RINNO

The RINNO Project

Building a Low Carbon, Climate Resilient Future: Secure, Clean & Efficient Energy

Mission

RINNO, a Horizon 2020 initiative, aims to create an integrated system for managing deep renovation projects. Deep renovation maximizes energy efficiency, cutting costs and improving performance.

- EU buildings consume **40%** of the region's energy and contribute **36%** of its greenhouse gas emissions.

- By 2050, over **85%** of EU buildings will still be in use, necessitating significant renovation for sustainability.

- RINNO will advance residential renovation by leveraging new technologies and financing models and creating a cloud-based platform for the Planning & Design, Retrofitting, and Monitoring phases.

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Objectives

RINNO aims to accelerate the EU's deep renovation rates by reducing time, effort, and costs while improving energy performance.

RINNO aims to increase the annual renovation rate and save primary energy and tons of CO2 emitted annually.

Faster Renovation

Cost Reduction

Increased Revenues

Enhanced Competitiveness

Quality Improvement

Building Blocks of the RINNO Open Renovation Platform

1. **Renovation Repository:** cost-efficient, sustainable, cutting-edge

2. **Planning and Design Assistant:** identifies optimal scenarios

3. **Retrofitting Manager:** supports and monitors processes

4. **Building Lifecycle Renovation Manager:** monitors lifecycle performance

5. **Renovation Workflow & Transactions Manager:** data exchange quality assurance

6. **User Administration & Support Module:** manages account activity

7. **Social Collaboration Platform:** for connection and communication

8. **Training Manager:** facilitates various learning curves

9. **Finance Manager:** mechanisms for sourcing funds for projects

10. **The RINNO Marketplace:** leverages the renovation repository

Pilot Sites

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

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

France: Deep renovation of a multi-dwelling residential building to reduce its energy footprint and improve air quality and occupant comfort.

Denmark: Deep renovation of a multi-dwelling residential building to reach low energy standards

Poland: Improved thermal comfort and reduced energy use and costs within a multi-family residential dwelling.

The RINNO Suite

The RINNO Suite is a modular software platform designed to streamline every phase of deep energy renovation projects from planning and design through retrofitting and ongoing monitoring. Leveraging augmented intelligence and innovative technology, RINNO facilitates more efficient renovations with significantly reduced costs, minimal disruption, and maximised energy and environmental performance.

https://rinno-h2020.eu/rinno-suite/

Why Choose RINNO?

1 Dramatically Faster Renovations

By streamlining workflows and parallel processes, the RINNO Suite can cut total project duration compared to conventional methods. From rapid scenario planning and accelerated on-site installation to automated documentation, renovations are completed significantly faster.

2 Significant Cost Savings

Greater efficiency across each renovation stage enables overall cost reductions. Enhanced designs reduce rework, coordinated scheduling prevents delays, and optimised procurement lowers material costs. Shorter project timelines further reduce labour and overhead expenses.

3 Enhanced Energy Performance

RINNO's comprehensive optimisation ensures projected energy efficiency gains are fully realised and maintained. Buildings renovated with RINNO can achieve improvement in energy performance, directly supporting climate goals and regulatory compliance, such as nearly zero-energy building standards.

4 Minimal Occupant Disruption and Higher Satisfaction

RINNO's occupant-focused approach significantly reduces on-site disruption, achieving stakeholder satisfaction in pilot deployments. Faster and cleaner renovation processes minimise inconvenience, ensuring higher acceptance and satisfaction among tenants and owners.

5 Modular & Scalable Integration

The suite's modular nature allows clients to select and integrate components according to specific needs. This flexibility accommodates a variety of users from small architectural firms to large construction companies or software vendors seeking advanced capabilities.

6 Validated by Real-World Pilots

Supported by the European Union's Horizon 2020 programme, RINNO solutions have been thoroughly tested in four large-scale pilots across diverse European climates and markets.

Learn about RINNO Suite

Core Modules and Capabilities

RINNO's uniqueness lies in its holistic integration of distinct yet complementary modules, creating a powerful ecosystem tailored to the specific needs of renovation stakeholders:

1 RINNO Planning & Design Assistant (RPDA)

- Integrates energy, techno-economic, environmental, and social impact assessments into the decision-making process.
- Offers intelligent scenario planning and evaluation based on comprehensive simulations and key performance indicators (KPIs).

2 RINNO Retrofitting Manager (RRM)

- Facilitates real-time process optimisation using AR (Augmented Reality) for on-the-job guidance and training.
- Employs industrialisation and modular construction strategies to reduce time and occupant disruption significantly.

3 RINNO Building Lifecycle Renovation Manager (BLRM)

- Ensures continuous post-renovation optimisation with advanced IoT-driven building monitoring.
- Offers detailed benchmarking and validation tools to confirm actual building performance against design expectations.
- Manages digital renovation passports, enabling lifecycle tracking of building enhancements and energy performance improvements.

4 RINNO Renovation Workflow & Transaction Manager (RWTM)

- Provides blockchain-enabled, secure digital contracts for transparent transactions and automated compliance verification.
- Coordinate renovation workflows seamlessly across diverse stakeholders, enhancing transparency, communication, and efficiency.
- Features a dynamic, interactive marketplace and collaboration platform enabling seamless knowledge sharing, procurement, and stakeholder engagement.

