Decentralised Mechanical Extract Ventilation (dMEV)

Decentralised Mechanical Extract Ventilation refers to a system designed to remove stale air from individual rooms within a dwelling. Unlike traditional mechanical ventilation systems that rely on a central unit to service multiple spaces, dMEV units operate independently in each room, ensuring tailored ventilation solutions that meet the specific needs of various spaces.

In the UK housing sector, dMEV systems are crucial for both new construction and retrofitting existing homes. They are particularly effective in addressing indoor air quality issues, moisture control, and compliance with building regulations, specifically Part F of the Building Regulations, which mandates adequate means of ventilation to prevent health risks associated with poor air quality and dampness.

Key Features

- **Continuous Operation**: dMEV units are designed to run continuously at a low airflow rate, known as the 'Trickle Rate.' This constant extraction helps to maintain a consistent indoor air quality by preventing the accumulation of indoor pollutants, such as carbon dioxide, volatile organic compounds (VOCs), and moisture.
- **Boost Functionality**: Most dMEV units feature a Boost mode that activates during periods of increased humidity or pollution, such as when cooking or showering. This mode significantly increases the extraction rate, comparable to that of traditional intermittent extractor fans, allowing for rapid removal of excess moisture and contaminants.
- **Humidity Sensors**: Many dMEV systems are equipped with built-in humidity sensors that automatically adjust the unit's operation based on detected moisture levels. When humidity exceeds a predetermined threshold (commonly set at around 65% relative humidity), the unit switches to Boost mode, enhancing its extraction capacity to mitigate potential damp issues.
- **Energy Efficiency**: dMEV units are typically designed to be energy-efficient, using low-wattage motors and optimised airflow pathways to minimise energy consumption while maintaining effective ventilation performance.

Practical Example

In a typical UK bathroom, a dMEV unit can be installed to combat humidity generated during showers. The unit operates at a Trickle Rate of approximately 5 to 10 litres per second, continuously extracting moisture-laden air. When the humidity sensor detects a rise in moisture levels (e.g., from a shower), the unit automatically switches to Boost mode, increasing the extraction rate to around 25 litres per second. This rapid removal of excess humidity helps prevent mould growth and maintains a healthier living environment.

Installation Considerations

- **Location**: dMEV units (such as an ARIA) should be installed as high as possible on exterior walls, ideally no more than 400mm below the ceiling, to maximise their effectiveness in extracting warm, moist air.
- **Accessibility**: Units must be easily accessible for maintenance, including filter changes and cleaning, to ensure long-term performance and efficiency.

- **Pairing Units**: Best practice suggests installing dMEV units in pairs within open-plan areas to optimise airflow and balance the extraction and supply of fresh air.

Decentralised Mechanical Extract Ventilation systems are an essential component of modern UK housing, especially in addressing the challenges of indoor air quality and moisture control. Their continuous operation, coupled with advanced features like humidity sensors and Boost functionality, makes them a superior choice over traditional intermittent extractors. By providing effective ventilation solutions tailored to individual rooms, dMEV systems contribute to healthier living environments and compliance with regulatory standards.