mardomeglass
Flat Glass Rooflights

BBA APPROVAL INSPECTION TESTING CERTIFICATION
CERTIFICATE 06/4385

TB205
September 2018

Mardome Glass
(non fragile specification)
Data Sheet
Page 1

Product Description

Brett Martin Daylight Systems' Mardome Glass Rooflights are premium quality, individual glass rooflights with an anodised, fully thermally broken aluminium frame, intended for installation on flat roofs of all modern building types to provide natural light (and ventilation where specified). Mardome Glass Rooflights are manufactured to ISO 9001 industry standards.

Appearance

Mardome Glass is a premium rooflight exhibiting sleek and contemporary design within a product that is built to perform to the highest standards. High quality aesthetics are combined with excellent light transmission and a low U-value to give the ultimate rooflight system.

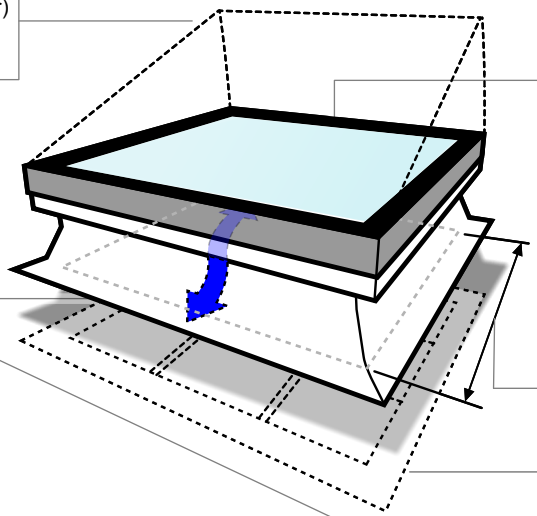
Design Features

- Premium rooflight offering an incredibly robust build with superb protection against intrusion or vandalism.
- Silver anodised, fully thermally broken aluminium frame gives long life span.
- U-value of 1.1 W/m²K.
- Components of powered opening rooflights (230V) are completely concealed for an unobstructed light well for sizes up to 1200mm x 1200mm (square) and 1500mm x 1050mm (rectangle). Exposed actuators are required on powered opening units larger than these.
- Secure fixing assembly to prevent invader intrusion when supplied with PVC kerb.
- CWCT TN-92 tested (for class 2 roofs) and ACR[M]001 Class B non-fragile.
- 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.

Product Options Summary *(see page 2 onwards for details)*

Hinged Opening
-Powered with wall-switch (chain actuator)
-Optional Remote Controlled Operation
-Optional Rain Sensor Operation

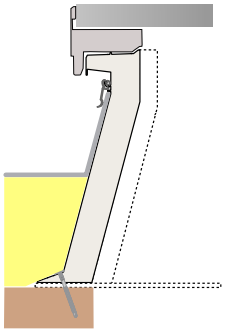
Optional Ventilation
-Manual Hit-and-Miss
-Automatic Humidity Controlled
-Powervent high extraction ventilation



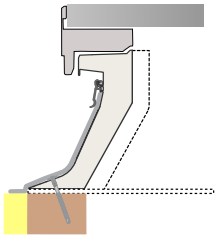
Kerb

Glazing Type
-Flat glass :
-6mm toughened outer, 90% Argon filled cavity, 9.5mm laminated soft coat Low E inner with 1.5mm PVB interlayer.
(NB - for very large sizes inner pane increases to 11.5mm)
-CWCT TN-92 for class 2 roofs
-ACR[M]001 Class B non-fragile
-Glass panel is P4A secure

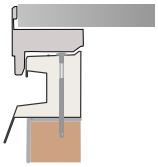
Size (roof opening)
Standard range:
see Table 1 on Page 2
In square and rectangular combinations.



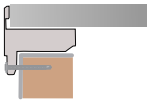
Tall 300mm PVCu*



Standard sloped PVCu*



Builders upstand (vented or opening variants)



Builders upstand (fixed unvented variants)

Optional Burglar Bars

**Acoustic Pack available for noise reduction*

Composition

The double glazed glass panel is made up of: 6mm toughened outer, a 90% argon filled cavity, with a 9.5mm laminated soft coat Low E inner (inc. 1.5mm PVB interlayer). For larger sizes the inner pane thickness is increased to 11.5mm.

The frame is extruded aluminium, with an anodised coating to provide a very resilient and highly appealing finish. The frame is fully thermally broken 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

Mardome Glass units are expected to remain fit for purpose in normal industrial conditions for a period of 20 years (guaranteed for 10 years), i.e. they will not become perforated, lose significant structural integrity or distort to the extent of losing weather-tightness. Electrical actuators (where present), are guaranteed 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 is guaranteed for 5 years.

Safety Requirements/CDM Regulations

Mardome Glass achieves CWCT TN-92 non-fragility on class-2 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.

