

Boiling Point

Autumn 2011



Heating *at work.*

Economic sense

Boiling Point reviews the economics of modulating condensing boilers versus traditional on/off boilers, to see what benefits can be gained.

Site survey

Hamworthy adds value with the introduction of a bespoke plant room site survey.

Latest Fleet news

The most versatile boiler ever qualifies for enhanced capital allowances.

To the point



With summer now behind us, the temperature falling and demand for efficient heating and hot water solutions at work once again on the agenda; it is a fitting opportunity for me to welcome you to the autumn edition of Boiling Point, Hamworthy Heating's magazine.

2011 to date has been a challenging year for everyone, as the construction industry continues to grapple with the combined forces of domestic and global economic turbulence, and an increasing awareness develops in building services of the need for energy-efficient products to provide savings in energy costs, maintenance costs and reducing the environmental impact.

As economic pressures continue to bite, amid fears of a double dip recession, and all sectors feel the pinch of aggressive government spending cuts, we are seeking to add value through innovative customer service; supporting our customers and their clients to ensure the benefits of boiler replacement with new, more efficient boilers, are realised in their businesses.

In August, we announced the introduction of our plant room site survey, as a proactive approach to sharing our extensive knowledge and experience of heating and hot water plant; working closer and understanding the needs and concerns of our customers.

The site survey, carried out by Hamworthy's technical area sales managers, include checks to all aspects of a plant room and facilitate comprehensive advice and recommendations on issues such as plant efficiency and legislative compliance of equipment. Through these surveys we have demonstrated how a structured

review of the existing plant can create opportunities for savings on the plant installation, and help reduce lifetime operational costs.

As mentioned in the spring edition of Boiling Point, Hamworthy was delighted to launch its new Fleet range of condensing boilers at Ecobuild in March. The initial launch included our versatile range of floor standing horizontal and vertical boilers, as well as the comprehensive range of wall hung Fleet boilers, all of which now feature on the Government's Energy Technology List (ETL) providing significant financial advantages for purchasers through the Government's Enhanced Capital Allowances (ECA) scheme.

Our commitment to new product development has continued this year and we are now excited to announce the availability of the larger models in the Fleet range of condensing boilers, taking outputs up to a massive 1050kW in less than one square metre floor space.

We have had a fantastic response to the Fleet boilers from all quarters, experiencing an astonishing level of interest as our road show continues touring the country, giving customers old and new the opportunity to see the innovative new boilers on display, and speak with sales engineers to discover how these leading products can benefit them.

The demand for Fleet boilers has enabled us to buck the industry trend and recruit more people into the business. At our factory in Poole we are increasing our production capability as we look forward to reaping the rewards of investment in our new research and development facility next year.

Finally, Hamworthy proved its sustainability credentials by being specifically chosen to install a state-of-the-art biomass boiler at Whitchurch Community Hospital as part of the NHS Carbon Management Programme. The 38-bed hospital will see its carbon emissions halve thanks to the new biomass boiler.

As a progressive company, we are committed to continuous improvement at Hamworthy. I trust you will enjoy reading this issue of Boiling Point and I encourage you to continue providing us with your feedback on how we can support you in your building services needs.

Yours sincerely,

A handwritten signature in blue ink, appearing to read 'Andy Moore', written over a horizontal line.

Andy Moore
Managing Director

Adding value with a site survey

Striving to provide added value to our customers we have introduced a bespoke site survey - designed to help identify a client's needs and ensure the recommendation of the most suited boilers, water heaters or renewable energy products.

By conducting a site survey, we are taking a proactive approach to understand the demands faced by our clients today. A point which Heating and Ventilating Contractors Association (HVCA) president, Bob Shelley, emphasised at the organisation's recent annual general meeting as key to contractors remaining "in business and in profit" during the tough economic period.

