GROWspan™
greenhouse structures

GrowSpan™
Round Premium Corrugated Greenhouses

Photo may show a different but similar model.

STK#	DIMENSIONS
104933	26' W x 12' H x 28' L
104934	26' W x 12' H x 36' L
104935	26' W x 12' H x 48' L
104936	26' W x 12' H x 60' L

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

Revision date: 11.28.23

GROWspan™
greenhouse structures

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

Thank you for purchasing this GrowSpan™ greenhouse. 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 greenhouse. Please read these instructions ***before*** you begin.

If you have any questions during the assembly, contact Customer Service at 1-800-245-9881 for assistance.

SAFETY PRECAUTIONS

- Wear eye protection.
- Wear 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 greenhouse or framing during or after construction.
- Do not occupy the greenhouse during high winds, tornadoes, or hurricanes.
- Provide adequate ventilation if the structure is enclosed.
- Do not store hazardous materials in the greenhouse.
- Provide proper ingress and egress to prevent entrapment.

ANCHORING INSTRUCTIONS

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

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

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 greenhouse where large loads such as snow and ice, large tree branches, or other overhead obstacles could fall.
- *Always check local building codes before you begin.*

SITE

After choosing a location, proper preparation of the site is essential. The following site characteristics will help ensure the integrity of the structure.

- *A level site is required*. The site must be level to properly and safely erect and anchor the structure.
- If the site is not level, use footings to provide a secure base to assemble the structure. Pre-cast concrete blocks, pressure-treated wood posts, or poured footings are all acceptable when properly used. (Some shelters use ground posts or rafter feet.)
- 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 NOTE: Install Tek screws using a clutched drill driver running approximately 750 RPM while applying approximately 50 lbs of force.

Do not use an impact driver!

ASSEMBLY PROCEDURE

Following the instructions as presented will help ensure the proper assembly of your greenhouse. Failing to follow these steps may result in an improperly assembled and anchored greenhouse 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, the Must Read document, and all additional documentation included with the shipment ***before*** you begin assembling the greenhouse.
3. Gather the tools, bracing, ladders (and lifts), and assistance needed to assemble the greenhouse.
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. Consult the MUST READ document and properly anchor the assembled frame.
10. Install the end wall framing. (End walls are optional items for some shelter types.)
11. Install, tighten, and secure the end wall end panels and doors.
12. Install, tighten (if applicable), or secure the main cover.
13. Read the care and maintenance information at the end of these instructions.
14. Complete and return all warranty documents as instructed.

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
- Marker to mark locations on the pipes
- Variable speed drill (cordless with extra batteries works best)
- Drill bit set with 7/16" and 1/2" bits
- Metal-cutting saw
- Wrenches and socket set, or an adjustable wrench
- Scissors, utility knife, or tin snips
- Hammers and gloves
- Adjustable pliers and self-locking pliers
- Ladders, work platforms, and other machinery for lifting designed to work safely at the height of the building
- Rope/cable for temporary rafter bracing during frame assembly

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).

QUICK START GUIDE

For a quick overview of the building and its components, consult the information and diagrams in the Quick Start section near the back of these instructions.

SPECIAL NOTE: Baseboards for Frame

These instructions describe installing a baseboard (recommended) at ground level along each side of the frame. The baseboard runs from the front to the back of the frame.

This baseboard is *not included* with the shipment and must be supplied by the customer. Treated or recycled plastic lumber works well for a baseboard.

Use the included 1/4" x 4" (FAH009B) carriage bolts and the 1/4" zinc nuts (FALB01B) to attach a customer-supplied baseboard. Depending on the dimensions of the baseboard, alternative customer-supplied fasteners may be needed.

During the installation, align the baseboard with the center of the end rafter. Do not allow the baseboard to extend beyond the end rafters at either end of the frame. Doing so will interfere with the installation of the end wall corrugated panels.

The baseboard, when installed properly, helps prevent the ground posts from sinking into the ground when anchored. Depending on the building, it also provides a surface to attach struts or other building components.

Consult these instructions or contact Customer Service for additional information regarding baseboards.

Space below is reserved for customer notes.

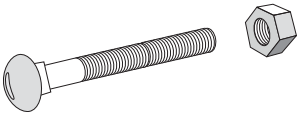
ASSEMBLY NOTE: Install Tek screws using a clutched drill driver running approximately 750 RPM while applying approximately 50 lbs of force.

Do not use an impact driver!

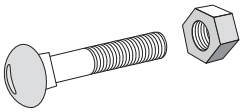
The following graphics and photos will help you identify the different parts and show you how they are used. (Some parts are not shown.)

FA4482B
Tek Screw

102921 & FA4474B
Neo-bonded Galvanized
Washers and Long Tek Screws

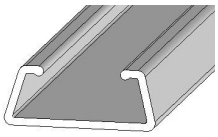


FAH009B & FALB01B
Carriage Bolt & Hex Nut

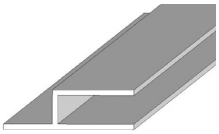


FAH320B & FALB32B
Carriage Bolt & Hex Nut

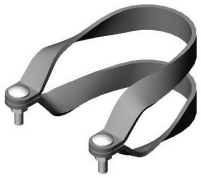
QH1402
Band Clamp



102197
Aluminum
U-Channel Profile



104548
End Cap Profile
Doors/Fans/Vents

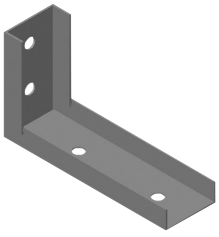


102548
Cross Connector

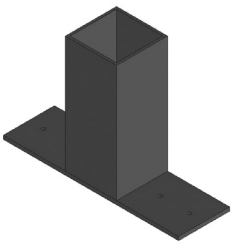
104074
Square-to-Round Tube
Connect Bracket

116391 Bearing Hanger

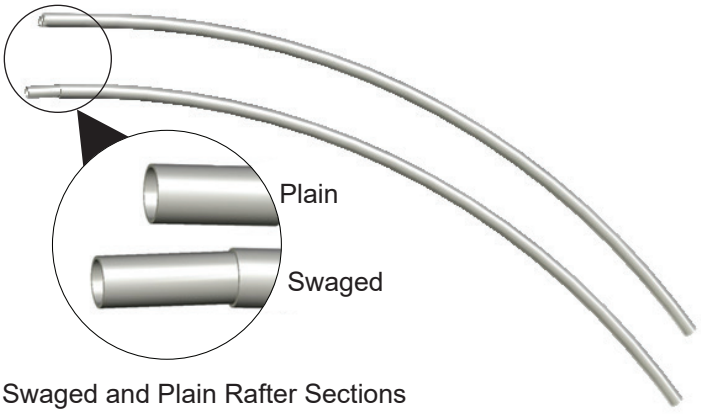
102856
End Clamp



QH1330
Angle Bracket



104624
Square Tube Fitting



Swaged and Plain Rafter Sections

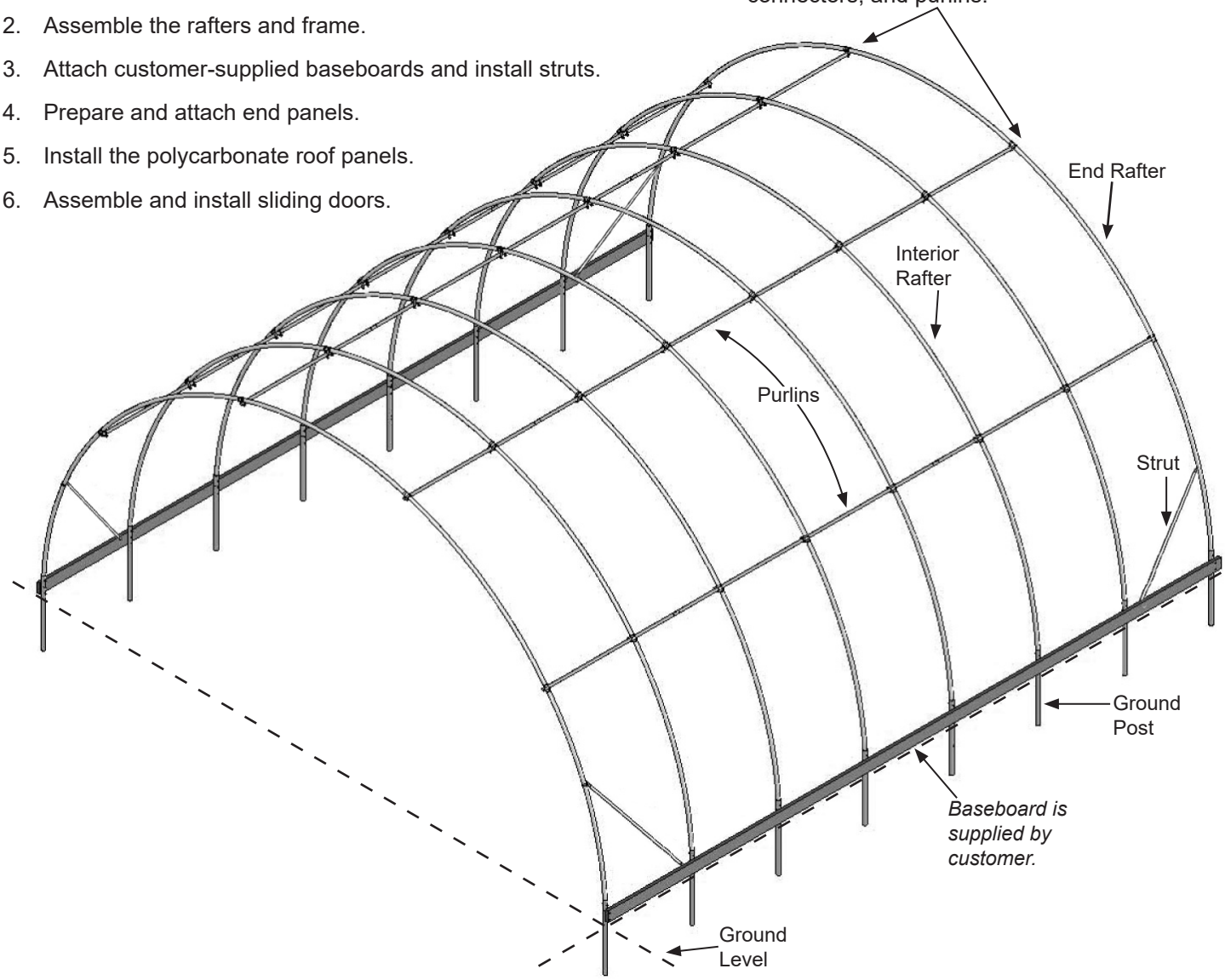
GrowSpan™ Round Premium Corrugated Greenhouses

OVERVIEW

This section describes assembling your greenhouse. For details, please see section, Assembling the Round Premium Greenhouse Components. See illustration below to identify main parts of greenhouse.

1. Locate the required parts for each assembly procedure.
2. Assemble the rafters and frame.
3. Attach customer-supplied baseboards and install struts.
4. Prepare and attach end panels.
5. Install the polycarbonate roof panels.
6. Assemble and install sliding doors.

ATTENTION: Position purlins evenly during the frame assembly. Use the rafter pipe joints as guides when installing the end clamps, cross connectors, and purlins.



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.

Drive ground posts 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.

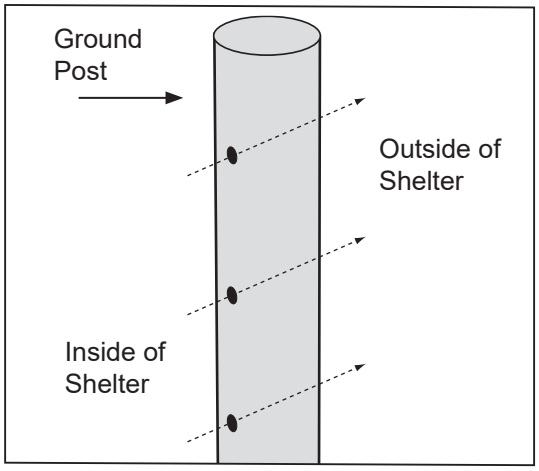
SQUARE THE SITE

Gather the parts:

- Ground posts
- Ground post driver (QH1073)

1. Identify a corner where a ground post will be positioned and drive the first ground post into the ground.

   NOTE: Insert the ground post driver into the top of the ground post to protect the post and drive the post into the ground. *The top of the post will be one (1) foot above the finished grade when properly driven.*

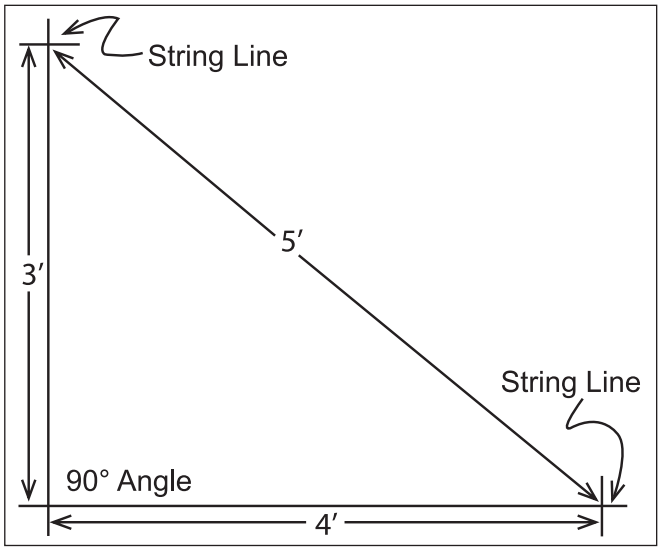


   ATTENTION: Position the pre-drilled holes facing to the inside/outside of the shelter so they can be aligned with the bolt holes in the rafter legs.

   To align the bolt holes in the ground posts with those in the rafter *after driving the ground posts,* insert a tapered rod or pry bar into a ground post bolt hole and turn the post using the rod or pry bar.

2. After the first corner ground post is in place, string a line the width of the building (center-to-center) and drive the second ground post into the ground just enough to hold it in place.
3. Use a transit or line level to drive the second corner post to the same depth as the first ground post.
4. Sting a line at least as long as the building from the first stake 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.



5. After squaring the position of the building, measure the length (center-to-center) and drive the next corner ground post.
6. Repeat the same step for the last corner post.

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

7. Check all dimensions (and adjust if needed) before driving the remaining posts to the required height.
8. After all 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 remaining ground posts. The string must remain tight and level.
9. Use a tape measure to mark the 48" on-center locations of the remaining ground posts.
10. Drive the remaining ground posts into the ground at the required 48" on-center width and the height identified by the string. See Step 1 if needed.

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

11. Continue with the **Rafter Assembly** steps that follow.

ASSEMBLE GREENHOUSE FRAME COMPONENTS

After the site is prepared and an inventory of parts is complete, continue with the rafter assembly.

NOTE: All rafter assemblies consist of rafter tubes and purlin clamps. Consult the rafter diagram in the Quick Start section of these instructions before and during the rafter assembly process.

Assistance is required to assemble the greenhouse frame.

RAFTER ASSEMBLY

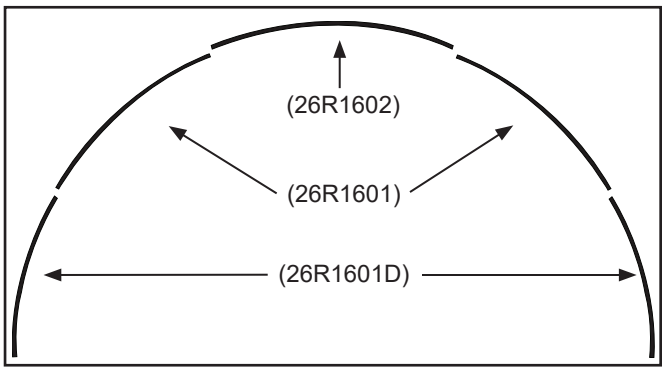
Gather the parts:

- Rafter pipe (26R1601)
- Rafter pipe (26R1602)
- Rafter pipe (26R1601D)
- End clamps (102856)
- Tek screws (FA4482B)
- Magnetic nut setter (3/8" x 2-9/16")

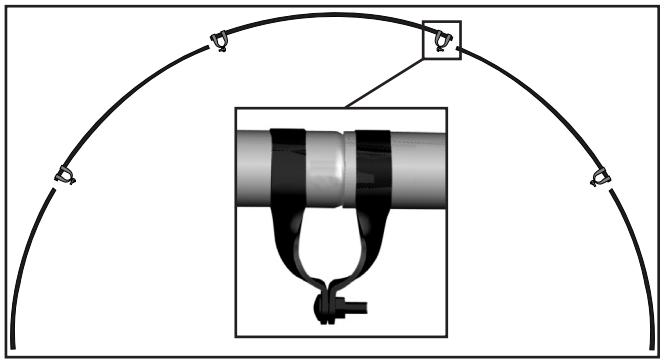
END RAFTER ASSEMBLY

The end rafters include purlin end clamps and band clamps. Install the purlin end clamps before the different pipes of the rafters are connected. The band clamps for the side struts are installed when the two (2) end rafters are set onto the ground posts.

1. Select the five (5) pipes needed to assemble the first end rafter and arrange on a level surface.



2. Slide four (4) end purlin clamps (two on each side of the peak) over the rafter pipes. Position all end clamps at the rafter pipe joints. Position the end clamps as shown.

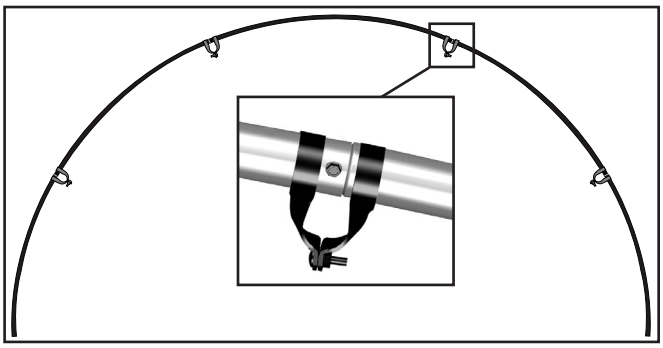


End clamp as seen from inside the assembled frame.

NOTE: Position all purlin clamps at the rafter pipe joints. Consult the Quick Start section for additional information.

3. After slipping the clamps over the rafter pipes, insert the swaged end of the rafter pipes into the plain ends of the pipes to assemble the rafter.

4. Once the rafter is assembled, reposition the purlin clamps over the pipe joints and install a Tek screw through the rafter pipes to secure each joint.



End clamp as seen from inside the assembled frame.

IMPORTANT: Verify that you are installing the screw through the pipe that contains the swaged end of the adjacent pipe. To prevent damage to the cover and end panels (if equipped), position the Tek screws so the heads do not contact the cover when it is installed.

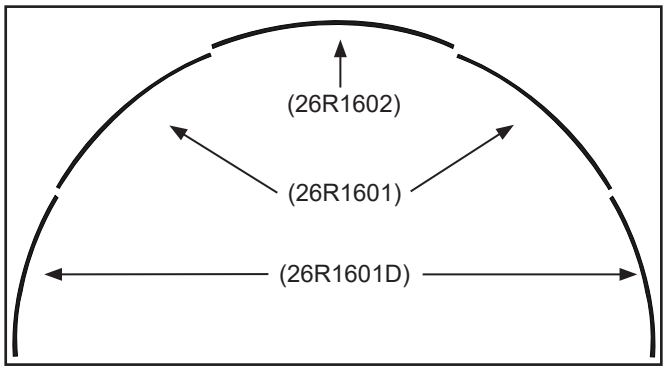
5. Repeat steps for to assemble the remaining end rafter and set both end rafters aside.

6. Continue with the next procedure.

INTERIOR RAFTER ASSEMBLY

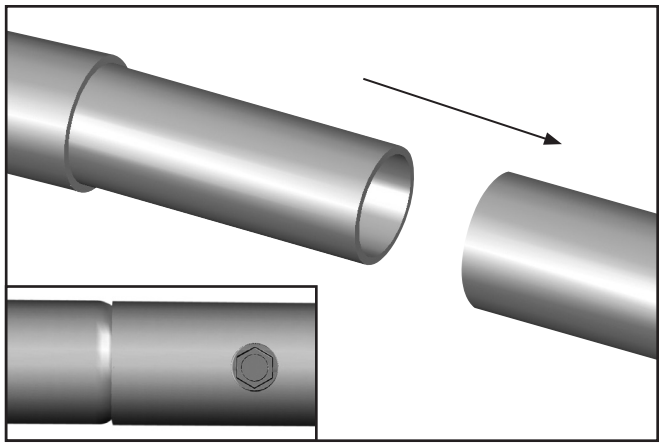
Complete the following steps *for the interior rafters*.

