



## GrowSpan™ Rolling Premium High Tunnels



*Photo may show a different but similar model.*

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 **WARNING:** Cancer and Reproductive Toxicity - P65Warnings.ca.gov

Revision date: 02.17.23

STK#	DIMENSIONS
111770	30' W x 12' H x 24' L
111771	30' W x 12' H x 36' L
111772	30' W x 12' H x 48' L
111773	30' W x 12' H x 60' L
111774	30' W x 12' H x 72' L
111775	30' W x 12' H x 84' L
111776	30' W x 12' H x 96' L



## YOU MUST READ THIS DOCUMENT BEFORE YOU BEGIN TO ASSEMBLE THE SHELTER.

Thank you for purchasing this GrowSpan™ high tunnel. When properly assembled and maintained, this product will provide years of reliable service. These instructions include helpful hints and important information needed to safely assemble and properly maintain the high tunnel. Please read these instructions **before** you begin.

If you have any questions during the assembly, contact Customer Service for assistance.

## SAFETY PRECAUTIONS

- Wear eye and head protection; wear gloves when handling metal tubes.
- Use a portable GFCI (Ground Fault Circuit Interrupter) when working with power tools and cords.
- Do not climb on the high tunnel or framing during or after construction.
- Do not occupy the high tunnel during high winds, tornadoes, or hurricanes.
- NEVER move high tunnel during windy conditions.
- Do not store hazardous materials in the high tunnel.
- Provide proper ingress and egress to prevent entrapment.

## ANCHORING INSTRUCTIONS

Prior to assembling this high tunnel, please read the **MUST READ** document included with the shipment.

**⚠ WARNING:** The anchor assembly is an integral part of the high tunnel construction. Improper anchoring may cause high tunnel instability and failure of the structure. Failing to anchor the high tunnel properly *will void the manufacturer's warranty* and may cause serious injury and damage.

**Follow the instructions on page 24 of this guide to properly anchor your rolling high tunnel. Refer to page 50 or 51 for diagrams showing where to attach the anchor straps for your building.**

## LOCATION

Choosing the proper location is an important step before you begin to assemble the structure.

The following suggestions and precautions will help you determine whether your selected location is the best location.

- Never erect the structure under power lines.
- Identify whether underground cables and pipes are present *before* preparing the site or anchoring the structure.
- Location should be away from structures that could cause snow to drift on or around the building.
- Do not position the high tunnel where large loads such as snow and ice, large tree branches, or other overhead obstacles could fall.

## SITE

After choosing a location, proper preparation of the site is essential. Follow the information below.

- *A level site is required.* The site must be level to properly and safely erect, anchor, and roll the structure.
- **Drainage:** Water draining off the structure and from areas surrounding the site should drain away from the site to prevent damage to the site, the structure, and contents of the structure.

**⚠ WARNING:** The individuals assembling this structure are responsible for designing and furnishing all temporary bracing, shoring and support needed during the assembly process. For safety reasons, those who are not familiar with recognized construction methods and techniques must seek the help of a qualified contractor.

## MOVING THE HIGH TUNNEL

Additional 1.66" pipe track is included to assist you with moving the high tunnel from one section of your field to another.

**Side Wall Anchors:** Your premium rolling high tunnel also includes extra stake and strap anchors to allow for the installation of another complete set of anchors to secure the sides of the building once it is moved.

**End Wall Anchors:** The anchors for the end walls do not require the use of the strap. In addition, you must remove and reuse the stakes to secure the end wall frames once the frame is rolled to a new location. See the connection details in the Quick Start section for additional information.

Consult the anchoring information on page 50 and 51.

## ASSEMBLY PROCEDURE

Following the instructions as presented will help ensure the proper assembly of your high tunnel. Failing to follow these steps may result in an improperly assembled and anchored high tunnel and will void all warranty and protection the owner is entitled.

The steps outlining the assembly process are as follows:

1. Verify that all parts are included in the shipment. Notify Customer Service for questions or concerns.
2. Read these instructions, the Must Read document, and all additional documentation included with the shipment **before** you begin assembling the high tunnel.
3. Gather the tools, bracing, ladders (and lifts), and assistance needed to assemble the high tunnel.
4. Check the weather **before** you install the roof cover and any panels (if equipped). Do not install covers or panels on a windy or stormy day.
5. Re-evaluate the location and site based on the information and precautions presented in the documentation included with the shipment.
6. Prepare the site (if applicable).
7. Assemble the frame components in the order they are presented in these instructions.
8. Assemble the frame including the struts (if equipped).
9. Properly anchor the assembled frame.
10. Install, tighten, and secure the end panels and cover film.
11. Read the care and maintenance information at the end of these instructions.
12. Complete and return all warranty information as instructed.

## LIST OF WORDS AND PHRASES

Before you begin, it is important to become familiar with the words and phrases used in this instruction manual.

These words and phrases are common to most GrowSpan™ shelters and identify the different parts of the shelter. (Some are used in this document. Others may not apply to this particular shelter.) These terms describe the shipped parts and can also be found on the materials list/spec sheets included with the shipment. To aid in the assembly, read through the following definitions before you begin to assemble your shelter.

- **Conduit:** An assembly of pipes used to secure the cover film and end panels (if equipped). Purlins and some strut assemblies also consist of connected pipes to form a conduit. Each pipe joint of a conduit assembly is secured with a self-tapping Tek screw.
- **Must Read Document:** This document includes building and shelter anchoring instructions, steps for end wall reinforcement, safety precautions, and notices and warnings. The Must Read document is sent with all shelters and buildings. If you did not receive a Must Read document, contact Customer Service to request one.
- **On-Center:** Term used to describe a measurement taken from the vertical center of the rafter or frame member to the vertical center of another.
- **Purlin:** The pipe assembly that runs perpendicular to the rafters or main framework  
  
Purlins are found on the sides and roof areas of the assembled frame, are evenly spaced, and typically run from the front to the back of the shelter.
- **Plain or Straight Pipe:** A term used to describe a pipe that has the same diameter or width throughout its entire length.
- **Strut:** A strut is usually a length of pipe with two flattened ends and is used for diagonal bracing of the shelter frame. A strut is typically secured to the frame by special brackets and bolts.
- **Swaged End or Swaged Pipe:** The term "swaged" refers to the tapered end of the pipe or tube. Swaged ends of a pipe can be inserted into couplers and the straight ends of other pipes.
- **Tek Screw:** A self-tapping fastener used to secure pipe joints and to fasten brackets to rafters.

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## REQUIRED TOOLS

The following list identifies the main tools needed to assemble the shelter. Additional tools and supports may be needed depending on the structure, location, and application.

- Tape measure or measuring device
- Fine point marker to mark the location on tubing.
- Variable speed drill and impact driver (cordless with extra batteries works best)
- Wrench, ratchet, and socket set (recommended)
- Hex wrench set to secure end frame fittings
- Scissors, box cutter, or utility knife
- Ropes long enough to reach over the frame. May not be needed depending on number of assistants and lifts.
- Hammers and gloves
- Duct tape (Customer supplied)
- Ladders, work platforms, and other machinery for lifting designed to work safely at the height of the frame

## UNPACK AND IDENTIFY PARTS

The following steps will ensure that you have all the necessary parts before you begin to assemble the shelter frame.

1. Unpack the contents of the shipment and place where you can easily inventory the parts. Refer to the Bill of Materials/Spec Sheets.
2. Verify that all parts listed on the Bill of Materials/Spec Sheets are present. If anything is missing or you have questions, consult the Pictorial Parts Guide and all diagrams for clarification, or contact Customer Service.

**NOTE:** At this time, you do not need to open the plastic bags containing smaller parts such as fasteners or washers (if equipped).

## PARTS IDENTIFICATION

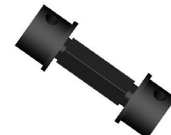
The following graphics and photos will help you identify the different parts. (Some parts are not shown.)



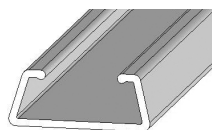
102857  
End Clamp



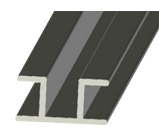
102547  
Cross Connector



102717  
Gearbox Drive



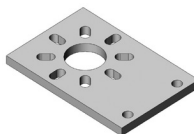
102197  
Poly Latch U-Channel



102570  
Aluminum Channel



102569  
Bearing



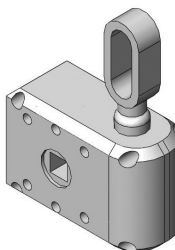
103544  
Mounting Plate



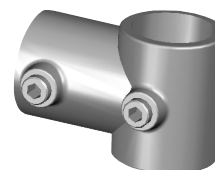
CC6212 &  
CC6214  
Fabric Clips



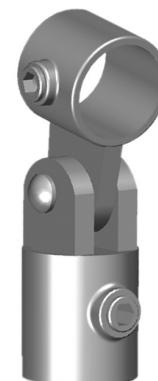
FA4482B  
Tek Screw



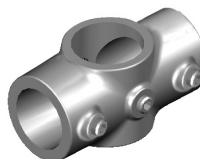
103496  
Gearbox



10015108



10016208



10015808

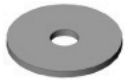


QH1400 &  
QH1404

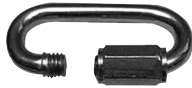


102198  
U-Channel Spring

**PARTS IDENTIFICATION (continued)**



FAMF01B  
1/4" x 1"  
Fender  
Washer



AS2200  
Quick Link



AS2166



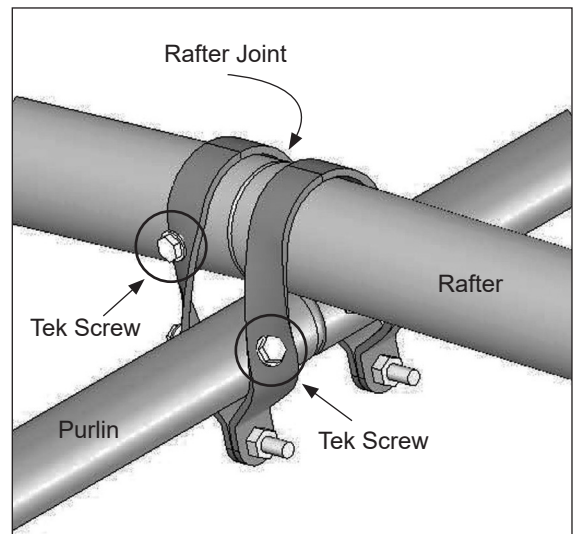
111931 Castor with safety guard,  
mounting bolt, lock washer, & nut



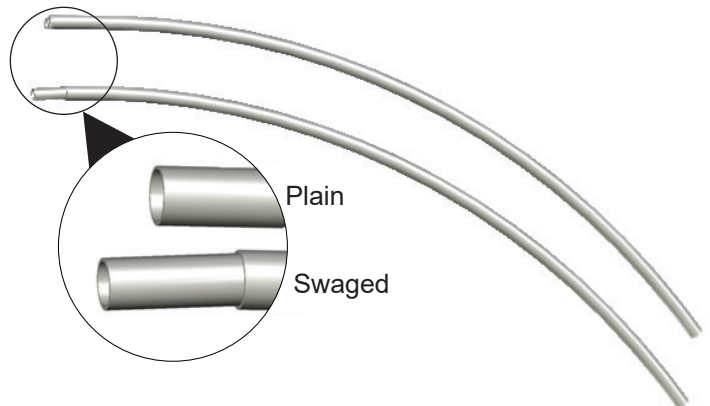
103937 Tent/Canopy Stake with Strap

**FRAME ASSEMBLY NOTE**

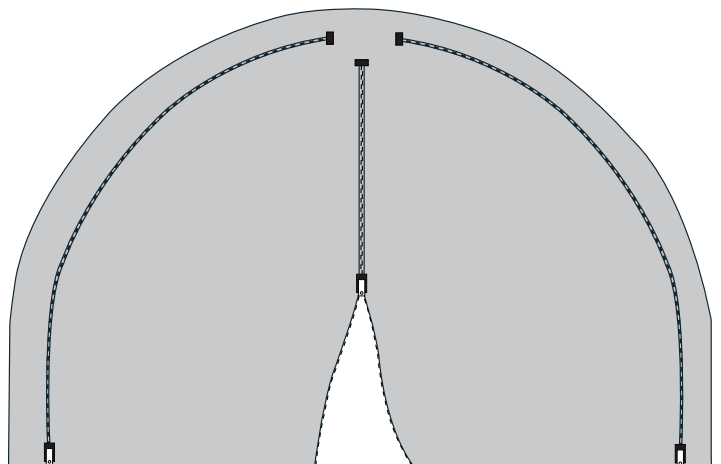
During the assembly of the frame, install a Tek screw through each clamp into the rafter and through each clamp into the purlin. Secure all clamps in this manner.



Position all Tek screws so they will not touch the cover film once it is installed.



Swaged and Plain Rafter Sections



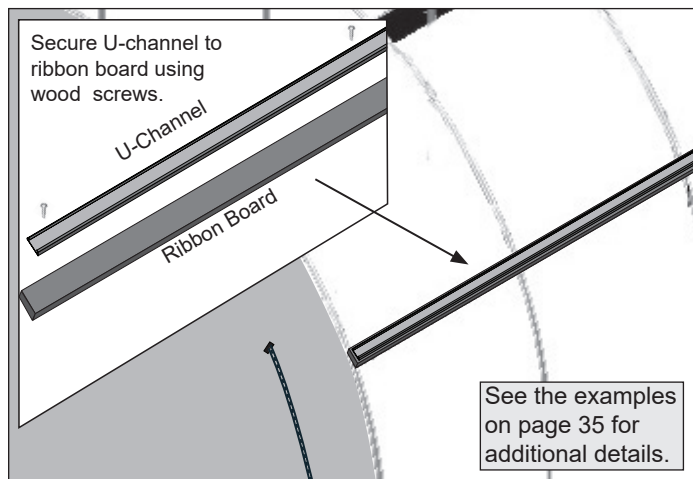
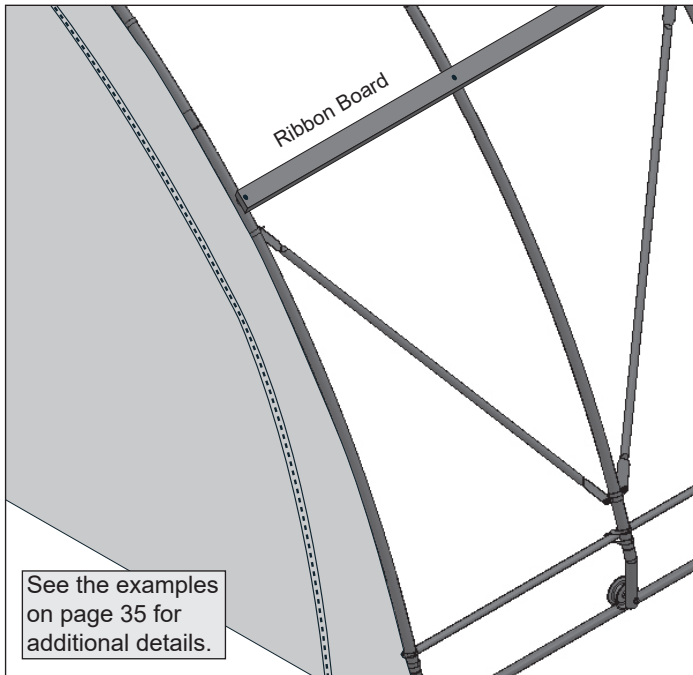
Zippered End Panel

## 102197 U-CHANNEL & RIBBON BOARD (OPTIONAL)

The 102197 U-channel is attached to the sides of the frame and is used to secure the cover film to the frame. For best results, attach a ribbon board to the frame and then secure the U-channel to the ribbon board. All ribbon board materials and fasteners used to secure the ribbon board to the frame and the U-channel to the ribbon board are *supplied by the customer*. They are not included with this building. *Use of the ribbon board (2" x 4" or 2" x 6") is optional and left to the customer.*

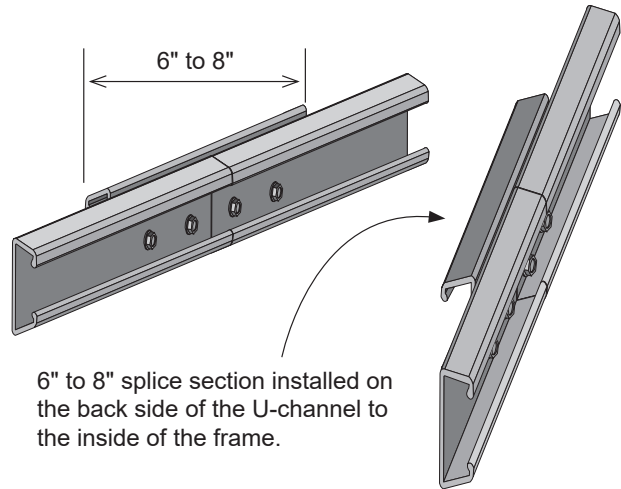
**ATTENTION:** If a ribbon board is used, do not use the FA4482B Tek screws to secure the U-channel to the ribbon board. **You must use wood screws for this connection.** Install the wood screws every 16" throughout the length of the frame. The customer supplies the fasteners.

The diagrams that follow show a ribbon board attached to the frame.



## SPLICE U-CHANNEL BETWEEN RAFTERS

If no ribbon board is used, secure the U-channel directly to the rafters using FA4482B Tek screws. For best results, cut the first section of U-channel *for the side* to 6' and secure the splice between the two sections as shown below. This prevents a seam at a single rafter where two U-channel sections must be secured to the same rafter.

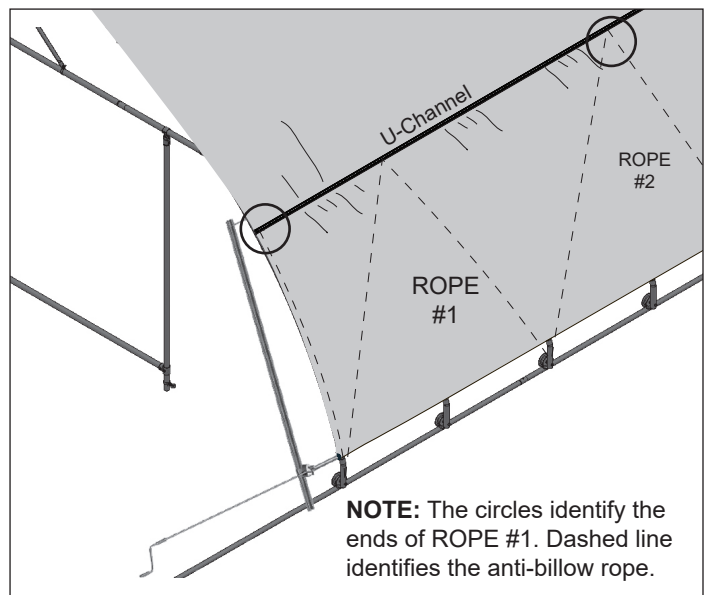


## ANTI-BILLOW ROPE INSTALLATION

### ANTI-BILLOW ROPE INSTALLATION

TO PREVENT DAMAGE AND POSSIBLE INJURY, INSTALL THE ANTI-BILLOW ROPES IN SHORT LENGTHS ALONG EACH SIDE OF THE FRAME.

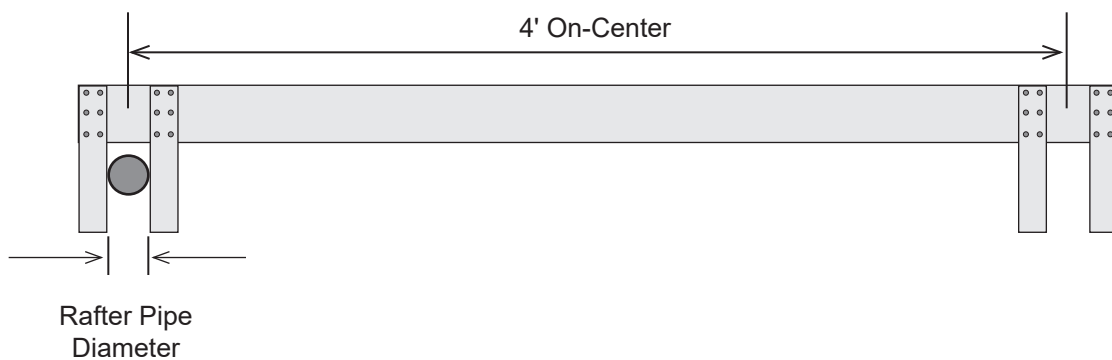
DO NOT INSTALL AS A SINGLE LENGTH TIED AT EACH END OF THE BUILDING. DOING SO WILL RESULT IN A LOOSE SIDE PANEL IF THE SINGLE ROPE BREAKS DURING STRONG WINDS.



