PROCTOR VENTIENT

ventilation systems

Let your building breathe

www.ventient.com

ventilation

- noun

1. the act or process of ventilating or the state of being ventilated 2. an installation in a building that provides a supply of fresh air

sentient

- adjective

1. having the power of sense perception or sensation; [*from Latin sentiēns feeling, from sentīre to perceive*]

Without electric power, sensors, or human intervention, **Ventient** technology can passively manage air flows in response to changes in ambient temperature, optimising the benefits of trickle or background ventilation.

BUILDINGS ARE FOR PEOPLE

Indoor Environmental Quality (IEQ)

With the focus on the environmental and economical sustainability of new buildings, it can be easy to forget that most buildings exist to provide a safe and comfortable environment for people to live and work in.

Business operational costs and ongoing maintenance expenses are being given a greater degree of consideration at design stage, rather than focusing purely on initial construction costs. It is well know that in a typical office building, the cost of the employees or "human capital" far outweighs that of the "building capital". Research from BOSTI shows that people costs were far greater than office costs, in a ratio of 13 to 1 for newly built offices.

Smart design, planning and management of the interior environment has substantial implications for the community in terms of health and social well-being and for organisations in economic terms, such as higher job satisfaction, higher employee productivity and team performance, plus lower staff turnover.

Just as there are benefits in an appropriately designed building, there are negative costs for a poorly designed one. The adoption of effective natural or passive ventilation systems can reduce running costs and carbon emissions and drive major improvements in IEQ.

Improved Indoor Air Quality

Ventient allows for the intake of outside air with additional filtering of up to 68% of typical airborne dust (ASHRAE 52.1 1992). Well designed continuous background ventilation can provide more consistent levels of good air quality compared with occasional purge ventilation.

Improved Thermal Comfort

By passively changing the size of the ventilation intake in relation to ambient temperature, Ventient overcomes one key problem with operable windows and standard trickle vents - that users tend to close the vents and forget to reopen them.

Improved Acoustic Comfort

One main reason that windows are not opened is due to external noise pollution. Although a trickle vent is unlikely to be as quiet as a closed double glazed window, some Ventient devices can incorporate additional sound absorption material to improve acoustic performance.

Occupancy Control

IEQ occupancy satisfaction surveys highlight the importance of easy to understand devices that offer occupant control of their own environment. This is a key consideration for effective ventilation. Ventient devices can operate in auto open mode, but can also be manually closed. Some devices can also be set to override the auto mode and remain open, regardless of temperature.

Trickle (Passive) Ventilation

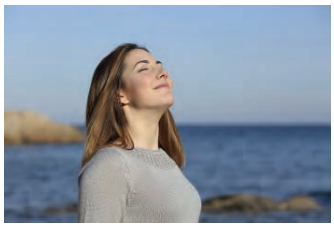
Passive ventilation has become regarded by many architects as a socially responsible alternative to mechanical ventilation in today's green buildings.

Trickle or passive ventilation is considered a low cost solution, whilst providing an optimum level of thermal comfort and a healthier indoor environment by the use of a sustainable, natural resource... air!

There have been many published studies which show that the human thermal sensation index in a natural ventilated environment is more receptive than that of a mechanically ventilated environment.

By controlling air movement through passive ventilation, many risks associated with a poorly maintained HVAC system such as occupant health, upper and lower respiratory ailments, eye and skin irritations, headaches and fatigue can be alleviated.

In buildings with few or no operable windows, the inclusion of Ventient can improve indoor air quality. With an effective filter, up to 68% of typical airborne dust can be collected. The reduction in harmful micro-biologic exposure has both public health and economic benefits, with a decreased prevalence of sick building syndrome symptoms and the increased productivity and well being of occupants.



Consider how much thought and expense goes into the quality of the 1-2 kg of food and 2-3 litres of water we eat and drink each day. It is all too easily forgotten that we all breathe an estimated 15,000L or 12-15kg of air every day.

BENEFITS

The Ventient Solution

Ventient devices can be used as part of a natural, mixed mode or other mechanical ventilation approach making use of outdoor/indoor pressue differentials to introduce fresh outside air.

