

# BEST PRACTICE IN CZECH REPUBLIC – ENERGY EFFICIENT CITIES

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## BASIC INFORMATION

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### Title of the Best Practice

Thermal renovation, change of the source and installation of air recuperation in primary school Podolí

### Energy efficiency measures implemented in the building:

**Reducing heating demand:** improving the heat insulation, exchange of the heat source and installation of local air recuperation in the whole school

### Location:

**City:** Podolí

**Region:** Zlín Region

**Country:** Czech Republic

<https://goo.gl/maps/C24nAJpgy7QrQCKx7>

### Partners involved:

#### ***Owner and Operator***

Základní škola a Mateřská škola, Podolí, příspěvková organizace  
Podolí č.p. 53, 68604 Kunovice  
E-mail: [zspodoli@zmspodoli.cz](mailto:zspodoli@zmspodoli.cz)  
Web: [www.zmspodoli.cz](http://www.zmspodoli.cz)  
IČO: 70993891  
Mgr. Ing. Jana Buršová - director

#### ***Planner and Architect***

MIKULÍK projekty s.r.o.  
Svatoplukova 285  
686 01 Uherské Hradiště  
[info@projektymikulik.cz](mailto:info@projektymikulik.cz); [www.projektymikulik.cz](http://www.projektymikulik.cz)  
tel.572 540 123

#### ***Building technology planning***

Tespora profi s.r.o.  
Na Příkopě 814  
755 01 Vsetín  
[www.tespora.cz](http://www.tespora.cz)

**Implementation year:** 2020

**Photo:**

Current state:



Source: Energy agency of the Zlín Region

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## SYSTEM CHARACTERISTICS

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**Brief Description :**

The municipality submitted the application for funding to the national Operational Programme Environment 2014-2020, with the support from the Energy Agency of the Zlín Region. The application succeeded and the project was approved for funding. The final share of the subsidy from OP Environment was 30,4 % from the overall investment costs.

The facade was improved by 16 cm of EPS with  $\lambda = 0,039$  W/(mK). The ceiling was insulated with 200 mm mineral wool with  $\lambda = 0,037$  W/(mK). The existing windows with an average U-value of 2,7 W/(m<sup>2</sup>K) were replaced by new plastic windows with a U-value of 0,9 W/(m<sup>2</sup>K). The doors were improved to U = 1,2 W/(m<sup>2</sup>K)).

The air recuperation for the whole school was projected with the overall power of 1 475 m<sup>3</sup>/h because of the inadequate indoor environment.

Nowadays, the heating demand of the building is 69 kWh/(m<sup>2</sup>.a), which means B-class for this type of building.

**Thermal reconstruction of the building envelope**

The outer walls were improved by 16 cm of EPS with  $\lambda = 0,039$  W/(mK). The ceiling was insulated with 200 mm mineral wool with  $\lambda = 0,039$  W/(mK).

**Windows and doors**

The existing windows with an average U-value of 2,7 W/(m<sup>2</sup>K) were replaced by new plastic windows with a U-value of 0,9 W/(m<sup>2</sup>K). The doors were improved to U = 1,2 W/(m<sup>2</sup>K)).

## **Building technology**

Cooling: no requirement for cooling.

Ventilation system: Local air-units were installed with overall power 1 475 m<sup>3</sup>/h.

Heat technology: Old natural gas boilers were replaced by the new natural gas boilers with the much higher efficiency of burning natural gas with the installed power of 43 kW.

Energy management has been carried out in this school by the Energy Agency of the Zlín Region since 2008

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## FINANCIAL SOURCES AND FINANCING DETAILS

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### ***Total investment value:***

252 000 €

### ***Sources of financing:***

This project was co-financed by the Operational Programme Environment of the Czech Republic with subsidy € 76 600; and by the Zlín Region.

### ***Electricity savings (MWh/year):***

0; because of the additional ventilation system

### ***Or fuel savings (kg or m<sup>3</sup> or kWh or GJ):***

Implementation of the project decreased the consumption of natural gas from 388 GJ before project implementation to present 151 GJ which means the new heating demand 65 kWh/(m<sup>2</sup>.a).

### ***Cost savings (EUR/year):***

4 296 € per year; +/- 0 electricity costs, because of the additional ventilation system

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## PROJECT IMPLEMENTATION BENEFITS

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Overall reconstruction of the school has a positive effect on the energy consumption and long-term sustainability of the whole project.

Project has generally improved visual appearance of the whole building.

Mechanical air-ventilation is necessary for the suitable indoor climate. Comfortable place for the teachers and students another benefit of the building upgrade.