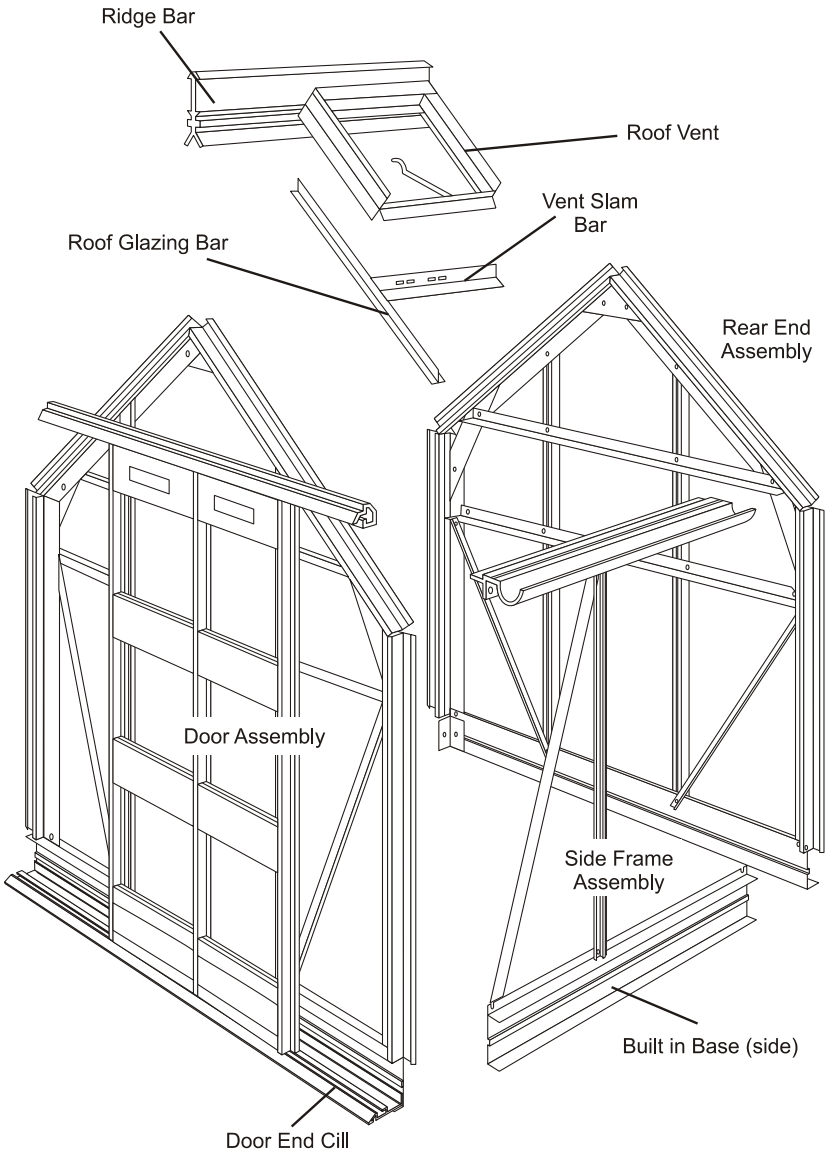
ELITE GREENHOUSES LIMITED

INSTRUCTIONS & ILLUSTRATIONS FOR THE

# 4’3” WIDE MAXIM

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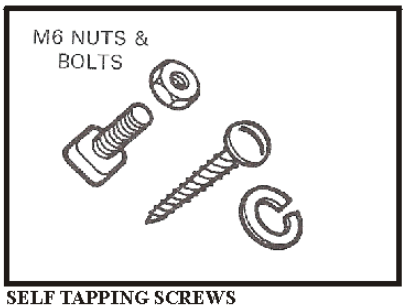
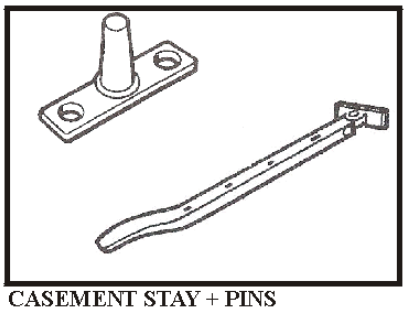
enquiries@elite-greenhouses.co.uk
www.elite-greenhouses.co.uk

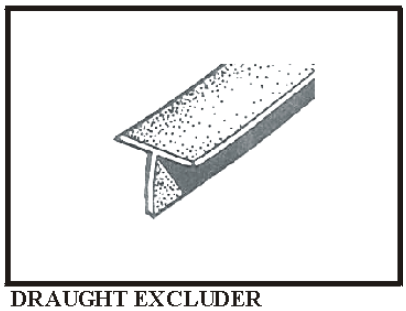
## FITTINGS WITHIN THE KIT (NOT TO SCALE)



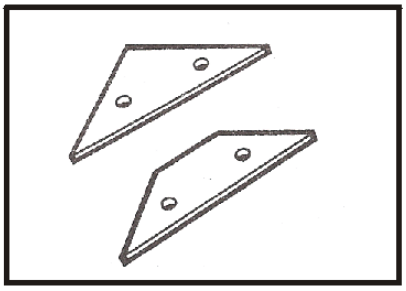

SELF TAPPING SCREWS
SPRING WASHER



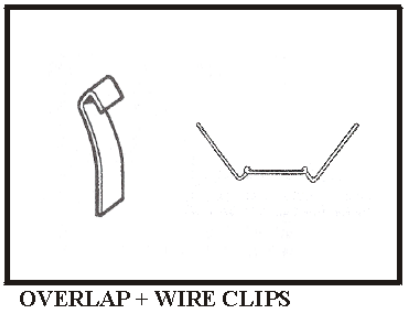
CASEMENT STAY + PINS



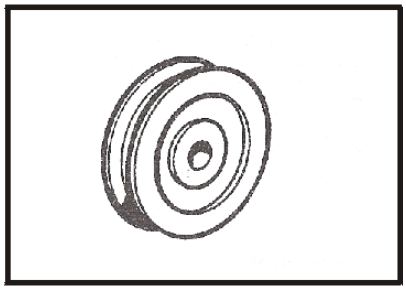
DRAUGHT EXCLUDER



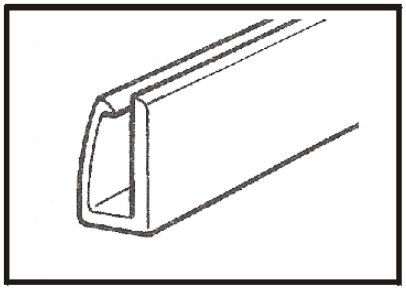
APEX & EAVE GUSSET PLATES



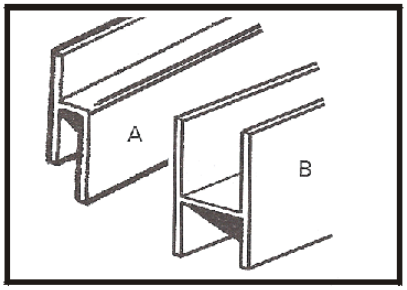
OVERLAP + WIRE CLIPS



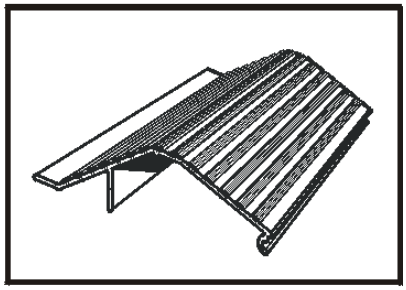
DOOR WHEEL



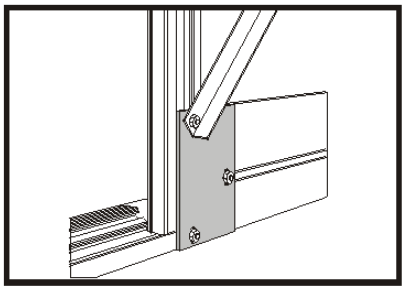
BLACK DOOR SKID



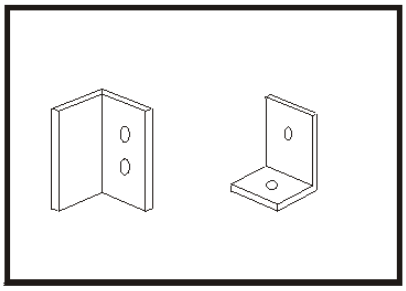

A=MUNTIN B= ROOF SPACERS



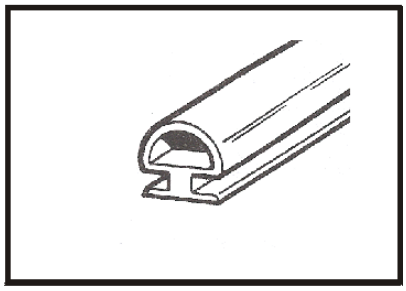
RAMP



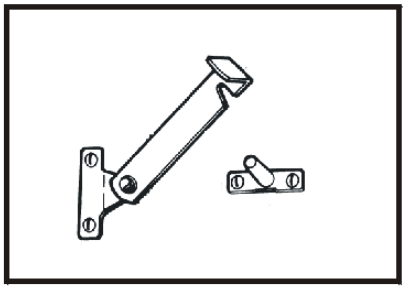
DOOR END PLATE



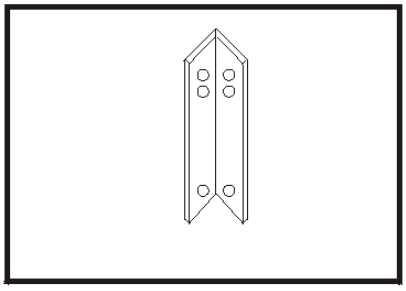
DOOR STOP & ANGLE BRACKET



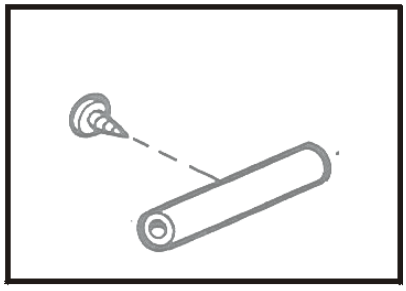
NEOPRENE BEADING



DOUBLE DOOR CATCH

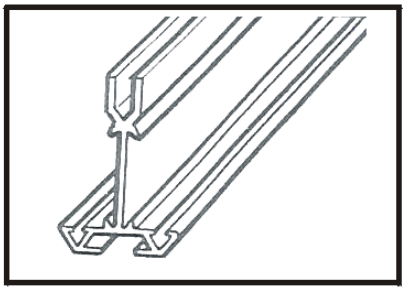


CORNER BRACKETS/BASE LEGS

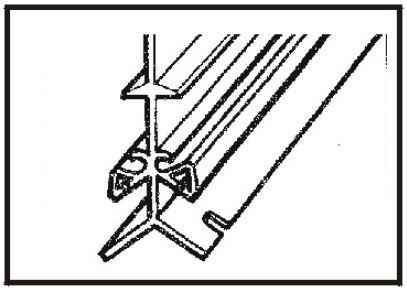


VENT STOPPER

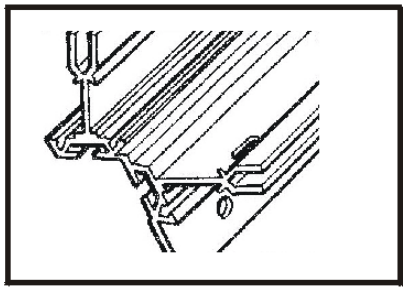
## COMPONENT DRAWINGS (NOT TO SCALE)



