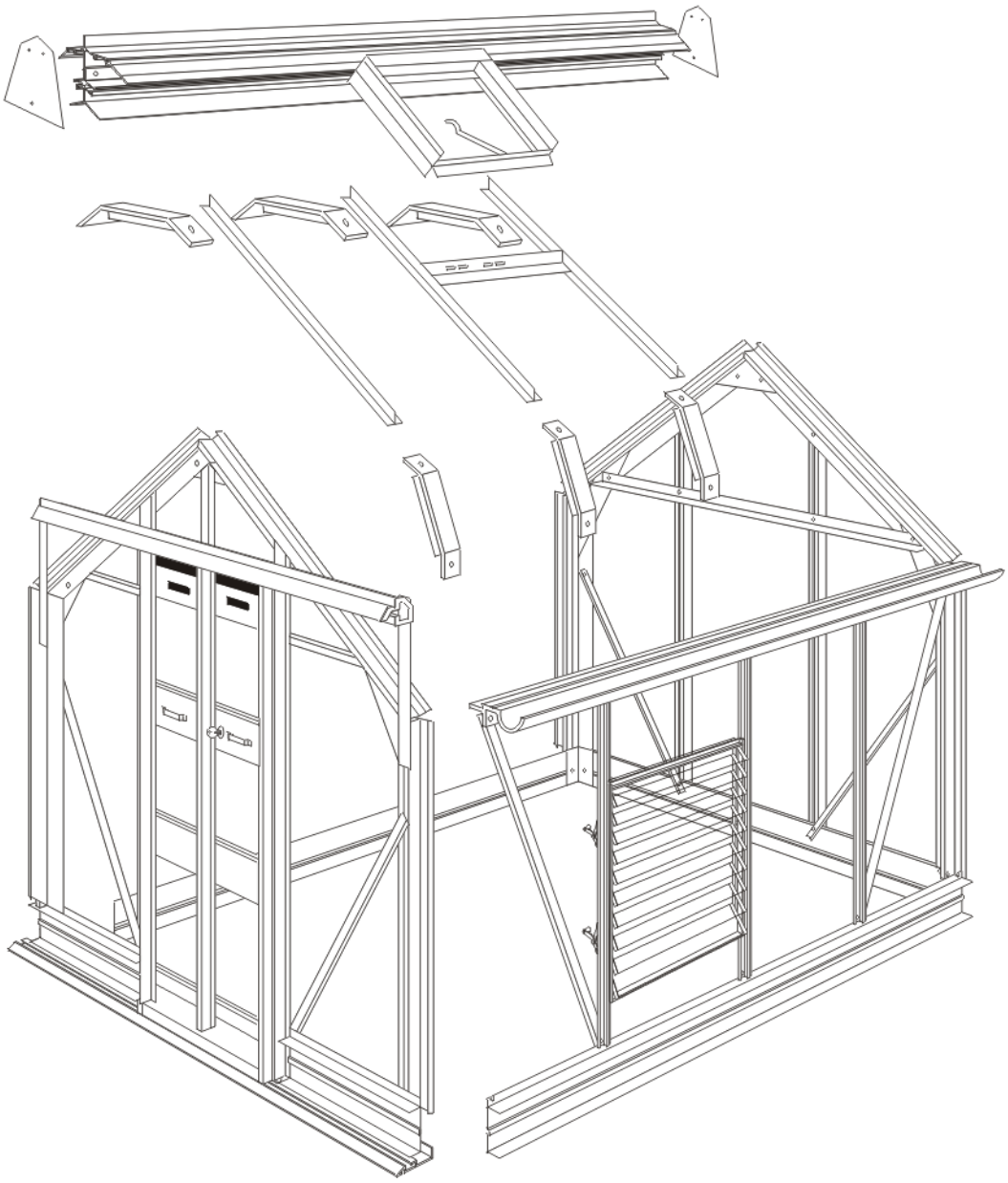
ELITE
GREENHOUSES LTD
BOLTON ENGLAND 1953

INSTRUCTIONS & ILLUSTRATIONS FOR THE

6’5” WIDE TITAN



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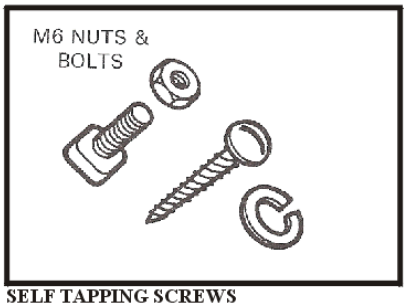
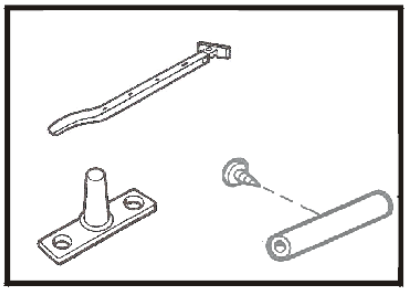
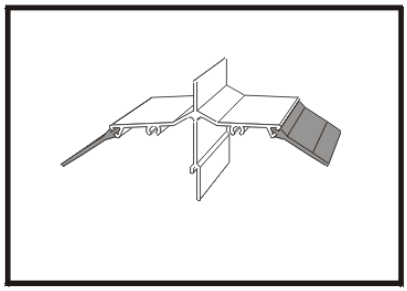
FITTINGS WITHIN THE KIT (NOT TO SCALE)



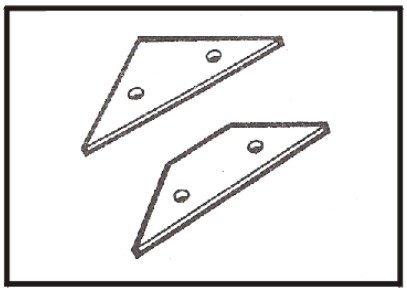
SELF TAPPING SCREWS
SPRING WASHER



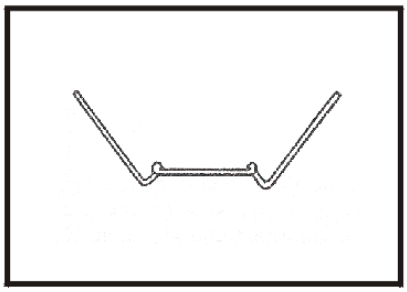
CASEMENT STAY + PINS + VENT STOPPER



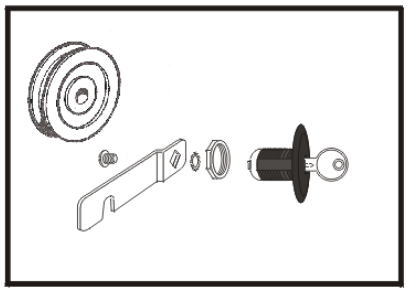
RIDGE CANOPY + SEAL



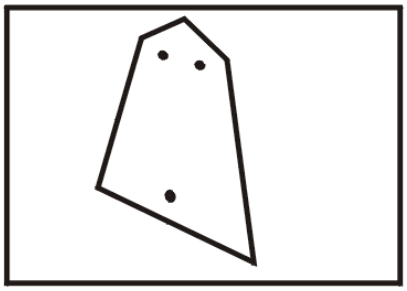
APEX & EAVE GUSSET PLATES



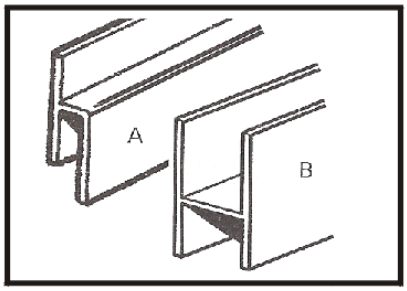
WIRE CLIPS



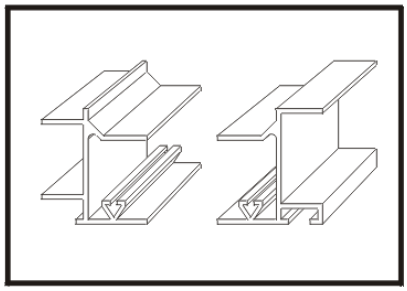
DOOR WHEEL + DOOR LOCK



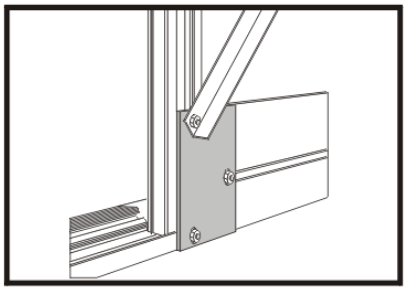
CANOPY PLATE



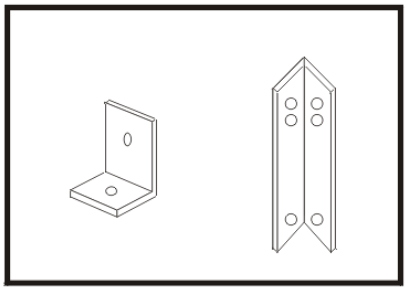
A=MUNTIN B= ROOF SPACERS



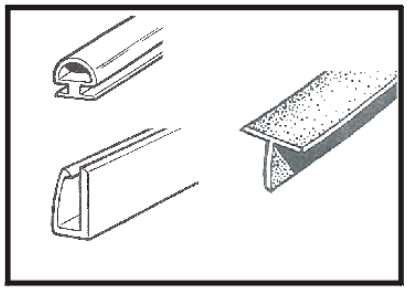
HANDED DOOR POSTS



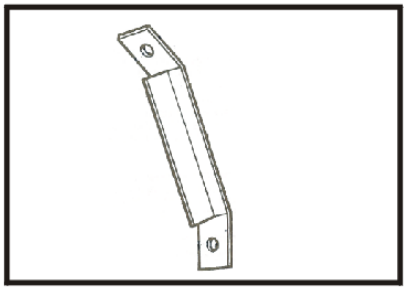
DOOR END PLATE



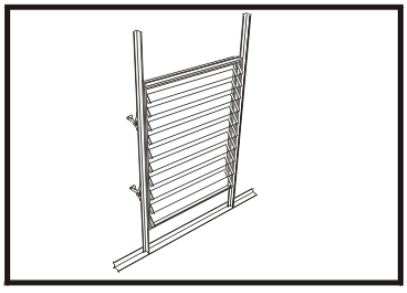
ANGLE BRACKET + BASE LEG



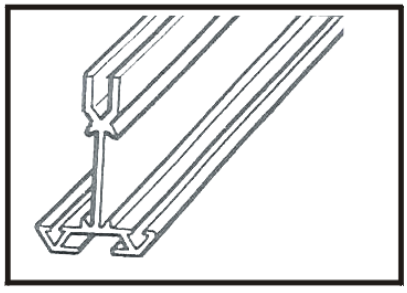
NEOPRENE BEADING, DOOR SKID +
DRAUGHT EXCLUDER



CANTILEVER BRACE

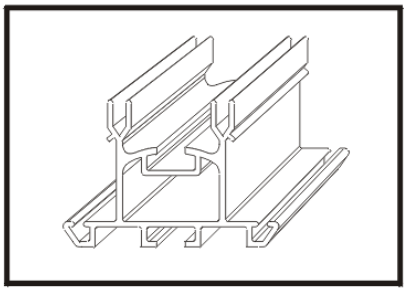


LOUVRE

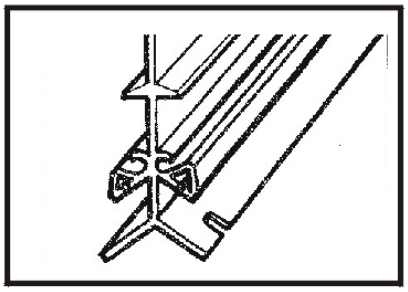


UNHANDED DOOR POST

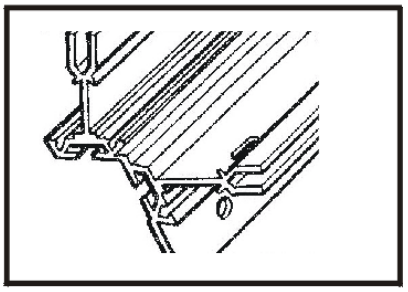
COMPONENT DRAWINGS (NOT TO SCALE)



