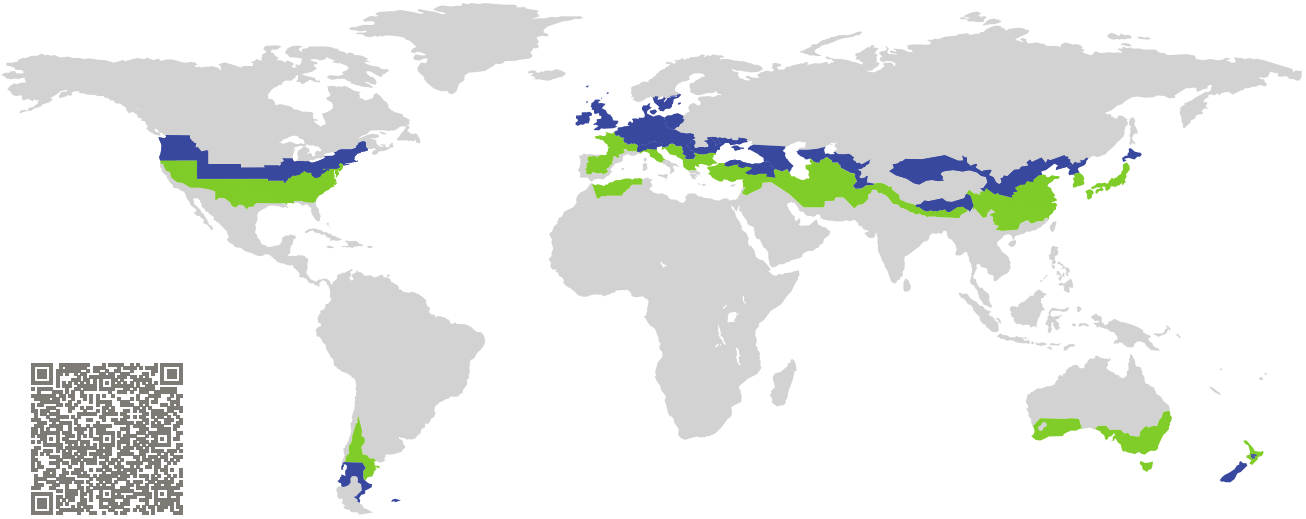
CERTIFICATE

Certified Passive House Component

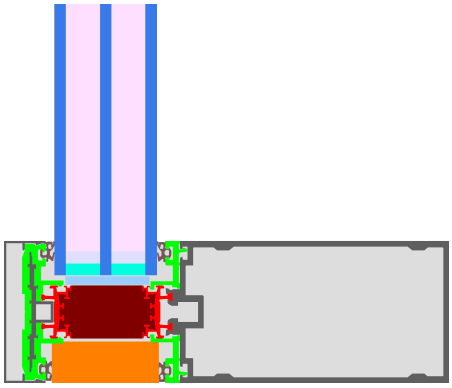
Component-ID 2305cw03 valid until 31st December 2025

Passive House Institute
Dr. Wolfgang Feist
64283 Darmstadt
Germany



Category:	**Curtain Wall**
Manufacturer:	**Hebei Aoyee New Materials Co. Ltd., Shijiazhuang, China**
Product name:	**MQ150**

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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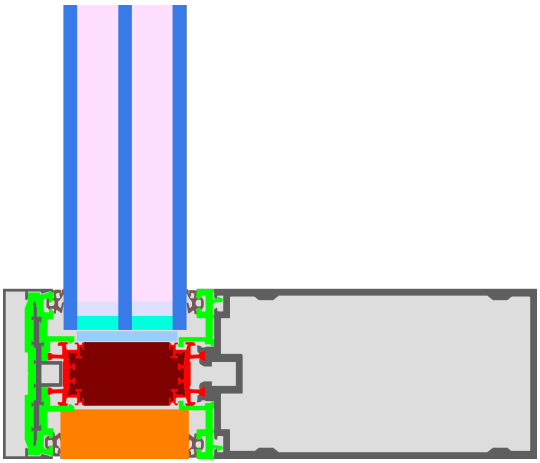
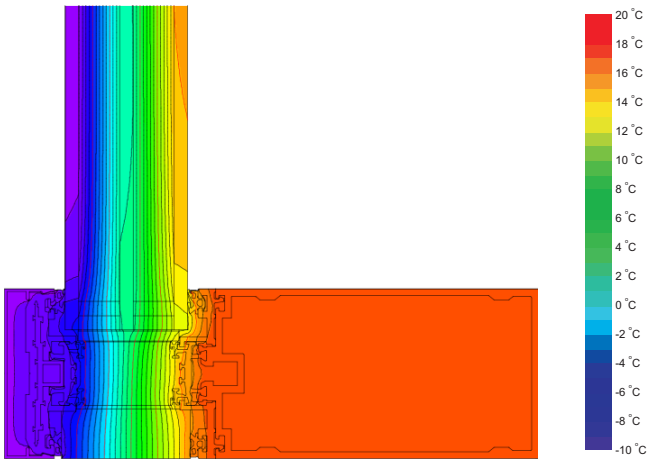


