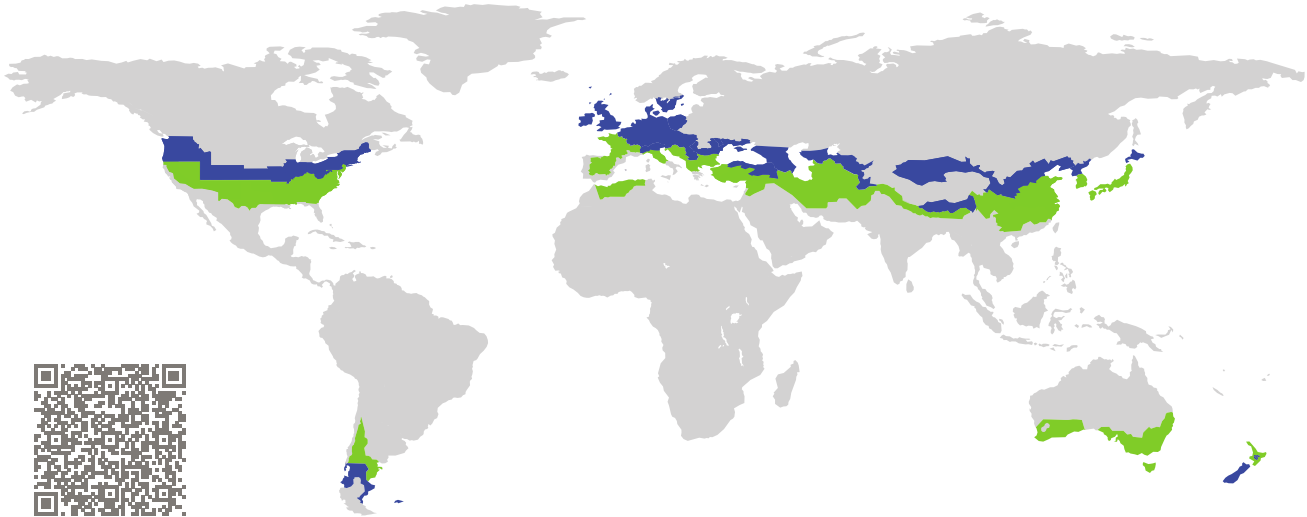


CERTIFICATE

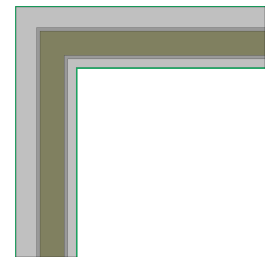
Certified Passive House Component

Component-ID 2642wa03 valid until 31st December 2027

Passive House Institute
Dr. Wolfgang Feist
64283 Darmstadt
Germany



Category: **Construction system**
Manufacturer: **SC POLISTIBRICK SRL,**
Bukarest,
Romania
Product name: **POLISTIBRICK**



Hygiene criterion

The minimum temperature factor of the interior surfaces is

$$f_{Rsi=0.25 \text{ m}^2 \text{ K/W}} \geq 0.70$$

Comfort criterion

The U-value of the installed windows is

$$U_{wi} \leq 0.85 \text{ W/(m}^2 \text{ K)}$$

Efficiency criteria

Heat transfer coefficient of building envelope:

$$U * f_{PHI} \leq 0.15 \text{ W/(m}^2 \text{ K)}$$

Temperature factor of opaque junctions:

$$f_{Rsi=0.25 \text{ m}^2 \text{ K/W}} \geq 0.86$$

Thermal bridge-free design for key connection details:

$$\Psi \leq 0.01 \text{ W/(m K)}$$

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

It was confirmed that the structure will dry out within 12 months and there is no risk of moisture-related damage.

cool, temperate climate



**CERTIFIED
COMPONENT**

Passive House Institute

Opaque building envelope

Polistibrick is an Insulated Concrete Forms (ICF) wall system. The blocks are 500 mm wide and consist of two layers of Austrotherm A100 Plus Fire Retardant Graphite Polystyrene (0,031 W/(mK)), which are connected to the 200 mm thick reinforced concrete core using geometric couplings. The facade is finished with plaster. The system can be combined with various types of foundation and roof systems.

Windows

Analysis was undertaken using a generic, passive house standard timberframe, triple-glazed window unit, featuring phA thermal values for the spacer and a butyl secondary seal. The calculations undertaken demonstrate that the window installation locations are suited to the cool-temperate climate zone, with no risk of surface condensation or subsequent mould growth.

Airtightness concept

Airtightness of the system is achieved in the following way: windows and doors are installed with permanently elastic, sealing materials. The interior of external wall surfaces are plastered over the entire surface, down to the unfinished floor and up to the unfinished ceiling.

