



CommONEnergy



RE-CONCEPTUALISING SHOPPING CENTRES FROM CONSUMERISM TO ENERGY CONSERVATION

THE PROJECT COMMONENERGY, RECEIVING EUROPEAN UNION FINANCING, FOCUSES ON TRANSFORMING SHOPPING CENTRES INTO ENERGY EFFICIENT BUILDINGS.

HOW?

By developing smart renovation strategies and solutions to support their implementation and assess their environmental and social impact. The project involves 23 partners from the industry, research and retail sectors, including shopping centres as demo cases to implement the developed solutions.

WHY IS THE EU SUPPORTING THE PROJECT?

"This goes hand in hand with the EU climate objectives, such as reducing carbon emissions and energy use, and increasing the share of renewable energy in buildings."
"These actions encourage customers to take the good practices home."
"The developed solutions can be replicated in buildings such as airports and train stations, furthermore creating a new class of workers with technical skills."

4 demo cases, 8 reference buildings & 23 partners from across Europe

Up to 75% reduction of energy demand, leading to costs reduction

Increased share of renewable energy sources and high environmental indoor quality

Total budget: over 10 million €

EU participation in the project budget: 65%

25 technologies developed and installed in 4 years

41000 m² of commercial space renovated, equal to 6 football fields, 98 basketball and 155 tennis courts.

A target payback time of up to 7 years

BENEFITS



DEMO CASES AND TECHNOLOGIES

MERCADO DEL VAL, SPAIN

Mercado del Val, a 132-year old historic building, reopened end of 2016 after a deep retrofitting. Comfort was improved for shop-owners and visitors with a multifunctional climate-adaptive façade including an optimised glass system to exploit natural light and automatic blinds to regulate it. Automatic roof skylights coupled with façade openings provide natural ventilation, ensuring air quality and comfort, as well as saving energy. Geothermal heat pumps are meeting the demand for heating as well as cold and hot water, while the heat rejected by the fridges is recovered to integrate heating and domestic hot water. A modern energy management system, called iBEMS, enables an optimal control of all technology systems, taking appropriate decisions to reduce consumptions, improve energy efficiency and comfort. All these make Mercado del Val the first bi-climatic marketplace in Spain.



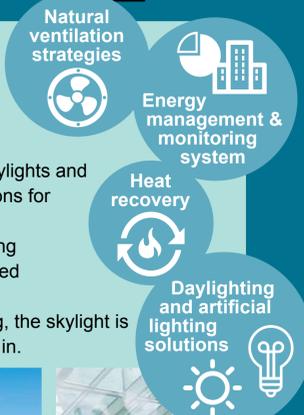
MODENA CANALETTO, ITALY

Canaleto is about 1200m², located in a residential area close to Modena's centre. Over the past few years, the neighbourhood experienced a social degradation, which encouraged the city of Modena to participate to the project requalifying this area, both from a social and functional point of view. Thermo-reflective paint was applied on the flat roof, reducing thermal loads of the building during warm months. A weather station was installed that collects data such as temperature, humidity, wind speed and direction, and then sends it to the iBEMS intelligent management system that gathers all systems' information. A natural lighting system uses the passage of solar tubes that capture sunlight from the roof, through the first floor to the selling area. Artificial lighting was also provided in the gallery, adjustable in intensity and colour to simulate daylight. Thermal insulation and double-glazing were used for the new window frames to protect from summer irradiation and winter heat loss. In winter, the heat recovered from the food refrigeration system is used to warm partly the building. To increase efficiency in summer, the system cools down the air of the condenser. The trans-critical booster system, working entirely with CO₂ refrigerant, is an innovative technology using a series of elements to increase the sustainability of the food refrigeration system.



CITY SYD, NORWAY

City Syd opened in 1987 on the outskirts of Trondheim and is one of the largest shopping centre in central Norway. There, a modern intelligent building energy management tool was implemented to monitor ventilation, as well as skylights and automatic window openings, to ensure the perfect conditions for people's shopping experience. Natural ventilation, combined with control of the air handling unit, ensures better indoor environment control with reduced consumption. To allow better lighting conditions and reduce over-heating, the skylight is completed with a modular roof structure, bringing daylight in. Light tubes, taking natural light from the roof, and artificial lighting solutions were installed to increase owner and customer comfort, while improving the way to display merchandise thanks to dedicated luminaries.



GROSSETO, ITALY

The technologies and solutions were implemented in another Italian centre. In Grosseto, the focus was put on electrical mobility and storage integration. Two charging stations for electric vehicles are connected to a photovoltaic system installed on the roof (using renewable sources of energy). The operation will be monitored for one year and the data collected will be used to further develop this solution.



OTHER TECHNOLOGIES STUDIED OR DEVELOPED



SUPPORTING TOOLS



www.commonenergyproject.eu



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