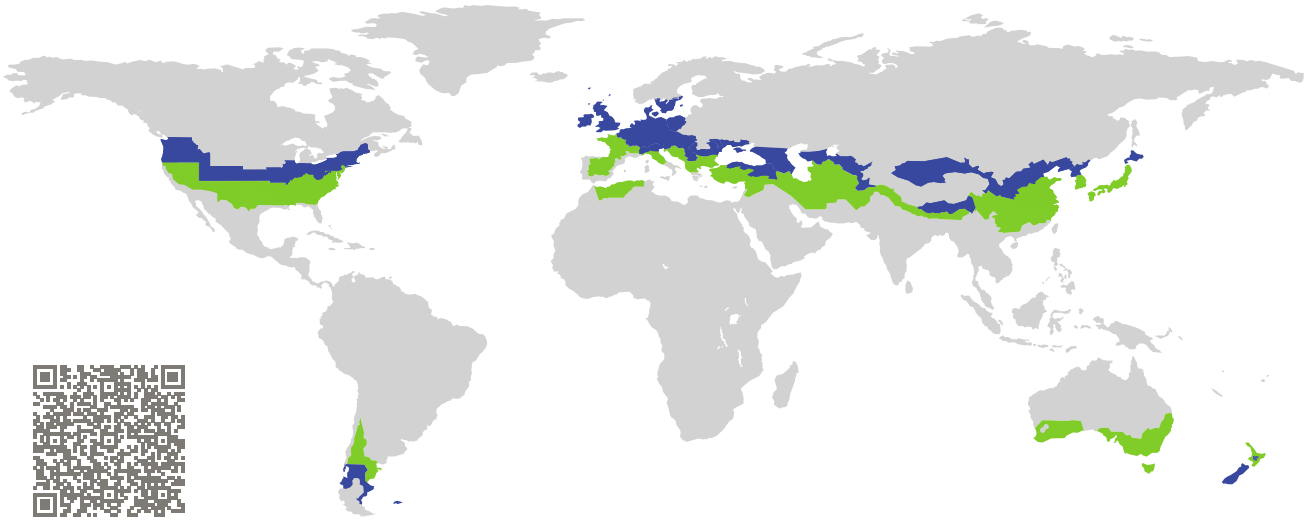
CERTIFICATE

Certified Passive House Component

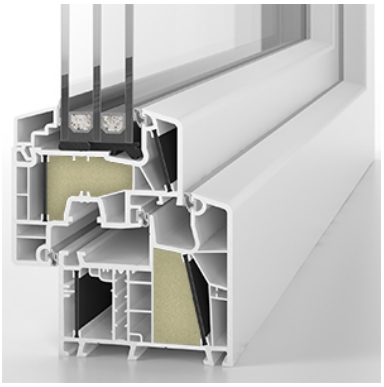
Component-ID 1543ws03 valid until 31st December 2026

Passive House Institute
Dr. Wolfgang Feist
64283 Darmstadt
Germany



Category:	**Window system**
Manufacturer:	**aluplast GmbH, Karlsruhe, Germany**
Product name:	**aluplast energeto 8000 foam inside**

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



Comfort	U_W = 0.80	≤	0.80 W/(m² K)
	$U_{W,\text{installed}}$	≤	0.85 W/(m² K)
	with U_g	=	0.70 W/(m² K)
Hygiene	$f_{Rsi=0.25}$	≥	0.70
Airtightness	Q_{100} = 0.24	≤	0.25 m³/(h m)

cool, temperate climate

phB

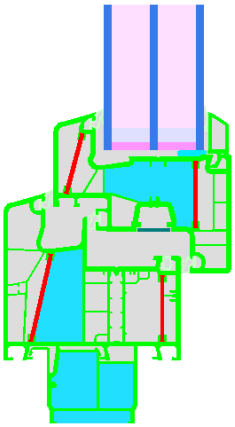
CERTIFIED COMPONENT

Passive House Institute

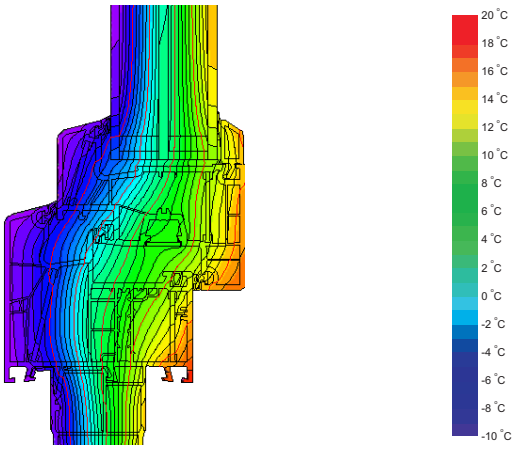
Passive House efficiency class	phE	phD	phC	phB	phA