1. Select the pipes for the first interior rafter assembly and position these on the ground as shown.



IMPORTANT: Interior rafters do not use end clamps. Instead, cross connectors are attached during the frame assembly.

2. Insert the swaged ends of the rafter pipes into the plain ends of the pipes and secure each joint with a Tek screw.



NOTE: For longer frames, it may be easier to assemble a few rafters at a time and then begin to assemble the frame.

3. Once rafters are assembled, assemble the frame.

Space below is reserved for customer notes.

ASSEMBLE THE FRAME

Complete these steps to assemble the frame.

Gather the parts:

- All rafter assemblies and 131S075 purlin pipes
- Band clamps (QH1402)
- Cross connector (102548)
- 5/16" x 2-1/2" machine bolts (FAG336B) and 5/16" nuts (FALB02B)
- Lifts, ladders, and assistants
- Rope or cable to temporarily brace the rafters

1. Carefully stand the *first end rafter*, *slide a band clamp onto each rafter leg*, and place the leg pipes in the first set of ground posts.

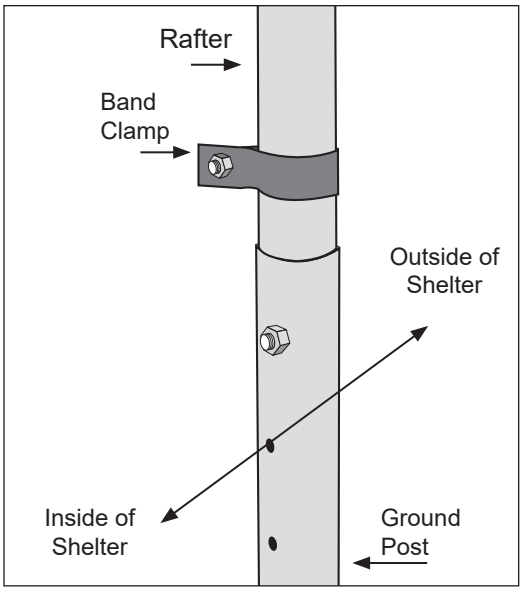
   Brace the rafter in place to keep it straight. Depending on the frame size, a lift and additional assistants may be needed. Consult Quick Start section for details.

Rafter shown differs in design.

ATTENTION: Stand the rafter so the nuts and bolts of the end clamps are to the inside of the frame.

ATTENTION: ACTUAL RAFTER DESIGN MAY DIFFER FROM EXAMPLES SHOWN IN THESE PHOTOS AND DIAGRAMS.

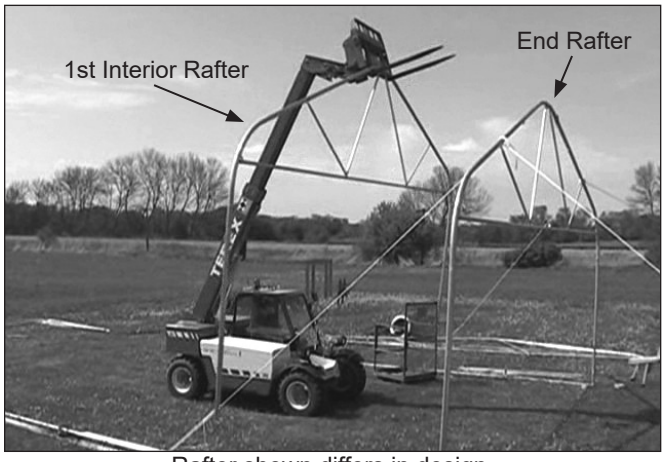
2. Secure the leg pipes to the ground posts using the 5/16" x 2 1/2" machine bolts and nuts.



3. Use rope or cable to brace the rafter in position.

Rafter shown differs in design.

4. Carefully position the first interior rafter in place and secure the leg pipes to the ground posts.

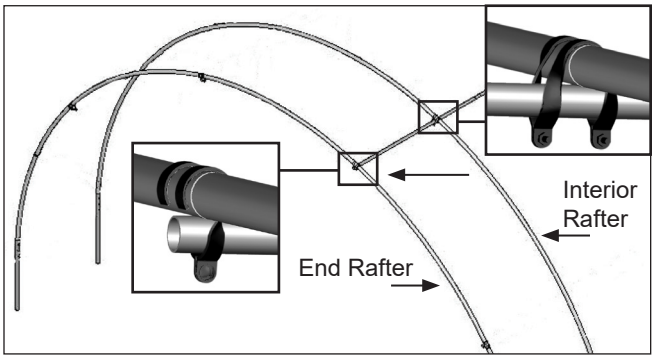


Rafter shown differs in design.

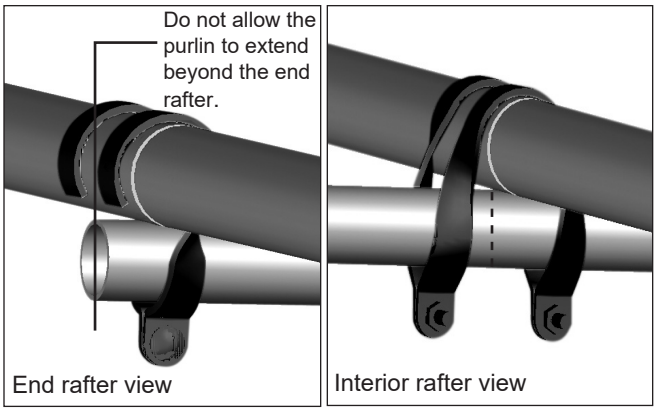
FRAME ASSEMBLY (continued)

5. As the second rafter is steadied, take one 131S075 purlin pipe and insert the pipe through an upper end clamp of the end rafter and through a cross connector placed in the same position on the *interior rafter.*

   Consult Quick Start section for purlin location per frame.

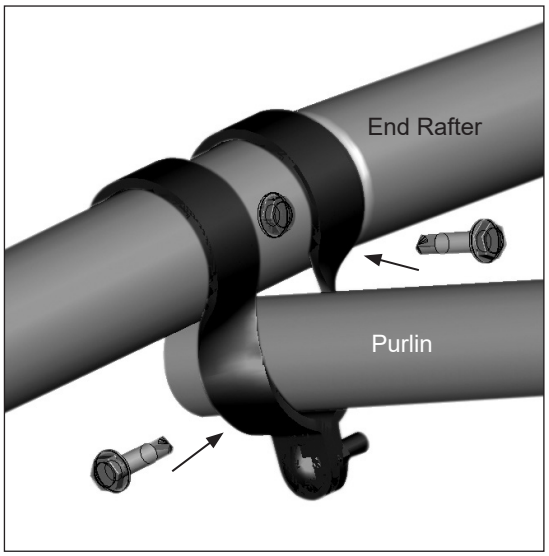


6. Align the plain end of the purlin pipe with the ***center of the end rafter.***

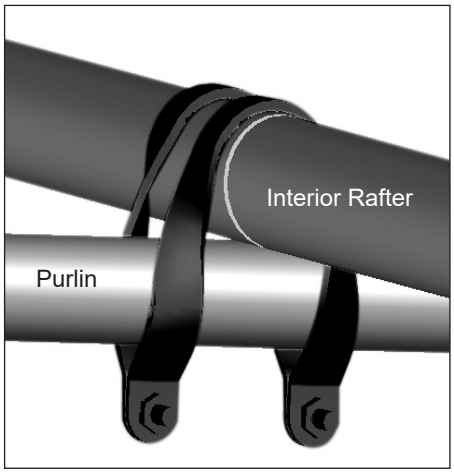


7. Tighten the end clamp and secure it to the rafter with a Tek screw. See below.

8. Install Tek screw through end clamp and into the purlin pipe.

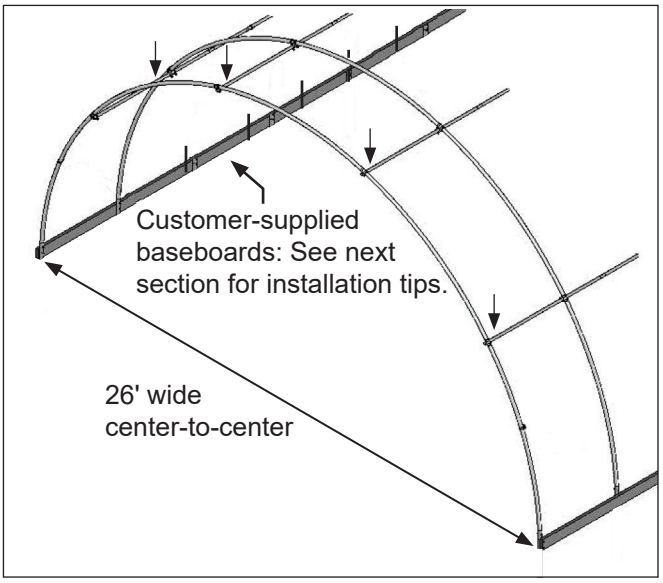


9. Move to the interior rafter and verify that the rafter spacing is forty-eight inches (48") on-center (adjust as needed) and tighten the cross connector.



10. Secure the purlin and rafter to the cross connector using Tek screws. See Quick Start section if needed.

11. Repeat Steps 5-10 to install the first section of each purlin assembly for the first two rafters.



12. Choose another interior rafter assembly and set it in position. **DO NOT USE THE REMAINING END RAFTER.**

13. Secure the rafter legs to the ground posts as previously described and steady the rafter.

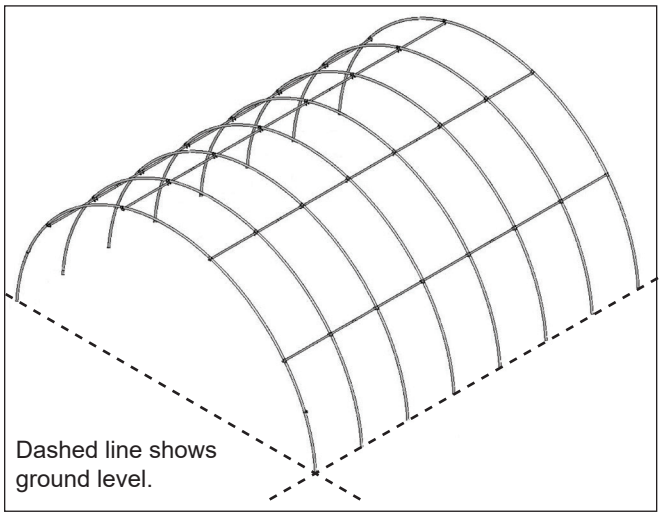
14. Place a cross connector over the rafter and insert another section of 131S075 purlin pipe through the connector.

15. Slide the plain end of the pipe over the swaged end of the first pipe.

16. Verify that the distance between the rafters is 48" center-to-center. *Adjust the rafter forward or backward as needed to maintain this dimension.*

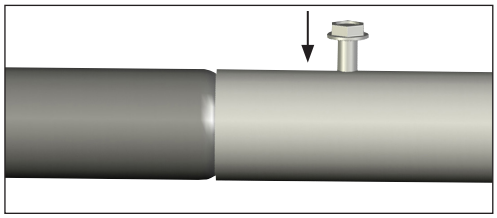
FRAME ASSEMBLY (continued)

17. Tighten the cross connector bolts and ***secure each purlin pipe joint*** with a Tek screw.
18. Secure the cross connector to the rafter and the purlin using a Tek screw for each connection. See Quick Start section if needed.
19. Repeat the above steps as needed to stand and secure the remaining interior rafters and purlin pipes to complete the frame assembly.
20. Slide a band clamp onto ***each leg of the remaining end rafter***, secure the rafter to the ground posts, and attach the purlins to it. Verify that the end clamps are positioned with the nut and bolt to the inside of the assembled frame. Refer to the Quick Start section and previous diagrams for details if needed.



Frame length may differ from actual frame.

NOTE: Final purlin pipe is a plain pipe typically shorter than the 131S075 pipes. If the end rafter is plumb and the purlin extends beyond the end of the rafter, cut the last section of purlin pipe to the required length.



IMPORTANT: Typically purlins do not require cutting. Verify that you have correctly assembled the purlin using the correct pipes *before cutting any pipe to length*. ***Consult the Side Profile diagram for your building length.***

21. Return to each pipe splice of each purlin and rafter and verify that a Tek screw is installed to secure the joint. Install a Tek screw if needed.
22. Remove any temporary bracing (if needed) and install the baseboards and side struts.

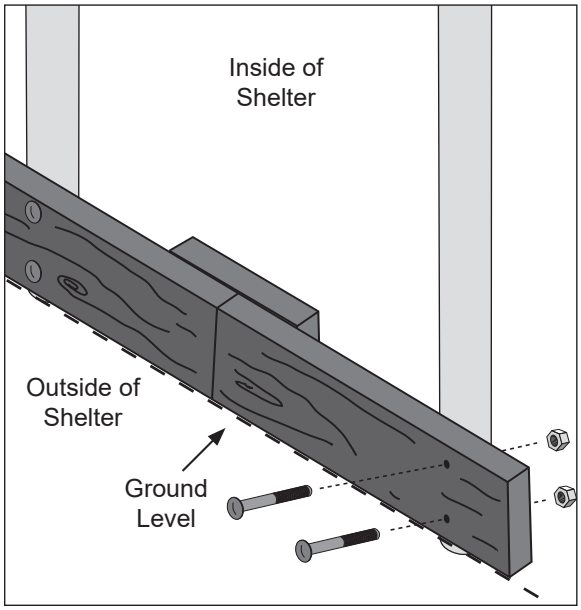
BASEBOARD INSTALLATION (RECOMMENDED)

Gather the parts:

- Treated or recycled plastic lumber (supplied by customer).
- 1/4" x 4" carriage bolts and nuts (may not work for baseboards with a thickness greater than 1-1/2")

NOTE: The following procedure describes one way to install the recommended baseboards. The size and type of the baseboard you choose may require the use of alternative steps. When properly installed, baseboards run the length of the frame.

On the outside of the frame, attach the first baseboard to the ground posts using the 1/4" x 4" carriage bolts and nuts. Continue adding baseboards to complete the first run. Splices are made between posts as shown below in the illustration. Use a short section of baseboard to secure separate baseboards at a splice.



NOTE: The boards should be at ground level or slightly into grade to prevent the shelter from sinking and to create a seal along the bottom. After installing the baseboards, continue with these instructions.

This baseboard is *not included* with the shipment and must be supplied by the customer. Treated or recycled plastic lumber works well for a baseboard.

The baseboard, when installed properly, helps prevent the ground posts from sinking into the ground when anchored. Depending on the building, it also provides a surface to attach struts or other building components.

To prevent interfering with the installation of the end wall panels, *do not allow the end of the baseboard to extend beyond the end of the end rafter.*

SIDE STRUT INSTALLATION

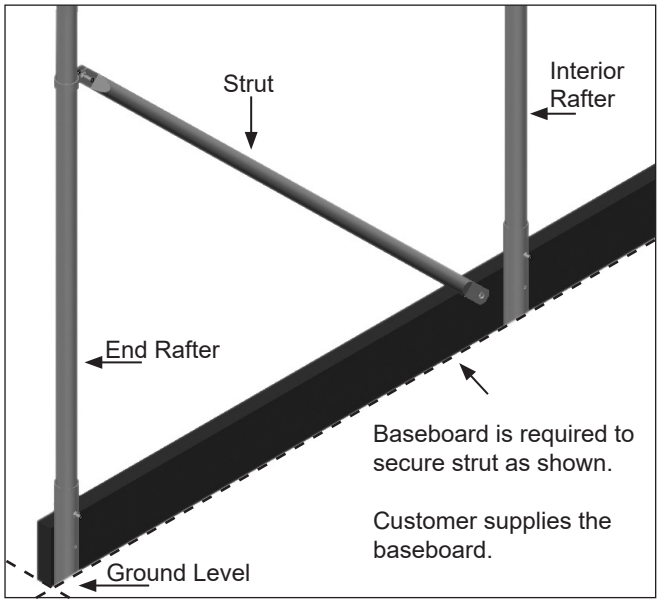
There are four (4) side struts for the shelter. These struts are positioned between the end rafters and the first interior rafter on each side of the shelter.

Complete these steps to install the four (4) side struts:

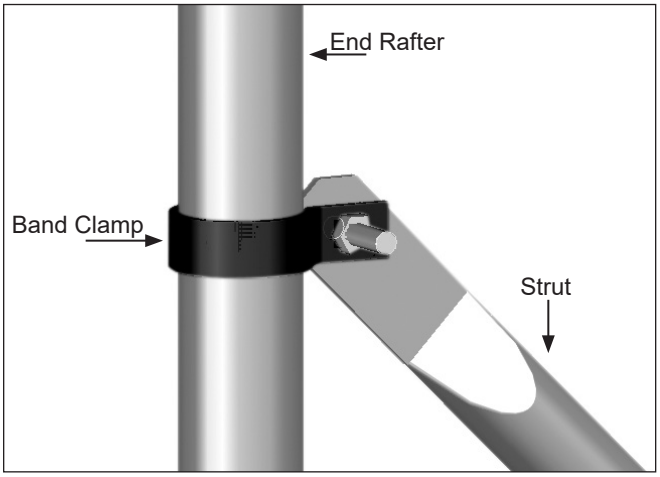
Gather the parts:

- Struts
- Band clamps (QH1402)
- Lag screw or nut and bolt (supplied by customer)

1. Locate one strut and position it between one end rafter leg and the leg of the first interior rafter as shown below.

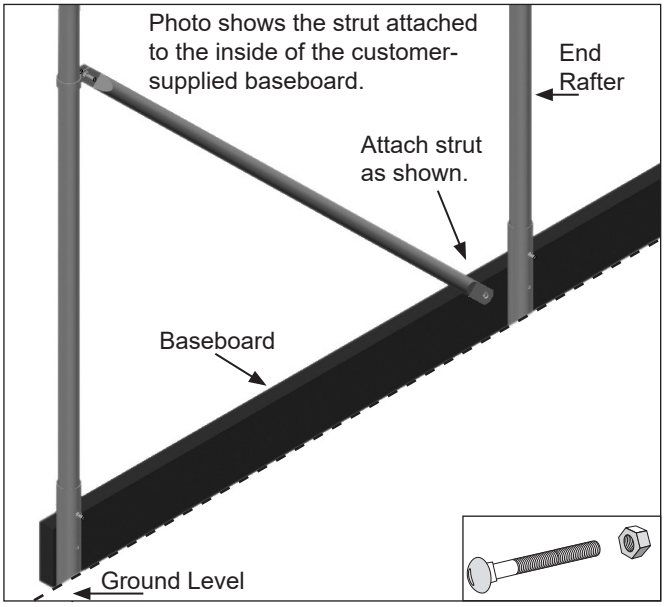


2. Attach one end of the strut to the band clamp as shown in the diagram below.



NOTE: Head of bolt on the band clamp must face the polycarbonate panels.

3. Attach the remaining end of the strut to the baseboard using a lag screw or nut and bolt (not included). See the diagram that follows for location.



NOTE: A baseboard provides a place to attach each strut and helps keep the ground posts at the required depth. The customer is responsible for providing a baseboard for this frame.

If no baseboard is used, place a band clamp around the rafter just above the ground post and secure the lower end of the strut to the band clamp (not shown).

4. Repeat the above steps to attach the remaining side struts to the shelter.
5. After securing the struts, verify that all clamps are secured with a Tek screw to the rafters.
6. Continue the next procedure to anchor the assembled frame.

ANCHOR THE ASSEMBLED FRAME

At this point, anchor the greenhouse 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 greenhouse 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 WALL INSTALLATION

The steps to install the end walls for the greenhouse include the following:

1. Install end wall framing. (See the diagrams in the Quick Start section at the back of these instructions. Read the installing accessories note below.)
2. Prepare polycarbonate end panels and attach.
3. Assemble doors and attach.

INSTALL END WALL FRAMING (Front and Back)

Site variations and different methods for anchoring the greenhouse may require slight changes to be made to these instructions. *It is the responsibility of the owner/ builder to adapt these instructions as needed to adjust for these and other differences.*

A NOTE ABOUT INSTALLING THE END WALL FRAMING FOR OPTIONAL HEATERS, VENT FANS, AND MOTORIZED SHUTTERS (if equipped):

Optional accessories such as heaters, vent fans and motorized shutter units are typically installed or attached to the end walls of this greenhouse. Additional horizontal framing (included) is installed *between* the vertical end wall frame tubes to mount these accessories. The spacing shown for the end wall supports on the end frame diagrams may be too narrow for the installation of some larger accessories.

Diagrams do not show framing for the accessories.

