


11-2023

## Building Services Engineering November/December 2023

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# building services engineering



Consultants  
Hit Choppy  
Waters

Henrik  
Garver



Key Aspects  
of Net Zero  
Industry Act

Sean  
Kelly



CIBSE  
Silver  
Medal

Pat  
Lehane



RACGS Holds  
Charity Outing  
at Glasson

Roland  
Bradley



**Fulfilling the 2050 target ...**

# Multiple hurdles yet to be overcome



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The long-awaited launch of the new Mitsubishi Electric website for the Living Environmental Systems (LES) Business Unit is here!

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**les.mitsubishielectric.ie**

 [les.mitsubishielectric.ie](https://les.mitsubishielectric.ie)



Mitsubishi Electric Ireland



Mitsubishi Electric Ireland



@MEIrishBranch

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## EDITORIAL

### Industry shows resilience

While leading international and Irish sources predict real term shrinkage in construction output of about 2.5% in 2023, and perhaps 1% in 2024, surely this points to the resilience of the sector.

Although in the negative, these figures are negligible, and even encouraging, when put into context. It could be so much worse given how enmeshed Ireland is in the global economy, and how dependent we are on multinational pharma and tech giants.

Then, on the home front, we have had interest rate hikes, raw materials and product price increases, high inflation (relative to recent years), and massive skills shortages.

These challenges remain but, as we now head into 2024, the industry should take comfort from the resilience it has shown in the face of them to date.



While it is important to acknowledge the commitment of legislators and the industry at large to drive the net zero initiative, multiple articles in this issue highlight the scale of the challenge and the new issues that keep arising.

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### NET ZERO INDUSTRY ACT (NZIA)

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#### €600 billion green revolution

The European Union has set ambitious targets to combat climate change, introducing a raft of legislation to achieve a 55% reduction in greenhouse gas emissions by 2030. Here Sean Kelly, MEP, assesses how the recently-enacted Net Zero Industry Act (NZIA) will help realise these targets.



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### ON-SITE CARBON NEUTRALITY

#### Medtronic on net zero mission

In 2022 Callaghan | RED engineering was appointed to design, sequence and monitor the decarbonisation of three Medtronic buildings across multiple sites in Galway. The initiative is part of Medtronic's ambitious target to transition to on-site carbon neutrality, and achieve net zero, by 2045.



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## NEWS AND PRODUCTS

### O'Reilly Chadwicks appointment



**Chadwicks Group**, the leading builders' merchants in Ireland, has announced the appointment of John Paul O'Reilly as Managing Director, Specialist Product Division, Chadwicks Group.

A key focus of his role is to drive and facilitate necessary change within the organisation, with sustainability and digital transformation as top priorities.

### ESB graduate development

Eighty graduates from Irish and international third-level institutions, spanning the fields of engineering, IT, HR, commercial and finance, have commenced a two-and-a-half-year development programme with ESB.

The Graduate Development Programme forms part of an ambitious drive by the company to recruit talent to support the delivery of its "Net Zero by 2040" strategy. The graduates will be placed across five business units –



ESB Networks, Generation and Trading, Engineering and Major Projects, Customer Solutions and Enterprise Services.

### Energywise 'One-Stop-Shop'

**Energywise Ireland**, an SEAI-registered "One-Stop-Shop", announced plans to create 100 new jobs at the recent official opening of its new premises in Cork city. Tánaiste Mícheál Martin performed the official opening.

Energywise Ireland designs, supplies and installs renewable solutions for domestic and commercial customers, including solar PV, EV chargers, air to water heat pumps, energy management solutions and full energy upgrades.

The company already employs 90 people at its premises and the new roles will include office administrative staff, as well as engineers, carpenters, fitters, installers, plumbers, roofers and electricians.

Photo shows the Energywise Ireland management team – Darren Vaughan, Chief Operating Officer with Rosemarie Sheehy, Chief Digital Officer and Berth Sheehy, CEO.



### RPS acquired by Tetra Tech

**RPS**, the Irish consulting engineering and project management company, has secured over €30m worth of new engineering design contracts. The company was recently acquired by Tetra Tech, a leading global provider of consulting and engineering services, with 27,000 employees worldwide.

In Ireland, RPS delivers consulting and engineering solutions for complex projects across key service areas in infrastructure design and development, energy, water and environmental services, and project and programme management.

Many of its 470 staff work nationwide, while an additional 295 cover Northern Ireland. It is opening a new regional base in the Kilkenny Enterprise Centre, Purcellsinch, to add to its existing offices in Dun Laoghaire, Cork, Galway.

Right: Willie Madden, Managing Director, RPS.



### Martin joins Ethos

**Ethos Design Management** is a fast-growing group, leading delivery of local and international projects for blue-chip clients in the data centre and commercial sectors. Serving as a vital bridge between clients, cross-discipline teams and stakeholders, it consistently ensures successful project execution and the realisation of clients' strategic goals.

Michael Martin, the recently-appointed Program Director, is dedicated to bolstering the organisation's sustained growth and success. His



focus is on instilling best practices in project and design management across a dynamic portfolio of projects and opportunities in the EMEA region. This includes further alignment and empowerment of the design management team and the continued development of its strong relationships with valued Ethos clients and partners.

### SEAI energy audit voucher

With companies now preparing their budgets and strategy plans for 2024, energy efficiency and carbon reduction are top of the agenda.

To assist them in this endeavour, SEAI offers vouchers of up to €2000 for an energy audit that can be carried out on buildings, processes, or systems. It is a three-step process that involves preparation, a site visit and reporting.



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Your ideal partner for the future of pump technology - Wilo have what it takes as a manufacturer who can truly understand the many applications of our products in real-world situations. Staying abreast of Global Megatrends enables us to develop products which are ready for the challenges of tomorrow. Digitalisation and efficiency play a huge part in a world which will increasingly be dominated by smart urban areas in order to cope with the demands of globalisation and urbanisation.



Glandless Circulators  
Wilo-Stratos MAXO



Glanded Circulators  
Wilo-Stratos GIGA



Boosters  
Wilo-SiBoost Helix EXCEL



Drainage & Sewage  
EMUport CORE

For further information please contact our sales team

## NEWS AND PRODUCTS

## Versatile partnership

**Versatile has formed** a distribution partnership with Swegon, the global manufacturer of ventilation and indoor climate control systems, making Versatile the only distributor of the Swegon ventilation range in Ireland.

The partnership builds on a successful collaboration between Versatile and Swegon, which has culminated in Versatile successfully developing bespoke expert ventilation solutions to meet Irish and UK school ventilation standards.

Speaking about the partnership, Andrew Treacy, Managing Director of Versatile said: “This is an exciting development for Versatile and Swegon. Along with Swegon, Versatile is dedicated to helping designers achieve a net zero energy building. In this space we have also developed solutions for decarbonising existing buildings throughout the Island of Ireland, something that will contribute greatly to the 2030 carbon target for this island.



Andrew Treacy, Managing Director, Versatile pictured with Dean Kent, Business Unit Director, Swegon, when the partnership was announced.

## Europump 2024 AGM

The Europump annual general meeting will be held at De Vere Beaumont Estate near Windsor, Berkshire, from 22 to 24 May 2024. As a major contributor to the European technology arena, the pump sector remains steadfast in its pursuit of global competitiveness, while being mindful of the many societal and environmental challenges it continues to face.

There will be sessions dedicated to the activities of the various Europump working groups – Technical, Standards, Marketing and SME. However, a number of invited speakers will also share their thoughts and expertise on a range of topical issues including digitisation and AI, sustainability, the post-Brexit political landscape, and the world pump market.

## Schneider acquires EcoAct

**Schneider Electric has** finalised the acquisition of the international climate consultancy EcoAct. Headquartered in Paris, EcoAct provides businesses with climate risk assessment, carbon offsetting and digital climate solutions.

Schneider Electric already advises its customers on areas like energy management and renewable energy through its global Sustainability Business. This acquisition will expand the consulting business to support customers’ sustainability and decarbonisation strategies

## CIBSE Guide M maintenance guide

*Guide M Maintenance Engineering and Management* is considered the “go to” guide for the facilities management industry. Everything you need to know about operating building services is introduced and explained in this guide, and references to more in-depth resources are also provided. The guide is based on UK best practice and has been updated for this third edition by volunteers, who each led on a chapter, or two, where they have knowledge of the subject and industry experience.

This document is intended to bring maintenance into a sharper focus by helping building and property operators become more aware of their responsibilities and duties. It will help services designers to appreciate their role in providing installations that give satisfactory performance over their full lifespan.



## Solid fuel stove notice

**Since 1 January 2022**, all solid fuel stoves placed on the market by suppliers must comply with legal requirements to improve product efficiency and reduce emissions. These criteria originate from the Ecodesign Directive which applies to a wide range of energy-related products.

There has been a six-year lead-in time included in the legislation to allow the industry to make the necessary changes to products and supply chains.

Retailers typically do not place products on the market and, if they have some in stock that were placed on the market by the supplier before 1 January 2022, they can continue to sell these products. If they have products in stock that do not comply with the current Ecodesign requirements and these products were placed on the market after 1 January 2022, then the supplier responsible for placing these products on the market has breached this legislation.

For clarity and/or guidance on this matter contact [info@seai.ie](mailto:info@seai.ie)





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[www.grant.ie](http://www.grant.ie)

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## NEWS AND PRODUCTS

## Metalfire appoints HDL

**Metalfire**, a Belgian manufacturer of high-end, gas and solid fuel fires and full-concept walls in metal, has appointed HDL as its distributor for Ireland.



All fires are hand-made and characterised by an air of grandeur. They incorporate innovative features and also comply with all applicable European performance and safety standards.

Metalfire collaborates with several renowned architects and industry professionals and, since its acquisition by Bremhove in 2017, production is done entirely in its own

workshop in Belgium. There is also a full accessories line under the name Metalforms.

Contact: Heating Distributors. T: 01 864 8950; E: [info@heatingdistributors.com](mailto:info@heatingdistributors.com); [www.heatingdistributors.com](http://www.heatingdistributors.com)

## Condair humidifier guide

Humidity control specialist, Condair, is offering a free 10-point guide to specifying dehumidifiers. The document covers the main issues surrounding planning and installing a commercial dehumidification system. It includes information on system design, product sizing, drying psychrometrics, energy saving and much more.

Damien Power, Area Sales Manager for Ireland at Condair explains: "This guide has been produced by experts in the field with experience spanning thousands of drying projects. It gives unbiased advice on both desiccant and condensing dehumidifiers.

Written in an easy-to-follow style, the 10-point format makes it a very accessible reference tool for any HVAC consultant, installer or facilities manager.

"Planning a dehumidifier project can be a complex undertaking due to all the parameters that need to be considered. Dehumidifiers don't just remove moisture from the air but also generate heat during the drying process. Managing an area's humidity often involves consideration of its temperature control too, and this 10-point guide walks the reader through the psychrometrics of this, as well as strategies to deal with it," concludes Damien.

The guide to specifying dehumidifiers is free, and can be downloaded at [www.condair.ie/dehum-guide](http://www.condair.ie/dehum-guide)



## Smart Buildings Show

The recent Smart Buildings Show held at ExCeL in London saw 2,000 visitors flow through the exhibition hall. Many of these attended presentations from over 70 speakers. Nearly 100 exhibitors showcased the latest innovations in energy saving solutions, while the inspiring seminars covered current and trending topics, such as the AI approach, digitalisation, decarbonisation and net zero. Some of the leading names in smart buildings technology were also in attendance.

## Kieran Cowman RIP

As we went to press we learned of the sad passing of Kieran Cowman, Technical Sales Director at Euro Gas.

Kieran's positivity and passion for the business was an inspiration, not just to all of us at Euro Gas, but to the industry at large. His knowledge, good humour and personality will be greatly missed.

*Building Services Engineering* joins with the industry in extending our sincere condolences to his wife Jean, his children Ruth and Luke, and all of his extended family.

We will have an extended appreciation in the next edition.



## 'Work in Wind' campaign

Wind Energy Ireland unveiled a "Work in Wind" campaign at the recent Wind Energy trade show held in Dublin. Students and young people can now find out more about the dozens of career opportunities open to them in Irish renewable energy at [workinwind.ie](http://workinwind.ie)

About 5000 people now work in the Irish wind energy industry but, as the race to achieve the targets set out in the Climate Action Plan accelerates, this number needs to more than double.

The [workinwind.ie](http://workinwind.ie) site highlights the job opportunities in the sector, profiles real-life case studies of people working in the industry today, and identifies clear career pathways through training programmes and third-level courses.



## NEWS AND PRODUCTS

### Mace Irish market view

**Mace, the global** construction and consultancy company, has produced its latest *Irish Market View*, with the findings pointing to a promising pipeline of work within the infrastructure sector.

The report, which looks at the latest economic data, shows that, despite the enduring challenges associated with the current cost of living crisis, Ireland is set for growth across its energy, utilities and transport sectors over the next decade.



The paper spotlights offshore wind energy as a specific opportunity area. With the added benefit of supporting Ireland's 2030 Climate Action Plan, an intention to generate seven gigawatts by 2030 and 37 gigawatts by 2050 points to ambitious growth objectives.

Crucially, the report highlights how this will

have a positive knock-on effect throughout the Irish supply chain, resulting in upskilling and onward investment across all manner of industries, including turbine manufacturing and electricity grid connection.

Pictured above is Andy Beard, Global Head of Cost and Commercial Management at Mace.

### Wind delivers 31% of energy

**Wind Energy Ireland's** latest monthly report shows that wind energy provided nearly a third of Ireland's electricity in October 2023. However, moderate winds meant that the amount of electricity generated by wind was down when compared with October 2022.

Nonetheless, the accumulated figures for the year to date mean that Irish wind farms have supplied 33% of Ireland's electricity demand in the first 10 months of this year.

Noel Cunniffe, CEO of Wind Energy Ireland (pictured), said: "We are still on track for a strong performance from wind energy in 2023, with wind generation so far this year nearly 3% higher than last year. The more renewable energy we can connect, the more secure we will make Ireland's energy supply going forward."



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Latest revision of SLL lighting guide published

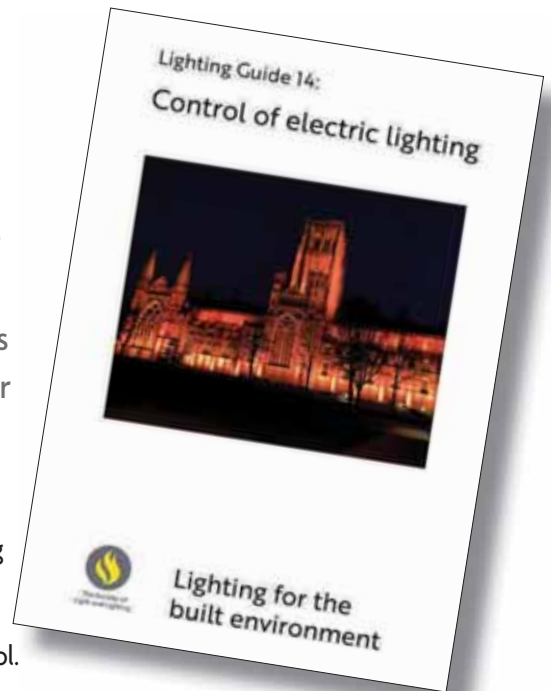
## LG14: Control of Electric Lighting

The Society of Light and Lighting (SLL) has published the latest revision of SLL lighting guide *LG14: Control of Electric Lighting*. First published in 2016, this is the second edition of LG14. It sets out a logical approach for the professional designer to consider the consultation, design, specification, commissioning and handover of a lighting installation incorporating controls.

**Lighting control of** electric light is not a new concept – lighting control in some form is as old as lighting itself. This second edition of LG14 was produced and updated to inform what is meant by lighting controls for electric light relative to project specification and design in the 21st century. It covers

internal and external electric lighting control but it does not cover solar blind and shutter control, theatre or advertising electric lighting control.

Luminaire technology, energy efficiency legislation and rising energy costs are the most common drivers for the incorporation of lighting controls



into a project. This means that lighting controls are increasingly becoming essential rather than an “optional extra/nice to have” project consideration.

It is an important consideration that the project stakeholders and, in particular, lighting designers, are aware of the current lighting control technologies available to meet the performance objectives of a project. This approach will enable the specification of lighting control products and services that are fit for purpose and compatible with the selected luminaires and lighting design.

“Lighting controls are now an integral part of all lighting installations. Since its inception, LG14 has been structured to guide the designer through the processes required to make informed decisions about how and why to add lighting controls to a lighting design. The chapter structure in LG14 follows the usual path of the initial consultation with the client, through to commissioning and handover,” says Sophie Parry, Chair, Technical & Publications, SLL.

Sophie is the author of LG14 while Simon Robinson and the late David Holmes contributed case studies.

SLL is a division of CIBSE and members of both bodies receive unlimited online access to all CIBSE guides via the CIBSE Knowledge Portal.

For further information visit:

<https://www.cibseireland.org/> ■



Traditional, outdated lighting controls are now being replaced with new and dynamic lighting management systems.

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# LEDVANCE



## Net Zero Industry Act

# €600 billion global value for green revolution by 2030

The European Union has set ambitious targets to combat climate change, introducing a raft of legislation to achieve a 55% reduction in greenhouse gas emissions by 2030. Here Sean Kelly, MEP, assesses how the recently-enacted Net Zero Industry Act (NZIA) will help realise these targets.



**T**he Act is designed to drive an ambitious systemic change in how we produce, consume and store energy. It is clear that addressing sustainability challenges and climate change will be central to the future growth of our economy, as the cost of inaction now will be far exceeded by the costs involved with adaptation, never mind the social and political instability this would create.

To achieve these goals, we need a transformation of the energy sector, an energy efficient building stock, more circular production and consumption, as well as decarbonising our industries.

As a Member of the European Parliament, I have witnessed the industry's response to this call for action over the past decade, as we've seen a remarkable scale-up of what we now call "net-zero technologies". One of the key steps in this journey is the Net Zero Industry Act (NZIA), a pivotal component of the EU's Green Deal Industrial Plan.