www.passivehouse.com

aluplast GmbH
Auf der Breit 2, 76227 Karlsruhe, Germany
☎ +49 (0)721 / 47171 0 | ✉ info.de@aluplast.net | http://www.aluplast.net |



Calculation model



Isothermal

Description

Vinyl window frame, insulated by PU-foam (0,030 W/(mK)), reinforced by Polyamide with 25% glassfibre (0,30 W/(mK)). Note: At some not installed frame sections the temperature factor is not achieved. That might leed to hygienic subotimal conditions in case of very low exterior temperatures. Pane thickness: 48 mm (4/18/4/18/4), rebate depth: 16 mm, spacer: SWISSPACER Ultimate. Maximum size of sash: 1.10 * 2.05 m laminated in any colour and 1.14 * 2.15 m white.

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/(m² 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/(m² K)
		↓	↓	↓	↓	
Window	U_W =	0.80	0.76	0.72	0.68	W/(m² K)

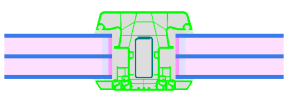
Transparent building components are classified into efficiency classes depending on the heat losses through the opaque part. The frame U-Values, frame widths, thermal bridges at the glazing edge, and the glazing edge lengths are included in these heat losses. A more detailed report of the calculations 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.

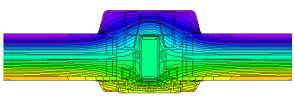
Further information relating to certification
can be found on www.passivehouse.com and passipedia.org.

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)	104	1.01	0.026	0.74
Transom fixed	(0T1)	104	1.01	0.026	0.74
Mullion 1 casement	(1M1)	143	0.95	0.026	0.69
Transom 1 casement	(1T1)	143	0.95	0.026	0.69
Mullion 2 casements	(2M1)	181	0.94	0.026	0.67
Transom 2 casements	(2T1)	181	0.94	0.026	0.67
Bottom fixed	(FB1)	110	0.81	0.027	0.76
Top fixed glazing	(FH1)	80	0.71	0.027	0.75
Jamb fixed glazing	(FJ1)	80	0.71	0.027	0.75
Flying Mullion	(FM2)	162	0.86	0.026	0.63
Flying Mullion	(FM3)	142	0.94	0.026	0.58
Flying Mullion	(FM4)	126	0.83	0.027	0.65
Bottom	(OB1)	149	0.86	0.027	0.76
Head	(OH1)	119	0.80	0.027	0.76
Jamb	(OJ1)	119	0.80	0.027	0.76
Threshold	(OT3)	89	1.44	0.026	0.43
Threshold	(OT4)	82	1.53	0.026	0.73
Threshold	(OT5)	82	1.35	0.023	0.73
Spacer: Swisspacer Ultimate			Secondary seal: Polysulfide		

Mullion
fixed

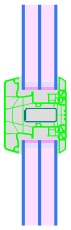
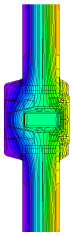
b_f = 104 mm
U_f = 1.01 W/(m² K)
Ψ_g = 0.026 W/(m K)
f_{Rsi} = 0.74





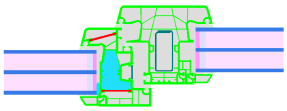
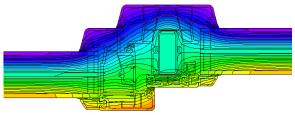
Transom
fixed

b_f = 104 mm
U_f = 1.01 W/(m² K)
Ψ_g = 0.026 W/(m K)
f_{Rsi} = 0.74

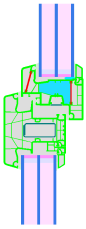
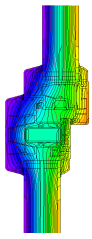
Mullion
1 casement