Summary of values

Opaque assemblies		U-value W/(m ² K)	Thickness mm
Exterior wall	(EW1) 	0.11	520
Floor slab	(FS1) 	0.18	375
Pitched roof	(RO1) 	0.12	430

Frame cuts with "Standard window - cool-temperate" from "dummy window manufacturer" (0002)					
Frame values		Frame width b_f mm	U -value frame U_f W/(m ² K)	Ψ -glazing edge Ψ_g W/(m K)	Temp. Factor $f_{Rsi=0.25}$ [-]
Bottom	(OB1) 	100	0.89	0.028	0.69
Head	(OH1) 	100	0.76	0.028	0.71
Jamb	(OJ1) 	100	0.76	0.028	0.71
Threshold	(OT1) 	100	0.98	0.032	0.65
Spacer: PHI phA Spacer			Secondary seal: Polysulfide		

Junctions		U1 U2 W/(m ² K)	Ψ -value Ψ W/(m K)	Temp. factor $f_{Rsi=0.25}$ [-]
Ceiling integration into exterior wall (EW1_EW1_CE_1)		0.11 0.11	0.050	0.898
Exterior corner exterior wall (EW1_EW1_ec_1)		0.11 0.11	-0.063	0.952
Interior corner exterior wall (EW1_EW1_ic_1)		0.11 0.11	0.034	0.975
Internal wall integration into exterior wall (EW1_EW1_IW_1)		0.11 0.11	0.000	0.973
Internal wall integration into exterior wall (EW1_EW1_IW_2)		0.11 0.11	0.060	0.929
Window bottom operable window in exterior wall (EW1_OB1_1)		0.11 0.89	0.082	0.785
Window head operable window in exterior wall (EW1_OH1_1)		0.11 0.76	0.005	0.836
Window jamb operable window in exterior wall (EW1_OJ1_1)		0.11 0.76	0.005	0.835
Roof eave pitched roof (EW1_RO1_ea_1)		0.11 0.12	-0.026	0.905
Roof verge pitched roof (EW1_RO1_ve_1)		0.11 0.12	-0.063	0.902
Exterior wall plinth on floor slab (FS1_EW1_1)		0.18 0.11	-0.018	0.908
terracedoorthreshold (FS1_OT1_1)		0.18 0.98	0.015	0.770

Opaque Assemblies

Exterior wall (EW1)

Material	Lambda W/(m K)	Thickness (mm)
Cement fiber board 2000 kg/m³	1.500	12
G-EPS (A100 fire retardant)	0.031	70
G-EPS + concrete + timber eq.	0.060	30
Concrete 1% steel acc. ISO 10456	2.300	200
G-EPS + concrete + timber eq.	0.060	30
G-EPS (A100 fire retardant)	0.031	170
Cement fiber board 2000 kg/m³	1.500	8
Total thickness: 520 mm		
Rsi: 0.13 m² K/W		
Rse: 0.04 m² K/W		
U-value: 0.11 W/(m² K)		

Floor slab (FS1)

Material	Lambda W/(m K)	Thickness (mm)
Cement screed acc. DIN 4108	1.400	35
Aluminium acc. ISO 10456	160.000	1
EPS insulation, standard value	0.035	39
XPS insulation, standard value	0.037	50
Concrete 1% steel acc. ISO 10456	2.300	150
XPS insulation, standard value	0.037	100
Total thickness: 375 mm		
Rsi: 0.17 m² K/W		
Rse: - m² K/W		
U-value: 0.18 W/(m² K)		

Pitched roof (RO1)

Material	Lambda W/(m K)	Thickness (mm)
Softwood/OSB acc. ISO 10456	0.130	15
EPS + timber eq.	0.050	400
Softwood/OSB acc. ISO 10456	0.130	15
Total thickness: 430 mm		
Rsi: 0.10 m² K/W		
Rse: 0.10 m² K/W		
U-value: 0.12 W/(m² K)		



Bottom

$$b_f = 100 \text{ mm}$$

$$U_f = 0.89 \text{ W/(m}^2 \text{ K)}$$

$$\Psi_g = 0.028 \text{ W/(m K)}$$

$$f_{Rsi} = 0.69$$



Head

$$b_f = 100 \text{ mm}$$

$$U_f = 0.76 \text{ W/(m}^2 \text{ K)}$$

$$\Psi_g = 0.028 \text{ W/(m K)}$$

$$f_{Rsi} = 0.71$$



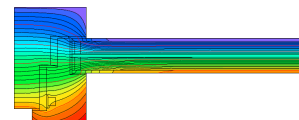
Jamb

$$b_f = 100 \text{ mm}$$

$$U_f = 0.76 \text{ W/(m}^2 \text{ K)}$$

$$\Psi_g = 0.028 \text{ W/(m K)}$$

$$f_{Rsi} = 0.71$$



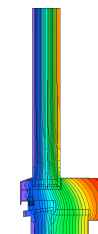
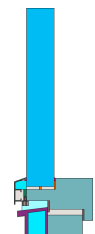
Threshold

