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BS News January/February

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January/February 2020

building services



Circular economy Regulations

Mark Sweeney



nZEB may not be enough

Cian O'Riordan



Human centric lighting

Andreas Schulz



What legacy Galway 2020?

Michael Curran

A pump is not a light bulb

City Multi

R32 VRF Heat Recovery
& Heat Pump Systems



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EDITORIAL

Get your slice of €23+ billion spend

While construction activity tapered off slightly towards the end of last year, the fact is that output for the sector will still be in the region of €23+ billion for 2020. Admittedly, that's shy of the €38 billion recorded in 2007 but really, who wants to go back there?

The objective for 2020 has to be one of consolidation and a sustainable growth pattern. The signs are all good ... construction spending in the commercial, industrial, hospitality and public sectors is still looking good, while the residential sector is finally taking off.

This is very encouraging for building services. With WELLbeing, energy efficiency, sustainability, carbon reduction and nZEB all now critical to construction design, the budget allocation for building services solutions is rapidly increasing.

Make sure you get your share of this massive €23+ billion spend.

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A pump is not a light bulb
Eco-Design Directive must abandon the narrow product approach in favour of an extended product approach.

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NEWS AND PRODUCTS

Danger – ‘Celtic tiger’ on prowl again!

According to the recently-issued report by consultants Mitchell McDermott, Ireland’s construction sector is now under “Celtic Tiger” levels of pressure. It says that construction output grew by 12% to €23 billion in 2019, but the number of construction workers only grew by 6,000 or 4%.

The report says the market is being stoked by cost inflation which is rising at 5-6% per annum. An office building that cost €20 million to build in 2015 would have cost €25.2 million at the beginning of this year.

While the number of housing unit completions has gone from around 6,000 in 2018 to 21,500 last year, this is still far below the 34,000 which most industry commentators say the market requires.

However, the report says hotel and office construction is reaching full capacity. While there is still strong demand for student accommodation, the latter is said to be facing viability and affordability issues.

Either way, something like 30,000 additional workers are required within the sector. Where they are going to come from is anyone’s guess. See <https://mitchellmcdermott.com/insight/>

Getting into the flow at Grundfos

Grundfos Ireland has appointed Dan Sykes as its new Marketing Project Manager. With a decade of marketing experience under his belt, Dan has worked in a variety of B2B and B2C industries including real estate, web hosting and business software. When asked about his



thoughts on joining Grundfos, Dan said: “I’m delighted to be part of such an innovative and socially-responsible company. What Grundfos is doing for the climate and global water crisis is exceptional and I’m excited to be part of a process that makes homes and businesses more energy efficient using Grundfos technology.”

Born and raised in Hamilton, ON, Canada, Dan attended McMaster University where he studied English, communications and marketing. He has worked in Canada, England and Ireland, and now brings this combined experience to his new role.

Mostra Convegno Expocomfort

Air conditioning, heat pumps, biomass, refrigeration, renewable energy, ventilation, plumbing technology, water treatment and sanitaryware will all feature at the Mostra Convegno Expocomfort on 17 to 20 March 2020 in Milan.

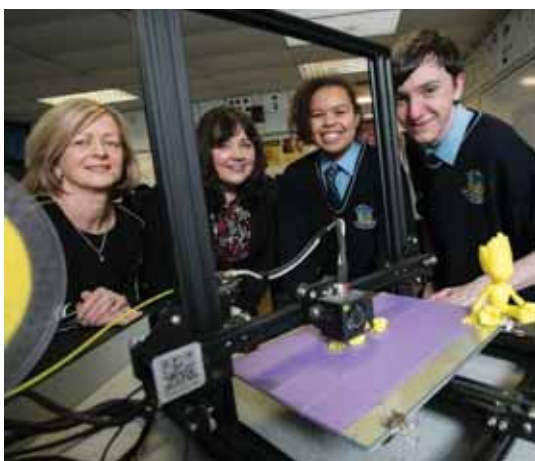
Connect and interact with the international professional community of energy efficiency and meet with exhibitors from all over the world.

See www.mcxpocomfort.it for further details.

PM sponsors €50,000 bursary

PM Group is to sponsor a €50,000 bursary for pupils attending Old Bawn Community School which is located near the company’s Dublin office in Tallaght, Dublin 24.

The €50,000 bursary is open to sixth year and transition year (TY) pupils over a four-year period and will support students’ interest in science, technology, engineering and mathematics (STEM), and encourage them to pursue third-level education.



The collaboration includes the provision of laptops for leaving certificate students who move forward to STEM-related courses, mentoring, spaces on its TY Programme and internships for students pursuing engineering courses at third level.

Melissa Pajzos and Ciaran Hegarty, Old Bawn School Community School, with Eileen Lee, Operations Manager, Dublin, PM Group and Ms Ursula McCabe, Principal, Old Bawn School Community School.

BTU 2020 dates and venues

The BTU is looking forward to an exciting programme over 2020. In addition to the usual outings in Ireland, it also includes the biennial trip to the BTU Nationals being held in The Oxfordshire Golf Club, UK.

Details are as follows: 24 April, Woodbrook; 22 May, St Margaret’s; 4-6 June BTU Nationals, The Oxfordshire, UK; 3 July, Killeen Castle (Captain’s Day); 14 August, The Hermitage; 25 September, Newlands (President’s Day); 16 October, Laytown/Bettystown. December/Christmas outing TBC. The BTU AGM will take place in Newlands Golf Club on Monday, 17 February where Captain Padraig Gillen will hand over to incoming captain Brian Harrison.

Officers are President: John White; Treasurer: Brendan Coghlan; Hon Secretary: Des Bindley. The new committee will be formed on the evening.

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NEWS AND PRODUCTS

Stelrad 'Installer Loyalty Club'

Following the success of the Stelrad Loyalty Club in the UK, Stelrad has now extended the scheme to include installers in Ireland. Members can claim points for purchasing qualifying premium

panel and designer radiators and redeem them for

branded clothing and tools listed in the rewards catalogue.

Once joined, installers will be sent regular emails with their points total, and informing them of new products and promotions.

Installers wishing to join the Stelrad Loyalty Club should visit www.stelrad.com/Loyalty, call Tel: 0044 844 543 6200, or join through their local merchant.



CIBSE Ireland celebrates corporate grades

Achieving professional status in any profession is a milestone and CIBSE Ireland believes that to do so within building services not only deserves recognition, but is also something to celebrate. Consequently, Chairperson Mona Holtkoetter recently hosted a lunch in the prestigious RDS Members' Club for all those awarded corporate grade membership over the last two years.

Despite the grandeur of the venue, the occasion was informal and relaxed, with the emphasis on networking. Apart from establishing relationships with one another, the newly-crowned corporate members also got the opportunity to meet with members of the CIBSE Ireland Interview Panel, and some of the current Committee members.

The event proved extremely successful with many of those present adjourning to a well-known hostelry immediately across the road from the RDS to continue the celebrations.

Group pictured at the CIBSE Ireland corporate members lunch in the RDS.



Riello premix burners

A burner upgrade at a prestigious visitor attraction in Edinburgh featuring the Riello RX1800 1.8MW has shown exceptionally low NOx

levels of just 9-10ppm (around 20mg/kWh) throughout the modulation range. This is around half the 40mg/kWh maximum required by some local authorities and also below the Building Research Establishment Environmental Assessment Method (BREEAM) criteria of 24mg/kWh.

Consequently, the burner upgrade enabled the aging cast-iron sectional boilers to comply with current and anticipated NOx regulations, as well as improve energy efficiency – thereby extending the life of the boilers.

Riello RX premix burners feature a unique design that includes a patented pilot ignition system. The result is a very reliable and compact flame with a diameter directly related to the burner firing rate,

ensuring precise heat control and optimum efficiency at all loads. Electronic modulation control ensures efficient performance at all heat loads.

Contact: www.rielloburners.co.uk



ESB exemplar all-electric showcase

ESB Chairperson Ellvena Graham recently officially opened an exemplar all-electric building as the new home for ESB's archive. Located on St Margaret's Road in Finglas, Dublin 11, the A+ building showcases the documents, oral histories, film materials, physical artefacts, etc charting the development not only of the company but of the country as a whole.

The new energy-efficient building was designed by an in-house cross-functional ESB team and provides the highest levels of energy efficiency, including an array of roof-mounted solar panels. Electricity, through use of heat pumps, is the primary source of energy for the heating and cooling systems.

ESB's collection comprises over 11,000 archival boxes of documentation, 500 small artefacts, over 15,000 photographs, 1,500 glass negatives, 46,000 digital images, 6000 VHS/DVDs, 500 cine-reels and over 2,000 oral interviews. See www.esbarchives.ie

Photo shows ESB Chairperson Ellvena Graham with ESB Chief Executive Pat O'Doherty.



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NEWS AND PRODUCTS

Condair humidifier keeps spiders healthy

Condair has supplied a Condair CP3 Mini steam humidifier for the "spider nursery" at London Zoo. The compact wall-mounted humidifier provides up to 4kg of steam per hour to the atmosphere, with its built-in fan unit. This is sufficient to maintain the ideal air humidity



of 70% RH as the arachnids would have enjoyed in their indigenous habitats around the world.

The Condair CP3 Mini is ideal for small areas due to its built-in fan unit and user-friendly design. The humidifier has a discrete fan incorporated into the top of its cabinet to disperse the steam into a room. This makes the humidifier

very compact and is unlike most other humidifiers of its type, which are supplied with an additional bolt-on fan unit element.

More details on www.condair.co.uk

New CEO at Codema

Dublin's Energy Agency Codema has appointed Donna Gartland as its Chief Executive Officer. Donna will become just the second person to lead the company throughout its successful 23-year history,

and will succeed Codema's Director Gerry Wardell, who founded the energy agency in 1997.

Donna is currently Senior Energy Planner with Codema and is leading the Energy Planning Team to develop the Dublin region with the support of the SEAI's Research, Development and Demonstration fund.

Donna will officially take up the position of CEO in March 2020 and will work with Gerry during the transition period until he steps down at the end of the year.



Mitsubishi Electric goes R32

Mitsubishi Electric has introduced the first VRF air conditioning system to make use of the lower GWP, "mildly flammable" refrigerant R32.

"As Europe and the rest of the world transition away from R410A," says Richard Sherlock, National Sales Manager, "the introduction of our R32 City Multi YNW range marks the first use of this refrigerant in a VRF system.

"The flammability of R32, an A2L refrigerant, continues to restrict its application in larger VRF systems. However, these new units, in sizes from 22kW to 34kW, cover the lower end of the VRF market, such as small commercial offices and retail establishments."

Mitsubishi says this new product, in combination with R32 splits and/or Mitsubishi's R32 Hybrid VRF system, allows customers to use one single lower GWP refrigerant across a complete building or an entire network.

Also new is Mitsubishi Electric's ground-breaking air to water heat pump which the company says delivers the highest domestic hot water efficiency on the marketplace today.

Contact: Richard Sherlock, Mitsubishi Electric National Sales Manager. Tel: 087 – 642 5450; email: richard.sherlock@meir.mee.com

Sirus breakfast briefing at EPIC

Sirus will host an "Efficient Heating & Cooling" breakfast seminar on Tuesday, 3 March, at EPIC, the Irish Emigration Museum in the vaults of The CHQ Building in Dublin. Expert speakers from Engie Refrigeration and Sirus will discuss appropriate applications of CO2 heat pump and Turbocor chiller technology, including combined heat/cold generation, district heating and cooling, and effective use of low-grade energy.

The event will run from 7.30am to 10am and guests will also receive complimentary access to explore all things Irish in the EPIC digital museum.

To secure your place at this seminar, contact Martin Keogh at email: martin.keogh@sirus.ie



RACGS programme for 2020

Details of the RACGS programme and outings' sponsors for 2020 are as follows:

- 30 April, Carton House (O'Meara). Captains Drive-in. (Sponsor: Daikin);
- 28 May, Headfort (new course). (Sponsor: Core Air Conditioning Ireland);
- 25 June, Powerscourt West Course. President's Day. (Sponsor: Mitsubishi Electric);
- 27 August, Farnham Estate (overnight). (Sponsor: TBA);
- 24 September, K-Club (Smurfit Course). Captain's Day. (Sponsor: Burlington Engineering);
- 29 October, Carlow Golf Club. Charity outing. (Sponsor: TBA.)

Committee for 2020 – President: Fergus Daly; Captain: Martin Baneham; Handicap Sec: Michael Clancy; Secretary: David Killalea; Membership: Mark Kiely.

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COVER STORY

A pump is not a light bulb

A light bulb is autarkic, a pump is not. With pumps the aggregated savings must surely be considered over the entire life-cycle of the product and its related system.



As part of the EU Commission's ongoing revision to the Eco-Design Directive, pump manufacturers across Europe want to implement the extended product approach (EPA) for water pumps. This would result in not only the pump being covered, but the entire pumping unit, along with the necessary electric motor and control system, falling within the scope of the Directive as is currently the case with heat pumps.

