



global
conservatory roof
assembly guide

effective from April 2005



assembly guide

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section 1 - before you start

The purpose of this Installation Guide is to assist the Installation Team when erecting a Global Roof. All Global roofs are individually designed to suit the size and specification requested.

Although Section 2 displays a step by step approach when fitting a typical Georgian style roof, the additional sections can be incorporated to cover the majority of other simple conservatory roof styles.

The Global Roof will arrive in kit form consisting of a number of packages containing the aluminium skeleton and the PVC-u cappings. Small ancillary items should arrive in a box, in this box you should find a copy of the roof layout plan and this guide.

ROOF LAYOUT PLAN

The roof layout plan is essential as it depicts the size of the roof and the position of the main roof components. Thoroughly check that the roof fits the window frame layout and that all the roof components are present. Each length of material should be numbered to correspond with its position on the roof plan. An example of this is an eaves beam assembly numbered P17 on the roof plan, the aluminium, gutter and cladding lengths should all be numbered P17 to aid identification.

CARE OF PRODUCTS ON SITE

Although the Global roof is robust in construction, simple measures should be taken when handling, storing and erecting the conservatory roof.

When unwrapping the packages take care not to damage components with a knife.

Do not leave PVC-u components outside in freezing conditions then immediately attempt to knock them on.

Do not leave brown components in their packaging whilst in direct sunlight at times of high temperatures.

Store polycarbonate roof panels in a dry safe area until they are required.

SEALING

The Global roof requires sealing at important junctions in the roof, the use of Low Modulus, Neutral Cure sealants is vital.

TOOLS REQUIRED

The following tools are necessary to install the Global Roof:

13mm socket and ratchet	White rubber headed mallet	Silicone Gun
13mm open ended spanner	Spirit Level	Stanley Knife
17mm open ended spanners	Roofing square	Power Drill + HSS and Masonry bits
Tape Measure	Hack Saw	Cordless Driver + Pozi bits
Long nosed pliers	Nylon Roller	Hot air gun
60mm dia. hole cutter	45mm dia. hole cutter	

ROOF VENTS

The Global Roof can be supplemented with an opening roof vent, refer to the installation instructions found within the roof vent packaging.

This Synseal Assembly Guide has been produced as an aid to assemble the Synseal range of products.

All information in this manual is provided for guidance only.

Synseal Extrusions Ltd cannot be held responsible for the way in which the information in this manual is interpreted.

We reserve the right to alter specifications and descriptions without prior notice as part of our policy of continual development.

All dimensions are in millimetres. Do not scale drawings.



section 2 - typical Georgian roof installation



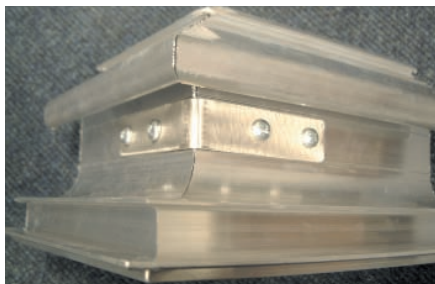
Ensure that the setting out of the conservatory footprint is correct, with the frames level and plumb. The sizes at the head of the windows should correspond with those on the roof plan. Apply a silicone bead to the head of frames, do not silicone along the front edge of the frames where the gutter trim is fitted.



Position each eaves beam in turn onto the frame head, note the extrusion line on the underside of the eaves beam as this is the internal frame line.



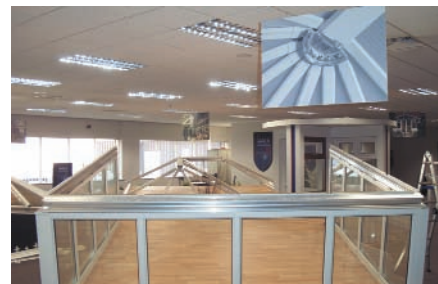
The eaves beam can be fixed down or up through the window frame at 600mm centres and 150mm in from each end. Fix from above and below when installing glass roofs. Use a minimum 4.8 x 45mm screw.



Once you are happy with the eaves beam setting out, fix eaves corner brackets centrally to the external face of the eaves beam with 4 self drilling screws (XM48-13) provided.



An additional internal eaves cleat can be fitted to the back of the parabolic head with 4 self drilling screws (XM48-10).



With the eaves beam assembly complete, the guttering should now be fitted. Please note that there are now 2 methods of fitting the guttering.



Starting at one end of the gutter run, fit the gutter stop end, hook the monkey tail bracket on the back of the gutter into the eaves beam and then rotate the gutter into position.



Connect the gutter fitting to the open end of the gutter, then continue fitting each piece of gutter and fitting until the gutter run is complete.



Using a piece of timber and a mallet, knock the continuous under gutter trim onto the eaves beam clip.

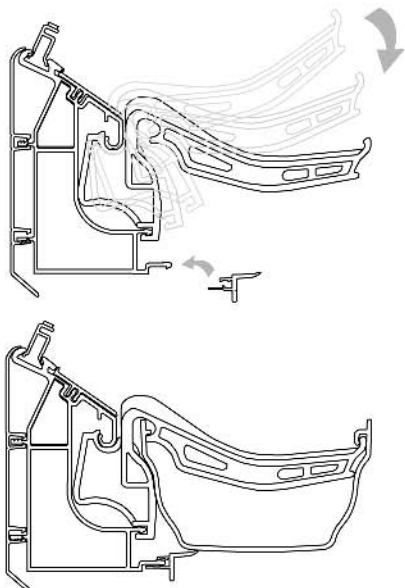
The photos above display fitting the gutter with the continuous bracket on the back and the built in under-gutter trim. Please be aware that you may receive guttering that attaches via individual brackets, these brackets rotate and then clip into the

eaves beam at 600mm centres. This type of gutter clips onto these brackets and has a separate under-gutter trim. Refer to section 3 for further details.



