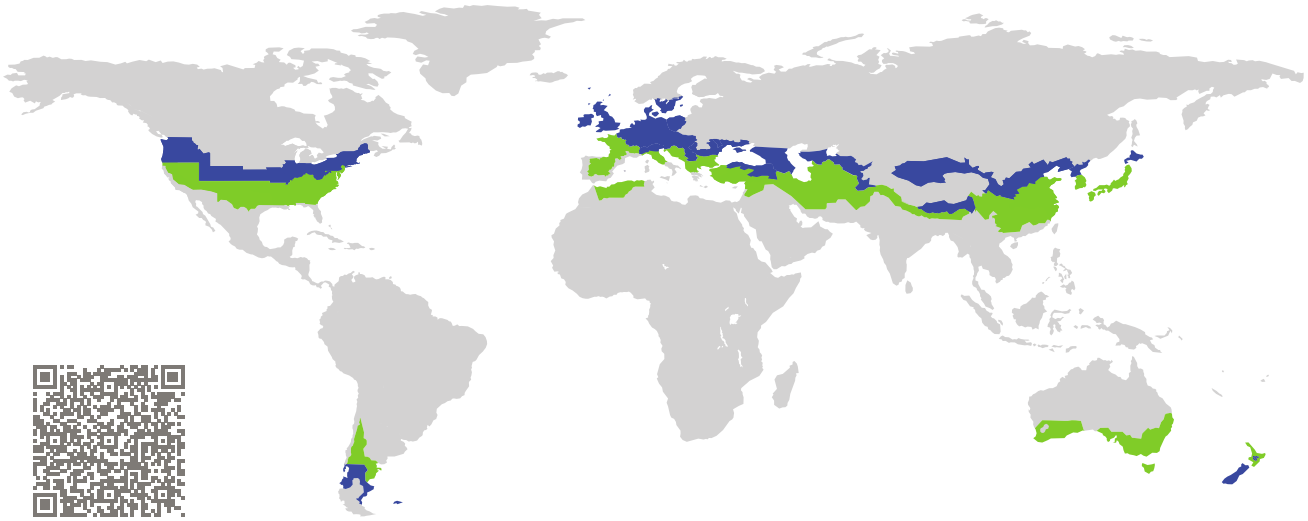
CERTIFICATE

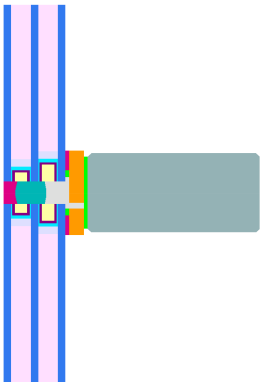
Certified Passive House Component

Component-ID 0809cw03 valid until 31st December 2018

Passive House Institute
Dr. Wolfgang Feist
64283 Darmstadt
Germany



Category:	**Curtain Wall**
Manufacturer:	**Harbin Sayyas Windows Stock Co. Ltd., Wanggang Town Nangang Distr. Harbin, China**
Product name:	**Pcw70**



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

Comfort	U_{CW} = 0.79	≤	0.80 W/(m² K)
	$U_{CW,installed}$	≤	0.85 W/(m² K)
	with U_g	=	0.70 W/(m² K)
Hygiene	$f_{Rsi=0.25}$	≥	0.70

cool, temperate climate

phA+

CERTIFIED COMPONENT

Passive House Institute

Passive House efficiency class	phE	phD	phC	phB	phA	phA+

www.passivehouse.com

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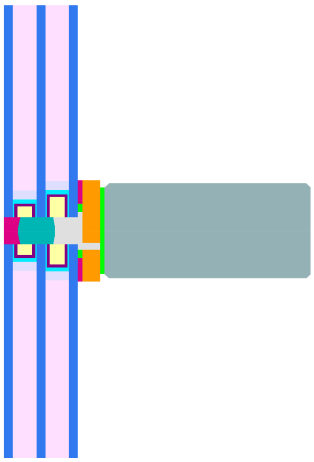
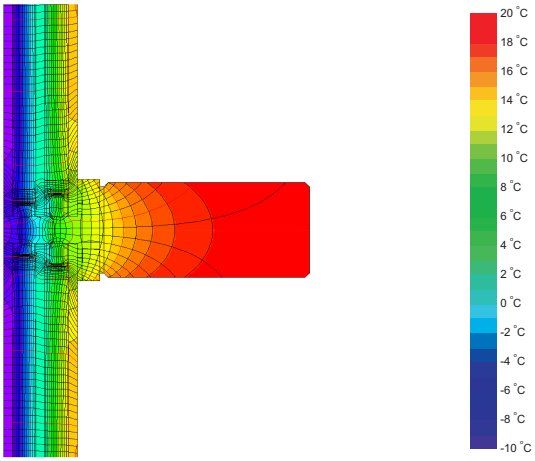


