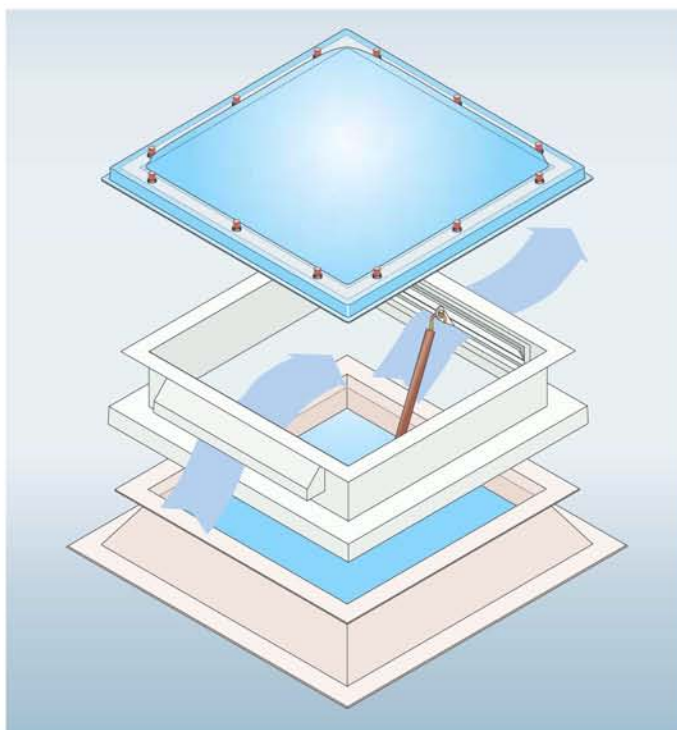


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PRODUCTS

# Em-Dome™ rooflights



Whitesales™

SPECIALITY FLAT  
ROOFING PRODUCTS

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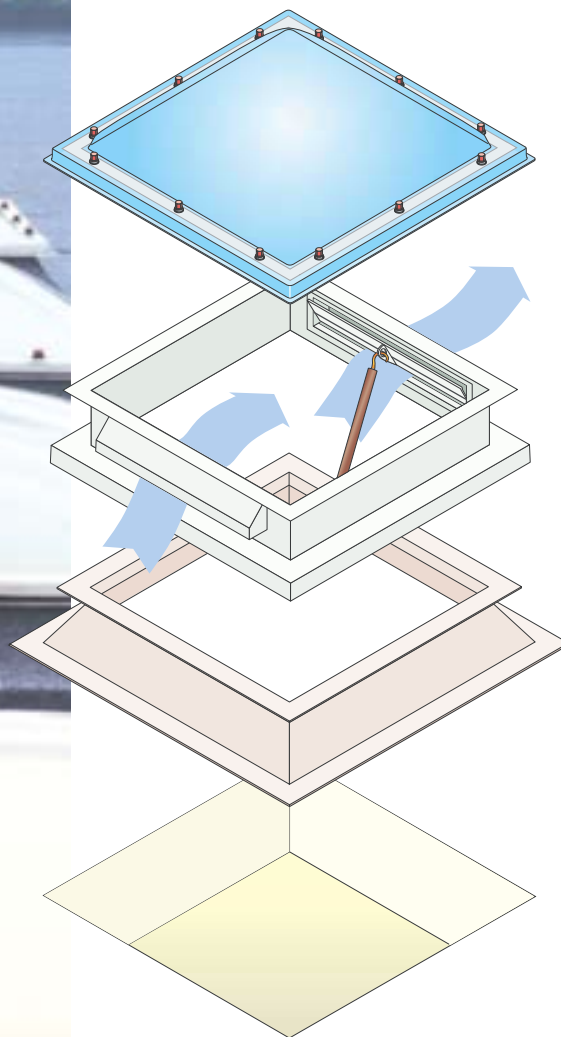
Whitesales

# Introduction

## The range of components for Em-Dome™ rooflights



Natural daylight has long been recognised as the most effective form of light. Building Regulation Approved Document L requires designers to provide adequate daylight. '...Where rooflight areas are reduced below 20%, the building designer must take special care to demonstrate daylight levels remain adequate...'. Flat roof rooflights are the most efficient means of providing natural daylight, giving three times more daylight than an equally sized vertical window. The light from a rooflight is also more evenly distributed throughout the room, less likely to result in glare and does not compromise privacy.



### Em-Dome™

Choice of single, double or triple glazed rooflights in clear, opal diffused or bronze polycarbonate and acrylic glazing.

### Accessories

Permanent, controllable, opening or powered ventilation, access hatches, security bars and smoke ventilation.

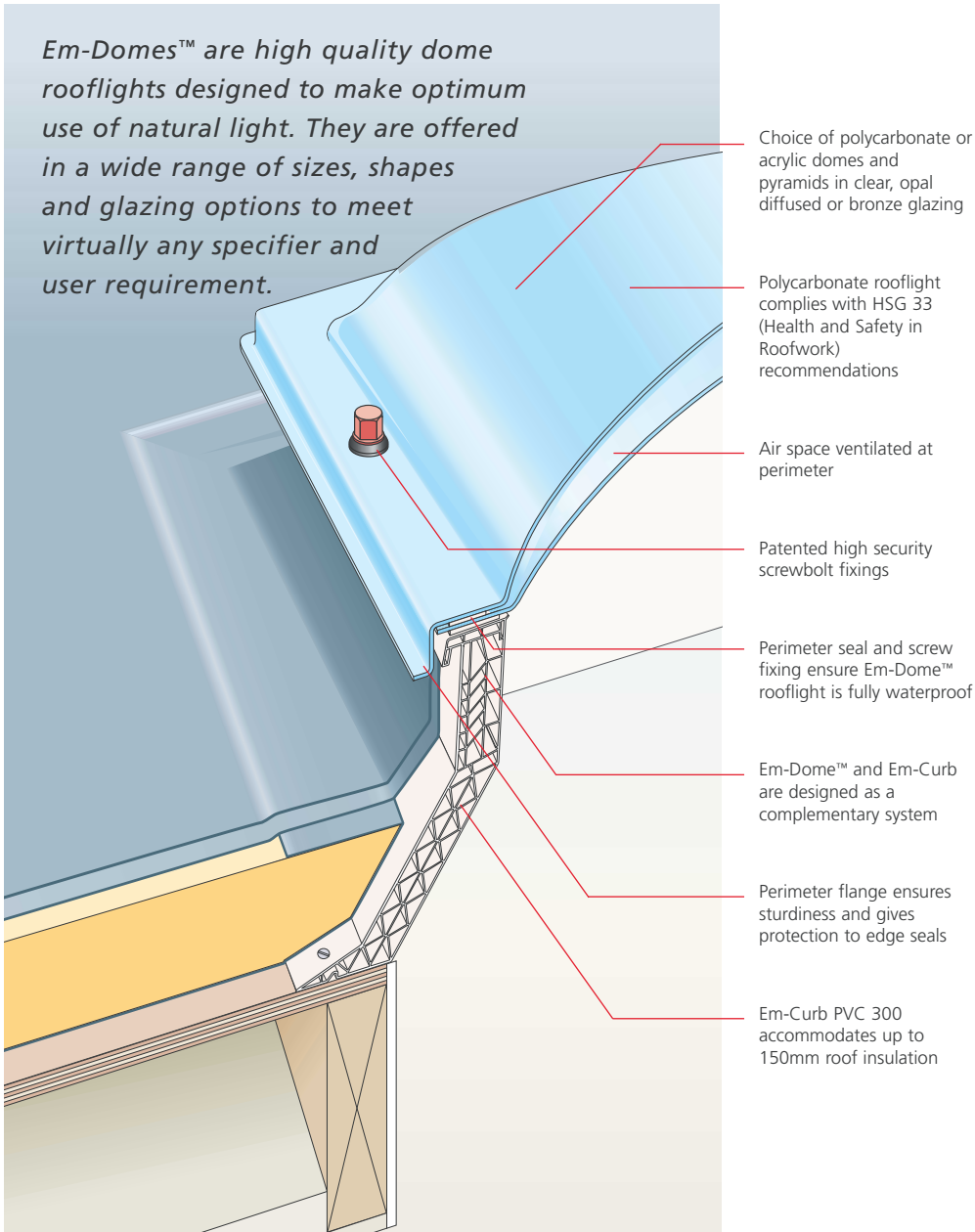
### Preformed curbs

A range of insulated GRP and PVC-u splayed curbs, purpose made aluminium curbs, or fixed direct to builder's curb.



