

What are Airflow Rates?

Airflow rate refers to the volume of air that moves through a ventilation system, duct, or opening within a specific time period. It is typically measured in litres per second (l/s) or cubic metres per hour (m³/h). This measurement is critical in ensuring effective ventilation, which is essential for maintaining indoor air quality, controlling humidity, and removing pollutants.

In the UK house building, residential retrofit, and home renovation sectors, airflow rates are a key consideration for compliance with **Building Regulations Part F (Ventilation)** and **Approved Document F**. These regulations specify minimum airflow rates for different types of spaces, such as living areas, kitchens, and bathrooms, to ensure adequate ventilation and occupant health.

Practical Examples:

1. **Mechanical Ventilation with Heat Recovery (MVHR) Systems:** In a retrofit project, an MVHR system might be installed to achieve an airflow rate of 0.5 l/s per m² of floor area in living spaces, as recommended by Part F.
2. **Extract Fans:** In a bathroom, an extract fan might be designed to achieve a minimum airflow rate of 15 l/s to remove moisture and odours effectively.
3. **Natural Ventilation:** In a new build, trickle vents in windows might be sized to provide a background airflow rate of 4000 mm² equivalent area per room, as per Part F guidelines.

Related Terms:

1. **Air Changes per Hour (ACH):** The number of times the entire volume of air in a space is replaced per hour.
2. **Duct Velocity:** The speed at which air moves through a duct, measured in metres per second (m/s).
3. **Pressure Drop:** The reduction in air pressure as it moves through a ventilation system, which can affect airflow rates.
4. **Ventilation Efficiency:** The effectiveness of a ventilation system in distributing fresh air and removing stale air.
5. **Building Regulations Part L (Conservation of Fuel and Power):** While primarily focused on energy efficiency, Part L also impacts ventilation design to balance air quality and energy use.