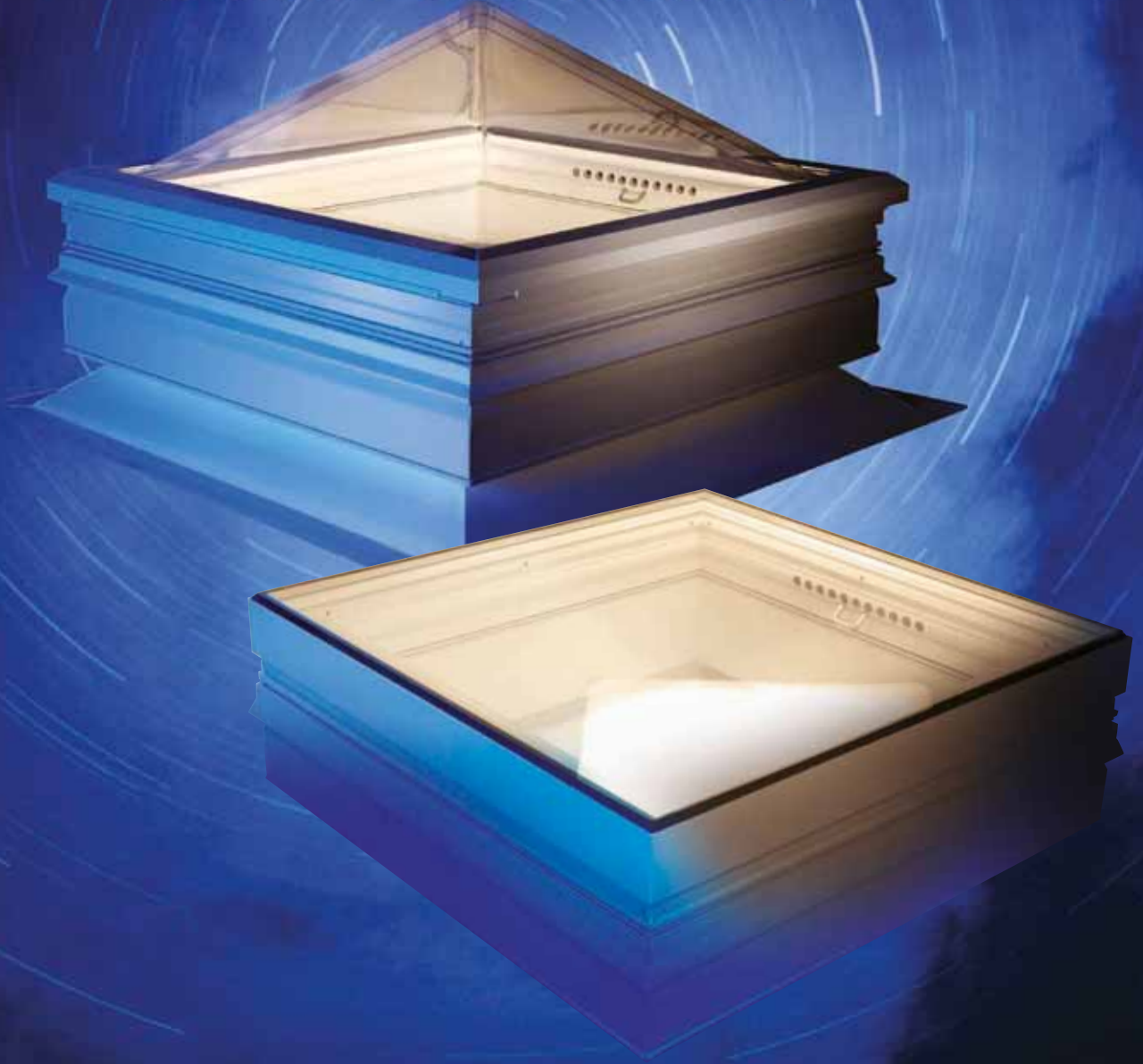


STARDOME & STARGLAZE

A NATURAL LIGHT INNOVATION

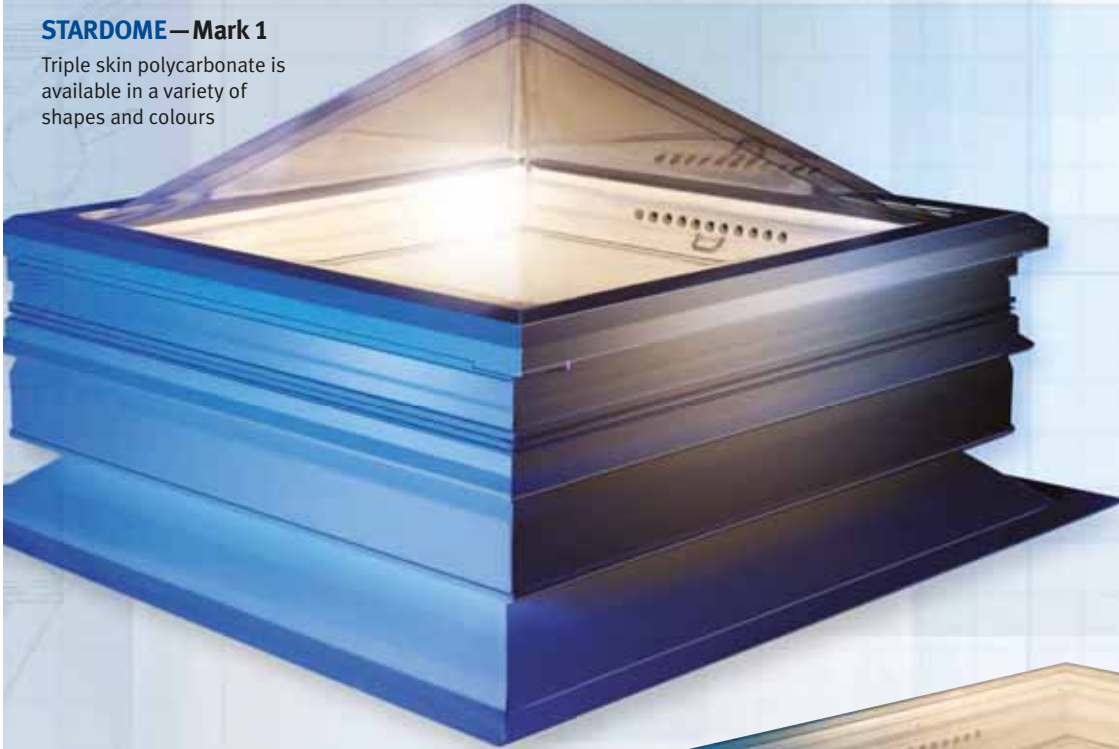


Product Portfolio—Rooflights

Overview

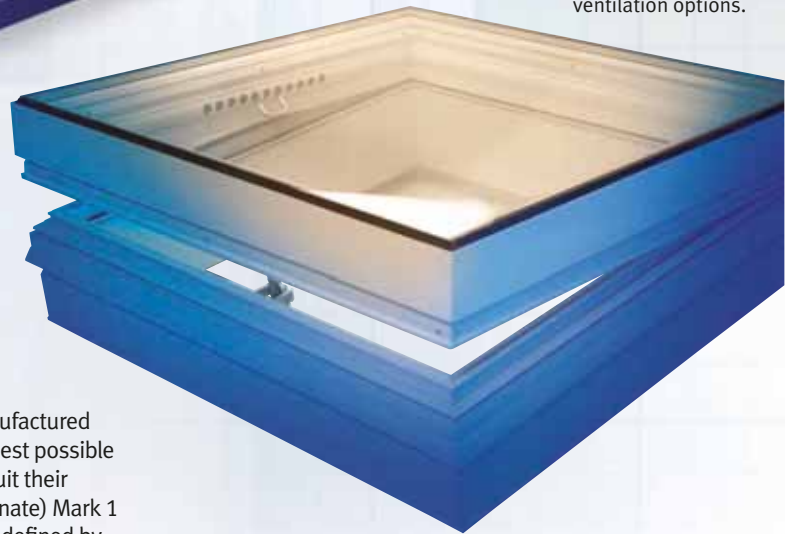
STARDOME—Mark 1

Triple skin polycarbonate is available in a variety of shapes and colours



STARGLAZE—Mark 1

Double glazed glass rooflights available with a variety of ventilation options.



The National Domelight Company offers the widest range of polycarbonate and glass rooflights available, suitable for all applications and building types.

All National Domelight Company's rooflights are individually manufactured to order and so are effectively bespoke products, offering the widest possible flexibility. However, to help designers build up specifications to suit their specific needs, products are categorised as Stardome (polycarbonate) Mark 1 to Mark 5 and StarGlaze (glass) Mark 1 to Mark 3. The ranges are defined by thermal performance and are summarised in the table opposite. Options and accessories for each range are illustrated on pages 12 – 13.

U VALUE CALCULATION

The U value of a rooflight is calculated by dividing the heat transfer across the system (measured in Watts) by the environmental temperature difference across the test element (measured in degrees K) multiplied by the area of the aperture in the surround panel—called the projected area (measured in m^2). This latter dimension is equivalent to the opening in the building envelope. One consequence of this is that the U value of the product will increase as it gets deeper, despite the thermal properties of the individual components staying the same.

The building energy software SBEM uses the actual area (often called the developed area) of the product, to calculate the heat transfer through the product.

To show what this value is, a 'supplemental' U value has been calculated using developed area and it is this relevant value that we quote in this brochure.

Product Portfolio—Rooflights

Specifying the Right Rooflight



CATEGORISATION BY THERMAL EFFICIENCY

The Mark 1 to Mark 5 range primarily reflects the level of thermal efficiency (U value) and hence its suitability for particular applications. It is recommended that the appropriate range be selected first, followed by required size, shape and glazing, then options and accessories—so building up the specification.

Additional information concerning the different options within the range, plus options and accessories are covered in more detail on the following pages.



	Mark 1 (MK1)	Mark 2 (MK2)	Mark 3 (MK3)	Mark 4 (MK4)	Mark 5 (MK5)
U value (2.2 required for Part L)					
Shape					
Rectangular/Square	•	•	•	•	•
Circular			•	•	•
All Glazing Colours	•	•	•	•	•
Glazing Material*					
Polycarbonate Single					•
Double					•
Triple	•	•	•	•	
Glass Single					•
Double	•	•	•	•	
Ventilation	•	•	•		•
Security					
Security Screws	•	•	•	•	•
Security Frame	•	•	•		•
Intruder Grid	•	•	•	•	•
Kerbs					
PVC	•	•			
Metal			•		•
GRP				•	
Flexible Base Adapter	•	•			

*Glazing options are only those that we recommend to achieve the U value figures shown. Other options are available on request.

