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BS News July/August

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Building Services news



■ A Postcard from Abroad



■ CIBSE Symposium



■ RACGS 'Ryder Cup' report



■ Another Side

UNDERFLOOR HEATING – THE ASPIRATIONAL CHOICE ... Jo Trotman, UHMA

BIOMASS: Solid fuel for a sustainable future



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Opinion

While the abuse of clichéd jargon such as “green shoots” has left us all somewhat disillusioned, building services can indeed take heart from the small but nonetheless genuine upturn in activity.

Driven primarily by refurbishment, the moderate growth is more evident in the commercial sector. Here a handful of large projects, along with a larger number of smaller projects, are now up and running.

More encouraging still is that many consultants are working on projects that are not speculative ventures but ones that will definitely proceed.

The domestic scenario is much the same, but yet different. Walk around any suburban neighbourhood and you will see evidence of refurbishment work being done.

Unfortunately, too often this is “cash-in-hand”, an activity that freezes out the legitimate home heating contractor/installer. The black economy must be addressed as a matter of urgency by the authorities, and the industry itself.

There are signs though that this is beginning to happen. The Plumb Centre initiative (see page 6) is a very positive step in the right direction. Others need to note and emulate.

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Core has a long-standing reputation as one of the leading market players providing customised indoor environment control.

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An innovative Hitachi chiller was a key specification in the low-energy design of a new office block in King's Cross, London.

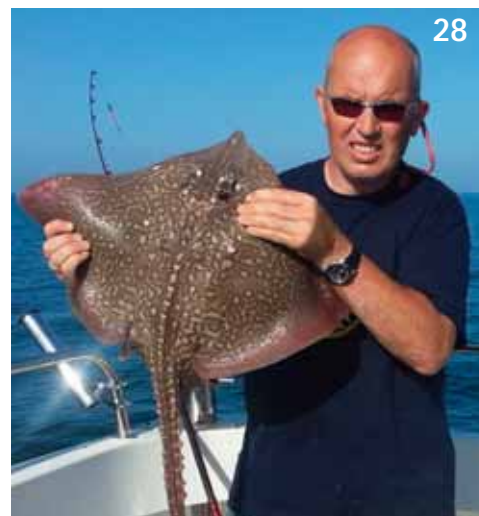
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This year marked the fifth Ryder Cup meeting between RACGS and NRGs with the home team clinching a three-in-a-row victory.



28 ANOTHER SIDE OF ...

Eamon McGrattan turns to the high seas for his relaxation and his “Fish & Trips” charter company has become a new business venture.



NEWS AND PRODUCTS

Vokera commercial brochure

Vokera has introduced a new brochure designed to help installers navigate the company's comprehensive commercial boiler range. Eleanor Fox, Vokera's Marketing Director, said: "Our new brochure makes it simple for contractors to find the right boiler for the right application, whether it is a new or retrofit project."

Vokera's CondexaPRO



commercial boilers can manage three circuits at different temperatures through either direct take-offs or control-based

header-systems. Vokera's condensing technology with pre-mix combustion delivers both high performance efficiency and low running costs. Pollution emissions are minimised through its controlled pre-mix burner and micro-flame burner combination.

CondexaPro's electronic control and modularity ensures fast boiler installation within any type of heating and hot water system. Built-in temperature control and weather compensation are standard to maximise energy efficiency.

Contact: www.vokera.ie

Digren duct cleaning services

Digren Ltd is now offering small-bore duct cleaning services using Wohler pneumatic duct cleaning equipment. It can clean ducts as small as 60mm in diameter and up to a maximum of 250mm in diameter.

Duct cleaning is an essential part of maintaining good indoor air quality. All systems, even residential systems with low airborne pollutants, require cleaning at least every six years. Ideally, commercial premises should have their systems cleaned every three years.

The Wohler system operates with interchangeable brushes, stars and perlon stars which can be adapted to most duct shapes, including flat ducts. This system, with its unique digital distance measurement, is the perfect equipment for efficiently cleaning these ducts. However, it is designed for cleaning rigid ducting only.

Contact: Ciaran King, Digren.Tel: 086 – 255 9659; email: ctking@digren.ie; www.digren.ie



Ciaran King

Zephair Pre Pro air leakage detection

The Zephair Pre Pro air leakage detector fan was designed to identify the cracks and gaps in construction and ventilation systems so they can be rectified prior to a professional testing or final sign off of a project.

The Zephair Pre Pro generates under-pressurisation in a building or ductwork that can demonstrate where the gaps in the continuous airtight layer are. Leaks are identified using a combination of touch, hearing and smoke – or even thermal imaging – to identify the location of unintended air leaks.

The Zephair Pre Pro is easily installed and operated, and does not require specialist training. It can be built into either a window or a door, and the negative pressure controlled by the on-board dial to ensure that sufficient pressure can be developed without damaging the construction or ductwork.

It can also be used internally to check, for example, a clean room or server room to ensure that it is airtight to an acceptable level.

Contact: Mark Shirley. Tel: 059 - 916 9121; www.zephair.pro



Dachs W off-grid solution

The Dachs W off-grid solution is a system with three Sunny Island 5048 inverters, a 48V battery pack and a Dachs W micro CHP, and it provides a permanent 3-phase electrical AC grid (3/N/PE, 400/230 V, 50 Hz), like the public grid.

The modulating Dachs W is connected directly on the AC side and provides the consumer with electricity at maximum efficiency without any transmission losses.

If the building needs more output than the Dachs CHP can provide, the inverters can take additional energy from the batteries. Thus the consumer can use the Dachs plus the inverter output. If it needs less electricity than the Dachs CHP provides, the excess energy is used to load the batteries.

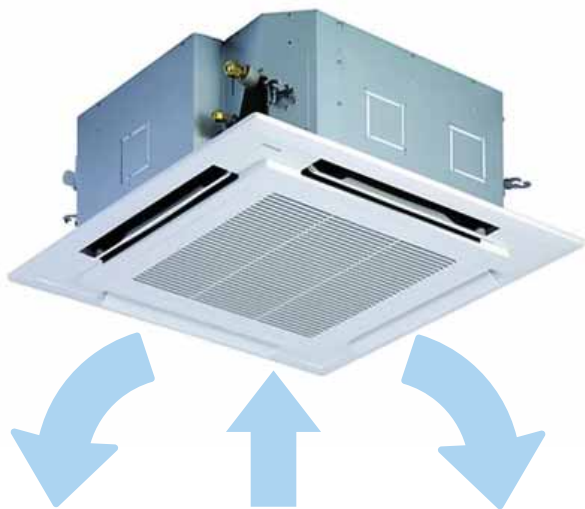
For an optimised loading process, controlled by the Sunny Island inverter, the Dachs only needs to reduce its output in the final stage of the process. The Dachs W can therefore operate for long periods with its nominal output and thus with a high efficiency.

The primary task of the Dachs W as an off-grid solution is the generation of electricity. But the Dachs W also produces 12.5kW thermal output at the same time, and a condensing unit can produce an additional 2.3 kW. The heat can be used for DHW or the heating system.

Contact: Frank Daly, Kinviro. Tel: 087 – 637 9000; email: frank@kinviro.ie



PERFECT PARTNERS



Eliminate Discomfort with Toshiba's Low-Limit Temperature Sensor

Toshiba has designed a unique low-limit temperature sensor for use with its VRF and RAV split units to eliminate the discomfort of those working directly below a unit. It will limit the discharge air from the unit to either 12°C, 14°C, or 16°C and is primarily intended for use with ducted indoor units. However, it can also be used on other models if required.

Service as it should be



For further information contact:

GT Phelan

Tel: 01 286 4377

Email: info@gtphelan.ie

Published by GT Phelan, 2013

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NEWS AND PRODUCTS

Purmo warms up to the CE mark



Following rigorous testing, all Purmo towel warmers now carry the CE mark. Chris Edwards, Sales and Marketing Director for Purmo says: "Our panel radiators have carried the CE mark for some time but now our entire range, including all our towel warmers, will be CE marked."

Purmo panel radiators have been manufactured to exacting standards for many years under the company's ISO9001 accreditation, using highest quality steel. Now its towel warmers are also certified.

Contact: www.purmo.co.uk

Megaflow heat recovery

Megaflow SHRU waste water recovery systems (WWHRS) transfer heat from discharged waste shower water into the incoming supply. This means that taking a shower can cost less – or last longer using the same amount of hot water as before.

The Megaflow SHRU requires no regular maintenance, no user interface, and can be installed in existing as well as new homes. They are also recognised within the SAP assessment system.

Independent CE-approved tests revealed that occupants in a home fitted with a Megaflow SHRU WWHRS can enjoy energy savings comparable to those of solar thermal hot water systems.

Contact: Potterton Myson Ireland. Tel: 01 – 459 0870; email: sales@potterton-myson.ie; www.potterton-myson.ie



The Megaflow SHRU offers water heating for life.

'Select' Fantech product guide

A new product guide for 2013 is available from Fantech Ventilation containing a comprehensive range of ventilation products, many of which are compliant with the new ErP (Energy related Products) Directive, the first tier of which came into force on 1 January, 2013.

The 530-page guide provides comprehensive details of the fans now covered in the Elta Select range, from axial flow, centrifugal and mixed-flow fans to destratification, heat recovery units and many more. The introduction of the axial fans in this phase is particularly important given the significant impact the ErP Directive is having for these products.

Brendan O'Toole, Managing Director of

Fantech, said: "With any new legislation there is inevitably some confusion surrounding what the new requirements are. We have therefore been very conscious to make the catalogue informative, with a



The Zoo fan from the Elta Select range by Fantech.

number of features that will help people to understand the key issues and how to specify fans accordingly."