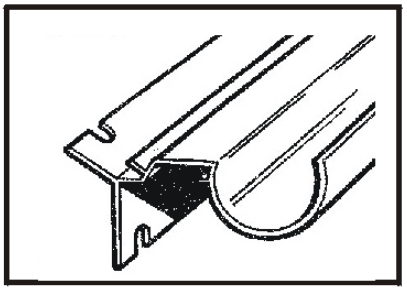
GLAZING BARS AND DOOR POSTS



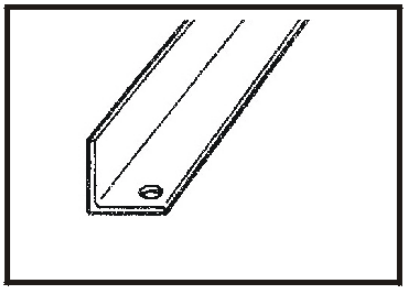
RIDGE



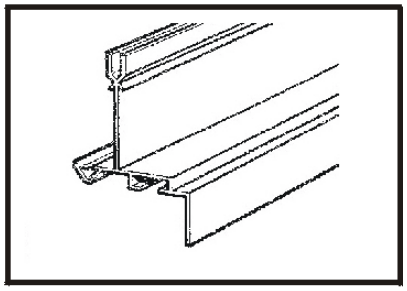
CORNER BAR



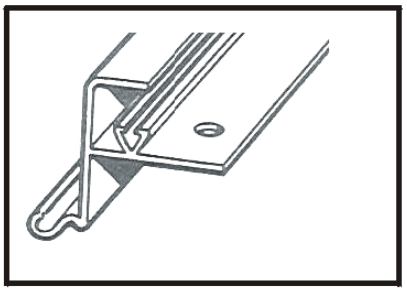
EAVES BAR/GUTTER



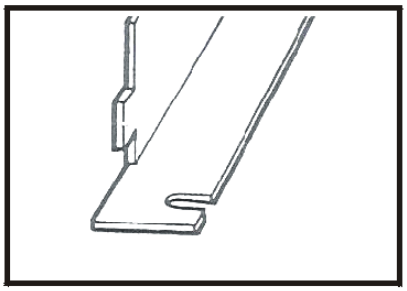
BRACING ANGLE



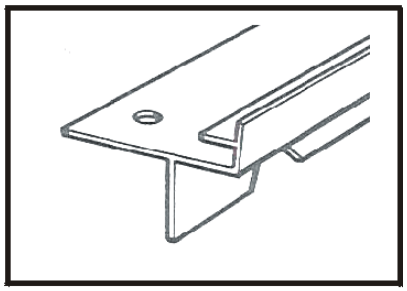
VENT SIDE RAIL



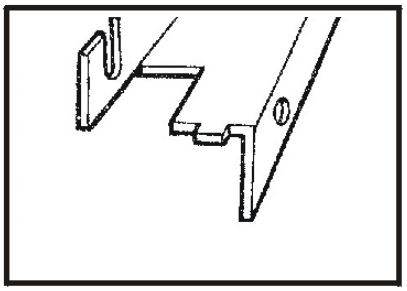
VENT TOP RAIL



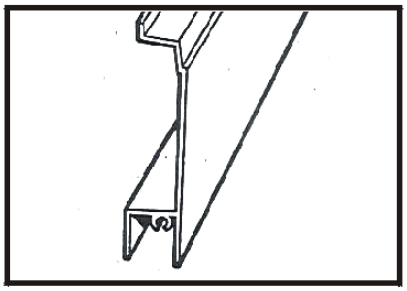
VENT SLAM BAR



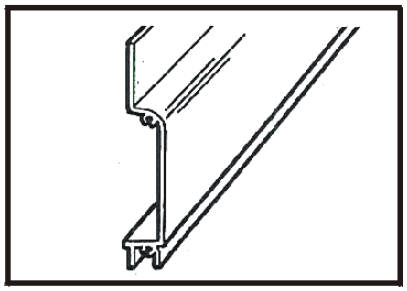
VENT BOTTOM RAIL



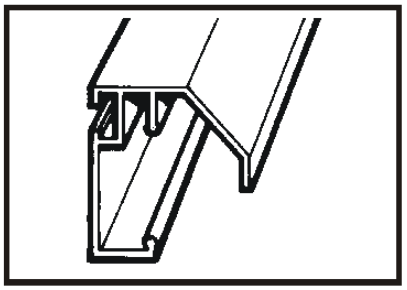
DOOR TRACK SUPPORT



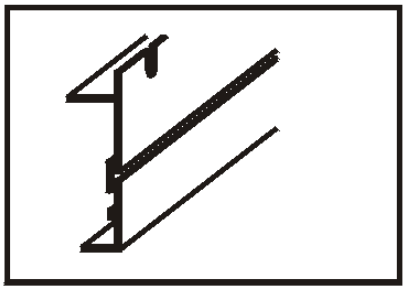
DOOR INFIL PANEL



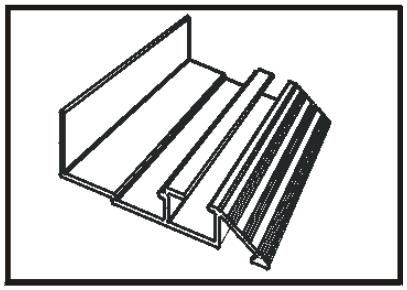
DOOR TOP/BOTTOM PANEL



TOP DOOR TRACK



BUILT IN BASE



DOOR END CILL

# PARTS LIST

| | | | 4 x 4 | 6 x 4 | 8 x 4 | 10 x 4 |
|---|---|---|---|---|---|---|
| 1 | Nuts and bolts M6 | | 94 | 108 | 122 | 140 |
| 2 | Wire Clips | | 192 | 228 | 268 | 304 |
| 3 | Overlap clips | | 27 | 33 | 39 | 45 |
| 4 | Casement stay | | 1 | 1 | 1 | 1 |
| 5 | Stay pins | | 2 | 2 | 2 | 2 |
| 6 | Pins, nuts and bolts M4 | | 6 | 6 | 6 | 6 |
| 7 | Double Door catch | | 1 | 1 | 1 | 1 |
| 8 | Self tapping screw | | 28 | 28 | 28 | 28 |
| 9 | Glazing beading (m) | | 55 | 64 | 76 | 86 |
| 10 | Door guides | | 4 | 4 | 4 | 4 |
| 11 | Door End Plate | | 2 | 2 | 2 | 2 |
| 12 | Eave plates | Taped together with | 4 | 4 | 4 | 4 |
| 13 | Ridge plates | one casement stay | 2 | 2 | 2 | 2 |
| 14 | Door wheels and fittings | | 4 | 4 | 4 | 4 |
| 15 | Ridge | | 1 | 1 | 1 | 1 |
| 16 | Gutter/eave | | 2 | 2 | 2 | 2 |
| 17 | Built in Base Side | | 2 | 2 | 2 | 2 |
| 18 | Side braces | | 2 | 2 | 2 | 4 |
| 19 | Door End Built in base | | 2 | 2 | 2 | 2 |
| 20 | Top door track | | 1 | 1 | 1 | 1 |
| 21 | Top door panel | With name plate taped | 2 | 2 | 2 | 2 |
| 22 | Bottom door panel | together and marked | 2 | 2 | 2 | 2 |
| 23 | Middle door panel | "door" | 6 | 6 | 6 | 6 |
| 24 | Door track support | | 1 | 1 | 1 | 1 |
| 25 | Door posts (2 handed, 2 unhanded) | | 4 | 4 | 4 | 4 |
| 26 | Side glazing bar | | 2 | 4 | 6 | 8 |
| 27 | Roof glazing bar | | 2 | 4 | 6 | 8 |
| 28 | Vent (in packs) | | 1 | 1 | 1 | 2 |
| 29 | Door end glazing bars | Taped together and | 2 | 2 | 2 | 2 |
| 30 | Long Door end horizontal angle | marked "Door end" | 2 | 2 | 2 | 2 |
| 31 | Door End Horizontal Angle | | 2 | 2 | 2 | 2 |
| 32 | Door end diagonal angle | | 2 | 2 | 2 | 2 |
| 33 | Door track support flat bar | | 2 | 2 | 2 | 2 |
| 34 | Rear end built in base | | 1 | 1 | 1 | 1 |
| 35 | Rear end glazing bars | Taped together and | 2 | 2 | 2 | 2 |
| 36 | Long Rear end horizontal angle | marked "Rear end" | 1 | 1 | 1 | 1 |
| 37 | Rear End Horizontal Angle | | 1 | 1 | 1 | 1 |
| 38 | Rear end diagonal angle | | 2 | 2 | 2 | 2 |
| 39 | Corner bars in two packs | | 8 | 8 | 8 | 8 |
| 40 | Cantilever Brace | | 2 | 4 | 6 | 8 |
| 41 | Angle base legs/ corner brackets | | 4 | 4 | 4 | 4 |
| 42 | Glass made up of; | See glazing key at back of booklet | | | | |
| 43 | Full sheet toughened glass | See glazing key at back of booklet | | | | |

We reserve the right to make improvements to our range of models.

# HELPFUL HINTS

Please do take your time and be sure to read all instructions carefully before assembling.

Consider purchasing the Elite Installation tool kit – see accessory brochure for contents of kit.

Do not assemble frame in high winds.

The greenhouse frame should be anchored to a permanent foundation. This will not only help secure it against powerful winds but will help prevent breakage of the glass caused by the freezing and thawing process of the earth.

When building your own brick/concrete foundations ensure that they are level and square otherwise your frame will not be correct and the glass will not fit.

Be sure all four corners of the constructed greenhouse are square before installing glass, and do not install the glass till the greenhouse is on a permanent foundation.

Do not place your greenhouse in vulnerable locations such as under trees, playing areas, etc.

Children should not play near glass greenhouses.

REMEMBER: glass is fragile, handle with care!

Protective eye glasses should be worn.

Gloves should be worn.

If your greenhouse is a painted one there are a few 1/8”/3mm holes in the end of the bars. These are jig holes for painting and have no bearing on construction. **(Key point).**

**WHEN CONSTRUCTING A POWDER COATED MODEL PLEASE TAKE CARE NOT TO DAMAGE THE FINISH BY WORKING ON CONCRETE OR PATIOS. Take great care in opening the polythene packages. Do not run a knife down the side of the packs as this may scratch the paintwork.**

**N.B. This plan covers the entire Maxim range. The only difference between a 4ft long and a 10ft long for example are a few extra pieces of alloy, glass, nuts and bolts etc. The construction of the sub-frame assemblies are the same but for the purposes of this booklet we have used the 4 x 4 model as the benchmark. Therefore only one plan is needed.**

We reserve the right to alter and improve our products.

