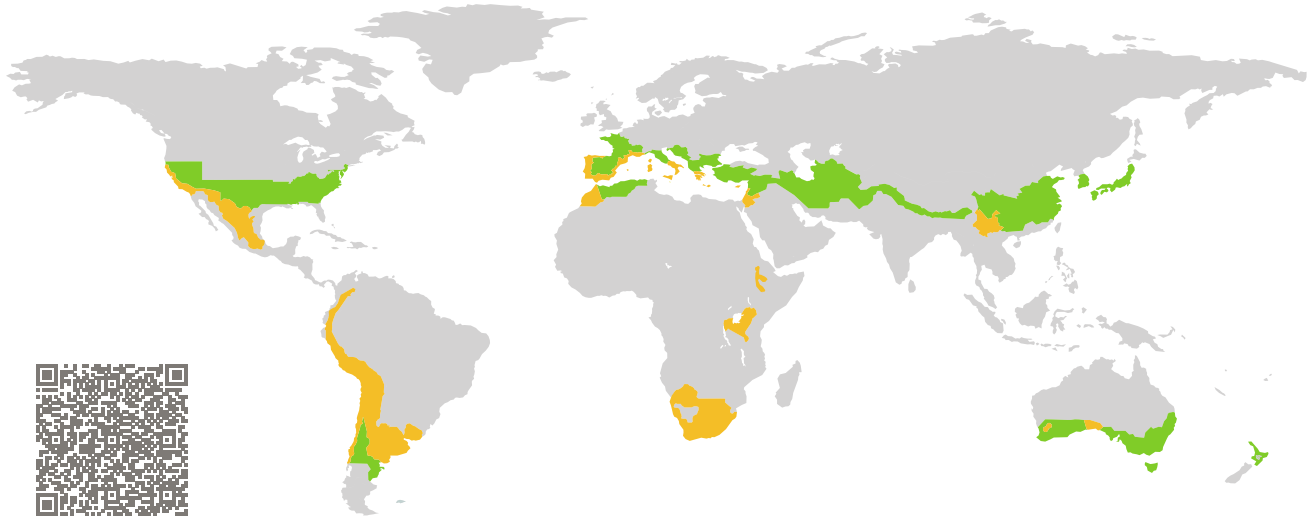


CERTIFICADO

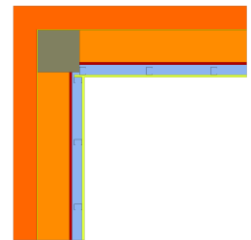
Componente certificado Passive House

ID del componente 2287cs04 válido hasta el 31 de diciembre de 2025

Passive House Institute
Dr. Wolfgang Feist
64283 Darmstadt
Alemania



Categoría: **Construction system**
Fabricante: **Consorcio Termoarcilla,
Madrid, Madrid,
Spain**
Nombre del producto: **Termoarcilla® Fachada
ventilada**



Hygiene criterion

The minimum temperature factor of the interior surfaces is

$$f_{Rsi=0,25\text{ m}^2\text{ K/W}} \geq 0,65$$

Comfort criterion

The U-value of the installed windows is

$$U_{wi} \leq 1,05\text{ W}/(\text{m}^2\text{ K})$$

Efficiency criteria

Heat transfer coefficient of building envelope:

$$U * f_{PHI} \leq 0,25\text{ W}/(\text{m}^2\text{ K})$$

Temperature factor of opaque junctions:

$$f_{Rsi=0,25\text{ m}^2\text{ K/W}} \geq 0,82$$

Thermal bridge-free design for key connection details:

$$\Psi \leq 0,01\text{ W}/(\text{m K})$$

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.

