



GrowSpan™ High Tunnel Add-A-Bay System



Photo may show a different but similar model.

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

STK#	DIMENSIONS
104137	52' W x 12' H x 24' L
104138	52' W x 12' H x 48' L
104139	52' W x 12' H x 72' L
104140	52' W x 12' H x 96' L
104141	78' W x 12' H x 24' L
104142	78' W x 12' H x 48' L
104143	78' W x 12' H x 72' L
104144	78' 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™ shelter. 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 shelter. Please read these instructions **before** you begin.

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

SAFETY PRECAUTIONS

- Wear eye protection.
- Wear head protection.
- Wear gloves when handling metal parts.
- Use a portable GFCI (Ground Fault Circuit Interrupter) when working with power tools and cords.
- Do not climb on the frame during or after construction.
- Do not occupy the structure during high winds, tornadoes, or hurricanes.
- Provide adequate ventilation if the structure is enclosed.
- Do not store hazardous materials in the structure.
- Provide proper ingress and egress to prevent entrapment.

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 structure 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 and anchor 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.

ASSEMBLY PROCEDURE

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

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, and all additional documentation included with the shipment **before** you begin assembling the structure.
3. Gather the tools, bracing, ladders (or lifts), and assistance needed to assemble the structure.
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. Properly connect the assembled frame to the ground posts.
9. Install, tighten, and secure the end panel and main cover (if equipped). This applies to covers that stretch over the frame assembly. Your shelter may include roof panels or side panels or both.
10. Read the care and maintenance information at the end of these instructions.
11. 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 main cover 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.
- **Coupler or Fitting:** A part of the frame assembly where legs, purlins and rafter pipes are inserted and secured. In most instances, 3-way and 4-way couplers are used. In some larger applications, couplers are used to secure the joints of the different rafter sections during the assembly of the rafters. Some shelters do not use couplers.
- **Foot or Rafter Foot:** The part attached to and found at the base of the rafter or leg of the shelter. Depending on the shelter, the foot is an optional purchase. Some shelters do not offer an optional foot. Some use 1-way connectors or ground posts.
- **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 framework that supports the main cover. 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 work 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.

GROWSPAN™ HIGH TUNNELS AND CANOPIES

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.



Space below is reserved for customer notes.

- Tape measure or measuring device
- Variable speed drill and impact driver (cordless with extra batteries works best)
- Wrenches or ratchet and socket set (recommended)
- Ropes long enough to reach over the frame (if optional cover was purchased)
- Hammers and gloves
- Metal file
- Duct tape (supplied by customer)
- Box cutter or utility knife
- 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, Quick Start section 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).



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



FA4482B
Tek Screw



QH1070
Pipe Strap



102547
Cross Connector



102548
Cross Connector



102856
End Clamp



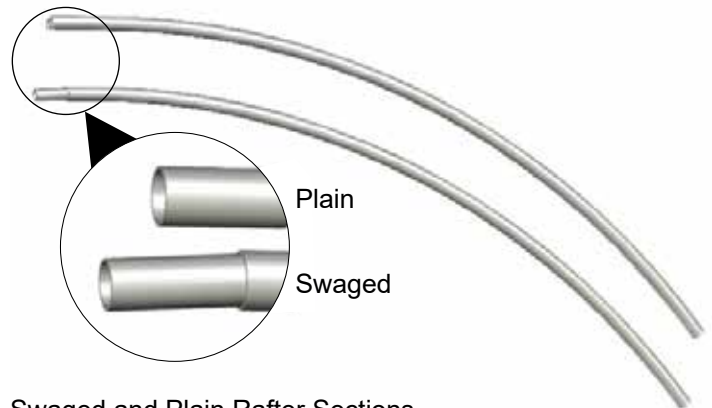
102857
End Clamp



103296
V-Connector



103297
Ground Post
With Auger



Swaged and Plain Rafter Sections

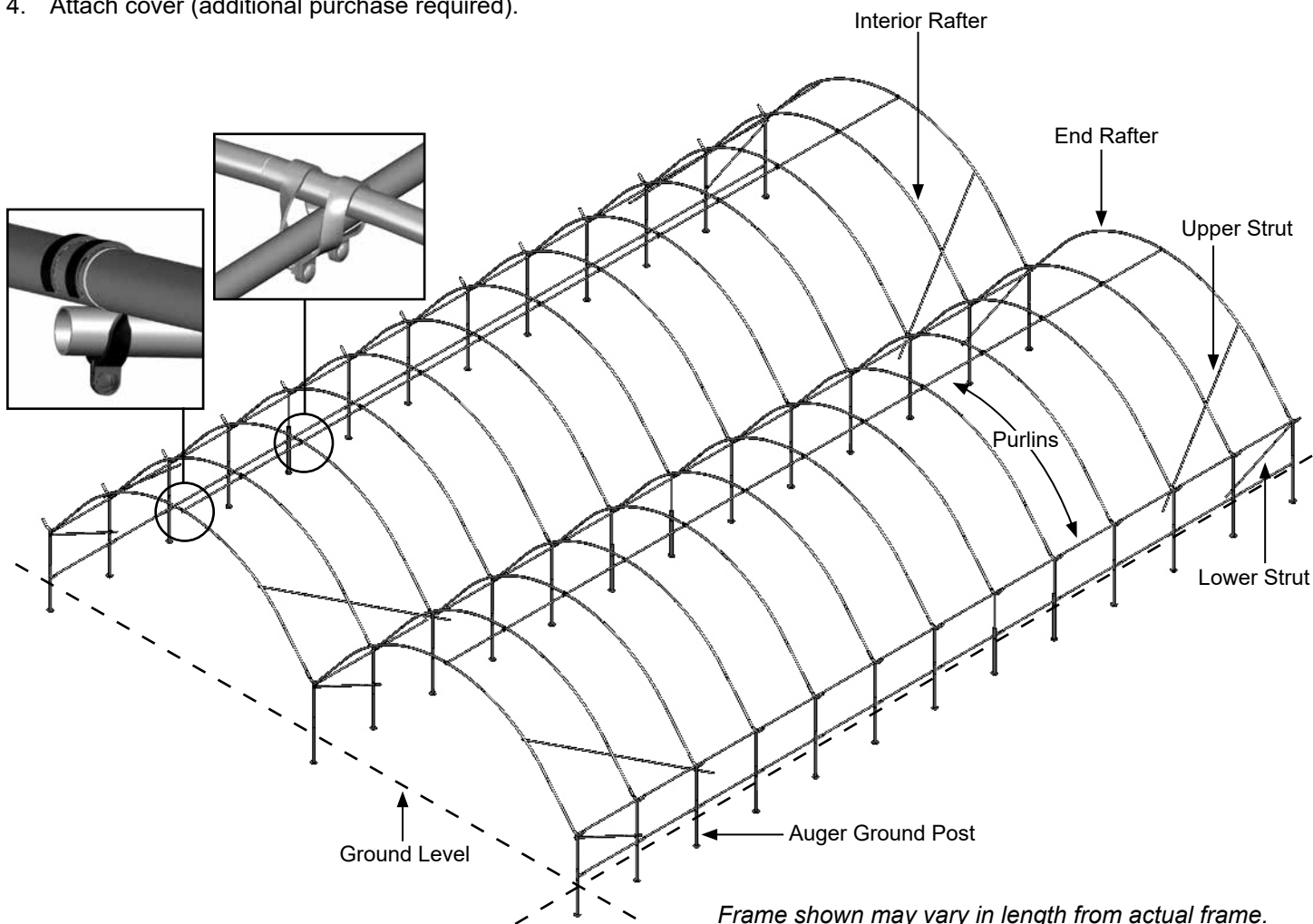


GrowSpan™ High Tunnel Add-A-Bay System

OVERVIEW

This section describes assembling your shelter. For details, please see section; Assembling the Shelter Components. See illustration below to identify main parts of the shelter.

1. Locate the required parts for each assembly procedure.
2. Assemble the rafters and frame.
3. Anchor the frame.
4. Attach cover (additional purchase required).



LAY OUT THE BUILDING SITE

After the site is prepared, lay out the building site.

Taking these steps **before** assembling the shelter saves time and ensures that the structure is positioned as desired.

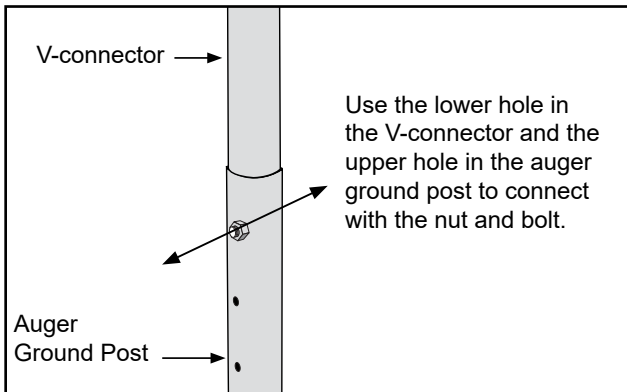
Ground posts must be driven to the proper depth. Width of the shelter is measured from the center of one ground post to the center of the remaining ground post.

SQUARE THE SITE

Gather the parts:

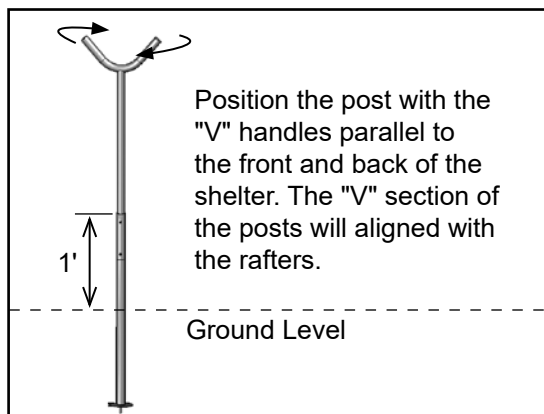
- Auger ground posts (#103297)
- V-connectors (#103296)
- 5/16" x 2-1/2" machine bolts and 5/16" nuts
- End Clamp (#102857)
- Customer-supplied post hole digger (if needed)

1. Attach a V-connector to each auger ground post using a 5/16" x 2-1/2" machine bolt and 5/16" nut.



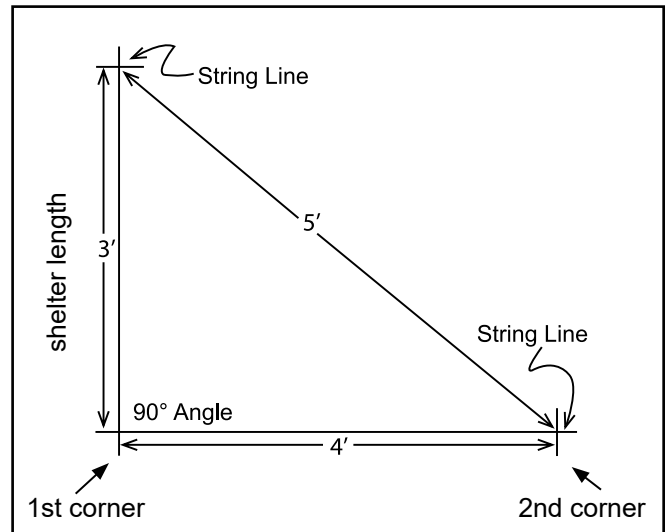
2. Identify a corner where a ground post will be positioned and drill the first corner auger ground post into the ground using the "V" as handles. Use a post hole digger if needed.

NOTE: The top of the auger ground post will be one (1) foot above the finished grade when properly driven.



3. After the first corner post is in place, string a line the width of the first bay section (26' center-to-center) and drill the second corner post into the ground just enough to hold it in place.
4. Use a transit or line level to drill the second corner post to the same depth as the first corner post.
5. String a line at least as long as the building from the first ground post at 90°.

NOTE: A transit can be used to ensure an accurate 90° angle, or the 3-4-5 rule can be used. Refer to diagram. Using multiples of 3-4-5 such as 6-8-10 or 12-16-20 helps to maintain an accurate 90° angle.



6. After squaring the position of the building, measure the length and drill the next corner post.
7. Repeat the same step for the last corner post.

NOTE: The distance measured diagonally between corner ground posts must be equal for the building to be square.

8. Check all dimensions (and adjust if needed) before drilling the remaining posts to the required height.
9. After all four corner posts are accurately installed, tie a string line between the tops of the corner ground posts on the same side of the shelter. The string is used to identify the tops of all side ground posts. The string must remain tight and level.
10. Use a tape measure to mark the 72" on-center locations of the remaining ground posts.
11. Drill the side ground posts into the ground at the required 72" on-center width and the height identified by the string.

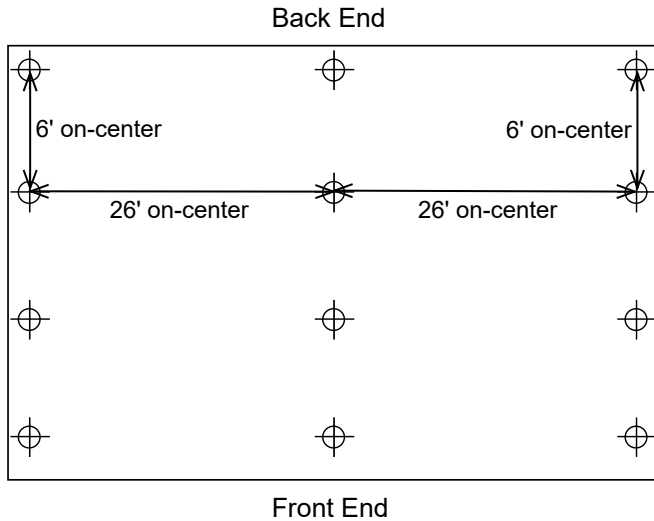
NOTE: Verify that the holes in the ground posts are in the proper position and that each post is plumb and at the correct depth.

