ClearSpan™

Poly Shelters

Note: Photo may be of a different but similar model

Instruction Manual

for the ClearSpan™ Sunblocker Pavilion

SKU #104447 21' Wide x 16' Long
SKU #104448 21' Wide x 24' Long
SKU #104449 21' Wide x 32' Long
SKU #104450 21' Wide x 40' Long
SKU #104451 21' Wide x 48' Long
SKU #104452 21' Wide x 56' Long
SKU #104453 21' Wide x 64' Long
SKU #104454 21' Wide x 72' Long

Rev: 26 Jan 05

Introduction

Thank you for purchasing the ClearSpan™ Poly Shelter. We appreciate your patronage. We hope you enjoy building and utilizing your shelter. Please read this entire instruction manual before starting to assemble your shelter. If you require assistance during the construction process you may call us at 1-800-245-9881.

A Word About Safety

Just as we want you to be pleased with your assembled shelter, we don't want you to get hurt in the process of building it! Our suggestions include the following:

- Wear eye protection when drilling and power-screwing.
- Wear head protection when working with/under heavy parts including metal tubing.
- Wear gloves when handling metal tubing due to sharp or rough ends.
- Use a portable GFCI when working with corded power tools.
- Never erect a shelter directly under power lines.
- Be careful not to drive anchors into buried power cables.
- Do not climb on the shelter or its frame. It is not designed to support human weight.
- If the shelter is enclosed, provide proper and adequate ventilation.
- Do not store hazardous materials in the shelter without proper ventilation and precautions.
- If both ends are covered, provide proper ingress and egress to prevent entrapment.
- Do not occupy the shelter during very high winds, hurricanes, or tornadoes.
- If shelter is moved after construction, inspect shelter thoroughly before reuse.
- Use common sense at all times.




Suggested Tools

Before you start to build your shelter you should assemble the following tools:

- Tape Measure
- Fine Point Marker to mark locations on tubing
- Step ladder tall enough to safely work at the height of your shelter
- Two or more 30-foot pieces of rope
- Allen Wrench Set

IMPORTANT - Read Anchoring Instructions

You must read the anchoring instructions packed with your kit prior to shelter assembly!

For permanent installations, we recommend using ground posts at the bottoms of all legs. They not only anchor your shelter but also make your pavilion easier to assemble.

Selecting a Location

It is important to select a proper location for your poly shelter. While the location may have been predetermined before you even ordered your shelter, you may want to “improve” the location before starting the assembly process.

One of the most important considerations is that the location should be level. If it is not, the shelter’s frame will not assemble or sit properly. If your location is not level, you should consider grading it before building on it. Another alternative is to provide footings which are level to support the shelter. These could be pressure-treated posts, precast concrete blocks, or poured in place footings.

Drainage is another important consideration. Rain flowing off your shelter should have a natural path to flow away from the shelter and not under or into it.

Section A - Unpack & Identify Parts

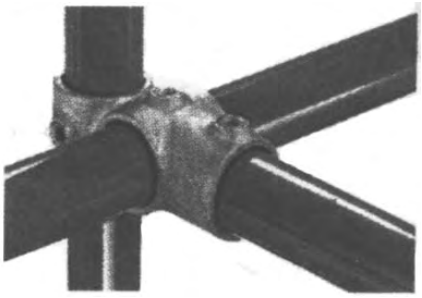
Step 1: Before you begin to assemble your shelter you should first unpack the contents of your shipment. During this process you will learn what all of the various parts look like.

Tip: We recommend you start by laying out the contents of your shipment in an orderly fashion as shown in the photograph below. Note that your parts may look different from those shown.

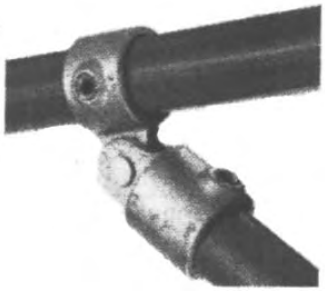
Step 2: Carefully go through the bill of material that came with your shelter and verify that you have all the required parts.

Tip: It is not necessary to open the plastic bags and count all of the fasteners at this time.

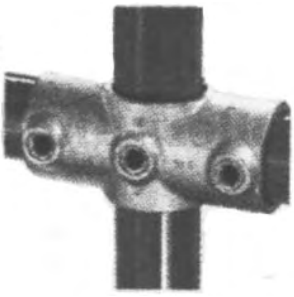
Parts Identification



Socket T & Cross

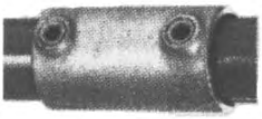


Swivel Socket



2 Socket Cross

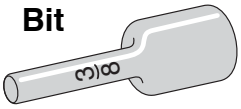
Crossover

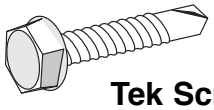


Straight Coupling

Ground Post
(optional)

