

7-1-2009

BS News

Follow this and additional works at: <https://arrow.tudublin.ie/bsn>



Part of the [Civil Engineering Commons](#), [Construction Engineering Commons](#), and the [Construction Engineering and Management Commons](#)

Recommended Citation

(2009) "BS News," *Building Services Engineering*: Vol. 48: Iss. 5, Article 1.

Available at: <https://arrow.tudublin.ie/bsn/vol48/iss5/1>

This Article is brought to you for free and open access by the Journals at ARROW@TU Dublin. It has been accepted for inclusion in Building Services Engineering by an authorized editor of ARROW@TU Dublin. For more information, please contact arrow.admin@tudublin.ie, aisling.coyne@tudublin.ie, vera.kilshaw@tudublin.ie.

bs news

building services news

July/August 2009

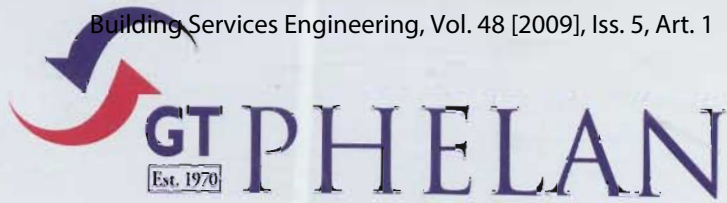
Just what do we mean by sustainable?

EPA position on waste refrigeration gases

Fire suppression: water mist systems the way forward

Underfloor Heating

Hot-housing market and environmental sustainability



Portable Air Conditioning



- Selection of portables ranging from 3.2kW to 6.1kW
- Self-Evaporating (no drain) 3.2kW to 4.5kW Units
- Quiet Operation
- Attractive Design
- Ideal for Small Offices and Computer Rooms
- Large Stocks Available

AVAILABLE FOR RENT OR PURCHASE

www.gtpheLAN.ie

24-25 Southern Cross Business Park, Bray, Co Wicklow

Ph: 01 286 4377 Fax: 01 286 4310

rodney@gtpheLAN.ie

Contents

News and products	2
RACGS news	7
New addition to Hitachi VRF range	8
Underfloor heating	9
Ireland adopts leading role in FISUEL	24
Designing Building Services	26
BTU golf news	29
Waste refrigerant gas update	30
What do we mean by sustainability?	32
Back Issues	36

bs news

building services news

ISSN 0791-0878

Published by:

Pressline Ltd,

Carraig Court, George's Avenue, Blackrock, Co Dublin.

Tel: 01 - 288 5001/2/3 Fax: 01 - 288 6966

ISDN: 01 - 211 2338/9

email: bsnews@pressline.ie

web: www.buildingservicesnews.com

www.bsnewsbuyerguide.com

www.pressline.ie

UK Office:

Mike Knight Tel: (+44) 07966 196 383

email: mike-bsnews@blueyonder.co.uk

Editor: Pat Lehane

Advertisement Director: Joe Warren

Origination and Design:

Pressline Ltd. Tel: 01 - 288 5001

Subscription: One Year – €70

Printed by: Swift Print Solutions (SPS).

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



opinion

Refurb and maintenance the short-term solution

While invitations to tender for various projects have shown a noticeable increase in recent weeks, the reality is that most won't proceed until the Nama effect has impacted and the banks finally start to release funding.

Nonetheless, activity levels in the refurbishment and maintenance sectors are much more positive. Contracts are being awarded, even if they are at the lower end of the value scale.

With spiraling energy costs and more stringent legislative requirements in respect of emissions, building owners are beginning to realise the value of planned maintenance programmes, and of replacing ageing, inefficient plant with modern-day products and systems.

As a result, activity in the refurbishment and maintenance sectors is steadily growing. However, once again the industry is selling itself short, with tender prices so "competitive" as to be loss-making.

Clients will never learn to appreciate and understand the true value of building services if the industry keeps selling itself short. ■

News and Products

Plan Expo and EcoBuild

Plan Expo – which will take place at the RDS from 3 to 5 November 2009 – is the ultimate event for the built environment. Supported by both the CIF and the RIAI, it has been the highlight of the Irish construction calendar for 27 years.

Plan Expo is much more than exhibition ... it is a whole programme of events including seminars, workshops and conferences, along with the much-coveted Plan Expo Product of the Show Awards.

In keeping with the dynamic nature of the industry itself, the awards criteria and assessment process is constantly changing. This year sees a major change of personnel on the judging panel, with the panel now comprising: David Corrigan, Director of Axis Engineering; Niall Meagher, Interactive Project Managers; David Stanley, Director, PJ Hegarty & Sons; Kevin O'Rourke, Sustainable Energy Ireland; Mark McCauley, Director, Building Materials Federation; David Petherbridge, Director, RKD Architects; and Joe Burns, Director, Arup Consulting.

Contact: www.expo-events.com

David Stanley pictured with Niall Meagher, David Corrigan, Joe Burns and David Petherbridge.



Ideal Standard rescues Qualceram Shires

Qualceram Shires, which was placed under High Court protection last March, has been acquired by Ideal Standard Europe for €3.4 million. Under the Court-approved scheme of arrangement, preferential creditors will get 40% of monies owed; the Group's landlord and unsecured creditors 10%; with contingent creditors getting 5%.

The parent company Qualceram Shires plc, and two other holding companies, will be wound up, along with British subsidiaries Qualceram Ltd and Shires Ltd.

Effectively, what Ideal Standard has acquired is the share capital, operations and intellectual property of Shires (Ireland); Quality Ceramics (Sales); Quality Ceramics (Arklow); and Quay Bathrooms.

Hoval Appoints Biomass Specialist

Hoval has appointed Andy Owens as Technical Sales Manager for biomass systems, focusing on wood pellet and wood chip biomass boilers. Andy has extensive experience of the renewable energy sector and has specialised in biomass in recent years.

"I am very keen to see biomass become accepted as a mainstream heating technology, which is where it rightfully belongs," Andy commented. "With Hoval's leading-edge biomass products and technical support infrastructure, I see this as a great opportunity not just to broaden the use of



biomass but also to ensure that it is used to its full potential." Sales and Marketing Director Ian Dagley added: "Biomass is a core element in our wide range of low carbon heating solutions, often integrated with solar heating, heat pumps or fossil fuel boilers. Andy's addition to the team will ensure we continue to respond to the growing volume of enquiries with tailored solutions that offer best value to our customers."

Dumpleton joins Tech Refrigeration

Karl Dumpleton, who is widely known and respected throughout the building services sector having spent 20 years in the industry, has been



appointed Senior Technical Sales Consultant with Tech Refrigeration.

Tech Refrigeration is a major player in the market and Karl will now bring his experience to bear in promoting and developing sales of some of the leading brands in air conditioning and refrigeration systems.

Contact: Karl Dumpleton, Tech Refrigeration.
Tel: 01 – 820 8544;
Mobile: 086 – 815 4590;
email: sales2@techrefrigeration.com

News and Products

Daikin heating symposium roadshow

Daikin will shortly commence a nationwide series of heating symposiums/workshops which will take in venues in Sligo, Galway, Cork, Wexford and Dublin throughout the month of August.

The objective is to create an interactive forum where, following brief technical presentations, those in attendance will ask questions and share their views and opinions on all matters relating to modern-day heating systems and requirements.

Each session will begin with a welcome and tea/coffee at 8am and then proceed as follows:

- Introduction to Daikin HVAC range (10 minutes);
- Sizing of air-to-water heat pump (15 minutes);
- How to comply with the current building regulations through the use of heat pump technology (10 minutes);
- Ecolabel and European Directives on heat pumps (10 minutes);
- Interpretation of DEAP calculations (15 minutes).

The sessions will then break for breakfast and some informal discussions, followed by questions and answers with dealers.

Dates and Venues

Sligo – Sligo Park Hotel, 17 August;

Galway – Menlo Park Hotel, 18 August;

Cork – Silver Springs Hotel, 19 August;

Wexford – Drinagh Court Hotel, 20 August;

Dublin – Green Isle Hotel, 21 August.

Contact: John O'Shaughnessy, Daikin.

Tel: 01 – 642 3430; email: oshaughnessy.j@daikin.ie

Heat pumps with radiant heating and cooling

S&P Coil Products (SPC) has developed a new RIBA-approved CPD presentation aimed at promoting the efficient use of heat pumps with radiant heating and cooling systems.

With the focus on reducing carbon emissions, the CPD outlines the combined efficiencies that can be achieved by using various types of heat pumps, linked to the latest radiant conditioning systems.

SPC has been providing CPD courses for building services engineers and specifiers for over a decade and the new CPD adds to the three other RIBA-accredited CPD presentations available from SPC.

Contact: David Daly, Advanced Technical Products.

Tel: 01 - 885 3792; email: info@atpireland.com

Unitherm appoints Stafford

Donal Stafford, with over 12 years involvement in building services, has been appointed Sales Engineer by Unitherm. He has extensive experience of underfloor heating, having previously worked for two of the leading market players in the sector.

Among the prestigious underfloor heating projects he has been responsible for are the Shelbourne Hotel, Ritz Carlton Powerscourt, St Mary's Hospital, Naas Swimming Pool, Greystones Swimming Pool, Portarlinton Swimming Pool, and 800 apartments at the Grange in

Stillorgan, Co Dublin.

Donal enjoys very close contacts with consultants, contractors and merchants and, over the coming months, he will develop these further by introducing them to the features and



benefits of the wide-ranging Unitherm portfolio.

He has also developed a programme of on-site seminars/training courses covering geothermal heat pumps; Mitsubishi Electric air-to-water heat pumps; Solartherm solar collector panels; Alpha condensing gas boilers; and Grant condensing oil boilers.

Contact: Donal Stafford, Unitherm.

Tel: 01 – 610 9153;

email: donal@uni-therm.net

Michael Burns joins Coolrite Refrigeration

Michael Burns has been appointed Business Development Manager with Coolrite Refrigeration, the



Baillieborough-based refrigeration and air conditioning specialists.

Michael has extensive experience in the industry and will now bring that to bear in consolidating and expanding Coolrite's market share and penetration, especially in the air conditioning sector.

Coolrite is synonymous with energy-efficient design and premium-quality products, its strong partnership with Hitachi reflecting its commitment to provide clients with turnkey packages for all their refrigeration and air conditioning needs.

Emergency call-out and a wide-ranging choice of maintenance packages are also offered.

Contact: Michael Burns, Coolrite Refrigeration. Tel: 042 – 966 5460; Mobile: 086 – 600 5753;

email: mburns@coolrite.ie

News and Products

Carel wireless temperature sensors

The Carel range of remote monitoring wireless sensors are ideal for monitoring the operating conditions in all manner of applications where temperature, alarms, data records for HACCP need to be observed/maintained without using electrical wiring.

Being wireless, this solution ensures



considerable economic advantages. Apart from reduced installation costs, it allows flexibility in the layout of the application

for retrofit installations.

Two versions of transmitters are available to best satisfy all standard applications. The first features a built-in temperature sensor to be installed inside the monitor and with an operating range of -40°C to +50°C; the second offers two external NTC sensors, two digital inputs and an operating range of -50°C to +90°C.

Both models feature long battery life (over 5/8 years), operate on a transmission frequency of 2.45 GHz, usable world-wide, and offer all the advantages for integration with the most commonly used BMS standards.

Contact: Dave Killalea or Leslie Mason, Carel Ireland.

Tel: 01 - 835 3745; email: sales@carel.ie



Model Economic A air curtain from ATC with single phase electrical wire heater suitable for door heights up to three meters.

ATC air curtains from Irish Fan Distributors

A comprehensive range of ATC air curtains, including recessed, design, vertical and industrial model types, is now available from Irish Fan Distributors.

There is an extensive range to choose from, such as Model Economic B type, with adjustable exhaust lamellas for door heights up to 4.5m with a

1-step electrical heater and wired 3-speed remote control.

The air curtain is delivered as standard with a mounting console for easy installation. This particular unit has the advantage that it is very compact, quiet-running, and maintenance-free

Model Economic A is another example from the range. This unit has a single-phase electrical wire heater suitable for door heights up to 3m and is equipped with exhaust jets. Standard model delivered includes the controller on the body of the air curtain, but also with an infra-red remote control.

Contact: Billy Wright, Irish Fan Distributors. Tel: 051 - 852 404; email: info@irishfandist.com

IDHEE domestic heating design course

To comply with the more prescriptive requirements of the Building Regulations, systems now need to be designed and specified correctly. Consequently, the IDHEE has devised a design course specifically aimed at installers.

