



GrowSpan™ Gothic Premium Greenhouses



Photo may show a different but similar model.

©2018 Growers Supply
All Rights Reserved. Reproduction
is prohibited without permission.

Revision date: 06.26.18

STK#	DIMENSIONS
106213	18' W x 12' H x 20' L
106214	18' W x 12' H x 24' L
106215	18' W x 12' H x 28' L
106216	18' W x 12' H x 32' L



READ THIS DOCUMENT BEFORE YOU BEGIN.

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 to install Tek screws!

ASSEMBLY PROCEDURE

Following the instructions as presented will help ensure 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 owner is entitled.

Steps outlining the assembly process are as follows:

1. Verify all parts are included in shipment. Notify Customer Service for questions or concerns.
2. Read these instructions, the Must Read document, and all additional documentation included with shipment **before** you begin assembling.
3. Gather the tools, bracing, ladders (and lifts), and assistants needed to assemble greenhouse.
4. Check weather **before** you install roof and polycarbonate panels. Do not install panels on windy or stormy days.
5. Re-evaluate location and site based on information and precautions presented in documentation.
6. Prepare site (if applicable).
7. Assemble frame components in the order they are presented.
8. Assemble frame including struts (if equipped).
9. Consult MUST READ document and properly anchor assembled frame.
10. Install end wall framing.
11. Install, tighten, and secure end panels and doors.
12. Install main roof panels.
13. Read the care and maintenance information in next column.

PANEL AND RIDGE CAP INSTALLATION NOTE

Depending on available equipment, it may be necessary to construct a support structure to allow a person to reach top of greenhouse from outside.

If a support structure has to be used, design structure to support both the weight of structure and the person using it. ***Use of a lift is strongly recommended.***

⚠ CAUTION: Under no circumstances should support structure allow any force or weight to be applied directly to polycarbonate sheets! ***All supports must span from rafter-to-rafter.***

Consult a contractor if needed for additional information. Take the necessary steps to protect polycarbonate panels. ***POLYCARBONATE PANELS ARE NOT DESIGNED TO SUPPORT WEIGHT.***

NOTE: Position supports so they span from rafter-to-rafter to protect panels. DO NOT use materials that will damage or scratch panels. ***Cover panels to protect panel surface.***

⚠ CAUTION: DO NOT place support structure directly on polycarbonate panels; serious injury may occur. Polycarbonate panels are not designed to support excess weight.

POLYCARBONATE PANELS

Do not allow panels to remain in direct sunlight with protective film in place. Doing so will cause protective film to become difficult if not impossible to remove before installation.

Store panels indoors or cover with a light-colored tarp until you are ready to install.

GROWSPAN™ GOTHIC PREMIUM GREENHOUSES

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 and power driver (cordless with extra batteries works best)
- Metal-cutting saw
- Wrenches and impact socket set, or an adjustable wrench
- Scissors, utility knife, or tin snips
- Flat bar or putty knife
- Drill and drill bits
- Chalk line
- Caulk gun to apply sealant
- 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 cover installation

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).

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.

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 (if equipped) or other building components.

If used, the baseboard is installed after the roof panels.

Suggested baseboard dimensions: 2" x 6" (minimum). Length determined by greenhouse. See page 32 for additional baseboard comments.

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.



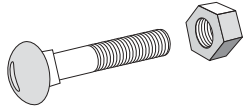
ASSEMBLY NOTE: Install Tek screws using a clutched drill driver running approximately 750 RPM while applying approximately 50 lbs of force.

Do not use an impact driver to install Tek screws!

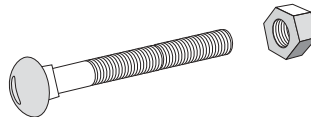
The following graphics and photos will help you identify the different parts and show you how they are used. (Some parts are not shown.)



FA4482B
Tek Screw



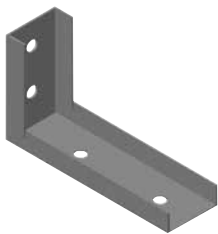
FAH320B & FALB32B
Carriage Bolt & Hex Nut



FAH009B & FALB01B
Carriage Bolt & Hex Nut



102921B & FA4484B
Neo-bonded Galvanized
Washers and Long Tek Screws



QH1330
Angle Bracket



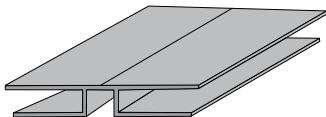
102856
End Clamp



102548
Cross Connector



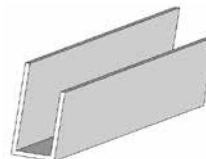
104074
Square-to-Round Tube
Connect Bracket



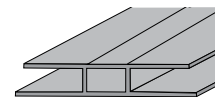
Aluminum 8'
H-Channel Profile



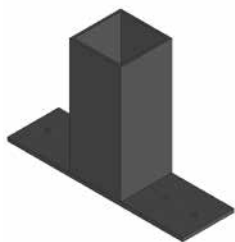
104548
End Cap Profile
Doors/Fans/Vents



104213
Aluminum
U-Channel Profile



111929
H-Channel - Clear



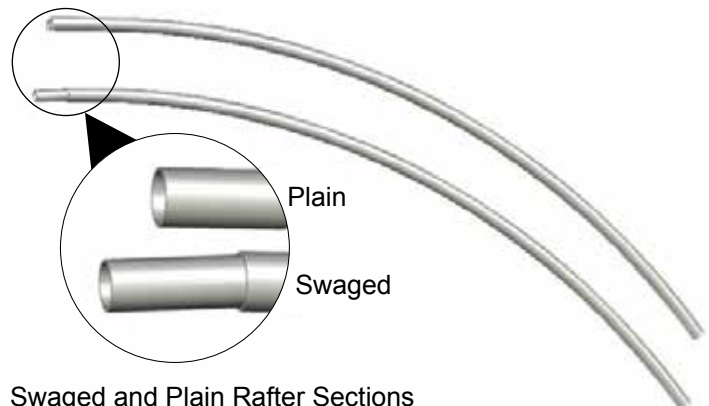
104624
Square Tube Fitting



QH1073
Post Driver



QH1402
Band Clamps



Swaged and Plain Rafter Sections

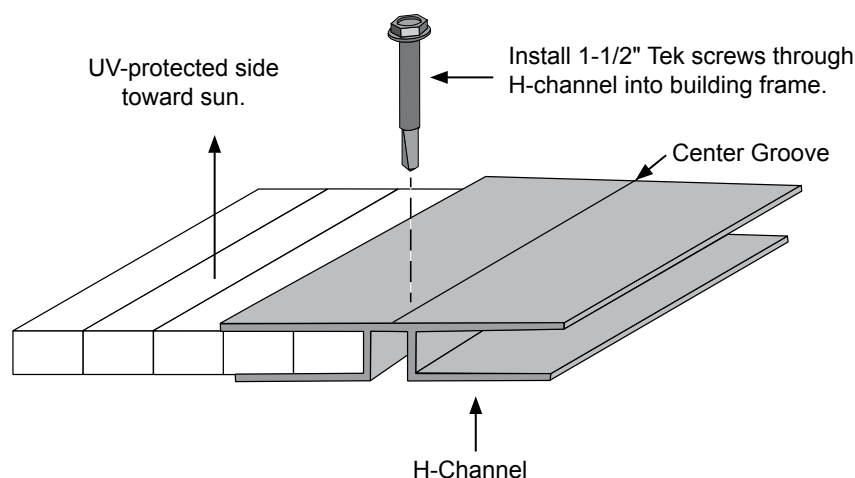
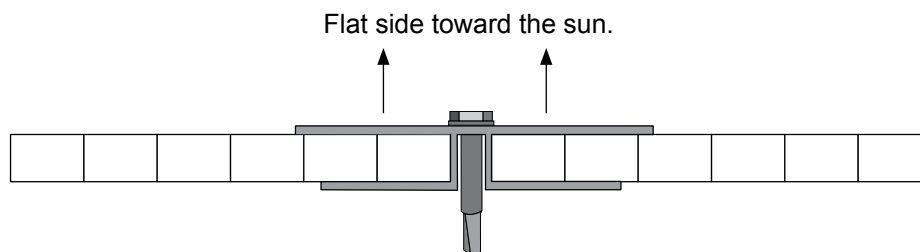
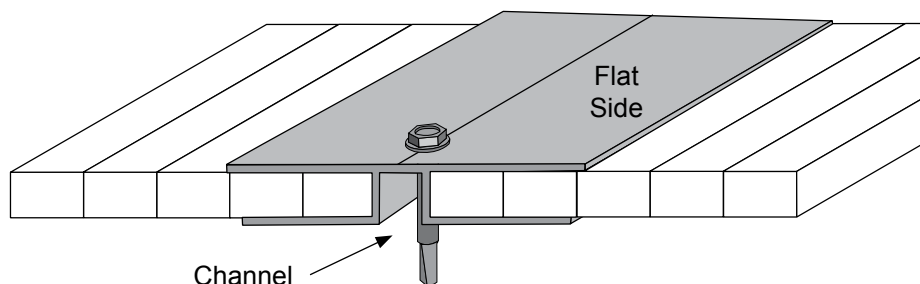
H-CHANNEL INSTALLATION INSTRUCTIONS

The new H-channel design requires installation of the flat side facing out with channel side toward the building. Some diagrams and photos in this document show installation of *original* H-channel with channel side facing out. Design of new H-channel *does not allow* channel-side out installation.

Use the diagrams on this page to install H-channel with flat side facing out.



ATTENTION: Use only 1-1/2" Tek screws to attach H-channel to building frame. **Do not use shorter screws. They will not hold. Do not use washers on Tek screws when installing H-channel.**



ATTENTION: Install all twin-wall polycarbonate panels with UV-protected side toward the sun.



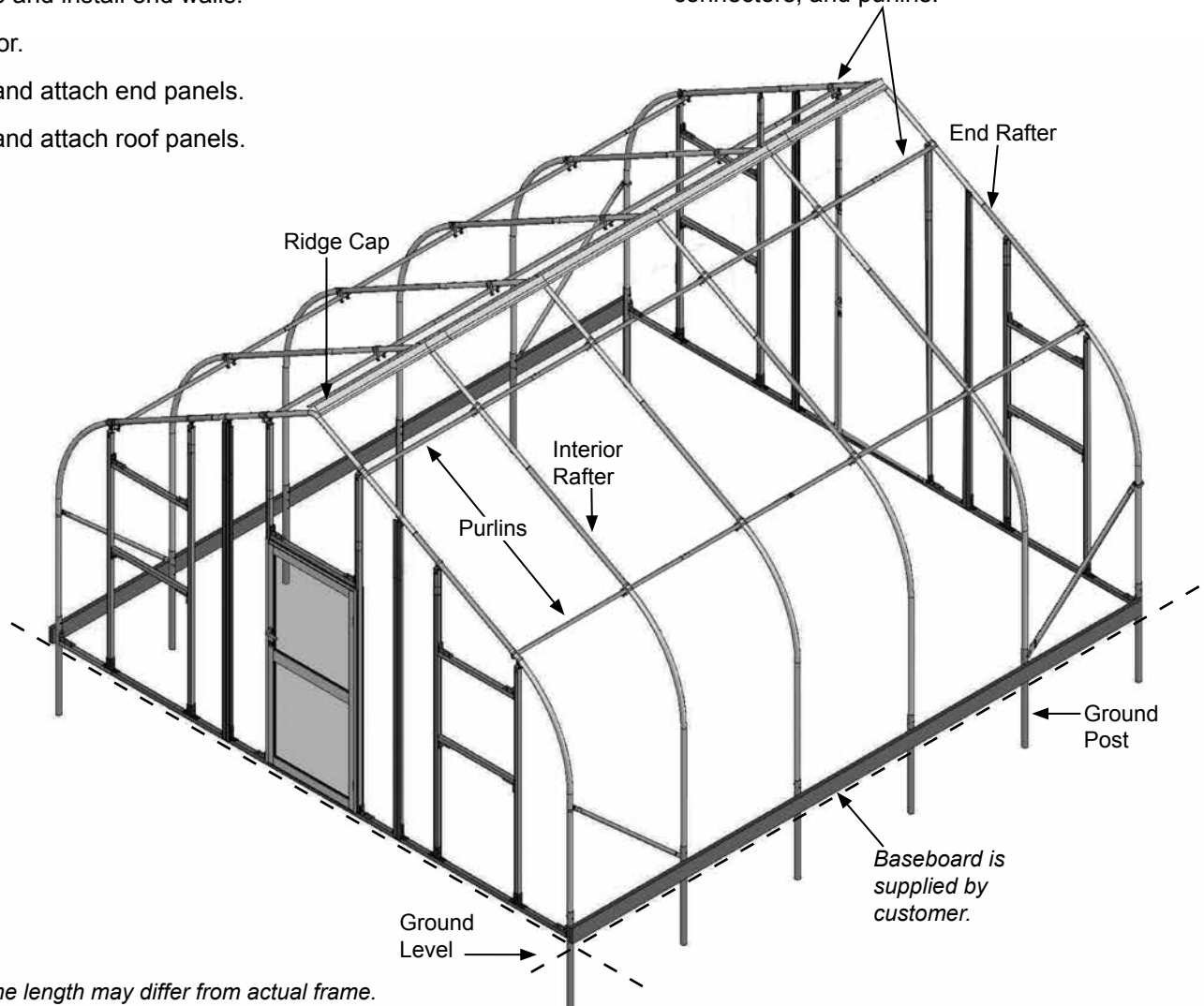
GrowSpan™ Gothic Premium Greenhouses

OVERVIEW

See illustration below to identify main parts of greenhouse.

1. Locate required parts for each assembly procedure.
2. Assemble rafters and frame.
3. Anchor frame.
4. Assemble and install end walls.
5. Install door.
6. Prepare and attach end panels.
7. Prepare and attach roof panels.

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



GROWSPAN™ GOTHIC PREMIUM GREENHOUSES

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.

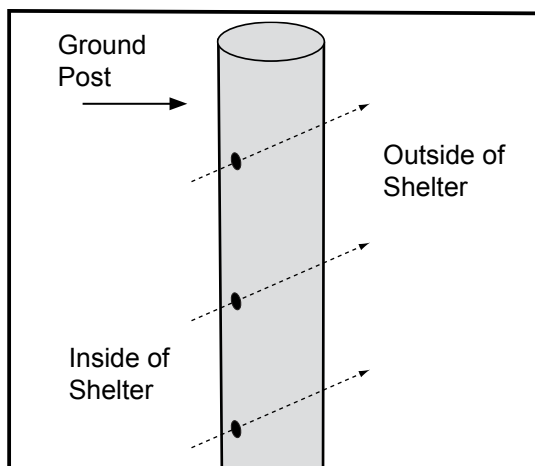
SQUARE THE SITE

Gather the Parts:

- Ground Posts
- 5/16" x 2-1/2" Machine Bolts
- 5/16" Nuts

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.*



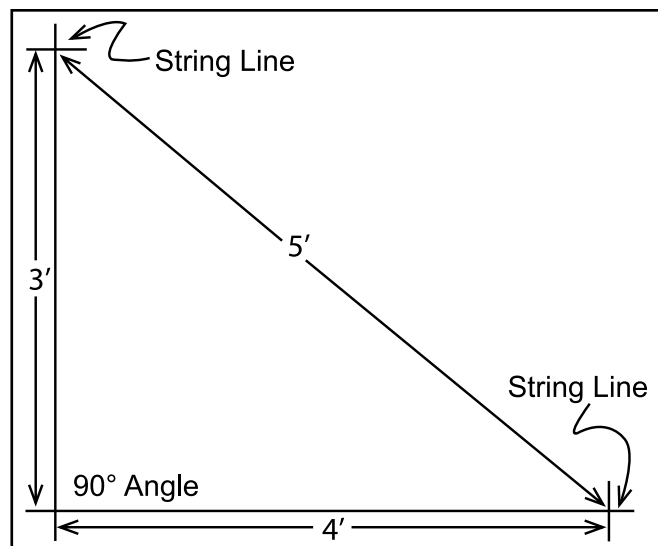
ATTENTION: Position the pre-drilled holes facing to the inside/outside of the shelter so they can be aligned with the bolt holes in the rafter legs.

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. String 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.

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.

ASSEMBLING THE GOTHIC PREMIUM 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

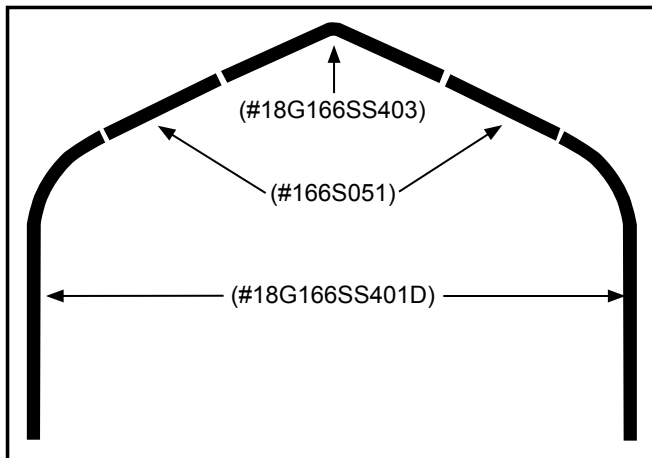
Gather the Parts:

- Rafter Pipe (#18G166SS401D)
- Rafter Pipe (#18G166SS403)
- Rafter Pipe (#166S051)
- End Clamps (#102856)
- Tek Screws (# FA4482B)
- Nut Setter 3/8" x 2-9/16 Magnetic

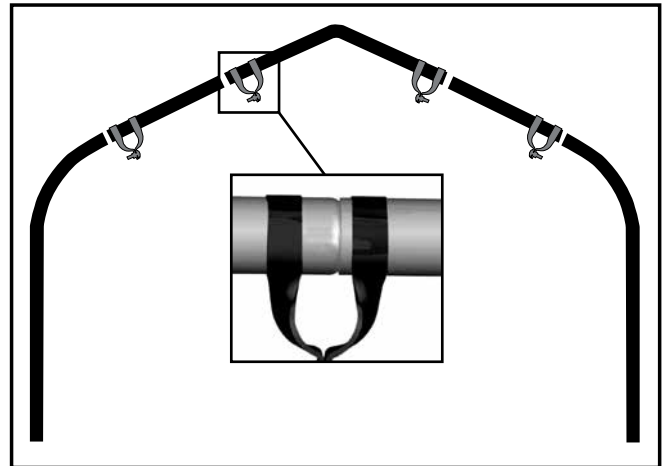
END RAFTER ASSEMBLY

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.



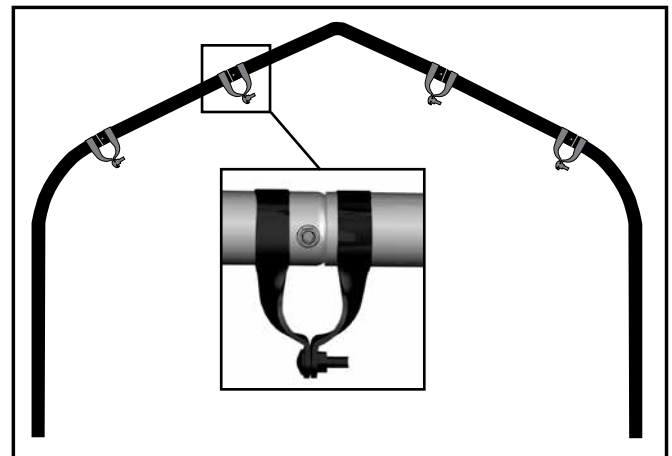
2. Slide four (4) end purlin clamps (two on each side of the peak) over the rafter pipes. Position all end clamps at the rafter pipe joints. Position the end clamps as shown.



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: 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.

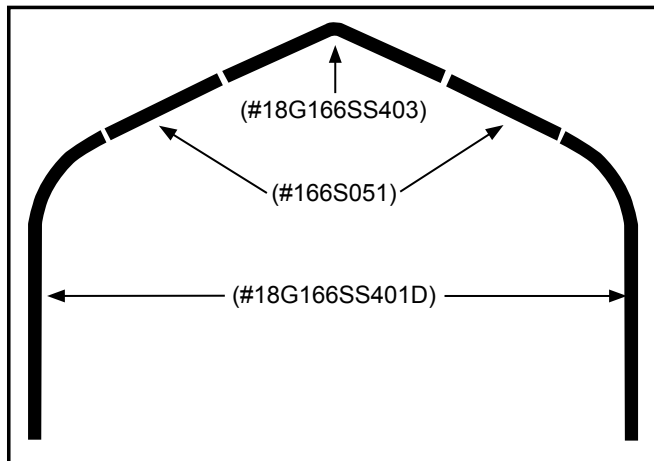
GROWSPAN™ GOTHIC PREMIUM GREENHOUSES

RAFTER ASSEMBLY (continued)

INTERIOR RAFTER ASSEMBLY

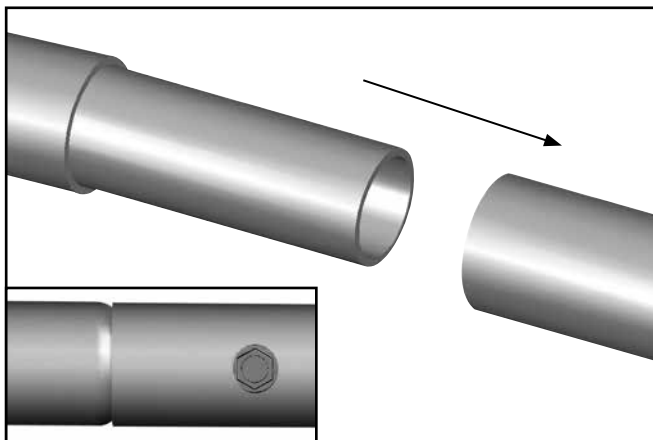
Complete the following steps *for the interior rafters*.

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. Position Tek screws so they will not contact the cover when the frame is assembled.

3. Once rafters are assembled, assemble the frame.

FRAME ASSEMBLY

After all ground posts are driven in place and rafters are assembled, assemble the frame.

NOTE: The baseboards (strongly recommended) shown in the diagrams throughout these instructions are not included and must be supplied by the customer.

Contact Customer service at 1-800-245-9881 to purchase baseboards, or for additional information.

ASSEMBLE AND PRE-MARK THE PURLINS

The following steps describe one way to speed the assembly process and eliminate the need to measure each purlin as it is installed. Pre-marking the purlins ensures that an accurate spacing of the rafter assemblies is achieved and maintained during assembly.

