



Welcome to Adveco's April newsletter,

We have a packed newsletter this month, starting off with an examination of the way office use is changing and how that impacts approaches to delivering hot water in the buildings. We then travel to Oldham, where the sixth form college has opted to continue with gas water heating as the optimal and most cost-effective means of maintaining water heating demands for its sports facilities.

Adveco also has thorough experience in the use of offsite construction, creating bespoke and off-the-shelf packaged systems. This month we look at the opportunities this approach brings in terms of providing dedicated plant room space for DHW systems. And we wrap things up this month with a deeper look at our application design and consider the importance of adherence to regulations and working in partnership with consultants, contractors and installers for the successful implementation of sustainable water heating.

Whether office, school or any other commercial or public sector buildings, If you are planning a new build or renovation project do not hesitate to reach out and talk to our experts about your water heating needs...

## **Domestic Hot Water For Mixed Use Office Spaces**



The traditional model for office buildings in the UK is undergoing a significant transformation. A growing trend towards mixed-use developments is reshaping urban landscapes, integrating office spaces with a diverse range of complementary functions, including retail, leisure, and food services. This shift is driven by a confluence of factors, from evolving work patterns and changing consumer demands to urban planning policies and a desire for more vibrant, sustainable communities.

The rise of remote work and flexible working arrangements has altered the role of the office. Instead of simply being a place to put in hours, it's increasingly seen as a hub for collaboration, creativity, and social interaction. Mixed-use developments cater to this by offering a variety of amenities and experiences that enhance the employee experience and attract talent.

Mixed-use developments can generate significant economic benefits by creating jobs, attracting investment, and boosting local economies. They can also contribute to social cohesion by fostering vibrant public spaces and promoting a sense of community. For this reason, local authorities are increasingly promoting such mixed-use developments as a means of revitalising urban areas, creating more 'walkable' communities, and reducing reliance on private vehicles. These policies can incentivise developers to incorporate a mix of uses, leading to a greater diversity of offerings, and providing a one-stop shop, combining work, leisure, and essential services within a single location. This eliminates the need for employees to travel far for lunch, groceries, or entertainment, with the intent of increasing productivity and satisfaction.

Mixed-use developments are experiencing a surge in popularity, which has so far been focussed on major cities, with London and Manchester taking the lead. But others are following as demand increases for offices and concentrated amenities, especially in more suburban localities which support more hybrid working hours which have become more commonplace post-Covid. The range of non-office uses does vary widely, including retail stores, restaurants, cafes, gyms, co-working spaces, and even residential units, but what links the vast majority of these new projects is an emphasis on sustainability. Many mixed-use developments incorporate sustainable features, such as green roofs, rainwater harvesting, and energy-efficient technologies, reflecting the growing awareness of environmental concerns.

## **Sustainable Domestic Hot Water in Mixed-Use Office Spaces**

As part of the effort to reduce environmental impact and operating costs, mixed-use office spaces need to consider incorporating sustainable domestic hot water (DHW) applications. Combining office functions with retail, leisure, and residential elements, presents several considerations that need to be recognised before committing to a DHW application.

Mixed-use buildings will exhibit diverse DHW demands. Offices have peak usage during working hours, while leisure and potential residential components may have different patterns, longer for leisure and early and later in the day for residential creating complex, fluctuating load profiles. Minimising energy consumption is crucial, so sustainable applications will focus on high-efficiency appliances, boilers, heat pumps, and solar thermal systems. Utilising waste heat from other building systems, such as chillers or ventilation, to preheat DHW is also an important consideration. This is all dependent on implementing intelligent controls, and optimising system operation based on real-time demand to maximise efficient balance of system elements, low-cost and renewable energy availability. Where possible, integration of renewable energy sources like solar thermal and air source heat pumps for the provision of system pre- and mid-heat should be deployed to reduce reliance on still costly grid electricity. All the while ensuring consistent high temperatures are available to ensure compliance with Legionella regulations. Low-flow fixtures and rainwater harvesting systems can also be of use, minimising water consumption for greater sustainability.