This proposal would have a huge impact on energy efficiency. After China and the USA, Europe has the third largest electricity consumption in the world ... around 3,300 terawatt hours (TWh) per year. More than 300TWh of this is accounted for by electric pumps. That is the equivalent to the generated output of 30 large coal-fired power plants.

The EU Eco-Design Directive aims to improve the environmental impact of energy-intensive products through optimal design. Europump, the European pump association, has determined that water pumps can reduce electricity consumption by 35TWh from 137TWh a year. This would make it possible to shut down four coal-fired power stations.

However, these enormous energy savings can only be achieved if the

narrow product approach in the Eco-Design Directive is abandoned in favour of an extended product approach. The Directive initially focused on new consumer products such as refrigerators, televisions and light bulbs.

A light bulb is turned on or off. If it is on, it consumes electricity, if it is off, it does not. A light bulb is autarkic, a pump is not. With pumps the aggregated savings must surely be considered over the entire life-cycle of the product and its related system.

Nonetheless, the EU Commission seems intent on sticking with the narrow product approach for water pumps it adopted in 2009. This is in stark contrast to the beliefs of Europump. Frank Ennenbach, Chairman of the Standards Commission at Europump says: "We see a real danger that we will not save the 35TWh that we could. We will then miss the opportunity to make a major contribution to sustainability and climate protection. As an industry we have everything we need ... we just need the legislators to make the right decisions."

About Europump

Europump is the European association of pump manufacturers and was established in 1960. It represents 17 national associations in 14 EU member states, in addition to Turkey, Russia and Switzerland. Europump members represent more than 450 companies with a collective production value of more than €10 billion and an employee base of some 100,000 people across Europe. ■

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ENERGY SHOW

1–2 April 2020
RDS Dublin 4

DISCOVER INNOVATIVE ENERGY SOLUTIONS

Ireland's leading energy event – the SEAI Energy Show – returns to the RDS on Wednesday, 1 April and Thursday, 2 April 2020. It will feature 150 exhibitors of energy-saving and renewable energy technologies and services, in addition to an extensive programme of expert seminars and workshops which will take place over the course of the two days.

The annual two-day event is a must for construction, building and energy professionals who want to learn about the latest technologies that can help reduce energy bills for them and their clients, and for consultants and specifiers who want to stay up to date with developments in the energy sector.

Last year, over 4,000 people attended the SEAI Energy Show. This year visitors will see everything from smart energy management systems to lighting technology innovations and clean energy solutions for commercial, industrial and residential sectors. In addition to the exhibition, seminars will be of particular interest to energy professionals with most offering CPD accreditation. Sessions include:

- NZEB and high-performance commercial buildings;
- NZEB and high-performance residential buildings;
- Electric vehicles and charging infrastructure for fleets;
- Best practice incorporating renewable heat in large buildings.

Sessions are between two and three hours in duration and must be pre-booked at seai.ie/energyshow. Early booking is advised as demand is high.

Other features on offer at the show include:

- A **Meet the Expert** area where visitors can pre-book one-to-one meetings to inform them on topics such as renewable heat, heat pumps, insulation, large-scale wind energy, lighting, solar PV and battery storage;
- **Building retrofit demonstrations** which will showcase best practice in insulation, air tightness, ventilation and a number of renewable technologies;
- A **Lighting Pavilion** which will highlight the critical importance of lighting in relation to energy efficiency, carbon reduction and wellbeing. There will be interactive demonstration displays with lighting experts on hand to discuss specific project-related queries;
- An **Upskilling Area** will give professionals free 30-minute taster sessions from METAC on domestic

heat pump installation; micro solar photovoltaic systems; electrofusion (water).

- **Free test drives** in the latest electric vehicles on the Irish market with a focus on fleet users. Again sessions must be pre-booked.

- **CIBSE Ireland Breakfast Briefing** will comprise a discussion panel with leading industry experts from construction industry professional representative bodies such as CIBSE, RIAI, CIF, etc. Leading economist and industry analyst Jim Power will act as facilitator;

- **The SEAI Energy Theatre** will offer 45-minute briefings with industry experts on the latest policy and market developments, covering topics like grant supports for business, financing energy saving projects, how to decarbonise your business and offshore wind in Ireland.

- Visitors can also download an **event app** for the SEAI Energy Show to help manage daily schedules and facilitate business networking opportunities.

The SEAI Energy Show is a free-to-enter business event and will run from 10am to 6pm on Wednesday, 1 April and 9am to 5pm on Thursday, 2 April.

For further details on all events, CPD accreditation, networking opportunities and to register, visit www.seai.ie/energyshow ■



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Circular economy regulations to impact AC units, heat pumps and ventilation

The Eco-design Directive and complementary Energy Labelling Rules are policies which address the energy and resource use of appliances and are intended to meet the worldwide demand for better and more efficient products that reduce energy and resource consumption. EU legislation on Eco-design and energy labelling has proven to be an extremely effective tool for improving the energy efficiency of products. It helps eliminate the least-performing products from the market, in addition to driving industrial competitiveness and boosting job creation and economic growth. It also ensures a level playing field for manufacturers and drives investment/innovation by promoting better-performing and more efficient products writes Mark Sweeney, Enterprise Ireland.

By 2020 this framework is estimated to deliver energy savings of around 175 Mtoe per year in primary energy, more than the annual primary energy consumption of Italy. For consumers, this translates into approximately €500 savings per household, per year, on energy bills. Moreover, this policy is estimated to deliver approximately €58 billion per year extra revenue for industry, wholesale and retail sectors, part of which could translate into as many as 900,000 direct additional jobs in the sectors concerned.

It also contributes to energy security by reducing the importation of energy into the EU by the equivalent of 1.1 billion barrels of oil each year, and contributes to the mitigation of climate change by reducing CO₂ emissions by 320 million tonnes annually.

The Eco-design Directive lays down the conditions and criteria for adopting implementation measures which set out binding requirements specific to each product group. Product categories covered include HVAC, ICT, motors, lighting, white goods, pumps and

circulators, and transformers. The list of products covered is continually expanding.

Circular economy, resource efficiency and right to repair

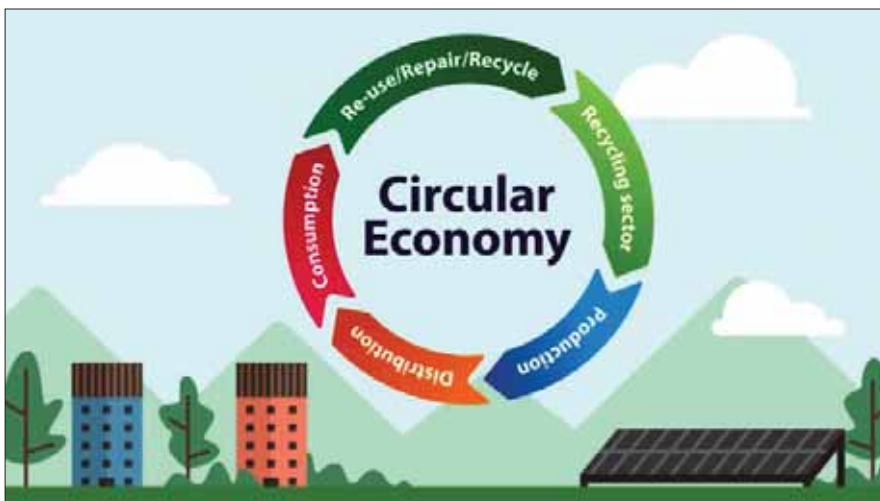
Until recently eco-design legislation was heavily focused on improvements in the energy efficiency of products covered. However, as part of its action plan for the circular economy, the EU Commission has now begun to look systematically at resource efficiency aspects such as the following:

- Durability (e.g. minimum life-time of products or critical components);
- Repairability (e.g. availability of spare parts and repair information to professional repairers, design for repair etc);
- Upgradeability, design for disassembly (e.g. easy removal of certain components);
- Information (e.g. marking of plastic parts);
- Ease of reuse and recycling (e.g. avoiding incompatible plastics).

All the foregoing applies to existing and new products regulated under the Eco-design Directive.

Product requirements related to the circular economy have already been incorporated in several eco-design regulations adopted by the Commission, effective from on 1 October 2019, on the following products – refrigerators; washing machines; dishwashers; electronic displays (including televisions); light sources and separate control gears; external power supplies; electric motors; refrigerators with a direct sales function (such as fridges in supermarkets, vending machines for cold drinks); power transformers and welding equipment.

Details of all eco-design regulations are available at https://ec.europa.eu/info/energy-climate-change-environment/standards-tools-and-labels/products-labelling-rules-and-requirements/energy-label-and-ecodesign_en



Circular Economy Graphic: Cambridge Judge Business School.

It is expected that circular economy requirements will be considered and incorporated into regulations for new products covered under the Directive. As for existing products, all regulations contain a review clause and it is during this review stage that circular economy requirements will be considered.

Air conditioners, heat pumps, comfort fans

Several existing product regulations are currently under review. Among these is the regulation covering air conditioners and comfort fans (EU 206/2012). Ventilation exhaust air to air heat pumps and air conditioners $\leq 12\text{Kw}$ are included in the scope of this review proposal which was discussed recently at an EU level consultation forum. Some of the resource efficiency aspects that were discussed and may be incorporated into the final regulation (which will be voted on by Member States when finalised) include:

Availability of spare parts

Manufacturers, importers or authorised representatives of air-to-air air conditioners and air-to-air heat pumps shall make available to professional repairers at least the following spare parts – compressors, heat exchangers, printed circuit boards and fan motors – for a minimum time period (possibly seven years) after placing the last unit of the model on the market. A maximum delivery time for spare parts will apply, e.g. 15 working days after having received the order.

Access to repair and maintenance information

Once registered, a professional repairer shall have access, within one working day after requesting it, to the requested repair and maintenance information. The information may be provided for an equivalent model or model of the same family, if relevant.

The available repair and maintenance information could include:

- the unequivocal appliance identification;
- a disassembly map or exploded view;
- technical manual of instructions for repair;
- list of necessary repair and test equipment;
- component and diagnosis information (such as minimum and maximum theoretical values for measurements);
- wiring and connection diagrams;
- diagnostic fault and error codes (including manufacturer-specific codes, where applicable);
- instructions for installation of relevant software and firmware including reset software;
- information on how to access data records of reported failure incidents stored on the product (where applicable).

There will also be requirements for dismantling for material recovery and recycling while avoiding pollution.

Outlook

Resource efficiency requirements will most likely be introduced across a wide range of other products that are currently at various stages of the review process, for example ventilation units, certain ICT products, heating products, etc.

It is important that interested stakeholders get involved in the regulatory process at the earliest possible opportunity. They can register on the product/product review study websites to keep informed regarding all documents and stakeholder meetings. For example, the ventilation review study is ongoing. Visit www.ecoventilation-review.eu/

At a national level Enterprise Ireland represents the interests of Irish stakeholders at the various stages of the regulatory process. Enterprise Ireland can guide stakeholders in terms of the interpretation of existing legislation as well as keeping them

aware of possible developments in relation to their product interest areas.

The Eco-design Directive and Energy Labelling Regulation have proved highly successful and secured large energy savings over the past decade, and are now also ensuring that more durable, long-lasting products are put on the European market. Over the next number of years we can expect circular economy-related aspects to become embedded in various eco-design regulations. The circular economy is “the number one priority” for the European Green Deal of incoming EU Commission President Ursula von der Leyen.

For any queries related to the regulations under the Eco-design Directive, contact Mark Sweeney (Mark.Sweeney@enterprise-ireland.com) ■



Mark Sweeney

Mark Sweeney works as an Environmental Specialist at Enterprise Ireland and has over 25 years experience working in the environment and energy sectors. He has worked as a National Contact Point (NCP) for European funding programmes since 2008 and is currently the NCP for the Horizon 2020 Environment Programme. Mark has over 10 years' experience working as a national expert in relation to the EU Eco-Design Directive and Energy Labelling Regulations and represents Ireland on several associated European committees.

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AC and ventilation suppliers have answer to WELLbeing

It is now acknowledged that indoor air quality can be up to 10 times more polluted than outdoor air. This has created a serious public health issue, especially given that people spend approximately 90% of their time indoors, be it at work or in the home. Ironically, the move towards more energy-efficient, airtight buildings, and related regulations and legislation such as the EPBD, nZEB and WELL Certification has compounded the problem.

Recent amendments to the EPBD acknowledge this challenge and call for member states to ensure that a building's energy balance calculation – be it a home, commercial premises, school, hospital, gym, hotel, etc – must include health, IAQ and comfort level considerations.

Indeed, Ireland has shown considerable leadership in this respect. As Emmanuel Bourdin, an Advisor in the Built Environment Advisory Unit of the Department of Housing, wrote in *Building Services News* (July/August 2019):

“To implement the EPBD and deliver NZEB, it follows that Part L and Part F must work hand-in-hand. And so it is, that in 2019, not only have these two Parts of Irish Building Regulations and their respective Technical Guidance Documents (TGDs) been updated and published together, they also have the same application date of 1 November 2019, and the same transitional arrangements. Throughout the development of the NZEB roadmap a holistic approach has been adopted, and the Technical Guidance Document has been reviewed in parallel with Part L.”

