Refrigeration
R22 Phase-Out Looming

Mandatory Registration of Gas Installers

Face to Face —
John Desmond,
RECI Chairman
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.
Gas Installers to Be Registered ... At Last!

The mandatory registration of gas installers — which takes effect from January 2009 — is one of the most significant developments the industry has seen. That it has taken until 2009 for Ireland to introduce such a scheme is extraordinary but, all credit to the Commission for Energy Regulation (CER) for finally putting it in place.

Just how the scheme will be implemented has yet to be fully clarified but the Register of Electrical Contractors of Ireland (RECI) has been appointed the body responsible to oversee its administration. RECI has extensive experience of first introducing, and then implementing, the registration of electrical contractors and no doubt the lessons learned will serve it well in running the gas installer scheme.

The registration of electrical contractors has been done on a voluntary basis up to now but, like the new scheme for gas installers, it too will have statutory-backed powers from 5 January next.

Over the last six months in particular gas installers, along with the industry at large, were invited to make submissions to the CER prior to the introduction of the new register. It’s not clear what the response was but either all gas installers will now have to abide by the terms of the new scheme.

This is a welcome and long-overdue development and one which must be embraced and supported by all those involved in the gas installation sector.
lindab safe click ‘installer dream product’

Lindab Safe Click is an innovative ventilation system consisting of circular ducts and fittings which slot together with a simple “click”, eliminating the need for special tools, screws or rivets. It is based on Lindab's proven Lindab Safe system and is compatible with both Lindab's existing circular duct system and other systems on the market.

Installation and adjusting of the system is done quickly and without tools, thereby saving precious time for installers and contractors. As there are no screws or rivets, it makes for a tighter fit which in turn makes cleaning easier.

Robert Bray, Lindab (Ireland) said: “We are constantly striving for solutions that simplify construction and make life easier for our customers. Lindab Safe Click is an innovation that makes the installation of duct systems simpler than ever before without compromising on efficiency. It offers the same excellent quality as our other duct systems ... we just added simplicity”.

Complementing Lindab Safe Click is the Lindab SR Cutter. Designed for easy, ergonomic and efficient cutting of duct on site, SR Cutter is effective for both conventional circular ducts and the Lindab Safe Click system.

Contact: Robert Bray, Lindab (Ireland). Tel: 01 - 456 8200; email: robert.bray@lindab.ie

inaugural euroskills 2008

EuroSkills is the new international skills competition devised to take place in the intervening years between the existing biennial WorldSkills Competitions. More than 400 competitors from 30 countries participated in the recently-held inaugural event in Rotterdam which ran over three days.

Instead of working as individuals, competitors in the construction trades worked in teams on the single-storey building work stations. Similarly, the skills of plumber, electrician and the refrigeration technician were combined into the new skill of “Installation Technology”, once again with the participants working in teams.

Considering the high level of competition, Team Ireland did reasonably well, collecting individual bronze medal awards in plumbing and refrigeration.

‘82% of new homes achieve b grade ber’

Sustainable Energy Ireland (SEI) says that 82% of new homes that have published a Building Energy Rating (BER) certificate have achieved a B Rating. Of these 40% received B2s while 8% were A Ratings and 10% received C Ratings.

Currently a BER certificate must be supplied by anyone selling or letting a new home where planning permission was applied for on or after 1 January 2007. From 1 January 2009 the same requirement will apply to all existing homes and buildings.

SEI anticipates that when existing homes come under the BER, the average rating for the majority of Irish homes built in the 1980s will be a D1. This suggests that there is enormous scope for those in building services to identify these properties and to propose upgrades/refurbishment to improve on these ratings.

SEI recently published the methodology and software for calculating ratings for existing homes which is based on that used to rate new homes. Training on the new methodology is now available from the twenty BER training providers in Ireland.

Fines of up to €5,000 apply for non-compliance with the regulations. Contact: www.sei.ie
Energy efficient hot water all year round - even in temperatures as low as -25°C

The new CO₂ ECO Heating System from SANYO is the perfect alternative to traditional boilers. Using heat pump technology with environmentally friendly CO₂ refrigerant, it's ideal for domestic hot water and central heating.

- Environmentally friendly alternative to traditional gas, oil and electric boilers
- Provides domestic hot water and also central heating - radiator or underfloor
- Very energy efficient with COP's up to 3.75 means reduced fuel bills and carbon emissions
- Provides water at higher working temperatures of 65°C compared to 45-55°C for HFC heat pumps
- Maintains its performance even in temperatures as low as -25°C
- Easy to install and maintain - only requires connections to water and electricity

For more information on how the CO₂ ECO Heating System can provide an innovative green heating solution whilst reducing carbon emissions and heating bills ask for our free report.

www.sanyoaircon.ie
Tel: (01) 403 9900
'the smart choice is eurosmart'
With so much emphasis on sustainability and efficient energy usage, it is easy to overlook the fact that almost all heating bills include a 20% cost for overheating and 10% for energy which remains after occupancy.

EuroSmart is a unique control system which addresses this issue and is claimed to reduce running costs by up to 40% without lowering comfort levels. The self-monitoring EuroSmart learns how much heat to produce, when to inject it, and the precise timing to deliver the lowest possible running costs.

By using smart logic the EuroSmart system is pre-programmed for each application. It caters for all building types and integrates with all heating devices — room temperature, time control, holiday scheduling, weather compensation, automatic optimisation, remote access and remote protection are all included in a basic system.

EuroSmart can receive as well as send signals and so offers the perfect interface between new sustainable equipment such as biomass, solar, geothermal, heat pumps and even combined heat and power plants.

The simplest EuroSmart control unit can handle up to 32 heating zones, uses only one time clock, and produces self-explanatory diagrammes for the installer. It also has a simulation mode to allow checking to take place before sending to site.

Contact: Gerard Duffy, Eurotech. Tel: 048 - 974 9479; email: gerard@eurotech-heating.com

cummins appoints pse power systems
Cummins Power Generation has appointed PSE Power Systems as a dealer outlet throughout Ireland for its power generation product range.

The agreement covers sales and service of the complete range, with specialist focus on sub-750KVA product, including full supply, fit, parts, service, technical support and customer care. In addition, PSE Power Systems will work alongside Cummins to support the maintenance and service requirements on new and existing Cummins power generation products in Ireland.

PSE Power Systems Managing Director, Padraig Smith, commented: “We are delighted to be granted sales and service dealer rights for Cummins Power Generation products throughout the whole of Ireland. This new partnership strengthens our capability in the marketplace and ensures our customers receive a world-class product from a single-source design and manufacturer, with exacting standards of quality, warranty and aftersales support.”

Contact: Padraig Smith, PSE Power Systems. Tel: 01 - 460 0596; email: sales@pse.ie

walsh m&e success
Having opened a new office in Harlow, Essex earlier this year, Walshe M&E has already signed three contracts worth several million pounds.

Maintaining its Irish connections, Walsh M&E UK is part of a team responsible for the re-development of The Irish Club’s 5,000 sq ft building in Tudor Street, London; full M&E services on the latest phase of Farnborough’s Sixth Form College development; and the multi-million pound development to the existing Kennet Shopping complex, Newbury.

Tony McArdle, Walsh M&E UK Director, said: “Delivering these first UK contracts is an exciting challenge and we are determined that the services we provide will be to the highest possible standard. Moving forward, we are particularly keen to work with commercial and domestic construction organisations”.
Specify with Confidence

When it comes to air conditioning, GT Phelan has in-depth experience, technical capability and support services to assist designers to devise the most appropriate solution for any given application. Key strengths are:

- Experienced and helpful advice;
- Excellent product knowledge;
- Instant budgeting prices;
- Specialist in single-brand, Toshiba;
- Easy to navigate website with full sales catalogues;
- CAD facility;
- Most economic solution to your AC project.

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

Ph: 01 286 4377
Fax: 01 286 4310
www.gtphelan.ie
email: rodney@gtphelan.ie or derek@gtphelan.ie
energy-efficient products approved for tax relief

Energy Minister Eamon Ryan has made an Order adopting the first list of energy-efficient products approved for tax relief under the Government’s Accelerated Capital Allowances (ACA) for Energy Efficient Equipment initiative.

The ACA, introduced by the Government under Section 46 of the Finance Act 2008, offers a tax incentive for companies to purchase energy efficient equipment. The entire purchase cost of products on the list can be written off against corporation tax in the year of purchase.

Equipment covered comes under five specific categories:­
- Building Energy Management Systems;
- Lighting;
- Lighting Controls;
- Motors;
- Variable Speed Drives.

Brian Motherway, Head of Industry at SEI said: “The opportunity now exists for companies to benefit from the ACA with the completed list of eligible products now available online. SEI is responsible for compiling the list and will maintain and regularly propose updates for inclusion. At present there are over 2,800 products approved to be published on this list.

Contact: www.sei.ie/aca

russell spearheading fujitsu ireland drive

Tricia Russell, Account Manager, Ireland, Fujitsu General Eurofred, has been charged with responsibility for the development of a new Fujitsu direct sales force serving the air conditioning sector in Ireland.

Her brief covers the entire country and she is currently looking to liaise with installers to generate new sales while, at the same time, developing and maintaining existing trading relationships.

