

ResiVent Zero

Acoustic Natural Ventilation

 Monodraught

www.monodraught.com | info@monodraught.com | 01494 897 700



Carbon Negative,
Climate Positive,
Zero Bills*



We are Pioneering British Greentech

We are pioneers in the design and manufacture of advanced sustainable ventilation, cooling, heating and lighting solutions for new and refurbished commercial and public buildings. We deliver outstanding temperature control and indoor air quality whilst minimising the consumption of both electricity and refrigerants so as to reduce our carbon footprint. Monodraught have over 45 years' experience and our products have saved the equivalent of over 390,000 tonnes CO₂ over the last two decades, which is equivalent to over 3,534 million miles travelled in a small car*.

Monodraught believe that every business has a responsibility to invest in local communities. We purchase over 85% of our materials from suppliers within a 100-mile radius and recycle where possible. Our team supports many charitable causes and Monodraught are proud partners of the local mental health charity, Buckinghamshire Mind.



DESIGNED &
MANUFACTURED
IN BRITAIN

** Based on 110g CO₂ per mile emitted from a typical a small family car.*

Contents

Meeting Building Regulations Part O	3
About ResiVent Zero	4
Technical specifications	5
About ResiVent Zero+	6
Technical specifications	7
Advantages	9
Case Study	10
Our net zero journey	13

Awards & Accreditations

Trading for over 45 years, we are proud to be recognised with many awards.



The impacts of Overheating

Climate change is increasing the risks of overheating especially in well-insulated, airtight homes. According to the Climate Change Committee (CCC), high temperatures in homes negatively impact people's lives by disrupting sleep and causing knock-on impacts on health and productivity. High temperatures can cause illness and, in some cases, even death. Recent heatwaves have generated interest in energy-intensive domestic mechanical cooling, further adding to the load on our already stretched electrical grid infrastructure.

Studies have shown that the opening/ closing of windows at the right time of day can effectively mitigate the risk of overheating. Even with 2°C of warming, up to 80% of homes can be cooled effectively using only passive means that require no energy use.

Mitigating the risks of Overheating

The new Building Regulations Part O which came into force on 15th June 2022, require Developers to mitigate the risks of overheating in new homes, including flats, institutional, care homes, residential colleges, boarding schools and student accommodation. Reasonable provision must be made to limit unwanted solar gains in summer and provide an adequate means to remove heat from the indoor environment. Acceptable strategies for removing excess heat are:-

- Opening windows (with cross ventilation)
- Ventilation louvres in external walls
- A mechanical ventilation system

Passive means of limiting unwanted solar gains and removing excess heat must be used "as far as reasonably practicable" and it should be demonstrated to the building control body that passive means have been properly considered first before adopting mechanical cooling. There are two routes to compliance – the Simplified Method, and the Dynamic thermal modelling method using CIBSE's TM59 assessment method.

Reducing the impact of Noise

The regulations also set noise limits for bedrooms at nighttime, making no distinction about different sources of background noise, e.g., birdsong, road traffic, high winds, etc. Critically, if noise affects whether windows can be opened during the day, a change is triggered in the TM59 overheating assessment criteria, making it especially challenging to meet both the noise and overheating criteria in 'high risk' urban areas, such as London and Birmingham, or 'moderate risk' suburban locations, such as SE England.

"Part O will for the first time require an explicit assessment of overheating risk in new residential buildings, including dwellings, flats and buildings where people sleep such as care homes or student halls of residence. This will use either a simple method or a simulation using CIBSE TM59." CIBSE

Meeting Building Regulations - Part O

Designed to provide the same ventilation as an open window whilst dampening outdoor noise levels, ResiVent Zero provides a truly passive means of meeting both the ventilation and noise requirements of Part O. With no electrical motors or fans, ResiVent Zero consumes no energy and offers developers a flexible solution to mitigating overheating risks particularly in urban and sub-urban areas.

