

Technical Bulletin : Bringing the outside in – Domestic Ventilation and Air Pollution

Mechanical Ventilation Heat Recovery systems are being installed into new homes as part of building regulations. These regulations ensure that humid, or contaminated air is removed from homes, whilst replacing it with air from outside, and a heat recovery system ensures this is done in an energy efficient method.

MVHR systems have been proven to benefit health, and can reduce the symptoms of respiratory illnesses. However in some cases it can actually be the cause of respiratory and health problems due to the air supply being drawn from contaminated air outside of the building, usually in towns and cities where air pollution is high from car and industry pollutants, both particulate and gaseous.

Awareness of outdoor air pollution has greatly risen over the past decade, and as a result we have actually experienced vast improvements since the days of the smogs that used to hang over our towns and cities. Despite this, outdoor air quality across the UK regularly fails to meet legislated targets set out in the EU Directive 2008/50/EC.

The main pollutants of concern commonly exceeding Limit Targets, include Particulate Matter (PM10 and PM2.5), and Nitrogen Dioxide. Other pollutants are included in the directive, however they do not exceed limit values as regularly.

MVHR systems therefore present us with contradictions in health benefits depending on the surrounding air quality.

Where air quality is known to be poor, architects and home owners installing MVHR systems are now looking to the filtration industry to clean up the air and preventing pollutants from entering the home, to protect and improve the health of the occupants.

By using both Particulate and Gas Filtration, harmful pollutants including particulate matter (PM10, and PM2.5), Nitrogen Dioxide, Sulphur Dioxide, Ozone and VOC's, can be reduced to levels below those values as directed in "The UK Air Quality Strategy".

By combining filtration technology with MVHR systems in both new and existing homes the benefits in health can be realised in domestic properties. The installation of such a system can be both reactive, for occupants who already suffer from respiratory illnesses, but also proactive where evidence shows the increase of respiratory illness and shortening of life due to outdoor air pollution.

Indoor Air Quality Filtration System – [Data sheet \(Code AC9.11 Ref 06/16\)](#)

The Airclean Indoor Air Quality Filtration System can be used with Mechanical Ventilation Heat Recovery Systems in domestic houses for the reduction of Particulate Matter (PM10 and PM2.5) and Nitrogen Dioxide to within the limit values set in EU and UK legislation. This simple unit is designed to work with market MVHR units without the need for fan upgrades or modifications.

Ezee Breathe – Domestic Air Purifier – [Data sheet \(Code AC9.1 Ref 09/15\)](#)

The Ezee Breathe is for use where an MVHR system cannot be installed, or an occupant has severe symptoms resulting from poor indoor air quality. This small stand alone unit will recirculate air within a single room, removing Particulate Matter with HEPA filtration. A variable speed control on the unit allows for a room to be rapidly cleaned, and then run on a trickle setting to maintain air quality. A larger unit is available for use in schools and offices.