


## BUILDING GOOD PRACTICE

### Primary and Nursery School – Kostelec, Vysocina

GENERAL INFORMATION		
<b>Name of the public building renovation:</b>	Realization of energy savings in Primary and Nursery School in Kostelec	
<b>Index of Building Good Practice (kWh/m<sup>2</sup>)</b>	56,7 kWh/m <sup>2</sup>	
<b>Sub-group</b>	School building – primary education	
<b>Desc ription</b>	Photo	
	<b>Address</b>	Primary and Nursery School Kostelec, Kostelec 87, 588 61 Kostelec
	<b>Public sector contractor</b>	
	<b>Architect</b>	Ing. Arch. Jiří Vácha, business project Jihlava
	<b>Engineering consulting</b>	Energetická agentura Vysočiny, Nerudova 1498/8, 586 01 Jihlava
	<b>Characteristics of the building (m<sup>2</sup>, n<sup>o</sup> of users, orientation, etc.)</b>	about 94 users  orientation – the school is a complex of a few buildings, i.e. the orientation is in all directions  1856 m <sup>2</sup>
	<b>Date of</b>	In 70's of 20 <sup>th</sup> century

construction	
Legal aspects (e.g.: protected property)	There is no legal aspect, the building is a property of the municipality Kostelec
Date of renovation	Renovation was running in 1999 – ceilings insulation; 2009-2010 – insulation of the envelope and replacement of windows and doors to the recommended values according to ČSN 730540-2, change of the heating source
Nature of the work (short description)	Within the renovation, it was undertaken the envelope insulation, replacement of windows and doors, the transmission factor was decided to the recommended values according to ČSN 730540-2 (2007), after previous repair ceilings meet the required values ČSN 730540-2 (2007). Another measure was canceling the existing boiler-room for the whole complex and building new local gas condensing sources of heat and hot water preparation.
Budget and source of financement	The total budget was 4 100 000 Kč (ca 167 300 €), sources of the owner were 1 631 000 Kč (ca 66 560 €), subsidy sources 2 469 000 Kč (ca 100 770 €).

#### AVAILABLE RESULTS

<b>What were the big problems (in terms of energy efficiency) to tackle?</b>	Change of the heating system, securing the financial sources
<b>Has this building been already analysed and certified?</b>	An energy audit of the building was elaborated. A certification according to a regulation 178/2007 Sb, has not been done yet.
<b>What are the key innovative energy efficiency measures undertaken through the renovation?</b>	Insulation of the enclosure wall, change of windows and doors, change of the heating source.
<b>What are the measurable improvements in terms of energy efficiency in electricity and heating (kWh saved)?</b>	In 2011 was saved total 850 GJ, i.e. in comparison with the previous status of the year 2009 the saving up to 66, %.
<b>What is the payback period (years)</b>	When we exclude the subsidy from the European funds, the simple payback period for the owner of the complex (Municipality Kostelec) is 5,5 year.

#### ENERGY EFFICIENT MEASURES

<b>Energy efficient measures of the building envelope</b>	Apart from floors, there was also improved the roof composition, insulation of exterior vertical walls using the thermal insulation contact system layer (width 14 cm) in 2010, replacement of windows and doors in 2009.
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<b>Energy efficient measures of the heating system</b>	Change of the heating system, disconnecting the old nonefficient boiler-room, establishment of an own boiler-room with gas condensing boilers.
<b>Energy efficient measures of monitoring energy</b>	Regular monitoring of the energy consumption. Based on this monitoring, other needed measures were recommended.
<b>Energy efficient measures regarding behaviour</b> (množství uspořené energie jako přímý výsledek změny chování s možnou následnou osvětovou kampaní nebo školeními)	Change of behaviour of the staff. Very important is the acceptance of the implemented measures and optimal use of energy – e.g., frequency and time of ventilation.
<b>SUSTAINABILITY OF THE RENOVATION</b>	
<b>Design and choice of sustainable materials?</b>	For the action were selected materials with a long term durability and recycling options, or with other possible use.
<b>Sustainable building site management? (sorting waste, water...)</b>	Yes – according to the valid legislation of the Czech Republic.
<b>Application of a valuation method (BREAM? HQE? Others?)</b>	None.

<b>BUILDING MAINTENANCE: life of the building after the renovation</b>	
<b>Is the building object of the energy monitoring? Is there a responsible manager?</b>	Yes, the building is object of the energy monitoring budova. There is a responsible manager of the building Ing. Mašek
<b>Who is in charge of the maintenance of the heating system of the building?</b>	Deputy Mayor of the municipality
<b>Who is in charge of the day to day energy management?</b>	Deputy Mayor of the municipality
<b>Are there some specific measures to raise energy awareness and to implicate users in energy efficiency?</b>	There are organized trainings of the staff and users of the building.

<b>TRANSFERABILITY</b>	
<b>Transferable aspects according to the partner in charge of this example of good</b>	Transferability of planning (forming a partnership, choosing priorities, setting up a renovation building teams, etc.)?

<b>practice</b>	<p>It is very well transferable to other partners and countries.</p> <p>Main transferable aspects are: choice of priorities, forming a partnership with the owner of the building, face-to-face detailed consultation with implementer of the action. This detailed familiarization with the whole process and each step needed for implementation led to the successful implementation of the project and give the basis for the good cooperation and communication with the building owner.</p>
	<p>Transferability of the process of renovation (management structure, monitoring system, implication of end users, participation, etc.)?</p> <p>System EMC developed by the company SIEMENS is usable within the whole EU. The SIEMENS company has its branch offices across the EU and its main database is in Switzerland.</p>
	<p>Transferability of results (good solutions, adaptability, change of behaviour, etc.)?</p> <p>Refurbishment of the insulation of the building, adaptation and modification of the heating system.</p>
<b>Transferable aspects according to all the partners of Serpente project</b>	<p>The other partners will analyse and validate these good practices. During the process of validation the partners will take on the role of auditors because they will assess and improve the effectiveness and portability of good practices in their context.</p>
	<p>The validation process will promote a systemic approach in local competent public administrations. Moreover, this process of selection and validation is a peer review and entails the mutual role of experts and auditors depending on typology of buildings and partner's expertise.</p>

<b>SOURCES</b>	
<b>Publications</b>	Valid standards and regulations
<b>Website</b>	<a href="http://www.eav.cz">www.eav.cz</a>
<b>Interviews</b>	Consultations with designers, administrator of the building, own experience.