Gather the Parts:

- Pipe 1.315" x 75" swaged (#131S075)
- Pipe 1.315" x XX" plain (#131P0XX)
- Marker and tape measure

NOTE: The purlins are part of the assembled frame and run perpendicular to the rafter assemblies. Each purlin consists of 1.315" x 75" (#131S075) swaged pipes (number is determined by shelter length) and one (1) 1.315" x XX" (#131P0XX) plain pipe.

ATTENTION: The XX" represents the remaining length required to reach the end of the shelter. Consult the Spec Sheet for part identification.

1. Select the required pipe sections for one purlin and connect these by inserting the swaged ends of the pipes into the plain ends until the entire purlin is assembled.

NOTE: Assemble the purlins in a location that is accessible during the assembly of the frame, but will not interfere with the process of lifting and setting the rafters.

2. Verify that each pipe joint is properly seated.

NOTE: These pipes must be separated during the assembly procedure. Do not fasten them together at this time.

3. For the 48" rafter spacing, measure forty-eight and three-quarters inches (48-3/4") from one end of the assembled purlin and mark the distance on the pipe.

NOTE: This first measurement is three-quarters (3/4) of an inch longer than the on-center rafter spacing to account for the length of purlin pipe that extends through the end purlin clamp of the first end rafter.

FRAME ASSEMBLY (continued)

4. From the location marked in the previous step, measure forty-eight inches (48") and make another mark on the assembled purlin.
5. Continue to mark the purlin in 48" intervals until all locations are marked. These marks help to maintain the 48" on-center rafter spacing of the shelter during assembly.
6. Repeat this procedure until all assembled purlins are marked.
7. After assembling all rafters and pre-marking the purlins, assemble the frame.

ASSEMBLE THE FRAME

After all ground posts are driven in place, rafters are assembled and purlins pre-marked, assemble the frame.

Gather the parts:

- All rafter assemblies and pre-marked purlins
 - Band clamps (#QH1402)
 - Cross connector (#102548)
 - 5/16" x 2-1/2" machine bolts and 5/16" nuts
 - Lifts, ladders, and assistants
 - Rope or cable
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.

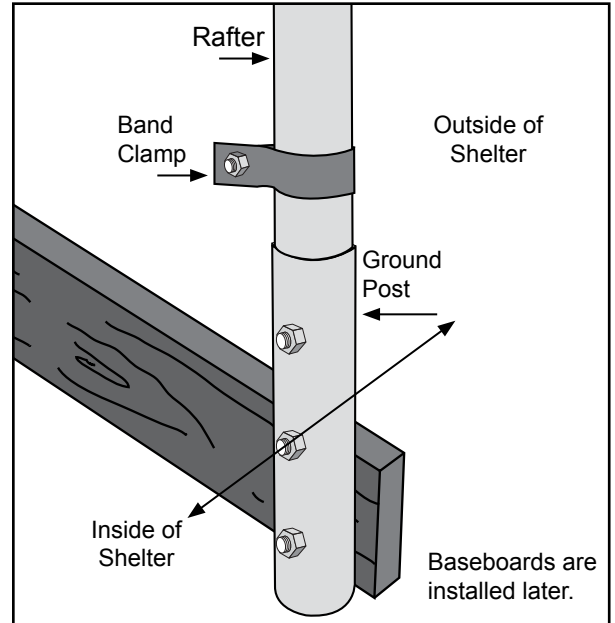
Brace the rafter in place to keep it straight. Depending on the frame size, a lift and additional assistants may be needed. Consult Quick Start section for details.



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.

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

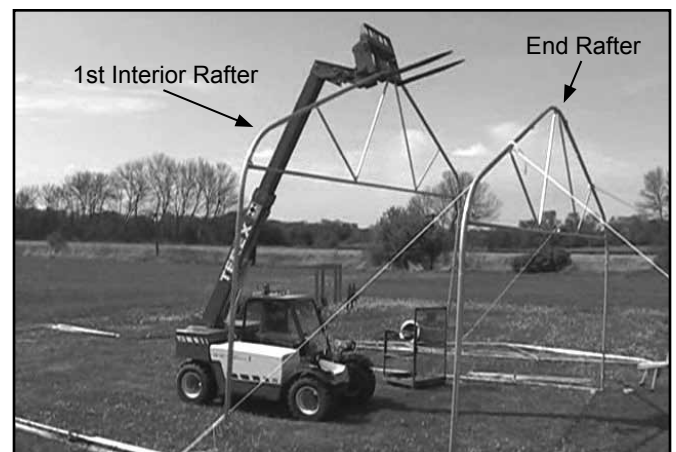


3. Use rope or cable to keep the rafter in position.



Rafter shown differs in design.

4. Slide a band clamp onto each leg of the *first interior rafter*. Carefully position the first interior rafter in place and secure the leg pipes to the ground posts.



Rafter shown differs in design.

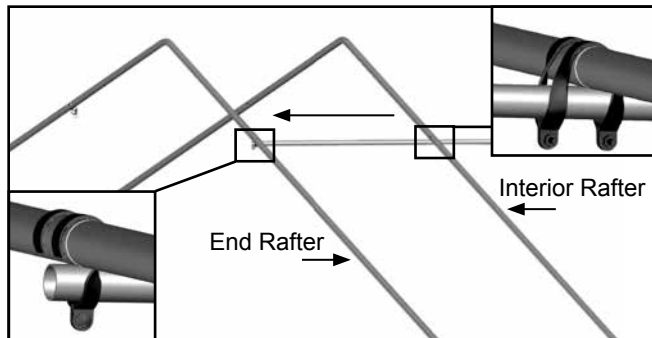
GROWSPAN™ GOTHIC PREMIUM GREENHOUSES

FRAME ASSEMBLY (continued)

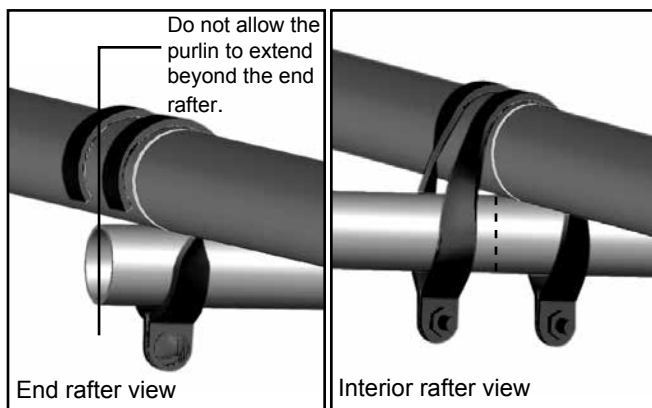
5. As the second rafter is steadied, remove one section of pipe from one assembled purlin.

NOTE: Work from the end of the purlin where the first measurement was taken during the pre-marking procedure.

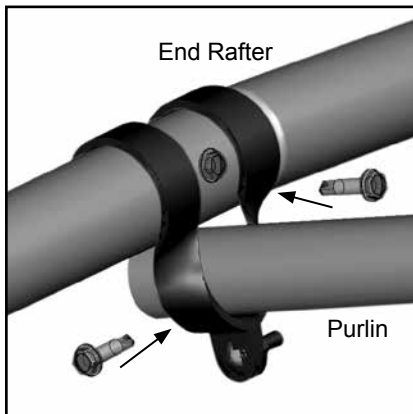
6. Insert the purlin pipe through an upper end clamp of the end rafter and through a cross connector placed in the same position on the *interior rafter*. Consult Quick Start section for purlin location per frame.



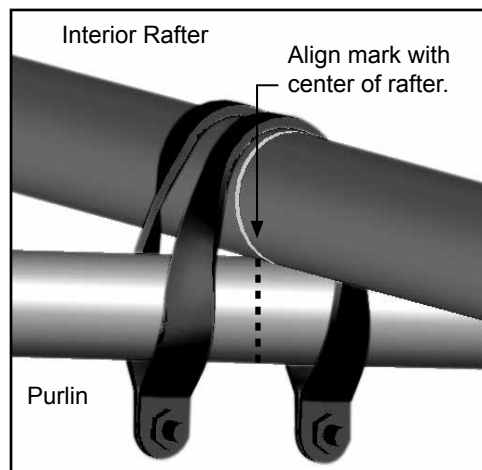
7. Align the plain end of the purlin with the center of the end rafter and rotate the purlin pipe so that the first mark is visible (near the clamp of the interior rafter).



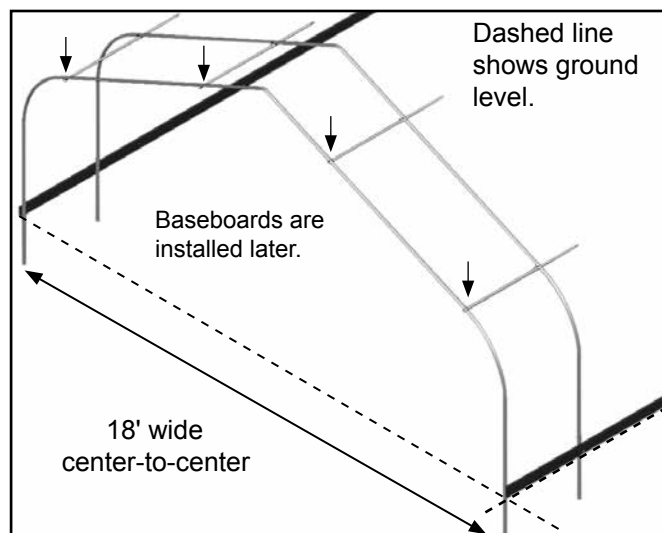
8. Tighten the end clamp and secure it to the rafter with a Tek screw.
9. Install Tek screw through end clamp and into the purlin pipe.



10. Move to the interior rafter and align the mark on the purlin with the center of the rafter to maintain the proper spacing.



11. Verify that the rafter spacing is forty-eight inches (48") on-center (adjust as needed) and tighten the cross connector.
12. Secure the cross connector to the rafter using a Tek screw. See Quick Start section if needed.
13. Repeat Steps 6-12 to install the first section of each purlin assembly for the first two rafters.



Frame shown may differ slightly from actual frame.

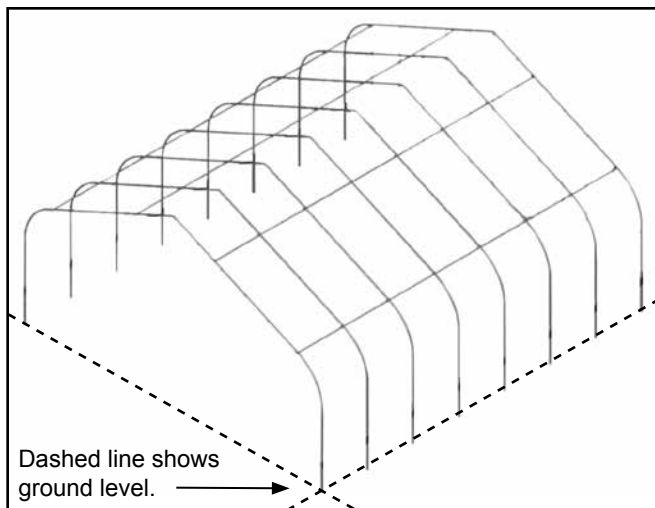
14. Choose another interior rafter assembly and set it in position. **DO NOT USE THE REMAINING END RAFTER.**
15. Secure the rafter legs to the ground posts as previously described and steady the rafter.
16. Remove another section of purlin pipe from each pre-marked purlin assembly and attach these to the rafter.
17. 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)

18. Secure the purlin pipe joint with a Tek screw.
19. Repeat the above steps as needed to stand and secure the remaining interior rafters and purlins to complete the frame assembly.

NOTE: Verify a band clamp is on each rafter leg of the *first and last interior rafter*.

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 if needed.



Frame shown may differ slightly from actual frame.

NOTE: If the last 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.

21. Once all rafters are set and all purlins are in place and secure, return to each pipe splice of each purlin and verify that a Tek screw is installed. Install a Tek screw if needed.
22. Remove any temporary bracing (if needed), read the following information, and install side struts.

SIDE STRUT INSTALLATION

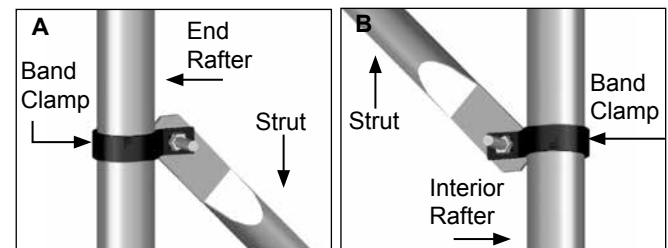
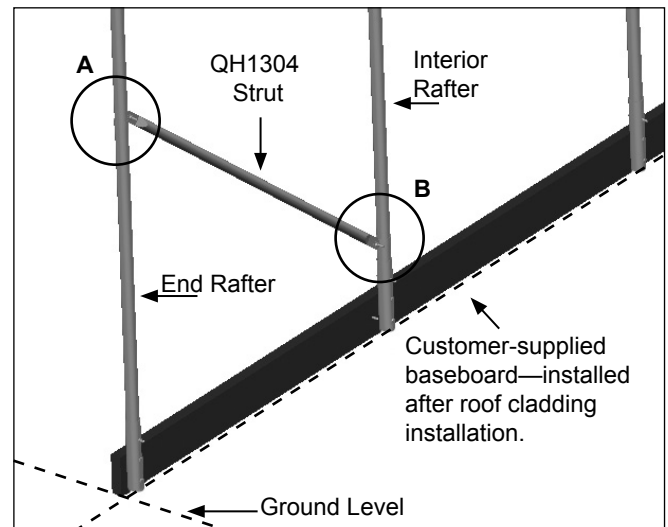
There are four (4) side struts (#QH1304) for shelter. Struts are positioned at first rafter space at each end.

Gather parts:

- 5' Struts (#QH1304)
- Short Tek screws (#FA4482B)

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

1. Locate one strut and secure to the previously attached band clamps as shown in the diagrams below.



NOTE: Heads of bolts on band clamps to face toward outside of shelter.

2. Repeat above step to attach remaining side struts.
3. After securing struts, verify all clamps are secured with a Tek screw to rafter.
4. Complete the following to anchor greenhouse 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.

GROWSPAN™ GOTHIC PREMIUM GREENHOUSES

END WALL INSTALLATION

The steps to install the greenhouse end walls (front and back) are identical and 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 in 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.

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 NON-CRITICAL.

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 "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.

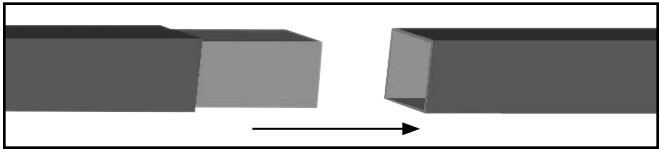
Complete these steps to install the accessory framing:

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 angle brackets.

INSTALL THE END WALL FRAME

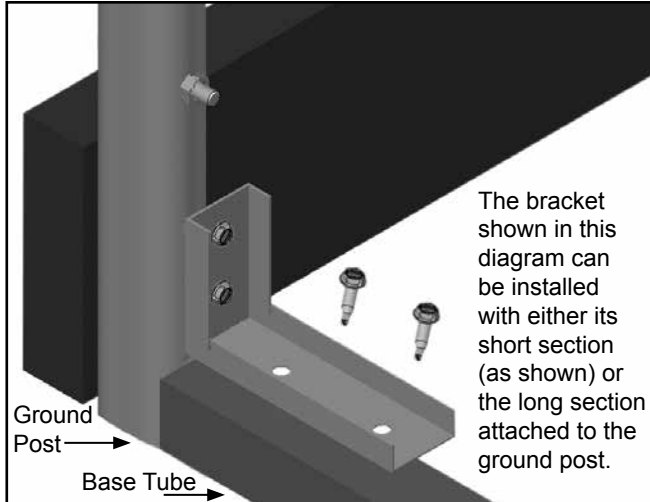
Refer to the end frame diagrams (Quick Start section).

The materials and parts needed to assemble the end wall frame include:

- Square Tube (#102897)
 - 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.

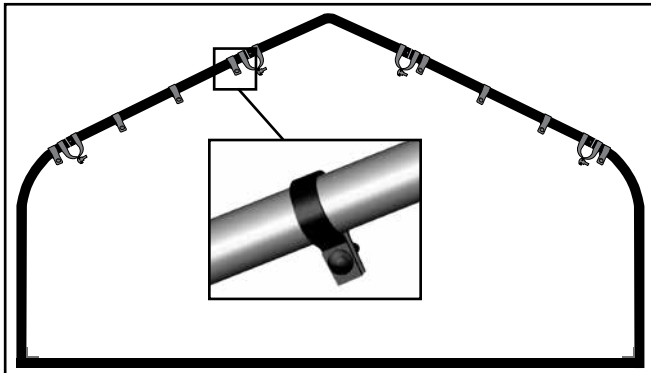
INSTALL THE END WALL FRAME (continued)

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 a short 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 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.**

ATTENTION: The frame shown below may differ from the end wall frame. Consult the diagrams in the Quick Start section to view the frame for this shelter.

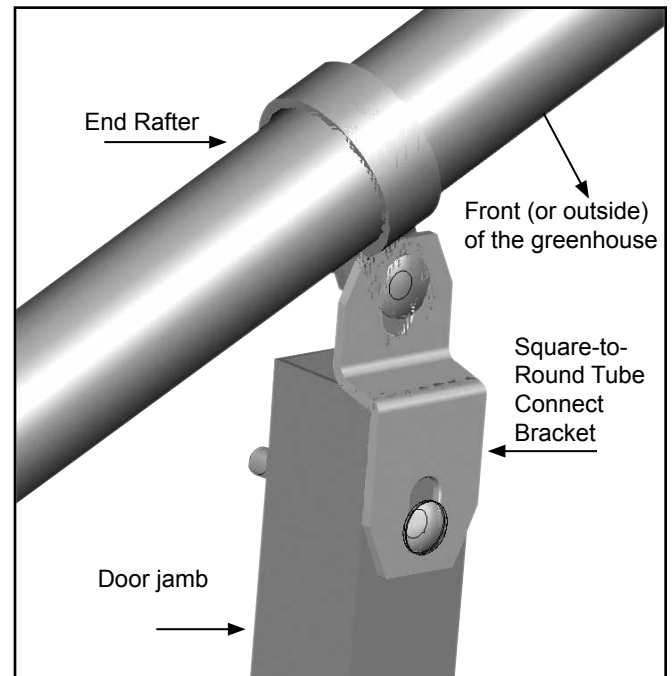


8. Select the tubing for the two vertical frame supports for the sides (jambs) of the door. Each support includes:
 - One (1) long 99" section of square tubing (#102897 swaged end)
 - One (1) short section of square tubing (if needed). This is cut from a swaged end tube (#102897).
 - One (1) square-to-round 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 door jamb.

NOTE: If the measured length is longer than 99", an additional section of square tubing is required (see Step 10). If the distance is 99" or shorter, skip to Step 11.

10. Choose one (1) 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 the door jamb, 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 door jamb. See the diagram that follows.



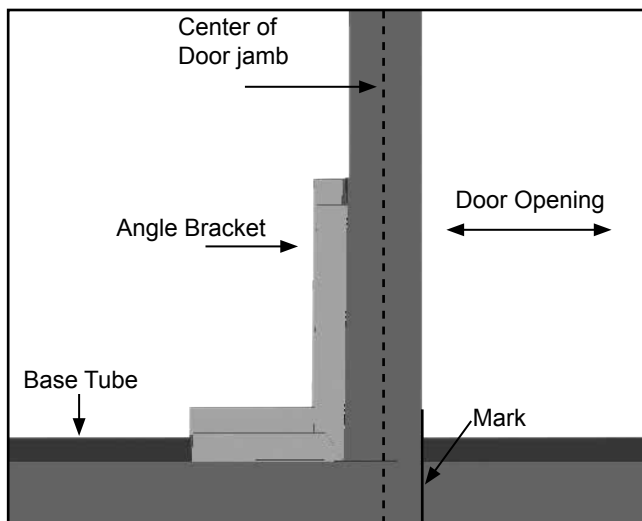
12. Select a square-to-round tube connect bracket and attach the bracket to one end of the door jamb. Use a 5/16" drill bit to drill a hole through the tube and attach the bracket to the tube using a nut and carriage bolt.
13. Repeat Steps 9-12 for the remaining door jamb.
14. With the square-to-round tube connect bracket attached to the top of each door jamb, 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 door jambs should be loosely attached to the end rafter assembly.

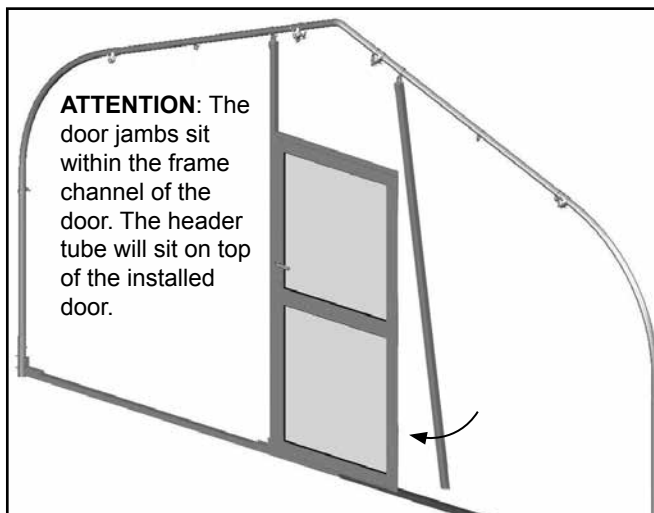
GROWSPAN™ GOTHIC PREMIUM GREENHOUSES

INSTALL THE END WALL FRAME (continued)

15. Using the marks on the base tube for the rough opening for the door (Step 6), *attach the bottom of one (1) door jamb to the base tube using an angle bracket.* Consult the end frame diagram.

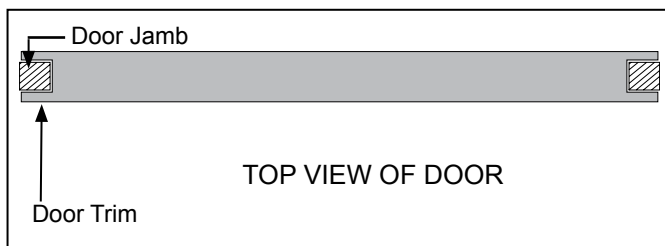


16. Using a level (or other means), verify that one door jamb is plumb and tighten the band clamp bolt to lock the first door jamb in place.
17. Take the door and set it in place on the bottom end wall frame tube between the secured vertical door jamb and the loose door jamb.



