

Project Summary



1. W01
Quantity: 1
Supply only

Sash on Springs - Softwood - Single Colour



2. W02
Quantity: 1
Supply only

Sash on Springs - Softwood - Single Colour



3. W03
Quantity: 1
Supply only

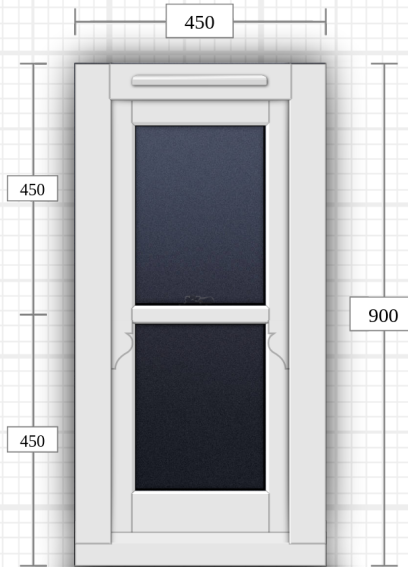
Sash on Springs - Softwood - Single Colour



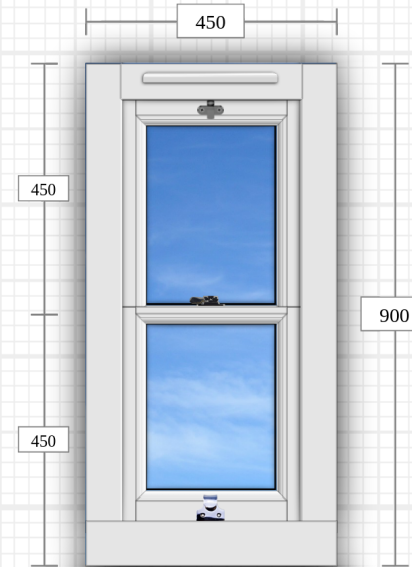
Technical detail: 1 - W01 - Supply only

Quantity: 1

☀ Viewed from outside



💡 Viewed from inside



Sash on Springs - Softwood - Single Colour

Frame:	Standard Jamb	Colour:	Signal White
Sash Bottom Rail:	Standard Bottom Rail		
Sash Meeting Rail:	Slim Meeting Stile		
Sash Sides:	Standard Stile		
Sash Top Rail:	Standard Stile		
Bead:	Ovolo		
Cill species:	Smooth White		
Cill:	Flush		
Frame Joint Type:	Traditional		
Transom/Mullion Joint Type:	Mitred		
Sash Joint Type:	Traditional		

Profile Trickle Vent:	Small White
Vertical Slider Catch:	Fitch Locking Polished Chrome
Sash Ring:	Eye Silver Chrome
Sash Lift:	Hook Lift Polished Chrome
Sash Horn:	H5
Custom Extra:	Hidden Springs
Custom Extra:	Toughened Glass to TOP and bottom sash
Custom Extra:	small trickle vent

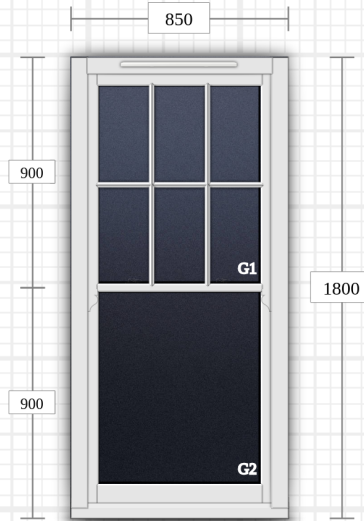
Glass: Double Glazed (Toughened) - 20mm Swiss Spacer WHITE - Clear



