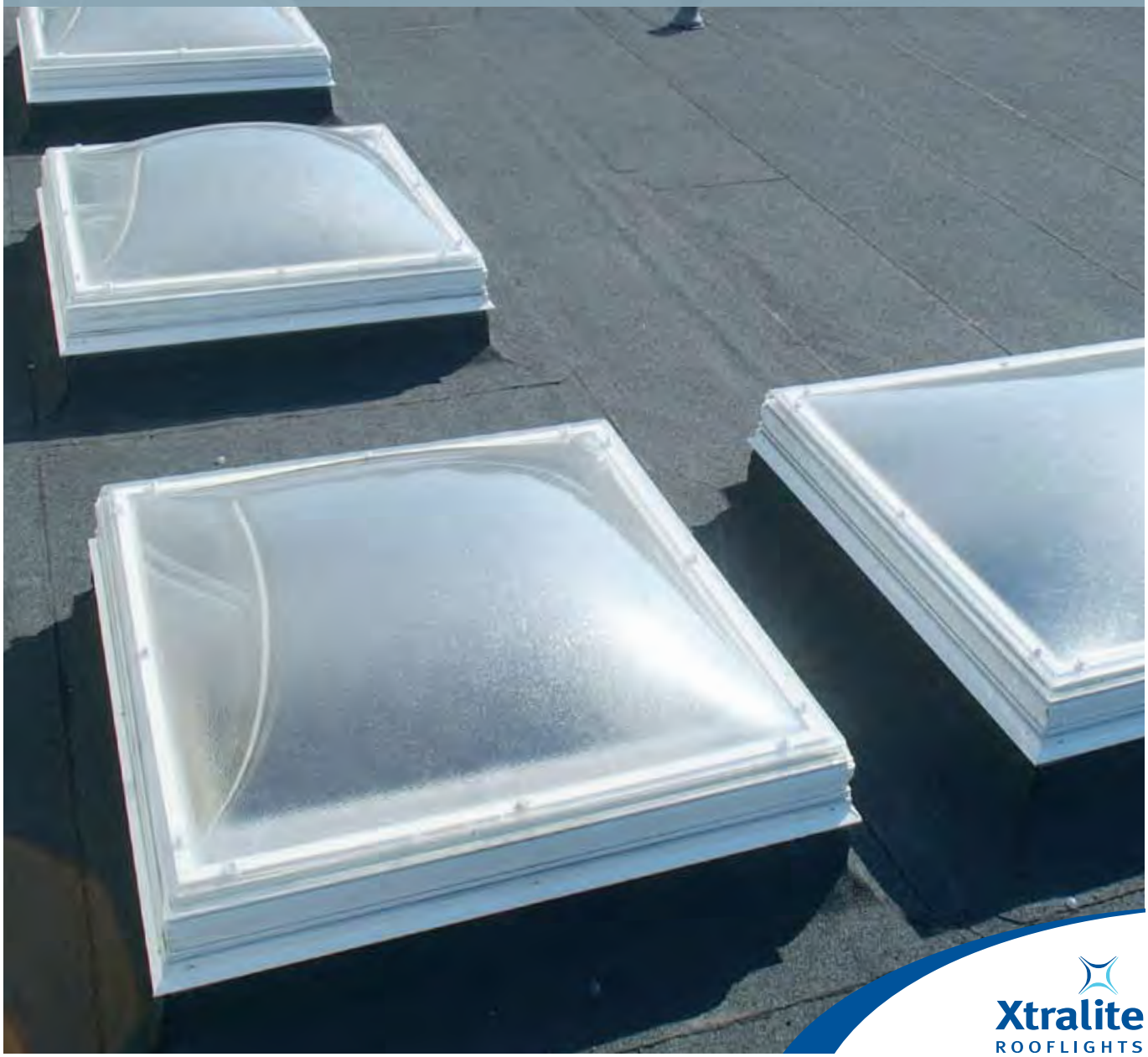
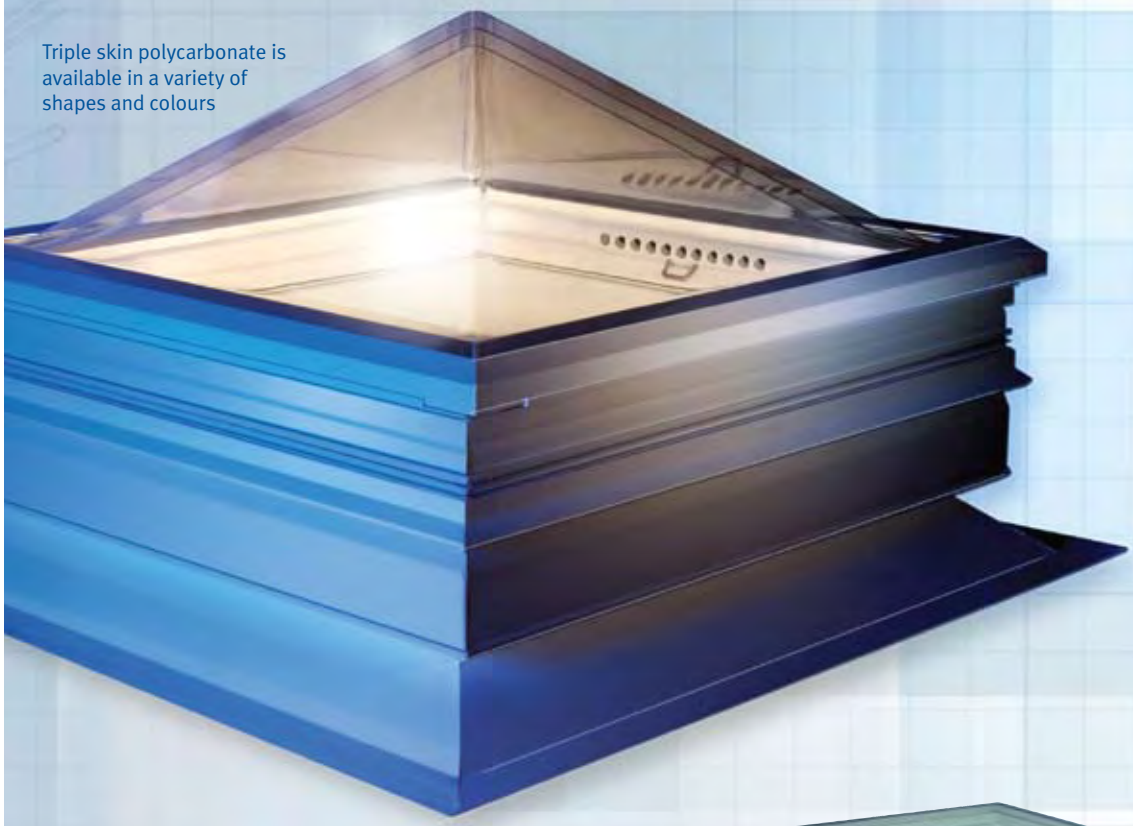
Product Portfolio
Rooflights



Xtralite ROOFLIGHTS

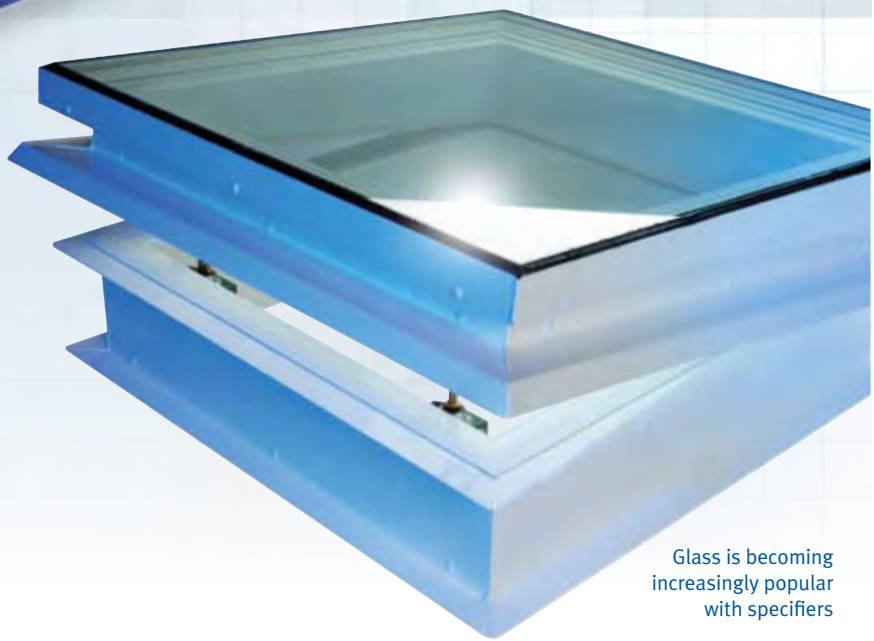
Overview



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

Introducing the range

This section looks in detail at individual rooflights, generally with polycarbonate glazing but also glass in metal frames. As the leading independent manufacturer, Xtralite offers the widest range of rooflights available, suitable for all applications and building types. All Xtralite 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 from X-One to X-Five as summarised in the table (overleaf). Options and accessories for each range are illustrated with relevant product codes.

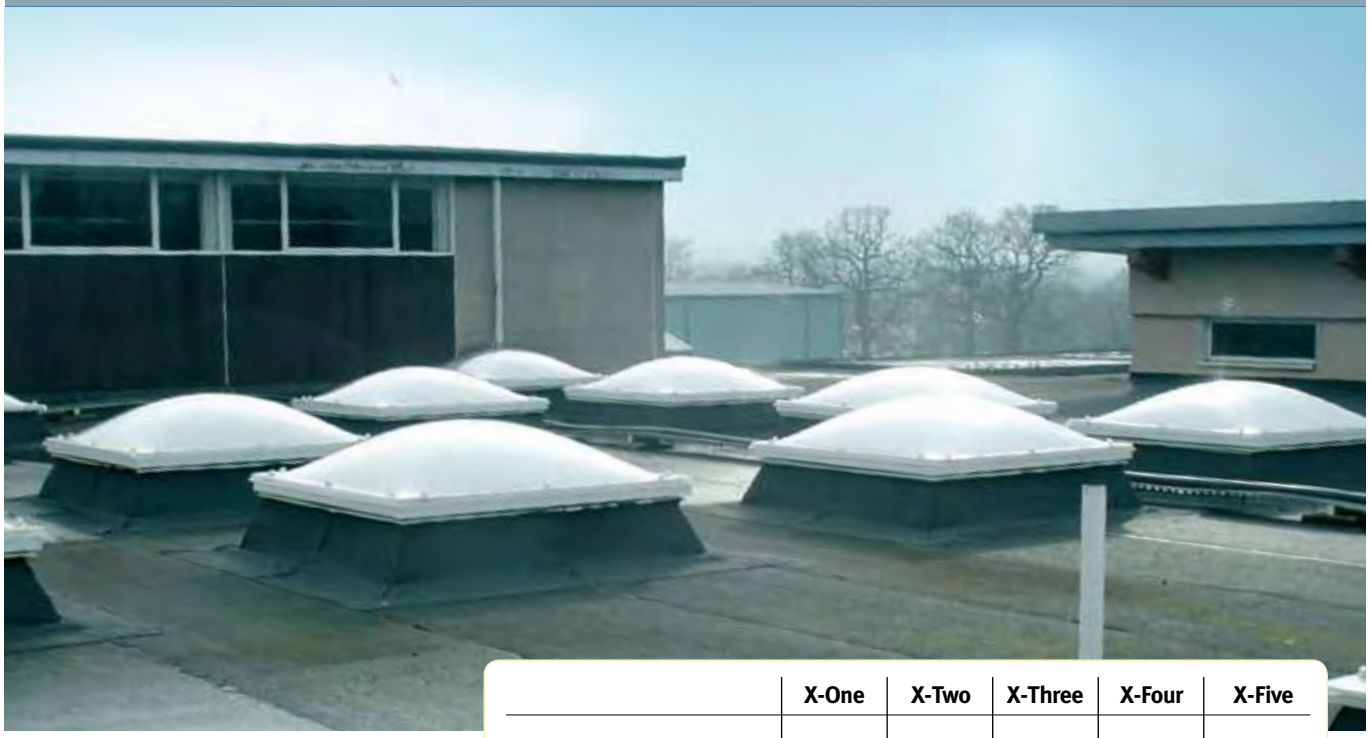


Glass is becoming increasingly popular with specifiers

Xtralite rooflights are manufactured at the company's UK plant and a full 20–year insurance protected guarantee is available (refer to our terms and conditions).

