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.

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.

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

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

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**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).

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**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.

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28 mm-thick wall panel

- Thermal conductivity: $\lambda$ of 0.042 Wm$^{-1}$K$^{-1}$
- Reaction to fire: complete degradation in 30 minutes
- Biodegradability: compostable

100 to 150 mm-thick wall panel

- Thermal conductivity: $\lambda$ from 0.05 to 0.069 Wm$^{-1}$K$^{-1}$
- Reaction to fire: complete degradation in 2 minutes
- Biodegradability: non compostable

Wall insulation by 100 to 150 mm rectangular bales

- Thermal conductivity: $\lambda$ of 0.045 Wm$^{-1}$K$^{-1}$
- Reaction to fire: complete degradation in 80 minutes
- Biodegradability: compostable