What is Filtration?

Filtration refers to the mechanical or electrostatic capture of airborne particulates (e.g., dust, pollen, mould spores, and pollutants) via a porous medium (filter). In UK building practices, filtration is critical for maintaining healthy indoor environments, particularly in energy-efficient homes where airtightness can trap pollutants.

Explanation & Practical Applications:

- **Mechanical Filtration:** Uses fibrous media (e.g., HEPA, MERV-rated filters) to physically trap particles. Common in HVAC systems and standalone air purifiers.
- **Electrostatic Filtration:** Charges particles to attract them to oppositely charged plates (e.g., ionisers).
- **Carbon Filtration:** Removes gases and odours via activated charcoal, useful in kitchens or areas with high VOC emissions.

UK Building Regulations & Standards:

- **Approved Document F (Ventilation, 2021):** Recommends filtration where mechanical ventilation is used (e.g., MVHR systems) to prevent recirculation of pollutants.
- **BS EN 16798-3:2017:** Covers ventilation and air filtration performance criteria.

Synonyms:

- Air purification
- Particle capture
- Contaminant removal

Related Terms:

1. **Mechanical Ventilation with Heat Recovery (MVHR)** – Balanced ventilation systems that filter incoming air while recovering heat.
2. **Indoor Air Quality (IAQ)** – The overall healthiness of air inside buildings, influenced by filtration.
3. **Particulate Matter (PM2.5/PM10)** – Microscopic pollutants targeted by filtration.
4. **Airtightness (Part L, Building Regs)** – High-performance homes require effective filtration due to reduced natural ventilation.
5. **Ventilation Strategies (Approved Document F)** – Guidance on integrating filtration into whole-house ventilation.
6. **Filter Efficiency (MERV/HEPA Ratings)** – Standards defining filter performance.
7. **Volatile Organic Compounds (VOCs)** – Gaseous pollutants mitigated via carbon filtration.