

SRS - Smart Roofs System: Advanced Roofs Waterproofing System (POCI-01-0247-FEDER-046957, 2021-2023)



Partners: Saint-Gobain Portugal, Têxteis Penedo, ITECONS, CITEVE, and CeNTI

CERIS subcontracted team by Saint-Gobain Weber

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1 122.020,25€

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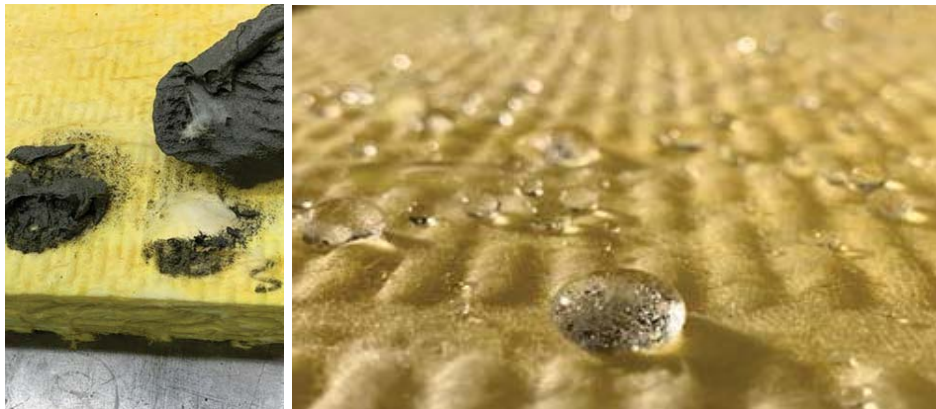
<https://www.itecons.uc.pt/services/projects/98>

Summary description: The Smart Roofs project aims at promoting the research and development of an advanced roofs waterproofing system with thermal reflectance capability. This system will be composed of a water-based polymeric membrane with UV reflective additives, reinforced with smart textile substrate with coupled humidity sensing and regulation, and acceleration of the active heating curing process. The combination of both materials and technologies will provide innovative and distinctive solutions for the demanding global construction market. The project, which focus on conventional flat roofs (warm roofs) or inverted roofs, involves the development of a base layer mortar to support and interface between the insulation material and the waterproofing system in conventional flat roof configuring a final product application kit.

CERIS participation: the research team will be responsible for the testing and characterization of the compatibility between base coat mortar and thermal insulation layer; the field work on roofs to identify common problems to support a maintenance manual and for a LCA assessment of all layers and the whole innovative system.

Output: the product developed under the scope of this project will be able to respond to the cracking and reduced durability problems of the water-based polymeric membranes equivalent or superior to the solvent-based membrane technically performs used in the current area. Its sustainable aspects, such as the use of less polluting and unhealthy materials; the reduced material thermal absorption, which causes less damage to the structure system; lower costs associated with repairs and easier maintenance work are crucial in the purchasing decision. Developments will be promoted in the areas of waterproofing liquid membranes; UV reflective pigments; textile structures with technical properties for reinforcing mortars; integration of moisture sensing and regulation systems in textile structures weaving process; 3D printed sensors on textile substrate; and active cure process of waterproofing membranes/mortars.

Illustrations:



Testing the difficulties on the interface (on the left) during base coat mortar application and the hydrophobicity of the mineral wool surface (on the right)

Indicators: 1 MSc dissertation