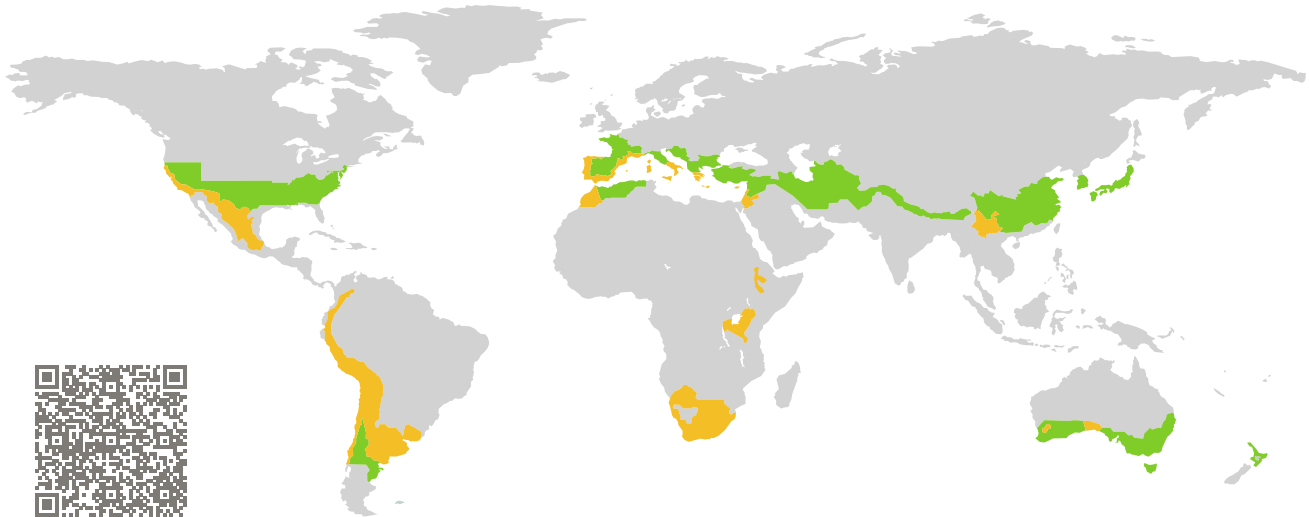


# CERTIFICATE

Certified Passive House Component

Component-ID 1544ws04 valid until 31st December 2025

Passive House Institute  
Dr. Wolfgang Feist  
64283 Darmstadt  
Germany

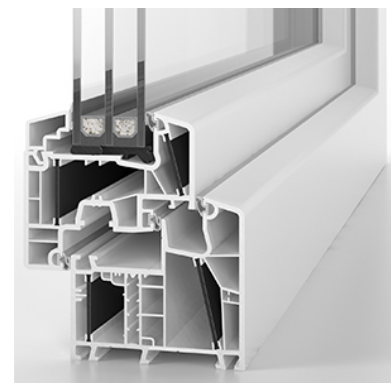


Category: **Window system**  
Manufacturer: **aluplast GmbH,  
Karlsruhe,  
Germany**  
Product name: **aluplast energeto 8000**

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

Comfort  $U_{W=1.00} \leq 1.00 \text{ W}/(\text{m}^2 \text{ K})$   
 $U_{W,\text{installed}} \leq 1.05 \text{ W}/(\text{m}^2 \text{ K})$   
with  $U_g = 0.90 \text{ W}/(\text{m}^2 \text{ K})$

