

NATIONAL DISSEMINATION WORKSHOP – SPAIN: “THE SOLAR CITY”

Date of workshop: 11.4.2011 (9:00 – 14:30 h.)
Location: Architecture Technical School, Technical University of Madrid, Spain
Responsible for minutes
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Objective

Workshop objective was to present POLIS Pilot actions and first results to the targeted audience, consisting of professionals related to the Architecture and Urban Planning sectors. A total of 108 persons attended the workshop, amongst which there were representatives from Spanish cities not participating in POLIS such as Madrid, Barcelona, Sevilla and Valencia.

Minutes

1. Welcoming

Mr. Luis Maldonado Ramos, Director of the Architecture Technical School - Technical University of Madrid

The Director of the Architecture Faculty of the Technical University of Madrid welcomes the workshop speakers and participants. He also highlights the importance of joint collaboration between cities in relation to sustainability in urban design in projects like POLIS and fully supports the dissemination of results arising from the Spanish participation.

2. Presentation of POLIS project

Mrs. Ester Higuera, Mrs. Estefania Caamaño, Technical University of Madrid

POLIS project is presented to the Workshop participants in terms of project objectives, approach, participants and structure. The main results obtained so far and planned work are summarised:

- Work Package 2: Best practices, analysis of national and local conditions, Database and Manual of Best practices in Solar Urban Planning.
- Work Package 3: Action Plans and Pilot Actions, Dissemination of results.
- Work Package 4: Pilot actions implementation.
- Work Package 5: Development of dissemination materials.
- Work Package 6: Communication and dissemination of materials.

Workshop participants are encouraged to visit and use the existing information that is available on the project website www.polis-solar.eu, as well as the facilities for the newsletter publications and e-forum

For more details see presentation: POLIS-Presentation_UPM.pdf

3. Experiences in Gerona: Proposal for the new Eco-neighbourhood of Figueres

Mr. Moisès Morató-Güell, Agencia de Ecología Urbana (Urban Ecology Agency), Barcelona

Mr. Morató-Güell begins with some reflections about the importance of a Bioclimatic approach of Urban planning, which implies a three-level approach: height, surface and basement.

Mr. Morató-Güell then presents the EcoNeighbourhood that is being planned in the Sector Llevant of Figueres (a city in Catalonia region, province of Gerona), an industrial area with low urban quality at present. Main objective is to design 2000 dwellings, buildings for commercial and services uses and urban equipment. An analysis has been done of the energy consumption needed to construct the buildings, related infrastructure and transportation needs. Regarding the energy sources, local resources such as solar will be maximised due to the abundance of solar irradiation available. The tools used for the energy analysis done at Urban and building levels are presented. An initial design of buildings has been done following a bioclimatic approach, where solar energy is used in passive terms by means of galleries combined with ventilation strategies: energy demand results are presented for different building typologies. Finally, a large-scale solar thermal system using seasonal storage and a heat pump to provide heat and hot domestic water is presented. It is estimated that 94% of all energy needs of residential buildings could be covered by the system.

For more details see presentation: Gerona_Morato_AEU-Barcelona

4. Experiences in Sevilla: Revision of the Energy Plan 2002-2006

Mrs. Cristina Vega, Agencia local de la Energía (Local Energy Agency), Sevilla

Mrs. Vega begins with some reflections about the importance of energy in our daily lives, as well as of the different energy sources available. Then she presents the Local Energy Agency of Sevilla, its competences and instruments, highlighting the difficulty in introducing energy management in an integral level.

Mrs. Vega then presents two instruments related with energy at urban level, particularly:

- Sevilla Energy Plan: main action lines are Communication and social awareness, Energy efficiency and savings, Renewables and Energy management. Examples are given of the different action lines, such as: Communication campaigns, Plans of Energy optimisation, an Integral energy management project for public lighting, Electrical vehicles and Sustainable transportation projects, and Solar Urban projects related to the use of solar energy (solar thermal and photovoltaics) in municipal buildings and urban furniture. Also, existing fiscal tools to support good energy practices are presented.
- An Ordinance for the local energy management. Its main characteristics are presented, these include an Energy Suitability certificate, the mandatory use of solar thermal systems in all new and renovated buildings and an Energy Certification of residential buildings. Results are presented of the application of the Ordinance.

For more details see presentation: Sevilla_Vega_ALE-Sevilla.pdf

5. Experiences in Munich: Strengths and weaknesses of Solar urban planning in Munich, 2000-2010

Mr. Ramón Arndt, Planning Department, Munich municipality

Mr. Arndt begins with an introduction of Munich characteristics from an urban perspective. Then he presents the main initiatives related to the use of renewable energies in the city, with particular emphasis on:

- The public utility company Stadtwerke München, the use of a geothermal District heating system and plans for expansion in the near future.
- The contribution of Munich to green electricity and related plans for 2015 and 2025.
- An initiative for the expansion of renewable energies use in the city, promoted by the utility Stadtwerke München.

Mr. Arndt explains afterwards several initiatives related to the use of solar energy:

- The Solar Photovoltaic installations “Messe München” and “München airport”.
- Strategies, tools and solar projects at urban scale: SOLENOP tool and its application in the urban competitions “Funk Kaserne” and “Development of former Prinz Eugen Barracks”.
- Different German experiences with the use of solar energy for heating and the project “Ackermannbogen” in Munich about district heating with solar energy.