b_f = 143 mm
U_f = 0.95 W/(m² K)
Ψ_g = 0.026 W/(m K)
f_{Rsi} = 0.69

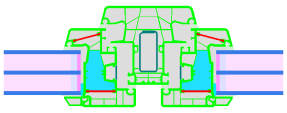
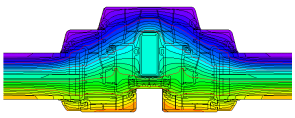
Transom
1 casement

b_f = 143 mm
U_f = 0.95 W/(m² K)
Ψ_g = 0.026 W/(m K)
f_{Rsi} = 0.69

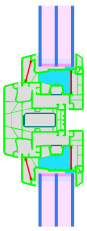
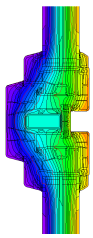
Mullion
2 casements

b_f = 181 mm
U_f = 0.94 W/(m² K)
Ψ_g = 0.026 W/(m K)
f_{Rsi} = 0.67

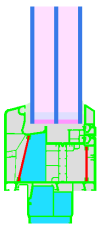
Transom
2 casements

b_f = 181 mm
U_f = 0.94 W/(m² K)
Ψ_g = 0.026 W/(m K)
f_{Rsi} = 0.67

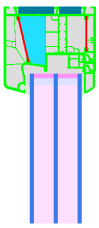
Bottom
fixed

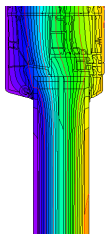
b_f = 110 mm
U_f = 0.81 W/(m² K)
Ψ_g = 0.027 W/(m K)
f_{Rsi} = 0.76




Top
fixed glazing

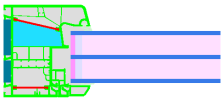
b_f = 80 mm
U_f = 0.71 W/(m² K)
Ψ_g = 0.027 W/(m K)
f_{Rsi} = 0.75

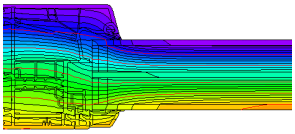




Jamb
fixed glazing

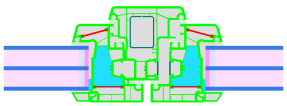
b_f = 80 mm
U_f = 0.71 W/(m² K)
Ψ_g = 0.027 W/(m K)
f_{Rsi} = 0.75

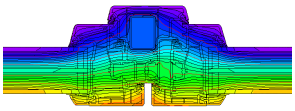




Flying Mullion

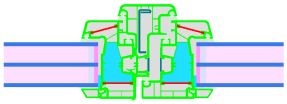
b_f = 162 mm
U_f = 0.86 W/(m² K)
Ψ_g = 0.026 W/(m K)
f_{Rsi} = 0.63

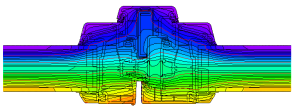




Flying Mullion

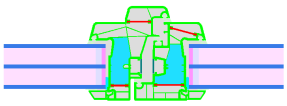
b_f = 142 mm
U_f = 0.94 W/(m² K)
Ψ_g = 0.026 W/(m K)
f_{Rsi} = 0.58

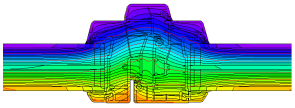




Flying Mullion

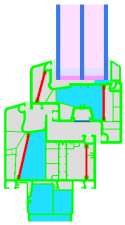
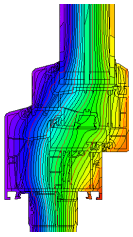
b_f = 126 mm
U_f = 0.83 W/(m² K)
Ψ_g = 0.027 W/(m K)
f_{Rsi} = 0.65





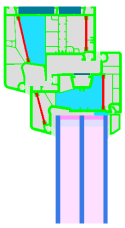
Bottom

b_f = 149 mm
U_f = 0.86 W/(m² K)
Ψ_g = 0.027 W/(m K)
f_{Rsi} = 0.76

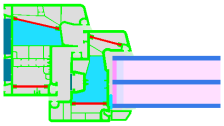
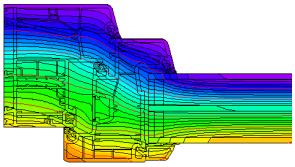
Head

b_f = 119 mm
U_f = 0.80 W/(m² K)
Ψ_g = 0.027 W/(m K)
f_{Rsi} = 0.76



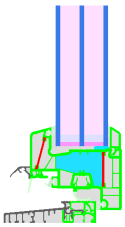
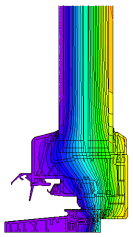

