ClearSpan™

Poly Shelters

(Photo above is before installation of shade fabric and may be of a different size than this model range)

Instruction Manual

for the ClearSpan™ Gothic Shade House
SKU #103567: 34' Wide x 12' High x 24' Long
SKU #103568: 34' Wide x 12' High x 48' Long
SKU #103569: 34' Wide x 12' High x 96' Long

Rev: 18 Mar 04

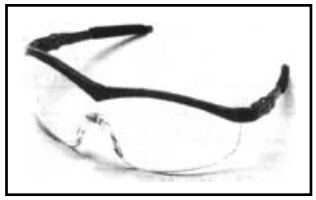
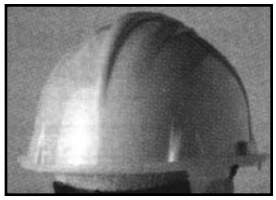
Introduction

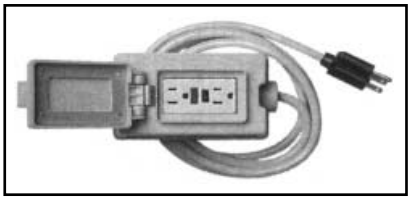
Thank you for purchasing the ClearSpan™ Poly Shelter. We appreciate your patronage. We hope you enjoy building and utilizing your shelter. Please read this entire instruction manual before starting to assemble your shelter. If you require assistance during the construction process you may call us at 1-888-603-4445.

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.



Required Tools

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

- Tape Measure at least as long as your shelter
- Fine Point Marker to mark locations on tubing
- Electric Drill/Driver (cordless preferred)
- Adjustable Wrench (or wrench set)
- Scissors
- Step ladder tall enough to safely work at the height of your shelter
- Two 30-foot pieces of rope

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.

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 both verify that you have all the parts required to build your shelter and learn what all of the various parts look like.

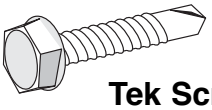
Tip: We recommend you start by laying out the contents of your shipment in an orderly fashion as shown in the photograph below.

The contents of the Bill of Material for your shelter will depend on the size of the shelter ordered. Please refer to the Bill of Material that came with your shelter.

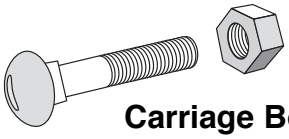
Step 2: Carefully go through the bill of material and verify that you have all the required parts.

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

Parts Identification

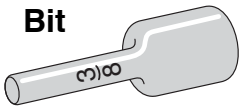


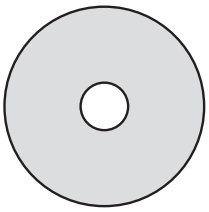
Tek Screw



Carriage Bolt & Hex Nut

Driver Bit



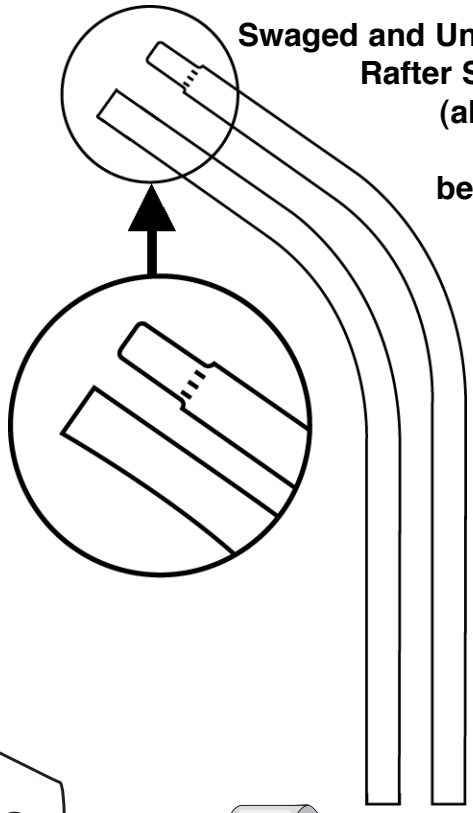


Fender Washer

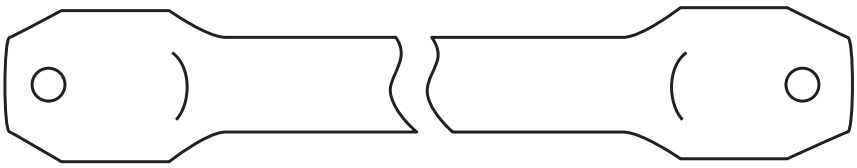
Ground Post

Purlin Cross Clamp

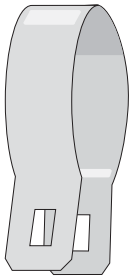
Purlin End Clamp



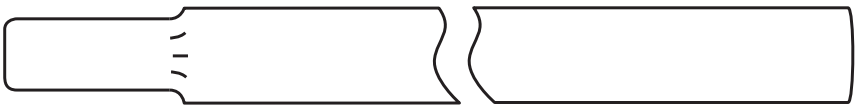
Swaged and Unswaged Rafter Sections (all pieces may not be shown)



Strut



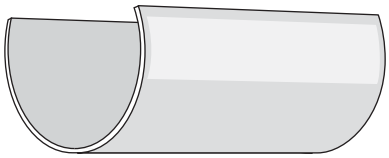
Band Clamp



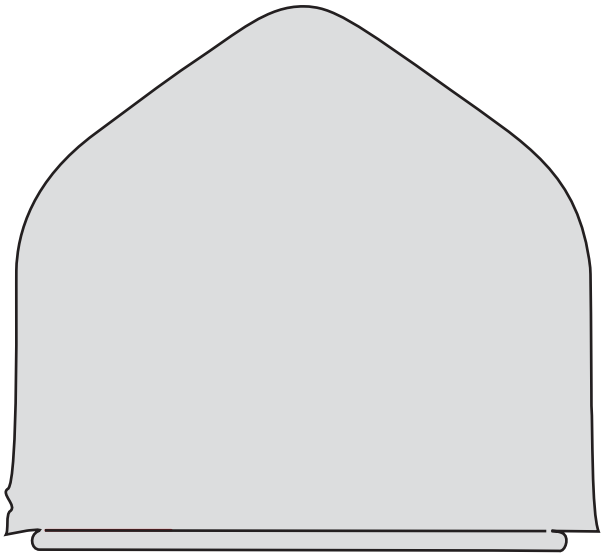
Purlin/Cover/End Conduit (only swaged is shown)

Note: Illustrations are not to scale.

