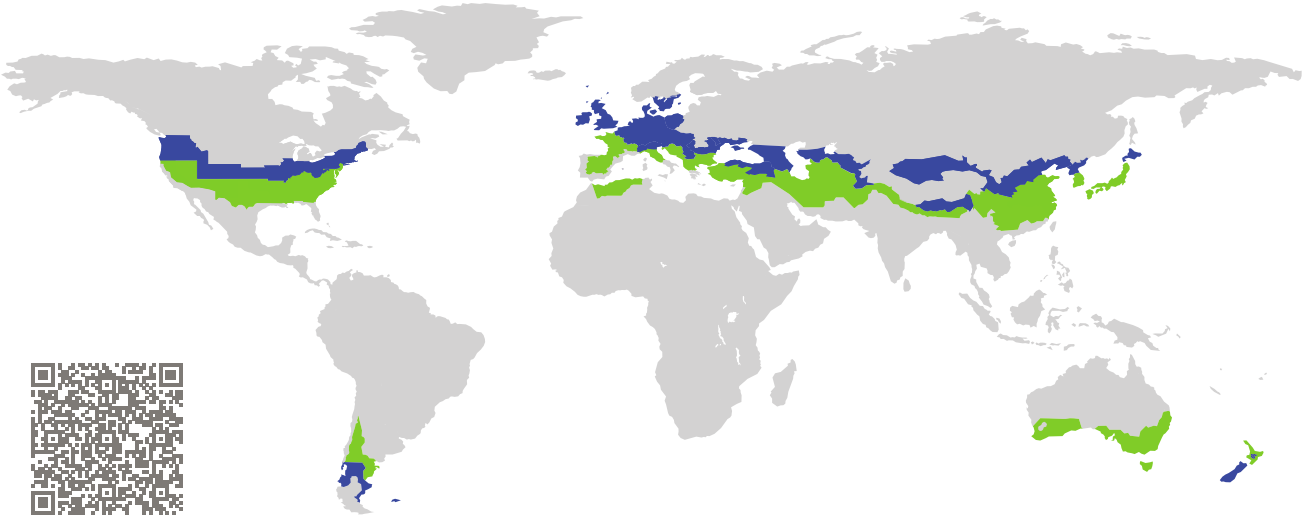
CERTIFICATE

Certified Passive House Component

Component-ID 1483ds03 valid until 31st December 2020

Passive House Institute
Dr. Wolfgang Feist
64283 Darmstadt
Germany



Category:	**Door system**
Manufacturer:	**Zakład Stolarki Budowlanej CAL SUWAŁKI Poland**
Product name:	**Standard Arctic**

(Inward opening)

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

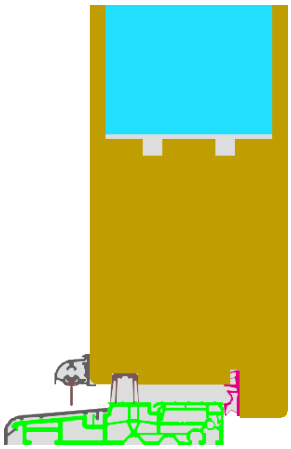
Comfort	U_D = 0.76	≤	0.80 W/(m² K)
	$U_{D,\text{installed}}$	≤	0.85 W/(m² K)
	with $U_{\text{door leaf}}$ [1]	=	0.33 W/(m² K)
Hygiene	$f_{Rsi=0.25}$	≥	0.70
Airtightness	Q_{100} = 2.25	≤	2.25 m³/(h m)

[1] U-value of the insulated area of door leaf

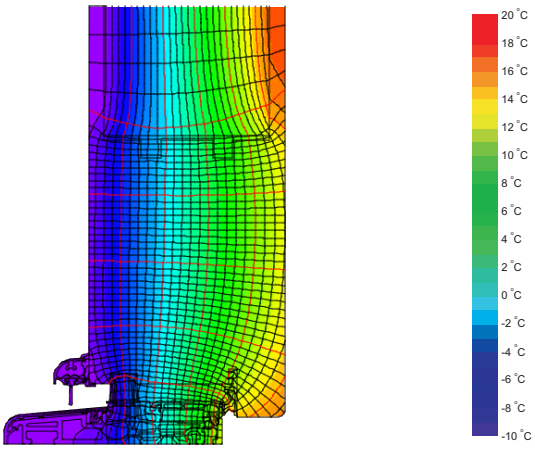
cool, temperate climate

CERTIFIED COMPONENT
Passive House Institute

Zakład Stolarki Budowlanej CAL
Piaskowa 5, 16-400 SUWAŁKI, Poland
☎ +48875631155 | ✉ biuro@drzwi-cal.pl | 🖱 http://www.drzwi-cal.pl |



