

CASE STUDY

MAT DELIVERS A TURNKEY HISTOLOGY LABORATORY FOR A LARGE TEACHING HOSPITAL



When an NHS Trust wanted to replace the existing hard tissue/histology laboratory at one of its hospitals, Medical Air Technology (MAT) was approached by the client's delivery partner to carry out the complex, detailed concept, design and installation work for the turnkey project. In addition to the new laboratory, the associated offices and storerooms were to undergo a refurbishment, inclusive of all necessary architectural, mechanical, electrical, and public health works.

The new histology laboratory

The large NHS teaching hospital where the work was carried out is a major regional and national medical centre. Histology, which forms part of the hospital's Clinical Sciences provision, is the study of the microscopic structure of tissues and cells. It involves the use of various techniques to prepare tissue samples for microscopic examination.

The existing histology containment laboratory had come to the end of its lifecycle, and the Trust wanted to take opportunity of the planned rebuild to not only create a research facility with the most up to date design concepts and furniture, but also one that could accommodate two shifts, allowing longer opening hours and the analysis of more hard tissue samples.

Containment within a laboratory is achieved by specialist airflow design, which allows the laboratory to operate at a negative pressure in relation to the outer spaces. In this way, biological agents are managed in the environment so as to prevent or control the exposure of workers, other people and the outside environment to the agent(s) in question. Bringing in an airflow specialist like MAT is vital to ensure the containment is achieved in line with the requirements and standards of HTM 03-01 (2021).

Dealing with the planning and administration involved with a scheme of this size also requires an experienced team, such as the one at MAT. In this case, there were several parties working on site, so MAT had to satisfy the demands of not only the client, but also the client's delivery partner, the main contractor and the hospital's facilities management team. This required intensive project management of the scheme to enable its successful delivery.





A comprehensive rebuild

The new histology laboratory needed new air handling units (AHUs), controls, lighting, ventilation systems and electrical systems. After stripping out the existing space, MAT supplied and installed new ventilation systems, including air handling units, extract fans, and heat recovery units. All installations were completed with the necessary grilles, dampers, fittings etc. The existing AHU within the rooftop plantroom was removed and replaced and ductwork, grilles, diffusers and controls provided to serve the system.

Ductwork dropping from the rooftop plantroom was renewed in full, with new fire stopping provided within the riser. It was also necessary to replace the extract fan to provide the extraction rates required for the remodelled space. Existing ductwork dropping from the plantroom to the first floor was replaced with polypropylene ductwork due to the corrosive nature of the chemicals being used within the laboratory, with a new dedicated polypropylene extract fan mounted externally on the roof.

The new ductwork systems include a complex Variable Air Volume (VAV) system, developed by MAT engineers to enable the three ventilated downflow benches to independently operated while maintaining negative pressure in the facility.

In addition to the work detailed above, MAT carried out the full turnkey installation including new fabric, furnishing, mechanical and electrical fit out, and all builders works – new walls, ceilings, plastering, specialist coatings, doors and furniture.



A specialist contractor

MAT designs, manufactures, and installs bespoke critical ventilation systems and turnkey project solutions for new build and refurbishment healthcare and life science projects. The team has extensive experience of working in live environments and fully understands the challenges around delivering a project within an operational scenario.

In addition, the company's facilities management division, MAT FM, provides a range of competitively priced and highly effective service and maintenance packages for all core products and turnkey solutions offered by MAT or other suppliers, ensuring that equipment is maintained, serviced and validated correctly for optimum performance and efficiency.



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