CERTIFICATE

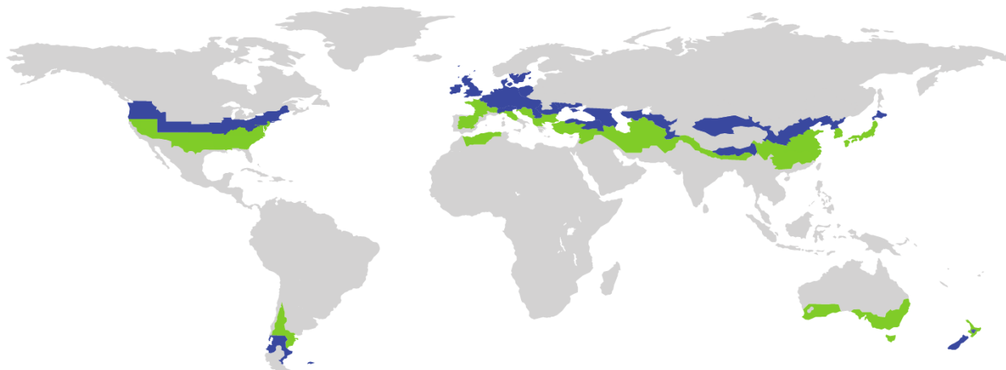
Certified Passive House Component

ID: 1078cs03 valid until 31. December 2018

Passive House Institute
Dr. Wolfgang Feist
64342 Darmstadt
GERMANY

Aditional thermal bridges

Name	Thermal bridge	f_{Rsi}	Description
EWPA01	X= 0,001 W/(mK)	0,97	Steel fastening screw through external wall build-up
ROPA01	X= 0,001 W/(mK)	0,97	Steel fastening screw through roof build-up
BCEW02	Ψ= 0,001 W/(mK)	0,90	Floor slab to external wall 02
WITH02	Ψ= 0,081 W/(mK)	0,78	Threshold 02, Uw(installed) = 0,84 W/m²K



Category **Construction system | Lightweight timber construction**
Manufacturer **Wood Steel Constructor d.o.o.**
Belgrade
SERBIA
Product name **Wood Steel Constructor**

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

Hygiene criterion

The minimum temperature factor of the interior surfaces is $f_{Rsi=0,25m^2K/W} \geq$ **0,70**

Comfort criterion

The U-value of the installed windows is $U_{W,i} \leq$ **0,85** W/(m²K)

Efficiency criteria

Heat transfer coefficient of building envelope	$U*f_{PHI} \leq$	**0,15** W/(m²K)
Temperature factor of opaque junctions	$f_{Rsi=0,25m^2K/W} \geq$	**0,86**
Thermal bridge-free design for key connection details	$\Psi \leq$	**0,01** W/(mK)

An airtightness concept for all components and connection details was provided

cool, temperate climate

CERTIFIED COMPONENT
Passive House Institute

Wood Steel Constructor d.o.o.
Bulevar Mihajla Pupina 6/19, 11000 Belgrade, SERBIA
Phone: | +381 629 733 316 | info@woodsteelhouse.com www.woodsteelhouse.com

Opaque building envelope

Wood Steel Constructor is a timber frame construction system. The external walls comprise solid timber studs and wood fibre insulation (Schneider Flex 50, 0.039 W/(mK); Schneider Wall 180, 0.045 W/(mK)). The walls are designed to be used with a render finishing system to the exterior; where a rainscreen is used, additional point thermal bridges may need to be taken into account in the PHPP. The pitched roof comprises solid timber beams and wood fibre insulation (Schneider Flex 50, as above; Schneider Top 180, 0.045 W/(mK)). The floor slab has been designated as an unheated basement ceiling, comprising EPS forms (0.038 W/(mK)) suspended between reinforced concrete beams, topped with poured concrete, pressure-resistant wood fibre insulation (Schneider Floor 220, 0.049 W/(mK)) and cement screed. The system has undergone analysis by the Passive House Institute against the thermal performance criteria for the cool-temperate climate zone.

