DIARY DATES

Exhibitions

Over the next few months you can visit the Worcester stand at any one of the following exhibitions, where a selection of our latest 'A' rated gas and oil-fired boilers and renewable technologies will be on display.

For further information visit **www.worcester-bosch.co.uk** and click on the events page.

April 2010

Hip Ex – Newbury Racecourse
21/04/2010 – 22/04/2010

PHEX – Wembley, London
28/04/2010 – 29/04/2010

May 2010

All Energy – Aberdeen Exhibition Centre
19/05/2010 – 20/05/2010

Greenbuild – Manchester Central
26/05/2010 – 27/05/2010

June 2010

Royal Cornwall Show
Royal Cornwall Showground, Wadebridge
10/06/2010 – 12/06/2010

CIH – Harrogate
22/06/2010 – 24/06/2010

The Southern Homebuilding & Renovating Show
Sandown Park, Surrey
26/06/2010 – 27/06/2010

July 2010

The Great Yorkshire Show
Great Yorkshire Showground, Harrogate
13/07/2010 – 15/07/2010

Royal Welsh Show – Royal Welsh Showground, Builth Wells
19/07/2010 – 22/07/2010

Penrith County Show – The Showground, Penrith
24/07/2010

New Forest County Show – The Showground, Brockenhurst
27/07/2010 – 29/07/2010

Keep up-to-date with the daily goings on at Worcester, Bosch Group by following us on Twitter and Facebook

twitter

Twitter.com/heatingyourhome

facebook

Facebook.com and search for Worcester-Bosch-Group

APRIL 2010

THE INSTALLER'S CHOICE

Worcester's new time and money saving accessories

40th Anniversary of the Combi boiler – part 3

Get the latest news and views on this years Ecobuild

WORCESTER
Bosch Group

CONTENTS

Welcome from Carl Arntzen

Welcome to the April 2010 edition of Installer's Choice. Spring is finally here, and as the weather gets warmer and we come out of the heating season, there's still lots for us to tell you about.

For our Welsh customers, we have the latest on the Boiler Scrappage Scheme for Wales in our news pages as well as covering some new developments at the Worcester factory and on our website. You can also read the news and views from this years Ecobuild exhibition.

We've also got the third part of our story on 'the rise of the combi boiler' from Martyn Bridges, director of marketing and technical support. And we bid a fond farewell to Vic Turner, who is retiring after 22 years of loyal service at Worcester.

On page eight we welcome the editor of Housing Association Magazine, Bruce Meechan, as a guest contributor.

We hope you enjoy the magazine.

Carl Arntzen
Director
Bosch Thermotechnology Ltd

Wales gets its own **scrappage scheme**

The Welsh Assembly have announced a new Boiler Scrappage Scheme for Wales that will be targeted specifically at the over 60s who are likely to be more vulnerable to fuel poverty.

In her statement to Assembly Members, Environment Minister, Jane Davidson, said:

"We have allocated £2.5 million to the boiler scrappage scheme for 2010/11 and expect up to 5,000 Welsh households to benefit from a significant improvement in the energy performance of their heating systems as a result.

"We are also investing an additional £1.4 million to tackle fuel poverty through our Home Energy Efficiency Scheme during the next financial year. To date the Home Energy Efficiency Scheme has assisted over 100,000 households across Wales with heating and insulation measures as a result of a £100 million investment in the programme.

"This additional funding underlines the Assembly Government's ongoing commitment to tackling fuel poverty and reducing greenhouse gas emissions in Wales."

Replacing a G-rated boiler with an A-rated boiler could save households up to £235 per year in energy costs, as well as significantly reduce greenhouse gas emissions.

The Welsh boiler scrappage scheme is open to over 60s across Wales who have an inefficient (G rated) boiler. Eligible applicants will receive a £500 voucher towards the costs of replacing their old boiler.

The scheme will open for applications on 1 April 2010. No waiting list will be operated in advance of that date.

Zero Carbon Homes will be law in 2016

Both Worcester, Bosch Group and The Construction Products Association (CPA) have welcomed the announcement by Housing Minister John Healey MP that all new homes must be zero carbon as a matter of law from 2016.

Over the past year the CPA has been heavily involved with the Zero Carbon Hub which has been working to develop a workable definition of zero carbon for new homes.

John Tebbit, industry affairs director at the Construction Products Association said: "A typical home built to today's standards emits about 2 tonnes of CO_2 from regulated uses such as heating, hot water and fixed lighting and about another 1.5 tonnes from unregulated uses such as electricity for cookers, TVs and other appliances. A zero carbon home will have to take all of that down to zero.

"This is done in three stages. The first stage is to set a very high standard for the energy efficiency of the walls, roof and floor. The next stage is known as 'carbon compliance' and it covers all the heating, hot water and lighting. It includes onsite renewable energy such as solar thermal or photovoltaic.

"The final stage is 'allowable solutions' which covers a number of options although none have been confirmed as yet."

The Association believes that much confusion has been caused by the term 'zero carbon' and that 'no new carbon' would be a clearer and more accurate term.

