



## GrowSpan™ Gothic Premium High Tunnels (All H Models)

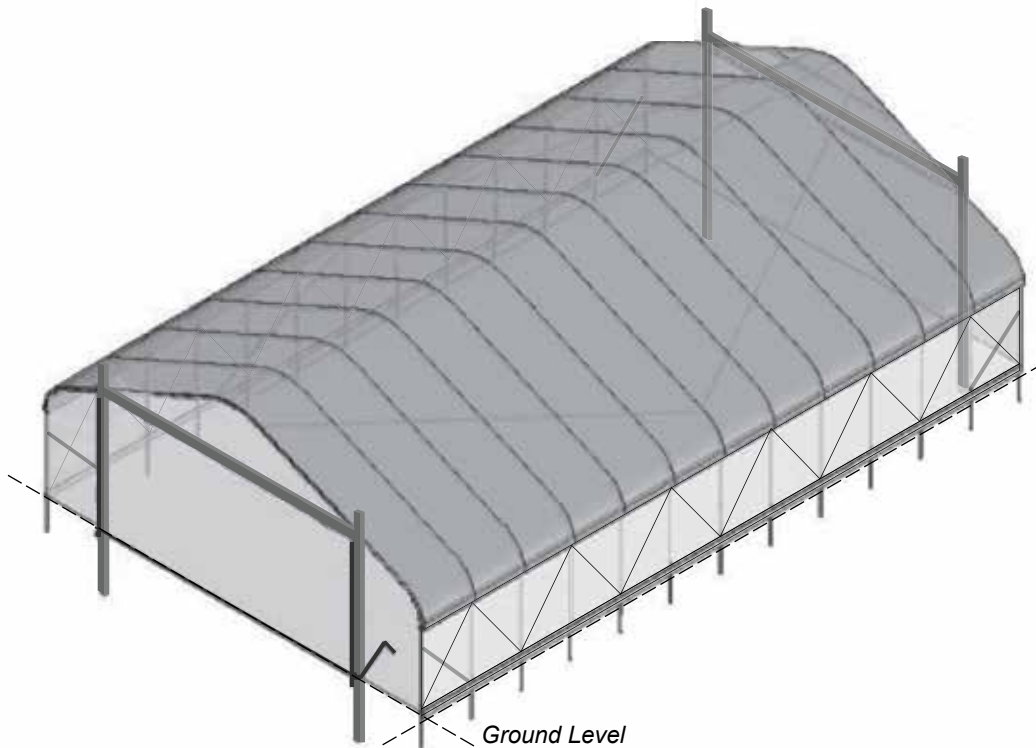


Photo may show a different but similar model. These instructions include information for buildings equipped with either drop-down side panels or roll-up side panels. Verify that you are completing the correct steps for your building. The cover installation steps for buildings with a film cover or a 5.2 oz fabric cover are the same.

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

Revision date: 01.08.21

STK#	DIMENSIONS
108190H	30' W x 14' H x 36' L
108191H	30' W x 14' H x 48' L
108192H	30' W x 14' H x 60' L
108193H	30' W x 14' H x 72' L
108194H	30' W x 14' H x 96' L



## READ THIS DOCUMENT BEFORE YOU BEGIN.

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

If you have any questions during the assembly, contact Customer Service 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 high tunnel or framing during or after construction.
- Do not occupy the high tunnel or attempt to install the panel during high winds, tornadoes, or hurricanes.
- *Never* attempt to install the panel during windy or stormy conditions.
- Assemble and anchor the high tunnel frame.
- Provide adequate ventilation if the structure is enclosed.
- Do not store hazardous materials in the high tunnel.
- Provide proper ingress and egress to prevent entrapment.

## ANCHORING INSTRUCTIONS

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

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

## LOCATION

Choosing the proper location is an important step before you begin to assemble the structure. Follow these requirements:

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

## CUSTOMER-SUPPLIED MATERIALS

Dimension lumber for the ribbon board, retaining board, and baseboard may be required depending on the high tunnel sidewall panel option.

Consult pages 5-6 for additional details and diagrams.