## Key features of Em-Dome™ rooflights

*Em-Domes™ are high quality dome rooflights designed to make optimum use of natural light. They are offered in a wide range of sizes, shapes and glazing options to meet virtually any specifier and user requirement.*



Choice of polycarbonate or acrylic domes and pyramids in clear, opal diffused or bronze glazing

Polycarbonate rooflight complies with HSG 33 (Health and Safety in Roofwork) recommendations

Air space ventilated at perimeter

Patented high security screwbolt fixings

Perimeter seal and screw fixing ensure Em-Dome™ rooflight is fully waterproof

Em-Dome™ and Em-Curb are designed as a complementary system

Perimeter flange ensures sturdiness and gives protection to edge seals

Em-Curb PVC 300 accommodates up to 150mm roof insulation

## Contents

Rooflight domes	4
Upstand curbs	6
Security	8
Roof access	9
Ventilation	10
Smoke hatches	11
Standards and regulations	12
Sitework and installation	13
Product selector	14

# Rooflight domes

## Em-Domes™

### Glazing options

Em-Domes™ are thermoformed from either polycarbonate or acrylic sheet and are available in single, double or triple skin construction. Acrylic has an impact strength 10 times greater than glass. Polycarbonate is virtually unbreakable, with an impact strength 250 times greater than glass.

Em-Domes™ can be supplied in clear, opal diffused, bronze or 'Heatstop' (reflecting up to 68% of the heat radiation) glazing.

All polycarbonate Em-Domes™ use a minimum 3 mm thick glazing. Acrylic Em-Domes™ have a minimum 3mm outer skin. Inner skin thickness varies according to the dome size.

### Shape

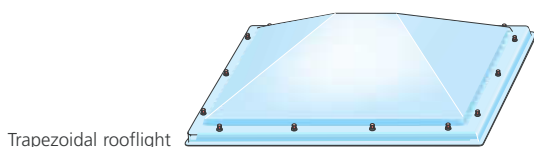
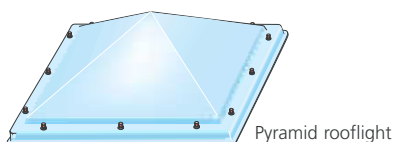
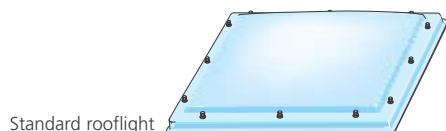
Dome shaped Em-Domes™ are available square, rectangular or circular. Pyramids are available in square or rectangular units. A limited range of triangular pyramid Em-Domes™ is available.

### Sizes

Offered in an extensive range of sizes from 400 x 400 mm to 1700 x 2900 mm. Many sizes are available ex-stock for immediate delivery. Refer to pages 14 and 15 for full details.

### Performance

When installed in accordance with the manufacturers' recommendations, Em-Domes™ are expected to exceed the life of the roof covering. Em-Domes™ are guaranteed against the effects of defective design, materials or construction for ten years, subject to certain conditions.



## Performance of glazing materials

Typical values	Polycarbonate	Acrylic
<b>Fire ratings</b>		
BS 476: Part 3	AA	DD
BS 476: Part 7	Class1*	–
1991 Building Regulations	Tp(a)	Tp(b)
<b>Light transmission</b>		
Clear	86%	92%
Opal diffused	50%	83%
Bronze	46%	55%
<b>Service temperature</b>		
	-50 to +120°C	-30 to +70°C

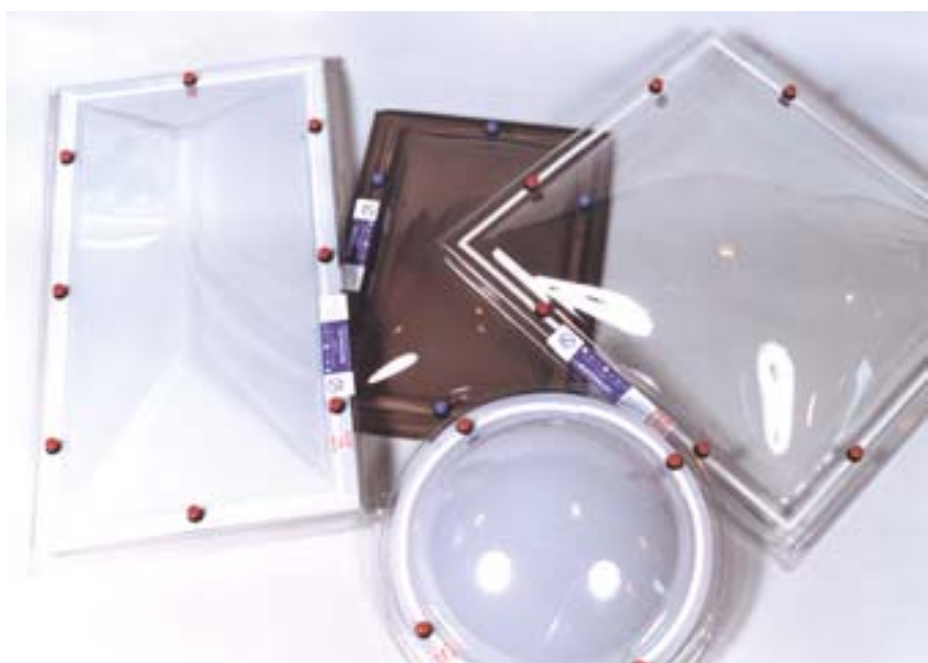
Notes: Information for 3mm thick glazing unless noted otherwise.

\* Class O for Building Regulation purposes.

Sound insulation - please contact Whitesales™ for sound reduction levels.

## Thermal transmission

Typical values		U-value (W/m <sup>2</sup> K)
<b>Em-Dome™</b>		
Single glazed		5.51
Double glazed		2.90
Triple glazed		1.97





## Condensation

Condensation occurs where warm moist air meets cold surfaces. As warm air rises, the risk of condensation forming at rooflight level is relatively greater than at lower level. The risk can be minimised by specifying double or triple skin Em-Domes™ and Em-Curb insulated upstands. The provision of ventilation may also assist – see options on page 10. However, because temperature and humidity levels are clearly beyond our control, no guarantee can be given against the formation of condensation.

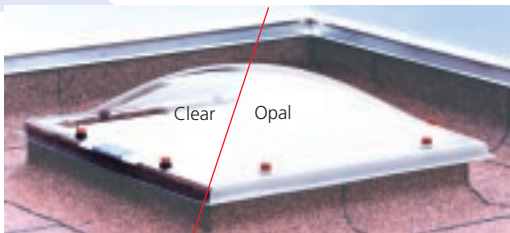
## Supply

Em-Domes™ are factory assembled and supplied with high security screwbolt fixings and sealing tape.

Many sizes are available ex-stock for immediate delivery. Refer to pages 14 and 15 for full details on availability.

## Technical services

Advice and technical assistance on the application and specification of Em-Dome™ rooflights and accessories is always available from Whitesales™ – see back page for address.



Em-Domes™ are available in clear, bronze and opal diffused glazing



Em-Domes™ are supplied complete with Screwbolt fixings and packed to minimise damage

## High security screwbolt

High security screwbolts are supplied as standard to all Em-Dome™ rooflights. Once installed, the fixing cannot be removed. The bolt provides a high level of resistance to tampering or forced entry.

The fixing screw or bolt is sleeved within the body of the screwbolt. This avoids pressure being exerted on the rooflight glazing as the fixing is tightened. This virtually eliminates the risk of stress fractures caused by over-tightening.

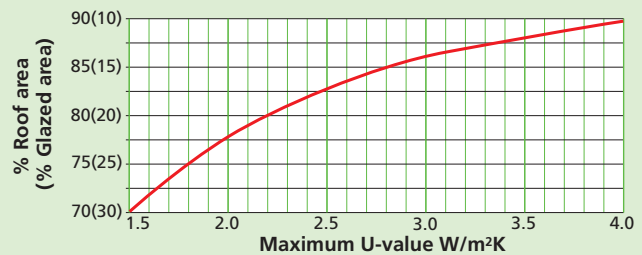
## Building Regulations

### Approved Document L

Approved Document L – *Conservation of fuel and power* (effective from April 2002) was introduced to improve thermal efficiency in buildings. The Regulations also stipulate the minimum levels of Natural Daylight into buildings.

