

CASE STUDY

MAT DELIVERS FULL TURNKEY THEATRE FIT-OUT AT NEW UCLH PROTON BEAM THERAPY CENTRE



Shown with green endoscopic lighting

Medical Air Technology (MAT) installed eight operating theatres in the purpose-built surgical centre within the new proton beam therapy unit at UCLH NHS Foundation Trust's Grafton Way Building. Four of the theatres feature MAT's ECO-flow Dynamic ultraclean screenless ventilation (UCV) systems, making them suitable for orthopaedic surgery, and all theatres are equipped for endoscopic or 'minimally invasive' techniques. These world-class operating theatres complement the aesthetic and vision of this high-tech, modern building perfectly, further enhancing the outstanding care received by patients at UCLH's flagship cancer and surgery hospital.

One of only two NHS proton beam centres in the UK, much of the actual treatment facility is located beneath the Grafton Way Building, in a huge underground cavern that could easily swallow the Royal Albert Hall. It brings together some of the world's leading specialists in complex cancers and will drive forward research into what remains a relatively new treatment. In addition to the proton beam therapy treatment room, the building is home to inpatient cancer wards, the operating theatres designed and equipped by MAT, a critical care unit, imaging suites and haematology wards.

A new purpose-built surgical centre from MAT

The eight operating theatres installed by MAT are situated on Basement Level 1 of the building, which is also home to several other clinical specialities. Each theatre can be used for endoscopic surgery and four include MAT's ECO-flow Dynamic screenless UCV canopy, which reduces bacterial levels to <math><10\text{bcp}/\text{m}^3</math> within 300mm of the wound site, compared with up to $180\text{bcp}/\text{m}^3$ in conventional operating theatres. This increases the range of surgeries for which the theatres can be used, making them more flexible and cost efficient.



In addition to the ECO-flow Dynamic UCV canopies, MAT carried out a full fit-out 'box in a box' solution, incorporating all mechanical, electrical, and plumbing (MEP) services including:

- **Specialist critical ventilation, including fire-rated ductwork and air balancing**
- **Associated electrical works**
- **All walls and ceilings**
- **Floor finishes**
- **Fitted furniture and sanitaryware**
- **Automatic doors – sliding and swing**
- **Operating lights and BBU**
- **Multi-movement pendants**
- **PACS viewers**
- **Theatre control panels**
- **Audio-visual systems**

The MAT contracts team that was responsible for delivering this large and complex project has some of the most respected managers, engineers and designers in the business. Together with innovative clean air products, clients such as UCLH benefit from the wealth of experience and expertise that MAT brings to every project. A deep understanding of the compliancy requirements surrounding hospital critical ventilation and the issues around carrying out building work in a sensitive, often live, environment, means that MAT can provide a smooth and efficient installation.



Improving patient recovery and experience

How surgery is performed and managed has changed radically over the last ten years, with minimally invasive procedures becoming increasingly prevalent. More and more people can now have surgery and go home to recover without a long stay in hospital. The evidence shows that, where clinically appropriate, a shorter stay in hospital may improve a patient's clinical outcome, recovery and experience. In addition, the risk of healthcare associated infections (HCAI) is reduced.

UCLH wanted to ensure that more patients are able to have surgery in an environment that puts their needs and safety first. The surgical centre allows patients to be treated in an innovatively designed environment, with access to the very latest technology and medicine. As the centre is dedicated to planned surgeries, the service will be uninterrupted by emergency cases being prioritised over planned operations. For patients who require longer in hospital, there is also a short-stay surgical ward with twenty beds.



Operating theatre equipment from Bender UK

Bender UK provided Merivaara Q-Flow LED theatre lighting, hygienic touchscreen theatre control panels, and medical gases, power and data services pendants for each theatre. The Q-Flow lighting system's unique configuration is designed to complement ultraclean ventilation systems and enable clean air to circulate more efficiently at an operation site, reducing infection risk and aiding patient recovery.

In theatres one and five, Bender UK supplied integrated HD video cameras for the Q-Flow lights along with an additional suspension arm mounted camera, twin HD monitors, microphones and speakers for a full multimedia capability connecting to Merivaara's OpenOR over IP-based audio and video management system. The OpenOR integration system is a 4K, future proofed integrated theatre system. The camera, monitors and Q-flow lighting is 4K and will transfer in Full HD quality. It delivers flexible video routing between sources and displays enabling real-time remote consultation, flexible telemedicine and university teaching outside the OR, with no delays in image transmission inside or outside the operating room.



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