warm, temperate climate

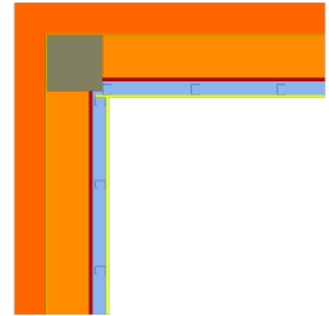


**CERTIFIED
COMPONENT**

Passive House Institute

Opaque building envelope

El sistema está compuesto por un cerramiento de bloques de Termoarcilla® con enlucido de yeso de 15 mm de espesor en la cara interior, un sistema de fachada ventilada con aislamiento térmico de 140 mm de espesor, y un trasdosado de placas de yeso laminado con una cámara de aire de 60 mm de espesor. El cerramiento de Termoarcilla® se conforma mediante la colocación de los bloques con juntas horizontales de mortero. La fachada ventilada se resuelve con paneles de aislamiento de lana mineral (0,040 W/m·K) fijados mecánicamente al cerramiento con el sistema de anclaje de fachadas ventiladas FLH R de Fisher, con certificación Passivhaus. El trasdosado interior se resuelve con una estructura de perfiles de acero galvanizado sobre la que se atornillan las placas de yeso laminado. El sistema ha sido evaluado según los criterios del Instituto Passivhaus para sistemas constructivos opacos, y ha sido certificado como adecuado en proyectos Passivhaus para las zonas climáticas cálida-templada y cálida.



Ventanas

Para los cálculos de la certificación se utilizó una ventana estándar Passive House ($U_w = 1,00 \text{ W/m}^2\text{K}$ con $U_g = 0,90 \text{ W/m}^2\text{K}$). El valor U global de la ventana instalada (U_w, inst) para una ventana de tamaño estándar (1,23 m de ancho y 1,48 m de alto) no debe ser superior a $0,05 \text{ W/m}^2\text{K}$ que el valor U_w para garantizar el confort de los ocupantes. Este criterio se cumple con una solución de instalación de ventana posicionada en el plano del aislamiento térmico exterior. Esta solución constructiva se resuelve con un perfil de madera de apoyo en el alféizar de la ventana y anclajes de perfiles L metálicos en las jambas y el dintel.







Airtightness concept

La hermeticidad del sistema se resuelve de la siguiente manera: el enlucido de yeso interior funciona como capa hermética del cerramiento. Los encuentros con ventanas y puertas se resuelven con cintas especiales para hermeticidad en la cara interior, en continuidad con el enlucido de yeso. Los encuentros con el resto de elementos constructivos se resuelven con cintas especiales o soluciones de pintura hermética, manteniendo la línea de hermeticidad de fachada en el enlucido de yeso interior.



Summary of values



Opaque assemblies		U-value W/(m ² K)	Thickness mm
exterior wall	(EW1) 	0,23	425
techo plano	(FR1) 	0,17	500
solera	(FS1) 	0,33	440
techo incli- nado	(RO1) 	0,20	439



Frame Cuts with "dummy wood window warm-temperate" from "dummy window manufacturer" (0004)


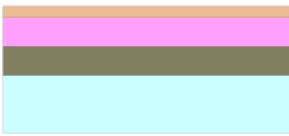
Valores del marco	Ancho del marco b_f mm	Valor- U marco U_f W/(m ² K)	Valor- Ψ intercalario Ψ_g W/(m K)	Factor de temperatura $f_{RSI=0,25}$ [-]
Inferior (OB1) 	125	0,92	0,038	0,70
Superior (OH1) 	125	0,92	0,038	0,70
Lateral (OJ1) 	125	0,92	0,038	0,70
Threshold (OT1) 	125	0,92	0,038	0,70
Intercalario: PHI pHB-Spacer		Sellado secundario: Polisulfuro		



