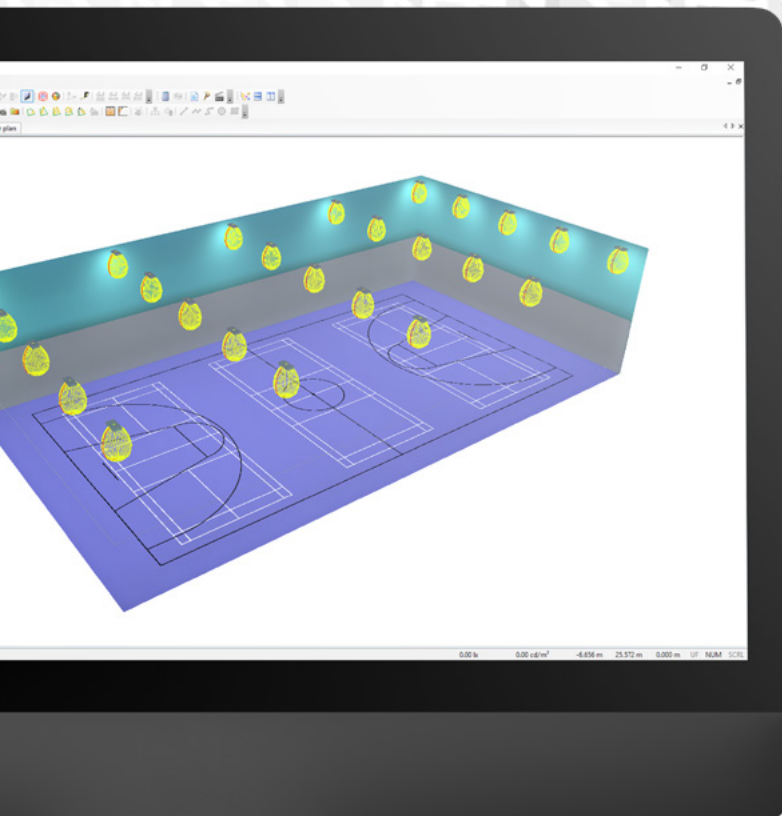




## Bishopston Sports Centre

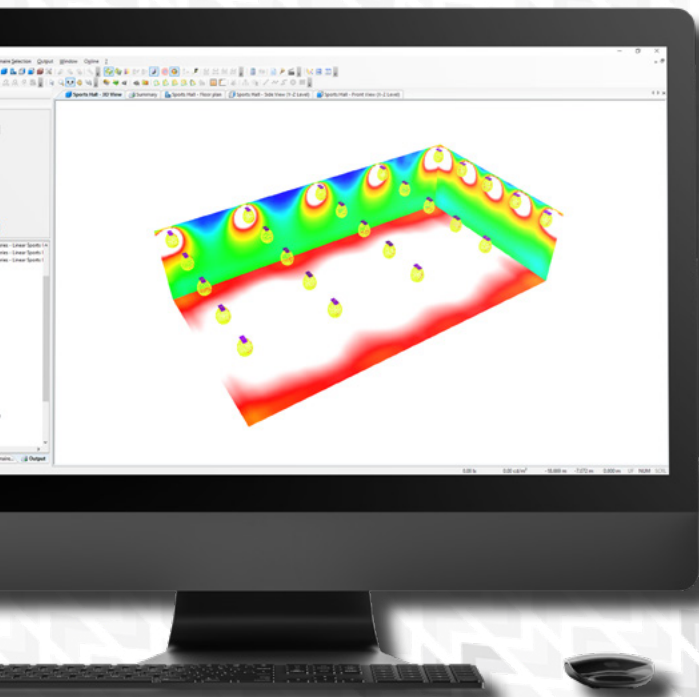
**Bishopston Leisure Centre** provides indoor and outdoor sports facilities to schools, clubs, and the public. The centre operator strives continuously to lower the site's energy consumption, lower its environmental impact, and find operational savings. However, it cannot compromise on delivering a high-quality service.

As part of a major facility upgrade, **Kellwood** was approached to design a lighting solution for their main sports hall.



