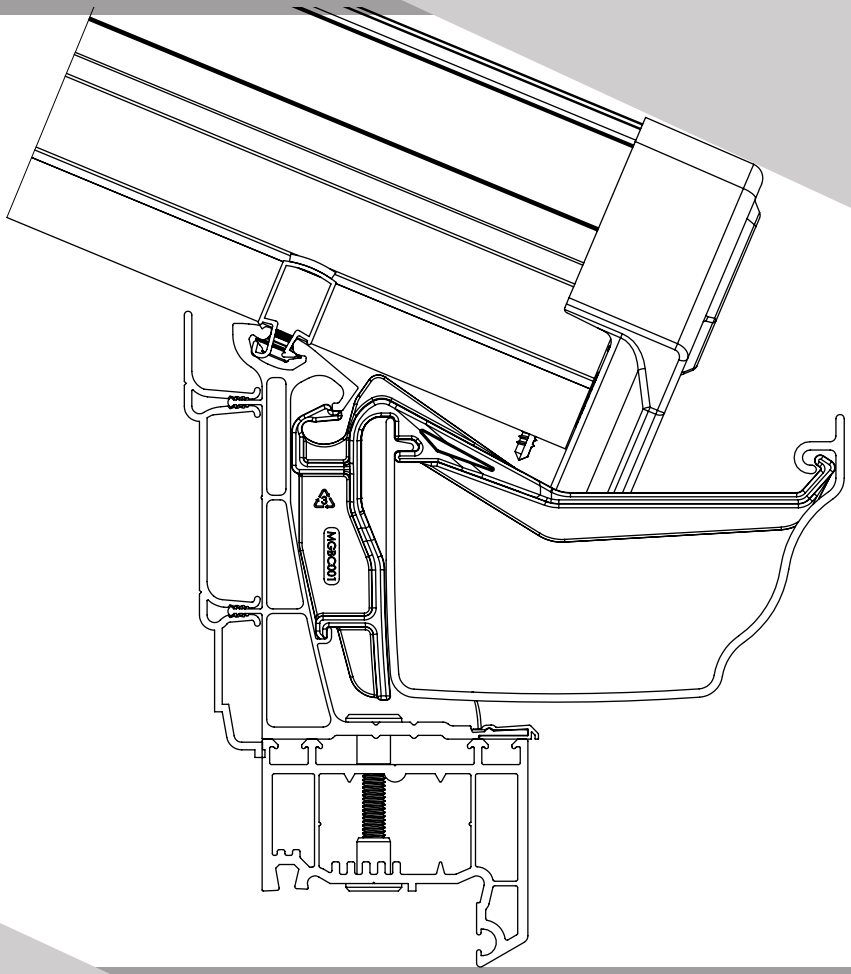
WENDLAND

ROOF SOLUTIONS



Glass Roof Technical Guide

January 2025

Wendland has been a leader in the conservatory industry since 1995 and the Wendland glass roof system is known for its quality and strength. Wendland designs, manufactures and supplies a wide range of products for the conservatory and home extension market, including the Wendland glass roof, solid and tiled roof roof products, lantern products and product upgrades such as the internal pelmet and gutter cover.

For assistance with roof design or specification please contact the Technical Support Team on 01200 452918 or email techsupport@wendland.uk.com

CONTENTS

Accreditations

Within some projects there are critical structural elements such as 'goal post' beams and supports which are used around large bi folding doors or to support box gutters where a glazed roof meets a wall or other roof. These crucial structural components now have to be CE Marked and Wendland's manufactured items have this accreditation.

Wendland operates a quality system which means it is independently assessed every quarter by BSI. This means an audit by trained inspectors to ensure we design, manufacture and supply in accordance with ISO 9001:2008 quality standard.

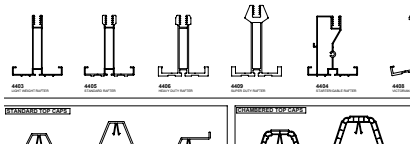
NOT COVERED IN THIS GUIDE: Lantern, Flat Skylight, Livinroof and Ultraroof

WENDLAND GLASS ROOF

FULL RIDGES

The full ridge features and benefits are:
Pitches from 15-40°

- 25/32mm glazing capabilities
- Uses current dual and single fixing blocks
- PVCu blanking piece available for ridge cap
- Glazing fascia trim/seal available at ridge



LEAN TO RIDGE

The lean to ridge features and benefits are

- Pitches from 2.5-30°
- 25/32mm glazing capabilities
- Dual and single fixing blocks
- Glazing fascia trim/seal available at ridge.
- Current ridge end caps used.

