Mardome Trade

TB200
Mardome Trade
Datasheet

Product Description
Brett Martin Daylight Systems Mardome Trade Rooflights are individual polycarbonate dome rooflights with a PVC-U multi-walled kerb intended for installation on flat roofs of all modern building types to provide natural light (and ventilation where specified).

Mardome Rooflights are designed and manufactured under an ISO9001 approved quality system. Product options which will help to satisfy differing requirements for light transmission, thermal performance, ventilation and acoustics are available.

Brett Martin Daylight Systems Mardome Trade Rooflight Domes have full BBA approval and are certified under 06/4385, and are also available with optional Secured by Design accreditation.

BBA APPROVAL INSPECTION TESTING CERTIFICATION CERTIFICATE 06/4385

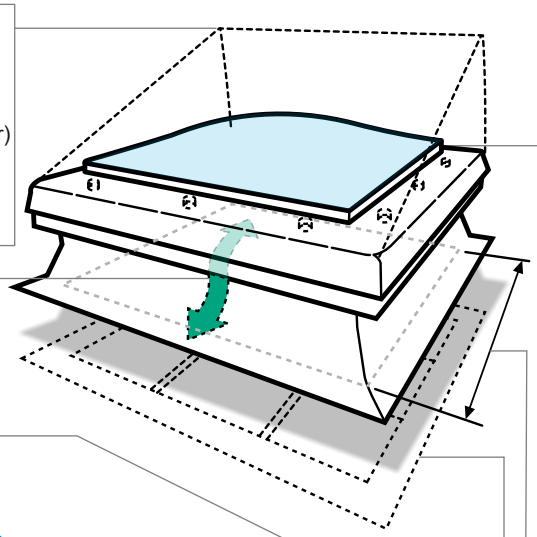
Secured by Design SBD Police Preferred Specification

Design Features
- Contemporary low rise profile (dome and pyramid options).
- Ud-value to as low as 1.03 W/m2K.
- Constant separation of glazing skins across full width of dome including fixing flange on triple skin and better glazing options. This avoids cold spots and minimises the risk of condensation.
- Components of powered opening domes (230V) are hidden for a unobstructed light well.
- Options to satisfy requirements for light transmission, thermal performance, ventilation and acoustics.
- For ease of installation the tapered kerb foot does not require timber fillets and provides a clean external finish for all roofing types.
- Secured by Design option.
- Suitable for flat roof applications with a pitch of typically 0°-15° – speak to technical for pitches greater than this.

Product Options Summary

Variants
- Fixed
- Fixed Secured by Design
- Manual opening
- Powered with wall-switch (chain actuator)
- Optional Remote Controlled Operation
- Optional Rain Sensor Operation
- Access Hatch

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



Glazing Shape
- Dome
- Pyramid

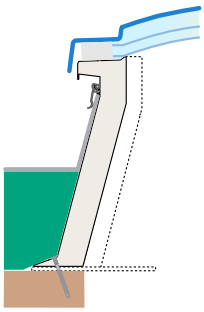
Glazing Tint
- Clear
- Patterned
- Opal

Glazing Type
- Single Skin Polycarbonate
- Double Skin Polycarbonate
- Triple Skin Polycarbonate
- Quad Skin Polycarbonate
- Polycarbonate Dome over:
  - Structured Polycarbonate
  - Argon Filled Glass

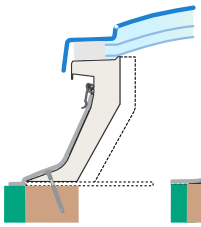
Size (roof opening)
See table on page 3

Optional Security Grille

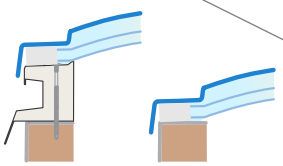
Kerb



Tall 300mm PVCu*



Standard 150mm PVCu*
- kerb type varies with specification



Structural, Insulated Builders upstand - Direct Fix kerb supplied for vented and opening variants

*Acoustic Pack available for noise reduction

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Appearance
Mardome Trade Rooflights provide a clean interior, and unobtrusive external appearance and therefore complement the surrounding environment. The low profile dome improves the aesthetics and also the clarity of light, whilst the PVC-U kerb can conceal actuators and wiring for an obstruction free lightwell.

Composition
The outer dome of Mardome Trade is manufactured from 3mm impact resistant Marlon FSX Longlife polycarbonate sheet which is co-extruded with a UV protective coating to both sides. The inner domes are manufactured from 2mm impact resistant Marlon FSX Longlife polycarbonate sheeting for double, triple and quad skin options. The kerb and hinge frames are manufactured from Lead & Cadmium free un-plasticised PVC rigid multi-wall extruded profile with internal gloss white finish. The polycarbonate, PVC-U and aluminium which comprise the product can be recycled at the end of useful product life.