Tricia has extensive experience in sales and marketing, having worked in a senior capacity with leading brand names across a broad range of industry sectors.

Contact: Tricia Russell, Fujitsu General Eurofred. Tel: 028 4177 3710; email: triciadaryale@hotmail.com

honeywell named ‘manufacturer of the year’

Honeywell has been named “Manufacturer of the Year” for its range of heating controls by Phoenix Natural Gas, the leading supplier of mains gas to homes and businesses in the Greater Belfast area.

“Honeywell products such as the ST9000 range of timers and programmers, and both the CM900 and CM700 programmable thermostats, are designed to make it easy for users to control their heating systems for maximum comfort while minimising fuel bills,” explained Ken Quigley, the Honeywell Account Manager covering Northern Ireland.

In addition to providing comfort controls, Honeywell supports independent heating installers and Phoenix Natural Gas through “hands-on” training. This includes the principles of heating control, their practical and energy efficiency benefits, and which controls are best for particular types of installation.
toshiba holds temperature for three years

Dundalk contractor ISEP installed one Toshiba RAS13NKV wall unit into the bone donor storage room in the orthopedic unit in Navan general hospital during late 2005. The room houses human bone tissue to be used in future operations. The specification called for the room temperature to be maintained at 17°C with a 2°C tolerance. ISEP chose the Toshiba unit because of its tried and tested reliability over the years.

During a recent audit of room conditions, the daily temperature records were viewed in detail – between September 2005 and August 2008, the temperature in the room was held at a constant temperature of 17.5°C.

"This proves yet again that the Toshiba heat pumps, as well as being extremely reliable, are also capable of maintaining a precise temperature in such a critical room" says Gerard Hoey of ISEP. "That the temperature was maintained so precisely over such a long time-frame proves beyond doubt that Toshiba inverters really do maintain precise temperature control."

"In addition to performance excellence and precise control", says Derek Phelan of GT Phelan, "these units are also extremely energy efficient. Model RAS10NKV produces 2.5kW of cooling and 3.5kW of heating and costs just €0.16/kW hr to operate."

Contact: Derek Phelan, GT Phelan. Tel: 01 - 286 4377; email: derek@gtphelan.ie
panasonic & sanyo to form alliance?
Panasonic and Sanyo are currently in talks with a view to forming an alliance to maximise both companies' corporate strengths.

They have already established a project team to tease out and develop the idea and discussions are now underway on the proposed capital and business alliance based on the premise of making Sanyo a subsidiary of Panasonic.

The objective is to maximize the corporate values of both Panasonic and Sanyo to bring benefit for both companies' shareholders and all other stakeholders, including customers and employees.

It is expected that some further official announcement will be made on, or before, the end of December 2009.

first for dit in plumbing
DIT Bolton St recently presented the first ever Higher Professional Diplomas to be awarded in Building Services (Plumbing) in Ireland or the UK. The associated course, DT 151, consists of 12 modules and requires attendance on two evenings per week over two years.

Assessment is by projects completed by the students following the delivery of each of the modules. Of the 12 modules, 50% were designed by the lecturing staff of the DIT School of Construction with all but two being delivered by staff from the school. The remaining two modules are delivered by external specialists.

sontay appoint ireland sales manager
Sontay has appointed Donal Lynch to the newly-created role of Sales Manager for Ireland. With a degree in mechanical engineering from Cork Institute of Technology, Donal has extensive experience in the HVAC industry, having served in senior positions with a number of brand-leading companies over the years.

Donal will be based in Limerick from where he will cover the entire island of Ireland, focussing in particular on Dublin, Cork and Belfast. His appointment is part of a strategic plan by Sontay to expand its business in Ireland and to further improve the level and quality of service provided.

Accuracy, reliability and aesthetic appearance are established hallmarks of the Sontay range which incorporates products and control solutions to help improve building management system performance, reduce energy and maintenance costs, and increase occupant comfort levels.
wilo now a european stock corporation

Against a background of increasing international activities, Wilo AG (Dortmund) has changed its name to Wilo SE. This change of legal form, from a German to a European stock corporation, is a logical step for the family business which was founded in 1872.

Today it is one of the world's leading manufacturers of pumps and pump systems for heating, cooling, air-conditioning, water supply and sewage disposal. The Group is represented in more than 70 countries and employs around 6,000 people worldwide. In 2007 Wilo had a turnover of €927.3 million.

Tony Cusack of Wilo’s Limerick-based operation said: “This change of legal form from a German stock corporation to a European company emphasises the philosophy of Wilo AG as a European company operating worldwide and is in line with the harmonisation of European law. The SE helps not only to gain further international prestige and strengthen the European and international brand, but it also fosters the formation of an open and international corporate culture.

“The uniform legal form of an SE breaks down barriers and hindrances that exist, in particular, because of differing legal systems. At the same time, it gives us the opportunity to strengthen Wilo’s largely Europe-based value chain still further. The stronger position will also benefit our customers in many ways in the medium to long term.”

Contact: Tony Cusack, Wilo Engineering. Tel: 061 - 227 566; email: tony.cusack@wilo.ie

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Certificate in Emergency Lighting for Designers & Commissioners

I.S. 3217:1989 has been revised and published with new requirements as I.S. 3217:2008. NSAI is offering a training course entitled ‘Certificate in Emergency Lighting for Designers and Commissioners’ which is designed to meet the qualification criteria for Emergency Lighting Designers and Commissioners, as set out in I.S. 3217:2008.

The course is delivered in 3 separate modules:

**Module 1:** Common topics for both designers & commissioners (£1,000)
(On completion of the common module course delegates progress to designer and/or commissioner modules).

**Module 2:** Designer module (£200)
(delegates must have completed common modules in order to undertake the designer module).

**Module 3:** Commissioner module (£200)
(delegates must have completed common modules in order to undertake the commissioner module).

**Who should attend?**
This course is aimed at anyone involved in the design, manufacture, installation and commissioning of emergency lighting equipment and systems.

**No qualifications are required to attend this course.** However, there are specific qualification requirements laid down in I.S. 3217:2008 for those practising as designers or commissioners of emergency lighting systems. Basic technical/electrical experience would be an advantage.

**Certification:**
FETAC/HETAC Level 6 Special Purpose Award for Designers and Commissioners (when available).

Please note that until such time as the Award is approved by FETAC/HETAC, NSAI will issue a registration number based upon successful completion of the relevant assessments.

**Module Dates:**

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<th>Common</th>
<th>Designer</th>
<th>Commissioner</th>
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<tr>
<td>Nov 24th to 26th</td>
<td>Dec 9th</td>
<td>Dec 10th 2008</td>
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<td>Dec 15th to 17th</td>
<td>Jan 13th</td>
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<td>Mar 3rd to 5th</td>
<td>Mar 11th</td>
<td>Mar 12th 2009</td>
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**Confirmed Exam Dates to modules above:**

1. 8th Jan 2009
2. 6th Feb 2009
3. Other 2009 Exam dates to be confirmed.

All courses take place at NSAI Head Office. For 2009 course dates please click on nsai.ie

For information on bookings, and course details call Patricia Whelan on (01) 807 3993 or email: patricia.whelan@nsai.ie

NSAI Head Office, 1 Swift Square, Northwood, Santry, Dublin 9
T: +353 1 807 3800, F: +353 1 807 3838, E: info@nsai.ie
NSAI.ie
trade news + product information

level switches from manotherm

The Mini/Maximelder level switches from Manotherm are designed to signal minimum or maximum levels of water, heating oil, and other non-viscous liquids in tanks. There are three models to choose from — Minimelder, Minimelder-R and Maximelder-R, all of which consist of a control unit and height-adjustable float probe.

The Minimelder probe is suspended in the lower part of the tank and generates an alarm signal when the liquid level drops below the probe. The Maximelder probe is mounted in the upper part of the tank and generates an alarm when the liquid reaches the probe.

The switching level is adjustable and, when these levels are reached, the units generate visual and audible alarms. Brief details of each are as follows:

Minimelder — Generates an alarm signal when the levels falls below the minimum level. Cost-effective solution for building automation applications;

Minimelder-R — Similar to Minimelder but with a relay (normally open contact) for transmission of the signal to external alarms or for connection to telecommunication or building control systems. For professional applications;

Maximelder-R — Generates an alarm when the level reaches the maximum set liquid level. In all other respects similar to Minimelder-R.

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

air conditioning eculion from 3D

The Mitsubishi Heavy Industries SRK range of high-wall mounted split systems from 3D Air Sales have capacities ranging from 2.5kW to 7.1kW and are suitable for residential or light commercial applications.

All products operate with high levels of energy efficiency, with COPs from 3.61 on the SRK-HG-S non-inverter range and up to 5.41 on the SRK-ZGX super inverter range.

DC PAM inverter technology is applied providing performance advantages, achieving and maintaining the temperature set-point more quickly and accurately, while saving energy by controlling the compressor output to meet only the necessary demand.

Comfort is further enhanced by the cubic air flow system which distributes air both vertically and horizontally at high volume, ensuring efficient, effective temperature control in the room.