Contact: Brendan O'Toole, Fantech. Tel: 01 – 452 3211; info@fantechventilation.com

Diary date for ACR 2014

The Institute of Refrigeration (IOR) is joining forces with the Air Conditioning and Refrigeration Industry Board (ACRIB) to give an insight into the latest proposals to control the use of HFC refrigerants across the EU, and the implications for the industry.

The IOR and ACRIB will update visitors on progress in lobbying the European Commission over the controversial proposals to introduce a ban on the use of certain key refrigerants.

Experts from the Building and Engineering Services Association (B&ES) will give legal briefings on important changes in legislation impacting the industry, including energy efficiency requirements, revisions to the building regulations and progress in implementing "The Green Deal".

The latest developments in the application of high-efficiency heat pumps will be presented by the Heat Pump Association (HPA), which will also give contractors advice on how to design systems. For details visit: www.acrshow.co.uk

NEWS AND PRODUCTS

Heat pumps 'shortly on Energy Credits list'

The Heat Pump Association of Ireland (HPA) was established in July 2011 as an industry representation body for heat pump manufacturers and distributors in the Republic of Ireland. It represents approximately 80% of the market volume in heat pumps, and is representative of all heat pump technologies.

Since its formation the HPA has taken a pro-active approach to promoting heat pump technology for use in Ireland. Contact with SEAI has been constant and has resulted in items such as the fuel cost comparison sheets including heat pumps for the first time, clearly demonstrating the savings that are possible by using a heat pump as opposed to other fuel sources. It is evident from the comparison that saving over oil and LPG are the most attractive when looking at paybacks, and the percentage savings are "quite staggering", according to a HPA spokesperson.

Another area which is being investigated is a revamp of the training provided to heat pump installers as a basic level of education. The HPA wants a minimum standard of training to be implemented to ensure correct installation and operation of heat

pump equipment in the market. Both the HPA and the SEAI are in regular discussions on this topic and there is an ambition on both sides to get a positive result as soon as possible.



In another development HPA says that heat pumps will shortly be added to the energy credits list for the first time. "The level of credits that heat pumps will receive is testament to the energy savings that a heat pump will give once installed in a building", said a spokesperson. "Real energy savings are evident and this is only possible because heat pumps give primary energy efficiencies in excess of 100%, making them a truly sustainable heating device for today and the future", he concluded.

With more and more electricity generated from renewable sources such as wind, it is obvious that heat pumps have a major role to play in the heating of Irish buildings into the future. The HPA will endeavour to help build a sustainable market for heat pumps, and get the message out that saving money and energy is possible when a heat pump is used.

Contact: www.hpa.ie

Award for Plumb Centre App

Grafton Merchanting, the parent company of Chadwicks and Heiton Buckley Builders Merchants, has won a prestigious international technology award in London for its Plumb Centre mobile App.

The newly-released App is available for both Android and iPhone users and is targeted at heating and plumbing installation and service engineers. It allows them to access real-time stock information on plumbing and heating parts in the Chadwicks, Heiton Buckley and Plumb Centre branch network.

It also gives them access to gps location-based branch and special offer information and provides them with full online access to service and installation manuals.

Commenting on the award Eddie Kelly, Managing Director of Grafton Merchanting, said: "The new Plumb Centre app has been developed to support the roll-out of our new Plumb Centre brand and we are delighted that it has been recognised for the quality of its innovation". The app can be downloaded from the Apple and Android app stores.



Andrew Hewat, Commercial Support Manager, Grafton Merchanting Rol with Colm Scannell, Head of IT, Grafton Merchanting Rol; Gareth Naylor, Senior Product Portfolio Manager, E-On (who presented the award); Emmet Boylan, Business Development Manager Heating Spares, Grafton Merchanting Rol; and Linda White, Client Services Manager, Vodafone.

O'Sullivan back at SCS

After a break of seven years, Louise O'Sullivan has returned to Standard Control Systems as a senior designer.

Louise started with the company in 1998 and, after eight years, left for pastures new in New York where she enjoyed considerable success working for two leading controls companies in downtown New York.

However, the homing instinct recently kicked in and, on making contact with Seán O'Toole of Standard Control Systems, she was delighted to be offered a position with her former employers.



NEWS AND PRODUCTS

APHCI endorses Plumb Centre initiative

The Association of Plumbing & Heating Contractors of Ireland (APHCI) has welcomed the announcement that all Plumb Centre branches have implemented a strict gas spare parts policy, with immediate effect. As of now they will only sell gas spare parts to registered gas installers.

"This initiative is fully supported by the APHCI Executive", says Jimmy Egan, "and we urge all members to purchase spare parts from Plumb Centre Branches as it will lead to a better trading environment, and increased gas safety for our customers.



"We all have stories of householders/illegal operators buying spare parts and either fitting them themselves, or having the work done illegally. This Plumb Centre initiative is a real step in the right direction.

Your support for it will inevitably influence other suppliers and so help create a level playing field for professional APHCI engineers."

A spokesperson for Plumb Centre said they are proud to be the first in the industry to introduce a registered gas installer spare parts policy, and that they are committed to enforcing it at branch level throughout the entire country.

Building Services News understands that RGII and the Commission for Energy Regulation (CER) also support the initiative.

CIBSE golf outing – win a car!....

This year's CIBSE Annual Golf Outing takes place at Castleknock Golf & Country Club, Dublin 15, on Friday 6 September 2013. Tee times are from 11am – to 3pm, with tee-off times at 10-minute intervals.

This event is now firmly established as the premier golf outing for the building services sector in Ireland, with consultants, contractors and product suppliers all participating, literally shoulder to shoulder, for the prizes on offer.

While out on the course the competition is fierce, but off the course it is a very much a social occasion and an opportunity to renew friendships, create new ones, and network.

The format for the competition comprises a four-person team scramble for the main event, the PJ Doyle Trophy. There are also prizes for nearest the pin on the 9th hole and longest drive on the 14th hole.

The Castleknock Golf Club professional will be available on the day with an "inside the pro" competition on the 18th hole but, the one everyone will want to win, is the Ford Mondeo for the first hole-in-one one, also on the 18th.

- Entry Fees – Golf only €300 per team;
- Golf and dinner – €450 per team;
- Dinner only – €50 per person.
- Sponsor a tee – promote your business for only €100. This includes your logo displayed at the tee, and on the sponsor board.

Contact: Alan Hogan, Heat Merchants Group. Tel: 086 – 839 3087; email: alan.hogan@heatmerchants.ie



Win a new Ford Mondeo for the 1st hole-in-one at the 18th hole at the annual CIBSE golf outing at Castleknock Golf and Country Club.

Vacon truck 'drives'

Starting in September, Vacon, one of Europe's leading innovators in ac variable speed drive technology, will tour the UK and Ireland with a demonstration truck equipped with a comprehensive selection of the company's latest products.

Among the products that will be available for inspection are the new Vacon 10 and Vacon 20 drives, the Vacon 20X drives which have an IP66 rating, and Vacon 20 CP cold-plate drives.

All of the drives will be arranged so that they can be seen in operation, and experienced engineers from the company will be on hand to explain their benefits and to discuss applications.

For venues and dates see www.vacon.com/trucktour

AECI trade show

This year's AECI trade show takes place at Moran's Red Cow Hotel on Saturday, 7 September, from 10am to 5pm. Once again installers, wholesalers, architects and consultants will have an opportunity to view a vast array of electrical products and equipment from all the leading suppliers to the sector.

Senator Fergal Quinn will perform the official opening and make an address on the Construction Contracts Bill.

Jim Keogh, Chairman of TC2, will also make a presentation, as will other key speakers from within the industry.

NEWS AND PRODUCTS

InTouch appointments in Dublin and Cork

As part of its continued business expansion programme InTouch Control Systems has appointed two new engineers to the company, one based in Cork and the other Dublin.

Brendan Hayes, with over 13 years experience in the controls industry, has joined the Cork-based team as Project Engineer.



Brendan Hayes

He has worked on a wide range of systems including Cylon, Johnson Controls and Trend.

Having completed his training with a Limerick-based BMS company, he later joined a Cork-based company who specialise in the supply and commissioning of Cylon Building Management Systems. More recently he completed third level studies in electronic engineering.

For the past decade he has engineered and commissioned major projects nationwide for clients such as Microsoft DB3, Fournier, Alcon Labs, Depuy, ITT, Cork University Hospital, Shannon Airport and many others.



Ronan O'Rourke

Meanwhile, Ronan O'Rourke has been appointed Project Engineer with the InTouch Dublin-based team. Ronan has worked in the controls industry for five years on systems such as Trend, Priva, Tridium and various Bacnet and modbus devices.

Formally a qualified electrician with a large Dublin-based electrical contracting firm, Ronan transitioned and trained to work as a BMS engineer with a leading Trend building management system integrator.

He has worked on the commissioning of major projects such as Board Gais Energy Theatre, Interxion Data Centre, Hanger 6 Offices at Dublin Airport, IBM Data Halls and Amazon.

Complementing the expansion in personnel, InTouch has also developed a new more inter-active, dynamic website at www.intouchcontrols.ie

Contact: InTouch Control Systems.
Tel: 021 - 423 2258 (Cork); Tel: 01 - 440 8610 (Dublin);
email: john@intouchcontrols.ie

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It's 45°C, 21% relative humidity, my shirt is stuck to my back as I stroll through the street looking for a place to eat, I've no accommodation or job, my money is running out and my closest friends and family are 3,680kms away back home in Ireland. This is how things were during my first few days after landing in Dubai, UAE.

Fast forward five years – I'm married to an Offaly Rose, we have a beautiful one year old daughter, and I am working for Mercury Engineering (Middle East Branch) on the Four Seasons Hotel, one of the most prestigious hotel developments on the new Bahrain Bay.