Windows

Analysis was undertaken using a generic, passive house-standard timber-framed, triple-glazed window unit, featuring "Superspacer Triseal" thermal performance values for the spacer. Felxible PUR insulation (ISO Bloco One, 0.048 W/(mK)) is used at the window installations. The calculations undertaken demonstrate that the window installation locations are suited to the cool-temperate climate zone, with no risk of surface condensation.

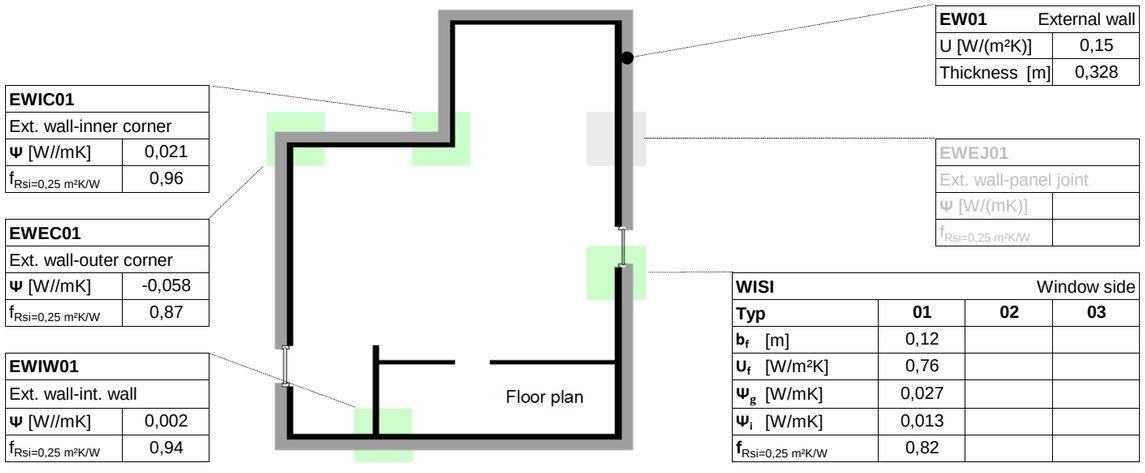
Airtightness concept

The airtightness of the construction system is achieved through the use of an airtight membrane in the wall, roof and floor build-ups, to the inside of the structural elements. Connections are taped using specialist air tightness tape.

Explanatory notes

The Passive House Institute has defined international component criteria for seven climate zones based on hygiene, comfort and affordability criteria. In principle, components which have been certified for climate zones with higher requirements may also be used in climates with less stringent requirements. Their use might make economic sense in certain circumstances.

Thermal bridge not calculated
Criteria achieved
Efficieny criteria not achieved
Hygiene or comfort criterion not achieved



EW01	External wall
U [W/(m²K)]	0,15
Thickness [m]	0,328

EWIC01	
Ext. wall-inner corner	
Ψ [W//mK]	0,021
$f_{Rsi=0,25\ m²K/W}$	0,96

EWEC01	
Ext. wall-outer corner	
Ψ [W//mK]	-0,058
$f_{Rsi=0,25\ m²K/W}$	0,87

EWIW01	
Ext. wall-int. wall	
Ψ [W//mK]	0,002
$f_{Rsi=0,25\ m²K/W}$	0,94

EWEJ01	
Ext. wall-panel joint	
Ψ [W/(mK)]	
$f_{Rsi=0,25\ m²K/W}$	

WISI	Window side		
Typ	**01**	**02**	**03**
b_f [m]	0,12		
U_f [W/m²K]	0,76		
$Ψ_g$ [W/mK]	0,027		
$Ψ_i$ [W/mK]	0,013		
$f_{Rsi=0,25\ m²K/W}$	0,82		

ROVE01	
Verge	
Ψ [W//mK]	-0,054
$f_{Rsi=0,25\ m²K/W}$	0,88

EWCE01	
Ext. wall-ceiling	
Ψ [W//mK]	-0,001
$f_{Rsi=0,25\ m²K/W}$	0,94

WITH01	
Window threshold	
b_f [m]	0,120
U_f [W/m²K]	0,76
$Ψ_e$ [W/mK]	0,027
$Ψ_i$ [W/mK]	0,083
$f_{Rsi=0,25\ m²K/W}$	0,78
$U_{w,i}$ [W//m²K]	**0,84**

