

SUNROOF™ INSTALLATION GUIDE

OUTBACK SUNROOF OPENING ROOF PATIO INSTALLATION GUIDE

BEFORE YOU START

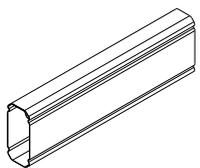
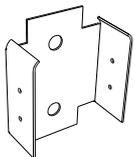
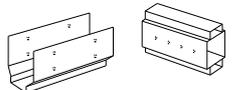
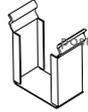
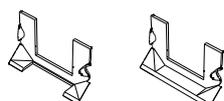
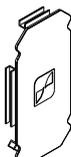
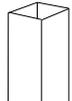
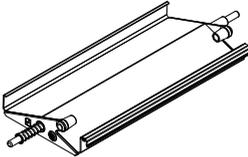
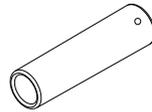
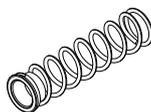
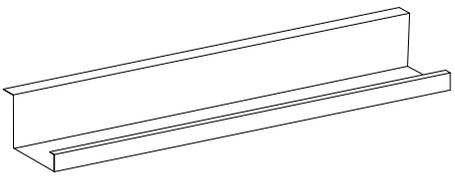
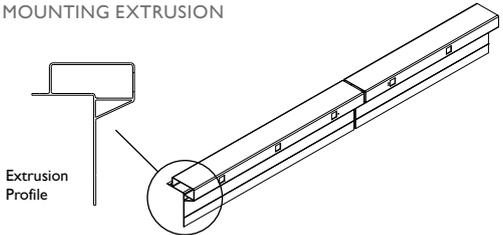
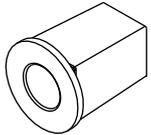
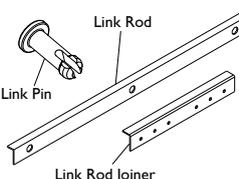
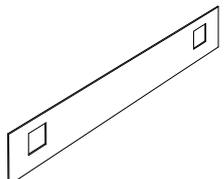
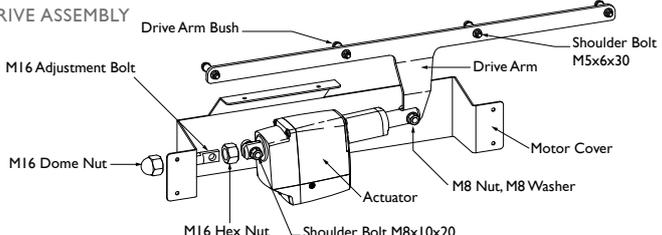
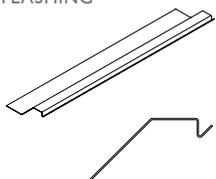
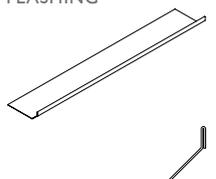
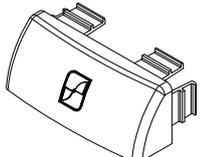
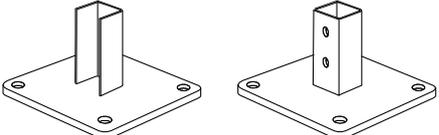
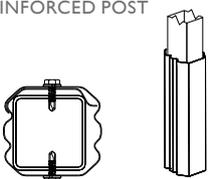
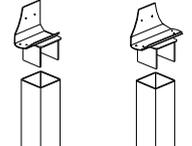
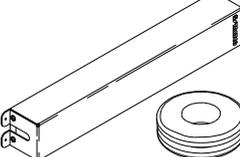
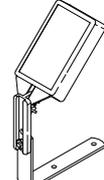
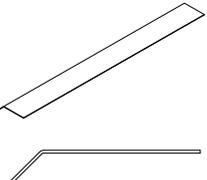
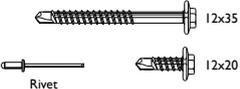
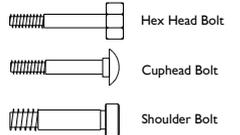
Carefully read these instructions and refer to them constantly during each stage of construction. If you do not have all the necessary tools or information, contact Stratco for advice. Before starting, layout all components and check them against the delivery docket. The parts description identifies each key part, and the component layout diagram indicates their fastening position.

Double check all dimensions, levels and bolting locations before cutting, screwing or bolting structural members. It is recommended that the installers erecting the structure have had some previous building experience because some modifications to the existing house structure may be required. If a free-standing unit is being installed, the attachment beam becomes the rear fascia beam and is installed as per the details for the front fascia beam. Box gutters and flashings do not need to be pre-fixed until all beams have been erected.

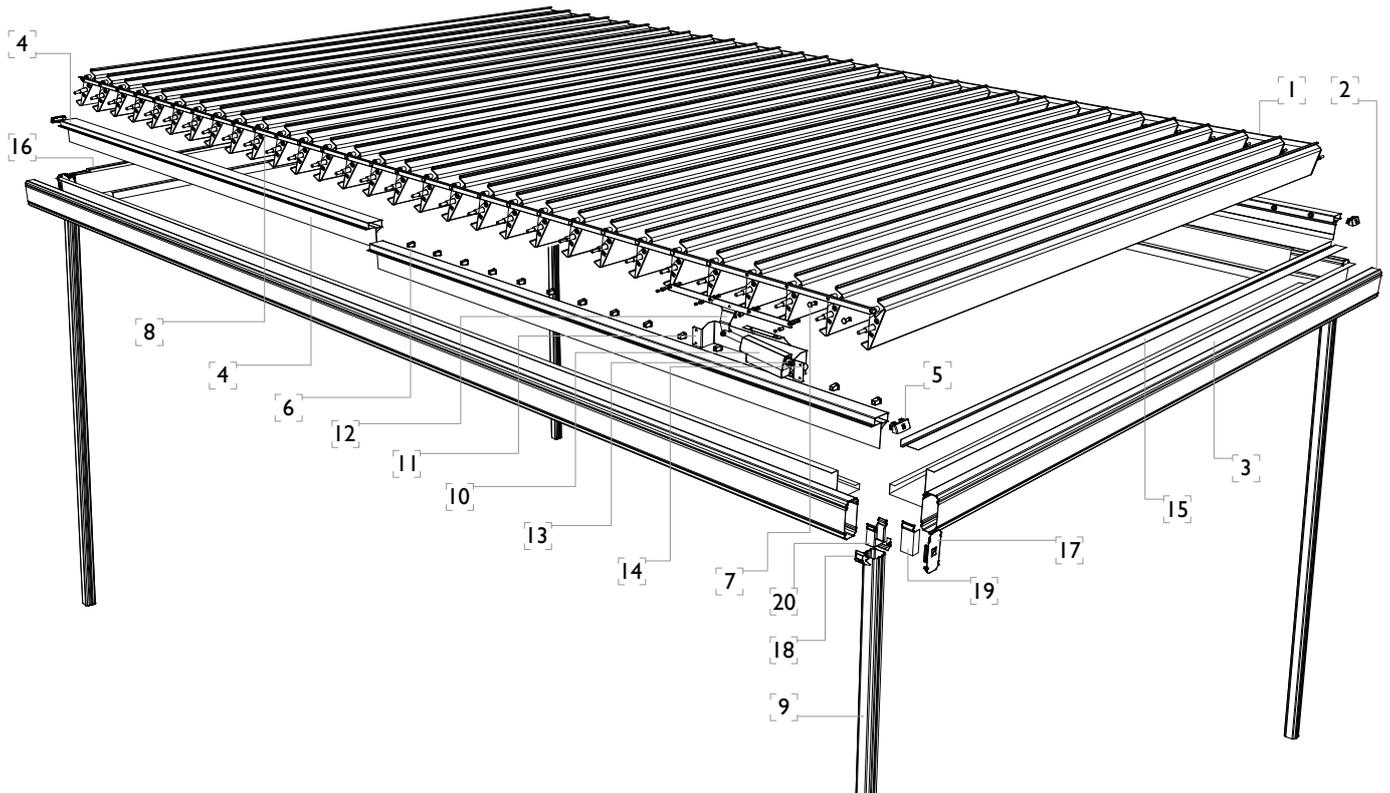
TOOLS REQUIRED

- Drill and Hex-Head Adaptor
- Rivet Gun
- Tape Measure
- Tin Snips
- Spirit Level
- Hacksaw
- Post Hole Digger
- Silicone Gun
- Spanners or Ratchet
- Adjustable Construction Props
- Concrete
- Ladder
- Vise Grips
- Pointy Nose Pliers
- Wire Strippers

COMPONENTS

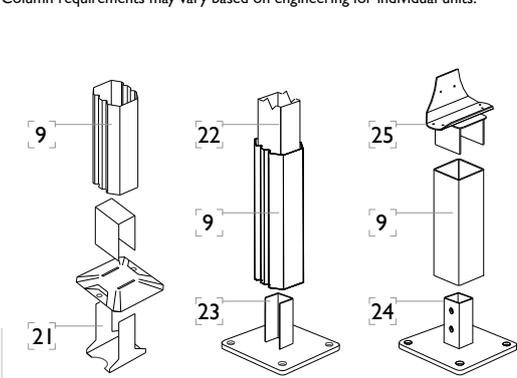
<p>OUTBACK BEAMS</p> <p>The beams are the frame to support the roofing. 150mm size beams are used.</p> 	<p>COLUMNS</p> <p>Support the beam framework.</p> 	<p>WALL BRACKET</p> <p>Fastens the Outback beams directly to a wall.</p> 	<p>BEAM TO BEAM BRACKET</p> <p>Connects horizontal beams.</p> 	<p>BEAM INLINE CONNECTORS</p> <p>Joins beams flush to form a continuous beam. Different connectors are available for various angles and loadings.</p> 
<p>POST BRACKET</p> <p>Connects to beam.</p>  <p>POST CAP</p> <p>Fills the gap between the post and beam.</p> 	<p>BEAM FILLERS</p> <p>Fills gap between intersecting beams. A notched version is available where a column also intersects.</p> 	<p>BEAM END CAP</p> <p>Encloses the end of the beam.</p> 	<p>OUTBACK GUTTER</p> <p>The gutter adjoins the roof to catch water run off. Stop ends, outlets, straps and mitre brackets are available.</p> 	<p>DOWNPIPE</p> <p>Funnels water from the gutter to the ground via an outlet. Accessories of mitres, shoes and brackets are available as optional extras.</p> 
<p>LOUVRE BLADE WITH END CAPS</p> 	<p>SPACER</p> 	<p>SPRING WITH SPRING BUSH</p> 	<p>INTERNAL BOX GUTTER</p> 	
<p>MOUNTING EXTRUSION</p>  <p>Extrusion Profile</p>	<p>MOUNTING BUSH</p> 	<p>LINK ROD AND LINK PIN</p>  <p>Link Rod Link Pin Link Rod Joiner</p>	<p>SPACING TEMPLATE</p> 	
<p>ACTUATOR DRIVE ASSEMBLY</p>  <p>Drive Arm Bush Shoulder Bolt M5x6x30 M16 Adjustment Bolt Drive Arm Motor Cover M8 Nut, M8 Washer Actuator M16 Dome Nut M16 Hex Nut Shoulder Bolt M8x10x20</p>		<p>CLOSING-UP COVER FLASHING</p> 	<p>CLOSING-DOWN COVER FLASHING</p> 	
<p>MOUNTING EXTRUSION END CAP</p> 	<p>FOOTING PLATES</p> <p>SHS Reinforced Footing Plate SHS Column Footing Plate 68 Outback Column Footing Plate</p> 		<p>68 OUTBACK COLUMN WITH 50x50 SHS REINFORCED POST</p> 	<p>SHS POST CONNECTORS</p> <p>Corner Connector Inline Connector</p> 
<p>ELECTRONIC CONTROL BOX & CABLE GROMMETS</p> 	<p>RAIN SENSOR</p> 	<p>LINK ROD FLASHING</p> 	<p>SCREWS AND RIVETS</p> <p>Fastener types vary depending upon the connection. Ensure the correct fixings are used.</p>  <p>12x35 12x20 Rivet</p>	<p>BOLTS</p> <p>Fastener types vary depending upon the connection. Ensure the correct fixings are used.</p>  <p>Hex Head Bolt Cuphead Bolt Shoulder Bolt</p>

COMPONENT LAYOUT



COLUMN ALTERNATIVES

Column requirements may vary based on engineering for individual units.



