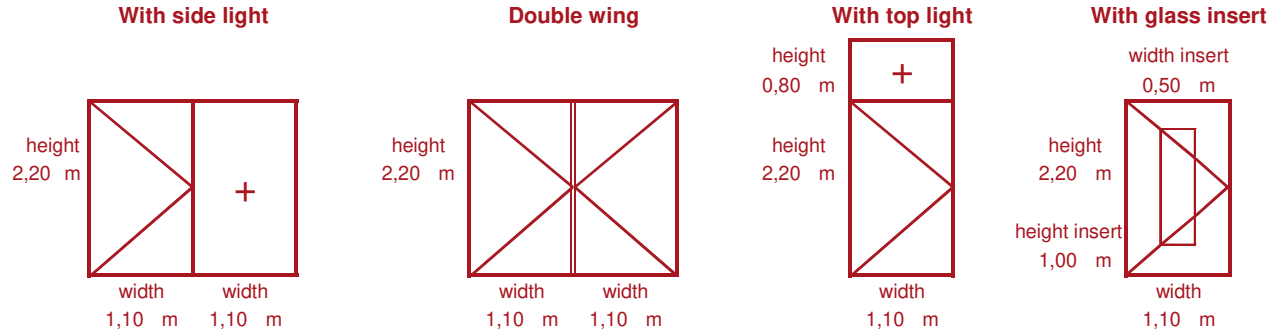


On behalf of: **Moralt AG, Hausham, GERMANY**
 Project/Product: **FERRO PASSIV (Kürzbar)**

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 _{dI} -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)	0,32		0,94	1,10	1,39	1,10	0,199	0,199	0,165	0,199	0,001	0,002	0,002	0,002	0,49	0,69
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_b [W/(m²K)]

