

Passive House and ECO-SANDWICH EU Eco-innovation Project for Facade Panels

Prof. **Ljubomir Mišćević** M.Arch.¹, prof.PhD. **Ivana Banjad Pečur** M.Civ.Eng.²,
..... **Bojan Milovanović**² Mag.ing.aedif.
University of Zagreb, Faculty of Architecture¹, Faculty of Civil Engineering²
Kačićeva 26, HR-10000 Zagreb, Croatia
+385 1 4639394, miscevic@arhitekt.hr bmilovanovic@grad.unizg.hr
+38514639316

Introduction

ECO-SANDWICH is ventilated prefabricated wall panel utilizing recycled Construction and Demolition Waste (CDW) and mineral wool produced using innovative and sustainable technology for reduction of primary energy consumption in building stock. The concept incorporates three priorities of the eco-innovation call; it uses *recycled material* to create innovative *sustainable building product* which contributes to *greening the business of SMEs* through decreasing their environmental impact accompanied by the use of less non-renewable or natural resources, and energy efficiency to *passive house* standard of final products (buildings).

The ECO-SANDWICH represents a significant improvement over the existing prefabricated wall panel products, aligning itself with the mandatory targets of the EU Energy Performance of Buildings Directive - EPBD, its Recast EPBD II and with Waste Framework Directive targets (recycled CDW in concrete production, mineral wool based on a new patented technology, reduction of primary energy use in buildings where the ECO-SANDWICH is installed).



Image 1: ECO-SANDWICH is recycled concrete sandwich facade panel. Section detail and details in a perspective view.

Specific objectives and contribution to innovation

ECO-SANDWICH project develops a marketing strategy for the introduction of an innovative, environmentally friendly and sustainable product, set up a mechanism to exploit across Europe, encourage the re-use and recycling of construction and demolition waste (CDW) in order to shift CDW management from disposal to recycling and reduce utilization of natural resources thus preventing landscape degradation, promote the substitution of conventional thermal insulation materials by mineral wool produced using innovative and sustainable technology, leading to a reduced environmental impact, promote of implementation of prefabricated, energy efficient products in order to enable reduction of primary energy consumption in residential and commercial buildings and reduce embodied energy, embodied carbon and production of by-product wastes. The ECO-SANDWICH project is realized within a well-established and harmonized network that relies on three SMEs and consists of two Faculties from University of Zagreb; Faculty of Civil Engineering and Faculty of Architecture as quality assurance institutions. ECO-SANDWICH is patented as the industrial design product and the name with its visual identity through Eco-innovation EU project and adequate institutions. Amongst major outputs and results of the ECO-SANDWICH project will be a scalable wall panel system that is sustainable and affordable for its end users throughout the life-cycle. The ECO-SANDWICH wall panels will become a recognised construction system used to build a new and reconstruct – modernise existing buildings to very low energy standard as passive houses on a large scale.

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