It comprises 13 three-hour modules of tuition, one module for revision, then two 3-hour written examinations. The first examination is in two parts — closed book multiple choice to test knowledge, and open book to test calculation using data from tables. The second examination is a full heating and hot water system design.

It will be held in the Red Cow Hotel in Dublin, running one day per week consecutively over eight weeks, from 28 October through to 16 December 2009. The course fee is €850.

Contact: IDHEE. email: admin@idhee.ie

News and Products

SAS International on the move

SAS International, a leading designer and manufacturer of suspended metal ceilings, room comfort systems and bespoke architectural metalwork products, has moved to larger premises at Blanchardstown Corporate Park, Dublin 15.

The new office will serve as a hub for SAS International's entire product portfolio, operating as a sales office and national distribution centre. SAS can now service local projects working from initial concept through to installation.

SAS international room comfort products include energy efficient radiant chilled ceilings, passive and active chilled beam ceiling systems, and integrated service modules.



Schischek appoints Standard Control Systems

Explosion-proof specialists Schischek has appointed Standard Control Systems distributor and product-support partner for Ireland.

Schischek has supplied electric explosion-proof products for HVAC and industrial applications for 30 years, serving sectors such as pharmaceutical, food, chemical, petrochemical, micro-electronic, medical instrument and water treatment.

All Schischek products are PTB-certified and are suitable for operation in Ex Areas zones 1, 2, 21 and 22, including gases, vapours, mists and dust, all in accordance with ATEX 94/9/EC

Contact: Sean O'Toole, Standard Control Systems. Tel: 01 - 429 1800; email: sotoole@standardcontrol.ie

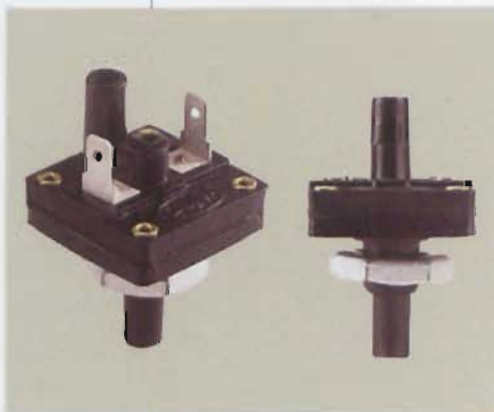
Preventing ice build up on cooling coils

When applied in a cooling application, the Dwyer differential pressure switch from Manotherm senses the increasing restriction to air flow caused by icing and actuates the defrost cycle.

Two static tips are installed to sense the differential pressure across the cooling coils. In a low-cost, low-voltage and low-current, high-volume product application, the Dwyer Minitactor differential pressure switch is an economical unit to specify for this type of application.

Manotherm offers six styles of stainless steel static tips to suit any application. In service applications, the Dwyer Trail-Tail static pressure sensor serves to take accurate static pressure measurements, as it automatically aligns with duct air flow. When attached to a length of light tubing, it can also be used to take measurements downstream from the point of access to the duct.

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



The Dwyer Minitactor differential pressure switch from Manotherm is ideal as a flow or pressure sensor on analyzers, testers, fluidic systems, computers and peripheral equipment.

CIBSE Annual Golf Outing

This year's CIBSE Annual Golf Outing will be held at Edmondstown Golf Club on Friday 4 September 2009.

Last year was the most successful to date and



early indications are that the timesheet will fill up sooner

rather than later so, get your name(s) down now.

Cost for golf and dinner for a 4-person team is €600; cost for golf only per 4-person team is €440.

Contact: Gerald D O'Callaghan, O'Callaghan Macklin Engineering. email: gerald@ocme.ie

News and Products

DAL celebrates 10 years of customer service

Originally established in 1999 as Design Air Ltd, DAL is marking 10 years of nationwide service by redesigning its website, www.dal.ie. It now displays the entire range of services provided by DAL, including a dedicated section covering R-22 gas replacement. The new site goes live early August.

DAL Air Conditioning, with offices in Dublin and Limerick, is co-owned by Matthew Berrigan (pictured) and Donal Keane. Matthew is Managing Director and Donal is Business Development & Sales Director.



Looking to the future, Matthew Berrigan said: "We are now in a very different environment and proven quality and strong relationships with customers have never been so important. We are working closely with new and existing customers to create the best possible solutions to meet their needs, while incorporating the latest technologies."

DAL is the exclusive supplier of Aermec products and is a specialist in heat pump technology. Its entire fleet of vehicles is fitted with computerised tracking devices which ensure substantial time and cost savings for customers, who can also access their service records online at anytime through a password-protected site.

Contact: Matthew Berrigan/Donal Keane, DAL.
Tel: 01 - 460 5555; email: matthew.berrigan@dal.ie; donal.keane@dal.ie

Daikin appoints Valentine manager for Ireland

Daikin Europe NV has appointed John Valentine, Country Manager, Republic of Ireland. Based at the company's Irish headquarters in Citywest, Dublin 24, his immediate objective is to consolidate Daikin's current market standing while, at the same time, overseeing the next phase of its strategic development plan for the Irish marketplace.



John, a native of Naas, Co Kildare, has extensive senior financial and management experience across a number of market sectors with blue-chip companies, including LAWS Group plc. He will now bring this to bear in his new position.

While Daikin is seen as synonymous with air conditioning, it has an extensive portfolio across all building services sectors, including heating, ventilation, applied systems and refrigeration products. John's intention going forward is to increase Daikin's market representation, and penetration, in all of these market segments.

Contact: John Valentine, Daikin Europe, Country Manager, Republic of Ireland. Tel: 01 - 642 3430; email: valentine.j@daikin.ie

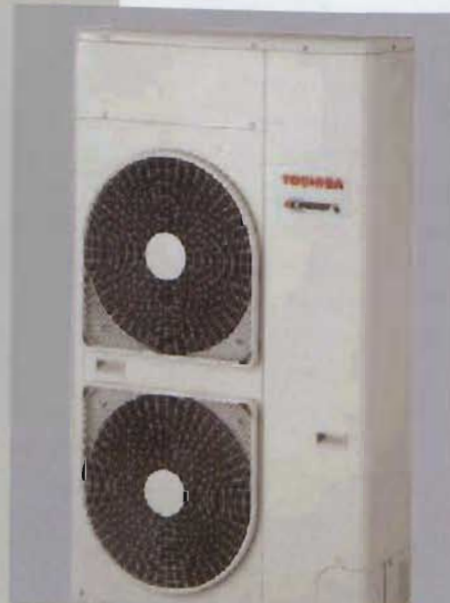
Toshiba DI Big from GT Phelan

GT Phelan has introduced a new Toshiba high-output system to complement its popular range of energy efficient digital inverters. The DI Big is a 3-phase, inverter-operated R410a outdoor unit with cooling capacities of 20kW and 23kW, and heating capacities of 22.4kW and 27kW.

The DI Big is suitable for triple and quad applications and is likely to be popular in applications where external space is limited but where the room load is high. The outdoor unit is pre-charged for 30M and is suitable for run separations of up to 70M.

This product is not suitable for direct replacement and will require new pipe-work to be installed. Full 3-year parts warranty with labour allowance.

Contact: Derek Phelan, GT Phelan. Tel: 01 - 286 4277; email: Derek@gtphelan.ie



RACGS

Golfer of the year

The current standings for RACGS Golfer of the Year sponsored by Hitachi Europe (after four outings) are:

- First:** Joe Warren, 19pts; **Second:** Sean Stenson, 18pts;
- Third:** Zac Keane, 17pts..

Results were as follows:

Overall Winner

Stephen Mahon,
H17, 36pts

Class 1

Winner: Sean Stenson,
H12, 34pts
Runner-up: Liam Hocht,
H7, 31pts

Class 2

Winner: Zac Keane,
H16, 32pts
Runner-up: Barry
McCarville, H16, 31pts

Front 9

Ger Darcy, 15pts

Back 9

Joe Warren, 21pts

Nearest the Pin

Barry McCarville

Longest Drive

Michael O'Brian

Visitor

Martin Buggy, 34pts

RACGS at The Heritage Sponsor: Carel Ireland

Big turnout for Captain's Outing

Reflecting the status of the position – and that of the present incumbent Dave Killalea – the Captain's outing at The Heritage attracted one of the largest number of participants ever to play in a RACGS outing.

They were rewarded with excellent weather which in turn resulted in exceptionally high scoring, especially given the challenge The Heritage represents. The course was in magnificent condition and made for a most enjoyable day for all involved.

As sponsors Carel Ireland added some nice touches, like taking photographs of everyone's swing throughout the day. However, putting all the images on a continuous loop and playing it throughout the presentation of prizes resulted in some serious rib-taking! ■



Above: Sean Stenson, winner Class 1, with Captain Dave Killalea.

Below: Zac Keane, winner Class 2, with Captain Dave Killalea.



Below: RACGS Captain Dave Killalea presenting Overall Winner Stephen Mahon with his prize.



RACGS to host 'Ryder Cup'

Further to the inaugural event last year at St Anne's Old Links course near Blackpool in the UK, this year's Ryder Cup will be hosted by RACGS at the prestigious PGA National, Palmerstown House, Co Kildare. It will be jointly sponsored by bs news and Sauermann UK.

The idea for the Ryder Cup challenge arose out of a conversation between Mark Kiely on the part of RACGS and Ernie Bate of the Northern Refrigeration Golfing Society (NRG) in the UK. It proved a tremendous success last year and everyone is eagerly looking forward to the 13 August and a RACGS win!

RACGS Team – Zac Keane; Johnny Lynagh; Michael Clancy; Sean Stenson; Mattie Kiely; Joe Warren; David Kirwan; Billy Queally; Vincent Barrett and Ger Darcy.

Hitachi Europe launches new addition to VRF unit

Hitachi Europe has introduced a new addition to its Set Free line-up of VRF air conditioning systems which is said to offer even greater functionality, control, and cost savings.

"The Hitachi Set Free system is already a favourite with installers who demand hard-working products with all-round efficiencies", says Fergus Daly, General Manager, Hitachi Europe in Ireland, "and the new FSN2 – which comes with a 5-year warranty – ticks all the right boxes".

"It is also cheaper to commission and install than many competitors' products and offers an impressive array of features that significantly add to its ease of use. So,

specifying the FSN2 will help installers save time, money and energy for their clients, giving themselves the best chance of winning the contract."

The cutting-edge technology within Set Free FSN2's controls means it easily interfaces with the building's existing BMS, resulting in cost-savings being made even at the installation stage. By using H-Link II (Hitachi's proprietary high-performance transmission system) and CS-NET Web (Hitachi's computer control network system), the number of connectable indoor units is greatly increased which in turn can dramatically improve workability and functionality.

Comfort and Efficiencies

The Set Free FSN2's off-coil limitation allows control of the off-coil temperature to within 1°C, completely eliminating cold drafts.

Furthermore, when connected to Hitachi in-ceiling ducted units, the

noise levels are significantly reduced, achieving a non-invasive working environment without having to attenuate.

Thanks to Hitachi's energy-saving innovations such as the high-efficiency DC inverter compressor with release valve, the heat exchanger with newly-developed high-efficiency heat transfer fins and the DC fan motors, industry-leading COP has been achieved.

Daly adds: "Replacing an existing air conditioning system with the FSN2 high-efficiency model is an environmentally-friendly solution and can be an effective part of a CO2 emission reduction programme in buildings and factories, with the potential to cut carbon emissions by up to 40%."

Another benefit of the Set Free FSN2 is that it is compatible with all existing Hitachi System free indoor units. Additionally, the maximum piping length has been extended to 1,000 metres in this new model, further improving its flexibility.

Daly concludes: "The combination of design and technology have been applied to enable the installer to meet the client's needs better than ever before."

Contact: Fergus Daly or Cormac Nolan, Hitachi Europe (Dublin). Tel: 01 – 216 4406; email: fergus.daly@hitachi-ue.com; cormac.nolan@hitachi-ue.com. ■



Hot-Housing Market and Environmental Sustainability

Despite the construction downturn, certain market segments continue to buck the trend. Most are energy and environment related, underfloor heating in particular proving that it is sustainable both ecologically and economically. Today, more than ever, the market demand for underfloor heating is stronger than ever as clients, consultants and contractors alike realise its benefits. Be it a commercial or domestic installation, underfloor heating delivers the perfect indoor climate, is cost-effective to install, and incredibly energy-efficient to run. In turn this can mean BER ratings at the very top end of the scale. A properly-designed underfloor heating system contains many elements, all of which are featured over the following pages.