Ireland, with its abundant wind resources and strategic geographical location, holds significant potential when it comes to renewable energy generation, and the subsequent downstream industries that come with generation hubs. The International Energy Agency (IEA) estimates that the global market for net-zero industry technologies will reach an annual worth of around €600 billion by 2030.

Major players like the United States and China are already making significant strides in building their net-zero technology manufacturing capabilities. For Europe,

capturing a share of this growing market is imperative, and the NZIA plays a crucial role in achieving this.

The recent energy crisis stemming from Russia's war in Ukraine served as a stark reminder of the risks associated with depending on third countries for our critical energy needs. As we transition from fossil fuels to low-carbon energy sources, it is vital that we ensure the technologies used for this transition, as well as their components, can be sourced within the EU or from reliable partners.

As the lead negotiator in the trade committee for the largest political group, EPP, I have called for strong international cooperation and the pursuit of new trade partnerships with like-minded nations. We must diversify our supply chains and reduce strategic dependencies to safeguard our energy security.

Certain technologies, such as solar PV panels, wind turbines and batteries, are essential for achieving net-zero emissions. It is risky to be overly-dependent on a single country for these supplies. The NZIA, by promoting international collaboration and diversification of supply chains, helps mitigate this risk.

The NZIA brings several positive provisions to support the rollout of net-zero projects. These provisions mirror many initiatives that I have been advocating for in the European Parliament. They encompass planning and permitting, skills development, and creating a one-stop-shop for accessible information, making it easier for businesses and investors

to navigate the transition to a greener industry.

One key aspect of the Act is its focus on public procurement and auctions. Public authorities are now required to consider sustainability and resilience criteria for net-zero technologies. This is a crucial tool to enhance the diversification of supply for these technologies. It also offers private consumers, including small and medium-sized enterprises (SMEs) and entrepreneurs, the opportunity to participate actively in the transition.

In the International Trade Committee, I emphasised the need for Europe to not lag behind in this global transition. We must work proactively to avoid future scenarios where we are dependent on third countries for critical resources. The NZIA addresses this concern by facilitating collaboration with like-minded partners.

However, there are challenges that need to be addressed. First, the full potential of the fund established by the Act can only be realised when a true European Capital Markets Union is in place. Investors require certainty and favourable policies to invest, and the EU must overcome the obstacles that currently hinder private capital's contribution to green initiatives.

Carbon capture and storage (CCS) is pivotal to our transition to net-zero emissions. Ireland, with its potential storage sites like the Kinsale Head Gas Field, holds promise in this regard. CCS, along with bioenergy, need to be integral parts of the NZIA, as recognised by the IEA. In my work in the





*The newly-enacted Net Zero Industry Act is a pivotal component of the EU's Green Deal Industrial Plan.*

Industry and Energy Committee, I have called on the Commission to adopt a strategy for carbon capture and storage. This now

appears to be coming soon, with Wopke Hoekstra, the new Dutch Commissioner for Climate Action, taking the lead.

The Net Zero Industry Act is a significant step in Europe's commitment to reducing carbon emissions and achieving carbon neutrality. It fosters innovation, creates jobs and ensures energy security. By supporting international cooperation, diversifying supply chains, and providing a regulatory framework for net-zero technologies, the NZIA is a crucial instrument in our efforts to address climate change and build a more sustainable future.

However, it is imperative that we address remaining issues and work collectively to turn the Act's potential into tangible results. With the right enabling conditions and industry engagement, the NZIA can set us on the path to a greener, more

sustainable, and secure future ■





## H2POWERPLANT in Dortmund

# Climate action – made in Germany by Wilo Group

Last year, Wilo officially unveiled its H2POWERPLANT at its headquarters in Dortmund. The premium pump and pump system provider then presented this modular plant to a wide audience for the first time at the ISH trade fair earlier this year.

**This is the** world's leading showcase for HVAC and water, and was the appropriate setting for Wilo – and its technology partners Schneider Electric, Enapter and Proton Motor Fuel Cell – to unveil the modular system and make this technology accessible to all.

### Essential contribution to climate action

“Our society needs green energy in all areas of life,” explains Oliver Hermes, President and CEO of the Wilo Group.

“With this plant in Dortmund, we are laying the foundation for a self-sufficient, decentralised and regenerative energy supply network. This cooperation shows how industrial companies can make an essential contribution to climate



Oliver Hermes, President and CEO of the Wilo Group.

Left: The Wilo H2POWERPLANT. Operators can assemble all the components as modules, allowing the output of the power plant to be scaled between 20 kilowatts and two megawatts.

action and sustainability with forward-looking solutions that are open to different technologies.”

Through their cooperation, the technology partners aim to clear the path for the transition to mass producing environmentally-friendly hydrogen technology. The long-term goal is to take a leading role in the generation, storage, distribution and utilisation of green hydrogen. “We’re pleased to be able to expand our strategic partnership with the Wilo Group,” explains Jean-Pascal Tricoire, Chairman and CEO of Schneider Electric.

### Increases pressure to innovate

The hydrogen plant exhibited at ISH is made of three main components – an electrolyser, a hydrogen tank and a fuel cell. Here the multinational technology group vividly demonstrated how these technologies work together in the power plant. A special feature highlighted was that operators can assemble all the components as modules, allowing the output of the power plant to be scaled between 20 kilowatts and two megawatts, according to the field of use. For this reason, the power plant can be used both to provide emergency power for days on end during a blackout, or as interim storage to charge an e-vehicle fleet at night.

Wilo has been driving the energy transition forward for decades with efficient products and solutions. The ongoing energy crisis has once again increased the pressure on modern building management to innovate. In addition to the hydrogen plant, Wilo also exhibited products, systems and solutions at ISH that are designed for safe, sustainable and resource-efficient water supply, utilisation and disposal. “As a leader in the industry, Wilo has always been a pioneer in energy efficiency, and our objective is to continue to develop cutting-edge solutions that drive innovation,” concludes Hermes. ■



# JETLINE

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## HIGH PERFORMANCE

Optimised design of the impeller and guide vanes increases performance and lowers the sound level. Its revolutionary, mixed-flow propeller produces high pressure similar to centrifugal impellers.

## MORE COMPACT

Compact design with incredibly-low profile to enable ease of installation into the smallest of spaces. The terminal box and the mounting bracket do not increase the product profile.

## INDOOR OR OUTDOOR INSTALLATION

Working temperature of -20/60°C.

## SILENT BLOCK

Silent-block between the motor and the casing reduces the motor's vibrations and lowers the sound level of the fan.

QUIETER,  
SMALLER SIZE  
AND  
ULTRA EFFICIENT







## NZEB Radiator: The heat pump's choice

The future of home heating is epitomised by Versatile's NZEB radiators. These cutting-edge radiators harness the power of heat pumps, taking energy efficiency and comfort to the next level.

**NZEB Radiator technology** is designed to maximize the benefits of a heat pump system. It works by intelligently balancing the heat output of the radiator with the heat pump's performance. When the heat pump is operating at peak efficiency, NZEB Radiator provides a gentle and consistent warmth.

The NZEB Radiator is not a fan convector and is certainly not an electric radiator. The NZEB Radiator upgrade set is a booster that was specially developed for Versatile low-H<sub>2</sub>O radiators to increase heating capacity and enable low energy consumption cooling. As radiators with NZEB Radiator can achieve such high outputs, it makes it possible to greatly reduce the water flow temperature of the heating system to optimise the performance when used with renewable energy technology.

Therefore, it is easy to switch from a high flow temperature gas boiler (typically operating at 75/65°C) to a low flow temperature heat pump (typically operating at 45/35°C). The NZEB Radiator set is made up of small electric activators which, when placed inside a low-H<sub>2</sub>O radiator, significantly boost output.

### What size NZEB Radiator?

Almost all Versatile low-H<sub>2</sub>O radiators can be equipped with the NZEB Radiator upgrade set, including Strada, Tempo, Guardian and Maxi 2020. It simply sits on top of the heat exchanger inside the unit to increase the airflow, therefore increasing the output. It is important to note that the height of the radiator does not affect the output NZEB Radiator provides.

NZEB Radiator can be fitted in a radiator as small as 350mm H x 500mm L. The output of the 350mm high low-H<sub>2</sub>O hybrid radiator will be the same as the 950mm high of the same length. This makes it a great option where wall space is limited. NZEB Radiator comes in two widths, each with various lengths to match the radiator it is being fitted to.

### Versatile light cooling

Light cooling (which is also referred to as "non-condensing cooling") is a form of

NZEB Radiator can be fitted inside a radiator as small as 350mm H x 500mm L and works by balancing the heat output of the radiator with the heat pump's performance.

gentle cooling whereby the water temperature is always higher than the condensing temperature (or the dew point), usually around 15°C, depending on weather conditions, and therefore no condensation water is formed. This is an energy-efficient way of cooling that is ideal in combination with low-temperature heating.

### Energy Efficiency

One of the standout features of NZEB Radiator radiators is their exceptional energy efficiency. By optimising the heat distribution, these radiators can save up to 30% on heating costs compared to traditional systems. This not only saves energy costs but also reduces the carbon footprint, making the installation more environment friendly.

Contact: Versatile Heating. T: 046 902 9444; E: info@versatile.ie; W: versatile.ie ■

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w: [www.glendimplexireland.com](http://www.glendimplexireland.com)





## AIRMASTER decentralised ventilation solution

Fresh air is a basic human right and that is why Airmaster has introduced the quietest, most energy-efficient decentralised ventilation solutions that incorporate heat recovery to the marketplace. Proven as suitable for all types of rooms and buildings, Airmaster Smart Ventilation Units (SVUs) keep energy consumption for ventilation and heating to a minimum.

**Only those rooms** where and when ventilation is needed are serviced. There is no wasted energy on unnecessary ventilation. Key features and benefits are:

- *Low energy consumption* – The decentralised air handling unit with counterflow heat exchanger is placed in the room close to an outer wall. The very short distance extracted air has to travel – combined with the counter-flow heat exchanger located alongside – means very low energy consumption. There is no need for long ventilation ducts, meaning minimum heat loss (transmission loss). Decentralised ventilation supplies an individual room without being difficult or expensive to install.

- *Efficient EC motor* – Airmaster uses energy-efficient EC motors, which give low energy consumption, flexible adjustment and silent operation.
- *High heat recovery* – Airmaster uses highly-efficient counter-flow heat exchangers, and document temperature

ratio in accordance with European Standard EN 308:1997 1. This is a dry temperature ratio under conditions in which condensation of return air does not occur. Airmaster's exchangers perform up to 85% measured as a dry temperature ratio in accordance with EN 308:1997, and up to 95% if condensation is included.

- *Draught free ventilation* – Airmaster SVUs are designed to bring fresh air into a room at a closely controlled temperature, usually 19°C. This inlet air stays close to the ceiling as it moves along (using the Coanda effect), well out of reach of the occupants below. As this fresh air makes its way across the ceiling, it entrains existing room air with two results. Firstly, the incoming air slows down to a barely noticeable 0.15 m/s velocity; secondly, the fresh air is warmed up to the temperature of the room air, generally 21°C.

- *Noise control* – The low level of casing breakout noise of Airmaster helps meet the requirements of *SDG-02-03 Acoustic*

*Above: Airmaster helps meet SDG-02-03 Acoustic Performance in New & Post Primary Schools.*

*Performance in New & Post Primary Schools* – 35 dB(A) at 1m at 100% capacity, and 30 dB(A) at 1m at a reduced capacity.

- *Air filtration* – Airmaster SVUs come equipped with inlet air filters to ePM1 55% (=F7). These are effective in dealing with 65% of PM2.5 and 85% of PM10. For non-polluted areas ePM10 75% (=M5) filters are provided. Demand control of room CO2 level is also provided.

- *Advantages of Airmaster* – An Airmaster SUV has many advantages over a centralised solution. This is seen in the cost of purchasing the unit; the overall economy and resource consumption; intelligent controls; short installation time; and benefits when it comes to fire regulations. Decentralised SUVs also use less energy because they are demand-controlled on a room-by-room basis, with the supply and exhaust led directly through the outer wall or roof. There are therefore no ducts for the air to be pressed through, which takes pressure and thus uses energy.

Contact: Paul Devereux, Hevac.  
T: 01 – 419 1919; M: 086 173 8060;  
E: paul.devereux@hevac.ie;  
W: www.hevac.ie ■

# NO MORE 'BAD AIR DAYS'



Creating healthy spaces

Healthbox Hygro is the next level in demand-controlled ventilation. It is compatible with smart homes and optimises air quality in individual rooms by adjusting ventilation levels automatically, conserving energy in the process. Real-time, off-site management of the system is simple thanks to the unique Installer App.



30 Glenrock Business Park,  
Bothar na Mine, Co Galway. T: 091-380 038  
Peamount Business Centre,  
Newcastle, Co Dublin. T: 01-610 9153  
Unit 8, Cherrywood Business Park,  
Little Island, Co Cork. T: 021-441 4010

[www.unithermhs.ie](http://www.unithermhs.ie)



## Healthbox Hygro by Renson

# Compact “smart home” self-commissioning ventilation unit

The Healthbox Hygro by Unitherm Heating Systems is the next level, demand-controlled, ventilation solution. Designed to enhance air quality and indoor comfort, this demand-controlled ventilation system is compatible with smart homes, communicating real-time data to both installers and homeowners via a smart app.

**With integrated sensors** monitoring relative humidity, CO<sub>2</sub> (carbon dioxide), and VOC (volatile organic compounds or “odours”), the Healthbox Hygro optimises air quality in individual rooms by adjusting ventilation levels automatically, conserving energy in the process.

The SmartConnect feature transforms the Healthbox Hygro into a smart home ventilation system, featuring a dedicated app-based dashboard that provides essential, real-time information on humidity and indoor air quality, ensuring an easy-to-understand visual representation of the healthy environment for residents.

Installers benefit from the Healthbox Hygro’s minimalistic design (20cm x 39cm without valves), small enough for horizontal or vertical installation in constrained spaces. The revamped sensor valves, directly attached to the unit, reduce room noise and eliminate the need for extra wiring, with up to seven valves connecting seamlessly via a network cable.

In another significant development, a specially-designed roof vent, which is suitable for use with tiles and slates, plays a pivotal role in ensuring the Healthbox Hygro operates at its full ventilation capacity of 430m<sup>3</sup>/hr, while also reducing resistance in the ductwork. Notably, this particular design innovation effectively directs airflow

above the roof surface, safeguarding against staining over time.

### Installation app

The Healthbox Hygro’s dedicated installer app enables quick and precise air flowrate adjustments at each of the extraction points. The unit then



Above: The specifically-designed roof vent is suitable for use with both tiles and slates.



self-calibrates and self-commissions, and generates a report after the process is completed. This offers data on the ducting system pressure drop, allowing quick confirmation of a correct functioning, demand-controlled, extraction system.

The installer app also grants access to a web portal where all installations are visible, complemented by real-time status information, if the units are connected to the internet.

### Homeowner App

The homeowner app offers real-time room-by-room air quality monitoring, enabling users to adjust ventilation levels and select operation profiles: “health,” “intense,” or “eco.” By default, the “health” profile is active, striking a balance between energy efficiency and air quality. The “intense” profile is ideal for sensitive areas such as baby’s room.

Contact: Unitherm Heating Systems. T: 01 610 9153;  
E: [matthew@unithermhs.ie](mailto:matthew@unithermhs.ie);  
W: <https://unithermhs.ie/> ■

Below: The Healthbox 3.0 – intelligent and energy efficient ventilation unit from Unitherm Heating Systems.

# The Heat Pumps Choice



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## Radiators That Can Heat and Cool

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# ATC's 'Landlord Mode' heaters save money and energy

Landlord Mode, the latest in heating control technology from ATC, ensures that owners and landlords can have full control over when the heating is on, and more importantly, only on when it needs to be on. This invaluable and unique feature takes away the opportunity for the tenant or guest to turn the heater up and leave it on, and is a huge cost saver.

**The Almeria ECO** and Smart RF family of heaters from ATC both offer Landlord Mode functionality, giving the landlord full control of the heating and minimising costs. The are



The ATC Almeria Eco digital panel heater is easy to program and to install and can be operated in either programmable or manual mode.

perfect for use in property rentals, holiday homes, B&Bs, hotels, guesthouses and offices.

## How it works

By using Landlord Mode, the only option available to guests or tenants is to boost the heater to a pre-set temperature range and duration of time.

Further flexibility is available on Smart RF products, whereby the landlord has full remote access to the heating. This means no one needs to be on site to change the heating temperature and duration settings – they can be updated any time using the App.

When the heating is not activated, a minimum temperature is maintained, offering energy savings as well as regulatory compliance for landlords.

## The heating technology

Available in a range of sizes from 350W to 2000W, the Smart RF family of heaters comes with a suite of energy efficient features. These include:

- “Open Window” technology that conserves energy by turning off when room temperature drops by 4°C;
- “Adaptive Start” that enables users to set up a customised heating schedule, eliminating wasted heat;
- “PID Intelligent Control” technology that ensures energy efficiency with temperature accuracy to 0.2°C, reducing costs.

ATC's electric heaters can be installed in place of existing heating sources on site with no fuss, and the company's sales and technical personnel are always available for consultation to help devise the best possible solution for each project.

To arrange a site survey contact ATC at T: 01 467 8301; E: sales@atc.ie ■

**Left: The Sun Ray RF electric radiator from ATC with on-the-go controllability via App and RF Gateway.**



# arbonia

COMMERCIAL HEATING

## Design-led, engineering-based commercial heating solutions

Today's marketplace demands radiators that are energy-efficient, regulation compliant, offer long life, flexible siting and have modern aesthetics. Arbonia from Hevac fits all the criteria.

### ▶ Column Radiators

With a classic and timeless design, Arbonia's Column radiators offer a wide range of sizes and colours, including rounded corners.



