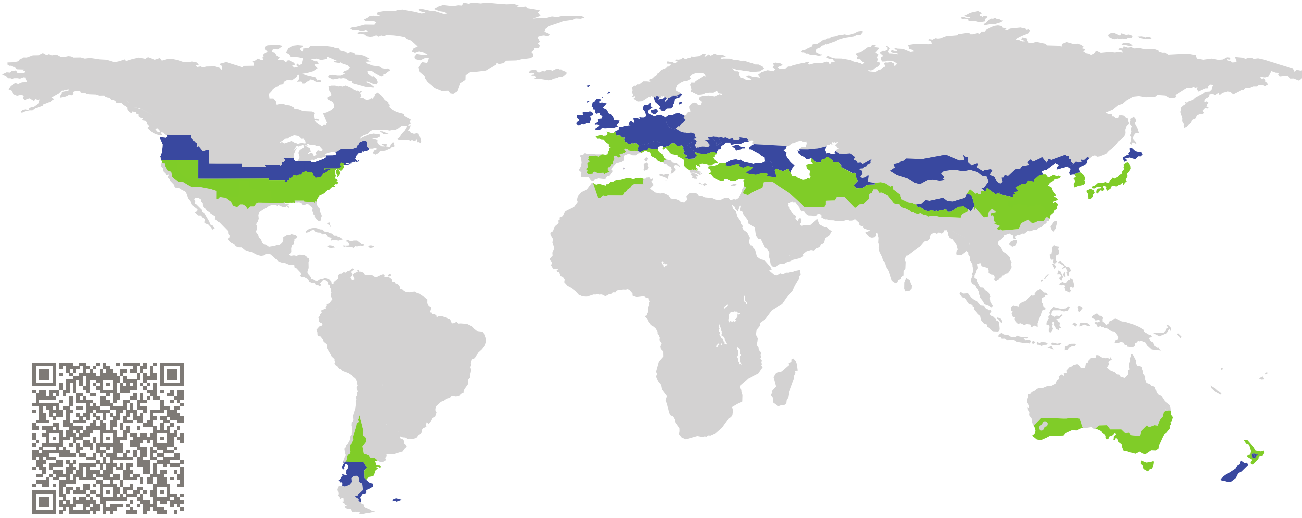
CERTIFICATE

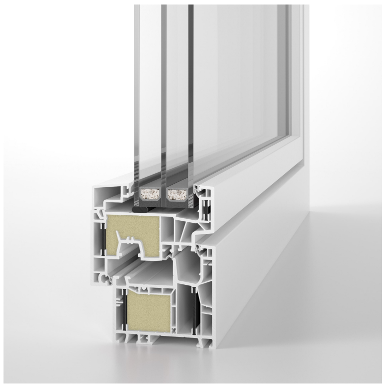
Certified Passive House Component

Component-ID 2116ws03 valid until 31st December 2025

Passive House Institute
Dr. Wolfgang Feist
64283 Darmstadt
Germany



Category:	**Window system**
Manufacturer:	**aluplast GmbH, Karlsruhe, Germany**
Product name:	**energeto neo - flush sash**



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

Comfort	$U_W = 0.80$	$\leq$	0.80 W/(m² K)
	$U_{W,\text{installed}}$	$\leq$	0.85 W/(m² K)
	with U_g	=	0.70 W/(m² K)
Hygiene	$f_{Rsi=0.25}$	$\geq$	0.70
Airtightness	$Q_{100} = 0.22$	$\leq$	0.25 m³/(h m)

cool, temperate climate

phB

CERTIFIED COMPONENT

Passive House Institute

Passive House efficiency class	phE	phD	phC	phB	phA

aluplast GmbH
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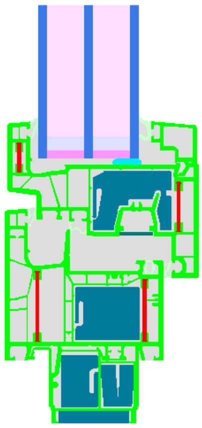
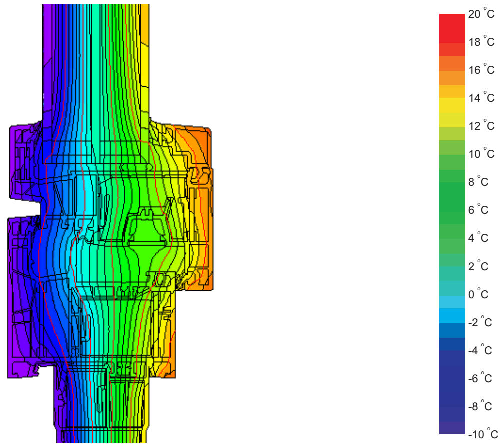
☎ +49 (0)721 / 47171 0 | ✉ info.de@aluplast.net | http://www.aluplast.net |





