

# Flat Glass

# TB403

Brett Martin Flat Glass  
Datasheet

## Product Description

Brett Martin Daylight Systems' Flat Glass Rooflights are individual glass rooflights intended for installation on flat roofs of all modern building types to provide natural light (and ventilation where specified). Brett Martin Flat Glass Rooflights are manufactured to ISO 9001 industry standards.



Brett Martin Flat Glass exhibits a sleek and contemporary design with a slimline powder coated aluminium frame and flush fitting glass panel. All fixed Brett Martin Flat Glass rooflights achieve Secured by Design accreditation.

## Design Features

- Premium rooflight offering a robust build as well as protection against intrusion or vandalism.
- Powder coated aluminium frame as standard (RAL 7016).
- U<sub>t</sub> value to as low as 1.46 W/m<sup>2</sup>K
- Components of powered opening rooflights (230V) are completely concealed for an unobstructed light well.
- Tested to be non-fragile to CWCT TN-67 (for class 1 roofs)\* and Class B non-fragile to ACR[M]001\*\*.
- For ease of installation, the tapered kerb foot does not require timber fillets and an integral clamp holds the roofing membrane in place and provides a clean external finish for all roofing types.
- Fixed rooflights achieve Secured by Design accreditation.

## Product Options Summary

### Hinged Opening

- Manual opening
- Powered with wall-switch (chain actuator)
- Optional Remote Controlled Operation
- Optional Rain Sensor Operation

### Optional Ventilation

- Manual Hit-and-Miss
- Automatic Humidity Controlled

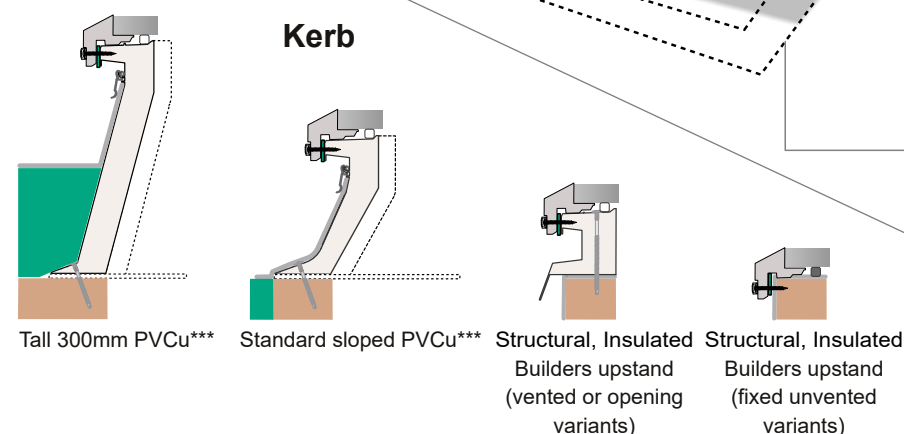
### Glazing Type, Flat Glass

- 6mm toughened outer, 90% Argon filled cavity, Inner pane laminated with PVB interlayer & soft coat Low E coating.
- (NB - inner pane thickness varies with size)
- CWCT TN-67 for class 1\* roofs\*\*
- ACR[M]001 Class B non-fragile\*\*
- Glass panel is P4A secure

### Size (roof opening)

Standard range:  
see Table on Page 3  
In square and rectangular combinations.

### Optional Security Grille



\*Class 2 for large size rooflights, see table on page 3.

\*\*When new and fully installed to Brett Martin Daylight Systems installation guides

\*\*\*Acoustic Pack available for noise reduction



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## Composition

The double glazed glass panel is made up of: 6mm toughened outer, a 90% argon filled cavity, with a laminated inner (including PVB interlayer). The inner pane thickness varies with rooflight size, see table on page 3. All double glazed units include a soft coat Low E coating.

