

WHITE PAPER

Renovation Sprint: Unlocking Productivity Potential in Building Renovation

A Climate-Neutral Home in Just 22 Days

Breaking the Renovation Deadlock: A Turning Point for Europe's Homes

Europe's building stock is under growing pressure. High heating costs are eroding affordability for millions of households, while the sector consistently fails to meet climate targets. Much of the building stock is deeply energy-inefficient, keeping energy bills high. Buildings account for around 40 % of EU energy consumption and 36 % of greenhouse gas emissions, yet renovation progress across Europe is relatively slow. In Germany, the renovation rate has remained below 1 % in recent years.

This investment backlog hurts property values and economic growth, and is particularly evident in single-family homes. Many of these, especially post-war buildings, are major energy consumers. The worst-performing ones can use up to ten times more energy than efficient homes, locking households into high and volatile heating costs – a challenge the European Affordable Housing Plan must address.

There is considerable potential: Many homes will change owners in the coming years, creating a strong case for renovation that tackles energy performance and taps into available support schemes. Seizing this moment requires attractive solutions and represents a significant

economic opportunity. The construction sector is a cornerstone of many EU economies. In Germany alone, it contributes 2.5 % of GDP, with the potential to lift GDP by another 3.4 %¹, and already directly supports around 600,000 jobs². Scaling up renovations can therefore not only reduce costs for individual households, but also boost economic growth and regional value-creation.

Productivity as a key part of the solution: To fully unlock this potential, the construction sector must catch up with other industries in terms of productivity and customer journey. Better planning and on-site coordination could enable the skilled workforce to complete more renovations – faster, more affordably and with high quality standards. This strengthens tradespeople, planners, and construction companies, opens up new customer segments, and makes services more attractive while reducing complexity and uncertainty for homeowners.

The Renovation Sprint combines clear structure, rapid execution, and dependable coordination – driving renovation forward.

Proven in Practice: The Renovation Sprint Unlocks Untapped Potential

In cooperation with the engineering firm Ronald Meyer (the originator of the approach), the University of Stuttgart, and the ifeu Institute, DENEFF was able to demonstrate on behalf of Agora Energiewende how a '**Renovation Sprint**' can boost productivity on a conventional construction site.³

In October 2023, a 1960s semi-detached house in Hamburg was **fully renovated to meet the KfW Efficiency House standard (a German national benchmark for low-energy buildings) – in just 22 working days.**

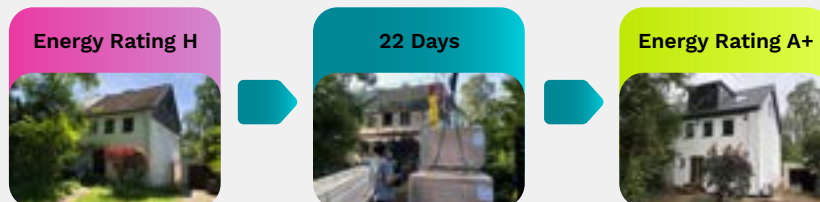
This included insulation, heating system and window replacement, installation of a photovoltaic system, and the conversion of the attic into additional living space.

Thanks to a well-structured and detailed schedule and on-site coordination, different trades could seamlessly work together or in parallel, making the process much faster and smoother.

¹ If the renovation rate is raised moderately to 1,7-1,9% per year.

² Find more information here: https://deneff.org/wp-content/uploads/2025/09/DENEFF_Factsheet_Wirtschaft_Bedeutung_GebSanierung.pdf

³ You can find the reports resulting from this project here: <https://deneff.org/portfolio-items/sanierungssprint/>



Scientific monitoring confirmed that this type of process optimization can reduce total renovation time by half, cut costs by up to 30 %, and double workforce productivity. This level of process efficiency gains is especially important as skilled workers are in high demand across Europe. Today, about a dozen Renovation Sprints have either been successfully concluded or are in process by various firms in five German states.

The Renovation Sprint builds on existing skills and processes and is ready for scale-up – a practical solution that can be put into action right away.