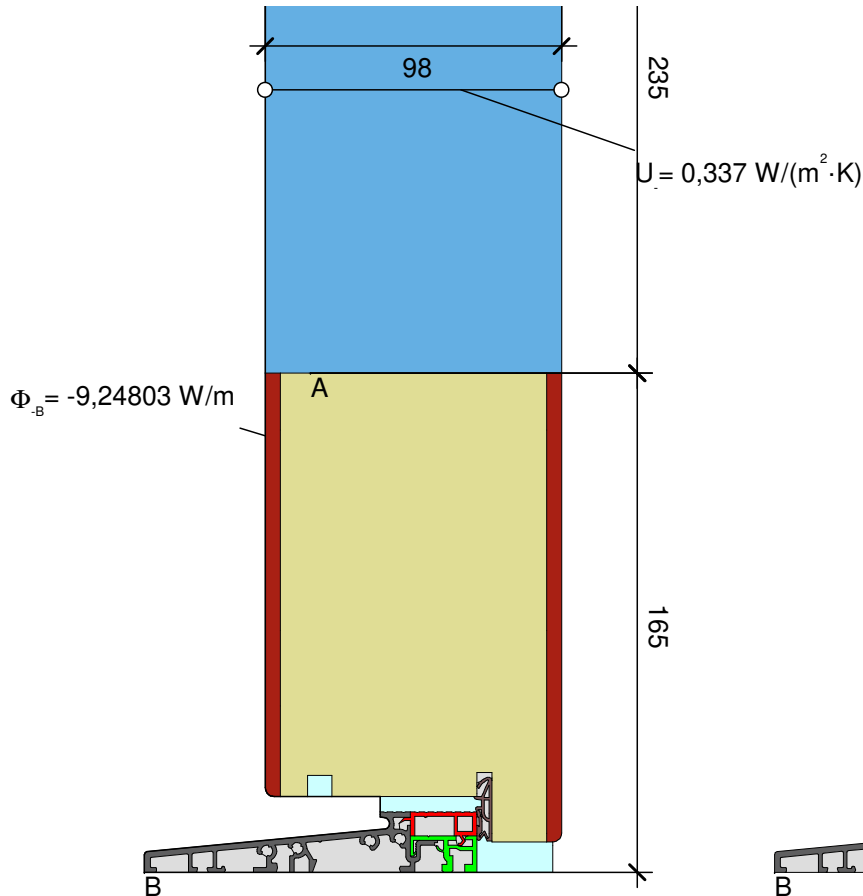
0,80

Suitable for climate zone

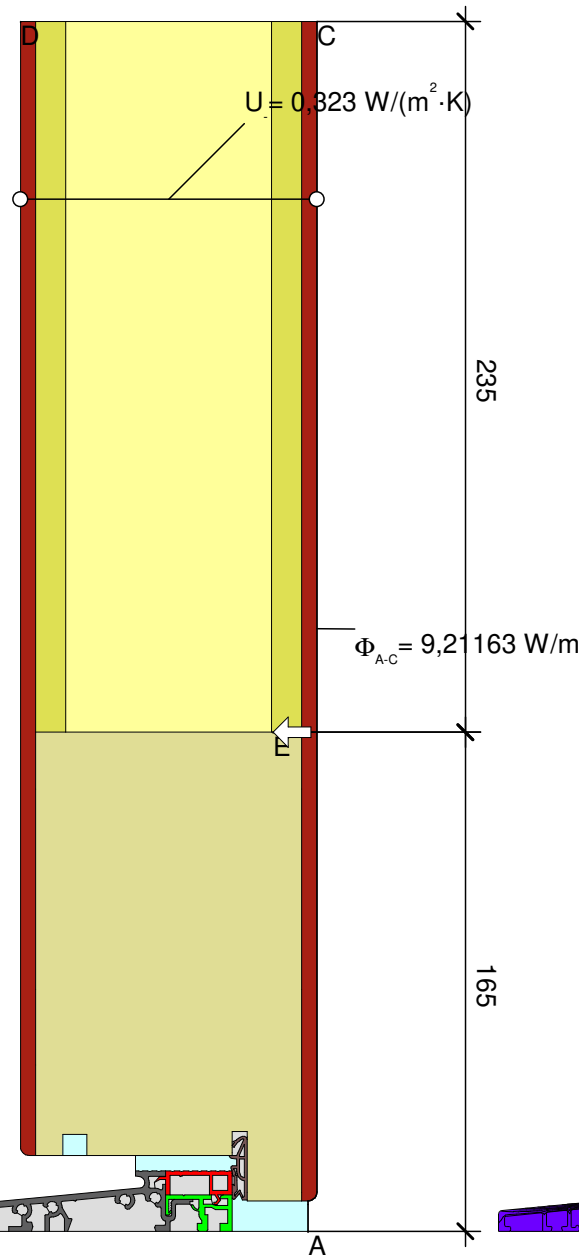
arctic	cold	cool, temperate	warm, temperate	warm	hot	very hot	

Material	λ [W/(m·K)]	ϵ
Aluminum Aluminium 10456	160,000	0,900
EPDM	0,250	0,900
Hardwood Hartholz 0.18 700 kg/m3 10456	0,180	0,900
Polyamide 25% Glassfiber	0,300	0,900
Polyvinylchloride (PVC)	0,170	0,900
Resloic foam Resolsschaum 025	0,025	
Softwood, OSB Weichholz, OSB 10456	0,130	0,900
Unvent. cavity unbel. Hohlr. **		
Wooden-based material Holzwerkstoff 0.13	0,130	
slightly vent. cav. leicht bel. Hohlr. **		