The frame is extruded aluminium, with a powder coating (RAL 7016) to provide a premium appearance and highly appealing finish, and is thermally isolated to provide excellent thermal performance. The kerbs are manufactured from Lead & Cadmium free un-plasticised PVC rigid multi-wall extruded profile, with internal white finish. The Glass, PVC-U and Aluminium which comprise the product can be recycled at the end of useful product life.

## Durability

Brett Martin Flat Glass units are expected to remain fit for purpose in normal industrial conditions for a period of 20 years (with a warranty available providing a 10 year guarantee) i.e. they will not become perforated, lose significant structural integrity, or distort to the extent of losing weather-tightness. The available warranty also guarantees:

- Electrical actuators (where present), for a period of 1 year (actuators have a design life of at least 10,000 cycles).
- Insulated glass used in the construction of the rooflight for 5 years.

## Safety Requirements and CDM

Brett Martin Flat Glass achieves CWCT TN-67 non-fragility for class 1 roofs\* and ACR[M]001 class B non-fragility when new and fully installed in accordance with Brett Martin Daylight Systems' installation guides. Foot traffic on rooflights should always be avoided; impacts such as foot traffic or a falling person may cause damage which could necessitate rooflight replacement. All glass panels are BS EN12150, BS 14449 and BS 1279 compliant.

\*Class 2 for large size rooflights, see table on page 3.

## Security

All fixed Brett Martin Flat Glass units are fitted to a structural, insulated builders upstand or a PVC kerb using self-drilling fixings concealed using colour-matched cover caps. Fixed variants are accredited by Secured by Design based on independently assessed testing in accordance with PAS24:2016. Optional security grilles are designed to fit beneath the foot of the kerb to provide additional security where required.

## Fire Ratings

Building Regulations Approved Document B: Fire Safety (volume 1 for dwellings and volume 2 for buildings other than dwellings) sets out the fire safety rules for buildings, which can be met by achieving specific European Class reaction to fire ratings to the relevant standard EN 13501-1.

Section B2 (volumes 1 and 2) concerns internal fire spread and defines the classification of linings dependent on building type and size:

	Volume 1 - dwellings (see paragraph 4.1 & table 4.1)	Volume 2 - non dwellings (see paragraph 6.1 & table 6.1)
Classification	Location	Location
D-s3,d2	Small rooms max floor area 4m <sup>2</sup> Garages (as part of dwelling) max floor area 40m <sup>2</sup>	Small room in non-residential accommodation max 30m <sup>2</sup>
C-s3,d2	Other rooms (including garages) Circulation spaces within a dwelling	Other rooms (including garages)
B-s3,d2	Other circulation spaces (including the common areas of blocks of flats)	Other circulation spaces

Section B4 (volumes 1 and 2) concerns external fire spread and defines limitations on the roof coverings. Coverings with a designation of B<sub>ROOF</sub>(t4) can be used at any distance from a relevant boundary. It also states that when used in rooflights, unwired glass a minimum of 4mm thick can be regarded as having a B<sub>ROOF</sub>(t4) classification (see: volume 1 – paragraph 12.8; volume 2 – paragraph 14.8)

Glass is designated Class A to EN13501 part 1, as it is included in the list of CWFT (classified without further test) materials published in the Official Journal of the EU (see European Commission Decision 96/603/EC).



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Brett Martin Flat Glass rooflights can therefore be regarded as Class A (CWFT) to EN13501-1. All Brett Martin Flat Glass units are glazed with a 6mm toughened outer pane and therefore can also be regarded as having the B<sub>ROOF(t4)</sub> classification defined in section B4

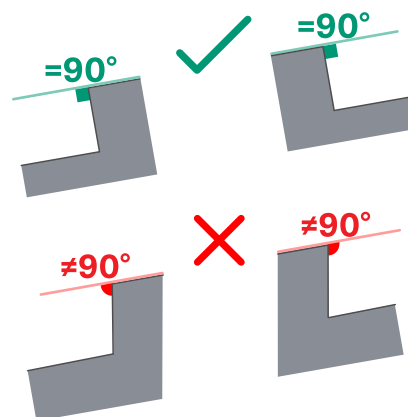
### Roof Applications

Brett Martin Flat Glass units are suitable for flat roof applications with a pitch of 2°-15°.

