# Glass Rooflights

Whitesales®
Rooflights & more...

CI/SfB | | 37.4 | Xy | |

Whitesales®
Rooflights & more...

Whitesales has over 25 years' experience in the manufacture and distribution of speciality flat roofing products. As a company we have the dedication and resource to fulfil the most demanding of requirements throughout the UK. Our experienced and expert personnel have an in-depth knowledge of industry regulations, which ensures we provide up to date advice on fully compliant solutions. Also, we invest in ecologically friendly business processes meaning that our products are from sustainable sources.

## Rooflights and more...

Whether you are a specifier, contractor or merchant, you will benefit from working with us. The following are just some of the reasons why you should choose Whitesales.

**High quality products**
Our speciality roofing products and accessories are tested to the highest standards and are suitable for use with most flat roof systems, including single ply, felt, hot-melt, asphalt, liquid, GRP and lead.

**Nationwide coverage and next day delivery**
With depots strategically located in England and Scotland, Whitesales offers nationwide next day delivery on our own transport or overnight carrier service. Deliveries can be direct to site or to contractor or merchant premises.

**Technical advice and support**
The Whitesales Customer Service Team is readily available to assist you, from your initial enquiry through to after sales support. This includes help with specification writing, site surveys, condition reports, budget costings and fully detailed quotations.

**Guarantees**
All products supplied are fully guaranteed including insurance backed guarantee on request.

## Contents



ISO 9001 Registered Firm Certificate No. GB2003875 · International Accreditation Board Registration No. 0044/1 · CHAS® · narm National Association of Rooflight Manufacturers · SPRA Single Ply Roofing Association · LRWA Liquid Roofing and Waterproofing Association · NFRC The National Federation of Roofing Contractors Limited

> Whitesales is **renowned for proven product ranges,** industry leading levels of service and expertise.

## Why is natural daylight so important?

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, providing up to 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 or compromise of privacy.

Natural daylight is an invaluable natural asset. The benefits of a naturally-lit workspace are well documented and include increased productivity, work satisfaction and cost reduction, as well as significant reduction of impact to the environment. From a building design perspective the use of rooflights is an excellent means by which both light and solar energy can be utilised to save energy and to reduce the carbon footprint of any property.

There are specific industry policies and guide documents to assist with introducing naturally-lit space into different building types (especially schools). Whitesales can offer support and advice on the requirements for specific applications.

# Product overview:

## The ‘Whitesales Roofscape’

1

em-glaze™ modular

Em-Glaze Modular flat glass rooflights are high-quality, aesthetically pleasing prefabricated rooflights. See page 6.

2

em-glaze™ modular

Em-Glaze Modular access hatch rooflights are designed to allow access to and from roof areas, for roof gardens, maintenance or to form part of a fire escape route. See page 12.

3

em-view™

The Em-View self-cleaning rooflight incorporates a roof dome and double glazed glass unit securely housed in an insulated PVC rooflight frame, providing exceptional sound insulation and thermal value.
See page 16.

4

em-glaze™ modular

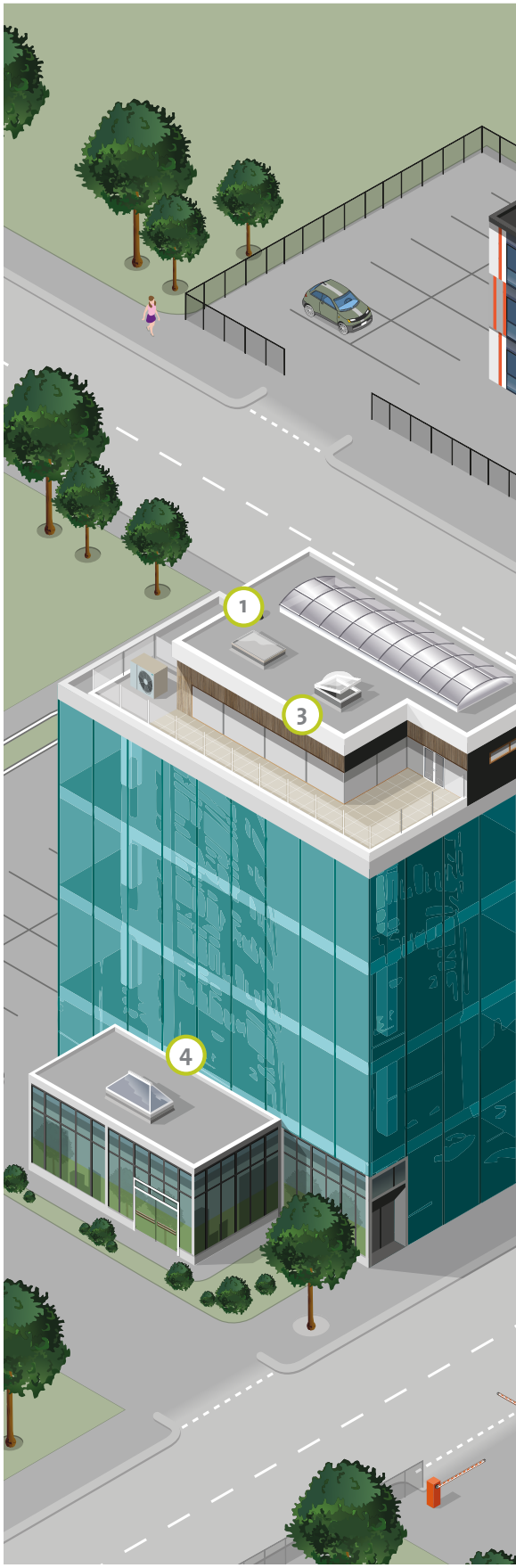
The Em-Glaze Modular ridgelight range offers a perfectly designed solution for maximising natural light. See page 22.

5

em-glaze™ bespoke

Em-Glaze Bespoke rooflights are glazed, designed and built specifically to your precise sizing and specification requirements, maximising natural daylight.
See page 26.

Visit our interactive Product Selector at bit.ly/WSProductSelector



Whether you require design recommendations or have a project on site, Whitesales has the experience, product and service to meet that need.

em-glaze™ modular

# Modular flat glass rooflights

**High quality, aesthetically pleasing, prefabricated flat glass rooflights. Em-Glaze Modular units are available from stock in a wide range of standard sizes or can be made to measure and can also be colour coated to match other roof components if required.**

Em-Glaze Modular with insulated Em-Curb

Em-Glaze Modular to builder's upstand

## Description

Em-Glaze Modular rooflights are designed to maximise the amount of natural daylight in a building and at the same time provide a clean minimalistic finish both inside and outside. They are manufactured with flat sealed glass units and incorporate a fully welded aluminium frame and cill detail. All visible aluminium is polyester powder coated to RAL 7016 (Anthracite grey).

The flush design ensures efficient drainage of rainwater and the glazing holds unrivalled performance and insulation value over the full lifetime without deterioration.

## Performance

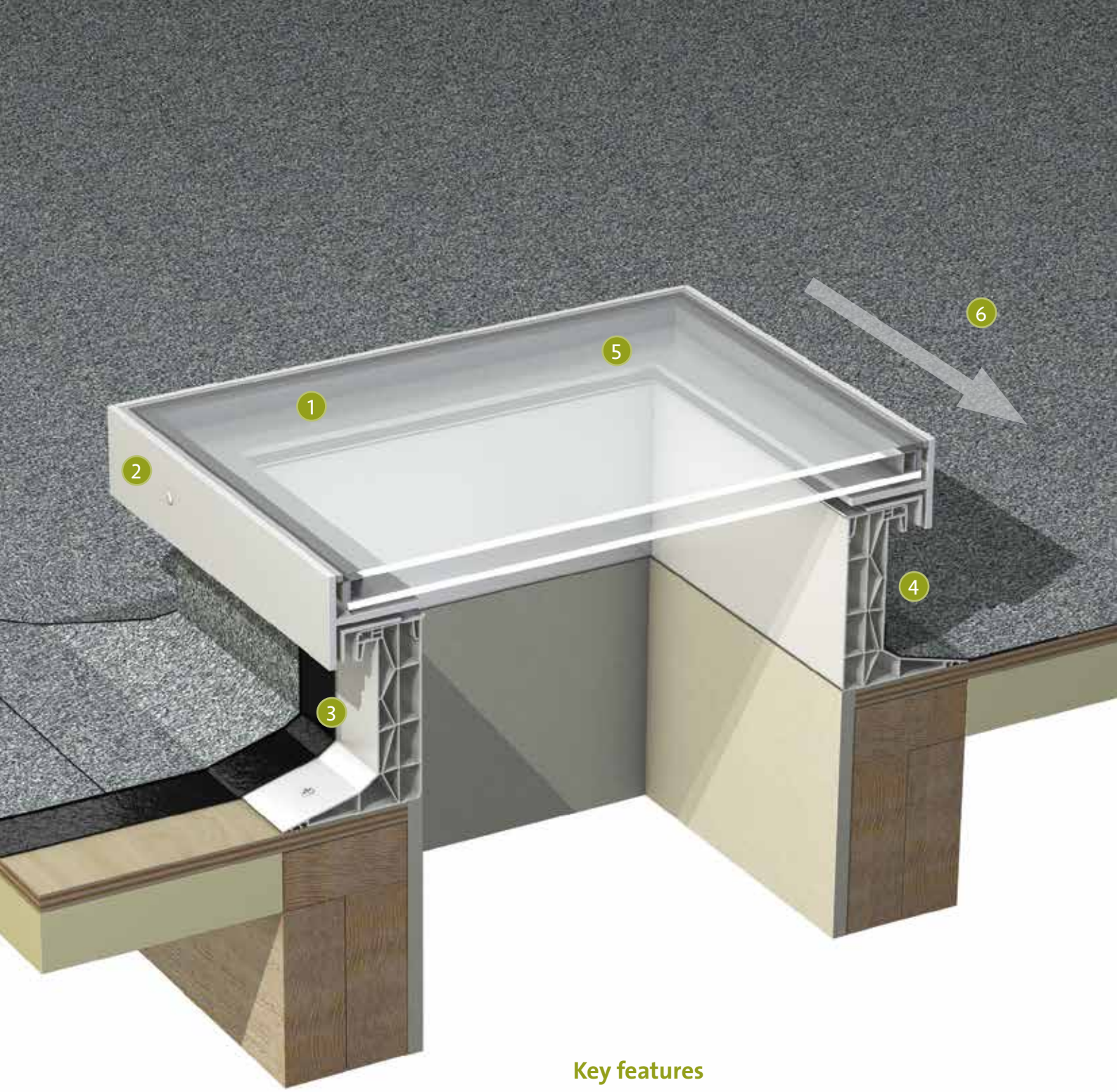
**Thermal regulations**
The double glazed unit exceeds current thermal requirements and the triple glazed unit gives an industry leading performance.