Applications for DHW in commercial spaces have always been more complex due to the scale of service and regulations. With the increasing, often hybrid mix of technologies still necessary to deliver sustainable hot water demands, that complexity only increases, more so with mixed usage. Seamless integration of all elements, whether **Heat Pumps**, **Electric Boilers**, **Solar Thermal** or, where available increasingly in the future, connection to district heating networks requires careful system design and often higher initial investment costs compared to traditional gas-fired installations.

Limited space within mixed-use developments can also pose a challenge for the installation of some technologies, especially where demand for roof space is acute. This is a real opportunity to consider **Off-Site Constructed Plant Rooms** dedicated to the DHW application and able to quickly resolve problems relating to the availability of space. It is also worth carefully considering how energy sources integrate as supporting increased electrical demands may involve extremely costly grid connection charges.

With all that taken onboard, the trend towards mixed-use office developments is expected to continue, driven by evolving work patterns which demand versatile and engaging workspaces. This and the drive for urban regeneration will go hand-in-hand, transforming underutilised spaces into vibrant hubs. The transition to mixed-use office developments represents a significant shift in the way we think about and design urban spaces. By integrating work, leisure, and essential services, these developments offer a more holistic and sustainable approach to urban working and living. Providing sustainable DHW in such mixed-use office spaces in the UK presents challenges and opportunities. By carefully considering the unique demands of each building use, employing efficient technologies, and integrating renewable energy sources, developers and building owners, working in close collaboration with industry specialists like Advenco, can create and advance more cost-effective, sustainable DHW systems that will further support this dynamic sector of UK building projects.

#### WATER HEATING FOR OFFICES

### Oldham Sixth Form College: Gas Retrofit For Sports Hall



Oldham Sixth Form College is a prestigious government-funded college of further education in Oldham, Greater Manchester. The college boasts some 2400 students and takes pride in facilities which support the pursuit of vocational and academic goals, as well as the personal development of the students. Physical education plays an important role and the sports block is a key focal point for the student body.

Lakeside Mechanical & Electrical (M&E) Services Limited was contracted to replace the sports block's current water heating as it was no longer meeting the high demands of their facility. With the block in daily use, a swift resolution was required to minimise downtime and resolve the increasing need for domestic hot water (DHW) supply to showers and basins.

Having completed previous refurbishment work at the College, Lakeside M&E Services Ltd contacted previous supplier and hot water specialists Advenco to source a replacement which would meet the increased day-to-day demands of the sports block. The College wanted to ensure operational costs remained low but also needed assurance that they were gaining best value for the capital investment. With mains water in Oldham being soft, there were concerns over the corrosive nature of the water and the resultant life expectancy of any proposed replacement. The college, although committed to retaining gas-fired water heating, also wished to place greater focus on fuel consumption and resultant emissions from the building.

Recognising the success of the previous installation at the College, Advenco proposed using two ADplus units, commercial high-power gas-fired condensing water heaters each with a 140 kW output. The integrated 120-litre stainless steel water storage tank enables fast recovery for continuous and on-demand hot water typically required in leisure and gym facilities. Because of the nature of individual and team-based activities in the sports block, demand would fluctuate but can be relatively consistent throughout the opening hours. The ability of the ADplus to rapidly reload the built-in storage tank means operation is semi-instantaneous. Working on the assumption of DHW stored at 60°C and the incoming cold water is consistent at 10°C, ADplus can supply a DHW 10-minute peak of 543 Litres and a DHW recovery of 2534 litres/hour continuous at 50°C temperature rise.

As well as meeting the DHW demand for showers, washrooms and fitness areas of this extremely popular and constantly in use facility, the ADplus also addressed the other concerns including value of investment, operational costs and emissions.

Heat is provided by the patented Fecralloy premix burner with a high modulation ratio for excellent functionality at extremely high temperatures. It also offers maximum efficiency even during periods of low demand. With a consistent balanced air/gas ratio in each point of turndown, ADplus boasts high combustion efficiency (106%) requiring less gas, making it more cost-effective, plus reducing harmful NO<sub>x</sub> and CO<sub>2</sub> emission.

