High-quality lighting made energy efficiently

The primary task for lighting is to produce enough good quality to carry out tasks in a certain space.

Energy efficient lighting is a combination, where you look for the lowest possible energy consumption (W/m² and/or W/m²/100 lx) in such a way that the quality requirements for lighting will be met.

It is important to take into account natural light in the planning of constructions as well as surfaces and furniture placement in the space.

Energy-efficient lighting solution is a result of a combination:

- luminaire is accomplished energy-efficiently and it fits to the application

- lighting is designed and executed carefully, the maintenance program is set up and it is being followed

- control solutions are being thought and are suitable for the application

- energy consumption is measured and followed

Learn more about our high-quality energy-efficient lighting in our training video.

Take into the consideration the following matters when planning an energy-efficient lighting solution:

Technology:

Light source efficacy (lm/W) - the higher the efficacy, the more energy-efficient the light source is.

Ballast classification (EEI) determinates the limits for ballasts losses. Energy-efficient ballasts have small losses. According to the EU-regulations starting from 13.4.2017; A1BAT, A2 BAT or A2 are permitted. The traditional ballasts will exit from the market.
For LED drivers there are not yet defined Energy Efficient classes.

Light distribution determinates how the light is distributed to the area to be illuminated. Keep in mind that in LED luminaires the size and shape of the luminaire does not necessarily tell anything about the light distribution.

System efficacy (lm/W) = luminaire luminous flux (lm) / connected load (W)

Luminaire efficacy (lm/W) is taking into account the power source, heat and optics losses. Notice the glare! The luminaire with highest efficacy is not always the best option for the application.

Control:

Movement / presence detection – lights on only when needed. The good features of LED´s are highlighted in detection use. The lights turn on right away to full power and LED´s can withstand a great number of switching on/off.

Daylight detection – taking advantage of the daylight when lighting the space, artificial lighting adapts with the natural light. It is often combined with the presence detection.
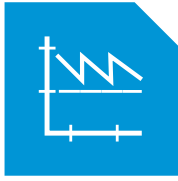
Constant illuminance – (constant light output) – CLO observes luminaire´s / light sources loss of luminous flux during the maintenance period. A higher maintenance factor can be used in planning, because the luminous flux of the light source does not change during its lifespan. On the other hand this does not remove the need of cleaning and the energy consumption grows during the lifespan.
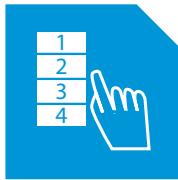
Task-scene setting – For many tasks maximum level of illuminance is not the most optimal. Dimming of luminaires according to the tasks increases comfort at work and saves as well energy.

Timed-off - automatic switch off when the space is not in use. This ensures that the lights turn off regardless of the user. This function is suitable for example in controlling the outdoor lighting. In outdoor lighting the use of luminaire specific independent power reduction (Bi-Power, NightDim etc.) is increasing, when the lights are desired to be turned on during the whole night, but be dimmed during night´s quiet hours.

Application:

Task lighting – correct amount of light to task areas, background and other areas with less amount of light. Indoor lighting standard SFS1:2011-12464 (EN 12464-1:2011) is guiding lighting of public premises stronger to that direction.

Zoning of lighting – rational zoning of space according to its use. With practical placement of luminaires and with zoning the space for entities, energy consumption can be affected.

Maintenance schedule – maintenance of luminaires according to the space and its use. The light sources which are in the end of their lifespan should be changed and in dirty environment the luminaire has to be cleaned frequently enough.

Waste light - controlling light to the intended target. Outdoor lighting trend mostly, in some cities even regulations about this issue. Light should not be wasted to the sky, but in some applications high-lighting an object (for example a three, plants or facade) can require an appropriate amount of scattered light.

Space and metering:

Reflectance - taking advantage of light which is reflected in space, selection of surface materials is important. Energy saving point of view light colors with high reflectance should be favored.

Metering of energy consumption and reporting to the user – awareness influence the behavior. Measured feedback about the energy consumption helps saving 5-15% in use of energy.

Energy-efficient lighting depends on many factors; do not stare only the efficacy.

Energy-efficient lighting is made of high-quality products, good design and execution together with proper maintenance and energy efficient use of the lighting over its life-time.

Remember the quality of lighting! The primary task of lighting is not to save energy.

High-quality lighting and energy efficiency can be combined.