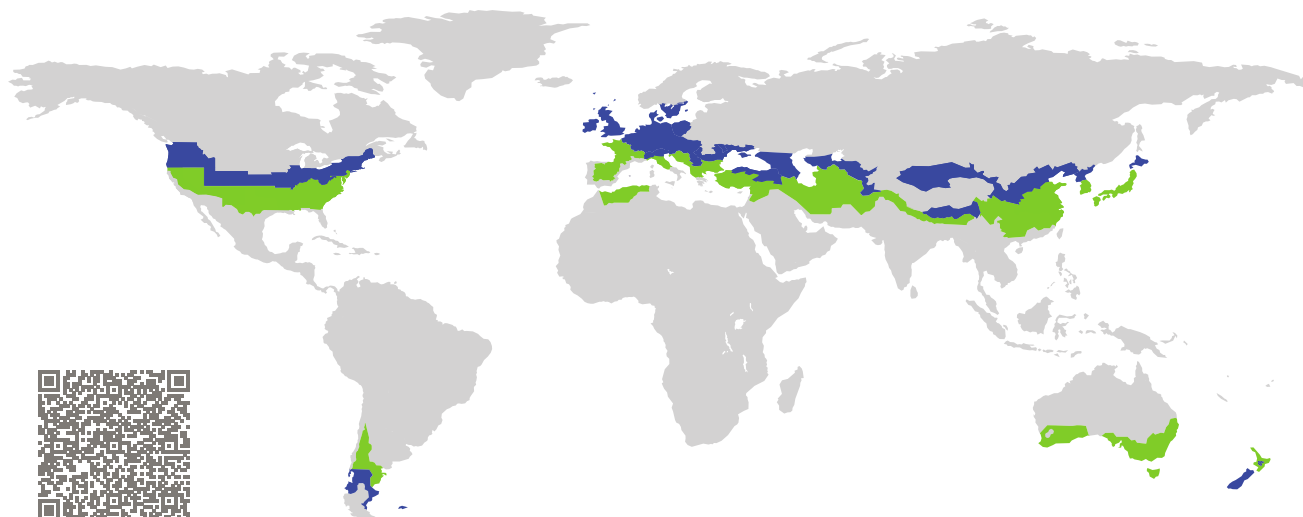


CERTIFICATE

Certified Passive House Component

Component-ID 1152wi03 valid until 31st December 2025

Passive House Institute
Dr. Wolfgang Feist
64283 Darmstadt
Germany

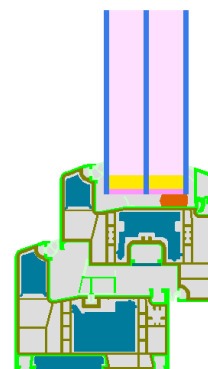


Category: **Window Frame**
Manufacturer: **Alpen High Performance Products,
Louisville, CO,
United States of America**
Product name: **Alpen Tyrol Tilt/Turn**

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

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

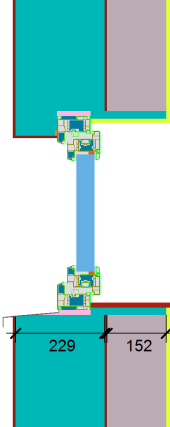
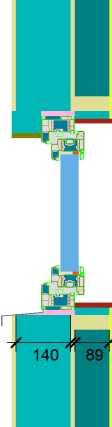
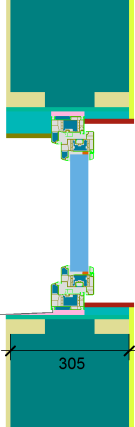
cool, temperate climate







**CERTIFIED
COMPONENT**

Passive House Institute

Validated installations

Exterior insulation and finishing system (EIFS) (operable)	Lightweight timber (operable) 2	Lightweight timber (operable)
$U_{\text{Wall}} = 0.14 \text{ W}/(\text{m}^2 \text{ K})$	$U_{\text{Wall}} = 0.15 \text{ W}/(\text{m}^2 \text{ K})$	$U_{\text{Wall}} = 0.14 \text{ W}/(\text{m}^2 \text{ K})$
		
Ψ_{install} W/(m K)	Ψ_{install} W/(m K)	Ψ_{install} W/(m K)
Top -0.001	Top 0.001	Top 0.014
Side -0.001	Side 0.001	Side 0.014
Bottom 0.010	Bottom 0.009	Bottom 0.023
$U_{W,\text{installed}} = 0.78 \text{ W}/(\text{m}^2 \text{ K})$	$U_{W,\text{installed}} = 0.78 \text{ W}/(\text{m}^2 \text{ K})$	$U_{W,\text{installed}} = 0.82 \text{ W}/(\text{m}^2 \text{ K})$

Frame values		Frame width b_f mm	U -value frame U_f W/(m ² K)	Ψ -glazing edge Ψ_g W/(m K)	Temp. Factor $f_{Rsi=0.25}$ [-]
Mullion 2 casements	(2M1) 	184	0.80	0.023	0.75
Bottom	(OB1) 	115	0.76	0.023	0.75
Top	(OH1) 	115	0.76	0.023	0.75
Lateral	(OJ1) 	115	0.76	0.023	0.75
Spacer: Super Spacer TriSeal / T-Spacer Premium			Secondary seal: Polyurethan		