Calculation model



Isothermal

Description

Timber doorset (pine, 0,13 W/(mK)) insulated with PIR (Corafoam HPT 35, 0,022 W/(mK); 25% surcharge added to declared value = 0,028 W/(mK)). Sidelights (4/24/4/24/12) and glass door filling (4/27/10/27/10) use Ug = 0,50 W/(m^{2}K) with SWISSPACER Ultimate and polysulfide secondary seal. The required temperature factor at the locking side is not met, nevertheless, these values are much better than usual. Beyond the requirements, airtightness class 3 according to EN 12207 is achieved.

Explanation

The U-values of the door apply to a combination of door and sidelight with fixed glazing, 2.20 m wide by 2.20 m tall. The door and the sidelight are both 1.10 m wide.

A detailed report of the calculations performed in the context of certification is available from the manufacturer.
Unless stated otherwise, the air tightness was determined according to EN 1026 with respect to the joint length under climate load in conjunction with EN 1121 for the closed, non-locked door. The result corresponds at least to air-tightness class 3 according to EN 12207.
The Passive House Institute has defined international component criteria for seven climate zones. In principle, components which have been certified for climate zones with higher requirements may also be used in climates with less stringent requirements. In a particular climate zone it may make sense to use a component of a higher thermal quality which has been certified for a climate zone with more stringent requirements.

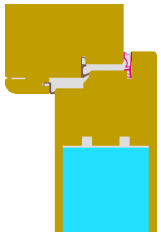
Further information relating to certification
can be found on www.passivehouse.com and passipedia.org.

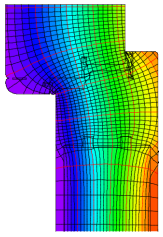
Frame values		Frame width b_f mm	U-value frame U_f W/(m² K)	Ψ edge Ψ_g W/(m K)	Temp. Factor $f_{Rsi=0.25}$ [-]
Top	(to)	127	1.12	0.001	0.71
Top fixed	(tof)	65	1.03	0.029	0.76
Side fixed	(sf)	65	1.03	0.024	0.74
Bottom fixed	(bof)	97	1.22	0.031	0.72
Threshold	(th)	142	1.26	0.001	0.70
Hinge side Door	(hs)	140	1.39	0.002	0.70
Lock side Door	(ls)	170	1.39	0.002	0.64
Mullion 1 casement	(m1)	193	1.35	0.016	0.65
Mullion 1 casement Variant 1	(m1)	162	1.35	0.016	0.71

Spacer: - Secondary seal: -

Top

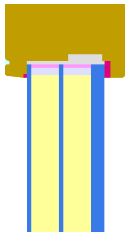
b_f = 127.00 mm
U_f = 1.12 W/(m² K)
Ψ_g = 0.001 W/(m K)
f_{Rsi} = 0.71

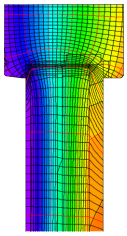




Top
fixed

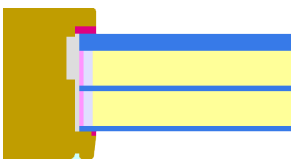
b_f = 65.00 mm
U_f = 1.03 W/(m² K)
Ψ_g = 0.029 W/(m K)
f_{Rsi} = 0.76