# INSTALLATION INSTRUCTIONS FOR THE 4'3" WIDE MODEL "MAXIM RANGE"

**The contents of this carton are divided into the different frame assemblies that collectively make up the completed greenhouse framework.**

It is recommended that each framework assembly is fully completed before moving onto the next.

The contents are as follows:

1. Two side frames
2. Rear end frame
3. Door end frame
4. Roof vent
5. Doors
6. Bag of fittings containing:

a. Nuts and bolts general assembly
b. Overlap clips for glass
c. Spring clips for glass
d. Casement stay
e. Casement stay nuts and bolts
f. Four eave plates (not in the main bag, but taped up with the casement stay)
g. Two ridge plates
h. Four door wheels
i. Four door guides
j. Small self tapping screws
k. Double door catch
l. 2 door end plates

7. Roof bars
8. Coil of glazing beading
9. One length of ridge
10. Two black rubber draught excluders

**For clear identification of parts and the number required please carefully refer to he earlier pages of component drawings and parts list.**

# SIDE FRAME ASSEMBLY

**STARTING with the side frame;**
**The base is integrated with the cill for each side of the greenhouse, and is assembled onto each subassembly rather than separately laid out.**

Components required;
4' long = 1 side bar, 1 eave bar, 1 base/cill, 1 angle tie bar
6' long = 2 side bars, 1 eave bar, 1 base/cill, 1 angle tie bar
8' long = 3 side bars, 1 eave bar, 1 base/cill, 2 angle tie bars
10' long = 4 side bars, 1 eave bar, 1 base/cill, 2 angle tie bars

1. Lay out the pieces on the ground as though you were standing inside the house i.e. with the gutter and cill facing downwards and the bolt channel of the glazing bars upwards. **(Key point)**

2. Slide the glazing beading into each side bar taking care not to stretch the material. Trim off any surplus, level with the ends of the glazing bar.

3. Slide a bolt into each end of each glazing bar, and another bolt in the middle to be used to se cure a cantilever brace. If you have bought a shelf to go in your greenhouse and you intend to fit it on a side wall, use the ½" headed bolts provided with the shelf fittings.

4. Fix the combined eaves bar and gutter to the glazing bars pushing the bolts through the holes in the eaves bar and securing with a nut. You do not need to tighten the nuts too much at this stage, but they need to be tight enough to stop the bolts slipping out of the glazing bar.

5. Fix the built in base cill to the middle glazing bar by pushing the bolt through the hole in the cill unit and tightening as before. (4' long model will only have 1 side glazing bar per side assembly, 2 for the 6' etc.)

6. Correctly position the built in base cill on the outermost, glazing bars by pushing the bolts through the holes in the cill, but do not put the bolts on yet, (6', 8' and 10' models only).

7. Place the angled tie bar over these bolts so that they point outwards towards the ends of the eaves bar. They must be arranged so that the flat bit of the angle in each case faces towards the middle of the house (i.e. elongated slit will be by the eaves in one case and by the cill in the other. **(Key point**). 4' and 6' long model will have 1 side diagonal per side. This is to attach to the top of the 1st glazing bar and then will attach to the gable end during general assembly.

8. Put nuts on the bottom bolts and lightly tighten.

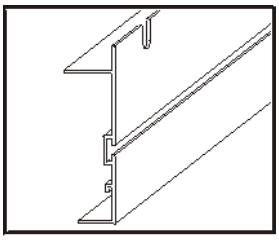
9. Do the same with the other side frame assembly.

10. Make sure that the glazing bars touch both the cill and the eaves in each case. Tighten all nuts.

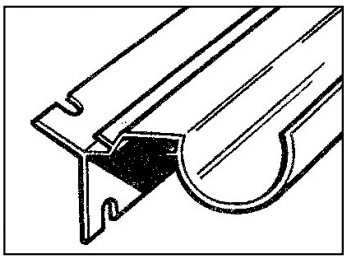
11. If you are fitting your greenhouse onto hard standing (flags, concrete etc.), then insert bolts into the bolt channel of the built in base (generally 1 every 2'). These will be used to anchor the greenhouse to the floor during general assembly. Do not insert these bolts if you intend to install your greenhouse on to soft ground.