**Sound reduction**
With glass panes up to 10mm thick, a 16mm argon filled cavity, and laminated inner panes, the sound reduction will give excellent protection from traffic or other noise.

**Installation**
As the units are supplied prefabricated and assembled they are very simple to fix, either to a site formed upstand or to one of our PVC proprietary Em-Curbs.

**Certification**
Impact resistant to CWCT Class 1 on stock units.

**Coatings**
Easy clean and solar control are options available to aid water run-off and heat reduction.




## Key features

1. Factory pre-glazed
2. Secure, welded glazing frame
3. Em-Curb upstand provides tidy detailing
4. Ventilation options available
5. Good thermal and sound insulation properties
6. Optimum performance if installed on 5 - 15° pitch

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# Flat glazed description

## Features

- Simple to install
- Prefabricated
- Flush design
- Toughened/laminated safety design as standard
- Ventilation options
- Low E argon filled sealed units

## Glazing types

Double glazed Em-Glaze Modular rooflights are manufactured with 32mm hermetically sealed Low E, argon filled units as standard, with a warm edge spacer, providing a high performance system. Solar control and self cleaning glass options are available.

Double glazed Triple glazed

## Size

Offered in a range of standard sizes stocked ready for immediate dispatch. Other non-standard sizes are made bespokely and available to order.

For larger glazed areas, bespoke multipane rooflights are available. These units consist of more than one pane of glass joined with minimal glazing bars to ensure maximum daylight and strength.

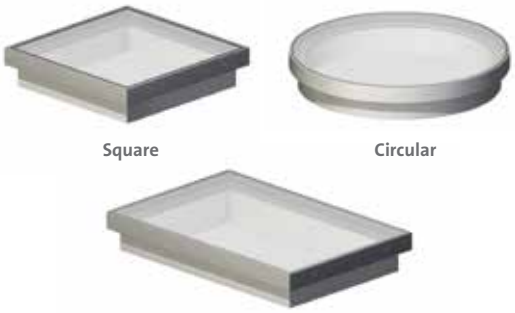
## Thermal transmission

Values shown below are the calculated U-Value, unless denoted otherwise. Complete unit U-Values are available on request.

| Glazing type | U-Value (W/m²K) |
|---|---|
| Double glazed with upstand | 1.24 |
| Triple glazed with upstand | 0.87 |

## Shapes

Em-Glaze Modular units are available in square and rectangular shapes. A selection of circular sizes are also available.



Square Circular

Rectangular

## Installation

Em-Glaze Modular rooflights can be supplied with the Em-Curb range of ECO PVC upstands, or be installed to a builder's upstand. For both options, the upstand must be set at a slope of between 5° and 15°.

## Testing

| Requirement | Classification | Test method |
|---|---|---|
| Watertightness | Passed | EN1873 |
| Air tightness | Class 4 (600pa) | EN12207/EN1026 |
| Sound insulation | 34 $R_w$ dB | DS/EN717-1/A1 |
| Light transmission | 86% | - |
| Weight | 55 kg/m² | - |
| Thermal insulation with ECO PVC 150mm vertical upstand | 1.24 W/m²K | EN/ISO 10077-1<br>EN/ISO 10077-2<br>EN673<br>DS418 |
| Impact resistance | Class 1 | CWCT |

Above is for double glazed units

| | |
|---|---|
| **Case study** | St Lawrence Primary School |
| **Project type** | Seven-classroom school extension |
| **Products** | Em-Glaze Modular<br>Em-Glaze Bespoke multipane |
| **Glazing** | Double glazed glass |
| **Upstand** | Em-Curb ECO PVC 150mm vertical upstand |
| **Ventilation** | Controllable trickle ventilation |
| **Access** | Opening for roof access |

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# Upstands for flat glass

## Features

- Used in conjunction with Em-Glaze rooflights
- Exceptional thermal efficiency
- Em-Curbs for new installations to roof apertures
- Enhance overall appearance of the rooflight
- Prefinished white internally
- Heights available 150 and 300mm

## Em-Curbs

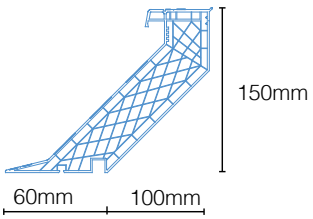
Em-Curbs are designed to be used in conjunction with Em-Glaze Modular rooflights and are finished in white internally. Em-Curbs represent excellent value for money and enhance the overall appearance of the rooflight. The heights of Em-Curbs are 150 and 300mm. The standard Em-Curb is made from extruded white PVC. The multi-chambered construction gives an exceptionally robust and thermally efficient performance. This curb is suitable for most roof finishes.

## Thermal transmission

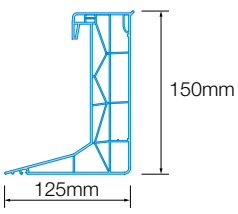
| Typical values | U-Value (W/m²K) |
|---|---|
| Em-Curb ECO PVC 150mm splayed | 0.92 |
| Em-Curb ECO PVC 150mm vertical | 1.00* |
| Em-Curb ECO PVC 300mm splayed | 1.00* |

* Measured in hot box in the vertical BS EN ISO 12567-2: 2005

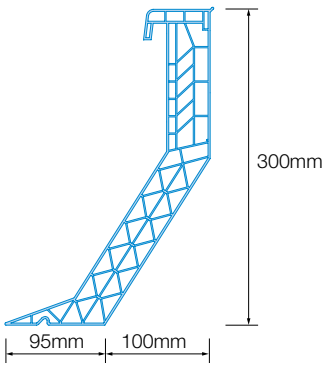
Em-Glaze Modular to Em-Curb ECO PVC upstand with grey polyester powder coated frame




**Em-Curb ECO PVC 150mm splayed**




**Em-Curb ECO PVC 150mm vertical**




**Em-Curb ECO PVC 300mm splayed**

# Flat glazed ventilation

## Features

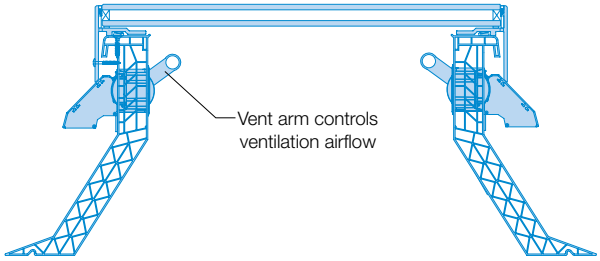
- Controllable Trickle Vents
- Controllable Rotating Vents
- Hinged Manual Spindle Opening
- Hinged Electric Actuator Opening

## Controllable Trickle

Controllable trickle vents are slot vents fitted to two or four sides of a Em-Curb. With vents on two sides, the unit will provide 8000mm² ventilation area which assists with Building Regulation compliance. This vent is very minimalistic and hugely popular. Operated by hand.

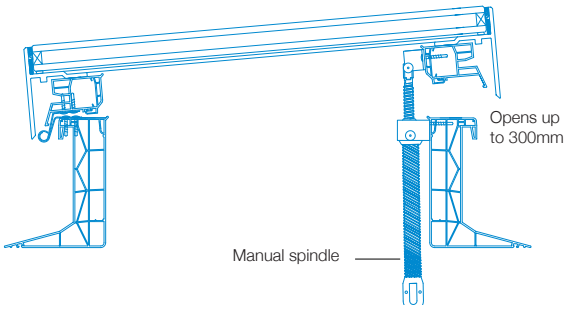

## Controllable Rotating

Controllable rotating vents are a fully insulated unit with enhanced thermal properties and a greater vent area than the trickle vent options. The vents can be fitted to two or four sides of a ECO PVC 300mm splayed Em-Curb. All units are supplied with external weathering cowls. Pole operated for ease of use.



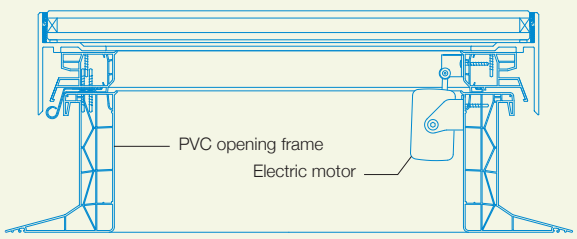

## Hinged Manual Spindle Opening

Hinged opening vents provide the maximum ventilation area to allow rapid air movement. The manual spindle operation can be opened to any point up to 300mm and is operated by a 1.5, 2.0 or 3.0m winding rod, available separately. For units larger than 1 x 1 m, the electrically operated hinged opener should be used.




## Hinged Electric Spindle Opening

Hinged opening vents provide the maximum ventilation area to allow rapid air movement. The electric actuator operation allows control by a wall mounted open/close switch and includes options for wind, rain and temperature sensors with a range of control panels available separately. The slimline actuators are either 24V DC or 230V AC and open to 200mm.



em-glaze™ modular

# Flat Glass Access Hatches

Em-Glaze Access Hatch to Builders Curb

Em-Glaze Electric Sliding Access Hatch

## Features

- Available in a wide range of sizes
- Can be colour coated to match roof components
- Clean, minimalistic finish
- Supplied prefabricated and assembled
- Excellent thermal and sound insulation properties
- Available as manual or electric opening

## Description

Em-Glaze Access Hatch units are designed to maximise the amount of natural daylight in a building whilst providing direct, safe and easy access to and from roof areas for maintenance or as part of a fire escape route.

They are designed for new-build or refurbishment of residential and commercial schemes, and can be controlled with telescopic gas or friction struts, electrically, and as part of a ventilation system.

## Hinged roof access hatch

Em-Glaze roof access hatches are available double glazed in a wide range of sizes with fully concealed hydraulic assisted gas struts, or electric actuators opening to 70° for roof access. They may be installed to allow regular access to roof terraces from internal stairways or as a means of access for maintenance personnel.

