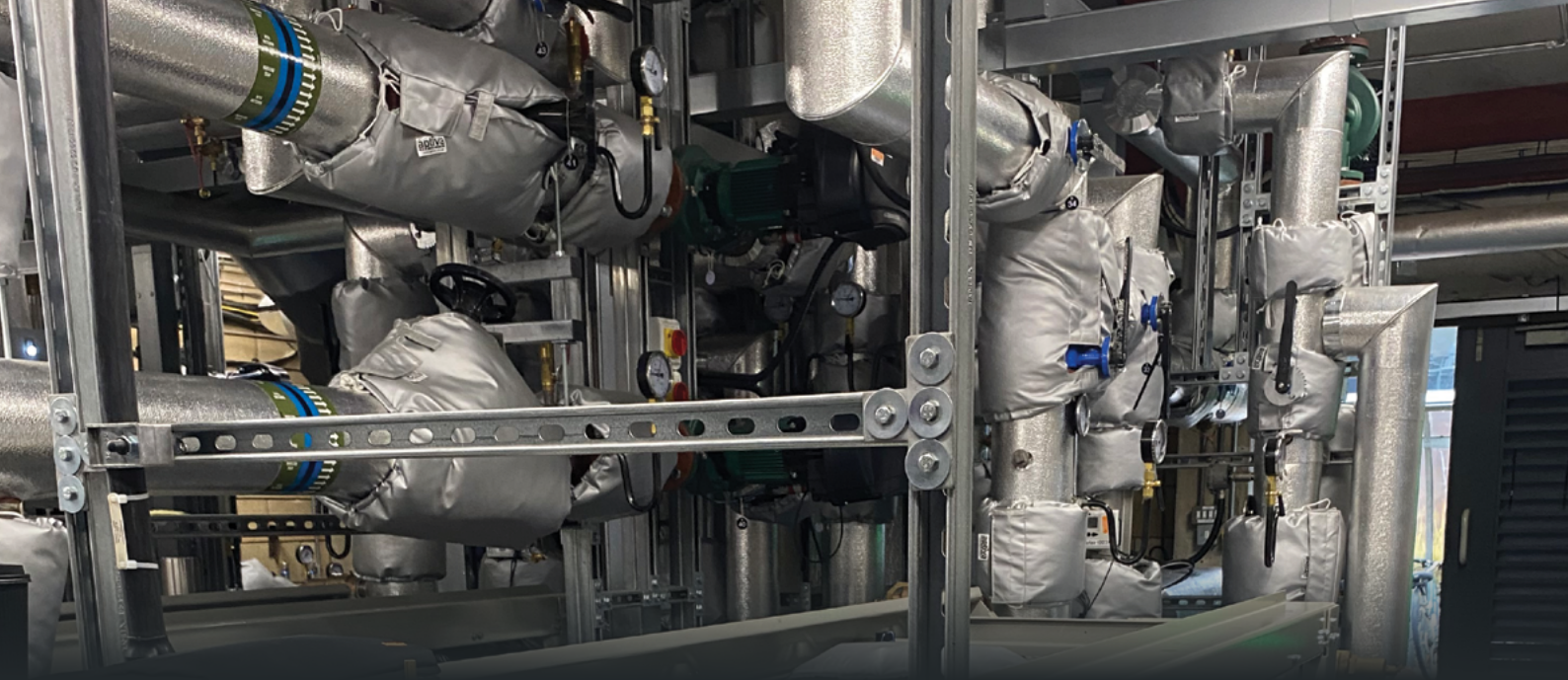




The Arts University, Bournemouth

FORTH® Technical Services helps University Decarbonise Buildings

CLIENT: The Arts University, Bournemouth
SECTOR: Education sector

SERVICE: Capital Plant Replacement & Decarbonisation project
TIMINGS: 1st concept Jan '23, Feb '24 – Sept '24 (7 mths)

The Challenge

The Arts University Bournemouth are an existing client of FORTH® Technical Services, and first approached us with one of the most technical challenges the team have faced.

