

Construction Guide

Single Span Polytunnel – INS145



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Introduction



Caution – Failure to comply with instruction can lead to items incorrectly fitted and potentially damaged.



Warning – Failure to comply with instruction can lead to reduce performance of the structure and potential failure during adverse weather conditions

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1 Prepare



1.1 Fittings

Part number	Image	Part Description
PCR		PIPE COLLAR
TPE654		3MM TRIANGULAR PLATE
ECC		EXHAUST CLAMP COMPLETE
BBB45 BBB503		BRACE BAR BRACKET INSIDE BOLT
BBB501 BBB601		BRACE BAR BRACKET
HTR50 HTR60		HOOP TO RIDGE BRACKET

<p>HTR501 HTR601</p>		<p>HOOP TO RIDGE BRACKET WITH BRACE PLATE</p>
<p>DFB50 DFB60</p>		<p>DOOR FRAME BRACKET (TIMBER END FRAME)</p>
<p>DFB513 DFB613</p>		<p>DOOR FRAME BRACKET (ALUMINIUM END FRAME)</p>
<p>MBT60</p>		<p>MOUNTING BRACKET 60 DEGREE [FIT- 60DEGMB]</p>
<p>RMB50</p>		<p>RAIL MOUNTING BRACKET 50MM [FIT-H50]</p>
<p>RPP50</p>		<p>ROUND PLASTIC PLUG FOR 50MM RIDGE TUBE</p>

BRS		BASE RAIL SPACER
RMB455		RAIL MOUNTING BRACKET TO SUIT FLUSH ENDS 43mm TUBE
RMB508 RMB509		RAIL MOUNTING BRACKET TO SUIT FLUSH ENDS 50mm HOOPS
RMB607		RAIL MOUNTING BRACKET TO SUIT FLUSH ENDS 60mm HOOPS
RMB510 RMB608		SIDE RAIL MOUNTING BRACKET

<p>GFT144 GFT154</p>		<p>SINGLE GROUND FIXING TUBE</p>
<p>DEL295</p>		<p>DIAGONAL END LINTEL STRUT 2950MM X 50MM ANG</p>
<p>DBB250 RIGHT</p>		<p>DIAGONAL BRACE BAR 2500MM X 50MM HOLE TO HOLE CORNER ANGLED</p>
<p>DBB250 LEFT</p>		<p>DIAGONAL BRACE BAR 2500MM X 50MM HOLE TO HOLE CORNER ANGLED</p>
<p>DBB296 RIGHT</p>		<p>DIAGONAL BRACE BAR 2950MM X 50MM HOLE TO HOLE INNER ANGLED</p>
<p>DBB296 LEFT</p>		<p>DIAGONAL BRACE BAR 2950MM X 50MM HOLE TO HOLE INNER ANGLED</p>
<p>RTS580</p>		<p>RIDGE TUBE SWAGED 5800MM X 50MM</p>

WWE232		WIGGLE WIRE - 2mtr
SDS		SELF DRILL SCREW

1.2 Tools

2 Foundations

2.1 Marking out

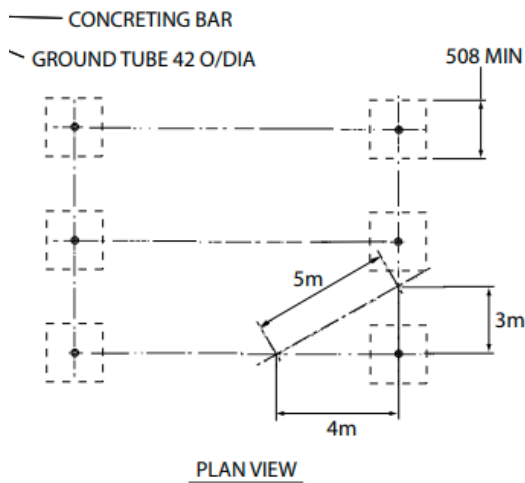
1. Select an even, level site where possible, avoiding stony ground which may damage the polythene (if trenching in the cover). Allow for an additional 1 meter working space around the perimeter.
2. Mark out the site with string (thin polypropylene twine) and pegs, making a rectangle the size of the structure. Pegs should overshoot the structure area by at least 0.5m, to avoid interference with the foundation holes. Check for squareness by using the 3-4-5 triangle method; dimensions across corners should be equal. Mark the lengthways stringline at the required hoop spacing with a marker and lay out a ground tube at each location.



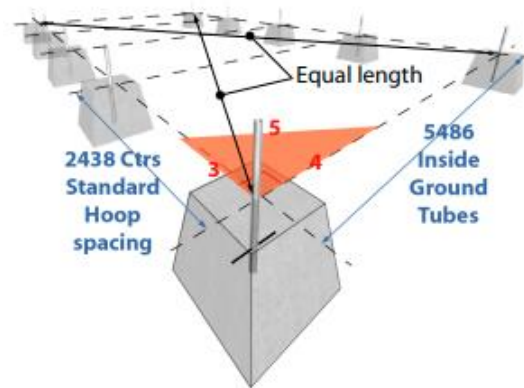
Check hoop spacing and width against quote

Hoop Width	Inside to inside foundation measurement
18ft	5486mm
21ft	6400mm
24ft	7315mm
27ft	8229mm
30ft	9144mm

Hoop Spacing	Centre to centre Foundation measurement
6ft	1829mm
7ft	2133mm
8ft	2438mm



Use the 3-4-5 triangle method to make sure the plan is square.



Note: String lines run along inner faces of ground tubes!

Figure 1. Image representative of 18ft wide tunnel at 8ft hoop spacing

2.2 Concrete Foundations

1. Dig holes as per diagram size and at the hoop spacings stated on the quote.
2. Pour concrete (we recommend ready mix concrete specification: GEN3, a 20 N/mm² mix, with a slump of 60mm) into the foundation holes, setting the ground tubes straight and level with a string line. Ensure that the holes in the ground tubes are set to the string lines, visible from the side of the structure, and importantly, facing across the width of the tunnel.
3. The concrete should be left to set and harden for at least 48 hours. Duration will be dependent on prevailing weather conditions.

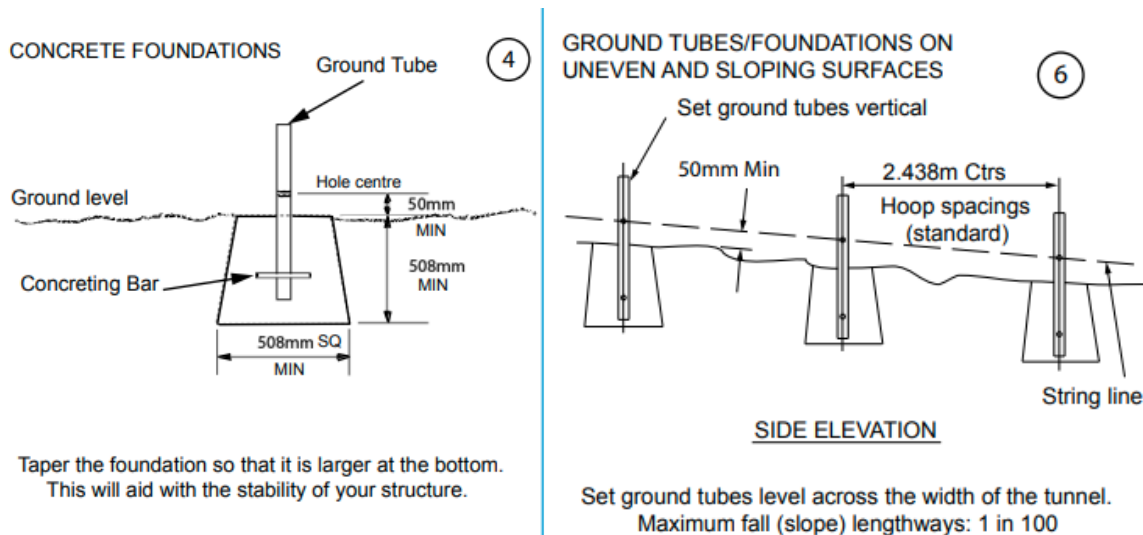


Figure 2. Image representative of 8ft hoop spacing

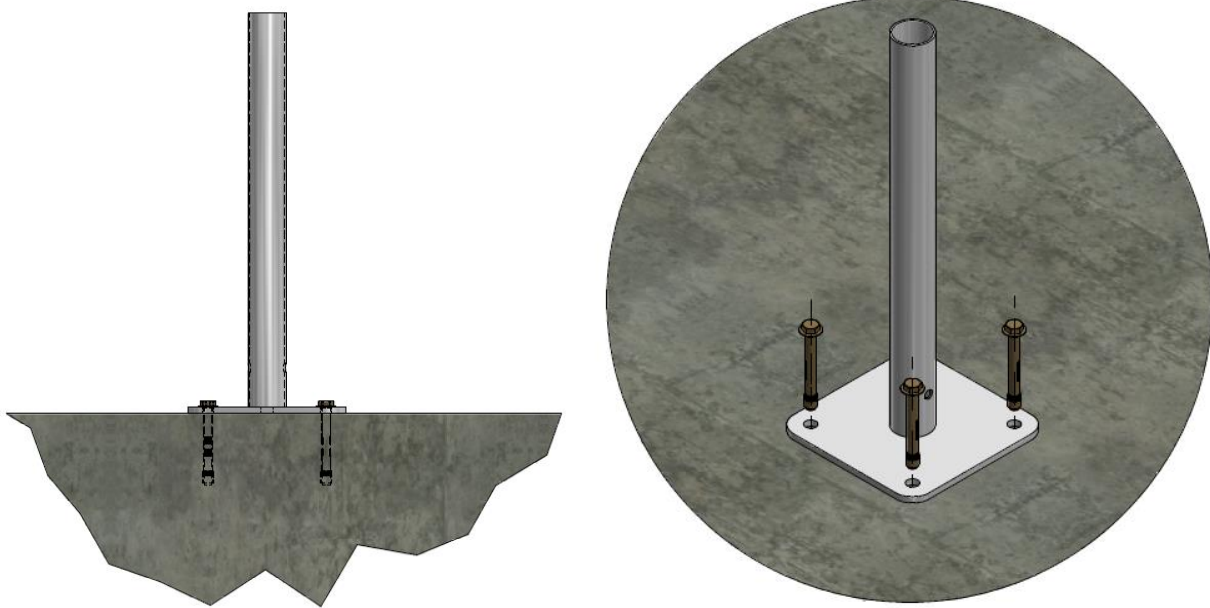
4. When the concrete has hardened, run the stringline around each end to mark the front and rear lines of the structure, this will be required when siting end frame uprights.



2.3 Base Plates

1. Using your string line as a guide, position the base plates in their correct locations, refer to your quote for tunnel dimensions, ensure the hole in the side of the tube is visible from the side of the structure and facing across the width of the tunnel.
2. Mark the location of the holes on each base plate and drill four 12mm x 100mm deep holes into the hard standing base.
3. Drop the sleeved anchor bolts through the base plate and hammer into the holes, then tighten the bolt.

Note: Vacuum the hole out once drilled to clear the whole of dust to make room for the bolts. Make sure the sleeve anchor goes all the way into the hole.



3 Basic Framework

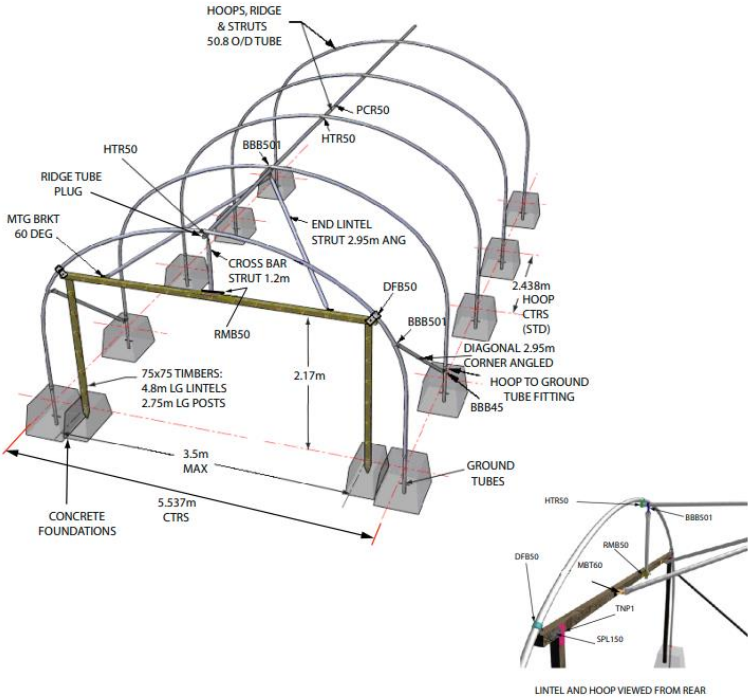
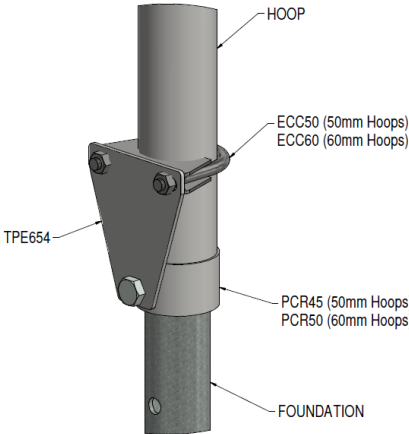


Figure 3. Image representative of 18ft wide tunnel with timber end frame.

3. Fit the base rail to the ground tubes if this option has been chosen, refer to section 5.
4. Put the correct size “BBB” fitting onto the second ground tube from each end (to take the lower end of the corner diagonal).
5. Assemble the hoop to ground tube fittings and set the “PCR” fittings on the ground tubes level and as near to the concrete (or base rail) as possible. Set the “PCR” fittings on the end ground tubes 3” higher so that the structure becomes level when the centre hoops are lifted later to tension the cover.



6. Slot the two halves of the hoops together and slide the fittings onto the hoops to their approximate position and finger tighten. The bolt head of the fittings should face away from polythene cover when in final position.

NOTE: It is easier to apply the anti-hot spot to the hoops before fitting any brackets.

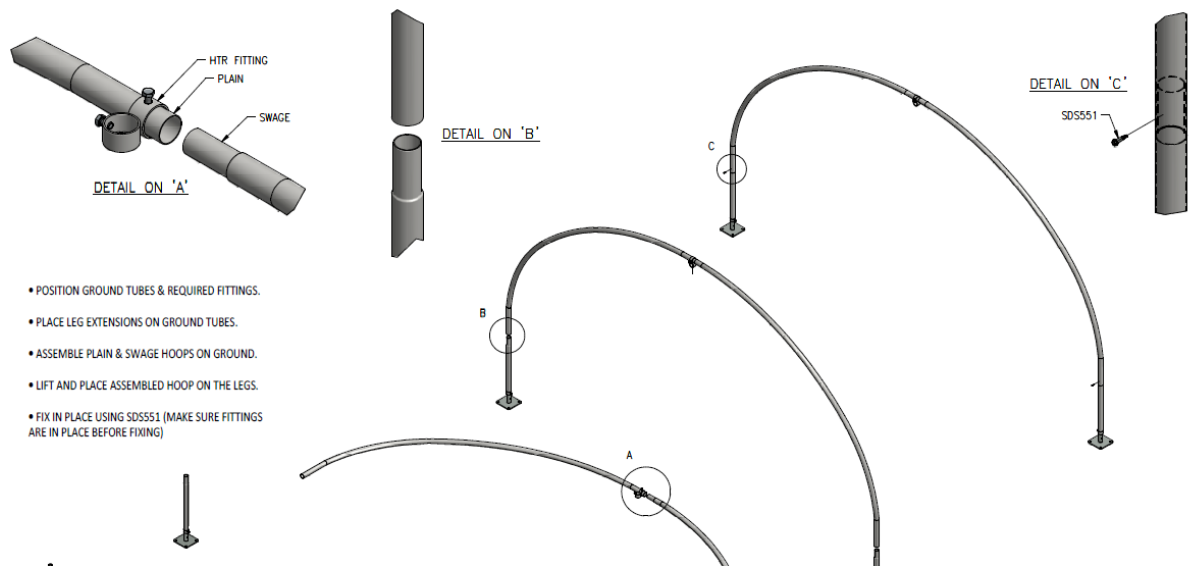


Make sure the fittings for any options (e.g. End frames, side ventilation, crop bars, corner bracing) are put on to the hoops in the correct order. If fittings are not positioned in the correct sequence or are completely missing, the hoop will have to be taken down to reposition the fitting.

7. Place the leg extensions onto the ground tubes, through the exhaust clamp and resting the leg on the "PCR" fittings.
8. Stand the hoop assembly over the leg extensions, secure the leg to the hoop using two self-drill screw (SDS551), one on each side of the leg.



This step must not be missed, failure to do so could lead to reduced structural performance, especially during adverse weather conditions.



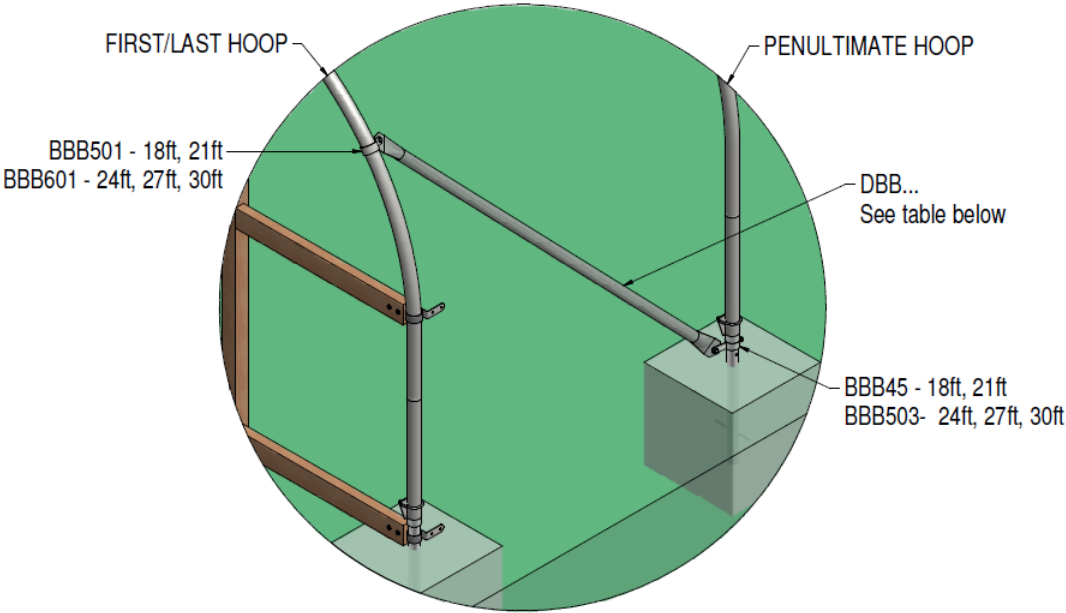


9. Beginning at one end, insert the ridge bar sections into position, threading each section through the hoop to ridge brackets and inserting the plain end of each new sections over the swaged end of the previous one. Make sure the brackets for the lintel hangers and struts are in place (refer to section 4). The last ridge piece will be plain both ends and may require cutting down. Once complete, finish off by tapping one end of the provided black plastic plugs into each end to seal them.





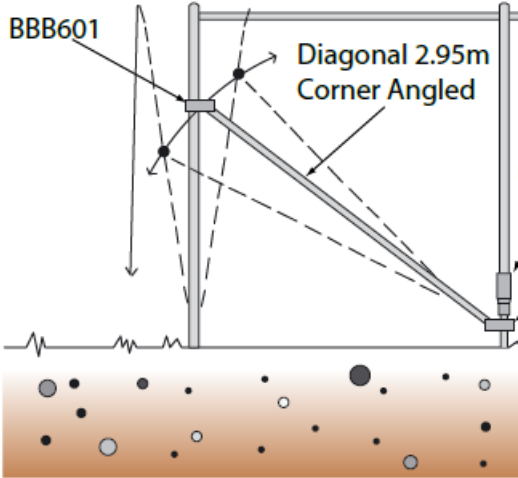
10. Fit the diagonals from the end hoop to the foundation tubes of the second hoop. These are right and left-handed. Bolt strut to brackets using an M10x25mm Bolt and an M10 Nylock nut.



Hoop Width	Corner Bracing Standard height	Corner Bracing High Sided
18ft	DBB295	DBB297
21ft	DBB295	DBB295
24ft	DBB250	DBB256
27ft	DBB250	DBB256
30ft	DBB250	DBB256

- 11. Look across the end hoop and adjust the diagonals until the end hoop is vertical then secure the diagonals.

SETTING END HOOPS VERTICAL



4 Ends & bracing

4.1 Timber Ends

During construction refer to the relevant image for your width in section 4.1.X

1. Using a string line across the front of the gable end as a guide, mark out the required locations for the timber uprights and dig out the holes (refer to section 6.2 for your door opening). The outside face of the timber end frame should be flush with the front of the hoops.



2. Fit the vertical cross bar strut (CBS) from the ridge, attach the door lintel bracket (DFT) and finger tighten.



3. The underside of the door lintel should be set 2.17m from ground level for both standard and high sided structures. Refer to the following table for the type of timber to use.

Width	Lintel timber (standard height structure)	Qty per end frame
18ft	TTR713 – 75mm x 75mm x 4.8m	1
21ft	TTR711 – 75mm x 75mm x 2.75m	2
24ft	TTR712 – 75mm x 75mm x 3.35m	2
27ft	TTR713 – 75mm x 75mm x 4.8m	2
30ft	TTR713 – 75mm x 75mm x 4.8m	2

Width	Lintel timber (High sided structure)	Qty per end frame
18ft	TTR711 – 75mm x 75mm x 2.75m	2
21ft	TTR712 – 75mm x 75mm x 3.35m	2
24ft	TTR713 – 75mm x 75mm x 4.8m	2
27ft	TTR713 – 75mm x 75mm x 4.8m	2
30ft	TTR713 – 75mm x 75mm x 4.8m	2

4. The ends of the lintel that meet the sides of the tunnel should be chamfered to roughly follow the line of the hoop. Lift the door frame brackets (DFB) to the correct height and tighten. Offer up the timber and mark the fixing hole. Using the short plate as a template, mark out the second fixing hole. Drill the fixing holes and secure to the bracket with the fixings provided. Repeat this process for the other side.



5. Lift the timbers up to the lintel bracket and mark them at the central point of the bracket and cut to length so they meet at the centre line. Using a spirit level, align the components so the timbers are level, mark the locations of the bolt holes on the timber from the lintel joiner and drill the required holes and secure in place with the fixings provided.
6. Now that the door lintel is correctly positioned, drop timbers into the post holes and offer up to the lintel, mark for height with a marker and cut to length. Return to the hole and move into position. Check vertically with a level then hammer a 6 inch nail through the lintel, into the upright to secure in position. Repeat this process for each upright.



7. Each end frame comes with two 75mm x 75mm x 2.75m uprights, if an end panel kit has been purchased you will receive two more uprights and some 100mm x 47mm timber for the base rail on the end frame. Note the 18ft tunnel only requires two uprights.
8. Using the 100mm x 47mm timber rails, measure and cut base rail sections to go in between the uprights, from the corner to the side of the door. These base rails should be aligned to the outside of the gable end, then nail into position using a 150mm and 100mm nail.



If on a concrete base, the bottom door guides should be put in position at this point and left loose for fixing later.

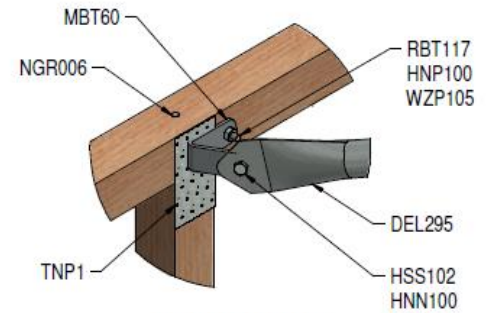
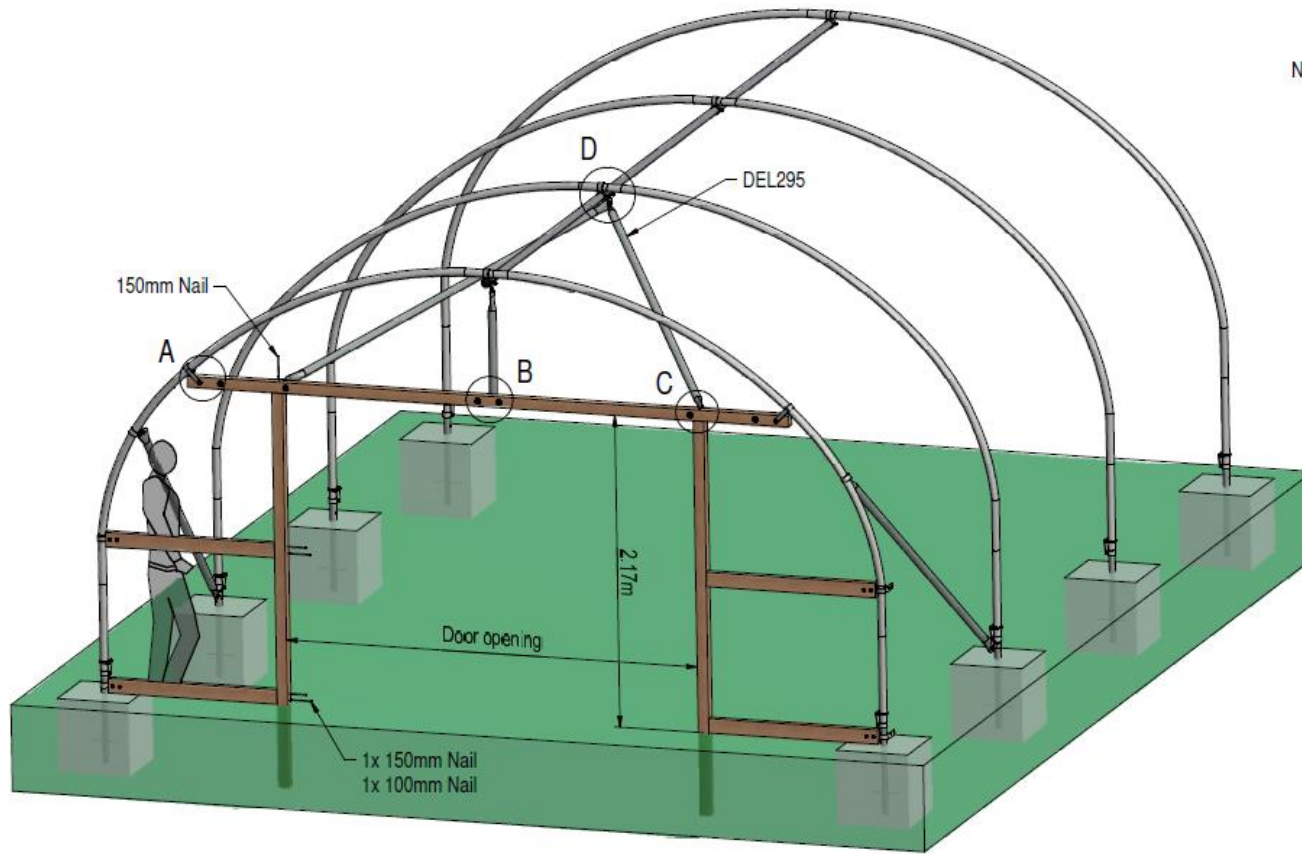
9. The 27ft and 30ft tunnels have a H-Frame above the door lintel, two suspended from the door brackets on the hoop, which run vertically down the lintel and a third which runs horizontally between the two. The uprights are cut from one piece of 75mm x 75mm x 3.35m timber and the mid rail is cut to 2.13m from a 75mm x 75mm x 2.57m long. The uprights on a 30ft high sided tunnel are cut from a 4.8m length of timber. Fix the timber into the door brackets and allow to hang vertically. Measure the length and mark, also mark the position of the timber on the lintel to make locating easier. Cut the verticals to length then locate on the lintel and nail up through the lintel from below to secure in position. Measure and mark the midpoint of each vertical. Measure and cut the horizontal timber and nail into place at the point.



10. Fit your diagonal end lintel struts (DEL) from the ridge to the back of the lintel, fixing to the lintel using the MBT60 bracket, note these struts are handed.
11. ALL joints in the timbers should now be reinforced with galvanised nail plates.
12. Once you are happy with the shape of your end frame, backfill the holes with the ground you dug up earlier, for a stronger fix you can concrete the uprights in position.