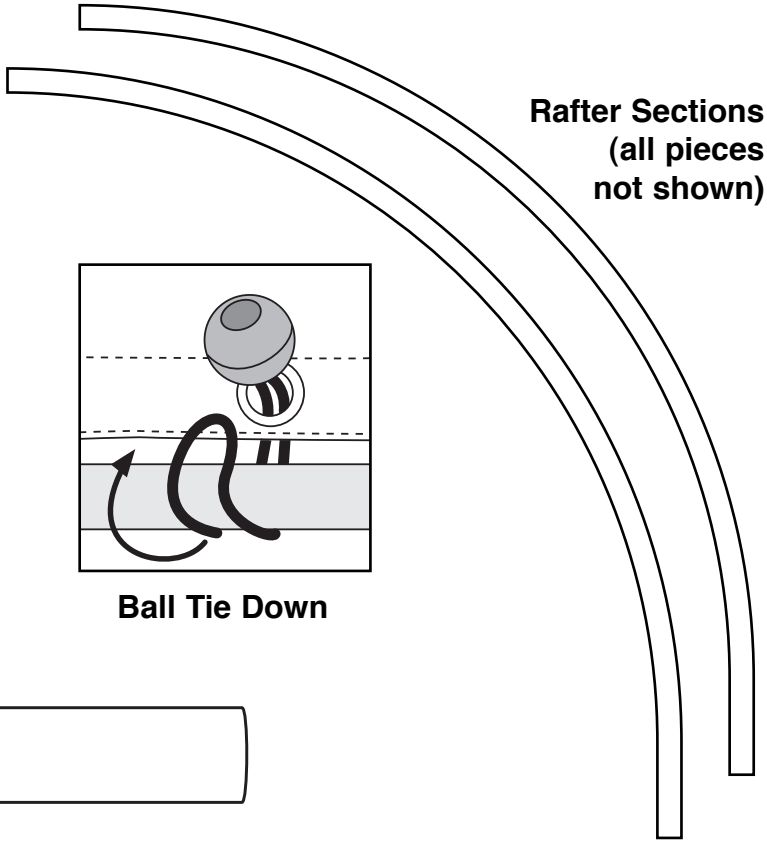
Driver
Bit





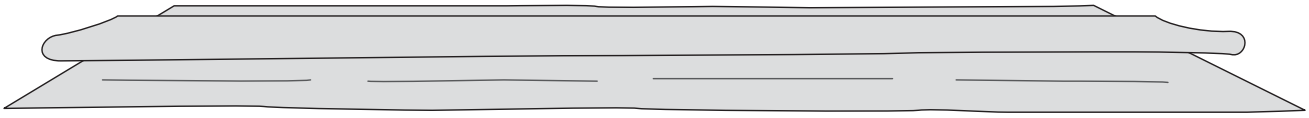
Tek Screw

Ball Tie Down



Rafter Sections
(all pieces
not shown)

Pipe (only swaged is shown)



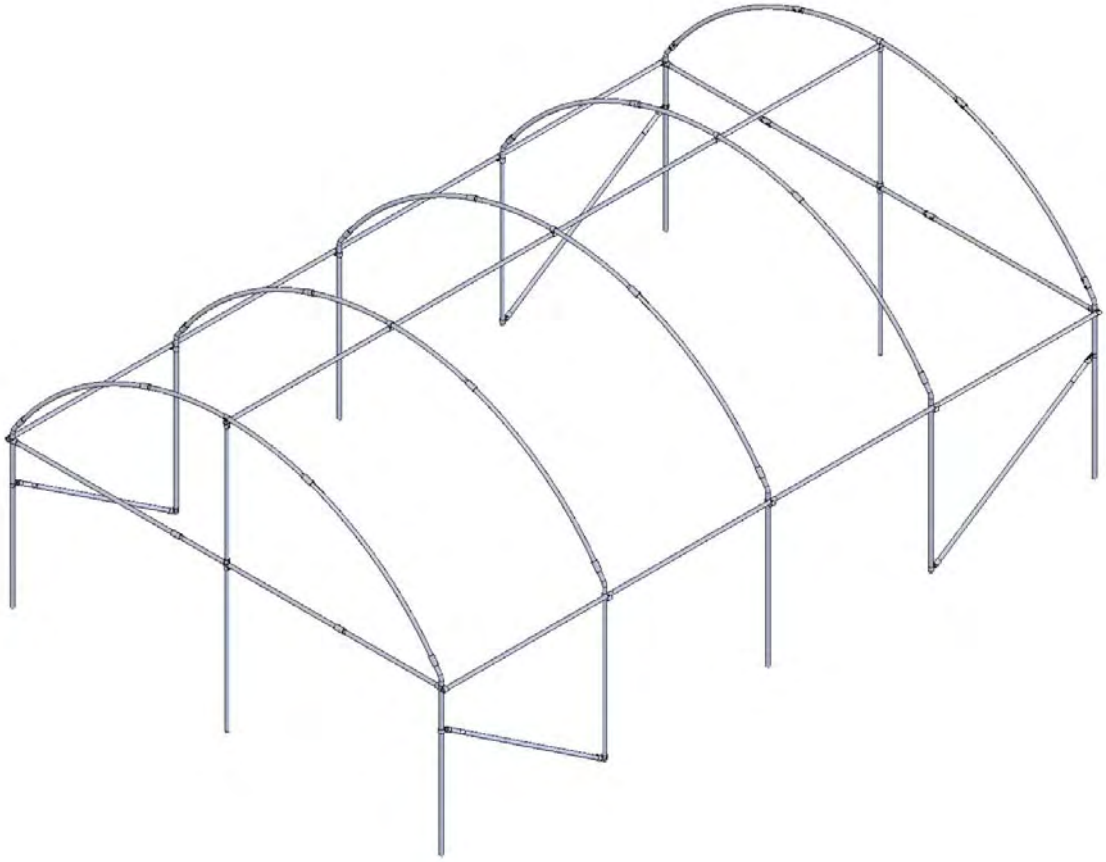
Cover

Note: Illustrations are not to scale.

Assembly Diagrams

Your assembled shelter will be similar to the photo below:

Before installing your shade cover, you will assemble the frame:



Note: The number of rafters shown above may not match your shelter

Section B - String Lines for Posts (optional, recommended)

Step 1: Once you have determined where your pavilion will be located, start by driving the first corner post. To do this, first install the post driver tool in the top of the post to protect it from being damaged. The top of the post should be 1' above finished grade when driven.
NOTE: Pre-drilled holes in posts should be inside-to-outside if you wish to install base boards.