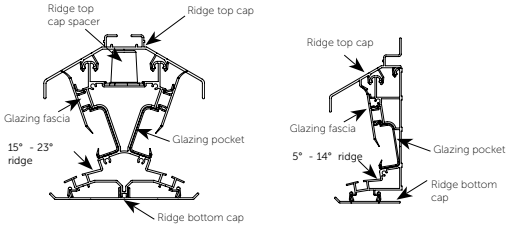
RIDGE / HALF RIDGE SPIDERS

The Wendland "spider" is quick and easy to fit

- Pre-drilled for a perfect fit
- Two sizes (large and small)
- Easy to fabricate as bars can be square cut

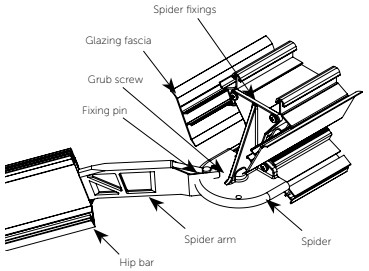
RIDGE / HALF RIDGE ASSEMBLY

The Wendland MK5 ridge has a pitch capability of 15° - 40° spread over three different ridge types. Shown below is an assembly highlighting the main parts that make up a standard ridge.



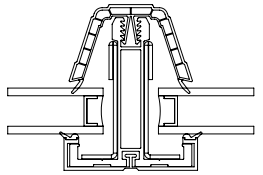
RIDGE SPIDER ASSEMBLY

The spider is the point at which the hip and intermediate bars meet the crown point and are fixed. This is then clad with a crown cap and bottom cap then secured using a retaining boss.

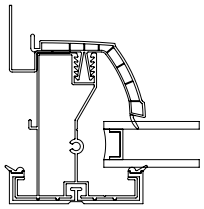


RAFTERS, HIPS & GABLE ASSEMBLY

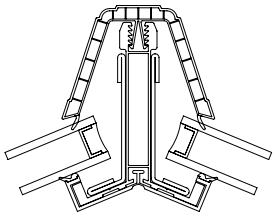
The Wendland roof has a suite of glazing bars that range in strength and capabilities in order to achieve the desired roof design. Below shows some of the suite and the parts that make up the glazing bars.



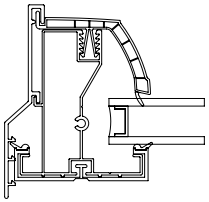
Heavy Duty Rafter



Starter assembly



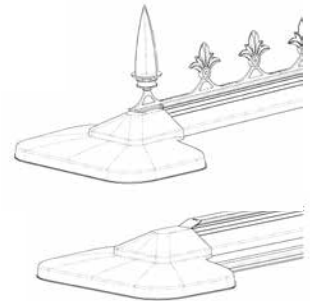
Edwardian hip

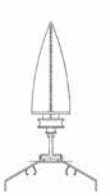


Gable assembly

CRESTINGS AND FINIALS

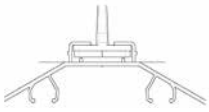
A choice of two finials and crestings allows you to personalise the conservatory.





Technical Specification

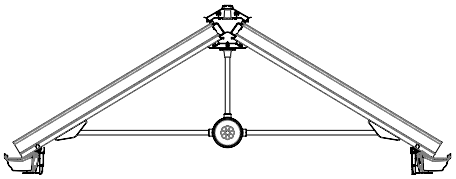
Cresting Blank - slides into ridge track



Cresting Fixing Detail - Cresting slides into ridge track

TIE BARS

Structurally, tie bars are required to resist downward forces like snow - they prevent the ridge deflecting and the frames rolling outwards. If specified on a conservatory, they **must** be fitted.There are two main types of tie bar, 3 way and 5 way.



HALF RIDGE CROWN CAP

- Available in both Edwardian and Victorian
- The smaller cap looks much better
- Suits the small spider arm only*
- Available in the full colour suite
- *Can be used on angles between the bars that are above 20°

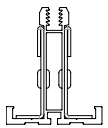
Victorian ridge end

Edwardian ridge end

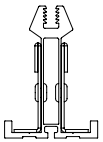
RE - INFORCED BARS GLAZING BARS

Additional structural performance is needed in certain circumstances. Standard glazing bars can have steel reinforcement inserts.