## Sliding access hatch

Em-Glaze sliding access hatches are available double glazed and are perfect for providing ventilation or roof access in areas where high wind loadings may occur, where hinged rooflights may be unsuitable, or where a low profile rooflight is required for planning purposes. Em-Glaze sliding access rooflights open to provide an unobstructed view. The cantilever design means that no extra supports are required on the roof. They are operated by concealed 24 volt or 230 volt electric actuators.

| | |
|---|---|
| **Case study** | Terraced house, Notting Hill |
| **Project type** | Refurb of roof top garden area |
| **Products** | Em-Glaze Modular access hatch |
| **Glazing** | Double glazed glass |
| **Upstand** | Installed to builders upstand |
| **Access** | Opening for roof access |

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# Size chart

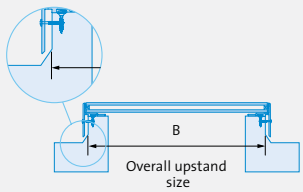
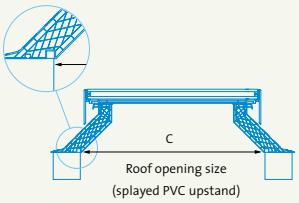
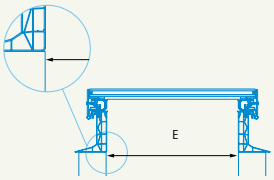
| | | Em-Glaze rooflights | Em-Curb ECO upstands | |
|---|---|---|---|---|
| Shape | |  |  |  |
| | Size Ref No. | **Dimension B**<br>**Overall upstand size (mm)** | **Dimension C**<br>**Roof opening size ECO PVC splayed upstand (mm)** | **Dimension E**<br>**Roof opening size ECO PVC vertical upstand (mm)** |
| Square | EG S2 | 600 x 600 | 700 x 700 | 500 x 500 |
| | EG S4 | 700 x 700 | 800 x 800 | 600 x 600 |
| | EG S7 | 900 x 900 | 1000 x 1000 | 800 x 800 |
| | EG S8 | 1000 x 1000 | 1100 x 1100 | 900 x 900 |
| | EG S9 | 1100 x 1100 | 1200 x 1200 | 1000 x 1000 |
| Rectangle | EG R5 | 700 x 1000 | 800 x 1100 | 600 x 900 |
| | EG R16 | 1000 x 1300 | 1100 x 1400 | 900 x 1200 |
| | EG R17a | 1100 x 1600 | 1200 x 1700 | 1000 x 1500 |
| | EG R19 | 1100 x 2100 | 1200 x 2200 | 1000 x 2000 |

Table just shows stocked sizes. Many other sizes and circular units are available on request.

| | |
|---|---|
| **Case study** | Royal Military Academy |
| **Project type** | Refurbishment |
| **Products** | Em-Glaze Modular<br>Em-Curb ECO |
| **Glazing** | Double glazed glass |
| **Upstand** | Em-Curb ECO PVC 150mm vertical |
| **Ventilation** | Manually Operated hinged opener |

em-view™

# Self-cleaning glass rooflights

The Em-View incorporates a roof dome and double-glazed glass unit securely housed in a frame, providing exceptional sound insulation and thermal value.

Em-View with Em-Curb 150mm splayed upstand and electric opening for ventilation

Em-View with Em-Curb 150mm splayed upstand and electric opening for ventilation

## Description

The patented Em-View is available in a wide variety of options, incorporating our entire range of Em-Dome rooflights with a choice of sizes, shapes and glazing options to suit virtually any requirement. It is available as opening for access for roof maintenance or as part of an escape route. Em-View is also compatible with all Em-Curb upstands, making it highly versatile and suitable for most flat roof applications.

It is perfect for the new build and refurbishment market, and a wide range of choices mark it out as being one of the most versatile modular rooflights available on the market today. The Em-View is especially good for schools due to excellent thermal and acoustic values.

## Applications

Flat roof windows are the most efficient means of making the most of natural daylight, providing up to three times more daylight than equally sized vertical windows. Combined with outstanding thermal insulation, Em-View rooflights are an excellent means by which both light and solar energy can be utilised to reduce the carbon footprint of any property.


## Key features

1. Double glazed glass for clarity of vision
2. Em-Dome single, double, triple or quad skin aiding water run off
3. Compatible with Em-Curb upstands
4. High security screwbolt

em-view™

# Self-cleaning glass rooflights

## Features

- Available in 15 sizes to fit any build
- Single, double, triple or quad skinned dome provides superb thermal value
- Provides excellent sound insulation from hail and rain
- Highly energy efficient – Uw-Value of 0.64 W/m²K with quad skin dome
- Clear, Opal Diffused and HeatReflect dome options to suit any building design
- CE certified to EN1873
- Compatibility with our range of Em-Curb upstands including 150mm splayed, 150mm vertical and 300mm splayed, means extensions and upgrades are straightforward
- Available with fixed or permanent ventilation, manual or electronic opening options
- Impact resistant and non-fragile to comply with the increased desire for rooftop safety
- Whitesales 10 year guarantee for rooflights and upstands provides peace of mind
- Some sizes available for next day delivery

Em-View with electric opening ventilation

## Technical details

| Requirement | Classification | Test method |
|---|---|---|
| Water tightness | Passed | EN1873:2005 |
| Air tightness | Class 4 | (N12207/EN1026) |
| Sound insulation | 35 $R_w$ dB | DS/EN717-1/A1 |
| Light transmission | 78% LT | |
| Solar transmission | 0.58%g | |
| Weight | 25 kg/m² | |
| Thermal transmission U-Value (with rooflight glazing) | Single 0.95 W/m²K<br>Triple 0.72 W/m²K<br>Quad 0.64 W/m²K | EN ISO 6946 |
| Fire Rating | AA | BS746: Part 3 |
| Impact Resistance | 1200J | EN1873: 2005 |

Above is for double glazed glass with single skin dome.

em-view™

# Glazing Options

## Dome options

**Single skin**

- Recommended choice
- Best light transmission

**Double skin**

- Economical
- Good insulation

**Triple skin**

- High insulation
- Good sound insulation
- Complies with all Building Regulations

**Quad skin**

- Outstanding insulation (0.64W/m²K)
- Excellent acoustic rating

## Glass options

**Double glazed**

- Good insulation (1.24W/m²K)
- Good sound insulation
- Argon filled cavity
- Low E inner pane

## Dome finish options

**Clear**

- Very high light transmission – up to 92%
- Direct light to area below

**Opal diffused**

- Maintains high light transmission whilst evenly diffusing light to area below
- Increased privacy due to translucent finish

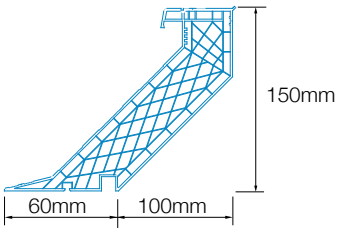
**HeatReflect**

- Reflects 100% ultraviolet light
- Solar transmission as low as 34%
- Reflects up to 66% solar energy
- Special order

em-view™

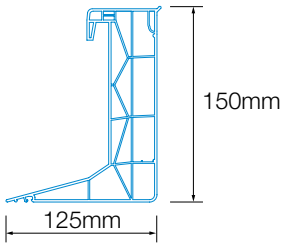
# Upstand Options

## Em-Curb ECO PVC 150mm splayed



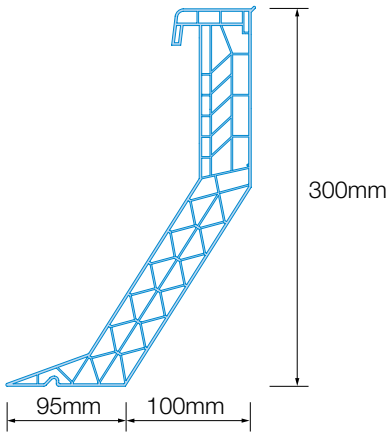

- Economical
- Insulated and thermally broken
- Can accommodate controllable trickle ventilation in side walls
- Pre-finished internally
- Suitable for most flat roof waterproofing systems

## Em-Curb ECO PVC 150mm vertical




- Most popular choice
- Insulated and thermally broken
- Provides a vertical internal finish
- Can accommodate controllable trickle ventilation in side walls
- Pre-finished internally
- Suitable for most flat roof waterproofing systems

## Em-Curb ECO PVC 300mm splayed

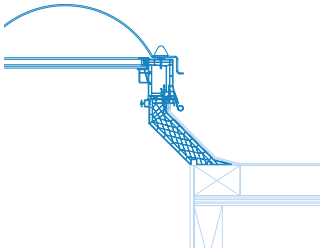



- For use on insulated roofs (up to 150mm insulation)
- Excellent insulation and thermally broken
- Can accommodate controllable trickle or rotating ventilation in side walls
- Suitable for most flat roof waterproofing system

em-view™

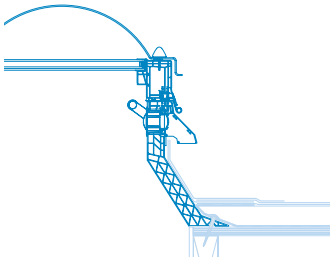
# Ventilation Options

## Controllable trickle



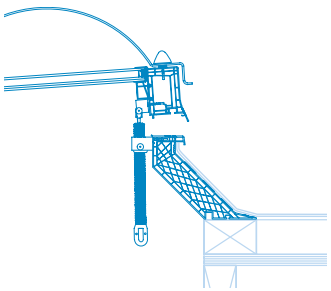
- Factory fitted
- Installed in side wall of upstand or adaptor
- Background ventilation
- 8000mm² ventilation area (per pair of vents)

## Controllable rotating



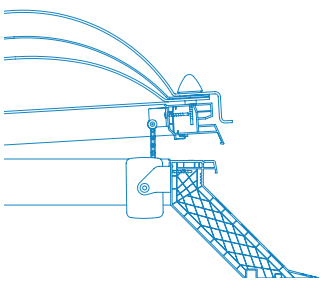
- Most effective type of ventilation
- Innovative insulated design
- Fitted to 2 or 4 sides of upstand or adaptors

## Manual opening ventilation



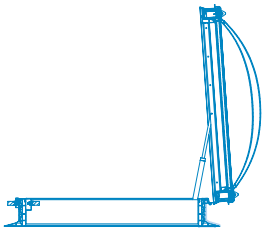
- Opening to 300mm
- Proprietary design

## Electric Opening ventilation



- Opening to approx 200mm
- Proprietary design
- Rapid air movement
- Control by remote control unit