## ASSEMBLY PROCEDURE

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

The steps outlining the assembly process are as follows:

1. Verify that all parts are included in the shipment. Notify Customer Service for questions or concerns.
2. Read these instructions, the Must Read document, and all additional documentation included with the shipment **before** you begin.
3. Gather the tools, bracing, ladders (and lifts), and assistance needed to assemble the high tunnel.
4. Check the weather **before** you install the roof cover and any panels (if equipped). **Do not install covers or panels on a windy or stormy day.**
5. Re-evaluate the location and site based on 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. (These are optional items for some high tunnels.)
11. Install, tighten, and secure the end wall end panels and doors. (These are optional items for some buildings.)
12. Install, tighten, and secure the main cover. This applies to fabric and film covers that stretch over the frame assembly.
13. Attach the panel components to the main frame, install the panel, and attach the anti-billow ropes.
14. Read the care and maintenance information at the end of these instructions.
15. Complete and return all warranty information as instructed.

## BUILDING IDENTIFICATION

All buildings are identified by a building sku number (e.g., 108179HCD). Use the following information to determine the cover and side panel specifics of your building.

- **HCD: Film cover with Drop-Down Sides**
- **HFD: 5.2 oz cover with Drop-Down Sides**
- **HCRU: Film cover with Roll-Up Sides**
- **HFRU: 5.2 oz cover with Roll-Up Sides**

## REQUIRED TOOLS

The following list identifies the main tools needed to assemble the high tunnel. 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/driver (cordless with extra batteries works best)
- Metal-cutting saw
- Wrenches and socket set, or an adjustable wrench
- Scissors, utility knife, or tin snips
- Hammers, gloves and eye protection
- Adjustable pliers and self-locking pliers
- Ladders, work platforms, and other machinery for lifting designed to work safely at the height of the building

## UNPACK AND IDENTIFY PARTS

The following steps will ensure that you have all the necessary parts **before** you begin to assemble the high tunnel 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).

# GROWSPAN™ GOTHIC PREMIUM HIGH TUNNELS

## HIGH TUNNEL ACCESSORIES AND CONSTRUCTION SUGGESTIONS

The diagram below describes accessories available for your building and suggests ways to improve the stability of the customer-supplied end framing. Contact your sales representative to purchase or to learn more about accessories.