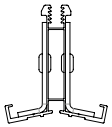
Heavy duty bar



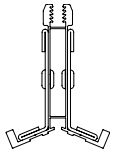
Super duty bar



Victorian hip bar



Edwardian hip bar

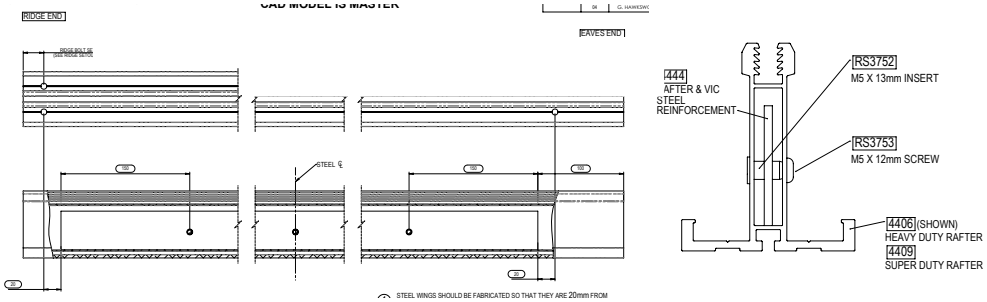


BOLSTER GLAZING BARS

A bolster is used when the conservatory span is too great for either the standard or reinforced glazing bar. This offers additional spanning performance of the glazing bar. The PVCu bolster cladding finishes shy of the ridge / wall plate and eaves and is finished with a PVCu end cap.

RS3752
M5 x 13mm FLAT
FLANGE NUTSERT

RS3753
M5 x 12mm SOCKET
BUTTON SCREW



BOLSTER END CAP

- Available for Transom, Edwardian and Victorian.
- Available in the full colour suite
- End cap is sealed in place and supported with location tabs

JACK RAFTER FIXING BRACKETS

Steel pivoting brackets are factory fitted to the jack rafters. These are bolted to the hip on site through factory positioned, pre drilled holes ensuring a robust connection.

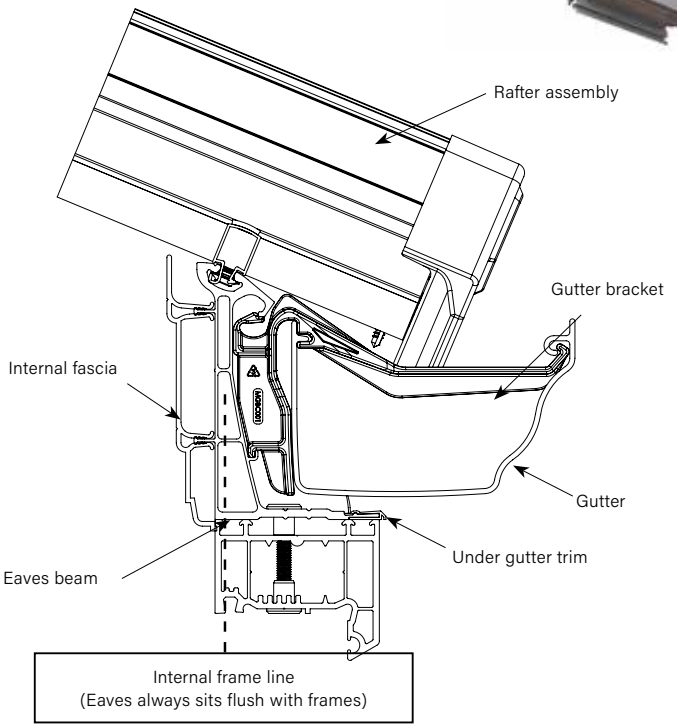
W GRIP CLIP

A natural characteristic of a roof is that they expand and contract by differing amounts. The W grip clip controls the point at which movement occurs to maintain the critical weather tight seal at the upslope (ridge) end to move at the bottom of the roof, in the gutter zone.

Supplied as standard prevent any potential movement. The W Grip clip grabs the barbs of the top cap. Jack rafters are also fitted W Grip clip. The glazing bars are prepped at the ridge end of the slope by the factory insertion of a hole through the teeth in the aluminium bar into which is inserted a clip.

STANDARD EAVES BEAM

The standard eaves beam is a high strength one piece aluminium extrusion. It can accommodate pitches between 5° - 41°. The eaves beam is compatible with the upgrades available e.g. internal pelmet and gutter cover



BI FOLD SUPPORT BEAM & EAVES SUPER BOLSTER

Bi-fold support beam which mounts to the underside of the eaves. Eaves super bolster which mounts to the inside of the eaves beam.

- The bi-fold support beam and eaves super bolster profiles can be used separately to bolster the eaves or combined to further increase the spanning capability.
- The bolster sections only need to be specified on the elevation where the larger opening is required.
- The bi-fold support beam is 70mm tall and runs between corner posts.
- The eaves super bolster support beam is 134mm tall.
- PVCu claddings on internal and exernal fascia.