## Access opening



- Opens to approx 80°
- Gas assisted hydraulic systems
- Internal and external lockable handle systems

## Em-View size chart (in mm)

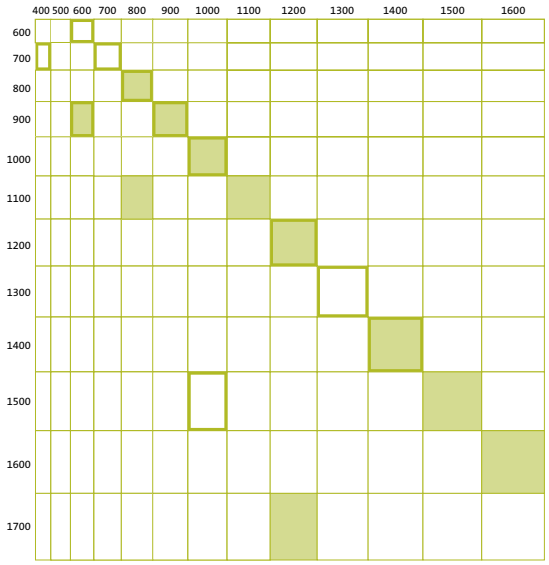
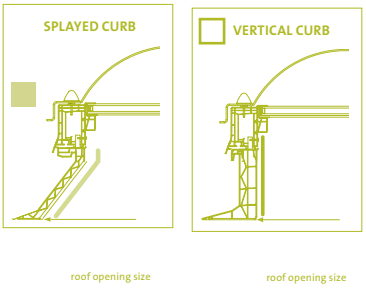



Table shows finished roof opening size - see installation instruction for structural roof opening size. For builder's curb application and sizing, please contact us.

## Key



em-glaze™ modular

# Modular Ridgelights

**More daylight, available from stock. The Em-Glaze Ridgelight product line offers a beautifully designed solution for architects, builders and homeowners seeking to maximise natural light.**

Em-Glaze Modular Ridgelight

Em-Glaze Modular Ridgelight

## Description

The slimline aluminium design minimises framework and maximises glazed area to ensure that when the sun shines it's both outside and in. The Em-Glaze is an affordable and readily available solution that will integrate seamlessly into most construction projects.

Available in six standard sizes straight from stock in double glazed (1-7 days), Em-Glaze is also available with fully bespoke design options including made-to-measure sizes, wide choice of framework RAL colours, and blue solar tint.

Various ventilation options are available including fixed or opening. Equally, for those instances where heat retention and/or sound insulation are priorities, Em-Glaze can be specified with either double or triple glazing including solar control and easy clean coatings.

The intelligence applied to the design and engineering of our ridgelights ensures they are quick and easy to install. A video guide is also available with every unit, and they are fully compatible with our Em-Curb upstand range.

## Performance

Em-Glaze Modular Ridgelights have been engineered to comply with severe weather ratings

Withstands wind loads 1.32 Kn/m² and snow loads 1.0 Kn/m²

U-Value for Em-Glaze Ridgelights thermally broken rafter is from 1.41 W/m²K

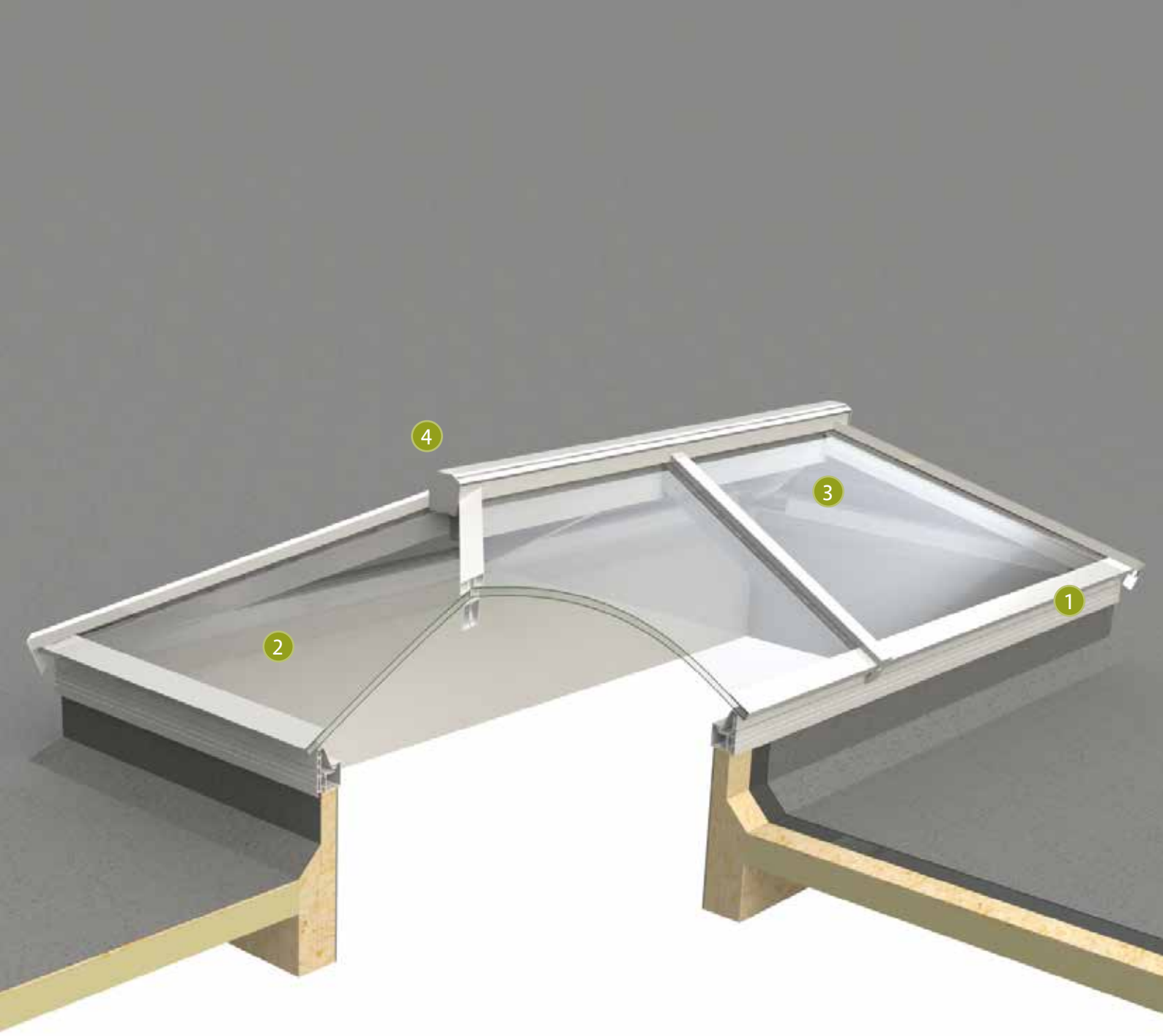
BBA Water test pressure to 300 pascals

Uplift tested to 1320 pascals of pressure

## Installation

Em-Glaze Modular ridgelights can be supplied with the Em-Curb range of upstands, or be installed to a builder's upstand.

**Full, easy to follow installation video can be viewed at http://bit.ly/EGMRFitting**




## Key features

1. Slimline aluminium design maximises daylight
2. Double and triple-glazed options
3. Fixed or opening ventilation available
4. Thermally insulated

em-glaze™ modular

# Glazing, upstands and size chart

## Glazing

- Kite marked toughened safety glass to BS 6206 :1981.
- Double glazing or triple glazed units rest on a co-extruded EPDM gasket and are held in position by a pressure plate and aluminium exterior cover cap.
- Neutral tint, solar control and self-cleaning coating included as standard.
- Blue tint available as optional extra.

Units should be installed in accordance with BS 6262 :1982, BS 8000 Part 7 : 1990, the GGF glazing manual or European equivalent.

Double glazed  Triple glazed

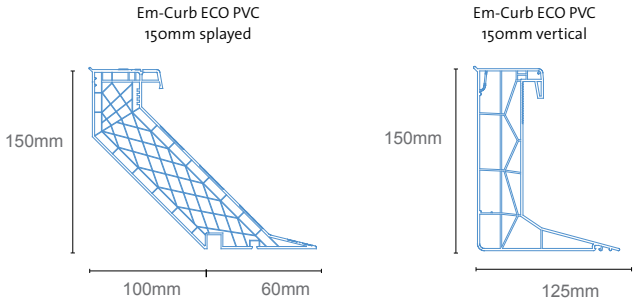
## Sizes

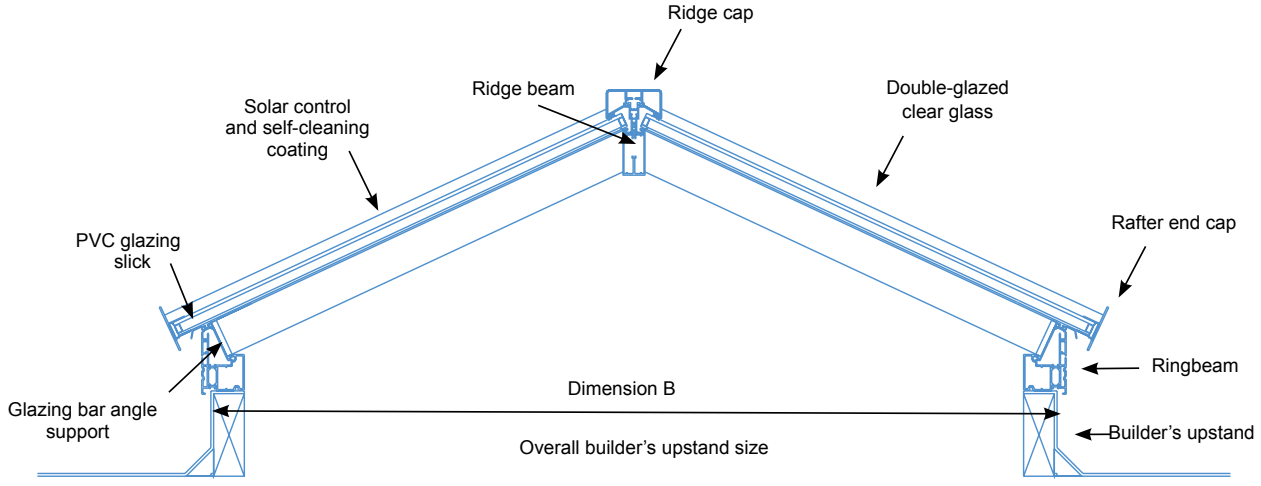
| Size Ref. No. | Dimension B Overall upstand size (mm) | Dimension C Roof opening size ECO PVC splayed upstand (mm) | Dimension E Roof opening size ECO PVC vertical upstand (mm) |
|---|---|---|---|
| EG S9 | 1100 x 1100 | 1200 x 1200 | 1000 x 1000 |
| EG R16 | 1000 x 1300 | 1100 x 1400 | 900 x 1200 |
| EG R17a | 1100 x 1600 | 1200 x 1700 | 1000 x 1500 |
| EG R19 | 1100 x 2100 | 1200 x 2200 | 1000 x 2000 |
| EG R22 | 1100 x 2600 | 1200 x 2700 | 1000 x 2500 |
| EG R30a | 1600 x 3100 | 1700 x 3200 | 1500 x 3000 |