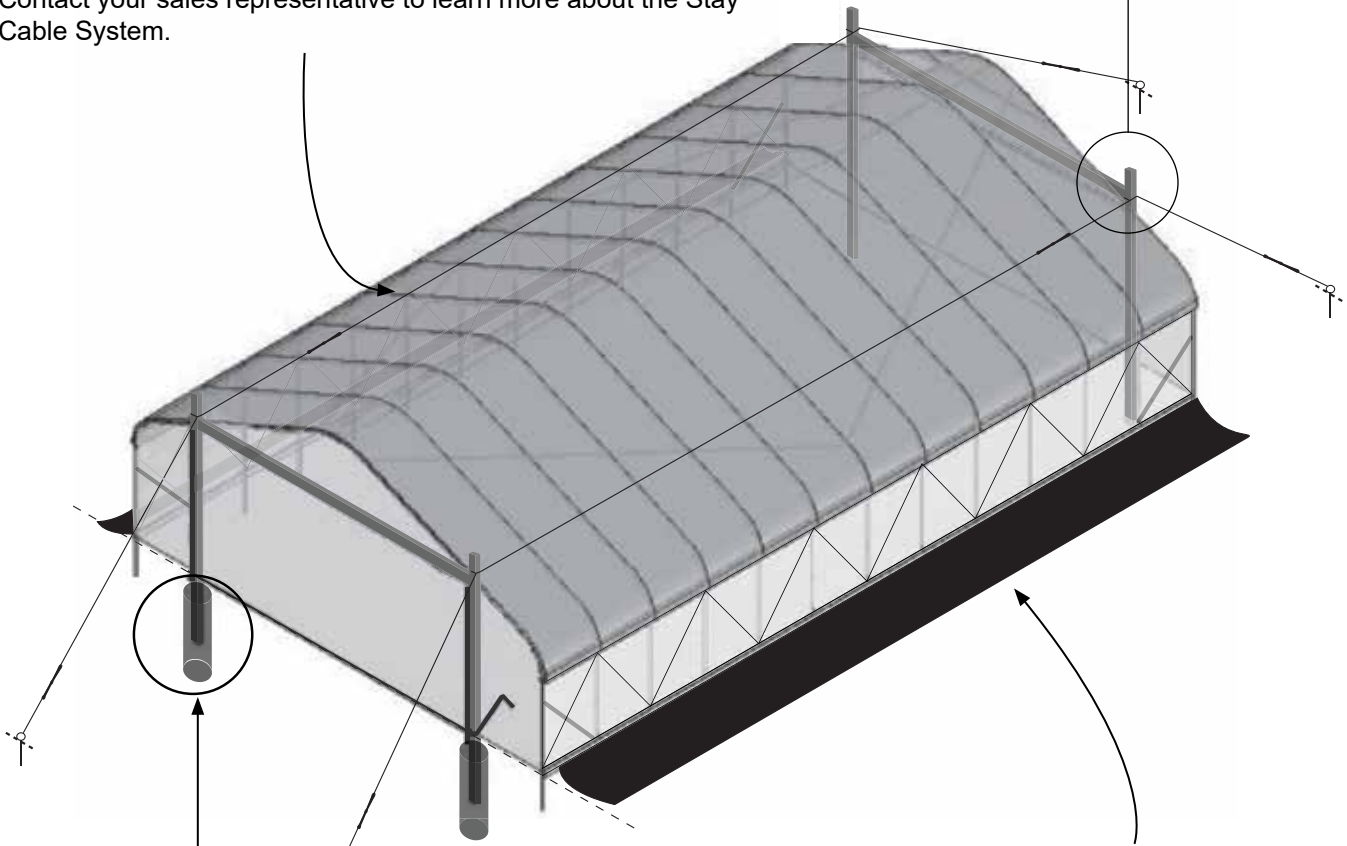
### Stay Cable System

The Stay Cable System provides additional support to the building frame and customer-supplied end framing. When properly installed, stay cables help stabilize the main frame and end wall frame, especially in areas where strong winds are common.

Stay Cable Systems are shipped complete with cable, turnbuckles, and all the necessary clamps to secure the cable to the building, end frame, and ground anchors.

Contact your sales representative to learn more about the Stay Cable System.

**ATTENTION:** Construct the end wall frame as shown with the vertical jambs extending *above the header 18" to 24"*. This provides an anchor point for cables if you decide to install them now or in the future.



### Customer-Supplied End Framing Installation

In areas where loose or sandy soil conditions are found or where deep frost is common, setting the customer-supplied end frame posts in concrete is recommended. This helps prevent shifting and provides an additional level of stability in extreme climates and during adverse weather-related conditions.

Always consult local and regional building codes and follow construction practices common to the area when setting the customer-supplied end frame posts.

*End frame materials and concrete are supplied by the customer.*

### 108196 Heavy Duty Weed Guard Ground Cover

Premium, landscape quality, black 4.75 oz. woven needle-punched fabric is 30 mils thick and manufactured from UV-resistant polypropylene.

The 108196 Heavy Duty Weed Guard Ground Cover is 36" wide to provide maximum weed prevention. Length is determined by building.