Security

Fixed, unventilated Mardome Glass units fitted to a builders upstand use self-drilling, anti-tamper security fixings. All other fixed units use rooflight security latches which can only be opened with the use of a security opening device.

'Manipulation of the security latches by an opportunist intruder without the opening device is virtually impossible' (BBA certificate 06/4385 section 14). Mardome Glass resists the likely methods of intrusion by an opportunist using basic hand tools when tested to PAS 24:2012, Annex C.4.3.

Fire Rating

Building Regulations Approved Document B (2006 edition, amended 2007) sets out the rules for fire safety of buildings, which can be met by achieving specific fire ratings to either British (BS476) or European (BS EN 13501) test standards.

Brett Martin Mardome Glass achieves BS 476 class 1.

Available Options

Table 1

Sizes of Rooflights

Bold indicates unit size, *Italics indicates daylight area*
(mm)

Standard sizes					
600 x 600	*450 x 450*	**900 x 900**	*750 x 750*	**1200 x 900**	*1050 x 750*
750 x 750	*600 x 600*	**1050 x 1050**	*900 x 900*	**1200 x 1200**	*1050 x 1050*
900 x 600	*750 x 450*	**1200 x 600**	*1050 x 450*		

Non-standard sizes					
450 x 450	*300 x 300*	**1950 x 1200**	*1800 x 1050*	**3000 x 1650**	*2850 x 1500*
750 x 600	*600 x450*	**1950 x 1350**	*1800 x 1200*	**3150 x 1050**	*3000 x 900*
900 x 750	*750 x 600*	**1950 x 1500**	*1800 x 1350*	**3150 x 1200**	*3000 x 1050*
1050 x 600	*900 x 450*	**1950 x 1650**	*1800 x 1500*	**3150 x 1350**	*3000 x 1200*
1050 x 750	*900 x 600*	**1950 x 1800**	*1800 x 1650*	**3150 x 1500**	*3000 x 1350*
1050 x 900	*900 x 750*	**1950 x 1950**	*1800 x 1800*	**3150 x 1650**	*3000 x 1500*
1200 x 750	*1050 x 600*	**2100 x 900**	*1950 x 750*	**3300 x 1200**	*3150 x 1050*
1200 x 1050	*1050 x 900*	**2100 x 1050**	*1950 x 900*	**3300 x 1350**	*3150 x 1200*
1350 x 600	*1200 x 450*	**2100 x 1200**	*1950 x 1050*	**3300 x 1500**	*3150 x 1350*
1350 x 750	*1200 x 600*	**2100 x 1350**	*1950 x 1200*	**3300 x 1650**	*3150 x 1500*
1350 x 900	*1200 x 750*	**2100 x 1500**	*1950 x 1350*	**3450 x 1200**	*3300 x 1050*
1350 x 1050	*1200 x 900*	**2100 x 1650**	*1950 x 1500*	**3450 x 1350**	*3300 x 1200*
1350 x 1200	*1200 x 1050*	**2250 x 1050**	*2100 x 900*	**3450 x 1500**	*3300 x 1350*
1350 x 1350	*1200 x 1200*	**2250 x 1200**	*2100 x 1050*	**3450 x 1650**	*3300 x 1500*
1500 x 600	*1350 x 450*	**2250 x 1350**	*2100 x 1200*	**3600 x 1500**	*3450 x 1350*
1500 x 750	*1350 x 600*	**2250 x 1500**	*2100 x 1350*	**3600 x 1650**	*3450 x 1500*
1500 x 900	*1350 x 750*	**2250 x 1650**	*2100 x 1500*		
1500 x 1050	*1350 x 900*	**2400 x 1050**	*2250 x 900*		
1500 x 1200	*1350 x 1050*	**2400 x 1200**	*2250 x 1050*		
1500 x 1350	*1350 x 1200*	**2400 x 1350**	*2250 x 1200*		
1500 x 1500	*1350 x 1350*	**2400 x 1500**	*2250 x 1350*		
1650 x 600	*1500 x 450*	**2400 x 1650**	*2250 x 1500*		
1650 x 750	*1500 x 600*	**2550 x 1050**	*2400 x 900*		
1650 x 900	*1500 x 750*	**2550 x 1200**	*2400 x 1050*		
1650 x 1050	*1500 x 900*	**2550 x 1350**	*2400 x 1200*		
1650 x 1200	*1500 x 1050*	**2550 x 1500**	*2400 x 1350*		
1650 x 1350	*1500 x 1200*	**2550 x 1650**	*2400 x 1500*		
1650 x 1500	*1500 x 1350*	**2700 x 1050**	*2550 x 900*		
1650 x 1650	*1500 x 1500*	**2700 x 1200**	*2550 x 1050*		
1800 x 600	*1650 x 450*	**2700 x 1350**	*2550 x 1200*		
1800 x 750	*1650 x 600*	**2700 x 1500**	*2550 x 1350*		
1800 x 900	*1650 x 750*	**2700 x 1650**	*2550 x 1500*		
1800 x 1050	*1650 x 900*	**2850 x 1050**	*2700 x 900*		
1800 x 1200	*1650 x 1050*	**2850 x 1200**	*2700 x 1050*		
1800 x 1350	*1650 x 1200*	**2850 x 1350**	*2700 x 1200*		
1800 x 1500	*1650 x 1350*	**2850 x 1500**	*2700 x 1350*		
1800 x 1650	*1650 x 1500*	**2850 x 1650**	*2700 x 1500*		
1800 x 1800	*1650 x 1650*	**3000 x 1050**	*2850 x 900*		
1950 x 750	*1800 x 600*	**3000 x 1200**	*2850 x 1050*		
1950 x 900	*1800 x 750*	**3000 x 1350**	*2850 x 1200*		
1950 x 1050	*1800 x 900*	**3000 x 1500**	*2850 x 1350*		