## FRAME ASSEMBLY TIP: Build a Rafter-Spacing Jig



To speed the assembly process and to maintain consistent rafter spacing, build a jig (guide) to use during the frame assembly process. Using customer-supplied materials and fasteners, mark the required on-center spacing for the frame. Next, take a section of the rafter and use that as a gauge to set the width of the jig at each end. See the photo above. When built and used correctly, a jig saves time and eliminates the need to measure the on-center rafter spacing at each purlin location during the assembly. The customer supplies all materials to construct the jig.





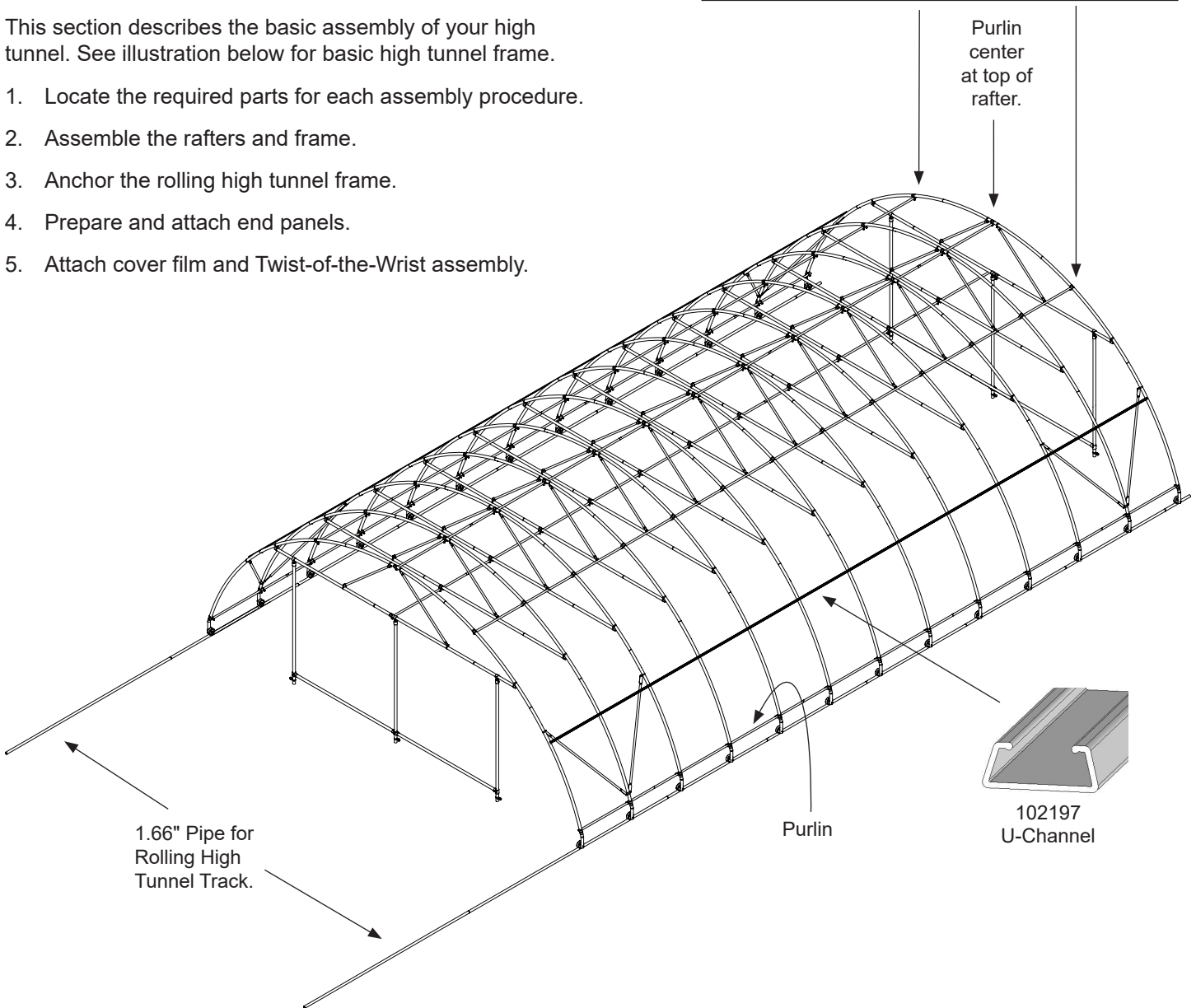
## GrowSpan™ Rolling Premium High Tunnels

**ATTENTION:** Position purlins evenly during the frame assembly. See details in the Quick Start Guide — over-the-top dimensions diagram.

### OVERVIEW

This section describes the basic assembly of your high tunnel. See illustration below for basic high tunnel frame.

1. Locate the required parts for each assembly procedure.
2. Assemble the rafters and frame.
3. Anchor the rolling high tunnel frame.
4. Prepare and attach end panels.
5. Attach cover film and Twist-of-the-Wrist assembly.





## LAYOUT BUILDING POSITION ON SITE

To fully use the rolling feature of this building, you must provide adequate distance for the building to move. Minimum distance to clear the original location of the building is twice the building length.

For example, if the building is 48' long, site must be at least 96' long to allow the building to roll from one position to another. Building is equipped with enough 1.66" pipe to create a track that is twice the length of the building frame. To move the building in the same direction, track can be disassembled, reassembled, and attached to the desired end of the track that the building rests on.

The information that follows shows using ground cloth (included) to prevent vegetation from growing around the track path. Basic steps to layout the track include the following:

1. Determine the best position on the site for the assembled building. Consider where the rafters will be assembled and how these will be transported to the frame assembly area.
2. A level site is required for best results. Remove debris, obstacles, and other objects that can prevent the 1.66" track pipe from running tight to the ground. If necessary, prepare the track portion of the site by leveling the bumps and hills and filling the ditches. The straighter the track runs, the easier it will be to roll the assembled building.

Allow 24" of clearance on each side of the track pipe to more easily access the frame and frame anchors when moving the building.

3. Roll out the ground cloth and stake the cloth to the site using the fabric staples. Drive one (1) stake every 4' along each outer edge of the ground cloth. See next page for photos.
4. Locate the 1.66" pipe (166S099) used for the track. Pipes are connected; however, joints are not secure with any fasteners. Doing so will interfere with the metal castors and prevent rolling. Joints can be secured with a couple layers of duct tape if desired. Additionally, pipes are not secured to the site.
5. Drive a couple of stakes to mark the width of the building and the beginning of the track. Connect a few pipes and place these in position on the site. Assemble only enough to allow for the assembly of the first few bays of the frame. Pipe can be added as the frame is assembled. This prevents running over the track pipe during assembly.
6. After setting a few track pipes in place, continue with the assembly of the rafters and frame.



Photo shows stakes at the width of the frame and at the beginning of the track positions.

**GROWSPAN™ ROLLING PREMIUM HIGH TUNNELS**  
**LAYOUT BUILDING POSITION (CONTINUED)**



Dashed line shows where to drive the fabric staples—one every 4' along each edge.



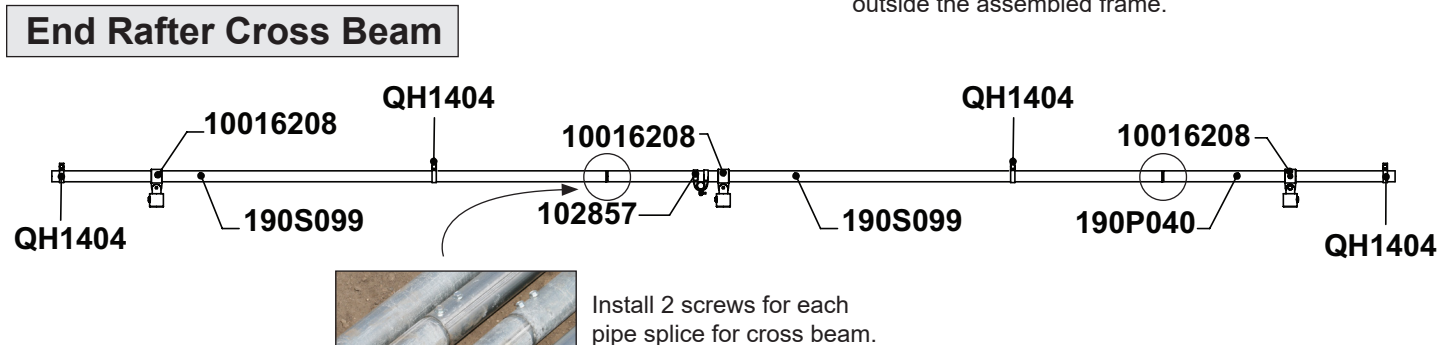
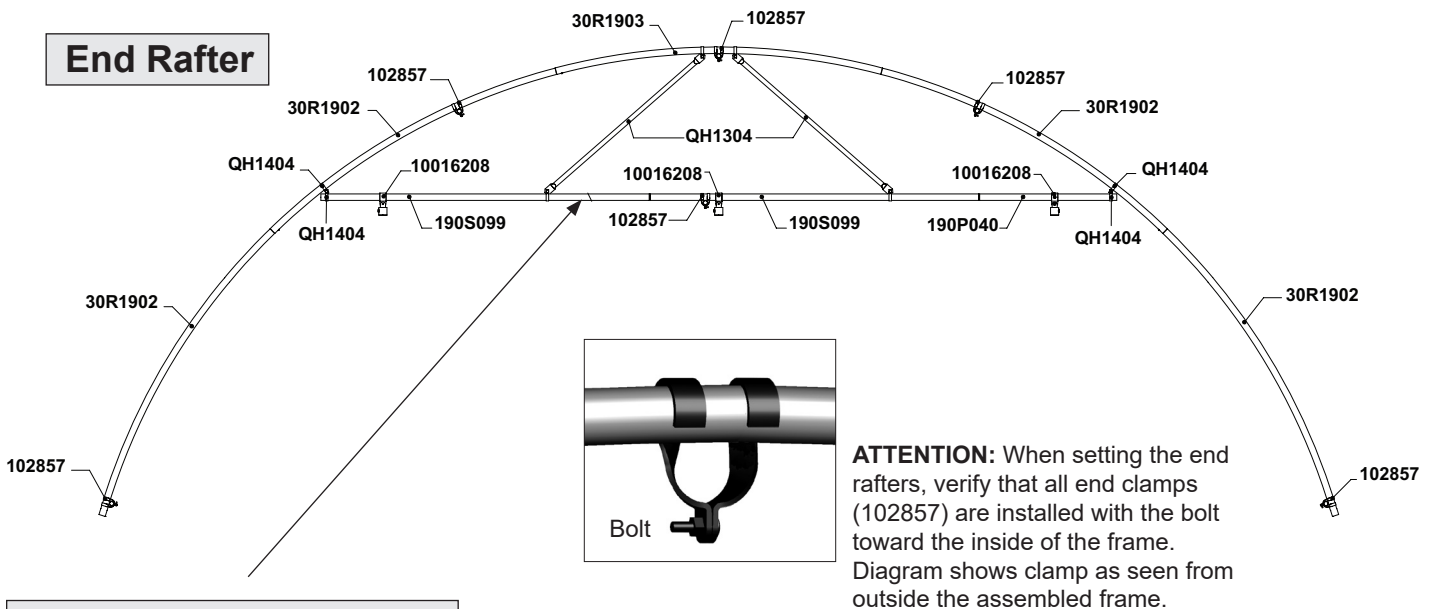
**RAFTER ASSEMBLY — END RAFTERS: SEE NEXT PAGE FOR BASIC RAFTER ASSEMBLY DETAILS**

**Basic Assembly Tips**

- Review all diagrams and drawings before you begin.
- Establish one area to assemble the rafters.
- Provide a clear path to transport assembled rafters to where the frame will be assembled.

**Basic Assembly Notes for the Two (2) End Rafters—see details on next page:**

1. Select the different rafter pipes and slide them together. *Do not attach the 30R1904D (short) rafter pipes at this time.*
2. Slide the band clamps (QH1404) and end clamps (102857) onto the rafter assembly. Prevent clamps from sliding off the rafter during frame assembly by using a small piece of duct tape for each clamp if needed.
3. Secure each rafter pipe joint using a FA4482B Tek screw.
4. Assemble the horizontal cross beam pipes.
5. Slide two (2) band clamps (QH1404), one (1) end clamp (102857) and three (3) swivel-socket fittings onto the assembled cross beam pipes. Refer to the diagrams below and those in the Quick Start section to position all clamps and fittings as needed for assembly.
6. Secure each cross beam pipe joint using two (2) FA4482B Tek.
7. Verify that all clamps and fittings are in place and attach the cross beam and braces to the main rafter.
8. Repeat these steps to assemble the second end rafter.
9. Mark purlin locations on the rafter for reference during frame assembly. See the information on the following pages.



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## RAFTER ASSEMBLY — END RAFTERS (continued)

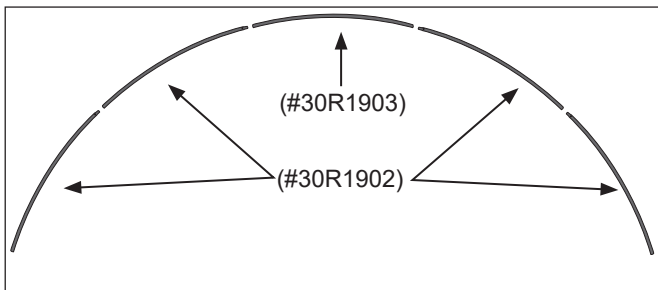
Gather the parts:

- Rafter Chord #30R1902 and #30R1903
- End Clamps (102857) and Tek Screws (FA4482B)
- Nut Setter 3/8" x 2-9/16" Magnetic (Customer Supplied)

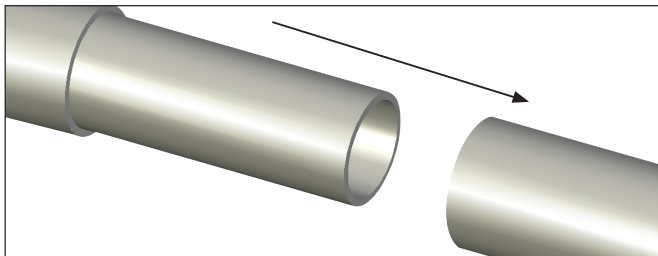
Use the following photos and diagrams and the diagrams in the Quick Start section of this document. It is best to assemble all the rafters and then set them in place to assemble the frame. If there are enough assistants, the frame can be assembled as the rafters are completed.

Complete these steps to assemble the two (2) end rafters.

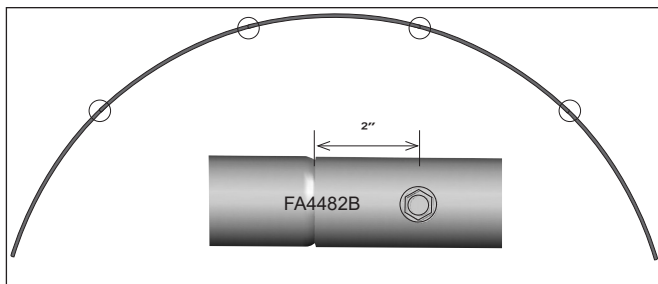
1. Select the five (5) pipes to assemble a rafter and arrange these on a flat surface.



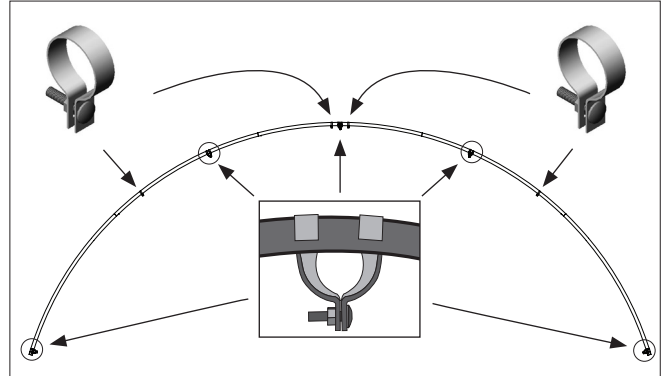
2. Slide the swaged portion of each rafter pipe into the plain end of the pipe as shown.



3. Secure each joint with a single self-tapping Tek screw. Position Tek screw approximately 2" from pipe joint.



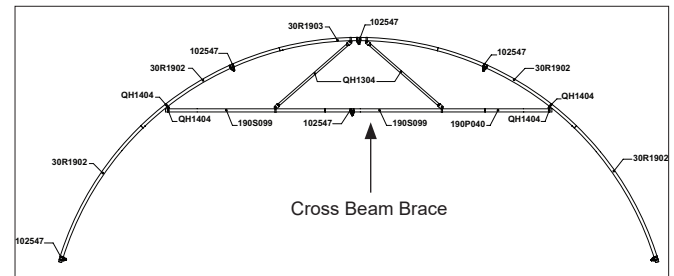
4. Slide five (5) end clamps (102857) and four (4) band clamps (QH1440) onto the assembled rafter. Consult the Over-the-Top diagram in the Quick Start section for clamp position. Mark the rafter and use a piece of duct tape to hold clamps in place if needed



**NOTE:** Do not secure the clamps to the rafter at this time. These will be repositioned during the frame assembly. Only the two (2) end rafters include the 102857 end clamps.

*View of the end rafter and clamps as shown from the outside when the frame is assembled. Bolt will be to the inside of the frame when installed correctly.*

5. Assemble and install the rafter cross beam supports and braces. Consult the Quick Start section and the photos and diagrams on the previous page.



6. After assembling the two (2) end rafters, assemble the remainder of the rafters. See the next page for rafter assembly photos and page 14 for the interior rafter profile.

**RAFTER ASSEMBLY (continued)**

Crew assembles a rafter by attaching the cross beam and braces (above). Consistent rafter width is maintained by setting the ends of the assembled rafter between stakes. Consult the diagrams for on-center width dimensions. Below a crew member secures the brace to the rafter and cross beam. (Photos show the assembly of an interior rafter.)



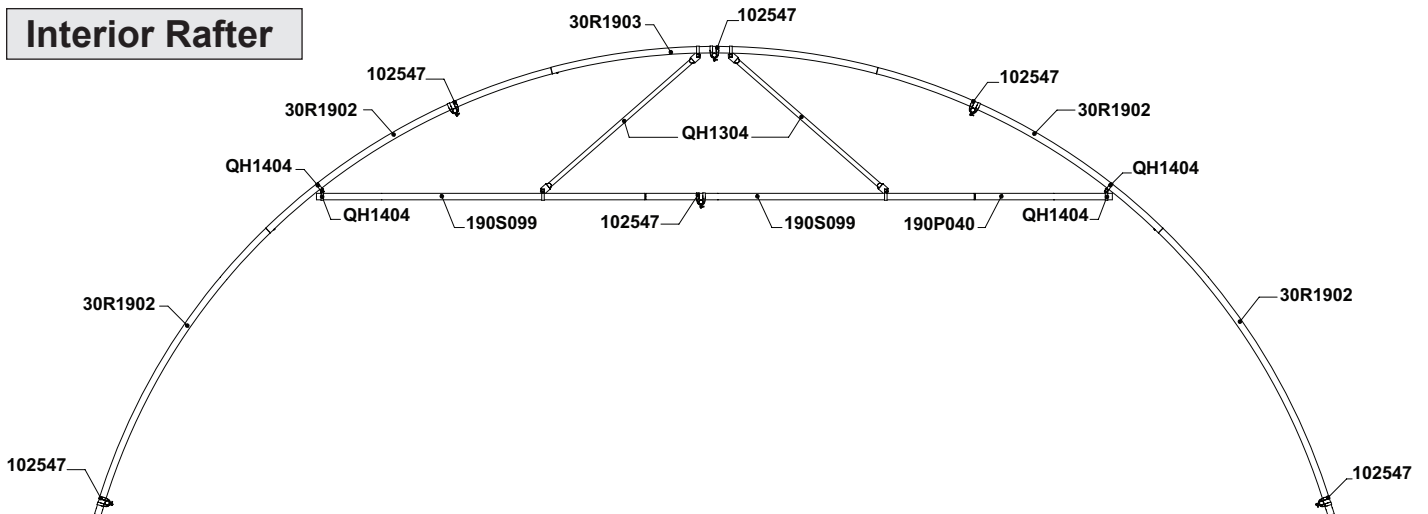
# GROWSPAN™ ROLLING PREMIUM HIGH TUNNELS

## RAFTER ASSEMBLY (continued)— INTERIOR RAFTERS

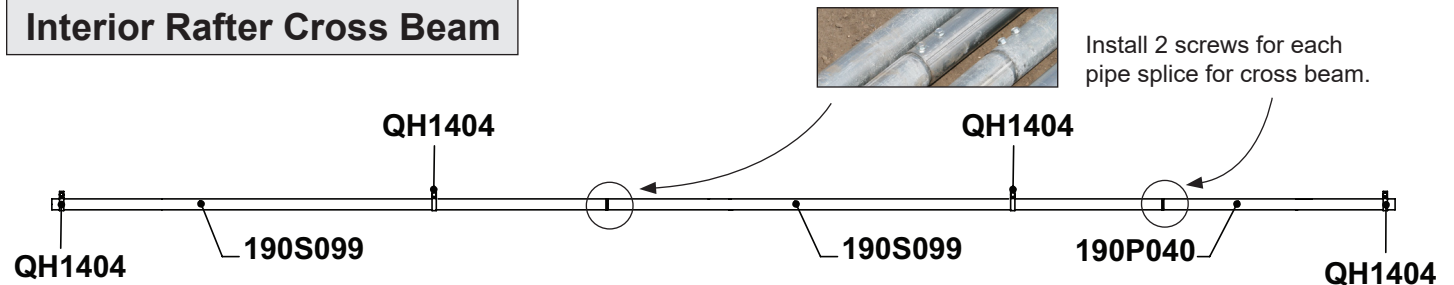
### Basic Assembly Notes for All Interior Rafters:

The interior rafters are defined as all rafters that are between the two (2) end rafters. These rafters are typically the same as the end rafters **except they do not include the 102857 end clamps or any fittings for the end wall framing.**

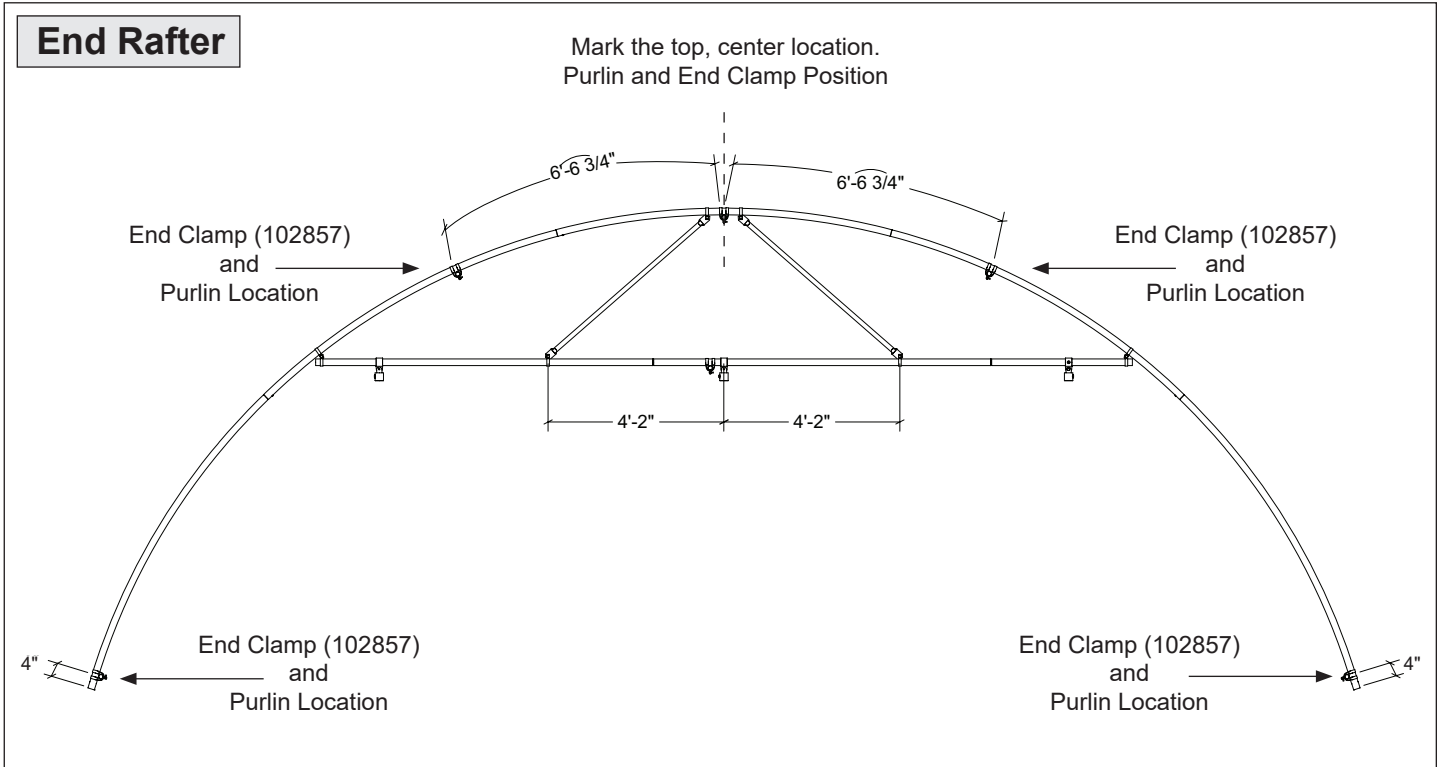
1. Select the different rafter pipes and slide them together. *Do not attach the 30R1904D (short) rafter pipes at this time.*
2. Slide the band clamps (QH1404) onto the rafter assembly. Prevent clamps from sliding off the rafter during frame assembly by using a small piece of duct tape if needed.
3. Secure each rafter pipe joint using a FA4482B Tek screw.
4. Assemble the horizontal cross beam pipes.
5. Slide two (2) band clamps (QH1404) onto the assembled cross beam pipes. Refer to the diagram below and those in the Quick Start section to position all clamps and fittings as needed for assembly.
6. Secure each cross beam pipe joint using two (2) FA4482B Tek.
7. Verify that all clamps are in place and attach the cross beam and braces to the main rafter.
8. Repeat these steps to assemble all remaining interior rafters.
9. Mark the purlin locations on each rafter for reference during the frame assembly. Consult previous page if needed.



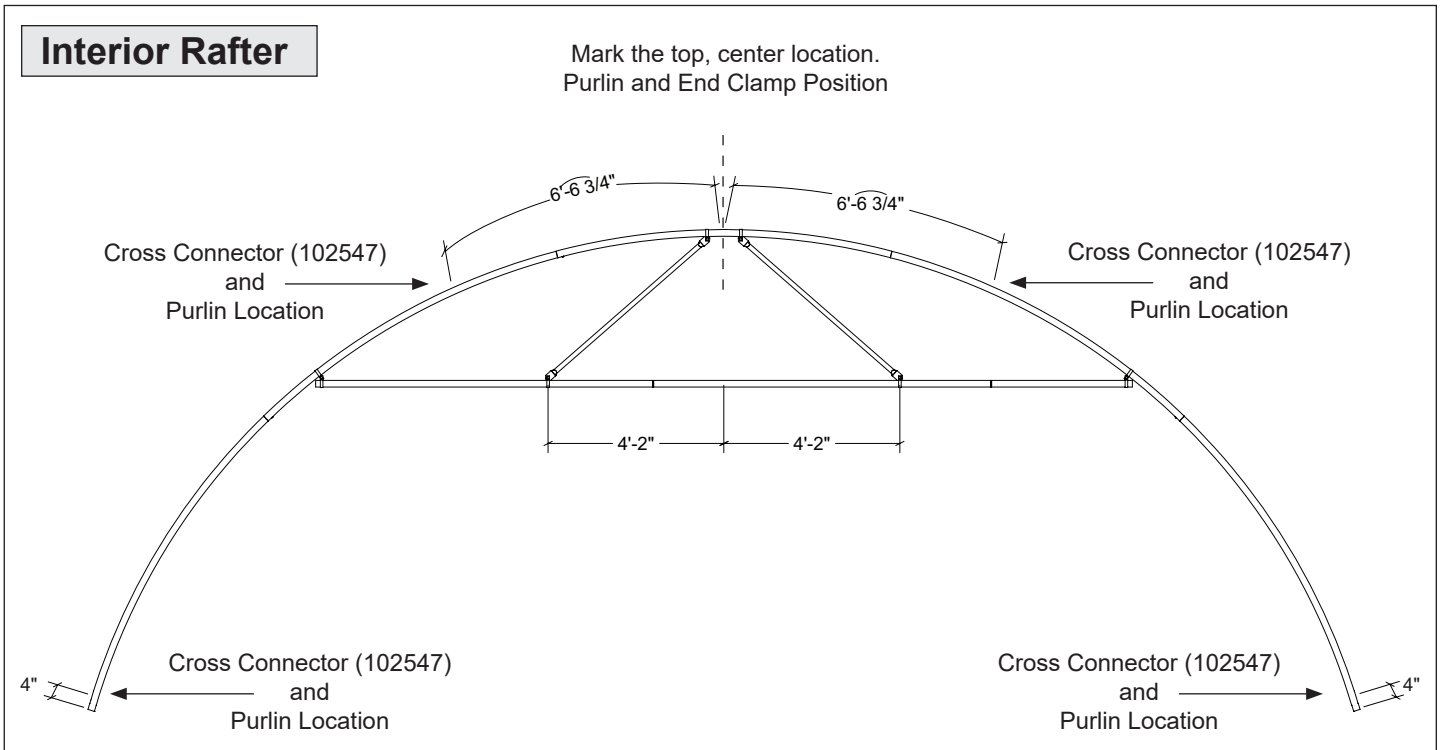
### Interior Rafter Cross Beam



**RAFTER ASSEMBLY (continued) — Mark Purlin Locations on Rafters**



After assembling each rafter, locate the middle of the rafter at the top and mark with a marker. Using the diagrams on this page, mark the locations of all remaining purlins. Dimensions/locations are not critical; however, for a uniform appearance and improved frame strength, it is best to position the purlins as close to the locations shown on these diagrams. Minor adjustments may be required to keep purlins running parallel with the ground and each other. After marking all rafters, continue as instructed.



## GROWSPAN™ ROLLING PREMIUM HIGH TUNNELS

### ATTACH 111931 CASTORS TO 30R1904D RAFTER PIPES

#### Basic Assembly Notes to Attach Castors to Rafter Pipes:

One way to prevent misalignment of the castors and roller track is to attach the castors to the 30R1904D rafter pipes then slide the rafter pipe into the ends of each assembled rafter during frame assembly. Preview the frame assembly steps for additional information.

Gather the parts:

- Rafter Segments – #30R1904D
- Metal Castors — 111931
- Wrenches to tighten castor mounting bolt.

Complete these steps to attach the castors to the 30R1904D rafter sections:

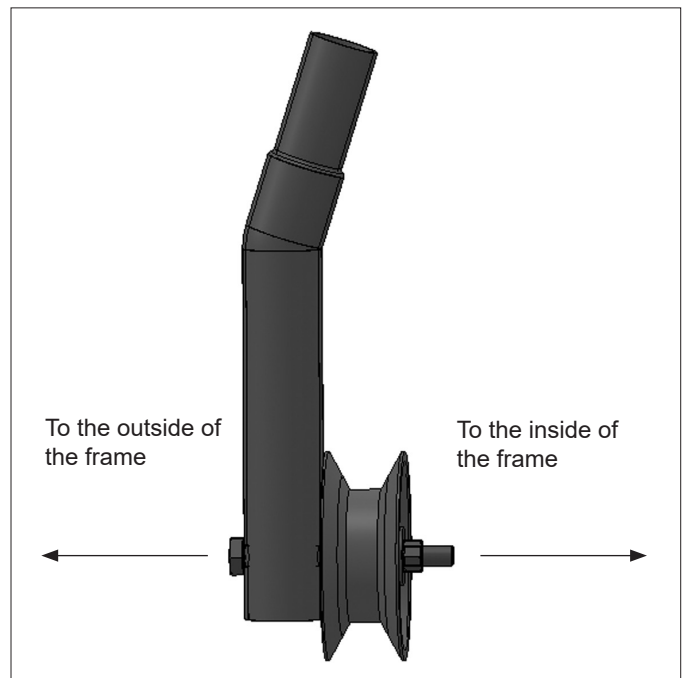
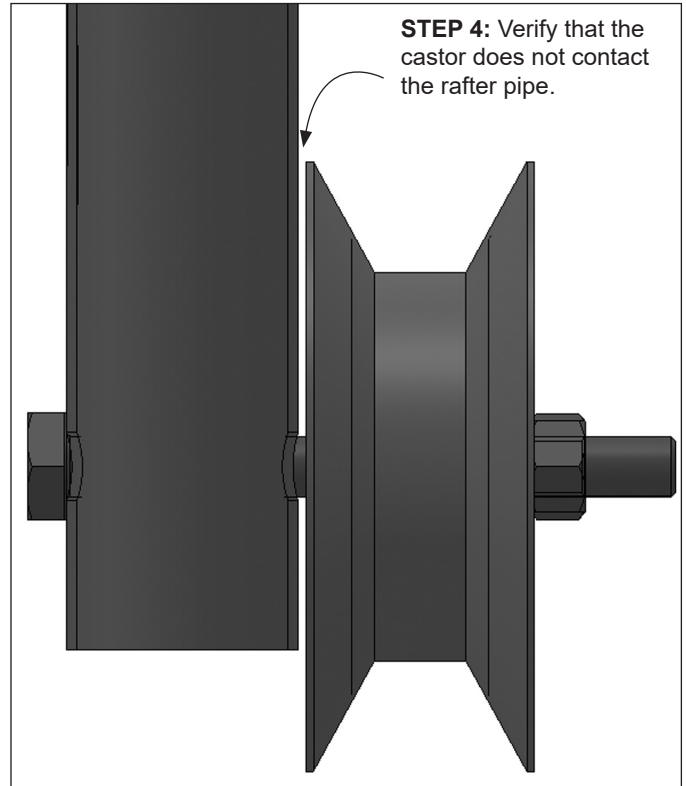
1. Take one castor and remove the bolt, nut, washer, and angled safety guard.
2. Slide the mounting bolt of the castor through the mounting hole of the rafter segment as shown and add the metal castor. Verify that you have positioned the castor on the correct side to the rafter segment. See next page diagrams.
3. Reinstall the safety guard, lock washer, and nut.





**ATTACH CASTORS TO RAFTER PIPES (continued)**

4. Tighten the 1/2" bolt and nut until snug. Do not overtighten. Doing so will crush the rafter pipe. Check that the metal castor is not touching the rafter pipe. Castor should spin freely on axle bolt.
5. Repeat to attach all remaining castors to the remaining rafter segments.
6. Continue with the frame assembly.



# GROWSPAN™ ROLLING PREMIUM HIGH TUNNELS

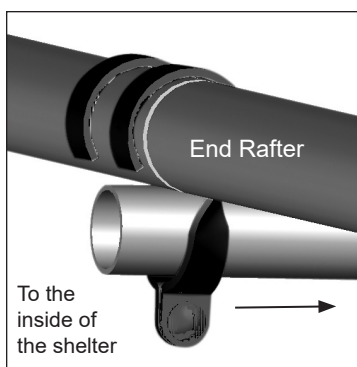
## FRAME ASSEMBLY

Gather the parts:

- All Rafter Assemblies (End and Interior)
- Pipe 1.315" x 75" swaged (#131S075)
- Pipe 1.315" x 73.5" plain) – See Side Profile Diagrams in Quick Start section for quantities.
- Castors attached to 30R1904D rafter sections
- Lifts, ladders, tools, and assistants

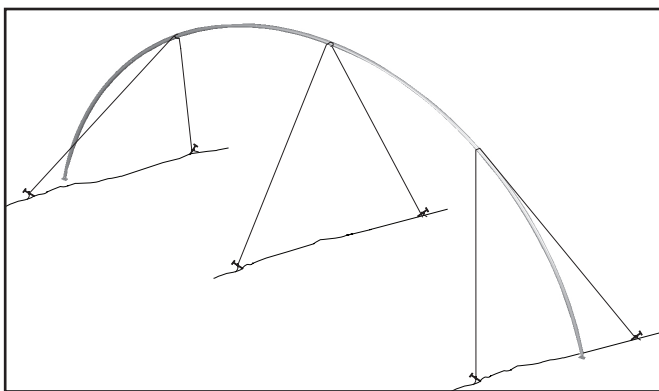
### Frame Assembly Procedure

1. Using the proper lifts and with assistance, carefully stand the first end rafter—one with end clamps—and install the first set of end pipes with castors. Verify that the rafter is set so that the 102857 end clamps are positioned as shown below.



**IMPORTANT:** Brace the first rafter in position as needed to keep it from moving. Bracing is removed *after* additional rafters are installed and secured to the other rafters.

2. Center the castor on the track pipe and secure the 30R1904D pipe to the rafter using two (2) FA4482B Tek screws.
3. Verify rafter is plumb and brace it in place using cables, ropes, or dimensional lumber. Leave bracing in place until additional rafters and purlins are installed.



**NOTE:** Sample rafter above is used to illustrate bracing. Actual rafter may differ in design, width or both.

4. Place an interior rafter—one without end clamps—into position and install the short pipe with castors (Steps 1 and 2) above.



Photo shows the first end rafter and first interior rafter set in place on the track pipe. End rafter is secured to the site using one of the anchor stakes included with the building.



Crew members install the short 30R1904D rafter pipe with castor. Before securing the pipe to the main rafter using two FA4482B Tek screws, verify that the castor is centered on the track pipe.

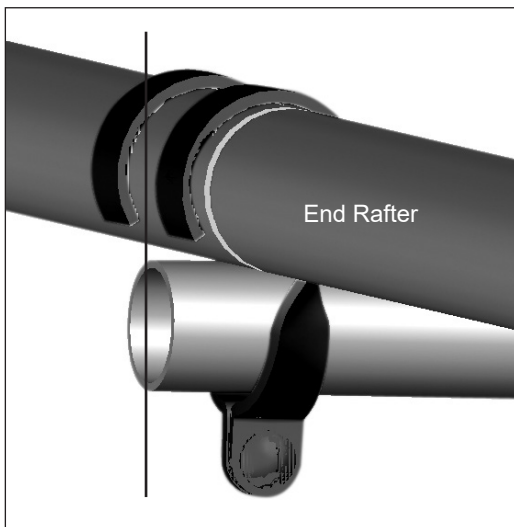
5. Position one (1) cross connector (102547) near the top of the interior rafter assembly.
6. With assistance, take one (1) swaged 75" purlin sections (#131S075) and **insert the plain end** through the 102547 cross connector at the top of the interior rafter. Slide the pipe toward the end rafter and insert the plain end into the 102857 end clamp at the peak of the end rafter. Use the top, center mark as a guide.



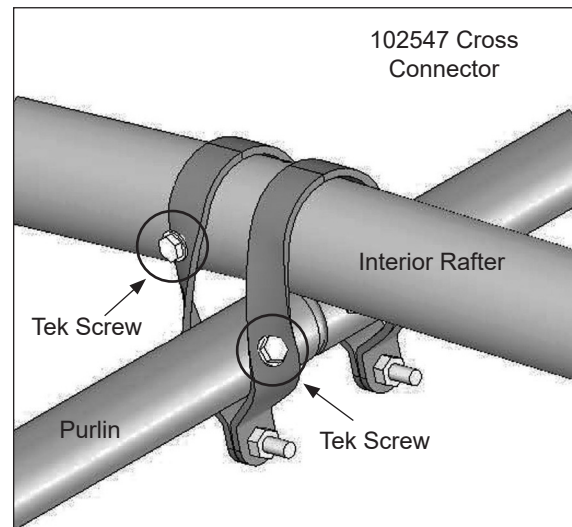
7. Verify that both rafters are plumb and properly spaced (4' on center). Use the customer-built jig if available. Adjust purlin as needed to align it with the center mark at the top of each rafter.
8. Tighten the 102547 cross connector on the interior rafter and tighten the end clamp of the end rafter to secure the first section of purlin pipe.

**NOTE:** Do not allow the plain end of any purlin to extend beyond the end of the end rafter.

9. Secure each clamp to the rafter and to the purlin pipe. See the diagrams below.



Do not allow the purlin to extend beyond the end rafter.



Secure all 102547 and 102857 clamps to the rafter and to the purlin pipes as shown above.

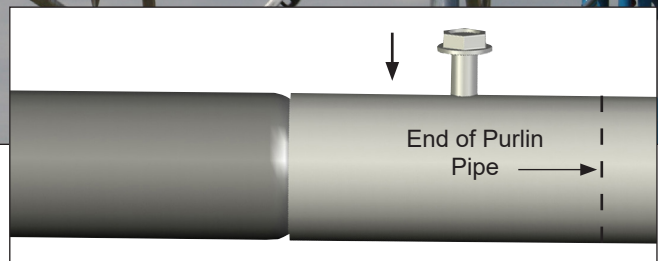
## GROWSPAN™ ROLLING PREMIUM HIGH TUNNELS

### FRAME ASSEMBLY (continued)

10. Move to the remaining purlin positions and repeat steps 6-8 to install those pipes. Remember to use the jig to space the rafters. If a jig is not present, use a tape measure to space the rafters. **Spacing is 4' on-center.**



11. Set the next interior rafter in place and install the castors and lower pipes. Repeat the steps to install the purlins. Slide the plain end of the purlin pipe onto the swaged end of each installed purlin. Secure each purlin pipe joint using an FA4482B Tek screw.



## FRAME ASSEMBLY (continued)

12. Continue adding rafters, castor assemblies, and purlin pipe until the frame is assembled. **Remember to secure each purlin splice using a Tek screw.** Complete the frame assembly using the final end rafter. Review Step 1 to properly set the end rafter.