ELECTRONIC CONTROL EQUIPMENT

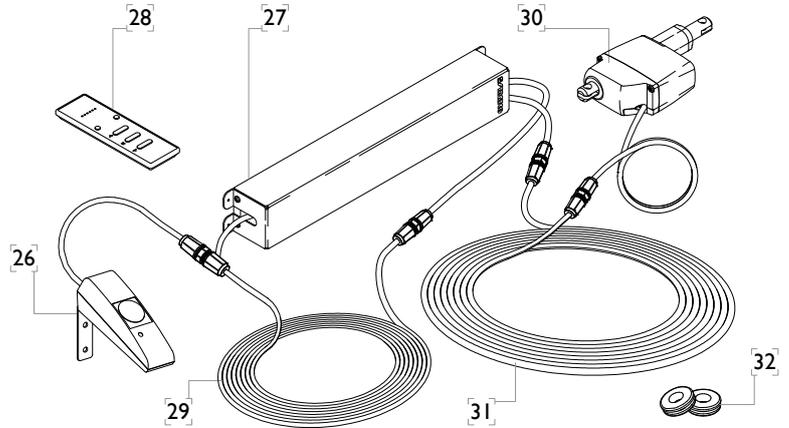


Figure 1.0

1. Louvre	10. Actuator	19. Beam To Beam Bracket	27. Electronic Control Box
2. 150 Outback Beams	11. Actuator Cover	20. Post Bracket	28. Remote Control
3. Internal Box Gutter	12. Drive Arm	21. 68 Outback Column	29. Rain Sensor Cable
4. Mounting Extrusion	13. Actuator Support Bolt	22. SHS Column Reinforcement	30. Actuator
5. Extrusion End Cap	14. Dome Nut M16	23. SHS Reinforced Footing Plate	31. Actuator Cable
6. Mounting Bush	15. Closing-Down Flashing	24. SHS Column Footing Plate	32. Cable Grommets
7. Link Pin	16. Closing-Up Flashing	25. SHS Inline Connector	
8. Link Rod	17. Beam End Cap	26. Rain Sensor	
9. Column	18. Post Cap & Beam Filler		

See over for Gutter Mitre Layout

ADDITIONAL ITEMS

Please note that your Stratco Outback kit does not include any brackets or fixings to attach the unit to an existing structure, or concrete/masonry anchors for the column installation. If required, they must be purchased as additional items.

FLASHING LAYOUT

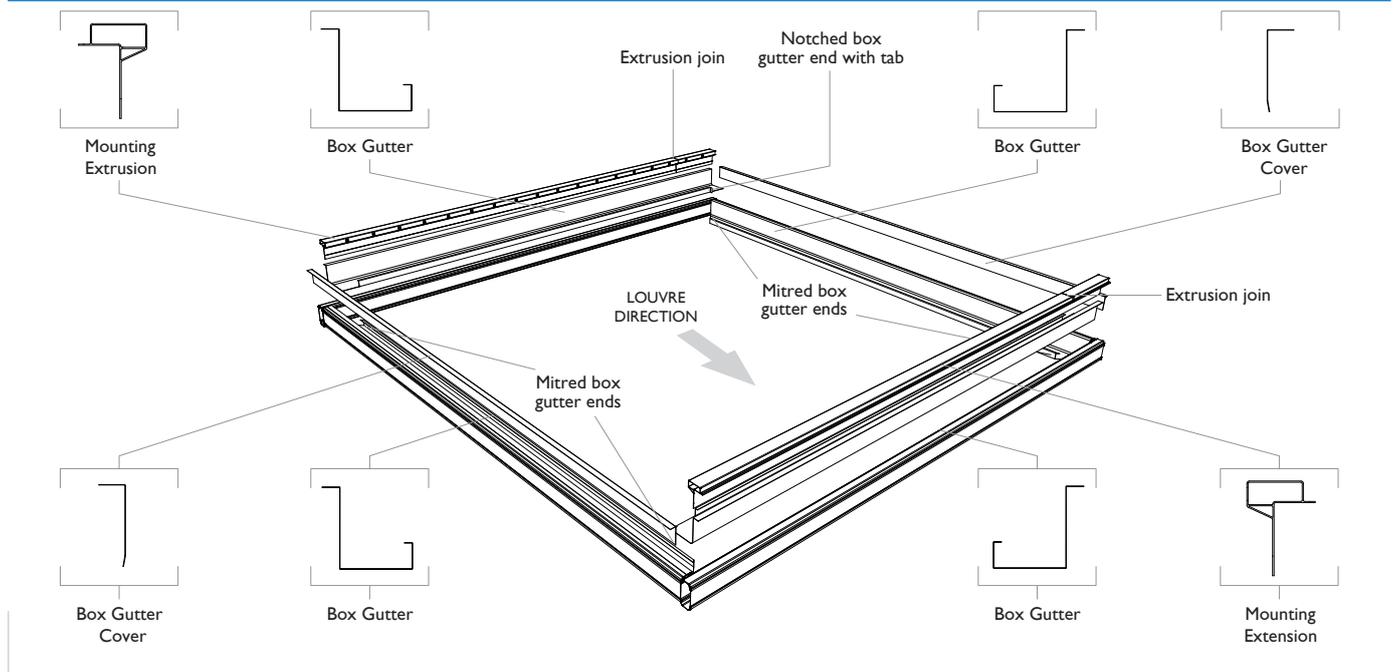


Figure 2.0

ATTACHING TO AN EXISTING STRUCTURE

The builder or council is to ensure the existing house or structure is of a suitable structural integrity and complies with all the relevant Australian Building Codes and Standards. For more information regarding the suitability of the house structure to accommodate the Stratco Outback Sunroof, consult a structural engineer or a building authority. It is the builder's responsibility to ensure that the existing house roof structure is strengthened correctly.

RAFTER STRENGTHENING

Determine the number of rafters that need to be strengthened and their location relative to the unit. You will have to lift some roof tiles or roof sheets to discover the rafter positions and spacings. The number of rafters to be strengthened is determined by the builder. Use an adjustable rafter strengthening bracket (Figure 3.0).

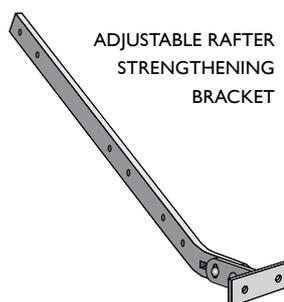


Figure 3.0

Note: It is the builder's responsibility to ensure the existing rafters are adequately reinforced and strengthened to accommodate any additional attached structure. The reinforcing method must be approved by the appropriate council or engineer.

FIXING RAFTER STRENGTHENING BRACKETS

The adjustable rafter strengthening bracket allows for an adjustment of pitch in the range of 15 to 30 degrees. The distance the bracket extends past the fascia is also adjustable to allow for standard gutters with a width of up to 200mm.

Initially the bracket T piece should be fixed to the bracket arm with two M12 cup head bolts (hand tighten only). A spring washer is to be located between the standard M12 washer and nut (Figure 3.1).

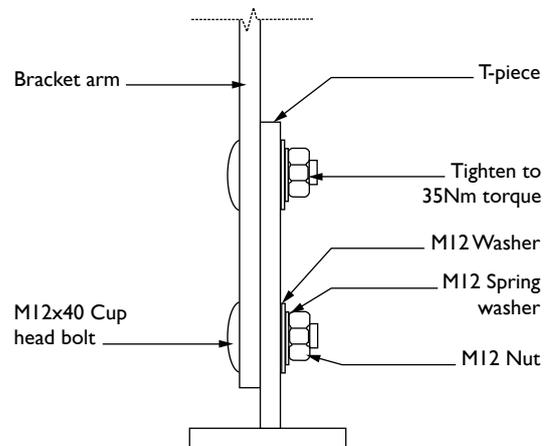


Figure 3.1

Mark the position of the bracket on the fascia and notch a rectangular hole in the fascia allowing the bracket to be fed through the front of the fascia. The hole may need to be enlarged slightly if the M12 cup head bolts interfere with the fascia.

Insert the bracket through the fascia and fix to the house rafter using M12 hex head bolts through the existing holes in the bracket. Adjust the T piece so it is horizontal and has the appropriate extension past the fascia to allow for fixing of the attachment beam. Tighten the T piece connection bolts to a minimum of 35Nm torque.

Fix the bracket as close to the base of the gutter as possible (the recommended distance is 10mm from the lowest end of the gutter), as shown in Figure 3.2.

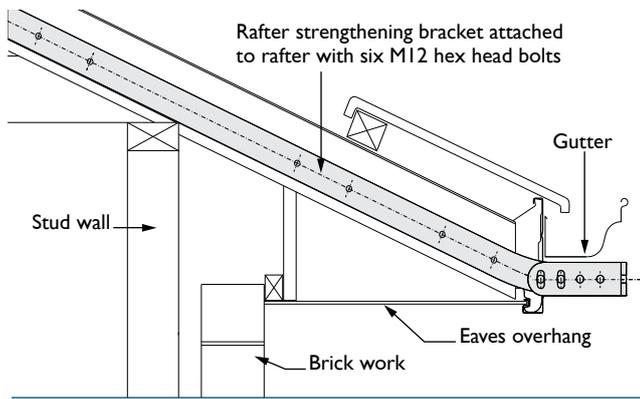


Figure 3.2

PREPARING THE ATTACHMENT BEAM

Once the rafter strengthening brackets have been installed, the bolt heads (located on the internal face of the attachment beam) will interfere with the internal box gutter system. For this reason, the internal box gutter and mounting/side flashings will need to be pre-fixed to the attachment beam (Figure 3.3).

Select the appropriate length of box gutter and mark a 45° mitre to each end. Cut the mitre with tin snips (Figure 3.3).

The box gutter should be set in 70mm from each end of the attachment beam to allow for the side fascia beams.

Screw fix the internal box gutter to the attachment beam (Figure 3.3) with 12x20 hex head self drilling screws at 900mm centres. Screw fix the mounting extrusion over the internal box gutter (Figure 3.4) with 12x20 hex head self drilling screws at 900mm centres.

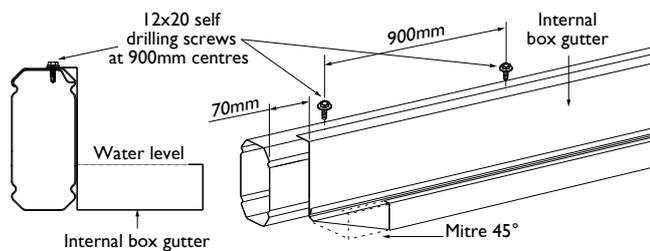
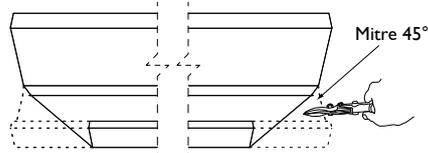


Figure 3.3

The mounting extrusion should be fixed in two locations: Through the top lip of the extrusion/beam, and through the front face (above the gutter water level), with screws staggered (Figure 3.4).

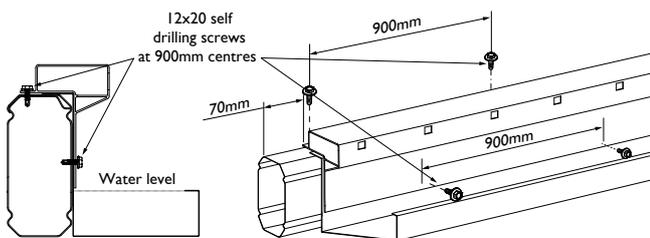


Figure 3.4

FIXING THE ATTACHMENT BEAM IN PLACE

Prop up the 150 attachment beam in position with the double flange on top. Insert spacers to prevent the beam from crushing, and bolt in position using nuts and washers (only use washers to the inside face of the beam).

To insert spacers, drill 13mm holes through the 150 attachment beam, then drill 16mm holes on the inside face only. This will allow the spacer to slide in from the inside and stop at the other side (Figure 3.5).

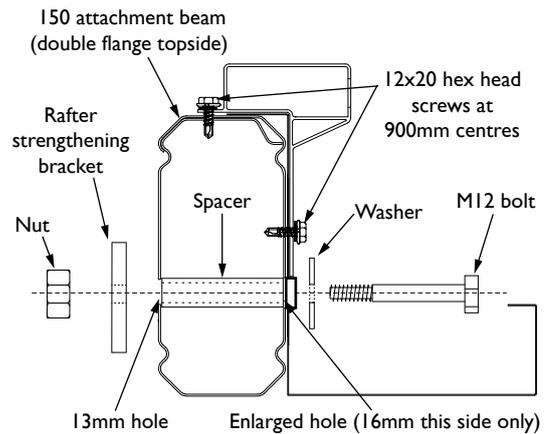


Figure 3.5

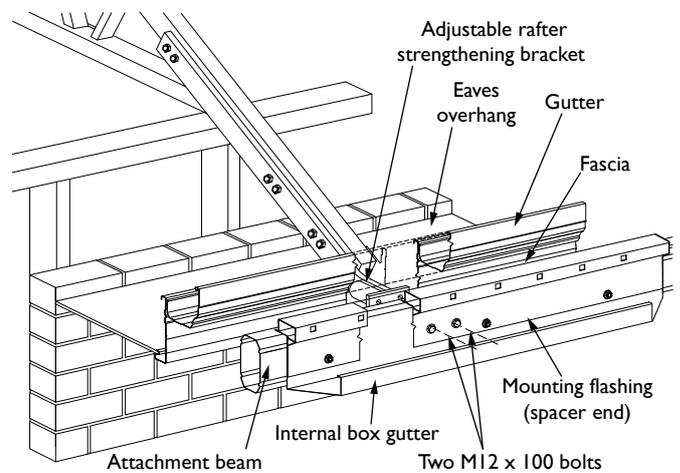


Figure 3.6

Note: Do not over tighten the bolts as this can lead to a visible indentation due to the high gloss nature of the material.

Note: If louvres are to be parallel to the attachment beam, replace mounting flashing with a side flashing and ensure a one degree fall.

Note: It is the builder's responsibility to ensure the existing rafters are adequately reinforced and strengthened to accommodate any additional attached structure. The reinforcing method must be approved by the appropriate council or engineer.

