Dear Reader,
Welcome to our first newsletter, which aims to give an introduction about the research and innovation of the E2VENT project. The 42 months European Commission funded project comprises of 13 partners and focuses on developing an energy efficient ventilated facade system for the refurbishment of existing residential multi-storey buildings, i.e. a modular adaptable system embedding heat exchange and heat storage units to reach optimum energy performance.

E2VENT

Energy Efficient Ventilated Façades for Optimal Adaptability and Heat Exchange enabling low energy architectural concepts for the refurbishment of existing buildings.

ENERGY EFFICIENT VENTILATED FACADES

ABOUT E2VENT

42 Months project

13 Partners

8 Work packages

3,4 Million budget

E2VENT PARTNERS

Nobatek · acciona Infraestructuras · D'APPOLONIA · picharchitects · tecnalia Inspiring Business · CCG EUROPEAN ALUMINIUM · TECHNOLOGY CENTRE · CARTIF · ELVAL · ARISTOTLE UNIVERSITY OF THESSALONIKI · UNIVERSIDAD DE BURGOS · University of Hull · FASADA · FENIK TNT

INTRODUCTION

The old buildings, which represents the vast majority of the building stock, are predominantly of low energy performance and subsequently in need of refurbishment work. Within the existing European building stock, a large share (**approximately 34%**) of the suburban multi-storey residential building stock is built in the 60's 70's, when there were only few or no requirements for energy efficiency. Those buildings are characterized by:

- high energy losses through the envelope and high energy consumption
- poor aesthetics, and a need for maintenance
- low indoor air quality mostly related to humidity that can lead to a deterioration of the health of the end-user

E2VENT will develop, demonstrate and validate a cost effective, high energy efficient, low CO_2 emissions, replicable, low intrusive, systemic approach for retrofitting of residential buildings, able to achieve remarkable energy savings, through the integration of an innovative adaptive ventilated façade system, including:

Smart modular heat recovery unit which provides Indoor Air Quality while minimizing energy losses

A latent system using PCM that allows thermal storage mode for the reduction of energy peaks

Cost-effective, easy to install, high performance adapted products for external thermal insulation

A smart building management system enhancing the user experience and allowing future adaptability

PROJECT GOALS

ENVIRONMENTAL

- **C**ombining energy efficiency and innovative technologies
- **LCA** approach for the lowest possible environmental impact
- **I**mproving air quality and users' comfort
- **G**lobal evaluation parameters (total CO_2 emitted, total energy consumption...)

ARCHITECTURAL

- **E**asy to install
- **E**asy and affordable access for maintenance jobs
- **H**igh adaptability degree
- **I**mproving aesthetic and durability of the building, increasing social value

E2VENT

TECHNICAL

- **S**MHRU to recover heat from ventilation and LHTES to store energy based on PCMs in order to reduce heating and cooling needs
- **G**lobal piloting of E2VENT module by a BMS using various sensors

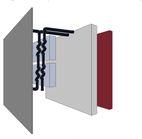
ECONOMICAL

- **M**odular system for industrialization and cost effectiveness
- **I**ncrease of economic value of property

THE CONCEPT

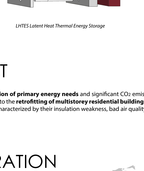
The E2VENT system is an **external refurbishment solution** with external cladding and air cavity that embeds different breakthrough technologies ensure its high efficiency:

- A Smart Modular Heat Recovery Unit (SMHRU) for the air renewal allows the heat recovery from the extract-ed air using a double flux exchanger. Indoor Air Quality is ensured while limiting the energy losses.
- A Latent Heat Thermal Energy Storage (LHTES) based on phase change materials will provide a heat storage system for heating and cooling peak saving.
- A smart management that controls the system on a real time basis targeting optimal performances. It will embed new sensors, communicate with existing systems and recover predicted weather.
- An efficient anchoring system that limits thermal bridges and allows an easy and durable installation.