**NOTE:** Finish each purlin run using a plain 131P0735 pipe. **Consult the Side Profile diagram in the Quick Start if needed.** If, after installation, the last end rafter is plumb and the purlins extend beyond the end of the rafter, cut the last section of purlin pipe to the required length.

**Typically purlin pipes do not require cutting.** Verify that you have the correct plain pipes to complete the purlin runs before you decide to cut any pipe.



If the purlin is too short to fit into the rafter end clamps without pulling the end rafter out of plumb, first verify you have the correct pipe. Also, check that the end clamps are properly installed—see View 6 detail on page 48. If so, loosen a purlin splice and slide the pipes apart. At least half of the tapered end must remain inside the adjacent pipe. Drive the Tek screw back into the pipe to secure the purlin joint.

13. Install the cross beam purlin as described in the following procedure.

## GROWSPAN™ ROLLING PREMIUM HIGH TUNNELS

### INSTALL THE CROSS BEAM PURLIN

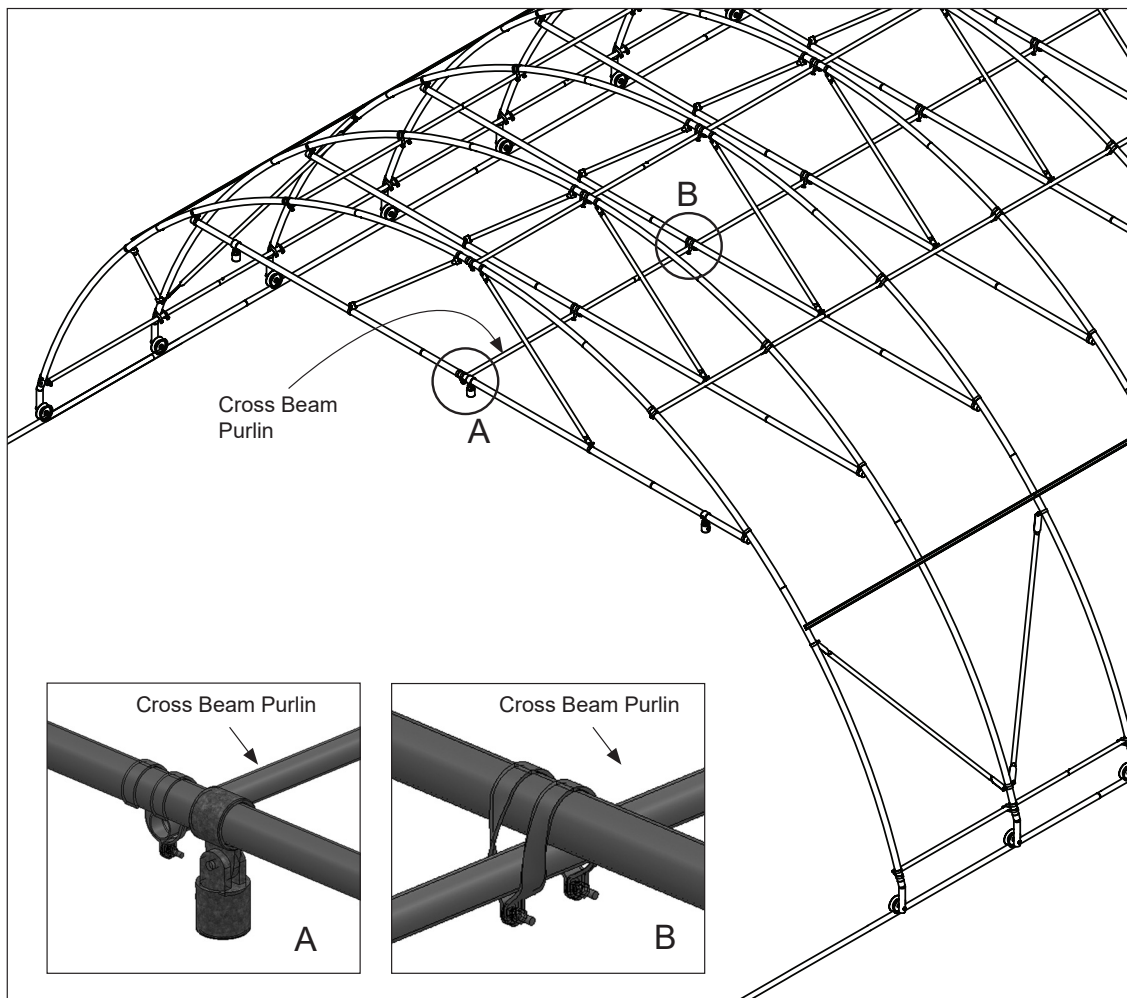
The cross beam purlin runs the length of the frame from end-to-end on the underside of each rafter cross beam. This purlin is identical to all other purlins currently attached to the assembled frame. Position of the cross-beam purlin is slightly off center to avoid conflicts with the end wall fittings attached to the end rafter cross beam braces. See the diagrams below and in the Quick Start section.

Gather the parts:

- Pipe 1.315" x 75" swaged (#131S075) and Pipe 1.315" x 73.5" plain (#131P0735) – See Side Profile Diagrams in Quick Start section if needed.
- 102547 Cross Connector–**NOTE:** The 102857 End Clamps are already attached to the cross beam of each end rafter. See End Rafter Assembly on page 11 for review if needed.
- Lifts, ladders, tools, and assistants

Complete these steps:

1. Using the proper lifts (or ladders) and with assistance, repeat the purlin installation steps as described earlier in the Frame Assembly instructions of this guide beginning with Step 5. Note that this time you will attach the purlin to the **cross beam brace** and not the rafter as stated in Step 5.
2. As the purlin is assembled and installed, ensure that it runs parallel with the other installed purlins. Secure each purlin pipe splice with a Tek screw. Purlin will be slightly to the left or right of the center line of the cross beams.
3. Secure all end clamps and cross connector clamps *to the cross beam brace and to the cross beam purlin*.
4. Continue with the installation of the corner struts for the main frame.



**INSTALL THE CORNER STRUTS**

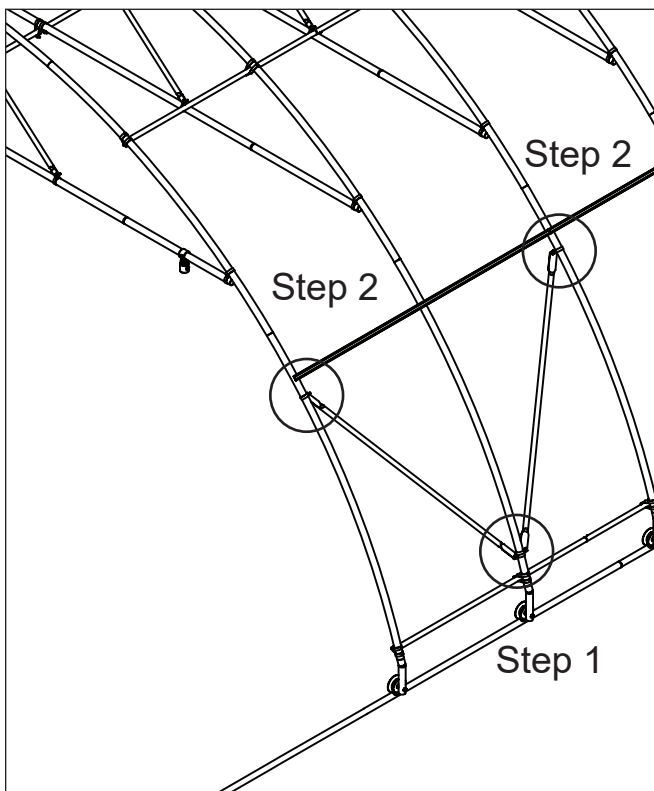
The main frame includes two (2) 111405 struts to be installed at each corner. See the diagrams below and in the Quick Start section for details.

Gather the parts:

- 111405 Struts
- QH1404 Band Clamps and FA4482B Tek Screws
- Lifts, ladders, tools, and assistants as needed.

Attach the 111405 Frame Struts — See View 8 on page 48 for additional details.

1. Slide two QH1404 band clamps over the second rafter above the lower purlin. Use pliers as needed to spread the clamps and a small hammer to lightly tap the clamps over the rafter. Squeeze the clamps back into shape using pliers.
2. Use the same technique to place a QH1404 band clamp over the end rafter and the third rafter as shown.
3. Connect two 111405 struts to the frame using the installed band clamps.
4. Tighten the clamps and secure each band clamp to the rafter using one FA4482B Tek screw for each clamp.
5. Continue with the next procedure.

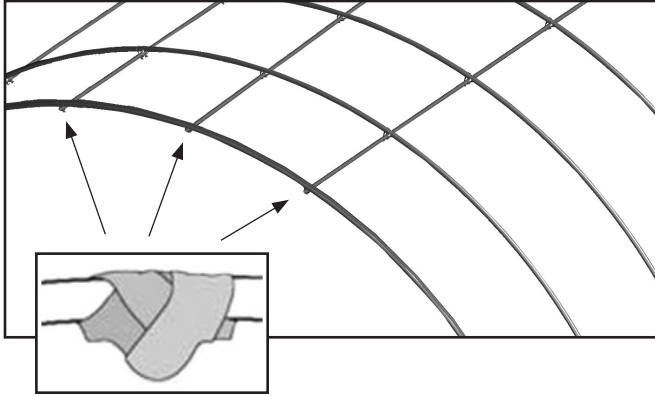


# GROWSPAN™ ROLLING PREMIUM HIGH TUNNELS

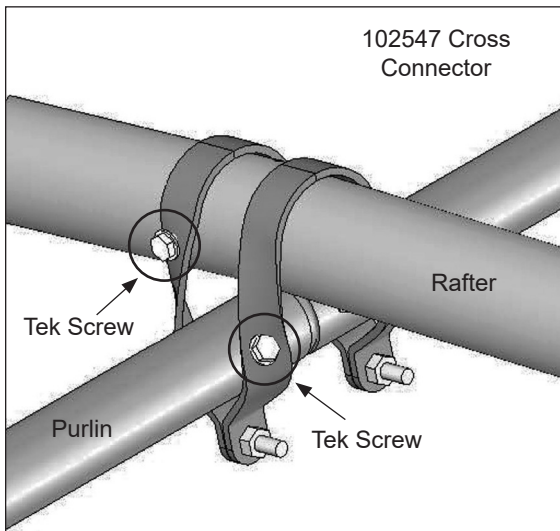
## FINISH ROUGH EDGES

Gather the parts:

- Duct tape (Customer supplied)
  - Metal file
1. Check for any sharp edges on the frame and file them smooth so they will not cut the cover.



2. Apply two layers of heavy duct tape on all pipe connections and clamps that may contact the cover or end panel or both.
3. Inspect the frame to verify that each end clamp and cross connector is secured to the rafter and to the purlin as shown below.



Secure all 102547 and 102857 clamps to the rafter and to the purlin pipes as shown above.

4. Verify that each rafter pipe joint and each purlin pipe joint is secured using Tek screws.
5. Continue by anchoring the rolling high tunnel frame.

## ANCHOR THE ASSEMBLED FRAME

At this point, anchor the high tunnel frame. **Consult the diagrams in the Quick Start section (pages 50-51)** to determine the anchor position for your building frame. Use the 103937 Tent/Canopy Stake and Strap kits and AS2166 anchor shackles included with your building to anchor the frame.

**CAUTION:** The anchor assembly is an integral part of the high tunnel construction. Improper anchoring may cause instability and failure of the structure to perform as designed. Failing to anchor the shelter properly will void the manufacturer's warranty and may cause serious injury and damage.





**END FRAME ASSEMBLY**

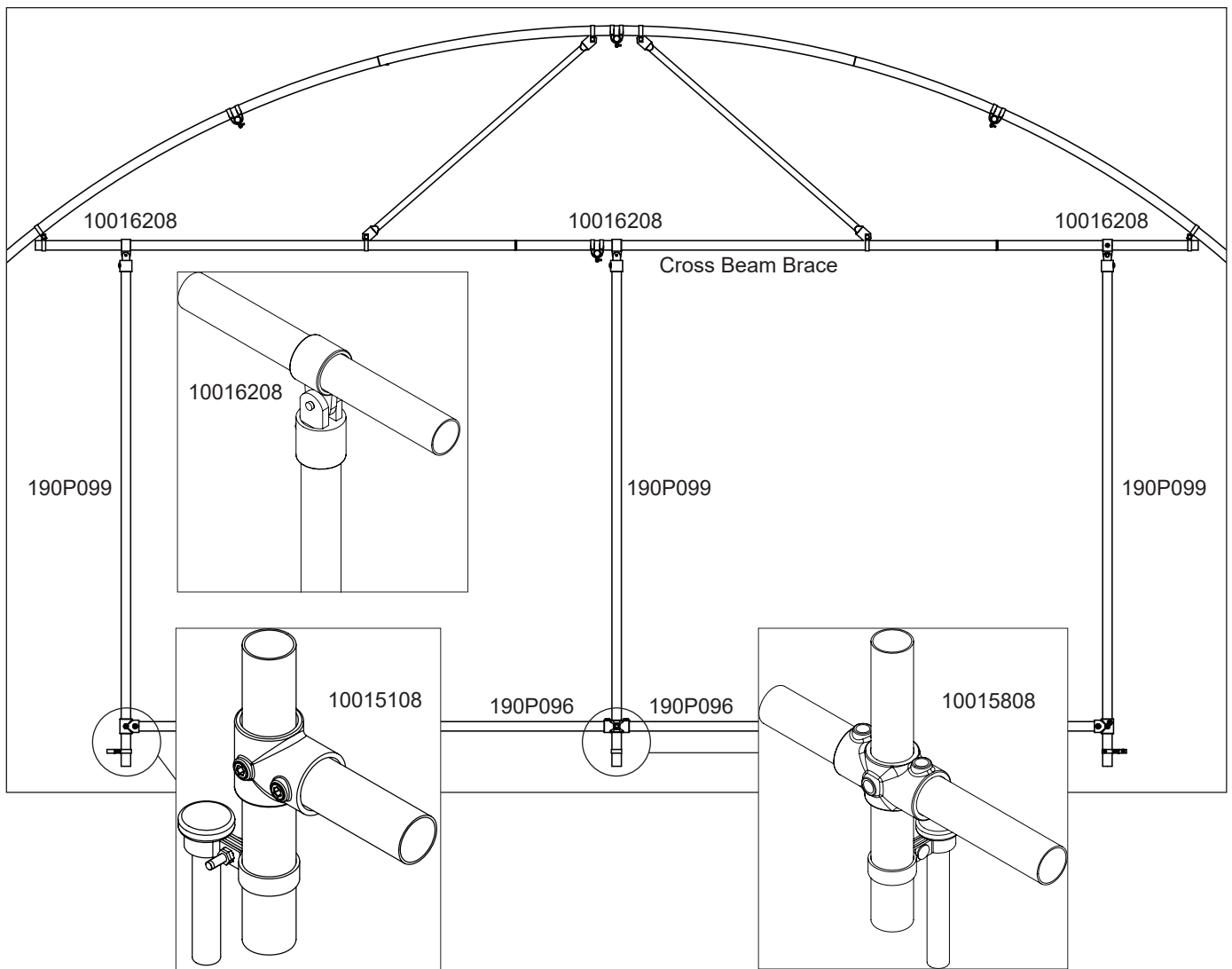
Consult the diagram below and the details in the Quick Start section to assemble and install the end frames.

Gather the parts:

- 10015108 (1.90" Short Tee Fitting), 10015808 (1.90" Short Cross Fitting), 190P099 pipe, and 190P096 pipe
- QH1400 and QH1404 band clamps
- 103937 Stake with Strap (Strap is not used to secure end frame.)
- Lifts, ladders, tools, and assistants

**Assemble and Install the End Frames**

1. Use the diagram to assemble the end wall. For best results, begin along one side and work toward the other side of the end wall. The 10016208 swivel sockets were attached to the cross beam brace of both end rafters during the end rafter assembly. If the step was overlooked, loosen the cross beam brace to install the swivels and continue.



2. Anchor the end wall frame to the site by driving a stake next to each vertical and securing it with the band clamps. Use the diagram details as guides. Unlike the stakes used to anchor the main frame, **the stakes for the end frame must be removed and reused when the frame is moved.**

**NOTE:** To prevent injury, **you must anchor the end wall frame before installing the end panel.**

3. After assembling and anchoring both end frames, continue by installing the end panels.

## GROWSPAN™ ROLLING PREMIUM HIGH TUNNELS

### ATTACH END PANELS

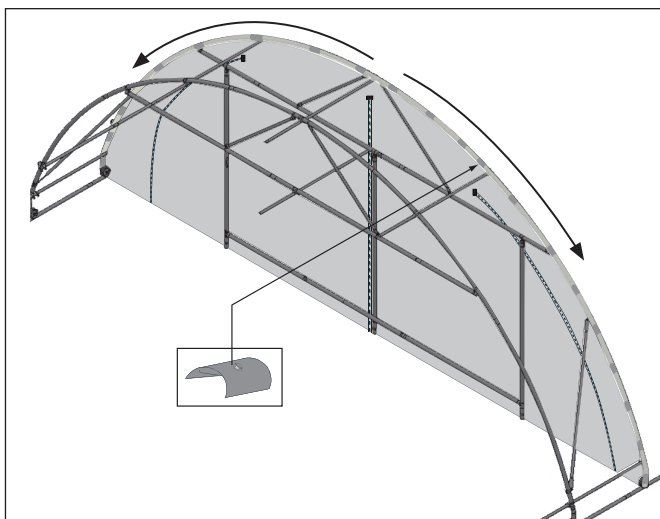
**⚠ CAUTION:** To prevent damage, do not install end panels on a windy day.

Gather the parts:

- End Panels–3-Zip (Zippered): QE01720WZ3 (2)
- Fabric Clips #CC6214 (Divide quantity in half.)
- Measuring tape and scissors
- FA4482B Tek screws and Magnetic nut setter (3/8" x 2-9/16")

Assembly Procedure:

1. Spread an end panel out on the ground at the desired end of the frame and center the end panel as needed.
2. With the proper lift (or ladders) positioned inside the frame, pull the end panel up and over the top of the end rafter.
3. Secure the end panel to the backside of the end rafter at the top, center position using a fabric clip and Tek screw.
4. Moving outward in both directions, continue attaching fabric clips to secure the end panel to the rafter. Evenly space the fabric clips and work toward the ground.
5. Verify that the end panel is in the desired position and repeat the steps to secure the other end panel to the frame using the remaining half of the fabric clips.



**NOTE:** The end panels may be shipped as untrimmed rectangular pieces. If so, use scissors to trim the excess end panel material from inside the frame after attaching the panels to the end rafters.

Divide the quantity of the CC6214 clips in half and use half for each end panel installation.

### COVER FILM INSTALLATION

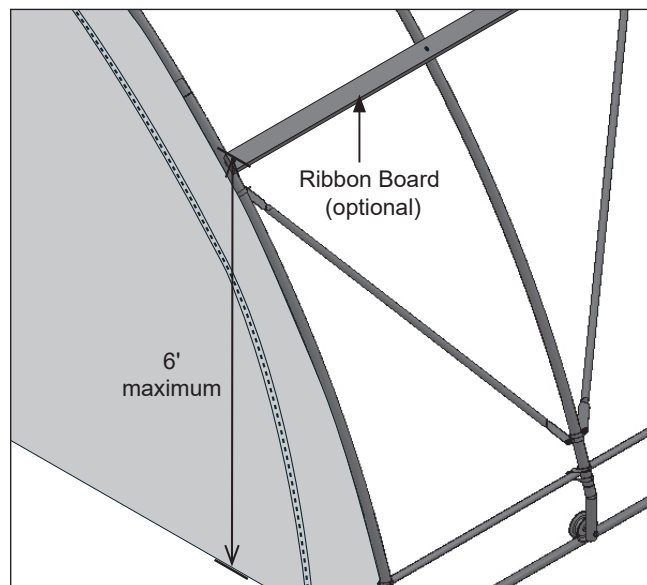
After the end panels are installed, install the cover film. The steps to install the cover film include:

1. Attach poly latch U-channel (102197) along the high tunnel sides and to the tops of the high tunnel end rafters using FA4482B Tek screws.
2. Pull cover film over the frame.
3. Attach the cover film to the end rafters using the poly latch springs.
4. Stretch and attach cover film to the sides of the frame.
5. Install roll-up side kits and test the operation of the twist-of-the-wrist assembly.

### INSTALL POLY LATCH U-CHANNEL (102197)

1. Measure 6' from ground level to identify the top of the roll-up sides. Attach the poly latch U-channel to each rafter along both sides of the frame using FA4482B Tek screws. **See diagrams on page 35 for details.**

**ATTENTION:** Attaching a ribbon board to the rafters and then attaching the U-channel (102197) to the ribbon board is recommended for the best results. Consult the diagrams below for clarification.