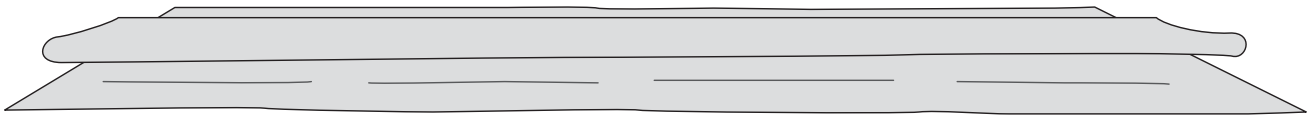
Film/Polylatch Parts
(not included)



Fabric Clip



End Panel Material - Optional
(may be supplied as a rectangular piece)

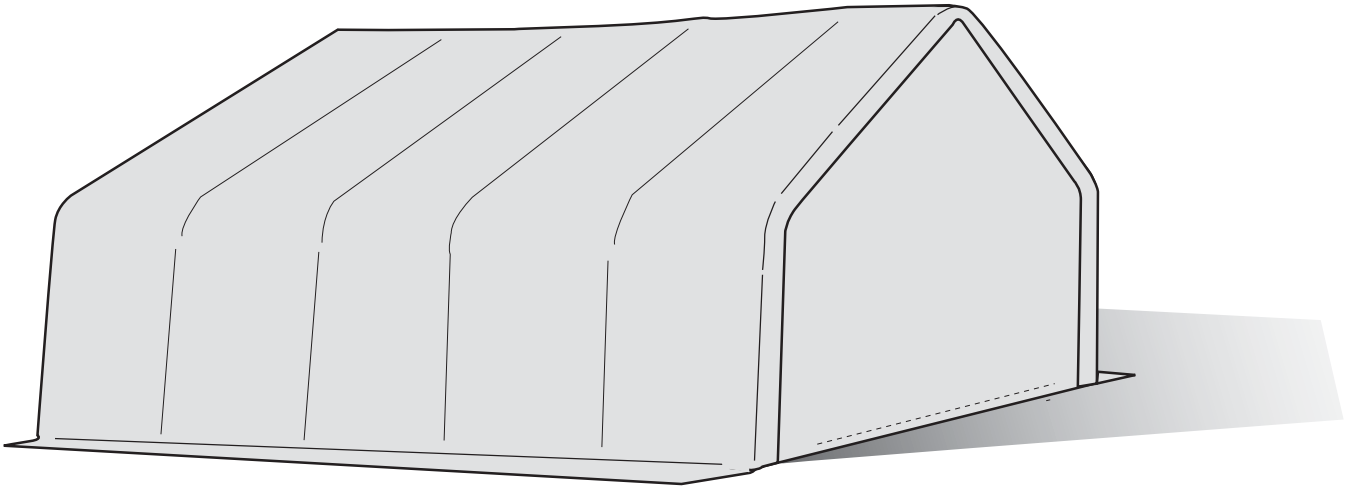


Cover Material

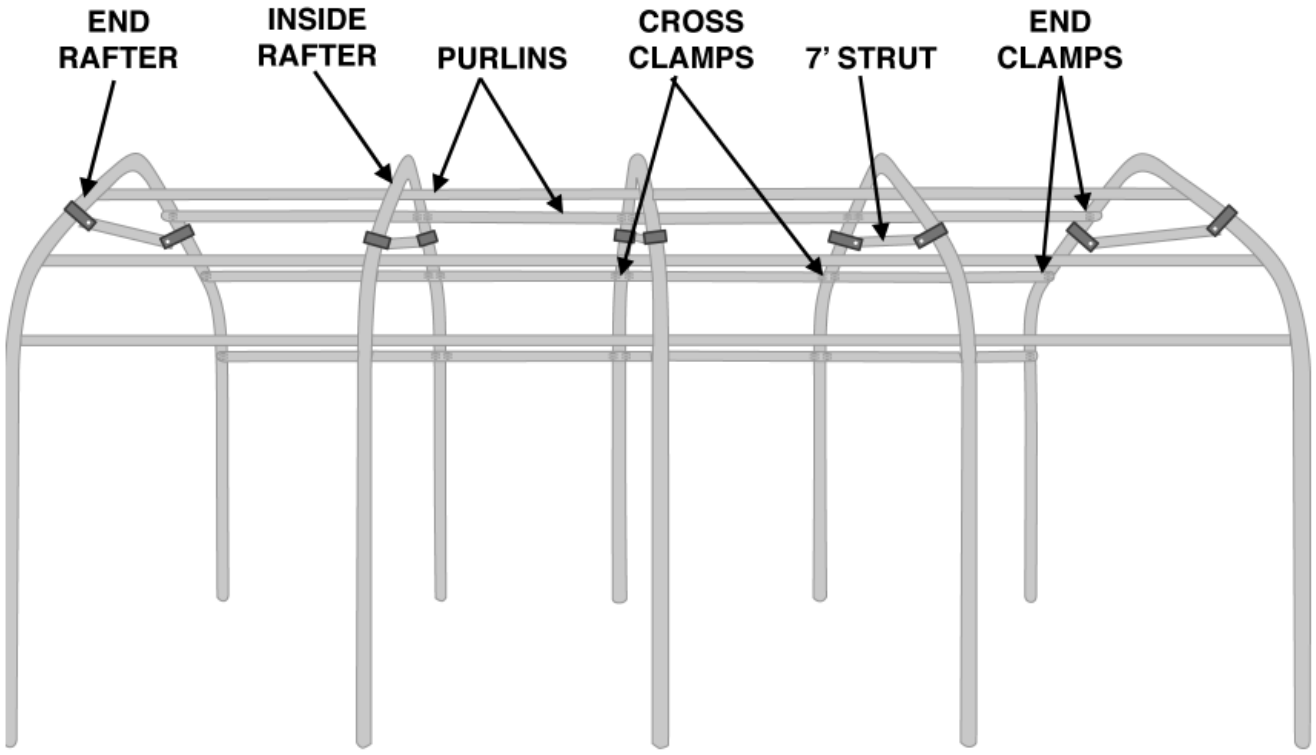
Note: Illustrations are not to scale.

Assembly Diagrams

Your assembled shelter will be similar to the illustration 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

Step 1: Once you have determined where your greenhouse 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 all posts should be inside-to-outside to mate with holes in rafters.