Worcester starts **Lean Line production**

Worcester, Bosch Group has introduced a new Lean Line method of manufacturing at its main factory site in Worcester.

Lean Line production is a Japanese method of manufacturing. It focuses on eliminating waste whilst ensuring quality and value for the customer. The traditional production process is streamlined with areas such as unnecessary transportation, inventory and excess space being removed. With planning, purchasing and manufacturing efforts all minimised Lean Line provides a continual flow of production and maximises overall output.

The Bosch Group began the last decade with a pilot line and now uses Lean Line across a number of its European production plants, including Worcester's factory.

Worcester's director of marketing and technical support, Martyn Bridges, said: "Lean Line manufacturing is known worldwide for improving quality and reducing defects by building just one unit at a time, instead of using the ordinary batch production method. With the improved efficiency provided by Lean Line production, we can react to changes in the market quicker than competitors using conventional assembly methods."

The U-shaped Lean Lines use what is known as a manual vertical build method, with adjustable fixtures to maximise productivity. With material being fed from outside, Lean Lines occupy just 35% of space needed for a traditional assembly line. Overall equipment effectiveness is increased by up to 40% and staff can achieve an impressive cycle time of 6 minutes, allowing Worcester to operate a 24 hour lead time from receiving orders to dispatching the products.

New look for Worcester's **energy homes website**

Worcester has announced the re-launch of its interactive Energy Homes website. This fresh, consumer friendly website is replacing the old Energy House site and provides easy to digest information on the products available and the savings that homeowners can achieve on their fuel bills.

With a series of interactive case studies ranging from a small apartment to larger detached properties, consumers are able to explore which products could work for them, based on the size of their family home.

The product and lifestyle information is jargon free and the monetary savings are explained in simple terms by the homeowners themselves. Some case studies even detail how many free baths and showers have been provided by solar panel systems and the subsequent reduction in CO_2 emissions. Clear price guides and product installation videos demonstrate the variety of energy saving systems available and the impact they have on the environment.

Taking a virtual tour around Worcester's own Energy Home brings the products to life; from eco paint to rainwater harvesting, visitors can move around the house choosing the products that interest them. A-rated appliances are explained and with a choice of written information or a video guide, even the more complex systems such as ground source heat pumps are easy to understand.

The new website features the winners of the Environment 2020 Children's Art Competition as well as details on how to enter. To explore the interactive case studies or take a virtual tour of an energy home, visit the new look website at **www.worcesterenergyhomes.co.uk .**

New air source heat pump customer videos online now

Worcester's new accessories will save you time and money

At Worcester, we're always looking for ways to help you save time and money by making the installation of our boilers quicker and easier, which is why we are introducing of a new range of accessories for our Greenstar gas-fired appliances.

We regularly hold installer focus groups so we can gain vital feedback about our products from those who are fitting them every day. This feedback helps us at all stages of our product development and refinement and every bit of information is taken in to account, alongside our own testing and research. For 2010, we are launching another three new accessories to help make installers lives a little bit easier.

The new accessories include:

Vertical Pre-piping Assembly Kits

We are already the only manufacturer whose designs enable pipework to be run behind the boiler as standard and we're taking this feature a step further with our Pre-piping Assembly Kits. The pre-bent pipes have swaged-ends for easy soldering and will save you approximately 30 minutes on installation time.

The kits contains:

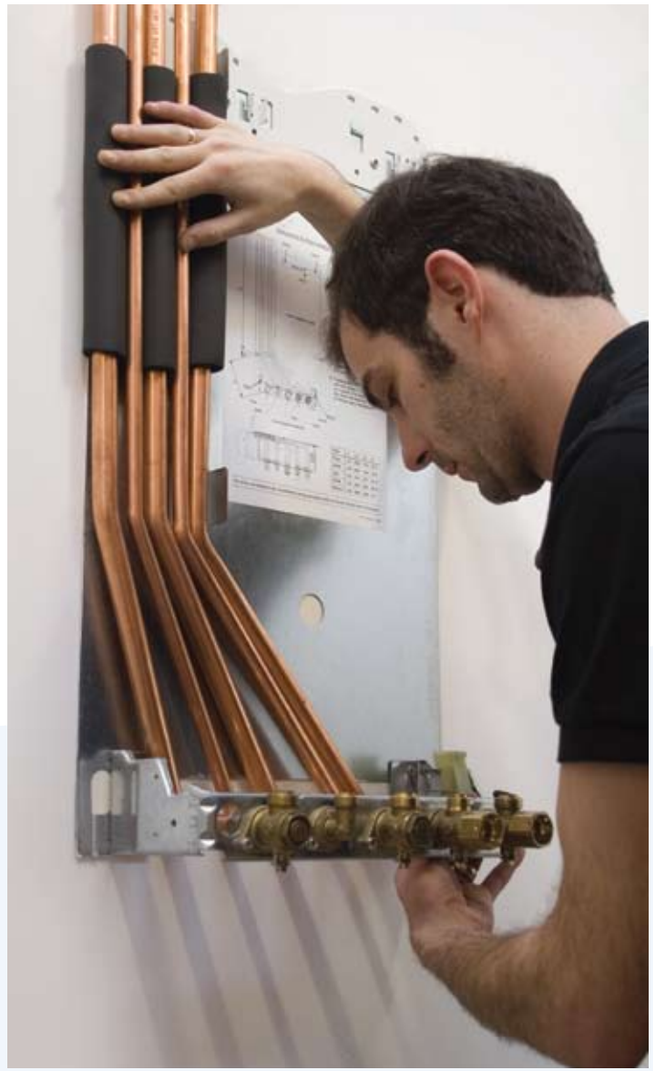
- 22mm CH flow pipe
- 22mm CH return pipe
- 15mm Mains water inlet pipe
- 15mm DHW outlet pipe
- 22mm Gas inlet pipe
- Earth bonding strip

