

HEAT PUMPS TODAY

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26th September 2024

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Leeds United Football Ground, Elland Rd, Leeds



RETROFIT23 SPOTLIGHT

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£4.2M for heat pump revolution Page 08



Sustainability is changing Page 10



Tales of the Riverbank Page 14





About Blygold

Blygold is an innovative and forward-thinking company offering unique and sustainable high-quality protection against corrosion. With over 40 years of experience, we have the know-how and state-of-the-art products and techniques to solve any corrosion problem.

What Are Heat Pumps?

Heat pumps are systems that move heat from one place to another by using a compressor and circulating a structure of liquid or gas refrigerant. Through this, the heat is extracted from outside sources and then pumped indoors. Pumping the heat tends to use a lot less electrical energy than typical methods of turning electricity into heat. Plus, during the summer months, the cycle can be reversed and the unit will act as an air conditioner instead, making it multi-functional.

The use of this particular energy source has been a lot slower in the UK than the rest of Europe. This is due to the fact that the government only recently introduced new schemes to make switching to green energy both easier and a lot more affordable. These moves have helped to increase the popularity of all renewable energy technology among the British public, and so it is starting to take off.

Heat pumps are actually the most efficient alternative to fuel, oil, and electrical systems when it comes to the process of heating and cooling. They supply a larger capacity of heating and cooling than the amount of electrical energy that is used to run it. In fact, the efficiency rate is able to go up to as high as 300%.

Advantages of Heat Pumps

- Heat pumps are much safer than systems that are based on combustion.
- They are cheaper to run than oil and gas boilers.
- The system reduces your carbon emissions & it has an efficient conversation rate of energy to heat.

Blygold coatings can help with...

- Reducing maintenance.
- Protecting the casing as well as the coil blocks.
- Extending the life of the equipment.
- Energy saving.

**For more information,
contact us on 01895 259346
or ben@blygolduk.com**



Welcome to the April/May issue of Heat Pumps Today.

By the time you've received your copy, we will be well on our way to Spring/Summer. What's on the cards for 2024? Another washed out rainy season or an extremely hot and busy one for installations and servicing? Of course we hope the latter and do look forward to hearing about any exciting new projects.



Bagged with your latest issue is a copy of the **National ACR & Heat Pump Awards** supplement, which was held in Manchester on the 21st of March – what a night! The whole of the ACR & Heat Pump team wish to say a hearty thank you to all those who entered, booked places and of course sponsored. We will be in touch shortly with details for 2025, meanwhile do enjoy flicking through the supplement to see our worthy winners and a selection of fun photo's.

Our next exciting event is the **ACR Regional Exhibition**, being held at Leeds United Football Ground on the 26th of September. To book your places please visit: www.acrjournal.uk/regional-exhibitions-northeast/visitors or email hayleyc@warnersgroup.co.uk

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Lochinvar promotes Liam Elmore to General Manager



Liam Elmore has been appointed as General Manager of the low carbon heating and hot water equipment manufacturer Lochinvar.

He joined the Banbury-based company as UK sales manager in 2014 following a two-decade career working with other well-known manufacturers of heating and hot water related products. He was subsequently promoted to sales director in 2018.

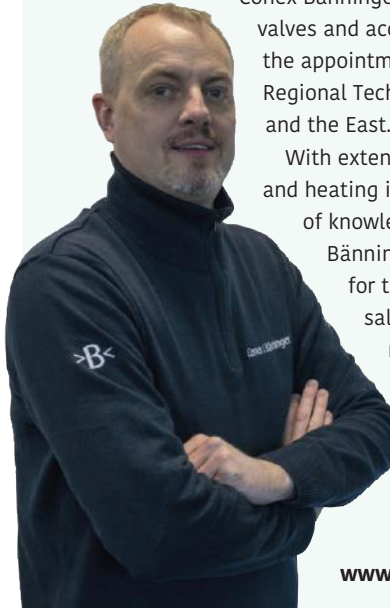
Liam was also elected vice-chair of ICOM's Commercial Heating Group in 2022. ICOM is the Industrial and Commercial Heating Equipment Association and has been representing and promoting the interests of the non-domestic heating sector since 1933.

He has overseen considerable sales growth during his decade at Lochinvar and has been instrumental in the company's transition towards low carbon technologies.

Lochinvar said this promotion recognised his contribution to the company and said it was a natural next step. As part of his role, he will also retain his overall responsibility for sales and customer relationships.

www.lochinvar.ltd.uk

Conex Bänninger strengthens sales team



Conex Bänninger, a manufacturer of fittings, valves and accessories, is pleased to announce the appointment of Mark Oxley as its new Regional Technical Sales Manager for London and the East.

With extensive experience in the plumbing and heating industry, Mark brings a wealth of knowledge and expertise to Conex Bänninger, having previously worked for tooling manufacturer REMS in sales. Mark will be responsible for maintaining and strengthening the company's relationships with existing customers, as well as driving brand awareness and developing new opportunities.

www.conexbanninger.com

Ideal Heating to open new state-of-the-art heat pump training hub

Ideal Heating is opening a low carbon training hub in the South of England as it continues to expand its industry-leading UK operations.

The Training and Technology Centre will be used by Ideal Heating's Expert Academy to equip installers with the skills to fit, maintain and service domestic and commercial heat pumps. The 16,000 sq ft centre in Dunstable, Bedfordshire represents an investment of £1m by Ideal Heating and is due to open in April.

It will have four spacious training areas featuring the latest equipment and technology, a large conference facility and comfortable café area. There will also be numerous display areas to showcase Ideal Heating's industry-leading range of domestic and commercial heating products.

Equipment will include a live heat pump training suite and thermodynamic fault-finding simulators, to enable installers to develop the practical, hands-on skills they need to fit and service air-source heat pumps.

www.expert-academy.co.uk





Energy efficiency improvements to homeless accommodation

Energy efficiency improvements to homes used to support homeless people, have been made as part of West Suffolk Council's programme to cut carbon emissions.

Now, as part of the council's decarbonisation programme of properties it owns, it has completed work to five of its temporary accommodation sites in and around Brandon, Bury St Edmunds, Newmarket and Mildenhall. The work also saw energy efficiency improvements to two other housing properties in West Suffolk which are used to provide specialist support to people.

The programme carried out on behalf of the council by renewable heating installer Finn Geotherm, has seen old heating systems at all seven properties replaced with ground and air source heat pumps and new central heating systems, giving people better control over their heating. Solar panels have also been installed at one of the temporary accommodation sites.