The document states that **Natural Daylight** should be provided by '... a glazing area of at least 10% of the floor area ...' if light transmission is 70% (for lower light transmission, glazing area should be increased accordingly). The optimum glazed area recommended is 20%, and should be achieved using rooflights with a U-value of 2.2 W/m<sup>2</sup>K. Larger areas may be covered, but must utilise rooflights with higher thermal efficiency (see graph below). If glazed areas exceed 12% of the floor area, steps should be taken to minimise **Solar Overheating**. Methods of reducing solar overheating are available. These include opal diffused, 'Heatstop' glazing or internal sun blinds. These options are available in a wide range of sizes.

There is scope within the **Elemental Method** of compliance for **Trade Off** between the construction elements of the roof. From a notional value of a complete roof (i.e. 20% glazed area at 2.2 W/m<sup>2</sup>K and 80% roof at 0.25 W/m<sup>2</sup>K) the required U-value for rooflights varies if proportion of roof/glazed area changes (see graph below).



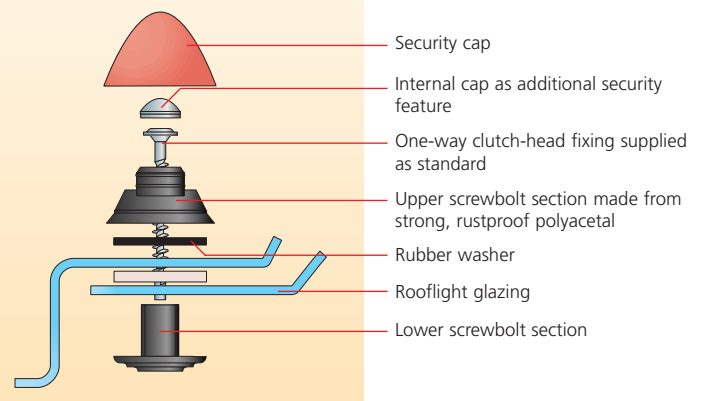
Existing buildings (which when refurbished, should comply with Approved Document L) may consist of glazed areas below the recommended minimum. Care should be taken to ensure Natural Daylight levels are optimised through these openings.

### Approved Document B

Approved Document B places certain limitations on the use of rooflights, which are dependant on glazing material and site circumstances, such as building size, use of area below rooflights, rooflight size and proportion of total roof area, distance from boundary etc. The relevant information is set out in Sections 7 and 14 of Approved Document B, 2000 Edition.

Where applicable, the responsibility for determining that any building component complies with the relevant Regulations rests solely with the customer or specifier. For further information and technical assistance, please contact Whitesales™.

### Standard screwbolt fixing



# Upstand curbs

## Em-Curbs

Em-Curbs are designed to be used in conjunction with Em-Dome™ rooflights and are finished in white internally. Em-Curbs represent excellent value for money and will enhance the overall appearance of the rooflight. The heights of Em-Curbs are 150mm, 300mm and 500mm.

The standard Em-Curb is made from extruded white PVC-u. The multi-chambered construction gives an exceptionally robust and thermally efficient performance. This curb is suitable for most roof finishes.

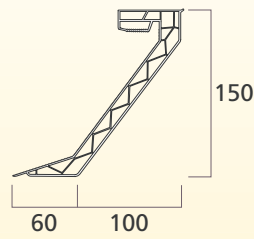
Em-Curbs can also be supplied in GRP which have integral 10 mm polyurethane foam insulation and robust dome fixing and mounting flanges. It can be used with any roofing material.

Special GRP versions are also available 150, 300 and 500 mm high. These have 20 mm of integral insulation.

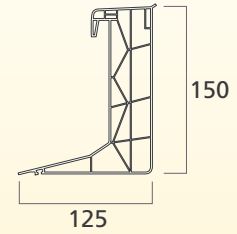
## Thermal transmission

Typical values	U-value (W/m <sup>2</sup> K)
Em-Curbs PVC-u	
150/s	2.20
150/v	1.40
300/s	1.40
Em-Curbs GRP	
Standard 150mm high	1.82
Special 150, 300 and 500mm high	1.07

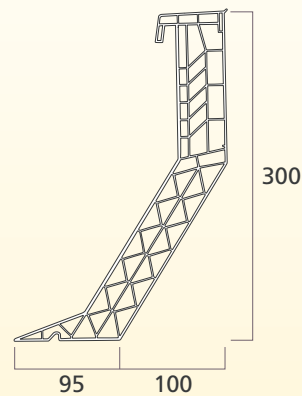
### Em-Curb PVC-u 150/s



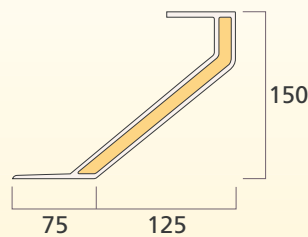
### Em-Curb PVC-u 150/v



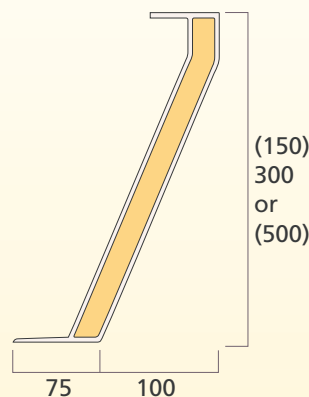
### Em-Curb PVC-u 300/s



### Em-Curb GRP 150 – Standard



### Em-Curb GRP (150), 300 and (500) – Special



## T-Curbs

T-Curbs are purpose made to fit non-standard roof openings. T-Curbs are fabricated from mill finished aluminium in an all-welded construction and supplied with a white foamed PVC-u insulating lining as standard. If required, additional insulation can be applied externally prior to waterproofing.

## T-Curb Adaptors, Collars and Flanges

T-Curb adaptors, collars and flanges enable standard sized Em-Domes™ to be fitted where a direct size match is not available. They are purpose made to fit any size or type of existing builder's curb or proprietary upstand.

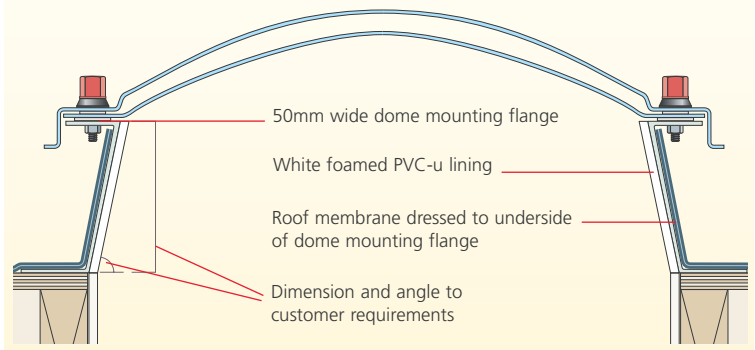


## Multiple rooflights

For extra long applications, eg 3 to 6m, two or more Em-Domes™ can be installed together by means of linked T-Curb Adaptors. These are self-supporting up to a span of 1m. For spans over 1m a structural support is required. Where necessary, linked T-Curb Adaptors are supplied in individual sections for jointing on site, utilising a standing seam detail.

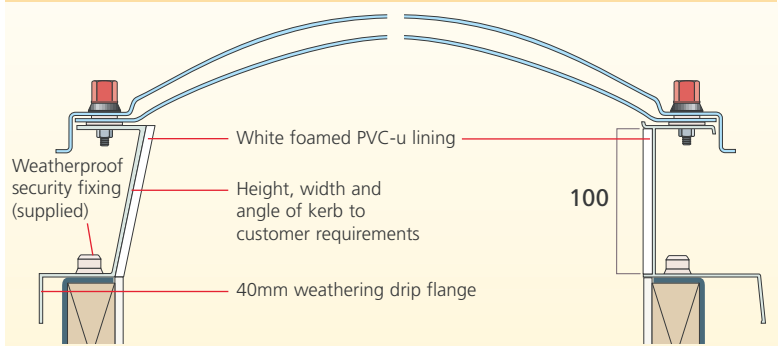
For roof openings longer than 6m, we would normally recommend a continuous barrel vault rooflight – see brochure No. 2.

