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September 2007



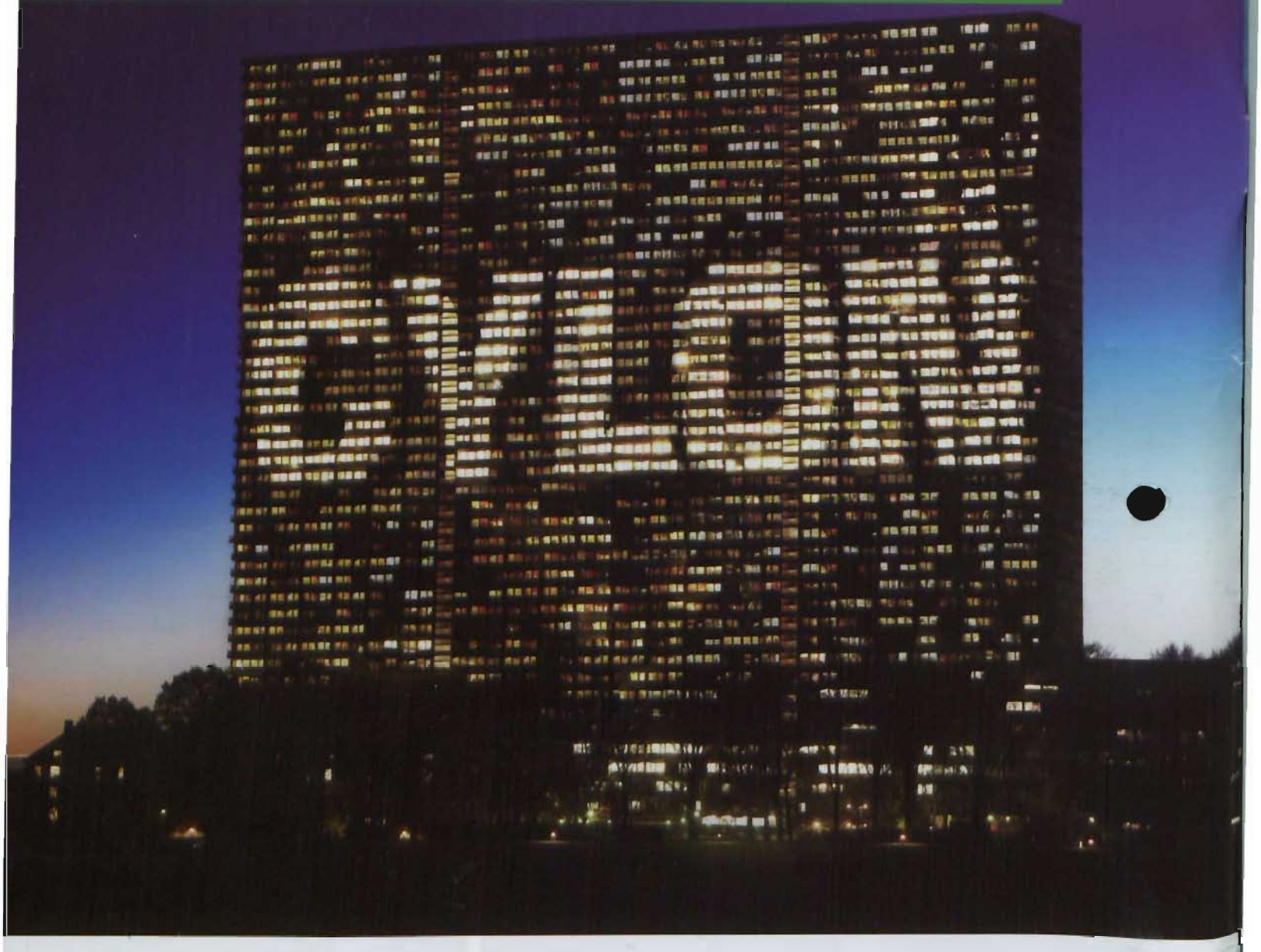
Register of Gas Installers

Face to Face — Seamus Homan

Designing Building Services

Published by ARROW@TU Dublin, 2007

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bs news
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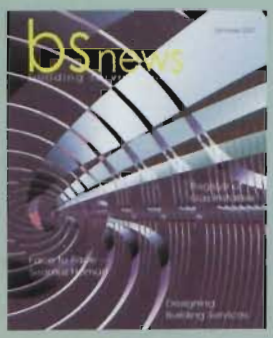
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In This Issue

Trade News & Product Information	2
Register of Installers — Gas & Electrical	16
Face to Face — Seamus Homan, Homan O'Brien	18
Myson Controls — Same Old Story ... and Then Some!	20
Refrigeration Skillnet News	24
CIBSE News	25
Instruments & Controls	28
Spiro Grilles & Dampers Sign Deal	37
Designing Building Services	38
Electrical Services Engineering	42
Plumblines	44

opinion

CER Sidesteps the Real Challenge

The recent publication of the CER's *Proposed Vision Paper* in respect of the formal regulation of gas installers, and of its *Consultation Document* in respect of the formal regulation of electrical contractors, is obviously a welcome development (see page 16).

However, it appears from the recently-published documents that two different supervisory principles will apply. The gas paper refers to the appointment of an independent supervisory body (presumably meaning one), while the electrical paper refers of the appointment of one or more designated bodies. Is this an easy option to reflect the existing status quo?

Currently, to become a registered gas installer there is but the one route and that is via the Bord Gais Registration Scheme. Meanwhile, the registration set-up in respect of electrical contractors involves two authorising bodies.

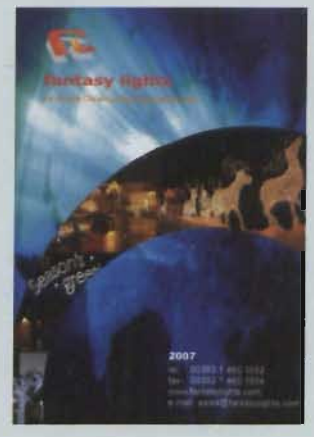
The historical situation in relation to the voluntary regulation of electrical contractors resulted in a challenge to the initial proposal and hence the two "authorising" bodies. Could the appointment of one regulatory authority for gas installers lead to a similar challenge? Only time will tell but the precedent has already been established.

Given the scale of the Irish marketplace — and the principle of having a definitive governing body — surely both the gas installation sector, and electrical contracting, only warrant one regulatory authority each.

There is no denying that Government-sanctioned registration and regulation of both sectors is long overdue. However, CER should start with a clean slate. If it confirms the anomaly that currently prevails in respect of electrical contracting, it will not only reinforce a situation which should have never arisen, but could also leave the door open for a similar situation to arise in respect of gas installer regulation.

Published by ARROW@TU Dublin, 2007

trade news + product information



fantasy lights display solutions

With the Christmas season looming electrical contractors, consultants and property and facilities managers are already planning outdoor displays for clients such as shopping centres, county councils, chambers of commerce and government departments.

Against this background Fantasy Lights has just published its supplementary Christmas catalogue. Because the range is so large and diverse, this full-colour brochure gives but a brief overview of what's on offer. Suffice it to say that whatever the requirement Fantasy Lights has a solution.

Contact: Gay Byrne, Fantasy Lights. Tel: 01 - 460 1052;
email: sales@fantasylights.com

reclaiming & destroying refrigerant gases

RSL, working with Ineos and its predecessor ICI, has provided the Irish industry with a properly documented, legal and reliable service for the reclaim and regulated destruction of refrigerant gasses for over 30 years. Unlike most waste destruction companies, it always attempt to reclaim the returned gasses and even get a rebate for the client. A detailed rebate and charge structure is available on request.

In Northern Ireland RSL continues to provide this service through its sister company, Refrigeration Products Ltd. However, Government regulations introduced in recent years stopped it from providing this service in the Republic. That said, anticipated changes to the regulations should allow RSL legally restart this service. "We are ready to take back, ship to licensed sites and provide all of the required documentation immediately we are licensed", says RSL's Gerry McDonagh.

Contact: Gerry McDonagh, RSL (Ireland). Tel: 01 - 450 8011; email:gerry@rslireland.com

extended mcquay mcenergy chiller range

Marren Engineering has introduced the new McQuay McEnergy chiller range with capacities ranging from 180 kW to 590kW. McEnergy models can reach the highest energy efficiency values in its cooling range — EER up to 3.2 is possible — thanks to the McQuay single screw compressor which was specially designed and optimised for use with HFC 134a.



For the 15 different chiller sizes in the range, standard or high "Class A" efficiency option is available, each offering as many as five different acoustic versions down to 62dB(A) at 1m. McQuay claims to be the first to bring the HFC134a benefits to smaller-power applications. In addition, by operating on HFC 134a, the McEnergy range represents a more ecological choice, as it has a rating of zero ODP and very low GWP (global warming potential).

McQuay McEnergy units are designed to minimise energy costs while maximising the refrigeration capacities. They are claimed to be unsurpassed in performance and quality, and to meet the most stringent requirements of comfort cooling, ice storage and process applications.

Contact: James Maher, Marren Engineering. Tel: 01 - 833 4144;
email: james.maher@marrenengineering.ie

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trade news + product information



axis engineering moves to new premises

Axis Engineering has moved to much larger and prestigious new premises located at 12 Northbrook Road, Ranelagh, Dublin 6. This is to accommodate the continuing expansion of the business and to better service the growing needs of the current client base.

New contact details are:— Tel: 01 - 491 0044; Fax: 01 - 491 3155; email: info@axiseng.ie; www.axiseng.ie

Contact: David Corrigan, Axis Engineering. Tel: 01 - 491 0044.

lowara fc-fct series in-line centrifugal pumps

Lowara's FC-FCT series in-line electric pumps have a cast iron pump body and AISI 316L stainless steel impeller entirely welded using laser technology (for models with 40, 50 and 65 nominal port diameter). Availabele in singe and twin versions, they are suitable for handling hot or cold moderately-aggressive liquids.



Critical specifications are — Delivery: up to 190,00 m3/h; Head: up to 90m; Power supply: 3-phase 50 and 60 Hz; Power: from 0.25 kW up to 22.00 kW; Maximum operating pressure: 12 bar; Temperature of pumped liquid: from -20.0°C to 130.0°C.

Applications include water distribution, industrial washing equipment, heat recovery, filtration equipment, general industry; auxiliary equipment; irrigation; HVAC and cooling/chiller.

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



MHI mini VRF hyper-inverter KX multi system

Mitsubishi Heavy Industries' VRF FDCA140 systems are high-specification, variable capacity, cooling/heat pumps for small applications. They consist of a compact outdoor unit, connected to a selection of up to eight indoor units, allowing each to have individual control. They operate either on cooling or heating.

Each indoor unit includes capacity control valves which constantly adjust to provide energy-efficient performance with stable and comfortable temperature conditions. Features and benefits include:—

— Single-phase electrical power supply;
— 70mm max from outdoor unit to furthest indoor unit;
— Pre-charged with refrigerant for 100m total pipe length;
— Superior controls specification;
— DC inverter compressor;
— COP up to 3.73;
— 12 indoor unit types offering 61 different models;
— Slim profile outdoor unit.

Contact: Michael Clancy, 3D Air Sales. Tel: 01 - 462 7570; email: 3dair@eircom.net



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CARRIER STRENGTH: PROGRESSING ALL TECHNOLOGIES SIMULTANEOUSLY

The main Carrier objective is to achieve the optimal balance between technological progress - synonymous with performance - and environmental care - the guarantee for our future.

Carrier's strategy for the development of new products concentrates on three essential aspects:

- Minimising their impact on the environment
- Increasing their reliability and durability and raising the energy efficiency in response to European regulations.