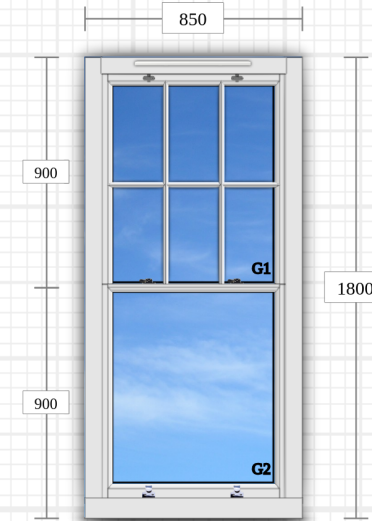
Technical detail: 2 - W02 - Supply only

Quantity: 1

☀ Viewed from outside



💡 Viewed from inside



Sash on Springs - Softwood - Single Colour

Frame:	Standard Jamb	Colour:	Signal White
Sash Bottom Rail:	Standard Bottom Rail		
Sash Meeting Rail:	Slim Meeting Stile		
Sash Sides:	Standard Stile		
Sash Top Rail:	Standard Stile		
Bead:	Ovolo		
Cill species:	Smooth White		
Cill:	Flush		
Astragal bar:	Standard Bevel Out/Ovolo In		
Frame Joint Type:	Traditional		
Transom/Mullion Joint Type:	Mitred		
Sash Joint Type:	Traditional		

Profile Trickle Vent:	Large White
Vertical Slider Catch:	Fitch Locking Polished Chrome
Sash Ring:	Eye Silver Chrome
Sash Lift:	Hook Lift Polished Chrome
Sash Horn:	H5
Custom Extra:	Toughened glass to bottom sash
Custom Extra:	Hidden Springs
Custom Extra:	5000EA Hidden trickle vent in top box

G1: Double Glazed 24mm 4/16/4 - 20mm Swiss Spacer WHITE - back to back spacer - Clear

G2: Double Glazed (Toughened) - 20mm Swiss Spacer WHITE - Clear



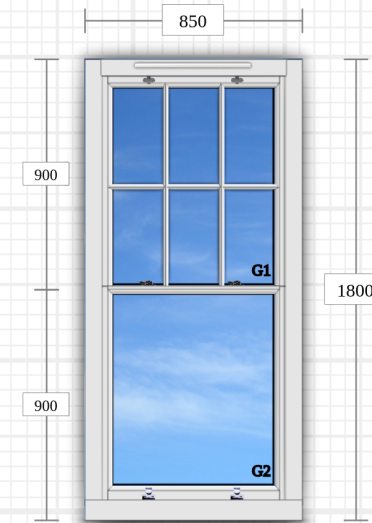
Technical detail: 3 - W03 - Supply only

Quantity: 1

☀ Viewed from outside



💡 Viewed from inside



Sash on Springs - Softwood - Single Colour

Frame:	Standard Jamb	Colour:	Signal White
Sash Bottom Rail:	Standard Bottom Rail		
Sash Meeting Rail:	Slim Meeting Stile		
Sash Sides:	Standard Stile		
Sash Top Rail:	Standard Stile		
Bead:	Ovolo		
Cill species:	Smooth White		
Cill:	Flush		
Astragal bar:	Standard Bevel Out/Ovolo In		
Frame Joint Type:	Traditional		
Transom/Mullion Joint Type:	Mitred		
Sash Joint Type:	Traditional		