Things have definitely changed for the better over the last five years but none of it came easy ... the receding hairline and ever-multiplying gray hairs are testimony to the everyday challenges one experiences out in the Middle East as a mechanical engineer.

The working days and week tend to be that little bit longer out here, starting at 7am and finishing around 6pm. Depending on what project you're on, be prepared for a lengthy

commute, an additional 80mins, with alternate five day/six-day weeks. The Middle East is probably one of the only areas in the world where you could work as part of a design team where each member is from a different continent or country. As great as this is, it does pose some very difficult communication barriers that add to the everyday stresses.

As Dubai and the UAE overall is a melting pot for different nationalities with different work ethics, religions and customs, it takes a while to adjust and understand individual roles and the dynamics of the team. Anyone who has been under pressure to meet specific targets or deadlines during the holy month of Ramadan will understand this.



Aaron pictured with his wife Aoife and baby Sadhbh.

With all the different nationalities and different standards being used, one thing remains at the forefront of every project, sustainability. One of the biggest examples of this would be Masdar City, one of the world's first zero-carbon cities, which is set to house 50,000 people and is located in the Emirate of Abu Dhabi. The desert city is designed to be powered entirely by renewable energy, including solar and wind power.

However, despite the challenge of long hours, demanding schedules and the high pressure, working in the Middle East brings many opportunities. These include possible involvement in everything from seven-star hotel projects through to record-breaking shipping ports and massive oil and gas projects. When working for a company such as Mercury this also means career progression is never far away ... oh, and the fact that we pay zero tax is a small incentive!

Nor is it all work and no play. Dubai boasts some of the longest, cleanest beaches in the world. There is an abundance of five star hotels, restaurants and water parks, not to mention the sun 365 days a year. It really is a diamond in the rough, where my family and I have made our home for the foreseeable future.

We're most definitely not alone. The number of Irish expats currently living or based here in Dubai, or in the surrounding Emirates, is so vast it's incredible. More and more Irish businesses are getting involved throughout the Middle East



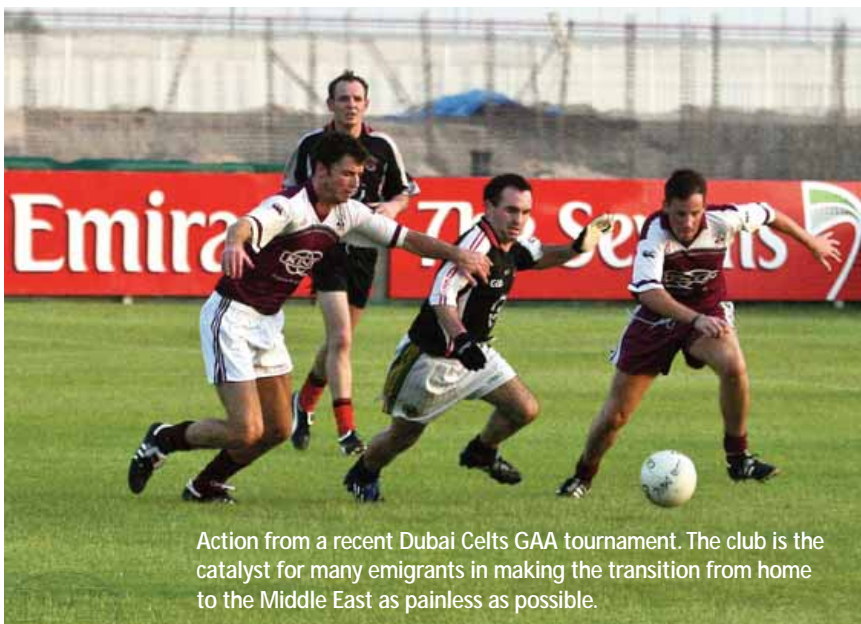
The new iconic Four Seasons Hotel signals signs of optimism for the Bahrain region.

and it is apparent that the gem of Dubai, and the perks of working and living here, is no longer a secret. The thriving Irish community is also present in the ever-expanding Dubai Celts, who uphold all the traditions associated with the GAA.

My one piece of advice for anyone thinking of making the transition from home to the Middle East is make it your business to get in touch with the local GAA club. It was one of the first things I did when I got here, and I've never looked back. I'm no longer an active member, but the friends I've made and the support network it provides is invaluable.

The Middle East still presents plenty of opportunities for young engineers, so once you are prepared to work hard, you will not regret your decision to come here.

The Middle East still presents plenty of opportunities for young engineers, so once you are prepared to work hard, you will not regret your decision to come here.

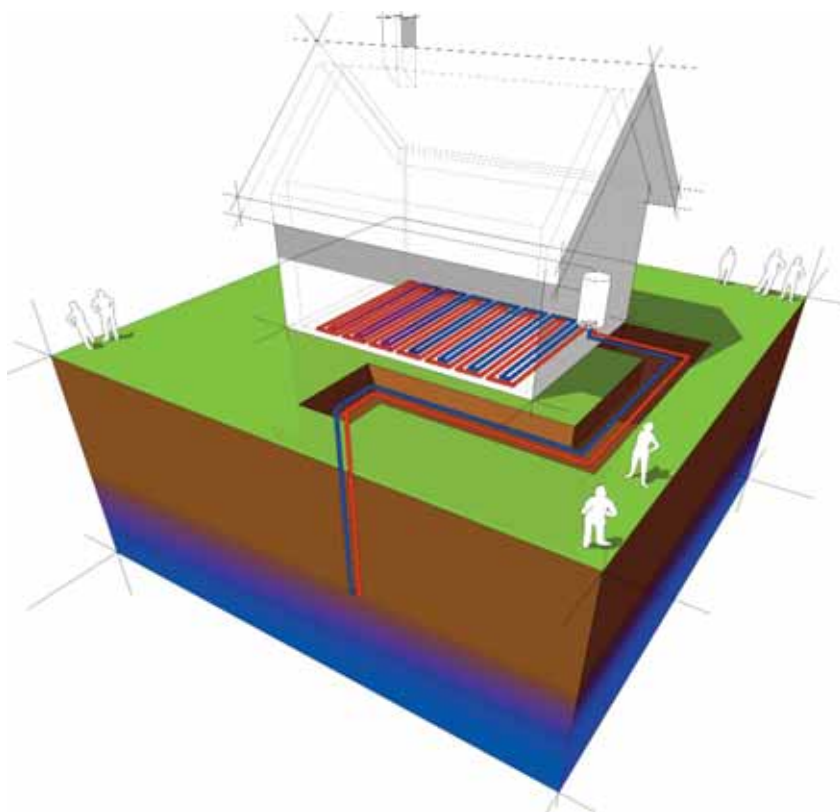


Action from a recent Dubai Celts GAA tournament. The club is the catalyst for many emigrants in making the transition from home to the Middle East as painless as possible.

PRODUCT REVIEW

UNDERFLOOR HEATING – THE ASPIRATIONAL CHOICE

For domestic, commercial and industrial applications, underfloor heating remains the aspirational choice for homeowners, developers and clients alike, writes *Jo Trotman* of Rehau in this article on behalf of the Underfloor Heating Manufacturers' Association (UHMA).



In the domestic sector, underfloor heating is now fitted in almost 50% of self-builds, as well as a growing number of new build and extension projects. Unsurprisingly perhaps, homeowners choose underfloor heating for the three fundamental reasons of aesthetics, comfort and efficiency.

In terms of aesthetics, it removes the need for visible heat emitters, increases the usable floor area and gives free rein for contemporary design schemes. Moreover, with open plan layouts increasingly becoming the norm in new builds and refurbishments, underfloor heating overcomes the problem of having fewer internal walls on which to mount heat emitters.

In terms of comfort, underfloor heating generates radiant heat which mimics the natural radiated heat from the sun. This differs to both radiators and HVAC units which rely on the principle of convection in heating air.

Underfloor heating effectively radiates heat across the occupied area closest to the floor. In contrast, convection heat relies on circulating warm air with the result that the temperature in the unoccupied space near to the ceiling can



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Tel: 01-610 9153
Fax: 01-621 2939

Email: info@uni-therm.net
Web: www.uni-therm.net



“With underfloor heating now a mainstream heating solution across all these sectors, the industry is increasingly turning its attention to the next generation of underfloor heating technologies. The most obvious of these is underfloor cooling.”

be up to 10°C warmer than the temperature at floor level.

Underfloor heating also eliminates the peaks and troughs associated with convected heat when windows or doors are opened, and hugely reduces the incidence of dust and allergens being circulated in moving air patterns.

In terms of efficiency, underfloor heating is the perfect partner for condensing boilers and renewable heat sources such as air and ground source heat pumps because it relies on the circulation of relatively low-temperature water.

Water within an underfloor heating system is typically between 35°C and 45°C, compared with a traditional temperature range of 70°C/80°C for radiators. Partnered with a condensing boiler, this lower

temperature increases the efficiency of the boiler by a minimum of 5% because it condenses more regularly. With a heat pump there can be an increase in efficiency of between 20% and 30% because of the reliance on low-temperature distribution.

Furthermore, underfloor heating systems are more often than not cheaper to run than more traditional systems as they are generally maintenance-free and have low running costs.

In the commercial sector, underfloor heating is much loved by developers and clients for many of the same reasons, but there are additional practical benefits that also help to win specifications. For example, in nurseries, schools, healthcare premises and leisure centres, there is no need to place

protective enclosures around radiators and there is no problem with cleaning behind them. Warm and dry floors also help to improve safety for occupiers.

In larger commercial premises and industrial applications such as warehouses, factories and aircraft hangars, it is predominantly the proven energy efficiency and low running costs which make underfloor heating the first choice.

As an example, simulations carried by an UHMA member for one of the UK's major automotive manufacturers, in advance of its investment in a new plant, confirmed that the annual running costs for the building would be 14% lower with underfloor heating using a gas-powered heat source than it would be with air handling units.