Frame shown may differ slightly from actual frame.

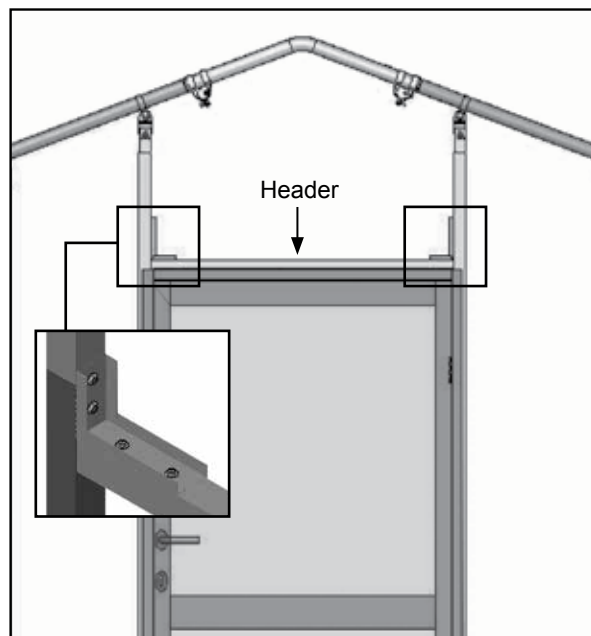
ATTENTION: The frame of the door is designed to "wrap around" the door jambs of the end wall. Diagram below shows how the door is installed.



18. With the door centered in the rough opening, swing the loose door jamb back into position and secure the bottom of the door jamb to the base rail using Tek screws and an angled bracket.

NOTE: Verify that the door jamb is plumb before installing the Tek screws and adjust if needed.

19. 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.
20. Using two angle brackets, attach the header tube to the end wall assembly between the door jambs as shown below.



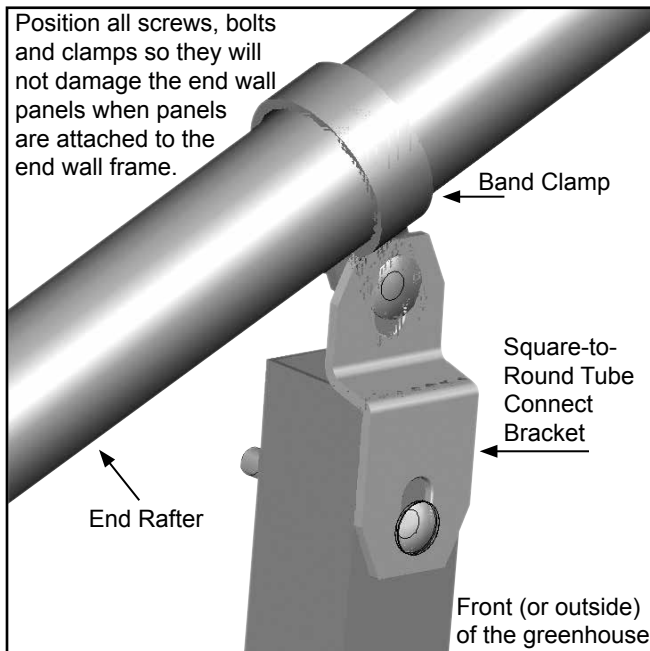
21. Verify that both door jambs are plumb and recheck the width of the door opening at the top and bottom. Adjust if needed.

NOTE: Do not secure the door to the door jambs at this time.

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.*

INSTALL THE END WALL FRAME (continued)

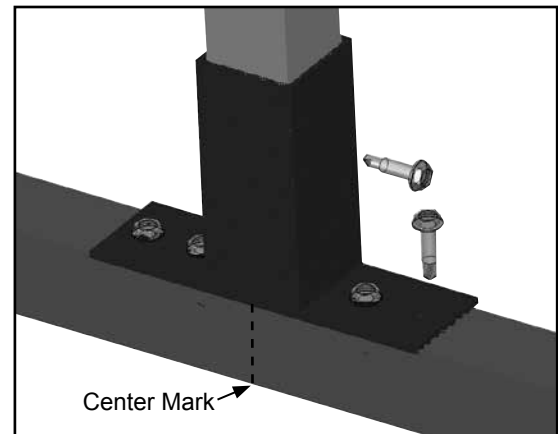
24. Choose the parts for each remaining vertical support for the end wall framing. Each vertical support consists of the following parts:
 - Square tube: Longer verticals may require an additional shorter length cut from a longer tube.
 - One (1) square tube fitting (#104624) to attach the support to 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.



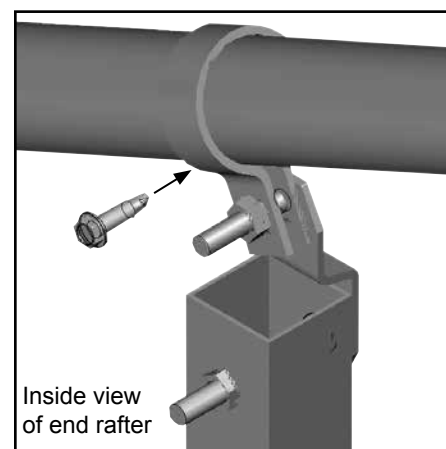
ATTENTION: Remember to subtract the amount needed to account for the square-to-round tube connect bracket that will be attached to the top of each remaining frame member.

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 short Tek screws to secure the square tube fitting to the base tube.
30. Tighten the top band clamp and *install a short 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 a short Tek screw through the back or side 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.



GROWSPAN™ GOTHIC PREMIUM GREENHOUSES

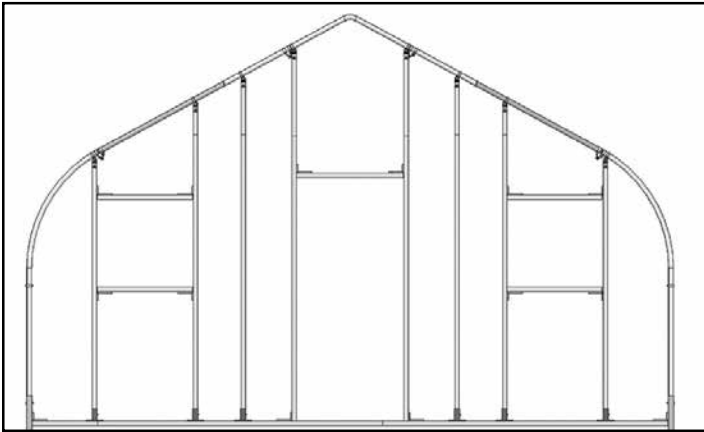
INSTALL THE END WALL FRAME (continued)

INSTALL END WALL FRAMING (BACK)

The end framing for the back of the greenhouse is assembled in the same way as the front end wall. Consult the End Wall Diagrams as needed to install the frame.



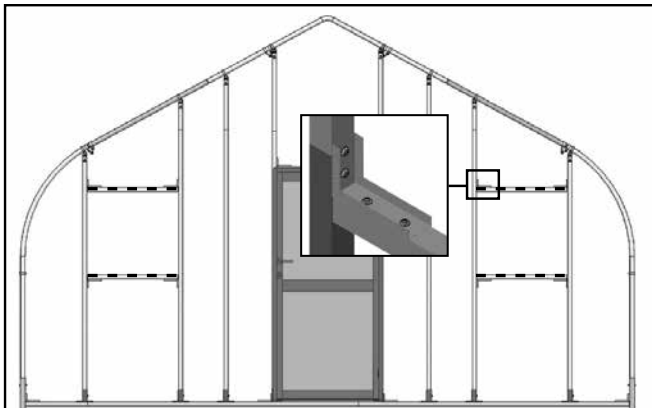
Space below is reserved for customer notes.



INSTALL FRAMING FOR ACCESSORIES (OPTIONAL)

Complete these steps to install the accessory framing:

1. Read the note regarding the installation of optional accessories at the beginning of the end wall installation section.
2. Based on the installation requirements and precautions of the accessory, choose a location in the end wall where you can mount the accessory, and cut two (2) 1.5" x 1.5" frame tubes to the required length. Consult the End Wall Diagram.
3. 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.



Dashed lines show where additional frame tubes are installed. If you are not installing any accessories the accessory framing is not needed.

END PANEL INSTALLATION

After end wall framing is installed, attach polycarbonate panels. Steps that follow describe one way to complete end wall panel installation.

Materials and parts include:

- Polycarbonate panels and white vent tape
- Aluminum U-channel profile (104213) & Aluminum End Cap profile (104548)
- Aluminum 8' H-channel (113236Z096)
- Tek screws (FA4484B) & Neo-bonded, galvanized washers (102921B)

Read the following information before starting:

- U-channel profile is used to finish side edges of polycarbonate panels adjacent to door frame.
- H-channel is used to join two (2) separate polycarbonate panels at the seam.
- Use Tek screws and 102921B washers to secure H-channel and panels to each end wall frame column and to the end rafter. **Space at 16" on-center.**
- Install the polycarbonate panels with the UV-protected side to the outside. Mark this side with a marker if needed after removing the protective film.

ATTENTION: The protective film must be removed from the polycarbonate panels. Allowing the film to remain intact and in direct sunlight will make the film difficult if not impossible to remove.

- During preparation, rest the edges of the panels on cardboard or other material to protect them from dirt and damage.
- Seal the bottom edge of the panels with white vent tape.
- *Consult the polycarbonate panels (Quick Start section) for the location and lengths of each panel. The diagrams are located at the back of these instructions.*

ATTENTION: Panels must be position as shown on the panel diagrams. Using a panel in the incorrect place can affect the placement of subsequent panels. In addition, the amount of aluminum profile used between panels and to finish the panel edges may not be adequate if additional seams are created. Begin at the *door end* of the building.

Install all accessories (fans, vents, heaters, etc.) after installing all polycarbonate sheets.

Secure end panels to all vertical end frame tubes and to the end rafter using FA4484B screws and 102921B washers.

Secure all polycarbonate panels as shown in the diagrams and photos below, unless otherwise noted.



Use a Tek screw and washer to secure panel to end wall frame. Do not crush panel when installing screws.

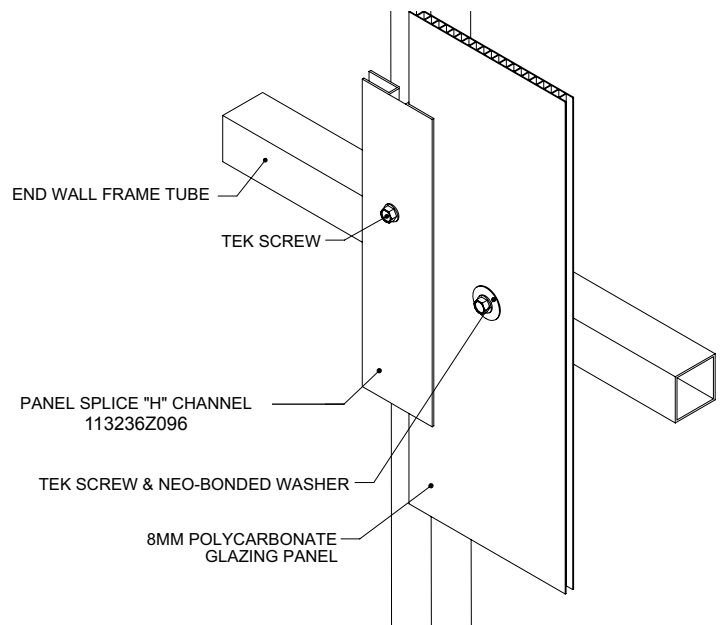


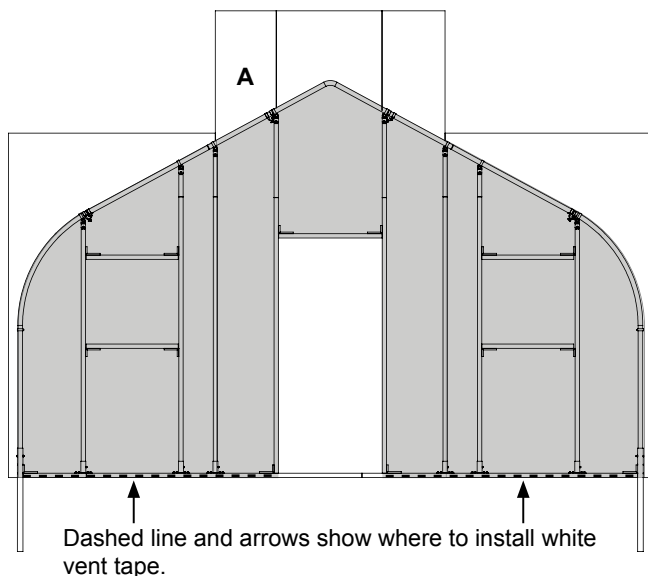
Diagram shows basic panel installation and fasteners used to secure polycarbonate panels. *Install H-channel with flat side out.*

GROWSPAN™ GOTHIC PREMIUM GREENHOUSES

END PANEL INSTALLATION (continued)

Complete following general steps to install end wall panels.

1. Consult panel location diagrams, select one 4' x 12' polycarbonate panel, begin at edge of door opening, and work to the outside edge of end wall.



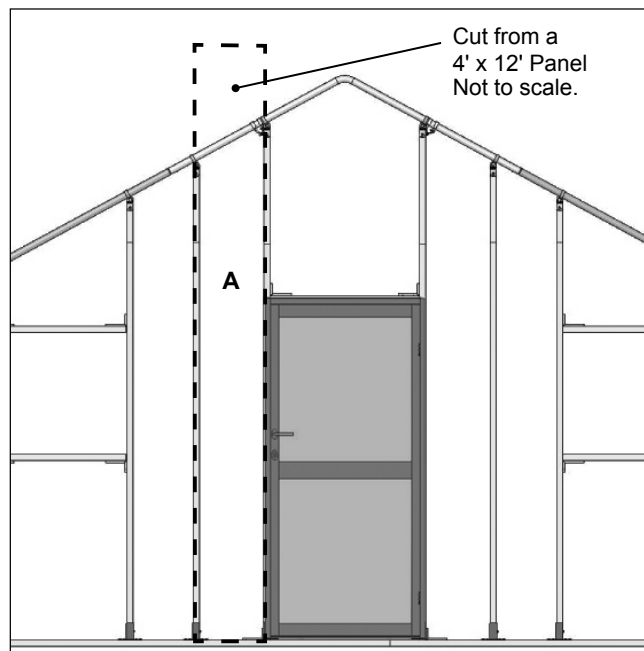
NOTE: Remove protective film. When needed, panels are cut to length *after* they are attached to end wall frame and rafter. See photo on next page.



2. Apply white vent tape to bottom of panel. Review diagram in right column for aluminum profile (104213) placement along edge adjacent to door. See also Polycarbonate Panels diagram in Quick Start section.



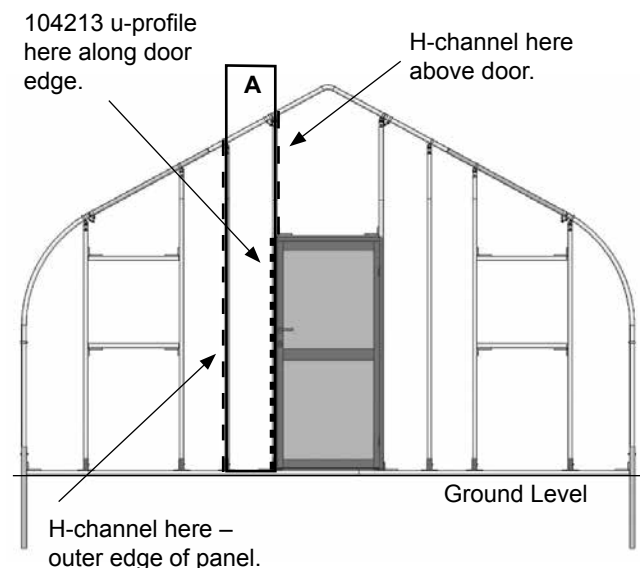
3. Measure, cut Panel A, and place in position. Add H-channel along outer edge and U-profile along door.
4. Attach to end wall framing using long Tek screws (FA4484B). *Install H-channel with flat side out.*



NOTE: Consult end wall diagrams located in Quick Start section for on-center dimensions. **Remember to account for installation of H-channel.**

Space screws evenly **at 16"** when securing panels. **DO NOT USE WASHERS WHEN SECURING H-CHANNEL TO END WALL FRAMING.**

Remainder of 4' x 12' panel is used to cover area along other side of door. Always remove protective film and mark and install UV-protected side to outside of greenhouse.

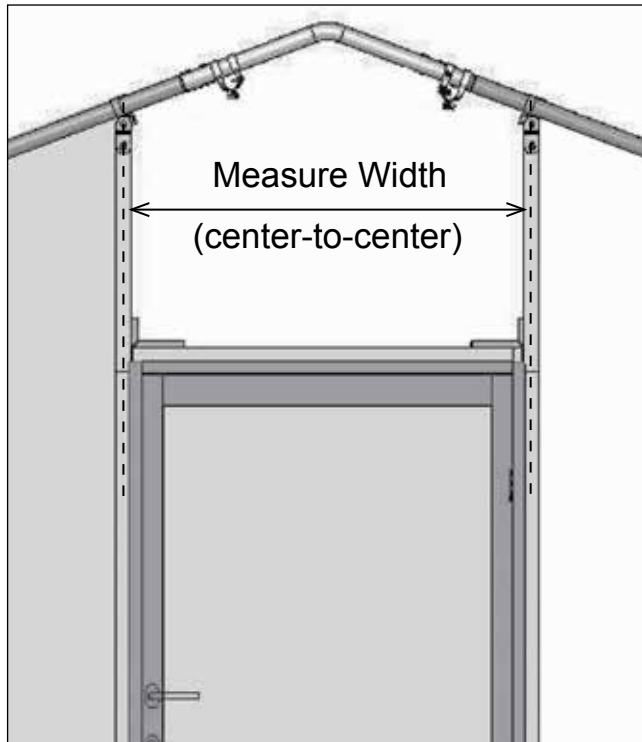


END PANEL INSTALLATION (continued)

5. With panel secured in place, cut top to proper size using rafter as a guide.

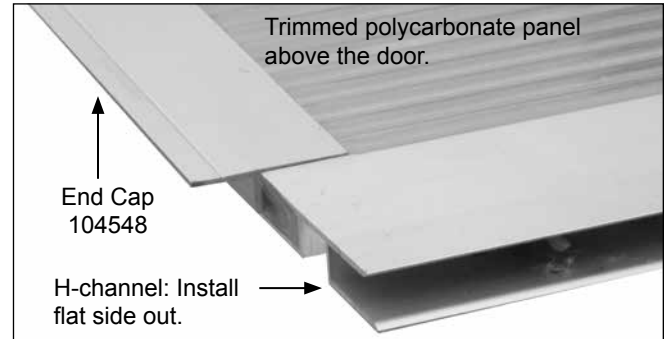
ATTENTION: Skip this step if desired and complete it once *all panels are installed*. Review roof panel installation steps later in this guide to determine end panel position and length. Panel to remain flush with top of end rafter pipe. See also how panels are sealed after roof panel installation is complete.

6. Take the 4' x 8' panel and cut a section to cover above door. Prepare as previously described. Remember to account for installation of adjacent panel and H-channel between panels. Actual frame may differ.



7. After cutting panel to proper width, measure and cut two sections of H-channel to correct length. H-channel is used to join two separate panels. *Install H-channel with flat side out.*
8. Install one section of H-channel along each panel edge. Install H-channel flush with panel bottom.

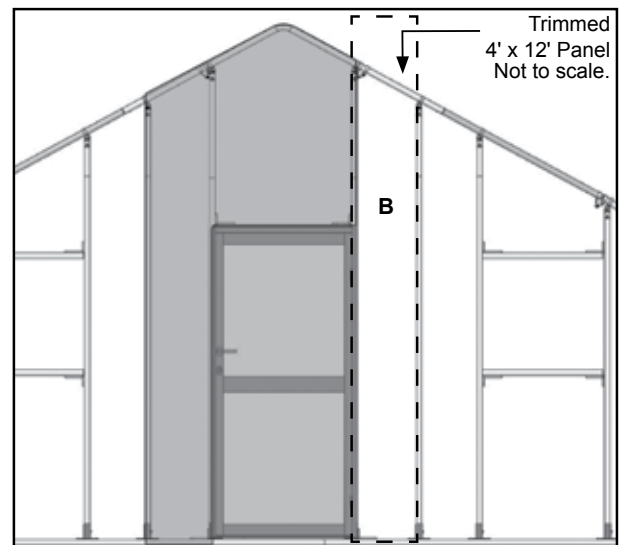
9. Measure between *edges of H-channel* at panel bottom and cut a section of end cap profile (104548) to fit between H-channel.
10. Install end cap profile on bottom of small panel. *When installed, it will overlap top of door frame.*



11. Using Tek screws (no washers), secure panel in place above door by installing a screw through center of H-channel and into frame member.

NOTE: H-channel to remain below top of rafter and short enough to allow for installation of roof panels and H-channel.

12. Cut and prepare a panel (as previously described) to cover remaining area along door. (Use the remainder of 4' x 12' panel from (Step 1) Panel A.)

