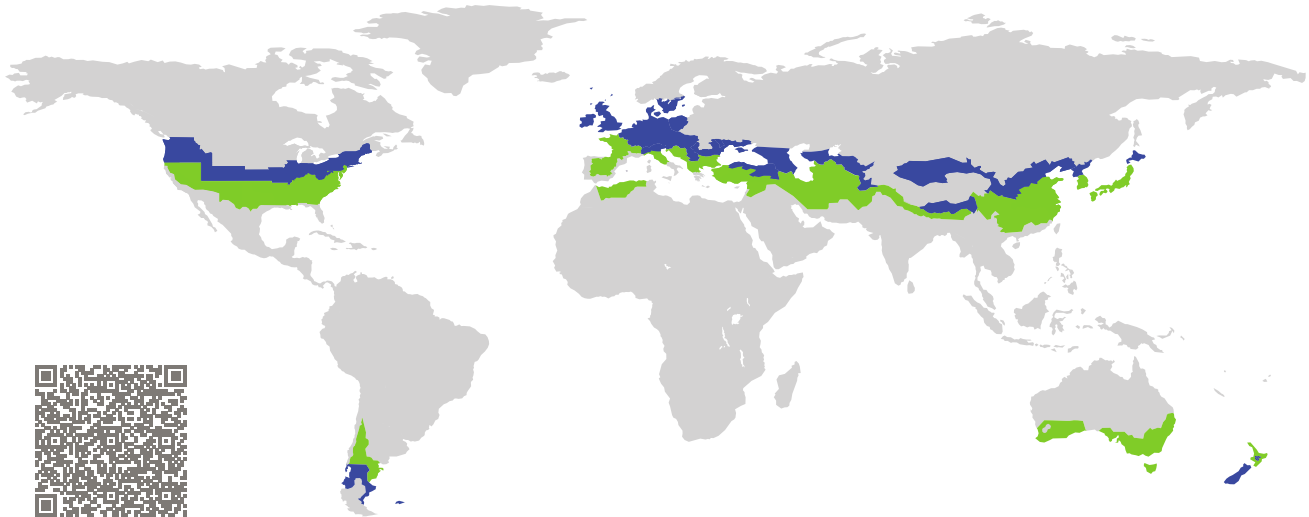


CERTIFICATE

Certified Passive House Component

Component-ID 1262cw03 valid until 31st Decembar 2019

Passive House Institute
Dr. Wolfgang Feist
64283 Darmstadt
Germany

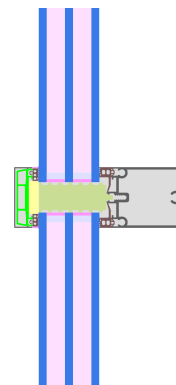


Category: **Curtain Wall**
Manufacturer: **Qingdao Honghai curtain wall systems co., ltd, Qingdao, China**
Product name: **HHGR 60 Curtain Wall System**

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

Comfort $U_{CW} = 0.78 \leq 0.80 \text{ W}/(\text{m}^2 \text{ K})$
 $U_{CW, \text{installed}} \leq 0.85 \text{ W}/(\text{m}^2 \text{ K})$
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

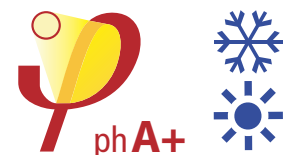
phB

phA

phA+

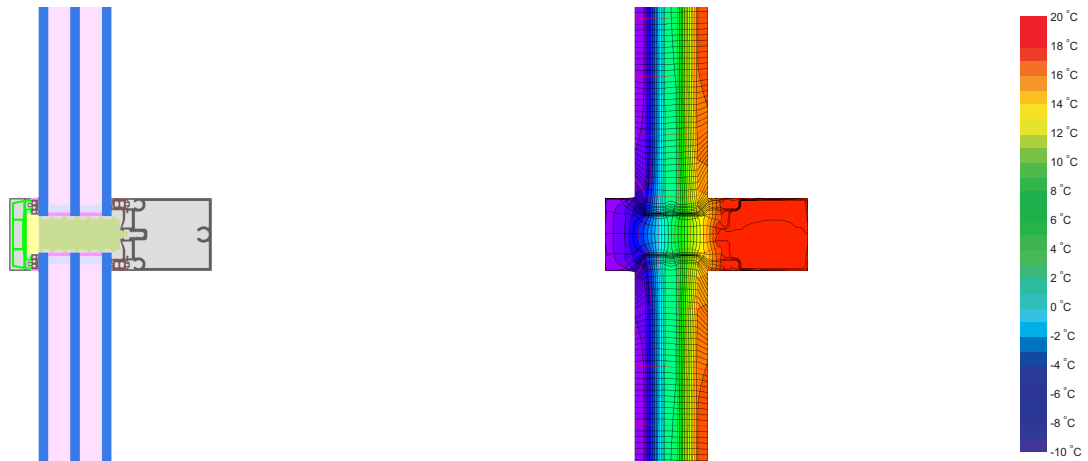
www.passivehouse.com

cool, temperate climate



**CERTIFIED
COMPONENT**

Passive House Institute



Calculation model

Isothermal

Description

Aluminium - mullion and transom facade, standard values used for screw and (plastic with metal screws) glass carrier. Screw channel and pressure-plate: PVC. Insulation: Kingspan Kooltherm (0,023 W/mK) and XPE foam (0,040 W/mK). Pane thickness: 60 mm (8/18/8/18/8 mm). Rebate depth: 16 mm. Spacer: TGI Precision.

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	0.64	0.58	0.52	W/(m ² K)
		↓	↓	↓	↓	
Element	U_{CW}	0.78	0.73	0.67	0.62	W/(m ² 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 -panel edge Ψ_g W/(m K)	Temp. Factor $f_{Rsi=0.25}$ [-]
Top fixed	(tof)		60	0.73	0.030	0.79
Side fixed	(sf)		60	0.73	0.030	0.84
Bottom fixed	(bof)		60	0.73	0.030	0.79
Mullion fixed	(m)		60	0.79	0.031	0.80
Mullion 1 casement	(m1)		110	0.58	0.033	0.80
Transom fixed	(tf)		60	0.78	0.030	0.79
Spacer: TGI-Spacer Precision			Secondary seal: Polysulfide			
Thermal glass carrier bridge ² $\chi_{GT} = 0.004$ W/K						

Validated installations

EIFS	
$U_{Wall} = 0.13$ W/(m ² K)	
$\Psi_{install}$	W/(m K)
Top	0.018
Left	0.018
Right	0.018
Bottom	0.022
$U_{W,installed} = 0.80$ W/(m ² K)	

Ventilated facade	
$U_{Wall} = 0.13$ W/(m ² K)	
$\Psi_{install}$	W/(m K)
Top	0.018
Left	0.018
Right	0.018
Bottom	0.022
$U_{W,installed} = 0.80$ W/(m ² K)	

¹ Includes $\Delta U = 0.30$ W/(m² K). Standard value

² Standard value . Glass carrier type : Non-Metallic Glass Carrier with Screws

