



PHILIPS

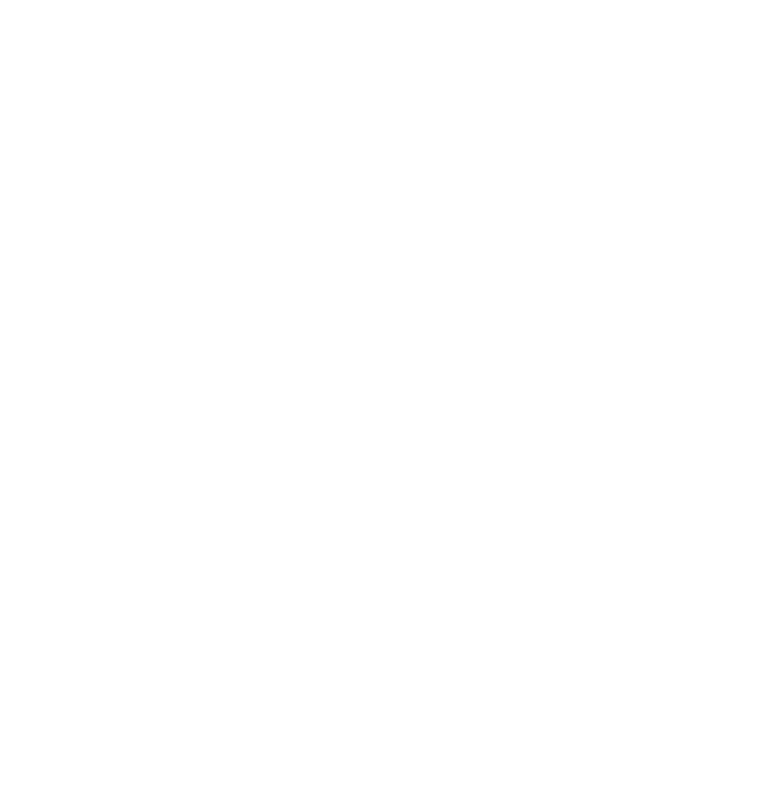
Connected office
lighting

The Edge



Case study

Philips helps create a
**comfortable, productive
and sustainable**
environment at The Edge



The Edge is an innovative, multi-tenant office building in Amsterdam. The architect's goal was to create an intuitive, comfortable and productive environment for employees that would inspire sustainable building design around the world.

Opened in 2015, it received an outstanding score of 98.36% – the highest ever awarded – from BREEAM (Building Research Establishment Environmental Assessment Methodology), the world's leading design and assessment method for sustainable buildings.

A key aspect of the sustainable design is a connected lighting system from Philips that enables employees to personalize the lighting and temperature at their workspaces via a smartphone app. The system also provides data on activities in the workspace that helps further reduce the CO₂ footprint.



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Innovation is our highest priority and we want our employees to create a more intuitive, comfortable and productive environment. We also raise the bar in terms of data analysis, delivering new insight into the use of the office space. It shows how we can reduce CO₂ emissions from buildings and create a more sustainable world.”

Erik Ubels, CIO Deloitte in the Netherlands

Making a difference in the workspace

Babette Bouman, Architect at Fokkema & Partners in Delft, The Netherlands, led the interior design on The Edge. She believes that dynamic working concepts and innovative interactive technologies spell the end of the desk as we know it. She said, “If you have an activity-related work environment, you can choose wherever you like to sit. I think the office of the future will be meeting places, cafeterias and a place to meet colleagues to collaborate.” Bouman put these ideas into practice in The Edge, a landmark 430,500 square foot building developed by OVG Real Estate. It has a host of sustainability features, including solar paneling, aquifer thermal energy storage for heating and cooling, rainwater harvesting and a striking 15-story atrium with state-of-the-art daylighting and natural ventilation.

In collaboration with principal tenants Deloitte and AKD, Bouman was given free reign to design the office environment. Her concept included intelligent floorplans to enhance employee comfort and efficiency, flex workspaces, and the use of environmentally-friendly materials. “Deloitte is committed to using and analyzing data to create responsive and sustainable environments”, she explains: “The agile work place concept is about flexibility, and this lighting system is also about flexibility. The connected lighting system and custom iPhone app allows you to adjust your climate and your lighting, according to your liking that day. So if the sun shines brightly, you can tone everything down to create a more comfortable way of working – wherever you are in the building.”

How it was done

OVG and Deloitte worked closely with Philips Lighting who delivered a connected lighting system that uses cutting-edge technologies to enhance the flexibility of the open-plan office. It not only allows employees to personalize the lighting and temperature at their workspaces using a smartphone app, but it also provides building managers with real-time data on operations and activities. This data helps facility managers to maximize operational efficiency as well as reduce the building’s CO₂ footprint, whilst the personalization features create a premier experience for employees. The designers had three key objectives for the connected lighting system: seamless integration with the building as a whole; provision for customized solutions in The Edge’s unique environment; and smart interfaces that allow individuals to control their environment.



Connected Lighting at The Edge – the numbers



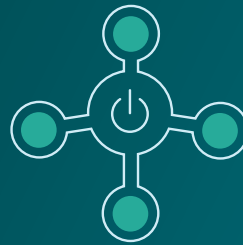
6,500

luminaires over 15 floors



3,000

luminaires with integrated
sensors



750

PoE switches to provide
connectivity and power



\$100,000

expected savings in energy
costs and \$1.6m in space
utilization costs

How it works

The system uses nearly 6,500 connected LED luminaires distributed throughout the building's 15 storeys. With integrated sensors in 3,000 of these luminaires that work with Philips Envision lighting management software, the system captures, stores, shares and distributes information throughout the illuminated space. Facility managers use the software to visualize and analyze this data, track energy consumption and streamline maintenance operations. The system uses 750 Power-over-Ethernet (PoE) switches to connect lighting fixtures to the building's IT network. With PoE, Ethernet cables send both power and data to the luminaires, eliminating the need for separate power cabling.