ResiVent Zero provides a low-cost solution to:

- Reducing external noise levels
- Limit solar gain and control overheating
- Prioritise natural ventilation
- Occupant safety and security
- Low carbon footprint

1: <https://www.theccc.org.uk/publication/addressing-overheating-risk-in-existing-uk-homes-arup/>
2: <https://www.cibse.org/news-and-policy/policy/building-regulations-2021>

About ResiVent ZERO

The ResiVent Zero Acoustic Natural Ventilation unit is ideally suited for residential applications with windows calling to be reduced in size to limit solar gain, and restricted in their opening angle for safety, the ResiVent Zero system is an obvious alternative. ResiVent Zero provides natural ventilation without the use of energy consuming fans.

ResiVent Zero units are designed to suit specific project requirements for ventilation opening and acoustic treatment. Externally, an aluminium weather louvre provides the natural ventilation air intake and optional laser cut custom made decorative overlay panels are available to order.

Section 1

The internal components are supplied as standard in a white powder coat finish or they can be a specific RAL colour to suit décor. A fully welded aluminium outer frame conceals a manual volume control damper arrangement that provides a high level of air tightness with low u-value properties.

Section 2

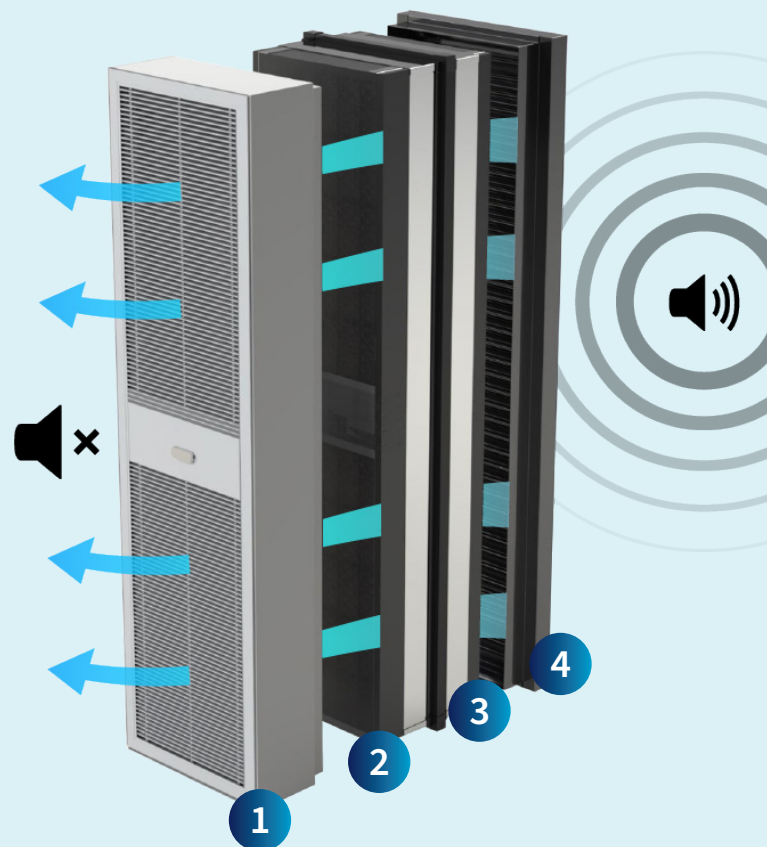
The Acoustic Attenuation Module (AAM) is supplied as a cassette unit which slots within the mid frame section and is secured into position using concealed bolts.

Section 3

Fitted first, the mid frame section comprises of a thermally separated, mill finished aluminium frame which provides the securing positions for the sections.

Section 4

Externally a 50mm deep aluminium weather louvre is supplied powder coated to any BS or RAL colour (excluding metallics) with an integrated anti-bird mesh fitted. The weather louvre is secured to a powder coated aluminium outer frame.



