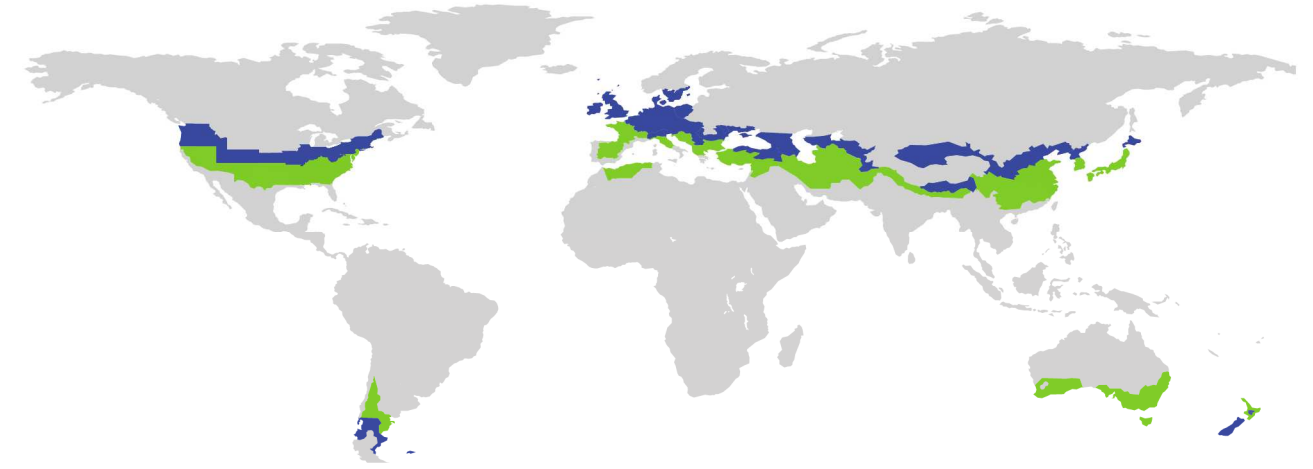


CERTIFICATE

Certified Passive House Component

ID: 0839cs03 valid until 31. December 2020

Passive House Institute
Dr. Wolfgang Feist
64342 Darmstadt
GERMANY



Category **Construction system | Solid construction with EIFS**
Manufacturer **pro Passivhausfenster GmbH**
Oberaudorf
GERMANY
Product name **smartshell solid S**

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

$$f_{R_{si}=0,25m^2K/W} \geq 0.70$$

Comfort criterion

The U-value of the installed windows is

$$U_{w,i} \leq 0.85 \text{ W}/(\text{m}^2\text{K})$$

Efficiency criteria

Heat transfer coefficient of building envelope

$$U \cdot f_{PHI} \leq 0.15 \text{ W}/(\text{m}^2\text{K})$$

Temperaturfactor of opaque junctions

$$f_{R_{si}=0,25m^2K/W} \geq 0.86$$

Thermal bridge free design for key connection details

$$\Psi \leq 0.01 \text{ W}/(\text{m}^2\text{K})$$

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



Opaque building envelop

The construction system is built on a concrete floor slab supported completely with XPS insulation. The walls are constructed with insulation bricks with an additional exterior insulation from wood fiber board. The roof construction is formed with rafters at 70cm spacings with cellulose insulation between. A gypsum board is fitted below cross battens with insulation in between.

Windows

The certification was done with the window smartwin solar I, which is a very slim pA-class window with triple 18 mm argon glazing, Swisspacer Ultimate spacer bar with PU secondary seal. A special feature of smartwin solar I 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, see certification report.

Airtightness concept

The airtightness layer in the walls is the interior plaster. It is sealed together and to the windows with an air-tightness tape. A membrane between the rafters and the wood fiber board serves as airtightness layer in the roof.

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

