

# EENSULATE PROJECT

“Development of innovative lightweight and highly insulating energy efficient components and associated enabling materials for cost-effective retrofitting and new construction of curtain wall facades.”

The EENSULATE project is a research project funded by the European Commission under the Horizon 2020 programme. It gathers 13 partners from 8 different European countries (AGC Glass Europe, SAES Getters, Focchi, Università Politecnica Delle Marche, Selena, Bergamo Technologie, Gmina Miejska Dzierżonów, University College London, Ulster University, Evonik, UNStudio, and Fenix TNT). The consortium is led by RINA Consulting. The project started in August 2016 and will be concluded by May 2021 with total duration of 58 months.

EENSULATE project aims to develop an innovative lightweight (35 % weight reduction compared to the currently best performing modules), highly insulating energy efficient components. Simultaneously, it also develops associated enabling materials for cost-effective retrofitting and new construction of curtain wall façades. EENSULATE represents an ambitious project, which aims to introduce a novel unitized curtain wall system capable of meeting the market demand. It is expected to be an affordable (28 % reduction of total refurbishment costs), high performance prefabricated façade retrofitting solution with reduced weight and thickness. The objective of the project is to bring existing curtain wall buildings to “nearly zero energy” standards and reducing energy bills by at least 20 % while complying with the structural limits of the original building structure and national building codes.



Figure 1: EENSULATE module installation at the Polish demonstration site

## EENSULATE PRODUCTS

The EENSULATE project develops a curtain wall module that consists of two main parts. The first one is highly insulating and environmentally friendly spray foam based on mono-component (OCF) and bi-component (TCF) elements. It allows for the cost-effective automated manufacturing and insulation of the opaque components. The curtain walls also enable significant reduction of thermal bridges during the installation process. The second product is a lightweight and thin double pane Vacuum Insulated Glass (VIG) with innovative sealant and getter technologies. The VIG is used for the insulation of the transparent component of curtain walls; it is manufactured through an innovative low-temperature process, enabling the use of fully toughened glass.

## DEMONSTRATION

The EENSULATE products are being implemented at three different demonstration sites. Two buildings are located in Dzierżonów, Poland (School Building and Museum) and



one building is located in Pesaro, Italy (Public library). The performance of the installed EENSULATE solutions will be assessed and compared to the State of the art technologies already existing on the market (Triple Glazed Units).

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Website: [www.eensulate.eu](http://www.eensulate.eu)

Project coordinator: Paola Robello

Contact email: [paola.robello@rina.org](mailto:paola.robello@rina.org)