

MARIE TRAINING PROGRAM FOR IMPROVEMENT IN ENERGY EFFICIENCY (EE) OF EXISTING BUILDINGS

F1 | BEST PRACTICES COLLECTION

Best Practice Name:	Large scale energy conservation measures – Urban sustainability
Code:	GR-BP-TE-EN-01

Best Practice Description:

Type:	<input checked="" type="checkbox"/> Action for improvement in the EE	<input type="checkbox"/> Training experience (*)
Description:	<p>“Planing <i>Retrofitting actions for the 3rd High School of Kozani</i>”, within the framework of the National Operational Program “Demonstration projects regarding Renewable Energy and Energy Saving measures for existing educational buildings - secondary schools – within the National Program “Environment and Sustainable Development 2007-2013 (EPPERAA)””. Contractor: Aristotle University Thessaloniki, Laboratory of Heat Transfer and Environmental Engineering, July 2011.</p>	
Location:	Kozani	Country: Greece
Contact (team):	Dr. Ifigeneia Theodoridou, Co-Owner, e2 architects, Them. Sofouli 57, 55131, Thessaloniki, +302314021677, ifigeneia@e2architects.eu, www.e2architects.eu	
Type of building:	<input checked="" type="checkbox"/> Tertiary	<input type="checkbox"/> Residential
Property:	<input checked="" type="checkbox"/> Public	<input type="checkbox"/> Private
Management:	<input checked="" type="checkbox"/> Public	<input type="checkbox"/> Private
Fields of action:	<input type="checkbox"/> Construction	<input checked="" type="checkbox"/> Maintenance
	<input type="checkbox"/> Energy generation and distribution	<input checked="" type="checkbox"/> Use
	<input checked="" type="checkbox"/> Replacement or implementation of renewable energies	Other solar thermal, PV systems

Please, evaluate if the following processes take place in the Best Practice that you are describing in this form:

	Yes	No
The data collection has been complete and rigorous	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Communication and awareness processes have been developed to disseminate this practice	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Training actions have been provided	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Product and services have been improved	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Jobs have been created	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Sustainable financial models have been applied	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Agreements or collaboration models have been defined between parties	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Positive impact tested in the following fields (add quantitative data if you have):

ENERGY EFFICIENCY IMPROVEMENT (EE)	For the improvement of the building’s energy behavior a series of intervention scenarios were developed according to the degree of intervention and the related costs. Overall three scenarios were presented and proposed within the framework of the study. The interventions regard the HVAC system and the building’s envelope as well as the implementation of RES. Each intervention was evaluated according to the National Simulation Program that is in terms with the
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	Energy Performance of Buildings Directive (EPBD), namely TEE-KENAK. The results show a drastic drop of the annual heating energy consumption by 21.22% by means of retrospective thermal insulation. Furthermore, the overall annual energy consumption is reduced by 30.06% in case of thermal insulation, replacement of old windows, automatic control for the lighting as well as the installation of an autonomous PV system and solar thermal panels for DHW production. Moreover, the primary energy consumption is further reduced by 46.8%.
FINANCIAL COVERAGE	By means of the initial investment costs and the investors, the presented project is based on a National Investment Program aiming at the CO2 emissions' reduction of the building. The pay-back periods were estimated and the intervention scenarios were proposed according to the initial capital. For this purpose specific economic evaluation models were applied. Hence, the total investment cost for the best case scenario was calculated at about 619,385.39 euros, including the respective studies and construction costs. It is important to note though that the annual operation costs of the buildings will be reduced by 10.000 euros approximately.
EMPLOYABILITY POTENTIAL	The implementation of the proposed measures would lead to new positions for engineers who will perform the studies for each phase of the project as well as during the construction supervision. In addition, the material industry is drastically participating and all parties regarding the construction industry.
OTHER	Besides, energy, economic and environmental profit, energy efficiency, especially as regards the aged existing school buildings comes with social benefits. Thus, indoor air-quality as well as thermal and visual comfort are of high importance by means of school buildings. These measures will increase the quality of the building and raise awareness for young students, hence our future citizens.
DIFFICULTIES	Difficulties mainly refer to lack of data input and bureaucracy issues.

Agents involved in this experience:

<input checked="" type="checkbox"/>	Legislation agencies
<input type="checkbox"/>	Public promoters
<input type="checkbox"/>	Private promoters
<input checked="" type="checkbox"/>	Technical public institutions
<input type="checkbox"/>	Technicians of the private sphere (professional associations ...)
<input type="checkbox"/>	Builders
<input type="checkbox"/>	Industrial
<input type="checkbox"/>	Facility Managers (property managers, cleaning companies ...)
<input type="checkbox"/>	Energy supply companies
<input checked="" type="checkbox"/>	Users/owners (homeowners association, schools ...)
<input type="checkbox"/>	Other:
GAPS	

(*) **RR TT BB FF NN**

RR Region: **CA** (Catalunya), **EV** (Evora), **LA** (Larnaca), **MT** (Malta), **PA** (PACA), **SL** (Slovenia), **UM** (Umbria), **WM** (Western Macedonia)

TT Type of BP: **BP** (project and work), **TR** (training)

BB Type of building: **RE** (residential), **TE** (tertiary)

FF Field of action: **CO** (construction), **MA** (maintenance), **US** (use), **EN** (energy generation and distribution), **OT** (other)

NN Number of the practice: **01, 02, 03...**

(*)IN CASE OF A TRAINING EXPERIENCE:

Course name:	
Duration:	<i>Training hours/ECTS</i>
Web:	
Director/a:	
Who is it aimed:	<i>Profile of trainees</i>
Objectives:	<i>What enables this training?</i>
Program:	
Methodology:	<i>Format (face-to-face, on-line), structure of sessions, visits, case studies, evaluation systems, dynamic sessions, other aspects ...</i>

I agree to bring this experience to the database of the MARIE project, which will create a comprehensive training program for improving the energy efficiency of buildings in the area of the Mediterranean.