This has presented consulting engineers and system installers with a significant challenge, and one they need education in and guidance on. However, there is a solution. Concurrent with, and complementary to, the Part F and Part L changes, manufacturers of air conditioning, ventilation and related indoor air quality products and systems have adopted a similar approach. Today they offer a vast choice of technologically-advanced products and equipment, complemented by sophisticated controls, that are designed specifically to tackle the challenge of indoor air quality, comfort and wellbeing. Many of these are featured over the coming pages and reflect the fact that they offer holistic solutions that can be adapted to suit virtually any project application. ■



SkyAir Advance-series

Low height large SkyAir Advance-series

RZA-D



BLUEEVOLUTION

R-32

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Replacement technology



Pair, twin, triple, double twin application

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- › Heating down to -15°C
- › Smallest footprint
- › Most efficient R32
- › Easy access all components

Meet WELL Building requirements with Mark Eire's Airstream

While the importance of indoor air quality on peoples' health and general wellbeing has long been recognised, it is only lately that scientific research and evidence-based data has emerged to support the fact.

The recent introduction of the pioneering WELL Building Standard™ has dramatically changed building services design concepts and set a new benchmark for air conditioning and ventilation solutions.

It is against this background that Mark Eire developed the innovative Airstream high energy-efficient ventilation/heat recovery system. It is Eurovent and RLT Richtlinie-01 certified and, because of the heat recovery unit, may qualify for local government grants.

Available for both indoor and outdoor installation, Airstream is available in two models – Airstream CFX and Airstream HWX – with efficiencies of 90%.

The Airstream CFX is equipped with a high-efficiency aluminium counter-flow heat exchanger for recovering exhaust energy. It also has a "bypass" and "face" damper to allow it to ventilate during the summer, without recovering unwanted heat.

The Airstream HWX is equipped with a corrosion-resistant rotary heat exchanger made of seawater-resistant aluminium. The standard model comes with an enthalpy wheel which is extremely capable of transmitting heat and limits moisture transfer.

The unit can also be fitted with a sorption wheel. This heat wheel has a hygroscopic zeolite coating and is often used when cooling is required.

Mark Airstream is specially designed to supply fresh air as efficiently and comfortably as possible into the room that needs to be ventilated. The compact units are suitable for all types of buildings such as offices, schools, museums, theatres, cinemas, etc.

In order to design a good installation that meets the desired comfort and energy expectations, Mark Eire advises adherence to the requirements as specified by Standard NEN-EN 16798-1:2015 Energy Performance of buildings – Part 1. This standard describes the indoor environment-related input parameters for design and assessment of the energy performance of buildings for the quality of indoor air, thermal comfort, lighting, acoustics and the usage profile.

Airstream models are supplied with plug fans with fully adjustable and energy-efficient EC-motor technology (electronically-commutated, direct current, motors). The fans are optimally selected for the specific operating point so that the lowest possible sound level and energy consumption is realised. For all standard Airstream heat recovery units the fans applied are in accordance with DIN EN 13053 and meet P2. The specific fan power for all standard Airstream heat recovery units comply with DIN EN 13779 to SFP3.

The motor-fan group is statically and dynamically balanced according to DIN ISO 1940. The smaller Airstream types have a 230V connection. The larger types have a connection of 3 x 400V + N and integrated PID controller for fully modulating power control (10-100%).

Controls

Mark Airstream is provided with a CPI/OJ-control system which manages the entire unit. Frost protection for the counter-flow heat exchanger, control of the bypass but also the control of the fans are included. This control system is extremely easy to adjust using the remote control or laptop/computer. For operation with laptop/computer, no additional software is needed. A network connection through Internet Explorer is all you need to get access.

The menu structure is clear and intuitive, with different levels of access and authority. It is possible to control the air amount on the basis of CO₂, air quality, loss of pressure or humidity. Each unit is internally fused and completely wired from the components to the isolator switch. Optional is the control of a 3-way valve for cooler, heater or battery change-over with the release of a pump.

Contact: Mark Eire. Tel: 026 – 45334; email: sales@markeire.com; www.markeire.com ■



Mark Eire Airstream outdoor installation

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unit with heat recovery



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ASHRAE NEWS



HVAC Design Level 1 course

The ASHRAE Ireland Chapter held its first training event – HVAC Design Level I: Essentials – at the Beacon Hotel, Sandford just before Christmas. The main presenters were two ASHRAE instructors, Charlie Henck (Maryland, USA) and Alkis Triantafyllopoulos (Athens, Greece), and they were supported with material from training sponsors, Mitsubishi Electric Ireland and wForest Rock Systems.

The course, presented over three days, covered a review of the fundamentals of design and operation, as well as practical examples of their application in real-world cases. The content provided attendees with an in-depth understanding of ASHRAE technical guidance documents, blended with European best-practice.

The course was sold-out with 26 attendees participating. There were a number of requests for places ASHRAE was unable to accommodate on this occasion, so it has created a waiting list for the next training event, and hopes to offer this later in the year.

Overall, the feedback from attendees has been extremely positive:

- *“A good overview of load calculations, providing not only standard procedures but also interesting insights/rules-of-thumb and how these vary across the world.”* (Building Engineer, Dublin);
- *“Excellent material and delivery, with an appropriate level of detail. The quantity covered in three days is significant but acceptable. However, participants need a good level of pre-knowledge to get the most out of this quite intensive course.”* (Chartered Engineer, Cork);

- *“Coming from a control and automation background, this training has given me a very good basis for understanding HVAC systems and their applications.”* (Control & Automation Engineer, Scotland);
- *“My background is electrical, with recent experience in mechanical systems including HVAC. This course answered a lot of my questions and will no doubt help my future career.”* (Electrical Commissioning Engineer, Dublin);
- *“I found this course very good. I’m from a HVAC trade background and am now a contract manager – I’m looking forward to doing the Level II training. I learned stuff in this course that I will use every day in my job.”* (HVAC Engineer, Galway);
- *“Found the course very enjoyable – covered the basics extremely well. Content is very well put together and presented. All instructors very knowledgeable.”* (Senior Project Engineer, Cork).

The course format also allowed for feedback and participant suggestions have already been relayed to ASHRAE, and the instructors, for consideration going forward.

If you are interested in signing up for the waiting list for ASHRAE Level I or Level II, please contact secretary@ashrae-ireland.org. You will also find further information at www.ashrae-ireland.org/training/ ■



Presenter Alkis Triantafyllopoulos addressing the gathering at the Beacon Hotel,

<https://arrow.tudublin.ie/bsn/vol59/iss1/1>



Daniel Coakley, Secretary, ASHRAE Ireland Chapter.

Mitsubishi Electric R32 VRF

– The ultimate flexibility in heating and cooling

With the introduction of the new YNW R32 VRF systems, Mitsubishi Electric is first to offer the Irish market a complete range of lower global warming potential (GWP) solutions. Under the growing pressure of the F-Gas phase down regulations, the market is demanding viable and positive solutions which are future-proofed for businesses and the total lifecycle of the product.

“R32 is now the norm for room and split air conditioning systems offering a lower GWP (675) than R410A (2088),” says Fergus Daly, Area Sales Manager, Mitsubishi Electric. “At the same time, the use of VRF systems has grown significantly over the past decade due to the core benefits of flexibility,

energy saving and automated control. Our unique Hybrid VRF system has been the only viable R32 VRF solution available to the market until now.

“Utilising the innovative City Multi YNW outdoor unit, this new R32 solution now offers complete design flexibility, high efficiency and low

noise. R32 makes up 50% of the existing R410A refrigerant already found in many current VRF systems, is highly energy efficient and is easy to recycle. A GWP of one third of R410A, plus reduced overall system refrigerant volumes means lower refrigerant total and lower global warming impact.”

The new R32 City Multi system is available in both heat recovery and heat pump variants to deliver lower GWP solutions and offers customers the ability to use one single refrigerant across a complete building or an entire network. Key features are as follows:

Outdoor units

The addition of R32 VRF outdoor units – available from 22-34kW – complement the widest range of innovative VRF solutions available on the market. With R32 and R410A VRF solution, along with the unique R32 Hybrid VRF system, Mitsubishi Electric can provide the right solution for any building’s needs.

Indoor units

Available in the full range of medium static ducted and 4-way blow ceiling cassettes, the dual compatible R32/R410A indoor units provide flexibility of installation for R32 VRF in many applications.

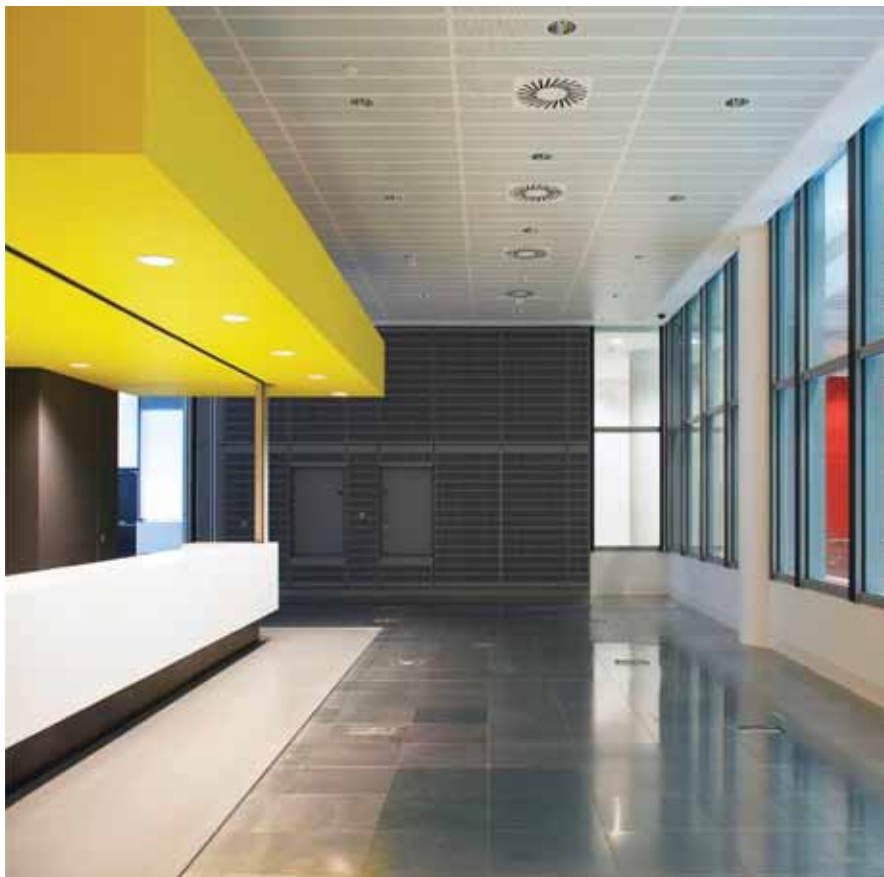
Branch controllers

All branch controller (BC) models are replaced with dual compatible R32/R410A models. These new units benefit from improved piping flexibility and a discreet, concealed and removable drain pan.

Control solutions

Mitsubishi Electric offers a versatile range of control products to complement the wide range of VRF systems to ensure they operate effectively and efficiently.

Contact: Fergus Daly, Mitsubishi Electric. Tel: 087 – 182 6536; email: fergus.daly@meir.mee.com



City Multi – The ultimate flexibility in heating and cooling.

Panasonic's latest **AQUAREA** enhances efficiency rating

Panasonic Aquarea
J Generation B-Bloc
outdoor unit

Panasonic has introduced an advanced heating and cooling solution – the Aquarea High-Performance J Generation Bi-Bloc – which is ideal for new installations, refurbishments, and low-energy homes. Producing outstanding results, the heat pump can reach the highest possible rate of A+++ in heating.

The smart choice for heating and cooling, Aquarea High Performance J Generation Bi-Bloc is the latest addition to the already-acclaimed Aquarea range. Utilising air-to-water heat pump technology and R32 refrigerant, it is highly-efficient and more environmentally friendly than the model with R410A refrigerant. By converting heat energy in the air into household warmth, the highly-efficient Aquarea technology helps to reduce CO2 emissions and environmental impact

compared to conventional boilers and electric heaters.

Thanks to its reliable Panasonic inverter compressors, the heat pump adapts its operation to the demand of the home. Even in adverse weather conditions as low as -20°C, the Aquarea unit warms the home effectively and efficiently. In addition to providing heating throughout the cold months, it also provides air conditioning in the summer for year-round comfort.

Furthermore, the unit comes with a built-in, specially-designed night mode installed to reduce noise levels when necessary, ensuring a peaceful night's sleep. The J Series also includes quieter outdoor units compared to previous models. This helps to reduce noise outside the property, a feature that is particularly desirable in noise-sensitive settings.

The already eco-friendly Aquarea J Generation range can synchronise with solar panels for an even greener solution. With this optional interface, Aquarea can optimise the use of energy in the most efficient way and balance the heat pump's consumption and in-house comfort based on the outside temperature. This is the perfect solution for those concerned about

their environmental impact while also looking for a cost-effective solution.

