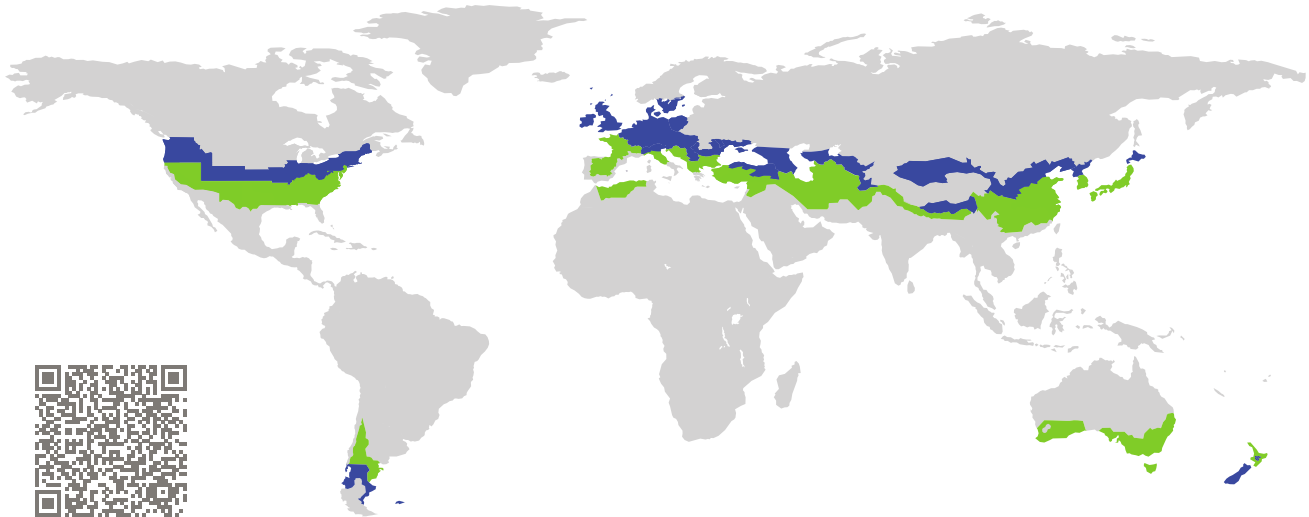


CERTIFICATE

Certified Passive House Component

Component-ID 2395ic03 valid until 31st December 2025

Passive House Institute
Dr. Wolfgang Feist
64283 Darmstadt
Germany

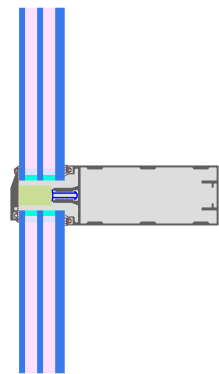


Category: **Glass roof**
Manufacturer: **VELUX A/S,
Hørsholm,
Denmark**
Product name: **BA5/6 PH**

**This certificate was awarded based on the following
criteria for the cool, temperate climate zone**

Comfort $U_{CW,i=0.86} \leq 1.00 \text{ W}/(\text{m}^2 \text{ K})$
 $U_{CW,i,\text{installed}} \leq 1.00 \text{ W}/(\text{m}^2 \text{ K})$
with $U_g = 0.70 \text{ W}/(\text{m}^2 \text{ K})$

