



ENERGY EFFICIENCY FOR EU HISTORIC DISTRICTS SUSTAINABILITY



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NEWSLETTER NO. 5

EFFESUS Newsletter | November 2015

EDITORIAL



Dear Readers,
Welcome to the 5th edition of the EFFESUS newsletter. We are closer to the end of the project next year and EFFESUS innovations have been implemented under real test conditions in all our case studies. In this edition you will find information on the Istanbul case study and the upcoming UNESCO winter School on Sustainable Energy Governance, jointly organized with the EFFESUS project. Don't miss the preliminary information on the project final conference, save the date!

Enjoy the reading and keep following us!

Isabel Rodriguez-Maribona,
EFFESUS coordinator

Final Conference Save the Date

EFFESUS almost finished its envisaged project duration. Significant progress has been made regarding technological developments, supply concepts for renewable energies and decision making strategies for energy efficiency interventions in historic urban districts. It is time to reflect the results and our vision on sustainable and energy efficient historic urban districts and present them to a professional audience for discussion.

We cordially invite you to join our final conference in **Dordrecht, The Netherlands on Friday, 24th June, 2016 at the Energiehuis.**



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Case Study in Focus: Istanbul



Fact Sheet: Case Study Istanbul

Country	Turkey
Climate	Temperate Mediterranean (Csb)
Selected District	Beyoğlu
Case Study Level	Building intervention
Technologies to be installed	Radiant reflective coatings for outdoor application
Local coordinator	Sampas Technology
Manufacturer	ACCIONA, Advanced Management Solutions

The district Beyoğlu is one of the cultural and historical attraction areas in Istanbul and is one of the oldest townships with a population of over 250,000. It has the largest number of old buildings in Istanbul's inventory as it is located right next to the old-town area. It's a tourist attraction, but also the main centre of culture, art, and entertainment in Istanbul. In the streets of Beyoğlu most buildings are adjacent to each other while also having a similar height, proportion, material and other characteristic features, which make this area a very harmonious district. Innovative solar radiation selective coatings compatible with historic building facades and roofs, developed by the EFFESUS partners ACCIONA Infrastructures S.A. from Spain and Advanced Management Solutions Ltd. (AMS) from Greece are being demonstrated at one of these buildings.

Today we have the chance to talk to Maria Casado, project manager at ACCIONA and Kader Ozgur, project manager at the local partner Sampas Nanotechnology about the ongoing activities in Istanbul.

EFFESUS: What is the main purpose of the Istanbul case study?

Kader Ozgur: The main purpose is to assess the newly-developed infrared reflective coatings in terms of transparency, durability and reversibility on a real case study and to monitor the outcomes. Performance evaluation is carried out by monitoring the results

measured by the contact temperature sensors.

EFFESUS: What are the main advantages of the innovative coatings developed in EFFESUS?

Maria Casado: The main advantage is that the high infrared reflective coatings are compatible with historic materials (no colour change and breathable). Besides the compatibility of the developed solutions, also the coatings are reversible in order to be able to remove the product, in case this should be required in the future.

EFFESUS: What are the main challenges in regards to the development of the coatings?

Maria Casado: There are few technologies that are worth being developed as a specific solution for the use in historic districts due to their cost effectiveness and reliability. This could be technologies that allow the improvement of the thermal insulation of the envelope performance as this part of the building is the weakest point of historic buildings with regard to energy consumption. The majority of energy-efficient solutions already developed for the envelope are addressed to newer buildings. Specific envelope materials and systems for cultural heritage buildings are still missing.

EFFESUS: What is the current state of the Istanbul case study? What happened so far?

Maria Casado: Some samples treated with the newly developed coatings (lime mortar, Istanbul stones and metal plates) have been placed on the roof of the Demo Building in order to evaluate their performance. The monitoring system installed in Istanbul has been developed to specifically measure the performance of the coatings. It consists of air temperature, relative humidity and surface contact temperature sensors and a weather station to measure wind velocity and direction, solar radiation, precipitation, relative humidity and temperature.

EFFESUS: How can the results and lessons learned from this case study being transferred to similar cases in Turkey or other countries?

Kader Ozgur: The results that are being obtained from Istanbul case study can be adapted to similar cases in Istanbul only if the reflectance properties of the coatings will be improved, since the majority of the historical buildings in Istanbul have porous structure with poor reflectance properties.



Final Conference - Save the Date



Dear colleagues and friends of EFFESUS,

Historic buildings and urban districts are fundamental parts of our cultural identity and heritage. With respect to the reduction of greenhouse gas emissions we must find ways to adapt buildings, ensembles and districts to the challenges of energy efficiency while preserving the cultural heritage.

The EU-funded EFFESUS project has been initiated against this background. It investigates both, the energy efficiency of individual buildings, building ensembles and districts, as well as energy generation from renewable sources in historic urban districts. The project aims to reduce the environmental impact of Europe's valuable

urban heritage by making significant improvements to its energy efficiency, while conserving and promoting the architectural, cultural, historic and urban values of Europe's historic cities.

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efficient historic urban districts and present them to a professional audience for discussion.

We cordially invite you to join our final conference **in Dordrecht, The Netherlands on Friday, 24th June, 2016 at the Energiehuis from 9-17h** (afterwards reception). We are looking forward to welcoming you at this public event and are delighted to invite you to a mutual exchange.

The registration for the EFFESUS conference will open in January 2016. We will then come back to you with some more information on the registration process and the final program.