An accommodation officer at one of the temporary accommodation properties said: "Previously we had reoccurring issues with condensation, damp and mould at this one particular property, but since the installation of the new heat pumps we have had no reports of any damp or mould in the flats over this winter period."

The improvements were paid for using more than £180,000 from the council's decarbonisation fund. The project was also backed with a grant of just over £41,600 from the Government's Sustainable Warmth Fund.

Guy Ransom, commercial director at Finn Geotherm, who carried out the heat pump installations, said: "We are pleased to complete these important renewable heating installations for West Suffolk Council, which are not only having a huge impact on carbon emissions but also helping to create a warm environment that residents can enjoy living in. The ground and air source heat pumps that we installed are highly energy efficient, and we are delighted to see them delivering heating and hot water for these properties, powered mainly by the council's own solar farm."

www.westsuffolk.gov.uk/environment

Comment on Clean Heat Market Mechanism (CHMM)

Spencer Clark, Head of Residential Business Unit – Daikin UK, said: "It's great to hear that Lord Callanan, Minister for Energy Efficiency and Green Finance at the Department for Energy Security and Net Zero (DESNEZ), confirm that the Clean Heat Market Mechanism (CHMM) will be implemented as planned on 1st April.

"At a time when we need be building up the availability and efficacy of low carbon heating, this confirmation is a positive step and signal of intent from the Government that it has not given up on its commitments. It will help to boost confidence in the sector and foreign investments and will have a significant positive impact on the growth in green jobs.

"The CHMM will place an obligation on the manufacturers of heating appliances to meet targets for the proportion of low-carbon heat pumps they sell each year, relative to fossil fuel boilers. With a £3,000 fine on manufacturers for every missed heat pump sale, the mechanism would help to incentivise the industry. Only if these funds were available centrally for all Heat Pump manufacturers to access to contribute toward MCS registered installations for ALL manufacturers to , reduce prices, and rapidly increase the pace of deployment. These types of incentive have worked well historically in the car industry to support the roll out of EVs.

"However, there are several shortfalls in the current proposal for the CHMM, with both gas boilers and air-to-water heat pumps sold to new build properties not included in the calculation. Concerningly, there is also currently no airtight audit process confirmed. The plan is for sales volumes to be taken at the factory gate, which does not adequately ensure fossil fuel boiler companies accurately report sales figures and are not profiting from the mechanism. The audit trail needs to be transparent and cross referenced with other industry figures (New Build Stats 2024).

"It's also important that educating consumers on the energy and long-term cost savings of heat pumps comes alongside the mechanism and current Government funding, to help drive uptake. We urge DESNEZ to amend plans to incorporate a rigorous audit process for the CHMM. The department should also work with the industry to coordinate communications and deliver an effective UK-wide consumer education campaign on renewable forms of heating."



STIEBEL ELTRON UK secures ISO environmental management accreditation for sustainable operations

STIEBEL ELTRON, a provider of heat pumps and renewable energy solutions has been awarded the ISO 14001 Environmental Management accreditation for its efforts to reduce greenhouse gases, streamline waste management and improve its environmental performance.

First launched in 1996, the ISO 14001 Environmental Management program is designed to guide companies in identifying, managing, monitoring, and controlling environmental processes, allowing them to benchmark their current performance.

The certification comes as STIEBEL ELTRON UK continues to be a driving force behind the adoption of renewable heating solutions, such as heat pumps, across the UK.

As well as providing some of the latest and innovative technologies, the company shares industry knowledge with comprehensive training which will empower installers with the expertise to fit them.

Following an initial £350,000 investment into a new state-of-the-art training centre and programme in November 2022, the company expanded its facility in September last year to increase capacity for new heat pump installers, which has so far seen more than 650 installers provided with in-depth knowledge.

www.stiebel-eltron.co.uk



Former Baxi CEO says 'I'm in' to company that Dragon's Den rejected

DiscreteHeat is proud to announce the appointment of David Pinder, former CEO of UK heating manufacturer Baxi, as non-executive chairman. He joins Managing Director Martin Wadsworth, Russell Hamer, Operations Director and Ethan Wadsworth, Director of Sales and Marketing, at an exciting time for the business that was turned down by the Dragons in the popular programme Dragons' Den in 2008.

David says: "DiscreteHeat is not a start-up, but has been around for a number of years, developing and honing its unique system and is well-proven. The heating industry is rapidly changing, and its innovative ThermaSkirt heating system is suddenly on a steep upward trajectory.

"With the move toward heat pumps, which work more effectively by heating the system water to 40-45°C rather than 60°C with gas boilers, people are reluctant to have the bigger radiators that are to heat their rooms, as they take up even more space. However, housebuilders and social housing providers, have discovered the benefits that ThermaSkirt offers; it's competitively priced against large steel radiators, unobtrusive and looks good, yet is much more effective at heating the room efficiently at lower temperatures.

David has many years of experience, serving on a variety of different boards within the construction industry, including chair of the Green Construction Board and board member of the National Retrofit Hub as well as CEO of Baxi UK and Ireland and managing director UK and South Europe of NSG Pilkington.

As non-executive chairman at DiscreteHeat he will provide experience and expertise in running the Board, ensuring good governance and help with the challenges of growing the company and financing that growth.



David's first outing in his new role was to attend the National ACR and Heat Pump Awards in Manchester, where DiscreteHeat was Highly Commended in the Ancillary Product category.



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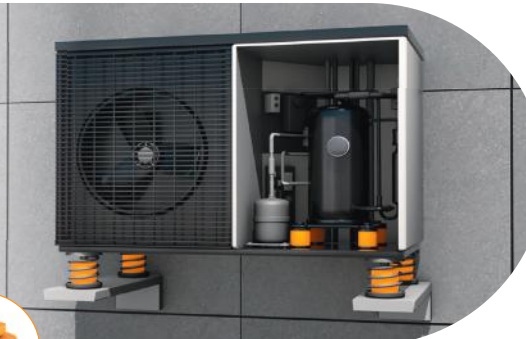
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Heat Geek, the sustainable energy start-up, has announced a £3.7million Seed funding round, bringing the total raised in 2023 to £4.2million to power its mission to decarbonise homes via heat pump technology on a national scale.

Every year, nearly half the gas consumed within the UK goes on heating. Electric heat pumps use electricity rather than the burning of gas or oil which means they are highly efficient and consume around a fifth of the energy of a gas boiler for the same heat output.

Just 25,000 heat pumps were fitted in private homes last year, but with a government ambition of 250,000 a year by 2025, the issue of insufficient qualified installers needs to be addressed. Currently, there are 120,000 qualified gas engineers in the UK, yet only 3,000 qualified heat pump installers. Experts calculate the country will need 27,000 by 2028 to hit current government targets.

