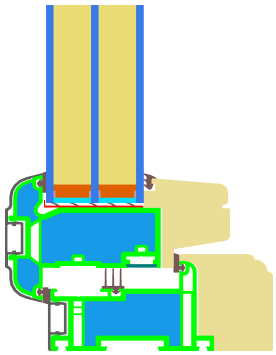
Certificate

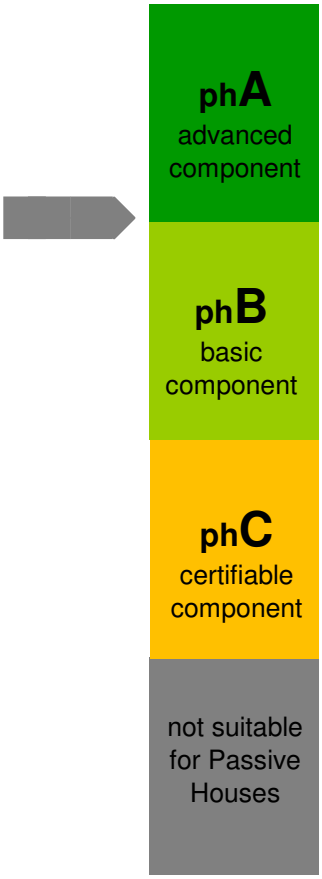
Passive House suitable component
for cool, temperate climate, valid until 31.12.2012

Passive House Institute
Dr. Wolfgang Feist
64283 Darmstadt
GERMANY

Category: **Window Frame**
Manufacturer: **Munster Joinery**
Ballydesmond, Mallow, Co.Cork, IRE
Product name: **EcoClad 120+**



Passive House Efficiency Class



The following comfort criteria were used in awarding this certificate:

Given a U_g value of 0.70 W/(m²K) and a window size of 1.23 m by 1.48 m,

U_W = 0,78 W/(m²K) ≤ 0.80 W/(m²K)

Taking into account the installation based thermal bridges, and provided that the installation is, with regard to the thermal bridges, equal or better than shown in the data sheet, the window meets the following criterion.

$U_{W,installed}$ ≤ 0.85 W/(m²K)

Thermal data of the window frame

	U_f-value [W/(m²K)]	Width [mm]	Ψ_g [W/(mK)]	$f_{Rsi=0.25}$ [-]
Spacer			SuperSp. Tri-Seal PU*	
Bottom	0,78	0,103	0,023	0,72
Side/top	0,78	0,103	0,023	

*Spacers of lower thermal quality, especially those made of aluminium, lead to significantly higher thermal losses and lower temperature factors.

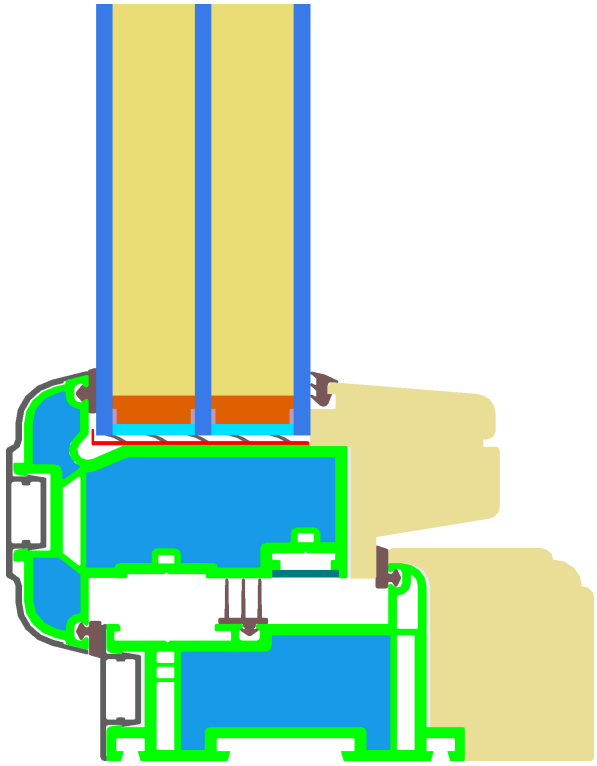
Further information see data sheet

Passive House suitable component
Dr. Wolfgang Feist

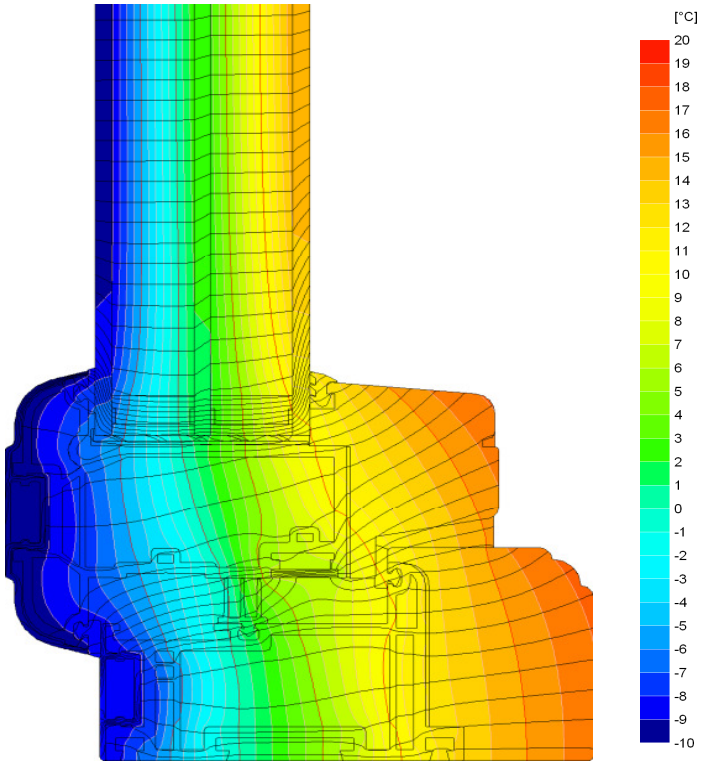
www.passivehouse.com

Data Sheet Munster Joinery, EcoClad 120+

Manufacturer Munster Joinery
, Ballydesmond, Mallow, Co.Cork, IRELAND
Tel.: +353 64 7751151
Email: sales@munsterjoinery.ie, www.munsterjoinery.ie