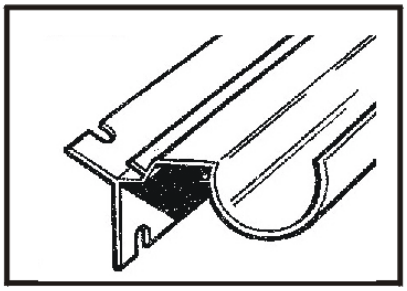
BLOCK GLAZING BAR +
UNHANDED DOOR POSTS



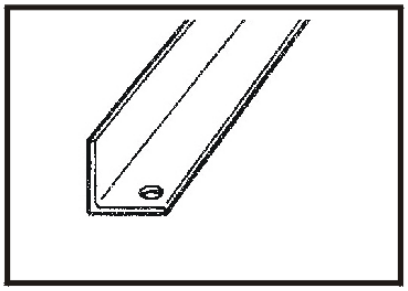
RIDGE



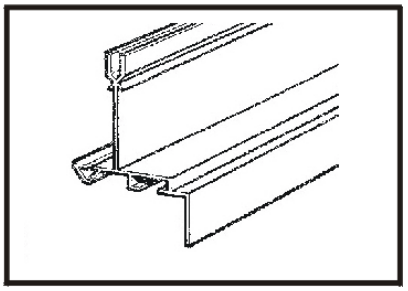
CORNER BAR



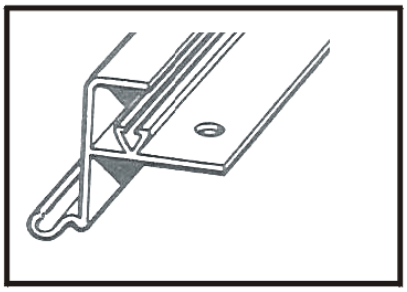
EAVES BAR/GUTTER



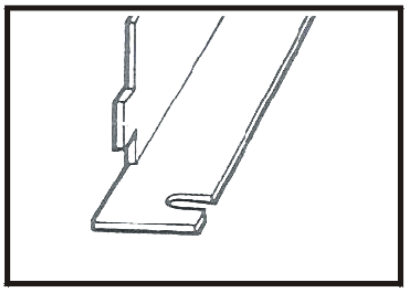
BRACING ANGLE



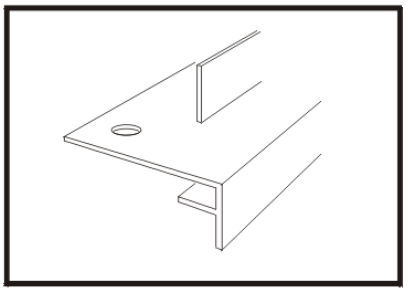
VENT SIDE RAIL



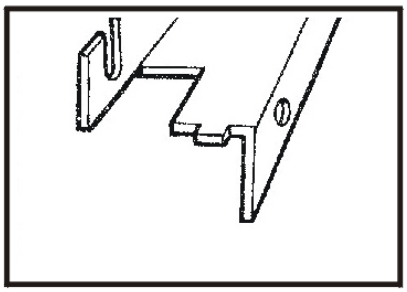
VENT TOP RAIL



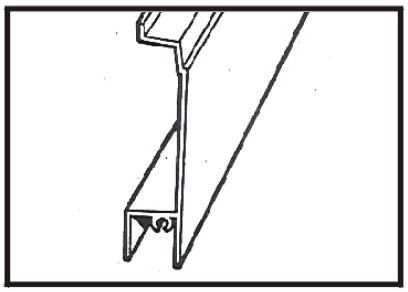
VENT SLAM BAR



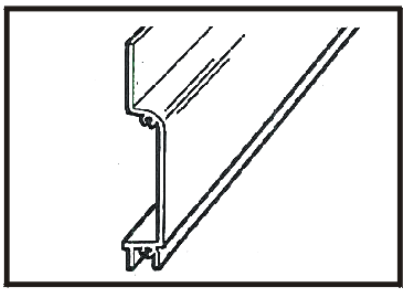
VENT BOTTOM RAIL



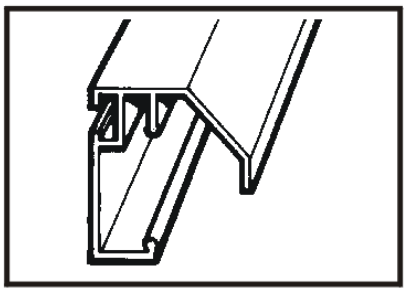
DOOR TRACK SUPPORT



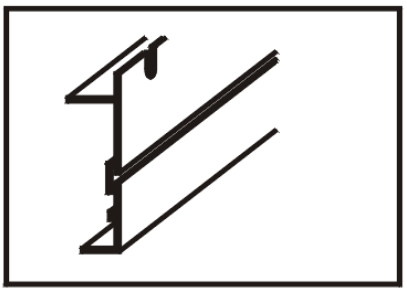
DOOR INFIL PANEL



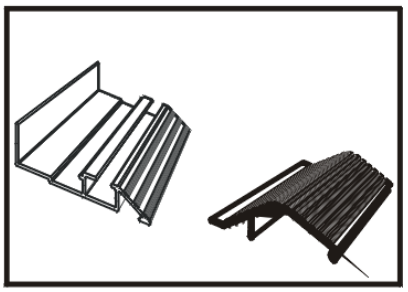
DOOR TOP/BOTTOM PANEL



TOP DOOR TRACK



BUILT IN BASE



DOOR END CILL + RAMP

PARTS LIST

		4 x 6	6 x 6	8 x 6	10 x 6	12 x 6
1	**Ridge**	1	1	1	1	1
2	**Gutter/eave**	2	2	2	2	2
3	**Built in base side**	2	2	2	2	2
4	**Side braces**	2	2	4	4	4
5	**Door end cill**	1	1	1	1	1
6	**Casement stay/pins**	1/2	1/2	2/4	2/4	2/4
7	**Door end built in base**	2	2	2	2	2
8	**Side block glazing bar**	2	4	6	8	10
9	**Roof block glazing bar**	2	4	6	8	10
10	**Vent (in packs)**	0	1	2	2	2
11	**Ridge/Eave gusset plates**	2/4	2/4	2/4	2/4	2/4
12	**Corner bars (in 2 packs of 4)**	8	8	8	8	8
13	**Long Door end glazing bars**	2	2	2	2	2
14	**Door end ramp**	1	1	1	1	1
15	**Block glazing bar over double doors**	1	1	1	1	1
16	**Door end horizontal angle**	2	2	2	2	2
17	**Door end diagonal angle**	2	2	2	2	2
18	**Small angle door track support**	2	2	2	2	2
19	**Rear end built in base cill**	1	1	1	1	1
20	**Rear end block glazing bars**	2	2	2	2	2
21	**Rear end horizontal angle**	1	1	1	1	1
22	**Rear end diagonal angle**	2	2	2	2	2
23	**Top door track**	1	1	1	1	1
24	**Door panel pack**	2	2	2	2	2
25	**Door track support**	1	1	1	1	1
26	**Louvre**	1	1	1	1	1
27	**Ridge canopy and seal (x2)**	4’	6’	8’	10’	12’
28	**Canopy plate**	2	2	2	2	2
29	**Door posts (2 unhanded, 1 left hand , 1 right hand)**	1	1	1	1	1
30	**Door handles**	2	2	2	2	2
31	**Glazing beading (m)**	52	65	79	92	103
32	**Base anchors/corner bracket**	4	4	4	4	4
33	**Door end base plates (in fittings pack)**	2	2	2	2	2
34	**Angle brackets (in fittings pack)**	11	13	15	17	19
35	**Cantilever brace**	3	6	9	12	15
36	**Door lock and key (in fittings pack)**	1	1	1	1	1

HELPFUL HINTS

- Please do take your time and be sure to read all instructions carefully before assembling.
- Consider purchasing the Elite Construction pack to help with the installation – contact dealer for details.
- 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 until 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 powder coated one there are a few 1/8" holes in the end of the bars. These are jig holes for the process and have no bearing on construction. **(Key point).**
- When powder coated, the sub-frame assembly packages may slightly differ from the standard alloy finish.
- Powder coated packages are wrapped in polythene tubing – please be careful when opening. e.g. Do not run a knife down the sides as you can scratch the paintwork.
- **WHEN CONSTRUCTING A POWDER COATED MODEL PLEASE TAKE CARE NOT TO DAMAGE THE FINISH BY WORKING ON CONCRETE OR PATIOS.**
- **N.B. This plan covers the entire Titan 600 range. The only difference between a 6ft long and an 8ft long for example are a few extra pieces of alloy, glass, nuts and bolts etc. The construction of the sub-frame assemblies is the same but for the purposes of this booklet we have used the 8 x 6 model as the benchmark. Therefore only one plan is needed.**
- We reserve the right to alter and improve our products.

INSTALLATION INSTRUCTIONS FOR THE 6'3" WIDE MODEL "TITAN 600" RANGE"

THE CONTENTS OF THIS CARTON ARE DIVIDED INTO 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.

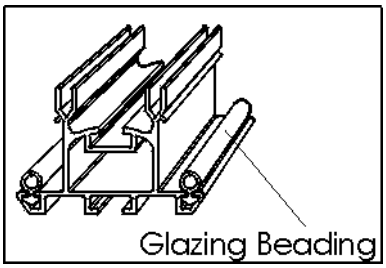
The contents are as follows:
1. Two side frames
2. Rear end frame
3. Door end frame
4. Roof vent (two for 8'5", 10'5" & 12'5" models)
5. Doors
6. Bag of fittings containing:
    a. Nuts and bolts general assembly
    b. Wire clips for glass
    c. Casement stay (1 for 6'5" models) (2 for 8'5",10'5" & 12'5" models)
    d. Casement stay nuts and bolts
    e. Four eave plates
    f. Two ridge plates
    g. Four door wheels
    h. Two door guides
    i. Small self tapping screws
7. Roof bars
8. Glazing beading
9. One length of ridge/ridge canopy and seal
10. Two black brush draught excluders
11. Small angle brackets for anchoring down
12. 2 Rectangular plates (door end plates) with 3 slots (for door end assembly)

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

SIDE FRAME ASSEMBLY

When you come to the greenhouse itself start by assembling the side frames first.

The base is integrated with the cill for each side of the greenhouse, and is assembled onto each sub-assembly rather than separately laid out.



1. Lay out the pieces on the ground as though you were standing inside the house, i.e. with the gutter and built in base cill facing downwards, and the beading channels of the glazing bar(s) downwards. **(Key point). Slide the glazing beading into the V grooves of the glazing bars.**

2. Slide a bolt into each end of each glazing bar, and 1 in the middle. These will enable the fitting of a cantilever brace during general assembly later in the plan (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- these can be inserted later)

3. Fix the combined eaves bar/gutter to the glazing bar(s) by 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.

4. Fix the built in base cill to the middle glazing bar by pushing the bolt through the hole in the cill unit and tightening.

