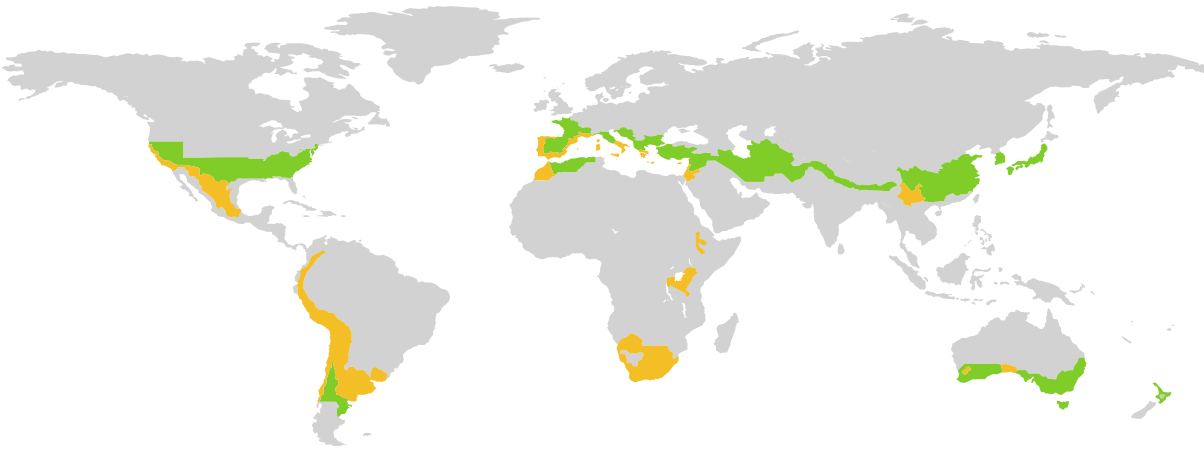


CERTIFICATE

Certified Passive House Component
ID: 1868cs04 valid until 31. December 2023

Passive House Institute
Dr. Wolfgang Feist
64342 Darmstadt
GERMANY



Category **Wall System | Mixed construction**
Manufacturer **Hormipresa Nec SI**
El Pla De Santa Maria, Tarragona
SPAIN
Product name **ARCTIC 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	$U_{W,i} \leq 1.05 \text{ W}/(\text{m}^2\text{K})$
Efficiency criteria	
Heat transfer coefficient of building envelope	$U \cdot f_{PHI} \leq 0.30 \text{ W}/(\text{m}^2\text{K})$
Temperature factor of opaque junctions	$f_{Rsi=0,25m^2K/W} \geq 0.82$
Thermal bridge-free design for key connection details	$\Psi \leq 0.01 \text{ W}/(\text{mK})$

An airtightness concept for all components and connection details was provided

warm, temperate climate



CERTIFIED COMPONENT

Passive House Institute

Opaque building envelope

Hormipresa Arctic Wall is a fully industrialised construction system, certified 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'.

The system consists of 9cm of PIR thermal insulation, sandwiched between a 15cm reinforced concrete layer internally and a 6cm white concrete layer externally. The two concrete layers are held together with a galvanized steel lattice system with wall ties that minimise heat transmission while providing mechanical strength. Additionally, 4cm of mineral wool insulation is installed internally in the service void. For the purpose of certification, a three-dimensional simulation was carried out to determine the thermal effect of the steel wall ties and lattice system that penetrate the insulation layer. The roof consists of a prestressed concrete hollow core slab with 14cm of XPS insulation. For the ground floor detail, 10cm of XPS insulation is placed on top of the concrete slab.

The surface temperature of all connections meet the hygiene requirements.

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

Windows

For the purposes of certification a standard passive house window ($U_w = 1,00 \text{ W/m}^2\text{K}$ with $U_g = 0,90 \text{ W/m}^2\text{K}$) 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 taped with Iso-Connect Inside Blue Line airtight tapes. The airtight layer of the wall and floor slab is the rein-forced concrete layer. In the roof, the airtight layer is the hollow-core slab. Joints between panels and connections with other building elements are sealed with Sikaflex 11-FC elastomeric sealant and painted with Soudal Soudatight SP airtight paint.