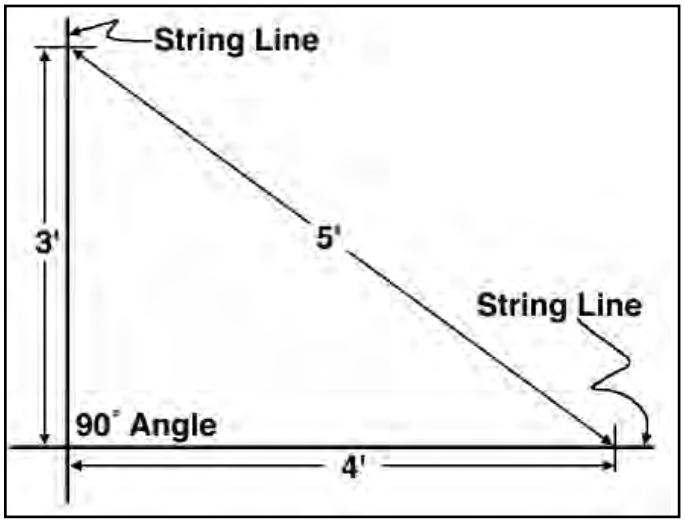
Step 2: Measure the exact length of your shelter from the first post to locate the post at the far end on the same side of the frame. Drive this post into the ground only a few inches at this time.

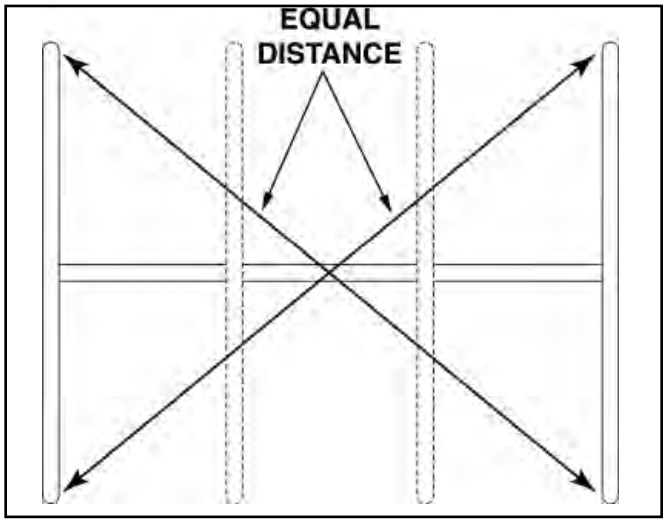
Step 3: Use a transit or line level to finish driving this second post so the top of the post is at the same height as the top of the first post.

Step 4: String a line between the two corner posts driven so far. Nylon mason's line is preferred as it can be stretched to get the sag out. If after stretching the line there is still sag, a support stake can be driven 1" from the side of the string line halfway between the posts. A 10d nail driven into the side of the stake will help support the line. The line should be exactly 1" down from the top of the post.

Now you will locate the other two corner posts.

Step 5: String a line the exact width of your shelter from the first corner. Use a transit to set this line square or at exactly 90˚ from the first line. Drive a post in this 3rd corner but only a few inches deep at this time. If you do not have a transit, use the 3-4-5 rule to square the line. Squaring is done by measuring 3' along one line and 4' along the other line from the intersection of two lines. The cross measurement should be 5'. If it is not 5' exactly adjust the lines and re-measure from the new intersection. Any multiple of 3-4-5 will also work, such as 6-8-10 or 12-16-20. Using a larger multiple will help create an accurate 90˚ angle.





Step 6: Repeat step 5 to find the last corner. Drive this post only a few inches deep at this time.

Step 7: Recheck the positions of the last two corners. They should be the exact length of your shelter apart. Also measure diagonally corner-to-corner. This measurement should be the same along both diagonals.

Step 8: With their positions located exactly and checked, finish driving the last two corners to the same height as the first corners.

Section C - Driving Posts (optional, recommended)

Step 1: Attach a tape measure hooking it over the top of the first post and attaching it with tape. Run it down the long direction to the second post

Step 2: Proceed to drive all the other posts in line spacing them 8' center to center using the tape measure. The string line should be 1" down from the tops of both corner posts. Drive the other posts so their ends are also 1" above the string line. This will put all posts at the same height.

Notes: The tape measure should be long enough to measure the entire length of the shelter without taking it off the first post. This will prevent a compounding of errors. With this method you might be off on any given post, but the overall measurement should be right.

A certain amount of care should be used driving your posts. Keeping your posts 8' center to center and vertical will make installing the rest of the structure that much easier.

Be sure to orient the pre-drilled holes in the posts as shown above to facilitate attachment to baseboards (optional, supplied by customer) if desired.

Cutting posts as a rule is not recommended as they act as the foundation for the shelter. The posts should be set into grade as indicated in the instructions. Exceptions do occur when a post cannot be driven far enough into the grade because of rock or ledge that cannot be broken through.

