

Certificate

Certified Passive House component

for cool, temperate climate, valid until 31.12.2016

Passive House Institute
Dr. Wolfgang Feist
64283 Darmstadt
GERMANY

Category: **Curtain Wall**
Manufacturer: **REHAU AG+Co**
91018 Erlangen, GERMANY
Product name: **Fassadensystem REHAU-Polytec 50 S**

The following comfort criteria were used in awarding this certificate:

Given a U_g value of $0.70 \text{ W/(m}^2\text{K)}$ and an element size of 1.20 m by 2.50 m ,

$$U_{CW} = 0.80 \text{ W/(m}^2\text{K)} \leq 0.80 \text{ W/(m}^2\text{K)}$$

Taking into account the installation based thermal bridges, and provided that the installation is, with regard to the thermal bridges, equal or better than shown in the data sheet, the facade meets the following criterion.

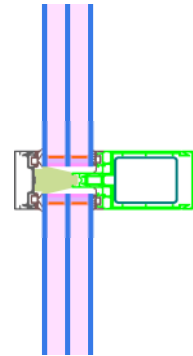
$$U_{CW, \text{installed}} \leq 0.85 \text{ W/(m}^2\text{K)}$$

Thermal data of the construction

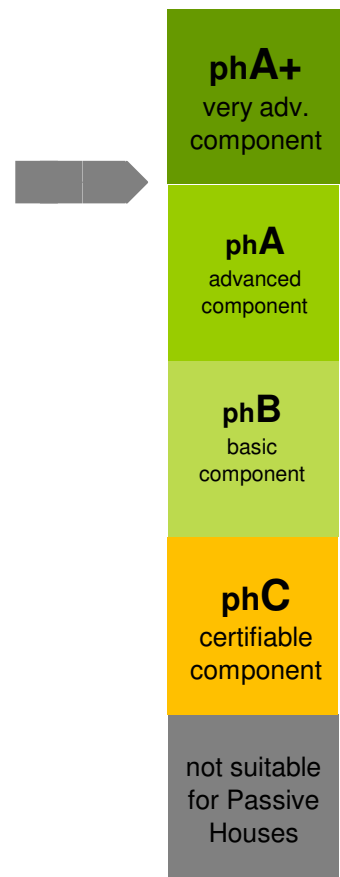
	U_f -value [W/(m ² K)]	Width [mm]	Ψ_g [W/(mK)]	$f_{Rsi=0.25}$ [-]
Spacer	Swisspacer V*			0.74
Transom (t)	0.99	50	0.034	
Mullion (m)	1.00	50	0.035	
Thermal glass carrier bridge χ_{GT} [W/K]:				0.002

*Spacers of lower thermal quality, especially those made of aluminium, lead to significantly higher thermal losses and lower temperature factors.