Product Review: Underfloor Heating

UNITHERM

Unitherm provides total system solutions

Unitherm Heating Systems is one of the leading and most innovative companies in Ireland for designing and supplying quality heating and DHW systems solutions using renewable and high-efficiency technologies. Initially involved in designing underfloor heating systems for residential and commercial projects, Unitherm soon realised the necessity to be able to offer integrated and total system solutions, including complete controls packages. It is now renowned for supplying high-quality products from European manufacturers who have achieved the highest standards and approvals such as Oventrop GmbH, Fränkische, KaMo Systemtechnik, Solartherm, Mitsubishi Electric etc.

The benefits of properly-controlled underfloor heating



Mitsubishi Electric air-to-water heat pump.



Right: Solartherm solar panel.

systems are now well recognised and widely accepted by consultants, specifiers, architects, heating engineers and the general public. The Unitherm underfloor heating system is based upon German technology and experiences over the last 35 years. The system components are exported worldwide and have achieved an enviable list of over 100 approvals and accreditations in most European countries. A most important element in underfloor heating systems is the controls and Unitherm promotes Danfoss thermostats due to their reliability.

All Unitherm underfloor heating systems are individually designed and supplied with supporting mechanical and electrical layout CAD drawings. The company's strength is in its ability to interface with the electrical contractor as well as the heating installer. A 10-year warranty is offered on systems designed, supplied and installed in accordance with BS EN 1264

Unitherm also offers a range of innovative high-efficiency renewable heat source solutions, such as geothermal heat pumps from 6kW up to 26kW; Mitsubishi Electric air-to-water heat pumps (5kW, 8.5kW & 14kW); Solartherm solar collector panels with aperture areas of

2.0m² & 2.4m² each; Alpha condensing gas boilers ranging from 12kW up to 70kW in both natural gas and LPG; Grant condensing oil boilers, etc.

Unitherm also provides a range of WRAS-approved stainless steel single coil, dual coil and triple coil cylinders from 200lts to 500lts, as well as a range of Eco-combi multi-energy tanks with capacities from 570lts to 2000lts, complete with 316L stainless steel coils. These tanks can combine heat pumps, solar panels and solid fuel stoves or oil/gas boilers.

Unitherm has also designed and supplied a

number of district heating projects including heating stations, heat meters, data loggers, pre-insulated pipes, as well as underfloor heating and controls.

With offices in Dublin and Galway, Unitherm Heating Systems has six fully-trained engineers with many years experience designing heating systems. The team was recently joined by Donal Stafford, who himself has many years experience in designing and integrating systems, having previously worked for two of the other leading underfloor heating market players.

Contact: Unitherm Dublin Office. Tel: 01 – 610 9153; Fax: 01 – 621 2939; Galway Office. Tel: 091 – 380038; Fax: 091 – 380039; email: info@uni-therm.net; www.uni-therm.net



Geothermal heat pump.

Underfloor heating solutions



WIRELESS AND RELIABLE

**Individual room temperature control —
comfortable temperatures in
any room at any time**

For more information
contact: Paul Manning on

Published by ARROW@TU Dublin 445 1034

Honeywell

Product Review: Underfloor Heating

POTTERTON MYSON

New underfloor division for leading heat specialists

Potterton Myson (Ireland), the market leader in heating technology, is now able to offer an all-encompassing broader service following the launch of a new underfloor heating division.

In the UK, Myson has

provide more new products, greater technical support, and dedicated deliveries."

Typically 20% to 30% cheaper to run than conventional heating, underfloor heating is becoming an increasingly-



Paul van de Woning of the Myson Floortec team, supervising a home installation.

merged its underfloor heating operation with that of sister organisation, Vogel & Noot to form a new, larger and dedicated business – Myson Floortec – which now offers a great service to customers of Potterton Myson (Ireland).

A spokesperson for the underfloor division commented to *bs news*: "The launch of Myson Floortec heralds a key development for the company, and particularly for Potterton Myson (Ireland), which can now offer underfloor heating in Ireland. Through this reorganisation and new investment, we will be able to



Traditional underfloor heating in a bathroom installation.



Underfloor heating in a lounge scenario.

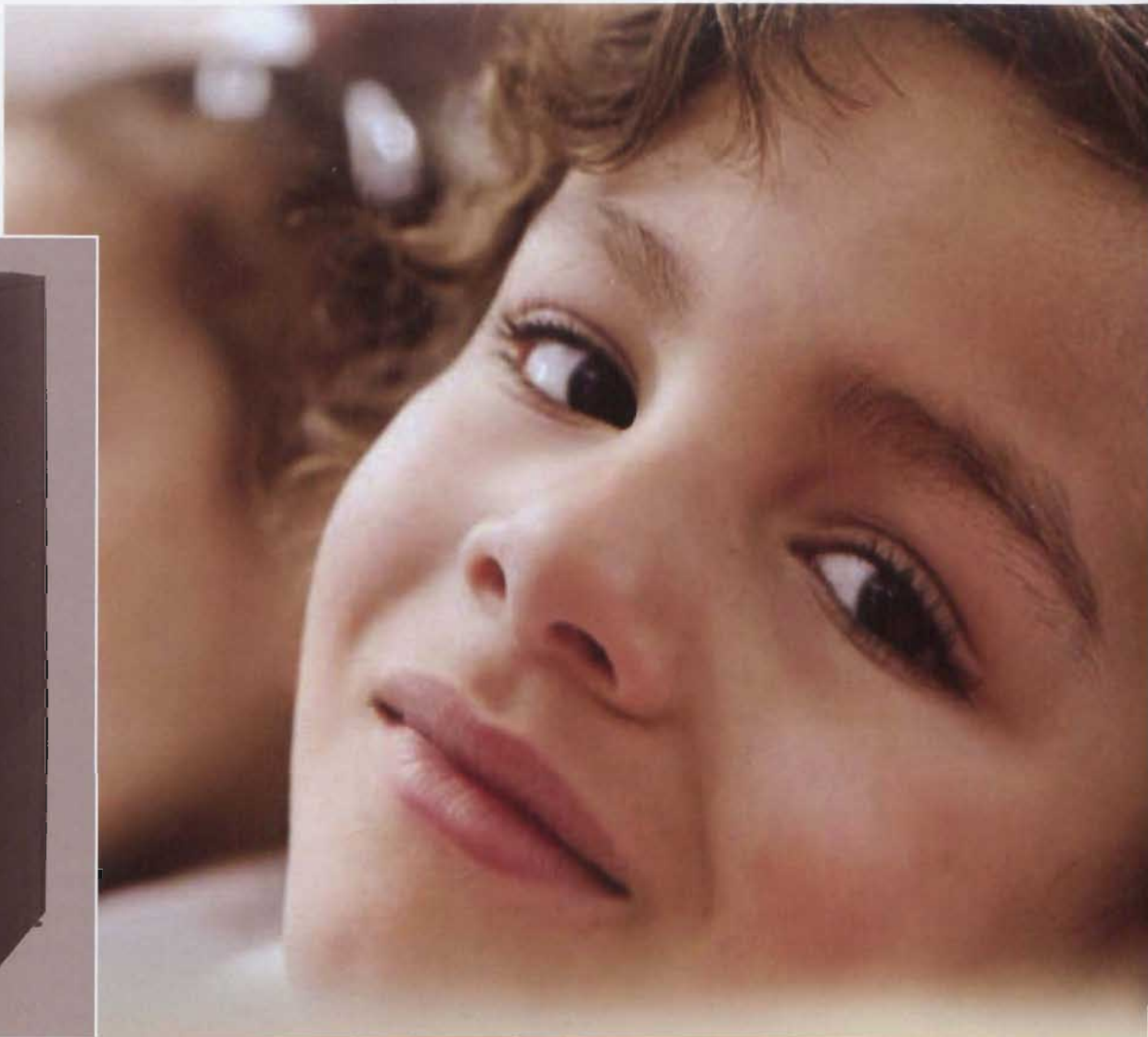
popular method to heat homes.

Myson Floortec will benefit from a new central distribution centre and transport fleet, alongside an enlarged sales force

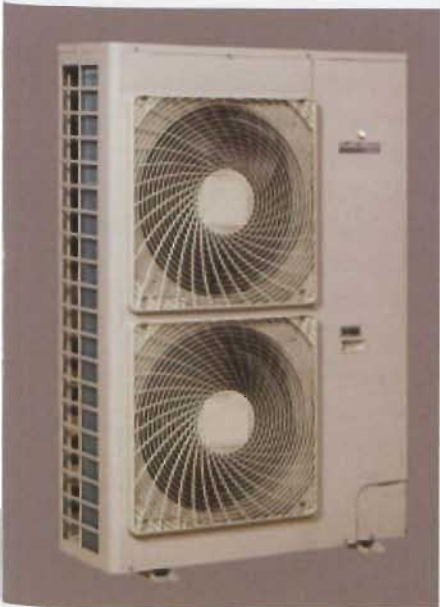
and administration team. Myson has also announced that it will dedicate a modern training and technical support centre to the new initiative.

The spokesperson added: "Underfloor heating offers many benefits to customers – from improved energy efficiency to a more natural and even distribution of heat. Potterton Myson (Ireland) has been at the forefront of heating for many years and now, with Myson Floortec, customers in Ireland will benefit from the continued advancement and innovation in the rapidly-growing underfloor market."

Contact: Sales Office, Potterton Myson Ireland. Tel: 01 – 459 0870; email:post@potterton-myson.ie



HIGH TEMPERATURE HEATING SYSTEM



- Renewable Energy from Ambient Air
- COP of 3 at Water Flow temp 65°C
- Keep Existing Radiators
- Huge CO2 Emission Reduction
- Massive Saving on Energy Bill
- Can Achieve 80°C Flow
- No Need for Back-up Heater

ADVERTISEMENT FEATURE

Ecopipe Ireland is a new company providing innovative heating and plumbing solutions at discounted factory prices. Established by principal **Macartan McCague**, the objective is to bring quality heating and plumbing solutions to the marketplace which have low environmental impact and are cost-effective to purchase and install.



Innovative heating and plumbing solutions

Macartan has over 30 years experience in the sector, 20 of which were as Director within the Wolseley Group, more recently as Commercial Director of Heat Merchants. In all he has worked at director level in engineering, plumbing, distribution, spare parts, service, heating and renewables. He now brings that to bear on the new operation.



“Quality of product is all-important”, says Macartan, “and to that end we have formed a strategic trading partnership with Tiemme, a world-renowned heating and plumbing brand with an extensive portfolio which includes Irish compression fittings, multilayer piping systems, fittings, ball valves, manifolds, underfloor heating solutions, valves and lockshield valves, temperature controls, and parts and accessories.

“In total we now offer over 3000 catalogue-listed products and systems direct to installers. Orders placed before lunch on any given day are delivered the next day to all the major cities and towns throughout Ireland.”

Here the Tiemme range comes into its own.

For instance, the Al-Cobrapex multi-layer pipe represents a valid alternative to metal pipe, as well as some plastic pipes normally used in traditional installation systems. The combination of aluminium core inserted between two layers of high-density, cross-linked, polyethylene (PE-X) delivers all the benefits of both metal and plastic while, at the same time, eliminating their typical drawbacks.

The inner layer of PE-X means that corrosion, toxicity, and roughness (with consequent higher pressure losses), are no longer a problem; meanwhile, the aluminium core deals with the issue of permeability to gases and UV rays, high internal expansion, and poor shape stability during installation.

The fact that the pipe comes in pre-insulated coils which are very light and suitable for all plumbing requirements makes handling and installation simple.

The integrity of the fittings is equally important. Al-Cobrapex compression fittings are made from hot, press-

Product and system integrity

Today, more than ever, product and system integrity is critical.

Sealed pressurised systems are becoming commonplace, placing greater strain on the materials, joints and fittings involved.



Left: **Macartan McCague**, Ecopipe Irl Managing Director.



Using Tiemme manifolds makes for jointless plumbing systems.

forged, brass and completely nickel-plated, while press fittings are made of dezincification-resistant brass. The result is non-demountable, permanent, leak-proof connections.

Nominal operating conditions for all are:

- Max operating temperature – 95°C
- Max peak temperature – 110°C
- Max operating pressure – 10bar

Tiemme press fittings are also characterised by a transparent plastic ring which has two functions. Firstly, it acts as a dielectric element and so prevents the pipe's internal aluminium layer coming into contact with the brass fitting body, therefore eliminating the danger of corrosion; secondly, it allows the contractor visually check whether the pipe is correctly inserted in the hose holder. This makes for far more efficient and quicker installation.