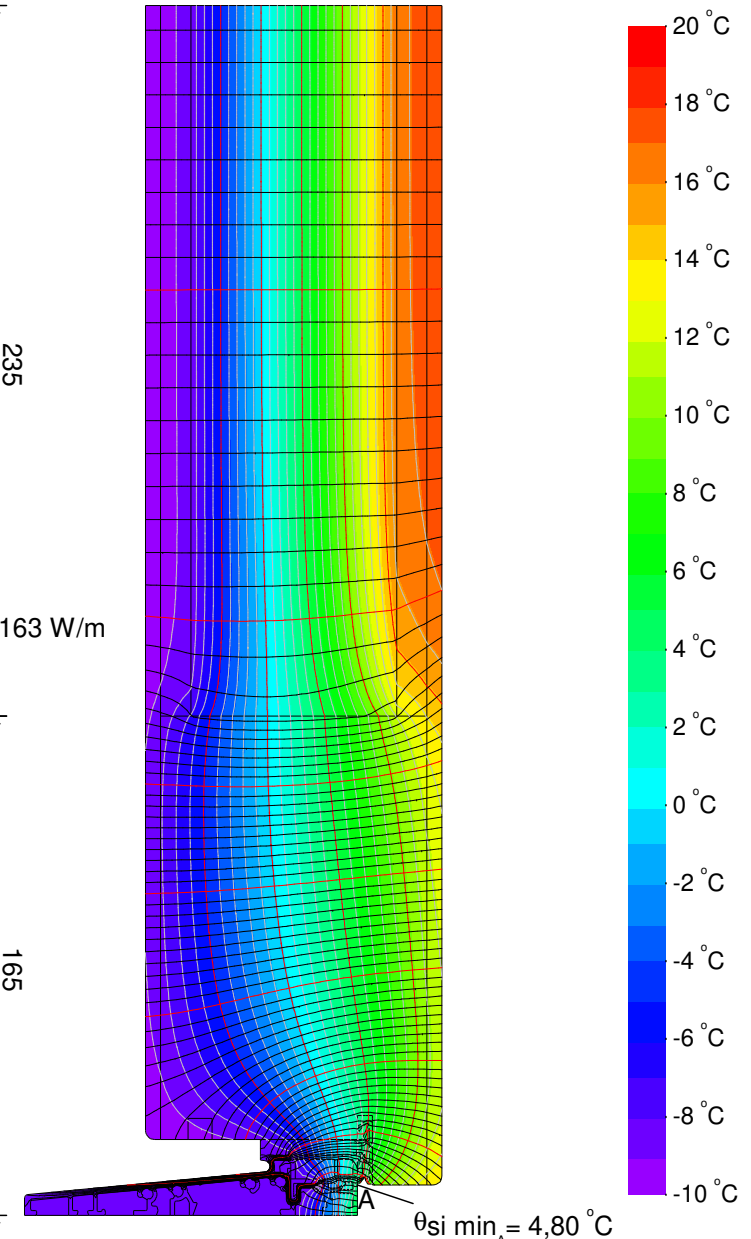
** EN ISO 10077-2:2017, 6.4.3



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



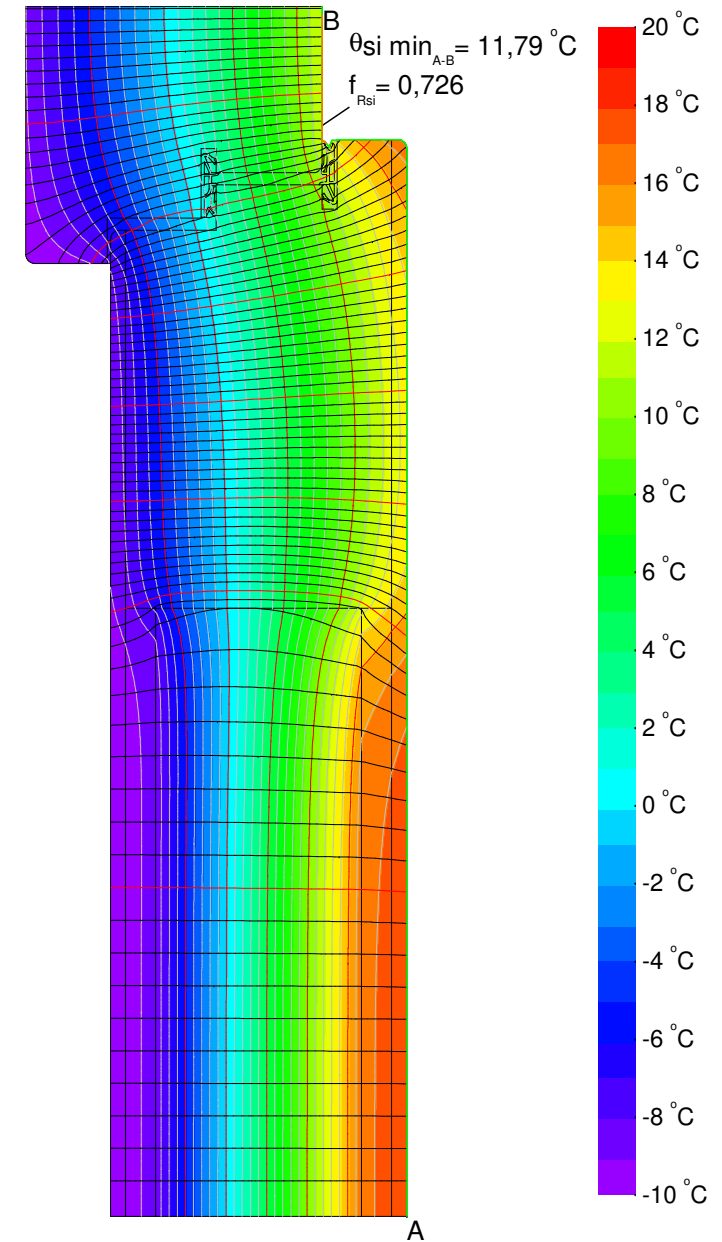
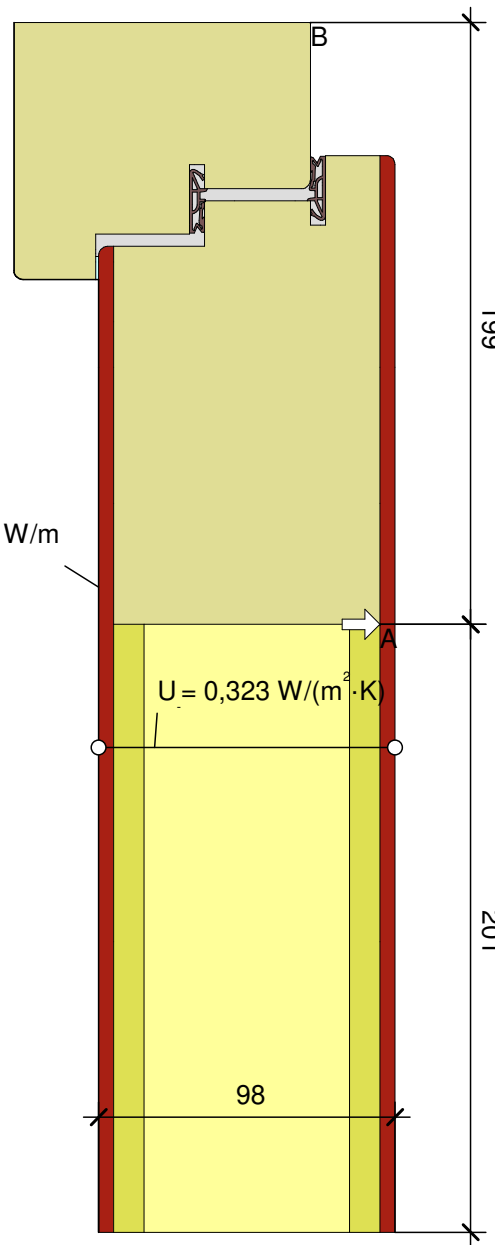