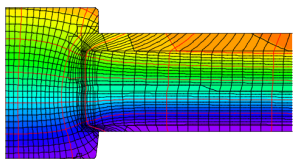




Side
fixed

b_f = 65.00 mm
U_f = 1.03 W/(m² K)
Ψ_g = 0.024 W/(m K)
f_{Rsi} = 0.74





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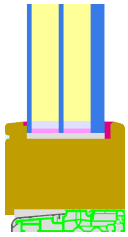
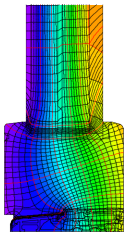
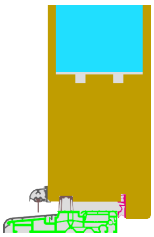
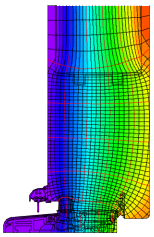
Bottom
fixed

b_f = 97.00 mm
U_f = 1.22 W/(m² K)
Ψ_g = 0.031 W/(m K)
f_{Rsi} = 0.72

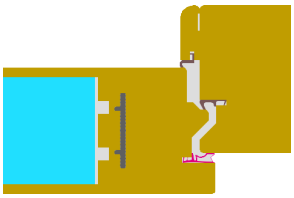
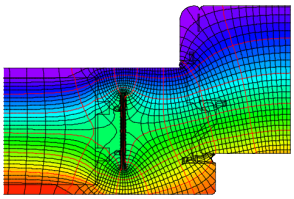
Threshold

b_f = 142.00 mm
U_f = 1.26 W/(m² K)
Ψ_g = 0.001 W/(m K)
f_{Rsi} = 0.70

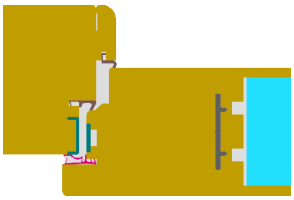
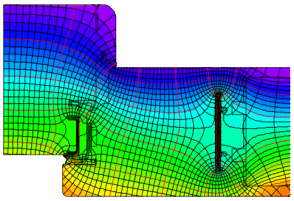
Hinge side
Door

b_f = 140.00 mm
U_f = 1.39 W/(m² K)
Ψ_g = 0.002 W/(m K)
f_{Rsi} = 0.70

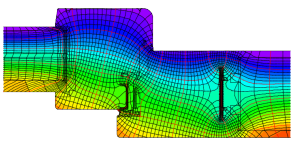
Lock side
Door

b_f = 170.00 mm
U_f = 1.39 W/(m² K)
Ψ_g = 0.002 W/(m K)
f_{Rsi} = 0.64

Mullion
1 casement

b_f = 193.00 mm
U_f = 1.35 W/(m² K)
Ψ_g = 0.016 W/(m K)
f_{Rsi} = 0.65



Mullion

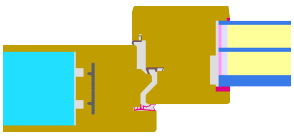
1 casement Variant 1

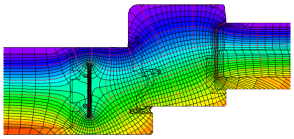
b_f = 162.00 mm

U_f = 1.35 W/(m^2 K)

Ψ_g = 0.016 W/(m K)

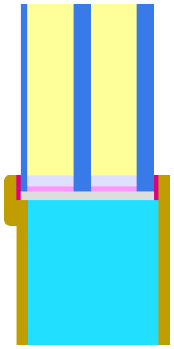
f_{Rsi} = 0.71

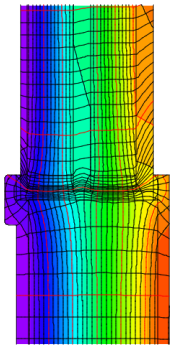




Glazing/Infill : 1

U_p = 0.50 W/(m^2 K)
Ψ = 0.039 W/(m K)
f_{Rsi} = 0.79





Description:

Glazing (4/27/10/27/10) with Ug = 0,50 W/(m^{2}K) in accordance with EN 673; Spacer 'SWISSPACER Ultimate' with polysulfide secondary seal.

