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 frame and flush fitting glass panel. All fixed Brett Martin Flat Glass rooflights achieve Secured by Design accreditation.

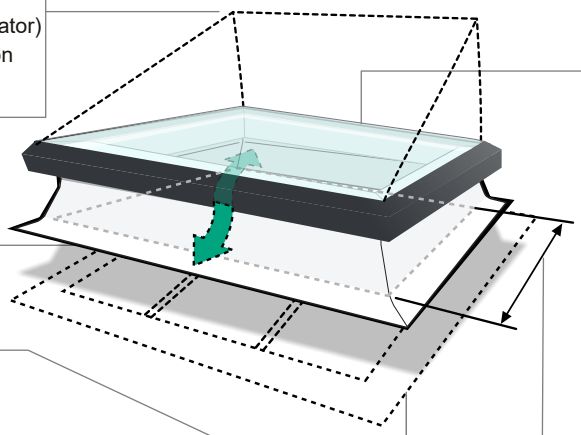
Design Features

- Premium rooflight offering a robust build as well as protection against intrusion or vandalism.
- Powder coated aluminium frame as standard (RAL 7016).
- U_r value to as low as 1.46 W/m²K
- 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

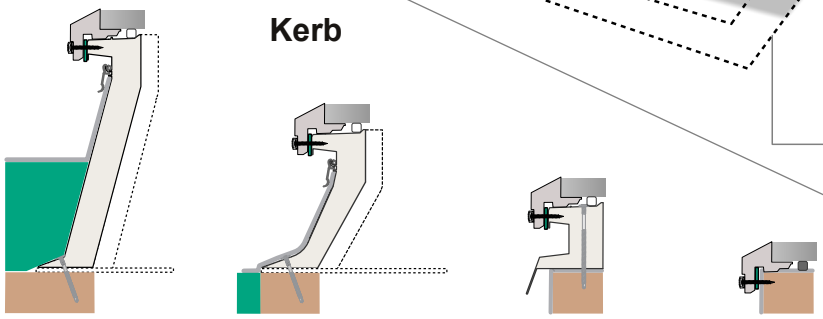
Optional Ventilation
- Manual Hit-and-Miss
- Automatic Humidity Controlled



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.

Kerb



Tall 300mm PVCu*** | Standard sloped PVCu*** | Structural, Insulated Builders upstand (vented or opening variants) | Structural, Insulated Builders upstand (fixed unvented variants)

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 4m² Garages (as part of dwelling) max floor area 40m²	Small room in non-residential accomodation max 30m²
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_{ROOF}(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_{ROOF}(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_{ROOF}(t4) classification defined in section B4

Roof Applications

Flat Glass units are suitable for mounting at pitches of 2°-15°.

A minimum pitch of 2° or 4° is required to prevent water ponding on the glass leading to rapid dirt build up. See table under 'Available Sizes' below for minimum pitch according to size.

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**
	6.8, 7.5 or 9.5mm	Class 1 roofs
	9.5mm	Class 2 roofs
	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.

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 m²	0.683 m²
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 m²	0.725 m²
Sensor Controlled Powered Opening (PCS)	Powered hinged opening rooflight which includes rain sensors for automatic operation	0.211 m²	0.725 m²

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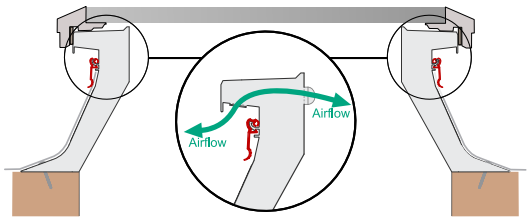
Ventilation
Ventilation can help reduce humidity, and reduce risk of condensation and should be considered in any areas of high humidity. Brett Martin Flat Glass rooflights may be unvented or can incorporate vents. These can either be hit-and-miss manually controlled trickle vents or automatic humidity 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 8400mm² 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 7822mm² 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_{rc} value for a rooflight with a PVC kerb and a U_r 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/m²K. The thermal transmittance values (assessed horizontally) are shown below. For U_d values calculated in the vertical plane please contact Brett Martin Daylight Systems.

