



The Outside, **Inside**

CONSTRUCTION GUIDE

For Commercial Tunnels
16ft Wide – and – 18ft Wide

Thank you for purchasing a 'Premier' polytunnel.

Please take the time to carefully read through this Construction Guide before you head out and begin building your 'Premier' polytunnel.

A polytunnel is not a difficult structure to construct, but the task at hand should not be taken lightly – After all, this is a building that must stand up to extreme weather conditions year after year. This really is a two person job.

The following is a Guide to the successful construction of your polytunnel. If you follow this Guide, you will have many years of growing pleasure from your polytunnel with very little or no maintenance. Please use the Checklist supplied with your order, together with this Guide, to help you identify the different parts of your polytunnel.

If you are unsure or confused about any aspect of construction, please feel free to contact us via e-mail at info@premierpolytunnels.co.uk or by telephone on 01282 811250.

Premier Polytunnels are proud to be the **ONLY** polytunnel supplier to offer an out of hours Construction Advice Service, available until 9pm, 7 days a week.

We have covered some of the polytunnel options within this Construction Guide that may not relate to the polytunnel and extras/additions you have purchased. Please ignore any sections which do not apply.

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TOOLS REQUIRED

A spirit level is not a necessary instrument in this construction where a good eye will do, but the more care that is taken to ensure everything aligns, the better the finished project will look.

*****WARNING: PRODUCTS MAY CONTAIN SHARP EDGES. ALWAYS WEAR GLOVES.*****

Here is a list of tools required to complete the construction of your polytunnel:

Tape measure	Spade	Large hammer	Claw hammer
Timber drift	2 x 13mm spanner	Marker pen	Battery Drill
9mm drill bit	Philips screwdriver	Wood saw	String Line
Sharp Knife			

Please note: If and when extra tools are required for any optional extras/polytunnel additions which you may have purchased, these are listed at each stage.

INTRODUCTION

“Picture this...”

Below is a simple outline of what you should end up with once you have completed your project and is something to bear in mind while constructing your polytunnel.

A polytunnel is a series of hoops placed in line on **Foundation Tubes**.

A **Ridge** tube is suspended under the hoops at the centre point and runs the full length of the polytunnel.

Four diagonal tubular **Stabilisers** are placed one at each corner.

A timber **door frame** and **doors** are fixed central at each end.

A trench is dug around the outside of the framework – **OR** – **Base Rails** are placed around the polytunnel at ground level.

Polythene is placed over the framework and fixed around the door frame. The polythene cover is then buried in the trench – **OR** – fixed to the **Base Rails**.

OPTIONAL EXTRAS/POLYTUNNEL ADDITIONS - If ordered:

Anchor Plates clamp to the base of each **Foundation Tube** in a 16-inch hole, before soil is compacted back over them to prevent the polytunnel framework from lifting or sinking.

Crop Bars are horizontal tubes placed across each intermediate hoop at roughly head height.

Base Rails run around the outside of the framework at ground level and the cover is fixed to these rails.

Side Rails are identical to **Base Rails**, but are placed on the framework at the top of the straight side on either one or both sides. **Sides Rails** include ventilation net.

Where two tubes connect a simple fixing method using two **“P Clips”** is always necessary.

The images below demonstrate the use of **P Clips**.



*****PLEASE NOTE: When assembling your polytunnel, no screws, bolts, ends of tubes, etc, should protrude beyond the hoops as these will cause damage to your cover.*****

SITE

Your construction site should be clear and reasonably level from side to side. Approximately 6-inch out of level can be taken up by adjusting the Foundation Tubes of your polytunnel. A slope from end to end does not have to be taken into account as your polytunnel can be built straight onto this slope with the framework placed at the vertical.

