

ND NTech Villa Balcony door

Calculation of U-value in accordance to NS-EN ISO 10077-1, 10077-2 and the programme "Therm".

Centre U-value of glass is calculated in accordance to NS-EN 673.

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Report of standard model

Date: 02.07.2021

Version: TE/BE 105 Passiv

Type: Outward opening sash

Model: ND NTech Villa 105 Passiv

Glass configuration: 4E+18G+4+18G+4E Planitherm Ultra N*, TGI*, Argon

Main results and dimensions

U-value: 0,76W/m²K

Width: 988mm

Height: 2088mm

Area: 2,063m²

Percent glass: 34,5%

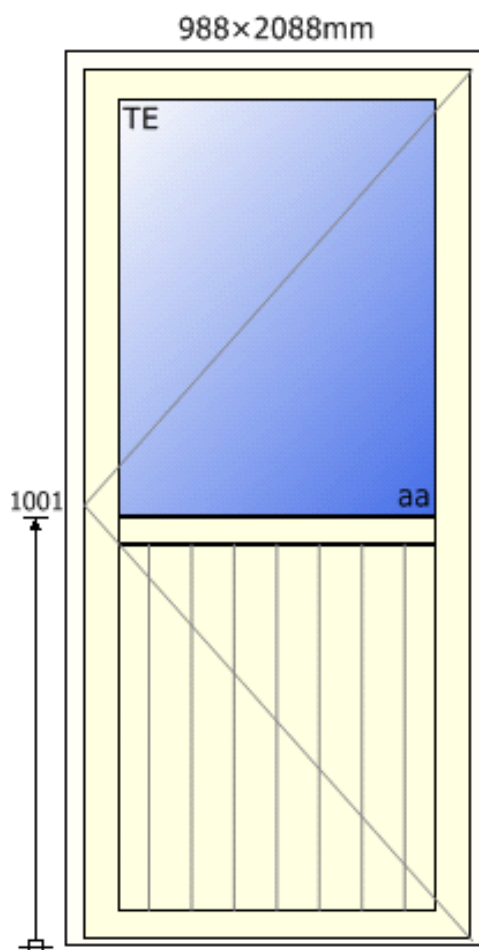
Percent panel: 30,2%

g-value: 0,53

LT-value: 0,74

Ug-value: 0,53W/m²K

Up-value: 0,46W/m²K



U-verdi kalkuleringer - ND NTech Villa Balkongdør passiv



Dokument ID: 000914(1.00)