Hygiene  $f_{Rsi=0.25} \geq 0.65$   
Airtightness  $Q_{100} = 0.24 \leq 0.25 \text{ m}^3/(\text{h m})$



warm, temperate climate



**CERTIFIED  
COMPONENT**

Passive House Institute

Passive House  
efficiency class

phE

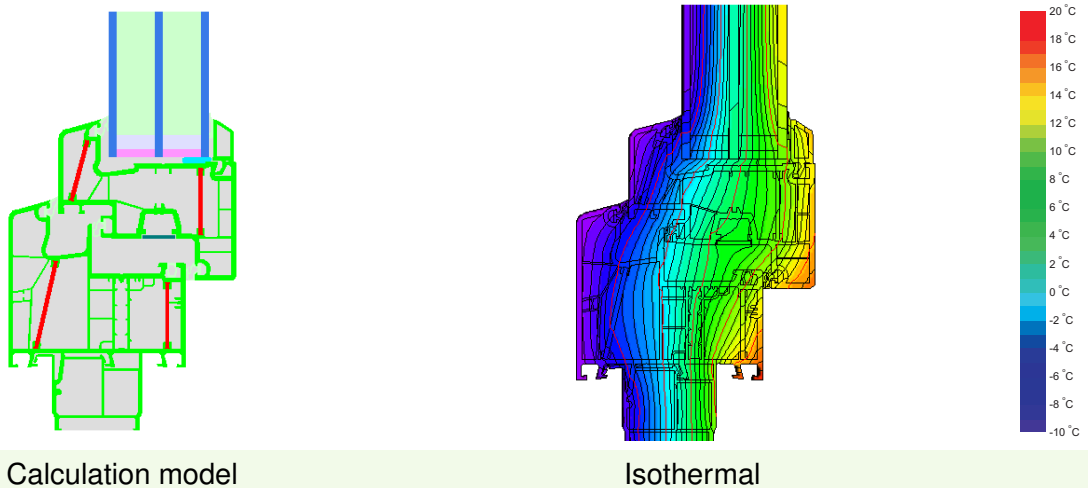
phD

phC

phB

phA

[www.passivehouse.com](http://www.passivehouse.com)



Calculation model Isothermal

**Description**

Multi-chamber vinyl window frame, reinforced by Polyamide with 25% glassfibre (0,30 W/(mK)). Pane glued to the frame. Note: At some not installed frame sections the temperature factor is not achieved. That might lead to hygienic suboptimal conditions in case of very low exterior temperatures. Pane thickness: 48 mm (4/18/4/18/4), rebate depth: 18 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 x 1.48 m with  $U_g = 0.90 \text{ W}/(\text{m}^2 \text{ K})$ . If a higher quality glazing is used, the window U-values will improve as follows:

Glazing	$U_g =$	0.90	0.72	0.64	0.52	W/(m <sup>2</sup> K)
		↓	↓	↓	↓	
Window	$U_w =$	1.00	0.88	0.83	0.75	W/(m <sup>2</sup> 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](http://www.passivehouse.com) and [passipedia.org](http://passipedia.org).

Frame values			Frame width $b_f$ mm	$U$ -value frame $U_f$ W/(m <sup>2</sup> K)	$\Psi$ -glazing edge $\Psi_g$ W/(m K)	Temp. Factor $f_{Rsi=0.25}$ [-]
Mullion fixed	(0M1)		104	1.01	0.025	0.71
Transom fixed	(0T1)		104	1.01	0.025	0.71
Mullion 1 casement	(1M1)		143	1.03	0.025	0.66
Transom 1 casement	(1T1)		143	1.03	0.025	0.66
Mullion 2 casements	(2M1)		181	1.04	0.025	0.64
Transom 2 casements	(2T1)		181	1.04	0.025	0.64
Bottom fixed	(FB1)		110	1.12	0.025	0.72
Top fixed	(FH1)		80	0.85	0.025	0.72
Lateral fixed	(FJ1)		80	0.85	0.025	0.72
Flying Mullion	(FM2)		162	0.99	0.025	0.62
Flying Mullion	(FM3)		142	1.10	0.025	0.58
Flying Mullion	(FM4)		126	1.01	0.025	0.62
Bottom	(OB1)		149	1.14	0.025	0.73
Top	(OH1)		119	0.96	0.026	0.73
Lateral	(OJ1)		119	0.96	0.026	0.73
Threshold	(OT3)		89	1.62	0.025	0.69
Threshold	(OT4)		82	1.72	0.025	0.68
Threshold	(OT5)		82	1.52	0.024	0.69

