

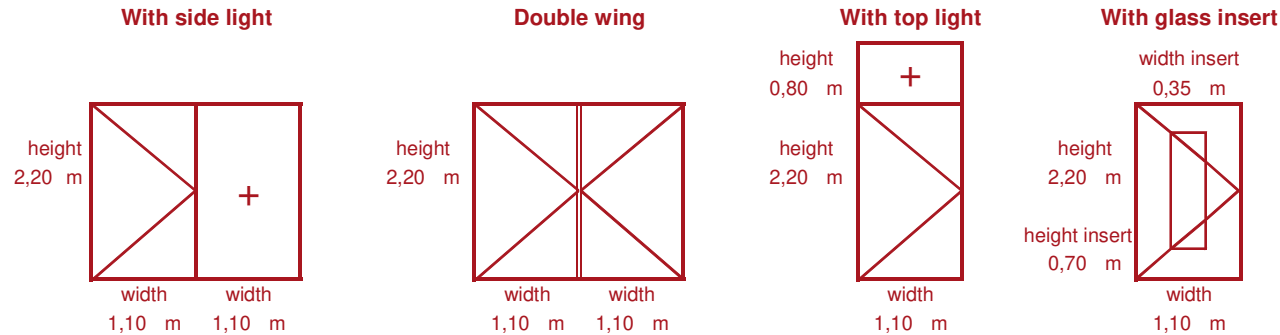
Input Data-Sheet

Short report | Based on ISO 10077-2 | Performed by: Passive House Institute Dr. Wolfgang Feist, Author: Dr.-Ing. Benjamin Krick

On behalf of: **Moralt AG, Hausham, GERMANY**
 Project/Product: **FERRO PASSIV (Kürzbar) Eiche**

Description	Door leaf / Glazing		Uf value [W/(m²K)]				Frame Width [m]				Glazing Edge Ψ -value [W/(m²K)]				Temperature factor (min) $f_{Rsi=0,25}$ [-]	Overall U-value [W/(m²K)]
	U_{dl} -value [W/(m²K)]	U_g -value [W/(m²K)]	Lock s.	Hinge s.	Sill	Head	Lock s.	Hinge s.	Sill	Head	Lock s.	Hinge s.	Sill	Head		
FERRO PASSIV (Kürzbar) Eiche	0,32		1,05	1,33	1,39	1,12	0,199	0,199	0,165	0,199	0,001	0,003	0,002	0,002	0,49	0,74
Glass insert	0,32	0,60										0,041			0,76	

Drawings and material data were provided by the manufacturer. The sole responsibility for the provided information lies with the manufacturer.

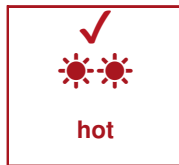
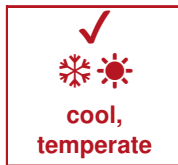


comfort criterion for cool-temperate climate zone achieved

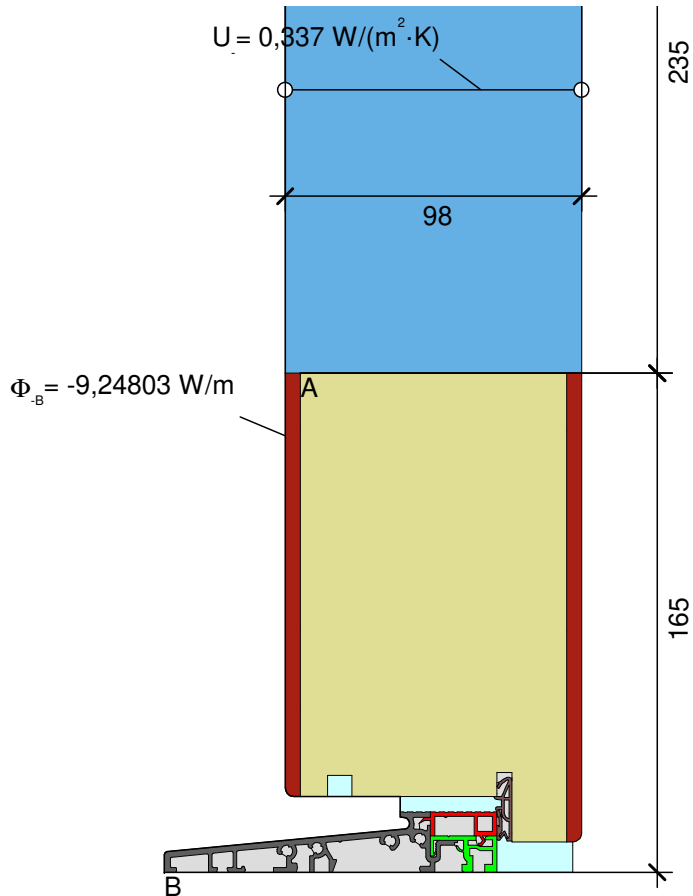
U-value U_D [W/(m²K)]

