PHILIPS

Lighting

SpaceWise

Copenhagen, Denmark

Major energy savings for **95 buildings in the Danish capital**

Background

City authorities in Copenhagen have ambitious objectives related to energy reduction and sustainability – aiming to become CO_2 neutral by 2025. At the same time, they are committed to improving both quality of life in the city and working conditions for employees, residents and visitors. The starting point for their radical new approach are the buildings owned by the municipality, where they will prioritise the renovation of offices, schools, nurseries and homes for the elderly.

Upgrading indoor lighting is a top priority; the aim being to replace all conventional light source luminaires in publicly owned properties with long-life, high-quality LED solutions. User-friendly and easy to operate, the lighting system is wirelessly connected – allowing it to make use of presence and daylight sensors to reduce energy consumption across 95 buildings.

The Philips LED lighting fixtures are supplied by Signify, alongside a wireless control system called SpaceWise, which helps deliver optimum lighting comfort and flexibility, as well as significant energy savings.

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We had a good working relationship with Signify and ELTEL and the team functioned well. Liaising closely with users is also important. They are the ones who need to work in the lighting every day, so they are the ones who must be happy with it."

Thomas Knud Maare,
Project Manager, Copenhagen City Council

The solution

An ambitious pilot project was completed in 2018, in which Signify acted as a subcontractor for installer ELTEL Networks. This initial phase prioritised the oldest and least energy-efficient properties in the City Council's portfolio including schools, daycare centers and homes for the elderly.

The project was a major undertaking, involving the installation of over 15,000 Philips LED luminaires and sensors, as part of a refurbishment in all the 95 different buildings. Originally, the energy savings were estimated at approximately 50%, but the actual result was as high as 70%, due to features such as presence detection and daylight harvesting.

Following one-to-one replacement of the existing fixtures, the improved and consistent light quality is now compliant with EU office standards, delivering up to 500 lux. The city properties also benefit from a very high level of color rendering, close to natural daylight.

The result? Employees have better working conditions, improved visual comfort and ability to tweak some parameters of the lighting themselves.
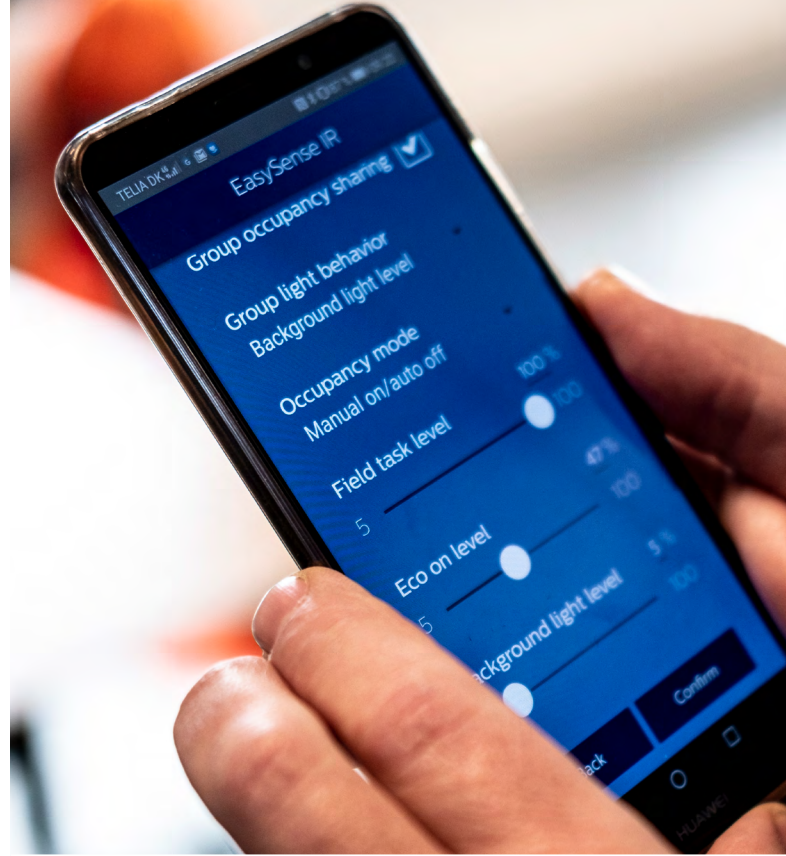
Introducing SpaceWise

SpaceWise technology has played a vital role in the installation. A wireless solution, it replaces the need for each individual luminaire to be connected by separate control leads. A sensor and a control module in each fixture can communicate instantly with one another and automatically adjust lighting, depending on the occupancy of a room or the amount of daylight available. A wireless switch is mounted on the wall. As someone enters a room, the luminaire will determine exactly how much light is needed, but it's possible to override the automatic setting.

For example, if a nursery manager wanted to create a cosy ambience for children and staff in the morning, they are able to adjust the light settings themselves.

Energy savings are an important feature of SpaceWise too. If no one is in the room for a period of a few minutes, the lights will turn off automatically. No more issues with staff mistakenly leaving rooms illuminated overnight or when not in use, leading to unnecessary energy consumption and higher costs.

The financial impact

Through the properties included in the pilot project, savings of around DKK 5 million (€670,000) a year are anticipated in terms of associated energy and operational costs. The new LED luminaires have an expected lifespan of around 16 years, delivering 50,000 hours of use. Add in the lightings' dimming and control functionality, and that can increase the lifetime to up to 20 years.

> " The financial savings are, of course, significant, but there will also be a major impact in terms of benefitting the environment and improving sustainability."
>
> **Anne Marie Lund,**
> Key Account Manager, Signify

Key benefits:

Recyclable luminaires demonstrate innovation

The latest innovative production technology has been put into use in the form of round, 3D-printed luminaires. Once each product reaches end-of-life, it can be shredded, with all of the material easily recycled.

Save on energy

Overall, Signify aims to achieve 50% energy reductions through the specification of high-quality lighting and control systems. Lights turn off automatically after a few minutes when no presence is detected, meaning substantial savings can be made on energy consumption.

Easy installation

Originally, the plan was to execute the work after office hours, so as not to disturb the daily work of employees and other users of the space. However, after realizing how easy the system is to install, the municipality agreed that the installation could take place during regular working hours.

www.philips.com/spacewise