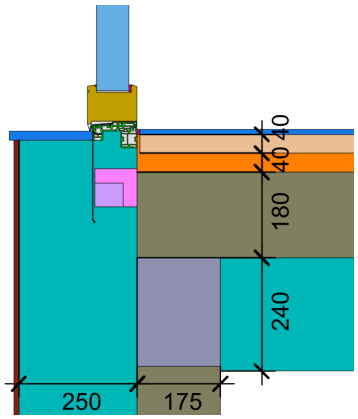
The comfort criterion limits the use of the infill element as follows:

Maximum area = 0.60 m^2
Maximum circumference = 3.20 m

Validated installations

Exterior insul. and finish s. (EIFS) threshold (fixed glazing)

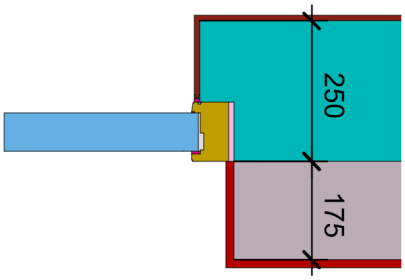
U_1 = 0.12 U_2 = 0.11 [W/(m² K)]



$\Psi_{install}$ = 0.040 W/(m K)

Exterior insulation and finishing s (EIFS) side (fixed glazed)

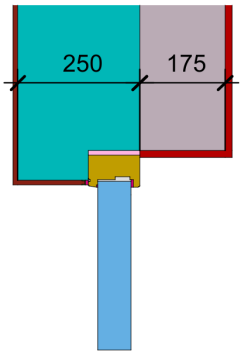
U_1 = 0.13 [W/(m² K)]



$\Psi_{install}$ = –0.007 W/(m K)

Exterior insulation and finishing s (EIFS) top (fixed glazing))

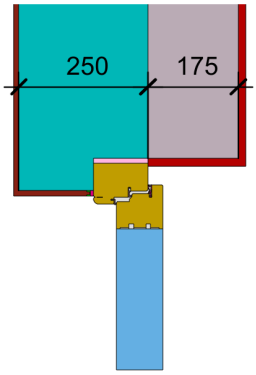
U_1 = 0.13 [W/(m² K)]



$\Psi_{install}$ = –0.007 W/(m K)

Exterior insulation and finishing s (EIFS) top (operable)

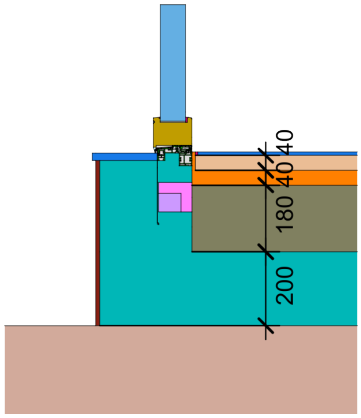
U_1 = 0.13 [W/(m² K)]



$\Psi_{install}$ = 0.004 W/(m K)

Ext. ins. a. finish. s. (EIFS) threshold floor slab (fixed gl.)

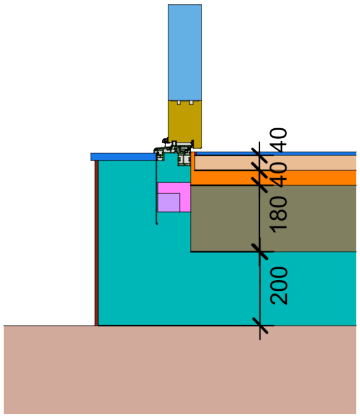
U_1 = 0.14 U_2 = 0.13 [W/(m² K)]



$\Psi_{install}$ = 0.022 W/(m K)

Ext. ins. a. finish. s. (EIFS) threshold floor slab (operable)

U_1 = 0.14 U_2 = 0.13 [W/(m² K)]



$\Psi_{install}$ = 0.026 W/(m K)

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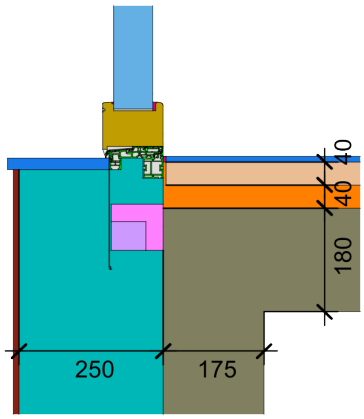
Ext insulation a. finish. s. (EIFS) threshold ceiling (fixed gl)

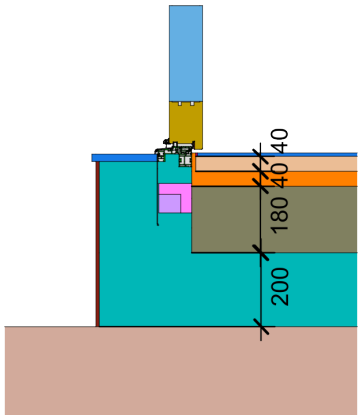
U_1 = 0.14 [W/(m² K)]