0,80

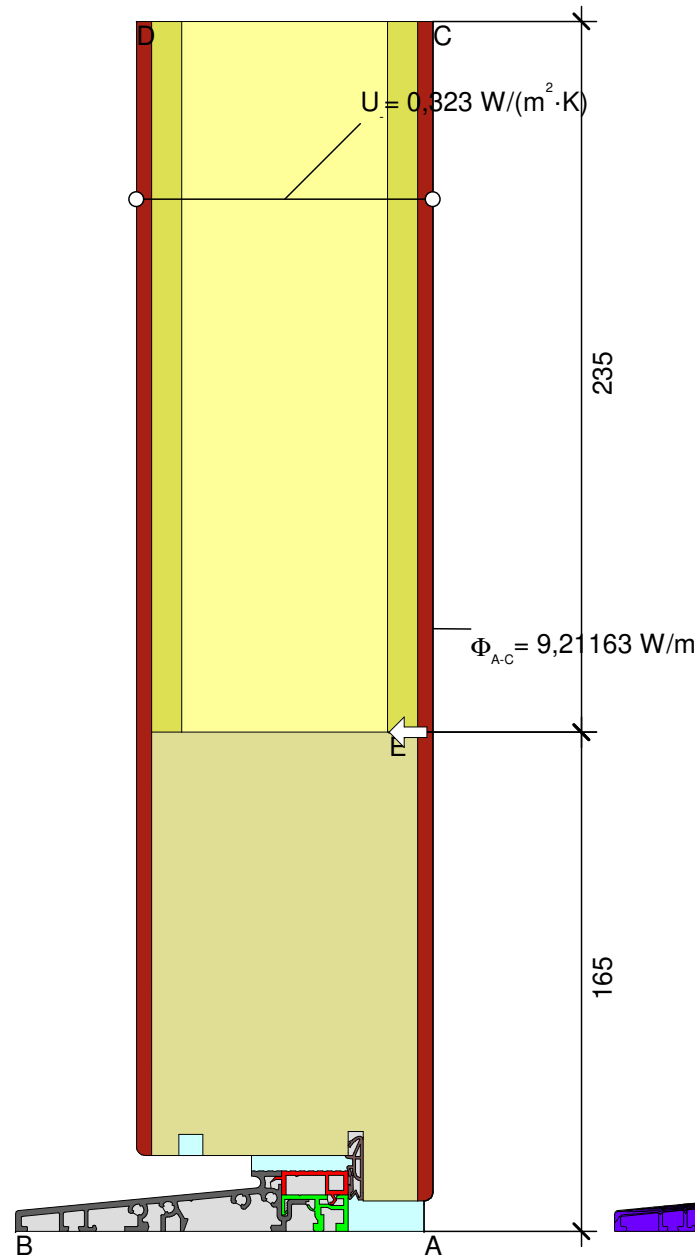
Suitable for climate zone



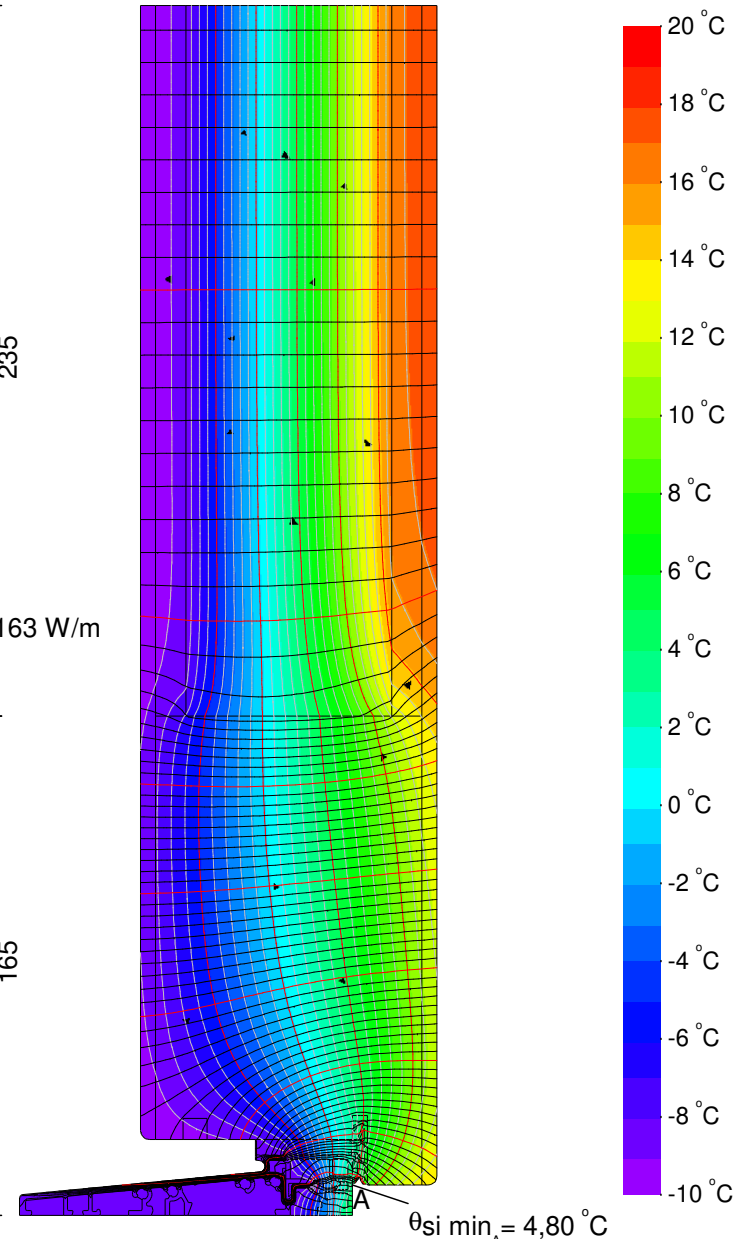
Material	λ [W/(m·K)]	ϵ
Aluminum Aluminium 10456	160,000	
EPDM	0,250	
Hardwood Hartholz 0.18 700 kg/m ³ 10456	0,180	
Polyamide 25% Glassfiber	0,300	
Polyvinylchloride (PVC)	0,170	
Resloic foam Resolsschaum 025	0,025	
Softwood, OSB Weichholz, OSB 10456	0,130	
Unvent. cavity unbel. Hohlr. *		
Wooden-based material Holzwerkstoff 0.13	0,130	
slightly vent. cav. leicht bel. Hohlr. *		
* EN ISO 10077-2:2017, 6.4.3		