When framing the end wall, consult the installation instructions for the accessories (if equipped), or measure the width of the accessory to accurately space and position the end frame tubes. Consult the panel installation diagrams in the Quick Start section to *identify the verticals that can be moved*.

MOVE ONLY THE VERTICAL SUPPORTS LABELED AS NC (NON-CRITICAL). See Quick Start diagrams.

Before installing any greenhouse accessory, adhere to the following:

- Consult the end frame diagrams before installing the accessory horizontal framing.
- Move only those verticals labeled as NC (NON-CRITICAL) on the end frame diagrams when deciding where to install the additional horizontal framing for accessories.
- Consult the diagrams in the Quick Start section showing the polycarbonate panel locations and the locations of the aluminum trim and profile before repositioning any end wall vertical.
- DO NOT REPOSITION THE END WALL VERTICALS USED AT THE SEAM OF TWO (2) POLYCARBONATE PANELS.
- Always consult the installation guides that shipped with the accessory for additional precautions, recommendations, and safety requirements.
- Before installing any electrical accessory, consult a professional electrician for precautions and additional assistance.
- For gas heaters, a professional, qualified service technician must install the unit.

Complete these steps to install the accessory framing:

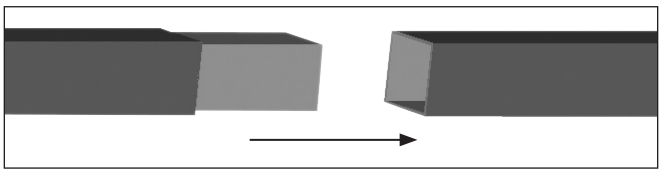
1. Based on the installation requirements and precautions of the accessory, choose a location in the end wall to mount the accessory, and cut a 1.5" x 1.5" frame tube to the required length for framing.
2. Attach these horizontal frame tubes between the vertical frame tubes of the end wall (at the required height determined by the installation instructions included with that accessory) using QH1330 brackets.

INSTALL THE FRONT END WALL FRAME

Refer to the end frame diagrams (Quick Start section). The materials and parts needed to assemble the end wall frame include:

- Square tube (102897) & roller assembly (100356)
- Angle brackets (QH1330) & band clamp (QH1402)
- Square tube fitting (104624)
- Square-to-round tube connect bracket (104074)
- Carriage bolt (FAH320) and nut (FALB32B)
- Tek screws (FA4482B)

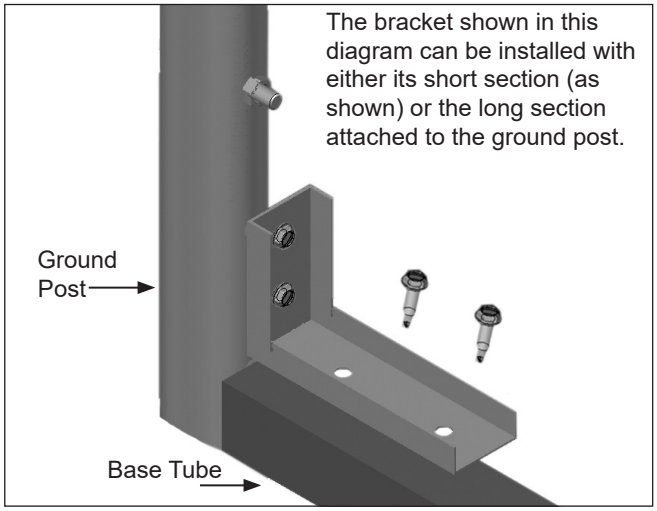
1. Locate the square metal tubing for the base tube of the end wall. The base tube consists of 99" swaged tubes and one (1) short section cut from a length of square pipe. See Quick Start section for clarification.
2. Insert the swaged ends of the tubing into the plain ends to connect the pieces, measure, and cut to length.



3. Position this assembled base tube on the ground between the legs of the end rafter at the front of the greenhouse and anchor it in place. This base tube will be directly below and in line with the end rafter.

END WALL INSTALLATION (continued)

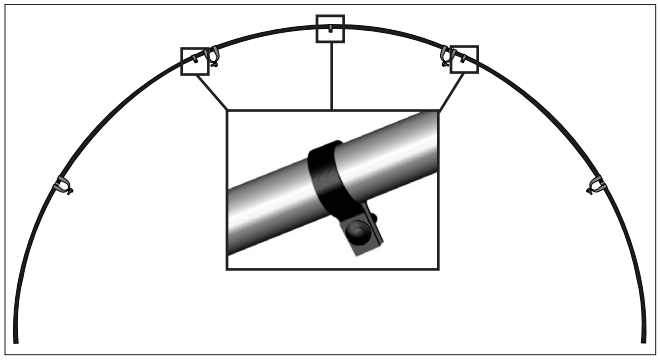
4. Secure the base tube between the legs of the end rafter using an angle bracket and Tek screws.



5. On the base tube surface facing the inside of the greenhouse, install an FA4482B Tek screw at each joint and then locate and mark the center of the base tube.

6. Consult the End frame diagram (Quick Start section) and mark the rough opening for the width of the double door assembly.

7. Place the band clamps on the end rafter above the door as shown below. **DO NOT TIGHTEN THE BOLTS AT THIS TIME.**

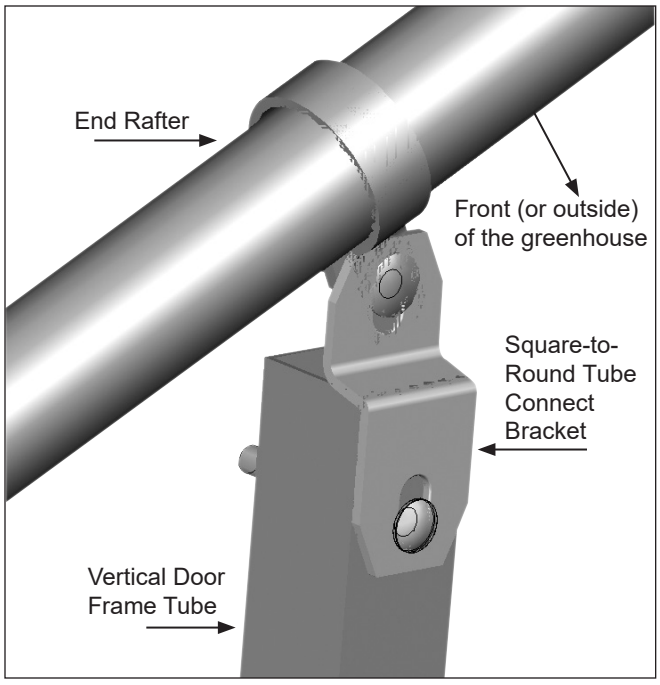


8. Select the tubing for the two vertical frame supports for the sides of the double door. Each support includes:
   - Square tubing (102897 swaged end): For the longer vertical frame members, shorter sections of tube may need to be cut and added.
   - One (1) square-to-round tube bracket (104074)

9. Measure the distance *between the top of the base tube and band clamp (Step 7)* to determine the length of the first vertical section of the door frame tube.

10. Choose one square tube (102897), insert the swaged end of the long tube into the plain end of another tube and tap with a hammer to properly seat the tubes at the joint.

11. On this assembled frame member, mark the length determined in Step 9 (above) and *subtract the amount needed to account for the square-to-round tube connect bracket*, which is attached to the top of the frame tube. See the diagram that follows.



12. Select a square-to-round tube connect bracket and attach the bracket to one end of the vertical frame member. Use a 5/16" drill bit to drill a hole through the tube and attach the bracket to the tube using a nut and carriage bolt.

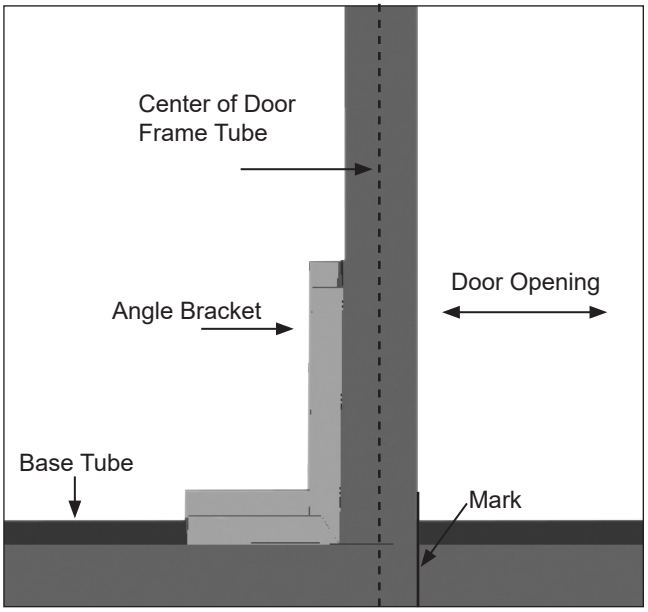
13. Repeat Steps 9-12 for the remaining vertical frame member for the door.

14. With the square-to-round tube connect bracket attached to the top of each vertical door frame tube, use the bolt in the band clamp to attach the bracket to the band clamp. DO NOT TIGHTEN AT THIS TIME.

    NOTE: The heads of the bolts for each clamp are to the outside (or front/back) of the greenhouse. At this point, the two vertical door frame members should be loosely attached to the end rafter assembly.

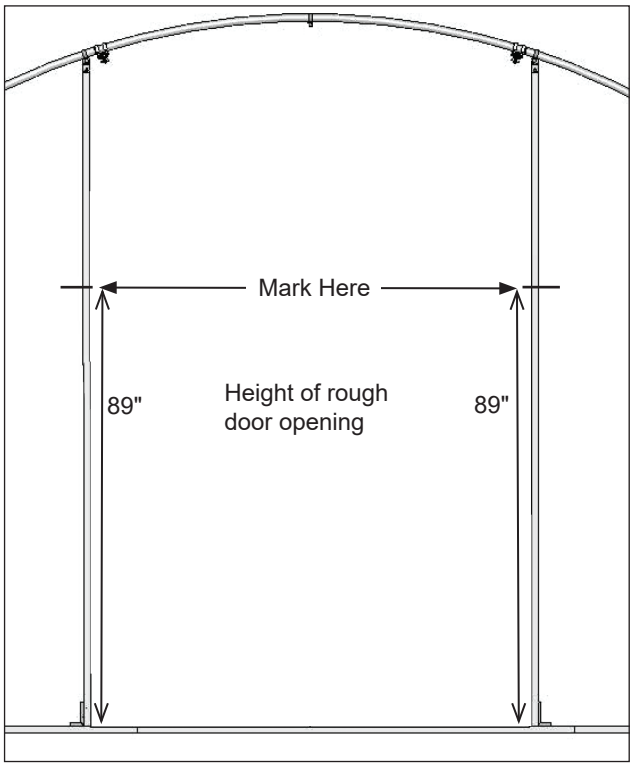
INSTALL THE END WALL FRAME (continued)

15. Using the marks on the base tube for the rough opening for the door, attach the bottom of each vertical frame member to the base tube using an angle bracket. Consult the end frame diagram.



16. With the vertical door frame tubes attached at the bottom and loose at the top, measure each frame member to locate the height of the rough door opening and mark the location on the inside of the door frame.

    Consult the End Frame diagrams in the Quick Start section located at the back of these instructions.

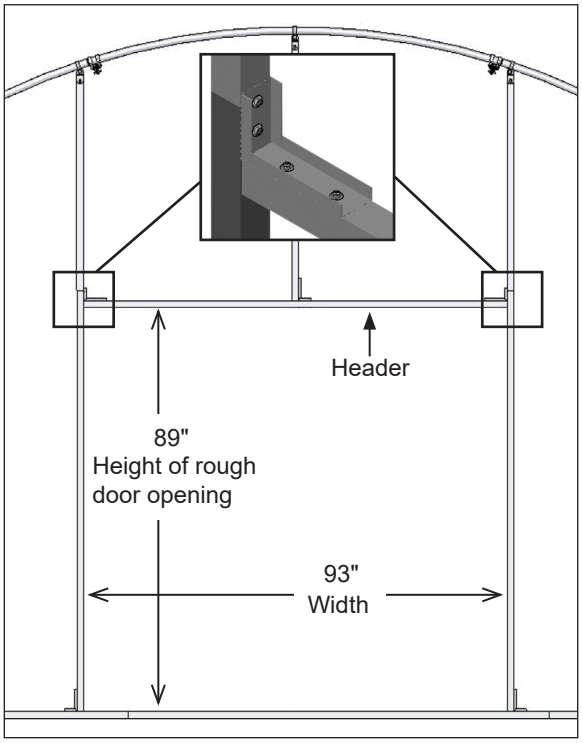


Frame shown may differ from actual frame.

17. Using a level (or other means), verify that one vertical door frame tube is plumb and tighten the band clamp bolt to lock the first door frame member in place.

18. Choose the square tube for the door frame header and cut the swaged end to the proper length for the width of the rough door opening.

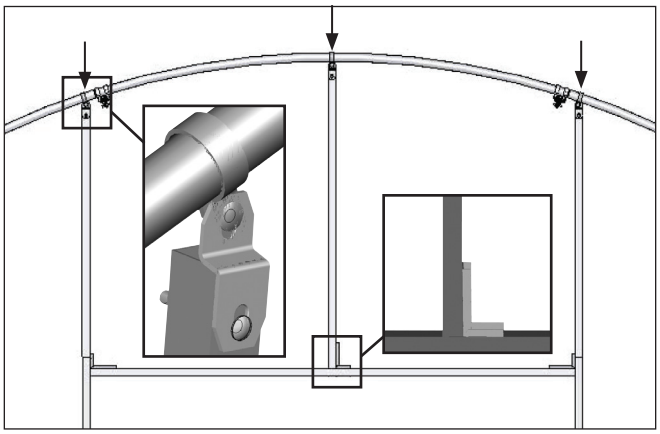
19. Using two angle brackets, attach the header tube to the end wall assembly between the vertical door frame tubes as shown.



Inside dimensions are shown. Diagrams may show a different frame used for illustration purposes only.

20. Verify that both door frame verticals are plumb and recheck the width of the rough door opening at the top and bottom. Adjust if needed.

21. Cut the metal tube for the short, end wall supports (positioned between the header and the end rafter) and attach as shown in the following diagram.



INSTALL THE END WALL FRAME (continued)

22. Use the end frame diagram to determine the number of remaining vertical end frame supports and place one band clamp on the end rafter for each of the remaining vertical supports. Use the diagram for the location of these clamps.

23. Using the end frame diagrams (Quick Start section), measure and mark (on the base tube) the locations of the remaining vertical end wall supports.

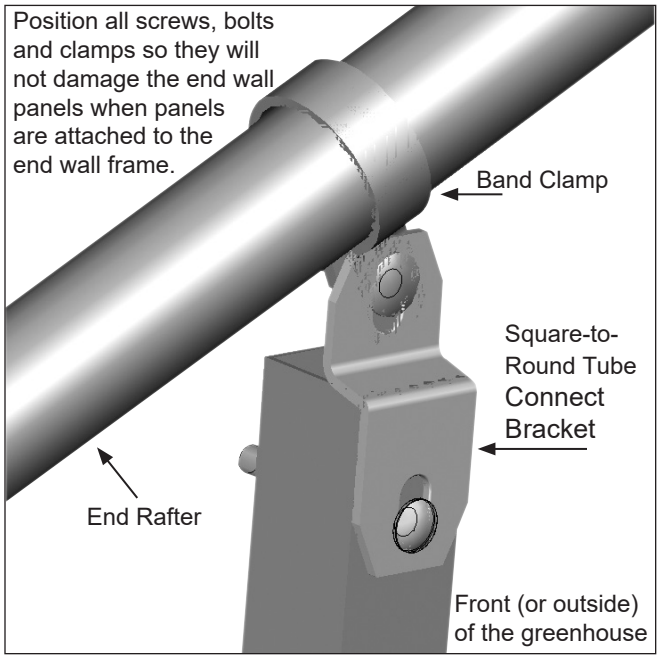
24. Choose the parts for each remaining vertical support for the end wall framing. Each vertical support consists of the following parts:

    - Square tube: Longer verticals may require an additional shorter length cut from a longer tube.
    - One (1) square tube fitting (104624) to attach the support to the base tube of the end wall assembly.
    - One (1) square-to-round tube connect bracket (104074) to attach the tubing to the band clamp on the end rafter.

25. Use the steps presented earlier in these instructions and the end frame diagrams to measure and cut each section of square tubing for the remaining vertical frame members.

    ATTENTION: Remember to subtract the amount needed to account for the square-to-round tube connect bracket that will be attached to the top of each remaining frame member.

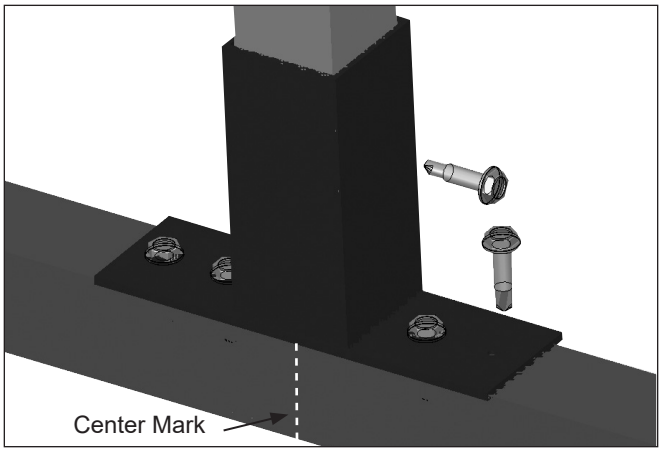
26. Choose a square-to-round tube connect bracket and attach the bracket to one end of the vertical frame member. Use a 5/16" drill bit to drill a hole through the tube and attach the bracket to the tube using a nut and carriage bolt.



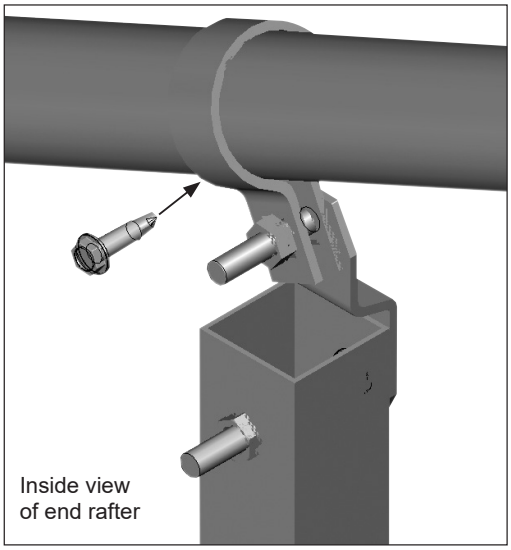
27. With the square-to-round tube connect bracket attached to the top of the frame member, place a square tube fitting on the bottom of the frame member.

28. Align the center of the assembled frame member with the center mark on the base tube and attach the top of the frame member to the band clamp on the rafter. *Do not tighten*.

29. Verify that the vertical end wall frame member is plumb and use the FA4482B Tek screws to secure the square tube fitting to the base tube.



