

CERTIFICATE

Certified Passive House Component

ID: 1549fs02 valid until 31. December 2020

Passive House Institute
Dr. Wolfgang Feist
64342 Darmstadt
GERMANY



Category **Floor slab insulation system**
Manufacturer **Legalett
Long Sault
Canada**
Product name **GEO-Passive Slab Foundation System - Type 1**

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

The floor slab insulation system consists of a 340 mm thick concrete floor slab which is insulated with 305 mm EPS on the underside. The slab has been modelled with three wall types:

216 mm reinforced concrete wall insulated to the outside with 330 mm of EPS (Type A); 210 mm lightweight timber construction insulated with mineral wool and 203 mm of EPS to the outside (Type B); Concrete formwork wall consisting of 67 mm of EPS to the inside, a 200 mm reinforced concrete core and 270 mm of EPS to the outside (Type C).

Point fixings have been modelled three-dimensionally and taken into account in the certified U-value. Thermal conductivity data is based on CAN/ULC-S701-05 and -11, "Standard for Thermal Insulation, Polystyrene, Boards and Pipe Covering" types 2 and 3. Thermal conductivities for Roxul Plus/ComfortBatt were referenced from NRC Evaluation Listing CCMC 12018-L.

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 SuperSpacer Triseal and polysulfide secondary seal. The installed U-value meets the comfort requirement of Passive House buildings using a reference size of 1,1 m by 2,2, m.

Airtightness concept

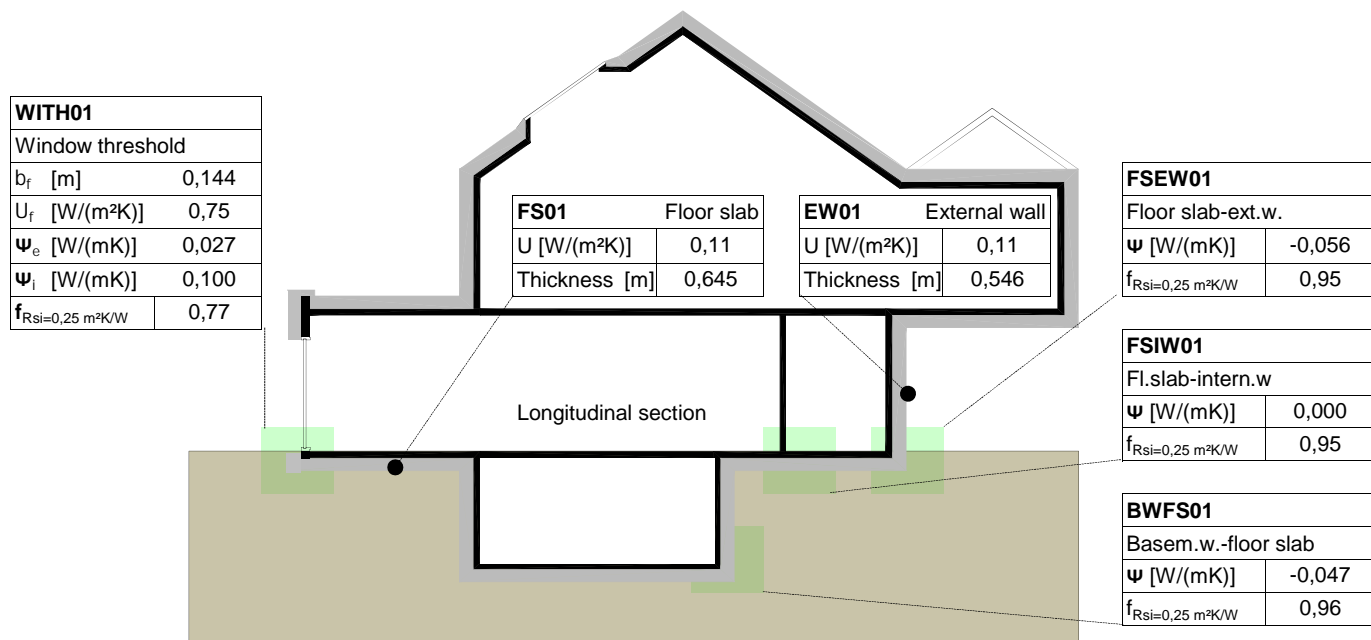
The airtightness of the system is achieved through the use of an airtight membrane, fixed to the inside of the structural layer and behind the service cavity. Joints are secured with specialist air tightness tape. The system also includes a wind- and waterproof membrane, fixed to the outside of the exterior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

Explanatory notes

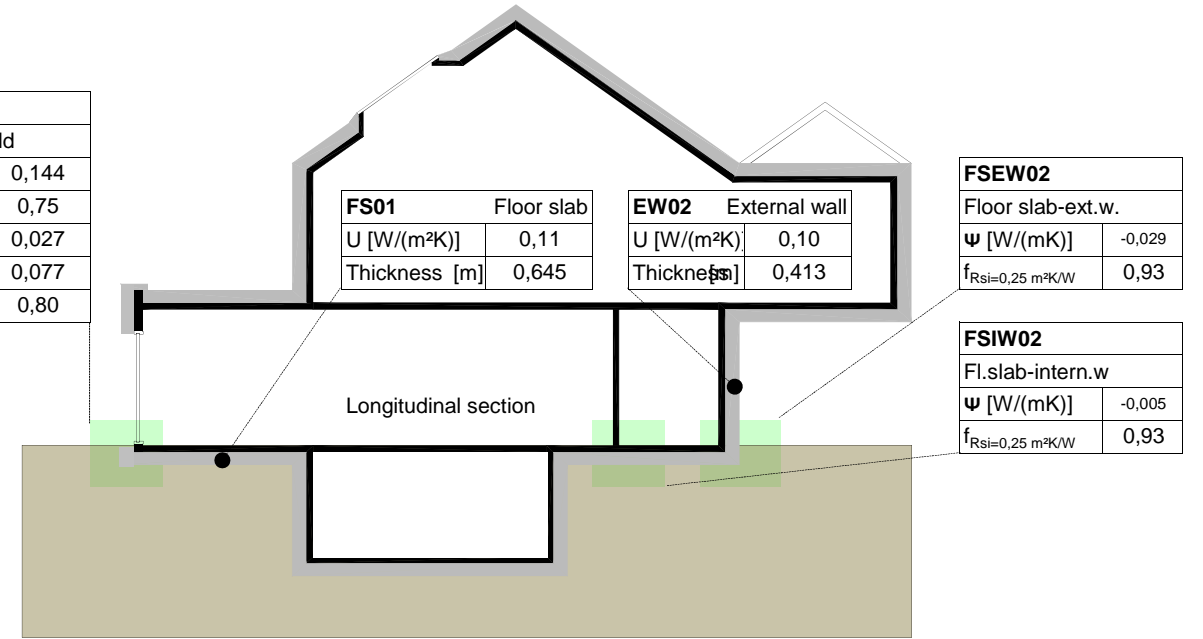
The Passive House Institute has defined international component criteria for seven climate zones based on hygiene, comfort and affordability criteria. In principle, components which have been certified for climate zones with higher requirements may also be used in climates with less stringent requirements. 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



WITH02	
Window threshold	
b_f [m]	0,144
U_f [W/(m ² K)]	0,75
Ψ_e [W/(mK)]	0,027
Ψ_i [W/(mK)]	0,077
$f_{Rsi=0,25 \text{ m}^2\text{K/W}}$	0,80



Thermal bridge not calculated
 Criteria achieved

Efficiency criteria not achieved
 Hygiene- or comfort criterion not achieved