Two Pillars for Change: Deep Renovation Meets Smart Process Design

The Renovation Sprint is based on two pillars: construction measures and process innovation.

Construction measures, as with any conventional renovation, focus on reducing final energy consumption and CO₂ emissions. These are outlined in a standardized technical catalogue and grouped into three main categories:

- **Building envelope improvements**, such as insulating the roof, exterior walls, or basement ceiling and installing multi-glazed windows, improve the thermal performance of the home.
- **Technical system upgrades** provide emissions-free heating, cooling, and electricity – via photovoltaic systems, district heating, or heat pumps.
- **Non-energy-related upgrades**, such as creating new living space or improving comfort, can be included to take advantage of synergies with energy renovation.

A central element is a **detailed, day-by-day, hour-by-hour construction schedule** that aligns all work steps across different trades.

This is supported by two new on-site roles: The **Renovation Coach** oversees the overall process on-site, manages interfaces and ensures that everything stays on track. Additionally, a **Site Assistant** handles preparatory and support tasks, including material logistics and set-up.

These structural enhancements reduce common problems of small construction sites (lack of coordination between trades, waiting times, poor logistics) and allow skilled workers to focus on their core competencies – resulting in high-quality outcomes within a much shorter timeframe.

The core innovation of the Renovation Sprint lies in the **process-related measures**: these aim to improve coordination among trades and streamline planning and logistics.

By bringing the structured process management of large-scale construction sites to smaller projects, the Renovation Sprint boosts efficiency. Repeated collaboration in fixed, multi-skilled teams accelerates learning.

The Outcome: High-Quality Renovation – Fast, Efficient and Scalable

Effective renovation: Significant energy savings, delivered to a high standard. Thanks to standardized measures and precise implementation, the semi-detached home was upgraded from energy rating H to A+. CO₂ emissions were cut by 87 %, and final energy demand was reduced by 92 %, while simultaneously improving comfort and building functionality.

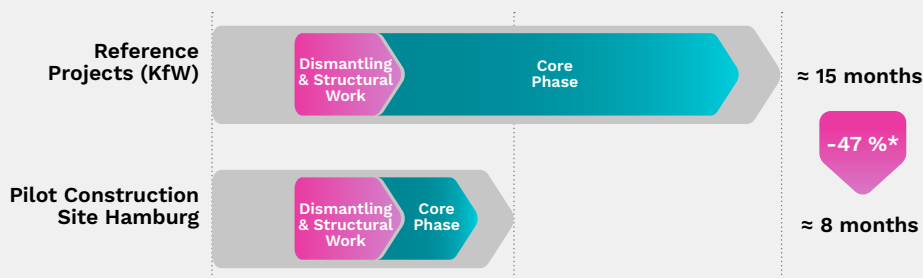
Despite the rapid pace and high quality, total pilot project costs were already in line with the most affordable conventional renovations, because total hours worked were only as high or lower than in a non-sprint project, and the most common reasons for defects and cost overruns could be eliminated.

Faster delivery at lower costs:

Process optimization cuts total project duration (from first plans to completion) in half.

The **core phase of the renovation was completed in just 22 working days**. Digital processes and team learning curves will further reduce time, increase productivity and lower costs.

Project Timeline Comparison (schematic)



Source: Agora Energiewende (2024). Adapted.

*with comparable floor area and energy efficiency rating

Increased productivity: More renovations with the same workforce. By relieving skilled workers of coordination and logistics tasks and ensuring strong collaboration across disciplines, they can focus fully on where they add the most value. This not only increases employee satisfaction but significantly boosts real productivity. In the medium term, this means: more renovations with the same number of workers.