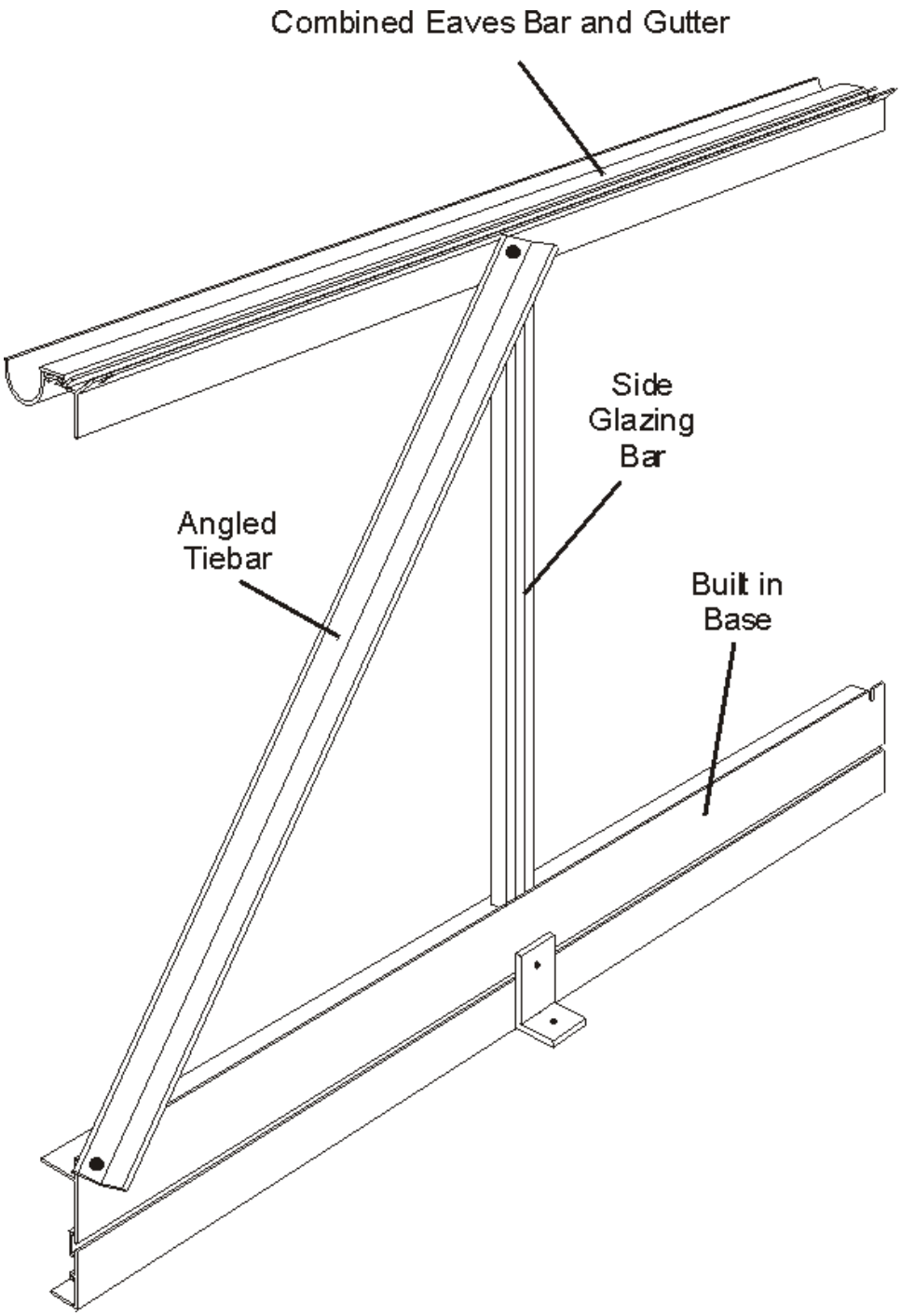
# SIDE FRAME ASSEMBLY

**BEWARE OF SHARP EDGES!**

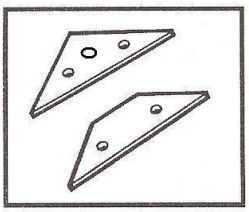


BUILT-IN BASE

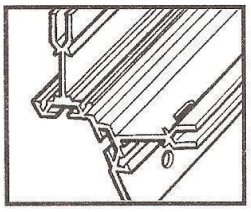




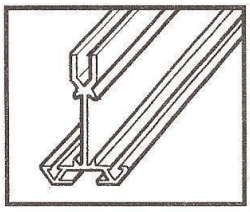
# REAR END ASSEMBLY



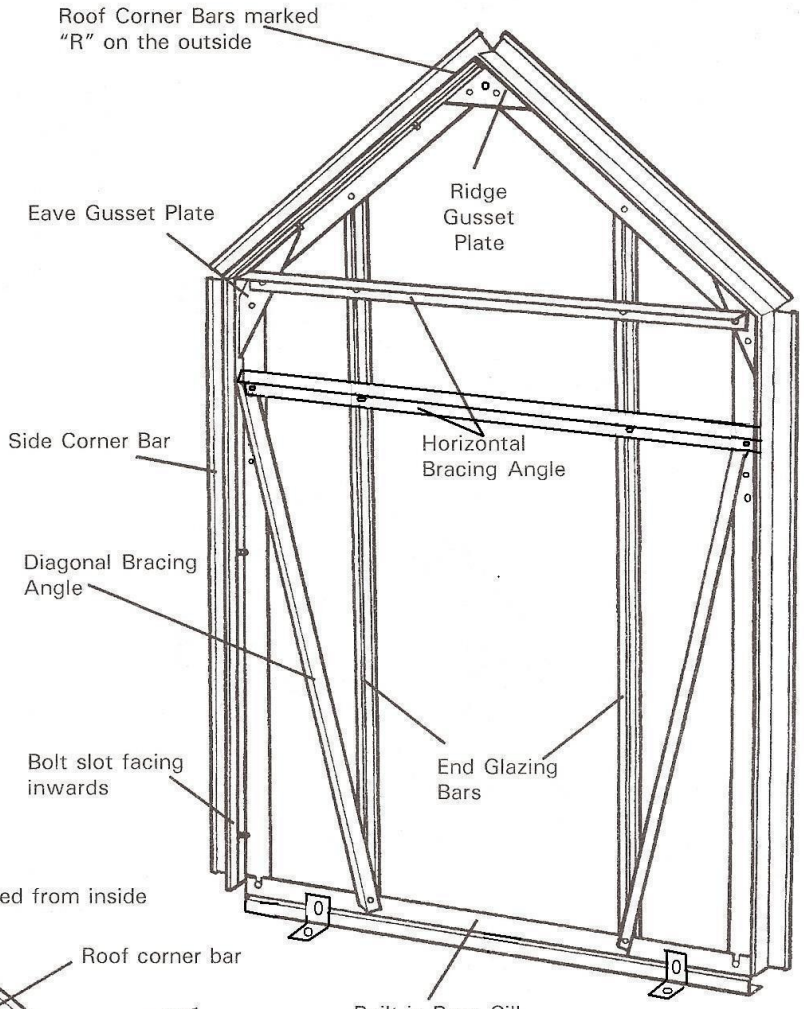
Apex and Eave gussets



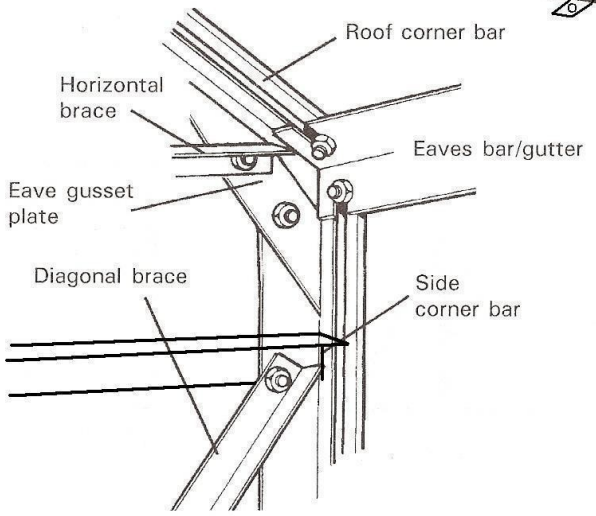
Corner bar

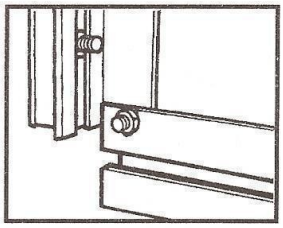


Glazing bar




Detail of eave assembly viewed from inside



Built in base details

**N.B.** The roof corner bars are marked "R" on the outside, which indicate that they meet at the ridge and are also mitred at both ends. If you have a painted greenhouse there is no letter "R" on the corner bar. You **must** ensure that the "middle" hole is nearer to the eaves plate than the ridge plate. **(Key point).**

# REAR END ASSEMBLY

From the main bag of fittings you will require the nuts and bolts, two eave plates and one ridge plate. These are packed with the casement stay and are separated from the main bag of fittings.

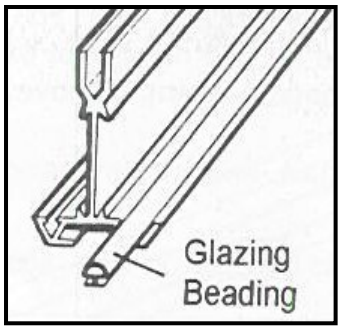
Components:
1 alloy built in base cill
2 glazing bars
2 diagonal bracing angles
2 horizontal bracing angle (1 longer than the other)
2 roof corner bars (marked "R" at the apex)
2 side corner bars (unmarked)
Corner bars are in two packs of 4 and are identical for both gables. They are marked "corner bars".

**INSTRUCTIONS**

1. Lay out the frame as though you were standing on the inside i.e. with the bolt slot uppermost, roof corners marked "R" at the apex, opposite each other, facing downwards (i.e. "R" on out side). The roof corner bars are mitred at both ends where as side corner bars are mitred at one end only **(Key point)**. The bolt slot is on the inside and faces inwards during initial construction. If you have a painted greenhouse there is no letter "R" on the corner bar. You **must** ensure that the "middle" hole is nearer to the eave plate than the ridge plates. **(Key point).**

2. Slide the glazing beading into each glazing bar and corner bar taking care not to stretch the material. Trim off any surplus level with the ends of the glazing bar. The corner bars have 3 grooves to receive beading. **Do not** use the middle one, only the two outer grooves require beading.

3. Slide two bolts into the bolt channel of each corner bar, put a nut on and finger tip tighten approx 3" from the end of the bar. These will later be used in the general assembly for fixing the ridge, eave and cill to the ends. Now secure the Ridge Gusset Plate and Eaves Gusset Plates by inserting bolts through the 'plates' and into the holes punched in the flange of the corner bar, at the apex and eave. Do not tighten the nuts and bolts in the gusset plate at this stage, finger tip tighten is sufficient.




**N.B.** If you have the 4' option the roof vent slam bar will attach to one of the corner bars. You will need to insert an extra bolt into the bolt slot of the corner bar onto which the vent will close.

Attach the built in base cill to the side corner bars by inserting a bolt through the hole in the flange of the corner bar and into the slot in the cill.

4. Attach the vertical glazing bars to the built in base by inserting a bolt into the bolt channel of the glazing bars and locating it with the punched holes in the cill. Before securing the nuts attach the angle diagonal angle ties to the same bolt as illustrated. The top of the diagonal angle tie now attaches to the pre-fabricated holes near the top of the side corner bar. There are 3 holes near the top of the side corner bar, and you must ensure you use the top bolt hole. **(Key point)**.

5. Slide three bolts into the bolt channel at the top of the two vertical glazing bars and secure the third one to the roof corner bars by inserting the bolt through the punched hole in the flange.

6. You can now attach the short horizontal angle brace to the **top bolt** of the gusset plate and to the other bolts in the glazing bars you inserted in 6, above.

7. Now attach the longer horizontal brace to the top bolt hole (of 3) in the side corner bar, and also to the vertical glazing bars using the 1st bolt inserted in the glazing bars. This longer horizontal bar is attached to the same hole as the diagonal angles.

8. Check that all angles between built in base cill and the vertical members are at right angles and that the glazing bars are right into the angle cill at the bottom. **(Key point).**

9. Tighten all nuts.

10. Slide two extra bolts into the built in base cill. This will be used later to attach the angle base leg. This angle is 400mm long and has 6 holes in. It is the end with one elongated hole each side that bolts to the built-in-base.

11. Slide a bolt into the bolt slot in the built in base section, one at each end. Attach the corner bracket/angle base leg so that it is pointing downwards. If you are fitting your greenhouse on to soft ground, then do not fit the corner bracket/angle base leg yet. If you are on a patio, you will need to cut the bracket off level with the bottom of the built in base then before fitting, then slide extra bolts into the bolt channel to be attached to anchor brackets (generally 1 every 2'). If you are on soil, the bracket/angle base leg will go into the ground at general assembly.

# DOOR END ASSEMBLY

From the main bag of fittings you will require the nuts and bolts, 2 eave plates and 1 ridge plate. These are packed with the casement stay and are separate from the main bag of fittings and two door end plates.

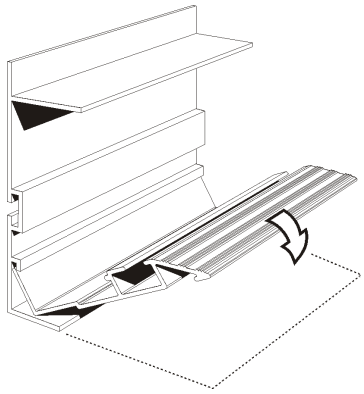
Components

2 Door end built in base
2 End glazing bars
2 Side corner bars (unmarked)
1 Top door track
4 Short horizontal braces (2 different lengths)
3 Diagonal bracing angles
1 Main door track support
2 Roof corner bars (marked "R")
2 Door End Plates

**INSTRUCTIONS**

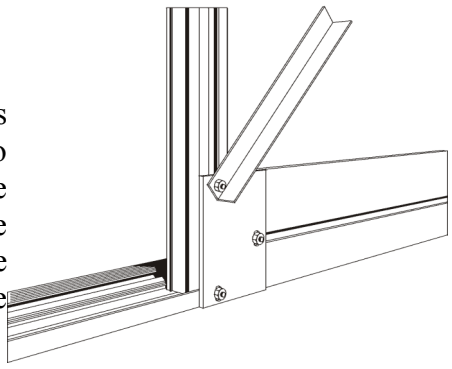
1. Assemble the frame in exactly the same way as the rear end, up to and including stage 3 of the rear end. The difference with the door end is that instead of 1 long base piece, the door end has 2 smaller pieces (1 either side of the door opening) and 1 door end cill.

2. Now engage the door end cill with the 2 built in base cills by pushing the angle of the cill under the locator as shown in the diagram. At this stage the cill will move freely left and right but will remain located to the built in base cill.



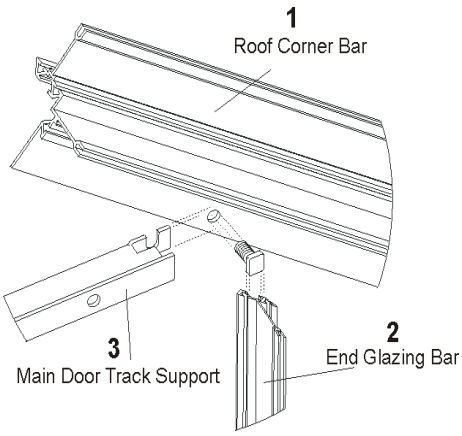
3. Slide 2 bolts into the bottom of each glazing bar and 3 bolts (only 1 if greenhouse to be sited on soft ground) into the free end of each built in base section. Attach the 2nd bolt in the glazing bar to the hole in the door end cill, but do not put a nut on yet.

4. Attach the door end plate (with 3 holes) to the 2 bolts inserted in the glazing bars and the last bolt inserted into the base ensuring that the glazing bar is tight down into the angle of the door end cill. Attach the diagonal angle to the top bolt of the door end plate. The 2 unoccupied bolts in the base sections will be used to anchor the greenhouse to the floor.



5. Insert 4 bolts into the bolt channel of each vertical glazing bar. The last bolt will now be used to attach the glazing bar to the pre fabricated hole in the roof corner bar.

6. Attach the main door track support (shaped like a letter 'Z' to be found with the door panels) to the top unoccupied bolt inserted above. **(Key point).** This 'Z' shaped bar must be fitted with the two outside slots facing upwards (as illustrated) **not** downwards. Slide the main door track support as high up the glazing bar as possible and tighten. **(Key point).**




7. The two shorter horizontal braces attach to the **top bolt** in the gusset plate and the vertical glazing bars using the pre inserted bolt.

8. The longer horizontal braces now attached to the side corner bar (same bolt hole as the diagonal brace) and the last unoccupied bolt in the glazing bar.

9. Stand the frame up and bolt the door track to the main door track support by inserting 3 bolts into the bolt slot of the door track. Position 3 of these through the 3 holes in the door track support above the door opening.