Rooflight Variant		Size range	Surface:area ratio	U_r / U_{rc} value W/(m².K)
Unvented, Fixed Rooflight on Builders Upstand	(U_r)	600 x 600	2.31	1.46
		3600 x 1650	1.27	1.63
Vented or Opening Rooflight on Builders Upstand	(U_r)	600 x 600	1.64	1.78
		2850 x 1650	1.21	1.72
Rooflight with standard 150mm Sloped Kerb	($U_{rc\,150}$)	600 x 600	2.44	1.83
		2850 x 1650	1.43	1.75
Rooflight with standard 300mm Tall Kerb	($U_{rc\,300}$)	600 x 600	3.38	1.73
		2850 x 1650	1.43	1.71

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 and unit is closed, 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		
	Fixed	**Opening**
Snow Load (N.m⁻²)	1200	1200
Wind Load (N.m⁻²)	2400	1200

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Annealed, Laminated Inner Pane

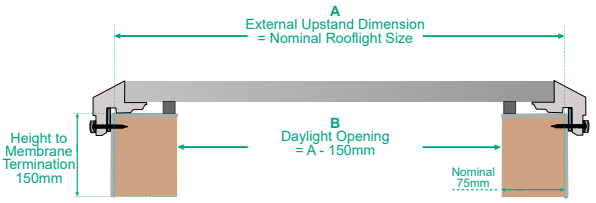
These Flat Glass rooflights are manufactured using double glazing which includes an inner pane of annealed, laminated safety glass, which prevents falling glass in the event of accidental breakage, for the safety of those below the rooflight. In addition, a laminated inner pane is essential for non-fragile rooflights.

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 including ventilation in the rooflight specification.

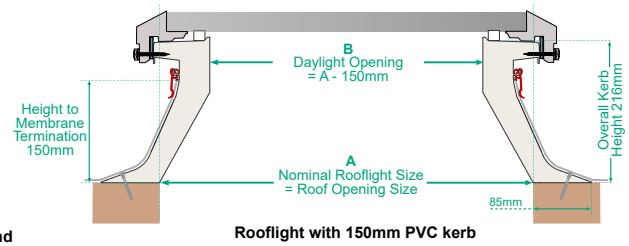
More detailed guidance can be obtained upon request.

Product Dimensions

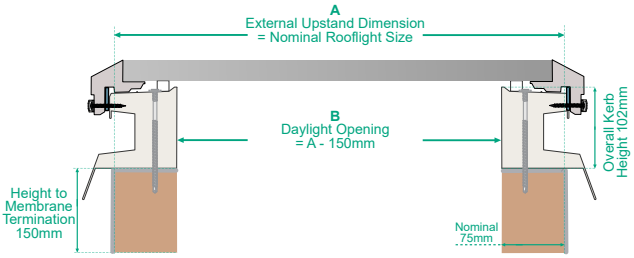
Brett Martin Flat Glass offers differing kerb options depending on project specification. When the rooflight is to be fitted to an existing upstand, fixed unventilated rooflights can be fitted directly, and opening or ventilated options are supplied complete with an adapter kerb. Where no upstand exists, 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).



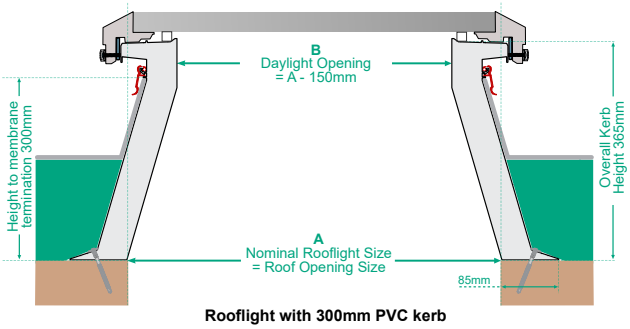
Fixed & Unventilated option directly fixed to structural, insulated builders upstand



Rooflight with 150mm PVC kerb



Opening / Ventilated rooflight on structural, insulated builders upstand



Rooflight with 300mm PVC kerb

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

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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

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