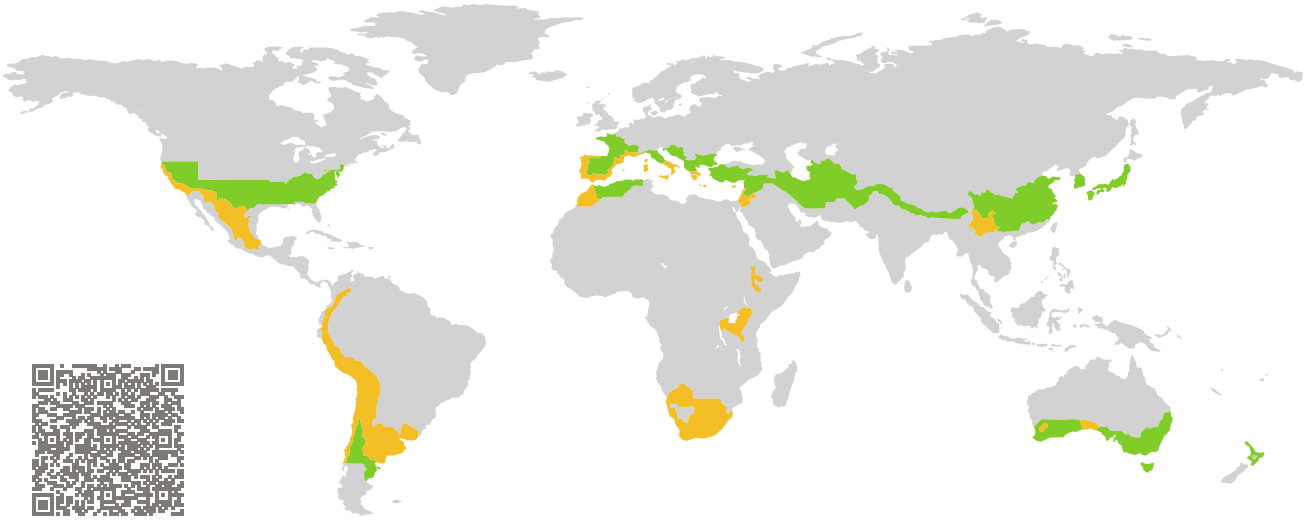
CERTIFICATE

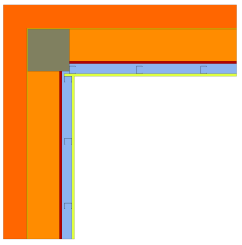
Certified Passive House Component

Component-ID 2287cs04 valid until 31st December 2025

Passive House Institute
Dr. Wolfgang Feist
64283 Darmstadt
Germany



Category:	**Construction system**
Manufacturer:	**Consorcio Termoarcilla, Madrid, Madrid, Spain**
Product name:	**Termoarcilla® Ventilated Rainscreen Wall**



Hygiene criterion

The mininum temperature factor of the interior surfaces is $f_{Rsi=0.25\,m^2 \cdot K/W} \geq 0.65$

Comfort criterion

The U-value of the installed windows is $U_{wi} \leq 1.05\,W/(m^2 \cdot K)$

Efficiency criteria

Heat transfer coefficient of building envelope: $U * f_{PHI} \leq 0.25\,W/(m^2 \cdot K)$

Temperature factor of opaque junctions: $f_{Rsi=0.25\,m^2 \cdot K/W} \geq 0.82$

Thermal bridge-free design for key connection details: $\Psi \leq 0.01\,W/(m \cdot K)$

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

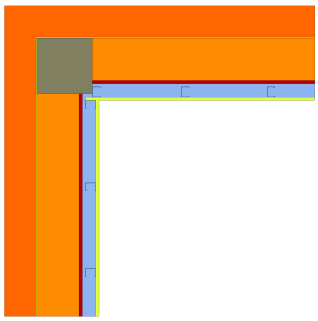
It was confirmed that the structure will dry out within 12 months and there is no risk of moisture-related damage.