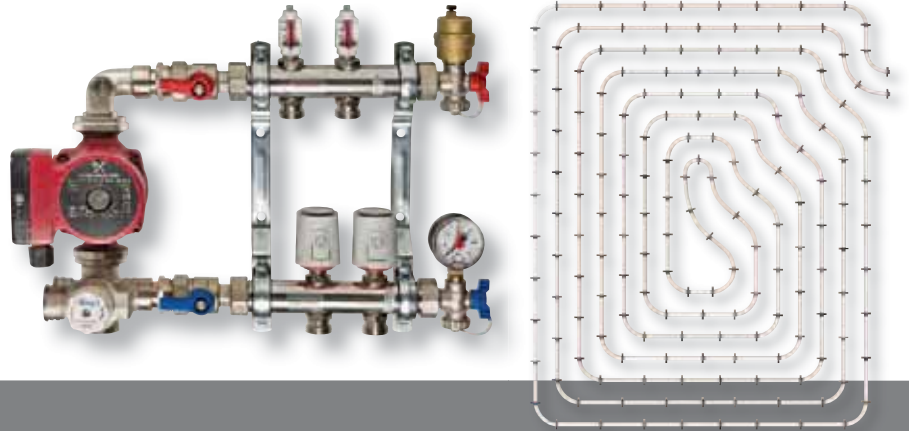
This differential could be increased still further if the plant operated a double shift or even triple shift pattern because the slow response times which characterise underfloor heating systems mean that they operate most efficiently when they are not cycling on and off.

With underfloor heating now a mainstream heating solution across all these sectors, the industry is increasingly turning its attention to the next generation of underfloor heating technologies.

The most obvious of these is underfloor cooling which is becoming increasingly popular among clients and consultants chasing low SAP and high BREEAM ratings for their buildings. There is a growing acceptance that the low-energy, low-maintenance principles that underpin underfloor heating can equally be applied to cooling. In schools, hospitals and buildings where large expanses of glazing are an issue, it has the potential to become the default alternative to air conditioning.

Whether commercial building owners, or discerning homeowners seeking a make-over investment for their home, there is an increased desire for a property that works both efficiently and as a comfortable living or work space. That is why underfloor heating is increasingly popular ... it ticks both boxes. ■

**MYSON
FLOORTEC
Underfloor
Heating Systems.**



MYSON FLOORTEC
underfloor heating
gives you **MORE.**

More solutions. More service.

As one of Europe's leading names in heating technology, **MYSON FLOORTEC** is at the forefront of the underfloor heating revolution. We offer an unrivalled and constantly improving selection of heating solutions backed up with an unbeatable level of service.

- 48 hour quotation turnaround.
- A complete design service, including integrated radiator schedule planning.
- A full range of quality components.
- Comprehensive technical support service.
- Delivery within 5 - 7 working days from receipt of order.
- It's a healthier, more comfortable form of heat.
- Unobtrusive, no hot spots.
- Maintains lower running costs.
- Heats your home from the floor upwards concentrating the warmth where you stand and sit.
- Underfloor heating creates a better quality of air reducing allergy problems.
- Individual temperature control for all rooms throughout the property.

Fill in the request form overleaf for your **FREE QUOTE**

For further information please contact **POTTERTON MYSON** Ireland on **01 459 0870** or email sales@potterton-myson.ie or visit www.myson.co.uk



heatingthroughinnovation.

Engineered heating solutions

Unitherm Heating Systems is one of Ireland's most innovative companies when it comes to designing and supplying quality heating and DHW solutions using renewable and high-efficiency technologies.

Initially involved in designing underfloor heating systems for residential and commercial projects, Unitherm soon realised the necessity to be able to offer integrated and total system solutions, including complete controls packages.

It is now renowned for supplying high-quality products from European manufacturers who have achieved the highest standards and approvals such as Fränkische, Oventrop GmbH, KaMo Systemtechnik, Kingspan Thermomax, Daikin, Alpha Boilers and Worcester Bosch.

Indeed, Fränkische multilayer pipe is the only NSAI Agrément approved pipe on the market. It also has WRAS Approval (Water Regulations Advisory Scheme) which is essential for potable water systems.

Unitherm also represents the world-renowned Sira Group, and is now one of the leading suppliers of low-temperature aluminium radiators in the Irish market. Pre-insulated steel pipes, and PEX pipes, from Isoplus complete the line-up.

The Unitherm underfloor heating system is based upon German technology and experiences over the last 35 years. The system components are exported worldwide and have achieved an enviable list of over 100 approvals and

accreditations in most European countries.

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

Unitherm Heating Systems initially majored in domestic installations but is now very much involved in designing and supplying commercial projects.

Some of the recently-completed projects in Ireland include the new Apple Inc offices in Cork; Kenmare Residential Healthcare Community Hospital; Cappagh Community Centre; Athlone Institute of Technology (multi sports facility); Aston Secondary School; NUIG (Arts Millenium Building); University of Limerick (Resource Centre Building); Wexford General Hospital, Farnogue ; AIBP Cahir; and St Anthony's Nursing Home, Pallasgreen.

Unitherm also offers a range of innovative high-efficiency renewable heat source solutions, such as geothermal heat pumps from 6kW up to 26kW; Daikin air-to-water heat

pumps ranging in outputs from 4kW up to 16kW; Thermomax solar collector panels; Evacuated solar tubes; and Alpha condensing gas boilers ranging from 12kW up to 115kW in both natural gas and LPG.

In conjunction with partners Daikin, Unitherm has a number of live air-to-water heatpump systems completely monitored and metered, and the resulting data is logged to demonstrate system efficiencies.

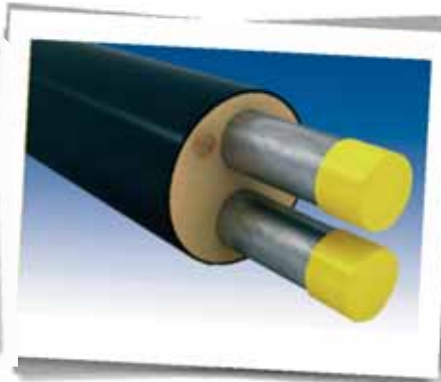
A great deal of emphasis is placed on training for heating installers and electricians to ensure air-to-water heat pumps are properly integrated into the rest of the system.

Unitherm also provides a range of WRAS-approved stainless steel single coil, dual coil and triple coil cylinders from 200lts to 500lts, as well as a range of Ecocombi multi-energy tanks with capacities from 600lts to 2000lts, complete with 316L stainless steel coils. These tanks can combine heat pumps, solar panels and solid fuel stoves or oil/gas boilers.

Unitherm has also designed and supplied a number of district heating projects including heating stations, heat meters, data loggers, pre-insulated pipes, as well as underfloor heating and controls.

With offices in Dublin and Galway, Unitherm Heating Systems has a team of fully-trained engineers with many years experience designing heating systems. At its premises in Galway, Unitherm has an SEAI-approved training facility with many fully-working models of renewable energy sources installed. The training courses cover every facet of the renewable sector and are run on a continuous basis throughout the year.

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



With Part L Regulations now requiring energy performance to be approximately 60% better than that of the 2005 standards, Dimplex offers a one-stop solution to ensure compliance.

Part L compliance is easy with Dimplex!

Until now, developers and self-builders when meeting these regulations have very often opted for the simple solution – install a gas or oil boiler with solar panels on the roof. However, since the new Part L Regulations 2011 have come into force, this simple option is no longer sufficient.

Consequently, Dimplex has devised a whole package of products providing the lowest-cost solution to meeting Part L. From air and ground source heat pumps, solar thermal, solid fuel stoves and space saving solar PV, Dimplex offers a complete Part L solution. It is suitable for all house types and is said to provide domestic hot water and space heating at up to 60% less than the running cost of an oil or LPG boiler.

A key element of the Part L solution package is the new Dimplex high-temperature heat

pump. This delivers annual savings of up to 60% and is suitable for new build and retrofit projects. Features and benefits include:

- High flow temperatures up to 65°C;
- Save up to 60% annually versus oil or LPG;
- Easy retrofit to existing systems;
- Suitable for use with radiators or underfloor heating;
- COP performance of up to 4.7;

Dimplex has devised a whole package of products providing the lowest-cost solution to meeting Part L



The new Dimplex high-temperature heat pump

- Seasonal performance factors of up to 3.9;
- Maintains output at temperatures as low as -15°C;
- Easy-to-use controller with up to four heating zones;
- Fully weather compensated;
- Designed and manufactured in Ireland.

Proven application

A proven application of the new Part L solution package is Cherangani, an exclusive development of six detached homes, ranging in size from 130m sq to 160m sq and boasting an impressive A2 BER rating.

The developer looked at natural gas and other alternatives to meet Part L while achieving an "A" rating and concluded there was only one option, the Dimplex solution. He therefore approached Dimpco who designed and supplied all the necessary equipment – six Dimplex 6kW air source heat pumps, SmartRads, and a small array (750Wp) of solar PV.

The result is not only Part L compliance and an A2 rating, but also the running cost savings the homeowners will make, and the comfort levels they will enjoy, over the coming years.

Contact: Jason Smith, Dimpco.
Tel: 086 – 822 8372; email: jsmith@dimpco.ie;
or David McConnell, Dimpco. Tel: 086- 385 2108; email: dmccconnell@dimpco.ie ■



The Dimplex solution at Cherangani resulted in Part L compliance, and an A2 BER rating

Myson's Floortec has UFH installers at heart

At the forefront of the underfloor heating revolution, Myson Floortec brings added value to all types of wet central heating systems, including oil, gas or solid fuels and conventional, combination or condensing boilers.