4.1.1 18ft

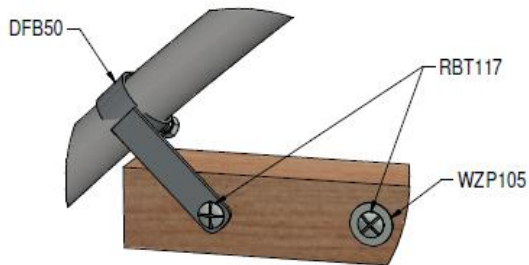
Single Span Polytunnel



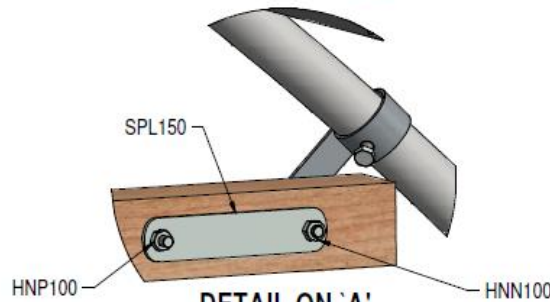
DETAIL ON 'C'



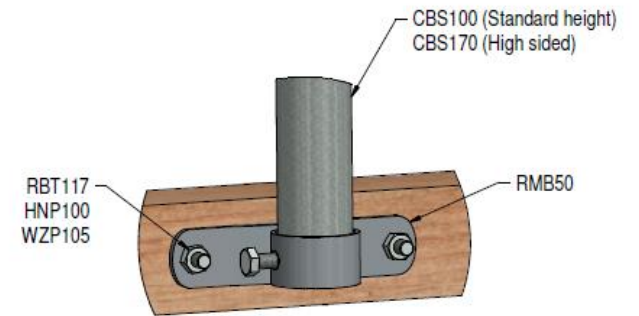
DETAIL ON 'D'
BBB501 behind first and second hoop to take gable bracing



DETAIL ON 'A'

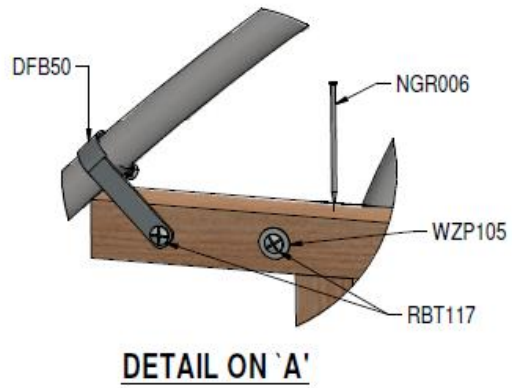


DETAIL ON 'A' INSIDE VIEW

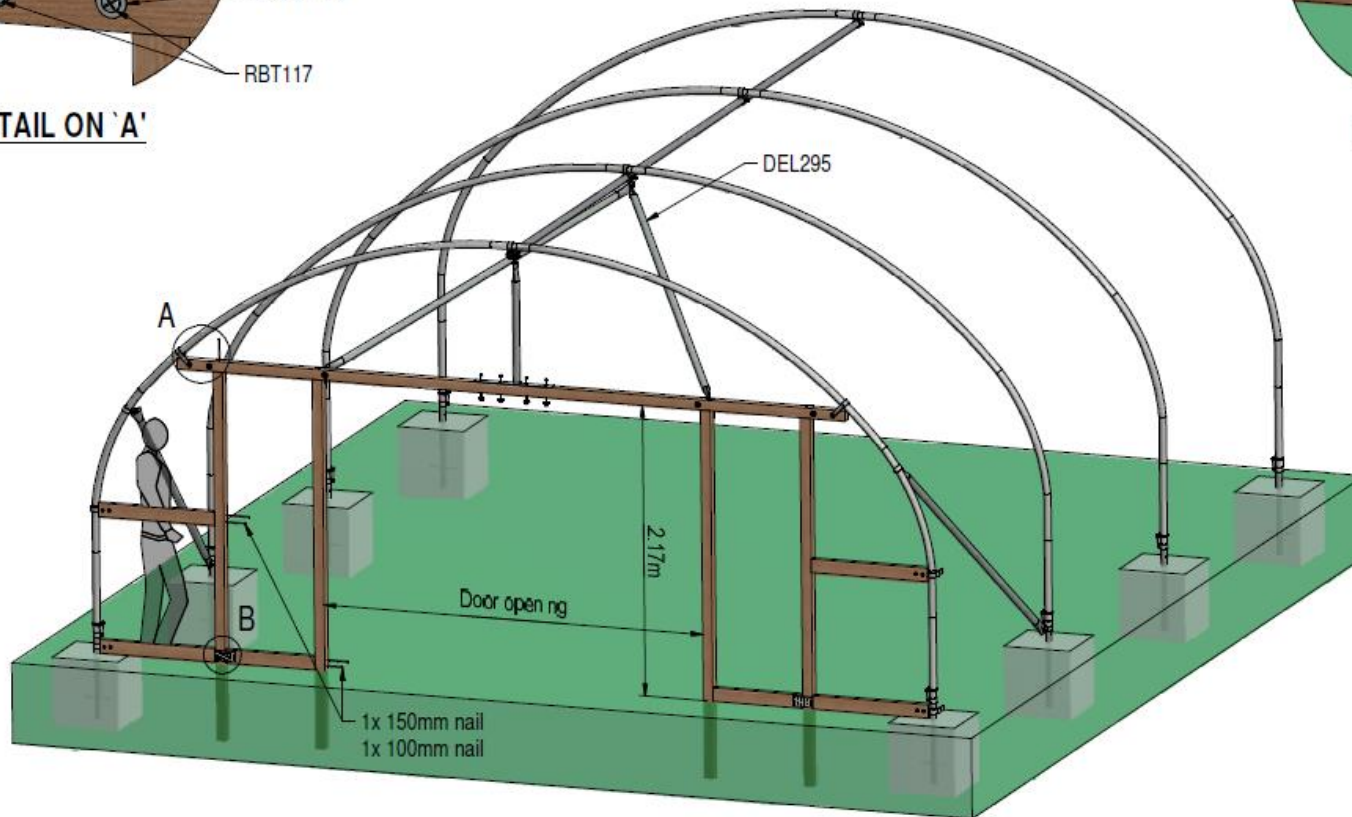
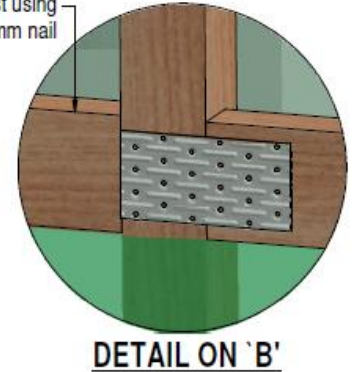


DETAIL ON 'B' INSIDE VIEW

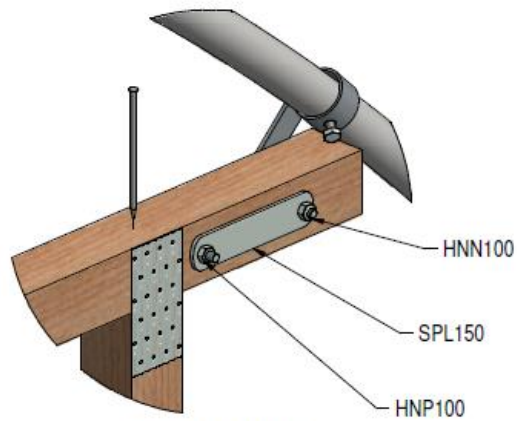
4.1.2 21ft



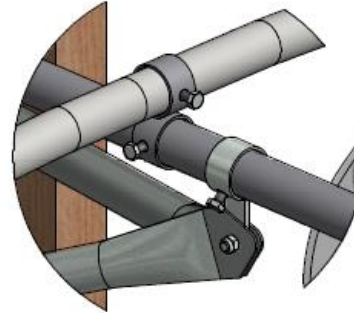
Base rail to corner nailed to post using
150mm nail and 100mm nail



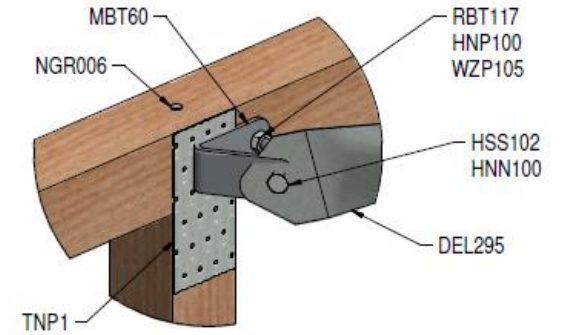
Single Span Polytunnel



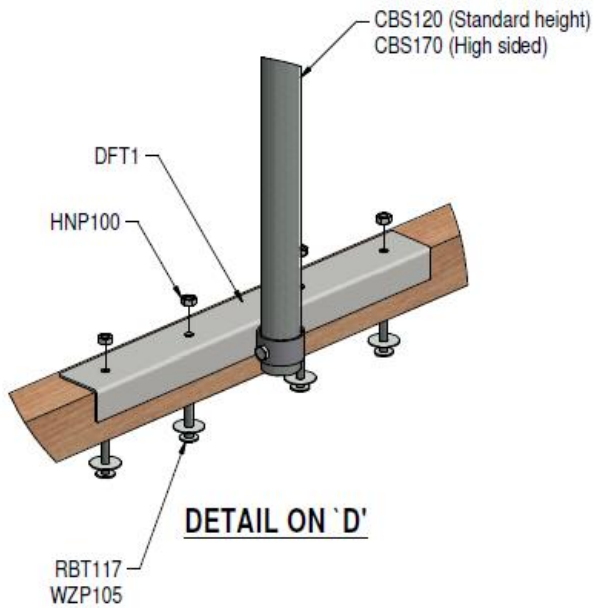
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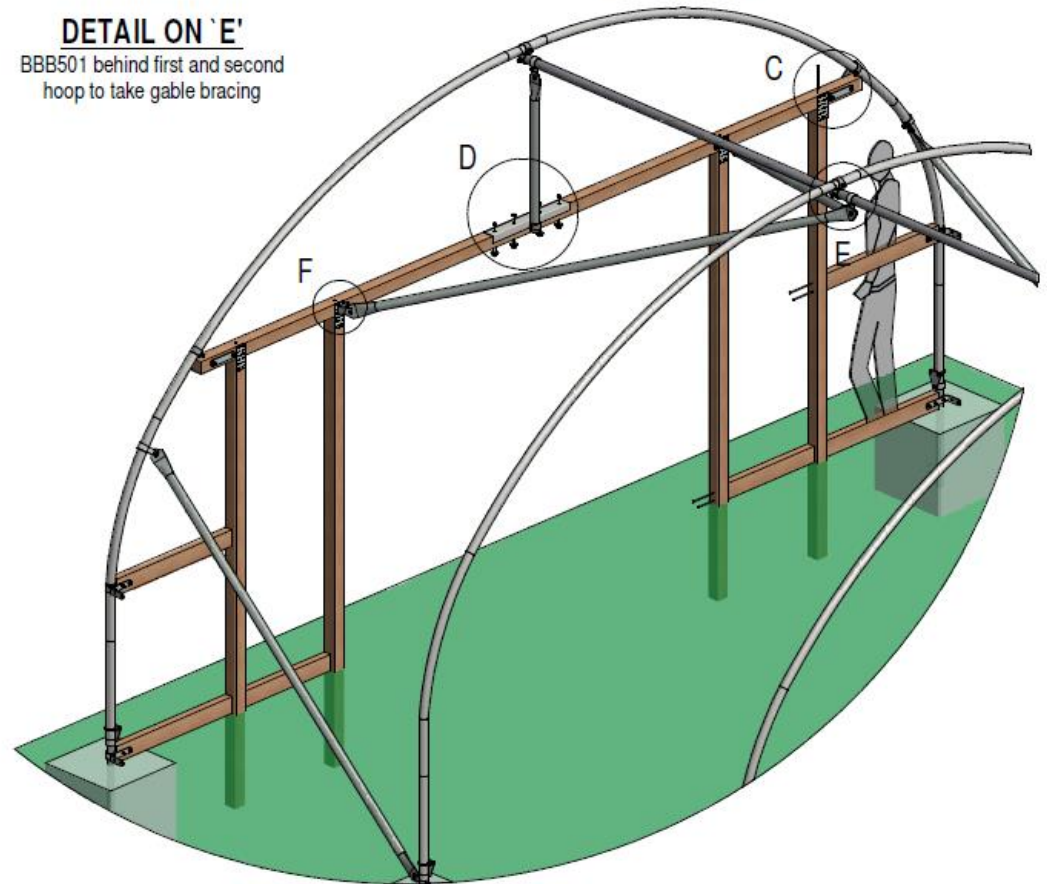
DETAIL ON 'E'
BBB501 behind first and second hoop to take gable bracing



DETAIL ON 'F'

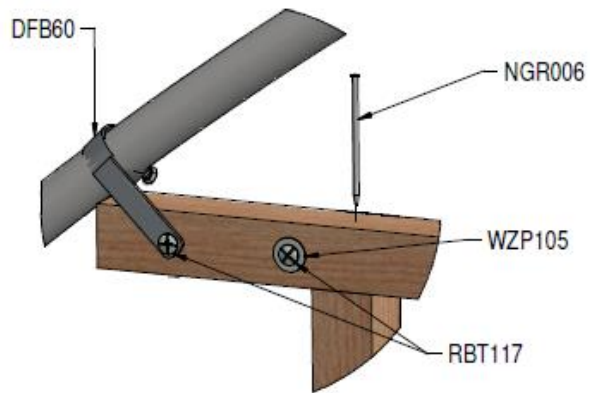


DETAIL ON 'D'

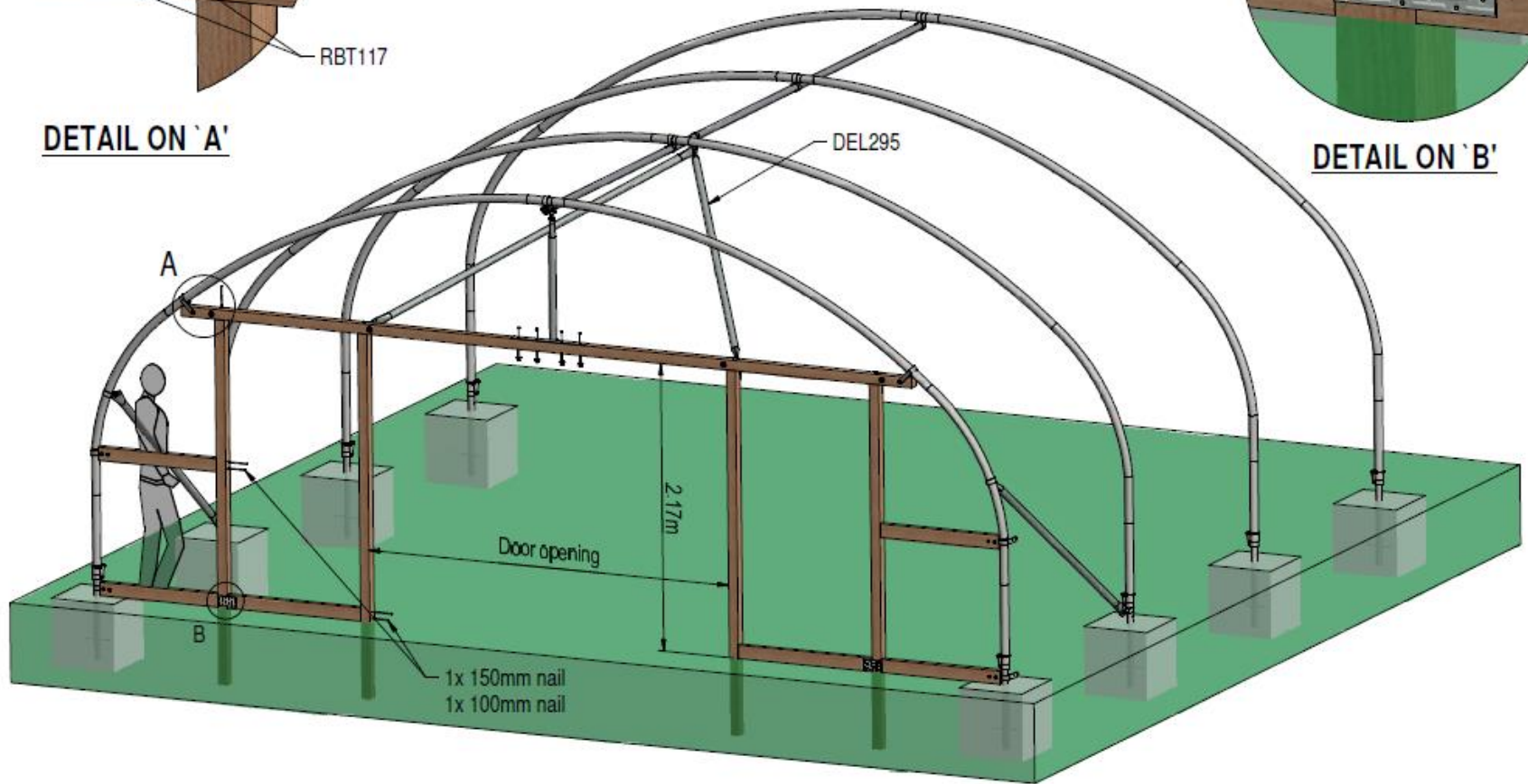
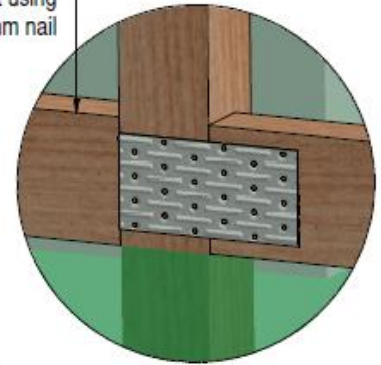


Single Span Polytunnel

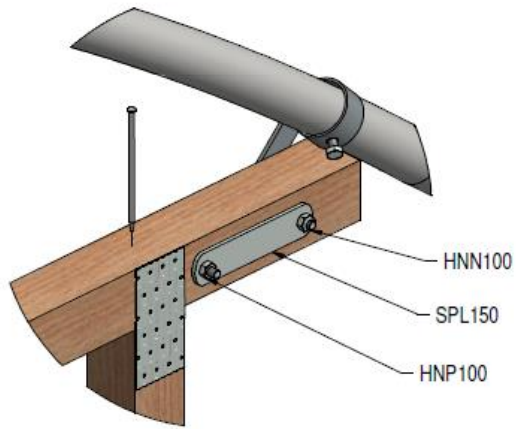
4.1.3 24 ft



Base rail to corner nailed to post using
150mm nail and 100mm nail



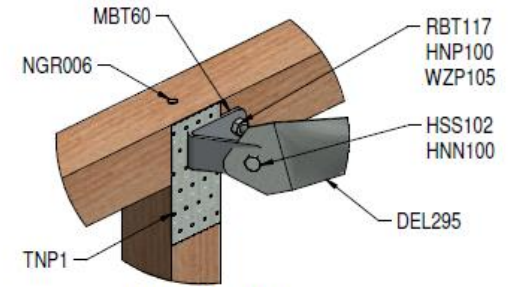
Single Span Polytunnel



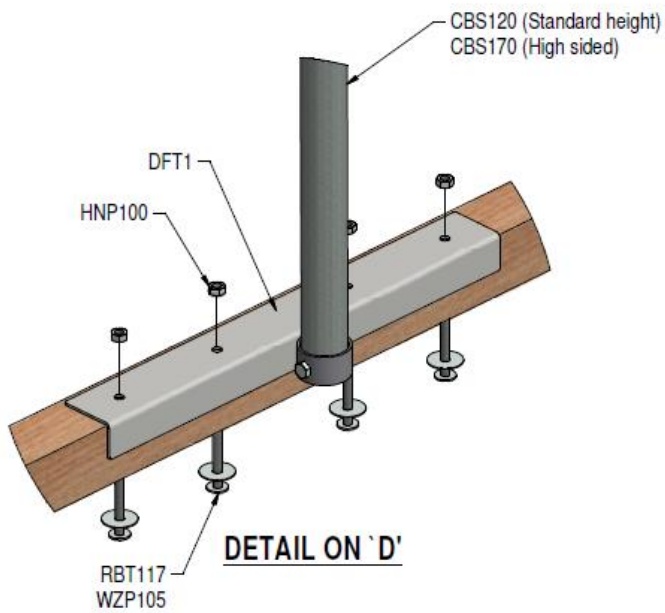
DETAIL ON 'C'



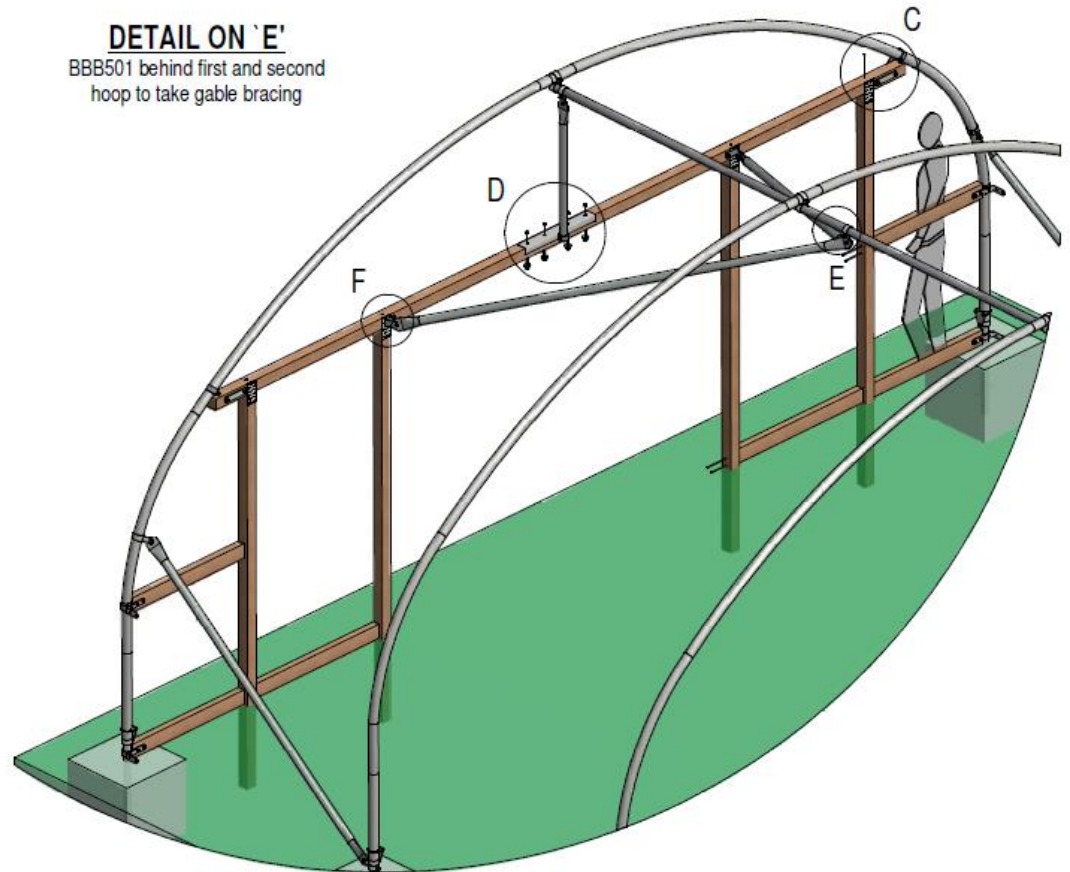
DETAIL ON 'E'
BBB501 behind first and second hoop to take gable bracing



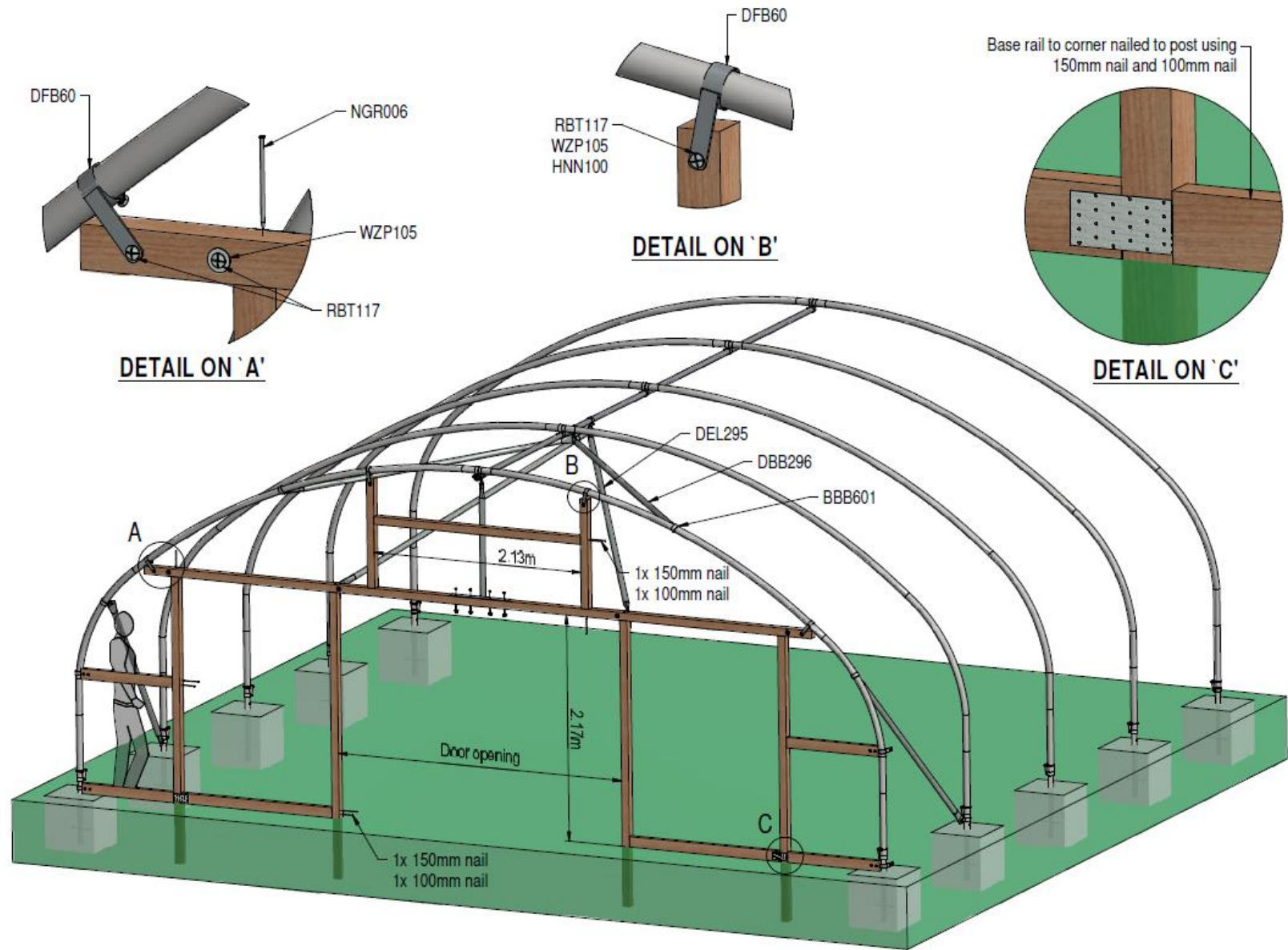
DETAIL ON 'F'



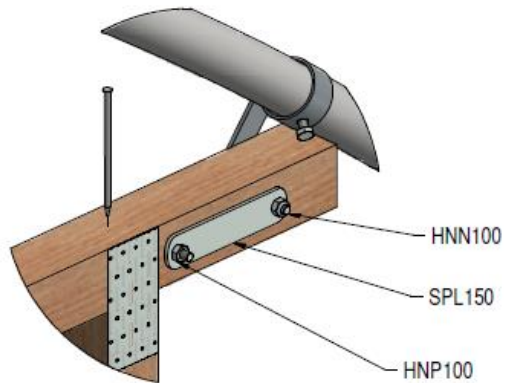
DETAIL ON 'D'



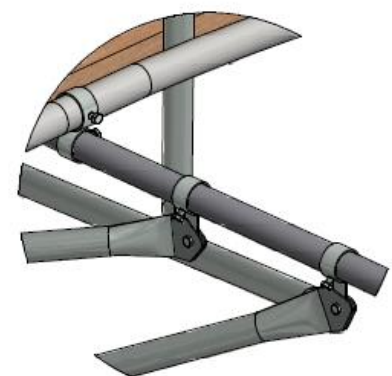
4.1.4 27ft



Single Span Polytunnel

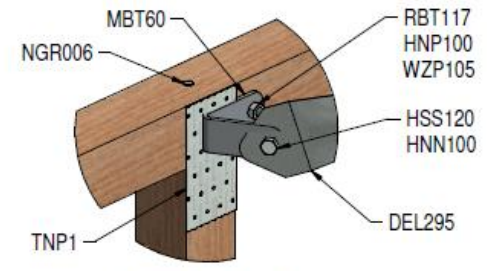


DETAIL ON 'C'

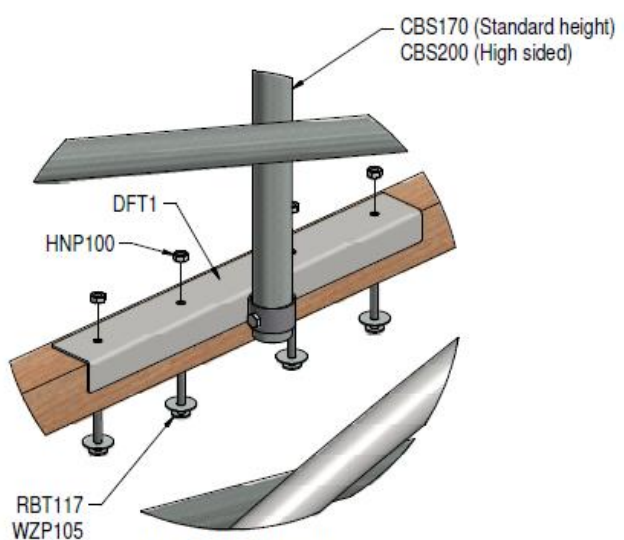


DETAIL ON 'E'

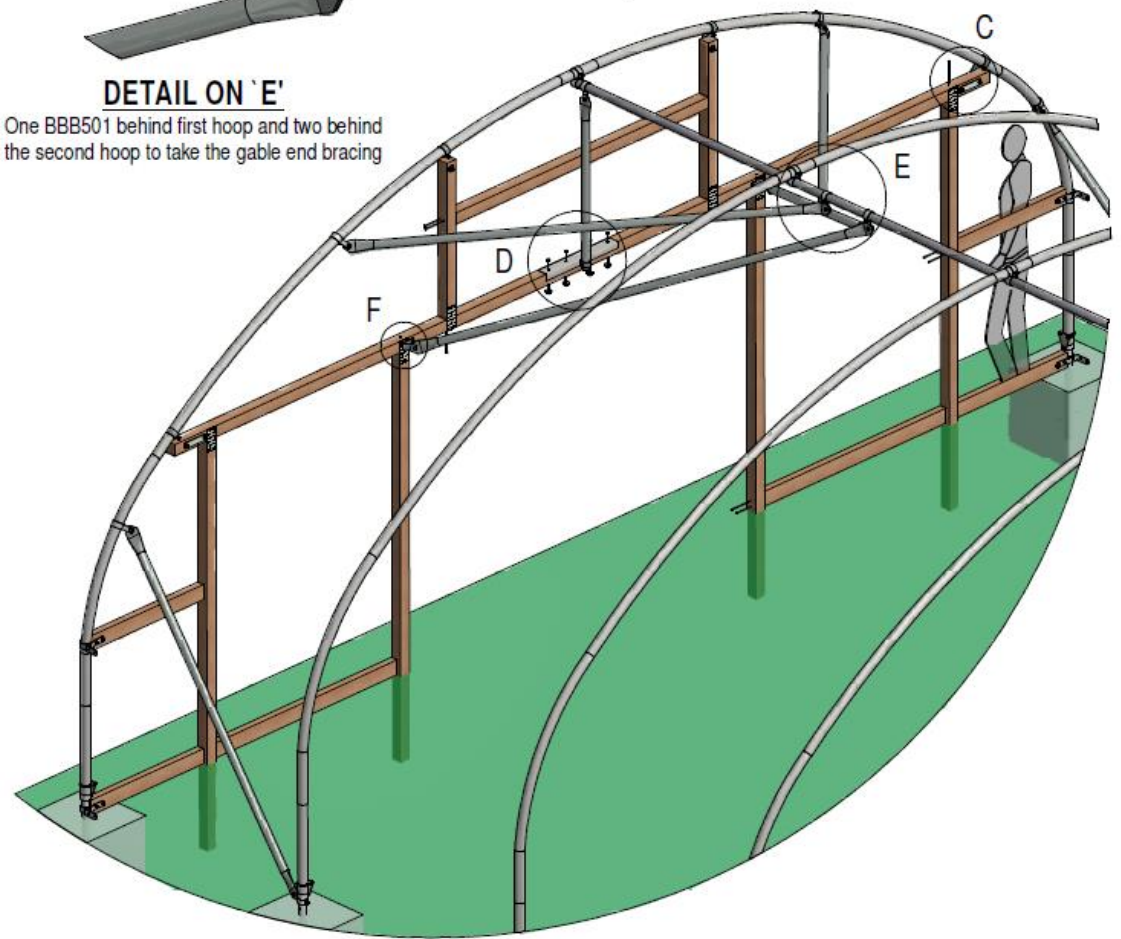
One BBB501 behind first hoop and two behind the second hoop to take the gable end bracing



