

1-1-2009

## BS News

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### Recommended Citation

(2009) "BS News," *Building Services Engineering*: Vol. 48: Iss. 1, Article 1.

Available at: <https://arrow.tudublin.ie/bsn/vol48/iss1/1>

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# bs news

building services news

JANUARY/FEBRUARY 2009

Delivering Energy-Efficient Buildings  
CIBSE Conference Booking Form

Pumps & Circulators

Air Conditioning —  
20-Page Review



Multi-drainage pump.  
In stainless steel.  
Extremely resistant.  
Absolutely reliable.



### *Wilo-Drain TS 32.*

This latest product of the Twister family is the new stainless steel version. Ideal for pond drainage, it is also suitable for many other applications, i.e. cellar drainage, decorative fountains and disposal of rain wastewater. Its stainless steel housing makes it very robust and resistant. Moreover, the motor has inbuilt protection. Class? We call this Pumpen Intelligenz.



*Pumpen Intelligenz.*

ISSN 0791-0878

**Published by:**

Pressline Ltd,  
Carraig Court,  
George's Avenue,  
Blackrock, Co Dublin.  
Tel: 01 - 288 5001/2/3 Fax: 01 - 288 6966  
ISDN: 01 - 211 2338/9  
email: [bsnews@pressline.ie](mailto:bsnews@pressline.ie)  
web: [www.buildingservicesnews.com](http://www.buildingservicesnews.com)  
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[www.pressline.ie](http://www.pressline.ie)

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**General Manager:** Louise Byrne

**Origination and Design:**

Pressline Ltd. Tel: 01 - 288 5001

**Subscription:** One Year — €70

**Printed by:** Swift Print Solutions (SPS).

© All editorial contents and all  
advertisements prepared by the publishers,  
Pressline Ltd.

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## opinion

### Steady As She Goes!

Despite the continuing revelations of irregularities and wrongdoing in the financial services sector — and the very obvious downside implications for funding for construction projects — the building services sector has responded with a sense of stoicism not seen before.

Architectural practices, consulting engineering practices and the larger mechanical and electrical contractors have all had to implement staff-cutting measures on an unprecedented scale. While distressing for all involved, these measures have been carried out with honour and integrity.

The mood throughout the entire sector is one of concern and anxiety but, it is matched by a sense of measured determination to see out the current difficulties and to emerge the other side, perhaps very much shaken but nonetheless intact.

The panic and anguish of pre-Christmas has been replaced by a "can and must-do" attitude and a realisation that the industry as a whole has sufficiently matured in its professionalism over the last decade to surmount the present crisis.

There have been some casualties over the last three months, and no doubt there will be more over the coming months. However, as an industry sector building services has lately demonstrated a hitherto unseen sense of determination to control its own destiny.

This augurs extremely well, not just in the face of the current short-term difficulties, but also for the long-term future of the industry.



## Air Movement & Air Quality

# ISH Aircontec — AC Sector Takes Lead in Energy and CO2 Reductions

Energy efficiency and renewable energies – these are the buzz words of current discussions on energy and environmental policy, both in Europe and worldwide. At the forthcoming ISH (Frankfurt, 10 to 14 March 2009), the industry will demonstrate the enormous potential for savings afforded by the combination of modern heating and air-conditioning technology and renewable energies.

The dedicated Aircontec section will showcase the world's largest range of air conditioning, ventilation and refrigeration systems available from all of the established, brand-leading, names in the sector. In addition to the

product ranges on offer, the complementary programme of seminars, discussion groups and lectures will offer up-to-date, compactly-presented, information which will put all the latest industry developments into context.

Building services engineering in general, and air-conditioning and ventilation technology in particular, have a crucial role to play in implementing the climate protection targets now set by the Irish Government and at European level. Alongside the use of energy-efficient equipment and installation technology, the use of regenerative technologies is of great importance.



A SterilAir air cleaner on show at ISH Frankfurt 2007

### Regenerative technologies

Solar-driven air-conditioning, geothermal energy, free cooling and indirect evaporative cooling are at the heart of regenerative technologies for ventilation and air-conditioning.

Heat recovery, too, is seen by many experts as a form of regenerative energy, and there are a good many reasons for this view.

### Low Energy House

The "low energy house" is setting today's energy standards for new builds and is also setting targets in renovation work. Domestic ventilation with heat recovery offers significant energy-saving potential here. Current estimates suggest that less than five per cent of existing domestic dwellings are equipped with heat-recovery units.

Raising this proportion would be a simple way to achieve savings in primary energy consumption.

A similar scenario is said to apply to the use of heat recovery in public and commercial buildings. Some experts claim that throughout Europe only one in every two air-conditioning and ventilation systems sold is equipped with heat recovery. If every newly-installed central air-conditioning and ventilation system were equipped with an efficient heat-recovery unit, significant energy savings and CO<sub>2</sub> emission reductions would be achieved.

### Solar-driven ac

Solar-driven air-conditioning is expected to feature strongly at Aircontec. In the field of air-conditioning and ventilation technology, solar energy can be used for thermal cooling



The throngs of visitors at ISH Frankfurt 2007





# The full range of air conditioning solutions

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COMMERCIAL SPLIT SYSTEMS  
ELECTRIC VRF  
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SANYO continues to lead the way with a range of energy efficient air conditioners for heating and cooling. We're constantly developing market-leading technology and finding innovative new ways to deliver reliable, efficient and sustainable solutions. To find out more please call or visit our website.

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Gas Driven VRF

Wide range of  
Indoor Units





## Air Movement &amp; Air Quality

ISH Aircontec — AC Sector Takes Lead in Energy and CO<sub>2</sub> Reductions

of water or for sorption systems. Both processes are ideally suited to situations where air is to be cooled and, where necessary, dehumidified. In principle, both these systems mostly offer, at one and the same time, very efficient heat recovery and, where necessary, dehumidification. This makes it possible to operate the system in winter in such a way as to optimise energy consumption. Solar-thermal cold water systems have the advantage that familiar and commercially available components can be used throughout the entire system. In recent times numerous solar-driven air-conditioning systems are said to have been installed in public and commercial buildings in Germany.

Spreading these systems even more widely opens

up enormous potential for savings as becomes clear from the following figures. If the proportion of solar-driven, water-based, air-conditioning systems in new installations were raised to 30%, on an annual basis, that would amount to savings in primary energy of some 75 GWh. This corresponds to CO<sub>2</sub> savings of more than 16,000 tonnes.

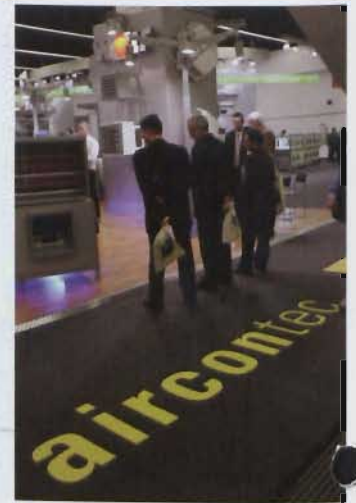
Similar figures obtain in the case of solar-driven sorption units. If the proportion of sorption-based air-conditioning units in new builds were increased to 30% in the market as a whole (including cooling) then primary energy savings of approximately 100 GWh could be achieved. This represents an annual reduction in CO<sub>2</sub> of 21,200 tonnes.

#### Using geo-thermal energy

Geothermal energy just

below the surface is said to be particularly suited for use in air-conditioning and ventilation systems. The temperature of the undisturbed ground beneath the surface to a depth of approximately 100 metres is 8°C to 12°C. This reservoir of energy can be tapped using a variety of different systems. The ground water can be used directly; ground heat-exchangers can be installed, as can ground collectors or probes, as well as ground-air heat exchangers. With careful planning, installation and maintenance, these systems can significantly reduce energy requirements for ventilation and pre-cooling.

There are also opportunities for a further spread of such systems in terms of domestic ventilation. There are already examples of large ventilation units having been connected to ground-air heat exchangers. The use of geothermal energy in air-conditioning and ventilation engineering opens up notable potential for energy savings — a figure of 30% geothermal re-cooling in newly installed air-conditioning systems would enable savings in



ISH Frankfurt 2007

primary energy usage of 32 GWh. Greater use, too, of free cooling and indirect evaporative cooling can contribute, in significant measure, to the urgently-required reduction in primary energy consumption.

It is against this background that the leading manufacturers in air conditioning and ventilation will participate at the forthcoming ISH, and Aircontec in particular. Together they will showcase innovative technologies for energy efficiency; expert engineering strategies for operational use; and modern developments in cooling technology in the air-conditioning and ventilation sector. This clearly demonstrates their commitment to reducing primary energy consumption, reducing CO<sub>2</sub> emissions, and conserving the earth's resources.



Technical information being shown in a video showroom at ISH Frankfurt 2007



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**Carrier**

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Heat Pump  
Free-Cooling

**Liebert  
HIROSS**



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Freecooler  
Chilled Water  
Upblow/Downblow  
Dx — Water Cooled  
Close Control Air Conditioning

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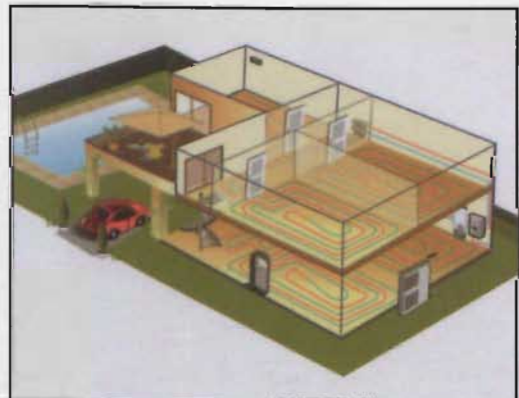
**Carrier**



Chillers  
Free-Cooling Chillers  
Heat Pumps  
Minisplits  
Fan Coil Units  
Controls

**nexa** **Carrier**

## Residential Heat Pumps



Renewable Energy  
Solutions



## Indoor Comfort — Lindab Has The Solution

From small beginnings in 1956, the Lindab Group has grown to an international conglomerate now employing approximately 5,000 people in 30 countries. The head office is located in Grevie, in southern Sweden, while the group has many wholly-owned operational outlets throughout the world, including Lindab (Irl)\_Ltd in Dublin.

Lindab's business is divided into two operational areas — Ventilation, which delivers components and system solutions that offer complete indoor climate solutions; and Profile, which provides an extensive range of steel building components and complete building systems. Lindab (Irl) is primarily concerned with ventilation.

The company's extensive range of innovative product and system solutions are aimed at installers and specifiers within the ventilation sector. The

product areas are circular duct systems and accessories, technical ventilation products and systems, and related machinery for installing products for circular duct systems. In addition, Lindab (Irl) also offers software for design, calculation and planning complete systems.

The product portfolio is comprehensive, catering for virtually every possible ventilation requirement. Brief details of the main market segments catered for are as follows:—

**Air Ducts** — This range includes complete, mainly circular, duct systems for ventilation, as well as duct details and components, complemented by rectangular duct products and hoods;

**Circular Ducts** — Circular duct systems have many advantages compared with rectangular systems, including lower weight, faster installation times, smaller insulated areas and lower energy consumption and energy loss;

**Lindab Safe System** — Lindab's premium brand for circular ventilation components is the Lindab Safe system. This is equipped with a double EPDM seal at the end of the ventilation components, secured in place by a metal strip in the manufacture. The seal is an essential detail since it allows airtight systems and thereby reduces leakage and results in high energy efficiency in the buildings. Lindab also supplies circular ventilation components under the Spiro brand, which also uses a rubber seal.

**Special Duct Systems** — Lindab offers three different systems in this category. The Transfer system is a circular duct system using a band-fastening for quick assembly and disassembly, which is mainly used for the transportation of light materials;

The Isol system is a system with pre-insulated ducts and fittings with sheet steel inner and outer casings, intended for use both in and outdoors;

The Marine system is an insulated system designed to achieve a particular fire classification and that has been especially produced for ventilation on vessels.

Lindab's ventilation business also

incorporates the Comfort Division which comprises airborne systems, waterborne systems and acoustics. Brief details of the ranges are as follows:—

**Airborne Systems** — These include a wide assortment of ceiling diffusers, wall diffusers, nozzles, air flow regulators, aluminium grilles, steel grilles, control valves, low pulse diffusers and VAV systems;

**Waterborne Systems** — These include suspended or integrated chilled beams, cooling wall panels, supply air beams, facade systems, heating panels, heating strips, regulatory equipment and lighting components;

**Acoustics** — The acoustics range comprises straight, curved and low-built silencers that can be installed in sensitive environments.

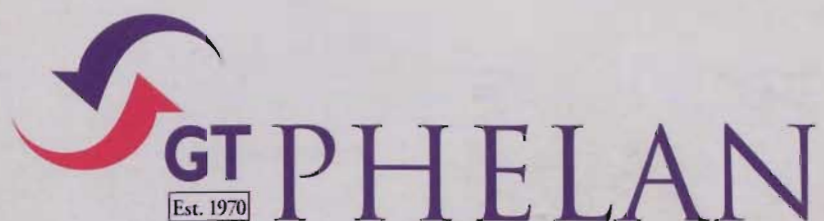
"Looking to the year ahead", says Lindab's Robert Bray, "the industry is facing challenging times. However, given all-embracing nature of our product portfolio, and especially the emphasis on 'green' products, we are confident that, by working closely with our trading partners, we will meet this challenge.

Contact: Lindab (Irl).  
Tel: 01 - 456 8200;  
email: sales@lindab.ie



Lindab's Safe Click system





Providing the  
strongest link ...

... in the AC  
supply chain



### New High-Output **Toshiba** 16kw Four-Way Cassette

- ❑ Delivers up to 16kw cooling and 18kw heating
- ❑ Energy rated A for heat mode
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**TOSHIBA AIRCONDITIONING**

Advancing the **eco**-evolution



## Air Movement & Air Quality

### R22 — Replace Audit From Mitsubishi Electric

While the majority of end-users and contractors are aware of the imminent phasing out of R22 refrigerant — after 31 December 2009 it will be illegal to use virgin HCFC's for the maintenance and servicing of refrigeration ac systems — there is great deal of confusion circulating the industry. Few fully understand the potential impact this legislation may have on them and their business.

