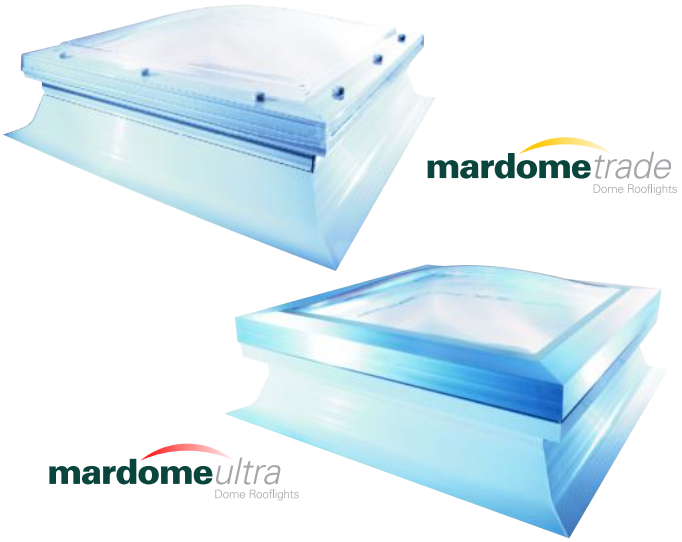
mardome
Dome Rooflights

Product Description

Brett Martin Daylight Systems Mardome Trade and Ultra 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 (*summary below / details on Page 3*).



BBA Approval

Brett Martin Daylight Systems Mardome Trade and Ultra Rooflight Domes have full BBA approval and are certified under 06/4385.

BBA APPROVAL INSPECTION TESTING CERTIFICATION
CERTIFICATE 06/4385

Appearance

Mardome Trade is the standard specification dome. It's contemporary design gives a clean white internal appearance and unobtrusive exterior.

Mardome Ultra is the architectural specification dome. It combines high security and contemporary design to provide excellent aesthetics inside and out.

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. Mardome Rooflights provide a clean interior, and unobtrusive external appearance and therefore complement the surrounding environment.

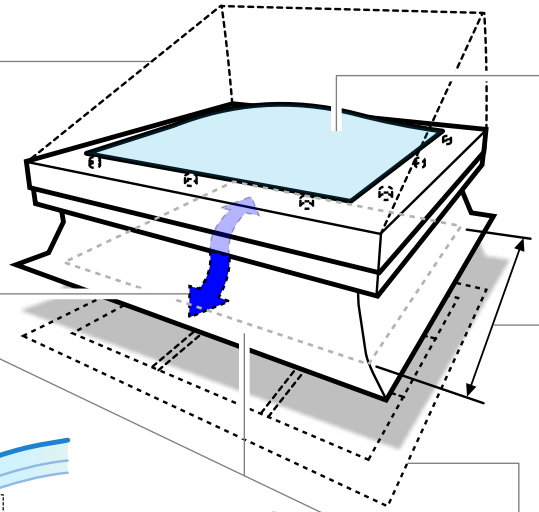
Design Features

- Contemporary low rise profile (dome and pyramid options).
- U_d-value to as low as 0.95 W/m²K.
- Unique glazing cassette in triple and quad skin domes minimises 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 an integral clamp holds the roofing membrane in place and provides a clean clean external finish for all roofing types.

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

Hinged Opening
-Manual (worm gear)
-Powered (chain actuator)
-Sensor Controlled Powered
-SV30 (30° 24V Powered)
-Access Hatch (90° gas struts)

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



Glazing Shape
-Dome
-Pyramid

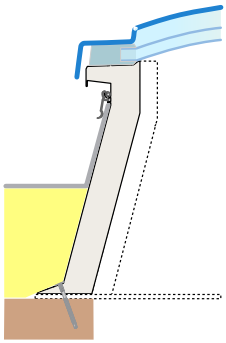
Glazing Tint
-Clear
-Textured
-Bronze
-Opal

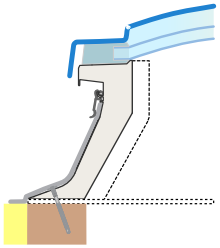
Glazing Type
-Double Skin Polycarbonate
-Triple Skin Polycarbonate
-Quad Skin Polycarbonate
-Polycarbonate Dome over:
  -Structured Polycarbonate
  -Argon Filled Glass

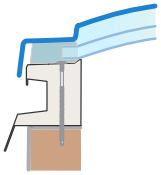
Size (roof opening)
Standard range (mm):
600 750 900 1050 1200
1350 1500 1800 2400
In square and rectangular combinations.