Further information see data sheet



Passive House Efficiency Class



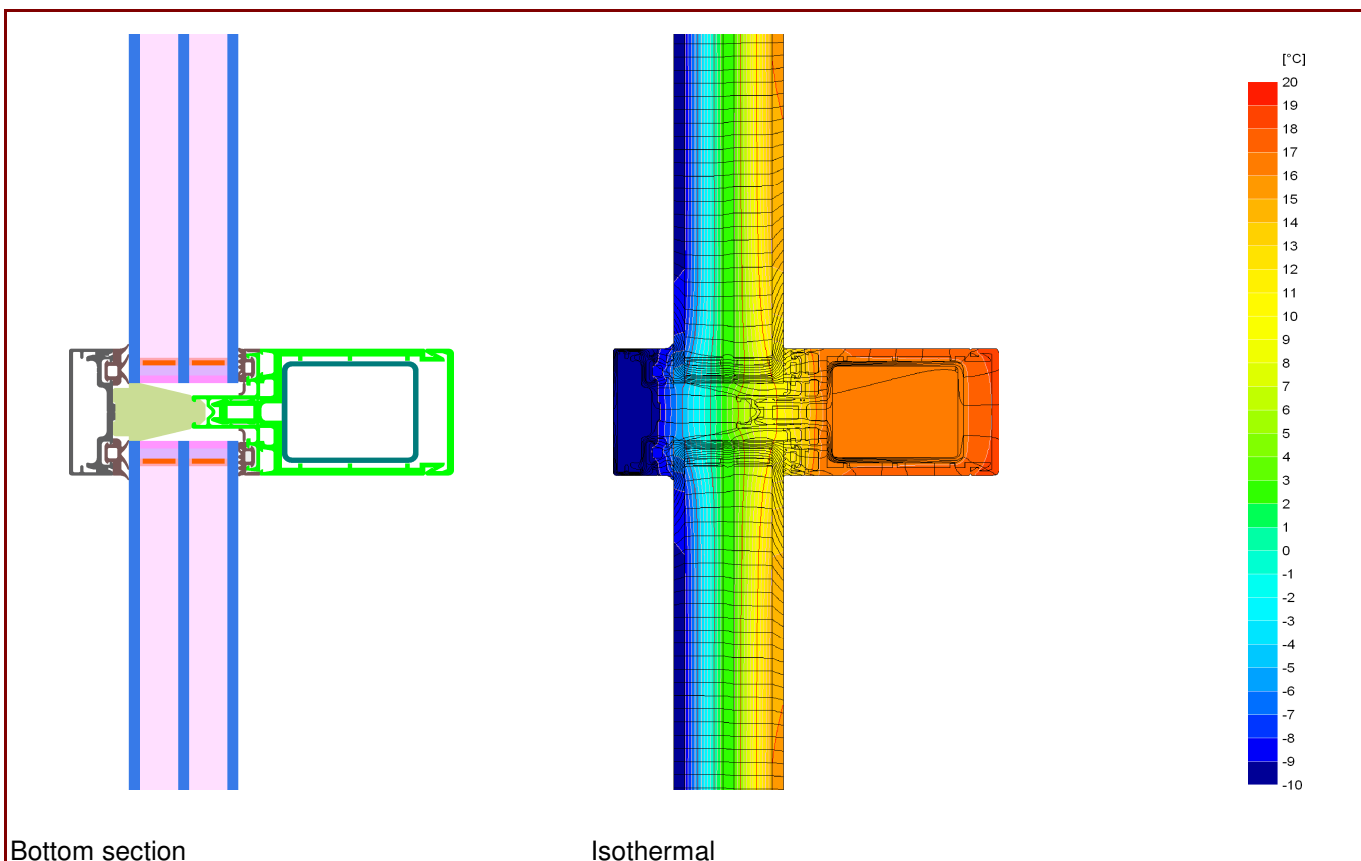
**CERTIFIED
COMPONENT**

Passive House Institute

Data Sheet REHAU AG+Co, Fassadensystem REHAU-Polytec 50 S

Manufacturer REHAU AG+Co
91018 Erlangen, GERMANY

www.rehau.com

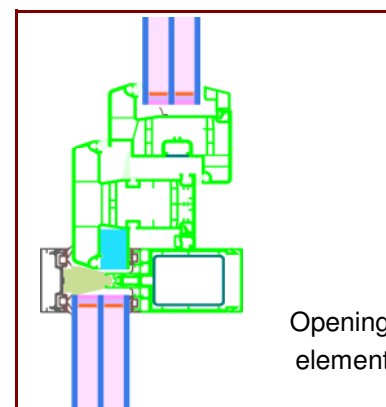


Description

PVC Mullion and Transom, reinforced by internal steel beam. Outer devices form aluminium. Insulated b PE-foam (0,038 W/(mK)). Used Pane: 40 mm (4/14/4/14/4), intersection of the Glass: 13,5 mm. Used spacer: Swisspacer V