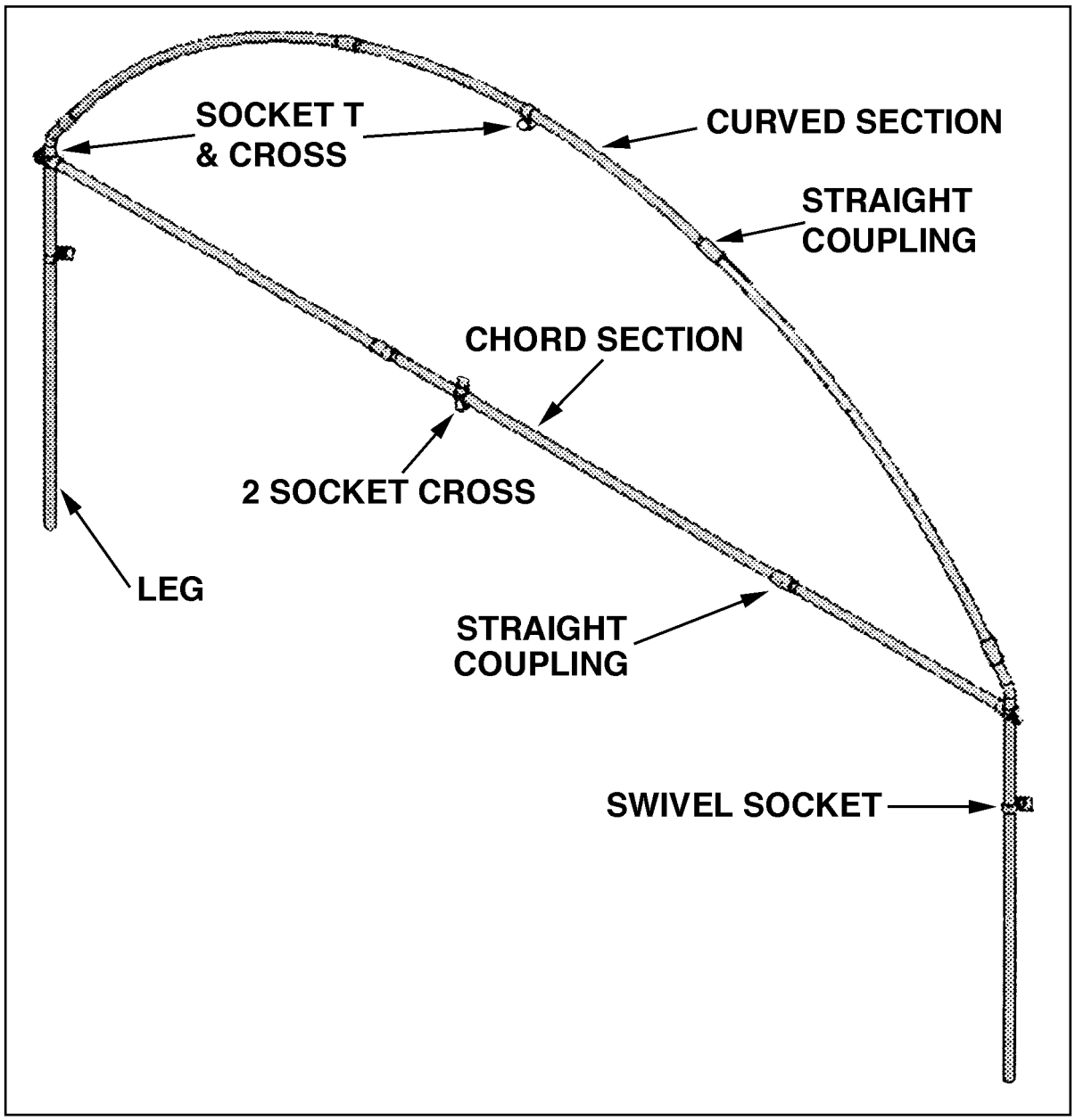
It is recommended that if the posts must be cut, first dig down to the obstruction with a 12" round hole. Turn the post upside down placing the top of it on top of the obstruction. Mark the bottom of the post at 1" above the string line and cut it on the mark. Fill the hole with concrete and set the post into the concrete in the same location that it is to be driven into. If the hole is shallow, dig it wide enough so that after the concrete hardens, it has good bearing against the soil. Do not erect the rafter on top of the post until the concrete is dry.

Step 3: Repeat the above steps to drive all the posts along the other side of your shelter.

Step 4: Finish by installing a ground post in the middle of each end at the same height as all others.

Section D - Rafter Assembly

Step 1: Locate the 8 sections of pipe to make an end rafter. This will include (2) straight leg sections with angled ends, (3) curved sections, plus 3 straight sections to make the horizontal chord.



Typical End Rafter

Step 2: Position a socket T and cross coupling at the middle of the curved section that will become the peak.

Step 3: Position a socket T and cross near the top of each leg section just below the bend.

Step 4: Use (2) straight couplings to join the 3 curved sections together.

Step 5: Use straight couplings to join a leg to each end of the curved assembly.

