

AMANAC: Advanced Materials And Nanotechnology Cluster

These projects have received funding from the European Union's Seventh Framework Programme and Horizon 2020 research and innovation programme



AMANAC is a collaboration and coordination platform across all the Advanced Materials and Nanotechnology projects, approved in the frame of the EeB-PPP, whose activities address development of (nano)materials, components and systems for the improvement of the energy efficiency in the built environment.

“LOW EMBODIED ENERGY” THEMATIC AREA

LEEMA

Low embodied energy advanced (novel) insulation materials and insulating masonry components for energy efficient buildings

Development of a new generation of inorganic insulation materials and building insulation masonry components (“3I”) with lower embodied energy (50% reduction), lower cost (cheaper by 15%) and upgraded properties compared to current technology.

- Improvement of durability and energy performance at building level
 - Safer and cleaner indoor building environment due to incombustibility and absence of organic/fibrous compounds
 - Use of wastes from industrial minerals exploitation, recycled rejects from the glass industry and industrial by-products
- LEEMA will achieve these aims by the development of new inorganic polymeric materials free from the drawbacks of current “geopolymers”.

From 01-01-2012 to 31-12-2015, ongoing project

SUS-CON

Sustainable, Innovative and Energy-Efficient Concrete, based on the Integration of All-Waste Materials Energy-Efficient Concrete, based on the Integration of All-Waste

- The construction industry is one of the largest consumers of energy and raw materials, and highest contributor to the emission of greenhouse gases.
 - Concrete producers need new, eco-compatible and cost-effective materials for energy efficient building components.
 - Waste management is an increasingly complex and challenging task for both local authorities and waste recycler companies.
- SUS-CON aims to integrate waste materials into the production cycle of concrete for both ready-mixed and pre-cast applications. The main challenge is to produce an innovative light-weight, eco-compatible and cost-effective construction material, made using all waste raw materials and characterised by enhanced thermal insulation performance and a low embodied energy and CO2 footprint.

From 01-01-2012 to 31-12-2015, ongoing project

BioBUILD

High Performance, Economical and Sustainable Biocomposite Building Materials

Target

To use biocomposite materials to reduce the embodied energy in building facade, supporting structure and internal partition systems by at least 50% over current materials with no increase in cost.

How?

By overcoming current actual and perceived shortcomings in biocomposites, such as:

- Resistance to degradation by microbial attack
- Flame resistance
- Dimensional stability

Why?

Natural fibres have significantly lower environmental impact than glass in particular in the areas of climate change, ozone depletion, toxicity and eutrophication.

From 01-12-2011 to 31-05-2015, completed project

ECO-Binder

Development of insulating concrete systems based on novel low CO₂ binders for a new family of eco-innovative, durable and standardized energy efficient envelope components

The ECO-Binder project aims to demonstrate the possibility of replacing Ordinary Portland Cement (OPC) and OPC based concrete and concrete products with new ones based on the new Belite-Ye’elimite-Ferrite (BYF) class of low-CO₂ binders. This will enable the development of a new generation of concrete-based construction materials and prefabricated building envelope components with more than 30% lower embodied energy, 20% improved insulation properties and 15% lower cost than the actual solutions based on Portland cement.

