

Introduction

RINNO is a Horizon 2020 project that aims to deliver a set of processes that when working together give a system, repository, market-place, and enabling workflow process for managing deep renovation projects.

The EU building stock currently accounts for 40% of the EU's energy consumption and 36% of greenhouse gas emissions. By 2050, more than 85% of the EU building stock will still be in use. These buildings are in need of significant renovation to meet international standards and climate efforts.

Deep renovation significantly supports sustainability efforts in capturing the full economic potential of energy efficiency in the renovation of existing buildings. This leads to improved energy performance and reduced energy and renovation costs.

RINNO will further energy efficient residential building renovation by employing emerging technologies, adapting novel financing strategies, and developing a cloud-based open renovation platform in support of the three phases of deep renovation: Planning and Monitoring; Design, Retrofitting, and Monitoring.



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Transforming energy efficiency in European building stock through technology-enabled deep energy renovation - Planning & Monitoring, Design, Retrofitting and Monitoring



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Project Objectives

RINNO's ultimate objective is to contribute to accelerating the rate of deep renovation of residential buildings in the EU by:

Reducing renovation time by more than 40% in comparison to typical renovation projects through plug-and-play solutions, automation and reduced time to source finance.

Reducing renovation costs by 30% through effective planning, design and installation.

Leveraging the Circular Economy principles to implement novel business models and financing methods to increase ROI.

Enhancing quality and control through faster decision making, improved process and project observability, and heightened security and resilience.

The Building Blocks of the RINNO Open Renovation Platform

- 1 An open standards-based **Renovation Repository** of cost-efficient, sustainable, cutting-edge, and validated energy system solutions.
- 2 A **Planning and Design Assistant** to identify the optimal renovation scenario and inform the planning and design of a renovation.
- 3 A **Retrofitting Manager** that supports the execution, analysis, monitoring and management of the renovation process.
- 4 A **Building Lifecycle Renovation Manager** to monitor performance across the full renovation lifecycle.
- 5 A **Renovation Workflow & Transactions Manager** that organises the data exchange for automated quality assurance of processes and data provenance.
- 6 A **User Administration & Support Module** to manage, support and terminate subscriptions, accounts, users and roles.
- 7 A **Social Collaboration Platform** that supports information and knowledge sharing among stakeholders.
- 8 A **Training Manager** module to facilitate asynchronous and synchronous learning including on-the-job in-field training using AR/VR.
- 9 A **Finance Manager** module to enable alternative mechanisms for sourcing and managing funding for deep renovation projects including support for crowdfunding and smart contracts.
- 10 The **RINNO Marketplace** that leverages the Renovation Repository to bring suppliers and customers of renovation-related products and services together.

Pilot Sites

The solutions developed by RINNO will be demonstrated at four large-scale residential pilot sites covering different EU climate zones in France, Denmark, Greece, and Poland.



Moschato-Tavros:

Deep energy renovation of a multi-dwelling residential building to meet the Passive House Premium standard.



Lille:

Deep renovation of a multi-dwelling residential building to reduce the energy footprint, and improve air quality and occupants' comfort.



Rajszew:

Improvement of thermal comfort and reduction of energy use and costs within a multi-family residential dwelling.