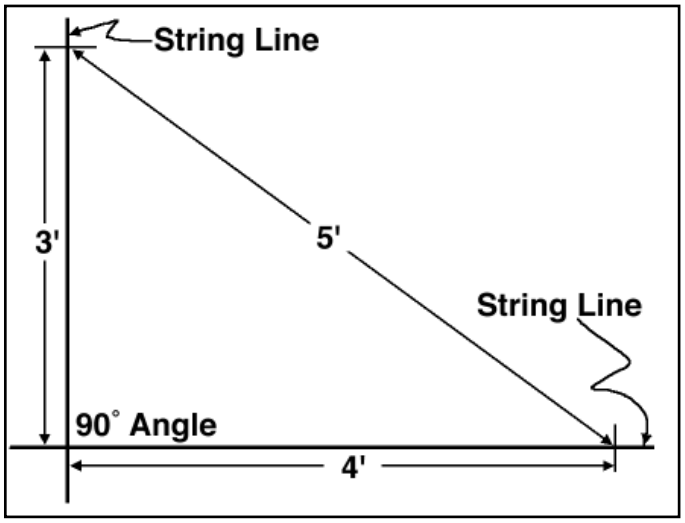
Step 2: Measure the exact length of your shelter from the first post to locate the post at the far end on the same side of the frame. Drive this post into the ground only a few inches at this time.

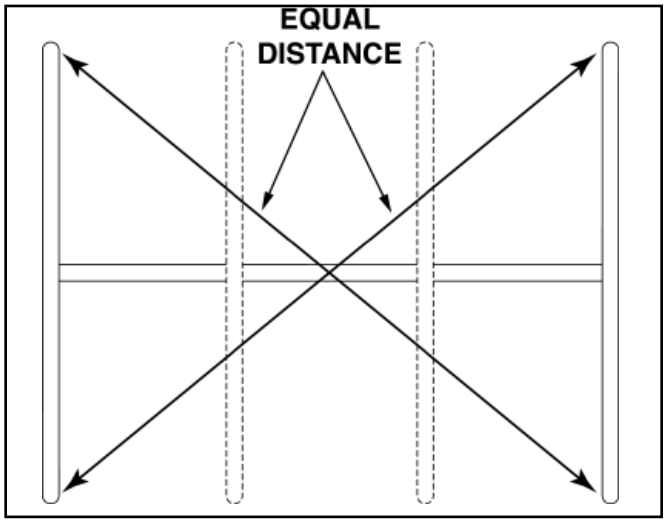
Step 3: Use a transit or line level to finish driving this second post so the top of the post is at the same height as the top of the first post.

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

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 4' 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 4' 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 and rafters later on in the assembly process.

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.

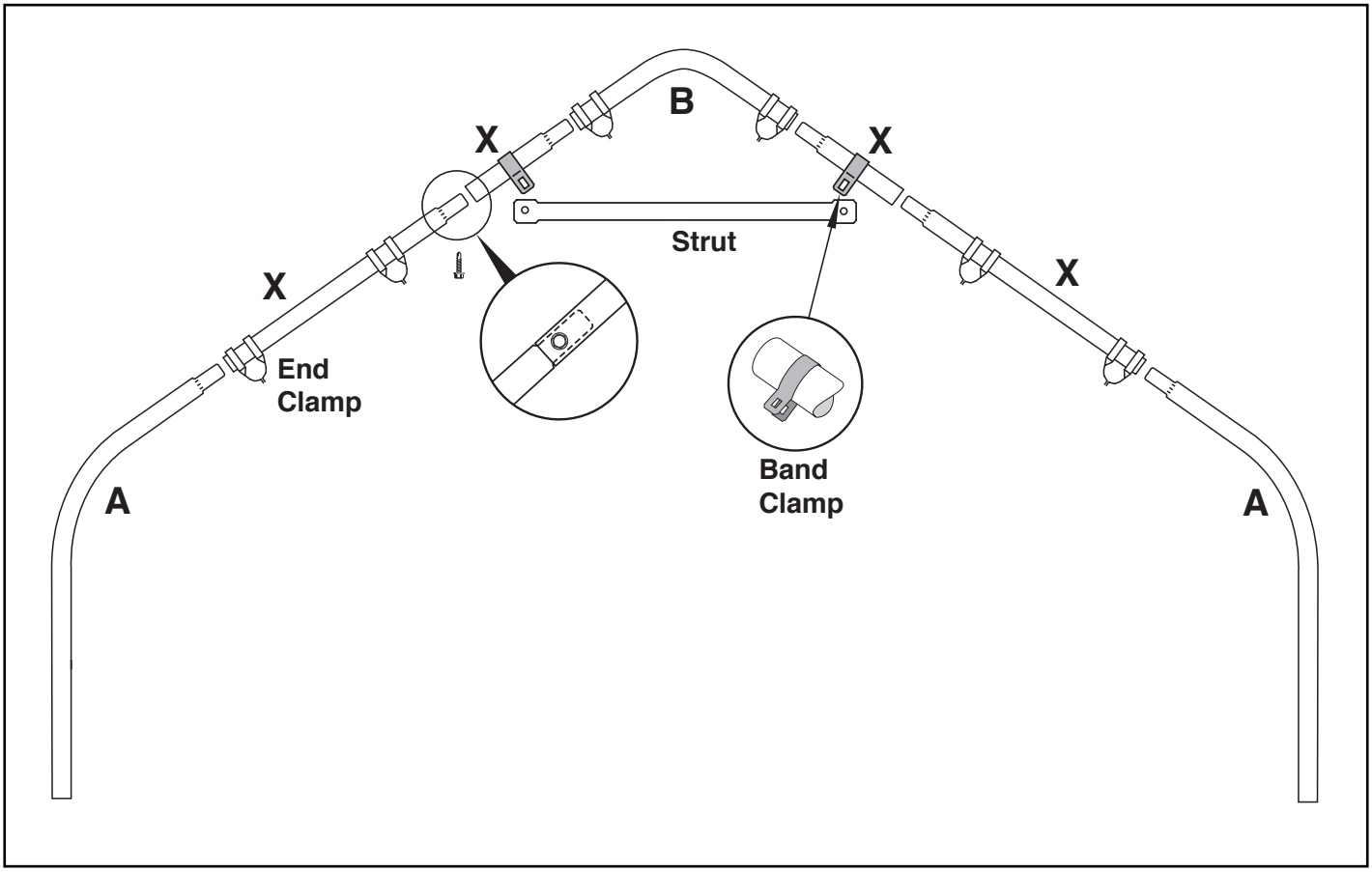
Step 4: Once the ground posts are driven, install a 10" long pipe coupler into the end of each post. Secure it using a 5/16" x 2-1/2" long machine bolt with nut in the lower hole of the coupler. Later, you will secure the rafter ends to the couplers using another bolt through the upper hole.