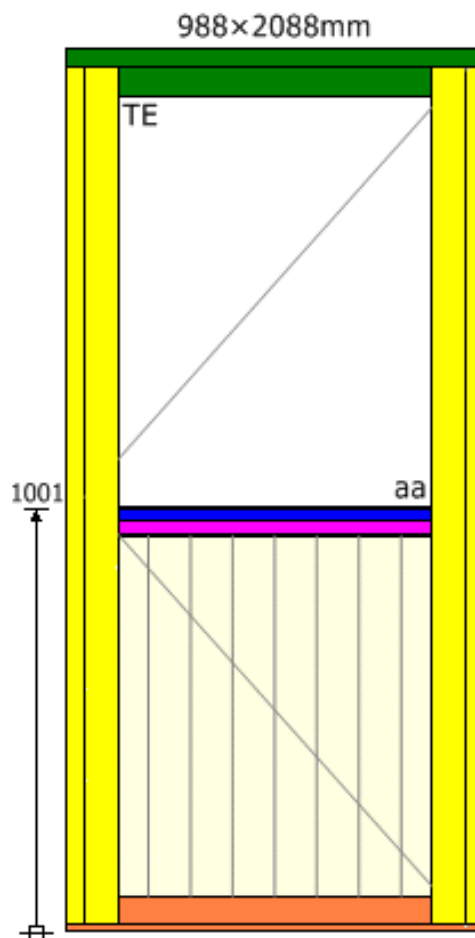
Produktegenskap: Passiv

Karm: 105

Dato: 2 Juli 2021

Side: 2 av 10

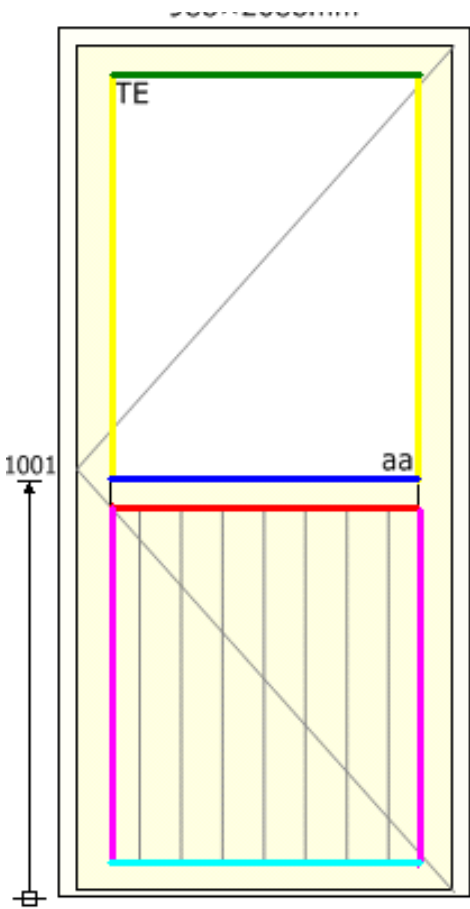
Gjelder for produktkoder:
BE, TE



Colour	Uf (W/m²K)	Width (m)	Name
	0,93	0,124	Jamb profile
	0,84	0,125	Head profile
	1,73	0,031	Midrail profile
	0,92	0,031	Midrail profile
	1,60	0,096	Sill profile

Color	Uf (W/m²K)	Element area (m²)	*Percent element (%)
	0,93	0,245	11,90
	0,84	0,107	5,20
	0,93	0,245	11,90
	1,73	0,023	1,15
	0,92	0,023	1,15
	1,60	0,083	4,00
Sum		0,726	35,30

*: Figure in relation to the whole window



Colour	PSI	Length (m)	Name
	0,038	1,924	TGI Jamb
	0,038	0,740	TGI Head
	0,038	0,740	TGI Sill
	0,000		Ins.Panel

Color	Spacer length (m)	L Psi spacer (W/K)	*L Psi spacer (%)
	0,962	0,037	28,5
	0,740	0,028	21,5
	0,962	0,037	28,5
	0,740	0,028	21,5
Sum	3,404	0,130	100

*: Figure in relation to the spacer

U-Value window frame (Uf) Calculation according to EN ISO 10077-2

ND NTech Villa Balcony door Head

This example shows glas thicknes 39 - 51mm:

$$U_t = 0,7556 \text{ W/m}^2\text{K}$$

$$B_f = 125 \text{ mm}$$

$$U_f = \frac{L_f^{2D} - U_p * b_p}{b_f}$$

$$L_f^{2D} = U_t * L$$

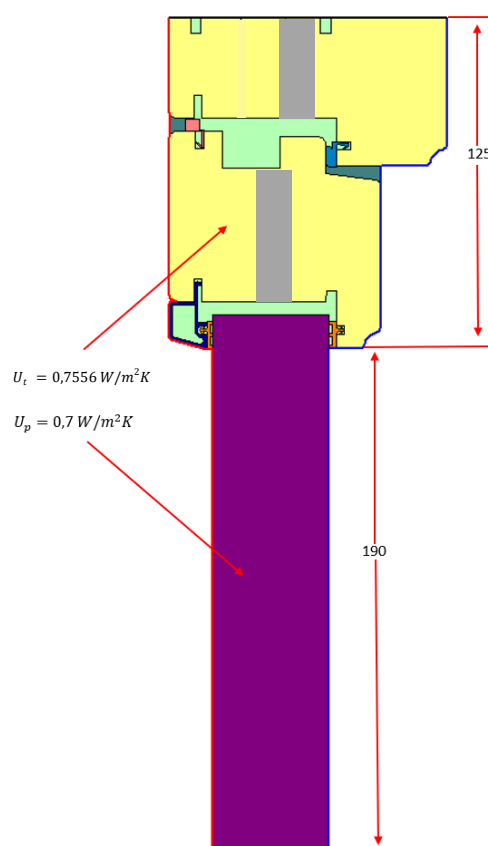
$$L_f^{2D} = 0,7556 * (0,125 + 0,19) = 0,238 \text{ W/mK}$$

