

# CERTIFICATE

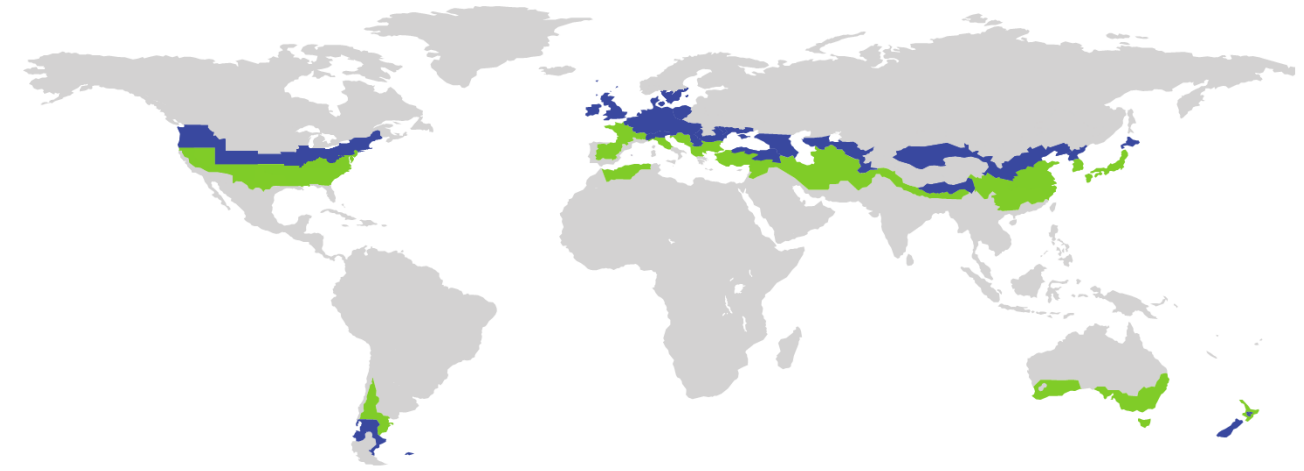
Certified Passive House Component

ID: 1235cs03 valid until 31. December 2018

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## Additional thermal bridges

Name	Thermal bridge	fRsi	Description
EWCE2	$\Psi = 0,056 \text{ W}/(\text{mK})$	0,93	Wall-ceiling with XPS
FRRP2	$\Psi = -0,029 \text{ W}/(\text{mK})$	0,89	Roof parapet not reinforced
WITO1a	$\Psi = 0,004 \text{ W}/(\text{mK})$	0,92	Window top, ceiling, XPS
WITO1b	$\Psi = 0,037 \text{ W}/(\text{mK})$	0,91	Window top, EPS
WITO1c	$\Psi = 0,043 \text{ W}/(\text{mK})$	0,78	Window top, XPS
WITO2a	$\Psi = 0,001 \text{ W}/(\text{mK})$	0,86	Window top, Ceiling, Raffstore, XPS
WITO2b	$\Psi = 0,041 \text{ W}/(\text{mK})$	0,86	Window top, Raffstore Neo R, EPS
WITO2c	$\Psi = 0,046 \text{ W}/(\text{mK})$	0,86	Window top, Raffstore Neo R, XPS
WITO2c	$\Psi = 0,065 \text{ W}/(\text{mK})$	0,86	Window top, Raffstore XPS, XPS
WITO3a	$\Psi = 0,027 \text{ W}/(\text{mK})$	0,86	Window top, Ceiling, Rollershutter, XPS
WITO3b	$\Psi = 0,088 \text{ W}/(\text{mK})$	0,86	Window top, Rollershutter 50 mm, XPS
WITO3c	$\Psi = 0,882 \text{ W}/(\text{mK})$	0,86	Window top, Rollershutter 65 mm, XPS
WITO3d	$\Psi = 0,078 \text{ W}/(\text{mK})$	0,86	Window top, Rollershutter 80 mm, XPS



Category **Construction system | Monolithic construction**  
Manufacturer **Holzmann GmbH & Co. KG**  
**Bad Laer**  
**Germany**  
Product name **Thermo System Passiv**

**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

$$f_{Rsi=0,25\text{m}^2\text{K/W}} \geq 0,70$$

### 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

$$f_{Rsi=0,25\text{m}^2\text{K/W}} \geq 0,86$$

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 envelope**

The floor slab consists of a 16 cm thick XPS insulation, 0.038 W / (mK) to ground and 20 cm to the side as flank insulation as a lost formwork. The thickness of the floor plate is 25 cm, followed by a 4 cm sound insulation, 4 cm screed and 1 cm flooring. Th wall is from aerated concrete, 48 cm, 0.08 W / (mK) and 4 cm insulating plaster 0.08 W / (mK). A concrete flat roof (20 cm), insulated by XPS (25 cm, 0.035 W/(mK)) is taken into account.

**Windows**

The PHI example window spruce/fir-integral frame (0.11 W/(mK)) with 48 mm glazing and phA-class spacer was taken into account. The threshold is from fibre glass and timber, no aluminum is used. The window represents a very good standard and leads to low thermal bridges and high inner surface temperatures. No. 1 is a combination without shading, No. 2 with shutter and Nr. 3 with roller blind.

**Airtightness concept**

At the floor slab, a liquid seal on concrete represents the airtight layer. In the wall construction with interior plaster, this is the airtight level of the wall. The connection to the floor slab is done by plastering. The airtight level of the lightweight timber wall is the stiffening OSB board. It is sealed to the bottom plate by means of suitable adhesive tape. The sealing of the windows also takes place with suitable adhesive tapes.

**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 comfortcriteria not achieved