The integrated sensors capture anonymous data on room occupancy. Occupancy data is then used to precisely deliver lighting, heating, cooling and cleaning resources with maximum energy efficiency. Light levels, heating, cooling and cleaning are reduced in low-occupancy areas to save time, money and energy.

What it means

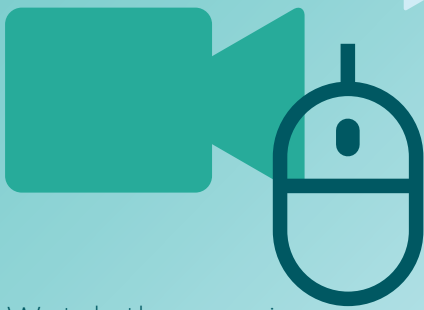
Individual employees use the system to create a personal space. For example, the connected luminaires use visible light communications (VLC) to offer services to employees in the illuminated space. VLC sends a code via the LED light beam and the employee's smartphone camera receives this code, registering his or her location. With a smart phone app designed by Philips, the employee can control the lighting above a specific desk, even in an open-plan office. Employees also use the app to adjust the lighting and temperature in meeting rooms. Workspaces can also be customized on an ad-hoc basis to provide the lighting for a particular activity.

Of course, LED lighting is also known for its low power consumption, so energy savings were built in from day one. The expected savings are \$100,000 in energy costs and \$1.6 million in space utilization costs.



The Edge Amsterdam

- IT & Innovation



Watch the movie:
<https://youtu.be/1ZYJ4wYGajA>

“

Our hope is that other developers will follow this lead and endeavor to create innovative buildings that are in a league with The Edge.”

Annemarie van Doorn,
Director of the Dutch Green Building Council

Groundbreaking collaboration

The Philips connected lighting system at The Edge is the world's first fully-realized system of its kind.

By communicating and interacting with the environment, office life becomes an immersive experience. Employees personalize their surroundings, thus making the building a more inviting place to work.

The system demonstrates worldwide leadership in sustainable practices and responsive, human-centric working environments, which is shared by OVG, Deloitte, and Philips. Annemarie van Doorn, director of the Dutch Green Building Council, said, “OVG has created an exemplary office building, that has exceeded any other that we have rated worldwide to date. Our hope is that other developers will follow this lead and endeavor to create innovative buildings that are in a league with The Edge.”

If The Edge testifies to the end of the desk as we know it, employees and building managers seem to appreciate it. “We are very happy with the design and concept, as are the tenants and workers,” Bouman says. “The building itself works. You feel the buzz and you see that everybody is happy. When you see people sitting near the coffee areas, sitting outside from their workspaces and all the features of the building work really well, you can tell The Edge has so far been a success.”

An integrated system

Philips connected office lighting using PoE compatible recessed PowerBalance troffers and LuxSpace downlights

Envision software

Philips Envision is an integrated, end-to-end approach to advanced lighting control, commissioning, and management. Envision manager is a multi-user software application that provides visibility into lighting system operations and energy management. It offers complete control, from a single lamp to the lighting in a multi-story building. Its powerful features include simple scheduling, routine maintenance management, real-time occupancy floor plans, and energy usage analysis for improved efficiency.

Personal Control App

The Philips PCA is a mobile app available for iOS and Android. It uses visible light communications to offer personal control of lighting scenes and room temperature at individual workspaces. The PCA supports personalization even in open-plan offices, putting employees back in control of their working environment.



Philips Lifecycle Services for staying Green

Being certified as the world's most sustainable office building is a major achievement, but maintaining that status requires continual effort and a long-term perspective. Not satisfied with standard manufacturers' warranties and service contracts, management at The Edge entered into an agreement with Philips to provide an extensive suite of lifecycle services for a period of 10 years.

The Premium+ lifecycle services package offered by Philips focuses on optimizing system performance through preventive, corrective, and predictive maintenance, as well as analytics and reporting on the data collected through the connected lighting system. These data include light levels, energy consumption, and occupancy patterns over time.

The system also collects data on how workers are using the system's personalization features, offering insight into employees' preferences in practice. Based on the analytics, Philips offers advice and recommendations to optimize operations – for example, switch off lighting and HVAC services to a floor on a Friday afternoon if the data shows no occupancy over a period of months.

Philips offers standard service ticketing and help desk support, but their commitment to sustainable operations doesn't stop there. Philips technicians come on site to perform health checks on luminaires, controls, the relevant IT network performance, and to update the lighting management software as necessary. Philips technicians also resolve issues, repair devices, and train users on site.

The lifecycle services agreement represents a significant, committed partnership between Philips and the management of The Edge. Together, they expect to maintain demonstrated leadership in sustainable practices and human-centric workspaces for years to come.

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In the future, buildings won't just be climate natural, but they will absorb CO₂ so they'll be good for the environment and will actually supply energy.”

Jim Stolze, Writer and Entrepreneur

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People are more satisfied with the quality of light and with the amount of light they have. All employees tell me they don't want to go back, so that shows us that it's a success.”

Frouwynke Dijkgraaf,
Deloitte Property Management Consultant



