



DEMO

The performance of the EENSULATE system will be assessed in two different climate zones (Italy and Poland). The focus will be placed on the thermo-acoustic behaviour of demo buildings and indoor comfort. Different parameters will be monitored, such as internal and external wall condition, indoor temperature and humidity, acoustic performance etc. Four different demo buildings will be used for validation of results:



Public Library San Giovanni
(Pesaro, Italy)



School Building
(Dzierżoniów, Poland)



City Museum
(Dzierżoniów, Poland)



PARTNERS



Horizon 2020
European Union Funding
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HORIZON 2020 RESEARCH PROJECT

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www.eensulate.eu



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



INTRODUCTION

Curtain walls, associated with modern architecture and large office building stock, are often criticized for their limited insulation properties. Existing buildings, including historical ones, are responsible for up to 60% of energy losses through the envelope. Furthermore, European legislators decided that all new buildings should fulfil nearly zero-energy standards by the end of 2020. For this reason, EENSULATE is being developed to significantly reduce energy losses of both new and existing buildings.



OBJECTIVES

The goal of the project is to develop a product that will meet the market demand for affordable and prefabricated façade retrofitting system with limited weight and thickness. Eensulate is expected to minimize thermal bridges between curtain walls and sub-structures, have cost-effective control of solar radiation and provide easy implementation on site by reducing the weight of the curtain wall.

The new solutions will bring significant changes in terms of:

- 25% improvement of insulation properties
- 20 % improvement of durability
- 20% reduction of total costs
- 15% reduction of energy spent during the whole life cycle of a building
- 10% enhanced water vapour permeability
- Easier implementation

EENSULATE solution will integrate multiple functions in a single product:



Improved indoor environment



Thermal and acoustic insulation



Affordable cost



Environmental friendliness



Light Transmittance



Higher fire resistance



CONCEPT

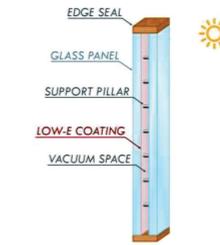
EENSULATE product family in two different levels of performance:

Eensulate Basic modules

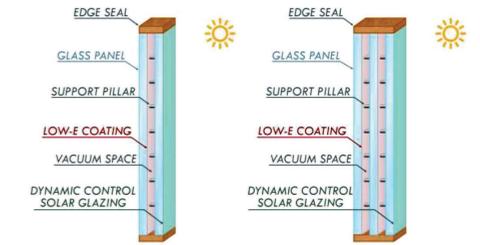
Thermal and acoustic insulation will be provided by the novel VIG and “smart foam” in the spandrel combined with state of the art low-E coated glass.

Eensulate Premium modules

Multi-functionality by integrating novel thermochromic coated glass with additional self-cleaning and anti-fogging properties.



Eensulate basic vision glass

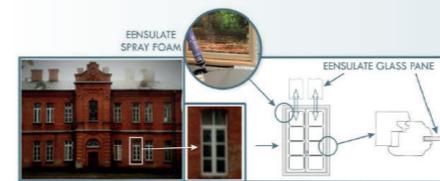


Eensulate premium vision glass

Two key commercial insulating products:

1) EENSULATE FOAM

Highly insulating mono-component and environmentally friendly spray foam for the cost-effective automated manufacturing and insulation of the opaque components of curtain walls as well as for the significant reduction of thermal bridges during installation.



2) EENSULATE GLASS

Lightweight and thin double pane vacuum glass for the insulation of the transparent component of curtain walls, manufactured through an innovative low temperature process using polymeric flexible adhesives, thus allowing to use both annealed and tempered glass (including laminated safety glass) as well as low emissivity coatings (1% emissivity). A multifunctional thermo tuneable coating will allow anti-fogging and self-cleaning properties.