A minimum pitch of 2° is required to prevent water ponding on the glass leading to rapid dirt build up. For some larger sizes of Brett Martin Flat Glass a minimum of 4° pitch is required. See table on page 3 for relevant sizes.

If a roof is less than the minimum recommended pitch, the builder's upstand must be built with a slope to ensure that the installed pitch of the rooflight is the minimum recommended pitch or greater.

Builder's upstands for Brett Martin Flat Glass must be built with the flat top of the upstand perpendicular to the sides.



### Available Sizes

Standard Size		Non-Standard Size									
Rooflight size	Daylight size	Rooflight size	Daylight size	Rooflight size	Daylight size	Rooflight size	Daylight size	Rooflight size	Daylight size	Rooflight size	Daylight size
600 x 600	450 x 450	750 x 600	600 x 450	1650 x 600	1500 x 450	1950 x 1350*	1800 x 1200	2400 x 1500*	2250 x 1350	3000 x 1650*	2850 x 1500
750 x 750	600 x 600	900 x 750	750 x 600	1650 x 750	1500 x 600	1950 x 1500*	1800 x 1350	2400 x 1650*	2250 x 1500	3150 x 1050*	3000 x 900
900 x 600	750 x 450	1050 x 600	900 x 450	1650 x 900	1500 x 750	1950 x 1650*	1800 x 1500	2550 x 1050	2400 x 900	3150 x 1200*	3000 x 1050
900 x 900	750 x 750	1050 x 750	900 x 600	1650 x 1050	1500 x 900	1950 x 1800*	1800 x 1650*	2550 x 1200*	2400 x 1050	3150 x 1350*	3000 x 1200
1000 x 1000	850 x 850	1050 x 900	900 x 750	1650 x 1200	1500 x 1050	1950 x 1950*	1800 x 1800*	2550 x 1350*	2400 x 1200	3150 x 1500*	3000 x 1350
1200 x 600	1050 x 450	1050 x 1050	900 x 900	1650 x 1350	1500 x 1200	2000 x 1500*	1850 x 1350	2550 x 1500*	2400 x 1350	3150 x 1650*	3000 x 1500
1200 x 900	1050 x 750	1200 x 750	1050 x 600	1650 x 1500	1500 x 1350	2000 x 2000*	1850 x 1850*	2550 x 1650*	2400 x 1500	3300 x 1200*	3150 x 1050
1200 x 1200	1050 x 1050	1200 x 1050	1050 x 900	1650 x 1650*	1500 x 1500	2100 x 900	1950 x 750	2700 x 1050	2550 x 900	3300 x 1350*	3150 x 1200
1500 x 1000	1350 x 850	1350 x 600	1200 x 450	1800 x 600	1650 x 450	2100 x 1050	1950 x 900	2700 x 1200*	2550 x 1050	3300 x 1500*	3150 x 1350
2000 x 1000	1850 x 850	1350 x 750	1200 x 600	1800 x 750	1650 x 600	2100 x 1200*	1950 x 1050	2700 x 1350*	2550 x 1200	3300 x 1650*	3150 x 1500
		1350 x 900	1200 x 750	1800 x 900	1650 x 750	2100 x 1350*	1950 x 1200	2700 x 1500*	2550 x 1350	3450 x 1200*	3300 x 1050
		1350 x 1050	1200 x 900	1800 x 1050	1650 x 900	2100 x 1500*	1950 x 1350	2700 x 1650*	2550 x 1500	3450 x 1350*	3300 x 1200
		1350 x 1200	1200 x 1050	1800 x 1200	1650 x 1050	2100 x 1650*	1950 x 1500	2850 x 1050	2700 x 900	3450 x 1500*	3300 x 1350
		1350 x 1350	1200 x 1200	1800 x 1350	1650 x 1200	2250 x 1050	2100 x 900	2850 x 1200*	2700 x 1050	3450 x 1650*	3300 x 1500
		1500 x 600	1350 x 450	1800 x 1500*	1650 x 1350	2250 x 1200*	2100 x 1050	2850 x 1350*	2700 x 1200	3600 x 1500*	3450 x 1350
		1500 x 750	1350 x 600	1800 x 1650*	1650 x 1500	2250 x 1350*	2100 x 1200	2850 x 1500*	2700 x 1350	3600 x 1650*	3450 x 1500
		1500 x 900	1350 x 750	1800 x 1800*	1650 x 1650*	2250 x 1500*	2100 x 1350	2850 x 1650*	2700 x 1500		
		1500 x 1050	1350 x 900	1950 x 750	1800 x 600	2250 x 1650*	2100 x 1500	3000 x 1050	2850 x 900		
		1500 x 1200	1350 x 1050	1950 x 900	1800 x 750	2400 x 1050	2250 x 900	3000 x 1200*	2850 x 1050		
		1500 x 1350	1350 x 1200	1950 x 1050	1800 x 900	2400 x 1200*	2250 x 1050	3000 x 1350*	2850 x 1200		
		1500 x 1500	1350 x 1350	1950 x 1200	1800 x 1050	2400 x 1350*	2250 x 1200	3000 x 1500*	2850 x 1350		

