CERTIFICATE

Certified Passive House Component

ID: 1810wa03 valid until 31. December 2022

Passive House Institute
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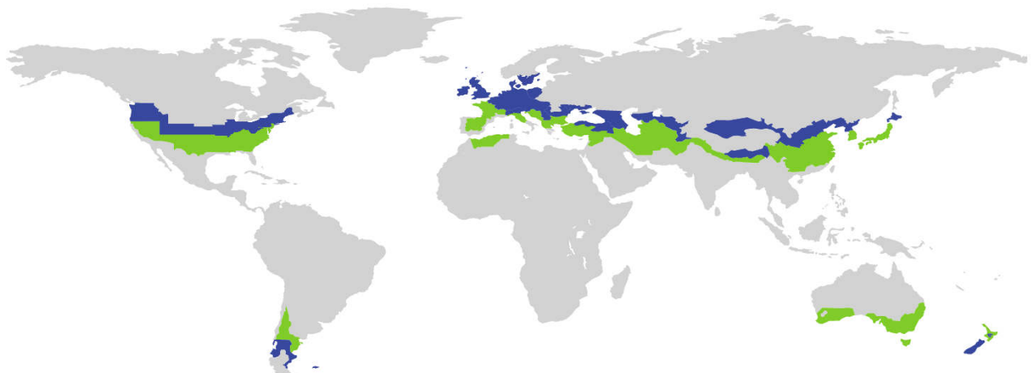

Category	**Wall system | Insulated Formwork blocks**
Manufacturer	**ICF Moulding B.V.** **Emmeloord** **NL**
Product name	**Passiefbouwblok** **(cold climate zone)**

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

Hygiene criterion

The minimum temperature factor of the interior surfaces is	$f_{Rsi=0,25m^2K/W} \geq$	**0,70**

Comfort criterion

The U-value of the installed windows is	$U_{W,i} \leq$	**0,85** W/(m²K)

Efficiency criteria

Heat transfer coefficient of building envelope	$U*f_{PHI} \leq$	**0,15** W/(m²K)
Temperaturfactor of opaque junctions	$f_{Rsi=0,25m^2K/W} \geq$	**0,86**
Thermal bridge free design for key connection details	$\Psi \leq$	**0,01** W/(m²K)

An airtightness concept for all components and connection details was provided.

cool, temperate climate

CERTIFIED COMPONENT
Passive House Institute

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Opaque building envelop

The certified Passief Bouwblok is an Insulated Concrete Forms (ICF) facade system. The blocks are 400 mm wide and consist of two layers of Neopor, 0,031 W/(mK), which are firmly connected with plastic spacers. The 140mm gap is filled with concrete. The facade is finished with plaster. Stone strips and also facade cladding is also possible. The system can be combined with various types of (prefab) foundation and roof systems. The Passive House element certification is carried out with the Hectar floor system and self-supporting roof plates.

Windows

The windows, Enersign Primus, are made of spruce/fir frame (0.11 W/(mK)), insulated on the outside with thermoplastic foam and finished with aluminium. A 48 mm glazing and SWISSPACER Ultimate where taken into account. The window represents a very good energy-standard in itself. Connection details with a strong and rigid EPS-foam, Compacfoam, leads to low thermal bridges and high inner surface temperatures.

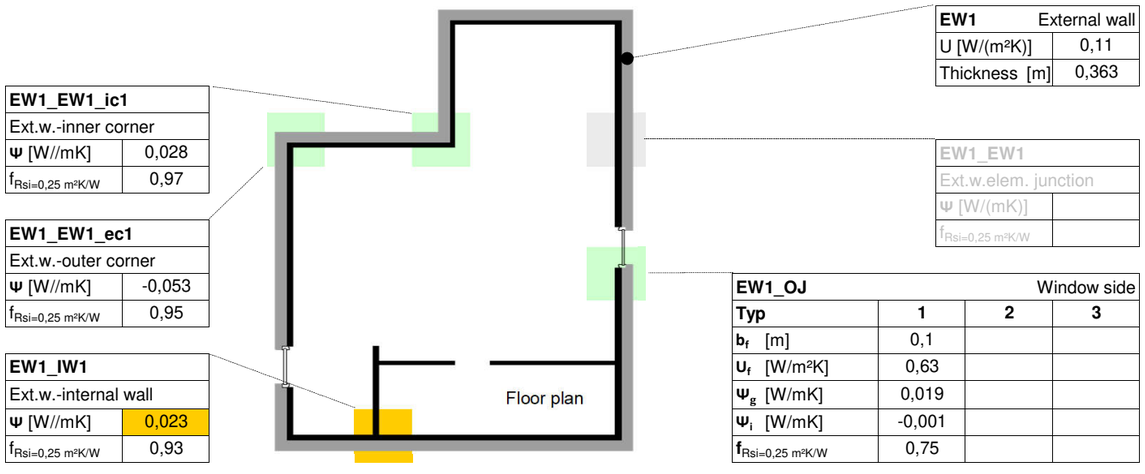
Airtightness concept

The in situ concrete floor construction, the interior plaster and the OSB boards in the roof are the airtight layer. The airtight connections between floor-outside walls, outside wall-roof and outside wall-windows are provided by properly applied Cantex, a multifunctional liquid rubber

Explainatory 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. This use might make sense in certain circumstances.