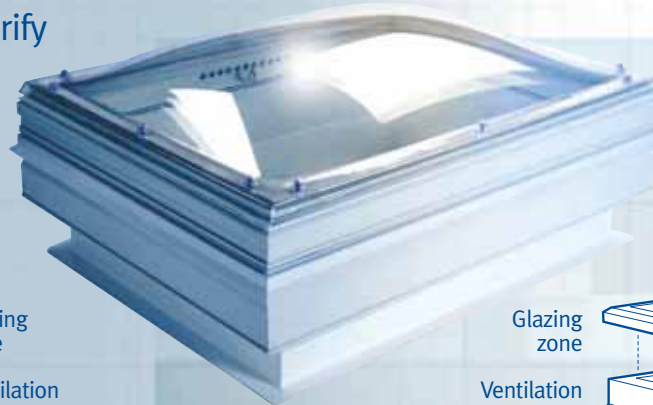
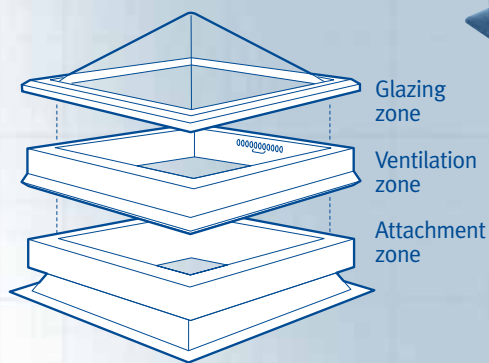
Product Portfolio—Rooflights

Mark 1 (MK1)

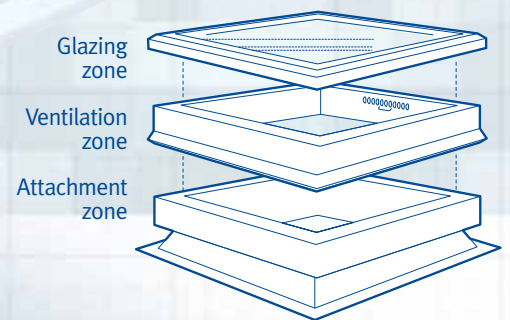
This latest range of Stardome and Starglaze represents the future of rooflights, with an exceptionally low U value of 1.3 exceeding the requirements of Part L. The Mark 1 also benefits from low air leakage rates. Unlike other rooflights, the Mark 1 rooflight is designed and constructed in three distinct zones to clarify specification and maximize performance and flexibility:



STARDOME—Mark 1



STARGLAZE—Mark 1



GLAZING ZONE

The Stardome Mark 1 is triple glazed as standard and formed from enhanced UV protected polycarbonate with breathing airspaces between the glazing elements. The integral cascade water management system ensures that moisture drains to the outside of the building.

The Starglaze Mark 1 is double glazed as standard and features a 28.4 mm unit comprising of a 16 mm air gap between the toughed 6 mm outer and 6.4 mm laminated inner glass. A silicon seal between the glazing and attachment zone ensures a weather proof finish.

VENTILATION ZONE

This feature is the key element that ensures compliance with Part L and gives Mark 1 its unique capability in terms of environmental control. The frame is constructed from a single, highly complex, PVC profile designed to efficiently 'dock' between the glazing module and either the kerb adaptor profile or the kerb, creating a secure, weathered and warm connection with no cold bridges. The ventilation zone arrangement is flexible depending on the specifiers requirements. For example it can include the following features:

- A unique continuous hinge is available which facilitates the opening of the ventilation zone and glazing (manually or electrically actuated). This allows for high-volume air ventilation.
- A PVC extruded profile rotary ventilator system can be mounted in the sidewall of the accessory frame. The cylindrical shape protects it from the outside elements using a continuous cowl feature and can be protected with integral insect mesh. The design of the vent ensures that there is no cold bridging between the outer and inner surfaces. When the vent is closed it forms a virtual triple skin chamber with both air leakage and sound attenuation performance

second to none. The ventilation system is simply operated by rotating the operating handle. Refer to the Rotary Vent drawing in the Ventilation and Roof Attachment section for more information.

ATTACHMENT ZONE

The National Domelight Company offers unique mounting systems to aid the attachment of Mark 1 Stardome and Starglaze rooflights, making them easy to incorporate into any roof system.

A versatile metal foot will allow for varying thicknesses of roof insulation, whilst allowing 'flexible' matching of rooflight to roof opening as well as 'cut to falls' variable depth insulation systems.

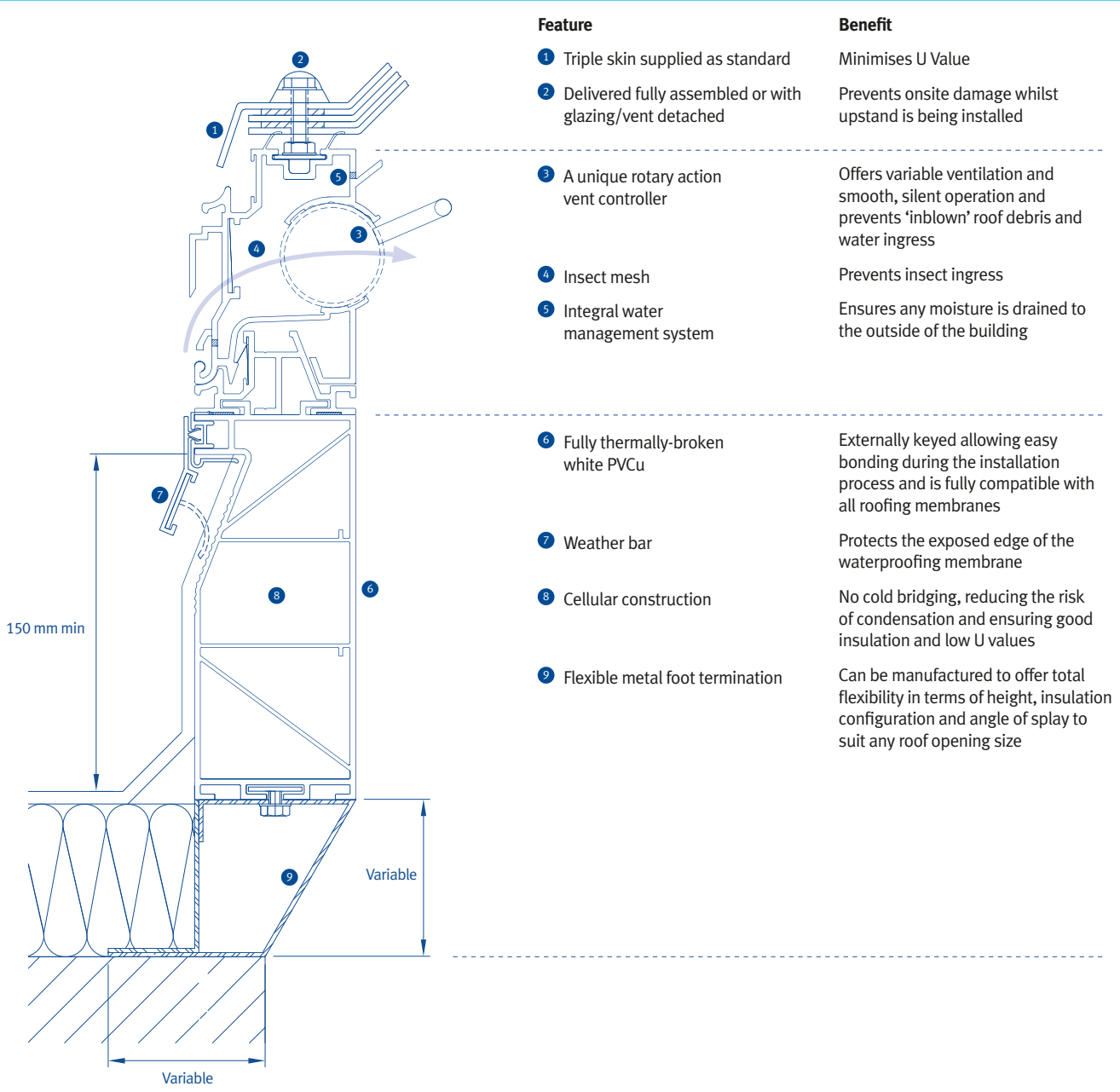
Fixing direct to the roof deck allows for the kerb to be attached direct to the supporting structure which could be above the insulation layer or by using a kerb adaptor direct to any pre-constructed builders kerb.

The kerb has three main insulating chambers ensuring not only compliance with current regulations but also with projected future changes, by the addition of high performance insulation to the chambers. The kerb is designed to be equally suitable for, and compatible with, both polymeric and PVC roofing membrane systems, bituminous membrane and mastic asphalt systems (Contact National Domelight Company for suitable bonding agents).

The rooflight assembly includes a unique termination detail to ensure that the 'top edge' of the roofing membrane is fully protected. A special 'key' finish to the PVC-U kerb increases roof membrane fixing options and the PVC-U kerb is torch-on system friendly. Simplified assembly allows the roofing finish to be applied to the upstand prior to clipping the glazing zone and ventilation zone into position. This procedure minimises damage and the need for protection, and eliminates dressing around the vents.

Product Portfolio—Rooflights

Stardome—Mark 1 Features



Feature	Benefit
1 Triple skin supplied as standard	Minimises U Value
2 Delivered fully assembled or with glazing/vent detached	Prevents onsite damage whilst upstand is being installed
3 A unique rotary action vent controller	Offers variable ventilation and smooth, silent operation and prevents 'inblown' roof debris and water ingress
4 Insect mesh	Prevents insect ingress
5 Integral water management system	Ensures any moisture is drained to the outside of the building
6 Fully thermally-broken white PVCu	Externally keyed allowing easy bonding during the installation process and is fully compatible with all roofing membranes
7 Weather bar	Protects the exposed edge of the waterproofing membrane
8 Cellular construction	No cold bridging, reducing the risk of condensation and ensuring good insulation and low U values
9 Flexible metal foot termination	Can be manufactured to offer total flexibility in terms of height, insulation configuration and angle of splay to suit any roof opening size



Set into the side wall of the ventilation zone, the rotary vent allows for precise ventilation control. The vent module is fully protected from wind-borne water, debris and insect ingress by means of an integral continuous weather cowl. The vents appear on two sides of the frame and when closed form a virtual triple skin chamber ensuring air leakage is kept to a minimum.

STARDOME MARK 1 WAS INDEPENDENTLY TESTED BY NPL AND REVEALED A U VALUE OF JUST 1.3

Product Portfolio—Rooflights

Starglaze—Mark 1 Features

Feature

- 1 Double glazed as standard
- 2 Delivered fully assembled or with glazing/vent detached
- 3 A unique rotary action vent controller
- 4 Insect mesh
- 5 Integral water management system

Benefit

- Minimises U Value
- Prevents onsite damage whilst upstand is being installed
- Offers variable ventilation and smooth, silent operation and prevents 'inblown' roof debris and water ingress
- Prevents insect ingress
- Ensures any moisture is drained to the outside of the building

- 6 Fully thermally-broken white PVCu

Externally keyed allowing easy bonding during the installation process and is fully compatible with all roofing membranes

- 7 Weather bar

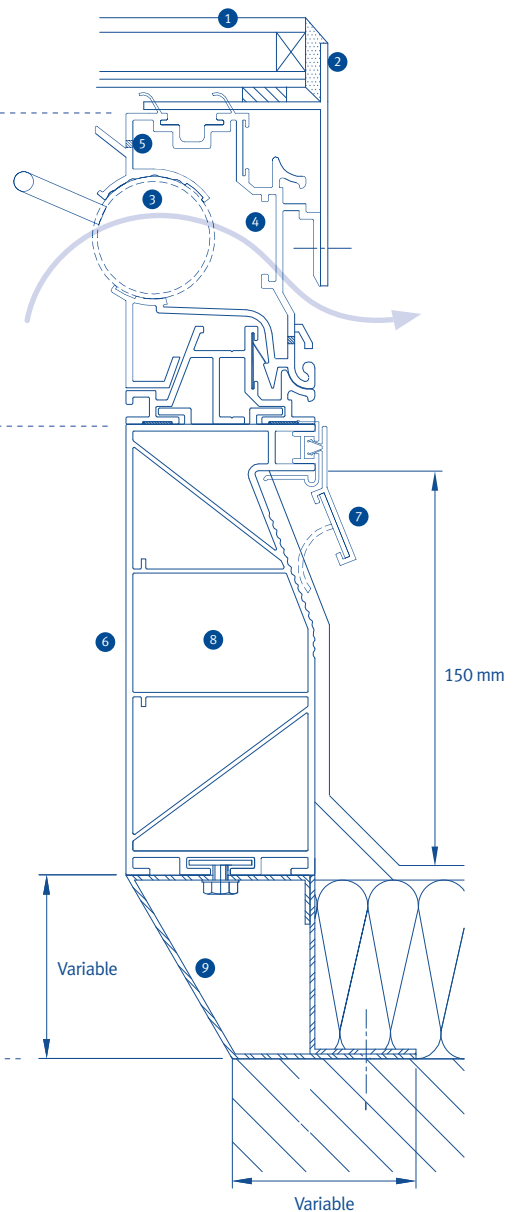
Protects the exposed edge of the waterproofing membrane

- 8 Cellular construction

No cold bridging, reducing the risk of condensation and ensuring good insulation and low U values

- 9 Flexible metal foot termination

Can be manufactured to offer total flexibility in terms of height, insulation configuration and angle of splay to suit any roof opening size



Set into the side wall of the ventilation zone, the rotary vent allows for precise ventilation control. The vent module is fully protected from wind-borne water, debris and insect ingress by means of an integral continuous weather cowl. The vents appear on two sides of the frame and when closed form a virtual triple skin chamber ensuring air leakage is kept to a minimum.

