

NATURALLY HIGH
PERFORMANCE
INSULATION



Bio-based systems for new build and retrofitting



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BUSINESS AS UNUSUAL



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement N°636835.

30/01/19

Bio-based systems for new build and retrofitting

GOALS OF THE PROJECT...

- ✓ To develop new construction and retrofitting systems based on Bio-based material
- ✓ Main requirements of the CONSTRUCTION systems:

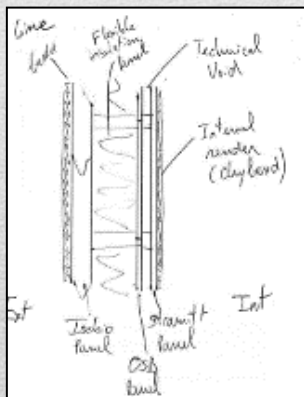


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Through the project the partners have maintained a focus of the end goal...

- ✓ Three different systems have been designed with the biomaterials develop inside the project:
 - 1 New Building construction system
 - 2 retrofitting systems: Internal & External.

✓ Starting from.....

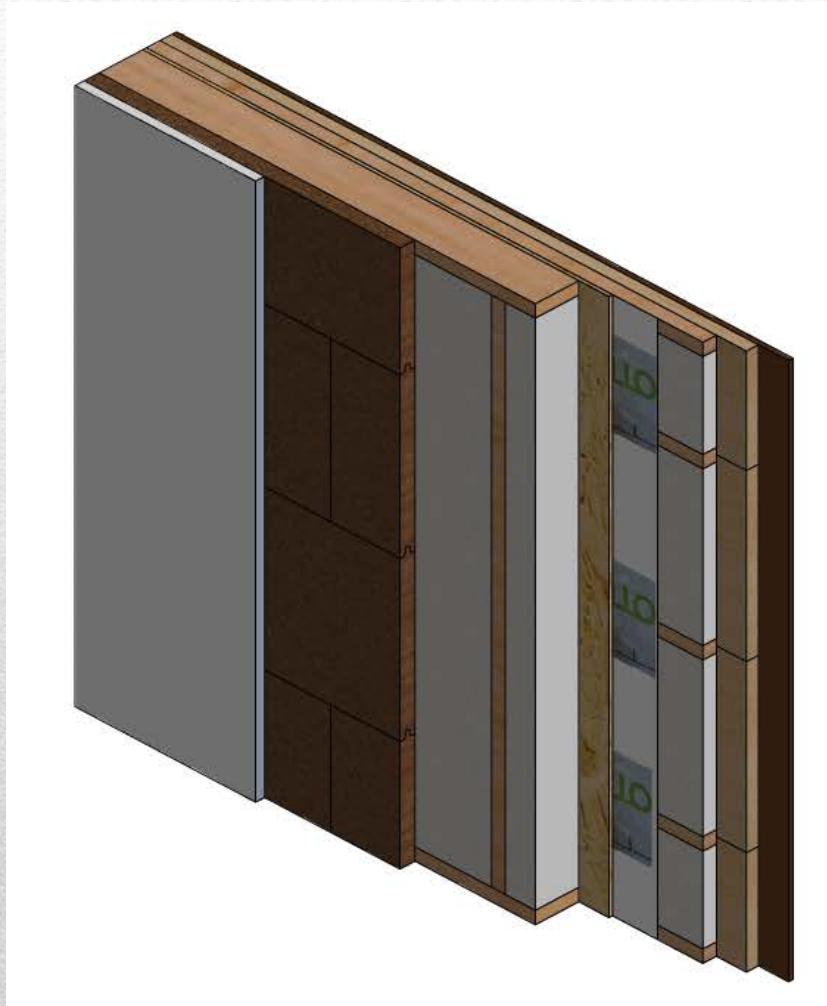


To....