$$U_{fA,B} = \frac{\Phi}{\Delta T} - \frac{U_p \cdot b_p}{b_f} = \frac{9,248}{30,000} - \frac{0,337 \cdot 0,235}{0,165} = 1,389 \text{ W/(m}^2 \cdot \text{K)}$$

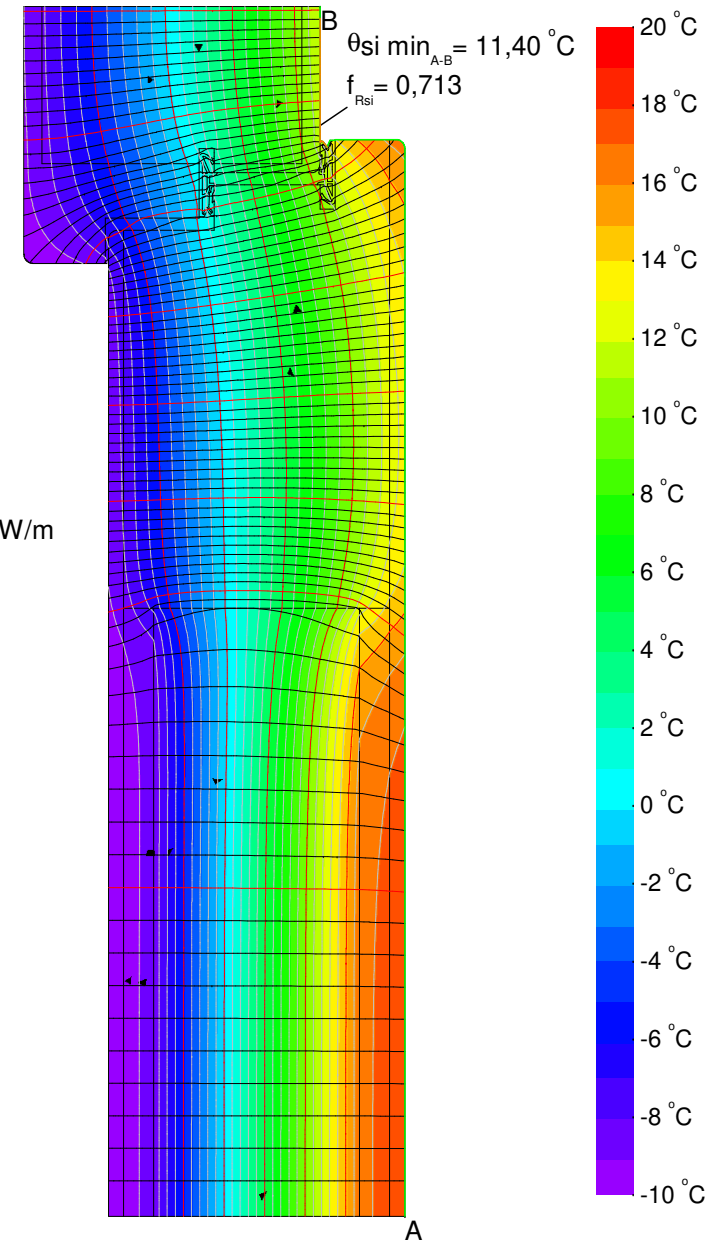
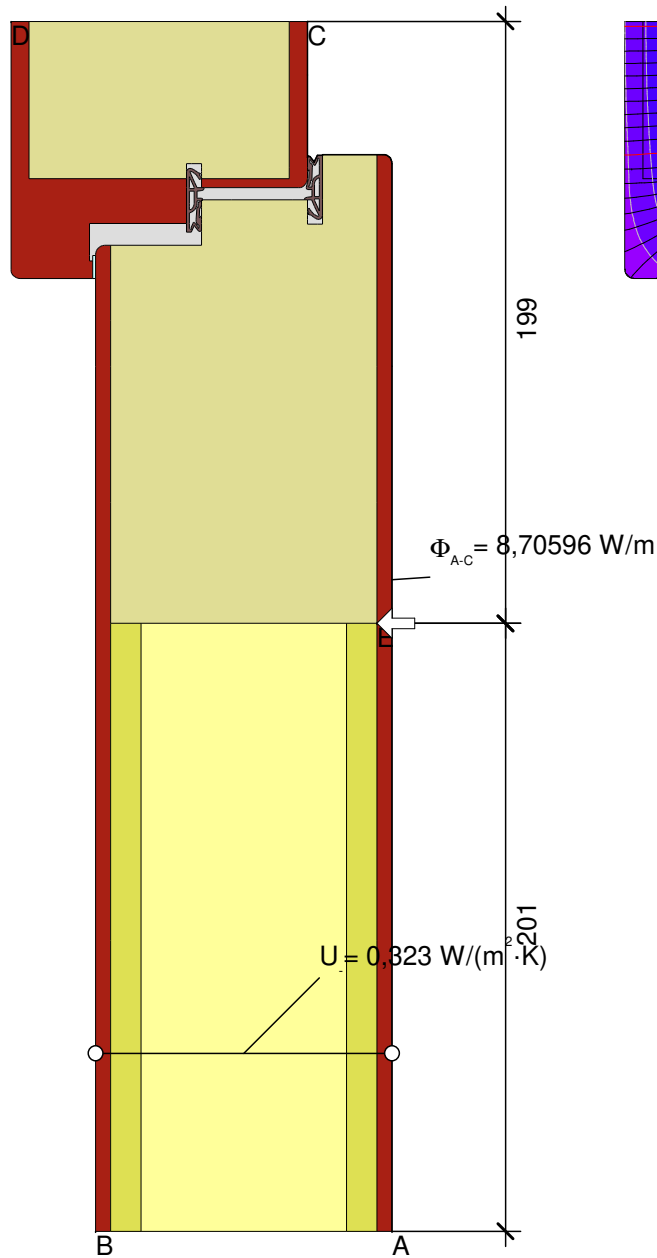