To help the university decarbonise multiple teaching buildings and library on the university campus: previously reliant on natural gas. With a focus on sustainability, the university wanted to transform the heating and hot water supply to the buildings, cutting their carbon emissions and opting for clean, green energy.

Our client wanted to decarbonise the building, reduce running costs and provide employees with a better working environment. Mindful of fluctuating temperature requirements throughout the year, air change rates and ventilation requirements in occupied office spaces.

Thriving on collaboration

Our FORTH® Technical Services team were onboard from the start. Helping scope out the design brief for London design consultancy RCDC Ltd and collaborating – as trusted sub-contractor - with appointed construction company Morgan Sindall, to develop the brief for the new plant.

After an initial briefing in January '23, we started work on site in February of the following year, after a lengthy and detailed design process and overcoming various planning challenges.

FORTH®

The Arts University, Bournemouth

FORTH® Approach:

To integrate relatively new technology. Primarily an Air Source Heat Pump plant feeding into a secondary Water Source Heat Pump to deliver low temperature hot water (LTHW) at 70-80 °C, feeding into the existing building services infrastructure to distribute LTHW and domestic hot water (DHW) throughout the campus North and Library buildings.

Focused on future proofing the site - and accommodating the university's plans to redevelop other teaching areas further down the line - additional sub-terra pipework was installed into areas where any future buildings will integrate with the installation and run from the Heat Pumps.

Technical Prowess

As part of the de-commissioning process, we removed all redundant plant which has served the North building for circa 40 years on gas - boilers, pipework, pumps, electrical infrastructure and control systems etc - and installed a clean Air Source Heat Pump system on an industrial scale, to deliver heating and hot water to the buildings. The scope of the project made this a highly technical undertaking.

Building a new LV electrical substation was just the start.

The new system needed an increase in electrical consumption, since the heat pumps run solely on electric. This meant digging trenches and running 140 metres of underground pipework, from the new external plant compound constructed and designed specifically to house the new plant. At the same time, seamlessly blending the plant into the existing landscape.

During the de-commissioning and construction phases temporary boilers were installed to heat the building while work was carried out, with our deadline for the plant to be commissioned and ready, the new academic year in September 2024.

Adaptability & Skill

FORTH® had specialist technical engineers working on site installing all new pipework, plant and BMS/electrical connection services. It takes great skill to work with such large plant items and connect complex pipework, especially in a small area, using in-depth expertise to design as the system was built in the plant spaces.

The client had the reassurance of full-time FORTH® engineering resources on site, liaising closely with the team on the ground and coordinating all services, ensuring the team were working safely, to programme. Maintaining the highest quality installation processes, in accordance with the Arts University Bournemouth design brief.

For informed, experienced, and reliable decarbonisation projects email enquiries@forth.engineering

Meticulous Pre-Planning

Working seamlessly in a fully functioning university campus requires meticulous pre-planning. During the lengthy installation, our engineers were considerate of staff and students moving around the campus, so as not to adversely affect the day-to-day running of university business.

Maintaining segregation between contractors and students. Keeping transit routes clear, organising and installing traffic management systems while we were creating sub-terra infrastructure, this included designating clearly marked car parking areas and ensuring the continued logistical function of the site.

Respect the Natural Environment

The university have very strict guidelines on conservation, so all work had to be carried out in accordance with strict environmental considerations. That meant thinking carefully about the materials we used, what we installed where and what their impact might be on the environment and local wildlife EG: bats, birds, newts. Opting for polyurethane pipework underground - with no joints or mechanics required - to reduce any risk of corrosion or leaching into the soil, which may have been a hazard of previous installation procedures.

It wasn't just the wildlife we had to consider. The University campus abuts residential estates, so there are lots of neighbours living nearby. All external plant was enclosed with acoustically baffled louvres to keep noise pollution down and new trees were planted to screen the enclosure, to soften the exterior façade. Much nicer for residents overlooking the site.

Technically the new plant is pre-commissioned, awaiting handover and ready for the university campus to take full advantage of all our planning, design and meticulous attention to detail in providing renewable green energy. A cleaner way of distributing heat and hot water for many more academic years and thousands of arts University students.



FORTH®