10. Insert 2 extra bolts into each end of the door track which will be used later during general assembly.

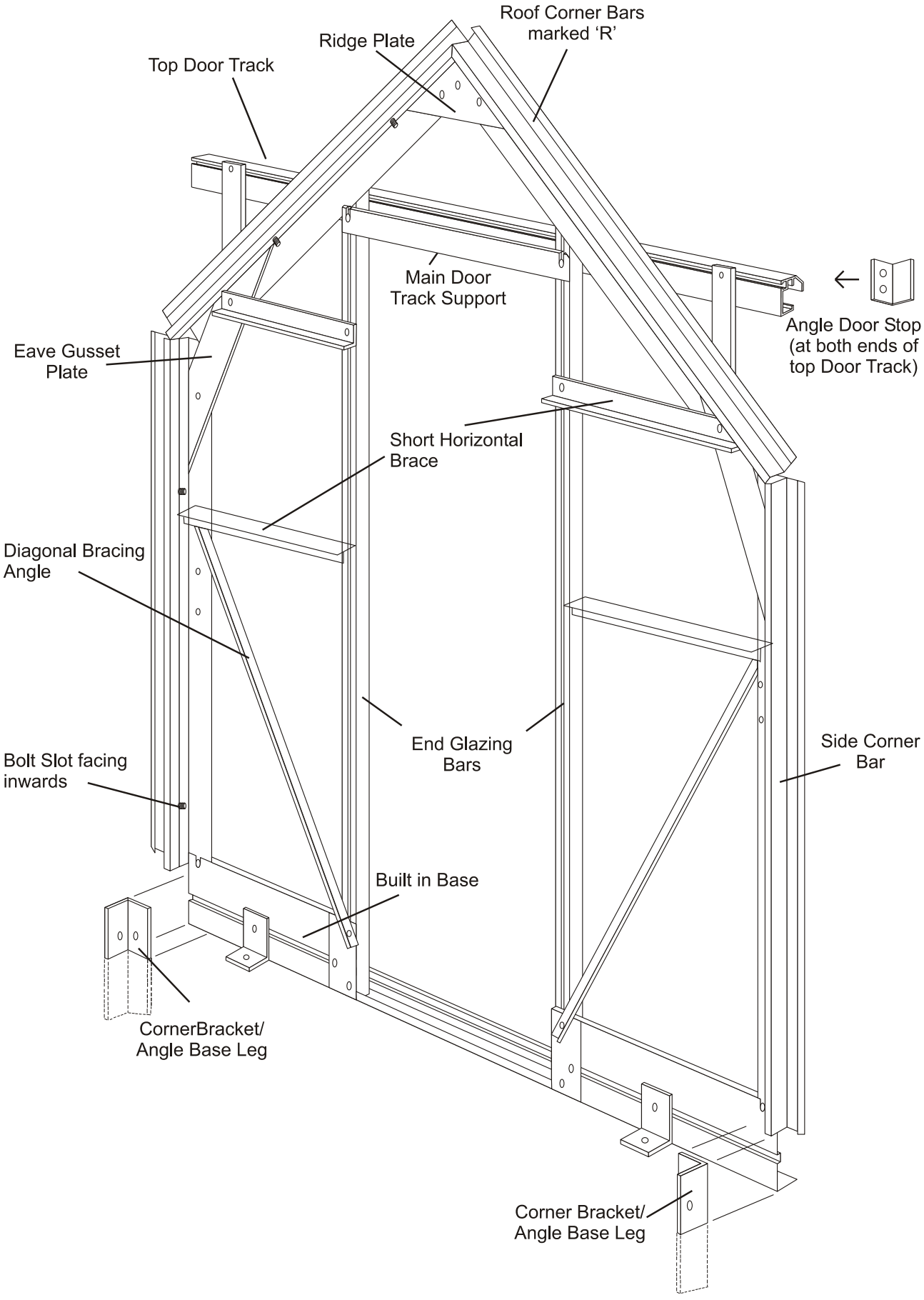
11. When this has been achieved tighten all nuts.

12. Slide a bolt into the bolt slot in the built in base section, one at each end. Attach the corner bracket/angle base leg so that it is pointing downwards. If you are fitting your greenhouse on to soft ground, then do not fit the corner bracket yet. If you are on a patio, you will need to cut the bracket off level with the bottom of the built in base and slide extra bolts into the bolt channel to be attached to the anchor bracket (generally 1 every 2'). If you are on soil, the bracket will go into the ground at general assembly.

**N.B.** Please note carefully the correct position of the main door support. The slotted holes at either end are facing skywards **NOT** downwards. **(Key point).**

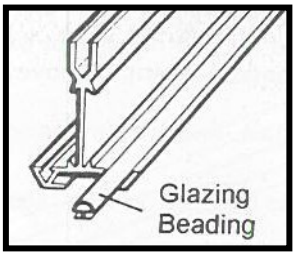
Please note, you only require approx. 40mm of beading in the inside 'v' groove of the end glazing bars.

# DOOR END ASSEMBLY



# DOOR FRAME ASSEMBLY

Follow the procedure below for each door.




Components consist of:
2 door glazing bars for each door (1 handed, 1 unhanded)
(handed posts of each door meet in the middle)
3 infill panels
2 top and bottom door panels

From the main bag of fittings you require for **each door**:
2 door wheels
2 clip on nylon door skids
1 length of black rubber draft excluder
12' glazing beading and self tapping screws

**BEWARE OF SHARP EDGES**

1. Place the two door glazing bars on a level surface roughly 12" (305mm) apart with the bolt slots facing downwards. The top of each side piece has two screw holes in it, the bottom has three. **(Key point).**

2. Looking at the handed door posts in profile with the 2 holes at the top (3 holes at the bottom) the open box part of the section goes to the outside i.e. on right hand door – left hand upright, on left hand door – right hand upright.

3. Slide glazing beading into the channels of the glazing bars, apart from the outside channels of the two outer bars.

4. Place the top, bottom and 3 infill panels in position as shown, lining up the screw holes in the side pieces and panels. The top panel has the greenhouse name on it. The bottom panel has the edge for the door skids to fit on. The lower infill panel locks on to the bottom panel.

5. Fix the door together by screwing through the door side pieces into the holes provided in the edge of the panels with the self-tapping screws. The screws will go in more easily and without danger of trying to go crooked if you can put a small about of grease on the screw before assembling the doors. Alternatively, you could insert the screws into the screw eyes of the door panels before assembling the door, this would have the effect of pre-self tapping the panels prior to the assembly making assembly easier.

6. Make sure all angles are square and tighten all screws.

7. Fix each door wheel into position by pushing the bolt provided through the centre of the wheel and then through the hole in the top door panel from underneath (i.e. from the inside of the door). Put the washer over the bolt and secure with the nut provided, tightening until there is no movement on the bolt. The nuts are lock-nuts and are harder to put on than the normal nuts in general assembly. The wheel will revolve freely because it has ball bearings in it. The door wheels have a shoulder in the middle that protrudes on one side. The shoulder, when fitted to the door goes against the inside edge of the top door panel.

8. Slip the nylon door skids on each end of the bottom panel.

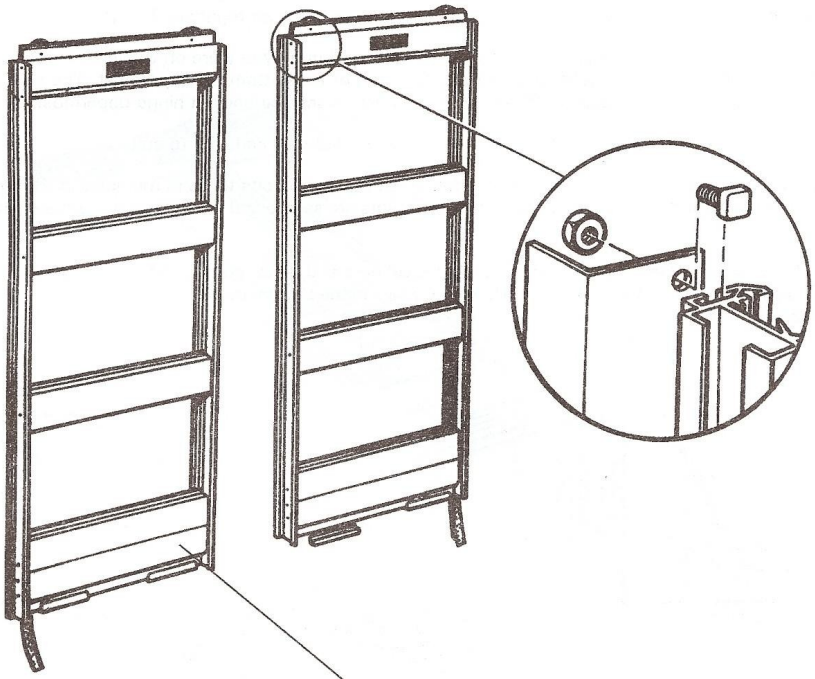
9. Turn the door over and insert the black rubber draught excluders in the groove (bolt slot) in each unhanded door post. Push up to the top of the door and trim off the surplus at the bottom. With a pair of pliers squeeze the groove together at the bottom so that the rubber will not slip down when the door is in its upright position.

10. Do exactly the same with the right hand door remembering that the draught excluder is inserted into the right hand bar i.e. unhanded one.

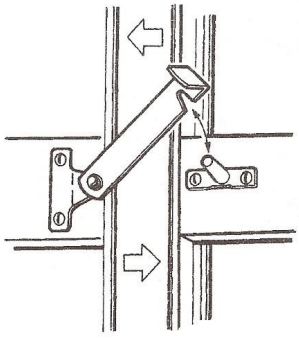
11. Do not fit the doors to the gable at this stage – wait until the structure is fully assembled prior to glazing.

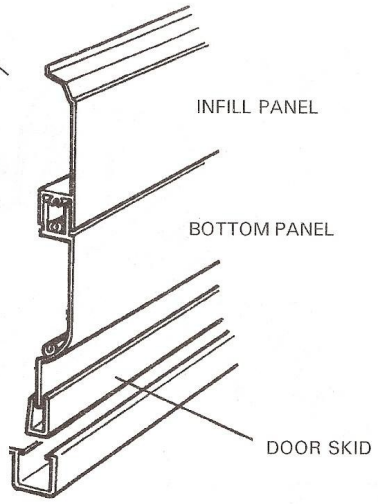
12. Having assembled both doors you need to attach a piece of alloy angle to the rear of the right hand door. The angle is equal in length to the door posts and has 3 holes equally spaced. Insert bolts into the bolt slot of the left hand upright of the right hand door, attach the angle, put on and tighten the nuts.

13. The door catch can be fitted once the doors are hung and working properly. You will need to decide where you want the catch to go and drill 4 holes in the horizontal door panels to accommodate the catch as illustrated.



Door Catch Detail





# ROOF VENT ASSEMBLY

The roof vent pack has 5 pieces of aluminium and from the main box of fittings you require:
2m of glazing beading
4 nuts and bolts
2 casement stay pins
1 casement stay
6 M4 stainless steel nuts and bolts

PROCEDURE:

1. Identify the slam bar and attach the 2 stay pins to the outer side of the angle using the M4 stainless steel nuts and bolts.

