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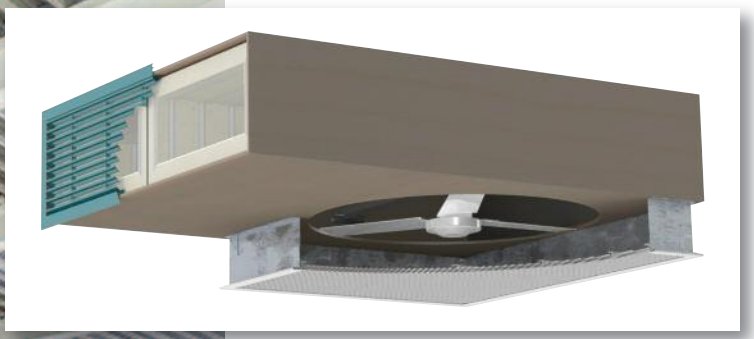
February 2018

passivent

SOUNDSCOOP®

ACOUSTIC TRANSFER VENTILATION PRODUCTS



Contents

SOUNDSCOOP VENTILATION

Passivent SoundScoop is a range of air ventilation units which combine exceptional acoustic attenuation with very low airflow resistance.

This combined performance is superior to any existing comparable unit on the market.

The range comprises of the SoundScoop and SoundScoop *i*AT (*intelligent* Airflow Technology).

The SoundScoop has been developed to attenuate the mid frequency band 500 - 2000Hz as speech and circulation noise constitute the main source of disturbance in commercial and educational buildings.

The SoundScoop *i*AT incorporates a low power consumption 50W sweep fan which extends the range of the ventilation system during conditions when a design strategy may reach its limits of performance.

Acoustic design

SoundScoop uses a highly innovative approach to acoustic design which allows a large unobstructed ventilation area. The open design is based on selective sound absorption at key frequencies, and does not rely on baffles or diverters. SoundScoop has been designed in association with Arup in a collaborative approach to acoustic design, natural ventilation performance and product development.

The acoustic performance of the SoundScoop has been developed through an engineered approach where the exact nature of the source noise and receiver sensitivity has been considered. As such, each unit is targeted in terms of the sound it attenuates. This means it outperforms any other equivalent product on the market in terms of attenuation of speech and footfall.

Acoustic performance

Independently tested to BS EN 20140-10:1992 and ISO 140-10:1991, and can be shown to comply with Building Bulletin 93 and the Priority Schools Output Specification For Acoustic Design.

SoundScoop and natural ventilation

Natural ventilation is a key strategy in providing a healthy environment in buildings whilst avoiding excessive energy use. Cross-ventilation or free air transfer between internal spaces are important aspects of ventilating the whole building. At the same time most buildings require acoustic separation between noisy areas and noise-sensitive areas.

SoundScoop has been specifically designed to meet these conflicting requirements with a large free ventilation area, low airflow resistance and high levels of noise reduction.

Applications

SoundScoop provides:

- Air transfer (crossflow ventilation) between internal spaces of buildings as part of a natural ventilation system.
- Sound reduction between noisy areas and quiet areas, for example between circulation spaces and working, meeting or teaching spaces.
- Speech privacy, allowing normal undisturbed speech in adjacent areas.

Examples of use:

- Offices: between open plan offices and meeting rooms, or between two meeting rooms.
- Education buildings: between circulation spaces and classrooms.
- Hotels: between bedrooms and corridors.
- Health buildings: between patient areas and circulation areas.

SoundScoop can be used to meet the acoustic and ventilation requirements of:

Building Regulations Part F Means of Ventilation, Part L Conservation of fuel and power, and Part E Resistance to the passage of sound.