GROWSPAN™ HIGH TUNNELS AND CANOPIES

LAY OUT THE BUILDING SITE (CONTINUED)

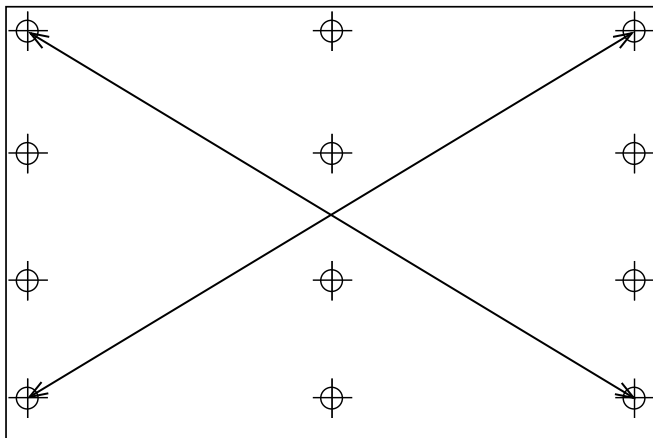
- Using the remaining assembled posts, install the ground posts of the 2nd bay in the same manner as the previously described. Verify on-center dimensions.

NOTE: The diagrams that follow illustrate an example of a 2-bay shelter. If you have purchased a 3-bay shelter, add another row using the same dimensions shown.



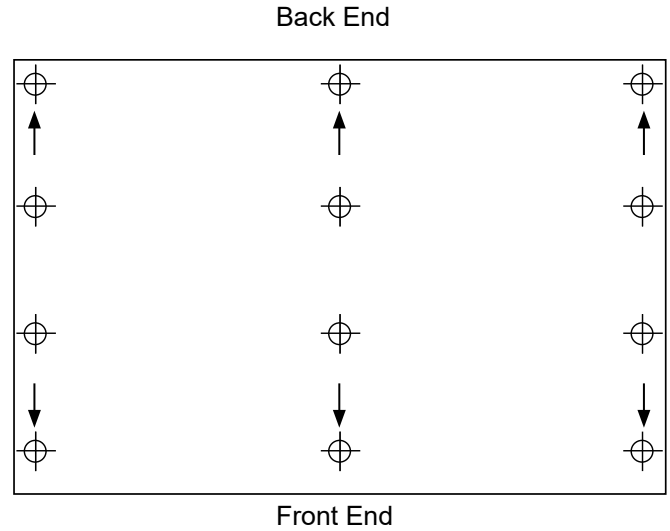
NOTE: Ground post layout shown above may differ from your shelter. Diagram used for illustration purposes only.

- Verify that the on-center width of the frame is uniform between the corner ground posts and that the frame is square.

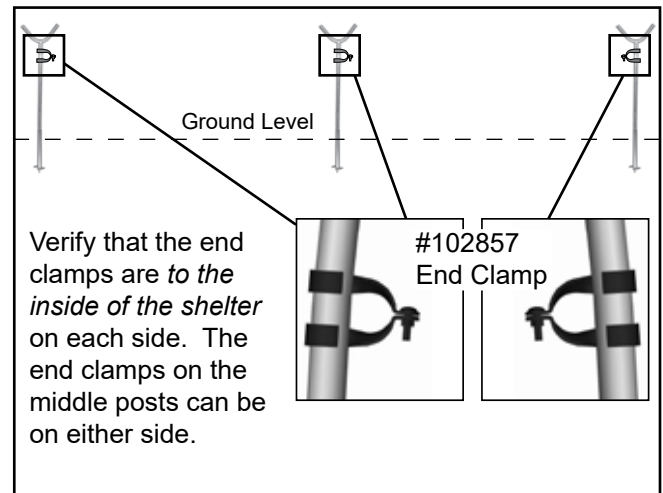


NOTE: The frame is square when the two diagonal measurements are the same.

- After the ground posts have been set in the correct position, detach each V-connector along the front and back ends of the shelter from the ground posts.



- Slide a 102857 end clamp on each of these posts as shown below, and reattach the V-connectors to the ground posts.



View of the posts and clamps as shown from the *outside* when the frame is assembled.

NOTE: Use a piece of duct tape (if desired) to keep the clamps from sliding.

- Continue with the **Rafter Assembly** that follow.

ASSEMBLING THE SHELTER COMPONENTS

NOTE: Assistance is required to assemble the frame.

RAFTER ASSEMBLY

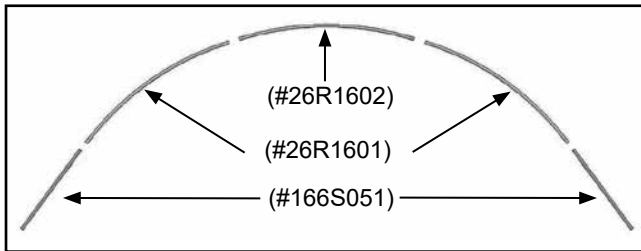
Gather the parts:

- Round rafter (#26R1601)
- Round rafter (#26R1602)
- Round rafter (#166S051)
- End clamp (#102856)
- Tek screws (#FA4482B)
- Nut setter (3/8" x 2-9/16" magnetic)

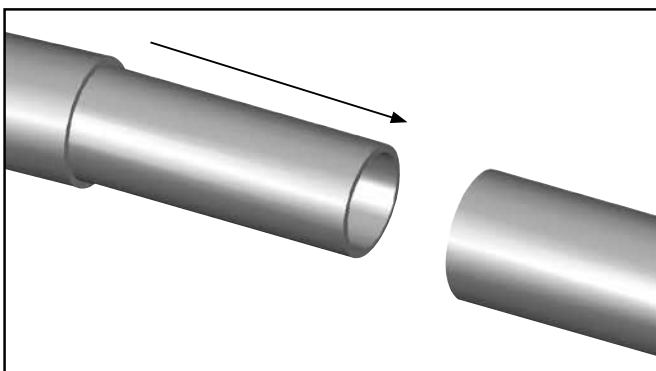
Rafter Assembly Procedure

Each rafter assembly consists of five (5) rafter pipes: two (2) swaged pipe sections (#166S051), two (2) swaged pipe sections (#26R1601) and one (1) plain pipe section (#26R1602).

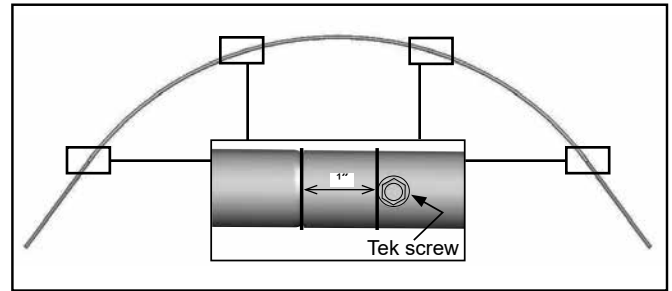
1. Select the five (5) pipes needed to assemble a rafter and arrange these on a flat surface as shown below for assembly.



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



3. With the main rafter pipes seated at each joint and the rafter positioned on a flat surface, secure the joints with self-tapping Tek screws.



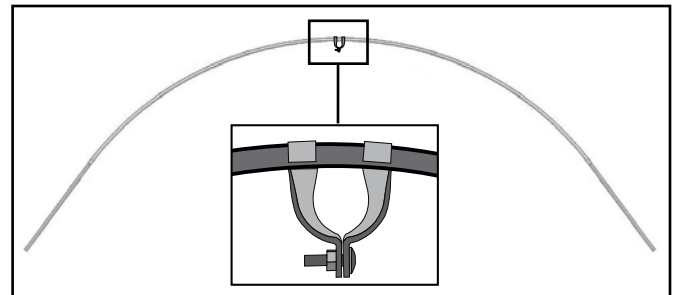
ATTENTION: Install the screws so they will not touch the cover once it is installed (if equipped). This is typically on the backside of the rafter, which will be the surface visible from the *inside* of the shelter once the frame is assembled.

4. Assemble all the rafters as described and continue with the steps to complete the end rafters.

END RAFTER ASSEMBLY

Complete the following steps *for the end rafters only*. 2-bay shelters have four (4) end rafters; 3-bay shelters have six (6) end rafters.

1. Take one of the assembled rafters and place it on a flat surface.
2. Slide one (1) end clamp onto the rafter in the location noted below.



View of the clamp as shown from the *outside* when the frame is assembled.

NOTE: Do not secure the clamp to the rafter at this time. These clamps will be repositioned during frame assembly when the purlin is added.

Use a piece of duct tape (if desired) to keep the clamps from sliding when the rafter is lifted into position.

3. Repeat the same procedure for the other end rafters.
4. Continue with the **Frame Assembly** instructions.

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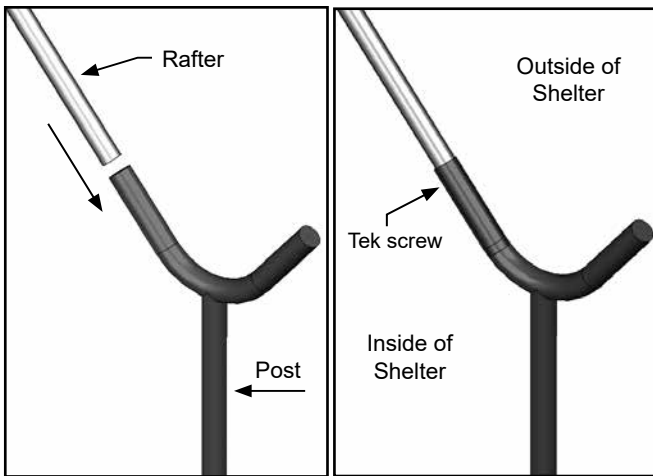
FRAME ASSEMBLY

Gather the parts:

- All rafter assemblies
- Pipe 1.315" x 75" swaged (#131S075)
- Pipe 1.315" x 73.5" plain (#131P0735)
- End clamps (#102856)
- Cross connectors (#102547 & #102548)
- Pipe straps (#QH1070)
- Lifts, ladders, and assistants

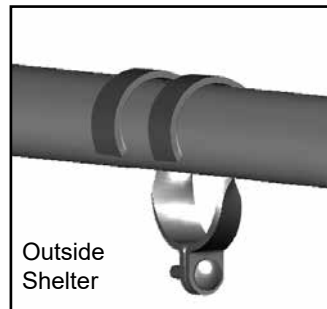
Frame Assembly Procedure

1. Using the proper lifts and with assistance, carefully stand the first *end rafter* assembly and place the rafter into the first set of ground posts.



NOTE: Verify that the end clamp is positioned as shown below.

View of the end rafter and clamp as shown from the *outside* when the frame is assembled.

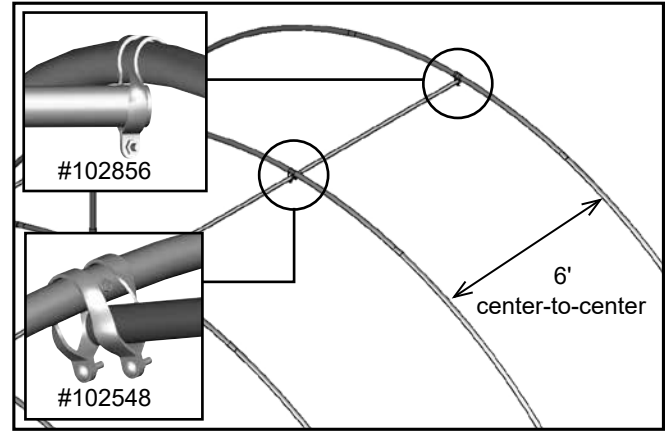


2. Verify the rafter is plumb and attach to the ground posts using Tek screws.

ATTENTION: Install the screws so they will not touch the cover once it is installed (if equipped).

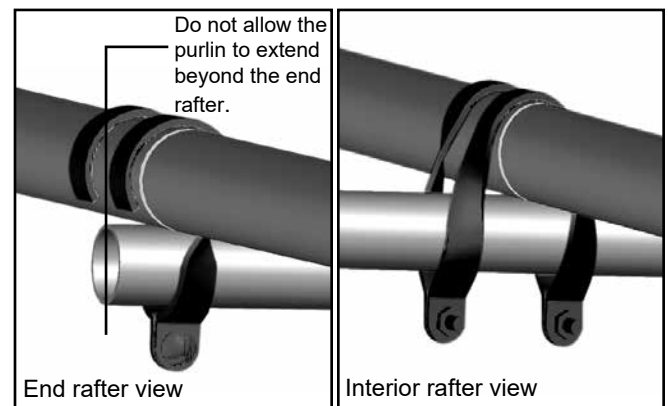
3. Place an interior rafter assembly into a second set of posts. Secure the leg pipes to the posts as previously described.

4. Position one (1) cross connector (102548) at the top of the interior rafter assembly as shown below.
5. Take one (1) swaged 75" purlin section and insert each through an upper clamp on the end rafter and through the cross connectors near the top of the interior (or second) rafter as shown below.



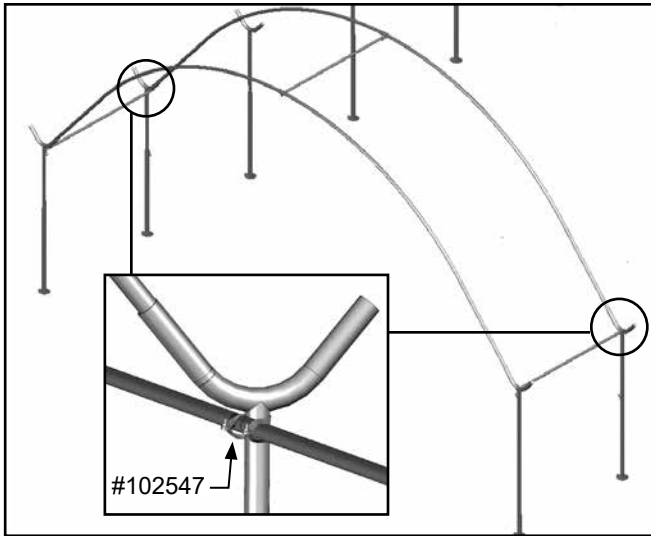
6. Verify that both rafters are plumb and properly spaced (6' on center).
7. Tighten the upper cross connector on the interior rafter and tighten the end clamp near the top of the end rafter to secure the first purlin pipe.

NOTE: Do not allow the purlin to extend beyond the end of the end rafter. See diagram below.



FRAME ASSEMBLY (continued)

8. Move to the side clamp positions and repeat steps to install the first purlin pipe in those locations.



IMPORTANT: The side purlins are located just below the "V" and are installed using 102547 cross connectors.

9. Continue adding rafters and purlin pipe until the frame is assembled. Secure all purlin splices using Tek screws. See Step 10.