Product Portfolio—Rooflights

Mark 2 (MK2)

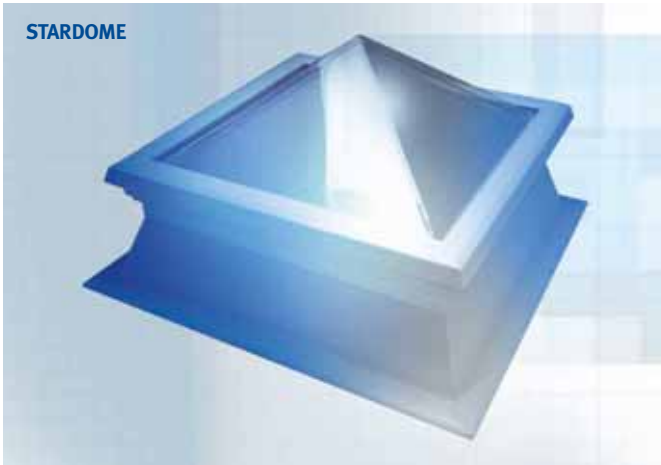
MARK 2

This range also meets and beats the requirements of Part L with an impressive 1.8 U value using 'all thermoplastic construction' for outstanding thermal efficiency, high resistance to weathering and low maintenance. The Mark 2 is formed from enhanced UV protected polycarbonate with vented airspaces. The integral Cascade water management system ensures that moisture drains to the outside of the building and air leakage meets Part L criteria. Key features include:

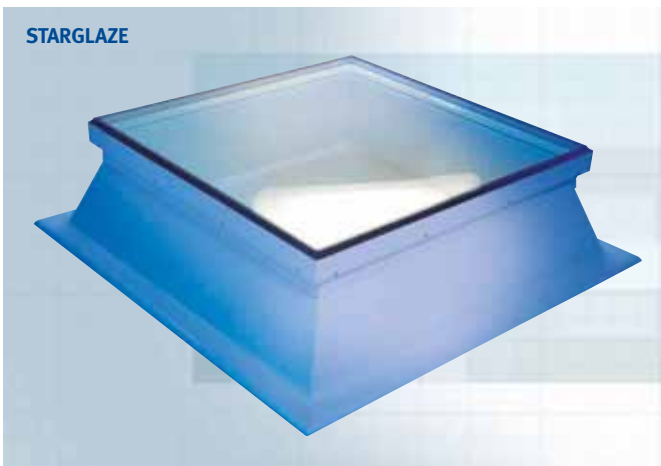
- Aluminium trim and extruded gasket sections
- Steel security insert housed within the PVC-U section
- Available in four versions—fixed; worm-gear opening; hit and miss; access hatch—see **Ventilation and Access section** later in this brochure.

A 2 mm thick wall thickness ensures weld strength and a weather seal on all opening rooflights maintains weather-tightness. A special 'key' finish to the PVC-U kerb assists adhesion of membrane and the PVC-U kerb is torch-on system friendly. Mark 2 can be delivered in two parts for easy handling and more efficient installation.

STARDOME

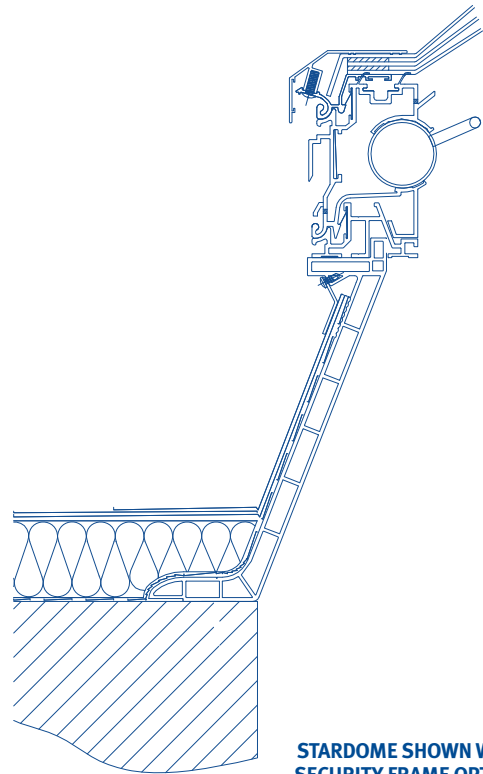


STARGLAZE



1.8

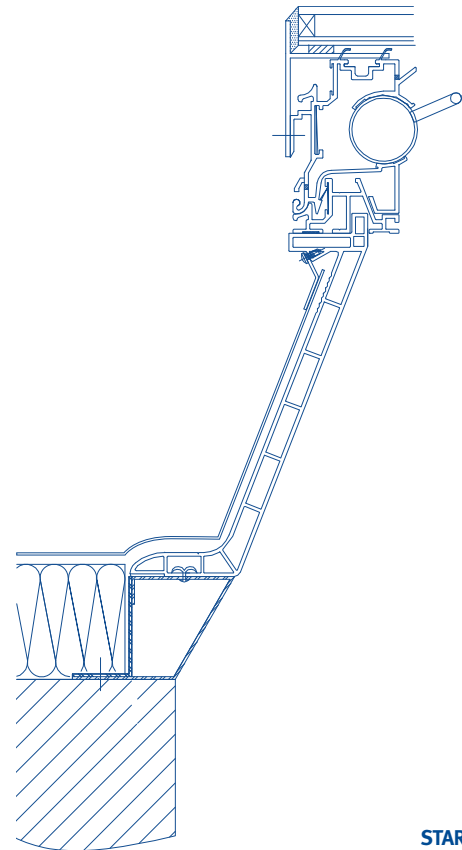
Uvalue



STARDOME SHOWN WITH SECURITY FRAME OPTION

1.8

Uvalue



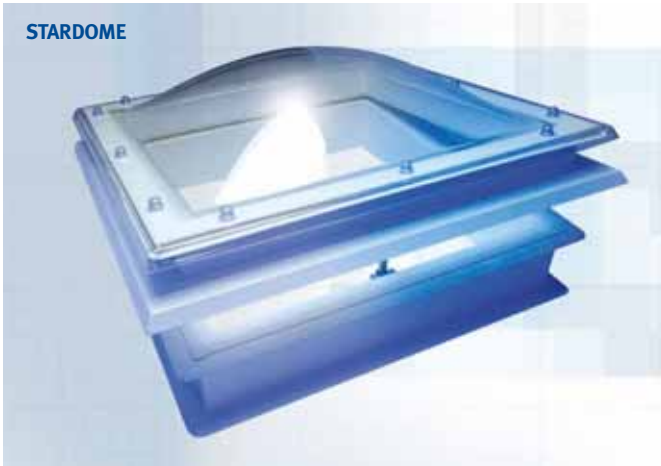
STARGLAZE

Mark 3 (MK3)

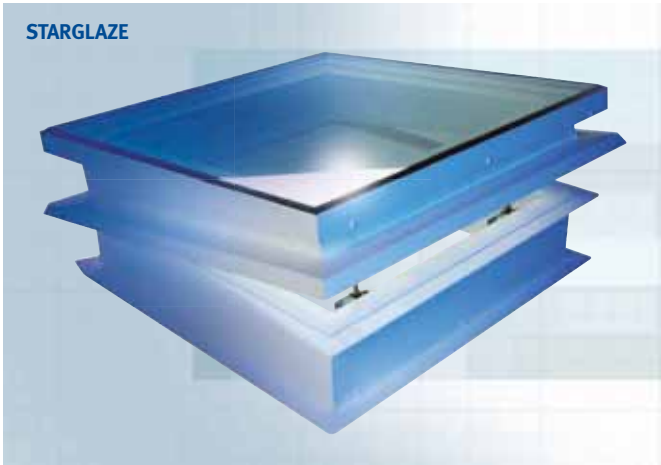
MARK 3

This thermally broken, metal system offers considerable flexibility whilst complying with the maximum allowable (under Part L) U value of 2.2 W/m²K. Frames and kerbs are finished in white as standard but coloured kerbs are also available. Mark 3 rooflights can be double glazed glass or triple glazed in polycarbonate. The integral Cascade water management system ensures that moisture drains to the outside of the building and air leakage meets Part L criteria. The security frame is also available as an option.

STARDOME

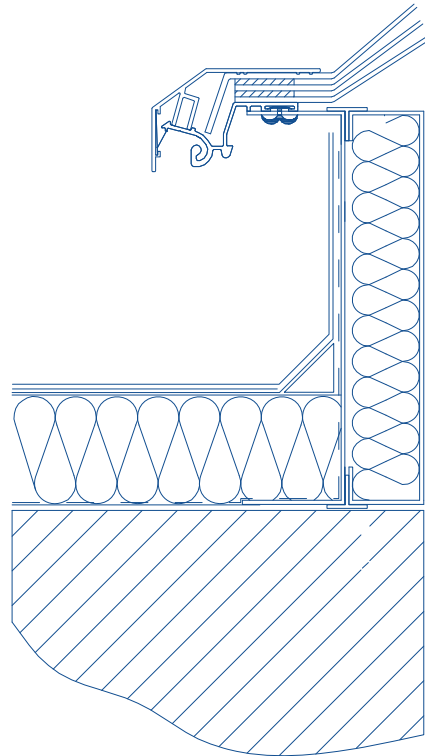


STARGLAZE



2.2

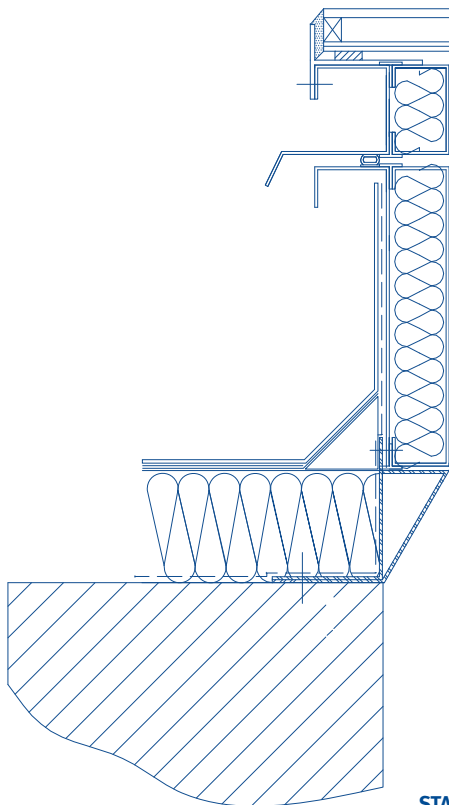
Uvalue



STARDOME SHOWN WITH SECURITY FRAME OPTION

2.2

Uvalue



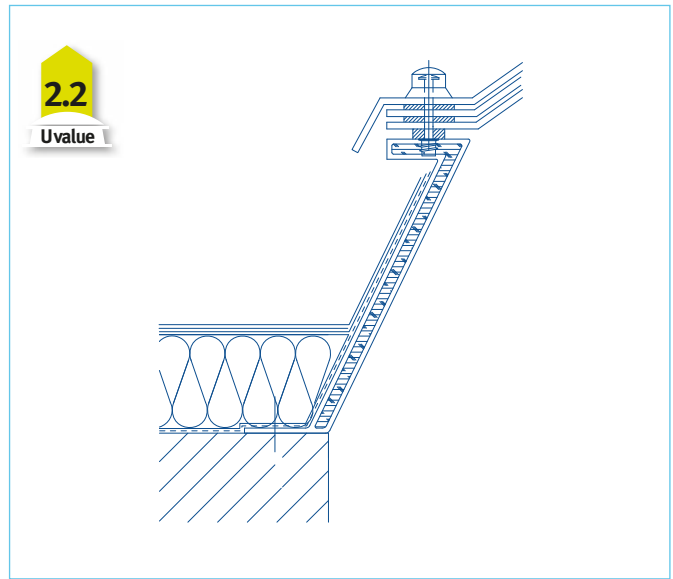
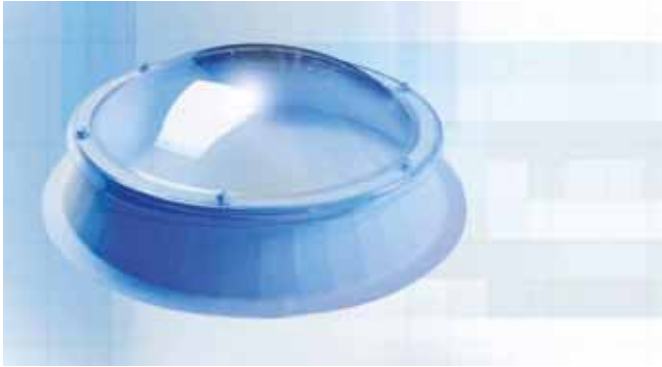
STARGLAZE