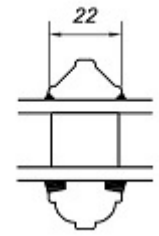
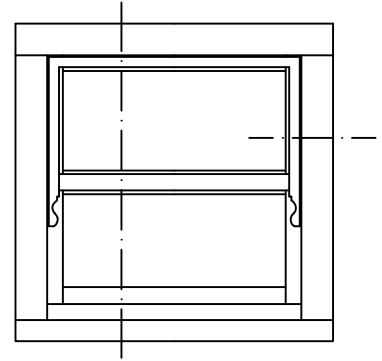
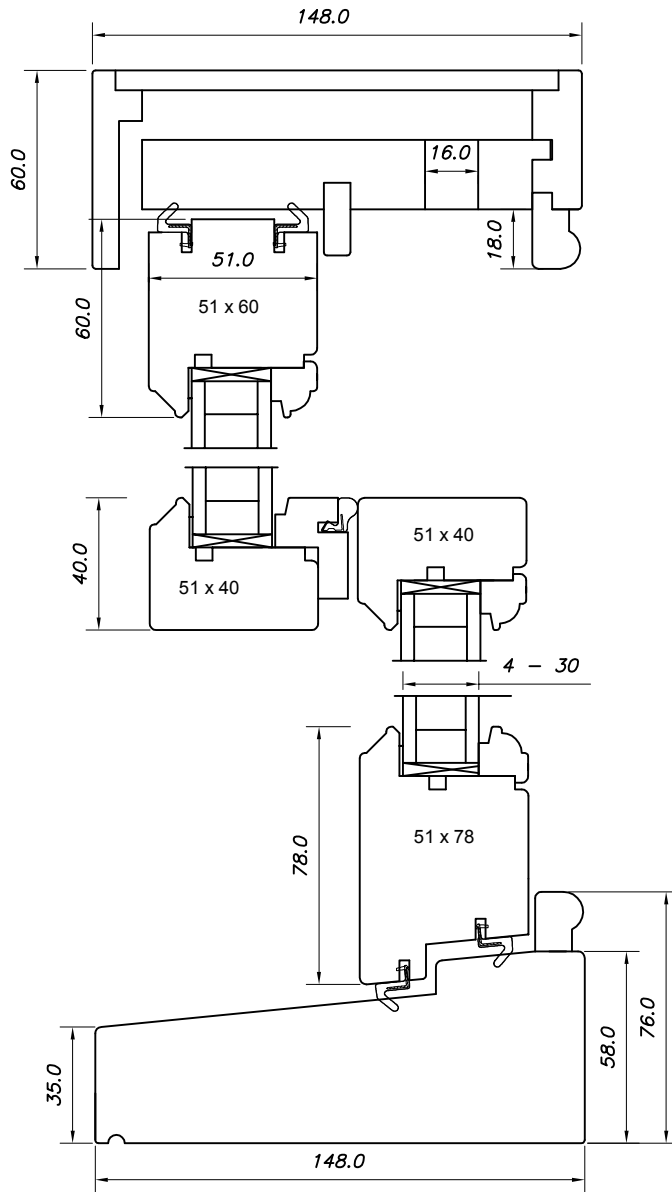
Profile Trickle Vent:	Large White
Vertical Slider Catch:	Fitch Locking Polished Chrome
Sash Ring:	Eye Silver Chrome
Sash Lift:	Hook Lift Polished Chrome
Sash Horn:	H5
Custom Extra:	Toughened glass to bottom sash
Custom Extra:	Hidden Springs
Custom Extra:	5000EA Hidden trickle vent in top box

G1: Double Glazed 24mm 4/16/4 - 20mm Swiss Spacer WHITE - back to back spacer - Clear

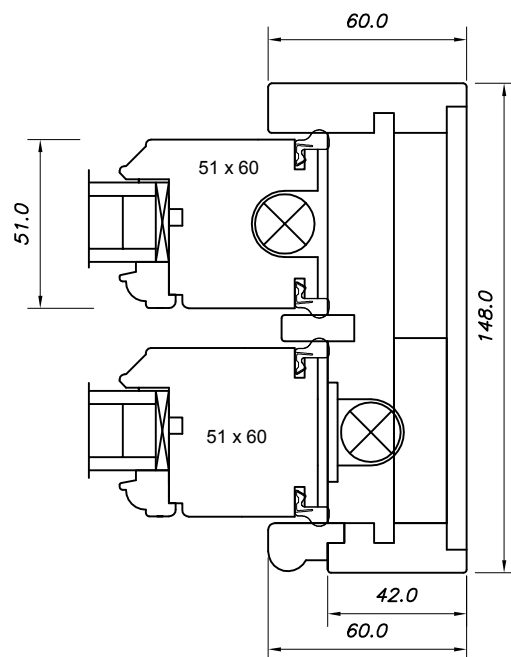
G2: Double Glazed (Toughened) - 20mm Swiss Spacer WHITE - Clear



VERTICAL SECTION OF WINDOW



HORIZONTAL SECTION OF WINDOW





TIMBER WINDOWS DIRECT

Bespoke Wooden Sash & Casement Windows

Timber Products Direct Ltd, 27 Columba Gardens, Wokingham, RG401GB
Company No: 9026888, VAT Registration No: 188976621

5 YEARS warranty
timber windows

Customer :
delivered on :
Installed by independent fitter
delivery to :

The product carries a five year warranty on all external timber components against rot, insect and fungicidal attack.