Xtralite ROOFLIGHTS

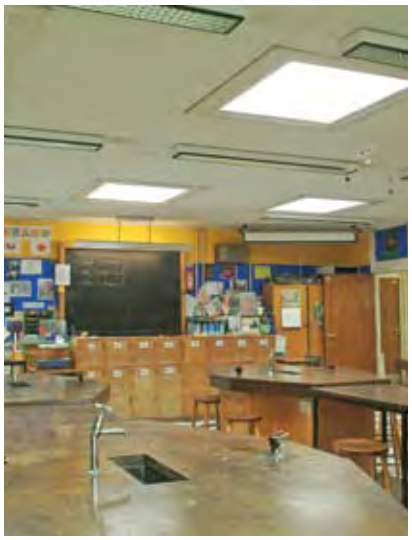
Product Portfolio Rooflights
Specifying the Right Rooflight



Categorisation by thermal efficiency

The 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. Cross referencing to the earlier technical sections of this guide will prove helpful in guiding you through the specification process.

To more accurately specify your rooflight please refer to the specification charts located at the back of this section.



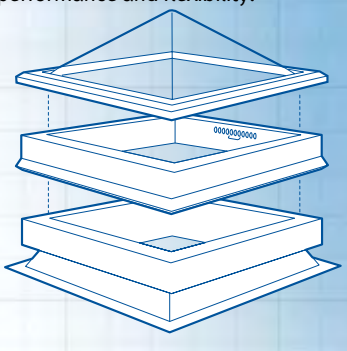
		X-One	X-Two	X-Three	X-Four	X-Five
U value (2.2 required for Part L)		1.3 Uvalue	1.8 Uvalue	2.2 Uvalue	2.2 Uvalue	4.0 Uvalue
Shape						
Rectangular/Square		•	•	•		•
Circular				•	•	•
All Glazing Colours		•	•	•	•	•
Glazing Material*						
Polycarbonate	Single					•
	Double					•
	Triple	•	•	•	•	
Glass	Single					•
	Double	•	•	•	•	
Ventilation		•	•	•		•
Security						
Security Screws		•	•	•	•	•
Security Frame		•	•	•		•
Intruder Grid		•	•	•	•	•
Kerbs						
PVC		•	•			
Metal				•		•
GRP					•	
Flexible Base Adapter		•	•			

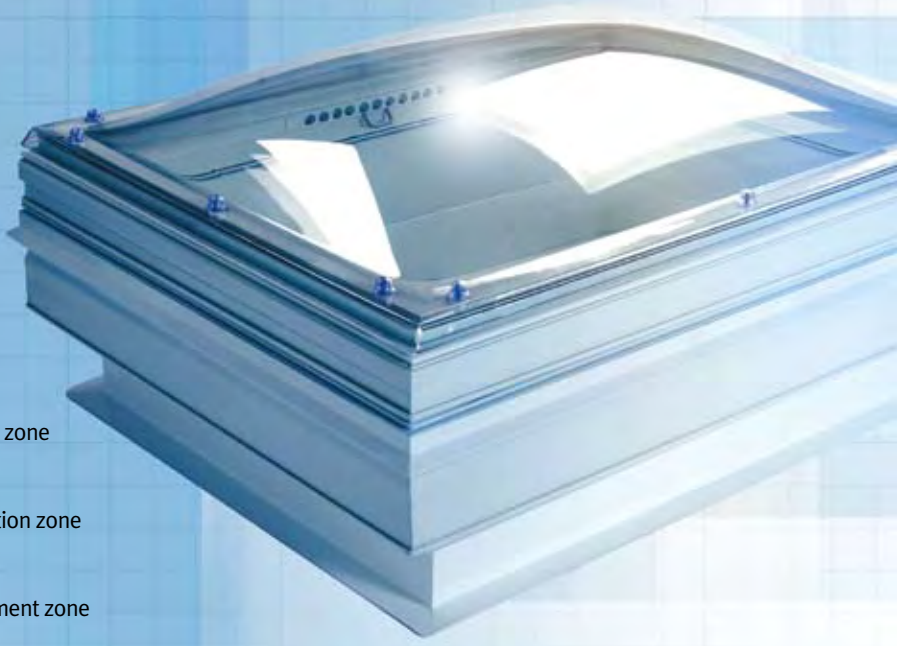
*Glazing options are only those that we recommend to achieve the U value figures shown. Other options are available on request.

X-One

The Future of Rooflights

This latest range from Xtralite represents the future of rooflights, with an exceptionally low U value of 1.3 (see page 7 of this section) exceeding the requirements of Part L.
The X-One also benefits from low air leakage rates. Unlike other rooflights, the X-One rooflight is designed and constructed in three distinct zones to clarify specification and maximize performance and flexibility:





Glazing Zone

The X-One 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.

Ventilation Zone

This feature is the key element that ensures compliance with Part L and gives X-One 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

Xtralite has developed unique mounting systems to aid attachment and make the process of incorporation easy.

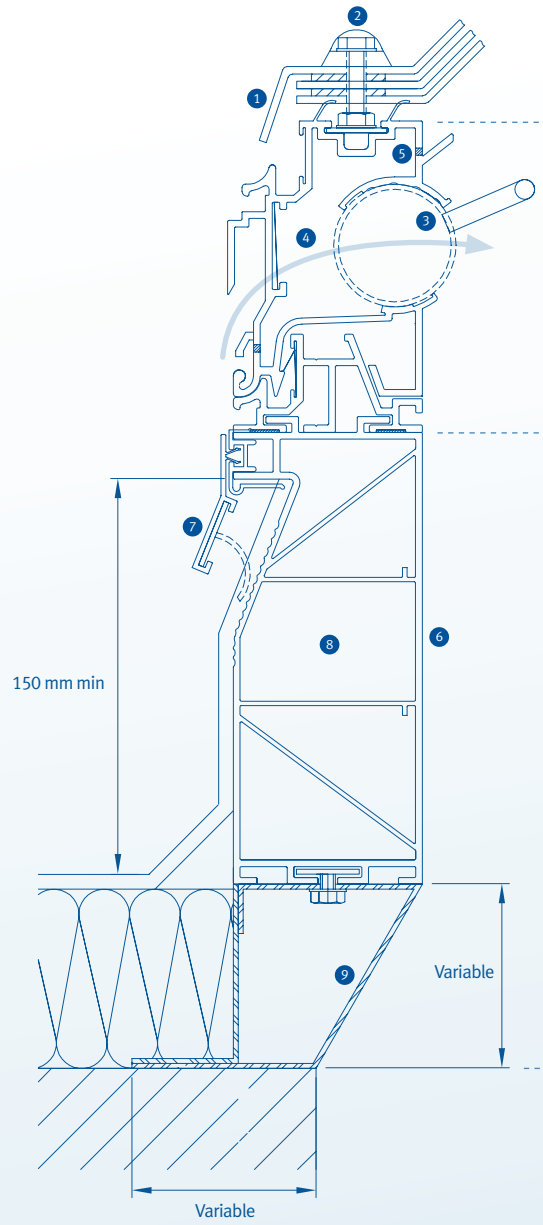
A versatile metal foot will allow for varying thicknesses of roof insulation, whilst allowing 'flexible' matching of rooflight to roof opening as well as 'cut to falls' variable depth insulation systems.

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 Xtralite 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.

X-One 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.

X-One was independently tested by NPL and revealed a U value of just 1.3 (see page 7 of this section)

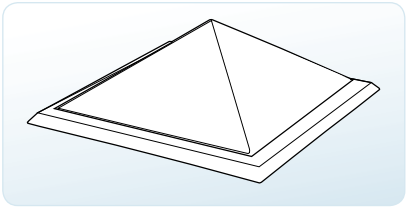
Glazing Size, Shape and Colour

Size and Shape

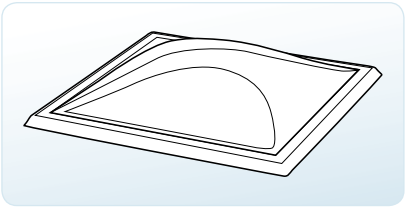
Xtralite rooflights are bespoke products and a range of shapes is available including those shown here. Similarly, virtually any sizes can be accommodated—up to a maximum of 1200 mm x 2400 mm—although designers may wish to consider the guide sizes shown (which also relate to other characteristics—such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

Guide Sizes (mm)

Square		Rectangular	
600 x 600	1200 x 1200	600 x 900	900 x 1800
750 x 750	1350 x 1350	600 x 1200	900 x 2400
900 x 900	1500 x 1500	600 x 1500	1000 x 1500
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	



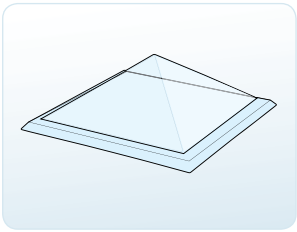
Pyramid (PY)



Dome (DM)

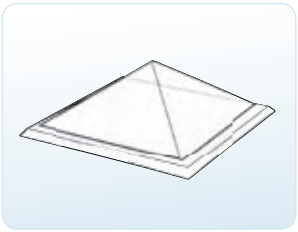
Glazing Colour

The various glazing layers in Xtralite 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 in various configurations, refer to the earlier section: **Designing with Daylight—Properties of Glazing Materials and Configurations**. In addition, all ranges are 'Non-fragile, Class B' rating classified to ACR[M]001:2005 *'Test For Non-Fragility of Profiled Sheeted Roofing Assemblies'*, Edition 3 – the "Red Book".



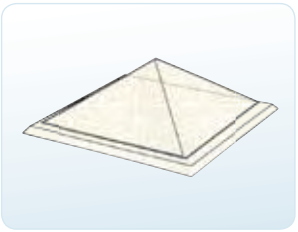
Clear

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



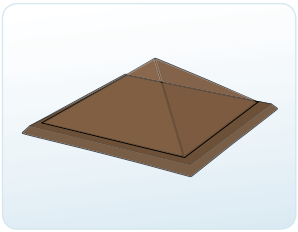
Diffused

- 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.

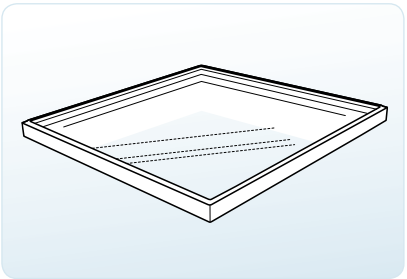


Bronze

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

Alternative Glazing Materials—Glass (IGL)

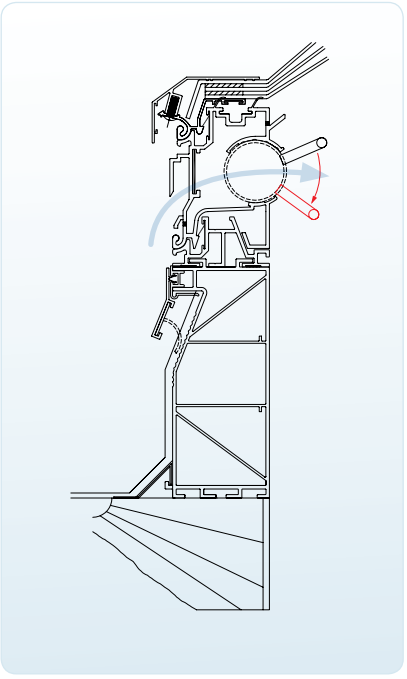
Offered in lieu of polycarbonate. Double glazed insulated glass units will provide a low U value alternative. Selection of high specification glass can also be used to reduce such things as solar gain and rain noise whilst retaining non-fragile status. Contact Xtralite to discuss your requirements.



Xtralite ROOFLIGHTS

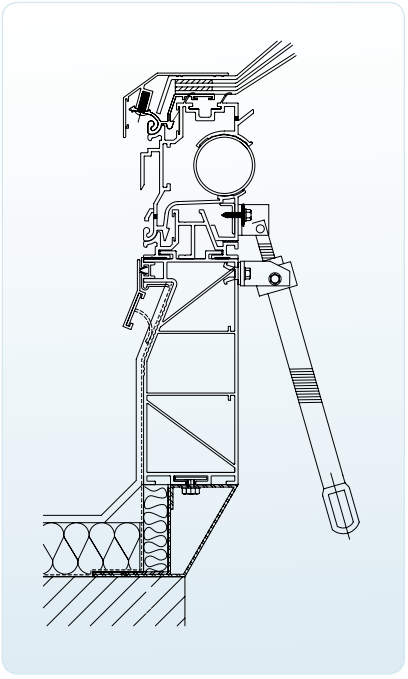
Ventilation Options

Xtralite rooflights can incorporate a range of ventilation and access systems. For more background information and performance levels of the various systems shown below, refer to the earlier section: **Performance Characteristics and Legislation—Ventilation**. Where ventilation is a primary consideration for energy efficient environmental management or smoke control during fires, refer to the **Natural Smoke and Ventilation Systems** section later in this Guide.



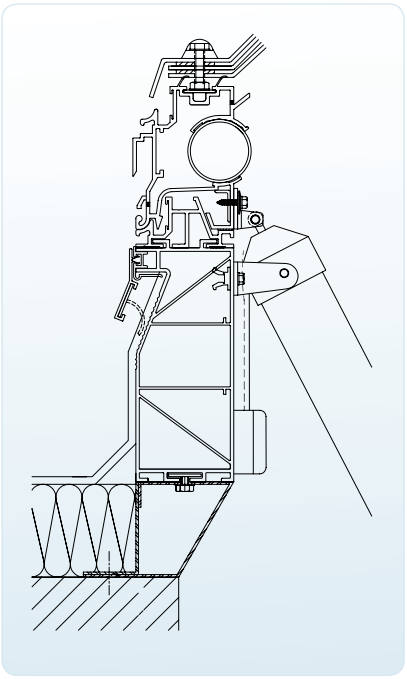
Rotary Vent (02)

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.