It is also ideal for mixed systems with, for example, underfloor heating on the ground floor and radiators on the first floor. Due to its lower flow temperatures, underfloor heating works especially well with condensing boilers and renewable heat sources such as heat pumps, taking full advantage of the high efficiencies available.

Underfloor heating can be fitted under screed, floating or timber joist floors, and whether the client's preference is for fitted carpets, vinyls, wood block, ceramic or stone floors, it will provide a warm and comfortable surface underfoot. The choice of floor covering will, of course, affect the output of the underfloor circuit and this should be taken into account at the design stage.

To work effectively, underfloor heating requires water temperatures of between 35°C and 55°C. These are easily obtained by blending flow water and return water from the underfloor by means of the thermostatic mixing facility.

Myson Floortec underfloor heating offers a solution for all types of screeded and concrete floor constructions, with few constraints.

A floating floor underfloor heating system has been developed to meet the increasing demand for this type of structure. With a low thermal mass, floating floor systems have a swift response time to changes in temperature.

Output

Myson recommends that ample provision is provided for pipe expansion in all systems where the heating pipe is not buried in screed or concrete. This may be accommodated by regular changes of pipe direction.

When considering the output for a mean water temperature and pipe centre

combination, the floor finish must also be taken into account – floor finishes with greater thermal resistance reduce the output from the underfloor heating. Ceramic finishes have the least thermal resistance, carpets the greatest.

Myson Floortec offers an exclusive fixing system for underfloor heating, which makes installation easier and more reliable. The Tackernail and Tackertool have been designed with the installer in mind, making the fixing stronger, easier and faster. The Tackernails have more barbs than conventional nails, ensuring a three-dimensional grip for firmer fixing, and come in a range of lengths: 38mm, 42mm and 58mm. Also, they are made from quality plastic, and due to their design there is no more clogging from tape.

Alongside Tackernail, Myson Floortec has developed the bespoke Tackertool, a universal fitting device which works with all size ranges.

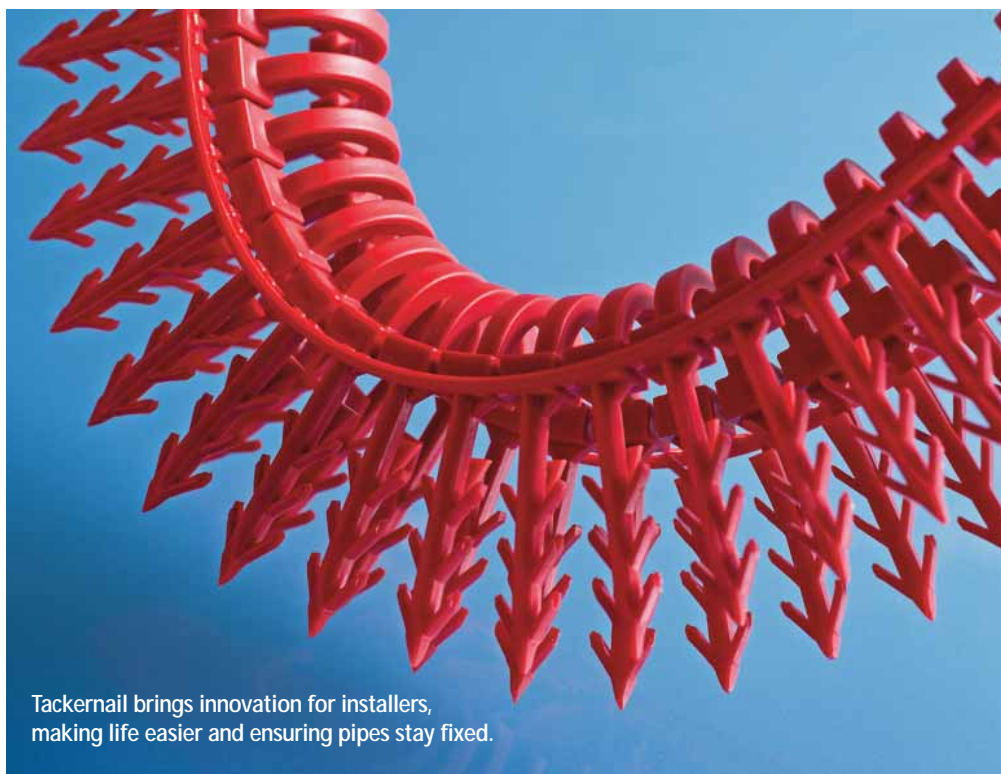
Vincent Broderick of Potterton Myson Ireland, says: "Tackernail brings innovation for installers, making life easier and ensuring pipes stay fixed. In addition to our 'Complete System Guarantee', this is another way of putting installers first as we take our products and customer service forward."

Contact: Potterton Myson Ireland.

Tel: 01 – 459 0870;

email:sales@potterton-myson.ie;

www.potterton-myson.ie ■



Tackernail brings innovation for installers, making life easier and ensuring pipes stay fixed.

SPECIAL REPORT

BIOMASS – SOLID FUEL FOR A SUSTAINABLE FUTURE

Keith Mellon is a HVAC Engineer with Jacobs Engineering in Kildare. He is an experienced building services design engineer with eight years experience in the design of HVAC systems across a range of projects including commercial, education, healthcare, leisure,

industrial, pharmaceutical and semi-conductor projects. Keith's expertise includes passive building design, energy management systems and renewable energy

technologies. He holds an MSc in Energy Management and a BEng in Building Services Engineering from DIT. He is a member of the CIBSE Ireland Committee and representative for the committee on the CITA BIM Group.



The proliferation of biomass as a source of energy has come about as a direct result of national and international renewable energy policy, alongside the need to meet carbon emission reduction targets specified in the Kyoto Protocol. For many years biomass, and specifically wood fuel, was seen as a domestic fuel source used in open fires. However, the emergence of renewable energy grant funding, a clear market for the supply of biomass energy and the growth of the green movement, led to increased development in biomass boiler technology, as well as biomass fuel production systems.

Various government policy documents from 'Sustainable Development – A Strategy for Ireland' in 1997 to the Government's White Paper on energy 'Delivering a Sustainable Energy Future for Ireland' in 2007, sought to create a framework for the proliferation of sustainable energy technologies which would achieve the goals of tackling future fuel shortages, reducing CO₂ emissions while also introducing competition into the energy market.

At the simplest level of cent/kWh, biomass fuel is cheaper than all other commercial fuel sources with the exception of natural gas. We could draw the conclusion that biomass was seen as a solution to those customers who were not on the natural gas network and had to make do with the relative expense of LPG or oil, which is as expensive as LPG but with the added factor of poor carbon emissions (SEAI, 2013).

There are still vast areas of the country which are not connected to the natural gas network at present, and this is only likely to continue considering the lack of economic growth within rural towns. Natural gas has tended to follow large suburban areas and does



Figure 1 – National gas pipeline map (Bord Gais Networks, 2013)

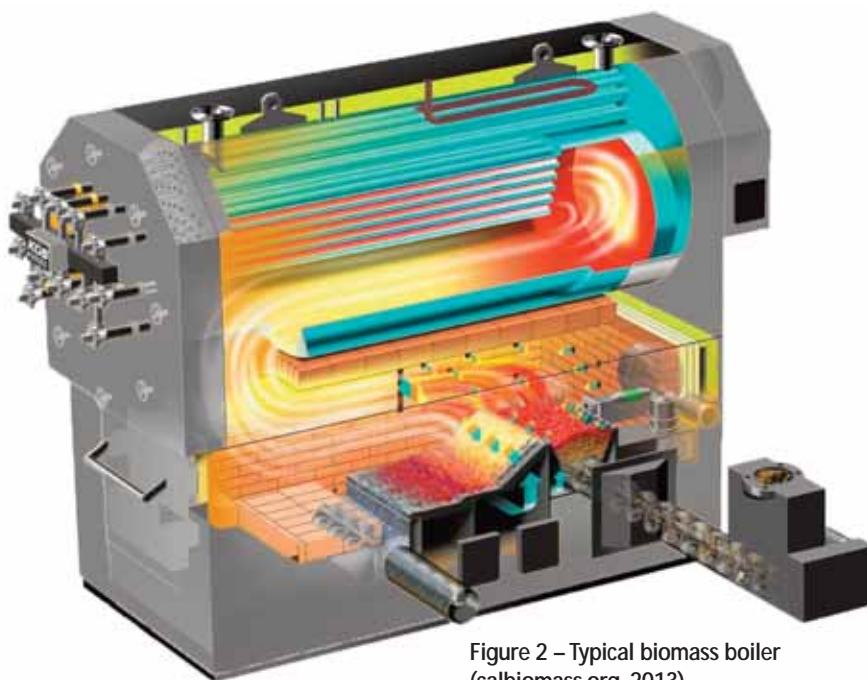


Figure 2 – Typical biomass boiler (calbiomass.org, 2013)

not lend itself to rural communities which are not as densely populated as city suburbs.

Engineers and clients alike have come to find that there is considerable learning in coming to understand the nuances of biomass boilers and fuel handling systems. It is not as straightforward as natural gas, LPG or indeed oil fired boilers which can be fitted with a modulating burner to control the flame and heat output.

Biomass boilers engage a fuel feed system in combination with a series of fans to provide combustion air supply and flue gas exhaust to ensure that the boiler operates safely. It is important to understand the biomass “system” concept as there is a high risk associated with the use of high-temperature gases when burning solid fuel that can result in catastrophic damage to plant and equipment. It can also pose a risk to personnel working in proximity with biomass plant.

Due to the nature of combustion, the output of the boiler is controlled by carefully modulating the combustion air supply fans to slow the burn rate and/or modulate the fuel feed rate.

Once a fundamental understanding of the principles of solid fuel burning is obtained, engineers, clients and operators can better understand the applications for biomass boilers. Since biomass boilers cannot modulate as effectively as gas and oil boilers, it is considered best practice to use them to serve a base load within a heating system, to ensure that they operate

at almost full output over the course of a day to maximise their energy efficiency.