E2VENT system

SMHRU Smart Modular Heat Recovery Unit



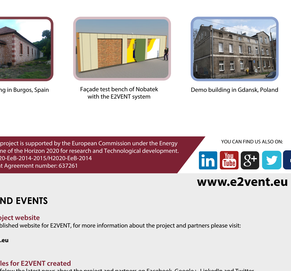
LHTES Latent Heat Thermal Energy Storage

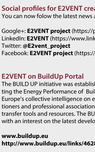
IMPACT

The proposed solution for building retrofitting should lead to **50% reduction of primary energy needs** and significant CO_2 emissions reduction. The main target of E2VENT system is the market associated to the **retrofitting of multistorey residential buildings built in the 60's 70's**. Those buildings are found in all Europe and can be characterized by their insulation weakness, bad air quality due to the lack of air renewal system and low architectural interest.

DEMONSTRATION

Prototypes performance will be firstly tested on the future façade test bench of Nobatek allowing a setting step. Two pilot buildings will be renovated with E2VENT systems. One is in Gdansk, Poland, and another in Burgos, Spain, in order to test the E2VENT system in two different climates. During the monitoring the potential users, financers, and partners will be consulted to develop a solution matching market needs.





Demo building in Burgos, Spain

Façade test bench of Nobatek with the E2VENT system

Demo building in Gdansk, Poland

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YOU CAN FIND US ALSO ON:

www.e2vent.eu

NEWS AND EVENTS

E2VENT project website

We have established website for E2VENT, for more information about the project and partners please visit:

www.e2vent.eu

Social profiles for E2VENT created

You can now follow the latest news about the project and partners on Facebook, Google+, LinkedIn and Twitter.

Google+: **E2VENT project** (https://plus.google.com/b/115037635163853407333/115037635163853407333/posts)
LinkedIn: **E2VENT** (https://www.linkedin.com/company/e2vent?trk=biz-companies-cym)
Twitter: **@E2vent_project**
Facebook: **E2VENT project** (https://www.facebook.com/E2vent-project-433666252016987?ref=hl)

E2VENT on BuildUp Portal

The BUILD UP initiative was established by the European Commission in 2009 to support EU Member States in implementing the Energy Performance of Buildings Directive (EPBD). The BUILD UP web portal is intended to reap the benefits of Europe's collective intelligence on energy reduction in buildings for all relevant audiences. It brings together new practitioners and professional associations while motivating them to exchange best working practices and knowledge and to transfer tools and resources. The BUILD web portal targets professionals working in the building sector (public or private) with an interest on the latest developments at technical or practice level, policy legislation, financial issues, etc.

www.buildup.eu
http://www.buildup.eu/links/46287

12th REHVA World Congress CLIMA 2016

TECNALIA will present E2VENT on the CLIMA 2016 - a multidisciplinary congress for all stakeholders in the building sector as it deals with the whole live cycle of buildings and their HVAC systems from design specification to demolition and re-use. CLIMA 2016 will especially focus on energy efficient building and HVAC system performance in practice.
22-25 May 2016, Aalborg, Denmark

http://www.clima2016.org/welcome.aspx

CIB World Building Congress 2016

E2VENT project will be presented by TECNALIA partner during the CIB World Building Congress - the world's largest congress on built environment, which will be organized in Finland for the first time, gathering the leading experts from all over the world.
30th May – 3rd June 2016 in Tampere, Findland.

http://wbc16.com/

International Conference SBE 16 Thessaloniki
"Sustainable Synergies from Buildings to the Urban Scale"

The overview of the E2VENT system, as well as selected results from the research will be presented in the International Conference SBE 16 Thessaloniki, which is organized by one of the partner (AUTH) within the framework of SBE conference series managed by CIB, iiSBE, UNEP-SBCI and FIDIC. SBE16 Thessaloniki focuses on different aspects of sustainability in the built environment and the synergies among them.

17-19 October 2016 in Thessaloniki, Greece

http://sbe16-thessaloniki.gr/