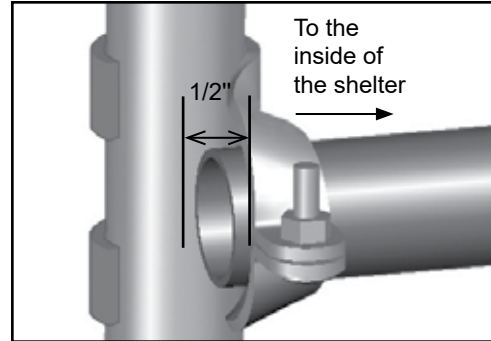
NOTE: Each purlin assembly consists of 1.315" x 75" (#131S075) swaged pipes (number is determined by shelter length) and one (1) 1.315" x 73.5" (#131P0735) plain pipe.

10. Finish each purlin run using the plain, shorter pipe (#131P0735), and use the final end rafter to complete the assembly.

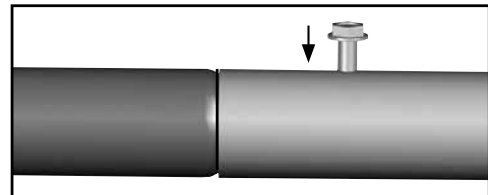
NOTE: If the last end rafter is plumb and the purlin run extends beyond the end of the rafter, cut the last section of purlin pipe to the required length.

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

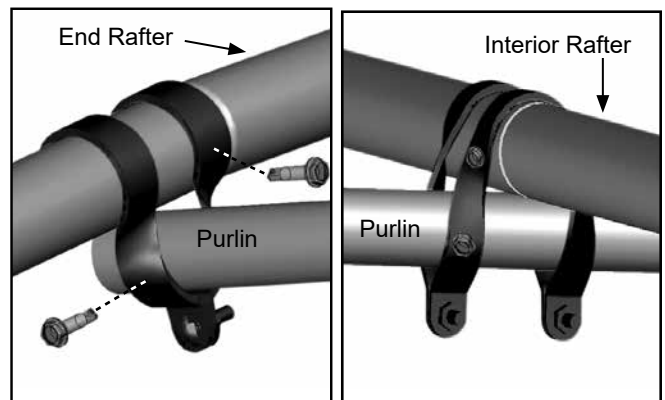
CAUTION: To prevent cover damage, the ends of the purlins should extend no more than 1/2" past the end clamp. Position the bolt side of the end clamps toward the "inside" of the shelter (the same side as the purlin).



11. Once all rafters are set and all purlins are in place and secured, return to each pipe splice of each purlin run and install a Tek screw through the pipes to secure the joints if this was not completed during assembly.



12. Return to each end clamp and cross connector, and secure to rafters and purlins using Tek screws.



13. Repeat all steps to assemble the 2nd Bay and 3rd Bay (if equipped) of the shelter.

ATTENTION: Adjacent shelter bays will share a row of center posts. *The center rows will only receive one purlin run.*

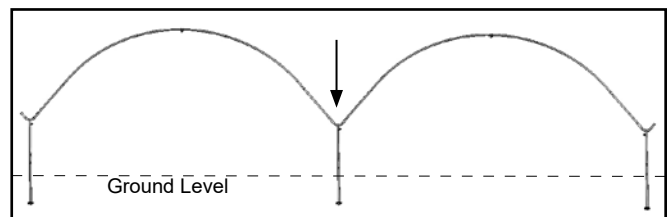
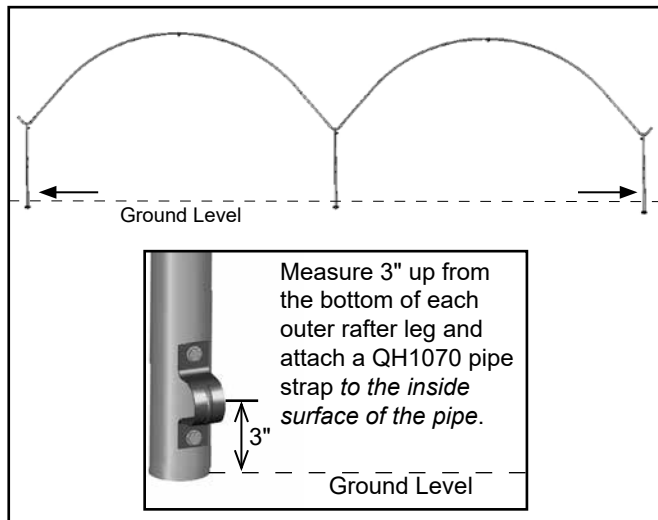


Photo shows a front or back view of shelter.

GROWSPAN™ HIGH TUNNELS AND CANOPIES

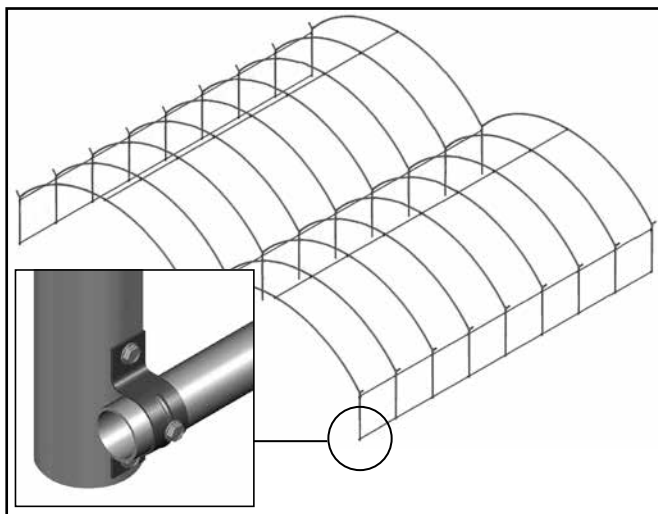
FRAME ASSEMBLY (continued)

- Once the bays have been assembled, move to the outer sides of the shelter to install the lower side purlin runs.
- Attach one pipe strap (QH1070) to the *inside* of the outer rafters in the locations shown below.



ATTENTION: The pipe straps are located *on the inside of the rafter legs*. Do not tighten at this time. These are tightened after each purlin is installed.

- Insert and assemble the remaining purlins through the pipe straps along the rafter sides.



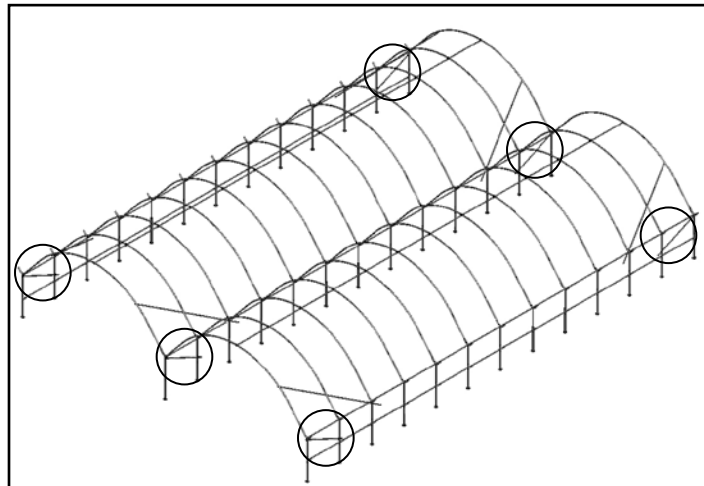
Frame shown may vary in length from actual frame.

- Verify the purlins do not extend past either end of the shelter and secure all purlin splices using Tek screws.
- Return to each pipe strap and tighten the Tek screws. Install a Tek screw through each pipe strap into the purlin run.
- Once the frame is assembled, continue with the following procedure.

STRUT INSTALLATION

LOWER STRUT ASSEMBLY

Lower struts are attached to the end rafter and the second interior rafter at *each row at each end*. The 2-bay shelters have six (6) lower struts; 3-bay shelters have eight (8) lower struts



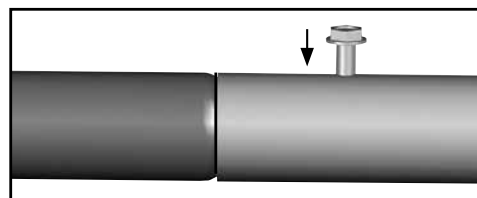
Frame shown may vary in length from actual frame.

Gather the parts:

- Pipe 1.315" x 71" swaged (#131S071)
- Pipe 1.315" x 21" plain (#131P021)
- Pipe strap (#QH1070)
- Tek screw (#FA4482B)

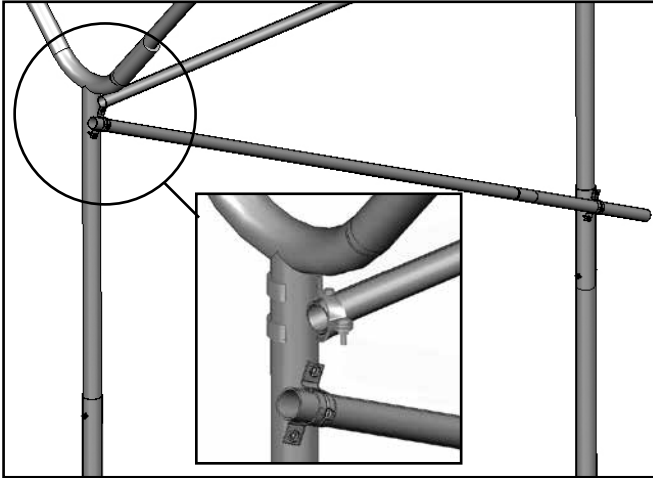
Complete these steps to install the lower struts:

- Assemble one lower strut using one (1) 71" swaged pipe and one (1) 21" plain pipe.
- Slide the swaged end of one pipe into the plain end of the other and secure with a Tek screw.

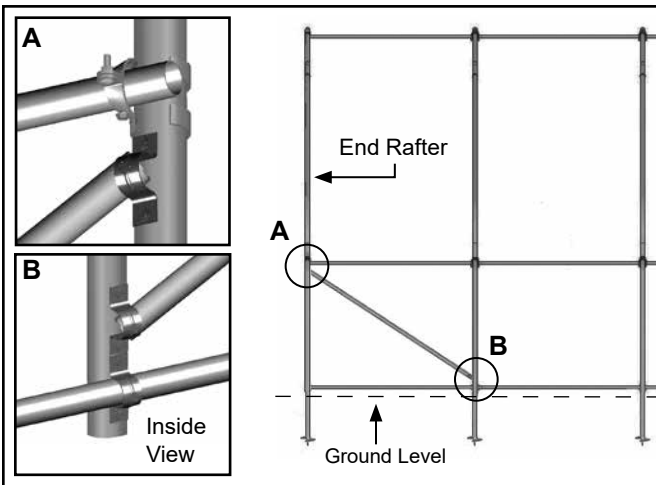


STRUT INSTALLATION (continued)

- Using the following diagram and the Side Profile diagrams in the Quick Start section as guides, position a strut *on the inside of the frame* diagonally and secure each end to the rafters with pipe straps and Tek screws.



- Struts will be attached just below the upper side purlin run on the end rafter and just above the lower side purlin run on the first interior rafter.

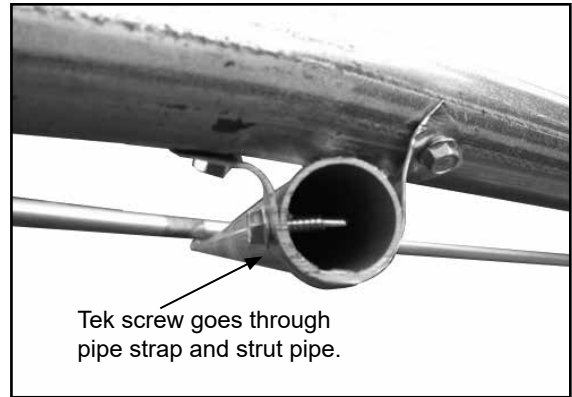


Views are seen from inside the shelter.

NOTE: Bend and twist the pipe strap as needed to fit the strut at a diagonal angle.

The center-to-center spacing between the first and second rafter must remain at 6' on-center. Refer to the Quick Start Guide in the back of these instructions for additional drawings and connection details.

- Verify that the strut is in the correct position and secure the strut to each pipe strap with a Tek screw as shown in the diagram below.



- Repeat steps to attach the remaining lower struts.



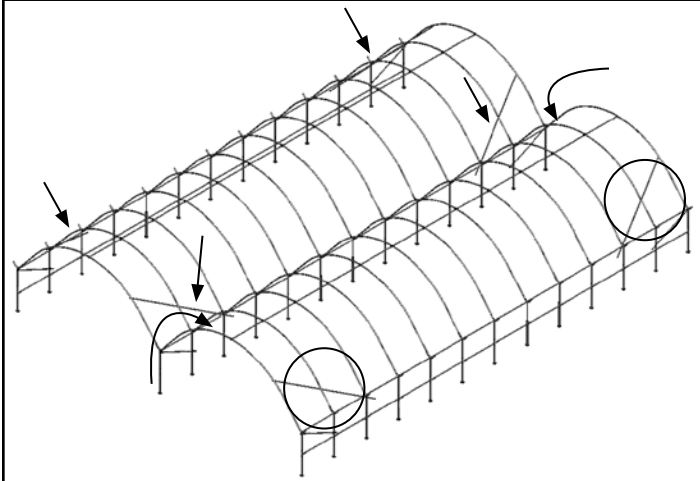
Space below is reserved for customer notes.

GROWSPAN™ HIGH TUNNELS AND CANOPIES

STRUT INSTALLATION (continued)

UPPER STRUT ASSEMBLY

Upper struts are attached to the end rafter and the second interior rafter at *each corner of each bay* of the shelter. The 2-bay shelters will have eight (8) upper struts; 3-bay shelters will have twelve (12) upper struts.



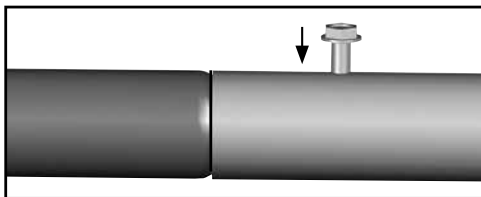
Frame shown may vary in length from actual frame.

