BUILDING GOOD PRACTICE
Secondary Technical School – Třebíč, Vysocina

GENERAL INFORMATION		
Name of the public building renovation:		Realization of insulation and change of heating source, Secondary Technical School Třebíč
Index of Building Good Practice (kWh/m^2)		72,3 kWh/m^2
Sub-group		School buidling – secondary education
Description	Photo	
	Address	Secondary Technical School Třebíč, Manželů Curieových 734, 674 40 Třebíč
	Public sector contractor	
	Architect Engineering consulting	Ing. Milan Melichar, Třebíč Energetická agentura Vysočiny, Nerudova 1498/8, 586 01 Jihlava
	Characteristics of the building (m2, nº of users, orientation, etc.)	about 1 140 users orientation – the scholl is a complex of a few buildings, i.e. the orientation is in all directions 17499 m^2
	Date of construction	In 70‘s of 20th century
	Legal aspects (e.g.: protected	There is no legal aspect, the building is a property of the Vysočina Region

	property)	
	Date of renovation	Renovation was in 2009 and 2010
	Nature of the work (short description)	Ceilings insulation, facade insulation and change of windows and doors to the recommended values according to ČSN 730540-2, change of the heating source including the regulation of the heating system - gas condensing boilers, including change of the heating system (thermostatic valves, zone equitherm regulation).
	Budget and source of financement	The budget for insulation and change of the heating source, including the regulation of the heating system was 39 627 000 Kč (ca 1 610 000 €), sources of the owner were 27 139 000 Kč (ca 1 100 000 €), subsidy sources 12 488 000 Kč (ca 510 000 €).

AVAILABLE RESULTS	
What were the big problems (in terms of energy efficiency) to tackle?	Change of the heating system, securing the financial sources
Has this building been already analysed and certified?	An energy audit of the building was elaborated. A certification according to a regulation 178/2007 Sb, has not been done yet.
What are the key innovative energy efficiency measures undertaken through the renovation?	Insulation of the enclosure wall, change of windows and doors, change of the heating source and heating system.
What are the measurable improvements in terms of energy efficiency in electricity and heating (kWh saved)?	In comparison with the year 2007 the saving by heating was 5 461 GJ, i.e. about 54,5%
What is the payback period (years)	When we exclude the subsidy from the European funds, the simple payback period for the owner of the complex of the buildings (The Vysočina Region) is 13,5 year.

ENERGY EFFICIENT MEASURES	
Energy efficient measures of the building envelope	Apart from floors, there was also improved the roof composition, insulation of exterior vertical walls using the thermal insulation contact system layer, replacement of windows and doors.
Energy efficient measures of the heating system	Insulation of the complex of the buildings. Change of the heating system, Změna systému vytápění, disconnecting the old nonefficient boiler-room, establishment of a boiler-room with new gas condensing boilers, change of the system of regulation of the heated buildings (thermostatic valves, zone equitherm regulation, time-controlled equitherm regulation)

Energy efficient measures of monitoring energy	Regular monitoring of the energy consumption. Based on this monitoring, other needed measures were recommended.
Energy efficient measures regarding behaviour (amount of energy saved as a direct result of changes in behavior with possible subsequent awareness campaign or trainings)	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.
Stakeholders' involvement in the energy efficient measures	The project is an idea of the Vysočina Region that intended this project to be a pilot action for other follow-up projects.

SUSTAINABILITY OF THE RENOVATION	
Design and choice of sustainable materials?	For the action were selected materials with a long term durability and recycling options, or with other possible use.
Sustainable building site management? (sorting waste, water…)	Yes – according to the valid legislation of the Czech Republic.
Application of a valuation method (BREAM? HQE? Others?)	None.

BUILDING MAINTENANCE: life of the building after the renovation	
Is the building object of the energy monitoring? Is there a responsible manager?	Yes, the building is object of the energy monitoringbudova. There is a responsible manager of the building Mr. Pelán
Who is in charge of the maintenance of the heating system of the building?	Manager of the building Mr. Pelán
Who is in charge of the day to day energy management?	Manager of the building Mr. Pelán
Are there some specific measures to raise energy awareness and to implicate users in energy efficiency?	To the monitoring of energy and related matters are also involved students of energy and ecological branch running at highschool. There are also seminars for target groups and study visits. There were installed monitors where each visitor of the building can see the current state of the energy monitoring and energy consumption.

TRANFERABILITY	
Transferable aspects according to the partner in charge of this example of good practice	Transferability of planning (forming a partnership, choosing priorities, setting up a renovation building teams, etc.)? It is very well transferable to other partners and countries. Main transferable aspects are: choice of priorits, 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.
	Transferability of the process of renovation (management structure, monitoring system, implication of end users, participation, etc.)? System EMC developed by the compandy SIEMENS is usable within the whole EU. The SIEMENS company has its branch offices across the EU and its main database is in Switzerland.
	Transferability of results (good solutions, adaptability, change of behaviour, etc.)? Refurbishment of the insulation of the building, adaptation and modification of the heating sources and heating system to the new status after the insulation of the object.
Transferable aspects according to all the partners of Serpente project	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.
	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.

SOURCES	
Publications	Valid standards and regulations

Website	www.eav.cz
Interviews	Consultations with designers, administrator of the building, own experience.