What is the minimum intermittent extract fan ventilation rate in a kitchen adjacent to a hob?

The minimum intermittent extract rate for a kitchen fan adjacent to a cooking appliance in the UK is 60 litres per second (l/s). Building Regulations Approved Document F stipulates this rate specifically for cookers and hobs to effectively remove moisture, grease, and combustion products generated during cooking.

Understanding Kitchen Ventilation Requirements

Ventilating a kitchen properly is not merely a bureaucratic box-ticking exercise; it is a fundamental requirement for health, safety, and the integrity of your home. The air in your kitchen during and after cooking is a complex cocktail of water vapour, grease particles, odours, and potentially harmful combustion by-products from gas hobs. Without effective extraction, this mixture condenses on surfaces, leading to damp, mould growth, and poor indoor air quality that can exacerbate respiratory issues like asthma.

The UK's Building Regulations, specifically Approved Document F: Ventilation (2021 edition for England, with similar standards in Wales, Scotland, and Northern Ireland), provides the legal framework for ventilation. It categorises ventilation into two main types for wet rooms like kitchens: *background* (continuous) and *rapid* (intermittent). An intermittent extract fan, which you manually switch on during and after cooking, falls into the latter category. Its primary job is to deal with the high, short-term peaks of pollutants generated by your hob and oven.

The Specifics of the 60 l/s Mandate

The regulation is unequivocal. For any kitchen that contains a cooker, hob, or other cooking appliance, the minimum intermittent extract rate must be **60 litres per second**. This figure isn't arbitrary; it is the product of extensive research into the volume of airborne contaminants produced by typical domestic cooking activities.

It is crucial to note that this requirement is for the *fan itself* at its specified performance setting, not just the size of the duct. However, the installation plays a massive role in achieving this rate. A powerful fan connected to a long, convoluted, or undersized duct will struggle to hit 60 l/s in real-world conditions due to increased resistance, or 'pressure drop'. Therefore, the entire system—fan, ducting, and terminal outlet—must be designed and installed to meet this benchmark effectively.

Why This Minimum Rate is Non-Negotiable

Settling for a less powerful fan is a false economy with significant consequences.

- **Combustion Safety (Gas Hobs):** If you have a gas hob, it produces moisture, but also carbon monoxide (CO) and nitrogen dioxide (NO_2) as by-products of combustion. While a well-maintained hob produces these in small quantities, they are dangerous gases. A 60 l/s extract rate is deemed necessary to dilute and remove these pollutants swiftly before they can accumulate to harmful concentrations, protecting your household from potential poisoning and long-term health effects.

- **Moisture and Mould Control:** Cooking is perhaps the biggest producer of water vapour in a home. A pan of boiling water, a roasting joint, or even a steaming kettle releases vast amounts of moisture into the air. Without rapid extraction, this moisture travels throughout your home, condensing on cold surfaces like windows, external walls, and behind furniture. This creates the perfect damp environment for mould spores to flourish, damaging decorations, fabrics, and the very structure of your property.
- **Grease and Odour Removal:** Cooking releases microscopic grease particles and strong odours. A fan operating below 60 l/s will fail to capture these effectively. The result? Grease settles on every surface, creating a sticky, difficult-to-clean film on cabinets, walls, and ceilings. Lingering cooking smells can also permeate soft furnishings and other rooms, making the entire house feel less fresh.

Beyond the Minimum: Factors That Dictate Real-World Performance

Simply installing a fan rated at 60 l/s does not guarantee performance. Several critical factors influence whether your extraction system will work as intended.

- **Ducting:** This is the most common point of failure. The regulations mandate the *maximum* allowable resistance for duct runs:
    - **Rigid ducting:** Should have a resistance of no more than 1 Pa per metre.
    - **Flexible ducting:** Should have a resistance of no more than 2 Pa per metre. Longer ducts, tighter bends, and crushed flexible hose dramatically increase resistance. Always opt for the shortest, straightest route possible with smooth, rigid ducts. Never use flexible ducting that is concertinaed or tightly bent.
- **Wall Vents and Grilles:** The terminal outlet on the exterior wall must be appropriate for the flow rate. A small, restrictive grille will bottleneck the entire system. Use a recognised ventilation terminal that is designed for high-volume extraction.
- **Fan Type and Placement:** The fan should be positioned as close to the source of the pollution as possible, ideally within the canopy of a hob or on the wall immediately above it. Centrifugal fans are generally more powerful and better at dealing with the pressure drop of ducting than cheaper axial fans, making them a superior choice for any ducted installation.

The VENTI Perspective: A Holistic Approach to Air Quality

While the regulations set a crucial minimum standard, our purpose at VENTI is to empower you to breathe freely. We believe compliance is the starting point, not the finish line.

A 60 l/s intermittent extract fan is brilliant for dealing with the intense peaks of cooking. However, it does nothing for the background pollutants that build up 24/7 from cleaning products, air fresheners, and off-gassing from materials. This is where a holistic ventilation strategy comes into play.

For truly healthy indoor air, consider complementing your intermittent extract with a low-energy, continuous ventilation system. For example:

- **In a refurbishment project,** a decentralised Mechanical Ventilation with Heat Recovery (MVHR) unit like our FLUXO or AUREN can be installed through an external wall. It provides continuous, filtered background ventilation while recovering heat from the outgoing stale air, making it incredibly energy efficient. You then use your 60 l/s intermittent fan for rapid extraction during cooking.
- **For a simpler solution,** a continuous decentralised extract fan (dMEV) like our ARIA can run silently at a low trickle rate, constantly removing stale, moist air, and can boost to a higher

rate when needed.

This layered approach—continuous ventilation for general air quality and intermittent extraction for peak events—is the gold standard. It doesn’t just prevent problems; it actively promotes a healthier, more comfortable living environment by ensuring a constant supply of fresh, filtered air.

To ensure your kitchen ventilation is both compliant and truly effective for a healthier home, consult with our experts for a free, no-obligation design consultation and quotation.