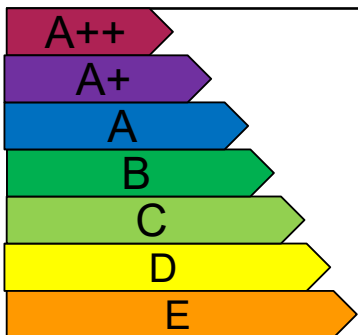


L2600

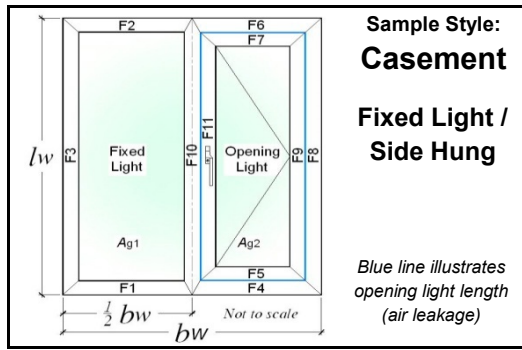
Glazing Unit Summary:

Glazing Overview:	4/20/4 Double Glazed	
External Pane:	Saint Gobain Planiclear	
Middle Pane:	N/A	
Internal Pane:	Saint Gobain Planitherm Total+ FG	
Gas Fill Details:	Argon 90%	
Spacer Bar:	Swisspace Ultimate Or Thermobar	
Glazing u-value:	1.219	W/(m ² ·K)
Glazing g-value:	0.71	g/L

SEL Licence Number
3220

	A	
energy index (kWh/m ² /year)		1
thermal transmittance (U window)		1.3
solar factor (g window)		0.41
air leakage (L factor)		0.00





Report Number:
Report Date:
Project Details:

L2600
15 April 2024
SG Planiclear / Swisspacer Ultimate or Thermobar / SG Planitherm Total+ FG

Issue No 22.3: 04/01/2016

THIS SPREADSHEET IS THE PROPERTY OF THE BFRC AND CAN ONLY BE USED IN CONJUNCTION WITH A BFRC LICENCE APPLICATION

Input Values:

Yellow input, green intermediary, blue finals

X' DP is no. of decimal places to enter

Frame offset: **Yes**

Nominal 4mm etc to **0DP**, others **1DP**

Glazing dimensions and properties:			
Thickness of pane 1	4	mm	
Pane 1/2 distance	20	mm	
Gas fill (1/2)	Argon 90%		
Thickness of pane 2	4	mm	
Complete next 3 cells for TG IGU			
Pane 2/3 distance		mm	
Gas fill (2/3)			
Thickness of pane 3		mm	
Glazing Trans. - 3DP	U_g	1.219	W/(m ² ·K)
g-value - 2DP	$g_{\perp}$	0.71	

Thermal transmittance of window from hot box test

U_w - **2DP**

Window Dimensions:			Area	
Section	Length (m)	Width (m)	No gasket (m ²)	With gasket (m ²)
Fixed Light	1.3300	0.5050	0.6717	0.6717
Opening light	1.2360	0.4110	0.5080	0.5080
Total glazing, A_g			1.1796	1.1796
Frame	(m)	(m)	(m ²)	(m ²)
F1	0.6150	0.0750	0.0420	0.0420
F2	0.6150	0.0750	0.0420	0.0420
F3	1.4800	0.0750	0.1054	0.1054
F4	0.6150	0.0750	0.0420	0.0420
F5	0.5050	0.0470	0.0215	0.0215
F6	0.6150	0.0750	0.0420	0.0420
F7	0.5050	0.0470	0.0215	0.0215
F8	1.4800	0.0750	0.1054	0.1054
F9	1.3300	0.0470	0.0603	0.0603
F10	1.4800	0.0700	0.0984	0.0984
F11	1.3300	0.0470	0.0603	0.0603
Total Frame			0.6408	0.6408
Total Window, A_w			1.8204	1.8204
Percentage fixed light glass area			36.90%	36.90%
Percentage opening light glass area			27.91%	27.91%
Percentage glass area (total)			64.80%	64.80%

Solar Factor, g-value:	F_w	0.9
	g_w	0.41

U_{window}	No bars; or attached bars	1.31	W/(m ² ·K)
	Single cross bar in IGU	1.4	
	Multiple cross bar in IGU	1.5	
	Glazing bar (Georgian bar)	1.7	

