

Specialist Emergency Care Hospital, Cramlington

Background

The hospital is the result of 10 years' work led by clinical teams at Northumbria Healthcare and is specifically dedicated to emergency care, having A&E consultants physically on site 24/7, as well as specialists in a range of conditions. The facility has cost £75 million to build; a further £15 million for specialised equipment and £5 million to improve surrounding roads. It has 210 acute beds spread across seven specialist wards. The project is the first of its kind in the UK and is set to become a flagship model for emergency care. Its unusual "fractal" shape is highly innovative in terms of its look, its construction and in the patient care that it enables; the circular emergency ward layout allows clinical staff faster access to patients in need of urgent care and assistance. The location for the site was a key factor for the success of the project. The Specialist Emergency Care Hospital has to be in the perfect geographical location to deliver the vision. Excellent transport links are essential, and it was these transport links which dictated the pioneering acoustic / ventilation design solution on this project.



Challenge

There are many studies on the impact of noise on health and wellbeing and its effect upon patient recovery from critical injury. We knew that getting the noise environment right was vital in creating the best possible healing environment. The planning process demanded a rigorous environmental assessment of the impact of the hospital at each of the possible sites, and conversely the likely impact of the various site locations on the hospital. SRL identified early in the process that the preferred site had significant noise-related issues; resolving these fundamentally affected the intended design of the hospital, and a carefully designed solution was needed to stay within budget. The nearby A189 is a busy road which creates noise levels high enough to preclude a fully naturally ventilated solution. Aircraft noise was also a major issue, with the site directly underneath the final approach and early take-off flight paths to Newcastle International Airport. SRL's in-depth analysis of the site soon revealed that openable windows would give unacceptable noise levels within the hospital and that to meet the appropriate guidance within HTM08-01 would require a radical change to the ventilation method previously envisaged. Alternative methods of ventilation design and their acoustic implications were

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considered in parallel with the planning application process. So important were the noise issues that the requirements for the internal acoustic environment became part of the planning conditions.

Solution

SRL Technical Services assessed a range of options in terms of window and ventilation panels, many of which created other notable design and operational issues. Acoustically-treated “trickle” vents became the clear leader as the best option. These needed to be as small as possible whilst delivering the maximum airflow. We worked with the ventilation engineers to determine exactly what the airflow requirements were. This required detailed analysis, the results of which formed an essential part of our combined solution. We showed that using high-performance acoustic vents would enable the required airflow into the room and achieve the target noise criteria. We selected and specified the most appropriate vent units given all the constraints. The architect and planners approved the selection but felt that the units impaired the visual impact of the building. This was largely overcome by building them in to the glass units rather than having them separate to the windows. SRL is proud of its contribution to the creation of an efficient acoustic and ventilation design which satisfies all the technical and environmental requirements. During the planning process our evidence, both written and at the inquiry, was a key part of the decision to award planning consent. Without this solution the project is likely to have been refused planning permission and it would then have experienced substantial delays whilst another site was sought. The project was Highly Commended at the 2015 Building Better Healthcare Awards for the Best Acute Hospital, and was shortlisted at the 2015 IHEEM awards for Project of The Year.

Testimonial

SRL played a significant role in achieving planning permission for Northumbria Specialist Emergency Care Hospital. It became clear early on through consultation, that the preferred site was likely to draw a formal planning objection from the nearby airport on the basis of noise, with the airport fearing future objections from the hospital of aircraft noise flying overhead (the site is on the flight path and close to the airport) and their future development plans. We therefore needed SRL to help the design team develop the design with a more innovative approach to ensure we could address any objections from the airport. At the same time we had to make sure that the building would be acceptable to the patients, staff and residents and therefore the Planning Authority (also addressing an adjoining dual carriage way). Their knowledgeable input to the



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feasibility studies and design processes enabled the necessary acoustic control to be incorporated and importantly, to demonstrate to the Planning Authority that appropriate noise levels could be achieved inside the building. This had become one of the key determining factors to the application as ultimately, significant formal and robust objections to our scheme on the ground of noise were received from the airport. SRL's expert advice and credibility with the planning authority showed that appropriate noise mitigation was realistic and had been incorporated and we saw off their objection. Not only did we have to design the building to address the airport's objections, we have also subsequently had to prove that what was constructed met the acoustic criteria set out, namely full HBN/HTM compliance. This has successfully been achieved.

Bob Heald – Project Manager – Gardiner & Theobald

As lead planning consultant for the SECH project I worked closely with SRL to help resolve the notable noise-related issues we had with the planning application. SRL's technical input to the design, and his written and spoken evidence at a public meeting, showed that the potential noise reasons for planning refusal had been addressed. The project achieved planning consent as a result.

Samantha Marlow – Planning Consultant, Nathaniel Lichfield & Partners