Consequently, Mitsubishi Electric aims to cut through conflicting misinformation and to present the core facts as they apply to the industry.

- The use and sale of virgin HCFC will be banned from 31 December 2009. This applies to all virgin HCFCs, even if purchased before the deadline;
- The use and sale of recycled HCFC will be banned from 31

December 2014. This applies to all recycled HCFCs, even if purchased before the deadline;

- The use of non-refillable containers for transporting or storing HCFCs is banned;
- After 31 December 2009 production of R22 will be illegal and availability will decline. As R22 is widely used in air conditioning any business operating in the sector will be use R22 will be affected by the ban and must comply with the regulation.

Operators of all air conditioning systems must now:—

- Use appropriately trained personnel to carry out installation, servicing and maintenance and leakage checking;
- Recover ozone depleting substances, such as

R22, during servicing and maintenance, and at the end of the system's life;

- Operators of systems with more than 3kg of refrigerant must carry out annual checks for refrigerant leakages.

Consultants and installers advising end-users currently using R22 ac systems need to address these issues and consider the alternatives. The imminent ban is already having an impact on the availability of R22 and it's largely anticipated that, as stocks deplete further, the price will rise accordingly, forcing end-users to pay significantly-inflated costs to maintain existing systems.

Apart from that, when older systems using R22 are compared with the new advanced systems of today, it is obvious that the running and maintenance costs of such ageing systems are extremely uneconomical.

That is why Mitsubishi Electric developed Replace Audit Tool. This is a unique software package designed to help assess individual needs and determine the efficiency of an existing system. By inputting details of the existing system and comparing it to a newer

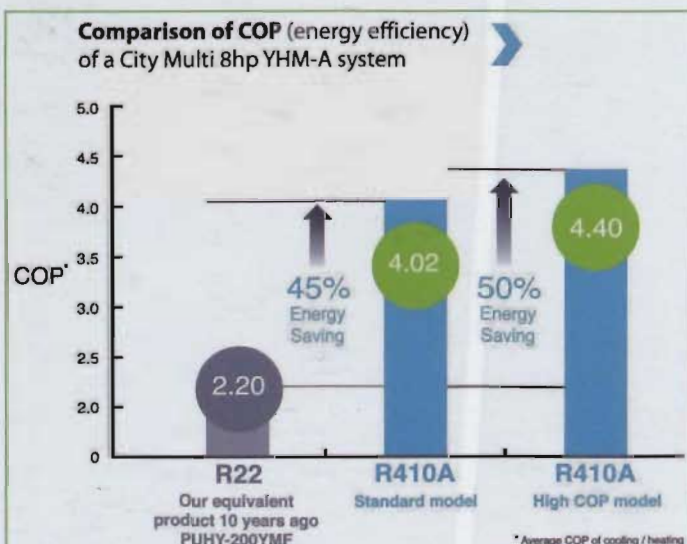
system, the Replace Audit Tool highlights inefficiencies in terms of both running costs and CO<sub>2</sub> emissions.

Advanced technology means that, regardless of the need to plan for the phasing out of R22 to comply with the new legislation, the replacement of older ac systems with newer systems will prove attractive, by providing:—

- Higher efficiency and performance outputs;
- Lower energy bills;
- Reduced CO<sub>2</sub> emissions;
- Renewed warranties and peace of mind.

With the help of the Replace Audit Tool, consultants and installers can advise their end-user clients of the benefits of tackling the situation now, rather than putting it on the long finger. Mitsubishi Electric has developed a comprehensive range of air conditioning and controls specifically to help address the phasing out of R22. Whatever the requirement, be it a single retail outlet, a large commercial complex or a number of sites across the country, Mitsubishi Electric has the solution.

Contact: Mitsubishi Electric Europe.  
Tel: 1800 600 400;  
email: sales.info@meir.mee.com





# Good for your clients and the environment

With Hitachi's new Set Free VRF range it's easy...

High efficiencies across the entire range – the 10HP unit has a market leading EER of 4.04 at nominal Eurovent Conditions.

- Comfort protection function allowing degree point Off Coil Temperature setting on all indoor units.
- Refrigerant level monitoring.
- Pipe runs up to 1000m with up to 90m after the first joint.
- Market-leading super quiet ducted indoor units.
- Individual fully-integrated outdoor units up to 48HP.
- H-Link II and CS Net Web controls that integrate with all leading BMS protocols.
- Compatible with Hitachi's new Heat Recovery Ventilation units with capacities up to 3,000m<sup>3</sup>/hr and heights of 330mm to only 650mm.

Set Free VRF is highly discreet and won't cause a draft, just easy-to-control comfort.



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**HITACHI**  
Inspire the Next



## Air Movement & Air Quality

# Altherma™ Monobloc: All the Benefits, With Simplified Installation

Daikin's award-winning Altherma™ heat pump range has been expanded to include a monobloc version. Where the original Altherma™ had an outdoor heat pump and an indoor hydro unit, the monobloc version combines both in the outdoor unit, simplifying installation while retaining all the benefits of the original design.

Since the entire refrigeration circuit is contained in the outdoor unit, no refrigerant piping needs to be installed and specialist handling of refrigerant circuits is no longer required. As a result, Altherma™ Monobloc can be installed by any heating specialist. Installation time is also reduced, resulting in lower installation costs across the board.

Additional features have been added to ensure that the water circuit in the outdoor unit cannot freeze. This is accomplished by activating the system's circulation pump and an electric back-up heater when outdoor

temperatures are at, or below, freezing point. The same electric back-up heater can provide auxiliary heat to the water circuit, ensuring adequate indoor temperatures on the coldest days of winter without over-dimensioning the system size.

The monobloc version retains all the benefits of the original Altherma™ design. Energy efficiency is extremely high, with up to 5kW of heat being extracted for every kW of electricity consumed. It is ideally suited to integration with underfloor heating and low temperature radiators. It can optionally be configured for cooling as well as heating with the addition of fan coil units. The system supports the full range of domestic hot water boilers, including the ability to interface to third-party solar panels for increased efficiency in domestic water production.

"With the recent recognition by the EU of the outside air, ground and (surface,

lake or well) water as renewable energy sources", says Richard Smith of Daikin Europe's Ireland Office, "much is expected of the member states' promotion of heat pump technologies using these renewable energy sources.

"The urgency of the EU's 20/20/20 objectives – reducing carbon emissions and energy consumption by 20% and increasing the share of renewable energy by 20%, all by 2020 – and the fact that heat pumps can contribute directly to meeting these

ambitious objectives, present a major opportunity for heat pumps.

"With Daikin Europe's 60-year experience in heat pumps, we are confident we can contribute to help meet these 20/20/20 objectives and so we are extremely pleased by the adoption of this new EU Directive on the promotion of the use of energy from renewable sources."

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



Daikin's award-winning Altherma™ heat pump range has been expanded to include a monobloc version.





# Crystal Air

*fresh. pure. clear.*

et al.: BS News

Crystal Air Ltd

Unit 3 Butterstream Business Park, Clane, Co Kildare

tel: 045 -893 228 fax: 045 - 893 229

email: [info@crystalair.ie](mailto:info@crystalair.ie)

web: [www.crystalair.ie](http://www.crystalair.ie)

## *fresh. pure. clear.*

### Electric VRF & Gas Engine

Sanyo's 'Think GAIA' environmental philosophy means that the focus across the entire ac and heat pump range is on energy efficiency and sustainability. It is credited with many industry breakthroughs such as the world's first heat pump air conditioners; the first gas-driven VRF systems; and the first 3-pipe VRF system.

continuous programme of research and development ensures a constant stream of pioneering new products and ac systems.

### AHU's, Chillers & Fan Coil Units

Over the past 70 years CIAT has emerged as a European leader in the field of air conditioning, air handling, heat exchange and heating by renewable energy. A true industrial group, CIAT designs and manufactures solutions for medium and large-scale commercial projects; and residential, healthcare and industrial applications.

### Close Control

Edpac designs and manufactures a complete range of precision air-conditioning equipment for the computer, telecommunications, specialty storage and building services markets. Located in Cork with modern manufacturing facilities in Carrigaline and Newmarket, it has been supplying products worldwide for over 20 years.

### Chilled Beams

Crystal Air provides a number of chilled beam solutions from high-quality European manufacturers whose different technologies can satisfy almost any project requirement. Active, passive, 2-pipe, 4-pipe and additional ventilation can all be engineered, providing low energy, long-life and highly-efficient performance.

Electric VRF



Gas VRF

Close Control



**Crystal Air** are one of Ireland's leading indoor climate control specialists. We offer a broad portfolio of products such as split systems, VRF, GHP, heat recovery, chillers, air handling and close control units. We also provide complete turnkey solutions, including system design, installation, engineering support, after-sales service and maintenance. With professional project management of the entire project, clients and specifiers alike are assured peace of mind. This comes with having over a decade of experience and trust.



Air Handling Units

Chilled Beams



2-Pipe and 4-Pipe

High Efficiency Chillers





## Air Movement & Air Quality

### Toshiba A Rated AC System For Bowling Alley

Specialist contractor Reliant Engineering has recently completed the installation of a number of Toshiba heat pump cassettes into the Leisureplex building in Stillorgan. These recently-launched cassettes produce a hefty 16kW of cooling and 18kW of heat. A number of these high output units have been installed throughout the premises, providing a comfortable temperature for players and staff alike.

Model RAVSM1604UT is energy rated "A" with a quoted COP of 3.61. Each unit costs €0.75 per hour to operate, producing 18kW of heat (at +7C external). Indoor unit dimensions are 840mmx840mmx320mm, making it one of the smallest units with one of the highest outputs on the market.

Across the range Toshiba Digital and Super Digital Inverter systems deliver exceptional operating savings and ecological features in extremely compact units. With state-of-the-art technologies, flexible controls and improved installation, they bring comfort and convenience to any business installation. A complete range of indoor units satisfies all commercial applications — ceiling cassette,

ducted, ceiling-suspended, high-wall and flexi units.

The Digital and Super Digital Inverter systems represent the most economical and ecological approach to air conditioning. When the inverter becomes digital, control module ensures optimised reproduction of the supply sine wave at the desired frequency, in order to reduce inefficient harmonics that inverters normally emit. With this innovative control method, the Toshiba Digital Inverter brings state-of-the-art inverter technology of capacity, energy savings and optimised comfort.

The Digital Inverter range for business applications provides compact, lightweight units with exceptional performance. Thanks to the TCC-Link communication system, the systems suit any installation with little business disruption. In addition, the Super Digital Inverter boasts energy efficiency class A and enables an even larger range of applications.

The wide range of indoor units is able to satisfy any kind of requirement and the enhanced DC twin-rotary compressor delivers stable performance with less friction, making this

system very quiet. Compressor operation is practically imperceptible.

Toshiba's Digital Inverter models use the new, vector controlled, Intelligent Power Drive Unit, which produces a power supply whose frequency and voltage provide superb control and energy efficiency. The new technology has allowed a much wider range of frequencies and voltages to be achieved.

Performance is further improved by the high-speed converter circuit which calculates the relationship between the compressor's windings and rotor through the currents drawn. This allows instantaneous optimisation of the power supply to the compressor.

The outdoor units are designed to satisfy any installation need. They are extremely compact and light. In addition, the system is very flexible, and the condensing units can be positioned in difficult installation spaces, thanks to the refrigerant piping length (up to 75m).

Contact: Derek Phelan, GT Phelan.  
Tel: 01 - 286 4377;  
email: derek@gtphelan.ie



A number of Toshiba heat pump cassettes have been installed in the Leisureplex building in Stillorgan



# STACKING UP TO A TOTAL SOLUTION



Heating

Air Conditioning

Applied Systems

Refrigeration

Ventilation



## Five key areas for a total solution in HVAC-R

Over its more than 35 years history, Daikin Europe N.V. has grown from a manufacturer of comfort cooling products to a total solution provider covering five key areas: home comfort systems, advanced heating systems based on energy-efficient heat pump technology, applied systems for industry, refrigeration solutions and ventilation. All products are renowned for their top quality and benefit from Daikin's traditional strength in pioneering product development. In all of its activities, Daikin Europe's goal remains simple: to continue to develop and manufacture the highest quality comfort and industrial systems, and in this to achieve a number one position in the industry through environmental leadership.

Published by ARROW@TU Dublin, 2009

FOR MORE INFORMATION, CONTACT YOUR LOCAL DAIKIN DEALER,  
VISIT [WWW.DAIKIN.IE](http://WWW.DAIKIN.IE) OR SEND AN E-MAIL TO [INFO@DAIKIN.IE](mailto:INFO@DAIKIN.IE)





## Air Movement & Air Quality

### Core AC — Strength in Partnerships

Quality of service, coupled with quality products from brand-leading manufacturers, is the cornerstone of Core Air Conditioning's trading philosophy and the basis upon which it has captured significant market share since it was established in 1996. The composition of the product portfolio is intended to provide total solutions capability with each of the principals represented bringing complementary product ranges to the mix.

As it currently stands the key names represented include Carrier, Liebert Hiross and LG.

Individually, each of these manufacturers offers an extensive choice of diverse air movement solutions. Taken together, they allow Core Air Conditioning provide a comprehensive array of options which means that it can cater for virtually every conceivable market application.

"In compiling the Core Air Conditioning portfolio", says Managing Director Austin McDermott, "we took a decision from the outset to only deal with market-leading, quality-driven manufacturers. That is very much reflected in the current line-up. Down through the years we have also engaged with a small number of other

manufacturers, each time with the objective of strengthening the combined product offering.

"Today's line-up is particularly strong. However, we are always conscious of new and developing trends, and of emerging market requirements. Where necessary, we will source other complementary ranges if the need arises to satisfy a particular application. Flexibility is essential in devising customised solutions for each project and we regard this as a particular strength of ours."

Underpinning this strength is the relationship-driven nature of Core's business strategy. While ultra-professional and management-systems led, it is a partnership arrangement involving installers, consultants,

clients and suppliers alike. Effectively, Core Air Conditioning acts as the conduit through which the clients' needs are identified and an appropriate solution devised which is cost-effective, energy-efficient and complies with the growing number of regulations and statutory requirements which now apply to the ac sector.