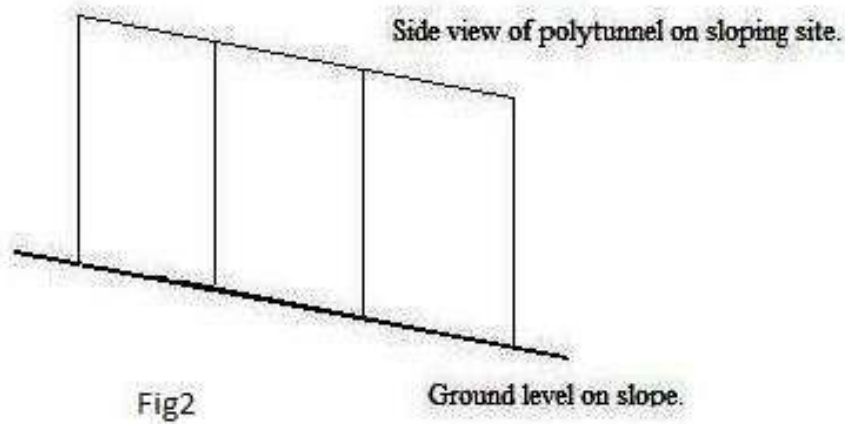
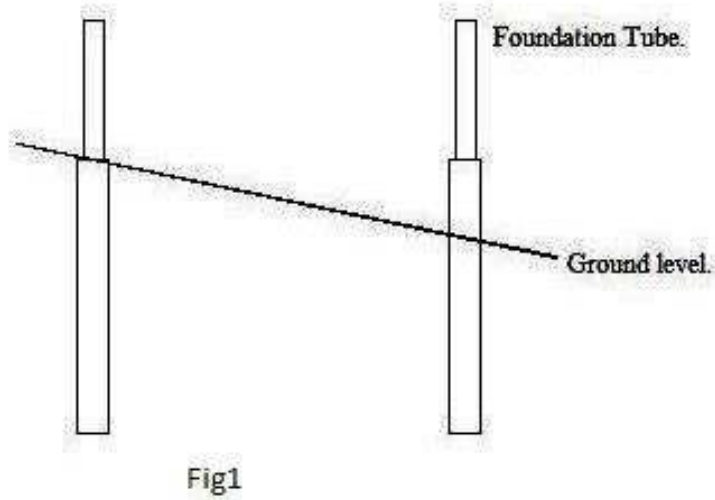


Fig1 shows a slope from side to side and how up-to-a 6-inch slope can be removed by adjusting the foundation tubes.

Fig2 shows a slope from end to end.

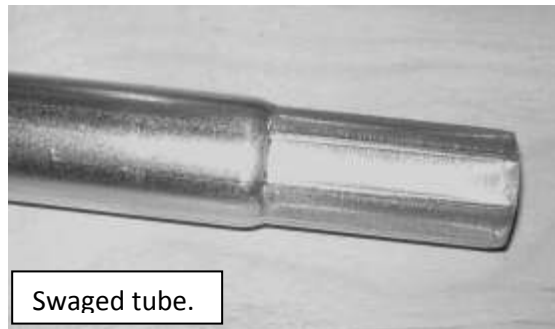
FOUNDATION TUBES

*****IMPORTANT – Protect the ends of tubes from damage when driving them into place by using a timber drift.*****

Foundation Tubes are driven into the ground at each end of each hoop. Choose a corner of your polytunnel to be a fixed point from which all measurements will be taken and drive in a Foundation Tube using a timber drift to protect the end, leaving only the swage protruding above ground. (The “swage” is the end of the tube which has been reduced in diameter). Measure the length of your chosen polytunnel and drive in a second tube. (All measurements are to the centre of the tube). Mark out the remaining corners, but do not drive in the Foundation Tubes yet. The measurements for these will be the width and length of your polytunnel. To check for square, measure from corner to corner (**Fig 3**) – This measurement should be the same, but if not, simply adjust the two tubes along the length until correct. Mark out the position for the remaining Foundation Tubes down the length of the polytunnel at 6ft spacing and drive in Foundation Tubes. Use a string or straight edge to check the tops are level and the tubes are in line.

DO NOT screw hoops to the Foundation Tubes until you come to the **Final Fixing** stage (see Page 16).

*****If Anchor Plates or base plates have been purchased, please see the section on ‘Anchor Plates’ or ‘Base Plates’ before driving in the Foundation Tubes.*****



Distance across corners should be equal for square.

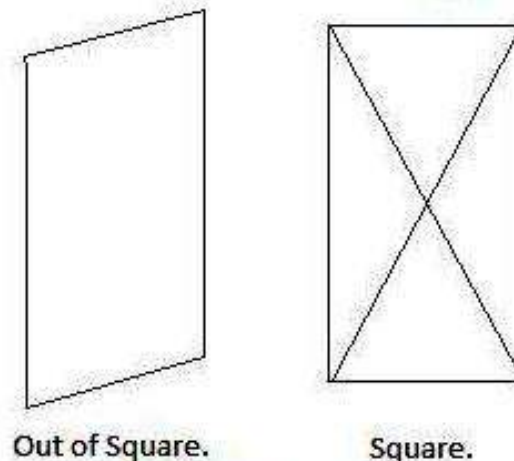


Fig3

ANCHOR PLATES

Anchor Plates replace the need for concrete in soft ground and must be used when Base Rails are used to prevent lifting. After marking out the position of all the Foundation Tubes WITHOUT driving any tubes in, dig a hole, 20-inch square and 16-inch deep at each point. Drive the Foundation Tubes into the bottom of each corner hole until only the swage remains above ground (**Fig4**) while checking all measurements, for level and square. Place an Anchor Plate Clamp (**Fig5**) around the Foundation Tube at the bottom of the hole, (**Fig6**). An Anchor Plate slots over the tube to rest on the clamp and another clamp is tightened on top of the plate to hold it in position (**Fig7**). The soil is placed back in the hole and heeled down, leaving only the “swage” protruding (**Fig8**). Repeat this process for all the intermediate holes using a string line or straight edge to make sure they are in line and level. Re-check all measurements.