Note: Custom sizes are available on request. Please contact BMDS to discuss requirements.

Available Options Continued

Ventilation:

Ventilation can help reduce humidity, and reduce risk of condensation and should be considered in any areas of high humidity. Mardome Glass rooflights may be unvented or can incorporate vents. These can either be hit-and-miss manually controlled trickle vents, automatic humidity controlled vents or high powered extraction ventilation (Powervent: Details listed in Table 2.)

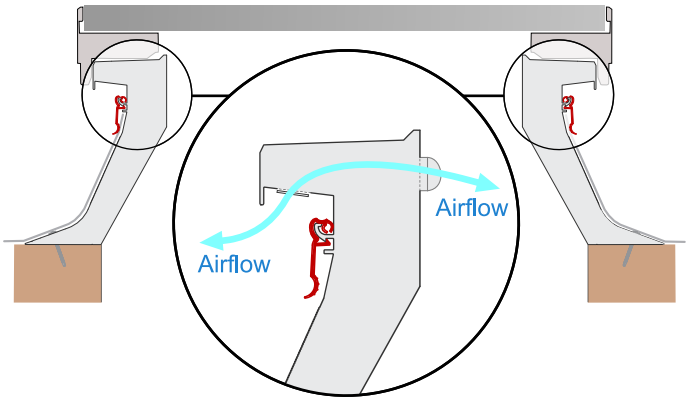


Table 2
Trickle Ventilation Options

Ventilation Type	Description	Rating
Trickle Ventilation (Hit-and-Miss)	Manually operated trickle ventilation provides background ventilation to the interior	Provides 8400m² Equilvalent 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 7822m² Equilvalent Area Ventilation and provides superior protection against condensation
'Powervent' high extraction ventilation	Kerb mounted, electrically powered fans providing excellent extraction rates for a variety of applications	Ventilation levels between 55-880 m³/hr depending on number of fans and dome size

Mardome Glass can also be opened on concealed hinges using actuators to create a large ventilation area. Opening rooflights can contribute to room ventilation as required by Part F of the Building Regulations.

Table 3
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	0.714 m²
Powered Opening (PCD/PCR)	Powered hinged opening rooflight with completely concealed operating mechanism. Opened and closed using a control switch or remote control	0.210 m²	1.176 m²
Sensor Controlled Powered Opening (PCS)	Powered hinged opening rooflight which includes rain sensors for automatic operation	0.210 m²	1.176 m²

Size Restrictions for Opening Options:

Please note that restrictions apply due to size, wind loadings and weight.For powered opening rooflights, size is normally restricted to a maximum of 1800mm x 1800mm (square) and 2250mm x 1500mm (rectangle). Size of the largest manual opening rooflight is restricted to 1200mm x 1200mm.

Roof Applications:

Mardome Glass units are suitable for flat roof applications with a pitch of 2°-15°. 2 degrees is typical for a 'flat roof'. If a roof is less than 2 degrees, packers (not supplied) will need to be placed under the kerb of the unit or on the top of a builders upstand to raise to the minimum 2 degrees. This is to prevent water ponding on the glass leading to rapid dirt build up. A minimum of 5 degree pitch is required for sizes including and above 1500mm x 1500mm (square) and 2700mm x 1050mm (rectangle).

Acoustic Performance:

Mardome Glass units achieve a direct airborne sound insulation value of 39db (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.

Glazing Options & Transmission Values

The glazing used achieves the following values:

Table 4

Light		Solar Energy	
Transmission	76% - 78%	g-value	0.60 - 0.62
Reflection	12%	Shading coefficient	0.69 - 0.71

Thermal Performance

Part L Building Regulations require a U-value of at least 2.2 W/m²K.