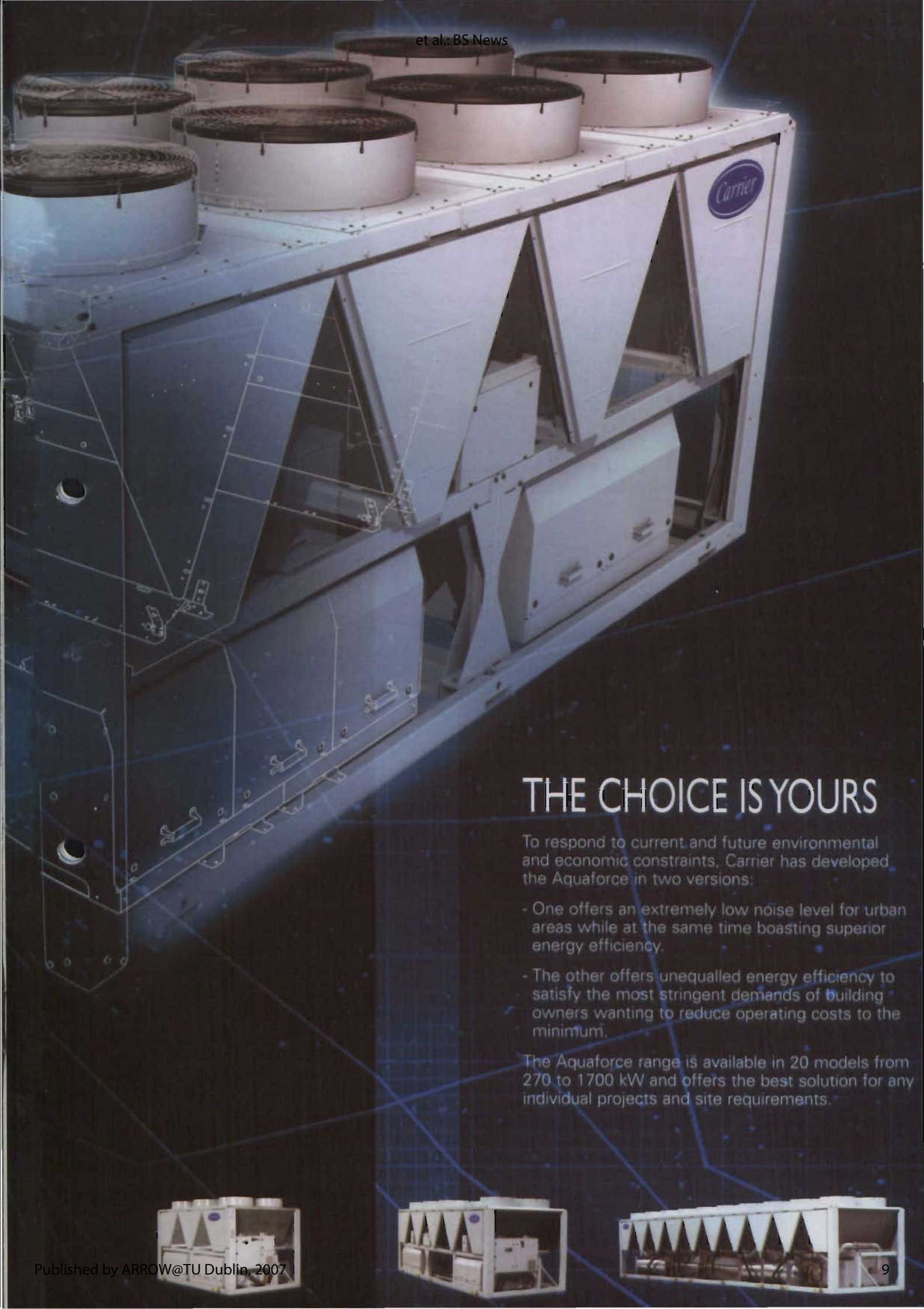
Following the success of the Aquasnap, the Aquaforce continues this three-way progress commitment. The result: an innovative product, in harmony with our planet, to meet all environmental requirements.



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To respond to current and future environmental and economic constraints, Carrier has developed the Aquaforce in two versions:

- One offers an extremely low noise level for urban areas while at the same time boasting superior energy efficiency.
- The other offers unequalled energy efficiency to satisfy the most stringent demands of building owners wanting to reduce operating costs to the minimum.

The Aquaforce range is available in 20 models from 270 to 1700 kW and offers the best solution for any individual projects and site requirements.

trade news + product information

new heat pump version of york tempo

York ACR has introduced a heat pump version of its York Tempo range of chillers designed to supply warm and chilled water for air conditioning applications. It is a fully packaged reverse-cycle heat pump-chiller, which can be located outside on the roof of a building or at ground level.

The new unit incorporates two separate refrigerant circuits, with two or three hermetic scroll compressors in each circuit, a single stainless steel plate type heat exchanger, ambient coils, and all necessary components and controls for automatic operation.

Available with cooling capacities ranging from 183kW to 426kW, and heating capacities of 187kW to 469kW, benefits include low sound operation, compact design, quick and easy to install and simple control functions.

Contact: Andrew McEvitt, York ACR (Dublin). Tel: 01 - 466 0177; email: andrew.mcevitt@jci.com;
Brenda O'Sullivan, York ACR (Cork). Tel: 021 - 434 6580. email: brenda.o'sullivan@jci.com

free jacket with any promax HE boiler installed

Potterton Myson (Ireland) is running a new promotional programme whereby installers receive a high-quality 600D Bomber-style jacket absolutely free when they install any boiler from the Promax HE range.

Promax HE offers the complete Band A rated heating solution with a range of boilers which are higly energy efficient and significantly reduce Nox and CO2 emissions. They are also easy to install and service, and are available with a variety of fluing options and accessories.

The range includes:—
Promax HE Store — Three floor-standing models: 24kW 90L, 115L and 150L;
Promax System HE Plus — Five wall-mounted models: 12kW, 15kW, 18kW, 24kW and 32kW;
Promax SL — Five wall-mounted slimline models: 12kW, 15kW, 18kW, 24kW and 32kW;
Promax COmbi HE Plus — Three fully-modulating models: 24kW, 28kW and 33kW;
Promax HE Plus — Three wall-mounted models: from 15kW to 30kW ;
Promax FSB 30HE — One competitively-priced model, full modulating from 9.3kW to 30.2kW.

By installing Promax HE contractors guarantee customers eco-friendly, energy efficient heating and also ensure that they too will remain warm and comfortable while they work.

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



Promotional posters from Potterton Myson feature the new jacket offer and the Promax HE series of boilers

viessmann adds vitodens 100



Precision Heating has further strengthened its domestic boiler portfolio with the addition of the new Viessman Vitodens 100 condensing gas boiler series. With a SEDBUK Band A rating and a claimed gross efficiency level of up to 97%, maximum efficiency is achieved through the modulating action of the burner, which matches output to the heat requirement.

The heat exchanger is the Viessmann designed and manufactured Inox-Radial which uses high-specification stainless steel. All boilers carry a two-year parts and labour guarantee and a 10-year parts warranty on the boiler heat exchanger against corrosion.

Vitodens 100 comes in three model types — combi, system and open vented. All servicing can be carried out from the front while the standard flue diameter of 100mm means there is no need to re-core walls when replacing older boilers.

The system and combination models have the option of either a 24-hour analogue clock or a 7-day digital timer. All models will work with any external programmer for maximum convenience.

Contact: Darragh Roche, Precision Heating. Tel: 01- 809 1571: email: droche@precisionheating.ie

enlighten™ Professional LED & Architectural Lighting Solutions

With lighting accounting for an incredible 20% of national electricity use, more and more specifers and clients are turning to Enlighten to solve their lighting requirements. Enlighten takes a holistic view of every application and devises the most appropriate, cost effective, bespoke solutions.



Enlighten provides engineering-led, professional LED and architectural lighting solutions across all industry sectors, including:—

- In-store retail display
- Exterior signage
- Safety lighting
- Promotional/advertising displays
- Fountain displays
- Art gallery displays
- Showcase lighting of corporate premises, public buildings, and national monuments



In addition to light performance functions, Enlighten considers and analyses critical issues such as:—

- Energy usage
- Regulation compliance
- Environmental impact
- Life-cycle costs
- Heat gain
- Health and safety



As engineering-based service providers Enlighten provides site surveys, problem analyses, system design and installation guidance.

It carries a comprehensive range of specialist LED fittings and fixtures from leading international suppliers, but also provides customised fittings and fixtures which it designs specifically — and manufactures — to suit each particular application.



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t: 01 - 460 1052
f: 01 - 460 1054
e: sales@enlighten.ie
w: www.enlighten.ie

trade news + product information



heating & cooling from one LG outdoor unit

LG's Multi V Sync VRF system gives simultaneous heating and cooling from just one outdoor unit. It allows indoor units to be designated or switched from heating to cooling, and visa-versa, giving total flexibility to any site which has varying requirements.

For simultaneous heating and cooling the heat absorbed from indoor units in cooling mode is recycled and re-used for indoor units requiring heating, thus maximising the utilisation of power and optimising comfort levels.

A key feature is that there is no capacity loss anywhere else in the system when an indoor unit changes mode from heating to cooling, or visa-versa. Also, as the system is non-stop during mode changeover, this means reduced energy consumption due to stabilised interior conditions.

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

eriks acquires flexible hose supplies (uk)

ERIKS nv has reached an agreement to acquire Flexible Hose Supplies (FHS), the leading UK manufacturer of bespoke hose assemblies, hose, tubing, ductings and fittings. FHS operates from three sites — Slough, Northampton and Bolton — has 45 employees and annual sales of St£5.1 million. With the acquisition ERIKS UK plans to develop a technology centre for specialist and industrial hoses, providing know-how directly to OEM and MRO customers.

Contact: www.flexiblehose.co.uk



sanyo CO_2 eco heat pump

Sanyo's innovative CO_2 ECO heat pump boasts highly-efficient water heating that considers the global environment, as well as the first ever rotary 2-stage compression system. Utilising compressed carbon dioxide (CO_2) gas as its heat source enables a superior energy-conversion capability and high-efficiency from the heat pump. With these the CO_2 ECO supplies space heating and hot water, at a COP rating of 3.75.

Meanwhile, for its refrigerant the CO_2 ECO uses heat energy derived from compressed carbon dioxide gas, a non-toxic natural refrigerant which is less harmful to the environment than other refrigerants.

In addition to the CO_2 ECO's environmental credentials, the unit also has a rugged design which enables it to work in the toughest of environments. The heat pump will operate continuously at low ambient conditions, even in temperatures as low as -20°C, while still maintaining its performance at no less than 4.0 kW. This is achieved by the refrigerant circuit technology developed and refined by Sanyo.

Central to the CO_2 ECO's performance is its innovative rotary 2-stage compression system which is said to represent a world first in compressor design. The system is resistant to high working pressure differentials, has high-reliability through load dispersion, and suffers lower leakage loss, as well as low vibration and noise levels during operation (45 dB-A).

With the compressor weighing in at only 9kg, the compression system is also compact and lightweight, aiding installation.

Contact: Dave Colbert, Sanyo Air Conditioners Ireland. Tel: 01 - 403 9900; email:davecolbert@sanyoaircon.com

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Lowara circulating pumps. Comfortable in the extreme.

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CER

Commission for Energy Regulation

An Coimisiún um Rialáil Fuinnimh

December 2006, the Energy (Miscellaneous Provisions) Act was signed into legislation. This Act gives the Commission for Energy Regulation responsibility for regulating both natural gas installers and electrical contractors from a safety perspective.

Natural Gas Installers

The Commission has published its paper:

'The Regulation of the Gas Installer Industry with respect to Safety'

This paper sets out the Commission's proposals on how the natural gas installer industry will operate with respect to safety going forward. It contains proposals on:

- the appointment of an independent body to regulate natural gas installers;
- the requirement for a register of natural gas installers;
- how an installer will become registered;
- the date for commencement of regulation.

The Commission is now inviting comment on this paper from interested parties. A copy of the paper may be found at www.cer.ie

The closing date for responses, which must be in writing, is **21st September 2007.**

The Commission will be hosting information nights for natural gas installers in early October. For details of these information nights and to register for attendance, please visit the gas safety section of our website www.cer.ie

Electrical Contractors

The Commission has published its paper:

"Vision for the Regulation of Electrical Contractors with Respect to Safety"

This paper sets out the Commission's proposed approach to determining:

- what electrical work will be regulated;
- how this work will be regulated and the requirements for certifying it;
- the requirements for the registration of electrical contractors to entitle them to certify this work;
- the appointment of a body to register and inspect electrical contractors.

The Commission is now inviting comment on its proposals from interested parties. A copy of the paper is available on www.cer.ie .

The closing date for responses, which must be in writing, is **21st September 2007.**

www.cer.ie

trade news + product information



toshiba delivers vintage quality

Diner's indulging in the culinary delights at The Mill Restaurant at The Village, Lyons Estate, in Rathcoole can be assured that the wines which are served there have been maintained at a precise temperature during storage.

Cooling the room to 13ºC was achieved using a Toshiba wall mounted unit, model RAV-SM562KRT, installed by specialist contractor DMG Engineering. This inverter-driven unit maintains the wine vault at the exact storage temperature required to ensure quality.

All Toshiba light commercial systems can be configured to reduce room temperatures as low as 10ºC where required. Model RAV-SM562KRT costs 15c/hr to operate (at 50% output).

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

be enlightened — cut energy usage!



Enlighten is Ireland's leading supplier of LED lighting solutions for both indoor and and outdoor usage. It has a vast portfolio of high-quality products and a team of experienced engineers who provide design suggestions and solutions across every conceivable application.

A typical example from the range is Enlighten's ColourScene 36 Flood. This architectural LED flood light is designed to be used for floorlighting, wall-washing, highlighting, and effect and moodlighting. Typical applications include architectural, landscape, retail. restaurants, bars and night clubs.

Made from machine-turned aluminium with an anodised finish, this unit incorporates a thermally-stable design, stainless steel gland, a fully-adjustable bracket and comes with a range of lenses.

Benefits include high quality, low maintenance and very low power consumption.

Contact: Gabriel Byrne, Enlighten. Tel: 01 - 460 1052; email: sales@enlighten.ie



x800 jetflo improves energy efficiency

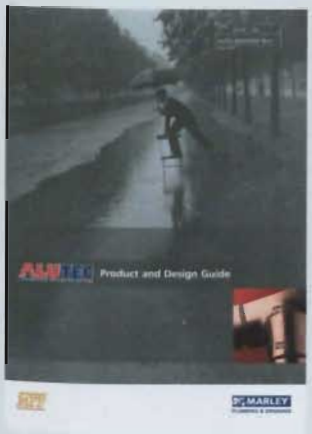
Sentinel has re-formulated its X800 Ferroquest heavy duty "one visit" chemical system cleanser to make it more effective at restoring and maintaining the energy efficiency and system effectiveness of domestic heating systems.