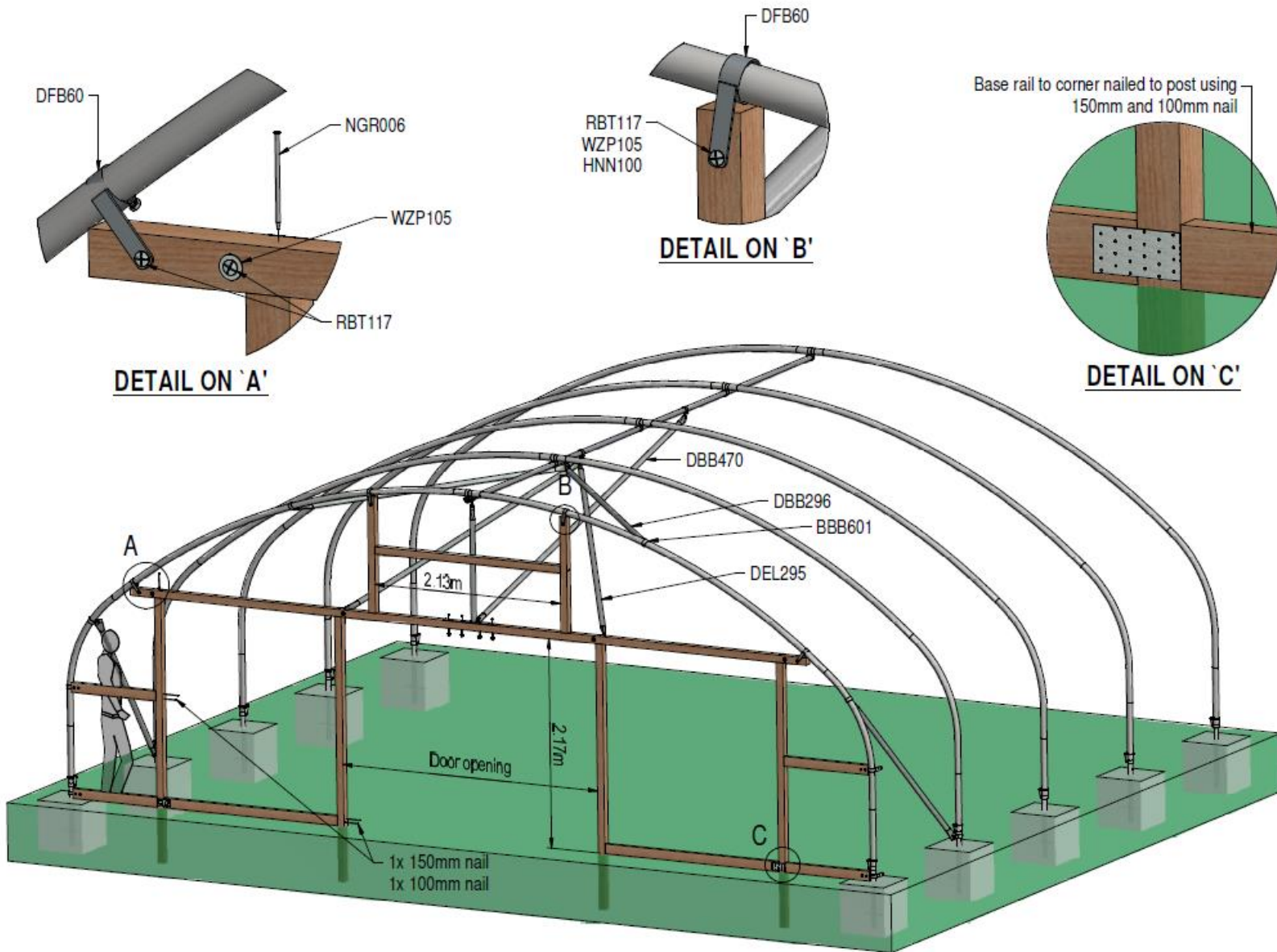
DETAIL ON 'F'



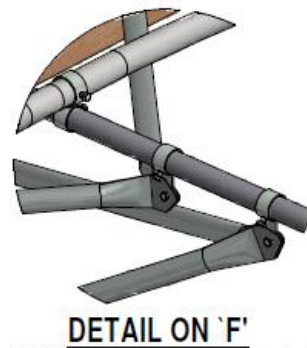
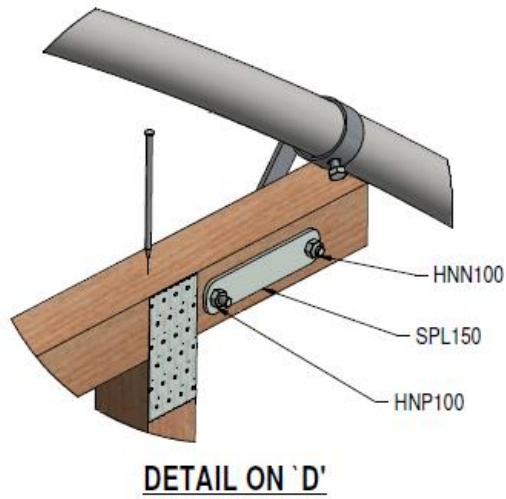
DETAIL ON 'D'



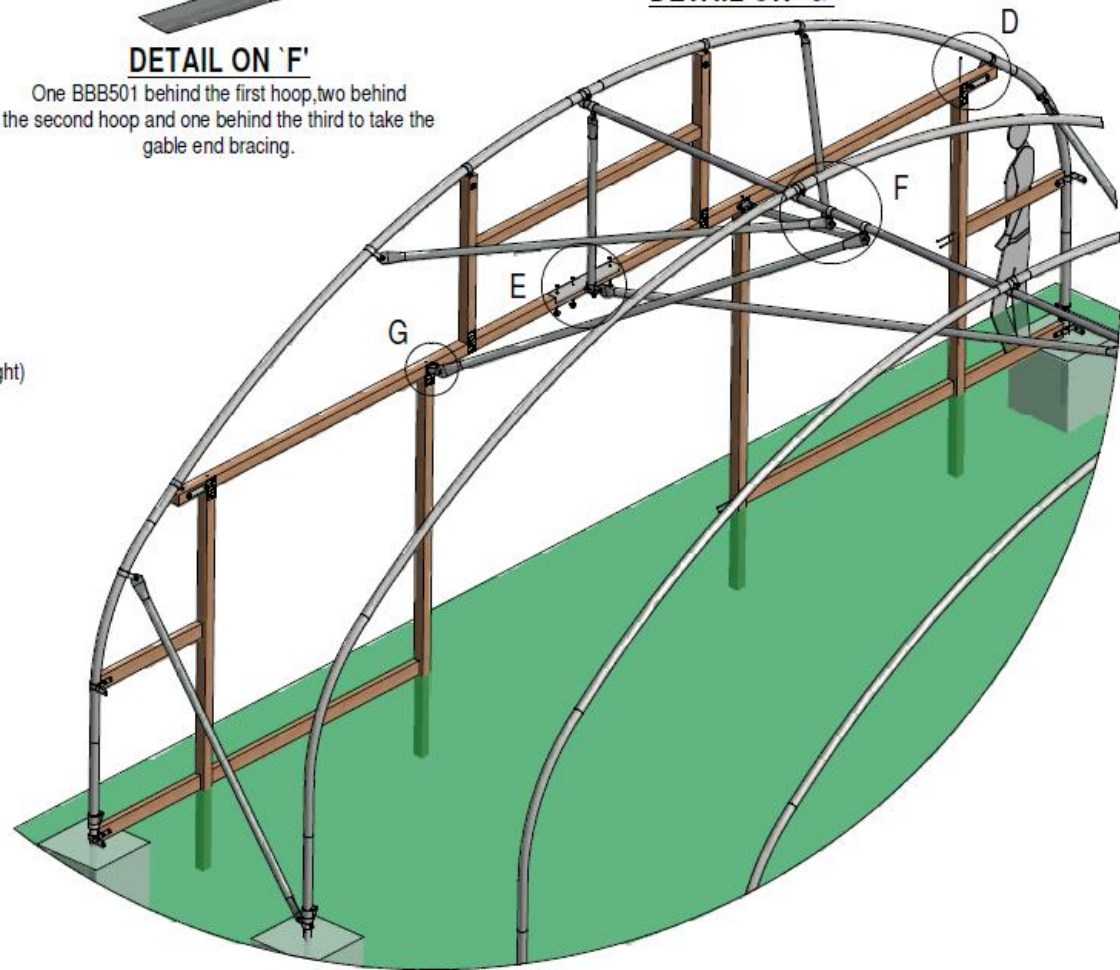
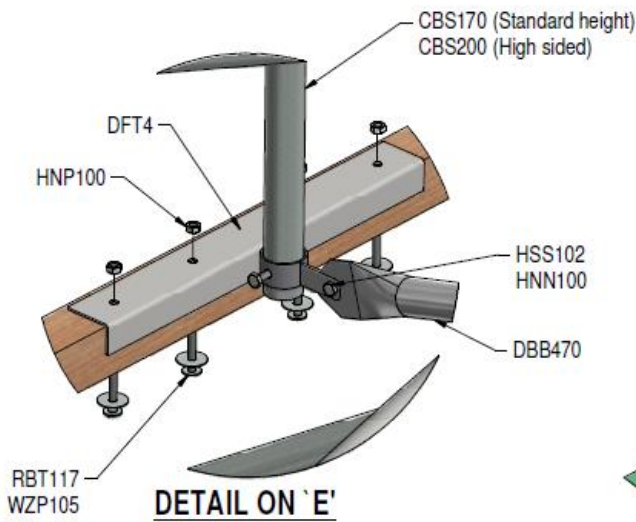
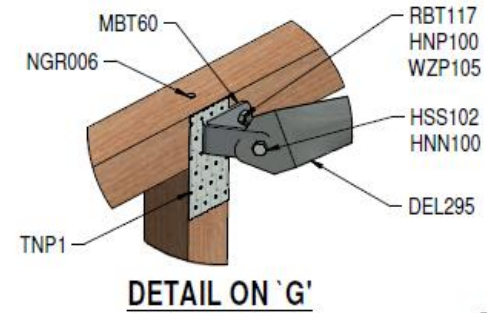
4.1.5 30ft



Single Span Polytunnel



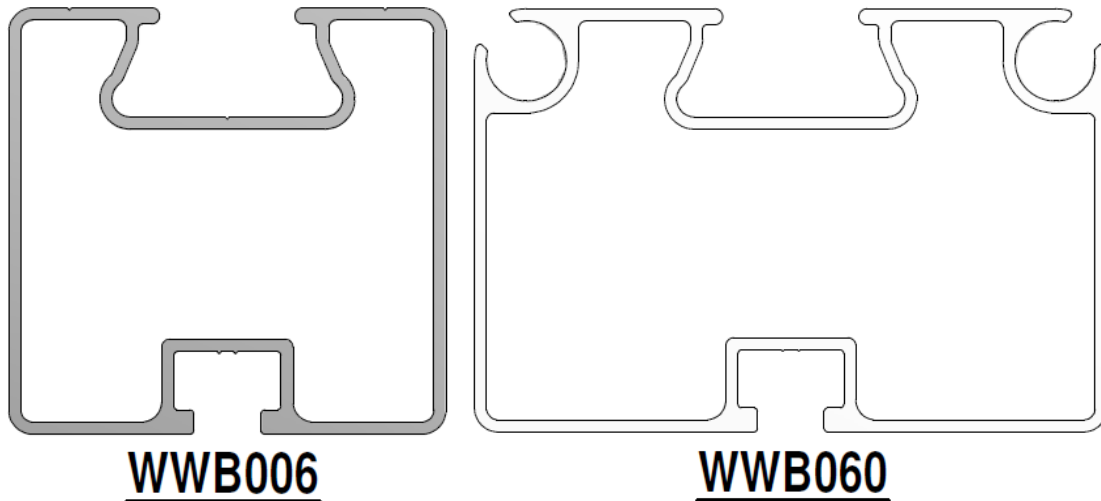
One BBB501 behind the first hoop, two behind the second hoop and one behind the third to take the gable end bracing.



4.2 Aluminium Ends

During construction refer to the relevant image for your width in section 4.2.X

1. The aluminium end frame is constructed from two different aluminium box profiles. The lintel and uprights use WWB060, the side and base rails use WWB006. The top channel is for wiggle wire and the bottom channel is used to slide M8 bolts in for fixing. The top wiggle wire channel should be on the outside of the tunnel.



2. Using the string line across the front of the gable end as a guide, mark out the required locations for the uprights and dig out the holes (refer to section 6.2 for your door opening). The outside face of the end frame should be flush with the front of the hoops.

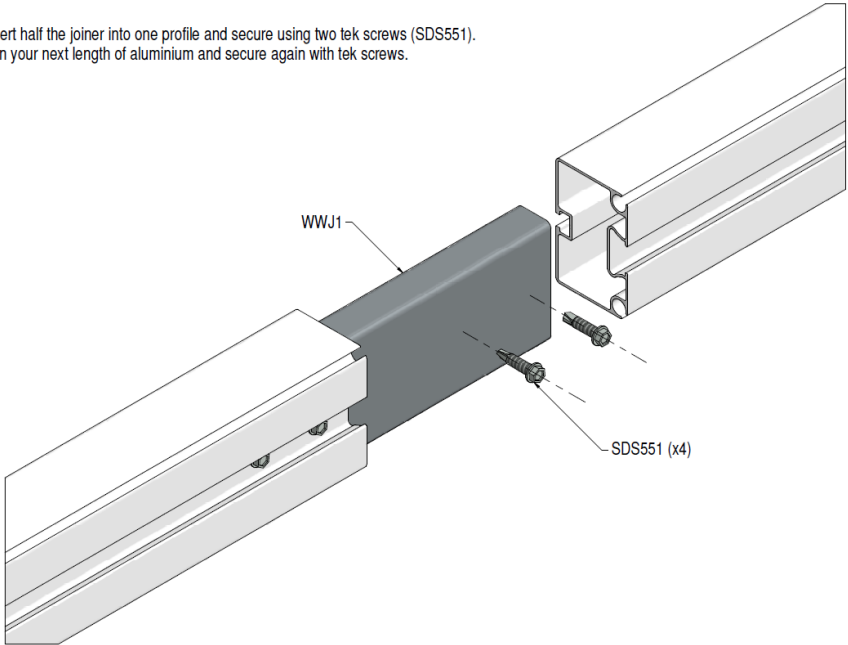


3. Fit the vertical cross bar strut (CBS) from the ridge, attach the door lintel bracket (RMB50) and finger tighten.



- The underside of the door lintel should be set at 2.17m from ground level for both standard and high sided structures. Refer to the following table for the lengths of aluminium to use, any lintels made from two lengths are joined in the middle using the rectangular box joiners.

Insert half the joiner into one profile and secure using two tek screws (SDS551).
Join your next length of aluminium and secure again with tek screws.



Width	Lintel ali lengths (standard height structure)	Qty per end frame
18ft	WWB060 – 6m	1
21ft	WWB060 – 6m	1
24ft	WWB060 – 6m	1
27ft	WWA4 – 4.15m	2
30ft	WWA4 – 4.14m	2

Width	Lintel ali lengths (High sided structure)	Qty per end frame
18ft	WWB060 – 6m	1
21ft	WWB060 – 6m	1
24ft	WWA4 – 4.15m	2
27ft	WWA4 – 4.15m	2
30ft	WWB060 – 6m	2

5. Fit the door lintel to the door frame brackets at the required height and support in the middle using the door lintel bracket (RMB50), use a spirit level and align the components until the lintel is level. Ensure you have slid the required number of bolts into the T-Slot for any other brackets and joiners.
6. To make the uprights cut a WWB060 in half so you have two 3m lengths. Drop the aluminium uprights into the post holes and offer up to the lintel, mark the height with a marker and cut to length. Return to the hole and move into position. Insert the required number of bolts in to the upright and using a 90-degree joiner plate bolt the upright to the lintel. Check that the post is vertical with a level.
7. Using the smaller WWB006 profile for the base rails, measure and cut the base rail sections to go in between the uprights, from the corner to the side of the door. Refer to relevant images below from joining details.

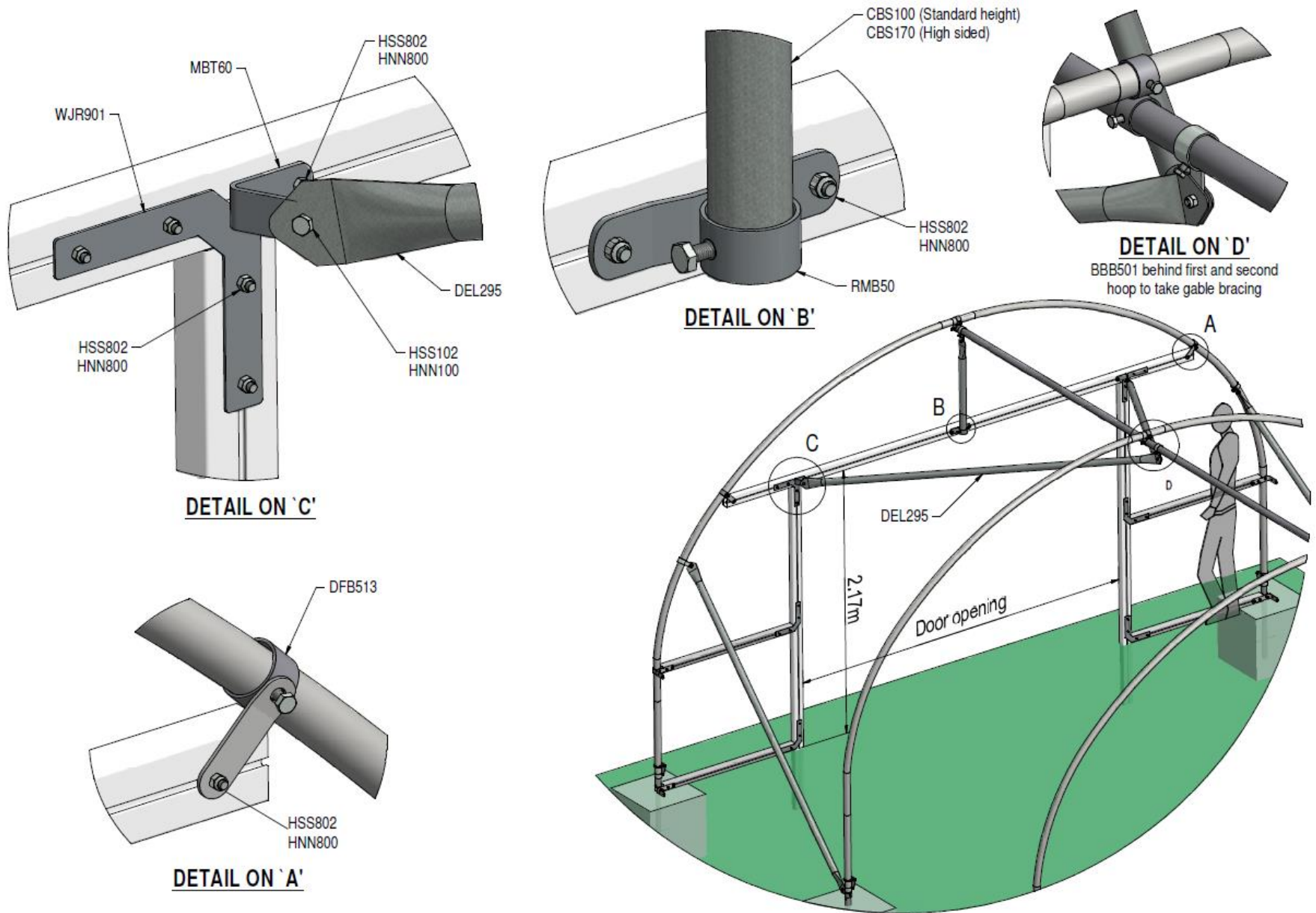


If on a concrete base, the bottom door guides should be put in position at this point and left loose for fixing later.

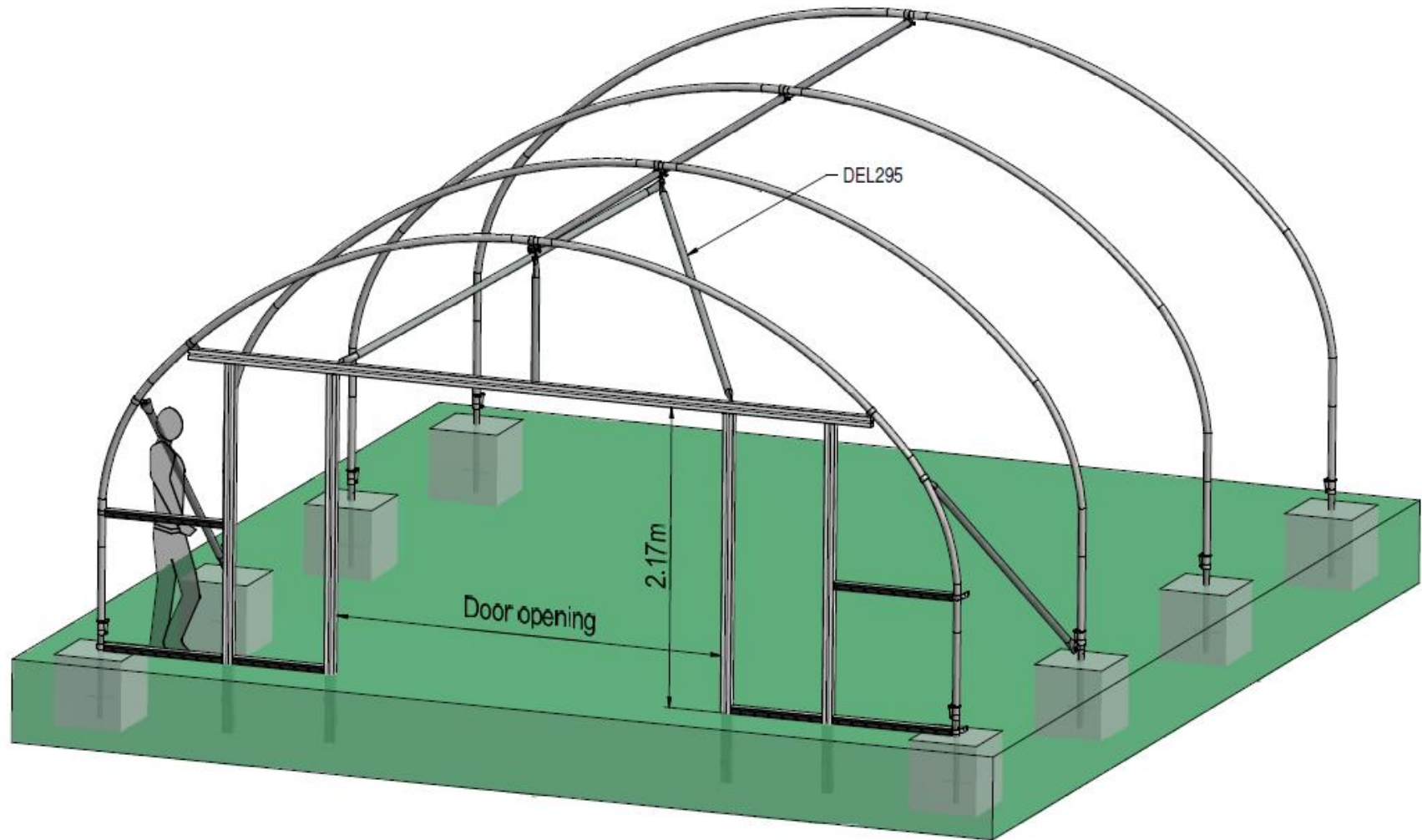
8. Once you are happy with the shape of your end frame, backfill the holes with the ground you dug up earlier, for a stronger fix you can concrete the uprights into position.

4.2.1 18ft

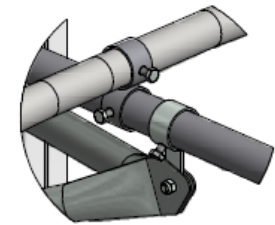
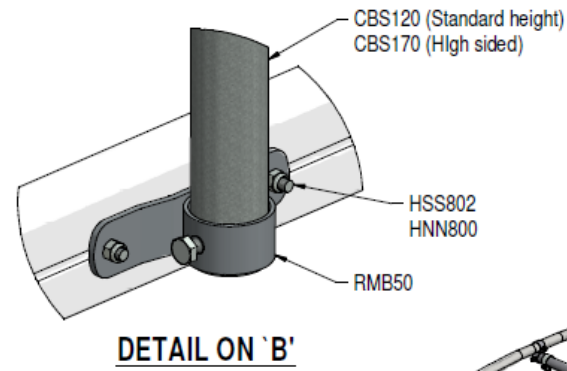
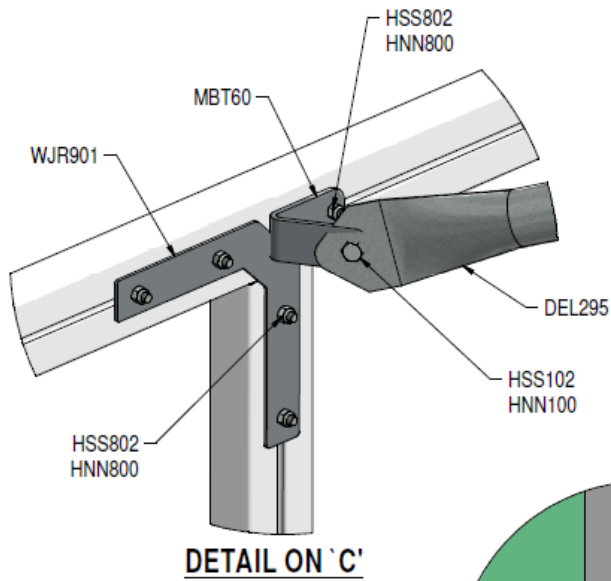
Single Span Polytunnel



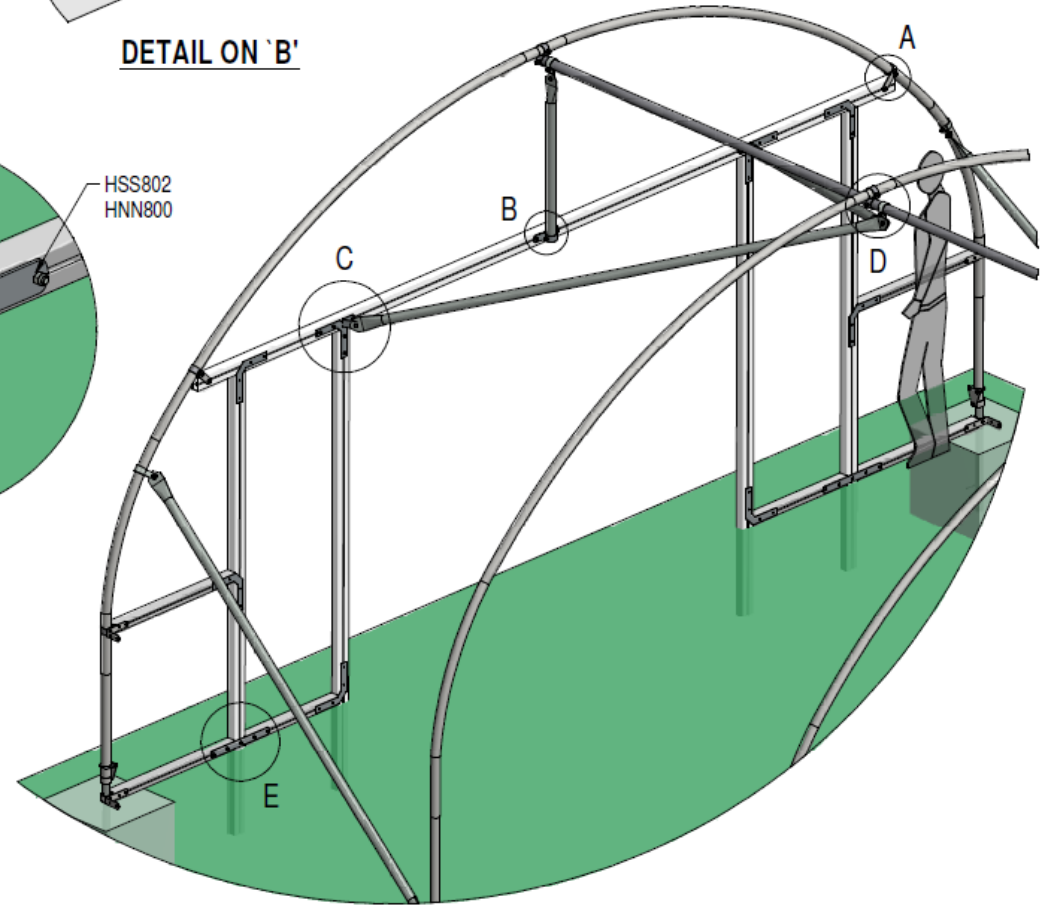
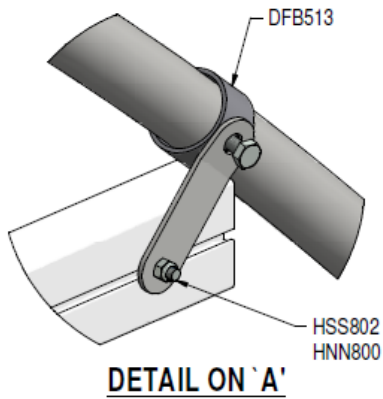
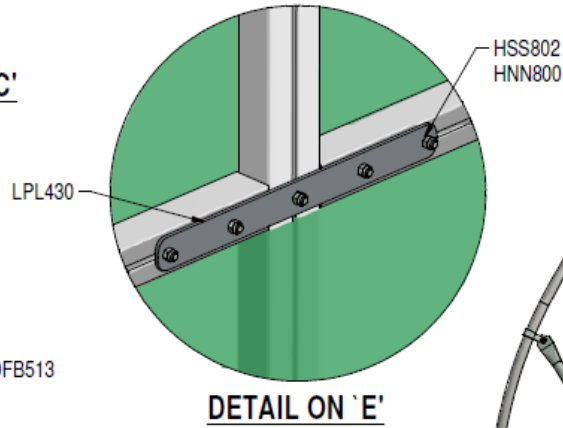
4.2.2 21ft