$$b_f = 100 \text{ mm}$$

$$U_f = 0.98 \text{ W/(m}^2 \text{ K)}$$

$$\Psi_g = 0.032 \text{ W/(m K)}$$

$$f_{Rsi} = 0.65$$





Ceiling integration

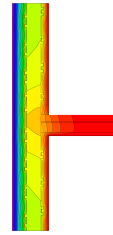
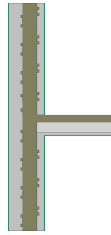
into exterior wall (EW1_EW1_CE_1)

$$U_{EW1} = 0.11 \text{ W/(m}^2 \text{ K)}$$

$$U_{EW1} = 0.11 \text{ W/(m}^2 \text{ K)}$$

$$\Psi = 0.050 \text{ W/(m K)}$$

$$f_{Rsi} = 0.898$$



Exterior corner

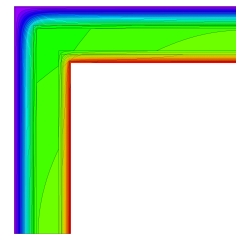
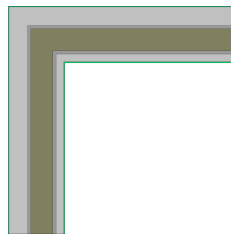
exterior wall (EW1_EW1_ec_1)

$$U_{EW1} = 0.11 \text{ W/(m}^2 \text{ K)}$$

$$U_{EW1} = 0.11 \text{ W/(m}^2 \text{ K)}$$

$$\Psi = -0.063 \text{ W/(m K)}$$

$$f_{Rsi} = 0.952$$



Interior corner

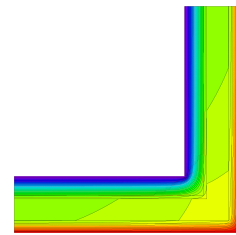
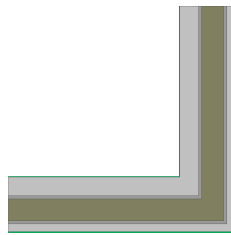
exterior wall (EW1_EW1_ic_1)

$$U_{EW1} = 0.11 \text{ W/(m}^2 \text{ K)}$$

$$U_{EW1} = 0.11 \text{ W/(m}^2 \text{ K)}$$

$$\Psi = 0.034 \text{ W/(m K)}$$

$$f_{Rsi} = 0.975$$



Internal wall integration

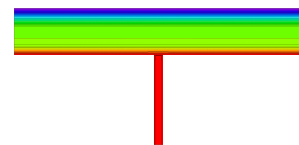
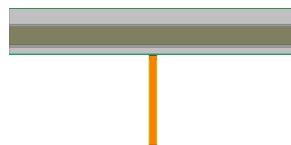
into exterior wall (EW1_EW1_IW_1)

$$U_{EW1} = 0.11 \text{ W/(m}^2 \text{ K)}$$

$$U_{EW1} = 0.11 \text{ W/(m}^2 \text{ K)}$$

$$\Psi = 0.000 \text{ W/(m K)}$$

$$f_{Rsi} = 0.973$$



Internal wall integration

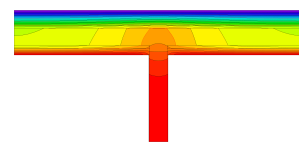
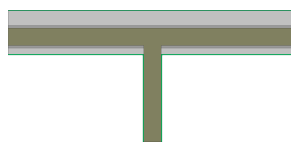
into exterior wall (EW1_EW1_IW_2)

$$U_{EW1} = 0.11 \text{ W/(m}^2 \text{ K)}$$

$$U_{EW1} = 0.11 \text{ W/(m}^2 \text{ K)}$$

$$\Psi = 0.060 \text{ W/(m K)}$$

$$f_{Rsi} = 0.929$$





Window bottom

operable window in exterior

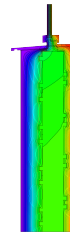
wall (EW1_OB1_1)

$$U_{EW1} = 0.11 \text{ W/(m}^2 \text{ K)}$$

$$U_{OB1} = 0.89 \text{ W/(m}^2 \text{ K)}$$

$$\Psi = 0.082 \text{ W/(m K)}$$

$$f_{Rsi} = 0.785$$



Window head

operable window in exterior

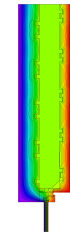
wall (EW1_OH1_1)