On the elevaions which do not require the spanning capability, either the frame height can be adjusted, or a standard frame add on or corner post profile can be used to pack the frames under the eaves.

Standard Eaves

Bi-fold Support Beam
70mm tall

NEW
Eaves Super Bolster
134mm tall

NEW
Combined Bolstered Eaves

LOW PITCH EAVES

If the glass roof is required between 2.5 - 5° pitch, then in place of the standard glass eaves beam it uses one that sits lower. It features a simple 'flowline' gutter too in place of the standard 'ogee' gutter.

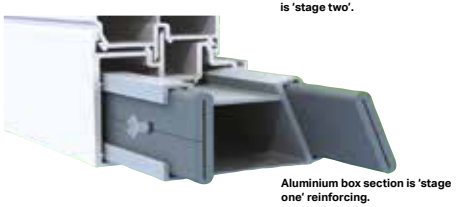
TECHNICAL SPECIFICATION
LOW PITCH EAVES BEAM

- For use between 2.5° to 5°- can be specified up to 10°
- Structural firrings at 2.5° and 5° are available
- Suitable for raked frames too
- Overhang of glass on low pitches below 10° is 105mm
- Applicable to both the low pitch eaves and standard eaves (low pitch eaves shown).

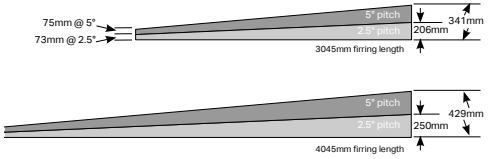
THESE ITEMS RELATE SPECIFICALLY TO THE LOW PITCH:

STRUCTURAL FIRRINGS

Wendland have gone one step further with these ready assembled interlocking profiles that not only fill the 'hole' between the side frames and the roof but which add substantial support to the whole structure particularly when doors are in the end elevations.



- Available at 2.5° and 5° pitch in 3045mm and 4045mm lengths - these need to be cut to length on site.*
- The firrings consist of a series of inter connected/locking PVCu profiles that are supplied pre-fabricated.
- Firrings are supplied in different 'conditions' to suit various projections and applications.
- The 'flowline' guttering can be clipped to the firring allowing the guttering to run along the front and sides of the conservatory. This can save the need for a soakaway as the guttering can be routed back to the house and rain water dispersed down the dwelling's existing fall pipes.



BOX GUTTER SPECIFICATION

When there is insufficient height under the bungalow soffit it may necessary to utilise a box gutter with an extended leg and flange to gain extra height.

In these situations, the box gutter MUST be supported by brick piers or gallows brackets.

Always speak to the Technical Support Team about the correct design/specification in this area - the box gutter and structural gallows bracket are priced on a project by project basis.

BOX GUTTERS

When a conservatory roof slopes backwards towards the existing building a box gutter is required. There are 165mm, 265mm and raised back. The box gutters are pre-fabricated and fast to fit.

Gutter Strap Assembly

Box gutter adapter which comes with a measured 'shot' of Gutterbond sealant

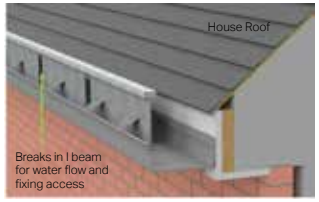
Raised Back box gutter - custom design

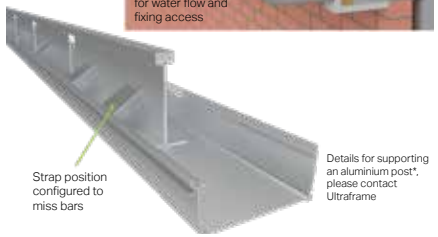
265mm Standard box gutter

165mm box gutter

REINFORCED BOX GUTTER

- A factory insulated reinforced box gutter that enables a 6M span with 265mm box gutter
- Must be supported either end by hup!, brick wall, or aluminium post *
- Reduces / eliminates the need for gallows brackets on bungalows
- Breaks in the I beam allow for water flow and fixing access & point at the image
- The maximum length of box gutter is 6m, to suit internal frame size of 5860mm.
- The box gutter can be jointed every 5.8m. Joints must be supported at each location and specified when ordering
- Whole assembly will be pre-welded
- Can be used on all Glass Roof and Livinroof
- The weight of the beam is 13kg/m, therefore lifting should be considered.





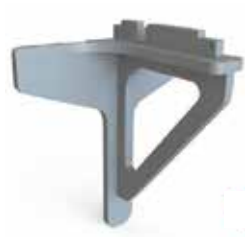
SUPPORT SPECIFICATION

It is vital when box gutters are specified that - even at sales stage - the issue of providing adequate support is considered. Attachment to timber fascias alone is NOT sufficient and brick piers, gallows brackets and other hangers must be considered.