A detailed analysis of the building heating load should be carried out by the engineer to identify the optimum heating load in order to size the biomass boiler.

Typical practice of assessing boiler capacity as a function of the peak steady state heating load does not apply to biomass boilers and the engineer must carry out a dynamic simulation analysis of the building to define the heating load profile for the building, and also the base heating load, which is used to size the biomass boiler. This will ensure the boiler operates at its peak efficiency throughout the day with reaction to heating load fluctuations being dampened by application of a thermal store or accumulator tank to the primary heating circuit.

The addition of a thermal store or accumulator tank, sized in conjunction with the biomass boiler, will serve as a sink for the heat produced by the boiler during periods when the building load drops below the optimum heating output of the boiler. This heat can then be drawn upon by the building heating system when the load increases, or indeed during hours when the boiler is not operating.

The system water is heated to 80°C/85°C via a coil within the accumulator tank with circulating water from the heating system drawn from the accumulator. Best practice is to have the control set point on the accumulator on the mid-level thermostat for even heat distribution. High level and low level monitoring thermostats are typically included to observe the transfer of heat through the tank.

The boiler is usually provided with integral protection to ensure low-temperature return water does not pass through the heating tubes. Typically, boiler return water should not drop below 65°C/70°C. This is another of the factors which resulted in biomass boilers being de-coupled from heating systems where variable circuit conditions result in lower water temperatures than the typical 82°C/71°C or 60°C/40°C are common.

More modern biomass boilers have been designed to overcome this operational difficulty by fitting automatic heaters which are separate from the heating chamber that increase boiler return water temperature prior to entering the heating tubes.

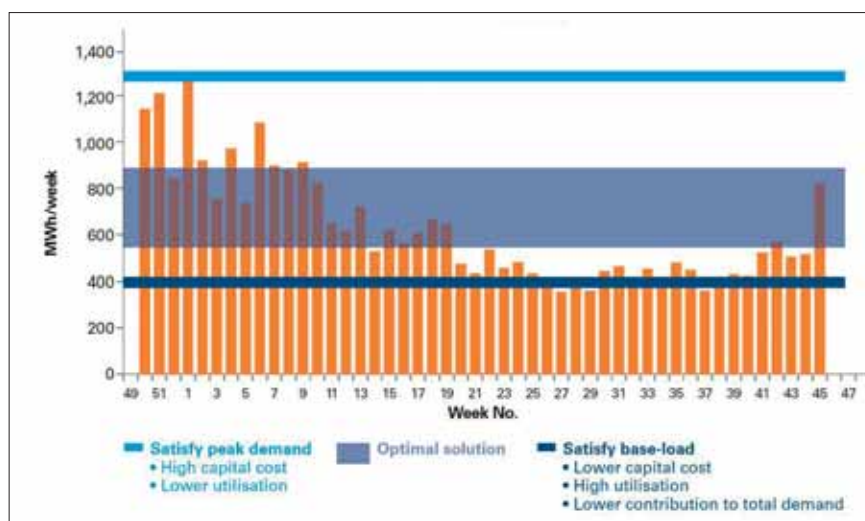


Figure 3 – Typical weekly demand of a childcare facility (Growsave, 2013)

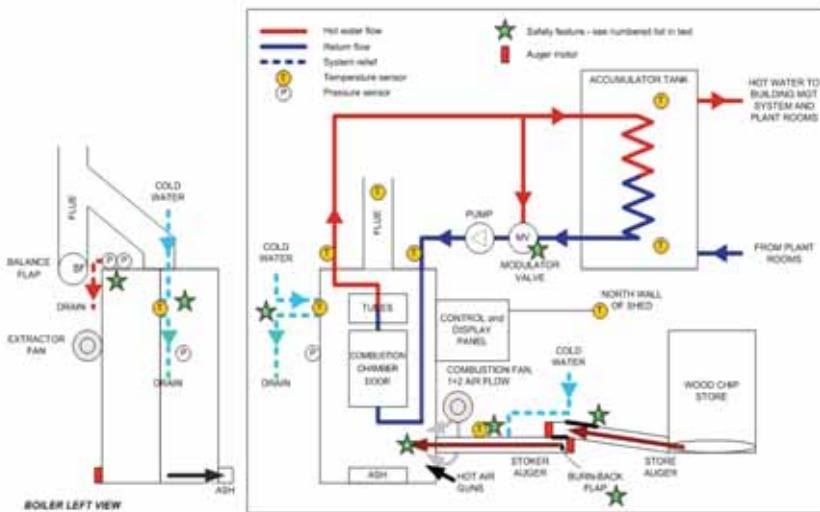


Figure 4 – Typical biomass heating plant arrangement (Bryden, 2013)

The de-coupling of biomass boilers from heating systems and the development of even more robust protection systems for the boiler means that they can be easily applied to low-temperature heating systems such as underfloor heating, domestic hot water and also lower temperature circuits operating at 60°C flow/40°C return.

It has become commonplace to back up biomass boilers with 100% redundancy in addition to smaller peak-load boilers that can quickly respond to fluctuations in demand. Depending on the size of the heating load, these boilers could be wall-

hung cascade type or floor-standing boilers, both of which will be looked at in further detail later in the heating plant systems series.

Biomass boilers and their ancillary systems can be expensive in contrast with conventional gas, LPG or oil fired boilers. As a consequence, investment appraisals comparing biomass fuel against natural gas are unlikely to offer any payback as natural gas is cheaper than wood biomass.

However, it is likely that the price of natural gas will increase in the coming years as a result of global resources being depleted. It remains to be seen if biomass fuel suppliers lower the cost of fuel if demand continues to increase. It is unlikely costs will increase as biomass, though it is a substitute fuel, is not a derivative of the oil production process and does not track the price of oil or gas. Moreover, the rapid growth of the industry has led to widespread development of the technology, from industrial right down to domestic applications, with consequent advancements in performance and efficiencies.

The need for a constant base load over a considerable period of the day means that some applications – such as primary and post-primary schools – are unlikely to be cost-effective investments. That said, there will be exceptions, such as the Monaghan Education Campus featured in *Building Services News* May/June 2013.

In the main though hospitals, primary

care facilities, gymnasiums and district heating schemes for mixed development sites remain the most suitable applications for biomass boilers. That is because they provide the right combination of base heating, domestic hot water and long demand during the day to ensure that sufficient heat is produced by the boiler to give a reasonable return on the investment.

These comparisons are based on the availability of natural gas which is significantly cheaper than biomass fuel. Where natural gas is not available, biomass is a viable alternative to LPG or oil with the caveat that there will be higher capital costs but lower operating costs, which will result in a return on the initial investment.

The continued growth of the biomass industry will depend on the extent of fuel supply available from sources such as forestry and farmland, and the natural evolution of some of the less well-developed commercial fuels such as wood waste, forest residues, energy crops, miscanthus and liquid bio fuels. Wood chip and wood pellets will remain the primary fuel choice for biomass.

No doubt the larger fuel suppliers will, in the coming decades, establish price competitiveness with natural gas as fossil fuel reserves diminish but it will require significant input from landowners and the farming community in order to maintain sufficient quantities of supply to meet demand. ■

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Figure 5 – Typical domestic biomass boiler with fuel store (wreep.homestead.com, 2013)

Panasonic ECO G High Power unit

Panasonic's new ECO G High Power is a 2-pipe gas-driven VRF system with an electrical power generator, offering industry-leading energy saving – consuming only 10% of the electricity required by standard GHP and 1% of electric VRF systems.

Features and benefits

- 2-pipe air conditioning system for heating and cooling;
- Can generate up to 2kW of electricity (used for outdoor unit consumption only);
- High efficiency ratio;
- Very low electrical consumption (100W at 220V AC);
- Compatible with all Panasonic VRF indoor units and remote controls;
- Free sanitary hot water is produced (in cooling-mode and heating-mode up to 7°C outdoor temperature);
- Can connect to up to 24 indoor units;
- IU/OU capacity ratio 50-200%;
- 15Kw to 30Kw sanitary hot water generation capacity.

Fitted with a permanent-magnet, non-bearing type generator, Panasonic ECO G High Power is said to be the first VRF system that can supply heating, cooling, hot water, and now also generate electricity (for its internal consumption). The 2Kw generator significantly reduces the outdoor unit's electricity consumption, while the ECO G gas VRF is specially designed for buildings where the electricity is restricted.

Panasonic's Vincent Mahony says: "With its advanced heat exchanger design, our new GHP system offers improved efficiency and reduced running costs which, coupled with improved engine management systems, have

greatly improved the system COP rating."

With free hot water supplied when ambient temperatures are greater than 7°C, Panasonic's ECO G High Power can provide greater all-round savings when heating and cooling. Also, its ability to generate electricity while heating or cooling positions it as a multi-functional, innovative and technically up-to-date product. Thanks to its GHP with electrical generator, it uses a mere 10% of the average electricity required from standard GHP and 1% of Electric VRF systems.

All models are equipped with a high-performance air exchanger and a newly-developed refrigerant heat exchanger for high-efficiency operation, making them some of the most energy-efficient solutions on the market.

Panasonic's GHP balances heating and cooling energy by efficiently using recovered heat from the engine cooling water back into the VRF circuit. The use of engine waste heat ensures that the gas heat pump air conditioner requires no defrost cycle. This allows continuous 100% heating performance in severe weather conditions with an outside air temperature as low as -20°C.

During cooling and heating mode (when the outside air temp is above 7°C), the rejected heat from the engine is available for use within a DHW

system and can supply up to 30Kw of hot water at 75°C.