Founded by Adam Chapman (Heat Geek's original founder and Chief Geek), Aadil Qureshi (ex Apple and IBM) and Matthew Gunn (ex JP Morgan), Heat Geek's new digital platform provides heating engineers

with a "business-in-a-box", empowering them with award-winning training, innovative technology and a pipeline of paying customers that have been pre-qualified using Heat Geek's proprietary property intelligence algorithms.

Community of installers

A key factor in Heat Geek's proposition and success to date is the creation and growth of the community of installers, which has 80,000 social media subscribers and 1,000 trained installers across the UK.

Co-founder and CEO Qureshi said: "At the heart of our business is a shared obsession with empowering everyone in the UK to upgrade their home and save money every month. But one of the biggest issues facing mass uptake of heat pumps is a lack of skilled installers. Our solution is simple – train thousands of existing heating engineers and give them the skills, knowledge and

tools to unlock the support for thousands of homeowners wanting to decarbonise their homes and save money on their energy bills."

All Heat Geek certified installers will soon be given access to the digital platform, featuring unique tools such as a digital surveying and system design process, a training and community hub, MSC certification, plus an end-to-end digital journey for the homeowner - all of which ensures the company continues to offer the highest efficiency Heat Pump installations in the country.

Chapman explained: "Heat Geek is built to support engineers running their own businesses at the heart of communities across the country. Our focus is empowering local heating engineers that have been keeping homeowners warm for decades. These engineers are best placed to upskill and guide their customers on the journey to adopt Heat Pumps."

Needs of engineers

The Heat Geek community is deeply involved with the development of the digital platform, ensuring the technology is built in absolute consideration of their needs as engineers and business owners. This co-development culminated in bringing on-board 15 of the community as shareholders of the company, ensuring the voice of the most important stakeholder is continuously integrated as the organisation scales.

Partnerships

Heat Geek has already established a number of significant partnerships; a partnership with OVO Energy was launched in September and now also partnered with Resi, a digital-first renovation and extension service, to provide their homeowners with heat pumps as they renovate their homes.

CEO of Resi, Alexandra Depledge said: “At Resi, we are on a mission to revolutionise home improvement. An integral part of this is our ambition to provide free retrofit advice to all Resi customers. That is why we are excited to work with Heat Geek to deliver more zero-carbon renovations, helping homeowners to not only unlock more value in their property, but do their bit for the climate whilst saving money on energy bills, and living more comfortably in their homes.”

Kristian Branaes, partner at lead investor Transition, said: “Decarbonising heat is one of the biggest opportunities within climate today, but the market is held back by the lack of qualified installers. Heat Geek is the only company we’ve seen across Europe



and the US that has a credible plan for how the industry can transform from within - by building on the incredible community that Adam and the Heat Geeks have already created and using technology to help it scale.”

Manuel Antunes, investor at Triple Point Ventures, said: “We found in Heat Geek the only heat engineering solution that is truly holistic and that allows installers to scale their operations to the extent the climate transition requires us to. From training to quoting, from design to performance monitoring, Heat Geek allows engineers to focus on what they love - installing great heating systems.”

Other investors include angels Ed Broussard, Rob Harris, Jeff Twentyman, Akta Raja and Stewart Seigel plus 15 of the most experienced Heat Geeks from across the country.

Heat Geek Damon Blakemore, said: “I’ve been a Heating Engineer for 20 years, and part of the Heat Geek community since the beginning. In recent times, heat pumps are getting a lot of attention and investment, but there’s only one company working with the installers to upskill, train and give them tools to grow their own businesses. That’s why I invested and am proud to be a Heat Geek.”



Award Winners

Heat Geek recently won Best Training Provider 2024 at the National ACR & Heat Pump Awards, held at the Midland Hotel, Manchester on the 21st of March. Publisher and host of the event, Juliet Loisselle said ‘what Heat Geek are providing is a real eye opener, extremely interesting concept and we are so pleased they were recognised and won’

