

# CERTIFICATE

Certified Passive House Component

ID: 1632wa02 valid until 31. December 2025

Passive House Institute  
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Category **Wall system | Lightweight 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

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

#### 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

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

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 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 - this value remains stable where the EPS is protected from water ingress). 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 - this value remains stable where the EPS is protected from water ingress) 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