Many other sizes available to special order

## Em-Curbs

Em-Curbs are designed to be used in conjunction with Em-Glaze Modular ridgelights and are finished in white internally. They enhance the overall appearance of the rooflight and provide exceptionally robust and thermally efficient performance. They are suitable for most roof finishes and are available as splayed or vertical 150mm high.



| | |
|---|---|
| **Case study** | Winkfield Homes |
| **Project type** | New housing estate of 7 homes |
| **Products** | Em-Glaze Modular Ridglights |
| **Upstand** | Installed to builder's upstand 150mm high |
| **Glazing** | Double glazed glass |
| **Coatings** | Neutral solar control tint and self cleaning |

em-glaze™ bespoke

# Bespoke Glass Rooflights

## A harmony of performance and design, Em-Glaze bespoke rooflights are custom-designed and built precisely to your requirements.

New build or refurbishment, contemporary cool or heritage-approved, you can count on Whitesales for painstaking perfection. Over the course of more than 25 years, we've provided bespoke replica rooflights for countless historical buildings, many of them high-profile and listed, and innumerable modern builds.

## Industry-leading rooflight performance

All Em-Glaze skylights are supported by low-profile aluminium frames strong enough that we can create even large units to very precise bespoke designs.

This means we can replicate the aesthetics of original rooflight architecture, with the benefit of high-performance glazing and a fully tested glazing system.

To ensure replacement rooflights are faithful to the originals, or complete the architect's vision, all frames can be powder-coated to any RAL colour.

Your choice of glazing, smoke or comfort ventilation, all built to exceed current building regulations.

## All the support you could wish for

- Unlimited site surveys and progress meetings
- Bespoke roofplan CAD drawings, product drawings and NBS specifications
- Technical backup from in-house engineers and glazing experts
- A dedicated project team

## Comprehensive, coherent design and support

### Concept

You brief us on your ideas and expectations.

We advise on current legislation requirements and design possibilities.

### Site/Design meeting

We can visit your offices or site to discuss initial ideas and designs.

### Specification

We produce detailed specification, section drawings, roof plans and design criteria following our discussions with you.

### Pre-tender support

We visit your offices or site to finalise the details with you. This stage can include a site survey for refurbishment projects to obtain specific details and dimensions.

### Tender

We support the nominated contractors through the tender process.

## Embassy Building, Belgravia

Rooflights for a historical building refurbishment

Balancing thermal and natural light performance in a 200-year-old Georgian embassy

Daylight is maximized, solar gain controlled and occupant comfort assured through two perfectly sympathetic Em-Glaze bespoke replica rooflights

## Barbican Centre, London

Replacement rooflights for a Grade II listed building

Meeting strict heritage requirements, environmental performance standards and an immoveable deadline

Following detailed roof surveys, we custom-built Em-Glaze bespoke rooflights to match the originals and illuminate the art exhibition space below

### Order process

We finalise the details with you and the successful contractor to make sure you get perfect products delivered exactly when you need them.

### Drawing production

We produce full detail production drawings for you to sign off.

### Site setup

We work with the successful contractor to agree site procedures and specific attendances.

### Installation

We deliver your new products to site, provide approved installers if you need them, and oversee the project to successful completion.

### Aftercare

Our service doesn't stop once your rooflights are in place. Our technical aftersales team will be always on hand to make sure you're completely happy. You are also covered by the Whitesales guarentee.

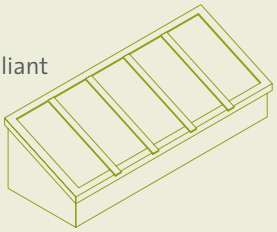
em-glaze™ bespoke

# Glass monopitch rooflights

Monopitch rooflights are purpose-made continuous rooflights and are available in 0.6m to 6m sloped lengths, and are suited to a pitch of 5° to 85°.

## Features

- Purpose made
- Choice of glazing
- Opening sections for comfort ventilation, smoke ventilation and access
- Building Regulation ADL compliant options
- Size 0.6m to 6m span
- Unlimited length



Em-Glaze monopitch in glass with opening sections

## Description

Monopitch rooflights are manufactured from proprietary aluminium extrusions. Available with hermetically sealed glass units the glazing is installed on site into the aluminium system.

Each rooflight run is terminated with either a capping or a wall abutment section. Bays are designed at equal centres, in accordance with the required dimensions and glass specifications.

Units can incorporate opening vents, operated manually or by 24 or 230V electric actuators, for comfort or smoke ventilation or for access to the roof.

Bespoke flashings to suit all upstand applications.

## Installation

Installed onto a structurally sound waterproofed builder's upstand by one of our approved installers.

## Options

A variety of options are available including self-cleaning and solar control coatings, as well as colour tints. The framework can be powder coated to any standard RAL colour.

## Glazing

Where glass is specified, the thickness and type is determined by the size and configuration of the rooflight unit.



Double glazed



Triple glazed

**Please refer to Whitesales Polycarbonate brochure for all Em-Line Bespoke polycarbonate products.**

### Glazing specification

| Requirement | Classification |
|---|---|
| Light transmission | 78% LT |
| Solar heat gain factor | 58% g |
| Sound reduction | 34 dB |
| Thermal transmission | 1.1 W/m²K |

All values for standard clear double glazing


## Key features

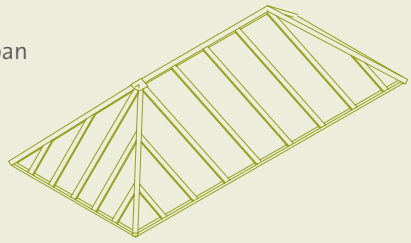
1. Wall abutment detail
2. Many glazing options
3. Polyester powder coated framework
4. Installed to builders upstand
5. Bespoke flashings to suit all upstand applications

em-glaze™ bespoke

# Glass gable & hip ended ridgelights

## Features

- Choice of glazing
- Ventilation options
- Building Regulation ADL compliant options
- Purpose made
- Size 0.6m to 7m span
- Unlimited length



Em-Glaze gable ended ridgelights in glass

## Description

Gable and hip ended rooflights are purpose-made continuous rooflights and are available in spans of 0.6m up to 7m, and slope pitch of 15° to 60° although 30° is supplied as standard.

Gable and Hip Ended rooflights are manufactured from proprietary aluminium extrusions. Available with hermetically sealed glass units, the rooflights are installed on site either to a site formed upstand or to a proprietary Em-Curb upstand.

Each rooflight run is terminated with glazed gable ends, hipped ends, wall abutments or open ends. Bays are designed at equal centres, which will be sized in accordance with the required dimensions and glass specifications. Units can incorporate angles and other specialist detailing.

Units can incorporate opening vents, operated manually or by 24 or 230V electric actuators, for comfort or smoke ventilation or for access to the roof.

## Installation

Installed onto a structurally sound waterproofed builder's upstand by one of our approved installers.

## Options

A variety of options are available including self-cleaning and solar control coatings, as well as colour tints. The framework can be powder coated to any standard RAL colour.

## Glazing

Where glass is specified, the thickness and type is determined by the size and configuration of the rooflight unit.



Double glazed



Triple glazed

**Please refer to Whitesales Polycarbonate brochure for all Em-Line Bespoke polycarbonate products.**

### Glazing specification

| Requirement | Classification |
|---|---|
| Light transmission | 78% LT |
| Solar heat gain factor | 58% g |
| Sound reduction | 34 dB |
| Thermal transmission | 1.1 W/m²K |

All values for standard clear double glazing


## Key features

1. Hip ended (gable also available)
2. Self supporting
3. 30° pitch as standard
4. Special glass coatings available
5. Bespoke flashings to suit all upstand applications

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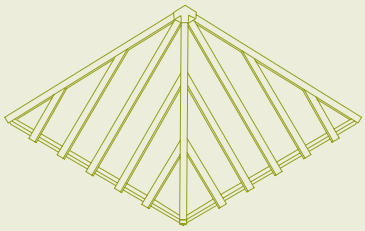
# Glass pyramid rooflights

## Features

- Choice of glazing
- Ventilation options
- Building Regulation ADL compliant options
- Purpose made
- Size 0.6m to 7m span



Em-Glaze pyramid in glass with electric openers

## Description

Pyramid rooflights are purpose-made, self supported rooflights and are available in spans of 0.6m up to 7m, and slope pitch of 15° to 60° although 30° is supplied as standard.

Pyramid rooflights are manufactured from proprietary aluminium extrusions. Available with hermetically sealed glass units, the rooflights are installed on site either to a site formed upstand or to a proprietary Em-Curb upstand.

Each rooflight is designed as having four equal sloped sides. Bays are designed at equal centres, which will be sized in accordance with the required dimensions and glass specifications.

Units can incorporate opening vents, operated manually or by 24 or 230V electric actuators, for comfort or smoke ventilation or for access to the roof.

## Installation

Installed onto a structurally sound waterproofed builder's upstand by one of our approved installers.

## Options

A variety of options are available including self-cleaning and solar control coatings, as well as colour tints. The framework can be powder coated to any standard RAL colour.

## Glazing

Where glass is specified, the thickness and type is determined by the size and configuration of the rooflight unit.