Providing a simple yet sophisticated control solution, Aquarea J Generation is also compatible with the Aquarea Smart Cloud, a powerful and intuitive service for remotely controlling the full range of heating and hot water functions, including monitoring energy consumption. It is also available with Service Cloud for installer maintenance, allowing remote care of the customers' heating systems, saving time, money, and ultimately increasing customer satisfaction.

For the ultimate time-saving convenience, Aquarea works in harmony with IFTTT, the advanced technology which stands for the simple process of "If This, Then That". It enables simple instructions like turning on/off to more complicated instructions such as sending emails or error notifications. Other elements of the smart home can also be incorporated so a particular pre-programmed mode can be instructed that changes temperature and turns on lights in response to climate changes outside.

Contact: Vincent Mahony, Ireland Sales Manager, Panasonic. Tel: 087 – 969 4221; email: vincent.mahony@eu.panasonic.com

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■ Vertiv/Liebert Adiabatic Free-Cooling Chiller

■ Carrier VSD Screw Premium Efficiency Air Cooled Chiller



AIR CONDITIONING LTD



■ Lu-Ve Dry Air Cooler



■ Vertiv/Liebert Indirect Evaporative Cooling Unit

... speak for themselves

(for everything else, speak to our staff)

Daikin launch R32 SkyAir Advance-series

Large SkyAir system for commercial applications in the most compact casing ever

The new Daikin SkyAir Advance series is Europe's first light commercial system using R32 refrigerant and is housed in the most compact casing ever. Capacities go up to 25kW and it has the smallest footprint, while also being the lightest and most efficient R32 SkyAir product on the market.

The range incorporates cutting-edge technology and innovations with up to 100m pipe length for total install flexibility. It comprises a unique low-height single-fan portfolio with R-32 GWP being 68% lower than the industry standard R-410A.

It takes 16% less refrigerant charge and has SEER of up to 6.25. Units do not require yearly refrigerant containment checks and this reduces maintenance costs even further. In addition, the newly-positioned handle makes for easier handling

Guaranteed operation is assured in both cooling and heating down to -20 °C. The new and bigger fan design ensures high air volume with low air velocity and this also reduces noise emissions. Meanwhile, the 3-row heat exchanged allows the compact casing of up to 14kW with the swing compressor optimised for seasonal efficiency.

The new single fan gives lower
<https://arrow.tudublin.ie/bsn/vol59/iss1/1>



The new Daikin SkyAir low-height, single-fan range for large SkyAir capacities.



height (870mm) for flexibility of installation on a wall or on the ground, while as it measures only 460mm deep it can be wall-mounted on a 600mm bracket. The liquid-cooled PCB makes for optimal performance and the unique hinged door and 7-segment display provide marketing-leading serviceability.

The dedicated Daikin App Control

means the system can be accessed and controlled via smartphone, tablet or cloud.

Key features

- Compact (just 870mm high) and lightweight;
- High efficiency: Up to A++ (cooling) / A+ (heating);
- Easy access all components;
- R-32 refrigerant;
- 7-segment display;
- Heating down to -15°C;
- Marketing-leading serviceability and handling;
- Replace existing systems with R-32 technology;
- Refrigerant cooled PCB;
- Maximum piping length up to 100m;
- Maximum installation height difference up to 30m;
- For single, twin, triple, double twin applications.

Contact: Liam Kirwan,
Daikin Ireland.
Tel: 01 – 642 3430;
email: info@daikin.ie ■

Wilo 2020 vision heralds 'smart' future

As we head into 2020, Wilo Ireland is celebrating three major landmarks – approaching 150 years since the company was first established, 40 years since the opening of the subsidiary in Ireland, and 30 years since Derek Elton, Managing Director, Wilo Ireland, joined the company. Each of these highlight key elements in the continuing success of Wilo ... long-established history, strong local market presence, and longevity of service of key personnel.

The coming 12 months will be marked by a whole series of commemorative and celebratory events, but the emphasis will be on Wilo's vision for the future of pump technology, not a retrospective indulgence. "We are extremely proud of our long history and heritage, and especially the pioneering role we have played in the development of pump technology. However, in marking these landmark milestones we are very firmly focussed on the sector's future. We confidently do so on the back of net sales of €1.5 billion in 2019, with the personnel resources of 8000 employees worldwide, operations in 60 countries and a production run of 10 million pumps annually."

The idea of making it easier for people to access water and heating was first pursued by the company's founder, Caspar Ludwig Opländer, and this idea became a reality in 1928 with the world's first circulation accelerator. Over the years this was followed by ground-breaking innovations that saw pioneering pump concepts successfully developed and brought to market that became industry norms and standards benchmarks.

This endeavor culminated in 2017 with the introduction of the Wilo-

Stratos Maxo, the world's first "smart" pump, which set a further milestone with its system efficiency, interconnection options, installation features and configuration. This was closely followed by the unveiling of the Wilo-Rexa Solid-Q system solution for a smart sewage pumping station. It is characterised by operational reliability, energy efficiency and highest level of digital connectivity.

"The digital transformation is changing pump technology, along with work and production processes, in a fundamental way," says Derek Elton. "This is why we have transformed our processes in the digital world and are now further expanding our role as the industry's digital pioneer with the new, multi-million euro Wilo Campus HQ in Dortmund, which will be officially opened in April of this year.

"One of the new and innovative buildings on the Wilo Campus is the ultra-modern production complex,

With the Wilo Smart Factory we are reinventing manufacturing.



Derek Elton, Managing Director, Wilo Ireland.

the Wilo Smart Factory. With the Smart Factory we are reinventing manufacturing. Our new production concept provides for an optimised and digitalised value-creation chain that delivers straight-line and flexible logistics, and streamlined communications pathways.

"In tandem with this investment in groundbreaking infrastructure is the continuous development of new product concepts, innovative technology and wholly-integrated pumping solutions. All have embedded sustainability as they are designed to be highly energy efficient, offer long life, are recyclable, and are manufactured using sustainable materials and by sustainable production processes.

"Today's marketplace demands intelligent smart pump solutions that recognise the 'internet of things' and are future-proofed. At Wilo we deliver to that expectation and, in celebrating our recent landmark achievements, look forward to the next 150 years." ■



S&P Ireland for the complete ventilation package



S&P Ireland Ventilation Systems

S&P Ireland Ventilation Systems Ltd is the Irish subsidiary of the Soler & Palau Group of companies, one of the world's market leaders in the development of ventilation products.

Established in 1972, S&P Ireland brings the vast product portfolio and technical expertise of its parent group to bear when devising ventilation solutions for the Irish marketplace. Applications covered are comprehensive and include domestic, residential, commercial, industrial and process ventilation equipment.

The team at S&P Ireland has over 40 years experience in the ventilation business and provides professional and technical advice on choosing the optimum ventilation solution for all project applications.

S&P ... combining R&D, technology and design to deliver ventilation excellence.

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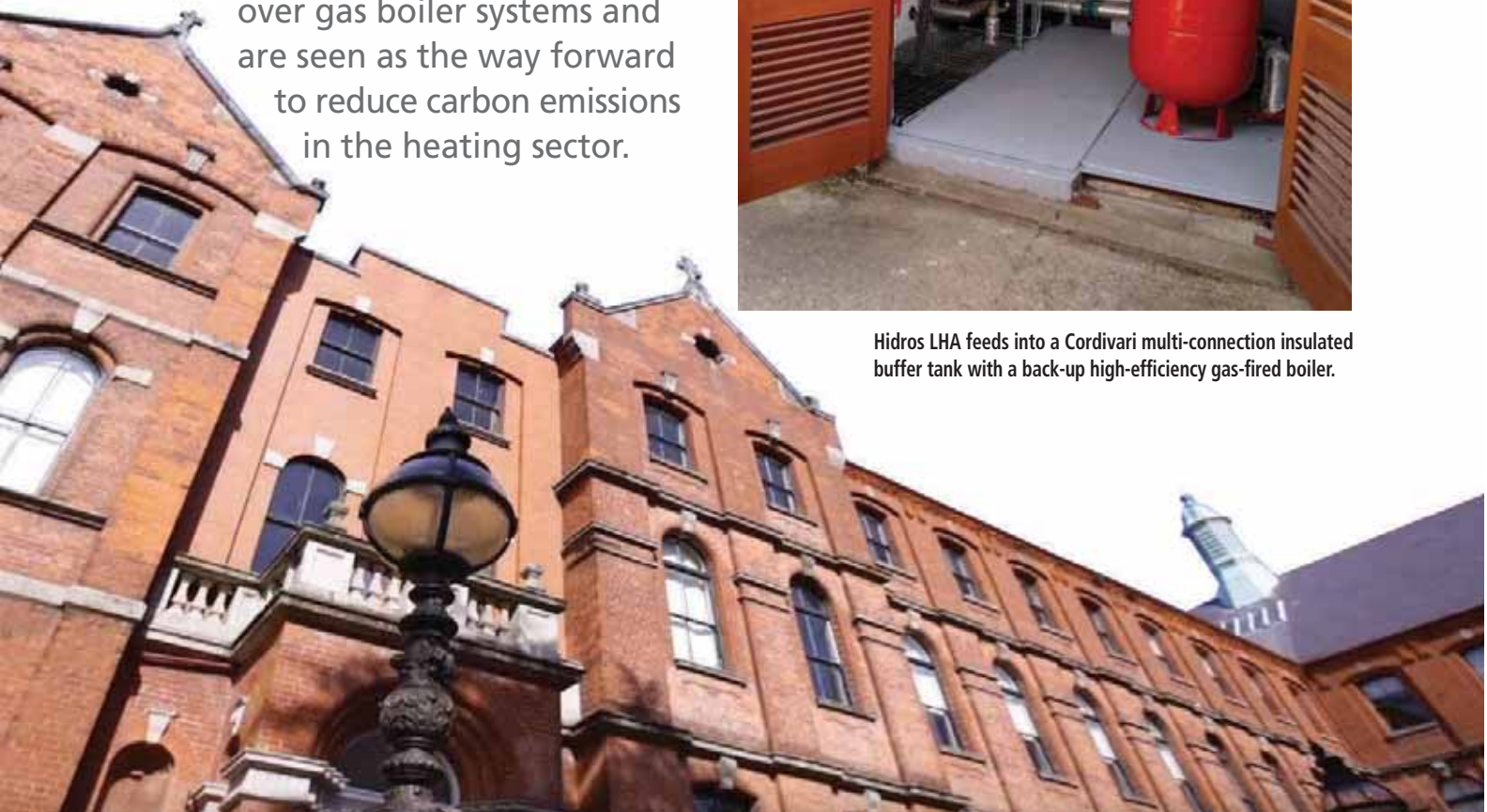
Hidros air source heat pump at heart of UCD Smurfit Business School heating solution

Euro Gas Ltd was involved with the design and installation of a Hidros LHA 90kW air source heat pump as part of a retrofit to replace an old cast-iron sectional gas boiler in the UCD Smurfit Business School at Carysfort Avenue, Blackrock, Co Dublin recently. Heat pumps offer significant carbon reductions of approximately 60%

over gas boiler systems and are seen as the way forward to reduce carbon emissions in the heating sector.



Hidros LHA feeds into a Cordivari multi-connection insulated buffer tank with a back-up high-efficiency gas-fired boiler.





Pictured at the UCD Smurfit Business School site are Stephen Farrell, SEAI with Cian O’Riordan, PowerTherm; Cormac Reynolds, UCD; Steven Roycroft, PowerTherm; Mattie DeRossa UCD and Sarah Kelly, PowerTherm.

The design was by PowerTherm Solutions and the installation was by G&J Engineering Ltd. The Hidros LHA heat pump is being used to heat the restaurant area and feeds into a Cordivari multi-connection insulated buffer tank with a back-up high-efficiency gas-fired boiler. The heat pump will provide 80% of the annual heat requirement, with the boiler only operating when ambient air temperatures are below 60°C, when higher system temperatures are required to maintain comfort conditions in the restaurant. The entire system is controlled by the resident Cylon BMS system while the heat pump communicates with the BMS via ModBus protocol.

The project was fast-tracked over the summer months and was delivered and located on the pre-formed concrete plinth in less than an hour. All of the equipment was installed and commissioned in advance of the new heating season.

The heat pump has been designed to be the primary heat source and uses a 1,500lt Cordivari buffer tank to ensure that its compressors run for prolonged periods of time, and to provide a heat store for defrost cycles. The heat pump is controlled by a return water temperature sensor and all of the LTHW components are protected using SpiroTech SpiroCombi magnet units which remove absorbed air and also capture system dirt and debris, as well as micro metallic particles. The units are designed to be easily cleaned and maintained. An external lever mechanism is used to de-energise the internal magnets and the units simply need to be drained off.

As this project has been grant funded by the Sustainable Energy Authority of Ireland (SEAI), it has been very important to ensure that all of the supplied equipment continues to operate to the highest efficiency possible, and to the satisfaction of the end-users. While the installation is new and has been operating for only a couple of months, the measured performance of the heat pump is already showing very good COP figures in excess of three, and this is being continually verified by the sites Energy Monitoring System.



The Hidros unit was delivered and located on a pre-formed concrete plinth for ease of handling and installation simplicity.