Perfect for the sports block 's on-demand needs, these ADplus units only heats what is necessary, with no ignition for smaller withdrawals providing considerable energy savings. When heat is required, the condensing technology provides up to 30% savings in fuel consumption helping to address ongoing operational costs.

The resilience to the local mains water conditions was also a key decision-making factor in terms of accepting the ADplus. It was pivotal to have an appliance that would be able to withstand the corrosive soft water elements. Lakeside M&E Services Ltd commended Advenco as "extremely helpful and knowledgeable" providing "better technical and sales help" with more in-depth information than they had found with other companies. The advisory on water softness and calcium levels was particularly useful, as this was extremely detailed and helpful in and decision-making process with the College. The titanium-stabilised stainless-steel construction makes the ADplus heat exchangers highly resilient; as is the stainless-steel cylinder, protecting when in direct contact with chlorinated water and otherwise corrosive soft water. This helps to maximise the performance of the heat exchangers and reduce wear and tear extending the operational life, giving the college a good return on investment.

Taken together, the design of these ADplus units was the ideal choice for the Oldham Sixth Form College's sports block, providing high-quality construction with high-efficiency operation for lower



on-going costs.

Lakeside M&E Services Ltd was able to deliver a speedy and straightforward installation, with “excellent work” from Advenco’s commissioning team, which confirmed the correct and safe installation of this pair of ADplus units. Now, with these units successfully installed and with regular monitoring, these ADplus units are running just as well as the College’s athletes.

#### ADPLUS WATER HEATERS

## Offsite Construction For DHW Plant Rooms



The offsite construction of packaged plant rooms for commercial domestic hot water (DHW) applications is gaining real traction in the UK. This process sees Advenco design, assemble and test complete plant rooms within a controlled factory environment before delivering them to site as ready-to-connect units for immediate commissioning. Compared to traditional on-site assembly, this modern approach offers clear advantages in terms of project efficiency, build quality and sustainability, all of which align with the industry’s drive toward net zero carbon emission targets.

Interest in offsite prefabrication has grown as commercial buildings face increasing pressure to improve energy efficiency and reduce carbon emissions. Advenco’s packaged systems offer a practical response, incorporating advanced, high-efficiency equipment and renewable technologies to help meet evolving building performance standards.

The appeal is also rooted in speed and simplicity. With the majority of assembly, testing and pre-commissioning completed offsite, installation time on-site is drastically reduced. This not only accelerates project timelines but also limits disruption across the site, an increasingly important consideration for the retrofit of occupied premises such as hospitals, hotels, and schools.

A key advantage of factory-based prefabrication is the improved quality control it enables. Every component, from heat sources and storage cylinders to pipework and controls is assembled and tested in a purpose-built environment. This ensures the plant room arrives ready for final integration quality assured, ready to deliver reliable performance with minimal onsite adjustment.

### Offsite Construction for Domestic Hot Water (DHW)

DHW generation is a critical service in commercial buildings, where demand patterns can vary significantly between sectors. Hotels, for example, experience intense peak loads in the morning and evening, while healthcare facilities require a constant, reliable supply at controlled temperatures to ensure safety and hygiene.

Adveco's packaged plant rooms are purpose-built to address these varied requirements. Each design is tailored using detailed load profiling, ensuring the system's capacity and performance align precisely with the building's needs. This guarantees reliable delivery of hot water even during peak demand periods while avoiding excessive oversizing, which can lead to unnecessary energy waste.

A key challenge with low-carbon technologies, such as air source heat pumps, is their lower output temperatures and slower recovery times compared to gas systems. To compensate, Adveco designs plant rooms with larger thermal stores, ensuring sufficient hot water is available to meet demand without compromising efficiency. In hybrid systems, high-efficiency gas-fired water heaters or increasingly electric boilers can be integrated to provide rapid top-up capacity when required, combining reliability of service with the sustainability benefits of electricity, heat pumps and solar thermal.