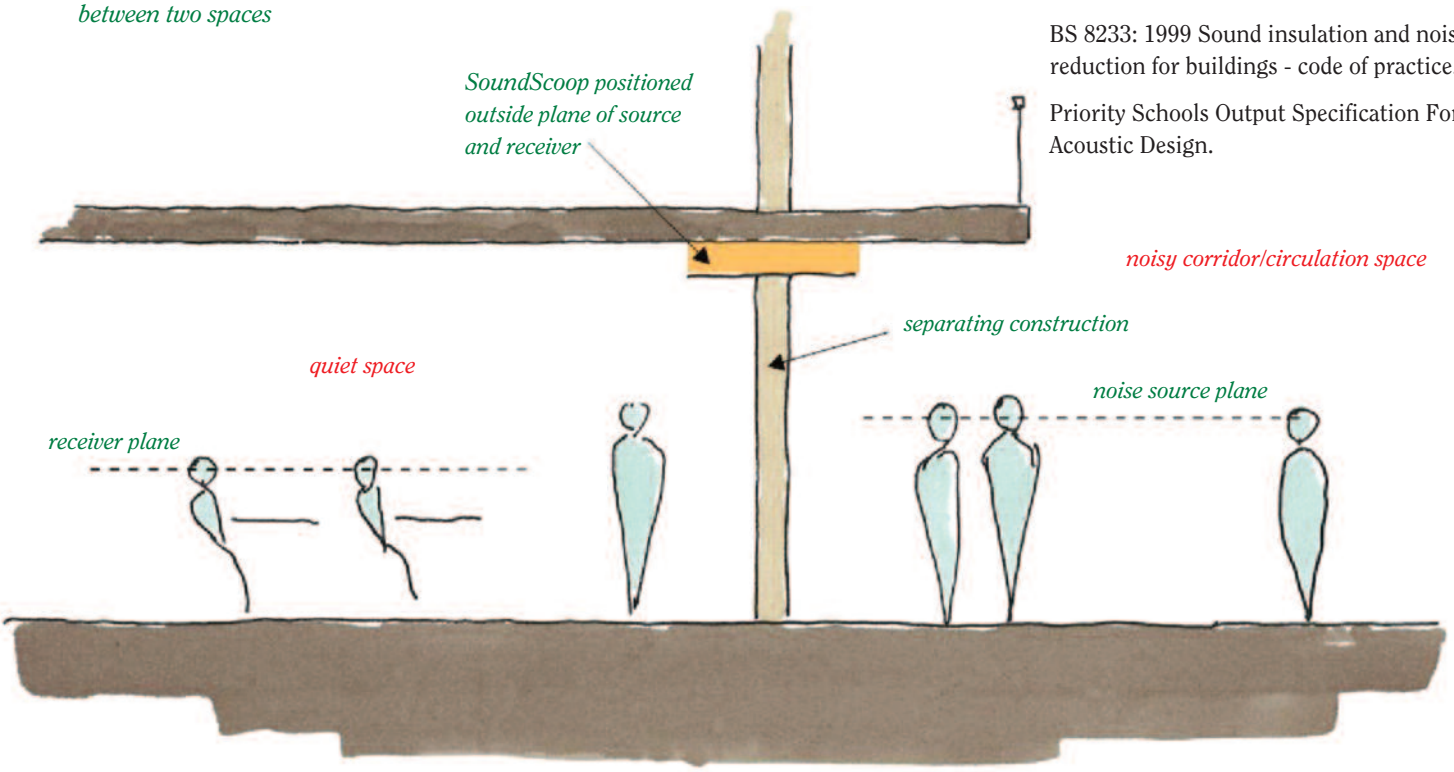
BB93 Acoustic design of schools - a design guide.

BS 8233: 1999 Sound insulation and noise reduction for buildings - code of practice.

Priority Schools Output Specification For Acoustic Design.

Typical application

SoundScoop used as a cross-ventilation path between two spaces



FEATURES & BENEFITS

- Optimised acoustic design for the transfer of air between noisy and noise sensitive spaces.
- Extremely low airflow resistance due to an entirely unimpeded acoustic path (coefficient of discharge Cd value of typically 1.04).
- Provides up to a 90% increase in open area compared to previous market leading product.
- Cost competitive solution.
- Available in a range of sizes to suit the application.
- The configurations have been independently tested for acoustic performance.
- The SoundScoop can be demonstrated to meet the acoustic requirements of BB93.
- Lightweight design for transportation and ease of fitting with unit weights ranging from 3.0 to 18.3kg.
- Manufactured in the UK and available ready assembled for installation on site.