Fig4



Fig5



Fig6



Fig7



Fig8

BASE PLATES

Tools required:

Hammer drill.
14mm masonry bit
16mm masonry bit.
17mm spanner or socket.

If you have ordered Base Plates, please use the same method of positioning as for Foundation Tubes.



**Base Plates come in one of two types –
Garden and Commercial –
dependant on the size of polytunnel.**



Base Plates are supplied with loose bolts.

HOOPS

Hoops are supplied in four sections – two outer legs and two inner hoops. These pieces should be slotted together on a flat base and the joints held in place using a self drill screw which should be 30mm away from the joint (**Fig9**). Do not fix the centre joint at this stage.

Lift the hoops into position on the Foundation Tubes. The swaged half of the inner hoop should be kept to the same side of the polytunnel (left side or right side). Make sure the screws on the end hoops face the inside of the polytunnel (**Fig10**).



Fig9



Self Drill Screw



Fig10 – Hoops in position on Foundation Tubes.

*****Please note: Self drill screws should be held in the nut driver provided or can be held directly into a drill chuck. They will drill their own hole and tap themselves into position. Do not over-tighten.*****

*****If you have purchased a Storm Strengthening Kit, please ensure the self drill screw joining the hoops is at least 30mm away from the actual joint, but not so far away that it misses the two parts of the hoop. This will allow room for fitting the storm/joint strengthening collar – See next section on Storm Strengthening Kit.*****

STORM STRENGTHENING KIT

This is a very simple method of adding strength to the weakest part of the hoop. Simply bolt a P Clip around the joints of each hoop where the outer leg and inner hoop join (acting as a collar), making sure that the leg of the 'P' does not interfere with the polythene cover.



Storm Strengthening collar

RIDGE – and – TRIPLE RIDGE KIT

The Ridge bars are supplied in 6ft sections. (One starter ridge with plain ends and extensions with one swaged end). The length of these pieces will correspond to the hoop spacings of your polytunnel.

Place a P Clip around the top centre of each hoop. The central joint can be used as a guide. On the end hoops the leg of the 'P' should face inwards and on all hoops the leg should be to the bottom, suspend the ridge tube from these P Clips by using a second P Clip (**Fig11**). Adjust the hoops along the ridge before tightening to get the hoops vertical. Use a self drill screw to lock the ridge sections and P Clips together. Fit a plastic end cap in each end of the Ridge.

Triple Ridge Kits. These side ridge bars are identical to the centre ridge and should be assembled using the same method. Please Note: If you have ordered a Crop Bar Kit or Storm Strengthening Kit, you should assemble these items prior to your side ridges in order that your ridge bars can avoid these items.

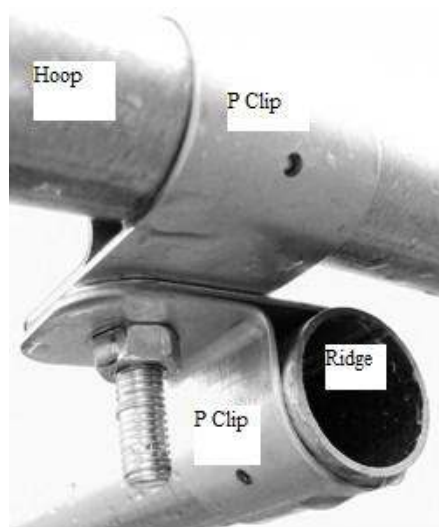


Fig 11



Completed Ridge.

CORNER STABILISERS

Corner Stabilisers are tubes which are placed to form a triangle at each corner of the polytunnel (**Fig12**). They should start 9-inch up from the ground on the second to end hoop (**Fig13**) and angle up to the end hoop. Before tightening the clamps on the end hoop, adjust the hoop until vertical and both sides are in line. Fit a plastic end cap in each end of the stabilisers.



