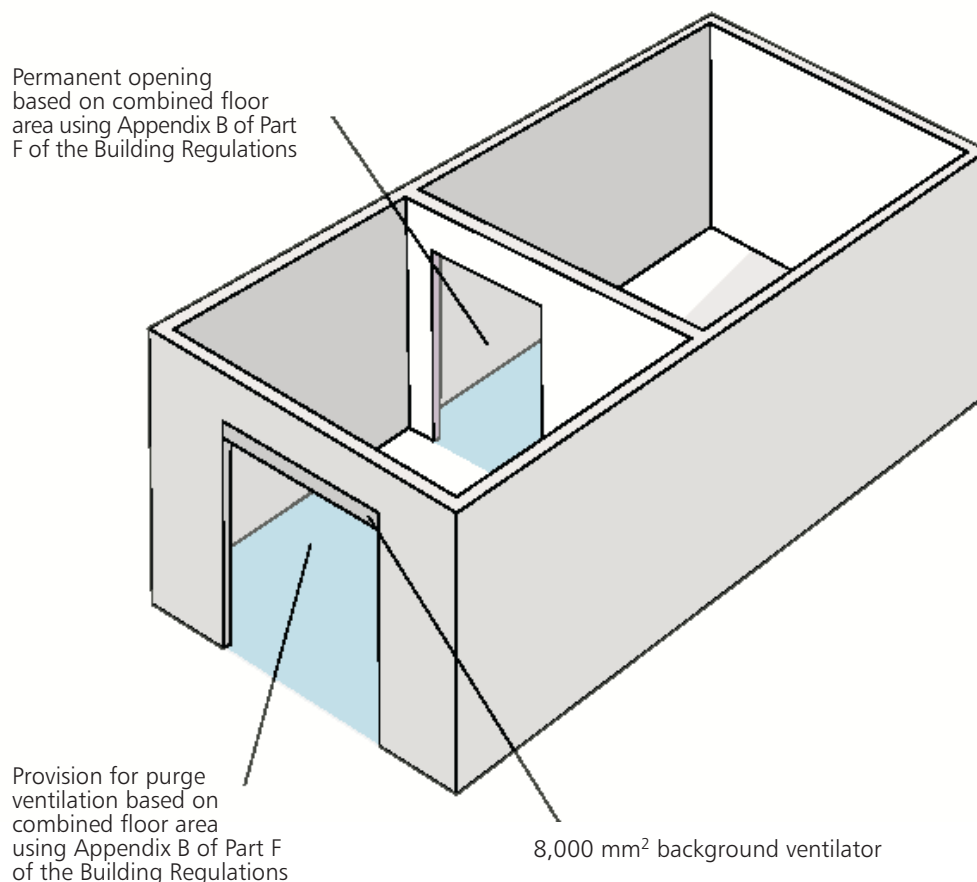
Systems 1 and 2: If the dwelling has more than one exposed façade, to maximise the airflow through the dwelling by encouraging cross ventilation, it is best to locate similar equivalent areas of background ventilators on opposite (or adjacent) sides of the dwelling.

Note that for Systems 1 and 2, the background ventilators have been sized for the winter period. Additional ventilation may be required during warmer months as stack driving pressures are reduced. The provisions for purge ventilation (e.g. windows) could be used.