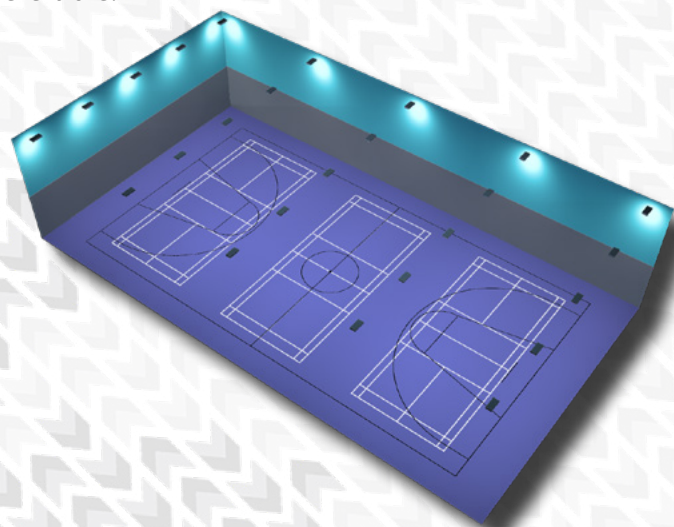
## THE CHALLENGE

- To provide a **compliant lighting scheme** that achieves the necessary lux levels, uniformity, and glare control for various sports including Cricket, Badminton, and Indoor Football
- To **reduce operating costs**
- To ensure a swift installation thereby minimising downtime and **loss of revenue**
- To ensure all products are suitable for the environment, including **impact protection** from ball strikes



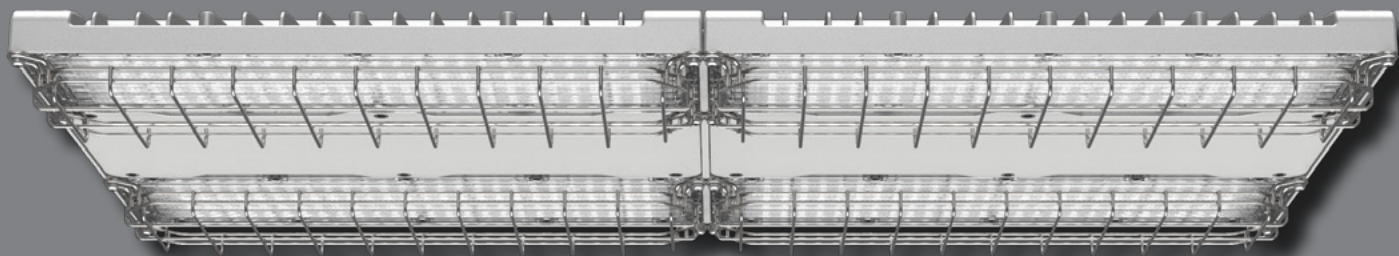
## THE DESIGN PROCESS & PRODUCT SPECIFICATION

When compared to the centre’s existing lighting, it was clear that a market leading, more efficient LED solution would result in lower electricity usage. Using the hall’s existing wiring infrastructure would avoid costly re-wiring and ensuring installation was fast. Subsequently, **Kellwood’s** lighting design team modelled the sports hall in the knowledge that a like-for-like upgrade was preferable.



**Kellwood** consulted with **CIBSE (LG04)**, **Sport England**, and the client, and identified the maximum target lux level required was 750lux average (for indoor cricket nets).

A variety of products and beam angles were assessed. Taking all factors into account, **Kellwood** concluded its 200W **Lennox Series** c/w a 90° optic fully met the customer’s requirements:



### Lighting Targets

	Target	Design
Average Lux (at Max. Output)	>750	860
Uniformity	>0.7	0.82
Glare	<30	≤25

# WIRELESS CONTROLS

To generate additional energy savings, operational savings, and reduced carbon, Kellwood recommended a comprehensive controls package. Wireless controls are the natural choice as they involve no additional changes to the main lighting circuits, meaning they are fast and cost-effective to install. They offer the site the following features:

## Wireless Nodes

Every luminaire was supplied with a DALI driver and wireless node, allowing the whole scheme to be dimmed or brightened as a single group.

## PIR Occupancy Sensor

A select number of wireless nodes were upgraded to include PIR sensors. Each sensor was linked wirelessly to every light, meaning activation of any sensor results in all the lights changing as a single group.

After a period of inactivity within the hall, the lights can dim down, then after a further period of in-activity, turn off. This means the centre's staff do not need to turn the lights on/off, saving time and money.

**Safe Environment:** Multi-step dimming forewarns users before lights turn off and adheres to health safety requirements.

**Impact Resistance:** IP56 polycarbonate enclosures and PIR impact guards provide protection from wayward balls.



## Default Output

The default output can be reduced to 40%. The centre knows that the most common activity does not require maximum output. They only turn the lights "up" fully when needed.