Kerb adapters *available for fitting to non- standard sized upstands.*

Kerb


Tall 300mm PVCu*


Standard sloped PVCu*


Builders upstand

Burglar Bars

**Acoustic Pack available for noise reduction*

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Composition

The outer dome of Mardome Trade and Ultra 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 Mardome Ultra cowl is from extruded aluminium alloy, and silver anodised as standard. Alternatively, the cowl can be supplied in polyester powder coated on request.

The polycarbonate, PVC-U and aluminium which comprise the product can be recycled at the end of useful product life.

Durability

Mardome Trade and Ultra Rooflights are guaranteed to remain fit for purpose in normal industrial conditions for a period of 20 years i.e. they will not become perforated, lose significant structural integrity, or distort to the extent of losing weather-tightness. In addition, the polycarbonate used in Mardome Rooflights is guaranteed against loss of light transmission, discolouration or loss of impact strength for the first 10 years.

Electrical actuators (where present), are guaranteed for a period of 1 year unless otherwise agreed. Actuators have a design life of at least 10,000 cycles.

Safety Requirements/CDM Regulations

Mardome Trade and Ultra Rooflights achieve Class B non-fragility to ACR[M]001 when new and fully installed in accordance with Brett Martin Daylight System's installation guides *(See TB's 186-193)*.

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

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

Mardome Trade:
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.

Mardome Ultra:
Mardome Ultra Rooflight is supplied with 'security latches'. This security lock mechanism 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.

Mardome Rooflights resist 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 Daylight Systems Mardome Trade and Ultra Rooflights achieve Class B-s1,d0 to BS EN 13501: Part 1. Building Regulations state they can therefore be regarded as B_{ROOF}(t4).

Available Options

Mardome Trade and Ultra Rooflights are available in a curved dome or a pyramid profile and in a range of sizes listed in Table 1. Other sizes within this range can also be fabricated on request and are covered by the BBA Certificate.

Table 1

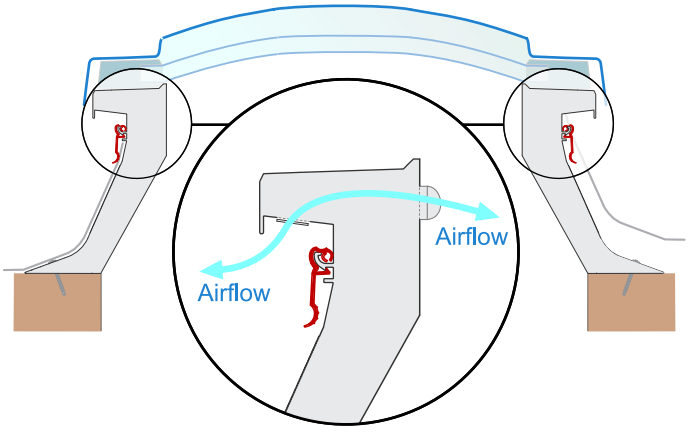
Sizes of Rooflights

Dome or Pyramid Rectangular Base *and Daylight Area* (mm)

Square		Rectangular			
600 x 600	*450 x 450*	600 x 900	*450 x 750*	1050 x 1350	*900 x 1200*
750 x 750	*600 x 600*	600 x 1200	*450 x 1050*	1050 x 1500	*900 x 1350*
900 x 900	*750 x 750*	600 x 1500	*450 x 1350*	1200 x 1500	*1050 x 1350*
1050 x 1050	*900 x 900*	750 x 900	*600 x 750*	1200 x 1800	*1050 x 1650*
1200 x 1200	*1050 x 1050*	750 x 1050	*600 x 900*	1200 x 2400	*1050 x 2250*
1350 x 1350	*1200 x 1200*	900 x 1200	*750 x 1050*		
1500 x 1500	*1350 x 1350*	900 x 1500	*750 x 1350*		
1800 x 1800	*1650 x 1650*	900 x 1800	*750 x 1650*		

- Kerb adapters available for fitting to non-standard sized upstands.

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, or automatic humidity controlled vents. (Details listed in Table 2.)



***Available Options** Continued*

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

Mardome 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.

