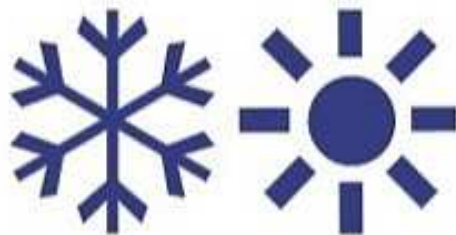


Cool, temperate climate



Affordable Zero Energy Buildings



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Manufacturer Window

PARK Byoungyeol, Architecture studio Time, Human and Space smartwin compact hpl triple

Country



Climate



Material

Timber HPL

Description of baseline window

Double glazed (3/14/3) Timber window with aluminium Spacer. Shaded by venetian Blinds. Installed in the construction layer with reveal insulation.

Description of Passive House window

HPL clad version of smartwin compact: Timber frame (Spruce/Fir, 0.11 W/(mK)), insulated by low dense timber-fiber board (0.04 W/(mK)). Glazing: 4/18/4/18/4, Glass intersection: 15 mm. Spacer: SWISSPACER Ultimate.

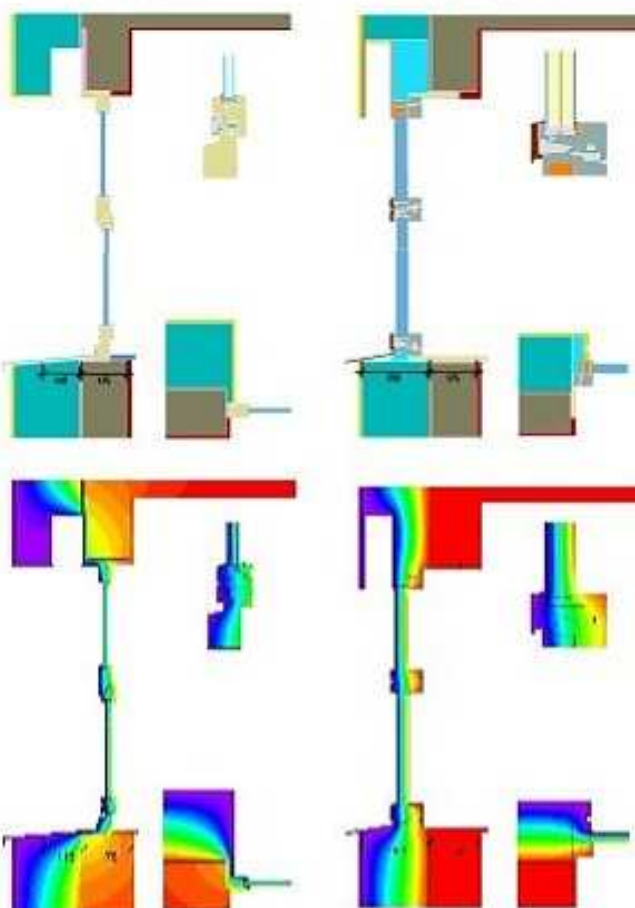
Shaded by venetian blind in narrow case built by the window manufacturer to minimize the thermal bridge.

Installed in the insulation layer by wooden frame connector. Airtightness by plaster able tape.



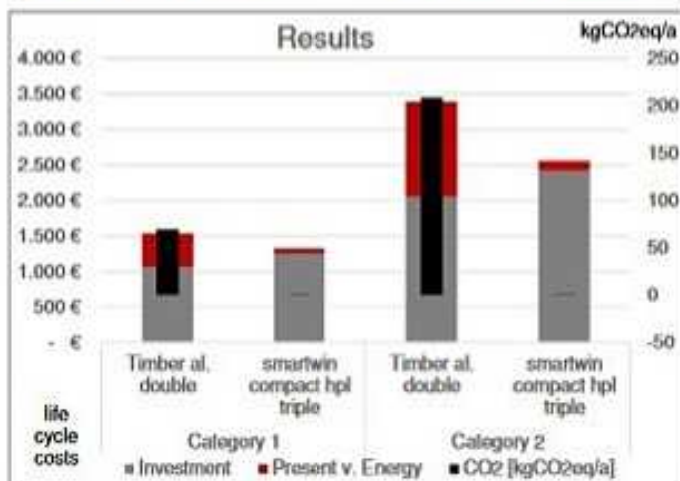
Baseline

PH window



Korea KR0002a Jeonju	Category 1		Category 2	
	Timber al. double	smartwin compact hpl triple	Timber al. double	smartwin compact hpl triple
U_g [W/(m ² K)]	1,36	0,60	1,36	0,60
U_f [W/(m ² K)]	1,76	0,86	1,66	0,78
U_w [W/(m ² K)]	1,66	0,73	1,74	0,75
$U_{w,i}$ [W/(m ² K)]	2,40	0,74	2,31	0,77
Glass fraction	69%	76%	6%	71%
g	64%	54%	64%	54%
Shading factor	10%	10%	10%	10%
Investment	1.056 €	1.254 €	2.046 €	2.420 €
Present v. Energy	475 €	68 €	1.341 €	135 €
LCC	1.531 €	1.322 €	3.387 €	2.556 €
LCC Saving		209 €		832 €
LCC Saving		14%		25%
CO ₂ [kgCO ₂ eq/a]	69	0	209	-1
CO ₂ Saving		69		209
CO ₂ Saving		99%		100%

Results



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