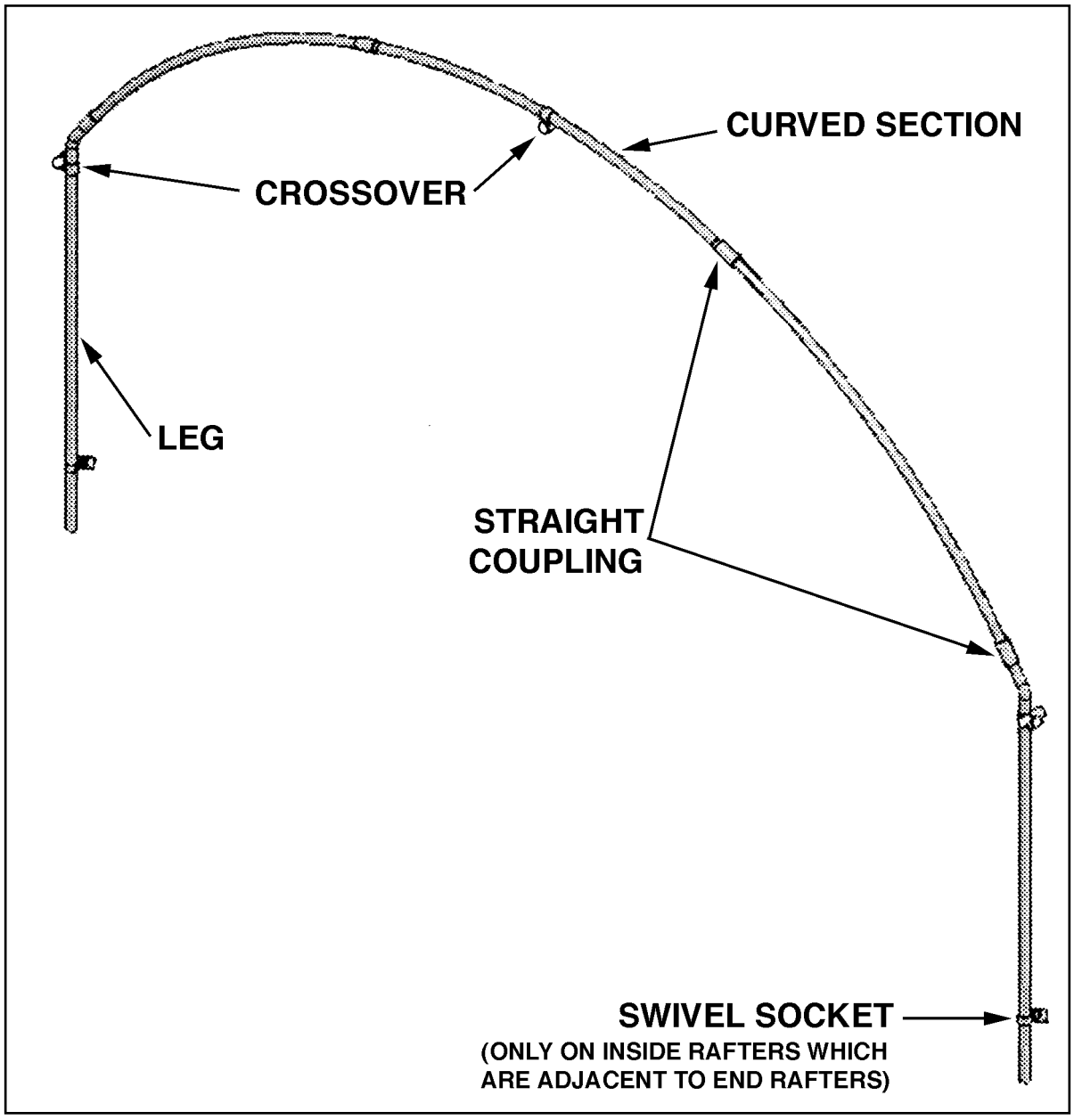
Step 6: Assemble the chord using (2) swaged 99" pipes with (1) unswaged 58" pipe.

Step 7: Install a 2 socket cross coupling at the middle of the chord.

Step 8: Connect the chord to the legs via the 3-way "Ts" previously installed.

Step 9: Repeat the steps above to assemble the other end rafter exactly like the one you just made.

Step 10: Assemble your inside rafters. These are similar, but do not have the horizontal chord or diagonal corner braces. Inside rafters have crossover fittings at the peak and just below the bends in the leg sections.



Typical Inside Rafter

Step 11: Add swivel sockets to the legs of both end rafters and 2 of the inside rafters. These will later be used to connect diagonal struts. Look at the frame drawing to approximate the locations of these couplings. On the legs of the end rafters, the should be a foot or so below the bend. On the two inside rafters they should go a foot or so up from the bottom ends.

Section E1 - Rafter Setup (ground post method)

IF YOU DID NOT USE GROUND POSTS, PLEASE PROCEED TO SECTION E2 FOR SETUP.

Step 1: Stand up one of your end rafters. Place the bottom of the rafter into the outside ground posts and secure with Tek screws through the post into the rafter. Install all of the rafters into the ground posts at this time. Finish with the other end rafter.

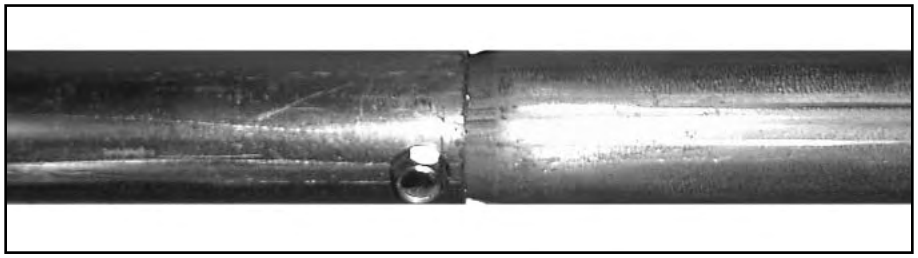
Step 2: When all the rafters are erected, check to make sure they are not corkscrewed. This is when half of the rafter is leaning toward one end of the shelter and the other half of the same rafter is leaning toward the opposite end. To correct this, simply push each half rafter in the direction it needs to go.

Step 3: Insert purlins (horizontal members) into the couplings at the peaks of the rafters and also at the tops of the legs. Tighten the rafter couplings as you go. Start with the plain end of a 99" swaged pipe. Continue to add more 99" swaged sections, and end with an unswaged section that is the correct length so the purlin assembly is the same length as your shelter.

Step 4: Recheck that every rafter is standing up straight (plumb) and that the rafter-to-rafter distance is 8' when checked at the peak and side couplings.