Ventilation of habitable rooms through another room or a conservatory

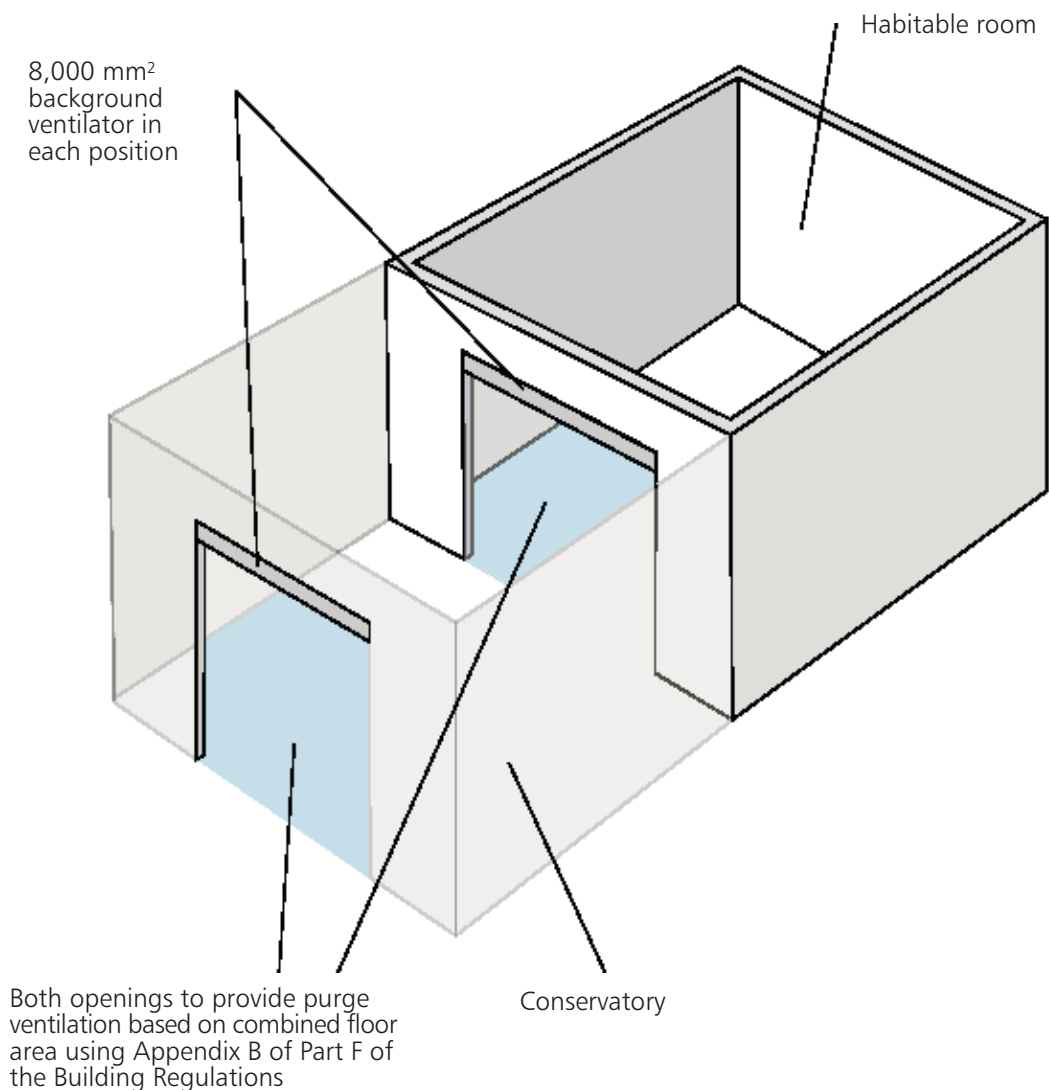
1. In a habitable room not containing openable windows (i.e. an internal room) the requirement will be met if the room is either ventilated through another habitable room (see Paragraph 2) or through a conservatory (see Paragraph 3).
2. A habitable room not containing openable windows may be ventilated through another habitable room (see Diagram 2) if:
 - a. there is from the habitable rooms to outside, provision for both:
 - i. purge ventilation, one or more ventilation openings, with a total area given in Diagram 2 based on at least the combined floor area of the habitable rooms; and
 - ii. background ventilator, a ventilation opening (or openings) of at least 8,000 mm² equivalent area; and
 - b. there is an area of permanent opening between the two rooms given in Diagram 2 based on at least the combined floor area of the habitable rooms.

Diagram 2 Two habitable rooms treated as a single room for ventilation purposes



- 3.** A habitable room not containing openable windows may be ventilated through a conservatory (see Diagram 3) if:
- a. there is from the conservatory to outside, provisions for both:
 - i. purge ventilation, one or more ventilation openings, with a total area given in Diagram 3 based on at least the combined floor area of the habitable room and conservatory; and
 - ii. background ventilator, a ventilation opening (or openings) of at least 8,000 mm² equivalent area; and
 - b. there are openings (which must be closable) between the habitable room and the conservatory for:
 - i. purge ventilation equivalent to 3a(i) above; and
 - ii. background ventilator(s) equivalent to 3a(ii) above which should be typically located at least 1.7 m above floor level and need not be within the door frame.