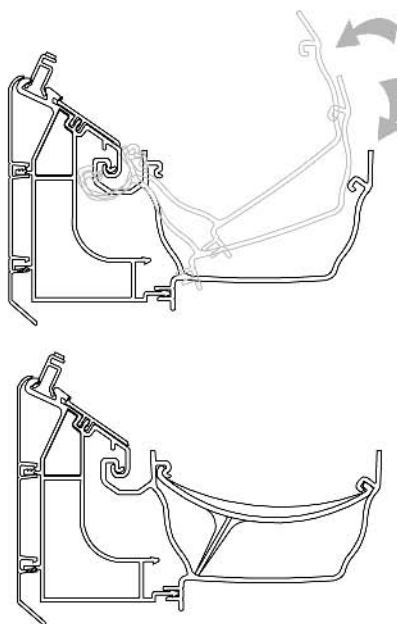
section 2 - typical Georgian roof installation

Traditional Gutter



1. Fit brackets at 600mm centres
2. hook rear of gutter into brackets
3. clip front of brackets into gutter
4. fit under gutter trim

Swing Fit Gutter



Fit any external corner trims under the gutter connectors, stop ends, running outlet etc to cloak off any exposed aluminium.

Fit the gutter strengtheners XGC3 into the gutter at 600mm maximum centres.



Polycarbonate support adaptors are now required to be fitted before any rafters. The larger (XPS3) for Georgian hips and the smaller (XPS2) for Victorian hips and transom rafters.



Determine the position of the ridge using temporary props. Locate the main eaves to ridge rafters using the roof plan as a guide. Each rafter connects into the pre-drilled holes using a single bolt to the top and bottom.



Each M8 bolt should locate into the pre-drilled holes. Ensure the ridge is level and in the correct position prior to tightening each nut with a 13mm socket.



If a security bolt is fitted, first tighten the threaded bolt into the rafter using a 4mm allen key. Then fit the M8 nut and tighten with a 13mm socket.



Jack rafters connect onto the hip rafter via the pre-fitted hook and spring fixing.

The rafters against the house wall should be secured back using suitable masonry fixings at 600mm maximum centres and maximum 150mm away from the ridge and eaves beam.



section 2 - typical Georgian roof installation



With the hook in position, pull the loop of the spring over onto the metal tab positioned on the side of the bracket. Tighten the M8 bolt at the eaves beam.

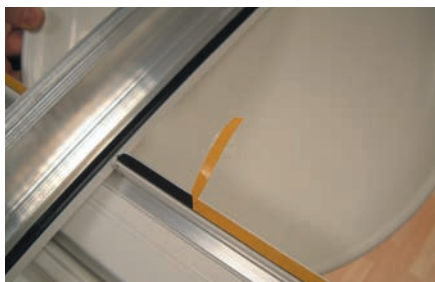


With the roof skeleton complete, check for level of ridge, line of rafters, roof pitch etc. Ensure that all bolts are tight and that the aluminium rafters have not slid down the rafter bottom caps.

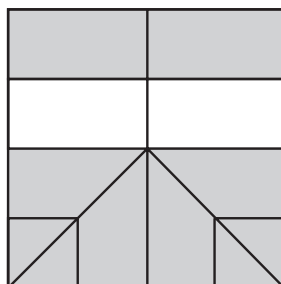


The house wall should be chased out and the lead flashing installed ready for final dressing. All dust should be removed from the roof skeleton.

TIE BARS SHOULD BE FITTED PRIOR TO GLAZING
(please see tie bar section)



Consider which panels to glaze into the roof first, remembering that access is required to seal the ridge radius end. At the eaves beam, the panel is supported on security tape, remove the protective film.



■ = Glazed areas
□ = Open areas to allow sealing of radius end and dressing of lead flashing



Cut the roof sheet end closer to size and seal it to the gutter end of the roof panel, (the end with the grey fabric breather tape). Ensure the drainage slots on the end closer are to the underside of the panel.



Offer the roof sheet into position ensuring the sheet is square to the gutter and central between the rafters. Press the sheet down onto the security tape.



Continue fitting the roof panels and rafter top caps. The rafter top caps should be flush with the end of the rafter and knocked down sufficiently to grip the roof sheets. Use a **rubber** mallet to knock each top cap down onto the rafter.



The jack rafter top caps are supplied over size and require cutting down prior to fixing. Each top cap should be numbered to correspond with the roof plan and associated rafter.



section 2 - typical Georgian roof installation



The roof sheets and the top caps should create a void at the radius end. The first and last hip top caps are left long allowing different sealing options for the foam bung*.



Cut down the bottom legs of the rear foam bung so it finishes flush with the top of the ridge. Seal the rear foam bung to the end of the ridge making sure a water tight seal is achieved.



insert the front foam bung until contact is made with the ends of the roof sheets. The top of the front foam bung should finish slightly above the rafter top caps, seal the joint between the foam bungs. A complete seal should then be made where the rafters and roof sheets join the foam bung.

*The 3 photos above show the 2 options available when sealing the radius end area. The first photo shows the caps left long with

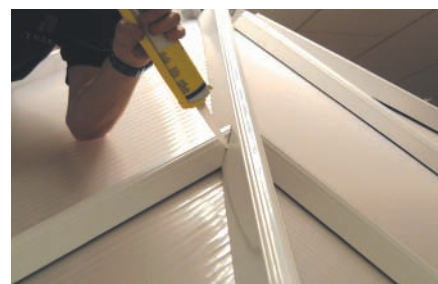
the foam modified to fill the void, the next 2 photos show the caps cut back to rafter length and the foam pieces fitted as standard.



Woodgrain roofs require the fitting of the ridge top cap prior to rafter top cap and foam bung fitting. The ridge top cap on woodgrain roofs is made from aluminium and requires sliding on.



Seal the rafter top cap to ridge rain excluder joint.



Seal the jack to hip rafter top cap joint.



Apply 2 beads of silicone to the radius end top cap and slide it onto the end of the ridge top cap.

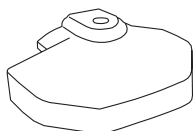


Align the 4 No. 5mm holes and push fit the supplied plastic rivets. Ensure the joint is watertight.

Note: on double ended ridges fit one radius end top cap after the ridge top cap has been fitted to the ridge.



The ridge flashing trim (XFT1) when supplied is sealed and fitted in the same way as the radius end top cap. Cut back the cresting and channel to suit. An inline joint (XFT2) is supplied to aid the jointing of ridge top caps.

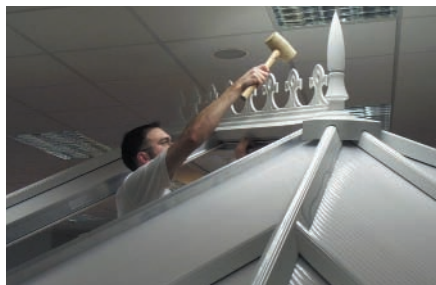


Some roofs are provided with stock radius end top caps, you will need to notch out the skirt on this cap to suit the radius end rafters. This is best achieved by marking the position of the approaching rafters on the skirt, then establishing the depth of the notches into the

skirt. Use a 45mm dia. hole cutter to mimic the shape of the rafter top caps then cut the remaining material away at an angle to suit the shape of the rafter top caps. The skirt to the rear of the radius end top cap will also need cutting away at an angle to suit the roof pitch.



section 2 - typical Georgian roof installation



The ridge top cap assembly can now be fitted to the main ridge body. Align the cladding clips and knock down into place until the top cap is level.