The new X800 Jetflo formulation is suitable for use with all commonly-encountered metals and alloys, including aluminium. All of the product components are claimed to be non-toxic, non-hazardous and wholly biodegradable.

The product has been specially designed for use in conjunction with jet flushing equipment such as Sentinel's Jetflush 4, as well as for manual flushing. The new X800 Jetflo bottle in the merchants is almost identical to its predecessor, apart from now sporting a purple cap.

Contact: John Lynch, Sales Manager, Sentinel, UK and Ireland. Tel: 0044 - 928 588 330; www.sentinel-solutions.net

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alutec aluminium rainwater systems

MFP's Alutec aluminium rainwater systems are designed to provide a complete roof drainage solution for every type of project. In recent years aluminium has become the second most used metal worldwide, thanks largely to its high strength, resistance to weathering, light weight, ability to be treated in a variety of finishes, and the fact that it is recyclable.

It is against this background that MFP developed its Alutec range which comprises four key categories — Classic, Modern, Traditional and Downpipes.

Classic is a competitively-priced, ogee-style, gutter suitable for community housing or local authority projects. Designed with more conventional external unions, it can be installed with either circular or square downpipe.

Modern systems provide a sleek, unobtrusive solution to rainwater disposal. With concealed fixings and joints and the patented Aligator snap-fit jointing method, installation time can be reduced by 40%.

Traditional systems are engineered to emulate cast-iron profiles. The half-round, victorian ogee and moulded ogee profiles are compatible in size and shape to cast iron and completely interchangeable. No painting is required if supplied with a polyester powder-coated finish.

Downpipes are available in a range of standard circular, square and rectangular options in a variety of sizes and with a traditional-style socket. A low-cost circular downpipe with a modern-formed socket called Vortex is also available, along with a vandal-resistant, non-climbable, downpipe with concealed fixings in square or rectangular.

Contact: Dudley Foster, MFP. Tel: 01 - 630 2600; email: sales@mfp.ie

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TRAINING ACADEMY COURSE

The inside track
to installing Uponor products.





The Uponor Training Academy provides comprehensive advice and demonstrations in the installation of Uponor Plumbing and Underfloor Heating products.
Our two-day residential course at our purpose built facility in Swords, North Dublin is aimed at both new and experienced users of our products. By graduating the Uponor Academy you become eligible for the loyalty scheme. Collect points when you purchase Uponor products which can be redeemed against gifts such as watches, jewellery, household tools and electrical items.

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Jobs Corner

Jobs Corner

Sanyo Airconditioners Ireland

National Sales Manager

Sanyo Airconditioners, the fastest-growing air conditioning company in Ireland, is looking to appoint a National Sales Manager to enable us to continue, and increase, our service levels to consultant engineers and our dealer network. The successful candidate will have proven sales and management experience, be fully conversant with air conditioning, and be able to present company presentations and CPD training.

Renumeration

Renumeration package includes a generous salary, an executive company car, health and pension schemes, and company bonus.

How to apply

Apply in strictest confidence to Vincent Mahony, General Manager, Sanyo Airconditioners Ireland at: vincentmahony@sanyoaircon.com or tel: 01 - 403 9900

Please make reference to bs news when applying to this advert.

Core Air Conditioning Ireland

Senior Service Engineers

Core Air Conditioning Ltd, one of the leading air conditioning and refrigeration companies in Ireland, wishes to appoint a number of service engineers who have experience in both air conditioning and chillers. Core's portfolio includes market-leading brands such as Carrier and Liebert Hiross and the new appointees can expect to work on significant sized, prestigious, projects across a variety of applications.

These are senior appointments and the successful candidates will be fully qualified and have several years experience in relevant areas. These positions will particularly suit ambitious, highly-motivated, individuals looking to step up the career ladder.

Renumeration

Successful applicants can expect a salary package and employment conditions commensurate with the senior nature of the appointments and the related duties and responsibilities that go with them.

How to apply

Please reply with CVs — either in hard copy format or electronically — to:—
Core Air Conditioning Ltd
A6 Centre Point Business Park, Oak Road, Clondalkin, Dublin 12
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TOSHIBA Leading Innovation >>>



Toshiba presents the new Super Daiseikai, one of the most advanced air conditioning units ever. Advanced inverter, twin rotary compressors deliver an energy efficiency label of A/A, the Super Daiseikai features an energy efficiency ratio of 5.1 providing cooling and heating power more than 5 times higher than the energy consumed. The extraordinary performance of Super Daiseikai allows savings of up to 35% more energy than a standard A/A class inverter.

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Super DAISEIKAI

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TOSHIBA AIRCONDITIONING
Advancing the eco-evolution

Published by ARROW@TU Dublin, 2007

CER *'Proposed Vision Consultation Paper'* on the Regulation of Natural Gas Installers

Last month The Commission for Energy Regulation (CER) published its long-awaited *Proposed Vision Consultation Paper* on the regulation of the gas installer industry with respect to safety. The 50-page document was released on 10 August but be warned ... the time-frame for consultation and a submission of comments is no later than 21 September next. Given the significance of these proposals and the complexity of the issues involved, this is too short a timescale.

That said, it is a long-overdue and timely development, and one which will have serious implications for the industry at large. Consequently, *bs news* urges all parties with a vested interest in this particular issue — and installers in particular — to log on to www.cer.ie immediately, download the PDF-format document, study it carefully, discuss it with colleagues, and then submit their comments for consideration.

Comments in electronic format are preferable but written submissions will also be accepted. These can be sent by post to Fiona Hannon, CER, The Exchange Building, Belgard Square North, Dublin 24.
The CER says that all comments received will be carefully considered and that further one-to-one meetings with stakeholders will be held to clarify responses or aspects of the Commission's proposals. Following consideration of all comments and submissions made in relation to the Consultation Paper, the Commission will publish its decision on the so-called Vision for the Regulation of Natural Gas Installers some time in October 2007.

Essentially, in order to regulate natural gas installers, the CER proposes to establish an independent Gas Safety Supervisory Body (similar to CORGI in the UK) which will oversee the actions of installers on a day-to-day basis. This body will work to ensure best practice among installers so that natural gas customers can be confident of the safety of the installations and appliances in their homes or premises.

In future, installers will be required to register with this body and fulfil conditions of registration which include holding appropriate commercial insurance and qualifications. It will be illegal for individuals to carry out gas work if they are not registered, and a person found to be operating illegally may be subject to a fine or conviction under the Act.

Once registered, natural gas installers will be subject to regular inspections and will be required to complete an assessment of their competence every five years to ensure they are maintaining their knowledge of Irish standards in relation to the installation and maintenance of gas fittings.

In introducing these measures the CER aims to increase public awareness of the safety aspects of natural gas usage, and also the importance of choosing a competent person to carry our work in their homes. A full publicity campaign will be included as part of the establishment of the new regime.

The CER aims to have its proposals in place by 1 January 2009.

Footnote *— The Commission has also published its "Vision for the Regulation of Electrical Contractors" with respect to Safety — a Consultation Document. This process is at "consultation document stage", as opposed to "proposed vision consultation paper stage" for the gas sector. However, once again comments and responses have to be submitted by close of business on 21 September next. Copies can be downloaded from www.cer.ie*

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You can rely on the Potterton Promax HE Range



Promax HE Store

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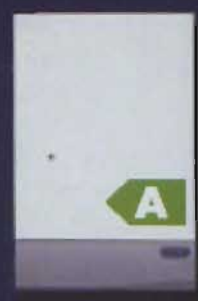
Promax System HE Plus

Five wall-mounted models (12kW, 15kW, 18kW, 24kW & 32kW) all fitted with fully modulating low NO_x Class 5 Burner System

Versatile siting flexibility with flue lengths up to 20m

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Lightweight model with compact dimensions for easy siting



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Versatile siting flexibility with flue lengths up to 75m

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Promax Combi HE Plus

24kW, 28kW & 33kW models with fully modulating low NO_x class 5 burner systems

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Three wall mounted models from 15kW to 30kW to suit a wide range of applications

Versatile siting flexibility with flue lengths up to 25m

No compartment ventilation required

Compact dimensions with a low lift weight

Potterton Myson (Ireland) Ltd.
Belgard Road, Tallaght,
Dublin 24

Phone: 01 459 0870
Fax: 01 459 0880

Email: post@potterton-myson.ie
Web: www.potterton-myson.ie

face to face

Séamus Homan







When it comes to building services in Ireland, Séamus Homan is an iconic figure of immense stature. Down through the years he has demonstrated a pioneering attitude which was, and still is, infectious. He has influenced and shaped the direction and development of the industry through his own practice work, and also as an educator by way of his very active involvement with CIBSE, the institutes of technology, and the universities.

He is one of a handful of industry founding father-figures who were instrumental in establishing the design technician and indeed the degree course which, to this day, forms the nucleus of building services engineering education in Ireland. He is equally well known and respected internationally, especially in CIBSE – past chairman of the Republic of Ireland region of ASHRAE – Director at large; ABOK – Life Honorary Member for help in setting up the first Building Services Institute in Russia; and the IEI – where he was awarded, on two occasions, the coveted Mullins Silver Medal, for innovative energy engineering in buildings.

His whole psyche is steeped in engineering. While now semi-retired, his genuine love of engineering — and a burning desire to share his experience, knowledge and insights — means that he still retains more than a passing interest in the affairs of the CIBSE and developments within the industry.

Typical of his ongoing involvement, he gives regular in-house seminars and tutorials in Homan O'Brien, the company he formed with Eamon O'Brien when they amalgamated their respective practices in 1990. Now run by their sons – Brian and Simon — Homan O'Brien epitomises the same pioneering spirit and is renowned throughout the industry for its innovative, cutting-edge, building services solutions.

That said, Séamus is concerned at the changing face of building services, and especially some recent trends which make it increasingly difficult to provide the service which is so essential with the sophisticated engineering systems of today. "When I started in the business it was a profession in the true sense", says Séamus. "There was a structure whereby the architect, as team leader, had a major influence on the appointment of the other members of the design team and this, over time, promoted a more meaningful relationship in which the views and indeed strengths of the individual team members were maximised. Regrettably, this, to a considerable extent, has changed.

"Now we have fee bidding, especially with Government projects, in which the overriding criteria is that the lowest tender gets the job. This can't be right. You could bet your life that, if faced with a health crises, the same parties would not demand tenders from say three heart surgeons and then select the cheapest. The choice, quite correctly, would be based on track record, reputation and also a proven awareness in relation to current surgical trends and techniques."

face to face

Séamus Homan



Séamus Homan

"I have always believed that it is good to challenge the accepted design norms and to promote innovation through informed engineering insight."

"Essentially, fee-bidding is conducive to a situation in which cold economics restrict the time available for the true design process to evolve and this situation makes it very difficult to promote the open, probing, approach which is the very essence of good design."

When pressed, Séamus also expressed an interesting opinion in relation to the educational totality of the emerging engineering graduates of today.

"I'm concerned that some building services graduates, while academically highly-qualified, have little or no understanding of the totality of the installations which they design. Although they are proficient in CAD and can use the plethora of software calculation programmes on the market, they have very little practical knowledge of the plant items which they select Issues such as proper maintenance accessibility and indeed the facility for essential plant replacement are frequently overlooked. In order to gain some measure of hands-on experience, it should be mandatory that students take summer jobs on building sites or in some activity related to their field of study, be it electrical or mechanical.

"The ever-increasing reliance on computer programmes by inexperienced designers, can also result in mistakes and this demands ongoing supervisory vigilance. Indeed, it was in recognition of this problem that BSRIA, in 1988, published the invaluable "Rules of Thumb" guide which offers simple guidelines to inexperienced designers in an attempt to address the danger which was becoming increasingly evident even at that time.

"Another notable development is the now universal practice of using CAD even from the earliest, embryo, design stage of the project. I think this is unfortunate as we must communicate freely with our architectural colleagues in the manner which they best understand – the 6b pencil and roll of butter paper! This promotes a more meaningful exchange of ideas at the crucial evolutionary stage of the project. In this way the use of CAD, with its intrinsic aura of finality, can be forestalled until the later, developed, stage of the project."

While some of the foregoing might suggest that Séamus Homan is apprehensive in relation the future of the building services profession, that is not the case. Indeed, it is the opposite. It is precisely because of the bright future ahead that Séamus is so anxious that negative trends are dealt with as they arise.

"I have always believed that it is good to challenge the accepted design norms and to promote innovation through informed engineering insight. Given the nature of today's emerging technologies, building services engineers are ideally positioned to do just that. The question is ... can we rise to the challenge?"

Published by ARROW@TU Dublin, 2007

Same Old Story ... and Then Some!

For some companies to describe their *modus operandi* as more of the same would be an insult, suggesting they are stuck in a rut. However, to say so of the Myson manufacturing facility in Newcastlewest, Co Limerick, is a compliment. Same old story for Myson means state-of-the-art production methods, exceptional product quality, innovative cutting-edge designs, a dynamic workforce, and profitable operation.

