CERTIFICATE

Certified Passive House Component
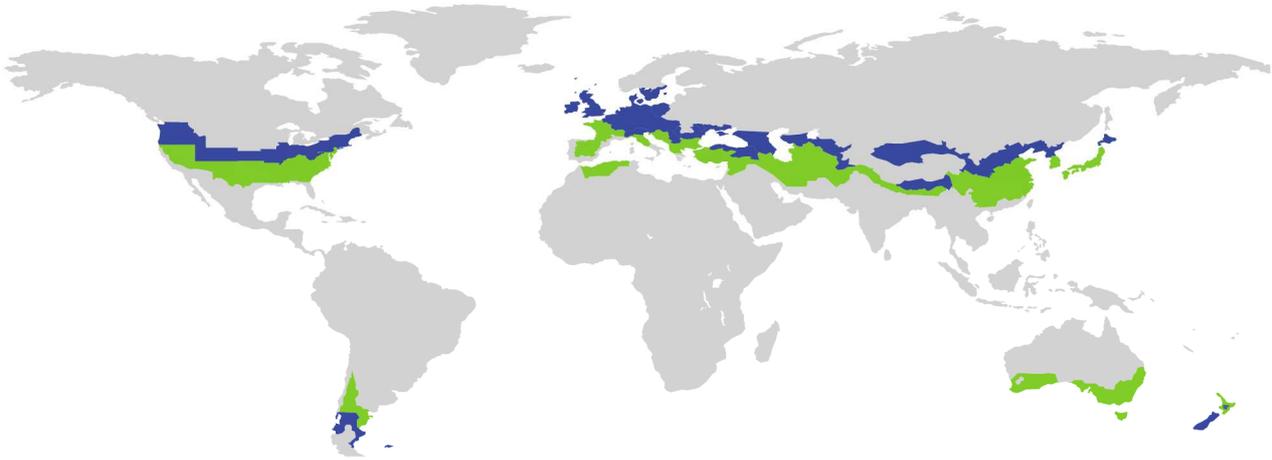
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Passive House Institute
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Category	**Construction system | Solid construction**
Manufacturer	**Kingspan Insulation B.V.**
	TIEL
	NETHERLANDS
Produktname	**Kooltherm K5 / Kooltherm K5 FR**

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)

Temperaturfactor 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/(m²K)

An airtightness concept for all components and connection details was provided.

cool, temperate climate

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Determined values

Thermal heat transfer coefficient		Dimension [m]	U-value [W/(m²K)]
EW01	External wall	0,34	0,148
EW02	External wall	0,32	0,274
EW03	External wall	0,34	0,237
RO01	Roof	0,33	0,131
FR01	Flat roof	0,51	0,097
BC01	Basement ceiling	0,51	0,159
FS01	Floor slab	0,56	0,162

Thermal bridge coefficient opaque envelope		fRsi [-]	Ψ [W/(mK)]
EWHB01	External wall heated basement ceiling	0,96	0,002
FSEW01	Floor slab external wall	0,96	0,032
EWCE01	External wall internal ceiling	0,95	0,014
EWFJ01		0,95	0,008
EWIW01	External wall internal wall	0,96	0,007
EWEJ01	External wall element junction	0,95	0,016
EWFI01	External fireprotective wall	0,92	0,02
RORI01	Roof ridge	0,93	-0,024
RORI02	Roof ridge	0,95	-0,019
ROEA01	Roof eaves	0,91	-0,021
ROEA02	Roof eaves	0,91	-0,025
ROVE01	Roof verge	0,91	-0,066
ROVE02	Roof verge	0,91	-0,068
MRRI01	Monopitched roof ridge	0,87	-0,11
MRRI02	Monopitched roof ridge	0,88	-0,104
ROFI01	Roof firewall	0,93	0,006
ROFI02	Roof firewall	0,93	0,009
FSEW02	Floor slab external wall	0,93	-0,046
BFBW01	Basement floor basement wall	0,91	-0,049
BCEW01	Basement ceiling external wall	0,95	-0,051
BCBW01	Basement ceiling basement wall	0,96	0,008
BCIW01	Basement ceiling internal wall	0,99	0,006
BCIW02	Basement ceiling internal wall	0,98	0,058
EWEC02	External wall outer corner	0,89	-0,053
EWIC02	External wall inner corner	0,97	0,029
EWCE02	External wall internal ceiling	0,95	0,012
EWFJ02		0,95	0,008
EWIW02	External wall internal wall	0,96	0,007
EWEJ02	External wall element junction	0,95	0,013
EWFI02	External fireprotective wall	0,94	0,023
RORI03	Roof ridge	0,93	-0,024
RORI04	Roof ridge	0,95	-0,019
ROEA03	Roof eaves	0,91	-0,021
ROEA04	Roof eaves	0,92	-0,023
ROVE03	Roof verge	0,91	-0,063