Earth Bonding Strip

Available as part of the kits and also separately, this not only looks neater, but saves up to 20 minutes on installation compared with fitting unsightly separate earth bonding tags to each pipe. It can be used with all Greenstar wall mounted gas-fired boilers.

Below Boiler Pipe Cover

Suitable for use with all Greenstar wall-hung appliances, this is a neat and simple solution for hiding the pipes on installations where they run below the boiler. The cover is curved to match the profile of the boiler fascia and is manufactured from white satin finished plastic. It is 600mm high, 400mm wide and 65mm deep and can be cut to the required height.



Accessories	Part numbers
Greenstar i Junior/Si Pre-piping kit	7-716-192-570
Greenstar CDi Combi Pre-piping kit	7-716-192-607
Greenstar i System Pre-piping kit	7-716-192-650
Greenstar CDi System Pre-piping kit	7-716-192-651
Earth Bonding Strip	7-716-192-686
Below Boiler Pipe Cover	7-716-192-608

To find out more, please call 0844 892 3366 or visit our website at www.worcester-bosch.co.uk

Editor of HA Magazine, Bruce Meechan, looks at the implications of the new subsidy for micro-generation.

FEED-IN FRENZY

Having been present at Ecobuild for the full three days of what is now apparently the world's biggest event dedicated to sustainable building techniques, my strongest impressions were of the excellent attendance levels; and just how many photo-voltaics there were around the two halls of Earls Court.

PV panels are of course by no means new, and one of the companies importing a Chinese manufactured range was proud to tell me that the product was now available with a new deep black finish – in case people wanted to make an aesthetic as well as an environmental statement with their roofline. Options were numerous with in-roof, on-roof and tile format all being shown.

What most exhibitors proffering photo-voltaic technology wanted to talk about, however, was the Government's recently announced feed-in tariffs: the long awaited subsidy seeming to offer those adopting the technology a realistic pay-back period. PV, though, is only one aspect to the micro-generation picture, and I feel compelled to point out that feed-in tariffs remain just part of the continuing progress towards a low-carbon economy.

Speaking to a gathering of the trade press recently, Junior Energy Minister, David Kidney asserted: "Feed-In Tariffs will provide financial support for low carbon electricity technologies and incentivise the deployment of small-scale installations." He went on to state that "when the scheme is launched it will support new anaerobic digestion, hydro, wind, microCHP and, of course, solar PV installations."

The Minister also reflected: "Electricity generation is something that historically has been the domain of large industry players: through the certainty that FITs provides and the increased level of support that they bring, we will help more businesses, more communities and more individuals take steps to join the climate change fight and produce their own, low carbon electricity."

Such all embracing ambitions are commendable, but I suspect that as with such technologies as ground and air source heat pumps, it will be the social housing sector which sees the most widespread adoption. Not only is its funding tied to sustainable behaviour, but micro-generation also fits closely with its commitment to alleviating fuel poverty.

Not only is its funding tied to sustainable behaviour, but micro-generation also fits closely with its commitment to alleviating fuel poverty.

Housing associations will be able to benefit from the economies of scale through contracts addressing the installation of PV panels on whole terraces and even estates of houses, or the establishment of district heating schemes linked to central combined heat and power schemes. The 48 pence per kW hour tariff will be paid to the landlord while the occupant uses the green electricity; and any excess can be transmitted back to the Grid; though ministers have been fielding some searching questions of late about the reliability of the UK's creaking electricity infrastructure.

Those who read my magazine on a regular basis will know my view that whether or not you are a climate change believer, trying to save energy and to move away from fossil fuels is a genuine no-brainer. Britain no longer has any substantial control over its energy supply or pricing, and we have become reliant on some politically unstable sources around the world. We should recognise then the efforts of manufacturers such as Worcester, which early in the Millennium recognised fossil fuel's limited future and reinvented itself as an energy systems provider.

Adrian Foster of Alcock Heating and Plumbing Co. Ltd won a monthly Environment 2020 Award for his work on an exceptional property on the edge of the Peak District National Park.