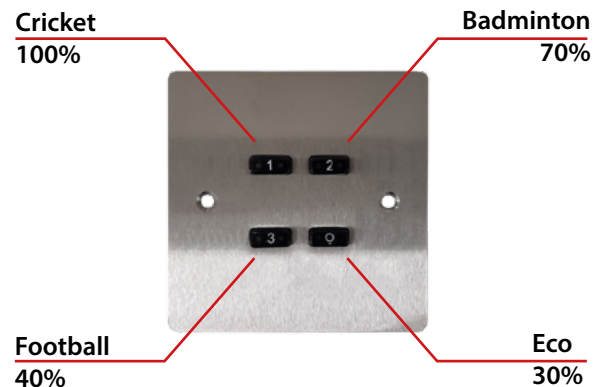
### Scene Switch Profile

**Default - Football - 40% Output**

**Badminton - 70% Output**

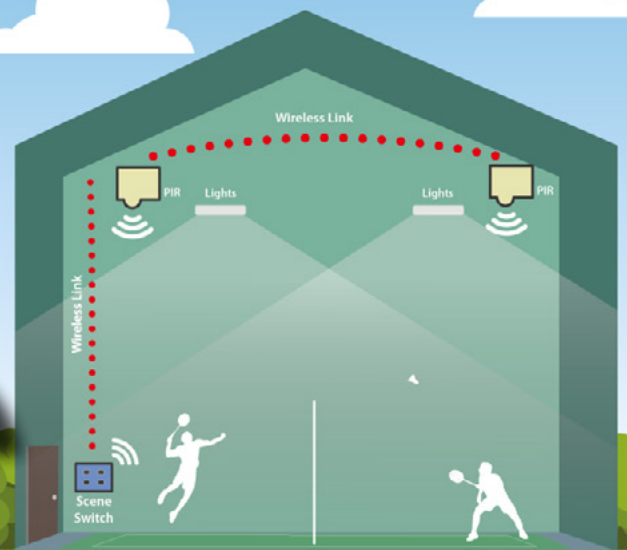
**Cricket - 100% Output**

**Eco - 30% Output**



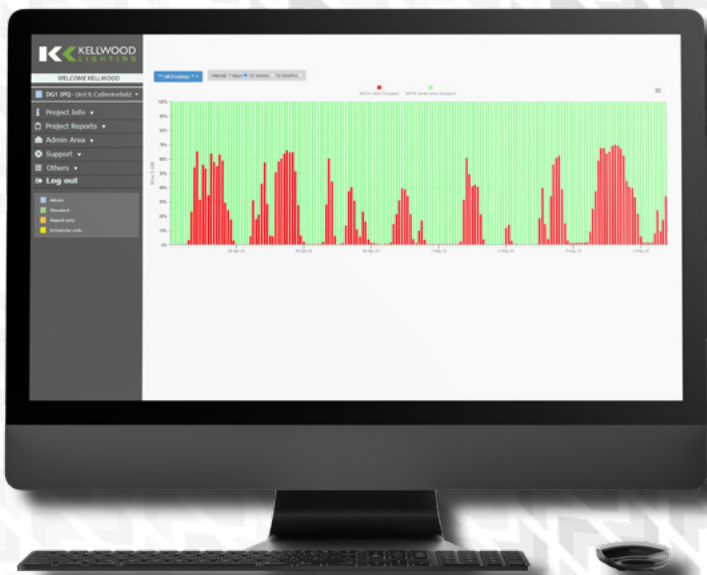
## Scene Setting

A scene switch can be programmed to provide the necessary light levels for different activities, providing users with optimal lighting.

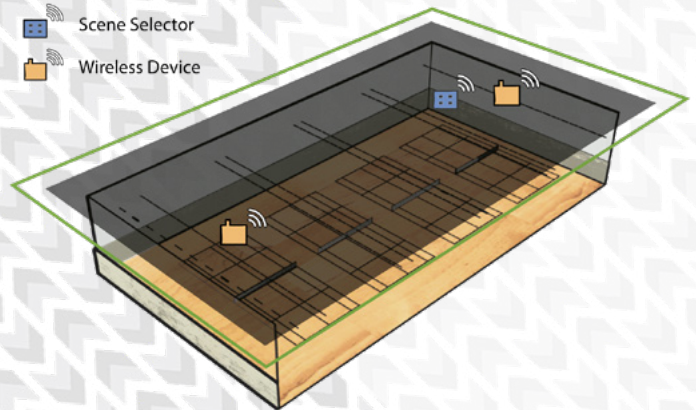


## Energy Monitoring

Management can review energy and occupancy usage using the online dashboard.



-  Scene Selector
-  Wireless Device



## THE RESULTS - ROUTE TO NET ZERO

The lighting scheme was installed in less than a week. During the commissioning of the controls, lux levels were checked, and were aligned with the simulated levels, when accounting for maintenance factors.

Data gathering and analysis through the online dashboard indicate a further >60% saving in electricity and carbon reduction has been achieved through the inclusion of wireless controls.