Calculation model | Isothermal

Description

Vinyl window frame, insulated by EPS-foam 0,031 W/(mK)), reinforced by Polyamide with 25% glassfibre (0,30 W/(mK)). With the tested combination, sash sizes of 1m * 2.25m and with coloured profiles 1m * 2.05m are possible. For larger elements, the aluplast GmbH processing guidelines must be followed. The dewpoint-criteriom of the threshold is achieved in combination with the installation situation. Note: At one additional not installed frame section the temperature factor 0.7 is not achieved. Change to an other profile, if necessary. Pane thickness: 48 mm (4/18/4/18/4), rebate depth: 18 mm. Spacer: SWISSPACER Ultimate.

Explanation

The window U-values were calculated for the test window size of 2.46 m × 1.48 m with U_g = 0.70 W/(m^2 K). If a higher quality glazing is used, the window U-values will improve as follows:

Glazing	U_g =	0.70	0.64	0.58	0.52	W/(m^2 K)
		↓	↓	↓	↓	
Window	U_W =	0.80	0.75	0.71	0.67	W/(m^2 K)

Transparent building components are classified into efficiency classes depending on the heat losses through the opaque part. The frame U-Values, frame widths, thermal bridges at the glazing edge, and the glazing edge lengths are included in these heat losses. A more detailed report of the calculations performed in the context of certification is available from the manufacturer.
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-glazing edge Ψ_g W/(m K)	Temp. Factor $f_{Rsi=0.25}$ [-]
Mullion fixed	(0M1)	94	1.11	0.026	0.72
Transom fixed	(0T1)	94	1.11	0.026	0.72
Mullion 1 casement	(1M1)	136	0.85	0.025	0.73
Mullion 1 casement	(1M2)	136	1.01	0.025	0.71
Transom 1 casement	(1T1)	136	0.85	0.025	0.73
Transom 1 casement	(1T2)	136	1.01	0.025	0.71
Mullion 2 casements	(2M1)	178	0.85	0.024	0.73
Mullion 2 casements	(2M2)	178	0.95	0.024	0.71
Transom 2 casements	(2T1)	178	0.85	0.024	0.73
Transom 2 casements	(2T2)	178	0.95	0.024	0.71
Corner	(CO1)	316	0.53	0.022	0.73
Bottom fixed	(FB1)	103	0.84	0.026	0.74
Top fixed	(FH1)	73	0.74	0.026	0.74
Lateral fixed	(FJ1)	73	0.74	0.026	0.74
Flying Mullion	(FM1)	138	0.85	0.024	0.72
Flying Mullion	(FM2)	138	0.95	0.024	0.69
Bottom	(OB1)	145	0.86	0.024	0.72
Top	(OH1)	115	0.79	0.024	0.73
Lateral	(OJ1)	115	0.79	0.024	0.73
Spacer: SWISSPACER ULTIMATE			Secondary seal: Polysulfide		

Frame values	Frame width b_f mm	U-value frame U_f W/(m² K)	Ψ-glazing edge Ψ_g W/(m K)	Temp. Factor $f_{Rsi=0.25}$ [-]
Threshold (OT1)	85	1.42	0.026	0.64
Spacer: SWISSPACER ULTIMATE		Secondary seal: Polysulfide		

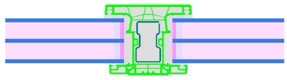
Mullion
fixed

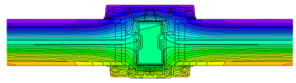
b_f = 94 mm

U_f = 1.11 W/(m^2 K)

Ψ_g = 0.026 W/(m K)

f_{Rsi} = 0.72





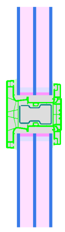
Transom
fixed

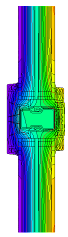
b_f = 94 mm

U_f = 1.11 W/(m^2 K)