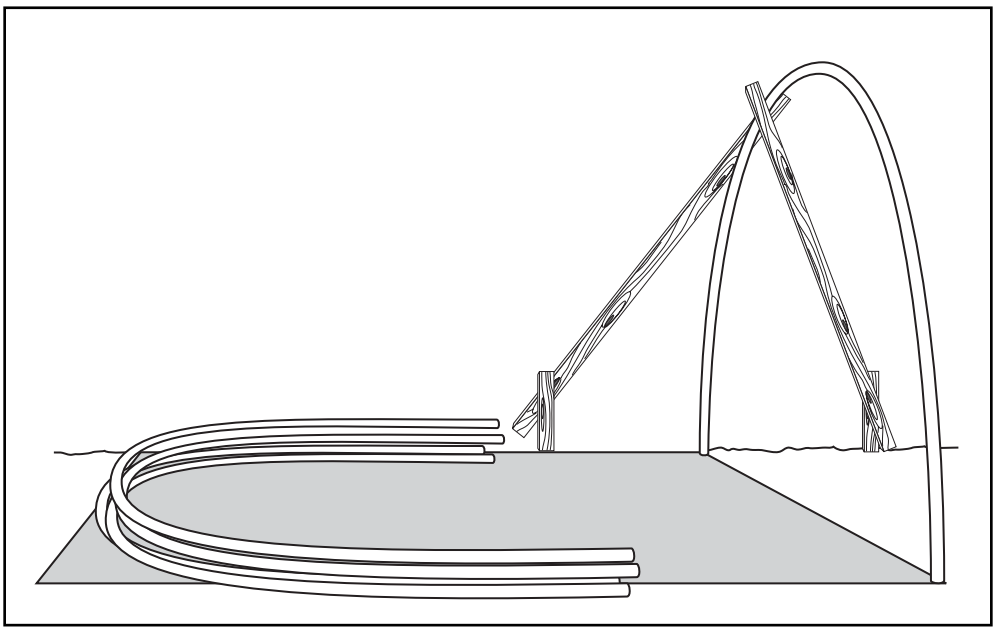
Step 5: When all rafters appear to be straight, tighten all the couplings.

Step 6: If this is a permanent installation, we recommend that you install a Tek screw at each purlin joint to secure the connection.



Section E2 - Rafter Setup (without ground posts)

Step 1: Stand up one of your end rafters (one of those with the horizontal chord). Secure it to an existing structure if possible so that it is plumb. If you don't have an existing structure, you can use some 2x4s as shown tied with rope:



Step 2: Insert the plain end of a 99" swaged purlin into the cross coupling at the peak of the end rafter and tighten the bolts. The end of the purlin should be flush with the outside surface of the coupling or the rough end of the purlin could damage the cover when it is installed later. Have an assistant hold the ridge purlin horizontal until the next step is completed.

Step 3: Stand up the next rafter (an inside rafter) and slide it onto the ridge purlin. Position it exactly 8 feet from the end rafter and tighten the coupling. Your structure should stand on its own now.

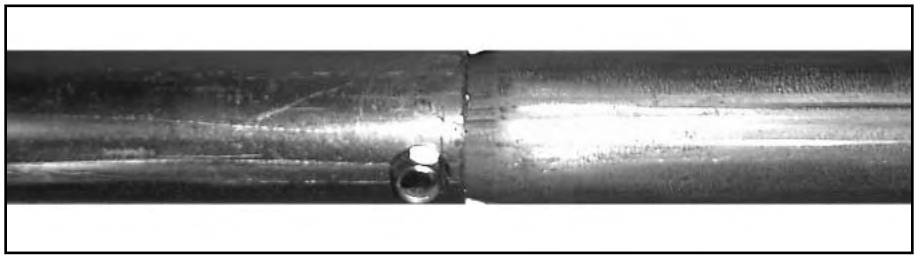
Step 4: Add swaged 99" purlins at the tops of the legs just below the bends.

Step 5: Continue to add rafters (at 8' spacing) and purlin sections until your shelter is complete and you've finished with the other end rafter. The last purlin sections should be unswaged sections that are the correct length so the purlin assemblies are the same length as your shelter.

Step 6: Recheck that every rafter is standing up straight (plumb) and there is 8' between them when measured at the couplings.

Step 7: When all rafters are straight and plumb, tighten all the coupling bolts.

Step 8: If this is a permanent installation, we recommend that you install a Tek screw at each purlin joint to secure the connection.