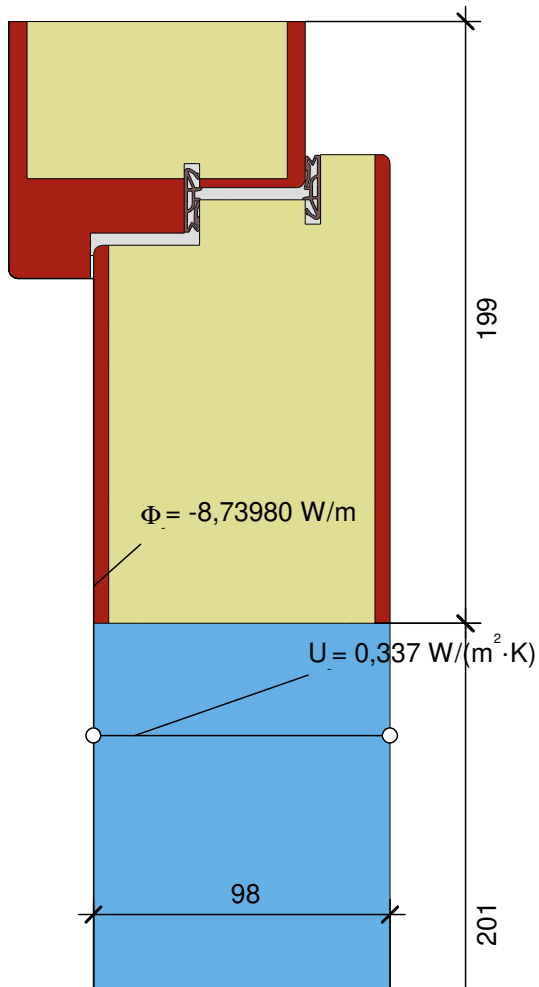


$$\psi_{A-E-C,*} = \frac{\Phi}{\Delta T} - U_1 \cdot b_1 - U_2 \cdot b_2 = \frac{9,212}{30,000} - 1,389 \cdot 0,165 - 0,323 \cdot 0,235 = 0,002 \text{ W/(m}^2 \cdot \text{K)}$$