Using state-of-the-art passive temperature perception technology, Ventient is an environmentally friendly technology that does not require the use of electric power or sensors. In utilizing the physical characteristics of a unique Shape Memory Alloy (SMA), Ventient can adjust the volume of ventilation levels depending on ambient temperature.

Ventient usually works in automatic mode but most devices will also offer the ability for occupants to manually close off ventilation if required. The devices can also be easily accessed for maintenance and to clean or replace filters.

Key benefits

- Maximize the benefits of passive ventilation
- No reliance on occupants to set and manage
- No electric power or sensors required
- Potential for reduced cooling loads
- Occupants can override to manually operate
- Operates even when the space is not occupied
- Lower noise pollution than open windows
- Option for filters to reduce particle content of ventilated air
- No fear of intruders
- Works where operable windows cannot or are not being used
- Child safety
- No need for fly screens
- Very simple installation
- Prevents possessions or documents from flying out the window or falling on passers by.

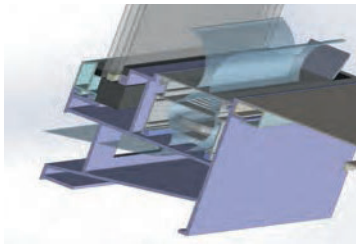
APPLICATIONS

The Ventient Range

A wide range of devices are available for curtain walls, windows, walls, doors, floors, roof spaces and for basements and sub floors.

The Ventient range has devices that are ideally suited to any building from high rise commercial and residential buildings to free standing homes. All buildings however big or small, still need to 'breathe'.

Amongst the wide range of patented Ventient products is the Ventient SCW range of vents that can be used in curtain walls and windows with minimal impact on the exterior or interior design finishes.



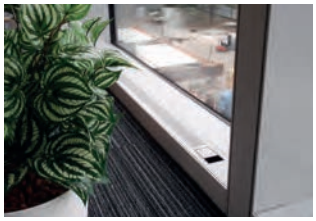
Applications

Unlike conventional systems such as operable windows or louvres, Ventient can be left to get on with the job of providing fresh air circulation with less worry about negative impacts on indoor environmental quality resulting from airborne contaminants, noise, high winds and rain ingress.

- Providing ventilation for rooms or spaces that can remain unoccupied for periods throughout the year. Perfect for **student accommodation**, **hotels and holiday accommodation.**
- When occupants return home in the evening or after a few days away, they don't need to head straight for the air conditioning control to get rid of warm, humid and musty air. Ideal for **residential buildings** such as modern **air tight medium and high rise developments.**
- Known as **night purge**, on summer nights, outdoor air can enter the building via Ventient devices to lower interior temperatures and cool thermal mass, consequently reducing the energy requirements for air conditioning systems the following day.
- Where occupants are unable or restricted from opening windows due to lack of mobility, health and safety, or fears about personal security. Ventient is highly suitable for maintaining good indoor air quality in **public buildings, age care, education and healthcare facilities.**

Ventient™ can help manage indoor humidity to prevent mould and mildew forming in your building

By avoiding the unnecessary provision and operation of mechanical systems at times and in places where passive ventilation could achieve the task more efficiently, **Ventient** can lower energy use and associated greenhouse gas and pollutant emissions.



VENTIENT FOR CURTAIN WALLS & WINDOWS

A key advantage of window trickle vents is that most rooms have at least one window so no additional penetrations in the building envelope are required to provide background ventilation. Ventient trickle vents can be integrated into both windows and curtain walls.

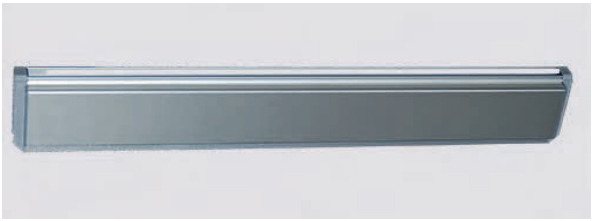
There are three typical product options.

Integration of standard devices

The Ventient SCW range of vents has a strong track record dating back to 2006 with extensive use in high rise buildings in Japan. These devices can be mounted in any orientation into conventional window systems or as a part of a curtain wall with vents located to the sill, transom, head or vertically into the mullion or jamb. To accommodate the Ventient device and create an effective pathway for the passage of air from the exterior, will require some design integration and possibly new extrusions.