Spacer: SWISSPACER ULTIMATE

Secondary seal: Polysulfide

**Mullion fixed**

$b_f = 104$  mm

$U_f = 1.01$  W/(m<sup>2</sup> K)

$\Psi_g = 0.025$  W/(m K)

$f_{Rsi} = 0.71$



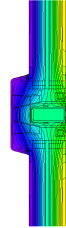
**Transom**  
fixed

$$b_f = 104 \text{ mm}$$

$$U_f = 1.01 \text{ W}/(\text{m}^2 \text{ K})$$

$$\Psi_g = 0.025 \text{ W}/(\text{m K})$$

$$f_{Rsi} = 0.71$$



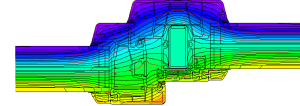
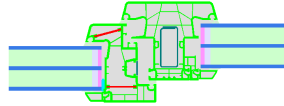
**Mullion**  
1 casement

$$b_f = 143 \text{ mm}$$

$$U_f = 1.03 \text{ W}/(\text{m}^2 \text{ K})$$

$$\Psi_g = 0.025 \text{ W}/(\text{m K})$$

$$f_{Rsi} = 0.66$$



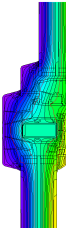
**Transom**  
1 casement

$$b_f = 143 \text{ mm}$$

$$U_f = 1.03 \text{ W}/(\text{m}^2 \text{ K})$$

$$\Psi_g = 0.025 \text{ W}/(\text{m K})$$

$$f_{Rsi} = 0.66$$



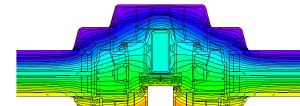
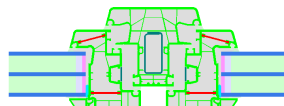
**Mullion**  
2 casements

$$b_f = 181 \text{ mm}$$

$$U_f = 1.04 \text{ W}/(\text{m}^2 \text{ K})$$

$$\Psi_g = 0.025 \text{ W}/(\text{m K})$$

$$f_{Rsi} = 0.64$$



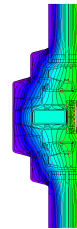
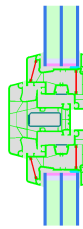
**Transom**  
2 casements

$$b_f = 181 \text{ mm}$$

$$U_f = 1.04 \text{ W}/(\text{m}^2 \text{ K})$$

$$\Psi_g = 0.025 \text{ W}/(\text{m K})$$

$$f_{Rsi} = 0.64$$





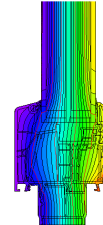
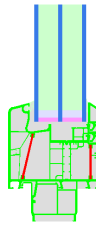
**Bottom  
fixed**

$$b_f = 110 \text{ mm}$$

$$U_f = 1.12 \text{ W/(m}^2 \text{ K)}$$

$$\Psi_g = 0.025 \text{ W/(m K)}$$

$$f_{Rsi} = 0.72$$



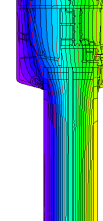
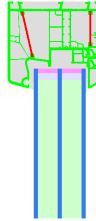
**Top  
fixed**

$$b_f = 80 \text{ mm}$$

$$U_f = 0.85 \text{ W/(m}^2 \text{ K)}$$

$$\Psi_g = 0.025 \text{ W/(m K)}$$

$$f_{Rsi} = 0.72$$



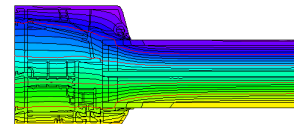
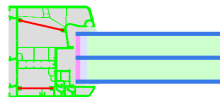
**Lateral  
fixed**