Note: The ridge top cap is 20mm short from the end of the ridge.



Glaze the remaining roof sheets and seal the roof back to the structure. Dress down any lead flashings.



The rafter end caps can now be fitted with the screws provided, the screw is then cloaked with a push fit button cap.



The internal radius end bottom cap fits in two ways depending on the type of radius end supplied. The standard method is push fit onto clips as shown, alternatively fix by screw/bolt and cover cap. A template is provided for cutting down the rear skirt on this bottom cap for standard roofs.



Should you wish to secure a fan or hanging bracket to the ridge, then the ridge under channel (XR3) should be screwed into position prior to fitting the undercladding.



Seal the internal eaves beam corner mitres.



The internal eaves cladding simply knocks onto the eaves beam. Ensure that the position of the cladding best suits the cladding corner joints.



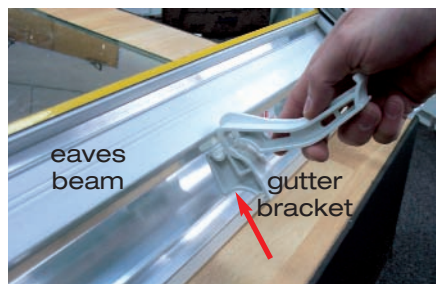
Determine the downpipe position and drill a 60mm diameter hole in the base of the gutter or a corner fitting.



The 2 part gutter spigot simply screws into place to accept the downpipe. Shown above fitted to the flat faced gutter stop end.



section 3 - fitting the traditional gutter



Offer the gutter bracket (XGC4) up into the eaves beam as shown.



The bottom clip on the gutter bracket should then be clipped to the continuous aluminium leg on the eaves beam. You should hear a 'click' as it locates. Continue fitting the brackets to 600mm max. centres.



Offer the back of the gutter up into the rear of the gutter brackets, the small continuous leg inside the gutter should positively locate into each bracket.



Once the rear of the gutter is hanging from the brackets, pull up on the front of the bracket locking it into the large continuous leg inside the gutter. You should here a click as it locates.



Slide the 'corner fitting' onto the end of the gutter you have just attached with the clip engaged on the rear of the fitting only. Take care not to displace the gasket inside the fitting. Engage the fittings front clip.



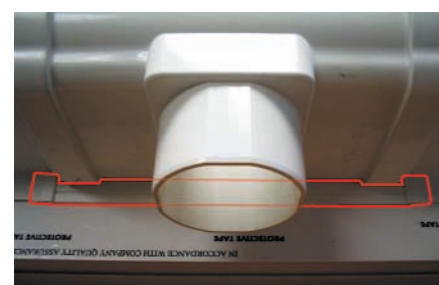
Continue fitting the remainder of the perimeter gutter working in a circuit around the conservatory. Any gutter stop ends must be fitted to the gutter length prior to attaching the gutter to the brackets.



Measure the distance between the straps on the adjacent gutter fittings, cut the under gutter trim (XYGIT2) to this length and push it onto the continuous leg on the bottom of the eaves beam.



Insert the under gutter corner trims over the exposed corners of the eaves beam, these should just clip into place over the corner posts. XUGT90 trim is shown in the example above.



If using the Running outlet the trim XUGT180 is used without modification. This trim is also used to cloak under stop ends after modification.

Read the instruction carefully before attempting to fit this style of gutter. The gutter should arrive cut to length but

allowance must be made for the running outlet should you use it.



section 4 - tie bars



Fasten the tie bar bracket to the rafter via the 2 pre-fixed bolts with a 13mm spanner. Use the nut and plastic cover cap provided in the tie bar kit.



The ridge under channel (XR3) should be screwed onto the ridge at the tie bar position.



The ridge under cladding can now be fitted. Use a rubber mallet to knock it into position.

Tie bars should be installed and adjusted prior to any roof panels being installed. The position of tie bars will be

indicated by TB on the roof plan, it is imperative that these tie bars are fitted to fulfil the structural requirements of the roof.



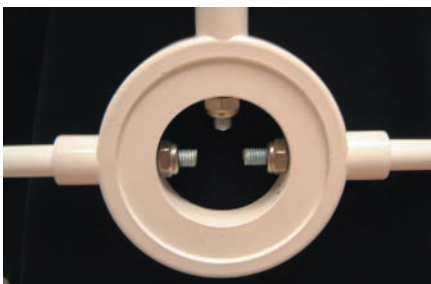
Secure the tie bar bracket to the ridge under cladding via the 4 screws into the ridge under channel. The screws require a 5mm pilot hole to be drilled.



Use the nuts, bolts and cover caps provided to secure the clevis to the bracket using a 17mm spanner.



Determine the 3 lengths of threaded rod and covers required and cut them to length. Thread the rods into each clevis at least 6 turns, slide on the covers then push the other end of the threaded bar into the central boss.



Adjust the 3 nuts in the central boss with a 17mm spanner until the tie bar is taught. Ensure that the ridge remains level and the window frames vertical.



Using the double-sided tape provided, fit the central boss decorative cover.



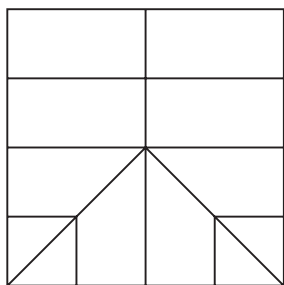
Ensure the horizontal rods are taught and the drop rod is vertical. The tie bar fitting is complete.

The example shown is for a 3-way tie bar, in some instances a 5-way tie bar arrangement may be required. In this case the tie bar will span the length of the roof in

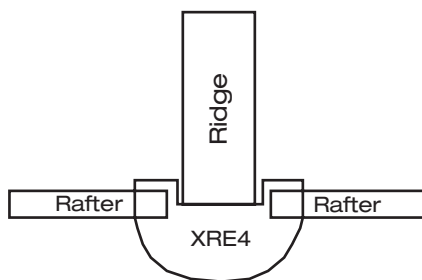
addition to the width and joint in the centre with a single drop rod. The rear tie bar fixing could be to a house wall, anchor using suitable masonry fixings.



section 4 - tie bars



This option is to be used when the centre of the tied rafter is fitted inline with the end of the ridge.