Section D - Rafter Assembly

Step 1: Locate the 8 sections of pipe to make a rafter. This will include two “A” rafter side sections, two 8-foot “X” rafter extensions, two 4-foot “X” rafter extensions, one “B” rafter top section, and one 7-foot strut.

Step 2: Slide a band clamp onto each of the two 4-foot “X” sections. Do not tighten the clamp yet.

Step 3: Fit the two 4-foot “X” extensions (with band clamps) into a “B” top section, add two 8-foot “X” extensions, and then add two “A” side sections to form a house-shaped arch laying flat on the ground. It is essential that you perform this step on level ground or the completed rafter assembly will be twisted.



Typical End Rafter

Step 4: Install the supplied 3/8" hex driver bit into the chuck of your drill/driver.

Step 5: Secure each connection by inserting a Tek screw into the side of the arch.

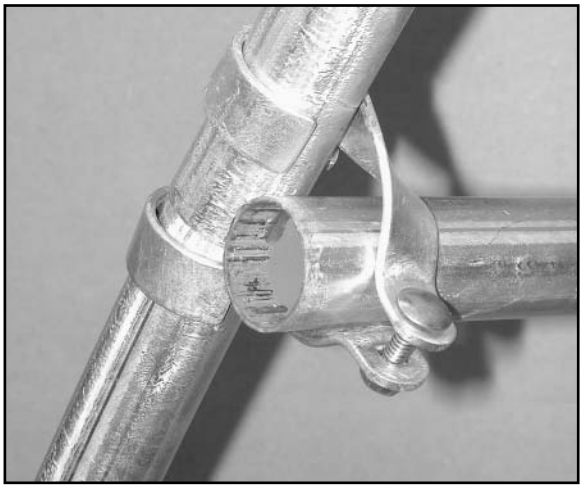
Tip: Tek screws are self-drilling and no pilot hole is usually required. If you have trouble getting a Tek screw to “bite,” try another Tek screw (or you can drill a 3/16" pilot hole).

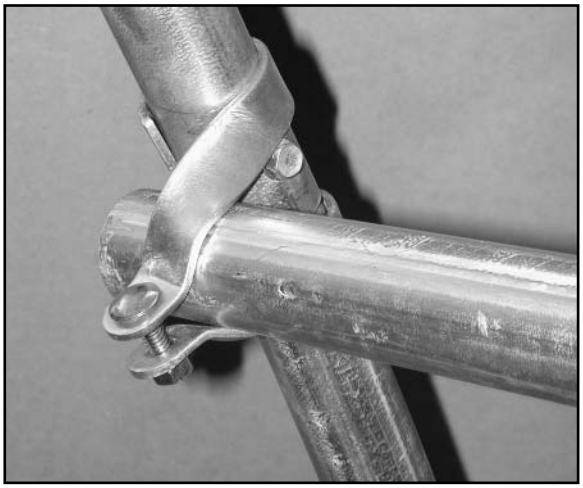
Step 6: Attach 7-foot struts between the band clamps on the upper “X” sections as shown. Adjust the positions of the clamps so that the struts are level and then tighten the clamps.

Step 7: Repeat the steps above to assemble all remaining rafters using the same procedures.

Two of your rafters will be used on the ends of your shelter, and these end rafters use special fittings including Purlin End Clamps. You will add these fittings now.

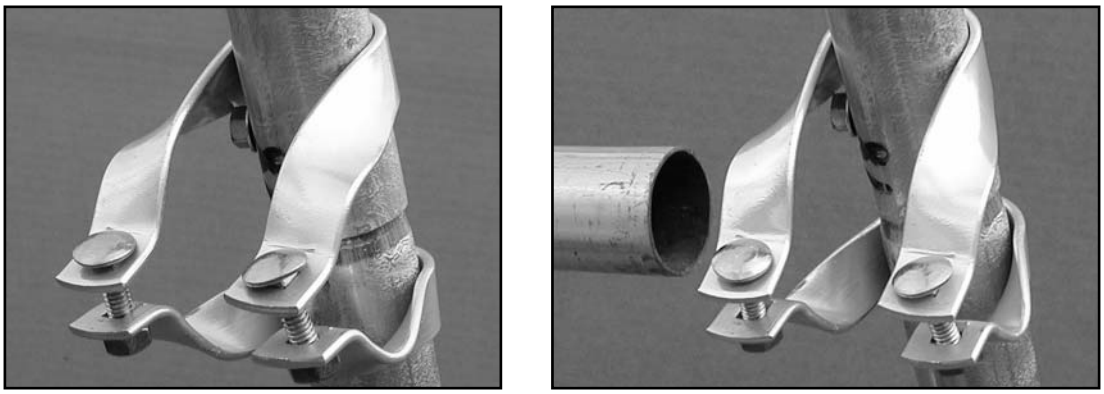
Step 8: Slide 3 sets of Purlin End Clamps onto each end of one of the rafters (6 clamp sets per end rafter). These will be be used to secure the purlins to the end rafter. Turn them as required to get past the Tek screws at the joints. You’ll need a pair at the uppermost and lowest section joints plus a pair midway between these. They should be in the same positions on both sides.





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

Step 10: On all inside rafters, install Purlin Cross Clamps at the same locations where you installed end clamps on the end rafters. Leave the screws loose so you can slide in the purlins later on.



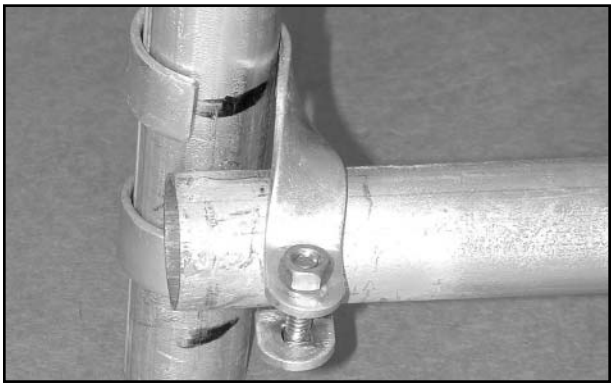
Typical Cross Clamp Assembly

Section E - Rafter Setup

Step 1: Stand up one of your end rafters. Place the bottoms of the rafter over the ground post couplers and secure with 5/16" x 2-1/2" long machine bolts and nuts. Install all of the rafters and secure to the couplers 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. When all rafters appear to be straight, go ahead and tighten all bolts.