### ▶ Arbotherm



Arbotherm offers a clear flat-pipe structure and open transparency for an architecturally-outstanding heating solution. All models provide short reaction periods and are extremely adaptable. There is also a double-layer version.



### ▶ Decotherm

Decotherm is an award-winning classic radiator offering enhanced quality and optimised visual appearance. It is ideal for schools as all models meet the technical guidance document requirement of 1.5mm steel thickness.

### ▶ Trench Heaters



Arbonia trench heaters come in three types – natural convection, fan-assisted and heating and cooling. There is also a range of Arbonia grilles.

## Hevac

Muirfield Drive, Naas Road,  
Dublin 12. T: 01 – 419 1919.

Unit 1, Furry Park Industrial Estate,  
Dublin 9. T: 01 – 842 7037.

South Ring West Business Park,  
Tramore Road, Cork. T: 021 – 432 1066.

email: [tender.enquiry@hevac.ie](mailto:tender.enquiry@hevac.ie)

[www.hevac.ie](http://www.hevac.ie)



Sustainable at low temperatures

## Grant's integrated heating packages chosen for 22-home scheme

Grant's integrated heating packages for new-builds have been devised to offer building developers an integrated heating solution that will increase efficiencies and significantly reduce carbon emissions in homes that are being built across Ireland.

**A typical Grant** integrated heating package consists of a main heat source, water storage and heat emitters, with the choice of adding smart controls to each system for added efficiency. A new private housing development in Robertstown, Naas, Co Kildare is one of the most recent projects to install the packages throughout the entire development. The 6kW Grant Aeronas<sup>3</sup> R32 air source heat pump is the pivotal part of the bespoke integrated heating package already installed in 22 homes, with a further 15 more to be built in the next year.

In order to ensure long-term heating efficiency, the homes were installed with bespoke integrated heating packages which were expertly designed by the Grant technical team. Members of the team worked closely with Cappagh Homes and DNA Partners, with specifications being carried out by Waterman Moylan.

For a cleaner, more environment-friendly home heating solution, a 6kW Grant Aeronas<sup>3</sup> R32 air to water, air source heat pump was installed in the properties as the main heat source. This can achieve high SCOPs and is sustainable at low temperatures. The Grant Aeronas<sup>3</sup> range has an ErP of A+++ and is among the most efficient air to water heat pumps in Ireland. It is also easy to install thanks to its compact size. Furthermore, all the models in the range help achieve the required compliance under the Building Regulations.

A 210L A-rated Grant pre-plumbed cylinder was chosen to supply the properties with 24/7 hot water. These cylinders are designed to heat water faster and more efficiently than

standard cylinders. To ensure optimum efficiency across all the homes, the Grant Uflex underfloor heating system and Grant Afinia aluminium radiators were installed as heat emitters.

The Grant Afinia aluminum radiator range and the Grant Uflex underfloor heating systems are an ideal choice to heat individual rooms as these modern heat emitters can efficiently distribute heat, while also offering versatility to support the overall design and architecture of the homes.

Grant's technical team works with building developers, specifiers and engineers daily to design bespoke integrated heating systems for both one-off, new-build and multi-home developments. The Grant team will design, size and specify individual heating systems free-of-charge, to ensure each property's heating system performs to its optimum efficiency.

Avail of Grant's heating design service by sending house plans, contact information and preferred choice of heat emitters – underfloor heating, radiators or both – to [heatpump@grant.ie](mailto:heatpump@grant.ie)

Visit [www.grant.ie](http://www.grant.ie) for more information on Grant's range of innovative heating solutions. Follow Grant on Facebook and Twitter @GrantIRL or Instagram @Grant\_IRL. **Think Heating. Think Grant.** ■



The 6kW Grant Aeronas<sup>3</sup> R32 air to water, air source heat pump installed in all the homes in the Robertstown, Naas development.





INTRODUCING  
THE ORIGINAL  
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-  Hot Water
-  Renewables



The ecoTEC range intelligently manages consumption and output to keep all its components running at peak performance, thereby providing a low maintenance, energy-efficient heating solution with a low carbon footprint.



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Our heaters incorporate **Landlord Mode** functionality, ensuring that your heating is only on when needed.\*



Almeria ECO Panel Heater



Sun Ray RF Electric Radiator

Find Out More...



Almeria ECO



RF Family

\*The Landlord Mode function is available on the Almeria ECO Panel Heater and the RF Family range of heaters.



Merida RF Panel Heater

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01 467 8301

<https://arrow.tudublin.ie/bsn/vol62/iss6/1>

atc<sup>®</sup>

## Sustainable radiators

# Efficiency without compromise from HDL

When it comes to renovation or new-build properties, there is still a lot of confusion about what is achievable and what will work. Some people think that using a heat pump means they automatically have to install underfloor heating, a view that is reinforced by building regulations moving towards low-temperature heating systems. However, this is not the case, and that is where aluminium radiators come to the fore as a viable alternative.

**Everyone is very** familiar with the traditional steel panel radiator that has been ubiquitous in Irish homes going back many decades. However, over the last few years, there has been strong growth in the use of high-performance aluminium radiators. There are a few reasons for this.

Aluminium radiators have very low water volumes and much higher heat conducting capabilities, especially in

comparison to steel panel versions. The science behind this difference lies in the chemical composition of the two materials, with aluminium's lower thermal inertia ensuring it takes much less time for a radiator to meet the desired temperature.

Because aluminium radiators heat up and cool down more quickly, there is less chance of "overshooting" the desired temperature, resulting in significant energy saving. This makes them the perfect choice to use with the lower flow temperatures demanded by heat pumps.

Aluminium radiators have other benefits too. For example, they're around 50% lighter than their steel counterparts – making installation much easier – while also providing flexibility in structural consideration for large projects, such as apartment building complexes.

This flexibility is mirrored with different styles and sizes. For instance, Heating Distributors' Decoral 97 range comes in both horizontal and vertical configurations and has outputs (at  $\Delta 50^\circ\text{C}$ ) ranging from 277W to 4kW. It is proving a very popular choice to combine with renewable systems, such as heat pumps.



Multisec aluminium corner unit.

There is also the matter of embodied carbon, which includes emissions caused by extraction, manufacture/processing, transportation and assembly of every product and element in an asset. This is where aluminium radiators demonstrate significant advantages. Taking Decoral radiators as an example, they are manufactured from 100% recycled aluminium. The aluminium recycling process requires only 5% of the energy used in the production of the primary metal, equating to a carbon footprint of 0.5kg CO<sub>2</sub>e per kg of aluminium produced, compared to 6.7kg CO<sub>2</sub>e/kg from primary extraction.

These combined advantages provide significant sustainability benefits over other aluminium radiators, including a 90% reduction in emissions and 80m<sup>3</sup> saving in natural gas usage. Additionally, aluminium is endlessly recyclable without ever losing its properties.

As Ireland moves away from the traditional ways of heating homes and embraces renewable technology, designers and installers need to educate homeowners as to the advantages of lower flow temperatures, including aluminium radiators.

Contact: Heating Distributors.  
T: 01 864 8950;  
E: [info@heatingdistributors.com](mailto:info@heatingdistributors.com);  
[www.heatingdistributors.com](http://www.heatingdistributors.com) ■

Left: Decoral 97 aluminium radiator in "beaten brass" finish.





Original remastered

# C&F introduces new Vaillant ecoTEC plus boiler

The ecoTEC plus is a true original. It has defined Vaillant's range for many years and has credibility, history and a special place in the minds of installers. The recently-introduced new ecoTEC plus has been refined, upgraded and taken to the next level, to make a great boiler even better.

**The series of** fine improvements makes the new ecoTEC plus just as easy to install and even easier to service and maintain, while upholding Vaillant's premium brand and product proposition. Looking ahead to the future, the new range is also hydrogen prepared and is suitable for working safely and efficiently with up to 20% hydrogen mix.

The outstanding eco-credentials of the ecoTEC plus makes it the boiler of choice for many installers. Some of the standout features include:

- *Smart home ready* – Works alongside the new plug-and-play myVAILLANT (see panel) connect internet gateway, for easy

connection with most Vaillant controls (excluding timeSWITCH 150 and timeSWITCH 160) and app connectivity in minutes;

- *Refined and enhanced internal layout* – It has easy access to all major components, making installation and servicing effortless;
- *Familiar footprint and external layout* – It retains the same case dimensions, boiler footprint, flue position and pipe connections for an effortless like-for-like swap;
- *New intuitive semi-touch interface* – It allows for effortless first-time installation and set-up, with guided commissioning and set-up wizard and easy-to-follow navigation;

## myVaillant

Introduced alongside the ecoTEC plus, myVAILLANT connect internet gateway is Vaillant's new plug-and-play solution that enables seamless integration of Vaillant appliances with homeowner's smart home systems.

Simple one-cable connection facilitates easy installation with the entire new ecoTEC plus range of boilers. myVAILLANT connect unlocks the full potential and efficiency of the appliance through more reliable, secure and stable digital services solutions.

- *Automatic LPG conversion on most outputs* – Conversion is completed in minutes using the new intuitive interface, with no additional parts required;
- *New IoniDETECT technology* – The intelligent gas combustion monitoring helps the new ecoTEC plus reach a wider modulation range of up to 1:10, for even greater system efficiency;
- *Sharpened intelligence with linBUS technology* – This enables more intelligent and accurate reading of flow rate and pressure differential via an internal pump for improved performance;
- *Hydrogen prepared* – Suitable to work safely and efficiently with up to 20% hydrogen mix;
- *Compatible with all Vaillant accessories and technologies* – This includes most of the range of controls (excluding timeSWITCH 150 and timeSWITCH 160), flues, boiler protection kits and renewable heating systems.

For further details on ecoTEC plus and the full C&F range, contact:

C&F Quadrant.

T: 01 630 5757;

sales@cfquadrant;

www.cfquadrant.ie ■



ecoTEC plus is easy to install and even easier to service.

<https://arrow.tudublin.ie/bsn/vol62/iss6/1>

# Radiators *Par Excellence!*

Heating Distributors has been a leading supplier of heating products for over half a century. It is still a family-owned business with a wealth of technical knowledge and experience which has seen the product portfolio not just keep abreast of industry trends, but actually shape them. This is

nowhere more apparent than in the extensive range of both domestic and commercial radiators on offer, some of which are featured here.

However, to get the full depth of the extent and quality of the portfolio see [www.heatingdistributors.com](http://www.heatingdistributors.com)





# Stelrad introduces electric radiator series

Leading radiator manufacturer, Stelrad, has taken another major step in meeting the demands of its customer base in Ireland with the introduction of a range of electric radiators called the Electric Series. This is the first time Stelrad has ventured into the electric marketplace, and it brings with it the quality and brand values associated with its radiator products since it began manufacturing in 1936.

The range includes a dozen or so different models with a number of sizes available in each model. There are standard radiators for any room, along with a selection of towel rails specifically targeted at bathrooms and en-suites.

In addition to offering effective, functional heating, the radiators in the Electric Series are aesthetically-appealing and provide attractive options to suit any décor. They come with a five-year warranty on the heating parts, and a two-year warranty on the electric components.

The new range includes a number of exciting new products such as the Stelrad Electric Column design. This rounded vertical tube column radiator is available in three sizes in both white or anthracite grey.

Then there is the Stelrad Electric Agata and the Agata E-Flow, which is a straight, flat tube towel rail design, featuring five banks of three tubes with spaces between each bank, available in three sizes in both white and anthracite grey. It combines modern design with functional heating and energy saving features.

The E-Flow towel rails in the range feature a fan heater at the base of the towel rail and include manual controls for individual use of the towel rail or the fan heater, or both together as a 3-in-1 unit.

On the aluminium front, there is the Stelrad Electric Alu Simple Dry and Simple Fluid. Both of these are available in three sizes in either white or anthracite grey. The matching colour digital

thermostat is included with each model, along with its remote control.

Stelrad Electric Cloud is a fashionable, smooth-fronted, curved-faced steel radiator. It comes in four models, in white and anthracite, that offer a chic heating option for any room in the house. They deliver exceptional warmth and remarkable energy efficiency wrapped up in a single solution.

The Stelrad Electric Cobalto and Cobalto E-Flow are trend-setting flat tube towel rails that combine captivating good looks with exceptional heating efficiency. As with the Agata, the Cobalto E-Flow towel rails feature a fan heater at the base of the towel rail and include manual controls for individual use of the towel rail or the fan heater, or both together as a 3-in-1 unit.

Not to be overlooked is the Stelrad Electric Fantasia tubular towel rail which is available in white or anthracite to match or contrast with any colour scheme. It is perfect for designers looking to unravel the complexities of style and opulence. Quite simply, it is the tubular solution of choice.

In conclusion, the Stelrad Electric Series offers a range of exciting new options where direct electric heating is the chosen preference for a home. See full details at [www.stelrad.ie](http://www.stelrad.ie) ■



Left: The Stelrad Electric Cobalto and Cobalto E-Flow are trend-setting flat tube towel rails that combine good looks with heating efficiency. Inset: Stelrad's Electric Series provide attractive options to suit any décor.



# INTRODUCING EVEREST<sup>290</sup>

## Air Cooled Reversible Heat Pump



### UNINTERRUPTED OPERATION

EMICON's Innovative "Master in Rotation" logic guarantees high reliability of the entire system. It is possible to disconnect one or more component units of the module without any limitation. This allows routine and extraordinary maintenance operations, or interventions for any other customer need, without interrupting all the other modules.

### SIMPLE MAINTENANCE

The hydraulic circuit includes a connection kit between the various modules. It allows the isolation of part of the circuit when removing and reinserting the individual unit from the modular system, without draining the hydraulic circuit. Modules can be replaced quickly and easily using the Slide-In/Out System.

### EASY ACCESSIBILITY

All the main components are fully accessible from the front side of the unit for maintenance.



## EURO GAS

Southern Cross Business Park,  
38B Boghall Road, Ballymorris,  
Bray, Co Wicklow.

Tel: 01 - 286 8244

Email: [sales@eurogas.ie](mailto:sales@eurogas.ie)

[www.eurogas.ie](http://www.eurogas.ie)



# Solving decarbonisation hurdles with Everest290

Helping clients along the path towards building decarbonisation and renewable energy adoption comes with its own set of challenges. Three of the main issues are – production temperature; availability of space; and capital costs. Euro Gas, one of Ireland's leading suppliers to the HVAC sector, offers a solution to all three challenges in the form of the Emicon Everest290 air to water heat pump.

## Solving production temperature

When it comes to transitioning older buildings to renewable energy sources, the challenge of adapting production temperature can arise. Structures designed under the 82/71 system require high-temperature heat pumps, rendering the switch to renewables seemingly unfeasible.

However, testing by energy engineers within older buildings has yielded

encouraging results – reducing the flow temperature to 68°C has demonstrated no compromise in occupant comfort or indoor temperature. The Everest290, with the capability to reach 70°C and achieve 68°C at an outdoor temperature of -5°C, offers a transformative solution. See Figure 1.

## Solving installation space

High-capacity air source heat pumps can often demand substantial installation space and proper airflow access. However, in contrast, the Everest290 emerges with an innovative approach. Its compact footprint and modular configuration allow for seamless side-by-side installation. Leveraging optional cascade pipework, the set up process becomes swift and efficient. All primary components are

**The Emicon Everest290 heat pump offers temperature, space and cost solutions.**

conveniently accessible from the unit's front for streamlined maintenance.

## Solving capital costs

High temperature heat pumps capable of producing high temperatures can be extremely expensive. The initial capital cost alone is enough for a project not to go ahead. The modular nature of the Everest290 means that decarbonisation can be carried out in stages as the budget allows. No large upfront costs, and transparent, easy pricing for each module, allows finance departments to plan for future spending and upgrades. The controls gateway and power distribution accessories (for cascades of five or 10 units) make adding units simple.

The Everest290 air to water heat pump operates with natural refrigerant (R290), boasting an exceptionally low GWP of 3. Using cutting-edge micro-channel evaporators and purpose-designed circuits for heating, the unit delivers impressive efficiency and an outstanding SCOP. The Everest290 adheres to SI 646/2016 regulations and exceeds the minimum criteria for Green Public Procurement, solidifying its sustainability credentials.

Contact: Euro Gas. T: 01 286 8244;

E: sales@eurogas.ie W: www.eurogas.ie ■

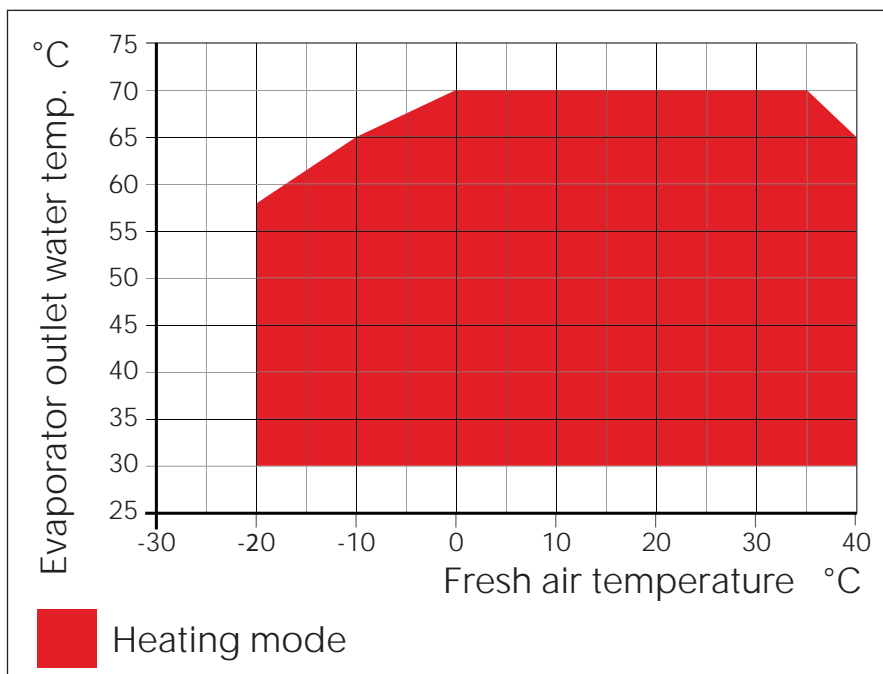


Figure 1 – No compromise in occupant comfort or indoor temperature.