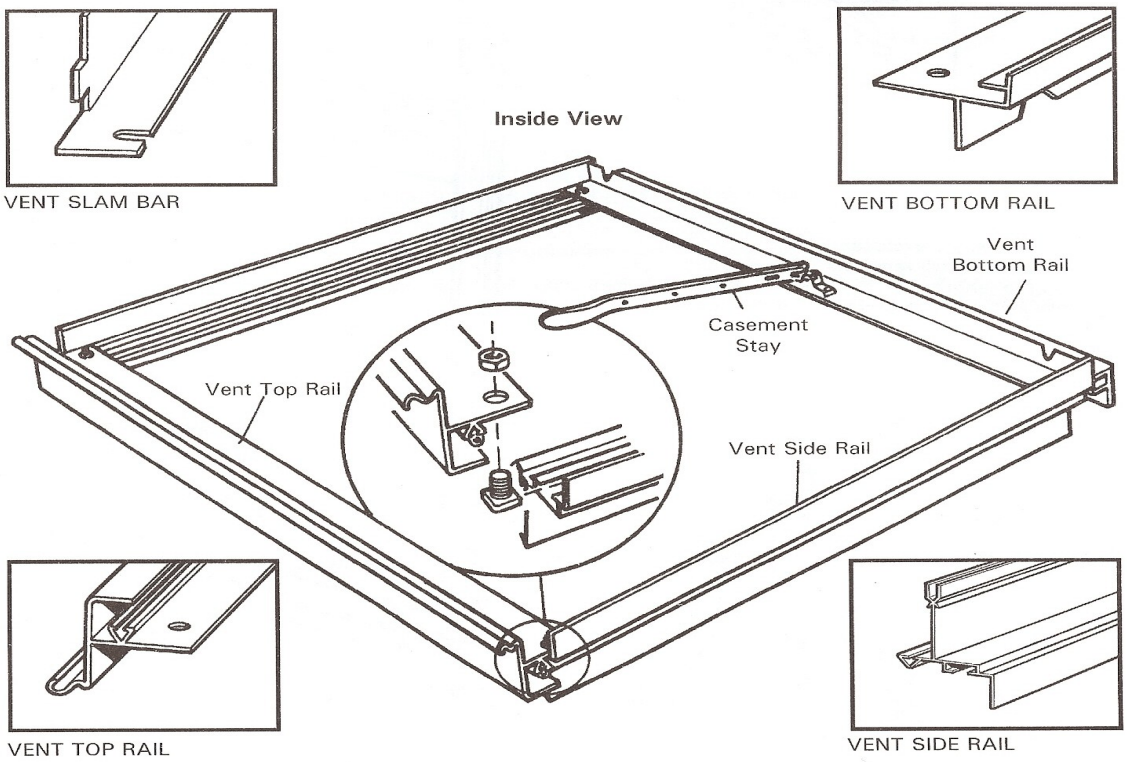
2. Lay the 4 edge pieces of the vent on a level surface as though you were on the inside of the vent (with the bolt slots of the side bars uppermost and the 'v' slots of the bottom rail uppermost. The top rail is arranged in such a way that the squared off end is to the bottom and the hooked hinge uppermost).

3. Slide the glazing beading into the slot in the side and top rails and trim to suit.

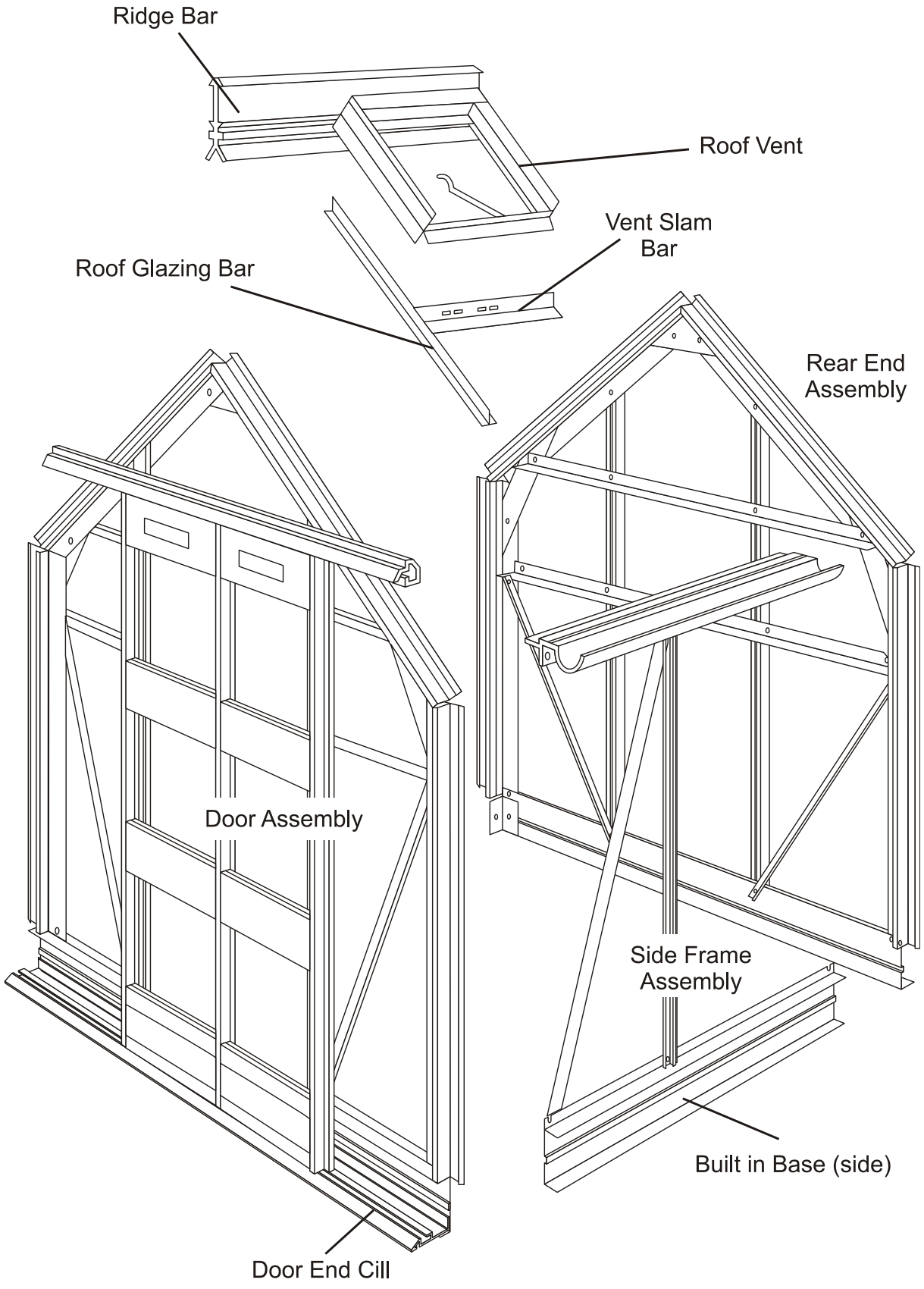
4. Insert a bolt into each end of the side rail bolt slots, put these bolts through the holes in the top and bottom rails, add nuts and lightly tighten. Check that all joints are secure and that the vent is square, then tighten up the nuts.

5. Fit the casement stay using the M4 stainless steel nuts and bolts, putting the bolts through the holes in the saddle of the stay through the 2 elongated holes in the bottom rail. Hold the nuts in place and tighten the bolts with a screwdriver.

6. Do the same with the other vents.



# ASSEMBLY OF GREENHOUSE UNIT



The first operation is to connect the two side frames to the end frames to form the outer shape of the completed structure. Another pair of willing hands would be useful at this stage.

1. Lift the first side frame into its position by the rear end.

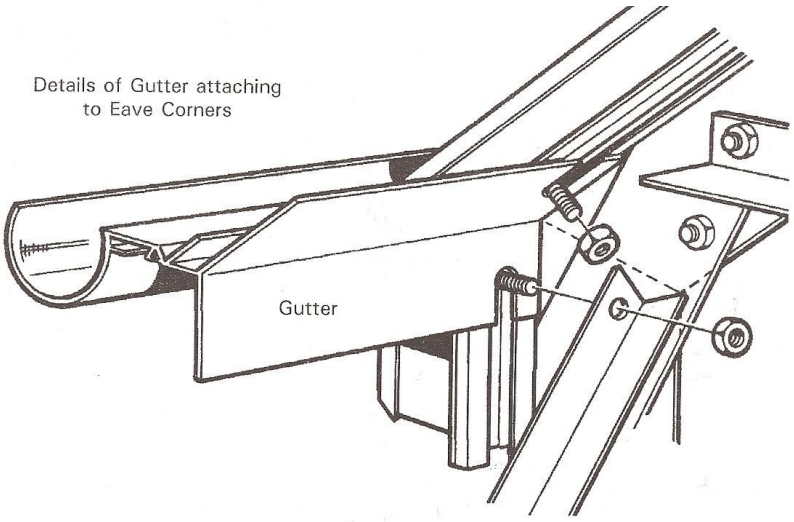
2. Slot the eaves bar into the small space between the roof and side corner bar so that the gutter is outside the end frame and the two flanges that form the angle of the roof and side are inside and tight up against the bolt slots of the roof and side corner bar. **(Key point).**

3. The extra bolts that were inserted in the bolt slots during the gable end assembly can now be used.

4. Line up the elongated holes in the flanges of the eaves with the bolt slots and slide the bolts into them. Put a nut on the top bolt and tighten up. **(Key point).**

5. The built in base attaches to the inside of the corner bar. The bolt placed in the corner bar bolt slot at gable end assembly will slide down into the slotted hole at the end of the built in base cill. Likewise with the angle base leg, this can now be attached to the end built in base cill utilising the bolts inserted at frame assembly.

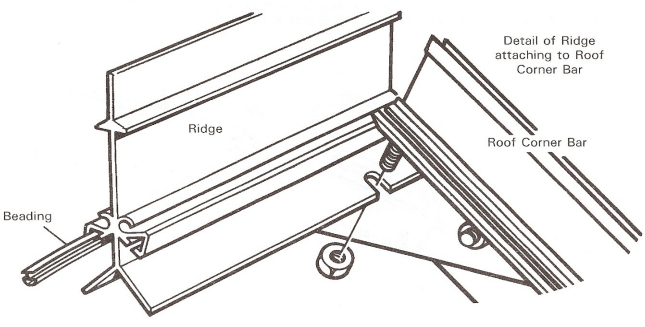
6. Do the same at the other three corners



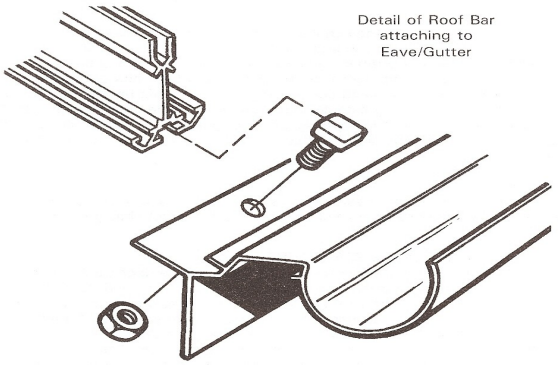

7. Slide the glazing beading into both sides of the ridge before attaching the ridge to the roof corner bars. Insert the end of the ridge through the small gap in the corner bars at the top, the vertical part of the ridge will be outside, pointing skywards and the two flanges that form the angle of the roof will be inside, tight up against the bolt slots of the roof corner bars.

8. Line up the slotted holes at the end of the ridge with the bolt slots in the corner bars. Push the two bolts, previously inserted during the gable end assembly into the slots. Put on nut and tighten.

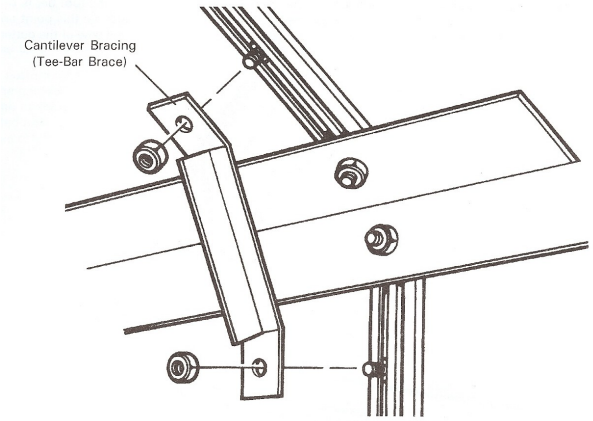
9. The roof bars can now be attached to the ridge and gutter. Attach them to the ridge first by sliding a bolt into the bolt slot of the glazing bar and inserting it through the hole in the flange of the ridge. Put a nut on and tighten up. Do the same with the rest of the roof bars.