***Correct clamp position -
Inside the end hoop.**



***Wrong clamp position -
Protuding outside the end hoop.**



Fig12



Fig13

ROOF STABILISERS

Roof Stabilisers are supplied on the 18ft wide polytunnel only. These should be fixed half way between the ridge and corner stabiliser on the end hoop at all four corners, and angle up to join the ridge (**Fig14 and Fig 15**).



Fig14 – Roof Stabilisers before fitting cover.



Fig15 – Roof Stabilisers after fitting cover.

CROP BARS

Crop bars are an optional extra and are placed on all intermediate hoops (**Fig16**). They are two-piece with a diagonal support which angles down from the ridge to the centre of the crop bar (**Fig17**). Adjust the support along the ridge until the crop bar is parallel. Fix all joints and P clips with a self drill screw. Fit plastic end caps in the ends of the tubes (**Fig18**).



Fig16



Fig17 – Diagonal support



Fig18 – End cap inserted into tube and loose end caps.

STAGING SUPPORTS

A staging support is made up of two 38mm diameter tubes (horizontal top tube and vertical staging leg) – These should have a plastic end cap inserted in each end. The horizontal top tube which fixes to the leg of a hoop is 900mm long – This is attached by using two P Clips just as in all the other tube joints on your polytunnel. At the inner end of this bar a 750mm vertical leg is attached at right angles, once again with two P Clips.

When the top bar and vertical leg are at right angles ('approximately' is near enough) the 28mm diameter x 300mm-long diagonal brace is fixed across the corner using two P Clips at each end.

To allow extra leg room and to avoid hitting the staging leg when passing with a wheelbarrow, etc, why not set the staging leg 6-inch back from the outer end of the horizontal top tube (as shown in diagram on page 13) – This also helps to spread the weight more evenly across the top.

Please Note: Position the P Clips so that the vertical leg sits underneath the top tube not to the side of it. The top tube should butt up to the hoop, not to the side.

We suggest that you fix the two end staging supports first and level them. These should angle in slightly from the end of the polytunnel to avoid the cover. Position the centre supports and align them with the ends. Use a hard pad to stand the leg on when placing the support on a soft base – This will help prevent the leg from sinking.

Finally, lock all P Clips in place with a self drill screw.

A suggestion for an economy staging top is a front rail of 3-inch x 2-inch timber, which is bolted with a single P Clip and M8 x 75mm Cup Square Bolt towards the front edge of the support top – Before drilling the timber make sure the support leg is vertical. Another length of 3-inch x 2-inch timber is placed towards the rear edge of the support (not fixed). These two timbers will then support a solid top or cross laths.

You may prefer to assemble the staging supports as a sub-assembly prior to fitting to the polytunnel hoops.

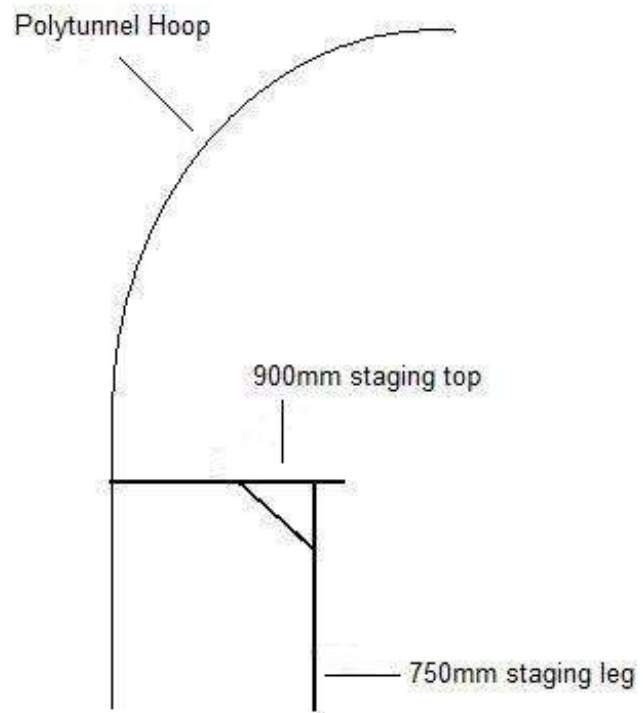


Completed Staging Supports, with loose P Clip for fixing your own timber top.



Polytunnel staging complete with top.

Commercial Polytunnel Staging Support



TIMBER, HINGED POLYTUNNEL DOORS

*****MEASURE TWICE, CUT ONCE TO AVOID MISTAKES!*****

Using a flat surface or bench take the two 3-inch x 2-inch x 1.97m door legs and, using six Corner Braces and screws, fix a 750mm cross piece between the legs at each end and one in the centre. Drill three 5-7mm holes through the side of each leg in line with the centre of each of the cross pieces and nail all five pieces together to form the door. At the corners of each cross piece on the inside of the door screw a Corner Brace in place – These enable you to build the door square without checking (**Fig19**).