<https://arrow.tudublin.ie/bsn/vol62/iss6/1>

# SWITCH ON TO STELRAD

Alu Simple Dry

Fantasia Fluid

Agata E-Flow

## ELECTRIC<sup>®</sup> SERIES

The Electric Series is made up of 13 expertly selected steel and aluminium radiators and towel radiators, which provide unbeatable quality & design to suit every room and decor.



Find out more at [Stelrad.ie](https://www.stelrad.ie)

Not just any rad. **Stelrad.**







## Your Partner for Toshiba in Ireland



**T**hough a recently-established company, Viridus Energy is anything but a “new” player on the block. Key senior personnel – Ian White, Technical Services Manager, and Ken Kavanagh, Sales Manager – have nearly half a century of experience in air conditioning and heating between them, while the Viridus Energy portfolio includes world-renowned, market-leading brands.

In fact, Viridus Energy has just been appointed the distributor in Ireland for Toshiba air conditioning and heating products. This new agreement heralds the next phase in the strategic development of the Toshiba brand. It is designed to expand even further its market penetration nationwide, and to build on the success Toshiba has achieved in Ireland over the last 40 years.

A key strength in this new partnership is the fact that Ian White is virtually synonymous with the Toshiba brand, having worked for nearly 20 years prior to this appointment as the technical services expert for the previous distributor. He is looking forward to continuing to look after the interests of the existing Toshiba installer network, as well as welcoming new members on board.

Looking to the future, and building on the experience and strengths of both Ian and Ken, Viridus Energy is now your trusted Toshiba supplier.

**Left: Ken Kavanagh, Sales Manager with Ian White, Technical Services Manager, Viridus Energy.**



# TOSHIBA

**Committed to people, committed to the future**



• The innovative R32 RAS HAORI High-Wall AC unit features a highly attractive textile cover available in a range of standard and optional colours.

## Design/Technical Support

Viridus Energy is not just a product distributor but more a provider of engineered air conditioning and heating solutions. Installer engagement is comprehensive and includes everything from design support through to product selection, technical advice, site visits and final commissioning. Our extensive technical expertise and experience is at your disposal, not to mention the massive resources of Toshiba that we can channel through to you.

## Spare Parts Inventory

Given the extent of the Toshiba portfolio, and the diverse inventory of spare parts and components required by installers, we carry stocks of the items most often requested. In addition, we have instant access to Toshiba for spares and parts that are less frequently called for.

## After-sales Service

The Viridus after-sales service is comprehensive. We are available 24/7, 365 days of the year, via a dedicated contact number that ensures an immediate response. Apart from spares, component and product enquiries, it also extends to trouble-shooting and helping customers resolve challenging site problems. Critically, we provide site support for existing equipment and a cost-effective commissioning assistance service that can be charged at full and half-day rates.

## Training and CPD Seminars

We have a dedicated Training Centre at our purpose-designed office and warehouse complex in Dublin 12. It includes fully-functioning examples from across the Toshiba portfolio so that, in addition to receiving technical presentations, installers and consultants can also gain hands-on experience of working on the units.

Nor is the content limited singularly to the Toshiba product portfolio. Viridus CPD seminars also aim to cover generic industry issues such as technology updates, innovative design trends, and existing and impending changes in industry-related legislation and standard as they happen.

It is also possible for us to present these on-site at installers and consultants own offices.

## Instant Stock Availability

Various natural and man-made world events in recent years have had a huge impact on stock availability.

Consequently, we carry extensive stocks across the entire Toshiba portfolio at our customised warehouse.

Order fulfilment is on a next-day delivery basis, while single and small number orders can be collected directly from the Viridus premises if necessary. We also have immediate access to the significant UK stockholding of Toshiba, with the added strength of its Europe-based manufacturing facilities.

## Toshiba Portfolio

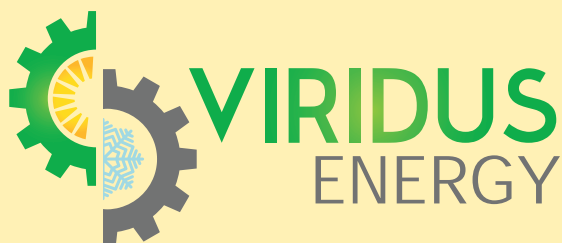
Toshiba is renowned worldwide as an industry innovator in heating, air conditioning and related controls. Fundamental to the entire portfolio is the pursuit of products and systems that deliver environmentally-responsible HVAC solutions that are sustainable and energy efficient, and comply with wellbeing, circular economy and net zero aspirations.

The Toshiba portfolio caters for all possible applications, from domestic through to commercial, industrial and critical environments.



It includes the following:

- Residential air to water
- Air handling units
- Heat recovery ventilation
- Split range R32
- Split range R410A
- VRF R32
- VRF R410A
- Leak detection
- Accessories and controls



Unit 6 Oak Close, Western Business Park,  
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E: [support@viridusenergy.ie](mailto:support@viridusenergy.ie) (technical support, service and maintenance).

[www.viridusenergy.ie](http://www.viridusenergy.ie)





## Engineered comfort solutions delivered with care

Vokèra by Riello has been providing heating and hot water solutions for over 40 years and currently has an enviable portfolio that includes domestic gas boilers, commercial gas boilers, unvented cylinders, water heaters and air source heat pumps. It has incredible strength in depth through its parent brand, Riello, which in turn is part of Carrier Global Corporation, global leader in intelligent climate and energy solutions.

Vokèra celebrates 25 years in Ireland with bases in Callan, Co Kilkenny and Citywest in Dublin. It has installed over 130,000 boilers throughout the country to date and is the brand of choice for system designers, consultants, installers, merchants and homeowners alike.

### Innovation

Innovation is the hallmark of the entire Vokèra portfolio. The company has pioneered many industry breakthroughs and has set industry benchmarks with its cutting-edge technology that others have sought to emulate. This is true, both of its traditional product lines and the new ranges of renewables now coming on stream, such as heat pumps.

### Technical service

Complementing the company's existing strong product portfolio is the exceptional customer service support it offers. Vokèra is renowned for the quality of its pre- and after-sales engagement with its customers, and especially the manner and speed with which it responds to queries and problems. Indeed, these are kept to a minimum thanks to the structured processes and mechanisms the company has in place to ensure consistent delivery of that quality service. Vokèra invests heavily to ensure its team of operatives are not just fully trained technically, but also so they can engage with clients in a respectful, open and friendly manner.

It is this unique mix of professionalism, engineering excellence and caring customer engagement that sets Vokèra by Riello apart.



John Brett, Logistics with Joe Redmond, Sales and Dave Reilly, Service.

## Domestic Heating Solutions

Vokèra by Riello represents a comprehensive range of domestic gas boilers that offer high-efficiency heating and hot water solutions to suit all homes. There are different types of boiler to suit each application and they include system boilers, open vent boilers and combi boilers.

## NXHM Air source heat pump

The Riello NXHM air source heat pump is a typical example of some of the renewables coming on stream from the company. Ideal for new-build and retrofit applications, it has a COP of up to 5.1 and comes with a built-in external sensor, supplementary external sensor and remote control to maximise efficiency.

Incorporating R32 refrigerant helps the unit operate more sustainably and effectively. It not



only has lower Global Warming Potential (GWP), lower CO2 emissions and reduced charge volume, but also delivers higher energy efficiency compared with

other refrigerants, such as R410A.

Easy to install, NXHM is the perfect solution for underfloor heating systems, oversized radiators, domestic hot water and heating swimming pools.

## Commercial Heating Solutions

Riello is a market leader in commercial heating with a worldwide reputation for its rich heritage of innovation across the entire range. Its highly-qualified technical support teams work closely with system designers and installers to ensure the right products are specified for the environment they operate in.

With a broad portfolio of solutions, from individual boilers to full centralised plant including heat interface units and renewable technology, Riello really is the professional's choice.

## The Portfolio

The Vokèra portfolio is extensive, catering for all conceivable HVAC solutions. It includes:

- ✓ Boilers
- ✓ Water heaters
- ✓ Heat pumps
- ✓ Controls
- ✓ Unvented cylinders

## Vision Plus S

The Vision Plus S condensing system boiler is a "traditional" type boiler with a host of innovative features and advanced technology. It offers heating and optional domestic hot water via an external storage cylinder. There are three outputs – 20kW, 25kW and 30kW – that will match most home's needs.

The Vision Plus can manage mixed-temperature circuits such as underfloor heating and traditional radiators directly via optional accessories. Also, the boilers have the ability to be part of a hybrid system integrated with renewable technologies, such as heat pumps and solar thermal. The sleek design will blend into any environment.



## Service/Maintenance/Spares

Vokèra by Riello offers a full suite of after-sales service and maintenance packages, including fixed-price repairs and annual services. The fixed-price repair package includes engineer call-out, labour and parts, while the annual service involves an experienced engineer carrying out a comprehensive inspection of the entire system to identify and highlight problem and potential problem areas, and suggesting a remedial course of action. To effect speedy repairs, Vokèra also carries a comprehensive selection of the most common spares and parts across the entire portfolio.



West Court Business Park,  
Callan, Co Kilkenny R95 WP40.

T: 056 775 5055

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[www.vokera.ie](http://www.vokera.ie)



# New Airsens WiFi unit from S&P Ventilation

Airsens is a range of intelligent sensors from S&P available in four different versions – CO<sub>2</sub>, VOC, RH and Temperature. Designed to create direct, demand-control ventilation systems without intermediate control installation, Airsens models can be linked with AC, Ecowatt (EC) fans or VFTM frequency drives.

**The WiFi version**, which has now been introduced by S&P Ventilation Ireland, allows remote monitoring and control through the Connectair® platform.

Main features of the Airsens range are:

- Four working modes – relay output; 0-10V output; 2-10V output; and full Modbus and/or Connectair platform (WiFi version) communication control;
  - Adjustable set point;
  - IAQ level indicator (3-LED light diffuser);
  - Adjustable 3-LED light diffuser intensity.
- Airsens units have a minimalist design



The new Airsens WiFi units from S&P Ventilation Ireland.

patented by S&P so they can be easily integrated into multiple environments. There is also an air quality level indicator. Readings are displayed via a three-color LED diffuser – green for good quality; orange for medium quality; and red for low quality.

Airsens WiFi represents an evolution of the established Airsens product range. The WiFi version allows users to connect to the S&P platform, Connectair®. This also gives

them the opportunity to remotely monitor the air quality of indoor spaces where the sensor is located. This adapts to previous Airsens models, so it is possible to have Airsens WiFi CO<sub>2</sub>; Airsens WiFi VOC; and Airsens WiFi RH.

All the models incorporate a reading of relative humidity and temperature, in addition to having control of the ventilation unit through a relay or analogue output.

Tristan Healy, Managing Director, S&P Ireland says: “The new Airsens WiFi range represents a major step forward in terms of indoor air quality (IAQ). Not only is it possible to control the IAQ in combination with S&P’s ventilation systems, but remote monitoring is also possible through S&P’s digital product, S&P Connectair®. Everything as a whole confirms S&P’s clear commitment to the creation of controlled demand ventilation systems.”

As they are intelligent sensors, Airsens units incorporate a self-calibration facility that allows adaptation to the environment.

Contact: Soler & Palau (S&P) Ventilation Ireland. T: 01 412 4020; E: sales.ie@solerpalau.com; www.solerpalau.com ■



Chart shows the recommended usage values of the Airsens fan range in various commercial and residential settings.

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## Commercial heating solutions

# Ideal Heating solutions from Ideal Energy

Ideal Heating Commercial is Ireland's market leader of high-efficiency commercial heating solutions. Ideal Heating has been designing and manufacturing heating solutions since 1906, and all of that experience and technical expertise has gone into today's condensing commercial boiler range. Whether a wall-hung or floor-standing solution, designers and installers will be specifying a product that comes with over 100 years of knowledge and skill behind its development.

**One of the latest** innovations to come on stream is the Imax Xtra 2 floor-standing condensing commercial boiler. This wheeled boiler is easy to install and compact in size – the small footprint allows it to easily fit through standard doorways.

Available in six models with outputs from 80kW to 280kW, all Imax Xtra 2 models have a NOx Class 6 rating, with five of the six models meeting the BREEAM requirement for one point and capable of operating at up to 30°C ΔT. The floor-standing boilers can be installed on their own or can easily be cascaded to up to four boilers, offering a total output of up to 1120kW.

The Imax Xtra 2 features a full-colour, touch-screen control panel for easy commissioning and fault finding.

Header kits are available to cascade

100 years of knowledge and skill behind our heating solutions.



Top: The Imax Xtra 2 floor-standing condensing commercial boiler from Ideal Energy.

Above: The Imax Xtra 2 features a full-colour, touch-screen control panel for easy commissioning and fault finding.

up to four boilers, in addition to plate heat exchangers and low loss headers. A “Cascade Configurator” tool is also available for use with the Imax Xtra 2 to assist in making the specification and design of a cascade boiler system very straightforward. By answering a few quick and easy to understand questions, the configuration work is automatically done, and can be downloaded as a PDF or sent straight to an inbox.

The Imax Xtra 2 is available with extended warranty up to five years (subject to terms and conditions).

### Wall-hung boiler

Another cutting-edge model is the Evomax 2 commercial wall-hung boiler. Designed especially for plant rooms, Evomax 2 is easier to install and service than ever before, while it offers customers even more flexibility. Its dynamic control menu structure automatically senses the number of boilers in operation and only displays the relevant functions at any time.

The Evomax 2 comes with a built-in flue non-return valve, increasing safety in common flue installations. It is compact with reduced lift weight to aid its installation. Three sides of its chassis can be removed for better servicing and maintenance access.

User friendly status display features temperature control and diagnostics for rapid servicing.

For installations requiring more output, up to six Evomax 2 boilers can be installed in cascade for an output of up to 900kW.

For information on the Imax Extra 2 and Evomax 2 models, and the entire Ideal Energy commercial range, contact: Richard Louth, Commercial Specification Manager, Ideal Energy.

T: 01 961 7700; M: 087 401 5698;

E: richard.louth@idealenergy.ie;

www.idealenergy.ie ■

# The Dimplex E-Heat system for apartments



**The innovative heating, ventilation and hot water solution for NZEB compliant, new-built apartment schemes.**

**Dimplex E-Heat** is a complete, proven and comprehensive HVAC system-solution for domestic hot water, space heating and heat recovery ventilation, that supports delivery of NZEB compliance in new-built multi-unit apartment or housing schemes.

The E-heat System enables rapid installation and straightforward commissioning for contractors, is made up of proven, next generation, plug-and-play Dimplex components, designed specifically for maximum compatibility and ease of operation.

Controlled by the Dimplex Smart Hub, E-Heat can also be combined with the Dimplex Control App, for complete end-user control and energy-usage monitoring.

*Enabling the transition to a sustainable world.*



**1**

**Dimplex Q-Rad** is a smart electric heater. It knows precisely how long it takes to get to the desired temperature and when to turn off as it approaches that target temperature. This minimises the energy that it uses, while maximising comfort – keeping you warm for the lowest possible cost.

**2**

The **Dimplex Edel** hot water heat pump uses an integrated high-performance compressor to extract energy for hot water production from the external air using insulated duct work. Using up to three times less electricity than direct acting water heaters, it produces renewable energy to aid building regulation compliance.

**3**

The **Xpelair** heat recovery ventilation system is key to a healthy home, designed to combat condensation, mould and pollutants to ensure the air you're breathing is clean, fresh and healthy. Recovering up to 90% of the heat from the stale air leaving the building, ensuring a continuous fresh air supply while maintaining the maximum efficiency for the building and its occupants.

**Dimplex®**

Visit [www.glendimplexireland.com](http://www.glendimplexireland.com) for more information on our heating solutions. Email: [salesireland@glendimplex.com](mailto:salesireland@glendimplex.com) or call: **+353 (0)1 8424833**



New approach to IEQ

# Ventilation ... grab it by the TAIL!

The European Union (EU) is deeply committed to combating climate change. One of its strategies is to improve the energy efficiency of buildings, which account for a significant portion of the EU's energy consumption and carbon emissions.

The Energy Performance of Building Directive (EPBD) was introduced to guide these improvements.

However, despite its ambitious goals, the EPBD has yet to be as successful as hoped, especially when renovating existing buildings, writes *Simon Jones, Air Quality Matters.*

**One reason is** the economic challenge. Renovating for energy efficiency can be expensive, and the return on investment, in terms of energy savings, can take a long time. But there is another angle to consider – the quality of the indoor environment after renovation. If a building is energy-efficient but uncomfortable or unhealthy for its occupants, is it truly a success? Could unlocking these benefits make a stronger case, and if so, how can it be demonstrated?

This is where Indoor Environmental Quality (IEQ) comes into play. IEQ encompasses various factors like temperature, air quality, lighting and noise levels. While there are many ways to measure and describe IEQ, there has yet to be a standardised method that is



AIR QUALITY

widely accepted. This gap led to the development of the TAIL rating scheme as part of the EU ALDREN project.

### What is the TAIL rating scheme?

TAIL stands for Thermal, Acoustic, Indoor air and Luminous environments. In simpler terms, it is a way to rate the comfort and health of a building's indoor environment. The scheme uses 12 parameters, measured and observed, to give an overall IEQ rating. These parameters are based on established standards and guidelines, making the ratings reliable and easy to understand.

TAIL uses colours and Roman numerals to communicate the quality levels of each parameter, making it easy for anyone to grasp. For instance, if a building scores high in thermal comfort but low in air quality, it would be evident in the TAIL rating.