Junctions		U1	U2	U3	Ψ -value Ψ W/(m K)	Temp. factor $f_{Rsi=0,25}$ [-]
		W/(m ² K)				
ceiling integration 1 (EW1_EW1_CE_1)		0,23	0,23		0,014	0,935
exterior corner (EW1_EW1_ec_1)		0,23	0,23		-0,064	0,834
interior corner (EW1_EW1_ic_1)		0,23	0,23		0,028	0,943
internal wall integration into exterior wall (EW1_EW1_IW_1)		0,23	0,23		0,000	0,942
roof parapet 1 (EW1_FR1_rp_1)		0,23	0,17		0,008	0,836
bottom connection operable window 1 (EW1_OB1_1)		0,23	0,92		0,030	0,783
top connection operable window (EW1_OH1_1)		0,23	0,92		0,008	0,801
side connection operable window 1 (EW1_OJ1_1)		0,23	0,92		0,003	0,797
roof eave (EW1_RO1_ea_1)		0,23	0,20		-0,014	0,876
roof verge (EW1_RO1_ve_1)		0,23	0,20		-0,026	0,855
Threshold to floor slab (FS1_EW1_OT1_1)		0,33	0,23	0,92	-0,009	0,685
wall base to floor slab 1 (FS1_EW1_2)		0,33	0,23		-0,025	0,801

Opaque Assemblies

 exterior wall (EW1)		Material	Lambda W/(m K)	Thickness (mm)
			mineral wool 040	0,040
	cement mortar/plaster, sand	1,000	5	
	EQ_EW1 Thermoclay blocks 19 cm + mortar	0,325	190	
	gypsum plaster (interior plaster)	0,570	15	
	EQ_EW1 Air layer, unvented, horz, thickness 60 m + steel studs	0,361	60	
	gypsum board 900 kg/m ³	0,250	15	
		Total thickness: 425 mm		
		Rsi: 0,13 m ² K/W		
		Rse: 0,13 m ² K/W		
		U-value: 0,23 W/(m ² K)		

 techo plano (FR1)		Material	Lambda W/(m K)	Thickness (mm)
			XPS 037	0,037
	Clay slab filler block (300 mm; RT 0,32 m ² K/W)	0,938	300	
		Total thickness: 500 mm		
		Rsi: 0,10 m ² K/W		
		Rse: 0,04 m ² K/W		
		U-value: 0,17 W/(m ² K)		

 solera (FS1)		Material	Lambda W/(m K)	Thickness (mm)
			cement screed	1,400
	XPS 037	0,037	100	
	concrete (1 % steel)	2,300	100	
	EQ_ventilated crawl space	2,300	200	
		Total thickness: 440 mm		
		Rsi: 0,17 m ² K/W		
		Rse: - m ² K/W		
		U-value: 0,33 W/(m ² K)		

 techo inclinado (RO1)		Material	Lambda W/(m K)	Thickness (mm)
			softwood, OSB – perpendicular to grain direction	0,130
	Onduline PIR 027	0,027	120	
	Clay slab filler block (300 mm; RT 0,32 m ² K/W)	0,938	300	
		Total thickness: 439 mm		
		Rsi: 0,10 m ² K/W		
		Rse: 0,10 m ² K/W		
		U-value: 0,20 W/(m ² K)		

Frame Cuts with "dummy wood window warm-temperate" from "dummy window manufacturer"
(0004)



Inferior

$$b_f = 125 \text{ mm}$$
$$U_f = 0,92 \text{ W}/(\text{m}^2 \text{ K})$$
$$\Psi_g = 0,038 \text{ W}/(\text{m K})$$
$$f_{Rsi} = 0,70$$



Superior

$$b_f = 125 \text{ mm}$$
$$U_f = 0,92 \text{ W}/(\text{m}^2 \text{ K})$$
$$\Psi_g = 0,038 \text{ W}/(\text{m K})$$
$$f_{Rsi} = 0,70$$



Lateral

$$b_f = 125 \text{ mm}$$
$$U_f = 0,92 \text{ W}/(\text{m}^2 \text{ K})$$
$$\Psi_g = 0,038 \text{ W}/(\text{m K})$$
$$f_{Rsi} = 0,70$$