warm, temperate climate

CERTIFIED COMPONENT
Passive House Institute

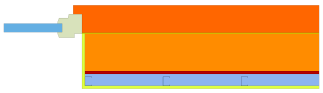
Opaque building envelope

The system consists of a Termoarcilla® blocks wall with a 15 mm thick interior gypsum plaster, a ventilated facade system with 140 mm thick thermal insulation, and a gypsum board on the interior side with a 60 mm thick service cavity between the finish board and the wall. The Termoarcilla® wall is formed by placing the blocks with horizontal mortar joints. The ventilated facade includes mineral wool insulation panels (0.040 W/m·K) mechanically fixed to the blocks using the FLH R ventilated facade anchoring system from Fisher, which is Passive House certified. The interior wall finish is built with a galvanized steel structure on which the gypsum board is screwed. The system has been assessed according to the Passive House Institute's criteria for opaque construction systems and has been validated as suitable for Passive House projects in the warm-temperate and warm climate zones.



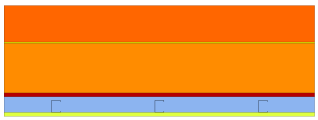
Windows

For the purposes of certification, a standard passive house window (Uw = 1.00 W/m².K with Ug = 0.90 W/m².K) was used. The overall U-value of the installed window of standard size (1.23 m wide by 1.48 m tall) should be no more than 0.05 W/m².K greater than the Uw to ensure occupant comfort. This criterion is met with a window installation solution aligned with the exterior thermal insulation. This construction solution is solved with a wooden support profile on the window sill and metal L-profile anchors on the jambs and lintel.



Airtightness concept

The system's airtightness is achieved as follows: the interior gypsum plaster layer serves as the airtight layer of the envelope. For junctions with windows and doors, special airtightness tapes are used on the interior face, maintaining continuity with the gypsum plaster. All junctions with other construction elements use special tapes or airtight paint solutions to ensure the airtightness line of the facade remains consistent in the interior gypsum plaster.



Summary of values

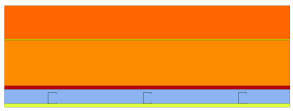
Opaque assemblies			U-value W/(m² · K)
exterior wall	(EW1)		0.23
flat roof	(FR1)		0.17
floor slab	(FS1)		0.33
pitched roof	(RO1)		0.20

Frame Cuts with ”dummy wood window warm-temperate” from ”dummy window manufacturer” (0004)					
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)		125	0.92	0.038	0.70
Top	(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
Spacer: PHI phB-Spacer				Secondary seal: Polysulfide		

Junctions		U1	U2	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_ec1)		0.23	0.23	–0.064	0.834
interior corner (EW1_EW1_ic1)		0.23	0.23	0.028	0.943
internal wall integration into exterior wall (EW1_EW1_IW)		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_ea1)		0.23	0.20	–0.014	0.876
roof verge (EW1_RO1_ve1)		0.23	0.20	–0.026	0.855
wall base 2 (FS1_EW1_2)		0.33	0.23	–0.025	0.801
threshold connection to floor slab (FS1_OT1_1)		0.33	0.92	–0.009	0.685

Opaque Assemblies

exterior wall (EW1)

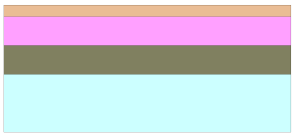


Material	Lambda W/(m · K)	Thickness (mm)
mineral wool 040	0.040	140
cement mortar/plaster, sand	1.000	5
EQ_EW1 Thermoclay blocks 19 cm + mortar	0.325	190
gypsum plaster (interior plaster)	0.570	15
EQ_EW1 Air layer, unvented, horz, thickness 60 m + steel studs	0.361	60
gypsum board 900 kg/m³	0.250	15
	U-value: 0.23 W/(m² · K)	

flat roof (FR1)

Material	Lambda W/(m · K)	Thickness (mm)
XPS 037	0.037	200
Clay slab filler block (300 mm; RT 0,32 m2K/W)	0.938	300
	U-value: 0.17 W/(m² · K)	

floor slab (FS1)



