

# What is System 1?

**System 1** is a now-outdated term used in the 2010 edition of **Approved Document F, Volume 1** for dwellings. In the 2021 edition (as amended), this approach is now referred to as **natural ventilation with background ventilators and intermittent extract fans**. This type of ventilation is only considered suitable for less airtight dwellings.

This system relies on the principle of **natural ventilation**, where fresh air is supplied to rooms, like living rooms and bedrooms, through **background ventilators**. These are small, controllable openings typically located in window frames or walls, often referred to as **trickle vents**. The air then circulates through the dwelling and is extracted from “wet” rooms, such as kitchens, bathrooms, and utility rooms, by **intermittent extract fans**. These fans are typically activated when the room is in use, for example, by a light switch, a humidity sensor, or a pull cord.

This strategy is effective in older, less airtight homes where adventitious air leakage—uncontrolled air movement through gaps and cracks in the building fabric—can contribute to the overall ventilation. However, for modern, more airtight homes, this system alone is not sufficient to meet the minimum ventilation requirements outlined in Approved Document F 2021 (as amended).

## **Practical Application in UK Dwellings**

- **Residential Retrofit:** When undertaking a refurbishment of an older property, you might install new windows that include background ventilators. This ensures the dwelling continues to meet ventilation requirements while improving thermal efficiency. For example, if you replace single-glazed windows with new double-glazed units, you must ensure that trickle vents are installed in the new frames to provide the necessary background ventilation. The installation of an intermittent extract fan in a new or existing bathroom also falls under this system.
- **Home Renovation:** In a home extension project, such as adding a new kitchen or utility room, you must ensure that an intermittent extract fan is installed to remove moisture and odours from the space. This is a common application of this ventilation strategy and is a requirement under Approved Document F 2021 (as amended).
- **Building Regulations:** The guidance for this ventilation strategy is detailed in paragraphs 1.47 to 1.59 of **Approved Document F, Volume 1 2021 (as amended)**. It specifies the required equivalent area of the background ventilators and the minimum extract rates for intermittent fans in different types of rooms. You can find the document on the official government website: **[www.gov.uk](http://www.gov.uk)**.