Acoustics

Three standard Acoustic Attenuation Modules (AAM) options are available with varying levels of depth and increasing acoustic performance. Although standard modules are available, all ResiVent products are designed to suit specific project requirements. As such component testing can be undertaken with certification provided on a project specific basis. Monodraught conduct all acoustic testing at an independent laboratory in the UK.

Model Size	Acoustic Performance (weighted sound reduction)
450 AAM	Rw 19 dB
600 AAM	Rw 24 dB
750 AAM	Rw 36 dB

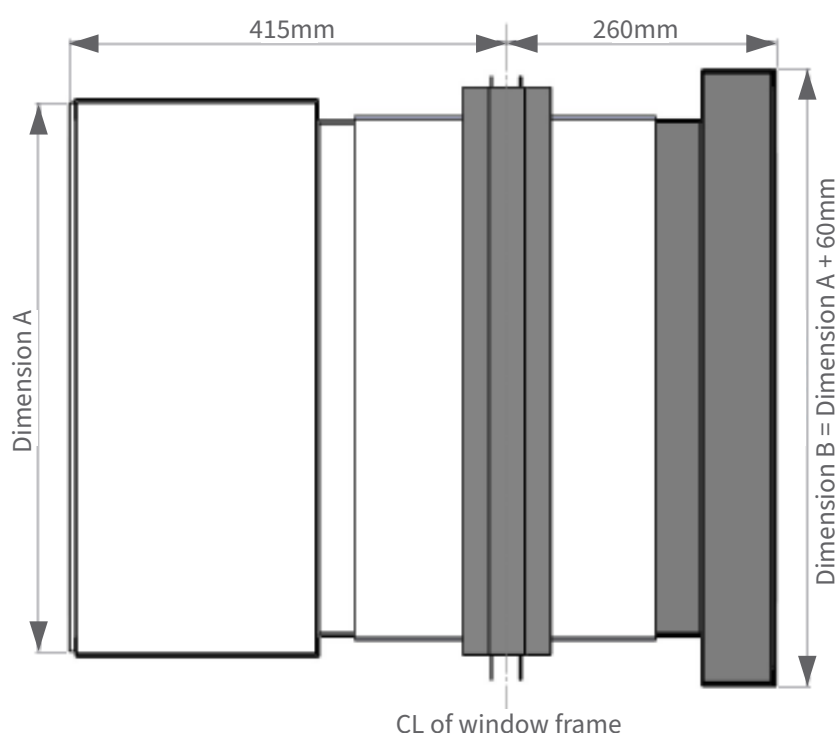
Product Specifications

ResiVent Zero

Item		Value
Model reference		RV-GL-WD
Dimensions (mm)	Height	Varies according to project specific requirements
	Width	Varies according to project specific requirements
	Depth	225 greater than Acoustic Attenuation Module (AAM)
Weight (kg)		100kg per m ² of ventilation face area
External finish		PPC - Powder coating – Project specific RAL colour to be confirmed prior to order placement
External weather louvre		50mm deep aluminium louvre fitted with anti-bird mesh grille
Weather protection rating		Class A
Internal louvre		Horizontal aluminium linear grille
Internal finish		PPC - Powder coating – White RAL 9003
Acoustic attenuation		Weighted Sound Reduction Rw 19dB to 36 dB
Thermal performance		1.1 W/m ² K
Airtightness (volume control damper locked closed)		2m ³ /hr/m ² at 50 Pa
Ventilation free area		Minimum of 38% physical free area
Warranty		10 Years

Dimensions

Drawing details for 450mm deep Acoustic Attenuation Module (AAM)



About ResiVent ZERO+

ResiVent Zero+ sets a new benchmark for the future generation of low energy hybrid ventilation systems that integrate heat recovery ventilation strategies. It provides natural ventilation and low energy mechanical ventilation with heat recovery in one compact unit.