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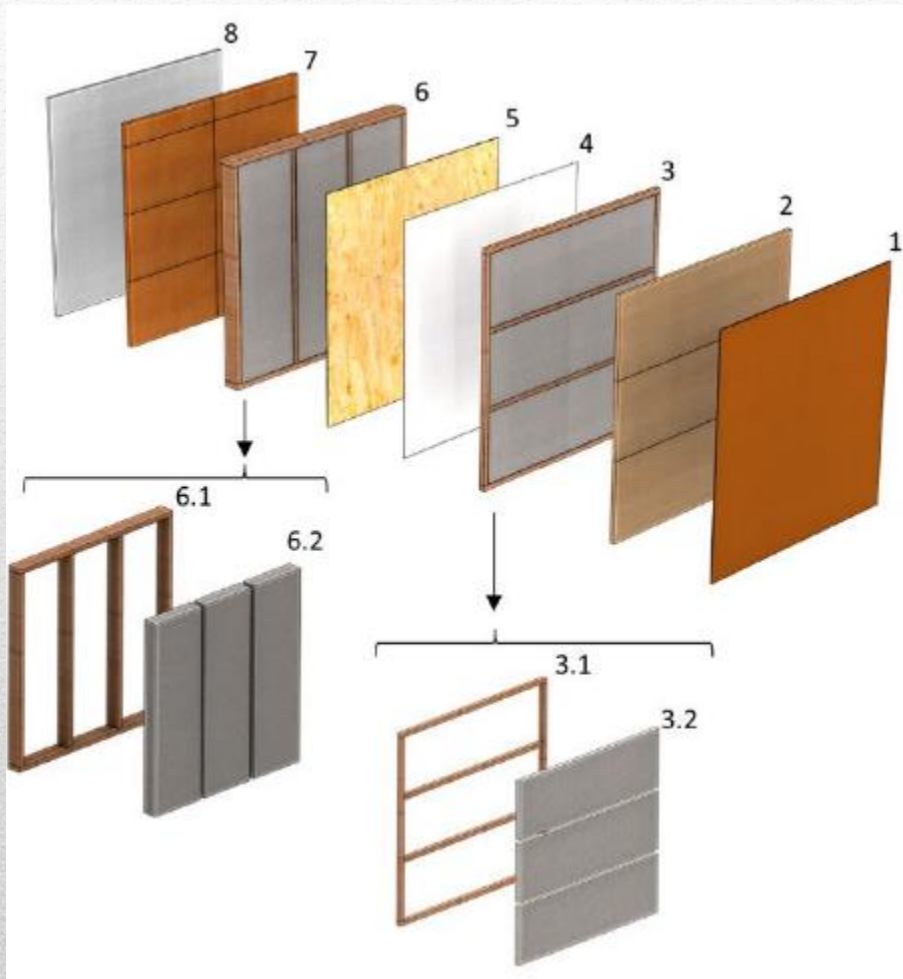
1. ISOBIO NEW BUILD CONSTRUCTION SYSTEM



- ✓ Pre-manufactured system
- ✓ Thermally stable during summer, winter or when the temperature outside abruptly changes
- ✓ Highly resistant to mould formation, as they are highly diffusive in the presence of moisture
- ✓ Technical characteristics:
 - Total thickness: 332mm
 - Designed U-Value: 0,179W/m2K

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✓ New construction system layer by layer...



1. Hemp lime exterior render, 15mm
2. Hemp ISOBIO panel, 50mm
- 3.1 Wood studs, 50mm
- 3.2 BioFib trio insulation, 50mm
4. Airtightness barrier
5. OSB3 panel
- 6.1 Wood Studs, 145mm
- 6.2. BioFib trio insulation, 145mm
7. Thermo-compressed straw board, 40mm
8. Clay plaster interior render, 25mm