Thermal data

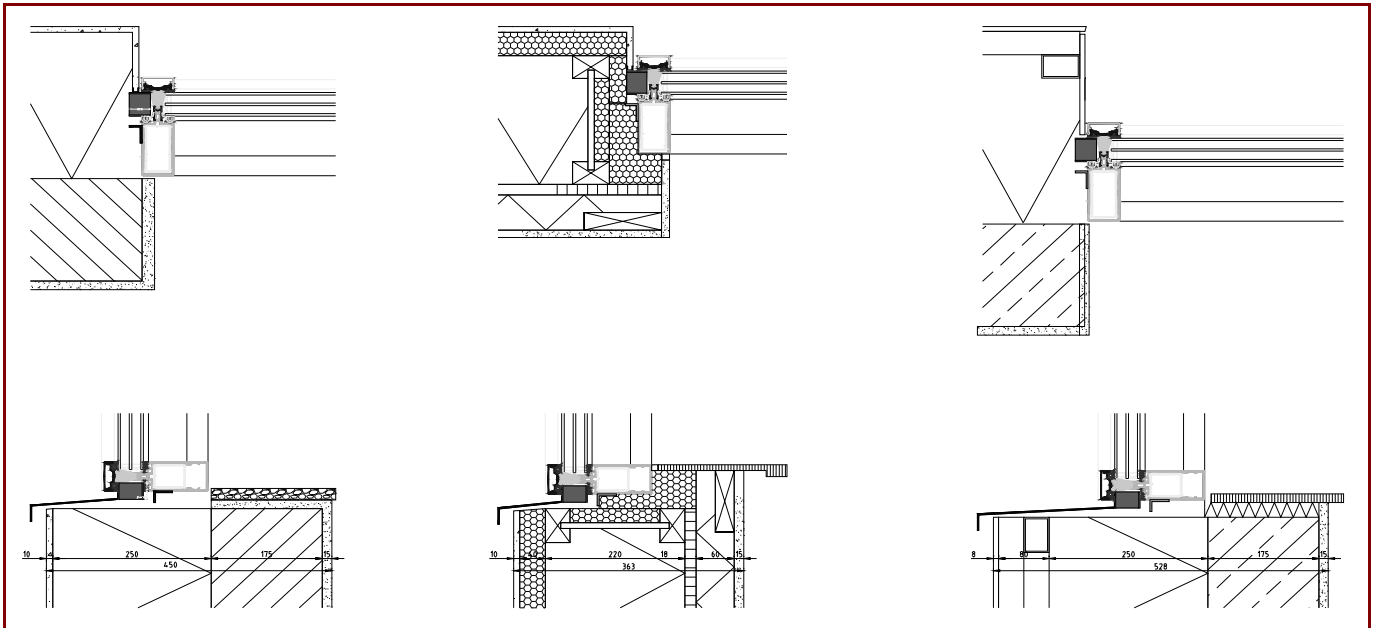
	U_f -value ¹ [W/(m²K)]	Width [mm]	Ψ_g [W/(mK)]	$f_{Rsi=0.25}$ [-]
Spacer	Swisspacer V*			
Transom (t)	0.99	50	0.034	0.74
Mullion (m)	1.00	50	0.035	
Opening element	1.04	175	0.031	0.70
-				
Thermal glass carrier bridge χ_{GT} [W/K]:				0.0024
1: Includes $\Delta U = 0.19$ W/(m²K), simulated by PHI				
2: Simulated by PHI				



* Spacers of lower thermal quality leading to higher thermal losses and lower temperatures.

Data Sheet REHAU AG+Co, Fassadensystem REHAU-Polytec 50 S

Installation



Installation based thermal bridge $\Psi_{\text{instal.}}$ in Passive House suitable walls

		EIFS	Timber construction wall	Ventilated facing
Position				
Bottom	[W/(mK)]	0.042	0.044	0.042
Side/top	[W/(mK)]	0.037	0.042	0.043
$U_{\text{CW,instaled}}$	[W/(m ² K)]	0.85	0.86	0.86

Explanatory notes

The facade-U-values were calculated based on a 1.20 m by 2.50 m element $U_g = 0.70 \text{ W/(m}^2\text{K)}$.
If better glazing is used, the facade-U-value decrease as follow:

U Glazing	U_g [W/(m²K)]	0.66	0.60	0.57
U Facade	U_{CW} [W/(m²K)]	0.76	0.71	0.68

Depending on the thermal losses through opaque elements, transparent components are categorised according to efficiency classes. These thermal losses include the losses through the frame, multiplied by its width, the thermal bridge at the edge bond as well as the length of the edge bond.

Please ask the manufacturer for a detailed report containing all calculations and results.

For further information, please visit www.passivehouse.com or www.passipedia.org.