A critical element in delivering such ambitious results is the experience and technical knowledge, not just of Core in-house personnel, but also of its dealer/installer network.

To that end it operates an ongoing training programme which ensures that engineers are kept fully up-to-date with new product and technology developments. This is done prior to these innovations being introduced to the

marketplace so there are no teething problems, either during or after these products and systems are installed in a project.

In fact, Core has an exclusive dealership arrangement on its rooftop range with Ray McCormack's ACMSL. This is to ensure that these high standards are maintained at all times.

"Essentially", says McDermott, "what we provide is a holistic solution which does not stop once the project is installed and commissioned. It also extends to after-sales service support. If a client has a difficulty we operate on the basis of a no-fault reaction ... the problem must be tackled and resolved immediately; there is plenty of time later to discuss the why's and wherefore's of what went wrong and who was to blame. The fact is that things can, and do, go wrong. The key lies in being responsive and responsible — we take pride in our ability, and willingness, to do just that."

It is this attention to detail which distinguishes Core Air Conditioning from many of its competitors.

Contact: Austin McDermott, Core Air Conditioning.  
Tel: 01 - 409 8912;  
email: info@coreac.com



Carrier's new 50 AZ/UZ packaged rooftop range uses HFC-470C which is chlorine-free and not harmful to the ozone layer





# Time is running out for R22 refrigerant

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## Customised Refrigeration & AC Solutions Direct to the Client

### INGENUITY WELCOME

Johnson Controls is a global leader in building efficiency, providing products and services that optimise energy use to deliver the best possible indoor environment. It has 140,000 employees in 125 countries, including Ireland where Brendan Tyrell is Dublin Region Branch Manager for the service element of the Building Efficiency Division. Both he and his colleague, Paul McElvaney who looks after sales and service, operate out of the company's City West office while Hugh O'Gorman covers the southern half of the country from the Wilton office in Cork.

Supporting them is a team of 18 highly-qualified refrigeration engineers, all of whom have extensive experience across the full spectrum of sectors catered for. These include everything from food processing through to healthcare, pharmaceutical, high-tech IT and comfort applications. They are strategically located throughout the country so that dedicated service can be provided locally, and are also fully accredited and qualified in refrigerant handling.

"It is all about problem-solving and devising tailored solutions to meet the clients requirements", says Brendan. "Our strength is that we deal directly with the client. We have structured consultation mechanisms which tease out all the key issues and so get a better understanding of what's required. We then design, install and commission that customised solution. The fact that we have total control over all the constituent elements is an added bonus for the client.

"We provide a full turnkey and retrofit service across the entire refrigeration and air conditioning spectrum, catering for applications as small as 3kW right up to large-scale projects of 7000kW. We also offer a extensive choice of preventative maintenance programmes, all of which are again specifically tailored to suit each particular application.

"Given the current trading environment, we at Johnson Controls are also conscious of the costs involved in each project. In devising the required solution we do so on the basis of the life-cycle costs so that the client benefits from performance efficiencies and energy savings year after year. We also ensure that all relevant regulations are complied with.

"Being part of such a multi-national conglomerate gives us considerable advantages over competitors. We can and do regularly tap in to the massive technical resource bank at our disposal, bringing the worldwide experience and knowledge of our international colleagues to bear on solving our client's needs. Leading brands which now constitute the Johnson Controls portfolio include York, Sabroe, Frick and Gram. These are recognised market leaders in their own right but, taken together, represent an unrivalled resource within the sector.

"The smart environments we create for our clients are efficient, safe and sustainable. That makes the occupants more productive and more  
<http://arrow.tudublin.ie/bsen/vol48/iss1> Johnson's business ... and for life."



Sabroe energy-efficient refrigeration plant being delivered to a brewery in Cork



Gram refrigeration skid supplied and installed by Johnson Controls Service in a pharma plant, Dublin



York refrigeration skid supplied and installed by Johnson Controls Service in a pharma plant, Dublin





BY JOHNSON CONTROLS



Whether the application is in food and beverage or pharmaceutical refrigeration, cold storage, or the natural gas and petrochemical industries, Frick has the products, packages, service and technical support to provide a customised solution. The broad range of Frick® screw compressors, condensers, evaporators, ACUair® hygienic air-handling units, control systems, vessels and accessories provides the flexibility to design unique systems while gaining the efficiencies of pre-engineered, pre-tested construction.



York International is one of the world's largest independent suppliers of heating, ventilation, air-conditioning and refrigeration (HVAC&R) systems and solutions. York designs, manufactures, sells, and services HVAC systems for commercial and residential markets; gas-compression equipment for industrial processing; industrial and commercial refrigeration equipment; and compressors for residential and commercial air-conditioning.



The Sabroe name is renowned throughout the world of refrigeration products and systems and is famous for reliability, technological excellence and an ability to meet even the most demanding customer requirements. Sabroe is one of the best-known designers, specialist manufacturers and suppliers of high-quality refrigeration equipment and also has unparalleled experience in getting refrigeration just right for each and every customer. It also operates state-of-the art R&D, design and test facilities.

## We Supply, Install & Service

Commercial & Industrial Refrigeration  
Integrated HVAC Systems  
Building Management Systems  
Technical Building Services  
Energy Efficiency & Sustainability



Johnson Controls Ireland Ltd, Unit 2004/3 City West Business Campus, Naas Road, Dublin 22  
Tel: 01 - 466 0177 Fax: 01 - 466 0198 Email: paul.mcelvaney@jci.com

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## Air Movement & Air Quality

# Crystal Air Announces Major Strategic Development Plan



Barry Hennessy, Sales & Marketing Director, Crystal Air

Given today's more challenging trading environment, Crystal Air has implemented a carefully-devised strategy to safeguard its market position in air conditioning and ventilation, and strengthen its penetration into related market segments, to that end it has appointed Barry Hennessy Sales & Marketing Director.

Getting Barry on board is something of an industry coup as his extensive experience across the entire air conditioning and ventilation sector represents a wealth of knowledge and marketing know-how. In addition, he has an enviable standing with key decision-makers within the specifying and contracting

sectors, while he is equally highly-regarded by Ireland's leading installers and manufacturers, especially Sanyo for whom Crystal Air is the largest installer in the country.

Crystal Air is one of Ireland's market leaders when it comes to supplying, installing, servicing and maintaining air conditioning systems. It offers a broad portfolio of products catering for all market segments.

However complex the project, Crystal Air can provide a tailored air conditioning solution that is cost-effective to install and run, while being environment-friendly and easy to operate and maintain.

To ensure that the client gets the maximum return for the capital investment involved, it also offers a wide choice of preventative maintenance programmes. These are engineered to international standards and cover 24-hour service, 365 days a year. Whether it is a new or existing installation, Crystal Air will deliver a programme of care that is tailored

specifically to that particular installation. "Professionalism and attention to detail are the hallmarks of the Crystal Air service", says Barry. "We provide design advice where appropriate and then install the high-quality solution specified through our dedicated team of in-house contract managers, installation engineers and technicians.

"Our teams are trained to the very highest standards and are supported by FÁS, the Institute of Refrigeration Ireland, Refrigeration Skillnet, and our manufacturing partners who provide technical training and support.

"Supported by our suppliers, we are the air conditioning specialists you can trust to provide

engineered solutions offering reliability, regulation compliance, good value and exceptional quality.

"We provide a professional service for the installation and maintenance of all air conditioning market segments such as split systems; VRV and VRF systems; air handling and ventilation units; chilled beams; inverter systems; grilles; VAV units; CO<sub>2</sub> heating systems; and fan coil units. Where required, we offer complete 'turnkey' solutions."

"With over a decade of expertise and trust, whether you are a consultant at design stage, a developer or an end user, it is reassuring to know that Crystal Air will not let you down".

Contact: Barry Hennessy, Crystal Air.  
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email: [barry@crystalair.ie](mailto:barry@crystalair.ie);  
[www.crystalair.ie](http://www.crystalair.ie)



The new CO<sub>2</sub> ECO heating system from Sanyo is the perfect alternative to traditional boilers. Using heat pump technology with environmentally friendly CO<sub>2</sub> refrigerant, it's ideal for domestic hot water and central heating.





**Comfort ...**

**... We Have the Solution!**

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email: [sales@lindab.ie](mailto:sales@lindab.ie)

web: [www.lindab.ie](http://www.lindab.ie)

Published by ARROW@TU Dublin, 2009





## Air Movement & Air Quality

# Design Solutions for Clarke's Bridge Offices in Cork

The newly-opened Clarkes Bridge Offices in Cork saw Sanyo Airconditioners, in conjunction with Airflow Services and Delap and Waller, offer a complete design solution for the Clarkes Bridge offices newly-installed ECOi 3-way heat recovery VRF systems.

The design brief presented Peter O'Mahony of Delap and Waller with an interesting challenge. How to provide an independent stand-alone heat recovery ventilation and air conditioning system to each of the nine units while conforming to height restrictions placed on the development by the local planning authorities.

After much research and following a great deal of concept design and technical discussions with various manufacturers, it was found that no company could provide an "off-the-shelf" outdoor condenser of suitable capacity, which would conform to the height restrictions imposed. At this point Peter approached Denis Moynihan from Airflow Services to see how they could come up with a suitable solution for this

project. They found between them that Sanyo were able to offer an option of splitting the outdoors and still maintain full warranty and factory support, which was crucial to the support and life of the equipment.

Once all the criteria of the design had been met and Peter was happy with the overall design, he was able to gain an additional floor due to the height saving made by splitting the condensing units. This was a very important part of the overall design and, rather than take up valuable plant space on the ground or

basement levels which would have resulted in less tenanted space availability overall, Peter and Denis were able to keep the condensing units on the roof.

This was achieved by the condensers being split in half with both sections being mounted on a common chassis with a new base for the top section and a new top cover for the bottom section. Once the units and frames had been suitably assembled they were then craned into place. Once the units had been put into the final position the main piping and wiring was carried out the same as in a normal VRF installation.

The overall system comprised nine Sanyo simultaneous heating and cooling VRF systems, providing a combined total of 229kW of cooling and 257kW of heating, serving a total of nine floors.

Each floor is served by five to six indoors and one fresh air heat exchanger unit per floor. Each of the fresh air heat exchangers have the added advantage that they can be linked into the VRF system via a DX coil within each indoor and, in doing so, can provide up to an additional 7.3kW of cooling and 8kW of heating. This took the load off the main air conditioning system by providing supplemental pre-heating and cooling for the fresh air.

All of the systems are controlled individually by wall mounted LCD controllers and each floor has an overriding 7-Day Scheduled Timer and a System Controller which enables each of the floors to be controlled, let and billed out separately.

Contact: Dave Colbert, Sanyo Airconditioners. Tel: 01 - 403 9900; email: davidcolbert@sanyoaircon.ie



The Sanyo condensers on the roof of Clarke's Bridge offices, Cork which were split in half to conform with height restrictions imposed as part of the planning permission



## MHI Ecolution Revolution

Mitsubishi Heavy Industries (MHI) has a long history in the design and manufacture of refrigeration and air conditioning systems. Over the years it has introduced many industry firsts, pre-empting and anticipating legislative and regulatory changes, especially in relation to energy and environmental issues.

This has been particularly important in recent years and indeed, in 2004, MHI was the first manufacturer to produce a series of high-efficiency split systems based on R410A refrigerant. Many of the larger systems used fixed-speed scroll compressors and the COP ratings of these reached new heights.

These developments

have since been refined further and are now an integral feature of the latest MHI Ecolution range of split and multi-split systems. R410A brings many benefits, apart from the obvious environmental advantages. These include much better heat transfer properties than other, common, refrigerants, and a higher density which allows reduced tube diameter in the heat exchangers and inter-connecting pipework.

The FD inverter range employs MHI's DC inverter compressor only, improving performance and efficiency still further, constantly adjusting compressor output to meet the exact demand of the indoor units. Leakage and thrust-bearing loss are reduced through

optimal design of the scroll, with improved support and mechanical efficiency. Compared with previous non-inverter models, these new units exhibit savings of up to 38% in energy consumption.

However, the application of the inverter is not the only developmental change. The control and monitoring of refrigerant temperatures, pressures and volume flow rates are all critical to achieving high energy savings. Many conventional methods of refrigerant control have been replaced with innovative designs which abandon the use of accumulators and concentrate on controlling superheat in the cooling heat exchanger.

The foregoing developments, combined with new compressor design and a unique construction of the indoor fan units, have resulted in considerable increases in efficiency. Other benefits include 7-day/24-hour programmable timer for all FD systems. This is important for commercial premises where the client wishes to ensure the systems operate only when the building is occupied. The

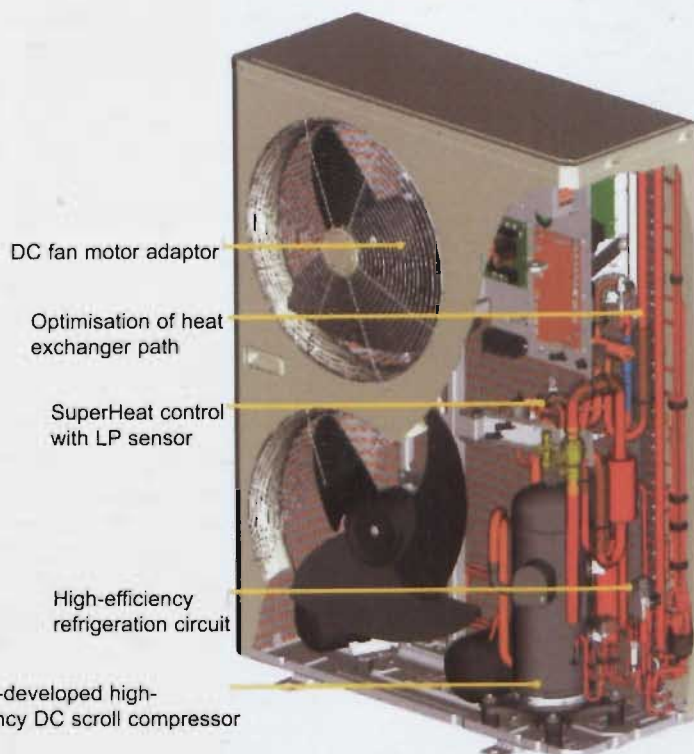
systems are also designed to minimise sound levels, both inside and outside the building, for both the comfort of the building occupants and to minimise noise disturbance to neighbours.