5. Correctly position the built in base cill on the outer most glazing bars by pushing the bolts through the holes in the cill, but do not put the nuts on yet.

6. Place the angled tie bars over these bolts so that they point outwards towards the ends of eaves bar. They must be so arranged that the flat bit of the angle in each case faces towards the middle of the house (i.e. the elongated hole will be by the eaves in one case and by the cill in the other). **(Key point).**

7. Put nuts on bottom bolts and lightly tighten.

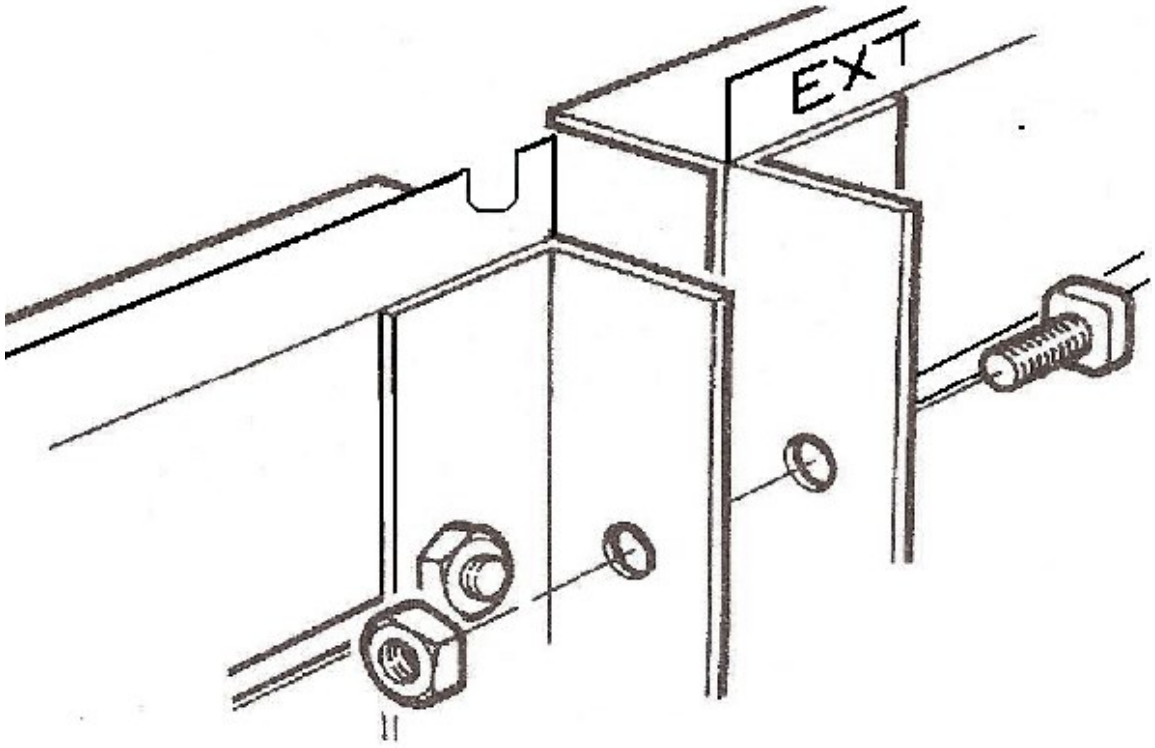
8. Do the same with the other side frame assembly.

9. Make sure that the glazing bars reach both the built in base cill and the eaves in each case. Tighten all nuts.

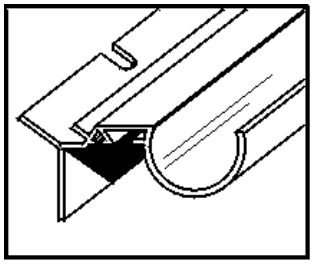
10. If you intend to fit any Elite accessories (louvres, shelf, staging) they will be packed with ½ head bolts to enable them to be retro fitted. You do not need to pre insert any bolts for these accessories.

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.

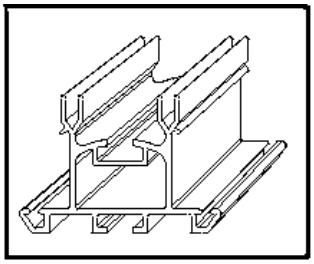
If your greenhouse is over 12’5” in length, you will need to attach the side base sections together to form the length of your greenhouse. You will notice that you have 4 side base pieces, 2 of which will be un-fabricated at 1 end. These 2 sections are handed sections and must be fitted to the correct side assembly.
The un-fabricated end of the base will be joined to the unhanded base section as shown below. It is essential that the un-fabricated end is towards the middle of the greenhouse side assembly and not at one of the ends.
To attach the 2 base pieces together you must attach 2 base legs back to back, bolt them together and attach the vacant end of each base leg to the bolt channel of the base section as shown. Your gutter section will be in one piece and will not need to be joined (except where greenhouse is over 20’5”).



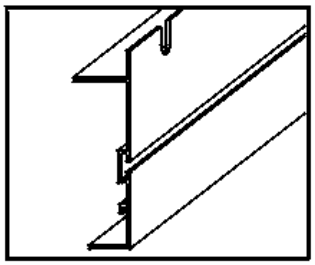
SIDE FRAME ASSEMBLY



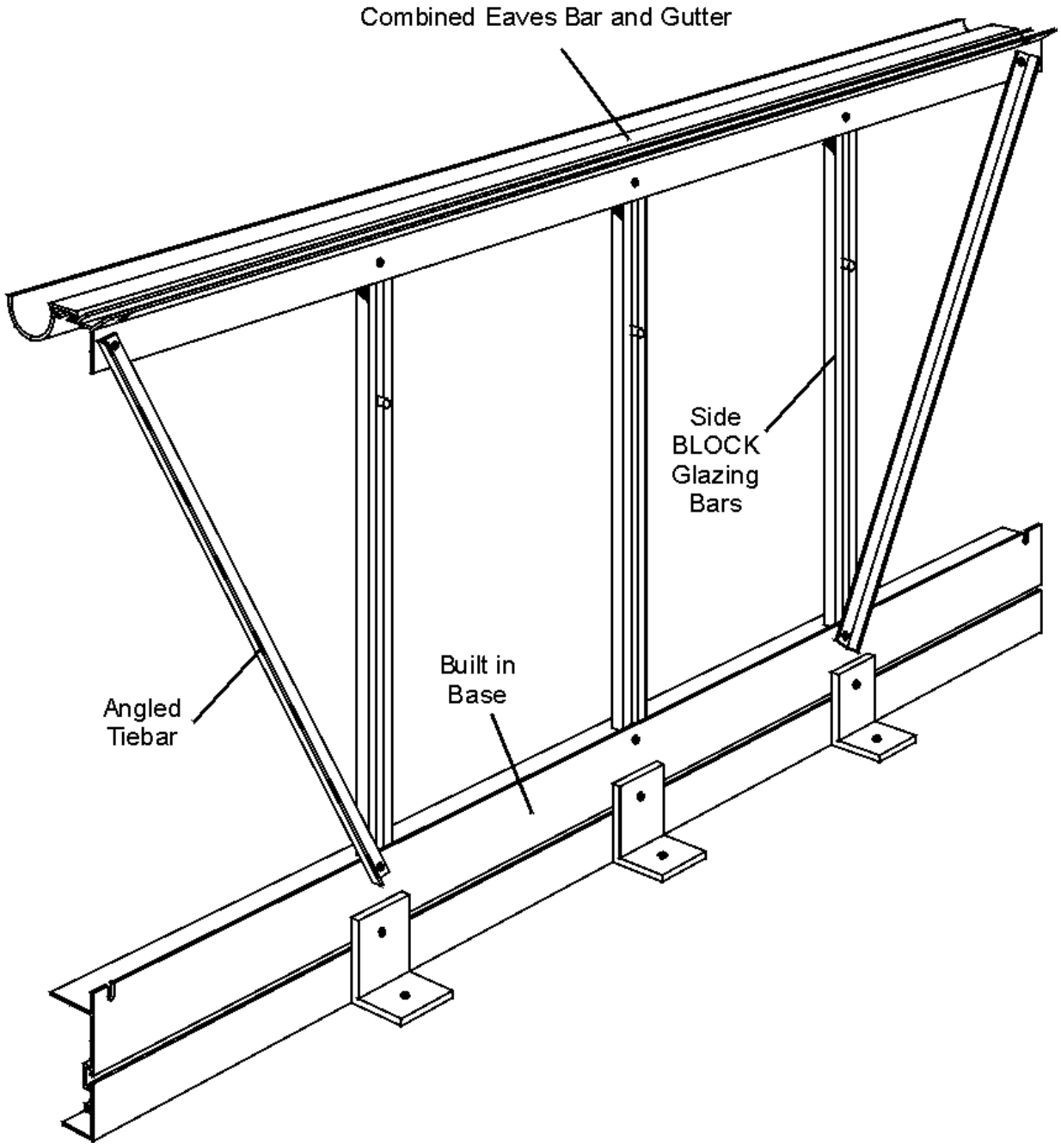
EAVES BAR GUTTER



BLOCK GLAZING BAR



BUILT-IN BASE



REAR END ASSEMBLY

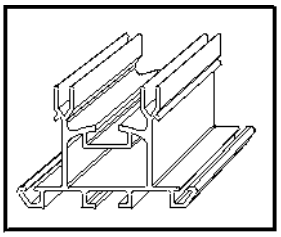
Components

1 Built in base cill “marked rear end”
2 Block glazing bars
2 Roof corner bars (marked “R” at the apex)
2 Side corner bars
2 Diagonal cross ties
1 Horizontal brace

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

INSTRUCTIONS

1. Lay out the frame as though you were standing on the inside i.e. with the bolt slots uppermost. Roof corners marked “R” at the apex, opposite each other, facing downwards (i.e. “R” on outside). 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 powder coated greenhouse there is no letter “R” on the corner bar. You **must** ensure that the “middle” hole is nearer to the ridge plate than the eaves plate. **(Key point). Slide the glazing beading into the V groove of the block glazing bar and the corner bars. (Do not put beading into the middle V slot of the corner bar—see diagram on next page).**


BLOCK GLAZING BAR

2. Slide two bolts into the bolt channels of each corner bar and put a nut on (1 each end). These will later be used in the general assembly for fixing the ridge, eave and built in base 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 at this stage.

3. 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 built in base cill. (Make sure bolt channel of base section is facing upwards). **(Key point).**

4. Attach the vertical block glazing bars to the built in base by inserting a bolt into the bolt channel of the block glazing bars and locating it with the punched holes in the built in base cill. Before securing the nuts attach the angle diagonal ties to the same bolt as illustrated. The top of the diagonal angle tie now attaches to the hole in the side corner bar approx. 300mm from the top of the bar.

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

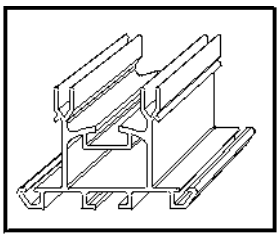
6. You can now attach the horizontal angle brace to the **top bolt** of the gusset plate and to the other bolts in the glazing bars you inserted in 5, above.