A Peak Performance from Alcock Heating

Adrian won the award for his installation at 'Best View Barn', which has been restored by local craftsmen and fitted out to the highest specification. The heating system installed by Adrian and his team utilised a 9.5kW Greensource air to water heat pump. This renewable system extracts heat energy from the air and converts it into usable heat to power radiators and deliver hot water without the need for burning fossil fuels like a typical boiler.

Talking about the installation, Adrian said: "Our customer wanted a high quality heating solution, which needed to be as energy efficient as possible. With no mains gas supply available and the rising cost of oil, the obvious choice was to look at renewable technologies. After viewing the property it was clear that an air to water heat pump would be ideal. They are over the moon with their new system and are ecstatic about winning the award, as I am."

Adrian took over the running of Alcock Heating and Plumbing Co. Ltd last August after 29 years with the business which he joined as an apprentice in 1980. He has been responsible for diversifying the company to take advantage of the renewable market and 'Best View Barn' is his first air source heat pump installation since completing his accredited training.

Adrian added: "Winning this award is a fantastic achievement, especially as this was our first air to water heat pump installation. This is an excellent incentive for us to go on and encourage other customers to consider the technology. 'Best View Barn' is in such an idyllic location it was a pleasure doing the job."

With beautiful landscapes stretching across seven counties from Shropshire to Snowdonia and Cheshire to Manchester, 'Best View Barn' has some of the most spectacular views in Britain. Perched high up on the edge of The Peak District National Park the 180 degree panorama faces due west, making it the perfect spot to see the most picturesque sunsets the country has to offer.

The award-winning work has won Adrian a £500 voucher for a National Trust cottage holiday and a year's family membership to the National Trust.

The Environment 2020 Awards initiative is an annual competition organized by Worcester, Bosch Group, and recognises installers who take an environmentally responsible approach to their work. Adrian will now be put forward, along with 11 other installers selected throughout the year, for the title of Overall Winner which will be announced in spring 2010. If he wins this, he will also collect leisure vouchers to the value of £1,000

The scheme also rewards the artistic efforts of young people up to the age of 16 who have created an outstanding piece of artwork that highlights the need to be energy efficient and addresses the causes of climate change.

For further information and to download entry forms, please visit www.worcester-bosch.co.uk.

By the mid-1990s Worcester had become a highly successful business, but its product development was still very much a case of one boiler at a time.

The rise of the Combi – Part 3

"The next stage for us was to develop a range of boilers and launch them onto the market in one go," says Martyn Bridges, Director of Marketing and Technical Support at Worcester, Bosch Group.

The result was the revolutionary and highly successful CDi range of boilers, which was also the first boiler development for Worcester during which Bosch played a significant role.

"Bosch acquired 68 per cent of the Worcester business in 1992 and then the remaining 32 per cent in 1996. At first, Bosch involvement was limited in our new product development programmes, but once Worcester was fully integrated into the Bosch processes etc we were able to use the Bosch 'know how' much more easily," says Martyn.

The development of an entire range of boilers is an enormous undertaking and, in the case of the CDi, was done on an international basis.

"The CDi was primarily for the UK market, but there was also a Bosch version for the Spanish market which meant we had to bring in expertise from the wider Bosch Group," explains Martyn.

The CDi was also the first Worcester boiler series to use Bosch components, such as the Bosch gas control valve and the Heatronic II boiler control system, which was renowned internationally for being a very reliable component. Ultimately, Worcester, with help from the wider Bosch Group, developed a 24, 28 and 35 kW boiler range in one go, but Martyn recalls

that one particular problem vexed the development team for some time.

"We didn't know what to call it" he says. "I remember long debates about names, but nothing seemed to fit. In the end somebody suggested we call it the CDi, after the Bosch design tool called Complete Design Innovation and also because it had connotations with the car industry which often used three letter acronyms."

The CDi was the first boiler series available in RSF, Balanced and Open flue variants into the UK market with electronic ignition which was revolutionary for the time in its replacement of pilot lights.

"Of course the irony is that despite the fact that many CDi boilers are up to 14 years old they are not eligible for the new boiler scrappage scheme mainly because of the foresight to replace standing pilot lights with electronic ignition" says Martyn.

The CDi was also equipped with many technologies which have now become standard, but were revolutionary at the time. The boiler was fitted with an in-built filling link which removed the requirement for an unsightly isolation valve, removable hose pipe and double check valve.

"Boiler filling or topping up is an ongoing periodic requirement for customers. The traditional version of a filling loop was difficult to explain to customers and even more difficult for them to use. The development of the plug-in optional filling link connected to the system pipework enabled us to site the filling link in a consistent position and allowed us to develop the simple plastic key method for filling" he says.

The CDi was also equipped with a frost thermostat to ensure that the boiler would turn over to keep components operational in cold weather and an anti-cycle to stop the boiler rapidly cycling on and off. Finally, the boiler was equipped with a pump anti-seizure device to stop the pump from sticking during moments of inactivity.

Worcester also had to change its manufacturing processes to produce the new CDi range. "The development of the CDi gave us the opportunity to manufacture the boiler in three separate sub-assembly areas at our Warndon site," says Martyn. "We were able to build the hydraulic block, which houses all the principal water components in one sub- assembly area of the factory and have separate sub-assembly areas for the electronics and combustion assembly."