Gather the parts:

- Pipe 1.315" x 75" swaged (#131S075)
- Pipe 1.315" x 49.5" plain (#131P0495)
- Pipe strap (#QH1070)
- Tek screw (#FA4482B)

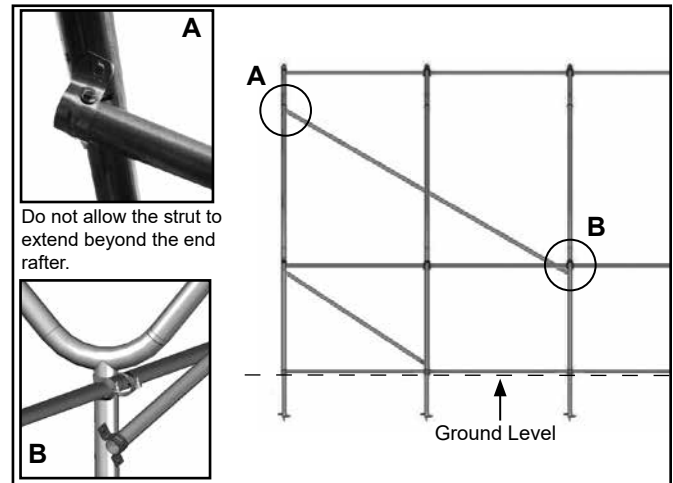
Complete these steps to install the upper struts:

1. Assemble one upper strut using two (2) 75" swaged pipes and one (1) 49.5" plain pipe.
2. Slide the swaged ends into the plain ends of the others and secure with a Tek screw.



3. Using the following diagram and the Side Profile diagrams in the Quick Start section as guides, position a strut *on the inside of the frame* diagonally and secure each end to the rafters with pipe straps and Tek screws. Cut strut to fit if needed.

4. Struts will be attached to the end rafter and just below the upper side purlin run on the second interior rafter.

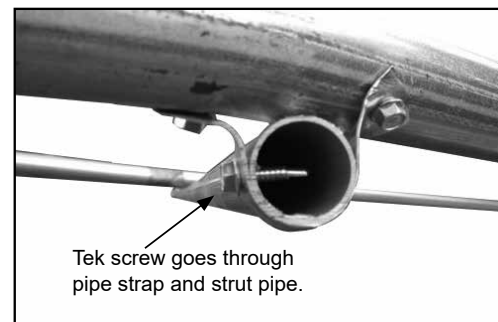


Views are seen from inside the shelter.

NOTE: Bend and twist the pipe strap as needed to fit the strut at a diagonal angle.

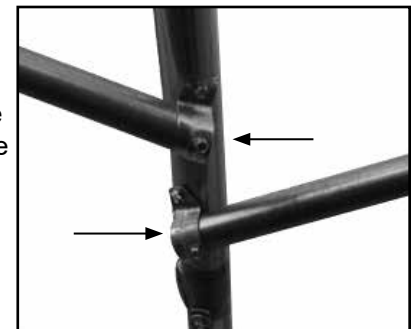
The center-to-center spacing between the first and third rafter must remain at 12' on-center. Refer to the Quick Start Guide in the back of these instructions for additional drawings and connection details.

5. Verify that the strut is in the correct position and secure the strut to each pipe strap with a Tek screw as shown in the diagram below.



6. Repeat steps to attach the remaining upper struts to each corner of each bay.

NOTE: If two upper struts end are on the same rafter, offset the struts to fit on the rafter as shown in the diagram to the right.



7. Once all struts are set in place and secure, return to each pipe splice and pipe strap to verify that a Tek screw is installed. Install a Tek screw if needed.
8. Continue by anchoring the frame.

ANCHOR THE ASSEMBLED FRAME

At this point, anchor the frame. Consult the MUST READ document for anchoring information and suggestions. Please call customer service at 1-800-245-9881 for additional anchoring information.

CAUTION: The anchor assembly is an integral part of the shelter 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.

OPTIONAL COVER INSTALLATION (Cover is not included with standard shelter. Additional purchase is required if installing a cover)

The following sections describe the installation of a film cover. The cover shown in the following diagrams may differ from the actual cover. It is shown to illustrate a basic cover installation.

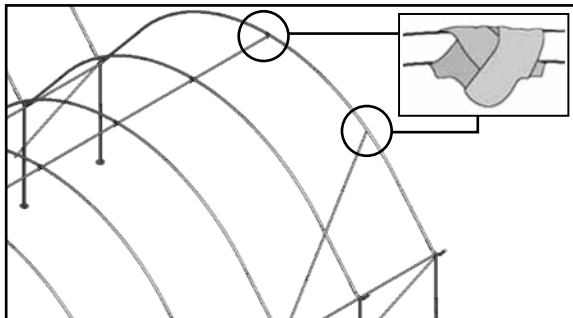
Additional parts and supplies must be purchased to complete the cover installation. *These are not included with the basic shelter components.*

Contact Customer Service if you want to purchase a cover for your shelter and to determine which cover and additional components are best suited for the application.

FINISH ROUGH EDGES

Gather the parts:

- Duct tape and metal file (supplied by customer)
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.



OPTIONAL COVER INSTALLATION

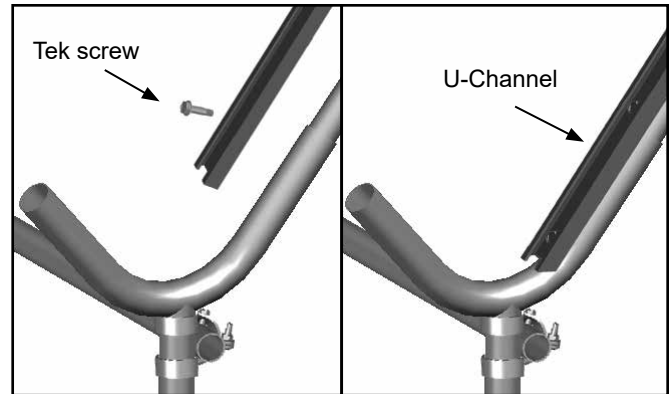
After the frame is assembled, the optional main cover can be installed.

The steps to install the main cover include:

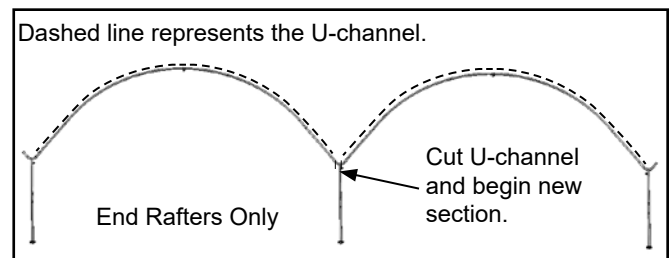
1. Install poly latch U-channel on the tops of the end rafters and to the side purlins.
2. Attach the main cover to the U-channel using poly latch spring.
3. Install end panels (if equipped) using the same techniques as the main cover. *End panels can be installed before or after the main cover.*

Install Poly Latch U-channel for Main Cover

1. Using Tek screws, attach a section of the poly latch U-channel (#102179) to the top of the first end rafter. Begin at the bottom dip of the "V" handles as shown below.



2. Continue to attach the U-channel sections working up and over the first end rafter. Cut the U-channel to fit at the bottom dip of the next post and begin a new rafter section.



ATTENTION: The U-channel is attached to the top of the rafter and will bend with the curve of the rafter as it is attached.

3. Repeat these steps for the remaining end rafter.

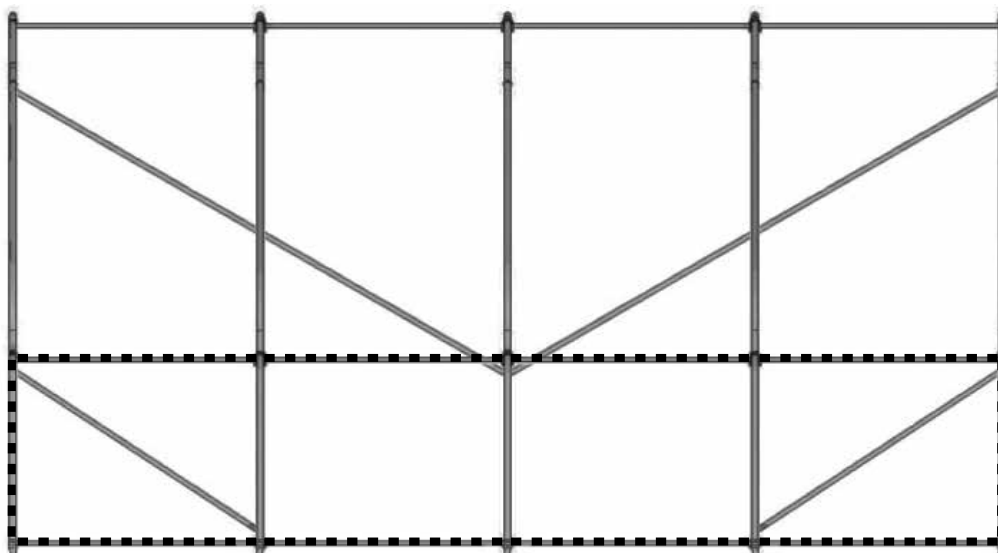
GROWSPAN™ HIGH TUNNELS AND CANOPIES

OPTIONAL COVER INSTALLATION (continued)

4. After attaching the poly latch U-channel to the tops of the end rafters, use Tek screws to attach the U-channel to the sides of the end rafters as shown in Diagram A.

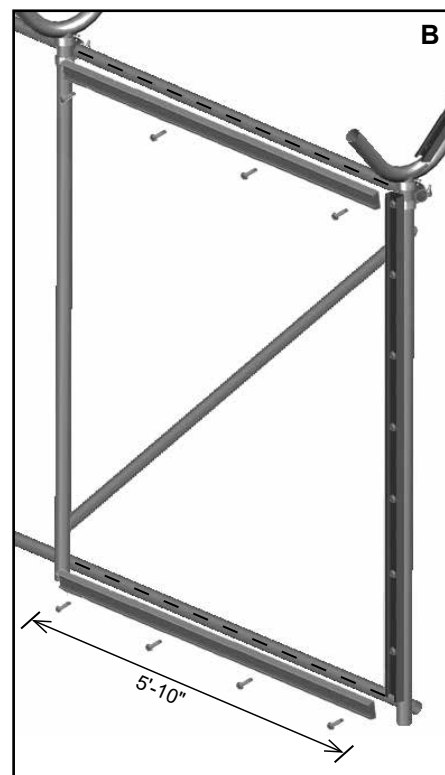
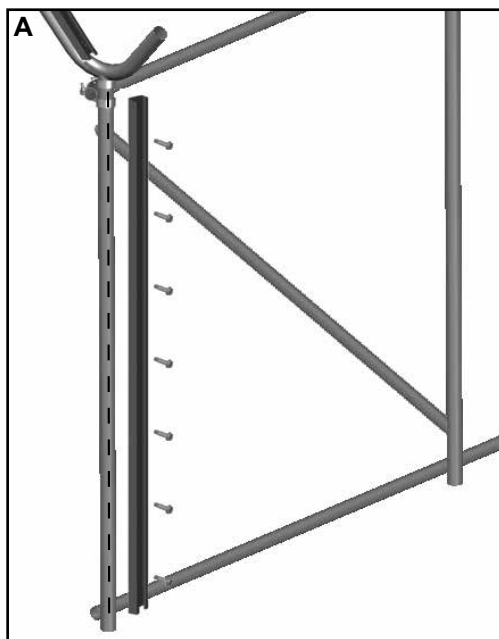
Align the ends of the U-channel sections with the centers of the upper and lower side purlin runs. (See dashed line below.)

Dashed lines represent where to attach the U-channel to the side of the frame.



Frame shown may vary in length from actual frame.

5. Repeat for the remaining corner posts.
6. Measure and cut 5'-10" length sections of U-channel and secure them to the lower and upper purlin runs in between each ground post using Tek screws as shown in the Diagram B.
7. Repeat for the remaining side.
8. Continue by installing the main cover.



OPTIONAL COVER INSTALLATION (continued)

Install the Main Cover Film

After the poly latch U-channel is attached to the frame, unpack the main cover and pull into place. Ropes or straps are typically used to pull the main cover onto and over the frame.

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

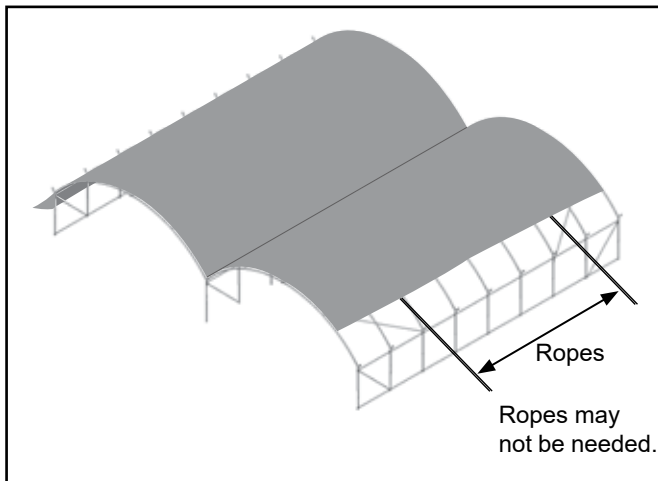
Continue with the steps that follow.

1. Unpack the cover film and position it at the base along one side of the frame.
2. Along the edge, make small holes in the cover at evenly spaced intervals and tie rope or straps to the cover.

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

Keep the holes, used to attach the rope or straps, near the edge of the material and below where the cover will be secured to the U-channel.

3. After tying the ropes to the main cover, throw the ropes over the top of the frame and pull the covers into place.



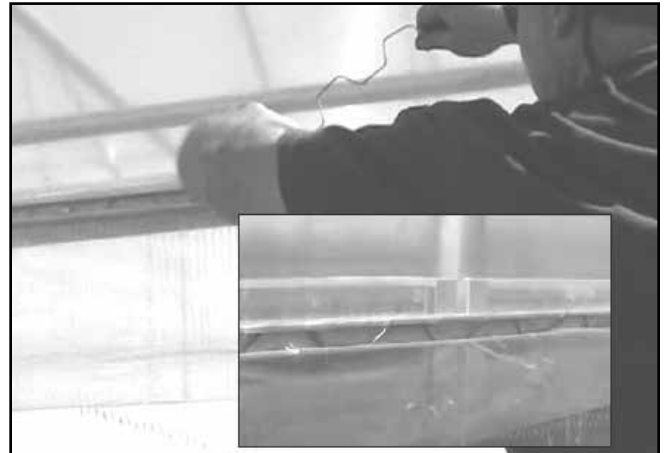
Frame shown may vary in length from actual frame.