$$U_f = \frac{0,238 - (0,7 * 0,19)}{0,125} = 0,84 \text{ W/m}^2\text{K}$$

Boundary Conditions	Temp: °C	Hc: W/m²K
Exterior	0	25
Interior	20	7,69

Material:	λ(W/mK)	ρ
Pine	0,12	0,9
Aluminium	160	0,9
Panel	0,035	0,9
Gasket EPDM	0,25	0,9
Brush gasket DX1466	0,15	0,9
Gasket QL	0,03	0,9
Frame cavity- Cen slightly ventilated		
Frame cavity-Cen Simplified		

U_t	U_p	L_f^{2D}	U_f
Glas thicknes 20-32mm			
Glas thicknes 33-38mm			
Glas thicknes 39-51mm			
0,7556	0,70	0,238	0,84



ND NTech Villa Balcony door Jamb by glass

This example shows glas thicknes 39 - 51mm:

$$U_t = 0,7908 \text{ W/m}^2\text{K}$$

$$B_f = 124 \text{ mm}$$

$$U_f = \frac{L_f^{2D} - U_p * b_p}{b_f}$$

$$L_f^{2D} = U_t * L$$

$$L_f^{2D} = 0,7908 * (0,124 + 0,19) = 0,2483 \text{ W/mK}$$

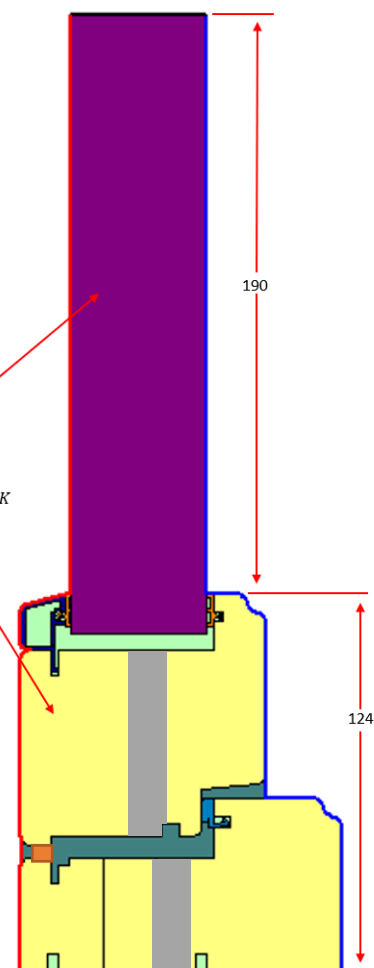
$$U_f = \frac{0,2483 - (0,7 * 0,19)}{0,124} = 0,93 \text{ W/m}^2\text{K}$$

Boundary Conditions	Temp: °C	Hc: W/m²K
Exterior	0	25
Interior	20	7,69

Material:	$\lambda(\text{W/mK})$	ρ
Pine	0,12	0,9
Aluminium	160	0,9
Panel	0,035	0,9
Gasket EPDM	0,25	0,9
Gasket QL	0,03	0,9
Frame cavity- Cen slightly ventilated		
Frame cavity-Cen Simplified		

$$U_t = 0,7908 \text{ W/m}^2\text{K}$$

$$U_t = 0,8611 \text{ W/m}^2\text{K}$$



U_t	U_p	L_f^{2D}	U_f
Glas thicknes 20-32mm			
Glas thicknes 33-38mm			
Glas thicknes 39-51mm			
0,7908	0,70	0,2483	0,93

