

BEST PRACTICE – ENERGY EFFICIENT CITIES

BASIC INFORMATION

Title of the Best Practice

Low energy reconstruction of Kindergarten Loptica

Energy efficiency measures implemented in the building:

- Sanation of all plumbing and drainage installations and all sanitary facilities
- Energy efficient envelope insulation (façade, windows, doors) and thermal insulation of the ceiling
- Installation of transparent elements in the roofs of the terraces with the aim of increasing daylight in the children's living rooms
- Installation of didactic elements on the reconstructed facade of the building
- Sanation of internal partition walls damaged by moisture
- Floor reconstruction in children's living rooms and hallways
- Reconstruction of the existing boiler room and production of hot water
- Installation of ventilation in children's living rooms (recuperation)
- Installation of PV system
- Installation of LED lighting system

Location: *with GoogleMaps link*

City: Koprivnica

Region: Koprivnicko - krizevacka County

Country: Croatia

<https://goo.gl/maps/kGokYJ7mkuPVTcJU7>

Partners involved:

- Kindergarten Tratincica, Trg podravskih heroja 7, Koprivnica – role: user
- City of Koprivnica, Zrinski Square 1, Koprivnica – role: investor
- Regional Energy Agency North, Miroslava Krleže 81, Koprivnica – role: project management
- DESING d.o.o., Mosna 14, Koprivnica – role: lead project designer
- KET d.o.o., Đure Basaričeka 1b, Đurđevac- role: lead project designer
- ECO PROJEKT d.o.o., Duga ulica 35, Varaždinske toplice – role: lead project designer
- Fasaderski obrt Mijatović, Ljudevita Gaja 17, Koprivnički Bregi – role: contractor
- Termika Ružić j.d.o.o., Miklinovec 7, Koprivnica – role: contractor
- Solvis d.o.o., Cehovska 106, Varaždin – role: contractor

Implementation year: 2018 – 2019

Photos: (source: photo taken by REAN)



Figure 1 Reconstructed Kindergarten Loptica



Figure 2 Reconstructed boiler room in Kindergarten Loptica



Figure 3 Reconstructed Kindergarten Loptica

SYSTEM CHARACTERISTICS

Brief Description

The subject of this project was the reconstruction and refurbishment of existing Kindergarten Loptica in Koprivnica.

Kindergarten Loptica is a prefabricated building built in 1982. Extensive external and internal transformation of the building has extended its life span and significantly increased energy efficiency with the use of renewable energy sources. The project was implemented as part of an EU project called Prominent MED. The project was implemented using the public procurement of innovation procedure, which was conducted for the first time in Croatia.

The project carried out interventions to increase the energy efficiency of the building envelope (walls and ceiling of the building), which included exterior façade, reconstruction of the heating system, installation of a recovery system, reconstruction of the internal water supply and drainage system, and installation of a solar power plant. In addition, the reconstruction of floors and bathrooms, the repair of interior wall and ceiling surfaces and the installation of didactic elements as an integral part of the building were also carried out. The facility also replaced lighting using LED lighting. Unlike most energy renovations in buildings, where the focus is primarily on the outer envelope and building systems, this approach has been able to fully restore the kindergarten and improve the material conditions for the upbringing and education of children. The total area of the building is 850 m², and the total cost of the project was close to 400.000,00 € (VAT included).

FINANCIAL SOURCES AND FINANCING DETAILS

Total investment value:

ca. 400.000,00 €

Sources of financing:

This project was co-financed by the Interreg MED Programme (Prominent MED project) with 54 % of total investment and the rest was covered by the City of Koprivnica (46 %).

Electricity savings (MWh/year):

Information not available.

Or fuel savings (kg or m³ or kWh or GJ):

Reduction of energy needed for heating from 97.352,73 kWh/m² to 32.534,26 kWh/m², this means a reduction of 67 %.

Cost savings (EUR/year):

67 % heating cost reduction results in ca. 2.600,00 € per year.

PROJECT IMPLEMENTATION BENEFITS

This investment will provide numerous benefits such as quality learning conditions for children, low energy costs, low CO₂ emissions, lower maintenance costs etc.

In addition to reduced heat consumption, the comfort of the user (children and kindergarten teachers) will be increased by the air recuperation system, which will constantly supply with fresh air, and will certainly have a positive impact on the health of children. Although this system will consume additional electricity consumption, this cost will be partially offset by the solar power plant, but also offset by less heat consumption. With reconstruction of internal walls, which were in some cases in extremely poor condition due to the constant influence of moisture, we completely eliminated the influence of moisture and the associated risks on the health of children. In addition, the natural illumination of the building was increased by increasing the glazed surface of the building and the exterior bright coatings of the above-ground terraces, and by installing new LED lighting improved the illumination even in conditions of reduced light outside.

ADDITIONAL INFORMATION

Additional information on following link: <https://ppi.koprivnica.hr/>.