Use ropes to pull cover over the shelter and onto the frame. **ADDITIONAL ASSISTANCE IS REQUIRED.**

4. Center cover side-to-side and end-to-end.

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

5. Once the main cover is in place and centered, begin at the peak of one end and install the wire spring into the U-channel to secure the cover.



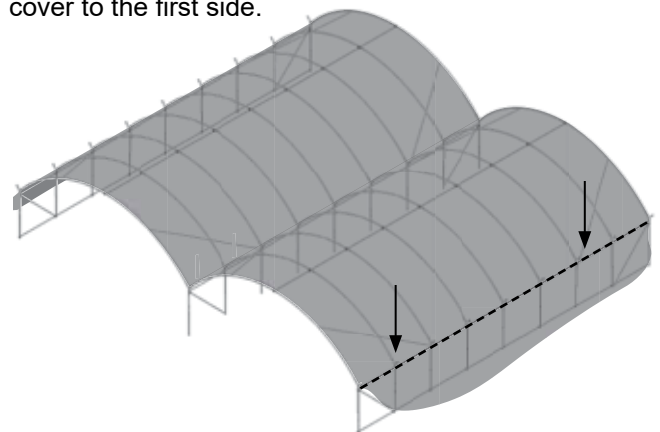
Photos show installing the spring into the U-channel on the outside of the frame. The process is the same for the U-channel attached to the top of the end rafters.

ATTENTION: Center the main cover front to back and side-to-side to ensure that enough cover material is present to lock into the U-channel.

6. Remove the ropes as the cover is secured to the frame.
7. As the spring is install 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.
8. Continue down both edges of each bay end rafters until the entire length of the end of the main cover film is secured in place.
9. Move to the other end of the building and repeat the steps to secure the main cover in the U-channel.

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

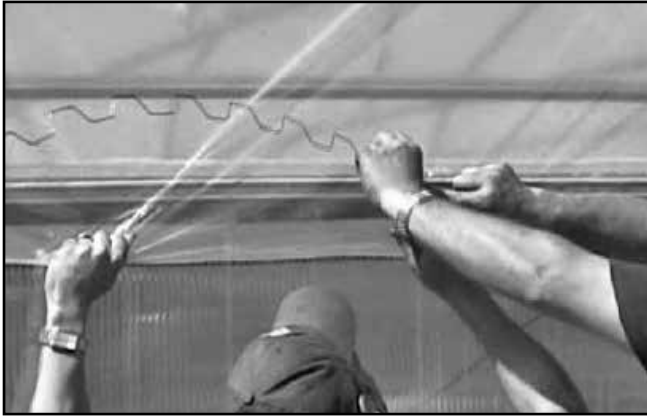
10. After the cover is stretched end-to-end and secured using the spring and U-channel, move to one side of the frame and repeat the steps to anchor the main cover to the first side.



GROWSPAN™ HIGH TUNNELS AND CANOPIES

OPTIONAL COVER INSTALLATION (continued)

NOTE: Begin at one end of the U-channel *on the upper side purlin* and work toward the other, pulling the cover film down and around the ground posts to secure with spring.



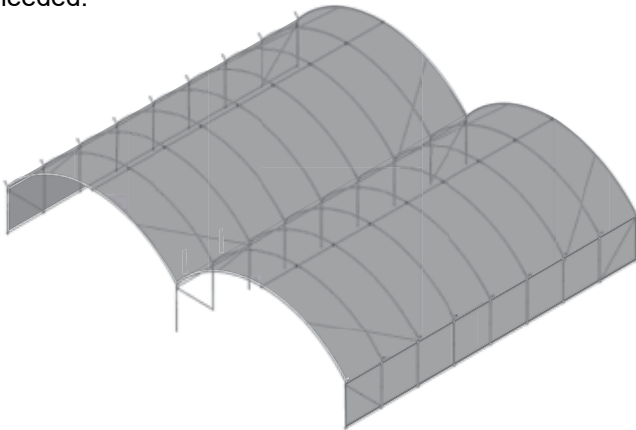
Maintain an even length along the side. The final stretching of the cover takes place when the last side is secured.

11. After securing the upper side purlin, move to the side U-channel located on the corner posts and secure it in place.

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

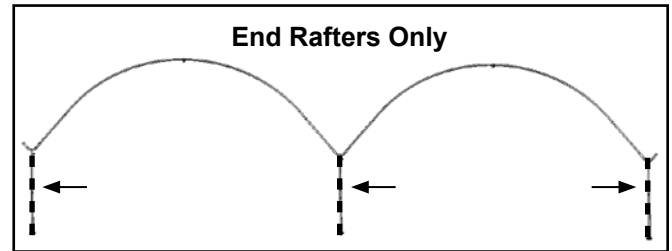
12. Repeat steps to secure the cover film to the lower purlins.

IMPORTANT: If trimming the excess cover material at the ends and sides, **DO NOT** remove too much of the excess material. Some excess main cover material (the material that extends beyond the end rafters) should remain in place to more easily re-stretch the film if needed.

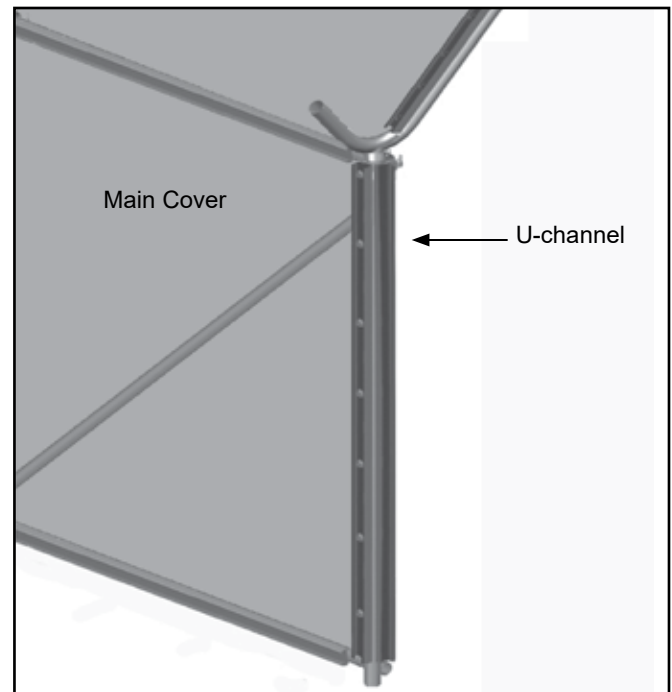


Install the End Panels (if equipped)

1. If end panels are to be installed, attach a section of U-channel to the middle ground post(s) and corner posts using Tek screws. See diagram below.



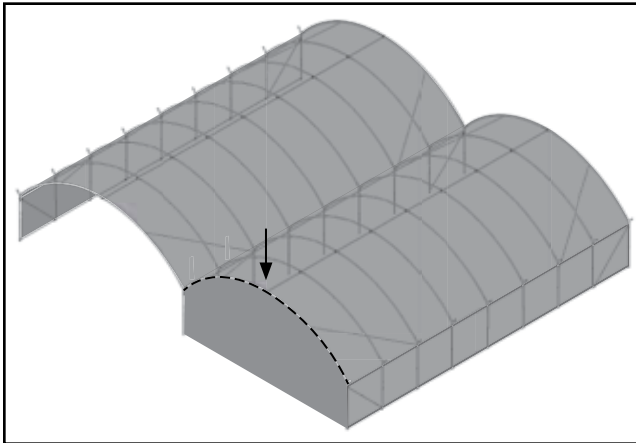
Dashed line represents the U-channel.



2. Locate the end panels and attach to the end rafters following the same procedures as the main cover.

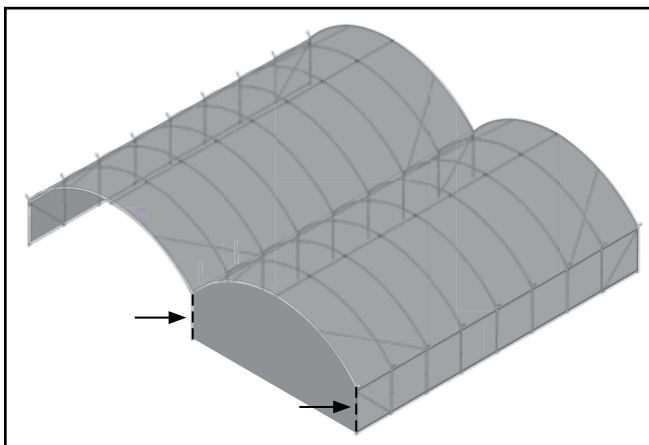
OPTIONAL COVER INSTALLATION (continued)

3. Install one end panel into the U-channel at the top of the end rafter using wire spring, ensure that an even amount of the end panel is maintained along the sides of the frame.



NOTE: The end panels will use the same U-channel on the end rafters as the main cover. The end panel and spring will overlap the existing cover.

4. After securing the end panel to the top of the rafters, move to the U-channel located on the end and middle ground posts and secure panel in place.



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

5. Repeat steps for the remaining end panels.

NOTE: End panels will share common U-channels for wire spring installation.

6. Read the **Care and Maintenance** information that follows.

SHELTER CARE AND MAINTENANCE

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

- Inspect the ground posts and anchoring system to verify that all components remain tight and in good condition.
- Check connections and all fasteners to verify that they remain tight.
- Verify that all connections and connectors are secure. Tighten these if necessary.
- Regularly check the cover or end panels (if equipped) to see that these are tight and in proper repair. Tighten and adjust the tension as needed to prevent damage and wear.
- Do not climb or stand on the shelter at anytime.
- Remove debris and objects that can accumulate on the shelter. 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 shelter to verify that nothing is touching the cover (if equipped) that could cause damage.
- If the shelter is moved, inspect all parts and connections before reassembling.
- For replacement, missing parts or additional information on optional cover, call 1-800-245-9881 for assistance.

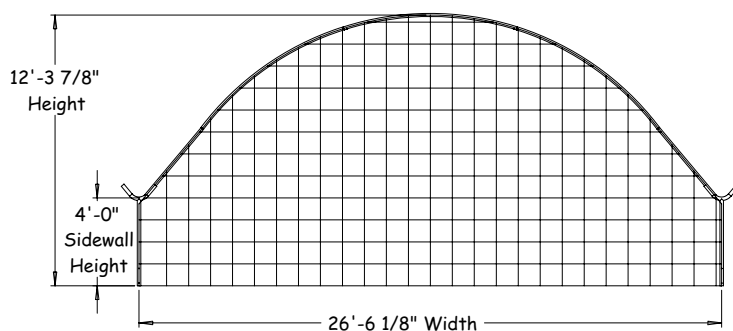
NOTE: With the exception of Truss Arch buildings, GrowSpan™ shelters and greenhouses *do not* have any tested loading criteria.