Table 3
Opening Options

Opening Type	Description	Available Ventilation Area Min	Max
Manual Opening (MLD)	Hinged opening dome which is operated manually via a worm gear drive with an extension pole	0.081 m²	0.191 m²
Powered Opening (PCD/PCR)	Powered hinged opening dome with completely concealed operating mechanism. Opened and closed using a control switch or remote control	0.068 m²	0.293 m²
Sensor Controlled Powered Opening (PCS)	Powered hinged opening dome which includes rain sensors for automatic operation	0.068 m²	0.293 m²
SV30	Powered hinged opening dome, opening to approximately 30° using 24V exposed actuators. Requires separate reversible 24V DC power supply	0.091 m²	0.477 m²
Access Hatch	To gain entry to a roof for maintenance or as an emergency exit. Unit held open by two gas struts	90° opening	

Size Restrictions for Opening Options:

Please note that restrictions apply due to size, wind loadings and weight; For **Manual, Powered** and **SV30** opening domes, all sizes are normally available, except for:

1200 mm x 2400 mm
1500 mm x 1500 mm
1350 mm x 1350 mm
1800 mm x 1800 mm

Access Hatches are offered in the following ranged sizes:

900 mm x 900 mm
900 mm x 1200 mm
900 mm x 1500 mm
900 mm x 1800 mm
1050 mm x 1050 mm
1050 mm x 1350 mm
1050 mm x 1500 mm
1200 mm x 1200mm

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 suitable for use 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 rain noise penetration tests give a reading of LiA = 62dB; when the acoustic pack is added this reduces transmission of rain noise by approximately two-thirds to 47dB (a reduction of 15dB, when every 10dB represents a halving of noise levels).

Note: An **alternative to the acoustic pack** is to specify a dome with the argon filled double glazed glass inner option. This gives acoustic performance of LiA=54dB – so 8dB better than a triple skin polycarbonate dome. Whilst not as effective as the Acoustic Pack, this option is available in conjunction with ventilation, and in some opening options, if required. Mardome Rooflights are independently tested to BS EN 140-18: 2006. Results are shown in Table 4:

Table 4
Rain Noise Penetration Test (LiA)

Description	Sound Transmission
Standard Triple Skin Polycarbonate Dome	61.8 dB
Single Skin Polycarbonate Dome over double glazed glass inner panel	53.9 dB
Standard Triple Skin Polycarbonate Dome **WITH** Acoustic Pack *(comprising absorbing lining and acoustic insulating material)* [2]	46.7dB

[1] 10dB reduction equates to a drop of 50% in the sound level.
[2] To maximise the acoustic pack performance, it is only available with fixed, unventilated products.

Glazing Options & Transmission Values

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

Table 5

Tint	*Lighting Effect*	*Light Transmission (%) DIN 5036*		
		Double Skin	Triple Skin	Quad Skin
Clear	High Visibility	85%	78%	72%
Textured	Privacy	78%	72%	66%
Bronze	Solar Control	39%	36%	33%
Opal	Diffused Light & Solar Control	35%	32%	30%

Total transmittance (g Value)

Tint	Double Skin	Triple Skin	Quad Skin
Clear	0.73	0.66	0.61
Opal	0.33	0.30	0.28

Overall Shading Coefficient

Tint	Double Skin	Triple Skin	Quad Skin
Clear	0.84	0.76	0.70
Opal	0.38	0.34	0.32

Thermal Performance

The thermal transmittance of Mardome Rooflights is measured by the Guarded Hot Box method according to BS EN ISO 12567-2: 2005.

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) and Mardome Ultra (all variants) incorporate a glazing cassette 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

Options with enhanced thermal performance such as quad-skins, outer dome over multi-wall structured polycarbonate or outer dome over argon filled glass units, are also available from Brett Martin Daylight Systems, which offer lower U-value and U_d values.

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 Table 6.

Table 6 Mardome Thermal Efficiency

	Centre Pane U-Value (W/m²K)	U_d-Value (W/m²K)	
		600x600mm	1200x2400mm
Double Skin Polycarbonate	2.7	1.54	2.09
Triple Skin Polycarbonate	1.8	1.25	1.51
Quad Skin Polycarbonate	1.4	1.12	1.25
Structured Polycarbonate Inner Glazing	1.2	1.06	1.13
Argon Filled Glass Inner Glazing	0.9	0.96	

Product Accessories

Kerb Adapter:
See Technical Bulletin 191 for more information.
The Mardome Kerb Adapter allows standard domes from the Mardome range to fit on non-standard builders kerb sizes.

