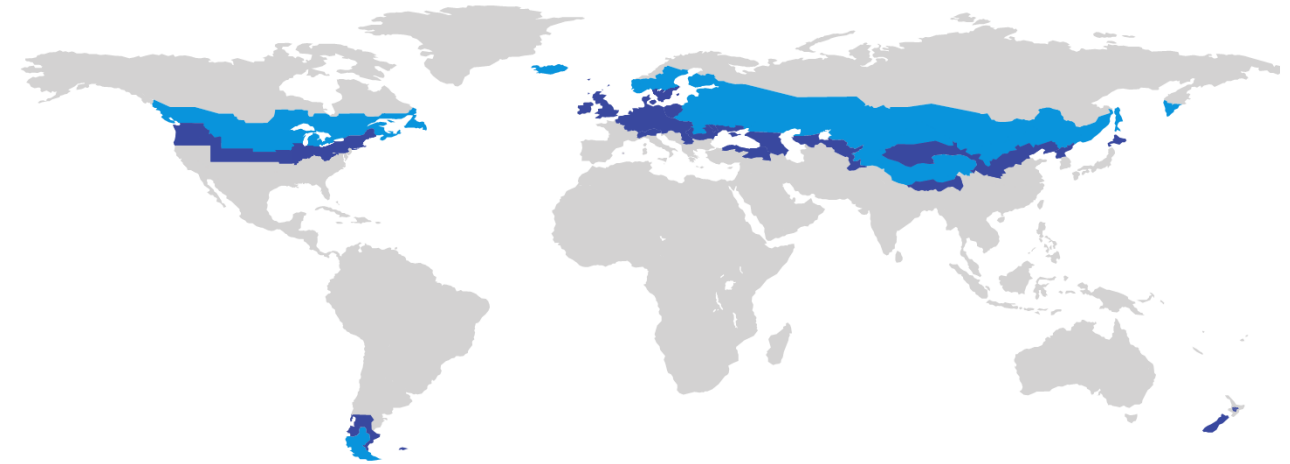


CERTIFICATE

Certified Passive House Component

ID: 1632wa02 valid until 31. December 2021

Passive House Institute
Dr. Wolfgang Feist
64342 Darmstadt
GERMANY



Category **Wall system | Lightweigt timber construction**
Manufacturer **Legalett
Long Sault
CANADA**
Product name **ThermalWall System
(cold climate zone)**

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

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

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

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

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 envelope

Lightweight timber wall system of 1.5" by 5.5" timber studs at 17.5" centers, enclosing Roxul Rockwool insulation (0.036 W/(mK)) and covered to the exterior with 8" of EPS (0.036 W/(mK), Type 2 according to CAN/ULC-S701-05 and -011). Typical timber roof by others with typical insulation at 0,040 W/(mK). Floor slab of 8" of reinforced concrete with 8" of EPS (0.036 W/(mK), Type 2 according to CAN/ULC-S701-05 and -011) to the underside. Point fixings have been modelled three-dimensionally and taken into account in the certified U-value. The system has undergone analysis by the Passive House Institute against the thermal performance criteria for wall systems and has been deemed suitable for the construction of passive houses in both cold and cool-temperate climates.

Windows

Analysis was undertaken using a high quality Passive House window with a U_w -value of 0,60 W/(m²K) using a U_g of 0,52 W/(m²K), a Super Spacer Triseal and polysulfide secondary seal. The installed U-value meets the comfort requirement of Passive House buildings using a reference size of 1,23 m by 1,48 m.

Airtightness concept

The airtightness of the system is achieved through the use of an airtight membrane, fixed to the inside of the structural layer and behind the service cavity. Joints are secured with specialist air tightness tape. The system also includes a wind- and waterproof membrane, fixed to the outside of the exterior insulation, with joints secured as above. Windows are installed with suitable air tightness sealing 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. 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