Jamb

b_f = 119 mm
U_f = 0.80 W/(m² K)
Ψ_g = 0.027 W/(m K)
f_{Rsi} = 0.76

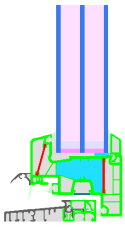
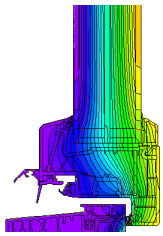
Threshold

b_f = 89 mm
U_f = 1.44 W/(m² K)
Ψ_g = 0.026 W/(m K)
f_{Rsi} = 0.43

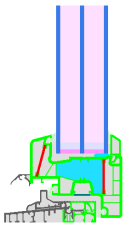
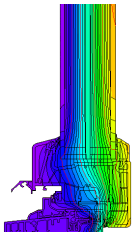
Threshold

b_f = 82 mm
U_f = 1.53 W/(m² K)
Ψ_g = 0.026 W/(m K)
f_{Rsi} = 0.73

Threshold

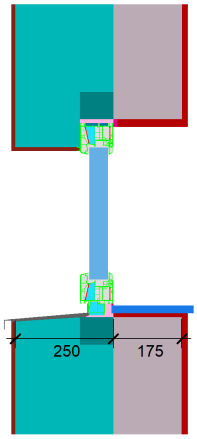
b_f = 82 mm
U_f = 1.35 W/(m² K)
Ψ_g = 0.023 W/(m K)
f_{Rsi} = 0.73

Validated installations

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

U_{Wall} = 0.13 W/(m² K)

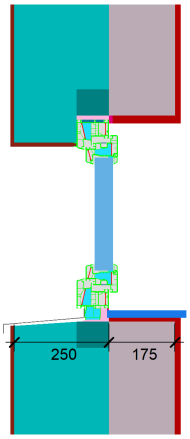


$\Psi_{install}$	W/(m K)
Top	–0.002
Left	–0.002
Right	–0.002
Bottom	0.021

$U_{W,installed}$ = 0.82 W/(m² K)

Exterior insulation and finishing system (EIFS) (operable)

U_{Wall} = 0.13 W/(m² K)

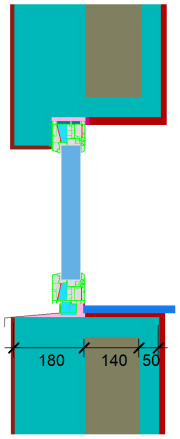


$\Psi_{install}$	W/(m K)
Top	0.002
Left	0.002
Right	0.002
Bottom	0.016

$U_{W,installed}$ = 0.82 W/(m² K)

Formwork blocks (fixed)

U_{Wall} = 0.15 W/(m² K)

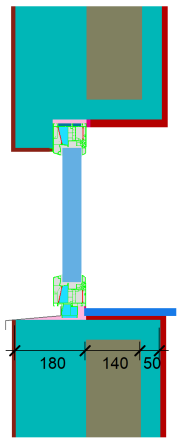


$\Psi_{install}$	W/(m K)
Top	–0.002
Left	–0.002
Right	–0.002
Bottom	0.008

$U_{W,installed}$ = 0.81 W/(m² K)

Formwork blocks (operable)

U_{Wall} = 0.15 W/(m² K)

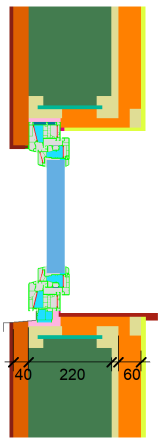


$\Psi_{install}$	W/(m K)
Top	0.001
Left	0.001
Right	0.001
Bottom	0.006

$U_{W,installed}$ = 0.81 W/(m² K)

Lightweight timber (operable)

U_{Wall} = 0.13 W/(m² K)

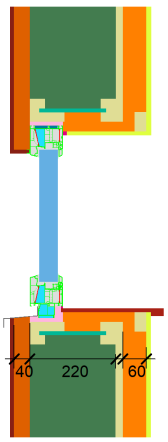


$\Psi_{install}$	W/(m K)
Top	0.014
Left	0.014
Right	0.014
Bottom	0.014

$U_{W,installed}$ = 0.83 W/(m² K)

