

InsulaTFH / PRECISION

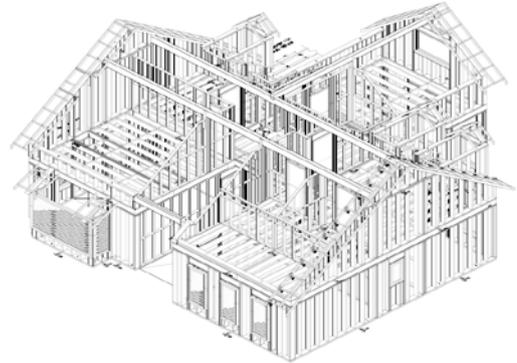
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INFORMATION ON THE ECO-INNOVATIVE SOLUTION PROVIDER

This eco-innovative solution is the output from the project titled “Eco-friendly high performance fiber composite material” co-funded by the European Commission within the framework of the Competitive and Innovation Program. This solution has been developed by a team coordinated by Cygnum Timber Frame Ltd (IE), in partnership with Cygnum Ltd (IE) and Fédération de l'industrie Européenne de la Construction and Weinmann Holzbausystemtechnik GmbH (D).

SHORT DESCRIPTION OF THE ECO-INNOVATIVE SOLUTION

THE PRECISION® SYSTEM manufactures pre-insulated timber-frame wall panels, using locally recycled paper material to manufacture, insulate and assemble the timber frames in the factory. The final panels will be hermetically sealed for delivery on-site, without additional packaging and with a guaranteed U-value. Innovative features include: 1) The processing of cellulose and its subsequent fire-retardant treatment at the panel manufacturer's facility. 2) A controlled panel-filling process for bespoke panel sizes. 3) The delivery of complete panels to the building site, resulting in less construction labour, predictable insulation uniformity, zero material wastage and zero packaging usage.

INDUSTRIAL SECTOR – MARKET SEGMENT AND ACTUAL APPLICATION IN INDUSTRY

15-17 Construction

INDUSTRIAL CLASSIFICATION - NACE CODE;

16 Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials

1. DESCRIPTION OF ECO-INNOVATIVE SOLUTION

Technical aspects of the eco-innovative solution

The core of the innovation is the know-how for the production of wooden panels, their design and engineering and their transportation and construction. Locally available wood will be used for the timber frames as well as cellulose from a local recycling company or cellulose provider. No high investments or special equipment is needed, other than the machinery to manufacture the timber frames, a clamping system and equipment to blow the cellulose into the frames. Additional know-how is available to protect the panels against humidity and seal them for appropriate air tightness.

Economic and environmental benefits of the eco-innovative solution

In Ireland, with the cost per m² for a wall panel at 40-50€, the costs of the panels are 30% higher than conventional building products on the market, mainly caused by higher labour costs. However, as the panels fulfil passive housing standards, increased energy efficiency will be achieved during the life time of the building (U-value of 0.16W/m²K). Pay back for the solution depends on the energy price and cannot be calculated as fossil fuel based building materials achieve the same thermal values. The advantages consist mainly in the use of renewable building materials and significantly improved quality of the housing space.

The panels are made of wood and cellulose, so the main environmental benefit results from the fact that renewable raw materials will be used for the production. Greenhouse gas emissions associated with the embodied energy of construction materials are up to 86% lower for timber-based constructions than for concrete-based constructions. Cellulose and more particularly, cellulose derived from recycled materials, has the most benign impact on the environment of all insulation materials

2. AVAILABILITY OF THE ECO-INNOVATIVE SOLUTION AND BUSINESS PARTNERSHIP

Market readiness, Trade mark, existing market coverage, commercialization strategy

The product is already available on the Irish market and several buildings have already been constructed successfully, including schools and private houses. The frames can be used for buildings of up to 5 floors and can be used for passive houses.

Requirements to adapt the solution to the local market and potential applications/market size

The wooden panel construction and the cellulose filling should be certified following national building standards.

On-site after-sales services support and the technical assistance requirements

Technical support is provided from Ireland

Targeted local business partners

Large timber frame panel producer and/or construction industry. Annual turnover of minimum of 5mio €+ (100 houses per annum)

Type of local business partnership sought

Licensing