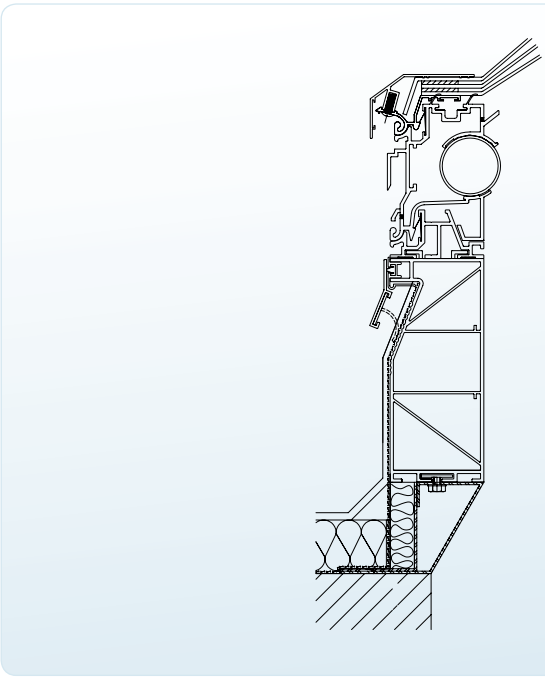
Manual Wormgear Vent (03)

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



Linear Motor Vent (06)

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



Unventilated (00)

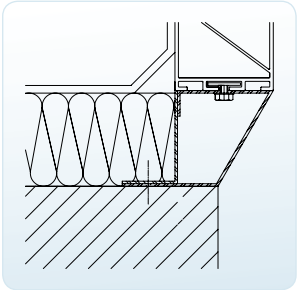
Often referred to as a 'fixed' rooflight, ideal for situations where ventilation is not required.

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.

Roof Attachment and Security Options

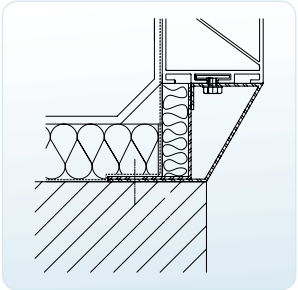
Roof Attachment

Xtralite has developed unique mounting systems to aid attachment and make the process of incorporation easy.



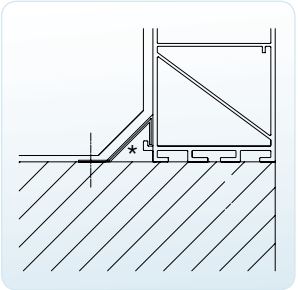
Flexible Metal Foot (A)

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



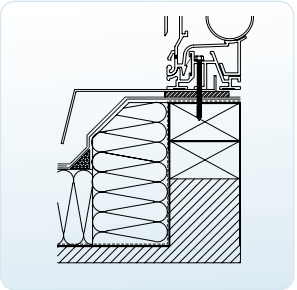
Insulated Metal Foot (B)

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



Direct to Roof Deck (C)

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 Xtralite.

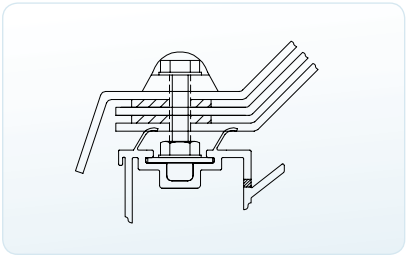


Adaptor Kerb (D)

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

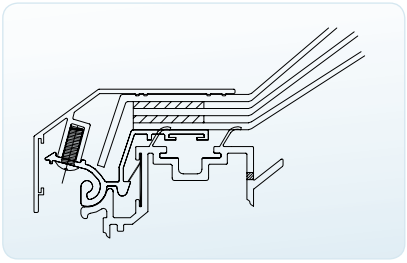
Security

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



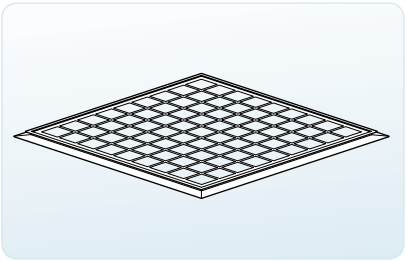
Security Screws (SS)

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



Security Frame (SF)

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.



Intruder Grid (IG)

Intruder grid systems may be added to all rooflights in the Xtralite 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.

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 document.

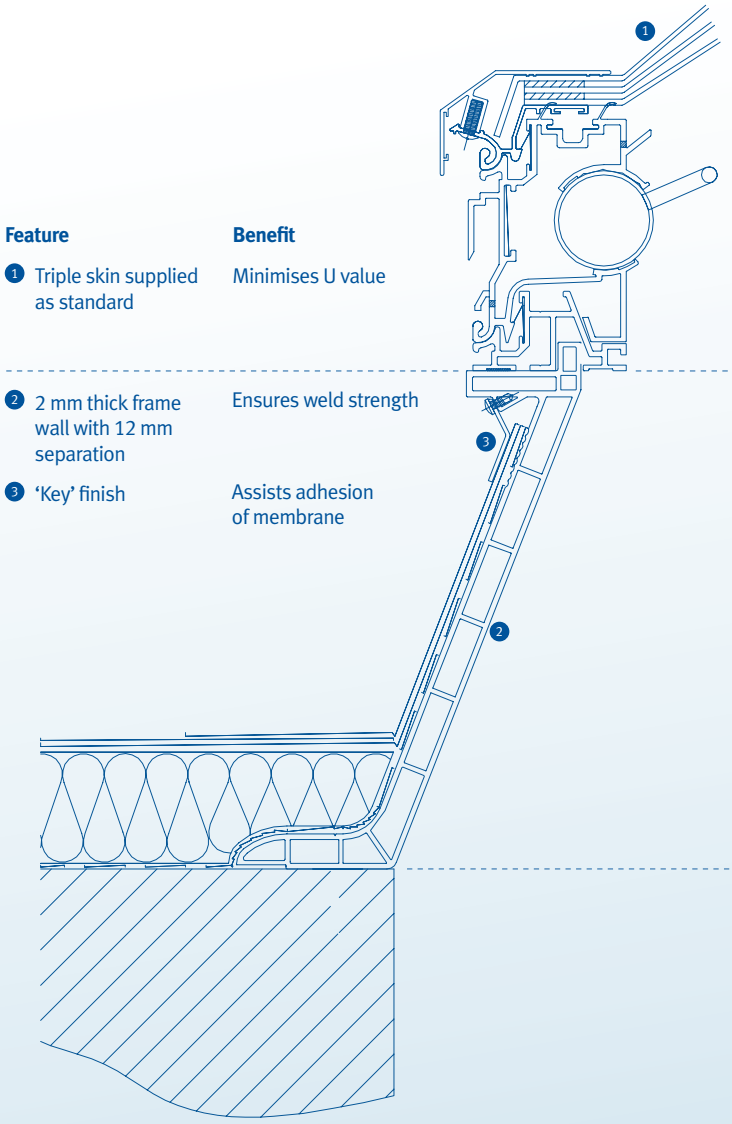
Product Portfolio Rooflights
X-Two

1.8 Uvalue

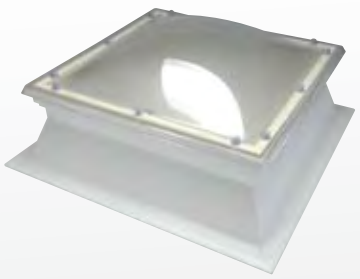
This range also meets and beats the requirements of Part L with an impressive 1.8 U value (see page 11 of this section) using 'all thermoplastic construction' for outstanding thermal efficiency, high resistance to weathering and low maintenance. The X-Two is formed from enhanced UV protected polycarbonate 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 Guide.

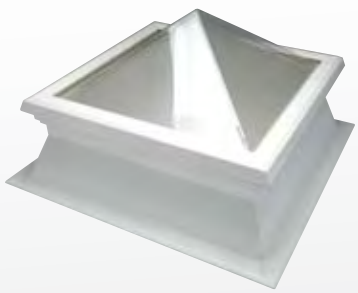
A 2 mm thick wall thickness ensures weld strength and a weather seal on all opening rooflights maintains weather-tightness. A special 'key' finish to the PVC-U kerb assists adhesion of membrane and the PVC-U kerb is torch-on system friendly. X-Two can be delivered in two parts for easy handling and more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



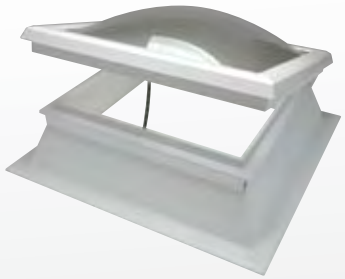
Example X-Two Configurations



Triple skin diffused dome with standard security fixing



Triple skin diffused pyramid with security frame



Triple skin diffused dome with security frame and wormgear operated ventilation

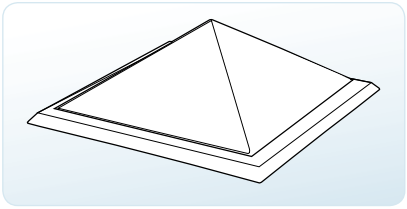
Glazing Size, Shape and Colour

Size and Shape

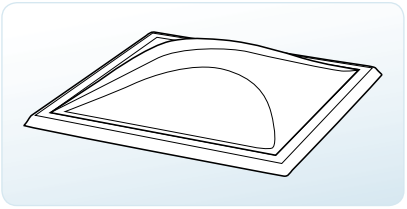
Xtralite rooflights are bespoke products and a range of shapes is available including those shown here. Similarly, virtually any sizes can be accommodated—up to a maximum of 1200 mm x 2400 mm—although designers may wish to consider the guide sizes shown (which also relate to other characteristics—such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

Guide Sizes (mm)

Square		Rectangular	
600 x 600	1200 x 1200	600 x 900	900 x 1800
750 x 750	1350 x 1350	600 x 1200	900 x 2400
900 x 900	1500 x 1500	600 x 1500	1000 x 1500
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	



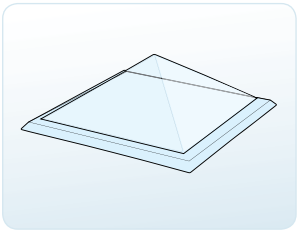
Pyramid (PY)



Dome (DM)

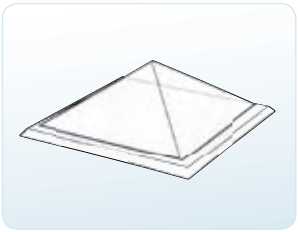
Glazing Colour

The various glazing layers in Xtralite 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 in various configurations, refer to the earlier section: **Designing with Daylight**—Properties of Glazing Materials and Configurations. In addition, all ranges are 'Non-fragile, Class B' rating classified to ACR[M]001:2005 *'Test For Non-Fragility of Profiled Sheeted Roofing Assemblies'*, Edition 3 – the "Red Book".



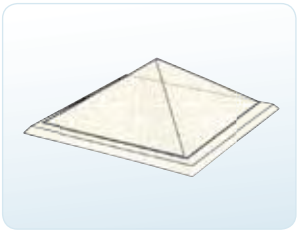
Clear

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



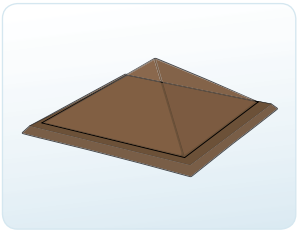
Diffused

- 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.

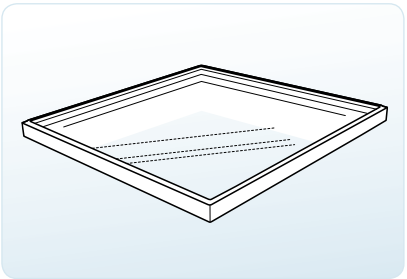


Bronze

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

Alternative Glazing Materials—Glass (IGL)

Offered in lieu of polycarbonate. Double glazed insulated glass units will provide a low U value alternative. Selection of high specification glass can also be used to reduce such things as solar gain and rain noise whilst retaining non-fragile status. Contact Xtralite to discuss your requirements.