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

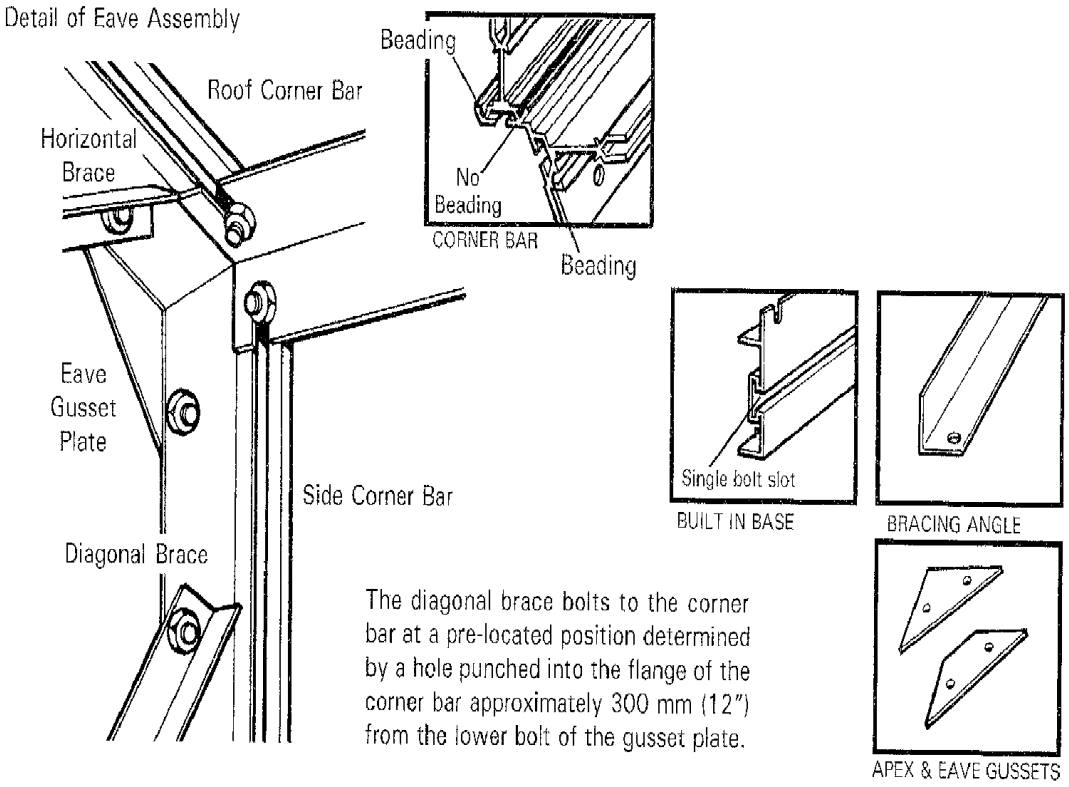
8. Tighten all nuts.

9. The built in base has a continuous bolt channel along its length. Slide 4 bolts into this channel (if you are installing the greenhouse onto hard standing) or 2 bolts (1 at each end if installing onto soft ground).

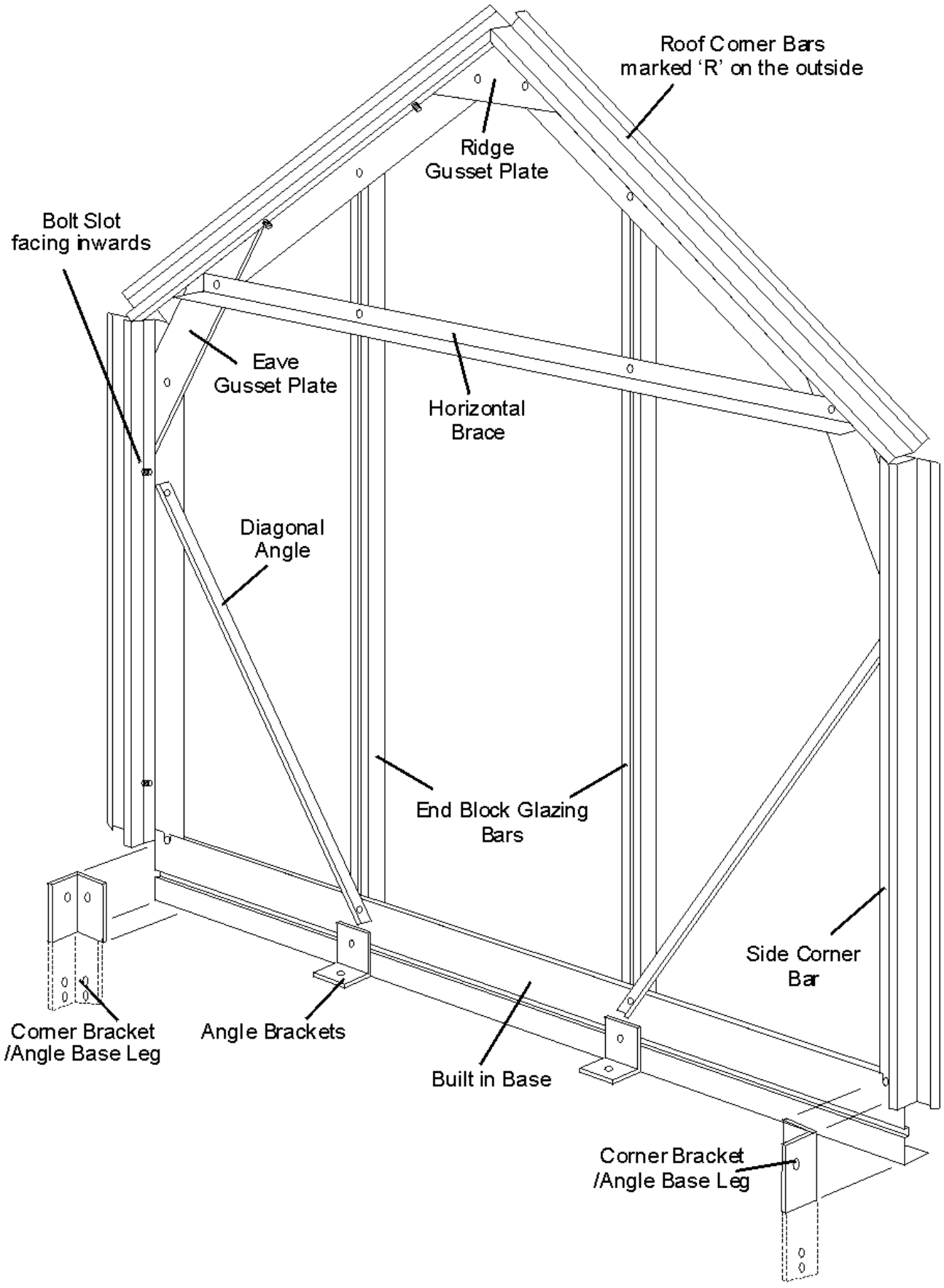
10. For hard standing. attach the slot of the corner bracket/base leg to the base section so that the 4 holes on the bracket are pointing downwards. Mark the point of the bracket where it is flush with the bottom of the built in base, and then cut the bracket. The end of the corner bracket with 4 holes is now surplus. If you are fitting your greenhouse onto soft ground, then do not fit the corner bracket/angle base leg yet. If you are on soil, the corner bracket/base leg will go into the ground at general assembly and be concreted in to form an anchor point.



BLOCK GLAZING BAR

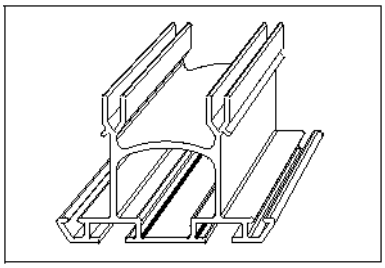


REAR END ASSEMBLY

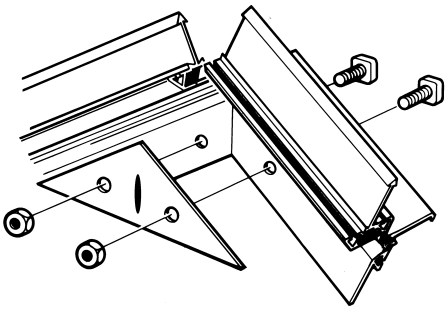


DOOR END ASSEMBLY

Components
1 Door end cill
2 Built in base cill
2 Long door end glazing bars (mitred at 1 end)
2 Rectangular plates with 3 slotted holes
2 Short horizontal braces
2 Roof corner bars (marked ‘R’)
2 Side corner bars (unmarked)
1 Door track support
1 Top door track
2 Small angle door track support


LONG DOOR END BLOCK GLAZING BAR

From the main bag of fittings you will require the nuts and bolts.



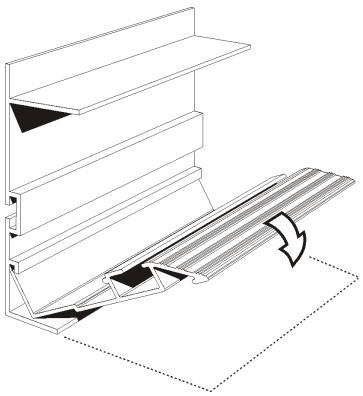
You will also require 2 eave plates and 1 ridge plate. These are packed with the casement stay and are separated from the main bag of fittings.

INSTRUCTIONS

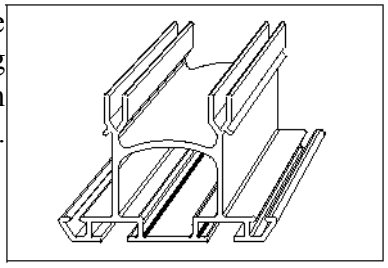
1. Assemble the frame in exactly the same way as the rear end, up to and including stage 3 of the rear end. The difference with the door end is that instead of 1 long base piece, the door end has 2 smaller pieces (1 either side of the door opening) and 1 door end cill. **Please note, if your greenhouse is powder coated, the letter ‘R’ will not be visible on the bar. Then to correctly hand the roof corner bar on the door end of this greenhouse you must ensure the slot at the end of the bar is fitted to the ridge gusset plate.**

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.

N.B. The short door end base sections have an extra slotted hole at the other end which will not be utilised in the assembly, but is there so that the base pieces do not require handing i.e. left can go on right and visa versa.



The long door end glazing bar is a slightly different profile than the rear end block glazing bars and has 2 continuous bolt channels along its length on the inside and 2 beading channels. During construction the beading channels will always be on the **outside** of the greenhouse. **(Key point)**.

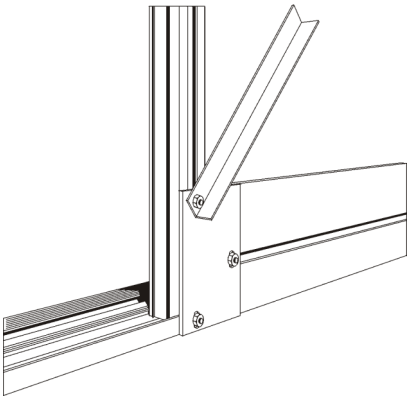


LONG DOOR END BLOCK GLAZING BAR

Slide 2 bolts into the outer bolt channel at the bottom of each block glazing bar (the outer channel is the bolt channel closer to the corner 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 bottom bolt in the block glazing bars to the holes in the door end cill, but do not put a nut on yet. The door end block bar has 2 bolt channels on the inside and none on the outside. You will be utilising the bolt channel nearest to the base pieces when attaching the rectangular plate. **The block glazing bars do not sit on top of the base (as the rear end glazing bars do) they go down the side of the base and attach to the bottom cill. (Key point).**

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

Slide 2 bolts into the outer bolt channels of each block glazing bar at the top, and 1 bolt into the inner bolt channel of each block glazing bar. Locate the top bolt in each bolt channel with the prefabricated holes in the roof corner bar. Do not put a nut on to the inner bolt (the bolt furthest away from the corner bar) yet.
Attach the main door track support (shaped like a letter 'Z') to the 2 vertical block glazing bars using the bolts in the inner bolt channel



The door track support attaches to the frame at the point where the block bar meets the roof corner bar utilising the previously inserted bolt in the inner bolt channel which as yet does not have a nut on. **(Key point).** This 'Z' shaped bar must be fitted with the two outside slots facing upwards **not** downwards.

