NorDan NTech Villa Fixed Light Passive

Calculation of U-value in avordance 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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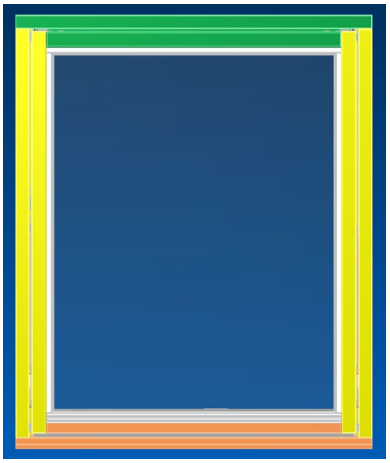
Report of standard model

Date: 11.06.2021
Version: TL/BL/FA 105 Passive
Type: Fixed Light
Model: NTech Villa/FA 105 Passive
Glass configuration: 4E+18G+4+18G+4E Planitherm Ultra N*, TGI*, Argon

Main results and dimensions

U-value: 0,70 W/m²K
Width: 1230 mm
Height: 1480 mm
Area: 1,82 m²
Percent glass: 84,02%
g-value: 0,53
LT-value: 0,74

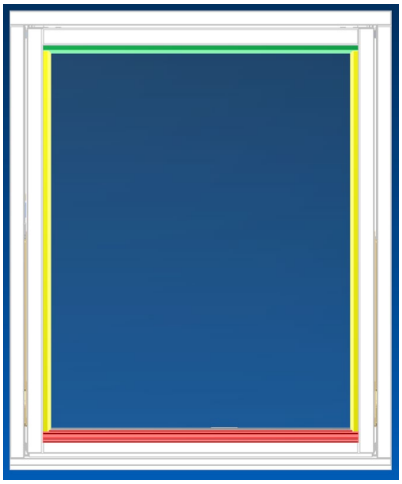
Ug-value: 0,53 W/m²K
The elements share of the total heat loss: 64,1%



Colour	Uf (W/m²K)	Width (m)	Name
	0,859	0,056	Jamb profile
	0,859	0,056	Head profile
	1,128	0,056	Sill profile

Color	Uf (W/m²K)	Element area (m²)	*Percent element (%)
	0,859	0,0797	4,38
	0,859	0,0657	3,61
	1,128	0,0797	4,38
	0,859	0,0657	3,61
Sum		0,292	15,98

*: Figure in relation to the whole window



Colour	PSI	Length (m)	Name
	0,038	2,736	TGI Jamb
	0,038	1,118	TGI Head
	0,038	1,118	TGI Sill

Color	Spacer length (m)	L Psi spacer (W/K)	*L Psi spacer (%)
	1,368	0,052	27,7
	1,118	0,042	22,3
	1,118	0,042	22,3
	1,368	0,052	27,7
Sum	4,972	0,188	100,0

*: Figure in relation to the spacer

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

Villa Fixed frame
Head/Jamb

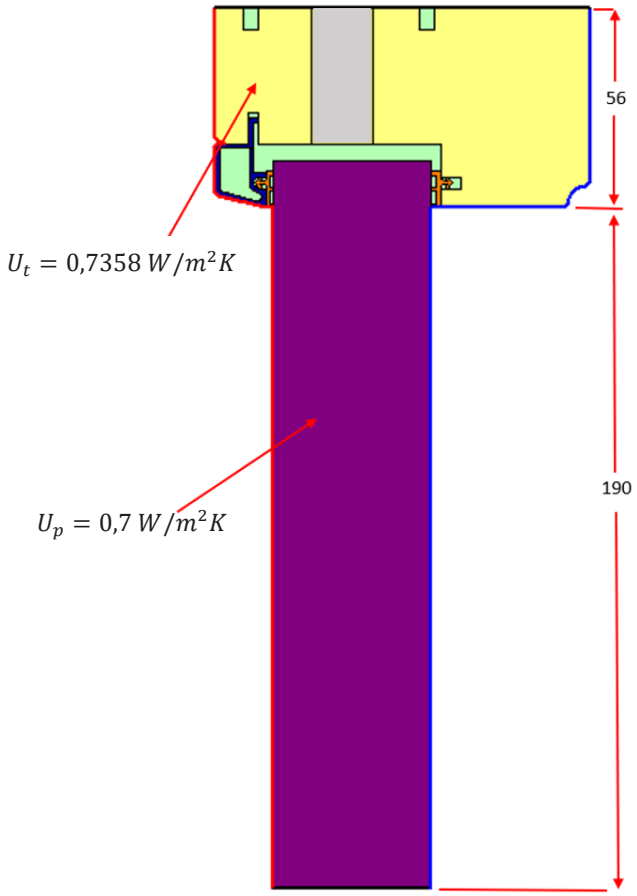
This example shows glass thickness 39 - 51mm:

$$U_t = 0{,}7358 \frac{W}{m^2K}$$
$$B_f = 56\ mm$$

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

$$L_f^{2D} = 0{,}7358 * (0{,}056 + 0{,}19) = 0{,}181\ W/mK$$

$$U_f = \frac{0{,}181 - (0{,}7 * 0{,}19)}{0{,}056} = 0{,}859\ W/m^2K$$



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
Frame cavity- Cen slightly ventilatet		
Frame cavity-Cen Simplified		

U_t	U_p	L_f^{2D}	U_f
Glass thickness 39-51 mm			
0,7358	0,7	0,181	0,859

Villa Fixed frame
Sill

This example shows glass thickness 39 - 51mm:

$$U_t = 0{,}7967 \frac{W}{m^2K}$$
$$B_f = 56\,mm$$

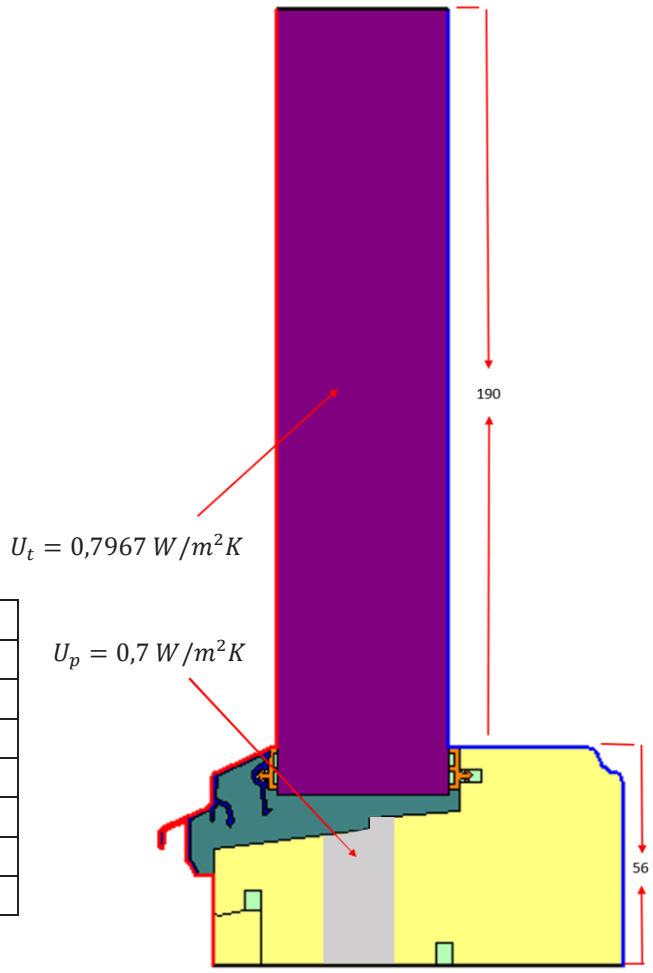
$$U_f = \frac{L_f^{2D} - U_p * b_p}{b_f}$$
$$L_f^{2D} = U_t * L$$

$$L_f^{2D} = 0{,}7967 * (0{,}056 + 0{,}19) = 0{,}196\,W/mK$$

$$U_f = \frac{0{,}196 - (0{,}7 * 0{,}19)}{0{,}056} = 1{,}128\,W/m^2K$$

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
Frame cavity- Cen slightly ventilated		
Frame cavity-Cen Simplified		



U_t	U_p	L_f^{2D}	U_f
Glass thickness 39-51 mm			
0,7967	0,7	0,196	1,128