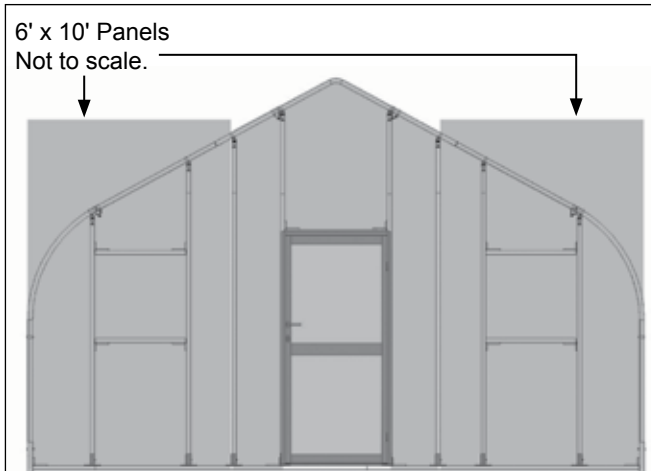
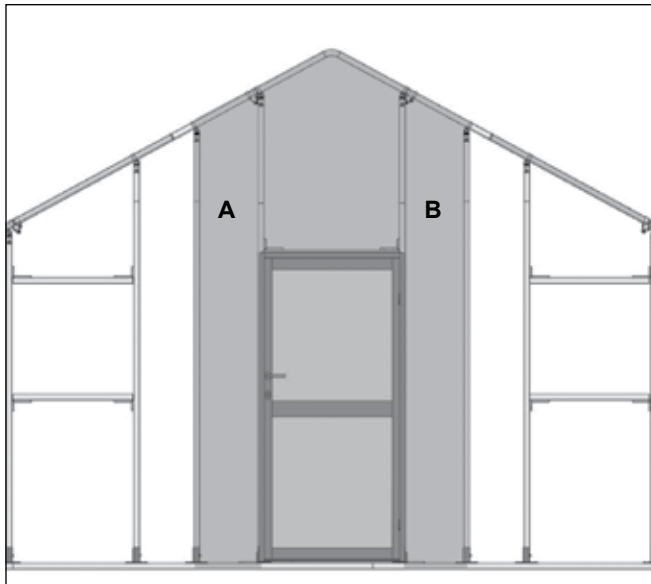


13. Place panel in position with its UV-protected surface to the outside and attach to end wall framing.

GROWSPAN™ GOTHIC PREMIUM GREENHOUSES

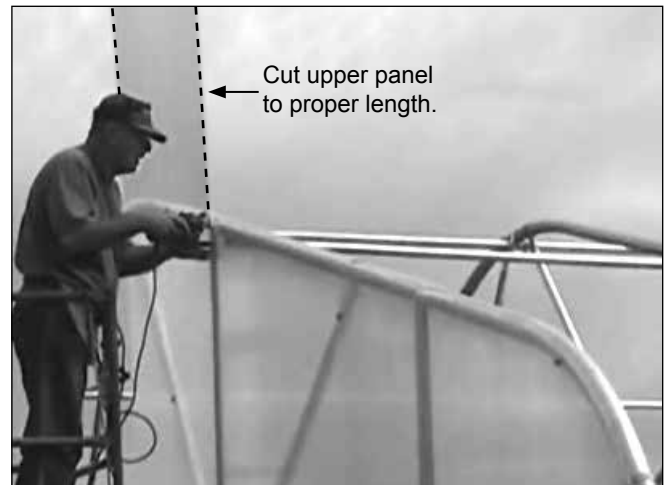
END PANEL INSTALLATION (continued)

14. Continue installing polycarbonate panels and aluminum profile in locations shown on end panel diagrams (Quick Start section) for front and back end walls. Diagram shows end panel locations.



Consult End Panel Diagrams when installing panels.

15. Cut panel(s) to proper height after attaching to end wall frame.



ATTENTION: In above photo, top of panel is removed using a power tool equipped with a round cutting bit. Greenhouse in photo used for illustration only. It is of a different model.

16. Standing outside the door, install Tek screws through door frame and into end wall frame member to secure.

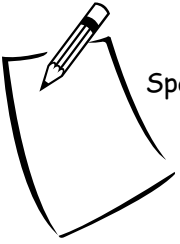


17. Repeat procedures (as needed) to install remaining end panels for other end of greenhouse.

NOTE: Consult Quick Start section for additional information.

18. Continue with **Main Cover Installation** procedures on the next pages.

Secure end panels to all vertical end frame tubes and to the end rafter using FA4484B screws and 102921B washers.



Space below is reserved for customer notes.

GROWSPAN™ GOTHIC PREMIUM GREENHOUSES

INSTALL ROOF PANELS: OVERVIEW

Install polycarbonate roof panels after installing end panels. These are the main steps to attach panels:

1. Prepare and install lower panels first along both sides for first two (2) bays (as shown).
2. Install upper panel for end bay. (Upper panel overlaps lower panel by six (6) inches.)
3. Install ridge cap.
4. Repeating Steps 1–3, work toward other end of frame until all panels and ridge cap sections are installed.
5. Attach aluminum profile to lower edge of upper panel and secure using Tek screws and washers.
6. Seal panels and profile.
7. Continue with baseboard installation if used.

INSTALL POLYCARBONATE ROOF PANELS

The diagram that follows shows locations of different panels. Frame shown below may differ from actual frame.

NOTE: Install so upper panels overlap top edge of lower panels **approximately six (6) inches**.

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

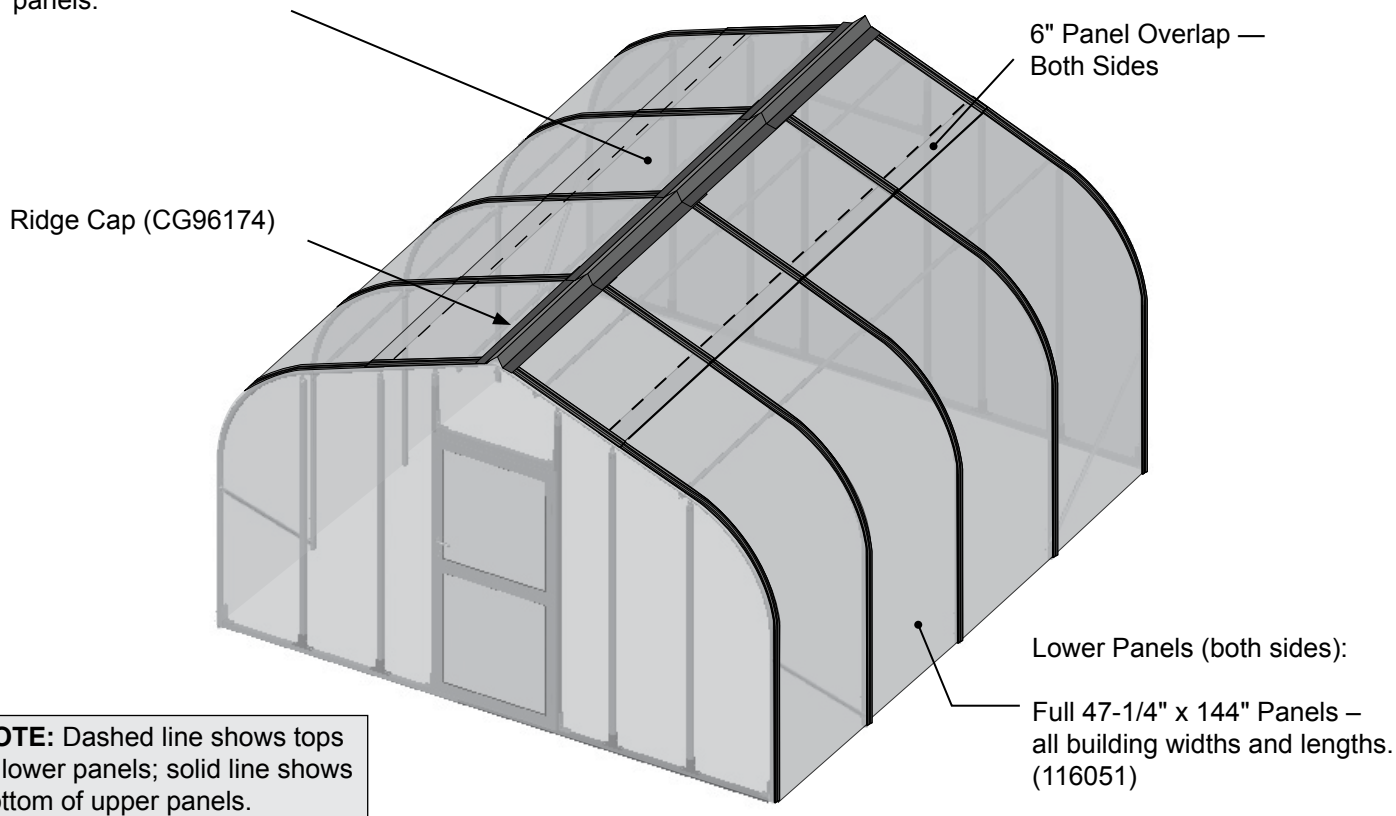
Do not use an impact driver to install Tek screws!

Upper Panels: Use one (1) 47-1/4" x 144" panel (116051) to create two (2) upper panels.

Gather Parts:

- 116051 Panels (47-1/4" x 144") & 104774 Vent Tape
- 104213 Aluminum U-channel and 104548 End Cap Profile
- CG96174 Ridge Cap & DH8007 Foil Tape
- 111929 12' H-channel
- 102921 Neo-Bonded Washers & FA4484B Tek Screws

ATTENTION: DO NOT store or allow polycarbonate panels to remain in direct sunlight for an extended period of time before installation. ***Doing so could cause protective film to become difficult if not impossible to remove.***

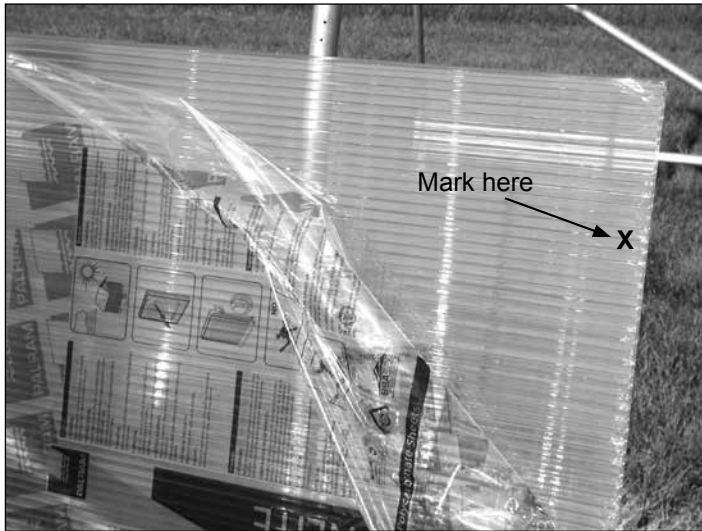


POLYCARBONATE ROOF PANELS

There are different ways to install polycarbonate roof panels. Individuals familiar with the installation of these panels and overall assembly of similar greenhouses may choose to install according to past experience. Since there are differences between buildings, read through the procedure that follows to better understand panel installation for this greenhouse.

This procedure describes one way to install panels. Complete these steps:

1. Take one 116051 panel (47-1/4" x 144"), mark UV-protected side, and remove protective film.



NOTE: Mark UV-protected side using a piece of tape or other means to ensure side is installed toward the sun.

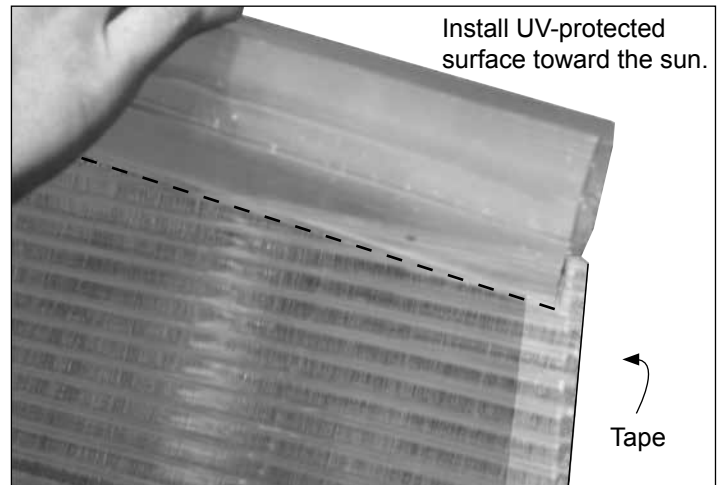
2. Apply vent tape (104774) to cover one end of panel.



3. Move to opposite end of panel and cover open cells using DH8007 foil tape.

NOTE: Panel end with vent tape is the bottom; panel end capped with foil tape is the top.

4. Place panel on a covered surface and install 111929 H-channel (12') along *both sides*.



NOTE: If needed, use a thin bar or putty knife to carefully pry H-channel open for easier installation. Use a rubber mallet to gently tap H-channel into place along each panel side. Do not damage channel or panel.

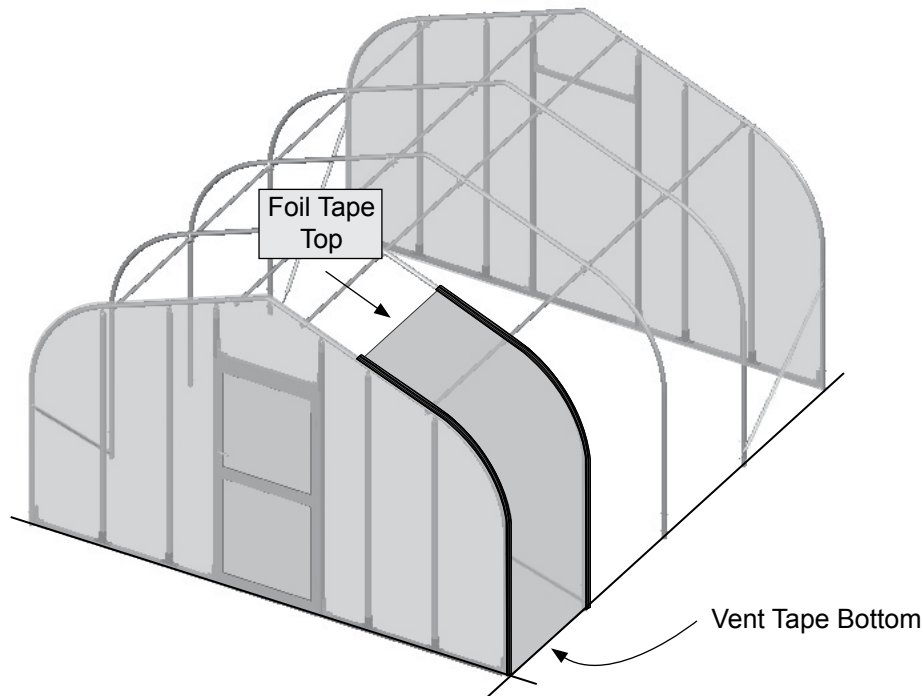


5. After panel is prepared, carefully lift and move panel to first bay at one end of assembled frame.

GROWSPAN™ GOTHIC PREMIUM GREENHOUSES

POLYCARBONATE ROOF PANELS (continued)

6. With assistance, place panel against frame and align center of H-channel with center of second rafter. **Position end with foil tape at top.** Verify you have UV-protected surface of panel facing toward sun. (Panel was marked earlier during preparation—Step 1.)



ATTENTION: If baseboard will be installed after panel installation is complete, continue with next step. If no baseboard will be installed, embed taped bottom of each lower panel approximately 4" - 6" below grade to seal greenhouse.

7. Using FA4484B Tek screws and 102921 neo-bonded washers, attach panel to rafters. Use assistants and hand clamps as needed to hold panel tight to rafters as screws are installed.

Ensure panel remains square on frame during installation. Next panels will not align properly if first panel is improperly installed.

If panel does not align, check that rafters are spaced at 48" on-center from ground post along one side to those on opposite side. *Adjust rafters as needed.*

Duct tape can be used in small pieces to hold H-channel in place along panel edges. Do not allow to work loose during installation. H-channel to remain tight to panel edge.

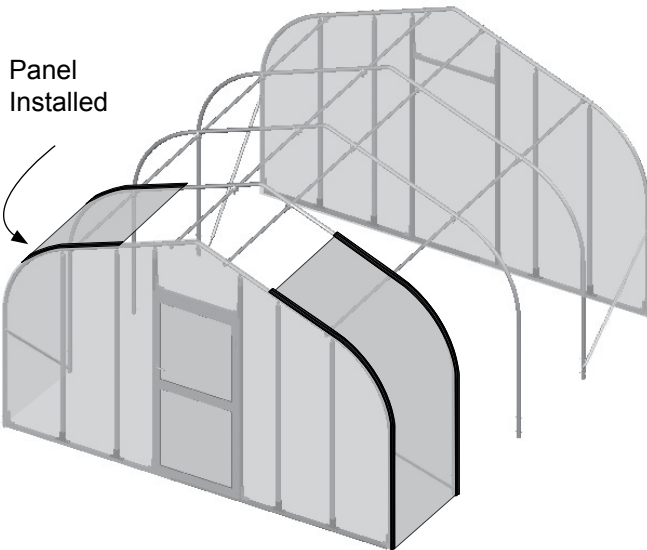
IMPORTANT: Space screws at 16" on-center. Install last screws at top of panel 7" from panel end to allow space for upper panel to overlap when it is installed.



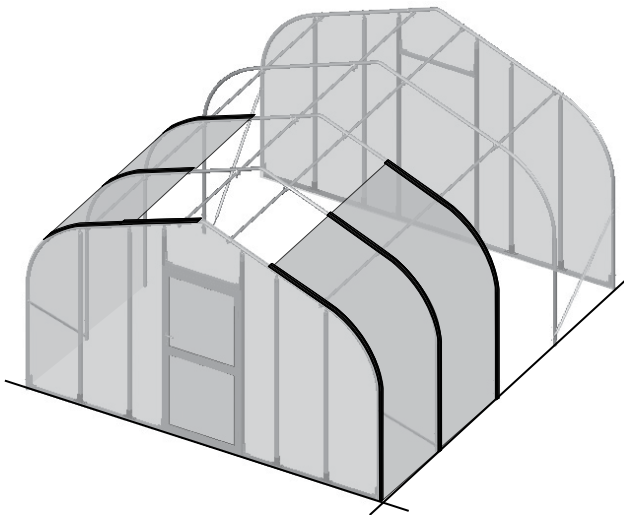
IMPORTANT: Do not over-tighten Tek screws. Install snug. Screws should not distort or crush panel cells or H-channel.

POLYCARBONATE ROOF PANELS (continued)

8. After installing first lower panel, select another 116051 panel (47-1/4" x 144") and prepare for installation as described in Steps 1-4.
9. Move to opposite side of frame (same bay) and install panel in lower position for that side. Review previous panel installation steps and information if needed.



10. Repeat steps 1-9 to prepare and install next two lower panels for next frame bay.



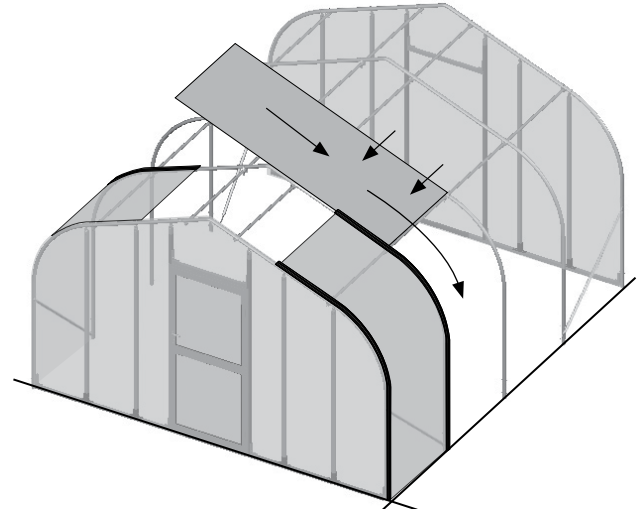
ATTENTION: Do not install H-channel along panel edge that will connect to previously installed panel.

Verify that panels align with center of rafters and that each panel is fully inserted into H-channel of previously installed panel.

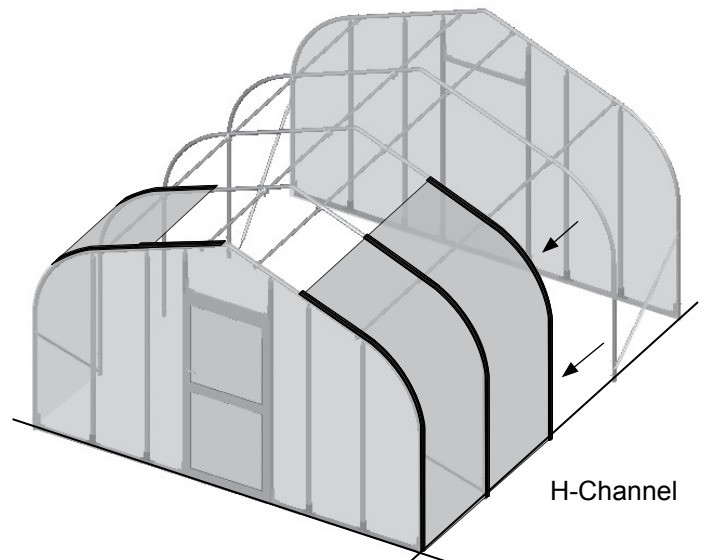
If you are unable to install second set of panels due to limited assistants or other reasons, review the alternative installation steps in next column. If you were able to install panels, continue with Step 11.

ALTERNATIVE INSTALLATION FOR ROOF PANELS

During assembly, sometimes installing panel from the side is challenging. An alternative method shows sliding lower panels into H-channel from top. Review diagrams below for another way to install lower panels.



- a. After installing lower panels of first frame bay, prepare the next lower panel as previously described *but do not attach any H-channel along the edge*.
- b. With an assistant stationed along side and someone near panel top, insert lower corner of panel into H-channel of installed panel.
- c. With someone pushing gently from the side to keep panel in H-channel, have an assistant push panel down from top. **Lubricate H-channel and edge of panel with water if needed.**
- d. Once panel is fully installed, attach a piece of H-channel to panel edge and secure panel to frame as previously described (See Step 7).

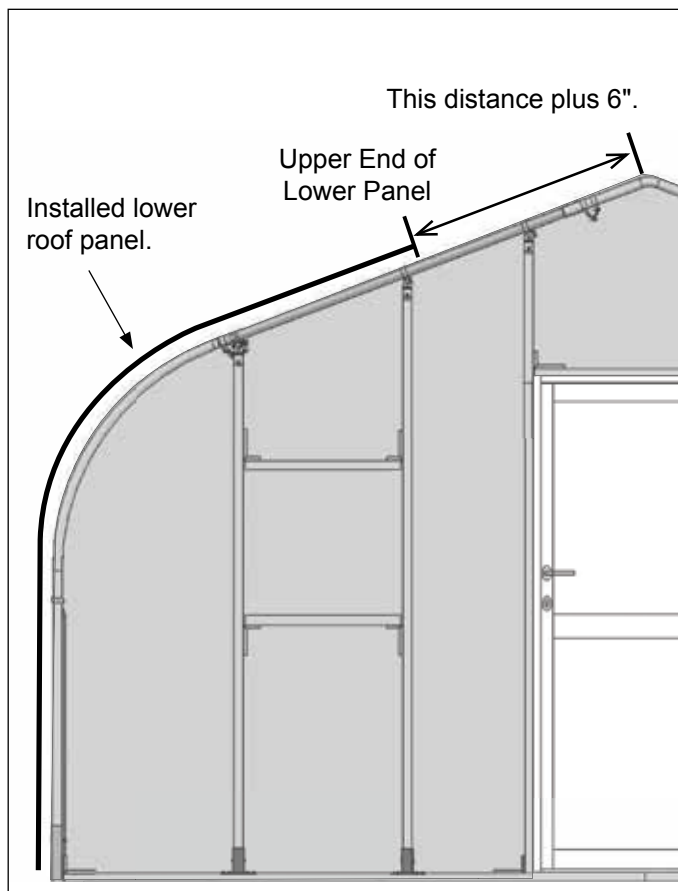


- e. Continue with next step.

