

CERTIFICATE

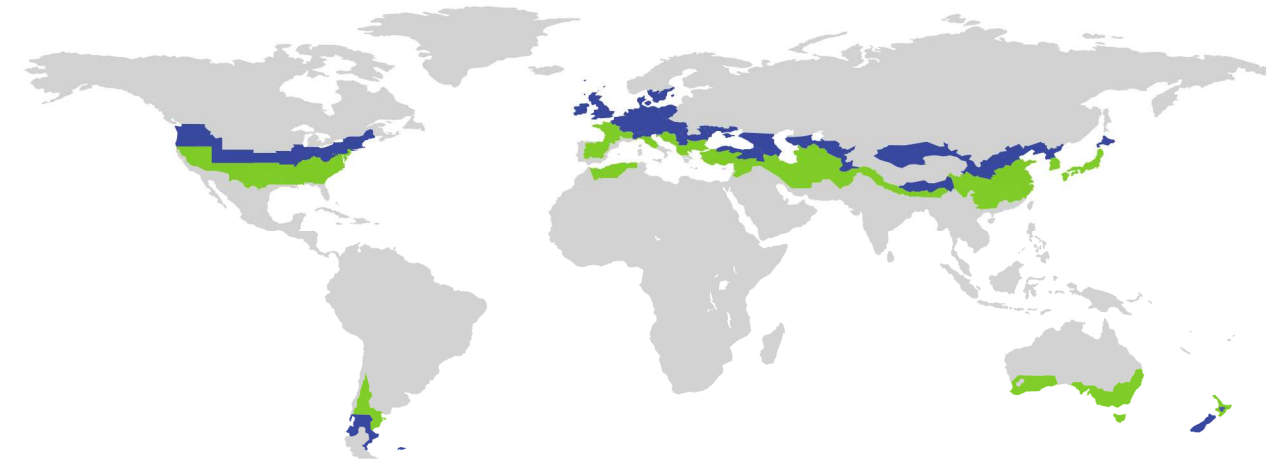
Certified Passive House Component

ID: 0842es03 valid until 31. December 2021

Passive House Institute
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Additional thermal bridges

Name	Thermal bridge	f_{Rsi}	Description
EWPA01	X= 0.002 W/K	0.99	Punktual thermal bridge wall-anchor
ROPA01	X= 0.003 W/K	0.97	Anchor-screw trough external insulation



Category	Construction system EnerPHit insulation system
Manufacturer	pro Passivhausfenster GmbH Oberaudorf GERMANY
Product name	smartshell reno

This certificate for the cool, temperate climate zone was awarded based on the following criteria

Hygiene criterion

The minimum temperature factor of the interior surfaces is $f_{Rsi=0,25m^2K/W} \geq 0.70$

Comfort criterion

The U-value of the installed windows is $U_{w,i} \leq 0.85 W/(m^2K)$

Efficiency criteria

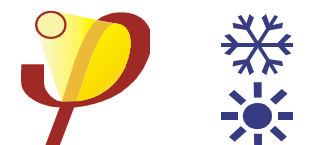
Heat transfer coefficient of building envelope $U * f_{PHI} \leq 0.15 W/(m^2K)$

Temperaturfactor of opaque junctions $f_{Rsi=0,25m^2K/W} \geq 0.86$

Thermal bridge free design for key connection details $\Psi \leq 0.01 W/(m^2K)$

An airtightness concept for all components and connection details was provided.

cool, temperate climate



**CERTIFIED
COMPONENT**

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Opaque building envelop

The system is dedicated as an additional external insulation for existing buildings. For the certification it was assumed, that the floor slab is enhanced by a PU-foam insulation.

The thermal quality of the walls is improved by an exterior insulation. A plastered wood fiber board is located on the very outside of the new insulation layer. It is connected to the existing walls via timber beams and punctual anchors. The space in between the old wall and the wood fiber board is filled with cellulose.

An additional insulation layer outside the existing roof construction in combination with a cellulose infill insulation between the rafters reduces the thermal losses of the roof.

Windows

The certification was done with the window smartwin solar I², which is a very slim pA-class window with triple 18 mm argon glazing, Swisspacer Ulti-mate spacer bar with PU secondary seal. A special feature of smartwin solar I² is, that the reveal becomes part of the windows frame.

In No. 01, the window is installed in flush with the exterior plaster.

In No. 02, it is installed deeper in the wall.

In No. 03, the windows are installed right at the edge of the existing wall, see certification report.

Airtightness concept

The airtightness layer in the walls is the improved external plaster. The plaster and the windows as well as other junctions are connected via airtightness tapes. In the roof, an OSB-board at the room-side of the construction serves as airtightness layer. The boards are connected by an airtightness tape.

Explanatory notes

The Passive House Institute has defined international component criteria for seven climate zones based on hygiene-, comfort- and affordability criteria. In principle, components which have been certified for climate zones with higher requirements may also be used in climates with less stringent requirements. This use might make sense in certain circumstances.

Thermal bridge not calculated
Criteria achieved

Efficiency criteria not achieved
Hygiene- or comfort criterion not achieved

