



The project:

The SB&WRC project benefits from the support of the Interreg VA France (Channel) England European Territorial Cooperation Programme.

The project budget, of €1.8 million overall, is co-funded by the ERDF (European Regional Development Fund) for 69% (€1.26 million contribution).



The objectives:

- Studying a range of locally available, undervalued and underutilised bio-based and waste materials.
- Designing and producing 3 prototypes of innovative and low carbon thermal insulating materials for construction.
- Testing and evaluating the prototypes (fire resistance, hygrothermal and mechanical properties) in laboratories and on pilot sites.
- Environmental assessment (LCA) and economic analysis of the value chains.
- Raising awareness of building professionals to the use of the selected materials.
- Transforming the prototypes to meet industry standards by preparing for their deployment at scale.

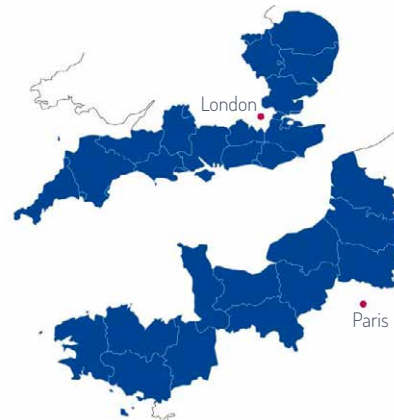


Planning:

The project runs over 32 months:
> February 2017 to September 2019



Area of the Interreg VA France (Channel) England Programme



Partners

Lead partner: **nomadéis**



LOW CARBON INSULATION: THE CHALLENGE OF SUSTAINABLE CONSTRUCTION



**SUSTAINABLE BIO & WASTE RESOURCES
FOR CONSTRUCTION**

**INSULATION MATERIALS BASED ON AGRICULTURAL
CO-PRODUCTS AND RECYCLED WASTE**



The SB&WRC project is part of the Interreg VA France (Channel) England Programme and benefits from financial support from the ERDF. Project designed and led by Nomadéis, a consulting agency.

INSULATION MATERIAL BASED ON MAIZE PITH



\ Resource:

Agricultural co-product widely available in the area covered by the project: more than 400,000 tonnes are recoverable each year in England and in France.

\ Manufacturing:

Marrow extraction from maize stovers, thermocompression without binders and assembly of a 3-layer panel with a biodegradable mulch film.



28 mm-thick
wall panel

- Thermal conductivity: λ of $0.042 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$
- Reaction to fire: complete degradation in 30 minutes
- Biodegradability: compostable

INSULATION MATERIAL BASED ON POLYESTER FROM WASTE BEDDING



\ Resource:

Resource currently not recovered (landfill or incineration). Recent enlargement of Extended Producer Responsibility (EPR) to waste bedding in France, and approximately 30,000 tonnes/year of polyester from stuffed bedding discarded in England.

\ Manufacturing:

Collection of waste bedding, then extraction of polyester and insertion into an Oriented Strand Board (OSB).



100 to
150 mm-thick
wall panel

- Thermal conductivity: λ from 0.05 to $0.069 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$
- Reaction to fire: complete degradation in 2 minutes
- Biodegradability: non compostable

INSULATION MATERIAL BASED ON WHEAT STRAW



\ Resource:

Agricultural co-product widely available in the area covered by the project: more than 3 million tonnes are recoverable each year in England and in France.

\ Manufacturing:

Reorientation of the fibres perpendicular to the heat flow to improve thermal performance. Optimally sized straw bales compressed mechanically without binders.



Wall insulation
by 100 to 150 mm
rectangular bales

- Thermal conductivity: λ of $0.045 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$
- Reaction to fire: complete degradation in 80 minutes
- Biodegradability: compostable