Step 3: Insert purlins into the clamps on the rafters and tighten the clamps as you go. The ends of the purlins should extend a half inch or less past the end clamps, or the rough end of the purlin could damage the cover when it is installed later. Note that the bolt side of the end clamps must go toward the “inside” of the shelter” (the same side as the purlin) as shown.



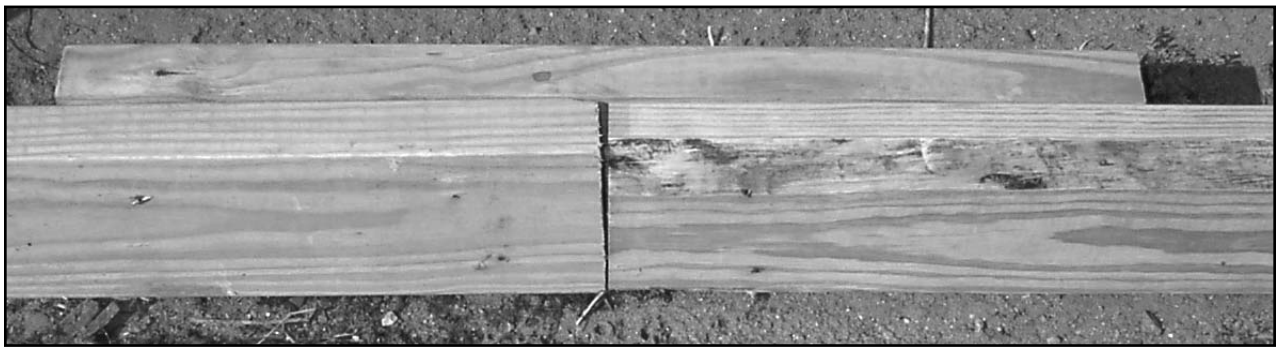
Step 4: Recheck that every rafter is standing up straight (plumb).

Step 5: Secure every joint between purlin sections with a Tek screw.

Section F - Install Base Boards

Base boards are pressure treated lumber which you must supply. They should be 2" x 6" or larger.

Step 1: Join multiple sections with an overlapping piece at the joint. The base boards should run the length of your shelter just outside the ground posts. Splices should be made between posts.

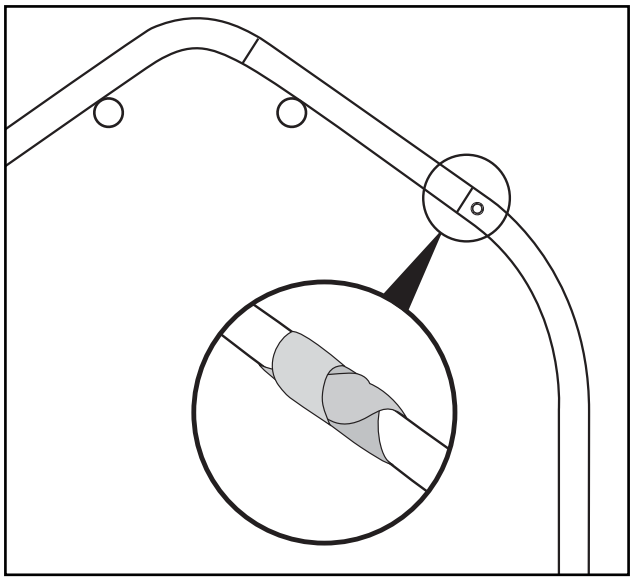


Step 2: Attach the base boards to each post with carriage bolts and nuts as previously shown. The boards should be slightly into grade to prevent the house from sinking and to create a seal along the bottom.

Section G - Finish Rough Edges

Step 1: Check for any sharp edges on the frame and file them smooth so they will not cut the cover.

Step 2: Apply two layers of heavy duct tape on all pipe connections and clamps that may contact the cover.



Section H - Install End Framing

End framing is not supplied with cold frames as the type used is somewhat dependent on individual needs. Square and round tubing, gable brackets, fans, doors, etc. are all available from ClearSpan. Call us at 1-888-603-4445 for pricing and availability of the components you wish to use.

Suggestions for end framing:

Step 1: Railroad ties can be installed at the end of the greenhouse to act as a foundation. Ties should be installed halfway into grade and even with the outside of the gable rafter post and level. Omit the tie for any overhead doors as heavy equipment driven over it will cause it to sink.

Step 2: At the top of the tie, nail a wood sill and begin framing in a conventional manner. For personnel doors, omit the wood sill but leave the tie to act as a threshold.

Step 3: 2 x 4 (or larger) wood framing will be sufficient for framing the ends. Attach the top of the 2x4's to the end rafter with gable brackets. Toe nail the bottom of the 2x4's to the wood sill that is on the railroad tie.

Section I - Install Bracing Struts

Struts and band clamps are supplied in your kit to brace your shelter. You would normally have a pair of struts at each end of the shelter running between the upper purlins and your end framing, thereby forming a triangle to brace your shelter.

Step 1: Attach one end of the strut to the purlin using a band clamp and carriage bolt.

Step 2: If 2 x 4 framing is being used, then fasten the other end of the strut to the 2 x 4 using an appropriately sized wood screw. If square tubing is being used, then fasten the strut to the framing using a #14 Tek or sheet metal screw. If round steel framing is being used, then fasten the strut to the vertical using a band clamp.