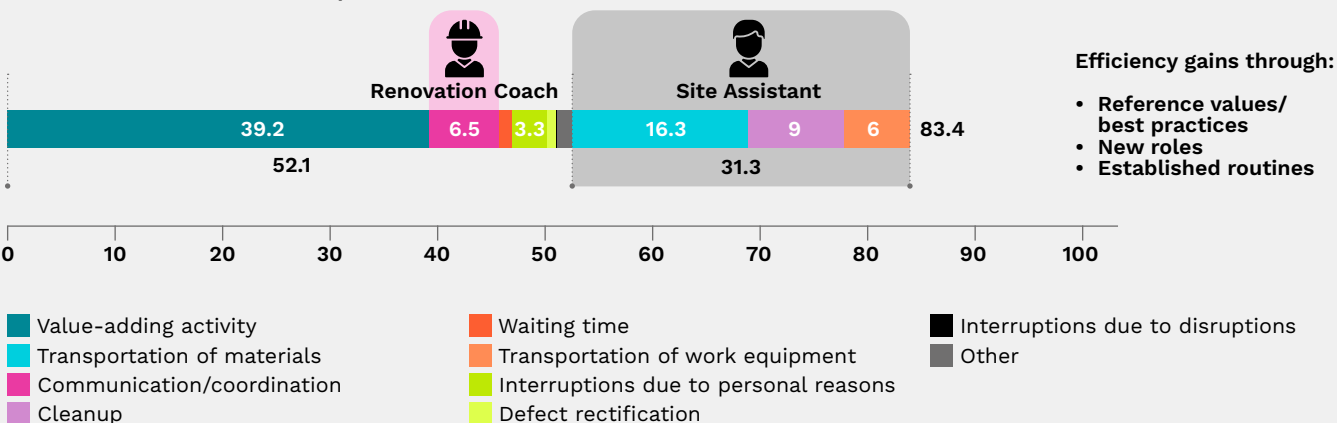
By focusing skilled workers' time on core, value-adding tasks, the Renovation Sprint increases the implementation capacity of construction trades.

Illustrative Task Structure and Optimization Potential Through Short-Term Levers

Skilled Workers – Conventional Construction Site



Skilled Workers – Renovation Sprint Site



Source: Agora Energiewende (2024). Adapted.

From Pilot to Practice: A Scalable Concept Ready for Market

The Renovation Sprint is not just a successful pilot – it is a **proven, transferable concept that already meets real-world demand**. Since the first pilot, regional initiatives have been launched throughout Germany. The approach is being adopted, refined, and implemented at the regional level with relatively little funding – highlighting its broad appeal and adaptability across the value chain.

Homeowners benefit from quicker, more predictable renovations with reliable costs and high quality.

Structured planning and efficient execution make energy-related renovation in general more appealing – a key to boosting renovation rates.

Planners, architects, and engineers can expand into a new professional field by taking on the role of Renovation Coach, while standardized processes and coordinated workflows save time and resources, as well as enhance reliability and collaboration on-site.

Trades benefit from higher output with the same workforce.

Repeatable workflows, dependable conditions and improved coordination lead to better planning, less idle time and greater job satisfaction – key for long-term competitiveness for SMEs in particular. At the same time, the concept also helps retain skilled workers by offering new professional roles and more efficient job organization.

The Renovation Sprint approach is not a German specialty. It builds on existing trade structures and skills across the EU and thus poses a relatively low barrier for adoption. It addresses an EU-wide challenge and enables new business models, added value creation and growth, as well as a more professional and attractive execution of energy renovations in existing buildings. It supports the modernization of the skilled trades while helping to raise the renovation rate – contributing directly to climate goals in the building sector.

To fully unlock the potential of the concept, **political support at the EU and national levels** can speed up the adoption and spread of Renovation Sprints – for example via targeted network-building, training schemes, and integration into existing funding programmes.

The Renovation Sprint demonstrates: Even with limited resources, real impact is possible – for the trades, the market, and the climate.



The Renovation Sprint is scalable – now it is up to policymakers to help create the right conditions for wide-scale implementation.

Let's talk about how the Renovation Sprint can scale up



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Find more information and results on the Renovation Sprint project, commissioned by Agora Energiewende and implemented by DENEFF together with Ronald Meyer Engineers, the University of Stuttgart, and the ifeu-Institut für Energie- und Umweltforschung Heidelberg here: <https://deneff.org/portfolio-items/sanierungssprint/>

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