$$b_f = 80 \text{ mm}$$

$$U_f = 0.85 \text{ W/(m}^2 \text{ K)}$$

$$\Psi_g = 0.025 \text{ W/(m K)}$$

$$f_{Rsi} = 0.72$$



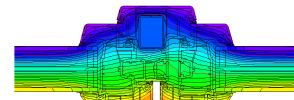
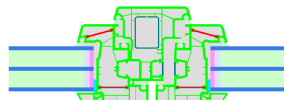
**Flying Mullion**

$$b_f = 162 \text{ mm}$$

$$U_f = 0.99 \text{ W/(m}^2 \text{ K)}$$

$$\Psi_g = 0.025 \text{ W/(m K)}$$

$$f_{Rsi} = 0.62$$



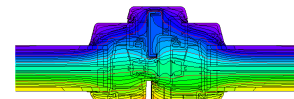
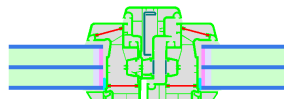
**Flying Mullion**

$$b_f = 142 \text{ mm}$$

$$U_f = 1.10 \text{ W/(m}^2 \text{ K)}$$

$$\Psi_g = 0.025 \text{ W/(m K)}$$

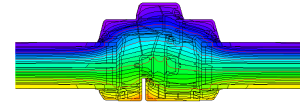
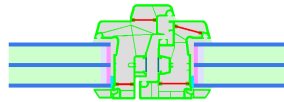
$$f_{Rsi} = 0.58$$





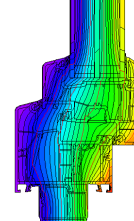
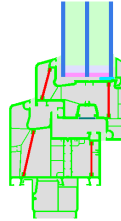
### Flying Mullion

$$b_f = 126 \text{ mm}$$
$$U_f = 1.01 \text{ W}/(\text{m}^2 \text{ K})$$
$$\Psi_g = 0.025 \text{ W}/(\text{m K})$$
$$f_{Rsi} = 0.62$$



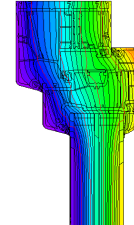
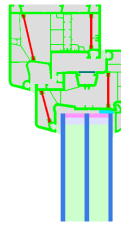
### Bottom

$$b_f = 149 \text{ mm}$$
$$U_f = 1.14 \text{ W}/(\text{m}^2 \text{ K})$$
$$\Psi_g = 0.025 \text{ W}/(\text{m K})$$
$$f_{Rsi} = 0.73$$



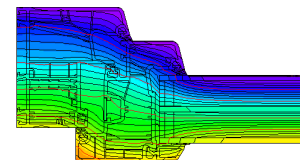
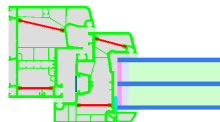
### Top

$$b_f = 119 \text{ mm}$$
$$U_f = 0.96 \text{ W}/(\text{m}^2 \text{ K})$$
$$\Psi_g = 0.026 \text{ W}/(\text{m K})$$
$$f_{Rsi} = 0.73$$



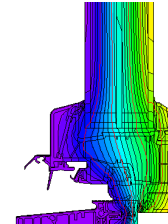
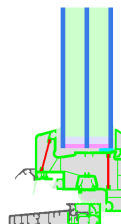
### Lateral

$$b_f = 119 \text{ mm}$$
$$U_f = 0.96 \text{ W}/(\text{m}^2 \text{ K})$$
$$\Psi_g = 0.026 \text{ W}/(\text{m K})$$
$$f_{Rsi} = 0.73$$