Strut Attached to Purlin

Strut from Purlin to Framing

Section J - Install Optional End Panels

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

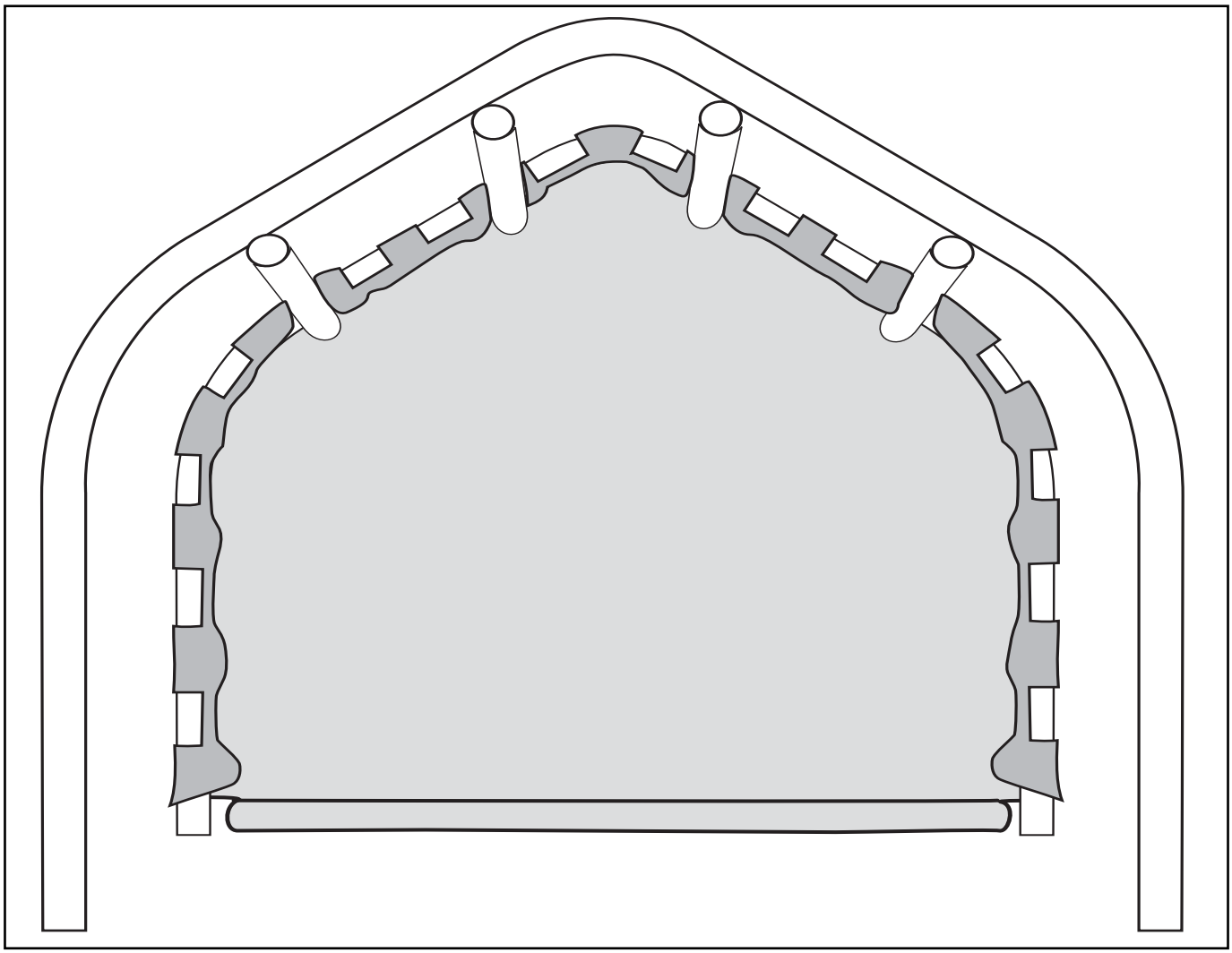
Step 1: Locate your end panel material.

Note: You may have to cut the end panel to shape from the material in your kit. When you do, be sure to cut the piece at least a foot bigger all the way around. You can always trim it later.

Step 2: Fasten the bottom of the end panel to the framing at ground level. Suggestions: You can use a staple gun or you can wrap the material around a piece of wood and nail it in place.

Step 3: While standing inside the shelter, start at the peak of the end rafter and pull the end panel material over the top of the rafter so the material edge is on the inside of the rafter. Secure the panel in place at the top center with a fabric clip.

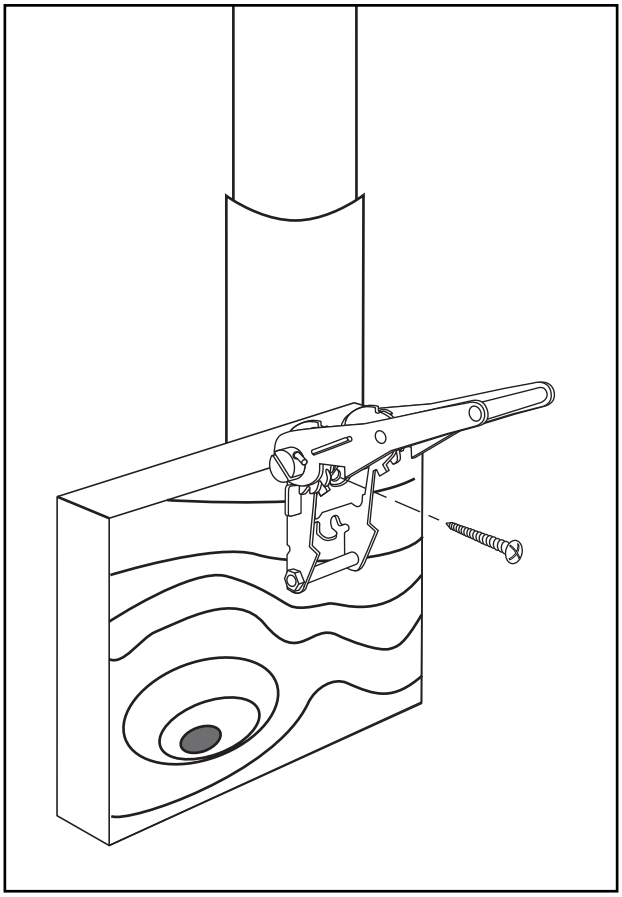
Step 4: Move outward in both directions, placing one fabric clip every 24."



Step 5: If your end panels were supplied as untrimmed rectangular pieces, you may use scissors to trim the excess end panel material inside the shelter to an inch or two past the fabric clips as shown in the illustration above.

Section K - Install Main Cover Material

Step 1: Fasten a ratchet to the end framing at ground level with a Tek or wood screw in the bottom hole of the ratchet. The ratchet should be about 6" in from the rafter. Repeat in all four corners.



Step 2: On the side of the shelter, identify the rafters where you will install side ratchets. These locations are at the second, the next to the last, and every other rafter in between.

Step 3: Fasten ratchets to the outside of the baseboard oposite these rafters using a Tek or wood screw in the bottom hole of the ratchet. Ratchets are located on the same rafters on both sides of the shelter. Repeat the previous steps so you have ratchets on both sides of the shelter opposite each other.