Manifold distribution

When it comes to system design Ecopipe recommends the use of manifolds. A key characteristic of heating systems with manifold

distribution is that all the branches to and from the heating sources, normally placed under the floor, are made with a single pipe run without intermediate jointing. Effectively, you get a jointless plumbing system.

At the end of these branches is the manifold and the regulation and shut-off devices, installed on the heating sources. Therefore, the only joints between the pipe and these components is always visible, easy to inspect and simple to access. Aesthetically-pleasing manifold covers are available to suit any decor.

UFH and system design support

The Tiemme product range is especially suited to underfloor heating. All the strengths associated with the pipe itself, and the various fittings and accessories, make for excellent system integrity while, at the same time, allowing a great deal of design flexibility.

Ecopipe provides comprehensive design support with Macartan's colleague, Leo McCormack – who

Tiemme Portfolio

- Irish Compression Fittings
- Metric Fittings
- Solar Piping and Fittings
- Multi-layer Pipe (16mm - 63mm)
- Multi-layer Pressfit
- Underfloor Heating System
- Heating Manifolds
- Plumbing Manifolds
- Ball Valves
- Radiator Valves
- Pump Modules
- Pipe-in-Pipe
- Pre-Insulated Pipes
- Tools

has extensive experience in the area – using specially-devised software to produce full project drawings, circuit drawings, article lists, etc.

However, contractors are not obliged to avail of the design service, or to purchase the entire system, as all components are also sold separately.

“As the foregoing clearly illustrates” says Macartan, “Ecopipe’s experience and technical excellence – coupled with Tiemme’s unrivalled range of innovative and technologically-advanced products and systems – makes for a formidable force in the provision of plumbing systems and accessories for all manner of applications. If you want quality and integrity, at factory-direct prices, then we are the solution.” ■

Contact



Ecopipe Irl

Tel: 01 – 296 0174
 Fax: 01 – 296 0175
 Mobile: 087 259 3085
 Email: mac@ecopipeirl.com
 Web: www.ecopipeirl.com

Product Review: Underfloor Heating

DAIKIN

Daikin Altherma HT – the solution with an eye to the future

Daikin Altherma HT is a new, highly-flexible, energy efficient home heating system that extracts the heat from the outside air, raises this heat to a higher temperature, and then distributes the warmth throughout the home. With this innovative and technologically-advanced system, 70% of the heat generated comes from a renewable energy source – the air around us – and is therefore absolutely free of charge.

At the heart of the Daikin Altherma HT system is the Daikin Altherma air-to-water heat pump, today's answer to current and future problems associated with conventional heating systems such as increasing primary energy costs and unacceptably-high environmental impact.

High efficiency means low energy costs. Depending on the installation, the COP for

Daikin's heat pumps is approximately three, which means they provide three times more energy than they consume.

Daikin has more than 50 years of experience with heat pumps, and supplies more than one million of them to homes, shops and offices each year. This success is not just a quirk of fate – Daikin has always been at the cutting edge of technology and its goal is to provide clients with turn-key comfort. Only a market leader can guarantee this level of service and quality control.

The European RES Directive recognises air as a renewable energy source and, as a result, several heat pump incentives are already available to homeowners. Moreover, Daikin now has two heat pump models registered on the HARP database, the official database for the registration of heating appliance efficiencies for use by BER assessors in Ireland. This means it can now offer the best Building Energy Rating (BER) of any heat pump at this time.

Since the registration in early April, Daikin can now claim a seasonal efficiency of 380% for a 14kw Altherma LT, a massive jump up from the 250% which is set as a



Daikin Altherma HT extracts the heat from the outside air, raises this heat to a higher temperature, and then distributes the warmth throughout the home.

default value in the BER Certificate for all air source heat pumps and which must be used if a HARP database registration is not complete.

The Daikin Altherma HT is a modular system and is capable of flexibly meeting all needs – heating only, or with domestic hot water, and of interfacing with current heating system components.

When replacing an existing heating system with the Daikin Altherma HT, radiators don't need to be replaced. Daikin Altherma HT replaces the conventional boiler and perfectly supports existing high-temperature radiators with water temperatures up to 80°C if required.

Daikin Altherma HT meets all heating needs, even on the coldest days of the year.

The outdoor unit extracts heat from the ambient outdoor air, which in turn is transferred to the indoor unit via refrigerant piping. The indoor unit receives the heat from the outdoor unit and

further increases the temperature, allowing water temperatures up to 80°C for heating through radiators and for domestic hot water use. Moreover, even at outdoor temperatures down to -7°C, Daikin's unique cascade compressor approach to the heat pumps – one in the outdoor unit/one in the indoor unit – means no drop in capacity, optimising comfort without the need for an electric back up heater.

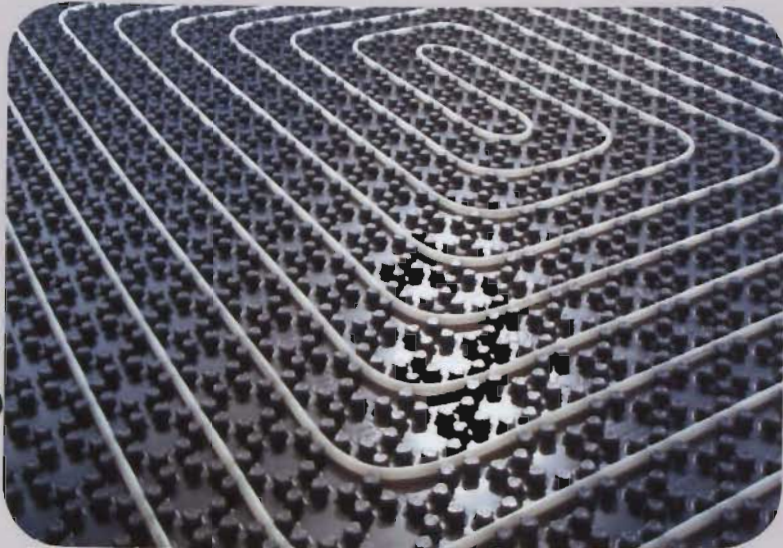
Daikin Altherma is also available in a low temperature range combinable with underfloor heating, low temperature radiators and fan coil units. This system also provides domestic hot water and can even cool in summer.

Contact: John O'Shaughnessy or Richard Sherlock, Daikin Europe nv, Ireland Office.
Tel: 01 - 642 3430;
email: oshaughnessy.j@daikin.ie or sherlock.r@daikin.ie
www.daikin.ie



Altherma LT Monobloc air source heat pump – the complete plug and go solution.

Residential & Commercial Underfloor Heating Systems



Profile panel system with 11mm or 35mm insulation



Pex Pipes 14mm 16mm & 20mm



Multilayer Pipes 16mm to 63mm



Multilayer pipe system with staples



Oventrop Manifold & Regulator



Peamount Business Centre
 Newcastle
 Co. Dublin

9 City East Business Park
 Ballybrit
 Co. Galway



ITT

ITT Ireland epitomises the cycle of water



SANITAIRE®

HYDROVAR®

VOGEL PUMPEN



ITT Ireland is a new company formed by the amalgamation of ITT Water & Wastewater Ireland, and Lowara Ireland. Both companies have operated in Ireland as stand-alone entities for many years but have now come together to deliver all-embracing, innovative solutions from the one source.

This new initiative is part of ITT Corporation's global strategy to further strengthen the quality of the service it delivers and to ensure that Ireland, like the rest of the world, benefits from the massive portfolio of technologically-advanced products and systems it provides.

To that end ITT Ireland recently took possession of new corporate headquarters in Dublin which have been completely refurbished to provide ultra-modern office accommodation, warehousing, workshops and trade counter. All facilities were designed not so much to suit ITT Ireland but rather to ensure that customers needs could be met quickly and efficiently.

In addition, ITT Ireland will retain its satellite offices which are located in Cork and Limerick. "This is a very exciting time for us at ITT Ireland", says General Manager Tony Styles. "Despite the challenging market conditions, ITT has committed significant investment funds to Ireland to underpin our market standing, and to secure increased market share into the future.

"We at ITT Ireland are deeply involved in the cycle of water ... whether it is the provision of clean water or the disposal of contaminated water, we deliver innovative products and systems to cater for water handling, heating and air conditioning control, treatment and distribution. Whatever your requirement – be it sales and supply or rental – we have a solution."

ITT Ireland, 50 Broomhill Close,
Aiton Road, Tallaght, Dublin 24.
Tel. 01 452 4444 Fax 01 452 4795
E-mail: itt.ireland@itt.com

Jim Simpson, Operations Manager with Terry Murray, Sales Manager and Tony Styles, General Manager.

Products and applications

ITT Ireland has an extensive range of technologically-advanced products and pump systems, the key market segments catered for being:

Residential and commercial water

Pumps, systems and accessories for water wells, pressure boosters, agricultural and irrigation applications, HVAC systems, boiler controls, flood control and fire protection;

Water and wastewater

Submersible pump systems for water and wastewater control, and biological filtration and disinfection treatment systems for municipal, industrial and commercial applications;

Industrial

Pumps for industrial, mining, pulp and paper, chemical and petroleum processing.

Energy efficiency

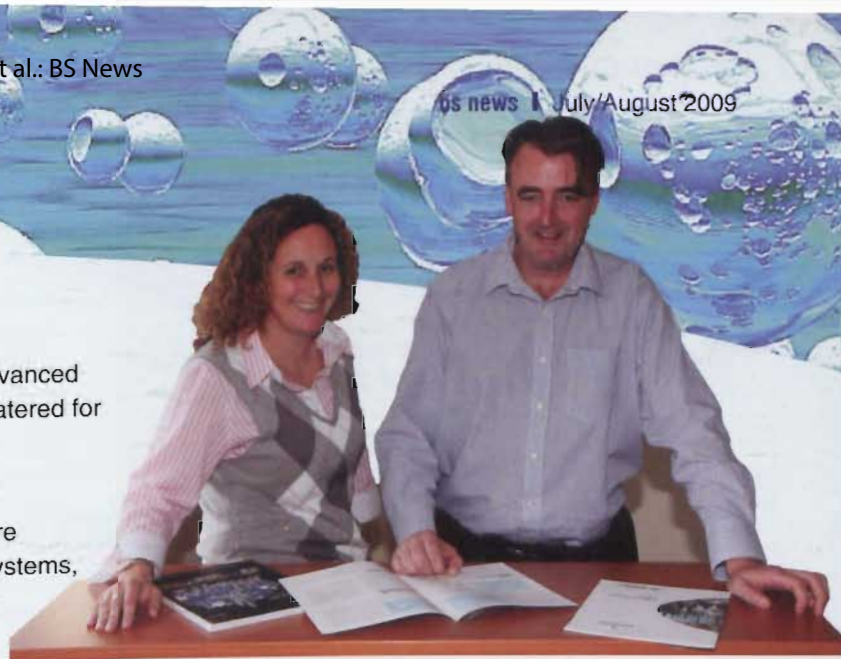
With pumps accounting for 20% of the world's energy usage, innovative systems and solutions are required which are performance-driven but energy efficient. ITT Ireland delivers to this exacting brief, a typical example being its latest wastewater pump which uses 40% less energy than anything in its class.

ITT pump designs also optimise pump life cycle performances, reducing plant-operating cost and achieving potential 30% to 70% improvements in energy and maintenance cost, while improving both pump and process reliability.

Pump and system rental

ITT Ireland is unique in offering high-powered pumps to the Irish rental market, providing quick-response solutions to emergency, temporary and semi-permanent pumping requirements, including pipework and ancillaries.

The rental service primarily serves the municipal, construction, quarrying and mining industries, specialising in the rental of electrical submersible pumps, mixers, aerators and diesel pumps. It also has its own transportation fleet to deliver and collect equipment.



*Members of the service and installation team
Alison O'Reilly and Paul Mannion.*

Strength in people

While ITT Ireland has an enviable product portfolio, equally important is the wealth of experience and applications know-how of the staff, especially the design and service engineers. When applied to ITT's advanced software design and selection programmes, the solutions delivered are invariably the most cost-effective and energy-efficient possible.

Respect, integrity and responsibility are the cornerstones upon which the operational and management structures are based. This in turn has created a cooperative, supportive ethos which also extends out to clients, thereby cementing the partnership approach.

Service and maintenance

The dedicated service, repair and maintenance workshop at ITT Ireland's new headquarters is a customised showcase facility. It is designed to accommodate continuous operation so that clients receive quick turnaround and don't suffer unnecessary delays.

There are also separate work bays for the different product types with full health and safety approved procedures to ensure no cross-contamination.

Mobile learning

Apart from continuous education and training programmes for its own staff, ITT Ireland also has a mobile education/training unit which it takes to clients' premises for CDP-approved seminars and workshops.