### T-Curb

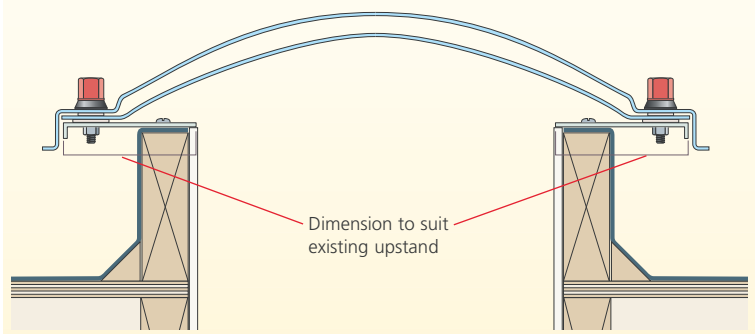


### T-Curb Adaptor

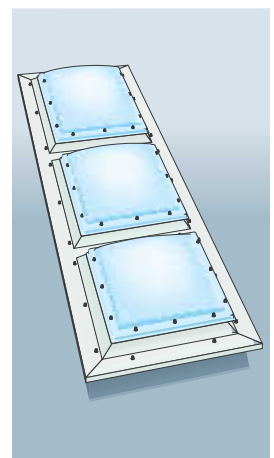
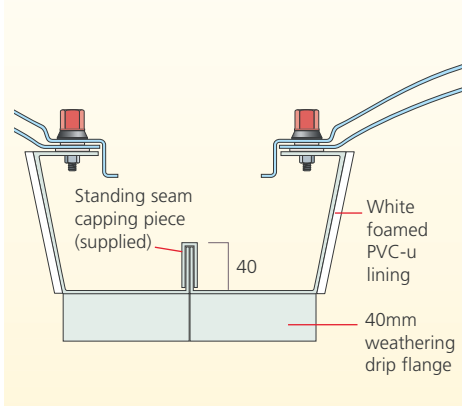
### T-Curb Collar



### T-Curb Flange



### Linked T-Curb Adaptor – jointing detail



# Security

## Em-Dome™ Plus

Em-Dome™ Plus is a fully enclosed, tamper-proof frame for a totally secure fixing. Em-Dome™ Plus is simple to install and provides a neat, unobtrusive appearance, with no visible fixings. The design of the frame allows for a completely weatherproof, self-draining construction, incorporating standard Em-Domes™ in single, double or triple skin construction.

### Appearance

The Em-Dome™ Plus frame is made from aluminium extrusions to BS 1474, Quality 6063/T6, and is

available ex-stock in mill finish. Polyester powder coated frames are also available to special order.

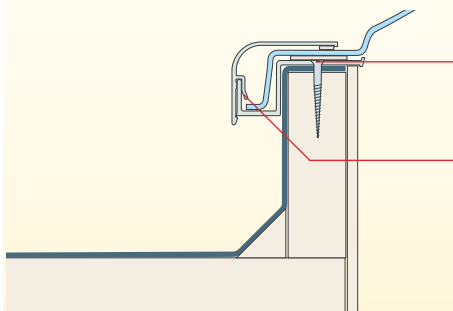
### Performance

Em-Dome™ Plus security rooflights will not rust and are not affected by atmospheric pollution. Once installed, they are maintenance free.

### Sitework

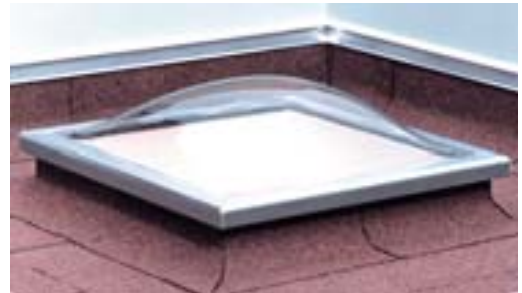
The frame is supplied in two parts. If supplied with Em-Curb or T-Curb, the frame is factory fitted. For mounting to builder's curb, screw-fix the frame to the curb as shown. The top frame is simply snap fixed into place.

### Fixing Em-Dome™ Plus to builder's curb

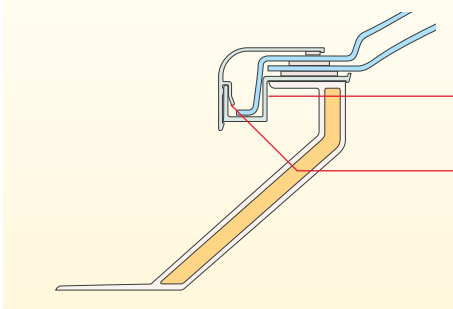


Lower section of Em-Dome™ Plus secured to curb

Upper section of Em-Dome™ Plus snaps securely into place



### Fixing Em-Dome™ Plus to Em-Curb



Lower section of Em-Dome™ Plus frame supplied pre-mounted to Em-Curb

Upper section of Em-Dome™ Plus snaps securely into place

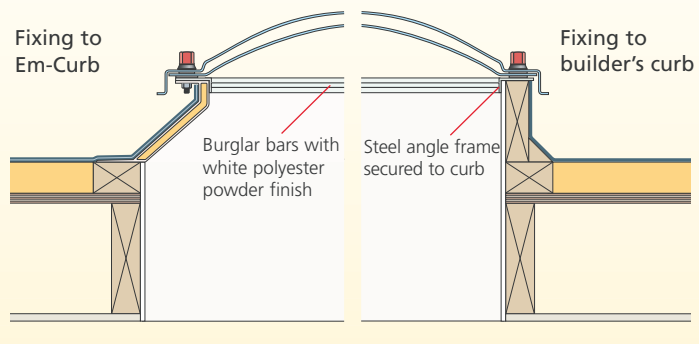


## Burglar Bars

Where a higher level of security is required white Polyester Powder Coated burglar bars are available in most sizes and permutations.



### Burglar bars





# Roof access

## Access Hatch

Where the rooflight is to be used as a means of access on to a roof, a fully opening frame can be specified for mounting either direct to a builder's curb or in conjunction with Em-Curb and T-Curb upstands or T-Curb adaptors.

PVC-u frames are for use with Em-Curb and T-Curb upstands. Aluminium frames are for use with builder's curbs.

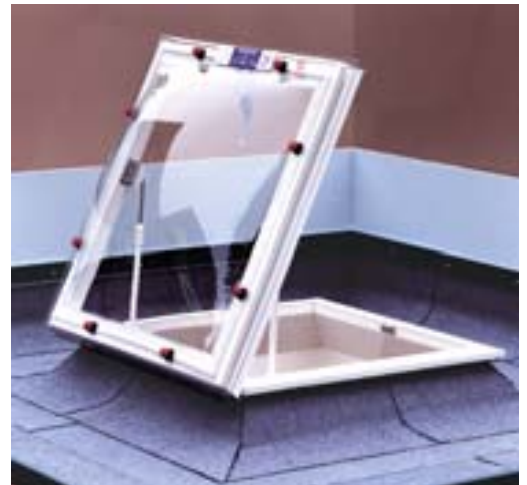
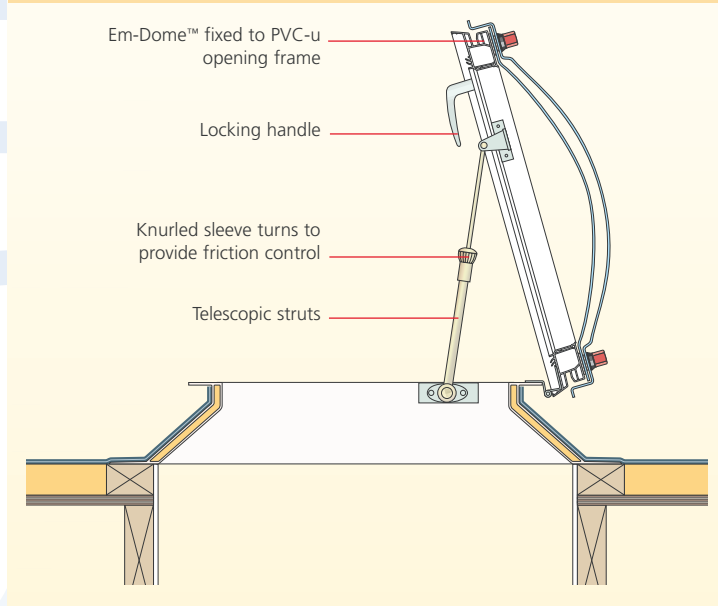
Standard features include a locking handle to secure the rooflight in the closed position and

telescopic struts to hold the rooflight in the open position. The telescopic struts have adjustable friction control and can be set according to dome weight and prevailing site conditions.