***DROP-DOWN SIDES: Ribbon Boards & Baseboards (Required)***

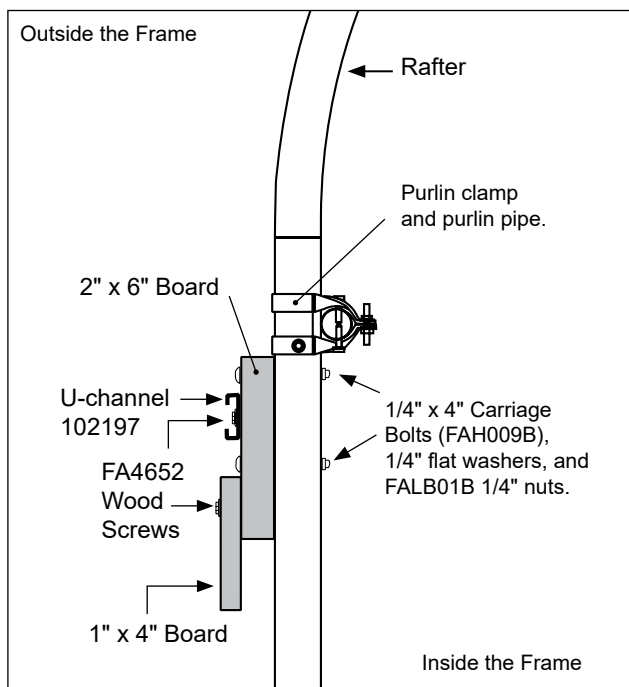
**NOTE:** If your high tunnel is equipped with roll-up side panels, skip this page and continue with the next.

A **customer-supplied two-piece ribbon board** is required for the drop-down panel. Fasteners are included. *Customer supplies the materials for the ribbon board. Minimum board requirements are shown in the diagrams below.*

**RIBBON BOARD**

The ribbon board runs the length of the frame along each side. Height is determined by frame design and is typically set a few inches below the rafter curve to maximize the opening for ventilation. **Maximum sidewall opening for this frame design is 6' 6". See grid diagram in the Quick Start section near the back of this guide.**

The diagram shows a customer-supplied ribbon board as attached to the frame. Diagram applies to buildings equipped with drop-down side panels.

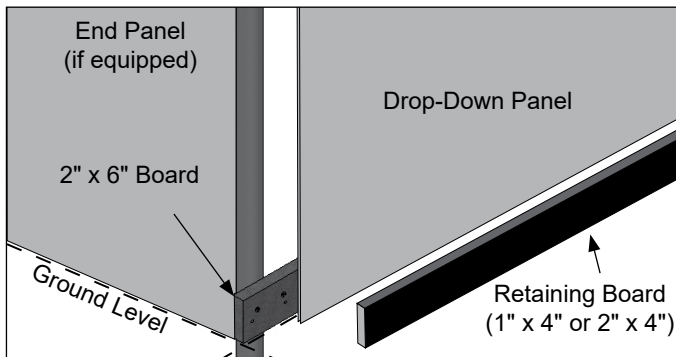


**ATTENTION:** DEPENDING ON PURLIN LOCATION, RIBBON BOARD CAN BE INSTALLED EITHER ABOVE (NOT SHOWN) OR BELOW THE PURLIN (AS SHOWN ABOVE.) **DO NOT INSTALL THE RIBBON BOARD ON THE RAFTER CURVE.**

Use two (2) carriage bolts per rafter connection for the ribbon board. When attaching the second board to the ribbon board, space the wood screws at 24" on-center.

**BASEBOARD**

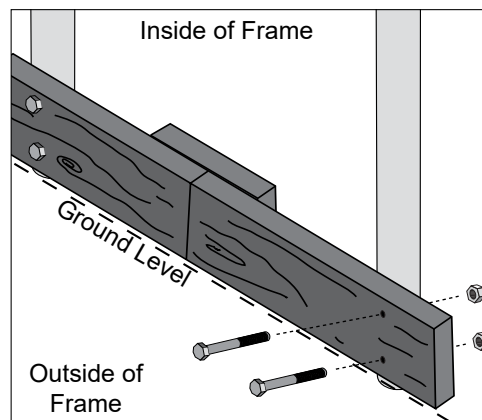
A customer-supplied baseboard and retaining board are required to attach the drop-down side panels. See the exploded view below. *Minimum lumber dimensions are also shown.*



View shown from outside the high tunnel.