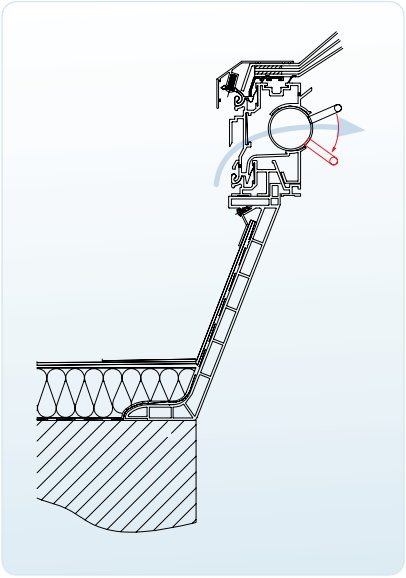


Xtralite ROOFLIGHTS

Product Portfolio Rooflights—X-Two
Ventilation and Access

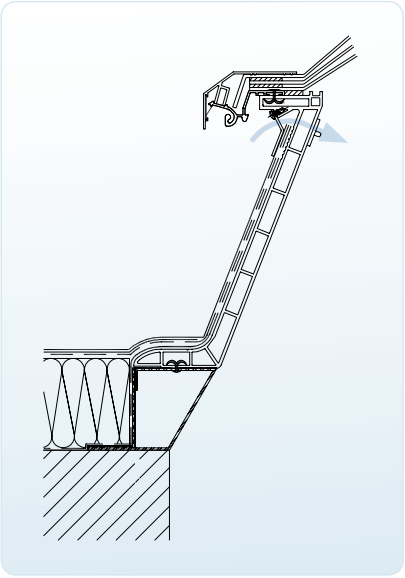
1.8 Uvalue

Xtralite rooflights can incorporate a range of ventilation and access systems. For more background information and performance levels of the various systems shown below, refer to the earlier section: **Performance Characteristics and Legislation – Ventilation**. Where ventilation is a primary consideration for energy efficient environmental management or smoke control during fires, refer to the **Natural Smoke and Ventilation Systems** section later in this Guide.



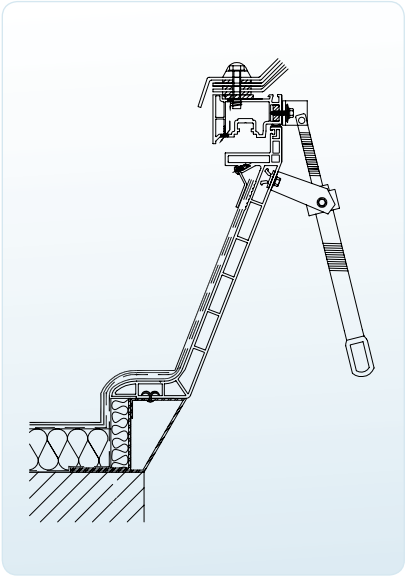
Rotary Vent (02)

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.



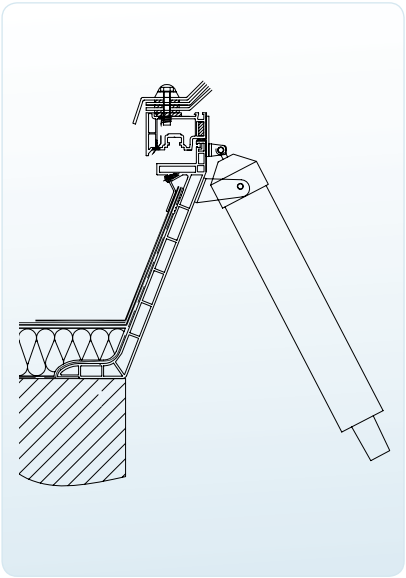
Hit and Miss Vent (01)

Provides minimal background ventilation



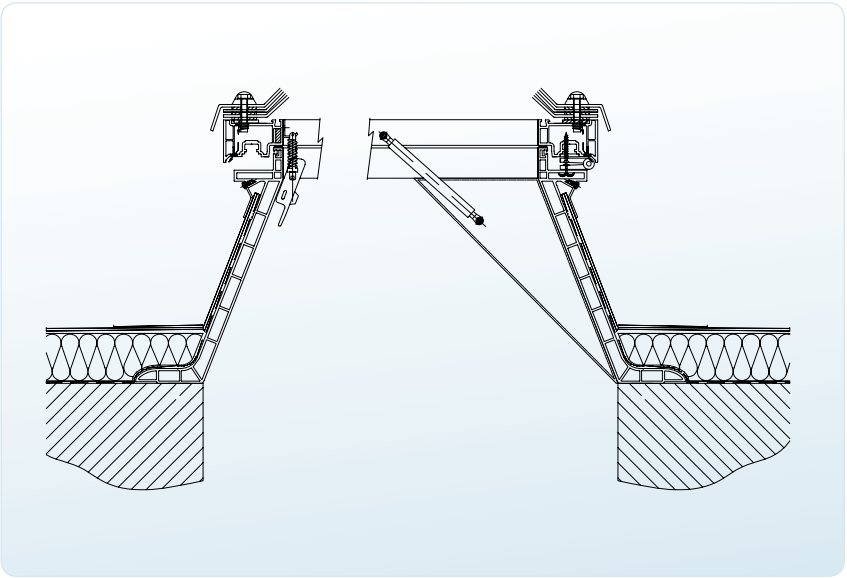
Manual Wormgear Vent (03)

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



Linear Motor Vent (06)

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



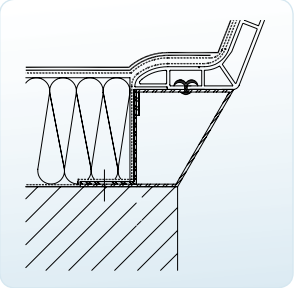
Access Hatch (04G)

Gas springs assist opening to 90° for access. Please refer to Xtralite for specific health and safety information.

Roof Attachment and Security

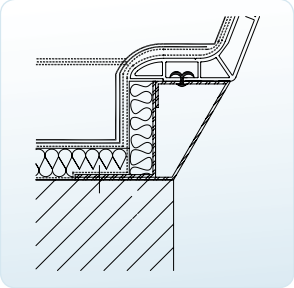
Roof Attachment

Xtralite has developed unique mounting systems to aid attachment and make the process of incorporation easy.



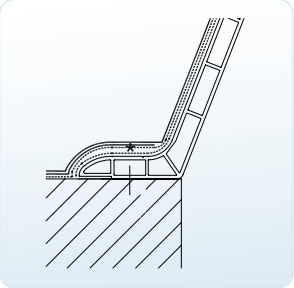
Flexible Metal Foot (A)

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



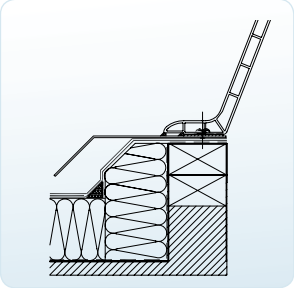
Insulated Metal Foot (B)

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



Direct to Roof Deck (C)

Allows for the kerb to be attached direct to the supporting structure. It is possible that this may be above the insulation layer.

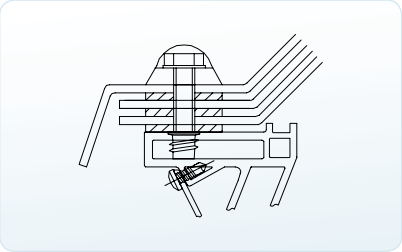


Adaptor Kerb (D)

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

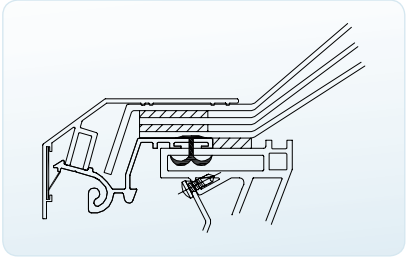
Security

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



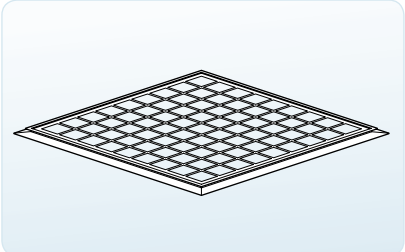
Security Screws (SS)

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



Security Frame (SF)

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.



Intruder Grid (IG)

Intruder grid systems may be added to all rooflights in the Xtralite 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.

U Value Calculation

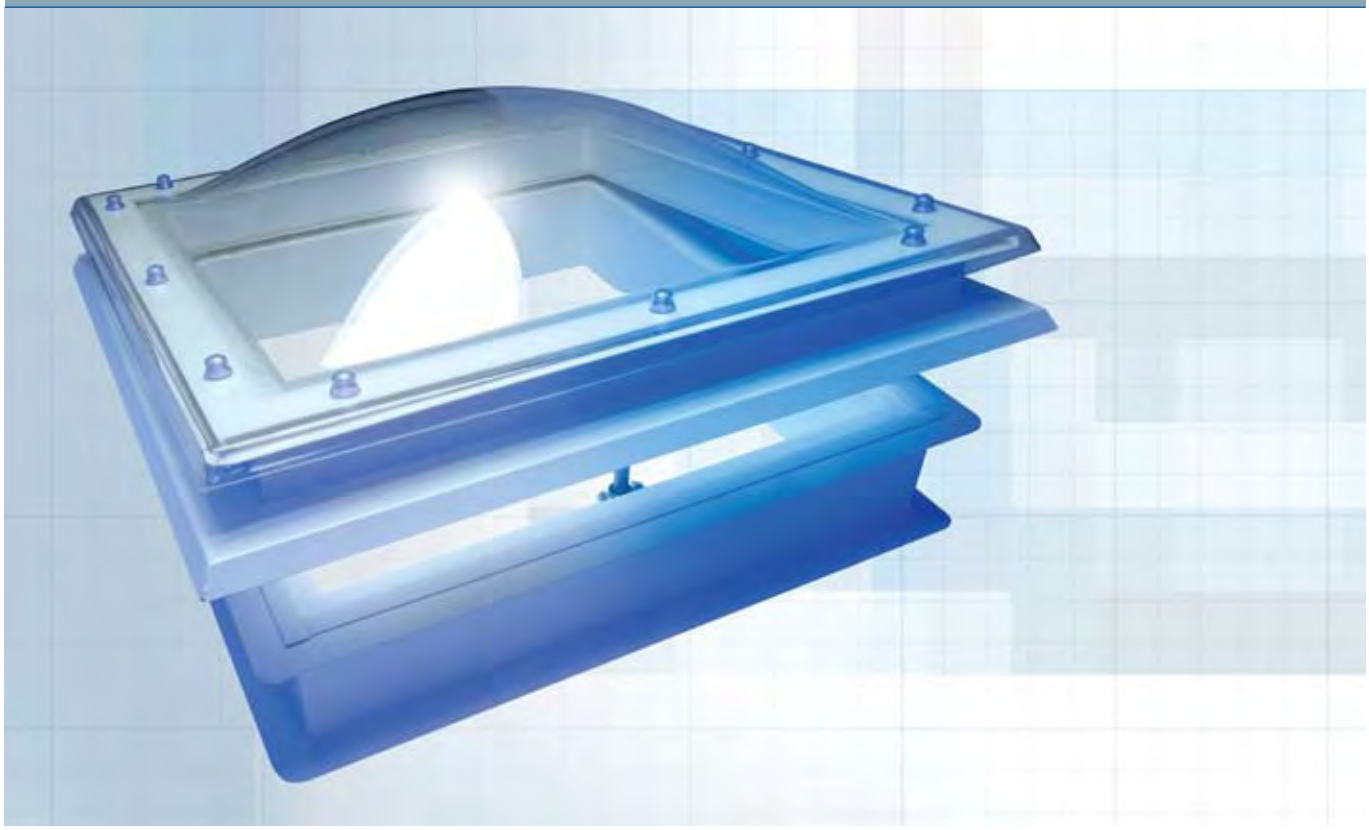
The U value of a rooflight is calculated by dividing the heat transfer across the system (measured in Watts) by the environmental temperature difference across the test element (measured in degrees K) multiplied by the area of the aperture in the surround panel—called the projected area (measured in 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 document.

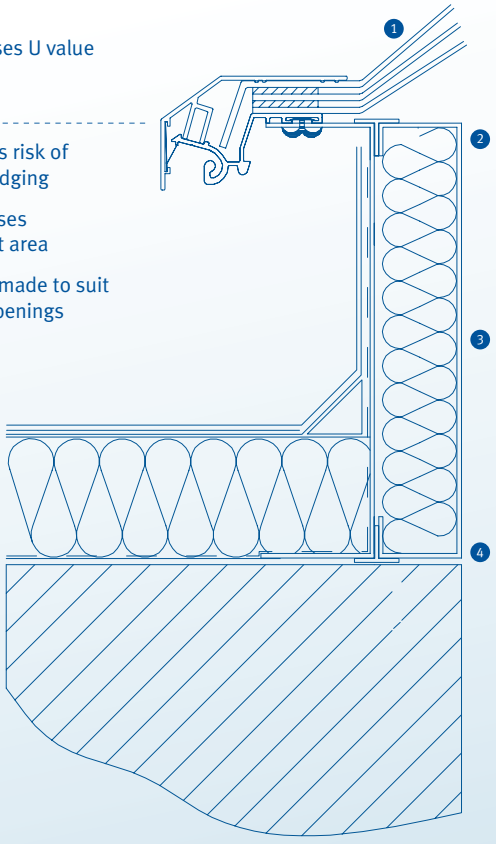
Product Portfolio Rooflights
X-Three

2.2 Uvalue



This thermally broken, metal system offers considerable flexibility whilst complying with the maximum allowable (under Part L) U value of 2.2 W/m²K (see page 15 of this section). Frames and kerbs are finished in white as standard but coloured kerbs are also available. X-Three 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.