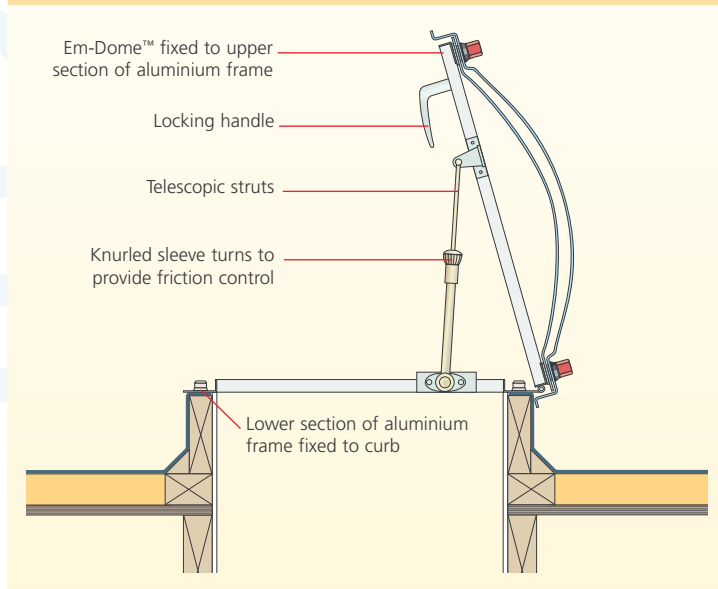
Access hatches are not recommended in sizes larger than 1160mm square or 860x1460 rectangular.

Remote operation units are also available. Please contact Whitesales™ for further information.

### Access hatch – PVC-u frame mounted to Em-Curb



### Access hatch – aluminium frame mounted to builder's curb

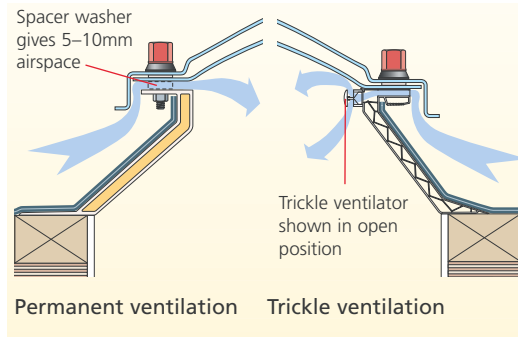


# Ventilation

To satisfy the varied requirements for ventilation there are six options available

## Permanent trickle ventilation

Permanent ventilation is provided by means of spacer washers inserted in the Em-Dome™ fixings. A gap of 5–10 mm can be provided around the complete perimeter, without compromising the security or weather protection of the rooflight.



## Controlled trickle ventilation

Trickle ventilators can be factory fitted to the top of Em-Curb PVC 160 and 300mm or PVC opening frames.

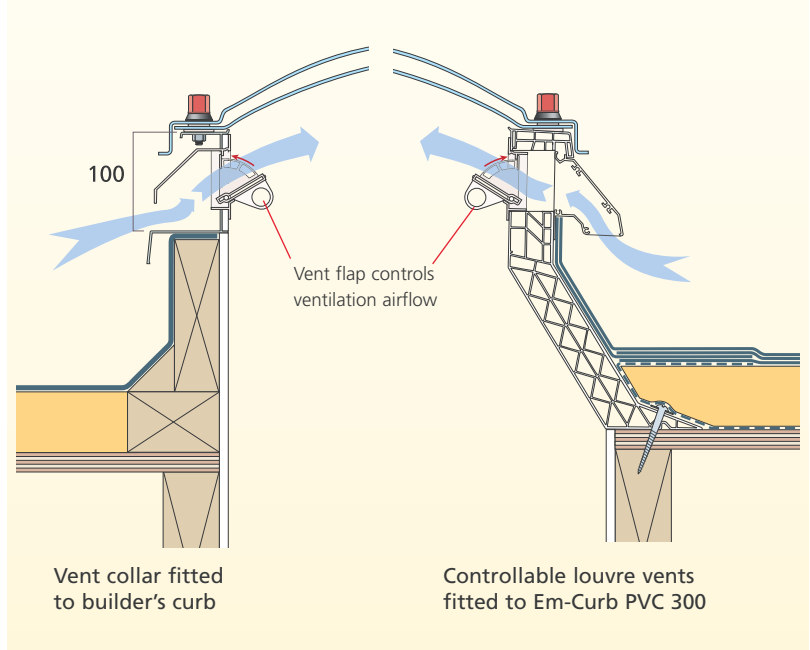
The vents are fitted to two sides as standard and will provide background ventilation of 8000mm<sup>2</sup> to satisfy the requirements of Building Regulations.

## Controlled louvre ventilation

A vent collar unit fitted with adjustable louvres is located between the rooflight dome and the builders curb. Units are available as a 100mm high aluminium collar with white foamed PVCu insulating lining internally or a 150mm high white multi-chambered PVCu collar. The vents are fitted to two opposite sides as standard. All four sides may be fitted with vents, if higher levels of airflow are required.

For T-Curbs, T-Curb adaptors and Em-Curbs 300mm high, the vents and cowls are fitted directly in the side wall.

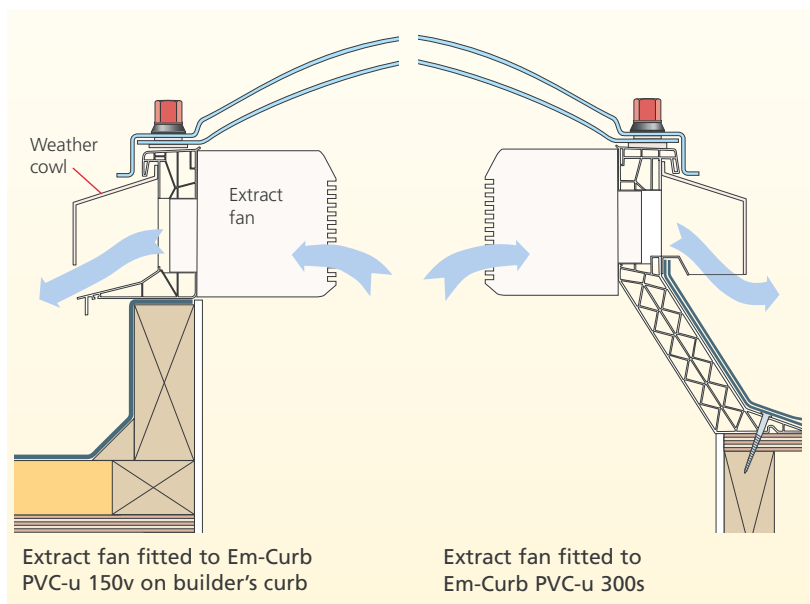
The fully adjustable louvre vents are operated by means of a hooked rod, available in lengths of 1.5, 2 or 3m. The louvres are protected from the elements by an external weather cowl.



## Powered ventilation

Where natural ventilation is insufficient, Em-Domes™ can be supplied with Vent Axia Solo centrifugal extract fans. These are mounted in the side wall of Em-Curb PVC-u 150/v or Em-Curb PVC-u 300/s.

These high performance extract fans are specifically designed for ventilating internal bathrooms, WCs and other small rooms. They have an extract performance of 85 m<sup>3</sup>/hr (24 l/s) and can be fitted in one or more sides. Where greater air movement is required, white PVC lined fan collars with pre-cut apertures are available to enable fitting of larger axial fans (eg Vent-Axia T-series).



## Opening ventilation

Where maximum natural air movement is required, Em-Domes™ can be supplied fitted with hinged opening frames, with a manual spindle operated by a winding rod (or electric motor for remote control). Where the hinged side exceeds 1.3m a tandem spindle unit is fitted.

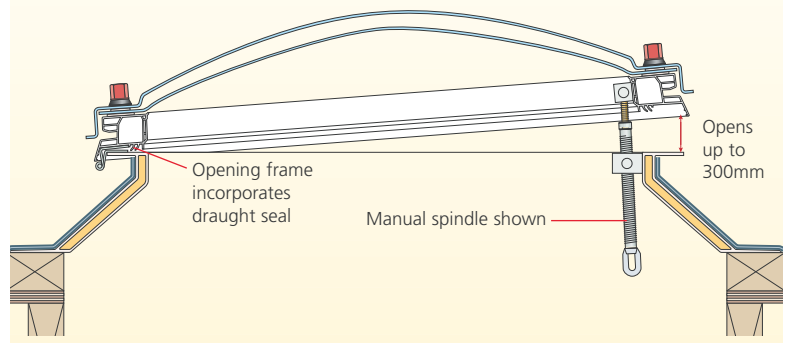
Frames are constructed from PVC-u, for use when fitted to Em-Curb or T-Curb upstands. Alternatively, where mounting directly to a builder's curb, an aluminium frame is supplied.