Ψ_g = 0.026 W/(m K)

f_{Rsi} = 0.72





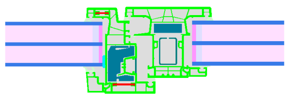
Mullion
1 casement

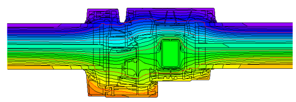
b_f = 136 mm

U_f = 0.85 W/(m^2 K)

Ψ_g = 0.025 W/(m K)

f_{Rsi} = 0.73





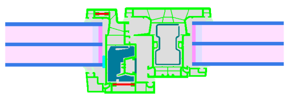
Mullion
1 casement

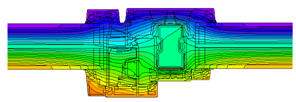
b_f = 136 mm

U_f = 1.01 W/(m^2 K)

Ψ_g = 0.025 W/(m K)

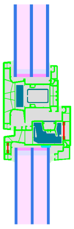
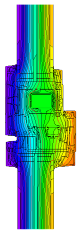
f_{Rsi} = 0.71





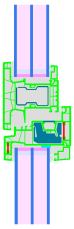
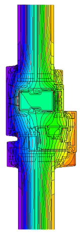
Transom
1 casement

b_f = 136 mm
U_f = 0.85 W/(m^2 K)
Ψ_g = 0.025 W/(m K)
f_{Rsi} = 0.73

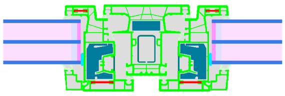
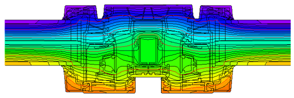
Transom
1 casement

b_f = 136 mm
U_f = 1.01 W/(m^2 K)
Ψ_g = 0.025 W/(m K)
f_{Rsi} = 0.71

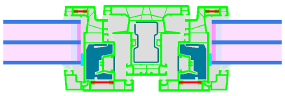
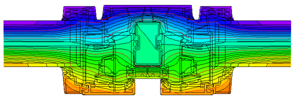
Mullion
2 casements

b_f = 178 mm
U_f = 0.85 W/(m^2 K)
Ψ_g = 0.024 W/(m K)
f_{Rsi} = 0.73

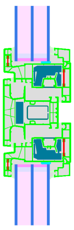
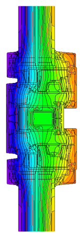
Mullion
2 casements

b_f = 178 mm
U_f = 0.95 W/(m^2 K)
Ψ_g = 0.024 W/(m K)
f_{Rsi} = 0.71

Transom
2 casements

b_f = 178 mm
U_f = 0.85 W/(m^2 K)
Ψ_g = 0.024 W/(m K)
f_{Rsi} = 0.73

Transram

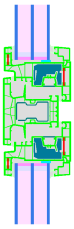
2 casements

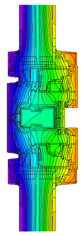
b_f = 178 mm

U_f = 0.95 W/(m² K)

Ψ_g = 0.024 W/(m K)

f_{Rsi} = 0.71





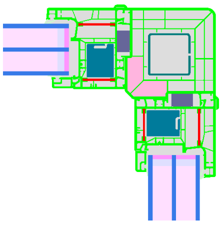
Corner

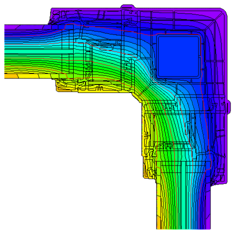
b_f = 316 mm

U_f = 0.53 W/(m² K)

Ψ_g = 0.022 W/(m K)

f_{Rsi} = 0.73





Bottom

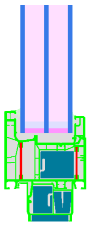
fixed

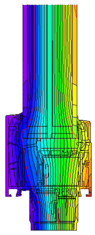
b_f = 103 mm

U_f = 0.84 W/(m² K)

Ψ_g = 0.026 W/(m K)

f_{Rsi} = 0.74





Top

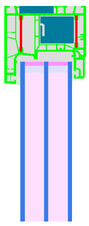
fixed

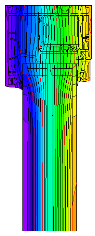
b_f = 73 mm

U_f = 0.74 W/(m² K)