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SOUNDSCOOP VENTILATION

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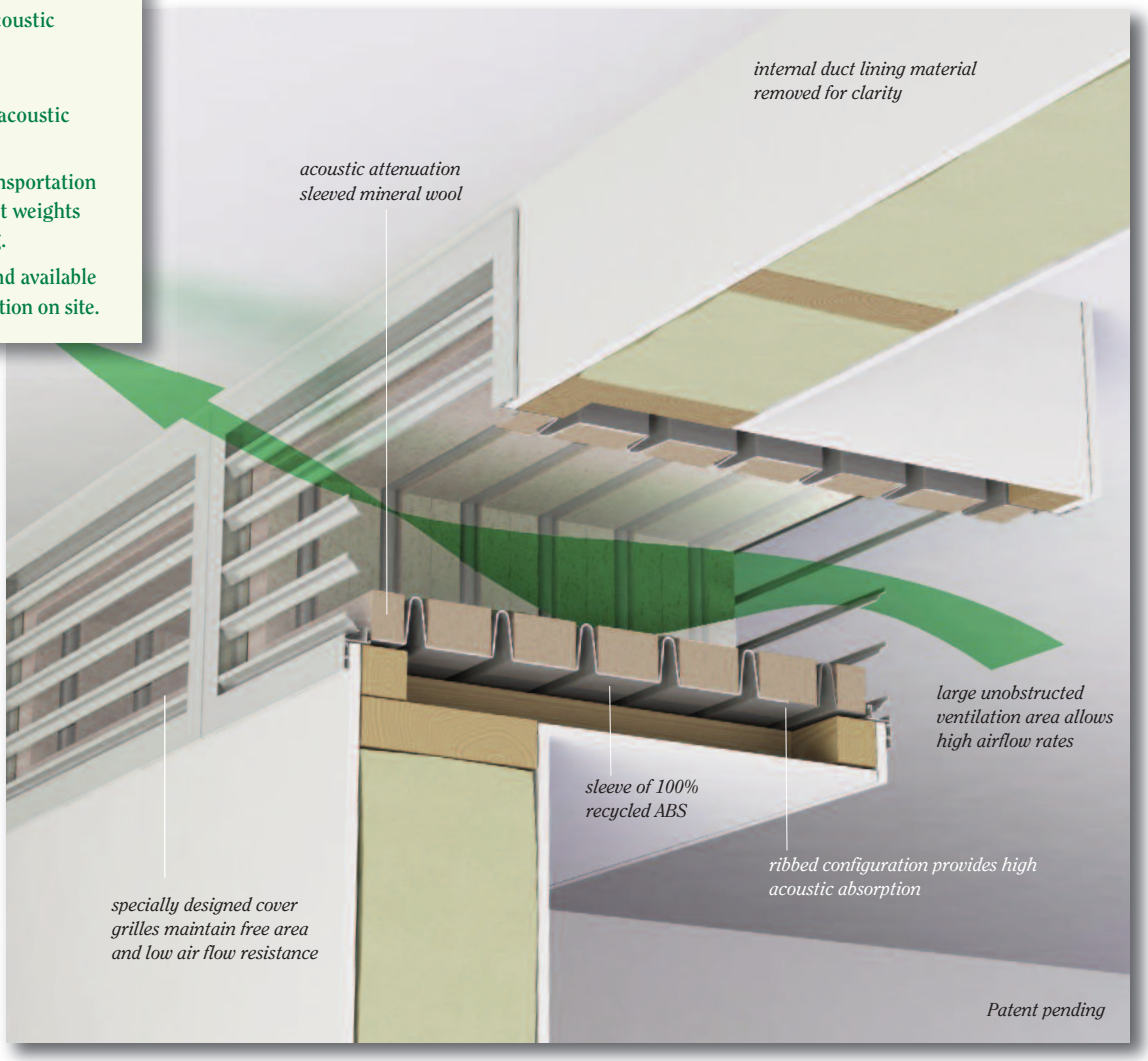


Specicification clauses
Provide ventilation by means of Passivent SoundScoop Acoustic Transfer Unit supplied by Passivent, North Frith Oasts, Ashes Lane, Hadlow, Kent TN11 9QU.
Telephone: 01732 850770.
Fax: 01732 850949.
Email: projects@passivent.com.
SoundScoop width 320/620mm*, height 320mm, length 300/600/900/1200mm*, ventilation area 0.04/0.1m²*.
The sleeve is manufactured from fire retardant ABS, which is lined with mineral wool and covered with a membrane.
Can be demonstrated to comply with BB93, PSOS and BS 8233.
Tested to BS EN 13141-1: 2004 Ventilation for buildings.
Supplied with SoundScoop cover grilles.*
SoundScoop to have been appraised under BS EN ISO 9001.
Installed by an approved MasterCare installer.*

**Delete as applicable*

Example applications

Noisy space	Noise-sensitive space	SoundScoop type	Effect
Open plan office	Meeting room	300mm long version with 320mm(W) x 320mm(H) body	Vent attenuation provides adequate privacy to the open plan space and appropriate control of noise ingress to the meeting room
Atrium/primary	Classroom	600mm long version of 620mm(W) x 320mm(H) body	Vent attenuation provides adequate control of noise circulation ingress to the classroom
Meeting room	Meeting room	900mm *or* 1200mm long version with 620mm(W) x 320mm(H) body	Vent attenuation provides good standards of privacy so that even raised voices are not intelligible

Below are the eight SoundScoop combinations of two cross-sections and four lengths that are available. Units have been acoustically tested with detailed results for frequency bands available on request.