### Why is TAIL important?

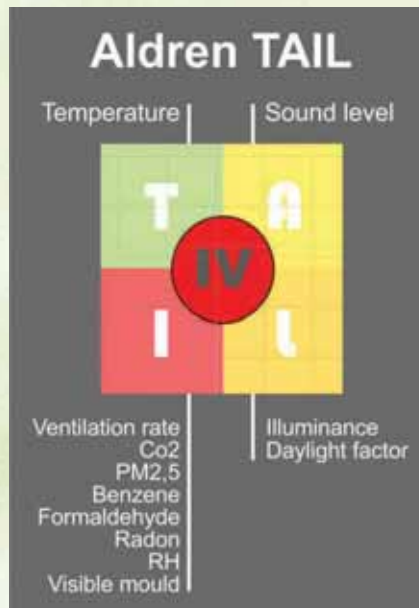
The TAIL rating scheme was tested in buildings across Europe, and the results were promising. It effectively differentiated between varying levels of IEQ, proving its potential as a very valuable tool for building renovations.

But why does this matter? Because a building that is both comfortable and healthy for its occupants is more than just energy-efficient. It is a place where people can thrive. By focusing on energy efficiency and IEQ, renovations can become more appealing, leading to a greater uptake and, ultimately, a more sustainable future.

While energy efficiency is crucial, it is just one piece of the puzzle. The TAIL rating scheme highlights the equally important aspect of indoor comfort and health. As we continue to renovate and build for a sustainable future, tools like TAIL ensure that we keep sight of the human element in our buildings.

### Indoor Air Quality Rating: a simplified overview

Indoor air quality (IAQ) is crucial for our health and comfort, especially since we spend a significant amount of time



**TAIL allows assessment of the four IEQ components – thermal environmental quality (T), the acoustic environmental quality (A), the indoor air quality (I) and the luminous (visual) environmental quality (L).**

indoors. Key points to consider are:

*Parameters for assessment:* TAIL uses eight primary parameters to describe indoor air quality. These include ventilation rate, humidity, carbon dioxide levels, and specific pollutants like benzene, formaldehyde, PM2.5, radon and visible mould. While ventilation and CO2 are common indicators, they don't give a full picture. Hence, other parameters were added to the mix to provide a comprehensive rating.

*Quality levels:* The quality of indoor air is categorised based on standards from the *EN 16798-1 standard, World Health Organisation guidelines, and Level(s)*. For instance, CO2 and humidity

“The TAIL system was initially designed for offices and hotels. However, its success suggests it could be adapted for other building types. It offers a uniform approach to assessing indoor environments, potentially at an EU-wide level.

levels are assessed based on how often they stay within specific ranges.

*Assessment protocol:* The TAIL system evaluates buildings by measuring 10 parameters, simulating daylight, and expert observations for mould. These assessments are done before and after renovations, ideally in different seasons to account for seasonal changes. For accuracy, the same conditions, like weather and season, are maintained throughout both assessments.

*Location selection for assessment:* It is essential to assess multiple areas in a building to get the most accurate rating. This includes rooms with varying occupancies, orientations and purposes. The assessment should represent about 10% of the total area of the building type being evaluated, such as office spaces in office buildings.

The TAIL system is unique because it provides a quantitative rating for indoor environments based on the four main components. It is voluntary and does not replace national codes, but is grounded in existing standards. The system was tested in buildings, and the results found showed its effectiveness in identifying and addressing indoor environment issues.

TAIL treats all four components as equally important. If one component scores poorly, then the overall indoor environment is poor. This approach ultimately ensures a comprehensive and fair assessment.

The TAIL system was originally designed for offices and hotels. However, its subsequent success suggests it could be adapted for other building types. It offers a uniform approach to the assessment of indoor environments, potentially at an EU-wide level.

In essence, the TAIL rating system provides a structured and standardised approach to evaluate and improve the indoor environment of buildings, ensuring they are not only energy-efficient, but also healthy and comfortable for all occupants. ■



Investing in the future

# The importance of ventilation in schools

In today's world, the importance of a healthy learning environment cannot be overstated. Good ventilation is essential for creating a space where students can thrive, both academically and physically.

**Poor air quality** can have a significant impact on student concentration, learning and overall wellbeing. Studies have shown that students in classrooms with poor ventilation are more likely to experience headaches, fatigue, difficulty concentrating and respiratory problems.

In addition to the negative impact on student health, poor air quality can also lead to increased absenteeism and reduced productivity. A study by the Environmental Protection Agency (EPA) found that improving indoor air quality in schools can lead to a reduction in absenteeism of up to 5%. The good news is that there are a number of things that can be done to improve air quality in schools. One of the most effective is to install a high-quality ventilation system.

Versatile offers a comprehensive range of ventilation solutions tailored to meet the unique needs of schools. They include the following key options:

- **Versatile free-standing solution:** A stand-alone heat recovery ventilation (HRV) system that is ideal for both new-build and refurbishment projects. Saltem is compact, easily installed, and does not require any ductwork, making it a versatile option for classrooms of all sizes;
- **Versatile semi-recessed/ceiling-mounted solution:** A highly-versatile and compact ceiling-mounted HRV system that can be mounted on the ceiling or semi-recessed. Sanus provides efficient and effective air purification, making it a great choice for classrooms of all sizes;

- **Versatile recessed solution:** A highly-efficient mechanical ducted HRV system designed specifically for classrooms. Fortis can be easily integrated into both new and existing classroom projects, and its innovative design allows it to be installed inside the ceiling. With its advanced CO2 sensor and high-performance airflow capabilities, Fortis is a reliable and effective solution for improving classroom air quality;
- **Versatile Oxygen:** A CO2 demand-control ventilation (DCV) solution that provides fresh air to the classroom based on occupancy and CO2 levels. Oxygen is a highly, cost-effective and energy-efficient solution that can be installed on both new and existing buildings.

## Classroom criteria

All of Versatile ventilation solutions are designed to meet the important criteria for Irish classrooms:

- CO2 levels below 1000ppm;
- Noise levels below 35 dB;
- Airflow of 300 liters/second.

In addition to meeting these criteria, the solutions also offer a number of other benefits, such as:

- Improved student concentration and learning;
- Reduced absenteeism due to illness;
- A more comfortable and inviting learning environment.

By choosing Versatile, consultants and installers can be confident that they are investing in a ventilation solution that will provide students with the clean, fresh air they need to thrive.

Investing in high-quality ventilation is an investment in the future of students. Providing them with a healthy and comfortable learning environment will help them reach their full potential. Versatile is committed to providing schools with the solutions they need to create a healthy and productive learning environment for all.

Contact: Versatile Ventilation.  
T: 046 902 9444; E: [info@versatile.ie](mailto:info@versatile.ie);  
W: [versatile.ie](http://versatile.ie) ■

Left: Versatile has an extensive range of ventilation solutions for schools, all of which are designed to deliver indoor air environments that are conducive to learning, while also promoting health and wellbeing, along with significant energy savings.



# Yutaki R32 Hydrosplit Combi

A warmer way to think about  
the future



- Available from 11 to 16kW in single and three-phase
- Sealed R32 refrigerant outdoor unit with hydraulic connections to a stylish pre-plumbed 220L cylinder
- Exceptional performance with high capacity at very low ambients and leaving water temperature of 60°C at -10°C
- Simple-to-use, award winning colour controller with live energy consumption data
- Easy to install and maintain with all main components accessible from the front



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## Correct ventilation flow

# Hitachi Active *KPI* heat recovery units

The KPI ventilation units from Hitachi are designed for installation in almost any facility, as the ventilation pressure level can be adjusted quickly and easily using the base plate, depending on the installation requirements. This guarantees that the correct ventilation flow is reached, while there is also an extra-high-speed version for installations with long duct runs, or for additional filters.

**KPIs are supplied** from the factory with two G3 filters, one for the air input and one for the output. In addition, a high-efficiency F7 air filter (classified according to EN779) is available as an accessory for installations where an additional filter section is required to ensure indoor air quality, reducing the effects of outdoor pollution.

Users can choose from three operating options to ensure maximum comfort and to also improve indoor air quality

through renewal. These are forced energy recovery, free ventilation and automatic ventilation (default). The built-in direct expansion battery pre-treats outside air before circulation, delivering cleaner air to suit the indoor environment.

### Direct expansion coil

The units also have a direct expansion coil that conditions the outdoor air in accordance with indoor requirements, while the air adaptation feature provides additional treatment beforehand to adapt the air to the conditions required in the room.

KPI energy recovery uses a celluloid heat exchanger to transfer temperature and humidity, making it suitable for environments where the air contains a lot of humidity. The airflows vary from 250 to 2,000 m<sup>3</sup>/h making it especially suitable for offices because of its low noise levels. Additionally, the high-efficient heat exchanger incorporates fresh air supply for indoor environments and an energy recovery

up to 78%. As a result, the cooling/heating load can be reduced by up to 20%.

The Active KPI acts just like another indoor unit. The control takes the temperature set using the remote control as the required discharge temperature. The automatically-controlled internal by-pass damper removes the need to add thermal load with the ventilation air supply, especially when outdoor conditions are unfavourable for heat recovery. Active KPI is compatible with 2HP and 2.5HP Utopia, and VRF Mini and VRF Set-Free Sigma.

### Compliant with Directive

With the optional CO<sub>2</sub> sensor, the KPI manages indoor carbon dioxide levels, either by removing CO<sub>2</sub> constantly to maintain consistent air quality, or by rapidly refreshing the air when high levels are detected. Equally important is that KPIs are compliant with the ErP Ecodesign Directive Lot 6 for ventilation units.

Maintenance is easy due to the simple, efficient design which gives direct access to the interior product components. Options such as a hard-wired remote controller, which will control the system for up to seven days, are available, while the units can be associated with H-Link II Control and CS Net Manager.

For all Hitachi product and training enquiries, contact Paul McGettigan, Area Sales Manager Ireland, Hitachi Air Conditioning Europe. T: 086 107 7274; E: paul.mcgettigan@jci-hitachi.com, or your usual distributor or stockist. ■



Options to ensure maximum comfort and improve indoor air quality include forced energy recovery, free ventilation and automatic ventilation (default).



# School Ventilation Solutions

Ireland's Trusted Supplier of Ventilation Excellence

Versatile's Ventilation Solutions deliver energy efficient, indoor air environments that are compliant with the educational classroom criteria

- ✓ CO2 levels below 1000ppm
- ✓ Noise levels, average of 35dBA or below
- ✓ Low Specific Fan Power
- ✓ High Heat Recovery Efficiency



Free-standing Solution



Ceiling Mounted Solution



Semi-Recessed Solution



Recessed Solution

# versatile

Heating | Cooling | Ventilation | Bathrooms | Tiles

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Clear financial and policy support required

# F-Gas deal no substitute for shift from fossil fuel heating

European legislators reached a deal early October last on a faster phase-out of fluorinated gases (F-gases). While the heat pump sector has always supported a phase-out by 2050, the new rules will be a significant burden in the short-term, according to the European Heat Pump Association (EHPA). The industry is already ramping up production in line with EU goals, and now is tasked with changing most of its production lines in parallel.

The recent agreement will make heat pumps even cleaner, but will do little to speed up the move away from fossil fuels in heating and cooling. Potentially, it could even slow it down, by making it more difficult to roll out heat pumps for the various application fields such as residential, commercial and industry.

“Every heat pump replaces a fossil fuel boiler, cutting carbon emissions. If there are not enough heat pumps, consumers will choose fossil heating instead,” stated Alessia Del Vasto, Policy Officer at the European Heat Pump Association (EHPA). “To avoid a shortage of heat pumps, the EU needs to give the sector clear financial and policy support to finalise the shift to non-fluorinated refrigerants that is already underway.”

The new rules will see some F-gases still widely used by heat pumps banned from as early as 2027. While this is not impossible, it will require unambiguous support by policy makers for R&D, installer

training, and an upgrade of production facilities to safely handle the flammable refrigerants that will replace some fluorinated refrigerants. It will also require changes to rules covering how heating and cooling equipment can safely be used in buildings and industry, and awareness campaigns directed at citizens and consumers.

Barriers and solutions to a faster heat pump roll-out are presented in the EU Heat Pump Accelerator. EHPA calls for these to be taken up in the EU Heat Pump Action Plan, which must also reflect the impacts of today’s agreement on refrigerant use.

One of the most impactful measures would be correcting the distorted energy pricing that favours fossil gas. In EHPA’s view, electricity should be no more than twice the price of gas per kWh. Governments should apply the lowest possible taxation rates on electricity and put in place lower VAT and tax breaks on heat pumps.

“Heat pumps, which are the cleanest heating solution, must become the most economically attractive to activate end-user demand. Further to the recent changes, this needs to be the focus of policy to ensure a fast energy transition within this decade,” concluded Thomas Nowak, Secretary General of EHPA. ■



Alessia Del Vasto, Policy Officer, European Heat Pump Association.



Innovative heating and cooling

## Panasonic EcoFlex at Wicklow bungalow renovation

The innovative Panasonic EcoFlex System has recently been installed at a newly-renovated three-bed bungalow in Wicklow. The new Aquarea EcoFlex provides a unique 2-in-1 solution by connecting an air ducted unit with Panasonic nanoe™X technology, and an air-to-water Aquarea heat pump. This hybrid system delivers energy efficient space heating, cooling, clean air and heat recovery for hot water.

**The heat pump** system uses unique technology to drive its systems, offering heat recovery for DHW as well as air conditioning operation, bi-heating and non-stop heating. It does this while operating at outstanding efficiency with major energy savings, and producing very low CO2 emissions.

The Panasonic Aquarea EcoFlex System delivers cool or warm air through the ducted unit, hot water to radiators and DHW, all depending on the requirements of the installation.

Homeowner and refrigeration installer, Alan Rasmussen of Cross Refrigeration, installed the units as part of a complete renovation project which he undertook to his own three-bedroom bungalow. As a long-term customer and installer of Panasonic cold chain and refrigeration products, Alan worked closely with the Panasonic team who designed the system and provided support and guidance throughout the installation process.

Alan commented: “As I am a qualified refrigeration engineer, I have found the instructions to install the units straightforward and easy to follow. Having worked and installed refrigeration units for a number of years, I see Panasonic as one of the most reliable brands currently on the market. It was important to me that I invested in the best products available to future-proof my own home.

“With the Panasonic EcoFlex system we get the best of both worlds. We have a constant supply of hot water from the heat recovery system that helps to harvest as much energy as possible, yet the

system can switch to cooling very quickly. This is especially needed during the more frequent warm weather we now experience. Plus, it has the added benefit of nanoe™X technology to inhibit bacteria, viruses, moulds and odours.”

The Panasonic EcoFlex system was installed in April 2023 and connected to modern steel radiators in each room. The ductwork was placed in four of the main zones of the house to allow for cooling. The ducted split unit with heat recovery unit is installed in the attic, with the whole system connected to the Panasonic Smart Cloud app to allow for remote monitoring and ease of control for the system.

Alan concluded: “We have been more than impressed with how the units keep their level of warmth throughout the whole house and the constant supply of hot water – the cost to run the system is very reasonable. I have found that the radiators provide a good level of control and heat distribution and believe that the Panasonic EcoFlex unit was the best and a wise choice for my needs.”

Contact: Panasonic Ireland.  
Walter Stephens. T: 087 600 5031;  
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Eamonn Kent. T: 087 439 4032;  
E: eamonn.kent@eu.panasonic.com  
www.Panasonic - heating and cooling systems - Ireland ■



The outdoor and indoor units which feature as part of the Panasonic EcoFlex System installed in a newly-renovated, three-bed, Wicklow bungalow.





## RACGS charity outing at Glasson

The recent special RACGS charity outing was held in Glasson Golf course in Athlone and was sponsored by Mitsubishi Electric. The weather stayed dry, which was nice, as the previous days had been very wet, and Mitsubishi's Robin Marks was on hand to present the prizes to the winners.

Results were as follows:

**Overall Winner:** Roland Bradley, 39pts.

**Class 1 – First:** Liam Hctor, 35pts;

Second: Brendan Sharkey, 35pts.

**Class 2 – First:** Johnny Lynagh, 34pts;

Second: Mark Kiely, 32pts.

**Front nine:** Ciaran Moody, 18pts.

**Back nine:** John Ryan, 20pts.

**Nearest the Pin:** Fergus Daly.

**Longest Drive:** Kevin Roden. ■



Fergus Daly with overall winner Roland Bradley and Robin Marks.



Liam Hctor



Tom O'Dowd



Mick Curran



Fergus Daly with Brendan Sharkey.



Fergus Daly with Robin Marks and Kieran Moody.

*Mitsubishi Electric makes things simple*

# INSTALL ME App is an installers dream

Mitsubishi Electric Ireland's INSTALL ME app allows Mitsubishi Electric Certified Installers to easily register their Ecodan heat pump installations. With a few simple clicks, both heat pump installers and their customers receive a Commissioning Certificate, as well as a Homeowner Operation Pack with detailed operating instructions on how to use the Ecodan heating system.

**Despite its high** level of sophistication and all-embracing application capabilities, INSTALL ME is incredibly easy to register for, navigate and use. The app allows certified installers to scan the QR codes on the equipment to help them quickly complete the heat pump installation registration process.

INSTALL ME is available on both Android and iOS platforms and is free to download on both the App Store and the Google Play Store. iOS requires 11.0 or later while Android requires 8.0 or later.

INSTALL ME is designed to help the installer and homeowner with regard to warranty registration and related issues, and, uniquely, is a seamless process that can automatically copy both parties with all relevant certification and operational data.

Mitsubishi Electric has produced a guide to help installers understand the function, installation and use of INSTALL ME. It includes first use/setting up the App, settings, commissioning, service, warranty claims and charging (where applicable).

The initial registration and login is simple and requires just an email address and the password provided by Mitsubishi Electric. Users are then presented with prompts to allow the usual access permissions so that all the INSTALL ME features can be activated. Once this is done it also means that ongoing and future updates will then be seamlessly made available.

Using the app is intuitive and involves entering the model and serial numbers of both the indoor and outdoor units. This can be done manually or by scanning the QR code.

Once this core information is submitted, the next step involves giving more detailed information with regard to the specific installation concerned, covering an overview of how the heat pump was installed and how it will be managed and controlled.