GROWSPAN™ GOTHIC PREMIUM GREENHOUSES

POLYCARBONATE ROOF PANELS (continued)

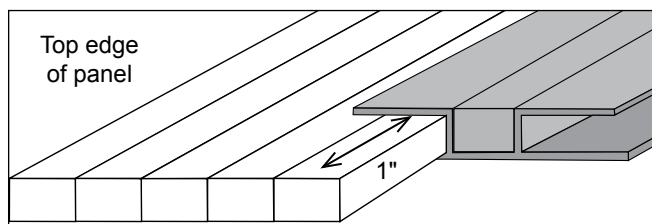
11. Next, measure from peak to top of lower panel **and add 6" to allow for a 6" overlap** of each lower panel.



12. Take a 144" (12') panel (116051) and cut a section from it to the dimension determined in previous step.
13. Peel back a corner of the protective film, mark UV-protected side, and remove all protective film.
14. Apply foil tape to cap cells at one end of panel.

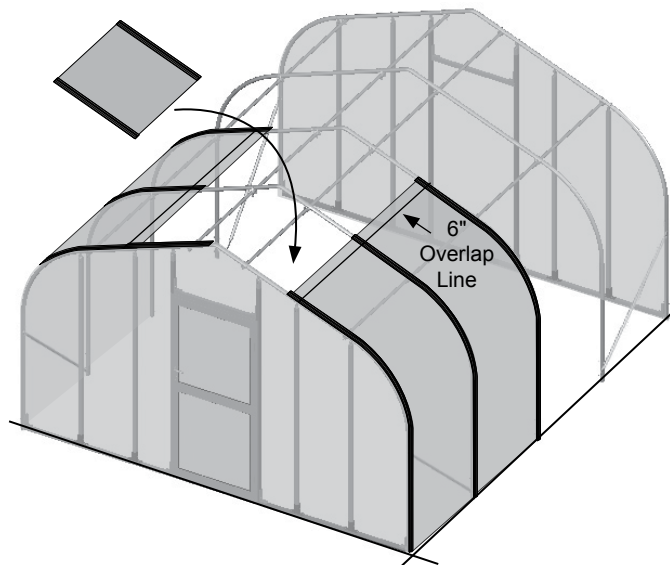
NOTE: Upper end of all upper panels is closed with foil tape. Lower ends are capped using 104213 aluminum U-channel. *Vent tape is not used.*

15. Take a section of 12' H-channel (111929) and *cut a piece that is 1" shorter than the panel length*. Repeat step to cut another section for the other panel edge.

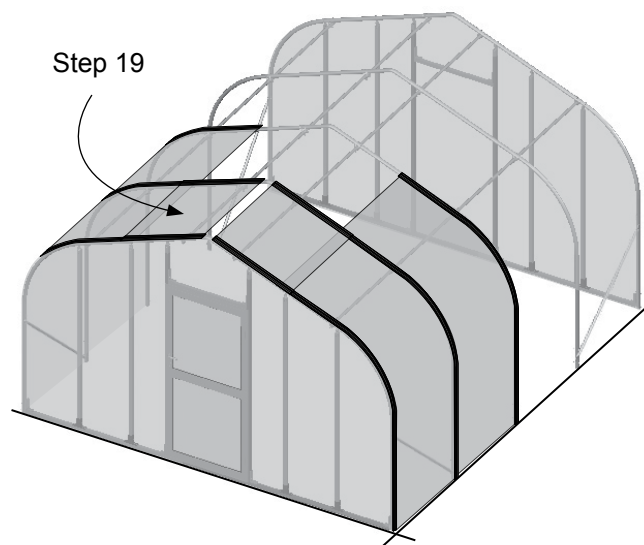


NOTE: This allows space for installation of the 104213 U-channel once panel is installed.

16. With assistant stationed inside and outside the frame, carefully set panel on frame and overlap top of lower panel by 6".
17. Align panel and center H-channel with center of end rafter and first interior rafter.



18. Secure panel to rafters as previously described using FA4484B Tek screws and 102921 washers.

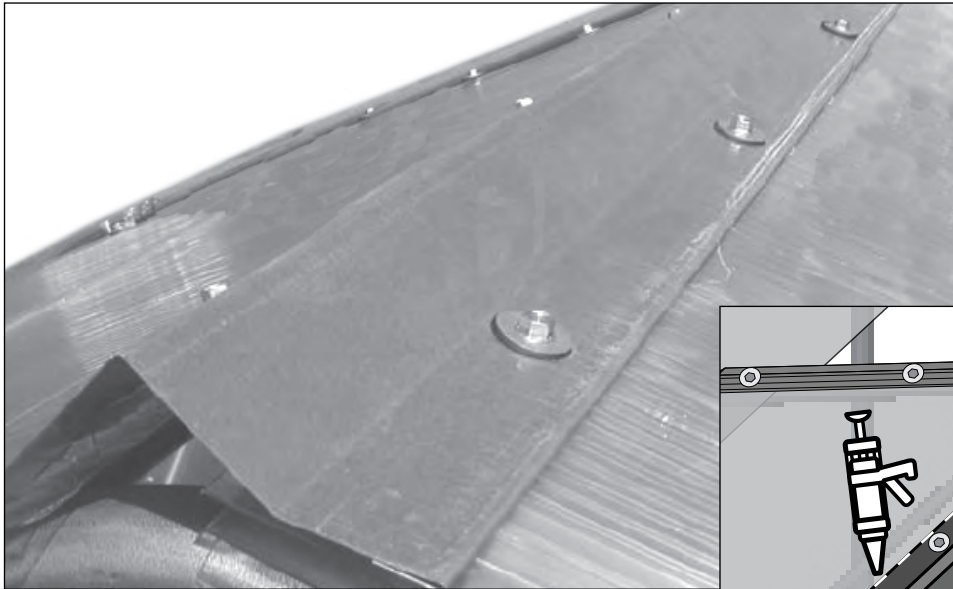


ATTENTION: Install upper Tek screws a few inches down from peak to prevent interfering with the installation of ridge cap. (See diagrams on next page.) Use a section of ridge cap to gauge placement of Tek screws that secure panel.

19. Repeat steps to prepare and install the adjacent upper panel (same frame bay).

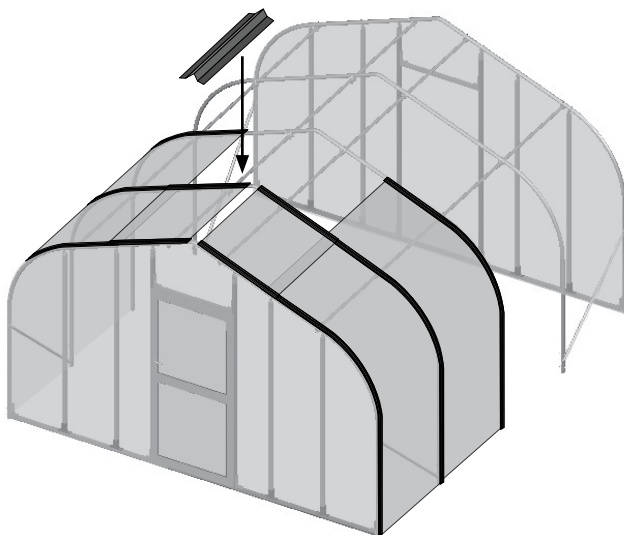
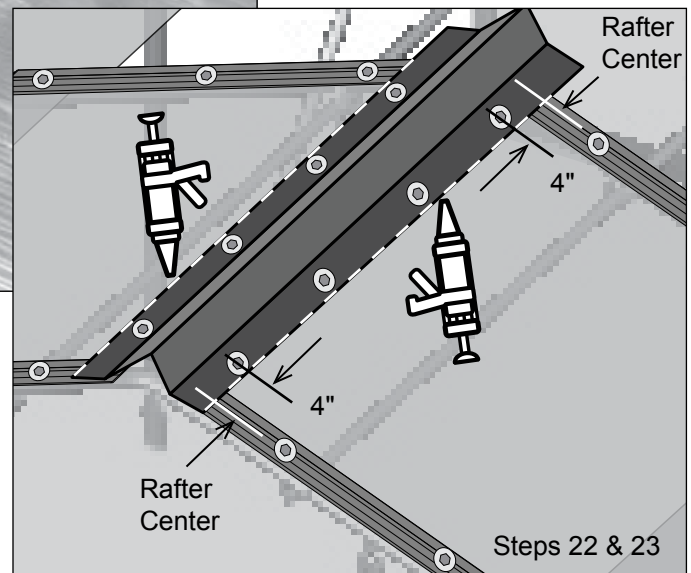
POLYCARBONATE ROOF PANELS (continued)

20. Take a section of ridge cap (CG96174) and predrill mounting holes in cap lip using 1/4" drill bit. Set first and last holes approximately 4" in **from center of rafter at each end**. Ridge cap length is 55", so it will extend beyond mid rafter. Next cap overlaps first. **Seal joint between ridge cap and panel.**

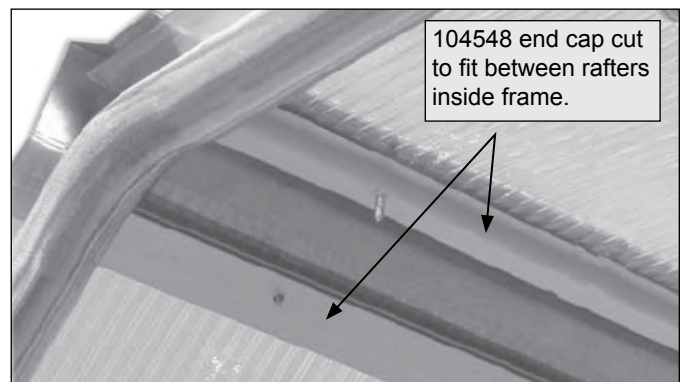


Tek screw and washer driven through pre-drilled hole, through upper roof panel, and into 104548 end cap positioned inside the frame under cap.

Do not over-tighten Tek screws. Seal joint between ridge cap and panel.



21. Take a section of 104548 end cap profile and cut two (2) pieces so each fits between rafters. These serve as backers to attach ridge cap sections to.
22. Position prepared ridge cap in place on top of panels. Have an assistant inside the frame hold a piece of 104548 end cap against panel and in line with the mounting holes of ridge cap.
23. Attach ridge cap to 104548 end cap using FA4484B Tek screws and 102921 neo-bonded washers. Repeat to secure remaining side of ridge cap.



104548 end cap cut to fit between rafters inside frame.



CAUTION: Hold end cap in place with a block of wood to prevent driving Tek screws into hand.



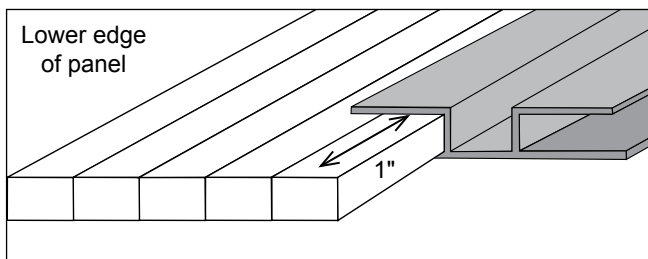
GROWSPAN™ GOTHIC PREMIUM GREENHOUSES

POLYCARBONATE ROOF PANELS (continued)

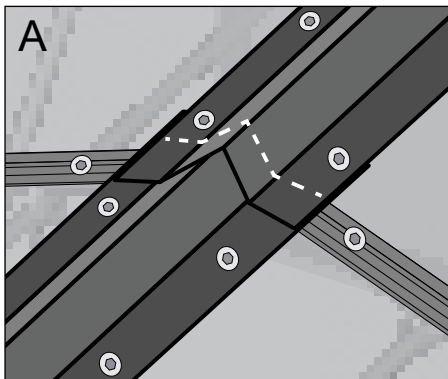
IMPORTANT: BEFORE INSTALLING NEXT SET OF UPPER PANELS, SKIP TO AND READ THE SECTION THAT DESCRIBES THE INSTALLATION OF U-CHANNEL AND OVERLAP BRACING (NEXT PAGE).

DEPENDING ON AVAILABLE LIFTS AND ASSISTANTS, THAT PROCEDURE CAN HAPPEN AS PANELS ARE INSTALLED, OR AFTER ALL PANELS ARE INSTALLED. REVIEW THE PROCEDURE AND PROCEED ACCORDINGLY.

24. Repeat steps to prepare and install the next set of upper panels (X). *Ensure UV-protected side of panels is installed toward the sun.*



ATTENTION: Align ends of all upper panels to allow for the installation of 104213 aluminum U-channel in a later step. (See diagram lower right.) **Remember to cut H-channel 1" shorter (Step 15) to allow for U-channel installation.**



25. Next, prepare and install next ridge cap as previously described.

ATTENTION: Apply a bead of silicone where ridge cap sections overlap to seal seam. Dashed line above shows where to install silicone between cap sections.

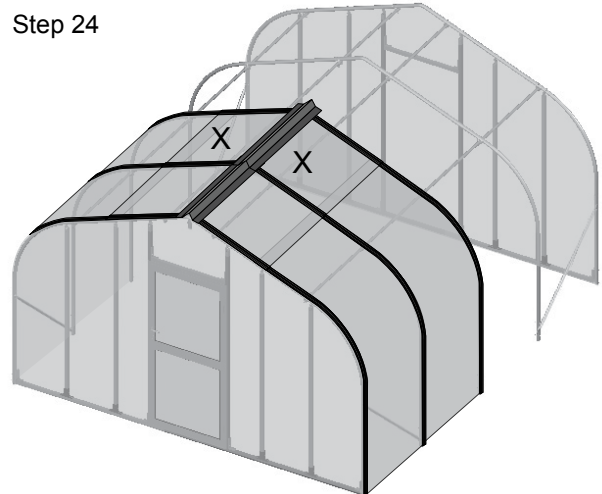
26. Repeat steps as needed to prepare and install all remaining panels and ridge cap sections and work toward other end of frame.

Align ends of all upper panels. Solid line shows lower end of all upper panels; dashed line shows upper edge of all lower panels, which is capped with foil tape during panel preparation.

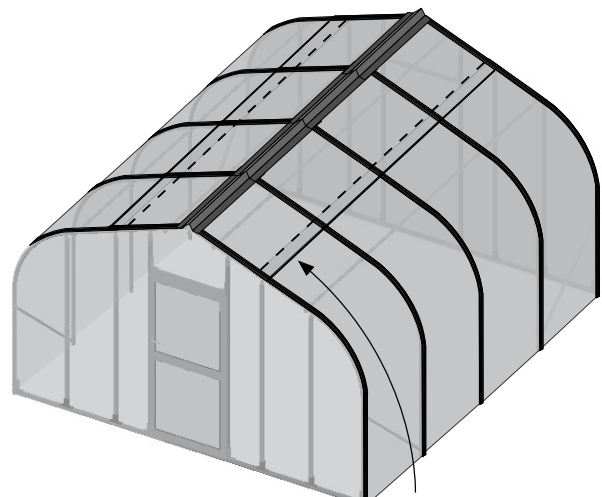
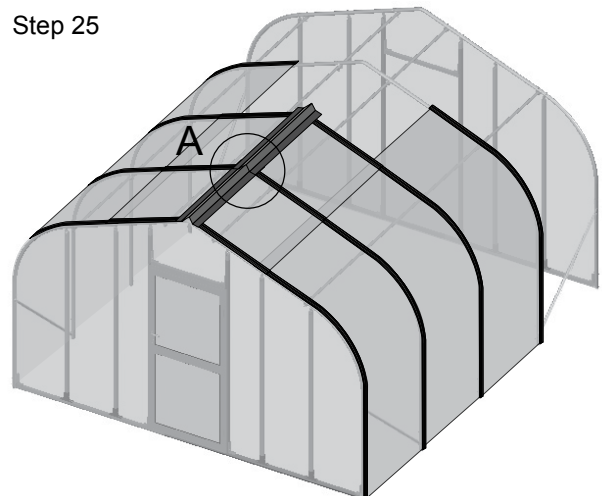
27. After installing all panels, continue with the installation of overlap bracing and U-channel.

NOTE: If the overlap bracing and U-channel procedure was completed during panel installation, skip the next section and continue with baseboard installation.

Step 24



Step 25



Align Panel Ends

INSTALL OVERLAP BRACING AND U-CHANNEL

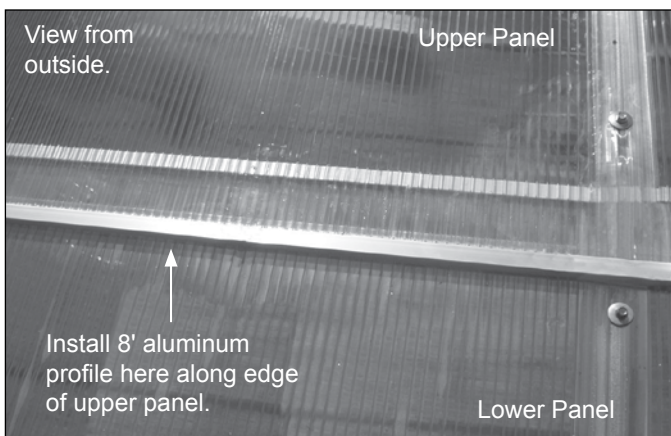
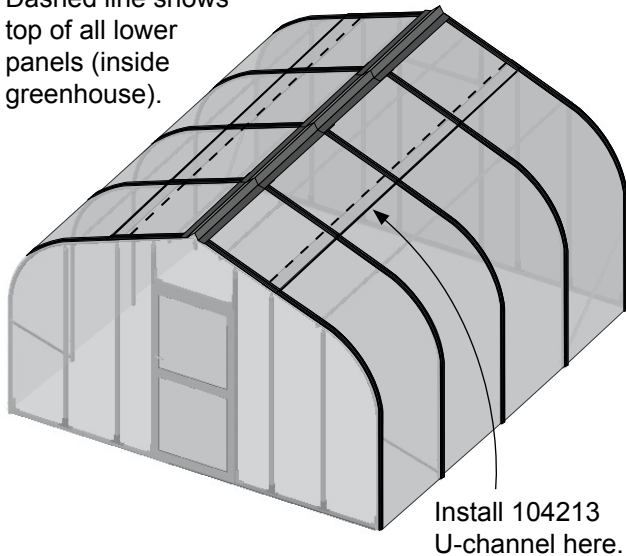
If bracing and U-channel trim were installed during panel installation, skip this section and continue with the installation of baseboards.

IMPORTANT: Under no circumstances should a support structure allow force or weight to be applied to polycarbonate panels! Supports must span from rafter to rafter when used. Consult a contractor if needed for additional information. Take additional steps to protect polycarbonate panel surface. **Use of a lift is strongly recommended.**

Complete this procedure to finish panel installation:

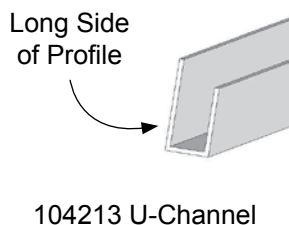
1. Install 8' sections of aluminum profile (104213) along lower edge of all upper panels on both sides. Trim last section to length as needed.

Dashed line shows top of all lower panels (inside greenhouse).

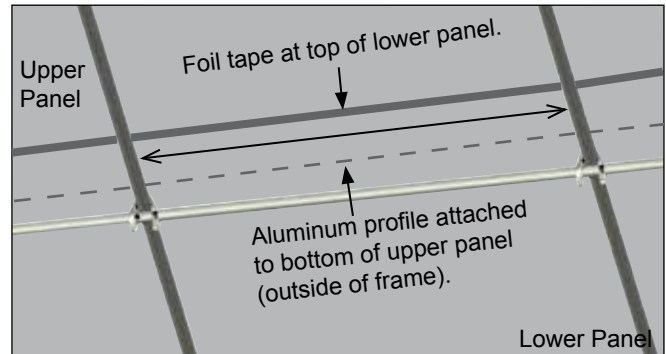


NOTE: Install long side of profile on top of panel.

Do not use Tek screws or washers when installing aluminum U-channel at this time.

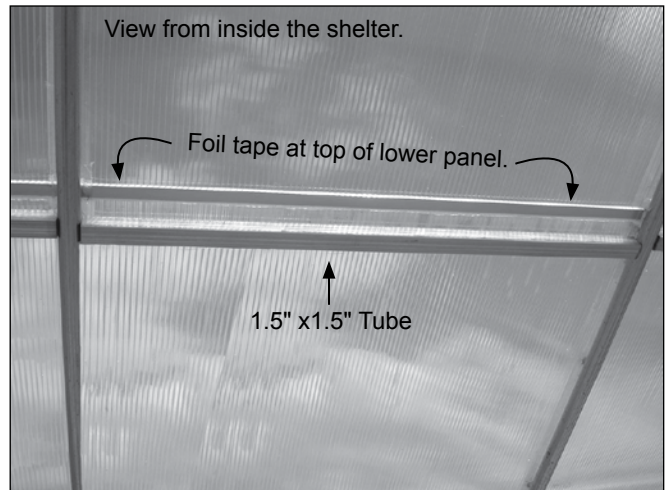


2. Move inside the frame and measure between rafters at point where upper and lower panels overlap.
3. Cut a piece of 104779 (1.5" x 1.5") square tubing to fit between rafters. (All tubes should be same length.)

