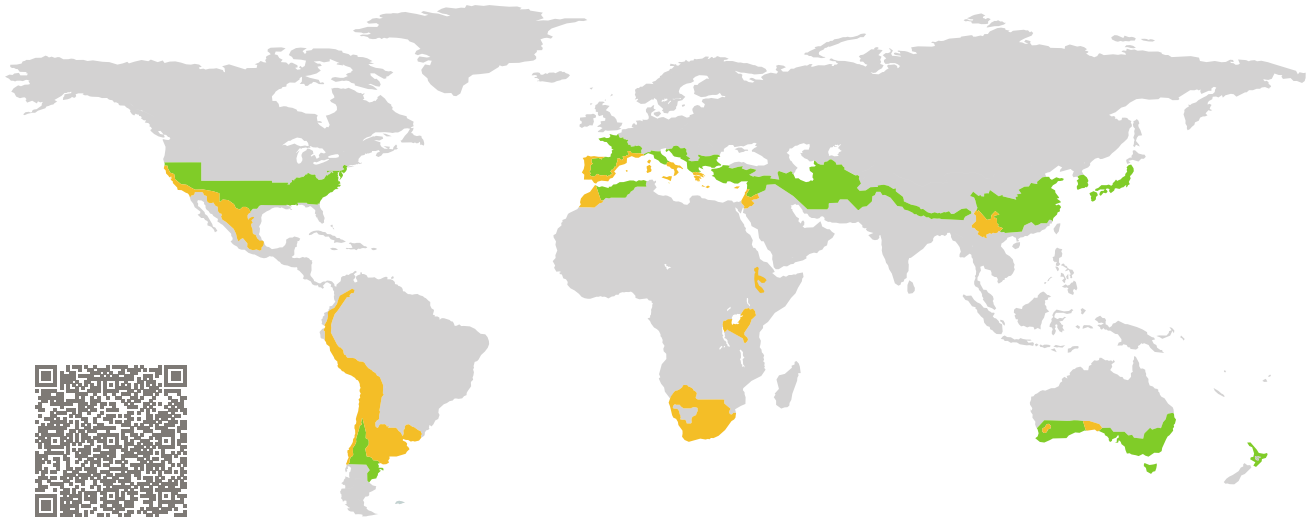


CERTIFICATE

Certified Passive House Component

Component-ID 2251wi04 valid until 31st December 2025

Passive House Institute
Dr. Wolfgang Feist
64283 Darmstadt
Germany

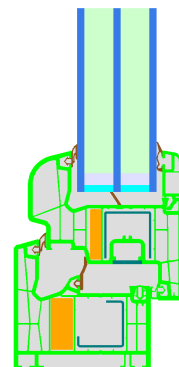


Category: **Window Frame**
Manufacturer: **ASAŞ Alüminyum Sanayi ve Ticaret A.Ş., AKYAZI, Turkey**
Product name: **Inova 76 mm insulated**

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

Comfort $U_W = 0.98 \leq 1.00 \text{ W}/(\text{m}^2 \text{ K})$
 $U_{W, \text{installed}} \leq 1.05 \text{ W}/(\text{m}^2 \text{ K})$
with $U_g = 0.90 \text{ W}/(\text{m}^2 \text{ K})$

Hygiene $f_{Rsi=0.25} \geq 0.65$



Passive House
efficiency class

phE

phD

phC

phB

phA

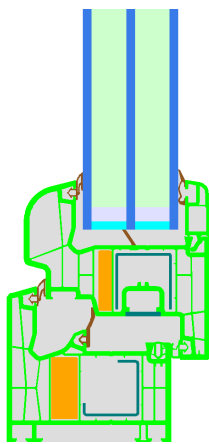
www.passivehouse.com

warm, temperate climate

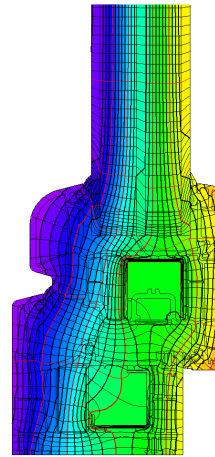


**CERTIFIED
COMPONENT**

Passive House Institute



Calculation model



Isothermal

Description

PVC window frame with insulation inserts made out of PU foam (0.027 W/(mK)) and steel reinforcements in both the frame and the sash. Pane thickness: 44 mm (4/16/4/16/4), rebate depth: 23 mm. Spacer: SWISSPACER Ultimate with butyl as secondary seal.