Product Portfolio—Rooflights

Mark 4 (MK4), Mark 5 (MK5) & Glazing Units (GU)

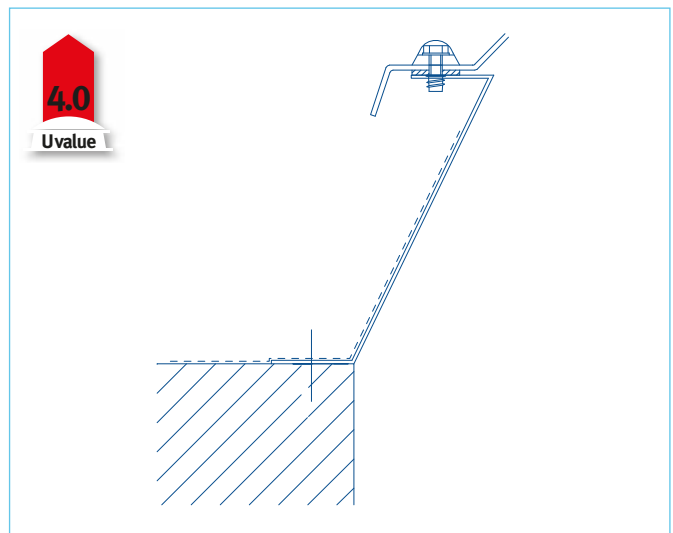
MARK 4

This GRP kerbed system is designed for circular rooflights whilst also complying with the maximum allowable U value (under Part L) of 2.2. Rooflights are triple glazed as standard with enhanced UV protected polycarbonate and vented airspaces, and air leakage meets Part L criteria.



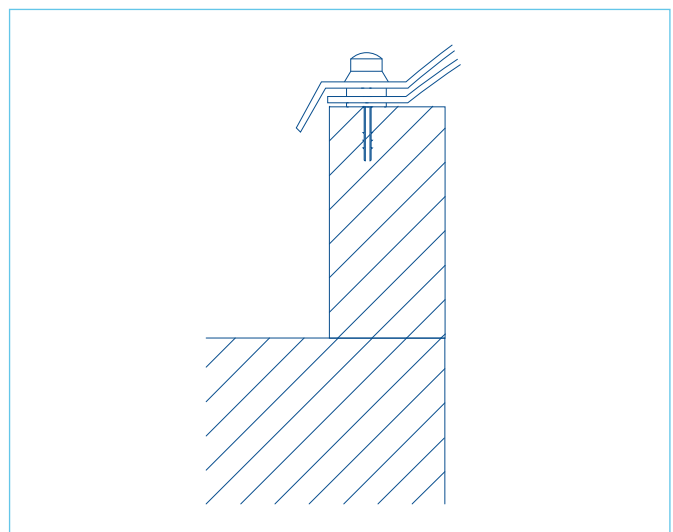
MARK 5

This metal system offers considerable flexibility for unheated areas where thermal insulation is not an important criterion. Frames and kerbs are finished in white as standard but coloured kerbs are also available. Mark 5 rooflights can be square, rectangular or circular in shape and single glazed as standard with enhanced UV protected polycarbonate or glass. The security frame is also available as an option. Multiple skin options are available on request.



GLAZING UNITS

Single, double or triple skin polycarbonate glazing units are available for direct fixing to a builder's kerb/upstand. As there are no integral frames or kerbs, the usual range of Stardome ventilation, access and other options are not available. Also, the U value provided applies to glazing only, as—for Building Regulations purposes—the builder's kerb or upstand forms an integral part of the roof not the rooflight.



	Triple Skin	Double Skin	Single Skin
U value (2.2 required for Part L)	1.8 Uvalue	2.9 Uvalue	4.0 Uvalue

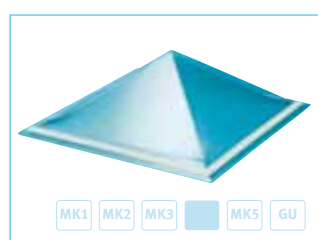
Product Portfolio—Rooflights

Stardome Glazing Size, Shape and Colour

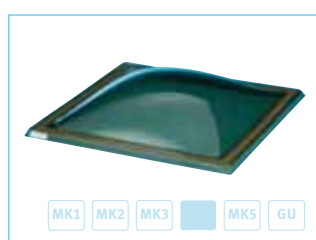
SIZE AND SHAPE

Stardome rooflights are bespoke products and a range of shapes is available including those shown here. Similarly, virtually any sizes can be accommodated—up to a maximum of 1200 mm x 2400 mm—although designers may wish to consider the guide sizes shown (which also relate to other characteristics—such as ventilation—discussed elsewhere in this brochure).

Square		Rectangular		Circular (Diameter)	
600 x 600	1200 x 1200	600 x 900	900 x 1800	600	900
750 x 750	1350 x 1350	600 x 1200	900 x 2400	1200	1500
900 x 900	1500 x 1500	600 x 1500	1000 x 1500	1800	
1000 x 1000	1800 x 1800	600 x 1800	1000 x 2000		
1050 x 1050		600 x 2400	1200 x 1500		
		900 x 1200	1200 x 1800		
		900 x 1350	1200 x 2400		
		900 x 1500			



PYRAMID



DOME



CIRCULAR



HEXAGONAL

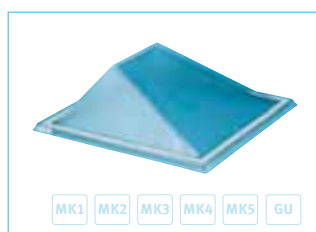
GLAZING COLOUR

The various glazing layers in Stardome rooflights can be supplied in four types or colours: clear, opal, bronze or diffused—with the characteristics described below. For information on the light transmission of different types of polycarbonate rooflight glazing, please contact the National Domelight Company.



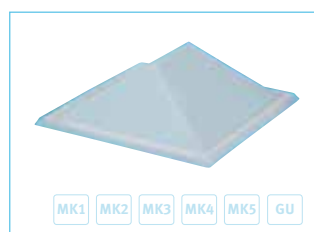
CLEAR

- High light transmission.
- Placement where glare may occur is a consideration.
- Allows full vision of views and objects.



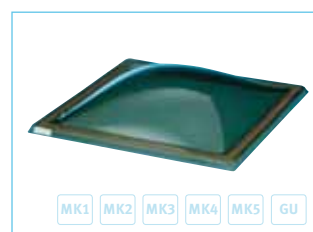
DIFFUSED

- Maximises privacy.
- High levels of light transmission into a building.
- Diffuses light transmission and so avoids glare and shadows.
- Prevents vision of views and objects.



OPAL

- Maximises privacy.
- Diffuses light transmission and so avoids glare and shadows.
- Prevents vision of views and objects.



BRONZE

- Reduces solar heat gain.
- Reduces light transmission into a building.

Product Portfolio—Rooflights

Starglaze Glazing Size and Colour

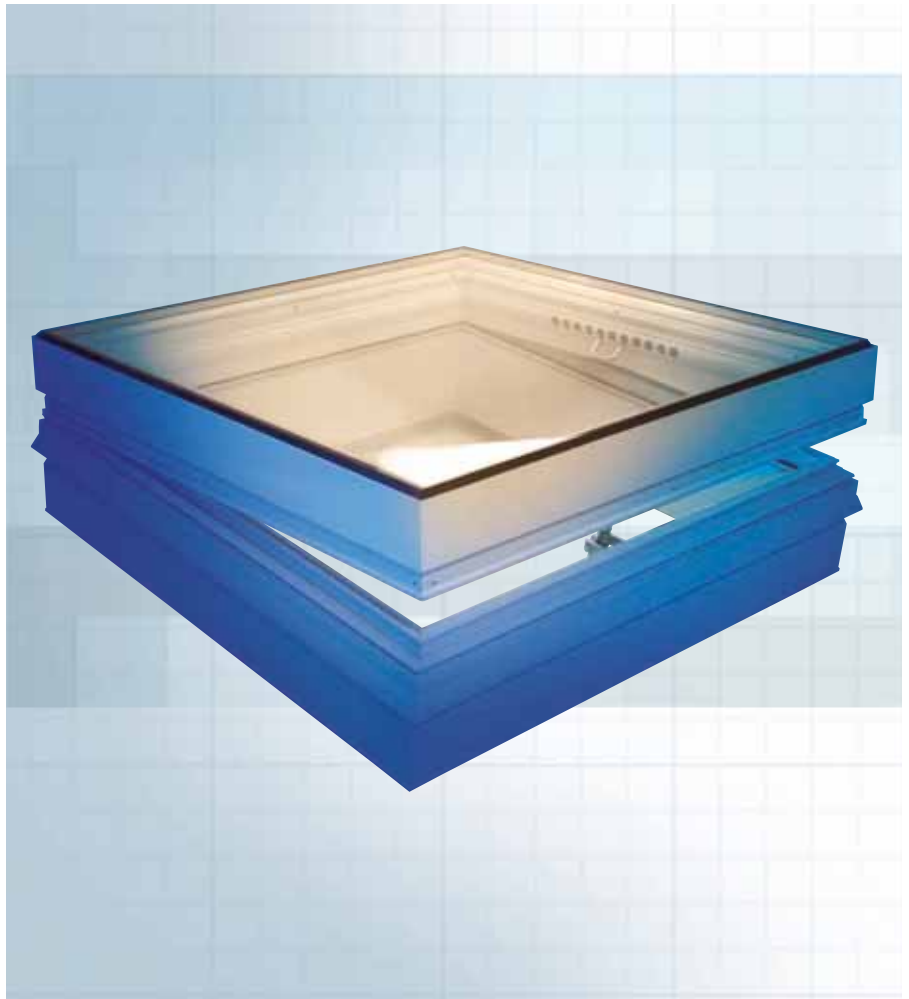
SIZE

Starglaze rooflights are bespoke products and are available in a range of sizes up to a maximum of 2400 mm x 900 mm. Designers may wish to consider the guide sizes shown.

Starglaze Sizes (mm)

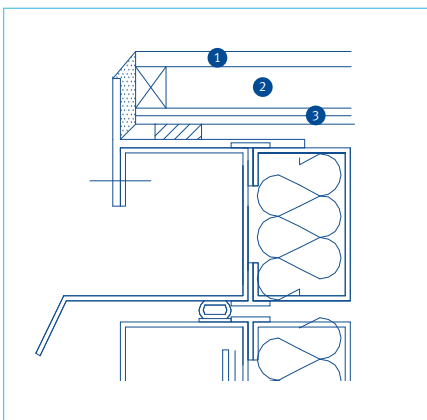
Mark 1 – Mark 3

600 x 600
750 x 600
900 x 600
750 x 750
900 x 750
900 x 900
1050 x 1050
1200 x 600
1200 x 750
1200 x 900
1200 x 1200
1350 x 750
1350 x 900
1350 x 1350
1500 x 750
1500 x 900
1500 x 1050
1500 x 1200
1800 x 600
1800 x 900
2400 x 600
2400 x 900



GLAZING

Starglaze features a 28.4 mm double glazed unit consisting of a 6 mm clear toughened outer pane ①, a 16 mm air gap ② and a 6.4 mm clear laminated low E inner pane ③ supplied clear as standard. For any other glass specification please contact the National Domelight Company.