Panasonic's GHP system is also available with a water chiller option. The GHP outdoor unit can be combined with a water heat exchanger (WHE) indoor unit, or with a WHE together with a direct expansion indoor unit (mixed system). The system can be operated via a BMS system or a Panasonic-supplied control panel, with chilled water set points from -15°C and heating set points from 35°C and up to 55°C.

When the unit is exposed to low ambient temperatures in heating mode, the outdoor fans switch off to subsequently save further running costs.

Contact: Vincent Mahony, Panasonic Ireland. Tel: 01 – 413 5311; Mobile: 087 – 969 4211; email: vincent.mahony@eu.panasonic.com

'With its advanced heat exchanger design, the new GHP system offers improved efficiency and reduced running costs, greatly improving the system COP rating'





'Moving to a new world of building systems performance'

Call for papers

Recognising that system and plant performance is a global issue, "Moving to a New World of Building Systems Performance" is the theme of the forthcoming joint CIBSE and ASHRAE technical symposium to be held in DIT Kevin St, Dublin on 3/4 April 2014.



Professor Tim Dwyer, Teaching Fellow,
The Bartlett School of Graduate Studies
University College London (UCL)

The symposium will give a platform to the latest practice and research from around the world in active and passive building systems that will shape an effective future for the built environment with minimum resource impact.

The principal aim of the symposium is to encourage the participation of young and experienced researchers, and industry practitioners, to share experiences and develop networks.

The organisers have now issued a call for papers for possible presentation at the symposium. The invitation is for papers concerning research and development that may address the following:

- Enhanced building engineering solutions through modelling and prediction;

- Innovation in passive and active building systems;
- Design and operation of future cities;
- Improving the operation of the built environment;
- Maintaining and improving legacy building systems;
- The development and impact of benchmarks, standards and regulatory measures;
- Communication, skills and workforce development.

This list is not exhaustive but provides the intended context of the symposium that will focus on aspects that are of interest to CIBSE and ASHRAE members. Material is welcomed based on recent or current research and application, as well as the actual or potential impact of that research on the built environment.

For the first time the symposium in Dublin offers additional opportunities for the presentation of relevant case studies supported by keynotes (as opposed to a formal paper).

All papers will be peer-reviewed and published electronically through CIBSE. Selected papers may be developed for publication in BSERT.

For details visit: www.cibse.org/symposium2014

Where to send abstracts

Please send abstracts by email to groups@cibse.org no later than 15 September 2013. They should include:

- the intended title of the submission;
- authors'/author's names/name and affiliation;
- specific email address of principal author;
- abstract of maximum 250 words in English, the official symposium language;
- note whether it is a proposed paper (to be orally or poster presented) OR a case study.

IPFMA NEWS



Contact: Fiona Barron, IPFMA Chief Executive. Tel: 01 – 644 5520.
Email: fbarron@ipfma.com
www.ipfma.com

IPFMA/DIT Higher Certificate in Property and Facility Management

The **IPFMA Higher** Certificate in Property and Facility Management, presented in conjunction with DIT, is entering its third successful year as new students start on 2 September next. A bursary providing students with the opportunity to have 50% of their fees paid for the duration of the programme was launched in July.

Applications are now being accepted for the September 2013 student intake. Further details and application forms are available on the IPFMA website: www.ipfma.com

IPFMA Members' Day 2013

The **second IPFMA** Members' Day was held in June in the K Club where members and guests enjoyed a round of golf and clay pigeon shooting, followed by an evening dinner and prize giving. Thirteen teams played in the golf competition with Wyse Managing Agents taking the top prize.

IPFMA thanks the sponsors Burlington Engineering, Ennis Lifts and SOS Cleaning Services, whose support is greatly valued.



Ben Gough of Wyse Managing Agents is pictured receiving the IPFMA Cup from IPFMA Chairman Vincent Hickey on behalf of his team mates Peter Wyse, Greg Kelly and Padraic McKenna.

Annual Conference 2013

Bookings are already well underway for the IPFMA Annual Conference 2013, which will take place at the Croke Park Conference Centre in Dublin on Thursday, 26 September. Based on feedback from previous years, the programme has been modified and will now commence at 10am and finish at 3.30pm.

It will feature a strong speaker line-up, including Finola McDonnell, Property Industry Ireland; Lorna Byrne of Towers Watson; Luke Reaper of Behaviour and Attitudes; and Nick Leeson, ex Barings Bank. As in previous years, there will be exhibitors promoting services to the sector.

IPFMA Skillnet Autumn Training Programme

IPFMA Skillnet continues to provide short-term programmes and in-house training designed to meet the specific needs and requirements of those working within the property management and facility management sector.

The training fees have been subsidised by IPFMA Skillnet funding. IPFMA Skillnet is funded by member companies and the Training Networks Programme, an initiative of Skillnets Ltd, funded from the National Training Fund through the Department of Education and Skills.

Contact: Jane Igoe, IPFMA Learning & Development Manager at jigoe@ipfma.com for details of the programme.

DIT CPD Strategic FM

The **IPFMA has** worked with a peer group to develop a short-term accredited programme in strategic FM. The programme will be delivered over 12 weeks (3-hour lectures) and has been designed to equip those wishing to progress their careers to an executive level and beyond.

The course will provide students with the key skills, tools and knowledge required at senior managerial level, with information and topics covered at an in-depth level.

Consumer Guides

The **IPFMA active** working committees have developed a suite of guides designed to easily access information to issues affecting property and facility managers on a day-to-day basis.

Topics covered include fire safety in apartment buildings; insolvency; Part M disability access; and noise regulations.

All publications are downloadable in PDF format at www.ipfma.com/publications.

Core AC offers data centre peace of mind

While devising appropriate and tailored solutions for indoor environments is essential no matter what the application, there is no denying how critical it is in respect of data centres and computer rooms. System failure and downtime simply cannot be tolerated in such instances as the consequences can be catastrophic from both a performance and cost point of view.

Consequently, it is perhaps the most complex area of building services and one which requires specialist attention based on experience, knowledge, technical know-how and product quality. Core Air Conditioning is one of the few companies operating in the field who match this exacting criteria.

Core has a long-standing reputation as one of the leading market players providing customised indoor environment control, and is especially renowned for delivering comprehensive turnkey packages for data centres and computer rooms.

It has a wealth of experience and technical expertise in the field, thanks to its own highly-qualified, in-house engineers, and its partnership with the global Emerson Group and, by extension, Liebert.

Whether it is a new build or retrofit situation, Core engages with the client, the consultant and contractor (as appropriate) from the earliest possible stage, and only proposes a solution when all the relevant parameters have been thoroughly discussed and clarified. Invariably they include free-cooling chillers, cold aisle containment, modulating in-row cooling units, high-efficiency UPS systems, etc

Key issues considered at the design stage are power, cooling, metering, monitoring, fire suppression, leak detection, etc. These are then analysed in relation to the specific needs of the client to help identify gaps in power and cooling infrastructure, reduce operating costs, improve IT system availability, and plan for additional IT capacity.

Core also offers a full range of professional

assessments, electrical testing and service management support, not just to prevent downtime, but to enhance data center performance while also containing energy-usage costs.

Indeed, underpinning the entire process is the system's power usage effectiveness (PUE). When designing the technical spec for the project, capital costs and day-to-day operating costs are considered in equal measure to system performance and reliability.

This emphasis is also carried through to ongoing maintenance procedures. Core's pro-active maintenance programmes can significantly extend the life of the power systems, decrease capital investment, optimise system efficiency and effectiveness, and increase overall system availability. This is done by way of a combination of the following:

- Preventive maintenance;
- Remote monitoring;
- Professional assessments;
- Upgrades;
- Efficiency of emergency response;
- Service management and support.

'What Core Air Conditioning provides most of all is client peace of mind'

Continuous on-site and in-house system monitoring prevents major system failures. Potential problems are invariably flagged quite early so they can be dealt with quickly and efficiently before they become a major issue. To that end Core offers 24-hour call-out, seven days a week, 365 days of the year. It also has its own dedicated engineers who liaise with, and respond to, the client's Facilities Manager directly.

Apart from optimised system performance, trouble-free operation and excellent energy usage, what Core Air Conditioning provides most of all is client peace of mind.

Contact: Steve Wood, Core Air Conditioning.
Tel: 01 – 409 8912; email: steve@coreac.com;
www.coreac.ie



Emerson Network Power offers a complete menu of service options for data centres to meet any specific need.



KING OF COOL

Camden council can afford to include two public swimming pools and a library in a prestigious new office block in King's Cross, in part because of predicted energy savings of £500,000. An innovative chiller was a key specification in the low-energy design.

This article appeared in a recent edition of the CIBSE Journal and is reproduced here thanks to the kind permission of the Editor.

The redevelopment of land around King's Cross station is an object lesson in urban regeneration. With a long way still to go, already the mix of high-quality offices, elegant squares and restored Victorian warehouses has turned a seedy industrial zone into an uplifting environment.

Part of the appeal is the diversity and quality of tenants being attracted to the site, from Google and Central Saint Martins College of Arts and Design, to the Art Fund.

One 2014 arrival will be the London Borough of Camden's 22,500 m² Five Pancras Square, designed by Bennetts Associates, with building services design

and sustainability strategy undertaken by Grontmij, on the King's Cross Central site. As well as 11 floors of offices for council workers, it will feature two swimming pools, a leisure centre, customer service area, café and public library.

There are two reasons why Camden can afford such a prestigious building: it is rationalising its property portfolio and selling valuable existing sites in central London; and it estimates the new building will cut its energy bill by £500,000 per year.

The new HQ will have a host of passive features including exposed thermal mass; optimisation of daylight factors across the occupied floor plate; solar shading, angled to

'The pump selection and staging has also been addressed to provide effective operation to reduce energy consumption and reduce the end-user's running costs'

help minimise direct solar gain; and the ability to benefit from night-purging to cool the building naturally.