In designing this new range of Ecolution split and multi-split systems MHI also carefully considered the installer. Ease of installation and commissioning is a feature of the units — the outdoor and indoor units are easily fixed, while all systems are pre-charged with refrigerant.

The wired controller, RC-E3, has multiple check displays from which the installing engineer can monitor temperatures, compressed speed, valve openings, etc., on all parts of the system.

Given the pressing need to reduce energy costs, coupled with the ever-increasing burden of compliance with more stringent climate change, installers, specifiers and clients alike face unprecedented demands when considering indoor comfort control. The new range of MHI split and multi-split systems from 3D Air Sales offers the ideal solution.

Contact: Michael Clancy, 3D Air Sales Ireland.  
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# Sustainable Energy Opportunities At Energy Show 2009

***Sustainable Energy Ireland (SEI) expects this year's Energy Show — RDS Main Hall, 29 to 30 April 2009 — to be the biggest and best yet with levels of interest in sustainable and renewable energy at an all time high. The show is now firmly established as the national showcase for the sustainable energy sector and attracts a diverse array of exhibitors and visitors from both Ireland and abroad.***

Despite the current economic difficulties, opportunities exist in the broader move to a more sustainable, green economy. In addition to the wider environmental benefits of sustainable energy, most businesses are now aware that they need to reduce their energy usage and associated costs. Once simple energy efficient behavioural changes have been addressed, businesses committed to obtaining further savings may require investment in more sustainable energy technologies.

In addition to the two-day trade exhibition, the Energy Show also incorporates a comprehensive seminar programme which this year will include sustainable energy opportunities and best practice case studies. Topics of interest to energy professionals include renewable energy solutions for commercial and public buildings; opportunities in

emerging renewable technologies; the proven route to energy management for SMEs; and breaking the barriers to sustainability in larger industrial businesses.

Professional advice and guidance from qualified persons operating at the forefront of such issues will also be on hand at the show, making it a unique and valuable forum for information of interest to those working in the environmental and energy management profession.

A number of legislative changes are having a profound impact on this profession. The implementation of the Energy Performance of Buildings Directive (EPBD) will enable investors, developers, builders and clients to take energy performance into consideration when making property decisions. The provisions of the EPBD include

requirements to set minimum energy performance standards and for commercial buildings in particular, requirements for feasibility assessment of alternative energy systems, superior air conditioning and boiler efficiencies.

These changes in legislation have an obvious bearing on environmental and energy management. Energy performance is more relevant than ever in today's market and new legislation has placed a greater emphasis and focus on energy efficiency and climate change.

To date over 100 exhibitors have confirmed their participation. Between them they will present visitors with information on:—

- Energy audits;
- Energy management systems;
- Monitoring and targeting;
- Combined heat and power;
- Boilers: ancillary equipment and testing;
- HVAC products;
- Lighting and lighting controls;
- Instrumentation, controls and data collection;
- Variable speed drives;
- Biomass equipment suppliers
- Heat pump suppliers;
- PV and solar thermal suppliers;
- Wind energy suppliers and manufacturers.

To register for the exhibition or the seminars visit  
[www.sei.ie/energyshow](http://www.sei.ie/energyshow)



Mr Eamon Ryan, Minister for Communications, Energy and Natural Resources, addresses attendees at last year's Energy Show



*"The Power Behind Water"*



*"The Power Behind Water"*



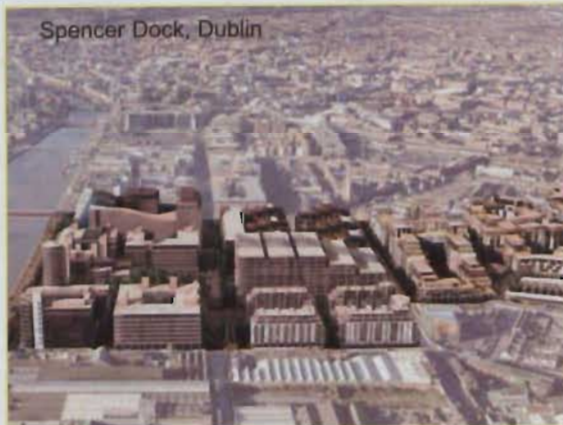
# "The Power Be



Kilkenny Mart, Kilkenny



Spencer Dock, Dublin



Heritage Golf &amp; Country Club, Laois



National Conference Centre, Dublin



With water now the new oil, its importance in respect of building services and the environment in general cannot be overstated. Providing and treating water at municipal level, for commercial, industrial and residential applications, and for agricultural use, is now a critical industry sector. It requires experience, technical know-how, engineering expertise and an innovative approach to problem-solving.

Campion Pumps, now recognised as one of Ireland's leading suppliers of pumps and pumping systems, delivers to this brief on all fronts. It provides everything from circulating pumps through to large booster-set pumping solutions to both small, one-man plumbing installers and large M&E contractors.

On large projects in particular it works very closely with the contractor to supply customised solutions incorporating the most appropriate manufacturer's equipment. However, Campion Pumps has a special relationship with Lowara whose pumps are used extensively on its booster sets. It finds the scope and quality of the Lowara range a perfect match for its own, in-house, design and manufacturing capabilities.

Operating out of a one-acre site in Gortnahoe, Thurles, Co Tipperary, Campion Pumps provides a nationwide service. Its impressive, purpose-designed, complex comprises adjacent buildings housing offices, workshops, manufacturing facilities, warehousing and spare parts centre.

## Corrigan Pumps

It is fitting that 2009, Campion's 20th year in business, should commence with the transfer of the Corrigan Pumps (formally O'Brien International) customers and pump business into the Campion Pumps fold. Trading since the 1960s, Corrigan Pumps was a key market player and its entire pump business has now been transferred into Campion's whose engineers have been fully trained to both service existing equipment and installations, and provide Corrigan customers with new products as before. Campion Pumps would also like to wish Laurence Corrigan the very best in his retirement.

## Engineering Expertise

Campion Pumps employs a workforce of 35 comprising system designers, installation and service engineers, a manufacturing





# Behind Water"

et al.: BS News

arm, and support staff. These key elements are significant in their own right but, it is the manner in which their strengths are combined to deliver all-embracing solutions to the M&E contractor that sets Campion Pumps apart.

This is particularly important when it comes to booster sets, an area Campion Pumps is now recognised as market leader. The quality of the solutions provided is taken as read but, what makes Campion Pumps different is the flexibility it offers, the short lead times, and the ability to work closely with the contractor to customise a variation mid-way through the project.

Added to this is top-end technical support, installation advice, commissioning expertise, central monitoring services, and a wide choice of customised preventative maintenance packages.

## Energy and Water Savings

Campion Pumps takes a holistic view of the provision of water supply and water treatment services. Critical to any solution proposed is that it must be cost-effective to engineer and install, and thereafter to operate. Factors considered are performance efficiencies, energy savings, water usage, and compliance with relevant local authority and national regulations.

The use of Hydrovar, the world's first pump-mounted, microprocessor-based, pumping system controller is critical in achieving this goal. Hydrovar is not just a motor speed controller — it manages pump performance to match system conditions, thereby allowing energy savings of up to 70% in some applications.

## The Power Behind Water

Given the foregoing, it is hardly surprising that Campion Pumps has worked on some of Ireland's most prestigious projects and with most of the country's leading architects, consulting engineers, and major mechanical and electrical contractors. Its services are sought after not just for the quality of the final delivered solution but also the manner in which that solution is presented and delivered. Particularly important is its ability to change direction mid-project and work closely with the contractor when an unforeseen problem is encountered.

It is all about reassurance and putting the client at ease. Campion Pumps is indeed ... *The Power Behind Water.*



The O2 Arena, Dublin



Kilkenny Mart, Kilkenny



Spencer Dock, Dublin



Heritage Golf & Country Club, Laois



National Conference Centre, Dublin

## Campion Mechanical & Electrical Engineering Ltd

Gortnahoe, Thurles, Co Tipperary

tel: 056 - 883 4288 dublin: 01 - 257 2555

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# ITT

## Pumps and Booster Systems

### Lowara hi-tech solutions

In Pumps and Booster systems  
Lowara means:

- Advanced technology
- Energy saving
- High efficiency
- and ... TRUST



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## Wilo Green Long Before It Became Fashionable!

When Wilo introduced the then-revolutionary Star E range of energy-saving pumps in 1988, the green colour of the units was distinctive and quite unique. It was a fortuitous colour-choice on Wilo's part given that today, both the colour and term green are now synonymous with sustainable and renewable technologies.

Over the last 20 years the Star E range has been vastly improved on with subsequent new product developments retaining the green colour but, more to the point, making quantum leaps forward by way of their intrinsic green credentials. This is perhaps best epitomised by today's Stratos and Stratos-ECO ranges which both carry the ultimate accolade of an Energy Label A rating as sanctioned by Europump.

Indeed, the Stratos-ECO achieved the top award in a recent energy test carried out by "Stiftung Warrentest", an internationally-recognised, independent German Institute responsible for testing products and services under the

premise of absolute neutrality. It tested a total of nine heating pumps, and the result? — a definitive "Excellent" for the Stratos-ECO with a grade of 1.3 for energy efficiency. It was adjudged the overall award winner with a value of 23% lower energy consumption than the nearest competition.

As building services specifiers and installers become increasingly aware of the need to be more energy efficient — especially with the introduction of Building Energy Rating Certification (BER) from the beginning of this year — it is essential that every component in a heating system is scrutinised to find ways to reduce energy consumption and CO<sub>2</sub> emissions. Given that 15% of the electric power consumed by an average household

is used to drive the circulation pump in the heating system, this is an ideal place to start.

By installing a high-efficiency A-Rated Wilo Stratos-ECO pump in an average domestic system, potential savings of up to 80% in energy consumption and a reduction in CO<sub>2</sub> emissions of 262 Kg per year can be achieved. This principle also applies to commercial applications on larger systems using the very successful Stratos range.

Wilo's green credentials are not limited to the energy performance of its pumps — they also extend to how the pumps are manufactured, packaged and shipped to the marketplace. All Wilo manufacturing sites are certified to ISO

14001 and use recycled materials in the packaging. Circulating pumps are shipped with insulating jackets to reduce unnecessary system heat losses and these also form part of the packaging, thus reducing packaging waste still further.

It is also important to synchronise the system design parameters through commissioning and proper set up and balancing. Enter the Wilo "Brain System", a specially-developed educational pump/system assembly which shows the interaction of pumps and systems using fixed speed versus variable speed pumps. There are numerous experiments to demonstrate the advantages on a portable system rig along with typical 2-pipe system problems such as air ingress. These are currently being used in educational institutes, termed as "Brain Centres", throughout Europe and also presently for engineering students and professionals in education at DIT, Bolton Street.

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## Pumps & Circulators

# Innovative Lowara Delivers All-Embracing Pump Solutions

Lowara pumps is part of ITT Corporation, a company spanning 150 countries worldwide employing in excess of 40,000 people, enabling it to share the most advanced research, design and industrial engineering skills with other group companies. Along with Lowara, ITT Corporation owns many other pump brands such as Flygt, Goulds and Vogel.

Lowara Ireland's HQ is situated in West Dublin, from where its highly-skilled internal sales team provide advice and handle all technical queries. The complex also houses a warehouse and distribution centre, stocking an extensive range of pumps and accessories, and the in-house after-sales service and repair team.



The Hydrovar is the world's first pump-mounted controller.

Supporting the headquarters staff is a nationwide network of Lowara external sales staff and external agents who carry out installations and commissioning, in addition to after-sales service.

Lowara manufactures a full range of pumps for residential, commercial and industrial use. For residential and commercial applications these include:—

- High-performance single and multistage stainless steel centrifugal pumps;
- Stainless steel drainage and sewage pumps;
- Lifting stations, submersible and self priming jet pumps.

In addition, booster sets for pressurisation and fire-fighting sets are available with fixed or variable speed controls and these can also be made to order.

Lowara's industrial range offers:—

- A complete range of laser-welded standard pumps in cast iron and AISI 316L grade stainless steel;
- A complete range of multistage horizontal and vertical pumps in AISI 304 or 316L to produce high heads with low-to-high flows.

Applications include water treatment, industrial washing



The new "SV Series" is one of the most recent innovative product ranges added to the Lowara portfolio.

equipment, machine tool cooling and conditioning systems.

The new "SV Series" is one of the most recent innovative product ranges added to the Lowara portfolio. Key features include pump body, impellers and diffusers welded using laser technology; heads of up to 330 meters with flows of up to 120 cu m<sup>3</sup>/hr; high hydraulic efficiency of between 77-80% on the new SV33-92 range; and innovative design which minimises the effect of axial thrust. Standard motors meet the energy saving efficiency 2 rating, with motors for efficiency 1 rating available on request.

Hydrovar is another example. This is the world's first pump-mounted controller. Retrofittable directly onto a wide variety of pumps up to 45kW in size, it manages the pumps performance to

match a wide range of system conditions and requirements.

Functionality includes controlling either pressure, flow or following system curve, auto shut-off, overload protection, variable ramp times, remote monitoring or control and automatic test run. Benefits include energy savings of up to 75%; easy installation; extended pump life; quiet running; and easy to use.

Similar to the Hydrovar, the Teknospeed is a variable speed pump controller for controlling pumps with motors up to 1.1 KW in size. Attached onto the motor itself, it is ideal for smaller variable speed applications such as pressure boosting for light commercial and industrial installations.

Contact: Terry Murray,  
Lowara (Ireland).  
Tel: 01 - 452 0266;  
email:  
terry.murray@itt.com



## Pumps & Circulators

### 'quality & reliability' — pumps from potterton myson

Potterton Myson's pump range is extensive, offering all manner of pumping solutions across the entire building services spectrum. Range details are as follows:— The "Compact" range of domestic heating circulators offers the installer assured reliability, high performance, and ease of installation for all domestic heating systems.

Special features include: 3-speed pump with a static head range of 2-6 metres; manual restart knob; large terminals

with clearly-marked captive screws; automatic vent on initial start-up; motor head can be replaced or repositioned without moving the pump from the system.