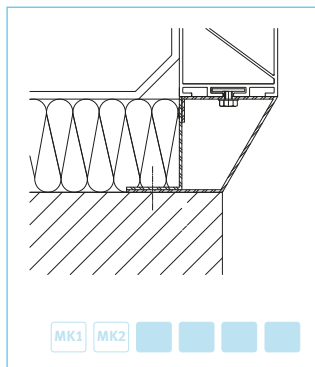


Product Portfolio—Rooflights

Roof Attachment, Security and Access Options

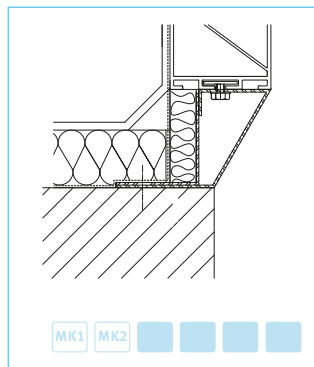
ROOF ATTACHMENT

The National Domelight Company has developed unique mounting systems to aid attachment and make the process of incorporation easy.



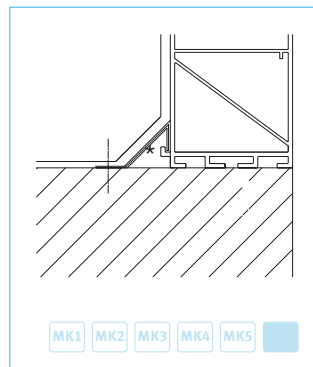
FLEXIBLE METAL FOOT

This roof attachment can be manufactured to accommodate varying thicknesses of roof insulation, whilst allowing 'flexible' matching of rooflight to roof opening.



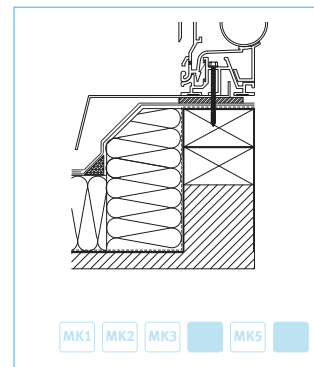
INSULATED METAL FOOT

Provides the same adaptability as the flexible metal foot whilst allowing for 'cut to falls' variable depth insulation systems.



DIRECT TO ROOF DECK

Allows for the kerb to be attached direct to the supporting structure. It is possible that this may be above the insulation layer. * Features a unique fixing clip that also forms the angle fillet—supplied by the National Domelight Company.

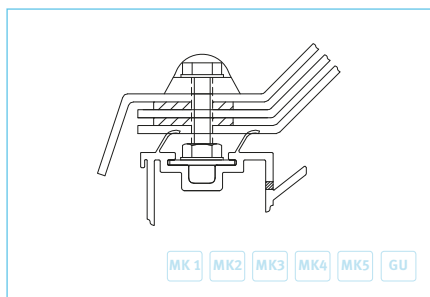


ADAPTOR KERB

Allows the rooflight to be fixed to new/existing builder's kerbs and can incorporate various ventilation options.

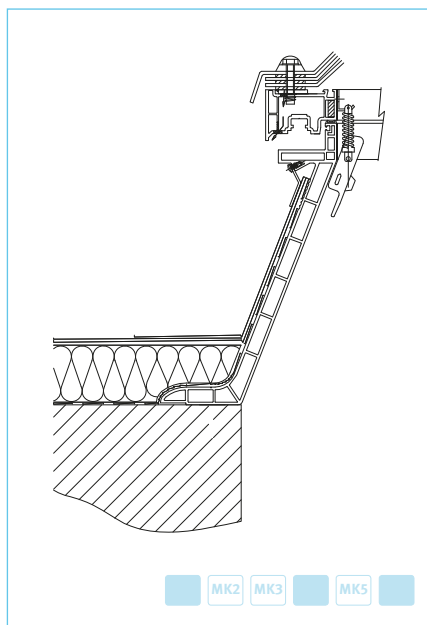
SECURITY/ACCESS

The National Domelight Company offers a range of security options to prevent unauthorised access, depending on the level of security required and product range selected.



SECURITY SCREWS

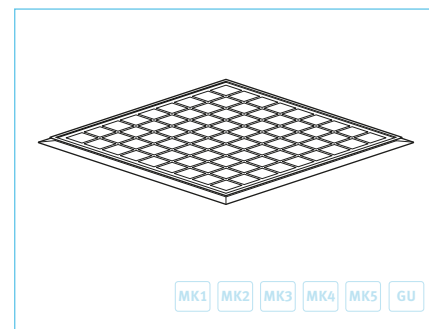
Thread assemblies into which the security screws locate are totally inaccessible.



ACCESS HATCH

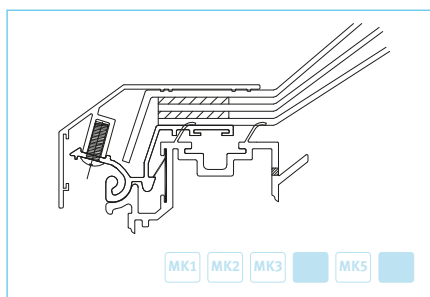
Gas springs assist opening to 90° for access. Please refer to the National Domelight Company for specific health and safety information.

NOTE: Access hatches not available in all sizes/glazing options, please consult the National Domelight Company for options available.



INTRUDER GRID

Intruder grid systems may be added to all rooflights in the Stardome and Starglaze range. They are positioned between the upstand and the roof structure and consist of a 3 mm diameter, solid steel fully-welded mesh in a 75 mm grid. This system will resist entry even when the rooflight has been compromised or removed.



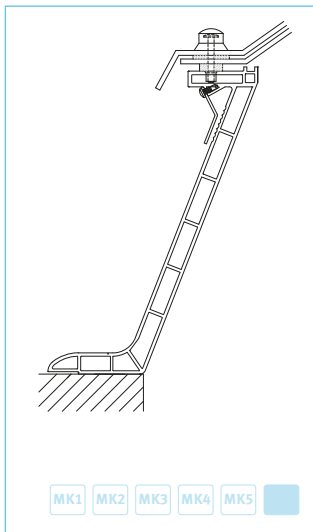
SECURITY FRAME

A purpose-designed, robust, extruded aluminium framing system that encloses and secures the outer vulnerable edge of the glazing and clips onto the lower assembly.

Product Portfolio—Rooflights

Ventilation Options

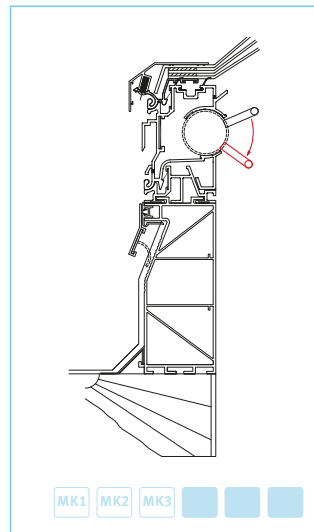
Stardome and Starglaze rooflights can incorporate a range of ventilation and access systems. Where ventilation is a primary consideration for energy efficient environmental management or smoke control during fires, refer to the **Natural Smoke and Ventilation Systems** on page 17–18.



UNVENTILATED

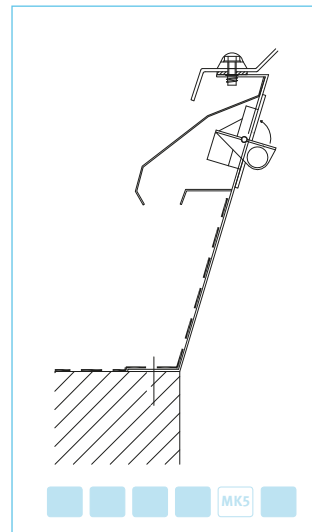
Often referred to as a 'fixed' rooflight, ideal for situations where ventilation is not required.

NOTE: Before specifying this option it is as well to check that the ventilation required by AD Part 'L' & AD Part 'F' for the room below, is provided by other means, thus ensuring the risk of condensation is minimised.



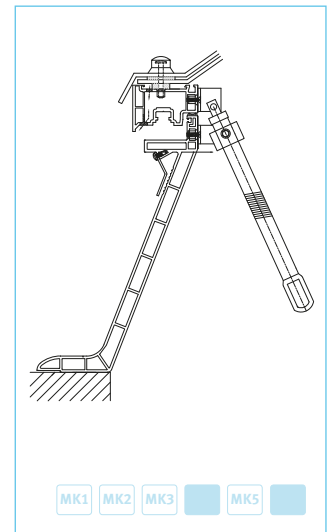
ROTARY VENT

A unique rotary action vent controller offers variable ventilation, distinctive internal appearance and smooth, silent operation, and prevents 'in-blown' roof debris and water ingress.



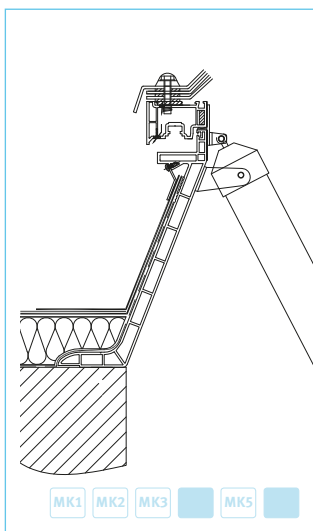
CONTROLLED LOUVRE VENT

Louvre inset into side wall of unit, this can be manually operated to provide anything from 'trickle' to 'full on'.



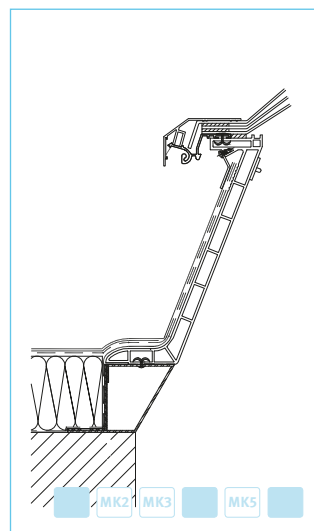
MANUAL WORMGEAR VENT

The whole rooflight top hinges to allow ventilation through the open vent area.



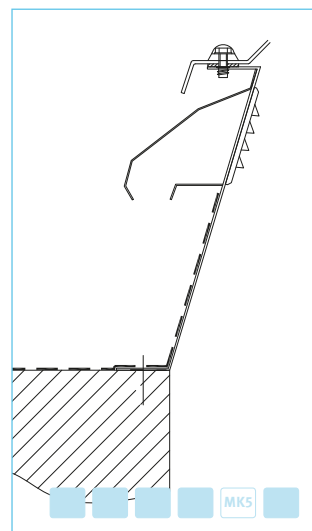
LINEAR MOTOR VENT

The whole rooflight top hinges to allow ventilation through the open vent area.