Grundfos to build on last year's Energy Show success



The Grundfos MAGNA3.

Grundfos Ireland is eagerly awaiting the SEAI Energy Show 2020 (RDS, 1 and 2 April next). The global leader in advanced pump solutions is looking to continue where it left off after its MAGNA3 circulator pump won the "Best Energy Efficient Product" at last year's event.

With built-in intelligence, the MAGNA3 will automatically analyse the heating system, find the optimal setting and adjust as demand changes. Using the innovative Grundfos GO Remote, installers can now control the MAGNA3 pump remotely, monitoring duty points, power consumption, speed and temperature. Additionally, it saves time on collecting data and generating reports.

Supplied with wireless technology, the MAGNA3 can connect to another MAGNA3 pump. Using the built-in wizard, the connection to a parallel coupled pump is quick and easy. The two pumps can now be controlled jointly in either cascade mode, alternating mode or pump back-up mode.

Notable use of the MAGNA3 can be found in Mayo General Hospital, Castlebar. In the first year the hospital saved 80% of its energy consumption and reduced CO2 emissions by 39 tonnes.

What's next for Grundfos?

"This year Grundfos is bringing its latest, disruptive pump technology to the SEAI Energy Show and it will revolutionise the pumping industry," says Liam McDermott, General Manager, Grundfos Ireland. "We are continuously innovating new technologies that will help make moving and gaining access to water more efficient.

"Digital technology is continuing to be a primary focus for us. With a selection of useful apps like GO Install, GO Replace and the Grundfos Ecademy online training portal, we are bringing more and more of Ireland's installers and distributors into the digital age."

Visit Grundfos at Stand B4 at the forthcoming SEAI Energy Show 2020 (1-2 April, Main Hall RDS). Here the engineering team will be on hand to discuss solutions that can meet your project requirements.

Contact: Grundfos (Ireland) Ltd.
Tel: 01 - 408 9800;
email: info-ie@grundfos.com;
www.grundfos.ie ■



Mona Holtkoetter, CIBSE Ireland Chairperson and SEAI Energy Show Product Awards judge with Stuart O'Kennedy, Liam Kavanagh and Liam McDermott, Grundfos Ireland.



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SHOW**

Your Energy Matters

The drive to improve energy efficiency for Irish businesses continues at the SEAI Energy Show at the RDS Dublin, **April 1st and 2nd**.

This is a free event for energy professionals and business leaders keen to learn about the latest energy saving solutions. It will also offer top class exhibits, seminars and technology demonstrations, along with important networking opportunities.

This is a business only event. Register today at SEAI.ie/energyshow



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The ZS series of wall mounted air-conditioners has been stylishly designed by an Italian design studio with rounded contours to create an elegant and sophisticated European image.



Energy Saving Performance

Mitsubishi Heavy Industries technology ensures a unique compact air conditioner providing quiet, precise air flow and temperature control.

The high performance compressor with inverter technology ensures closer comfort control and reduced energy consumption costs.

Clean air is guaranteed via the unique allergen clear function. Additional air purification filters and self-cleaning operation options are also available.

R32 Range Available Now!



The entire ZS range is now also available using R32 refrigerant. This next generation refrigerant boasts a 70% less Global Warming Potential than R410A, this combined with a reduced refrigerant charge due to a 50% increase in its refrigeration efficiency creates a positive step forward in environmental responsibility.

Available from our distributors



Innovative and cost-effective gas safety solutions



While C&F Quadrant is recognised as a major supplier of internationally-renowned heating and plumbing brands catering for the commercial and domestic heating sector, it is equally to the forefront when it comes to gas safety solutions. It has a long-standing trading partnership with Flamefast, a company that has market-leading status and a pedigree of manufacturing and supplying innovative, high-quality, cost-effective gas safety solutions dating back 40 years.



Gas safety is critical across all market segments and with Flamefast C&F Quadrant offers total solutions that meet both safety and all gas-related regulatory requirements. Expert personnel are also available to offer advice and product-selection guidance.

C&F Quadrant's pedigree very much reflects that of Flamefast as it too dates back to 40 years of service to the building services industry in Ireland. With offices in Dublin and Belfast, and a network of regional representatives and merchant trading partners, comprehensive all-Ireland coverage is assured.

GasGuard

The GasGuard gas proving system is designed to meet the requirements of IGEM/UP/11 Edition 2 for educational establishments and is a BS6173:2009 and IGEM/UP/19 compliant ventilation interlock.

GasGuard is ideal where appliances are not fitted with flame failure devices or it can be used to provide additional peace of mind when they are. With a backlit LCD, the GasGuard will provide a clear indication of any issues with external devices such as ventilation systems, and will provide details of gas pressures and gas sensor levels.



VentGuard Plus

The VentGuard Plus is a cost-effective BS6173:2009 and IGEM/UP/19 compliant ventilation interlock with built-in fan current monitors. With dedicated interfaces and LEDs for the intake and extract fans, VentGuard will provide an indication of any ventilation issues. However, to avoid any nuisance tripping, it will not shut down the gas supply until the ventilation has not been operating for a full 30 seconds.



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Flamefast Gas Sensor (FGS)

The Flamefast Gas Sensor is one of the most cost-effective and versatile units available on the market.



With a voltage output and volt-free contact, the FGS can connect directly into most third-party controllers. It can also easily connect to the new LCD-

based range of panels using the BACnet output. With most modern buildings the plant room safety systems are BMS integrated and the FGS has been designed with this in mind.

CO2, Temp and RH Monitor

The Flamefast carbon dioxide, temperature and relative humidity monitor provides a bold visual indication using a traffic light



backlit LCD, as well as having a digital readout to display. Built-in volt-free contact means it can be interfaced with ventilation,

window control systems, and gas safety systems. The unit can also be used as a traffic light indicator to raise awareness of CO2, temperature or RH levels.

Gas Monitor Remote Display

The remote gas monitor display allows the main controller to be mounted inside the monitored area without the need to enter to view the system status.



It can also be used to provide an indicator at additional exits. This can be used with the GasMonitor or BoilerGuard only. A traffic light LCD will advise if any of the connected sensors enter alarm and the display can either scroll through the concentration of all sensors types connected or simply display the status.

Gas Solenoid Valve

This Class "A" direct acting, normally closed Gas Solenoid Valve can be used in conjunction with any GasGuard panel for low pressure isolation, proving and interlocking systems.

The twin port design (excluding 1/2") allows easy installation of the Flamefast Pressure T Transmitter or CPI switches.

Any Valves larger than 4" are electro-hydraulic with an integrated CPI switch as standard.



Bacnet Sensor Range (BAC)

The Flamefast BACnet sensor range can be supplied with any combination of carbon dioxide (CO2), temperature and relative humidity, while the BACnet MS/TP interface allows for the sensors to be integrated with much larger systems over a simple two-wire network.

With the optional signature Flamefast traffic light display, the sensor can provide a clear, bold indication of the air quality in the monitored space.



Excellent products supplied and supported by C&F Quadrant

BIMCert

'modular' accreditation the way forward

Seven European nations have contributed to, and are now embracing, the roll-out of BIMCert, the new digital construction training platform recently introduced by Belfast Metropolitan College. It was developed in partnership with six other bodies – TU Dublin, CITB NI, Future Analytics, Dublin, IST Portugal, IECE Macedonia and EIHP Croatia.

Speaking at the "BIMcert Digital Skills to Reduce the Energy Footprint in the Built Environment" international conference at the Titanic Centre in Belfast recently, Ms Maja Marija Nahod, Assistant Minister for Construction in Croatia, pointed out that independent initiatives such as BIMcert are essential and that there is a need for common standards to raise awareness of the main terms.

BIMcert is a digital technology that can be used to provide information on every aspect of the construction project. Speaking at the Titanic gathering Marie Therese McGivern, Chief Executive, Belfast Metropolitan College, said: "Belfast Metropolitan College is justifiably proud to be the first FE college to lead a H2020 project. We are here to celebrate with all the partners an amazing project delivering certification in building information modelling (BIM) and empowering companies in the construction sector to engage in the digital transformation journey. It requires innovative approaches to training and upskilling people for this new paradigm. BIMcert has illustrated how we can achieve this for all, for the partners, students, business and industry.

"Construction sites across the globe are developing rapidly as firms seek to take advantage of the technologies of tomorrow. However, the construction industry is the lowest ranked economic sector in terms of digital uptake in Europe and more needs to be done. The link between digital skills and the energy performance of buildings is important. On the one hand, the European building sector needs to

complete the decarbonisation of building stock if the EU is to meet its climate targets. On the other hand, it needs to make the most of the new digital technologies that are rapidly changing the way buildings are designed and constructed.

"Belfast Met and the BIMcert partners are leading the way in digital transformation that goes beyond educational and learning modules to include blended delivery and digital accreditation, thereby empowering industry and the workforce."

Gordon Sutherland, EASME, European Commission, reflected on attending the event saying: "BIMcert has been instrumental in developing personally-adaptable training experiences which allow the student to develop a digital CV highlighting newly-acquired skills attained through micro-accreditation in a European context. This can be expected to increase the demand for BIM skills, as students will not need to follow a lengthy, standardised journey, but can select the training modules depending on the gaps in their knowledge."

Paul McCormack, Belfast Met Innovation Manager and BIMcert Programme Manager, concluded: "In order to reach the EU's energy and climate targets, a qualified building workforce is needed. Improving the skills of middle and senior-level professionals and blue collar workers in the area of sustainable energy-efficient construction is therefore of key importance. This should be done throughout the entire value chain of the buildings sector. Our BIMcert training platform is now ready for use. This is the industry's opportunity to avail of free BIMcert training. Just log on to <https://platform.energybimcert.eu/> ■



Left: Paul McCormack, Belfast Met Innovation Manager and BIMcert Programme Manager with Ms Maja-Marija Nahod, Assistant Minister for Construction and Energy Efficiency, Croatia; Martin Lennon, Managing Director, O'Hare & McGovern; Marie Therese McGivern, Chief Executive, Belfast Metropolitan College; Gordon Sutherland, Head of Sector, EASME, European Commission; and Dr James Harty, Copenhagen School of Design and Technology.

An historic listed building in Dublin's Mountjoy Square has been refurbished to provide 32 warm and comfortable residential units for Respond Housing, one of Ireland's leading housing agencies. The comfort and wellbeing of the residents was a top priority and so the design team turned to Baxi Potterton Myson to provide the heating and hot water solution.

Potterton gives new life to listed building

The centralised boiler plant room consists of three *Potterton Sirius three* wall hung 90kW stainless steel boilers installed in a cascade. This supplies heating and hot water to individual apartments via Heatrae Sadia Hi-Max heat interface units which are installed in each one to control and meter the occupant's specific heating and hot water requirements.

The *Potterton Sirius three* wall hung boiler is available in outputs up to 150kW, all with the same compact footprint, and lightweight stainless steel heat exchanger for reliable and energy efficient heat transfer. It has a gross seasonal efficiency of up to 97.3%, best-in-class low NO_x, and its wide modulation ratio of 9:1 reduces constant on/off cycling to help save energy.

The *Potterton Sirius WH Cascade* can accommodate from two to six boilers up to a total of 700kW. Omega-Flex Trac-pipe is used for gas pipework and all pipe fittings have quick and easy jointing, to save time and effort. It comes with a Class A primary circulator pump. The Hydraulic System Manager option acts as a low loss header, dirt separator, magnetic filter, air separator and flow velocity manager. This removes air, dirt and metal to ensure clean system water and prevent noise.

The Hi-Max Instant ID heat interface unit from Heatrae Sadia is designed to provide both central heating and domestic hot water to dwellings which are served by either a district heating scheme or a centralised boiler system. It has two plate heat exchangers – one for the hot water and one for the apartment heating system. The use of pressure



independent control valves (PICV) and proportional integral derivative (PID) controls maximises energy efficiency and stabilises the heat output.

By ensuring the primary return temperatures going back to the district heating system are low, it operates highly efficiently. It is compact enough to fit in a standard kitchen cupboard. Because there is no need for a boiler flue or an annual gas safe service, the Hi-Max is the perfect solution for district heating in multi-occupancy buildings.

Richard Louth, Commercial Specification Sales Manager at Baxi Potterton Myson and Ian Robinson, Multi Occupancy Sales Director, Heatrae Sadia, worked closely with the design team and Shane Connors of Smart Style Renewables, to support the delivery, installation and setup of the heating system. "We are very pleased with the performance of the equipment used on this listed building," said Shane. "The Hi-Max units are producing exceptionally efficient heat transfer. This is our first time using this product and hopefully we will get a chance to use it again," he concluded.

The refurbishment project was overseen by Ted Carroll of Douglas Carroll & Associates, consulting engineers, and construction work and refurbishment was carried out by Blacklough Construction. Products were supplied through DPL Group Ltd.

For more information about *Potterton Commercial Sirius three* visit pottertoncommercial.co.uk and for Hi-Max Instant D visit heatraesadia.com or contact Baxi Potterton Myson at Tel: 01 - 459 0870. ■



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A free-swimming tool for long distance water and wastewater inspections

LIVE INSPECTION

Complete long assessments in a single deployment without disruption to regular pipeline service.