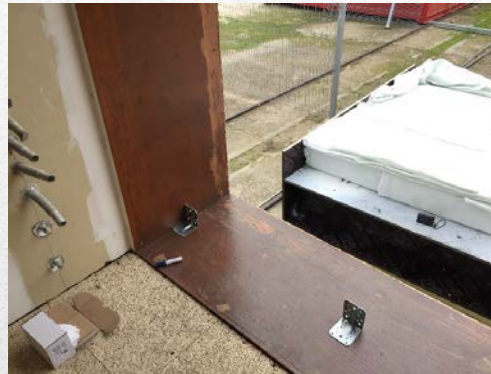
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- ✓ Pre-manufacturing process of the new build construction system.
 - Reduce installation time and costs on site.
 - Allow a modular design depending the architectural requirements.
- ✓ All the layer have been already finished in the factory assembly protocol

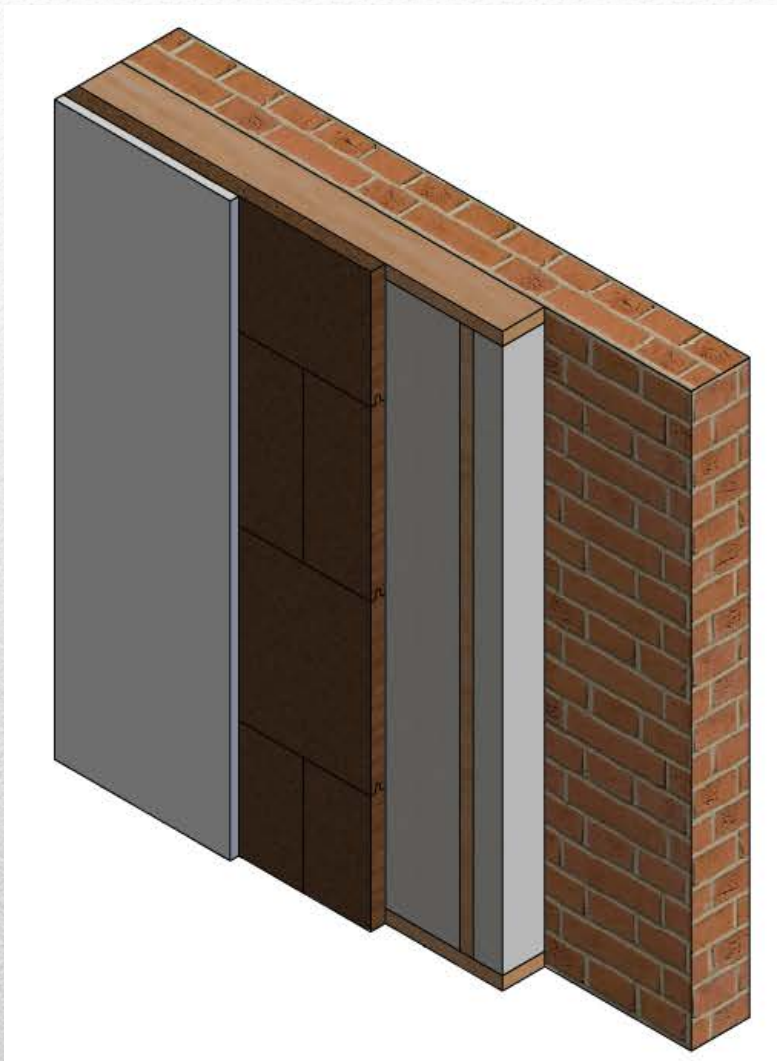


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- ✓ Installation of New building system in demo buildings.