Feature	Benefit
1 Triple skin supplied as standard	Minimises U value
2 Thermally-broken metal kerb	Reduces risk of cold bridging
3 Vertical	Maximises daylight area
4 Robust construction	Can be made to suit large openings



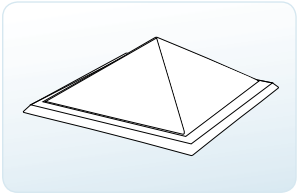
Glazing Size, Shape and Materials

Size and Shape

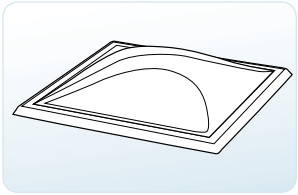
Xtralite rooflights are bespoke products and a range of shapes is available including those shown here. Similarly, virtually any sizes can be accommodated—up to a maximum of 1200 mm x 2400 mm—although designers may wish to consider the guide sizes shown (which also relate to other characteristics—such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

Guide Sizes (mm)

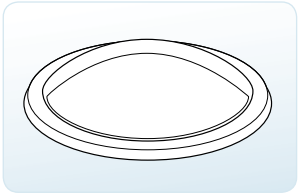
Square		Rectangular		Circular (Diameter)	
600 x 600	1200 x 1200	600 x 900	900 x 1800	600	900
750 x 750	1350 x 1350	600 x 1200	900 x 2400	1200	1500
900 x 900	1500 x 1500	600 x 1500	1000 x 1500	1800	
1000 x 1000	1800 x 1800	600 x 1800	1000 x 2000		
1050 x 1050		600 x 2400	1200 x 1500		
		900 x 1200	1200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



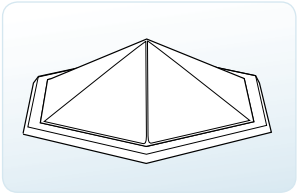
Pyramid (PY)



Dome (DM)



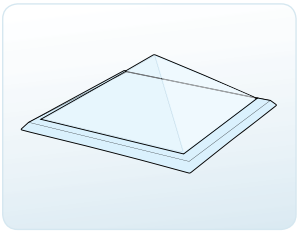
Circular (CIR)



Hexagonal (HEX)

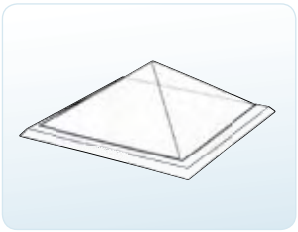
Glazing Colour

The various glazing layers in Xtralite 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 in various configurations, refer to the earlier section: **Designing with Daylight**—Properties of Glazing Materials and Configurations. In addition, all ranges are 'Non-fragile, Class B' rating classified to ACR[M]001:2005 *'Test For Non-Fragility of Profiled Sheeted Roofing Assemblies'*, Edition 3 – the "Red Book".



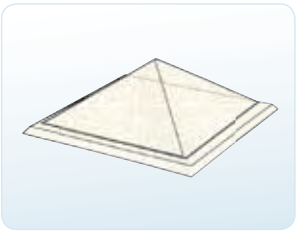
Clear

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



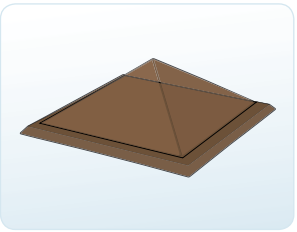
Diffused

- 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.

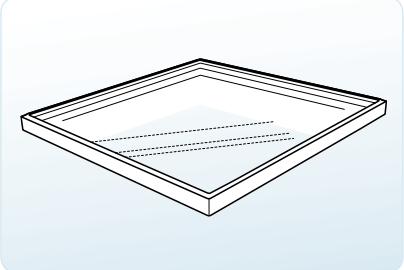


Bronze

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

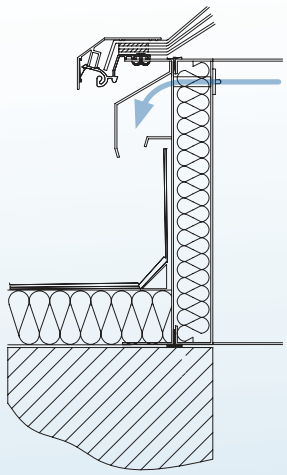
Alternative Glazing Materials—Glass (IGL)

Offered in lieu of polycarbonate. Double glazed insulated glass units will provide a low U value alternative. Selection of high specification glass can also be used to reduce such things as solar gain and rain noise whilst retaining non-fragile status. Contact Xtralite to discuss your requirements.



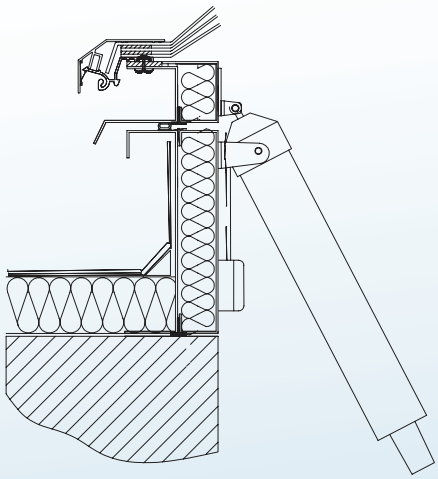
Ventilation

Xtralite rooflights can incorporate a range of ventilation and access systems. For more background information and performance levels of the various systems shown below, refer to the earlier section: **Performance Characteristics and Legislation – Ventilation**. Where ventilation is a primary consideration for energy efficient environmental management or smoke control during fires, refer to the **Natural Smoke and Ventilation Systems** section later in this Guide.



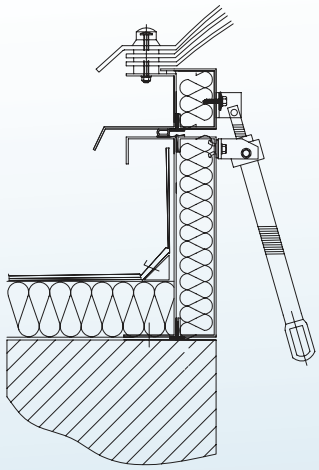
Hit and Miss Vent (01)

Provides minimal background ventilation



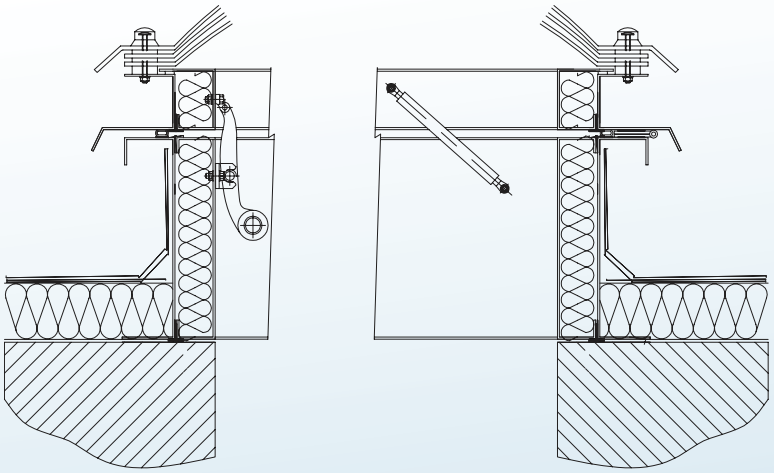
Linear Motor Vent (06)

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



Manual Wormgear Vent (03)

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

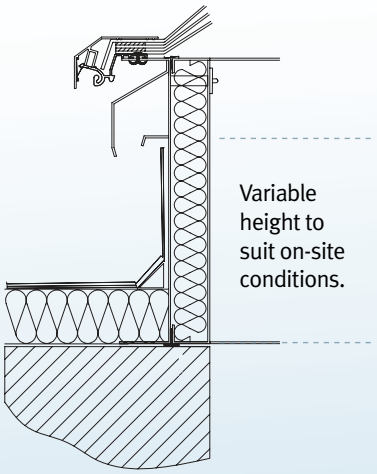


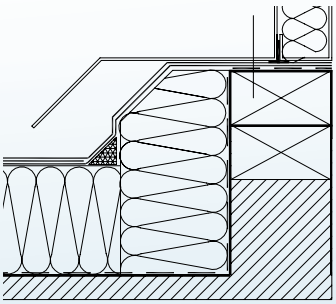
Gas Spring Vent (04G)

Gas springs assist opening to 90° for access. Please refer to Xtralite for specific health and safety information.

Roof Attachment and Security

Roof Attachment



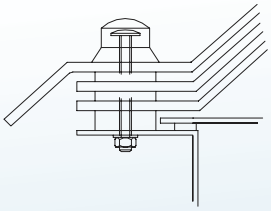


Adaptor Kerb (D)

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

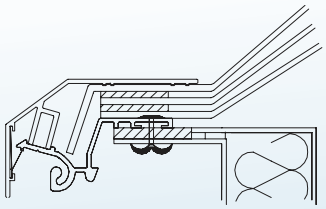
Security

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



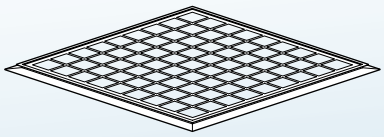
Security Screws (SS)

Intrusion is hampered as the thread assemblies into which the security screws locate are not easily accessed once the glazing is fixed.



Security Frame (SF)

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.



Intruder Grid (IG)

Intruder grid systems may be added to all rooflights in the Xtralite 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.

U Value Calculation

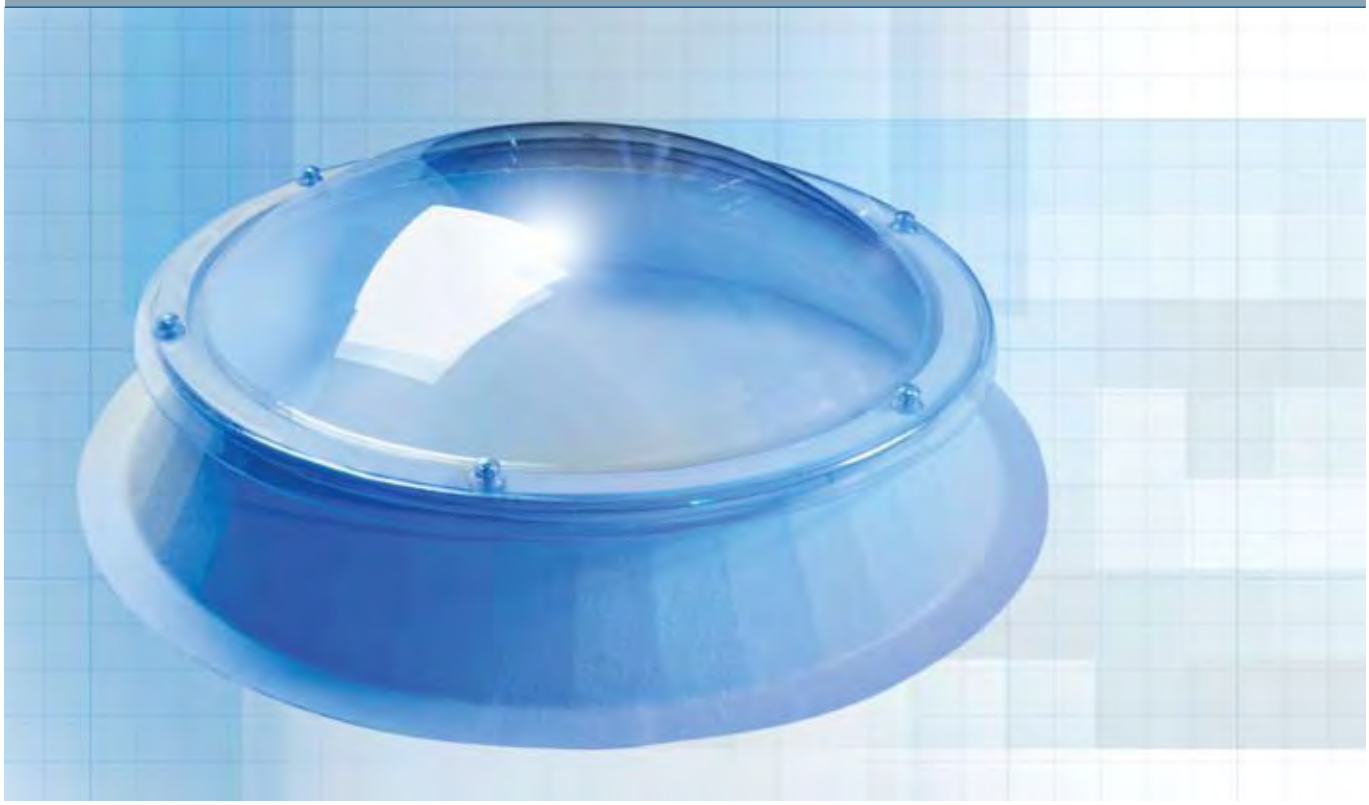
The U value of a rooflight is calculated by dividing the heat transfer across the system (measured in Watts) by the environmental temperature difference across the test element (measured in degrees K) multiplied by the area of the aperture in the surround panel—called the projected area (measured in 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.