ND NTech Villa Balcony door Jamb by panel

This example shows glas thicknes 39 - 51mm:

$$U_t = 0,6889 \text{ W/m}^2\text{K}$$

$$B_f = 124 \text{ mm}$$

$$U_f = \frac{L_f^{2D} - U_p * b_p}{b_f}$$

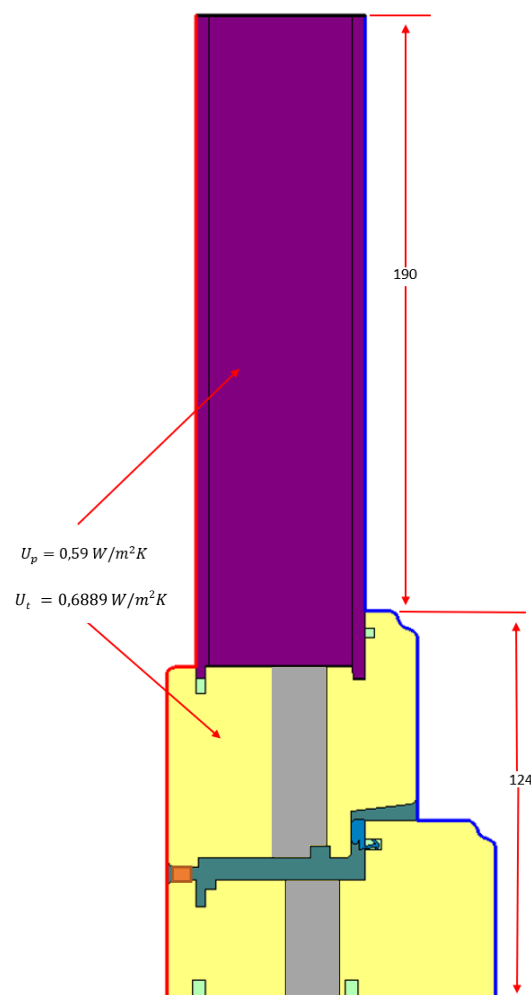
$$L_f^{2D} = U_t * L$$

$$L_f^{2D} = 0,6889 * (0,124 + 0,19) = 0,2163 \text{ W/mK}$$

$$U_f = \frac{0,2163 - (0,59 * 0,19)}{0,124} = 0,84 \text{ W/m}^2\text{K}$$

Boundary Conditions	Temp: °C	Hc: W/m²K
Exterior	0	25
Interior	20	7,69

Material:	$\lambda(\text{W/mK})$	ρ
Pine	0,12	0,9
Aluminium	160	0,9
Panel	0,035	0,9
Gasket EPDM	0,25	0,9
Gasket QL	0,03	0,9
Frame cavity- Cen slightly ventilated		
Frame cavity-Cen Simplified		



U_t	U_p	L_f^{2D}	U_f
Glas thicknes 20-32mm			
Glas thicknes 33-38mm			
Glas thicknes 39-51mm			
0,6889	0,59	0,2163	0,84

ND NTech Villa Balcony door Over panel

This example shows glas thicknes 39 - 51mm:

$$U_t = 0,8443 \text{ W/m}^2\text{K}$$

$$B_f = 31 \text{ mm}$$

$$U_f = \frac{L_f^{2D} - U_p * b_p}{b_f}$$

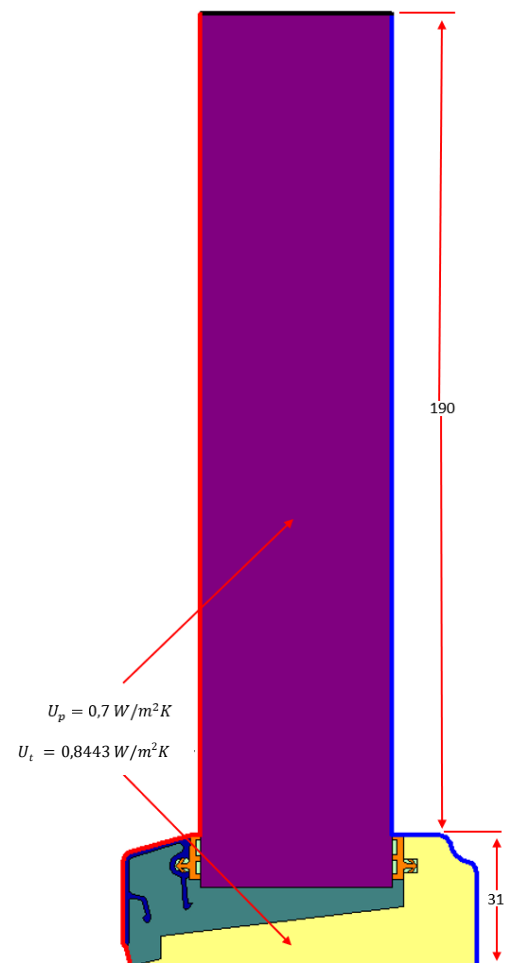
$$L_f^{2D} = U_t * L$$

$$L_f^{2D} = 0,8443 * (0,031 + 0,19) = 0,1866 \text{ W/mK}$$

$$U_f = \frac{0,1866 - (0,7 * 0,19)}{0,031} = 1,73 \text{ W/m}^2\text{K}$$

Boundary Conditions	Temp: °C	Hc: W/m²K
Exterior	0	25
Interior	20	7,69

Material:	λ(W/mK)	ρ
Pine	0,12	0,9
Aluminium	160	0,9
Panel	0,035	0,9
Gasket EPDM	0,25	0,9
Frame cavity- Cen slightly ventilated		
Frame cavity-Cen Simplified		



U_t	U_p	L_f^{2D}	U_f
Glas thicknes 20-32mm			
Glas thicknes 33-38mm			
Glas thicknes 39-51mm			
0,8443	0,70	0,1866	1,73

ND NTech Villa Balcony door Under panel

This example shows glas thicknes 39 - 51mm:

$$U_t = 0,6362 \text{ W/m}^2\text{K}$$

$$B_f = 31 \text{ mm}$$

$$U_f = \frac{L_f^{2D} - U_p * b_p}{b_f}$$

$$L_f^{2D} = U_t * L$$

$$L_f^{2D} = 0,6362 * (0,031 + 0,19) = 0,1406 \text{ W/mK}$$

$$U_f = \frac{0,1406 - (0,59 * 0,19)}{0,031} = 0,92 \text{ W/m}^2\text{K}$$

Boundary Conditions	Temp: °C	Hc: W/m²K
Exterior	0	25
Interior	20	7,69

Material:	$\lambda(\text{W/mK})$	ρ
Pine	0,12	0,9
Aluminium	160	0,9
Panel	0,035	0,9
Gasket EPDM	0,25	0,9
Frame cavity- Cen slightly ventilated		
Frame cavity-Cen Simplified		

U_t	U_p	L_f^{2D}	U_f
Glas thicknes 20-32mm			
Glas thicknes 33-38mm			
Glas thicknes 39-51mm			
0,6362	0,59	0,1406	0,92