Calculation model



Isothermal

Description

Timber frame (Spruce/fir 0,11 W/(mK)), insulated by PE-foam (0,035 W/(mK)). Losses by screws and glass carrier were determined by 3d-thermal flux analysis (PHI). Pane thickness: 50 mm (6/16/6/16/6), rebate depth: 25 mm, spacer: SWISSPACER Ultimate with polyurethane as 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 W/(m² K). If a higher quality glazing is used, the element U-values will improve as follows:

Glazing	U_g =	0.70	0.69	0.58	0.53	W/(m² K)
		↓	↓	↓	↓	
Element	U_{CW}	0.79	0.78	0.68	0.64	W/(m² 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.

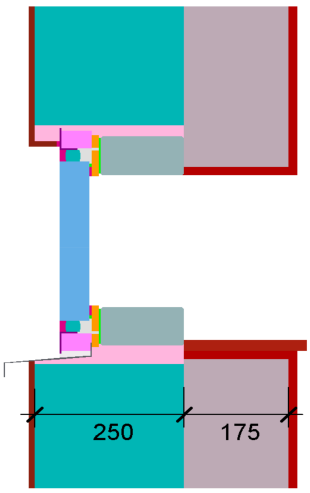
The Passive House Institute has defined international component criteria for seven climate zones. In principle, components that have been certified for climate zones with higher thermal requirements may also be used in climates with less stringent requirements. In a particular climate zone it may make 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 W/(m² K)	Ψ-panel edge Ψ_g W/(m K)	Temp. Factor $f_{Rsi=0.25}$ [-]
Top fixed	(tof)	75	0.66	0.040	0.72
Side fixed	(sf)	75	0.66	0.040	0.72
Bottom fixed	(bof)	75	0.66	0.040	0.72
Mullion fixed	(m)	75	0.66	0.040	0.72
Transom fixed	(tf)	75	0.66	0.040	0.72
Transom 1 casement	(t1)	170	0.75	0.030	0.72
Spacer: SWISSPACER Ultimate			Secondary seal: Polyurethane		

Validated installations

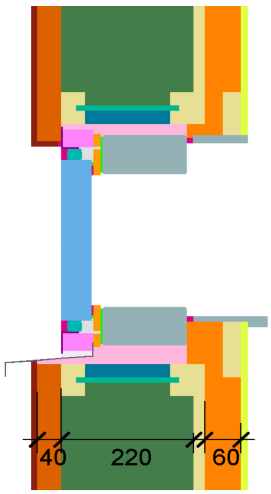
Exterior insulation and finishing system (EIFS) (fixed glazed)



$\Psi_{install}$	W/(m K)
Top	0.018
Left	0.018
Right	0.018
Bottom	0.057

$U_{W,installed}$ = 0.83 W/(m² K)

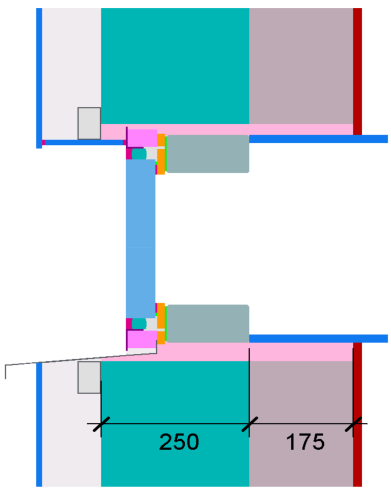
Lighthweight timber (fixed glazed)



$\Psi_{install}$	W/(m K)
Top	0.024
Left	0.024
Right	0.024
Bottom	0.059

$U_{W,installed}$ = 0.83 W/(m² K)

Ventilated facade (fixed glazing)



$\Psi_{install}$	W/(m K)
Top	0.018
Left	0.018
Right	0.018
Bottom	0.057

$U_{W,installed}$ = 0.83 W/(m² K)