$\theta_{si \min_A} = 4,80 \text{ }^\circ\text{C}$
 $f_{Rsi} = 0,493$

th - THRESHOLD | SCHWELLE



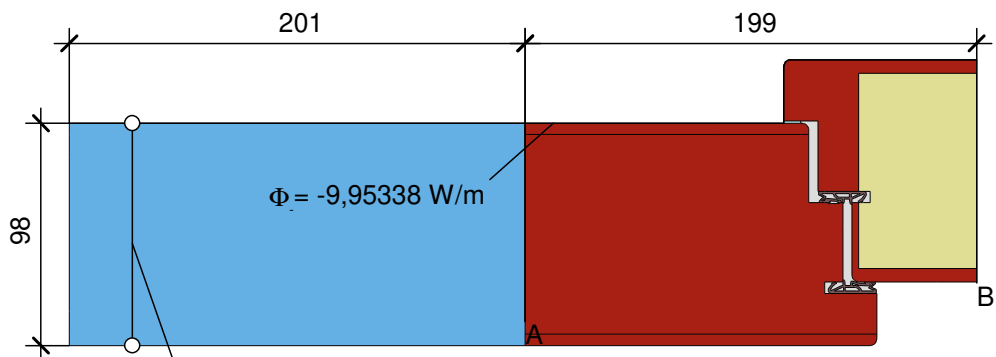
Material	λ [W/(m·K)]	ϵ
EPDM	0,250	
Hardwood Hartholz 0.18 700 kg/m3 10456	0,180	
Resloic foam Resolsschaum 025	0,025	
Softwood, OSB Weichholz, OSB 10456	0,130	
Unvent. cavity unbel. Hohlr. *		
Wooden-based material Holzwerkstoff 0.13 slightly vent. cav. leicht bel. Hohlr. *	0,130	
wooden-based material Holzwerkstoff 0.18	0,180	

* EN ISO 10077-2:2017, 6.4.3

$$U_f = \frac{\frac{\Phi}{\Delta T} - U_p \cdot b_p}{b_f} = \frac{\frac{8,740}{30,000} - 0,337 \cdot 0,201}{0,199} = 1,124 \text{ W/(m}^2 \cdot \text{K)}$$

$$\Psi_{A-E-C,*} = \frac{\Phi}{\Delta T} - U_1 \cdot b_1 - U_2 \cdot b_2 = \frac{8,706}{30,000} - 0,323 \cdot 0,201 - 1,124 \cdot 0,199 = 0,002 \text{ W/(m} \cdot \text{K)}$$

to - TOP | OBEN

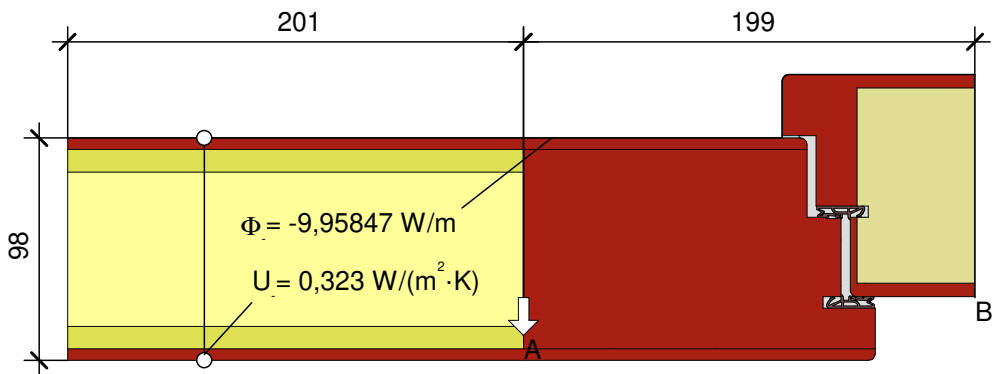


$$U_p = 0,337 \text{ W}/(\text{m}^2 \cdot \text{K})$$

$$U_{fA,B} = \frac{\frac{\Phi}{\Delta T} - U_p \cdot b_p}{b_f} = \frac{\frac{9,953}{30,000} - 0,337 \cdot 0,201}{0,199} = 1,327 \text{ W}/(\text{m}^2 \cdot \text{K})$$