\*Minimum pitch is 4° (all other sizes 2°)

Key		
Colour	Inner Pane Thickness	Non-fragile CWCT-67
Green	6.8, 7.5 or 9.5mm	Class 1 roofs
Blue	9.5mm	Class 2 roofs
Yellow	11.5mm	Class 2 roofs

### Size Restrictions

Please note that restrictions apply due to size, wind loadings and weight. For fixed units with a PVC kerb, the maximum size is 2000mm x 2000mm (square) and 2850mm x 1650mm (rectangle). For powered opening rooflights, size is normally restricted to a maximum of 1200mm x 1200mm (square) and 1500mm x 1000mm (rectangle). Size of the largest manual opening rooflight is restricted to 1200mm x 1200mm.



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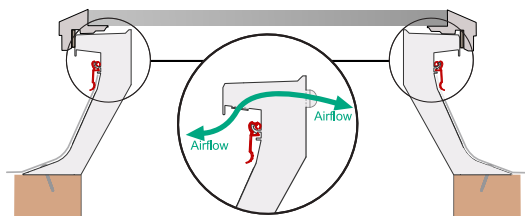
## Opening Options

Brett Martin Flat Glass can be opened on concealed hinges using actuators to create a large ventilation area. Opening rooflights can contribute to room ventilation as required by Approved Document F of the Building Regulations. Powered opening rooflights are not suitable for use in conditions at risk of high humidity (e.g. domestic bathrooms).

Opening Options			
Opening Type	Description	Geometric Ventilation Area	
		Min	Max
Manual Opening (MLD)	Hinged opening rooflight which is operated manually via a worm gear drive with an extension pole	0.300 m <sup>2</sup>	0.683 m <sup>2</sup>
Powered Opening (PCD/PCR)	Powered hinged opening rooflight with completely concealed operating mechanism. Opened and closed using a control switch or remote control	0.211 m <sup>2</sup>	0.725 m <sup>2</sup>
Sensor Controlled Powered Opening (PCS)	Powered hinged opening rooflight which includes rain sensors for automatic operation	0.211 m <sup>2</sup>	0.725 m <sup>2</sup>

## Ventilation

Ventilation can help reduce humidity, and reduce risk of condensation and should be considered in any areas of high humidity. Brett Martin Flat Glass rooflights may be unvented or can incorporate vents. These can either be hit-and-miss manually controlled trickle vents or automatic humidity controlled vents and are available in all sizes where a PVC kerb is an option.