Durability
Mardome Trade Rooflights 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:
- Polycarbonate used in Mardome rooflights against loss of light transmission, discolouration or loss of impact strength for 10 years.
- Electrical actuators (where present), for a period of 1 year (actuators have a design life of at least 10,000 cycles).
- Insulated glass (where present) used in the construction of the rooflight for 5 years.

Safety Requirements and CDM
Mardome Trade Rooflights achieve Class B non-fragility to ACR[M]001 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.

Security
The design of the Mardome Trade rooflight is such that individual fixings are concealed inside security caps. Removal of these caps to gain access to the fixings is extremely difficult. In addition, polycarbonate rooflights have good resistance to impact, making breakage very difficult. The Mardome security grill option 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.

Fixed variants of Mardome Trade (SBD option) are accredited by Secured by Design (SBD) based on independently assessed testing in accordance with PAS24:2016.

Please refer to BBA Certificate 06/4385, Section 14 for more details.

Secured by Design
SBD
Police Preferred Specification

Fire Ratings
Building Regulations Approved Document B: Fire Safety, Volume 2 - Buildings other than dwellings (2019 edition, amended May 2020) sets out the fire safety rules for buildings other than dwellings, which can be met by achieving specific European class fire ratings to European standard BS EN 13501. Mardome Trade Rooflights achieve Class B-s1,d0 to BS EN 13501: Part 1, and can therefore also be regarded as $B_{ROOF}(t4)$ as defined in Approved Document B2 paragraph 14.7. For more information please see TB413.

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Available Sizes & Opening Options
Mardome Trade Rooflights are available in a domed or a pyramid profile in a range of sizes listed in the table below.

Mardome Trade Rooflights can also be opened on concealed hinges using actuators (manual or powered) to create a large ventilation area, or with gas struts to provide an access hatch. Opening rooflights can contribute to room ventilation as required by Part F of the Building Regulations. Available sizes for opening units are shown in the table below. Please note that restrictions on opening units apply due to wind loading and weight.

Square Size		Rectangular Size											
600 x 600	450 x 450	**600 x 750**	450 x 600	**750 x 1650**	600 x 1500	**1050 x 1500**	900 x 1350	**1200 x 2400**	900 x 2100	**1500 x 2400**	1350 x 2250
750 x 750	600 x 600	**600 x 900**	450 x 750	**750 x 1800**	600 x 1650	**1050 x 1650**	900 x 1500	**1350 x 1500**	1200 x 1350	**1650 x 1800**	1500 x 1650
900 x 900	750 x 750	**600 x 1050**	450 x 900	**750 x 1950**	600 x 1800	**1050 x 1800**	900 x 1650	**1350 x 1650**	1200 x 1500	**1650 x 1950**	1500 x 1800
1050 x 1050	900 x 900	**600 x 1200**	450 x 1050	**900 x 1050**	750 x 900	**1050 x 1950**	900 x 1800	**1350 x 1800**	1200 x 1650	**1650 x 2100**	1500 x 1950
1200 x 1200	1050 x 1050	**600 x 1350**	450 x 1200	**900 x 1200**	750 x 1050	**1050 x 2100**	900 x 1950	**1350 x 1950**	1200 x 1800	**1650 x 2250**	1500 x 2100
1350 x 1350	1200 x 1200	**600 x 1500**	450 x 1350	**900 x 1350**	750 x 1200	**1050 x 2250**	900 x 2100	**1350 x 2100**	1200 x 1950	**1650 x 2400**	1500 x 2250
1500 x 1500	1350 x 1350	**600 x 1650**	450 x 1500	**900 x 1500**	750 x 1350	**1200 x 1350**	900 x 1050	**1350 x 2250**	1200 x 2100	**1800 x 1950**	1650 x 1800
1650 x 1650	1500 x 1500	**600 x 1800**	450 x 1650	**900 x 1650**	750 x 1500	**1200 x 1500**	900 x 1200	**1350 x 2400**	1200 x 2250	**1800 x 2100**	1650 x 1950
1800 x 1800	1650 x 1650	**750 x 900**	600 x 750	**900 x 1800**	750 x 1650	**1200 x 1650**	900 x 1350	**1500 x 1650**	1350 x 1500	**1800 x 2250**	1650 x 2100
		750 x 1050	600 x 900	**900 x 1950**	750 x 1800	**1200 x 1800**	900 x 1500	**1500 x 1800**	1350 x 1650	**1800 x 2400**	1650 x 2250
Rooflight size Daylight area		**750 x 1200**	600 x 1050	**900 x 2100**	750 x 1950	**1200 x 1950**	900 x 1650	**1500 x 1950**	1350 x 1800		
		750 x 1350	600 x 1200	**1050 x 1200**	900 x 1050	**1200 x 2100**	900 x 1800	**1500 x 2100**	1350 x 1950		
		750 x 1500	600 x 1350	**1050 x 1350**	900 x 1200	**1200 x 2250**	900 x 1950	**1500 x 2250**	1350 x 2100		