All the key essential requirements with regard to installation, maintenance, on-site support and warranties are comprehensively covered. These include the following:

## Introducing 'Chat with ME'

Chat with ME, the Ecodan Chatbot, is a new feature to the INSTALL ME app designed to lead users through their particular installation. It can pull answers from an ever-increasing database of FAQ, and help analyse and resolve problems on site. It also gives access to a live operator at the Tech Support Desk should that be necessary.

Chat with ME provides:

- First-fix electrical connections
- Plumbing connections
- Schematics – system layouts
- Dipswitch settings by system type – every possible application covered
- Controller set-up
- Wireless controller set-up
- Fault-finding/error code look-up



## Warranty requests

All warranty claims are completed via the app and are logged against the unit's serial number. Warranties are then assessed for validity and labour allowances. This process also helps identify recurring issues and helps Mitsubishi Electric devise targeted training.

## Commissioning

To start commissioning a heat pump system, the installer simply selects the Commission ME icon on the app. It then guides the installer through the step-by-step process and, once key information has been provided, all the necessary information fields will auto-fill.

## On-site support

Installers can request after-sales support via Visit ME on the app. It offers two options:

*Call Out Request Form* where installers can make a request for a Mitsubishi Electric engineer to call to site if there is a technical issue; and *Commissioning Assistance Request* where an installer can request engineering support to set up a system during first installation.

## Service and maintenance

The service engineer logs the service details on the app and a 12-page report is generated after all comprehensive checks are completed, including summary of energy usage/COP. It is then sent automatically directly to the homeowner.

Contact: Sean Campbell, Technical Services Manager, Mitsubishi Electric.  
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## BTU GOLF

### BTU at Bettystown and Laytown

The **BTU Golf** Society returned to Bettystown and Laytown links golf course in September where, as always, the welcome from the staff was warm and friendly. The weather was also glorious though the strong breeze made for difficult scoring conditions.

The outing was sponsored by CJK, which was truly appreciated. It was also significant as former BTU President and Captain Eamonn McGrattan, who regularly hosted his annual golf outing at Bettystown & Laytown with McGrattan & Kenny, is now part of the CJK Organisation.

A great turnout of members and guests played with good scoring despite the tough conditions. Results were as follows:

**Overall winner:** Frank Lynch.

**Class 1 Winner:** John Lavelle; **Second:** Graham Fay;

**Class 2 Winner:** Aidan Bird; **Second:** John White;

**Class 3 Winner:** David Daly; **Second:** Barry Steele.

**Visitor:** Chris O’Grady.



Class 2 runner-up – John White.



Class 3 winner David Daly.



Visitors’ prize winner Chris O’Grady.



Overall Winner – Aidan Bird, CJK, sponsor, with Frank Lynch, Overall Winner and Stephen Jones, BTU Captain.



Class 1 winner John Lavelle with Stephen Jones, BTU Captain.

## Commercial heating solutions

# Xylem tackles high cost of commercial heating

The challenge of powering the long-term shift from fossil fuel-based heating systems to renewable energy sources, while still improving energy efficiency in the short-term, continues to put pressure on the sector. Indeed, evidence from the EU shows progress has been “sluggish” in permanently reducing heating and cooling needs<sup>1</sup>.

**According to the** European Environment Agency’s briefing on decarbonising heating and cooling, heating buildings accounted for the largest share of energy used for heating and cooling in the EU in 2020. Space and water heating were responsible for about 60%, while industrial heat demand accounted for about a third of heating and cooling needs.

The good news, says Kevin Devine, Sales Director at Xylem Water Solutions Ireland, is that the ambitious goals to reduce greenhouse gas emissions in Ireland provide plenty of scope for next-generation equipment. This offers huge steps towards improving energy efficiency, especially by bringing outdated and inefficient heating systems in many commercial buildings into the 21st century.

Xylem offers commercial and domestic heating specialists a one-stop shop that includes everything from the latest in-line or in-suction pumps, cold water boosters and pressurisation sets, to Sensus water meters that harness the latest technology to provide smarter solutions.

### How high-tech approach helps

The latest intelligent pressure booster sets, like the Lowara GHV hydrovar® X, are capable of varying speed according to demand for water supply, water pressure increase and water transfer in office buildings, hotels, public buildings and apartment blocks. Thanks to the IE5 motor equipped with advanced control, hydrovar® X offers the highest efficiency level to enable huge savings on energy usage.

New smart circulators like those made by ecocirc utilise onboard intelligence to automatically adjust speed for maximum efficiency, without compromising performance, to suit a wide range of application needs in commercial settings.

### Engineering expertise to rely on

Xylem is dedicated to offering bespoke solutions and the appointment of a highly-experienced Business Development Manager has further strengthened its focussed, valued-engineering offer. With this role focusing on building services specification, Xylem strives to deliver more bespoke solutions and supports the delivery of energy contracting services, among other things, to deliver better partnered options to customers, along with smarter solutions.

For applications at scale, or to broaden the scope to meet customer needs, Xylem offers the facility of speaking directly with its manufacturing base in Montecchio, Italy,

where the application engineering design (AED) team can assist with any adjustments needed.

In fact, the Montecchio base is one of five Xylem Learning Centres – along with Hoddesdon in the UK, as well as Hungary, Austria and Poland – that offer hands-on excellence and support for Irish teams. “We know that staying up-to-date with evolving regulations can pose challenges for businesses,” says Kevin Devine, “which is why we also offer a virtual education element via the huge selection of webinars at [www.xylem.com/en-uk/support/learning-center/lowara-learning-center](http://www.xylem.com/en-uk/support/learning-center/lowara-learning-center).”

### Bespoke solutions

Although renewable energy solutions have the potential for long-term cost savings, the upfront expenses may deter some businesses from adopting them. Integrating new heating technologies into existing commercial heating systems can be challenging, but Xylem’s support can help to tailor solutions that work more efficiently to save money fast.

For a quick guide to pumps and other commercial heating products, visit Xylect, Xylem’s web tool that simplifies and shortens the selection process of Xylem products. ■

### Reference

1. <https://buildingservicesengineering.ie/>



The hydrovar® X range from Xylem offers huge energy savings.





**Left: The Kingspan KoolDuct System is an innovative pre-insulated phenolic rectangular HVAC ductwork system.**

high refrigerant leak emission scenario, the embodied carbon emissions from the VRF specification could increase further.

#### **Pre-insulated ductwork**

Introba carried out further analysis to see if embodied emissions could be reduced further by switching from a ductwork specification featuring galvanised steel ductwork lagged with phenolic duct insulation, to a pre-insulated phenolic ductwork system.

The results showed that this could have a particularly notable impact on the embodied carbon emissions from the ventilation system for the ASHP with FCU scenario – reducing lifecycle embodied carbon from 100.2 kgCO<sub>2</sub>/m<sup>2</sup> to 88.9 kgCO<sub>2</sub>/m<sup>2</sup>, a reduction of over 11%.

Embodied carbon emissions for the ventilation system in the VRF scenario also fell by 4.7 kgCO<sub>2</sub>/m<sup>2</sup>, while change for Scenario 3 was only 0.3 kgCO<sub>2</sub>/m<sup>2</sup> due to the lower quantity of ductwork for chilled beam systems.

Pre-insulated ductwork also supports potential savings in operational emissions, due to its highly-insulated and perfectly airtight design.

#### **Real savings**

The research shows that the ASHP with FCU scenario had the lowest lifecycle embodied carbon emissions of the three that were examined. The embodied carbon emissions for CAT-A fit-out for this scenario were also notably lower than for the other approaches that were examined. The additional study showed that by using pre-insulated phenolic ductwork, over a conventional galvanised steel ductwork system lagged with phenolic insulation, the embodied emissions from the ventilation system could be reduced further by over 11%.

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www.kingspantechnicalinsulation.ie ■

## Kingspan pre-insulated ductwork

# Understanding embodied carbon emissions

The embodied carbon emissions from building services specifications are coming under growing scrutiny. This is especially true for offices which may undergo multiple Cat-A fit-outs across their lifespan. Kingspan Technical Insulation commissioned engineering specialists, Introba, to look at how different HVAC approaches can impact embodied carbon emissions from offices.

#### **Three different approaches**

The research considered a typical 5-storey office building with a gross floor area of 10,000 m<sup>2</sup>. They then examined three different HVAC approaches:

- Variable refrigerant flow (VRF);
- Air source heat pump with fan coil units (ASHP with FCU);
- Air source heat pump with chilled beams (ASHP with CB).

They calculated the embodied carbon emissions for each system using the CIBSE TM65 embodied carbon in building services calculation methodology for both Shell & Core and CAT-A fit-outs. In every scenario it was assumed that the

<https://arrow.tudublin.ie/bsn/vol62/iss6/1>

refrigerant used in all system options was R32 with a global warming potential of 675 kgCO<sub>2</sub>e. The leakage rates follow the recommendations in CIBSE TM65 with an annual leakage rate of 2% for the ASHPs and 6% for VRF, and end of life rate of 1% for the ASHPs and 3% for VRF.

#### **Results**

The results showed that the ASHP with FCU scenario had the lowest combined emissions from the Shell & Core and Cat-A approaches, and by far the lowest emissions for the CAT-A fit-out.

ASHP with CB had the lowest Shell & Core fit-out emissions. However, its CAT-A fit-out impact was far higher than for VRF and ASHP with FCU. This was mainly due to the high embodied carbon impact of the aluminium chilled beams. This meant that the embodied carbon from the heating/cooling emitters was over four times higher than for the other CAT-A fit-outs.

Overall emissions from the VRF scenario were the highest of the three which were examined. Refrigerant leakage contributed to 32% of the overall embodied carbon emissions from the VRF scenario. In a

# Distinguished service to CIBSE recognised by Institution CIBSE Silver Medal Award for Pat Lehane

Pat Lehane was awarded a CIBSE Silver Medal for outstanding service to CIBSE at a presentation in the RDS Dublin on 13 November this year. This is only the fourth silver medal awarded to an Irish member in 125 years, and marks a significant achievement for both Pat and CIBSE Ireland. CIBSE medal awards are presented each year in recognition of exceptional, outstanding and distinguished service to CIBSE, and to the wider building services industry.

**CIBSE Ireland** has been a successful regional international branch for the past 55 years and, for most of that time, Pat Lehane has been a prominent and ever-present member.

Pat was appointed editor of *Irish H&V News* (as *Building Services Engineering* was then called) in 1976. He always had a very visible presence in terms of his role as editor and in managing major industry and CIBSE events. However, he has always steered clear of the limelight on a personal level.

He has been project manager of many

CIBSE/SLL international conferences. SLL convened a conference in DIT Kevin Street in 2003 and this was followed by a series of annual CIBSE conferences in Clontarf Castle and Croke Park. SLL visited again when Kevin Kelly was SLL President Elect in 2013 and CIBSE held its Technical Symposium in DIT in 2014. Pat was prominent in the organisation of all of these events which drew large international audiences and visits from CIBSE Presidents. Pat also liaised with ASHRAE to organise visits of ASHRAE Presidents to Ireland.

He has served on all of the CIBSE Ireland Committees since the late 1970s, acting at various times as supporting secretary, vice-chair and treasurer. He did not feel it appropriate to take up the often-offered role of Chair as he was not a building services engineer.

In more recent decades he has acted as mentor, publicity officer and events manager. He has also linked CIBSE Ireland with NSAI, OPW, SEAI, RIAI, CIF, SCSi, ACEI, Engineers Ireland and many other bodies in Ireland. He is a constant presence on CIBSE Ireland Committees, mentoring new committee members and acting as advisor to Chairs and Presidents. His contribution is not just to building services and construction, but to Ireland's

## CIBSE Ireland Silver Medal awards

2023	Pat Lehane
2018	Seamus Homan
2016	Kevin Kelly
2011	John Purcell

## CIBSE Ireland Bronze Medal awards

2022	Paul Martin, David Doherty
2016	Brian Sterling
2015	Pat Lehane, John Doherty
2014	Michael McNerney, Gerard Keating
2013	Alan Duggan, Margaret Dolan
2006	Greg Traynor
2003	Eamon O'Brien, Seamus Homan
2000	Jim Curley
1990	Paddy Clonan

built environment as a whole.

Pat was awarded the Bronze Medal by CIBSE in 2014 and, since then, has helped progress the building services industry through his many connections throughout the sector.

CIBSE is regularly invited through Pat to present or sit on technical boards, improving CIBSE's image in Ireland.

Pat was also the publisher of the very successful *SDAR Journal* for 10 years from 2011 to 2020. Published in high quality paper form, it was distributed free to all CIBSE Ireland members and the industry in general in Ireland. It was a co-publication by CIBSE Ireland and DIT/TUDublin edited by CIBSE Past President, Kevin Kelly. Free access to all the peer-reviewed papers and information about global down loads (over 50,000 in over 100 countries) is available at <https://arrow.tudublin.ie/sdar/about.html>

All committees are voluntary and require volunteers. Pat can be described as the ultimate volunteer and wise counsel. He is Mr Persistence, and does not take NO for an answer. Pat's vast experience and time has proven to be invaluable to the CIBSE Ireland Region and, indeed, CIBSE itself.

It is not an exaggeration to say that without Pat Lehane, CIBSE Ireland would not exist. He is the respected father figure we are all inspired by.

**Kevin Kelly**



Adrian Catchpole, CIBSE President, presenting Pat Lehane with the CIBSE Silver Medal Award.



# CIBSE Ireland – a brief history

**T**he Institution of Heating & Ventilation Engineers (IHVE) was established in 1897 and Irish involvement in IHVE goes back to then. This was the very beginning of CIBSE's illustrious journey. W.R. Maguire, co-founder of Maguire and Gatchell who were prominent in Dublin until the mid-1950s, was a founder member of IHVE. In 1900, Maguire became President of IHVE and organised the Institution's third annual conference which was held in Bray, Co Wicklow.

CIBSE was formed in 1976 and received a Royal Charter the following year. It arose from the merger of the Institution of Heating and Ventilation Engineers (IHVE founded in 1897) and the Illuminating Engineering Society (founded in 1909). CIBSE therefore celebrated its 125th anniversary in 2022, as its history began with IHVE in 1897.

The annual conference was not held here again until 1958 and Ireland had to wait even longer for its next President, who was Eoin Ó Cionna, in 1986. The third Irish President was Professor Kevin Kelly who was elected in 2021.

CIBSE Ireland was formed as the Irish branch of the IHVE in 1968. The first



CIBSE Ireland Committee 1968. Back row (l-r): Seamus Homan, Tom Twomey, Tony Knott, Michael McDonagh, Eamon O'Brien. Front row (l-r): Professor MA Hogan (President IHVE), Sean Mulcahy, Bernard Hodges (Secretary IHVE) and Paddy Clonan.

chair was Sean Mulcahy and prominent members included Seamus Homan, Michael McDonagh, Paddy Clonan and Eamon O'Brien.

Seamus Homan, Eamon O'Brien and Paddy Clonan were awarded bronze medals while Sean Mulcahy received an Honorary Fellowship. Apart from their services to CIBSE, these industry leaders made a significant contribution to the development of educational routes for building services engineers in Ireland. All were active in furthering building services education and helped establish



Eoin Ó Cionna, President of CIBSE 1986.

a building services engineering degree programme in DIT, Bolton Street, in 1975. These leaders took Pat Lehane under their respective wings when he arrived on the scene in 1976 as editor of *Irish Heating and Ventilating News*. They were a huge influence on him and, being industry leaders and mentors themselves, imbued that same spirit in him.

CIBSE Ireland has been lucky in the quality of its 37 Chairs to date, including present Chair, Stephen Weir. There has



Third IHVE conference held in Bray, Co Wicklow, in 1900.

<https://arrow.tudublin.ie/bsn/vol62/iss6/1>



The CIBSE Ireland Silver Medal Club – Kevin Kelly, Pat Lehane, Seamus Homan and John Purcell.

been quality on its committees down through the years and they have achieved a great deal in establishing CIBSE as a highly-respected presence in Ireland.

Sadly, there have been only two women Chairs to date – Margaret Dolan in 2007 and Mona Holtkötter in 2019. However, this is changing. Laura McMahon is the current Vice-Chair and CIBSE as a whole is improving with respect to diversity, inclusion and equity. WiBSE (Women in Building Services Engineering) is now an active group in CIBSE Ireland ... who knows how many future chairs will emerge from that dynamic group.

CIBSE Ireland is also prominent in the CIBSE Benevolent Fund Trust which had a 90-year history as a parallel charity to CIBSE, helping CIBSE members, former

members and their dependents if they find themselves in need.

#### CIBSE Awards

CIBSE’s gold, silver and bronze medal awards are presented each year to recognise exceptional, outstanding and distinguished service to CIBSE and the wider industry. The Gold Medal is awarded for exceptional service of typically at least 25 years, and/or achieving a position of eminence. The Silver Medal is awarded for outstanding service of typically at least 15 years; the Bronze Medal is awarded for distinguished service of typically at least 10 years. ■

• Acknowledgements – Kevin Kelly would like to acknowledge source material originated by Greg Traynor and Michael Curran in the preparation of this article.



Pat Lehane making a point at the 2018 CIBSE Ireland AGM.