The rafters will be fitted to the radius end only, an XRE4 radius end will always be used.



Remove bottom 2 screws from XRE1 to fit the XTBR1 to the end of the ridge using the removed screws.



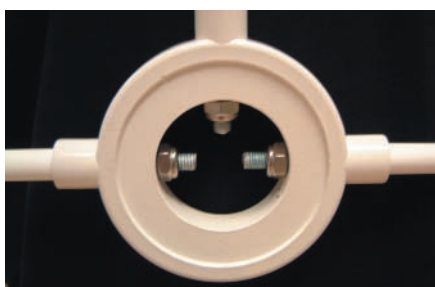
Determine the 3 lengths of threaded rod and covers required and cut them to length. Thread the rods into each clevis at least 6 turns, slide on the covers then push the other end of the threaded rod into the central boss.



Attach the drop rod to the XTBR1 bracket using the nut provided.



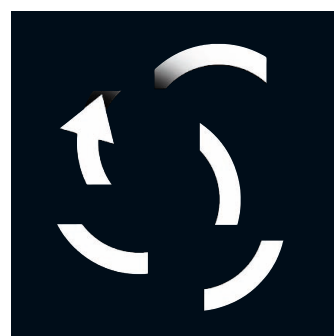
The drop rod cover is then fitted and is used to hold the radius end bottom cap in position. Push the other end of the threaded rod into the central boss.



Adjust the 3 nuts in the central boss with a 17mm spanner until the tie bar is taught. Ensure that the ridge remains level and the window frames vertical.

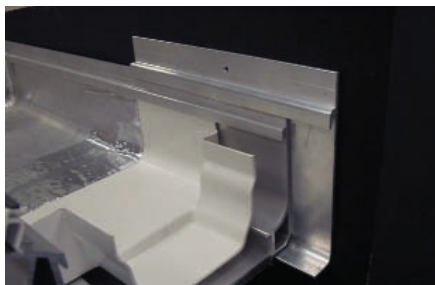


Using the double sided tape provided, fit the central boss decorative cover. Ensure the horizontal rods are taught and the drop rod is vertical. The tie bar fitting is complete.





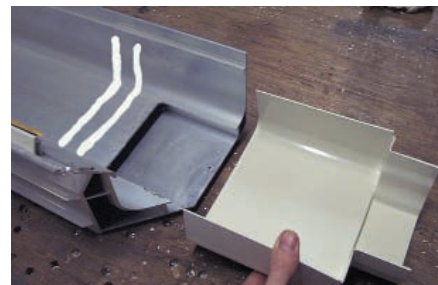
section 5 - box gutters



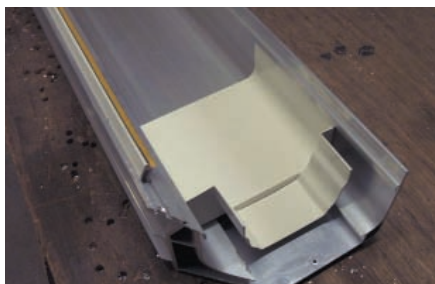
The box gutter can be fitted either directly to the wall or by using the additional fixing plate as an aid. Ensure that the fixing plate is level and straight before attempting to rotate the box gutter into position.



The box gutter will be mitred at its open end to accept the adjacent eaves beam, use the internal bracket to secure this joint. Ensure that the end of the box gutter is sealed down to the head of any window or supporting structure.



The box gutter requires an adaptor to connect it into the perimeter plastic gutter. Apply 2 beads of silicone to this joint and slide in the adaptor. It is advisable to seal closed the voids in the end of the box gutter prior to fitting the adaptor.



The insert depth can be judged by clipping the appropriate gutter fitting onto the adaptor.



Apply the supplied specialised tape centrally over the visible joint and cut it to size. Warm the area to be sealed with a heat gun.



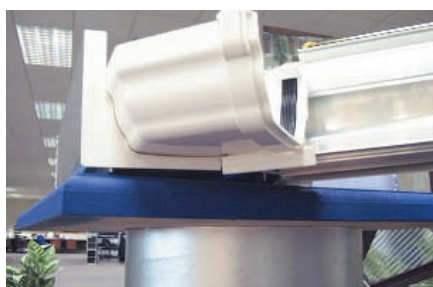
Whilst the joint is warm, use a small nylon roller to give an even compressed seal. Do not leave any air pockets or open edges on the tape.

The box gutter should be clean and dry whilst fitting the specialised adaptor tape.

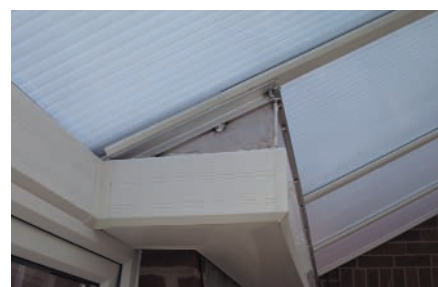


Once the adaptor is sealed, the perimeter plastic gutter can be attached.

Note: a similar method of sealing must be adopted when connecting straight joints on box gutters.



The box gutter end cap can now be clipped into place. **Do not seal** this end cap closed onto the end of the box gutter.



The bottom and side claddings can now be clipped into place. This example shows a raised leg on the box gutter, sufficient claddings are provided but require adapting to suit each raised leg condition.

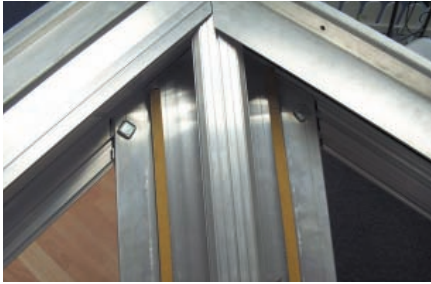
The methods of fixing the box gutter back to the structure and how it is to be supported, is the responsibility of the installation company. These methods will be dependant on the size, style and weight of the roof and to what the box gutter is being fixed to. It is recommended that expanding

metal anchor bolts are used into masonry whilst coach screws are used into reinforced joist ends on soffit installations.

It is advisable to support the box gutter below tie bar positions and at mechanical joints.



section 6 - valley situation



A roof with a valley rafter will have been pre-built in the factory. The 3 aluminium components of the valley will arrive arrow-headed at the top for bolting to the internal corner of the ridges via the pre-drilled holes*.