A cover flashing may be ordered as an additional option and custom made to cover the exposed brackets and holes through the fascia. Rivet flashing in place (Figure 3.7).

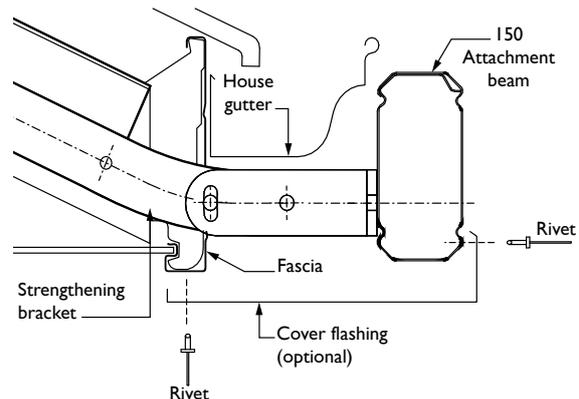


Figure 3.7

ATTACHING TO A MASONRY WALL

For units attached to a wall, the attachment beam is secured with 10mm diameter masonry anchors at 900mm spacings (Figure 4.0 & 4.1). Ensure the first and last anchors are within 200mm of the end of the beam or wall.

Pre-fix the internal box gutter and mounting/side flashings to the attachment beam as previously described in the step 'Preparing the 150 Attachment Beam' (Figure 3.3 and 3.4).

Note: If louvres are to be parallel to the attachment beam, replace the mounting flashing with a colour cover flashing.

FIXING THE ATTACHMENT BEAM IN PLACE

Prop up the 150 attachment beam in position with the double flange on top. If the louvres are perpendicular to the attachment beam, a minimum fall of 1 in 200 must be applied. If the louvres are to be parallel to the attachment beam, a minimum fall of 1° (1 in 60) must be applied.

Insert spacers to prevent the beam from crushing, and bolt in position using nuts and washers (only use washers to the inside face of the beam).

To insert spacers drill 13mm holes through the 150 attachment beam. Then drill 16mm holes on the inside face only. This will allow the spacer to slide in from the inside and stop at the other side as shown in Figure 4.1.

Note: Do not over tighten the bolts as this can lead to a visible indentation due to the high gloss nature of the material.

SIDE FASCIA BEAMS

BEAM-TO-BEAM BRACKETS

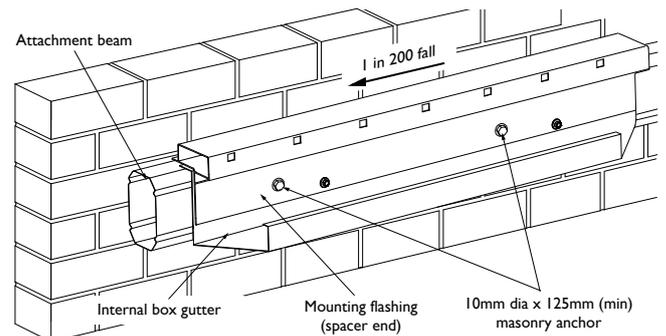
When fixing the side beams directly to the attachment beam, beam-to-beam brackets are required. Position the brackets to the inside face of the attachment beam, aligning the curved flange with the beam profile (Figure 5.0).

Fasten through the bracket holes into the beam using two 12x20 hex head screws per bracket.

INSTALLING SIDE FASCIA BEAMS

Important: When installing all beams, ensure the double thickness is on top. Beams must have a minimum of 1° fall (or 70mm over a 3.9m span).

Lift the first side fascia beam up and attach one end to the wall bracket or beam-to-beam bracket while supporting the other end on an adjustable construction prop. Adjust the construction prop to allow for the required fall of one degree. Fasten the end fascia beam to the bracket with two 12x20 hex head screws on either side of the bracket.



Note: Anchor size and spacing may not be suitable for hollow block construction, refer to Stratco for further advice.

Figure 4.0

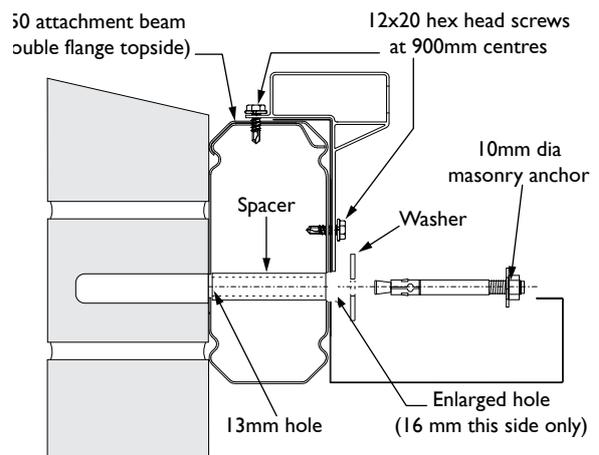


Figure 4.1

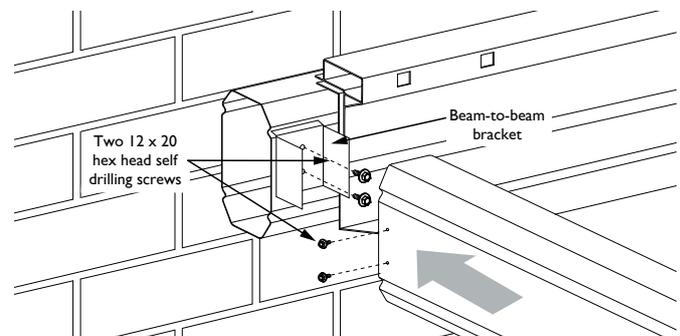


Figure 5.0

FRONT FASCIA BEAM

Important: The front fascia beam must be parallel to the attachment beam to prevent the louvres from twisting.

Measure the front fascia beam marking where the side fascia beams, intermediate beams (if required) and columns meet.

If Outback columns have been supplied, clip post brackets to the bottom of the front fascia beam where columns are to be located. Fasten through the holes in the bracket using two 10x25 countersunk hex head screws each side into the flute of the beam (Figure 6.0).

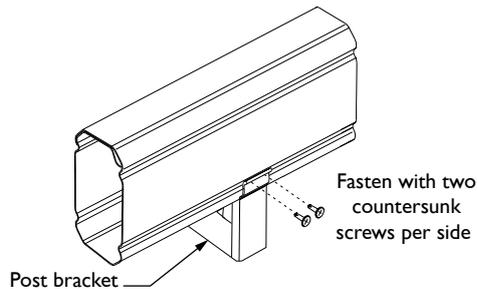


Figure 6.0

Position beam fillers on the bottom flute of the front fascia beam where any beam intersects.

If installing a column under the intersecting beam, use a notched beam filler that has a cut-out portion to enable the filler to be positioned over the post bracket (Figure 6.1).

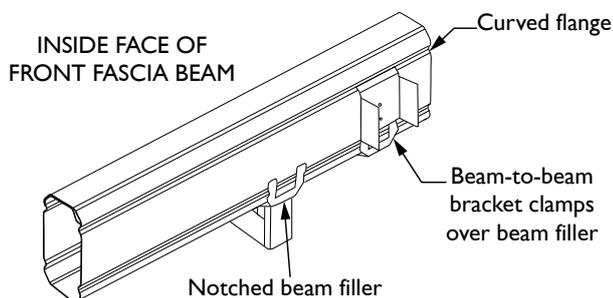


Figure 6.1

INLINE BEAM CONNECTION

Inline beam connectors are used to butt join front fascia beams when more than one length is required. This connector must be positioned so that the butting join of the front fascia beams are inline with the edge of the column.

Slide the inline connector halfway inside the yet to be installed front fascia beam while it is on the ground. Fix the connector in place using four 12x20 hex head screws either side. Push the exposed half of the inline connector into the other front fascia beam until both beams meet flush. Complete the connection by fastening the beam to the inline connector as previously described (Figure 7.0).

The post bracket at the inline connection can now be fixed in place.

Note: If beams must be joined at a location other than over a post, a full moment beam connector is required (Figure 7.0).

Place the beam-to-beam brackets on the inside face of the front fascia beam, aligning their curved flange with the top of the beam so they clamp the beam fillers in place. Fasten through the bracket holes into the beam using two 12x20 hex head screws per bracket.

Lift the front fascia beam and slide the beam bracket into the side fascia beam. Support the front fascia beam on adjustable construction props allowing for a minimum of 1 in 200 fall toward the downpipe. Fasten the side fascia beam to the beam-to-beam bracket using two 12x20 hex head screws either side.

Ensure the side fascia beams are parallel and the attachment beam and the front fascia beam are also parallel (Figure 6.2). This will ensure the louvres do not twist.

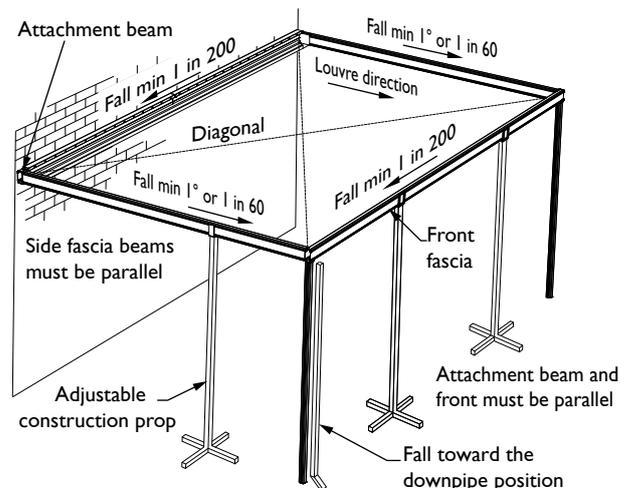


Figure 6.2

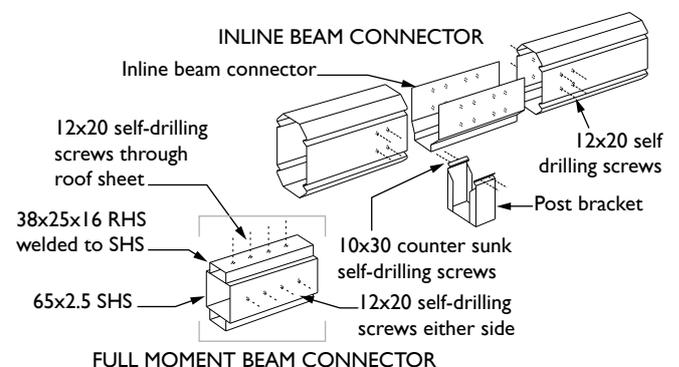


Figure 7.0

COLUMNS AND FOOTINGS

If fixing the columns into the ground, dig the holes to the specified size. Place a half brick in the bottom of the hole (Figure 8.0).

Measure from the underside of the beam to the top of the half brick and cut posts to this length at each post location.

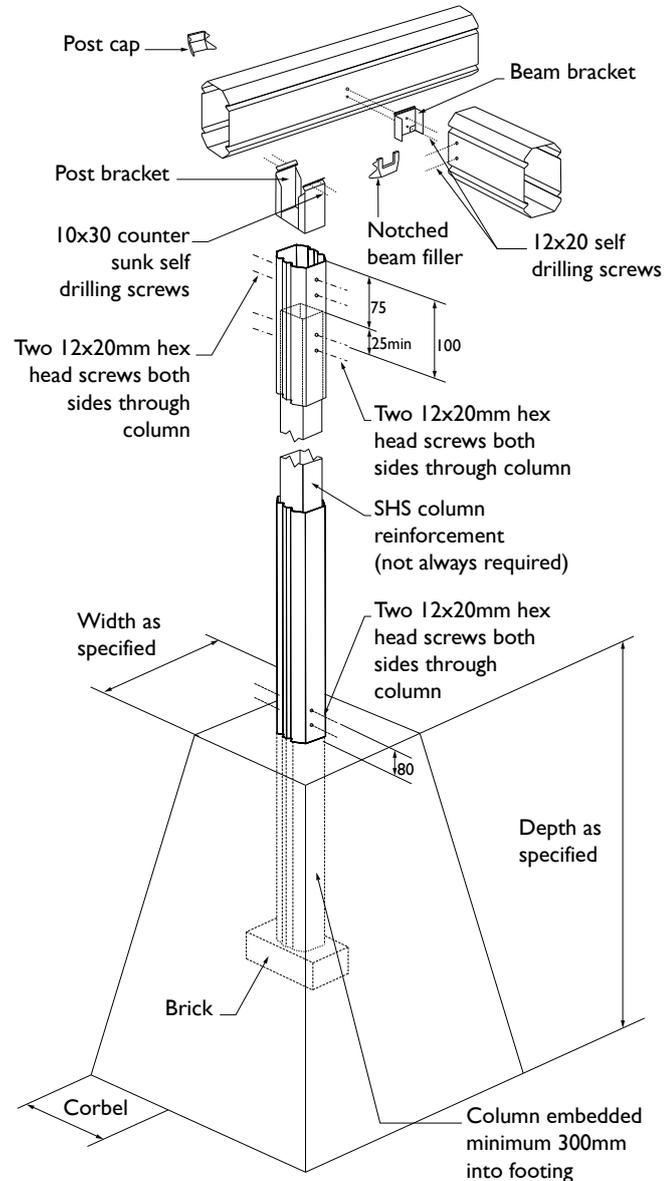


Figure 8.0

REINFORCING THE 68 COLUMN

If 50 x 50mm square hollow sections (SHS) have been supplied, the fluted 68 Outback columns will need to be reinforced.