Contact: Michael Clancy, 3D Air Sales. Tel: 01 - 452 7570; email: 3dair@eircom.net
Calor is a wholly-owned subsidiary of SHV Holdings Ltd, which operates in 25 countries covering three continents and is the world’s leader in the distribution of Liquefied Petroleum gas (LPG) — the cleaner, high-efficiency fossil fuel.

Calor has been established in Ireland for over 70 years, employing a direct labour force of around 250 and is the market leader in its field. At Calor, we pride ourselves on being more than just a gas supplier, delivering the right energy solution to suit individual requirements for a diverse range of customers including industrial, commercial, agricultural, retail and domestic users. We deliver a premium quality product and service with expert technical and customer support.

We are currently seeking a new member to join our dedicated and highly talented team.

THE JOB

There is a requirement for an experienced Business Development Engineer based in Leinster Region.

The Job Responsibilities:
- Provide technical support to all our customers and work as part of a dynamic sales team.
- Prepare technical designs and specifications in conjunction with consultants, architects and specifiers.
- Research new technologies and identify new applications.
- Prepare case studies, develop and deliver technical training to company staff, specifiers and customers.
- Review CIS reports and existing customer base to identify additional business opportunities.
- Develop and provide cost evaluation of new business opportunities.

THE PERSON

The Successful Candidate Will:
- Hold a third level degree in Building Services, Mechanical Engineering or equivalent degree.
- Have a minimum of three to four years experience in the energy sector (experience in renewable energy technologies would be considered an advantage).
- Be goal focussed and motivated to achieve predetermined targets.
- Challenge existing ways of doing things and be radical in your thinking and approach from time to time.
- Evaluate issues, gather all necessary information and decide the best way forward, whilst being very conscious to ensure that complete and thorough analysis has taken place.

Does this sound like the job for you? If you are the right person, having considered it, you will know yourself.

APPLY TO

Hillary Collins, Human Resources Manager, Calor Gas, Long Mile Road, Dublin or email hillary.collins@calorgas.ie by 15th December 2008.
cer says be ‘bill aware’
The Commission for Energy Regulation (CER) has established a new website for domestic energy customers as part of its campaign to get householders to become more “bill aware”.

Dr Paul McGowan, Director of Customer Affairs with the CER, says that the new site provides customers with an overview of the electricity and natural gas markets in Ireland, in addition to information on customers’ rights and energy supplier codes of conduct.

The site also explains to customers what they should do if they experience problems with their bills, with their connection to the electricity or natural gas network, or have other issues relating to energy supply.

Contact: www.energycustomers.ie

bord gáis networks eco control centre

Bord Gáis Networks has appointed Denis Byrne Architects to design a purpose built, low-carbon, sustainable building to house its proposed new National Distribution Control Centre.

The 4,800 sq m premises, to be located at Dubber Cross, Finglas, Dublin 11, will accommodate the Bord Gáis Networks staff and incorporate a number of its primary functions including the 24-hour national distribution gas control for Ireland; 24-hour emergency response for Dublin and surrounding counties; its safety and quality function; and construction activities.

The design of the building had to incorporate energy efficient measures in terms of lighting, space heating and cooling to reflect Bord Gáis’ commitment to environmental protection and sustainable development.

Denis Byrne Architects has now been engaged and the planning drawings and application are being progressed. Construction of the building is scheduled for completion in 2011.

ixl tastic — lights, heat & ventilation!

The IXL Tastic is a unique lighting system for bathrooms which combines light, heat and ventilation all in one unit. The unit is designed to reduce energy use, with each feature operating independently when required.

IXL Tastic is simple to install, uses minimal electricity (10 minutes = less than three cents), and is available in a choice of two or four 275W heat lamps (higher watt version also available if needed).

Oisin Humphreys of Prismsatics who distribute the product in Ireland says: “The IXL Tastic not only provides luxurious warmth and effective ventilation, it also minimises carbon emissions with 100% of the energy that it uses being turned into heat immediately.”

Contact: Oisin Humphreys, Prismsatics. Tel: 021 - 470 1661;
www.prismatics.ie
This latest product of the Twister family is the new stainless steel version. Ideal for pond drainage, it is also suitable for many other applications, i.e. cellar drainage, decorative fountains and disposal of rain wastewater. Its stainless steel housing makes it very robust and resistant. Moreover, the motor has inbuilt protection. Class? We call this Pumpen Intelligenz.

Wilo-Drain TS 32.

www.wilo.ie
Published by ARROW@TU Dublin, 2008
CIBSE News

Sustainable Lighting Design

Sustainable and effective lighting design, while maintaining quality, was the subject of an address by Iain Macrae of Thorn Lighting, which he gave at DIT Kevin St early in November.

Iain graduated in mechanical engineering but somehow found his way into lighting. Since joining Thorn Lighting over 20 years ago, Iain has gained considerable design and technical experience while working on a diverse range of projects covering all market sectors.

Iain is Thorn’s Lighting Applications Manager and heads up a team of 24 lighting design staff who provide product and system application advice. His presentation to the CIBSE gathering in Kevin St was interesting and thought-provoking, and prompted a great deal of feedback.

Europe’s First Passive Haus Supermarket

Tesco’s flagship store in Waterford was the subject of a comprehensive and very enlightening address by Michael McInerney, Tesco Ireland Energy Manager.

It covered how the project was conceived and the key design challenges which led to Passive Haus being used as a benchmarking body. It then went on to detail how the facility was finally certified to Passive Haus standards, including superior envelope performance, low energy consumption and other design solutions, all to achieve a low energy consumption per square foot.

Michael played an instrumental role in designing the services for this iconic store and his address reflected not just his commitment, but also his genuine passion for the project.

Energy Rating for Commercial Buildings

Niall Coughlan, BREEAM & BER Assessor, presented a very thorough and informative address on the implementation of the BER procedures for different types of buildings.

The primary focus of his address was on the non-residential sector and the topics covered included background legislation; energy ratings; SBEM calculation method; and worked examples.

This event was held in the award-winning Lifetime Lab building at the old waterworks in Cork, a venue that is proving a huge draw in itself, apart from the subject matter being discussed.

CIBSE Annual Lunch

The CIBSE Annual Lunch will take place on Friday, 5 December 2008, at the Mount Herbert Hotel, Herbert Road, Lansdowne, Dublin 4.

The proceedings will commence at 12 noon with the idea of concluding all formalities by 2.30pm. Cost per person is €60. CIBSE members are invited to attend, as are all other industry-related personnel. This event will afford attendees the opportunity to meet others in the industry, to network, and to enjoy a festive afternoon.

Parking is available in the Mount Herbert Hotel grounds while those who wish to travel by Dart are only a 2-minute walk from Lansdowne Road station.

Numbers are limited and so early booking is advised. Cheques should be crossed and made payable to CIBSE, Republic of Ireland Region, and posted to Derek Mowlds, CIBSE Social Secretary, PM Group, Killakee House, Belgard Square, Tallaght, Dublin 24.

Contact: Derek Mowlds. Tel. 01 – 404 0700; email: derek.mowlds@pmg.ie
Lindab Safe® Click

One click and the job is done

Ordinary duct system with screws

Lindab Safe® Click

• Easy to install;
• Quick assembly;
• Simple to adjust;
• No need for manual tools;
• No screws or rivets;
• Tighter-fit system;
• Easier to clean — no sharp parts;
• Risk of bacteria is reduced;
• Compatible with other systems.

Lindab SR Cutter makes it easy!
Companies operating within the renewable energy sector came together in Dublin recently to mark the official launch of the Sustainable Energy Association (SEA). Established to give a voice to this emerging and dynamic industry, the SEA represents a sector which currently employs over 5,000 people throughout Ireland but which has the potential to be one of the country’s largest indigenous employers.

Officially launching the event, Energy Minister Eamon Ryan said: “Renewable energy is one of the fastest-developing sectors in the economy with its global economic contribution standing in the region of €284 billion. Over 12,000 people are employed directly in the sector here in Ireland, with thousands more indirectly linked, be it in energy assessment, efficient technologies, or in the promotion of energy awareness campaigns countrywide.

“Like any other industry sector it is competitive and fast-paced. Yet it is unique in that the companies involved are involved in a common project and that is to help Ireland reach our target of 40% of our energy from renewable sources by 2020. The Government is committed to this target and will assist renewable energy companies as much as possible in this regard. Significant progress has been made, and will continue to be made, on improving conditions for these companies. “

“We are working together on this and it is right, therefore, that a representative body is established. The SEA will give a voice to those working in the renewable energy sector. This will be absolutely necessary as the sector continues to expand and as we strive to meet our binding energy targets.”

The SEA provides a channel of communication with government, policy makers and the public for its members and is dedicated to ensuring that the highest quality standards and customer service are maintained throughout the sector. It and its members firmly believe that the Island of Ireland has the potential to be self-sufficient in energy and to become world leaders in green business. Delegates at the recent event in Dublin were addressed by Professor Brian Norton, President, Dublin Institute of Technology; Alan Hogan, Sales Director, Kingspan Renewables; David McConnell, Product Development, Dimpco; Fintan Lyons, Director, 4Fnrg; and Fergus Wheatley, Managing Director, Allied Solar.