Sustaining such high ideals over any length of time is a major challenge but, to do so over a period of 35 years in a marketplace that has become increasingly demanding is remarkable. Put that into the context of a massive fire which totally destroyed the entire facility approximately two years ago and you get some measure of the unique qualities which are fundamental to the Myson set-up in Newcastlewest.

In that context is was hardly surprising that Rettig Group, owners of the plant since 2000, very quickly made the decision to invest further in the operation and totally rebuild the entire factory. From levelling and clearing the site to a triumphant re-occupation of the new, purpose-designed operation standing on 40,000 sq ft took approximately 12 months.

In the interim production continued — albeit under difficult conditions — in temporary accommodation nearby. The commitment of the employees was really put to the test but the indomitable spirit of Myson prevailed. All business was retained, thanks also to the understanding, cooperation and support of customers throughout Ireland and the UK in particular.

There was also an element of luck involved, if there can be when such catastrophies occur. The fire happened just prior to the main holiday break which meant that Myson had spent the previous weeks on increased production to build up stock levels. Moreover, it happened on a Sunday and, as luck would have it, the vast product stockpile had been shipped out to the central distribution centre the previous Friday.

That said, the impact of the fire on the fateful Sunday morning was devastating. Newcastlewest is a relatively small community in Co Limerick and, with approximately 100 people working there, is an integral part of the economic well-being of the local economy. It is also deeply rooted in the social fabric and psyche of the community.

However, once the decision to re-build was taken, the mood lifted. The scene of devastation was immediately screened from view with site clearance and new construction commencing within a matter of months. When the hoarding came down approximately 12 months ago to reveal the gleaming new building

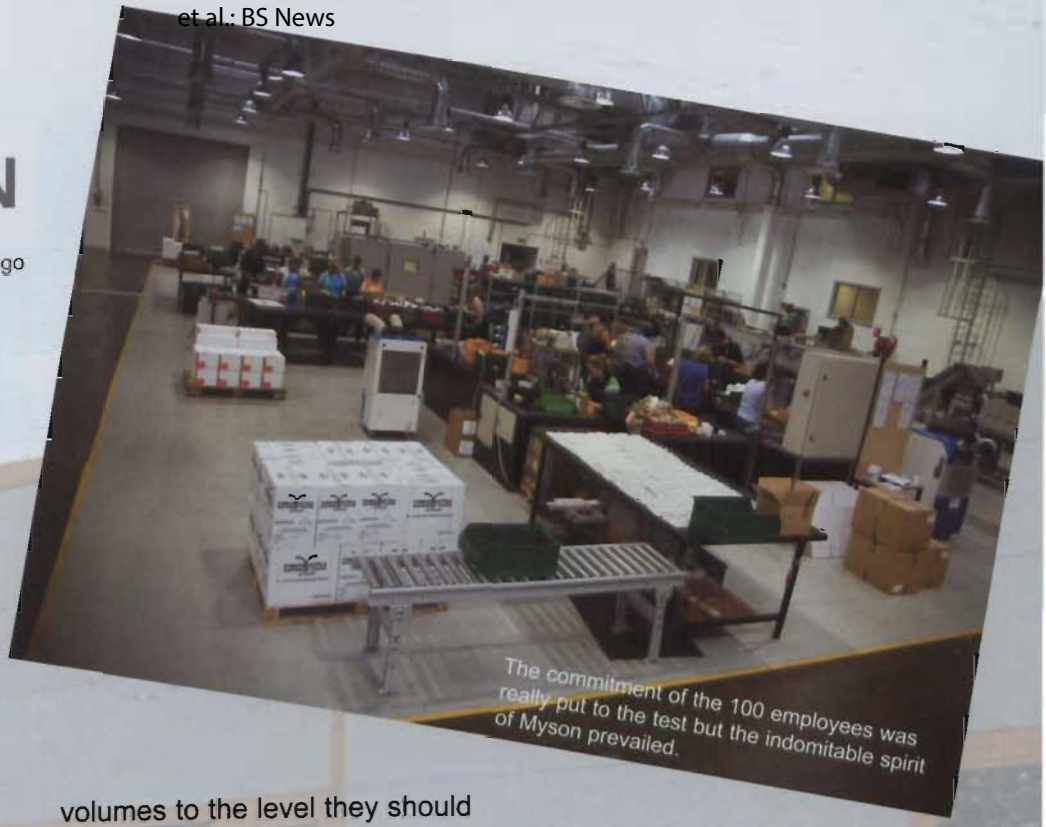


Mysons' new state-of-the-art manufacturing facility in Newcastlewest, Co Limerick

https://arrow.tudublin.ie/bsn/vol46/iss8/1

MYSON

The new Myson logo



The commitment of the 100 employees was really put to the test but the indomitable spirit of Myson prevailed.

there was a palpable air of relief throughout all of Newcastlewest.

Ironically, the new building was the only primary bonus to arise out of the fire. In instances such as this the operation concerned very often benefits from being able to replace old, aging plant with new, state-of-the-art equipment. However, the manufacturing plant and machinery Myson lost in the fire was, for the most part, the most up-to-date available.

That said, being familiar with the new equipment being installed was an asset. Given its sophistication, commissioning and getting cycle times up was still a demanding process. Everything was new and so it took a while to get quality, tolerances and volumes to the level they should be. That process has now been completed.

Myson is now the largest producer of heating controls in Ireland and exports its products worldwide. Traditionally, a large portion went to serve the needs of the UK domestic sector but, more recently, the rapid growth of the home market has provided a strong domestic base. In addition, products are also shipped to and via associated companies within the Rettig Group to outlets throughout Europe and beyond.



The manufacture of Myson controls is an automated, highly-sophisticated, process.

The original factory was established to manufacture, in high volume, a wide range of control products for the heating industry. This is still the objective but obviously the marketplace now demands cutting-edge products which give optimum performance, improve energy efficiency, reduce running costs and help lower CO_2 emissions.

Myson's current product portfolio was designed specifically with these objectives in mind. It includes established, market-leading ranges such as Matchmate, Matchmaker, Fullflow and TRV 2-way. These considerations are also integral to the new, highly-innovative lines now being developed, some of which will be unveiled to the marketplace over the coming months.

As we said at the outset of this article, it's a case of more of the same from Myson in Newcastlewest.

Published by ARROW@TU Dublin, 2007

HITACHI
Inspire the Next

Hitachi Direct — Inspiring The Next!

After many years serving the Irish marketplace via distributors, Hitachi Europe has now taken the direct route and established a dedicated Dublin-based operation with Fergus Daly as Sales Manager, Ireland. Fergus has extensive experience in the air conditioning and refrigeration sector and will now spearhead the growth and development of Hitachi throughout the entire country.

Hitachi is already a well-established brand in Ireland but this new initiative is designed to realise its full market potential and ensure far greater market penetration. A more concerted and cohesive marketing plan has now commenced and this will be reinforced by the appointment of additional dealers in strategic locations.

"Feedback even at this early stage has been very positive", says Fergus. "Dealers, consultants and clients are encouraged by the extra commitment a dedicated Irish operation represents and feel secure in the knowledge that all their needs — from product supply through to after-sales support — can be met locally by Hitachi.

"This is particularly important when it comes to technical advice, correct product selection and commissioning. To that end we have appointed Clynt Gregory in-house technical engineer. He is available at all times to support and assist our dealer network and, where necessary, to travel to site and assist with trouble-shooting and problem-solving. We also provide Commissioning Assistance for our Set Free VRF projects.

"Inspire the Next is Hitachi's worldwide slogan — we have now brought that vision to Ireland."

Hitachi Products

Hitachi's air conditioning range is one of the most extensive available in the market today. Unit capacities range from 1kW up to the fully-modulating Hitachi screw compressor chillers of over 1030kW. They are suitable for a variety of applications, from the domestic conservatory through to the modern multi-storey office environment. The sheer versatility of the range is second to none.

As would be expected of an organisation such as Hitachi, the quality and efficiency of the products is also unrivalled.

Hitachi Europe
Unit F9 Nutgrove Office Park, Rathfarnham, Dublin 14
tel: 01 - 216 4406 fax: 01 - 216 4407
email: dana.suboua@hitachi-eu.com web: www.hitachiaircon.com

Recent Innovative Introductions

Hitachi **room air conditioners** feature a vast array of innovative features designed to deliver optimum comfort levels while reducing energy consumption and CO2 emissions. Benefits include use of eco-friendly R410A; low sound levels; wide selection of unit type and capacities; elegant design; easy installation and servicing; and zone by zone heating or cooling control for up to four areas.



The new DC Inverter **Utopia** IVX brings variable refrigerant flow to the Utopia range and boasts an extremely high COP of 4.24 (8HP models). It is fully compatible with the Hitachi System Free series of indoor units and is suitable for twin, triple and quad split installations. The use of VRF leads to a reduction in the amount of energy used and therefore a decrease in running costs. This, along with the reduction in the amount of refrigerant charged to the system, means that the IVX is also more environmentally friendly.



The Hitachi **Samurai Chiller** range is available in capacities from 106kW up to 1030kW in both cooling only and heat pump versions. Cooling only goes from 112kW to 1030kW with the heat pump from 106kW to 585kW. The Samurai water-cooled chiller is available from 120kW to 696kW with optional heating mode from 161kW to 824kW. Their compact footprint is achieved by the use of plate heat exchangers for both the condenser and evaporator Both air and water-cooled chillers use Hitachi's own twin screw compressor.



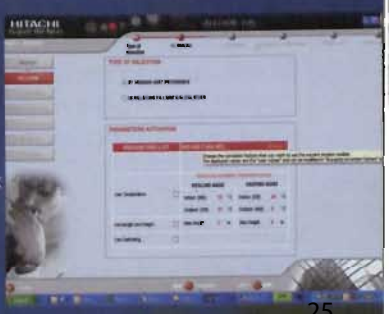


Hitachi's range of **Set Free** variable refrigerant flow systems has developed significantly in recent years following a great deal of investment and research. The latest offering is the Set Free FSN series which features high energy saving, easy installation and compact size to cater for next-generation buildings.

The new **AquaFree** system comprises a Hitachi DC inverter heat pump outdoor unit and a water module indoor unit. It can provide efficient water heating for a variety of applications to include low temperature radiators, underfloor heating and swimming pools. It has a large operating range and can provide heating in outdoor temperatures ranging between -20° and 20°C. It provides savings of up to 60% of costs incurred compared with using standard electrical water heaters.



Hitachi **Hi-ToolKit** is a bespoke, simple and user-friendly selection software package for the selection of Hitachi air conditioning equipment. It is a remarkably versatile design aid which effectively produces everything required for a project — including product selection, refrigeration schematic, electrical drawings, specification, schedule of equipment and commissioning documentation/ manuals — in just six clicks.



Published by ARROW@TU Dublin, 2007

Refrigeration Skillnet News

Managing Safely in the RAC Sector



Participants and trainers on the IOSH Managing Safely Programme

Nine companies participated in the piloting of this course in May 2007. The feedback from participants, both during the course and in the months afterwards, was overwhelmingly positive.

This is a very intensive course which requires a serious commitment from participants in both time and effort. However, it has led to very tangible rewards for the companies that participated in the first programme. Each of the participants was awarded a Managing Safely Certificate by the Institute of Occupational Safety and Health.

The course seeks to ensure that safety requirements are appreciated by people employed as managers and supervisors. It also seeks to enable managers to review their own business systems for safety, to introduce new controls or implement changes as appropriate to make the business work more safely.

Rather than introducing health & safety as a new ball to juggle, the main focus of the programme is to enable managers and supervisors to interpret for themselves the health and safety risks faced by their employees and to decide on the most appropriate corrective action. The course gives managers and supervisors an overview of the legal requirements relevant to them and to some of the common hazards faced by the RAC sector. Throughout the programme risk assessment is presented as a key issue.

One of the programme modules is built specifically around the needs of the refrigeration industry, focusing in particular on the construction regulation requirements for the industry. All other modules are directed and focused on health and safety management issues currently facing supervisors, managers and field engineers in identifying hazards, and implementing effective controls in their daily work activities.

Forthcoming Training Schedule

Refrigeration Skillnet will shortly publish a full training schedule for September to December 2007. The schedule will once again include introductory courses on refrigeration and air-conditioning, and accredited training on refrigerant handling, ammonia handling and copper-to-copper brazing.

There are plans to pilot a number of new courses, including courses on HC refrigerants and CO_2 refrigerant.

Contact: Enda Hogan, Refrigeration Skillnet Network Manager. Tel: 058 - 44211; email: refskill@eircom.net www.refrigetionskillnet.ie

Refrigeration Skillnet Update

Refrigeration Skillnet is offering a second opportunity for companies and individuals to participate in two programmes that were successfully piloted in the last 12 months – a City & Guilds accredited RAC Certificate Programme and an IOSH accredited Managing Safely programme. Candidates are now being accepted for both programmes which kick off in October 2007. Companies are advised to book early as both programmes were oversubscribed the last time around and both have proved to be very successful.