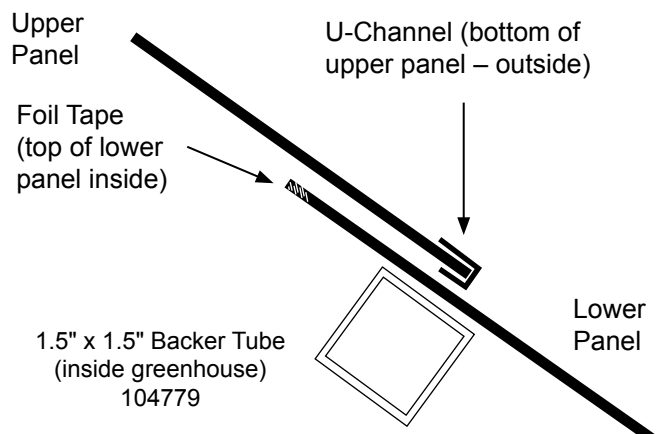


NOTE: Diagram (above) shows where to measure to determine length of 1.5" x 1.5" tube. Diagram shows installed panels as seen standing inside greenhouse.

4. From inside the frame, align square tube as shown over lower end of upper panel (dashed line). Hold tube in place tight against panel.



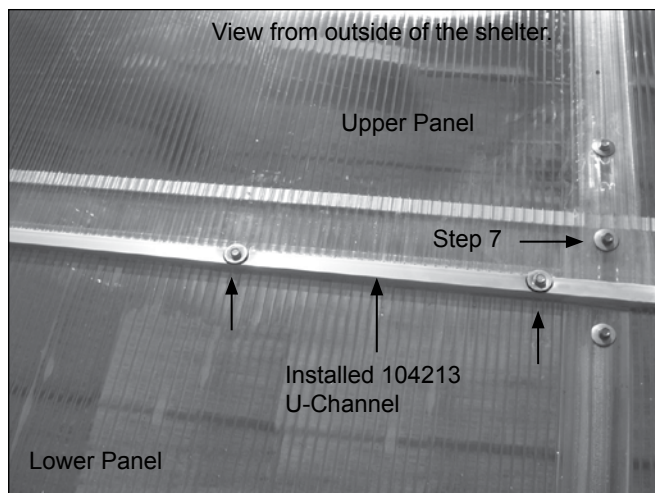
ATTENTION: Align and install tube as shown to secure upper and lower panels together at overlap seam. View shows underside of panels as seen from inside greenhouse.



GROWSPAN™ GOTHIC PREMIUM GREENHOUSES

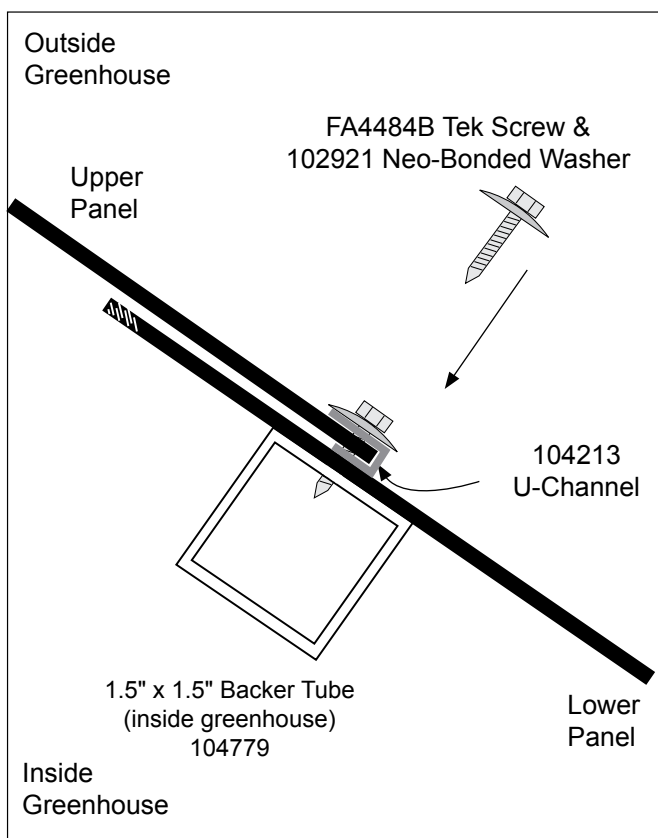
INSTALL OVERLAP BRACING AND U-CHANNEL — continued

5. With tube aligned and someone holding it in place inside the greenhouse, drive FA4484B Tek screws with neo-bonded washers through from the outside into the 1.5" x 1.5" backer tube (104779).
6. Repeat steps as needed to cut and attach additional 1.5" x 1.5" square tubes to secure overlap seam of all panels. **Install one tube per overlap as shown.**

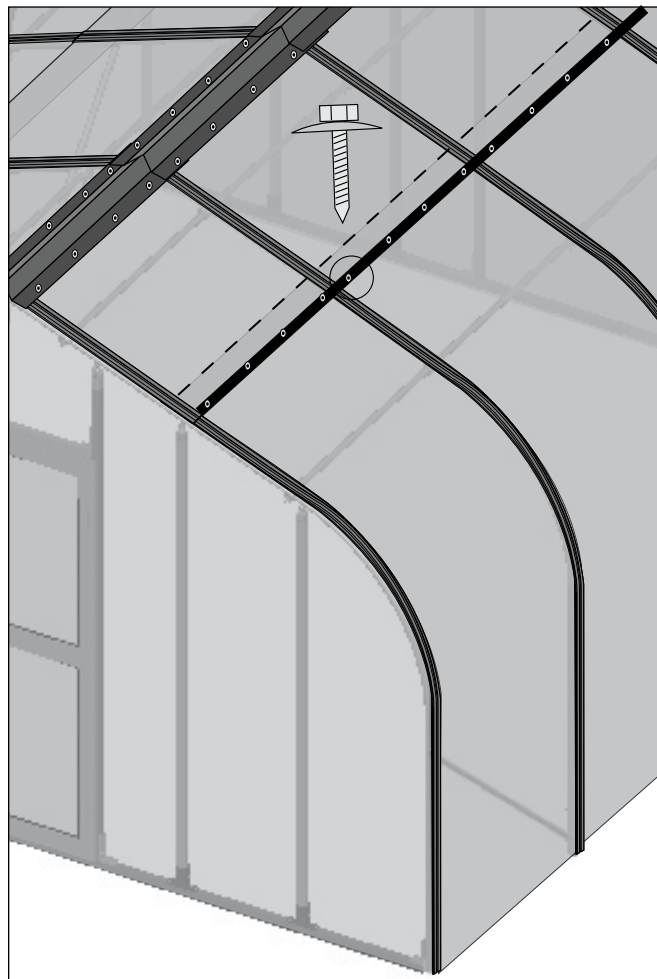


Drive FA4484B Tek screw with 102921 neo-bonded washer through U-channel, both panels, and into the 1.5" x 1.5" square backer tube.

Space screws at 12" on-center.



NOTE: Do not climb on panels to install screws. Take steps to protect panels during screw installation.



7. Install an additional Tek screw and washer at end of H-channel if needed to secure channel to rafter. See photo in Step 5.
8. Continue by reading baseboard installation information on next page.

ATTENTION: If you are not installing a baseboard, skip to and continue by sealing greenhouse using the supplied silicone sealant.

SPECIAL NOTE ABOUT BASEBOARD INSTALLATION

After installing all panels, installing baseboards is strongly recommended. **Minimum size is 2" x 6". Length determined by building length. Materials for baseboards are supplied by the customer.**

Fasteners to secure baseboards to frame are included with building.

A baseboard (2" x 6" minimum) protects the lower section of all panels. In addition, baseboards help keep ground posts properly seated after anchors are installed. Consult the following information before installing baseboards.

Install baseboards after all panels are installed.



BASEBOARD INSTALLATION (RECOMMENDED)

Gather parts:

- Treated or recycled plastic lumber (supplied by customer)
- 1/4" x 4" Carriage Bolts and 1/4" Nuts (included)

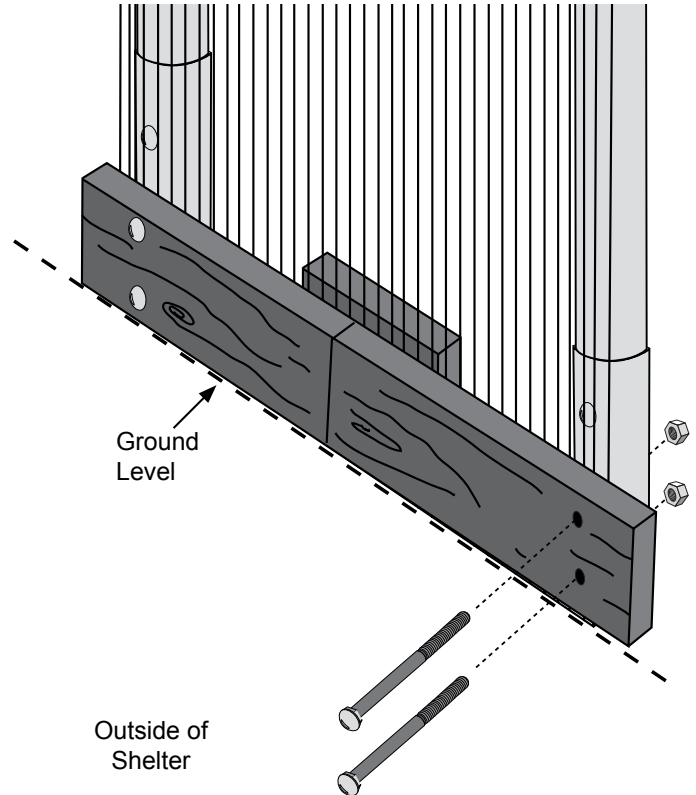
The procedure (next column) shows one way to install baseboards. Size and type of baseboard chosen may require alternative steps. When properly installed, baseboards run the length of frame on the outside.

Set boards at ground level or slightly into grade to prevent shelter from sinking and to create a seal along bottom.

ATTENTION: Skip this section if you are not installing baseboards. Continue with procedure on next page.

Install baseboards after all panels are installed. General installation steps:

1. Remove and reposition Tek screws and washers that may interfere with baseboard installation.
2. Position baseboard as shown and clamp or hold in place.



ATTENTION: Never attach two boards to the same ground post. *All baseboard splices should be between rafters as shown above.*

Use a short section of baseboard to secure separate baseboards at a splice. **Customer supplies all materials to secure all baseboard splices.**

3. From inside the greenhouse, drill holes through ground posts, panels, and baseboard. (Ground posts may come pre-drilled.)
4. Secure with 1/4" x 4" carriage bolts and nuts. Insert from outside.

Depending on baseboard dimensions, countersink bolt holes in baseboard as needed to allow bolts to reach through all components.

5. Continue by sealing greenhouse using the supplied silicone sealant. See next page.

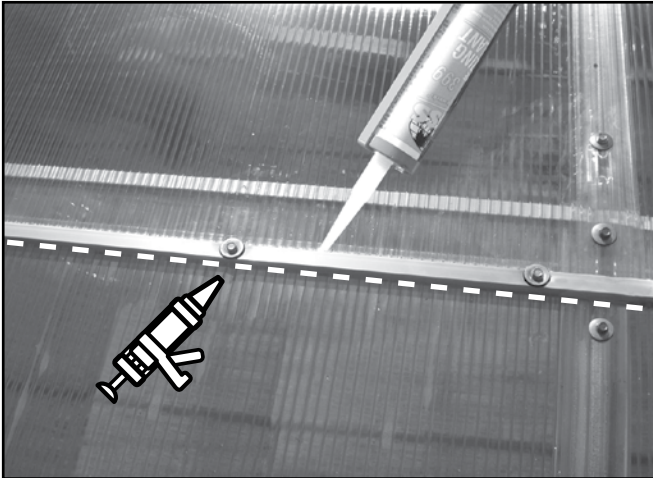
GROWSPAN™ GOTHIC PREMIUM GREENHOUSES

SEAL THE POLYCARBONATE PANELS

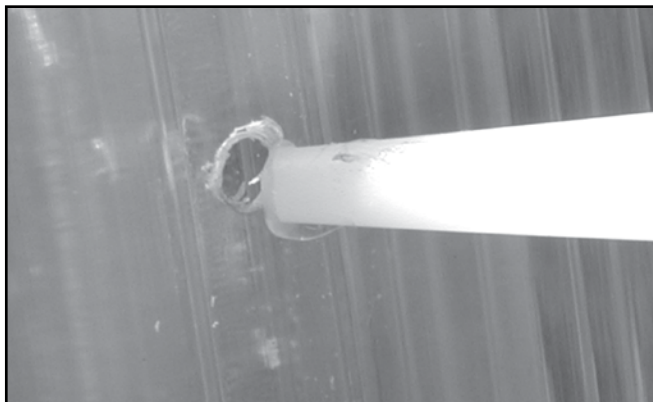
The following steps describe one way to seal the installed panels.

NOTE: The amount of sealant needed to complete the following steps will vary and depends on how thick the sealant is applied. Call Customer Service at 1.800.245.9881 to purchase additional sealant if needed.

1. Open supplied sealant and apply a thin bead to outside of upper panel to seal panel to U-channel.

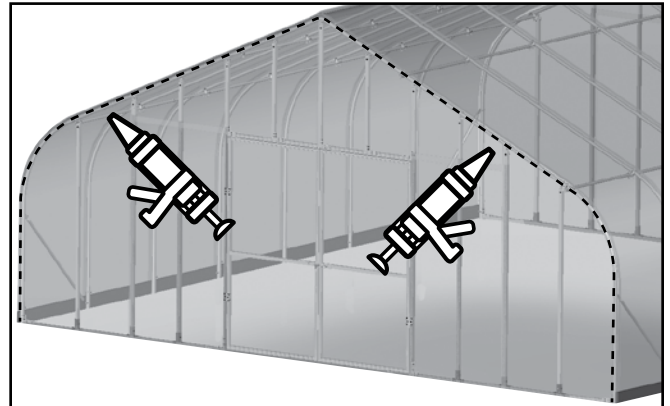


2. Seal seams between H-channel and ends of U-channel.

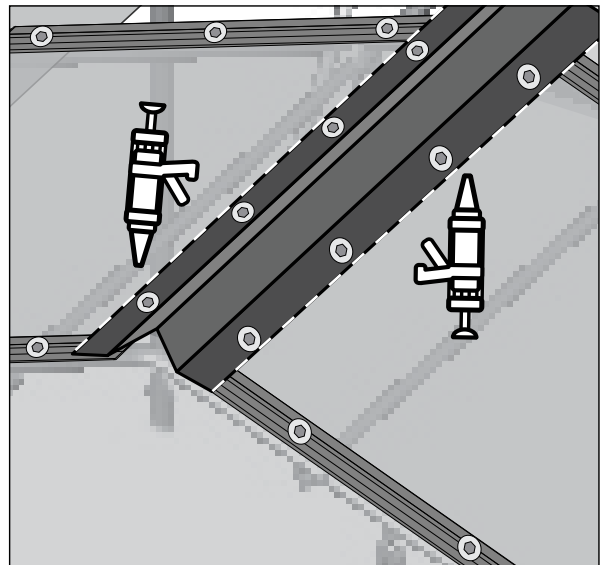


3. Return to any holes in H-channel and repair these using sealant.

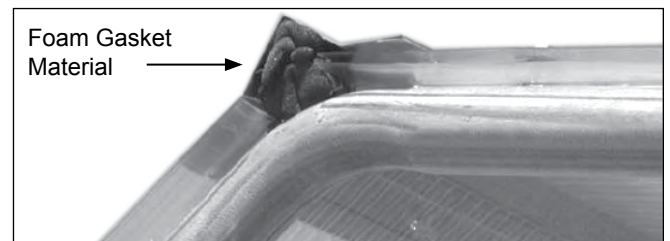
4. Seal upper edge of both end walls with a bead of sealant. See dashed line in diagram below. Frame shown may differ from actual frame.



5. Seal joint where ridge cap and panel meet if this was not done during assembly.



6. Cut a few pieces of foam gasket material (#104710) and use to seal opening at peak of each end rafter.



A scrap piece of sheet metal (not included) or similar material can be cut to shape and sealed to flashing end using silicone sealant.

7. Read greenhouse care and maintenance information that follows.

SHELTER CARE AND MAINTENANCE

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

- Regularly check all polycarbonate panels to see these are secure and in good condition. Replace damaged panels immediately.
- Check connections and all fasteners to verify these remain tight.
- Do not climb or stand on greenhouse at anytime.
- Inspect anchoring system to verify all components remain tight and in good condition.
- Remove debris and objects that accumulate on greenhouse. Use tools that will not damage panels cover when removing debris.
- Remove snow to prevent excess accumulation. Use tools that will not damage polycarbonate panels when removing snow.
- Check contents of shelter to verify that nothing is touching panels that could cause damage.
- If greenhouse is disassembled and moved, inspect all parts and connections before reassembly.
- Depending on contents, construction of shelter, shelter materials, and shelter location, the potential for condensation exists. GrowSpan™ offers several items that can be used to help alleviate a condensation condition.

Please contact a GrowSpan™ representative for additional information.

- For replacement or missing parts, call 1-800-245-9881 for assistance.



Space below is reserved for customer notes.