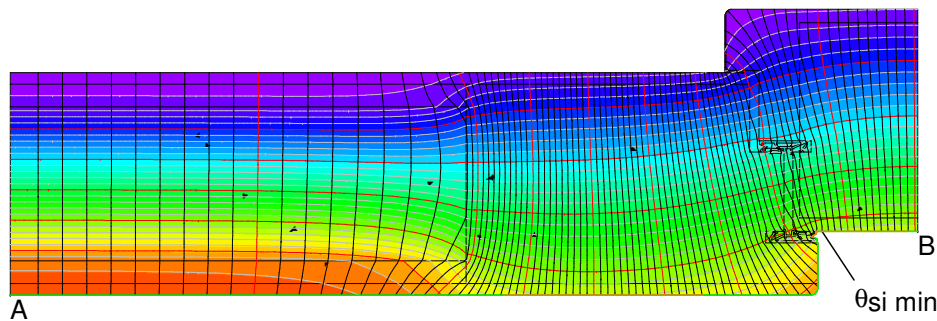
Material	λ [W/(m·K)]	ϵ
EPDM	0,250	
Hardwood Harholz 0.18 700 kg/m3 10456	0,180	
Resloic foam Resolsschaum 025	0,025	
Softwood, OSB Weichholz, OSB 10456	0,130	
Unvent. cavity unbel. Hohlr. *		
Wooden-based material Holzwerkstoff 0.13	0,130	
slightly vent. cav. leicht bel. Hohlr. *		
wooden-based material Holzwerkstoff 0.18	0,180	

* EN ISO 10077-2:2017, 6.4.3



$$\Psi_{edA} = \frac{\Phi}{\Delta T} - U_g \cdot b_g - U_f \cdot b_f = \frac{9,958}{30,000} - 0,323 \cdot 0,201 - 1,327 \cdot 0,199 = 0,003 \text{ W}/(\text{m} \cdot \text{K})$$

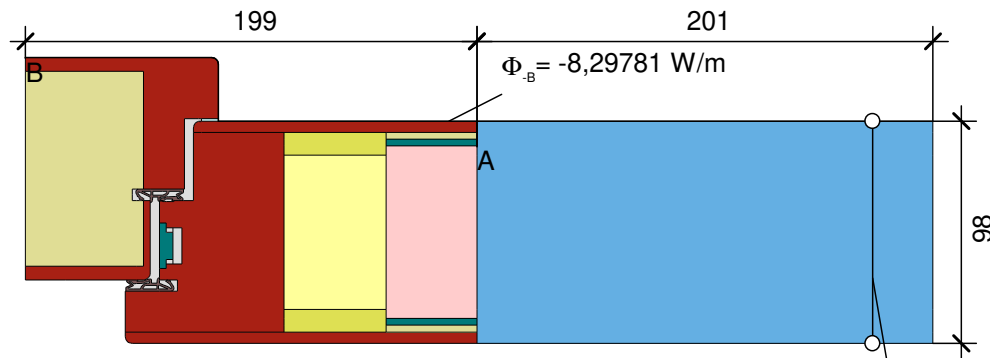
Boundary Condition	q [W/m²]	θ_l [°C]	R [(m²·K)/W]	ϵ
Adiabatic Adiat	0,000			
Exterior Außen		-10,000	0,040	
Interior, frame, normal		20,000	0,130	
Interior, frame, reduced		20,000	0,200	



$\theta_{si \text{ min } A-B} = 11,11 \text{ }^\circ\text{C}$
 $f_{Rsi} = 0,704$

Boundary Condition	q [W/m²]	θ_l [°C]	R [(m²·K)/W]	ϵ
Adiabatic Adiat	0,000			
Exterior Außen		-10,000	0,040	
fRsi: Interior Innen		20,000	0,250	

si HINGE SIDE | BANDSEITE

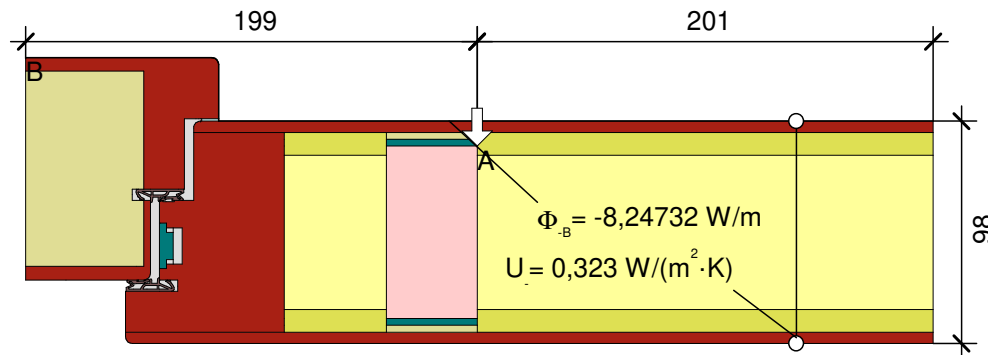


$$U_{fA,B} = \frac{\frac{\Phi}{\Delta T} - U_p \cdot b_p}{b_f} = \frac{\frac{8,298}{30,000} - 0,337 \cdot 0,201}{0,199} = 1,050 \text{ W}/(\text{m}^2 \cdot \text{K})$$