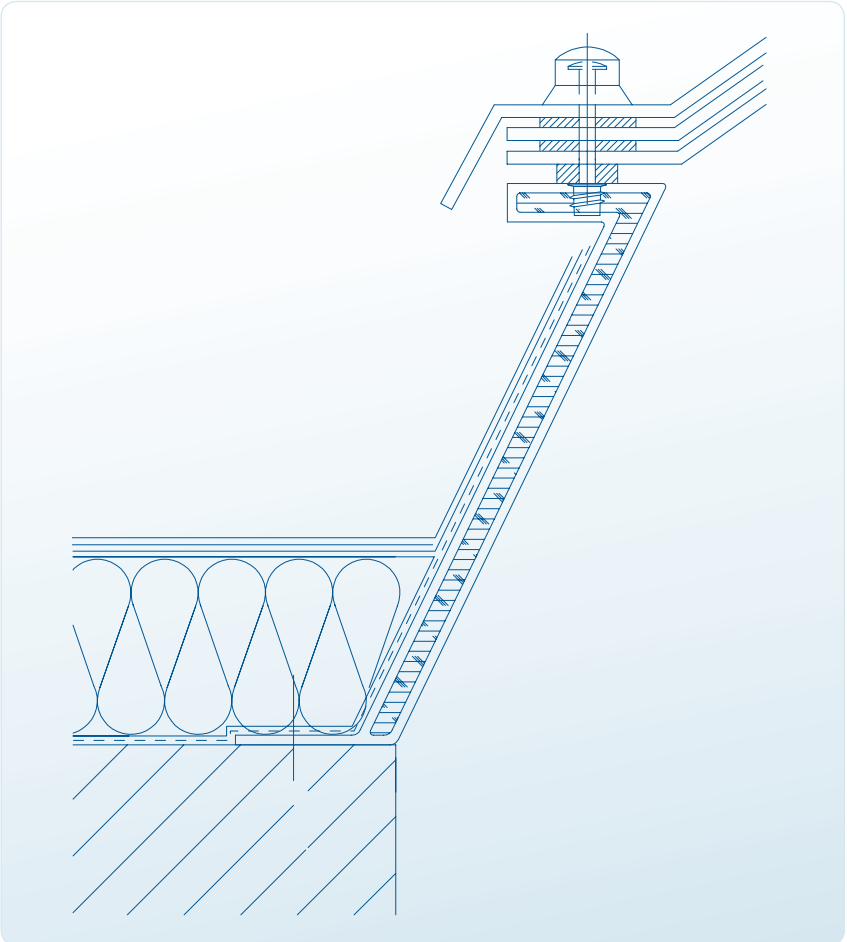
To show what this value is, a 'supplemental' U value has been calculated using developed area and it is this relevant value that we quote in this document.

Product Portfolio Rooflights
X-Four

2.2 Uvalue



This GRP kerbed system is designed for circular rooflights whilst also complying with the maximum allowable U value (under Part L) of 2.2 (see page 18 of this section). Rooflights are triple glazed as standard with enhanced UV protected polycarbonate and vented airspaces, and air leakage meets Part L criteria.



Glazing Size, Shape and Materials

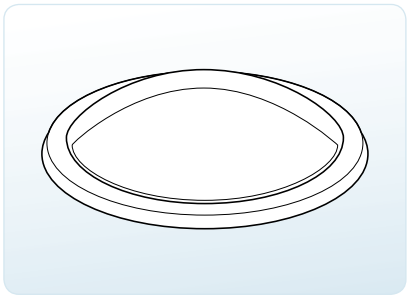
Size and Shape

Xtralite 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 diameter of 1800 mm.

Guide Sizes (mm)

Circular (Diameter)

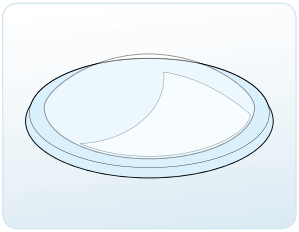
600
900
1200
1500
1800



Circular (CIR)

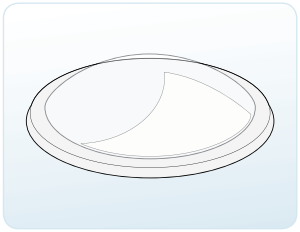
Glazing Colour

The various glazing layers in Xtralite 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 in various configurations, refer to the earlier section: **Designing with Daylight**—Properties of Glazing Materials and Configurations. In addition, all ranges are 'Non-fragile, Class B' rating classified to ACR[M]001:2005 *'Test For Non-Fragility of Profiled Sheeted Roofing Assemblies'*, Edition 3 – the "Red Book".



Clear

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

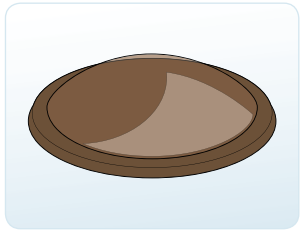


Diffused

- 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.

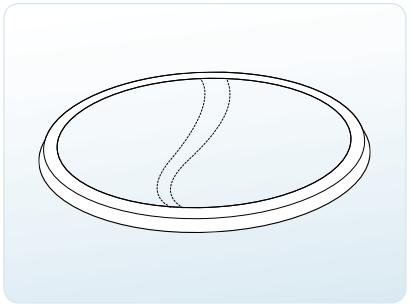


Bronze

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

Alternative Glazing Materials—Glass (IGL)

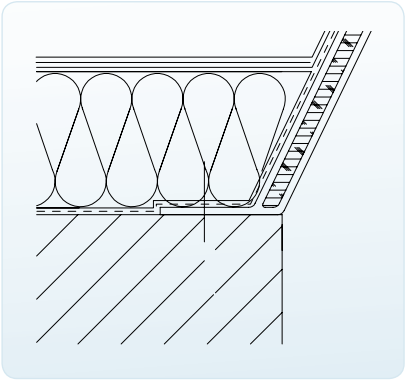
Offered in lieu of polycarbonate. Double glazed insulated glass units will provide a low U value alternative. Selection of high specification glass can also be used to reduce such things as solar gain and rain noise whilst retaining non-fragile status. Contact Xtralite to discuss your requirements.



Roof Attachment and Security

Roof Attachment

Xtralite has developed unique mounting systems to aid attachment and make the process of incorporation easy.

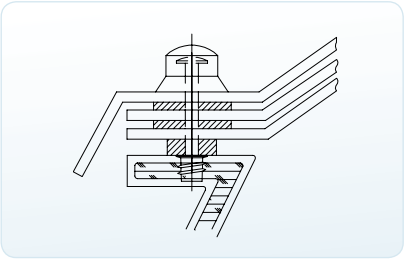


Direct to Roof Deck (C)

Allows for the kerb to be attached direct to the supporting structure. It is possible that this may be above the insulation layer.

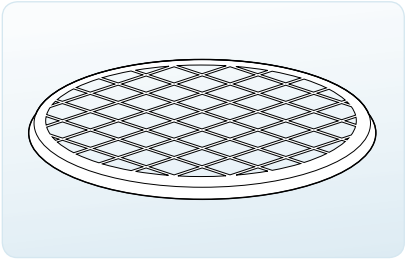
Security

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



Security Screws (SS)

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



Intruder Grid (IG)

Burglar bar systems may be added to all rooflights in the Xtralite 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.

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.

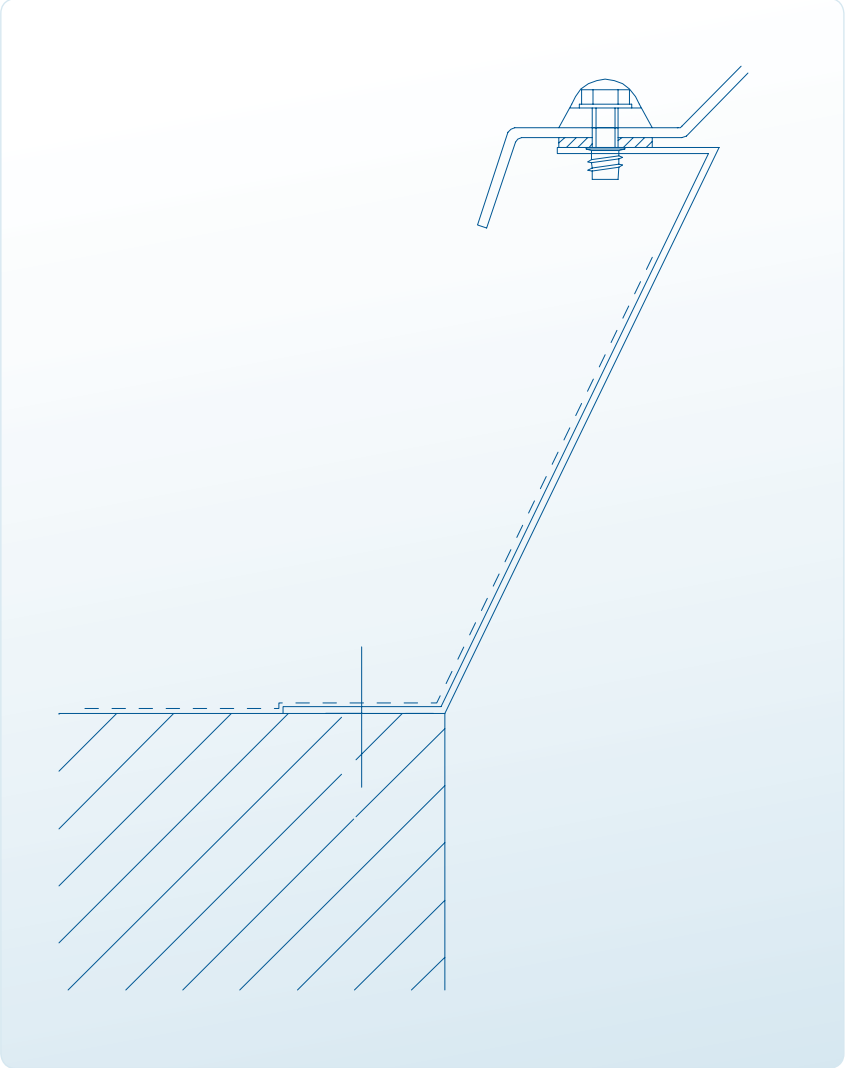
The building energy software SBEM uses the actual area (often called the developed area) of the product, to calculate the heat transfer through the product.

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 document.

X-Five

4.0 Uvalue

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. X-Five 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.

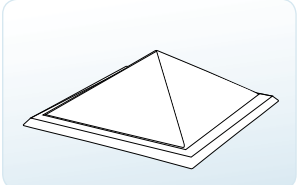


Size and Shape

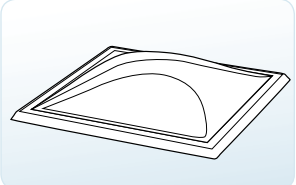
Xtralite rooflights are bespoke products and a range of shapes is available including those shown here. Similarly, virtually any sizes can be accommodated—up to a maximum of 1500 mm x 2400 mm—although designers may wish to consider the guide sizes shown (which also relate to other characteristics—such as ventilation—discussed elsewhere in this Guide).

Guide Sizes (mm)

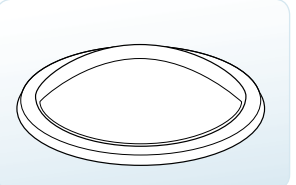
Square		Rectangular		Circular (Diameter)	
600 x 600	1200 x 1200	600 x 900	900 x 1800	600	900
750 x 750	1350 x 1350	600 x 1200	900 x 2400	1200	1500
900 x 900	1500 x 1500	600 x 1500	1000 x 1500	1800	
1000 x 1000	1800 x 1800	600 x 1800	1000 x 2000		
1050 x 1050		600 x 2400	1200 x 1500		
		900 x 1200	1200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



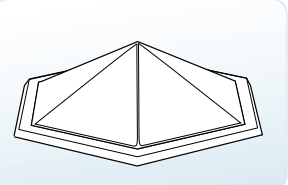
Pyramid (PY)



Dome (DM)



Circular (CIR)



Hexagonal (HEX)

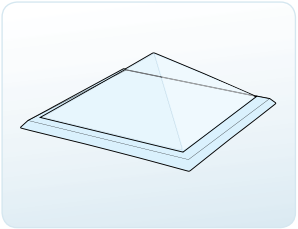
Xtralite ROOFLIGHTS

Product Portfolio Rooflights—X-Five
Glazing Size, Shape, Colour and Materials

4.0 Uvalue

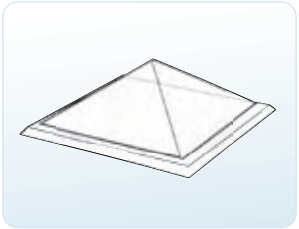
Glazing Colour

The various glazing layers in Xtralite 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 in various configurations, refer to the earlier section: **Designing with Daylight**—Properties of Glazing Materials and Configurations. In addition, all ranges are 'Non-fragile, Class B' rating classified to ACR[M]001:2005 *'Test For Non-Fragility of Profiled Sheeted Roofing Assemblies'*, Edition 3 – the "Red Book".