"Our survey provides an interesting and valuable insight into attitude and behaviour towards costs," said Keith Thompson, Hamworthy's sales and marketing director. "More often the spotlight is on the plant acquisition cost, but we can demonstrate cost savings during our site survey, which will benefit the customer in the rolled-up project cost. For example, identifying factors which might otherwise have been missed or forgotten, will eliminate the necessity for re-work on site, which is both costly and time consuming, and often leads to delays in completion, something in itself which might incur financial penalties," Keith added.

Carried out by Hamworthy's technical area sales managers, the site survey includes checks to all aspects of a plant room, covering everything from health and safety and existing plant efficiency, to advice on compliance of heating and hot water equipment with current legislation.

Employing an holistic approach, our site survey facilitates the delivery of the most comprehensive advice and recommendations, while all the time providing assurance to our customers that their needs are being addressed.

Working with specifiers and consultants, contractors and building operators, we are aware that each client has a vested interest in different aspects of a project. As a result, our site survey is tailored and carried out with the relevant customer in mind, and may include integration issues with other heating technologies.

A contractor-based survey, for example, assumes some familiarity with the plant room and therefore outlines specific and specialist advice. Whereas a building operator or end-user survey focuses on elements which will make a difference, from how to reduce running costs to avoiding potential long-term problems. With a greater technical understanding, a bespoke specifier or consultant survey centres on primary circuit design to provide the best functionality and performance.

In addition to recommending products relevant to a client's needs, the site survey we carry out delivers further benefits including:

Time and money savings

Our site survey, from the outset of a project, helps foresee any potential problems with access and installation; avoiding such complications saves both time and money.

Cost and carbon savings

At the Chartered Institution of Building Services Engineer's (CIBSE's) national conference in April, keynote speaker David Fisk, professor of engineering for sustainable development at Imperial College London, highlighted the importance of getting "into proper conversations with facilities managers about energy consumption in their buildings".

As a result, our site survey helps identify the output and operating regimes of existing appliances, while highlighting the energy being used. Our area sales managers are then able to speak with customers and compare the findings with new, more efficient plant options, demonstrating what savings could be made.



Old sectional cast iron boilers.

Compliance with regulations

Providing added assurance to customers, our site survey includes checks to give advice on the existing plant and compliance with current regulations. If necessary, areas of non-compliance are highlighted and advice is given on how regulations can be met.

A site survey should only need to be completed once. From the figures and information recorded, we will provide details of findings and advise accordingly, supplying a comprehensive quote covering all aspects of a project, except installation charges. A copy of the survey is also supplied to the customer for reference.

Saving time, money and avoiding delays on a project are crucial in today's marketplace, where re-work to rectify problems can be costly. Therefore, it is important to plan a project thoroughly from the outset. Our site survey is designed to identify potential problems immediately, resulting in savings being made up front.

To request a site survey, talk to Hamworthy.
Tel: 0845 450 2865, email sales@hamworthy-heating.com,
or visit www.hamworthy-heating.com

Tough times call for condensing boilers

by Stuart Turner, Southern Regional Sales Manager, Hamworthy Heating



If you're concerned about your energy costs and carbon footprint and are still running high efficiency non-condensing boilers with on/off single stage burners or even worse, older traditional equipment such as 'loaf of bread' cast iron sectional boilers, then it's time to take action.

This means reviewing the economics of modulating condensing boilers and upgraded boiler controls, versus where you are now, and gaining some significant benefits.

At CIBSE's (Chartered Institution of Building Services Engineers) national conference in April, former CIBSE president, Rob Manning, reminded delegates that 24 million buildings, already built, are expected to still be in use in 2050. Consequently, an increasing refurbishment programme faces the industry; a point emphasised by Mr Manning who stated that "60 per cent of existing non-domestic buildings will need to be refurbished" in the years ahead.

