

Case Study. Aston University.

Nuaire BOXER AHUs to enhance cutting-edge science facilities at Aston University.



Students and academic staff at Aston University stand to benefit from cutting edge laboratory facilities in the first of a two-phase project managed by Clegg Construction, and worth over £1.7m.

The ambitious project has utilised previously under-used and partly redundant storage and workshop areas by converting them into modern, multifunctional laboratory facilities for teaching and research.

■ THE PROJECT

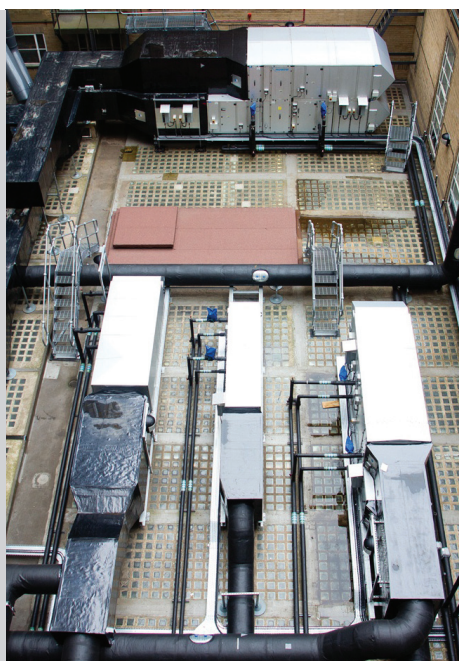
Nuaire worked closely with Mechanical and Electrical services contractor, D&I Building Services to design a bespoke solution using their BOXER air handling units. The BOXER bespoke offers over 35 module types including humidifiers, frost and heating coils, gas burners and thermal wheels, and can be delivered to site in modular sections to overcome space and access constraints, making it the most flexible option for a project of this complexity.

Nuaire provided 13 Air Handling Units to service the new laboratories, alongside packaged heat recovery and chemical store extract fans. A successful track record of working with D&I Building Services put Nuaire in a favourable position to bid for the ventilation design. While pricing was a key driver in securing the contract, D&I Building Services were impressed by the level of sales support offered by Nuaire.

“Cost was, of course, a major factor in the decision; however the sales support is what we have been most impressed by. Nuaire estimators will come in and see you. They’ll sit down and go through your project, and try to give you the best possible solution.”

Project Engineer Alex Penny.

The School of Engineering and Applied Science is situated in the original part of the university’s Main Building; a seven story square design, circa 1950s, with a large exterior roof space at first floor level, accessed only from within the building. The existing laboratories and disused workshops are spread over two floors: six on the lower ground floor, and eight on the first floor, whilst the ventilation plant is situated on the first floor external roof. Both the square shape of the building, with its central atrium design, and the restricted access to the roof space proved a challenge, not only in getting the large amount of Nuaire kit in situ, but also in installing the ductwork on the central exterior walls.



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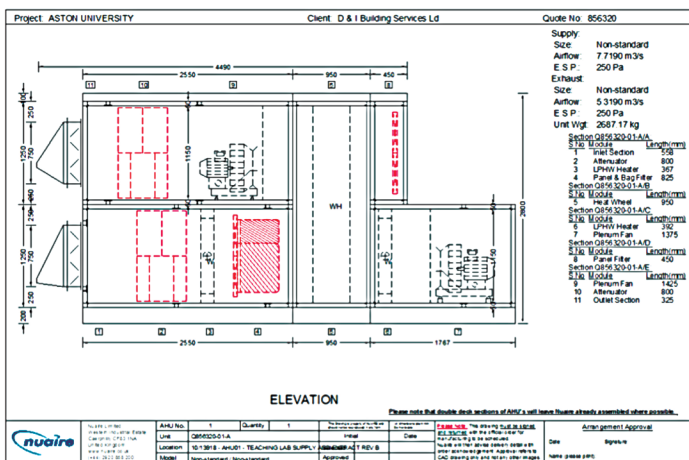
Aston University.

Alex Penny explained: "Getting the units up onto the plant roof was the major challenge due to their sheer size. Nuair's AHUs are manufactured in such a way that they can be broken down into smaller modules. The larger AHUs were delivered to site in small modules and had to be fork-lifted and craned up from a service road that runs beneath the centre of the building. We cut a hole in the ceiling of the service tunnel to crane up the modules onto the exterior plant roof and then built them in position. Nuair's commissioning engineers came out to site to inspect the units and to make them airtight. Our solution to getting the duct work up was to scaffold the entire inside of the building."

In order to minimise disruption, Clegg Construction has managed the project in two stages. The first phase took place in 2011, in just seven months. The second phase is now underway and due for completion in September 2012. With the plant now in place and operational, this stage will see the remaining eight laboratories located on the first floor fitted out and made ready for use.

■ NUAIRE'S CONTRIBUTION

One of the key requirements on this project was to provide an energy efficient solution, while overcoming the site constraints imposed by the building layout and access restrictions. The units were generated on Nuair's AireCAD Software, which is able to create fully bespoke AHUs at a touch of a button with dimensions to fit the specific site constraints.



■ An example of one of the 13 AHUs

This unit combined a high efficiency thermal wheel with dual plug fans and integral attenuators, which straighten the airflow and reduce the noise into the building. 80/50°C frost coils and LPHW coils were used to temper and heat the air respectively and a combination of Eurovent certified panel and bag filters were used to filter the air on both the supply and extract air paths. It was important that the units were sized to fit through a hatch cut in the floor, so additional parameters were set to ensure the units were delivered in manageable sections. Full data sheets are generated by the AireCAD software as well as scaled DXF drawings that can be placed directly onto the customers M&E drawings.

"The Aston University units were designed on our AireCAD software, which delivers totally bespoke AHU solutions at the touch of a button", says Alun Thomas, AHU Manager at Nuair. "This unique software system, coupled with the response and support of a dedicated AHU team, ensures that the customer can get accurate and reliable information quickly."

The software has been taken to the next level and is now fully integrated with Nuair's 'JIT' and 'Lean' manufacturing systems. Once approved by the customer, the units flow seamlessly into the new £1.8 million automated manufacturing cell, which punches and stores all the required components in a totally 'lights-out' working environment. "The power of being able to generate a fully bespoke AHU totally automatically and then send it through a precision machine to be manufactured, without any human intervention, is a first. This ensures controlled repeatability and results in the high quality AHUs that you would expect from Nuair."

■ SUMMARY

Phase 1 has proved highly successful. The newly finished laboratories on the lower ground floor have been shortlisted for an S-Lab Award under the Refurbished Laboratories category. These awards recognise excellence in laboratory design, operation and management in all sectors. Nuair's quality AHU ventilation systems have contributed towards the success of the redevelopment project.