This unique classroom on wheels incorporates fully-functioning pump installations, along with all related controls and management systems, which allows hands-on experience at remote locations.

Product Review: Underfloor Heating

HONEYWELL

Maximise UFH efficiency with Honeywell Controls

Fuel costs are a major expense in buildings and homes, while there are global demands for us to burn less fuel for the good of the environment. A recent article in *bs news* showed which Honeywell controls should be used to maximise energy efficiency in radiator systems. The same principles are true in underfloor heating systems, which are similarly controlled.

Buildings should be divided into heating zones, according to the way the areas are used and the times they are occupied – each zone has its own time/temperature controls. A single heating zone may comprise one or more underfloor heating loops. A 'boiler

Right: A Honeywell DT92E wireless energy saving room thermostat with TPI control (left) with its relay unit which is mounted near the boiler.

interlock' must be provided to ensure the boiler does not fire unless there is demand for heat from any zone.

Each heating zone is regulated using signals from its room controller. These should be programmable thermostats capable of adjusting temperatures automatically at various times during the day, rather than a time clock and room thermostat. When a controller calls for heat, valves on the manifold open to allow warm water flow through the loop. The valve in turn starts the manifold pump and switches on the boiler and main pump.

For maximum system efficiency, room thermostats should feature TPI (Time Proportional and Integral)



The Honeywell HCE80 multi-zone wireless manifold controller can be used with wired and wireless thermostats. It is shown here with the CM900 programmable thermostat.

advanced energy saving control. The Honeywell CM900 programmable thermostat range and Honeywell DT90 thermostat range provide much more accurate temperature control than traditional home thermostats using simple on/off control. The set point on the thermostat can therefore be lower, without loss of comfort, while reducing fuel consumption.

These thermostats are also 'intelligent' – they have a self-learning facility which recognises how the heating system responds to its demands. They then adjust automatically to adapt to the thermal characteristics of the building and the heating system to give better control.

Depending on the boiler type, a bypass circuit may be required, which should include an automatic bypass valve. This loop provides a safe flow path and improves boiler efficiency compared with a fixed bypass, as flow is minimised when thermostats are calling for heat.

Energy efficiency is further enhanced by using controllers with 'optimum start' – the householder sets the desired morning temperature and the time it is required on the programmer, which adjusts the heating start time daily, depending on the weather and the building thermal characteristics. This saves energy each day by delaying boiler firing until the latest possible moment.

To simplify installation, underfloor heating can be controlled using wireless programmers and thermo-



The Honeywell CM900 programmable thermostat is available in wired and wireless versions. Wireless models can be wall mounted or used on a special table stand.

stats. These are quick and easy to install, with no control cables from room thermostats to the manifold. A multi-zone wireless manifold controller is mounted close to the manifold – this can control up to five heating zones.

Additional controllers and extension units can be added to create any number of additional zones. Zones controlled by wireless programmable controllers and wireless thermostats can be combined on the same wireless manifold controller, to suit the installation needs.

Contact: Honeywell Controls.

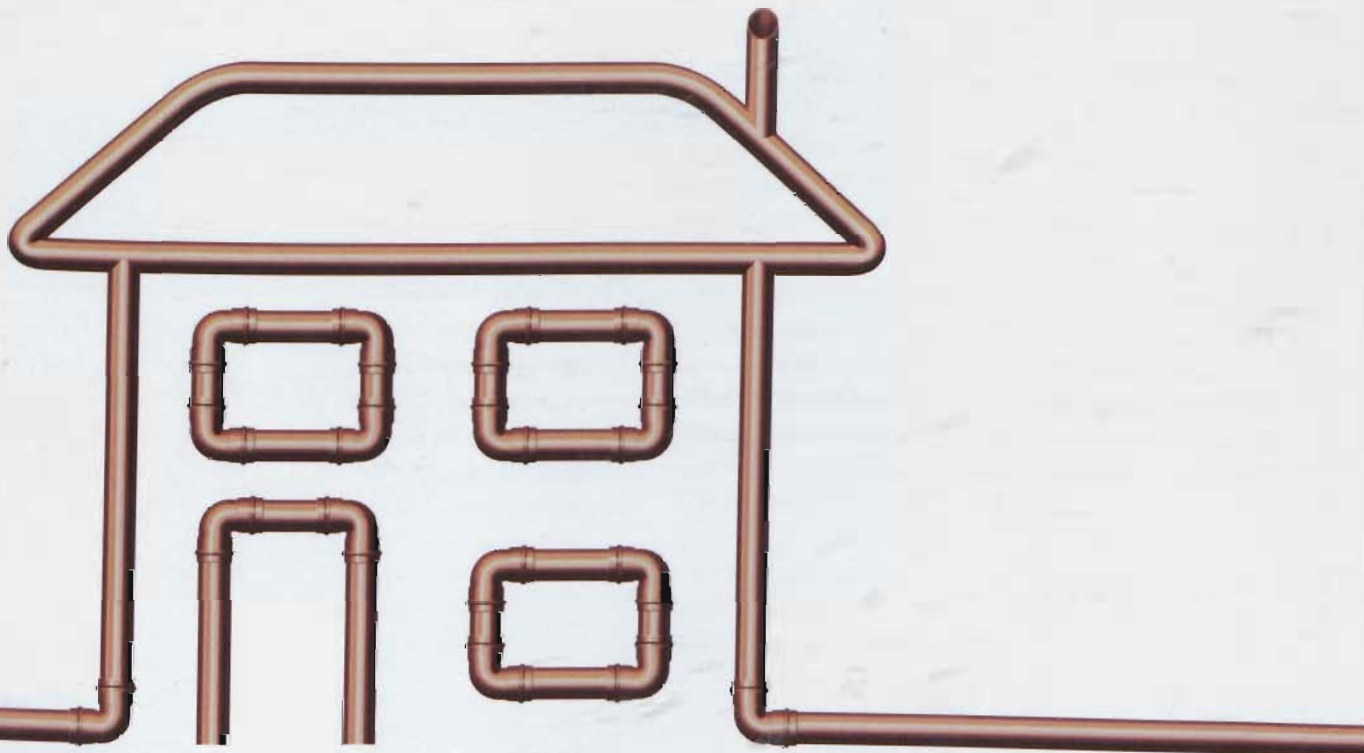
Tel: 0044 1344 656172;
www.honeywelluk.com

Irish Metal Industries Ltd
Cronin House, Damastown Industrial Park,
Mulhuddart, Dublin 15

t: 01 - 809 7028

f: 01 - 809 7001

e: conor.lennon@irishmetalindustries.com
www.irishmetalindustries.com



➔ **IRISH METAL INDUSTRIES:
TUBE WITH BUILT IN QUALITY**

**WHEN QUALITY AND RELIABILITY COUNT,
SPECIFY TUBE FROM IRISH METAL INDUSTRIES**

Thousands of properties in Ireland have a built-in quality product - copper plumbing tube from Irish Metal Industries. With its 25 year guarantee and carrying either the Irish Standard Mark or BSi Kitemark, our tube offers you proven and trouble-free service, year after year.

You can rely on Irish Metal Industries tube - so ask for it by name.



**Irish Metal
Industries**

Product Review: Underfloor Heating

IRISH METAL INDUSTRIES

Copper – high-performing and sustainable

IMI supplies a complete range of copper tube for hot and cold water installations, gas services, sanitation, central heating, refrigeration, and all other building services-related applications, including underfloor heating.

All tubes are manufactured to IS EN 1057 and IMI is licensed to engrave them with the coveted Irish Standard Mark, which is the registered quality mark of the NASI.

Best for quality and reliability, copper is easy to work with while ever-more-

advanced fittings make installation simpler and quicker. It also has excellent health-related advantages, evidence-based studies demonstrating that it is effective in preventing the growth of dangerous pathogens such as Legionella, and limiting the proliferation and spread of E.coli bacteria.

Another unique benefit of copper is its excellent resistance to corrosion, heat, pressure and fire. This is particularly important given

that today's preventative treatments and disinfecting techniques are carried out at much higher temperatures to reduce flushing times. Copper remains unaffected by higher temperature cycles over the lifetime of a water system.

Finally, there is the matter of sustainability, a key

requirement for building services installations. "In this respect copper simply has no equal", says Conor Lennon, General manager, IMI.

Contact: Conor Lennon, IMI. Tel: 01 - 809 7028; Fax: 809 7001; email: conor.lennon@irishmetalindustries.com

Below: Store personnel preparing an order for dispatch at the new IMI base at Mulhuddart, Dublin 15.



Specify underfloor heating with confidence.

As one of Europe's leading names in heating technology, MYSON FLOORTEC has been at the forefront of the underfloor revolution.

With MYSON FLOORTEC underfloor heating you will be ensured of:

- High quality components and fixing systems for all floor types
- 48 hour quotation turnaround
- A complete CAD design service
- Comprehensive technical support and advice
- Delivery of system within 7 - 10 working days from receipt of order



heatingthroughinnovation.

POTTERTON MYSON IRELAND Ltd Unit 7, Whitestown Business Park, Tallaght, Dublin 24
T: 01 459 0870, F: 01 459 0880, post@potterton-myson.ie, www.potterton-myson.ie

Product Review:

CARRIER

Carrier Nexa ideal for underfloor heating

Designed to provide optimum comfort and reduce energy consumption while caring for the environment, the new Carrier Nexa air to water heat pump from Core Air Conditioning has been approved for grant aid from Sustainable Energy Ireland (SEI).

Carrier Nexa is ideal for underfloor heating solutions and is claimed to provide annual energy savings of up to 56% in a typical domestic installation, be it a new or refurbished house, or an apartment block.

The basic concept of the design is simple – reduce energy usage by the addition of naturally-occurring energy sources such as air (air source)

and ground (ground source). By incorporating advanced, high-tech, centralised controls, multi-zones, and all the necessary detection and programming devices, it is possible to provide the ultimate solution for virtually any application.

The system generator, in this case the heat pump, produces the heat required for the installation; the heat distributor is the element that diffuses the energy throughout the installation; while Carrier's Micronexa electronic module manages all system parameters and is in charge of the heat transfer via the water circuit to the heat distributor, which it also controls.



Above: System interface module from Carrier.

the heat distributor is the element that diffuses the energy throughout the installation; while Carrier's Micronexa electronic module manages all system parameters and is in charge of the heat transfer via the water circuit to the heat distributor, which it also controls.

Contact: Austin McDermott or Paul Schweppe, Core Air Conditioning. Tel: 01 - 409 8912 email: austin@coreac.com

Published by ARROW@TU Dublin, 2009

Working towards a cleaner future

SOLARflo
A complete solar thermal solution for both commercial condensing boiler and direct fired water heating applications.

Paramount two
A range of technically advanced wall hung condensing boilers. Lightweight, ultra low noise, combining the latest heat exchanger technology and state of the art control systems.

Established values.
Leading edge technology.



www.pottertoncommercial.co.uk



www.andrewswaterheaters.co.uk

Potterton Myson (Irl) Limited
Unit 7, Whitestown Business Park,
Tallaght, Dublin 24, Ireland
Email: post@potterton-myson.ie
www.potterton-myson.ie

Sales: 01-459 0870
Fax: 01-459 0880



Ireland adopts leading role in FISUEL

FISUEL, the International Federation for the Safety of Electricity Users, was first tentatively proposed in the year 2000 at a symposium in Paris, and then formally incorporated at a meeting in Beirut in 2002. It is now recognised as the foremost international body for electrical safety worldwide with a growing membership and a massive sphere of influence.

While not a founder member, Ireland became involved shortly after FISUEL was established, thanks to the efforts and foresight of David McGloughlin, General Manager of the Register of Electrical Contractors of Ireland (RECI), who wisely saw the value of participation. There are now 18 countries represented by FISUEL with Ireland seen as one of the most pro-active and advanced.

In fact, Ivan Hammond – a RECI Director and Ireland's representative on FISUEL – now holds the honour of being one of only eight Directors of FISUEL. The others are: President Romauldo Arias (FENIE, Spain); Vice-Presidents Philippe Andre (CONSUEL, France); David Latimer (ESC, England) and Adiouma Dione (PROQUELEC, Senegal); Past-President Jose Tomaz Gomes (CERTIEL, Portugal); Theodore Bodi Kouassi (LBTP Secural, Ivory Coast) and Sandro Rollan (APSE, Argentina).

Day-to-day management and administration is in the very capable hands of FISUEL General Manager Denis Hannotin. He does sterling work in ensuring constant communication and dissemination of news and ideas among members, and oversees the smooth running of the entire operation.

