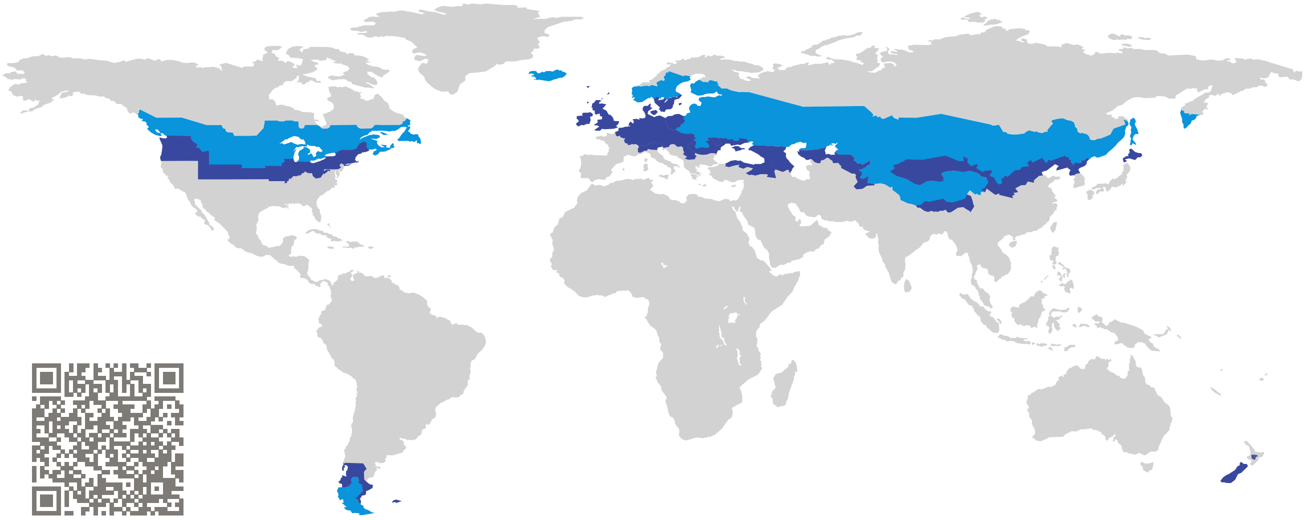
CERTIFICATE

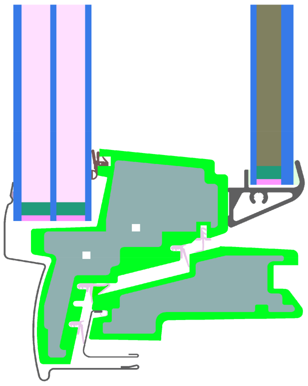
Certified Passive House Component

Component-ID 0592rw02 valid until 31st December 2018

Passive House Institute
Dr. Wolfgang Feist
64283 Darmstadt
Germany



Category:	**Rooflight**
Manufacturer:	**VELUX A/S, Hørsholm, Denmark**
Product name:	**GGU -K– 008230**



This certificate was awarded based on the following criteria for the cold climate zone

Comfort	$U_{RL} = 0.55$	$\leq$	$0.80\ \mathrm{W/(m^2\,K)}$
	$U_{RL,\mathrm{installed}}$	$\leq$	$0.80\ \mathrm{W/(m^2\,K)}$
	with U_g	$=$	$0.38\ \mathrm{W/(m^2\,K)}$
Hygiene	$f_{Rsi=0.25}$	$\geq$	0.75

cold climate

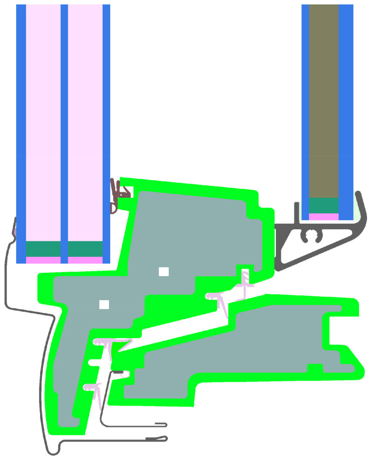
phA

CERTIFIED COMPONENT

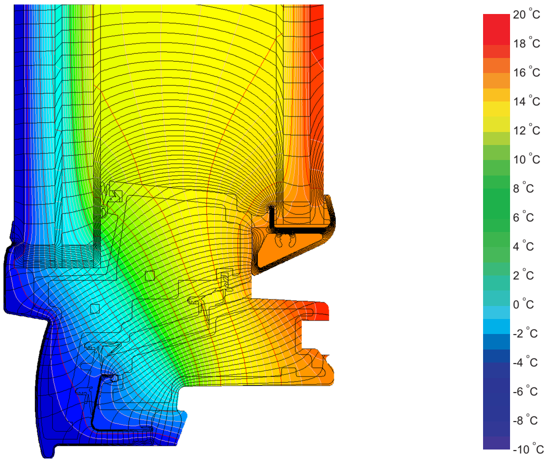
Passive House Institute

Passive House efficiency class	phE	phD	phC	phB	phA

www.passivehouse.com



Calculation model



Isothermal

Description

Timberframe (0.11W/(mK)) covered with PUR and exterieur facing shell of aluminium. A quintuple glazing is used. Pane thickness: 137 mm (4/14/3/14/3 - 77,6mm air gap - 3/12/6), Rebate depth: 15-38 mm.

Explanation

The window U-values were calculated for the test window size of 1.14 m × 1.40 m with $U_g = 0.38\,\mathrm{W/(m^2\,K)}$. If a higher quality glazing is used, the window U-values will improve as follows:

Glazing	U_g =	0.38	1.00	0.83	0.76	$\mathrm{W/(m^2\,K)}$
		↓	↓	↓	↓	
Window	U_W =	0.55	0.96	0.85	0.80	$\mathrm{W/(m^2\,K)}$

Transparent building components are classified into efficiency classes depending on the heat losses through the opaque part. The frame U-Values, frame widths, thermal bridges at the glazing edge, and the glazing edge lengths are included in these heat losses. A more detailed report of the calculations performed in the context of certification is available from the manufacturer.

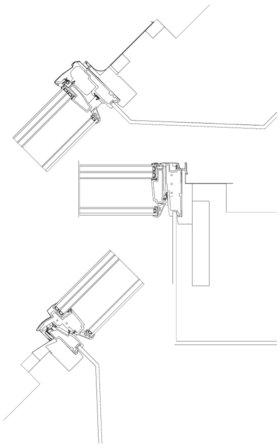
The Passive House Institute has defined international component criteria for seven climate zones. In principle, components which have been certified for climate zones with higher requirements may also be used in climates with less stringent requirements. In a particular climate zone it may make sense to use a component of a higher thermal quality which has been certified for a climate zone with more stringent requirements.

Further information relating to certification
can be found on www.passivehouse.com and passipedia.org.

Frame values		Frame width b_f mm	*U*-value frame U_f W/(m² K)	Ψ-panel edge Ψ_g W/(m K)	Temp. Factor $f_{Rsi=0.25}$ [-]
Top	(to)	116	0.61	0.025	0.77
Side	(s)	106	0.73	0.025	0.77
Bottom	(bo)	123	0.71	0.019	0.77
		Spacer: TGI		Secondary seal: Polysulfide	

Validated installations

Lightweight roof



$\Psi_{install}$	W/(m K)
Top	0.054
Side	0.046
Bottom	0.052

$U_{W,installed}$ = 0.70 W/(m² K)