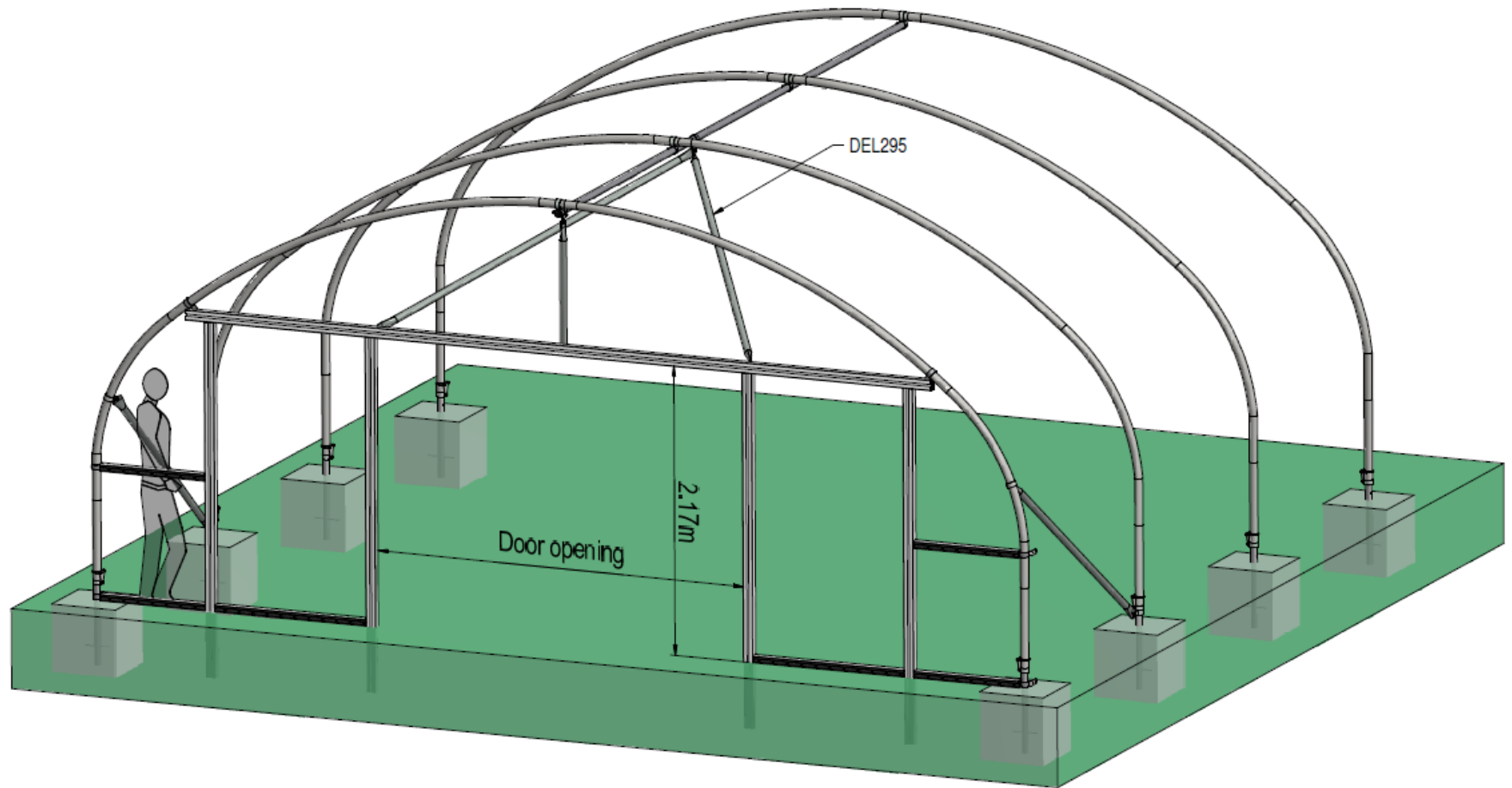
Single Span Polytunnel



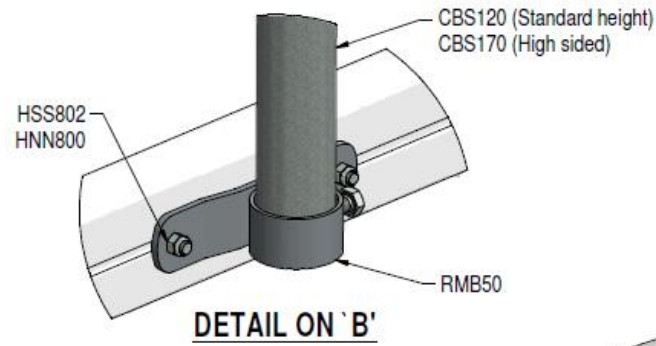
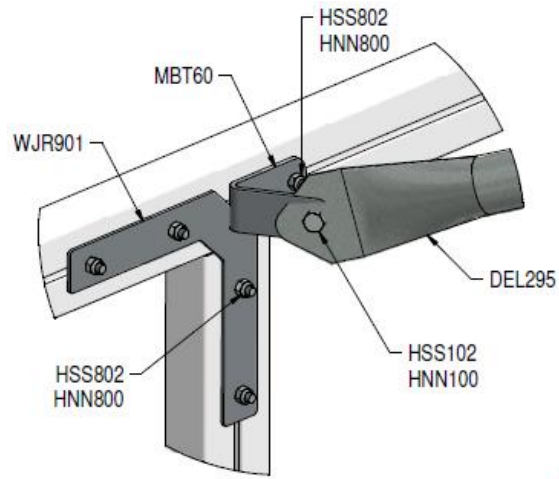
BBB501 behind first and second hoop to take gable bracing



4.2.3 24ft

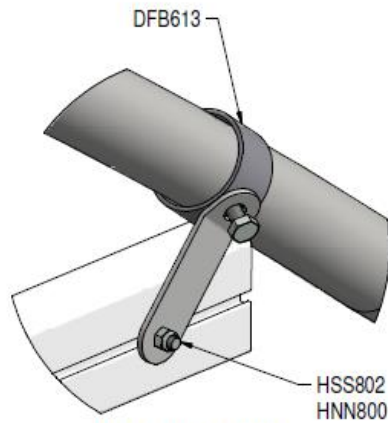
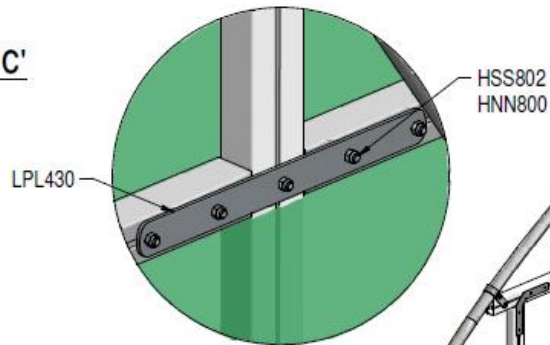


Single Span Polytunnel

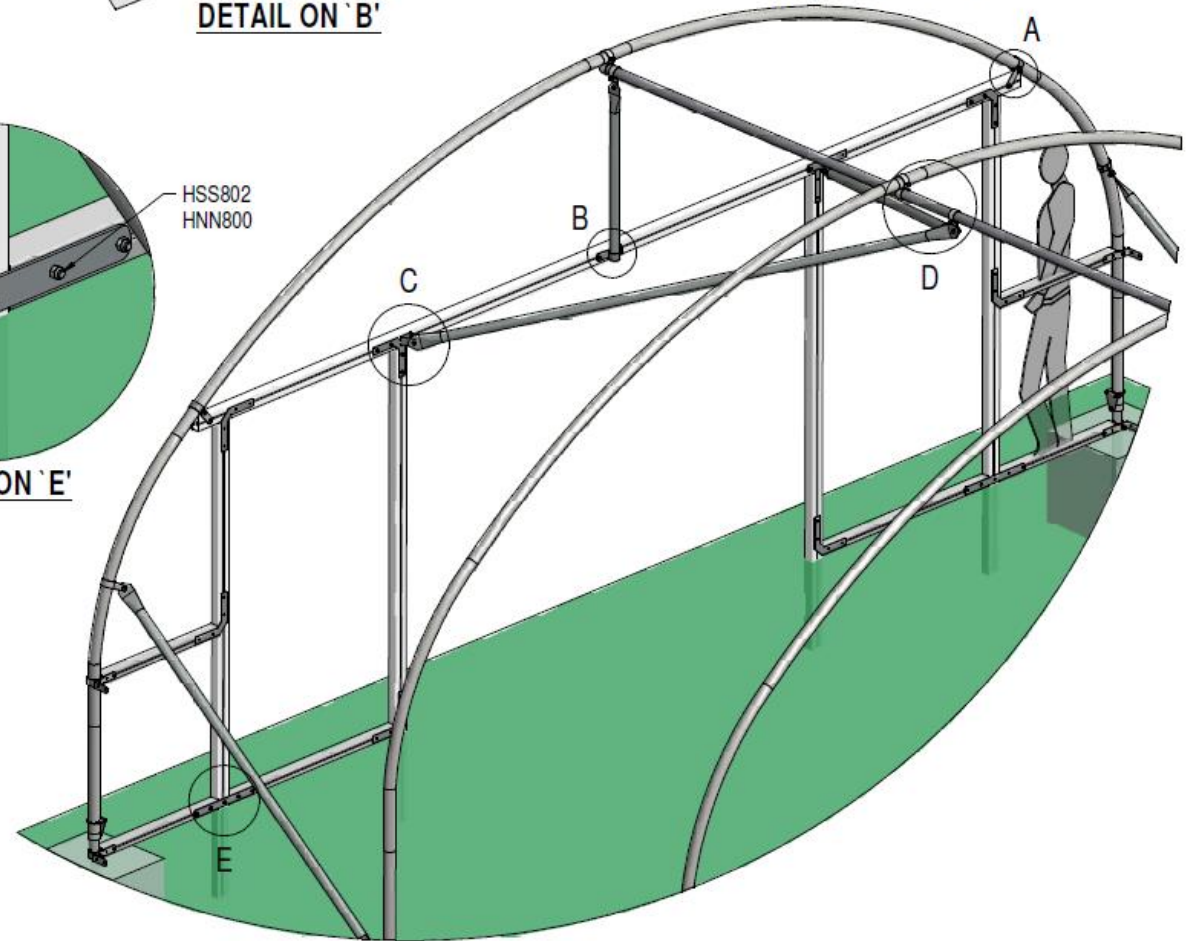


BBB501 behind first and second hoop to take gable bracing

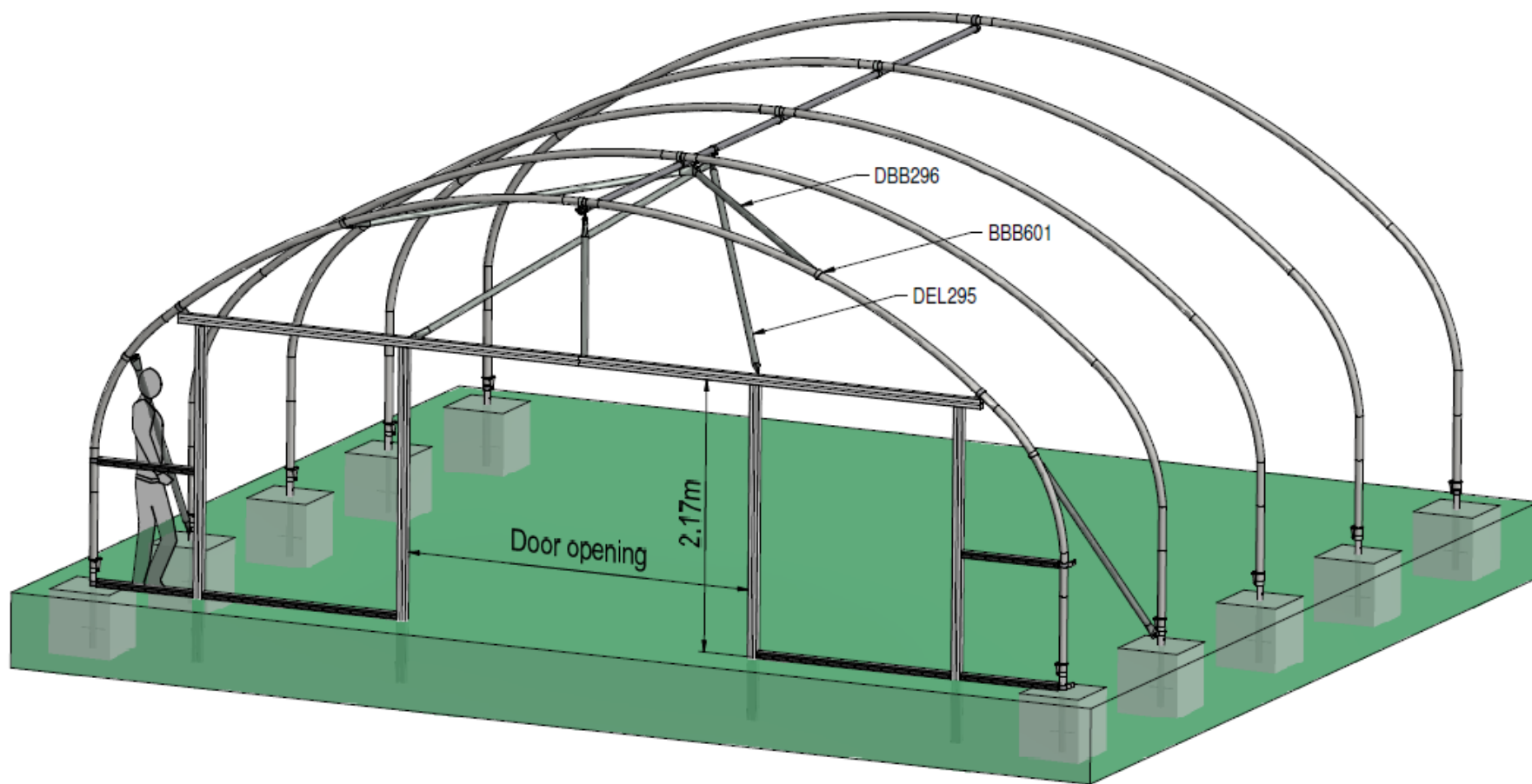
DETAIL ON 'C'



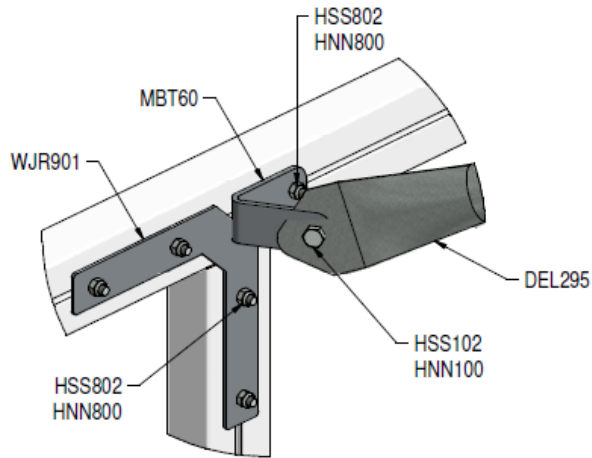
DETAIL ON 'A'



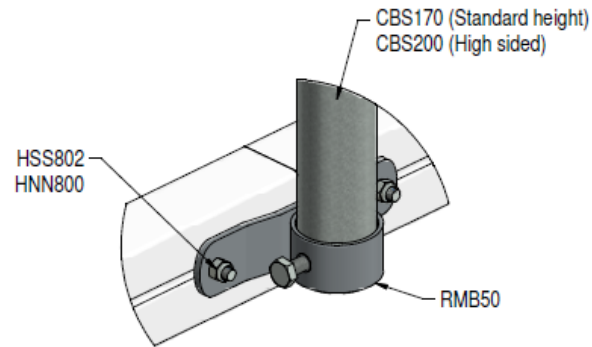
4.2.4 27ft



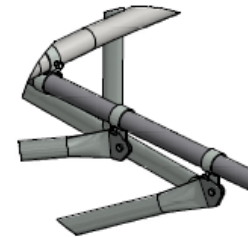
Single Span Polytunnel



DETAIL ON 'C'

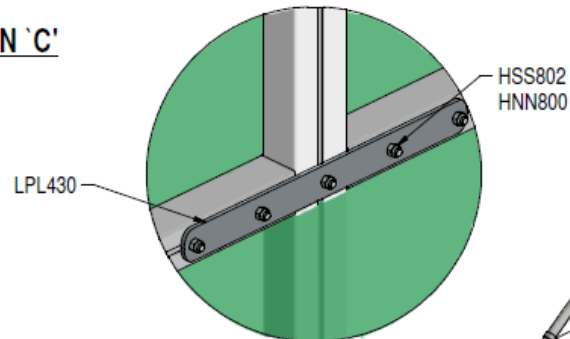


DETAIL ON 'B'

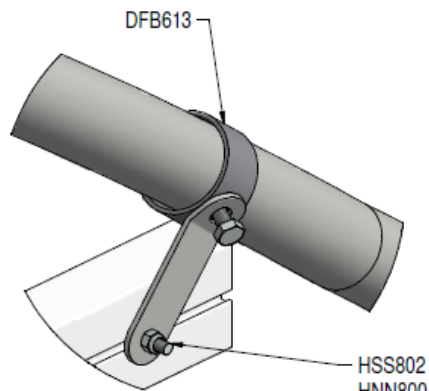


DETAIL ON 'D'

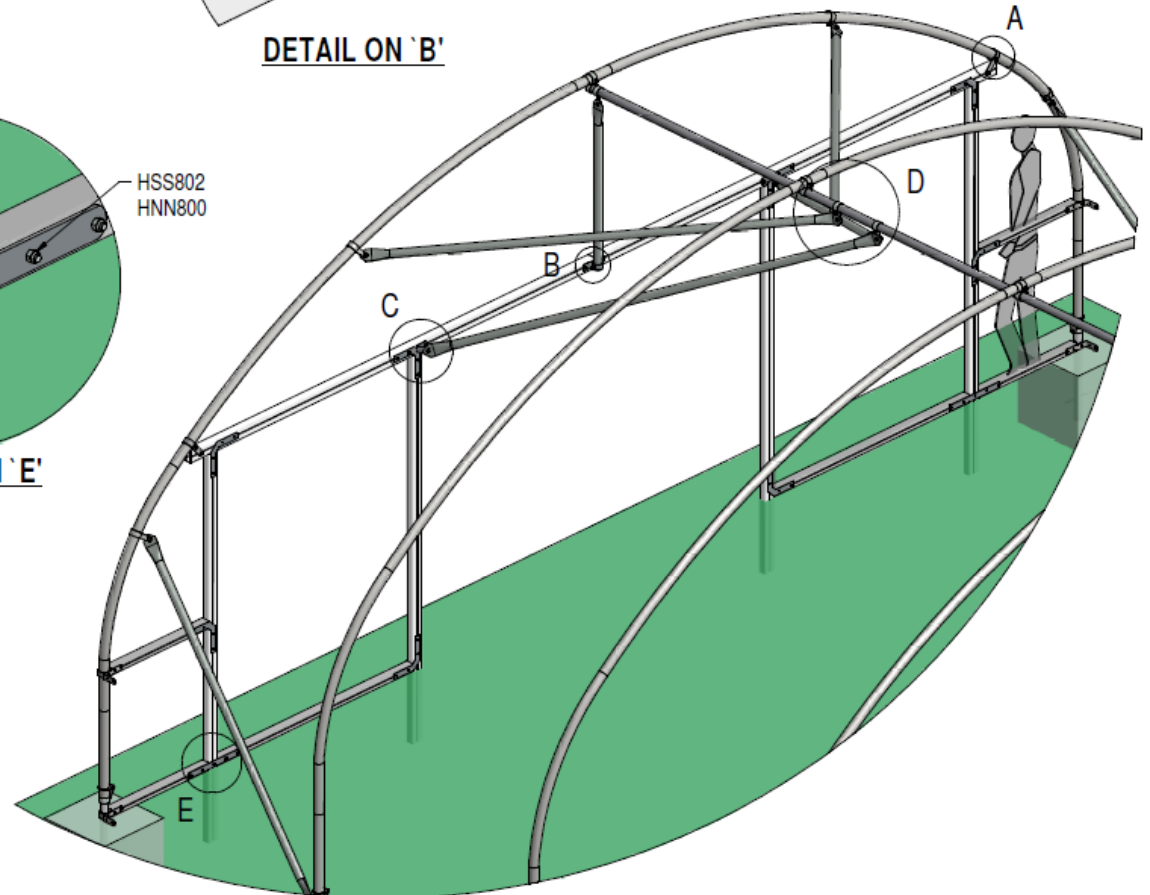
One BBB501 behind first hoop and two behind second hoop to take gable bracing



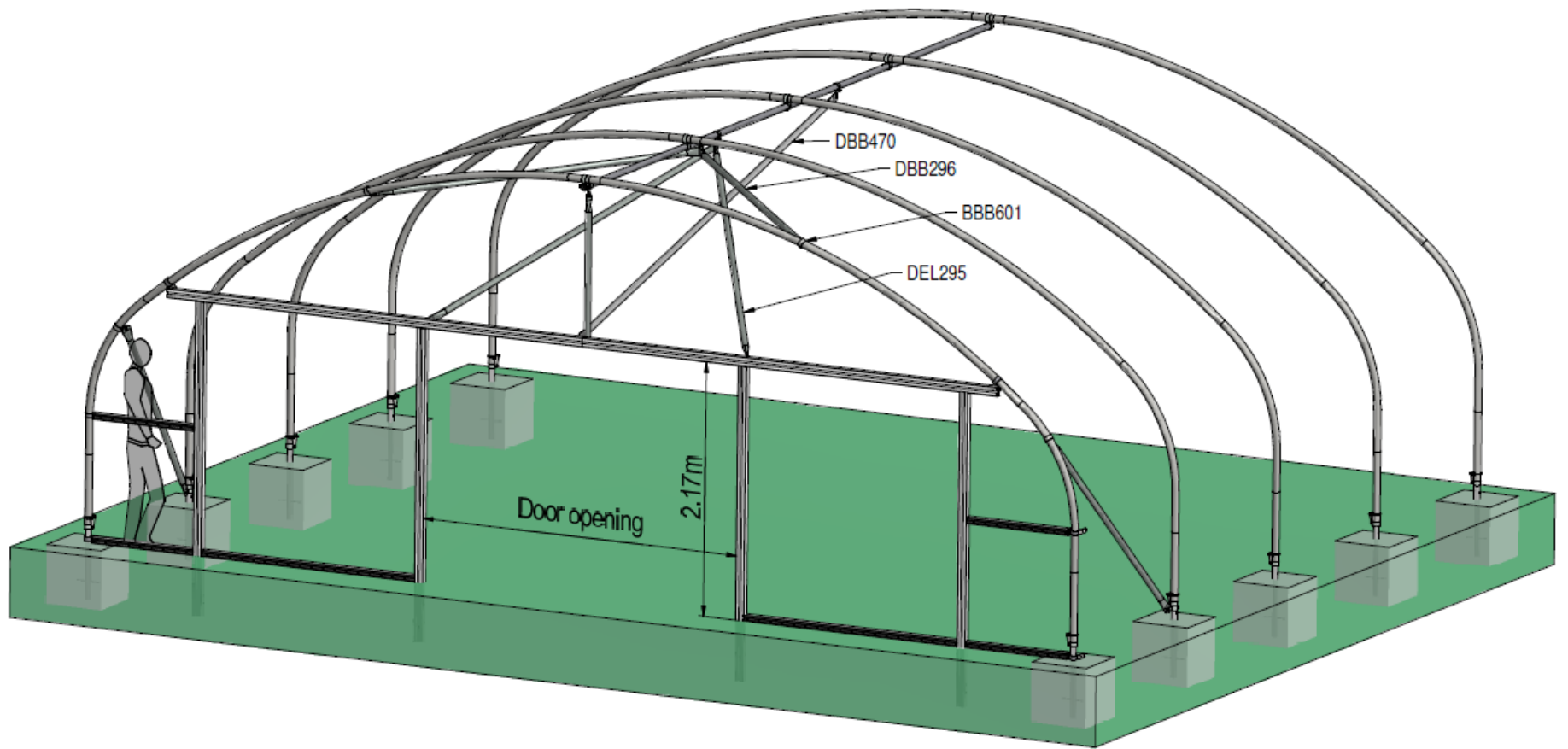
DETAIL ON 'E'



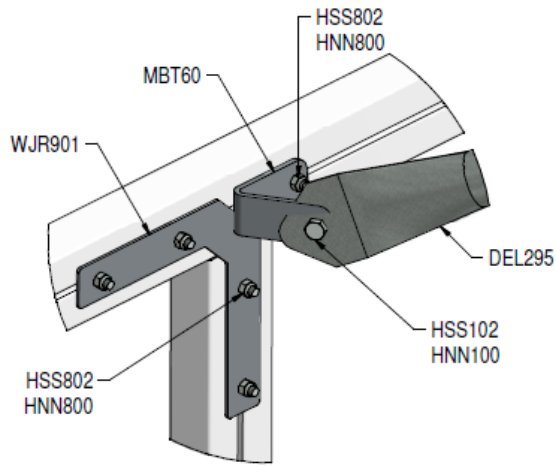
DETAIL ON 'A'



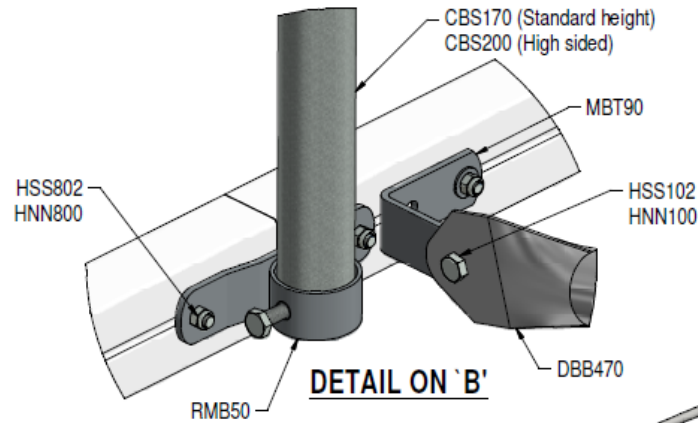
4.2.5 30ft



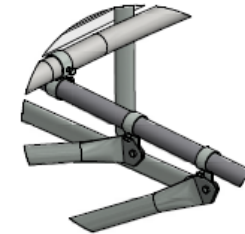
Single Span Polytunnel



DETAIL ON 'C'

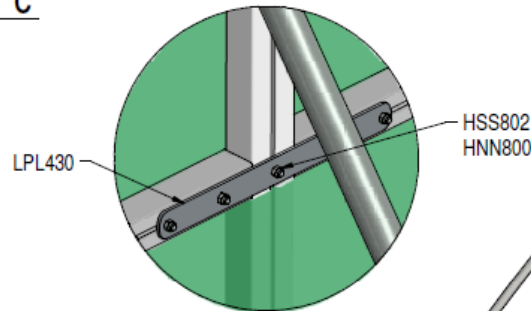


DETAIL ON 'B'

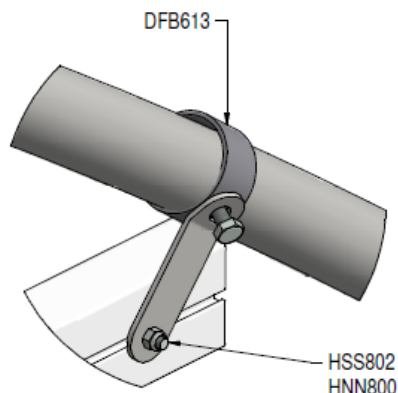


DETAIL ON 'D'

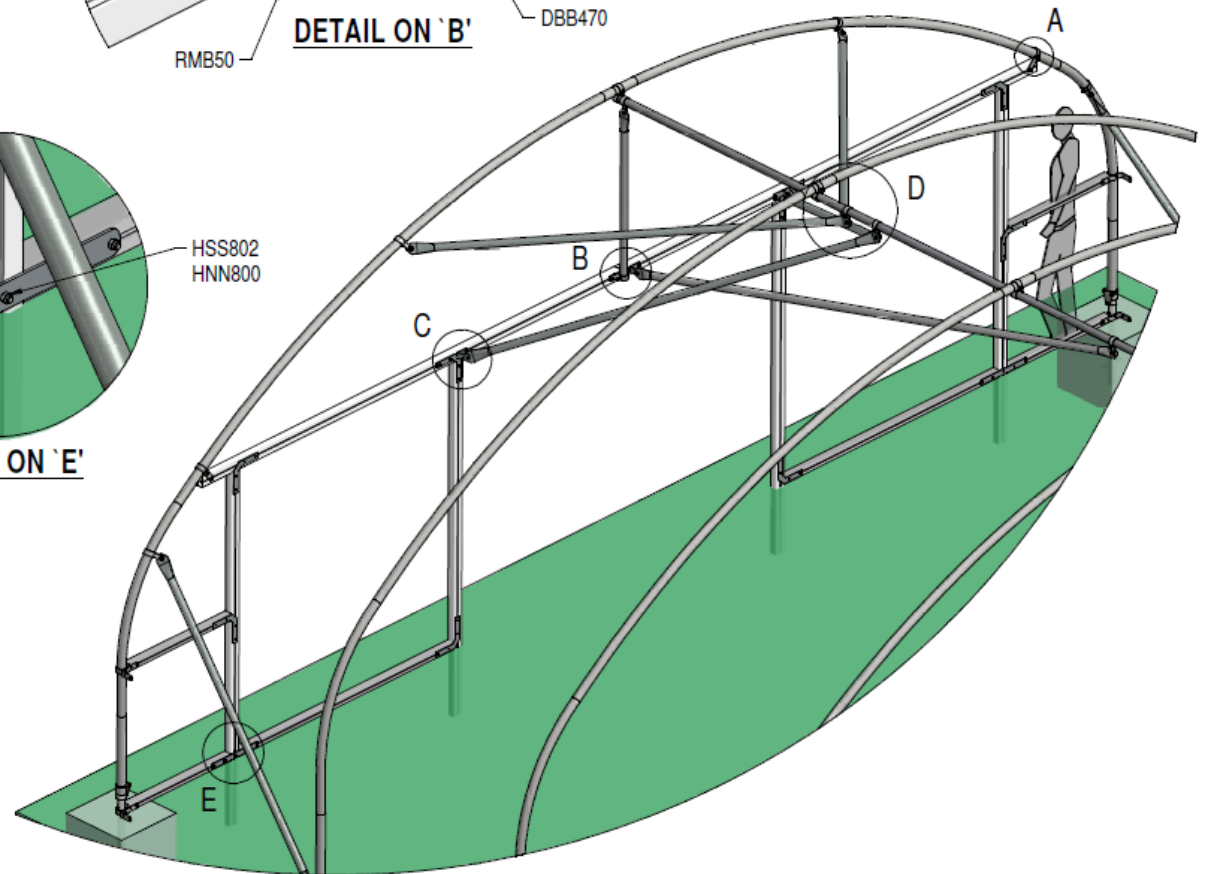
One BBB501 behind first hoop, two behind second hoop and one behind the third to take gable bracing