All of the box gutters are insulated to minimise condensation risk. Where box gutters are jointed, they are sleeved and bolted. Injection moulded adapters are used to ensure seamless and watertight jointing between the PVCu gutter and the aluminium box gutter.

Each adapter comes complete with its own dry jointing gasket and measured 'shot' of Gutterbond proprietory sealant to ensure rapid completion even in the inclement weather typically found in the U.K.

Custom gallows brackets also available.



Gallows Bracket - off the shelf. Suitable for 165 or 265 box gutters.

Hanger Bracket - alternative support for 165 box gutters.

OTHER ITEMS - STRUCTURAL

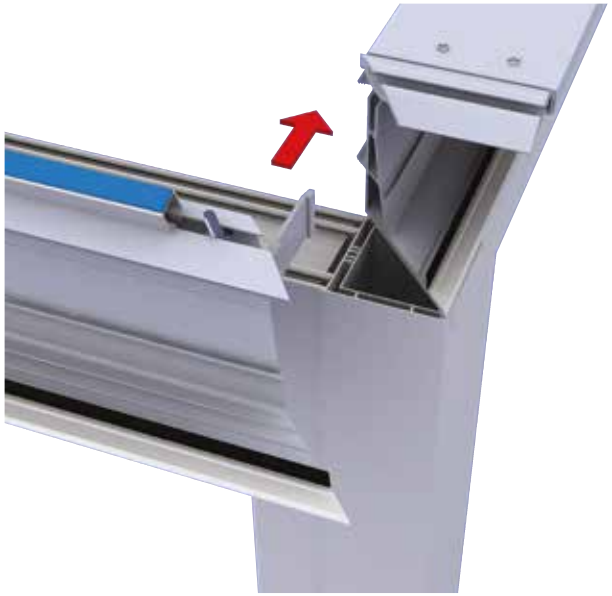
GABLE SUPPORT BEAM

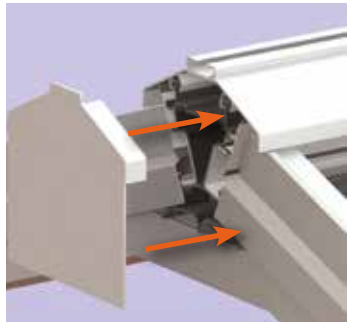
The Gable conservatory is ever more popular as it has a square front to maximise floor space for the homeowner whilst it has an interesting large infill window, into which feature designs like 'sunbursts' can be installed.

When doors are placed beneath a gable frame, additional structural support is needed to ensure frame wobble/deflection is eliminated.

The Gable Support beam interfaces with the standard eaves beam to create one holistic structural 'collar'. It comes complete with 'cheese wedge' infills to ensure neat detailing.

Wendland strongly recommends this upgrade option to be used on gable designs.

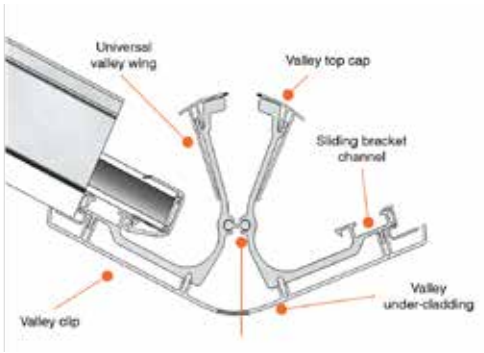




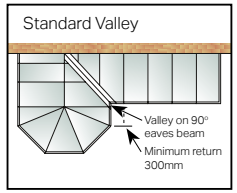
VALLEY

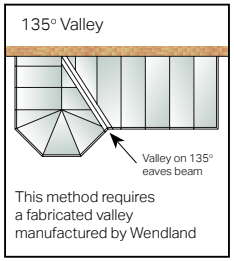
The Valley is a heavy weight structural component that drains two adjacent glazed roof slopes and connects to the eaves beam and the ridge/half ridge.

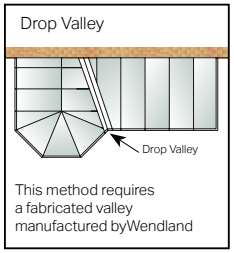
Glazing bars are fixed to the valley using a sliding bracket that fixes up the centre of the rafter. A tried and tested design capable of varied angles and glazing thickness.



