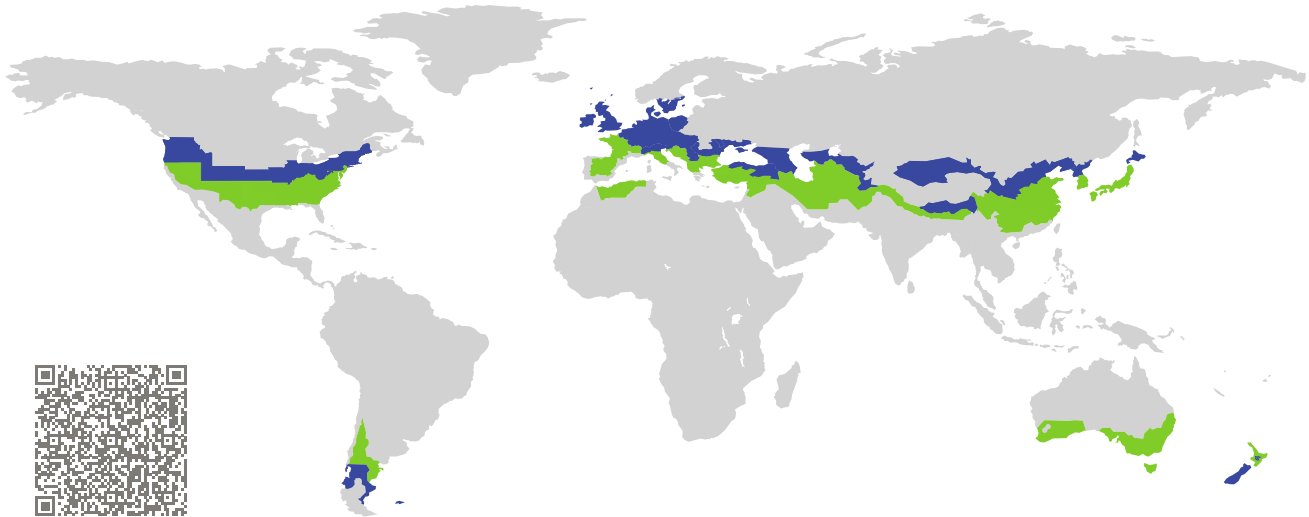


# CERTIFICATE

Certified Passive House Component

Component-ID 1982wi03 valid until 31st December 2025

Passive House Institute  
Dr. Wolfgang Feist  
64283 Darmstadt  
Germany

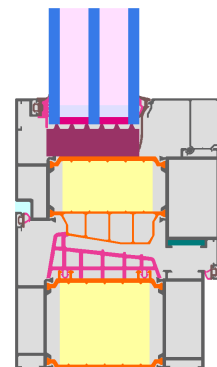


Category: **Window Frame**  
Manufacturer: **Hunan Greensee Doors and Windows  
Curtain Wall Co., Ltd.,  
Changsha,  
China**  
Product name: **Greensee Passive energy-saving  
Window**

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

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

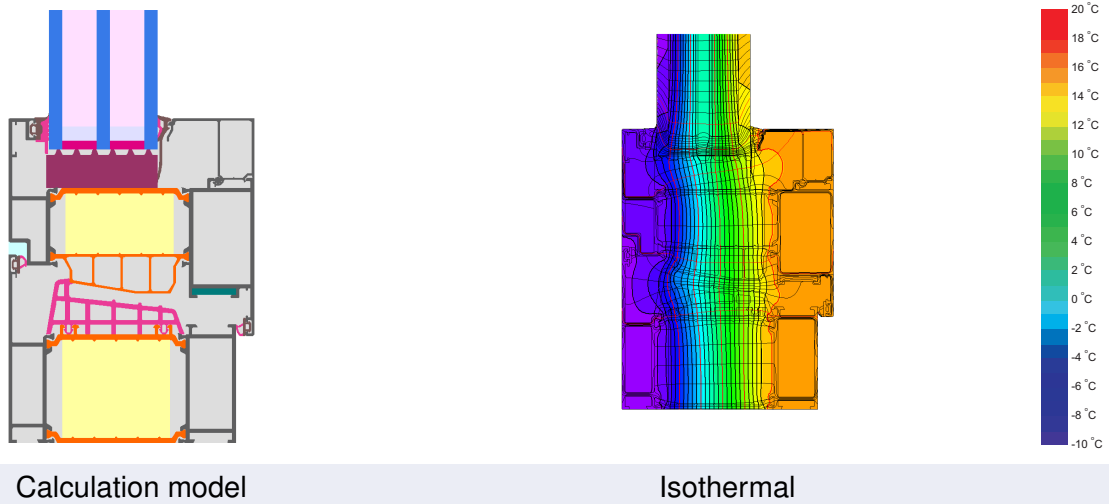
[www.passivehouse.com](http://www.passivehouse.com)