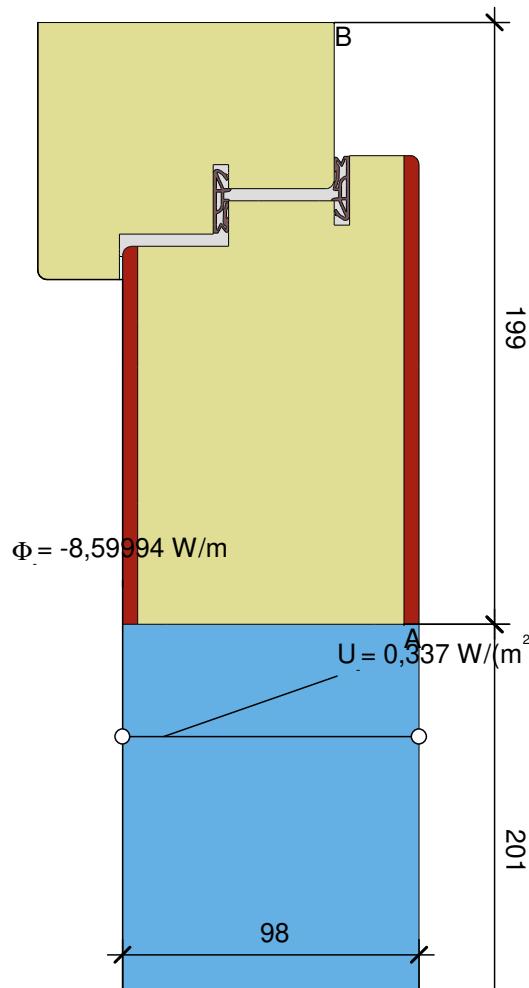
$$\Psi_{A-E-C,*} = \frac{\Phi}{\Delta T} - U_1 \cdot b_1 - U_2 \cdot b_2 = \frac{9,212}{30,000} - 1,389 \cdot 0,165 - 0,323 \cdot 0,235 = 0,002 \text{ W/(m} \cdot \text{K)}$$