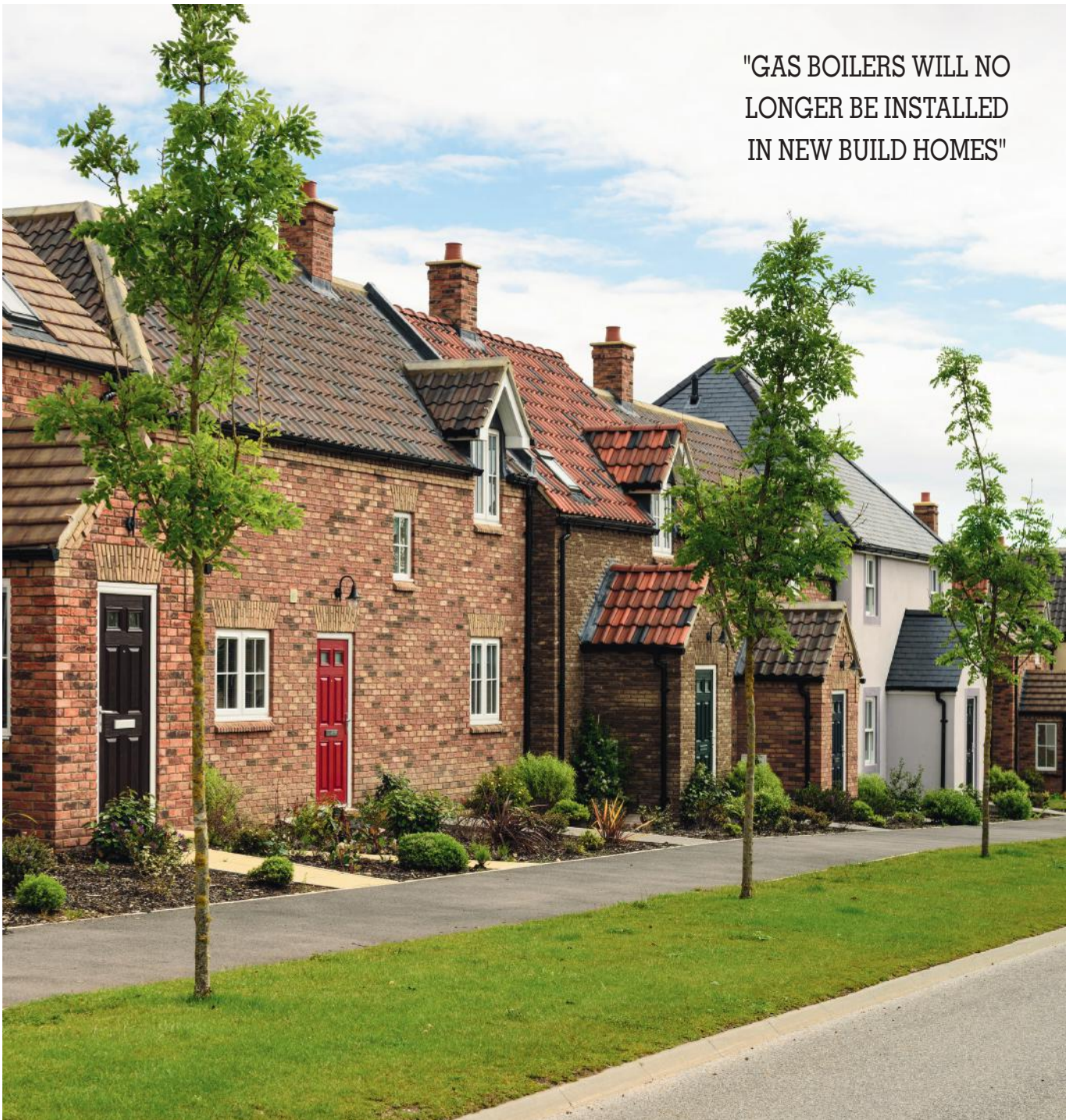


Info
www.heatgeek.com

How sustainability is changing the construction of new build homes - and its impact on plumbing

With sustainability top of the agenda, Richard Bateman – Product Marketing Manager at RWC – explains the essential role of plumbing and heating in new build properties.

"GAS BOILERS WILL NO LONGER BE INSTALLED IN NEW BUILD HOMES"



To meet the growing demand for housing across the UK, the government has targeted the construction of 300,000 new homes every year. Within a landscape where sustainability is high on the agenda, these new homes provide an opportunity to create efficient buildings that have a minimal environmental impact while meeting the needs of occupants.

Plumbing and heating systems have a crucial role to play in this journey, with efficient systems helping to reduce energy consumption and conserve water – all while maintaining comfort and reliability to create homes that are fit for the future.

The changes to Part L of the Building Regulations, which came into effect in 2023, outline the specific requirements of plumbing and heating systems in new build properties. At the heart of these changes, gas boilers in new builds must deliver a 92% efficiency, while central heating systems should be sized for operation at a maximum of 55°C.

With these requirements directly impacting the construction of new homes, they unlock the potential to introduce plumbing and heating technologies that prioritise sustainability.

A shift in home heating

With around 30 million homes in the UK, it's not surprising that heating them makes a significant contribution to overall emissions – around 17% in total. By rethinking how new homes are heated, efficiency and sustainability can be directly improved.

From 2025, in accordance with the government's Future Homes Standard, gas boilers will no longer be installed in new build homes, reducing reliance on gas. Instead, low-emission alternatives like heat pumps will be used. For new build properties, adopting these emerging technologies is relatively straightforward as the buildings themselves can be designed to accommodate them.

In turn, this opens up the potential for change elsewhere in new homes, including the specification of underfloor heating (UFH).

Specifying underfloor heating for sustainability

Including UFH in the specification of new homes means that effective systems can form an integral part of the building from



Richard Bateman, Product Marketing Manager for Plumbing and Heating

the outset. The low operating temperatures of these systems – typically between 40°C and 50°C – means they align directly with the requirements of today's Building Regulations, placing sustainability at the heart of design.

While these operating temperatures ensure greater levels of efficiency are achieved, they also enable housebuilders to deliver homes that are fit for modern living.

When we think of traditional home heating, radiators will probably spring to mind as a solution that has been relied on for many decades. The problem with radiators is that they are energy hungry, requiring operating temperatures in excess of 65°C to adequately heat a room. Even then, cold spots are commonplace, compromising both efficiency and comfort. UFH changes this by transforming the entire floor space into a heater, unlocking greater comfort, efficiency, cost-effectiveness and even aesthetics.



With systems such as JG LowFit hidden beneath the floor, rather than taking up valuable wall space, room layouts can be more flexible, making them better suited to modern living styles. Similarly, UFH systems can be controlled using smart technology, giving occupants full control over their heating – and subsequently supporting ongoing sustainability.

Pipes and fittings for sustainable systems

Alongside the systems that can facilitate efficiency, specifiers also need to consider the materials used to make plumbing and heating systems truly sustainable. When building sustainability into new homes, the materials used will have a direct impact – not just during construction, but also throughout its decades in use. Selecting materials that can stand the test of time is crucial to long-term efficiency and reliability.

Plastic is a popular choice to underpin the long-term performance of plumbing and heating systems, with push-fit fittings – including those pioneered by JG Speedfit – leading the way. Suitable for a wide range of applications, JG Speedfit pipes and fittings can be used to create strong, efficient and reliable domestic plumbing and heating systems.

Featuring push-fit technology, solutions like plumbing manifolds can be used to create a central distribution point for hot or cold water, reducing the complexity of pipework and elevating efficiency. From the manifold, flexible plastic pipe such as JG Layflat, can be used to create long pipe runs without the need for additional connections, supporting long-term performance and minimising the potential for leaks.

Specifying plastic solutions for new build homes unlocks the potential to create future-proof plumbing and heating systems that prioritise sustainability and user comfort. The properties of plastic make components resistant to corrosion, ensuring they'll last for decades. Paired with push-fit technology, these components can also be installed quickly and safely, without the need for tools or flames. 🔥

Info
www.jgspeedfit.co.uk



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Creating a true 'circular economy' is the biggest challenge and opportunity facing the industry

Transforming the cooling industry into a true 'circular economy' that works hand-in-glove with new equipment supply is the biggest challenge and greatest opportunity facing the sector, according to Green Point UK, BITZER UK's specialist services arm.

"The current focus is understandably on decarbonisation through energy efficiency and moving away from high global warming potential refrigerants," says Will Pribyl, General Manager of Green Point UK. "However, this is part of a bigger picture now emerging – the move to a genuine circular economy, where new equipment suppliers integrate recycling and reuse of products as part of a unified approach – conserving materials, extending life, and minimising carbon throughout the product lifecycle."

BITZER UK and Green Point UK are in the vanguard of this approach, being the only compressor supplier in the UK to operate an integrated remanufacturing facility to process end-of-life systems for return as-new to the market.

The company believes this approach, adopted more widely, will eventually revolutionise the industry by extending product lifecycles, reducing environmental impact, and ultimately leading to a more sustainable and efficient use of resources.

As the world wakes up to the environmental and economic benefits of this approach, people are beginning to question the wisdom of disposable high-cost components, such as hermetic compressors. The spotlight is now also falling on equipment and systems.

