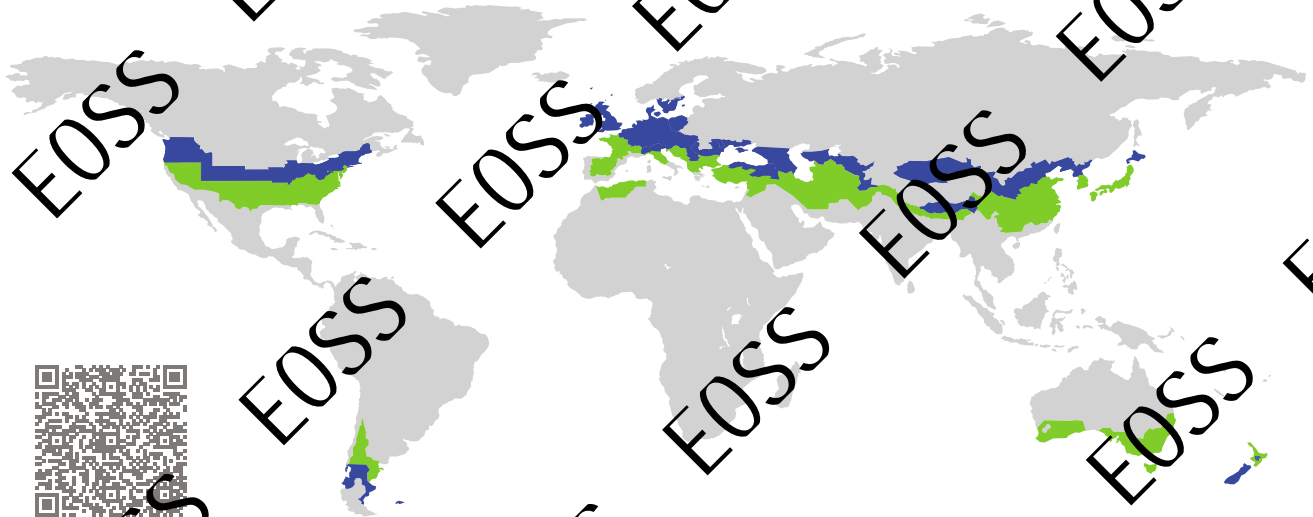


CERTIFICATE

Certified Passive House Component

Component-ID 1377ed03 valid until 31st December 2023

Passive House Institute
Dr. Wolfgang Feist
64283 Darmstadt
Germany



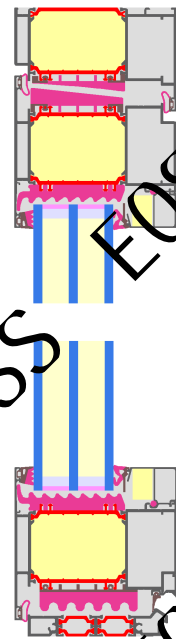
Category: **Entry door**
Manufacturer: **Shandong Huajian Aluminium Group Co., LTD**
Shandong Province
China
Product name: **ES110**

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

Comfort $U_D = 0.70 < 0.80 \text{ W}/(\text{m}^2 \cdot \text{K})$
 $U_{D, \text{installed}} \leq 0.85 \text{ W}/(\text{m}^2 \cdot \text{K})$
with $U_g \downarrow = 0.53 \text{ W}/(\text{m}^2 \cdot \text{K})$

Hygiene $i_{Dsi=0.25} \geq 0.70$
Airtightness $Q_{100} = 1.1 \leq 2.25 \text{ m}^3/(\text{h} \cdot \text{m})$

fully glazed door



(Outward open)





Calculation model

Isothermal

Description

Aluminium frame with thermal separation (0.30 W/(mK)) and insulation (Resol foam 0.023 W/(mK)); glazing: 6/18/6/18/6; spacer: TGI-Spacer Precision

Explanation





The U-values of the door apply to a door 1.10 m wide by 2.20 m tall.