PERFORMANCE

The performance of the SoundScoop has been achieved through consideration of three design features, each of which are necessary for it to work most effectively. These are summarised below.

1. By positioning the unit out of the plane of source and receiver, sound is forced to take an oblique path through the vent thereby removing the need for bends or splitters.
See illustration on page 3.

2. Optimised cross-sectional dimensions are used to target attenuation over the desired range of frequencies. The SoundScoop is sized so that the 'cut-on' frequencies, end reflection and amount of attenuation is optimised for the target 500 - 2000Hz speech range.

3. The patented internal lining which features ribs at regular centres has been shown to provide more than 10dB of sound attenuation in a given octave band. This is achieved by:

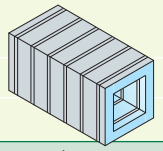
- Firstly, there is resistive interference where sound is reflected and partly absorbed at frequencies whose wavelengths relate to the period of the ribs.

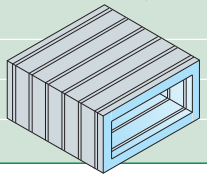
- Secondly, the discontinuities result in non-plane wave motion below the cut-on frequency. In other words, low frequency sound that would travel unhindered in a uniformly lined duct is disturbed by the ribs and more readily attenuated.

- Thirdly, the ribs and strips of sound absorbing material prevent wave motion along the length of the unit, forcing local reaction between the sound and foam lining. This is known to maximise the attenuation in lined ducts.

Acoustic performance and weight

Unit dimensions Width x height (mm)	Length (mm)	Average mid-frequency Dn,e (dB) 500 - 2000Hz	Acoustic performance Dn,e,w (dB)	Unit weight (kg)
320 x 320	300	34	32	3.0
	600	45	39	5.9
	900	52	41	8.8
	1200	56	44	11.7
620 x 320	300	30	29	4.6
	600	39	36	9.2
	900	46	40	13.8
	1200	52	42	18.3



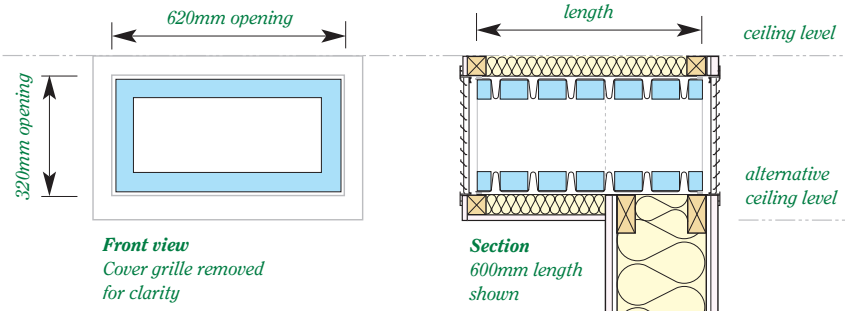


Flow performance

	Free area (m^2)		Coefficient of discharge, Cd	
W x H (mm)	SoundScoop	Cover grilles	SoundScoop	Cover grilles
320 x 320	0.04	0.05	1.04	0.75
620 x 320	0.10	0.10	1.04	0.75

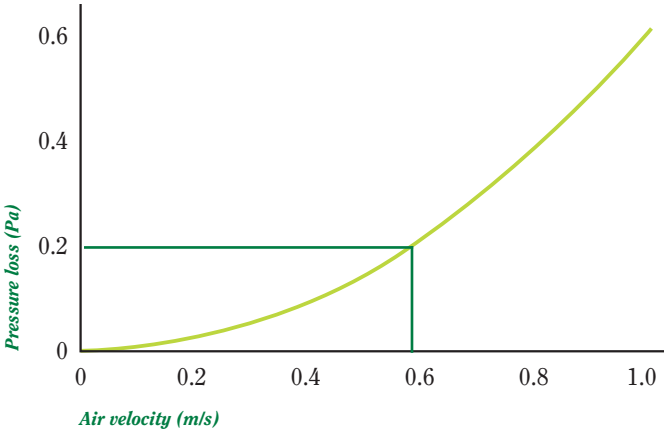
(Figures shown for 900mm long unit)