Explanation

The window U-values were calculated for the test window size of 1.23 m × 1.48 m with $U_g = 0.90$ W/(m² K). If a higher quality glazing is used, the window U-values will improve as follows:

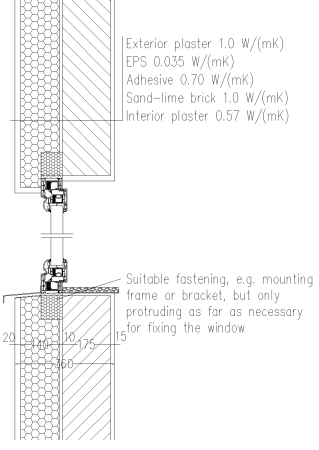
Glazing	$U_g =$	0.90	0.64	0.58	0.52	W/(m ² K)
		↓	↓	↓	↓	
Window	$U_w =$	0.98	0.80	0.76	0.72	W/(m ² K)

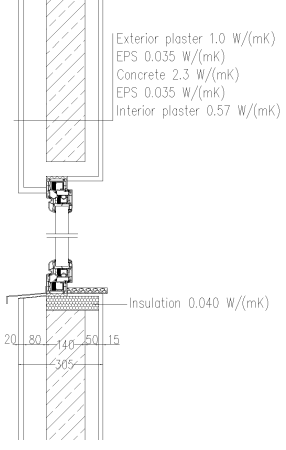
Transparent building components are classified into efficiency classes depending on the heat losses through the opaque part. The frame U-Values, frame widths, thermal bridges at the glazing edge, and the glazing edge lengths are included in these heat losses. A more detailed report of the calculations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

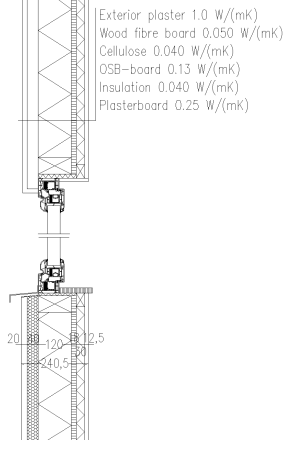
The Passive House Institute has defined international component criteria for seven climate zones. In principle, components which have been certified for climate zones with higher requirements may also be used in climates with less stringent requirements. In a particular climate zone it may make sense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

Validated installations

Exterior insulation and finishing system (EIFS) (operable)	
$U_{\text{Wall}} = 0.23 \text{ W/(m}^2 \text{ K)}$	
 <p>Exterior plaster 1.0 W/(mK) EPS 0.035 W/(mK) Adhesive 0.70 W/(mK) Sand-lime brick 1.0 W/(mK) Interior plaster 0.57 W/(mK)</p> <p>Suitable fastening, e.g. mounting frame or bracket, but only protruding as far as necessary for fixing the window</p>	
Ψ_{install}	W/(m K)
Top	0.001
Side	0.001
Bottom	0.018
$U_{W,\text{installed}} = 0.99 \text{ W/(m}^2 \text{ K)}$	

Formwork blocks (operable)	
$U_{\text{Wall}} = 0.25 \text{ W/(m}^2 \text{ K)}$	
 <p>Exterior plaster 1.0 W/(mK) EPS 0.035 W/(mK) Concrete 2.3 W/(mK) EPS 0.035 W/(mK) Interior plaster 0.57 W/(mK)</p> <p>Insulation 0.040 W/(mK)</p>	
Ψ_{install}	W/(m K)
Top	0.004
Side	0.004
Bottom	0.019
$U_{W,\text{installed}} = 1.00 \text{ W/(m}^2 \text{ K)}$	

Lightweight timber (operable)	
$U_{\text{Wall}} = 0.25 \text{ W/(m}^2 \text{ K)}$	
 <p>Exterior plaster 1.0 W/(mK) Wood fibre board 0.050 W/(mK) Cellulose 0.040 W/(mK) OSB-board 0.13 W/(mK) Insulation 0.040 W/(mK) Plasterboard 0.25 W/(mK)</p>	
Ψ_{install}	W/(m K)
Top	0.005
Side	0.005
Bottom	0.024
$U_{W,\text{installed}} = 1.01 \text{ W/(m}^2 \text{ K)}$	

Frame values		Frame width b_f mm	U -value frame U_f W/(m ² K)	Ψ -glazing edge Ψ_g W/(m K)	Temp. Factor $f_{Rsi=0.25}$ [-]
Flying Mullion	(FM1) 	143	1.09	0.022	0.69
Bottom	(OB1) 	121	0.98	0.022	0.72
Head	(OH1) 	121	0.97	0.022	0.72
Jamb	(OJ1) 	121	0.97	0.022	0.72
Spacer: Swisspacer Ultimate			Secondary seal: Butyl		