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Detect pinhole-sized (0.028 gal/min) leaks on pressurized pipelines with a highly sensitive acoustic sensor with a typical location accuracy of within 6 feet (1.8 meters).

GAS POCKET DETECTION

Identify the sound of trapped gas within pressurized mains to reduce adverse effects on pipeline flow or degradation of pipe wall in sewer force mains.

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SmartBall® technology - confidence in making the right decisions to manage your assets more effectively.

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What is SmartBall Technology?

The SmartBall platform is a free-flowing tool for the assessment of pressurized water and wastewater pipelines 8 inches and larger. It can complete long assessments in a single deployment without disruption to regular pipeline service.

How does it work?

The tool is inserted into a live pipeline and travels with the product flow for up to 21 hours while collecting pipeline condition information. It requires only two access points for insertion and extraction, and is tracked throughout the inspection at predetermined fixed locations on the pipeline.

Applications

Owners of water and wastewater pipelines deal with a variety of infrastructure challenges; the SmartBall platform can collect a variety of pipeline condition information in a single deployment that helps owners manage their assets more effectively.

Inspection Benefits

- Easy to deploy through existing pipeline features
- No disruption to regular main service
- Complete long inspections in a single deployment
- Highly sensitive acoustic sensor that can locate very small leaks
- Identify features relevant to the operation and mapping of the pipeline
- Indicates the position of leaks, and gas pockets relative to known points.



Precise system pressure control by Calpeda

Filling and maintaining system pressure in large domestic and commercial sealed heating systems, and in chilled water systems, refrigeration units and industrial cooling systems, can be a major challenge. However, Calpeda Pumps Ireland has devised the perfect solution with its Unimat-E single pump and Duomat-E twin pump digital pressurisation units.

The units incorporate a compact design and invaluable features such as advanced digital control, automated system fill and pressure maintenance, 3.5 and 4.1 bar pressure options, Type AB air gap, weir overflow and warning pipe, and WRAS compliant Category 5 backflow protection. Key system components include:

Break tank

Calpeda digital pressurisation units feature a robust, single-piece moulded

polyethylene water tank with 8lt usable capacity. Other features include Torbeck side-entry fill valve (WRAS Approved), Category 5 fluid backflow, risk-compatible Type AB air gap, weir overflow and overflow warning pipe;

Pumps

Calpeda digital pressurisation units are available with one or two high-quality peripheral pumps. There are single (duty) or twin (duty-standby) pump options, and these feature

premium-quality brass pump heads and impellers, and up to 3.5 bar and 4.1 bar pump options. The twin pump systems feature cyclic operation with balancing usage based on running time;

Pressure transducer control

A closed loop control system featuring a pressure transducer enables precise system pressure monitoring and system top-up. Software pressure control is delivered in 0.1 bar increments while there is also pump dry-run protection and a pump anti-seize exercise function;

Advanced microprocessor digital control system

The advanced microprocessor control system was designed specifically for the Calpeda range of pressurisation units. Features include LCD backlit display, power on and error status LEDs, event logging, self-diagnostics and password-protected control settings;

Alarm outputs and system connectivity

There are volt-free contact outputs for high system pressure, low system pressure and boiler interlock. There is also a configurable volt-free contact output for low water level, pump failure, pump run time alerts or external equipment activation, along with BMS interface (RS485 Modbus).

Easy installation and maintenance access

Calpeda pressurisation units are simple to install and can be floor or wall mounted using the wall-hanging bracket supplied. A single screw and snap-fit fastenings make access for maintenance remarkably easy. They are protected by a durable high-gloss ABS-moulded cover, and Dual Lock™ and single-screw cover fastening.

Contact: Calpeda Pumps Ireland.
Tel: 01- 861 2200;
email: info@calpedaireland.com;
www.calpeda.com ■

Unimat-E, Duomat-E single or twin pump digital pressurisation unit.



REGIONAL REPORT

Galway 2020 – building a legacy



Galway is designated European Capital of Culture for 2020. Despite Storm Ciara causing the cancellation of the official opening ceremony, the city now boasts a new skyline that wasn't visible last year. After many absent years, Galway finally has a crane count in place writes *Michael Curran, Vice-Chair, CIBSE Ireland and Head of Building Services, Energy and Utilities at NUI Galway*. In fact, when this article was written in early February, ten cranes graced the skyline of Galway city.

Galway is celebrating the year of culture with many artistic festivals but, in the background, many new buildings and developments are under construction. These include new commercial developments in Crown Square and Bonham Quay, and new large-scale student accommodation schemes and housing schemes, both public and private. The CIS Report in November 2019 recorded over €400 million worth of works on site, or at tender stage, in the Galway region.



Enabling works on the €105 million Bonham Quay office development are now in progress.

Galway City Council has announced ambitious regeneration plans for Nuns Island in the centre of Galway City, while NUI Galway has issued a new 5-year strategic plan with 650-bedroom student accommodation and regeneration of the Hardiman library.

Galway Mayo Institute of Technology is planning new buildings on the campus and a number of large school projects are also in the pipeline. Meanwhile, the Health Service Executive (HSE) is carrying out large projects on the University Hospital Galway and Merlin Park Hospital sites.

Galway has a vibrant ecosystem of medical technology companies like Boston Scientific, Medtronic and Aerogen. It also includes numerous medical technology start-ups, multinationals and research centres employing over 20,000 people locally.

There is no denying that overall Galway city and county is expanding in all sectors but, what does this mean for the building services engineering? The new cranes advertise the names of the big contractors in the West of Ireland who are developing and constructing these complex projects, while smaller projects are developed by regional SME main contractors with significant input from mechanical and electrical sub-contractors.

In times past, a drive around the construction sites was required to see the names of the M&E consultants and contractors, but now a quick review online can tell exactly who is on the site and what costs are involved, Alternatively, the cup of tea in Galway Plate or one of the many lively pubs in Galway can determine this information.

At a recent CIBSE Ireland CPD in NUI Galway over 50 people attended and, reading through the attendance list, it was clear that a number of new mechanical and electrical contractors and consultancies have opened offices in the Galway region to support the new construction projects. The existing contractors, consultants and suppliers in the region have supported the CPD



Construction is underway on Galway's new 200m Crown Square.

events organised over the past years and it is important for networking that the mixture of new and old collaborate with each other to expand the reputation of the building services industry. The CIBSE Ireland programme for the area facilitates this.

Building services engineers bring buildings to life by designing M&E systems that deliver healthy indoor environments in a sustainable, cost-optimum, energy-efficient manner.

When I first started in the industry back in 1997 I worked for Heavey Kenny Associates, Galway, and we used ink and tracing paper. You daren't make a mistake as the probability of creating

a hole in the page was high, while the smell of ammonia when copying was over-whelming. Gradually AutoCAD became the norm with 3D drawings. Now this is generally being superseded by BIM through Revit, simulation packages and specialist design engineering packages.

Building services engineering is like a large jigsaw with the pieces brought together to form the environment or space. The basic knowledge is the same but putting the solution together has become more efficient and exciting.

In previous editions of *Building Services News* contributors have outlined the need for specialist engineers and technicians. The industry as a whole has developed the technology, products and systems needed to deliver the project solutions but there is now a shortage of engineers, technicians and craftspeople to design and install these new technologies.

It is critical now that building services engineers use this time to collaborate with clients, students and educators, specialist industry suppliers, mechanical and electrical consultants and industry peers. We need to encourage second-



I would hope that through collaboration and promotion the building services industry leaves a legacy within the regions that promotes and sustains our lives.

level students and CAO applicants to undertake courses as designers or apprenticeships in building services engineering. We need to explain the many options open to them such as mechanical, electrical, lifts, lighting, acoustics, energy, BIM and M&E estimating, and to explain how important they are in delivering the climate change objectives so many of them believe in.

CIBSE Ireland's Workshare Exchange Programme has taken up this theme and was devised to encourage collaboration between consultants and contractors. It involves an employee from each of the consultancy and contracting companies participating to spend time experiencing one another's role. It is important that this scheme is developed in the CIBSE Ireland regions and expanded on to make it a successful project.

Building services engineering is changing by the day and though we might all think we are experts, we have a lot to learn. I was once told by a wise engineer that while you might know everything, there is a specialist supplier dealing with a technology that you need on a daily basis and you might not even know about. Engineers need to keep in regular contact with manufacturers and system developers to keep abreast of technological advancements that are imminent and indeed farther down the line.

Related to this, and equally important, is that we all need to actively engage with Continuing Professional Development (CPD). It is essential that we attend these events to support and promote the industry in order to learn from, and network with, our peers.

Joining CIBSE Ireland is a major step in this direction. We hold regular CPD events all over the country while membership of CIBSE allows access to the CIBSE Knowledge Portal and CIBSE guides.

Our colleagues in the RIAI market themselves very well when buildings are completed with smart camera

images and details of fabulous window views and vistas. As an industry building services engineers tend to hand over the building and just leave the place running. I have never been invited to a building services "Show and Tell" for any project even though numerous architectural projects hold these events.

That said, I have noticed lately some of the larger consultancy practices issuing videos on social network platforms of the work they have completed. This must be encouraged.

It is envisaged that an education portal will be included on the CIBSE Ireland website to allow industry upload project videos so students can

get a better understanding of what building services engineering is about. We will keep you informed as to developments on this.

In the meantime, and back to the West, Galway 2020 hopes to leave a legacy of state-of-the-art projects at the end of its year as Capital of Culture. I would hope that through collaboration and promotion the building services industry leaves a legacy within the regions that promotes and sustains our lives. We are ideally positioned to contribute to, and influence, the objectives of Ireland's Climate Action Plan and we have an obligation to see that they are realised. ■



NUIG's 5-year strategic plan includes the regeneration of the Hardiman Library.

Michael Curran is Vice-Chair, CIBSE Ireland and Head of Building Services, Energy and Utilities at NUI Galway. A graduate of The University of Liverpool, Micheal worked as consultant building services engineer before taking up his current role in NUI Galway. As Energy Performance Officer at NUI Galway, Michael led the team to winning the SEAI Energy Team of the year 2019. Here he reports on Galway 2020 and the impact it is having on the economy of the region, especially construction and building services engineering.



Solar Energy Association Conference set for Croke Park

Irish Solar Energy Association's (ISEA) annual conference will take place on 28 April 2020 in Croke Park. This year marks a historical significance for solar in Ireland as the Government continues to discuss its first ever support for the industry in the form of a Renewable Electricity Support System (RESS). The signal to market is strong in 2020 and the future looks prosperous for those who have invested time and energy in developing projects in recent years.

During the conference delegates will hear from industry experts from Ireland and abroad across the full supply chain, on how a successful solar industry in Ireland will be transformative in job creation and investment. Solar Ireland 2020 will be a virtual roadmap to where the opportunities and challenges are.

ISEA's mission is to:

- Work to influence government policy on renewable energy;
- Work with members to provide industry evidence to government to inform policy;



- Champion solar to investors, policy-makers and the public to educate and inform them on the benefits of solar.

This year's ISEA national conference event promises to be the most interactive yet with a full programme of workshops, simulations and demonstrations running in parallel.

Topics will include:

- Renewable Energy Support Scheme (RESS);
- Financing the future;
- Planning and contracts;
- Grid connections;
- Climate commitments and the Action Plan;
- Exceptional customer experience;
- Investment opportunities.

The stream facilitators will share their solar journey with an anticipated 400 plus delegates, while also providing an interactive environment through the related programme of events. ■



Versatile nZEB radiator.

Versatile nZEB Radiator ...

Right product, right place, right time

Due to the Nearly Zero Energy Buildings (NZE) regulations, the demand for Versatile Group's specially-designed nZEB Radiator has been phenomenal. The success of this recently-launched solution has been remarkable, with the nZEB Radiator winning "most innovative product" award at the Irish Construction Industry Awards last year.

"Solution" is key here, as the nZEB radiator provides a solution to consultants and architects designing a heat pump or district heating system. Using the nZEB Radiator ensures the size remains compact, equating to about a 60% reduction in size versus a traditional radiator with low flow temperatures.

The water content is also dramatically reduced by 90%, therefore reducing the inertia in the system. The lowering of the inertia is critical in modern builds to provide a more rapid response to "free" heat sources such as solar gain, occupancy or cooking.

The nZEB Radiator is also available for free/dry cooling if required, where a designer is concerned about overheating in the dwelling.