Calculation model



Isothermal

Description

Aluminium and PVC curtain wall 75mm wide, thermally broken with a combination of rigid polyurethane foam (0,051 W/(mK)) and PA66 (25% glass fibre) plastic (0,30 W/(mK)). Glass rebate insulated with PE foam (0,038 W/(mK)). TGI SP16 spacer with butyl secondary seal. As the thermal separation functions simultaneously as the glass carrier, the Chi-value of the glass carrier is set as zero. Pane thickness: 54 mm (6/18/6/18/6), rebate depth: 18 mm.

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/(m^2 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}	0.79	0.73	0.68	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/(m² K)	Ψ-glazing edge Ψ_g W/(m K)	Temp. Factor $f_{Rsi=0.25}$ [-]
Mullion fixed	(0M1)		75	0.85	0.031	0.80
Transom fixed	(0T1)		75	0.84	0.030	0.78
Mullion 1 casement	(1M1)		177	1.25	0.027	0.78
Transom 1 casement	(1T1)		178	1.28	0.026	0.76
Bottom fixed	(FB1)		75	0.86	0.031	0.79
Top fixed	(FH1)		75	0.86	0.031	0.79
Lateral fixed	(FJ1)		75	0.85	0.031	0.79
Spacer: Technoform-Spacer SP16				Secondary seal: Butyl		

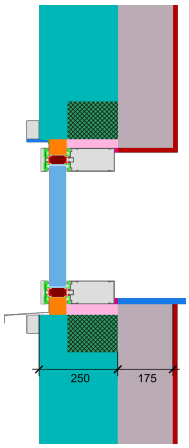
Thermal glass carrier bridge[2] χ_{GT} = 0.000 W/K

[1] Includes ΔU = 0.16 W/(m² K). Determined through 3D FEM simulation
[2] Standard value. Glass carrier type: Non-metallic

Validated installations

Ventillated facade (fixed glazed)

U_{Wall} = 0.13 W/(m² K)

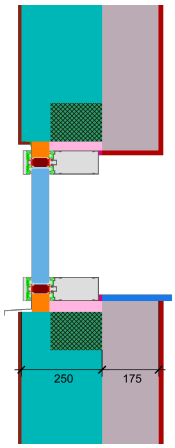


$\Psi_{install}$	W/(m K)
Top	0.025
Left	0.021
Right	0.021
Bottom	0.027

$U_{W,installed}$ = 0.82 W/(m² K)

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

U_{Wall} = 0.13 W/(m² K)

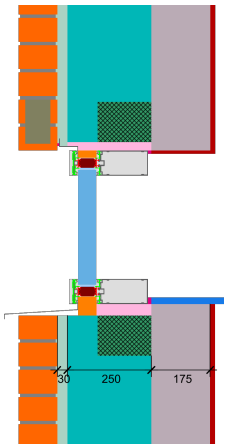


$\Psi_{install}$	W/(m K)
Top	0.025
Left	0.020
Right	0.020
Bottom	0.027

$U_{W,installed}$ = 0.82 W/(m² K)

Cavity wall (fixed glazing)

U_{Wall} = 0.13 W/(m² K)



$\Psi_{install}$	W/(m K)
Top	0.025
Left	0.020
Right	0.020
Bottom	0.026

$U_{W,installed}$ = 0.82 W/(m² K)