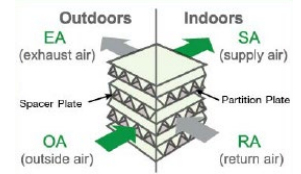


HOW it WORKS

Energy Recovery Ventilator Cores



As modern homes and buildings continue to be constructed to be more airtight, improving indoor air quality has been more important than ever. Energy recovery ventilators (ERVs) are the primary solution by introducing fresh outside air into the building, while expelling stale air. ERVs can dramatically reduce the load required to heat or cool that air before it enters the building's HVAC system.

The way ERVs work is using a static core heat exchanger. With a cross-flow design, alternating layers allow outside air to pass through to supply fresh air on one side while the other side of the membrane is using return air from the building to pass through the core and exhausting outside (shown in Fig. 1). Forced air from each air stream is accomplished with dedicated supply and return air blowers. ERVs pre-heat outside air in the winter and pre-cool in the summer before entering the fan coil/furnace unit. The Mitsubishi core's membrane allows excellent energy transfer efficiency with a performance rating between 70-80%. Not to be confused with heat recovery ventilators (HRVs), the ERV core is capable of transferring heat (sensible heat) as well as moisture (latent heat). Moisture control is also essential for human comfort. The ERV core recovers moisture during the winter and reduces moisture in the summer months. Achieving relative humidity in the space between 40-60% is most ideal for improved comfort and health. Mitsubishi's static core heat exchanger is made of a specially treated cellulose fiber from paper material, which allows only H₂O molecules to pass through the membrane while keeping other harmful molecules out (i.e. CO₂, NO₂) as shown in Fig. 2.

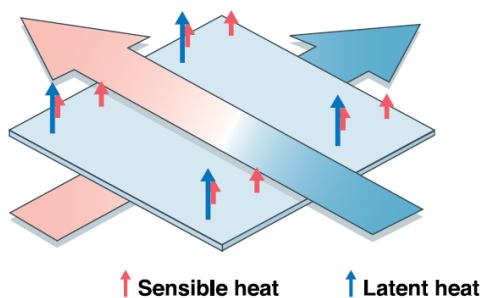


Fig. 1

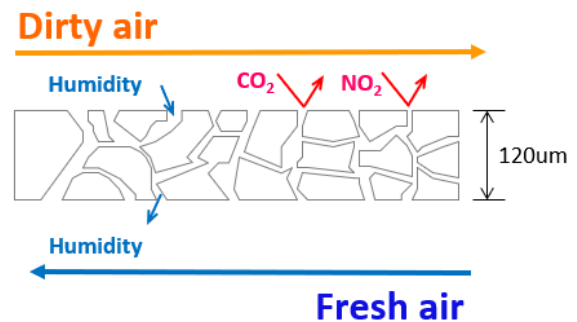


Fig. 2