30. Tighten the top band clamp and *install an FA4482B Tek screw through the clamp and into the rafter.*



31. Repeat the procedure as needed to assemble and install the remaining vertical end wall supports.

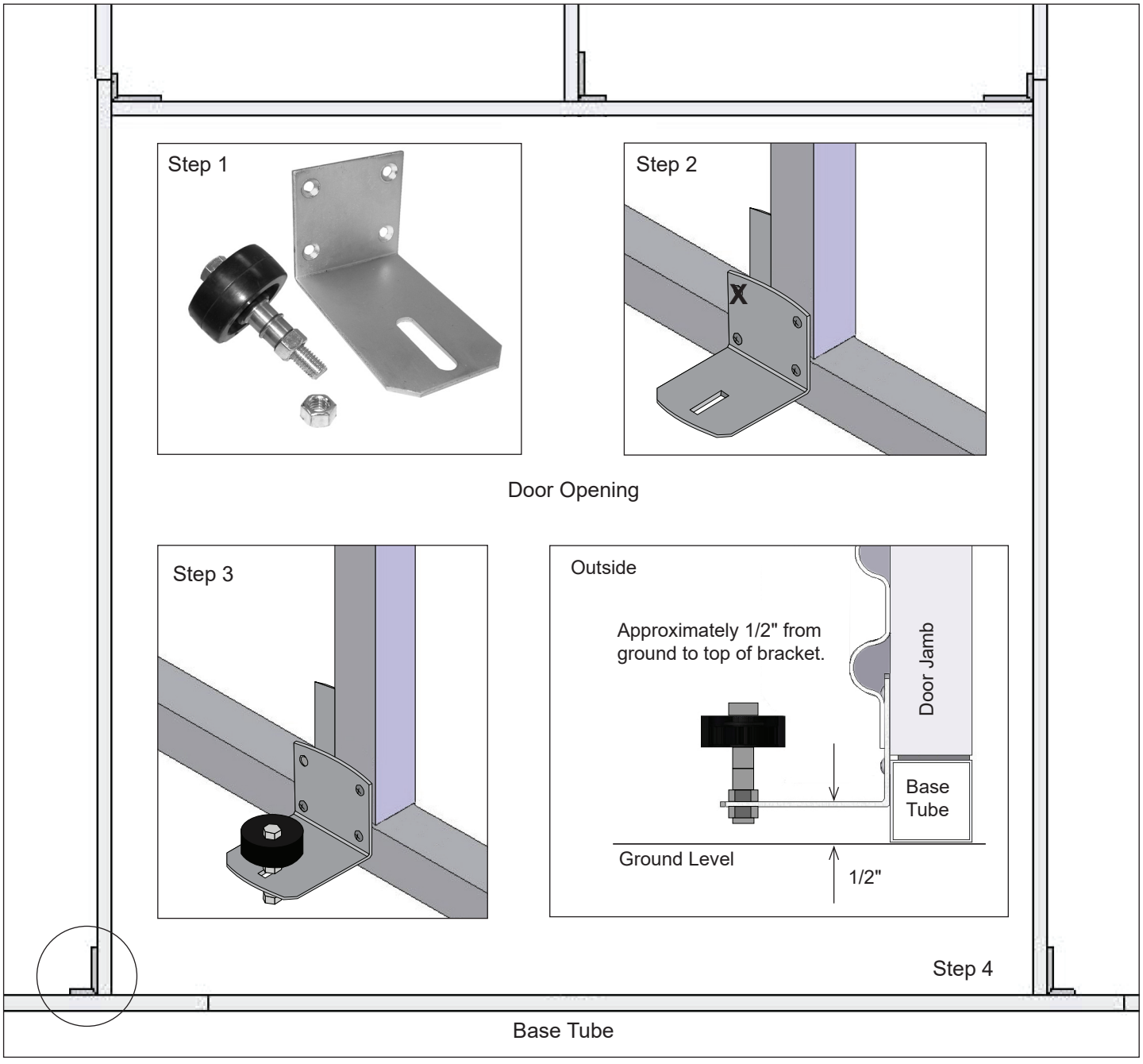
32. Return to the bottom of each frame member and install an FA4482B Tek screw through the backside of each tube fitting to secure the end frame support to the tube fitting.

33. Once each end wall is assembled, return to each band clamp and pipe splice of each base tube and verify that a Tek screw is installed. Install a Tek screw if needed.

34. Continue with the next procedure.

INSTALL SLIDING DOOR STAY ROLLER

1. Locate the 100356 stay roller box and remove the bracket, roller, bushings, bolt, and nuts from package.
2. Looking at the rough door opening of the assembled end wall, secure the stay roller bracket in the *lower-left corner of the door opening* as shown below. Use 117489 pancake head screws. Drive screws using the 100448 square bit driver. Hole marked with an X is not used.



3. Attach the roller and related parts to the angled bracket attached to the end wall frame.

   NOTE: Do not tighten the roller assembly nuts at this time. Roller is adjusted and tightened after door is installed.
4. Repeat the steps to attach the remaining roller assembly to the lower-right corner of the rough door opening. View is from outside the frame.
5. Continue with installing the framing for the back end wall.

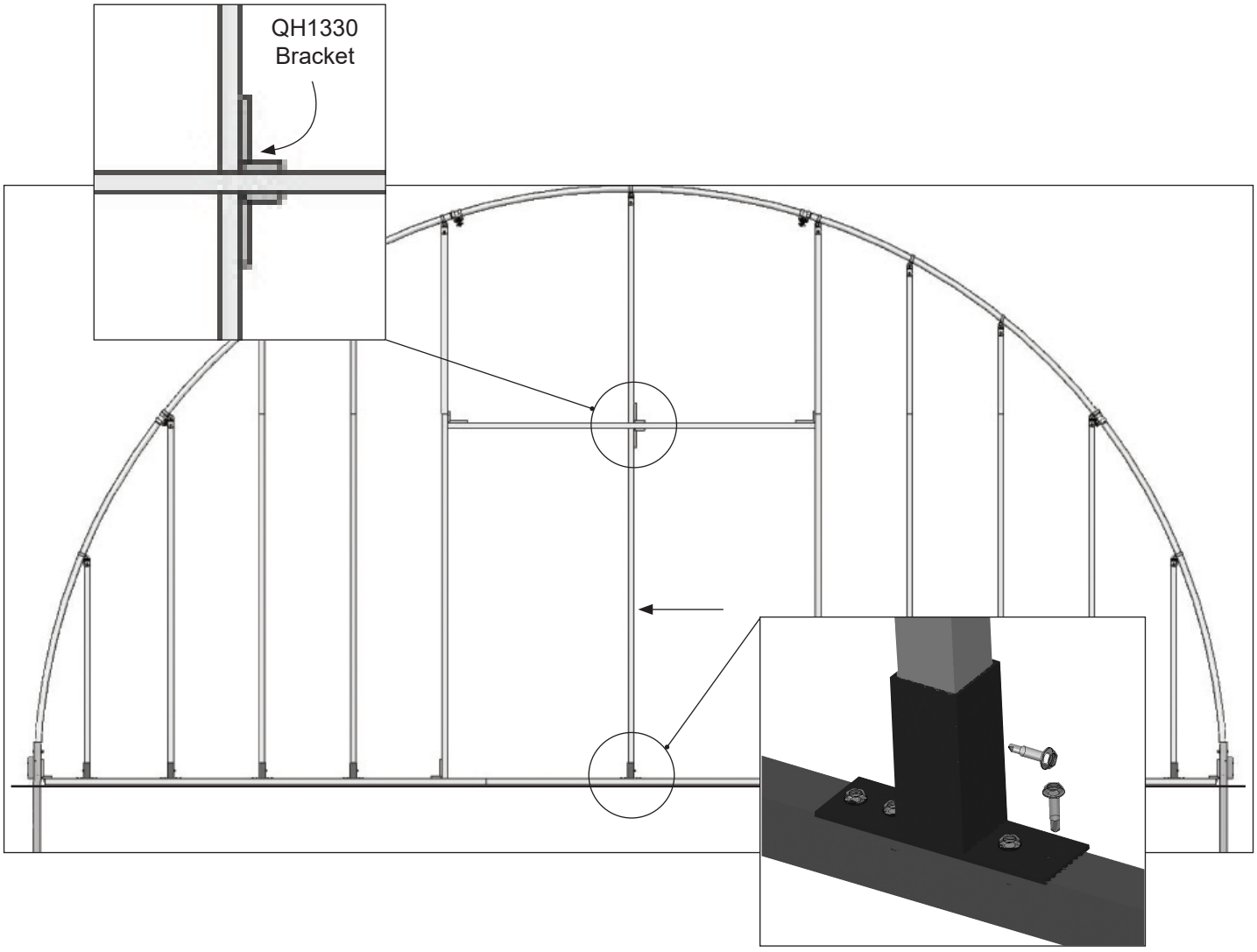
INSTALL THE BACK END WALL FRAME

The end wall framing for the back of the greenhouse is assembled in the same way as the front end wall. If the back wall includes the optional double door kit, repeat the End Wall Installation procedure and install the framing for the remaining end wall.

CONSULT THE QUICK START SECTION FOR ADDITIONAL FRAMING INFORMATION.

If the back end wall *does not include* an optional double door kit, install a vertical frame member in the framed opening. See the diagram below.

1. Measure and cut the tube to the required length.



2. Center tube in door opening and attach at the top and bottom as previously described using a QH1330 bracket and 104624 one-way connector.
3. Continue by installing the end panels.

END PANEL INSTALLATION

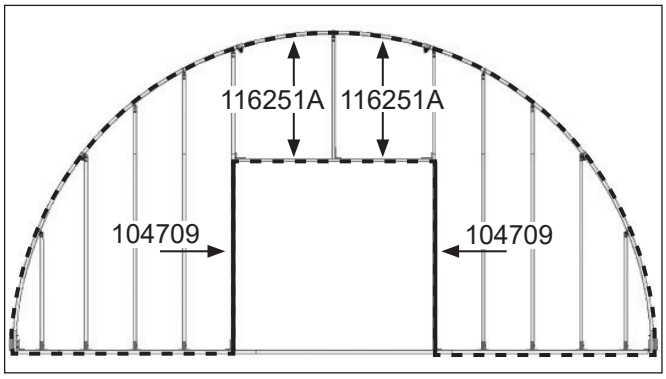
The following procedure describes one way to install the end panels. This procedure installs the panels so the corrugated ribs run horizontally. Complete these steps to install the end panels.

NOTE: End panels overlap each other and are attached to each frame member of the end wall and to the rafter. Use *Tek screws (FA4474) and washers (102921) to secure all polycarbonate panels to the framing*.

Space screws at approximately 16" on-center along each vertical tubes of the end wall frame.

ATTENTION: End walls are covered using **50" x 8' 2"** panels (104620C). *Do not use the 12' 2" panels for the end walls. Consult the Front and Back End Panel Details diagrams in the Quick Start section of this document.*

1. Locate the vertical closure foam strips (116251A), remove the plastic film to expose the adhesive, and attach the strips to the bottom frame member of the end wall and to the outside edge of the end rafter.



Dashed lines show where to attach the vertical foam closure strips (116251A). The solid lines show where to install the horizontal closure strips (104709).

NOTE: The foam stripping regarding the arch of the rafter is installed on the *end wall face of the rafter. It is used to seal the edges of the end panels*.

2. Choose one 104620C (8' 2") corrugated panel, set it in place to one side of the rough door opening, and secure it to the end wall frame tube in a few places.

   DO NOT attach it along the edges at this time

   ATTENTION: Space all screws that hold the panels to the vertical frame tubes at approximately 16" on-center.

3. Take a section of the horizontal foam stripping (104709) and install it under the edge of the end panel to seal the edge along the door frame.

4. Install a Tek screw and washer to hold the panel and foam seal in place.

   ATTENTION: *DO NOT* install the screw near the top of the end panel where the next panel will overlap.

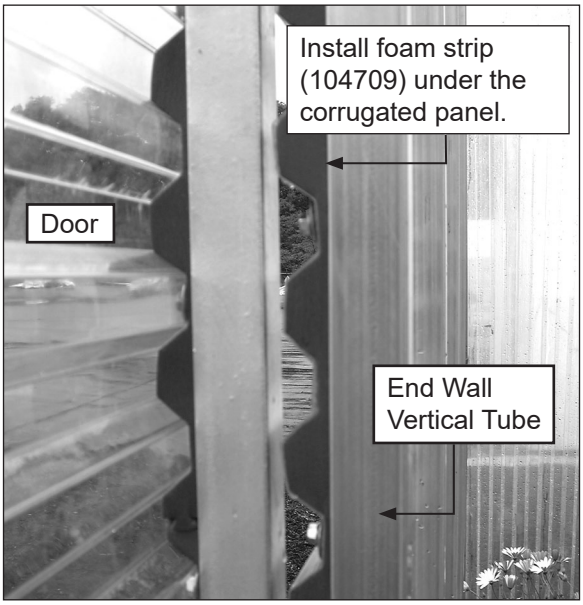


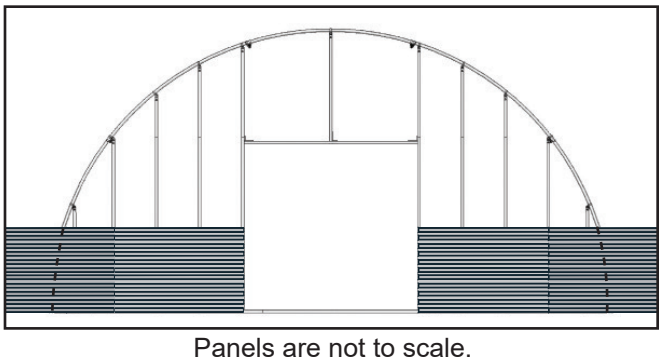
Photo shows the foam strip (104709) under the panel along the edge of the door frame as seen from *inside the greenhouse*.

5. Install the next bottom end panel to the end wall frame on the other side of the door.

6. Repeat the process for the remaining end panels for the bottom row.

7. After installing all bottom end panels on each side of the door, secure the outside end panels to the rafter using Tek screws and washers.

   NOTE: Do not completely secure the panels in place until the next panel (moving up) is installed.

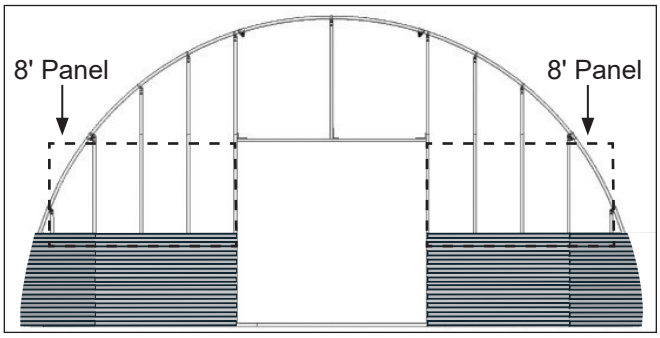


Panels are not to scale.

8. With the bottom, outside panels secured to the rafter, cut each panel to the proper length using the rafter as the guide. See the dashed lines in the above photo.

END PANEL INSTALLATION (continued)

9. Choose the next 8' panel and overlap the top edge of the bottom panel with the bottom edge of the top panel.



NOTE: The top panel will overlap the bottom panel by one rib. Neither 8' panel of the *first two rows* will reach to the rafter. Smaller sections are added to complete each row. (Panels are not to scale.)

10. Attach horizontal foam strip (116251A) to the door edge of the panel as previously described.
11. Secure the top panel to the end wall framing as previously described.
12. Once the top panel is secured, finish securing the bottom panels to the end wall framing (as needed) and add the next top panel and cut it to the proper length.
13. Repeat the process for the top panel regarding the other side of the door.
14. Continue to install the remaining panels until the end wall is covered.
15. Next, move to the remaining end wall and repeat the steps to install those end panels.

    NOTE: The width of the end wall determines how the end panels are installed. When setting the end panels in place, the excess end panel material is removed, or the next panel can overlap it, depending on how much panel remains.

Back End Wall Panel Installation

Use four (4) 104620C panels for the bottom row of the back end wall.

1. Consult the end panel layout diagram in the Quick Start section and install panels accordingly.
2. Once all end panels are installed, continue by installing all roof panels.

INSTALL THE CORRUGATED ROOF PANELS

The corrugated roof panels are attached to the tops of each rafter using Tek screws and washers. These panels are designed to span the 48" on-center rafter spacing, which allows each panel to overlap the previous panel.

CONSULT THE MAIN COVER DETAILS DIAGRAM IN THE QUICK START SECTION OF THIS DOCUMENT FOR ROOF PANEL INSTALLATION DETAILS.

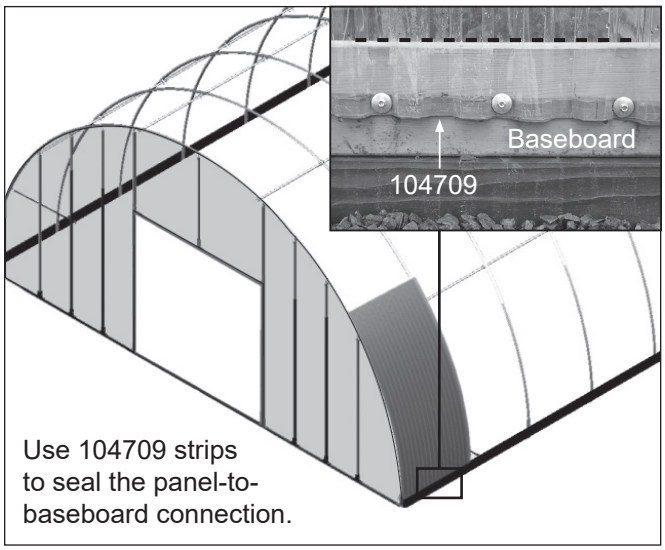
Panels are installed beginning at one end of the greenhouse and working toward the other end. All panels are installed between two rafters and over the greenhouse. The overlap seams are secured before moving to the next rafter.

REQUIRED PANELS: Use four (4) 50" x 12' 2" panels (104621C) to cover the area between each rafter.

Complete the steps that follow to install the roof panels.

ATTENTION: Tek screws (FA4474) and washers (102921) are used to secure all polycarbonate panels to the framing. Tek screws (FA4482B) are used to secure the seams of the overlapped panels.

1. Choose one corrugated panel (104621C) and position it between the end rafter and the first interior rafter. Start the panel an inch *above* the lower edge of the baseboard as shown below.



Use 104709 strips to seal the panel-to-baseboard connection.

NOTE: Install a section of the 104709 horizontal closure strip under the edge of the panel *before* attaching the panel to the rafters. See the arrow above.

The horizontal closure strip (104709) can also be installed flush with the top of the baseboard to prevent dirt and debris from filling the spaces between the polycarbonate and the baseboard. (See the dashed line in the photo above.)

INSTALL CORRUGATED ROOF PANELS (continued)

2. Place the panel at the desired height above the ground and on top of the end rafter. Align panel with the center of the rafter pipe.

3. Attach the panel to the *top of the end rafter* and to the baseboard.

   ATTENTION: ***Install Tek screws and washers at 16" intervals along the panel edges for all roof panels.*** The lower and upper ends where different panels overlap are secured every 12". Be sure to *position the panel so that it reaches the second rafter.*

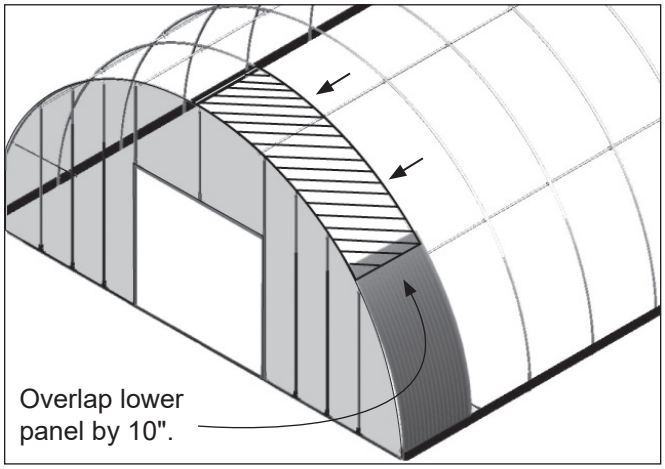
   DO NOT attach the first panel to the second rafter at this time. *Attach it to the end rafter only*.

   The next panel will overlap the previous panel, which is the repeated pattern for the length of the greenhouse.

   DO NOT secure the end of the first panel to the top of the end rafter until the next panel is in position.

4. Choose another 12' 2" panel and align it with the center of the end rafter as described Step 2.

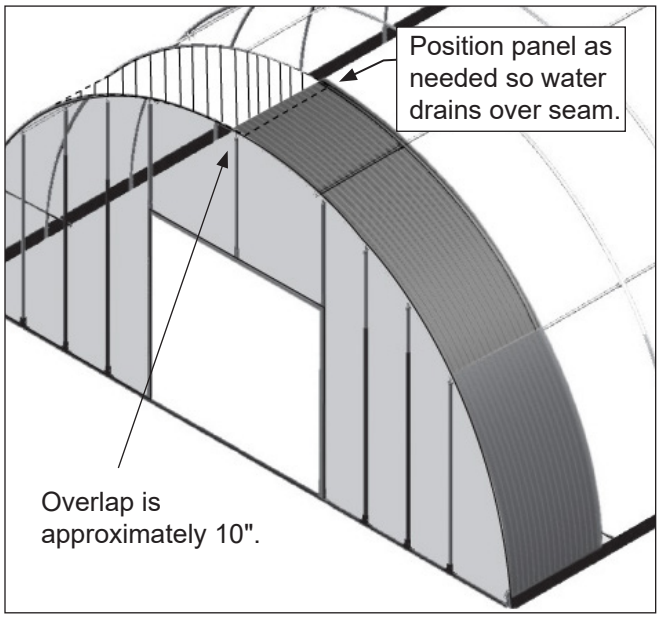
5. Position this second panel so that it overlaps the upper end of the first panel by 10 inches, and fasten the panel in place.



Panels are not to scale; drawing is used for illustration purposes only.

6. Continue to attach the panel to the *top of the end rafter* until you are approximately 12 inches from the end of the panel.

7. Choose another 12' 2" panel and position it in place on the frame. Overlap the two panels as needed so water drains over the seam and not under it. See diagram below. Overlap is approximately 10".