$$U_p = 0,337 \text{ W}/(\text{m}^2 \cdot \text{K})$$

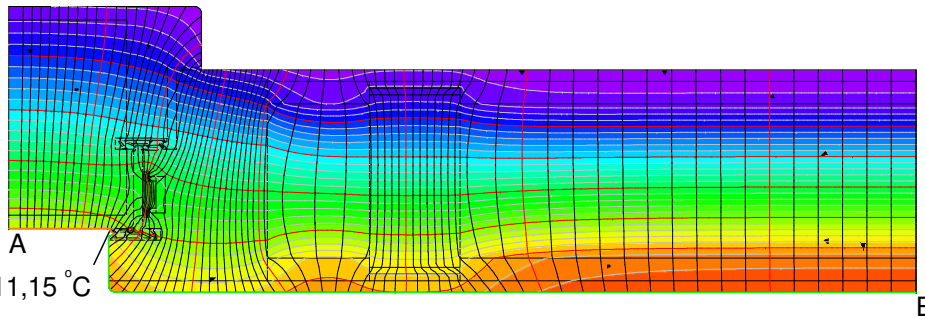
Material	λ [W/(m·K)]	ϵ
Balsa qsenkrecht 0.11 W/(mK)	0,110	
EPDM	0,250	
Hardwood Hartholz 0.18 700 kg/m3 10456	0,180	
Resloic foam Resolsschaum 025	0,025	
Softwood, OSB Weichholz, OSB 10456	0,130	
Steel Stahl	50,000	
Unvent. cavity unbel. Hohlr. *		
Wooden-based material Holzwerkstoff 0.13	0,130	
slightly vent. cav. leicht bel. Hohlr. *		
wooden-based material Holzwerkstoff 0.18	0,180	

* EN ISO 10077-2:2017, 6.4.3



$$\psi_{edA} = \frac{\Phi}{\Delta T} - U_g \cdot b_g - U_f \cdot b_f = \frac{8,247}{30,000} - 0,323 \cdot 0,201 - 1,050 \cdot 0,199 = 0,001 \text{ W}/(\text{m} \cdot \text{K})$$

Boundary Condition	q [W/m ²]	θ [°C]	R [(m ² ·K)/W]	ϵ
Adiabatic Adiat	0,000			
Exterior Außen		-10,000	0,040	
Interior, frame, normal		20,000	0,130	
Interior, frame, reduced		20,000	0,200	

