Resistance

Resistance in the context of ventilation systems refers to the friction or opposition to airflow caused by various components and accessories used within the system. This includes elements such as ducting, grilles, backdraft shutters, and any other fittings that can impede the smooth passage of air.

In ventilation systems, resistance is a critical factor that affects the efficiency and performance of the system. When air flows through ducts or past fittings, it encounters friction, which can reduce the overall airflow rate. Higher resistance means that the ventilation system must work harder to move air, potentially leading to increased energy consumption and reduced effectiveness in maintaining indoor air quality.

Practical Examples:

1. **Ducting:** The length and diameter of the ductwork can significantly influence resistance. For instance, long, narrow ducts create more resistance compared to short, wide ones. When designing a ventilation system for a new build, it’s essential to optimise duct lengths and sizes to minimise resistance and enhance airflow.
2. **Grilles and Diffusers:** The design of grilles can also impact resistance. A grille that is too small or poorly designed can restrict airflow, leading to higher resistance. In a retrofit scenario, replacing outdated grilles with modern, high-performance options can improve airflow efficiency and reduce energy costs.
3. **Backdraft Shutters:** These are used to prevent reverse airflow in ventilation systems. However, if not designed properly, they can add significant resistance. For example, a backdraft shutter that does not open easily can lead to increased pressure drops and reduced airflow.