

What is Continuous Mechanical Supply and Extract with Heat Recovery?

Mechanical Ventilation with Heat Recovery (MVHR) is a ventilation system that extracts stale air from a building while simultaneously supplying fresh air from outside. The system incorporates a heat exchanger to transfer heat from the outgoing air to the incoming air, thereby pre-warming it and improving energy efficiency.

MVHR systems are increasingly popular in the UK due to their dual benefits of maintaining indoor air quality and reducing heating costs. These systems are particularly relevant in modern housing, where energy efficiency is a priority under UK Building Regulations, such as **Approved Document F (Ventilation)** and **Approved Document L (Conservation of Fuel and Power)**.

An MVHR unit typically consists of:

1. **Two Fans:** One for extracting stale air and another for supplying fresh air.
2. **Heat Exchanger:** Transfers heat from the extracted air to the incoming air.
3. **Ductwork:** Distributes fresh air to living spaces and extracts stale air from high-humidity areas like kitchens and bathrooms.

Practical Example:

In a UK residential retrofit project, an MVHR system can be installed to replace traditional extractor fans. For instance, in a 3-bedroom house, the system extracts stale air from the kitchen and bathrooms while supplying fresh, pre-warmed air to the living room and bedrooms. This ensures consistent air quality and reduces the need for additional heating, aligning with **Part L1B of the Building Regulations** for energy efficiency in existing dwellings.

Synonyms:

- Heat Recovery Ventilation (HRV)
- System 4 (as per UK Building Regulations 2010, now outdated)

Related Terms:

1. **Air Permeability:** The measure of air leakage through a building's envelope, relevant for ensuring MVHR efficiency.
2. **Passivhaus Standard:** A rigorous energy efficiency standard often incorporating MVHR systems.
3. **Building Regulations Part F:** Specifies ventilation requirements for UK buildings.
4. **Heat Pump:** Often paired with MVHR systems for enhanced energy efficiency.
5. **Condensation Control:** MVHR systems help reduce condensation by maintaining balanced humidity levels.

Formats of MVHR Systems:

1. **Centralised (Ducted) Whole-House System:** Suitable for new builds or major renovations.
2. **Decentralised (Ductless) Single-Room System:** Ideal for retrofitting individual rooms, typically as an 'alternate flow' configuration.

MVHR systems are a cornerstone of sustainable building practices in the UK, offering a balance

between ventilation and energy efficiency. Their adoption aligns with both regulatory requirements and the growing demand for eco-friendly housing solutions.