

Quality control for highly energy-efficient refurbishments

EU project outPHit bolsters quality of retrofits with three new concepts



Refurbishment of a residential complex in Rotterdam, the Netherlands. © Villanova Architects

OUTPHIT

PROJECT LEAD



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Darmstadt, Germany. 10 January 2023. The EU project outPHit has now made three concepts for quality assurance in renovations available. The aim is for retrofits to reliably achieve a high level of energy efficiency. The three concepts cover the entire refurbishment process: from planning through preparation for execution to verification of actual energy consumption upon completion. The concepts will be presented in a webinar on 19 January 2023.

The energy efficiency of refurbishment projects is typically only independently certified upon completion. Yet the success of such projects can only be assured with quality checks that already begin in the design and planning phases. The European Union funded outPHit project has thus published three concepts that ensure the quality of the deep energy retrofits throughout the entire construction process.

"Especially in streamlined renovation processes, for example with prefabricated elements, quality checks are of the essence. We want to ensure that the refurbished buildings really do meet the high energy targets set once completed and offer their occupants the corresponding level of comfort. The three newly established concepts are a groundbreaking basis for this," explains outPHit project coordinator Jan Steiger of the Passive House Institute. Renovation projects within the framework of outPHit target the highly energy-efficient EnerPHit standard as developed by the Passive House Institute.



Concept 1: Design Stage Approval

The first of the three new concepts comes into play during the planning phase of the retrofit project. It establishes a preliminary and independent approval of energy efficiency relevant planning before construction begins. This **Design Stage Approval** procedure offers all parties involved – from the occupants to the architects to the funding bodies – the certainty that the targeted efficiency can actually be achieved. The Design Stage Approval concept for efficiency planning is already being used on a trial basis in the scope of outPHit's pilot projects.

Concept 2: Renovation System Certification

The actual energy consumption of a refurbished building is also influenced by the quality of the components used. High levels of energy efficiency are best reached when all building elements used work well together. Prefabricated building modules, as used in outPHit projects, make renovation faster, but cannot be reworked on site. outPHit's second quality assurance concept thus establishes a certification for renovation systems. The **whole house renovation system certification concept** for entire buildings facilitates compliance with the EnerPHit standard.



Prefabricated facades being used in a retrofit in Hameln, Germany. © Ecoworks

Concept 3: Verified Building Performance

The third quality check developed in outPHit is executed after a project has been commissioned. Architects, engineers and other construction stakeholders typically do not receive systematic feedback on the success of a retrofit. This is changed by the **certification scheme on "verified building performance"**. By verifying the energy efficiency of the building post construction, actual energy consumption in an occupied state can be certified and adjustments to building services settings can be made as needed.

"Lack of feedback on energy consumption in refurbishment projects is a missed opportunity to learn and optimise the construction industry. Verifying building performance will change that. Together, all three newly established concepts are a crucial step in ensuring the quality of deep renovations," explains outPHit project manager Jan Steiger.

WEBINAR

The Passive House Institute will present the three new outPHit concepts for quality assurance in a webinar on Thursday, 19 January 2023. "Quality assurance concepts for fast deep retrofit approaches" is an accredited continuing education course. All information can be found on outphit.eu.

FURTHER INFORMATION

- **Design stage approval** concept
- **Whole house renovation system certification** concept
- **Verified building performance** concept
- **Webinar of 19 January 2023** introducing the three concepts
- **outPHit case studies**
- **The EnerPHit standard**

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OUTPHIT – DEEP RETROFITS MADE FASTER, CHEAPER AND MORE RELIABLE

outPHit pairs such approaches with the rigour of Passive House principles to make deep retrofits cost-effective, faster and more reliable. On the basis of case studies across Europe and in collaboration with a wide variety of stakeholders, outPHit is addressing barriers to the uptake of high quality deep retrofits while facilitating the development of high performance renovation systems, tools for decision making and quality assurance safeguards. outphit.eu

THE PASSIVE HOUSE INSTITUTE

Creator of the Passive House standard and later, the EnerPHit standard for deep retrofits, the institute bundles more than 30 years of experience in the field of high performance, cost-effective construction. The institute carries out research, quality assurance of buildings and components as well as training regarding highly energy efficient construction and refurbishment. Additionally, the Passive House Institute provides support for the design and implementation of Passive House projects. passivehouse.com