Available Sizes Key

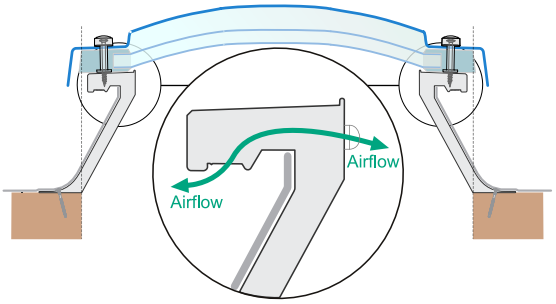
Key	Fixed	Powered Opening (PCD,PCR & PCS)	Manual Opening	Access Hatch
	✔	✔	✔	✔
	✔	✔	✔	
	✔	✔		
	✔			

*Not available with dome over glass

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
Access Hatch*	To gain entry to a roof. Unit held open by two gas struts	Opening Angle of 69.0° to 84.0°	

Ventilation
Ventilation can help reduce humidity, and reduce risk of condensation and should be considered in any areas of high humidity. Mardome Rooflight kerbs 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.



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*
'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 rooflight size**

* Trickle ventilation may be restricted on some Access Hatch options.
**1-4 extraction fans available - maximum quantity dependent on rooflight size.

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.

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Standard Glazing Values
Mardome Trade Rooflights are available with a selection of glazing tint options depending on the required level of light transmission.

Glazing Performance										
Tint	Light Effect	Light Transmission			Shading Coefficient			Transmittance (G-Value)		
		Double Skin	Triple Skin	Quad Skin	Double Skin	Triple Skin	Quad Skin	Double Skin	Triple Skin	Quad Skin
Clear	High Visibility	85%	78%	72%	0.84	0.76	0.70	0.73	0.66	0.61
Opal	Diffused light & Solar Control	35%	32%	30%	0.38	0.34	0.32	0.33	0.30	0.28
Patterned	Privacy	78%	72%	66%						

Thermal Performance
The thermal transmittance of Mardome Trade Rooflights is measured by the Guarded Hot Box method according to BS EN ISO 12567-2: 2005. The performance is declared as the U_d-value (defined in accordance with NARM NTD2). This performance, and the centre pane U-value of the glazing system, is shown in the table below.

Part L Building Regulations require a U-value of at least 2.2W/m²K: Brett Martin Daylight Systems recommend the use of at least triple skin rooflights in all applications.

Mardome Trade (triple skin and better insulated variants) are designed for optimal thermal performance and resistance to condensation. This provides full insulation across the whole width of the rooflight (including the fixing flange), eliminating any cold spots associated with traditional methods of dome rooflight construction and giving a much higher f-factor. The elimination of cold spots and the highly insulated frame means that these areas are even more resistant to condensation than the main areas of glazing, where performance is governed by U-value. See BBA certificate 06/4385 section 8 ”Condensation risk” for further details.

Thermal Performance		
Rooflight Variant	Centre Pane U-Value (W/m²K)	Ud-Value (W/m²K)
Double Skin Polycarbonate	2.7	1.39 - 2.41
Triple Skin Polycarbonate	1.8	1.17 - 1.67
Quad Skin Polycarbonate	1.4	1.08 - 1.35
Structured Polycarbonate Inner Glazing	1.2	1.03 - 1.19
Argon Filled Glass Inner Glazing	0.9	0.93 - 1.02

*Ud value varies by size and specific configuration

Acoustic Performance
For applications where acoustic performance is particularly important the Mardome acoustic pack is an option. The acoustic pack is not available with opening or vented products, but is offered with all other variants and has a positive contribution on acoustic attenuation levels and rain penetration noise and can assist in achieving BREEAM credits. For a triple skin polycarbonate glazed Mardome Trade the addition of an acoustic pack reduces the rain noise penetration by LiA=15dB, (when every 10dB represents a halving of noise levels).

An alternative to the acoustic pack is to specify a dome with the argon filled double glazed glass inner option. Whilst not as effective as the Acoustic Pack, this option is a available in conjunction with ventilation, and in some opening options, if required. Mardome Rooflights are independently tested for Rain Noise Penetration to BS EN 140-18: 2006.