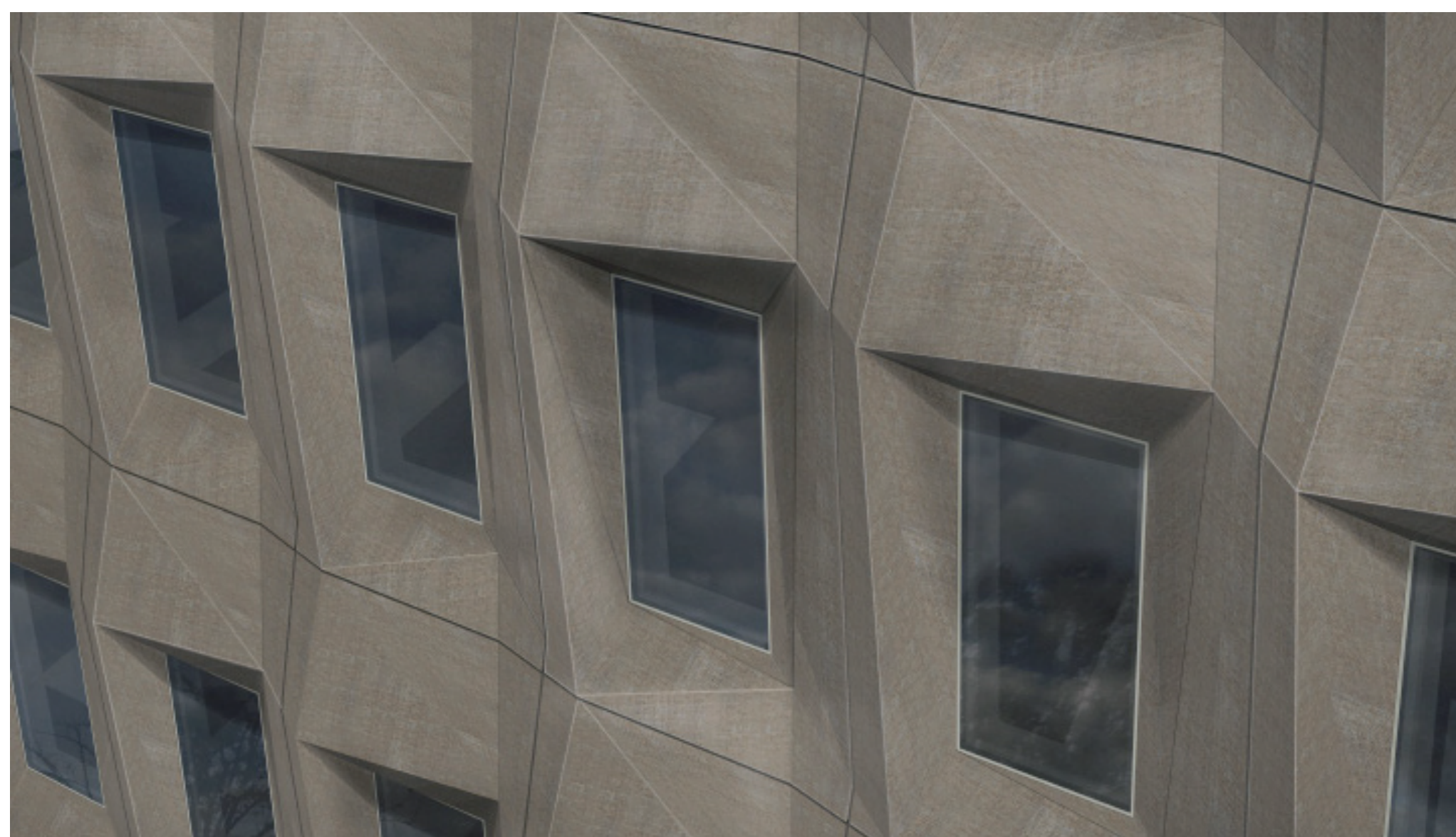
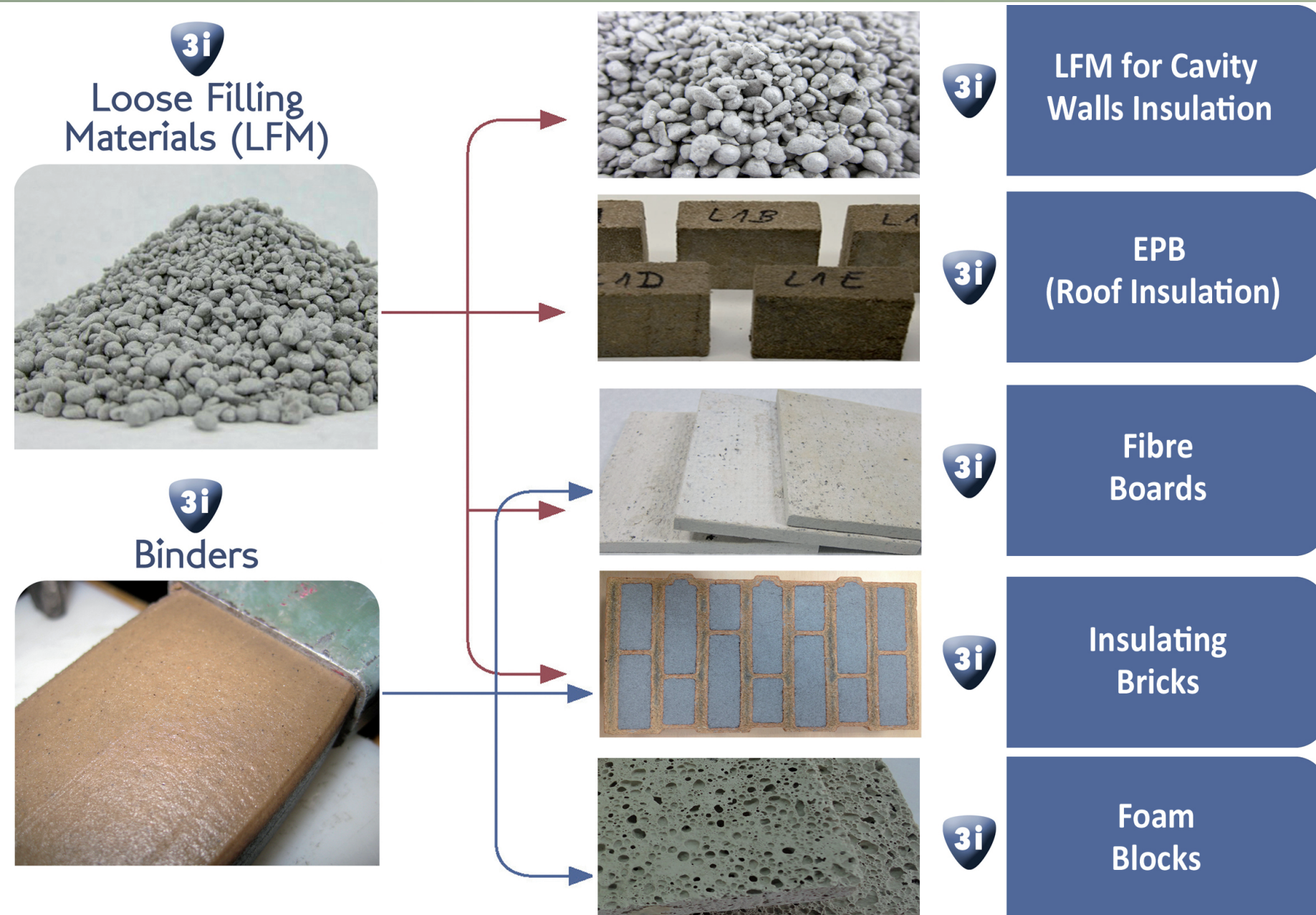
From 01-01-2015 to 01-01-2019, ongoing project