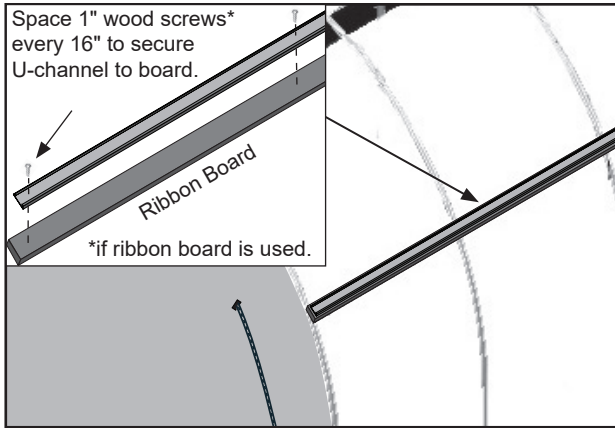


Ribbon board materials (2" x 4" or 2" x 6") shown in the diagram above are not included and are supplied **by the customer**. Carriage bolts to attach ribbon board to the rafters and wood screws (required) to attach the 102197 U-channel to the ribbon board are supplied by the customer. **Do not use Tek screws to attach U-channel to wood. See note on page 6.**

If no ribbon board is used, attach one section of the poly latch U-channel to the side of the frame using Tek screws. Attach U-channel flush with the outside edge of the end rafter at each end of the assembled frame.

**INSTALL POLY LATCH U-CHANNEL (Continued)**

- Using FA4482B screws, continue to attach the U-channel sections to the rafters and work toward the other end of the frame.

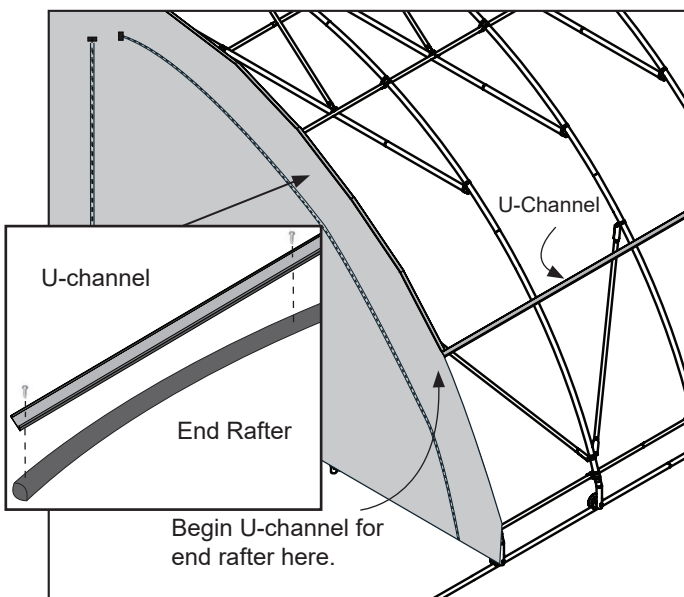


**NOTE:** Inset shows the use of a ribbon board. U-channel can be attached directly to rafters using FA4482B Tek screws when ribbon board is not used.

Cut the last section of U-channel to the required length so that it is flush with the outside edge of the end rafter.

- Repeat these steps for the remaining side.
- After attaching the poly latch U-channel to the sides of the frame, use Tek screws to attach the U-channel to the top of one end rafter. **Space FA4482B Tek screws every 12".**

**ATTENTION:** The poly latch U-channel will bend with the curve of the rafter as it is attached. The U-channel runs from the poly latch U-channel attached to one side of the frame to the U-channel attached to the other side of the frame.



- Repeat the steps to attach the U-channel to the top of the remaining end rafter and continue with the cover film installation.

**INSTALL COVER FILM**

Gather the parts:

- Main cover film
- Ropes long enough to reach over the frame (provided by customer—may not be needed.)
- U-channel spring (102198)
- Box cutter or utility knife

**Assembly Procedure**

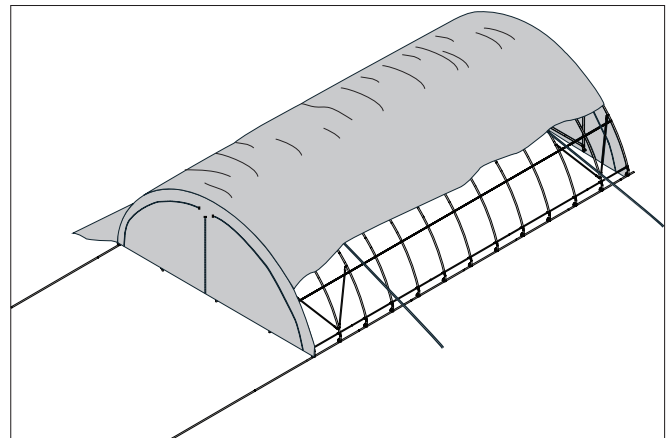
After attaching the poly latch U-channel to the frame, unpack the cover film and pull into place. Ropes or straps are typically used to pull the cover film onto and over the frame. (These may not be needed for some buildings.)

**⚠ WARNING:** To prevent damage to the cover and to prevent serious personal injury, **DO NOT** attempt to install the cover film on windy or stormy days.

- Unpack the cover film and position it at the base along one side of the frame.
- Make small holes along the edge of the cover at evenly spaced intervals and tie rope to the cover. (The length of the cover determines the number of holes that are needed to attach the ropes.)

**NOTE:** The ropes must be long enough to reach over the top of the building to the other side. Long buildings will require additional ropes to prevent tearing the cover film when it is pulled into place.

- After tying the ropes to the cover film, throw the ropes over the top of the frame and pull the cover into place. Center cover side-to-side and end-to-end.



Shelter shown above may be a different length than the actual model.

**IMPORTANT:** To prevent damage to the cover film during installation, additional personnel and lifts may be needed.

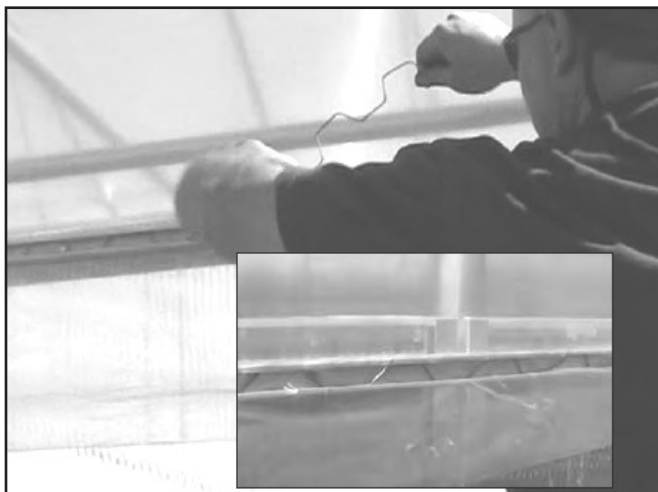
## GROWSPAN™ ROLLING PREMIUM HIGH TUNNELS

- Once the cover film is in place and centered on the frame, begin at the peak of one end rafter and install the spring into the U-channel to secure the cover.

**ATTENTION:** Center the cover film front to back and side-to-side to ensure that enough cover material is present to lock into the U-channel. *The excess cover along each side is rolled up when the roll-up side assemblies are installed.*

The rope can remain in place to temporarily secure the cover if needed. Remove the ropes as the cover is secured to the frame.

Photos show installing the spring into the U-channel on the outside of a frame. The process is the same for the U-channel attached to the top of the end rafters.



- Continue adding the spring into the U-channel at the top of the first end rafter. Ensure that an even amount of the cover is exposed and maintained along the edge of the frame as it is attached.

**NOTE:** The cover material is cut longer/wider than is required to cover the frame. For easier installation, allow approximately 10" to extend past the edge of the end rafter as the cover is secured in place.

- Continue down both edges of the first end rafter until the entire length of the end of the cover film is secured in place.
- Stretch the cover to the other end of the building and repeat the steps to secure the cover film in the U-channel.

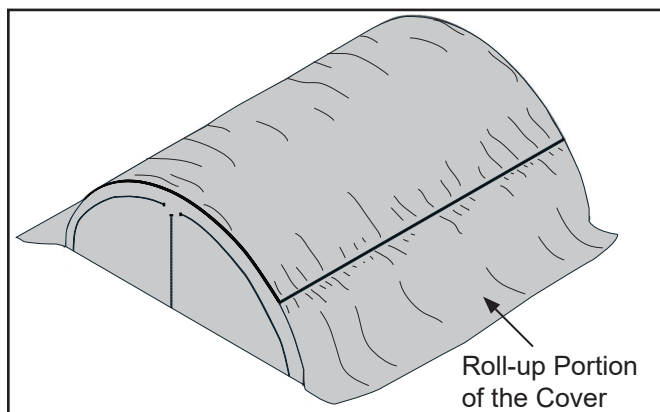
**NOTE:** Pull the cover tight as the spring is inserted into the U-channel.

- After the cover is stretched end-to-end and secured using the spring and U-channel, move to one side of the frame and repeat the steps to anchor the cover film to the first side.

Begin at one end of the U-channel and work toward the other. It is also possible to begin at the middle of each side and work toward each end.

**NOTE:** Maintain an even length along the side. The final stretching of the cover takes place when the last side is secured.

- After securing the first side, move to the remaining side and secure it in place.



**IMPORTANT:** *DO NOT REMOVE TOO MUCH OF THE EXCESS COVER MATERIAL AT EACH END.* Some excess cover film material—the material that extends beyond the end rafters—should remain in place. If the film needs stretched in the future, remove the spring from the U-channel, grasp the excess material, pull the cover tight, and reinstall the spring.

The excess material along the sides is rolled up in the roll-up side assembly.

- Once the cover film is installed and secured in the U-channel, continue with the **Install the Roll-up Side Assemblies** procedure.

**INSTALL THE ROLL-UP SIDE ASSEMBLIES**

The instructions below describe how to install a single roll-up sidewall assembly for one side of the frame. The procedure is repeated for the remaining side.

The procedures to install the roll-up side include the following:

1. Assemble the roll-up side conduit.
2. Attach the roll-up conduit to the bottom of the cover film.
3. Assemble the Twist-of-the-Wrist assembly and attach it to the frame and the roll-up side.
4. Install the Anti-Billow Rope system.
5. Test the operation of the roll-up side.

**INSTALL THE ROLL-UP SIDE CONDUIT**

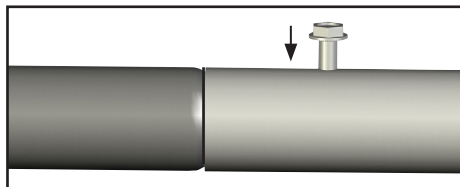
Gather the parts:

- Pipe 1.315" x 75" Swaged 17 GA (#131S075)
- Pipe 1.315" x 73.5" Plain 17 GA (#131P0735)
- Tek Screws

The roll-up side conduit assembly is attached to the bottom of the roll-up side cover material. This assembly runs the length of the frame and serves as the center pipe that the roll-up cover wraps around when it is opened to ventilate the shelter. *This conduit is identical to the purlins that were assembled and attached to the frame.*

Complete these steps to assemble the roll-up side conduit.

1. Locate all sections of pipe needed to assemble the cover conduit.
2. Insert the swaged end of each pipe into the plain end of another pipe until the conduit is assembled.
3. Secure each pipe joint with a Tek screw.



4. Place the assembled conduit at the base of the side where the end of the cover film is located.

**NOTE:** Duct tape Tek screws to prevent damage to cover film.

5. Continue with the procedure that follows to attach the conduit to the cover film.

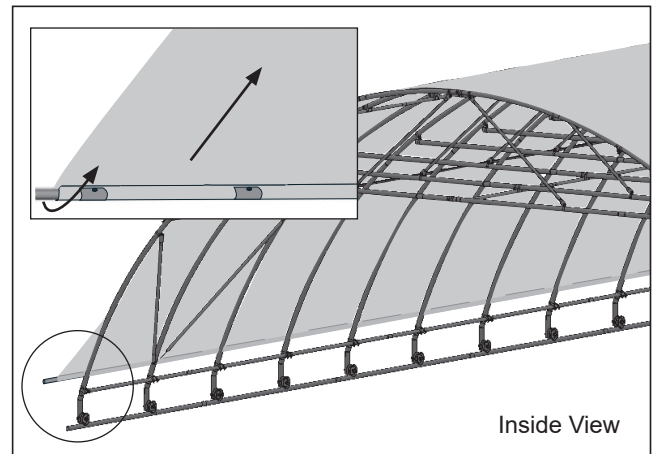
**ATTACH CONDUIT TO COVER FILM ROLL-UP SIDE**

Gather the parts:

- Assembled conduits
- Fabric Clips #CC6212 (Divide quantity in half.) Use one clip at each rafter position along each side when attaching the cover film to the roll-up conduit.
- FA4482B Tek screws

To this point, the cover film should be secured to the frame and the excess cover along both sides should be hanging down along the side of the frame.

1. Unfold the remaining portion of the cover film (if needed) and evenly stretch it out on the ground along the frame.
2. *Working from the inside the frame*, roll the assembled cover conduit onto the edge of the cover film.
3. Verify that the cover and conduit are evenly positioned and tuck the cover edge under the conduit and rotate the conduit 1-2 times to wrap the cover around it.



4. Secure the cover material to the conduit using Tek screws and fabric clips evenly spaced along the conduit—one clip at each rafter position.
5. Roll the conduit until the excess cover film is wound around the conduit.
6. Continue with the **Twist-of-the-Wrist Assembly** procedure.

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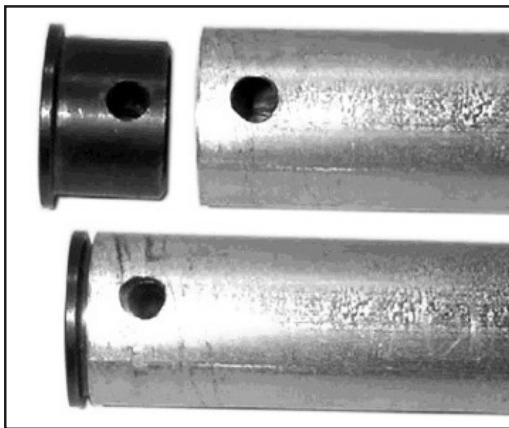
## TWIST-OF-THE-WRIST ASSEMBLY

Gather the parts:

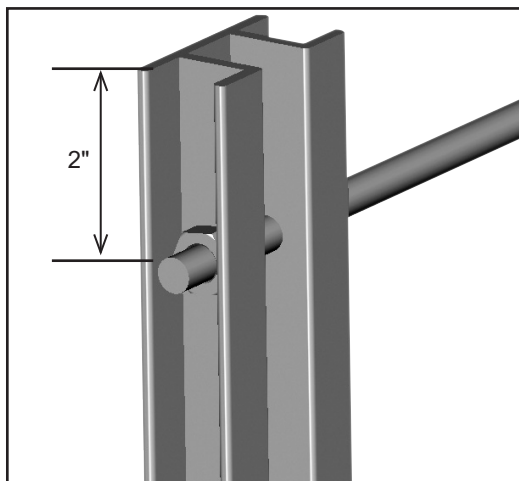
- Aluminum channel (102570)
- Drive handle (102480)
- Gearbox (103496) and gearbox drive (102717)
- Mounting plate (103544)
- Bearing (102569) and threaded rod (FAK26)
- 1/4" X 2" bolts (FAG308B) and 1/4" nuts
- 3/8" nuts and washers

The Twist-of-the-Wrist Assembly is designed to roll up a portion of the sides of the structure. The following steps describe the assembly and its installation.

1. Drill a 5/16" hole through the cover conduit 1/2" from the end of the conduit.
2. Insert a tubing adapter into the conduit and align the holes of the adapter with the drilled holes in the conduit.



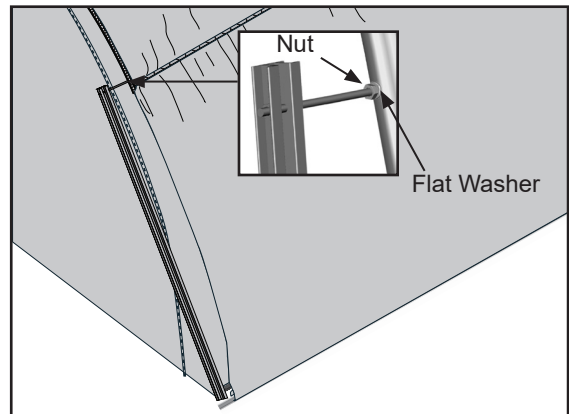
3. Select the aluminum channel and drill a 3/8" hole through the channel approximately 2" from the end and attach a threaded rod using a 3/8" nut on each side of the channel.



4. Position the channel along the end rafter at the end of the building where the Twist-of-the-Wrist assembly will be located.

**NOTE:** Verify that the lower end of the channel is slightly off the ground to allow it to move freely when the panel is rolled up and down.

5. Secure the upper end of the channel by drilling a 3/8" hole through the end rafter and attach as shown. The lower end of the channel will "float" and is not attached.



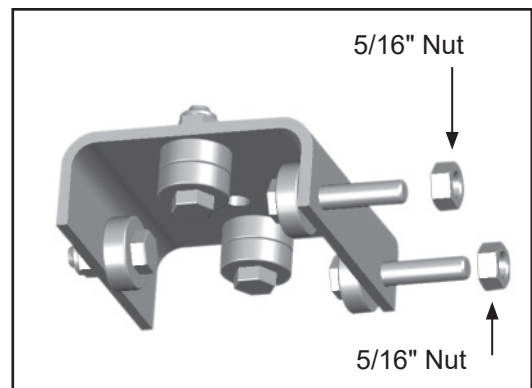
**NOTE:** Install a flat washer between the nut and the end panel. Panel is not shown in the insert.

6. Select the bearing bracket and attach the bearings as needed. (In some instances, the bearings may come already attached.) Assemble as follows:

Single bearings are attached to the sides of the bracket and double bearings to the middle portion of the bracket. Use 1/4" hex bolts and locknuts as needed. Install a flat washer on both sides of each bearing to insure proper operation of bearings and the assembly.

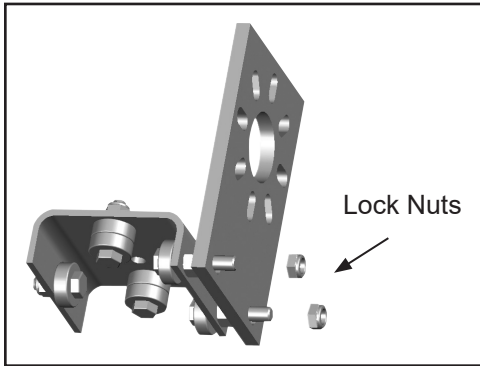
Install the longer bolts with bearings on the side of the bracket that has the two holes. Install these *before* installing the double bearing assemblies. See the figures below.

7. For the spacers on the long bolts, insert a 5/16" nut over each bolt. *These nuts are used as spacers only.*

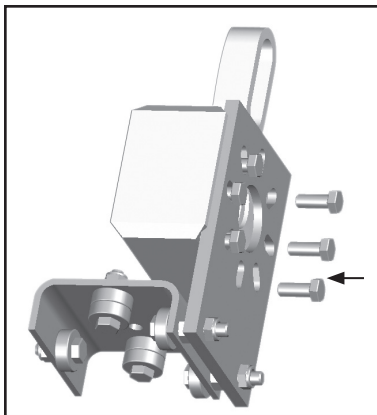


**TWIST-OF-THE-WRIST ASSEMBLY (Continued)**

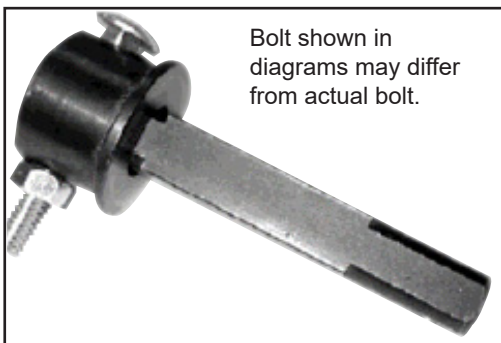
8. Slide the Twist-of-the-Wrist mounting plate over the long bolts and secure the plate with two lock nuts.



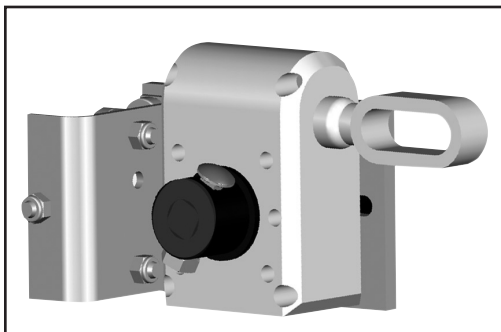
9. Attach the Twist-of-the-Wrist gearbox to the mounting plate using hex head bolts.