The system operates completely autonomously to ensure optimum indoor air quality and thermal comfort with the lowest possible energy use.

ResiVent Zero+ uses a combination of high quality, purpose engineered components and reactive control systems to capture and distribute fresh air into the built environment.

WHAT'S NEW?

ResiVent Zero+ is our premium offering complete with the inclusion of a high-efficiency, low-energy Heat Exchanger.

Operating Modes

Fresh Air Mode

The ventilator delivers fresh air

Exhaust Mode

The ventilator extracts stale, warm air from the room

Heat Recovery Mode

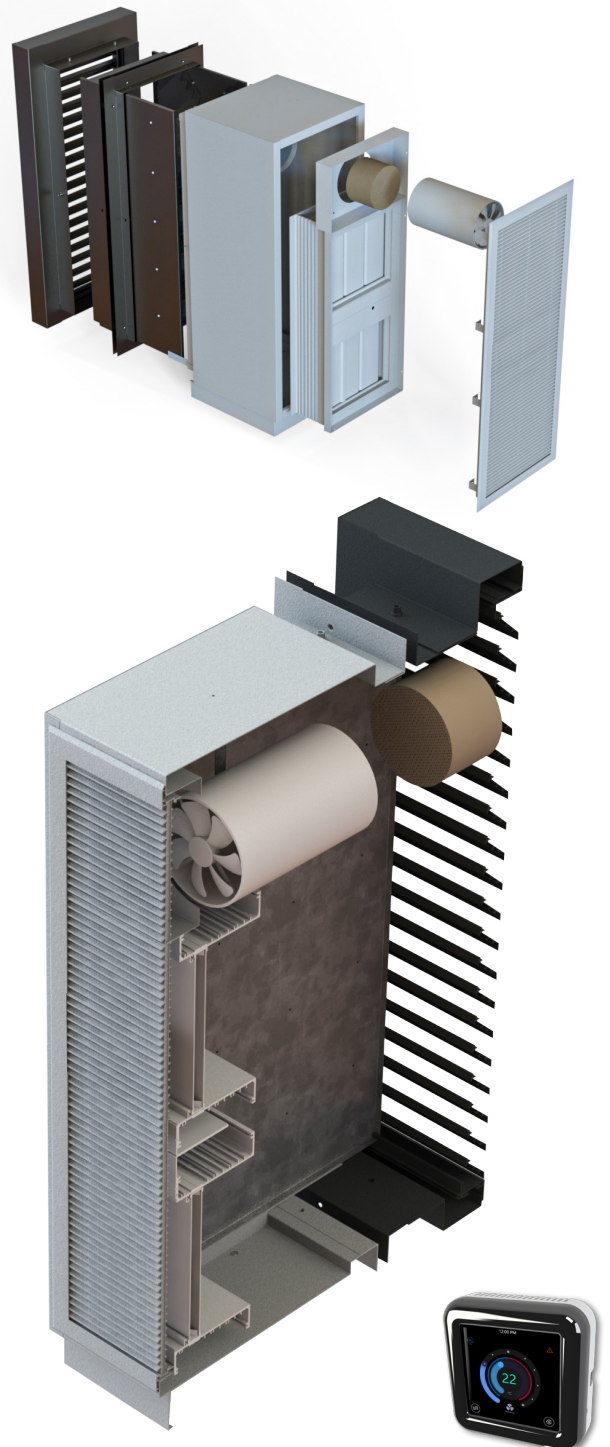
The ventilator operates in reversible mode with heat and humidity recovery. On this mode, the MVHR unit operates in two cycles of 65 seconds each:-

Cycle I

Warm stale air is extracted from the room. As it flows through the heat exchanger, heat and moisture is transferred to the exchanger (up to 90%). In 65 seconds, as the ceramic exchanger gets warmed, the ventilator is switched to supply mode.