10. Before bolting the bottom of the roof bar to the flange of the eave bar, insert extra bolts. Insert 1 bolt into the bottom of each roof bar to enable the cantilever brace to be fitted. Where the vent is to be positioned put an extra one bolt per bar i.e. the vent covers two glazing bars so two extra bolts per vent. **(Key point).** Then attach the final nut and bolt to the eave bar as illustrated.

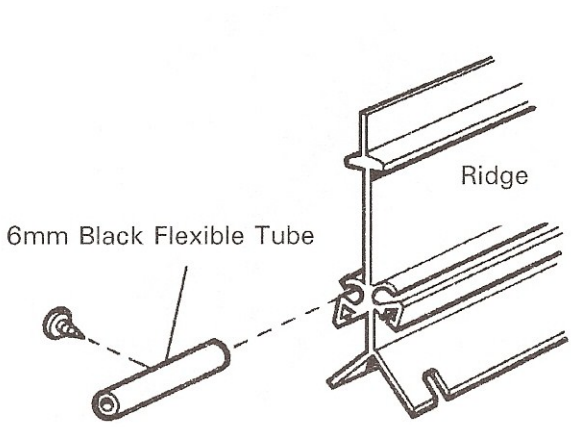


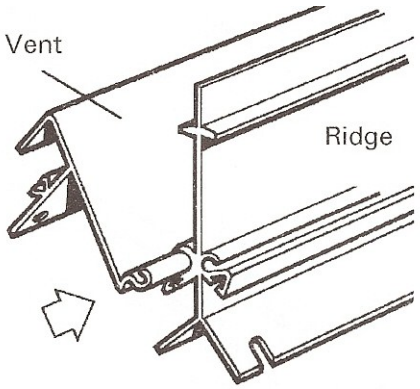

11. Now attach the cantilevers brace as shown in the diagram using the bolts inserted above and in the side frame assembly.




**NOW YOU CAN FIT THE VENT TO THE RIDGE**

12. Slide the vent onto the ridge from either end and into the desired position. Before sliding the vent into the ridge, slide a piece of black tube into the vent hinge socket. Slide the vent into position, insert a small self tapping screw into the tube approximately ½ way along then tighten the screw. The tube will expand and lock into position thus preventing sideways movement of the vent. **N.B.** There is no hole for the screw but it will easily push into the tube and screw up. **(Key point).** You only require one tube per vent on the left hand side of the vent socket (viewed from inside the greenhouse).
The vent overlaps the two glazing bars that it covers so is therefore wider than the opening.




**N.B.** With a 4' long building or if your vent is next to an end the flexible tube will only function if the vent is in either bay No 1 or on right hand side or last bay on left hand side. (Viewed when walking through the door).

Having slid the vents from the end on the ridge to the desired position, you can now fit the "slam bars" to the 2 glazing bars. Utilise the bolts you inserted during general assembly and position the "slam bars" just under the vent allowing the casement stay to effectively close. The slam bar can be adjusted later to facilitate good opening and closing of the vent.

13. Do not fit the doors at this stage.

14. The greenhouse is now ready for lifting on to its permanent base.

15. If you are fitting the greenhouse onto soft ground, you now need to dig 1 hole (approx. 1 spade width) in each of the 4 corners.

16. Lift the greenhouse into position. For soft ground fixing, you now need to attach the corner bracket/angle base leg to the bolt slot of the side and end using the end of the bracket that has 2 holes as opposed to 4. The bracket must be attached in such a way that the end with 4 holes is pointing down into the hole previously made.

**N.B.** If you are on soft standing you will need to have something solid underneath the door end opening, e.g. flag stone, row of bricks or similar. (See page 22 paragraph 3 re fitting the ramp.)

**SQUARING UP**

You must make sure that the structure is level and square. Put one pane of glass in each corner of roof, each pane must be level with the small glass retaining lip just above the gutter and be running parallel with the roof glazing bars. Each corner must be the same. If one corner is out the corner diagonally opposite will also be out. By carefully pushing and pulling each corner diagonally you will be able to see the frame move in and out of square with the glass.

**HARD STANDING**

Having established the square of the greenhouse, drill the patio or concrete in the required positions, fit plastic plugs and screw the brackets (attached during subassembly) firmly to the ground using 35mm x 8mm round head screws.

**SOIL FLOOR**

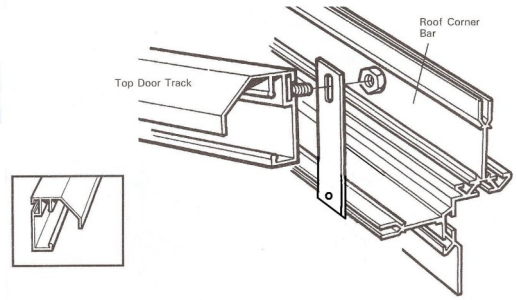
Determine the square of the greenhouse as described above, make a mix of concrete and put a couple of shovelfuls around the base of each base leg. When the concrete has gone off back fill with the soil excavated earlier on. Do not concrete the corners until you are certain the structure is LEVEL & SQUARE.

**FITTING THE DOORS TO THE STRUCTURE**

The doors slide onto the frame form opposite sides of the door tracks. For the left hand door put the door bottom rail into the bottom door track and slide to the right, feed the first wheel into the top door track and move further to the right until the black draught excluder butts up to the end glazing bars. Carefully ease the door past the glazing bar and feed in the second wheel. Repeat the process for the right hand door. (Ensure handed door posts meet in the middle). <u>It may help in the fitting of the doors to remove the angle on the back of one of the doors and refit it once the doors are on.</u> The doors.

The doors will now run quite freely. To square up the door with the spacing, undo the upper bolts holding the door track. There is a little play to facilitate "fine tuning" of the doors. **N.B.** Sometimes the doors can be a little stiff prior to glazing but once the glass has been inserted (the last job of the construction) the extra weight will make for smooth running.

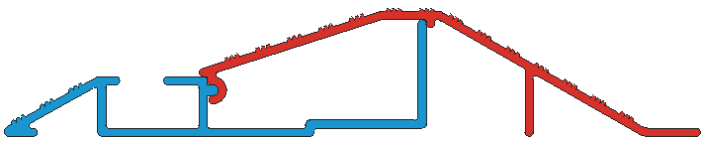
Loosely attach 2 flat bars to the bolt channel of the door track (1 each end) and allow to hang vertically downwards. The flat bar has 2 holes. Attach the larger hole to the door track by inserting a bolt into the channel of the track. Now slide the flat bar along the door track until the point that the smaller hole of the flat bar meets the self tapping screw groove of the roof corner bar. If you are happy that the doors are running smoothly, insert a self tapping screw into the smaller hole of the flat bar and in turn into the self tapping groove and tighten. Repeat on the other end of the door track. This attachment will support the weight of the doors when they are in the open position.




Attach two small angles (1" x 1 ½") to the ends of the top door track, these will act as stops when opening the door. The part of the angle with 2 holes is attached to the bolt slot at the back of the top door track. This in turn will allow the blank side to cap the end of the track preventing the door from sliding off the track.

**FITTING THE RAMP**

The final aluminium piece of the greenhouse is the door end ramp cill. The ramp is attached to the door end cill by engaging the nub of the door end cill to the 'C' groove of the ramp. The ramp is now rotated to horizontal. Drill a hole at each end approx 20mm in from the end of the ramp and into the floor. Plug and screw.



If you are fitting onto soft ground, you must ensure that a solid material is underneath the ramp to avoid damage when you step on the ramp to enter the greenhouse. You can lay a row of bricks sunk to ground level, a concrete flag, a piece of aluminium base pressed into the ground to ground level or something similar. You can then screw the ramp into the support material for a secure fixing.

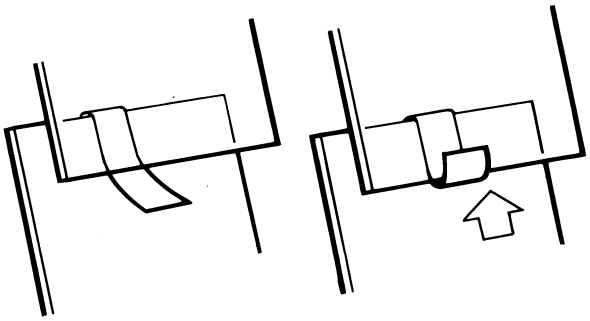
# GLAZING THE STRUCTURE

Always handle glass with extreme care as failure to do so can result in injury.

**HORTICULTURAL GLASS and MULTI-SHEET TOUGHENED GLASS**

1. Starting with the bottom pane of one side, offer the pane to the glazing bars. Hold it in place by inserting two of the stainless steel clips six inches from the bottom of the glass.

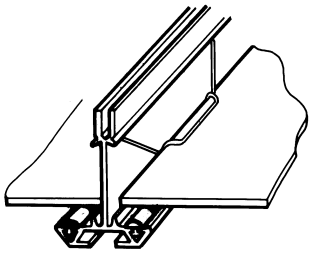
2. Secure the glass by inserting another two clips in the same way half an inch from the top edge of the glass. **N.B.** The side panels will require a larger overlap of approx ¾" (20mm).



3. Hook **one** overlap clip on the middle of the pane of glass. **(Key point).**

4. Offer the top pane of glass to the glazing bars, resting it on the two clips of the bottom pane. Insert two wire clips to hold it six inches from the bottom of the pane. Bend the middle overlap clip upwards to support the glass. Secure the pane by inserting another two clips four inches from the top of the pane.

Repeat this all along this side of the house.



Stainless steel wire clips

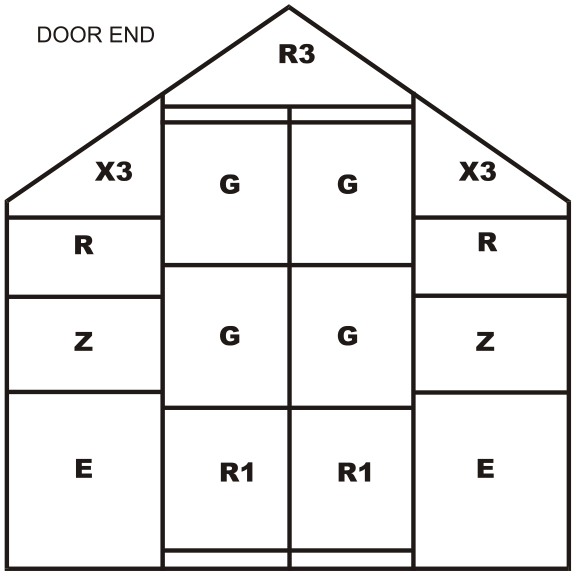
5. Repeat the glazing procedure on the other side of the house.