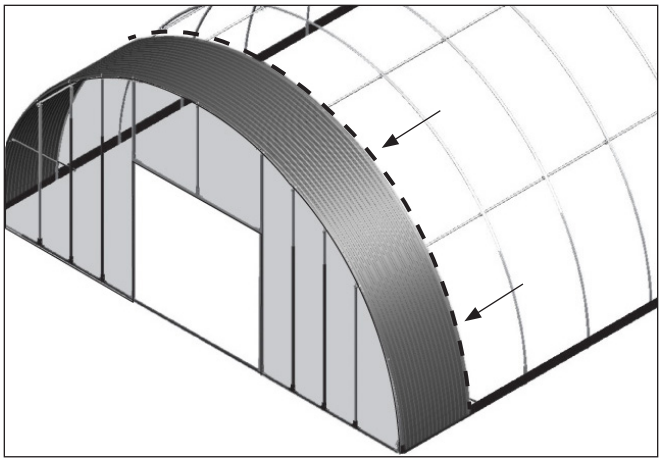
8. Secure the panel to the end rafter as previously described.

9. Choose the final panel for the first run of roof panels and position it in place between the rafters.

   NOTE: This panel is longer than what is required to complete the first run of corrugated panels. If desired, the panel can be cut to the proper length, *allowing for at least 10 inches of overlap*, or the panel can remain uncut.

   Minimum overlap is 10 inches. If cutting the final panel, do not cut it too short.

10. With the final panel aligned with the center of the end rafter, secure it to the top of the rafter.



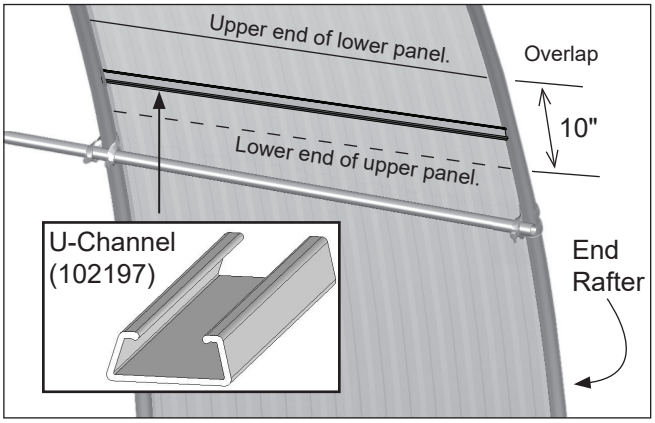
NOTE: Do not install fasteners along the inside edge until the next set of panels is installed. See dashed line.

INSTALL CORRUGATED ROOF PANELS (continued)

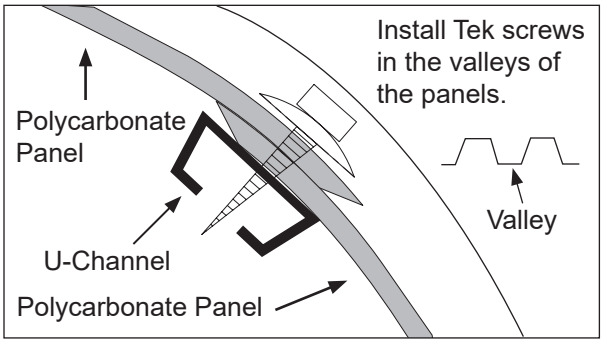
Install a section of the horizontal closure strip under the lower end of the panel *before* attaching the panel to the rafters and baseboard. ***See the arrow in the photo that follows Step 1.***

To this point, the first run of roof panels (4 panels in all) should be in place and secured to the top of the end rafter only.

11. Return to the first seam where two panels overlap and cut a section of poly-latch U-Channel (102197) so that it fits *between the rafters*.



NOTE: Position the channel at the seam ***on the inside of the greenhouse roof where panels overlap***. Install Tek screws (FA4482B) and washers from the outside, through the two polycarbonate panels (where they overlap), and into the poly-latch U-Channel to secure the seam. ***Install screws in the valleys of the panels.***



Secure *all overlap seams as you work toward the other end of the greenhouse*.

Use four (4) Tek screws (FA4482B) and four (4) washers (102921) for each seam to secure the roof panels to the U-Channel.

12. Once the seams for the first run of roof panels are secured, install the next run of roof panels.

13. Choose another 12' 2" panel (104621C) and place it between the second and third rafter.

ATTENTION: This panel will overlap the edge of the installed panels and *must be installed* so that its edge can be anchored to the top of the second rafter.

When installed properly, the remaining edge will overlap the third rafter. The next run of roof panels between the third and fourth rafters will overlap this edge and so on.

To more easily reach the rafter to secure this next run of polycarbonate, roll the panel sheet under or over itself during the installation and unroll the sheet after securing the edge to the rafter.

Install the horizontal closure strip between the panel bottom and the baseboard and continue as previously described.

14. Continue installing the corrugated polycarbonate roof panels and securing the overlap seams as previously described until all roof panels are installed.

15. Verify that all panels are properly secured and continue with the next procedure.

ASSEMBLE AND INSTALL SLIDING DOORS — OVERVIEW

The general steps to install the sliding doors are as follows:

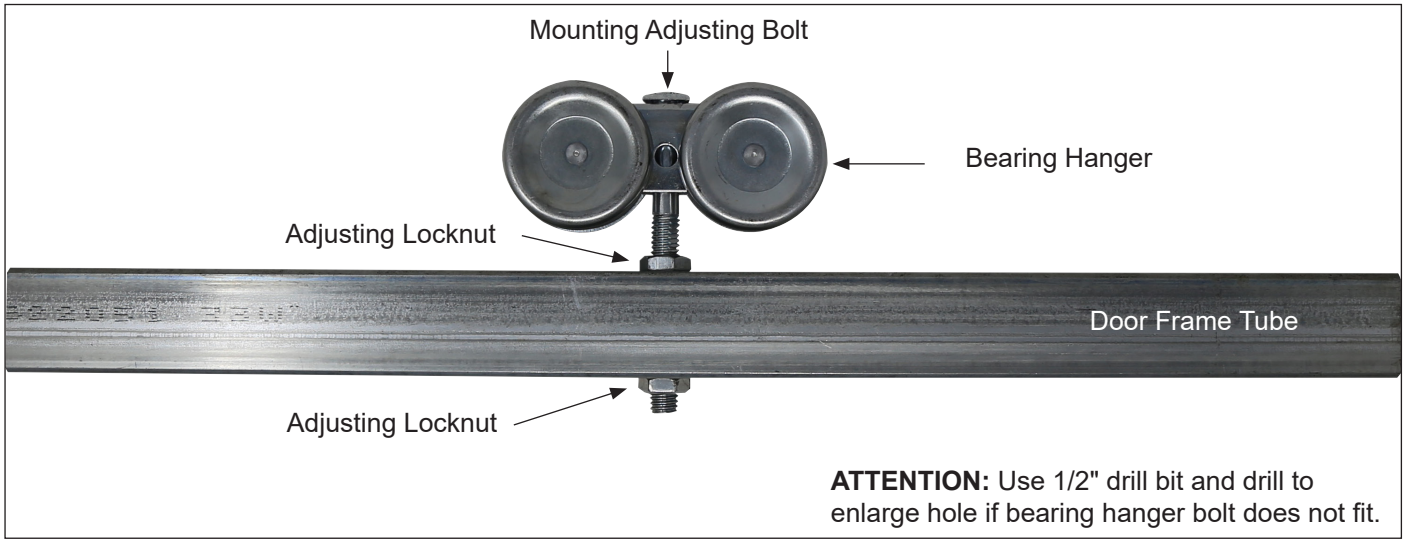
1. Assemble the 102923 door frames.
2. Attach bearing hangers to the door frames.
3. Attach the sliding door track to the end wall.
4. Hang the sliding doors in the door track and adjust sliding doors as needed.
5. Attach corrugated polycarbonate panels and closure strips to door frames.
6. Attach door handles and reinstall doors (if these were removed to install cladding).
7. Install Tek screws (FA4482B) through track to prevent door(s) from sliding out of the track.
8. Install aluminum profile (104548) along door frame of end wall to finish the ends of the corrugated end wall panels.

ATTACH ROLLER ASSEMBLIES TO DOOR FRAMES

Complete the following steps to attach bearing hangers to the door frames.

1. Assemble 102923 door frames.
2. Locate and unpack the 116391 bearing hangers. Each door requires two bearing hangers.
3. Insert mounting bolt through top of roller bearing and add one adjusting locknut.
4. Insert end of mounting bolt through mounting hole in top of door frame and add the remaining adjusting locknut.

   NOTE: Use 1/2" drill bit and drill to enlarge hole if bearing hanger bolt does not fit.
5. Repeat to attach remaining hanger to door frame.
6. Repeat steps to attach bearing hangers to remaining door frame.
7. Continue with next procedure.



ATTENTION: Use 1/2" drill bit and drill to enlarge hole if bearing hanger bolt does not fit.

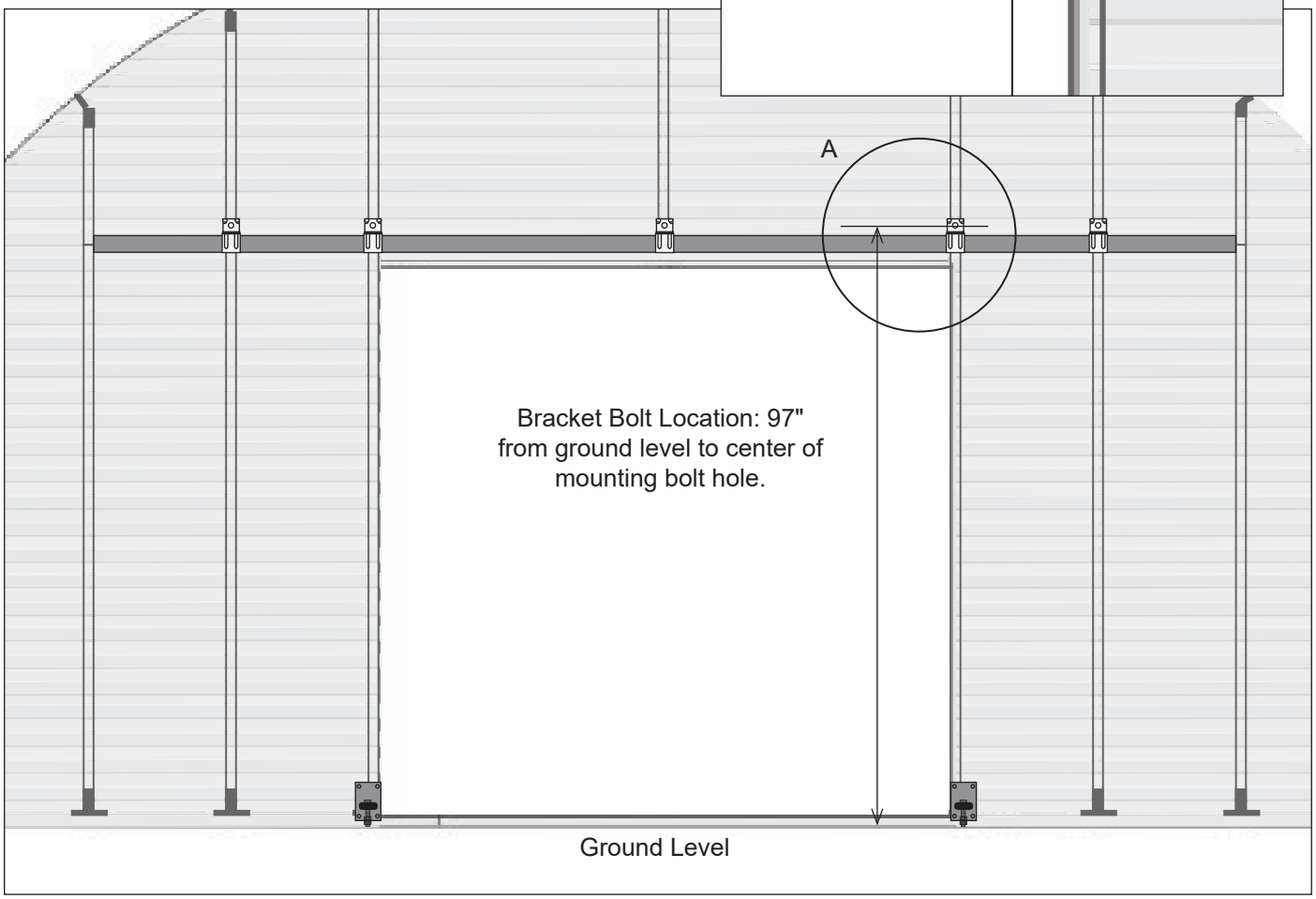
ATTACH SLIDING DOOR TRACK TO END WALL

Complete these steps:

1. Using the diagram below, mark the bracket bolt locations for the 100380 track brackets.

   NOTE: Brackets to be level across the end frame. Use a straight edge and long level when marking bolt hole locations for the track brackets. ***Before drilling holes, measure the door and bearing hangers to confirm that door will fit between stay roller at the bottom and track at the top once track is installed.*** Adjustment for door is limited by the bearing hanger adjustment bolt.

   IMPORTANT: Dimension is approximate. ***Actual position of door track may differ.*** Measure all components to determine the exact position of sliding door track and related brackets before drilling holes.

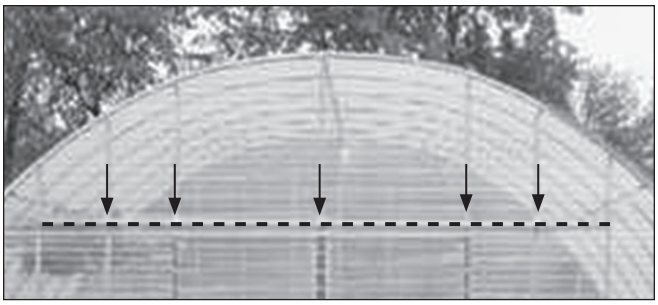


2. After confirming and marking hole locations, attach track brackets and tracks as described in the next procedure.

INSTALL SLIDING DOORS

Complete the following steps to attach the sliding door track brackets to the end wall frame.

1. Locate the 3/8" x 4" carriage bolts (FAH377B) and related 3/8" nuts and washers (FAME18B, FAMA38B, & FALB34B) used to secure the track brackets to the end wall framing.
2. Drill a 7/16" hole through the corrugated polycarbonate panel and through the vertical end wall frame at each hole location.



ATTENTION: The holes must be level to ensure track is level.

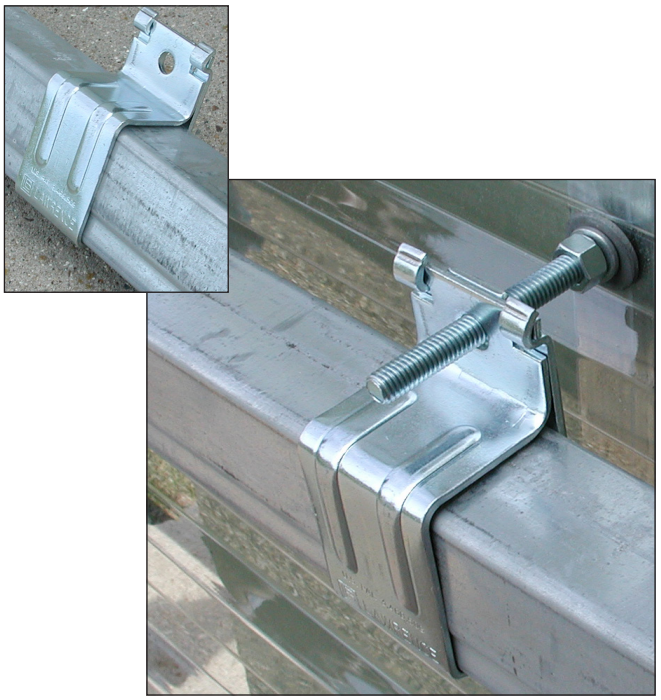
3. Insert a 3/8" carriage bolts through a hole ***from inside the building*** and tap it with a small hammer to set it tight against the end wall frame member.

   NOTE: If needed, drill hole on inside of frame to 1/2" if you are unable to seat bolt head tight to frame tube.

4. Repeat the steps to install the remaining sliding track mounting bolts.

ATTENTION: Install a flat washer (FAME18B), lock washer (FAMA38B), and nut (FALB34B) to secure the mounting bolt to the end wall frame.

5. After tightening the mounting bolts, slide three (3) track mounting brackets onto one door track (100377).
6. With assistance, lift track and align brackets with the mounting bolts. Slide brackets onto bolts and add a lock washer (FAMA38B) and nut (FALB34B) to secure in place. ***Do not tighten at this time.***



7. Repeat steps as needed to install remaining track.

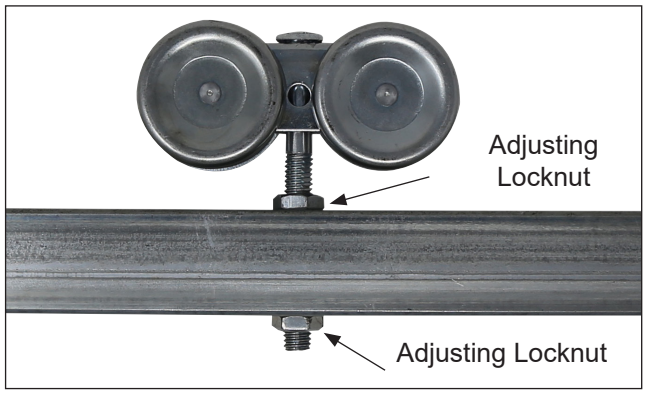
   NOTE: The center bracket supports the end of each door track. Bracket will cover the joint where the separate track sections meet.

8. Return to and tighten all 3/8" nuts to secure all brackets.
9. Continue with the next procedure.

INSTALL AND ADJUST SLIDING DOORS

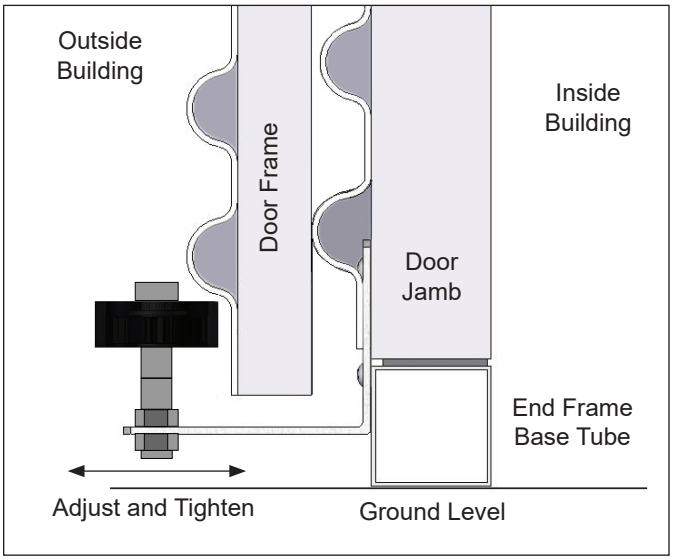
Complete these steps:

1. With assistance, carefully lift one door into position and slide bearing hangers into the end of the door track.
2. Slide door to center of opening to its closed position.
3. Repeat to install the remaining door.
4. Adjust the nuts on each bearing hanger to achieve the desired fit.



ATTENTION: Doors will hang level and close tightly—no gap where doors meet—when properly adjusted. Doors should glide freely through the stay rollers. Adjust as needed.

5. Tighten nuts to secure bearing hanger adjustment.
6. Adjust the stay rollers as needed.



NOTE: Allow approximately one-quarter inch (1/4") gap between door and roller for best operation. Actual positions of components may differ from diagram.

7. Continue with the next procedure.

Space below is reserved for customer notes.

INSTALL DOOR CLADDING AND HANDLES

Complete these steps:

1. After adjusting doors, attach the corrugated polycarbonate panels to the doors using Tek screws (FA4474) and washers (102921). Space screws at approximately 12" on-center.