$$\theta_{si \min_A} = 4,80 \text{ } ^\circ\text{C}$$

$$f_{Rsi} = 0,493$$

th - THRESHOLD | SCHWELLE



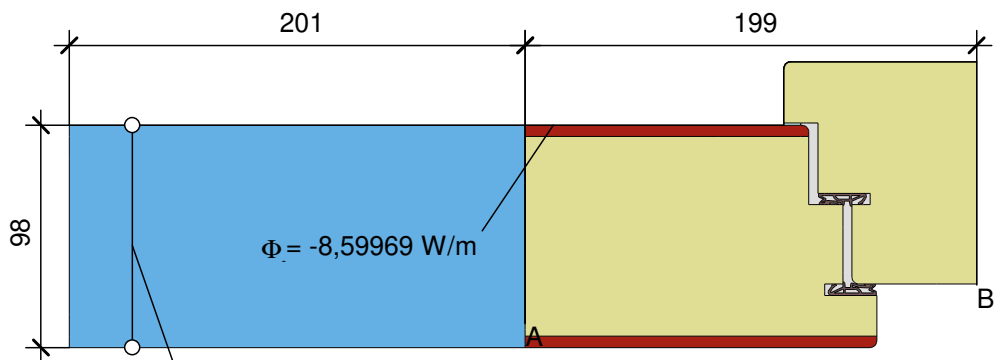
Material	λ [W/(m·K)]	ϵ
EPDM	0,250	0,900
Resloic foam Resolsschaum 025	0,025	
Softwood, OSB Weichholz, OSB 10456	0,130	0,900
Unvent. cavity unbel. Hohlr. **		
Wooden-based material Holzwerkstoff 0.13	0,130	
slightly vent. cav. leicht bel. Hohlr. **		
wooden-based material Holzwerkstoff 0.18	0,180	0,900

** EN ISO 10077-2:2017, 6.4.3

$$U_{f,A,B} = \frac{\frac{\Phi}{\Delta T} - U_p \cdot b_p}{b_f} = \frac{\frac{8,600}{30,000} - 0,337 \cdot 0,201}{0,199} = 1,100 \text{ W/(m}^2 \cdot \text{K)}$$

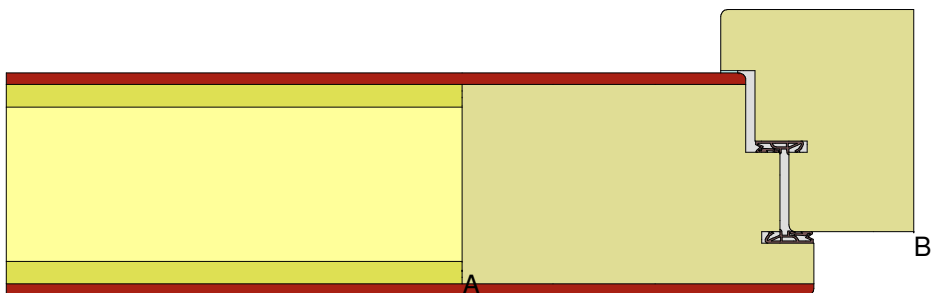
$$\psi_A = \frac{\Phi}{\Delta T} - U_g \cdot b_g - U_f \cdot b_f = \frac{8,574}{30,000} - 0,323 \cdot 0,201 - 1,100 \cdot 0,199 = 0,002 \text{ W/(m} \cdot \text{K)}$$

to - TOP | OBEN

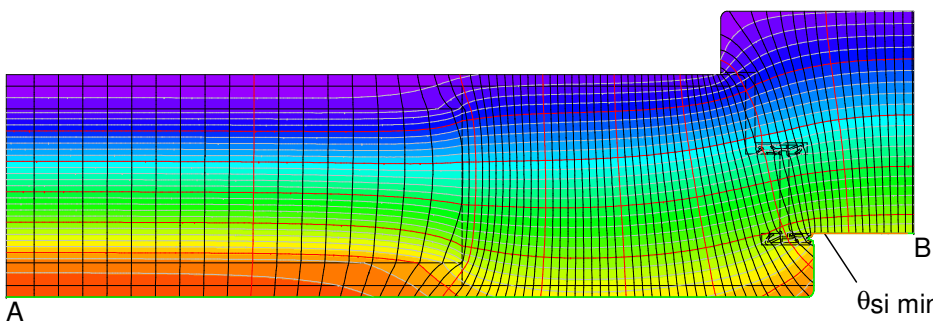


$$U_p = 0,337 \text{ W}/(\text{m}^2 \cdot \text{K})$$

$$U_{fAB} = \frac{\frac{\Phi}{\Delta T} - U_p \cdot b_p}{b_f} = \frac{\frac{8,600}{30,000} - 0,337 \cdot 0,201}{0,199} = 1,100 \text{ W}/(\text{m}^2 \cdot \text{K})$$



$$\psi_A = \frac{\Phi}{\Delta T} - U_g \cdot b_g - U_i \cdot b_i = \frac{\dots}{30,000} - \dots - \dots = \text{Nicht definiert}$$



