Ulster Hospital

Case Study



CASAMBI



Smart Lighting - Better Patient Wellbeing

The Ulster Hospital Acute Services Block has over 31,000m2 of floor space over eight stories and an updated vision of what a hospital can be - all with patient wellbeing as the prime objective. The Casambi wireless, Bluetooth based lighting control plays an integral role in meeting this goal.

The Ulster Hospital, situated in Belfast, is the main hospital for the South Eastern Health and Social Care Trust. Work was recently completed on the new Inpatient facility, part of a significant redevelopment project. It replaces an earlier 1960's building to provide up to date healthcare accommodation in an accessible and safe environment. The new block contains Generic and Specialist Wards, including new departments for EED, nuclear medicine, and imaging.

The South Eastern Health and Social Care Trust engaged with Cundalls Consultants, the design team, with the wish to look at different lighting control systems. Cundalls, in turn, came back with a solution using the Casambi wireless lighting control. **Chris McAnearney**, Cundall Consultants, says, "It was a highly versatile project, with many different areas and with different requirements, so we needed a solution that was easy to use with as much functionality to allow us to change the requirements as per the client's needs."



The needs of the patients informed the design decisions

There were two key objectives for lighting control in the project brief in the planning stage. **Sam Greer**, Estates Facility Services Manager for the Trust, says, "We wanted a wireless solution, which we saw as a considerable advantage in changing lighting controls and lighting strategies with minimal disruption to the occupants and the daily activities, thereby improving patient wellbeing."

"A key benefit for us is that with Casambi, there is no need to be tied to a specific manufacturer or light fitting." Sam Greer, Estates Facility Services Manager

During the design phase, the Trust was convinced that the new building should have less of the traditionally clinical feel of hospitals and more that of a welcoming hotel. This would ensure that the patient would be in an excellent environment to get better – the other key objective. **Colin Mitchell**, Project Manager for Erco Lighting, says, "We were aware of the visual comfort of the luminaires, so it was critical from day one that patient wellbeing was at the center of the

design. We wanted to give the rooms flexibility to have as much light as the patient wanted as they each have different needs. To give the patients their own control was very important." However, with the project being a hospital, the system also needed to be highly resilient to keep operations smooth.

"The key for me was the ease of installation, more or less plug and play and much less wiring, so the system had great adaptability for the client."

Colin Mitchell, Erco Sales Manager

Prior to the project commissioning, Chroma Lighting Technical Sales Engineer, **David Totten**, says, "Before we undertook the project commission, we went to Casambi HQ in Finland so the engineers could get full training on the systems and we had a great support experience." Sam Greer echoes the sentiment, "Throughout the entire project, we had excellent support and communication with Casambi and the installers; this took the form of site visits, conference calls, and personal telephone calls. The training was excellent, and the staff who took part in the training were excited about the new product."

Casambi is a robust and resilient solution for the healthcare sector as it does not rely on a gateway to get full system functionality

The scope of the project (and the building itself) presented a significant challenge to make sure that the Casambi solution was scalable and that there would be full system interoperability between all elements, like switches, sensors and light fixtures. Casambi's technology provides a mesh network where all the system's intelligence is replicated in every node and creates a system with no single failure points. The mesh network can control many fixtures from any point, and firmware can be updated over-the-air. In this kind of fully distributed and symmetric architecture, any unit can go offline and catch up with others when they return online – all without disruption to daily operations.

The system's resilience to function on a pernode basis was a very highly regarded element for the project by all concerned

With 9000+ nodes, the building was divided into multiple networks, with each device paired to a particular network. However, commissioning the lighting control system was done quickly. All luminaires can now be automatically detected on the app and easily paired to the network, with visual programming functionality via tablet – making for a much more simplified process.

Patients have full control over their lighting scenes in the bedroom with a bedside handset; for example, there is a lighting scene specifically for watching TV or reading a book. Additionally, there are sensors to provide the appropriate dimming, depending on how much sunlight comes into the room, and for monitoring "out of bed movement," which alerts the nurses that the patient is out of bed. "With the daylight and movement sensors, we have been able to lower our lighting usage considerably, which has led to significant energy savings," Sam Greer adds. The Casambi control solution covers all the hospital lighting, which in addition to the patient rooms, includes the nurses' stations, corridors, plant rooms, offices, and all exterior lighting around the perimeter.

A low-risk solution that pushes the boundaries of technology

"The most exciting part of the design has been technology progress, even within the project timeframe. When we started the design, we designed enclosures for the lighting and sensors, but since then, the Casambi unit's concept design has become integrated into the sensors," adds Chris McAnearney.

Stephen Jackson, Casambi UK Sales Manager, says, "Casambi technology is suitable for large-scale such as the Ulster Hospital because it's simple to introduce as many networks as required, whether small or large. As can be seen, what was delivered to the client was exceptional both as a building and as a demonstration of Bluetooth Low Energy."







SITE Ulster Hospital Acute Services Block LOCATION Belfast

LIGHTING DESIGN AND CONSULTING Cundall Consulting COMMISSIONING Chroma Lighting

LUMINAIRES ERCO

CASAMBI NODES 9 000+

FUNCTIONALITY USED

- Time functions
- Daylight harvesting where natural light can supplement artificial lighting
- Movement detection
- Patient handset interface to lighting in bedrooms
- "Out of bed" sensors are controlling lighting in bedrooms
- Bedroom lighting is linked to the "nurse call" system
- · Wall switches above beds to control and override lighting in emergencies
- External lighting control based on Sunrise / Sunset
- Nurses station lighting control
- Nurses station control of Corridor lighting
- Movement sensor control of corridor lighting (200lux / 100lux)
- Movement and Daylight control in stairs

casambi.com

