The INCSEB project aims at developing **five ultra-low carbon building steel envelope systems** thanks to the innovative use of wood fiber, a renewable and bio-sourced insulation material, while achieving a high level of thermal performance and ensuring compliance with other requirements such as mechanical, fire and acoustic performances.

The project started on 1 August 2021 and will end on 31 July 2025.

Six partners are involved:

- L'ENVELOPPE MÉTALLIQUE DU BÂTIMENT (COORDINATOR) _ FRANCE
- JORIS IDE NV _ BELGIQUE
- MONOPANEL SAS _ FRANCE
- TECNALIA RESEARCH AND INNOVATION - SPAIN
- TU DARMSTADT _ GERMANY
- UNIVERSITY OF COIMBRA _ PORTUGAL

The five innovative systems under development are:

1. Two **prefabricated** steel envelopes made of sandwich panels with a wood fibre insulation core:
   - A cladding sandwich panel with two steel facings and a wood fiber core
   - A pitch roofing sandwich panel with two steel facings and a wood fiber core
2. Three **site-assembled** steel envelopes:
   - A double skin cladding system assembled on site with a wood fiber insulation material
   - A facade cladding system made in cassette and assembled on site with a wood fiber insulation
   - A flat roofing sandwich panel with two steel facings and a wood fiber core completed by a mineral wool insulation and a waterproof membrane assembled on site.

The work of the project will include:

- ✓ For each of these systems, an extensive series of tests according to relevant EN standards to evaluate their mechanical, thermal, fire, acoustic performances and air vapour and water permeability.
- ✓ The construction of two full scale building prototypes fitted with the new systems which will be exposed for two years to the environment so as to study the durability of the systems in real life conditions.
- ✓ The determination of the indicators of LCA for the five systems and a comparison in terms of carbon footprint (GWP) with conventional systems by taking an existing office building as a reference point.
- ✓ A series of specific actions and output aimed at facilitating the dissemination of the results of the project and the industrial application of the new systems including the maintenance of a dialogue with stakeholders, the preparation of two designs guides, of two installation guides

and of two publications, together with the submission of three amendments to relevant EN standardisation committees and the organisation of an industrial stakeholders' workshop.

- ✓ Five generic BIM objects will be produced to facilitate the incorporation of these new systems in the design of future buildings

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