Ψ_g = 0.026 W/(m K)

f_{Rsi} = 0.74





Lateral

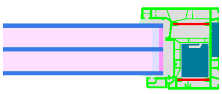
fixed

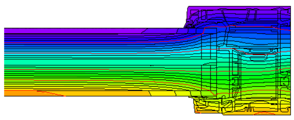
b_f = 73 mm

U_f = 0.74 W/(m² K)

Ψ_g = 0.026 W/(m K)

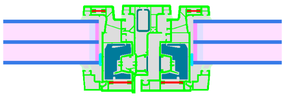
f_{Rsi} = 0.74

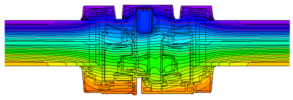




Flying Mullion

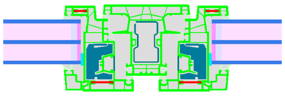
b_f = 138 mm
U_f = 0.85 W/(m^2 K)
Ψ_g = 0.024 W/(m K)
f_{Rsi} = 0.72

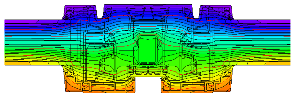




Flying Mullion

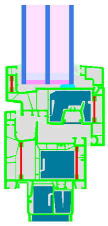
b_f = 138 mm
U_f = 0.95 W/(m^2 K)
Ψ_g = 0.024 W/(m K)
f_{Rsi} = 0.69

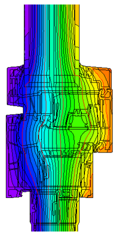




Bottom

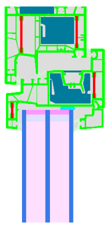
b_f = 145 mm
U_f = 0.86 W/(m^2 K)
Ψ_g = 0.024 W/(m K)
f_{Rsi} = 0.72

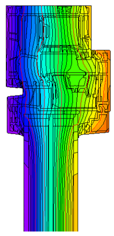




Top

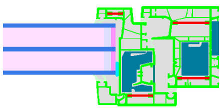
b_f = 115 mm
U_f = 0.79 W/(m^2 K)
Ψ_g = 0.024 W/(m K)
f_{Rsi} = 0.73

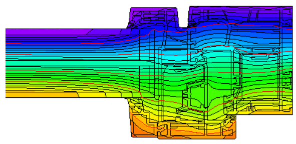




Lateral

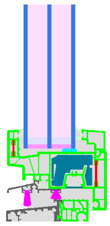
b_f = 115 mm
U_f = 0.79 W/(m^2 K)
Ψ_g = 0.024 W/(m K)
f_{Rsi} = 0.73

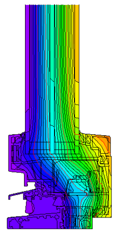




Threshold

b_f = 85 mm
U_f = 1.42 W/(m^2 K)
Ψ_g = 0.026 W/(m K)
f_{Rsi} = 0.64

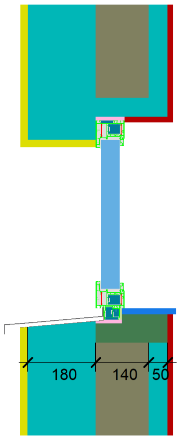




Validated installations

Formwork blocks (fixed)

$U_{Wall} = 0.15\,W/(m^2\,K)$

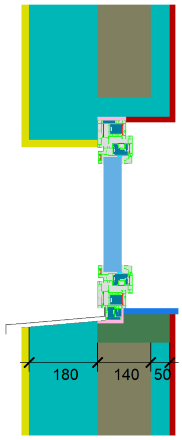


$\Psi_{install}$	W/(m K)
Top	0.002
Left	0.002
Right	0.002
Bottom	0.027

$U_{W,installed} = 0.82\,W/(m^2\,K)$

Formwork blocks (operable)

$U_{Wall} = 0.15\,W/(m^2\,K)$

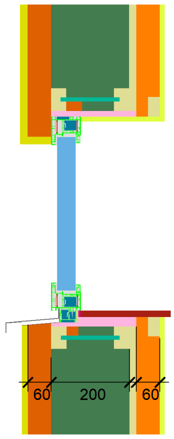


$\Psi_{install}$	W/(m K)
Top	0.001
Left	0.001
Right	0.001
Bottom	0.026

$U_{W,installed} = 0.82\,W/(m^2\,K)$

Lightweight timber (fixed glazed)

