

CASE STUDY

MAT DELIVERS TWO SPECIALIST THEATRES AT NEW £17m JAMES PAGET ORTHOPAEDIC CENTRE



Medical Air Technology (MAT) has equipped two new orthopaedic operating theatres at the James Paget Orthopaedic Centre (JPOC). The theatres, which both feature the MAT flush-to-ceiling ECO-flow Stealth ultraclean ventilation (UCV) canopy, will enable the hospital to offer the latest orthopaedic surgical facilities. The dedicated elective orthopaedic facility, which received its official opening in January 2025, is set to see more than 1,000 operations carried out every year.

Every healthcare project MAT undertakes is an exciting opportunity to improve the surgical facilities the hospital can offer to its patients. Being part of a new build and having the opportunity to see it grow literally from the ground up, as was the case with the James Paget Orthopaedic Centre, is particularly inspiring for everyone involved.

MAT offers a series of specialist hospital fit-out packages, each designed to meet the client's specific and unique needs. In this case, the MCP (MAT Core Package) was the ideal solution, encompassing the full critical ventilation and control systems for the twin UCV operating theatre suites and 4-bed recovery and specialist equipment package for the operating rooms. The AHU plant and control systems were roof-mounted and housed in a weatherproof enclosure.

At the heart of each theatre lies MAT's ECO-flow Stealth UCV system, which was designed primarily for use in orthopaedic operating theatres and where the risk and consequences of surgical site infection (SSI) are costly, thus improving patient care outcomes and throughput.

Once fully operational, the new centre will deliver 1400 theatre sessions per year and will operate seven days a week, helping reduce waiting lists in a specialty which continues to see an increase in demand due to an ageing population.

The ECO-flow Stealth UCV canopy

The ECO-flow Stealth is a hybrid ultraclean canopy comprising a separate UCV air terminal unit with final HEPA filters, graded air diffuser, integral LED cruciform lighting and UCV status LED traffic lights built into the perimeter of the clean zone:

- **Green = UCV mode**
- **Amber = Conventional mode**
- **Red = UCV fault**
- **Blue = HEPA filters dirty**

Additionally, there are 4 x remote recirculation fan units mounted in corners of the theatre room above the false ceiling or in the plantroom, low-level return air grilles, return air pre-filters, return air ductwork and attenuation.

The ECO-Flow Stealth utilises a graded airflow diffuser and low-level returns to control the supply air pattern and draw air to each corner of room to prevent entrainment. The LED perimeter status lights and floor demarcation provide easy recognition of the dedicated clean zone and help define the sterile field.

The James Paget Orthopaedic Centre

The new James Paget Orthopaedic Centre was funded by £17 million from the Department of Health and Social Care and built using modern methods of construction by Darwin Group, with whom MAT has worked successfully on several other projects.

Bender UK, a long-established MAT partner, is specified by the Trust for all theatre refurbishments. For the new theatres in JPOC, it provided an equipment package for each theatre including operating lights, theatre control panels, and Picture Archiving and Communication System (PACS) workstations. Under a separate contract, Bender UK is also providing IPS and UPS systems to the Trust.

The orthopaedic centre, and the 28-bed ward to which it links, provide the hospital with a dedicated elective orthopaedic facility for the first time. This enables surgery to continue even at times of peak demand, especially in the winter, when elective orthopaedic procedures can be postponed due to more beds being needed by patients requiring emergency care.

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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