Now fit two horizontal braces attach to the **top bolt** in the gusset plate and the inside bolt channel of the vertical block glazing bars, using the unoccupied bolt previously inserted in the outer bolt channel.

Now fit the small door end glazing bar to the unoccupied hole in the upper flange of the main door track support, and the other end to the middle hole of the ridge gusset plate.

Stand the frame up and bolt the door track to the main door track support and the small angle door track supports by inserting 5 bolts into the bolt slot of the door track. Position the middle 3 of these through the 3 holes in the door track support above the door opening.

The small angle door track support has 2 slotted holes at one end of the bar, and nothing at the other. Attach one of the slotted holes to the unoccupied bolt at the end of the door track, and allow the bar to hang vertically down.

The blank end will be fixed during general assembly. By drilling a 4mm hole in the door bar and inserting a self tapping screw through it and into the facing slot in the side corner bar. Do the same for the 2nd small angle door track support at the opposite end of the top door track.

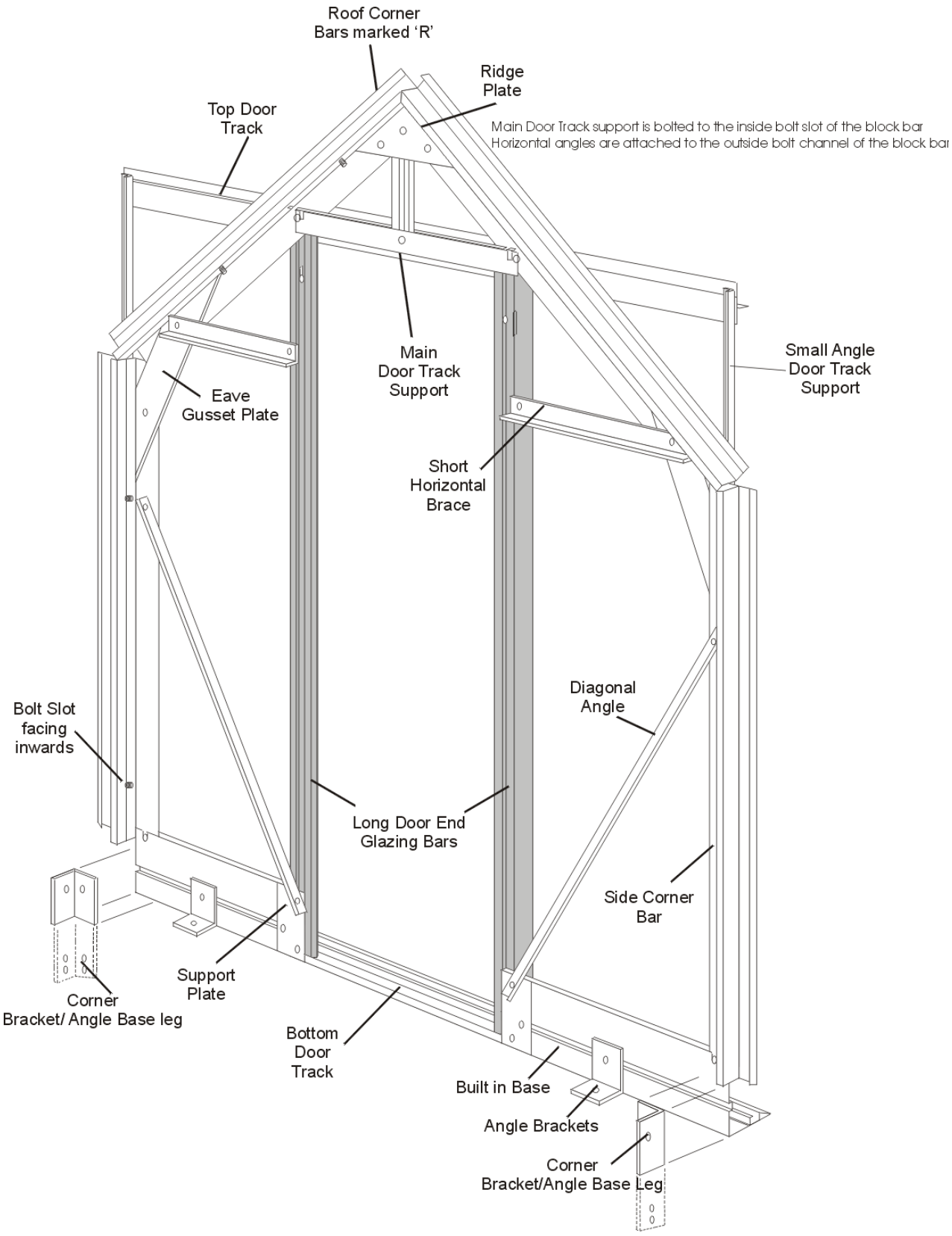
When this has been achieved tighten all nuts.

Slide a bolt into the bolt slot in the built in base section, one at each end. Attach the angle base leg/ corner bracket so that it is pointing downwards. If you are fitting your greenhouse onto 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. 150mm of beading in the inside 'v' groove of the door end block glazing bars.

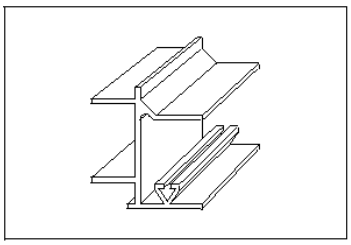
DOOR END ASSEMBLY



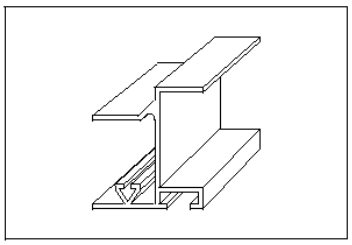
DOOR FRAME ASSEMBLY

Each Door consists of:
1 unhanded door post
1 handed door post (handed post for left door is different profile to the handed right hand door post)
3 infill panels (1 with pre fabricated lock hole) for lock barrel
1 top and bottom door panels
3 panels of glass which must be fitted during door assembly. **It is not possible to fit glass after the door is built**

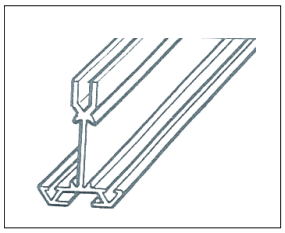
From the main bag of fittings you require;
2 door wheels
1 clip on nylon door skid (this might already be fitted to the bottom door panel)
2 lengths of black brush draught excluder with PVC carrier
Door lock, self tapping screws and spring washers
12' glazing beading
Door handles
3 PVC Glass strips



HANDED DOOR POST
RIGHT HAND DOOR



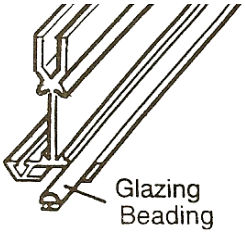
HANDED DOOR POST
LEFT HAND DOOR



UNHANDED
DOOR POST

Left hand Door (viewed from outside)
Identify the correct door posts. The handed door post for the left hand door has a bolt channel, whereas the handed door post for the right hand door post does not**. (Key point).**

1. Place one unhanded post and the handed post for left hand door on a level surface roughly two feet apart with the bolt slots facing downwards. (Unhanded door post on the left, handed door post on the right). The top of each side post has two screw holes in it, the bottom has three. **(Key point).** Slide the glazing beading into the beading groove of each bar i.e. only one length of glazing beading per bar.



2. Place the top, bottom and 3 infill panels in position as shown by the position of the screw holes in the side pieces and the panels. The top panel has the greenhouse name on it. The bottom panel has the edge for the door skid to fit on. The lower infill panel locks on to the bottom panel. The infill panel for the left hand door **does not** have a pre fabricated hole for the lock barrel.

3. Fix the left hand door post to the door panels 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 with out danger of trying to go crooked if you can put a small amount 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 assembly, making assembly easier.

4. GLASS MUST BE FITTED TO EACH DOOR BEFORE THE 2ND DOOR POST IS FITTED—KEY POINT

5. Before fitting the unhanded door post, offer the glass panels to the door (see glazing plan in booklet for glass size guide on door), slide them in from the side. Carefully attach the unhanded door post in the same way as before, ensuring the glass is sitting in the correct position (sitting on the beading channels of the door posts) before tightening the screws.

6. Make sure all angles are square and tighten all screws. Now insert 2 glazing clips to each glass panel on the unhanded door post.
The other side of the door is clipped using a pvc glass strip (or clip cap). Cut the strip to the correct length. The profile of the strip resembles a 'C' section. Insert the 2 legs of the 'C' into the cavity between the glass and the handed door post. The cap when fitted acts as a wedge to prevent movement of the glass. Metal clips are not fitted to this bar.

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 normal nuts in general assembly. The wheel will revolve freely because it has ball bearings in it. **The wheel has a collar protruding from the centre, this collar goes against the inside face of the top door panel. (See picture below).**

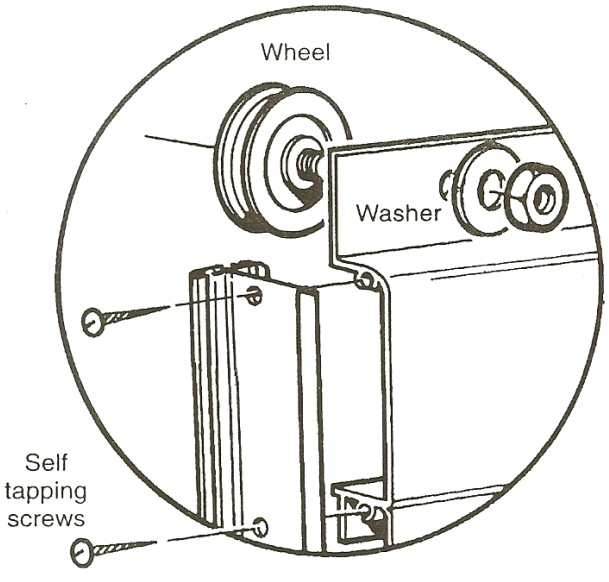
8. Slip the nylon door skids on each of the bottom panels. This may already have been done pri or to delivery. After fitting the doors (see later in the booklet), you may need to lower the door skid so that it engages with the bottom door cill to allow smooth movement of the door. Lower the skid on each door and insert a self tapping screw at each end of the skid to rein force the position.

9. Build the right hand door using the remaining handed and unhanded door post. Viewed from the outside, the handed door post will be on the left of the door, while the unhanded door post will be on the right. At this point you must decide the height you would like your door lock. The hole to take the door lock is on the left hand side of the infill panel. You can decide to fit this panel to the 2nd or 3rd panel down. **Make sure you fit the glass before final fixing of the door.** See glazing plan towards the back of this booklet

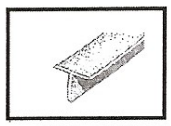
10. Thread the stainless steel backed brush extruder into the PVC carrier. This may already have been done prior to delivery

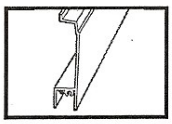
11. Turn the doors over and insert the black brush draught excluder in the groove (bolt slot) in the unhanded door posts. Insert a nut and bolt at the bottom of each unhanded door post and tighten so that the brush will not slip down when the door is in its upright position, Cut off the surplus brush and carrier at the top of the bar

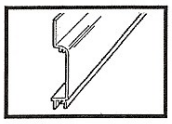
12. Do not fit the door to the gable at this stage – wait until the structure is fully assembled prior to glazing.
13. Door handles will be fitted later in the booklet.

