ENSNARE

ENvelope meSh aNd digitAl framework for building REnovation

Objective

ENSNARE's main objective is to boost the implementation of renovation packages through (1) the digitalisation of the entire process by means of a digital platform and (2) the development of an industrialised envelope mesh enabling fast assembly and interconnection of passive and multifunctional building components. The methodology and tools provided will facilitate the necessary market uptake of novel and highly efficient solutions for nZEB, accelerating the current retrofitting rate and supporting the transformation of the European building stock into a highly efficient and technologically advanced built environment.

Within a comprehensive systemic approach, the project will target the development of modular adaptable components to be integrated within the system (rather than marketed as standalone products that increase the cost and complexity of the system), including an active window for ventilation and heat recovery, solar harvesting devices (thermal collectors, PV and hybrid panels with advanced technologies such as roll-bonding), heat pumps and energy batteries for load shifting. The digital platform will comprise a set of digital tools supporting and accelerating all stages for a more efficient renovation process: automated data acquisition, LCA/LCC analysis and decision support, digital BIM model building and computer-assisted manufacturing (CAM), and a smart building management system (sBMS) for optimised operation and maintenance. All these tools are linked to a digital model, which increases in complexity and interaction potentialities as the project develops. At completion, the model becomes a Digital Twin of the renovated building allowing real-time monitorization, simulation and optimised operation of all building components. The ENSNARE solution will be validated through three pilot renovation projects covering Nordic, Continental and Mediterranean climates, and three virtual demonstration buildings aimed at upscaling the development of the solution.

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