The CDi was clearly going to be a major change for installers and the decision was made to take the new boiler on the road. "We organised a series of installer demonstration evenings across our five sales regions with talks from technical people to help installers understand how these new boilers worked," says Martyn. "The reaction from installers was very positive, in particular the fact that the CDi had so many ancillary items built-in, like the frost thermostat, system by-pass and filling link. Previously, all of these items would cost perhaps upto £100 extra per installation."

Installers also had to get used to the fact that they did not have to create cooling air vents in the airing cupboard or compartment doors for the new RSF CDi. "The CDi was deliberately designed to be housed in a 'ventilation free' compartment so it did not need air vents for cooling purposes. Over the years this innovation has been incorporated into most boiler designs".

By the end of 1996, Worcester was manufacturing more than 100,000 boilers per year with the CDi accounting for approximately 50 per cent of all sales. "When you consider that the CDi was not launched until the spring/summer of 96, it was a great achievement to achieve 50,000 boiler sales within the first year. It was testament to the fact that the CDi was so far ahead of its time that it is still on sale today for the odd occasion where an exemption from condensing is allowed" says Martyn.

Next month, in the final part of our series, we look back at the condensing boiler revolution and the CDi Extra and Greenstar series.

Spotlight

Richard Jones, R & S Plumbing Solutions Ltd

Richard and his wife Kimberley bought a 1850s old stone cottage three and a half years ago. As part of Richard's extensive work on the property he decided to vastly improve the heating system.

After Richard had made significant developments to the property, whilst keeping the attractive original features, including the fireplaces and interior stone brickwork, he installed a Worcester Greenstore 9kW ground source heat pump with a 280 litre unvented cylinder and two in roof Worcester Greenskies high performance panels.

Richard used a 400metre ground loop to generate the power to feed the heat pump, which in turn feeds underfloor heating throughout the home.

The property has three bedrooms and three bathrooms and is set in a small village called Nantgarw, near Cardiff.

Richard explains: "It was the ideal property for a Greenstore ground source heat pump as it has a large garden and the opportunity to fit underfloor heating. The environment was the key factor for choosing these renewable technologies but it will also help us save money in the long run.

"The installation was really straightforward. I know some installers who are a bit fearful of ground source heat pumps because they think it's going to be too complicated but really it's as simple as a standard central heating installation once the collectors are in. The system is fantastic."

Richard has been running his own business for 21 years. He has been fitting solar for many years but did his first ground source installation about three years ago and decided he had to have one too. He added: "The interest in heat pumps is growing all the time."

Happy Retirement Vic!

After a fantastic 22 years with the business, Specification Manager, Vic Turner, is soon to be closing the door on his Worcester career to enjoy his well earned retirement. But before Vic hits the golf course for good we managed to catch up with him to talk us through his career highlights and where he sees the industry going in the future.

Q. How did you start in the heating industry?

A: At 16 I started off at British Gas in Woolwich. I moved from being an engineer at British Gas, to being a Sales Manager, which I thoroughly enjoyed. Following this, I joined the merchant sector for 3 years before moving to a boiler manufacturer for another three years. It was in 1988 that I came to work for Worcester and have been here ever since!

Q. Has there been a mentor during your career?

A: Yes, three really. Cecil Duckworth the ex-chairman of Worcester Heat Systems. Colin Beagle - Colin was my immediate manager at the time when I joined Worcester and Richard Soper. They all gave me every encouragement and lots of support. They certainly all lead by example.

Q. What is the biggest change you have witnessed in your career?

A: It would have to be all the renewables - and of course, the invention of the condensing boiler. Such big changes meant I had lots of different things to work on, making it more of a challenge definitely. The industry has changed a lot. Certainly the renewables sector will continue to grow and become even bigger in the future.

Q. What has been the most personally satisfying part of your career?

A: To get sales and to maintain them, really. Building a good reputation with customers and also friendships. A good relationship with the team is important. It's not the job, but it's all about personalities, meeting people and getting to know everyone.

Q. What do you think the future holds for Worcester?

A: Continued success. They are a professionally recognised company, known for high quality, and I think they've come a long way to be where they are now. Continued success, definitely.

Q. What will you do in your retirement?

A: I don't really know as of yet. I'd like to continue to do the activities I do now – but with a little more time devoted to them. Playing golf, gardening, reading; all sorts of things really. I'm a big sports man too – I like a spot of football.

We will travel quite a bit, we do now, but we'll travel more extensively. Perhaps a cruise and the chance to go somewhere warm in the winter. It will be nice to have the freedom to do that – obviously that would normally be our 'busy season' so it will be a nice change.

Q. Will you still have a keen interest in the heating industry?

A: I'll keep in touch with the team. I'm sure I'll keep a keen eye out – it'll always be something in the back of my mind, you can't let go. It won't be the same, but yes I will always have a vested interest in the company.