The baseboard runs the length of the frame at ground level. The retaining board secures the drop-down panel to the baseboard. *The baseboard and retaining boards are supplied by the customer.*

*Retaining boards are attached during the drop-down panel installation. The retaining board is not needed when the building is equipped with a roll-up panel.*



*Fasteners (1/4" x 4" carriage bolts (FAH009B) and FA4652 wood screws) are included. Depending on board width, use two (2) carriage bolts per rafter connection for the baseboard. Evenly space the wood screws at 24" on-center when attaching the retaining board to the baseboard during the side panel installation. Countersink carriage bolt heads if needed to install the retaining board.*

Secure baseboard and ribbon board joints between rafters on the inside of the frame as shown to prevent conflicts with other components.

DIAGRAMS ARE NOT TO SCALE.

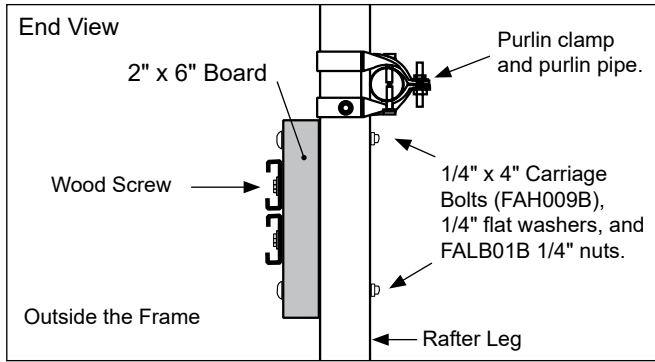
***ROLL-UP SIDES: Ribbon Boards & Baseboards (See Below)***

**NOTE:** If your high tunnel is equipped with drop-down side panels, skip this page and continue on the next page.

A ribbon board is optional for high tunnels with roll-up sides. The double u-channel provides sufficient support when attached directly to the rafters. A baseboard is strongly recommended, but not required. When installed, a baseboard helps prevent ground posts from working loose in sandy soil when concrete is not used. **Minimum board requirements are shown in the diagrams below.**

**RIBBON BOARD — OPTIONAL**

A customer-supplied ribbon board is optional for the installation of the roll-up panel. Fasteners are included. *Customer supplies the materials for the ribbon board.*

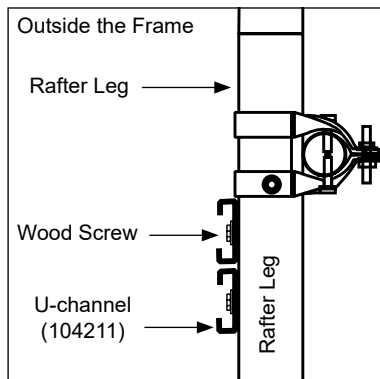


**ATTENTION:** The ribbon board and the double u-channel run the length of the frame along each side. Height is typically set a few inches below the rafter curve to maximize the opening for ventilation. **Maximum sidewall opening for this frame design is 6' 6". See grid diagram in the Quick Start section near the back of this guide.**

DEPENDING ON PURLIN LOCATION, THE DOUBLE U-CHANNEL CAN BE INSTALLED EITHER ABOVE (NOT SHOWN) OR BELOW THE PURLIN (AS SHOWN.) **DO NOT INSTALL THE RIBBON BOARD ON THE RAFTER CURVE.**

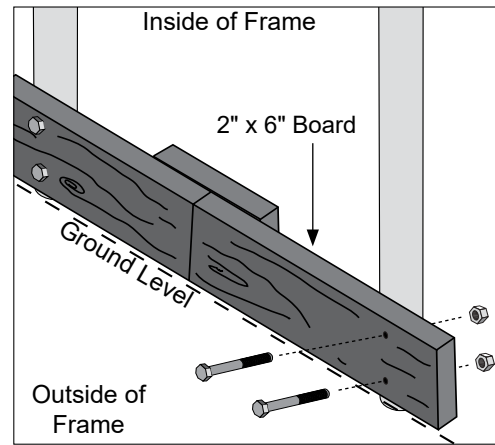
If a ribbon board is not used, attach the 104211 double u-channel directly to the rafters along the outside of the frame using Tek screws as shown.

Diagram shows the 104211 double u-channel attached directly to the rafter without a ribbon board.