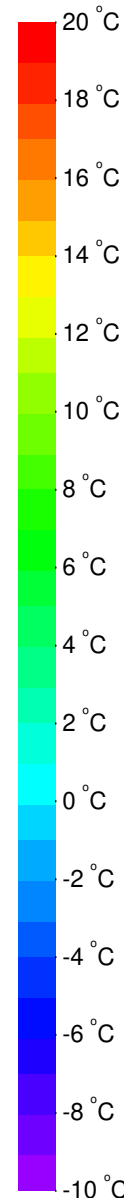
$\theta_{si \min}_{A-B} = 11,79 \text{ }^\circ\text{C}$
 $f_{Rsi} = 0,726$

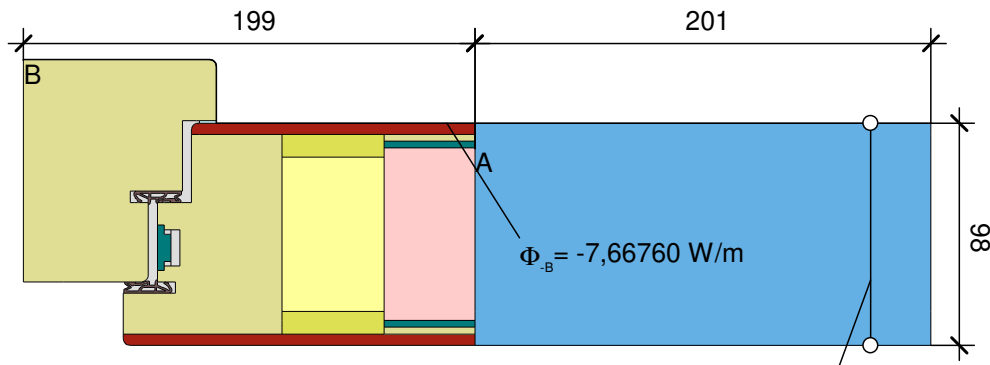
si HINGE SIDE | BANDSEITE

Material	λ [W/(m·K)]	ϵ
EPDM	0,250	0,900
Resloic foam Resolsschaum 025	0,025	
Softwood, OSB Weichholz, OSB 10456	0,130	0,900
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	0,900
** EN ISO 10077-2:2017, 6.4.3		

Randbedingung	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	
e 0,9 Cavity Hohlraum				0,900

Randbedingung	q [W/m ²]	θ [°C]	R [(m ² ·K)/W]	ϵ
Adiabatic Adiat	0,000			
Exterior Außen		-10,000	0,040	
e 0,9 Cavity Hohlraum				0,900
fRsi: Interior Innen		20,000	0,250	



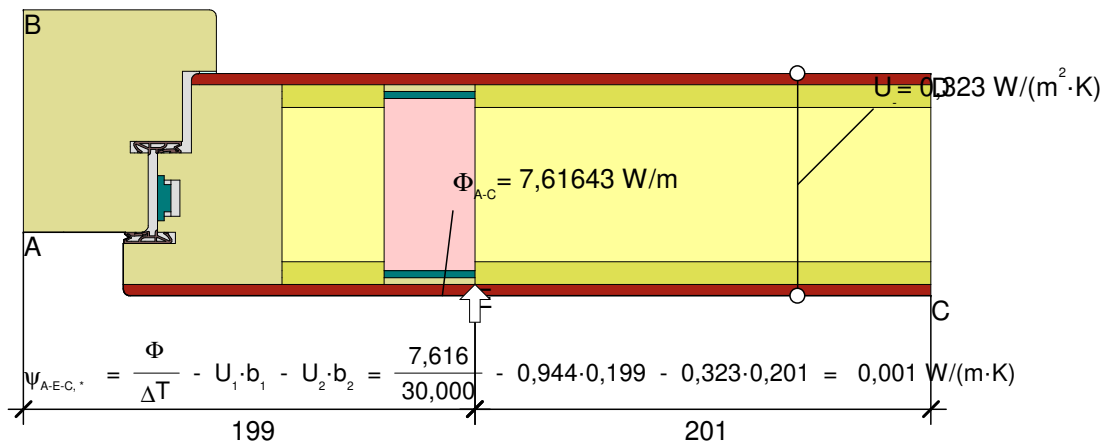
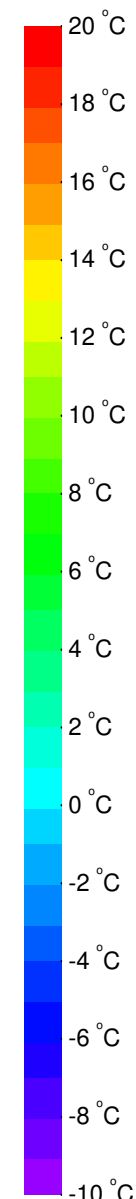


$$U_{fA,B} = \frac{\frac{\Phi}{\Delta T} - U_p \cdot b_p}{b_f} = \frac{\frac{7,668}{30,000} - 0,337 \cdot 0,201}{0,199} = 0,944 \text{ W}/(\text{m}^2 \cdot \text{K})$$