Uniquely, all compact pumps are guaranteed for 30 months.

The "SE" pump range offers a comprehensive selection of pumps as cast iron light commercial circulators, or secondary hot water commercial circulators.

The "SE" pump range has a host of special

features and is available in 1 1/4", 1 1/2", or 2" as cast iron, and from 1" up to 2" in bronze.

Using disc induction motor technology, these pumps deliver a high ratio torque for effortless low-speed start-up.

The use of a single static "O" ring seal eliminates the need for time-consuming, routine seal maintenance.

In addition, Potterton Myson offers a range of high-performance shower pumps for boosted water pressure, called the Aquaboo.

With a specialist team of field and in-house technical engineers to take customer queries, Potterton Myson has been providing expert advice on specification and installation for 30 years.

Full after-sales service and spares are available, and these are complemented by the company's unique training facility which is located on the Belgard Road, Dublin.

Contact: Potterton Myson.  
Tel: 01 - 459 0870;  
email: [post@potterton-myson.ie](mailto:post@potterton-myson.ie)

## Have You Got Your Personal Copy?

Given the pressures of the current trading environment, consulting engineers, mechanical and electrical contractors, and all others charged with purchasing decisions within building services are faced with enormous challenges.

To help them make the right decision they need to evaluate all available products and systems, quickly and with ease. To do that they need a single reference point, an all-in-one source containing all they need to know. The *bs news Building Services Product Specification Guide 2009/2010* is that invaluable resource.

Published in both printed and online formats, it has been in continuous publication since 1964 and is universally regarded as the *Specifiers Bible* within building services circles. The new 2009/2010 edition has just been published and distributed to all *bs news* readers.

To order additional copies for yourself or colleagues,  
email: [louise@pressline.ie](mailto:louise@pressline.ie)



contact  
Louise Byrne  
t: 01 - 288 5001  
e: [louise@pressline.ie](mailto:louise@pressline.ie)



## Airconmech Opens Northern Ireland Office

**A**t a recent function in the historic setting of the Titanic Dock & Pump House in Belfast, Airconmech Ltd — the Enniscorthy-based mechanical services, ventilation and air conditioning company — announced the official opening of its new Northern Ireland office. Over the last 12 months the company has re-branded and re-positioned itself in the marketplace and the opening of the NI office is the latest phase in its planned strategic development plan.

Guests of honour on the night were the Chief Executive of the Northern Ireland Chamber of Commerce, Ann McGregor and Belfast Harbour Commissioner, Ronnie Foreman. Also in attendance on the night were representatives from most of the leading architectural, consultancy, engineering, project management and development companies in Northern Ireland and Great Britain.

Established in Enniscorthy, Co Wexford in 1996 by Joint Managing Directors, John Dempsey and Jim Mullett, Airconmech initially serviced the ventilation sector but soon added an air conditioning contracting company to satisfy customer demand. In 1998 the company opened an automated duct manufacturing facility of 5,000 sq m but has since built a new

green-field factory of 10,000 sq m located on the outskirts of Enniscorthy town. The old factory was converted into a state-of-the-art office facility which now serves as the company's corporate headquarters.

The opening of a NI office was in response to increased demand for the company's services in the northern counties, including its specialised services such as the installation of process pipework used in hygienic and sterile conditions. Although Airconmech has been operating in the NI market for over 10 years — beginning with Enniskillen and Newry cinemas — it has serviced the business from its Enniscorthy base up to now.

Over the past 10 years Airconmech has developed into a strong mechanical services and facilities management company offering state-of-the-art technological services in every aspect, from design through to installation, maintenance and trouble-shooting. Its direct workforce has grown from 21 employees in 1996 to 135 in 2008, including its own in-house team of highly-skilled and experienced engineers. Looking to the future, John Dempsey is confident



Ronnie Foreman, Belfast Harbour Commissioners, with Jim Mullett, Joint Managing Director of Airconmech, Ann McGregor, Chief Executive of Northern Ireland Chamber of Commerce, and John Dempsey, Joint Managing Director of Airconmech.

Airconmech's success and experience will help it overcome the challenge the current economic conditions present and that it will continue to be a strong player in the market segments it serves. These include hotels and conference centres, leisure centres, cinemas, medical centres, restaurants, office blocks and showrooms, pharmaceutical and chemical cleanrooms, food industry facilities and prestige retail outlets.

"With our new branding in place and new projects already underway within Ireland, Northern Ireland and Great Britain", says John Dempsey, "we are ideally placed to engage in, and build on, new prospects and opportunities by focussing on our company motto which is 'engineering intelligent solutions'".

Contact: Terry Kehoe,  
Airconmech.  
Tel: 053 - 923 8888;  
email: sales@airconmech.com



# An Appreciation

The tragic and sudden death of Mairead Shields (nee Vance) in January has shocked the industry, especially those in the sanitaryware and bathroom sector. Mairead, a Director of the family firm BJ Caraher, was just 35 years of age and was killed by a falling tree as she drove along Strangford Road in Downpatrick, Co Down. Her devastated husband Colin described her as the most "generous, caring and loving" wife and mother, and said his only comfort in his grief was that his daughters — three year-old Abaigh and one year-old Tara — had not been in the car when the accident happened.

Her parents Aidan and May, and her six siblings, are equally devastated, as are her work colleagues, business associates and the community within which she lived. In the region of 1500 people attended the funeral mass in the local St Patrick's Church in Downpatrick, three quarters of whom crammed into the church itself with the remainder thronging the car park outside. They came from all over Ireland, in addition to European countries and further afield.

Speaking with sadness but pride, Mairead's parents, Aidan and May, said they had been touched by the expressions of support from around the world, and particularly by the guard of honour that lined the road in Saintfield as Mairead's body was driven to her home from the hospital.

Mairead was variously described as the family "matriarch" and "glue", the person who invariably brought family members together. Thanks in no small measure to her influence all were the best of friends, so much so that many jokingly referred to them as the "Vonn Trapp family". Not surprisingly, Mairead brought this same zest for life, love and sense of values to her own immediate family.

It was something that also spilled over to her role as a Director of BJ Caraher, the family business. Her infectious personality and sense of fun permeated right throughout the organisation, though family members and colleagues alike are quick to point out that, when the occasion demanded, she could be extremely hard-nosed.

More than any of her siblings Mairead was destined to run the business. From primary school right through to university, she spent all her free time working in the company. That said, on graduating with a business degree in 1995, she spent 12 months working in Houston, Texas, undertaking sales and marketing for a large conglomerate.

Armed with this experience she returned to BJ Caraher to spearhead a major drive to grow the business in the Republic of Ireland. She was tremendously successful in this endeavour but also made some firm and long-lasting friends, as was evidenced by those who attended her funeral.

She returned to Downpatrick in 1998 and effectively became Aidan's shadow, getting involved in all aspects of the business. As fellow-director Ross Crymble said: "She did an Aidan ... buying, cutting deals, organising logistics, etc ... and all before putting the cat out for the night!"

As the foregoing illustrates, Mairead's memory and influence will forever be intertwined in the lives of those who knew her. Her father, Aidan, perhaps best summed it up when he said: "Mairead will live on. Her photographs will not be put away, she will live on through the stories we tell, through her children who will remember her through all of us, and through the business."

## Mairead Shields



Mairead Shields with her husband Colin and daughters Tara and Abaigh



# face to face

BRIAN CONNOR



# W

hile sustainability may be the new, if somewhat overused, buzzword within building services, the founding members of the Geothermal Association of Ireland (GAI) were championing sustainability and renewable technologies as far back as 1998 when they set up the organisation.

GAI is committed to education and awareness-building to promote the use of geothermal as a renewable energy source in Ireland and, to this end, runs an extensive annual programme of technical evenings, site visits and training courses. It is affiliated to the European Geothermal Energy Council and the International Geothermal Association.



GAI Chairman Brian Connor is passionate about the potential of geothermal technology, especially for a country like Ireland which is so heavily dependent on the use of fossil fuel, most of which has to be imported. He has over 40 years experience in applied geology and hydrogeology and has been involved in the development of geothermal energy since the 1980s.

Brian's projects have varied from looking at the utilisation of geothermal energy extracted from existing water supply sources, to evaluating the potential use of energy piles in numerous European countries. He has also been associated with major EU-funded geothermal projects.



The GAI is a not-for-profit organisation committed to promoting the development of geothermal energy in all its forms by way of research, education, training and Government lobbying. It advises members on how to access national and EU funding and carefully orchestrates its programme of events to ensure that the message is conveyed to all interested parties. This includes those directly involved in the business, industry at large, and the general public.

## Member Benefits

GAI membership has many benefits, including:—

- Dedicated newsletters;
- Email newsflashes;
- Free attendance at most GAI lectures and field trips;
- Corporate logo and web link to GAI home page.

Corporate Associate Membership currently costs €150 per annum with Individual Membership priced at €50 per annum.



# face to face

BRIAN CONNOR

*"While still relatively new to Ireland, there are a significant number of geothermal installations already delivering excellent returns at various locations throughout the country. Of those installed over the last five years, something like 60% were by GAI members."*



Brian Connor

The method of securing geothermal energy involves warm water being pumped to the earth's surface and circulated through a heating system to provide home heating to individual houses, or a number of homes and/or businesses within a locality in the case of a group scheme. The water is then returned to the ground through another borehole.

Until now, mainly shallow geothermal energy — available at depths of up to 150m — has been used in Ireland. This has been successful for one-off houses and single developments but attention is now being directed towards larger, group-type schemes.

For instance, when addressing the GAI conference in Kilkenny late last year geothermal contractor Pádraig Hanley suggested that as much as 15% of Dublin's hot water and heating could be provided by geothermal energy within the next five to seven years. He cited results of testing at a pilot programme in Newcastle, Co Dublin, which indicated that 10,000 homes in the area could benefit from a geothermal system extracting heat from 1,000m to 2,000m below ground. Hopes were also high that the energy could be used to generate electricity.

Mr Hanley called on the Government "to expedite the legislation that is urgently needed to enable us to proceed to the next stage and the development of a geothermal plant. The sooner the legislation is in place, the sooner we can begin to roll out this cheaper, constant renewable source of energy to consumers".

"While still relatively new to Ireland", says Brian, "there are a significant number of geothermal installations already delivering excellent returns at various locations throughout the country. Of those installed over the last five years, something like 60% were by GAI members. These applications represent an invaluable resource from which all can learn. Hence the emphasis on site visits in our annual programme of events.

"The programme also includes site visits to selected projects at various locations throughout Europe. In some continental countries the application of geothermal technology is widespread across both commercial/ industrial and domestic applications. As a consequence, the technology is very well advanced, as is the accumulated knowledge bank. The advantage of geothermal energy being a fledgling industry for Ireland is that we can learn from the hands-on experience of others, particularly in relation to not repeating the mistakes they made.

"A critical issue in this respect is the training of installers. The Government is currently looking to devise a licensing mechanism for those involved in the sector. GAI is supportive of this initiative and is actively involved with measures to accredit and certify heat pump manufacturers, installers and suppliers. The potential geothermal technology represents for Ireland is enormous and it is imperative that we put the correct procedures and control measures in place to maximise it."

Contact: Gareth Jones, GAI Secretary.  
Email: [info@geothermalassociation.ie](mailto:info@geothermalassociation.ie)



## trade news + product information

### munters appoint austin kennedy

Munters has increased the size of its field-based operation in Ireland with the appointment of Austin Kennedy who is now covering Ireland from its base in Tallaght.

Austin studied engineering at DIT, Bolton Street, and has worked in the building services industry for the past six years. He has concentrated in underfloor heating, geothermal heating and district heating, primarily on the commercial and industrial sectors.

He has undergone a rigorous training and development programme to ensure that he is up-to-date with all the latest technologies associated with Munters' products.

Contact: Austin Kennedy, Munters Ireland. Tel: 01 - 462 2772; Mobile: 086 603 3285; email: [austin.kennedy@munters.ie](mailto:austin.kennedy@munters.ie)



### ireland signs as founding member of IRENA

Ireland signed up as a member of the International Renewable Energy Agency (IRENA) at the founding conference held in Bonn on 26 January. Energy Minister Eamon Ryan said: "IRENA will promote the widespread and sustainable use of renewable energy worldwide and it is vital that we are involved".

IRENA will be the first international organisation to concentrate exclusively on renewable energy in both developed and developing countries. Its establishment has been promoted by the German government with the strong support of Denmark and Spain.

"In energy terms, we are nothing if we stand alone", said Minister Ryan. "The foundation of this agency puts renewable energy on a firm inter-Governmental footing. This is a sector as much in our economic interest as to our environmental benefit. It is the right strategic direction for the world and is most definitely the correct move for Ireland."

Contact: [www.irena.org](http://www.irena.org)

### etaline designed to save energy

Billy Wright of Irish Fan Distributors says that Etaline — an inline tube fan designed for direct installation to a duct system — is the first fundamental innovation in new ventilator product development in decades.

Compared to conventional fans, whether forward or backward curved, Etaline requires no extra housing. This means no additional mounting pressure losses. Other Etaline features include a fixed stator, three-dimensional curved blades, and continuous meridian channel.

The highly efficient, aerodynamic design also achieves high performance density. Therefore, the outer dimensions of the ventilator are equal to the connection diameter. When used as an inline ventilator, no additional installation space is needed.

Smaller motor dimensions due to very high efficiency, lower material use due to high performance density, and the use of saltwater-proof aluminium alloy (from model 400 mm), make Etaline very lightweight and easy to handle and install.

Contact: Billy Wright, Irish Fan Distributors. Tel: 01 - 051 - 852 404; email: [sales@irishfandist.com](mailto:sales@irishfandist.com)





## trade news + product information

### cylon intuitive room control display

Cylon Controls has introduced a new, user-friendly, room control display for individual fan coil control. Called the UCU Room Display, its built-in space temperature sensor measures the room temperature which is then displayed on the large LCD screen.



The UCU Room Display is connected to an advanced fan coil controller which is part of the UnitronUC32 building energy management system. Unlike other products on the market, the Cylon fan coil solution is freely programmable and so allows for more energy-efficient applications.

For instance, in hotels the fan coil can be linked to an in-room key card to save more energy. When the room is occupied it will be put in comfort mode whereas when unoccupied, it will automatically fall back to a more energy efficient temperature.