City & Guilds RAC Technical Certificate

Participants from 12 different companies joined the City & Guilds RAC Technical Certificate pilot programme in September 2006 and they are now two thirds of the way through the programme. This intensive programme was designed to prepare participants for a City & Guilds Level 2 Certificate in Refrigeration and Air Conditioning (C&G6127-02).

As part of the programme, participants also obtain C&G2078 Refrigerant Handling and Brazer Approval certification. Participants who successfully complete the Level 2 Certificate will be eligible to progress to the Level 3 Certificate (C&G6127-03).

The programme is a mixture of classroom-based tutorials and practical sessions with some assignments. It is delivered over a period of 18 months and is divided into six two-week blocks. It is targeted at RAC employees who, for one reason or another, are not in a position to follow the normal apprenticeship route.

https://arrow.tudublin.ie/bsn/vol46/iss8/1

CIBSE News

Inspection of Air Conditioning Systems — CIBSE Guidance Document TM44

"Other parts of the EPBD include a requirement for a certificate describing the energy efficiency of the whole building. This certification process will have to include details of the heating, lighting and air conditioning systems, along with other equipment used in the building."

As reported last month in ***bs news***, Article 9 of the EPBD requires member states to introduce measures to establish a regular inspection of air conditioning systems with rated outputs over 12kW at intervals not greater than five years. An Industry working group in the UK — comprising ACRIB, BRE, BSRIA, CIBSE, FETA, HVCA, IoR and Summit Skills — has developed a guidance document (TM44) on meeting these regulations. While specifically devised to comply with UK requirements, in the absence of anything similar for Ireland it is an excellent working tool for this jurisdiction.

TM44 provides guidance on carrying out the required inspections within reasonable constraints of time, cost and skills, including specific guidance on generating advice for the user, on a consistent basis. Engineers and energy managers responsible for these systems need to consider how they will comply with the new rules. For systems over 250 kW they have until January 2009 to complete the first inspections, and for the remaining systems over 12 kW they have until January 2011.

Building owners and managers wishing to understand the purpose and scope of the inspection should read at least the introductory Section 1 and the explanatory Section 6, copies of which could be provided to the building owner/manager by the inspector prior to the inspection. These provide an overview of the inspection, and its potential benefits and subsequent use, to help managers prepare for the visit and to consider what further actions may be appropriate after the inspection. Those wishing to carry out the inspection should read at least Section 1 through to Section 5 as relevant to the types of systems they will assess.

Other parts of the EPBD include a requirement for a certificate describing the energy efficiency of the whole building to be prepared and made available on sale or rent of buildings. This certification process will also involve the inspection of buildings to obtain basic details of the building fabric, building services (heating, lighting and air conditioning systems) and other equipment used in the building.

European Regulation (EC) 842/2006, the 'F-Gas Regulation' requires regular inspections of some refrigeration systems to test for leakage of fluorinated greenhouse gas refrigerant from systems. Some refrigeration systems containing cfc or hcfc refrigerants may already be subject to regular leakage testing under European Regulation (EC) 2037/2000 on substances that deplete the ozone layer. Similarly, some air conditioning systems will fall under the scope of the Pressure Systems Safety Regulations 2000, which may apply to systems with an installed power in excess of 25kW.

TM44 also indicates how building owners and managers should be advised to prepare and keep information from all these inspections so that the time needed to carry them out, and hence their cost, can be minimised.

Contact: www.cibse.org

Published by ARROW@TU Dublin, 2007



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Mitsubishi Electric Launches a New Range of MCCB & ACB

Mitsubishi Electric is now offering a complete range of switchgear products, including everything from air circuit breakers and compact moulded case circuit breakers to magnetic contactors and thermal overload relays. Standardised chasses, high reliability, simple installation, easy operation and trouble-free upgrading are just some of the outstanding features.

Mitsubishi circuit breakers and contactors conform to all major international industrial standards and shipping classifications. For example, the Super AE series of air circuit breakers won the prestigious Industrieforum Design award for product design.

The Super AE air circuit breaker family offers models from 1000A to 6300A with a broad range of adjustable breaking capacities.

The standard SSA series offers short circuit breaking capacity Ics from 65–130 kA (at 500 V AC), providing reliable performance for the majority of applications.

For more demanding applications the high-performance SH series is available, with a short circuit breaking capacity Ics of 130 kA (at 500 V AC).

Key features include:

— Complete program for every application;
— Wide performance range from 157A to 6300A;
— High interrupting capacity for rising power requirements;
— Optimum overload trip systems for more safety and selectivity;
— Equipped with communications interfaces for tomorrow's energy management systems;
— Compact design for maximum space savings;
— Fixed and drawout versions;
— Both 3-pole and 4-pole versions available.

There are a number of add-on options available, including networking, energy metering and IO interface units. The networking interface units can expand the possibilities in various communication and intelligent control.

— Applicable to various open networks: These units are applicable to various open network systems such as CC-Link®, PROFIBUS-DP and MODBUS® (RS-485);
— Intelligent control by multi-data communication: Allows intelligent control by multi-data communication through these interface units to PLC/SCADA/BMS, which transfer the measurement information, setting values, error information and trip and alarm information.



Mitsubishi Electric offers a complete range of switchgear products, including everything from air circuit breakers and compact moulded case circuit breakers to magnetic contactors and thermal overload relays



Examples from the new Mitsubishi Electric MCCB range

The metering unit (VT-W) enables the measurement of voltage, power, energy, harmonic currents etc.

The Input & Output Controlling Unit (BIF-CON) is available for the remote controlling and remote monitoring of the breaker condition through the various network systems. This unit makes it possible to control the breaker remotely, like "on" or "off" operations or spring-charging. Further, by combining the drawout position switch (BIF-CL), the monitoring of drawout position become available in case of the breaker drawout type.

Contact: Morgan Rusk, Mitsubishi Electric.
Tel: 01 - 419 8800;
email: morgan.rusk@meir.mee.com

https://arrow.tudublin.ie/bsn/vol46/iss8/1

Planning an environmental upgrade for your building?



Honeywell has the future all mapped out

Honeywell leads the world in building control technology, improving the working environment, conserving energy and raising fire and security standards.

In fact, Honeywell building controls can match the needs of any building precisely, from individual controls to a fully integrated management control and protection system.

The market for Honeywell building controls covers every type of location and every kind of customer. And, whatever your requirement, our distributors in Ireland are on hand to provide advice and support. That's how we build strong working partnerships with all customers.

Honeywell's reputation for quality and reliability is second to none. And this, coupled with our market leading innovations, ensures that buildings run smoothly and can easily be upgraded or modified with products that will serve you effectively today and well into the next millennium.

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Honeywell
Honeywell House, Arlington Business Park
Bracknell, Berks RG12 1EB
Telephone: 0044 1344 656000
Fax: 0044 1344 656240

Honeywell

Natural Ventilation with Cylon Smart Energy Control

Public sector buildings are leading the way in energy management, becoming increasingly carbon conscious. The clear move to lower carbon buildings is putting natural ventilation systems at the forefront of innovation at Cylon Controls. These systems are about achieving energy savings while ensuring the maximum comfort for occupants. Galway/Mayo Institute of Technology (GMIT) in Galway city boasts a successful natural ventilation system within a limited budget (while not compromising on design). This award-winning project is the perfect example of how a smart control solution can make natural ventilation a successful alternative to mechanical ventilation and cooling.

Functionality and Design

GMIT features an innovative, free-form, frontage consisting of three copper sails which form part of the natural ventilation system. The building consists of an administrative centre at roof level, a large library and the IT department with 16 lecture theatres.

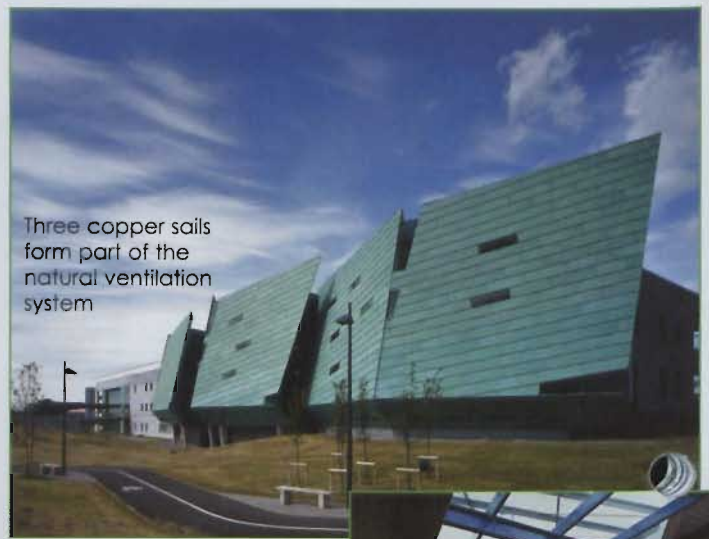
Achieving Integration

The library, controlled by a Cylon Building Energy Management System (BEMS), is a two-storey building with three atria located centrally, creating a stack effect. Outside fresh air is introduced through low-level dampers located in the external sails on the coastal side of the building. The air then passes over temperature-controlled finned-tube heaters which preheat the air when necessary. Exhaust air leaves the building through dampers located at roof level, contributing to the stack effect.

Space heating in the library is provided by radiator circuits. During winter the ventilation is provided by a combination of temperature and carbon dioxide concentration to ensure that only minimum fresh air is achieved.

Temperature Control

Temperature has the highest control priority. Once the 21°C set point has been reached, control switches to carbon dioxide levels which are not allowed to exceed 500ppm. In summer when the temperature reaches 24°C, Duggan windows in the northern wall automatically open. The configuration of the Cylon BEMS by system integrators Control Technology allows for parameters to be modified in the light of ongoing experience.



Three copper sails form part of the natural ventilation system



Effective library ventilation through a Cylon smart control solution

The Future of Natural Ventilation

Increasingly, natural ventilation projects are making use of EIB or KNX networks. To address the issues of programming and interfacing, and to make projects like GMIT more accessible in the future, Cylon Controls has been working to develop standard interfaces. An example is the new Cylon KNX Gateway that enables data from KNX networks to interface easily with Cylon's BEMS protocol and provide the level of control integration necessary for this type of project. As natural ventilation is seen as a core element in creating low-carbon buildings, the use of smart control systems from Cylon is surely set to increase.

Contact: Stiofán O' Flannabhra, Cylon Controls.
Tel: 01 - 245 0500;
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What could be more fitting?

Only Myson supply 1/2" Plastic Pipe Valves directly from their new state of the art factory at Newcastle West, Co. Limerick, including the robust Matchmate and the ever popular TRV2WAY.

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TRV2WAY



Matchmate

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Uponor Radio & Wired Controls

Uponor Housing Solutions has introduced a new range of advanced radio and wired control systems for underfloor heating installations.

The radio controlled systems consists of three main components:—



There is a choice of three thermostats — digital display; conventional "thumb-wheel" and tamper-proof units.

— A choice of three thermostats: digital display, conventional "thumb wheel" and tamper-proof units;
— An interface which gives the user complete control over the system through intuitive and informative menus;
— A communications centre which links all the system components.

The system offers complete flexibility in design allowing a number of underfloor heating zones to be controlled by one thermostat, or by allowing multiple individually-controlled heated areas.

It is also quick and easy to install.

The wired control system also comprises three main components:—

— A choice of three thermostats: conventional "thumb wheel", also offering the option of floor temperature control via a floor sensor, and tamper-proof public thermostats.
— A timer to programme settings with three different temperature levels – comfort, economy and frost protection;
— A Controller: wiring and relay centre operating up to 14 actuators and 12 thermostats.



The wiring and relay centre can operate up to 14 actuators and 12 thermostats.

The wired system provides an easy solution for installation with an intelligent auto link and quick connection terminals to save labour time.

Contact: Donal Stafford, Uponor Housing Solutions.
Tel: 01 - 895 7430;
email: sales@uponorhousingsolutions.ie

Super-Efficient Radiator Control from Myson

The Myson valves portfolio is extensive with a wide choice of purpose-designed ranges to cater for both domestic and commercial applications. Over the years is has expanded dramatically from its origins in manual valves to today's offering which includes high-quality zone controls, electronic programmers and stats.

Continuous research and development has led to the introduction of both labour-saving devices which make installation simpler, and sophisticated valves which allow for exact temperature control and provide significant energy savings.

For instance, the Myson Power Extra motorised valve is used to control water flow from the boiler to heating and hot water circuits. Designed and developed with complete reliability and compatibility in mind, the MPE 322 has a market-leading 6-watt class 'F' motor.

Myson's Decorative Range is both stylish and functional. The various models are beautifully finished in polished chrome and are available as handwheel, lockshield or thermostatically-controlled units.

Then there is the Myson TRV 2-Way thermostatic radiator valve that senses room temperature to control an individual radiator. The unique TRV 2-Way design will accept water flow from either direction without the need for any manual adjustment.

The head of the TRV 2-Way is aesthetically pleasing and has won much acclaim for its ease of use and clear markings.