Over 40 companies operating within the renewable energy sector were in attendance, along with representatives from Sustainable Energy Ireland, Action Renewables, the Commission for Energy Regulation, National Energy Assessors, Natural Power Supply, Solar Energy Society, Construction Industry Federation, National Standards Authority Ireland, Collite Teo, Irish Banking Federation, Office of Public Works, Business in the Community and the Chamber of Commerce.

Contact: John Hardy, Secretary SEA.
email: john.hardy@sustainable
Honeywell has the future all mapped out

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

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

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

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

Automation and Control Systems.
Honeywell
Honeywell House, Arlington Business Park
Bracknell, Berks RG12 1EB
Telephone: 0044 1344 656000
Fax: 0044 1344 656240

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Under Ireland’s latest regulations, with increased costs and growing environmental concerns, energy efficiency has never been higher on the business agenda. Any business looking to its future competitiveness is looking at energy efficiency.

Both business and Government are now making energy efficiency a core strategic imperative and recognising that there is a new energy future. Those ready to take action by measuring and benchmarking their consumption are seeing the benefits – real cost savings and real environmental gains. On one particular development, Project Management Group has succeeded in reducing a client’s energy consumption by 37%.[1]

In this article we look at some of the key issues and success factors associated with Ireland’s response to the European Performance Building Directive (EPBD), and with Building Energy Rating (BER) certificates which measure and benchmark domestic and commercial buildings’ energy consumption.

The EU Directive on the Energy Performance of Buildings (EPBD) contains a range of provisions aimed at improving energy performance of residential and non-residential buildings, both new-build and existing. This Directive was adopted into Irish law in 2006 with SI 666.

A Building Energy Rating (BER) certificate is part of Ireland’s response to the EPBD Directive. The EPBD also covers a wide range of other elements, including mandatory inspection of boilers and air-conditioning systems. A BER is effectively an energy label. A domestic BER label is shown in Figure 1 and a non-domestic label in Figure 2.

The BER is intended to give prospective buyers, occupants and tenants information about the energy performance of the building. The BER also gives builders, developers, vendors and landlords an incentive to upgrade the energy performance of a building ranging from A1 to G. Similar to the A to G rating for a household electrical appliance on fridges and washing machines, A-rated homes are the most energy efficient and G-rated the least efficient.

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Figure 1 shows a domestic BER energy label. Image courtesy of SEI

Figure 2 shows a non-domestic BER energy label. Image courtesy of SEI
you cannot control what you do not measure — building energy ratings (ber)

performance of the building by giving visible credit to superior standards. A BER certificate is valid for 10 years.

Building Energy Rating Audit
A BER audit will measure the energy performance of a building, taking into account features such as:—
- Size of the building;
- Fabric of the building, u-values, etc;
- Amount and type of glazing;
- Water heating system;
- Space heating system;
- Renewable energy sources, if present.

To calculate a rating, an assessment of the building must be performed through an SEI-accredited software package — DEAP for domestic dwellings and NEAP for non-domestic dwellings. BERs have to be carried out by specially-trained BER assessors, registered by Sustainable Energy Ireland (SEI). A list of domestic BER Assessors is currently available on the SEI website and the list for existing dwellings and non-domestic dwellings will be available shortly. BER assessors (usually building professionals like engineers, etc) must have successfully completed a certified training programme that meets the requirement of a Training Specification which was published in October 2006.

The BER must also be accompanied by an Advisory Report setting out recommendations for cost-effective improvements to the energy performance of the building. However, there will be no legal obligation on vendors of prospective purchasers to carry out the recommended improvements.

The Advisory Report will contain information as to the efficient operation of the building, as well as the recommendation of any remedial measures to the building fabric or fittings that will improve the overall energy efficiency of the building. An Advisory Report may contain additional advice on the following areas:—
- Insulation
- Glazing
- Heating Systems;
- Heating Controls;
- Lighting and Appliances;
- Renewable Energy Sources, (eg, combined heat and power generation, solar, wind, geothermal, wood pellets, etc)

BER Software
DEAP — Domestic Energy Assessment Program — is currently only applicable for new dwellings. The DEAP software and advisory report system is currently being revised to accommodate existing dwellings and the existing dwelling survey methodology is currently being drafted within SEI.

NEAP — Non-Domestic Energy Assessment Procedure — is the methodology for demonstrating compliance with specific aspects of Part L of the Building Regulations. For all other buildings other than dwellings NEAP will also be used to generate the BER and Advisory Report for new and existing non-domestic buildings.

NEAP calculates the energy consumption and CO₂ emissions associated with a standardised use of a building. The energy consumption is expressed in terms of kilowatt hours per square metre floor area per year (kWh/m²/yr), and the CO₂ emissions expressed in terms of kilograms of CO₂ per square metre floor area per year (kg CO₂/m²/yr).

NEAP’s default calculation tool is SBEM (Simplified Building Energy Model) which is based on CEN standards that have been developed by BRE on behalf of the UK Department of Communities and Local Government. It calculates monthly energy use and carbon dioxide emissions of a building given a description of the building geometry, construction, use and HVAC and lighting equipment.

SBEM was originally based on the Dutch methodology NEN 2916:1998 (Energy Performance of Non-Residential Buildings) and has since been modified to comply with the emerging CEN Standards. SBEM calculates the consumption and isSBEM benchmarks the building and generates an energy label. Although DEAP and NEAP (SBEM) may assist in the design process, they are not considered primary design tools.

Exemptions
The following buildings are exempt from the BER scheme:—
- Listed national monuments;
- Listed buildings of outstanding architecture or
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historic importance (known as protected structures);
- Buildings used as places of worship or for the religious activities of any religion;
- Certain classes of temporary buildings such as site offices;
- Industrial buildings not intended for human occupancy over extended periods and where the installed heating capacity does not exceed 10W/m²;
- Non-residential agricultural buildings with low energy demand;
- Small stand-alone buildings with a total useful floor area of less than 50m².

There are exemptions for certain categories of buildings, eg, protected structures and certain temporary building(2).

BER Implementation Dates
A BER certificate will be required at the point of sale or rental of a building, or on completion of a new building. Implementation schedule for the regulations was set out as follows;—

Domestic
- All new domestic dwellings from July 2008;
- All new and existing domestic dwellings from the January 2009.

Non-Domestic
- All new non-domestic from July 2008;
- All new and existing non-domestic from the January 2009.

Implications of non-compliance
There are fines of up to €5,000, or a term of imprisonment not exceeding three months, for non-compliance with the regulations(2).

Conclusion
A recent study commissioned by SEI(3) estimates that the commercial sector could save up to 25% of its current energy use through investment in economically-viable efficiency opportunities, hence indicating the value by measuring and benchmarking a building’s energy consumption. The benefits associated with purchasing or constructing a new building that has a high BER are numerous in both the long and short-term. These include;—
- Improved corporate profile;
- Coherent energy strategy;
- Reduced carbon consumption;
- Increased comfort levels;
- Reduced running costs;
- Better for the environment;
- Maximising resale value;
- Future-proofing property.

Obtaining the maximum BER for a new building need not be a very expensive process if it is carefully planned (i.e., reducing the design infiltration rate from 10 to 5mcu/hr/maq @ 50Pa); and if it is incorporated into the building design and specification as early as possible in the design and construction phases.

Bibliography
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PMG is Ireland’s largest full service A&E firm, providing professional services in project and construction management, architectural and engineering design, and technical consultancy

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(3) Energy in Business (SEI Study)

BER — Designer labels for buildings

november 2008

https://arrow.tudublin.ie/bsn/vol47/iss10/1
Sanyo CO2 Eco Air-to-Water Heat Pump

With increasing concern about the link between carbon emissions and rising global temperatures, the need to use energy more efficiently is becoming ever-more pressing. New legislation, coupled with a genuine sense of responsibility for the environment and, of late, a growing need to cut energy-usage costs, has created a demand for sustainable, energy-efficient building services products. This is particularly so when it comes to heating appliances and systems.

Traditionally, domestic heating has been provided by fossil fuels (coal, electricity, oil, gas, LPG). These resources are not only finite but their use is also a major contributor to carbon emissions. Hence engineers are now turning to heat pump technology as the solution. Heat pumps are a proven technology used for several years in Scandinavia and, increasingly, in other areas of Europe. Governments are recognising the role they can play in meeting environmental targets and France has already introduced tax breaks to incentivise their use.

Like many of the best ideas, heat pump technology is simple. The fundamentals are as follows and can be described in four simple steps:

- Air comes into contact with a liquid refrigerant in the evaporator. The refrigerant absorbs the ambient heat from the air and evaporates;
- The resulting gas passes to a compressor, which increases the pressure, and therefore the temperature, of the gas;
- The hot compressed gas now passes to the condenser where it is passed over a cold surface. This surface absorbs the heat from the gas and uses it to heat water which is stored in the hot water tank. This is pumped around the house or to a tap to provide hot water and central heating. As the gas cools it returns to its liquid state;
- The liquid travels to an expansion valve where it resumes normal pressure, then returns to the evaporator to be recycled around the system.