*The joints between rain excluders in the ridge must be sealed, these joints can occur on long ridge lengths, external corners or internal corners as seen on the photograph above.



The bottom of the valley rafter will have a bird-mouth cut allowing it to sit on the internal eaves beam corner.



The bottom of the valley wings should be bolted to the pre-drilled holes in the eaves beams. The roof sheet support trims should now be re-fitted into the eaves beams as shown.

The valley wings must also be sealed back to the rain excluders on this internal ridge joint.



The valley jack rafters can now be bolted to the ridge at one end, and onto the valley wing at the other, into the pre-drilled holes.



With the roof skeleton complete the roof sheets can now be fitted. Pull back the protective film from the security tape.



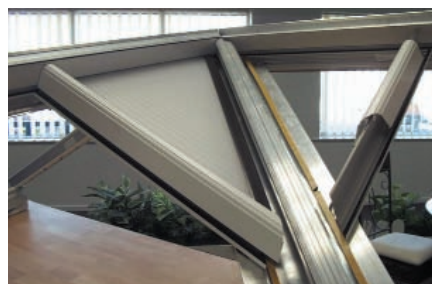
Measure and cut the roof sheet end closers to suit the valley wing side of the roof sheets. Ensure that they are sealed along both the bottom and top edges to the roof sheets.

It is advisable to erect as much of the roof skeleton as possible prior to fitting the valley rafter. The roof should not be fixed back to the house wall until the valley is in position, the

ridges level and the valley jack rafters square to the ridges. Fix the wallplate back to the structure 150mm in from each end and then at 600mm centres.



Push the top of the roof sheets into the ridge rain excluder and then lower the bottom edge onto the valley wing.



The valley jack rafter top caps can now be knocked on with a rubber mallet. Remember to seal them to the rain excluder at the ridge.



Scribe in then knock on the valley top cap. If the top cap is aluminium it will be in a three part assembly.

It may be necessary to temporarily remove a valley jack rafter to aid the installation of the poly sheet.



section 6 - valley situation



The valley top cap should be square cut to the same length as the valley spine.



The valley end cap can then be fitted to the valley spine using the screws supplied.

Do not seal to valley spine or top cap.



The screws are covered via push in button trims.

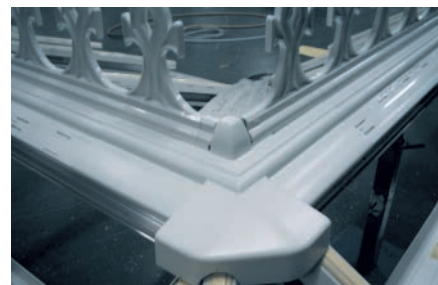


The XPT90 is fitted to L - shape ridges. Seal the XPT90 to the ridge top caps using a silicone bead, secure using supplied plastic rivets. A 5mm hole is required per rivet.

The XPT90 component can be modified and used on other types of roof design.



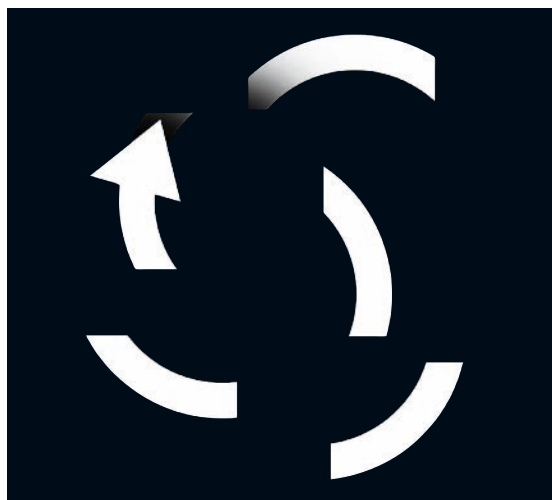
The crestings can then be fitted over the XPT90.



The XPT90 may require notching over rafters. Notch as per radius end top cap.

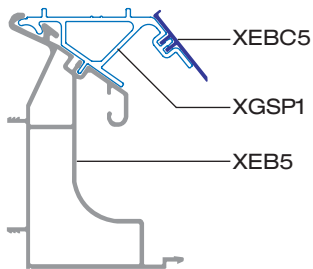


XPT90 shown above modified to joint ridge top cap to wallplate top cap on P/T shape roofs.

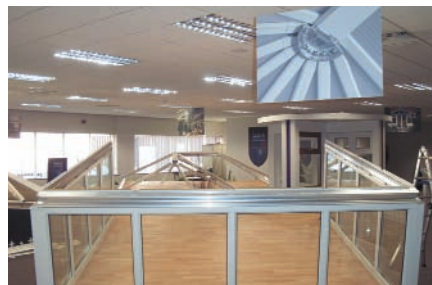




section 7 - gable support option



Slide fit the gable support platform (XGSP1) to the top of front eaves beam bolt slot.



Fit the eaves beams as per an Edwardian design to the head of the frames. Fix eaves corner brackets to the mitred corners with self drilling screws.



The gutter brackets and gutter can now be attached to the eaves beam.

Gable frame must be face drained.



The gable frame and infill wedges are fitted to the gable support platform. FC75 coupler is used between the gable frame and gable platform.



Attach gable fixing plate (XGFP1) to bottom of gable rafters, ensure fixing plate lug faces into the roof.

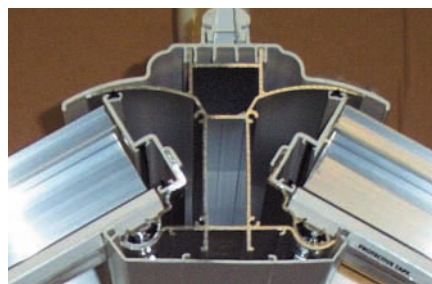


Place ridge assembly in position and fit gable rafters, first to ridge then to eaves via gable fixing plate. Ensure fixing plate lug is located in eaves beam bolt slot.

PC01 coupler is used between rafter and gable frame. Screw through the gable frame into the gable support platform to secure the frame.



Secure rafters to gable frame with screws at 250mm centres.



Seal end of ridge using a modified foam bung.



Glaze roof, fit ridge and gable end cap as per an Edwardian/Victorian roof.