For information on the complete nZEB range of heating, cooling and ventilation solutions, contact Versatile Group at 046-902 9444; email: sales@versatile.ie; www.versatile.ie ■

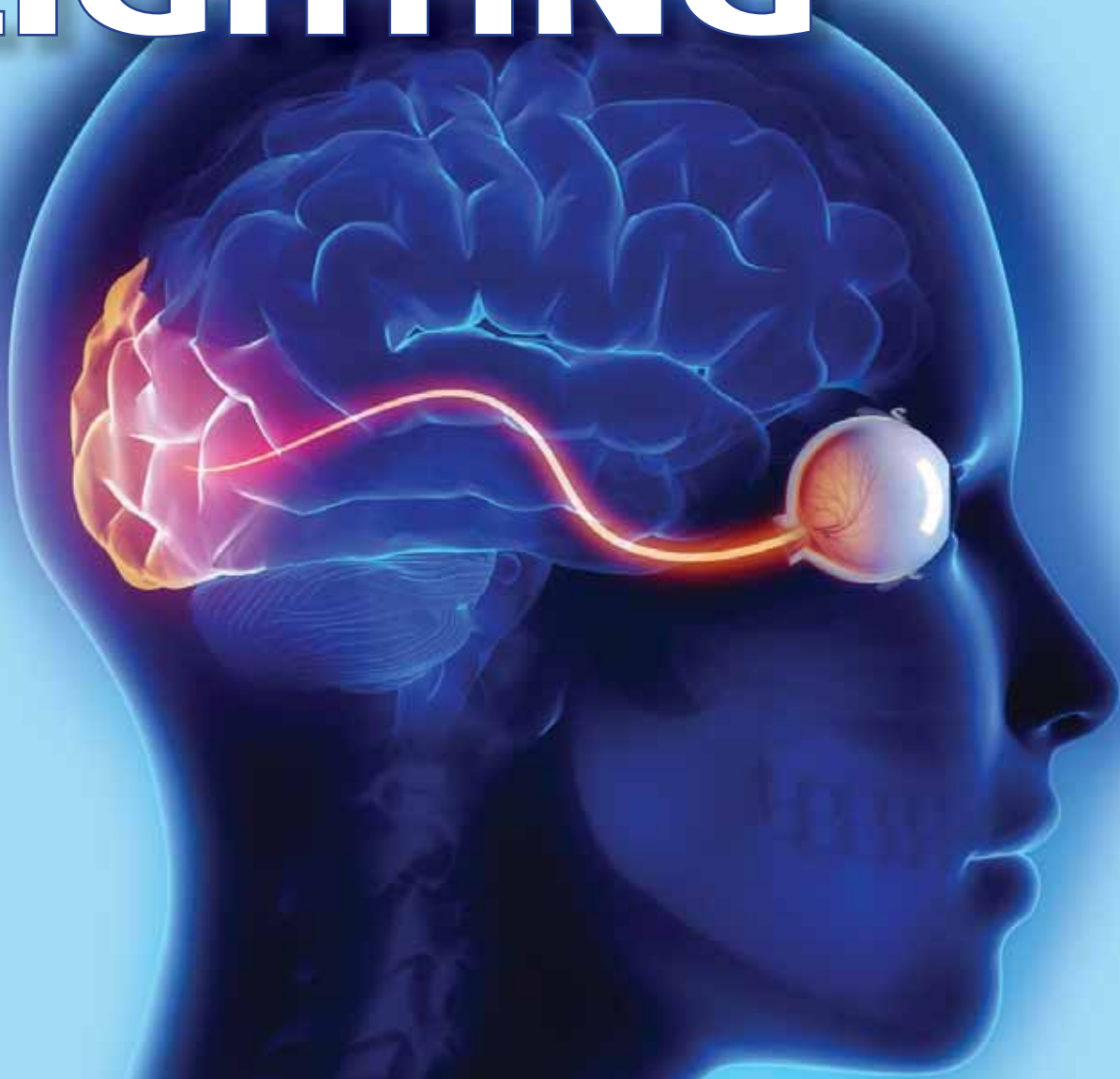


Versatile Mini freestanding radiator.

"Lunch & Learn"

Versatile Group has developed a "Lunch & Learn" CPD presentation on the evolution of nZEB radiators, which you can book by contacting sales@versatile.ie.

HUMAN CENTRIC LIGHTING



Effect of light
on people

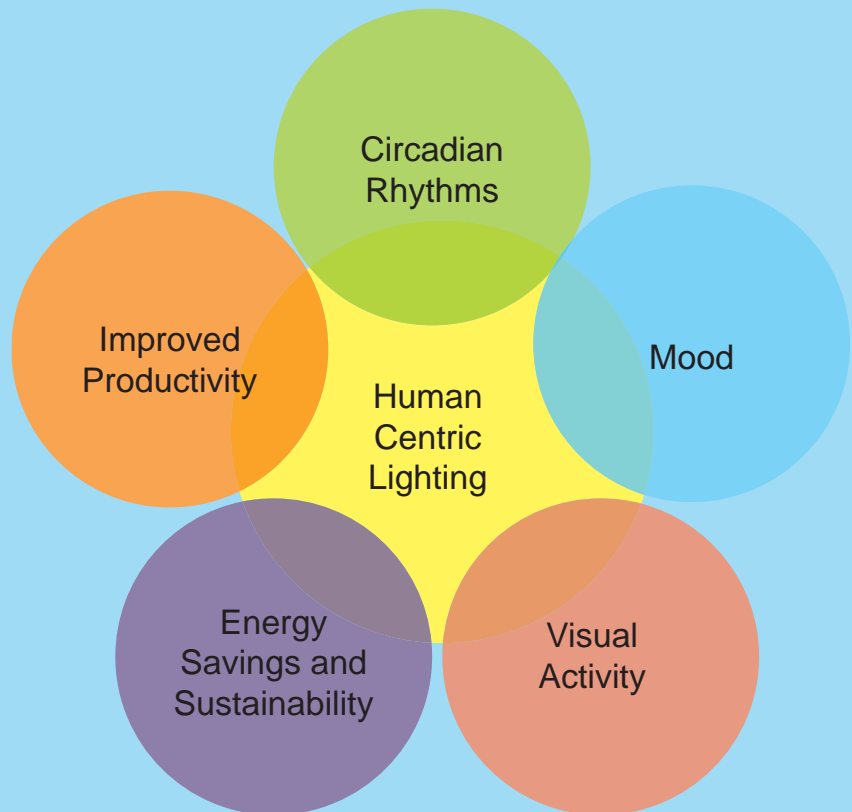
Light is more than a medium that enables us to see. Light determines our mood and sleep-wake rhythm – it stimulates us and calms us down. It is essentially responsible for the acceptance of our spatial surroundings.

The transition from “conventional” electric light to digital LED technology is a paradigm shift that is taking place at a rapid pace. For engineers, this means adding new “quality features” apart from managing physical variables and known criteria such as contrast and glare, writes Professor Andreas Schulz, *Licht Kunst Licht; IALD*.



With the advent of Human Centric Lighting (HCL), aspects such as the colour temperature and intensity of the light, combined with illuminated material and human perception, play a new role. In addition to the visual impact and energy efficiency, it is now about optimising the biological and emotional impact of light on human beings. The focus is on the users of light and their specific requirements.

The latest publication from *licht.de* – *licht.wissen 21: Guide to Human Centric Lighting (HCL)* – aims to provide guidance and instructions for architects, engineers and lighting designers who are facing new challenges. It is designed as a tool to help them implement HCL and



illustrates clearly what the term human centric lighting covers. Practical examples show how designers can develop HCL concepts for different room scenarios and use-cases such as industry, school, office and residential applications.

The guide further covers the requirements of a modern society with flexible working days, shift-work or early start of school days.

More and more consumers and customers are becoming aware of the importance of modern lighting. Market research conducted by the international consulting firm AT Kearney forecasts that human centric lighting will gain a significant influence on the lighting market in the medium term.

The demand for HCL is steadily growing. Engineers and architects need to be prepared to meet the new demands of their customers. A modern lighting design needs to have an HCL-compliant design process in place that is systematic and with a long-term effect. Such a design can enhance productivity and people’s well-being. The important aspect here is that one

has to take a comprehensive view of all factors – from colour temperature to light direction – and align them with one another.

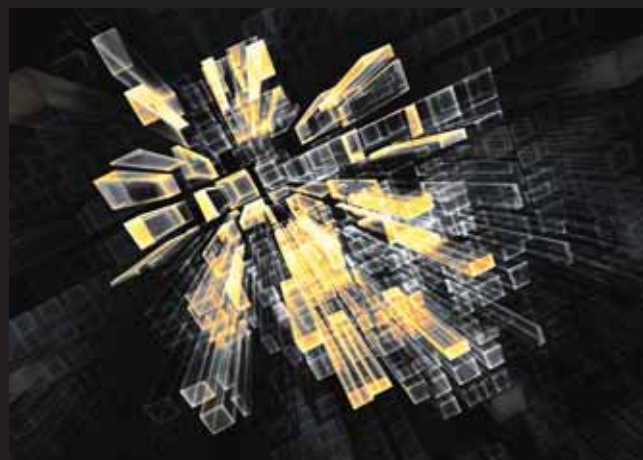
In addition to the visual and biological impact, the emotional impact of light in a room must be given a strong emphasis. Engineers and architects need to be aware of these aspects and to integrate them into their planning process from the outset. *licht.wissen 21: Guide to Human Centric Lighting (HCL)* is an excellent place to start. See www.all-about-light.org for free download. ■

About *licht.de*

Frankfurt-based *licht.de* has circa 130 member companies in the lighting industry under the umbrella of ZVEI, the German electrical and electronic manufacturers’ association. In addition to financial support, they also place the specialist knowledge of their lighting experts at its disposal. *wlicht.de*’s mission is to provide impartial and authoritative information on good lighting design.

light+building

The world's leading trade fair
for Architecture and Technology



Connectivity brings AI to lighting

The process of connecting building services with modern safety and security technology is entering the next phase, details of which will be featured prominently at Light + Building, Frankfurt (8 to 13 March 2020). Here, leading companies covering the entire spectrum of building services technology, will present complex and innovative solutions with emergency lighting that will be concentrated in Hall 8 and building automation in Halls 9 and 11.

In addition, Intersec Building, the international platform for connected safety and security technology, will be located in Hall 9.1. Connectivity can only generate intelligence and economic efficiency when all building systems are linked. In this connection, a common language is essential.

Thus, the fully integrated digital planning of safety, security and building services systems is a must for the future. Intersec Building will cover everything from technological visions of connected systems to the practical experience of planning, construction, operation and maintenance of integrated safety and security equipment across every building type.

A new generation of luminaires is creating light settings for all circumstances. The key is digitalisation, which is the driving force for synchronous functions, new application options and innovative

designs. In this context leading exhibitors will display an impressive array of tomorrow's lighting technologies.

More and more new concepts demand the use of wireless technology. At the same time, LED systems are required to provide more light from more compact forms and simultaneously consume less energy. This new dynamism is becoming the DNA of design.

Light + Building will demonstrate that there are no limits on luminaire design, or the materials used. Featured will be luminaires incorporating leather, textiles, net-like and ultra-light fabrics, paper, cardboard, cork and rubber. Even porcelain, china and recycled fabrics are finding their way into the world of luminaire design. Watch out also for astonishing surfaces and hitherto unknown processing structures. This variability makes it possible to use sustainable materials for luminaires.

That said, the lighting sector is also committed to sustainability in the field of energy consumption. Smart supplementary functions and highly-efficient LEDs mean it is possible to incorporate numerous functions in one and the same luminaire. Light ranging from cold to warm, from perfect working light to atmospheric candlelight, is possible with just one luminaire.

Touch-sensitive panels for dimming are elegantly integrated into the design, while innovative "warmDim" technology automatically adapts the colour temperature to that of the prevailing natural light. Moreover, regulating the light intensity in accordance with the time of day permits automatic low electricity consumption.

Equally, luminaires – some of which are already comparable to multi-media devices – can be used long and efficiently. Instead of producing a new model, software updates can be used to bring the old product into line with the latest standards, thus resulting in an enormous reduction in the quantity of materials used.

An astonishing design spectrum is also possible thanks to the ever-diminishing format of modern luminaires. Today, the tiny size of the LEDs makes it possible to combine the light source with other functions or products, e.g., luminaires made of acoustic fabrics are ideal for absorbing noise in open-plan offices. Additionally, luminaires can be incorporated into control elements, or designed to look and function like a vase.

See www.messefrankfurt.com ■

Innovation Green low carbon trade distribution centre

Innovation Green is a new initiative established to create the first 100% independent renewable energy microgrid in Ireland to develop a prototype “low carbon trade and distribution campus”.

The campus will be located in the Midlands, 15km west of Tullamore and 23km east of Athlone, and will provide a centre of excellence for companies and researchers looking to test and develop renewable and sustainable energy solutions to real-world environmental problems related to trade and industry. It is an initiative that has been developed in co-operation with Midlands Airport Developments Ltd, InSite Bavaria, The Technical University of Munich, Siemens and Amova.

The development, which has the long-term potential to create up to 5200 jobs, is to be built on the site of the proposed Midlands Airport

and is a key element within the overall project masterplan that received strategic infrastructure development approval in 2010.

Ireland’s first 100% independent renewable energy microgrid is planned to be developed by the end of 2025, and will begin with powering the proposed campus competence centre in partnership with InSite Bavaria and the Technical University of Munich. The planned trade and distribution centre of excellence will also serve as a home to researchers and to companies wishing to develop new technologies benefiting from the innovative campus technology.

The 100% green energy sources powering the entire campus industrial zone will operate as a distributed energy system and include wind, solar, waste to energy, hydrogen and anaerobic digestion. The campus will function as a “living laboratory” for autonomous cars, smart storage and distribution, artificial intelligence and other technologies.