It is against this background that Sanyo has developed its CO_{2} ECO-air to water heating system as an environmentally-friendly alternative to the traditional boiler heating system. It provides all hot water and central heating requirements in a cost-effective, eco-friendly, way, is easy to install, is practically maintenance-free, and can be used with most standard domestic systems.

Because the Sanyo CO_{2} ECO heating system heat pump boiler takes up to 75% of its energy directly from the air and only draws on an additional power source for the remainder, it has a 
COP of up to 3.75. Even at ambient temperatures as low as minus 25°C there is enough heat in the atmosphere to enable Sanyo's CO_{2} ECO to heat a home. Sanyo's CO_{2} heat pump can achieve temperatures of 65°C, ideal for domestic hot water, without the need for any secondary heating. This temperature is also high enough to remove the risk of legionella. When connected to a clean energy source such as solar power, running costs and CO_{2} emissions can be reduced even further.

The Sanyo CO_{2} ECO heating system is simple to install and increased efficiency means investment payback can be realised within three to five years. It is compatible with all standard radiators and underfloor heating systems so there is no need to replace anything but the existing boiler in an installation. As it only uses water and electricity to operate, it is ideal for properties that are not connected to the mains gas supply.

With a choice between 4.5kW and 9.0kW capacity models and a single or 3-phase power supply, it is uniquely flexible to meet the needs of homes and small commercial properties alike.

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Sanyo's CO2 Eco heating system is heat pump based as opposed to traditional fossil fuel-fired boiler heating systems
R22 Phase-Out Looming — Have You Got Your Head in the Sand?

Seamus Kerr, President, Institute of Refrigeration Ireland

With only 12 months to go to the ban on both the use and sale of virgin HCFCs in Europe, how many refrigeration end-users have their heads in the sand? The answer, it seems, is far too many! In the following article, Seamus Kerr, President of the Institute of Refrigeration Ireland, outlines the options available to owners of RAC plant operating with HCFC refrigerants and urges immediate action.

The last step in eliminating ozone-depleting substances was brought into force in October 2000 with the introduction of the EC Regulation number 2037/2000. The regulation bans the use and sale of virgin hydrochlorofluorocarbons (HCFCs) as of the 1 January 2010. No virgin HCFCs can be sold or used for service after the deadline date. Recycled or reclaimed product can only be used for servicing purposes up until December 2014.

The most common HCFC still in use, and the one that is causing the most concern, is R22 but the ban also includes blends containing R22 such as R401A, R402A, R408A, R409A, R412A, and R509. At the moment there are an estimated 130,000 tonnes of HCFCs in more than seven million installations across the EU. If they haven’t done so already, RAC end-users should be working with their suppliers to identify which of their plant, if any, uses HCFCs, and to take the appropriate action.

Planning for Phase Out

There are three steps to take when planning for phase out:

Step 1 — Identify all refrigeration and air-conditioning plant with HCFCs:

Step 2 — Collect detailed information about each individual piece of plant. This will include refrigerant type and quantity, lubricating oil, service history (including details of top-up quantities and frequency) age of the system, cooling load details, plant design and plant performance:

Step 3 — Evaluate phase-out options. Using the information collected you can begin to assess different options. Depending on their circumstances, different solutions will be appropriate for different companies.

Option A — Replace the plant

This option is likely to involve the greatest initial outlay and to take longest to implement so it requires careful planning. However, it affords the buyer the opportunity to avail of the newest technologies and improvements in system design, thus leading to higher energy efficiency and a far greater expected plant lifetime (20 to 30 years). It is also an opportunity to consider the suitability of alternative refrigerants such as CO₂ and Ammonia.

Option B — Use a different refrigerant

Where possible, some companies may elect to modify their plants to use a new refrigerant. This option should cost less and be quicker to implement than a completely new plant. An example of a low GWP retrofit refrigerant would be R407A which has been used in Ireland for over 20 years. Using R407A might require an oil change but no valve change.

There are also new "Drop-in" refrigerants such as R422D which can be used without changing the oil or expansion valve. R404A has been used as a R22 replacement in many cases but this will require an expansion valve change and possibly an oil change. Replacing the refrigerant won’t be an option in all cases and it has implications...
R22 Phase-Out Looming — Have You Got Your Head in the Sand?

for plant performance, reliability and energy efficiency, but with the right expert advice, it can be an effective solution.

Option C — Rely exclusively on recycled HCFCs

As it stands, recycled and reclaimed product can still be used until the December 2014 deadline. Non-virgin HCFCs can be used to top-up systems in the event of refrigerant leaks. It would appear that a large number of end-users are entirely reliant on this option, either through in-action or in the belief that it is the most cost-effective solution. However, the latter is only likely to be the case in circumstances where the equipment is very near the end of its life and is not business-critical.

In any event, this option can only be temporary and one of the other solutions will still have to be implemented before the 2014 deadline. End-users should be aware that there is no guarantee that sufficient recycled HCFCs will be available after the January 2010. The price of recycled R22 is already higher than virgin R22 and is expected to continue to climb as demand outstrips supply. Moreover, there is no guarantee that the December 2014 deadline won’t be moved forward. So there are very clear risks associated with this option.

Conclusion

Some end-users may be tempted to defer any decisions on this until December 2009. This is not a good idea. You could already be making ill-informed and expensive decisions. If you have systems operating with HCFCs, and you don’t have a HCFC phase-out plan in place already, you should take action now. Work with your RAC contractor to put in place the appropriate solutions for your business. Time is running out.

For further information visit www.instituteofrefrigerationireland.ie

bs news

bs news Building Services Product Specification Guide

2009/10 edition now in production.

Pre-order additional copies now.

Contact: Louise at email: louise@pressline.ie or tel: 01 - 288 5001.
RSL Ireland Ltd — in partnership with Bitzer and major Irish contractors Brian A Flynn Ltd and Cross Refrigeration Ltd — have successfully designed, supplied and commissioned the two largest CO₂ installations in Ireland to date. One was for a large multinational retail company distribution centre and the other was the new Tesco flagship "Eco" store in Tramore, Co Waterford.

The mixed-temperature central distribution store facility — installed by Brian A Flynn Ltd — comprised a 1300sq m coldstore at -35°C room temperature and multiple medium temperature areas with CO₂ on DX cascade operation being used. There are three Bitzer 4-cylinder Octagon compressors on the -35°C load, plus six HSN-type screw compressors on the cascade and the related chill coldrooms.

The Tesco project — carried out by Cross Refrigeration — was for the company's first completely energy-efficient store at Tramore, Co Waterford. This project includes ecologically-sound construction materials, new technology for heating and hot water, solar panels to generate electricity, new air recycling systems, and other features.

Two separate systems, each with three Octagon compressors on the dx low temperature cabinets and four 6-cylinder compressors on the pumped liquid CO₂ medium temperature display cases are used. Watercooled condensers are used to supply hot water to the heating and other systems systems in the store.

The 30,000 sq ft store will use 45% less energy than a supermarket of a similar size, saving 420 tonnes of carbon dioxide per annum, a 30% annual reduction. It is the first supermarket in Ireland to be designed to the internationally-recognised PassivHaus standard which focuses on reducing energy consumption using the very highest levels of insulation throughout the building, as well as recycling over 70% of the heat used in the store's ventilation system.

The Passive House (Passiv Haus) standard is a low energy building design system which significantly drives down energy consumption in structures. The standard has an extremely rigorous set of requirements that must be independently verified in order for a building to be classified as a Passive House.

A state of the art tri-generation CHP gas burning system generates electricity and then uses the waste heat used in the generation process to heat the store. In summer this process will also help provide chilled water.

Environmental features include motion-sensitive lighting; daylight control; cold air retrieval; and rainwater harvesting.

RSL has invested heavily in CO₂ technology, both by staff training and participation in installations in Europe and Australia. Consequently, it is now in the unique position to be able to advise, design and supply refrigeration and air conditioning plant for all of the natural refrigerants.

It has a long-standing trading partnership with Bitzer and in fact Bitzer engineers from Europe and Australia helped oversee the Tesco project in association with its own engineering personnel.

Bitzer is one of the recognised world-leaders in the sector. It has been designing and manufacturing compressors, condensing units and pressure vessels, which are acknowledged worldwide for their reliability and efficiency, for 70 years and is constantly at the forefront with the introduction of new technology and new design concepts.

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Electric VRF & Gas Engine

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

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

AHU’s, Chillers & Fan Coil Units

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

Close Control

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

Chilled Beams

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

Crystal Air is one of Ireland’s leading indoor climate control specialists. It offers a broad portfolio of products such as split systems, VRF, GHP, heat recovery, chillers, air handling and close control units. It also provides complete turnkey solutions, including system design, installation, engineering support, after-sales service and maintenance. With professional project management of the entire project, clients and specifiers alike are assured peace of mind.

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Daikin Chillers Offer Multiple Solutions

No matter how large the premises and whatever the air conditioning needs, there is a Daikin chilled water system to suit every application and requirement. It is a system that has proved its worth in a multiplicity of situations – from industrial sites to retail warehouses, hotels and department stores.

The careful development of closely-matched compressor/refrigerant combinations has enabled Daikin to produce complete ranges of water chillers, genuinely optimised for use with R-134a, R-407c and R-410a refrigerants. Daikin chillers offer the ultimate in flexibility and control and are a reflection of the advanced technology inherent within them.