DETAIL ON 'E'



DETAIL ON 'A'



4.3 Bracing

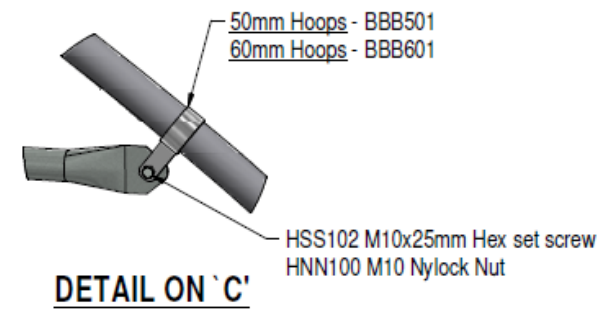
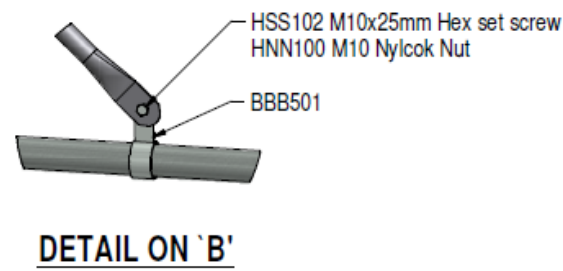
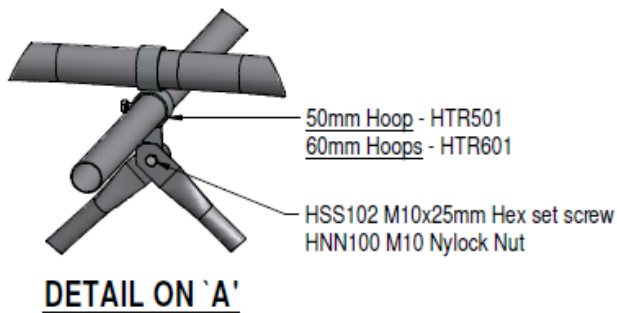
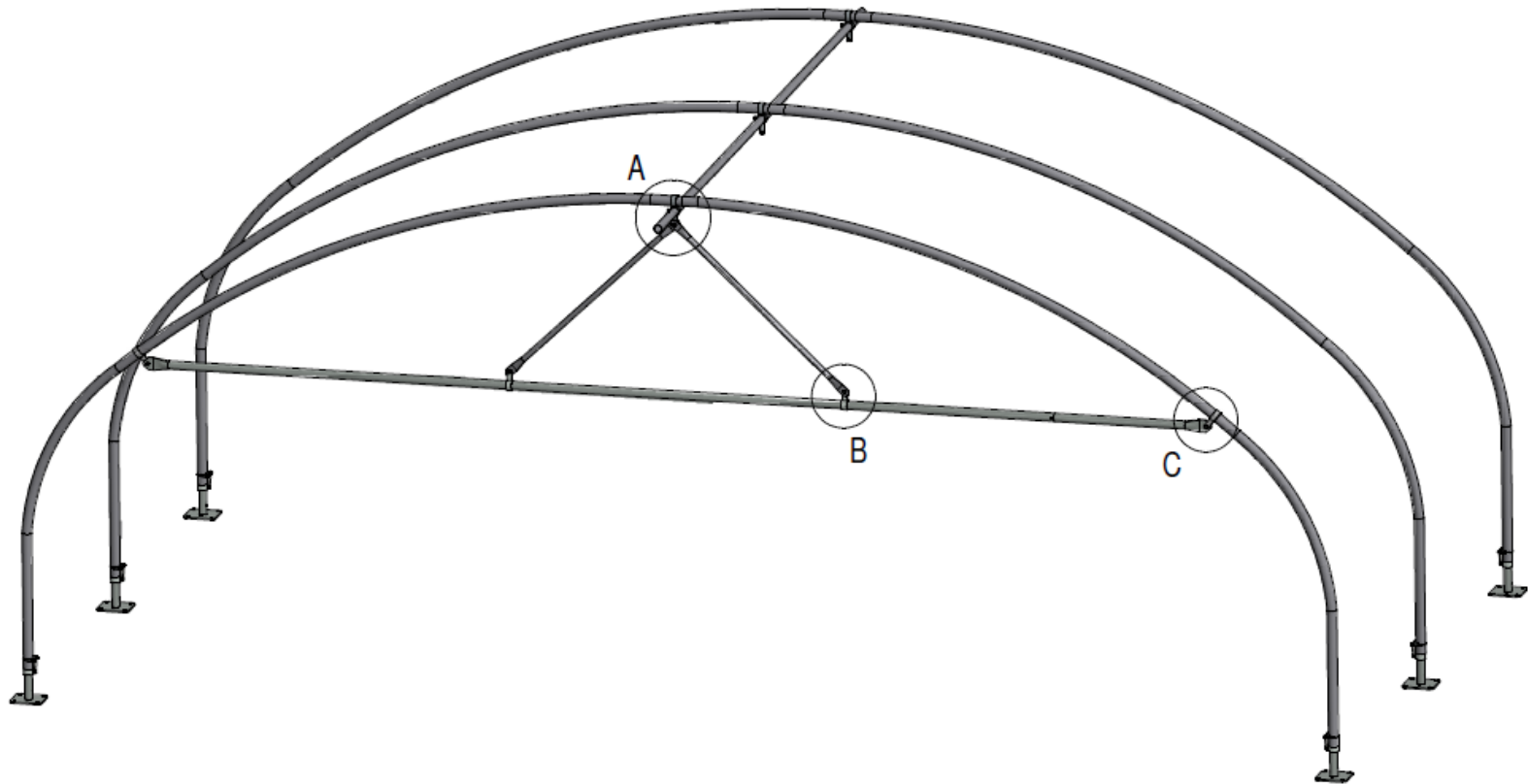
1. Fit all your remaining end braces and diagonals to the framework and per the construction drawing and secure.

4.4 Crop Bars

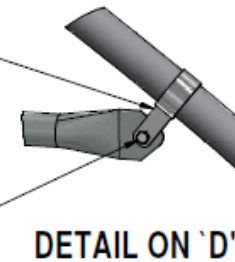
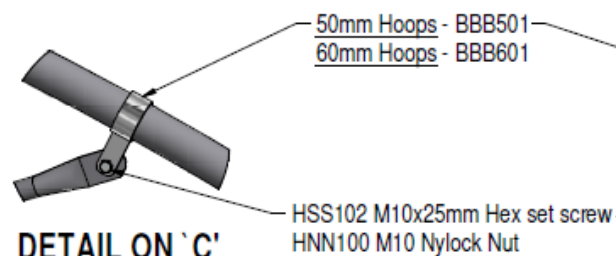
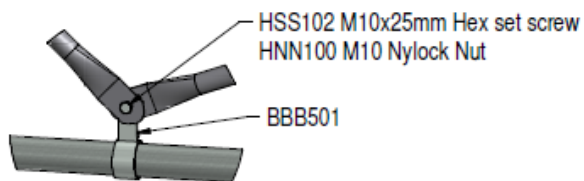
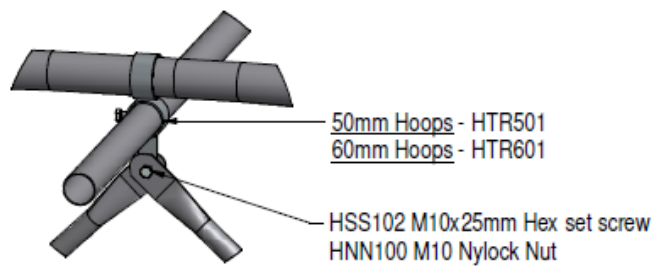
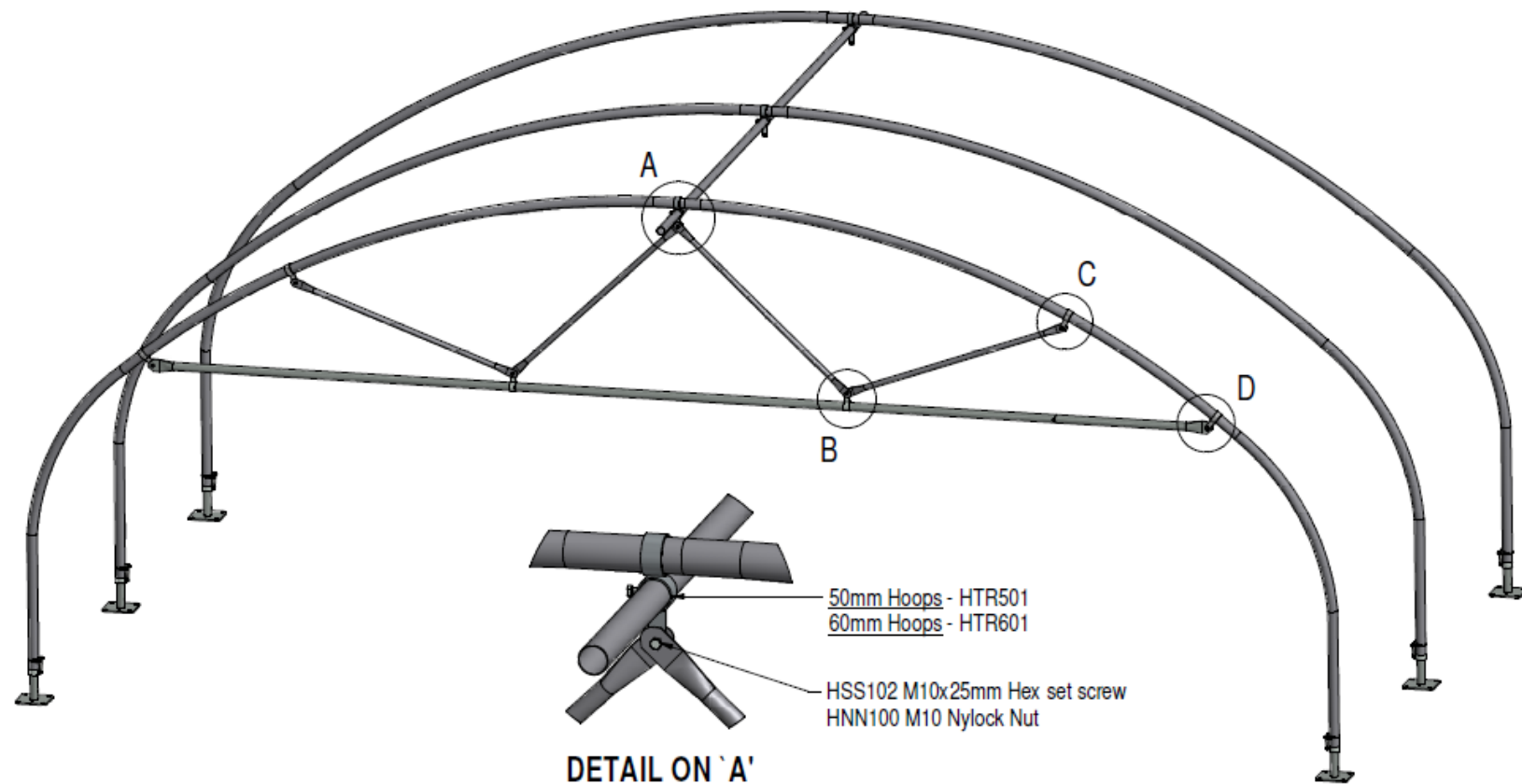
Refer to images on next two pages for your configuration of crop bar bracing.

1. Slide the BBB & HTR fittings onto the hoops which require crop bars.
2. Offer the two crop bar pieces (CBP) up to the hoop at the required clearance height. If the clearance height is to be increased the CBP with the plain end will require cutting down to suit.
3. Attached the CBP's to the BBB fitting on the hoops using the M10 nuts & bolts.
4. To fit the crop bar hangers (CBH) slide the BBB fittings onto the CBP's. Attach the CBH to the BBB and HTR using the M10 nuts & bolts.
5. When the CBP's and CBH's have been assembled and levelled use the M6 nut and bolt to fix the two CBP's together.

4.4.1 V-Hangers



4.4.2 W-Hangers

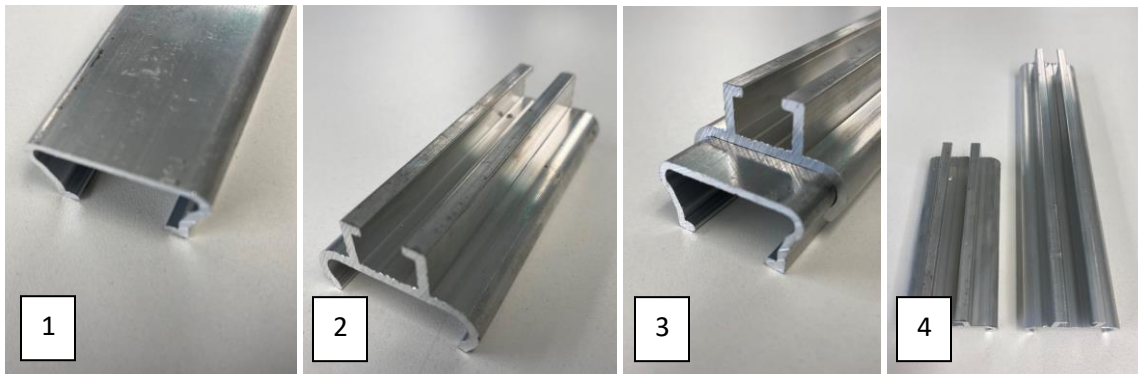


4.5 Wiggle wire over end hoop

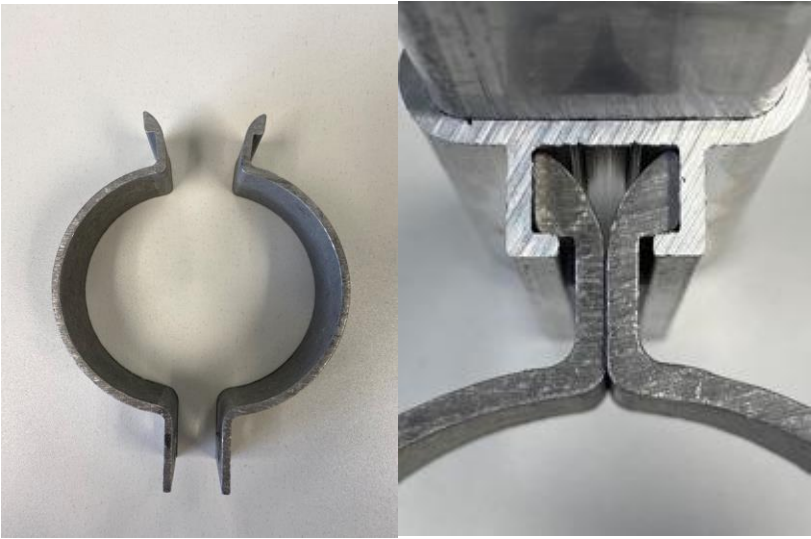
The use of wiggle wire over end hoop allows the main poly cover to be attached without the need for stretching, pulling around the end frame and pleating. It gives a secure fixing and achieves a much neater finish. This procedure can be undertaken at any point before the main cover is fitted and is considerably easier to achieve when the hoops are at ground level.



1. Locate the wiggle wire C Channel (seen below 1). Lay the channel on the ground with the flat, rear surface uppermost. Using a marker pen mark the channel in 600mm increments from one end to the other. Locate the channel mounting brackets (seen below 2) and slide one bracket for each mark onto the channel (seen below 3). Frequently the brackets will be burred and may need some gentle tapping with either a mallet or piece of wood. When you need to join two sections of C-Channel, use a joiner piece. These are made from the same material as the channel mounting brackets but are 150mm long. (seen below 4).



- 2. The C-Channel is held onto the hoop by the 2-part brackets, which locate into the back of the channel mounting bracket.



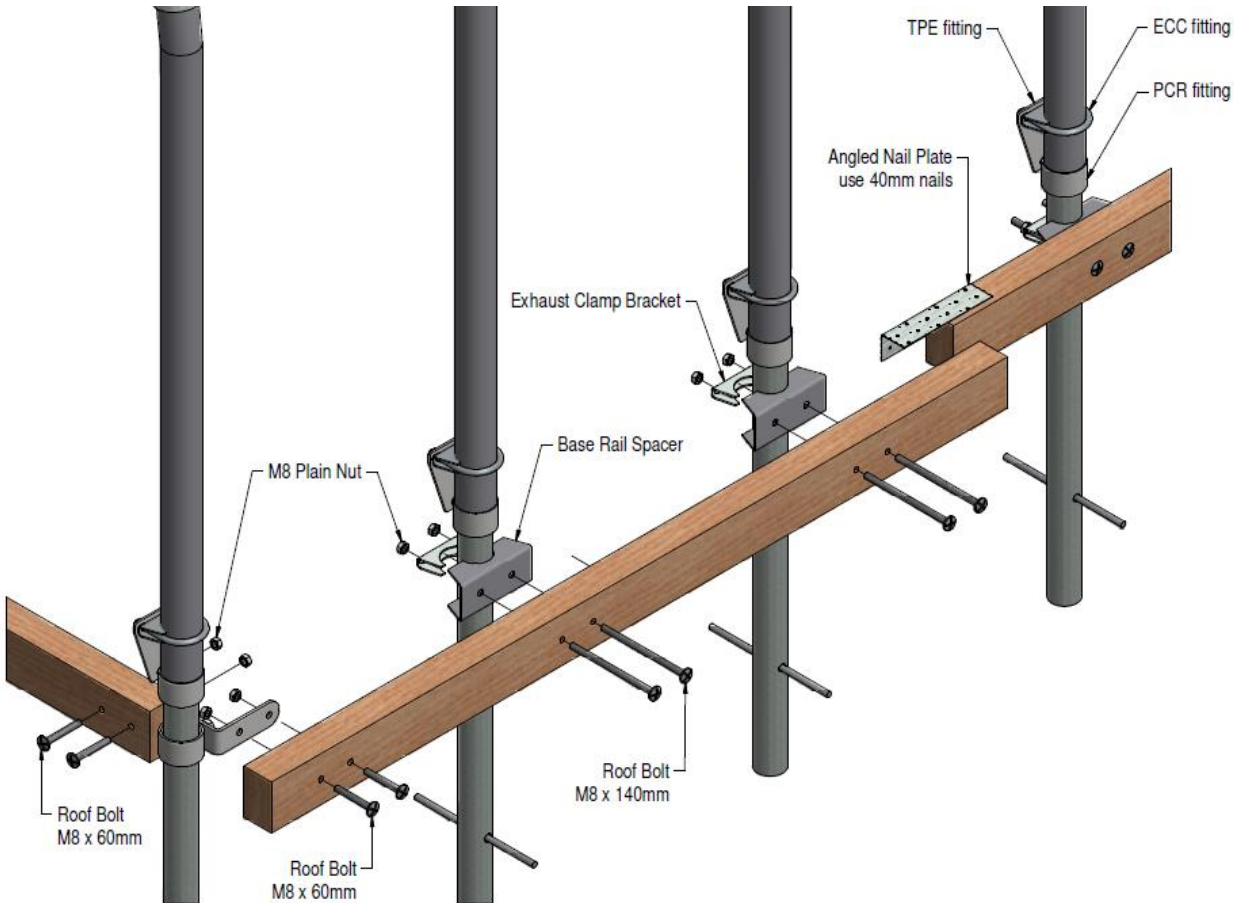
- 3. Beginning at the side rail height, start to attach the brackets to the hoop, at each of the 600mm increments you marked earlier. As you progress the C-Channel will bend to follow the contour of the curve.



5 Sides

5.1 Timber

5.1.1 Timber Base Rail

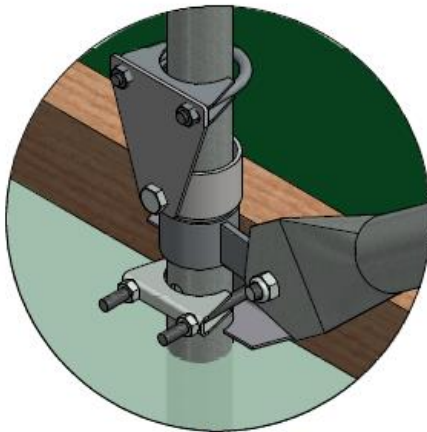


1. Fit corner RMB fittings onto the corner foundations.

Hoop Diameter	Base rail corner bracket	Qty
50mm	RMB455	2 per side rail
60mm	RMB509	2 per side rail

2. The timber rail should have enough timber to go along the full length of the tunnel and finish at the corner. Generally, a base rail is supplied for both sides of the tunnel. (Timber rail for the ends is supplied with the end panel kit)

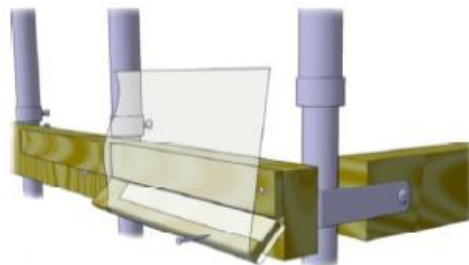
3. Lay the 100 x 50mm timber alongside the foundation tubes (With the 100mm dimension vertical) avoiding any joints that may coincide with a foundation tube. Nail an angled joining plate on the top inside edge with 40mm nails where the lengths join end to end.
4. Place the base rail spacers between the timber and the foundation tube. Drill two holes in the timber to line up with the holes on the base rail spacer. Place two M8 x 140mm roofing bolts per foundation through the drilled holes and the base rail spacer and secure on the inside of the tunnel using an exhaust clamps bracket and M8 plain nuts. Use M8 x 60mm roofing bolts to secure the timber rail to the corner brackets. Tighten the nut until the bolt head embeds into the face of the timber so as not to interfere with the battens later.



Corner strut bolts to BBB fitting on the second hoop



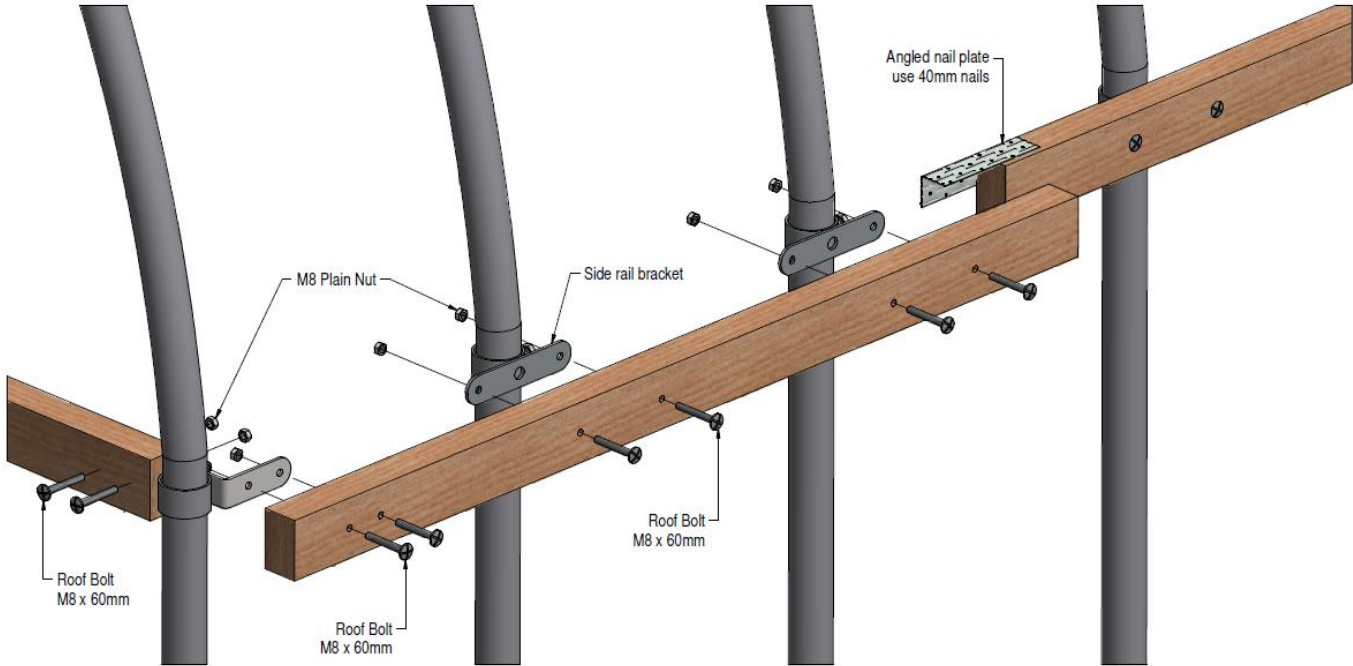
5. Continue the timber rail from the corner foundation tube to the first timber post on the gable end and join flush with the front face of the post. Use a 150mm and a 100 nail through the post into the end of the base rail to secure (refer to section 4.1 for image)
6. Nail 50 x 12mm battens onto the top half of the outside of the timber rail with 50mm long nails to create a rebate, nails should be approximately 450mm centres. The timber base rail is now ready to accept the main cover or the side ventilation netting.



Polythene main cover (if no side ventilation)

1. Nail the top battens to the base rail to create a rebate.
2. Roll the polythene anticlockwise around the bottom batten and fix to the base rail with the nails provided.

5.1.2 Timber Side Rail



1. Fit the side rail and corner brackets onto the foundations before the hoops are placed, once the hoops are in place, slide the side rail brackets to the required height and finger tighten. The space between the top of the base rail and the bottom of the side rail is approximately 900mm for a standard height and 1500mm for a high sided tunnel (to match the height of the PVC curtain).

Hoop Diameter	Base rail corner bracket	Qty
50mm	RMB510	2 per side rail
60mm	RMB608	2 per side rail





Ensure the brace bar brackets for any crop bars are placed above the side rail bracket

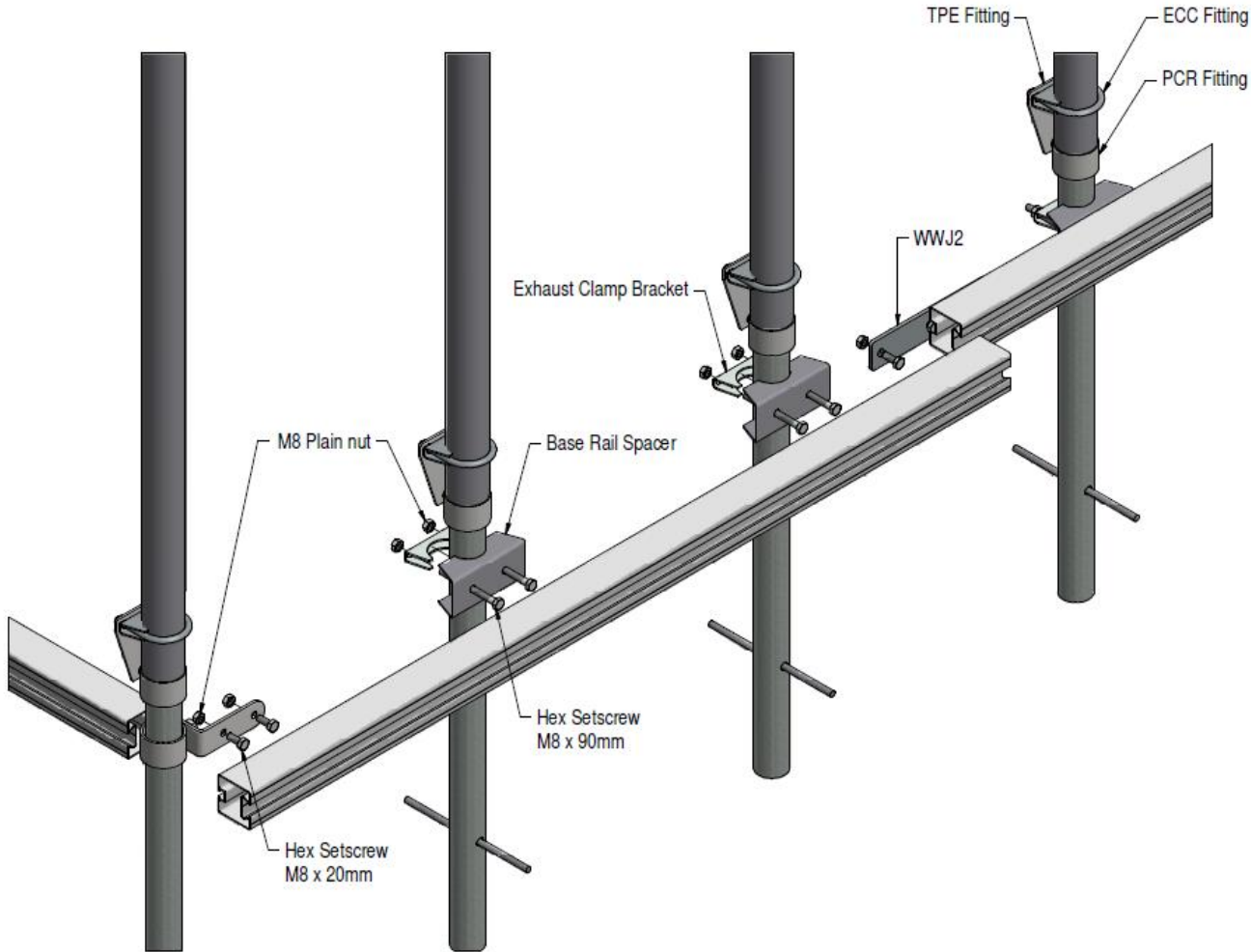
Hoop Diameter	Side rail corner bracket	Qty
50mm	RMB508	2 per side rail
60mm	RMB607	2 per side rail

Hoop Diameter	Side rail bracket	Qty
50mm	RMB510	1 Per inner leg
60mm	RMB608	1 Per inner leg

2. Fit the side rail in a similar fashion to the base rail. Drill holes to match the side rail brackets and fix the timber in place using M8 x 60mm roofing bolts. Join the lengths of timber together using angled nail plates along the top inside edge. Tighten the nut until the bolt head embeds into the face of the timber so as not to interfere with the battens later.
3. Continue the timber rail from the corner to the first timber post on the gable end and join flush with the front face of the post. Use a 150mm and a 100 nail through the post into the end of the side rail to secure (refer to section 4.1 for image).

5.2 Aluminium

5.2.1 Aluminium Base Rail

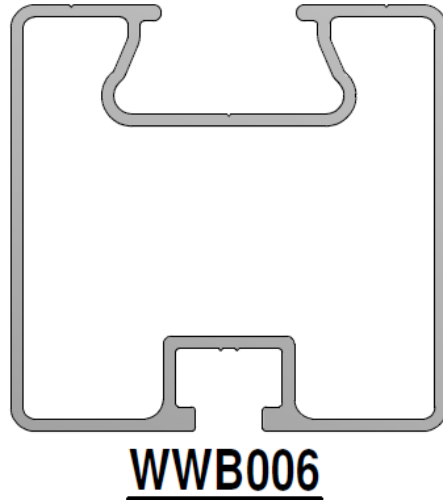


- 1. Fit corner RMB fittings onto the corner foundations.