The final program will include following sessions:

Session I: Opening and Introduction

- Keynote
- *EFFESUS - General Approach and main results – an overview*

Session II: Multiscale data model for the energy assessment and management at district scale

- *Expert opinion on demands and challenges*
- *Multiscale data model*
- *Historic districts categorisation methodology and tool*

Session III: Decision Support Tool for selecting and prioritising energy-efficient interventions in historic urban districts

- *Expert opinion on demands and challenges*
- *Methodology for the identification of the best strategies for energy interventions in historic urban districts*
- *Demonstration of the Decision Support System*

Session IV: EFFESUS Energy-Efficient Retrofit Innovations

- *Expert opinion on demands and challenges*
- *Advanced blown-in aerogel insulation*
- *New insulating mortar for external and internal application*
- *Windows upgrading*
- *Radiant reflective coating for outdoor application*
- *Challenges and mayor results of indoor and outdoor lab tests*



Partners in Focus



Norwegian University of Science and Technology (NTNU) – Norway

NTNU is Norway's second largest university, with 3,300 scientific employees divided over 7 faculties and 53 departments. The NTNU was responsible for the identification and evaluation of European and national policies and legislation related to energy efficiency and cultural heritage and the research on recovering of old architectural solutions and strategies. Furthermore, NTNU led the research activities on improving moisture and thermal properties of original windows. In the final year of the project, NTNU, together with other academic partners, is developing training courses for students in engineering, architecture and other relevant subjects on sustainable energy improvement solutions in historic structures.

BOFIMEX BOUWSTOFFEN BV - NL

BOFIMEX BOUWSTOFFEN BV is a key-player on the Dutch market as supplier of restoration mortars, surface-preparation products, silicate- and lime paints, bee-wax treatments for hydrofuge and anti-graffiti. Bofimex is a day-to-day partner to restoration architects, owners of listed buildings and a wide variety of consultants and contractors in this field. By January 2012 Bofimex became part of the Strikolith Group. Gevelsupport BV, an engineering consultant - specialized in the development, design, survey and monitoring of rendered walls and EWI-systems - is a business partner of Bofimex and co-operates in EFFESUS. Bofimex is developing an insulating mortar for outdoor and indoor applications, compatible with historic mineral substrates.

National Research Council – Institute of Atmospheric Sciences and Climate (CNR-ISAC) – Italy

ISAC is one of the biggest research centers of CNR. Its activity concerns the evaluation of climate impact on cultural heritage, definition of sustainable conservation strategies, control and management of the microclimate also connected with energy efficiency and comfort of people. Within EFFESUS project, CNR-ISAC led the identification of indicators useful for the impact assessment of the implementation of energetic retrofitting measures in historic buildings. Actually, the institute is involved in the performance evaluation of the innovative products applied in the four demonstration sites with focus on the improvement of the indoor comfort and the reduction of energy consumption. ISAC will also contribute to the Life Cycle Assessment of EFFESUS solutions.

Delap & Waller EcoCo Ltd. (DWE) – Ireland

DWE is an Integrated Sustainable Design Consultancy which provides a unique service to the building development, construction and property industries to create a more sustainable built environment. DWE employs a multi-disciplinary team of highly qualified architects, engineers and other specialists to generate innovative, integrated sustainable designs for buildings and sites, which create cost effective synergies working with the conventional professional disciplines of the building industry. DWE contributes to EFFESUS by using its practical experience and technical knowledge to develop the appropriate technical retrofit measures for cultural and historic buildings and districts as well as innovative sustainable business models.

Dennis Rodwell (RODWELL) – UK

Dennis Rodwell is an independent consultancy in architecture and planning for cultural heritage and sustainable urban development. The firm focuses on the promotion and achievement of best practice in the management of the broadly defined historic environment, at all scales from individual buildings up to and including entire cities. RODWELL contributed to the European building and urban stock structured categorisation and the multiscale data management model with a comparative evaluation of historic building and district regulatory frameworks and practice in various European countries.

University of Stuttgart –Materials Testing Institute (USTUTT) – Germany

University of Stuttgart is a research university with a focus on Engineering and the Natural Sciences. 24,000 students are enrolled at 10 faculties. The Materials Testing Institute (MPA) is a central institute of the University of Stuttgart with about 400 co-workers. The division "Protection of buildings and plants" is involved in EFFESUS. With its expertise in the preservation of historic structures, MPA Stuttgart tested the newly developed materials under laboratory conditions for their applicability and performance in comparison to existing materials. Moreover, it participated in the identification of the historic building stock and the evaluation of the influence of the proposed and demonstrated energy efficiency measures on structures, with special respect to the preservation of cultural heritage.



Upcoming Events:

Winter School in Venice in December 2015

The Winter School is arranged from 13 to 19 December in Venice in collaboration between EFFESUS and UNESCO Venice office. Target groups are managers of World Heritage Cities and PhD researchers who work on relevant topics.

Please visit our website for information about recent and upcoming events:

www. effesus.eu/events

Project Partners:

TECNALIA Research & Innovation / Fraunhofer-Gesellschaft / R.E.D. SRL / Integrated Information Systems / SNEKKERIET VERDAL AS / SAMPAŞ Nanotechnology / D'APPOLONIA SPA / Consortium of the City of Santiago de Compostela / ACCIONA Infrastructures S.A./ Uppsala University / EURAC RESEARCH / Delap & Waller EcoCo Ltd. / Dennis Rodwell / National Research Council – Institute of Atmospheric Sciences and Climate / University of Stuttgart – Institute of Materials Testing / Norwegian University of Science and Technology / BOFIMEX BOUWSTOFFEN BV / Historic Environment Scotland / A. Proctor Group Ltd. / HOR-BER Ltd. / SAS GOUAS / Advanced Management Solutions Ltd. / Active Aerogels Lda

EFFESUS Key Facts

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