Diagram 3 A habitable room ventilated through a conservatory



The Speed Frame route to compliance

Narrow Module H = Habitable Rooms W = Wet Rooms	490		920		1350		1770	
	H	W	H	W	H	W	H	W
Part F Compliance	X*	✓	✓	✓	✓	✓	✓	✓
Equivalent Area mm ²	2800		5600		8400		11,200	

Standard Module H = Habitable Rooms W = Wet Rooms	630		1200		1770		2340	
	H	W	H	W	H	W	H	W
Part F Compliance	X*	✓	✓	✓	✓	✓	✓	✓
Equivalent Area mm ²	2800		5600		11,200		11,200	

Bay Modules 490 & 630 Returns	Front Window Modules			
	1200	1350	1770	2340
Part F Compliance	✓	✓	✓	✓
Max Equivalent Area mm ²	11,200	14,000	16,800	16,800

Hinge Door Set Module H = Habitable Rooms W = Wet Rooms	1200		1500		1770	
	H	W	H	W	H	W
Part F Compliance	✓	✓	✓	✓	✓	✓
Equivalent Area mm ²	5600		8400		11,200	

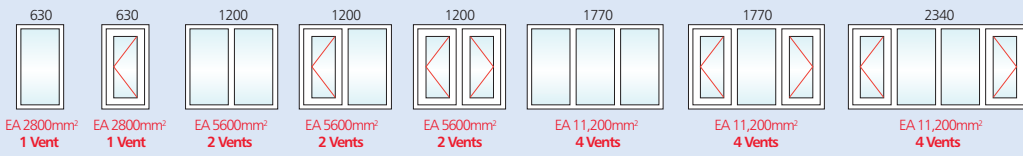
*These options would not comply when used singularly in habitable rooms

EA 2800mm² EA 5600mm²

Equivalent area of Speed Frame windows

Equivalent area = EA

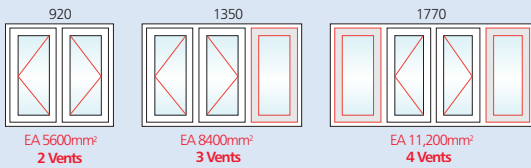
Standard Module Side Hung Casements



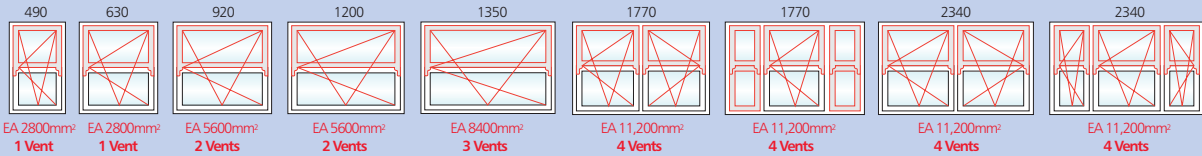
Narrow Module Side Hung Casements



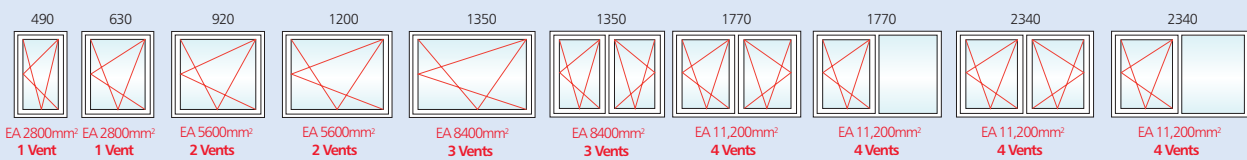
Fire Escape Windows (Flying Mullion)



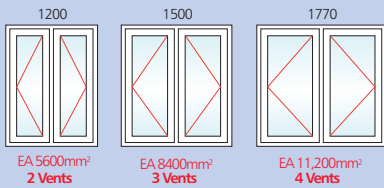
Pseudo Vertical Sliding Windows



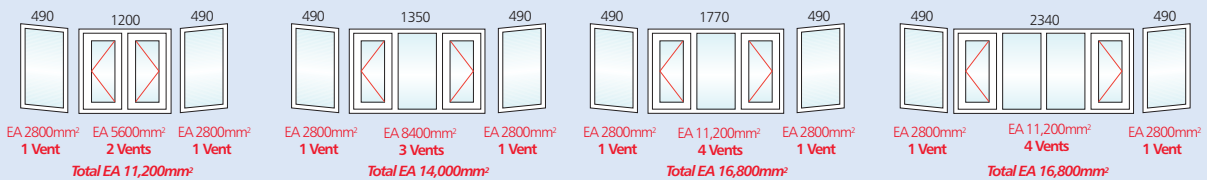
Tilt & Turn Windows



Hinged Door Sets Inward and Outward Opening



490 Returns Square and Splay Bays



630 Returns Square and Splay Bays