### CIBSE Chairs 1969-2023

Stephen Weir	2023-
Michael Curran	2020-2023
Mona Holtkötter	2019-2020
Paul Martin	2017-2019
Brian West	2016-2017
David Doherty	2015-2016
Sean Dowd	2013-2015
Derek Mowlds	2011-2013
Alan J Duggan	2010-2011
Tony McKinley	2009-2010
Gerard J Keating	2008-2009
Margaret Dolan	2007-2008
Brian Geraghty	2006-2007
Kevin Kelly	2005-2006
Michael McNerney	2004-2005
Kevin Treacy	2003-2004
Brian Homan	2001-2002
Greg Traynor	2000-2001
Sean Anscough	1999-2000
James E Curley	1988-1999
Herbert Taylor	1997-1998
Oliver Reddy	1995-1997
John M Cuthbert	1993-1955
John K Purcell	1992-1993
Michael Buckley	1990-1992
Patrick J Doyle	1988-1990
Hugh Munroe	1987-1988
Patrick Clonan	1985-1987
Michael Moloney	1983-1985
Eamonn O'Brien	1981-1983
Michael McDonagh	1980-1981
Seamus Homan	1978-1980
Eoin O'Cionnaith	1975-1978
Joseph V. Tierney	1972-1975
Noel Traynor	1970-1972
Sean Mulcahy	1969-1970



## Construction in transition

# Technology in fast lane but related skills in slow lane

The construction sector is in transition with skills delivery not always meeting the industry's evolving needs, despite rapidly-evolving advancements in technology. Essentially, developments in technology are in the fast lane while the skills and learning process are still in the slow lane, writes *Paul McCormack, Innovation Manager, Belfast Metropolitan College*.

**T**he training and education provided to workers in the construction industry is not sufficient to meet the industry's evolving needs. There are many reasons for this, including the lack of funding, outdated training materials, and the shortage of qualified trainers knowledgeable in emerging technologies. This has left the existing workforce isolated.

### Limited pool of talent

Also, construction is manned by an ageing workforce, with many skilled workers now nearing retirement age. Training and upskilling for this section of the workforce is often overlooked. The construction industry has traditionally been male-dominated, resulting in a lack of diversity and inclusion in the workforce. This makes for an even more limited pool of talent, and a lack of diverse perspectives and experiences.

To address these challenges, it is important to take a proactive approach to skills delivery in the construction industry. This must include investing in modern technology-based training and education programs, encouraging diversity and inclusion across the

workforce, and staying up-to-date with technological advancements. There must also be comprehensive collaboration between industry leaders, educational institutions and government organisations to ensure that skills delivery is aligned with industry needs.

### Addressing the skills gaps

One of the biggest levers we can use to help overcome the skills gap is technology. Construction must embrace digitalisation at every part of the value chain. Technology can be used to improve skills training, safety, efficiency and productivity, while also reducing the skills needed for certain tasks. The sector must also invest in upskilling and reskilling. This will enable workers to adapt to changing technologies and processes, and to encompass new roles and responsibilities. This can be achieved through mobile training, digital communications, mentorship and job shadowing.

We must also improve and expand apprenticeship and vocational training programs to attract young people into the industry, and to learn and gain the necessary skills to become skilled workers. These



should provide a combination of on-the-job training, blended learning and classroom instruction, essentially giving apprentices the opportunity to learn while they earn. There must also be a more targeted outreach to under-represented groups, creating a welcoming and inclusive work environment.

### Embracing digitalisation

Embracing modern technology such as digitalisation can be a most valuable tool in addressing the skills gaps in construction. Mobile apps, software and digital training can all be used to improve communication and collaboration between workers. This will also encourage on-the-job, task-based training to reduce the carbon footprint of construction. For example, workers can use various apps to access project plans and specifications, report issues and communicate with team members in real-time. This can help to improve productivity, reduce errors, and ensure that everyone is on the same page.

One of the key tools in the digital toolbox is BIM. It can be used to identify and resolve issues before construction begins, reducing the need for rework and saving time and money. This can also assist

workers to develop new skills and remain up-to-date with the latest technologies and processes.

Additional digital tools include virtual reality (VR), augmented reality (AR), drones and even robotics.

Digitalisation will also enhance standards and help with quality assurance mechanisms and regulation compliance.

### **Greater collaboration**

Addressing the skills gap also needs greater collaboration between the construction industry, training bodies, educational institutions and government organisations. The current system is reactive when, in fact, it really needs to be proactive. It must anticipate future needs and be sufficiently versatile to prepare workers accordingly. We must foster a real culture of life-long learning and continue to invest in the areas of research and development that will help identify and foster continually emerging technologies and industry trends.

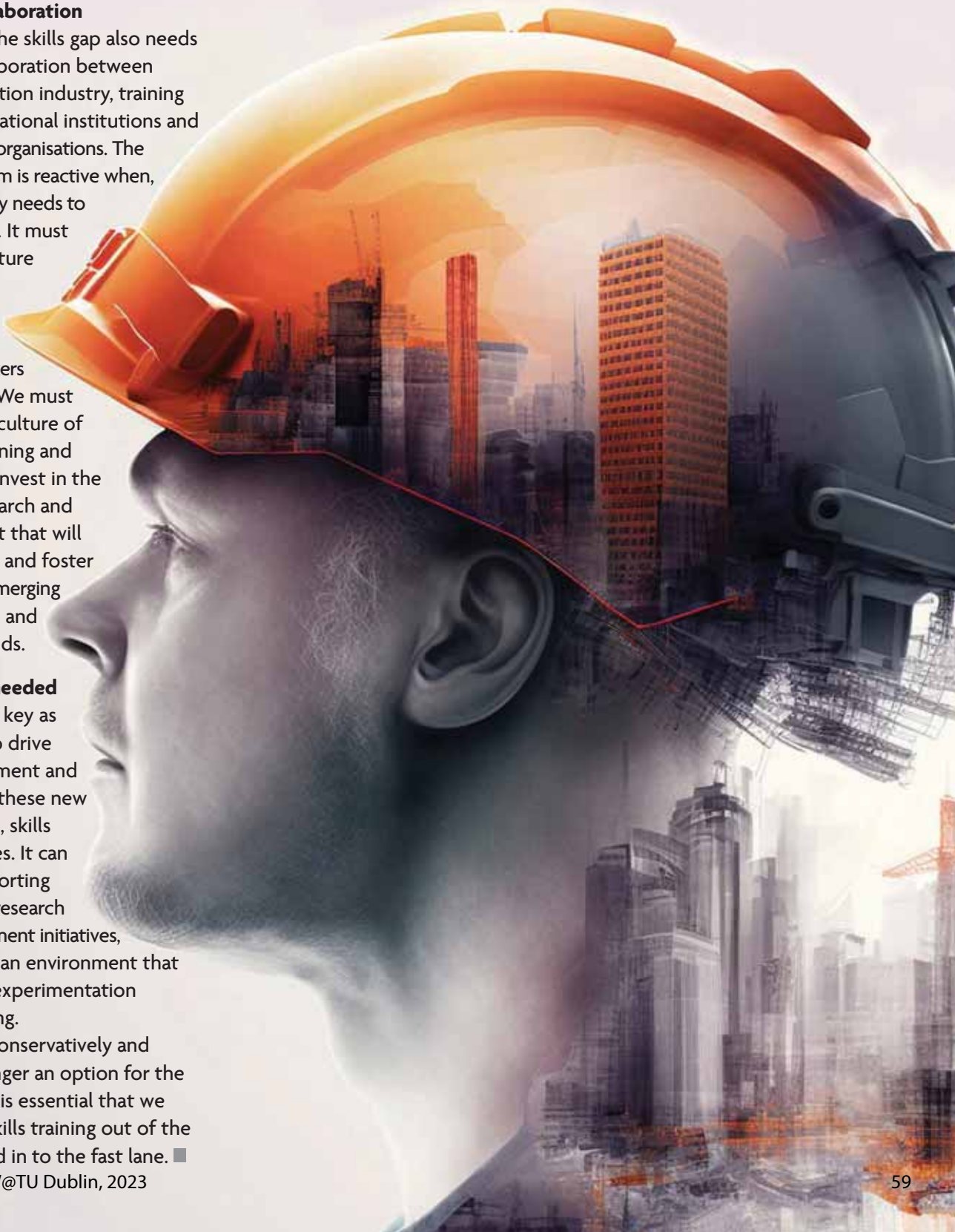
### **Innovation needed**

Innovation is key as it will help to drive the development and adoption of these new technologies, skills and processes. It can involve supporting and funding research and development initiatives, and creating an environment that encourages experimentation and risk-taking.

Playing it conservatively and safe is no longer an option for the industry ... it is essential that we now move skills training out of the slow lane and in to the fast lane. ■



*Skills delivery in the construction industry must include investing in modern technology-based training and education programs, encouraging diversity and inclusion in the workforce, and staying up-to-date with technological advancements.*





Clear financial and policy support required

# Medtronic takes significant step towards zero carbon

In 2021 Medtronic announced an ambitious target to transition to on-site carbon neutrality, reinforcing its commitment to the environment, and to its ongoing commitment to achieve net zero by 2045.

**Medtronic** is a global leader in healthcare technology and has several facilities located in Galway. It is also a member of the SEAI's Large Industry Energy Network (LIEN) and works closely with SEAI and industry partners to monitor and actively reduce energy and greenhouse-gas emissions.

In 2022 Callaghan | RED engineering was appointed to design, sequence and monitor the decarbonisation of three Medtronic buildings across multiple sites in Galway. These projects were led by Killian O'Neill, Managing Director, Callaghan | RED, with Patrick Hayes and Barry Drake acting as mechanical and electrical leads.

In essence, the project brief was to devise and implement a seamless energy transition from gas-fired boilers to an alternative zero onsite carbon energy source while, at the same time, maintaining operation at the advanced healthcare technology facilities.

Careful sequencing and implementation of this strategy was achieved through close collaboration between Callaghan | RED, the project managers, Horgan Lynch, and the Medtronic facilities team

of Shane Cannon, Feaghus O'Rourke and Micheál Feeney.

High efficiency simultaneous air source heat pumps were ultimately selected on the basis of a detailed energy audit carried out by the Callaghan | RED Sustainability Team. The core reason for this option was they produce no on-site carbon and offer an efficient conversion rate of energy to heat.

In addition, when simultaneous heating and cooling are required, the reverse cycle heat pumps can recapture the rejected heat from the cooling side and recycle it on the heating side. This process facilitates a further reduction in energy demand.

## The Buildings

*Building 1* – Healthcare technology manufacturing (constructed in 1982);

*Building 2* – Global research facility with clean rooms and laboratories (constructed in 1988);

*Building 3* – Administrative building (constructed in 2004).

A number of supplementary energy enhancement measures were also implemented in order to optimise the facilities even further. These included the following:

- Reduction of system operating temperatures to optimise heat pump efficiency;
- Modification of existing piping and controls to augment energy usage reductions;
- Introduction of buffer vessels for enhanced heat pump performance;
- Installation of PV array;
- The reduction of system operating temperatures from the previous conventional LPHW operating temperatures of 70/80°C, flow/return, to a lower temperature to enable the optimisation of the air source heat pumps at 50/40°C, flow/return.

It has been well documented that heat pumps operate more efficiently at lower temperatures. However, in the case of existing facilities this is one of the major challenges in the adoption of heat pumps. As with an existing critical production facility, lowering the system temperatures to amplify the heat pump efficiency could come at a cost that could adversely affect the temperature set-points in the production spaces.

Therefore, in order to understand how this would affect existing plant, a comprehensive review of each LPHW system load was undertaken to determine if the heating coil could accommodate the lower system temperatures. In instances where the existing coils could not achieve the required temperatures, modifications were then carried out during planned system shut downs.

Building 1 alone had 32 air handling units, each with multiple coils and all designed to conventional LPHW operating temperatures of 70/80°C. Each of these coils were reviewed and, where necessary, modifications were made in the form of increasing the heat transfer surface area by the addition of more rows to the coils within the air handling units.

Building 2 had 25 air handling units with Building 3 having four air handling units.

In addition, it is also now advisable to install measures on all projects that can accommodate future transition to low, zero carbon alternatives at a point in the future, with minimal intervention required.





High efficiency simultaneous air source heat pumps were ultimately selected on the basis of a detailed energy audit carried out by the Callaghan | RED Sustainability Team.

These measures can include increasing the size of the heating coil such that it is then capable of operating at lower temperatures in future.

Allowing for flanged connections to control valves, as with the adoption of LZC technologies, is also advisable as the heat source is often producing a lower temperature heat. This will alter the system characteristics and will often require replacing existing control valves. Installing these measures in current projects, even though the LZC heat source is not yet available, will minimise cost and disruption when the transition invariably takes place in the future.

Existing piping and controls were also carefully modified in order to optimise performance. Removing three ports and weather-compensated circuits and enabling the heat pumps to operate on direct weather compensation proved a suitable solution.

Buffer vessels were introduced to allow the heat pumps to operate more efficiently, acting as a battery for the system. Without a buffer, the heat pumps would continually be adjusting output and potentially turning on and off, particularly when the weather was variable (think average Irish summer). The vessel allows the heat pump to operate continuously by charging the buffer vessel, with limited variability. It can also store energy which means the heat pump does not turn off/on excessively.

Limiting the variability of the heat pump output reduces wear on the heat pump and increases its serviceable life cycle, while improving system efficiency. This is because heat pumps can operate in a region where they are most efficient

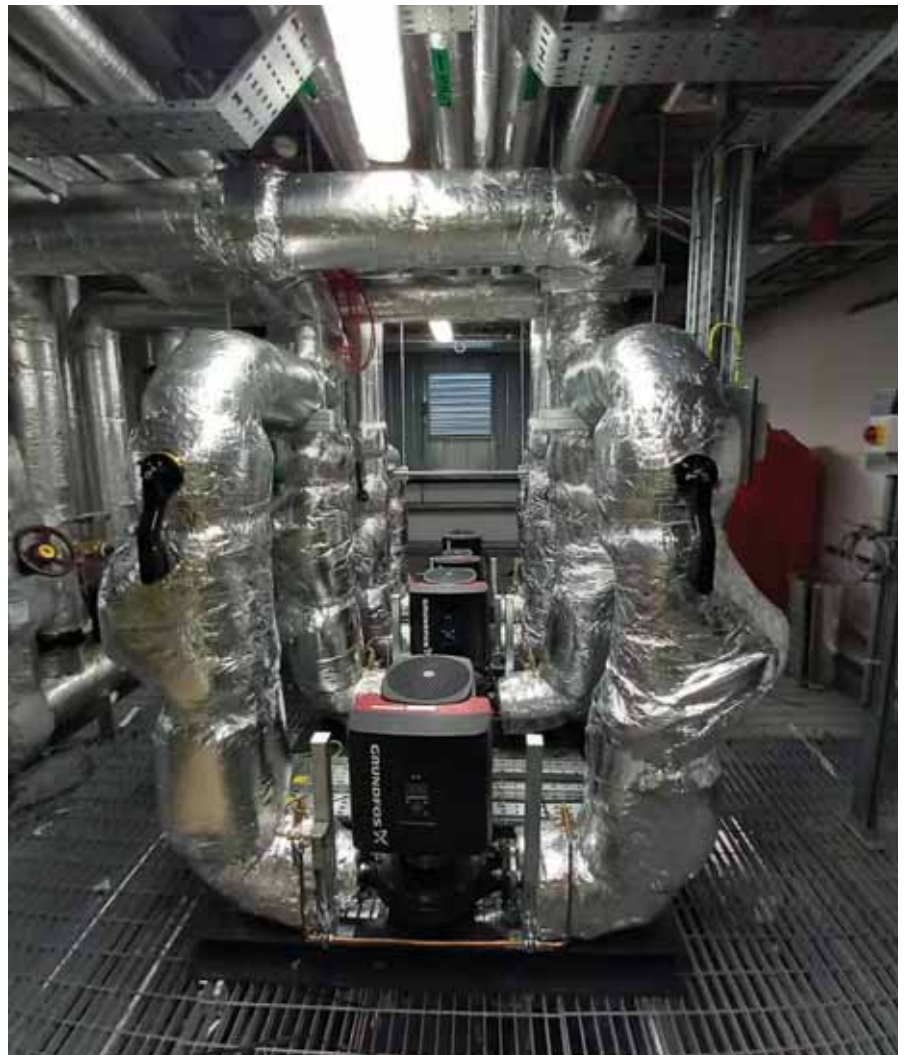
and charge the buffer vessel, with the buffer then responding to the varying requirements/loads on the secondary side.

In addition to the obvious benefits in relation to eliminating on-site carbon emissions and fossil fuel usage, there are several other advantages associated with the transition from a fossil fuel system to heat pumps. These include:

- Safer system, no carbon monoxide or other combustion products;
- No requirement for a system flue and review of emission discharge;
- Efficient conversion rate of energy to heat;
- Generally, less maintenance than combustion-based systems.

As the current buildings were critical to the client's operating programme, the shut-down periods had to be scheduled months in advance. The management of multiple collaborators in relation to equipment lead times and agreeing shut down periods with each of the end-users and system owners was based on strong collaboration with the suppliers and stakeholders.

