



# SOVEREIGN TECHNICAL INFORMATION SHEET PASSYFIER VENT

**ORDER CODE: 8005**

Air tested by the Building Research Establishment for airflow rates versus applied pressure difference.

For background ventilation of habitable rooms the Building Regulations (1990) require that a ventilation opening should have a total area of not less than 4,000 mm<sup>2</sup> and that openings should be controllable, secure and located in a position that avoids draughts.

The 'Passyfier' vent provides an opening on a section of wall normal to the airflow direction with an effective area well in excess of the minimum requirement.

Airflow through the opening is controlled automatically by the intervening mineral wool slab and thereby avoids undue draughts.

It is important to realise that the release of moisture vapour pressure within a dwelling to avoid condensation does not require a specific ventilation rate.

The moisture vapour pressure within a dwelling is always higher than the outside pressure therefore there will always be an escape of moisture vapour by the diffusion process through the Passyfier vent.

The diffusion process is slow compared with mechanical ventilation and would not cope with the copious amount of water vapour produced in a short time scale without the combined use of mechanical ventilation in kitchens and bathrooms.

Its main use is in habitable rooms where it operates continuously without noise and over a 24 hour period can extract a maximum of 2.5 litres of water/day even at low vapour pressures.

If the relative humidity of the room was 70% at 20 C then each Kg of air would hold 0.0104 Kg of water.

At a recommended maximum velocity of 0.9 m/sec (maximum velocity recommended by Local Authorities) through the Passyfier, it would transmit 0.0024 M<sup>3</sup>/sec (i.e. 2.42 Kg per day) of air that contains 2.5 litres of water.

## Dimensions

To fit 230 mm x 155 mm aperture  
(i.e. standard 9" x 6" airbrick)

Main tube extended	340 mm
Main tube closed	240 mm
Main tube width	206 mm
Main tube height	136 mm

## KEY FEATURES

- **Transparent to water vapour**
- **No moving parts**
- **Works passively 24 hours a day**
- **Makes no noise**
- **Low installation cost**

## BENEFITS

- **Reduces draughty air flow and heat loss**
- **No running costs**
- **Works at peak condensation times**
- **No night time disturbance from compressors or fans**

## Condensation

Tenants and property owners usually notice condensation when it presents itself on decorations often causing discoloration and black mould growths.

Air within the living environments becomes saturated with water vapour. The main causes of air saturation are: boiling kettles, cooking, drying clothes, the use of non-flued heating and even breathing. When these conditions prevail, the air inside the property becomes saturated. The amount of water vapour contained in air is related to the air temperature, hence the term 'Relative Humidity'. Warm air can contain large amounts of water vapour. When saturated air begins to cool, it no longer has the ability to hold the water as vapour and at this point will release it onto cold surface in the form of condensation. In traditionally constructed properties with open fires, ventilated suspended timber floors and sash windows, condensation (in most cases) required no extra consideration. However many old properties have been renovated. In some cases solid floors have been laid, double-glazing has been installed and the houses have been generally draught proofed to conserve expensive heat. Many new properties have been constructed with little or no thought to Humidity Control and thus the need for Humidity controlling devices.

### The Humidity Controlling Options

Once it has been established that condensation is occurring, the question arises of how to control it. Options take many turns:

- (1) Install air bricks and heat the property; (this can be physically effective but not cost effective as most of the heat created inside the property ends up heating the street outside.

- (2) Install a portable dehumidifier; this again can be physically effective but there are running costs, noise and the occupant need to empty the water container regularly.

- (3) Install humidistat controlled fans which have installation and running costs.

- (4) Install positive pressure systems with installation costs, running costs and a noise consideration.

### The Passyfier Vent

The Passyfier (passive dehumidification system) was invented and developed in the UK as one answer to the problem of condensation.

Condensation control is an ever-increasing market with many solutions most of which can be effective. However, the effectiveness of other products often causes expense to the property owner with running costs, noise and maintenance programmes often required for these systems to remain effective.

### How does the Passyfier Vent Work?

The Passyfier contains no moving parts and works on basic principles accepted in building physics. When a combination of internal room temperatures and humidity is higher than it is externally, the vapour pressure difference causes the moist air to ventilate outwards through the Passyfier's porous membrane into the cooler external air.

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