Each packaged system is also equipped with advanced control systems, including temperature monitoring, pasteurisation cycles for Legionella prevention and dynamic load management to maximise efficiency. These systems ensure safe, efficient DHW delivery while providing the flexibility to incorporate renewable inputs such as solar thermal if required.

Offsite construction plays an important role in supporting the UK's transition to net zero carbon emissions. Adveco's packaged plant rooms can be designed to integrate directly with renewable technologies, helping to reduce a building's reliance on fossil fuels. Heat pumps, solar thermal and hybrid solutions are all readily incorporated into the prefabricated designs, allowing buildings to shift towards low-carbon hot water provision without compromising performance

The environmental benefits extend beyond operational emissions. Prefabrication reduces overall construction waste, thanks to centralised material handling and more efficient manufacturing processes. Fewer site deliveries and reduced on-site working hours further cut the project's embodied carbon footprint, aligning with broader sustainability goals across the construction industry

While the benefits are clear, the delivery of offsite plant rooms requires careful planning, particularly around transport and installation. Moving large, prefabricated units to a site can be logistically challenging, particularly in urban locations with limited access. In retrofit scenarios, space constraints may also limit the size of prefabricated units that can be installed.

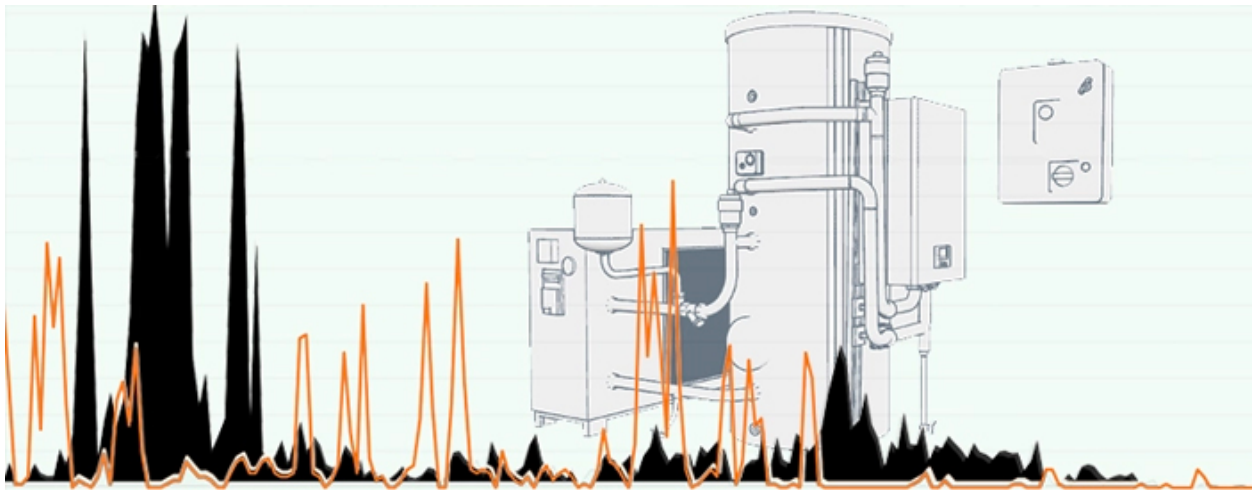
These challenges are mitigated through Adveco's collaborative approach to design and delivery. Adveco plant rooms are designed to be extremely compact in order to maximise often limited space, especially as many installations will be rooftop-based where real estate is in high demand from a wealth of building heating and cooling technologies. Early engagement with project teams ensures plant rooms are designed to suit both site-specific constraints and operational requirements. Advanced planning also ensures smooth integration with existing building services,

while clear documentation supports efficient installation and commissioning minimising disturbance during delivery and locating of the plantroom box.