Electric motors are supplied complete with open/close switches (wiring by others) and can be specified to open up to 600mm as an extra cost option.

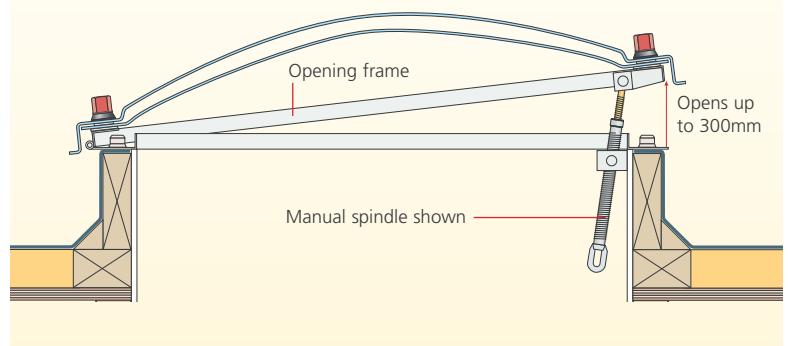
Insect screens are available in most sizes when supplied with Em-Curbs or T-Curb upstands and manual opening frames.



### PVC-u frame pre-mounted to Em-Curb



### Aluminium frame mounted on builder's curb

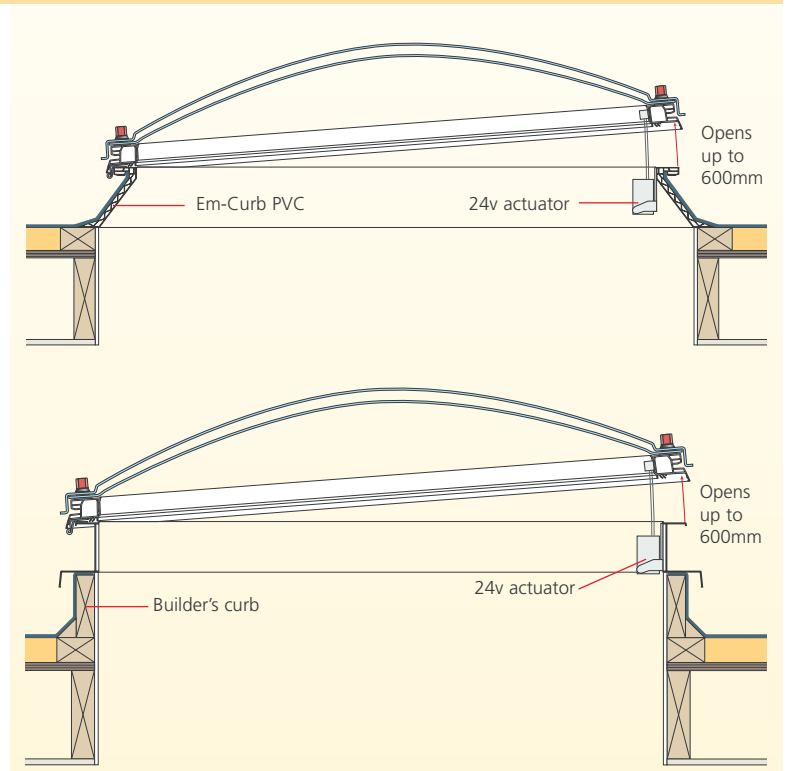


## Smoke hatches - OV's (Opening Vents) and AOV's (Automatic Opening Vents)

Opening vents are required to meet the relevant Building Regulations for ventilating escape routes.

The Regulations stipulate a minimum free ventilation area. This is normally 1.0m<sup>2</sup> or 1.5m<sup>2</sup>, depending on location within the building. The ventilation areas can be achieved with a variety of square or rectangular Em-Domes™.

Opening the rooflight is by means of a 24v electronic actuator which should be linked to a Building Management System (BMS). Due to the variety of BMS that are required to satisfy the relevant authorities, we recommend switching and wiring is supplied by a fire alarm installer or specialist supplier. We are able to offer further guidance or advice.



# Standards and regulations

## Health and Safety

According to the Health and Safety Executive, almost 20% of deaths in the construction industry are caused by falls from or through roofs. The majority of these falls are through fragile materials such as asbestos cement roofing or old/fragile rooflights.

The Construction (Design and Management) Regulations 1994 places a duty on designers and specifiers to give proper consideration to eliminating or reducing risks at the design stage. HSG 33 *Health and Safety in Roof Work* (October 1998) draws attention to the responsibilities of those specifying rooflights.

HSG 33 states that where rooflights are required, designers should consider:

- specifying rooflights that are non-fragile
- fitting rooflights designed to project above the plane of the roof and which cannot be walked on (these reduce the risk but they should still be capable of withstanding a person falling onto them)
- protecting rooflights, eg by means of mesh or grids fitted below or above the rooflight
- specifying rooflights with a design life that matches that of the roof, taking account of the likely deterioration due to ultraviolet exposure, environmental pollution and internal and external building environment.

For specifiers the key message is to eliminate 'fragile' materials from roof design. For contractors, provide effective fall arrest equipment or safety netting.

## BS 6229

BS 6229: 1982, *Code of practice for flat roofs with continuously supported coverings*, requires rooflights to incorporate upstands to raise them at least 150mm above the uppermost roof surface to which the roof covering is bonded or dressed.

The standard 150mm high Em-Curbs comply with this. Higher Em-Curbs should be used where insulation is located above the lower flange of the Curb – see detail on page 13.

Whitesales™ Em-Dome™ rooflights are 'out-of-plane' rooflights, and provided they are specified with polycarbonate glazing, can be deemed to be 'non-fragile'.

- Whitesales™ Em-Dome™ polycarbonate rooflights have undergone large body impact testing by an independent accredited test organisation and test certificates are available to demonstrate compliance to an energy level of 1200J when tested to pr EN 1873.
- Whitesales™ offer a 10 year warranty against discolouration of Em-Domes™ glazing material and, in the case of polycarbonate, loss of impact strength, underwritten by the sheet material supplier.
- Whitesales™ polycarbonate Em-Domes™ have been awarded BBA certificate No 01/1384 or are manufactured to BS ISO 9001.
- Whitesales™ offer a post-forming warranty backed by the sheet manufacturer.



Acrylic rooflights are classified as 'fragile' and have a lesser fire rating than polycarbonate and should therefore be specified accordingly.

## Building Regulations

For details on Building Regulations Approved Documents B *Fire safety* and L *Conservation of fuel and power* see page 5.

# Sitework and installation

## Handling and storage

While all Em-Dome™ rooflights and associated products are suitably packaged to avoid damage care should be exercised when handling. For moving larger items, two or more people may be needed. All products should be stored on edge in flat dry conditions.

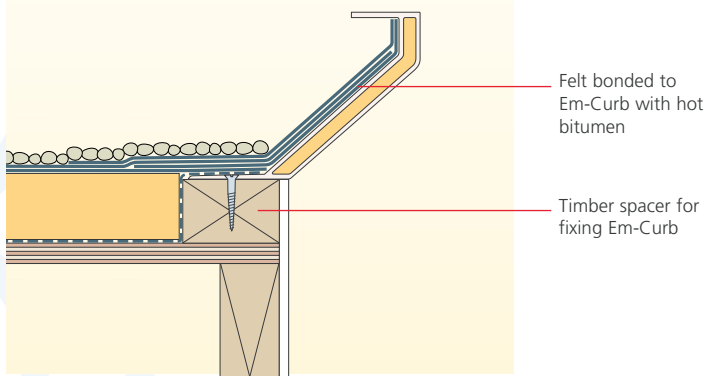
## Installation

All Em-Domes™ are supplied ready assembled and pre-drilled complete with security screwbolts and factory applied sealing tape and are delivered to site in protective packaging and with all fixings. Full instructions and fixings are included with all products, and should be carefully studied prior to installation.