Finally, Mr. Arndt presents information and data about policies related to Renewable energies in Germany.

For more details see presentation: [Munich_Arndt.pdf](#)

6. Experiences in Vitoria-Gasteiz: Solar city and Green Capital 2012.

Mr. Alfredo Bengoa, Urban Planning Department, Vitoria-Gasteiz municipality

Mr. Bengoa begins with a reflection on the need for architects to gain expertise on energy aspects, due to the increasing importance of energy savings and energy rehabilitation in cities. He then presents the main urban and climatic characteristics of Vitoria-Gasteiz and the past and present uses of solar energy at urban level:

- The traditional use of windowed balconies in the XIX century.
- Solar requirements in the Planning documents Salburúa sector and Ensanche 21 district.

Mr. Bengoa explains several aspects of the Energy Ordinance Draft (main objectives, participative approach and main contents), followed by municipal initiatives related to transportation and public space. Finally, he presents Sustainability Indicators from Vitoria-Gasteiz developed by the Urban Ecology Agency of Barcelona and several proposals to improve a sustainable use of the urban territory that have led to the award “Green Capital 2012”, including increasing urban density, the renewal of existing neighbourhoods and the recovery of public space.

For more details see presentation: [Vitoria-Gasteiz_Bengoa.pdf](#)

7. Experiences in Vitoria-Gasteiz: Identification of the Solar passive potential of Lakua district.

Mrs. Fiorella Tortora, Researcher, Technical University of Madrid

Mrs. Tortora begins with a presentation of the collaborative work that is being done with POLIS project between the Municipality of Vitoria-Gasteiz and the Technical University of Madrid for the development of Pilot Actions. In particular, in this workshop the results of Pilot Action 1 are presented, which consist on the identification of the Solar Passive and Active Potential in the residential district of Lakua (55.000 inhabitants). Her presentation focuses on the specific methodology developed, which is compatible with local and national requirements and makes use of the Geographical Information System used in the Municipality.

The methodology starts with a climatic study of the city that lead to the Olygay and Givoni diagrams (climograms), which provide relevant information about monthly natural energy availability and energy needs. From these diagrams it is concluded that for a constructive element to have solar passive potential, a minimum of 4 hours of solar irradiation incidence must be guaranteed.

Mrs. Tortora then explains the methodology developed to analyse the solar passive potential of buildings façades, which includes a shadowing analysis of the specific façade building elements based on a tool developed by the Technical University of Madrid. Then a classification of the different levels of the solar passive potential are presented, which follow a colour-codes criteria to represent losses between 0 and 50% of the available potential. A specific buildings block is used to show in detail and application example. Finally, Mrs. Tortora finishes with some reflections on the importance of the public space (streets pattern) for the passive use of solar energy in buildings.

For more details see presentation: [Vitoria-Gasteiz_Tortora_UPM.pdf](#)

8. Experiences in Vitoria-Gasteiz: Identification of the Solar active potential of Lakua district.

Mr. Ignacio Useros, Researcher, Technical University of Madrid

Mr. Useros complements the previous presentation with the methodology developed to identify the active solar potential by means of solar thermal and solar photovoltaic installations. He begins with a description of the criteria and tools used:

- To select useful surfaces of façades and roofs,
- To incorporate structural data and regulations applicable to analyse the building constructive elements suitability to incorporate solar panels.
- To calculate the solar energy available on the constructive elements, including a shading losses analysis that takes into account the maximum limits allowed by the Spanish Technical Building Code for the use of solar thermal and photovoltaic technologies.
- To calculate the solar active potential of solar photovoltaic installations to generate electricity and of solar thermal installations to generate hot water and heating.

Several chart flows are shown which describe the analysis process and a sample of residential buildings is used to show the practical implementation of the methodology. Finally, Mr. Useros finishes with a SWOT analysis of the presented methodology.

For more details see presentation: [Vitoria-Gasteiz_Useros_UPM.pdf](#)

9. Experiences in Vitoria-Gasteiz: Urban solar energy and Passivhaus Mr. Javier Crespo, Passivehaus Building Platform

Mr. Crespo begins with a presentation of basic concepts of “Passivhaus” (Passive houses) design. He then presents the Spanish “Passivhaus Building Platform”, its main objectives, existing information sources and conferences. Finally, he presents several examples developed in Germany and Spain.

For more details see presentation: Vitoria-Gasteiz_Crespo_PassivHaus.pdf

PICTURES



Mrs. Ester Higuera (Technical University of Madrid)



Mr. Moisés Morató-Güell (Agencia de Ecología Urbana, Barcelona)



Mrs. Cristina Vega (Agencia local de la Energía, Sevilla)



Mr. Ramón Arndt (Planning Department, Munich municipality)



Mr. Alfredo Bengoa (Urban Planning Department, Vitoria-Gasteiz municipality)



Mrs. Fiorella Tortora (Technical University of Madrid)



Mr. Ignacio Useos (Technical University of Madrid)



Mr. Javier Crespo (Passivehaus Building Platform, Spain)



Workshop participants

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