Valleys can be designed / used in the following ways:

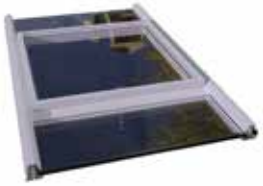






VENTILATION - OPENING ROOF VENTS

Roof Vent can be glazed directly into the ridge (where applicable), the lower muntin is factory sealed to the vent in preparation for on-site glazing. Roof vents can be specified with a pole operated screw jack mechanism or you can opt for a full climate control package of rain sensor and thermostat.



Glass rules
(Calculations for above and below roof vent)

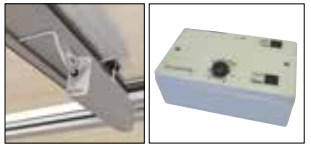
Upper glass unit height = Vent position from upper edge of glass - 10mm.
Lower glass unit height = Overall glass height - upper glass height - vent drop - 20mm.
Vent positioning (measured up the roof pitch)
Minimum of 250mm from ridge centreline
Minimum of 100mm from internal frame line

Colours

The roof vent is available in the colourways below as standard stock items.

External Colours

Caramac (8003)	Golden Oak Foil
White (9003)	White
Deeplas (SC050E 80%)	Deeplas
Brown (8016)	Rosewood Foil



A climate control package is available to automate the roof vent.

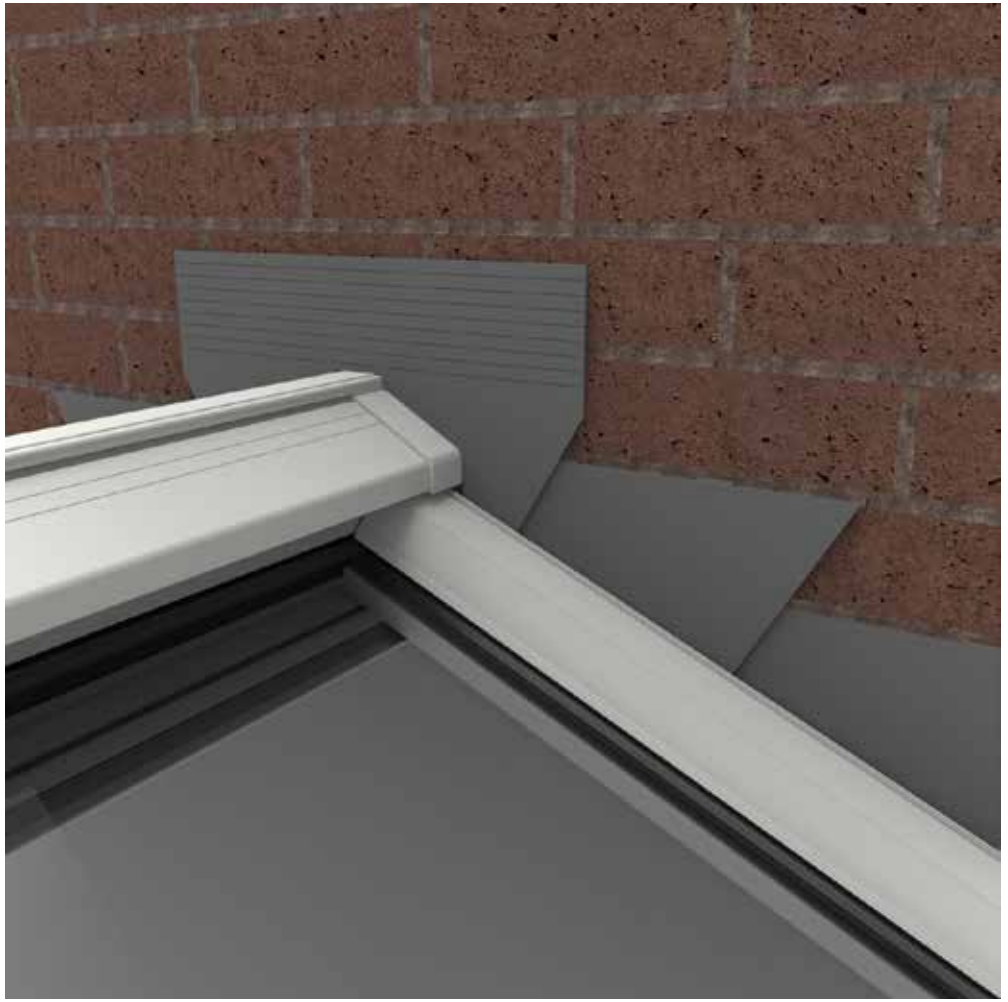
CONSERVAFLASH

Conservaflash is a pre-formed PVCu flashing system that will change the way you install.