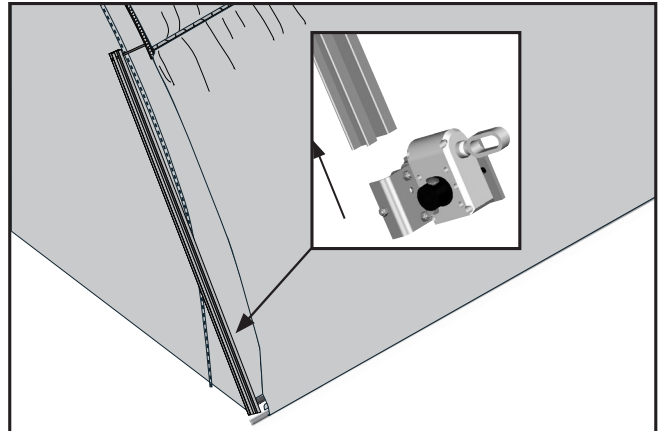
10. Using a 1/4" x 2" bolt (FAG308B) and nut (FALB01B), attach the square shaft to a tubing adapter.



11. Slide the square shaft through the Twist-of-the-Wrist gearbox.

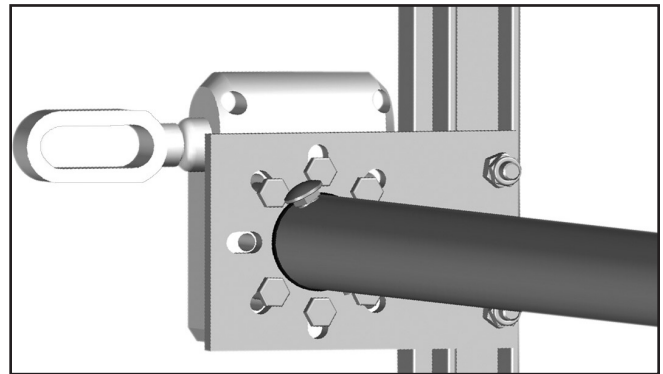


12. Slide the Twist-of-the-Wrist assembly onto the aluminum channel from the ground end. (This is the free end of the channel.)

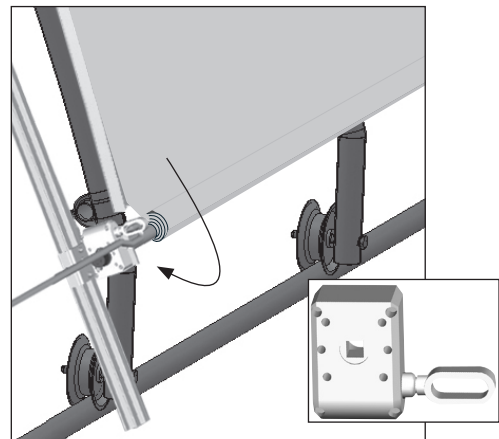


13. Roll the cover conduit up to the Twist-of-the-Wrist assembly.

14. Attach the conduit to the square shaft of the assembly by inserting a 1/4" bolt through the hole in the conduit and tubing adapter. Add and tighten the 1/4" nuts



15. Attach the crank handle to the Twist-of-the-Wrist assembly. (Cover is not shown in the above diagram.)



16. Test the operation of the Twist-of-the-Wrist assembly.

**NOTE:** If the cover rolls in the desired direction, but you want to turn the crank in the opposite direction for the same result, unbolt, reposition the gearbox, and remount it *on the same side of the mounting bracket.*

## GROWSPAN™ ROLLING PREMIUM HIGH TUNNELS

### INSTALL THE AS2200 QUICK LINKS FOR THE ANTI-BILLOW ROPES

The AS2200 Quick Links are used to secure the lower end of the anti-billow rope when these are installed. Complete the following steps to install the AS2200 Quick Links.

1. Roll-up the side panel so that the lower end of the rafters are exposed. If it is windy, roll-up the side panel so it is fully open to prevent damage and injury. **DO NOT ALLOW THE PANEL TO REMAIN LOOSE DURING WINDY CONDITIONS. YOU MUST SECURE THE PANEL BEFORE YOU CONTINUE.**
2. Take one AS2200 Quick Link, open the lock, and attach it to the end rafter as shown. Consult the following pages and review the diagram for your building for quick link locations.
3. Repeat to install all remaining quick links for your building. *Use the side profile diagrams on the following page to install the AS2200 quick links in the proper locations along both sides of the assembled frame.*

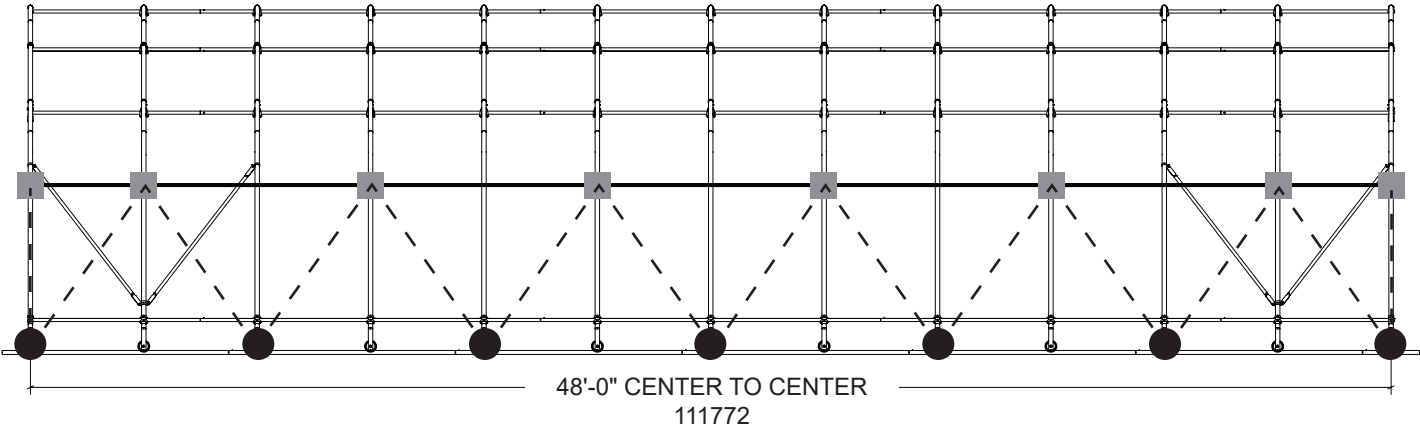
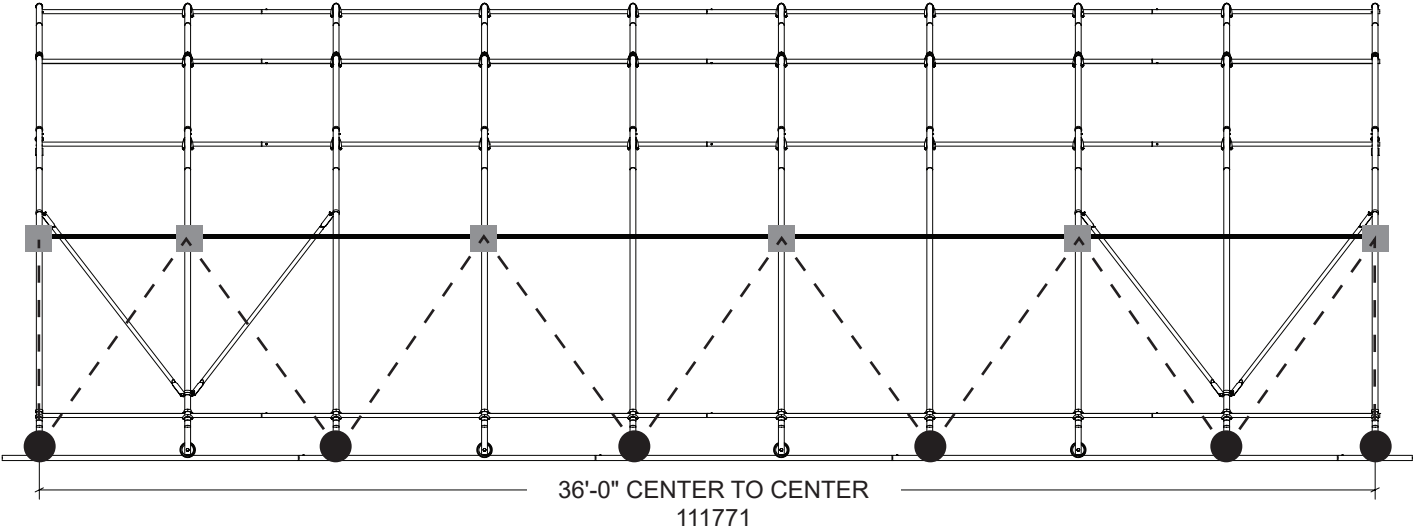
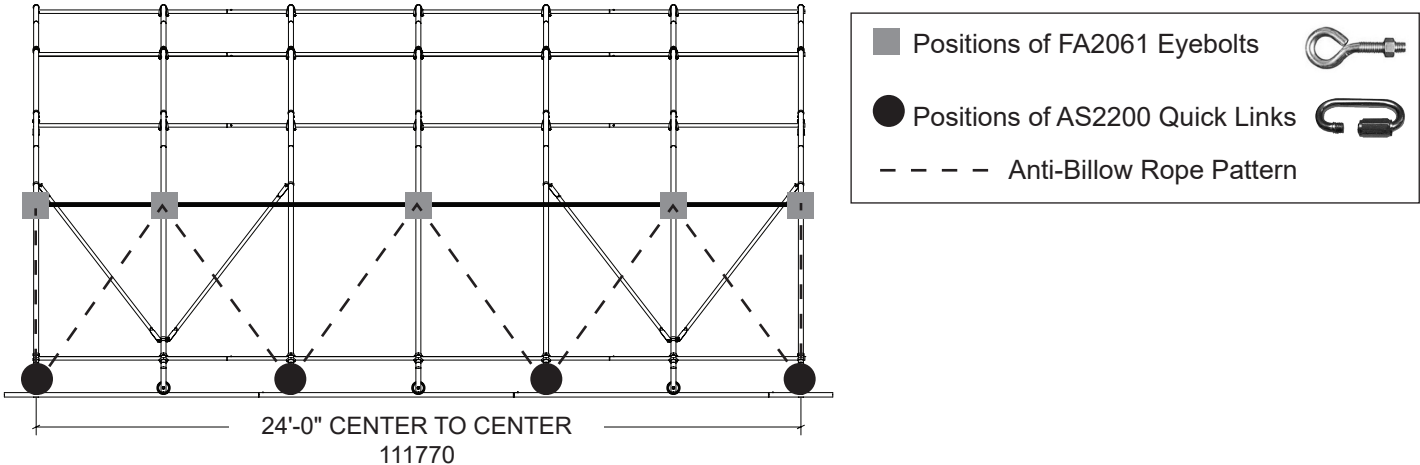
**NOTE:** Be sure to choose the diagram for your building when installing the quick links.

4. Continue with the installation of the 1/4" eyebolts used to secure the top of the anti-billow ropes.



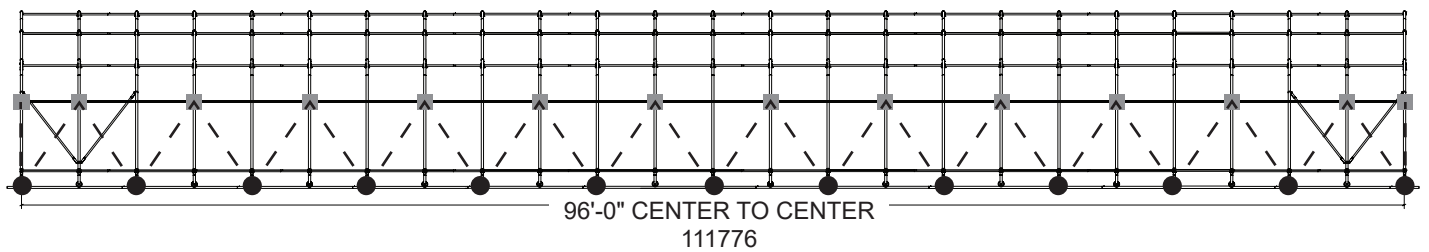
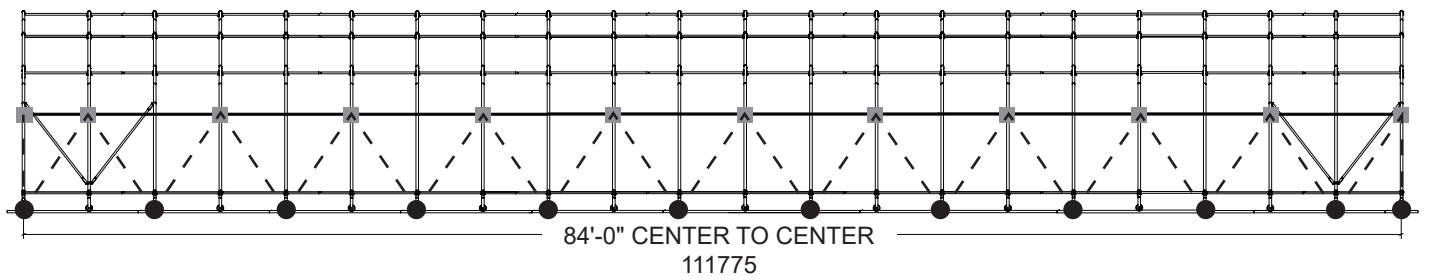
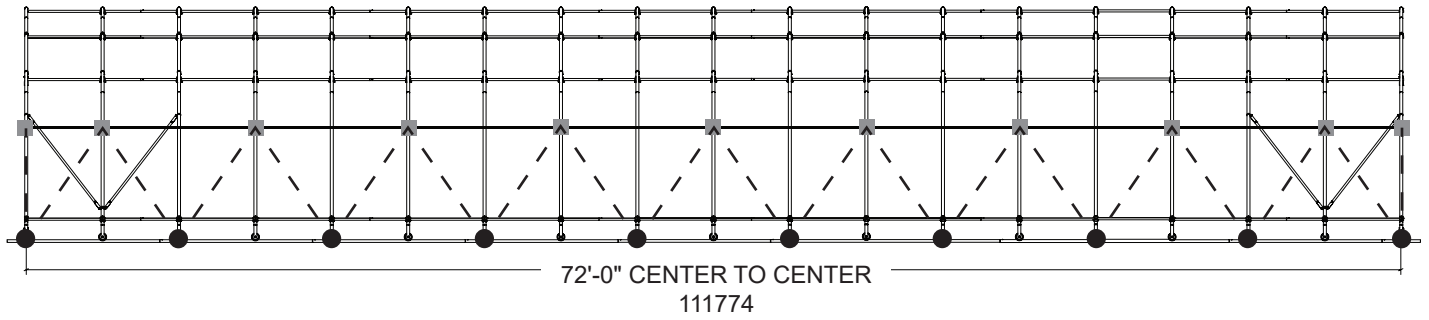
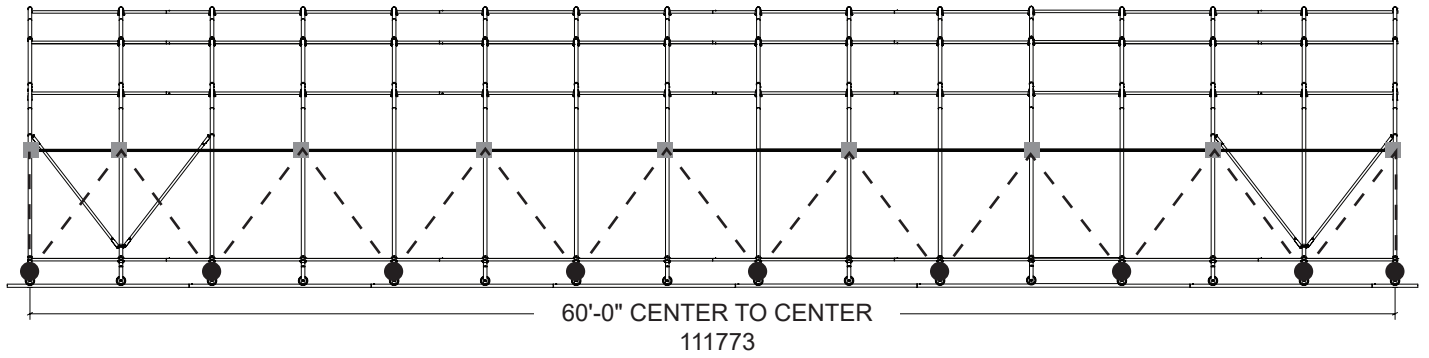


ANTI-BILLOW ROPE PATTERNS: ALL LENGTHS



# GROWSPAN™ ROLLING PREMIUM HIGH TUNNELS

## ANTI-BILLOW ROPE PATTERNS: ALL LENGTHS (continued)

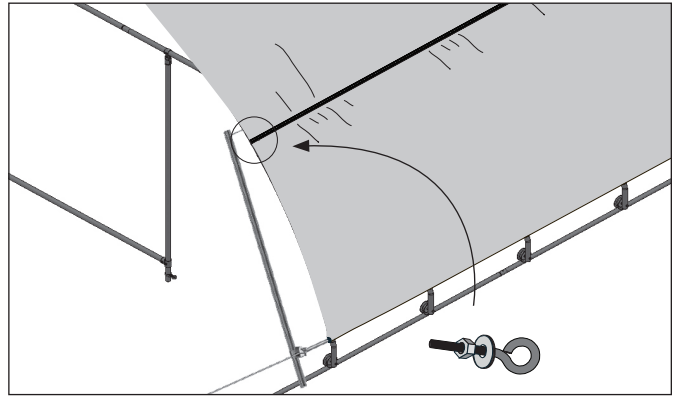


**INSTALL THE FA2061 EYEBOLTS (ANTI-BILLOW ROPES)**

The FA2061 eyebolts, FALB01B nuts, and FAMF01B washers are used to secure the upper end of the anti-bilLOW rope. The length of the FA2061 eyebolt allows installation through the installed U-channel and the rafter if desired.

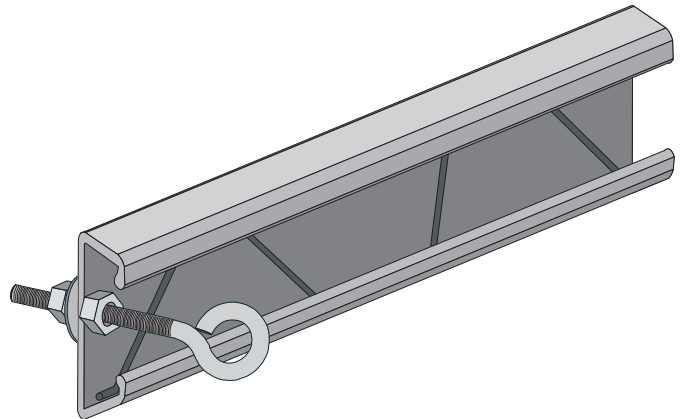
Review the following diagrams and complete the procedure that applies. Choose A or B if the optional ribbon board is not used; choose C if a ribbon board is installed.

**NOTE:** Cover film is not shown in the diagrams below.



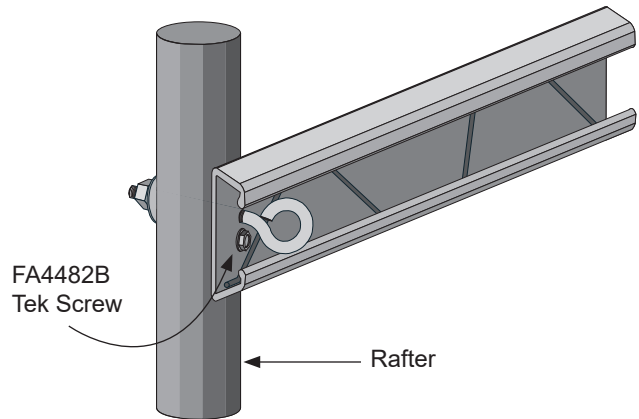
**A.** To drill through U-channel (no ribbon board), complete these steps:

1. Refer to the diagrams on the previous pages for your building to determine the eyebolt locations along both sides of the frame.
2. Next to the rafter at the locations show on the side profile diagrams, drill a 5/16" hole through the attached U-channel.
3. Thread one 1/4" nut onto the eyebolt, slide the eyebolt through the U-channel, slide the washer onto the bolt, and secure using a 1/4" nut.



**B.** To drill through the rafter (no ribbon board), complete these steps:

1. Refer to the diagrams on the previous pages for your building to determine the eyebolt locations along both sides of the frame.
2. At the first rafter position shown on the side profile diagrams, drill a 5/16" hole through the attached U-channel and the rafter.
3. Slide the eyebolt through the U-channel and rafter, slide the washer onto the bolt, and secure using a 1/4" nut.