$$U_{EW1} = 0.11 \text{ W/(m}^2 \text{ K)}$$

$$U_{OH1} = 0.76 \text{ W/(m}^2 \text{ K)}$$

$$\Psi = 0.005 \text{ W/(m K)}$$

$$f_{Rsi} = 0.836$$



Window jamb

operable window in exterior

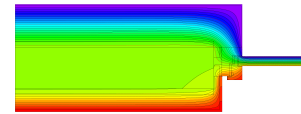
wall (EW1_OJ1_1)

$$U_{EW1} = 0.11 \text{ W/(m}^2 \text{ K)}$$

$$U_{OJ1} = 0.76 \text{ W/(m}^2 \text{ K)}$$

$$\Psi = 0.005 \text{ W/(m K)}$$

$$f_{Rsi} = 0.835$$



Roof eave

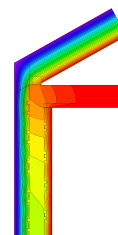
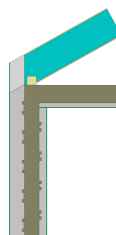
pitched roof (EW1_RO1_ea_1)

$$U_{EW1} = 0.11 \text{ W/(m}^2 \text{ K)}$$

$$U_{RO1} = 0.12 \text{ W/(m}^2 \text{ K)}$$

$$\Psi = -0.026 \text{ W/(m K)}$$

$$f_{Rsi} = 0.905$$



Roof verge

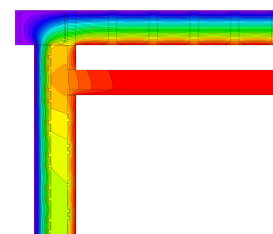
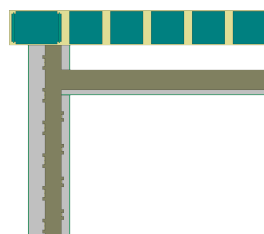
pitched roof (EW1_RO1_ve_1)

$$U_{EW1} = 0.11 \text{ W/(m}^2 \text{ K)}$$

$$U_{RO1} = 0.12 \text{ W/(m}^2 \text{ K)}$$

$$\Psi = -0.063 \text{ W/(m K)}$$

$$f_{Rsi} = 0.902$$





Exterior wall plinth

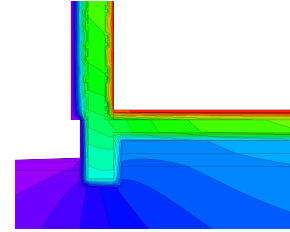
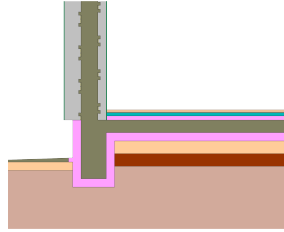
on floor slab (FS1_EW1_1)

$$U_{FS1} = 0.18 \text{ W/(m}^2 \text{ K)}$$

$$U_{EW1} = 0.11 \text{ W/(m}^2 \text{ K)}$$

$$\Psi = -0.018 \text{ W/(m K)}$$

$$f_{Rsi} = 0.908$$



terracedoorthreshold

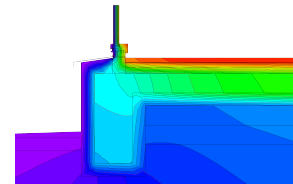
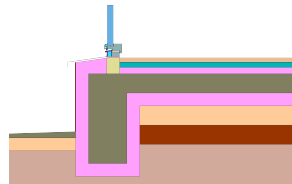
(FS1_OT1_1)

$$U_{FS1} = 0.18 \text{ W/(m}^2 \text{ K)}$$

$$U_{OT1} = 0.98 \text{ W/(m}^2 \text{ K)}$$

$$\Psi = 0.015 \text{ W/(m K)}$$

$$f_{Rsi} = 0.770$$



Disclaimer: The Passive House Institute GmbH (PHI) carries out heat transfer analyses according to the standards set out in the document "[Criteria and Algorithms for Certified Passive House Components: Opaque Construction Systems](#)" and based on information provided by the manufacturer. It is the responsibility of the project leader, e.g. the architect to ensure the appropriate assessments have been carried out for specific buildings, which may include more detailed analyses than those carried out for this certification. Use of a certified Passive House component does not guarantee that a construction project will achieve the [Passive House, EnerPHit or PHI Low Energy Building standard](#). In all cases full details are to be made available by the manufacturer on request to the engaged certified Passive House designer or certifier, who will be permitted to check these against the construction information and to perform on-site checks as part of the quality assurance process.