That said, Myson still has a very strong range of thermostatic manual valves which are designed to regulate the temperature of the room through the manual alteration of the valve. There are three main types within this range —

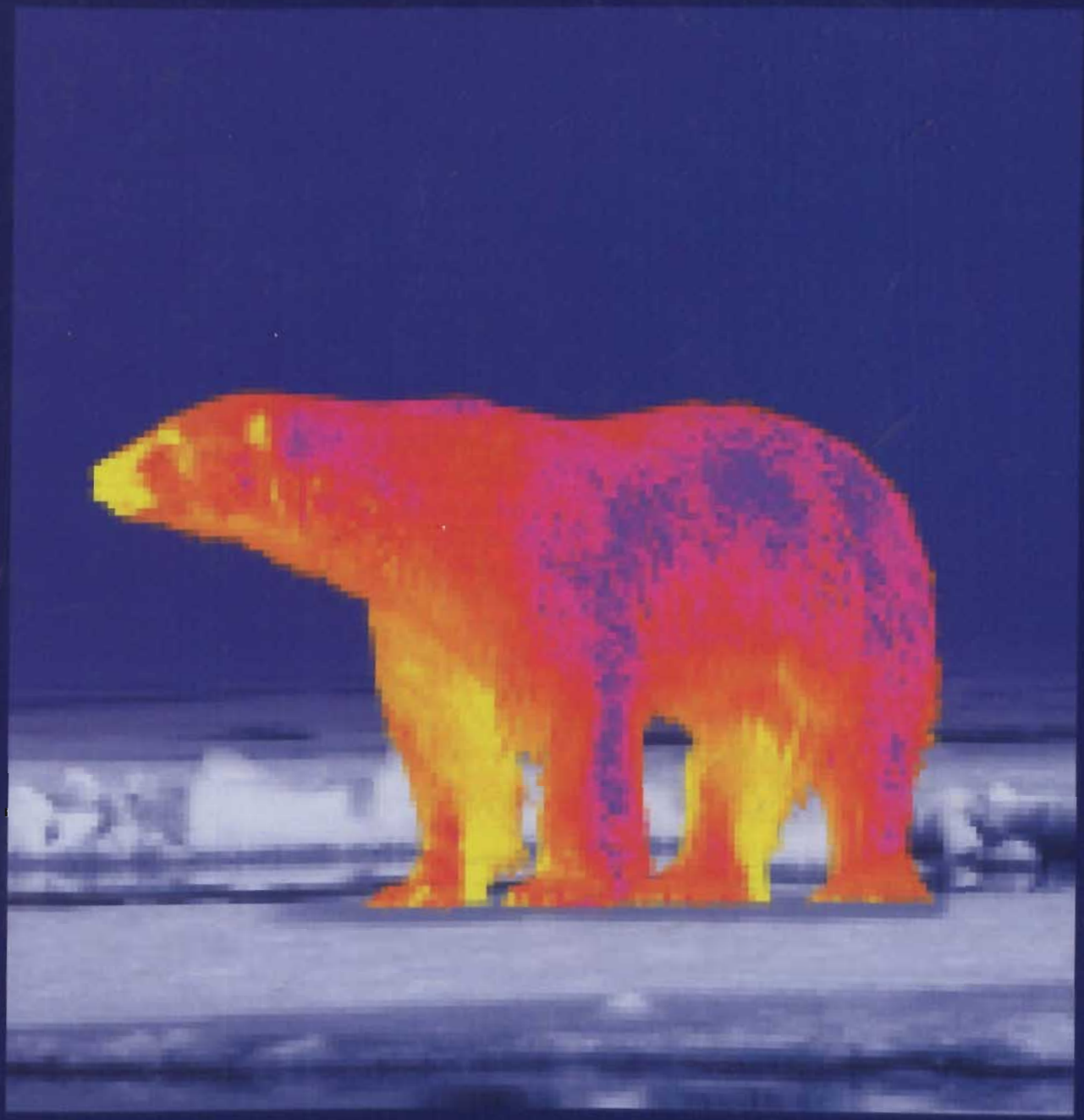


The Myson Power Extra motorised valve, MPE 322 has a market-leading 6-watt class 'F' motor.

Matchmate, Matchmaster and Fullflow — all of which are designed to cater for both domestic and commercial heating applications.

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

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Global warming.

As energy prices rise and the climate change debate heats up, so the demand for accurate home heating control grows. Exactly what our ChannelPlus range is designed for.

Take our new H47XL, for example, which gives four completely independent channels with full menu driven programming.



So downstairs can be tropical, upstairs temperate and the hot water Caribbean, while the unused conservatory is cosy for a polar bear.

It's what the world has been waiting for.

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Horstmann Controls Limited a division of Horstmann Group Limited.
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Building Services Engineering, Vol. 46 [2007], Iss. 8, Art. 1

For Instruments & Controls Read Manotherm

The name Manotherm is synonymous with instruments and controls in Ireland. It was established in 1958 by company founder Bob Gilbert who, to this day, is still very much involved in running the business with his son Robert. The objective at the time was to provide instrumentation and control solutions for both the HVAC, process and research industries using the most advanced equipment available.



Series HFT in-line flow transmitters

Right from the outset Bob's vision took in the entire world, not so much in the markets served but rather in sourcing products and equipment to serve the Irish marketplace. That he was successful in this endeavour is beyond doubt, the portfolio of today incorporating major brands from across the globe. Incredibly, Manotherm still represents many of the the world-leading brands it took on in 1958.

Down through the years the products, equipment and support services provided by Manotherm has always been at the cutting edge of technology developments. By virtue of its access to such world-leading names, it was instrumental in pioneering and encouraging the acceptance of advanced technological breakthroughs by Irish industry.

Apart from the products and equipment, this same philosophy applies to Manotherm's applications engineers. All are highly-qualified and totally up-to-date with advancements in the various industry sectors served. All engineering and technical staff are trained to such a level that they are capable of comprehensively trouble-shooting all equipment supplied. They also participate in regular refresher training courses which are run in-house, in addition to those provided by suppliers and sub-suppliers of specialist equipment.

Today Manotherm is actively involved in most industry sectors including HVAC, pharmaceutical, food, water, power generation, chemical, petrochemical, semiconductors, mining, oil and gas. Moreover, different industries have varying requirements. To that end Manotherm combines its extensive product portfolio with the knowledge, experience and technical know-how of its engineers to develop tailored solutions to meet the nuances of particular industry sectors. These can be broken down as follows:—

Temperature
Thermometers, Thermostats, Infrared Thermometers, Controllers, Digital Indicators, Transmitters, Thermocouples/R.T.D's , Recorders, mV Potentiometers, T.C Cable,Temperature Crayons/Labels, Calibrators.

Pressure
Gauges, Transducers, Switches, Transmitters, Recorders, Relief Valves, Regulators, Manometers, Test Equipment, Calibrators.

Flow
Meters, Controllers, Switches, Valves, D/P Transmitters Regulators Flowstats.

Level
Indicators, Controllers, Transducers, Sight Gauges, Float Switches.

Humidity/Moisture
Humidistats, Recorders, Dewpoint and Moisture Contents Hygrometers.

Pneumatic
Tubing, Fittings, Regulators, Calibrators, Valves.

Counters
Production Counters, Tachometers, and Speed Meters.

Signal Conditioning
Transmitters, Isolators, Converters, SQR Extractors.

Data Acquisition
Data Loggers, Chart Recorders.

Steam Speciality
Traps, Regulators, and Control Valves.

Contact: Robert Gilbert, Noel Walsh or Bob Gilbert, Manotherm Ltd
Tel: 01 - 452 2355;
email:
info@manotherm.ie



Series 475-FM Mark III handheld digital manometer

https://arrow.tudublin.ie/bsn/vol46/iss8/1

ThermoPlus Simplicity Eliminates Call Backs

Horstmann Controls' recently-introduced ThermoPlus range of programmable room thermostats not only offers the consumer the easiest to use 'stat of its kind on the market but has a range of features to make life easier for the installer.

"Any heating engineer will tell you the bane of his or her life is the call back from the customer who doesn't know – or more likely has forgotten – how the newly-installed central heating control works," claims Horstmann's Paul Lovegrove. "Call backs are disruptive to the work schedule and cost money that invariably cannot be charged. However, with ThermoPlus installed, they can be eliminated altogether".

Aware that ever-sophisticated central heating controls were becoming more and more complex for the householder to operate correctly, in developing ThermoPlus the Horstmann design team adopted a "clean sheet of paper" approach.

"We were looking to develop a product that would revolutionise the way central heating controls and programmers look and operate, a process that involved us taking a fresh look at how they are designed and used," explains Paul Lovegrove, who is the company's UK Sales Manager.

"By and large, we decided that controls and programmable thermostats are in most cases simply too complicated for many people to operate. It was time for a change".

When developing the concept versions of ThermoPlus, Horstmann took into account the views of a number of industry bodies including the results of research carried by the National Energy Action charity (NEA), "Ricability" and of course, users and installers. Eliminating call backs was high on the installer agenda and, as such, key features were developed.

ThermoPlus is available in two versions — mains powered (AS1) and battery-powered (AS2). The ASI version is equipped with an industry-standard 6-pin backplate and requires a nearby permanent mains electricity supply. The AS2 is supplied with a standard wall box fitting and both versions are supplied with lithium back-up batteries for the clock.

ThermoPlus features five pre-set heating profiles and a sixth custom heating profile. For 95% of users there is a suitable pre-set option among the standard profiles that will suit their particular lifestyle or the building environment. The sixth profile is particularly suited to applications in, for example, sheltered accommodation where the landlord may need a profile specifically suited to the needs of occupants. Once set, the profile cannot be changed other than by the installer.



Call backs are disruptive to the work schedule and cost money that invariably cannot be charged. However, with Horstmann Controls' ThermoPlus installed, they can be eliminated altogether.

In day-to-day use only three buttons are needed. The centre WARM/COOL button (with Braille markings) changes the temperature state and the '+' and '-' buttons provide fine user adjustment as well as an audible feedback. Each adjustment is apparent to the user by changes to the central bright red and blue light display.

The clock is programmed to the correct calendar date during manufacture and automatically adjusts for summer and winter time changes. There is never any need for adjustment.

"In effect," adds Paul Lovegrove, "all the householder needs to do to do is click the central button up or down to alter temperature settings and that is it. Provided the installer has discussed with the householder and set the correct profile from the menu at the outset, costly call outs could be a thing of the past," he concludes.

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CentraLine Automation is the Solution for Energy-Efficiency

All buildings have a heating or HVAC system to manage the indoor environment. It must not only ensure people's comfort but reduce fuel consumption and carbon emissions. Honeywell is recognised worldwide as a leading provider of home central heating controls and also a leading manufacturer of building controls, sensors and field devices. These are marketed both under the Honeywell name and its new CentraLine brand, which supplies the market through partner companies.

Buildings need a system that not only takes a comprehensive view of the many possible ways to save energy, but is also easy to use. Those who may need to change settings from day-to-day should never have to bother about the sophistication of the system, its technicalities or programming.

Investment in a networked automation system will inevitably repay its cost very quickly by saving energy. A CentraLine system is equally suited to existing premises and new buildings — existing boilers, radiators and pipework can be retained unless they need changing anyway. In simple terms, the automation system should provide the right temperature in the right places at the right times. A room heated unnecessarily, or to an excessive temperature, means energy is wasted.



The CentraLine system is easy to operate. Its user interface, Arena, uses a standard web browser on any PC, either on the building's network or elsewhere using the internet.

A CentraLine system includes many clever techniques to ensure comfort without energy wastage. It even considers the outside temperatures, the heat loss of the building, and additional energy sources such as the sun and body heat. It also reduces wear on the boiler and moving parts such as valves, so they last longer and need less maintenance.

CentraLine is ideal for new systems and upgrades. Clients working with limited budgets can benefit from immediate energy-savings by, for example, replacing existing controllers with these latest technologically-advanced products. They can add to or upgrade the system easily as budgets allow, in a few months, years or decades.

The controllers and other devices are connected on a LonWorks industry-standard network, so the system is reliable and future-proof.

All staff will find a CentraLine system easy to operate. Its user interface, Arena, uses a standard web browser on any PC, either on the building's network or elsewhere using the internet. It is intuitive and therefore very easy to use and understand. Automation is no longer just an option for comfort combined with energy efficiency. With CentraLine by Honeywell, choosing and installing the system is easy.

Contact: Sales Department, Honeywell Control Systems. Tel: 0044 1344 656 000.

CentraLine Saves Club €30,000 per Annum

The Castlefield Hotel with its Y Club leisure centre in Manchester saw gas heating costs cut by 18% and electricity bills by 15% after a Centraline energy-efficient networked HVAC automation system was installed. The savings equate to about €30,000 per annum for the complex.

The system also proved labour saving. Instead of visiting plant rooms, staff can monitor plant and make changes using the versatile CentraLine workstation software, Arena. This runs on a central, office-based PC. The conditions within individual rooms and zones can be changed with a few mouse clicks, making it quick and easy to react to bookings.

The plant is controlled by four CentraLine Panther controllers, designed specifically by Honeywell to minimise energy consumption and equipment wear, while maintaining a comfortable, healthy indoor environment.



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Spiro Grilles & Dampers Signs Licensing Deal with Caswells

Spiro Grilles & Dampers has embarked on a major expansion programme which will see the addition of new product lines to its fast-expanding portfolio and the appointment of new personnel to better serve its growing client base. "It's all about service", says Director Anthony Kelly, "and we aim to be the best. It's as simple as that.