If you own one or more of the non-domestic buildings referred to by Mr Manning, you may be resisting any refurbishment or new investment in plant until there's a convincing economic upturn, with the laudable intention of going for renewables later in preference to a half-way house now. In reality though, renewable energy systems cost significantly more than gas fired boiler replacements, and despite the support available via the Renewable Heat Incentive and Feed in Tariff, finance is still required to fund those projects, which often integrate gas fired and renewable energy for the ultimate solution.

Better then, to achieve worthwhile benefits right away, upgrading the boiler plant and associated controls using products such as Hamworthy's fully modulating Fleet boilers. These offer a gross seasonal efficiency of 97 per cent making it possible to substantially lower gas bills whilst at the same time providing sizable carbon savings. Modulating burners on modern boilers have a turndown ratio of 5:1, so a typical 100kW boiler module can reduce

down to 20kW firing rate, allowing it to match the boiler load closely to the actual building load without overshooting and wasting expensive gas.

A further incentive to invest in new heating plant is the Enhanced Capital Allowance (ECA) scheme that is available when using products such as the Fleet range which is on the approved Energy Technology List (ETL) managed by the Carbon Trust, to give additional tax benefits and improved cash flow conditions.

Since modulating condensing boilers are generally used to back up renewables, follow-on investment in renewable technologies can always be added later. For the immediate future it is quite possible to achieve payback periods of less than three years along with significant carbon savings when replacing older boilers. At Hamworthy we are always happy to talk about how this can be achieved in any particular situation. Indeed we are keen to help educate and inform people since improved energy efficiency is in everyone's interests.



Cast iron atmospheric on/off modular boilers.



Fleet Vertical modular boiler.

I believe that end users with multiple properties, such as in the health sector, education sector, hotel chains and leisure centres have most to gain, and would encourage them to test this through single building pilot projects. Once delighted with the results, roll out across multiple buildings can be scheduled to multiply the benefit.

To illustrate this in broad terms, take a building which has heating available on demand continuously, seven days a week such as residential buildings, hotels, care homes, universities or even some hospitals, with a typical load profile which calculates to 3418 annual load hours - 39 per cent utilisation.

The system is operating at 80°C and the existing boiler plant comprises six atmospheric cast iron boilers, each 120kW output with a single stage on/off burner. The existing boiler plant was oversized by 10 per cent, and with the replacement boilers, this can be reduced to just 3 per cent, contributing to the savings without affecting performance, so the system heat load is 655kW.

Using the same load profile throughout the heating season, we have prepared an estimate of savings using the new Fleet Vertical F250V-750 floor standing boiler.

Energy Saving Calculations			Existing Boiler Plant	New Boiler Plant	Annual Savings
A	Annual load (hours)		3418	3418	
B	Total Boiler rating @80°C (kW)		720	675	
C	Boiler over-sizing (%)		10	3	
D	System heat load (kW)		655	655	
E	Annual heat demand (A x D) (kWh)		2,238,790	2,238,790	
F	Boiler efficiency (%)		80	97*	
G	Boiler energy used (E / F) (kWh)		2,798,488	2,308,031	490,457
H	Typical Gas tariff (£/kWh)		0.035	0.035	
J	Annual energy cost (G x H) (£)		97,947	80,781	17,166

*97 per cent efficiency is actually the gross seasonal efficiency for the new Fleet boilers and takes account of improvements to the boiler controls, so if additional sensors are fitted to the system to allow boilers to run at compensated temperatures, then this is the level of performance that can be achieved. If however the new boilers are to continue running at 80°C flow temperature, they will still be capable of achieving a 90 per cent gross efficiency, which is still significantly better than the old boilers at 80 per cent.

Using just three modules at 250kW each (installed condensing boiler plant 750kW), when operating at 80°C, like the original plant, will provide 675kW output, which is only 3 per cent oversize, achieving a closer load matching than the original plant.

If you take a typical installed cost of this new plant at around £44,000 and projected £17,166 annual energy saving costs, then you can see that the simple financial payback would be less than three years.