greenhouse structures

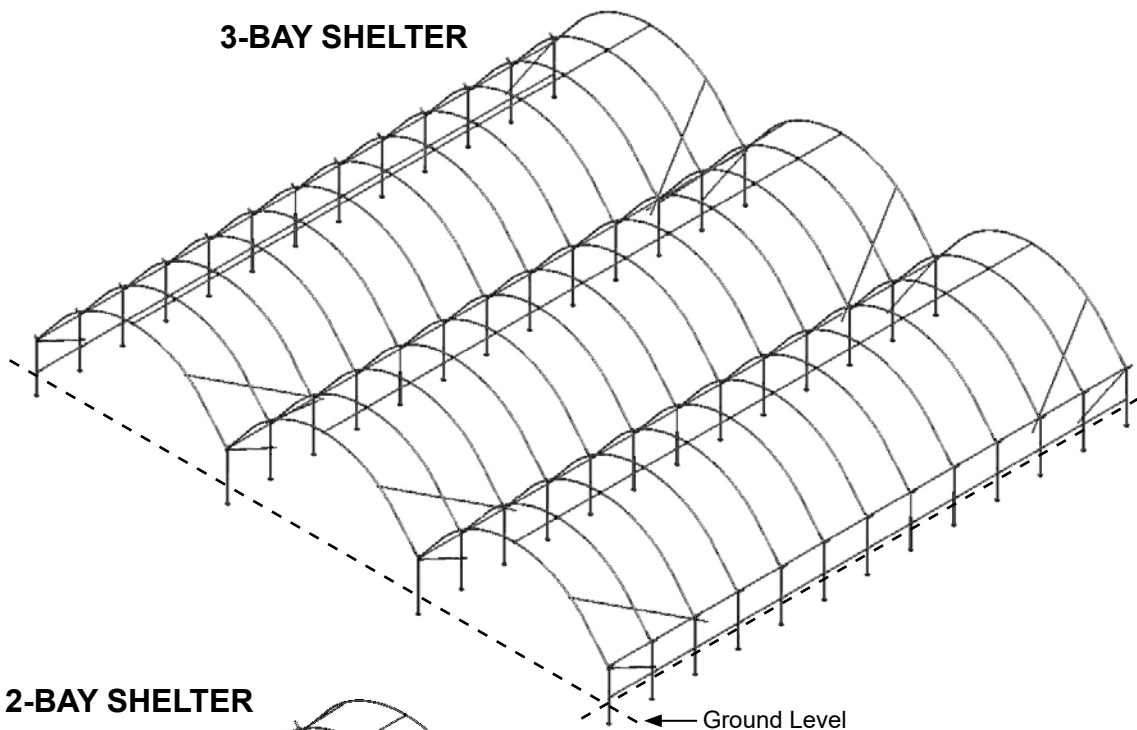
QUICK START GUIDE

52' & 78' Wide High Tunnel Add-A-Bay Systems

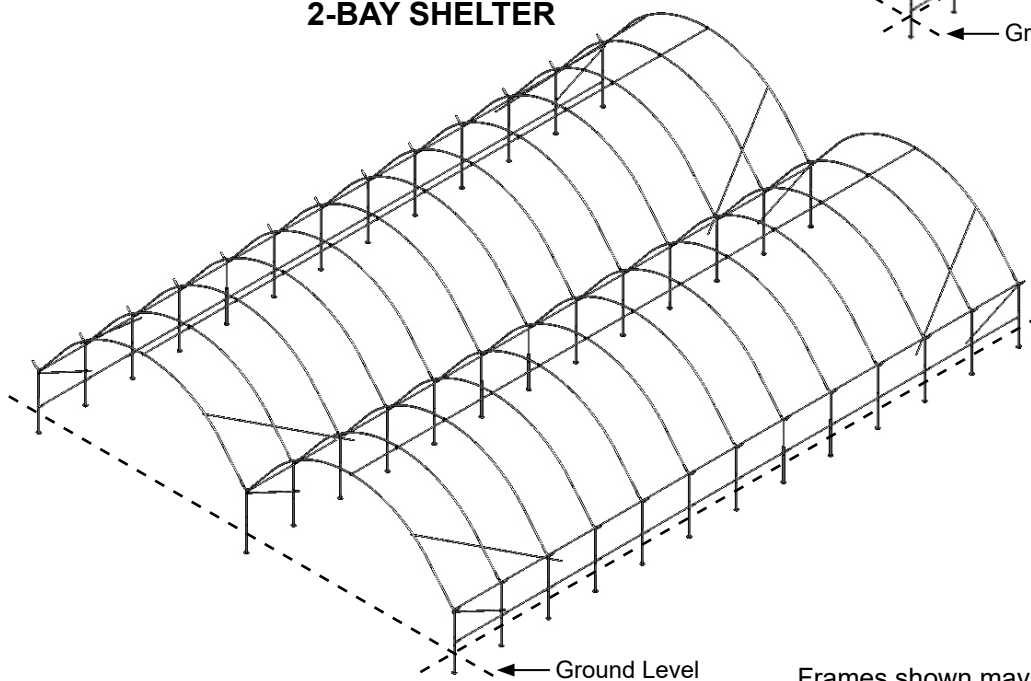


FRONT
Grid Represents 12" Squares

3-BAY SHELTER

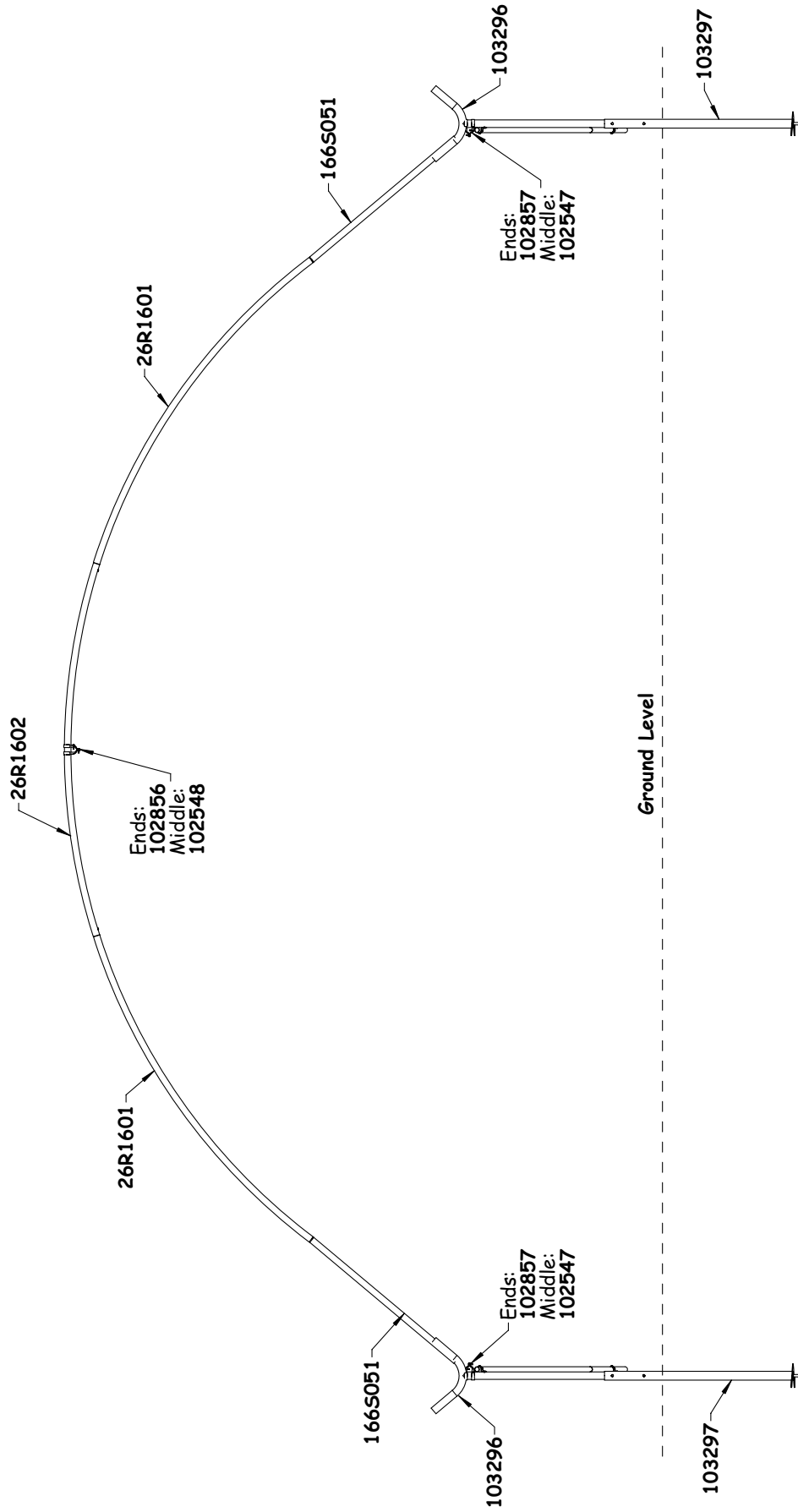


2-BAY SHELTER

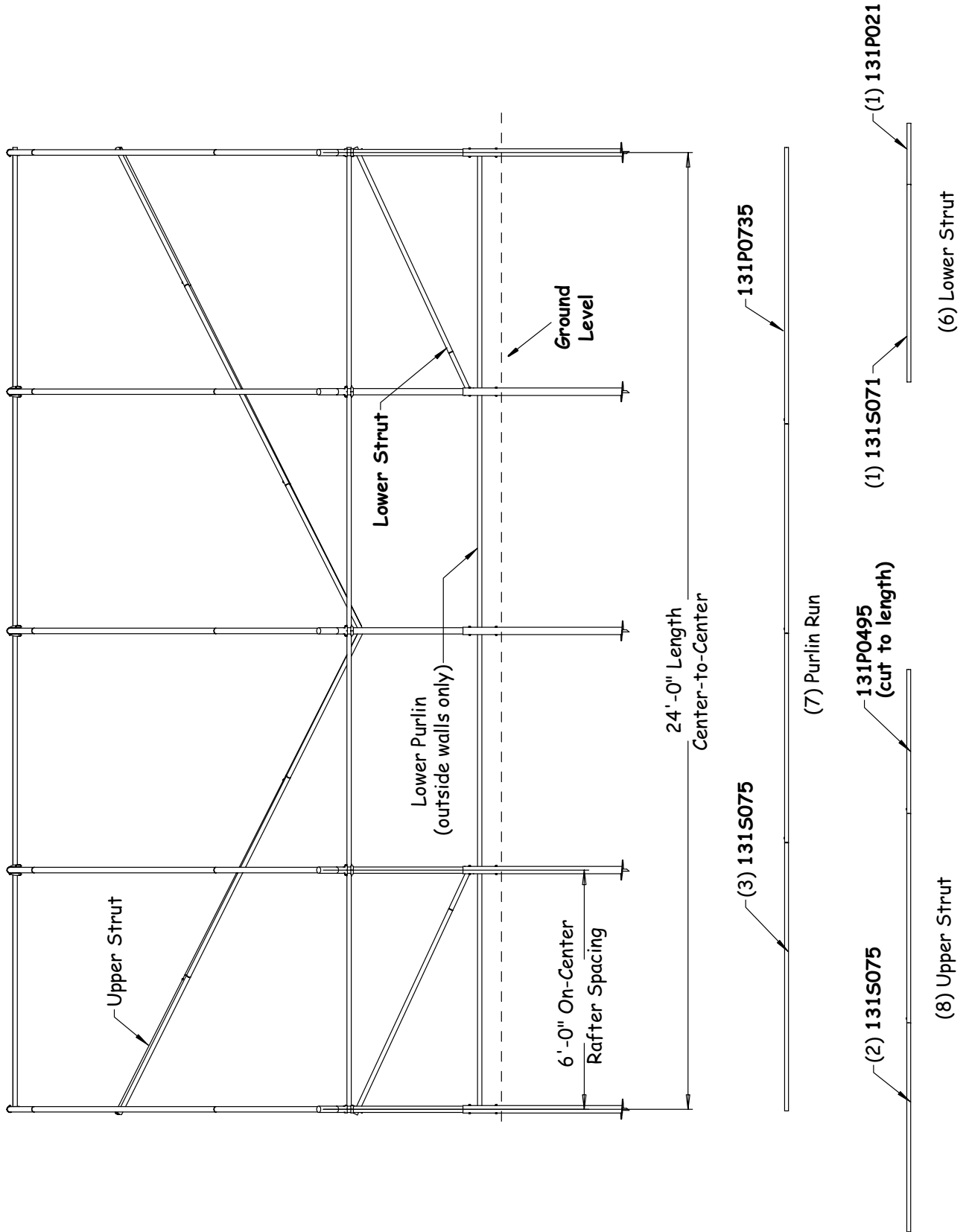


Frames shown may differ in length from actual frame.