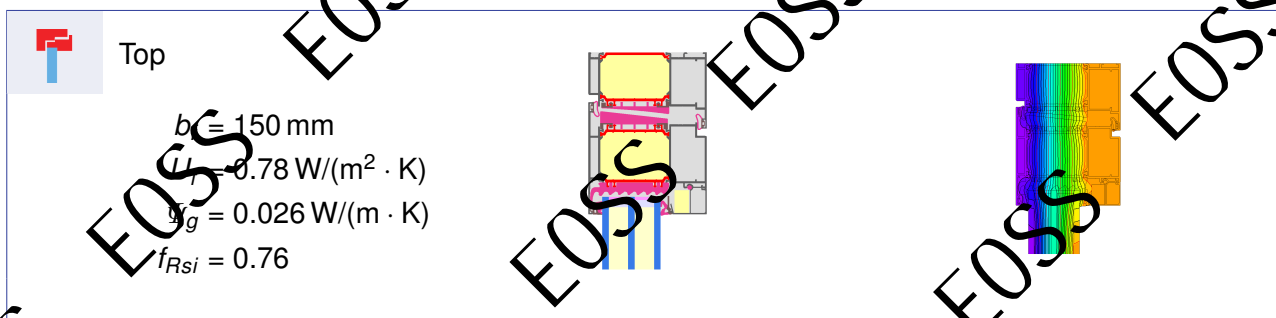
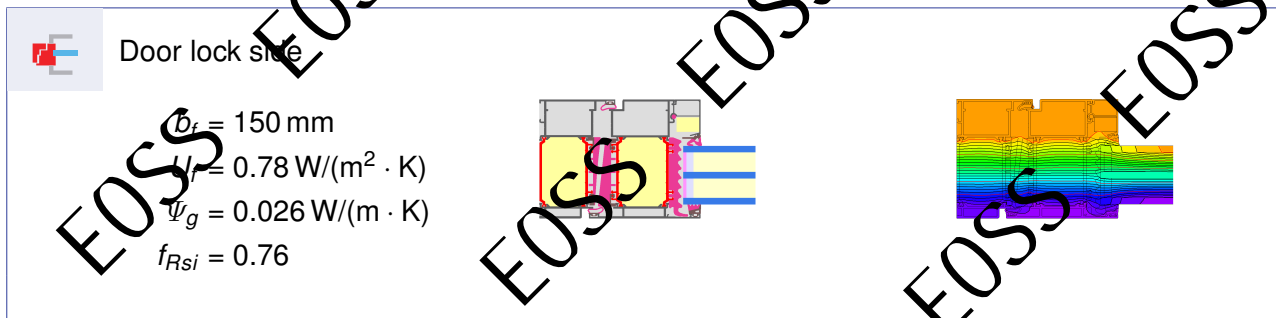
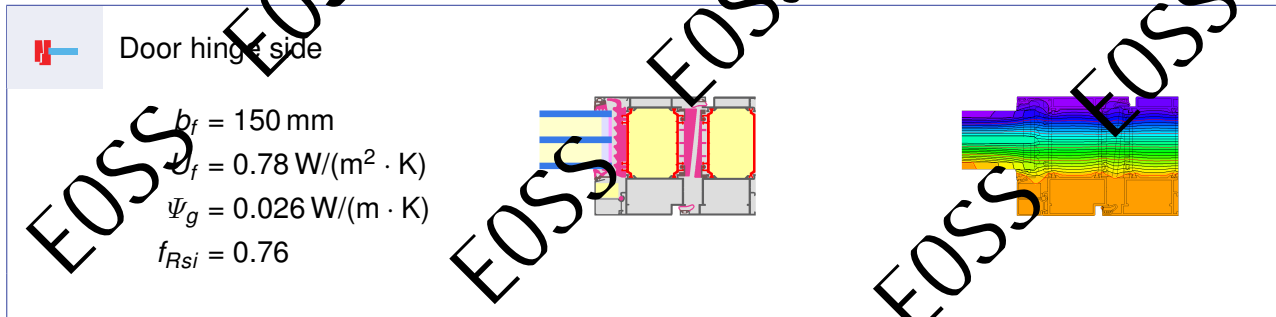
A detailed report of the calculations performed in the context of certification is available from the manufacturer.

Unless stated otherwise, the air tightness was determined according to EN 1026 with respect to the joint length under climate load in conjunction with EN 1121 for the closed, non-locked door. The result corresponds at least to air-tightness class 3 according to EN 12207.

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 and passipedia.org.

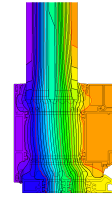
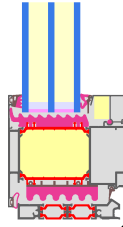
Frame values	Frame width b_f mm	U-value frame U_f W/(m ² · K)	Ψ edge Ψ_g W/(m · K)	Temp. Factor $f_{Rsi=0.25}$ [-]
Door hinge side (DJ1) 	150	0.78	0.026	0.76
Door lock side (DL1) 	150	0.78	0.026	0.76
Top (OH1) 	150	0.78	0.026	0.76
Threshold (OT2) 	115	1.10	0.026	0.76
Spacer: Technoform-Spacer SF16		Secondary seal: Polysulfid		





Threshold

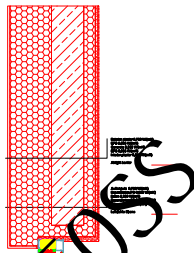
$b_f = 115 \text{ mm}$
 $U_f = 1.10 \text{ W}/(\text{m}^2 \cdot \text{K})$
 $\Psi_g = 0.026 \text{ W}/(\text{m} \cdot \text{K})$
 $f_{Rsi} = 0.76$



Validated installations

Formwork blocks top (operable)

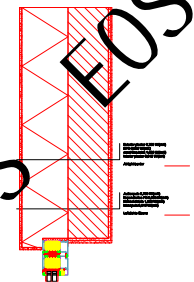
$U_1 = 0.15 \text{ [W}/(\text{m}^2 \cdot \text{K})]$



$\Psi_{\text{install}} = 0.012 \text{ W}/(\text{m} \cdot \text{K})$

Exterior insulation and finishing s (EIFS) top (operable)

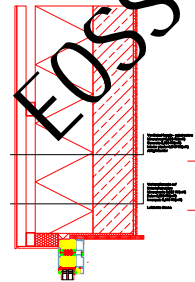
$U_1 = 0.11 \text{ [W}/(\text{m}^2 \cdot \text{K})]$



$\Psi_{\text{install}} = 0.012 \text{ W}/(\text{m} \cdot \text{K})$

Ventilated facade

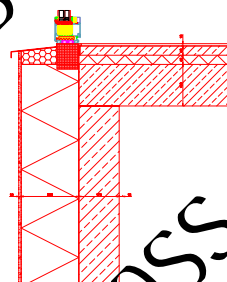
$U_1 = 0.13 \text{ [W}/(\text{m}^2 \cdot \text{K})]$



$\Psi_{\text{install}} = 0.014 \text{ W}/(\text{m} \cdot \text{K})$

Ext insulation a. finish. s. (EIFS) threshold ceiling (operable)

$U_1 = 0.11 \text{ [W}/(\text{m}^2 \cdot \text{K})]$



$\Psi_{\text{install}} = 0.062 \text{ W}/(\text{m} \cdot \text{K})$