Unique in their precision, power, low operating noise, easy maintenance and low running costs, Daikin chillers represent the sure and safe route to an indoor environment that is comfortable, clean and consistent.

As a manufacturer that makes its own refrigerant and compressors, Daikin has total control at the production stage. It is this unique combination of advanced technology, experience and reliability that makes Daikin the obvious choice and long-term solution for the professional. Just recently it introduced a new range of multiple scroll air-cooled chillers. These units are available in both cooling only (EWAD-DAYN) and heat pump (EWYD-DAYN) versions. Both versions are available in eight different sizes, ranging from 80kW to 260kW.

Seasonal efficiencies of 4.3 are available from these units which will result in lower running costs for the end user. Electronic expansion valves are fitted as standard, helping to provide only the capacity that is needed and therefore minimising running costs. Multiple independent refrigerant circuits with multiple compressors per circuit allow unnecessary components be shut down and therefore ensure only the minimum amount of energy is used to provide the required capacity.

The aluminium fins of the airside heat exchanger are specially treated as standard with an anti-corrosion treatment to extend the life of the unit. Inverter-controlled fans can be fitted to allow for operation down to an ambient temperature of -15°C.

Installation is quick and easy because of the "Plug and Play" design. All the hydraulics are accessible from three sides of the chiller, this open design allowing for ease of installation and maintenance, minimising the costs associated with both.

The chiller is controlled by the powerful new Pcaso digital controller. This controller uses an LCD screen and is designed to be user-friendly. As standard the chiller is compatible with the Daikin Integrated Chiller Network (DICN) that allows up to four chillers to operate together as a single unit. This allows the maximum capacity of a larger chiller with improved part-load efficiency; when demand drops below certain levels entire chillers can be shut down.

Contact: Daikin Europe (Ireland Office). Tel: 01 - 642 3430; email: info@daikin.ie
### 16TJ Single-Effect Steam-Fired

- Cooling Capacities: 352kW to 2461kW
- Heating Capacities: 264kW to 1846kW
- Designed for cooling applications where low-pressure steam is available as waste heat:
  - Fifteen sizes:
  - Ozone-friendly and CFC-free:
  - Reduced noise and vibration levels:
  - Small footprint:
  - Enhanced operating safety.

### 16LJ Single-Effect Hot Water-Fired

- Designed to provide chilled water from waste hot water heat sources:
  - Fifteen sizes:
  - Ozone-friendly and CFC-free:
  - Reduced noise and vibration levels:
  - Small footprint:
  - Enhanced operating safety.

### 16DJ Direct-Fired Double-Effect Chiller/Heater

- Installation of a direct-fired chiller/heater eliminates the need for a boiler, reducing the initial cost of the system:
  - Twenty three sizes:
  - Ozone-friendly and CFC-free:
  - Reduced noise and vibration levels:
  - Small footprint:
  - Enhanced operating safety.

### 16NK Double-Effect Steam-Fired

- Designed for cooling applications where high-pressure steam is available as waste heat:
  - Eighteen sizes:
  - Ozone-friendly and CFC-free:
  - Reduced noise and vibration levels:
  - Small footprint.
Absorption Chillers Key to Energy Efficiency

With energy efficiency now a primary concern in all building services installations, absorption chillers have emerged as the perfect solution when it comes to providing refrigeration solutions. The history of absorption chillers dates back to 1775 when a William Cullen first conceived the notion of making ice under vacuum.

The concept was further developed down through the years, most notably by Carrier, who introduced the LiBr/H2O absorption chiller in 1945. However, it was the introduction of Sanyo’s simultaneous chiller/heater model in 1972 which set the benchmark for modern-day absorption chiller technology. Today, Sanyo is the acknowledged world-leading expert in the field, a fact recognised by the strategic partnership formed between Sanyo and Carrier to further develop and promote the concept.

Absorption chillers make sense in many applications for process water cooling, instead of mechanically compressing a refrigerant gas, as in the familiar vapour compression process, absorption cooling uses a thermo-chemical process. Two different fluids are used, a refrigerant and an absorbent.

Absorption chillers can be direct-fired or indirect-fired, and can be single-effect or double-effect. They differ from the more common compression chillers in that the cooling effect is driven by heat energy rather than mechanical energy. They can be either ammonia-water or lithium water-bromide (LiBr/H2O) equipment. The Carrier Sanyo range uses the latter system with lithium bromide as the absorber and water as the refrigerant.

While the range is extensive, distributors for Ireland Core Air Conditioning currently supply the following options—

- 16LJ series single-effect hot water fired chiller (COP = 0.7);
- 16LJ series single-effect steam fired chiller (COP = 0.7);
- 16DJ series direct gas fired absorption chiller/heater (COP = 1.1hcv);
- 16KK double-effect steam fired chiller (COP = 1.28).

Apart from energy efficiencies, gas absorption chillers also have significant non-

energy benefits over conventional electric systems. These include:

- Elimination of the use of CFC and HCFC refrigerants;
- Quiet, vibration-free operation;
- Lower pressure systems with no large rotating components;
- High reliability;
- Low maintenance.

“Given the urgent need for building services solutions to be sustainable and energy efficient”, says Austin McDermott of Core Air Conditioning: “absorption chillers are the perfect solution. They are ideal for applications with a high cooling load and are the perfect complement to say CHP installations which generate large quantities of waste hot water which can be used to power absorption chillers.

“While the origin of the absorption chiller concept dates back to 1775 and is still fundamentally the same, the Carrier Sanyo range — and the technology and system design concepts employed — represent pioneering applications of the concept which have set the benchmark for all future development. To further reinforce and promote the concept, absorption chiller experts from Core, and Carrier Sanyo, are available to make presentations to system designers at any location throughout the country.”

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Samurai range

Screw Type Water Chillers
Cooling Only & Heat Pump Versions

Models
Air cooled cooling only
40 - 450HP (112-1180kW)

Air to water heat pump
40 - 240HP (106-585kW)

Water cooled cooling only
40 - 240HP (134-696kW)

Water cooled cooling only
40 - 240HP (120-360kW)
Cut to the Point with Hitachi Samurai

The new Samurai air-cooled chiller range from Hitachi is available in both cooling only and heat pump versions — cooling only from 112kW to 1180kW and heat pump from 106kW to 585kW. Meanwhile, the water-cooled chiller version is available from 120kW to 696kW (optional heating mode from 161kW to 824kW) and is claimed to be one of the most efficient water-cooled chillers on the market.

A key feature is the compact footprint of the units which is achieved by the use of Hitachi's own plate heat exchangers for both the condenser and evaporator. When combined with Hitachi's advanced electronic control system, the chillers provide full modulation capacity control. This allows the chillers to accurately match the required cooling load while maintaining the outlet temperature to within +/- 0.5°C.

To control water temperature Samurai uses two essential components:—
- A sliding valve in the screw compressor to change the refrigerant circuit variables, adapting them to the requested load;
- A sophisticated electronic system based on control bands.

The benefit of this system is that it allows for control bands with different behaviours so the unit is better able to adapt to load requirements.

Because Samurai utilises continuous capacity control it is able to match the required cooling capacity accurately, controlling an outlet water temperature rather than inlet. The variations in the input capacity are smaller than the variations in the unit's cooling capacity and this leads to increased COP at partial loads.

Sound levels and vibration — Samurai chillers operate at low sound and vibration levels because of a combination of technical innovations in the Hitachi semi-hermetic screw compressors, precise machining of components, and meticulous care during manufacture and assembly.

Samurai units also eliminate the need to install oversized electrical wiring to cater for peak currents that are often associated with conventional chillers. This is due mainly to two factors.

Firstly, the compressor's electrical motors have a Star-Delta starting system which is installed as standard in each compressor and allows a significant reduction in the compressor's starting power.

Secondly, the chillers employ a staged start-up process. If the system has more than one compressor, start-up begins with the unit that has worked the least hours and this is run at minimum load to minimise the power load on the installation. After a one-minute delay the second compressor is started. Both compressors continue to work at minimum load as the next compressor begins to operate, and so on, until all the compressors are working at minimum load.

Then, after a 30-second safety delay, the machine increases to normal (rated) power.

Other energy-saving and sustainable features include:—
- High power factor which eliminates the need to install a series of capacitors to compensate for the reactive energy consumer.
- Small installed water volume since the capacity control range is very wide (15% to 100%);
- Minimum amount of refrigeration.

Moreover, choosing the right chiller for each application could not be simpler, thanks to Hitachi's new and much-improved chiller selection programme.

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In order to face tomorrow's demands today, we at BITZER are developing futuristic technologies and cutting-edge processes. Our ability to provide ecological, yet economic solutions, ensures the continued trust of our customers.

With regard to efficiency and reliability, BITZER CO\textsubscript{2} compressors are the perfect choice for you:

- Highest efficiency
- Smoothest running
- Comprehensive product range
- Professional service
- Well suited for speed regulation
- Tested reliability over several years
Kilmainham Square Chills Thanks to Hydrociat

Crystal Air was recently engaged in supplying and commissioning two Hydrociat air cooled chillers to deliver 800kW of chilled water for the new offices at 1 Kilmainham Square, Dublin 8. The main challenge was to deliver an air cooled system within the confines of the basement to comply with local planning in the area.

