What is the High Rate?

A **high rate** in the context of residential ventilation refers to the maximum extraction flow rate required by mechanical ventilation systems to rapidly remove pollutants, odours, and moisture from ‘wet rooms’ such as kitchens, bathrooms, and utility rooms. This is also commonly known as the **boost rate** or **purge rate**.

Explanation and Practical Application

In the UK, the need for a high rate is a fundamental requirement of **Building Regulations Approved Document F (Volume 1)**, which governs ventilation in new and existing dwellings. The high rate setting is typically activated manually by the occupant, often via a pull cord, light switch, or a separate boost button. It is designed to be used during activities that produce high levels of moisture or odours, such as cooking, showering, or using a tumble dryer.

For a kitchen, the high rate is a minimum of **30 litres per second (l/s)** for a cooker hood or a minimum of **60 l/s** for an extract fan. For bathrooms, the minimum high rate is **15 l/s**. These rates are significantly higher than the typical ‘trickle’ or ‘background’ ventilation rates, which provide a continuous, low-level airflow. The purpose of the high rate is to quickly dilute and extract contaminants before they can disperse throughout the dwelling, preventing condensation, mould growth, and poor indoor air quality.

Example:

A homeowner in a newly built house is cooking a meal on the hob. To prevent cooking odours and moisture from spreading to the rest of the house, they would press a boost button on the cooker hood. This activates the fan’s high rate, pulling air at a rate of 60 l/s. After a set period, a timer automatically reduces the fan speed back to the low, continuous trickle rate.

In an older property undergoing a retrofit, a bathroom extract fan might be installed. This fan is wired to the light switch via a run-on timer. When someone turns the light on and has a shower, the fan’s high rate of 15 l/s is activated. When they leave and turn the light off, the fan continues to run at this high rate for a specified period (e.g., 15 minutes) before turning off completely or reverting to a background trickle rate if a continuous ventilation system is in place.