

Advancing patient safety: a state-of-the-art upgrade



A ground-breaking turnkey healthcare project shows how an engineered approach can improve resilience while reducing operational and compliance risk. The project delivered a future-proof hospital that transforms both the delivery of patient care and the management of its electrical infrastructure.

Hexham General Hospital is part of Northumbria Healthcare NHS Foundation Trust, serving a dispersed rural population.

Like many UK hospitals, it had ageing electrical infrastructure, an increasing demand on electrical load, and legacy cabling that was not designed to cope with the growing number of electrical devices used in surgery, diagnostics, and patient treatment.

However, a comprehensive upgrade to operating theatres, recovery area, endoscopy rooms, and the electrical infrastructure has transformed Hexham General Hospital into one of the UK's most advanced and electrically resilient environments for clinical care.

Prior to the work, leaders at the Trust were already pursuing an ambitious vision to create state-of-the-art theatre suites equipped with uniform technology and equipment across its entire hospital estate. They wanted to eradicate unplanned electrical disturbances in theatres, imaging suites, and treatment areas.

Left unresolved, the higher potential for electrical failure can trigger interruptions to patient services through temporary closures and complex decant arrangements, increased risk of electrical safety, and direct consequences to patient flow or treatment.

Proactive monitoring of electrical failure

The Trust sought a high-quality environment and earlier visibility of electrical failure through proactive monitoring of the entire electrical ecosystem, allowing engineers to intervene instantly to avoid clinically disruptive events.

Bender UK – an award-winning healthcare provider and expert in electrical safety – had already worked with Northumbria Healthcare NHS Foundation Trust on its Alnwick and Wansbeck sites, and was selected again to deliver a programme of works at Hexham because of its proven diagnostic transparency and domain expertise.

This latest cutting-edge installation encompassed four operating theatres, a five-bed recovery unit, endoscopy suites, and dental facilities, delivering a future-proof, state-of-the-art environment for both surgical teams and patients.

Bender's award-winning technology is widely used in clinical environments requiring uncompromised electrical resilience where insulation monitoring and fast fault location underpins patient and staff safety.

Healthcare-specific capabilities

The appointed Bender project team worked in close collaboration with healthcare professionals, architects, and engineers on a structured discovery phase as part of the multi-million redevelopment programme at Hexham General Hospital, which will allow the Trust to deliver a wider range of procedures now and into the future.

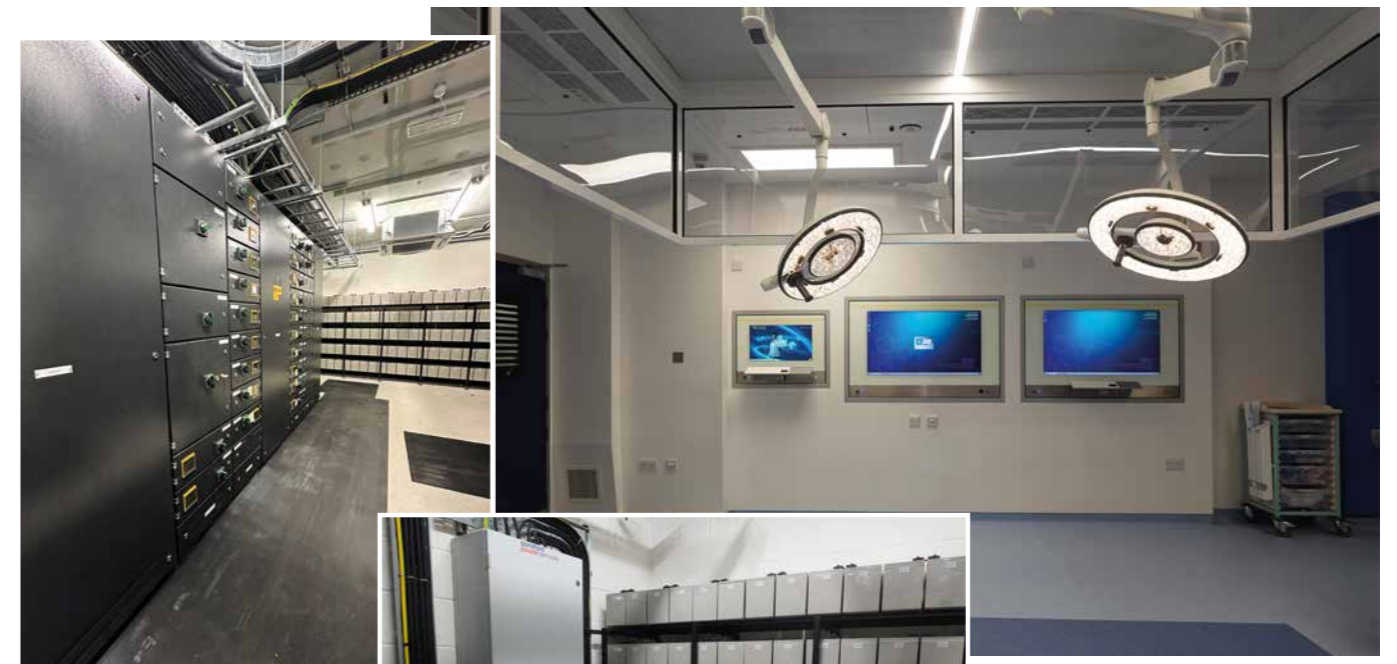
Bender's capability, expertise, and technology emphasise electrical safety, critical system design, and HTM compliance, matching the Trust's need for a partner that understood medical IT power, operating theatre design, clinical dependency, and estates workflow.