cool, temperate climate



**CERTIFIED  
COMPONENT**

Passive House Institute



Calculation model Isothermal

### Description

Aluminium frame with thermal separation (low lambda PA 0.21 W/(mK)) and insulation (Kooltherm 0.022 W/(mK) and XPE 0.045 W/(mK)); Pane thickness: 50 mm (6/16/6/16/6); Rebate depth: 15 mm; Spacer: Technoform-Spacer SP16; Secondary sealing: Silicone

### Explanation

The window U-values were calculated for the test window size of 1.23 m × 1.48 m with  $U_g = 0.70 \text{ W}/(\text{m}^2 \text{ K})$ . If a higher quality glazing is used, the window U-values will improve as follows:

Glazing	$U_g =$	0.70	0.64	0.58	0.54	W/(m <sup>2</sup> K)
		↓	↓	↓	↓	
Window	$U_w =$	0.80	0.77	0.73	0.71	W/(m <sup>2</sup> 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](http://www.passivehouse.com) and [passipedia.org](http://passipedia.org).

## Validated installations

Exterior insulation and finishing system		Ventilated facade		Cavity wall	
$U_{Wall} = 0.13 \text{ W}/(\text{m}^2 \text{ K})$		$U_{Wall} = 0.13 \text{ W}/(\text{m}^2 \text{ K})$		$U_{Wall} = 0.13 \text{ W}/(\text{m}^2 \text{ K})$	
<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>Ventilated facade – substructure Mineral wool 0.035 W/(mK) Concrete 2.3 W/(mK) Interior plaster 0.57 W/(mK)</p>		<p>Clinker Brick 1.2 W/(mK) Air gap EPS 0.035 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>		<p>Suitable fastening, e.g. mounting frame or bracket, but only protruding as far as necessary for fixing the window</p>	
$\Psi_{install}$	W/(m K)	$\Psi_{install}$	W/(m K)	$\Psi_{install}$	W/(m K)
Top	0.012	Top	0.012	Top	0.012
Side	0.012	Side	0.012	Side	0.012
Bottom	0.019	Bottom	0.019	Bottom	0.019
$U_{W,installed} = 0.84 \text{ W}/(\text{m}^2 \text{ K})$		$U_{W,installed} = 0.84 \text{ W}/(\text{m}^2 \text{ K})$		$U_{W,installed} = 0.84 \text{ W}/(\text{m}^2 \text{ K})$	

Frame values			Frame width $b_f$ mm	$U$ -value frame $U_f$ W/(m <sup>2</sup> K)	$\Psi$ -glazing edge $\Psi_g$ W/(m K)	Temp. Factor $f_{Rsi=0.25}$ [-]
Transom 1 casement	(1T1)		187	0.77	0.032	0.77
Bottom	(OB1)		150	0.77	0.033	0.77
Top	(OH1)		150	0.77	0.033	0.77
Lateral	(OU1)		150	0.77	0.033	0.77
Spacer: Technoform-Spacer SP16			Secondary seal: Silicone			

