

# CERTIFICATE

Certified Passive House Component

ID: 1070cs02 valid until 31. December 2024

Passive House Institute  
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Category **Construction system | Solid timber construction**  
Manufacturer **pro Passivhausfenster GmbH  
Oberaudorf  
GERMANY**  
Product name **smartshell solid timber**

**This certificate for the cold climate zone was awarded based on the following criteria**

#### Hygiene criterion

The minimum temperature factor of the interior surfaces is

$$f_{R_{si}=0,25m^2K/W} \geq 0,75$$

#### Comfort criterion

The U-value of the installed windows is

$$U_{w,i} \leq 0,65 \text{ W}/(\text{m}^2\text{K})$$

#### Efficiency criteria

Heat transfer coefficient of building envelope

$$U \cdot f_{PHI} \leq 0,12 \text{ W}/(\text{m}^2\text{K})$$

Temperaturfactor of opaque junctions

$$f_{R_{si}=0,25m^2K/W} \geq 0,88$$

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 insulated by XPS.

The walls are constructed by cross laminated timber with additional insulation layer by simplified timber I-beams and mineral-fibre insulation. The exterior shell is a plaster on wood fibre board. The ceilings are build by cross laminated timber too. The roof construction is formed like the walls.

### Windows

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

### Airtightness concept

The airtightness layer in walls and roof are exterior side of the cross laminated boards. All junctions including the window connections are sealed by 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