Conservaflash is an engineered product offering professional results - in a flash! Conservaflash can be specified when a roof is ordered and a pre-configured flashing pack will be delivered with the roof. Conservaflash can be specified when the host wall is of brick construction.

SPECIFICATION

- Stepped Flashing for 15°, 20°, 25°, 30° and 35°.
- Straight Flashing option for lean-tos.
- Save money when compared to buying lead.
- Save at least an hour on each installation.
- No waste - precise amount supplied.
- Comes with the roof - an integrated solution.
- Convenient, pre-packed with no environmental risks.
- Suitable for duo pitch and lean to 'gable to gable' designs



GLAZING OPTIONS

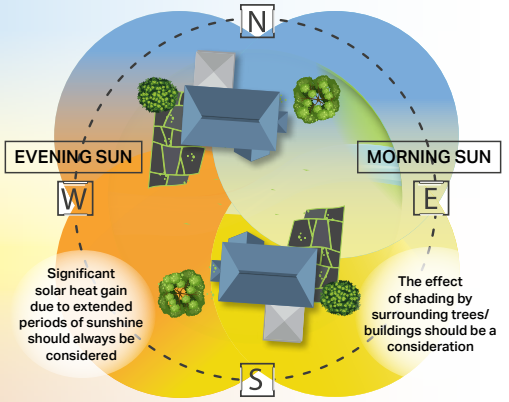
The glazing in your roof can have an impact on its temperature and energy efficiency so it's important to work closely with your installer to choose the correct specification for the orientation of your home.

All of our glass is self cleaning, toughened and double glazed safety glass as standard.

North or East Facing Specification
North or East facing locations will tend to be shady and cool receiving little direct sunlight. Glass with high light transmission and low solar rejection is a great choice as it will allow more heat and light to enter the room and warm the space.

South or West Facing Specification
A South or West facing location may be in the sun for most of the day, which brings lots of bright, natural light. The heat from the sun can also mean the room becomes too bright or unpleasantly warm, unless the correct glazing is specified.

Choose glazing which has a low level of light transmission and higher levels of solar rejection. We can supply glass with a U-Value of just 1.0, which is three times more energy efficient than a standard glass unit.



Conservaglass by Ultraframe "Energy Saving Glass"

	Great Insulation					
Performance	Low		Medium			High
Product Range	Ultimate Blue	Aqua 4S	Bronze 4S	Blue 4S	Neutral 4S	Clear 4S
U-Value	1.0	1.0	1.0	1.0	1.0	1.0
Light Transmission	24%	29%	42%	28%	38%	68%
Solar Gain (G)	18%	19%	34%	33%	30%	45%
UV Protection	94%	94%	91%	92%	85%	80%
Colour Tint	Blue	Aqua	Bronze	Blue	Neutral	Clear
			Best all rounder			

	Greatest Insulation					
Performance	Low	Medium			High	
Product Range	Std Aqua	Std Bronze	Std Blue	Std Neutral	Std Clear	Std Glass
U-Value	1.2	1.2	1.2	1.2	1.2	2.8
Light Transmission	32%	52%	24%	44%	77%	80%
Solar Gain (G)	24%	49%	46%	43%	70%	75%
UV Protection	92%	82%	90%	79%	71%	25%
Colour Tint	Aqua	Bronze	Blue	Neutral	Clear	

The position of your roof can have a direct impact on the design. South facing sites receive more sun than North facing.
The need for ventilation and shading will also vary and effect the choice of glass.

The % of solar gain is the measure of how much solar energy passes through the glass. E.g. Ultimate blue has a 18% solar gain meaning 82% of the solar energy is rejected and will not pass through.

POLYCARBONATE

Polycarboate Sheet	Light Transmission		Solar Transmission		U Value $Wm^{-2}K^{-1}$		Shading Efficiency	
Size	**25mm**	**32mm**	**25mm**	**32mm**	**25mm**	**32mm**	**25mm**	**32mm**
Clear	65%	51%	63%	55%	1.7	1.3	73%	72%
Opal	31%	29%	37%	35%	1.7	1.3	42%	41%
Bronze	24%	11%	26%	14%	1.7	1.3	30%	27%
Bronze / Opal	11%	18%	16%	22%	1.7	1.3	18%	17%
Solarguard	5%	8%	8%	8%	1.7	1.3	9%	9%

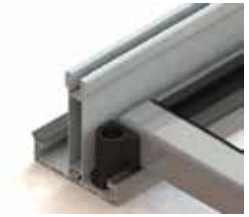
Light Transmission - Percentage of light transmitted through the unit / polycarbonate sheet.
Solar Rejection - The proportion of the sun's energy that is rejected. The higher the percentage the better it is.
Solar Transmission - The proportion of the sun's energy that is transmitted through the sheet. The lower the percentage the better it is.