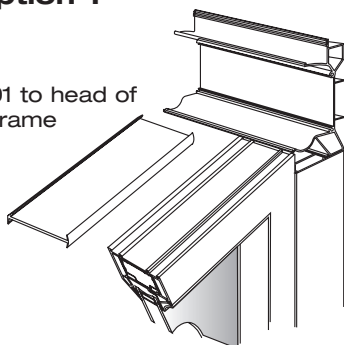
The gable frame is not supplied as part of the roof kit.



section 8 - lean to situation

option 1

Fit PC01 to head of gable frame

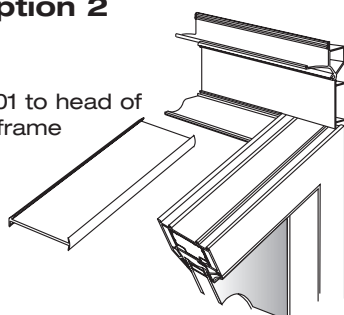


Wallplate sits on corner post

Corner post between wall and gable frame

option 2

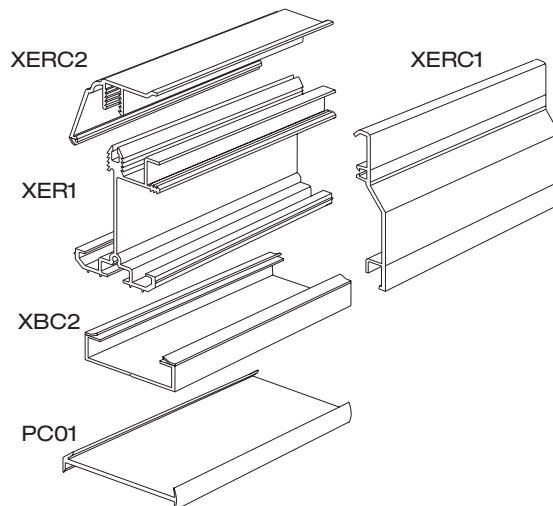
Fit PC01 to head of gable frame



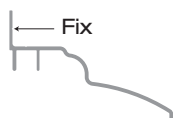
Notched wallplate sits on gable frame

Gable frame fits back to brickwork

end rafter assembly (25mm glazing)



Note: Woodgrain roofs use a powder coated aluminium wallplate top cap. This should be fixed back to the house wall using screws and rawl plugs (not supplied). This top cap does not fix directly to the wallplate.
Fix the wallplate back to the wall 150mm in from each end and then at every 600mm centres.



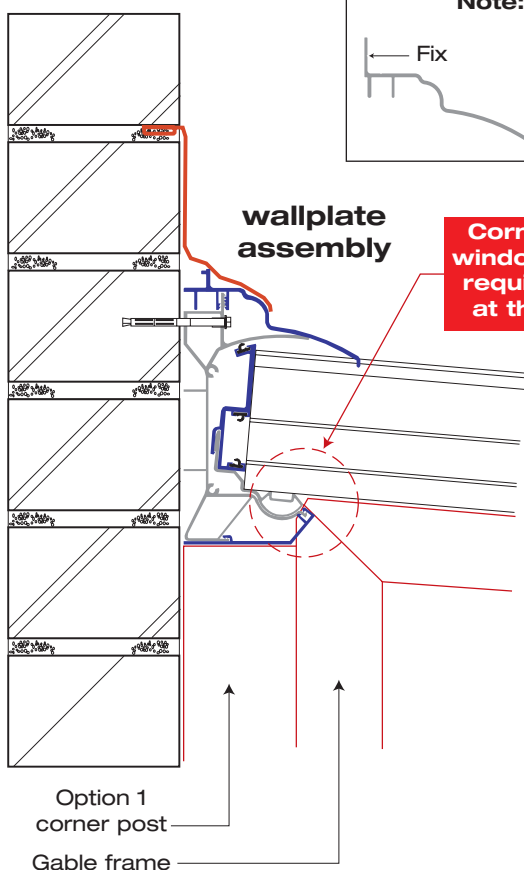
wallplate assembly

Corner of gable window frame will require notching at these points

Note: The angled gable section does not form part of the roof kit. This should be supplied separately as part of a gable window (as shown in these images) or by infill and cladding.