RINNO Planning & Design Assistant (RPDA)

Key Features

1. Renovation Simulation and Assessment Toolbox
2. Renovation Scenario Decision Support System (DSS)
3. Job Scheduling Optimiser (JSO)
4. Occupant-Centric Approach

Key Benefits

1. Accelerated Project Timelines
2. Reduced Renovation Costs
3. Maximised Energy Efficiency
4. Enhanced Stakeholder Confidence

The RINNO Planning & Design Assistant (RPDA) is an advanced software tool designed to transform the initial planning and design phases of deep renovation projects.

Leveraging sophisticated digital twin technology, RPDA empowers architects, engineers, and building owners to rapidly develop and evaluate comprehensive renovation scenarios, ensuring maximised energy performance, cost-effectiveness, and occupant comfort.

Learn more about RPDA

RINNO Retrofitting Manager (RRM)

The RINNO Retrofitting Manager (RRM) is a cutting-edge platform designed to enhance the efficiency, accuracy, and overall success of deep renovation projects.

By optimising the execution phase, RRM significantly reduces construction time, costs, and disruption, delivering high-quality retrofitting outcomes tailored to both onsite and offsite strategies.
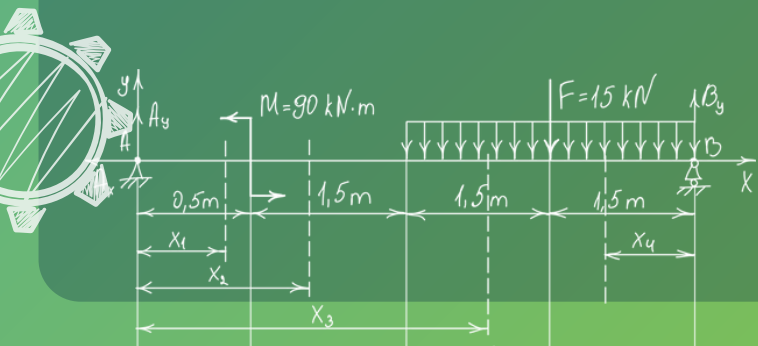
Learn more about RRM

Key Features

1. Optimised Renovation Scheduling
2. On/Offsite Recommendation Tool
3. Augmented Reality (AR) & Virtual Reality (VR) Training Environment
4. Real-Time Process Monitoring with KPI Tracking
5. Process Industrialisation & Weekly Planning Integration
6. Full Web Architecture and Open APIs

Key Benefits

1. Substantially Reduced Project Timelines
2. Lowered Costs and Increased Efficiency
3. Enhanced Quality and Compliance
4. Minimised Occupant Disruption
5. Validated with Real Construction Partners

RINNO Building Lifecycle Renovation Manager (BLRM)

https://rinno-h2020.eu/rinno-building-lifecycle-renovation-manager-blrm/

Key Features

1. Multi-Purpose IoT-Enabled Building Monitoring
2. Renovation Validation and Benchmarking Tool
3. Social Collaboration Platform and Marketplace Integration
4. Building Renovation Passports and Digital Logbooks

Key Benefits

1. Continuous Improvement Philosophy
2. Real-Time Data Integration
3. Benchmarking Excellence
4. Occupant-Centric Approach
5. Lifecycle Transparency

The RINNO Building Lifecycle Renovation Manager (BLRM) is designed to support buildings beyond the completion of renovation works. It delivers a comprehensive post-renovation framework that continuously monitors building performance, validates renovation outcomes, and ensures sustained energy efficiency, occupant comfort, and operational excellence throughout the building's lifecycle.

BLRM is not merely a building monitoring solution it is an integrated renovation intelligence platform, combining IoT-driven real-time data, dynamic benchmarking, renovation passports, and stakeholder collaboration tools, all aligned with EU Green Deal ambitions and next-generation deep renovation goals.
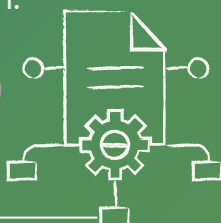
Learn more about BLRM

RINNO Renovation Workflow & Transaction Manager (RWTM)

https://rinno-h2020.eu/rinno-renovation-workflow-transaction-manager-rwtm-2/

The RINNO Renovation Workflow & Transaction Manager (RWTM) is the digital backbone of the RINNO Suite. It provides a powerful platform for managing the entire renovation lifecycle with seamless stakeholder collaboration and full transparency across every phase of the project

RWTM addresses the critical need for integrated renovation management by combining workflow orchestration, documentation tracking, procurement facilitation, and secure financial operations into one comprehensive solution.

Learn more about RWTM

Key Features

1. End-to-End Workflow Management
2. Stakeholder Collaboration Platform
3. Marketplace Integration
4. KPI-Driven Performance Monitoring
5. Open APIs and Seamless Integration
6. Digital Contract and Blockchain-Enabled Transactions

Key Benefits

1. True End-to-End Renovation Management
2. Trust by Design
3. Customisable for Any Renovation Scale
4. Fully Modular and Interoperable