All buildings within the campus will be NZEB (Nero Zero Energy

rated Buildings) compliant. All energy created by buildings on the campus will feed back into the microgrid ensuring maximum efficiency of energy consumption and, at the same time, facilitate energy storage for later use. The energy consumption and carbon offsetting will be managed through a centralised campus management system developed in cooperation with Siemens.

On 14 January last the EU’s regional policy Commissioner, Elisa Ferreira, revealed details of the €100 billion “Just Transition Mechanism”, a key financial component of the European Green Deal that should make the bloc climate neutral by 2050. The ambitious plans for the Innovation Green initiative is a direct response to the recent closures of energy facilities in the Midlands. The development will act as a catalyst for the transition of Irish industry away from carbon intensive energy making it an ideal candidate to benefit from the new EU “Just Transition” fund. ■

GRANT ENGINEERING EXPANSION

Heating and DHW – holistic approach now more essential than ever

Grant Engineering got 2020 off to an excellent start recently with the opening of its new, state-of-the-art facility at its headquarters complex in Birr, Co Offaly.

Below: An Taoiseach, Leo Varadker TD, cuts the tape to formally open the new Grant Engineering facility.

Representing an investment of €14 million, the new facilities include an R&D innovation centre, a customer services centre, a dedicated training academy featuring an auditorium and training suite, and an extension to the existing manufacturing facilities which has also seen further investment in robotics and automation.

The official opening was performed by An Taoiseach, Mr Leo Varadkar, TD, who said: "My vision for the future of the Midlands begins with companies like Grant Engineering. They have developed a state-of-the-art facility to develop and manufacture environmentally-efficient heating products for the 21st century. With this type of vision and investment, the future for the Midlands is bright."

Grant Engineering's expansion plans were first announced in

2016 in response to increased demand for the company's heating products on a local and international level. In recent years Grant has enjoyed considerable success in Ireland, the UK and further afield including France, Greece and New Zealand. It has also diversified its product portfolio to meet the changing needs of its customers around the globe.

Grant Engineering founder Stephen Grant told *Building Services News*: "This investment demonstrates our commitment to innovation, growth and to the local economy. In recent years we have expanded into new markets and developed new products to meet the needs of our customer base. Our focus on sustainability continues to grow and to help achieve decarbonisation. Home heating fuel needs to follow in the footsteps of transport and transition to electric or 100% biofuel heating.





“This is impossible to do in the short to medium term in an affordable way. However, the introduction of a ‘Biofuel Obligation’ for home heating could enable homes to become sustainable. We have future-proofed our products over the last five years so that they can operate using biofuel but, to aid transition and further reduce emissions, we need the support of fuel suppliers and government.

“Accelerating the electrification of heat is another way to aid transition and this is helped by current building regulations with new houses being predominately fitted with a heat pump. We have been supplying air to water heat pumps for nearly 10 years and these appliances are

ideal for new-build homes where the house design is specifically matched to the heat pump.

“However, there is a huge issue for deployment of heat pumps to the retrofit market which is based on the affordability of deep retrofitting which can cost up to €70k. Together with my R&D team, I am excited to announce that we have developed new hybrid technology called EVOLINK which will be available later this year”. (See panel).

■ Grant designs and manufactures a range of highly efficient heating products including Vortex condensing oil boilers, Aerona³ R32 air source heat pumps, solar thermal panels and pre-plumbed hot



Since founding Grant Engineering in 1978, Stephen Grant has been committed to designing and manufacturing products to the highest standards. His dedication has been recognised through numerous awards including winning the Ernst and Young Entrepreneur of the Year Award in 2008. He also won OFTEC awards for excellence, plumbing and heating awards for innovation, and contributions to the industry.

Evolink smart integration

EVOLINK is the first of its kind in hybrid technology and enables the smart integration of heat pumps to a property by combining with the existing technology in a home whether oil, gas or biomass.

EVOLINK uses intelligent software and complex algorithms to maximise the use of the heat pump throughout the year, optimising the operating temperatures of the two appliances through modulating pumps and hydraulic mixing circuits. It also incorporates smart features like in-built



weather compensation and can effectively reduce carbon emissions by 70% to 80% overnight, at a fraction of the cost of deep retrofitting. It therefore offers an affordable way to transition with minimal disruption. The EVOLINK hybrid can play a substantial role in the transition to full decarbonisation of residential heat, as will biofuel.

water cylinders. The company has recently diversified its offering to include heat emitter ranges such as Afinia aluminium and Solo fan convector radiators, and Uflex underfloor heating.

Committed to energy efficiency and sustainability across the entire building services spectrum, Grant also offers a full home heating solution where those building a new home or deep retrofitting can avail of the technical expertise of the Grant team. Customers can have their heating system designed and specified free of charge, with all key elements and features supplied as part of a total package, from the one source.

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For more information on the latest range of innovative and efficient Grant products visit www.grantengineering.ie or call Tel: 057 - 9120 089. ■

When nZEB may not be enough

Every now and again a crystal ball comes along that helps us foresee the future and it is often worth stopping to consider how that future might affect us or our business. A crystal ball was recently launched into our sector, in the form of the Climate Action Plan: have you stopped to consider it? What are its implications for boilers, CHPs, heat pumps? Indeed, is the greater emphasis on heat pumps a fad or long-term development? Here *Cian O’Riordan, Managing Director, PowerTherm Solutions*, considers these questions and shares his views on these, and many other related questions.

I was participating in an Energy Efficient Design (EED) kick-off meeting for a new public sector building recently and one of the public sector clients’ opening remarks was: “I know you are designing this to be nZEB-compliant, but we have a 30% absolute carbon reduction target to achieve by 2030 and all energy use by this building is going to push us in the wrong direction. So we have to exceed nZEB.” I couldn’t have wished for a better launch of the EED process.

The Climate Action Plan (CAP) incorporates three key targets for the public sector:

- Achieve a 50% energy efficiency improvement in buildings by 2030 (a 27% overall improvement was achieved by the end of 2018);
- All public buildings are to achieve a B-rating;
- Achieve a 30% absolute carbon reduction target.

It is the 30% carbon reduction target that really has the public sector puzzled, challenged and

concerned. The larger organisations – customers and clients to many of us – are already developing strategies that will influence the design of new and the retrofit of existing buildings to 2030 and into the future.

The CAP also has targets for the built environment including reducing CO2 emissions by 40-45%, sharply reducing fossil fuel use, completing 500,000 building retrofits to BER B2/ cost optimal equivalent, and installing 600,000 heat pumps.

The CAP Marginal Abatement Cost Curve (the clunky name suggests the nerds rather than the marketeers are still in charge at McKinsey & Company) provides an insight into how the economy can, as cost-effectively as possible, transition to a low-carbon economy. This provides the impetus to the nature of the aforementioned goals.

For instance, the most cost-effective step is to switch urban delivery vans from internal combustion engine to battery electric



Cian O’Riordan, Managing Director, PowerTherm Solution.

vehicles. According to analysis, the least cost-effective option – and a step which may not be essential to achieve our EU targets – is to introduce agriculture-sourced bio-methane in heat. Indeed, this analysis suggests sourcing agricultural bio-methane is going to be too expensive a choice for heating buildings and such a valuable resource would be best-directed toward industries that really need high-grade heat.

The Marginal Abatement Cost Curve suggests it will be cost-effective and necessary to switch from peat and coal to wind. Indeed, the CAP envisages 70% of our electricity being from renewable sources by 2030. However, some changes will be required which will help reduce our carbon dioxide emissions, but are likely to come at a net lifetime cost. One of these is to introduce heat pumps in commercial buildings.

It is clear the emphasis on heat pumps is driven by a planned greening of the grid. Air source heat pump efficiency has improved significantly, closing the gap with ground source heat pumps which have a higher installation cost. Different heat pump options are being explored: low temperature heating, bivalent/two-stage systems,

combined heat pump/gas boiler systems, and off-peak heat pumps with gas boilers for peak heating days.

Designing heat pumps into new buildings is relatively straightforward and not prohibitively expensive because the heat load is greatly reduced by improved fabric insulation and airtightness, and the heat emitters can be sized to operate at lower temperatures. However, retrofitting heat pumps into existing buildings may mean operating heat pumps at higher temperatures; retrofitting larger heat emitters that can deliver the same heat at lower temperatures; or reducing the heating load (or a combination of these).

The simplest solution – retrofitting heat pumps to operate at higher temperatures – requires bigger, much more expensive heat pumps, and reduces their seasonal operating efficiency.

It also poses some practical challenges, as larger heat pumps have a high power consumption,



and electrical capacity in local panels or site Maximum Import Capacity may not always be available. Physical size and footprint is also an issue as they are much bigger than the boiler they are replacing.

When it comes to larger heat emitters, some heat emitters – particularly radiators – lend themselves to cost-effective replacement. Upgrading AHU heating coils and zone heating batteries,

such as re-heats, is likely to be more expensive. Nonetheless, in some cases this may be more cost-effective than a larger heat pump.

Reducing the space heating load appears to be the most sensible option as this would reduce the demand rather than simply supply the demand more efficiently. This in turn would drive demand for moderately cost-effective insulation of non-domestic buildings, for improved controls to address over-ventilation of buildings, and work to improve airtightness.

For each building the above options, along with the possibility of retaining the existing boiler for cold days and operating the heat pump in milder weather (e.g. air temperatures $> 6^{\circ}\text{C}$), will have to be evaluated and a customised solution identified.

The CAP identifies that an “important implication for this period to 2030 is to ensure that all investment choices make sense in terms of decarbonising by 2050, and we avoid creating stranded assets by choosing what may appear to be cheaper options in terms of our 2030 decarbonisation goal”.

In this context, a possible casualty of the greening of the grid is gas-fired combined heat and power (CHP) for building applications, at least from a carbon reduction standpoint. In some new buildings nZEB can be achieved with CHP now, but in 10 years time energy generated from gas-fired CHP will be considerably more carbon intensive than grid electricity which is 70% renewable, and heat from an electrically-powered heat pump. So, what is clean and green today, may be considered undesirable by 2030.

If you’re a public body – or your customer is – then this should give you cause for thought. ■



THE OBTUSE ANGLE

Building Services News, Vol 59 [2020], Iss. 1, Art. 1



PAT LEHANE

Just what the world needs!

According to the marketing blurb, the main selling point for the Tubmarine – a new wood-fired hot tub – is that it is “made from 80% recycled, high-specification parts and materials, and directly responds to the growing need for eco-friendly products”. So, do your bit for the environment ... order yours today. It’s a real snip at circa €18,000.



Oh the naysayers!

You just can’t win, can you? The Royal College of Paediatrics & Child Health, and the Royal College of Physicians, have published a joint report that says making homes airtight to save energy could be trapping toxic air pollutants indoors and risking the health of children. Had they done their research in a more detailed manner they would know the industry is fully aware of this and is dealing with it.



Talk about the glass half empty as opposed to half full approach!

Red Sea pollutant

Did you know that propane and ethane gases rising from underground deposits in the Red Sea mix with fumes from industrial shipping to turn into noxious pollutants. The Max Plank Institute for Chemistry reckons that the rate of damage is comparable in magnitude to that of several oil and gas-producing nations.



Shane Tobin’s weekend job?

Those of you who follow The Championship in the UK will know that Ideal Boilers are the main sponsors of promotion chasers West Bromwich Albion. The exposure for the brand as a result is quite significant, including here in Ireland where Davies are the appointed distributors. Which got me thinking recently as I watched Boilerman, Albion’s Ideal Boilers mascot, prance about the touchline during a recent league game ... what does Shane Tobin get up to every weekend?

Dervan just can’t stay away

After a career spanning over 40 years as a chartered engineer, Brendan Dervan retired early last year to take things easy. However, following a very enjoyable summer break, the pull of the industry proved too strong. So, in late 2019 he established Best Training to deliver bespoke CPD training to mechanical and electrical consulting engineers and contractors.

Brendan’s route to chartered status was comprehensive, first qualifying as an electrician before then studying electrical engineering in TU Dublin (then DIT). He has worked in M&E consultancy at senior engineer/director level since 1990. In 1999 he started his own M&E consultancy, Dervan Engineering Consultants (DEC), which merged with Cundall in 2016, and from which he retired last year.

That said, now it is a case of “Best Training” foot forward once more!



‘Last man Standing’ controversy at JV Tierney

An investigation is underway in JV Tierney & Co into its most recent “last man standing competition” in which the organiser (accused?) Ronan Costello – with an address in Ardee, Co Louth – “won” in controversial circumstances. Sources within JV Tierney allege that the competition was rigged. Our photographic evidence supports that assertion, showing as it does a grinning Ronan Costello very obviously presenting the winning cheque to ... a very sheepish-looking Ronan Costello!

The chances of recovering the money are said to be slim, to none, as Ronan has seemingly spent the lot already on an engagement ring for his long-suffering partner.

Undeterred, Stephen Walsh at JV Tierney is now conducting an exhaustive investigation into the affair and has urged anyone with information, however small, to come forward.



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