Fig19

Tack the polythene panel to each door and get as much tension as possible on the polythene – a staple gun comes in handy here.

Cut two pieces of 19mm x 38mm batten the full width of the door and nail these on top of the polythene at each end, making sure there is a nail at each side of the joint of the frame. This is important as it gives the door added stiffness (**Fig20**).

Cut two battens to fit down the door legs and nail in position (nails should be about 4-inch apart). Lining the battens up to the outside edge of the door.

Cut and fix the final batten across the centre rail and trim off all excess material around the edges.



Fig20

DOOR HINGES

2 x 4-inch butt hinges should be screwed to the inside face of the door approx 9-inch from each end.

*****VERY IMPORTANT:** As the door opens inwards it is important to prevent the top corner from damaging the polythene cover by placing a fixed stop or peg in the ground.***

DOOR CATCH

The catch is a simple hasp and staple for the fixed door which should be on the inside and fixed to the lintel with a tower bolt at the base, this drops into a tube which is driven into the ground. The opening door should have a hasp and staple fitted on the outside. **(Fig21).**



Fig21

DOOR FRAME

4-inch x 2-inch timber is used for door frame.

The door opening will be 6ft if using the standard double doors supplied with your kit.

Place a string line across the end hoop at ground level. Subtract the door opening (6ft) from the width of your polytunnel and divide this number in two. This will give you the distance in from the hoop for your door posts (**5ft on 16ft wide polytunnels and 6ft on 18ft wide polytunnels**). This measurement is to the inside edge of the post. Dig a hole approximately 15-inch deep at this point for each door post. Place a door post in position in the first hole and hold against the end hoop in the vertical position, mark the timber post under the hoop and cut on this line. Reposition the post in the hole **(Fig22)** and bolt under the hoop using a P Clip which should run down the back or inside of the post – this will keep the post under the hoop and prevent it from protruding beyond the end hoop. When you are happy with the positioning back fill the hole and screw the P Clip to the hoop with a self drill screw.

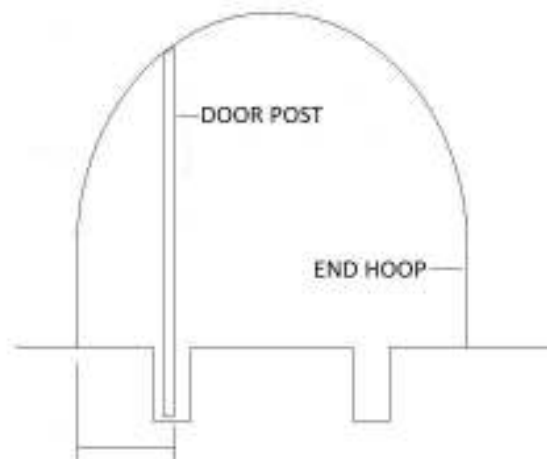


Fig22

Now you can hang your first door. The hinges should be on the inside across the face of the door and door post – this will allow the door to open inwards (**Fig23**).

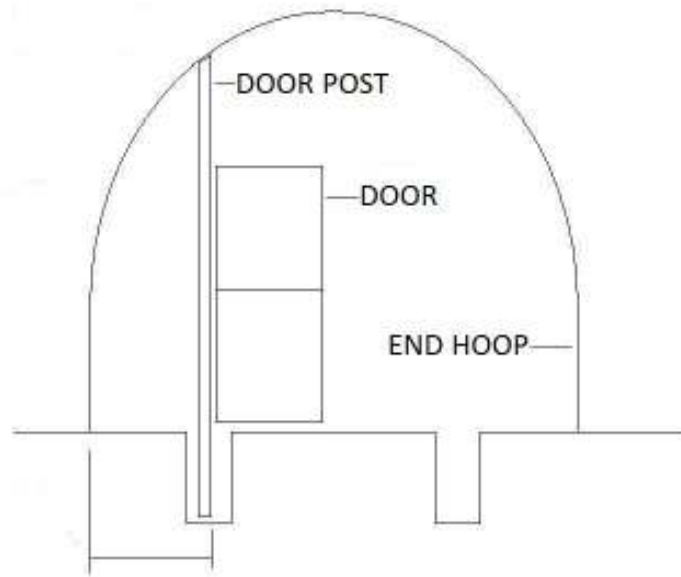


Fig23

Hang the second door post using the same method as the first (**Fig22**) but leave it hanging loose. Fit the second door at a height that coincides with the first door. Adjust the post to get equal spacing between the two doors (use a 6-inch nail as a spacer). When you are happy that the two doors align screw the P Clip in position and back fill the hole (**Fig24**).