Cut the 50 x 50mm SHS 75mm shorter than the fluted post and slide into the column. Ensure the square section is positioned inside the column and fix using two 12 x 20 hex head screws per side, at both ends, as detailed in Figure 8.0 and 8.1.

Regardless of whether the column is reinforced, slide the top of the 68 Outback column over the post bracket until it is flush with the underside of the fascia beam.

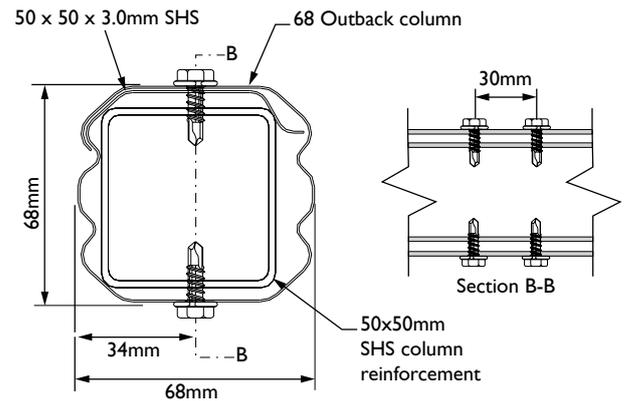


Figure 8.1

The unfluted faces of the column should be aligned with each face of the post to beam bracket. Fasten the 68 Outback column to the post bracket using two 12x20 hex head screws either side (Figure 8.0).

Use construction props or bracing to hold columns in position, but do not concrete in place at this stage.

SQUARE HOLLOW SECTION (SHS) COLUMNS

If 65x65mm or 75x75mm square hollow sections (SHS) have been supplied, an alternative post to beam connection method is used.

Measure from the underside of the beam to the top of the half brick and cut posts to this length at each post location. Screw the corner connector or inline connector to the top of the SHS post with two 12x20 hex head self drilling screws on either side of the column.

Stand the post in position. Screw the connector to the outside face of the beam with 12x20 self drilling hex head screws (Figure 8.2).

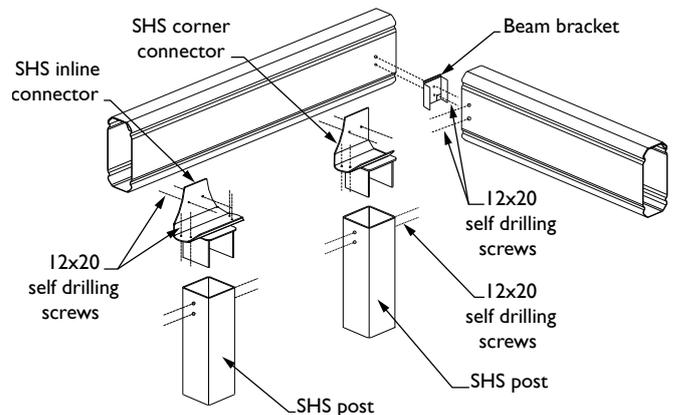


Figure 8.2

Note: The connectors must be fixed to the outside face of the beam to allow for the internal box gutter and mounting extrusions.

Use construction props or bracing to hold columns in position, but do not concrete in place at this stage.

FOOTING PLATES

Footing brackets are available if the posts are to be fixed to an existing concrete slab. Establish the column lengths by measuring the distance from the underside of the fascia beam to the concrete slab, less the thickness of the footing plate (or 20mm for Outback footing plate).

68 OUTBACK FOOTING PLATE

For non-reinforced 68 Outback posts, cut the columns to length, and assemble the footing bracket by sliding the legs of the footing upstand through the slots in the footing plate (Figure 9.0). The upstand bracing must be located between the legs of the upstand.

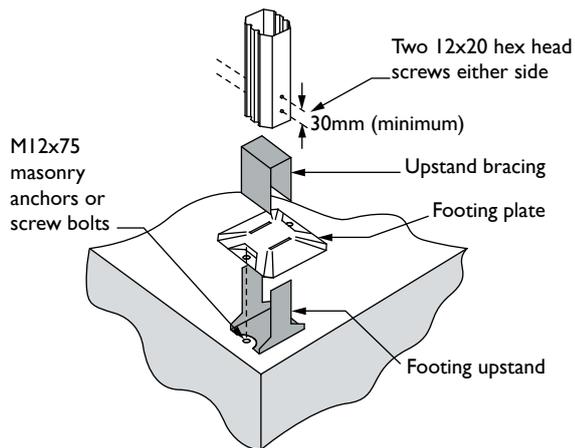


Figure 9.0

Slide the assembled footing bracket and bracing into the bottom of the column, and fasten with two 12x20 hex head screws either side ensuring the top screws are located at least 15mm from the top of the upstand with screws being a minimum 30mm apart (Figure 9.0).

Slide the top of the column over the post bracket and align the column and footing bracket. (Note: It may be necessary to lift the fascia beam slightly to slide the column over the post bracket). The unfluted faces of the column should be aligned with each face of the post to beam bracket. Fasten using two 12x20 hex head screws either side (Figure 8.1).

Use construction props or bracing to hold columns in position but do not bolt to the concrete slab at this stage.

SHS REINFORCED COLUMN FOOTING PLATE

Slide the SHS reinforced footing bracket into the bottom of the column, and fasten with two 12x20 hex head screws on either side of the post. Locate the top screws approximately 100mm from the base of the footing plate, and the bottom screws 50mm from the base (Figure 9.1).

Slide the top of the column over the post bracket and align the column and footing bracket. (Note: It may be necessary to lift the fascia beam slightly to slide the column over the post bracket). The unfluted faces of the column should be aligned with each face of the post to beam bracket. Fasten using two 12x20 hex head screws either side as shown in Figure 8.0.

Use construction props or bracing to hold columns in position but do not bolt to the concrete slab at this stage.

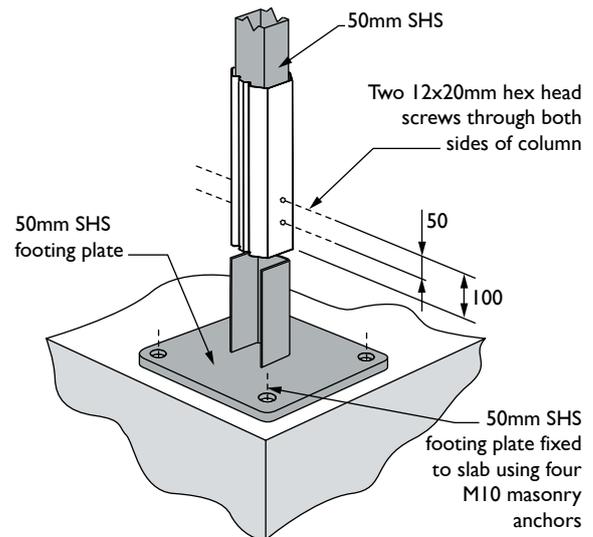


Figure 9.1

SHS COLUMN FOOTING PLATE

Slide the SHS column footing bracket into the bottom of the column, and fasten with two M10 bolts through the post (Figure 9.2).

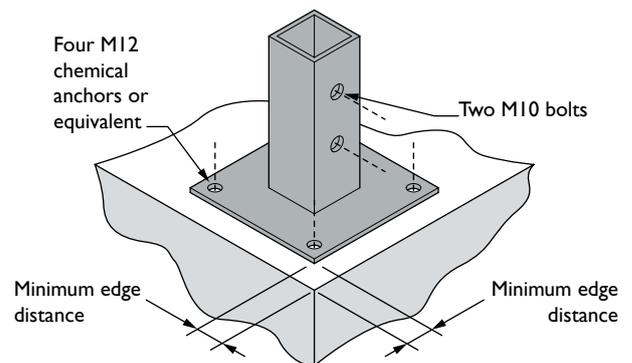


Figure 9.2

Screw the corner connector or inline connector to the top of the SHS post with two 12x20 hex head self drilling screws on either side of the column. Stand the post in position and screw the connector to the outside face of the beam with 12x20 self drilling hex head screws (Figure 8.2).

Note: The connectors must be fixed to the outside face of the beam to allow for the internal box gutter and mounting extrusions.

Use construction props or bracing to hold columns in position, but do not bolt to the concrete slab at this stage.

COMPLETING THE FRAMEWORK

FINAL SIDE FASCIA BEAM

Slide the front of the side fascia beam over the aligned beam bracket. Lift the other end of the beam up into the beam-to-beam bracket as detailed in 'Beam-To-Beam Brackets'. Fasten the beam to the brackets using two 12x20 hex head screws either side per bracket.

FRAMEWORK CHECK

Check the basic framework is square by ensuring the diagonal measurements, A to C and B to D in Figure 10.0, are the same.

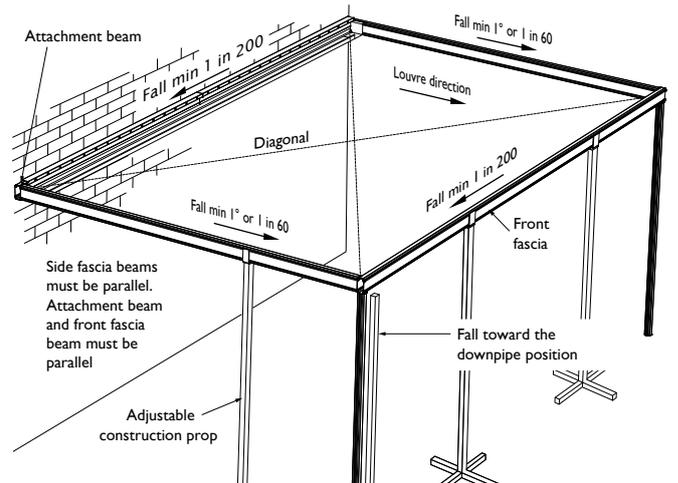


Figure 10.0

CAPPING

To prevent moisture from entering the beams and for aesthetics, any beams with exposed ends require end caps to be fitted. Align the end cap and push it into the exposed beam end.

The post caps can be fitted over the post-beam connection. Apply a small amount of silicone to back of post cap, align the two lugs with the two exposed holes of the post bracket and push firmly.

GUTTER INSTALLATION

Once the framework is complete, the internal box gutter can be installed. If the box gutter has already been installed to the attachment beam, select the other opposite side box gutter and mark a 45° mitre to each end.

If freestanding select two equal lengths of box gutter and mark a 45° mitre to each end. Cut the mitre with tin snips (Figure 11.0).

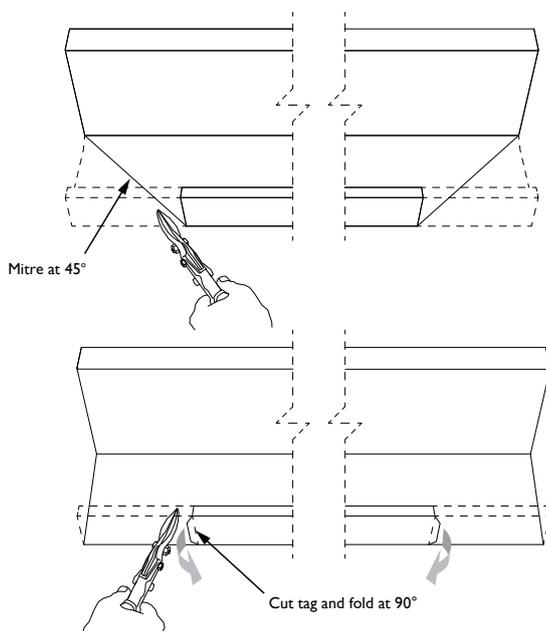


Figure 11.0

The remaining lengths of box gutter do not need to be mitred, however, the internal upright of these gutters must be notched to allow water to flow through the gutter. Ensure a small tab is cut to this end and folded at 90° (Figure 11.1).

The tag will be used to rivet the adjacent corners together and waterproof the join. Screw fix the mitred box gutter lengths on opposite sides of the framework with 12x20 hex head self drilling screws at 900mm centres (Figure 11.1).

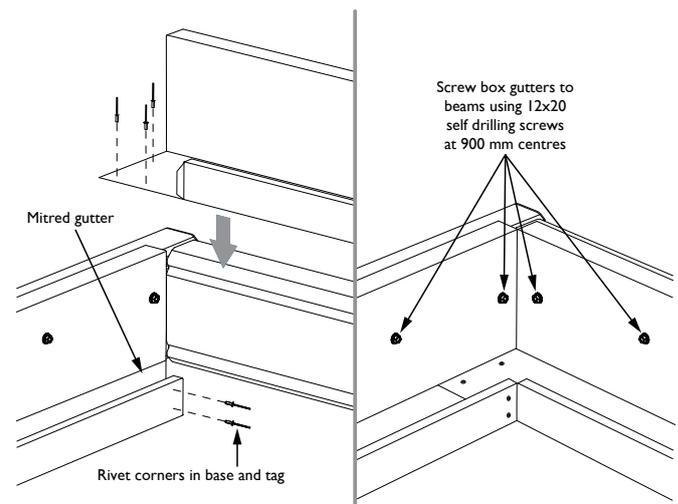


Figure 11.1

Insert the two remaining box gutters over the mitred ends and screw fix to the framework with 12x20 hex head self drilling screws at 900mm centres. Rivet the corners together through the base of the gutter, and through the folded tag and upright. Silicone all rivet holes and material connections to ensure the gutter is water proofed.