ND NTech Villa Balcony door Cill panel

This example shows glas thicknes 39 - 51mm:

$$U_t = 0,929 \text{ W/m}^2\text{K}$$

$$B_f = 96 \text{ mm}$$

$$U_f = \frac{L_f^{2D} - U_p * b_p}{b_f}$$

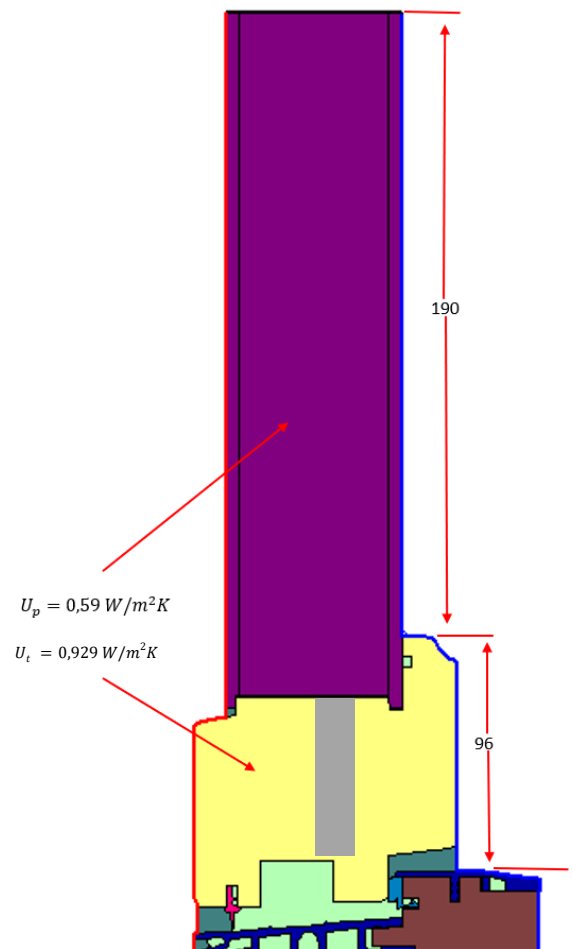
$$L_f^{2D} = U_t * L$$

$$L_f^{2D} = 0,929 * (0,096 + 0,19) = 0,2657 \text{ W/mK}$$

$$U_f = \frac{0,2657 - (0,59 * 0,19)}{0,096} = 1,6 \text{ W/m}^2\text{K}$$

Boundary Conditions	Temp: °C	Hc: W/m²K
Exterior	0	25
Interior	20	7,69

Material:	$\lambda(\text{W/mK})$	ρ
Pine	0,12	0,9
Aluminium	160	0,9
Panel	0,035	0,9
Gasket EPDM	0,25	0,9
Gasket QL	0,03	0,9
Climate gasket DX1466	0,15	
Frame cavity- Cen slightly ventilated		
Frame cavity-Cen Simplified		



U_t	U_p	L_f^{2D}	U_f
Glas thicknes 20-32mm			
Glas thicknes 33-38mm			
Glas thicknes 39-51mm			
0,929	0,59	0,2657	1,6

ND NTech Villa Balcony door Cill MP

This example shows glas thicknes 39 - 51mm:

$$U_t = 1,096 \text{ W/m}^2\text{K}$$

$$B_f = 136 \text{ mm}$$

$$U_f = \frac{L_f^{2D} - U_p * b_p}{b_f}$$

$$L_f^{2D} = U_t * L$$

$$L_f^{2D} = 1,096 * (0,136 + 0,19) = 0,3574 \text{ W/mK}$$

$$U_f = \frac{0,3574 - (0,7 * 0,19)}{0,136} = 1,65 \text{ W/m}^2\text{K}$$

Boundary Conditions	Temp: °C	Hc: W/m²K
Exterior	0	25
Interior	20	7,69

Material:	λ (W/mK)	ρ
Pine	0,12	0,9
Aluminium	160	0,9
Panel	0,035	0,9
Gasket EPDM	0,25	0,9
Gasket QL	0,03	0,9
Climate gasket DX1466	0,15	0,9
Frame cavity- Cen slightly ventilated		
Frame cavity-Cen Simplified		

U_t	U_p	L_f^{2D}	U_f
Glas thicknes 20-32mm			
Glas thicknes 33-38mm			
Glas thicknes 39-51mm			
1,096	0,70	0,3574	1,65