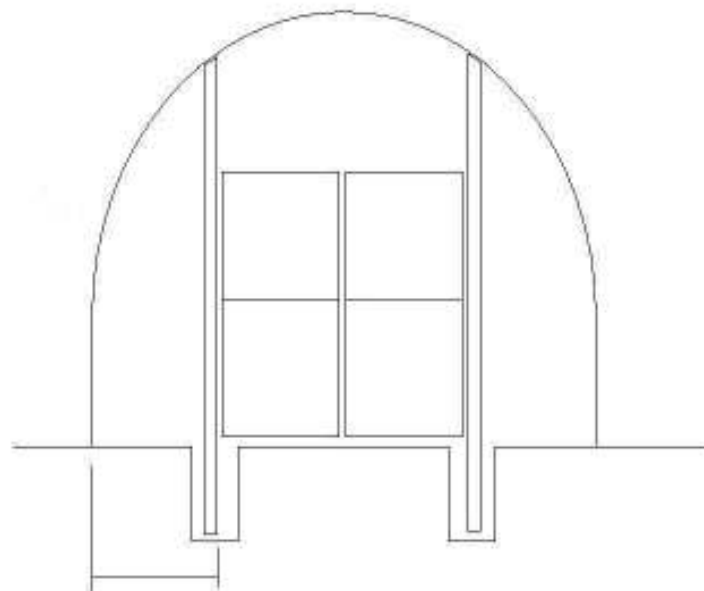


Fig24

Cut the 4in x 2in x 1.8m door lintel to fit between the posts above the doors. Drill a 5-7mm hole through the side of each post 2-inch above the top of the doors. Fit the lintel in position and, making sure you leave a suitable gap above the doors, nail it in position through the two previously drilled holes using a 6-inch nail at each side (**Fig25**). Place a nail plate across each joint on the inside face only. You may not be able to use the pre-drilled holes in the P Clip, but the screw will make its own hole in a place away from the polythene.

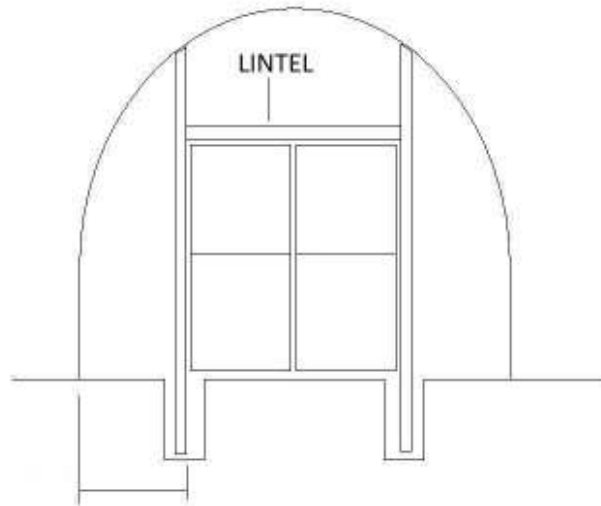


Fig25

*****Please note: When placing a polytunnel on a hard base, Angle Brackets should be used to secure the bottom of the Door Posts.*****

To stabilise the lintel a steel tube is angled down from the ridge to the centre of the lintel (**Fig26**). This is attached to the timber lintel using a short piece of tube bolted to the back of the lintel (**Fig27**). Adjust this stabiliser along the ridge until the lintel is parallel.



Fig26



Fig27

FORMING A REBATE FOR YOUR DOOR FRAME

In order to fix the cover around the door frame and give it the necessary strength to remain held in position under extreme weather, it is trapped in a rebate which must be formed around the outside edge of the door frame with 19mm x 38mm battens. A batten should be nailed (nails spaced at 9-inch) along the top edge of the lintel and overlapping the Door Posts. A nail placed each side of the door post to lintel joint will help secure the timbers. Battens should be positioned down the outside edge of each Door Post. The cover then comes over these battens and is trapped in place by another batten nailed to the door frame up against the first batten (**Fig28**).



Fig28

FINAL FIX

Check the structure all around for alignment and positioning of all the bars. If you are happy, all joints and P Clips can now be secured with a self drill screw (**Fig29**). In some cases this may be a combined fix of both joint and P Clip. These screws are held in the nut driver provided and, in the case of the P Clips, use one of the two small holes as a starter point for the screw (**Fig30**). Keep all screws to the inside of the polytunnel, away from where the polythene cover may rub.