Hygiene $f_{Rsi=0.25} \geq 0.70$



Passive House
efficiency class

phE

phD

phC

phB

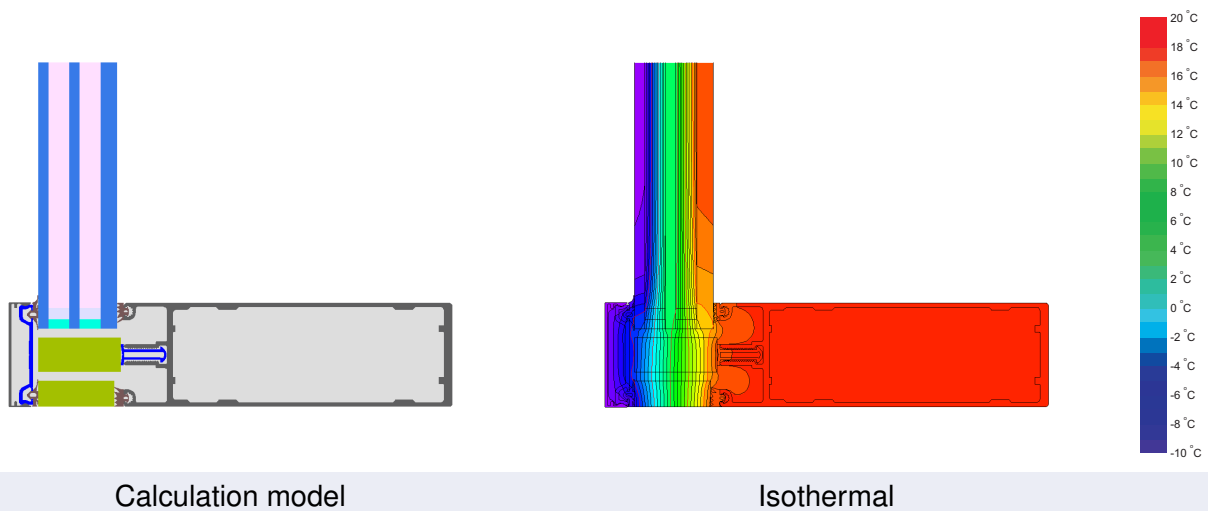
phA

cool, temperate climate



**CERTIFIED
COMPONENT**

Passive House Institute



Calculation model Isothermal

Description

Aluminium construction with covering and pressure strip from aluminium. Styrodur insulator in the glazing rebate. Screws themally seperated by ABS. Losses by screws and glass carrier were determined by 3D-thermal flux analysis (PHI). Used Pane: 45.52 mm (6/12/6/12/9.52), intersection of the Glass: 15 mm. Used spacer: Thermobar. The glazing was calculated with a 6 mm secondary seal.

Explanation








The element U-values were calculated for the test element size of 1.20 m × 2.50 m with $U_g = 0.70 \text{ W}/(\text{m}^2 \text{ K})$. If a higher quality glazing is used, the element U-values will improve as follows:

Glazing	$U_g =$	0.70	0.83	0.76	0.68	$\text{W}/(\text{m}^2 \text{ K})$
		↓	↓	↓	↓	
Element	$U_{CW,i}$	0.86	0.98	0.91	0.84	$\text{W}/(\text{m}^2 \text{ K})$

Transparent building components are sorted 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 that have been certified for climate zones with higher thermal 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.

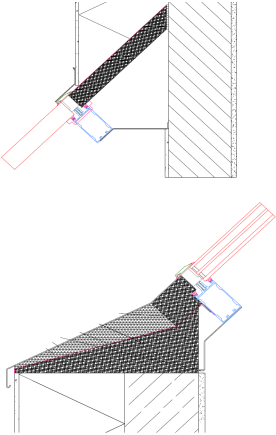
Frame values			Frame width b_f mm	U -value frame U_f ¹ W/(m ² K)	Ψ -glazing edge Ψ_g W/(m K)	Temp. Factor $f_{RSI=0.25}$ [-]
Mullion fixed	(0M1)		61	1.16	0.045	0.82
Transom fixed	(0T1)		61	1.46	0.046	0.81
Mullion 1 casement	(1M1)		149	2.86	0.050	0.60
Transom 1 casement	(1T1)		149	3.09	0.045	0.61
Bottom fixed	(FB1)		61	1.15	0.044	0.81
Top fixed	(FH1)		61	1.15	0.044	0.81
Lateral fixed	(FJ1)		61	1.15	0.049	0.80

Spacer: Thermobar Secondary seal: Butyl

Thermal glass carrier bridge² $\chi_{GT} = 0.010$ W/K

Validated installations

Exterior insulation and finishing system (EIFS) (fixed glazed)



Ψ_{install}	W/(m K)
Top	0.062
Left	-0.001
Right	-0.001
Bottom	0.114

$U_{W,\text{installed}} = 0.91$ W/(m² K)

¹ Includes $\Delta U = 0.22$ W/(m² K). Determined through 3D FEM simulation

² Determined through 3D FEM simulation. Glass carrier type: Non-metallic glass carrier with screws

