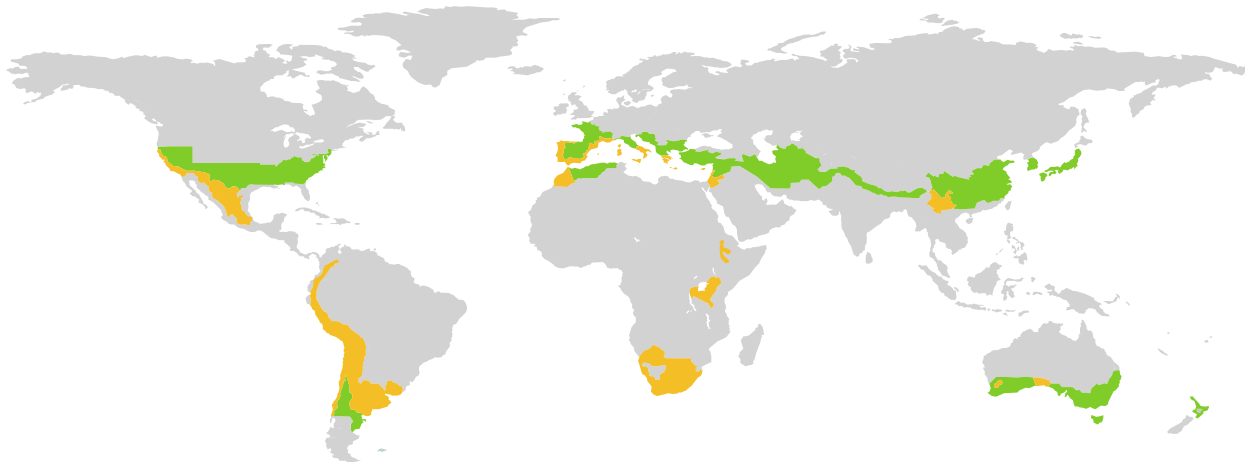


CERTIFICATE

Certified Passive House Component

ID: 1598cs04 valid until 31. December 2023

Passive House Institute
Dr. Wolfgang Feist
64342 Darmstadt
GERMANY



Category	Construction system Lightweight timber construction
Manufacturer	Thermochip SLU Carballada de Valdeorras (Ourense) España
Product name	Thermochip HOUSING SATE-WALL

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

Hygiene criterion

The minimum temperature factor of the interior surfaces is $f_{Rsi=0,25m^2K/W} \geq 0.65$

Comfort criterion

The U-value of the installed windows is $U_{W,i} \leq 1.05 \text{ W/(m}^2\text{K)}$

Efficiency criteria

Heat transfer coefficient of building envelope $U \cdot f_{PHI} \leq 0.30 \text{ W/(m}^2\text{K)}$

Temperature factor of opaque junctions $f_{Rsi=0,25m^2K/W} \geq 0.82$

Thermal bridge-free design for key connection details $\Psi \leq 0.01 \text{ W/(mK)}$

An airtightness concept for all components and connection details was provided



Opaque building envelope

With the Thermochip HOUSING Construction System the wintertime thermal insulation of buildings can be ensured. The system is constructed out of timber studs, beams and two sandwich panels. The external sandwich panel (12/80/12 mm) comprises a board of fibre cement to the outside, a core of XPS ($\leq 0,036$ W/mK) and internal composite board with cellulose fibres. The internal sandwich panel (12/60/12 mm) uses the same core of XPS but two composite boards with cellulose fibres. The assembly is thereby insulated both to the outside and inside.

For the purpose of certification, a three-dimensional simulation was carried out to determine the effect of the timber roof beams which penetrates the external wall at eaves level.

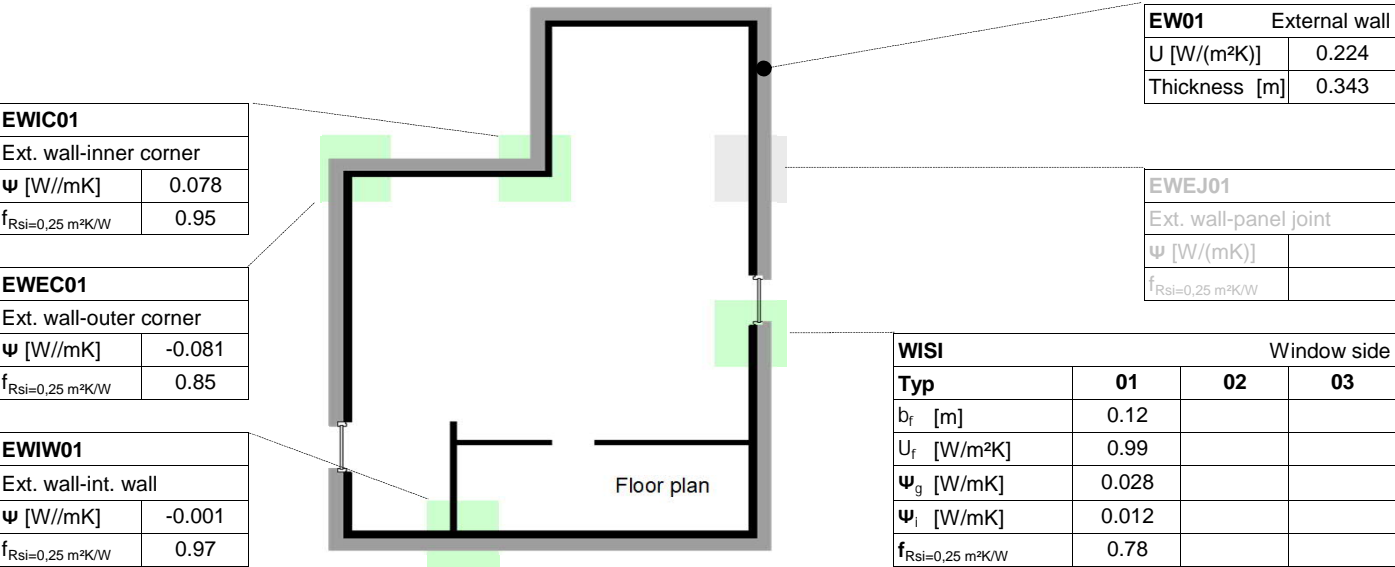
The certification does not take into account point thermal bridges caused by structural columns or e.g. balcony connections, which must to be assessed separately. As investigated, the system is deemed suitable for passive houses in the warm-temperate climate zone, as the regular U-values of the exterior components are below 0,25 W/m²K and the connections meet the criteria of 'thermal bridge free'.

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. Their use might make economic sense in certain circumstances.

Thermal bridge not calculated
Criteria achieved

Efficiency criteria not achieved
Hygiene or comfort criterion not achieved



Windows

For the purposes of certification a standard passive house window (U_w = 1,00 W/m²K with U_g = 0,90 W/m²K) was used. The overall U-value of the installed window of standard size (1,23 m wide by 1,48 m tall) should be no more than 0,05 W/m²K greater than the U_w to ensure occupant comfort - this criteria is met in this instance.

Airtightness concept

Airtightness of the system is achieved in the following way: windows and doors are installed with permanently elastic sealing materials and suitable airtight connection membranes and profiles. The airtight layer of the wall is the interior gypsum fibre board of the outer panel. In the roof and floor slab where only one sandwich panel is used, the air tight layer remains on the interior gypsum fibre board of the panel. Joints between panels and connections with other building elements are sealed with Soudal Soudatight SP airtight paint.