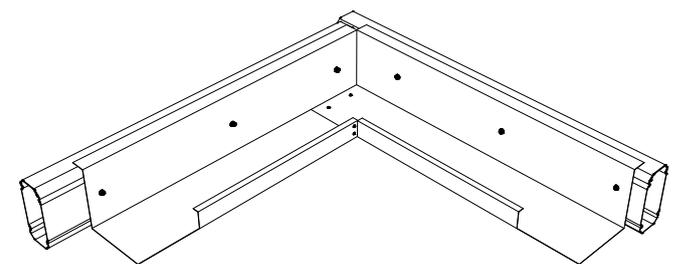


Figure 11.2

MOUNTING EXTRUSION INSTALLATION

The Mounting Extrusions come as a standard three meter length. They run perpendicular to the louvres and have square holes in the front face. There are two alternative extrusions, referred to as Type 1 and Type 2. Type 1 is the mirror image of Type 2, and each can be identified by the small round holes located next to the first square hole, 88mm in from the end.

For units longer than three meters, four extrusions (two on each side) will be used. When butted together correctly, with the small round holes together, the extrusions will have a 195mm spacing between the square holes. Please note that this distance is critical, and a template has been supplied to assist with achieving the correct spacing.

The extrusions will need to be cut to the desired length and this cutting procedure has been outlined within this section. For units shorter than three meters, two extrusions (one on each side) will be used. The extrusions will need to be cut to length, but using a different method from units longer than three meters.

UNITS SHORTER THAN THREE METRES

For Sunroof units shorter than three meters, two extrusions have been supplied with the job, a Type 1 extrusion and a Type 2 extrusion. One type of extrusion will be used on one side of the unit and the other type will be used on the other side. The extrusions are a mirror of each other.

It is important that the extrusions are cut from the correct end so the variable flashings will fit the unit. For units less than three meters you will need to cut the end off the extrusions which have the drilled out holes (dots).

Position the first extrusion so the end not displaying the small holes is pushed hard up against the box gutter colour cover (Figure 12.0). This end will become the fixed end and the first hole will be automatically set at 164mm along the extrusion.

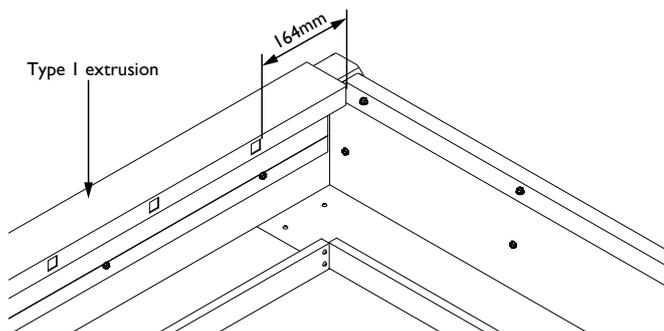


Figure 12.0

Based on the length of the unit, cut the extrusion so it fits inside the box gutters. Clamp the extrusion to the beam and screw fix with 12x20 self drilling screws at 900mm centres. Repeat this step for the other type of the extrusion on the other side.

UNITS LONGER THAN THREE METRES

Important: never cut the end of the extrusion which has the drilled out holes (dots).

For Sunroof units longer than three meters a second mounting extrusion will need to be used and cut back to suit the frame of the sunroof. Each side of the unit will use a Type 1 extrusion and a Type 2 extrusion. Four extrusions will be used in total.

Position the first extrusion so the end not displaying the small holes is pushed hard up against the colour box gutter cover. This end will become the fixed end and the first louvre hole will be automatically set at 164mm along the extrusion (Figure 12.1).

Clamp the extrusion to the beam and screw fix with 12x20 self drilling screws at 900mm centres.

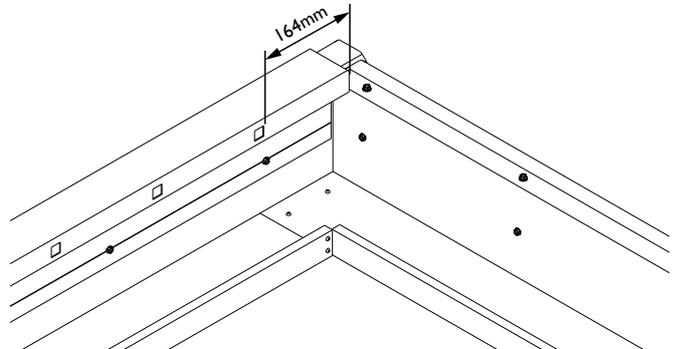


Figure 12.1

Measure the remaining distance between the Mounting Extrusion edge and box gutter cover at the other end and cut the second extrusion (use the different type) to fit the length. It is important to cut the second extrusion from the correct end, do not cut the end which has the dots (Figure 12.2).

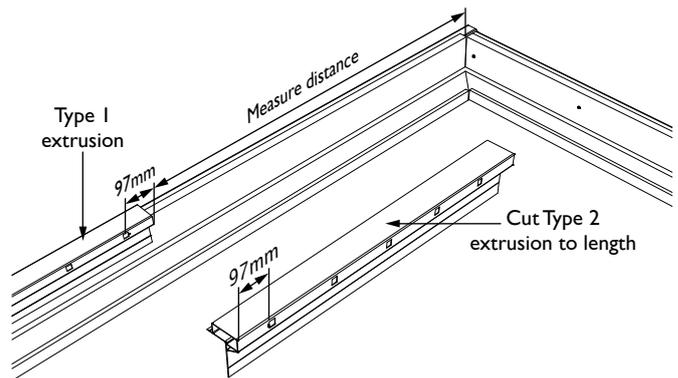


Figure 12.2

The dots should now meet where the two extrusions are joined (Figure 12.3). This is very important as this will ensure that the 195mm spacing remains between the louvres. A spacing template has been included to make sure this distance is exact (Figure 12.4).

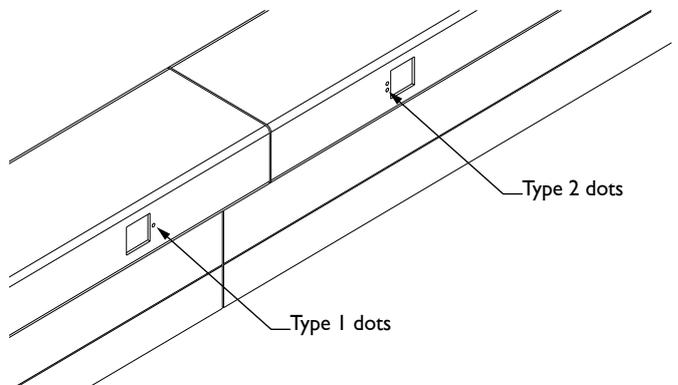


Figure 12.3

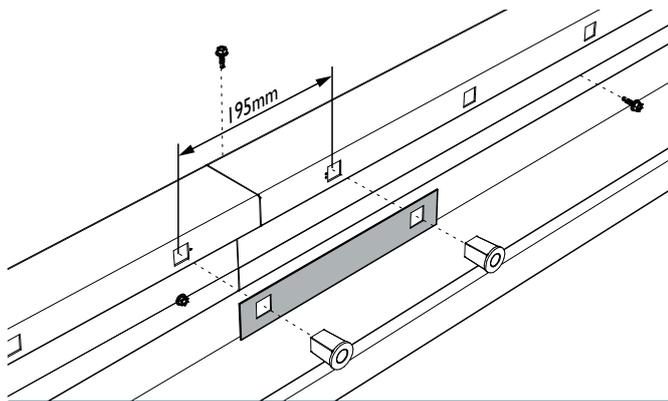


Figure 12.4

Clamp the second extrusion in place and use a rubber mallet to hammer two plastic end cap bushes into the template to hold it across the join.

Screw fix the extrusions to the beam with 12x20 self drilling screws at 900mm centres.

The mounting extrusions should be fixed in two locations, through the top lip of the extrusion, and the front face (above the gutter water level), with the screws staggered.

Remove the spacing template and use a rubber mallet to hammer the plastic end cap bushes into the square holes located in the mounting extrusions.

LOUVRE INSTALLATION

SPRING AND SPACER ENDS

Determine the correct orientation for each louvre and prepare the ends accordingly. Slide a spring bush into the end of each spring and thread over the end cap shaft.

At the opposite end of the louvre, slide a plastic spacer (use the mark on the spacer to orientate it correctly) over the end cap shaft (Figure 13.0).

Please note that the actuator will always need to be located at the same end as the spacers.

LOUVRE INSTALLATION

Install the first louvre by lifting it up and over the beam at the spacer end. Insert the other end (spring end) into the first hole and compress the spring completely (Figure 13.2). Lower the spacer end and slot it into the aligning hole.

Determine the approximate location for the actuator, and leave two louvres out to allow for easy installation of the actuator cover.

Note: The actuator can be located anywhere along the mounting extrusion, however, it must be at least two louvres in from the ends and three louvres either side of a join in the mounting extrusions or link rods.

Note: The actuator can be located anywhere along the mounting extrusion, however, it must be at least two louvres in from the ends and three louvres either side of a join in the mounting extrusions or link rods.

UNITS LONGER THAN SIX METRES

For units longer than six metres, six extrusions will be required (three on each side). The first and second extrusions on each side will butt together, as previously explained, with the small round holes together providing a spacing of 195mm between the square holes. The third extrusion on each side will need to be cut on site to achieve the necessary 195mm spacing between square holes.

The required distance from the end of the third extrusion to the centre of the square hole is 22mm.

If cutting back at the end of the third extrusion without the small round holes, 151mm is to be docked.

If cutting back at the end of the third extrusion with the small round holes, 75mm is to be docked.

The extrusion will also have to be measured and cut-back to fit within the remaining space in the unit.

Position the third mounting extrusion on each side as previously detailed. Use the spacing template provided to position the extrusions correctly.