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

Material	λ [W/(m·K)]	ϵ
Balsa qsenkrecht 0.11 W/(mK)	0,110	
EPDM	0,250	0,900
Resloic foam Resolsschaum 025	0,025	
Softwood, OSB Weichholz, OSB 10456	0,130	0,900
Steel Stahl	50,000	0,900
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	0,900

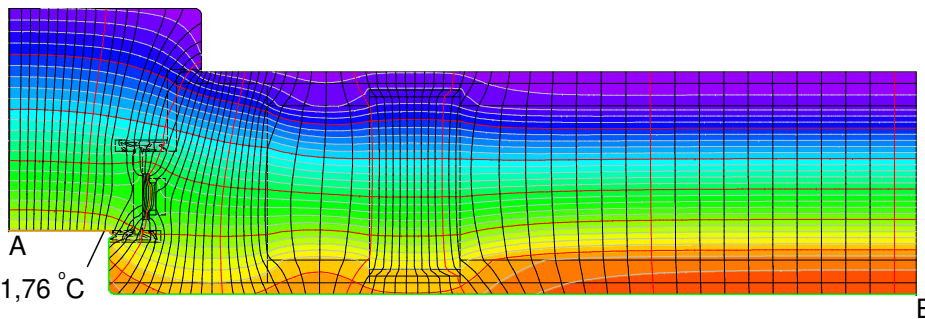
** EN ISO 10077-2:2017, 6.4.3



$$\psi_{A-E,C,*} = \frac{\Phi}{\Delta T} - U_1 \cdot b_1 - U_2 \cdot b_2 = \frac{7,616}{30,000} - 0,944 \cdot 0,199 - 0,323 \cdot 0,201 = 0,001 \text{ W}/(\text{m} \cdot \text{K})$$

Randbedingung	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	
e 0,9 Cavity Hohlraum				0,900

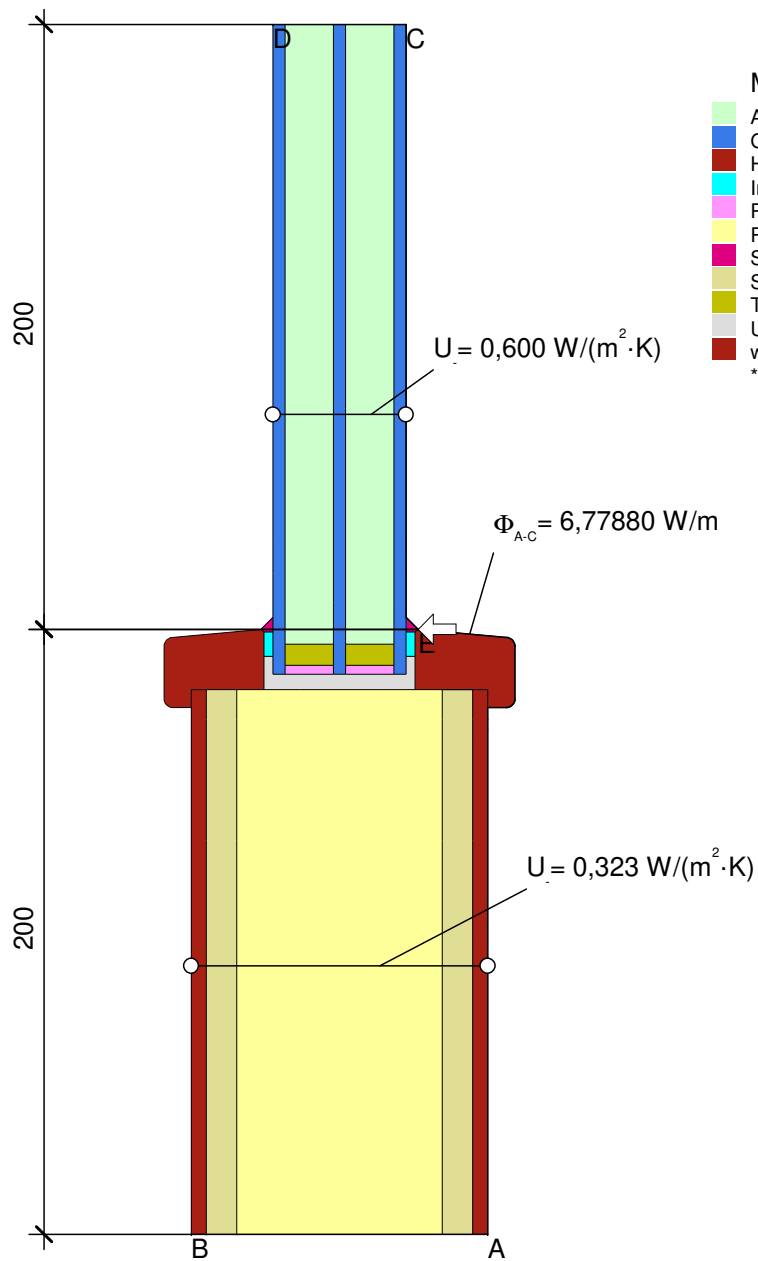
Randbedingung	q [W/m ²]	θ [°C]	R [(m ² ·K)/W]	ϵ
Adiabatic Adiat	0,000			
Exterior Außen		-10,000	0,040	
e 0,9 Cavity Hohlraum				0,900
fRsi: Interior Innen		20,000	0,250	