Ventilation Options		
Ventilation Type	Description	Rating
Trickle Ventilation (Hit-and-Miss)	Manually operated trickle ventilation provides background ventilation to the interior	Provides 8400mm <sup>2</sup> Equivalent Area Ventilation
Automatic Humidity Controlled Trickle Ventilation	Humidity controlled trickle ventilation is sensor controlled to open and close in response to room humidity levels	Provides 7822mm <sup>2</sup> Equivalent Area Ventilation and provides superior protection against condensation

## Security Grille Option

Designed to fit beneath the foot of the kerb to provide additional security where required. It is powder coated in a white finish, and available in all sizes where a PVC kerb is an option.

## Glazing Performance

Brett Martin Flat Glass comes with a 6.8, 7.5mm, 9.5mm or 11.5mm laminate inner as standard. Other glazing options are available on request. If non-standard glass is used, glazing performance may differ from the table shown.

Overall Glazing Performance			
Light		Solar Energy	
Transmission	77% - 79%	G-Value	0.56 - 0.59
Reflection	12%	Shading coefficient	0.64 - 0.68

## Thermal Performance

Thermal transmittance of rooflights is assessed in the horizontal plane for compliance with Part L of building regulations.

There is currently no method set out for assessing the thermal performance of flat glass rooflights, so the method shown in NARM NTD2 has been adopted as the most appropriate. Thermal transmittance is defined as a  $U_{re}$  value for a rooflight with a PVC kerb and a  $U_i$  value for a rooflight fitted to a builders upstand. All variants of Brett Martin Flat Glass have a better thermal transmittance than the limiting value in Part L of 2.2 W/m<sup>2</sup>K. The thermal transmittance values (assessed horizontally) are shown below. For  $U_a$  values calculated in the vertical plane please contact Brett Martin Daylight Systems.

Rooflight Variant		Size range	Surface:area ratio	$U_i / U_{re}$ value
				W/(m <sup>2</sup> .K)
Unvented, Fixed Rooflight on Builders Upstand	$(U_i)$	600 x 600	2.31	1.46
		3600 x 1650	1.27	1.63
Vented or Opening Rooflight on Builders Upstand	$(U_i)$	600 x 600	1.64	1.78
		2850 x 1650	1.21	1.72
Rooflight with standard 150mm Sloped Kerb	$(U_{re 150})$	600 x 600	2.44	1.83
		2850 x 1650	1.43	1.75
Rooflight with standard 300mm Tall Kerb	$(U_{re 300})$	600 x 600	3.38	1.73
		2850 x 1650	1.43	1.71



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### Acoustic Performance

Brett Martin Flat Glass units achieve a direct airborne sound insulation value of 38db (Rw). This value can be improved further by the fitting of a kerb acoustic pack. The acoustic pack is not available with vented or opening options.

### Wind and Snow Loads

Brett Martin Flat Glass has been tested to show that, when correctly fitted in accordance with our instructions, will resist wind loads calculated in accordance with BS EN 1991-1-4: 2005, and imposed loads in accordance with BS EN 1873: 2005.

#### Resistance to Snow and Wind Loads (Figures in excess of)

	Fixed	Opening
<b>Snow Load (N.m<sup>2</sup>)</b>	1200	1200
<b>Wind Load (N.m<sup>2</sup>)</b>	2400	1200