$\Psi_{install}$ = 0.043 W/(m K)

Ext insulation a. finish. s. (EIFS) threshold ceiling (operable)

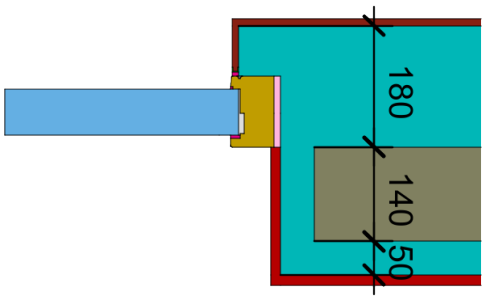
U_1 = 0.14 [W/(m² K)]



$\Psi_{install}$ = 0.050 W/(m K)

Formwork blocks side (fixed)

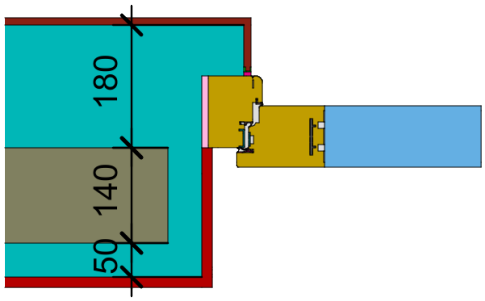
U_1 = 0.15 [W/(m² K)]



$\Psi_{install}$ = –0.006 W/(m K)

Formwork blocks side (operable)

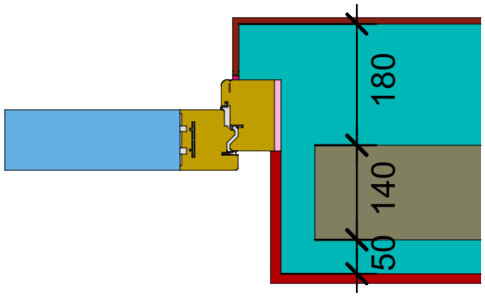
U_1 = 0.15 [W/(m² K)]



$\Psi_{install}$ = 0.004 W/(m K)

Formwork blocks side (operable)

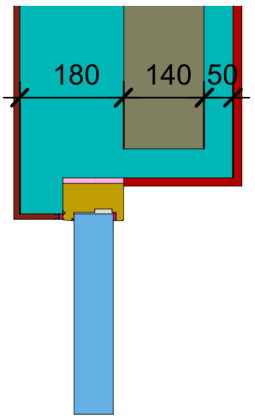
U_1 = 0.15 [W/(m² K)]



$\Psi_{install}$ = 0.003 W/(m K)

Formwork blocks top (fixed)

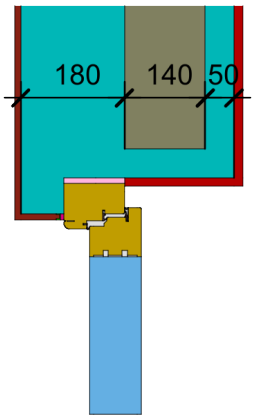
U_1 = 0.15 [W/(m² K)]



$\Psi_{install}$ = –0.006 W/(m K)

Formwork blocks top (operable)

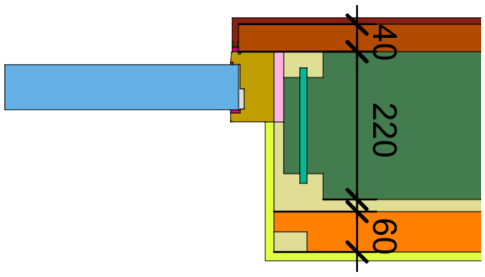
U_1 = 0.15 [W/(m² K)]



$\Psi_{install}$ = 0.003 W/(m K)

Lighthweight timber side (fixed glazed)