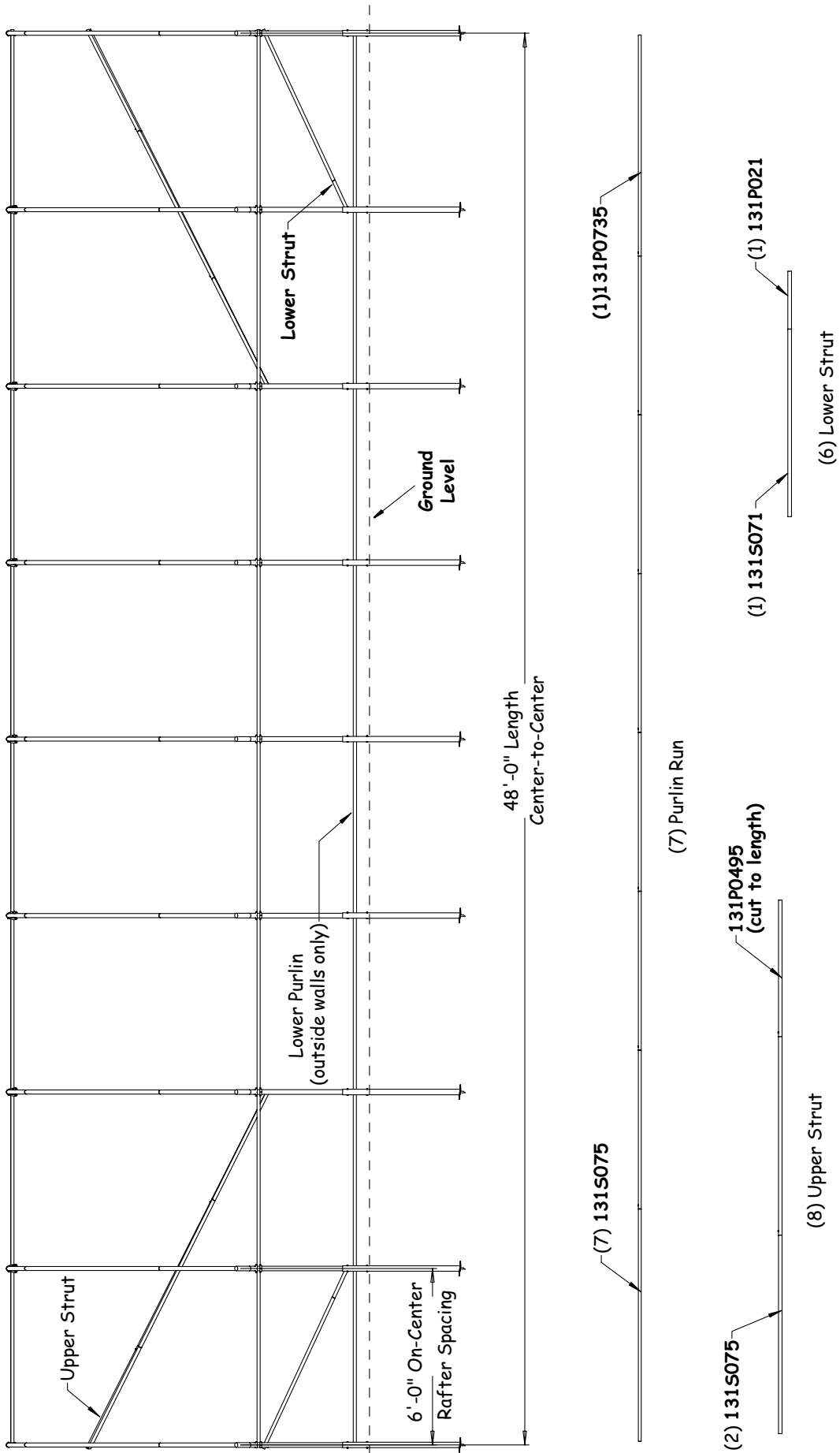
FRONT PROFILE



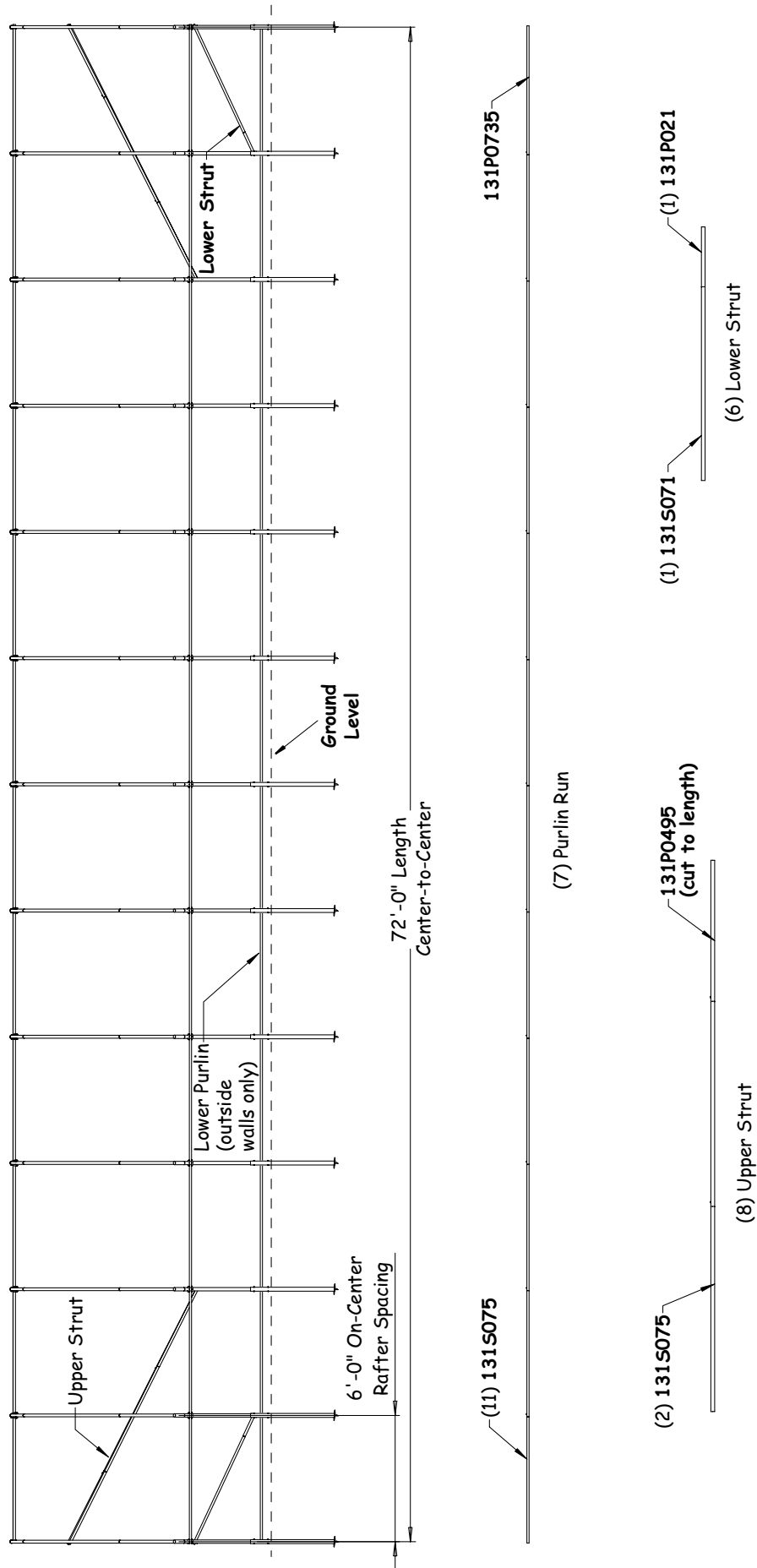
SIDE PROFILE - 104137



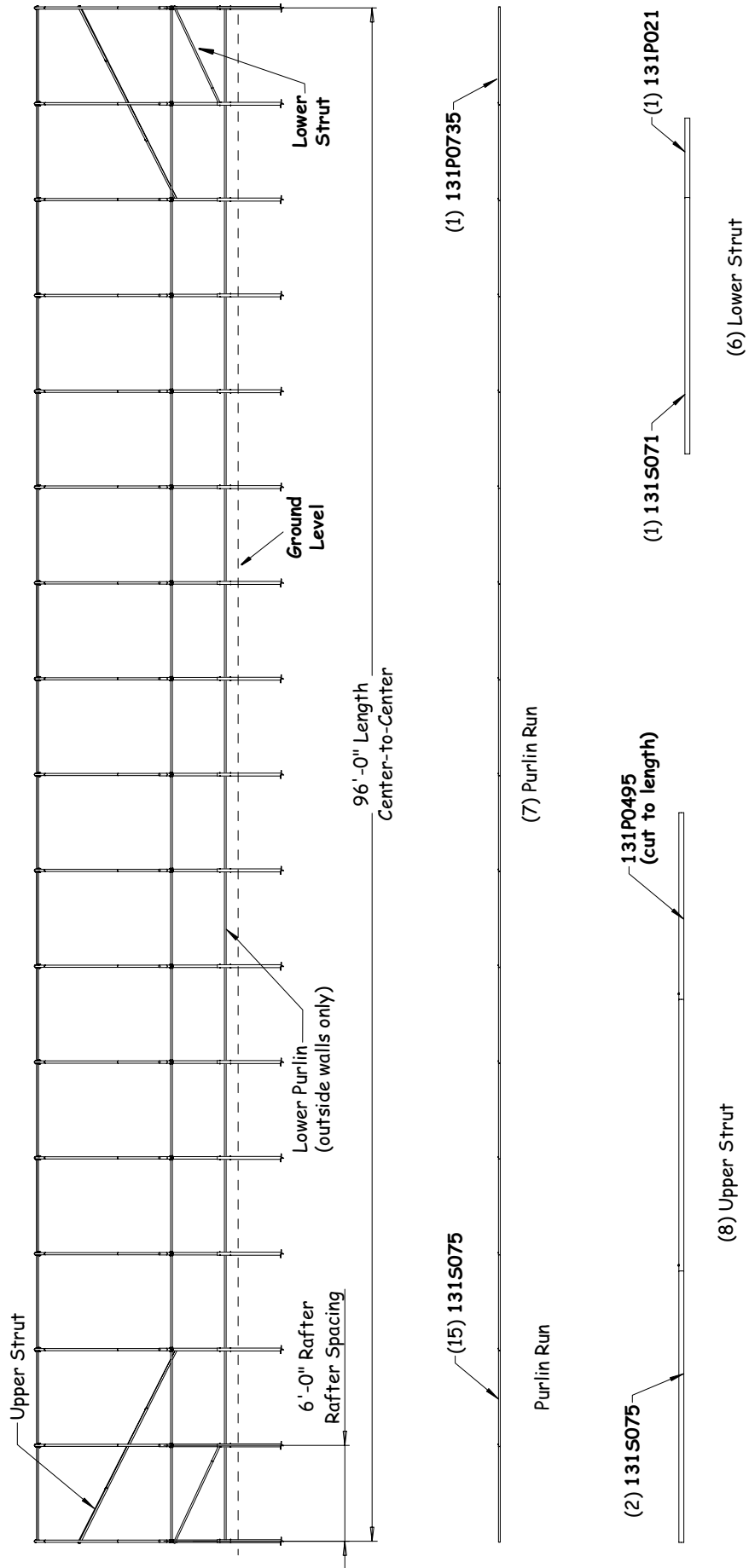
SIDE PROFILE - 104138



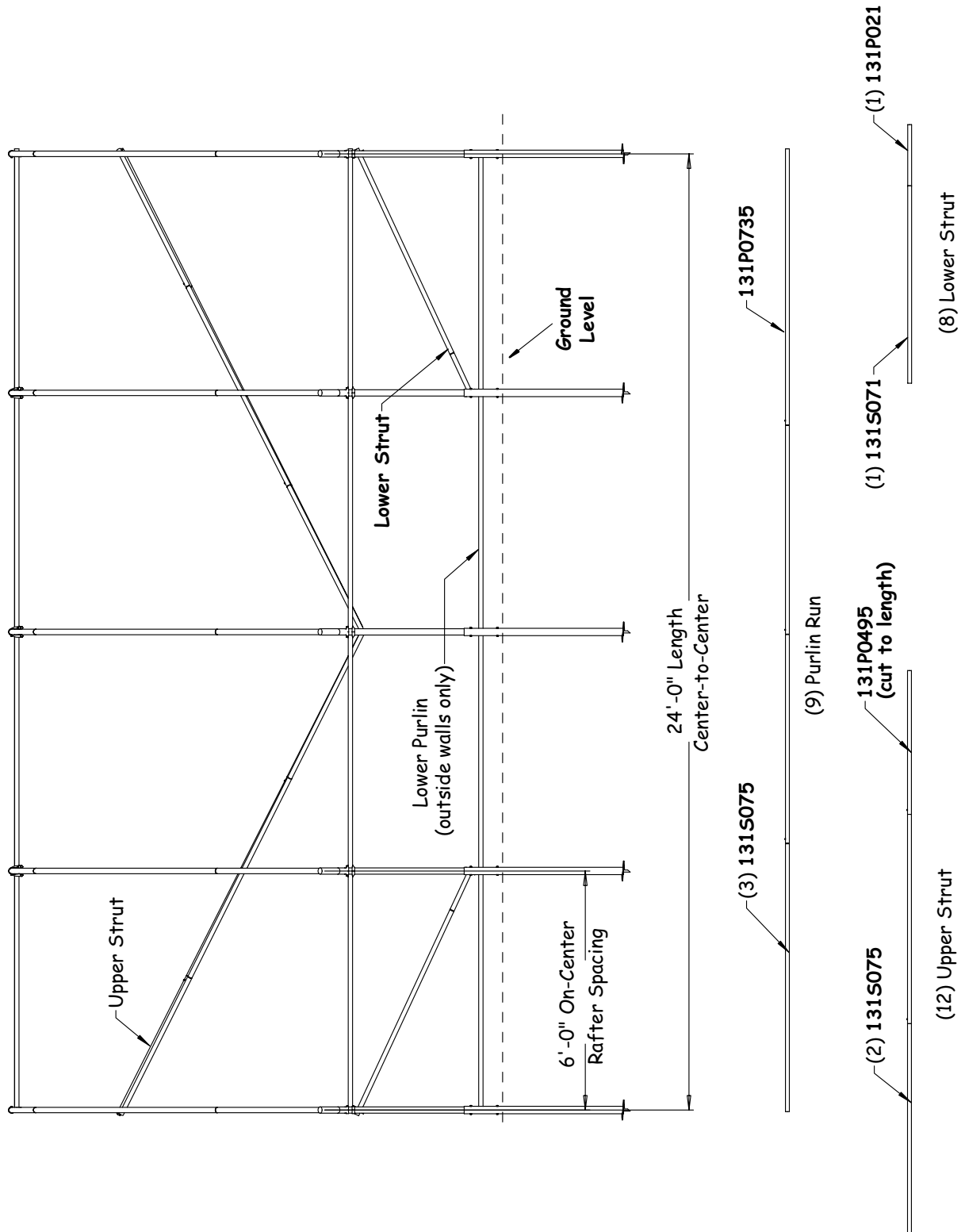
SIDE PROFILE - 104139



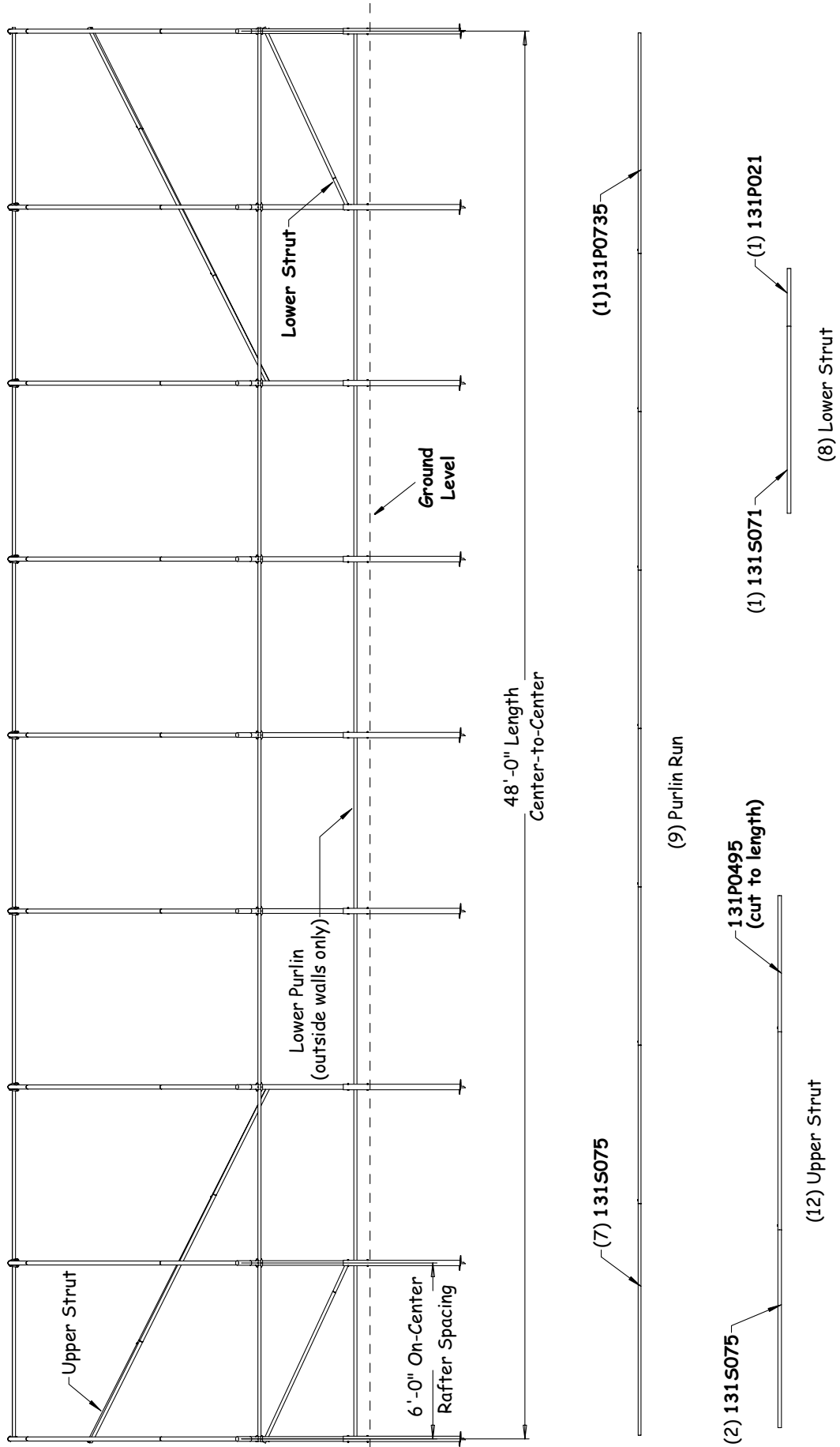
SIDE PROFILE - 104140



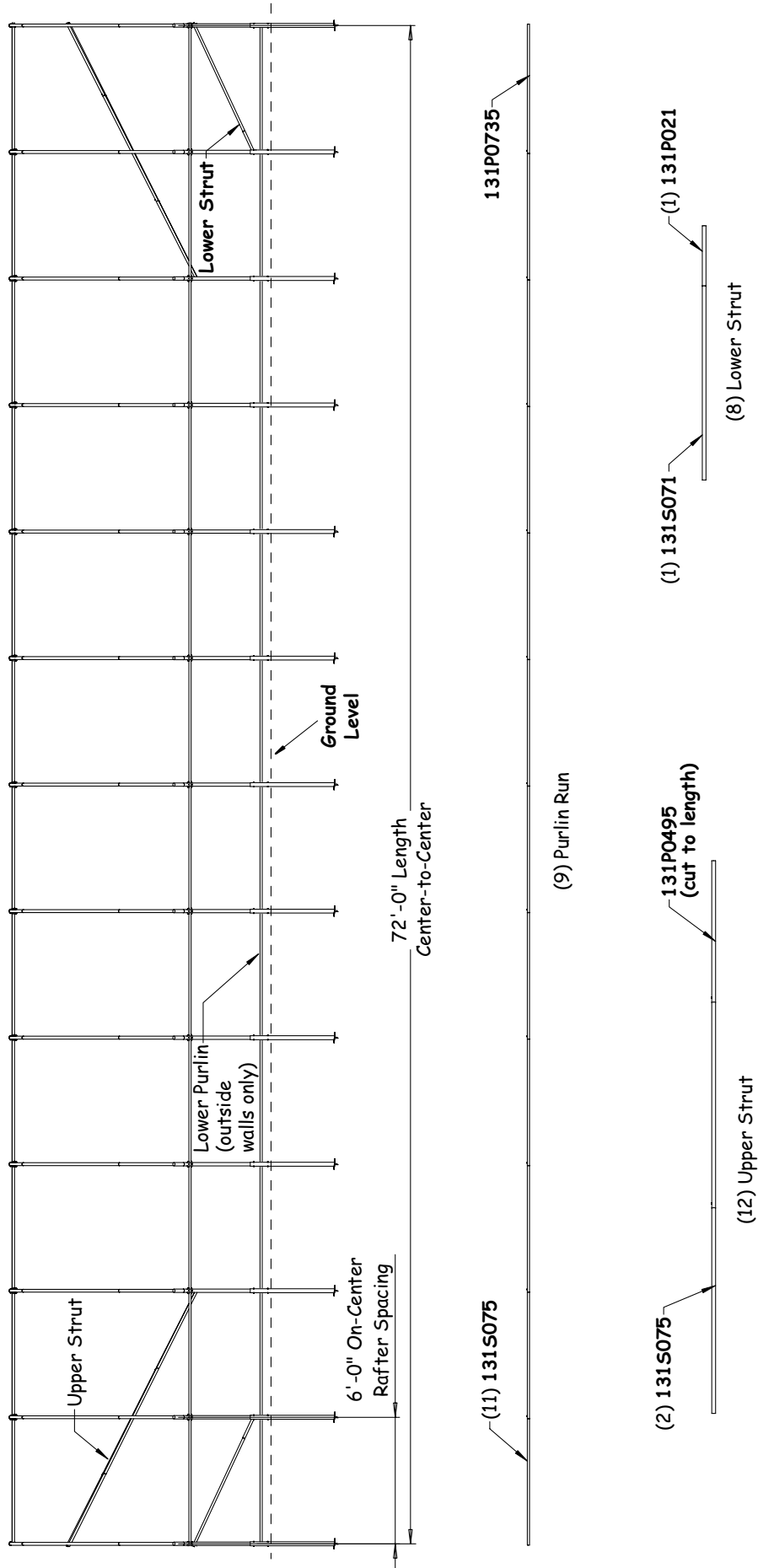
SIDE PROFILE - 104141



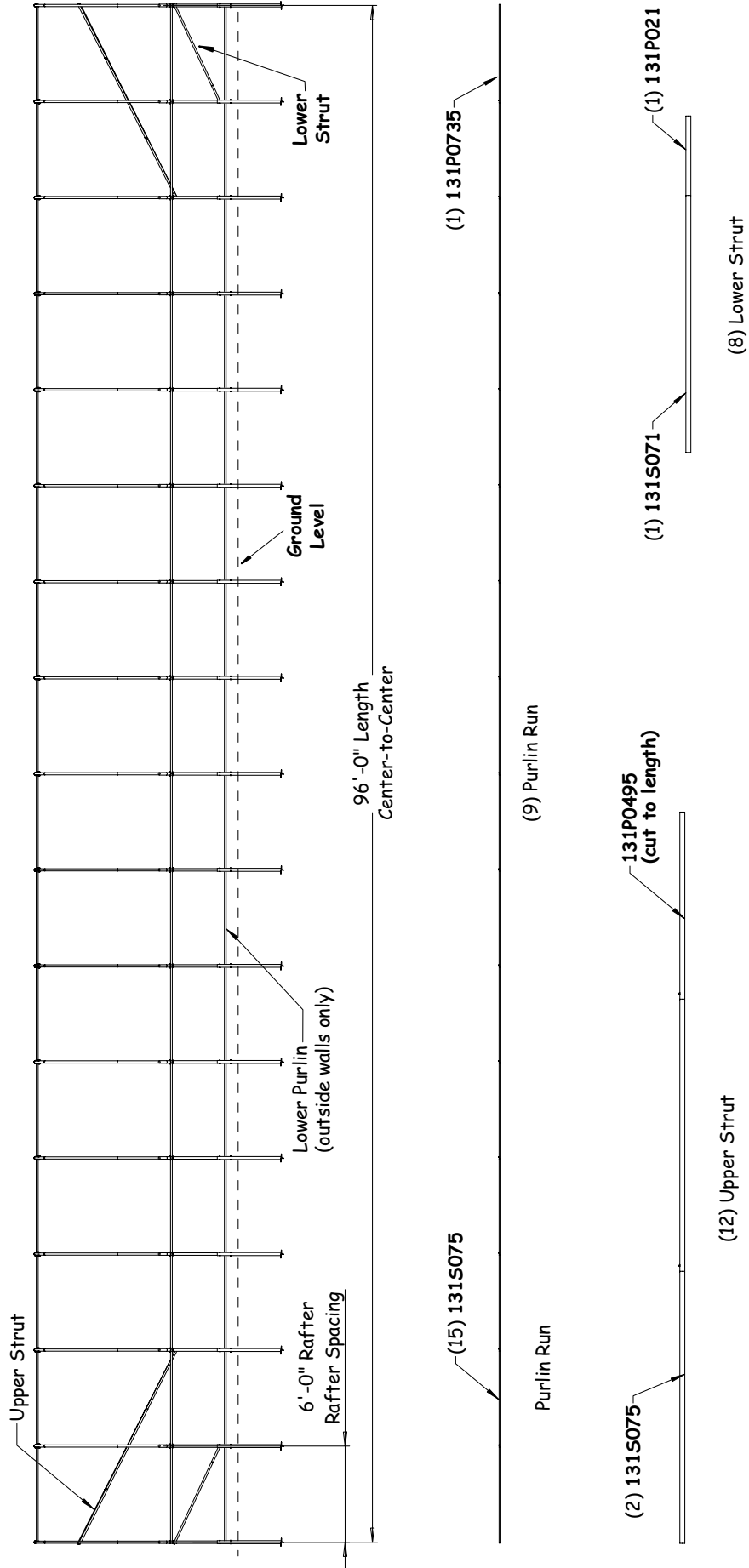