Material	Lambda W/(m · K)	Thickness (mm)
cement screet	1.400	40
XPS 037	0.037	100
concrete (1 % steel)	2.300	100
EQ_ventilated crawl space	2.300	200
	U-value: 0.33 W/(m² · K)	

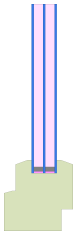
pitched roof (RO1)

Material	Lambda W/(m · K)	Thickness (mm)
softwood, OSB – perpendicular to grain direction	0.130	19
Onduline PIR 027	0.027	120
Clay slab filler block (300 mm; RT 0,32 m2K/W)	0.938	300
	U-value: 0.20 W/(m² · K)	

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

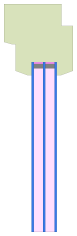
Bottom

b_f = 125 mm
U_f = 0.92 W/(m^2 · K)
Ψ_g = 0.038 W/(m · K)
f_{Rsi} = 0.70



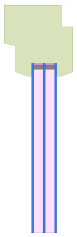

Top

b_f = 125 mm
U_f = 0.92 W/(m^2 · K)
Ψ_g = 0.038 W/(m · K)
f_{Rsi} = 0.70



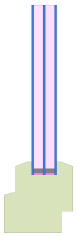

Lateral

b_f = 125 mm
U_f = 0.92 W/(m^2 · K)
Ψ_g = 0.038 W/(m · K)
f_{Rsi} = 0.70




Threshold

b_f = 125 mm
U_f = 0.92 W/(m^2 · K)
Ψ_g = 0.038 W/(m · K)
f_{Rsi} = 0.70

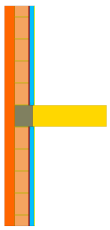
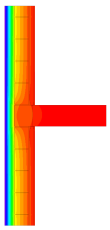



Junctions

ceiling integration 1

(EW1_EW1_CE_1)

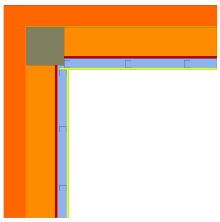
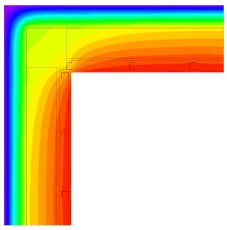
U_{EW1} = 0.23 W/(m² · K)
U_{EW1} = 0.23 W/(m² · K)
Ψ = 0.014 W/(m · K)
f_{Rsi} = 0.935

exterior corner

(EW1_EW1_ec1)

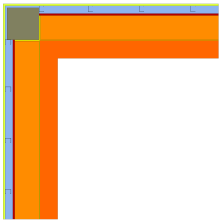
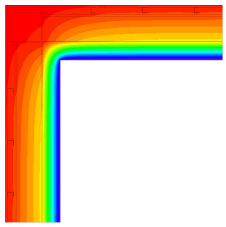
U_{EW1} = 0.23 W/(m² · K)
U_{EW1} = 0.23 W/(m² · K)
Ψ = –0.064 W/(m · K)
f_{Rsi} = 0.834

interior corner

(EW1_EW1_ic1)

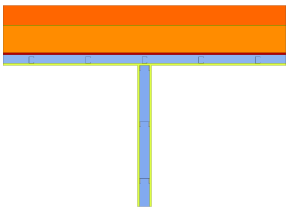
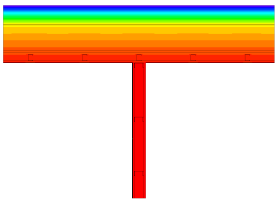
U_{EW1} = 0.23 W/(m² · K)
U_{EW1} = 0.23 W/(m² · K)
Ψ = 0.028 W/(m · K)
f_{Rsi} = 0.943

internal wall integration into exterior wall

(EW1_EW1_IW)

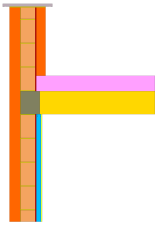
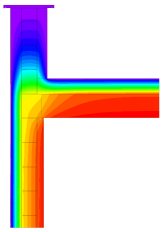
U_{EW1} = 0.23 W/(m² · K)
U_{EW1} = 0.23 W/(m² · K)
Ψ = 0.000 W/(m · K)
f_{Rsi} = 0.942

roof parapet 1

(EW1_FR1_rp_1)