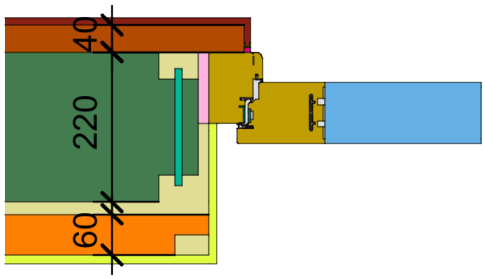
U_1 = 0.13 [W/(m² K)]



$\Psi_{install}$ = 0.009 W/(m K)

Lighthweight timber side (operable)

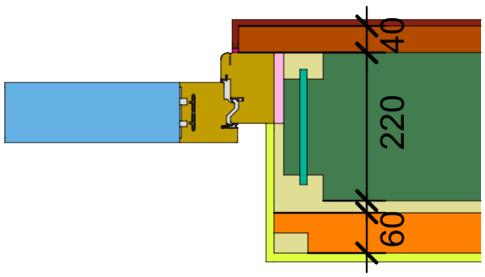
U_1 = 0.13 [W/(m² K)]



$\Psi_{install}$ = 0.014 W/(m K)

Lighthweight timber side (operable)

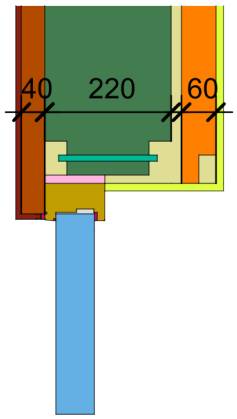
U_1 = 0.13 [W/(m² K)]



$\Psi_{install}$ = 0.015 W/(m K)

Lighthweight timber top (fixed glazed)

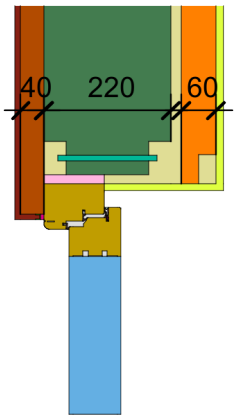
U_1 = 0.13 [W/(m² K)]



$\Psi_{install}$ = 0.009 W/(m K)

Lighthweight timber top (operable)

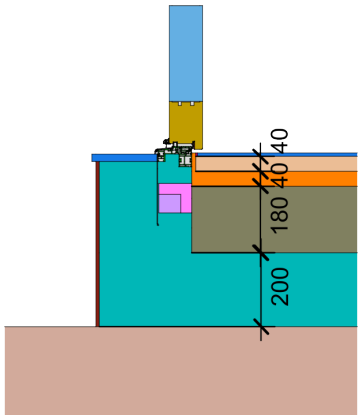
U_1 = 0.13 [W/(m² K)]



$\Psi_{install}$ = 0.015 W/(m K)

Exterior insulation and finishing s (EIFS) threshold (operable)

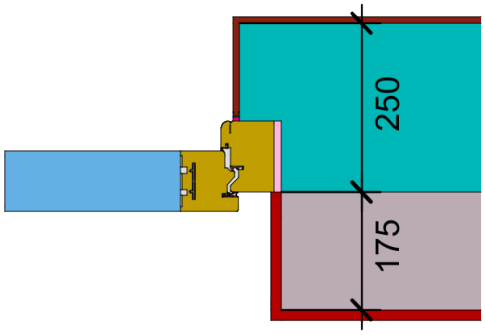
U_1 = 0.12 U_2 = 0.11 [W/(m² K)]



$\Psi_{install}$ = 0.046 W/(m K)

Exterior insulation and finishing system (EIFS) side

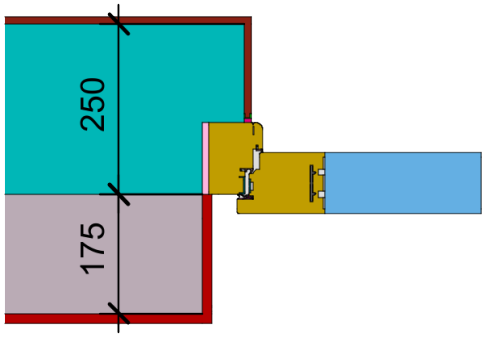
U_1 = 0.13 [W/(m² K)]



$\Psi_{install}$ = 0.003 W/(m K)

Exterior insulation and finishing system (EIFS) side

U_1 = 0.13 [W/(m² K)]



$\Psi_{install}$ = 0.004 W/(m K)