FSIW01	
Fl. slab-int. w.	
Ψ [W//mK]	
$f_{Rsi=0,25\ m²K/W}$	

BW01	Basement wall
U [W/(m²K)]	
Thickness [m]	

ROIW01	
Roof-internal wall	
Ψ [W//mK]	
$f_{Rsi=0,25\ m²K/W}$	

RWSI01	
Roof window top	
Ψ [W//mK]	
$f_{Rsi=0,25\ m²K/W}$	

RO01	Roof
U [W/(m²K)]	0,15
Thickness [m]	0,398

FS01	Fl. slab
U [W/(m²K)]	
Thickness [m]	

Cross section

FS02	Fl. slab	U [W/(m²K)]		Thickness [m]	

WITO	Window top		
Typ	**01**	**02**	**03**
b_f [m]	0,12		
U_f [W/m²K]	0,76		
$Ψ_g$ [W/mK]	0,027		
$Ψ_i$ [W/mK]	0,022		
$f_{Rsi=0,25\ m²K/W}$	0,82		

WIBO	Window bottom		
b_f [m]	0,12		
U_f [W/m²K]	0,76		
$Ψ_g$ [W/mK]	0,027		
$Ψ_i$ [W/mK]	0,035		
$f_{Rsi=0,25\ m²K/W}$	0,81		
$U_{w,i}$ [W//m²K]	**0,84**		

BWBC01	Bsmnt w.-bsmnt c.
Ψ [W//mK]	
$f_{Rsi=0,25\ m²K/W}$	

BWFS01	Bsmnt w.-fl. slab
Ψ [W//mK]	
$f_{Rsi=0,25\ m²K/W}$	

FSBW01	Fl. slab-bsmnt w.
Ψ [W//mK]	
$f_{Rsi=0,25\ m²K/W}$	

ROEA01	Eaves
Ψ [W//mK]	-0,017
$f_{Rsi=0,25\ m²K/W}$	0,90

RWBO01	Roof window bttm
Ψ [W//mK]	
$f_{Rsi=0,25\ m²K/W}$	

RWTO01	Roof window side
Ψ [W//mK]	
$f_{Rsi=0,25\ m²K/W}$	

RORI01	Ridge
Ψ [W//mK]	-0,026
$f_{Rsi=0,25\ m²K/W}$	0,92

FRAW01	
Flat roof-asc. wall	
Ψ [W//mK]	
$f_{Rsi=0,25\ m²K/W}$	

TC01	Cold roof
U [W/(m²K)]	
Thickness [m]	

ROJU01	Junction
Ψ [W//mK]	
$f_{Rsi=0,25\ m²K/W}$	

FR01	Flat roof
U [W/(m²K)]	
Thickness [m]	

EO01	Overhang
U [W/(m²K)]	
Thickness [m]	

TCEA01	Cold roof-eaves
Ψ [W//mK]	
$f_{Rsi=0,25\ m²K/W}$	

BC01	Basement ceiling
U [W/(m²K)]	0,19
Thickness [m]	0,360

EWEO01	Ext. wall-overhang
Ψ [W//mK]	
$f_{Rsi=0,25\ m²K/W}$	

EWEO02	Ext. wall-overhang
Ψ [W//mK]	
$f_{Rsi=0,25\ m²K/W}$	

Longitudinal section

BCEW01	Bsmnt clg-ext. wall
Ψ [W//mK]	-0,009
$f_{Rsi=0,25\ m²K/W}$	0,91

FRRP01	Roof parapet
Ψ [W//mK]	
$f_{Rsi=0,25\ m²K/W}$	

FSEW01	Fl. slab-ext. wall
Ψ [W//mK]	
$f_{Rsi=0,25\ m²K/W}$	

FSBW02	Fl. slab-bsmnt w.
Ψ [W//mK]	
$f_{Rsi=0,25\ m²K/W}$	

BCIW01	Bsmnt clg-int. wall
Ψ [W//mK]	-0,003
$f_{Rsi=0,25\ m²K/W}$	0,94