"Providing quality products is one thing but they must be appropriate for the application. We undoubtedly have the products but what sets us apart from our competitors is that we also provide comprehensive design advice and technical support. Its about problem-solving, identifying the solution, and then delivering to that brief."

Spiro Grilles & Dampers is a relatively young company but, as part of the Finheat Group which has a pedigree stretching back 30 years, it has a wealth of experience, technical know-how and expertise at its disposal. To date it has produced its own range of grilles, dampers and related products and accessories, and the intention is for that to continue.

However, just recently it concluded a deal with Caswells Engineering Services Ltd, one of the UK's leading ventilation and air conditioning manufacturers, to supply its Firesafe range under license in Ireland. Trading since 1969, Caswells substantial research and development programme has resulted in an expansive range of market-leading products across the entire HVAC sector.

In turn, there is a partnership agreement with leading specialist manufacturers Lynfar Ltd and Sweeney Sheetmetal who will produce the Firesafe range of fire-rated ductwork on behalf of Spiro Grilles & Dampers. "We will handle all sales and marketing of the product", says Kelly, "and this partnership with these specialists in their field is to ensure continuity of supplies of quality products as and when clients require them."

According to Kelly, the key overriding factors are reliability, quality of product, overall service, customer care, and long term-customer relationships. Spiro Grilles & Dampers now has the resources and technology to provide its clients with a full range of services including design, project management, manufacture, installation advice, and commissioning assistance.

The addition of Firesafe from Caswells has strengthened its ability to do just that as it complements what was an already expansive portfolio.



Standing: Mark Harrison, Caswells with (seated): Ian Sweeney, Sweeney Sheetmetal; Anthony Kelly, Spiro Grilles & Dampers; and Frank Lynfar, Lynfar.

Firesafe fire-rated ductwork is manufactured from pre-galvanised sheet steel, mild steel and stainless steel to the exacting standards set by Caswells specification brief. It satisfies BS476 Part 24: 1987.

Easy to handle and install, Firesafe's smooth internal surfaces make cleaning easier. It is suitable for all fire-resisting ductwork applications, including smoke extract, kitchen extract, car park extract and pressurisation.

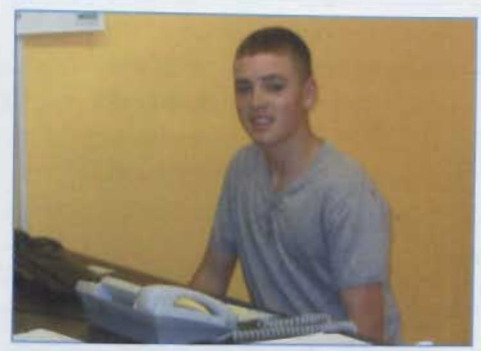
Accessories include supports, access doors, attenuators and volume control dampers to maintain fire resistance throughout the whole system. Rectangular, circular and flat oval ductwork constructions are also available.



Rory Kavanagh, External Sales and Anthony Kelly, Director, Spiro Grilles & Dampers



Amy Kelly, Administration & Infernal Sales



Graham Kelly, Trade Counter

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designing BUILDING SERVICES

low humidity cleanroom design

Designing HVAC systems to achieve low relative humidities within prescribed design and operating tolerances presents particular challenges for the mechanical designer. In this article we discuss some of the factors affecting the design of such systems and equipment commonly used for dehumidification.

Low humidity applications include a wide range of users including military, factories, hospitals, warehouses, libraries, offices, institutions and even homes. Typical humidity ranges is indicated in **Table 1**.

Traditionally, low-humidity air conditioning plants are synonymous for causing dehydrated mucous membranes[1] passages, which can contribute to illness susceptibility and discomfort. Dry air also contributes to eye irritation (corneal edema in wearers of contact lenses)[1] and may cause fatigue. Dry skin tends to crack and bleed and can lead to itchiness and nosebleeds.

In environments with ultra-low humidity or "dry" rooms, workers may have excessive body water

Table 1: Humidity ranges for product or process applications

Product Type	Recommended RH	Product Type	Recommended RH
Sugar Storage	20-35%	Laboratory Electronics	45-60%
Breweries	35-45%	Plastic Pallets	5-30%
Coffee Powder	30-40%	Computer Peripherals	50-60%
Milk Powder Storage	20-35%	Rust Resistance	below 40%
Seed Storage	35-45%	Medical Syrups	30-40%
Unpacked Medicine	20-35%	Capsule Storage	30-45%
Anti-fungus	45-55%	Powder Storage	30-45%
Camera Lenses	40-55%	Wood Drying	25-35%
HT Switch Room	45-55%	Explosive	*35-50%
Transformer Winding	15-30%	Hospital Electronics	45-65%
Semiconductors	30-50%	Normal Storage	50-55%
Archive	40-55%	Musical Instrument	45-55%
Paper Storage	35-45%	Leather Product	40-55%
Rust Prevention	below 55% / >40% for zero rust	Cable Wrapping	15-25%
Library	50-55%	Chemical Lab.	15-25%
Spray Paint	30-50%	Hard Disk Production	40-50%
Lithium Battery	below 2%	Magnetic Tapes	40-55%
Wafer Related	5-10%	Medical Devices	10-45%

Note: * Explosive storage must not be less than 30%RH as static electricity may build up and cause sparks in the air to cause an explosion.

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low humidity cleanroom design

loss due to evaporation through the skin, which can lead to dehydration. Proper design requires the need for protection and adequate fluid supply to prevent excess water loss and its adverse health effects to workers.

Low humidity levels will minimise operating costs as dictated by the product or process, but may not prove satisfactory for human comfort. So, what is an appropriate goal for normal human occupancy? In most northern hemisphere climates 30%RH is a relatively common design target that generally satisfies most human comfort needs at reasonable operating costs.

Large amounts of clean air are normally required to remove or dilute contaminants for satisfactory operations in cleanroom environments. Cleanroom environmental systems, specifically the HVAC systems which are used in semiconductor, pharmaceutical, and healthcare industries, are very energy intensive. There is a tendency in cleanroom design and operation, however, to provide excessive airflow rates by HVAC systems, largely due to design conservatism, lack of thorough understanding of airflow requirements, and more often, concerns such as cleanliness, reliability, design, operational liabilities and strict validation protocols or acceptance criteria. A combination of these factors can easily result in over-sizing of air systems.

Energy use of cleanroom environmental systems varies with system types, system design, cleanroom functions, and the control of critical parameters including temperatures and humidities. Apart form specific cleanroom cleanliness requirements, humidity is specified as the most critical parameter in operation and the most often overlooked.

Factors affecting cleanroom design

Factor affecting cleanroom design and the manufacturing process are characterised as follows:—

- Airborne cleanliness: Cleaner cleanrooms typically require higher airflow rates;
- Temperature and humidity control zones and control methods;
- Process exhaust: Removing fume exhausts and for any required abatement equipment;
- Process equipment: Process heat generating equipment and process cooling water system or the equipment's fume exhaust;
- Construction materials use: Moisture egress through walls, flooring, roof and the ability of the materials to reduce the rate of diffusion
- Humidity control method: Similar to internal heat control, the infiltration and exfiltration of moisture must also be controlled, typically though a dehumidification or humidification process;
- Pressurisation control: Control of infiltration or exfiltration of contaminants;
- Local climate: Replacement air or make-up air is needed to offset fume exhaust.

The four critical variables from which low humidity or "dry" room design commence are:—

- Number of people operating in the room;
- The specified temperature and humidity control level;
- The available space for room construction;
- The sensible internal heat load and/or process exhaust.

The control level and the personnel moisture load in the space dictate the requirements for the size of the dehumidification air handling system required to maintain the room at specifications.

Depending on cleanroom cleanliness requirements, cleanroom process, cleanroom size, system design and utility rates, there are two components of performance to any air conditioning system. The first component relates to reducing the dry bulb temperature or "sensible energy" of the air. The second

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low humidity cleanroom design

component of performance is the removal of moisture or the "latent energy component" in the air.

The parameter of performance rating dry bulb/latent energy removal is called the sensible heat ratio (SHR). This term identifies that portion of sensible and latent removal that is provided by a particular system. Most cleanrooms operate with a sensible heat ratio of 0.8 to 0.95l. This indicates that the larger portion of energy consumption of the system is devoted to sensible cooling (80–95%) while the remaining 0.05 to 0.2 of the ratio (5-20%) is dedicated to latent heat removal or humidity requisite.

Cleanroom design nowadays requires more dehumidification and less dry bulb cooling due to the change in building SHR requirements and increased energy efficiency in buildings. Initiatives like better wall and roof insulation, better window performance, more energy efficient lighting and appliances, have all reduced internal heat gains and overall sensible cooling requirements for buildings. At the same time, those factors that affect the moisture or latent load in buildings such as infiltration, outdoor ventilation, higher building occupant densities, result in the higher dehumidification load or moisture (latent) loads.

Humidity Control

Humidity measurement values like relative humidity and enthalpy are hybrid measurements that take into consideration both the sensible and latent component of air. For example, relative humidity reflects the relative amount of water that air can hold at a given temperature. Change the temperature and the humidity will change, even if the net amount of moisture in the air remains the same. In fact, a 1°C change in room temperature can often result in a change of relative humidity of up to 3%RH.

Moisture levels can be measured not only by relative humidity but by specific or absolute humidity which is the moisture content expressed in weight of water vapour in kilogram (or grams) per kilogram of dry air. A property associated with specific humidity is the dewpoint temperature or the temperature at which water vapour begins to condense to liquid water.

Control of moisture levels in spaces or process air streams is generally accomplished by either regulating reactivation heat or bypassing air percentage around the dehumidification wheel. The response time, energy efficiency, and dewpoint bandwidth determine what level of control is required. The degree of control varies from the simplest form of on/off control to maintain a space condition, to the most comprehensive which would include dehum wheel bypass dampers (and face dampers), plus reactivation heat modulated to control an exit exhaust air temperature. Humidity sensors vary in type, principle of operation, accuracy, and precision, and need to be chosen to suit the control requirements. Placement of sensors in well-mixed air streams is critical to performance monitoring.

In addition to controlling the cleanroom air cleanliness level, control of cleanroom temperature and relative humidity is crucial to operate successfully. Temperature and humidity control within the cleanroom will have a direct influence on the quality of the products manufactured to the point that, without proper environmental control, many products will fail or render entire production batches useless, often at high cost in terms of production time and consumables. Other problems associated with high RH include fungal growth, bacteria, infection etc.

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low humidity cleanroom design

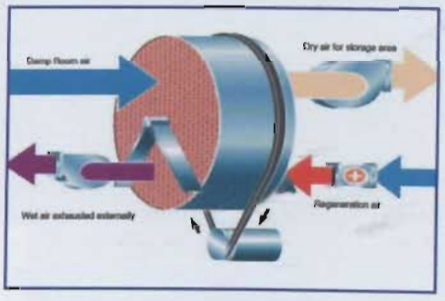
During the past years a thorough understanding of the heat transfer dynamics in cleanrooms has resulted in several methods for temperature and humidity control. The air management concept will also impact the available choices for control, especially humidity control. Temperature and humidity control can be one of the largest users of energy over which the designer has the most amount of influence.

Processes require precise humidity control to insure product quality; and the control of humidity is also important for the control of electro-static discharge. Humidity within the cleanroom is best controlled by controlling the make-up moisture content. Make-up with the correct moisture content is mixed with the cleanroom re-circulation air. Due to the high sensible heat ratios of process equipment in cleanrooms, humidity excursions are typically caused by localised wet processes or moisture migration from adjacent spaces. Attempts to control humidity with a dehumidification/reheat process of the re-circulation air are generally discouraged.

De-humidification equipment

Conventional systems use refrigeration to provide both sensible and latent cooling. To achieve the lower relative humidity desired in some spaces, the air must be cooled below that needed for the sensible load in order to remove sufficient moisture, and then reheated to prevent over-cooling, thus increasing energy use. Desiccant systems, coupled with mechanical cooling, can avoid the need for reheat.

Figure 1. Typical Desiccant Wheel dehumidifier arrangement (Munters Dessicant Rotor).



Desiccant systems have been commonly used for many years in industrial processes where very low humidity is a must. Desiccant systems can be used to create very low humidity environments (typical 5-10% relative humidity) which would otherwise be difficult and expensive to maintain using compression-refrigeration or low-temperature chilled systems. Heat pipes are often coupled with desiccant systems to improve performance or energy recovery.

Where applications do not require extremely low humidity (less than 40% relative humidity), or where external energy is not required for reheat, there are other methods that may be better and more economical to achieve the required humidity levels. These include ventilation air pre-cooling, dual path units, heat pipes, ice-based thermal storage, and combinations of these technologies.

Conclusion

Successful low humidification systems are dependent on many factors. These include:— establishing correct design criteria or user requirements; providing correct cleanroom construction materials; estimating loads correctly; proper system and equipment selection for the application; energy source evaluation; proper installation; and correct control protocols. Engineers must understand the art of applying low humidity within the limits imposed by these criteria.