Adveco's offsite packaged plant rooms offer a smarter, faster and more sustainable way to deliver reliable DHW systems in UK commercial buildings. By shifting construction offsite, developers benefit from faster project delivery, reduced risk, and assured quality, while also advancing their net zero ambitions. Combining Adveco's deep expertise in hot water system design with modern prefabrication techniques, these solutions are setting a new standard for efficient, low carbon hot water provision across the commercial sector

#### PACKAGED PLANT ROOMS

## Regulations & Partnerships - Working to Create Sustainable Water Heating For commercial Projects



The successful delivery of hot water applications in UK commercial buildings is dependent on regulations and partnership, hinged on the coordinated efforts of four key groups: consultants, mechanical & electrical (M&E) contractors, manufacturers, and the installer. Each role plays a distinct yet interconnected part, ensuring a system's design, installation, and maintenance meet the highest standards of safety, efficiency, and sustainability.

Consultants hold responsibility for the design and specification of services for a building, of which the hot water system is just one part or a wide range of design challenges that need to be met if the building is to successfully exceed current and therefore address future regulations.

UK building regulations which influence the process of commercial hot water design are predominantly Part L – which covers the conservation of fuel and power, placing a focus on energy efficiency in a building – and Part G which focuses on the provision of safe and efficient water systems.

Within these regulations, consultants must design systems that comply with the requirements of Part L by setting targets for minimising energy consumption for hot water and deploying renewable energy sources for hot water production, such as [Solar Thermal](#). The regulations also mandate the use of high-efficiency appliances, such as [Condensing Water Heaters](#) and [Heat Pumps](#). Part G adds

additional important demands, especially setting out requirements for the prevention and control of Legionella bacteria in hot water systems and specifying water-efficient fittings and appliances that minimise water consumption.

In addition, the Construction (Design and Management) Regulations 2015 or CDM 2015, emphasises the importance of identifying and mitigating risks associated with hot water systems, such as scalding risks, legionella, and risks to workers during installation and maintenance. With a primary focus on health and safety throughout the entire project lifecycle, CDM15 requires thorough planning and coordination between all parties involved in the project, including designers, contractors, and installers, to ensure safe and efficient hot water system installation. Crucially in terms of project delivery, the regulations should ensure that all personnel involved in the project are competent to carry out their duties safely and effectively. That is best achieved through the sharing of relevant information between all parties involved in the project, which is consequently a mandate of the regulation.

Both the consultants and M&E contractors will also rely on the manufacturer adhering to construction products regulations (2013) which require that hot water system components, such as boilers, pipes, and fittings, meet relevant safety standards and do not pose a risk to human health or the environment. CE marking, for instance, indicates that they comply with relevant European standards, and WRAS or KIWA approvals will often be a requirement of specification for hot water products. The manufacturer is expected to and should prove diligent in providing adequate information about their products, including performance characteristics, safety instructions, and environmental impact.

Although much focus in the industry is placed on the application of sustainable technology to provision domestic hot water (DHW) for commercial projects, the application of gas still represents the largest technology deployment for water heating and will continue to be used across most existing buildings in the UK. For this reason, the Gas Safety (Installation and Use) Regulations 1998, also remain important when addressing the safe installation, use, and maintenance of gas appliances, including gas-fired boilers or water heaters used for hot water production. The legislation again demands that only competent persons are involved in installing, servicing, and repairing gas appliances that are regularly inspected and maintained by Gas Safe registered engineers. The legislation predominantly affects the installer, but for a project to be successfully completed the work carried out will require commissioning, preferably by the manufacturer or their local distributor, to ensure correct and safe installation. It is imperative then that the consultant or contractor works closely with the product supplier to ensure the design is fit for purpose, not only in terms of meeting the system design and correct installation but also critically exceeding building safety protocols for ventilation and monitoring.

Building Standards (Scotland) and Building Regulations (Wales) though with variations in specific requirements apply similar levels of regulations on consultants, contractors and installers working on DHW systems.