HIT AND MISS VENT

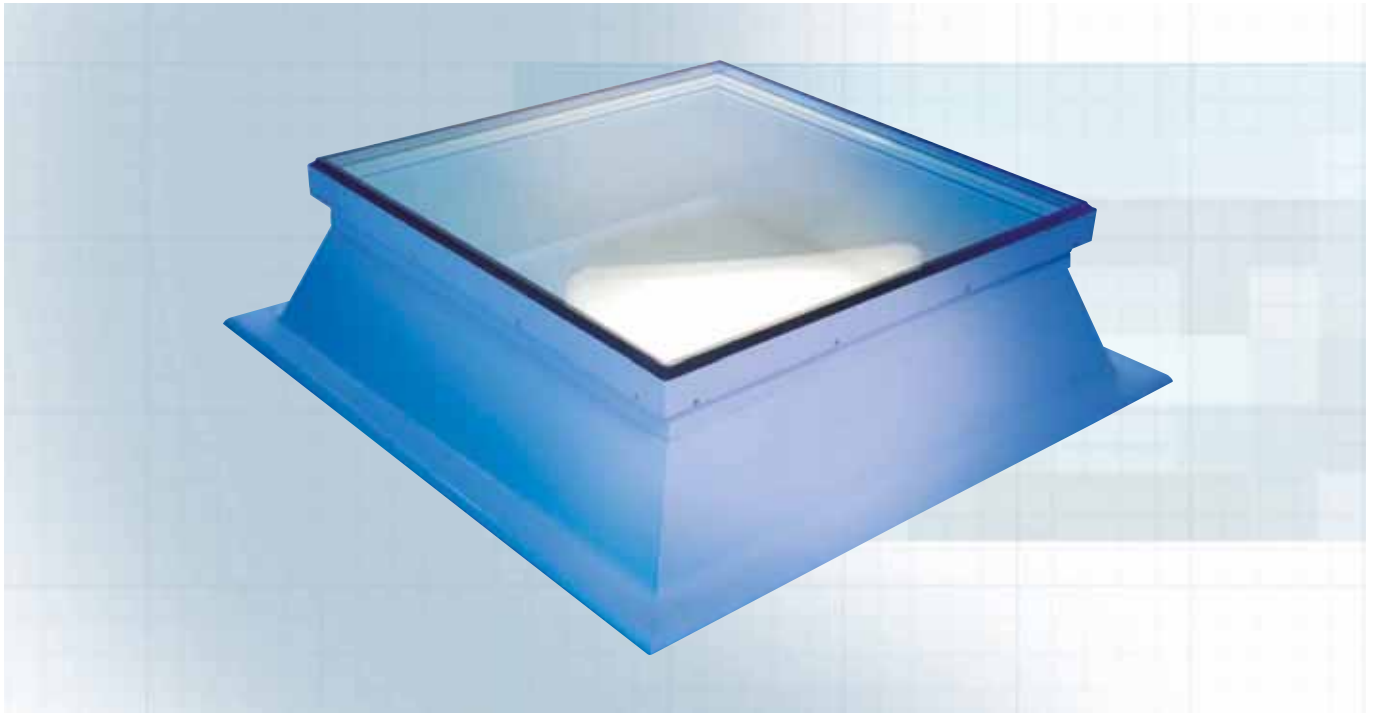
Provides minimal background ventilation



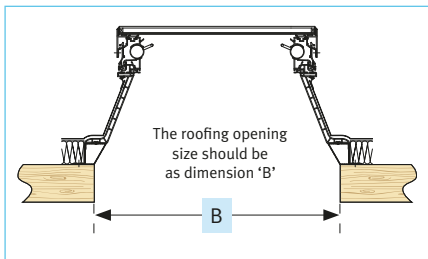
PERMANENT VENT

Provides continual ventilation

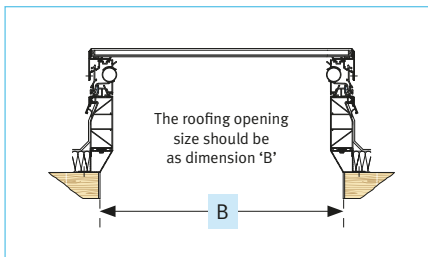
STARGLAZE TECHNICAL INFORMATION



KERBS TO FIT ROOF APERTURE



MARK 1 KERBS TO FIT ROOF APERTURE



Glazing Unit:

28 mm double glazed factory sealed units comprising of: 6 mm clear toughened outer leaf, 16 mm air filled cavity, 6.4 mm clear laminated inner leaf with low 'E' coating.

Light transmissions for glazing unit:

Clear 76%.

Clearlight size when using Steel or Aluminium upstands = Rooflight opening size – 150 mm
eg: 600 x 600 mm opening = 450 x 450 mm clearlight

Kerbs:

PVCu, Themally broken Steel or Aluminium.

Fire:

BS 476 Part 7.

Class 1 Building Regulations (1991).

Class 'O'.

Alternative Glazing specifications available upon request.

Non-fragility:

All Starglaze double glazed units are classified as Class B Non Fragile to ACR[M] 001:2005.

Ventilation:

In accordance to Part F of the Building Regulations background ventilation should not be less than 8000 mm² of controlllable and secure ventilation.

Where rapid ventilation is necessary, this should equate to 5% of the total floor area of the room.

On a standard kerb 1200 x 1200 mm vented on two sides the free air space is;

Permanent Vent 160 cm² (16,000 mm²)

Hit & Miss Vent 92 cm² (9,200 mm²)

Rotary Vent 112 cm² (11,200 mm²)

Polyester Powder Coating:

All metal kerbs and glazing bars are supplied in a white matt finish to BS 6496. Other RAL colours are available upon request.

Insulation:

We offer a choice of either fibre board or PVCU.

Other options are available to suit various membranes.

For further information please contact our technical department on 01276 451555.

Clearlight size when using Mark 2 PVC upstands = Rooflight opening size – 170 mm
eg: 600 x 600 mm opening = 430 x 430 mm clearlight

Starglaze Sizes (mm)

Mark 1 – Mark 3

600 x 600

750 x 600

900 x 600

750 x 750

900 x 750

900 x 900

1050 x 1050

1200 x 600

1200 x 750

1200 x 900

1200 x 1200

1350 x 750

1350 x 900

1350 x 1350

1500 x 750

1500 x 900

1500 x 1050

1500 x 1200

1800 x 600

1800 x 900

2400 x 600

2400 x 900

Product Portfolio

Continuous Rooflights

The National Domelight Company has introduced this range for fast-track procurement of linear rooflights up to 2.4 m wide.

Three design formats are available:

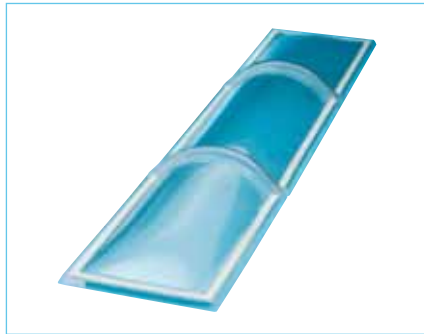
- Thermoformed Barrel Vaults
- Linked Pyramids

Guide Sizes (mm)

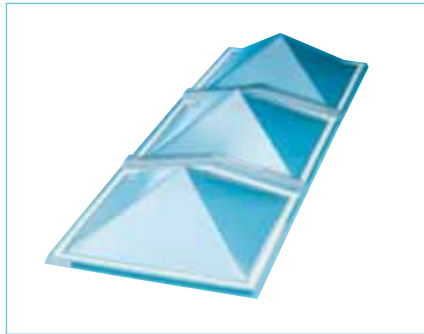
Barrel Vaults (Width)

600	900
1200	1500
1800	2100
2400	

Continuous Rooflights are triple glazed as standard and formed from enhanced UV-protected polycarbonate with vented airspaces to satisfy Part L requirements. Single and double-skin options (which fall outside Part L) are also available. The integral cascade water management system ensures that moisture drains to the outside of the building and air leakage meets Part L criteria.



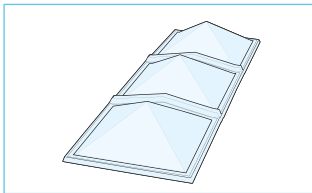
THERMOFORMED BARREL VAULT



LINKED PYRAMID

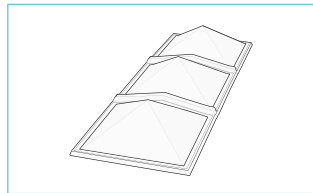


GLAZING COLOUR



CLEAR

- High light transmission.
- Placement where glare may occur is a consideration.
- Allows full vision of views and objects.



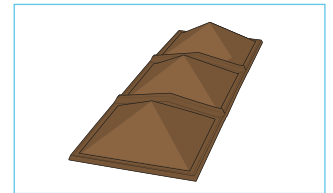
DIFFUSED

- Maximises privacy.
- High levels of light transmission into a building.
- Diffuses light transmission and so avoids glare and shadows.
- Prevents vision of views and objects.



OPAL

- Maximises privacy.
- Diffuses light transmission and so avoids glare and shadows.
- Prevents vision of views and objects.

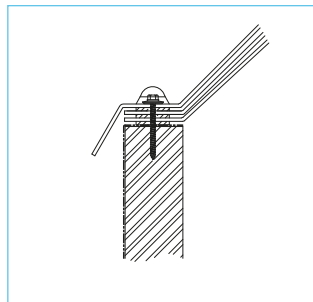


BRONZE

- Reduces solar heat gain.
- Reduces light transmission into a building.

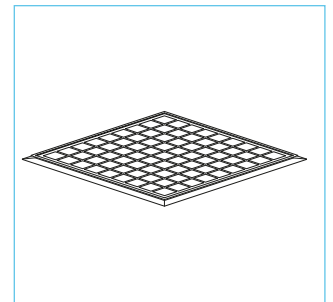
SECURITY SCREWS

The National Domelight Company offers a range of security options to prevent unauthorised access, depending on the level of security required and product range selected.



INTRUDER GRID

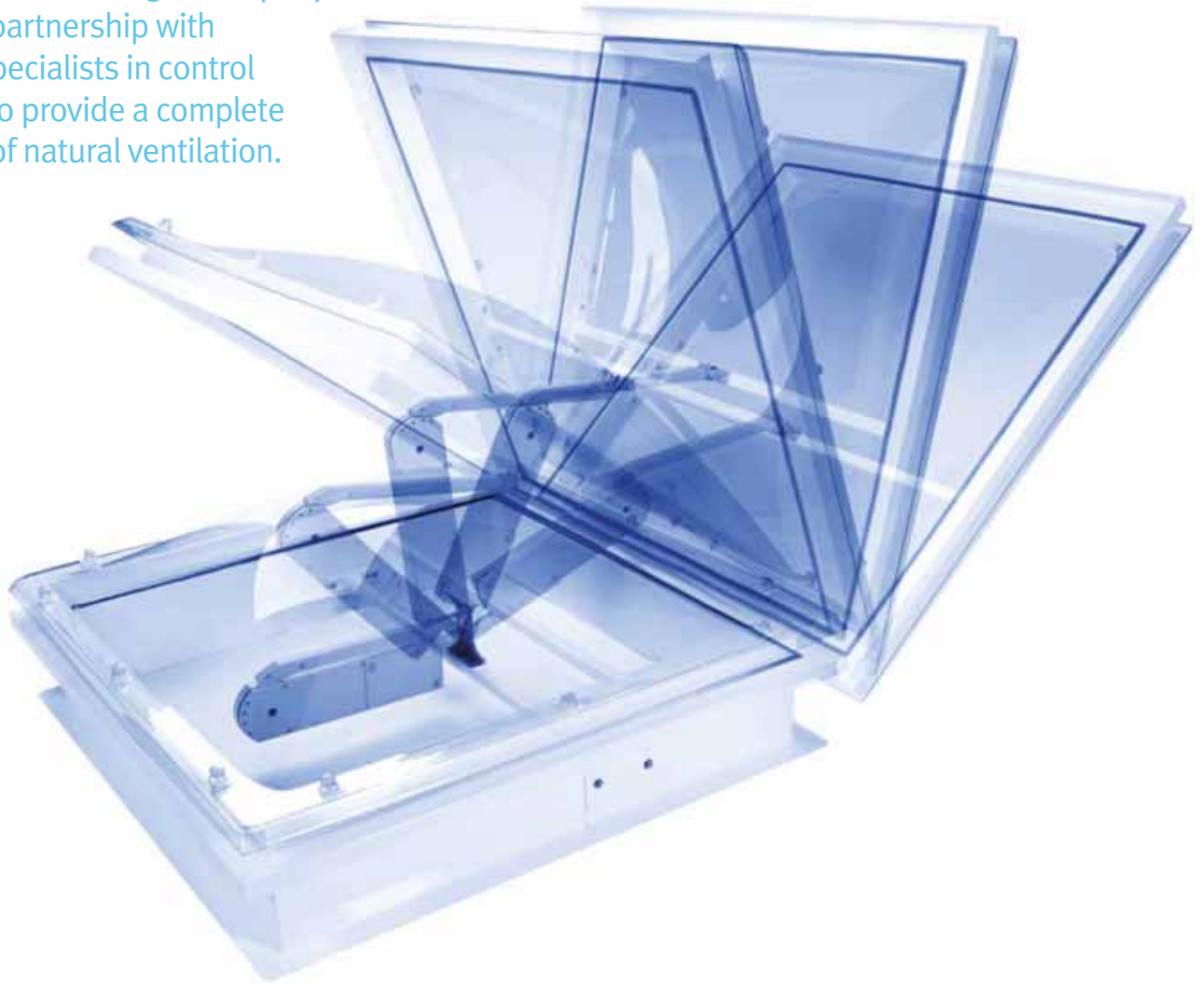
Intruder grid systems may be added to all rooflights. They are positioned between the upstand and the roof structure and consist of a 3 mm diameter, solid steel fully-welded mesh in a 75 mm grid. This system will resist entry even when the rooflight has been compromised or removed.