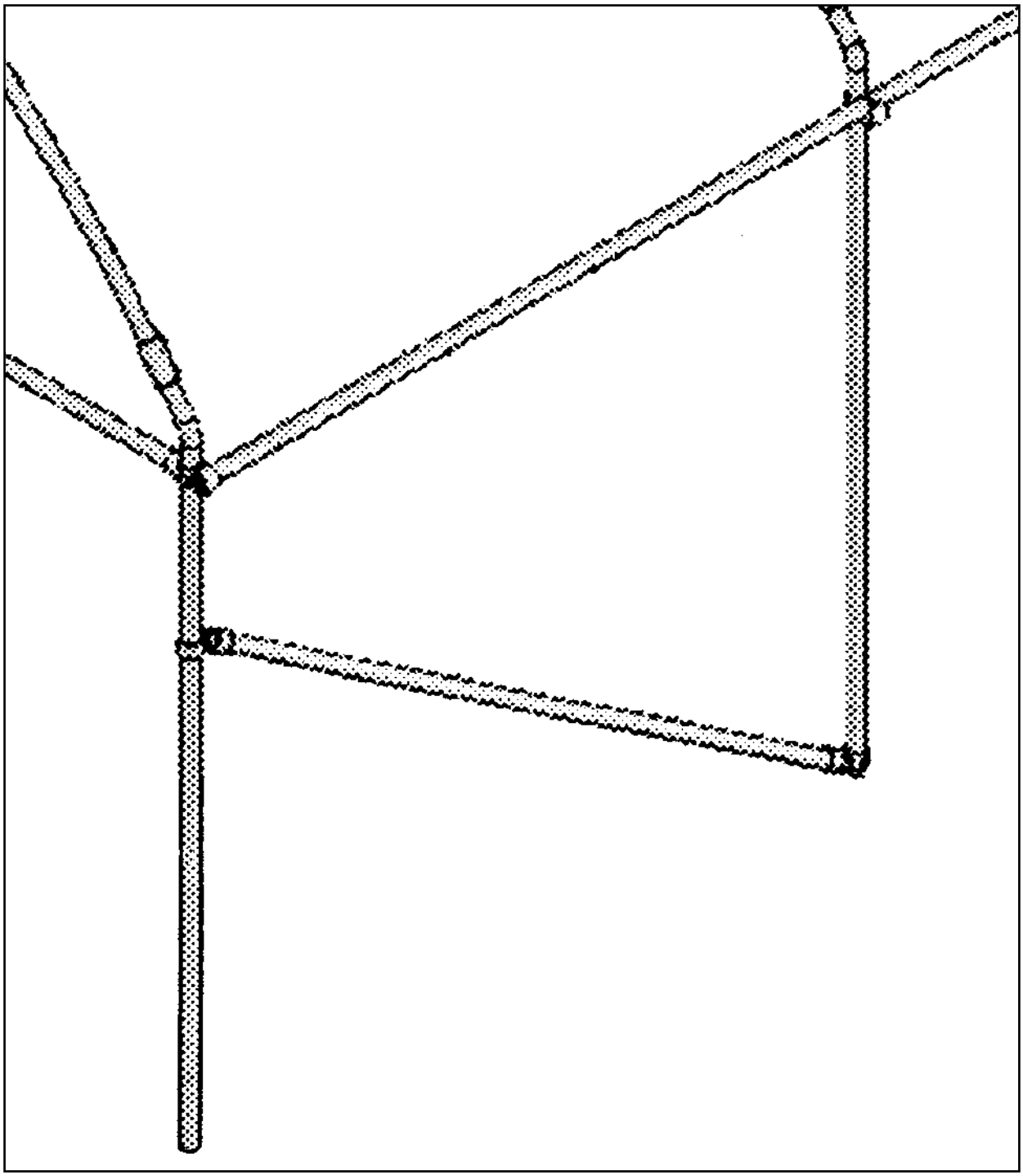


Section F - Install Diagonal Bracing Struts

Struts are supplied in your kit to brace your shelter. You would normally have a pair of struts at each end of the shelter running diagonally between the end and first rafter in.

Step 1: Assemble (4) struts using a 99" swaged pipe into a 12" unswaged pipe. If this is a permanent installation, secure the connection with a Tek screw into the joint.

Step 2: Install a diagonal strut assembly in each corner of your pavilion. Position them as shown between the swivel high on the end rafter and the swivel low on the neighboring inside rafter.