"There are significant differences between one country and/or regulatory body and another" says Ivan Hammond, "with the level of the enforcement of standards, and related legal requirements for monitoring, compliance and enforcement, varying considerably. We in Ireland have by far the most structured and rigorous regime and so our FISUEL colleagues very often look to us for guidance and the benefit of our experience. Compared to Europe and the rest of the world, we are seen as having the benchmark-setting regime in respect of electrical safety and regulation."

From the outset it is important to understand that FISUEL is not a regulatory body, nor does it devise and impose international standards or

regulations. Each country has its own regulations and standards, with clauses and requirements appropriate for that country's marketplace. FISUEL's objective is to encourage the adoption and enforcement of such locally-appropriate regulations and standards, and to help countries establish standards and regulations where none exist.

Regular meetings of the full membership – which include the presentation of papers, symposiums and the AGM – are held each year in different countries, the honour to do so going to Ireland in November 2003. Tokyo is the venue for the next major gathering and AGM.

Ivan Hammond – in the company of RECI Chairman John Desmond and General Manager David McGloughlin – attended the most recent FISUEL meeting held in Paris in June and told *bs news* that, in the context of discussions to devise a strategic way forward, the regulatory and enforcement systems which apply in Ireland were once again held up as exemplars upon which to base future international benchmarks.

Membership categories

There are two categories of FISUEL membership:

Active Members – legal entities, such as RECI in Ireland, who are charged with regulation and enforcement of standards related to the safety of electricity users; they invariably play a very pro-active role in the affairs of FISUEL;

Associate Members – associate membership applies to any body, entity or association concerned with the safety of electricity users and/or wishing to support its development.

All together there are 28 members (16 active and 12 associate), representing 18 countries, plus two associations, one international and one European, (UIE, ECI).

All these members constitute the "general assembly"; at the top there is a Board of Directors – currently chaired by Romualdo Arias, electrical contractor in Spain, past President

of FENIE (Spanish electrical contractors), successor of José Tomaz Gomes Portugal (CERTIEL), and Philippe André, France (CONSUEL and founder of FISUEL).

FISUEL main objectives

Essentially, the main objectives of FISUEL are:

- To promote electrical standardisation, promote compliance of electrical installations with those standards, and the various systems of verification of this conformity;
- To promote electrical safety by welcoming and helping countries or bodies wishing to develop electrical installation safety levels by setting up inspection or verification systems; by helping countries which already have an inspection system to improve it, and thus contribute to its continued use, by exchanging ideas and information;
- To try to harmonize, or at least to bring closer, inspection procedures, and to optimise existing systems;
- To progress the implementation of compulsory technical periodic, systematic and regular inspections of installations in older dwellings, and to combat the use of non-compliant products.
- Pursue the identification and withdrawal from the marketplace of products (counterfeit or not) which do not conform with relevant standards;
- Lobby the EU for a "recommendation in favour of regular/periodic" verifications of existing installations;
- Establish an *International Electrical Safety Data Collection Centre* (consolidation of national centres);
- Establish a data bank comprising a consolidation of all information gathered since 2002, that will cover around 30 countries;
- Collect statistics on accidents of electrical origin and their causes;
- Study the different systems of inspection of micro generation installations in use in various countries with

a view to producing a grid of all points that are checked, in the different countries, for these kinds of installations;

Those wishing to learn more about the activities of FISUEL can contact Denis Hannotin at emails fisuel@fisuel.com and Hannotin@noos.fr; or Ivan Hammond at email: hammondi@indigo.ie ■



Left: Romualdo Arias, FISUEL President with Denis Hannotin, General Manager; Directors Ivan Hammond, Philippe Andre; and Francisco Paramio Saldana.

Designing Building Services



Martin Carpenter, PM Group, is a Senior Electrical Engineer specialising in fire safety. He is a Fellow of the Institute of Engineers in Ireland (FIEI) and has over 20 years experience in systems design, construction, project management and engineering across a broad range of projects. These include airports, power generation, hospitals, hotels, and internet hosting and data centres, in Ireland, the UK and US. Martin's expertise includes high-technology installations, power systems and design of life-safety systems in engineering design and management, project management, contract and installation management, procurement and project planning, and business development.

Fire suppression – water mist systems the way forward ...

In a previous article I wrote detailing fire suppression systems (*bs news May 2008*), and briefly mentioned a type of fixed fire fighting system I believe may save many lives. I would now like to go into water mist suppression systems in greater detail and explain why.

I believe water mist systems (also known as water fog systems) are the way forward for protection of persons and property. The following fixed fire fighting system is a modern development of an old system. The medium used is water; however, the water is reduced to form a mist or fog and thereby acts like a gas suppression system.

Water mist systems may replace sprinkler systems and other types of gas suppression systems eventually, but at present the technology is at a stage that the cost is still slightly higher and the systems are not universally accepted.

Advances in fire engineering and electronics means that less and less fire damage occurs, as detection methods have significantly improved. When the value of the property is such that any fire damage will cause a massive financial cost, the insurers will usually ask for a fixed extinguishing system to be

installed. It is ironic that the high cost of fixed extinguishing systems means that fire brigade tender units may cause a greater amount of damage on account of the water it takes to dampen and extinguish a fire.

Water is the oldest, the most widely-used fire fighting medium in the world. Its advantages are that



A selection of sprinklers currently available on the market.

Water mist systems may replace sprinkler systems and other types of gas suppression systems eventually

it is safe to use and is freely available. It has superior fire fighting capabilities when compared with other available fire fighting agents.

The necessary ingredients of burning are:

- (1) Combustible source: solid (Class A), liquid (Class B), or gas-phase;
- (2) Oxygen;
- (3) Heat for burning.

At least one of the above factors must be removed in order to extinguish a fire. It is rarely possible to remove the combustible fuel but the remaining parameters – oxygen and heat – can be removed by different fire fighting agents and consequently the fire is extinguished or prevented from spreading.

Water has three major fire fighting properties, all of which relate to evaporation:

- (1) **Cooling:** when it turns into vapour, water absorbs more heat than any other fire fighting agent;
- (2) **Inserting:** when it evaporates, water volume expands over 1,500times, displacing oxygen in the volume of space;
- (3) **Blocking of heat.**

Water mist is composed of micro-droplets, usually about the 150 micron size. When water is discharged through a nozzle at an appropriate pressure, the water droplet changes to replicate a fire fighting gas. It will turn into a very fine spray and take on similar fire fighting properties to that of an inert gas. The heat absorption of the spray is dramatically increased to such a level that a flame may be cooled sufficiently to be suppressed or even extinguished.

According to NFPA 750: Standard on Water mist Fire Protection System, water mist is defined as "fine water sprays for the efficient control, suppression or extinguishment of fire using limited volumes of water". Fine sprays would need droplets to be less than 1000 microns in diameter. In order to work effectively, water mist systems must be sufficiently thrust into a fire or flame-front to sufficiently cool and smother it if the spread of a fire is to be prevented.

Thanks to the very small size of the water droplet and the low conductivity of water mist, water mist systems have been used to protect computer rooms, transformers, telecoms switching rooms and various types of electrical equipment. Water mist may be used to fight both solid and liquid fires, and there are very few fire risks which cannot be protected. Of these, water-based fire fighting systems cannot be used to fight liquid metal fires or to protect materials which react adversely when combined with water.

Traditional sprinkler systems use wetting as their main mechanism and therefore use very large amounts of water; water mist, on the other hand, uses three mechanisms to fight fire – cooling, radiant heat blocking, and oxygen smothering at the flame-front. Water mist systems use water much more efficiently on account of the blanketing effect with water vapour ... it requires 90% less water than a traditional sprinkler system to suppress a flame.

The fire fighting performance of any water mist system is dependent upon many factors,

including droplet size, the velocity of the water mist, nozzle design, droplet distribution, the nature of the fire load, the height at which the water mist heads are mounted, air flow and system configuration.

Water mist systems for buildings are always designed and installed according to the NFPA 750 Standard for Water Mist Fire Protection Systems. Components such as pumps, sprinkler heads, spray heads and valves are considered and included in system approvals by VdS and FM. Water mist systems for the fire protection of buildings have system approvals for the following sprinkler classes:

- Light Hazard (FM);
- Ordinary Hazard 1 (VdS);
- Ordinary Hazard 3 (VdS).

Water mist systems for the protection of the following hazards have been approved by FM or VdS and include some of the following applications:

- Computer rooms;
- Machinery spaces;
- 10KV Transformer enclosures;
- File store (deep-seated fire);
- Cable tunnels;
- Archive rooms (deep-seated paper file storage facilities);
- Ducts;
- Deep fat fryers;
- Prisons and detention centres;
- Aircraft hangars.

The benefits of applying such a system are:

- No compartment sealing required, usually a very crippling cost for a fire suppression system;
- The system may be recharged quickly and easily in Ireland;
- The system is very "green".

Water mist systems are designed on a project-specific application. All designs are based upon full scale testing of fuels and hazards as expected in the client's premises. For this reason the level of research and development is still intense and costs are high accordingly. There is a very good reason why the vendors carry out specific calculations: namely, that the planned European Standard (CEN TC 191 WG 5) for the system is not published. This leads to differences between manufacturers recommending flooding times and application limits, hence the need to engineer each application.

Water mist systems are seen to provide better protection than sprinklers as cabinets and furniture do not hide the fire from the mist. Water mist systems provide an ideal alternative where water would damage equipment or could cause an explosion, for instance in a boiler room or generator room. It may seem unusual to recommend a water solution for a transformer room but, if the water is de-ionized, there is no breakdown of the water below 20kv and consequently no threat to life nor equipment.

Computer rooms are also very suitable for water mist systems as the mist does not act like water but like a gaseous water system which penetrates all areas within a protected space.

The most accurate description for a water mist system is that it compares to walking in a cloud that has engulfed the top of a mountain. Anyone who has done so knows it would be very difficult to sustain a fire in such a damp, cold environment. Again keeping with the analogy of the cloud, there is no displacement of

oxygen and so it is considered safe for persons to remain within a protected space during a water mist discharge.

Water mist systems give superior performance over standard sprinkler systems and it is expected that micro-mist or water mist systems may be installed in houses in remote or inaccessible locations in years to

come. However, the cost of water mist systems at present means that this is only for the super-rich.

Looking ahead to the future, all homes could be fitted with a dedicated water mist system which, if installed at construction stage, would prevent many of the horrific fire-related stories we constantly hear about in the media. ■

When water is discharged through a nozzle at an appropriate pressure, the water droplet changes to replicate a fire fighting gas



High scoring at Hermitage

The BTU outing at Hermitage was, as always, a great success with the course living up to everyone's expectations. The manicured greens and fairways presented a tremendous challenge which most of the participants rose to.

The weather was kind (by our summer standards!) with lots of decent sunny spells interspersing the breezy conditions and occasional showers. Scores were good with local member Tom Noone not surprisingly emerging the overall winner with a score of 37pts.

Sponsor on the day was BSS Ireland and Brendan Coghlan and his colleagues put up an excellent array of prizes which were presented after the customary meal.

Full results were as follows:

Overall winner: Tom Noone, 37pts.

Class 1:

First: Robert Kenny, (37-2) 35pts;

Second: Michael Kearney, 31pts;

Third: Michael Matthews, (29-0.5) 28.5 pts.

Class 2

First: Des Haughton, (35-2) 33pts;

Second: Gerry Tobin, (32-0.5) 31.5pts;

Third: John White, 30 pts.

Class 3

First: Pdraigh Gillen, 34pts;

Second: Tony Gillen, (31-1) 30pts;

Third: Ben McMahon, 29 pts.

Front Nine: Bernie Costelloe, 17 pts.

Back Nine: Michael Clancy, 19 pts.

Visitor Prize: Ben Sheehan. ■



1



2



3

Photo 1: BTU Captain Michael Matthews with Pdraigh Gillen (Class 3, first) and Brendan Coghlan of BSS Ireland.

Photo 2: BTU Captain Michael Matthews with Ben Sheehan (visitors' prize).

Photo 3: BTU Captain Michael Matthews with Tony Gillen (Class 3, second) and Brendan Coghlan of BSS Ireland.

EPA's update position on waste refrigerant gases

The latest guidance from the Environmental Protection Agency (EPA) in relation to the management of waste refrigerant gases is that, in determining the proper management of waste refrigerants, the definition of waste and the definitions outlined for recovery, recycling and reclamation of refrigerant gases must be seriously considered. Its stated position on the matter is outlined here.