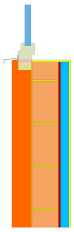
U_{EW1} = 0.23 W/(m² · K)
U_{FR1} = 0.17 W/(m² · K)
Ψ = 0.008 W/(m · K)
f_{Rsi} = 0.836

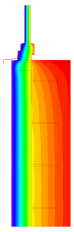



bottom connection

operable window 1 (EW1_OB1_1)

U_{EW1} = 0.23 W/(m² · K)
U_{OB1} = 0.92 W/(m² · K)
Ψ = 0.030 W/(m · K)
f_{Rsi} = 0.783

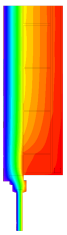




top connection

operable window (EW1_OH1_1)

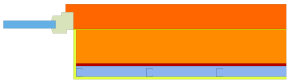
U_{EW1} = 0.23 W/(m² · K)
U_{OH1} = 0.92 W/(m² · K)
Ψ = 0.008 W/(m · K)
f_{Rsi} = 0.801

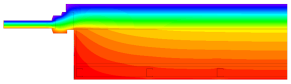


side connection

operable window 1 (EW1_OJ1_1)

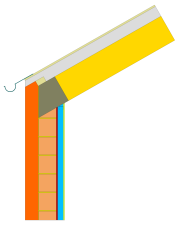
U_{EW1} = 0.23 W/(m² · K)
U_{OJ1} = 0.92 W/(m² · K)
Ψ = 0.003 W/(m · K)
f_{Rsi} = 0.797

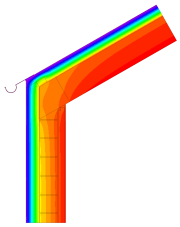




roof eave (EW1_RO1_ea1)

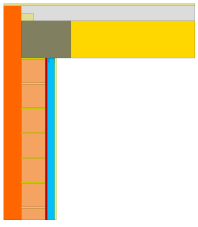
U_{EW1} = 0.23 W/(m² · K)
U_{RO1} = 0.20 W/(m² · K)
Ψ = –0.014 W/(m · K)
f_{Rsi} = 0.876

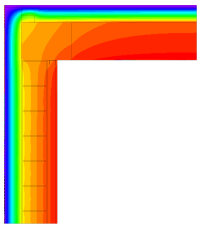




roof verge (EW1_RO1_ve1)

U_{EW1} = 0.23 W/(m² · K)
U_{RO1} = 0.20 W/(m² · K)
Ψ = –0.026 W/(m · K)
f_{Rsi} = 0.855

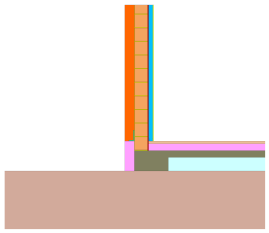


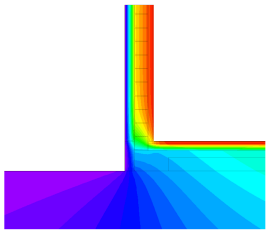


wall

base 2 (FS1_EW1_2)

U_{FS1} = 0.33 W/(m^2 · K)
U_{EW1} = 0.23 W/(m^2 · K)
Ψ = –0.025 W/(m · K)
f_{Rsi} = 0.801

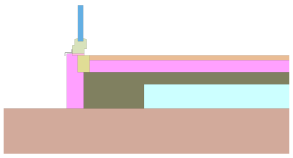


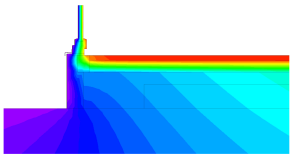


threshold connection

to floor slab (FS1_OT1_1)

U_{FS1} = 0.33 W/(m^2 · K)
U_{OT1} = 0.92 W/(m^2 · K)
Ψ = –0.009 W/(m · K)
f_{Rsi} = 0.685





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.