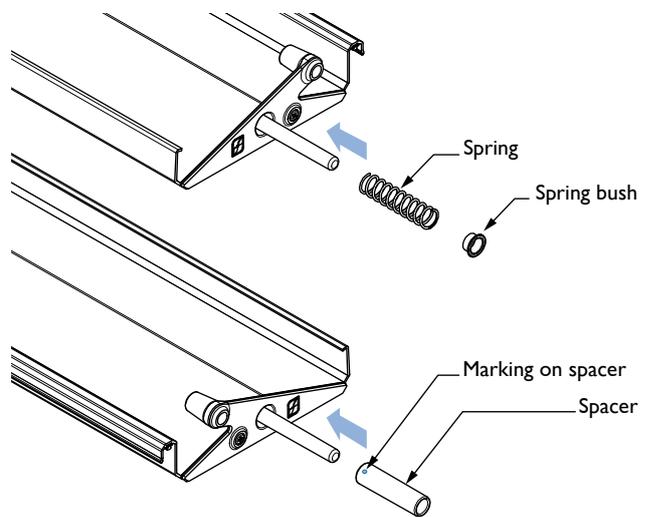


Figure 13.0

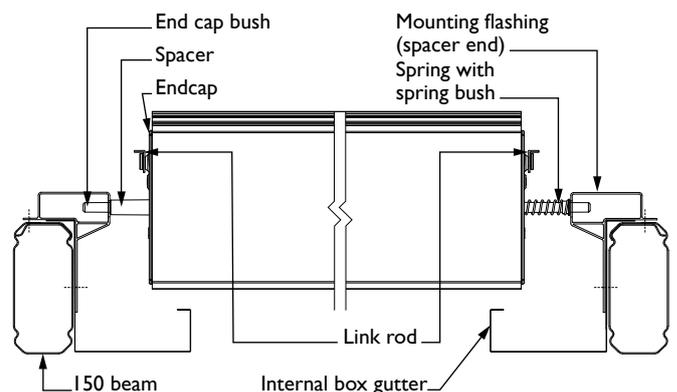


Figure 13.1

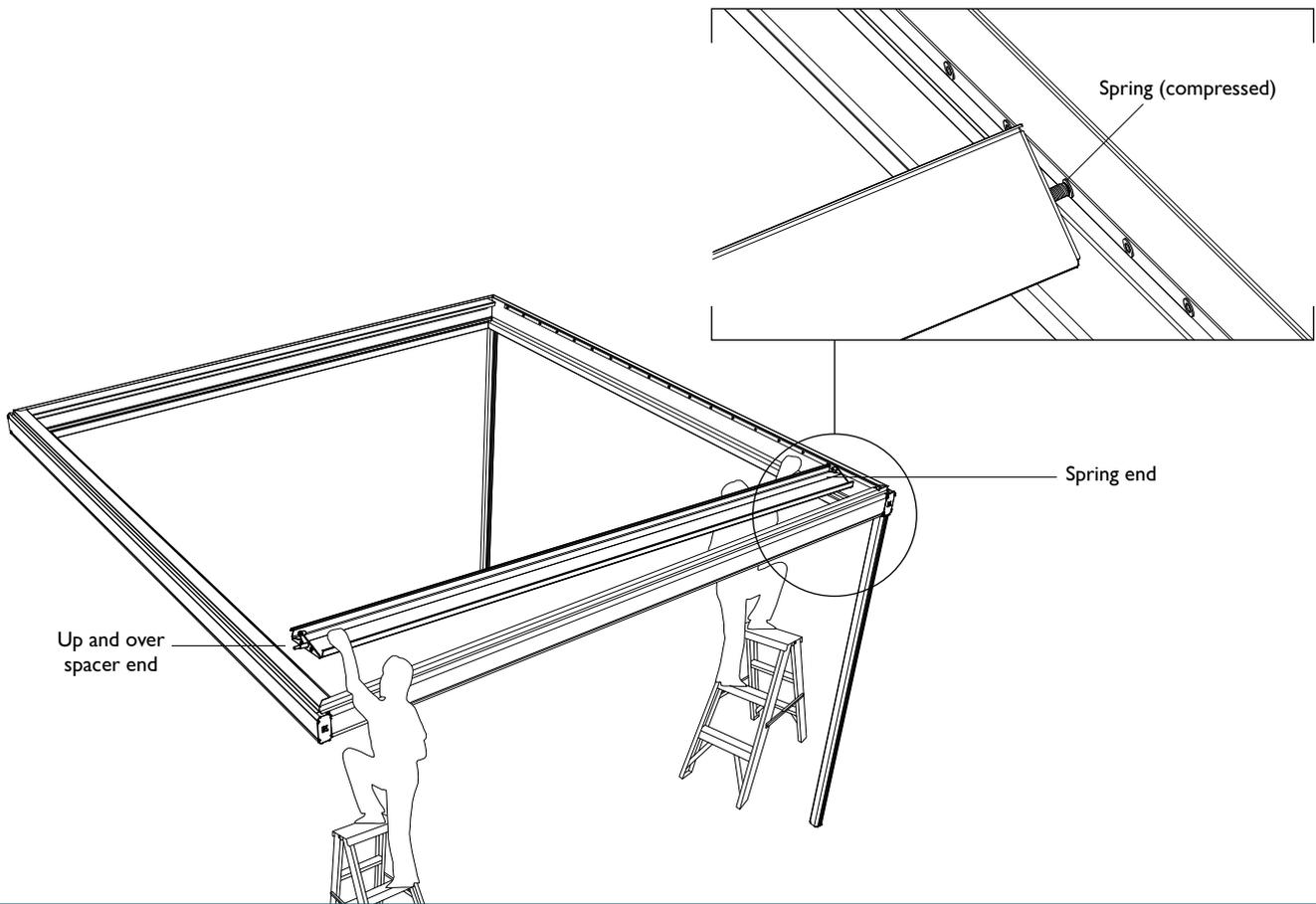


Figure 13.2

ELECTRONIC CONTROL BOX

The control box must be installed in a position that is protected from direct weather and sharp objects. The control box must not be installed within two metres of a large air-conditioning unit or large sources of electrical noise. A suitable location may be to mount the box against an exterior wall directly under the eaves. Alternatively, the box could be located within the unit box gutter, alongside the actuator (see “Install Actuator Cover”).

Fix the control box through the four pilot holes on the cover box (Figure 14.0). If fixing to an adjacent structure use fasteners suited to the material being fixed to. If fastening within the box gutter use four 12x20 mm self-drilling screws.

A standard single mains power point is required to be located directly next to the control box (within 1800 mm).

Lay the main cable on the ground from the control box position to the motor position to ensure there is enough overall cable length. The kit has been supplied with a 6m connection cable for both the actuator and rain sensor. If additional cable is required, an extension cable can be purchased and used for up to 18m in length.

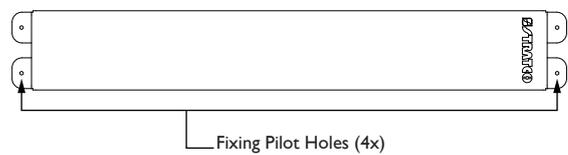


Figure 14.0

ASSEMBLING ACTUATOR COMPONENTS

Pre-assemble the actuator components at ground level. Attach the drive arm to the actuator with an M8x10x20 shoulder bolt and secure with an M8 washer and lock-nut (Figure 15.0). Please note that the drive arm should be orientated so the square edge (with 90° angle) is facing the actuator.

Note: Sunroof systems will always operate with the actuator pulling the louvres open. The location of the actuator in relation to the opening direction of the louvres will dictate whether a Type-A or Type-B actuator kit is provided.

The appropriate orientation has been determined by Stratco, based on the opening direction of the louvres relative to the intended motor location.

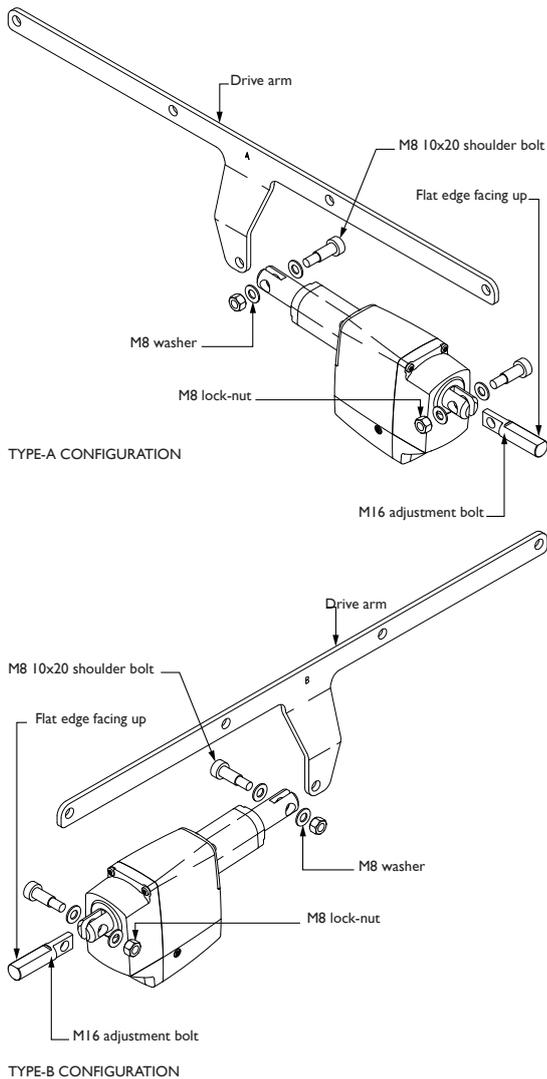


Figure 15.0

Attach the adjustment bolt to the other end of the actuator with an M8x10x20 shoulder bolt (Figure 15.0). Secure with an M8 washer and lock-nut (do not over tighten the lock nut). Ensure the flat surface on the adjustment bolt faces up.

Thread the M16 nut on to the end of the adjustment bolt so the nut is approximately 20mm in from the end of the adjustment bolt (Figure 15.0). Insert the adjustment bolt through the circular cut out located in the side of the actuator cover, and secure the cover with the M16 dome nut (Figure 15.1).

The actuator and cover are now ready to be fixed to the mounting extrusion within the framework.

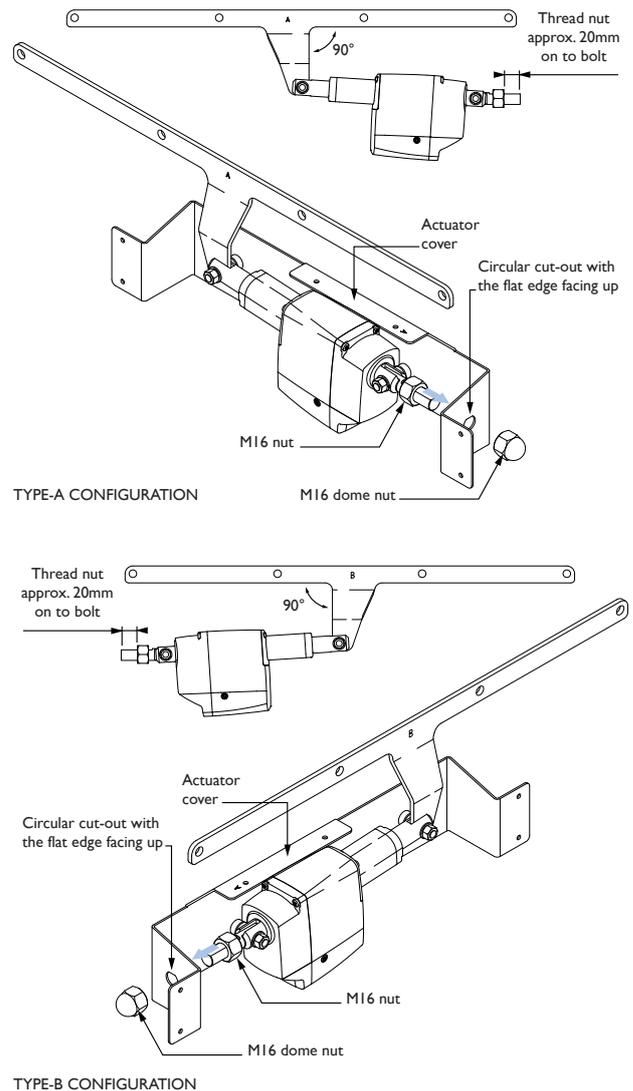


Figure 15.1

INSTALLING ACTUATOR

Position the cover so the top lip hangs over the top of the internal edge of the Beam (Figure 6.5). The lip should be located centrally between the end cap bushes.

Note: The actuator can be located anywhere along the mounting extrusion, however, it must be at least two louvres in from the ends and three louvres either side of a join in the link rods. Stratco recommends installing the actuator on the high side of the unit.

Screw the top lip of the cover to the mounting extrusion with two 12x20 Self-Drilling screws with Neoprene washers. Screw the front face of the cover to the mounting extrusion with four 12x20 Self-Drilling screws with Neoprene washers (Figure 6.5).

INSTALLING REMAINING LOUVRES

Install the remaining two louvres as described in 'Install Louvres'.

PREPARING LINK RODS

Lay the link rods on the ground, taking care not to bend them. The short angle should be facing upwards.

Determine where the link rod needs to be cut by counting the number of holes required for the louvres. If the louvre bank is longer than 3m (14 louvres) a second link rod will be required to make up the extra length. Mark and cut the link rod, allowing 50mm overhang past the final hole (Figure 17.0).

Lift the link rods up and rest them along the mounting extrusion. Keep the rods straight at all times when handling.

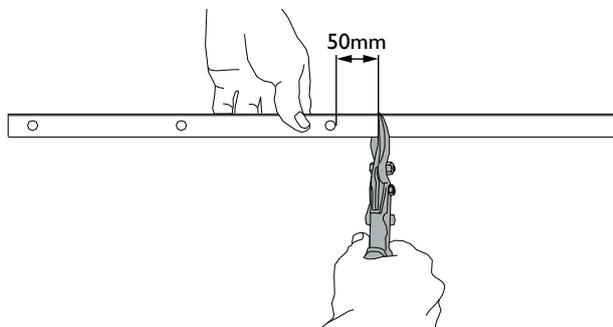


Figure 17.0

LINK-PIN INSTALLATION

Connect both link rods, located at each end of the louvres, by pushing a link pin through the appropriate hole in the link rod, and into the end cap. This is shown in Figure 18.0.

The link pins should push in and snap fit into place for a solid hold. Repeat this process for the remaining louvres, ensuring all louvres are orientated correctly and each lap is the same as the previous lap. Leave two holes without pins where the drive arm will be fitted to the link rod.

If a link pin needs to be removed once it has been installed, squeeze the pin's legs together with needle nose pliers and push it towards the link rod until it releases.

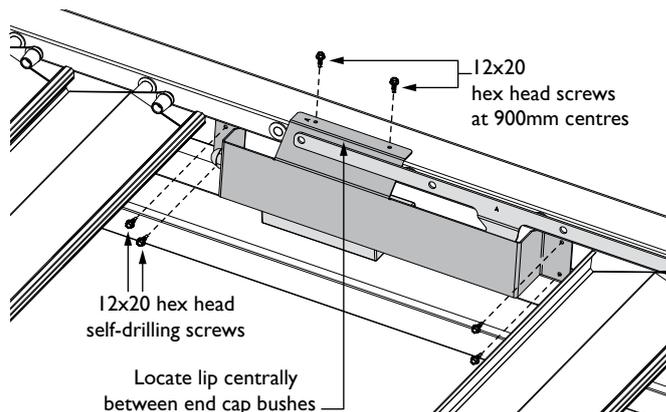


Figure 16.0

If two link rods are required, for louvre banks over 3m (14 louvres), the link rods will need to be joined using a Link rod joiner. Make sure to join the link rods at the uncut ends.

Note: The join of the link rods should always be over the join in any mounting extrusions.

Rivet the link rod joiner to the link rod, through the 6 pre-drilled holes on the joiner (Figure 17.1).