U Value W/m² °K - A measure of how good the material is at preventing heat loss to the outside. The lower the figure, the more thermally efficient it is.
UV Protection - The higher the % the lower the possibility of furniture and fabrics fading.#
Shading Efficiency - The lower the figure the more shade is created.

GLASS STOPS

Whether polycarbonate or gllass units, glass stops are automatically supplied to top glass from slipping. Robust moulded glazing stops that simply screw down through the glazing bar, align with the end of the bar for a simple set out.

- No jig's or pre-drilled holes required
- Easily adjustable
- Purpose design glazing stops
- Glass fully supported on hips and splays
- No notching required



COLOURS / FINISHES - PVCu ROOFS

For a glass roof, choose from a range of colours – these can be different inside and out. The roofs are available in White, deeplas, rosewood, golden oak and grey as standard or any RAL colour available on request.

COLOURED FOILED PRODUCT CHART

Item	Supplied Foiled*	Moulded/Extruded in base colour (or painted/ powder coated)
Glazing Bar	Top Cappings Internal Claddings Bolster Covers Lean-to Cloaking Trim Muntin Bars Glazing End Channel	End caps moulded colour or painted.
Eaves Beam	Internal Cladding (7560) I	Glazing Support Trim - Extruded to internal colour. Glazing Support Trim - Extruded black on grey roofs. Internal Fascia Corners - moulded or painted. Under Gutter Trim - Cream/white on cream/white roofs & black on other colours)
Ridge	Undercladding Internal Half Ridge Undercladding Low Pitch Wallplate Internal Wallplate External	Finial moulded colour or painted. Low Profile endcap painted or powder coated. Low Profile Cresting painted or powder coated. Cresting moulded colour or painted. External Half Ridge Capping extruded base colour or painted. Half Ridge & Full Ridge External Crown covers moulded colour or painted. Full & Half Ridge and Wallplate End Caps moulded colour or painted. Gable End Cappings extruded base colour or foiled.
Gutter	**N/A**	Cream/white Marley Classic gutter extruded base on cream/white roofs. Extruded base colour for Rosewood or Golden Oak roofs. Black** Marley Classic Gutter on other standard. Coloured painted Marley Classic Gutter (Supplied at additional cost).
Valleys	Internal Claddings	External Cladding extruded or painted.
Roof Vents	Rosewood, Golden Oak and Anthracite flat matt are foiled onto black profile	Painted. Motors are white on white roofs and black on other coloured roofs.
Box Gutter	Undercladding	Multiboard - Raised Back Box Gutters. Foiled or painted. Adaptors moulded to match gutter or painted.

Specification / notes

Single skin top cappings supplied as standard (cream or white only), Chambered optional.
On ridges, choose from low profile or cresting and finial.
A chrome tie bar is specified on internally coloured roofs. Cream/white tie bars are used on cream/white roofs.
A coloured conservatory consists of foiled and painted parts. Every effort is made to ensure gloss levels are within reasonable tolerance. RAL and BS colour references are made in good faith - always give a sample swatch to your supplier when ordering any other parts (frames, cills etc) to match.

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INTERNAL PELMET

The internal pelmet is formedn from a steel ladder framework and creates a room-like look. It also boosts the thermal performance and provides a space for lights or cables. The internal pelmet allows you to enjoy the natural light of a conservatory, but also gives a feel of being in an extension.

- Can be used from 5° to 40°
- Steelwork ladder system extends from 300mm to 1200mm
- Up to 40% lower heating costs
- Datum point is internal side frame to external face of 12.5mm plasterboard
- Suitable to use with bi-folds and French doors
- Available across a wide range of styles: Victorian, Georgian, Gable and Lean-to
- Orangery style internal pelmet is the perfect place for spotlights, speakers and cable runs.

GUTTER COVER

The gutter cover covers the gutter, hiding the ends of the glazing bars. This can be added as an upgrade to new conservatories or retro-fitted to existing roofs. The gutter cover adds style by hiding the ends of the glazing bars and giving a new, more ornate look at the eaves.

- Gutter cover can be used to give a new look to on the outside at the eaves
- Can be used with Wendland glass roof, Livinroof and Ultraroof.
- Gutter cover for 135° and 90° corners now featured as standard
- Makes the roof/frames border look neater - hiding glazing bar end caps, gutter/brackets and the ends of the glazing panels
- Perfectly matches the colour of the windows and doors
- Blends with the design of your choice, no matter what the style of windows and doors e.g. bi-folds

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Job No. 7002 WENDLAND tech guide 01/25