Ecobuild 2010 Review

The Ecobuild 2010 exhibition was widely regarded as the biggest and best yet with over 40,000 visitors across the 3 days between 2nd and 4th March. Read our Ecobuild snapshot review to find out what products and issues were causing a stir.

This year, Worcester and sister company Buderus invested in a striking joint exhibition stand. The stand was manned by 14 staff who were rushed off their feet from start to finish each day, which is evidence of how popular the event proved to be.

Ecobuild is billed as the biggest event in the world for sustainable design, construction and the built environment and it certainly lived up to its reputation this year.

A broad spectrum of visitors turned out for the show with a host of architects, specifiers, developers, self-builders, installers and homeowners all paying a visit to the Worcester stand.

The major themes across the three days which were discussed in seminars but also generated the most questions from attendees at the Worcester stand were regarding the Code for Sustainable Homes and the future of Feed in Tariffs. With the general election fast approaching, the affects of a potential change in Government and how policy may change also prompted a number of lively debates.

As predicted, renewables dominated most discussions on the Worcester stand, with 70% of enquiries being for new technologies. The most popular products on the stand were air source heat pumps and a Micro CHP unit. Air source heat pumps are Worcester's newest high profile renewable products currently on the market and Micro CHP is likely to be the next big thing, with feed in tariff plans being developed by the Government.

Worcester also took the opportunity to profile other new products for 2010 including the Greenfloor underfloor heating system, which was showcased using a see-through glass case in the floor of the stand.

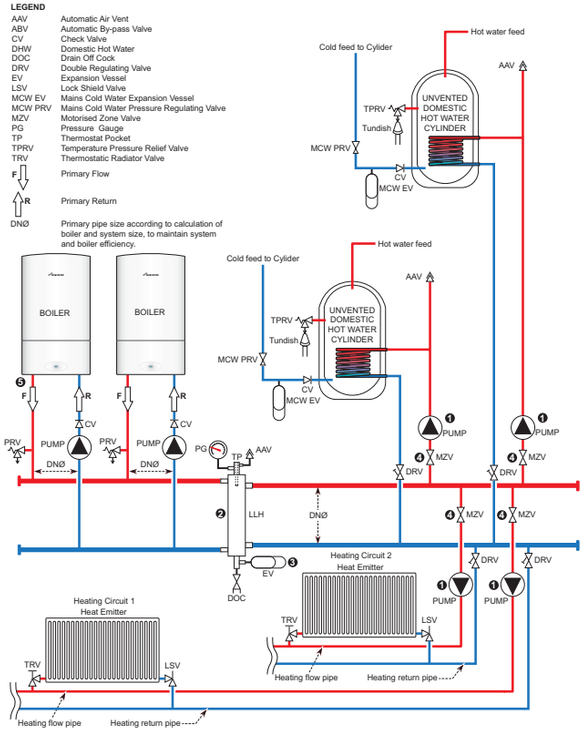
The most frequently asked questions over the three days included:

- In which scenarios are ground source heat pumps more suitable than air source and vice versa?
- What products do we need to install to meet the impending levels of the Code for Sustainable Homes?
- What kind of return would I be likely to get from a feed in tariff with a Micro CHP unit?
- There were also a number of housing associations who were looking for advice on the best way to spend their budgets to ensure a selection of properties could meet the appropriate level of the Code for Sustainable Homes, considering a variety of different requirements including the type of properties, timescales and tenants needs.

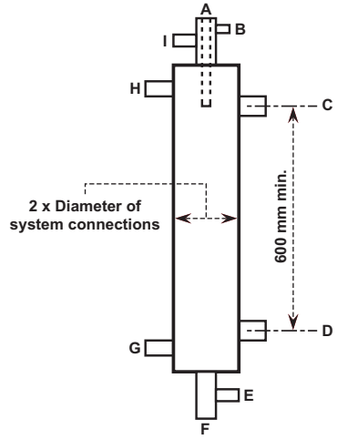
All of the above are key questions that installers are likely to be asked by specifiers this year. If you need more information about how best to answer these questions, call 0844 892 3366.

Technical Training Feature: Cascading two Greenstar gas-fired boilers

When installing a new gas boiler central heating system in a very large home, sometimes one boiler may not have a large enough output to meet the heating and hot water demand for the whole property. For these cases we can recommend a cascade (or modular) system, however we would recommend that this is only for an arrangement of no more than two Greenstar boilers.



Typical Low Loss Header



A Thermostat pocket (optional)
B Air vent connection
C System flow
D System return
E Expansion vessel connection
F Drain off cock
G Primary return
H Primary flow
I Pressure gauge connection

The above diagram displays the correct pipe work arrangement required for cascading two Greenstar gas-fired boilers in a domestic property. When attempting this kind of installation it is important to remember the following key points:

1. The pumps will need to be sized according to the output required by the system.
2. The low loss header will need to be sized to match the output of the boilers.
3. The expansion vessel will need to be sized and pressurised to match the system.
4. The motorized zone valve(s) will need to be sized to match the circuit output
5. No isolation valves should be used on the boiler side of the low loss header.