Definition of waste

Waste is defined in Section 4(1) of the Waste Management Act 1996, as amended, as

"any substance or object... which the holder discards or intends to discard or is required to discard, and anything which is discarded or otherwise dealt with as if it were waste shall be presumed to be waste until the contrary is proved".

Under Section 32 of the Waste Management Act 1996, as amended, a holder of waste, *"shall not hold, transport, recover or dispose of waste in a manner that causes or is likely to cause environmental pollution".*

Temporary storage of waste is defined in Section 5(3) of the Waste Management Act 1996, as amended, as follows: *"... a reference to the temporary storage of waste shall, without prejudice to any particular provision that may be made pursuant to section 39(6), be construed as a reference to the storage of waste for a period not exceeding six months".*

Definition of recovery, recycling and reclamation of ODS Article 2 of Regulation (EC) No. 2037/2000 on substances that deplete the ozone layer provides definitions as follows: – *"Recovery"* means the collection and the storage of controlled substances

from, for example, machinery, equipment and containment vessels during servicing or before disposal; – *"Recycling"* means the reuse of a recovered controlled substance following a basic cleaning process such as filtering and drying. For refrigerants, recycling normally involves recharge back into equipment and is often carried out on site; – *"Reclamation"* means the reprocessing and upgrading of a recovered controlled substance through such processes as filtering, drying, distillation and chemical treatment in order to restore the substance to a specified standard of performance, which often involves processing off-site at a central facility.

Where refrigeration and air conditioning (RAC) contractors carry out servicing on a client site a number of scenarios may be encountered. These are outlined as follows, for the purpose of demonstrating the requirements with the relevant legislation:

Scenarios with legislative implications

An RAC contractor recovers refrigerant gas from a system on a client site, services the system, and returns the gas to the same system. The refrigerant gas is not being discarded

and is therefore not a waste. If the gas has undergone a basic cleaning process, it is considered recycled;

An RAC contractor recovers refrigerant gas from a system on a client site and charges the system with a different gas. The recovered gas is considered to be discarded by the holder and is therefore a waste and must be managed as such. This waste shall not be stored on the site of generation for more than six months unless specifically authorised under a waste licence, facility permit or certificate of authorisation granted under the Waste Management Acts and relevant regulations;

An RAC contractor recovers refrigerant gas from a system on a client site and charges the system with a different gas. The recovered gas may be suitable for re-use on another site. The recovered gas is considered to be discarded by the holder and is therefore a waste and must be managed as such.

This waste shall not be stored on the site of generation for more than six months unless specifically authorised under a waste licence, facility permit or certificate of authorisation granted under the Waste Management Acts and relevant regulations.

The waste may be reclassified as a

reclaimed gas following treatment and appropriate analysis and certification that it meets the relevant quality standards.

Management of waste refrigerant gases

Where a contractor generates waste refrigerant gas in the course of servicing, the following options apply for its movement and management:

Option 1

The RAC contractor can transport the waste refrigerant gas from the client site to an authorised waste management facility, as outlined in their Prior Annual Notification and in accordance with Article 30 of the Waste Management (Collection Permit) Regulations 2007 (S.I. No. 820 of 2007). In this instance, the RAC contractor becomes the holder of the waste and must fulfil the general duty on the holder of waste set out in Section 32 of the Waste Management Act, as amended;

Option 2

The RAC contractor can advise the client to make its own arrangements for the proper management of the waste refrigerant. In this instance, the client remains the holder of the waste and must fulfil the general duty on the holder of waste set out in Section 32 of the Waste Management Act, as amended.

The storage of waste refrigerant gases is not permitted on any site (other than temporary storage at the site of generation), unless that site is specifically authorised to do so via a Waste Licence issued by the EPA or a Facility Permit or a Certificate of Registration issued by the relevant local authority.

Waste refrigerant gases must be brought to an appropriately authorised waste facility when taken from a client site and under no circumstances can an RAC contractor store the waste refrigerant gas on their own site without appropriate authorisation for the storage of such waste. ■

New Yellow Jacket refrigeration analyzer

Yellow Jacket's new advanced refrigeration system analyzer is now available from Gasco Ireland. It features a digital, full-colour TFT display with adjustable brightness and contrast protected by an anti-glare, scratch-resistant lens.

Among the many features in this new unit are:

- The display reads in analog, digital or a combination of both;
- Monitors two pressures, two live temperatures, subcooling and superheat, and saturation temperatures (liquid and vapor) for 84 refrigerants;
- Data logging for on-screen review or export;
- Built-in pressure/temperature chart reference screen for all refrigerants;
- Built-in full scale vacuum sensor reads deep vacuum down to 10 microns;

- Dual K-Type temperature-compensated sensor ports allow for simultaneous suction and liquid readings;
- Provides real-time pressure data in selectable time increments: 0.1, 0.2, 0.5, 1 and 2 seconds;
- High accuracy and resolution pressure transducers for fast and sensitive leak detection.

"We believe in engineering products that stand the test of time and this new refrigeration system analyser is packed with the quality and innovation synonymous with Yellow Jacket," said Mark Kiely, Gasco Ireland.

Contact: Mark Kiely, Gasco Ireland. Tel: 01 – 462 7311; email: mark@gascoireland.com ■

Yellow Jacket's new advanced refrigeration system analyzer now available from Gasco Ireland.



Special Report

What sustainability means for building services engineers

The term sustainability seems to have crept into everyday use without anyone really deciding on what sustainability means. In this article Dr Ken Beattie provides an update on the term sustainability, and introduces new software that is now available to building services engineers for sustainable building design. Ken is one of the leading industry experts in the field and, in his PhD thesis *An Improved Design Methodology for Sustainable Building Design*, investigated the use of dynamic simulation models in the design process.

Sustainability has become a much-used and abused word. Almost everything now alludes to being sustainable. Even politicians use it but maybe at the present time they are stretching our sensibilities too far by doing this. Strathclyde University, where I graduated from, has recently been placed number one in the European Sustainability Rankings so sustainability has become an important part of education.

Currently, sustainable services are included in the conditions of engagement for building services consultants. It is important therefore that sustainability is clearly defined (as far as is possible) for what it means for building services engineers.

Definitions of sustainability

In 1987 the Brundtland Commission defined sustainability as "*development that meets the needs of the present without compromising the ability of future generations to meet their own needs*". The aim of the Brundtland Commission was to bring everyone into the discussion on how sustainability could be achieved.

Carpenter (2001) suggested that sustainable building design should aim to protect, develop and enhance the local environment, where systems ensure efficient use of resources to minimise negative impacts on the environment, with flexibility and adaptability also being key design features.

Kilbert (2005) suggested that sustainable building design should

consider the impact of buildings on humans and address issues such as sick building syndrome, indoor air quality and multiple chemical sensitivity that have not been considered in traditional building design.

A holistic approach can also be taken when defining sustainable building design. This would encompass a buildings lifecycle from resource extraction to disposal of materials at the end of a building's period of use. Sustainable building design can also include the use of renewable energies, recycling and reuse of water and materials.

As applied to buildings, sustainability can cover many issues, i.e. energy, indoor environmental quality, environmental loadings, site

and transport, water and waste, materials, and innovation in design. Credit systems have been developed that take account of a considerable amount of these issues. The most well known are LEED (Leadership in Energy and Environmental Design) and BREEAM (BRE Assessment Method). LEED and BREEAM take account of these issues when deciding on the award for the building.

Under the LEED system a building is certified by a LEED Accredited Professional. A building can receive a silver, gold or platinum award, depending on the number of points attained during the assessment. The BREEAM system certifies a number of building types including offices, retail, education, prisons, courts, healthcare, and industrial. Under the BREEAM system a building can receive a pass, good, very good, excellent or outstanding rating.

The LEED and BREEAM systems do not designate the same number of points to each section of their assessment methods. There is not agreement among professionals on the weighting and number of points that should be awarded to each section. It is argued that the LEED system allocates the most points to energy and atmosphere; however, it does take a holistic approach when crediting buildings and it has been accepted as the preferred method in countries such as Canada, USA, UAE, China, India, Spain and Brazil.

The CIBSE method in CIBSE Guide L also considers a broad spectrum of criteria when addressing sustainability of buildings. The 12 categories in the Guide include – energy and CO₂ emissions; water use; adapting buildings for climate change; flood risk; sustainable drainage systems; transport; ecology and biodiversity; pollution; health and well-being; and life cycle impact.

CIBSE has also set up a Low Carbon Consultants Register and the objectives of this scheme are to:

- Improve the level of performance in building design;
- Deliver trained/registered individuals competent to carry out low carbon building design;
- Deliver measurable carbon savings for new and refurbishment building projects.

The benefits of being a low carbon consultant include:

- Membership of low carbon elite;
- Establishes competence to Building Control Officers;
- Recognition under EPBD Regulations;
- Increased status through accreditation ... but extra responsibility and liability.

Energy and CO₂ emissions from buildings

Guy and Moore (2005) have examined the diversity of definitions for sustainable building design and note that the choice of definitions is increasing rather than diminishing after a 30-year debate. It is also argued that, as it is difficult to determine what is meant by the term, it is unlikely that sustainable buildings are being built today.

However, we have had the implementation of the Energy Performance of Buildings Directive (EPBD) and, under this EU Directive, it is mandatory to provide the annual energy requirement and associated CO₂ emissions when a building is being handed over to the client. The EPBD also requires that the client is provided with a Building Energy Rating (BER) certificate showing the energy performance of the building on an A-G scale.

A standardised methodology, SBEM (Simplified Building Energy Model) has been made available by Sustainable Energy Ireland (SEI) to calculate the annual energy

requirement and associated CO₂ emissions for a building. SBEM software and other SEI validated software are available for Building Services Engineers to produce the BER certificates.

So, for the first time building services engineers have a very recognisable method to use and demonstrate how good the building design is in terms of energy performance. It is important therefore that building services engineers are very proficient in the use of the SBEM or one of the other validated software tools.

Simplified Building Energy Model – SBEM

The SBEM software (and other validated software tools) output the energy performance of a building in terms of heating, cooling, auxiliary, lighting and hot water requirements. These are expressed in terms of kWh/m²/yr.

Lighting can be a major portion of the overall annual energy requirement for a building and this can be reduced by selecting the most energy efficient lamp type, e.g. T5 triphosphor coated fluorescent tube with high-frequency ballast and occupancy sensing. The lighting requirement is also affected if the lights have manual switching or photoelectric options (switching or dimming) to make use of daylight to offset the artificial lighting requirement.

SBEM calculates the contribution of daylight in zones in the building which have at least 20% façade glazing and are not more than 6m deep, and subtracts this from the artificial lighting requirement for the zone. Thus the floor plate depth and the façade glazing ratio can play a very important part in reducing overall energy requirements and achieving a good energy performance.

Building Energy Rating (BER)

DEAP Version X.Y

BER for the building detailed below is:

Name of House,
Street Name One, Street Name Two,
Town name One, Town Name Two,
County name One, County name Two.

BER Number: XXXXXXXXXX
Date of Issue: Day Month Year
Valid Until: Day Month Year
BER Assessor No.: XXXX
Assessor Company No.: XXXX

The Building Energy Rating (BER) is an indication of the energy performance of this dwelling. It covers energy use for space heating, water heating, ventilation and lighting, calculated on the basis of standard occupancy. It is expressed as primary energy use per unit floor area per year (kWh/m²/yr).

*A' rated properties are the most energy efficient and will tend to have the lowest energy bills.

Building Energy Rating kWh/m²/yr MOST EFFICIENT

LEAST EFFICIENT

Carbon Dioxide (CO₂) Emissions Indicator kgCO₂/m²/yr

The less CO₂ produced, the less the dwelling contributes to global warming.

IMPORTANT: This BER is calculated on the basis of data provided to and by the BER Assessor, and using the version of the assessment software quoted above. A future BER assigned to this dwelling may be different, as a result of changes to the dwelling or to the assessment software.

Seasonal efficiencies of heating/cooling pPlant

The seasonal efficiencies of heating and cooling plant in SBEM vary with the type of system selected. The available air conditioning systems range from constant volume, VAV, fan coil, induction, terminal re-heat and active and passive chilled beams.

The auxiliary energy required (i.e. the energy for pumps, fans and controls) can be significant in the SBEM method and also varies from system to system. For a constant volume system, the auxiliary energy required is 114.48 kWh/m² y for a single-duct VAV system 45.83 kWh/m² y and for chilled ceilings 15.34 kWh/m² y. Thus air conditioning system selection, as well as the best lighting design scenario, will have a major impact on the energy performance of the building.