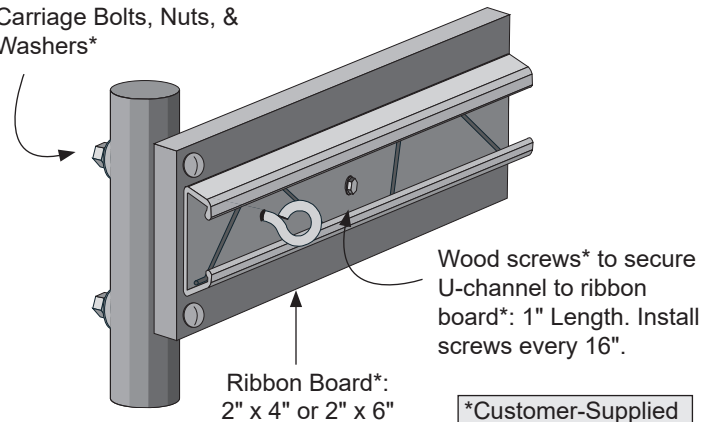


**C.** If you installed the *optional* ribbon board:

**NOTE:** All materials and fasteners for ribbon boards are supplied by the customer.

1. Refer to the diagrams on the previous pages for your building to determine the eyebolt locations along both sides of the frame.
2. Next to the rafter at the locations show on the side profile diagrams, drill a 5/16" hole through the attached U-channel and ribbon board.
3. Install the 1/4" eyebolt, slide the washer onto the bolt, and secure using the 1/4" nut.

Carriage Bolts, Nuts, & Washers\*



## ANTI-BILLOW ROPE INSTALLATION

TO PREVENT DAMAGE AND POSSIBLE INJURY, INSTALL THE ANTI-BILLOW ROPES IN SHORT LENGTHS ALONG EACH SIDE OF THE FRAME.

DO NOT INSTALL AS A SINGLE LENGTH TIED AT EACH END OF THE BUILDING. DOING SO WILL RESULT IN A LOOSE SIDE PANEL IF THE SINGLE ROPE BREAKS DURING STRONG WINDS.

Complete these steps to install the anti-billow rope:

1. After installing all eyebolts and quick links, install the anti-billow rope **in short lengths—2-3 rafter bays—along each side**. Thread the free end of the rope through the end rafter eyebolt and quick link. Consult the Anti-Billow Rope Pattern diagrams if needed.
2. Cut rope and tie the end to eyebolt or quick link. Pull the rope tight and tie end to the eyebolt or quick link.
3. Continue this pattern until all ropes are tied in short lengths along one side and repeat the steps to install the anti-billow ropes for the remaining side.
4. Check the roll-up side operation.
5. Read the shelter care and maintenance information that follows.

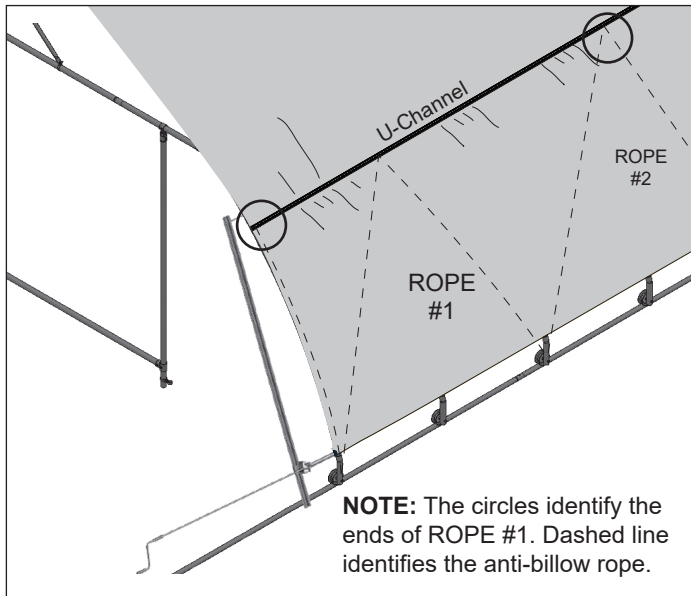


Photo to the right shows rope threaded through a quick link at the end of the rafter.

## SHELTER CARE AND MAINTENANCE

Proper care and maintenance of the rolling high tunnel is important. Check the following items periodically to properly maintain the shelter:

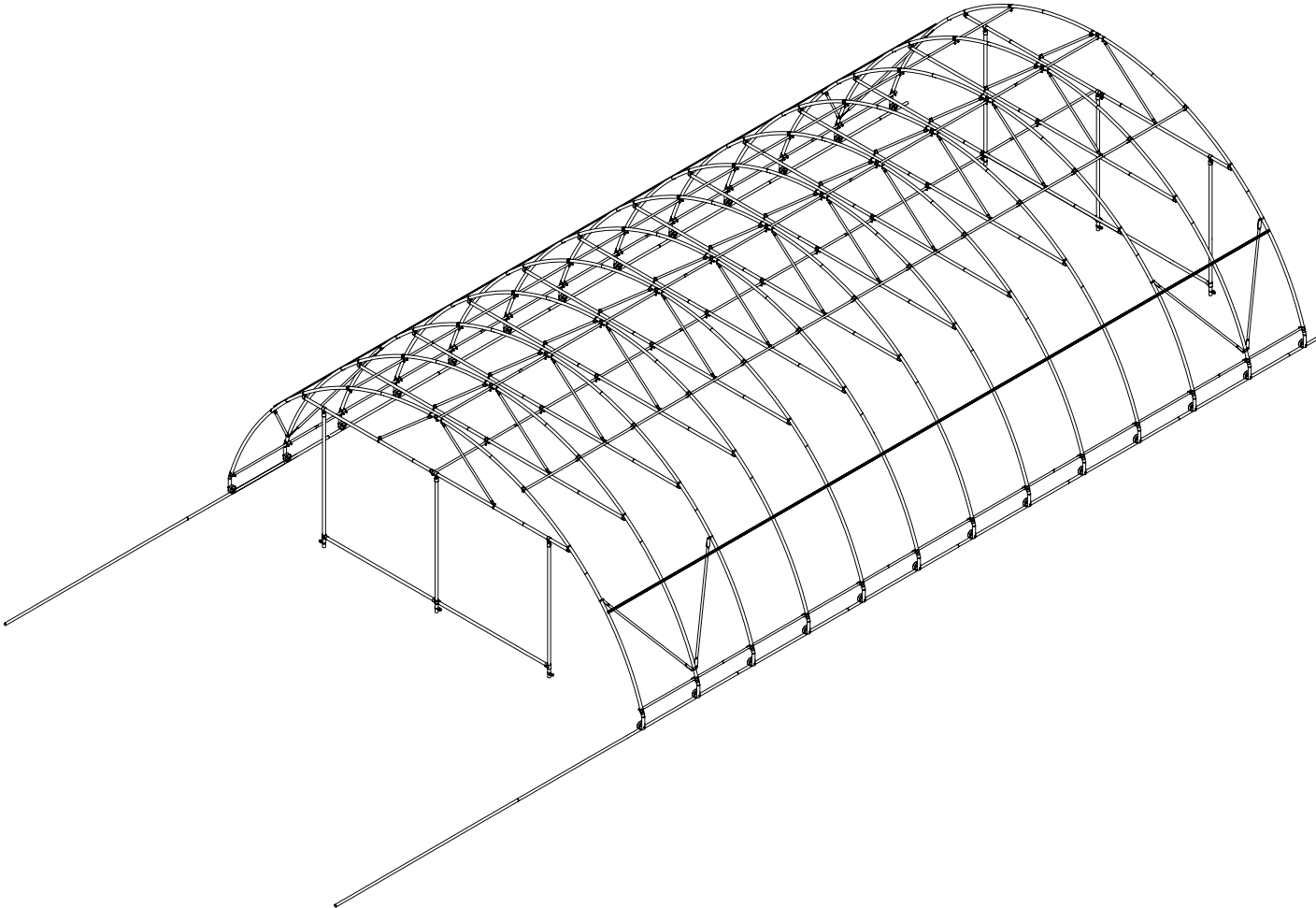
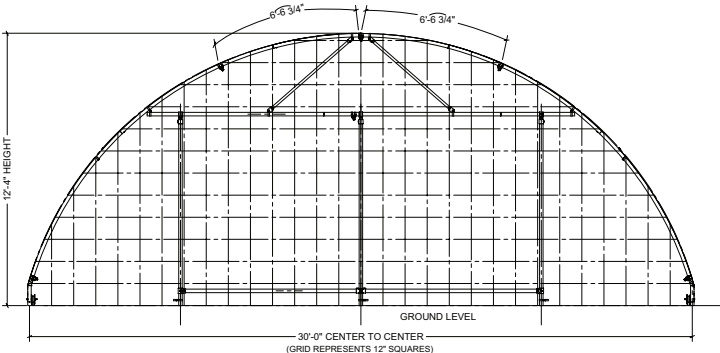
- Regularly check the cover film and end panels to see that these remain tight and in proper repair.
- Check connections and all fasteners to verify that they remain tight.
- Do not climb or stand on the frame or cover at anytime.
- Remove debris and objects that may accumulate on the cover. Use tools that will not damage the cover when removing debris.
- Remove snow to prevent excess accumulation. Use tools that will not damage the cover when removing snow.
- Check the contents of the high tunnel to verify that nothing is touching the cover film or the end panels that could cause damage.
- Check the anchoring system to ensure that all components are tight and in good repair. Replace all straps if damaged or in disrepair. Verify that all stakes are properly driven at the correct angle and depth. If a stake has been removed, do not reuse the same hole when the stake is reinstalled.
- If the shelter is moved, inspect all parts and connections after it has been anchored to the site.
- For replacement or missing parts, call 1-800-245-9881 for assistance.



greenhouse structures

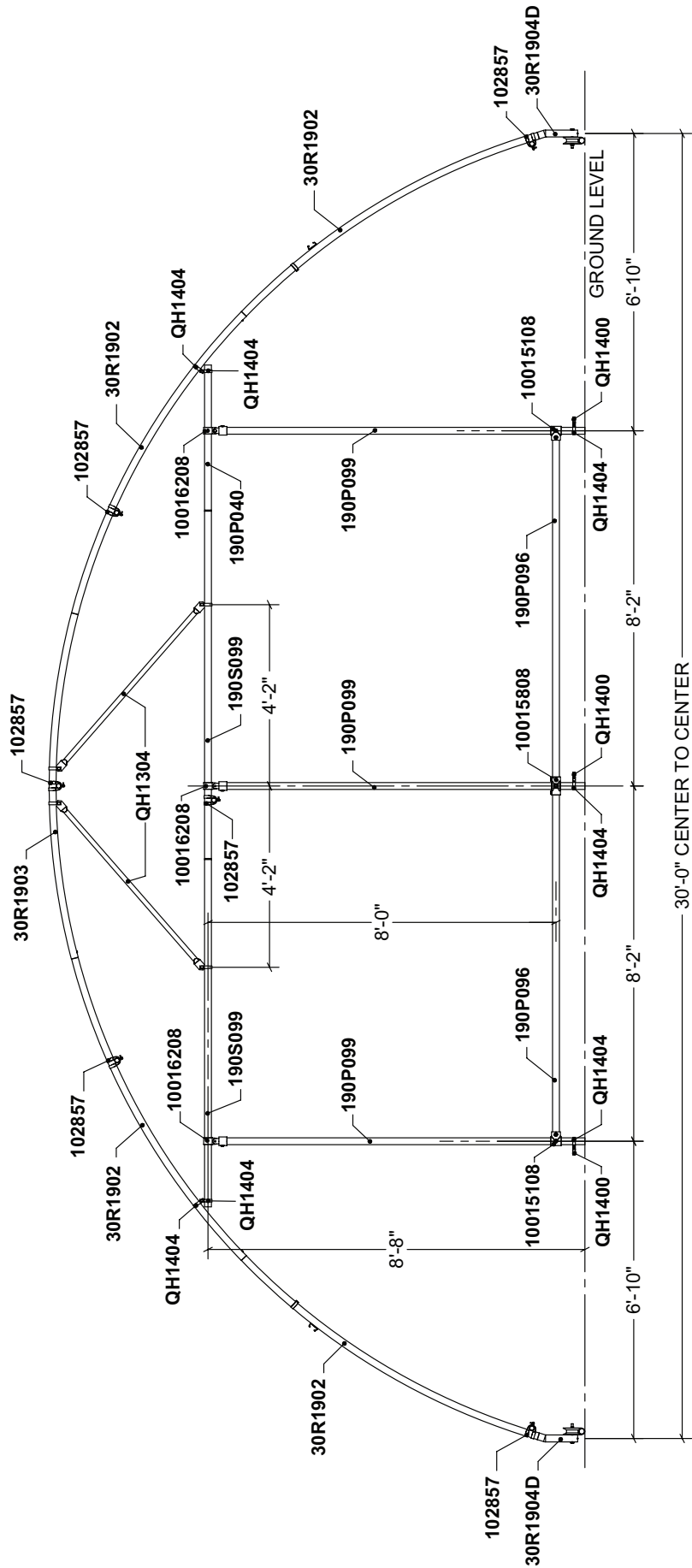
**QUICK START GUIDE**

30' Wide Rolling Premium High Tunnels

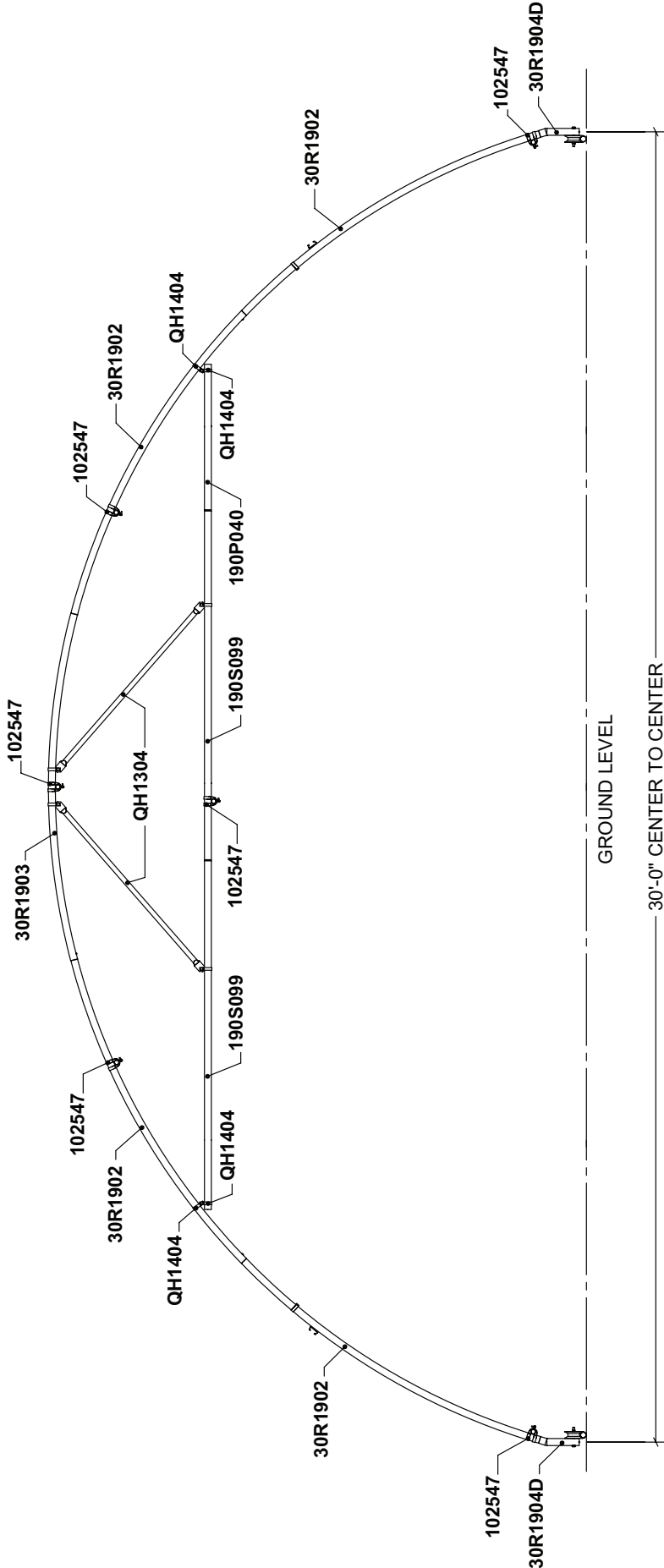


Frame shown may differ in length from actual frame.