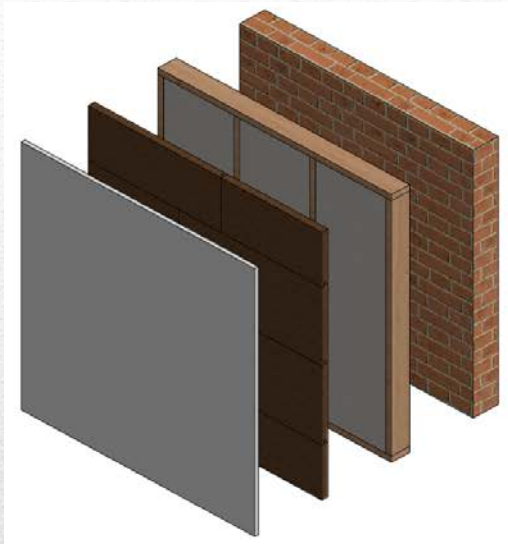
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ISOBIO EXTERNAL RETROFITTING SYSTEM

- ✓ Pre-manufactured system
- ✓ Reduce the energy consumption needed for heating or cooling.
- ✓ Protect the building from moisture-based damages and possible outbreaks due to temperature changes.
- ✓ Technical characteristics:
 - Total thickness: 210mm
 - Designed U-Value: W/m^2K

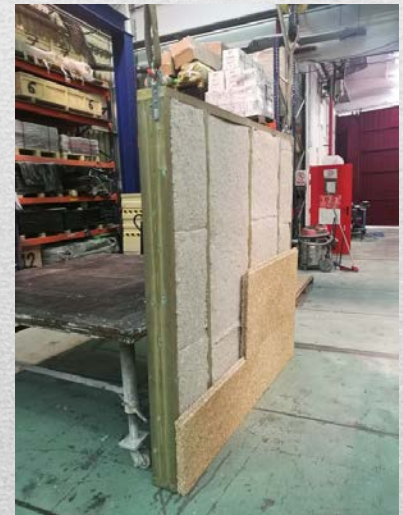
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✓ External retrofitting system layer by layer...