These measures, in conjunction with an energy-efficient ventilation system and an innovative modular central cooling system, adaptive control methodologies and connection to the King's Cross Central low carbon district heating network, is predicted to result in carbon emissions 50% lower than the 2010 Building Regulation target.

High efficiency targets were set by the design team, and to achieve them, the focus was put on innovation. The main items identified were chillers and chilled water auxiliary equipment; air-handling units and exhaust fans; lighting control and luminaire selection; and power distribution, including metering and sub-section pre-wired and pre-tested off-site.

The *CIBSE Journal* will publish a full case study on Five Pancras Square on completion, but this article focuses on the chiller, which M&E contractor Kier IME says is key to the building achieving – and exceeding – design performance targets. The Part-L compliance dynamic thermal model set a seasonal energy efficiency ratio (SEER) target of 4.9 on a total building cooling load of 2.2MW, divided over two air-cooled chiller units.

All the central plant was targeted for improvement against the energy model, with consideration given to the spatial constraints and co-ordination of a city-centre building. A chiller system from Hitachi features in the scheme. The 14 RCME modules selected each have a maximum cooling capacity of 165kW and the high-efficiency screw chiller was shown to achieve a SEER of 5.31.

The screw compressor operates on refrigerant R134A, which is associated with high part load efficiency and reliability, and offers a three-year warranty. The RCME range achieves compressor efficiencies similar to more expensive and complex units.

Twin plate heat exchangers on each

module are designed in series for greater efficiency, which in turn ensures the refrigerant velocity increases, plus constant distribution of the refrigerant flow across the exchange surface.

The chillers are built from three basic modules with ratings of 40HP, 50HP and 60HP. By combining them, higher capacity units can be achieved up to 1,280kW, with one module set as master and the rest as slaves. All operate together as a single system.

The project team looked at mixing the chiller modules and variability of the capacities to suit the minimum/nominal/maximum load, and finally settled on 14 x 60HP, which delivered the optimum efficiency against the spatial constraints.

If space was not a factor, then a greater number of units with a smaller output would deliver higher efficiencies, as they could be more closely controlled to match the load.

Each chiller for the King's Cross Kier project will be supplied with a power meter assembled at the factory. This will display total power and power per phase, frequency, power factor total, voltage both phase-to-phase and phase-to-neutral, three phases and neutral current, with an hourly counter and time-integrated outputs.

Efforts have been made to stage the chiller units down to minimal load as low as 32kW. Pump selection and staging has also been addressed to reduce energy consumption and cut the end-user's running costs. The main pump sets run from 100% (2.2 MW) to a minimum (220kW) and the secondary pump covers the range from 15% (330kW) to 1.5% (33kW).

Kier says its specification of innovative systems, including the chiller, means the envisaged post-construction BREEAM score is actually expected to be higher than the designstage score of 93.05%. The team is working towards a revised target of 96%, which would make it the most sustainable building in the UK, as assessed by the BREEAM rating process.

The building is expected to open for business in 2014, and will be closely monitored in terms of energy and water use. The effective operation of the chiller will be key to Camden achieving its expected energy savings, and crucial in ensuring taxpayers don't contribute towards the project's costs.



RACGS GOLF REPORT

THREE IN A ROW RYDER CUPS FOR RACGS

This year marked the fifth Ryder Cup meeting between RACGS v NRGs from the UK. Carton House was the venue on this occasion with the O'Meara Course – which was in fantastic condition – presenting the challenge.

This was always going to be a tense match following on from the away victory by the RACGS in the UK last year. NRGs were in determined mood and came quick out of the blocks in their effort to regain the cup but, despite that – and thanks to some local knowledge – RACGS emerged victorious, 9¹/₂ to 4¹/₂.

Both teams celebrated a wonderful event late into the night in Carton. The NRGs team was presented with a unique gift to mark the Irish victory and the occasion. The day was sponsored by LG and DWG, IRI, Carel and *Building Services News*. ■



Above: The spectacular setting of the O'Meara Course at Carton House with its classic parkland layout.

Left: This cute fox cub was only there for the refreshments ... and to steal some golf balls!



The two team captains – Stephen Mulvaney (RACGS) and Phil Ray (NRGS).



Despite the fierce on-course rivalry, the competition is all about friendship and presents an excuse for like-minded industry professionals to socialise and have some fun.



Mark Kiely, RACGS pictured with Mark Liptrot and Alan Little, NRGs and Ger Darcy, RACGS.

RACGS Captain's Day

Stephen Mulvaney's Captain's Day was held in the Heritage Golf Club in Killanard with Carel Ireland sponsoring the outing. The day was a great success with a very good turn out and high scoring by everyone who played.

Overall winner was Brendan Sharkey, who won on a count back from Liam Hoctor on the Back 9. Other winners were:

Winner Class 1: Liam Hoctor

Runner up: Ger Darcy

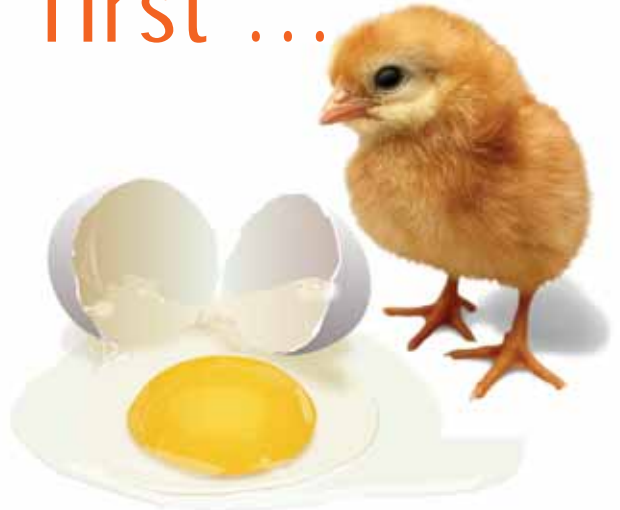
Winner Class 2: Roland Bradley

Runner up: Jack Elstead

No prizes for guessing what some participants thought of the sponsor!



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FISH & TRIPS

another side of ...



Eamon McGrattan

Given the **challenging** nature of today's building services industry, and especially the contracting sector, it pays to have an interest or hobby that can give you some respite from the daily grind. Golf is perhaps the most common distraction though most golfers seem to find it an added pressure rather than relaxing.

Hence Eamon McGrattan has turned to the high seas. He has always loved messing about on boats and developed an interest in fishing so he could get out on the water. Not surprisingly, he inherited some of this from his late father, Eamon Shr, who was a very keen boating enthusiast.

However, keeping a boat of any significant size these days can be expensive and so Eamon decided to turn his hobby into a business, thereby giving him the best of both worlds. He devised the business plan as part of his MBA studies in DCU and so had fully researched the concept before starting out last year. He even went so far as to sell his existing boat and get a new one designed and built to meet the needs of the business.

Eamon has also completed all the necessary navigation, sea safety, and

health and safety-related courses, and is fully licenced to offer charters for groups of up to 12 people at a time. Rods, reels, feathers etc are also provided. There is even a BBQ that can be fired up to cook freshly-caught fish.

While Malahide Charter Boat is the formal company name that operates the business, Fish & Trips – the name emblazoned across the side of the 36ft by 12ft boat – aptly captures the essence of the service provided.

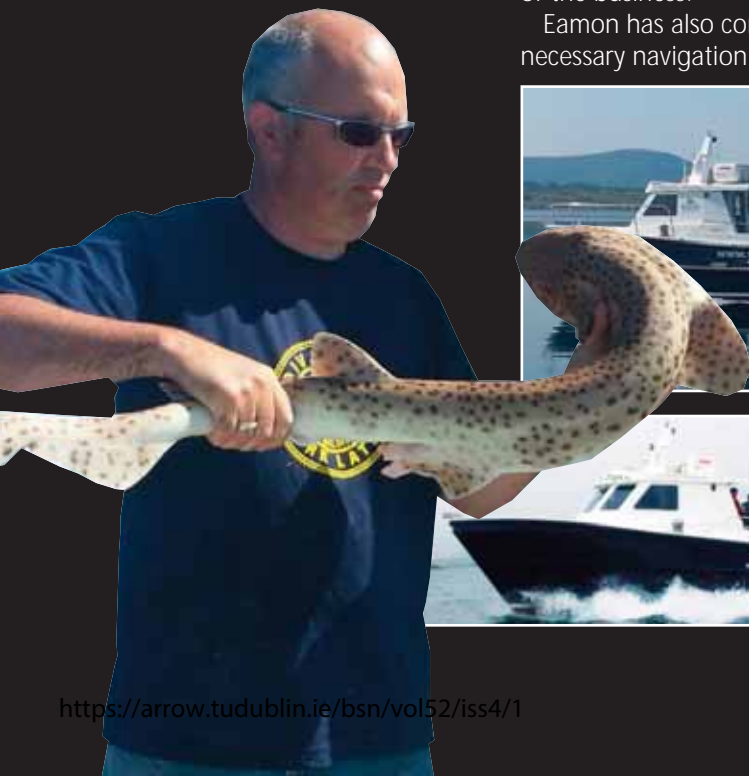
Fish & Trips provides three different packages:

- Sightseeing and marine wildlife tours around Lambay Island;
- Mackerel fishing trips to one of the islands off Dublin;
- Sea angling for the more experienced/serious angler.

A mixture of all three, or a combination of any two, can also be provided.

Sound like fun? Why not give Eamon a call at 086 – 467 4411 or email him at infor@fishandtrips.ie.

See also www.facebook.com/FishAndTrips.ie ■



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- All IVX Standard and Premium models are ErP compliant, exceeding the 2014 ErP Lot 10 standards



* restrictions apply



VRF without the price tag, Premium efficiency as standard

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