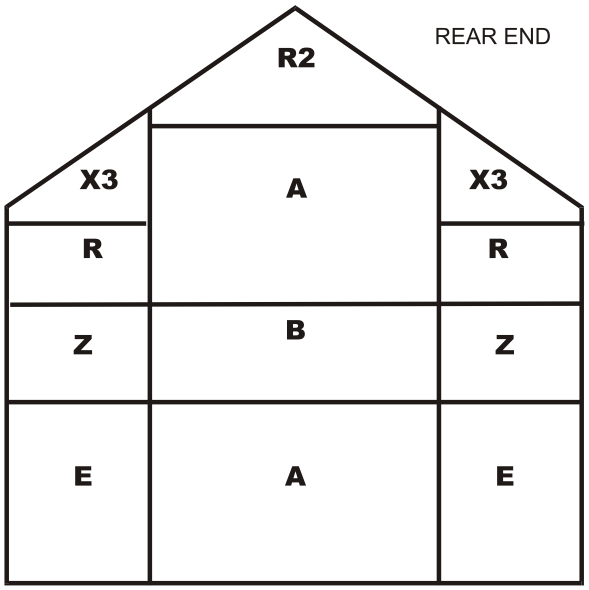
6. Following this, glaze the rear end in a similar fashion.

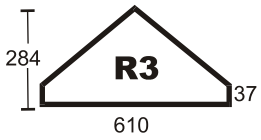
7. Proceed to the door end and glaze that in the same way as described earlier.

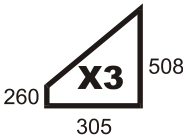
8. Finally, glaze the door.

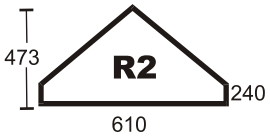
# 4' WIDE MAXIM HORTICULTURAL GLASS/ & MULTI-SHEET TOUGHENED GLASS PLAN



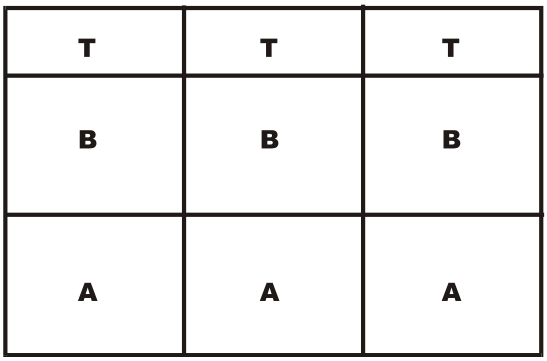



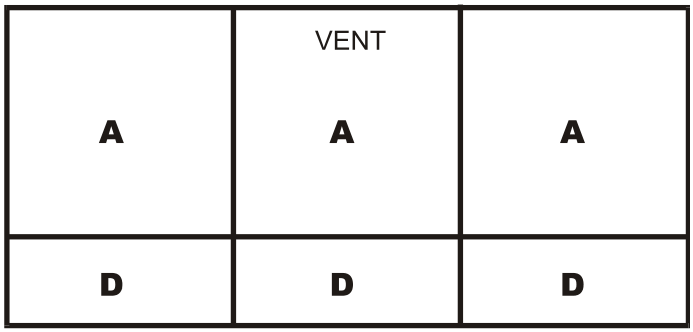




SIDE




ROOF




| Ref | Width (mm) | Length (mm) |
|---|---|---|
| A | 610 | 610 |
| B | 610 | 457 |
| D | 610 | 210 |
| E | 610 | 305 |
| G | 298 | 457 |
| R | 305 | 337 |
| R1 | 298 | 610 |
| T | 610 | 590 |
| Z | 305 | 457 |

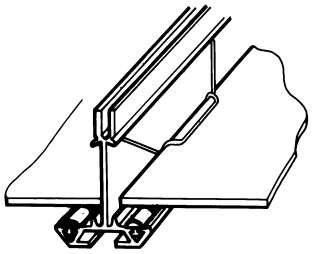
| Ref Size | A | B | D | E | G | R | R1 | R2 | R3 | T | X3 | Z |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4 X 4 | 10 | 5 | 4 | 4 | 4 | 4 | 2 | 1 | 1 | 4 | 4 | 4 |
| 6 X 4 | 14 | 7 | 6 | 4 | 4 | 4 | 2 | 1 | 1 | 6 | 4 | 4 |
| 8 X 4 | 18 | 9 | 8 | 4 | 4 | 4 | 2 | 1 | 1 | 8 | 4 | 4 |

If you install a louvre to the greenhouse, it (along with the 610 x 140mm piece of glass in the louvre box) replaces 1 A pane. You must ensure that you fit glass above and below the louvre. The louvre can not sit directly on the bottom aluminium cill. (**Key point).**

# FULL SHEET TOUGHENED GLASS (EN12150)

The main differences in application between the two types of glazing are:

Toughened glass is in large sheets.

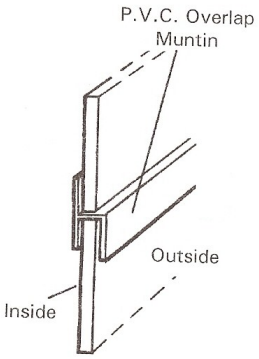


There are no overlaps: where there are two or more panes in a section they are butt jointed with a P.V.C overlap strip – (called a muntin) – **you do not use muntins or spacers if you have multi-sheet (or small pane) toughened glass.**

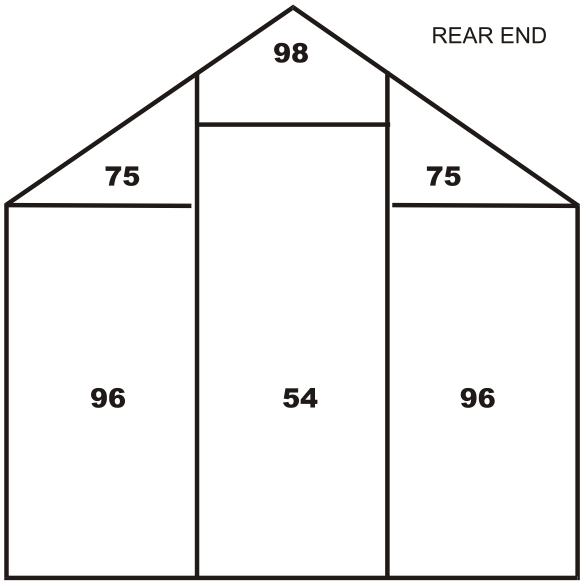
See the diagram for the position of the different sizes.

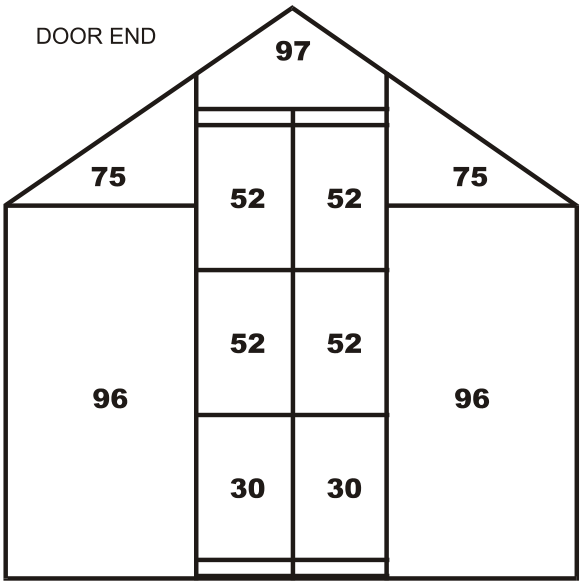
The glass is clipped onto the frame in the same way as the horticultural glass is, but use 8 clips per large pane.

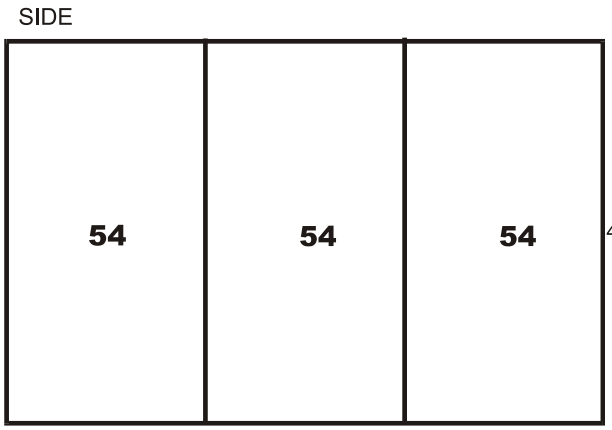
Put the P.V.C overlap piece on top of the lower pane making sure you have differentiated between the inside and outside of the P.V.C (see diagram below). The next pane sits on top of the overlap and is clipped in as normal.



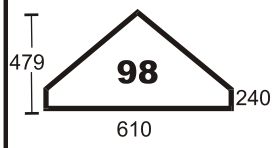
# 4' WIDE MAXIM FULL SHEET TOUGHENED GLASS PLAN

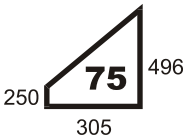


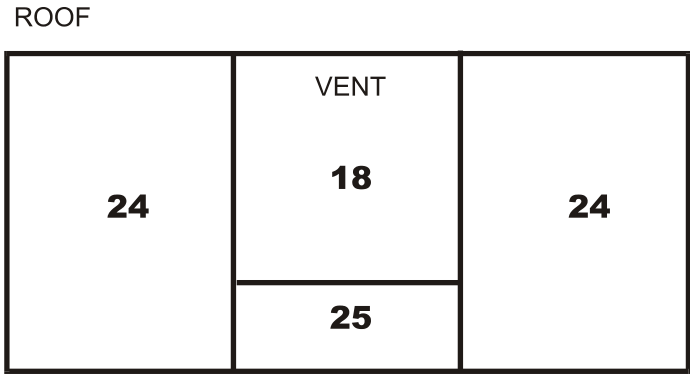








| Code | Width (mm) | Length (mm) |
|---|---|---|
| **18** | 610 | 610 |
| **24** | 305 | 803 |
| **25** | 610 | 210 |
| **30** | 298 | 610 |
| **52** | 298 | 457 |
| **54** | 610 | 1630 |
| **96** | 305 | 1375 |

The quantities above will change slightly if you have ordered extra vents and louvres.
If you intend to fit a louvre to the greenhouse you must fit glass above and below the louvre. The louvre cannot fit onto the bottom aluminium cill. **(Key point).**
Replace pane '54' with 1 piece 610 x 280, the louvre and then 1 pane 610 x 904mm.

| Ref Size; | 18 | 24 | 25 | 30 | 52 | 54 | 75 | 96 | 97 | 98 |
|---|---|---|---|---|---|---|---|---|---|---|
| **4 x 4** | 1 | 3 | 1 | 2 | 4 | 5 | 4 | 4 | 1 | 1 |
| **6 x 4** | 1 | 5 | 1 | 2 | 4 | 7 | 4 | 4 | 1 | 1 |
| **8 x 4** | 1 | 7 | 1 | 2 | 4 | 9 | 4 | 4 | 1 | 1 |

**YOUR GREENHOUSE IS NOW COMPLETE.**

**OPTIONAL EXTRAS**

**Rainwater kits for guttering**