Natural Smoke and Ventilation Systems

Natural ventilation units may be required for a variety of reasons, notably energy-efficient environmental management or smoke control during fires. Certified control panels are required to operate vents to meet specific needs—either automatically or manually by building managers or the fire and rescue services.

The National Domelight Company works in partnership with leading specialists in control systems to provide a complete package of natural ventilation.



The rooflight installation includes opening vents believed to be for the purpose of natural fresh air and/or smoke ventilation.

Consideration should be given at the earliest opportunity as to the required performance of the opening vents within the rooflight in conjunction with other automated aspects of the building.

Regardless of the voltage of the electric actuator attached to the opening vent (24 V DC or 230 V AC) the principle of its operation remains the same, an electric window actuator supplied by the

ORDERING ADVISORY NOTE

National Domelight Company will be of a reverse polarity or 'power open' and 'power close' nature.

Permanent power should never be left on a mains voltage electric actuator.

Our experience tells us that often there is a lack of co-ordination between trades, and these crucial aspects are neglected.

The basic considerations are as follows:-

- How many zones do the opening lights need to open in – are they all opening together or in separate areas?

- Is there a requirement for them to respond to locally-placed thermostats, or external rain sensors?
- Is there a requirement for the opening vents to be controlled by a Building Management System?

The practical considerations are as follows:-

- Where the local junction box near to the electric actuator opening the vent is to be located?
- What is the required cable specification?

Through the National Domelight Company's controls partner, assistance on these important points is available.



Natural Smoke and Ventilation Systems

The Case for Natural Smoke Ventilation in Fires

EFFECTIVE AND SAFE

Smoke control using natural ventilation is a particularly effective means of protecting escaping occupants, those awaiting rescue and fire-fighters from the immediate dangers of fire and smoke. In principle, high-level outlet vents and low-level inlet vents open automatically in the event of a fire to allow cool air into the building and allow smoke and hot air to flow out. This improves the conditions for occupants to escape and fire-fighters to enter. In the absence of ventilation, smoke fills the room, being drawn back down from the ceiling by convection as temperatures rise, leading to potential—and particularly dangerous—‘flashover’.

The specific design of an effective and safe smoke ventilation system requires specialist involvement, perhaps by the mechanical and electrical consultant, and may well form part of a fire engineering solution.

HELPING YOU COMPLY WITH BUILDING REGULATIONS

Guidance to building regulations includes specific use of smoke ventilation systems, as outlined overleaf. In England and Wales, **Part B of the Building Regulations** covers fire and the **Approved Document (AD B) Volume 2** provides guidance applicable to flats and non-dwellings. The following national, regulatory guidelines have similar requirements: Section 2 of the Scottish Building Standards Agency Technical Handbooks 2007; Technical Booklet E of the Building Regulations (Northern Ireland); Technical Guidance Document B of the Government of Ireland Building Regulations 2006. **AD B** identifies a number of situations where AOVs to provide natural ventilation are appropriate, including:

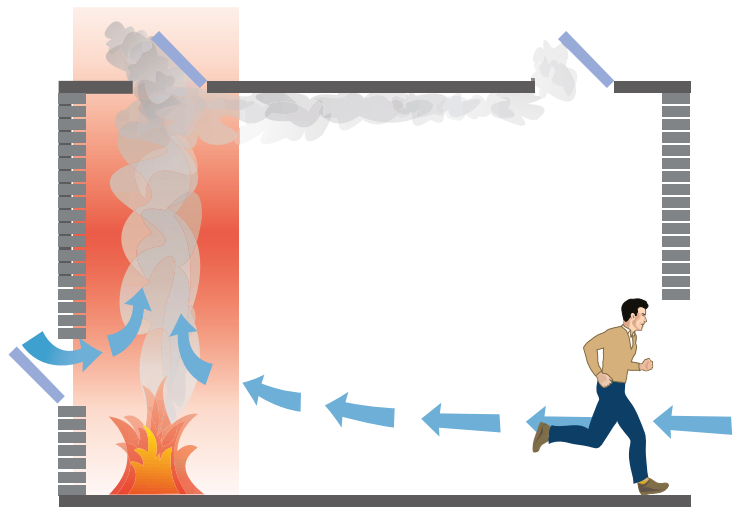
- Small single-stair blocks of flats
- Common escape routes in larger blocks of flats
- Basement areas
- Enclosed car parks
- Vertical smoke shafts, as part of a smoke control design

In several cases, **AD B** specifies the minimum of ventilation—generally either 1 m² or 1.5 m².

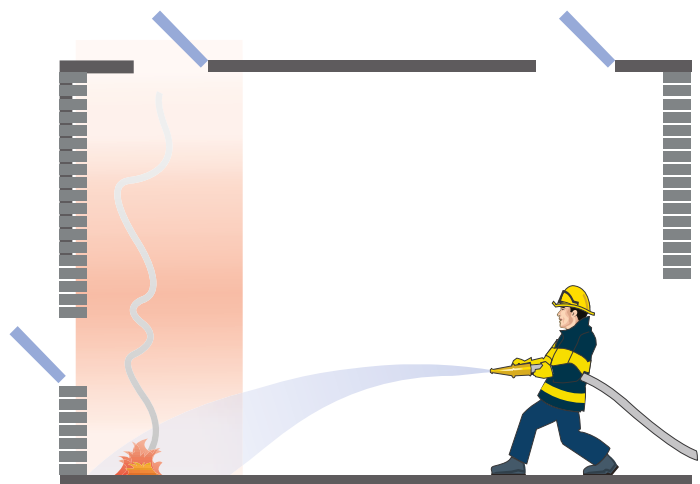
1. In the event of a fire, actuators open high-level smoke vents and low-level fresh air inlet vents.



2. This allows cool air into the building, forcing the hot air and smoke out via the roof, providing a smoke-free layer for safe escape.



3. The smoke-free layer allows safe access for the fire to be fought and extinguished.



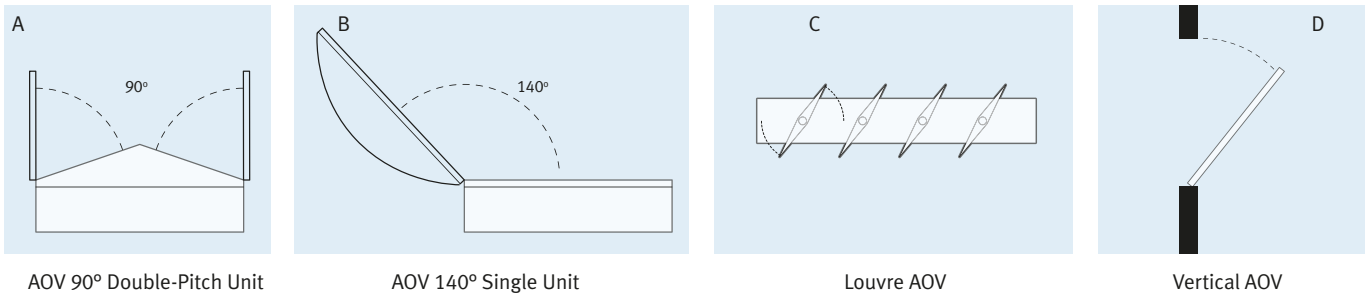
BENEFITS OF SMOKE VENTILATION

- Safety of life
- Improved means of escape
- Building protection
- Required by law

Natural Smoke and Ventilation Systems

The Case for Natural Smoke Ventilation in Fires

AUTOMATIC OPENING VENTS (AOV) COMPONENTS



EXAMPLE INSTALLATION AND SYSTEM DIAGRAMS

SIMPLE SYSTEM

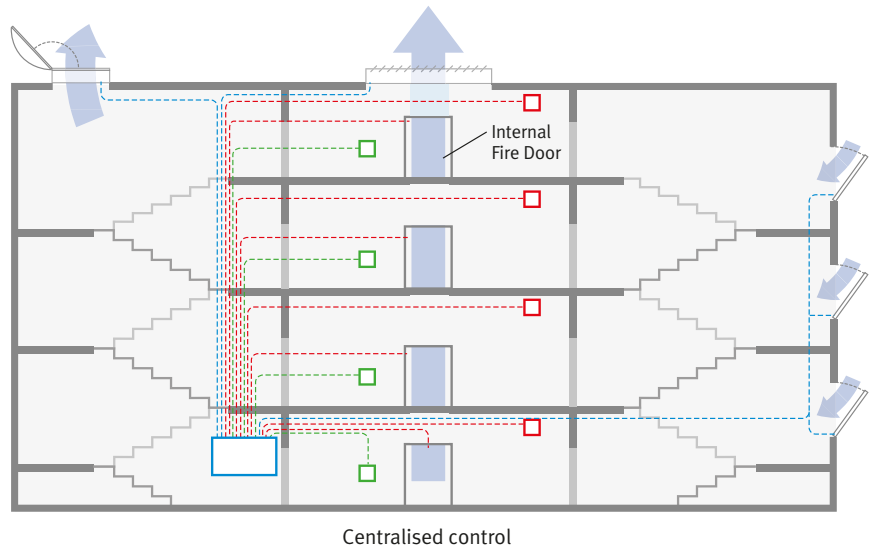
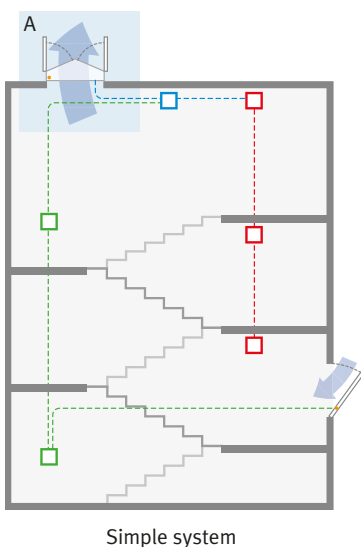
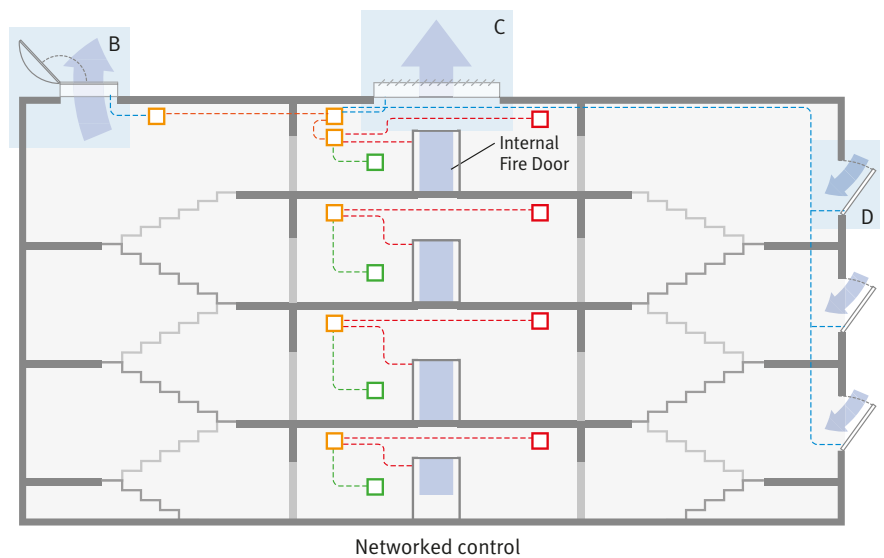
Typically used in small stair building.