Given the complexity of meeting planning approval for any commercial project, consultants can and should take advantage of specialists where available. The inherent complexity of **Designing DHW** for commercial projects has increased considerably with the introduction of more sustainable



technologies. Today it demands a high level of knowledge across gas, electric, engineering and plumbing. It is also a time-consuming part of the design process and will typically demand a bespoke response. It becomes sensible to involve design and supply specialists, such as Advenco, at an early stage in the project. Specialist engineers can develop bespoke designs or make educated recommendations for product specification as part of the consultancy process accelerating a complex element of early planning.

Typical activities that can be effectively outsourced as part of the consultation process include determining the building's hot water demand based on occupancy, usage patterns, and specific requirements (such as showers, kitchens, and laundry). This helps avoid issues that can arise from relying on assumptions about usage patterns and building operations, which may not always accurately reflect real-world conditions.

Recommendations on the most appropriate hot water system (from boilers, cylinders and heat pumps to solar thermal) considering factors like energy efficiency, sustainability, and budget are also critical. When design and supply are integrated, it creates new pricing advantages that can help counter budget limitations – such as perceived demand for greater electrical connections to buildings – which can sometimes restrict the choice of technologies or lead to unnecessary compromises in design.

Support can be gained in designing the pipework system to ensure adequate flow rates and minimise heat loss, and more recently electrical connections. Specifying the necessary controls and instrumentation for efficient operation and monitoring. And crucially, ensuring the design complies with all relevant building regulations, safety standards, and energy efficiency requirements.

Consultant, contractor and installer all gain continuing technical guidance and create a channel for effective communication across the breadth of the project ensuring smoother procurement and installation as designed. This is a key deliverable for the contractor. One particular advantage that the contractor can leverage is the provision of offsite manufacturing. In terms of DHW, this consists of the design and construction of plant rooms dedicated to water heating which can be delivered ready to operate with minimal electrical and plumbing connection on site. This is an excellent means of coordinating with the supplier and installer to ensure efficient and safe installation and deliver assured quality of materials and workmanship without impacting other project elements across the wider site. This helps to mitigate, or entirely avoid, potential or unforeseen site conditions or delays that would otherwise impact the installation schedule and budget.

Working with the manufacturer/distributor on testing and **Commissioning** also ensures a comprehensive handover to the building owner/operator with the provision of warranty service and maintenance post-commissioning, providing real added value in terms of ongoing support on the operation and maintenance of the system.

The successful delivery of hot water applications in commercial buildings requires seamless collaboration between consultants, M&E contractors, installers but also specialist manufacturers/suppliers. Understanding the respective roles and complying with the regulatory framework, all the stakeholders are better positioned to drive the adoption of sustainable hot water, contributing to the creation of a more sustainable and energy-efficient built environment by 2050.



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## Sustainable Hot Water



### FUSION

Adveco's FUSION packaged electric water heaters offer a range of low-carbon, all-electric applications for commercial projects with a wide choice of pre-sized variants combining ARDENT electric boiler, cylinder, ASHP, controls and immersions.

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### ADV16-30W ASHPs

The ADV-W air-to-water heat pump range includes 16, 22 & 30kW (3 phase) and 10, 12, & 16kW (single phase) models that bring quality and efficiency to commercial domestic hot water systems. The ASHP can provide hot water output up to 60°C throughout the year for 55°C working flow.

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### ARDENT Electric Boiler

ARDENT is designed to serve as an indirect water heater or heating system. Wall-hung and floor-standing variants for those seeking to avoid a reliance on gas energy supplies. In hard water areas the ARDENT electric boiler can be used to dramatically reduce the costly build up of damaging limescale.

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# Adveco 2025 Product Guide

Get the handy guide to Adveco's current product range for 2025

## 2025 PRODUCT GUIDE



## Discover Adveco's expanding range of low carbon and renewable products

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[Solar Thermal Systems](#)

[ADV16-30W ASHP](#)

[ADV65-110W ASHP](#)

[ADVS10-16W single phase ASHP](#)

[FPi R32 monobloc Air Source Heat Pump](#)

[FUSION packaged electric water heaters](#)

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