The year of retrofit

BESA, the HVACR contractors' body, has called for a paradigm shift towards refurbishing existing equipment, and urged the government to "make 2024 the year of retrofit".


A Life Cycle Assessment (LCA) comparison between new and remanufactured compressors reveals the dramatic differences in embodied carbon. For example, a new 20hp semi-hermetic compressor has a carbon footprint of 1590kg CO₂e, whereas a remanufactured version of the same compressor ranges from 110 to 168kg CO₂e*, around one-tenth that of a new unit.

This sharp contrast underscores the potential for significant reductions in

greenhouse gas emissions through remanufacturing and repair, rather than disposal of end-of-life compressors.

Will Pribyl: "These figures aren't just numbers, they represent a clear, measurable environmental benefit. By choosing remanufacturing, we're able to save up to 1480kg CO₂e per compressor, and even higher values for larger units. This is a testament to the tangible benefits that circular economy principles can have for the environment.

"There will always be situations where new equipment is required, whether for technical, logistics or other reasons. However, when it is possible to reuse and recycle, and it makes economic sense to do so, there is a strong argument that this should be the default solution."

Kevin Glass: "As we move away from high GWP refrigerants, it's now imperative to also focus on how we can make the entire lifecycle of our products more sustainable. The principles of the circular economy offer a roadmap for achieving this." 

BENEFITS OF CIRCULAR ECONOMY

1

- // Increased potential for economic growth
- // Reduction on production cost

2

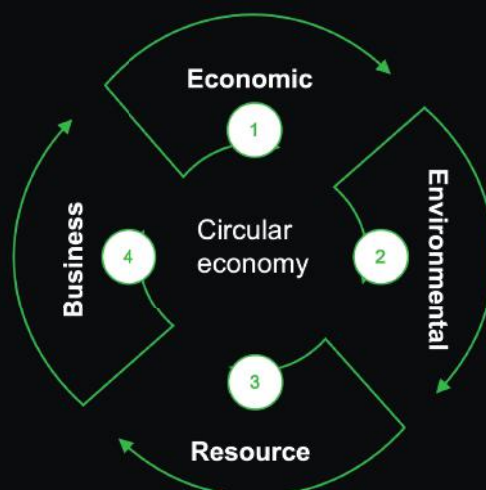
- // Fewer greenhouse gas emissions
- // Reduction and diminishing of negative environmental external effects

4

- // New profit opportunities
- // Demand for new services
- // Getting to know client better

3

- // Make better use of finite resources
- // More resources saved



Tales of the Riverbank

The refurbishment of York Guildhall shows how a heat pump can be used to provide heat for historic buildings, even those from the 15th-Century, says Anastasia Mylona, Technical Director at The Chartered Institution of Building Services Engineers.

The use of heat pumps led to an impressive refurbishment of York City Guildhall. The River Ouse runs adjacent to (and sometimes inside) York's 15th-Century Guildhall Building. The Guildhall is part of a historic complex of Grade I, II and II* listed buildings in the centre of the city. Its river frontage is one of the iconic views of historic York, which meant there were severe limitations on what modifications were possible in its refurbishment.

SGA Consulting's building services scheme for the refurbishment and extension of the Guildhall uses a heat pump to harness the river to provide the complex with 110kW of low carbon heating and cooling.

Refurbishing listed elements

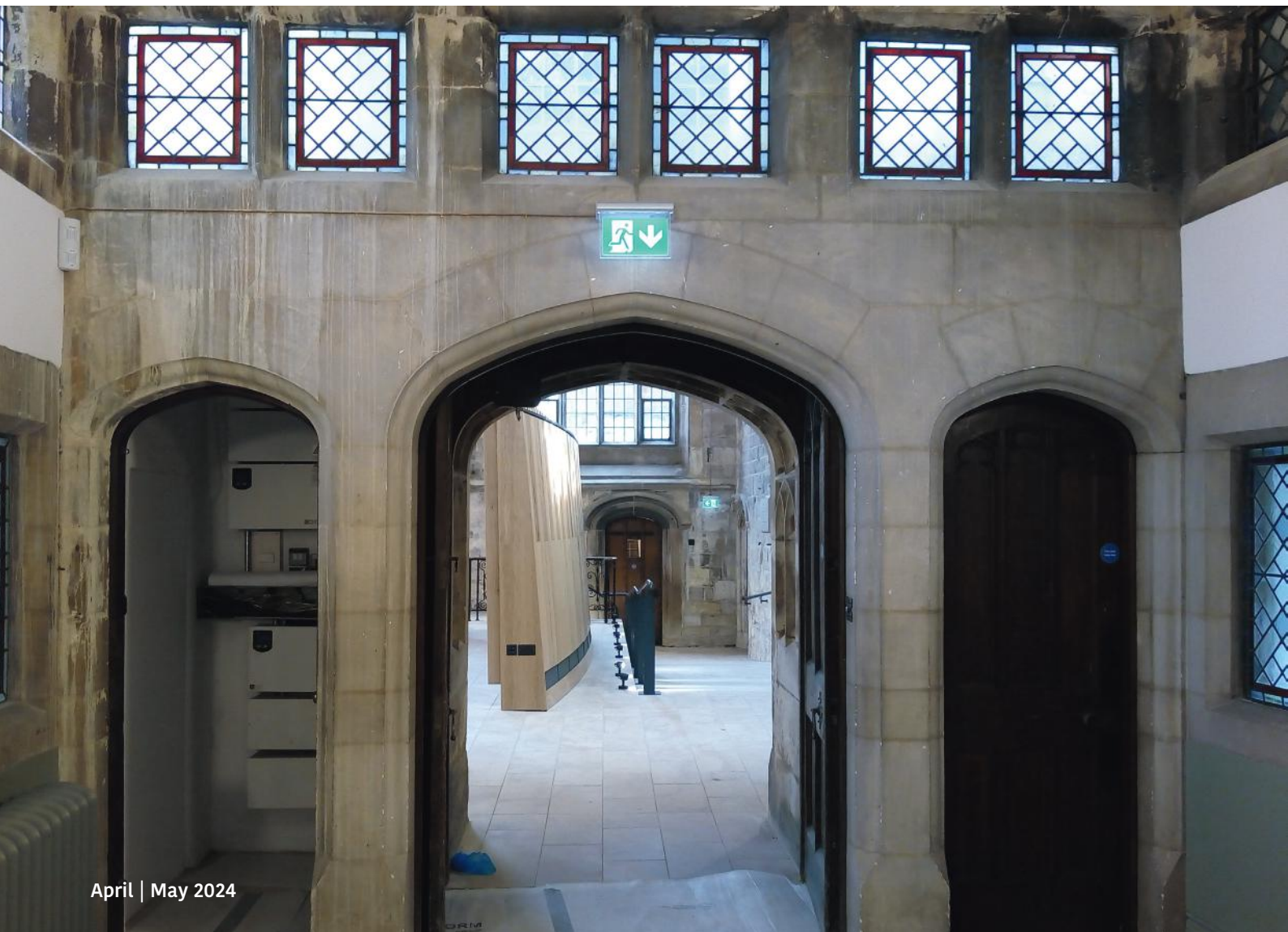
To develop the scheme, SGA Consulting worked with architect Burrell Foley Fischer. York City Council's brief to the team was to refurbish the listed elements of the scheme to improve accessibility, occupant comfort and energy efficiency and to design a new office extension and restaurant at the rear of the complex to transform the complex into a new flexible hub for the city's digital and creative industries.