Contact: Stephen Carroll, National Account Manager, Cylon Controls.  
Tel: 01- 245 0500; email: [stephen.carroll@cylon.com](mailto:stephen.carroll@cylon.com)

### RACGS 2009 Programme

The RACGS programme for the forthcoming season has now been confirmed. Details of date, venues and sponsors are as follows:—

Thursday, 19 March, Carlow Golf Club. Sponsor: MSS;  
Thursday, 23 April, Powerscourt Golf Club. Sponsor: Danfoss Ireland;  
Friday, 22 May, Cork Golf Club. Sponsor: RDL;  
Friday, 26 June, Heritage GC Killenard (Captain's Day). Sponsor: Carel Ireland;  
Thursday, 13 August, PGA National (RACGS v NRGs UK). Sponsor: *bs news* & Sauermann UK;  
Thursday, 10 September, Adare Manor (President's day). Sponsor: RSL & Murco Gas Detection;  
Thursday, 22 October, The European Club. Sponsor: Refrigeration Skillnet.

Golfer of the Year sponsor: Hitachi Europe.

Contact: Mark Kiely, Gasco.  
Tel: 01 - 462 7311; email: [markkiely@gasco.eu](mailto:markkiely@gasco.eu)

## the **energy** show 2009

RDS Dublin • 29<sup>th</sup> - 30<sup>th</sup> April



### Make sure your business doesn't miss out

Organised by Sustainable Energy Ireland (SEI), the Energy Show is the ideal place to see and learn about the latest sustainable energy technologies and practices for industry and business.

This two-day exhibition showcases leading energy suppliers and their innovative products and services.

In addition, seminars will be held to highlight sustainable energy opportunities and best practice case studies.

So if your organisation wants to secure its energy future, this event is not to be missed.

For visitor and seminar details visit:  
**[www.sei.ie/energyshow](http://www.sei.ie/energyshow)**

### Securing Our Energy Future

presented by





## trade news + product information



Pictured at the launch of NSAI's Strategy for 2009-2011: Enabling Enterprise Excellence were Minister for Trade & Commerce, Mr John McGuinness, TD with Maurice Buckley, Chief Executive, NSAI

### recognised standards can cut costs

Minister for Trade and Commerce, John McGuinness, TD, recently unveiled the National Standards Authority of Ireland's (NSAI) 2009-2011 strategy, entitled *Enabling Enterprise Excellence*.

A number of strategy initiatives are focused specifically on the built environment industry, including the adoption of quality and environmental management system standards, encouraging certification of new insulation, heating and waste management products, and promoting certification to the IS 393:2005 Energy Management Systems standard.

NSAI also announced that it will ensure consumer confidence during carbon reducing upgrades through the introduction of relevant certified installer schemes.

Maurice Buckley, Chief Executive, NSAI, said: "As the construction industry comes under increasing pressure, the quality and consistency of construction products and processes becomes even more essential. Recognised Standards and certifications, such as ISO 9000I and I.S 393:2005 (Energy Management Systems), can give the sector a competitive advantage. In addition, using quality management systems, such as ISO 9000, can cuts costs."

Contact [www.nsai.ie](http://www.nsai.ie) for further details.

### honeywell heating controls website

The new Honeywell heating controls web site at [www.honeywelluk.com](http://www.honeywelluk.com) provides a wealth of advice on products and systems to save energy and enhance comfort, in homes and small public or commercial buildings.



### tour & anderson hydronic training

Tour & Andersson has embarked on a series of informative CPD presentations to provide on-going training and support to young engineers and experienced employees. It is an extensive programme which should interest young designers as well as experienced engineers.

"A number of design engineers across the field of design and commissioning of systems are still in their infancy when it comes to variable volume design and fully understanding the use of the traditional and new pipe line equipment for the commissioning of water systems," says Ken Browne.

"Training is not just applicable to young engineers but is also important for experienced building services engineers and consultants in terms of system design, installation and commissioning, as well as current legislation and changing regulations. Our new training programme was devised to help them address these issues."

Contact: Ken Browne, Tour & Anderson (Ireland). Tel: 087 - 280 1095;  
email: [ken.browne@tourandanderson.co.uk](mailto:ken.browne@tourandanderson.co.uk)



## trade news + product information

### flogas nationwide natural gas deal

Flogas has announced plans to roll out a natural gas service for commercial customers throughout Ireland, following a successful pilot launch in the North-East.

A leading LP gas supplier, Flogas entered the natural gas market following its deregulation a few years ago and has been supplying natural gas via the existing Bord Gáis Networks pipeline to over 11,000 homes in the North-East, Midlands and the West.

"Like all companies in today's environment, the control of overheads is very important and we were delighted to have saved on our natural gas bills by over a third since changing to Flogas Natural Gas. It has made a real difference to our running costs", said Declan Tolan of Nature's Best, Flogas' first ever commercial customer.



Michael Keogh, Commercial Sales, Flogas Natural Gas with Declan Tolan, Financial Reporting Manager, Nature's Best; and Jennie Dockrell, Team Leader, Flogas Natural Gas

### ecobuild — creating a sustainable future

Ecobuild — Earls Court, London, 3 to 5 March inclusive — started life in September 2004 as a small "green building" conference and immediately made an impact with pioneering architects, consultants and the then small community of suppliers of innovative sustainable construction products.

Ecobuild moved — along with its sister event, Futurebuild — to London's Earls Court in 2006 where it has more than doubled in size and attendance every year since.

Now in its fifth year, and with 800 exhibitors, Ecobuild presents the biggest and best showcase of sustainable construction products anywhere, plus dozens of related attractions and more than 100 free conference and seminar sessions.

Contact: [www.ecobuild.co.uk](http://www.ecobuild.co.uk)

### manotherm — 600 pages of instruments and controls

The new Dwyer Instruments 2009 product catalogue is now available from Manotherm. It contains literally thousands of individual product items, all of which are accompanied by illustrations and full technical details.



For ease of perusal and product selection, they are grouped together into major product category segments. These include:—

- Pressure;
- Air Velocity;
- Flow;
- Level;
- Temperature;
- Process Control;
- Data Loggers & recorders;
- Humidity & Air Quality;
- Test Equipment;
- Valves.

Copies are available direct from Manotherm.

Contact: Bob Gilbert, Robert Gilbert or Conor Stead, Manotherm. Tel: 01 - 452 2355; email: [info@manotherm.ie](mailto:info@manotherm.ie)



## trade news + product information



### condensing boilers from hoval

Hoval's single UltraGas units now offer capacities from 50kW to 720kW, while twin UltraGas units offer outputs from 250kW to 1440kW – complete with common flue and optional pipework/header kits. The 500kW and 720kW models are also available in 8-bar versions.

Featuring Hoval's Ultra Clean combustion system, the boilers use a modulating pre-mix down-firing burner with up to 6:1 turndown (12:1 on twin units) and a stainless steel combustion chamber with a single-pass aluFer tube heat exchanger.

When tested to the requirements of the European Boiler Efficiency Directive, UltraGas boilers achieve net efficiencies of up to 109.5%, NOx levels of 20mg/kWh and CO levels of 10 mg/kWh.

All UltraGas boilers have a connection at the rear to accept a ducted fresh air supply for room-sealed applications. They are also fitted with two return connections for high and low temperature circuits.

Contact: James Peter Gleeson, James Gleeson & Co Engineering.  
Tel: 061 - 372 030; email: [info@jamesgleesoneng.ie](mailto:info@jamesgleesoneng.ie)

### €100m for ireland-uk electricity link

The European Commission has allocated €100 million in funding to Ireland's electricity interconnector project, which will link Ireland and the UK by 2012.

The Commission's decision to select the Irish project for significant fast-tracked funding is part of a suite of energy projects being targeted for investment because of their strategic importance to Europe and is part of a €5 billion economic stimulus package called "Investing Today for Tomorrow's Europe".

Ireland has also been included — along with the UK, Netherlands, Germany and Denmark — as part of the €150 million project to develop the offshore grid in the Northern Seas Zone.

### ecodan — the air source heat pump solution

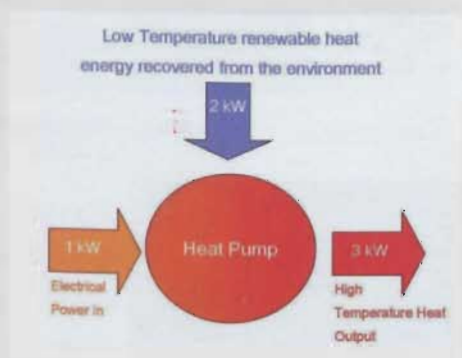
Many have heard of ground source heat pumps and the high efficiency levels they offer but air source heat pumps are also said to deliver significantly higher levels of efficiency when compared to traditional heating methods.

It is against this background that Mitsubishi Electric developed the Ecodan range of air source heat pump systems which bring advanced, inverter-driven, technology refined in the commercial heating sector to home heating.

Paul Sexton of Mitsubishi Electric explains: "The Ecodan system consists of an external box which is fitted to the outside wall. It harvests renewable, low-grade energy from the outdoor air and upgrades it into useful heat to supply a home with hot water and heating. Every 1kW of electricity fed into Ecodan produces at least 3kW of heating energy. It works efficiently all year round, even if the outdoor temperature should drop to -15°C."

Ecodan is only available through Approved Ecodan Installers (AEI) and Mitsubishi Electric invites independent installers and plumbers who are appropriately qualified to apply to attend a training day at its headquarters in Westgate Business Park, Dublin 12 to become part of the approved list.

Contact: Paul Sexton, Mitsubishi Electric Europe. Tel: 01 - 419 8800;  
email: [paul.sexton@meir.mee.com](mailto:paul.sexton@meir.mee.com)





# Another Side Of ...

## Gareth Jones



Gareth (right) with his dad, Howard, just before the FA Cup match between Cardiff and Arsenal. Inset: Scott enjoys the match from home.

Bill Shankley's assertion that football was much more than a matter of life and death was perhaps extreme but, on meeting Gareth Jones, Rehau General Sales Manager in Ireland, it is easy to understand the sentiment behind his remark.

Having been brought up in a house backing on to Ninian Park in his native Cardiff, it is hardly surprising that Gareth is a devoted Cardiff City fan and permanent season-ticket holder. Now based in Dublin during the week, he travels back to his home in Birmingham every weekend, ostensibly to see his family. However, he somehow always gets to see Cardiff City play while in the UK, be it a home or away game.

Gareth's affinity with Cardiff City FC is not just about the club, or football *per se* ... it runs much deeper than that and is part of his very being. From the age of six or seven he has been going to games with his dad, and still does today. His young son Scott is just two years old and soon all three generations of the Jones family will be attending games together.

Gareth very nearly missed Scott's birth — his due date clashed with an important

league game. It was a tough decision but Gareth chose to stay with his partner, Heather ... just in case. It was the right decision. On entering the world Scott was immediately trussed up in a Cardiff City FC babygro and since then appears to be permanently dressed in his replica strip.

Gareth is a true football fan and believes it has an important role to play in cementing the social fabric of society. No matter where he happens to live he attends live games. He did so while living in Chile, and even managed a Serie B game when on a mini-break in Venice. He also attends League of Ireland games, bringing his dad on one of his most recent outings.

"There is nothing like it", says Gareth, "I'm a different person for that 90 minutes. I find it a total switch off and forget absolutely everything else for the duration of the game".



THE CHARTERED INSTITUTION OF BUILDING SERVICES  
ENGINEERS, REPUBLIC OF IRELAND REGION



## ANNUAL CONFERENCE 2009

VENUE: CLONTARF CASTLE, DUBLIN 3

DATE: TUESDAY, 24 MARCH 2009

REGISTRATION: 8.15AM - 8.45AM

main sponsor



# Delivering Energy- Efficient Buildings

The 2010 Objective .





# Booking Form

Name: \_\_\_\_\_

Company / Address: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Membership Number: \_\_\_\_\_

Telephone Number: \_\_\_\_\_

*Please enter in boxes below  
number of places required*

CIBSE Member €125 \_\_\_\_\_

Student Member €20 \_\_\_\_\_

Non-Member €175 \_\_\_\_\_

Amount of cheque \_\_\_\_\_

All booking forms to be returned to the addressee below by Friday, 13 March 2009. Lunch included in price. Cheques should be crossed and made payable to CIBSE, Republic of Ireland Region and sent with this booking form to:

Mr Derek Mowlds  
Business Services Team  
PM Group  
2/3 Parnell Square East  
Dublin 1

Tel: 01 529 1134  
email: derek.mowlds@pmg.ie



## Speaker Line-Up

*The speaker line-up comprises  
leading international experts in  
the field, including:—*

Kevin O'Rourke, SEI  
*Sustainable Building Delivery*

Ciaran O'Connor, Principal  
Architect, OPW  
*Sustainable Construction Projects*

Jason Gardner, Buro  
Happold  
*Advances in Design Techniques*

Dr Ken Beattie  
*Building Energy Modelling*

Prof. Tony Sung  
*Engineering the Next Generation  
of Sustainable Buildings*

Michael McDonald, Jacobs  
Engineering  
*Maintaining Energy Design Intent  
Under Design Build Framework*

Karol Kerrane, NEA  
*Implementation, Delivery &  
Sustaining Energy Efficient  
Buildings*





Eoin Doohan

e: eoin.doohan@pmg.ie

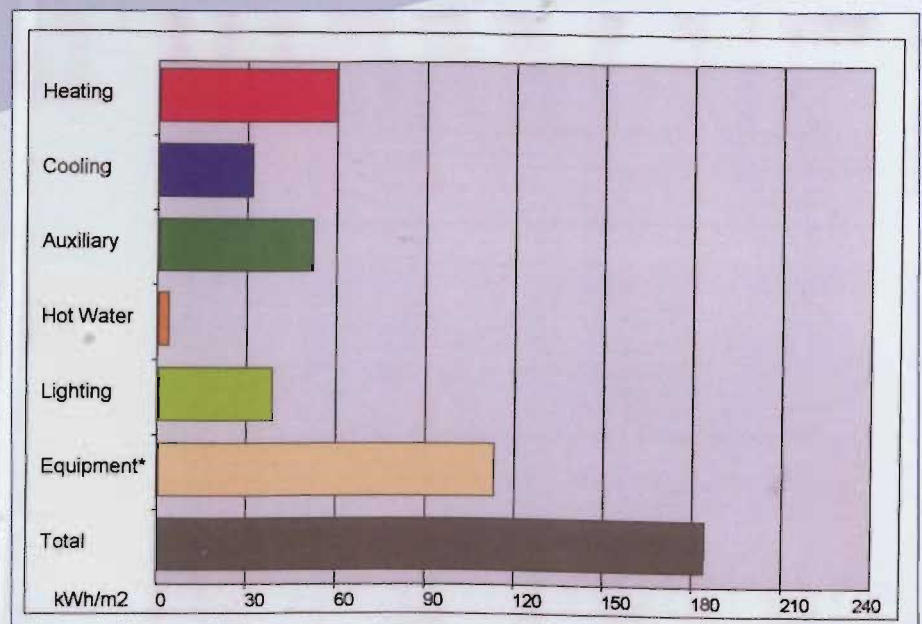
# designing BUILDING SERVICES

## achieving Part L compliance under the revised building regulations

The new building regulations, which came into force on 1 July last year under the auspices of SI 259:2008, have had significant implications for the design of commercial buildings which are now required to meet defined targets in relation to primary energy consumption and CO<sub>2</sub> emissions. The new regulations have come about due to Ireland's obligations under the Energy Performance of Buildings Directive (EPBD) which contains a range of provisions aimed at reducing the energy consumption of buildings.