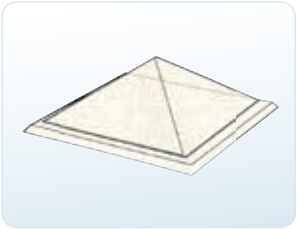
Clear

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



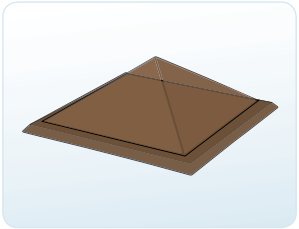
Diffused

- 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.

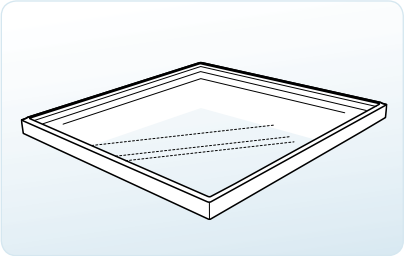


Bronze

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

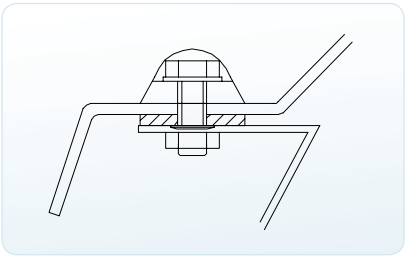
Alternative Glazing Materials—Glass (IGL)

Offered in lieu of polycarbonate. Double glazed insulated glass units will provide a low 'U' value alternative. Selection of high specification glass can also be used to reduce such things as solar gain and rain noise whilst retaining non-fragile status. Contact Xtralite to discuss your requirements.



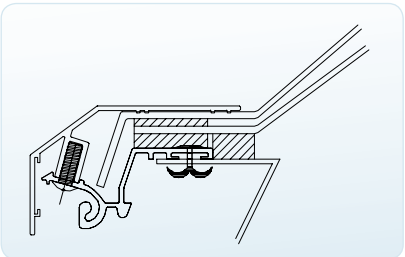
Security

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



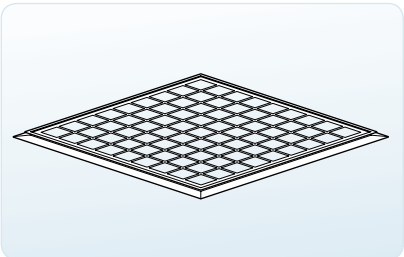
Security Screws (SS)

Intrusion is hampered as the thread assemblies into which the security screws locate are not easily accessed once the glazing is fixed.



Security Frame (SF)

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.



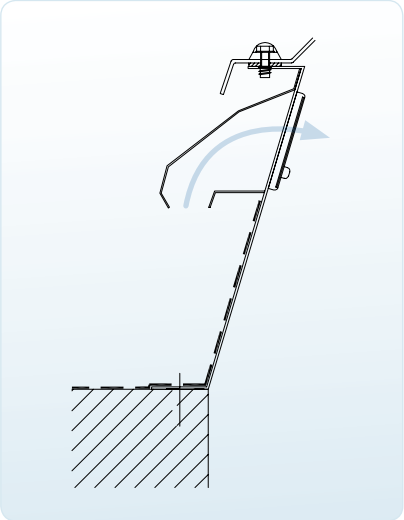
Intruder Grid (IG)

Intruder grid systems may be added to all rooflights in the Xtralite 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.

Ventilation and Security

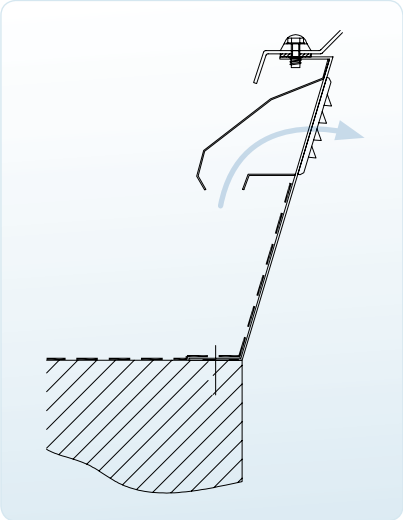
Ventilation

Xtralite rooflights can incorporate a range of ventilation and access systems. For more background information and tables showing the performance levels of the various systems shown below, refer to the earlier section: **Performance Characteristics and Legislation—Ventilation**. Where ventilation is a primary consideration for energy efficient environmental management or smoke control during fires, refer to the **Natural Smoke and Ventilation Systems** section later in this Guide.



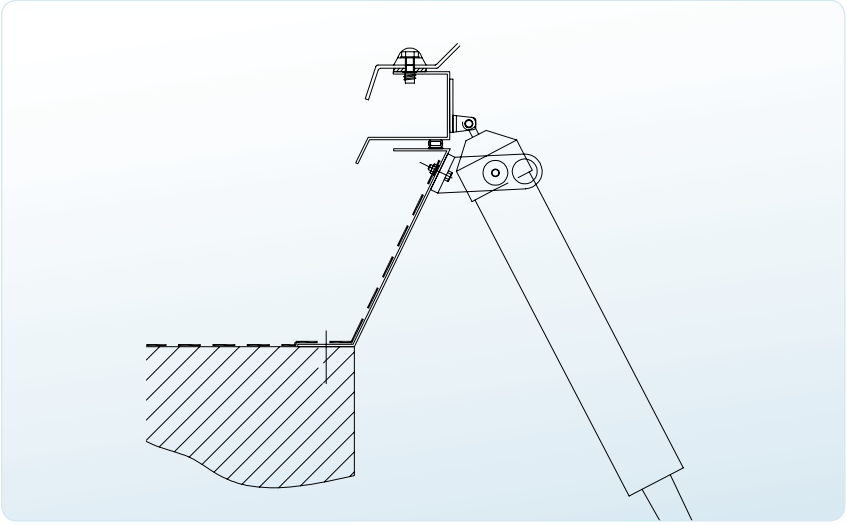
Hit and Miss Vent (01)

Provides minimal background ventilation



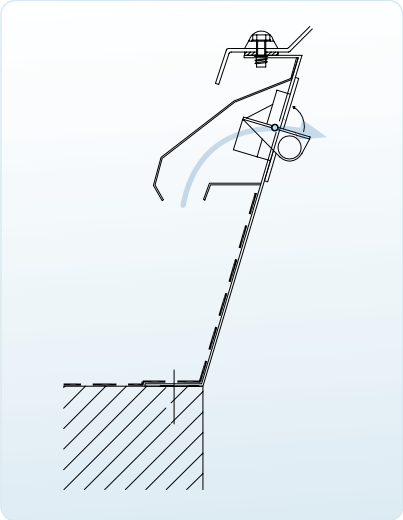
Permanent Vent (08)

Provides continual ventilation



Linear Motor Vent (06)

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



Controlled Louvre Vent (09)

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

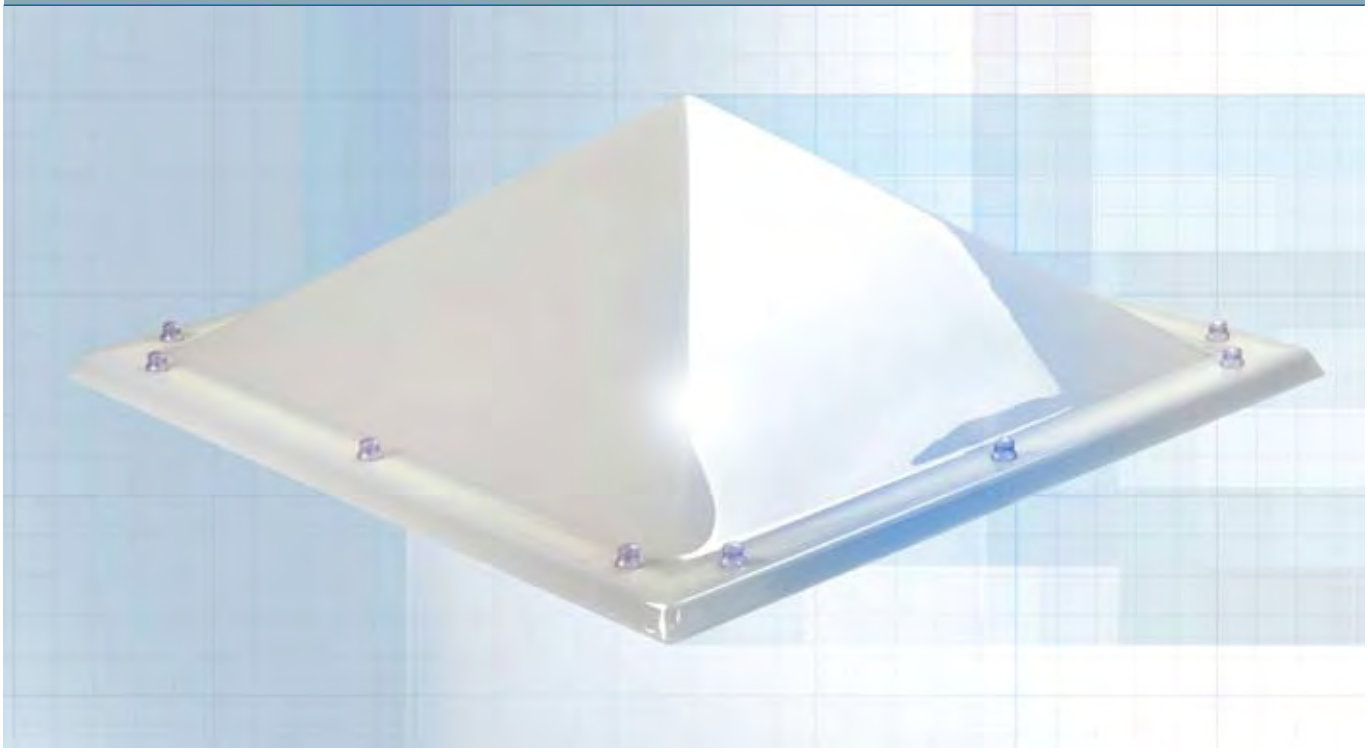
U Value Calculation

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 document.

Product Portfolio Rooflights
X-Glaze



The X-Glaze range provides single, double or triple skin polycarbonate glazing units for direct fixing to a builder's kerb or upstand. As there are no integral frames or kerbs, the usual range of Xtralite 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.

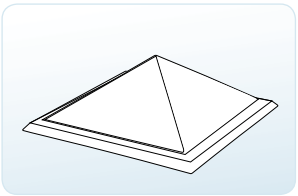
	Triple Skin	Double Skin	Single Skin
U value (2.2 required for Part L)	1.8 Uvalue	2.9 Uvalue	4.0 Uvalue

Size and Shape

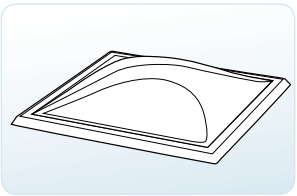
Xtralite rooflights are bespoke products and a range of shapes is available including those shown here. Similarly, virtually any sizes can be accommodated—up to a maximum of 1500 mm x 2400 mm—although designers may wish to consider the guide sizes shown (which also relate to other characteristics—such as ventilation—discussed elsewhere in this Guide).

Guide Sizes (mm)

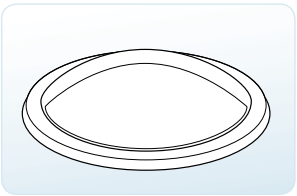
Square		Rectangular		Circular (Diameter)	
600 x 600	1200 x 1200	600 x 900	900 x 1800	600	900
750 x 750	1350 x 1350	600 x 1200	900 x 2400	1200	1500
900 x 900	1500 x 1500	600 x 1500	1000 x 1500	1800	
1000 x 1000	1800 x 1800	600 x 1800	1000 x 2000		
1050 x 1050		600 x 2400	1200 x 1500		
		900 x 1200	1200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



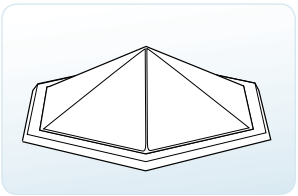
Pyramid (PY)



Dome (DM)



Circular (CIR)

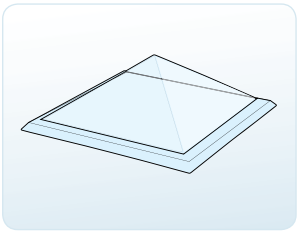


Hexagonal (HEX)

Glazing and Security

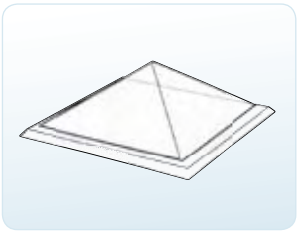
Glazing Colour

The various glazing layers in Xtralite 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 in various configurations, refer to the earlier section: **Designing with Daylight**—Properties of Glazing Materials and Configurations. In addition, all ranges are 'Non-fragile, Class B' rating classified to ACR[M]001:2005 *'Test For Non-Fragility of Profiled Sheeted Roofing Assemblies'*, Edition 3 – the "Red Book".