$U_{Wall} = 0.13\,W/(m^2\,K)$

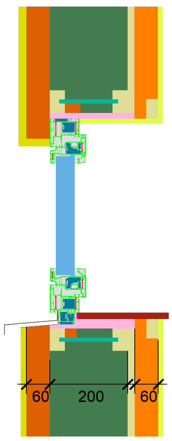


$\Psi_{install}$	W/(m K)
Top	0.012
Left	0.012
Right	0.012
Bottom	0.016

$U_{W,installed} = 0.82\,W/(m^2\,K)$

Lightweight timber (operable)

$U_{Wall} = 0.13\,W/(m^2\,K)$

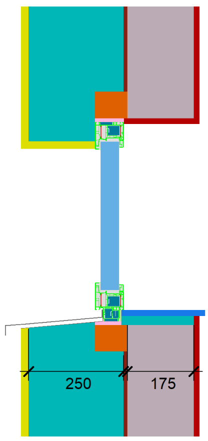


$\Psi_{install}$	W/(m K)
Top	0.011
Left	0.011
Right	0.011
Bottom	0.015

$U_{W,installed} = 0.82\,W/(m^2\,K)$

Exterior insulation and finishing system (EIFS) (fixed glazed)

$U_{Wall} = 0.13\,W/(m^2\,K)$

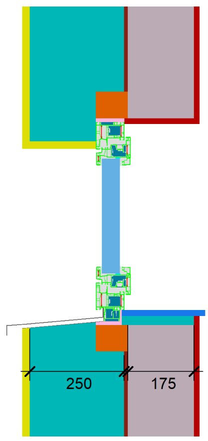


$\Psi_{install}$	W/(m K)
Top	0.000
Left	0.000
Right	0.000
Bottom	0.022

$U_{W,installed} = 0.81\,W/(m^2\,K)$

Exterior insulation and finishing system (EIFS) (operable)

$U_{Wall} = 0.13\,W/(m^2\,K)$

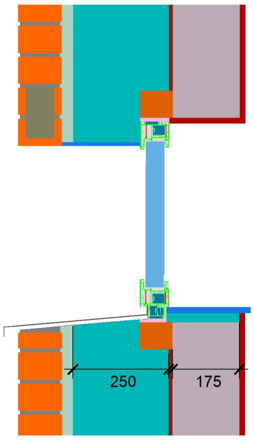


$\Psi_{install}$	W/(m K)
Top	0.000
Left	0.000
Right	0.000
Bottom	0.022

$U_{W,installed} = 0.81\,W/(m^2\,K)$

Cavity wall (fixed glazing)

$U_{Wall} = 0.13$ W/(m² K)

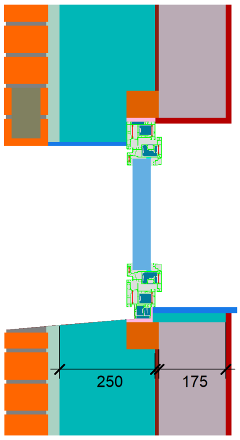


$\Psi_{install}$	W/(m K)
Top	0.000
Left	0.000
Right	0.000
Bottom	0.024

$U_{W,installed} = 0.81$ W/(m² K)

Cavity wall (operable)

$U_{Wall} = 0.13$ W/(m² K)

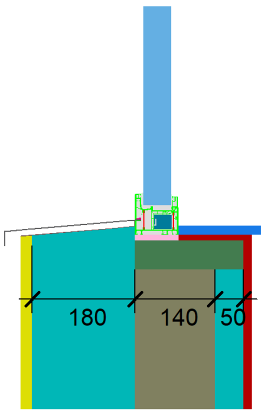


$\Psi_{install}$	W/(m K)
Top	0.000
Left	0.000
Right	0.000
Bottom	0.023

$U_{W,installed} = 0.81$ W/(m² K)

Formwork blocks bottom 2 (fixed)

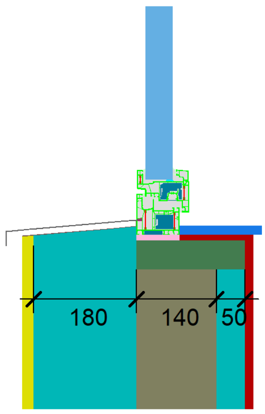
$U_1 = 0.15$ [W/(m² K)]