Double glazed



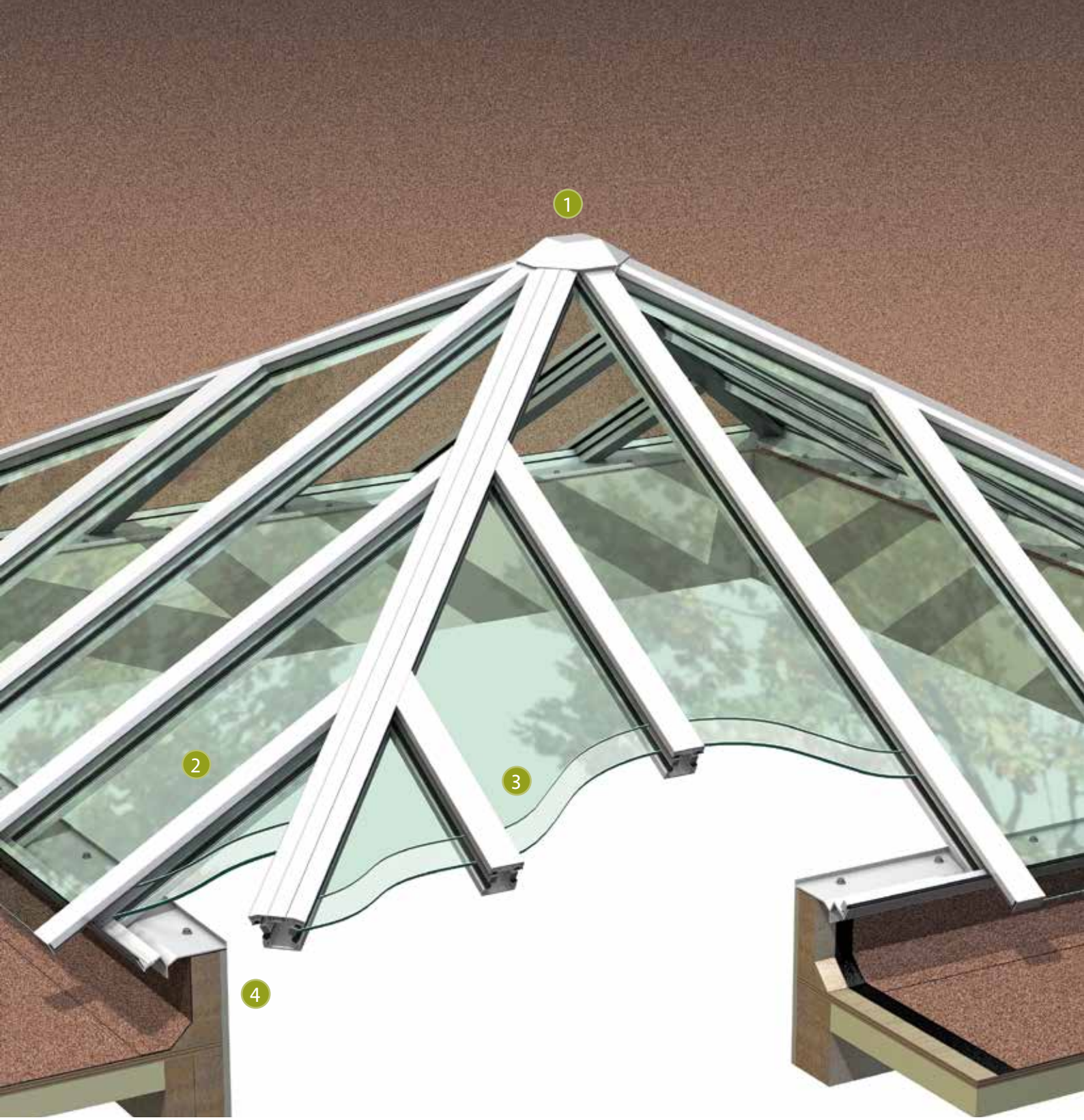
Triple glazed

**Please refer to Whitesales Polycarbonate brochure for all Em-Line Bespoke polycarbonate products.**

### Glazing specification

| Requirement | Classification |
|---|---|
| Light transmission | 78% LT |
| Solar heat gain factor | 58% g |
| Sound reduction | 34 dB |
| Thermal transmission | 1.1 W/m²K |

All values for standard clear double glazing




## Key features

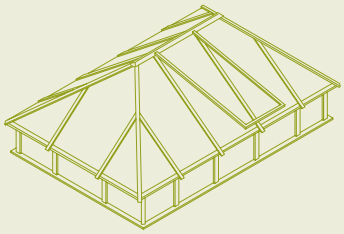
1. Self supporting
2. 30° pitch as standard
3. Many glazing and coating options available
4. Installed to builder's upstand

em-glaze™ bespoke

# Glass lantern lights

## Features

- Choice of glazing
- Gable or hip ended
- Vertical glazed side
- Ventilation options
- Building Regulation ADL compliant options
- Purpose made
- Size 1m to 3m span
- Unlimited length



Em-Glaze gable ended lantern light with blue tinted glass

## Description

Lantern lights are purpose-made continuous rooflights and are available in 1m to 3m spans, and slope pitch from 15° to 60° although 30° is supplied as standard.

Lantern lights are manufactured from proprietary aluminium extrusions. Available with hermetically sealed glass units the rooflights are installed on site into the aluminium system.

Each rooflight run can be supplied with gable or hip ends. Bays are designed at equal centres, which will be sized in accordance with the required dimensions and glass specifications.

Units can incorporate opening vents, operated manually or by 24 or 230V electric actuators, for comfort or smoke ventilation, or for access to the roof.

## Installation

Installed onto a structurally sound waterproofed builder's upstand by one of our approved installers.

## Options

A variety of options are available including self-cleaning and solar control coatings, as well as colour tints. The framework can be powder coated to any standard RAL colour.

## Glazing

Where glass is specified, the thickness and type is determined by the size and configuration of the rooflight unit.

Double glazed



Triple glazed

**Please refer to Whitesales Polycarbonate brochure for all Em-Line Bespoke polycarbonate products.**

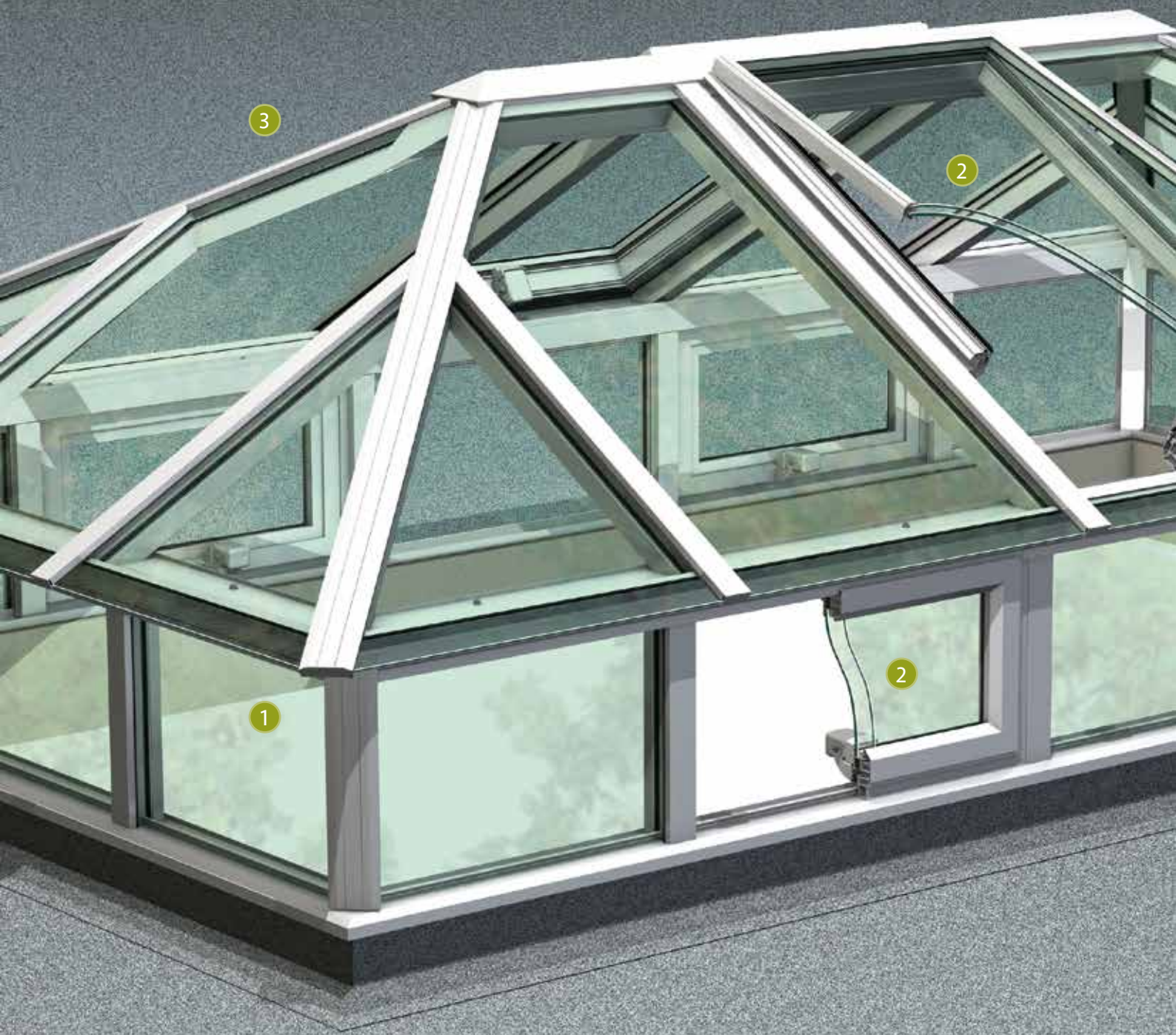
### Glazing specification

| Requirement | Classification |
|---|---|
| Light transmission | 78% LT |
| Solar heat gain factor | 58% g |
| Sound reduction | 34 dB |
| Thermal transmission | 1.1 W/m²K |

All values for standard clear double glazing

## Key features

1. Glazed vertical upstand
2. Opening sections available for ventilation options
3. Hip ended (gable also available)

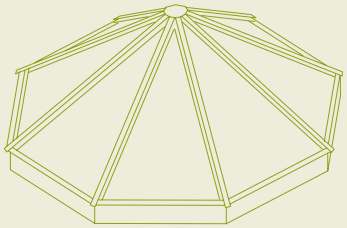


em-glaze™ bespoke

# Glass custom design rooflights

## Features

- Choice of glazing
- Polygon, elliptical and flat options
- Building Regulation ADL compliant options
- Purpose made



Em-Glaze bespoke rooflight

## Description

Specialist rooflights are purpose-made bespoke rooflights designed to accommodate an extensive range of shape and size requirements. Whilst polygon and domed shapes are more common there are many other possibilities such as elliptical and other curved designs.