Cycle II

Fresh intake air from outside flows through the ceramic exchanger and absorbs heat and moisture as it is delivered to the room. In 65 seconds, as the exchanger gets cooled down, the ventilator is switched into extract mode and the cycle is renewed.



Product Specifications

ResiVent Zero+

Item		Value
Model reference		RP-GL-BD
Dimensions (mm)	Height	Varies according to project specific requirements
	Width	Varies according to project specific requirements
	Depth	225 greater than Acoustic Attenuation Module (AAM)
Weight (kg)		100kg per m ² of ventilation face area
External finish		PPC - Powder coating – Project specific RAL colour to be confirmed prior to order placement
External weather louvre		50mm deep aluminium louvre fitted with anti-bird mesh grille
Weather protection rating		Class A
Internal louvre		Horizontal aluminium linear grille
Internal finish		PPC - Powder coating – White RAL 9003
Acoustic attenuation		Weighted Sound Reduction Rw 19dB to 36 dB
Thermal performance		1.1 W/m ² K
Airtightness (volume control damper locked closed)		2m ³ /hr/m ² at 50 Pa
Ventilation free area		Minimum of 38% physical free area
Warranty		10 Years

MVHR Operation			
Fan Speed	I	II	III
Voltage, 50-60 Hz (V)	100 ~ 240		
Ventilator Total Power (W)	1.8	3.9	7.0
Max. Ventilator Current (A)	0.019	0.034	0.0533
Max. Air Capacity (m ³ /h) (CFM)	48(28)	54(32)	60(35)
RPM (min)	651	956	1261
Max. Transported Air Temperature (°C)	-20°C to +50°C		
Heat Exchange Efficiency	Up to 90%		
Heat Exchanger Core	Ceramic		

Acuity Remote Monitoring

The iNVent Acuity control system has been developed from Monodraught's considerable in-house controls experience. This class leading control system links seamlessly and securely with the ResiVent Zero and integrates the Internet of Things (IoT) connectivity. Utilising Autonomous Intelligence (AI) automated monitoring software, the system remotely monitors and diagnoses potential issues before they occur.

Acuity enables Housing Providers or their appointed contractors to remotely monitor the performance of the heating, hot water and ventilation system. Acuity has been designed to reduce call out costs arising from tenant queries regarding the operation and performance of the system.

- Touch Screen - 10" display shows relevant information quickly without the need for training.
- Always Safe Operation – Passcode only needed for system changes.
- Software-Over-The-Air (SOTA) – Remote diagnostics and firmware updates happen automatically without user interruption
- Data Analysis – via dedicated 4G/5G connection to cloud-based analysis software.



Modena Room Controller

ResiVent Zero+ is equipped with our latest "Modena" touch screen state-of-the-art user interface that provides occupants with full information and overall control of their heating, hot water and ventilation system.

- A 4" touch screen displays information quickly and intuitively to the householder
- Heating, hot water and Ventilation controls – user easily adjusts key system parameters to maintain comfort
- Information includes room temperature, air quality level, set points, time programme, operating modes and fault indication.
- Calibrated temperature and air quality CO₂ sensors optimise performance.



ResiVent ZERO Advantages

Advantages for Developers



Easily incorporated into modern aesthetics



Natural ventilation is prioritised over mechanical due to its low energy emissions



Easy to coordinate project-specific solutions



Complying with 'Future Building' Regulations



Products are recognised in SAP

Advantages for Consultants



A leading-edge product with zero embodied carbon



Easy to model performance in dynamic software



Sustainability in design with low embodied carbon and recycled materials



Compliant to future home regulations



Designed for mass manufacture

Advantages for Contractors



Easier to install and maintain



Single supplier for faster project coordination



Innovative, modular construction



low-cost and maintenance



Zero embodied and operational carbon

Advantages for Occupants



Assurance of a comfortable home



Compliant with safety standards



Reduces external noise impact on indoor areas



low-cost natural ventilation solution



Easy to use manual controls

CASE STUDY

The Island Quarter



Innovative Natural Ventilation Quietly Delivers for Students

A mix of abundant green spaces, multi-functional public areas, and houses will soon occupy The Islands Quarter, a 36-acre site in Nottingham which has remained under-unvested for over 20 years. With plans for over 1,600 new homes for families and students, plus 20 restaurants, bars and offices, The Island Quarter will deliver a place where people will want to live, work, and spend their leisure time.

