

**PHILIPS**



Case study

Lighting

Office

Case Study

Citi

Location: Canary Wharf, London  
Philips Lighting: Networked Controls, Custom LED Luminaires  
and Lighting Services



## Fast Facts

### Customer

Citi

### Location

Citigroup Centre EMEA Headquarters, Canary Wharf, London

### Philips Products

Philips LightMaster control system, Bespoke recessed LED luminaire, Downlight LED luminaire

### Project Partner

ISS

### Services

Custom luminaire design, validation and measurement



### Background

Philips LED light fittings and lighting controls are helping Citi to significantly reduce energy consumption and carbon emissions at its Citigroup Centre EMEA headquarters in Canary Wharf, London. Citigroup Centre consists of two merged buildings and accommodates the majority of Citi's UK based employees. The company has a strong sustainability policy, and the lighting upgrade has played a key role in realising their commitment to a 20% increase in energy efficiency, compared to 2005 levels, by 2015.

This latest project cements the relationship between Philips and Citi that first began in 2004. Following an initial pilot in 2012, the new lighting has now been installed across multiple floors in both towers, with the roll out continuing over the next five years. In addition the external balcony lighting has been reviewed and replaced with LED technology, delivering energy and maintenance savings whilst maximising the building's presence in the Canary Wharf skyline.

**“ The new control system provides us with more precise zoning so that only occupied areas are lit. The dimming functionality also enables us to adjust lighting levels within the zones to suit the preferences of the people working in those spaces.”**

**Les Smith**  
EMEA Critical Facilities Engineering Manager



### The Solution

As lighting is estimated to account for 20-25% of the company's energy consumption this was clearly an area to be investigated. "We were keen to evaluate the potential for LED lighting and decided to try out a relatively small project initially, with a view to measuring the savings and potentially rolling out LEDs throughout the building," said Les Smith, Citi's EMEA Critical Facilities Engineering Manager. "It also became apparent that improving the control of the lighting would help to reduce energy consumption even further, so the Philips LightMaster system was included in the project."

The initial project focused on levels 6 and 7 in one tower and included several elements. Early on, existing fluorescent luminaires at the perimeters were replaced with dimmable LED luminaires, using a modified fitting for ease of installation into the existing ceiling grid. These luminaires are dimmed in relation to natural daylight, maintaining desired illuminance levels with minimum energy consumption. "Daylight influences around a third of each floor so the impact on energy consumption is significant," Les Smith continued.

Upgrading the perimeter lighting was a clear demonstration of the benefits of LED lighting. Energy modelling by Philips indicated that further savings would be achieved by upgrading the lighting in the main body of each floor. To that end, Philips designed a bespoke LED luminaire that would fit the existing multiservice ceiling tile system and facilitate installation. Initially the bespoke luminaires were tested in a small trial area and were then fitted throughout the two levels.

These luminaires are also linked to the LightMaster lighting control system and controlled in relation to occupancy. "We had some occupancy control of the lighting already but the zones were so large that, essentially, as soon as someone had walked through the space in the morning the lighting stayed on all day." The customised light fittings developed by Philips meant that there was no need to alter the existing ceiling grids. As a result, capital costs were lower and installation time was reduced so the work could be completed outside normal working hours.

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The replacement of the existing fluorescent lighting with LED light sources has provided an immediate reduction in installed electrical load. Further savings in energy consumption are being achieved by the use of dimming through the LightMaster system. In addition, the daylight harvesting at the outer rows of luminaires can provide a 36% energy reduction for lighting at the perimeter, while occupancy control will add to the savings. A further benefit of the LED lighting is the long life of the luminaires, so that maintenance costs will also be reduced.

When the financial benefits of Enhanced Capital Allowances are combined with the energy and maintenance cost savings, Citigroup expects to see a return on its investment within around 3.5 years.

In making use of LED lighting and lighting controls, Citi has been able to maintain a high quality lit environment for its staff while significantly reducing energy consumption and carbon emissions. Following the success of the first two floors, an additional 11 floors will be upgraded by mid-2015. The initial pilot has created a lighting blueprint which is set to be replicated throughout the building.

To reinforce the business case for continuing the upgrade, Philips has worked with Citi to introduce a validation and measurement system which compares the energy consumption of an upgraded floor against a floor featuring the previous installation. The analysis shows a comparison by kW/h, cost and CO<sup>2</sup> consumption. This can be further broken down by month, week, day



or even every half-hour, showing how the floor is being utilized and where additional controls savings could be implemented. Over a six month period, the monitoring clearly demonstrated an average saving of 40% on the new LED solution and peaking at up to 47%.

Further savings have been achieved with the introduction of new exterior LED lighting, which is projected to reduce energy usage by 50% in comparison to the sodium lighting system that it replaced. By selecting an LED system,

a reduction in the number of fittings used in the balcony lighting at the four apexes of the CitiGroup Tower was possible. Whilst the default setting is white light, the new lighting can be easily tailored to events using the simple to use control system, with specific colours being introduced as required.

If you would like to see more projects or have an enquiry, please visit us at [www.philips.co.uk/lighting](http://www.philips.co.uk/lighting) or email: [lighting.uk@philips.com](mailto:lighting.uk@philips.com)



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