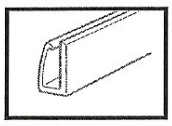


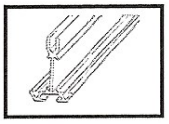
DOOR FRAME ASSEMBLY
AMENDMENT

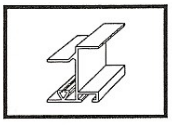

DRAUGHT EXCLUDER

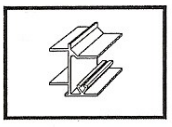

DOOR INFIL PANEL

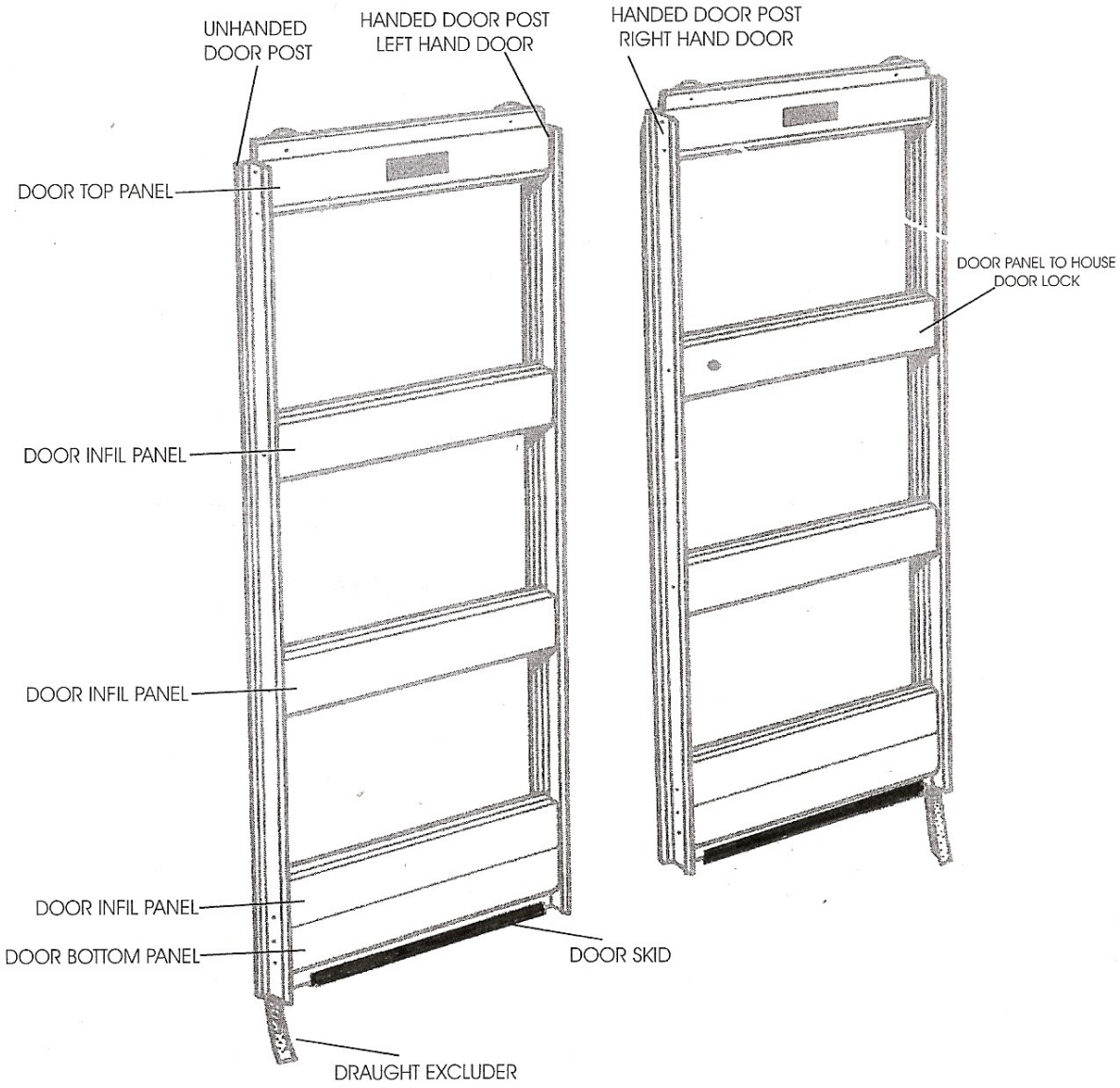

DOOR TOP/
BOTTOM PANEL


DOOR SKID


UNHANDED
DOOR POST

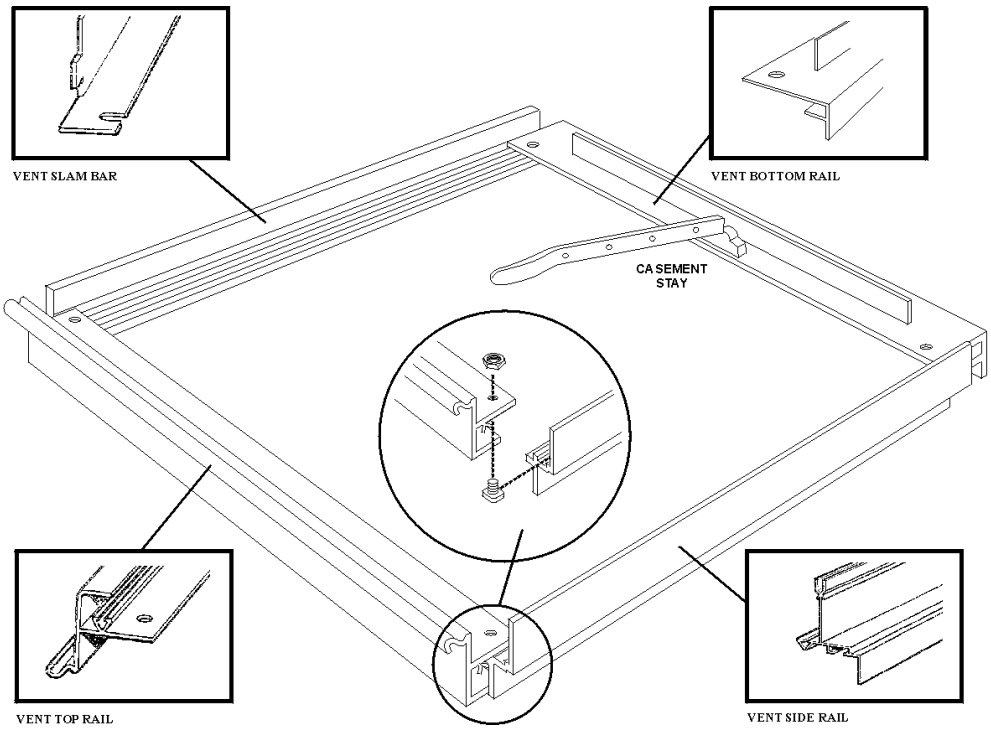

HANDED DOOR POST
LEFT HAND DOOR


HANDED DOOR POST
RIGHT HAND DOOR



ROOF VENT ASSEMBLY

The roof vent pack has 5 pieces of aluminium: and from the main box of fittings you require
6’ 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.

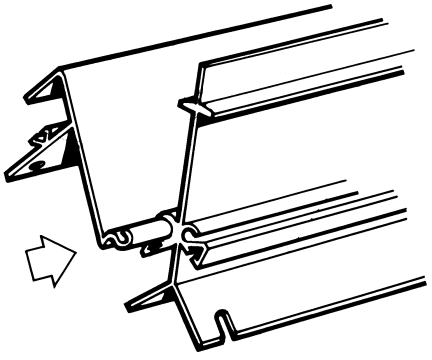
2. Lay the 4 edge pieces of the vent on a level surface as though you were on the inside of the vent (with the bolt slots of the side bars uppermost and the ‘v’ slots of the bottom rail upper most. The top rail is arranged in such a way that the squared off end is to the bottom and the hooked hinge uppermost).

3. Slide the glazing beading into the slots 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, and 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 and through the 2 elongated holes in the bottom rail. Hold the nuts in place and tighten the bolts with a screwdriver.

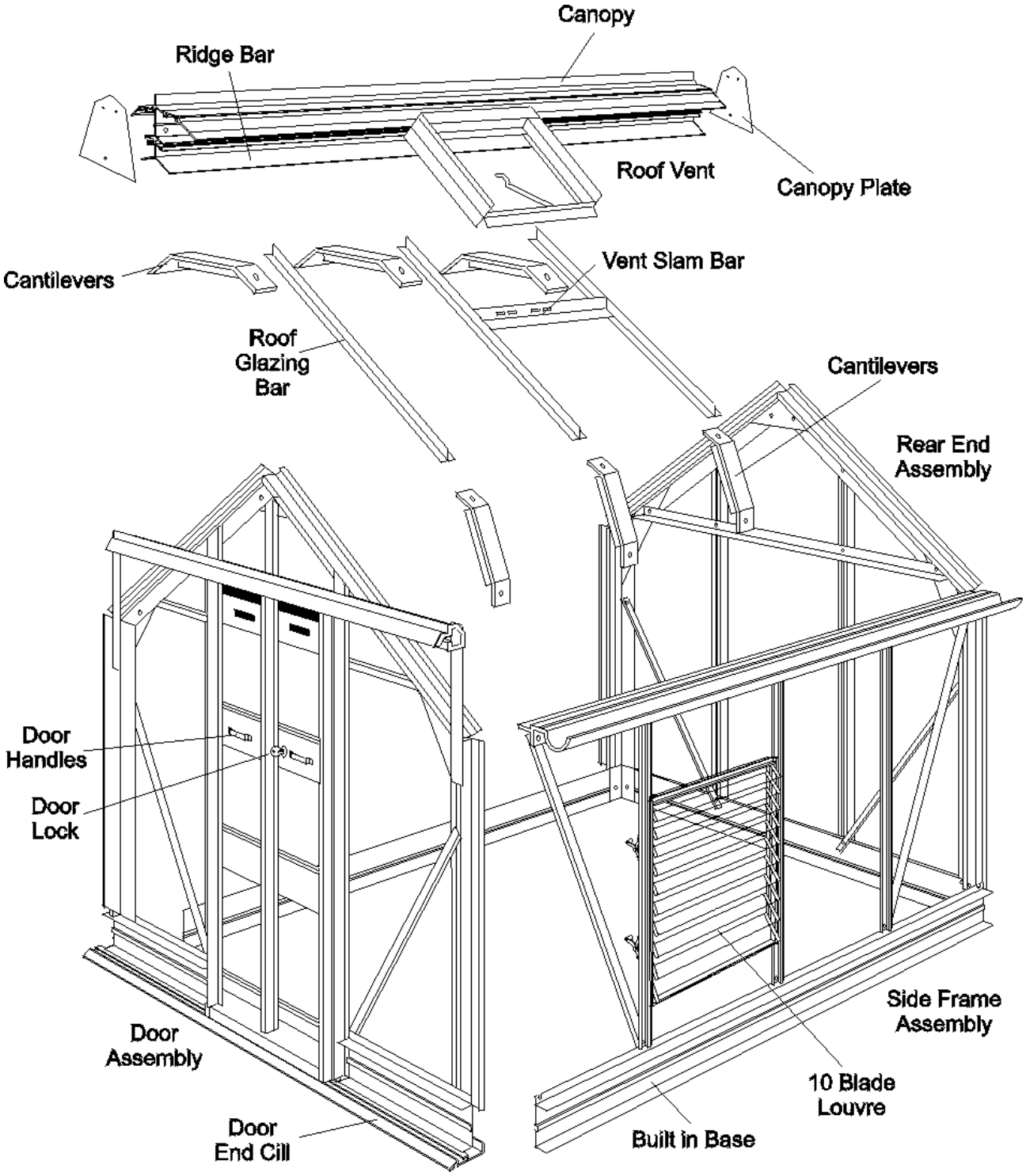
Do the same with the other vents.