Addressing the shortfall in high-quality purpose-built student accommodation at the city's two world-leading universities, Bowmer + Kirkland is heading up the construction of 693-bedroom units. With a strong focus on innovation and sustainability the developer is also deploying solutions that reduce on-site health and safety issues.

RESIDENTIAL



NEW BUILD



Location
Nottingham

End User
Nottingham City Council

Main Contractor
Bowmer + Kirkland

Systems Installed
• 250+ ResiVent Zero systems



Innovative Natural Ventilation

The city centre urban location brings the inevitable concern of background noise when residential windows are opened for ventilation purposes. Keen to find an innovative solution Monodraught helped to resolve the acoustic issues at The Islands Quarter student accommodation.

ResiVent is a new and unique product which has been specially designed to provide the benefits of natural ventilation whilst dampening the noise impacts arising from local traffic. With zero running costs, this low maintenance, manually operated system neatly reduces background noise whilst providing fresh air in a similar way to an open window. In this project,

ResiVent provides boost ventilation and works in conjunction with a low duty MVHR system which provides ventilation during winter-time periods.

The first ResiVent units were recently delivered to site and smoothly installed by our engineers. The full-sized units passed the acoustic tests with flying colours and exceeded the required specification with a weighted Sound Reduction Index of 19dB (450 unit) and 24 dB (600 unit). The client was suitably impressed at the difference the ResiVent unit made and the level of noise reduction as trucks drove by on the site outside. The project is scheduled to welcome its first residents in September 2024.



The Monodraught Net Zero Journey

The impact of global warming is irrefutable. “The future of humanity and indeed all life on earth depends on us”, David Attenborough.

Monodraught has set an exceptionally ambitious target to reduce the impact of our products and their operation on the environment; leading the way in sustainable construction products.

By 2024, we will ensure 90% of our sales revenue is generated from lifetime carbon neutral products.

We have been working hard to become carbon neutral and our analysis is comprehensive. It includes carbon emissions in our supply chain, our business operations and the carbon footprint of our products – from the production of raw materials, the “in-use” operation and the end of product life. To ensure transparency, we are using the internationally recognised Green House Gas Protocol (GHGP) carbon accounting method to record our Scope 1, 2 and 3 emissions. Our objective is to minimise our carbon emissions prior to offsetting any remaining emissions as a last resort.





We are pioneers in the design and manufacture of advanced sustainable ventilation, cooling, heating and lighting solutions for new and refurbished commercial and public buildings. We deliver outstanding temperature-control and indoor air quality whilst minimising the consumption of both electricity and refrigerants so as to reduce our carbon footprint. Monodraught have over 45 years' experience and our products have saved the equivalent of nearly 390,000 tonnes CO₂ over the last two decades.

Monodraught Ltd.

www.monodraught.com
info@monodraught.com
01494 897700

Halifax House, Halifax Road, High Wycombe,
Buckinghamshire, HP12 3SE, United Kingdom

RVZPB/06.2023



This publication provides information only and does not constitute an offer binding upon Monodraught Ltd.
The content of this publication has been compiled to the best of Monodraught's knowledge. No express or implied warranty is given for the completeness, accuracy, reliability or fitness for particular purpose of its content and the products and services presented therein. Specifications are subject to change without prior notice. Monodraught Ltd. explicitly rejects any liability for any direct or indirect damage, in the broadest sense, arising from or related to the use and/or interpretation of this publication.
All content is copyrighted by Monodraught Ltd.