

What is the Minimum Ventilation Rate Needed for a Kitchen?

In the UK, kitchen ventilation rates are primarily governed by Approved Document F (Ventilation) of the Building Regulations, with the 2021 edition being the most current. These regulations aim to ensure adequate ventilation to prevent condensation, mould, and the build-up of indoor air pollutants, particularly from cooking.

Understanding Kitchen Ventilation Requirements in the UK

Kitchens are one of the most critical areas in a home requiring effective ventilation. Cooking generates moisture, grease, and pollutants like carbon monoxide and nitrogen dioxide, which, if not properly ventilated, can lead to health issues and structural damage. The UK's Building Regulations provide clear guidelines to ensure kitchens meet minimum ventilation standards.

Stop Guessing, Start Guaranteeing.

The minimum extract rates set out in Approved Document F are exactly that—a minimum. They are designed to help you clear the compliance hurdle, not to guarantee long-term performance, quietness, or comfort in a real home.

This is why VENTI approaches ventilation differently. We don't just calculate minimum rates—we design a complete Ventilation Strategy (The Air Passport) that proves compliance, protects against substitution on site, and ensures the system performs exactly as intended. It's the difference between hoping the kitchen meets the standard, and knowing the whole home is safeguarded.

Ready to go beyond the minimum?

Types of Extraction Systems and Their Minimum Rates

The regulations distinguish between different types of extract ventilation systems, each with specific minimum flow rates:

1. Intermittent Extract Systems

These systems, such as standard extractor fans or cooker hoods, operate as needed during cooking.

- **Cooker hoods extracting directly to the outside:** A minimum extract rate of **30 litres per second (l/s)** is required if the cooker hood spans the full hob width and vents externally.
- **Kitchen extraction elsewhere (not a cooker hood venting outside):** If there's no cooker hood venting externally, or the fan is located elsewhere in the kitchen, an intermittent extract rate of **60 l/s** is required. This compensates for less direct capture of cooking fumes.

2. Continuous Mechanical Extract Systems

Systems like decentralised Mechanical Extract Ventilation (dMEV) run continuously at a low trickle rate and boost when needed.

- **High (Boost) rate for kitchens:** A minimum of **13 l/s** is required for kitchens with continuous mechanical extraction. The continuous low rate is part of the whole-dwelling

ventilation strategy.

SOLUTION SPOTLIGHT: The VENTI ARIA 100 HT dMEV Fan



The 13 l/s Part F Continuous Boost

Solution

This fan is engineered specifically to meet the **13 litres per second minimum continuous high (boost) rate** required by Approved Document F for mechanical extract systems in kitchens. It is the direct answer to guaranteeing compliance while integrating seamlessly into your whole-house ventilation strategy.

Key Compliance Features: Automatically meets 13 l/s boost on humidity increase (cooking/showering), or via a remote switch.

Whole-Dwelling Ventilation Rates

Beyond individual room extraction, Approved Document F specifies whole-dwelling ventilation rates to ensure a continuous supply of fresh air throughout the home. These rates depend on the number of bedrooms:

- One-bedroom dwelling: 19 l/s
- Two-bedroom dwelling: 25 l/s
- Three-bedroom dwelling: 31 l/s
- Four-bedroom dwelling: 37 l/s
- Five-bedroom dwelling: 43 l/s

These rates distribute fresh air and disperse pollutants and moisture, preventing them from building up in other parts of the house.

Background Ventilation (Trickle Vents)

Background ventilators, often in the form of trickle vents in windows, ensure balanced airflow and prevent pressure imbalances. For kitchens, the minimum equivalent area for background ventilators is **8,000mm²** for multi-storey dwellings and **10,000mm²** for single-storey dwellings.

Purge Ventilation

Kitchens must also allow for purge ventilation, which rapidly removes high concentrations of pollutants or moisture. This is typically achieved by opening a window or door directly to the outside. The minimum total open area for a window should be **1/20th of the room's floor area**.

Why Adequate Ventilation Matters

1. Preventing Mould and Condensation

Inadequate ventilation is a leading cause of condensation and mould growth. A family of four can generate around 3 litres of moisture daily from cooking alone.

2. Dispersing Harmful Pollutants

Gas hobs emit nitrogen dioxide (NO₂), with concentrations peaking significantly above WHO annual limits during use. Effective ventilation helps disperse these pollutants.

3. Air Change Rates

Kitchens require a higher air change rate (typically 10-15 air changes per hour) compared to other rooms due to high moisture and pollutant production.

Practical Considerations for Optimal Ventilation

- **Ducting:** Rigid ducting (e.g., 100mm diameter) is more efficient than flexible ducting, which can reduce efficiency by up to 72% over 10m.
- **Fan Power:** Post-installation flow rate testing ensures compliance with regulations.
- **Noise:** Fans exceeding 45 dB can be intrusive, leading occupants to switch them off.
- **Airtightness:** Modern homes are increasingly airtight, making mechanical ventilation essential for maintaining indoor air quality.

Ensuring your kitchen meets the minimum ventilation rates is crucial for health, comfort, and the structural integrity of your home. Invest in the right ventilation system today to breathe cleaner, healthier air.

Stop Guessing, Start Guaranteeing.



Your kitchen fan needs 13 l/s boost, but how does that interact with your airtight windows, other wet rooms, and the overall whole-dwelling rate? Guesswork leads to condensation, mould, and Building Control friction.

Let the experts translate **Part F compliance into guaranteed comfort and performance** for your full home renovation.

Get Your Free, 15-Minute 'Whole-House Air Performance' Consultation