eaves beam assembly

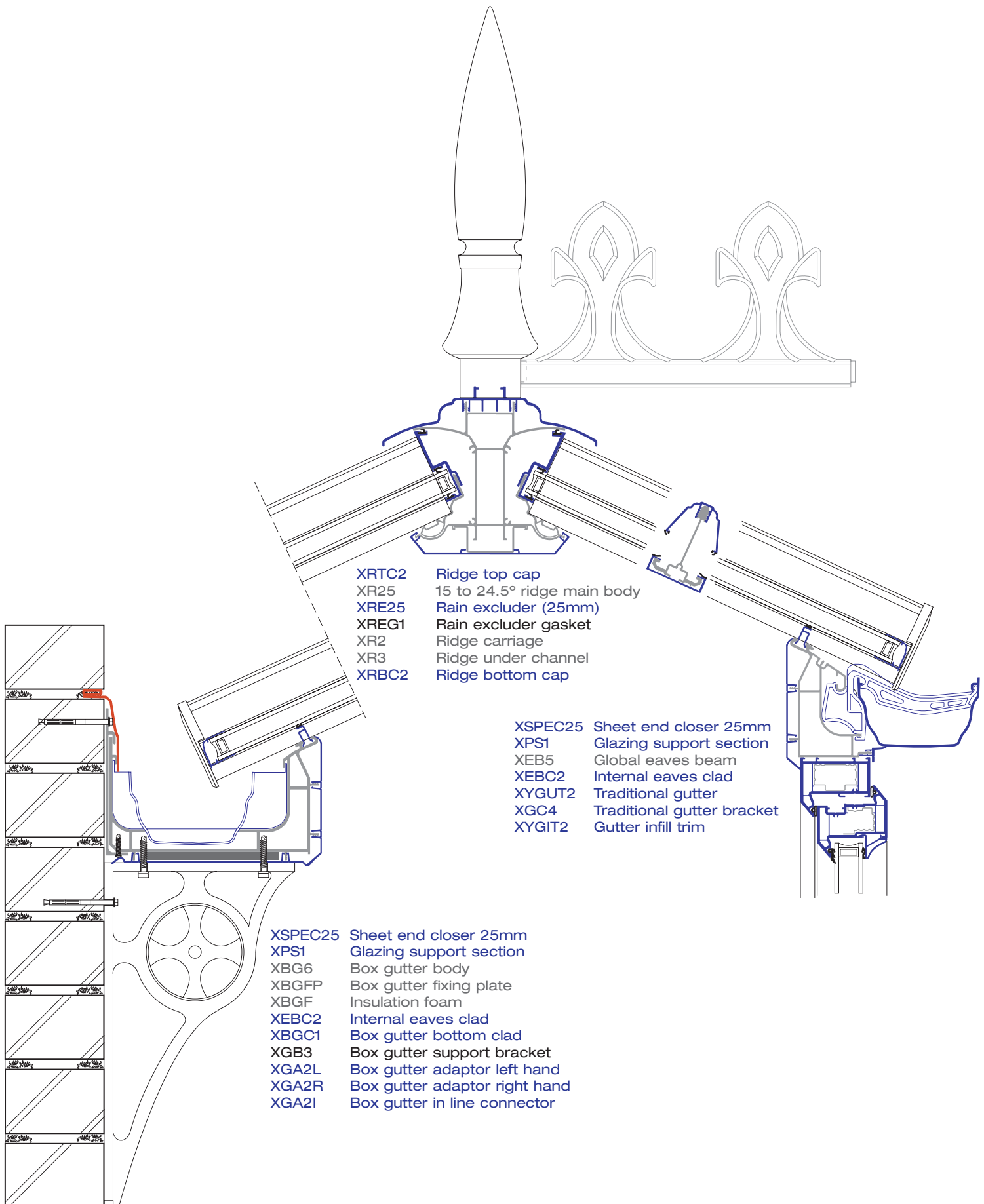
swing fit gutter option



typical lean to roof cross section

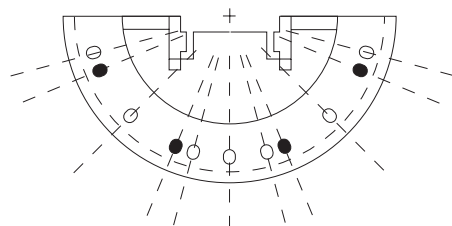


section 9 - duo pitch roof section

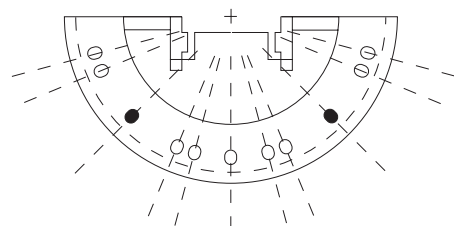




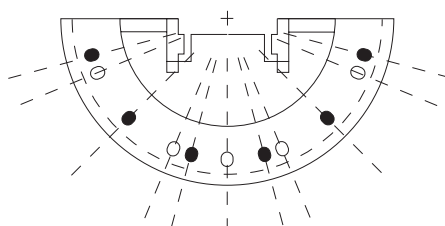
section 10 - standard radius end - XRE2



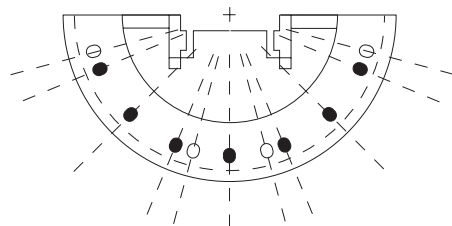
Standard 3 facet Victorian, no centre rafters



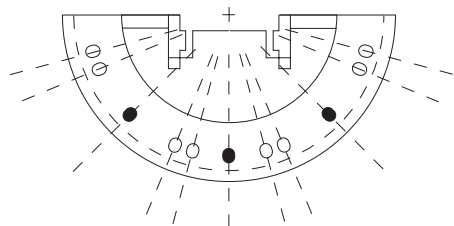
Standard Georgian, no centre rafter



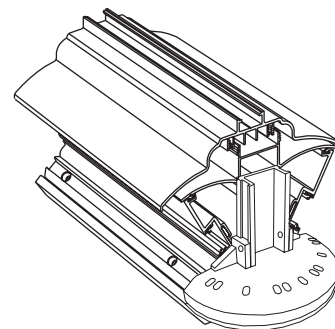
Standard 5 facet Victorian



Standard 3 facet Victorian with centre rafters



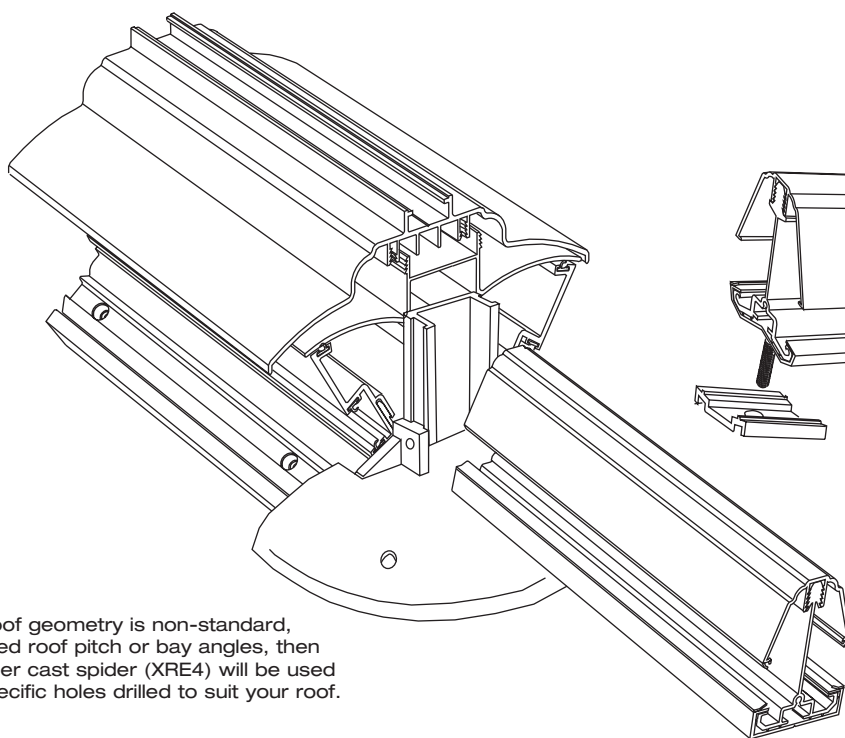
Standard Georgian with a centre rafter



Ensure you select the correct hole for each bar on the radius end.