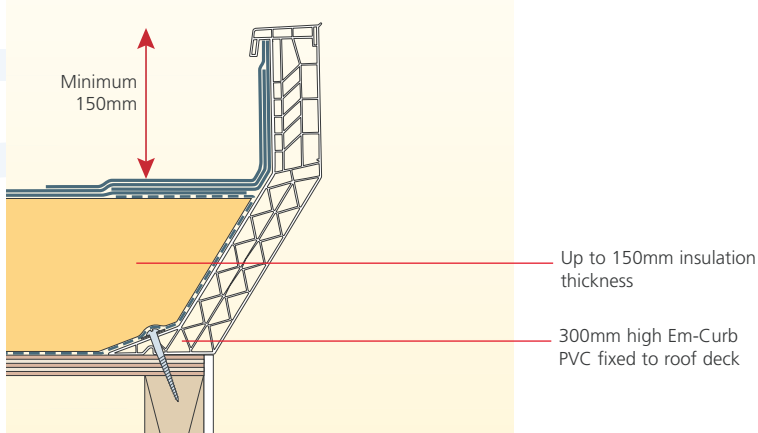
### Fixing upstand curbs

For fixing curbs to the roof structure, drill holes in the bottom flange, 100mm from each corner and at maximum 300mm centres and screw to roof structure. Typical installation details are shown below. The PVC-u Em-Curb is suitable for use with single ply membranes and all bitumen finishes. Where asphalt is specified, Whitesales™ recommend the use of GRP Em-Curbs.

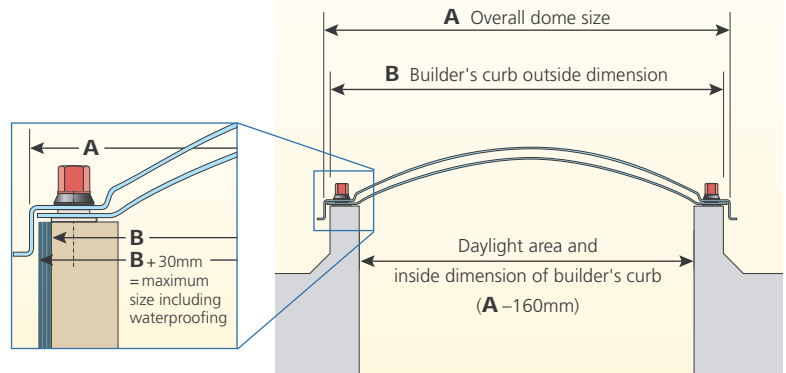
#### Insulated roof – 150mm high upstand



#### Insulated roof – 300mm high upstand

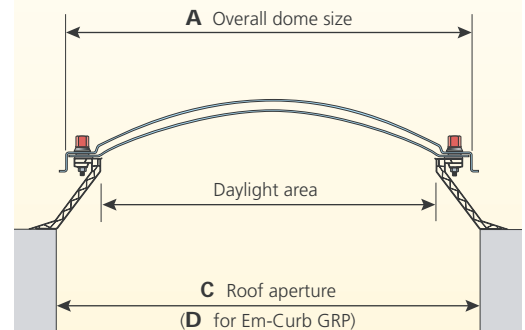


#### Rooflight dimensions with builder's curb



Note: See pages 14 and 15 for dimensions A and B

#### Rooflight dimensions with Em-Curb



Note: See pages 14 and 15 for dimensions A, C and D

### Fixing Em-Domes™ to EM-Curbs

The Em-Dome™ should be accurately positioned on the Em-Curb and the Screwbolt fixing positions marked on the Em-Curbs. The fixing holes are drilled in the Em-Curb and the Em-Dome™ is simply placed in position and fixed using the Screwbolt fixings supplied.

### Fixing Em-Domes™ to builder's curbs

The Em-Dome™ should be 60mm bigger than the outside dimensions of the upstand curb. Holes should be pre-drilled in the upstand curb to accept the tamper-proof screws provided for use with the Screwbolt fixings. The fixing positions can be located by accurately placing the dome over the upstand curb, with the Screwbolt caps removed, and marking the position of the fixings.

### Maintenance

In normal weather and site conditions, only occasional cleaning is necessary. Use only diluted household detergent and test on small area first. Do not use chemical solvent or abrasive cleaners. No other maintenance should be necessary.



# Product range and availability

Size Ref No.	Dome		Rooflight stock availability	Curb		Curb stock availability	Ventilation & Access hatch		
	Overall dome size Dimension A	Outside builder's curb Dimension B		Em-Curb PVC-u Dimension C	Em-Curb GRP Dimension D		Controlled ventilation	Opening ventilation	Access hatch
<b>Square rooflights</b>									
S0	460x460	400x400	□	500x500	500x500	□		□	
S1	560x560	500x500	■△	600x600	650x650	■	■	■	
S1a	610x610	550x550	□	650x650		□	□	□	
S2	660x660	600x600	■△	700x700	750x750	■	■	■	■
S3	710x710	650x650	■	750x750	750x750	■	■	■	■
S4	760x760	700x700	■△	800x800	850x850	■	■	■	■
S5	860x860	800x800	■△	900x900	950x950	■	■	■	■
S6	910x910	850x850	■△	950x950	1000x1000	■	■	■	■
S7	960x960	900x900	■△	1000x1000	1050x1050	■	■	■	■
S7a	1010x1010	950x950	□△	1050x1050		□	□	□	□
S8	1060x1060	1000x1000	■△	1100x1100	1150x1150	■	■	■	■
S9	1160x1160	1100x1100	■△	1200x1200	1250x1250	■	■	■	■
S10	1210x1210	1150x1150	■	1250x1250	1250x1250	□	■	■	
S10a	1260x1260	1200x1200	■△	1300x1300		■	■	■	
S11	1360x1360	1300x1300	■△	1400x1400	1450x1450	■	■	■	
S12	1460x1460	1400x1400	■△	1500x1500	1550x1550	■	■	■	
S13	1560x1560	1500x1500	■△	1600x1600	1650x1650	□	■	□	
S14	1660x1660	1600x1600	□△	1700x1700		□	□	□	
S14a	1710x1710	1650x1650	□	1750x1750		□	□	□	
S15	1760x1760	1700x1700	□△	1800x1800	1850x1850	□	□	□	
S15a	1860x1860	1800x1800	■	1900x1900		□	■	□	
S16	1960x1960	1900x1900	□△	2000x2000	2050x2050	□	□	□	
<b>Circular rooflights</b>									
C1	560 ø	500 ø	●		650 ø	●		●	
C2	660 ø	600 ø	●		750 ø	●		●	
C3	760 ø	700 ø	●		850 ø	●		●	
C4	860 ø	800 ø	●		950 ø	●		●	
C5	960 ø	900 ø	●		1050 ø	●		●	
C6	1060 ø	1000 ø	●		1150 ø	●		●	
C7	1160 ø	1100 ø	●		1250 ø	●		●	
C8	1260 ø	1200 ø	●		1350 ø	●		●	
C8a	1360 ø	1300 ø	○		1450 ø	○		○	
C9	1460 ø	1400 ø	○		1550 ø	○		○	
C9a	1560 ø	1500 ø	○					○	
C10	1760 ø	1700 ø	○		1850 ø	○		○	
C10a	1860 ø	1800 ø	○		1950 ø	○		○	
C11	1960 ø	1900 ø	○		2050 ø	○		○	

## Availability

- ● available ex-stock, 1 to 5 days delivery
- ○ available to order, 7–28 days delivery
- △ available in pyramid form

Bronze anti-glare domes = 14 to 28 days delivery.

For powered ventilation, burglar bars and multiple rooflights please consult Whitesales™.