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1. *Indoor Environmental Health, ASHRAE Fundamentals, 2001*

Riaan Brink is a Senior Mechanical Building Services Engineer based in Dublin with PM Group (Project Management Group). As well as being a chartered engineer, he has a M.Eng in Mechanical Engineering and a Pg.Dip in Renewable Energy. PM is Ireland's largest full service A&E firm, providing professional services in project and construction management, architectural and engineering design, and technical consultancy.

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Earthing — The Underpinning Theory

This is the first in a new series of articles about earthing. Kevin O'Connell examines the need for earthing and the underpinning theory.

The purpose of earthing

Earthing is primarily a safety measure designed to control the flow of earth fault currents, ensure automatic disconnection of supply and limit the value of touch voltage/time duration to which a person or livestock may be exposed. Apart from reducing the risk of electric shock and fire caused by earth fault currents, communication systems and sophisticated monitoring equipment rely on "clean" earthing of their equipment for efficient operation.

The relationship between electricity and earth

Looking at the image of a lightning strike to earth, one could be forgiven for thinking that the earth is the natural resting place for electricity and that all electricity therefore seeks to return to earth one day. The scarred carcass of trees that act as lighting rods shows that this union of electricity and earth is not always a happy one.

The prospect of lightning striking a building and causing the same effect as to a tree is not something about which we can be comfortable.

Happily, we can address this potential problem by fitting a lightning protective system comprising an air terminal, down-conductors, and an earth electrodes to buildings at risk.

Earth electrodes

An earth electrode is used to connect a piece of equipment or an electrical installation to earth and may take several forms such as rod (see **Figure 1**), grid, plate or simply a bare copper conductor buried in a trench. The rod electrode is a single earth rod with a pointed end made out of copper or galvanised iron and is driven into the ground. Connection to this rod is made by an earth clamp and copper cable.



Figure 1 — A Typical Rod Earth Electrode

The grid electrode is a lattice of interconnected rods spaced approximately one metre apart and the plate electrode is a single flat plate made from galvanised iron and buried in the ground.

In earlier years before plastic water pipes were introduced, metal water mains pipes were used as earth electrodes. This gave a very good connection with earth because of the extensive metal pipe system buried in the ground. However, when plastic water pipes were used to replace damaged metal pipes this broke the electrical continuity and the water main could no longer be relied upon as an effective earth connection.

Earth electrode resistance

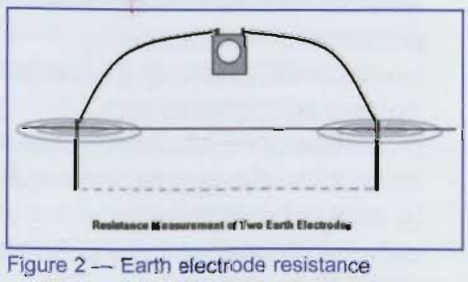


Figure 2 — Earth electrode resistance

Figure 2 depicts two 15mm diameter 1200mm long galvanised iron rod earth electrodes inserted in typical Irish soil conditions. Their resistance will typically be 40 ohms, i.e. each earth electrode will typically have a resistance of 20 ohms. This will of course depend on soil conditions. Damp soil containing

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humus will give the lowest resistance and dry sandy soil will give the highest.

Based on these values one can expect a maximum of 11.5 amps to flow to earth from a 230 volt supply. This current will be insufficient to blow most circuit fuses and therefore cannot be solely relied upon for automatic disconnection in the event of an earth fault.

Figure 3 depicts a very simple direct-earthing system showing how the transformer voltage drives current through a live conductor, the equipment earth, the earth itself, the transformer earth and finally back to the transformer winding. The circuit followed by the earth fault current is called the earth fault loop. Its value in ohms and the value of the supply voltage will determine the value of fault current. Earth protection systems use the earth fault current to automatically disconnect the supply.

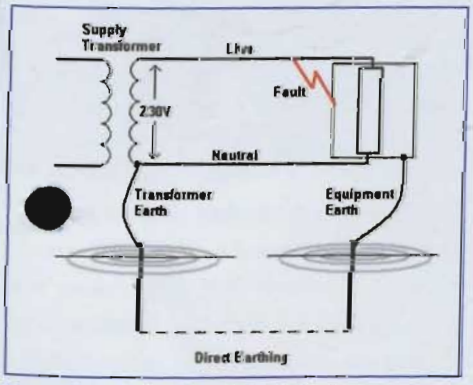


Figure 3 — A direct earthing system

In the case shown in **Figure 3**, the only device that will do this is called a Residual Current Device (RCD). The RCD will operate on an earth leakage current of 30mA which is below the threshold considered to cause fatal shock.

Other systems combine the function of the neutral and earth to generate larger earth fault currents which are large enough to blow the faulty circuit fuse or MCB.

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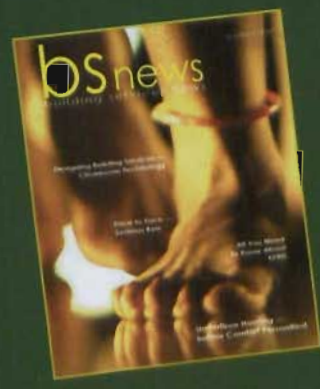
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Unipipe Gets the Bird!



When it comes to self-build, Paul O'Donnell of Unipipe maintains that his UFH system is the first-preference choice of the most discerning of clients. So it proved with this eco-conscious homeowner.

However, unusually for a project of this nature, the homeowners in question never even bothered to consult with Unipipe. They choose the site themselves, selected the materials, designed the UFH system, and then carried out all the work.

While they agreed for the project to be photographed for use in Plumblines, they refused to comment. However, I understand that they are extremely satisfied with the performance of the system, as indeed are the healthy brood of offspring which they have reared in this very desirable residence.

Challenge to CO_2 Emissions Quotas

This time last year the credibility of the carbon emissions trading scheme was called into question when the price of carbon dropped to almost zero because countries handed out too many permits. That situation was addressed but now a new challenge has emerged.

Six new EU member states — Poland, Hungary, the Czech republic, Slovakia, Estonia and Latvia — have started legal action in the European Court to try to get an increase in their permits to emit CO_2. They argue that the limits set, harm their prospects for economic growth.

Thankfully, the EU Commission has taken a firm stand on the matter and refuses to budge. Indeed, the Commission is determined to see a 20% reduction in emissions by 2020 compared to 1990 levels, and to see Europe generating 20% of its energy requirements from renewable sources by the same year.

Ireland Inc please take note!

Toshiba Scales New Heights

Earlier this month Toshiba-sponsored David Hempleman-Adams broke the world distance record for an AA-06 (37,000 cu ft) helium balloon by crossing the Atlantic in an open wicker basket. The basket measures only 4ft by 4ft and has an in-built cat flap so he could put his feet out when sleeping.

English-born Hempleman-Adams is one of the world's leading explorers. In 1998 he became the first person to complete the Explorers' Grand Slam, a challenge that has seen him conquer the north and south geographical and magnetic poles, and scale the highest mountain in each of the seven continents.



For 'Explore' Read Greed

There was a time when explorers were romantic adventurers. For the most part they were nature lovers and eco-friendly. Not any more.

Last month a Russian "exploration" team reached the North Pole and immediately deployed two mini-submarines containing a Russian flag on the seabed almost 4000m below the surface. The objective? ... to prop up Russia's claim to more than 460,000 square miles of arctic shelf.

There are scientists on board gathering geologic data but this is being done with a view to proving that the Lomonosov Ridge — a 1240 mile underwater mountain range that crosses the polar region — is a geologic extension of Russia. The US, Canada and other nations in the region all harbour similar territorial aspirations.



The question is, do they wish to gain control to protect the wonderful eco systems the North Pole supports, or is it to access the estimated 10 billion tons of oil and gas deposits in the region? You can guess the answer!

Congratulations Fergus!

Congratulations to Fergus Daly, Sales Manager of Hitachi in Ireland, on the recent birth of his second child, a daughter. All are doing extremely well and so far there have been no sleepless nights.

Mind you, the daily routine has changed considerably and I reckon Fergus — or more precisely his wife — will be re-thinking his plans to get his golf handicap down by playing more at the weekend.

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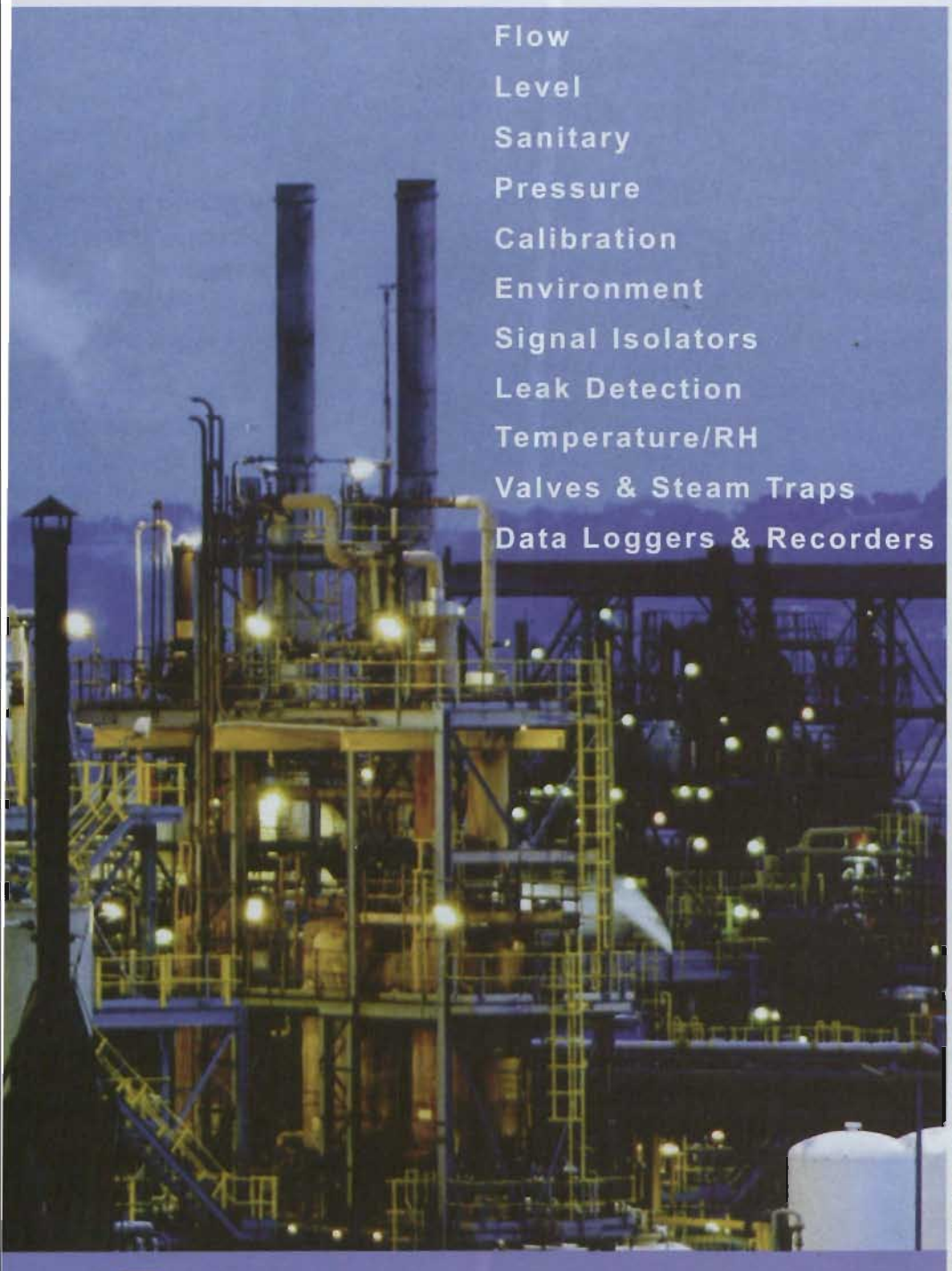
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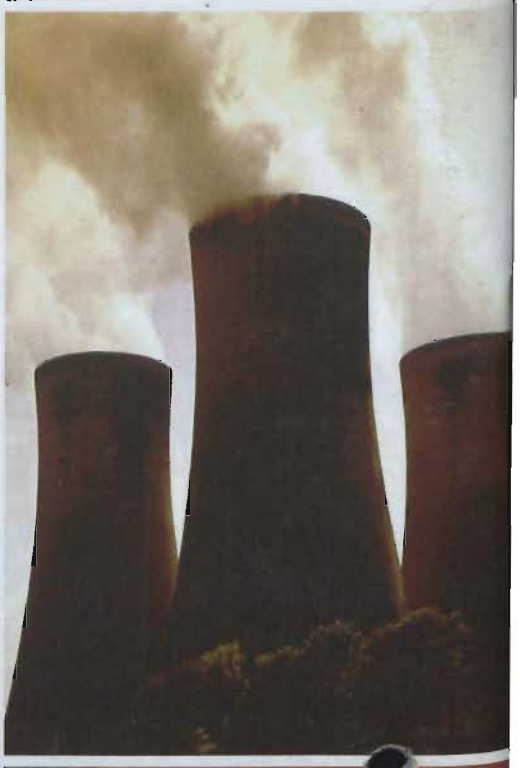
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