By reducing the number of boiler modules from six to three, we have also reduced the lifetime operational cost of the boilers. The labour cost for servicing each module would be similar, so this is a direct operational saving. The load matching that

was achieved by turning each of the six original 120kW boilers on or off in turn, is replaced with a far superior modulating boiler system, where each module is 250kW output (225kW at 80°C), but will modulate down to around 45kW, enabling the boiler to match the system load very closely, without over-shooting and wasting expensive energy.

Many users will be equally interested in reducing the environmental impact - the following calculations illustrate carbon savings for our worked example. The results are just as impressive, again on the basis of 39 per cent utilisation, 3418 hours over a full year and using the DEFRA carbon emission guidance factor for Natural Gas of 0.185 kg/kWh.

Carbon Saving Calculations			Old Boiler Plant	New Boiler Plant	Annual Savings
K	Boiler energy used (E / F) (kWh)		2,798,488	2,308,031	490,457
L	DEFRA carbon emission guidance Factor for Natural Gas (kg/kWh)		0.185	0.185	
M	Carbon emissions (K x L) (kg CO ₂)		517,720	426,986	90,734

Thus the Fleet boilers save 90,734kg CO₂ each year compared against the old boiler plant. So, in these circumstances I suggest there is a very strong case for upgrading to modern fully modulating boilers for both environmental and economic benefit.

A conversation with Philip Kiss

Up and down the country, local authorities are under pressure to reduce carbon emissions in line with Government objectives, while working within the constraints of further budget cuts.



As a building services engineer and energy officer for Canterbury City Council, Philip Kiss is at the forefront of specifying products which make significant and effective contributions to lessen the impact on the environment of Council-owned buildings.

Within the ever-pressing economic climate, Philip spoke with Boiling Point about the balance between choosing sensible, sustainable options which are also cost-effective.

Like many local authorities across the country, Canterbury City Council is taking full responsibility for its actions in countering its impact on the environment. "We are leading by example in reducing and managing our carbon emissions," said Philip, referring to the recent installation of a woodchip boiler to Council offices, specified to help meet environmental targets.

However, with the Council expected to recover the cost of the renewable product over eight years, Philip acknowledged that in a climate where budgets are restricted, the use of renewable energy has to be planned strategically and an emphasis placed on plant viability. He also stressed that not all projects present the opportunity for the use of renewables.

The question therefore arises: what do local authorities do if restricted budgets (despite financial support from Government incentives) limit investment

in renewable energy, while there is still pressure to deliver sizeable carbon reductions?

Philip and the team at Canterbury City Council are addressing this dilemma with the specification, where appropriate, of condensing boilers.

Used to replace old, inefficient heating systems across many of the Council-owned offices, museums, leisure centres and theatres in Canterbury, condensing boilers have proved extremely beneficial; facilitating both carbon savings and, importantly, minimising energy consumption, resulting in the reduction of expensive fuel costs.

"Over the last year as a Council we have specified more and more condensing boilers because of the cost-effectiveness and the high energy efficiencies delivered," commented Philip.

Acknowledging the significant benefits of the boiler type, Canterbury City Council placed an order for two of Hamworthy's Fleet floor-standing, horizontal condensing boilers for use at Tower House.

Used as the Lord Mayor's office and to host official functions, Tower House dates back to 1850 and was built around one of the 21 medieval bastions constructed to defend Canterbury's city wall.

Anticipating the demise of the existing 20 year-old plant and set to embark on a future extension to the property, the council specified two 40kW Fleet H boilers delivering a total output of 80kW to meet the needs of the building and the proposed extension.

To help effectively manage the two boiler modules a Merley Sequence Controller was also specified to control the shared load in the most efficient manner possible. Integrated into the current control panel, the Merley provides user programmability to suit building occupancy - playing a vital part in reducing energy consumption.

"By specifying the Fleet modular boilers and Merley Sequence Controller, we hope to improve gas consumption at Tower House by 15 to 20 per cent over the next year," said Philip.