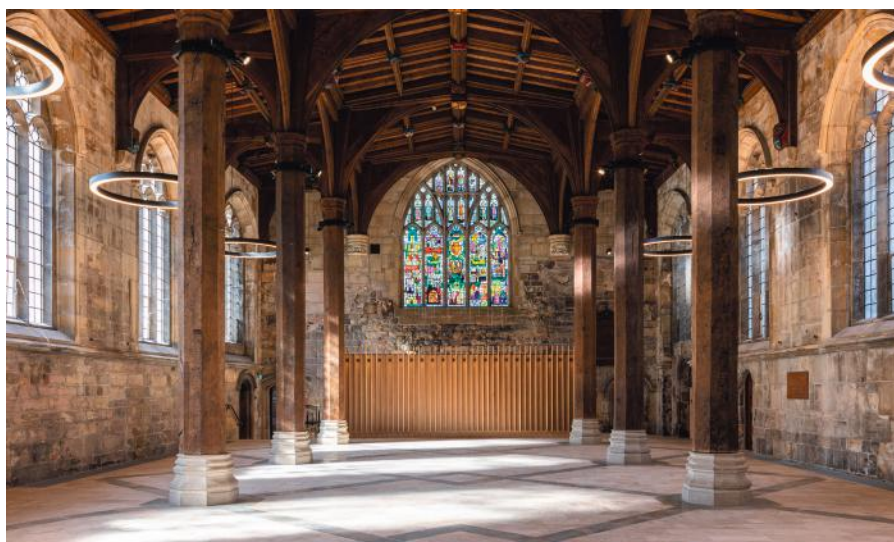
"Because the building is situated right next to the River Ouse, it seemed the obvious choice to make use of the river to provide 'free' heating and cooling to the building," says Baert Stevens, a director of SGA Consulting. Permission to use the

river was obtained from the Environment Agency and the Canal & River Trust and an unobtrusive route for the abstraction and discharge pipework was devised from the basement plantroom to the river.

The techy stuff

Heating and cooling are provided by a 2-circuit reverse-cycle heat pump, using R410A refrigerant. This enables reclaimed heat and coolth to be captured and used in the building, which helps reduce heating carbon emissions by a factor of three. To optimise its efficiency, the heat pump heating circuit runs at 50°C flow/45°C return, while the cooling circuit runs at 6°C/12°C return.





SGA Consulting's building services strategy was to adopt a fabric first approach. Servicing the new office extension and restaurant was relatively straightforward because these the fabric of these elements were designed to exceed Building Regulations minimum. However, the listed status of the existing elements of the complex meant that opportunities to improve fabric thermal performance were limited, which had an impact on how the heat pump derived heat could be used.

Extracting heat from the river

The heat pump takes heat from the river in winter by extracting water at 3°C and returning it at 1°C. The lower temperature of the heat pump heating circuit made it ideal for underfloor heating, where the large floor areas compensated for the lower water temperature. The heat pump

heating circuit is also used to supply fan coil units, which incorporate oversized heating coils to compensate for the circuit's lower temperatures.

The heat pump also provides cooling to the fan coil units in south-facing rooms in the listed parts of the building, again using river water extracted at approximately 22°C returned at 25°C

Using the heat pump removed the need to house conventional chillers in the complex with the associated noise and challenge of concealing the air-cooled condenser externally in this historic part of York.

Alongside the electric water source heat pump, the scheme also includes gas-fired boilers. These supply a conventional low pressure hot water heating circuit at 80°C flow/70°C return. This provides heat to the listed Victorian cast iron radiators in the Council Chamber as well as the domestic hot water calorifiers which provide hot water to the kitchen and toilet blocks.

High heat losses

Heat losses in the 15th-Century Guildhall were particularly high. The building's Grade I listing meant that it was impossible to enhance the thermal performance of the walls and windows, although the team were able to add additional insulation to the roof as part of the lead roof replacement works.

Bomb damage during WWII meant that the Guildhall floor had been replaced, so English Heritage permitted underfloor heating to be installed in 7m-high space. However, the hall's heat losses were so great that output from heat pump-supplied underfloor system was insufficient for the space.

SGA's Consulting's solution was to conceal trench heaters within the floor, connected to the higher-temperature gas-fired boiler circuit to supplement the underfloor system on very cold winter days. As a consequence, the trench heaters only supply 12% the Guildhall's annual heating demand. "This type of mixed use shows how heat pumps can be used to provide heating to old buildings where the rate of heat loss would be too high otherwise," says Stevens.

Overall, the river-source heat pump delivers carbon savings of 8 tonnes per year.

Waterborne Logistics

In addition to providing a source of free heat, the proximity of the River Ouse also proved beneficial during the refurbishment works. The Guildhall's location in the centre of Medieval York made it very difficult to get construction materials and equipment to the site and to remove waste from it.

Vinci Construction overcame this particular challenge by using the river to transport heavy equipment and materials to and from the site by barge. However, even this solution was not without its difficulties because the river level can rise by 5m following heavy rain. At such times, deliveries to site were delayed because Vinci's barge was unable pass beneath the town's bridges to reach the site.

WOMEN IN THE HEAT PUMP INDUSTRY

This issue's Women in Heat Pumps focuses on Rachel Griffiths, Training Officer, Baxi.

How did you get into the heat pump industry?

I came into the heat pump industry as a qualified gas engineer, having worked in the plumbing, heating and gas sectors for over 10 years. During this time, I installed and maintained various plumbing and heating systems. I joined the Baxi Training team in Summer 2023, and I could never have imagined the amount of knowledge I have gained since starting.

I have now achieved my BPEC Heat Pump qualification and am continuously developing my understanding of renewable technologies.

What was your first job?