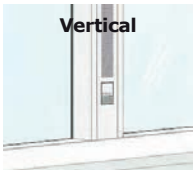
Glazed in trickle vents

Several devices are available to fit into the glazing pocket of the window frame and couple with the glazing or IGU. Aluminium, PVC or hybrid options are available and when combined with optional custom interior and exterior covers, will integrate seamlessly with the window design.



Custom design

As part of a product development process we will work with window manufacturers to design and test new devices to provide a unique custom solution. OEM customers include major global manufacturers such as YKK-AP and LIXIL.



Ventient™ can help reduce indoor carbon dioxide concentrations

Passive ventilation is important because it can provide and move fresh air. For warm and hot climates, it can help meet a building's cooling loads without using mechanical air conditioning systems. This can be a large proportion of a building's total energy use.

PERFORMANCE AND TESTING

Just like an open window, ventilation by its very nature forms a break in the continuity of the building envelope. It is therefore important to test and fully understand how a Ventient device impacts on air and water tightness, structural integrity and acoustic performance.

PGA and Sahara will work with window manufacturers to ensure that when integrated into a window or curtain wall design that local standards and building code requirements can be met.

Sahara has worked with their customers to supply and test products that need to survive Japanese extremes including typhoons, heavy seasonal rainfall and earthquakes. This experience assists in the optimal integration of Ventient into the curtain wall, window or building design anywhere in the world.

Manufacture

All Ventient devices are 100% designed, manufactured and assembled in Japan by Sahara to meet strict quality control requirements.

Testing

The Ventient SCW-NS device for example, as an individual unit has been tested as follows.

Water tightness

1,500Pa of wind driven rain in accordance with JIS A 1517 : No water ingress when closed. Dampers can be integrated to achieve high water tightness with the unit remaining open.

Air Tightness

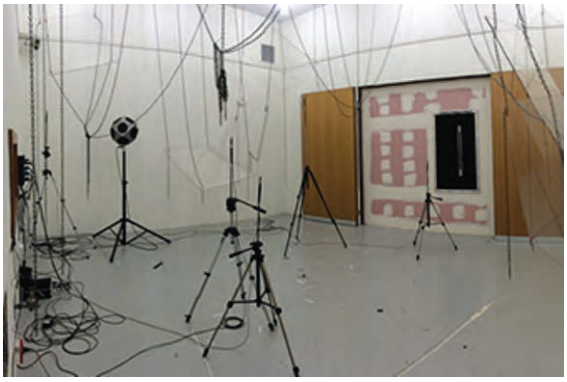
100Pa of positive and negative wind pressure in accordance with JIS A 1516 : No measurable air leakage

High wind loads

3,600Pa of positive and negative wind pressure in accordance with JIS A 1515 : less than 0.2mm deflection.

Noise

Acoustic testing in accordance with JIS A 4706. Some Ventient devices can integrate additional acoustic absorbent material to improve acoustic performance with Ventient remaining open.



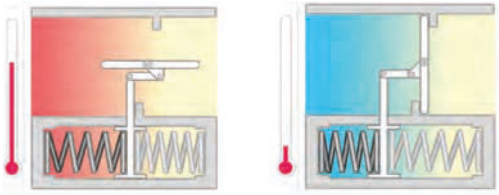
Passive ventilation can be provided by Ventient™ without opening windows, thus improving building security

The environmental imperative, trends in public attitudes, and good engineering practice make serious consideration of passive, low-energy solutions essential.

OPTIONAL SPECIFICATIONS

Temperature sensing flow control

Utilising a patented shape memory allow (SMA) spring system the Ventient device can automatically adjust the size of the ventilation intake as ambient temperature changes.

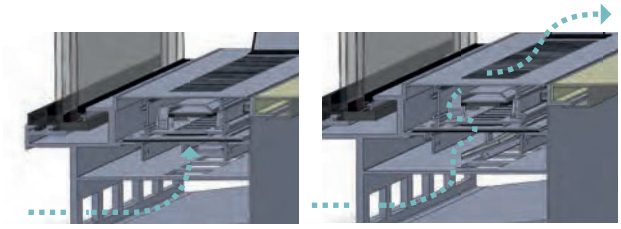


Insect, rodent and ember screens

Ventient devices can be supplied with screens that serve the purpose of keeping out insects and rodents but also acts as an ember guard. The mesh is non-combustible with a maximum aperture (gap) of 2mm.