Bottom section



Isothermal

Description

Timber window frame, rain protected by exterieor aluminium cladding. Insulated by polyurethane foam (0,030 W/(mK)) in the frames center. Glazing: 4/20/4/20/4

Thermal data for the window frame

	U_f-value [W/(m²K)]	Width [mm]	Ψ_g [W/(mK)]	$f_{Rsi=0.25}$ [-]
Spacer			SuperSp. Tri-Seal PU*	
Bottom	0,78	0,10	0,02	0,72
Side/top	0,78	0,10	0,02	
Flying Mullion	0,79	0,12	0,02	0,72
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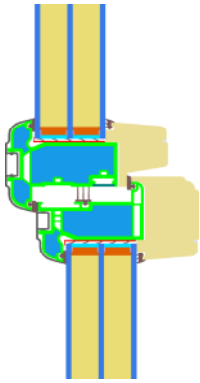
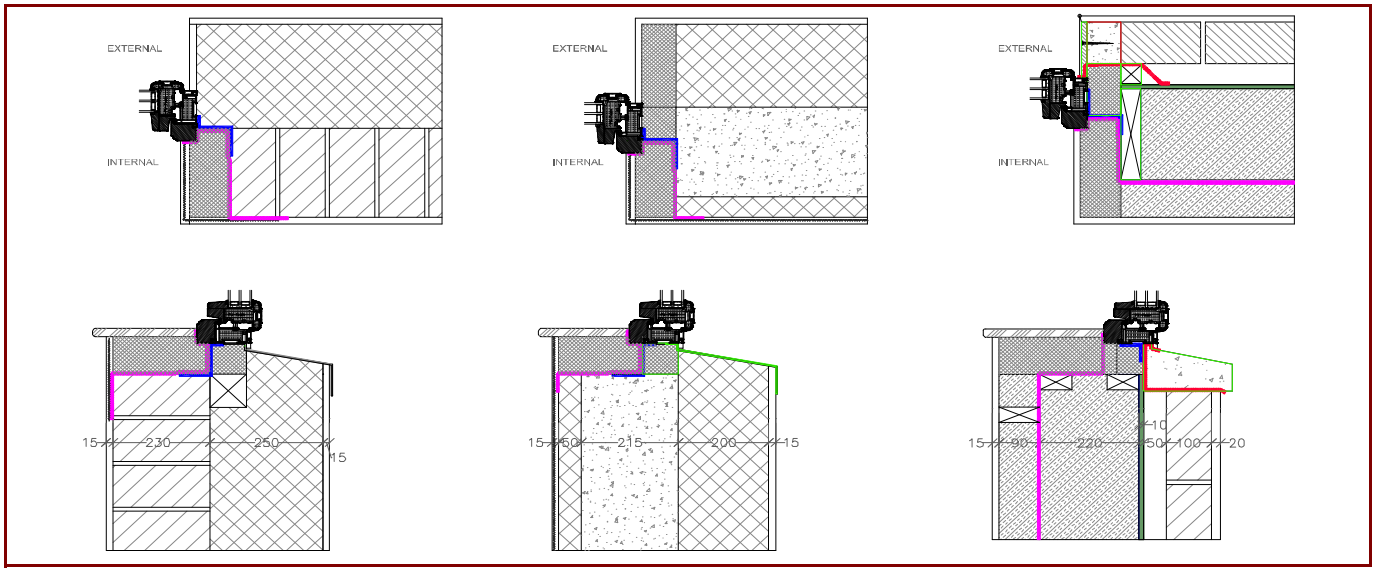


Flying mullion

* Spacers of lower thermal quality leading to higher thermal losses and lower temperatures.

Data Sheet Munster Joinery, EcoClad 120+

Installation



Installation based thermal bridge $\Psi_{instal.}$ in Passive House suitable walls

Position		EIFS	Timber construction wall	Insulated formwork blocks
Bottom	[W/(mK)]	0,037	0,024	0,035
Side/top	[W/(mK)]	0,011	0,018	0,013
$U_{W,instal.}$	[W/(m²K)]	0,83	0,84	0,83

Explanatory notes

The window U-values were calculated based on a 1.23 m by 1.48 m window U_g = 0.70 W/(m²K).
If better glazing is used, the window U-value decrease as follow:

U Glazing	U_g [W/(m²K)]	0,66	0,60	0,54
U Window	U_W [W/(m²K)]	0,75	0,71	0,66

Depending on the thermal losses through opaque elements, windows are categorised according to efficency classes. These thermal losses include the losses through the frame, multiplied by its width, the thermal bridge at the edge bond as well as the length of the edge bond.
Please ask the manufacturer for a detailed report containing all calculations and results.
For further information, please visit www.passivehouse.com or www.passipedia.org.