Typical sections, 620mm(W) x 320mm(H) unit



SoundScoop pressure loss (excluding cover grilles)

Based upon 900mm long, 620mm wide x 320mm high unit

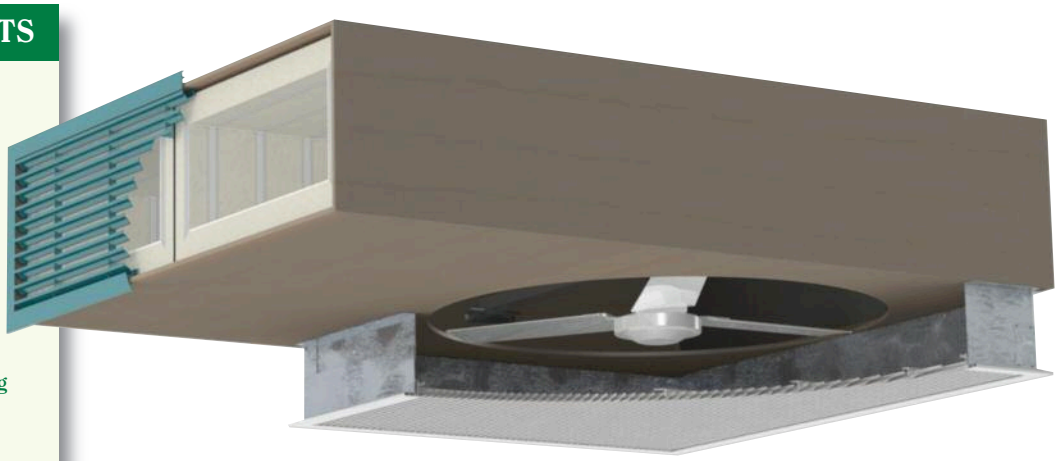


SoundScoop provides a typical low pressure loss of 0.2Pa at a velocity of 0.6m/s

SOUNDSCOOP *i*AT VENTILATION

FEATURES & BENEFITS

- Low energy consumption 50W fan uses minimum energy when compared to full mechanical systems.
- SoundScoop targets speech and footfall frequencies, the main cause of disturbance via air transfer devices.
- Extends the performance envelope of a ventilation strategy by creating positive pressure during peak summer temperatures/conditions.



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Telephone: 01732 850770.
Fax: 01732 850949.
Email: projects@passivent.com.
SoundScoop *i*AT width 1248mm, height 344mm, length 1589/1889/2189mm*, ventilation area 0.2m² and cd value of 0.49.
The SoundScoop sleeve is manufactured from fire retardant ABS, which is lined with mineral wool and covered with a membrane.
SoundScoops are mounted into a larger enclosure that incorporated a low powered 50W boost fan.
Supplied with SoundScoop cover grilles. Can be demonstrated to comply with BB93, PSOS and BS 8233.
Tested to BS EN 13141-1:2004 Ventilation for buildings.
SoundScoop *i*AT to have been appraised under BS EN ISO 9001.
Installed by an approved MasterCare installer.*

**Delete as applicable*

The SoundScoop *i*AT (*intelligent* Airflow Technology) has been designed to specifically extend the performance envelope of a natural ventilation system.

Utilising the proven SoundScoop to attenuate speech and footfall background noise, the SoundScoop *i*AT incorporates a low power consumption 50W sweep fan which extends the range of the ventilation system during conditions when a design strategy may reach its limits of performance.

Case construction
Marine grade structural timber.

Acoustic performance
See table below.

Installation
Positioned between the atrium and adjoining rooms. Can be installed through a bulkhead or plasterboard ceiling, or where there is a suspended ceiling using the adjustable ceiling adaptor.

Recommended fixing: to soffit with brackets supplied.

Dimensions

Wall opening width x height (mm)	SoundScoop *i*AT length (mm)	free area (m²)	weight (kg)	Coefficient of discharge, Cd
1248 x 344	1589	0.20	74	0.49
	1889	0.20	88	0.49
	2189	0.20	102	0.49

Acoustic performance

Length (mm)	Average mid-frequency Dn,e (dB) 500 - 2000Hz	Acoustic performance Dn,e,w (dB)
1589	>36	>33
1889	>43	>37
2189	>49	>39

Sound pressure level for fan measured at 3.0m without enclosure 32dB(A)

Two operating modes
The SoundScoop *i*AT uses one of two operating modes depending on the needs of the building.