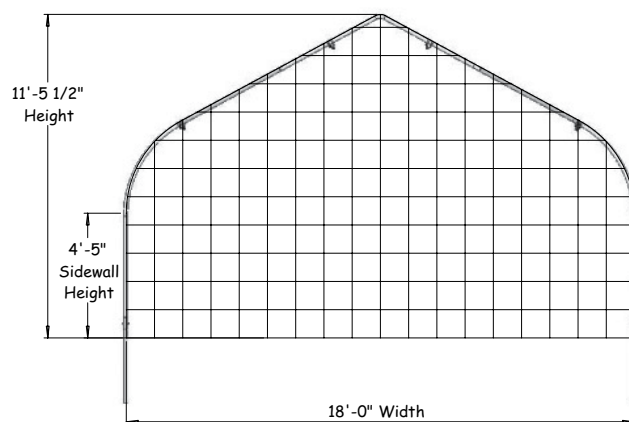
GROWSPAN™ GOTHIC PREMIUM GREENHOUSES



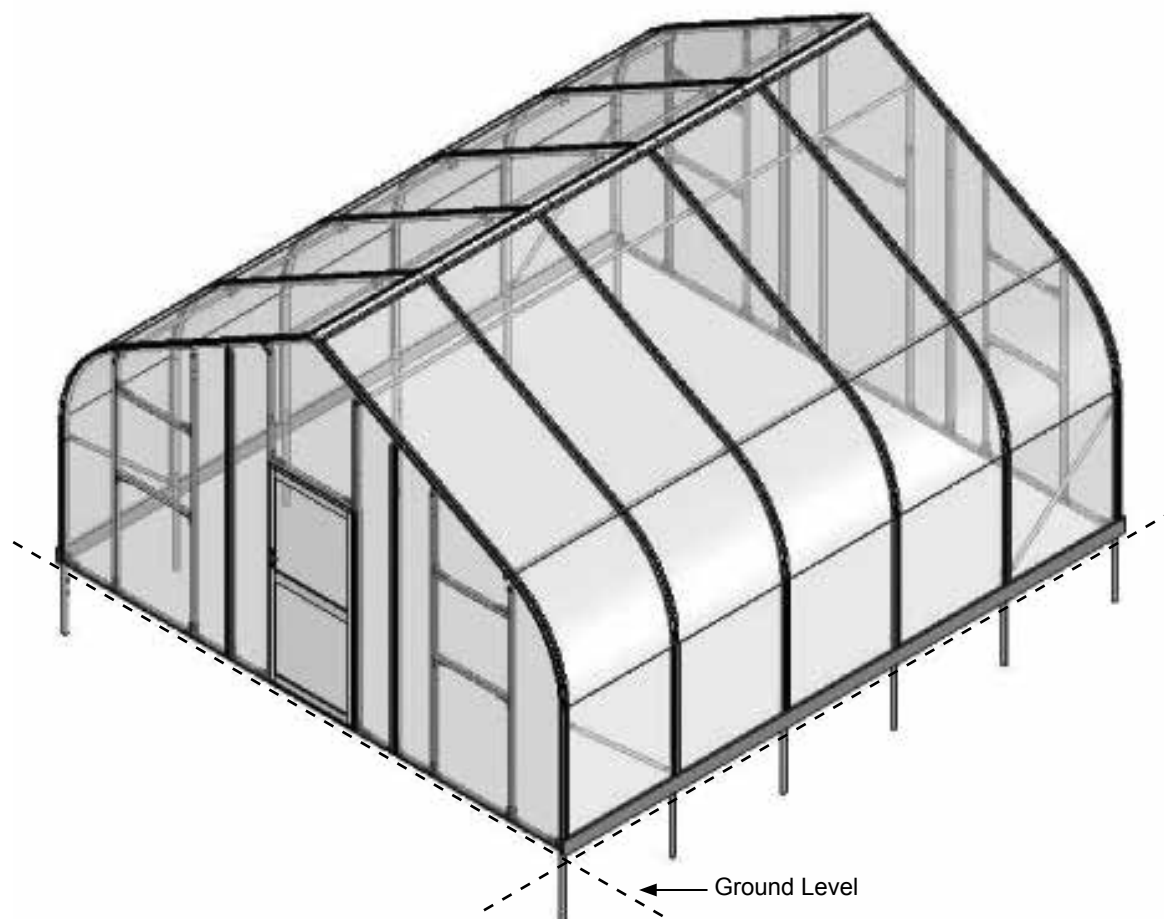
greenhouse structures

QUICK START GUIDE

18' Gothic Premium Greenhouse

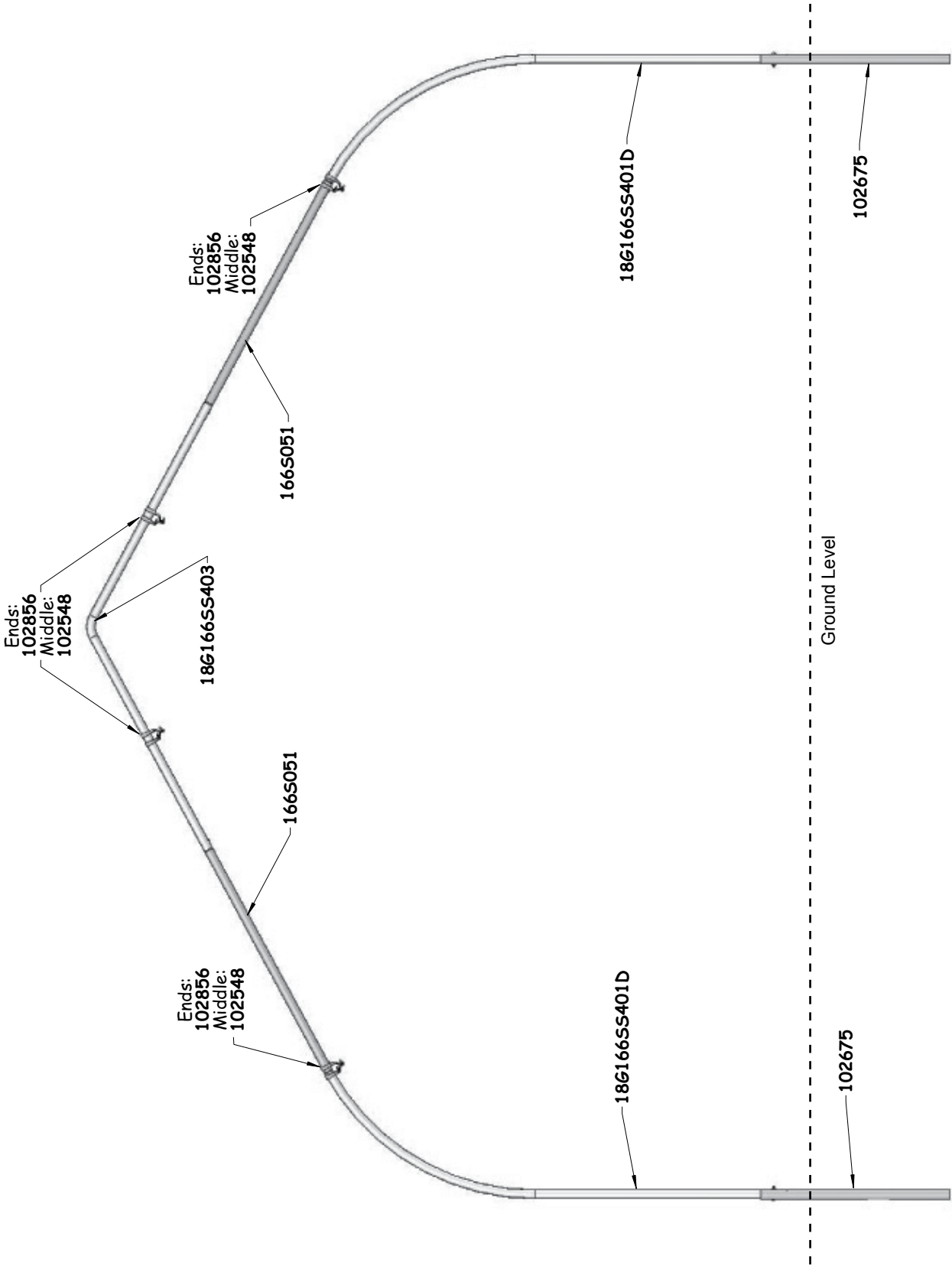


FRONT
Grid Represents 12" Squares

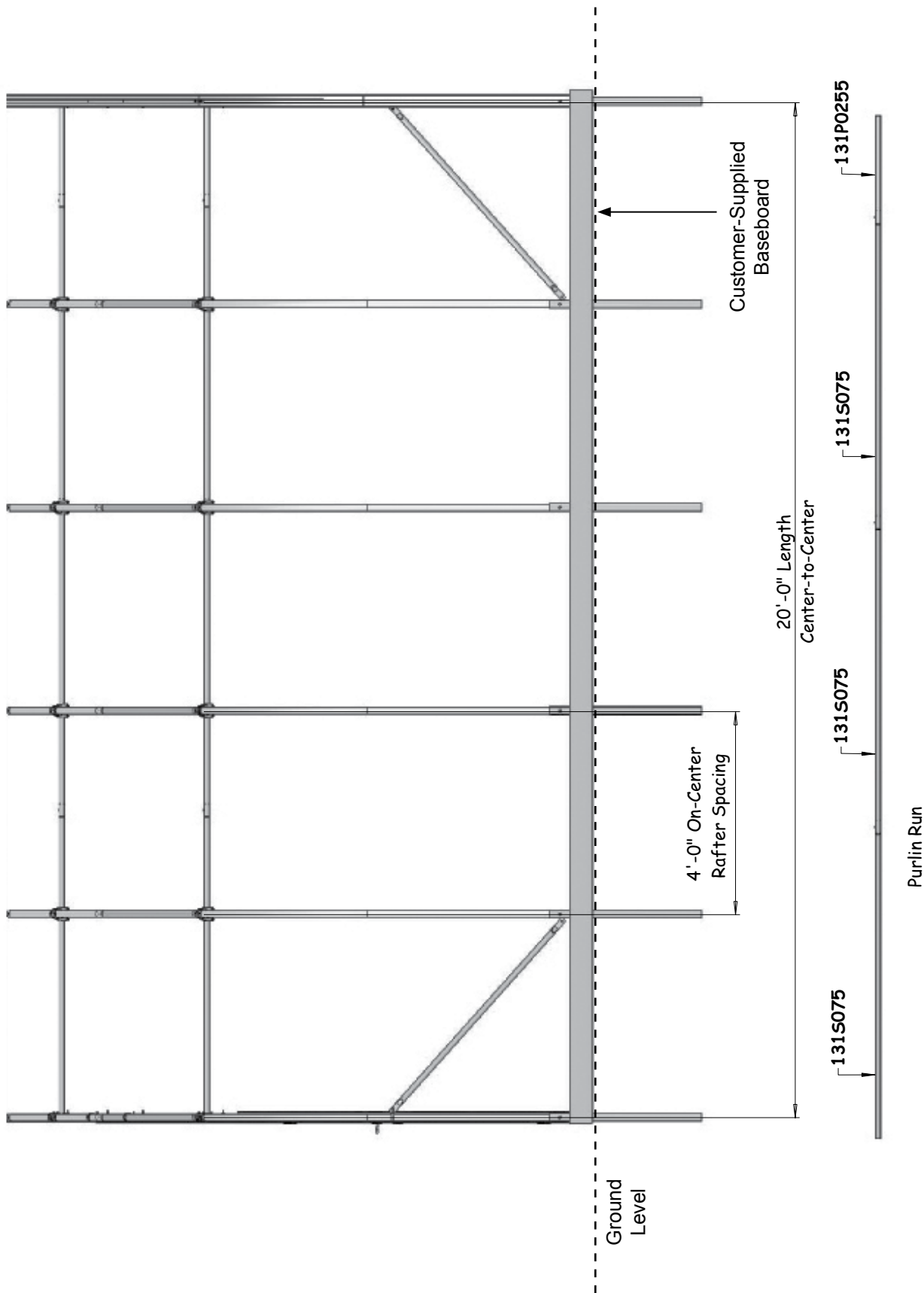


Frame shown may differ in length from actual frame.