$\Psi_{install} = 0.03$ W/(m K)

Formwork blocks bottom 2 (operable)

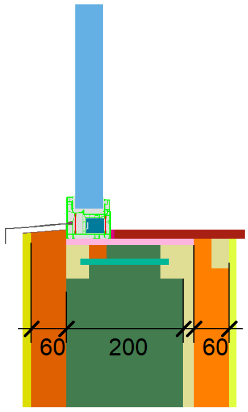
$U_1 = 0.15$ [W/(m² K)]



$\Psi_{install} = 0.02$ W/(m K)

Lighthweight timber bottom 2 (fixed)

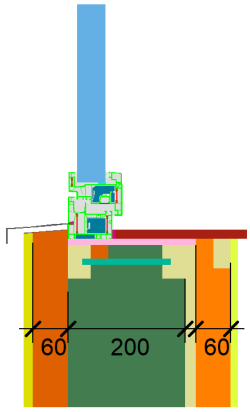
$U_1 = 0.13$ [W/(m² K)]



$\Psi_{install} = 0.03$ W/(m K)

Lighthweight timber bottom 2 (operable)

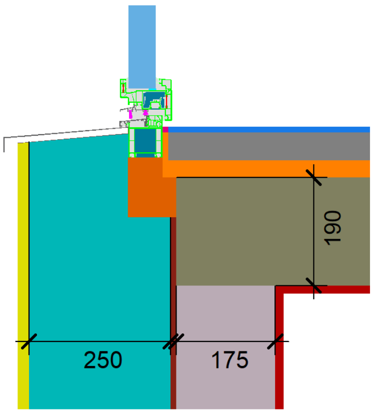
$U_1 = 0.13$ [W/(m² K)]



$\Psi_{install} = 0.02$ W/(m K)

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

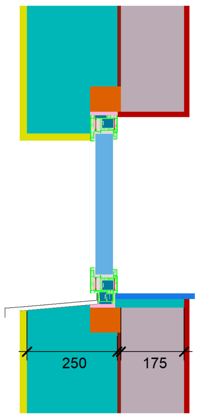
$U_1 = 0.13$ [W/(m² K)]



$\Psi_{install} = 0.06$ W/(m K)

Exterior insulation and finishing system (EIFS) bottom (fixed)

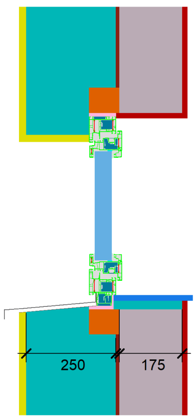
$U_1 = 0.13$ [W/(m² K)]



$\Psi_{install} = 0.02$ W/(m K)

Exterior insulation and finishing s. (EIFS) bottom (operable)

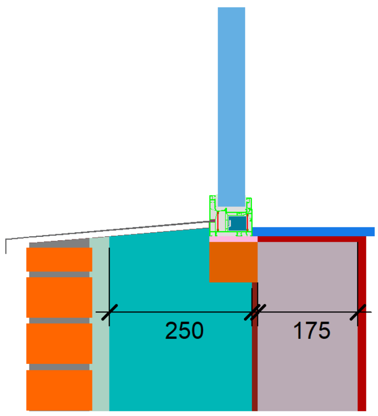
$U_1 = 0.13$ [W/(m² K)]



$\Psi_{install} = 0.02$ W/(m K)

Cavity wall (fixed glazing)

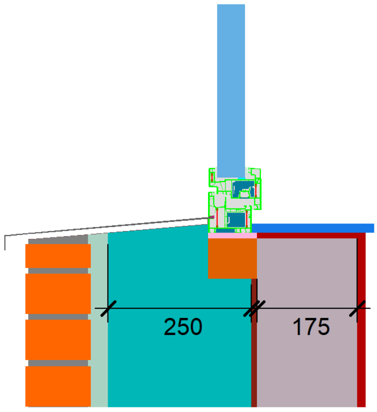
$U_1 = 0.13$ [W/(m² K)]



$\Psi_{install} = 0.02$ W/(m K)

Cavity wall (operable)

U_1 = 0.13 [W/(m² K)]



$\Psi_{install}$ = 0.02 W/(m K)