

RECONSTRUCTION OF LIGHTING SYSTEM OF THE NURSERY SCHOOL PRAGUE

Sector: Educational building



**PARTNER:
PRAGUE 8
DISTRICT,
PRAGUE,
CZECH
REPUBLIC**

Since the year 2004 children at the nursery school in Prague – Bohnice, Czech Republic can play by light, whose low running costs and high quality is guaranteed by a reconstruction of lighting system and installation of modern and energy efficient technologies.

PARTNER

The GreenLight partner is the Nursery School in Prague 8 district. The Prague 8 municipality is the owner and organizer of this nursery school and only due to its active involvement it was possible to organize this project due to which the children now benefit from ideal lighting conditions while playing in the class rooms.



CONTEXT

It is a very common situation that school buildings have un-sufficient level of lighting within their classes. In the case of the nursery school in Prague 8 district this was even 5 times below the recommended levels. The technology used were the classic GLS light bulbs, therefore increasing the level of light five times by adding new and stronger light bulbs would have significant impact on the energy bill of the school building. Therefore the most modern system was chosen, which enabled to lower the energy bill slightly while increasing the light value levels up to five times!

EXPERIENCE OF THE PARTNER

Partnership process

The project was brought to life thanks to a sponsorship of Pražská energetika, a.s. – energy utility. SEVEN, The Energy Efficiency Center, o.p.s, helped to organize the project. The design of project and the project itself was carried out by the company Beghelli - Elplast using the light sources of Osram brand.

Technical data

The latest technology comprising linear fluorescent lamps, electronic ballasts and, primarily, dimming technology was used for the relighting. The delivery of emergency lighting in case of power failure is a part of the project as well.

Particularly the electronic ballasts with linear dimming of the lights were used. Their usage allows the elimination of the emergence of the so called stroboscopic effect, which emerged when using inductors (older type of ballasts). They also do not load the grid by consumption of the idle energy and prolong the service life of the light because there is an ideal electrodes warm-up time. In addition to that the service life of the light connected via this ballast is independent on the number of switching on. From the user point of view the lighting reconstruction allowed minimum operational requirements, in particular only one switching on of the system in the morning and one switching off when leaving the

place. After that the system regulates the lighting level itself according to the daylight intensity getting in through the windows.

COST AND BENEFITS

Economical

The nursery users at Poznaňská street have been paying approximately 85 000 CZK on electricity bill per year before the lighting reconstruction. But the incandescent light bulbs used before did not have the required light levels. The new lighting system saves approx. 5 000 CZK per year even with 5 times higher light level. The investment costs for the reconstruction will not be repaid by the energy savings, however, if the operator would have liked to reach similar light intensity with the previous lighting system, the annual costs would reach 500 000 CZK.

Payments for electricity / year	installed capacity kW	Price / kWh CZK	Payment / year CZK
Before reconstruction	10.96	3.1	84,940.0 Kč
Scenario of upgrading lighting with GLS towards the light level requested by norms	69.3	3.1	537,075.0 Kč
Scenario without regulation	11.93	3.1	92,442.0 Kč
Reconstruction with regulation	11.93	3.1	79,655.0 Kč

Environmental

The clear advantage is that the new technology enabled to increase the amount of produced light by five times while stabilising the energy consumption. Using the original GLS technology for increasing the lighting levels would also tremendously increase the negative environmental impacts of the increased energy consumption.

Another contribution of the project to the environmental protection is the small amount of mercury contained in fluorescent lamps.

EVALUATION AND OUTLOOK

From the user point of view the lighting reconstruction allowed minimum operational requirements, in particular only one switching on of the system in the morning and one switching off when leaving the place.

The advantage of the lamps used is their simple service and simple handling when changing the light sources. Owing to the materials used, the intervals between necessary cleaning of this type of luminaire have been prolonged to 36 months. The change of the lamps takes place once in 10 years.

FURTHER INFORMATION

Name of the contact person: Juraj Krivošík
Position: Project manager
Organisation: SEVEN, The Energy Efficiency Center
Address: Americká 17, 120 00 Praha 2, Czech Republic
Tel/fax: 224 252 115 / e-mail: juraj.krivosik@svn.cz

Prepared by:

Juraj Krivošík, SEVEN, The Energy Efficiency Center, juraj.krivosik@svn.cz, the GreenLight National Contact Point for the Czech Republic.

www.eu-greenlight.org

This GreenLight Good Practice Case Study was prepared under the New GreenLight project with a partial support of the European Commission. The sole responsibility for the content of this publication lies with the authors. The views expressed here do not necessarily reflect the views of the Commission. The European Commission is not responsible for any use that may be made of the information contained therein.