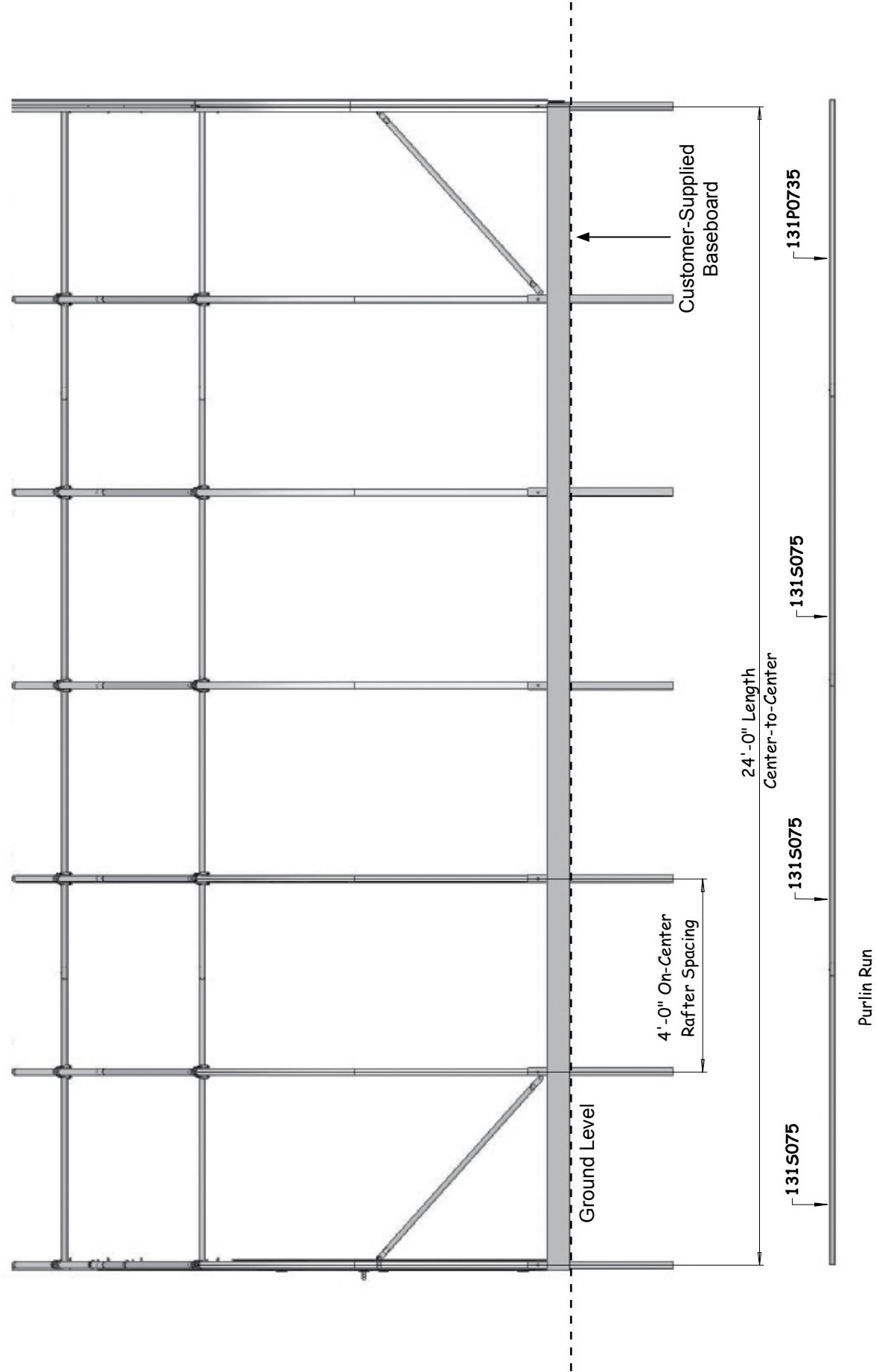
FRONT PROFILE



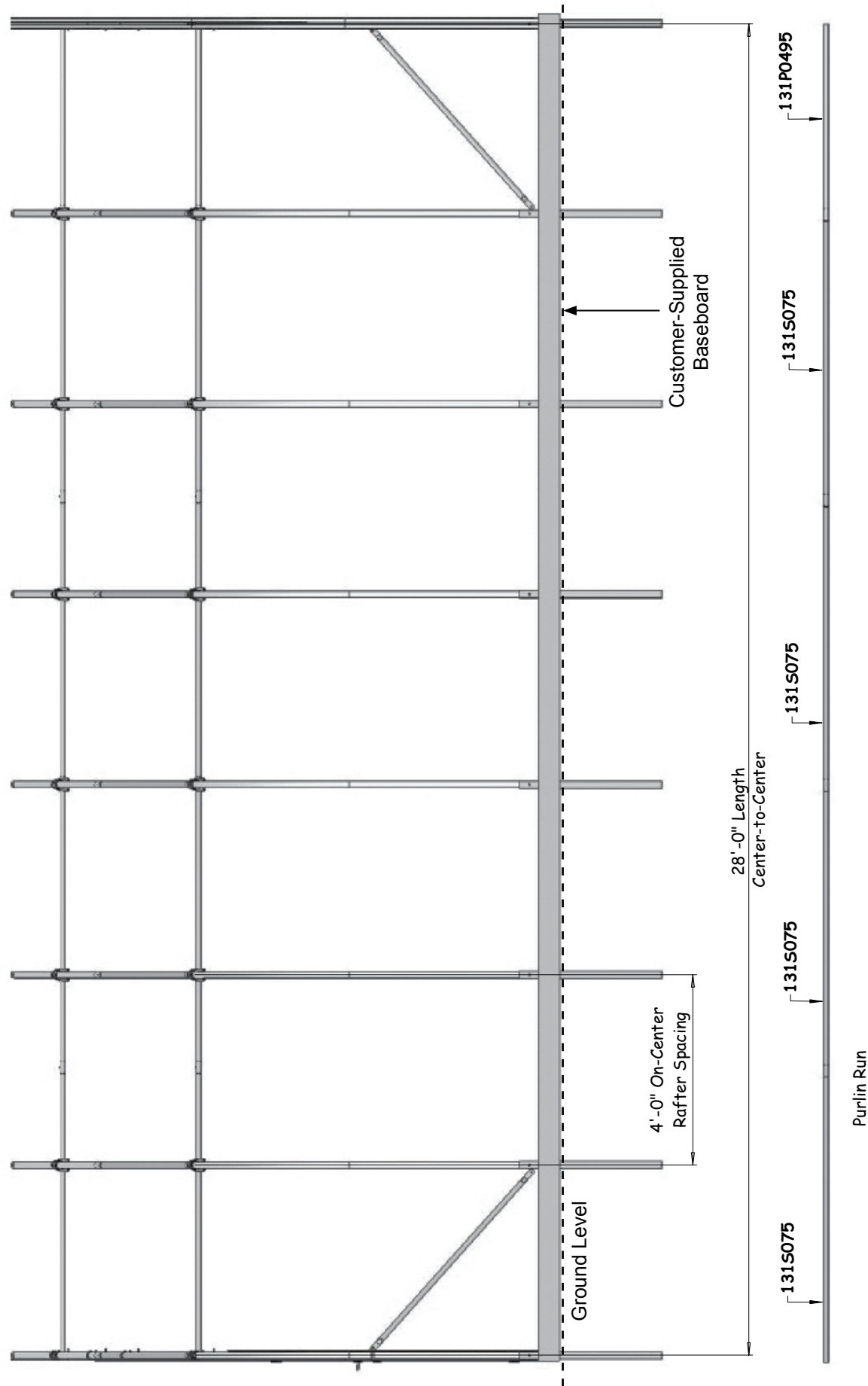
SIDE PROFILE - 106213



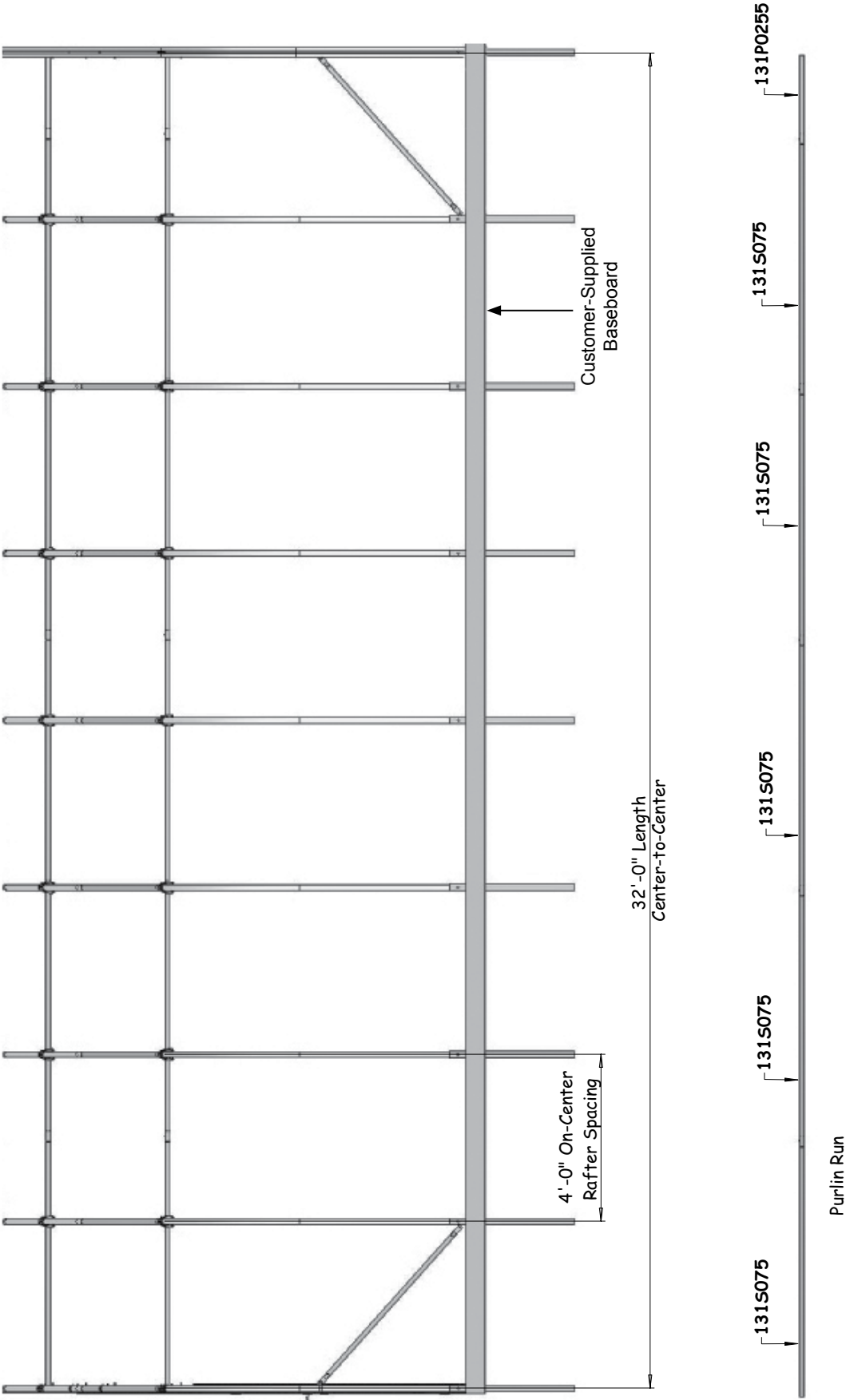
SIDE PROFILE - 106214



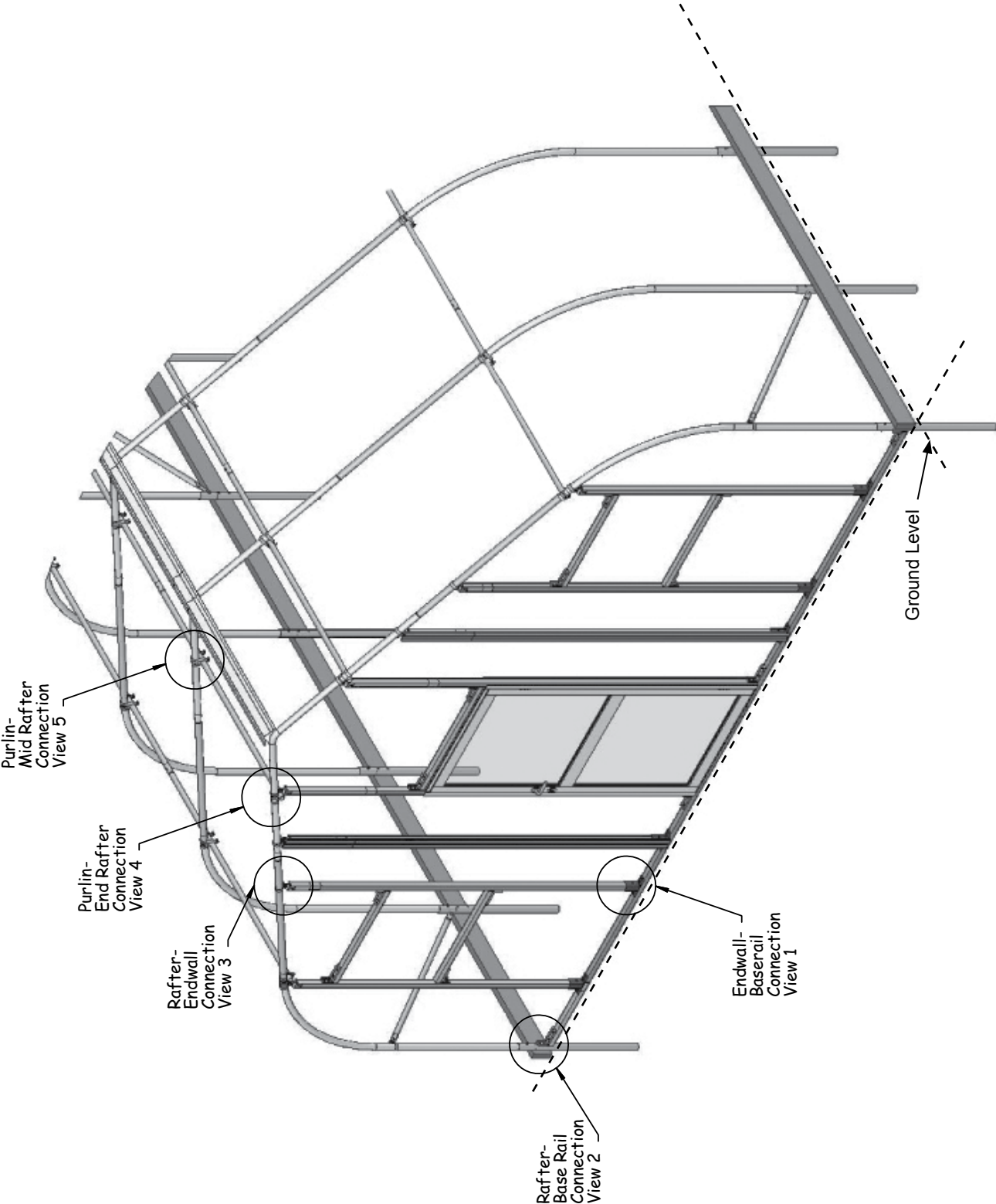
SIDE PROFILE - 106215



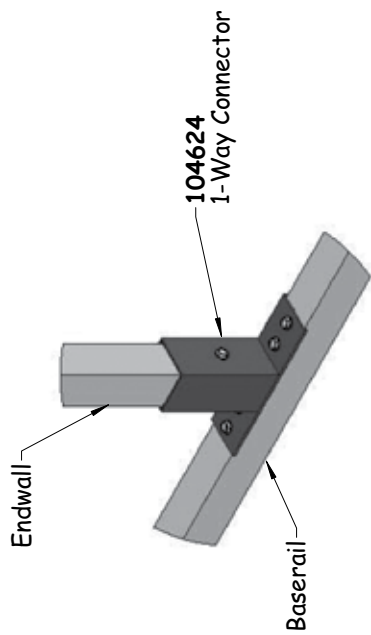
SIDE PROFILE - 106216



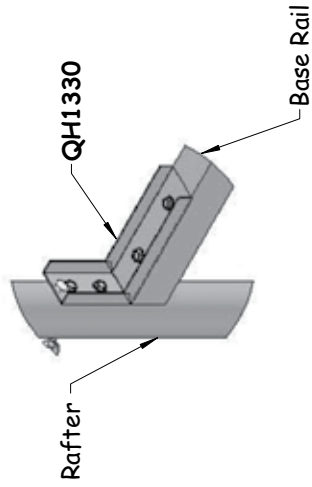
CONNECTIONS



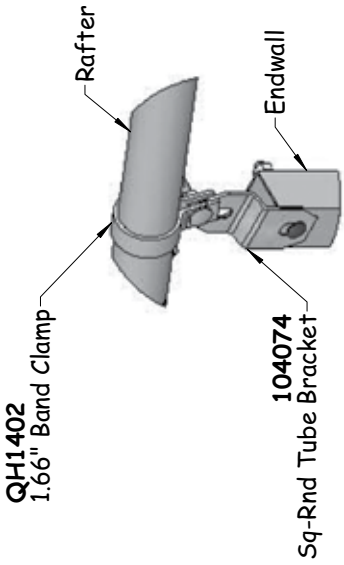
CONNECTION - DETAILS



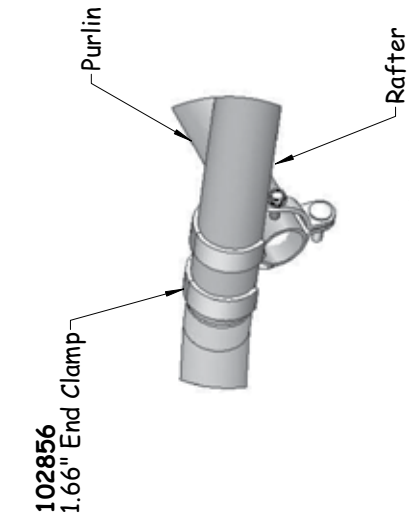
View 1
Endwall- Baserail
Connection



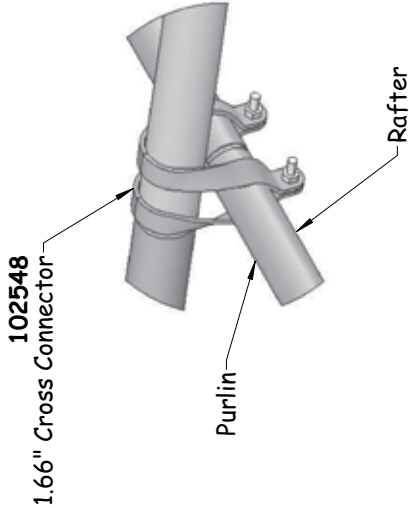
View 2
Rafter- Base Rail
Connection



View 3
Rafter- Endwall
Connection

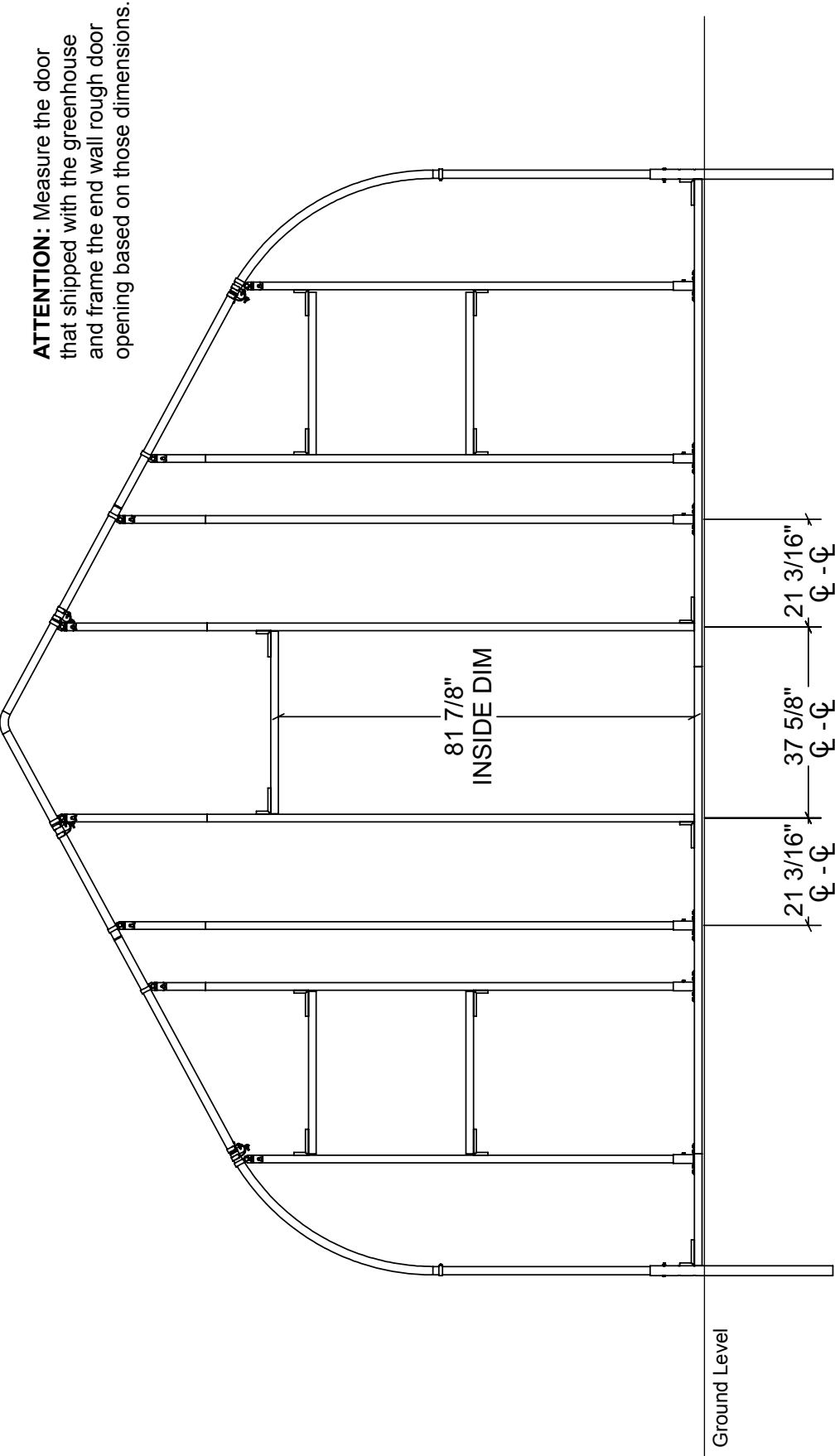


View 4
Purlin- End Rafter
Connection



View 5
Purlin - Mid Rafter
Connection

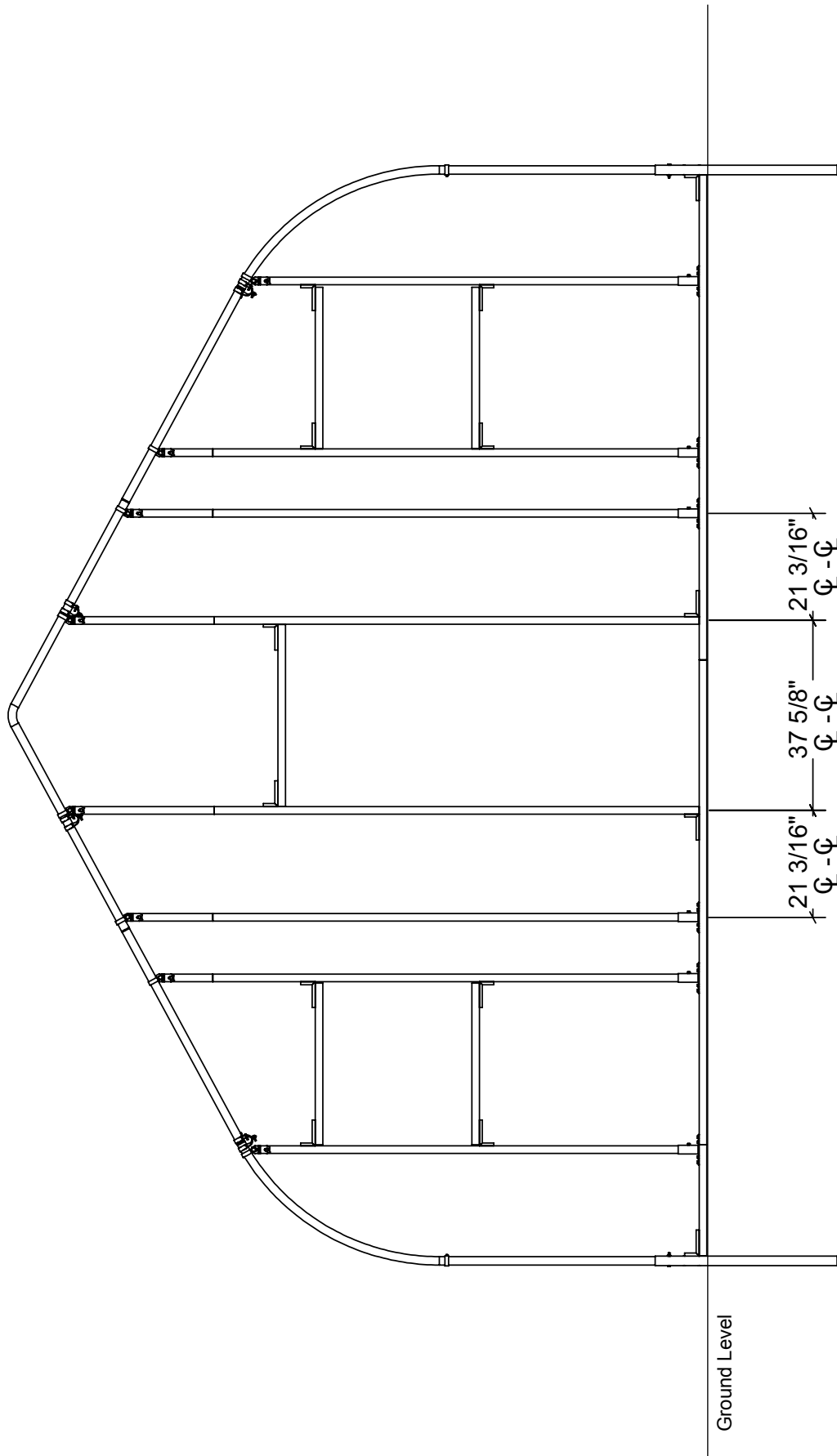
END FRAME DIAGRAM - FRONT VIEW



NOTE: COLUMNS NOT DIMENSIONED HAVE A NON-CRITICAL PLACEMENT AND ARE USED FOR POLYCARBONATE SUPPORT.

ALL END FRAMING TUBES ARE FULL LENGTH OR CUT FROM 1 1/2" X 1 1/2" SQUARE TUBING.

END FRAME DIAGRAM - BACK VIEW



NOTE: COLUMNS NOT DIMENSIONED HAVE A NON-CRITICAL PLACEMENT AND ARE USED FOR POLYCARBONATE SUPPORT.

ALL END FRAMING TUBES ARE FULL LENGTH OR CUT FROM 1 1/2" X 1 1/2" SQUARE TUBING.

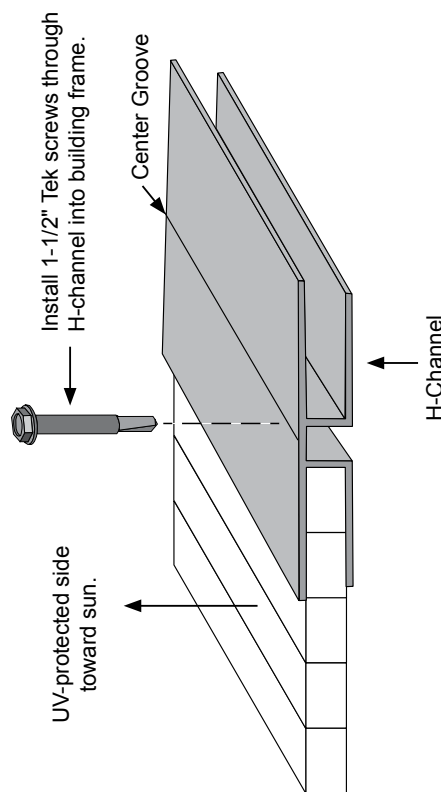
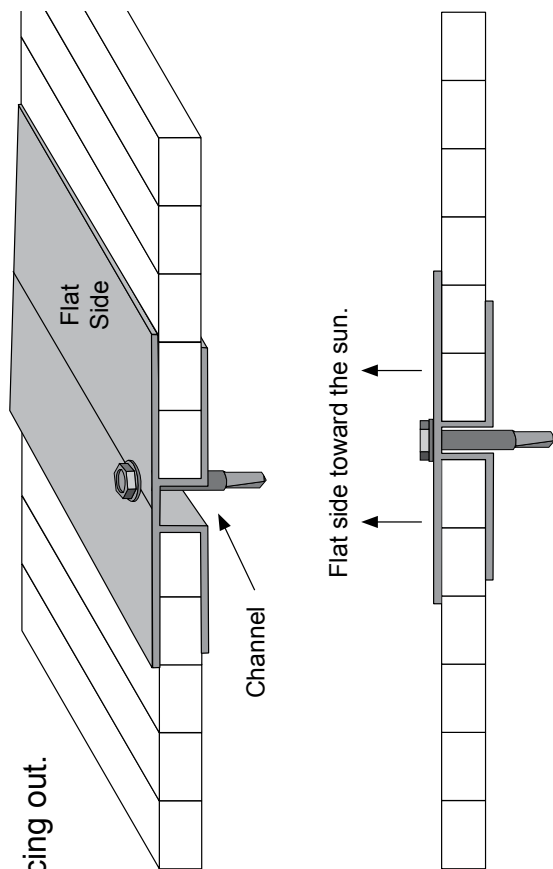
H-CHANNEL INSTALLATION INSTRUCTIONS

The new H-channel design requires installation of the flat side facing out with channel side toward the building. Some diagrams and photos in this document show installation of *original* H-channel with channel side facing out. Design of new H-channel does *not allow* channel-side out installation.

Use the diagrams on this page to install H-channel with flat side facing out.

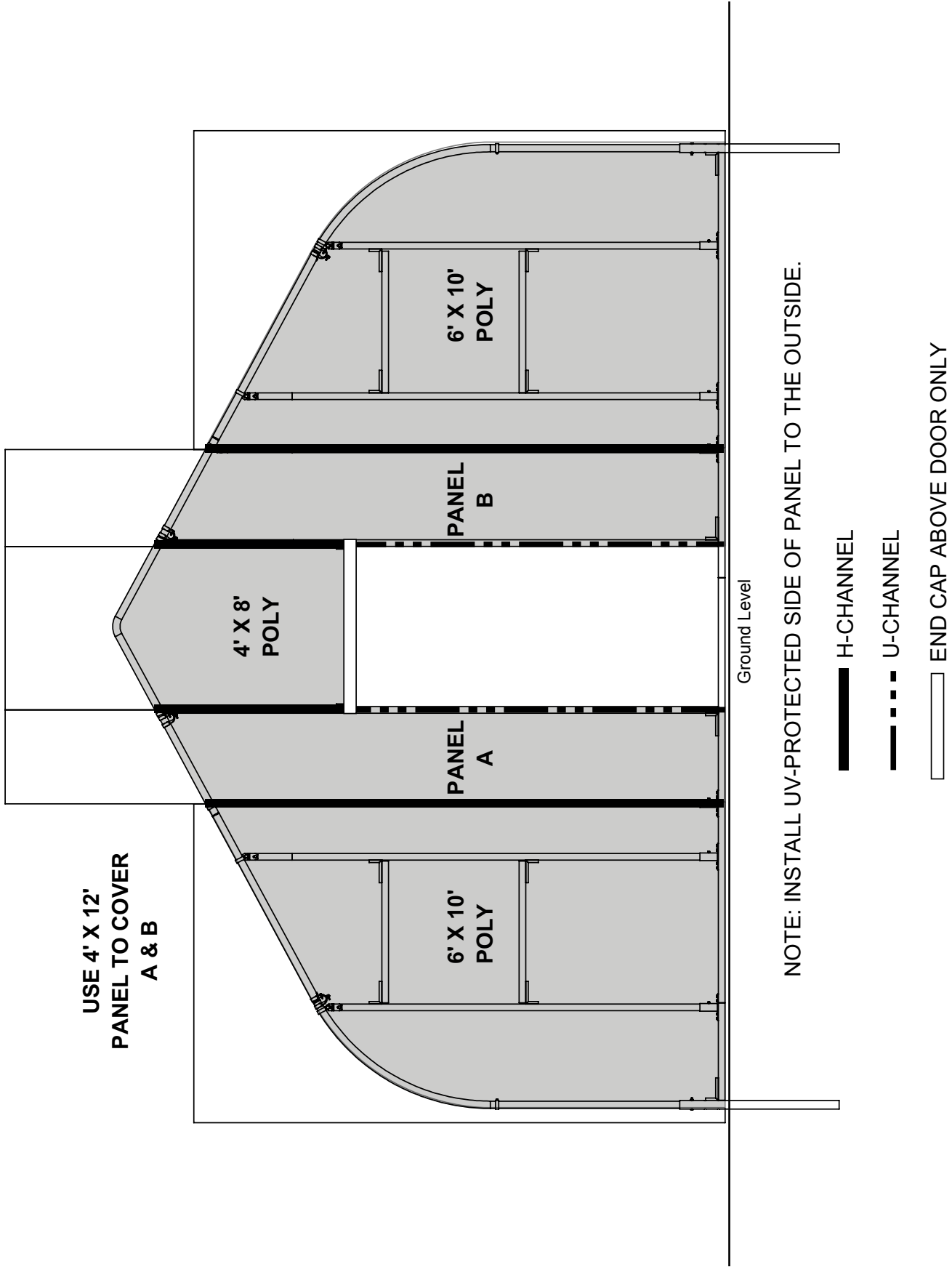


ATTENTION: Use only 1-1/2" Tek screws to attach H-channel to building frame. ***Do not use shorter screws. They will not hold. Do not use washers on Tek screws when installing H-channel.***

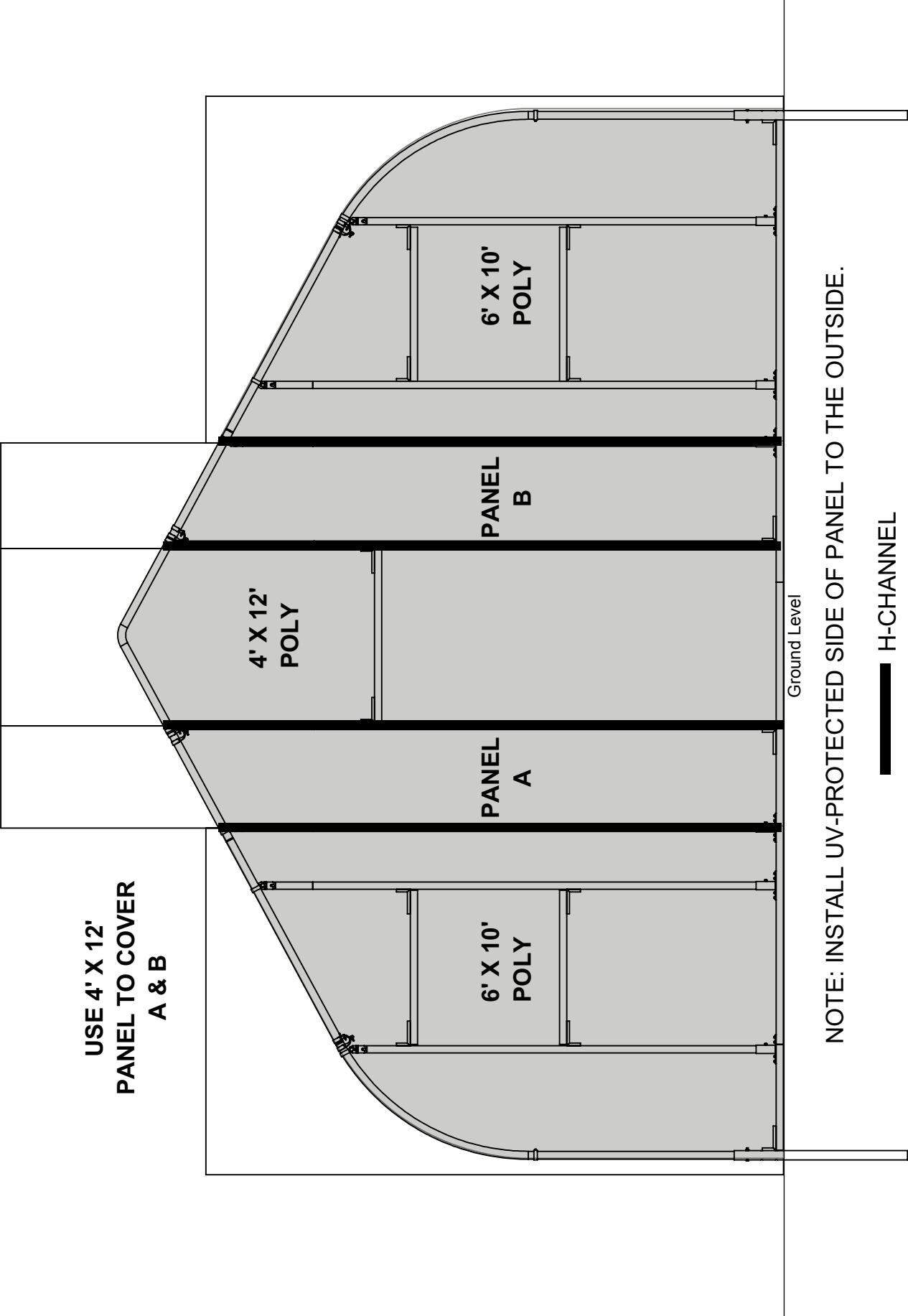


ATTENTION: Install all twin-wall polycarbonate panels with UV-protected side toward the sun.

POLYCARBONATE PANELS - FRONT VIEW



POLYCARBONATE PANELS - BACK VIEW



MAIN COVER DETAILS