*****It is MOST IMPORTANT that the hoops are screwed to the Foundation Tubes at this point.*****



Fig29



Fig30

ANTI HOT SPOT TAPE

This is a self adhesive foam tape which is placed over each hoop. Anti Hot Spot Tape should be used just prior to covering your polytunnel. This tape should be placed over each hoop from ground to ground or to the top of the Side Rail. On the end hoops the tape should be placed at a 45-degree angle on the corner of the hoop in order to protect the polythene cover as it stretches around the hoop to the door frame.



Anti Hot Spot Tape

COVERING YOUR POLYTUNNEL

TRENCHING OPTION:

Dig a trench down each side of the framework at a distance of 4-inch out from the line of the hoops. At each end dig a trench at all 4 corners from the side trench to the door post.

This trench should be a spade wide and approximately 14-inch deep. The edge of the trench nearest the polytunnel should be as straight and neat as possible as your cover will follow this line (**Fig31 and Fig32**).

*****Please note: Make sure you place the soil from the trench on the outside of the polytunnel.*****



Fig31 – Starting to dig the trench



Fig32 – Starting to dig the trench

Next, roll the cover out along the side of the polytunnel after checking and clearing the ground of sharp objects.

ONLY ROLL OUT YOUR COVER ON A CALM DAY AS YOU ARE EFFECTIVELY OPENING A LARGE SAIL.

This Thermal Anti Drip polythene must be placed with the Anti Drip side facing inside the polytunnel. The word “INSIDE” is written within the elephant logo and you should be able to read this when stood inside the polytunnel.

With one person at each end, hold the edge of the sheet which, when pulled over the framework, will ensure the correct side of the polythene is on the inside of the polytunnel. Stretch the sheet tight along the length of the polytunnel and walk to the opposite side of the structure, taking the sheet over the framework and being careful not to snag the sheet on any protrusions.

The polythene is very strong and resistant to tearing so don't be afraid to pull it as hard as you can, but it is advisable to grip the polythene only around the edges as in the event of damage this area will be buried or can be trimmed off.

Centralise the sheet along the width and length of the polytunnel – You will find that the sheet will not reach to the ground at the ends, but this is correct and there is no need to worry (**Fig33**).



Fig33

- **STEP 1:** Cut a batten to fit along the door lintel between, starting at one end of the polytunnel, trap the polythene with this batten in the rebate created earlier. The polythene should be smoothed out 12-inches either side of the door top centre and the batten nailed in place along this 24-inch length only (**Fig34**).

*****Please note: The nails supplied are designed to grip the wood and it is difficult to get them out without destroying the batten. Take care when positioning the batten to avoid any mistakes.*****

At the opposite end of the polytunnel the same method of fixing should be used, but this time the polythene should be pulled along the length of the polytunnel as tight as possible before nailing the batten in position.



Fig34

- **STEP 2:** Tension the polythene into the trench on one side starting in the middle – This is best done with one person at a hoop either side of centre (**Fig35**). Do not over tension but, when the cover is smooth from the ridge down into the trench, back fill the trench between the two people with the polythene forming a ‘U’ around the trench and the soil on top (**Fig36**). Using this method, work your way out to the ends.

Repeat this operation on the opposite side of the polytunnel, starting in the middle and working out – only this time get as much tension into the cover as possible. It is acceptable to stand on the cover in the trench to get the required tension.



Fig35



Fig36

- **STEP 3:** With just the four corners and door posts left, it will now be necessary to cut the polythene at the corners, but only in the trench to allow the cover to come smoothly around the ends.

Starting at the door top, grip the polythene and, while pulling tightly, twist the wrist to create a selection of pleats working down the Door Post, nailing the batten as you go (**Fig37**). Repeat this same method down each Door Post (**Fig38**).



Fig37



Fig38

You should have run out of pleats by the time you reach the level of the straight side after which the polythene should form a smooth flat panel (**Fig39**).

Tension the cover into the trench at each corner and back fill with soil.

Trim off the excess polythene around the door opening (**Fig40**).



Fig39



Fig40

TIMBER BASE RAILS

3-inch x 1.5-inch timber.

This timber rail goes around the outside of the polytunnel framework at ground level leaving only the door opening (**Fig41**). The rails which make up the sides of the polytunnel are placed end to end and fixed at each corner with a P Clip – **Please note:** The leg of the P Clips at each corner should face along the ends towards the door. At each of the intermediate hoops a “saddle clamp” is used to fix the timber to the hoop (**Fig47**).