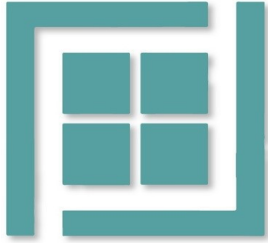
1. The warranty covers defects or faults in the product /material used:
 - Wooden sections - dimensions and shapes of the stability and strength of construction joints profiles
 - Window hardware - hardware component life and durability of components relevant to safety
 - Thermo panes /glazing Units - insulating glass sealing type FLOAT and thermo float.

The above warranty applies only if products are properly installed, operated, maintained and in particular meet the following conditions:

- Regularly ventilated room having proper ventilation,
- The spaces in which humidity does not exceed 65%,
- Coatings are preserved once a year, according to the manufacturer guidance- Proof of purchase is required for maintenance of coatings and fittings.
- For washing, use warm water and special funds for the care and maintenance of wooden windows.

Warranty does not cover:

- Defects that are invisible on delivery and do not affect the utility value of the product.
- Scratching the paint, hardware components after acceptance of products and as a result of improper use of protective tapes and chemicals
- Cracks and scratches external glass pane after acceptance of products and after 3 days of the invoice date,
- Damage caused by improper transportation, storage, installation by the Buyer, discoloration and damage caused by warping of wood, caused by moisture in the room more than 65%, frost, and effects of the phenomena being associated with the wrong conditions for indoor air-conditioning and incorrect ventilation of premises,
- Deformation of the seals, damage to drip, drip, or obstruction of the ducts, hardware damage caused by deregulation,
- Shades of wood under the transparent paint
- Natural colour changes of wood stain coatings caused by sunlight,
- Damage due to improper operation or maintenance of the product, the use of improper means to wash or use harsh cleaning tools
- Damage due to improper protection of the product for the duration of construction works (plaster stains, paint, dust, etc.)
- Damage caused by acts natural disasters, such as strong winds, devastating floods, hail, etc., or mechanical injury and other reasons caused by the user,
- Products unpaid or paid late.



TIMBER WINDOWS DIRECT
Bespoke Wooden Sash & Casement Windows

Standard Sash window furniture

CHROME

SATIN CHROME

BRASS

ANTIQUE BRASS

FITCH FASTENERS



RING - PULLS



LIFTS



Optional sash window furniture

CHROME

SATIN CHROME

BRASS

ANTIQUE BRASS

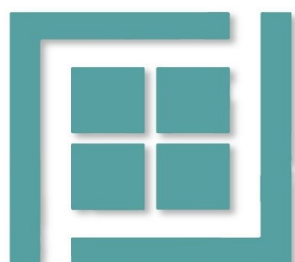
ANGEL VENTLOCK



PUSH BUTTON VENTLOCKS



PUSH BUTTON VENTLOCKS



TIMBER WINDOWS DIRECT
Bespoke Wooden Sash & Casement Windows

Vertical Sliding Sash Window Thermal Performance (U value) Calculation Report

Commissioned by: -

Timber Products Direct Ltd
3 Coombe Pine
Bracknell
RG12 0TJ

Report prepared by: -

Dr Gary Morgan
Therm Consulting Ltd

21st August 2014



Thermal Simulation
HVAC Modelling and Simulation
Engineering
Reliability Monitoring
Management
CONSULTING LTD.

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Rudry
Caerphilly
CF83 3EB
UK
Tel: +44 (0) 7775 928434

THERMAL SIMULATION REPORT


Report Number:	TCL2014-TPD-001
Prepared For:	Timber Products Direct Ltd 3 Coombe Pine Bracknell RG12 0TJ
Window System Identifier:	Timber Vertical Sliding Sash
Head Rail Identifier	Head Rail
Upper Jamb Identifier	Upper Jamb
Meeting Rail Identifier	Meeting Rail
Lower Jamb Identifier	Lower Jamb
Sill Identifier	Sill
Glazing System	4mm Clear Float – 16mm 90% Argon – 4mm Thermofloat
Spacer Bar	15.5 mm TGI Spacer M
Notes:	See enclosed drawings for critical frame dimensions. Frame can be made either from Meranti hardwood or softwood

Results

Thermal Transmittance (U_{window})	1.5	W/(m ² K)
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(Window Configuration as per GGF Document 2.2)
(1230mm wide x 1480mm high –vertical sliding sash)

Report Prepared By Dr Gary Morgan
 Therm Consulting Ltd.