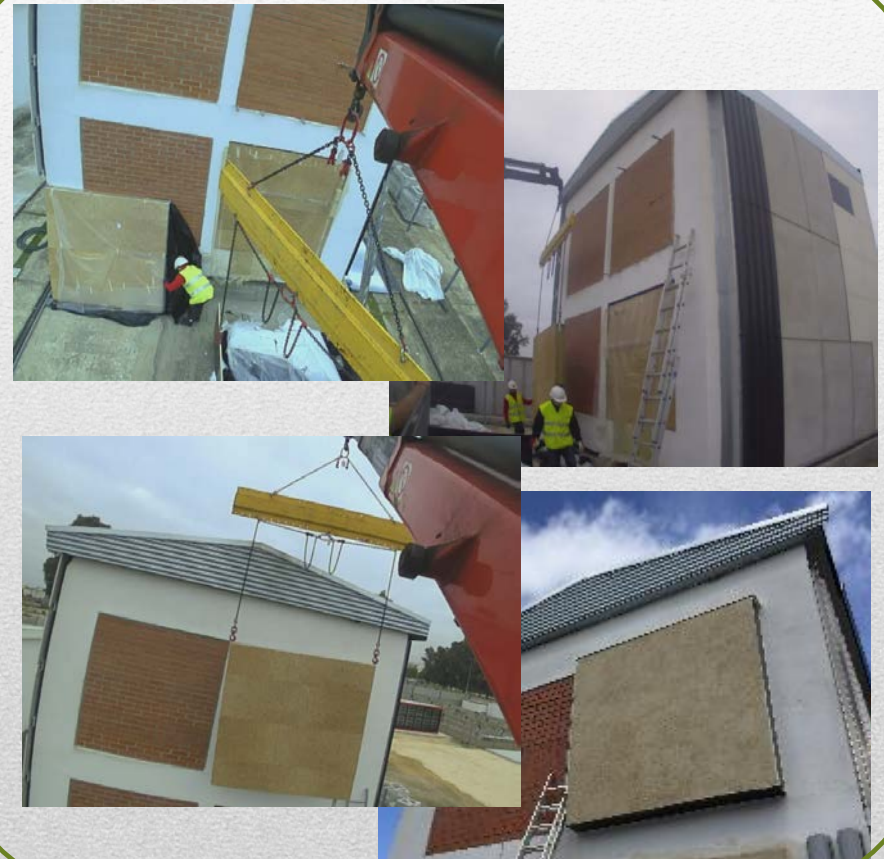
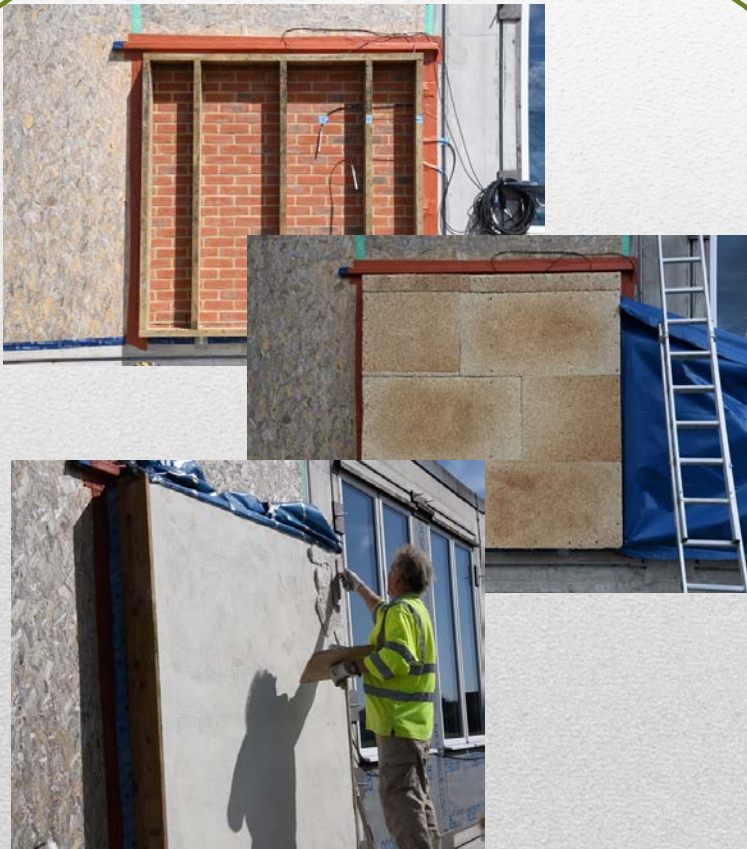
1. Hemp lime exterior render, 15mm
2. Hemp ISOBIO panel, 50mm
- 3.1 Wood studs, 145mm
- 3.2 BioFib trio insulation, 145mm
4. Existing wall

✓ Pre-manufacturing process:

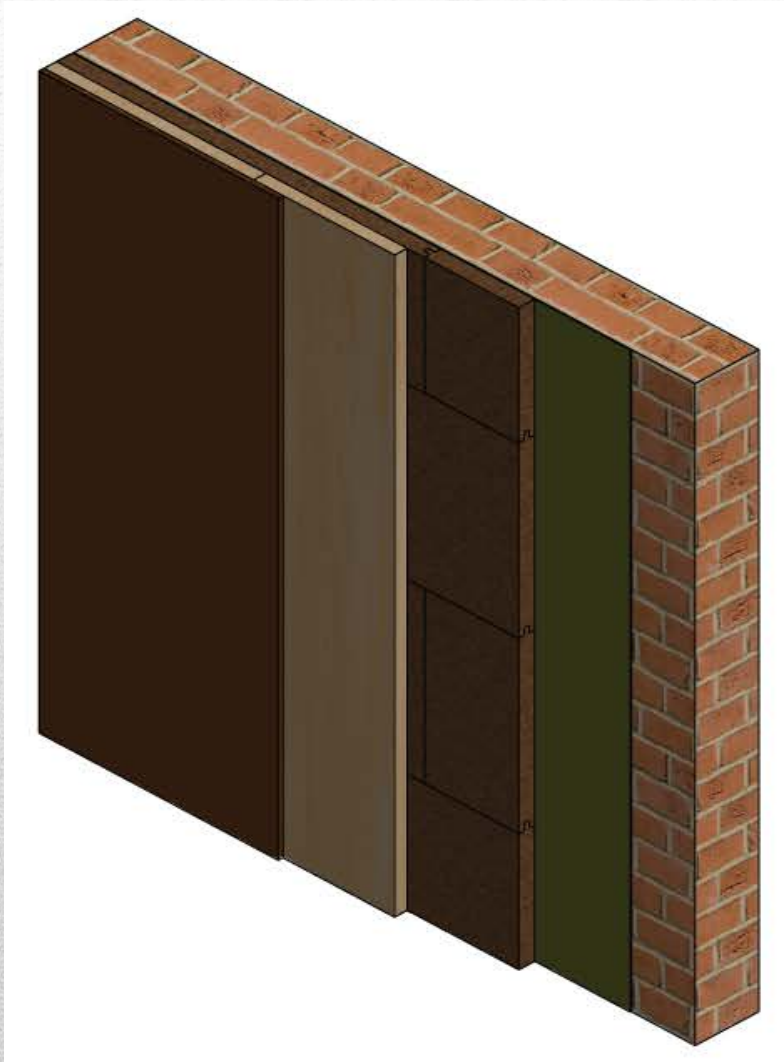


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- ✓ Installation of External retrofitting system in different Demo buildings.



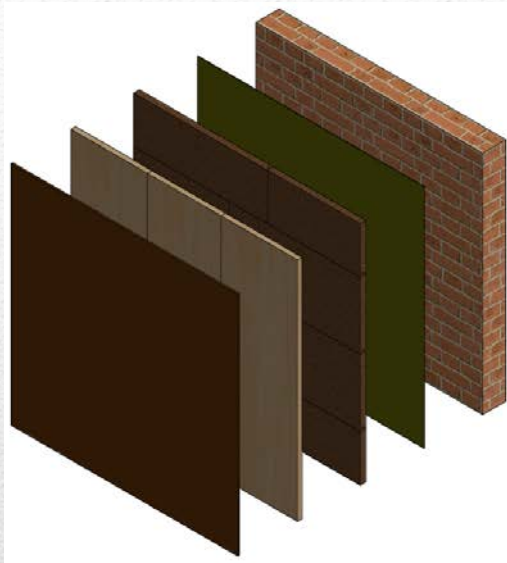
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ISOBIO INTERNAL RETROFITTING SYSTEM

- ✓ On site executed system
- ✓ Reduce the energy consumption needed for heating or cooling.
- ✓ The system have been design to reduce the interior dimensions as less as possible
- ✓ Technical characteristics:
 - Total thickness: 90mm
 - Designed U-Value: W/m²K

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✓ Internal retrofitting system layer by layer...

1. Existing wall
2. Clay Reinforcement mortar
3. Hemp ISOBIO rigid panel, 50mm
4. Thermo-compressed straw board, 40mm
5. Clay plaster interior render, 25mm

INTERNAL



- 5 - CLAY PLASTER
- 4 - CSB PANEL
- 3 - ISOBIO PANEL
- 2 - CLAY REINFORCEMENT MORTAR
- 1 - EXISTING WALL

EXTERNAL

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- ✓ Installation on-site of Internal retrofitting system in different Demo buildings.



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ACHIEVEMENTS

- ✓ **Constructive elements** (new construction system and retrofitting systems) that can be integrated in the buildings have been **designed**.
- ✓ **Installation capability** of the systems have been demonstrated using the demo buildings as a **showcase** for performance monitoring.
- ✓ The **technical viability** of using bio-based materials on constructive elements to be applied in different European climates have been demonstrated, assuring more comfortable buildings regarding energy efficiency.

Thanks for your attention,
Any questions?