A high power system (HPS System) ensures that each circuit has an increased cooling capacity and a higher EER which facilitated a small footprint for the main chiller plant. These units were coupled to four heat-rejection condensers from the Ciat Concept AHU range with inverter speed-controlled condenser fan motors to ensure low noise operation and maximum energy efficiency.

The complete Hydrociat range is available from 270kW to 1420kW and is designed and manufactured to ISO9001 Quality Management Systems. It is also certified to Eurovent norms.

The extensive range of Hydrociat chillers can meet a wide variety of liquid cooling environments and comply with all applicable standards in respect of ozone layer protection limiting the greenhouse effect. Various versions cater for different applications in offices, housing, hotels, industrial processes, etc.

Evaporators, with two or three refrigerant circuits and one hydraulic circuit, were specially developed by Ciat for the Hydrociat range. Making connection on site is simple. The flow switch and all the sensors required for correct, safe operation are fitted, tested and adjusted in the factory. Each Hydrociat chiller is supplied with a transformer fitted on the control panel while single mains supply, with no neutral, is all that is required.

Thanks to the unique design of the heat exchangers and their high exchange coefficients — plus the compact accessible hermetic compressors with integrated oil separators — Hydrociat units are extremely compact. Their reduced footprint means that additional space can be made available in the plant room for other equipment. They are also easy to install.

The compressors used allow a wide operating range with a particularly high performance. Despite their high capacity and with compressors part-winding and cascade-control starting, they still keep an acceptable starting current.

The small number of parts, high-quality components (such as auronautical bearings), optimised oil management and maximum continuous motor cooling, means longer life for all Hydrociat units. The fact that the units require no servicing or heavy maintenance is an additional plus factor for installers and clients alike.

Contact: Avril Moran, Crystal Air.
Tel: 045 - 893 228;
email: avril@crystalair.ie
Many pairs of hands craft a Daikin chiller then support the one pair that continues the good work

Applied Systems

Daikin chillers aren't just churned out on a production line. Each one is painstakingly crafted by the hands of many. We have the largest range in the industry, from 5 kW to 2 MW, offering solutions for every application: air cooled and water cooled, cooling only and heat pumps. We use our extensive manufacturing experience to ensure our products meet the highest performance specifications. And our comprehensive training programmes and technical support services keep installation and maintenance as trouble-free as possible.

A lot goes into a Daikin chiller. So it can enjoy a long and simple life.

For more information go to www.daikin.ie

or call 01 662 3440.
For someone so interested in history, and Irish history in particular, it is appropriate that John Desmond is the current Chairman of the Register of Electrical Contractors of Ireland (RECI) at such an historical time for the organisation. Just recently the Commission for Energy Regulation (CER) appointed RECI one of two Safety Supervisory Bodies to oversee and administer the statutory-backed regulation of electrical contractors, and the only Safety Supervisory Body to do likewise for gas installers (see page 37). The new regime for both will take effect on 5 January 2009.

Granting statutory authority to the regulation of electrical contractors — which has operated a voluntary registration scheme since 1992 — is significant in itself but, for the same statutory requirements to be applied to the registration of gas installers is quite momentous for that particular industry sector. That RECI has been appointed a designated Safety Supervisory Body for both is truly historical.

"RECI was established by the leading electrical contractor representative bodies in 1992 to self-regulate the sector and improve the standards of electrical installation work", says Desmond. "Since then it has been to the forefront in promoting industry best practice and, as such, is ideally placed to act as one of the two CER-appointed Electrical Safety Supervisory Bodies to oversee the new Government registration scheme for electrical contractors."

"In that respect I would also like to congratulate ECSSA, the other designated Electrical Safety Supervisory Body appointed by the CER. I, as RECI Chairman, would like to develop a close working relationship with ECSSA in the future and look forward to working with them to ensure that the best possible safety standards are delivered to both the public at large, and the business sector.

"The granting of these licences to RECI is testimony to the hard work and dedication of everyone at RECI. We have a proven track record in operating the regulatory scheme for electrical contractors and will now bring the same expertise, competence and management resources to bear on the mandatory registration of gas installers.

"Given that the registration of electrical contractors has been regulated — albeit voluntarily — since 1992, I expect that the transition to a statutory-backed system will run smoothly. Most electrical contractors already subscribe to the concept of registration and the fact that it is now put on a statutory footing can only enhance the prevailing trading conditions within the industry."
Gas installers have nothing to fear and everything to gain from the new registration scheme. Mandatory registration and regulation will serve to bring order to the marketplace and create an even playing field for all installers.

"Obviously, the mandatory registration of gas installers is a different story. Down through the years there have been various initiatives aimed at developing a voluntary registration scheme but, for one reason or another, these came to nothing. That said, Bord Gáis has always operated a registration scheme of its own and the current RGI scheme has proved extremely successful.

"Indeed, a key element of the transition strategy is to encourage installers to become members of the Bord Gáis Register of Gas Installers (RGI) in the interim. Those who do will have a distinct advantage over others as the CER criteria document published earlier this year outlined that members of the RGI on 1 January 2009 next will automatically transfer over to the new regulatory regime.

"Gas installers have nothing to fear and everything to gain from the new registration scheme. Mandatory registration and regulation will serve to bring order to the marketplace and create an even playing field for all installers. In an un-regulated marketplace it is very difficult for legitimate businesses paying the correct labour rates, insurance, taxes, etc to compete with unscrupulous operators who do not comply with these requirements.

"Our objective is to protect the safety interests of the public by encouraging and promoting standards of technical excellence, competency and ethical business behaviour among gas installers. To realise this objective we will ensure that the standards required for registration are relevant, realistic, and appropriate to comply with all qualifications, regulations, standards, rules and codes of practice relating to the gas sector.

"We aim to ensure that those conducting a business within the industry are appropriately-registered and to support them in their efforts to deliver a professional service, from initial negotiations and consultation with the client through to the satisfactory completion of the project.

"We will also act to resolve disputes between contractors and consumers. This will be done promptly and fairly by mediation, direction, or referral to an appropriate authority, or other body, if necessary.

"Meetings are currently taking place with interested parties with a view to copperfasten the operational criteria for the scheme and these will be published shortly. Much of the groundwork has already been completed in this respect and this final stage is part of the fine-tuning process before the scheme becomes operational in the new year.

"No doubt there will be teething problems along the way, especially in the early days. However, while the fuel source is different and the related issues very specific to that fuel, the general principles of operating an installer registration scheme are very similar.

"Our experience in spearheading the registration of electrical installers will stand us in good stead in implementing the gas installer scheme. I've every confidence that, with the will and support of those installers, we will succeed in establishing a registration scheme to which everyone will be proud to subscribe."
New Awards Scheme for RECI Electrical Contractors

Electrical safety is the number one item on the agenda for consumers and businesses alike this month as the Commission for Energy Registration (CER) has announced a new statutory-backed registration scheme for electrical contractors (see page 37), which will take effect on 5 January 2009.

The Register of Electrical Contractors of Ireland (RECI) has been appointed one of two Electrical Safety Supervisory Bodies to oversee the scheme and, to coincide with this development, it has introduced a new initiative called the RECI Electrical Contractor of the Year Awards.

RECI was established by the leading contractor representative bodies in 1992 to self-regulate the sector and improve the standards of electrical installation work. Since then it has been to the forefront in promoting industry best practice and, as such, is ideally placed to act as an Electrical Safety Supervisory Body in overseeing the new Government mandatory registration scheme for electrical contractors.

The primary objective of the new RECI Awards is to encourage excellence in electrical contracting and to highlight to clients and consumers the benefits of using only fully-registered, competent and certified electrical contractors to carry out all electrical installations. This is a tripartite initiative between RECI, Hibernian General Insurance and Arachas Corporate Brokers, all of whom are actively engaged in promoting best practice and health and safety in the sector.

Awards will be presented in two primary categories – domestic and commercial/industrial. All RECI members are eligible to enter.

While based on information contained in the submissions made by entrants, and subsequent Inspection Reports, the assessors will look in particular at:
- Compliance with the ETCI Wiring Rules;
- Technical Competence;
- Record Keeping & Data Logging;
- Participation in RECI Training Schemes;
- Testing Capability

Commenting on the inaugural RECI Electrical Contractor of the Year Awards, Michael Garvey, Director of Broker Underwriting & Distribution, Hibernian General Insurance said: “We at Hibernian are delighted to be taking part in the first ever RECI Awards. This event recognises the professionalism and excellence practiced by RECI electrical contractors and gives them an opportunity to showcase their expertise”.

Also commenting on the RECI Awards, Guy Percival, Director, Arachas Corporate Brokers said: “RECI plays a vital role within the industry. It ensures the registration of certified electrical contractors and now, with these new Awards, will celebrate their achievements. Arachas is delighted to be involved with this project and fully supports any initiative that promotes safety and encourages awareness of electrical safety”.

