



The project is supported
by the European Union

HERB

Holistic Energy-efficient Retrofitting of residential Buildings

Project No.

314283

Start:

October 2012

End:

April 2016

Total Cost:

€ 8.605.679,80

EU funding:

€ 5.800.200,00

Total Cost for Bologna Municipality:

€ 295.968,00

EU funding for Bologna Municipality:

€ 204.300,00

Funding Programme:

**7th Framework Programme of
RTD, Large scale international
collaborative project between
European academic institutions
and industry**



Coordinator:

University of Nottingham (UK)

Partners:

- Green Evolution S.A. (GR)
- Leicester Housing Association (UK)
- 4. Alma Mater Studiorum – University of Bologna (IT)
- Municipality of Bologna (IT)
- 6. E-Value – University of Lisbon (P)
- Almada City Council (ES)
- 8. Stuttgart University of Applied Sciences (D)
- 9. University of Athens (GR)
- Haute Ecole d'Ingénierie et de Gestion du Canton de Vaud (CH)
- Onyx Social Energy S.L. (ES)
- Mark Group Ltd (UK)
- Izocam Ticaret ve Sanayi A. S. (TR)
- PCM Products Ltd (UK)
- Kingspan Insulation Ltd (UK)
- Zero Carbon Technologies (Cipro)
- Complex Ltd (PL)
- Netherlands Organisation for Applied Scientific Research (NL)

BACKGROUND

Europe is facing a large challenge in relation to the energy consumption of its housing stock. Although building new homes to the demanding energy efficiency regulations in Europe is essential, the benefits will accrue slowly as it will take several decades before such houses form a significant proportion of the stock. The major challenge is retrofitting existing, energy-inefficient homes, to meet 21st century standards within the constraints enforced by structures built in the 19th and 20th centuries.

Key to achieving this goal is understanding the process on how best to select and integrate various technologies from the many available, to optimise performance for different building types, climates and socio-economic conditions – a truly holistic approach is therefore required.

OVERALL OBJECTIVE

To develop energy efficient technologies and holistic solutions for retrofitting residential buildings and to demonstrate how existing residential buildings can be refurbished up to at least the latest national standards for new residential buildings.

ACTIONS

Technologies envisaged for envelope retrofitting include various types of insulation materials. Energy efficient solutions will also be deployed including energy efficient lighting and HVAC, and renewable energy systems. The technologies and solutions will be also affordable, durable, easy for installation and compatible with existing building functions and aesthetics as well. Methods for measurement of building performance before and after retrofitting include a leakage test and thermal imaging to determine the major

areas of building envelope for improvement, in addition to smart energy metering for individual technologies and building as a whole. The buildings will be retrofitted to at least the latest national building standards for new buildings. The type and number of technology deployed will be optimised using life cycle energy analysis for each type of building.



The work programme includes the development of computer models for optimised technologies and solutions, analysis of dynamic energy demand of buildings and prediction of indoors' microclimate, retrofitting and monitoring of residential buildings in different climate conditions, and also a socio-economic analysis.

In Bologna, the project aims at defining and then realising an energy efficient retrofitting of a social housing building by means of high innovative technologies. The captioned building, located in 5, Mickjevitz square has been identified with the support of ACER Bologna (Emilia-Romagna Public Housing Agency). Also, the project is realised in cooperation with the University of Bologna - Faculty of Engineering – Industrial Engineering Dept., partner of the project, in charge of drafting the retrofitting project and monitoring the performance to assess the achievement of the project objectives.

EXPECTED RESULTS

The project wants to develop and use new and innovative energy efficient technologies and solutions for retrofitting older buildings. These shall be installed and performance monitored in a number of typical residential buildings in EU countries.

<http://www.euroretrofit.com/>

Local Project Manager:

Raffaella Gentile

Economic Development and City Promotion Dept. - International Relations and Projects' Office
Tel. +39 051 2194884

Raffaella.gentile@comune.bologna.it

Local Technical Coordinator:

Inti Bertocchi

Services for housing department - Innovation and development of housing politics
Tel. +39 051 2194355

Inti.bertocchi@comune.bologna.it