The vents can be positioned onto the ridge after general assembly by sliding them along the ridge from the end and locating them to the desired position.

Do not fit the vent at this stage.

ASSEMBLY OF GREENHOUSE UNIT



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.

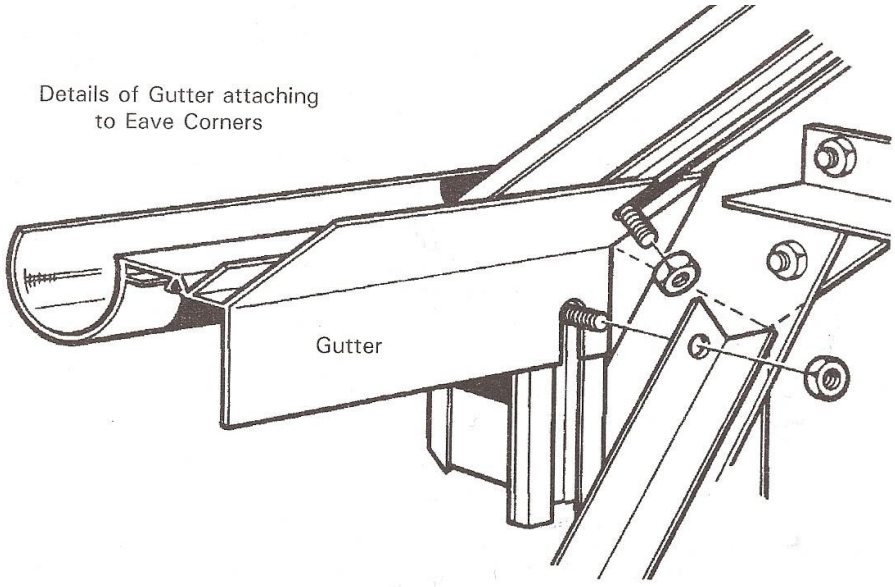
2. Slot the eaves bar into the small space between the roof and side corner bar so that the gutter is outside the end frame and the two flanges that form the angle of the roof and side are inside and tight up against the bolt slots of the roof and side corner bar. **(Key point).**

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. Place the diagonal side angle onto the bottom bolt, put a nut on 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. The angle base leg/corner bracket attached at frame assembly can now be attached to the gable end, in a similar way to its attachment to the side frame.

6. Do the same at the other three corners.

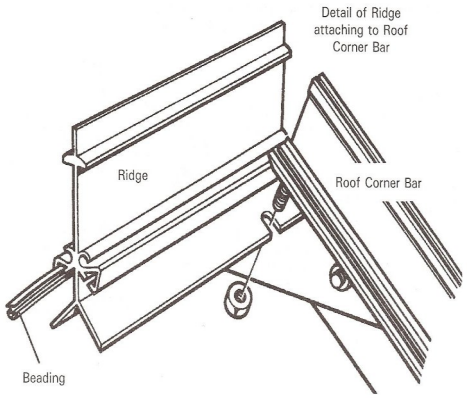


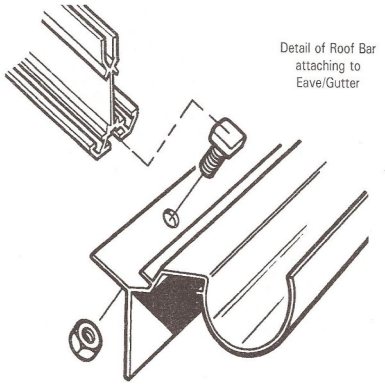
7. **Slide the beading into the two V slots of the ridge**, and then attach the ridge to the roof corner bars by inserting the end of the ridge through the small gap in the corner bars at the top. The vertical part of the ridge will be outside and pointing skywards and the two flanges that form the angle of the roof will be inside, tight up against the bolt slots of the roof corner bars.

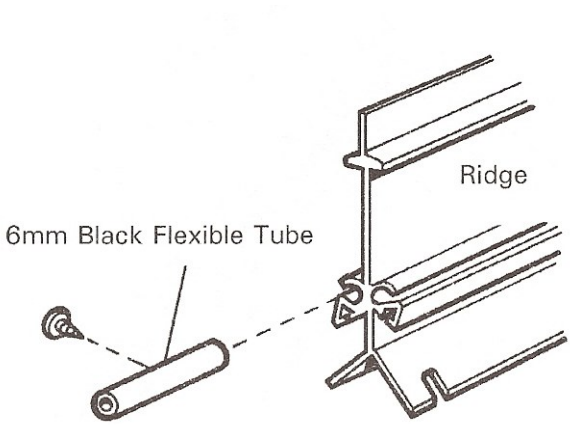
Line up the slotted holes at the end of the ridge with the bolt slots, in the corner bars and push the two bolts, previously inserted during gable end assembly, into the slots. Tighten the nut.

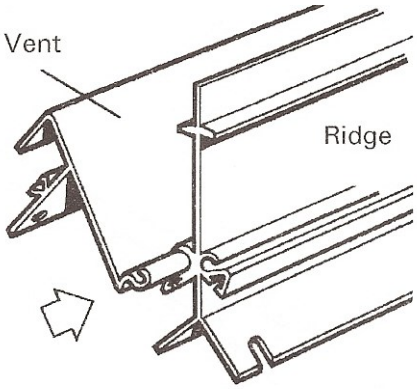
Slide the glazing beading into both V grooves of the roof glazing bars. They can now be attached to the ridge and gutter. Attach them to the ridge first by sliding a bolt into the bolt slot of the glazing bar, inserting it through the hole in the flange of the ridge. Put a nut on and tighten up. Do the same with the rest of the roof bar. N.B. remember to omit two roof bars if you have a partition, one each side.

Before bolting the bottom of the roof bar to the flange of the eave bar, insert 3 extra bolts per bar (4 if a roof vent is to be fitted onto these bars) Then attach the final nut and bolt to the eave bar as illustrated.









Slide the vent onto the ridge from either end and into the desired position.
The vent can go in any position (but if you have 2 or more, they cannot be adjacent) on either side of the ridge.

When the vent is in position and it opens and closes correctly, you can now insert a black flexible tube into the same channel of the ridge that the vent slides. Move the tube along the ridge until it meets the vent. Now insert a self tapping screw into the long side of the tube to expand the tube to remain in position. This will prevent the vent from moving. See previous diagram. 1 tube should be fitted on each side of each vent

Fit the slam bar immediately under the vent bottom rail and secure with the bolts previously inserted in the roof bars. The precise position of the slam bar can be determined by inserting the relevant pane of glass under the vent and moving the slam bar down to touch the glass.(see glass plan for correct pane of glass)
NB. With a 4' long building or if your vent is fitted in the 1st or last bay, the tube can only be fitted to the ridge on one side. To stop the vent from moving the other way, you should fix an angle bracket to the roof corner bar (you must drill a hole) and fix it in such a way to prevent movement of the vent.

Do not fit the doors at this stage.

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

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.

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 oppose to 4. The bracket must be attached in such a way that the end with 4 holes is pointing down into the hole in the ground.

SECURING GREENHOUSE TO PERMANENT BASE

The main structure is now complete and it must now be fitted onto its base for securing down.

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 (not supplied as standard) and screw the brackets (attached during subassembly) firmly to the ground using 35mm x 8mm round head screws (not supplied as standard).

EXTERIOR DOOR TRACK

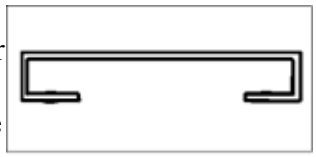
This top door track has no holes in, but 1 continuous bolt slot. You must have the door track centrally positioned. Insert 3 bolts into the bolt slot and line them up with the 3 holes in the door track support, put the nuts on and tighten up. To move the door track into the correct height, fit the glazing bar above the doors to the unoccupied hole in the ridge gusset plate and the slot in the middle of the main door track support. Tighten all nuts

FITTING THE DOORS TO THE STRUCTURE

The doors slide onto the frame from the left and right hand side.
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 upper door track and move further to the right until the black draught excluder butts up to the end block glazing bars. Carefully ease the door past the block glazing bar and feed in the second wheel. Push further to the right until the draught excluder butts up to the end block glazing bar. The door will now run quite freely. Fit the right hand door from the right hand side in the same way. To square up the doors with the spacing, undo the upper bolts holding the door track. There is a little play to facilitate “fine tuning” of the door.

FITTING THE DOOR HANDLES

The handles are fitted to the infill panel on each door (choose between 1st or 2nd panel down). Position the handle centrally, and mark the hole position. Drill 7mm diameter holes (2 holes per door), then fit the handles, and secure with a nut and bolt.



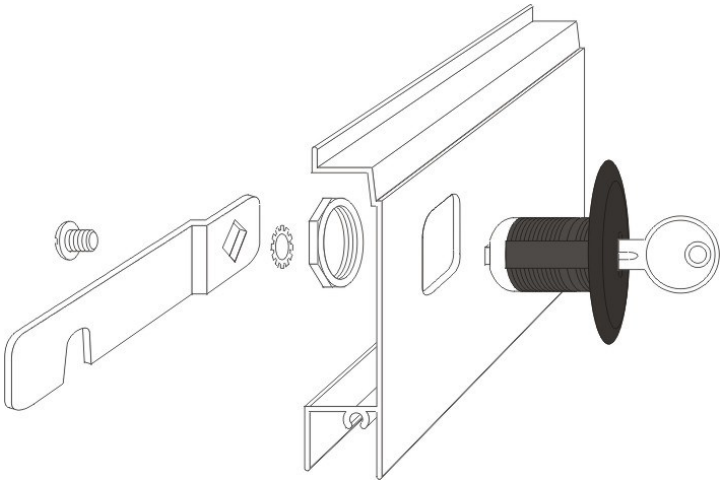
DOOR HANDLE

FITTING THE DOOR LOCK

The door lock must be fitted after the doors are in position **(Key Point).** Undo the ring bolt from the door lock, and insert the barrel through the hole in the panel from the outside. Reattach the ring bolt to the barrel on the inside, and tighten.

Now attach the cam lever, washer and screw to the door lock from the inside position of the door. The lock will turn through 90 degrees both ways, so you must ensure the cam (when fitted) is pointing skywards (unlock position) and horizontal (locked position)

Now using a cropped head bolt, attach the domed pin to the bolt channel of the handed door post on the left hand door (viewed from outside). Move the pin up or down in the channel so that the notch on the cam locates comfortably when horizontal. Tighten all components.



FITTING THE ROOF CANOPY

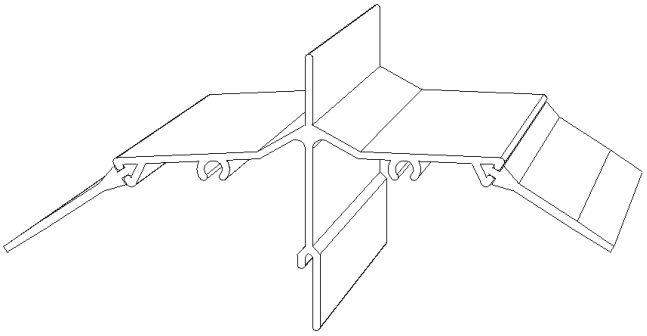
This must be done AFTER the roof vent (s) is/are fitted.