SIDE PROFILE - 104142



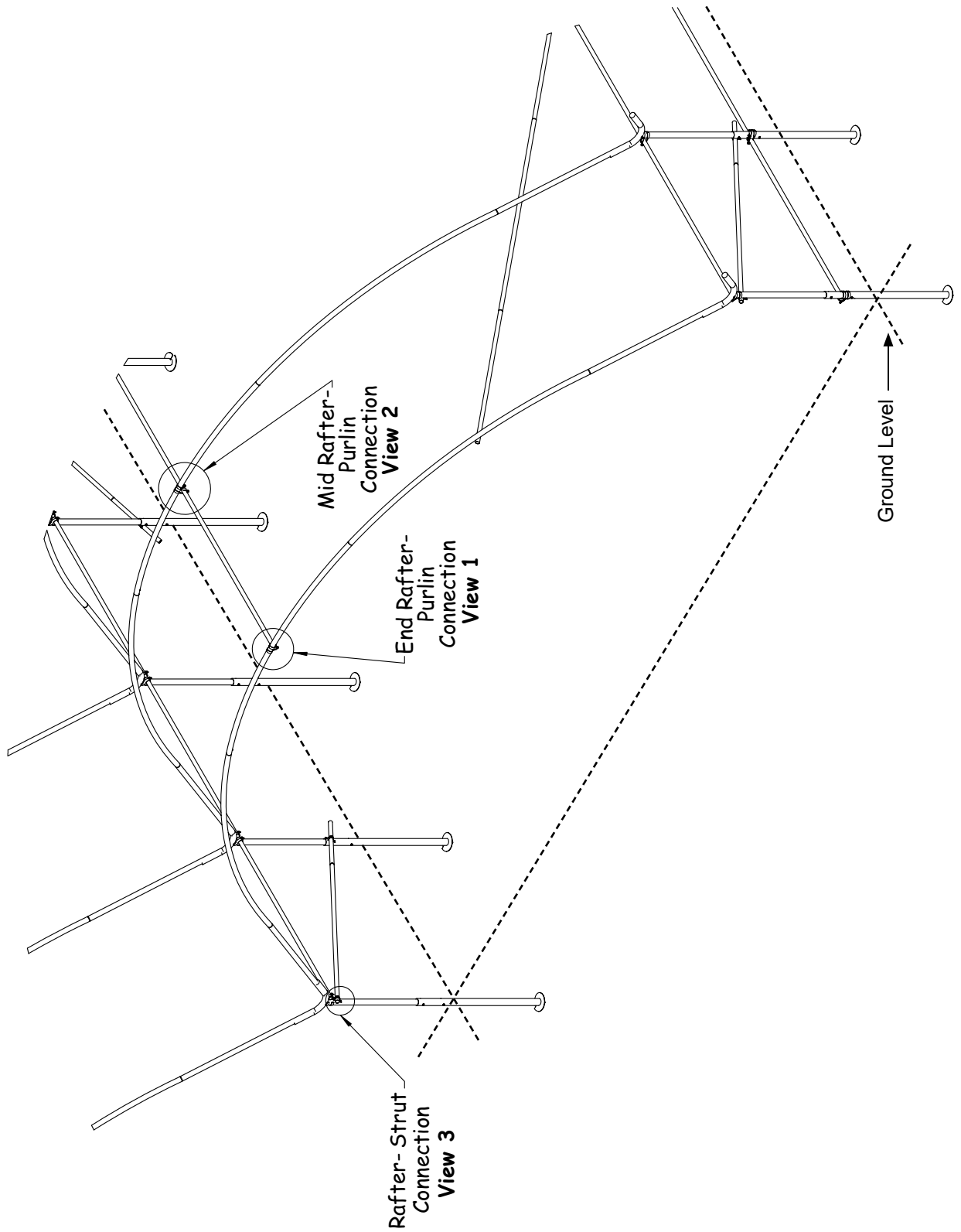
SIDE PROFILE - 104143



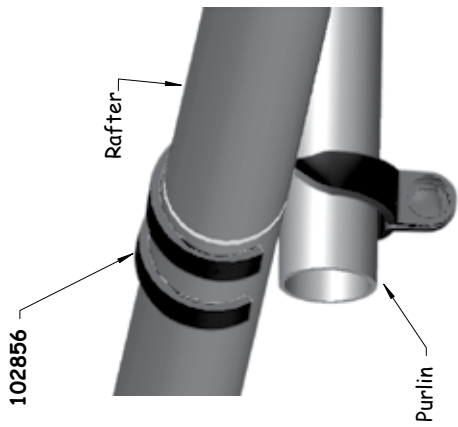
SIDE PROFILE - 104144



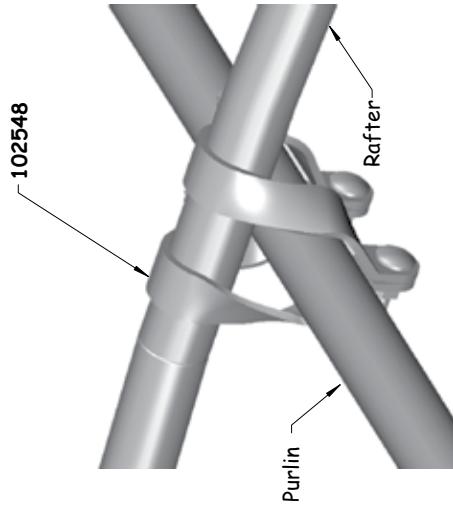
CONNECTIONS



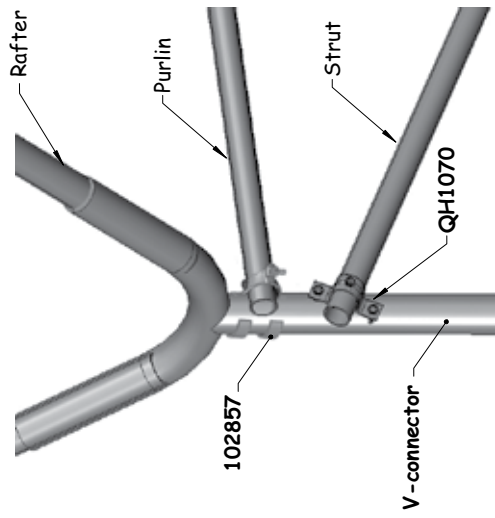
CONNECTION - DETAILS



View 1
End Rafter- Purlin
Connection



View 2
Mid Rafter- Purlin
Connection



View 3
Rafter- Strut
Connection