Hoop Diameter	Base rail corner bracket	Qty
50mm	RMB455	2 per side rail
60mm	RMB509	2 per side rail

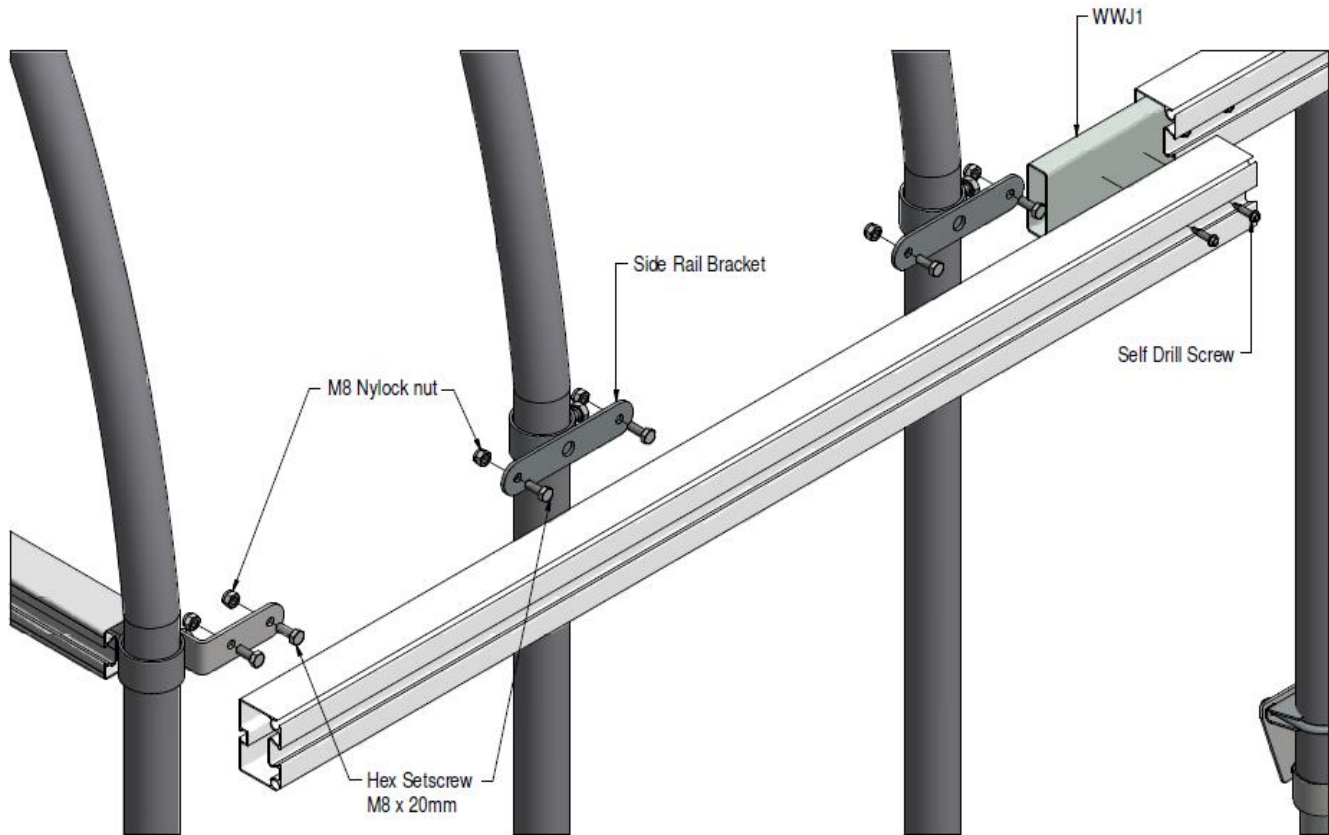
- 2. The aluminium rail should have enough aluminium to go along the full length of the tunnel and finish at the corner.

3. Lay the 6m long lengths of aluminium profile (WWB006) alongside the foundation tubes, avoiding any joints that may coincide with the foundation tube, depending on the length of your tunnel you will have a shorter length to finish the full length off. Slide any required bolts into the T-Slot on the back of the profile and line up with the foundation tubes. Join the profiles together using the joiner plate (WWJ2) and 3 nuts and bolts.



4. Place the base rail spacers between the aluminium and the foundation tube. Place the bolts in the back of the aluminium through the base rail spacer and secure on the inside of the tunnel using as exhaust clamp bracket and M8 plain nuts.

5.2.2 Aluminium Side Rail



1. Fit the side rail and corner brackets onto the foundations before the hoops are placed. Once the hoops are in place, slide the side rail bracket to the required height and finger tighten. The space between the top of the base rail and the side rail is approximately 900mm for a standard height and 1500mm for a high sided tunnel (to match the height of the PVC curtain).



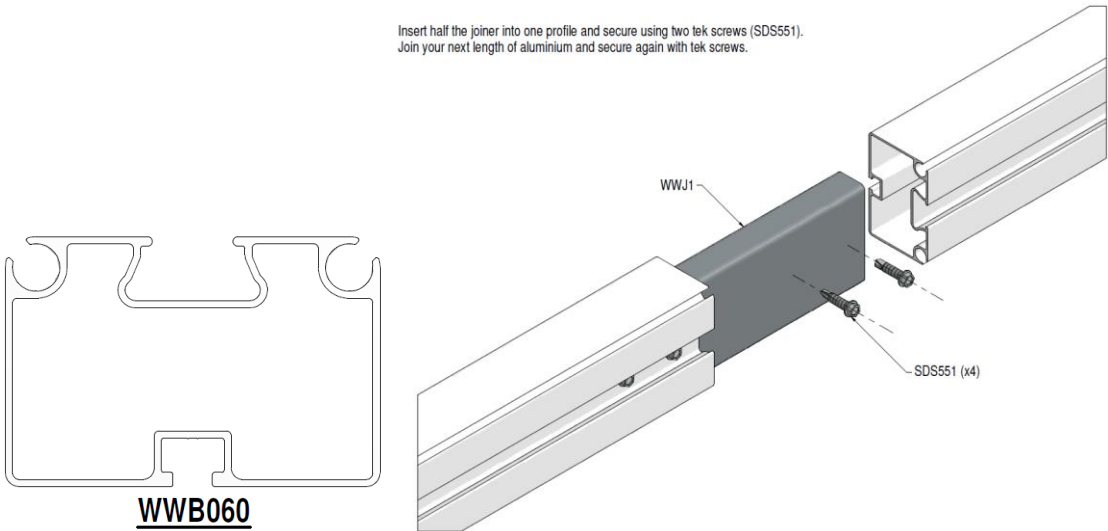
Ensure the brace bar brackets for any crop bars are placed above the side rail bracket

Hoop Diameter	Side rail corner bracket	Qty
50mm	RMB508	2 per side rail
60mm	RMB607	2 per side rail

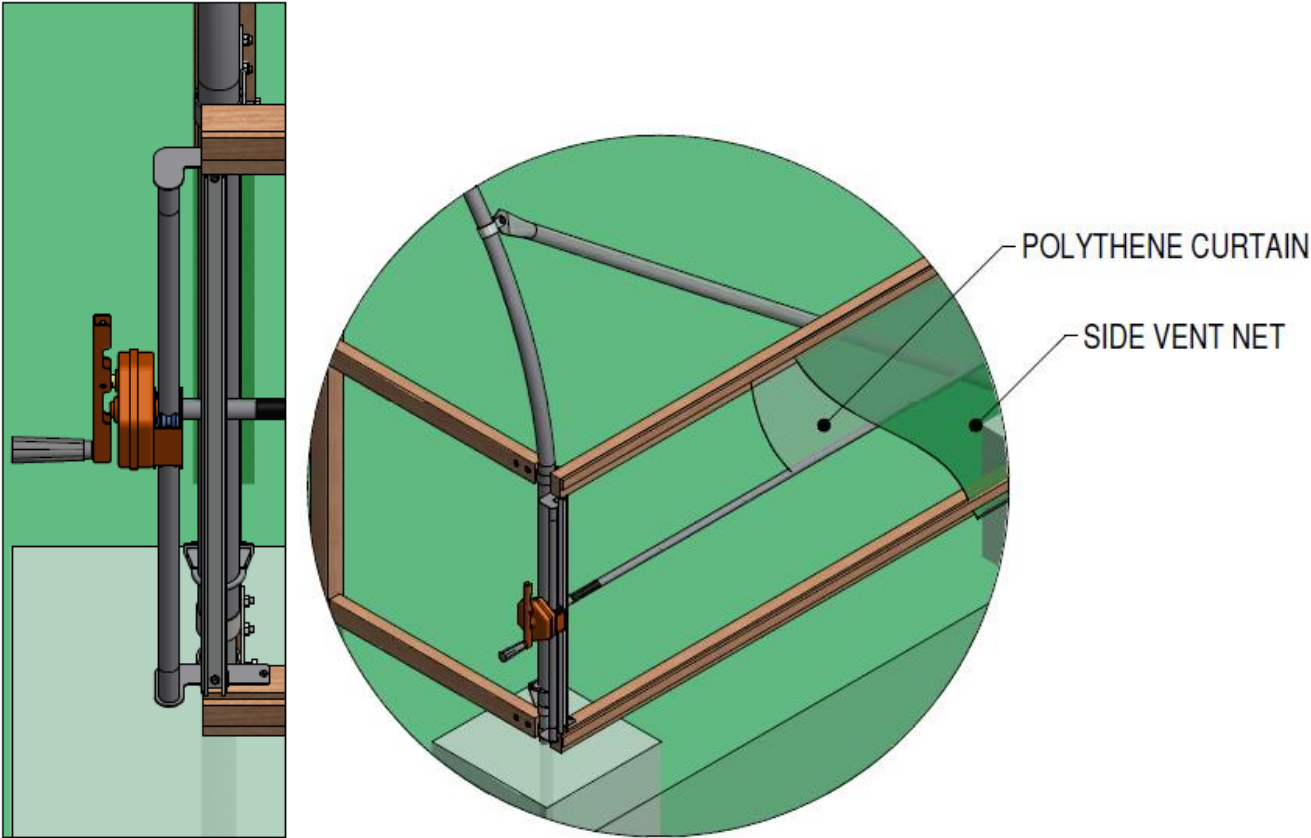
Hoop Diameter	Side rail bracket	Qty
50mm	RMB510	1 Per inner leg
60mm	RMB608	1 Per inner leg

- The side rail uses the WWB060 profile, this is slightly bigger than the base rail. Fit the side rail in a similar fashion to the base rail. Join the lengths together using the WWJ1 joiner.

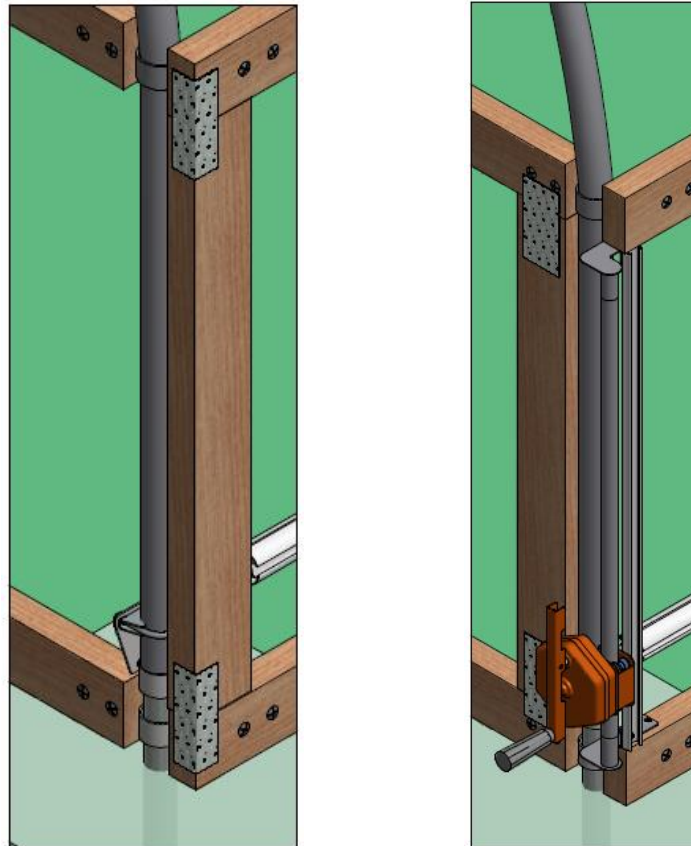
Insert half the joiner into one profile and secure using two tek screws (SDS551).
Join your next length of aluminium and secure again with tek screws.



5.3 Basic curtain



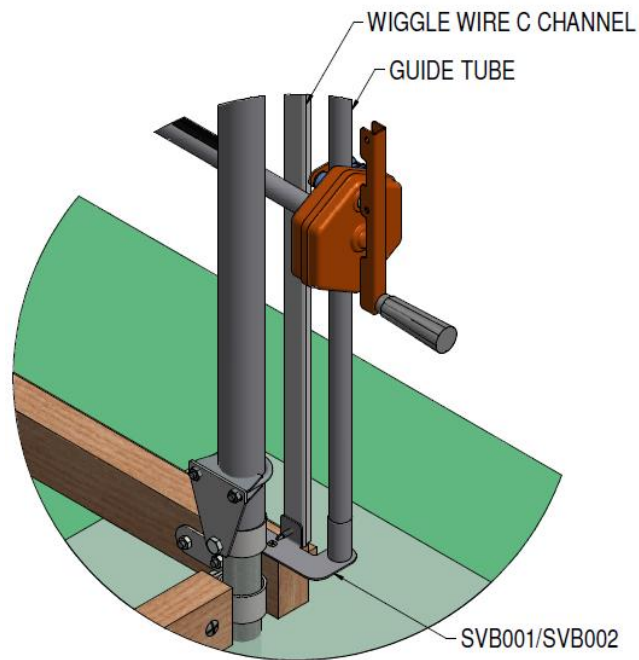
1. On the end of the side vent that isn't going to have a gearbox, finish the side frame off with a length of timber vertically between the side and base rail. On the end with the gearbox, fix this vertical piece between the side and base rail on the gable end.



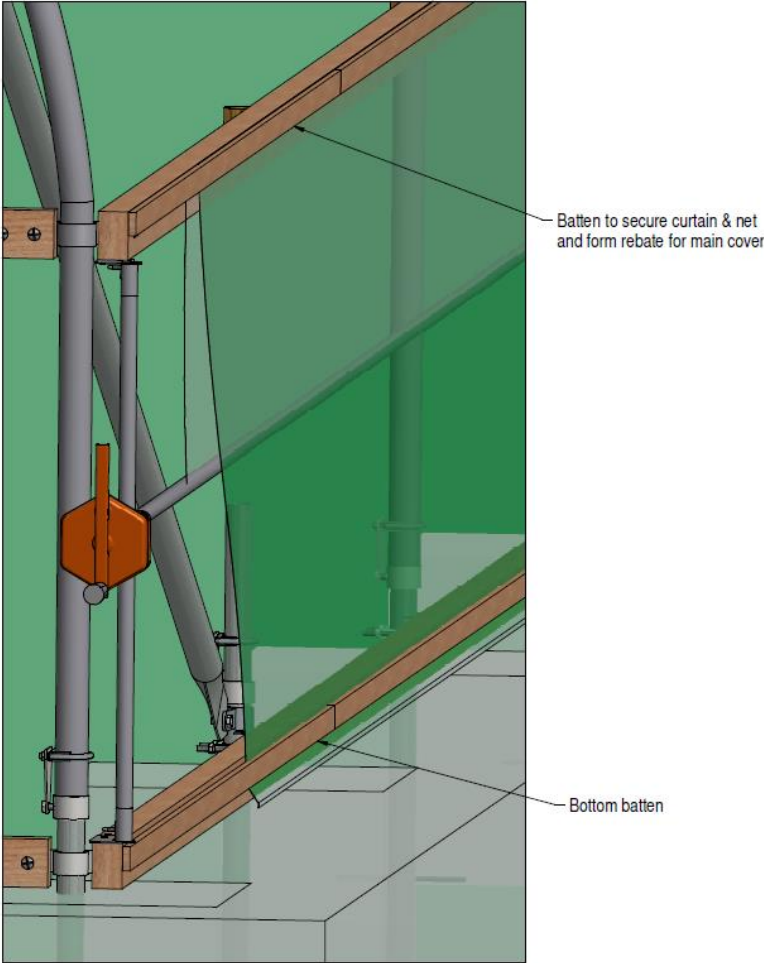
2. Fix the top edge of the polythene curtain to the top edge of the timber side rail (Staple in place), ensure the curtain is parallel along the length.
3. Slot together the lengths of drive tube, joining together with a double swaged joint and two self-drill screws.
4. Lay the tube assembly on the polythene alongside the base rail and wrap the polythene around it once. Clip the polythene clamps onto the tube to secure in place. These should be positioned one every metre.

5. Next fit the gearbox and guide tube assembly:

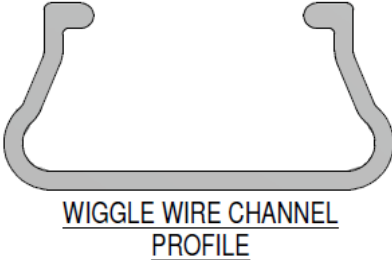
- Cut the guide tube (25mm Outside diameter) to length. This should be the distance between the base and side rail minus 105mm.
- Slide the guide tube through the runner on the gearbox.
- Fit the side rail brackets (SVB001/002) to ends of the guide tube.
- Fix the side rail brackets to the side and base rail using wood screws.
- Secure the drive tube to the gearbox.



6. Starting in the middle and working outwards trap the bottom edge of the net behind the bottom batten and nail to the base rail, ensure the net is parallel along the length.
7. Fix the top of the netting along the top edge of the timber side rail, again starting in the middle and working outwards. Nail a batten along the top edge of the timber side rail to secure the netting and to form a rebate.

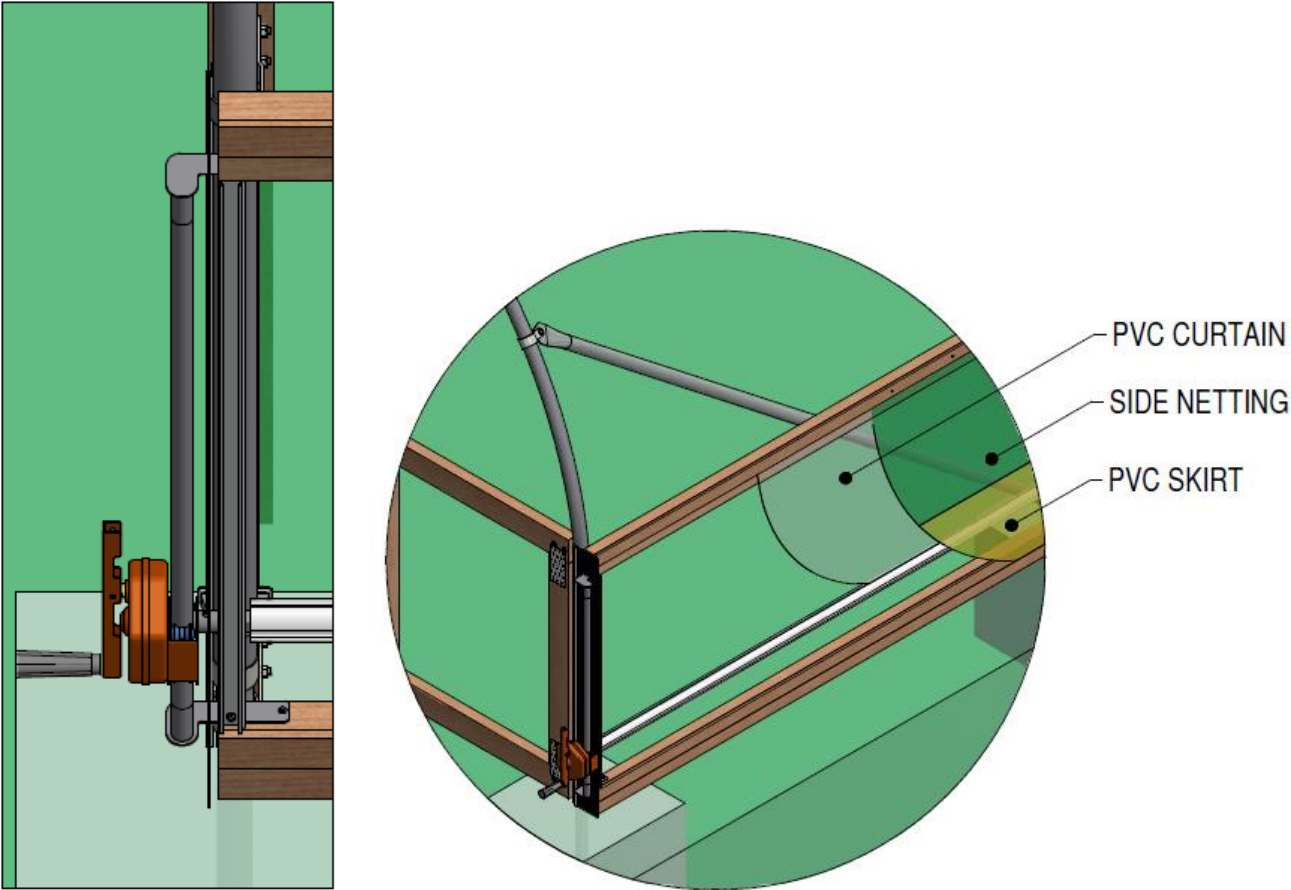


- 8. Fix the wiggle wire C Channel to the side vent bracket tabs using self-drill screws. Attach the net using the wiggle wire into the C Channel.



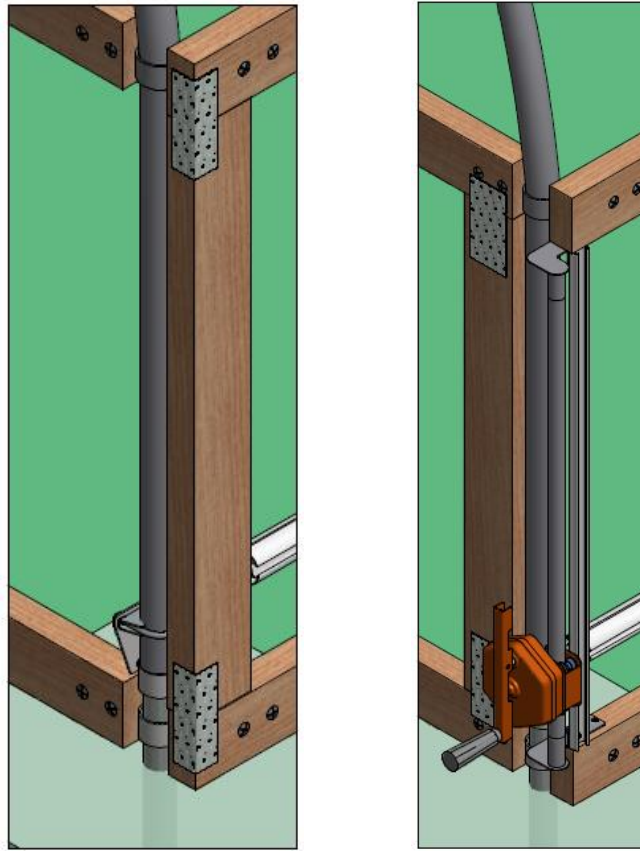
5.4 Professional curtain

5.4.1 Manual winch

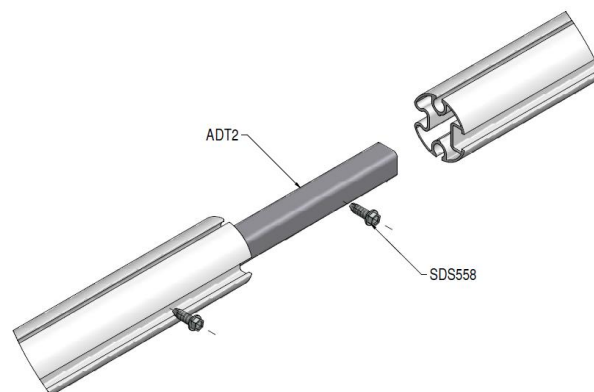


1. Fix the top edge of the PVC curtain to the top edge of the timber side rail (staple in place), ensure the PVC curtain is parallel along the length.

- On the end of the side vent that isn't going to have a gearbox, finish the side frame off with a length of timber vertically between the side and base rail. On the end with the gearbox, fix this vertical piece between the side and base rail on the gable end.

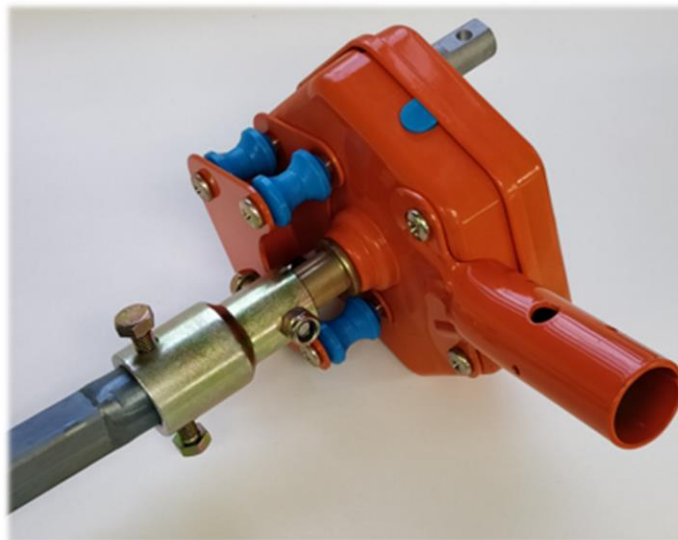
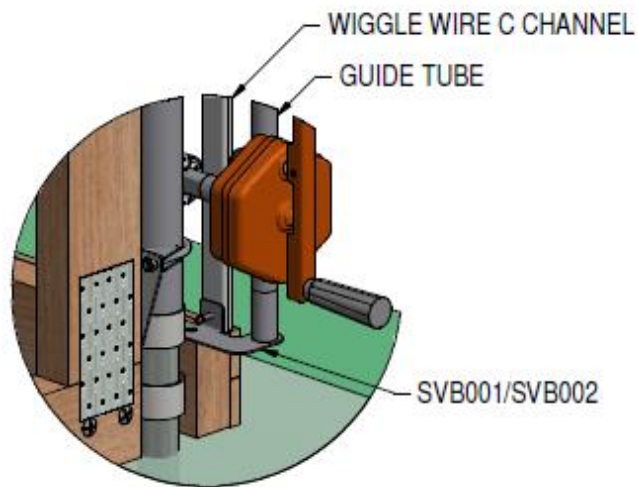


- Slot the lengths of aluminium drive tube along the length of the PVC curtain on the keder bead. Join the aluminium drive tube using the small square pieces of drive tube joiner and secure with a self-drill screws. Finishing off with the manual winder drive adaptor.

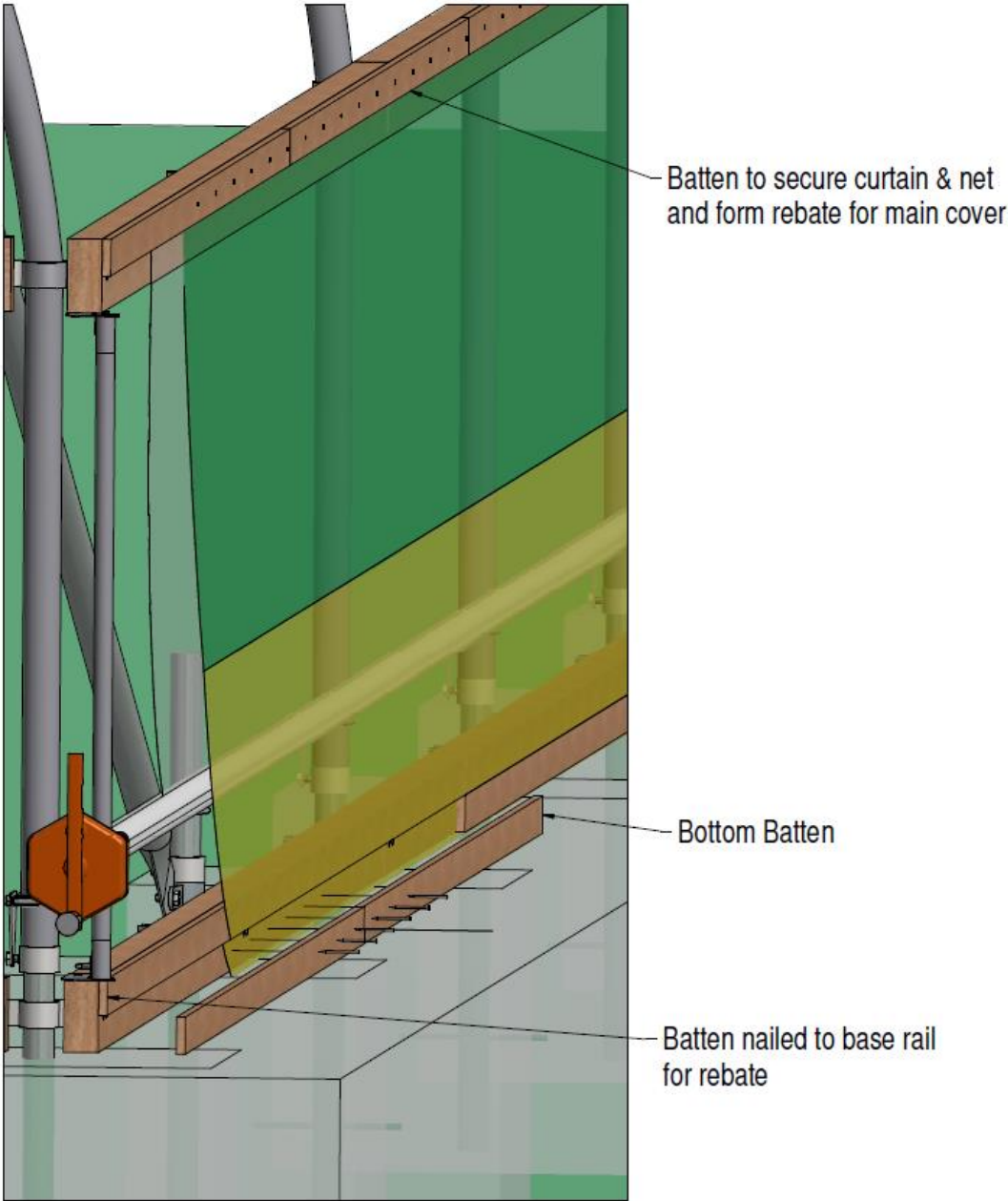


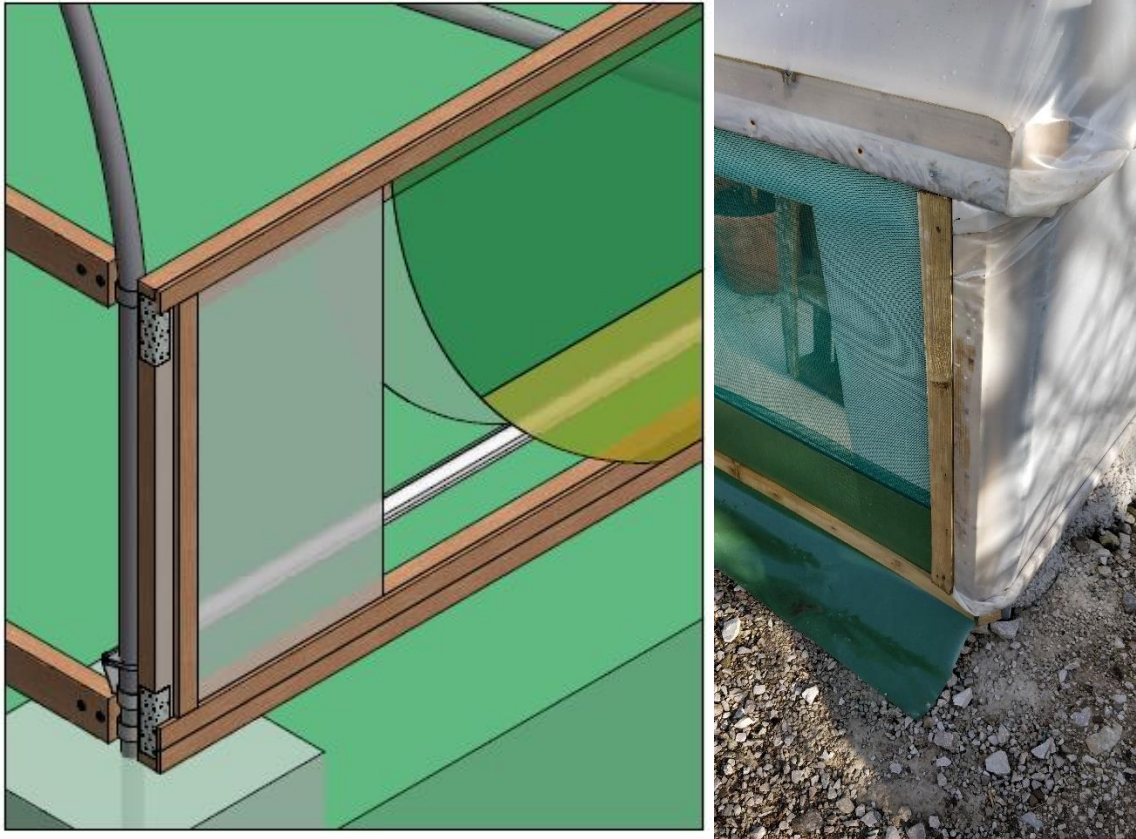
4. Next fit the gearbox and guide tube assembly:

- Cut the guide tube (25mm Outside diameter) to length. This should be the distance between the base and side rail minus 105mm.
- Slide the guide tube through the runner on the gearbox.
- Fit side rail brackets (SVB001/002) to ends of the guide tube.
- Fix side rail brackets to the side and base rail using wood screws.
- Fit winder drive adaptor to the end of the winder and secure to the drive tube using a tek screw.

