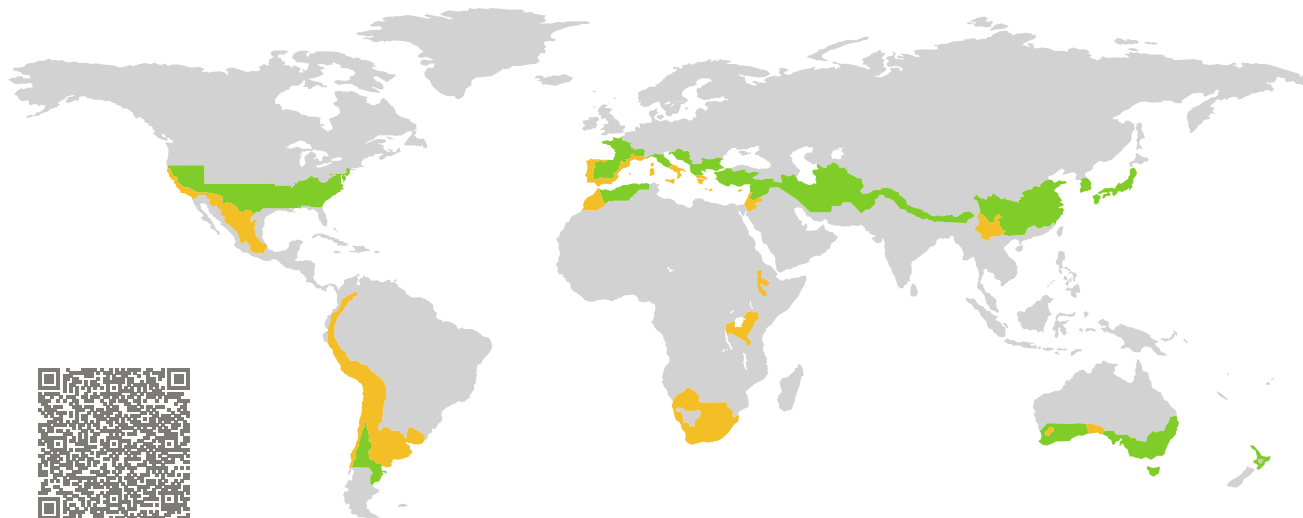


# CERTIFICATE

Certified Passive House Component

Component-ID 1588wi04 valid until 31st December 2025

Passive House Institute  
Dr. Wolfgang Feist  
64283 Darmstadt  
Germany

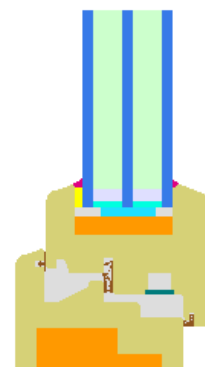


Category: **Window Frame**  
Manufacturer: **Shandong Chambroad Timber Material Co.,Ltd, Boxing County, China**  
Product name: **IV 93 Series passive wood windows**

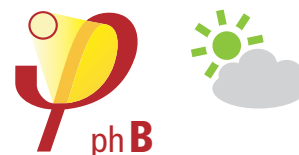
**This certificate was awarded based on the following criteria for the warm, temperate climate zone**

Comfort  $U_W = 0.99 \leq 1.00 \text{ W}/(\text{m}^2 \text{ K})$   
 $U_{W,\text{installed}} \leq 1.05 \text{ W}/(\text{m}^2 \text{ K})$   
with  $U_g = 0.90 \text{ W}/(\text{m}^2 \text{ K})$