Energy Window		BFRC Rating kWh/(m ² ·yr)
Energy Index		
1		≥20 A ++
		>10 to 20 A +
		0 to <10 A ✓
		-10 to <0 B
		-20 to <-10 C
A		-30 to <-20 D
		-50 to <-30 E

Parameter	Symbol	Units
Total window height 0DP	l_w	1480 mm
Total window width 0DP	b_w	1230 mm

Frame dimensions:		Frame width, b_f (mm)	Frame offset, b_{of}	Gasket protrusion, b_{gf} (mm)	Frame & gasket widths (mm)	
(b _f)						
All frame values round to nearest 1mm, gaskets to 1DP		F1 fixed sill	75	1	0.0	75.0
		F2 fixed head	75	1	0.0	75.0
		F3 fixed jamb	75	1	0.0	75.0
F4 + F5 sash sill		F4 fixed sash sill	75		n/a	75.0
		F5 moving sash sill	47	1	0.0	47.0
F6 + F7 sash head		F6 fixed sash head	75		n/a	75.0
		F7 moving sash head	47	1	0.0	47.0
F8 + F9 sash jamb		F8 Fixed sash jamb	75		n/a	75.0
		F9 moving sash jamb	47	1	0.0	47.0
F10 + F11 mullion		F10 fixed mullion	70	1	0.0	70.0
		F11 moving mullion	47	1	0.0	47.0
Total gasket area				0	m ²	

Where a U_w value from hot box testing is available, no L_f^{2D} or L_{ψ}^{2D} values need to be entered						
Frame conductance:		All L values to 4DP . All b values to 0DP				
		$W/(m^2 \cdot K)$	b_p (mm)		$W/(m^2 \cdot K)$	b_g (mm)
F1 fixed sill	L_f^{2D}	0.2789	190	L_{ψ}^{2D}	0.3421	190
F2 fixed head		0.2789	190		0.3421	190
F3 fixed jamb		0.2789	190		0.3421	190
F4 + F5 sash sill		0.3433	190		0.4064	190
F6 + F7 sash head		0.3433	190		0.4064	190
F8 + F9 sash jamb		0.3433	190		0.4064	190
F10 + F11 mullion		0.5358	380		0.6631	380

Frame:	Frame width, b_f (m)	Frame U-value, U_f (W/(m ² ·K))	Frame areas, A_f (m ²)	Frame heat flow, H_U (W/K)	Linear trans, ψ (W/(m·K))	Linear length, l_g (m)	Junction heat flow, H_{ψ} (W/K)
Section							
F1 fixed sill	0.0750	1.1070	0.0420	0.0465	0.0275	0.5070	0.0139
F2 fixed head	0.0750	1.1070	0.0420	0.0465	0.0275	0.5070	0.0139
F3 fixed jamb	0.0750	1.1070	0.1054	0.1166	0.0275	1.3320	0.0366
F4 + F5 sash sill	0.1220	1.2084	0.0635	0.0768	0.0274	0.4130	0.0113
F6 + F7 sash head	0.1220	1.2084	0.0635	0.0768	0.0274	0.4130	0.0113
F8 + F9 sash jamb	0.1220	1.2084	0.1657	0.2002	0.0274	1.2380	0.0339
F10 + F11 mullion	0.1170	1.2312	0.1587	0.1953	0.0558	1.2850	0.0717
Totals			0.6408	0.7587		Total	0.1927

Other parameters needed for calculation, taken from simulations:				$d_p = d_g =$	0.028 m
$\lambda_p =$	0.035 W/(m·K)	$R_{se} =$	0.04 m ² ·K/W	$R_{se} =$	0.13 m ² ·K/W
$R_p =$	0.8000 m ² ·K/W	$R_{tot} =$	0.9700 m ² ·K/W	$U_p =$	1.0309 W/(m ² ·K)

Air Leakage loss:			
Air leakage at 50 Pa per hour & per unit length of opening light (BS 6375-1) - 2DP			
Opening light length	3.6700 m	Total air leakage	0.00 m ³ /h
L_{50}	0.00 m ³ /(m ² ·h)	Heat loss = 0.0165 L_{50}	0.00 W/(m ² ·K)

BFRC Rating =	
218.6 g_{window} - 68.5 x (U_{window} + Effective L_{50}) =	0.78
Climate zone is:	UK

Thermal transmittance, W/(m ² ·K)	U_{window}	1.3
Solar factor	g_{window}	0.41
Window air leakage heat loss, W/(m ² ·K)	L_{factor}	0.00

Simulator Name: **Andy Grosse**