Specialist rooflights are manufactured from proprietary aluminium extrusions. Available with hermetically sealed glass units, the rooflights are installed on site into the aluminium system.

Each rooflight will include bespoke flashing and cill details to suit the design requirements.

Ventilation options can often be incorporated within the rooflights, including comfort and smoke ventilation as well as roof access.

## Installation

Installed onto a structurally sound waterproofed builder's upstand by one of our approved installers.

## Options

A variety of options are available including self-cleaning and solar control coatings, as well as colour tints. The framework can be powder coated to any standard RAL colour.

## Glazing

Where glass is specified, the thickness and type is determined by the size and configuration of the rooflight unit.



Double glazed



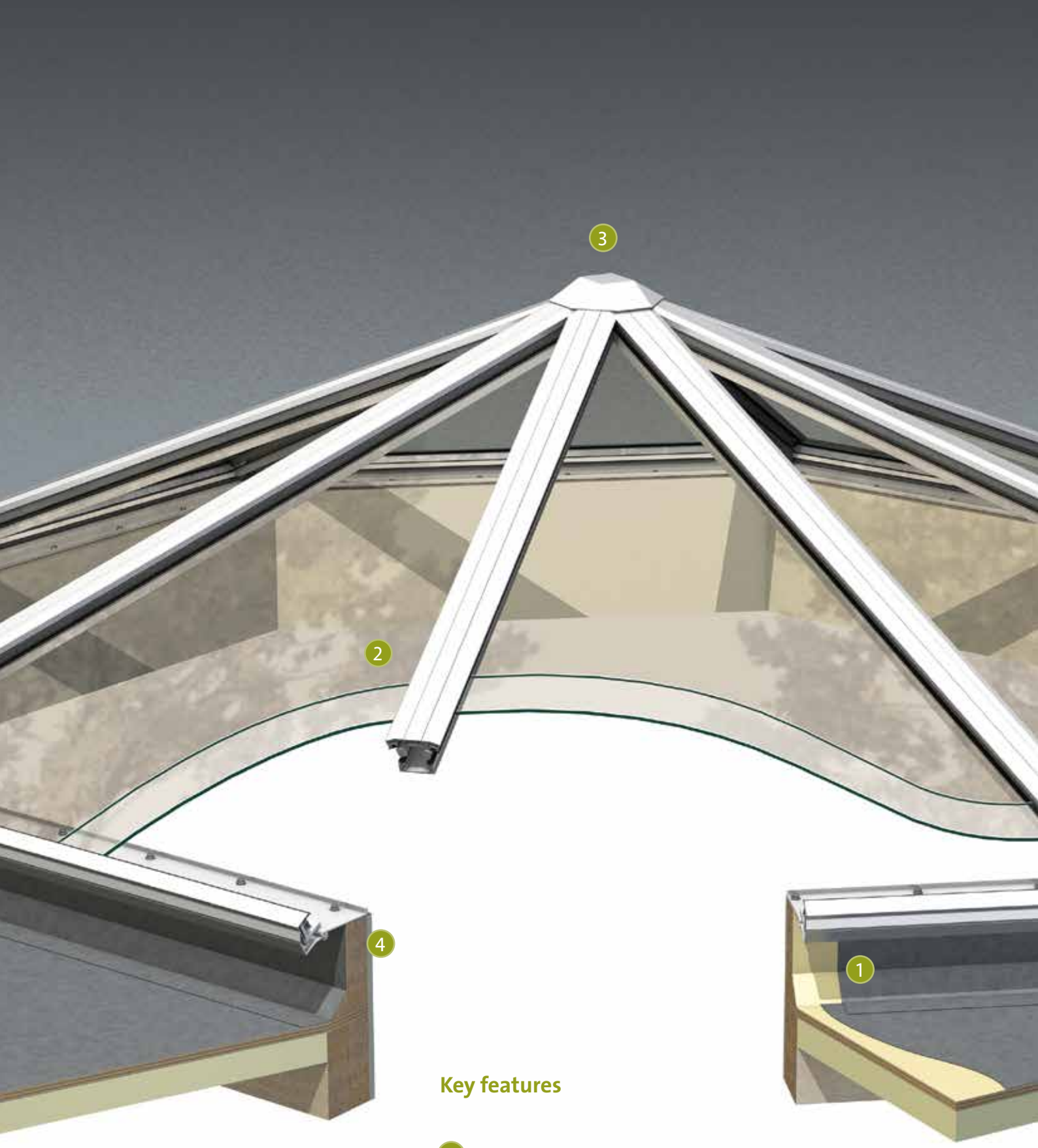
Triple glazed

**Please refer to Whitesales Polycarbonate brochure for all Em-Line Bespoke polycarbonate products.**

### Glazing specification

| Requirement | Classification |
|---|---|
| Light transmission | 78% LT |
| Solar heat gain factor | 58% g |
| Sound reduction | 34 dB |
| Thermal transmission | 1.1 W/m²K |

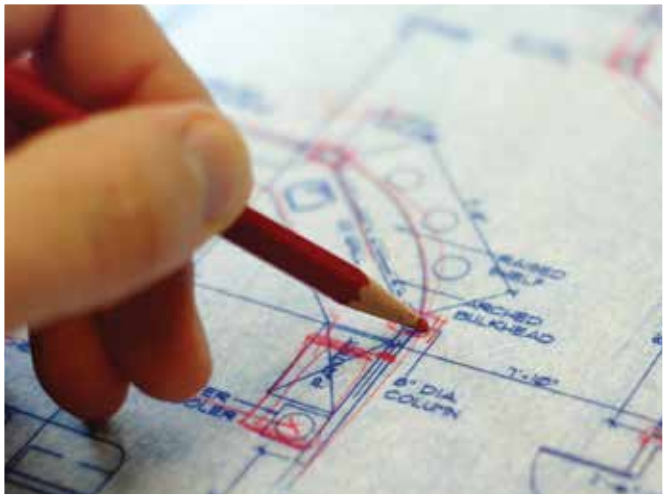
All values for standard clear double glazing




## Key features

1. Custom design
2. Minimal glazing bars
3. Self supporting framework
4. Installed to builder's upstand

# Design considerations



**Whitesales is able to advise on current requirements and regulations. The following pages summarise some of the key considerations that should be taken into account when specifying rooflights.**

## Approved Document L 2010: Conservation of fuel and power

### Introduction

This Approved Document, which takes effect on 1 October 2010, deals with energy efficiency requirements in the Building Regulations (as amended) and is made up of four distinct publications which are summarised below. It should be noted that Approved Documents are guidance publications and there is some provision for trade-off with other building elements – any proposal should be checked with the relevant building control body. U-Values should be calculated in accordance with BRE 2006. The document also covers areas such as Materials and Workmanship including a requirement to demonstrate appropriate use of products with CE marking, British Standards and European Technical Approvals. Whitesales continuous rooflights have undergone stringent and extensive testing and are certified to these standards.

### Solar heat gain

Approved Documents L1A and L2A include requirements to limit solar gains through the summer period. The inside of the building can heat up during daylight hours due to the sun. This is termed as solar heat gain. To reduce this effect, solar control glass can be adopted to reflect heat and reduce glare from the sun's rays. This lessens the burden on air-conditioning systems thus reducing $CO_2$ emissions. In simple form, this may be body tinted glass in blue, green or bronze or more sophisticated, coated clear glass that allows maximum light transmission, but at the same time substantially reduces heat gain.

### Optimum rooflight provision

A building's design will affect the contribution rooflights can make. The optimum area of rooflights will therefore vary for each building. However, research has shown that a rooflight area of 15-20% will contribute to an overall reduction in $CO_2$ emissions in most buildings. Rooflights are up to three times more effective at supplying daylight than vertical windows. Where artificial lighting is controlled by daylight sensors, installing rooflights can result in a significant reduction in the energy used for lighting. Energy consumed in lighting a building is often greater than that used to heat it. In addition, the SAP and SBEM software programs take account of the contribution made by passive solar gains through rooflights. Solar gains help to offset the increased heat loss of rooflights compared to the insulated main roof.

### Air permeability

Air permeability is the physical property used to measure airtightness of the building fabric. It is defined as air leakage rate per hour per square metre of building envelope at the test reference pressure differential across the building envelope of 50 Pascal (50N/m²).

The limiting air permeability is the worst allowable air permeability. The design air permeability is the target value set at design stage, and must always be no worse than the limiting value. The assessed air permeability is the value used in establishing the BER, and is based on a specific measurement of the building concerned.

### ADL 1A: New dwellings


This document sets a minimum energy performance requirement called the 'Target $CO_2$ Emission Rate' (TER), and 'Dwelling $CO_2$ Emission Rate' (DER). The aim is to improve the overall building envelope rather than specific elements hence improvements in one area can be used to offset other areas of poorer performance. Section 4.20 covers 'Window, roof window, glazed rooflight, curtain walling and pedestrian door'. Specifically rooflights must conform to a U-value of no more than 2.00W/m²K and the calculation is based on the value of the complete rooflight unit rather than the values of any one component part.

### ADL 1B: Existing dwellings

Section 4.19 covers 'Window, roof window or rooflight'


The document states that where windows, roof windows or rooflights are to be provided, the reasonable provision – in normal cases – would be the installation of draught-proofed units whose performance is no worse than a U-value of 1.6W/m²K or complying with the Window Energy Rating System, B and C.

### ADL 2A: New buildings other than dwellings


This document sets a minimum energy performance requirement called the 'Target $CO_2$ Emission Rate' (TER), and 'Building CO2 Emission Rate' (BER). The aim is to improve the overall building envelope rather than specific elements hence improvements in one area can be used to offset other areas of poorer performance. Section 4.30 covers 'Window, roof window, glazed rooflight, curtain walling and pedestrian door'. Specifically rooflights must conform to a U-value of no more than 2.2W/m²K. The calculation is based on the developed area of the rooflights rather than the roof aperture and is the value of the complete rooflight unit rather than the values of any one component part. Also included are 'Roof ventilators (inc. smoke vents)' which must conform to a U-value of no more than 3.5W/m²K.