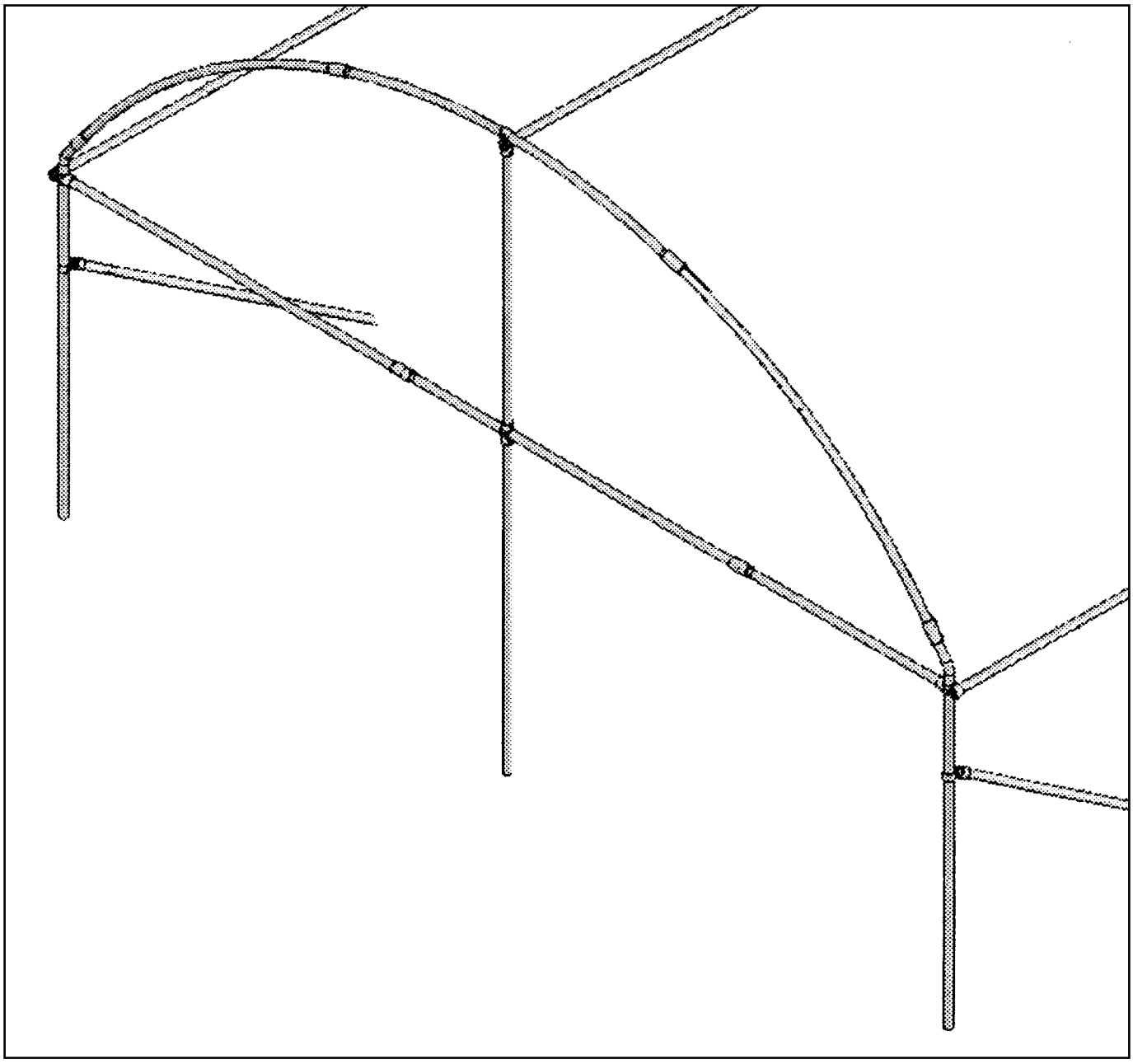


Section G - Install End Verticals

Vertical members at both ends of your shelter are used to help support the ridge purlin.

Step 1: Connect an 84" unswaged pipe to the bottom of the 2 socket cross coupling that was pre-installed at the middle of the chord. If you used ground posts, the bottom of this pipe should be secured to the ground post in the same manner as the legs.

Step 2: Connect a 72" unswaged pipe between the top of the 2 socket cross of the chord to a socket T & cross coupling at the end of the ridge purlin.

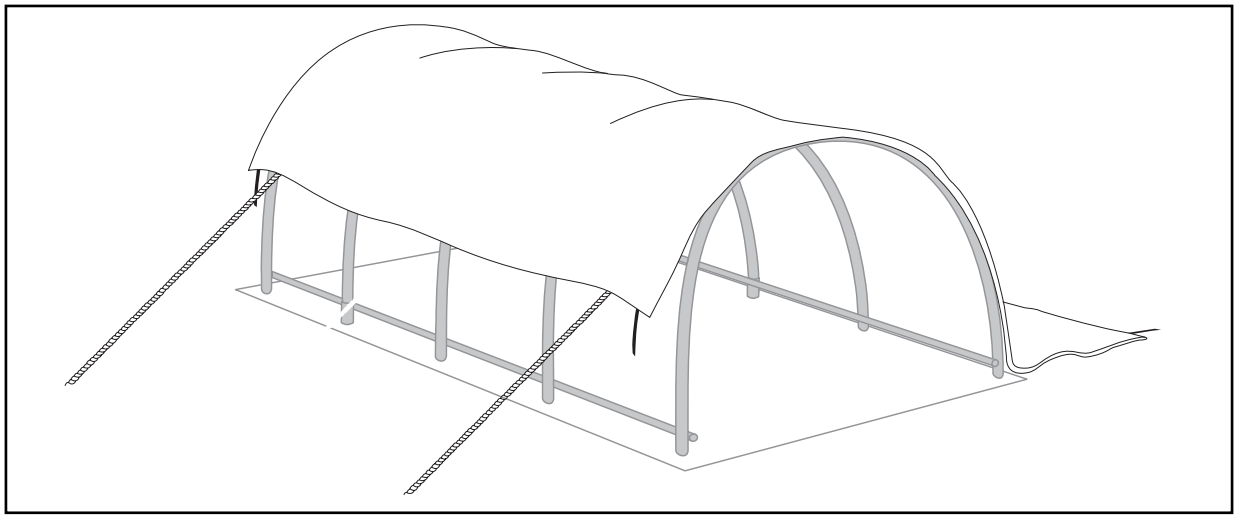


Step 3: Check for any sharp edges on the frame and either file them smooth or wrap them with a layer or two of duck tape so they will not cut the cover.

Section H - Install Main Cover Material

Step 1: To pull the cover over the frame, attach ropes to the cover at several of the grommets.

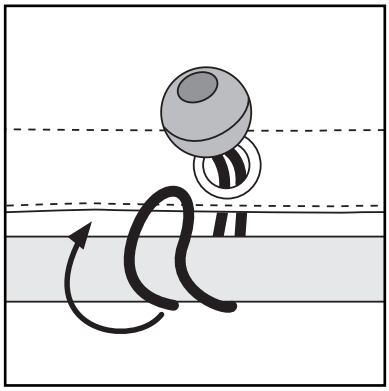
Step 2: Throw the ropes up and over the frame and then pull the cover over the frame. You need one person at each rope for this step.



Step 3: Remove the ropes and position the cover evenly on all four sides.

Warning: Do not leave the cover unattended until it has been secured in all four corners.

Step 4: Secure the corners by using the Ball Tie Downs as illustrated below.



Step 5: Once the corners are fastened, place Ball Tie Downs through all grommet holes and loop around pipe as illustrated above.

Section I - Install Optional End and/or Side Panels

DO NOT INSTALL PANELS ON A WINDY DAY AS DAMAGE TO THEM MAY RESULT!

Step 1: Optional End Panels and Side Panels are attached to the frame with Ball Tie Downs in the same manner as the Cover.

Section J - Shelter Maintenance

Thank you for purchasing this ClearSpan™ Shelter. Following instructions for assembly and proper care and maintenance of the shelter will ensure many years of exceptional performance. The following notes include several items that need periodic checking.

- Cover must be kept taut; check and adjust tension periodically.
- Check connections and fasteners for tightness; replace and/or repair missing or damaged parts.
- Contact ClearSpan for assistance in identifying needed parts; call us toll-free at 1-800-245-9881.
- If shelter is moved after construction, inspect shelter thoroughly before reuse.
- Do not allow snow to accumulate on the cover. Remove shade material before the snow season.
- Never attempt to climb on or stand on the shelter or its frame.
- Note that ClearSpan™ shelters (Truss Arch excepted) do not have any tested loading criteria.