These side timbers should be left overhanging at each end. Wherever a joint in the rail occurs, a nail plate should be nailed across the joint on the inside (**Fig42**). Cut a length of timber to fit across the front of each door post and butt up to the overhanging side rail. To attach the end rail to the Door Post at ground level drill a 9mm hole through the end rail and door post and bolt in place with a 110mm cup bolt with a washer under the nut on the inside (**Fig43**). At the outer corner, a corner bracket is bolted behind the P Clip and comes around the hoop to bolt onto the side rail (**Fig44**). Use a 4-inch nail to attach the side rail to the end rail and cut off the overhang.



**Fig41 – Base Rail at ground level.
Side Rail at top of straight side.**



Fig42



Fig43

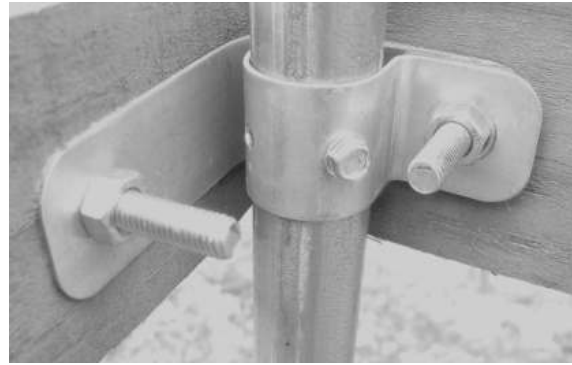


Fig44

FORMING A REBATE FOR YOUR BASE/SIDE RAILS

In order that the polythene cover can be attached easily and securely, a rebate needs to be formed around the Base Rails and Side Rails. To do this a batten is nailed around the top edge of any Base or Side Rails (**Fig45**). If Side Rails are used, the ventilation net should be trapped under this batten at the same time. Where a batten crosses a joint a nail should be positioned at each side of the joint, this will make the joint more robust.



Fig45



Saw off (at an angle) any ends of the rebate which protrude at the corners.

COVERING YOUR POLYTUNNEL

TIMBER BASE RAILS OPTION:

Base Rails should be loosened off and raised approximately 2-inch off the ground (except where they meet the Door Posts) and re-tightened. Fit the cover using the same method as the trenching option but use battens to trap the cover in the rebate (**Fig46**). When covering is complete, loosen the Base Rail brackets and push the rails down until they touch the ground. Re-tighten the saddle clamps (**Fig47**) and fix the P Clips at the corners with a self drill screw.

MOST IMPORTANT: All hoops must be secured to the foundation tubes with a self drill screw.



Fig46



Fig47

TIMBER SIDE RAILS

Timber Side Rails are an exact replica of Timber Base Rails and should be assembled using the same method. Side Rails are placed at the top of the straight side of the polytunnel hoops on either one or both sides (**Fig41 – page 22**).

COVERING YOUR POLYTUNNEL

TIMBER SIDE RAILS AND VENTILATION NET OPTION:

Raise the Side Rail (which has previously been fixed at the top of the straight side of the polytunnel hoops) 2-inch as you would with the Base Rail. The ventilation net should be in place and trapped under the rebate batten (**Fig48**). Cover the polytunnel using exactly the same method as for Base Rails. Lower the Side Rail and fix the P Clip at all four corners with a self drill screw (**Fig44**) and tighten the saddle clamps on each intermediate hoop (**Fig47**). Finally, tension the ventilation net down to the Base Rail and batten in place (**Fig49**). When using net ventilation between Side Rail and Base Rail it is not necessary to raise the Base Rail as the net has a large amount of stretch in it which can be tensioned by hand as you fix the batten in place.

MOST IMPORTANT: All hoops must be secured to the foundation tubes with a self drill screw.

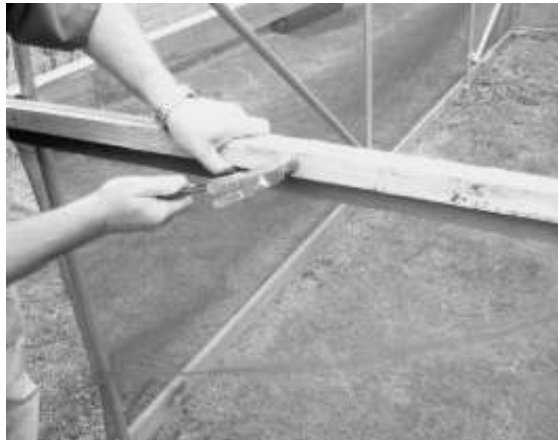


Fig48



Fig49

Well done! You are now ready to begin growing and relaxing in your 'Premier' polytunnel!