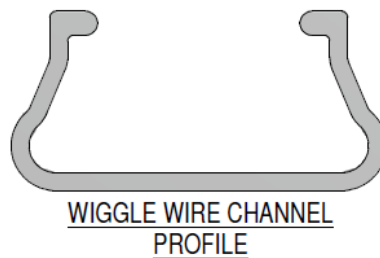


- 5. Starting in the middle and working outwards trap the bottom edge of the skirt to net (PVC Skirt) behind the bottom batten and nail to the base rail, ensure the skirt is parallel along the length. At either end of the curtain fit the PVC draft panel in-between the curtain and the netting.



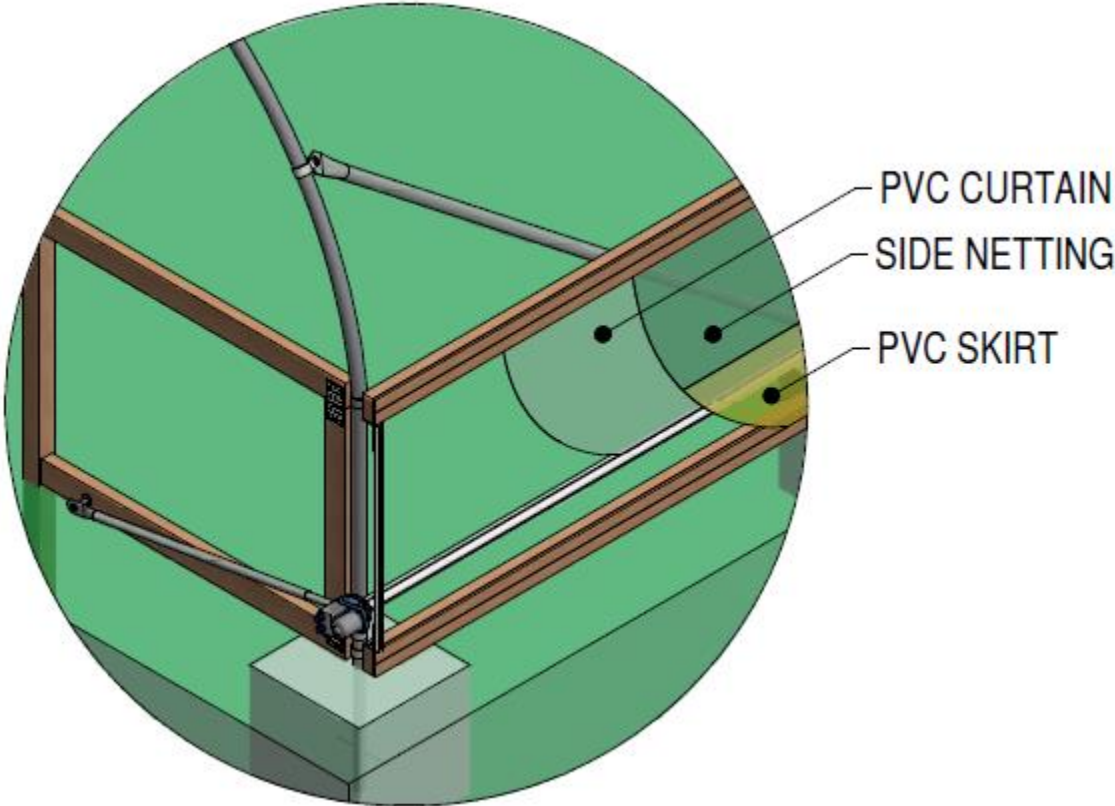


6. Fix the top of the netting along the top edge of the timber side rail and secure in place with a timber batten along the top half of the side rail (this will act as a rebate for the main cover), again starting in the middle and working outwards.
7. Fix the wiggle wire C Channel to the side vent bracket tabs using the self-drill screws. Attach the skirt to net using the wiggle wire into the C channel.



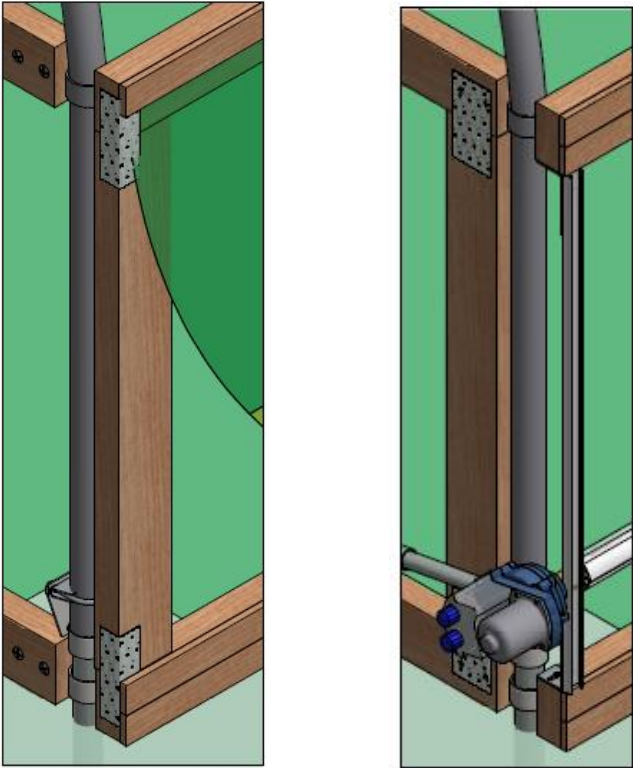
8. When sheeting has been completed trim down the brush strip to suit the height of the vent and attach to the hoop leg using self-drill screws, hole spacing recommended at approximately 300mm.

5.4.2 Motorised

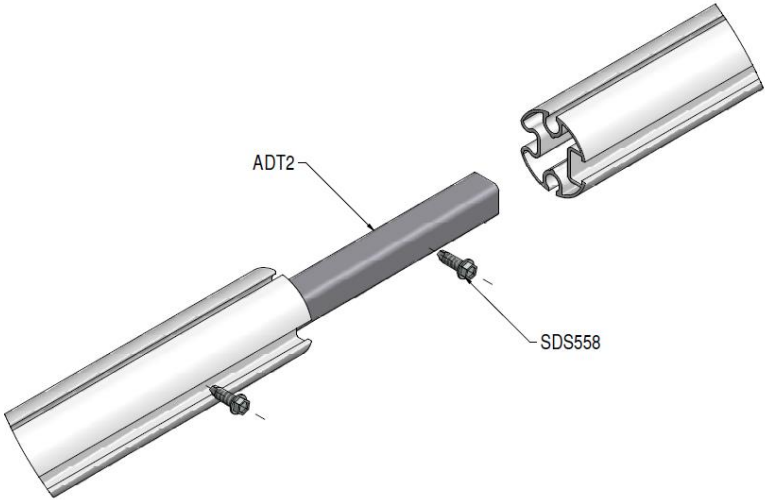


1. Fix the top edge of the PVC curtain to the top edge of the timber side rail (stable in place), ensure the PVC curtain is parallel along the length.

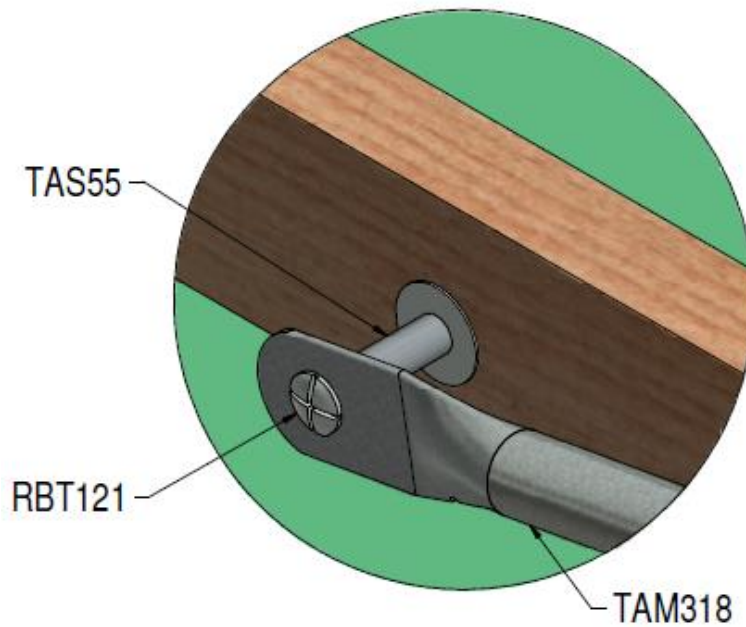
- 2. On the end of the side vent that isn't going to have a motor, finish the side frame off with a length of timber vertically between the side and base rail. On the end with the motor, fix this vertical piece between the side and base rail on the gable end.



- 3. Slot the lengths of aluminium drive tube along the length of the PVC curtain on the keder bead. Join the aluminium drive tube using the small square pieces of drive tube joiner and secure with a self-drill screws.

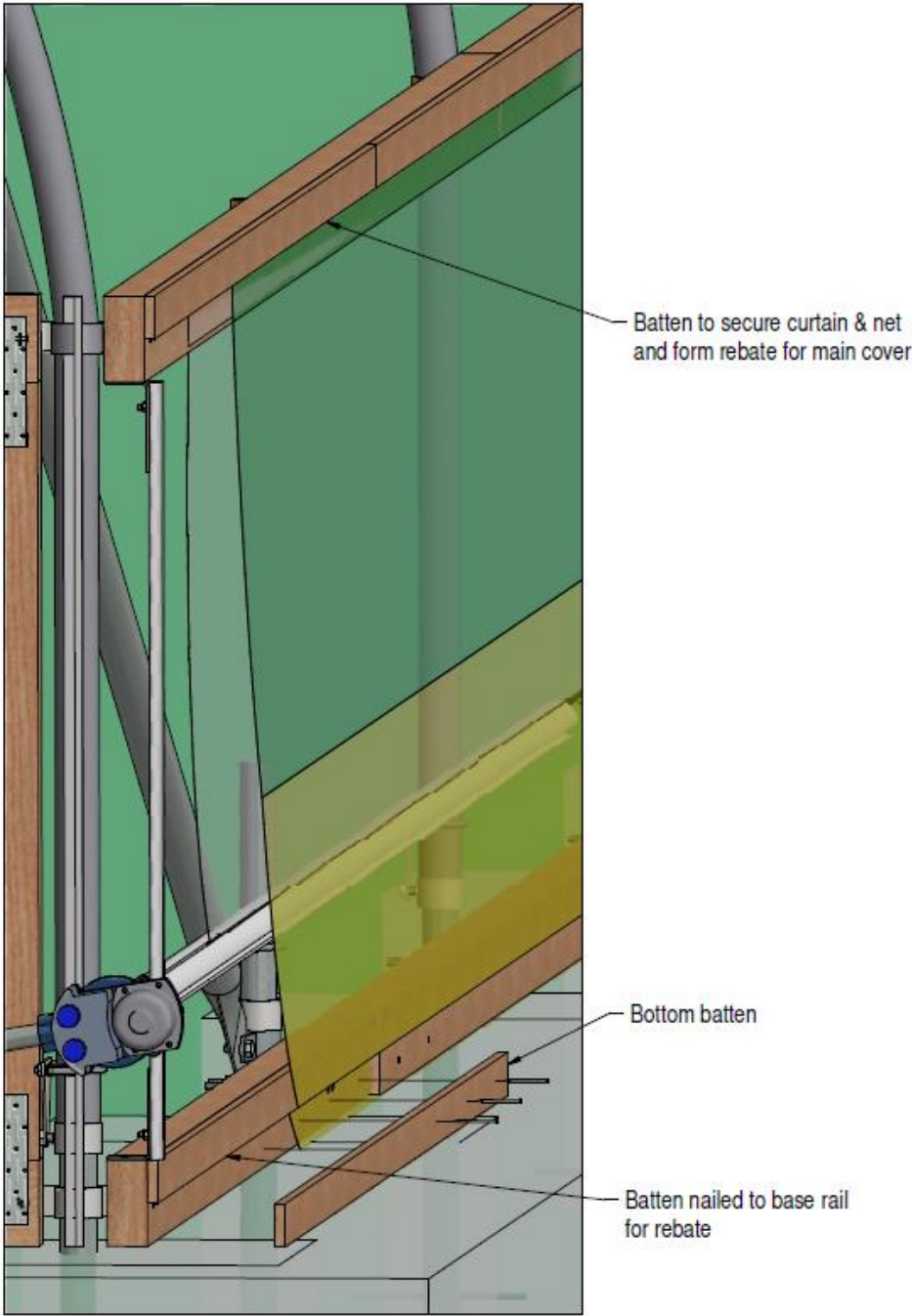


4. Drill through the timber base rail on the gable end of the tunnel, approximately 1235mm from the centreline of the hoop leg using an 11mm drill bit.
5. Connect the outer telescopic arm to the base rail using the M10 x 140mm roofing bolt and the telescopic arm spacer tube, two M10x38mm washers and the M10 nylock nut, make sure not to overtighten, connection must allow rotational movement of the telescopic arm. There is a hole in the transition between the tube and the flat end of the arm, this is a drain hole and needs to go on the underside.

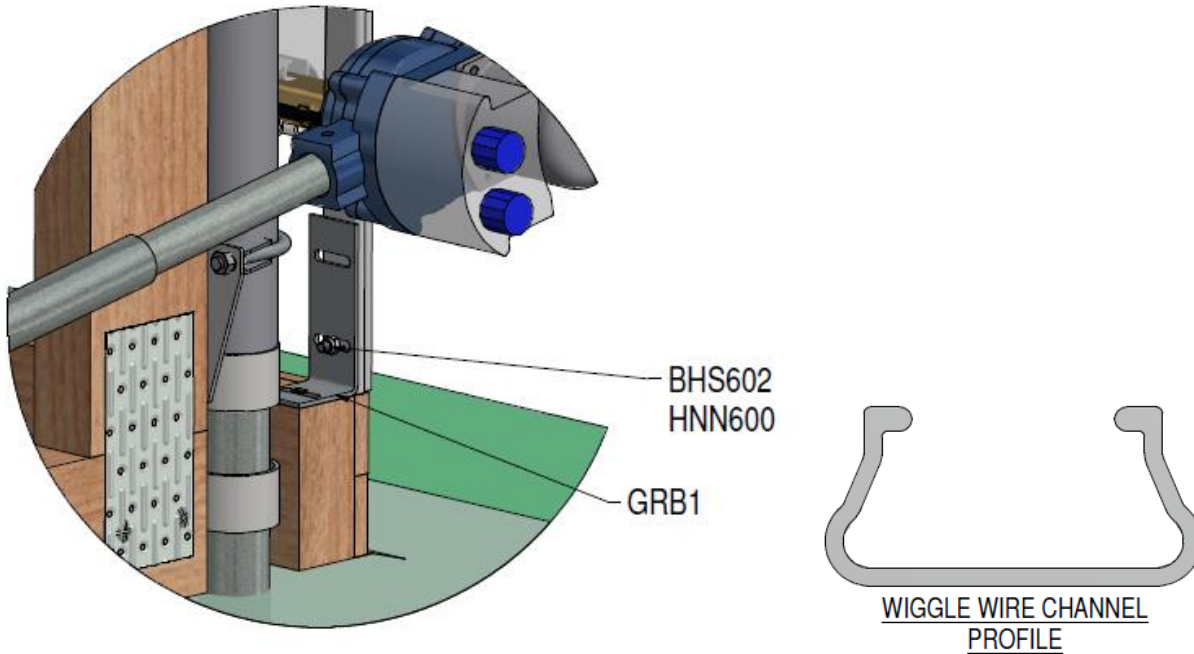


6. Sleeve the drilled end of the inner telescopic arm into the mounting recess of the motor and fix in place.

- 7. Fix the motor drive shaft onto the aluminium drive tube.
- 8. Starting in the middle and working outwards trap the bottom edge of the skirt to net (PVC Skirt) behind the bottom batten and nail to the base rail, ensure the skirt is parallel along the length.



9. Fix the top of the netting along the top edge of the timber side rail and secure in place with a timber batten along the top half of the side rail (this will act as a rebate for the main cover), again starting in the middle and working outwards.
10. Fix the wiggle wire C Channel to the guide rail bracket (GRB1) using an M6 button head screw and wood screw. Attach the netting and PVC skirt into the wiggle wire channel.



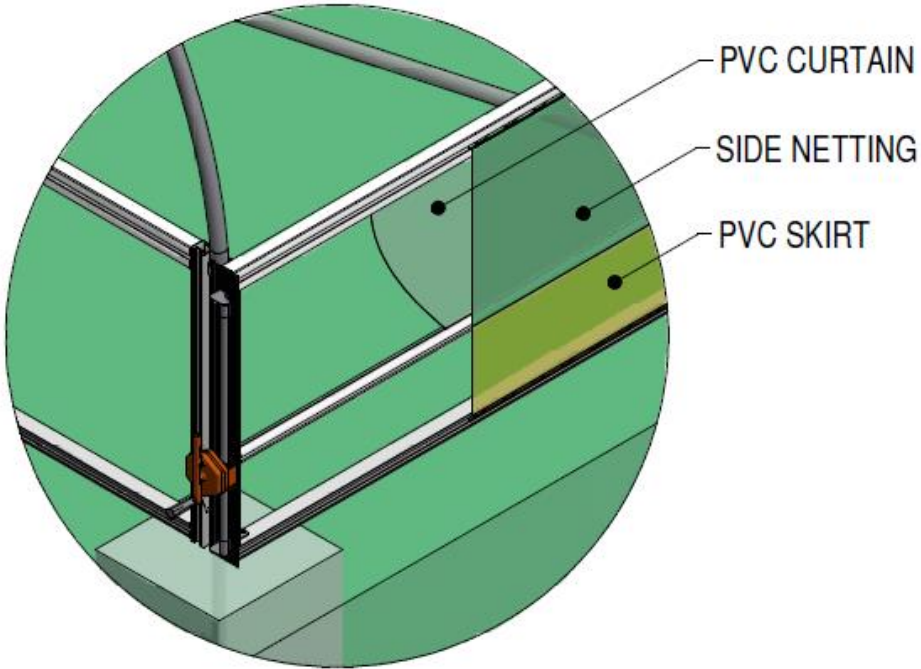
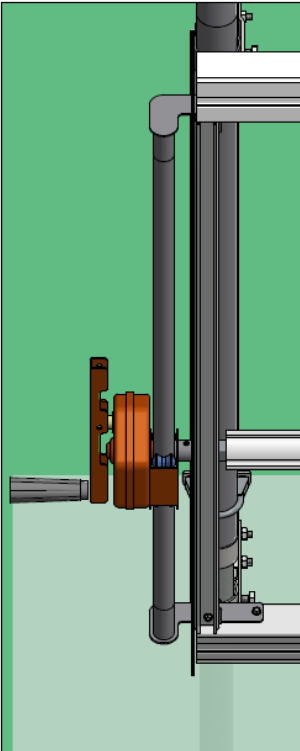
11. When sheeting has been completed trim down the brush strip to suit the height of the vent and attach to the hoop leg using self-drill screws, hole spacing recommended at approximately 300mm.
12. Do not connect the motor until the tunnel is complete and you control system is set up.



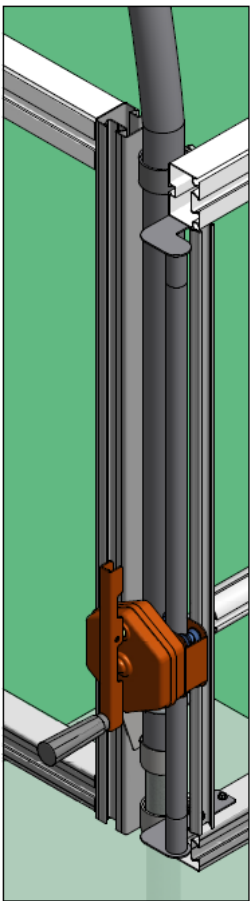
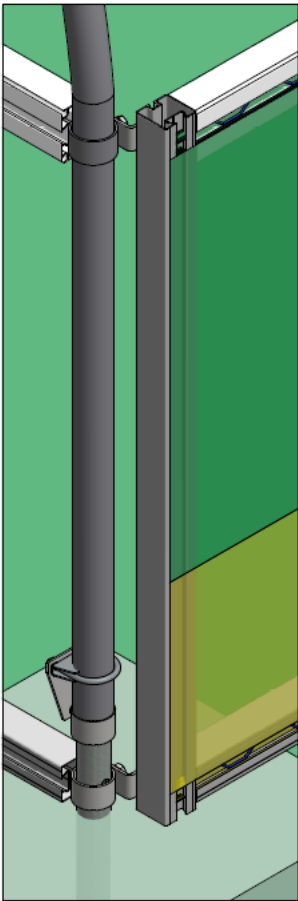
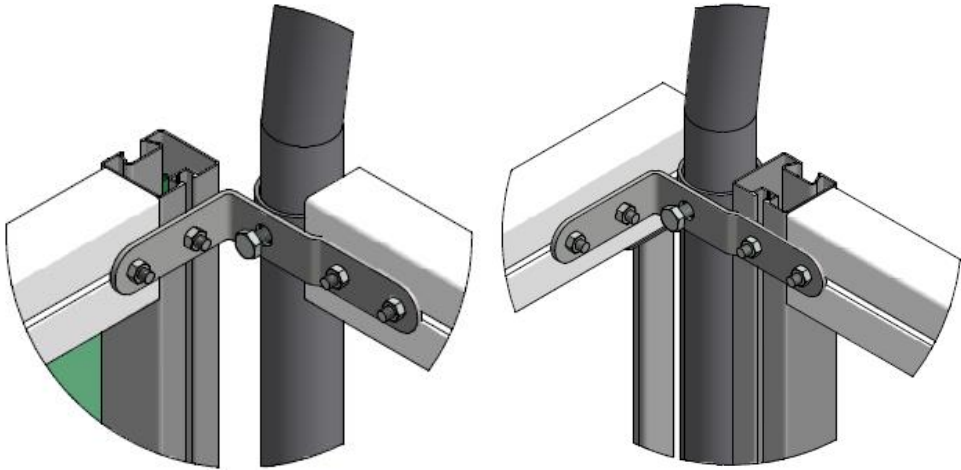
All electrical wiring to be carried out by your own electrician.

5.5 Superior curtain

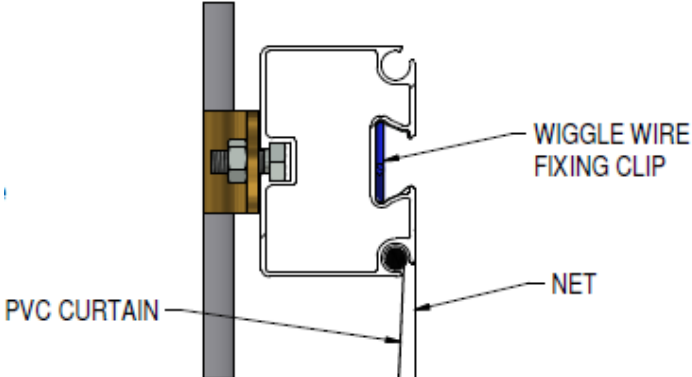
5.5.1 Manual winch



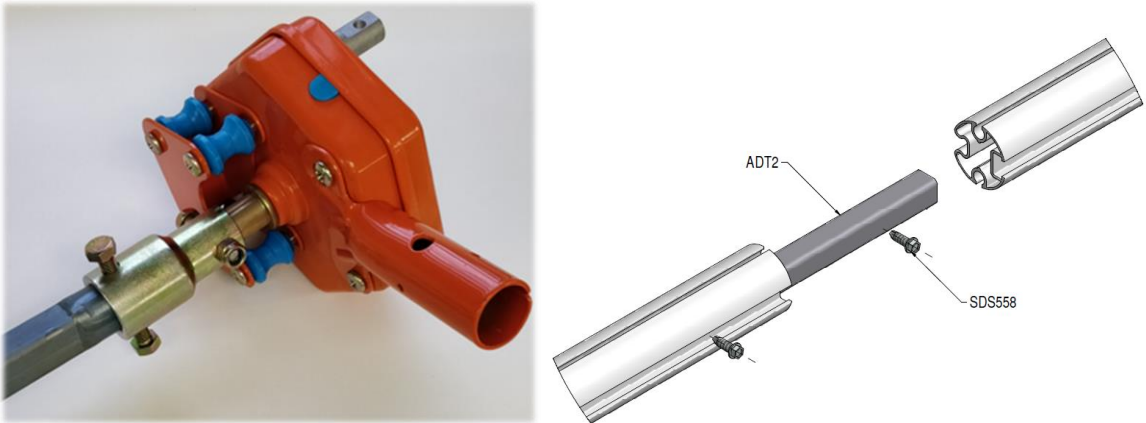
- 1. On the end of the side vent that isn't going to have a gearbox, finish the side frame off with a length of Aluminium vertically between the side and base rail. On the end with the gearbox, fix this vertical piece between the side and base rail on the gable end. These are fixed in place by sharing the corner bracket.



- 2. Fix the top edge of the PVC curtain to the aluminium side rail by sliding the bead into the lower channel.

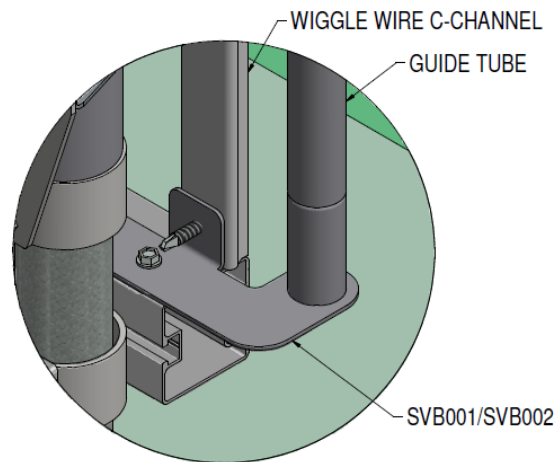


- 3. Slot the lengths of aluminium drive tube together along the length of the PVC curtain on the lower keder bead. Join the aluminium tube using the small square pieces of drive tube joiner and securing with the self-drill screws provided, finishing with the manual winder drive adaptor.

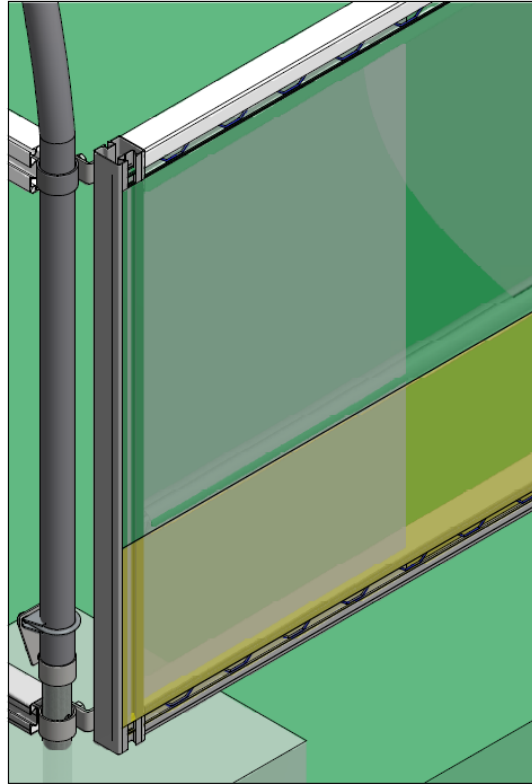


4. Next fit the gearbox and guide tube assembly:

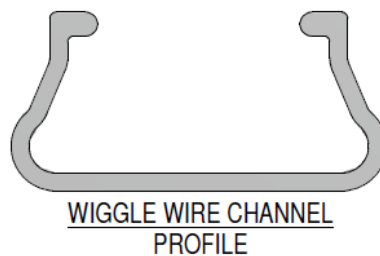
- Cut the guide tube (25mm Outside diameter) to length. This should be the distance between the base and side rail minus 105mm.
- Slide the guide tube through the runner on the gearbox.
- Fit the side rail brackets (SVB001/002) to the ends of the guide tube.
- Fix the side rail brackets to the side and base rail using tek screws.
- Fit the winder drive adaptor to the end of the winder and secure to the drive tube using a tek screw.