### Threshold

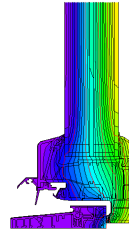
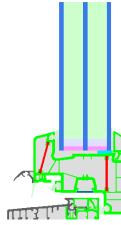
$$b_f = 89 \text{ mm}$$
$$U_f = 1.62 \text{ W}/(\text{m}^2 \text{ K})$$
$$\Psi_g = 0.025 \text{ W}/(\text{m K})$$
$$f_{Rsi} = 0.69$$





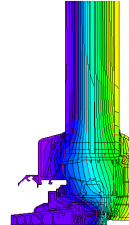
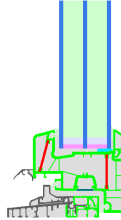
### Threshold

$$b_f = 82 \text{ mm}$$
$$U_f = 1.72 \text{ W}/(\text{m}^2 \text{ K})$$
$$\Psi_g = 0.025 \text{ W}/(\text{m K})$$
$$f_{Rsi} = 0.68$$

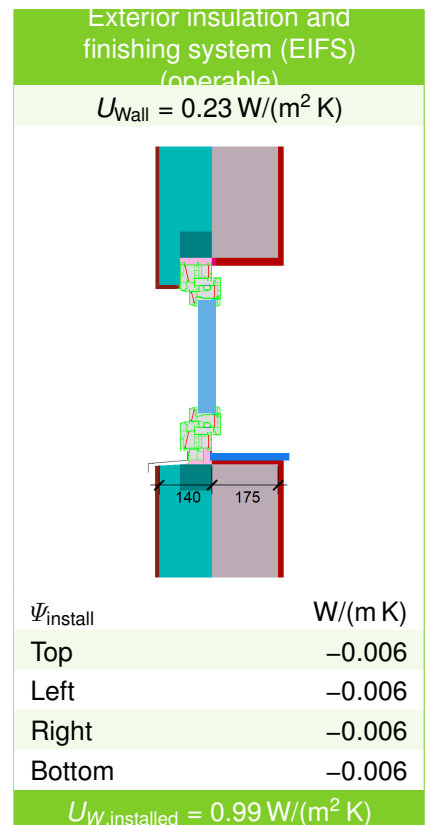
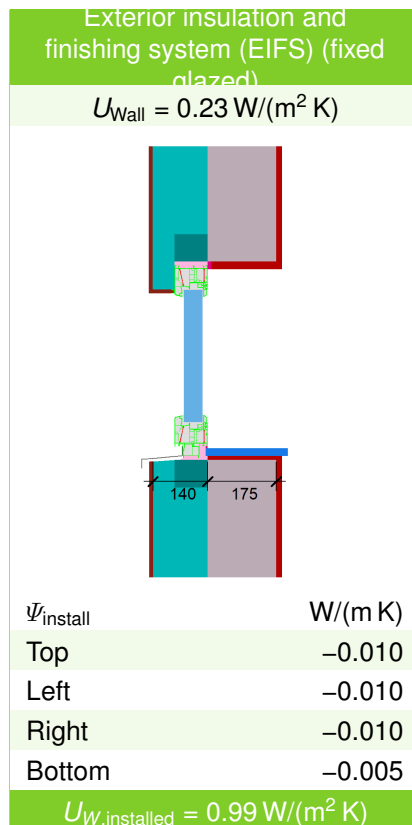
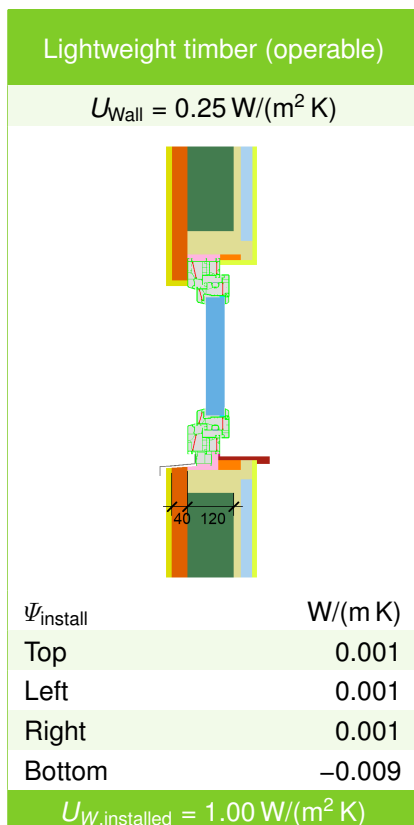
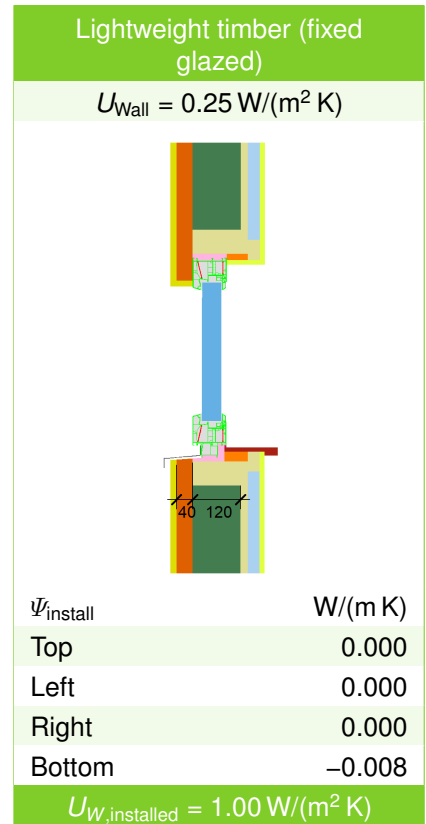
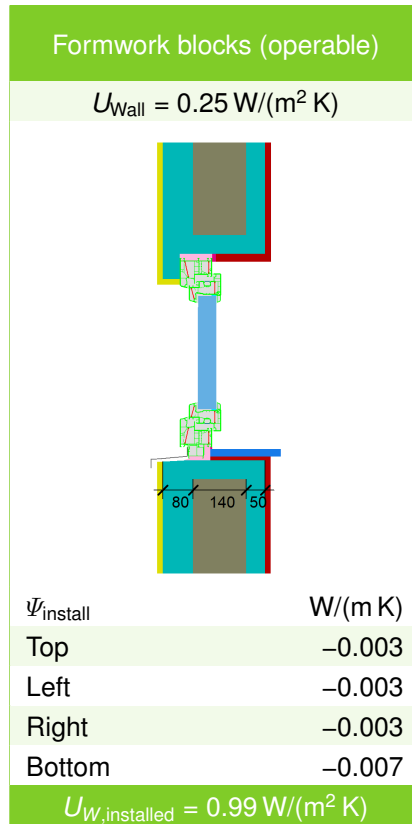
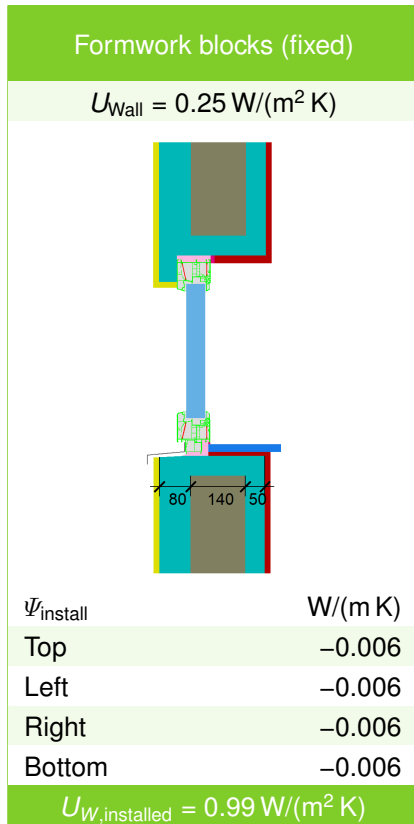