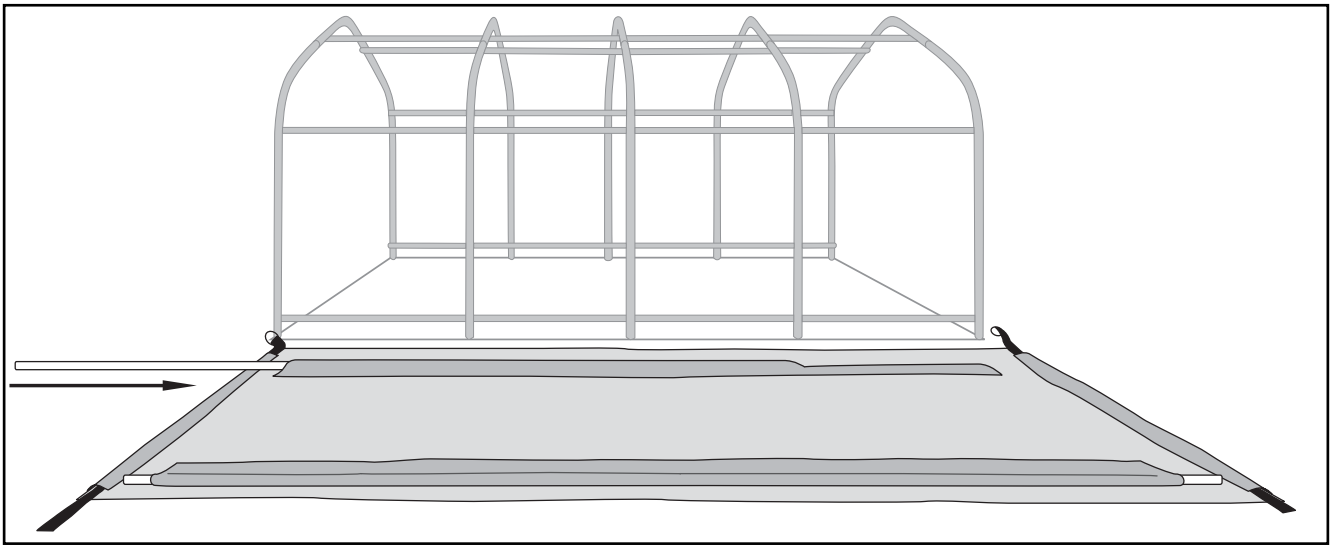
Step 4: Make up a pair of cover conduits each the length of your shelter. Start each with an unswaged section and add swaged sections to arrive at the correct length.

Warning: DO NOT INSTALL COVER ON A WINDY DAY AS DAMAGE TO IT MAY RESULT!

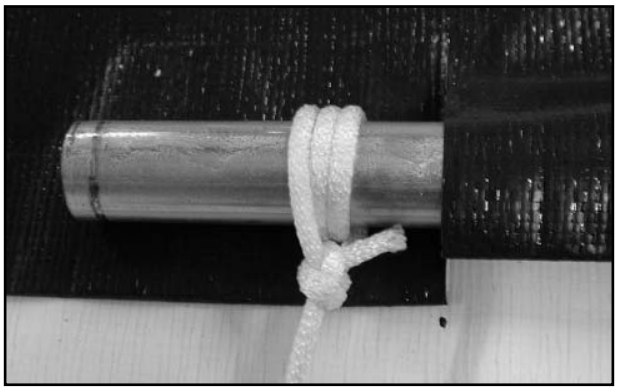
Step 5: Unpack the main cover and unfold it completely with the inside surface facing up.

Step 6: Locate the ends with strapping and line them up with the front and back of the shelter.

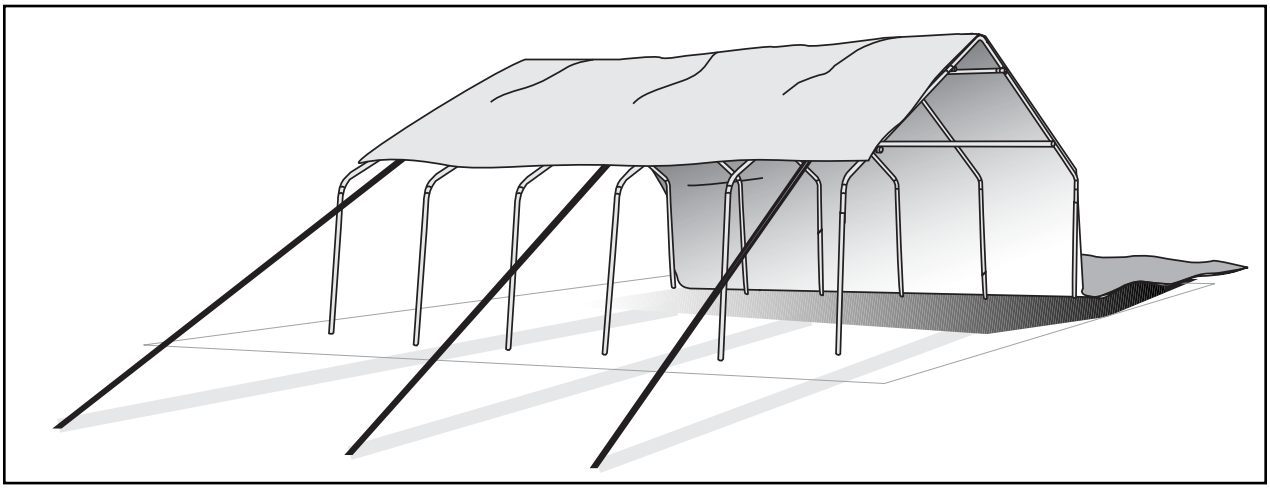
Step 7: Slide cover conduits into hem openings as shown in the next illustration.



Step 8: To pull the cover over the frame, attach ropes to both ends of the cover conduit. Wrap the rope around the conduit a few times as shown below to prevent it from slipping off accidentally. Long shelters require additional ropes at every rafter where you installed a ratchet. If your cover's hem was notched at the factory, you can attach additional ropes at these locations. If your cover was not notched at the factory, you can cut a small slit in the hem just inside of the cover conduit (see photos on next page), pass the rope through and tie a bowline knot.



Step 9: 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 10: Remove the ropes and position the cover evenly on all four sides.