### Primary Energy

Primary energy consumption is defined as the primary energy used for space heating and cooling, water heating, ventilation and lighting, calculated on the basis of standard operating patterns. This differs from the actual energy consumption of a building as the primary energy relates to the energy consumed at source, eg at a power station. The actual power consumption will always be less than the primary energy consumption owing to generation and transmission inefficiencies. **Figure 1** shows an example of an actual energy consumption graph for a building generated by iSBEM.



**Figure 1** shows an example of an actual energy consumption graph for a building generated by iSBEM

Although a figure for equipment end-use is shown, it is for indicative purposes only and is not used for building regulations calculations.

### The Calculation Method

The calculation methodology used to show compliance in the Republic of Ireland is the NEAP (non-domestic energy assessment procedure). The NEAP is the adapted version of the SBEM (simplified building energy model) which is the UK calculation methodology. The primary platform to demonstrate compliance is the Republic of

Ireland version of iSBEM (interface for the simplified building energy model). iSBEM is a Microsoft access-based tool which has been modified from the UK version, originally developed by the BRE.

Also awaiting accreditation are the compliance packages of IES and Hevacomp which are accredited for UK building regulations compliance. These packages use their respective software's existing 3D interfaces to input the building, and then perform the same calculation using the NEAP methodology.



# achieving Part L compliance under the revised building regulations

## Actual, Reference & Notional Buildings

In order to understand the NEAP methodology, it is important to understand the actual, reference and notional buildings. The actual building takes the building as it is designed and applies certain profiles to it. Each room in the actual building is assigned an activity (cellular office, toilet etc) based on the building type (office, industrial process building etc). The software then applies specific profiles for occupancy, heat gains, lighting profiles, plant profiles, ventilation and set points to the building, according to the room activity.

The reference building then takes the actual building and applies a standard set of values relating to glazing area, constructions and system characteristics. The floor area and building volume are the same as the actual building. The standard set of values are those that appear in the Appendix C of the Building Regulations and relate to items such as glazing and roof light areas; glazing and roof light shading coefficients; fabric U-values; infiltration; system efficiencies; and auxiliary energy values. If a system is defined as a heating only, the reference building treats it as a heating only system.

The notional building is used for the purposes of the building energy rating (BER). It differs from the reference building in that it is a mixed mode building. So, if an area is defined as heating only,

the notional building will apply a cooling provision when there is a cooling demand.

## Systems Data

In order to calculate the energy performance and carbon emissions of the actual building, the HVAC systems data must be defined (Figure 2). With all the software programs the procedure is the same. The first step is to select the type of system from the database. The database contains a wide range of HVAC systems for different applications and it is important that the correct system is selected.

Next, the seasonal and nominal efficiencies — as well as the fuel type for the boiler and chiller — are entered. Using this data and based on the system type, the software uses built-in algorithms to calculate the overall heating

system sCOP (seasonal Coefficient of Performance) and cooling system SEER (Seasonal Energy Efficiency Rating). These are effectively the overall delivery efficiencies of the heating and cooling systems.

A significant proportion of the overall energy consumption of the HVAC system can be attributed to the energy consumption of the fans, pumps and controls. This is the auxiliary energy value (AEV) of the system. Similarly, the software uses algorithms to calculate this value. Data that is used to calculate the AEV includes the leakage characteristics of the ductwork and air handling units, the metering provisions of the system and, most importantly, the specific fan power (SFP).

A domestic hot water system must be applied to each HVAC

UK NCM system data wizard

UK NCM system type: Constant volume system (variable fresh air rate)

Heating system | Cooling system | System adjustment | Metering Provision | Ventilation | System controls

Heating only

Heat source: LTHW boiler

Fuel type: Oil

Does it qualify for ECA? ☒ ECA list (after 2001)

☐ Tick if this system also uses CHP

☒ Tick if this system was installed in or after 1998

Do you know the generator seasonal efficiency?

☐ No, use the default value 0.8900

☒ Yes, the seasonal efficiency is 0.8500

Heating sCOP: 3.1702

Cooling SEER: 3.1080

Auxiliary Energy Value: 97.944 kWh/m²y (based on 3255 hours system operation)

OK Cancel

Figure 2: In order to calculate the energy performance and carbon emissions of the actual building the HVAC systems data must be defined.



# achieving Part L compliance under the revised building regulations

system. The DHW data contains details of the hot water generation efficiency, as well as storage capacity and distribution losses. Based on the room type, the software will apply DHW consumption rates, similar to occupancy and load profiles.

## Lighting Data

Lighting will contribute a significant amount of energy to the overall energy consumption so it is important that accurate data is entered to the software. When entering data for lighting, the W/m<sup>2</sup> and lux levels must be entered. This is because the Building Regulations take the overall lighting efficacy into account. The efficacy is a ratio of the light produced by a lamp relative to the energy consumed.

For example, a lighting system of 12W/m<sup>2</sup> for 400 lux will give similar results to a system that produces 500 lux at 15W/m<sup>2</sup>, as the ratio of light produced to energy consumed (efficacy) is the same for both. Often, however, the calculation will be done at the early stage of a project when accurate lighting data may not be known. In this case it is possible to just specify the lamp type, but it must be remembered that accurate lighting data will usually give a better result.

For the final calculation the building should be zoned so as to group rooms in categories such as room activity, HVAC system, lighting system or access to daylight. For example, the

zoning process for daylight would split areas up between:—

- (1) Areas which are within 6m of an external wall containing at least 20% glazing;
- (2) Areas within a distance of 1.5 times the room height of a roof light;
- (3) The remaining areas which receive no daylight.

## EPCs & CPCs

Using the inputted data the software then calculates and compares the primary energy consumption and carbon emissions of the actual and reference buildings to give the energy and carbon performance coefficients (EPC & CPC). If the energy consumption of the actual building and reference building is the same, the EPC and CPC will be 1. Energy ratings are based on a ratio because the energy usage (kWh/m<sup>2</sup>) of commercial buildings can vary widely. The building is deemed to have passed if these values do not exceed the maximum permitted coefficients (MPEPC & MPCPC), which currently stand at 1.

It is important to remember that the NEAP calculation is a "simplified" calculation and is by no means a design tool. By applying a standard set of profiles, it is effectively benchmarking the building against a reference building. It is envisaged that, as opposed to significantly changing the specifics of the building regulations, the MPEPC and MPCPC will reduce in the future

for new editions of the regulations.

## The Building Energy Rating (BER)

The BER is an indicator of the primary energy performance of a building. The BER will be displayed on a BER certificate (Figure 3, courtesy of SEI), which will be accompanied by an advisory report. A CO<sub>2</sub> emissions indicator can also be seen on the BER certificate. The BER is on a sliding scale, with a rating of A1 being applied to the most efficient buildings to, at the other end of the scale, G for the least efficient buildings.

The energy consumption figure on the BER may not be the same as that which is used to calculate the EPC. This is because the EPC compares the actual and reference buildings, while the BER compares the actual and notional buildings. The BER certificate will be

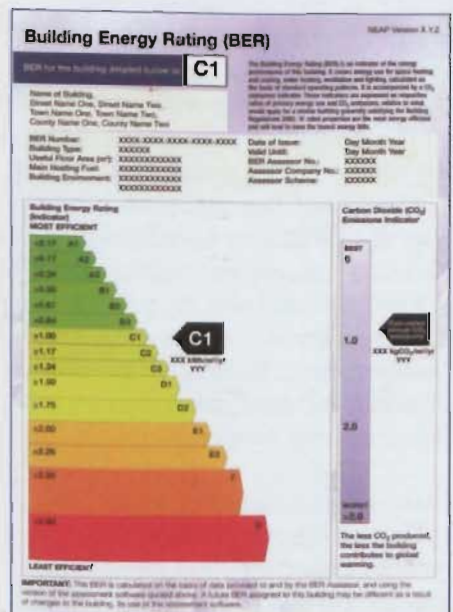


Figure 3 shows a BER certificate with the BER rating



# achieving Part L compliance under the revised building regulations

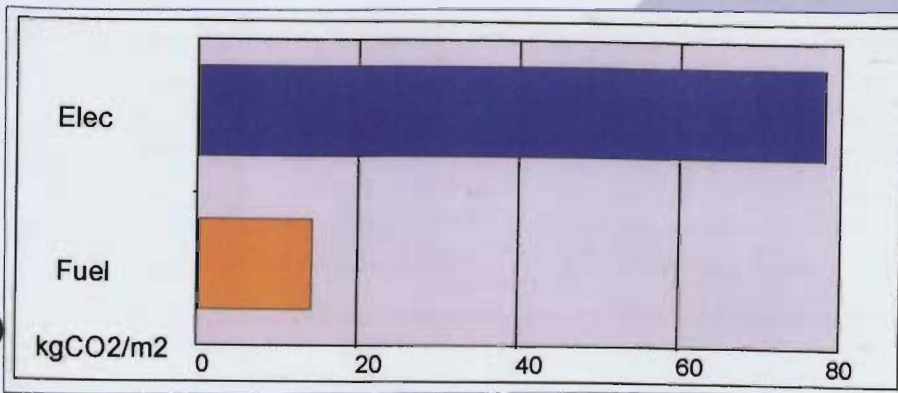


Figure 4 shows a graph from iSBEM showing the CO<sub>2</sub> emissions of a building.

accompanied by an advisory report which outlines measures that could be taken to achieve compliance or improve performance.

The Irish regulations differ from the UK regulations in that the UK BER is based on carbon dioxide emissions whereas the Irish BER is based on primary energy consumption. The primary energy emission factors (kgCO<sub>2</sub>/kWhr) should not be directly compared with UK values as there are differing primary energy emission factors in the UK and Ireland. The relative factors should be applied to each before comparisons are made. **Figure 4** shows a graph from iSBEM showing the CO<sub>2</sub> emissions of a building.

## Achieving Compliance

By using standardised profiles as outlined above, the calculation limits the engineers' influence on the building operation while giving him/her control over the aspects where good design can produce energy and carbon savings.

Details such as fabric data (U-values), air tightness and system efficiencies will all have a significant effect on the energy and carbon performance. Reducing the specific fan power will considerably reduce energy consumption. Also, when designing lighting systems it is important to remember the importance of the overall "efficacy" as described earlier.

The term "primary energy" that is used does not include energy generated from on-site renewables. These technologies are also considered carbon neutral so their incorporation can significantly improve results, and could also be used to offset against high consumption HVAC systems.

## Conclusion

The new amendment to the Building Regulations is a first for Ireland in that commercial buildings must now meet definitive requirements in relation to energy consumption and carbon emissions. In contrast, the UK has been using iSBEM as a compliance tool since early 2006. As a result there are many guidance documents available

to assist the engineer, such as the *Non-Domestic Heating, Cooling and Ventilation Compliance Guide and Improving the Energy Efficiency of our Buildings*, both published by the Department of Communities and Local Government in the UK (DCLG). In addition, there are the extensive user manuals that come with all the software packages.

An understanding of the calculation methodology is important so as to understand the effects that changes will have on the overall result.

Finally, the new amendment to the regulations is essentially an add-on, so we are still required to meet the requirements with respect to the existing regulations (eg solar overheating).

In conclusion, the new regulations place an increased responsibility on engineers and designers to ensure their systems meet the requirements. While they are not without their flaws, the regulations are certainly a step in the right direction in reducing our carbon emissions.

## Biography

Eoin Doohan is a building services engineer with PM Group based in Dublin. A graduate of DIT Bolton St, he has worked on a wide variety of industrial, infrastructural and commercial projects during his time with PM. He recently completed a 2008 Building Regulations compliance calculation using IES software for a 23,000m<sup>2</sup> production facility, one of the first buildings of its type in Ireland to undergo such analysis under the new regulations.



# Pragmatic Approach to Better Water Quality

In this, the second of two articles on water quality, *Bryan Barlow of Spirotech* revisits the problem of dirt particles and air in piped water systems, this time dealing exclusively with control by dirt separation (in *bs news* December 2009 he dealt with control by deaeration).

## Control by dirt separation

### Accumulation of dirt in system

Dirt (such as sand, fibres from cloths, swarf from pipe cutting, plastic, welding slag, etc) will enter a piped water system while it is being fabricated.

Systems should thus be properly flushed prior to use (see BSRIA AG 1/2001.1 (2004, AG 1/2001.1 – Pre-commission Cleaning of Pipework Systems, for details).

Nevertheless, inefficient flushing will leave some of this debris in the pipes and, once in operation, scale and particles from corrosion – the latter a result of dissolved oxygen – will also accumulate. The reaction between iron, water and oxygen will form magnetite and, if oxygen is then present, the magnetite may, in some cases, be converted to the much more voluminous hematite.