**BASEBOARD — STRONGLY RECOMMENDED**

A baseboard is not required for buildings with roll-up sides panel, but installing one is strongly recommended. Fasteners are included to attach the boards to the frame. Customer supplies baseboard material. *Minimum lumber dimensions are also shown.*



*Fasteners (1/4" x 4" carriage bolts (FAH009B) and FA4652 wood screws) are included. Depending on board width, use two (2) carriage bolts per rafter connection for the baseboard.*

Secure baseboard and ribbon board joints between rafters on the inside of the frame as shown to prevent conflicts with other components.

**STEEL GIRT BASEBOARDS — ADDITIONAL PURCHASE REQUIRED**

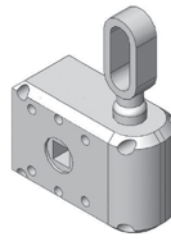
If you purchased the steel girt baseboards for the high tunnel, see the baseboard information on **Page 15.**



DIAGRAMS ARE NOT TO SCALE.



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



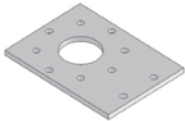
103496  
Gearbox



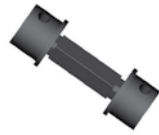
AS5020 Pulley  
(Drop-Down Sides Only)



FA4482B  
Tek Screw



103544  
Mounting Plate



102717  
Gearbox Drive



102921  
Neo-bonded Galvanized  
Washers



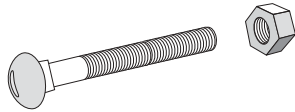
102857  
End Clamp



QH1404  
Band Clamp



117063 EZ-Snap  
Rope Hooks



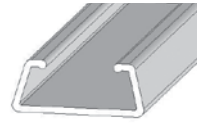
FAH009B & FALB01B  
Carriage Bolt & Hex Nut



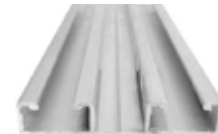
102547  
Cross Connector



106734 Band Clamp  
(Drop-Down Sides Only)



102197  
Single  
U-channel



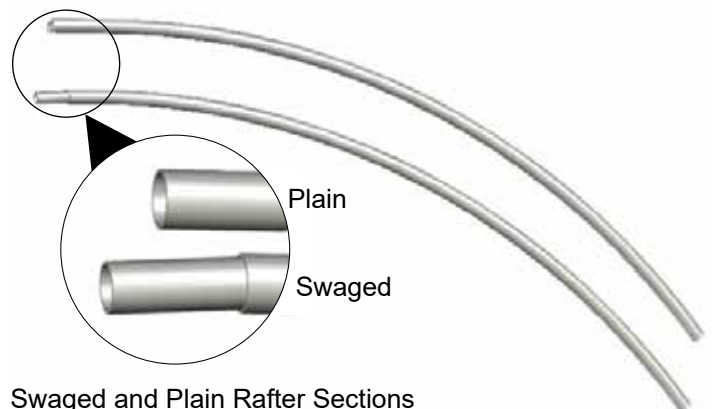
104211 Double  
U-channel  
(Roll-Up Sides Only)

**MATERIAL IDENTIFICATION NUMBERS FOUND ON THE BILL OF MATERIALS**

- **108654 FILM**—A 6' x 30' roll of 6 mil film used to create four (4) corner baffles for roll-up or drop-down options.
- **DCC4931**—This number identifies the bulk material used to cover the open areas of the end frame and door frame: See End Panel Location diagram in the Quick Start section of this guide.
- **DD084HxxxCN52**—This number identifies the panels used for the drop-down or roll-up panel along each side. There are two identical panels. The xxx in the number represents the length of each panel, which is specific to each building.
- **QED108191**— This sku represents the material used for the 20"W x 10'H roll-up doors for all 26' & 30' wide buildings. There are two (2) panels of identical dimensions. These panels include a pocket at the bottom and installed grommets along each side. The top of the panel, which is attached to the door frame, is plain.
- **Main Cover**— *Buildings* with the **HF** identification number (e.g., 108190**HF**D) have a 5.2 oz clear fabric main cover; cover part number begins with the letters **QC**. *Buildings* with the **HC** identification number (e.g., 108190**HC**D) include a film cover identified by a six digit sku number; there are no letters in the film identification number.