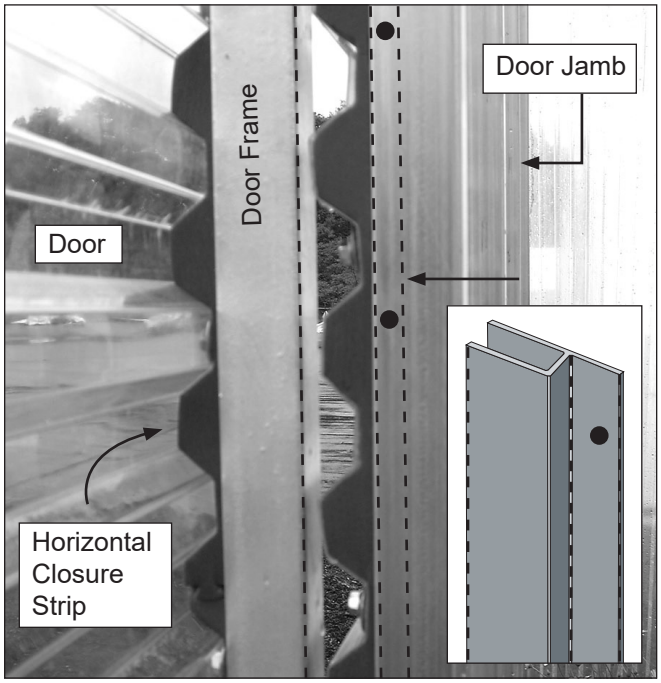
   ATTENTION: Panels can be installed with the doors hanging from track, or door frames can be removed and set on supports to install cladding and door pulls.

   Each door is covered using one 50" x 8' 2" panel.

Panel Orientation: For this building, panels are installed with ribs running horizontally to match the end wall cladding.

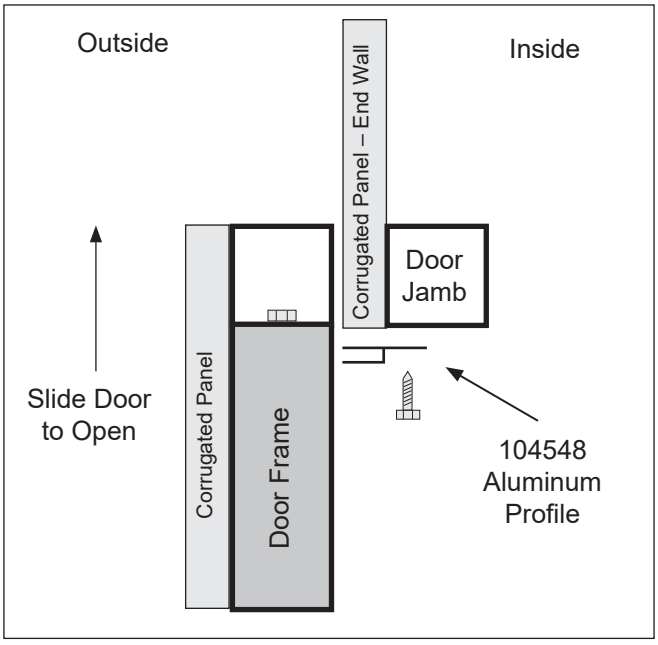
The horizontal closure strips are used under the panels along the edges to seal the corrugated openings.

2. After panel installation, slide doors back into the door track (if needed) and install the 104548 profile along the end wall door frame as shown in the following photos.



ATTENTION: Use Tek screws to secure the profile to the end wall framing.

Photo above shows end wall without installed profile. Dashed line shows where to install profile to cover the valleys of corrugated end panels. *View is from the inside of the frame* looking at the point where the door meets the door frame of the end wall. See also the top view of same area shown below.



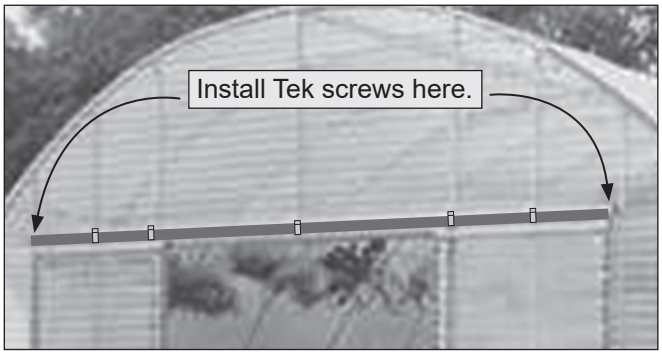
TOP VIEW

INSTALL DOOR CLADDING AND HANDLES (continued)

3. Locate the two (2) door handles (100362) and attach these in the desired location using the 117489 pancake head screws and 100448 square driver.

NOTE: Drive screws through the polycarbonate panel and *into the door frame*. Orient handles either horizontally or vertically in the desired location.

4. Next, slide one door to its open position and install two (2) Tek screws through the door track to prevent the door from sliding out of the track.



NOTE: Arrows above show where to install the Tek screws (two at each end) used as door stops. Install screws through the face of the door track at each end.

5. Return to the door track mounting bolts and cut bolts to length if desired. (This is an optional step.)

6. Continue by reading the care and maintenance information in the next column.

SHELTER CARE AND MAINTENANCE

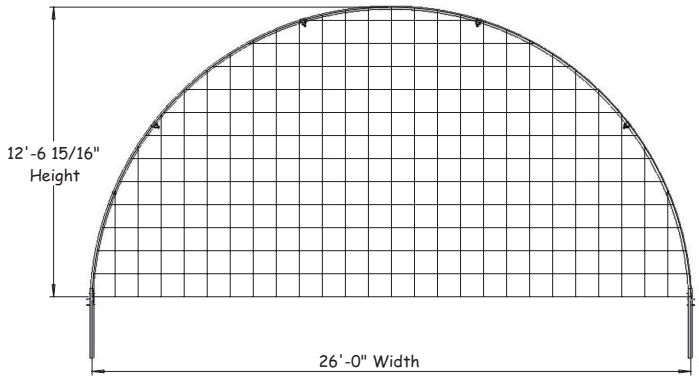
Proper care and maintenance of the shelter is important. Check the following items periodically to properly maintain the shelter:

- Regularly check the polycarbonate panels to see that these are secure and in good condition. Replace damaged panels if needed.
- Check connections and all fasteners to verify that they remain tight.
- Do not climb or stand on the greenhouse at anytime. (See the ridge cap installation notes.)
- Inspect the anchoring system to verify that all components remain tight and in good condition.
- Remove debris and objects that can accumulate on the greenhouse. Use tools that will not damage the cover when removing debris.
- Remove snow to prevent excess accumulation. Use tools that will not damage the polycarbonate panels when removing snow.
- Check the contents of the shelter to verify that nothing is touching the polycarbonate panels that could cause damage.
- If the greenhouse is moved, inspect all parts and connections before it is reassembled.
- Depending on the contents, construction of the shelter, shelter materials, and shelter location, the potential for condensation exists. GrowSpan™ offers several items that can be used to alleviate a condensation condition. Please contact a GrowSpan™ representative for additional information.
- For replacement or missing parts, call 1-800-245-9881 for assistance.

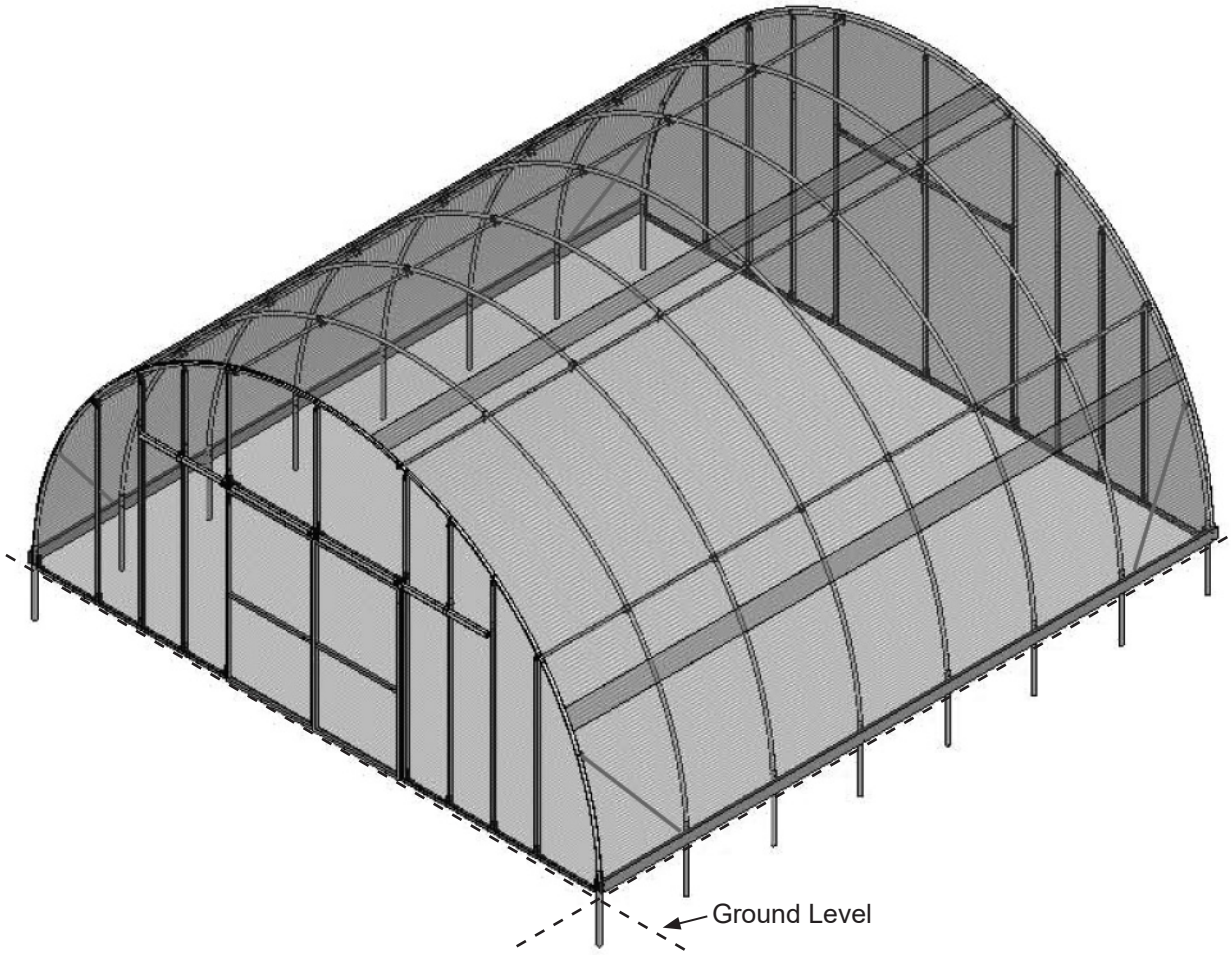
GROWspan™
greenhouse structures

QUICK START GUIDE

26' Round Premium Greenhouse



FRONT
Grid Represents 12" Squares



Frame shown may differ in length from actual frame.

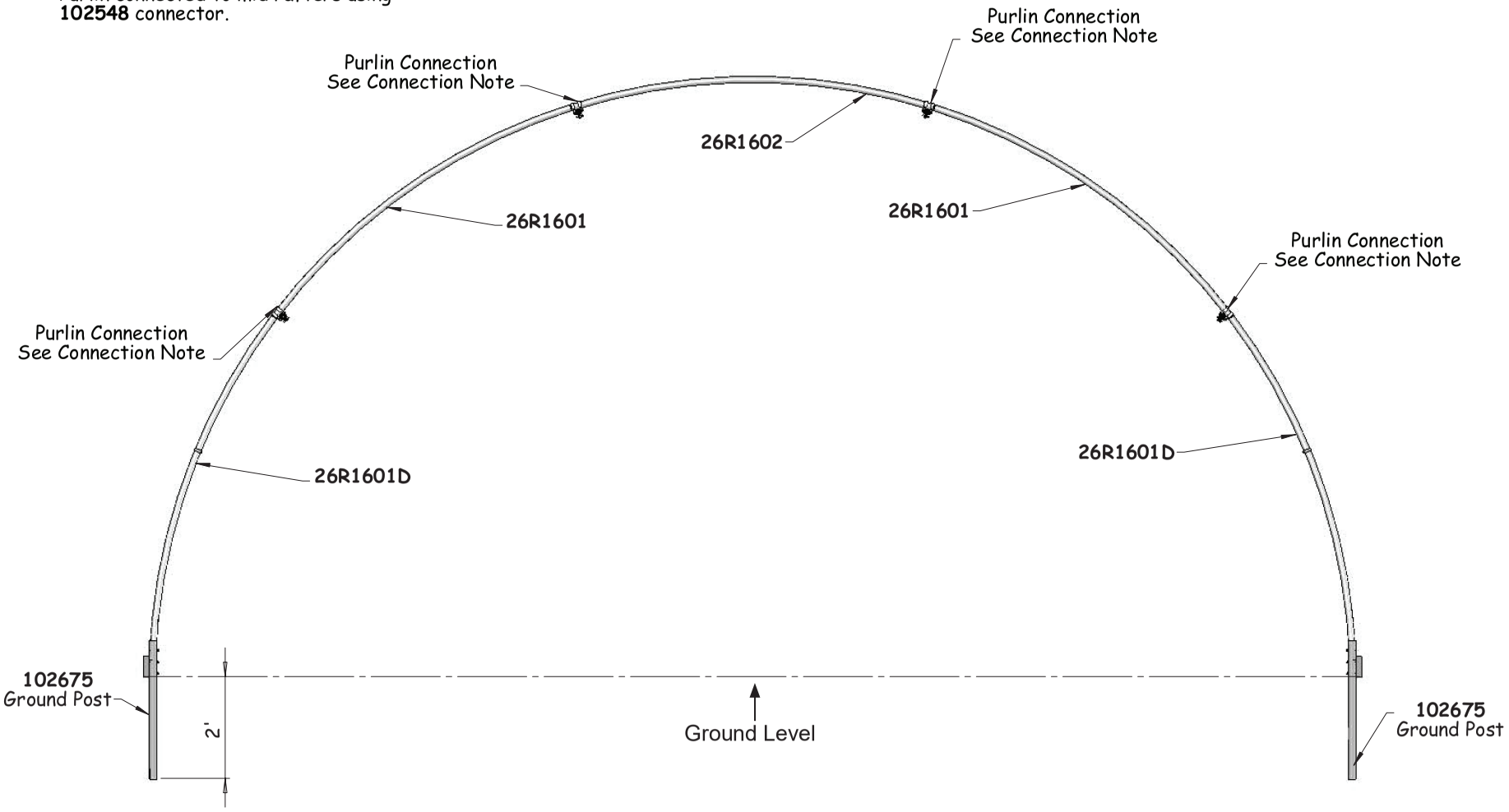
FRONT PROFILE

Connection Notes

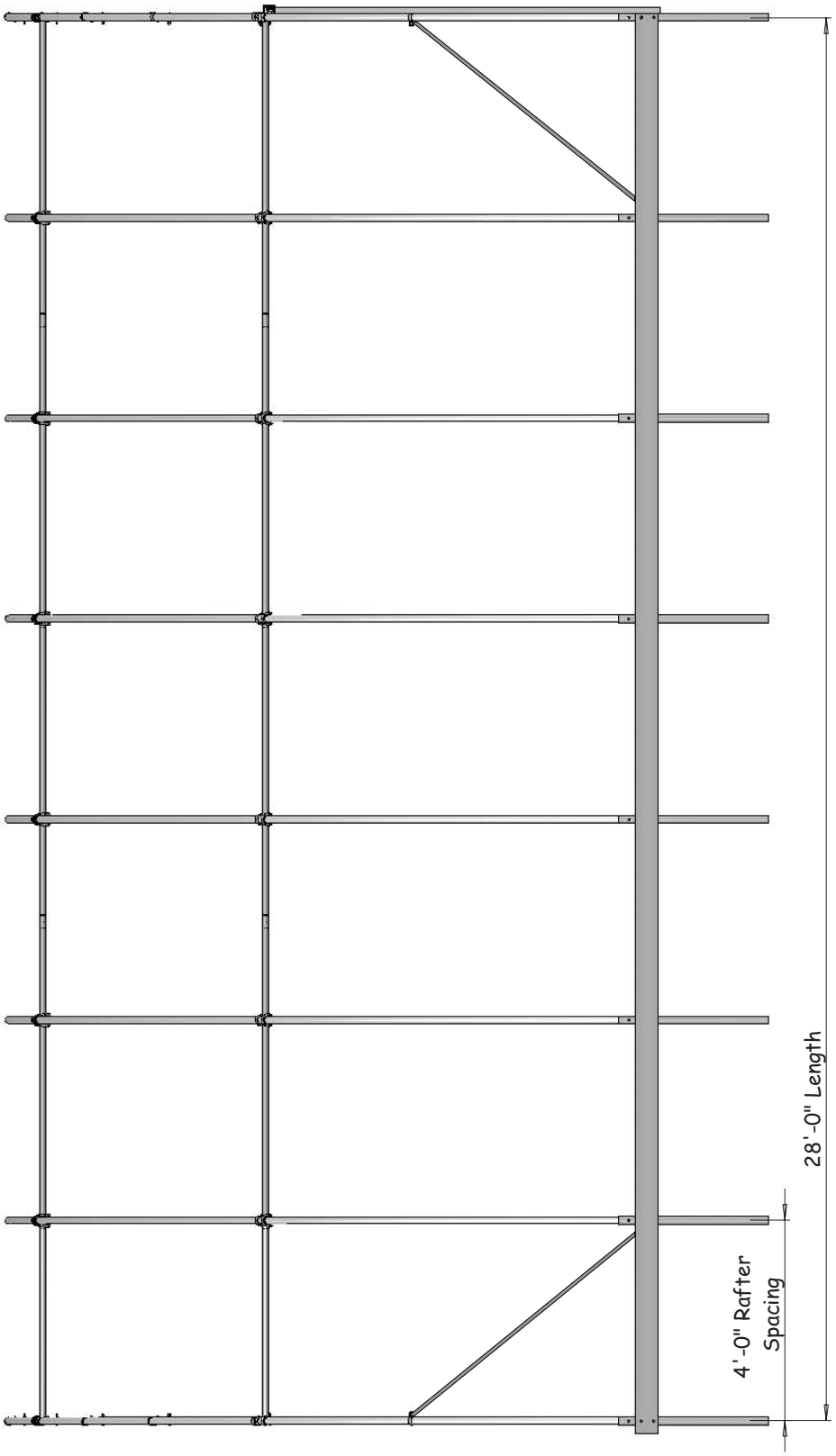
Purlin Connections

Purlin connected to end rafters using **102856** clamp.

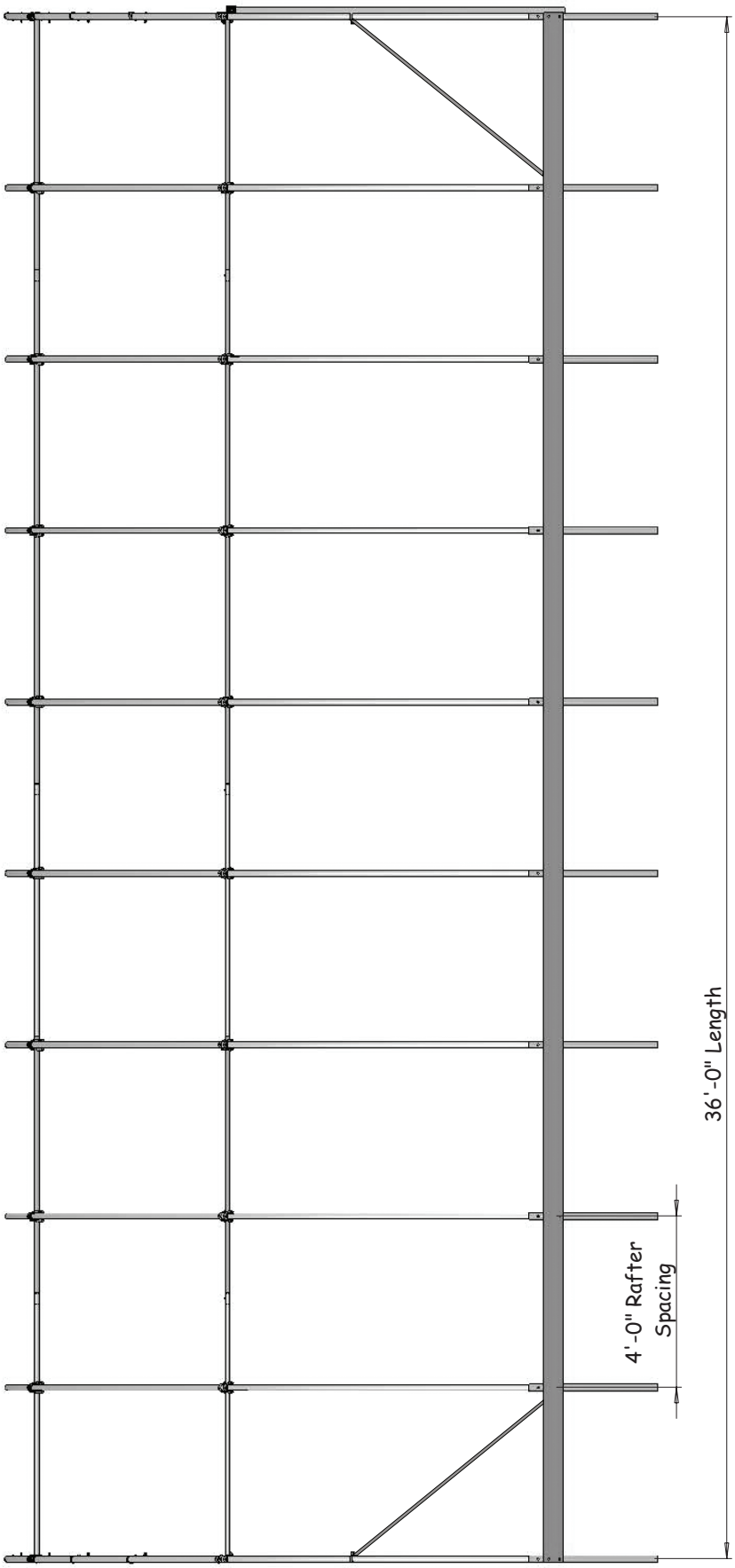
Purlin connected to mid rafters using **102548** connector.