NETWORKED CONTROL

Ideal configuration where wiring distances are considerable or there is little free space for a central zoned control panel. Each controller would be capable of sending and receiving signals including 'heartbeat' status monitoring and contain primary and secondary power supplies.

CENTRALISED CONTROL

Systems can be installed with centralised zoned control to allow primary and secondary power for the system to be located in one control panel.



Natural Smoke and Ventilation Systems

AOV Roof Units

Similar in design to Stardome rooflights, AOV Roof Units are available with either glazed or solid tops and a choice of opening configurations.

- Single units opening to 140° or 90°
- Double units opening to 90°
- All units made to measure and easy to install
- Supplied with or without control panel and/or battery backup

The National Domelight Company's AOV units can be supplied with their own kerb for fixing directly to the roof deck and then weathered in the traditional manner with the roofing membrane being dressed up the outside of an insulated kerb. Alternatively if a kerb is being constructed as part of the roofing system (metal roofing or a builder's kerb) then we are able to supply a kerb adapter. Both kerb and kerb adapter units are manufactured from folded galvanised steel or aluminium, both materials being polyester powder coated white—and can be thermally broken to suit the requirements of Part L of the Building Regulations.

LIDS

The lid or top of the unit can be supplied in three forms:

- Solid metal panel, insulated and polyester powder coated—generally at the head of a smoke shaft when only ventilation is required in case of a fire, so no need for light.
- Glazed top in single- or triple-skin polycarbonate, which can be made in the full range of sizes.
- Glazed top in a double glazed glass unit with toughened outer and laminated inner.

OPERATION

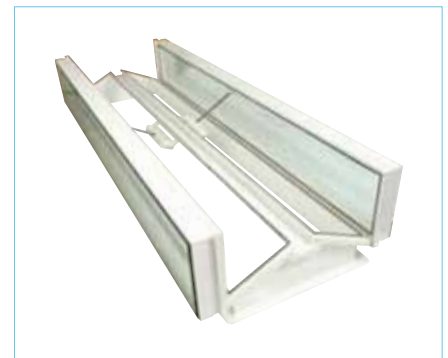
All the National Domelight Company's AOV units operate via a 24 V DC 'power open'/'power close' actuator, which must be operated by a CE-certified battery-backed control panel.



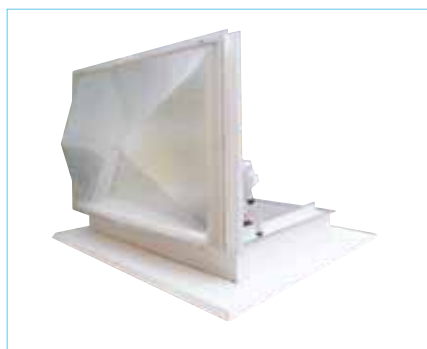
90° DOUBLE-PITCH UNIT WITH SOLID TOP



140° SINGLE UNIT WITH DOMED POLYCARBONATE GLAZING



90° DOUBLE-PITCH UNIT WITH DOUBLE GLAZING IN GLASS



90° SINGLE UNIT FOR ACCESS WITH PYRAMID POLYCARBONATE GLAZING



90° DOUBLE-PITCH UNIT WITH DOMED POLYCARBONATE GLAZING

Natural Smoke and Ventilation Systems

AOV Vertical Systems

The National Domelight Company's AOV Vertical Systems have been developed specifically for use in external walls as part of the fenestration design to provide the required level of smoke ventilation.

The design of AOV Vertical Systems allows the glazed frame to be installed within any external wall. The profiles used in the system construction are carefully selected to provide an appearance which can, if required, closely match the building's standard fenestration.

AOV Vertical Systems are designed with a water management detail that ensures seepage and leakage is discharged out of the building. The frame is thermally broken to limit both heat losses and condensation, and is powder coated in white as standard or in any RAL colours as an option. The National Domelight Company's AOV Vertical Systems are available to provide a free area of ventilation of 1 m² or 1.5 m² to comply with **Building Regulations AD B**, or other specified ventilation levels. The physical dimensions of the frame can be adjusted to suite specific design requirements.

FRAMES AND GLAZING SYSTEMS

Integral transoms and mullions are mechanically-fixed and sealed into the outer frames. This is a drained, dry-glazed system utilising captive and wedge gaskets allowing single skin up to 6.4 mm and double skin up to 28 mm to be installed. All glazing should be in accordance with **BS 6262**. The National Domelight Company's AOV Vertical Systems have been tested and classified in accordance with **BS 6375: Part 1: 1989**.

GLAZING AND PANELS

Typical glazing could comprise of

- 6 mm toughened clear outer
- 12 mm air gap
- 6 mm laminated clear inner.

A typical metal infill panel could comprise of:

- 2 mm aluminium sheet outer
- insulation core spacer
- 2 mm aluminium sheet inner.

A full range of other infill panels can be supplied with the systems to suit the individual project requirements.



FIXINGS

All fixings used in the construction of the window are stainless steel which must also be used to fasten upstands to the substructure.

OPERATION

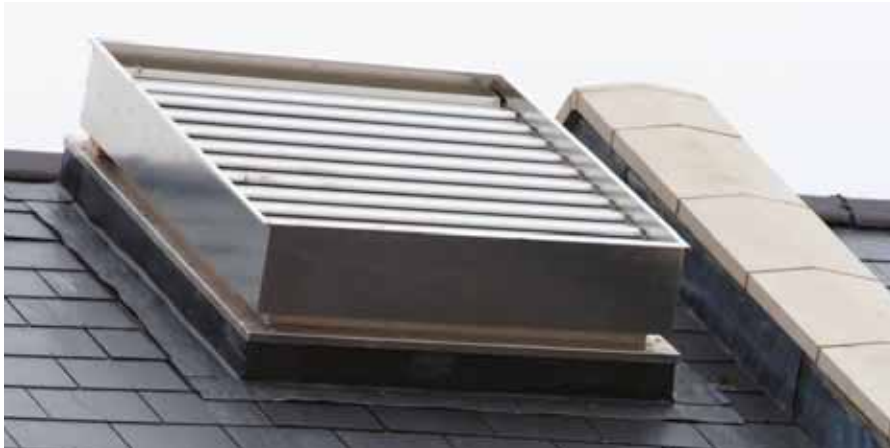
All the National Domelight Company's AOV units operate via a 24 V DC 'power open'/'power close' actuator, which must be operated by a CE-certified battery-backed control panel.



Typical vertical system opening vent

Natural Smoke and Ventilation Systems

AOV Louvred Units



OPERATION

All the National Domelight Company's AOV units operate via a 24 V DC 'power open'/'power close' actuator, which must be operated by a CE-certified battery-backed control panel.

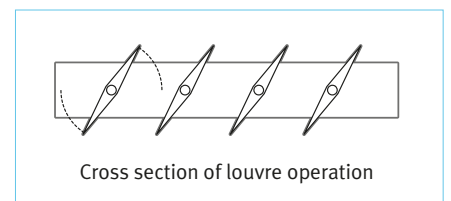


The National Domelight Company's AOV Louvred Units are lightweight, compact and maintenance-free, and suitable for installation on roofs, walls and other parts of the building's external envelope. The multi-channel drainage system and overlapping louvres guarantee a rain-proof system. All components are corrosion resistant and the ventilator side panels are reinforced by inner and outer longitudinal profiles.

- Single-skinned aluminium
- Double-skinned aluminium
- Multi-wall polycarbonate
- Single-skinned laminated safety glass

FIXING FLANGES

Flanges can be provided to suit any specific requirements including installation within glazing, on or under profiled roofs, directly within roofing felt or with a kerb.



LOUVRE OPTIONS

A choice of louvre blade materials is available, including those to allow daylight into the building:



NATIONWIDE NEW HOME DEVELOPER

On this housing project, three different types of natural ventilation units were used as part of a comprehensive smoke control system. In addition to this AOV roof unit, louvred units were fitted to pitched roofs and a special triangular unit produced.



RETIREMENT HOMES

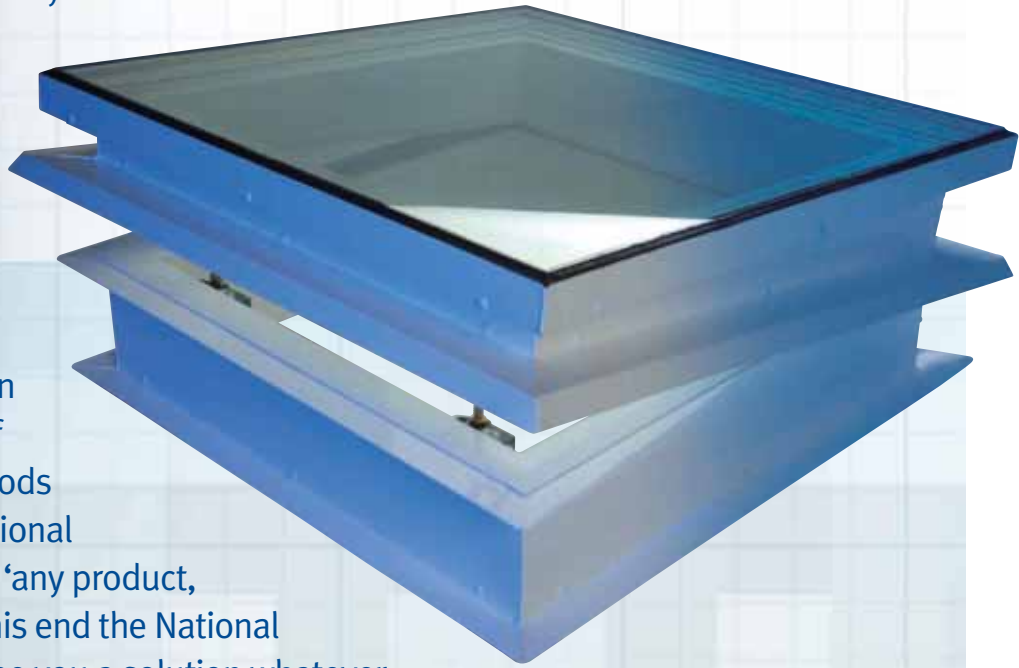
To meet particular requirements on many of this retirement builder's projects, the National Domelight Company worked closely with the client to develop a bespoke AOV unit. Some 2.5 m long and 600 mm wide, this special unit provides automatic smoke ventilation over corridors.

About

The National Domelight Company

The National Domelight Company is a specialist supplier of rooflights and conservation rooflights to roofing contractors, builders, developers of commercial and residential property and to the private individual.

Offering a unique combination service and value, born out of decades supplying quality goods in this specialist area, the National Domelight Company motto is 'any product, any quantity, anywhere'. To this end the National Domelight Company guarantee you a solution whatever your rooflight challenge.



The National Domelight Company team offer a wealth of experience and are at your service to answer any questions and provide full support. The National Domelight Company guarantee you the shortest possible lead times and with FREE nationwide delivery service, your rooflight will be safely delivered just when it's needed.

There really is no better place to discuss and solve your rooflight issues so if you require additional help or support, please call: **01276 451555**, e-mail: **info@nationaldomes.com** or visit: **www.nationaldomes.com**

STARDOME & STARGLAZE

A NATURAL LIGHT INNOVATION



Pyramid House, 52 Guildford Road, Lightwater, Surrey GU18 5SD
Tel: 01276 451555 Fax: 01276 453666 e-mail: info@nationaldomes.com
www.nationaldomes.com