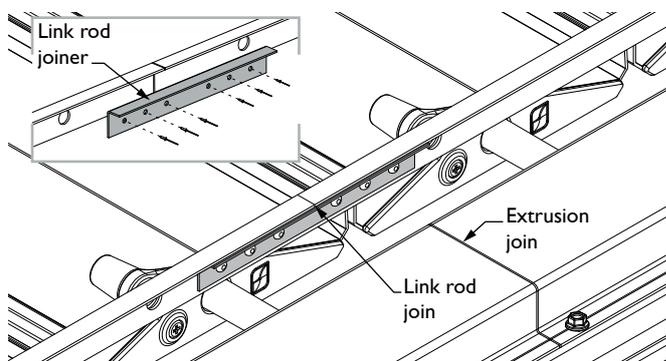


Figure 17.1

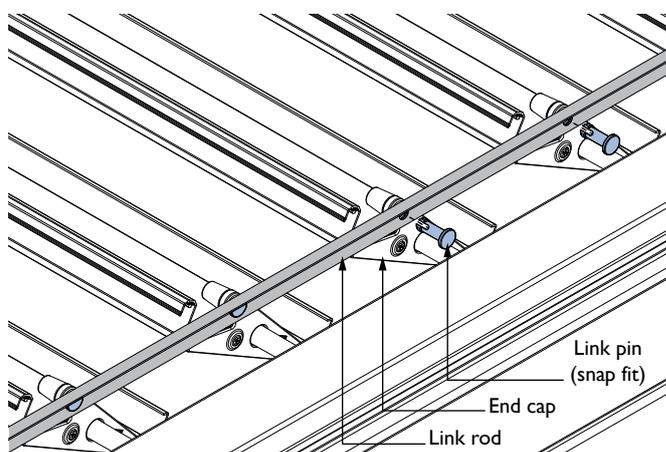


Figure 18.0

CONNECTING DRIVE-ARM TO LINK ROD

Line the drive arm up with the four remaining link rod holes. Rotate the first free louvre so the end cap hole is also aligned. Please note that the actuator may need to be temporarily connected to the control box to move the drive arm to a suitable position so the holes can be aligned.

Insert a bush through the drive arm and link rod, and into the first louvre end cap. Similarly, insert another bush into the back of the end cap and secure with an M5 6x30 shoulder bolt and M5 lock-nut (Figure 6.8). The shoulder bolt head should be recessed into the back of the end cap so that it is not visible. The M5 lock-nut will be located on the drive arm side.

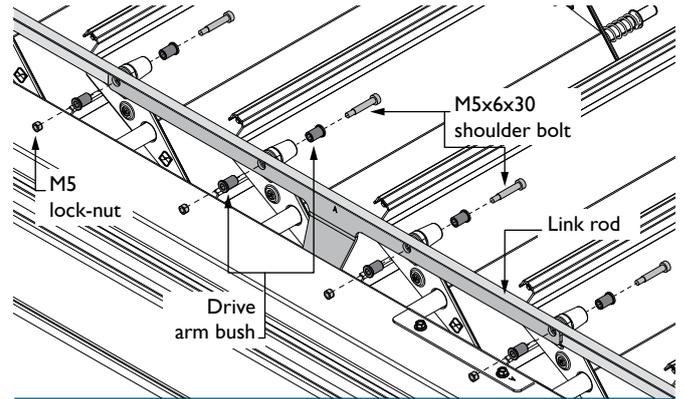


Figure 19.0

RUNNING ACTUATOR CABLES

Note: The control box must be unplugged from the mains power.

Run the actuator connection cable from the actuator to the control box location. The cable must be protected from the weather and sharp objects. The cable can be installed so that it runs through the attachment beam, passing through the end of the beam and fascia, eaves and finally to the control box location.

Drill a hole next to the actuator cover, ensuring it is above the gutter line. Use a 20mm drill bit with 5mm pilot hole to drill through the front face of the extrusion and beam. A wire pull through cable may be required to pull the cable through and out the end of the beam.

Ensure the right end of the cable is threaded through the hole so it matches the control box. The actuator connection cable has a 2 pin female end that connects with the 2 pin male extension leading from the control box.

Rubber grommets have been supplied to protect the cable and must be installed at this stage. Slit half way through the grommet so that it can be threaded over the cable and into the hole.

Plug the 2 pin cable end into the control box and turn the power on.

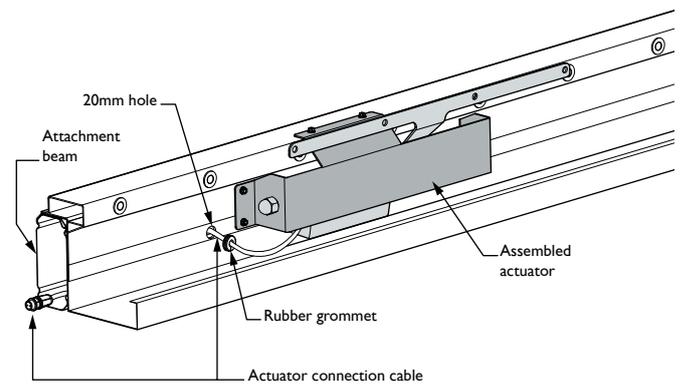


Figure 20.0

USING THE REMOTE CONTROL

The remote control provided is used to control all Sunroof banks within the unit.

In units with multiple banks the two round buttons on the remote control are used to select the appropriate bank channel. Channel one (1) is always used to control all banks simultaneously. All other channels can be selected to operate banks individually.

Pressing the OPEN or CLOSE button will cause the roof to start moving in the desired direction. The roof will continue until fully open or fully closed, or until the STOP button is pressed. The stop button will stop the roof at any point.

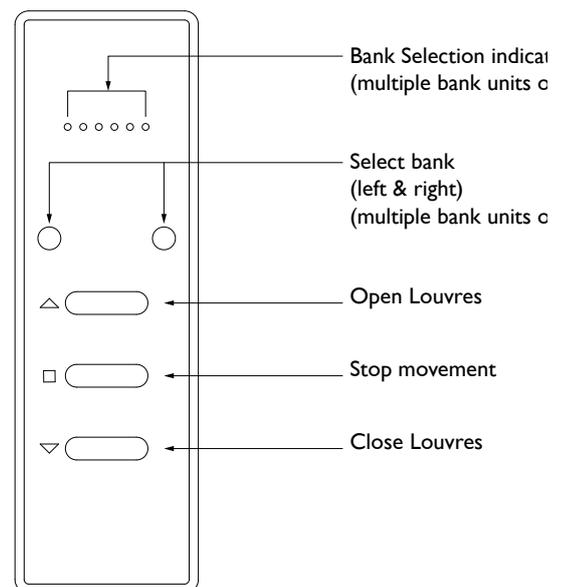


Figure 21.0

ADJUSTING THE CLOSED LOUVRE POSITION

Use the remote control to drive the louvres until they are closed by pressing the 'close' button and allowing the unit to fully close.

LOUVRES ARE NOT FULLY CLOSED

If the louvres have not closed fully, the position of the actuator must be adjusted.

Loosen the M16 nut by one to two rotations, and push the adjustment bolt away from the actuator, through the circular cut-out in the side of the actuator cover. Tighten the dome nut and use the remote control to open and close the louvres again (Figure 22.0). Repeat this step until the louvres are fully closed, without deflecting the link rod.

Note: The louvres are in the fully closed position when the link rod becomes stiff (but does not deflect) at the drive arm, ensuring it does not back drive the motor when the 'closed' button is released. If the actuator does back drive, this may reduce the systems life.

LOUVRES ARE CLOSED TOO TIGHTLY

If the louvres have over closed, the link rod can be seen to significantly deflect.

To adjust the position of the actuator, loosen the M16 dome nut by one to two rotations, and push the adjustment bolt towards the actuator, through the circular cut-out in the side of the cover. Tighten the M16 nut and use the remote control to open and close the louvres again (Figure 22.1).

Repeat this step until the louvres are fully closed, ensuring the link rod does not deflect

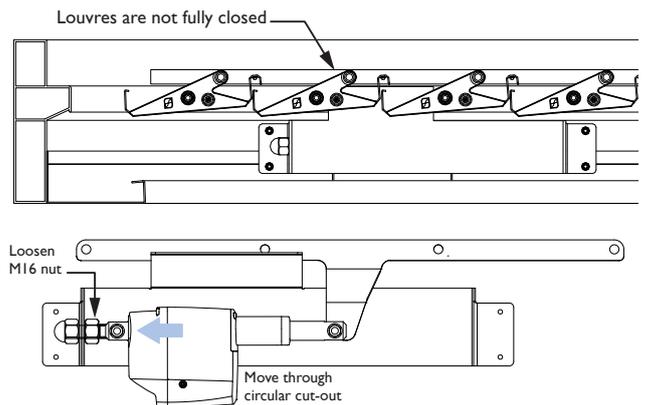


Figure 22.0

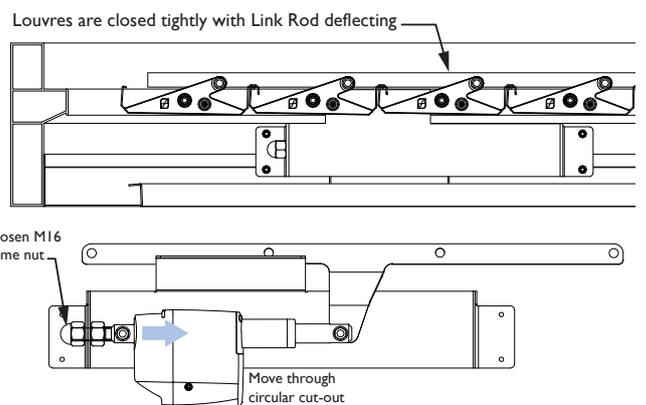


Figure 22.1

INSTALLING COVER FLASHINGS & BEAM END CAPS

Fix the cover flashing to each end of the unit to eliminate any gaps when the louvres are closed. Both flashings are designed to lap each end. Correct alignment is critical.

The flashings are fixed through the top of the beam with 12x20 hex head self drilling screws at 900mm centres.

Refer to Figure 23.0 for flashing layouts.

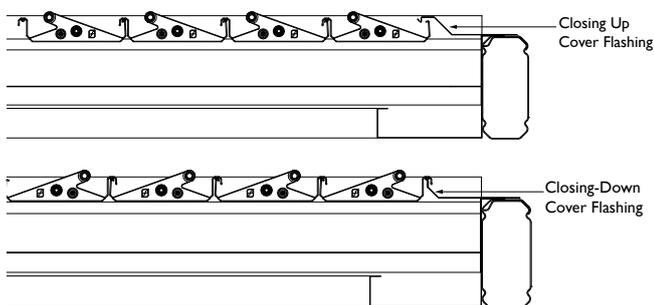


Figure 23.0

Link rod flashings are installed along link rods with rivets at 500mm centres (Figure 23.1).

The end caps can now be fitted into the open end of each extrusion (Figure 23.2).

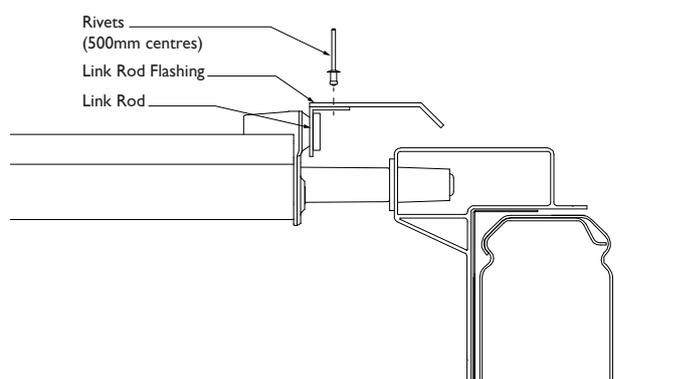


Figure 23.1

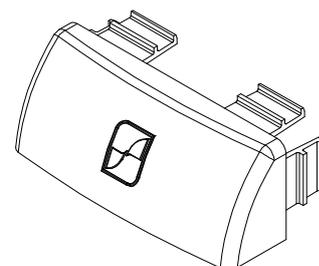


Figure 23.2

GUTTER OULET & DOWNPIPE INSTALLATION

INTERNAL BOX GUTTER OUTLET

Cut a hole in the corner of the base of the internal gutter (Figure 24.0).

The outlet should be located so the elbow and downpipe can be fixed to the internal face of the column (Figure 24.1)

Insert the gutter outlet and rivet in place. Remove any swarf and waterproof with silicone.

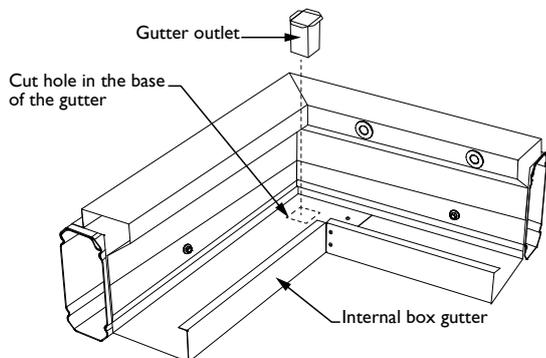


Figure 24.0

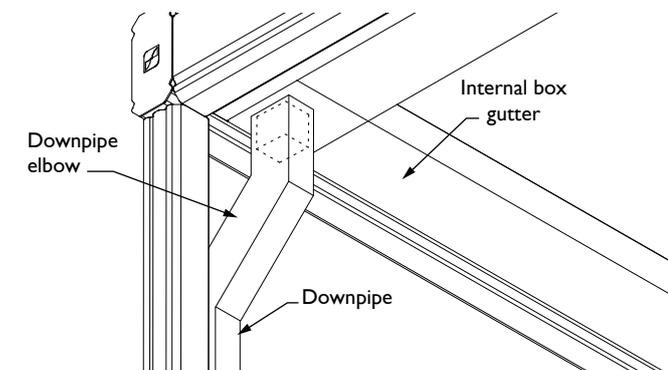


Figure 24.1

EAVES GUTTER OUTLET

If installing eaves gutter, position the internal box gutter outlet so that it is offset from the corner mitre. The outlet should be located so the elbow can drop and return to connect with the eaves gutter downpipe.