Constant ventilation volume damper

Important for high rise buildings, some Ventient devices can be fitted with a pressure differential dampener that can close under high wind pressures or be calibrated to provide more constant air flows balancing out wind gusts.



Intumescent fire barrier

For further protection against fire, an intumescent material can be added which will expand to fill the opening when it reaches high temperatures, as experienced in a fire.

Air Filter

A range of filters can be included to the interior side of the vents that will reduce the ingress of up to 68% of typical airborne dust.

Sound Absorption

Recognising that outside air carries with it noise, some Ventient devices can integrate an acoustic absorbent material to minimise this issue.

Up to 68% of typical airborne dust can be collected with Ventient's air filter screen

By combining the advantages of passive ventilation, assisted where required by mechanical engineering services, it is possible to provide suitable levels of performance, health, safety, comfort and occupant satisfaction.

OTHER VENTIENT PRODUCTS

Interior wall vents	
Material	Highly UV resistant AES plastic
Standard Colours	Bronze, Ivory
Standard Dimensions	W: 393mm H: 158mm
Ventilation open area	170cm²

Exterior wall and sub-floor vents		
Material	Highly UV resistant AES plastic	
	Rectangle	Round
Colour	Grey, Bronze	Stone Grey
Dimensions	410mm x 165mm	Ø225mm x 66mm
Ventilation open area	300cm²	140cm²

Lourves & Gable Vents	
Material	Aluminium extrusion with anodized composite film
Standard Colours	Silver, Bronze, White, Black, Ivory, Dark Bronze, Stainless Steel
Standard Dimensions	W: 250mm - 1000mm H: 300mm - 1300mm Non rectangular shapes also available
Ventilation open area	58.8cm² - 1948.8cm²

Floor vents	
Material	Aluminium, Plastic cover
Standard Colours	Light Bronze, Bronze, Ivory
Standard Dimensions	455 Type: 468x100x25mm 910 Type: 923x100x25mm
Ventilation open area	40cm²-110cm²

Ventient™ as part of a natural or mixed mode ventilation system can reduce the need for air-conditioning

Proctor Group Australia and Sahara Corporation are working together to offer state-of-the-art **Ventient** ventilation systems around the world.

About Proctor Group Australia (PGA)

Established in 2005, PGA has been servicing the Australasian building and construction industry with an extensive portfolio of high-performance thermal and acoustic insulation, plus high quality geotextiles and vapour control construction membranes.

PGA brings a wealth of experience and knowledge from around the globe in solving problems through research and product development, designed to meet local climates, building regulations and construction practices.

PGA continues to expand its product range by assessing the requirements of local customers and meeting these needs with a combination of product development and tried and tested leading edge products and systems from around the world.

PGA will continue to work tirelessly to pre-empt future thinking to consistently deliver innovative products at the top end of the performance spectrum.

About Sahara Corporation

Established in the 1950s, Sahara is Japan's largest trickle vent manufacturer with over half a century of experience and knowledge. Sahara designs and manufacturers state-of-the-art ventilation products for leading aluminium and PVC door and window manufactures. Sahara is a long term supplier to respected major residential house builders and commercial builders.

Sahara's products are widely used in residential homes, office buildings, high rise apartments, hotels, and other facilities throughout Japan, and these precision-engineered products are now available in a growing number of countries with installations in Australia, New Zealand, China and South Korea. Ventient is also attracting growing interest from all parts of the globe.

PGA and Sahara Corporation in partnership

Having first seen the Ventient technology in use in Japan, PGA have successfully launched Ventient in New Zealand and Australia in conjunction with several window manufacturers.

PGA are now assisting Sahara in finding and supporting new global partnerships with window manufacturers, distributors and innovators.

As the largest supplier of trickle vents in Japan, Sahara has a wealth of expertise in ventilation and product design with the ability to adapt and integrate their devices to suit specific window and curtain walls types.

We welcome the opportunity to work with those who see and understand the potential of Ventient.

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