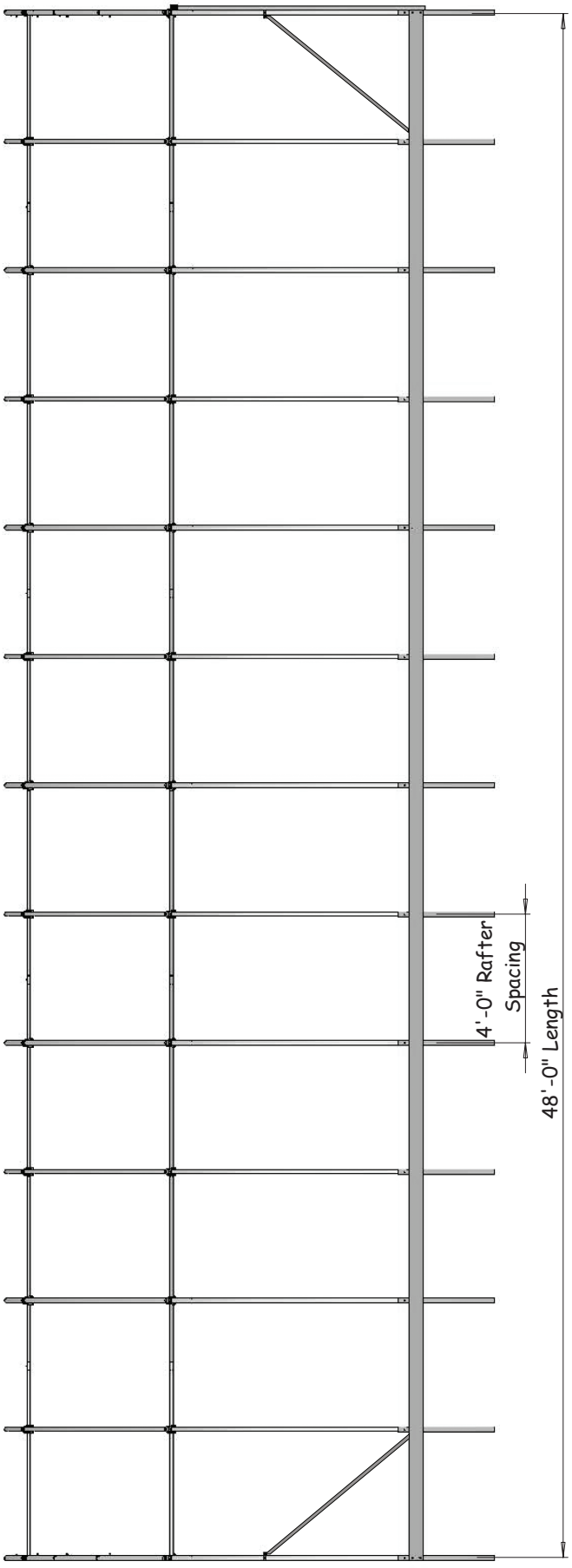
SIDE PROFILE - 104933

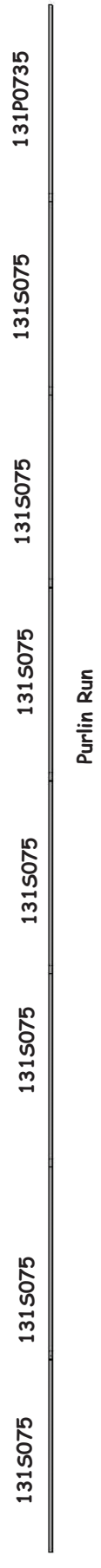


SIDE PROFILE - 104934

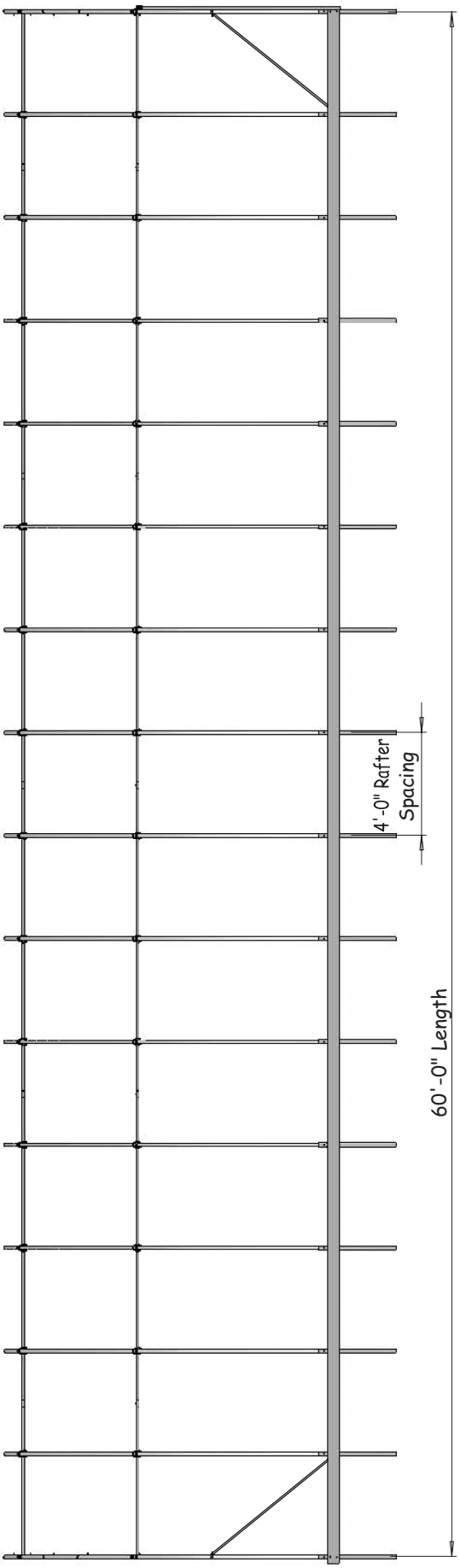


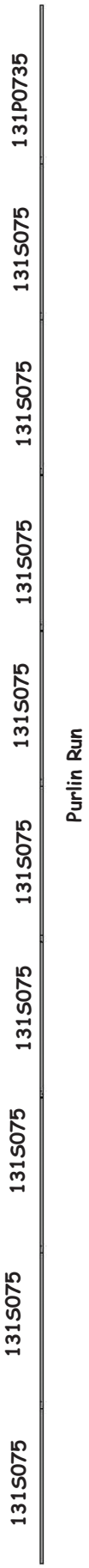
SIDE PROFILE - 104935



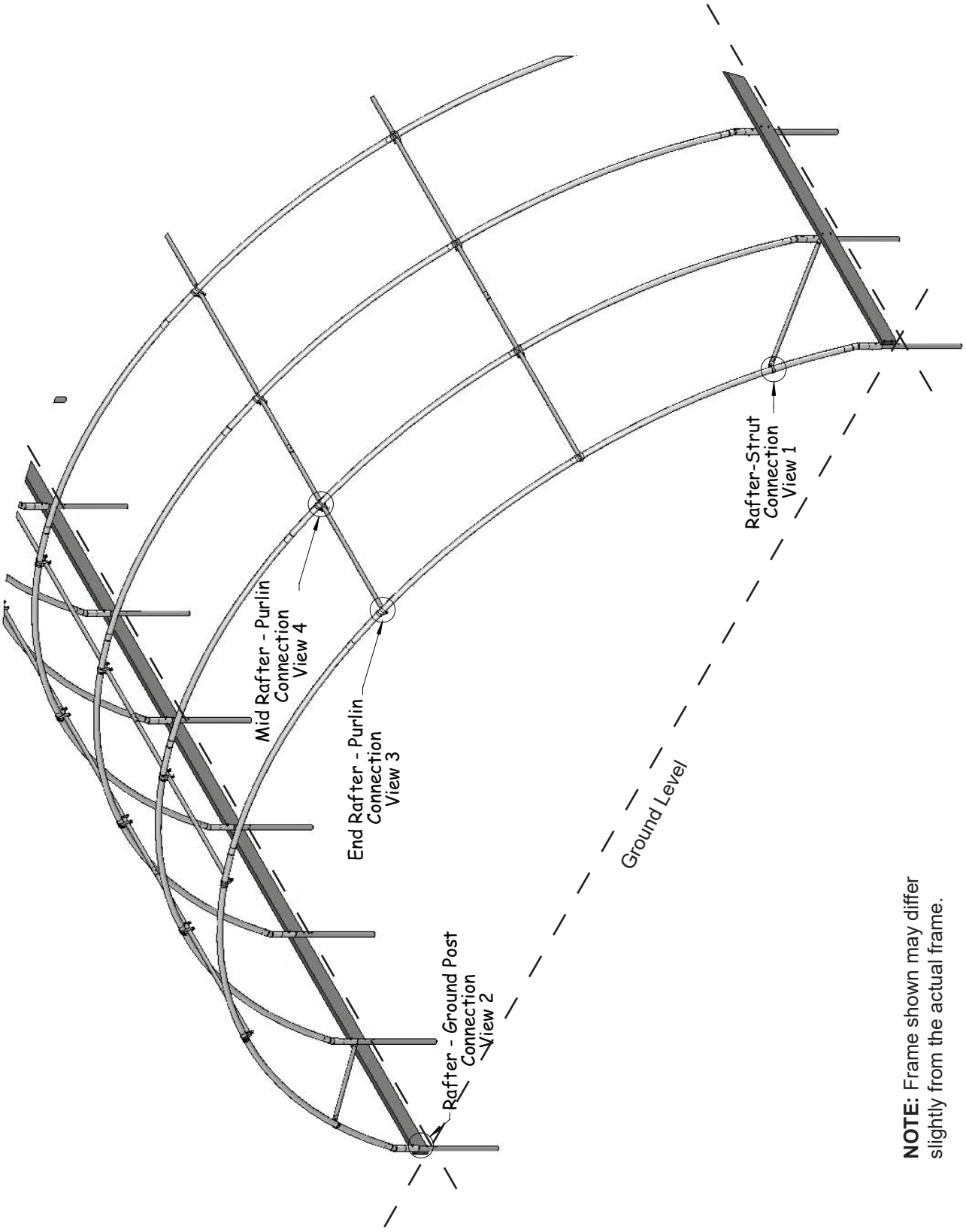


SIDE PROFILE - 104936



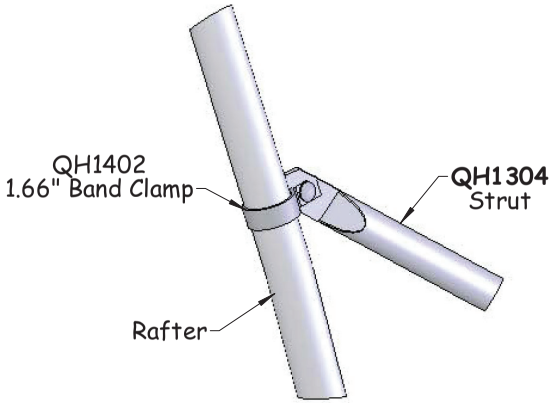


CONNECTIONS

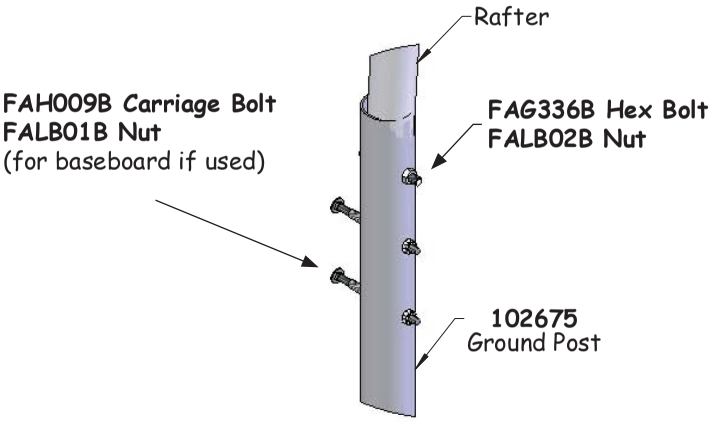


NOTE: Frame shown may differ slightly from the actual frame.

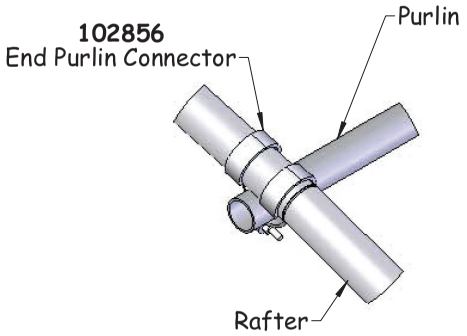
CONNECTION - FRAME DETAILS



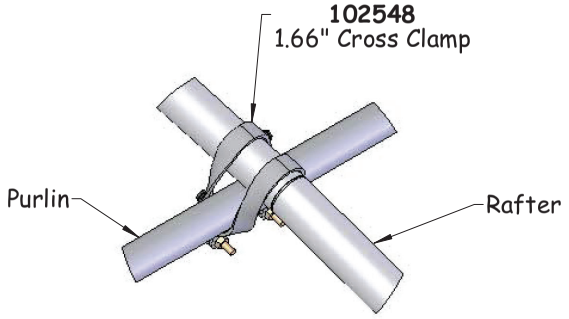
View 1
Rafter-Strut Connection



View 2
Rafter-Ground Post Connection



View 3
End Rafter-Purlin Connection

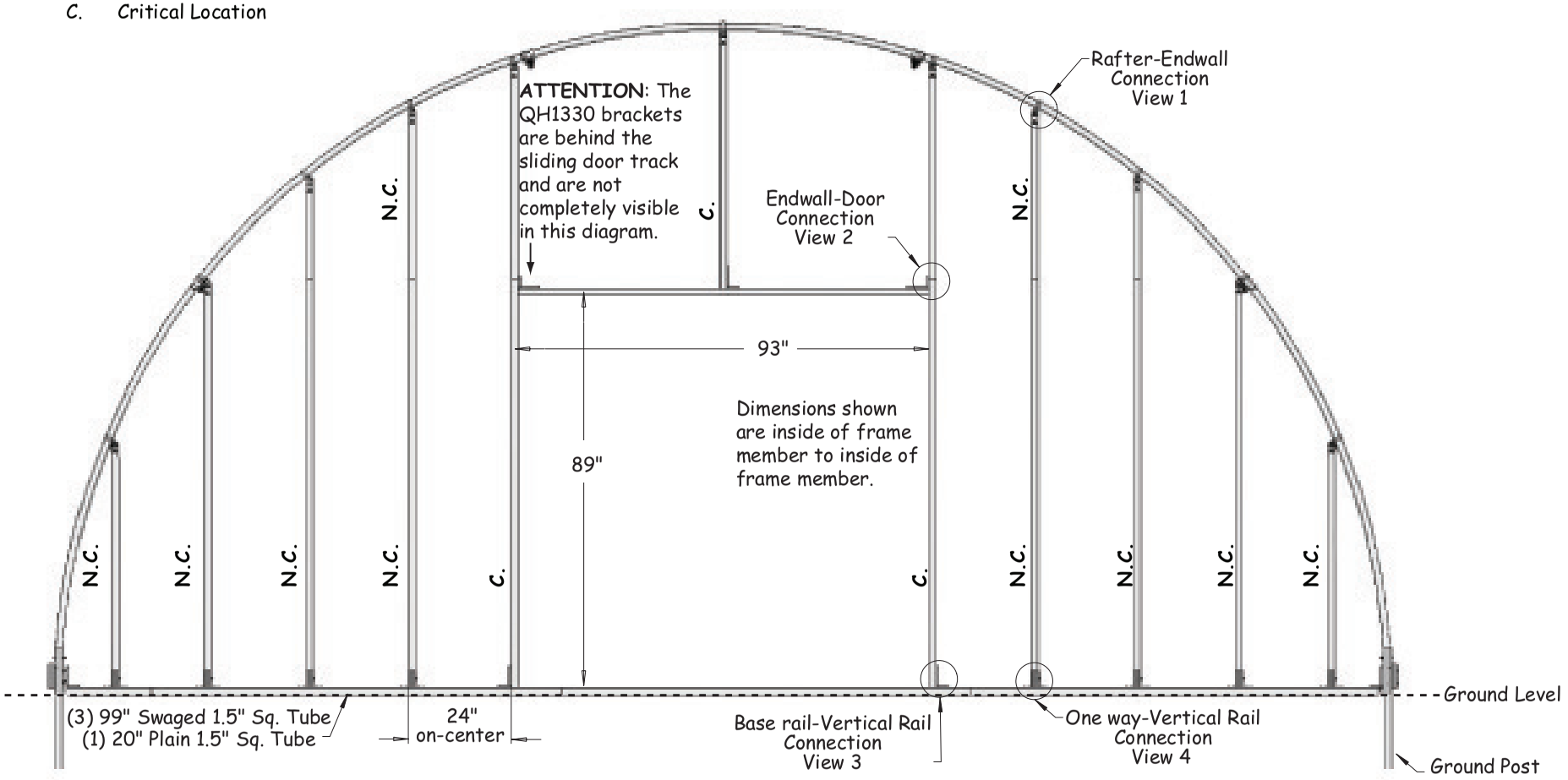


View 4
Mid Rafter-Purlin Connection

END FRAME DIAGRAM - FRONT VIEW

Symbol & Abbv. Key

N.C. Non Critical Location
C. Critical Location



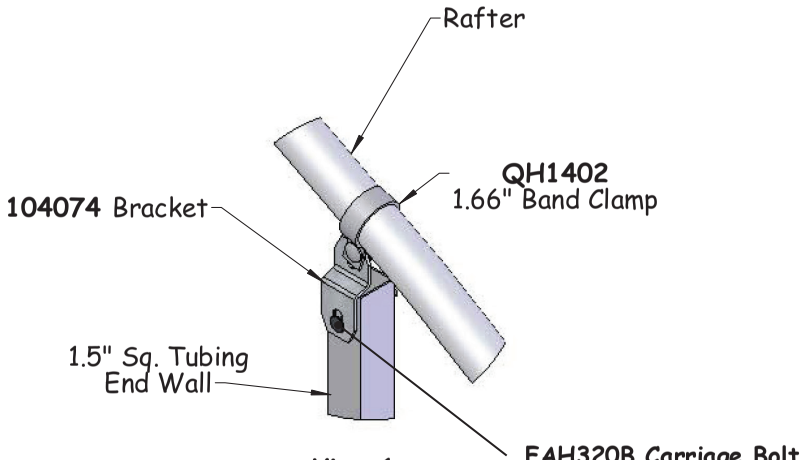
All end framing tubes are cut from or are full (102897) 1 1/2"x1 1/2" swaged square tubing.

Non critical verticals are spaced 24" on center working outwards from the door. However, these verticals can be spaced differently for the framing of greenhouse accessories. For the framing of accessories, check for rough opening and space accordingly.

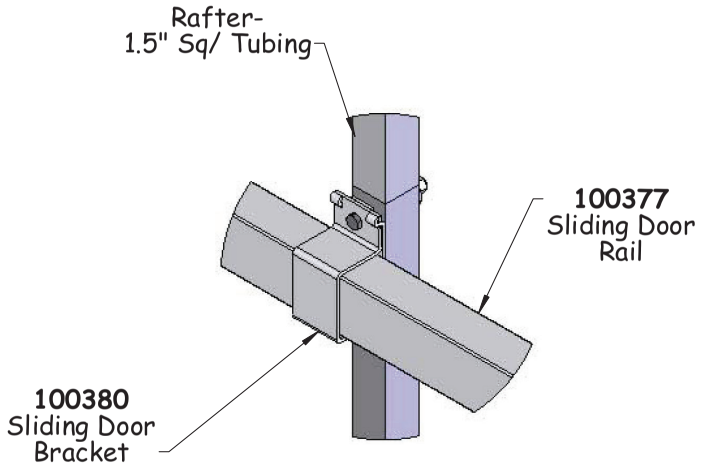
Critical verticals can not be spaced differently because of door opening or Polycarb attachment.