The eaves gutter downpipe will be fixed to the external face of the column (Figure 24.2). Insert the gutter outlet and rivet in place. Remove any swarf and waterproof with silicone.

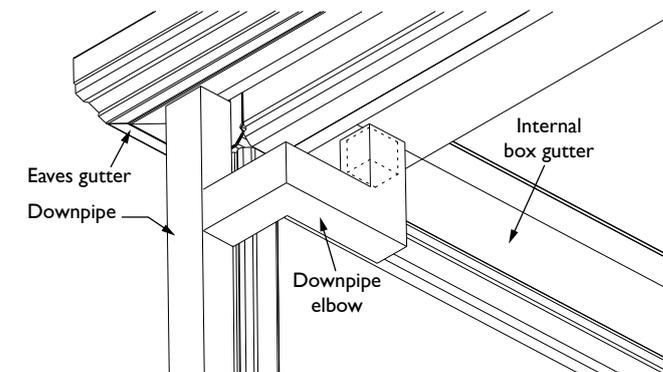


Figure 24.2

DOWNPIPES

Before attaching the downpipe, rivet the downpipe bracket to the column and bend its flanges along the break-line to conform to the shape of the downpipe.

Slide the downpipe over the gutter outlet (pop) and rivet into position. Rivet the downpipe to the downpipe bracket. Weatherproof all fasteners with silicone.

Note: If your Sunroof unit has multiple louvre banks, each bank will require a downpipe.

RAIN SENSOR

Select a flat area on the unit or adjacent structure that is open to the weather and does not interfere with the louvre rotation and fix the rain sensor mounting bracket using two appropriate fasteners with Neoprene washers.

Run the rain sensor cable back to the control box (an extension cord is provided if needed). The rain sensor cable will be identified by the use of three pins in the connectors. Use rubber cable grommets within holes in the framework as required. Simply plug the cable into the corresponding four pin connection at the end of the control box. Finally, tighten the plastic locking nut.

Due to the sensitive nature of the sensor, it is likely that on occasion, small creatures, including skinks, geckos, spiders or birds will inadvertently trigger the sensor and close the roof. This is normal, although it can be confusing on a nice sunny day when the roof closes automatically for no apparent reason.

While the rain sensor is activated, eg, during a rain event, the remote control will not activate the roof. The roof control unit (not the remote control) will emit a sharp 'beep' if the rain sensor is activated and a button is pressed on the remote control.

Once the sensor has returned to normal (eg. rain has cleared) for a minimum of 30 seconds, the rain alarm is cancelled. The roof will not open automatically.

It is recommended that after a rain event, open the roof to approximately 30° to allow the rain water to run off the blades and to drain to the gutters.

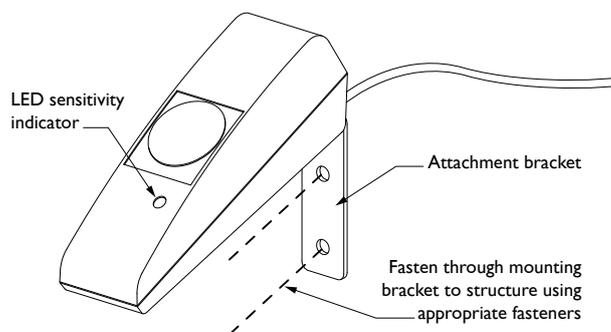


Figure 25.0

Although it is not recommended; it is possible to deactivate & re-activate the rain sensor with the remote control. When deactivating or reactivating the rain sensor the roof must not be moving.

Note: there is no response from the remote control, only the control unit, which is located outside in a discreet location.

POST-HOLE FIXING

Re-check that the fall is at least 1° for the Sunroof louvres to ensure that water does not pool in the centre of the louvres. Also check a minimum fall of 1 in 200 has been achieved towards the downpipes.

Fill the holes with approximately 150mm of concrete and use a shovel to agitate the concrete to remove air pockets. Recheck if the posts are plumb and repeat this process until the hole is full. Once the concrete is set, remove any temporary bracing or props.

HELPFUL TIPS

Double check all measurements and drilling locations before proceeding. Regularly check framework for squareness and vertical alignment to make sure it has not moved during construction.

Leave the plastic coating on the parts until they are about to be fastened to the unit. This will help prevent scratching of the finish.

CRITICAL NOTES

- A.** Outback Sunroof units are not designed to take foot loading and at no stage should the louvre blades be walked on.
- B.** Ensure the mains power is switched off and the control box is unplugged when connecting the electronic components.
- C.** It is critical Outback Sunroof units have a minimum louvre pitch of 1° (1 in 60) to avoid ponding of rainwater. It is important each Outback Sunroof bank has a downpipe and the unit fall towards the downpipe is at least 1 in 200.

Press and hold the STOP button on the remote for more than 10 seconds. The control unit will emit two short beeps to signal the unit is deactivated or a continuous beep (for four seconds) when it is reactivated.

Once deactivated the rain sensor will re-activate automatically after one (1) hour.

Note: The concrete must be finished slightly raised towards the column, ensuring water runs away from the column.

Sweep the roof and clean gutters after the completion of work. Ensure any swarf and rivet stubs are removed as they can cause unsightly rust stains.

Do not allow soil to remain in permanent contact with the columns, as corrosion will result in the base of the column.

- D.** For cases when the unit is less than 3m long only one mounting extrusion is required per side. Ensure that when you come to cutting the extrusions to length that the end with the identifying dots is cut. This is slightly different to units which are more than 3m long and need two mounting extrusions per side. For more details read 'Mounting Extrusions Installation'.

TROUBLESHOOTING

PROBLEM	CHECK	POSSIBLE CAUSE	REMEDY
The louvres will not move when the "OPEN" or "CLOSE" buttons on the remote control are pressed.	The red LED light on the remote control unit should illuminate when any of the buttons are pressed.	Flat battery in remote control unit.	Replace battery in the remote control unit with new CR3032.
		Faulty remote control unit.	Replace the entire controller assembly and remote control unit.
	Switch the power off, wait a few seconds and then switch the power back on. The controller assembly should emit an audible beep when the power is turned on.	No power at 240V ac power outlet.	Check that the 240V ac power cord to the controller assembly is plugged in and the power outlet is switched on.
			Check fuse/circuit breaker in switchboard.
			Use another appliance to test for power at the power outlet.
			Call an electrician if power is still not available at the power outlet.
		Faulty 24V dc power supply or controller assembly.	Replace the entire controller assembly and remote control unit if power is available at the power outlet and beep is not heard.
	Press the "OPEN" and then "CLOSE" buttons on the remote control unit. The controller assembly should emit audible clicks when the buttons are pressed one after another.	Wrong bank of louvres selected on the remote control unit (multiple bank patios only).	Press the left or right "SELECT" buttons until the correct channel is illuminated.
		Faulty 24V dc power supply or controller assembly.	Replace the entire controller assembly and remote control unit if power is available at the power outlet but clicking is not heard.
	If the louvres are fully closed, press the "OPEN" button on the remote control unit. The controller assembly should emit an audible beep if the rain sensor has been triggered.	Water or contaminants on the rain sensor.	Wait until the rain stops and the sensor dries off or if contaminated, carefully clean the rain sensor with a damp cloth and dry off.
		Faulty rain sensor.	Replace rain sensor.
	Plug the actuator directly into the controller assembly to check if the extension cables or actuator are faulty.	VFaulty connection.	Check that the connections between the actuator, extension cable and controller assembly are secure if the actuator functions correctly when plugged directly into the controller assembly.
			Faulty or broken extension cables.
Faulty actuator.			Replace the actuator, if it does not function correctly when plugged directly into the controller assembly, .
Disconnect the link rod from the louvres and check that each louvre rotates freely.			Louvres not square to beam, interference between components.
The louvres move in the wrong direction when the "OPEN" or "CLOSE" buttons on the remote control are pressed.	The actuator should retract when the "OPEN" button is pressed and extend when the "CLOSE" button is pressed.	Cable connector plugged in backwards.	Check that the rib inside the connector with pins is aligned with the groove on the connector with sockets.
		Mechanism installed incorrectly.	Check that the mechanism is installed as per the installation guide.
		Actuator, extension cable or controller assembly wired incorrectly.	Remove cover from controller, disconnect red and black actuator cables from terminals labelled OPEN and CLOSE, swap them over and reconnect them in the terminal block.

TROUBLESHOOTING

PROBLEM	CHECK	POSSIBLE CAUSE	REMEDY
The louvres open automatically when the rain sensor is triggered.	The actuator should move in the same direction when the "CLOSE" button is pressed and when the rain sensor is triggered.	The controller assembly is faulty if the actuator moves in different directions when the "CLOSE" button is pressed and when the rain sensor is triggered.	Replace the entire controller assembly and remote control unit.
		If the actuator moves in same direction when the "CLOSE" button is pressed and when the rain sensor is triggered.	Refer to the remedies for louvres moving in the wrong direction
The louvres will not close automatically when the rain sensor is triggered.	Plug the rain sensor directly into the controller assembly to check if the extension cables or rain sensor are faulty.	Hold the "STOP" button down for 10 seconds. The controller assembly emits two beeps when the rain sensor is manually turned off and a long continuous beep when the rain sensor is turned back on.	Hold the "STOP" button down for 10 seconds. The controller assembly will emit a long continuous beep when the rain sensor is turned back on.
		Faulty connection.	Check that the connections between the rain sensor, extension cable and controller assembly are secure if the rain sensor functions correctly when plugged directly into the controller assembly.
		Faulty or broken extension cables.	Remove and replace the extension cable if the rain sensor functions correctly when plugged directly into the controller assembly.
		Faulty rain sensor.	Replace the rain sensor if it does not function correctly when plugged directly into the controller assembly, .
Actuator assembly is the opposite 'Type' (A or B) required for Louvre opening direction. 'OPEN' closes louvres; 'CLOSE' opens louvres.	Original design plans for designated Actuator assembly placement and Louvre opening direction	Louvres have been installed to open in the opposite direction to the original unit design.	Contact Stratco to advise in reversing the Remote Control operations within the Control Box.
		The Actuator assembly has been placed on the opposing side to the original unit design designation.	

RAIN SENSOR FUNCTION

Due to the sensitive nature of the sensor, it is likely that on occasion, small creatures, including skinks, geckos, spiders or birds will inadvertently trigger the sensor and close the roof. This is normal, although it can be confusing on a nice sunny day when the roof closes automatically for no apparent reason.

While the rain sensor is activated (eg. during a rain event) the remote control will not activate the roof. The roof control unit (not the remote control) will emit a sharp 'beep' if the rain sensor is activated and a button is pressed on the remote control.

Once the sensor has returned to normal (eg. rain has cleared) for a minimum of 30 seconds, the rain alarm is cancelled. The roof will not open automatically.

It is recommended that after a rain event, open the roof to approximately 30° to allow the rain water to run off the blades and to drain to the gutters.

If someone chooses to override the 'auto-close' function and re-opens the roof there is a one hour delay after override, following this the roof will 'auto-close' again if raining.

If 'Open' is pressed while the roof is closing due to rain, the roof will stop. If open is pressed again it will open, then 'auto-close' again an hour later if it is still raining.

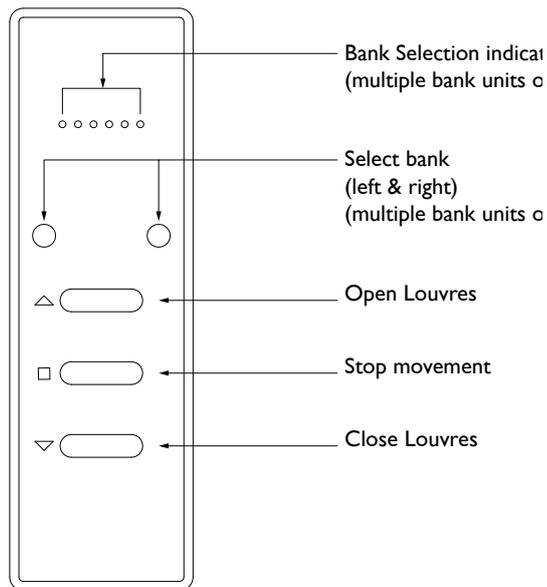
Note: For the rain sensor to work correctly it needs to be dry and clean from dirt.

MAINTENANCE

Your Stratco Outback Sunroof/Verandah, Patio or Carport will give you many years of service by simply following the important recommendations set out in the Stratco 'Selection, Use and Maintenance' brochure.

Wash and wipe down your Stratco Outback unit with a soft broom, mop or sponge as frequently as you would wash your car to maintain its luster. More frequent cleaning and rinsing will be required in severe environments. Before doing this, disconnect power to unit to prevent injuries.

In corrosive industrial or marine environments, the manufacturer recommends the use of colour steel with a stainless steel base. Contact Stratco for further details.



REMOTE CONTROL FUNCTIONS



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