A build-up of sludge and “dirt” in a system will reduce its effective operation. Ensuing problems may include:—

- Heat exchangers (for example boilers and radiators) becoming obstructed, impeding water flow and reducing heat transfer;
- Pump seals and glands being exposed to the scouring effect of the particulate matter in the water, with faster wear;
- Increased system noise;
- Strainers becoming blocked, causing increased pressure drops, and in turn additional pumping costs or capacity loss;
- Low velocity pipework (such as underfloor heating) can accumulate debris and lose part of the heat transfer surface where dirt has built up;
- Pitting corrosion formed via microbubbles bombarding the pump impeller.



Figure 1: Cutaway of a full bore inline dirt separator

## Removing dirt from the system

A common way of reducing particulates in piped water systems is to incorporate a filter or a “strainer”. There is always a compromise when using strainers – large mesh sizes allow larger particles to pass through, while a finer mesh will collect a large volume of particulates rapidly, potentially leading to obstruction of the waterway.

To prevent problems, and ensure that system performance does not suffer, *strainers require regular maintenance*. Where there are large amounts of material circulating in the water stream (for example in open systems such as cooling tower circuits and swimming pools), sidestream filtration systems can be used.

However, these filter only a proportion of the circulating water, and allow debris to circulate until it is removed on a subsequent circulation (if it has not already settled somewhere else within the system).

Dirt separators (**Figure 1**) can remove particles down to 0.5  $\mu\text{m}$  (compared to strainers that only remove down to 1,600  $\mu\text{m}$ ), in a completely different sphere (**Figure 2**). Tests have shown that, during the normal commissioning period, the separator will remove 90% or



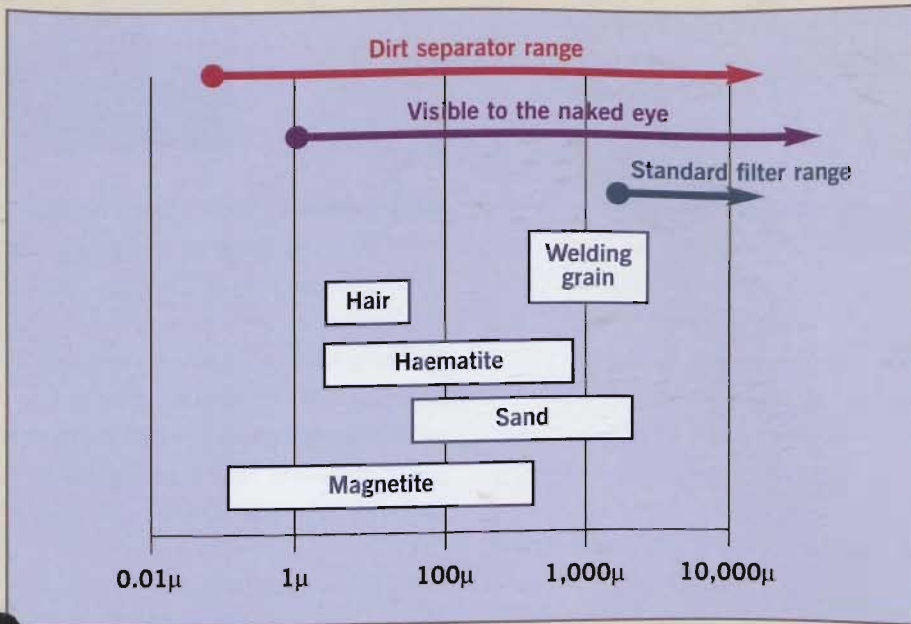


Figure 2: Dirt removal sizes for water systems

more of all circulating material, which can then be “blown down” through the valve at the base of the separator at the end of the period. It then remains *in situ* to continue to remove the remaining dirt from the system.

Since it is a full bore device with large waterways, its water pressure drop is relatively small, and remains constant from the first day because it will not become blocked as the dirt will only collect in the bottom of the vessel. Maintenance is required only once every quarter to ensure that any possible dirt circulating around the system is removed.

As mentioned previously, dirt separators can remove any dirt particle, not just magnetic dirt, provided that the particle is heavier than water. As with the deaerator, dirt separators require a still water zone to remove all dirt particles heavier than water.

Fitting dirt separators into existing systems has reportedly

shown impressive reductions in solid matter. One particular independent test saw the dirt content reduced from 620 g/m<sup>3</sup> (sized 5 to 10 μm) to less than 1 g/m<sup>3</sup> of all particulates larger than 0.45 μm following the installation of a dirt separator, over a 7-week period.

### Combined temperature differential deaerator & dirt separator

A combined deaerator and dirt separator (**Figure 3**) can be used to provide both air and

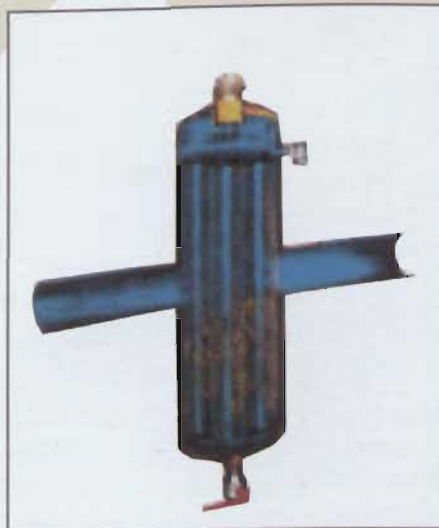


Figure 3: Cutaway of a combined air and dirt separator

dirt separation – reducing the cost and space requirements of separate devices. The largest units available in the UK have a 600 mm nominal bore.

## Conclusion

### Part 1 - Maintenance

By using properly-installed and maintained air and dirt separators — temperature differential deaerators need absolutely no maintenance, and dirt separators only require blowing down for the first two to three months – then just a quarterly blow down lasting around 5-10 seconds thereafter, while pressure differential deaerators require annual maintenance and solenoid valve diaphragm replacement — the problems arising from air and system sludge can be virtually eradicated.

Hence wear on equipment will be reduced, and maintenance costs on heat exchangers, pump seal replacement and radiators etc will be lower. Simultaneously, oxygen corrosion will now be controlled by deaeration.

### Part 2 - Commissioning

Aside from the operational benefits, commissioning and setting up of systems will be far more consistent, while the labour costs of “chasing the air out of the system” will be eliminated. Meanwhile, should a system need, for any reason, to be partially drained down, the refilling process should be greatly simplified due to factors such as radiators subsequently only requiring venting once, with the deaeration process doing the rest.



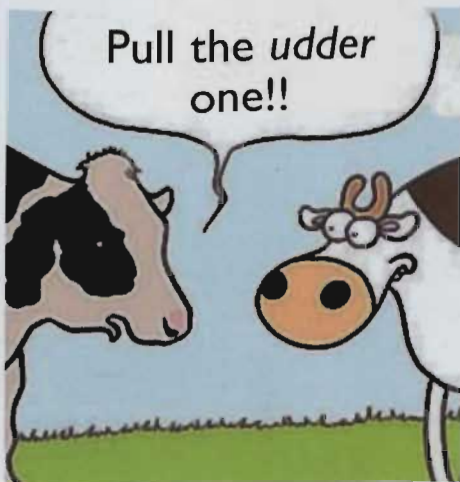
# Plumb Lines

heard it on the grapevine ...



## MORE CARBON MADNESS

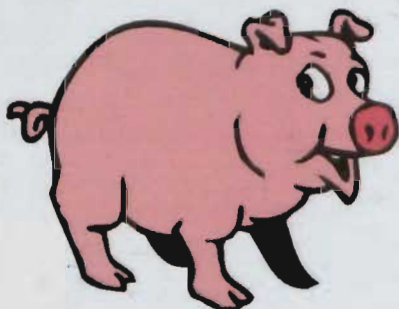
A consultation document produced by the Environmental Protection Agency (EPA) in the US includes the idea of a "pollution permit" requirement for cattle and pig farmers.



Effectively, the proposal translates as a belching and flatulent tax on every animal — \$175 per cow and \$20 per pig.

The same lunatic fringe seem to have gained a foothold this side of the Atlantic also. As part of a strategy to cut global warming emissions across the National Health Service in the UK, there is a suggestion that hospitals should serve fewer meat and dairy dishes to patients.

Protecting the planet by reducing our energy consumption and carbon emissions is vital but, these kinds of measures only serve to antagonise people and, unless curbed, will ultimately derail the entire process..



## FINALLY, A GRANT-AID SCHEME WITH POTENTIAL TO WORK

While it's easy to be cynical about the manner in which every inch of political mileage was wrung out of the introduction of the National Insulation programme earlier this month — it was held on a Sunday afternoon with both Ministers Ryan and Gormley in attendance — there is good news for the industry in the small print.

The programme consists of a number of grant schemes, the most notable for building services being the Home Energy Saving Scheme (private middle income homes — €50 million) and the Warmer Homes Scheme and Local Authority Housing (low income private homes and rented local authority housing — €50 million).

The important thing to note for domestic installers and product suppliers is that it is not all about insulation. There are also grants available for high-efficiency boiler plus heating control upgrades, and heating control upgrades only.

SEI is currently registering contractors for participation in the scheme. Thankfully, there are terms and conditions, including specified competence and experience requirements, as well as tax and insurance criteria.

If properly administered and policed, this will mean that only *bona fide* companies will benefit from the programme. Maybe for once the Government's assertion that consumers, business, the economy and the environment will all benefit from such a measure will actually happen.

## CIPHE HITS IT RIGHT ON THE NAIL

The Chartered Institute of Plumbing and Heating Engineering (CIPHE) has drawn attention to an upsurge in bogus, short plumbing courses on offer in the UK. *bs news* knows of none on offer in Ireland but questions have been raised as to the value and validity of some of the BER training schemes currently running.

Eligibility to participate and the duration of the courses are the key points of contention. As Blane Judd of CIPHE says: "there is no fast-track route to becoming a competent plumbing or heating engineer."

Surely the same applies to BER assessors, especially with more technologically-complex, sustainable systems coming on stream?

## CARBON TRADING NEW SUB-PRIME?

The Chief Executive of the UK arm of French-owned EDF Energy, has warned that the working of the EU's carbon trading scheme risks turning carbon into a new category of sub-prime investment.

Green campaigners have long been critical of the way the emissions trading scheme was set up but this is the first time an industry figure has publicly voiced concerns.

Under the scheme, polluters were issued with permits that can be traded between companies and countries. However, companies are now cashing them in.

It is reported that €1 billion worth of permits were sold in recent months as companies saw an opportunity to realise funds at a time when their carbon output is expected to decrease because of lower production and consumption.



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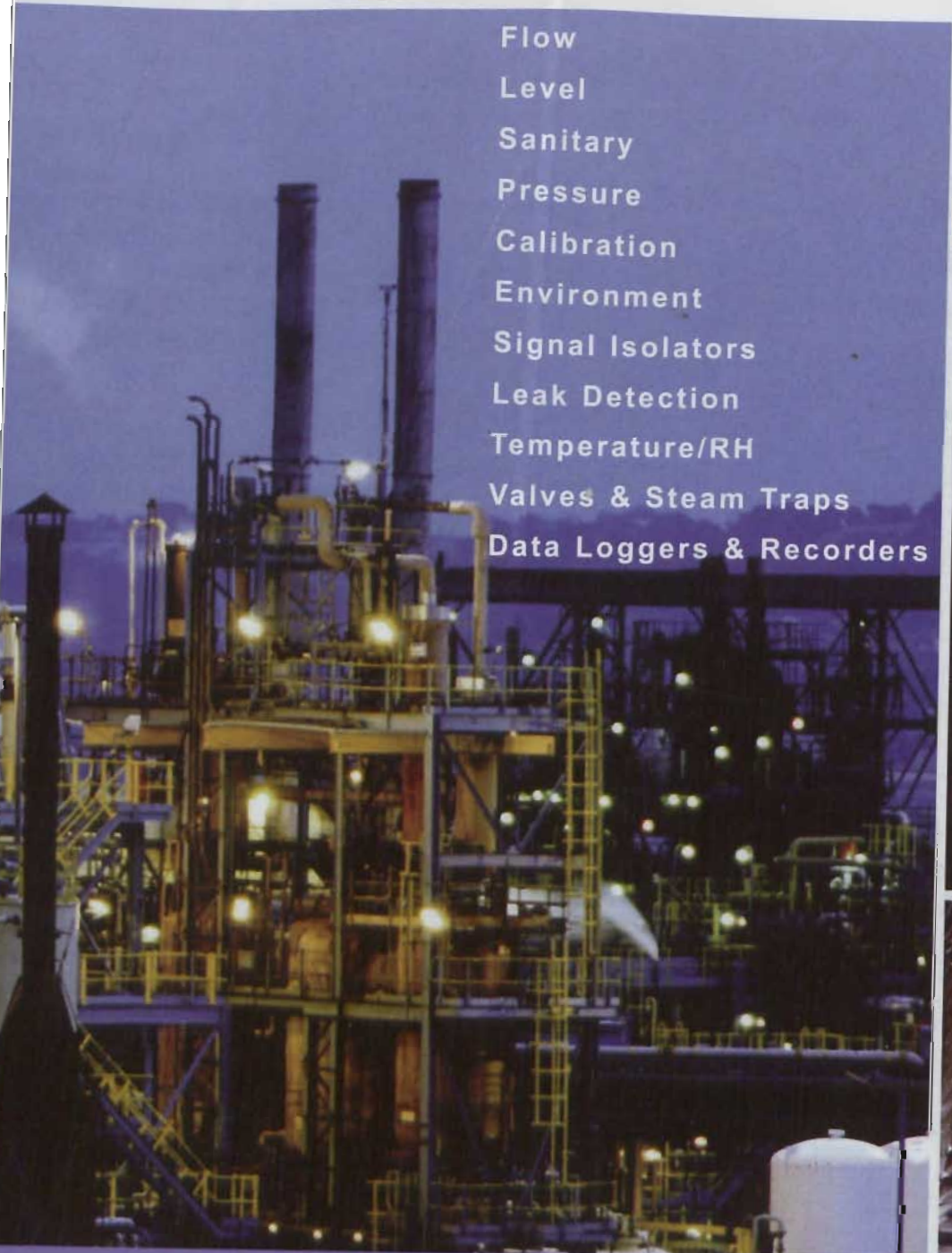
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