$\theta_{si \min}_{A-B} = 11,76 \text{ °C}$

$f_{Rsi} = 0,725$

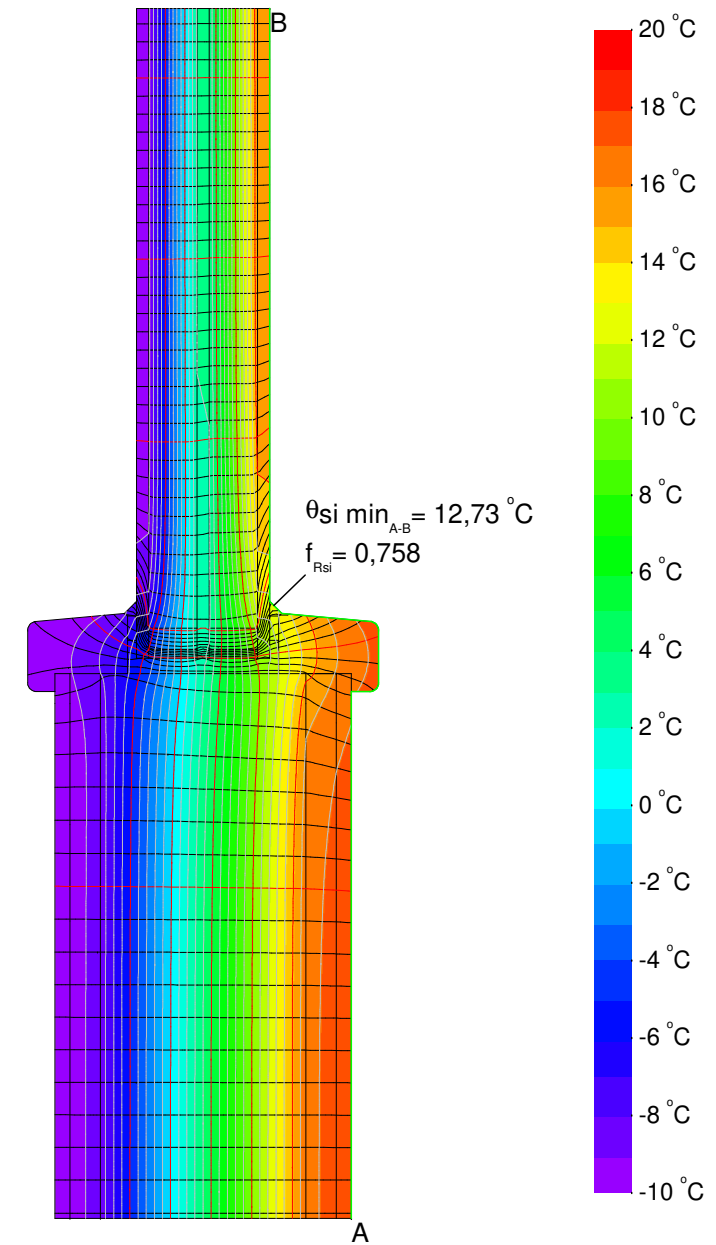
sh - LOCK SIDE | SCHLOSS SEITE



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

λ [W/(m·K)]	ϵ
0,022	
1,000	0,900
0,180	0,900
0,060	0,900
0,400	0,900
0,025	0,900
0,350	
0,130	
0,155	
0,180	



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

GLASS INSERT | GLASEINSATZ