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Summary of Approved Document F (Volume 2: Buildings other than dwellings)—the guidance for ventilation in non-residential buildings under the UK Building Regulations: VENTILATION TECHNICAL PLATFORM (VTP)- LIBRARY OF TECHNICAL GUIDANCE

Introduction

Summary of Approved Document F (Volume 2: Buildings other than dwellings)—the guidance for ventilation in non-residential buildings under the UK Building Regulations:

Scope

This briefing note provides an overview and quick reference guidance to the principle ventilation implications of the Approved Document F (Volume 2: Buildings other than dwellings)—the guidance for ventilation in non-residential buildings under the UK Building Regulations.

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Acknowledgments

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What is Approved Document F Volume 2?

Approved Document F, Volume 2: *Buildings other than dwellings*, provides statutory guidance on complying with **Part F of Schedule 1 to the Building Regulations 2010**, specifically for non-domestic buildings such as offices, retail spaces, gyms, car parks and shared communal areas within flats

The 2021 revision split Document F into two volumes: Volume 1 for dwellings and Volume 2 for all other building types. These changes came into force on 15 June 2022.

The full unabridged version of the document is available as below:

https://assets.publishing.service.gov.uk/media/62a761edd3bf7f03667c667e/ADF2_revised.pdf

Structure of Volume 2

Volume 2 is organized into:

Section 0: Introduction – including scope, application and exemptions

Section 1: Ventilation provision – detailed guidance on ventilation strategies and performance requirements

Section 2: Minimising external pollutants ingress

Section 3: Work on existing buildings

Section 4: Commissioning and providing information – covering commissioning requirements and documentation

Appendices – including key terms, performance-based ventilation, CO₂ monitoring and standards

Section 0: Introduction Scope, Application & Exemptions

Applies only to non-dwelling buildings. Shared communal areas in blocks of flats are also included here as exceptions.

Exemptions include certain historic or traditional buildings where full ventilation compliance might adversely affect the structure's character or fabric e.g. Westminster Abbey.

Section 1: Ventilation Provision (Requirement F1(1))

Objective

To protect occupant health by providing adequate ventilation, avoiding build-up of mould, indoor pollutants and airborne infection risks.

Key Principles of the Ventilation Strategy

Extract Ventilation: From pollutant-intensive spaces like kitchens, restrooms, or utility rooms, either via intermittent or continuous systems.

Whole-Building Ventilation: To supply fresh air and dilute residual pollutants and moisture across the building.

Purge Ventilation: Occasional, high-rate ventilation (e.g., after painting or heavy use) to rapidly remove concentrated pollutants.



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Indoor Air Quality Monitoring: For certain occupied spaces (e.g. offices, gymnasiums), CO₂ or other monitoring is required unless rooms are very small or very large

Natural, Mechanical, or Mixed-Mode Systems: Acceptable, provided they meet performance criteria; naturally ventilated buildings should refer to CIBSE AM10 and mixed-mode to CIBSE AM13

Performance-Based Ventilation: Acceptable if calculations show compliance with pollutant thresholds set in Appendix B. Where lower ventilation rates are proposed, expert validation is needed.
Additional Practical Considerations

Noise: Vent systems must be designed and installed to minimise noise, through correctly sized fans, ductwork and installation techniques.

Maintenance Access: Reasonable access must be available for filter changes, coil cleaning, duct access and general upkeep.

Weather/Comfort: Systems must protect against rain, avoid cold draughts and maintain comfort.

Health & Safety: Ventilation solutions must not jeopardise occupant safety.

Section 2: Minimising External Pollutant Entry

Guidance is provided to position intake vents away from pollution sources (like busy roads or extract flues) and optionally use attenuators in noisy locations to limit infiltration of outdoor pollutants and maintain indoor air quality.

Section 3: Work on Existing Buildings

When refurbishing or altering non-domestic buildings, the guidance emphasizes that ventilation should not be made worse than pre-work levels—especially important in retrofit or energy-efficiency upgrades, maintaining equivalent provision and ensuring continued occupant safety.

Section 4: Commissioning and Information (Requirement F1(2) and Regulations 39 & 44)

Commissioning mechanical systems: Must be tested and adjusted to verify they meet design ventilation rates and performance goals.

Documentation:

A commissioning notice must be submitted to the building control body (Regulation 44).

Owners must receive simple, clear written instructions for operating and maintaining the ventilation system (Regulation 39).

Testing New Installations: For new mechanical installations, airflow must be tested and results submitted to local authority within specified timescales.



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Appendices and Technical Support

Volume 2 includes:

- **Key Terms** (Appendix A)
- **Performance-Based Ventilation Methods** (Appendix B)
- **CO₂ Monitoring Details** (Appendix C)
- **Referenced Standards and Documents** (Appendices D and E)

Summary of Key Takeaways

In non-residential buildings, Document F Volume 2 underscores a **holistic ventilation strategy** combining extract, whole-building, purge ventilation and monitoring to ensure:

- Effective removal of pollutants and moisture
- Protection of occupant health
- Compliance with noise, maintenance and comfort criteria
- Proper commissioning and documentation for control and validation

It aligns with broader regulatory strategies for building safety, energy efficiency and occupant well-being

Tables Annex: Key Ventilation Provision Requirements

1. Offices (Ventilation Rates)

Parameter	Required Rate
Outdoor air supply (occupiable rooms)	10 l/s per person or 1 l/s per m ² (whichever is higher)
Supply in common areas (corridors, lobbies)	0.5 l/s per m ² if mechanically ventilated; or equivalent natural openings of 1/50 of floor area

2. Car Parks (Ventilation Opening Requirements)

Type	Ventilation Requirement
Natural ventilation	Openings with total equivalent area = floor area ÷ 20; 25% of that area on each of two opposing walls
Mixed ventilation	Openings must equal floor area ÷ 40 plus mechanical extract achieving recommended air changes (e.g., 3 ACH or more at queues)

3. Specific Occupiable Rooms (e.g., gyms, theatres)

Room Type	Ventilation Requirement
Rooms with aerosol-generating activity (e.g., gyms, theatres)	CO ₂ or IAQ monitoring required

These are not given fixed l/s values in Volume 2 but rely on performance-based monitoring and appropriate system design.

4. Purge Ventilation

Not explicitly tabulated in Volume 2 but inferred from previous guidance: Minimum of 4 air changes per hour (ACH) or window openings with total area ≥ 1/20 of room floor area for quick pollutant dilution.

How to Use These Tables

- **Offices (occupiable rooms):** Use per-person or area-based supply ventilation—**10 l/s per person** or **1 l/s per m²**, whichever is higher.
- **Common Areas:** Ensure a mechanical supply of **0.5 l/s per m²**, or provide natural openings equal to **1/50 of the floor area**.
- **Car Parks:** For natural ventilation, open wall areas must be sized to **floor area ÷ 20**, with half the opening on at least two opposing walls. Alternative mixed systems require **floor area ÷ 40** plus enhanced mechanical ventilation.
- **Special Activity Rooms:** These must include **IAQ or CO₂ monitoring systems** to ensure air quality meets performance targets.
- **Purge Ventilation:** Ensure capacity for **rapid air exchange**, typically achieved via mechanical systems or window openings approximating 1/20 of room area.