Thermal bridge not calculated
Criteria achieved
Efficieny criteria not achieved
Hygiene- or comfortcriterion not achieved



EW1	External wall
U [W/(m²K)]	0,11
Thickness [m]	0,363

EW1_EW1_ic1	
Ext.w.-inner corner	
Ψ [W//mK]	0,028
$f_{Rsi=0,25\ m²K/W}$	0,97

EW1_EW1_ec1	
Ext.w.-outer corner	
Ψ [W//mK]	-0,053
$f_{Rsi=0,25\ m²K/W}$	0,95

EW1_IW1	
Ext.w.-internal wall	
Ψ [W//mK]	0,023
$f_{Rsi=0,25\ m²K/W}$	0,93

EW1_EW1	
Ext.w.elem. junction	
Ψ [W/(mK)]	
$f_{Rsi=0,25\ m²K/W}$	

EW1_OJ	Window side		
Typ	1	2	3
b_f [m]	0,1		
U_f [W/m²K]	0,63		
Ψ_g [W/mK]	0,019		
Ψ_i [W/mK]	-0,001		
$f_{Rsi=0,25\ m²K/W}$	0,75		

EW1_RO1_ve1	
Verge	
Ψ [W//mK]	-0,058
$f_{Rsi=0,25\ m²K/W}$	0,92

RO1_IW1	
Roof - internal wall	
Ψ [W//mK]	
$f_{Rsi=0,25\ m²K/W}$	

RO1_RWJ1	
Roof window top	
Ψ [W//mK]	
$f_{Rsi=0,25\ m²K/W}$	

EW1_OH	Window top		
Typ	1	2	3
b_f [m]	0,1		
U_f [W/m²K]	0,63		
Ψ_g [W/mK]	0,019		
Ψ_i [W/mK]	-0,003		
$f_{Rsi=0,25\ m²K/W}$	0,75		

EW1_OB	Window bottom		
b_f [m]	0,1		
U_f [W/m²K]	0,63		
Ψ_g [W/mK]	0,019		
Ψ_i [W/mK]	0,032		
$f_{Rsi=0,25\ m²K/W}$	0,75		
$U_{w,i}$ [W//m²K]	**0,75**		

EW1_EW1_CE1	
Ext.w.-ceiling	
Ψ [W//mK]	0,038
$f_{Rsi=0,25\ m²K/W}$	18,05

RO1	Roof
U [W/(m²K)]	0,08
Thickness [m]	0,500

FS1_OT1	
Window threshold	
b_f [m]	0,100
U_f [W/m²K]	1,07
Ψ_e [W/mK]	0,021
Ψ_i [W/mK]	0,142
$f_{Rsi=0,25\ m²K/W}$	0,70
$U_{w,i}$ [W//m²K]	**0,78**

FS1	Floor slab
U [W/(m²K)]	0,07
Thickness [m]	0,648

BW1_BC1	Basem.w.-basem.c.
Ψ [W//mK]	
$f_{Rsi=0,25\ m²K/W}$	

FS1_IW1	
Fl.slab-intern.w	
Ψ [W//mK]	0,000
$f_{Rsi=0,25\ m²K/W}$	0,97

Cross section

BW1_FS1	Basem.w.-floor slab
Ψ [W//mK]	
$f_{Rsi=0,25\ m²K/W}$	

BW1	Basement wall
U [W/(m²K)]	
Thickness [m]	

BS1_BW1	Basement slab	U [W/(m²K)]		Thickness [m]	

BS1_BW1	Fl.slab-basem.w.
Ψ [W//mK]	
$f_{Rsi=0,25\ m²K/W}$	

EW1_RO1_ea1	Eaves
Ψ [W//mK]	-0,025
$f_{Rsi=0,25\ m²K/W}$	0,95

RO1_RWB1	Roof window bottom
Ψ [W//mK]	
$f_{Rsi=0,25\ m²K/W}$	

RO1_RWH1	Roof window side
Ψ [W//mK]	
$f_{Rsi=0,25\ m²K/W}$	

RO1_RO1	Ridge
Ψ [W//mK]	
$f_{Rsi=0,25\ m²K/W}$	

EW1_RF1_aw1	
Flat r. - asc. wall	
Ψ [W//mK]	
$f_{Rsi=0,25\ m²K/W}$	

TC1	Top ceiling
U [W/(m²K)]	
Thickness [m]	

RO1-TC1	Junction
Ψ [W//mK]	
$f_{Rsi=0,25\ m²K/W}$	

FR1	Flat roof
U [W/(m²K)]	
Thickness [m]	

EO1	Overhang
U [W/(m²K)]	
Thickness [m]	

EW1_TC1_ea1	Top ceiling - eaves
Ψ [W//mK]	
$f_{Rsi=0,25\ m²K/W}$	

BC1	Basement ceiling
U [W/(m²K)]	
Thickness [m]	

EW1_EO1_1	Ext.w. overhang
Ψ [W//mK]	
$f_{Rsi=0,25\ m²K/W}$	

Longitudinal section

EW1_EO1_2	Ext.w. overhang
Ψ [W//mK]	
$f_{Rsi=0,25\ m²K/W}$	

BC1-EW1	Basem.ce.-EW
Ψ [W//mK]	
$f_{Rsi=0,25\ m²K/W}$	

EW1_FR1_rp1	Roof parapet
Ψ [W//mK]	
$f_{Rsi=0,25\ m²K/W}$	

FS1_EW1	Floor slab-ext.w.
Ψ [W//mK]	0,006
$f_{Rsi=0,25\ m²K/W}$	0,86

BS1_BW1	Fl.slab-basem.w.
Ψ [W//mK]	
$f_{Rsi=0,25\ m²K/W}$	

BC1-IW1	Basem.ce.-IW
Ψ [W//mK]	
$f_{Rsi=0,25\ m²K/W}$	