Threshold

$$b_f = 125 \text{ mm}$$
$$U_f = 0,92 \text{ W}/(\text{m}^2 \text{ K})$$
$$\Psi_g = 0,038 \text{ W}/(\text{m K})$$
$$f_{Rsi} = 0,70$$





ceiling integration 1

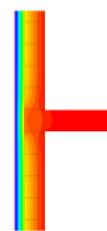
(EW1_EW1_CE_1)

$$U_{EW1} = 0,23 \text{ W}/(\text{m}^2 \text{ K})$$

$$U_{EW1} = 0,23 \text{ W}/(\text{m}^2 \text{ K})$$

$$\Psi = 0,014 \text{ W}/(\text{m K})$$

$$f_{Rsi} = 0,935$$



exterior corner

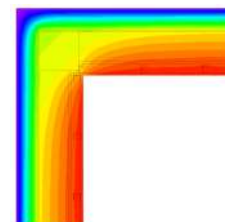
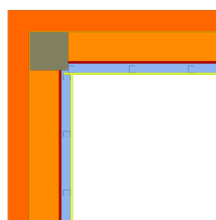
(EW1_EW1_ec_1)

$$U_{EW1} = 0,23 \text{ W}/(\text{m}^2 \text{ K})$$

$$U_{EW1} = 0,23 \text{ W}/(\text{m}^2 \text{ K})$$

$$\Psi = -0,064 \text{ W}/(\text{m K})$$

$$f_{Rsi} = 0,834$$



interior corner

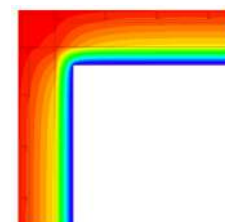
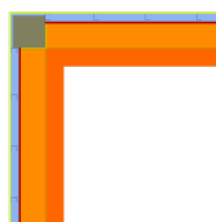
(EW1_EW1_ic_1)

$$U_{EW1} = 0,23 \text{ W}/(\text{m}^2 \text{ K})$$

$$U_{EW1} = 0,23 \text{ W}/(\text{m}^2 \text{ K})$$

$$\Psi = 0,028 \text{ W}/(\text{m K})$$

$$f_{Rsi} = 0,943$$



internal wall integration into exterior wall

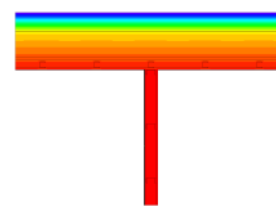
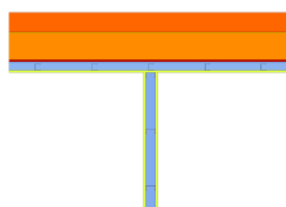
(EW1_EW1_IW_1)

$$U_{EW1} = 0,23 \text{ W}/(\text{m}^2 \text{ K})$$

$$U_{EW1} = 0,23 \text{ W}/(\text{m}^2 \text{ K})$$

$$\Psi = 0,000 \text{ W}/(\text{m K})$$

$$f_{Rsi} = 0,942$$



roof parapet 1

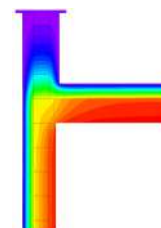
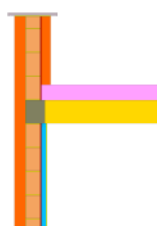
(EW1_FR1_rp_1)

$$U_{EW1} = 0,23 \text{ W}/(\text{m}^2 \text{ K})$$

$$U_{FR1} = 0,17 \text{ W}/(\text{m}^2 \text{ K})$$

$$\Psi = 0,008 \text{ W}/(\text{m K})$$

$$f_{Rsi} = 0,836$$





bottom connection

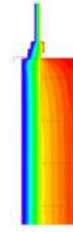
operable window 1 (EW1_OB1_1)