While striving to meet objectives outlined in Canterbury City Council's Environmental Policy, Philip believes condensing boilers represent the best option for local authorities searching for both energy and cost savings.

Addressing the question as to the use of condensing boilers in the future, when renewable energy is predicted to become more economical, Philip maintains a similar position to Hamworthy. "I'm certain that, in years to come when the economy is buoyant and renewable energy is increasingly viable, local authorities will still rely on condensing boilers to support and provide back-up to new technologies," he said.

"Looking to the near future, as a Council we will continue to invest and have planned an active programme of cost-effective, energy-efficient schemes in Council-run buildings which incorporate condensing boilers."



To feature in future editions of Boiling Point, visit www.hamworthy-heating.com

CASE STUDY

Whitchurch community hospital leads the way in green energy

In response to the NHS Carbon Management Programme, Whitchurch Community Hospital is leading the way in sustainable energy provision in Shropshire and across the entire NHS, with the installation of a state-of-the-art biomass boiler.

Many Whitchurch residents know that their community hospital has 38 beds and provides essential outpatient services for residents. Few would realise that the Hamworthy biomass boiler solution should halve the hospital's current carbon emissions with a highly efficient renewable heating technology.

Patients and visitors do not notice anything different. The hospital is still warm and welcoming; the hot water is still plentiful. However, beneath the wards a quiet revolution has taken place.

Mike Ball, Estates Officer at South Staffordshire & Shropshire Health Care NHS Foundation Trust, has been responsible for the instigation of this revolution, in partnership with Hamworthy and Stewart Associates Consultants, on behalf of Shropshire Community Health Trust.

Installed during the extremely cold winter, the 250kW output Biomatic boiler immediately had to work 24 hours a day, seven days a week to provide much needed heat for the patients, and its performance was impressive, according to Mike Ball.

"At peak times the boiler was using 20 tonnes of wood each week. Its performance from day one has been fantastic" he said.

The boiler is fuelled by wood pellets, purchased from a local company through NHS Purchasing. During the winter the storage silo for the pellets was filled every two to three weeks, but since then the demand reduced in line with the temperatures rising outside.

From the storage silo, the fuel feed to the boiler is fully automatic via a mechanical auger and intermediate hopper system with infra-red fuel level sensor, which reduces cycling of the feed auger, limiting wear and tear and saving energy. Safety features include 3-stage burn-back protection, with pressure and temperature sensors interlocked to the boiler control.

Unlike many biomass boilers which require continuous burning and trickle fuel feed to stay alight, the Biomatic boiler features fully automatic ignition with self-extinguish and auto-restart during periods of no demand, saving fuel and reducing carbon emissions.

While saving energy and reducing carbon emissions, the boiler also provides an economic boost to the community hospital. The cost for the installation of the boiler falls to the PCT capital budget, while the expected Renewable Heat Incentive (RHI) money from central government will be given directly to the hospital.



Mike Ball has been very happy with the service provided by Hamworthy. The brief for the boiler was for something reliable and simple which Ball feels is exactly what has been delivered. "The installation had to be achieved within a tight timeframe and we received fantastic support from Hamworthy" he said.

"The company didn't just provide a biomass boiler they supported us throughout the entire project, providing us with advice on fuel selection, handling, delivery and storage. They have enabled the Trust to deliver environmentally sustainable heating at highly efficient levels of performance" he added.

To view this and other case studies visit our website www.hamworthy-heating.com

Fleet hits the road

Since June this year we have taken the Fleet range on the road, travelling up and down the country on a series of road shows.

Attending the exclusive, invitation-only events at various locations around the country, our customers have been given the opportunity to speak to our sales engineers and business development managers about the Fleet range and see the innovative new boilers on display.

Showcased inside a bespoke road show vehicle, the Fleet range is exhibited

complete with internal workings and is also accompanied by a Chesil pressurisation unit for examination by attendees.