The agreed solution integrated the full range of Bender healthcare-specific capabilities, resulting in a fully integrated turnkey project that has delivered one of the most robust and electrically resilient theatre environments in the country.

Medical IT systems from Bender were installed throughout, alongside uninterruptible power supplies for critical load resilience in Group 2 medical locations. Bender Pulse the new proactive service solution for

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Double Medical IT Power (DIPS).



advanced data, diagnostics, and smart energy management was also selected. Bender surgical PACS panels, CP9 theatre control panels, and Merivaara award-winning Q-Flow operating lights were also integrated into the operating theatres.

The result of the new electrical upgrade replaces a more traditional reactive, schedule-based maintenance with a smarter proactive continuous monitoring approach. Predictive diagnostics enable estates teams to schedule interventions during clinically low impact windows, reduce unnecessary room closures, and focus limited engineering hours on areas of highest clinical dependency where necessary.

Russell Hallowes, projects lead North at Bender UK, highlighted how the integration of Bender advanced technology has established a seamless clinical ecosystem at Hexham.

“This upgrade is already solving potential issues, enabling the on-site team working with Bender engineers to detect and address faults proactively, before they can impact operations,” he said. “The installation allows for continuous live reporting, data analysis, software updates, and proactive fault identification, helping to design out future risks of power supply issues and eliminate unnecessary downtime.”

“A key component of this is Bender Pulse, which further enhances remote, data-backed intelligence to maximise resilience on site.”

“The project included a full switchgear installation integrated with Bender power energy management, marking a major milestone for the business as we expand our capability wider into core hospital electrical infrastructure.”

Continuous diagnostics

With continuous diagnostics, previously unpredictable issues can be triaged earlier and with improved context. The Trust now anticipates:

- Improved electrical risk visibility in theatres, imaging, endoscopy, maternity, and recovery – areas where electrical resilience supports patient safety.
- Greater continuity of patient care, with estates interventions planned around clinical workload rather

Top left: Plantroom with switchgear incorporating Bender technology.

Above: Theatre 4 equipped with Bender clinical technology.

Left: Uninterruptible power supply infrastructure.

- More efficient estates resourcing, with prioritisation driven by real diagnostic signals rather than routine cycles or exploratory investigation.

Hexham General Hospital's approach mirrors a national shift towards proactive monitoring, supporting smarter intelligence-led estates management.

Clinical spaces such as operating theatres rely on uninterrupted electrical supply, and contemporary estates strategies highlight the need for workflow-aware engineering and proactive risk mitigation to maintain safe patient care. Proactive monitoring is rapidly becoming a baseline expectation across UK hospitals.

Greater resilience without increasing operational burden

Hexham General Hospital's model – structured discovery, diagnostics-led partnership, and operational integration – offers a clinically focused, workforce efficient pathway for other NHS Trusts seeking turnkey projects, ongoing support and greater resilience without increasing operational burden.

Sam Parry, head of healthcare sales at Bender UK, added: “As a result of the project, Hexham General Hospital now has a surgical facility equipped with some of the most advanced technology and electrical safety systems available, purpose-built to support a modern clinical environment.”

“This comprehensive approach not only gives NHS teams greater confidence and operational efficiency, but it also delivers tangible operational cost savings, alongside benefits for patient safety and care.”

“Ultimately, our work helps future-proof the hospital, better manage energy and electrical consumption, ensuring it is well prepared to meet evolving clinical demands for years to come.”



Award winning company Bender UK delivers specialist electrical safety, medical IT power, and clinical solutions for Group 1 and 2 medical locations. Partnering with designers, clinical leads, and estates teams, Bender delivers HTM compliant turnkey solutions, supported by expert service, 24/7 call-out, and lifecycle management to maintain resilient, clinical areas that protect patient safety.

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