

# WAREHOUSE LIGHTING AS PART OF AN ENERGY SAVINGS PROGRAMME



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Picture: Helvar / Johan Stenberg

At the end of 2007, Helvar committed to the energy conservation agreement of the industrial sector in Finland. Within the programme, Helvar commits to decreasing its energy consumption by 9% from the 2005 level by 2016. In 2007, Helvar carried out an energy consumption analysis at the Karkkila production unit. The analysis showed that the company has great potential for reducing its energy consumption. Lighting is an important part of the energy saving efforts.

Helvar renewed the lighting of its 700 square metre finished goods warehouse. The old lighting installation dated from 15 years ago. A lighting expert, **Timo Mattila** from Valaistus- ja sähkösuunnittelu Ky, was invited to specify the new lighting. The project aimed at improving energy efficiency and lighting quality in the warehouse. A short investment pay back time was one of the objectives of the project.

The lighting system in the warehouse uses the Helvar DIGIDIM Router system that controls the lights according to the digital DALI protocol. Helvar's own DALI electronic ballasts "EL2x49si" were chosen for the luminaires. The warehouse area was divided into 14 zones with presence detectors. If no-one is present for ten minutes, the lighting power drops down to 20%.

"The selection of luminaires with high quality optics was a major factor in creating the desired power savings. The system also requires a lighting control system, presence detectors and daylight-sensitive light control," says Helvar Plant Manager **Kimmo Kallio**.

The new lighting system has been in use for only a short period of time. According to the first measurements, the energy savings have been nearly 70%, resulting in 45,000 kWh less energy consumed per year. The saving equals the total annual consumption of two Finnish medium-sized detached houses with electric heating.

Most of the savings are achieved through presence detection. Another useful feature is the constant light control helping to utilise the light coming through the skylights. The dark warehouse floor was painted a lighter colour to improve the reflection of light. Many things must be considered in lighting planning to achieve better energy efficiency.

Energy metering was included in Helvar's new energy efficient warehouse lighting system to monitor the functionality and power consumption. Savings will increase further as experience is gained and the daylight sensitivity and presence detecting functions can be optimised. ■

## Old lighting system:

- 69 luminaires
- Magnetic ballasts 2x58 W
- Energy efficiency; EEI = C
- Ave light level 268 lx (100%)

## New lighting system:

- 69 luminaires
- Digital electronic ballasts EL2x49si
- Energy efficiency; EEI = A1
- Helvar DIGIDIM system with 910 DIGIDIM router providing automated time controls, constant light and presence detection features (312 Multisensors) and push button panels for manual control

## Ave light level:

- 400 lx occupied
- 200 lx unoccupied