Lightweight timber (fixed glazed)

U_{Wall} = 0.13 W/(m² K)

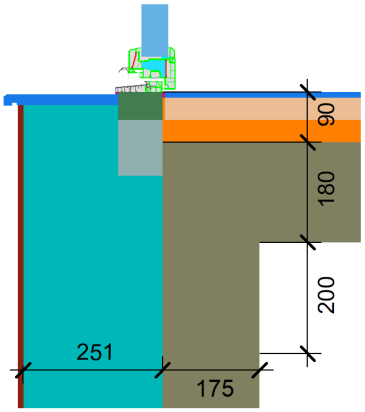


$\Psi_{install}$	W/(m K)
Top	0.014
Left	0.014
Right	0.014
Bottom	0.016

$U_{W,installed}$ = 0.84 W/(m² K)

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

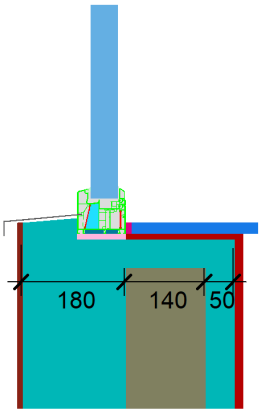
U_1 = 0.14 [W/(m² K)]



$\Psi_{install}$ = 0.081 W/(m K)

Formwork blocks bottom 2 (fixed)

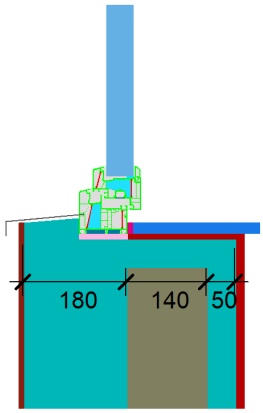
U_1 = 0.15 [W/(m² K)]



$\Psi_{install}$ = 0.008 W/(m K)

Formwork blocks bottom 2 (operable)

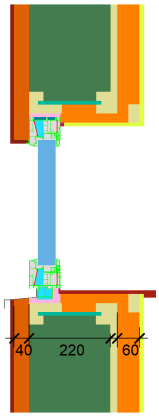
U_1 = 0.15 [W/(m² K)]



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

Lighthweight timber bottom 2 (fixed)

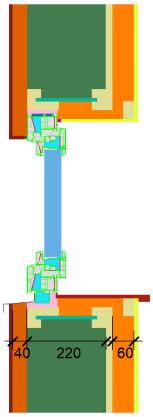
U_1 = 0.13 [W/(m² K)]



$\Psi_{install}$ = 0.018 W/(m K)

Lighthweight timber bottom 2 (operable)

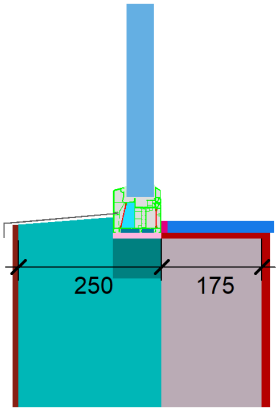
U_1 = 0.13 [W/(m² K)]



$\Psi_{install}$ = 0.016 W/(m K)

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

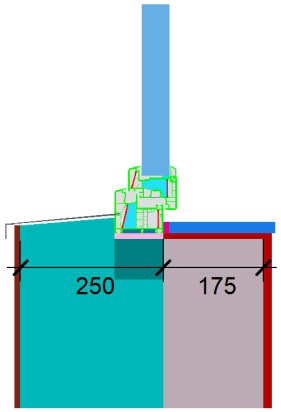
U_1 = 0.13 [W/(m² K)]



$\Psi_{install}$ = 0.012 W/(m K)

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

U_1 = 0.13 [W/(m² K)]



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

Disclaimer: The Passive House Institute GmbH (PHI) conducts heat-transfer analyses in accordance with the standards set out in Criteria and Algorithms for Certified Passive House Components: Transparent Building Components and Opening Elements in the Building Envelope, based on information provided by the manufacturer. PHI does not verify on-site implementation. It is the responsibility of the project leader to ensure that installed components match the certified specifications in terms of geometry, configuration, and materials. Manufacturers must make full product information available upon request to parties involved in a construction project. These parties may compare the provided information with project documentation and perform on-site inspections as part of the quality-assurance process.