### Threshold

$$b_f = 82 \text{ mm}$$
$$U_f = 1.52 \text{ W}/(\text{m}^2 \text{ K})$$
$$\Psi_g = 0.024 \text{ W}/(\text{m K})$$
$$f_{Rsi} = 0.69$$



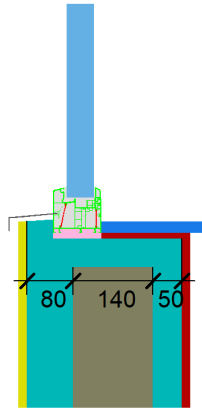
## Validated installations





Formwork blocks bottom 2 (fixed)

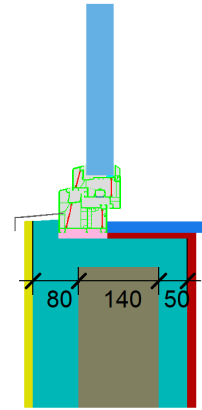
$U_1 = 0.25 \text{ [W/(m}^2 \text{ K)]}$



$\Psi_{\text{install}} = 0.01 \text{ W/(m K)}$

Formwork blocks bottom 2 (operable)

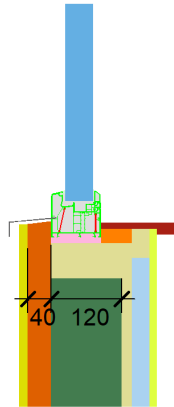
$U_1 = 0.25 \text{ [W/(m}^2 \text{ K)]}$



$\Psi_{\text{install}} = 0.01 \text{ W/(m K)}$

Lightweight timber bottom 2 (fixed)

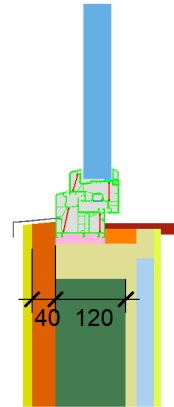
$U_1 = 0.25 \text{ [W/(m}^2 \text{ K)]}$



$\Psi_{\text{install}} = 0.01 \text{ W/(m K)}$

Lightweight timber bottom 2 (operable)

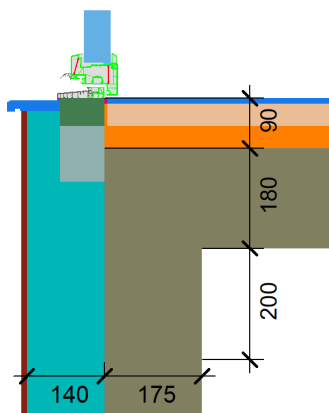
$U_1 = 0.25 \text{ [W/(m}^2 \text{ K)]}$



$\Psi_{\text{install}} = 0.01 \text{ W/(m K)}$

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

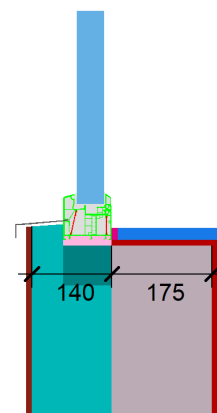
$U_1 = 0.24 \text{ [W/(m}^2 \text{ K)]}$



$\Psi_{\text{install}} = 0.07 \text{ W/(m K)}$

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

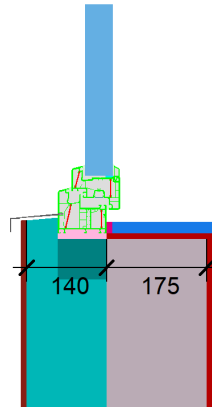
$U_1 = 0.23 \text{ [W/(m}^2 \text{ K)]}$



$\Psi_{\text{install}} = 0.00 \text{ W/(m K)}$

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

$$U_1 = 0.23 \text{ [W/(m}^2 \text{ K)]}$$



$$\Psi_{\text{install}} = 0.01 \text{ W/(m K)}$$