

STO Training for the staff of local authorities

Introduction

When implementing a STO (Solar Thermal Ordinances) it is important that the staff of the involved local authorities will be trained and will have specific ability on solar technology. Actually, it was proven that the lack of this ability can cause problems on the achievement and the efficiency of STO measures. For example, when municipality technicians check up a project they must be able to understand the main features, the technical data and the type of the plant. Moreover he has to be able to verify the compliance with the STO and suggest possible changes and improvements on the original version of the project, e.g. regarding architectural or urban integration.

This document presents a course concept which was successfully applied for training staff of the departments of the Province of Rome and derived recommendations for replication.

Main characteristics

Approach	Intensive courses: 20 hours for group of 10 max 20 people. 2 experts as teaching staff: A teacher with professional experience on solar technology and another one specialized in building codes and laws. The teaching approach will be based on practical example followed by open discussion about problems perceived. It is recommended to plan a 3 day course on consecutive days or in weekly intervals.
Objective	The objective is: to give the essential ability to the municipality and local staff in order to be able to use the STOs in efficient and appropriate way and to support projects and plans to spread the use of STOs or flanking measures.
Special features to be integrated	<ul style="list-style-type: none"> • Visit to a solar "combisystem" integrated roof or partially integrated. • Technical sheet file about domestic hot water and space heating solar plants • Poster/Sheet to be shown in the municipality office regarding the solar panel architectural integration. • Workshop with local technicians in order to verify and solve technical issues
Examples of STOs, which used this approach	Rome Province, Office for Prevention of Air Pollution and Energy (IT)

Analysis

Strengths	Give the Municipality staff knowledge to allow the STO most efficient approach
Weakness	Difficulty to involve municipality staff about the importance of the action due to several reasons (e.g. the personnel is too busy with his work and cannot attend any other activity).
Opportunities	Promote a network through the courses as a STOs support
Threats	Course information too general / too superficial

Exemplary programme of the course

Part I: Regulation, directive and law

Recommended Length (hours)	Description of topics
1	Introduction to the climate changes problem, reduction of pollution emission. European Energy Policies for promotion of renewable energy sources and reduction of pollution gas
2	European Regulation, EU Directive; binding on themes concerning renewable energy sources; concerning the utilisation of solar thermal and concerning energy saving
2	National and local regulations on Energy saving and promotion of solar thermal utilization.
1	Introduction to Solar Thermal Ordinances. European and national examples of organisations already implementing STOs.
2	Basic principles of a STO, STO Tool Box presentation: <ul style="list-style-type: none"> • Background information about STOs, communication tools, good reasons for a STO in the community. • Baseline Assessment, tools for analysing the status, potential and feasibility of a STO under individual local boundary conditions. • Approved text components and legal approaches for drafting the right ordinance. • Flanking measures, proposals of supporting activities for boosting the impact of the STO. • Monitoring tools useful for tracking the achievements obtained with the STO.
2	Flanking measures for promotion of utilisation of solar thermal, information campaign, training professional courses for installers, economical and fiscal incentives

Part II: Technology

Recommended Length (hours)	Description of topics
1	Introduction to solar technology, energy consumption in buildings (i.e. electric energy, domestic hot water, space heating - national and European data), differences between RES (solar thermal, photovoltaic, biomasses, cogeneration, etc).
1	Introduction to basic principles about solar energy use: apparent tracks of the sun during seasons, graphics about incident radiation regarding to the inclination to seasons, shading.
2	Plant engineering and working of solar thermal plants, components and basic principles for the running of the solar circuit, tank.
2	Differences between plants used for production of domestic hot water and plants for space heating.
2	Dimensioning of plants, differences between systems for domestic hot water and plants for space heating: dimensioning of collective surface and differences on inclination of solar collector on both cases.
2	Technical economic evaluations, scale factor of a large dimension plants as in the case of a multi familiar building
1	Examples of advanced solar district plants e.g. District of Kronsberg - Hannover (DE), Marstal (DK), Hamburg Bramfeld (DE), Neckarsulm Amorbach (DE).

Conclusions and Recommendations

This course is highly recommended both for lectures and for workshops. Team workshops are useful in order to discuss problems and critical issues, which participants might fear they could face on application of a STO. It is important that the course is run by a staff of at least two qualified people. One person should be specialized on specific regulations with regard to STOs, the other person should be specialized on solar technologies. It is important that the course explains the practical sides of technology, showing with photographs several solutions for the installation on a building.

Participants should learn the different characteristics of solar plants (inclination, surface, tank volume), how the dimension is related to the use (production of hot water or space heating) and to the solar fraction foreseen.

It is important that the teachers have professional experience gained on the solar sector, to avoid that the course becomes just a very general introduction to solar. Moreover, the authority staff should have the possibility to participate to further courses e.g. within the flanking or campaign measures.

For technicians and planners employed at the public authority, also an in-depth course on solar plants design can be offered.

References

/1/ | <http://www.provincia.roma.it>

/2/ | <http://www.resedaweb.org/salvaguai/Index%202.htm> (Provincia solare)

Imprint

Edited by: RESEDA scsi onlus, www.resedaweb.org

Date, Place: 30 gennaio 2009

See www.solarordinances.eu for more information on solar thermal ordinances and the ProSTO project.

The ProSTO project is supported by:



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