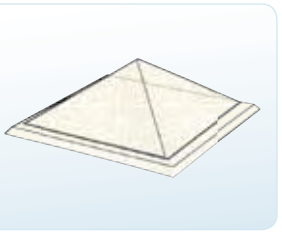
Clear

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



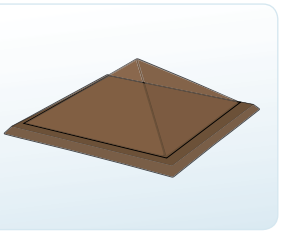
Diffused

- 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.



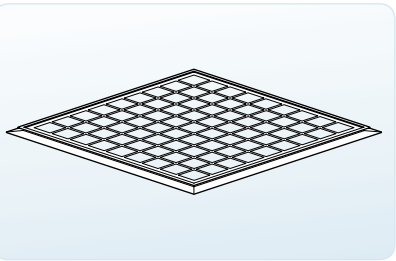
Bronze

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

Security

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

Security Screws (SS)



Intruder Grid (IG)

Intruder grid systems may be added to all rooflights in the Xtralite range. They are positioned between the glazing and roof opening 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.

Rooflight Specification Guide

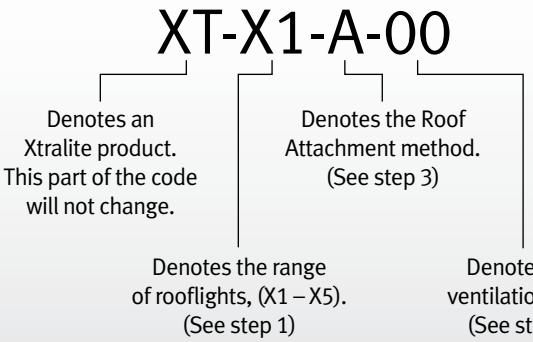
Each of Xtralite's rooflight ranges has a wide array of options. To aid specifiers in the selection process Xtralite has created a simple-to-follow guide, designed to help formulate the rooflight configuration required.

By following the advice in this manual and referring to the CAD database on the Xtralite website **www.xtralite.co.uk** in the downloads section, specifiers can see the options available and configure individual roof light specifications.

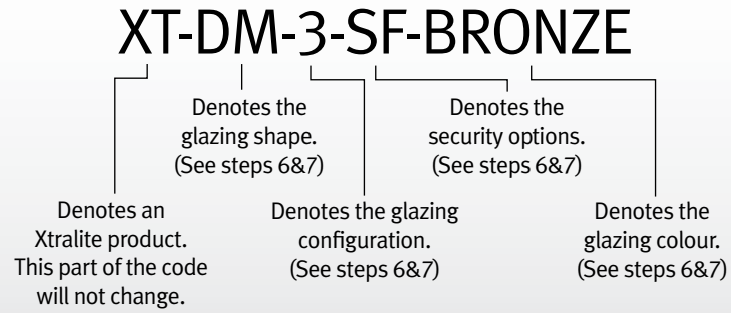
When specifying, it is not essential to use the product codes which denote the different glazing, ventilation and roof attachment options available, specifying using text descriptions is acceptable. However, providing the correct codes may assist in accurately specifying the desired rooflight configuration.

If further assistance is required in determining the rooflight configuration, please call Xtralite on **01670 354157**.

Understanding the Xtralite Ventilation and Attachment Codes



Understanding the Xtralite Glazing Code



Step 1—Before the detailing begins

Consider the following two key elements:

- Most rooflight specification is driven by Part L and consequently U value performance. So select the rooflight that meets your particular project requirements from the X-One to X-Five range.
- If **glazing only (X-Glaze)** is required go to step 7. For units that require an attachment or ventilation zone go to step 2.

U value Options

	X-One	X-Two	X-Three	X-Four	X-Five
U value (2.2 required for Part L)	1.3 Uvalue	1.8 Uvalue	2.2 Uvalue	2.2 Uvalue	4.0 Uvalue

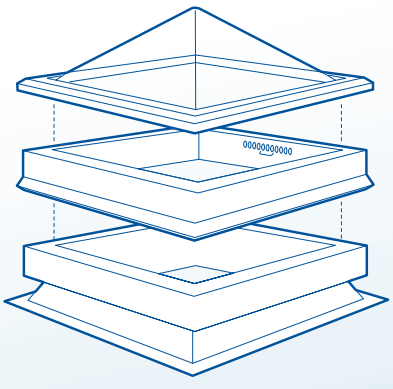
Xtralite are capable of producing bespoke-sized rooflights, however when size is not an issue typical standard sizes are shown in step 5 and a guide to measuring the roof opening is shown in step 8 .

Step 2—Understanding the rooflight construction

Rooflight construction is broken down into three key areas:

- Attachment zone
- Ventilation zone
- Glazing zone

You will need to work from the bottom up so firstly—the attachment zone.



Step 3—The Attachment Zone

The attachment zone covers three elements;

1. The shape of the opening—rectangular, square or circular
2. The various attachment options
3. Security—the inclusion of an intruder grid

Further information regarding these details is available in the individual product sections within the product portfolio and also at **www.xtralite.co.uk**

Attachment Zone Options

	Code	X-One	X-Two	X-Three	X-Four	X-Five
Roof Opening Shape						
Rectangular/Square		•	•	•		•
Circular				•	•	•
Attachment						
Kerb with Variable Metal Foot	A	•	•			
Kerb with Variable Metal Foot to Suit Kerb-to-Falls Insulation	B	•	•			
Kerb Direct to Roof	C	•	•	•	•	•
Adaptor Kerb	D	•	•	•		•
Sleeve Over	F	•	•	•		•
Security						
Intruder Grid	IG	•	•	•	•	•

Step 4—The Ventilation Zone

Xtralite's range of options gives the specifier considerable scope to satisfy the ventilation requirement.

Ventilation Zone Options

	Code	X-One	X-Two	X-Three	X-Four	X-Five
Unventilated	00	•	•	•	•	•
Hit and Miss	01		•	•		•
Rotary Vent	02	•	•	•		
Wormgear	03	•	•	•		•
Access Hatch with Gas Spring	04G		•	•		•
Access Hatch with Restriction Stay	04F	•	•	•		•
Access Hatch with Electric Motor	04E			•		•
Smoke Vent/AOV with 90° Opening	0590			•		•
Smoke Vent/AOV with 140° Opening	05140			•		•
Smoke Vent/AOV with Dual-Pitch Opening	05DP					•
Linear Motor	06	•	•	•		•
Emergency Opening Gas Spring	07		•	•		•
Permanent Vent	08					•
Control Louvre	09					•
50% Louvre	10					•
Electromagnet	11			•		•
Electric Sliding Opener	12E					•
Manual Sliding Opener	12M					•
Extract Vent	13					•
Trickle Vent	14				•	•

Step 5—Sizing the Rooflight

Xtralite has the ability to manufacture bespoke-sized modular rooflights up to; rectangular 1500 mm x 2400 mm, circular 1800 mm (diameter). The following is a selection of common standard sizes. For larger rooflights see the continuous rooflights, panelised glazing and specialist glazing sections.

Size Options (mm)

				X-One	X-Two	X-Three	X-Four	X-Five
Square	600 x 600	750 x 750	900 x 900					
	1000 x 1000	1050 x 1050	1200 x 1200	•	•	•		•
	1350 x 1350	1500 x 1500	1800 x 1800					
Rectangular	600 x 900	900 x 1800	600 x 1200					
	900 x 2400	600 x 1500	1000 x 1500					
	600 x 1800	1000 x 2000	600 x 2400	•	•	•		•
	1200 x 1500	900 x 1200	1200 x 1800					
	900 x 1350	1200 x 2400	900 x 1500					
	1500 x 2400							
Circular (Diameter)	600	900	1200			•	•	•
	1500	1800						

Step 6—The Glazing Zone

Within the glazing zone there are four options to consider, material, shape, colour and security. Unless otherwise specified the glazing will be 3 mm polycarbonate for each skin.

Glazing Zone Options

Material*		Code	X-One	X-Two	X-Three	X-Four	X-Five
Polycarbonate	Single	1					•
	Double	2					•
	Triple	3	•	•	•	•	
Glass**	Single	GL					•
	Double	IGL	•	•	•	•	
Shape							
Polycarbonate	Pyramid	PY	•	•	•		•
	Dome	DM	•	•	•		•
Glass	Flat	Glass	•	•	•	•	•
Solid	Flat	Solid	•	•	•	•	•
Glazing Colours							
Polycarbonate	Clear	Clear	•	•	•	•	•
	Diffused	Diffused	•	•	•	•	•
	Opal	Opal	•	•	•	•	•
	Bronze	Bronze	•	•	•	•	•
Glazing Security							
Security Screws		SS	•	•	•	•	•
Security Frame		SF	•	•	•		•

*Glazing options are only those that we recommend to achieve the U value figures shown in step 1. Other options are available on request.
** For your glass specification, please contact Xtralite to review the options available.

Step 7—Specifying Glazing Only (X-Glaze)

For those situations where a pre-constructed builder's kerb already exists, Xtralite provide a polycarbonate glazing only option. A security screw attachment is available and if further security is required an intruder grid can be fitted. U values vary depending on whether single, double or triple glazing configurations are used. For sizing guidance please refer to step 5.

Glazing Only Options

	Code	Configuration		
		Triple Skin (Code 3)	**Double Skin** (Code 2)	**Single Skin** (Code 1)
U value (2.2 required for Part L)				
Polycarbonate Options				
Dome	DM	•	•	•
Pyramid	PY	•	•	•
Trapezoid	TR	•	•	•
Colour Options				
Clear	Clear	•	•	•
Diffused	Diffused	•	•	•
Opal	Opal	•	•	•
Bronze	Bronze	•	•	•
Security Options				
Security Screws	SS	•	•	•
Intruder Grid	IG	•	•	•

Step 8—Required Information for Bespoke Rooflight Sizes

To ensure that each bespoke rooflight is correctly manufactured, the measurements required are clarified in the descriptions and accompanying diagrams below and overleaf.

Glazing only (X-Glaze) and Adaptor Kerbs

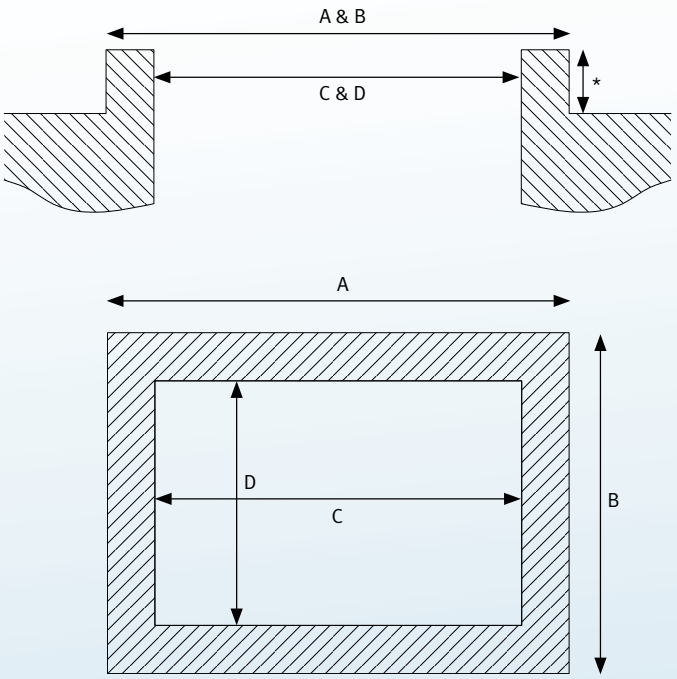
To fix X-Glaze (domes and pyramids) and rooflights with adaptor kerbs to a kerb that has been pre-built the measurements required are shown in the diagram and itemised below.

A & B — overall finished kerb sizes including all added insulation and weatherproofing finishes.

C & D — internal finished sizes including all well liners.

* Min 150 mm from finished roof surface.

X-Glaze and Adaptor Kerbs



Rooflights that Include a Kerb Supplied by Xtralite

Care must be taken to ensure the fixing point of the rooflight kerb locates onto solid ground to ensure a secure fixing.

The measurements shown in the diagram and itemised below are the required details.

A & B — the roof opening size.

Rooflights that Include a Kerb Supplied by Xtralite