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

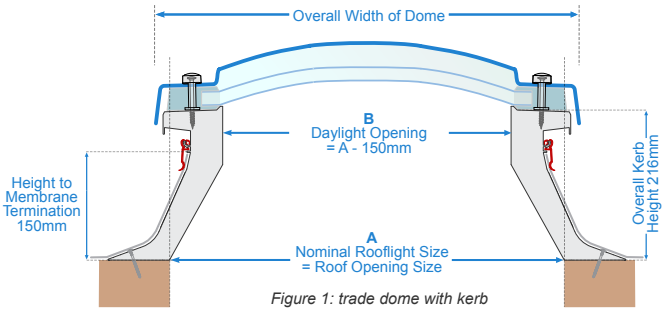


Figure 1: trade dome with kerb

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

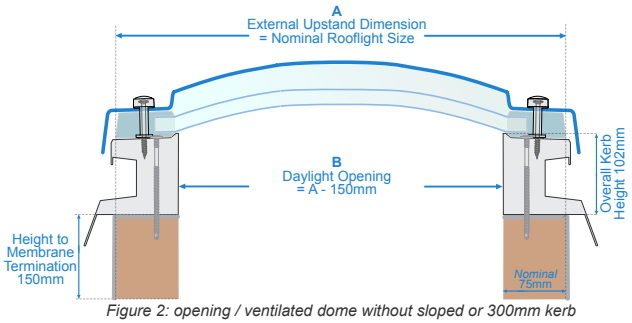


Figure 2: opening / ventilated dome without sloped or 300mm kerb

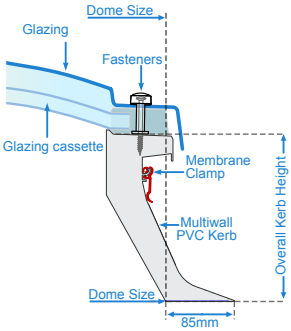


Figure 3: Trade dome with kerb detail

mardome trade Dome Rooflights

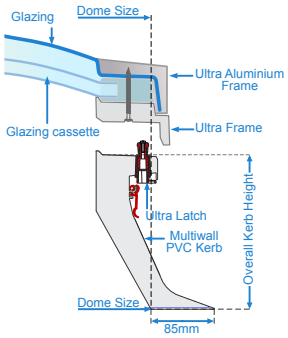


Figure 4: Ultra dome with kerb detail

mardome ultra Dome Rooflights

General Product Dimensions Continued

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

Table 7
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 Trade Dome	Min	600 x 600	311	9.7	461	11.3
	Max	1800 x 1800	386	45.6	536	50.3
Fixed Ultra Dome	Min	600 x 600	346	15.2	496	16.9
	Max	1800 x 1800	421	62.7	571	67.3
Opening Trade Dome*	Min	600 x 600	346	14.5	496	16.2
	Max	1200 x 1800*	379	43.1	529	47.8
Opening Ultra Dome*	Min	600 x 600	346	17.4	496	19.0
	Max	1200 x 1800*	379	50.8	529	55.5

**not all product options available - contact Brett Martin Daylight Systems for advice*

Note: Weights based on triple skin dome.
For Quad skin dome; add 2.4 Kg/m²
For Argon filled Glass dome; add 25 Kg/m²

General Product Dimensions Continued

Restrictions on available size and opening options apply. **Glass** glazing is therefore *not available* in the following sizes, please check for availablility of opening variants with Brett Martin Daylight Systems technical department.

900 mm x 1800 mm
1200 mm x 1800 mm
1200 mm x 2400 mm
1500 mm x 1500 mm
1800 mm x 1800 mm

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 9.

Table 8
Resistance to Snow and Wind Loads

Rooflight Type	Dimensions (mm)	Snow Load ($N.m^{-2}$)	Wind Load ($N.m^{-2}$)
Domed	1200 x 2400	1125	1500
Pyramid	1500 x 1500	1750	3000

Installation, Handling, Maintenance & Storage

Full installation details, maintenance and product care details, can be found in the below Technical Bulletins:

Table 9
Technical Bulletins

Technical Bulletin	Technical Bulletin Description
TB 186	Installation for Mardome Trade on Sloping, 300mm AND Direct Fix Kerb
TB 187	Installation for Mardome Ultra on Sloping, 300mm AND Direct Fix Kerb
TB 188	Installation for Mardome Trade & Ultra on Sloping, 300mm AND Direct Fix Kerb with Manual (MLD and Access Hatch) Opening Options
TB 189	Installation for Mardome Trade & Ultra on Sloping, 300mm AND Direct Fix Kerb with PCD/PCR/PCS Powered Opening Options
TB 190	Installation for Mardome Trade & Ultra on Sloping, 300mm AND Direct Fix Kerb with SV30 Powered Opening Option
TB 191	Installation for Mardome Kerb Adapter on Existing Upstand for Unvented AND Vented Domes
TB 193	Installation of Acoustic Pack on Mardome Trade on Sloping and 300mm Kerb AND Mardome Ultra on Sloping and 300mm Kerb
TB 202	COSHH Data Sheet for Dome Rooflights - Product Safety and Handling Data Sheet
TB 203	Polycarbonate Dome: Product care before & after installation