Height of verticals depends on location. Measure location before cutting materials.

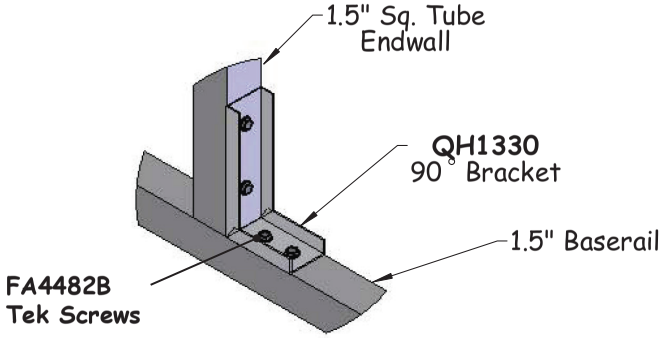
CONNECTIONS - END FRAMING



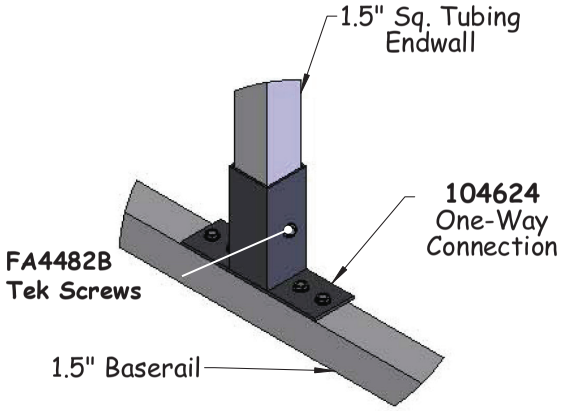
View 1
Rafter-Endwall Connection



View 2
Endwall-Sliding Door Connection

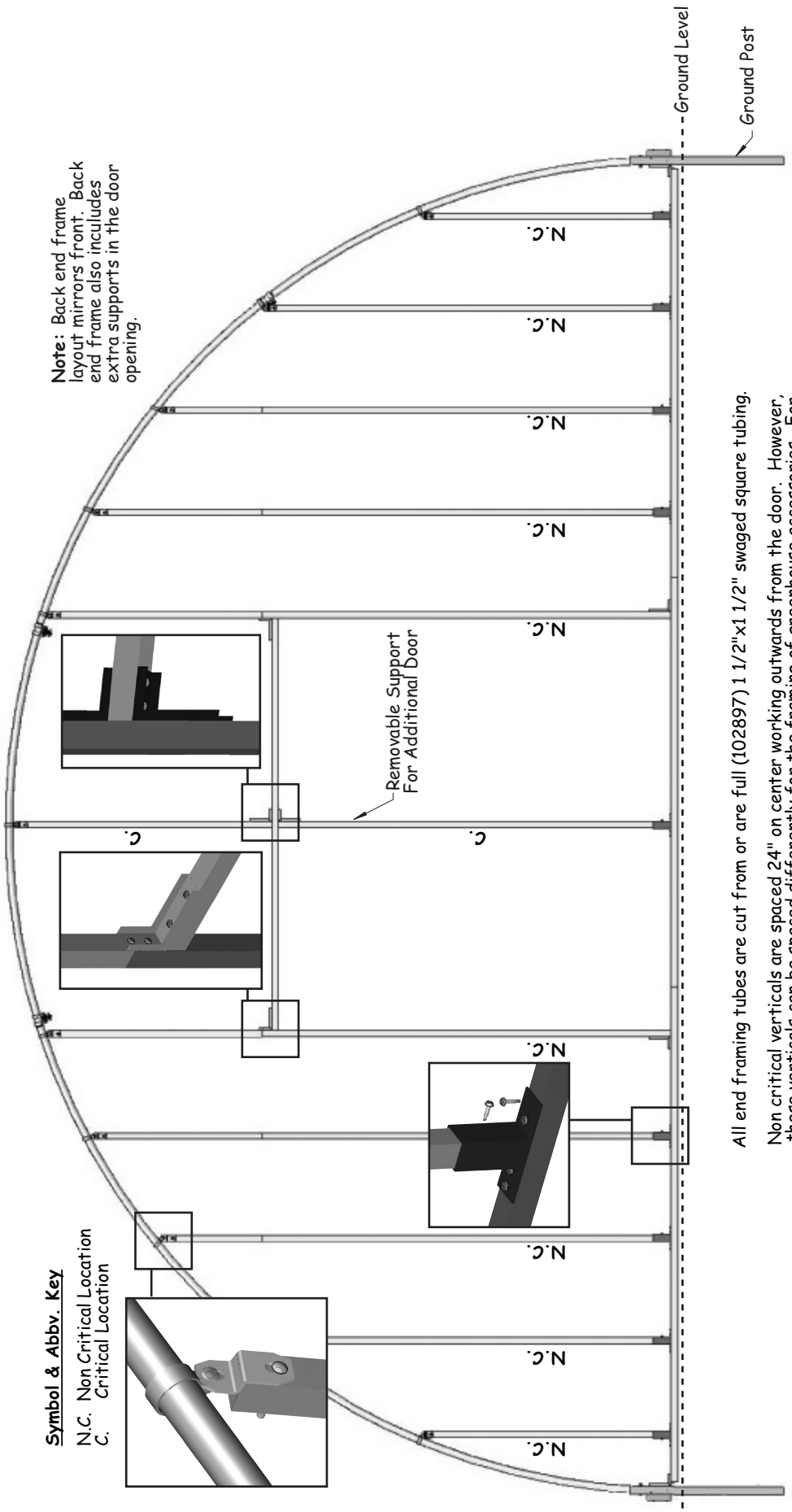


View 3
Endwall-Vertical Tube Connection



View 4
Baserail- Vertical Tube Connection

END FRAME DIAGRAM - BACK VIEW



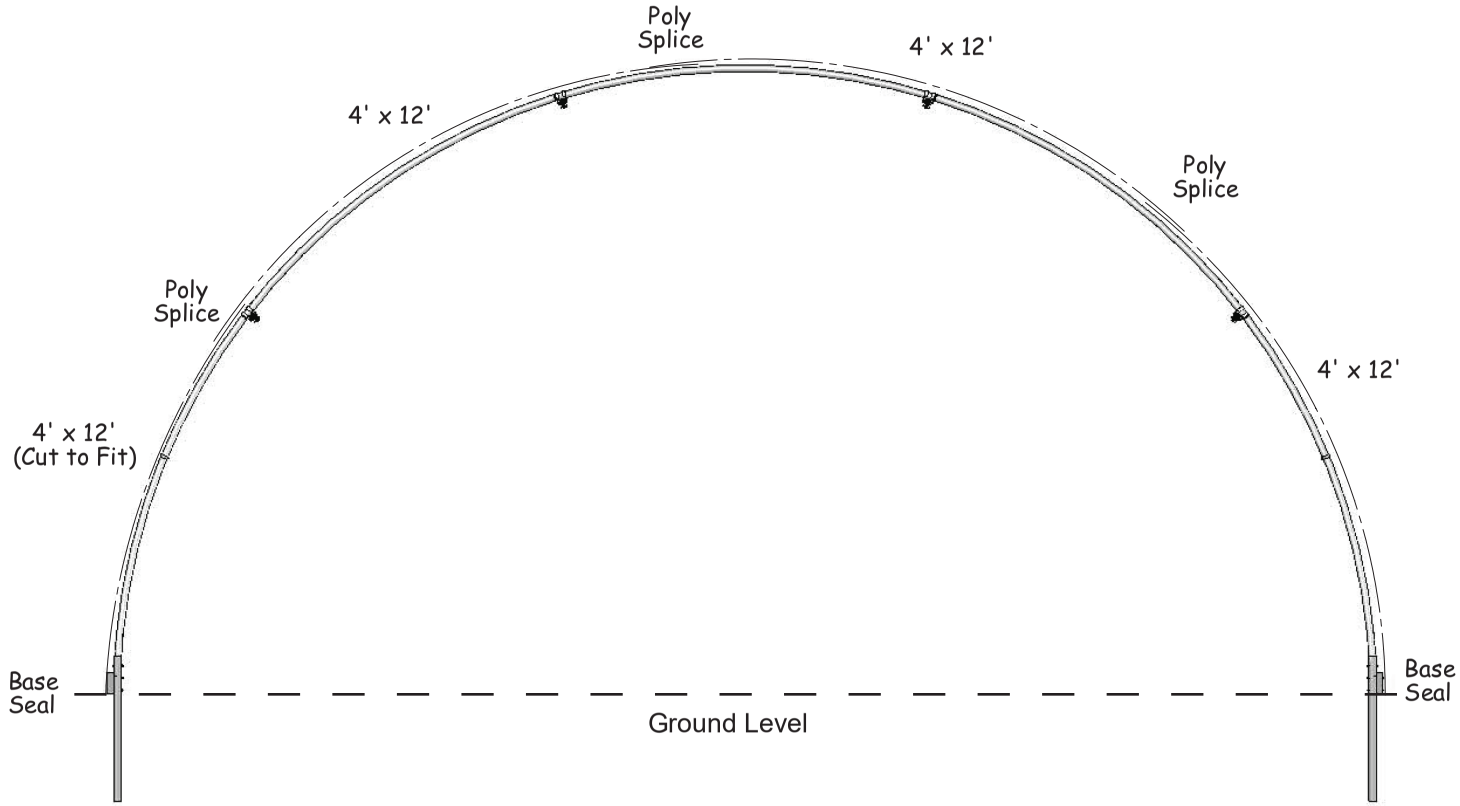
All end framing tubes are cut from or are full (102897) 1 1/2"x1 1/2" swaged square tubing.

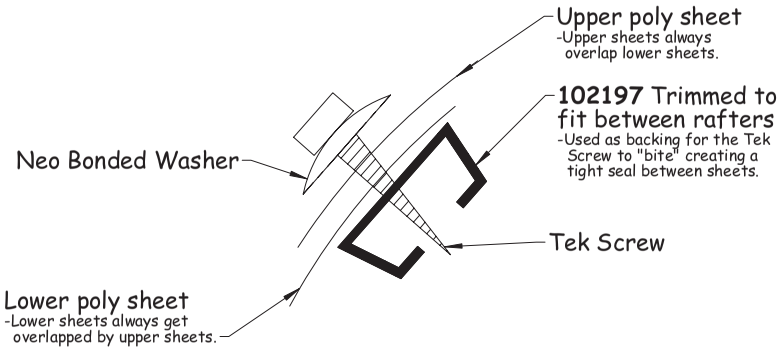
Non critical verticals are spaced 24" on center working outwards from the door. However, these verticals can be spaced differently for the framing of greenhouse accessories. For the framing of accessories, check for rough opening and space accordingly.

Critical verticals can not be spaced differently because of door opening or Polycarb attachment.

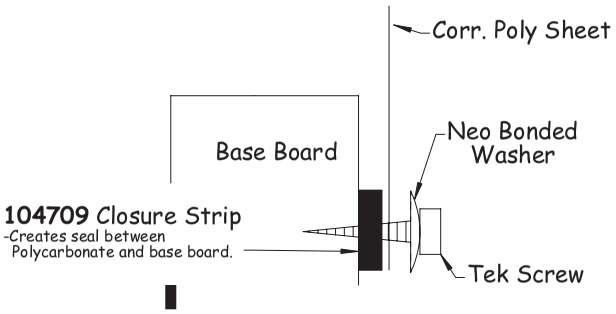
Height of verticals depends on location. Measure location before cutting materials.

MAIN COVER DETAILS



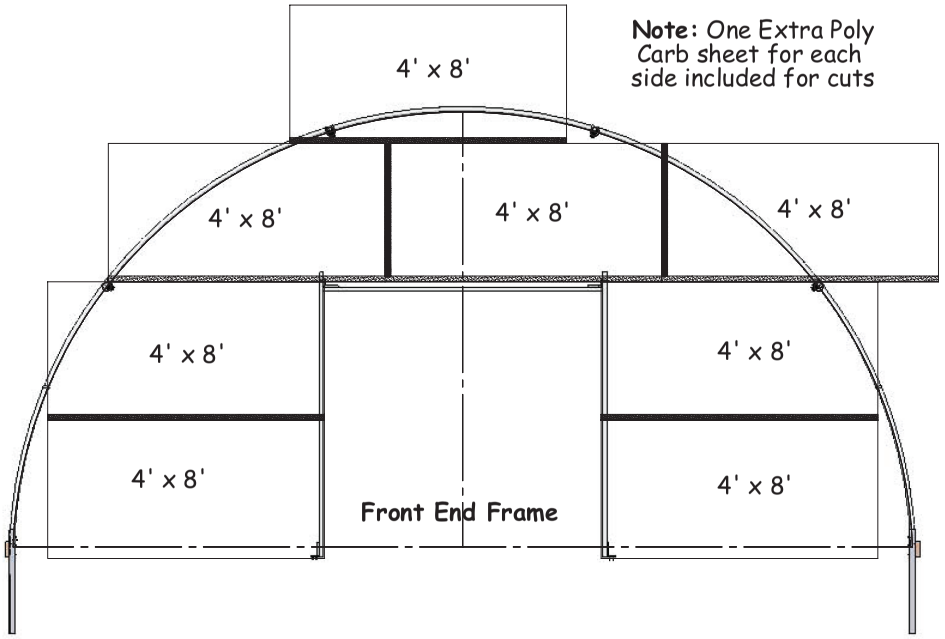


POLY SPLICE



BASE SEAL

POLYCARBONATE PANELS - FRONT VIEW



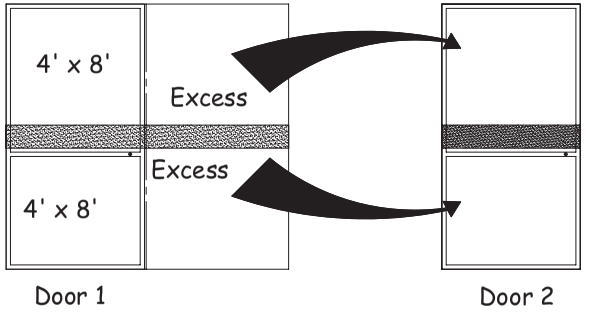
Note: One Extra Poly Carb sheet for each side included for cuts

Symbol Key

Trimmed Poly to be used elsewhere

Area of overlapping sheets

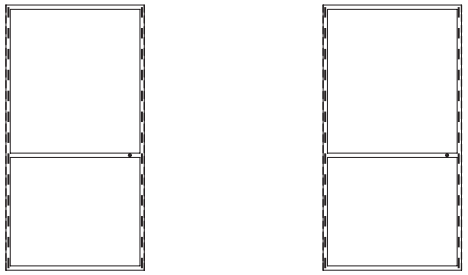
-Upper sheets always overlap lower sheets.



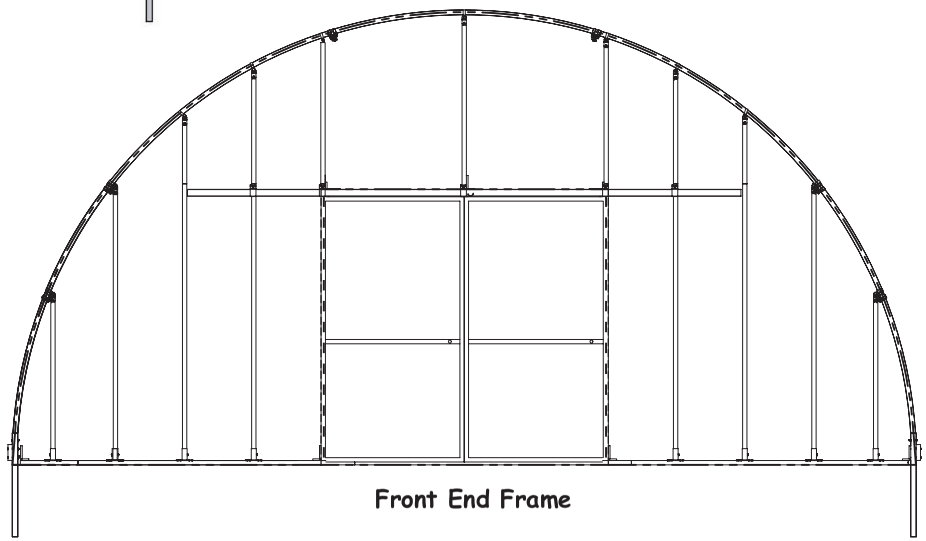
Symbol Key

104709- Corr. Closure Strip

104710- Flat Closure Strip

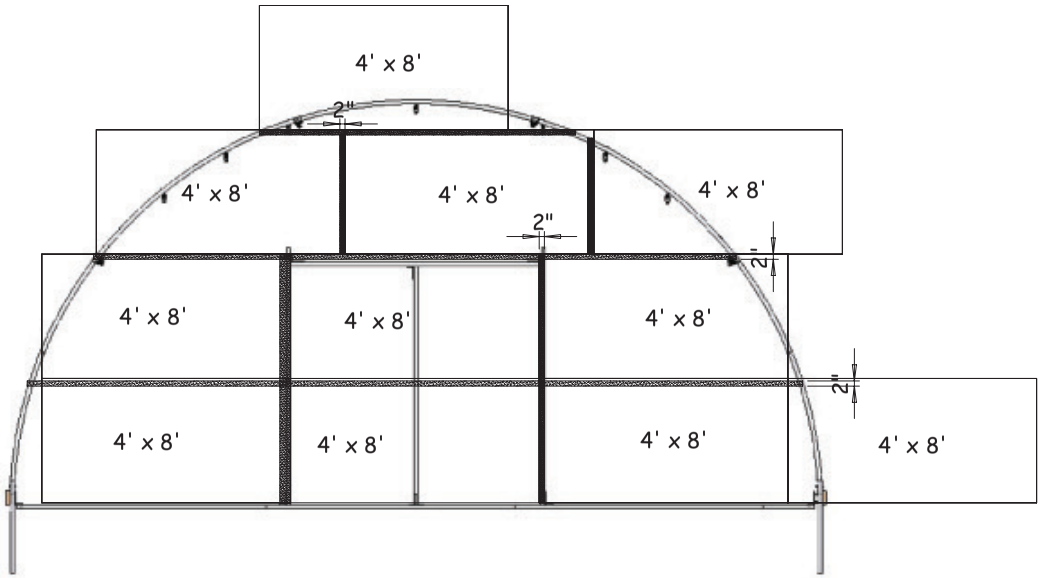


Corrugated Polycarbonate Layout



POLYCARBONATE CLOSURE STRIP LAYOUT

POLYCARBONATE PANELS - BACK VIEW



Symbol Key

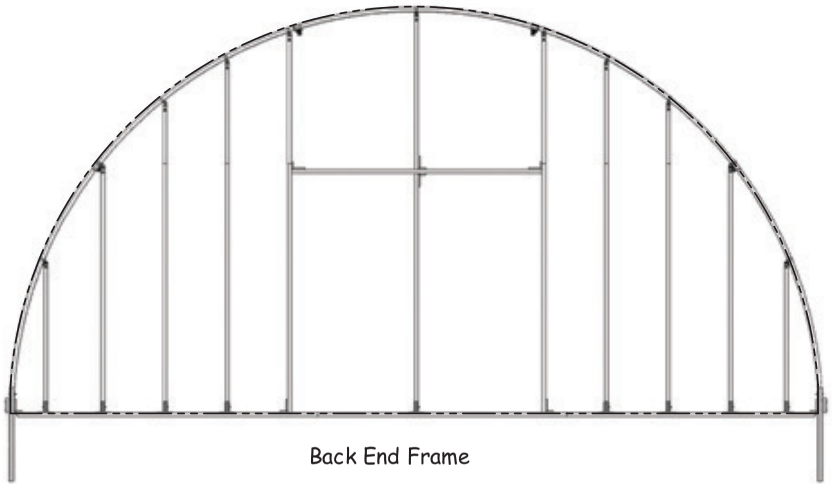
Trimmed Poly to be used elsewhere

Area of overlapping sheets
-Higher sheets always lap over lower sheets

CORRUGATED POLYCARBONATE LAYOUT

Symbol Key

104710 - Flat Closure Strip



Back End Frame

POLYCARBONATE CLOSURE STRIP LAYOUT