

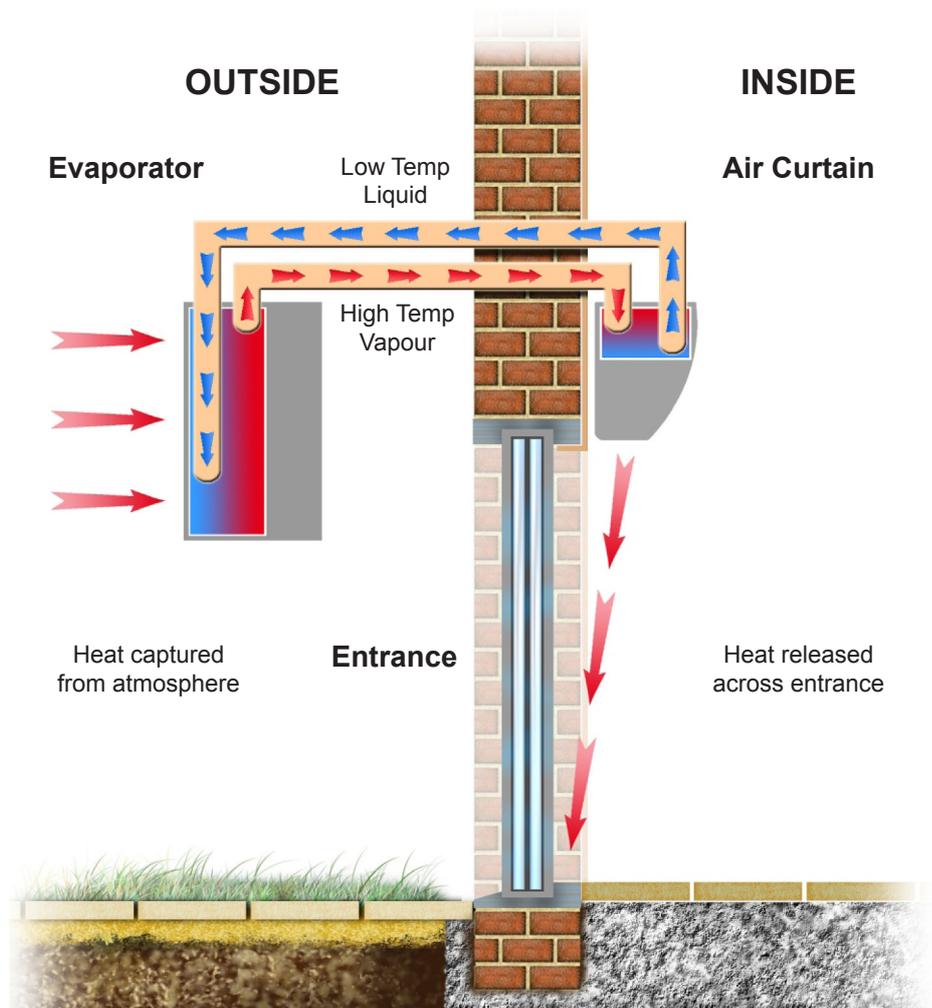
Envirotec Air Source Heat Pump Air Curtains

Coefficient of Performance (COP)

Typical applications that use air side heat pump technology would expect as a minimum to provide 3.5kWh of heat for 1kWh of electricity used to drive the process (BSRIA Guide to Heat Pumps BG7/2009)

This ratio is often referred to as the “coefficient of performance” or COP, or in this case 3.5.

Tests using Envirotec air curtains matched with Toshiba inverter driven Heat Pumps have returned an average COP of 3.5 or higher.



How is this possible?

Outside the building...

Within the Toshiba 'Outside Unit', the R410a refrigerant changes state from a liquid to a gas. This process of evaporation requires energy (heat) to be absorbed from the outside air. This hot gaseous refrigerant is then compressed (which increases the temperature still further) and is pumped inside the building to the Envirotec Air Curtain.

Inside the building...

Within the Envirotec Air Curtain, the hot gaseous refrigerant begins to cool and condense. As it does so, it off-loads the heat absorbed from the outside air into the airstream. This 'off-loaded' heat energy forms the heat source for the air curtain. As the refrigerant leaves the Air Curtain, the cooled refrigerant is now fully condensed and this liquid travels back outside the building to return to the 'Outside Unit'.

Outside the building...

The cool liquid refrigerant returns to 'Outside Unit' and passes through an expansion valve. This reduces the pressure and the temperature of the refrigerant falls further. At this lower pressure, the refrigerant will naturally try to evaporate, but needs energy (heat) to do so. This it absorbs from the outside air.... the cycle starts all over again.