Size Ref No.	Dimension A	Dimension B	Rooflight stock availability	Dimension C	Dimension D	Curb stock availability	Controlled ventilation	Opening ventilation	Access hatch
<b>Rectangular rooflights</b>									
R1	460x960	400x900	☐	500x1000	500x1000	☐	☐	☐	
R1a	460x1060	400x1000	☐	500x1100		☐	☐	☐	
R2	460x1460	400x1400	☐	500x1500	500x1500	☐	☐	☐	☐
R3	560x860	500x800	■△	600x900	650x950	■	■	■	■
R3a	560x1160	500x1100	■△	600x1200	650x1250	■	■	■	■
R3c	560x1460	500x1400	☐	600x1500		☐	☐	☐	☐
R3cx	560x1660	500x1600	☐	600x1700		☐	☐	☐	☐
R3d	560x1760	500x1700	☐	600x1800		☐	☐	☐	☐
R3x	560x2060	500x2000	☐	600x2100		☐	☐	☐	☐
R3y	560x2360	500x2300	☐	600x2400		☐	☐	☐	☐
R3p	610x910	550x850	☐	650x950		☐	☐	☐	☐
R3r	610x1210	550x1150	☐	650x1250		☐	☐	☐	☐
R3b	660x860	600x800	☐	700x900	750x950	☐	☐	☐	☐
R4	660x960	600x900	■△	700x1000		■	■	■	■
R4x	660x1160	600x1100	☐	700x1200	750x1250	☐	☐	☐	☐
R4a	660x1260	600x1200	■△	700x1300		■	■	■	■
R4y	660x1560	600x1500	☐	700x1600		☐	☐	☐	☐
R4b	660x1860	600x1800	■	700x1900		■	■	■	■
R4e	660x2160	600x2100	☐	700x2200		☐	☐	☐	☐
R4z	660x2460	600x2400	☐	700x2500		☐	☐	☐	☐
R5x	760x960	700x900	☐	800x1000		☐	☐	☐	☐
R5	760x1060	700x1000	■	800x1100	850x1150	■	■	■	■
R6	760x1360	700x1300	■	800x1400	850x1450	■	■	■	☐
R6a	760x1460	700x1400	☐	800x1500	800x1500	☐	☐	☐	☐
R6c	760x1660	700x1600	☐	800x1700		☐	☐	☐	☐
R6f	760x1960	700x1900	☐	800x2000		☐	☐	☐	☐
R6g	760x2060	700x2000	☐	800x2100		☐	☐	☐	☐
R6h	760x2160	700x2100	☐	800x2200		☐	☐	☐	☐
R7	860x1160	800x1100	■△	900x1200	950x1250	■	■	■	■
R7a	860x1460	800x1400	■	900x1500	950x1550	■	■	■	☐
R7d	860x1660	800x1600	☐	900x1700		☐	☐	☐	☐
R7b	860x1760	800x1700	■	900x1800		■	■	■	☐
R7x	860x2160	800x2100	☐	900x2200		☐	☐	☐	☐
R7y	860x2360	800x2300	☐	900x2400		☐	☐	☐	☐
R8x	910x1210	850x1150	☐	950x1250		☐	☐	☐	☐
R8	910x1410	850x1350	☐△	950x1450	1000x1500	☐	☐	☐	☐
R9x	910x1810	850x1750	☐	950x1850		☐	☐	☐	
R9	910x1910	850x1850	☐	950x1950	1000x2000	☐	☐	☐	
R10	910x2410	850x2350	☐	950x2450	1000x2500	☐	☐	☐	
R10a	960x1260	900x1200	■△	1000x1300		■	■	■	■
R11	960x1460	900x1400	■△	1000x1500	1050x1550	■	■	■	☐
R11x	960x1560	900x1500	☐	1000x1600		☐	☐	☐	
R11c	960x1760	900x1700	☐	1000x1800		☐	☐	☐	
R11a	960x1860	900x1800	■	1000x1900		■	■	■	
R12	960x1960	900x1900	☐△	1000x2000	1000x2000	☐	☐	☐	
R12b	960x2160	900x2100	☐	1000x2200		☐	☐	☐	
R13	960x2360	900x2300	☐	1000x2400	1050x2450	☐	☐	☐	
R14	960x2460	900x2400	☐	1000x2500	1000x2500	☐	☐	☐	
R14a	960x2660	900x2600	☐	1000x2700		☐	☐	☐	
R15	960x2960	900x2900	☐	1000x3000	1000x3000	☐	☐	☐	
R15m	1010x2510	950x2450	☐	1050x2550		☐	☐	☐	
R16	1060x1360	1000x1300	■	1100x1400	1150x1450	■	■	■	
R16a	1060x1660	1000x1600	■	1100x1700	1150x1750	■	■	■	
R16b	1060x1960	1000x1900	☐	1100x2000	1150x2050	☐	☐	☐	
R16e	1060x2260	1000x2200	☐	1100x2300		☐	☐	☐	
R17	1160x1460	1100x1400	■△	1200x1500	1250x1550	■	■	■	
R17a	1160x1660	1100x1600	☐	1200x1700		☐	☐	☐	
R18	1160x1760	1100x1700	■△	1200x1800	1250x1850	■	■	■	
R18a	1160x2060	1100x2000	☐	1200x2100	1250x2150	☐	☐	☐	
R19	1160x2160	1100x2100	■△	1200x2200	1250x2250	☐	☐	☐	
R20	1160x2360	1100x2300	■△	1200x2400	1250x2450	■	■	■	
R21	1160x2460	1100x2400	☐	1200x2500	1250x2550	☐	☐	☐	
R22	1160x2660	1100x2600	☐	1200x2700	1250x2750	☐	☐	☐	
R22a	1160x2960	1100x2900	☐	1200x3000		☐	☐	☐	
R22z	1160x3160	1100x3100	☐	1200x3200		☐	☐	☐	
R22p	1210x1810	1150x1750	☐	1250x1850		☐	☐	☐	
R22r	1210x2410	1150x2350	☐	1250x2450		☐	☐	☐	
R22x	1260x1560	1200x1500	☐	1300x1600		☐	☐	☐	
R22b	1260x1860	1200x1800	■△	1300x1900		■	■	■	
R22c	1260x2460	1200x2400	■	1300x2500		☐	■	☐	
R23w	1360x1560	1300x1500	☐	1400x1600		☐	☐	☐	
R23x	1360x1660	1300x1600	☐	1400x1700	1450x1750	☐	☐	☐	
R23	1360x1960	1300x1900	☐	1400x2000	1450x2050	☐	☐	☐	
R23a	1360x2260	1300x2200	☐	1400x2300	1450x2350	☐	☐	☐	
R23b	1360x2560	1300x2500	☐	1400x2600		☐	☐	☐	
R24	1460x1760	1400x1700	☐	1500x1800	1550x1850	☐	☐	☐	
R25	1460x2060	1400x2000	☐	1500x2100	1550x2150	☐	☐	☐	
R26	1460x2160	1400x2100	☐	1500x2200	1550x2250	☐	☐	☐	
R27	1460x2360	1400x2300	☐	1500x2400	1550x2450	☐	☐	☐	
R28	1460x2460	1400x2400	☐	1500x2500	1500x2500	☐	☐	☐	
R29	1460x2660	1400x2600	☐	1500x2700	1550x2750	☐	☐	☐	
R30	1460x2960	1400x2900	☐	1500x3000	1550x3050	☐	☐	☐	
R31x	1760x2060	1700x2000	☐	1800x2100	1850x2150	☐	☐	☐	
R31	1760x2160	1700x2100	☐	1800x2200	1850x2250	☐	☐	☐	
R32	1760x2360	1700x2300	☐	1800x2400	1850x2450	☐	☐	☐	
R32a	1760x2460	1700x2400	☐	1800x2500	1850x2550	☐	☐	☐	
R33	1760x2660	1700x2600	☐	1800x2700	1850x2750	☐	☐	☐	
R34	1760x2960	1700x2900	☐	1800x3000	1850x3050	☐	☐	☐	

### **Limitation on use**

Em-Domes™ and related products as described in Whitesales™ literature are designed for use in normal circumstances on flat roofs up to 15° pitch. For applications in excess of 15° or in unusual circumstances (e.g. extreme temperature or climatic conditions) please refer to Whitesales™. Please note that all information supplied is based on our best knowledge and general experience.

Because of factors outside our control which can affect installation and use of products, no warranty is given or implied in respect of information provided. A policy of continuous product improvement applies and Whitesales™ therefore reserve the right to alter specifications without prior notice.

### **Guarantee**

All Em-Dome™ rooflights, when installed on Em-Curbs or T-Curbs and in accordance with manufacturers' instructions, are guaranteed against the effects of defective design, materials or construction for a period of ten years from date of supply by Whitesales™.

Furthermore, the glazing element of all Em-Domes™ is warranted against discolouration for ten years subject to certain conditions. A twenty year 'special projects' guarantee is also available. Further details available on request.

All other products (e.g. T-Curbs, ventilation systems and other accessories) are guaranteed for 12 months from date of supply by Whitesales™.

### **Technical services**

Advice and technical assistance is always available from Whitesales™ on the application and specification of Em-Dome™ rooflights and accessories.



**Whitesales™**

**SPECIALITY FLAT  
ROOFING PRODUCTS**

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Guildford, GU1 4FJ  
Tel: 01483 303304  
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The following brochures are available from Whitesales™:

Product Range Summary

1. Rooflights
2. Barrel vaults
3. GRP trim
4. Aluminium trim
5. Termination bars
6. Accessories