ISOBIO

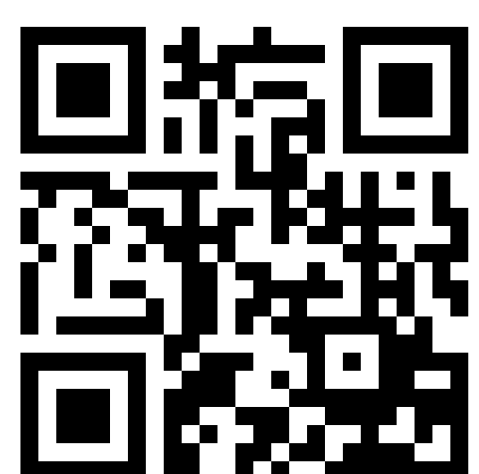
Development and Demonstration of Highly Insulating, Construction Materials from Bio-derived Aggregates

The ISOBIO project will develop a new approach to insulating materials through the novel combination of existing bio-derived aggregates with low embodied carbon and with innovative binders to produce durable composite construction materials. These novel composites will target 50% lower embodied energy and CO₂ at component level and 20% better insulation properties than conventional material. The project will also seek to demonstrate a reduction of at least 15% in total costs and 5% total energy spent over the lifetime of a building.

From 01-02-2015 to 01-02-2019, ongoing project



DISCOVER AMANAC



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PROJECTS



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