"We've experienced an incredible level of interest in our road shows," said Keith Thompson, Hamworthy's sales and marketing director. "Those customers who we have met, have found the events extremely beneficial as our experts are on hand to answer any questions and explain how each boiler would benefit their business," Keith added.

The Fleet range will continue on its journey across the country through to Summer next year.



To find out when the road show will visit a location near you, telephone 0845 450 2865, email marketing@hamworthy-heating.com, or visit www.hamworthy-heating.com

The most versatile boiler ever – now even larger

As part of our continuing commitment to innovation and new product development, we can now exclusively announce the availability of larger models in the Fleet range of condensing boilers.

Setting a new benchmark in both versatility and efficiency, the Fleet Horizontal range of floor standing boilers are now available in 5 additional module sizes; 175, 200, 250, 300 and 350 kW outputs.

Creating a first in the market, the Fleet range takes less than one square metre of floor space to generate 1050kW of power.

The Fleet Vertical boilers are now available in two high modules with a 350kW to 700kW output, and also in three high modules from 525kW to a massive 1050kW output.

With the Fleet range design delivering weights less than 1kg per kW output, the models are easy to handle. The boiler solution is also ideal for roof top or packaged plant rooms.

Ensuring significant financial advantages for purchasers, the larger Fleet models will also feature on the Government's Energy Technology List (ETL).

For more information on the larger Fleet models, talk to Hamworthy.

T: 0845 450 2865

E: sales@hamworthy-heating.com

W: www.hamworthy-heating.com

Fleet range of boilers qualify for enhanced capital allowances

Our latest range of boilers, launched in March this year, has been included on the Government's Energy Technology List (ETL), providing significant financial advantages for purchasers through the Government's Enhanced Capital Allowances (ECA) scheme.

All Fleet condensing modular boilers, up to 150kW module size, now qualify for Enhanced Capital Allowances, providing modular solutions from 40kW to 450kW output. The ECA scheme is a key part of the Government's programme to manage climate change and is designed to encourage businesses to invest in energy-saving equipment.

Meeting the scheme's eligibility criteria, the inclusion of the Fleet boiler range on the Energy Technology List is a reflection of its high performance, exceeding the minimum thermal efficiency requirements by some margin.

At the heart of the Fleet is our new sectional heat exchanger, which allows each product to be easily configured with a total of 47 different models. Delivering high efficiency condensing performance up to 109% net efficiency, Fleet boilers and the robust aluminium alloy heat exchanger are suitable for up to 6 bar working pressure.

The Fleet range of condensing boilers is available in wall hung and floor standing configurations, using common components throughout. The ultra-compact modules for both floor standing, Fleet Horizontal and Vertical boiler applications, take space saving seriously; the floor standing vertical boilers are the highest output, smallest footprint boilers on the market today.

The ECA scheme benefits property owners or facilities management companies that pay business or



corporation tax. Purchasing a boiler which qualifies for Enhanced Capital Allowances can bring significant financial savings, as well as improving a company's energy-efficiency and its impact on the environment. Capital allowances enable a business to write off the capital cost of purchasing heating plant, such as boilers, against their taxable profits, taking the place of depreciation charged in commercial accounts reducing the business's tax liability and offering cash flow advantages.

An ECA provides 100 per cent tax relief on ETL energy-saving equipment, in the same tax year as the purchase is made, rather than the general rate of capital allowance which is 20 per cent a year on a reducing balance basis. In addition to the boiler plant itself, a qualifying claim can also include direct installation costs and related professional fees.

Next issue...

If you've enjoyed this issue of Boiling Point, look out for the next edition in spring 2012, which will feature our sustainable energy solutions and consider the impact of Government initiatives.

You can request the next edition of Boiling Point, leave feedback on this issue or register your interest to be part of future editions by visiting our website www.hamworthy-heating.com