The energy and the resources used to create a building product and a building are a measure of sustainability. In fact, **the overall environmental impact of the building sector can be reduced and the sustainability of buildings improved through the use of advanced building materials with low embodied energy.**

LEEMA is a research project that aims to develop of a new generation of inorganic insulation materials and building insulation masonry components with low embodied energy.

The developed insulation materials and masonry components:

- will be suitable for applications both in new and retrofitted buildings;
- will have more than 50% lower embodied energy and at least 15% lower total cost, than the currently available solutions;
- will not be presenting any technical, health and/or environmental drawbacks;

THE LEEMA PARTNERS:

S&B	Coordinator: S&B Industrial Minerals S.A, GR
Etex Group	Etex Group (Redco), BE
Schlagmann Poroton	Schlagmann Baustoffwerke GmbH&Co KG, DE
Morgan Advanced Materials	Thermal Ceramics, FR
National Technical University of Athens	National Technical University of Athens, GR
D'Appolonia	D'Appolonia, IT
morando	Morando, IT
MPA	Institute of Materials Research and Testing at the Bauhaus University Weimar, DE
University of Stuttgart Germany	University of Stuttgart, DE
ACE Architects' Council of Europe	Architects' Council of Europe CAE Services GEIE, BE
bbri.be	Belgian Building Research Institute (BBRI), BE
Fenix TNT	Fenix TNT s.r.o, CZ
fibran	Fibran s.a, GR
Advanced Management Solutions	Advanced Management Solutions Ltd, GR

THE PROJECT IS PARTLY FINANCED BY THE EUROPEAN UNION

SEVENTH FRAMEWORK PROGRAMME

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iNORGANIC
iNSULATING &
iNCOMBUSTIBLE
MATERIALS
FOR ENERGY
EFFICIENT
BUILDINGS

www.leema.eu

LEEMA

Low Embodied Energy Insulation Materials

END PRODUCTS

LOOSE-FILLING GRANULAR MATERIALS:

Offering superior performance comparing to existing solutions (rock and glass wool blankets/granulates, common expanded perlite, polyurethane bubbles)

Applicability:

- filling cavity walls, covering the space between soil and concrete floors and under flat green roofs in retrofitting works;
- providing thermal insulation and protection from water drainage in new buildings;
- fillers for plasters, mortars, paints and joint compounds;
- wrapping ducts for thermal insulation and fire resistance.

FORMED PRODUCTS:
FOAM BOARDS,
EXPANDED PERLITE BOARDS,
FIBRE AND NON-FIBRE CEMENT BOARDS

Thermal insulation, good acoustic insulation, chemical inertia, stability over time and fire resistance

Applicability:

- covering roofs and walls (externally and internally) for the thermal insulation of new or retrofitted buildings;
- covering ventilation pipes, wire networks, steel constructed buildings, etc.

POLYMER BRICKS

With improved thermal and acoustic insulation properties, similar to those of marketable special insulation clay bricks.

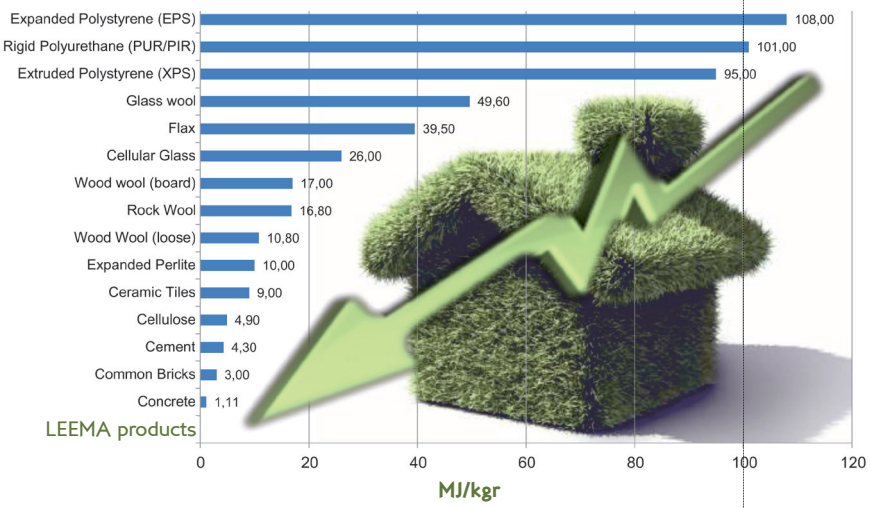
PREPARING THE WAY

INNOVATIVE TECHNOLOGICAL ROUTES

The objectives of LEEMA will be achieved through:

- design of dedicated productive processes and industrialization criteria;
- novel synthesis processes;
- integration of appropriate wastes in the production cycle;
- intelligent utilisation of the chemical and mineralogical properties of the raw materials.

EMBODIED ENERGY



THE ROAD TO THE MARKET

- **January- November 2012:**
  Materials' specifications and characterisation
- **February 2012- December 2014**
  Development of insulation components
- **August 2012- October 2015**
  Assessment of the environmental sustainability of each new insulation components through Life Cycle Assessment
- **January 2013- April 2015**
  Certification of insulation components
- **August 2012- December 2015**
  Techno-economic Evaluation of insulation components
- **January 2012- December 2015**
  Knowledge management and exploitation plan
- **June 2014- December 2015**
  Training material and activities for the support of producers and end-users