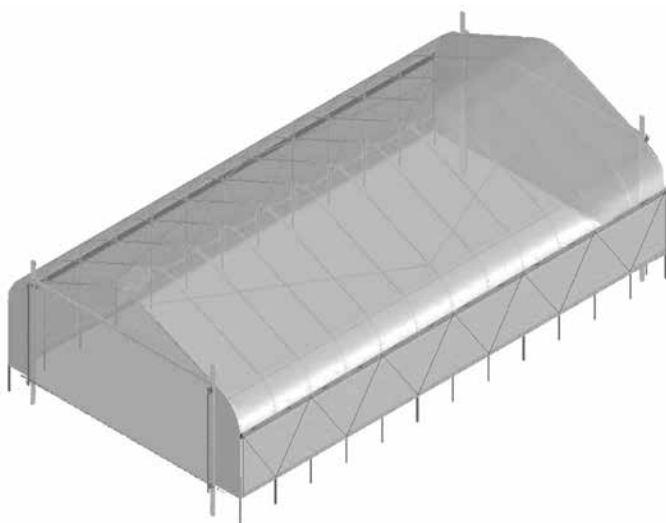


102198A Poly-Coated  
U-Channel Spring



Swaged and Plain Rafter Sections

# Gothic Premium High Tunnel: H Models



**ATTENTION:** These instructions describe the installation of the optional ridge vent kit. (Additional purchase required.) The ridge vent kit is designed for use with the **HF** model (5.2 oz. cover) only. If you have the C model or did not purchase the ridge vent kit, skip those installation procedures when presented and continue as instructed.

*Do not cut the film of the HC model to install ridge vent kit.*

**CUSTOMER-SUPPLIED END FRAME:** Construct the end frame for the roll-up end panel using 4" x 4" wood posts. The doorframe materials are supplied by the customer. If quality 4" x 4" lumber at the lengths needed is not available, construct 2-ply wood beams using 2" x 6" boards secured together with exterior grade bolts and nuts. Center the doorframe in the end wall and dig the holes for the doorjamb.