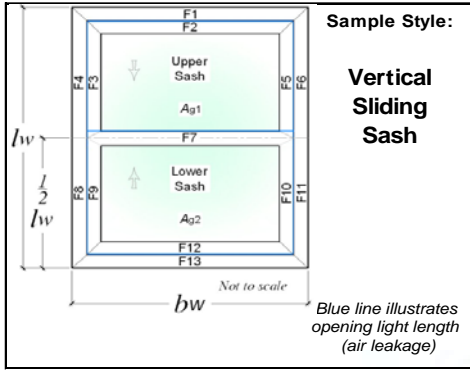
Signed: 

Date: 21st August 2014

The simulations in this report were performed using Win Iso 2D Pro version 7.57,
strictly in accordance with the requirements of EN ISO 10077-2:2012
The simulation files generated are attached to this report as appendices



**BFRC Certified
Simulator 016**



Report Number: **TCL2014-TPD001**
Report Date: **21/08/2014**

Report Issue No.15.1 (11/03/13)

Project Details: **Meranti or softwood VS with 4 16 4 glazing - Ug = 1.1 TGI M Spacer**

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 place to enter

Frame offset: **No**

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

Glazing dimensions and properties:

Thickness of pane 1, d ₁	4.0	mm
Glazing fill thickness 1/2, d ₁	16.0	mm
Gas fill (1/2)	Argon 90%	
Thickness of pane 2, d ₂	4.0	mm
Complete next 3 cells for TG IGU		
Glazing fill thickness 2/2, d ₂		mm
Gas fill (2/3)		
Thickness of pane 3, d ₃		mm
Glazing Trans. - 3DP	U_g 1.100	W/(m ² ·K)
g-value - 2DP	g₁	

Thermal transmittance of window from hot box test
U_w - 2DP W/(m²·K)

Window Dimensions:

Section	Length, l	Width, b	Area, A	
			No gasket	With gasket
Upper glazing	0.5750	0.9760	0.5612	0.5550
Lower glazing	0.5850	0.9760	0.5710	0.5647
Total of glazing			1.1322	1.1197
Frame	m	m	m ²	m ²
F1	1.2300	0.0980	0.1177	0.1177
F2	1.1720	0.0380	0.0408	0.0428
F3	0.6420	0.0980	0.0596	0.0608
F4	0.7400	0.0290	0.0200	0.0200
F5	0.6420	0.0980	0.0596	0.0608
F6	0.7400	0.0290	0.0200	0.0200
F7	1.1720	0.0580	0.0623	0.0662
F8	0.7400	0.0290	0.0203	0.0203
F9	0.6610	0.0980	0.0611	0.0622
F10	0.6610	0.0980	0.0611	0.0622
F11	0.7400	0.0290	0.0203	0.0203
F12	1.1720	0.0470	0.0505	0.0524
F13	1.2300	0.0790	0.0949	0.0949
Total Frame			0.6882	0.7007
Total Window, A _w			1.8204	1.8204
Percentage upper glass area			30.83%	30.49%
Percentage lower glass area			31.36%	31.02%
Percentage glass area (total)			62.19%	61.51%

Solar Factor, g-value:

glazing area A _g (m ²)	1.1810
F _w	0.9
g _w	0.00

U_{window} W/(m²·K)

No bars; or attached bars	1.54
Single cross bar in IGU	1.6
Multiple cross bar in IGU	1.7
Glazing bar (Georgian bar)	1.9

BFRC Rating kWh/(m ² ·yr)	Label index	EWER Rating Scale	Window Rating
≥10	N/A	A+	N/A
0 to <10		A	
-10 to <0		B	
-20 to <-10		C	
-30 to <-20		D	
-50 to <-30		E	
-70 to <-50	F		

Parameter	Symbol	Units	
Total window height ODP	<i>l_w</i>	1480	mm
Total window width ODP	<i>b_w</i>	1230	mm