I first decided I wanted to work in construction at around the age of 15. My first job, however, was as an assistant in a high street clothes shop - a stop gap position between finishing school and preparing for my chosen career. I continued to work weekends while attending my first few months of college on a plumbing and heating course. The following January I started my apprenticeship as a plumbing and heating engineer, and I have never looked back.

What does your current role involve?

As a Training Officer, I deliver a variety of training courses to engineers. I deliver Baxi specific product training to help engineers develop a more in-depth understanding of our products, as well as specialist training such as fault finding and system wiring courses. Baxi offer numerous heat pump courses, from a one-day introduction course for installers to get familiar with Baxi Air Source Heat Pumps to a BPEC-accredited heat pump training course including water



Rachel Griffiths, Training officer, Baxi



regulations, as well as a two-day course covering design, installation, commissioning and servicing. I am delighted to be focusing on delivering more of these this year.

I have also had the opportunity to install our ASHPs in some of our Baxi training centres, which has given me a great insight into the installation and commissioning of the units.

What do you see as the challenges facing the industry?

Unfortunately, there are a lot of misconceptions surrounding heat pumps and more education is needed to help people understand and appreciate the benefits that a modern, well-designed heat pump system can bring. Many homeowners are accustomed to homes that are still heated by extremely hot radiators - which of course is not the case with heat pumps.

As we know, the key principles of a heat pump in operation are low and constant, so it's essential to help homeowners understand this. Additionally, many heating engineers are either apprehensive about the reliability of heat pumps, which is mainly down to negative media coverage, or consider it a longer-term ambition rather than an immediate opportunity to upskill and develop a forward-thinking business.

Again, it shows how education and training is vital to drive the energy transition.

Do you have any mentor's or anyone in particular who inspires you? (Either in or out of the industry)

I am inspired daily by the depth of knowledge and commitment to learning displayed by every one of my colleagues in the Baxi Training team.

What would you say to other women who are considering coming into the heat pump industry?

I have always been passionate about encouraging more women to consider a career in construction. Currently only 15.8% of the construction industry are women, according to the Office of National Statistics.

The industry is facing a skills shortage, and we cannot afford to deter over half of the population from considering a career in our industry. My career has been incredibly rewarding and I am so grateful for the path it has led me on and the opportunities that have been presented to me.

Heat pumps have an important part to play in the energy transition, and we need more people to install and maintain them. I would encourage anyone, of any gender, to consider a career in the heat pump industry. The future is exciting!

What do you like to do outside of work?

I weight train at the gym at least 5 days a week. It is something I have enjoyed doing for many years and I always make time for it. In the last year, my partner and I have been renovating our home, so most of our weekends have been taken up with this! 🏠



Retrofit23 spotlight:

Heat pumps, pipework and district heating

In the final article in the series panel expert at REHAU Retrofit 231 event, **Steve Richmond**, Head of Marketing & Technical at REHAU Building Solutions, looks at retrofitting district heating systems.

According to data from Energy Systems Catapult, one in five homes are set to be heated via heat networks by 2050, as the UK looks to meet its net zero obligations¹. Considering the pace of innovation within the heat pump space, with higher-temperature models becoming increasingly efficient, this figure might be considered conservative – especially when accounting for non-residential building stock.

This is in part down to the technology's adaptability. District heating can be used for multiple applications, such as new build low-density housing developments, multiple residential tower blocks or mixed use residential and commercial buildings.

Multiple waste heat sources

District heating can also reduce emissions through the use of otherwise wasted heat. The future is undoubtedly exciting for this technology and its applicability is not limited to newbuilds. Approximately 80% of current properties are forecasted to



Steve Richmond, Head of Marketing & Technical at REHAU Building Solutions

still be in use by 2050, so further thought must be given to how the benefits of heat networks can be applied to existing building stock².

The sheer scale of waste heat sources from existing infrastructure makes this need even more pressing. For example,

low-grade heat emitted from buildings, water treatment works and sewers can be harnessed, alongside heat from food refrigeration and IT equipment within commercial buildings. Even heat from braking, lighting and passengers within train tunnels, via ventilation shafts, may be reused in these systems. Similarly, high-temperature heat from transformer coils within electrical substations, industrial sources such as chemical, clinical waste and food production, and rejected heat from power stations can be utilised.

Powering development

These possibilities have also driven the development of newer, more efficient systems that supersede existing third-generation network designs. These previous schemes, which were designed for flow temperatures of 80-90°C, often use a fossil fuel-based source. From this centralised point, heat can be efficiently distributed across a network of buildings, reducing

carbon emissions in comparison to the gas boilers commonly used in current building stock.

The rise of fourth-generation district heating models has further expanded what is possible from an efficiency and sustainability standpoint and is fast becoming the common standard for new networks. Referring to systems with flow temperatures of around 60-70°C, these schemes are ideal for use with low-carbon sources such as centralised heat pumps or waste heat.

There is also a fifth generation of district heating networks. These schemes are markedly different, using very low temperature or ambient loops to provide heating and cooling. To ensure this design's viability, individual heat pumps are needed for each building to boost the temperature to the required conditions.

Generational Change

Given the scale of uptake necessary to decarbonise new and existing building stock, this variety of solutions is to be expected, and each heat network project will have unique circumstances and

requirements. Despite this, the direction of travel is clear – third-generation networks often reliant on fossil fuels are no longer being specified for new projects. For futureproofed, low-carbon heat, greater uptake of heat pump-based fourth or fifth-generation networks is required, especially given rising fossil fuel costs and the subsequent rise in fuel poverty and energy insecurity.

Industry thinking is also increasingly aligned with this conclusion. For instance, the National Infrastructure Commission, the executive agency responsible for advising the Government on the UK's infrastructure challenges, has said hydrogen should be ruled out for home heating applications³. Previously regarded as a viable option because it can be delivered using existing boilers and gas pipes, the commission advised against hydrogen's residential use on efficiency and cost grounds.

Though the dust has not yet settled on the debate and what may happen in the commercial building space, these comments demonstrate the increasing

and continued viability of district heating schemes and heat pumps. With fossil fuels being phased out in 80% of off-gas domestic buildings by 2035 and gas boiler sales banned in 80% of houses by the same year, heat pump professionals should look at district heating as an immediately available and effective option to achieve urgent decarbonisation goals.

Furthermore, incentive schemes such as the Green Heat Network Fund, which provides £270m of support for low-carbon projects in England from 2022 to 2027, highlights a willingness to engage with the technology at scale. Similarly, the Department for Energy Security and Net Zero's (DESNZ) Heat Network Zoning plans identify heat generation sources and how they can be added into existing systems via pipework to meet community heating needs, demonstrating how heat network rollouts can continue at larger scales⁴.