To achieve the most favourable BER label will require the building services engineer to have a good knowledge of heating, cooling, lighting auxiliary energy as calculated in SBEM. There are many permutations and combinations in building design that must be evaluated and optimised to ensure that the best possible energy performance and energy certificate are achieved. Knowledge of the SBEM software is an important goal for building services engineers.

Industry challenge

Tony McKinley, the current Chairman of CIBSE (ROI), sees the implementation of sustainable building design as an important and inherent element of the work of building services engineers. He asserts that it requires a whole design team approach to ensure that sustainable aspects of a building design are maximised within the project constraints.

Vincent Murray, Project Manager

Ratings - Example building

General Ratings Building navigation

Asset Rating

Republic of Ireland: Building Energy Rating

Building Rating Recommendations EPBD Audit

	Heating	Cooling	Auxiliary	Lighting	Hot Water	Total	
Actual	65.74	95.87		97.68	26.52	285.81	kWh/m ² /yr
Reference	93.98	72.8	31.79	114.38	49.84	362.8	kWh/m ² /yr
Notional	100.01	44.76	12.06	114.38	49.84	321.05	kWh/m ² /yr

	Reference	Target	BER B-C	BER	BER Label
kWh/m ² /yr	749.44	749.44	627.1	721.62	C1
kgCO ₂ /m ² /yr	176	170	102.49	169.25	F157

Click on text below for...

Calculate BER

BER Certificate Approved Documents Check Data Reflection - Actual Building

BER Advisory Report Supplementary Report

Calculation progress: Asset rating completed

Click to check object assignments, there are NO CRITICAL un-assignments in the project

for Special Projects at IES and a LEED-accredited professional, agrees. He says that building performance modelling can facilitate a whole design team approach by engaging all members of the design team around one core model.

Linking performance tools to standard design tools like the IES link with Google SketchUp and AutoCAD's Revit system means that the model can evolve as the design evolves. Having this type of information to inform the design process right from the earliest design stage ensures that sustainable building design is evaluated and achieved.

Recent developments

Google recently launched a new version of Google SketchUp as part of its GoGreen Initiative in which buildings can be drawn and then imported into dynamic simulation tools to check the sustainability of the design. These new free software tools available on the internet provide information very easily on the energy and carbon intensity of any building design.

Dr Don McLean, MD of IES, has commented: "By linking simulation tools directly to Google SketchUp and continuing to develop different levels of interface, we are making the sustainable design potential of performance analysis very easily available to a huge number of professionals."

Engineers, architects and clients are now aware that the greatest impact on energy performance and sustainability is made at the early design stage. There is a maze of sustainable design strategies but the early design decisions must take account of the strong interaction between the building envelope, heating and cooling systems, and lighting requirements. The built form and fabric in terms of shape, thermal

response, thermal insulation, windows and glazing, ventilation and daylighting strategies must be optimised.

This link-up between building model geometry and building simulation analysis tools will allow engineers evaluate sustainable design strategies and make early design decisions using quick interactive assessments and provide "am I moving in the right direction" feedback for the rest of the design team.

Some professionals in design teams have already used this new link up between building model geometry software and building simulation analysis tools to design buildings that have achieved over 80% improvement in energy performance.

Conclusion

When I completed my thesis on Sustainable Building Design in 2001 this topic was just emerging. But today there is an explosion of engineering courses with sustainability in their title. As students are ever more discerning, the courses that truly do not deliver the sustainability that graduates now need to compete in the workplace will be judged a failure.

Clients are aware that some design teams are stating in their submissions that everything they do now is of course sustainable without actually changing anything that they have been doing in the past.

From the definitions of sustainability and sustainable building design presented, it can be daunting to try and unravel what sustainable building design should mean. However, established and well-recognised assessment methods such as the BREEAM and LEED methods are available for building services engineers to use to provide a platinum award or

outstanding rating for their design.

For building services engineers energy must play a significant role and energy performance is obviously the key to better ratings. The new energy performance software must be used proficiently and this will only come about by training and extensive use of the software.

McKinley and Murray have pointed out that a whole design team approach is required for sustainable building design. The recent development of linking Google SketchUp and the dynamic simulation tools will create one building model for the whole design team (architects, engineers etc) to work with to achieve sustainable building design.

As this recent software development is available on the internet, it is the professional that can use it first and make the most use of it to improve the energy performance of buildings by over 80% that will become the best sustainable building design engineer. ■

References

- Carpenter, T.G.** (2001) *Sustainable Engineering: Environment, Construction and Sustainable Development*, Vol.: CIBSE Guide L. CIBSE Publications London.
- Kilbert, C.J.** (2005) *Sustainable Construction: Green Building Design and Delivery*, New Jersey, John Wiley & Sons.
- Guy, S. & Moore, S.A.** (2005) *Sustainable Architecture: Cultures and Nations in Europe and North America*, Oxon: Spon Press
- Syal, M.G., Mago, S. and Moody, D.** (2007) *Impact of LEED-NC Credits on Contractors*, Journal of Architectural Engineering, 2007, Vol.13.

Biography

Ken Beattie is a lecturer in the School of Civil and Building Services Engineering at Dublin Institute of Technology.
Contact: Ken.Beattie@dit.ie;
Tel: 086 - 824 0539.

back issues

Visit a brothel and save the environment

A Berlin brothel (they are legal in Germany) is offering a €5 discount off the usual €70 fee to clients who arrive by bicycle or public transport.

Owner Thomas Goetz said four to five new customers are availing of the offer each day, reducing car journeys and alleviating traffic and parking congestion in the area. "It's good for business, good for the environment and good for the girls", he said.

Over to you Ministers Ryan and Gormley ... though I suppose you'd have to start by legalising brothels!



Despite the slow housing market BER registrations continue unabated with a total of 44,000 BERs now published on the SEI website. Seems a lot but, with 2700 registered BER assessors, that's only an average of 16 each.

RACGS Ryder Cup win is a must this year following the very narrow defeat at the inaugural RACGS v NRG event in the UK last year. The renowned PGA National in Kildare is the venue and the team is chomping at the bit for revenge.

Nuclear the answer?

"If you care about climate change ... 100 new nuclear plants is the place to start", so said US Republican Senator Lamar Alexander recently. He wants the proposed unlimited Federal loan guarantee scheme envisaged for wind and solar power plants to apply to nuclear reactors also.

BER assessor loophole closed

Further to concerns raised by CIBSE Republic of Ireland Branch in relation to a loophole regarding the qualification requirements and registration of non-domestic BER assessors, candidates must now:

- Pass an interim non-domestic qualifying examination;
- Hold a degree in a building-related discipline (Level 7 or 8 under the National Framework for Qualifications, depending on the assessor level);
- Hold membership of a professional organisation at grade listed for the assessor level.

Registration of members of energy assessor accreditation schemes in the UK will no longer be accepted.

Well done CIBSE.

Wear a condom and save the planet!

With the world's rapidly-rising population set to reach nine billion by 2050, some experts suggest that global investment in family planning is a simple and relatively inexpensive way to reduce harmful emissions.



According to the United Nations, virtually every climate control plan put forward by least-developed countries mentions rapid population growth as a critical factor. Yet

ironically, worldwide investment in family planning is at an all-time low, having fallen in real terms by 30% since the mid-1990s.

The concept of enforced population control is undoubtedly a very sensitive issue. However, facilitating the reported 200 million women worldwide who wish to prevent or delay pregnancy but don't have access to contraception would be a start.





Specify Hitachi VRF and watch your sales rise in a declining market

i-Link II and CS Net Web create seamless connectivity with all leading BMS protocols



Comfort Protection Function allows control of the off coil temperature to within 1°C, completely eliminating cold drafts

Refrigerant level monitoring

Increase your margins and win new business. Offer your clients Hitachi's VRF solution. Surprisingly simple to install, with free design and commissioning, it boasts market-leading EER, discreet indoor and outdoor units as well as a high stream efficiency fan for low power consumption and noise levels. Not to mention piping runs up to 1000 metres and a five year warranty.

The down side? There isn't one.

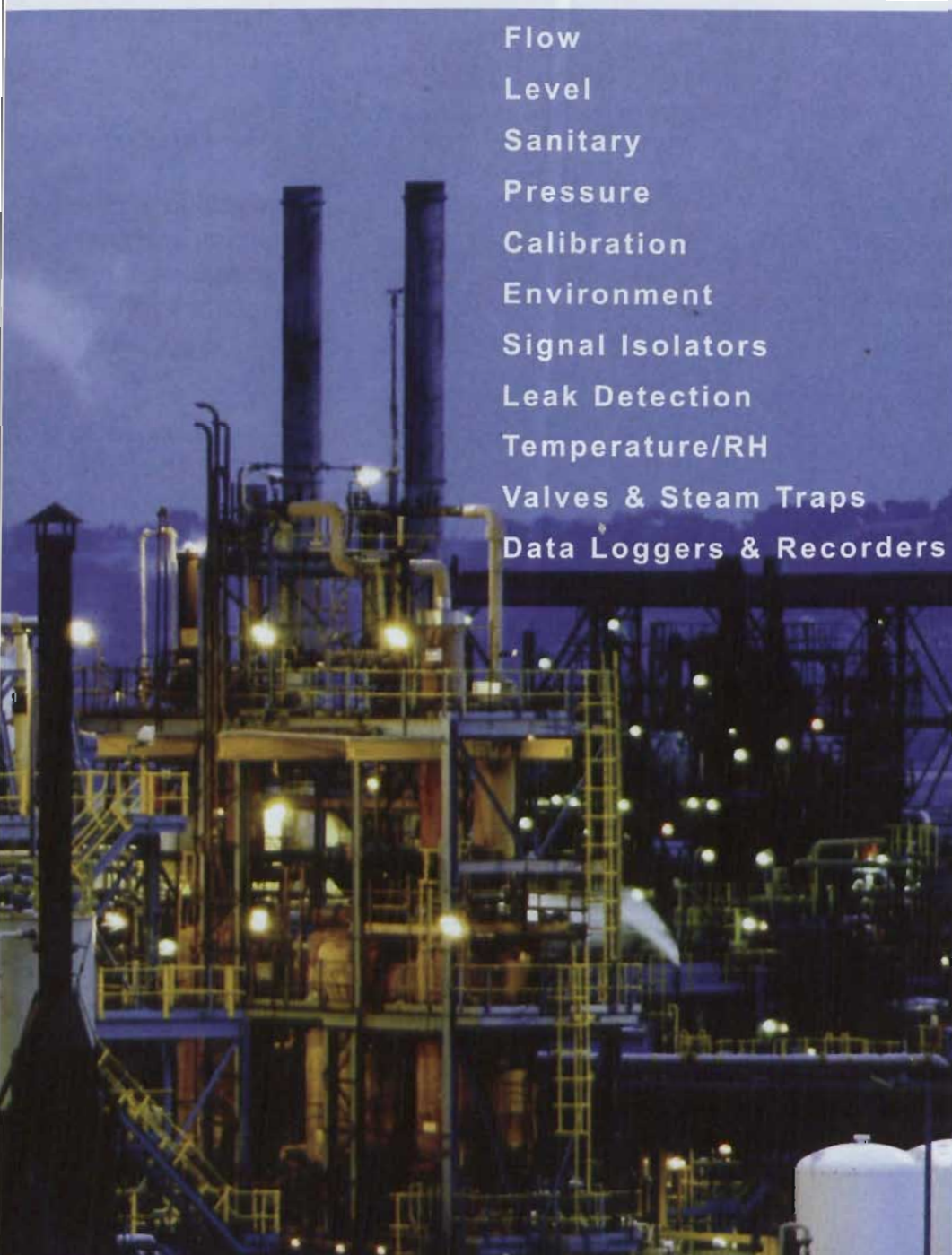
Integrated design for all outdoor units (minimising piping and wiring connections)

Piping runs up to 1000m with up to 90m after the first joint

Superior heating and cooling at the lowest temperatures and only five moving parts, Hitachi's scroll compressor gives a market-leading performance and unrivalled reliability

Fit & Forget Instruments & Controls

Manotherm Ltd provides a broad range of precision instruments for measuring, transmitting and controlling pressure, temperature, level and flow. In addition to providing quality precision instruments, Manotherm is committed to exceptional customer service, including knowledgeable, courteous technical support that generates and maintains long-term relations.



Flow
Level
Sanitary
Pressure
Calibration
Environment
Signal Isolators
Leak Detection
Temperature/RH
Valves & Steam Traps
Data Loggers & Recorders



The Controls Centre,
4 Walkinstown Road, Dublin 12.

Tel: 01 - 452 2355/452 2229

Fax: 01 - 451 6919

email: info@manotherm.ie web: www.manotherm.ie