Frame dimensions (All frame values to 0dp, gaskets to 1DP)	Frame height, b _f (mm)		Gasket protrusion (mm)	With gasket (mm)	Total
	Internal	External			
F1 fixed top rail	98	98	n/a	98.0	138.0
F2 moving top rail	38	38	2.0	40.0	
F3 top (LH) jamb (moving sash)	98	98	2.0	100.0	129.0
F4 top (LH) jamb (fixed frame)	29	29	n/a	29.0	
F5 top (RH) jamb (moving sash)	98	98	2.0	100.0	129.0
F6 top (RH) jamb (fixed frame)	29	29	n/a	29.0	
F7 mid rail (upper)	58		2.0	62.0	62.0
(lower)			2.0		
F8 bottom (LH) jamb (fixed frame)	29	29	n/a	29.0	129.0
F9 bottom (LH) jamb (moving sash)	98	98	2.0	100.0	
F10 bottom (RH) jamb (moving sash)	98	98	2.0	100.0	129.0
F11 bottom (RH) jamb (fixed frame)	29	29	n/a	29.0	
F12 bottom moving rail	47		2.0	49.0	128.0
F13 bottom fixed rail	79		n/a	79.0	
Total gasket area			0.012416	m ²	

Where a U_w value from hot box testing is available, n_d, τ_i^{2D} or L_ψ^{2D} values need to be entered

All L values to **4DP**. All b values to **ODP**

Frame conductance:	L _f ^{2D}	W/(m·K)		b _g (mm)	
		W/(m·K)	b _p (mm)	W/(m·K)	b _g (mm)
F1+F2 top rail	0.6070	0.4330	190	0.4820	190
F3+F4 top (LH) jamb		0.4170	190	0.4650	190
F5+F6 top (RH) jamb		0.4170	190	0.4650	190
F7 mid rail		380	0.7010	380	
F8+F9 bottom (LH) jamb		0.4230	190	0.4720	190
F10+F11 bottom (RH) jamb	0.4230	190	0.4720	190	
F12+F13 bottom rail	0.4480	190	0.4990	190	

Frame:

Section	Frame width, b _f	Frame U-value, U	Frame area, A	Frame heat flow, HU	Linear trans, ψ	Linear length, l _g	Junction heat flow, Hψ
F1+F2 top rail	0.1360	1.5512	0.1585	0.2459	0.0620	0.9760	0.0605
F3+F4 top left jamb	0.1270	1.5351	0.0797	0.1223	0.0610	0.5750	0.0351
F5+F6 top right jamb	0.1270	1.5351	0.0797	0.1223	0.0610	0.5750	0.0351
F7 mid rail	0.0580	2.8091	0.0623	0.1750	0.1201	0.9760	0.1172
F8+F9 btm left jamb	0.1270	1.5824	0.0814	0.1288	0.0620	0.5850	0.0363
F10+F11 btm right jamb	0.1270	1.5824	0.0814	0.1288	0.0620	0.5850	0.0363
F12+F13 bottom rail	0.1260	1.7934	0.1454	0.2607	0.0640	0.9760	0.0625
Totals		0.6882	1.1837			Total	0.3830

Air Leakage loss:
Air leakage at 50 Pa per hour & per unit length of opening light (BS 6375-1) **2DP** m³/(m·h)

Opening light length, l _{opening}	6.2480	m	Total air leakage	0.000	m ³ /h
L ₅₀	0.00	m ³ /(m ² ·h)	Heat loss = 0.0165 L ₅₀	0.00	W/(m ² ·K)

Other parameters needed for calculation, taken from simulations:

λ _p	0.035	W/(m·K)	R _{se}	0.04	m ² ·K / W	d _p = d _g	0.024	m
R _p	0.6857	m ² ·K / W	R _{tot}	0.8557	m ² ·K / W	R _{se}	0.13	m ² ·K / W
						U _p	1.1686	W/(m ² ·K)

BFRC Rating =
218.6g_{window} - 68.5 x (U_{window} + Effective L₅₀) = **N/A**
Climate zone is: **UK**

Thermal transmittance, W/(m ² ·K)	U_{window}	1.5
Solar factor	g_{window}	N/A
Window air leakage heat loss, W/(m ² ·K)	L_{factor}	N/A

Simulator Name: **Dr Gary Morgan**



BFRC Certified Simulator **016**