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



warm, temperate climate



**CERTIFIED COMPONENT**

Passive House Institute

Passive House  
efficiency class

phE

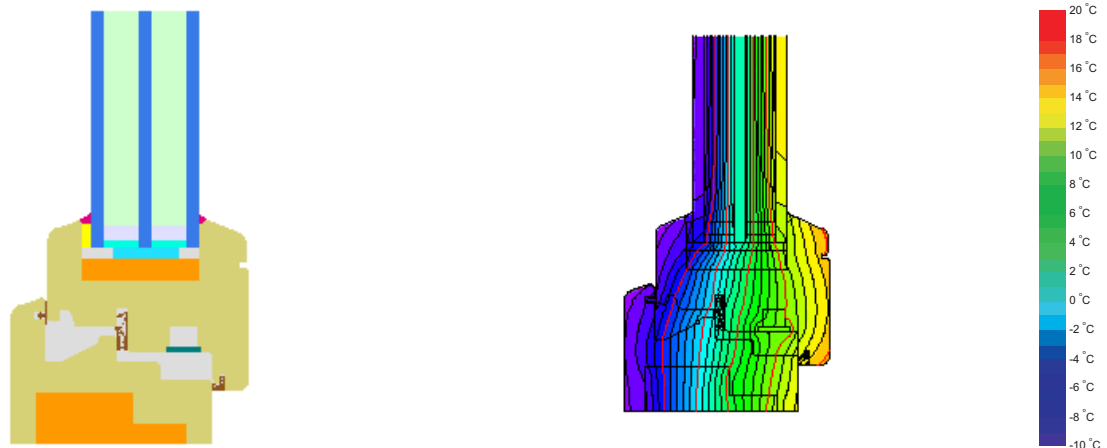
phD

phC

phB

phA

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



Calculation model

Isothermal

## Description

Timber frame (modified recombined wood: 0.15 W/(mK); 700 kg/m<sup>3</sup>) insulated by EPS compact foam 200 kg/m<sup>3</sup> (0.046 W/(mK)).

## 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/(m<sup>2</sup> K). If a higher quality glazing is used, the window U-values will improve as follows:

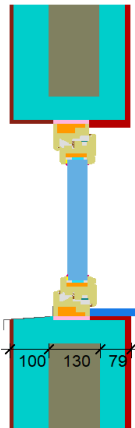
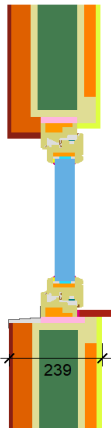
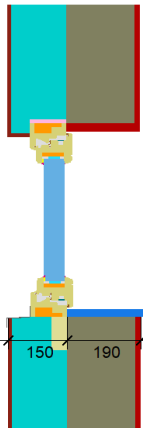
Glazing	$U_g =$	0.90	0.80	0.70	0.64	W/(m <sup>2</sup> K)
		↓	↓	↓	↓	
Window	$U_W =$	0.99	0.92	0.85	0.80	W/(m <sup>2</sup> K)



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

Formwork blocks (operable)		Lightweight timber (operable)		Exterior insulation and finishing system (EIFS) (operable)	
$U_{\text{Wall}} = 0.21 \text{ W}/(\text{m}^2 \text{ K})$		$U_{\text{Wall}} = 0.19 \text{ W}/(\text{m}^2 \text{ K})$		$U_{\text{Wall}} = 0.23 \text{ W}/(\text{m}^2 \text{ K})$	
					
$\Psi_{\text{install}}$	W/(m K)	$\Psi_{\text{install}}$	W/(m K)	$\Psi_{\text{install}}$	W/(m K)
Top	0.020	Top	0.017	Top	0.010
Side	0.020	Side	0.017	Side	0.010
Bottom	0.022	Bottom	0.023	Bottom	0.026
$U_{W,\text{installed}} = 1.05 \text{ W}/(\text{m}^2 \text{ K})$		$U_{W,\text{installed}} = 1.04 \text{ W}/(\text{m}^2 \text{ K})$		$U_{W,\text{installed}} = 1.03 \text{ W}/(\text{m}^2 \text{ K})$	

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 $f_{Rsi=0.25}$ [-]
Bottom	(OB1) 	104	0.99	0.025	0.73
Top	(OH1) 	104	0.99	0.025	0.73
Lateral	(OJ1) 	104	0.99	0.025	0.73
Spacer: SWISSPACER Ultimate			Secondary seal: Hotmelt Butyl		