section 11 - non standard radius end - XRE4



hip rafter

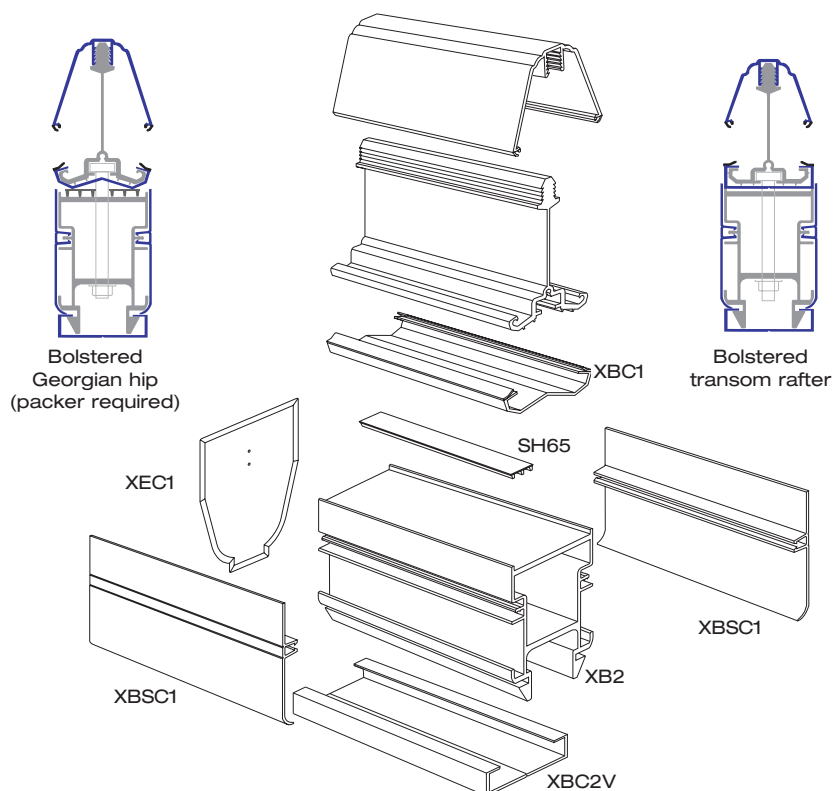
Packers XGHP will be provided on the hip rafters to ensure the correct glazing levels. Make sure they are fitted between the rafter and the radius end.

transom rafter

If the roof geometry is non-standard, i.e. varied roof pitch or bay angles, then the larger cast spider (XRE4) will be used with specific holes drilled to suit your roof.



section 12 - bolstered rafters



Very long transom and hip rafters will require additional reinforcement in the form of an aluminium section bolted to the underside of the bar.

The length of the bolster should be 400mm shorter than the length of the glazing bar (150 at ridge, 250mm at eaves).

The bolster bottom cap XBC2V (fitted first) is the same as a rafter bottom cap with the gasket removed. It ends flush with the bolster bar at the ridge end and is mitred into the eaves clad at the bottom.

The rafter side clads XBSC1, are cut down versions of the internal eaves beam clads. They end flush with the bolster bar at the ridge end and are mitred into the eaves clad at the bottom.

The ridge end of the bolster should be finished with a rafter end cap (XEC1) glued on to the bolster bar end (upside-down).

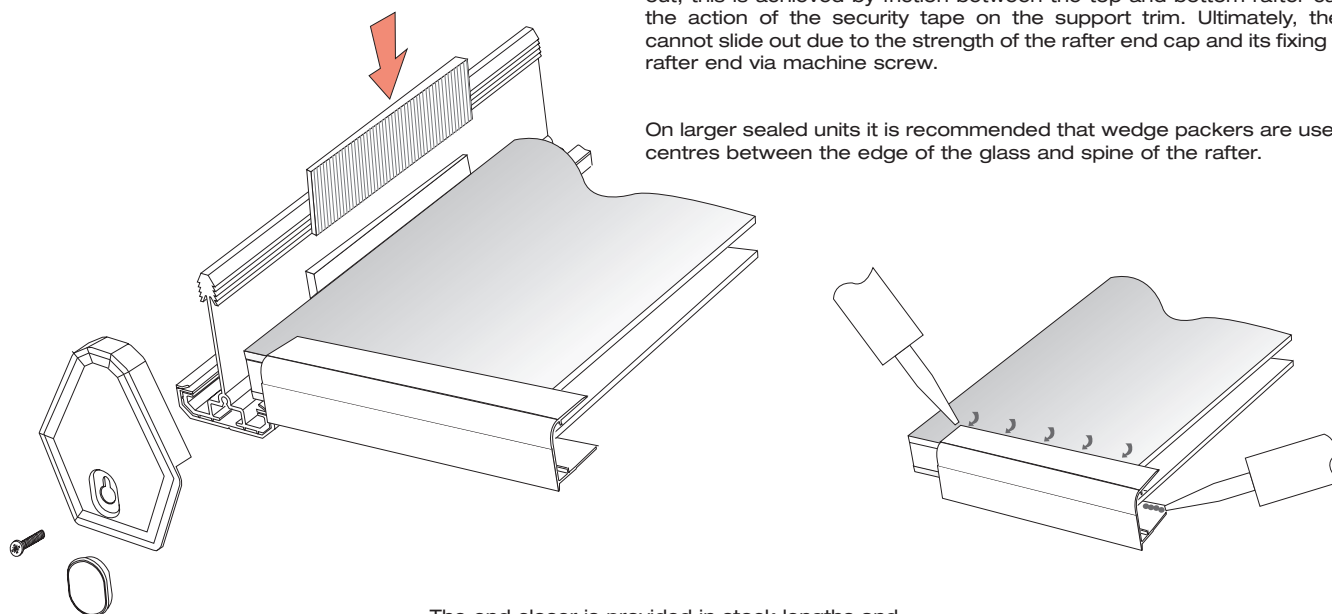


section 13 - glass roofs

The roof system has been designed to accept sealed units of 24mm thickness. Currently the glass panel width for rectangles is rafter centres less 22mm (11mm each side) and the glass panel length is rafter length plus 3mm.

The design of the roof components means that the glass panel cannot slide out, this is achieved by friction between the top and bottom rafter caps and the action of the security tape on the support trim. Ultimately, the panel cannot slide out due to the strength of the rafter end cap and its fixing into the rafter end via machine screw.

On larger sealed units it is recommended that wedge packers are used at 1m centres between the edge of the glass and spine of the rafter.



The end closer is provided in stock lengths and requires cutting to suit the width of the roof panel. Seal the end closer to both sides of the sealed unit.

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