Mardome Glass units achieve a U-value of 1.1 W/m²K which exceeds requirements of Part L Building Regulations.

Product Accessories

Burglar Bar:
The Mardome Burglar Bar is 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.

Please contact Brett Martin Daylight Systems to discuss Kerb options.

General Product Dimensions

Mardome Glass offers differing kerb options depending on project specification. The 150mm or 300mm Kerbs are offered for use when there is no pre-existing upstand, or when over-sailing the current upstand is preferred.
When the rooflight is to be fitted to an existing upstand, fixed unventilated rooflights can be fitted directly. Opening or ventilated options are supplied complete with an adapter kerb.

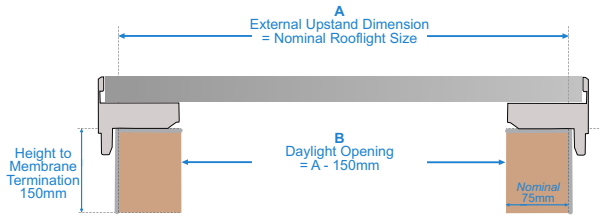


Figure 1: Fixed & Unventilated option directly fixed to builders upstand

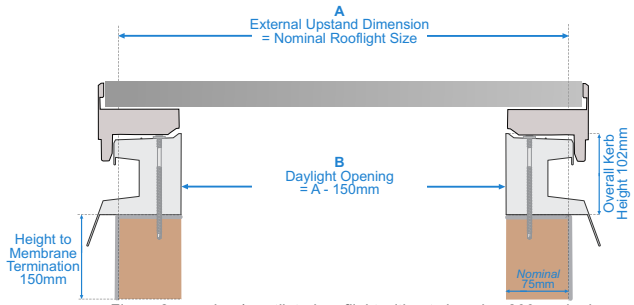


Figure 2: opening / ventilated rooflight without sloped or 300mm kerb

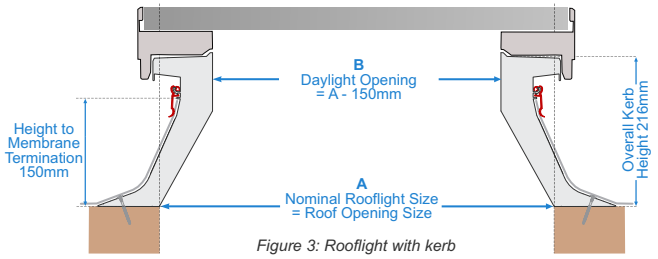


Figure 3: Rooflight with kerb

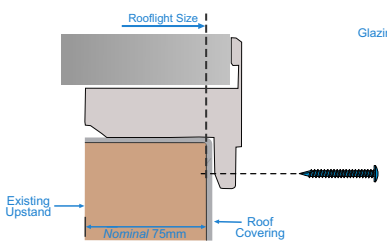


Figure 4: rooflight with builders upstand detail

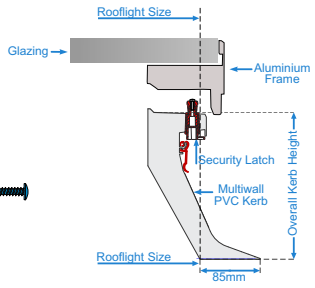


Figure 5: rooflight with kerb detail

Wind and Snow Load

Please refer to BBA Certificate 06/4385, Section 9.

Mardome Rooflights have been independently tested to show that when correctly fitted in accordance with our instructions, they will resist wind loads calculated in accordance with BS EN 1991-1-4: 2005, and imposed loads in accordance with BS EN 1873: 2005 as shown in Table 5.

Table 5
Resistance to Snow and Wind Loads (figures in excess of)

	Dimensions (mm)	Snow Load ($N.m^{-2}$)	Wind Load ($N.m^{-2}$)
Modular Flat Glass	1800 x 1200	1750	3000

Table 6
Product Overall Height & Weight

Description	Nominal Dome Size (mm)		Sloped Kerb H (mm)	Sloped Kerb W (Kg)	300mm Kerb H (mm)	300mm Kerb W (Kg)
Fixed Mardome Glass	Min	450 x 450	279	21.7	428	24.8
	Max	3600 x 1650	279	309.0	428	318.7
Opening Mardome Glass* (when closed)	Min	600 x 600	279	33.2	428	37.0
	Max	2250 x 1500	279	189.5	428	196.5

**Contact Brett Martin Daylight Systems for weights of dome sizes not listed above*

Installation, Handling, Maintenance & Storage

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

Table 7
Technical Bulletins

Technical Bulletin	Technical Bulletin Description
TB197-A	Installation Mardome Glass Fixed on Builders Upstand
TB197-B	Installation Mardome Glass Sloping and Direct Fix
TB197-C	Installation Mardome Glass PCDRS
TB209	Datasheet Mardome Glass Product Care