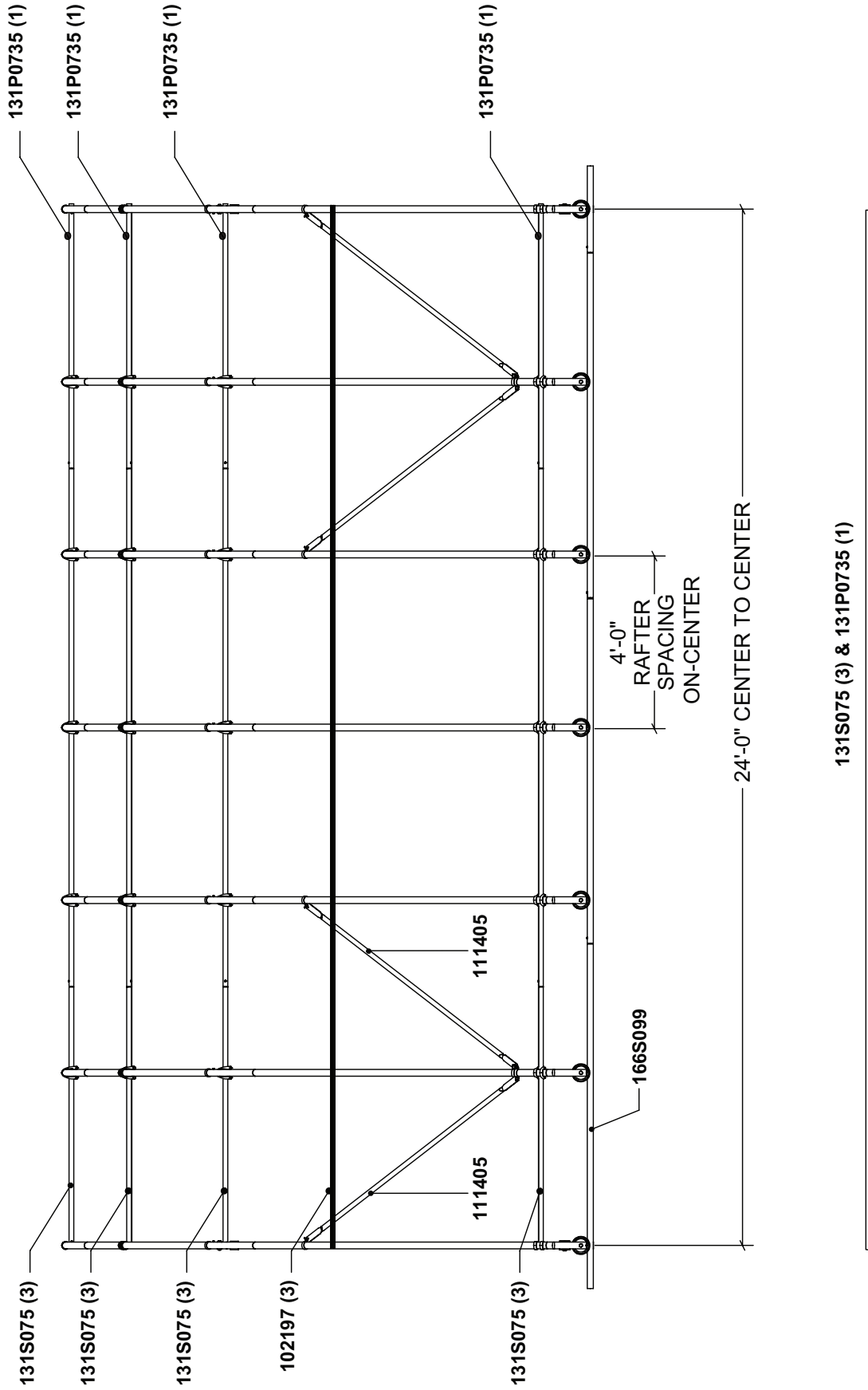
# FRONT PROFILE – END RAFTERS



# FRONT PROFILE – MID RAFTERS

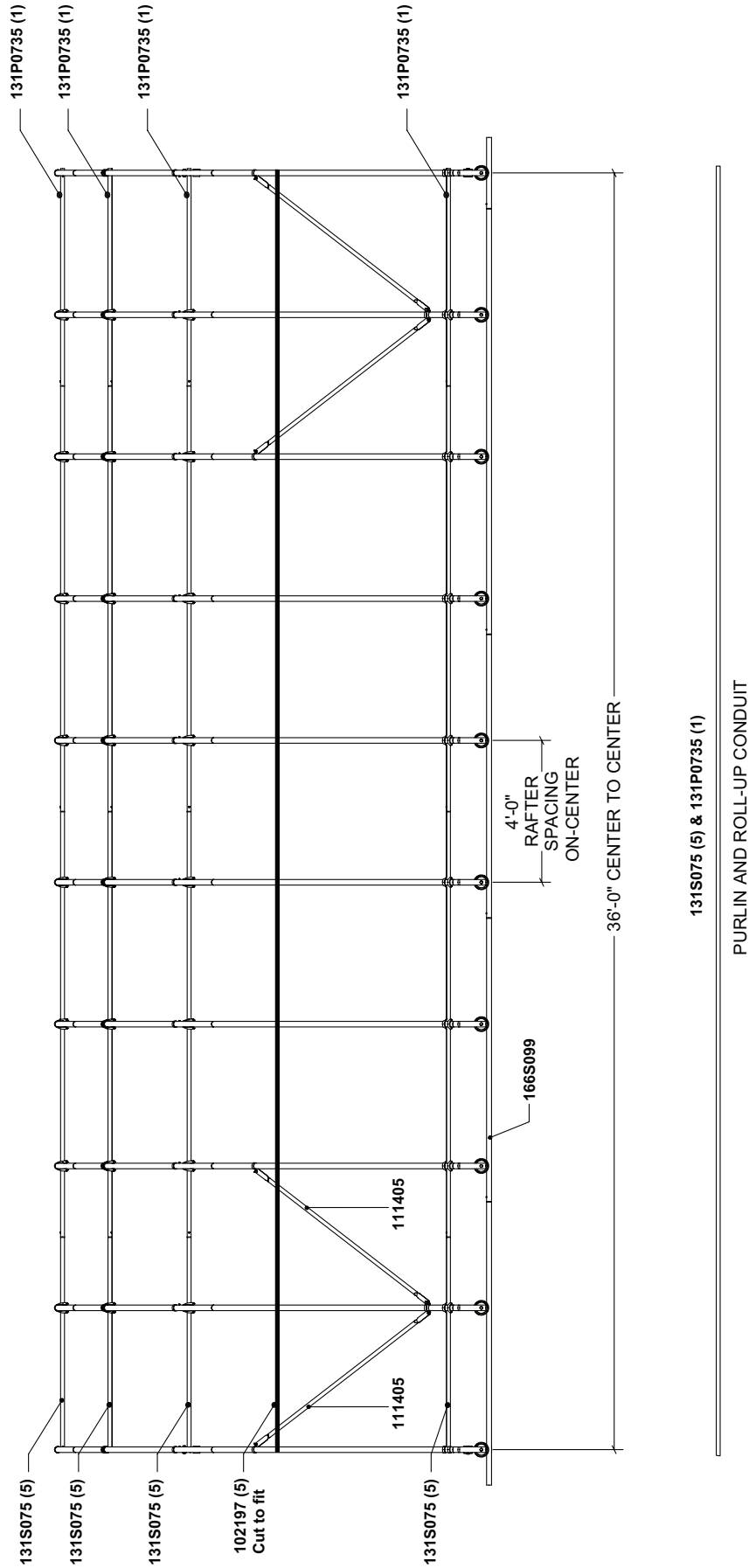


# SIDE PROFILE - 111770

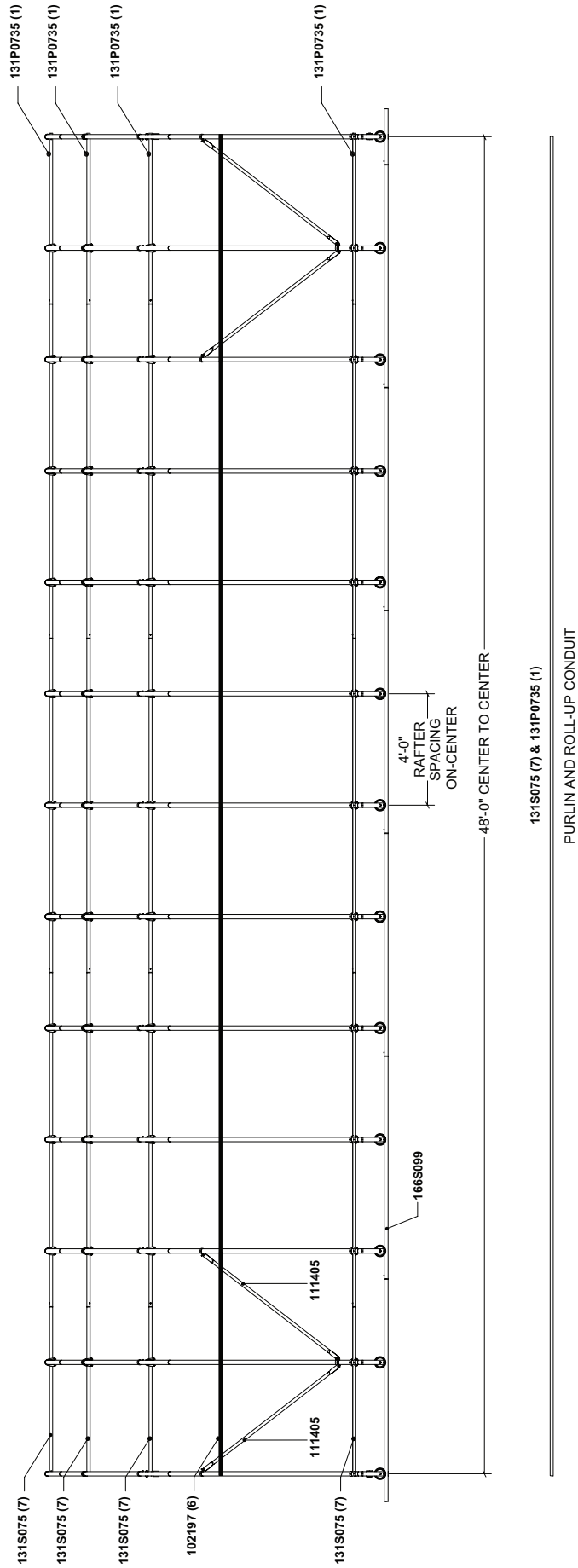




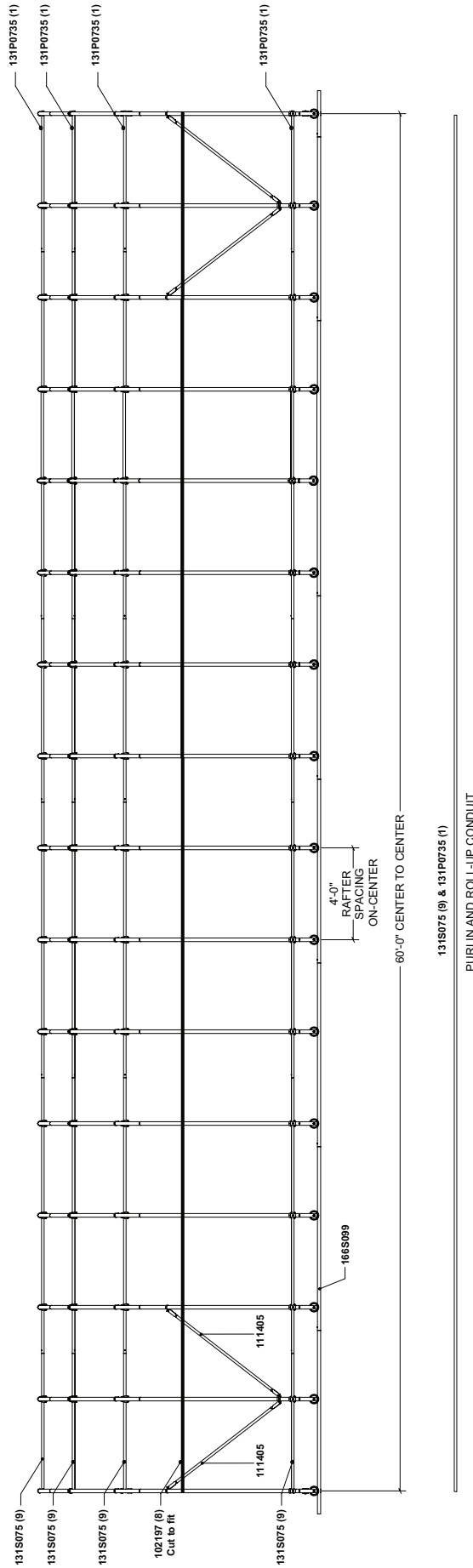
# SIDE PROFILE - 111771



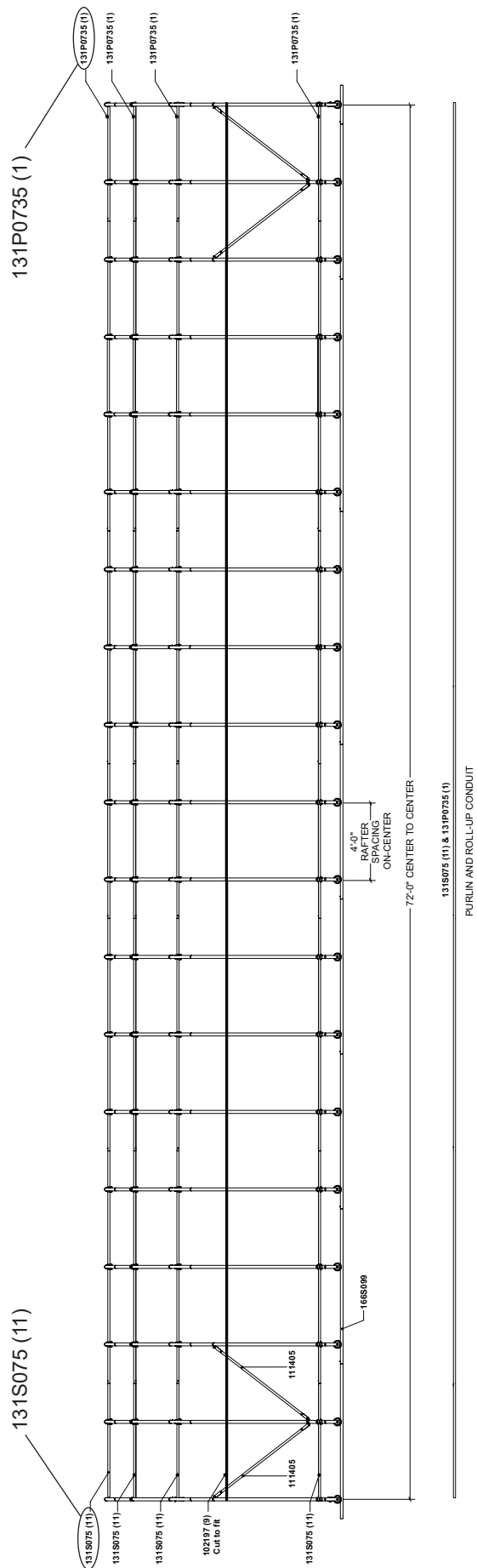
# SIDE PROFILE - 111772



# SIDE PROFILE - 111773

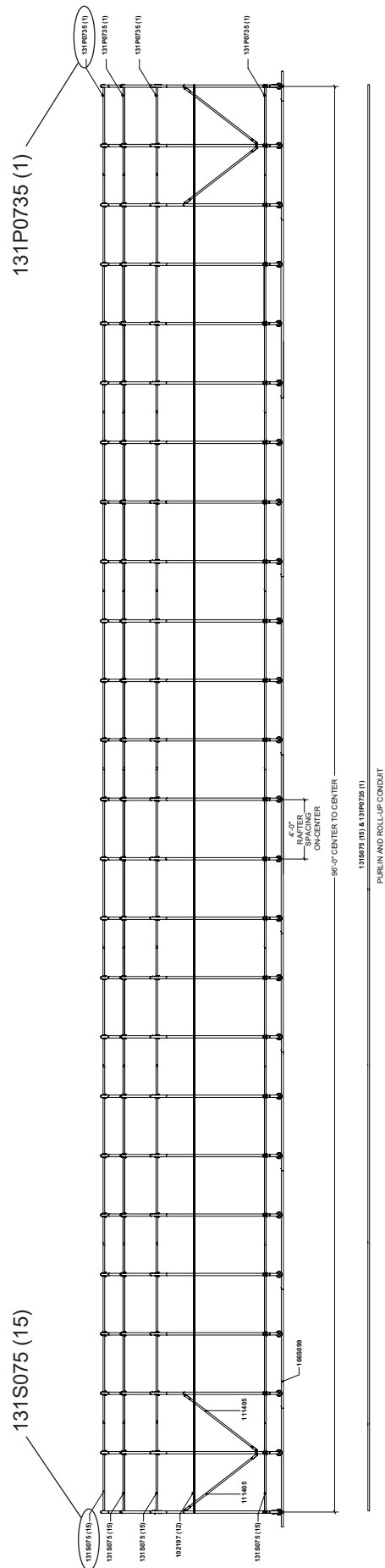


# SIDE PROFILE - 111774

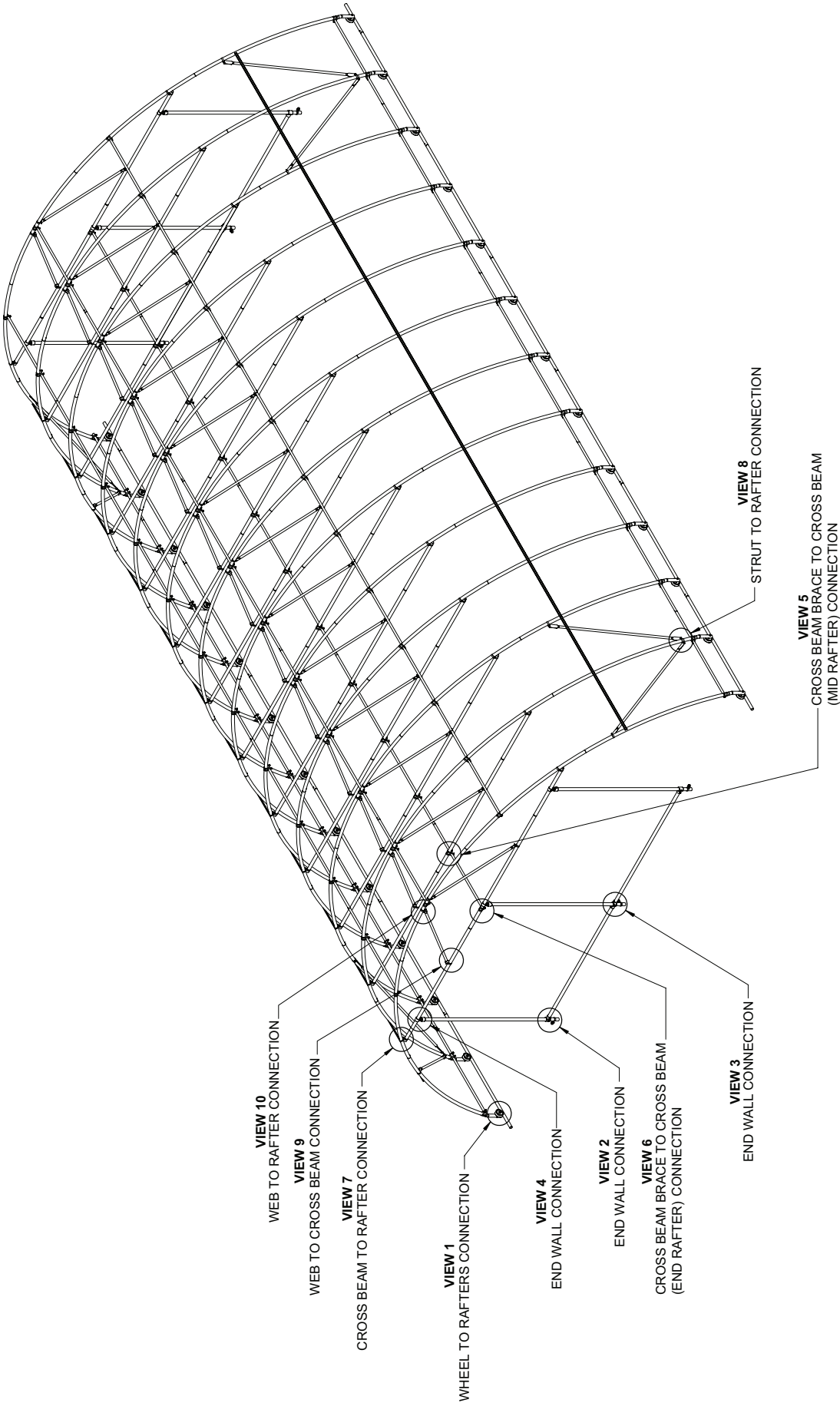




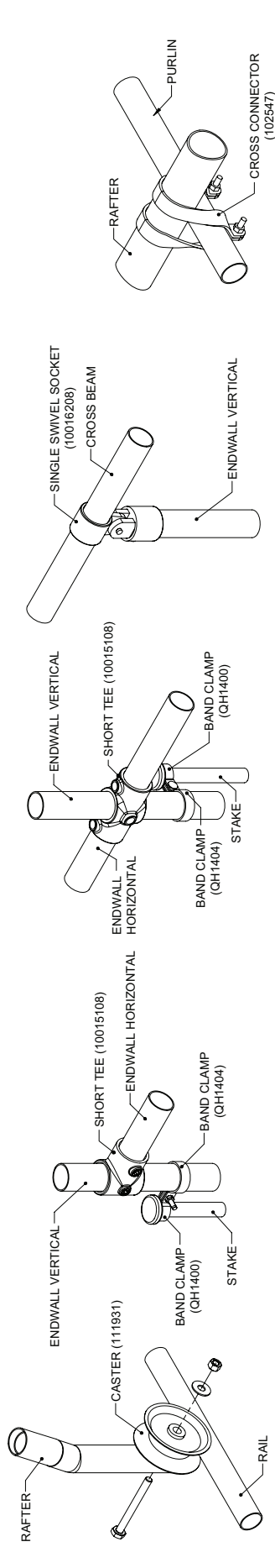
# SIDE PROFILE - 111776



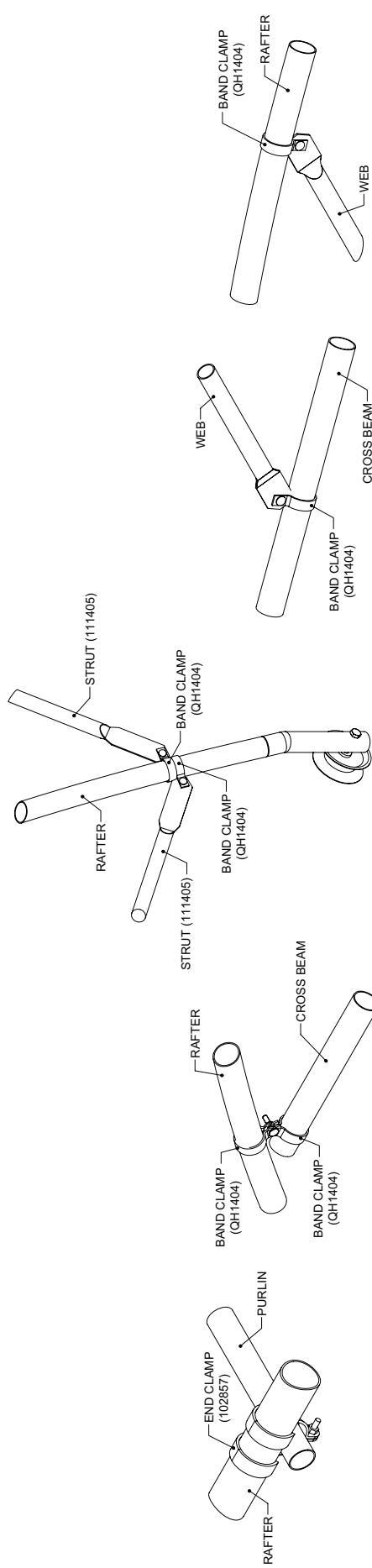
# CONNECTIONS



# CONNECTIONS DETAILS



VIEW 1 WHEEL TO RAFTER CONNECTION  
VIEW 2 END WALL CONNECTION  
VIEW 3 END WALL CONNECTION  
VIEW 4 END WALL CONNECTION  
VIEW 5 CROSS BEAM BRACE TO CROSS BEAM (MID RAFTER) CONNECTION



VIEW 6 CROSS BEAM BRACE TO CROSS BEAM (END RAFTER) CONNECTION  
VIEW 7 CROSS BEAM TO RAFTER CONNECTION  
VIEW 8 STRUT TO RAFTER CONNECTION  
VIEW 9 WEB TO CROSS BEAM CONNECTION  
VIEW 10 WEB TO RAFTER CONNECTION





# GROWSPAN™ ROLLING PREMIUM HIGH TUNNELS

## 103937 ANCHOR STAKE AND STRAP LOCATIONS

Install all 103937 stake and strap anchors on the inside of the frame. There are enough 103937 anchors to allow you to move the entire frame and anchor the frame in the new location. Drive all stakes at an angle as shown on page 24. **Slide the AS2166 anchor shackle onto the stake before you drive the stake.** Then connect the strap to the anchor shackle as shown. Use these diagrams to position the anchors in the correct locations **on both sides of the frame**.

To move the frame:

1. Fully open and secure all end panels and roll-up side panels.
2. Loosen and *disconnect the straps from the anchor shackles—do not* disconnect the straps from the frame.



**WARNING: DO NOT MOVE THE BUILDING ON WINDY DAYS!**

3. Remove end frame anchors and remove or loosen end frame pipes as needed so these can swing out of the way for the move.
4. Next, roll the frame on the 1.66" track to the new location, drive new stakes, and reconnect the straps to the anchor shackles.

