SUSTAINABLE SOLUTIONS FOR AFFORDABLE RETROFIT OF DOMESTIC BUILDINGS

Berichterstattung

Projektinformationen

Surefit

ID Finanzhilfevereinbarung: 894511

Projektwebsite

DOI
10.3030/894511

Projekt abgeschlossen

EK-Unterschriftsdatum
8 Mai 2020

Startdatum
1 September 2020

Enddatum
28 Februar 2025

Finanziert unter
SOCIETAL CHALLENGES - Secure, clean and efficient energy

Gesamtkosten
€ 3 997 049,25

EU-Beitrag
€ 3 423 978,00

Koordiniert durch
INSTITUTO DE SOLDADURA E QUALIDADE
Portugal

Dieses Projekt findet Erwähnung in ...

23 April 2024

Periodic Reporting for period 2 - Surefit (SUSTAINABLE SOLUTIONS FOR AFFORDABLE RETROFIT OF DOMESTIC BUILDINGS)

Berichtszeitraum: 2022-03-01 bis 2023-08-31

Zusammenfassung vom Kontext und den Gesamtzielen des Projekts

Buildings represent about 40% of the EU energy consumption, and 36% of the total CO2 emissions. At present, about 35% of the EU's buildings are over 50 years old and almost 75% of the building stock is energy inefficient but only 0.4-1.2% of the building stock is renovated each year due to slow and costly renovation processes. The project tackles this challenge by aiming to demonstrate fast-track renovation (40% reduction in implementation time) of existing domestic buildings by integrating innovative, cost-effective, and environmentally conscious prefabricated technologies. This is to reach the target of near-zero energy1 by reducing heat losses through the building envelope and energy consumption by heating, cooling, ventilation and lighting while increasing the share of renewable energy in buildings. The project uses a systematic approach involving key stakeholders (building owners and users, manufacturers, product and services developers) in space heating, cooling, domestic hot water, lighting and power generation, as well as a demonstration phase in five representative buildings in different climates.
The technologies being developed in the scope of the project include bio-aerogel panels integrated with phase change materials, photovoltaic (PV) vacuum glazing windows, roof and window heat recovery devices, solar-assisted heat pumps/ground source heat pumps, evaporative coolers, integrated solar thermal/PV systems and lighting devices. These will be prefabricated for rapid retrofit with minimal disruption to occupants, ensuring high levels of occupant comfort/indoor environmental quality as well as low risk of moisture-related problems/summer overheating.
Complementary, guidelines and effective operational tools will be developed for optimising the renovation process and decision making and innovative business models will also be developed involving all factors affecting the total value of a property including its energy performance.
Post retrofit, technologies installed will operate to maximise energy gain from renewable sources through smart controls while minimising heating, cooling and ventilation losses. Socio-economic

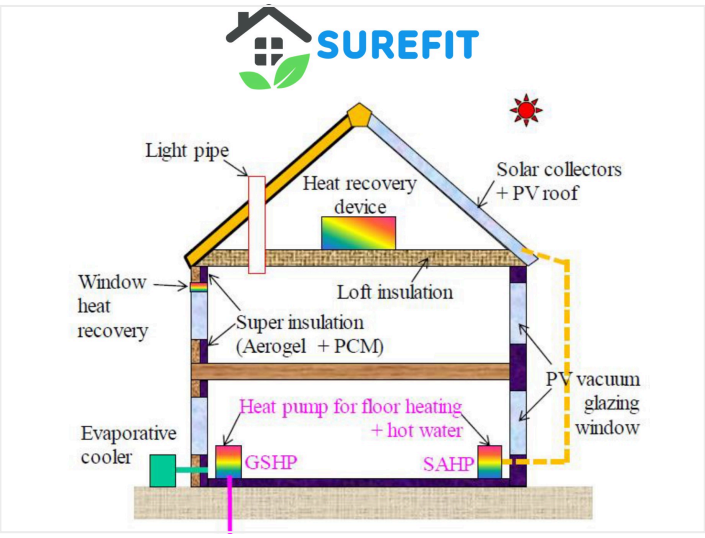
analysis will then be done to assess how the installed measures impact the houses and district scales with respect to energy reduction in the thermal and electrical energy networks as well as occupants' satisfaction.

Arbeit, die ab Beginn des Projekts bis zum Ende des durch den Bericht erfassten Berichtszeitraums geleistet wurde, und die wichtigsten bis dahin erzielten Ergebnisse

During this reporting period, partners UNOTT together with CJR have produced and lab tested prototypes of prefabricated panels. Additionally, partners have produced prototypes to be tested in pilot buildings of PV vacuum glazing as a type of high-performance window for electricity generation, novel solar thermal and PV systems and PCM panel to be used as thermal storage medium.
Regarding the production of energy efficient building facilities, significant advances were made. UNOTT has tested prototypes of a novel evaporative cooler and a window heat recovery device. In the same way, UNOTT has tested prototypes for innovative multi-purpose heat pumps (both DX-SAHP and TP-GSHP). The partners produced units of the various technologies to be tested in the pilot buildings.
The installation of the prototypes in the test pilots is underway. The thermal and energy use conditions in the pilot buildings prior to renovation was measured to compare with the results of the testing.
A methodology and guidelines for optimisation of the renovation process is under way. The results and experiences from the development of the various WP of the project is being discussed between partners to strengthen the methodology in development. A second draft of the methodology is now under discussion, and the experiences obtained in the installation processes occurring are feeding the guidelines and best practices in development. SURe3FIT decision-making tool was made available to partners for their evaluation and contributions. At the end of its development, it will allow users to select the most effective energy conservation measures, integrating environmental and economic criteria.
Concerning dissemination, during this reporting period, both the website and social networks were constantly updated (LinkedIn, Facebook, YouTube, Instagram and Twitter). Project partners were coordinated for a planification for their dissemination activities in the duration of the project. The initial promotion material was updated. This material is consisted of banners, leaflets, and posters to be used and distributed in the activities planned. The project held two scientific workshops and was present in 3 conferences. Finally, the project results have been presented in 3 conferences through oral presentations and 1 publication in scientific journals have been performed during this period.
Finally, the project was continuously monitored by ISQ to ensure compliance with the ethics requirements.

Fortschritte, die über den aktuellen Stand der Technik hinausgehen und voraussichtliche potenzielle Auswirkungen (einschließlich der bis dato erzielten sozioökonomischen Auswirkungen und weiter gefassten gesellschaftlichen Auswirkungen des Projekts)

The progress of the project allowed for significant results in terms of technology development.
The activities carried out in SUREFIT, will contribute to the achievement of reduction of energy consumption in the representative buildings, in order to reach the target of nZEB compared to the values before renovation, while enhancing indoor environmental quality. It was possible to test and analyse several configurations in each pilot in order to reach the necessary reduction in energy consumption taking into account the different contexts and characteristics of the pilot buildings.
The innovative technologies prototypes are considered to be a significant progress beyond the state of the art in terms of heating and cooling systems, as well as in technologies dedicated to promoting energy efficiency in buildings enveloped and are being further developed using a modular approach in order to prepare the installation in the pilot buildings in such a way that will allow for the demonstration of the reduction in installation time.
The activities carried out in the project, regarding economic evaluation of the technologies already enabled to establish a robust methodology to assure that further developments concerning the innovative solutions will assure affordability considering all costs involved.



SUREFIT Technologies

Letzte Aktualisierung: 8 Juli 2024

Permalink: https://cordis.europa.eu/project/id/894511/reporting/de

European Union, 2025