The canopy is fitted on top of the ridge bar, and is slightly longer than the ridge. If your greenhouse is over 8’ long, then the canopy will be made up using several pieces.

First sit the canopy on top of the ridge and position the canopies so that the overhang at each end of the ridge is the same and that the end of the canopy is level with the outer edge of the roof corner bars.

Drill through the ridge (7mm diameter hole) and canopy at each end . Insert a bolt, and secure on the other side with a nut.

Now insert the canopy seal to each side of the canopy into the seal channel, and feed along so that it is level with the ridge at each end.



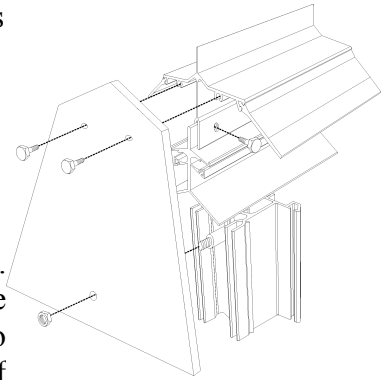
FINISHING OFF

To prevent the door from sliding past its opening, you must fix 2 angle brackets to the door end assembly. Insert a cropped head bolt into the bolt channel at the top of the left hand glazing bar (viewed from the inside) and fix and angle bracket as shown in the picture below.

The bracket must be fitted at the same height as the door panel so that, as the door moves left or right, the bracket prevents the door from moving too far along the top door track.
Repeat at the bottom of the door
Repeat for the 2nd door
To facilitate smooth running of the door , fit 1 flat bar at each end of the top door track.
The flat bar has 2 holes of different size.
Loosely fix the larger hole to the bolt channel at the back of the top door track using a short bolt and allow the flat bar to hand vertically down.
Move the flat bar along the top door track until the small hole in the flat bar meets the self tapping screw groove in the roof corner bar.
Fix the small hole in the flat bar to the corner bar using a self tapping screw.

FITTING THE CANOPY PLATE

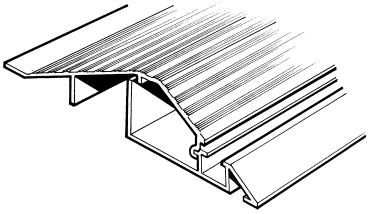
The canopy plate has 3 holes. Slide a LONG bolt (provided) into the external bolt slot of the glazing bar above the door . Fit the canopy plate to this bolt, and put a nut on. Do not tighten yet. Now the top 2 holes in the plate are fitted to the self tapping screw grooves in the ends of the roof canopy using 1/2” colour coded screws provided. The canopy at the rear end is secured only using the 2 self tapping screw fixings
Tighten all screws and nuts.



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 door end cill and 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.

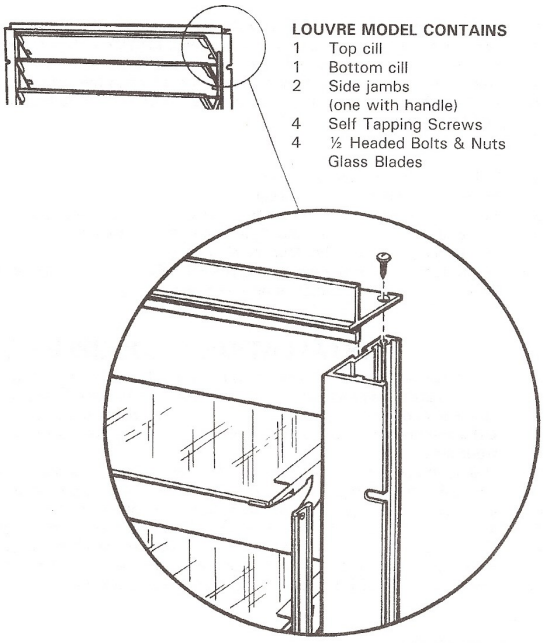


10 BLADE LOUVRE

The louvre can not be fitted to any of the corner bays of the greenhouse.

Procedure

1. Place top cill into position on side jamb of louvre and secure with self tapping screws.



2. Do same on the other top corner.

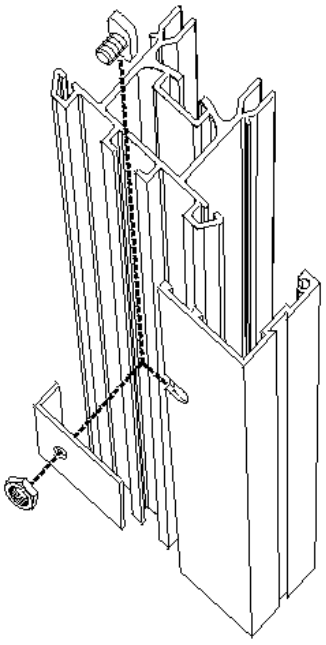
3. Do same with bottom cill.

4. Please note that the handle is on the right hand side.

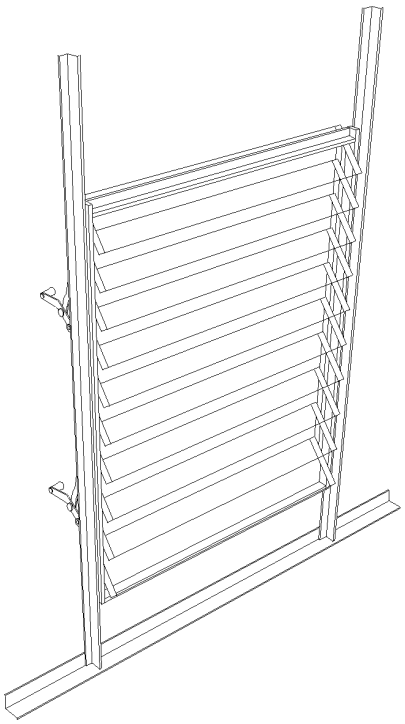
To fit the louvre to the greenhouse frame;

The louvre can be fitted to either of the centre bays at the rear, or the non corner bays of the side. The louvre MUST be sandwiched between 2 pieces of glass. It cannot sit directly on top of the bottom cill.
The louvre is fitted from inside the greenhouse, and you must ensure that the handles are on the right (viewed from inside).

1. Decide which bay you intend to fit to, and fit 1 piece of glass on the bottom cill (either ref T6 or T5 depending upon the required louvre height).
2. Offer the louvre to the bay you intend to fit to and sit on top of the previously installed pane of glass.
3. Using the previously inserted bolts (or using 1/2 head bolts supplied) loosely fit the 4 brackets as shown to the greenhouse frame, and then tighten so as to clamp the louvre frame to the greenhouse.



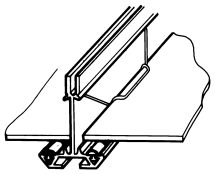
BRACKET FIXING TO LOUVRE FRAME



TOUGHENED GLASS

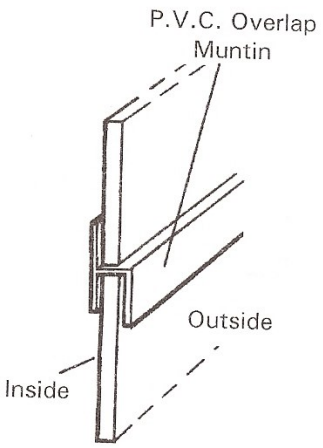
Always handle glass with extreme care as failure to do so can result in injury.
Your greenhouse is supplied with PVC bar capping and you will find the bar capping installation instructions with the bundle of capping.
Your greenhouse is glazed using both wire clips and then bar capping on top.

Wire Clips



Start with the panes of glass on the side (see glazing plan later in this booklet), Insert 4 wire clips as illustrated, put one 'wing' of the clip under the ridge at the front of the bar, then insert the two shoulders just behind the edge of the glass. The other 'wing' of the clip, which is not yet engaged in the bar can now be pushed downwards until it clicks into and under the ridge on the front of the glazing bar. 2 on either side of the pane approx. 100mm from the bottom and the top. The upper 2 clips approx. ½" (13mm) from the top edge of the glass. Now insert the intermediate clips so as to have 8 clips per large pane.

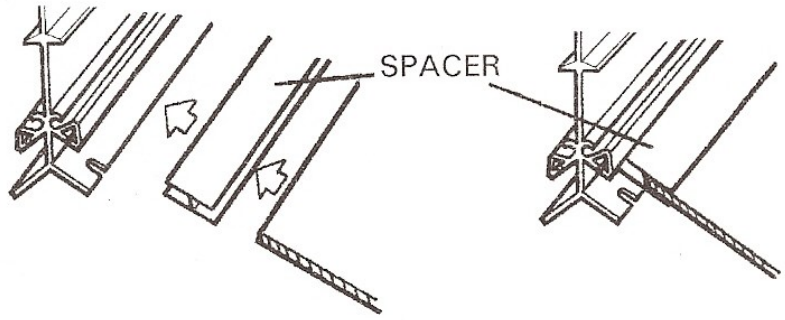
Bar Capping should be fitted ' as you go along'. You need access to the top of each roof cap to screw into position, so you will need to poke your head up in the next bay along to enable safe fixing.



With single sheet toughened glass the traditional overlap system used with the horticultural glass is replaced by a rigid P.V.C muntin. Muntins are only used where 2 pieces of glass butt together. Position the muntin on top of the lower pane of glass taking care to have the inside and outside as indicated. Put the next pane on top of the muntin (into the rebate) and clip the glass in, as previously described. There are enough stainless steel clips in your kit for 8 clips per large pane of toughened glass over 1.2m.

GLASS SPACER

The roof glass is fitted by utilising a PVC roof spacer as illustrated.
Place the vent spacer onto the top of the roof pane (thus increasing the overall length of the glass).
N.B. The spacer can increase the glass size by 9mm or 11mm depending which way round you fit it. It is designed this way to allow for the glass/alloy tolerances. Offer the glass to the glazing bars pushing it upwards towards the ridge. In order to fit the spacer end of the glass under the beading in the ridge, you need to lift the glass up from the bottom whilst simultaneously pushing upwards until the spacer is firmly 'inside' and touching the ridge.



FULL SHEET TOUGHENED GLASS

REF	SIZE
T1	598 X 1489
T2	585 X 1489
T4	585 X 610
T5	585 X 177
T6	585 X 387
T11	598 X 1197
T12	585 X 1197
T13	457 X 1489
T14	640 X 610
T15	450 X 457
T16	450 X 610
T17	545 X 100

	T1	T2	T4	T5	T6	T11	T12	T13	T14	T15	T16	T17	T22	T23	T24	T25	TOTAL
6X6	6	2	1	1	2	4	1	2	1	4	2	10	2	2	2	1	43
8X6	6	4	2	1	2	4	2	2	2	4	2	10	2	2	2	1	48
10X6	6	6	2	1	2	4	4	2	2	4	2	10	2	2	2	1	52
12X6	6	8	2	1	2	4	6	2	2	4	2	10	2	2	2	1	56
14X6	6	10	4	1	2	4	6	2	4	4	2	10	2	2	2	1	62
16X6	6	12	4	1	2	4	8	2	4	4	2	10	2	2	2	1	66
18X6	6	14	6	1	2	4	8	2	6	4	2	10	2	2	2	1	72
20X6	6	16	6	1	2	4	10	2	6	4	2	10	2	2	2	1	76

FULL SHEET TOUGHENED GLASS

YOUR GREENHOUSE IS NOW COMPLETE

If you have purchased any accessories such as staging, louvre, auto vents, rain water kits etc…, they will have their own detailed instructions in their packaging.