5. Attach the bottom edge of the skirt to net (PVC Skirt) to the aluminium base rail using the wiggle wire, ensure the skirt is level down the length of the tunnel. At both ends of the curtain fit the PVC draft panel in-between the curtain and the netting.
6. Fix the top edge of the netting along the aluminium side rail using the wiggle wire.

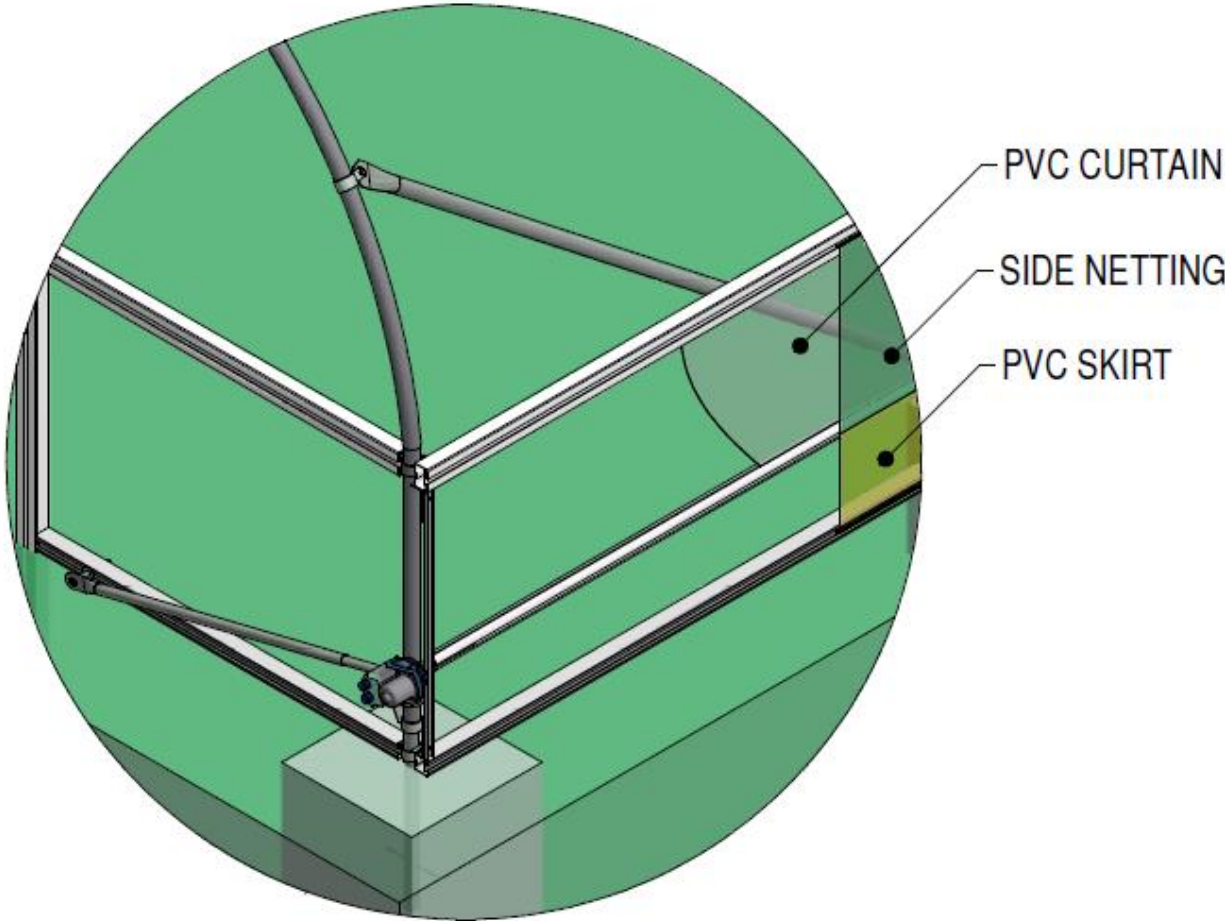


7. Fix the wiggle wire channel to the side vent bracket tabs using self-drill screws, Attach the netting and PVC skirt into this wiggle wire channel.

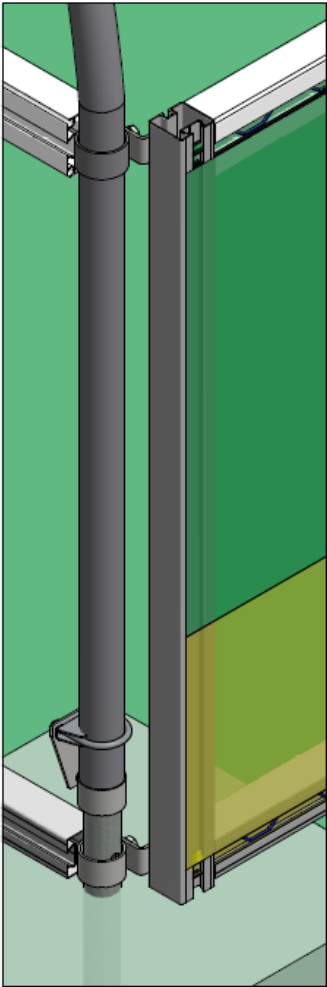
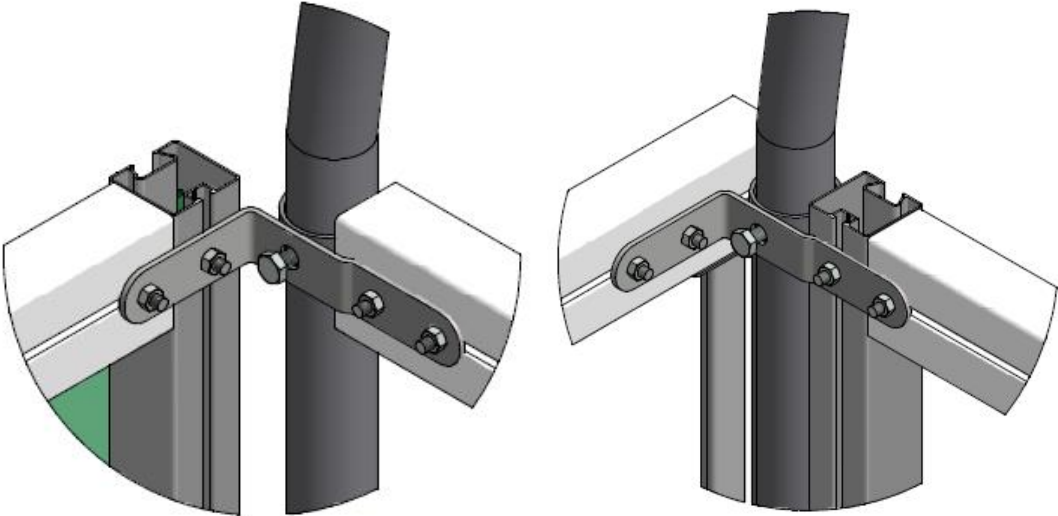


8. When sheeting has been completed, trim down the brush strip to suit the height of the curtain, attach to the hoop leg using self-drill screws, hole spacings recommended at approximately 300mm.

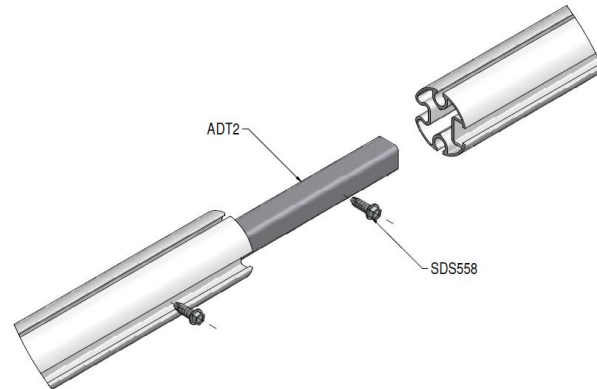
5.5.2 Motorised



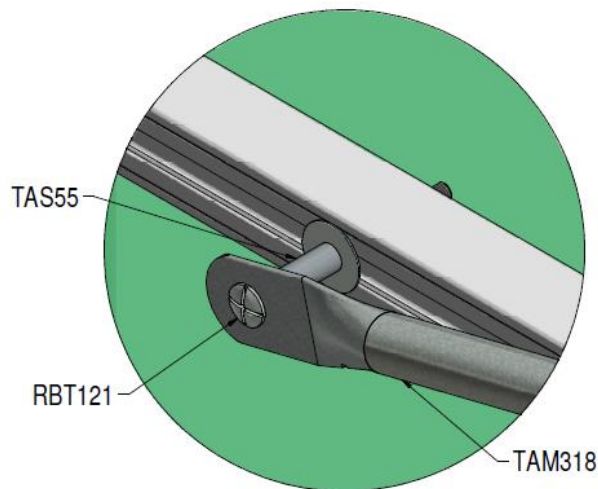
- 1. On the end of the side vent that isn't going to have a motor, finish the side frame off with a length of Aluminium vertically between the side and base rail. On the end with the motor, fix this vertical piece between the side and base rail on the gable end. These are fixed in place by sharing the corner bracket.



2. Fix the top edge of the PVC curtain to the aluminium side rail by sliding the bead into the lower channel.
3. Slot the lengths of aluminium drive tube along the length of the PVC curtain on the keder bead, join the aluminium drive tube using the small square pieces of drive tube joiner and securing with self-drill screws.

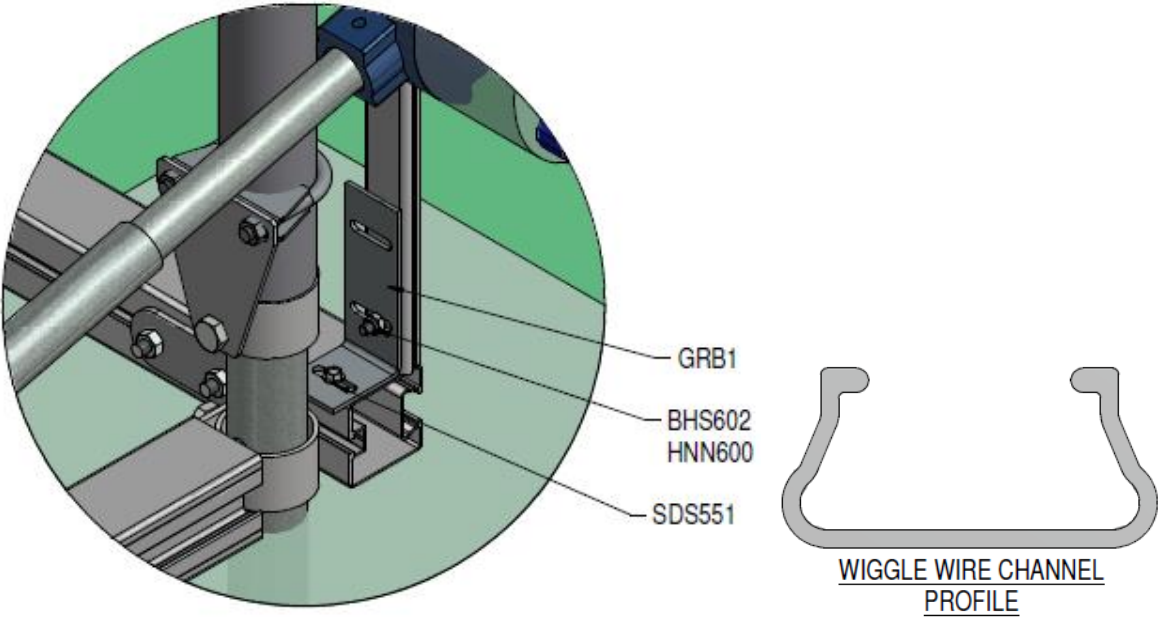


4. Drill through the outer aluminium base rail on the gable end of the tunnel, approximately 1235mm from the centreline of the hoop leg using an 11mm drill bit.
5. Connect the outer telescopic arm to the base rail using the M10x140mm roofing bolt and the telescopic arm spacer tube, two M10x38mm washers and the M10 nylock nut, make sure not to overtighten, connection must allow rotational movement of the telescopic arm. There is a hole in the transition between the tube and the flat end of the arm, this is a drain hole and need to go on the underside.

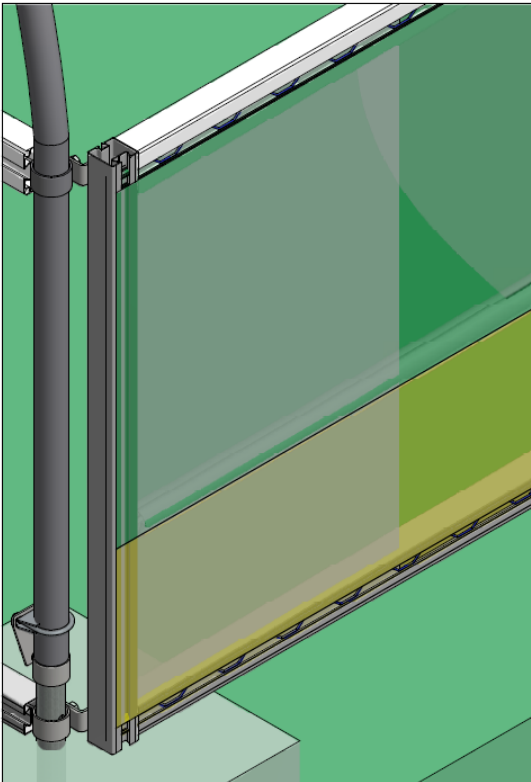


6. Sleeve the drilled end of the inner telescopic arm into the mounting recess of the motor and fix in place.
7. Fix the motor drive shaft onto the aluminium drive tube.

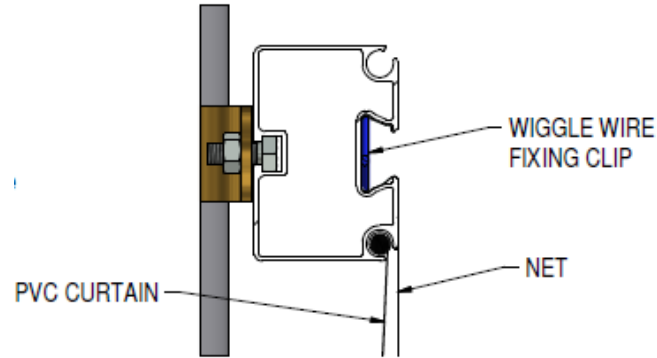
- 8. Fix the wiggle wire channel to the guide rail bracket using the M6 button head screw and self-drill screw, Attach the netting and PVC skirt into this wiggle wire channel.



- 9. Attach the bottom edge of the skirt to net (PVC Skirt) to the aluminium base rail using the wiggle wire, ensure the skirt is level down the length of the tunnel. At both ends of the curtain Fit the PVC draft panel in-between the curtain and the netting.



10. Fix the top edge of the netting along the aluminium side rail using the wiggle wire.



11. When sheeting has been completed, trim down the brush strip to suit the height of the curtain, attached the hoop leg using self-drill screws, hole spacings recommended at approximately 300mm.
12. Do not connect the motor until the tunnel is complete and your control system is set up.



All electrical wiring to be carried out by your own electrician.

6 Options

6.1 Louvre

13. For set of two or four louvres refer to:

INS090

14. For above door louvres (string):

INS046

INS051

INS090

15. For above door louvres (Rack and pinion):

INS046

INS091

INS092

6.2 Doors

Please refer to the following instruction sheets in conjunction with the door instructions in this booklet.

INS068

INS069

INS071

INS087

INS088

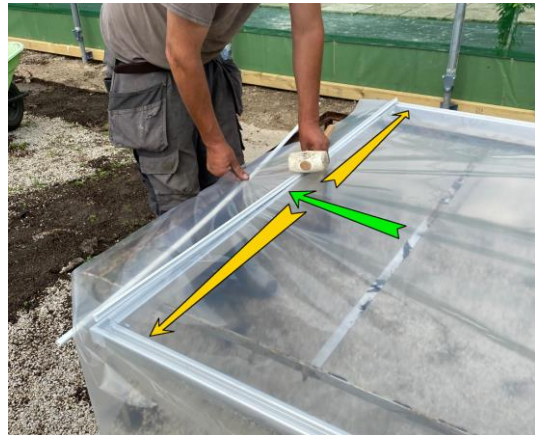
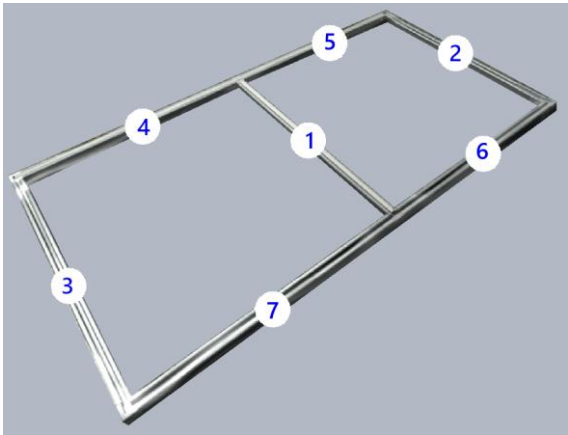
INS089

6.2.1 Door assembly

1. Locate the pre-cut aluminium door sections and the grey connectors. Utilising the connectors, assemble the doors, securing each connector with a self-tapping screw. Fit the T-Joiner with the pre-drilled hole on opposite ends of each door, these will be used later to fit the door latch.



2. Lay the assembled frames either on a flat surface or, preferably, on a support structure with the channel facing upward. Locate the 2-part PVC infill and cut to the required length. Note: The pieces for the top, middle and bottom of the door should be the full length of those channels. You will have some 2m wide clear polythene to clad the doors. Cut polythene to size and lay over the frames. Starting with the centre bar, begin to trap the polythene in the channel with the U-Section of the PVC-infill, starting in the centre of each section, 1 to 7, and working outwards. A rubber or soft plastic mallet will be required. The fit is tight, so some force needs to be applied. When fully in place, tap in the top locking section.



3. Once assembled, drill 2 x holes, 60mm in from each upper corner. Off-set the holes towards the rear of the door. This off-set will cause the bottom of the door, when hung, to swing back toward the tunnel end, instead of away from it. Insert the door roller bolts and lock off with a washer and a nut. Screw the roller carriage onto the top of each bolt.



6.2.2 Door Fitting

Doors are fit to the end frames after the tunnel has been covered.

1. (Unless already in position) carefully work the bottom door guides under the base rail at either side of the door. Offer the door up to the side of the frame and sit it on the door guides. Locate the guides as below and screw into position. If you have an aluminium end frame, secure the door guides with a bolt in the inside T-Slot, the first door track can share a bolt on the corner plate.



2. Utilising a small section of batten, jack the door up to ensure clearance at the bottom.



3. Locate the upper door rail. If you have a timber lintel, mark and drill it at 4 equal points along its length. Slide the rail onto each set of door rollers in turn.



4. Secure the upper door rail to the top of the lintel with the coach screws provided. On an aluminium lintel secure using self-tapping screws.



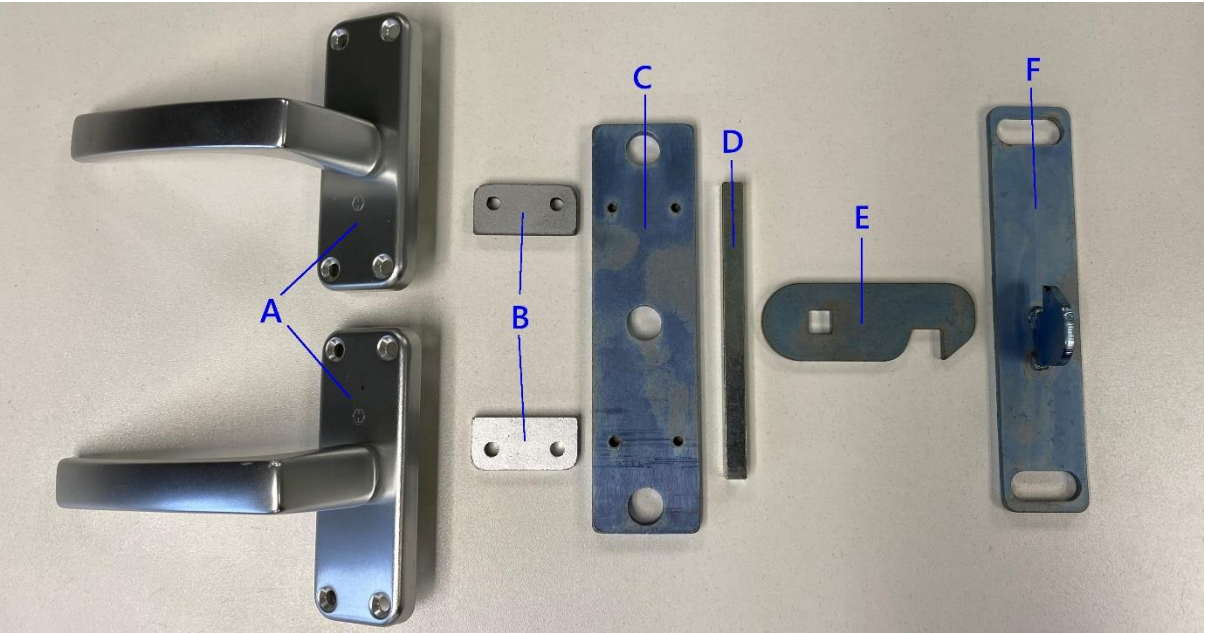
- 5. The door rail over-sails the doors on either side, so a self-tapping screw, fixed into the underside of the rail at either end, will prevent the doors from sliding out of the rail and becoming free from the bottom door guides.

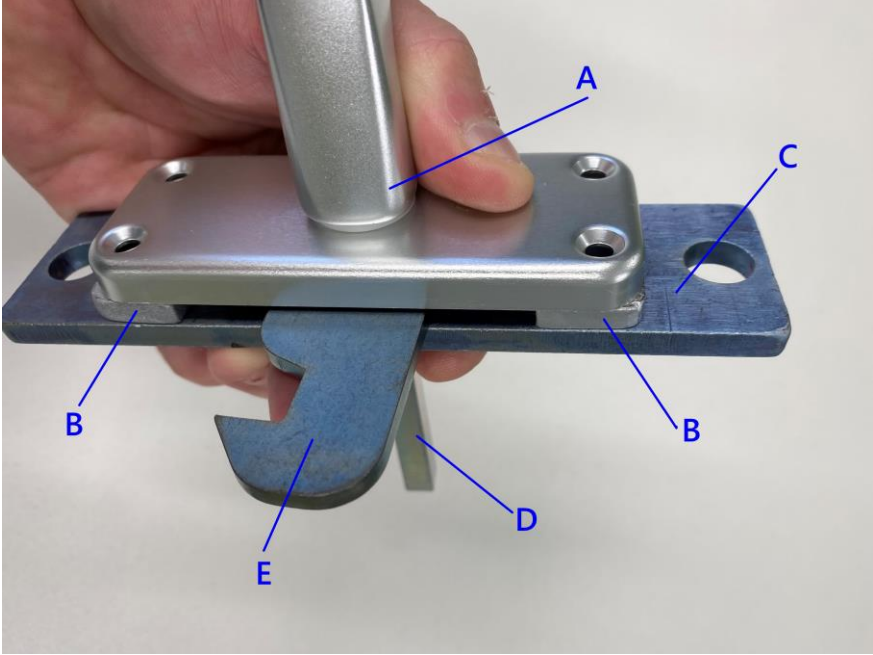


- 6. Offer up the outer door handles to the centre bar, find a suitable position for you and mark the ends. Drill through then secure with the screws provided.



- 7. Moving onto the inner door handle and catch. The components will be packaged with the screws and bolts required. The main parts are seen below.





8. Refer to INS088 for how to fit the door handle.



9. Your doors are now complete.

6.3 Fans

Please refer to INS168

7 Covering

7.1 Main cover

The main poly cover is a single sheet of polythene. It will usually be supplied on a roll, wrapped in a protective cloth. The cover can be taken over the tunnel either from one side to the other, or down the length of the tunnel at its highest point and unrolled down each side. This is the method we will be illustrating. Please remember: Take no chances. Working at height requires suitable access equipment and safety measures, such as scissor lifts and harnesses. The operation should never be undertaken in windy conditions. Wait for a calm, clear day with little or no breeze.

Before unrolling the polythene make sure you have the correct size of roll, as no claims can be accepted for incorrectly ordered sizes after unrolling has taken place.

Apply the anti-hot spot tape making sure the steelwork is clean and dry. Apply in a strip where the polythene would touch the steel work i.e over the hoops. Use the wider anti hot spot tape for the end hoops where the polythene pulls around the ends. Cover any sharp points and brackets which may snag the cover.



1. Firstly, examine the polythene to determine which side should be INSIDE the tunnel. Polythene covers have anticondensation coatings on one side which must be on the inside of the tunnel. To help you identify which side is which, there are identifying numbers printed on the cover. These numbers should be the correct way around and readable from the INSIDE. It's not critical that they are the correct way up... as long as they are readable correctly. The images below illustrate this.



- bring the roll to one end of the tunnel and support on chocks so it can unroll freely. Trap the end of the poly between two short lengths of batten and nail in place securely. Secure a length of rope to the battens and run it to the other end of the tunnel. Lift the rope up to the apex. One person should then begin to carefully draw on the rope, while the other guides and feeds the polythene from the other end. In this manner the cover can be carefully drawn down the length of the tunnel. Ensure the crease aligns with the apex. Once you are happy with the positioning of the cover, unroll the cover and allow to drop down to the side rails.





3. If you have wiggle wire over the end hoops, secure the polythene into the wiggle-wire channel at one end using the zig-zag wiggle wire provided. The wire is fed into the channel with a rocking motion. Beginning at the apex, secure the poly to around halfway down to the side rail.

If you are fixing the polythene straight to the end frame. The polythene is to be fixed in the centre of the horizontal top bar with a batten approximately 12" long. Cut the polythene so that a flap hangs below the lintel. The flap should be about 12" long and as wide as the batten. Wrap this flap of polythene around the batten and nail the batten on the inside face of the timber lintel.



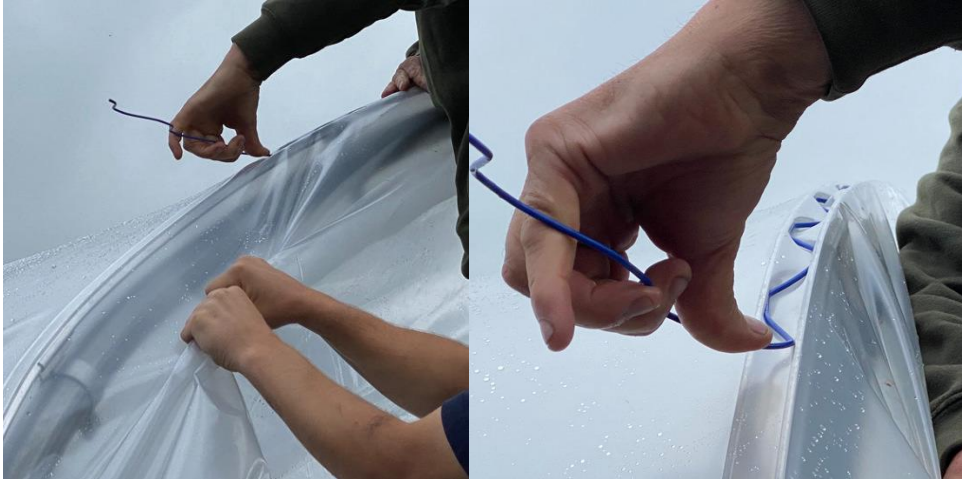
4. At the other end of the tunnel, perform the same routine, this time with a helper pulling on the polythene to ensure that the cover is nice and tight down the length of the structure.
5. Next the cover is fixed into the side rail, starting in the middle and working outwards towards the ends.

If you have a timber side rail, cuts will need to be made in the cover at 3m intervals to allow each 3m batten to be dealt with individually. Initially, the cover needs to be cut at the corner, making the side and end separate. Staple the lower edge of the cover section to a 3m batten. Roll the batten up by turning its upper edge toward you until it meets the underside of the batten holding the side net at roughly 90°. (Some adjustment and several tries may be needed till the method becomes 2nd nature). Using the upper batten for leverage, force the batten holding the cover flat. This will stretch the polythene tight. Nail in place with galvanised nails, using the 30cm rule. Follow this method down both sides of the tunnel, tightening, battening, and nailing, until the cover is completely trapped and fixed down its entire length. You should have achieved a tight finish.



If you have an aluminium side rail, fix the polythene into the side rail using the wiggle wire fixing like you did over the end hoops. Work your way from the middle to both ends, pulling the cover tight and fixing as you go until the cover is completely trapped and fixed down its entire length. You should have achieved a tight finish.

6. Return to the end hoops and finish off trapping the cover into the channel with the wiggle-wire. A second pair of hands to pull the polythene tight as you feed the wiggle wire in is always helpful. Trap the polythene all the way down to the side rails, where the channel comes to an end. Finally trim off the excess polythene neatly, taking care not to accidentally damage or cut the main cover.



If you are fixing the polythene straight to the end frame, Pull the polythene round the door frame, making sure you have got the polythene tight in the first hoop section. Working your way around the door frame, pleat the polythene and roll into a batten and nail onto the inside of the door frame.



7. Lastly, individually raise each hoop leg, either manually or with a cover tensioning jack and lock the supporting collar. This raises the hoops into the already tight polythene until the final “drum-skin” finish is achieved.

7.2 End panel

1. Where wiggle wire I used over the end hoops, a D-Panel must be created. This extends from the door lintel to the apex. Measure from the apex of the end hoop to the door lintel and add 500mm. Using the polythene provided, measure and cut the panels to the required size. Return to the wiggle-wire channel and, starting at the apex, trap the polythene in the channel with a second section of wire, over the top of the main cover, from side rail to side rail.
2. Once secured in the channel, pull and stretch the polythene down. On a timber end frame pull and stretch the polythene down and batten neatly to the underside of the door lintel to create a flat panel. On an aluminium end frame pull and stretch the polythene down and fit to the lintel using the wiggle wire to create the flat panel.



3. Measure the size of the rectangular openings in the end frame and add 300mm all around for battening. Using the polythene provided, cut the required number and size of panels. On a timber end frame, use the battens provided to attach the polythene panels to the inside edges of each opening, pulling tight and nailing into place to secure. On an aluminium end frame, use the wiggle wire to attach the polythene panels to the door frame uprights and lintel. You can fit up to three wiggle wires on top of each other in one channel.