Exploring the practicalities

Now that it is clear that heat networks are essential to the UK's decarbonisation journey, the practical concerns must



Source

1. <https://es.catapult.org.uk/news/consumers-must-be-the-central-pillar-of-heat-network-regulation-says-energy-systems-catapult>
2. <http://tinyurl.com/yfy4dbfv>
3. www.edie.net/national-infrastructure-commission-uk-should-rule-out-hydrogen-for-home-heating
4. www.gov.uk/government/collections/heat-network-zoning

be addressed such as supplying existing properties and buildings. One major consideration is the installation of pipework running from a centralised source in fourth-generation networks, or to individual homes for fifth-generation schemes.

In occupied buildings, retrofit pipework installation must be completed with minimal disruption to those living, working or using affected properties. Laying pipework in trenches is the first major step that must be navigated during the installation process. Steel sticks have traditionally been the material of choice for heat network piping, but they are heavier than polymer alternatives, less flexible and require expansion loops, leading to more jointing. Class 1 welders are required for steel pipework, carrying out hot works that may impede other contractors on-site, as well as requiring wider trenches.

Further issues can arise during the jointing process, which is key to any successful district heating scheme due to the large number of tee connections required for each building or house served. To be successfully installed, a below-ground joint requires effective insulation

to reduce heat loss, which is where district heating shrouds are used.

Ensuring long-term performance

Despite trained installation teams being used, steel welding does not guarantee success. In fact, the German District Heating Association cites on-site welding as the reason behind 75% of pipe failures⁵. If this occurs, costly replacement or remedial work may be required, which often involves digging up roads and gardens. As steel carrier pipes can be corroded through water ingress from impaired joints, so leak detection is required.

By contrast, lighter polymer pipework such as PE-Xa coils, combined with mechanical jointing methods, can lead to quicker, high-quality installations capable of being carried out by either civil or mechanical contractors without leak detection equipment required. It also does not require specialist welding so can be completed in a narrower trench, meaning less initial groundwork and disruption before laying pipework.

The popularity of these polymer-based pipework solutions has increased with

the advent of fourth and fifth-generation systems, which run at markedly lower temperatures than their predecessors. While steel was commonly used for third-generation systems running at over 90°C, this higher heat tolerance is no longer required. Consequently, heat pump professionals are advised to consider newer materials for piping, especially as the uptake of newer low carbon schemes continues.

In conclusion, decarbonising heating for the nation's existing building stock will be a massive undertaking. The list of viable technologies that can be used in the transition to a net zero future is a small one, and fourth and fifth-generation heat networks hold a unique appeal among them. Yet to ensure a high-quality and efficient installation, heat pump professionals must consider multiple factors, chief among them material and jointing choices. By working together with supply chain leaders such as REHAU, these sector stakeholders can better navigate these considerations and put themselves at the forefront of an expected boom time in the low-carbon heating space. 🏠

Info

For more information on district heating:
<http://tinyurl.com/yxm7u326>

Source

5. *Statistics taken from German District Heating Association in EuroHeat and Power, 2013*



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Aira launches state-of-the-art Heat Pump with Smart Home Energy Solution

Swedish clean energy-tech champion, Aira has launched the Aira Heat Pump, complete with the latest smart technology to take Europe off gas and accelerate the electrification of home heating.



In the UK there are still 25 million oil and gas boilers heating homes. The Government is propelling the transition to heat pumps by offering consumers a £7,500 grant, while VAT has also been eliminated on any clean energy improvements to homes until 31st March 2027.

The Aira Heat Pump takes a digital first approach, removing displays and putting customers in control of all settings via a thermostat and smart app that they can control anytime, anywhere. The system is always improving thanks to 'Aira Intelligence', a set of smart, connected features that continuously learn the customer's routine and household habits to precision plan heating and hot water.

While new to market, Aira has a strong foundation of heat pump knowledge due to its Scandi heritage and roots in Sweden, where heat pump penetration is at 60% and only 1% of the country's total CO₂ emissions come from residential heating.

www.airahome.com

'Game-changing' British heat pump unlocks gas-free home heating for the masses

Low-carbon heating and cooling for every UK home is one step closer as Kensa breaks ground with the next generation of heating.

Kensa's solution - Networked Ground Source Heat Pumps - replicates the familiarity and accessibility of gas networks and enables the mass rollout of heat pumps in the UK, bringing low-cost renewable heating and cooling to almost any type of home, whether that's a new build, a 19th-century Victorian terrace, a tenement or a high-rise urban flat.

One-third of the UK's greenhouse gas emissions come from heat, and 6.5 million homes are estimated to be in fuel poverty. Kensa's solution will boost heat pump installations, shielding millions from unpredictable energy costs by replacing imported gas with domestically produced renewable electricity.

Designed with mass heat pump rollout and ease of installation in mind, factory production of the NX can be readily scaled up to deliver 30,000 per year, with further expansion planned, and can be easily fitted by most heating and plumbing engineers without extensive training.

www.kensaheatpumps.com



60 years and it's just the beginning



Fernox is celebrating its 60th year in 2024. As the world's first chemical water treatment company, the last six decades has seen Fernox consistently lead the way in the heating industry – from pioneering the use of chemicals, testing and filter technology to keeping heating and renewable systems energy efficient.

Born from a light bulb moment by German engineer **Peter Muetzel**, Fernox has evolved exponentially over the years to what it is today: a global company that applies its knowledge to the local market, to provide an extensive range of chemical water treatments and filters

for both traditional and renewable heating systems. This is thanks to its extensive research and development capabilities and a team of dedicated scientists and engineers that work to bring innovative solutions to market. Recent examples include the TF1 Sigma HP Filter and HP-EG heat transfer fluid.

Fernox has long been committed to training for installers and apprentices; continuing to lobby for the correct use of water treatment and implementation of industry best practice processes; and over the years has seen energy efficiency and environmental impact grow on the global and UK agenda.

Now in its 60th year, Fernox has lots to look forward to with the launch of new products and technologies, customer engagement activities and continuing to work with charity partners. Alongside this, Fernox will also continue to focus on supporting installers including investing into its already comprehensive and impressive training facilities to elevate this valuable resource further for the current and next generation.

"We are so proud to celebrate such an incredible milestone," said **Ernie McDonald** Director at Fernox. "60 years strong and we have a great future ahead, with lots of innovations in the pipeline and exciting activities to celebrate our diamond anniversary. Although it's important to look back and acknowledge everything we have achieved, for the team this year, it really is all about the future – and we remain absolutely committed to the environmental efficiency agenda."

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