Contact: David McGloughlin, RECI. Tel: 01 - 492 9966; email: dmcgloughlin@reci.ie
After a very lengthy and thorough consultation process, the Commission for Energy Regulation (CER) has appointed a number of Safety Supervisory Bodies to oversee and administer the statutory-backed regulation of both electrical contractors and gas installers with effect from 5 January 2009.

Electrical Contractors
Two parties have been appointed to the status of Electrical Safety Supervisory Body — the Register of Electrical Contractors of Ireland (RECI) and the Electrical Contractors & Safety Standards Association of Ireland (ECSSA). Both have very competently and successfully presided over the voluntary registration of electrical contractors for many years and it is fitting that they should now be appointed to spearhead the further development of this process with the aid of statutory-backed powers.

This is a very significant development but one which, in the main, should prove a seamless transition for electrical contractors as the vast bulk of those engaged in the industry have demonstrated that they subscribe to the idea of registration and regulatory controls.

Gas Installers
However, the registration and regulation of gas installers poses a far greater challenge. Despite various voluntary initiatives and a number of Bord Gáis-driven schemes down through the years, the number of gas installers signed up to any type of registration scheme is minimal compared to the total number operating in the sector.

That said, the Bord Gáis Register of Gas Installers has seen an increase in those wishing to sign up in recent months. This is hardly surprising as one of the key elements of the transition strategy devised by CER is for all those on the Register to automatically transfer to the new regulatory regime when it takes effect in the new year.

No doubt the fact that RECI has been appointed the sole Gas Safety Supervisory Body to oversee the introduction of the mandatory registration scheme for gas installers is also a significant advantage. It has extensive experience in administering such a regulatory scheme and will bring a vast amount of experience, knowledge and know-how to the establishment and implementation of the registration of gas installers.

Bona fide gas installers should welcome this development with open arms. This market sector has been at the mercy of unscrupulous operators for far too long, making it very difficult for legitimate contractors to compete in the open marketplace on an equal footing. With registration and certification mandatory from the new year, the business of gas installations will now be conducted on an even playing field.

It is now imperative that all those engaged in the gas installation sector — including product suppliers who will also benefit from a more orderly marketplace — embrace and support this major development.
The ETCI Rules for Electrical Installations require that account is taken of harmonic distortion in electrical loads when selecting cables, although it does not stipulate exactly how this should be carried out. The International Technical Commission published a set of harmonic rating factors in 2004 so that allowance can be made for 3rd harmonic currents in 4-core and 5-core cables. The new 17th edition IEE Wiring Regulations (BS 7671:2008) now includes the harmonics rating factors for cables in Appendix 11 as informative guidance.

This new series of articles discusses the background to overloading of cables due to harmonics and explains the method used in Appendix 11. It is also important to note that Appendix 11 recommends that, for cables in excess of 50 sq mm, further allowance must be made for the skin and proximity effects which can be significant.

The current rating tables quoted in both the ETCI Rules and the Wiring Regulations make the assumption that three-phase cables carry balanced loads and that there is therefore no current flowing in the neutral conductor. This assumption does not hold for harmonic loads because of triple-N harmonics(1), i.e. harmonics of an order that can be divided by three such as 3, 9, 15 etc.

These harmonics have "zero phase sequence" which means they become additive in the neutral instead of cancelling, as would be the case with the fundamental 50 Hz component, 5th and 7th harmonics etc. The only ones we will consider from the point of view of neutral loading are the 3rd, 9th and 15th.

Harmonics are more prevalent than one would expect as is shown by the diagram in Figure 1 which depicts the harmonic content of a load comprised of personal computers typical of any modern office. The measurements were taken in the Church Lane laboratories in DIT Kevin Street.

The RMS current, as seen in Table A, which would be read by a good quality ammeter, is

$$\sqrt{(67^2) + (65^2) + \ldots} = 167 A$$

The RMS triple-N current flowing in the neutral due to the 3rd, 9th and 15th harmonics

$$\sqrt{(3 \times 65)^2 + (3 \times 53)^2 + (3 \times 45)^2} = 286 A$$

In a case like Figure 2, BS 7671:2008 Appendix 11 recommends that the cable is sized on the basis of the current flowing in the neutral conductor, i.e. 286 A and no derating factor be applied. Although there are now four heat emitters in the cable, i.e. the three phases plus one neutral, this will be compensated for by the fact that each phase conductor is underloaded. They are sized for 286 amps and are carrying only 167 amps. Therefore, the loading on the cable as a whole will not be excessive because the heat produced by the four conductors is only 0.67 times the heat that would be produced by three-phase conductors, each carrying 286 amps.

In this particular example the worst case scenario is when one phase goes down, in this event it can be shown that the neutral current will be 317 A.

Note: Appendix 11 recommends that for cables in excess of 50sq mm that further allowance must be made for the skin and proximity effects which can be significant.

(1)By Fourier Analysis, a sinusoidal waveform is an odd function which can only comprises of odd.

Acknowledgments — Martin Barrett, Tony Sung and Eamon Murphy

<table>
<thead>
<tr>
<th>Harmonic Order</th>
<th>1</th>
<th>3</th>
<th>5</th>
<th>7</th>
<th>9</th>
<th>11</th>
<th>13</th>
<th>15</th>
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<td>67</td>
<td>65</td>
<td>63</td>
<td>59</td>
<td>53</td>
<td>40</td>
<td>42</td>
<td>45</td>
<td>45</td>
<td>38</td>
</tr>
</tbody>
</table>

Table A — The currents flowing at the different frequencies are shown in the above table.
btu round-up

btu win back boc trophy

The annual BOC-sponsored match between the BTU and RACGS recently took place at Louth Golf Club with Michael Kearney leading the BTU team and Billy Queally the RACGS.

The course presented its usual tough challenge but the weather was kind and at the end of the day in the fading light, the BTU emerged victorious.

A most enjoyable dinner followed and the BOC trophy was presented to the winning captain by Eamonn Bolton, Sales Manager, BOC.

president's outing — newlands gc

sponsor: C&F Quadrant

Overall Winner
John Lavelle (H10) 41pts

Class 1
First — Graham Fay (H5) 41pts;
Second — Mick Matthews (H6) 35pts;
Third — Brendan Bracken (H12) 33pts.

Class 2
First — Dave Cranston (H14) 38pts;
Second — John White (H14) 36pts;
Third — Martin Keogh (H13) 34pts.

weekend away with versatile

As always Bill and Catherine Treacy of Versatile Bathrooms were the most generous of hosts as they sponsored the BTU Weekend which took place this year at the Knightsbridge Hotel & Country Club, Trim, Co Meath.

The emphasis on the weekend away is more on the comraderie and fun rather than the golf and this year proved no exception. To that end the venue was ideal and all credit to those responsible for choosing this particular location.

That said, those playing golf still did so with their customary zeal but, as is the

Weekend — Anne and Michael Morrisey with Dave Harris

et al.: BS News

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Samuel Sleeveen Finally Gets His Comeuppance!

Oh how the late Bob Couchman would have loved to have seen this day. While he campaigned for a register of installers for many years with an intensity bordering on the obsessive, he had secretly resigned himself to the fact that it would never happen. Lo and behold ... it has actually happened and so, his creation Samuel Sleeveen, will finally get his comeuppance!

Samuel Sleeveen was the villain of the McWhinge Files, a series of articles conceived by Bob to represent the ills that beset the industry in respect of the installation sector. Quite simply, the series revolved around the tendency of the industry to attract unscrupulous operators out for a quick killing. Sleeveen epitomised the worst of it, always ready to undercut prices to the point of insanity; quick to cut corners; and totally negligent when it came to professionalism and standards compliance.

On the other hand, Mrs Fanny McWhinge represented the innocent client constantly being ripped off while Jerry Bibcock, the bona fide contractor, was the knight in shining armour who came to the rescue.

The Sleeveen syndrome, as it was referred to, began in earnest in the mid-1960s and was fuelled (sic) by a succession of critical industry developments, affecting both the domestic and industrial/commercial market segments.

It began in housing with the original impact of central heating, especially oil-fired systems; then there was the solid fuel, back-boiler era; next came the natural gas bonanza; and finally the massive boost of the Tiger Economy years.

The same malaise afflicted the commercial/industrial sector.

To this day the industry is wide open to non-qualified individuals who masquerade as bona fide operators. Ironically, the boom of recent years and the consequent shortage of qualified personnel only served to make matters worse.

Bob would have been appalled to think that the same malaise still afflicts the industry but nonetheless heartened that Ireland has finally tackled the matter, especially in respect of gas installers, by introducing a mandatory registration scheme which will take effect from the new year (see page 37).

Let’s hope it sounds the death knell for all the Samuel Sleeveens out there!

Bob Couchman conceived and wrote the McWhinge Files with a view to highlighting the problem in a tongue-in-cheek manner. In that he succeeded but as for effecting change, the approach failed dismally.

Samuel Sleeveen in McWhinge Files. (Image: From left: Fanny McWhinge, Samuel Sleeveen, Jerry Bibcock.)
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- Connect up to 4 indoor units to a single outdoor unit. Indoor units connected by branch piping, just two pipes connected to the outdoor unit
- Up to 28kW cooling or heating with an outdoor unit footprint of just 0.36sq m

Published by ARROW@TU Dublin, 2008
Fit & Forget

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