$$U_{EW1} = 0,23 \text{ W}/(\text{m}^2 \text{ K})$$

$$U_{OB1} = 0,92 \text{ W}/(\text{m}^2 \text{ K})$$

$$\Psi = 0,030 \text{ W}/(\text{m K})$$

$$f_{Rsi} = 0,783$$



top connection

operable window (EW1_OH1_1)

$$U_{EW1} = 0,23 \text{ W}/(\text{m}^2 \text{ K})$$

$$U_{OH1} = 0,92 \text{ W}/(\text{m}^2 \text{ K})$$

$$\Psi = 0,008 \text{ W}/(\text{m K})$$

$$f_{Rsi} = 0,801$$



side connection

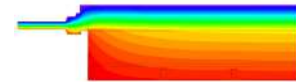
operable window 1 (EW1_OJ1_1)

$$U_{EW1} = 0,23 \text{ W}/(\text{m}^2 \text{ K})$$

$$U_{OJ1} = 0,92 \text{ W}/(\text{m}^2 \text{ K})$$

$$\Psi = 0,003 \text{ W}/(\text{m K})$$

$$f_{Rsi} = 0,797$$



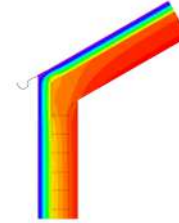
roof eave (EW1_RO1_ea_1)

$$U_{EW1} = 0,23 \text{ W}/(\text{m}^2 \text{ K})$$

$$U_{RO1} = 0,20 \text{ W}/(\text{m}^2 \text{ K})$$

$$\Psi = -0,014 \text{ W}/(\text{m K})$$

$$f_{Rsi} = 0,876$$



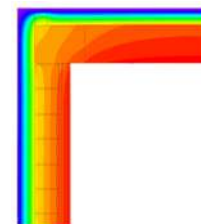
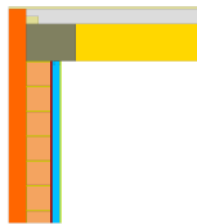
roof verge (EW1_RO1_ve_1)

$$U_{EW1} = 0,23 \text{ W}/(\text{m}^2 \text{ K})$$

$$U_{RO1} = 0,20 \text{ W}/(\text{m}^2 \text{ K})$$

$$\Psi = -0,026 \text{ W}/(\text{m K})$$

$$f_{Rsi} = 0,855$$





Threshold

to floor slab (FS1_EW1_OT1_1)

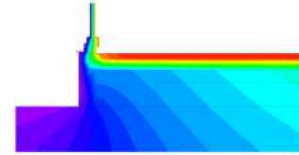
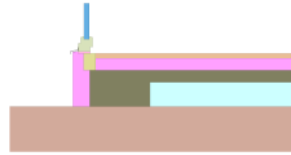
$$U_{FS1} = 0,33 \text{ W}/(\text{m}^2 \text{ K})$$

$$U_{EW1} = 0,23 \text{ W}/(\text{m}^2 \text{ K})$$

$$U_{OT1} = 0,92 \text{ W}/(\text{m}^2 \text{ K})$$

$$\Psi = -0,009 \text{ W}/(\text{m K})$$

$$f_{Rsi} = 0,685$$



wall base

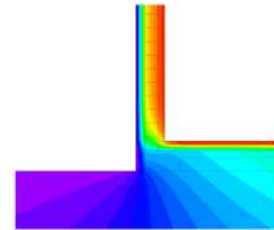
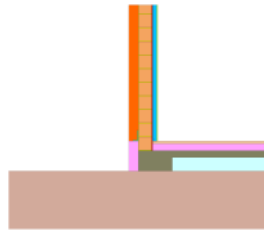
to floor slab 1 (FS1_EW1_2)

$$U_{FS1} = 0,33 \text{ W}/(\text{m}^2 \text{ K})$$

$$U_{EW1} = 0,23 \text{ W}/(\text{m}^2 \text{ K})$$

$$\Psi = -0,025 \text{ W}/(\text{m K})$$

$$f_{Rsi} = 0,801$$



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.