The success of the project was in no small part due to the close partnerships formed on site with the client facilities team, the project managers and the contractors, and the comprehensive investigative works carried out during the design phase. ■



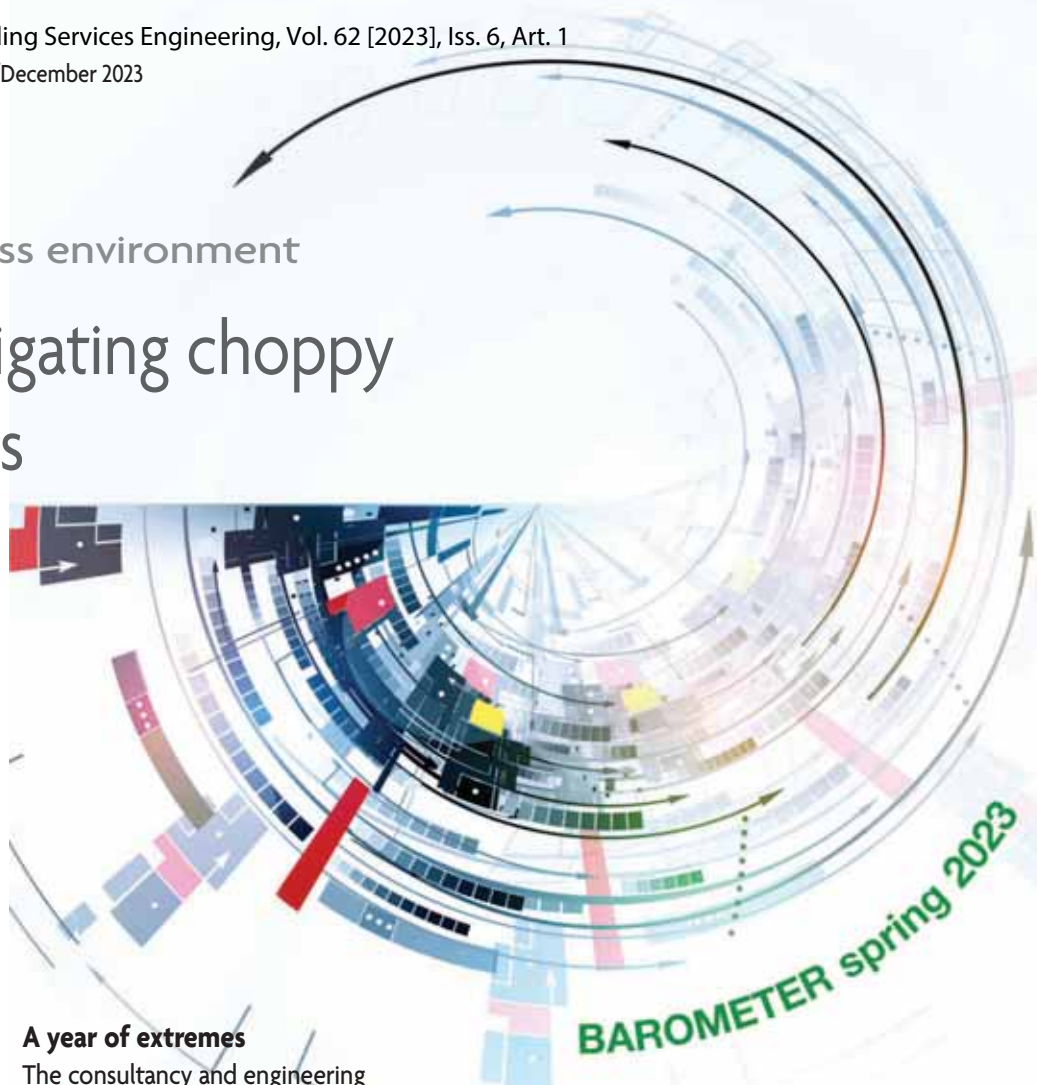
Building 2 mezzanine plantroom – CIC pumps and failure mode pumps



## Tackling critical business environment

# Consultants navigating choppy economic waters

A shortage of skilled staff, declining fees and the persistent need for salary increases – these are just the headlines from EFCA's latest barometer, *The State of the European Consulting Engineering Sector*. Add in other factors such as geopolitical tension, energy transformation, surging inflation and rapidly-rising interest rates, and you have a recipe for uncertainty that is casting a shadow over the industry's future. In this issue we preview the imminent autumn edition of the EFCA Barometer, with Henrik Garver, Chair of the EFCA Economic Environment Committee (below), delving into the figures to try and make sense of what is happening.



## A year of extremes

The consultancy and engineering industry in Europe has experienced a year of highs and lows that have left their mark. In 2021, we witnessed unprecedented figures, with market indices soaring to record levels.

However, as the seasons changed, so did the dynamics of the industry. Today, order books have slimmed down, although they continue to remain above historical norms, signaling enduring resilience and a reasonable outlook. Some of the economic conditions also create opportunities, particularly for those firms that remain agile and adaptable, staying ahead of emerging trends, in order to obtain first-mover advantage.

## EFCA's own economists

Henrik Garver is the Managing Director of the Danish Association of Consulting Engineers (FRI). He heads up EFCA's Economic Environment Committee, which monitors the evolving market trends within the sector at European level. The committee's primary mission is to provide insight and support to the industry. Working with data gathered

through surveys that were conducted in collaboration with EFCA member associations, this committee releases *The State of the European Consulting Engineering Sector* barometer on a bi-annual basis.

"The last number of years have been a rollercoaster ride for the consultancy and engineering industry. We have successfully navigated the challenges posed by the COVID-19 lockdowns, witnessed remarkable growth, and observed Europe and the EU showing global leadership for the green transition. As a result, the rollercoaster ride has primarily been on an upward trend. Nonetheless, at this moment, as we face multiple geopolitical crises, increasing interest rates and economic challenges in numerous countries, we find ourselves at a critical juncture," says Garver.

## Insights from Spring 2023 Barometer

The last edition of the report highlighted a bustling year for the industry. While the EFCA Market Index, which gauges European market development in

relation to a baseline calculated in 2018, has displayed a gradual decline over the past two years, it is important to note that this drop follows the peak observed in 2021. What we have seen since suggests a potential return to relative normality, provided this trend does not persist.

Amid these shifting dynamics, the employment index stands strong, forecasting stability in the coming half year. Despite a recent decrease in order stocks, they still comfortably exceed historical averages, indicating sustained demand for consultancy and engineering services.

However, the figures for profitability tell a different story. After reaching a high of 7.1% in 2020, profitability dipped somewhat to 5.7% in 2021, slightly below the 2013 to 2021 average of 6.1%. This was somewhat below the industry norm. For 2023, a majority of countries (63%) anticipate stable profit ratios compared to 2022 levels, with 21% now expecting an improvement and 16% foreseeing a decline. The result is therefore a slight overall downturn in profitability.

In both the Spring 2023 and Autumn 2022 editions, the top three challenges for the industry remained staff shortages, low fees coupled with salary increases, and political uncertainty. Notably, political uncertainty and bureaucracy have entered the top five challenges for consultancy and engineering. While digitalisation was a top five challenge previously, it has now dropped down the list. Challenges that appear to have a more minor impact include contractor competition, public competition, access to finance and business integrity.

Public sector competition refers to the competition arising from publicly-owned entities such as universities, publicly-funded research institutes, or similar governmental bureaus and agencies engaged in commercial activities for local communities or regional and/or governments. Business integrity is primarily linked to corrupt practices. Thankfully, late payments have significantly decreased in recent years.

Furthermore, the Spring 2023 report considered the effect of inflation on direct costs and the ability to increase fees. It reveals a correlation, indicating that direct costs and consulting engineering service fees have increased across most European countries, albeit to a lesser extent than inflation.

### Looking to Autumn 2023 barometer

The forthcoming edition of the EFCA Barometer will assess whether the rollercoaster journey will persist on its upward trajectory or suddenly plummet.

“When engaging with engineering firms, the majority demonstrate a keen awareness of the available opportunities and possess the capacity to manage risks in the current market landscape. Nevertheless, it is not without its challenges. Therefore, the years 2024 and 2025 promise to be highly intriguing for those monitoring the European consultancy and engineering industry. That is why I am particularly excited to examine the results of the upcoming EFCA Barometer, which will gauge market trends in the autumn of 2023 and provide insights into the developments expected in 2024,” concludes Henrik Garver.

### Shaping a brighter future

While acknowledging the comprehensive analysis provided by the Economic Environment Committee, the EFCA community is not content with simply observing market trends. Instead, armed with such invaluable insight, EFCA actively engages with policymakers and industry stakeholders to shape the industry's future.

Through strategic advocacy and influential partnerships, EFCA is committed to driving positive change, ensuring that the consultancy and engineering sector continues to thrive amidst the evolving challenges and opportunities. ■

**“As the world faces multiple geopolitical crises, increasing interest rates, skills shortages and other challenges, engineers find themselves at a critical juncture in trying to drive the sustainability and net zero agenda.”**



## MEBSCA+ECA outing at Newlands

The combined MEBSCA and ECA annual golf outing was held in Newlands Golf Club with 35 participants enjoying a great day. Invited guests included Jim Curley, Tony Gillen, John White and Ger Hutchins.

Among the companies represented by those playing were Burlington Engineering, Kirby Group, CJK, Lynskey Engineering, Trittech Engineering, Dornan Engineering, Mercury Engineering, Maguire Air Conditioning, Designer Group and Leo Lynch. It was the 41st MEBSCA annual golf outing and the third year that it has been a combined MEBSCA and ECA event.

A special word of thanks to Des Binley who, as always, stage-managed the entire event. ■



Hubert Fitzpatrick, CIF Director General with Colin Burke, Mercury Engineering.



Eamon McGrattan, M&ECA President, with Peter Ennis, Jones Engineering, who accepted the President's Prize on behalf of his colleague, Rob Hughes.



Eamon McGrattan presenting Des Binley with a token of appreciation for all his work in organising the event.

### Results

Winners from the Newlands outing included the following:

**President's prize :**

Rob Hughes, Jones Engineering.

**Runner Up:**

Stuart Gaffney, Burlington Engineering.

**Nearest the Pin:**

Keith Jones, Leo Lynch.

**ECA visitors' prize:**

Sean Kirby.



Group image showing all the participants at the joint MEBSCA and ECA annual golf outing at Newlands.

Energy savings of up to 80%

## Save with VIVARES light management system

VIVARES from LEDVANCE is an energy-saving, climate-friendly and future-proofed lighting solution suitable for all office applications. The system uses daylight and presence sensors to improve the use of lighting in room.

**It provides light** in the right place at the right time and at the right intensity. On the one hand, it ensures a high quality of light for all defined requirements, and on the other it helps make potential savings that go far beyond the efficiency of LED light sources used. Compared to conventional fluorescent lighting technology, an LED lighting system with presence and daylight control achieves energy and CO<sub>2</sub> savings of up to 80%. VIVARES is available in Zigbee or DALI versions. VIVARES Zigbee communicates wirelessly with up to 200 compatible devices using the highly-reliable Zigbee 3.0 standard and is always the first choice when no additional control lines should, or can, be laid. VIVARES Zigbee is also ideal for changing room situations because it is flexible and easy to adapt.

Meanwhile, VIVARES DALI is available for new construction or large-scale renovation projects where additional control lines can be laid without any problems. It uses the international DALI-2 standard for controlling lighting solutions and stands for maximum compatibility and versatility. VIVARES DALI also has an optional KNX interface and can be integrated into the building control system.

Both are particularly comfortable as Zigbee and DALI versions. Thanks to well-designed tools such as the VIVARES Portal and the VIVARES App, planning, pre-configuration, commissioning and maintenance during operation are easy

to carry out. Complex programming is now a thing of the past.

LEDVANCE offers everything from the one source and includes all LMS components, as well as matching LED luminaires. Flexible LED strips can also be combined with VIVARES to achieve standard-compliant illumination in offices. In addition, various Smart+ lamps can be controlled via VIVARES Zigbee. Conventional lamps can be integrated via Smart+ Plug. LEDVANCE provides all-round support for installers while user operation is intuitive.

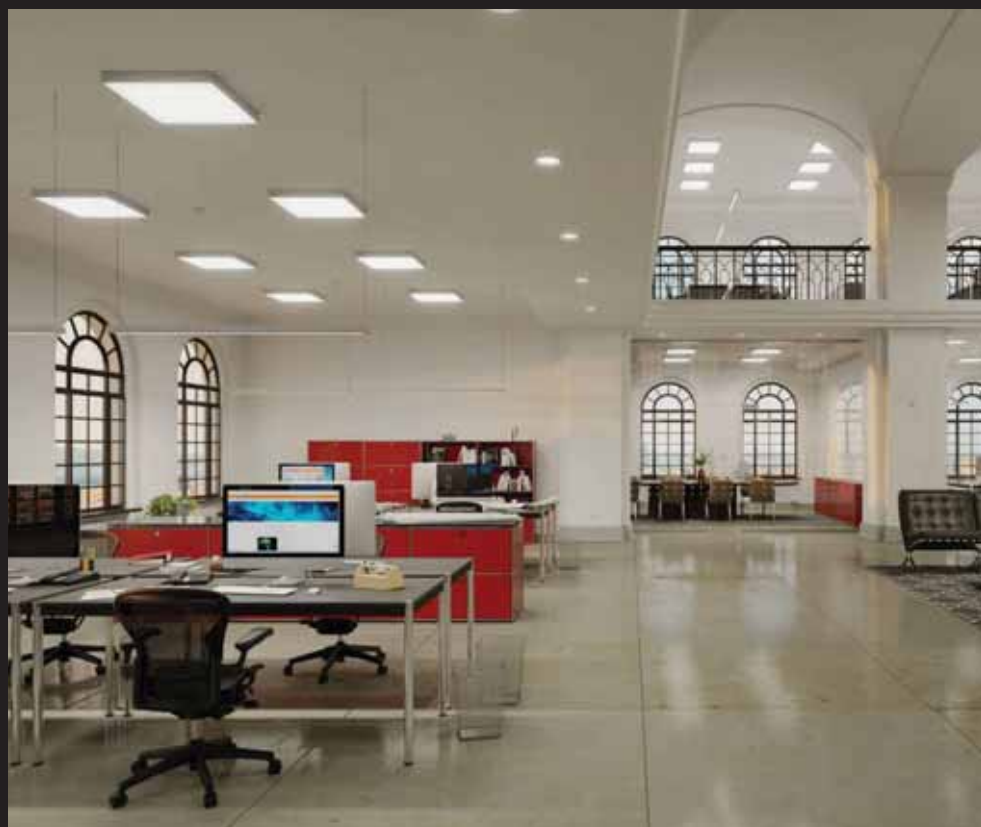
A new system is now available in VIVARES HCL. In combination with compatible luminaires and in addition to the other light management functions, the human-centric lighting system mimics the natural changes in daylight very precisely, providing biologically-effective light in open-plan offices and on entire floors. This not only boosts the performance, wellbeing and satisfaction of the employees, but also the company's economy. The results are measurable and range from an extra two hours of effective working time per month and a 4.5% increase in productivity, to a year of longer employee retention. At the same time, the error rate is going down by 2% and the sickness rate by 1%.\*

For even greater economy there are optional VIVARES cloud services. They provide users with access to the lighting system data at any time, regardless of location, and allow them to take optimising measures and plan upcoming maintenance work in advance.

Contact: Stevie Young, LEDVANCE.  
T: 086 600 1291; E: S.Young@ledvance.com;  
W: [www.ledvance.com/vivares](http://www.ledvance.com/vivares) ■

### Reference

\* AT Kearney, Quantified benefits of Human Centric Lighting, (2015).





# THE OBTUSE ANGLE



PAT LEHANE



## Well done Ciaran Lynch

**Ciaran Lynch** of Gaffney Mechanical recently completed the Dublin City marathon, not just conquering the physical challenge, but also raising over €16,000 for the Oncology Ward in The Mater Hospital. His dedication and determination in supporting this cause is truly inspiring.

## Kerrigan Silver Jubilee

**Ronan Kerrigan** and all the team at Kerrigan Mechanical have just celebrated a great landmark for the company. Twenty five successful years in business is no mean feat but, to do so in specialist heating and plumbing contracting – particularly given the market turbulence of recent years – is quite something. Ronan is pictured here addressing the team celebratory gathering in Killeen Castle Golf Club.



## CIBSE Workshare Programme 2024

**Despite the very** successful inaugural CIBSE Ireland Workshare Programme in 2019, Covid interrupted the planned schedule. The premise of the concept is based on consultants and contract managers swapping roles – and offices – while working on the same project. Obviously, this could not happen during Covid, or over the last few years. However, the Workshare Programme has now been re-activated with Ethos Engineering and Designer Group the participants. We will have full details in the next issue.

## EHVACS' three-in-one

**Congratulations are due** to Jeff Aherne and Darren Faherty of EHVACS, pictured here with judges Eleanor Heylin-Smith (left) and Laura McMahon, at the recent Architecture + Building Expo in the RDS.

Their unique unit combining a heat pump, air conditioning unit and electric vehicle charger took the premier award in the Best Renewable Product category at the show.



## No Hocus Pocus with WIBSE

**While the overall** statistics still point to a significant imbalance in the number of men versus women in the industry, anyone who attended the recent WIBSE event in the Stella Cinema in Dublin for the screening of *Hocus Pocus* could be forgiven for thinking otherwise. Even more inspiring was the diverse mix of nationalities present. When the current buzz words are inclusion and diversity, WIBSE is the living embodiment of that aspiration.

So, while we still need to be strident in our efforts to attract more women into engineering, let's continue to provide a forum for those who already are, to network and have some fun. Well done also to Paul Donegan of Intensity Lighting who sponsored the WIBSE evening.



## Rory Daly joins Trittech Board

**Rory Daly** has been appointed Construction Director with Trittech Engineering. He took up his new role in September, having initially joined the company in 2013 on his return from Australia. We wish him well in his new position.



## And pigs will fly!

**The recent report** by Davy leaves no one in any doubt about the scale of the challenge facing Ireland to meet its legally-binding greenhouse gas emission targets by 2030.

For one thing, there is the €150bn required ... where will it come from? We already face multiple crises on too many fronts to mention, but they too require significant funding to resolve.

Nonetheless, the Government's target is still that one in three private cars will be electric by 2030, and that 500,000 homes will have been retrofitted to a B2 rating.

Oh, I also hear that pigs will fly by 2030.



**Season's greetings to all our readers.**





# HVAC

HVAC systems in buildings are responsible for 40% of European energy consumption. Xylem's range of smart and energy efficient HVAC solutions can be easily installed to optimise energy usage in both existing or new buildings.



Hot & cold water circulation



Condensate & drainage removal



Energy optimisation, monitoring & control



Heat & cooling water treatments



Thermal energy metering



Digital services

**xylem**  
Building Solutions





# New Aquarea L Generation heat pump

A revolution in design, efficiency, connectivity and sustainability.

**Year-round comfort**

Aquarea heat pumps provide heating, cooling and hot water for the whole house.

**Green future**

Aquarea L Generation air to water heat pump is engineered with natural refrigerant R290 with GWP 3.

**High performance**

Innovative hydraulic split heat pump, with 75 °C water outlet down to -10 °C outside, and operation down to -25 °C.

**Harmony at home**

Compact design blends into indoor and outdoor spaces. The heat pump's quiet operation brings harmony between technology and the home.

**Smart control**

Wi-Fi included for smart control, advanced monitoring and servicing.



<https://arrow.tudublin.ie/bsn/vol62/iss6/1>

heating & cooling solutions



aircon.panasonic.eu/IE 68