### Thermal Fractures

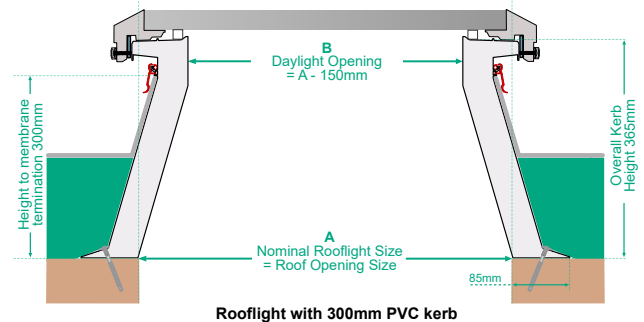
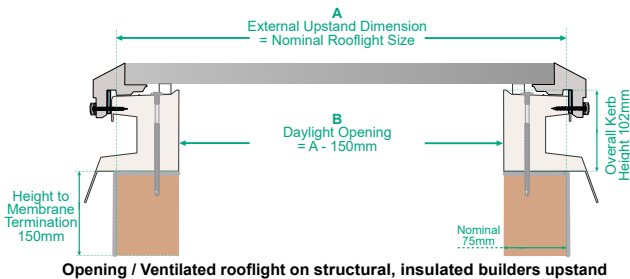
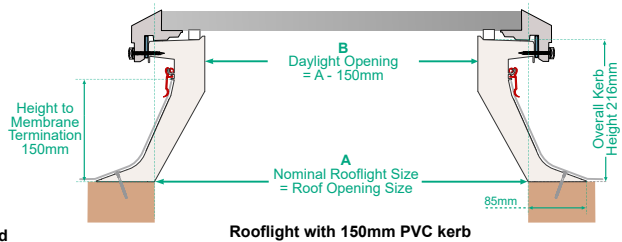
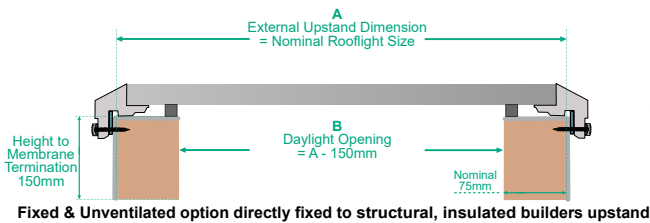
Brett Martin Flat Glass rooflights are manufactured using double glazing which includes an inner pane of annealed, laminated safety glass, which is essential for ensuring the safety of those above the rooflight through non-fragility, and those below the rooflight through the prevention falling glass from accidental breakage.

In some circumstances, annealed, laminated safety glass can be subject to thermal stress fracture in the event of uneven heat build-up directly under the glass. Installation of blinds, or any other alterations made to the lightwell below the rooflight, must be done so with consideration to the risk of thermal stress fracture. In the case of blinds, the risk of thermal stress fracture can never be fully removed, but it can be reduced by choosing light coloured blinds, positioning them as far away from the glass as possible, and adding ventilation to the rooflight specification.

More detailed guidance can be obtained upon request - please contact the technical department.

### Product Dimensions

Brett Martin Flat Glass offers differing kerb options depending on project specification. When the rooflight is to be fitted to an existing upstand, fixed unventilated rooflights can be fitted directly, and opening or ventilated options are supplied complete with an adapter kerb. Where no upstand exists, Brett Martin Flat Glass can be supplied with 150mm PVC kerb (for mounting at roof surface level) or 300mm PVC kerb (for mounting below insulation).



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Product Overall Height & Weight			
Rooflight Variant	Nominal Size	Height (mm)	Weight (kg)
Unvented, Fixed Rooflight on Structural, Insulated Builder's Upstand	600 x 600 3600 x 1650	82	18 264
Vented or Opening Rooflight on Structural, Insulated Builder's Upstand	600 x 600 2850 x 1650	185	23 210
Rooflight With 150mm Kerb	600 x 600 2850 x 1650	259	25 220
Rooflight With 300mm Kerb	600 x 600 2850 x 1650	407	28 228

### Installation, Handling, Maintenance & Storage

Full installation details, maintenance and product care details, can be found in the relevant Technical Bulletins.

Technical Bulletins	
Code	Description
TB209	Datasheet Glass Product Care
TB400	Installation Brett Martin Flat Glass Fixed
TB401	Installation Brett Martin Flat Glass Powered Opening
TB402	Installation Brett Martin Flat Glass Manual Opening