Worcester Living:
A snapshot of Richard Soper's energy efficient home

In the first of a new series, we look at the lifestyles of Worcester employees and investigate how our technologies are helping them to heat their homes.

Richard Soper has been Managing Director of Bosch Thermotechnology for 10 years and, in that time, has helped drive the business to its position as one of the UK's leading manufacturers of boilers and renewable heating technologies.

From the outset, Richard's strategy for Worcester was to align the company closely to the installer, a strategy which, as we shall see, even includes opening his own home to Worcester's installer base.

Richard lives on the outskirts of the village of Crowle in Worcestershire in a house which he remembers from his childhood. "The house used to be two separate cottages, one of which my uncle used to live in, so I remember it well from when I was growing up," says Richard.

The cottage left the family for many years until Richard bought the newly converted five bedroom house.

Once he owned the house, Richard's biggest priority was to replace the heating system. "I've always been driven by a passion to reduce carbon emissions and a commitment to protect the planet. We therefore took the decision to gradually overhall the entire heating system to make it more environmentally friendly. Originally, the property was heated by a standard efficiency boiler which operated at about 80 per cent efficiency, which was ok but not as high as we wanted." In fact, the property recorded an energy efficiency score of 38 (Band F) and an environmental impact score of 35 (Band F).

Energy savings

Fuel bills	Energy usage	CO_2 emissions
£183 lower	**21% lower**	**40% lower**

Richard took the decision to install renewable technologies, the first being a Greenskies solar hot water system. "We installed two solar panels on the roof and a 180 litre Greenskies cylinder, which in effect gives us free hot water from April to around October every year," says Richard.

The next stage was the installation of a Greenstore ground source heat pump to provide renewable heat for the property. "The heat pump collection system was put in the paddock area alongside the house. Eleven compact collectors and two rows of 40mm diameter collection pipe were fitted, sufficient to provide enough collection for the heat pump to heat the property all year round and the swimming pool in the summer months," says Richard.

Richard was also concerned with the temperature in his conservatory, where he often works, which could be cold in the winter and quick to overheat in the summer. "The solution was the installation of an air to air heat pump which can also act as an air conditioning system in the summer time. The heat from the external air is used to warm the internal air using the same compressor technology as a ground source heat pump," he says.

The final stage of the property's heating system was the installation of Greenfloor underfloor heating in the lounge area which was helped by the fact that there is a small step down into the lounge from the hallway of approximately 150mm. "The heat for this system is taken from the Greenstore ground source heat pump," says Richard. "Underfloor heating is very different from radiator heat in that it seems to surround you and is much more economical to run."

All of Richard's improvements to his home helped the property record an energy efficiency score of 54 (Band E) and an environmental impact score of 70 (Band C). "Before any products are released to the customer I like to personally trial them to ensure they are right before they've reached the market. As a result we constantly monitor the house to see how the different technologies are working and the savings we can generate. Take up of renewable technologies is still in its early stages so it is important that we are able to quantify heating performance."

Most importantly, Richard now uses his own home as a showcase for Worcester technologies. "We installed a small training centre alongside the house that is now used by Worcester's training team. It's equipped with a variety of technologies specifically for installers, specifiers and other domestic heating and hot water industry professionals."

Perhaps the final word should go to Richard's wife Sandra however, "I often come home and see Richard, with a crowd of installers around him, pointing up at the Greenskies solar panels on the roof or looking at the ground source heat pump. He's brought his work home with him, but in a good way."

Cash in with Worcester products **in your own home**

In a recent survey, 9 out of 10* installers said they would choose Worcester products for their own home. We were so pleased with this positive feedback that we have decided to reward installers who do just that.

In our latest promotion, we are giving installers up to £1,500 cash-back on selected Worcester products when they are fitted in your own home. So not only can you practice what you preach when recommending Worcester to customers, you'll also be quid's in.

If your home needs a new A rated Greenstar gas or oil-fired boiler you can get £150 cash-back, or for installers adding solar to their property £200 cash-back is available with the Greenskies solar water heating system with an additional £50 for the Greenskies cylinder. If you are thinking of investing in a Greensource air to water heat pump then £300 is redeemable – not forgetting an impressive £1,500 cash-back for those wishing to install Greenstore ground source heat pumps.

As well as benefitting from the quality and reliability you can always expect from Worcester, you'll also see significant savings on your heating bills and will reduce your home's carbon emissions. With the daily hands-on use of your heating and hot water system, you will also have an opportunity to demonstrate its cost-saving efficiency to potential customers – something many installers have found to be a strong source of new business.

If you fancy taking advantage of this exclusive offer, simply install the product(s) of choice and complete and return our simple claim form, which you can get hold of by calling 0845 313 0058 or visiting the website www.worcester-bosch.co.uk/cashforinstallers

* Source: Worcester Customer Satisfaction Index 2009

Brian Murphy, and his team of technical advisors answers some of the most common questions they've been receiving from installers:

Your questions answered

Must I clean the heat exchanger every time I service a boiler?

