

# *A1 Bridge Flue Systems*

## *WindAvent Natural Ventilation Systems*



## WINDAVENT NATURAL VENTILATION SYSTEMS

The environmentally friendly WINDAVENT roof mounted terminals are a natural way to ventilate a building by the use of wind and thermal stack effect. The terminals do not aim to achieve constant environmental conditions, but take advantage of natural resources to provide comfortable controllable conditions for the occupants.

The principals of design incorporated into the WINDAVENT terminals provide an appropriate level of indoor air quality by helping to remove and dilute the airborne contaminants.

Within the occupied area, they offer a natural means to reduce building carbon emissions, whilst providing improved comfort conditions at very low levels of energy consumption. As well as providing the necessary ventilation requirements, the ventilator will be designed to minimise the discomfort from draughts, especially in the winter.

Since the launch of Part F of the Building Regulations, the move to increased air tightness of buildings has greater implications on adequate ventilation and air quality.

Part L is designed to ensure that modern airtight buildings have sufficient channels of air to address condensation problems and to provide healthier internal environmental conditions.

In most cases, consideration of solar control to prevent solar gains, keeping internal gains to a minimum and the source from which the incoming air is taken, are imperative to achieving acceptable summer conditions.

Due to the increasing use of IT equipment, such as computers and printers, figures of 15- 20W/m<sup>2</sup> should be used in deciding the overall gains within the area of consideration. Building management systems such as 'Trend' or 'Cylon' can be offered as part of a supply package.

In general, buildings with noisy environments should be avoided, although attenuation to some level can be provided.

### PRINCIPLES OF OPERATION

All of these required features have been incorporated into our natural ventilation WINDAVENT range.

1. All dampers are of the ultra low leakage type as standard, eliminating nuisance draughts and complaints when natural ventilation is not required. These dampers exceed the requirements of DIN 1946 Part 4.
2. The dampers have fully insulated blades as standard, reducing heat loss in winter when the WINDAVENT terminals may not be in use.
3. Where required, we can offer a range of BMS control systems from Cylon to Trend.
4. We can offer field wiring of supplied components where applicable to providing a turnkey project.
5. Acoustic lining can be fitted within the terminals and trunking to prevent unwanted noise break-in to the ventilated area from outside.

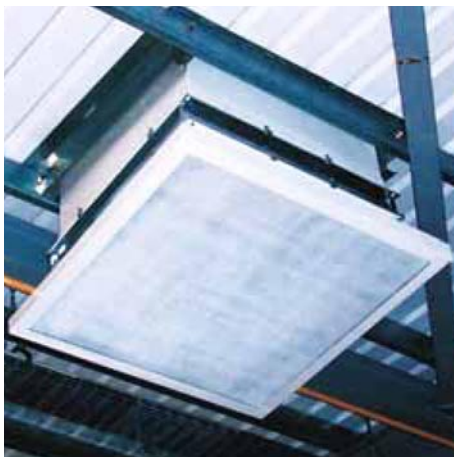


Figure 1: Basic Operation Principal

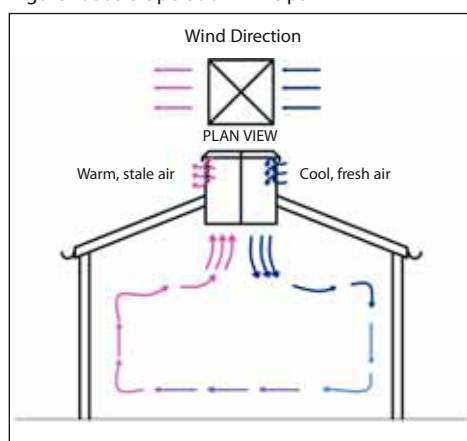
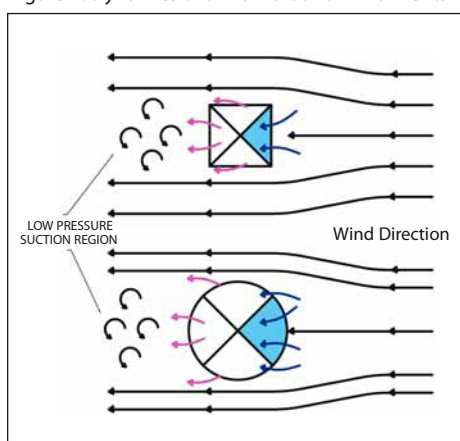


Figure 2: Dynamics of airflow around WindAvents



## ROOF MOUNTED VENTILATION TERMINALS ARE THE NATURAL SOLUTION

Ideal building types that would benefit from incorporation of natural ventilation terminals into the early stages of design are:-

Education buildings – all types

Libraries

Offices – all types

Police stations

Conference centres

Sports arenas

Exhibition centres

Siting and installation is crucial to achieve the maximum benefit from the terminals operation, the units should be positioned no closer than 2 metres to any higher structures.

Design criteria to establish the number and size of the natural ventilation WINDAVENT terminals required:-

- a. Occupancy levels
- b. Room volume
- c. Building leakage rate
- d. Type of occupancy
- e. Heat gains
- f. Fresh air requirements from ventilation rate per person
- g. Ventilation rate for dissipating heat gains
- h. Select larger figure of E & F
- i. Air change rate per hour

Calculation information available

In practice, night time cooling requirements and wind parameters for the area would be considered in conjunction with the building configuration.





A1 Bridge Flue Systems are long established manufacturers of flue systems supplied throughout the U.K. A1 Flue Systems may be tailor made to suit your exact requirements.

Installations are designed in house by our own design team, operating the latest computer technology.

All flue components are manufactured in our own factory using computer controlled pattern cutting and hand assembly. This allows for efficient production of standard components & specials to be produced often without extended delivery dates.

Quality assurance to ISO9002

Cert. No. 1273/97



Certificate No. 1273/97