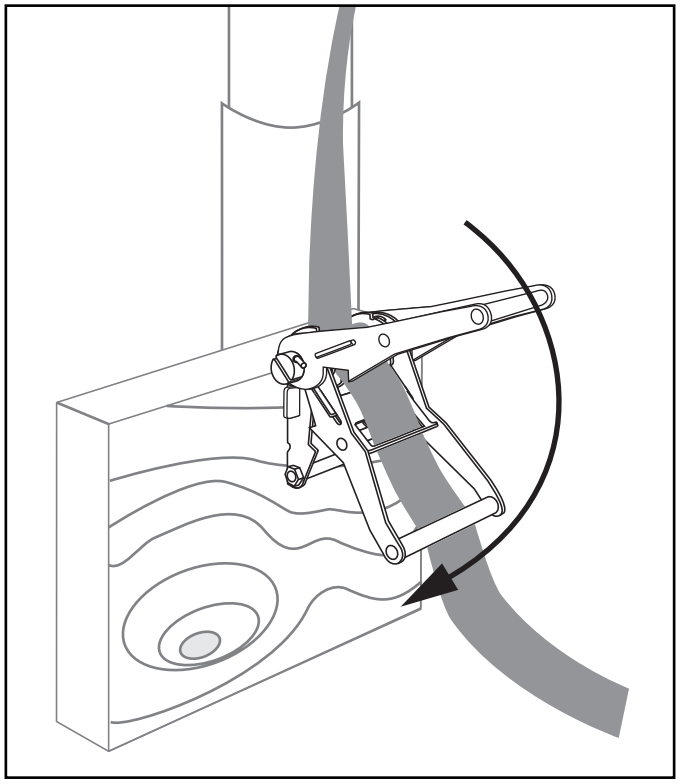
Warning: Do not leave the cover unattended until it has been secured in all four corners.

Step 11: In the front and rear hems, locate the black straps. If either of your straps were shipped with a D-ring attached, you must cut the D-ring off with scissors as it is not used on this model.

Step 12: Tighten both corner straps on each end by pulling on them manually. Have a partner help you so you can pull on both straps for an end at the same time.

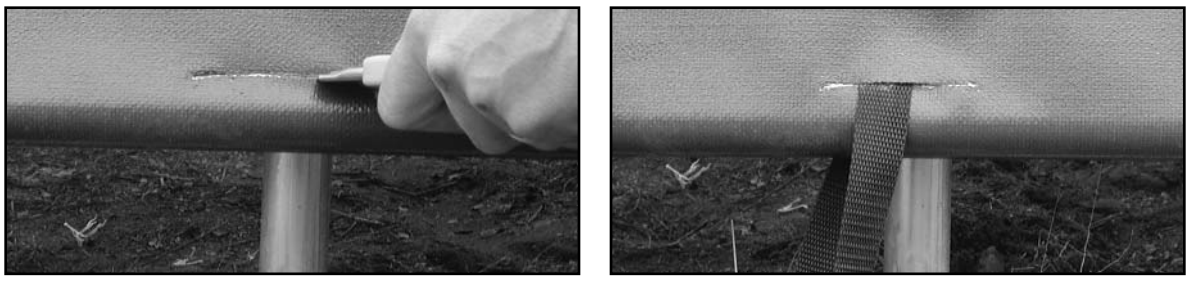
Step 13: Cut off the excess strap leaving about 12" in length.

Step 14: Feed the strap through the center slot in the ratchet and tighten only slightly.



Step 15: The hem containing the cover conduit needs to be slit or notched at each rafter where you installed a ratchet. If your cover was not notched at the factory, continue with this step. Cut a 2" long slit in the hem just above the cover conduit as shown below. Repeat this step on the other side of the hem so you can pass a 1" wide strap over the conduit through the slits.

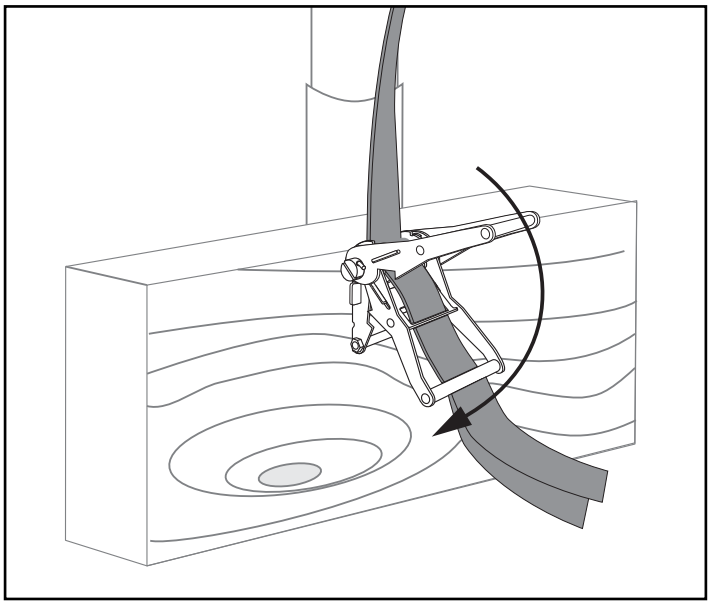
Note: If you already made small slits in Step 8 above, you can simply elongate these slits centered on the rafter as required.

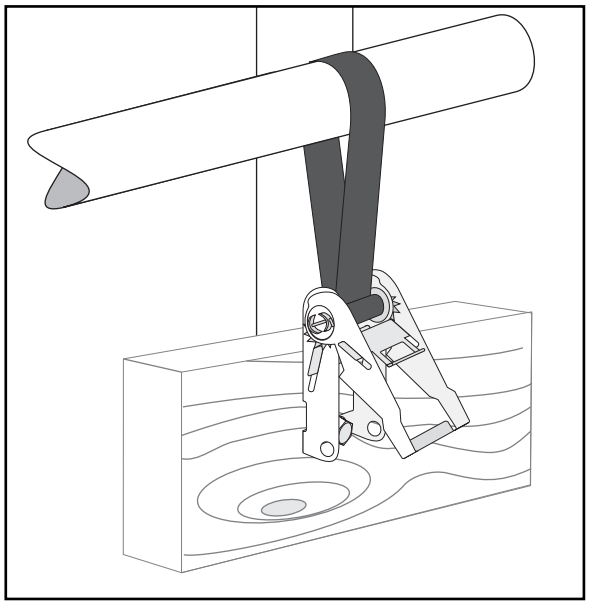


Making Slit and Installing Side Ratchet Strap

Step 16: Locate the 3' long 1" wide straps. Feed a strap through the slits over the cover conduit.

Step 17: Feed both ends of each strap down through the slot in the ratchet and tighten slightly.





Side Ratchet Installed and Tightened
(cover material not shown for clarity)

Step 18: Check that the cover is still centered evenly from front to back and side to side.

Step 19: Tighten the outer ratchets first and then the inner ratchets. If the ratchets need to be released, open them completely and they will release. Excess strap can then be pulled through the ratchets and re-tightened.

Section L - 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 1-888-603-4445.
- 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.