You may find that there's no real need to clean the heat exchanger during an annual service. On our Greenstar range of gas boilers, you can perform a fan control pressure test to determine if the heat exchanger requires a full clean.

Control pressures are measured by connecting the positive tube of a manometer to the test point on the boiler (just below the fan on a CDi, or on the air/gas manifold on i Juniors, Ri's and i/i system boilers). The control pressure should always be in negative figures e.g. -3.5mbar. Control pressures vary depending on the boiler and are given in the servicing section of the installation instructions.

A control pressure that is more positive than these figures e.g. for a 28i Junior anything more positive than -3.9mbar means that the heat exchanger requires cleaning. A control pressure that is more negative indicates the heat exchanger is clear and does not need to be cleaned, saving you valuable time when servicing. Always re-check your CO_2 and gas rate after cleaning the heat exchanger.

What is Heat Pump CoP and why does it matter?

The Co-efficient of Performance or CoP is a simple calculation which works out how much energy the heat pump is able to extract from the energy source compared to the amount of electrical energy used.

$$\text{COP} = \frac{\text{Heat output of system (useful heat)}}{\text{Electrical input from compressor and circulating pumps}}$$

E.g.

$$\text{COP of 3.3} = \frac{\text{9kW heat pump}}{\text{2.7kW of electrical input}}$$

The equation above shows that a total of 2.7kW is provided to the pump (electrical input) for an output of 9 kW.

The CoP depends on the temperature that can be extracted from the collector and the temperature required by the heating system of the house. The best combination for a high CoP would be a higher source temperature (e.g. 10ºC) and a lower out going flow temperature for the heating (e.g. 35ºC).

The return on the energy employed in this case is higher since the heat pump only has to increase the temperature by 25ºC. If the energy from the source is lower in temperature and the required flow temperature is higher, the CoP will be reduced.

Heat pumps used in conjunction with low temperature underfloor heating will return high CoP figures and maximise efficiency. Radiators can be used however, they must be suitably sized to cope with the lower temperatures supplied by heat pumps.

What size of radiators should be used on installations linked to heat pumps?

For a heat pump to perform to its highest energy-efficiency, the emitter (radiators/underfloor heating) system should be designed so that the mean water temperature within is as low as possible.

Low flow temperatures have the following benefits;

- Comfort – steady, consistent temperatures provide optimum comfort
- Economy – higher CoP of heat pump and lower system losses.
- Health – lower air velocity indicates less dust disturbance

A well-designed underfloor heating system operates very effectively in the temperature range of 30-45ºC and as a result is the most effective means of supplying heat to a dwelling.

When radiators are being used either in new properties or existing situations, a flow temperature of 45-50ºC is our design figure, but again these will fluctuate due to the weather compensated controls. Therefore radiators outputs must be increased to provide the same level of required comfort that would have been obtained from a traditional gas/oil boiler system supplying 80ºC flow temperature to the system.

Fancy £250 to spend on the high street?

Simply answer 5 questions about this month's issue to be in with a chance of winning.

With summer just around the corner, this month we're giving you the chance to splash out with £250 of high street vouchers. All you need to do is answer the following five questions correctly and you can find all the answers hidden in the content of this issue, so make sure you read every page!

1. **What year will zero carbon homes become a legal requirement for house builders?**
2. **How much money has the Welsh Assembly allocated for the Welsh Scrappage Scheme?**
3. **In % how much less space is required for Worcester's new Lean Line, compared to traditional assembly lines?**
4. **According to our customer satisfaction index how many installers out of 10 would choose a Worcester product in their own home?**
5. **What does CoP stand for?**

To enter, simply complete the entry form below and send it back to our editorial office: Installer's Choice, March 2010 Caption Competition, Willoughby PR, 43 Calthorpe Road, Edgbaston, Birmingham, B15 1TS.

Good Luck!

My Answers:

1. _____
2. _____
3. _____
4. _____
5. _____

Name: _____

Business Name: _____

Business Address: _____

Daytime Telephone Number: _____

Email: _____

Tick box as appropriate:

☐ I would like to receive further information from Worcester and Calor

☐ Please do not contact me with further information

Terms and Conditions
1. No cash alternative
2. The decision of Worcester, Bosch Group is final
3. One winner will be notified by the 17th May 2010

Keep in touch

No matter where you are based around the country, Worcester has a team of local representatives available to help with your specific requirements.

This issue we focus on the Renewable Products Sales Team which is headed up by Barry Wilson. Here are the details of the team:

Mick Bawtree
Technical Sales Manager, Renewables
Contact Mick on: **07790 489 939**
Areas covered: CB, CM, CO, HP, IP, LE, LU, MK, NN, NR, PE, SG

James Jennings
Technical Sales Manager, Renewables
Contact James on: **07790 489 812**
Areas covered: BB, BD, BL, CA, DE, DH, DL, DN, FY, HD, HG, HU, HX, LA, LN, LS, M, NE, NG, OL, PR, S, SK, SR, TS, WF, YO

Alistair Kay
Technical Sales Manager, Renewables
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Steve Robinson
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