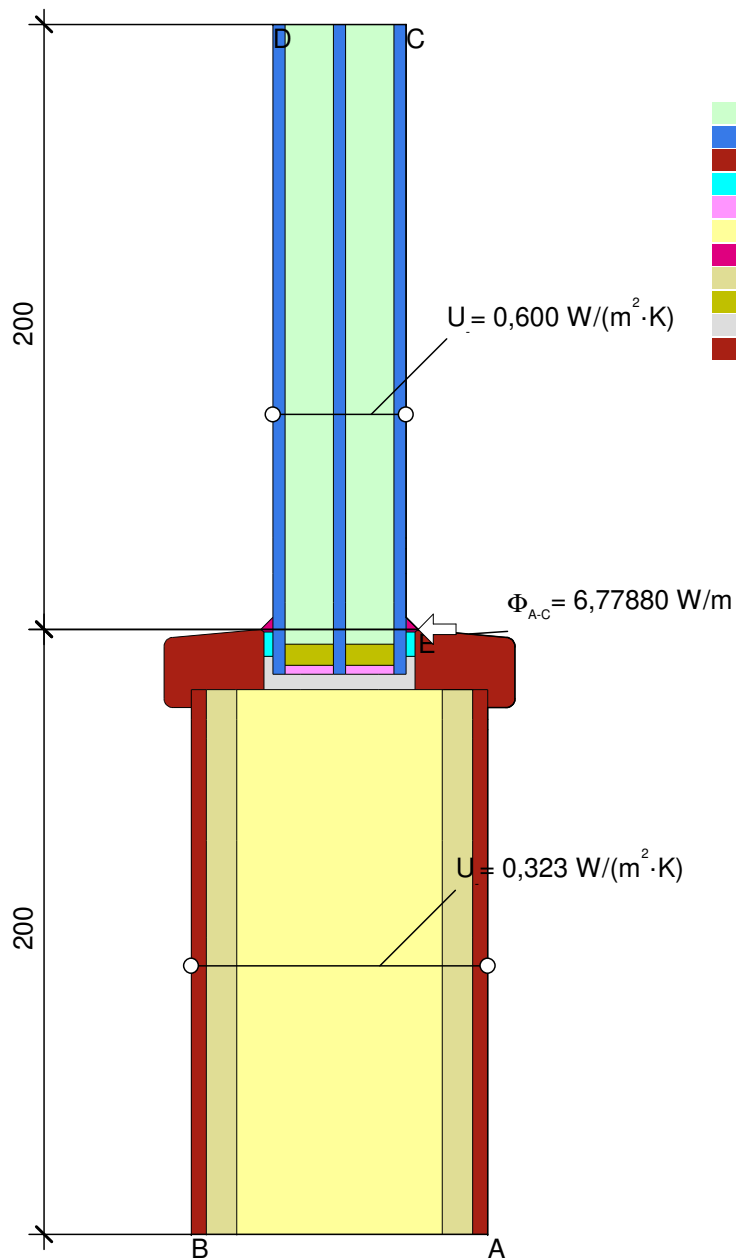


$$\theta_{si \min}_{A-B} = 11,15 \text{ } ^\circ\text{C}$$

$$f_{Rsi} = 0,705$$

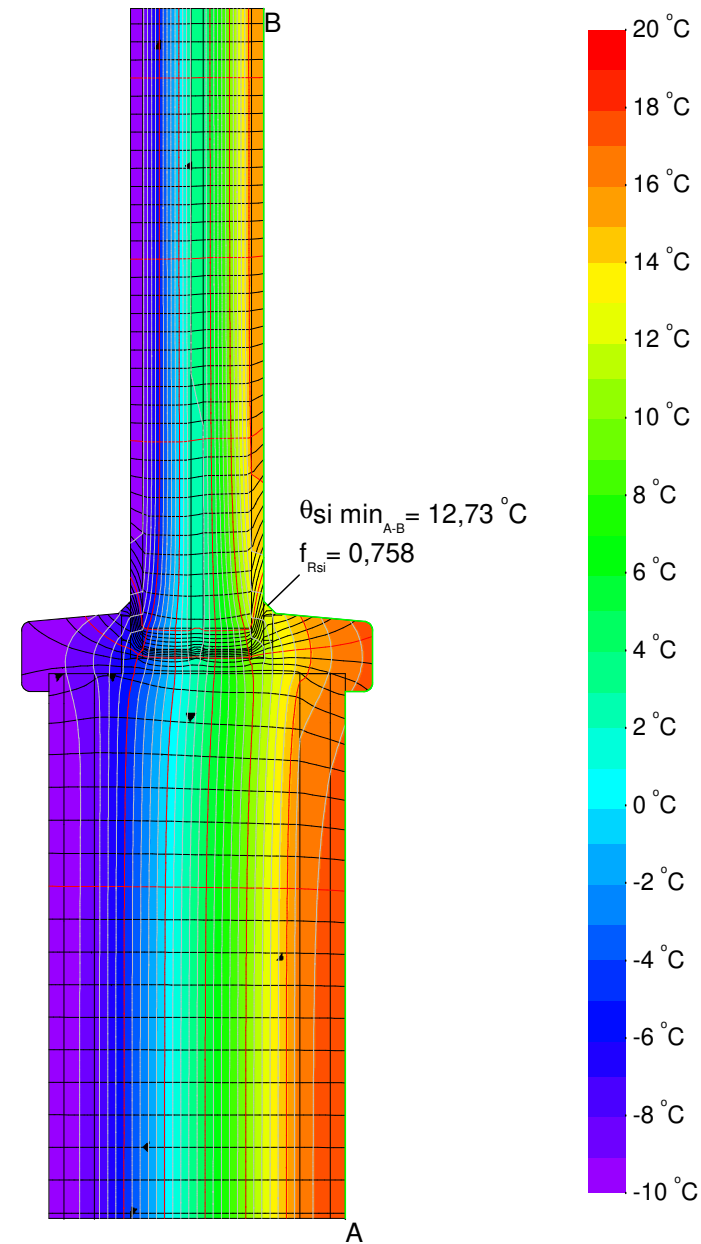
Boundary Condition	q [W/m ²]	θ [°C]	R [(m ² ·K)/W]	ϵ
Adiabatic Adiat	0,000			
Exterior Außen		-10,000	0,040	
fRsi: Interior Innen		20,000	0,250	

sh - LOCK SIDE | SCHLOSS SEITE



Material	λ [W/(m·K)]	ϵ
Ar16 in 44mm Ug 0,60	0,022	
Glass Glas	1,000	0,900
Hardwood Hartholz 0.18 700 kg/m3 10456	0,180	0,900
Insulation tape Vorlegeband	0,060	0,900
Polysulfide Polysulfid	0,400	0,900
Resloic foam Resolsschaum 025	0,025	0,900
Silicone Silikon	0,350	
Softwood, OSB Weichholz, OSB 10456	0,130	
Thermix LowPsi [cert]	0,155	
Unvent. cavity unbel. Hohlr. *		
wooden-based material Holzwerkstoff 0.18	0,180	

* EN ISO 10077-2:2017, 6.4.3



$$\psi_{A-E-C} = \frac{\Phi}{\Delta T} - U_1 \cdot b_1 - U_2 \cdot b_2 = \frac{6,779}{30,000} - 0,323 \cdot 0,200 - 0,600 \cdot 0,200 = 0,041 \text{ W/(m·K)}$$

GLASS INSERT | GLASEINSATZ