Mode 1 Natural
Most of the year

In mid-season temperatures, external fresh air enters the room through façade inlets such as Passivent Aircool Ventilators. The air is mixed at high level and is drawn naturally out through the SoundScoop *i*AT exhausting through high level passive stack outlets such as Passivent Airstract Terminals or atria designed into the building.

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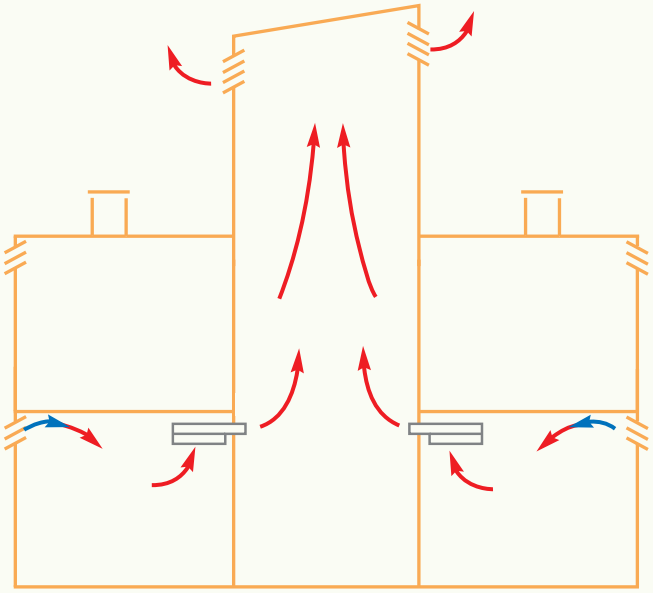

Mode 2 *i*AT (*intelligent* Airflow Technology)
Peak summer temperatures or extreme events

During peak summer temperatures, the minimal temperature difference between indoors and outside can result in low flow rates for passive stack ventilation, especially on still windless days. During these periods or at other times of unusual events, such as high occupancy or unusual heat gain, the building will suffer from raised temperatures or higher than normal CO_2 levels leading to reduced air quality and lethargy for the room occupants. These changes in internal conditions are identified by the Passivent Intelligent Controller which activates the low energy fan. The fan generates a change in internal pressure which maintains the ventilation system performance until either the temperature or CO_2 levels have achieved the targeted set point.

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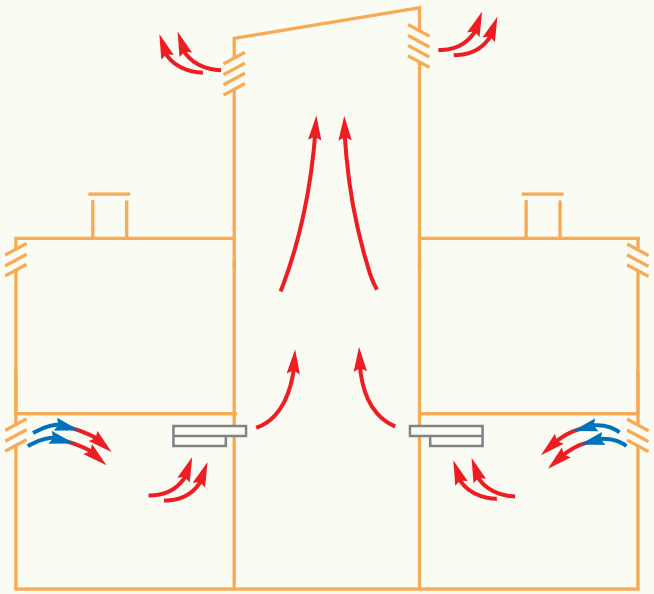

FURTHER INFORMATION

Services

Passivent has its own in-house research team dedicated to developing techniques and products for natural ventilation, and is a leading partner in some of the most important research projects in this field including NatVent™, a consortium of European organisations headed by BRE.

We offer a comprehensive design and advisory service tailored to your specific project, covering both natural ventilation design and product selection. Advanced software based on CIBSE AM10 is used to calculate sizes of air inlets and outlets to achieve optimum performance.

Names of approved installers can be provided on request.

Other products

Passivent markets a range of ventilation and daylighting products for commercial and domestic buildings including:

Natural ventilation systems.

Aircool ventilators for windows, curtain walling and walls.

Airstract roof terminals for passive stack and other natural ventilation systems.

Airscoop wind-driven ventilation terminals.

Litevent combined ventilator and rooflight.

*i*MEV intelligent mechanical extract ventilation.

Hybrid Plus2 Aircool ventilators.

Hybrid Plus Airstract ventilators.

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