**ADL 2B: Existing buildings other than dwellings**


Section 4.23 covers 'Window, roof window and glazed rooflight' and 'Plastic rooflight'. Specifically plastic rooflights must conform to a U-value of no more than 1.8W/m²k. Also included are 'Roof ventilators (inc. smoke vents)' which must conform to a U-value of no more than 3.5W/m²K.

## Approved Document B 2006: Fire Safety


Approved Document B places certain limitations on the use of rooflights, which are dependent 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 Volume 1: Sections 3 and 10; Volume 2: Sections 6, 12 and 13 of Approved Document B, 2006 Edition. Where applicable, the responsibility for determining that any building component complies with the relevant Regulations rests solely with the customer or specifier.

## Approved Document E 2003 (amended): Resistance to the passage of sound


This document requires that buildings are designed and constructed to provide resistance to sound and reverberation. The aim is to limit noise disturbance by including sufficient acoustic properties and insulation in areas such as internal and external walls, floors and other elements. Rooflights should perform in accordance with these requirements and the decibel reduction value can be used in calculations for this purpose. For Em-Dome acoustic values see page 9 of the polycarbonate brochure and for Em-Glaze Modular see page 6. Further information is available in Building Bulletin 93 – Acoustic Design for Schools.

## Approved Document F: Means of ventilation


This document places the responsibility on the designer to comply with ventilation requirements to new and existing buildings. It states ventilation types including extract, whole building and purge and gives minimum ventilation requirements. Rooflights are often a useful means of complying with the requirements especially where no other external aperture is available. Further information is available in Building Bulletin 101 – Ventilation of School Buildings.

## 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 designer should ensure that the builder's curb is at least 150mm high.

## BRE BR443

Various standards deal with the calculation of U-values of building elements. The conventions provide guidance on the use of the standards, indicating the methods of calculation that are appropriate for different constructional types, providing additional information about using the methods and providing data relevant to typical UK constructions.

> "Rooflights are up to **three times more effective** at supplying daylight than vertical windows."

The U-value conventions were originally published by the BRE in 2002 and the 2006 edition is an update which provides additional information and reflects changes in the underlying British Standards. The U-Value calculation methods are also referred to in Approved Documents L1A, L1B, L2A and L2B.

## 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 triple skin Whitesales continuous rooflights and Em-Curb insulated upstands. The provision of ventilation may also assist. However, because temperature and humidity levels are clearly beyond our control, no guarantee can be given against the formation of condensation.

Condensation between the skins can also occur when the room below has high humidity levels, for example during construction from new plaster or paintwork. Polycarbonate is hygroscopic and allows water molecules to filter through – the water pressure forces its way through the lower skin and condenses inside the cavity. However, once the humidity level in the room is restored to normal this condensation dissipates through the breathable seals.

## Limitations on use

Whitesales continuous rooflights are designed for use in normal circumstances on flat roofs up to 20° pitch. For applications in excess of 20° 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.

# Health & Safety

## Construction (Design & Management) Regulations 2007

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 2007 places a duty on designers and specifiers to give proper consideration to eliminating or reducing risks at the design stage. Health and Safety Executive (HSE) Health and Safety in Roof Work draws attention to the responsibilities of those specifying rooflights.

(HSE) Health and Safety in Roof Work 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 be capable of withstanding a person falling onto them).
- Protecting rooflight, e.g. 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.**

**Non-fragile rooflights**

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

- Polycarbonate continuous rooflights have been designed according to EN 1873 2005 [E] to an energy of 1200J and to ACR[M] 001: 2005 and can be classified as Class B 'Non-Fragile'.
- Whitesales offers a 10 year warranty against discolouration of polycarbonate glazing material and loss of impact strength, underwritten by the sheet material supplier.
- Whitesales offers a post-forming warranty backed by the sheet manufacturer.

## Man-safe

Man-safe is a term often used within the construction industry to mean that the product can withstand foot traffic. However man-safe has no recognised definition and 'Non-Fragile' does not qualify a product to be used as a thoroughfare.

Whilst glazing and other accessories may be designed to safely resist the impact of a human body falling against it, the wilful act of walking on any kind of roof glazing must be forbidden at all times.

The act of walking upon a glazed structure can cause microscopic damage that, in time, may have a detrimental effect upon the impact performance of the system.

Walking upon glazing may encourage a practice that could lead to general disregard for the rating of said glazing, with catastrophic consequences.

**Safety data sheets are available on request.**

# Sitework

## Handling and storage

While all Whitesales glass 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 in flat dry conditions.

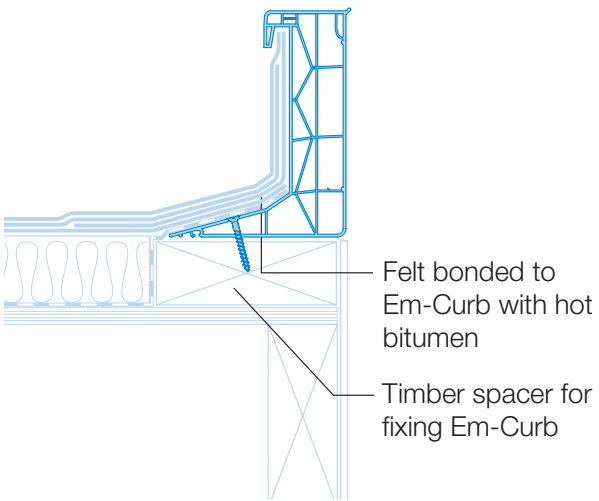
## Installation

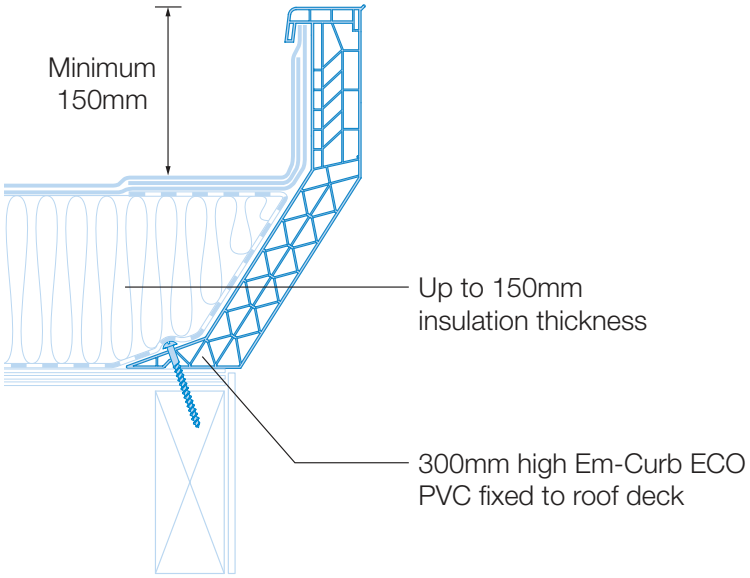
Whitesales will not guarantee any bespoke units not installed by our approved subcontractors. All stock units are supplied in component form and are delivered to site in protective packaging. Full instructions and fixings are included with all products, and should be carefully studied prior to installation. We always recommend that a Whitesales approved installer is employed to carry out the works.

### 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 ECO PVC Em-Curb is suitable for use with most flat roof systems including single ply, felt, hot-melt, asphalt, liquid and lead.

Where asphalt is specified, Whitesales recommend the use of ECO PVC upstands with pre-fixed sheathing felt and expanded metal lathe. This must be specified if required.



# Support services

## Technical services

Advice and technical assistance on the application and specification of all rooflights and accessories is readily available from Whitesales.

Full technical advice is available, including technical specification writing, site surveys, condition reports and budget costings or fully detailed quotations.

A comprehensive library of product data sheets and CAD drawings is available along with NBS specifications.

For projects where we have undertaken a rooflight site survey we offer a CAD roof plan drawing service.

The Whitesales Customer Service Team works to respond immediately to customer request.

For more information, please contact us on:

Tel 01483 271371
Fax 01483 271771

E-mail sales@whitesales.co.uk
www.whitesales.co.uk

## Nationwide coverage

With depots strategically located in England and Scotland, the service driven team is readily available, from your initial enquiry through to after sales support.

Project and larger consignments are delivered on Whitesales' own transport and delivery periods are determined on a per order basis.

## Guarantees

All Whitesales glass rooflights, when installed on Em-Curbs or Em-Collars and in accordance with manufacturer's 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 Whitesales glass rooflights is warranted against discolouration for ten years subject to certain conditions. A 20 year 'special projects' guarantee is also available. Further details available on request.

Whitesales glass rooflights have an expected life of at least 25 years which would normally exceed the life of the roof waterproofing materials.

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

Whitesales holds Professional Indemnity Insurance, covering our designs and recommendations. Full details available on request.

# Environment

## Our responsibility

The environment and the effect we have upon it is one of the key issues facing the construction industry.

There is a growing demand for construction solutions which minimise the consumption and use of natural resources. Whitesales recognises the impact that we can have on the environment and is managing activities to maximise our contribution towards the protection of the environment and preservation of natural resources. This includes constant reviews of our manufacturing operations and distribution chain.

## Sustainability

Sustainable developments ensure a better quality of life for everyone, now and for future generations. To be environmentally sustainable a product must be manufactured and used in a way that minimises its impact on the environment.

Sustainability covers all aspects of a product's impact on the environment. This includes original source of raw materials, the manufacturing process, transportation, construction, life span of the product and eventual disposal and re-use of the material.

## Environmental policy

In maintaining and developing our business, products and services, we will pay careful attention to the following measures:

- Comply immediately with all applicable laws and regulations concerning the environment.
- Develop manufacturing processes and operational procedures that minimise, as far as practically possible, pollution risks to the environment.
- Reduce waste generated by our activities and encourage energy conservation, recycling and re-use.
- Provide training and support to employees to enable them to maximise their contribution towards the protection of the environment.
- Encourage suppliers, contractors and customers to share in our aims to promote good environmental management.

Whitesales®
Rooflights & more...

Whitesales Europa House Alfold Road Cranleigh GU6 8NQ

Tel 01483 271371 Fax 01483 271771
E-mail sales@whitesales.co.uk www.whitesales.co.uk

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