Acoustic Performance		
Rooflight Variant	Rain Noise Penetration (LiA)	Airborne Sound Index (Rw)
Standard Single Skin Polycarbonate		12 dB
Standard Double Skin Polycarbonate		20 dB
Standard Triple Skin Polycarbonate	61.8 dB	22 dB
Argon Filled Glass Inner Glazing	53.9 dB	
Triple Skin Polycarbonate with acoustic pack*	46.7 dB	

10dB reduction equates to a drop of 50% in the sound level.
*Acoustic pack is only available with fixed, unventilated products.

Wind and Snow Loads
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.

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

Resistance to Snow & Wind Loads			
Rooflight Variant	Dimensions (mm)	Snow Load (N.m²)	Wind Load (N.m²)
Domed	1200 x 2400	1125	1500
Pyramid	1500 x 1500	1750	3000

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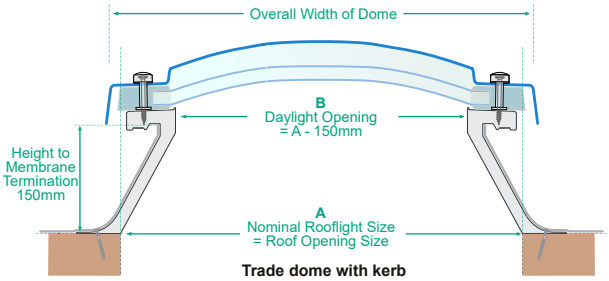
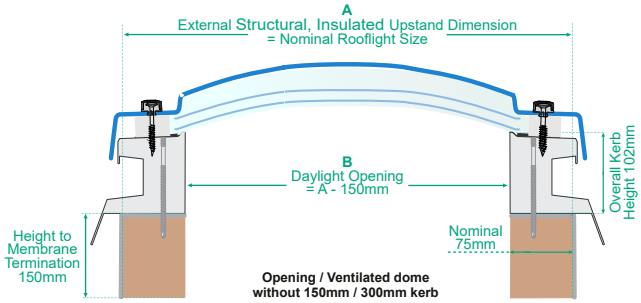
Product Dimensions

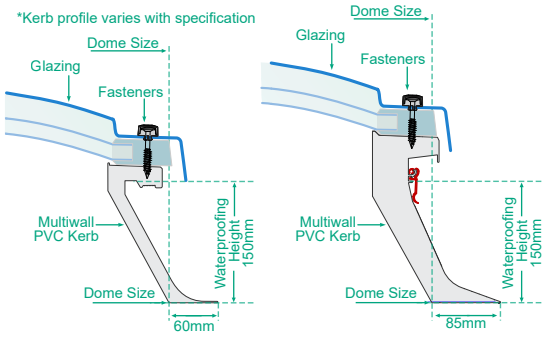
Mardome Trade Rooflights offer differing kerb options depending on project specification. The Mardome 150mm or 300mm Kerb is offered for use when there is no pre-existing structural, insulated upstand, or when over-sailing the current upstand is prefered. When the rooflight is to be fitted to an existing structural, insulated upstand, unventilated Trade rooflights are to be fitted directly, whilst ventilated or opening Trade rooflights are supplied complete with a Direct Fix kerb.



Trade dome with kerb



Opening / Ventilated dome without 150mm / 300mm kerb



Product Overall Height & Weight							
Rooflight Variant	Nominal Size	Direct Fix Kerb		150mm Kerb		300mm Kerb	
		H (mm)	W (kg)	H (mm)	W (kg)	H (mm)	W (kg)
Fixed Trade Dome	600 x 600	197	7.1	311	10.9	461	13.3
	2400 x 1800	313	62.9	427	71.9	577	79.7
Opening Trade Dome	600 x 600	232	12.1	346	15.0	496	17.4
	1800 x 1800	348	54.1	462	61.6	612	68.3

Note: Weights based on triple skin dome.
Not all product options available - contact Brett Martin Daylight Systems for advice

Mardome Trade Rooflight products have differing height and weight. As this value varies with rooflight size and specification, a range of values are quoted in the table above. For more details contact Brett Martin Daylight Systems.

Installation, Handling, Maintenance & Storage

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

Technical Bulletins	
Code	Description
TB186	Installation for Mardome Trade on 150mm, 300mm AND Direct Fix kerb
TB188	Installation for Mardome Trade with Manual (MLD and Access Hatch) Opening Options
TB189	Installation for Mardome Trade with PCD/PCR/PCS Powered Opening Options
TB193	Installation Mardome Trade on 150mm and 300mm Kerb with acoustic pack
TB194	Installation Mardome Rain Senosor PCS Units Only
TB196	Installation Mardome Trade Powervent
TB203	Polycarbonate Dome: Product care before & after installation
TB287	Installation Mardome Security Grille
TB404	Installation Mardome Trade Secured by Design
COSHH12	COSHH Data Sheet for Dome Rooflights - Product Safety and Handling Data Sheet

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