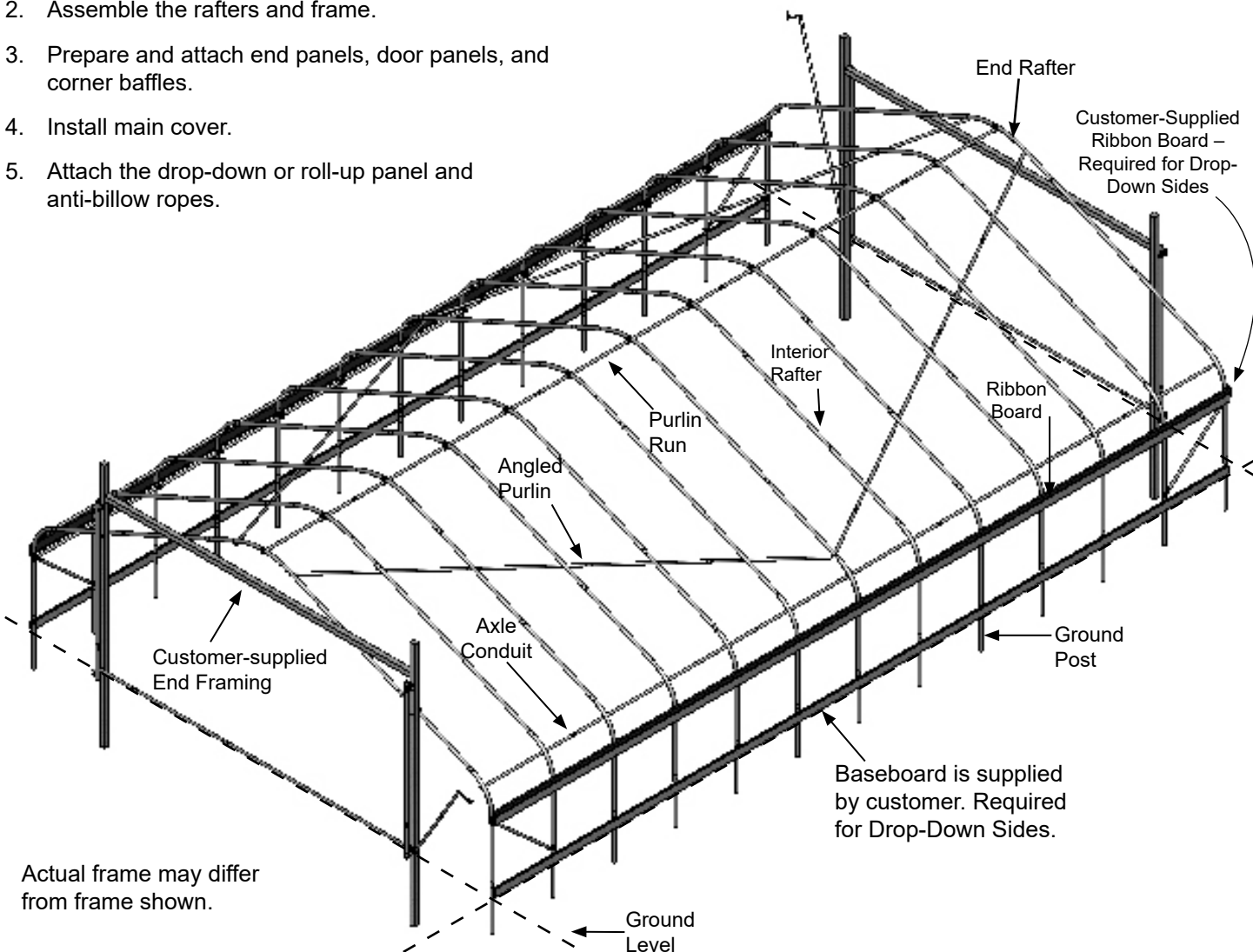
**Stagger all joints. Do not align. Use treated lumber and set in concrete for best results.**

**ENDWALL HEADER KITS: IF YOU PURCHASED AN ENDWALL HEADER KIT FOR YOUR HIGH TUNNEL, SEE PAGE 17 FOR ADDITIONAL DETAILS.**

## OVERVIEW

See illustration below to identify main parts of your high tunnel. Basic assembly steps include:

1. Locate the required parts for each assembly procedure.
2. Assemble the rafters and frame.
3. Prepare and attach end panels, door panels, and corner baffles.
4. Install main cover.
5. Attach the drop-down or roll-up panel and anti-billow ropes.



Actual frame may differ from frame shown.



**LAY OUT THE BUILDING SITE**

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

*Drive ground posts to the proper depth. The top of the post will be one (1) foot above the finished grade when properly driven. Width of the frame is measured from the center of one ground post to the center of the remaining ground post.*

**SQUARE THE SITE**

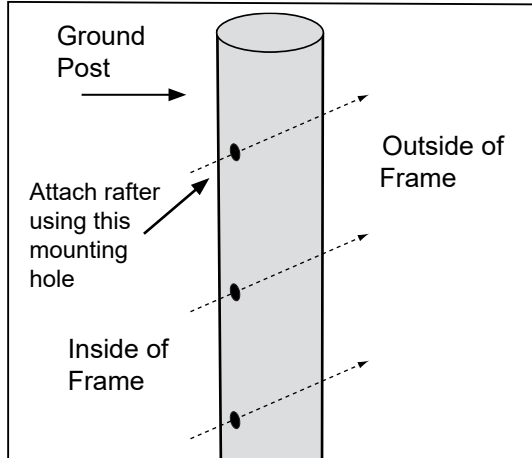
Gather the parts:

- Ground posts (**Use top hole when attaching rafter.**)
- 5/16" x 2-1/2" Machine bolts (FAG336B)
- 5/16" Nuts (FALB02B)

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.*

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

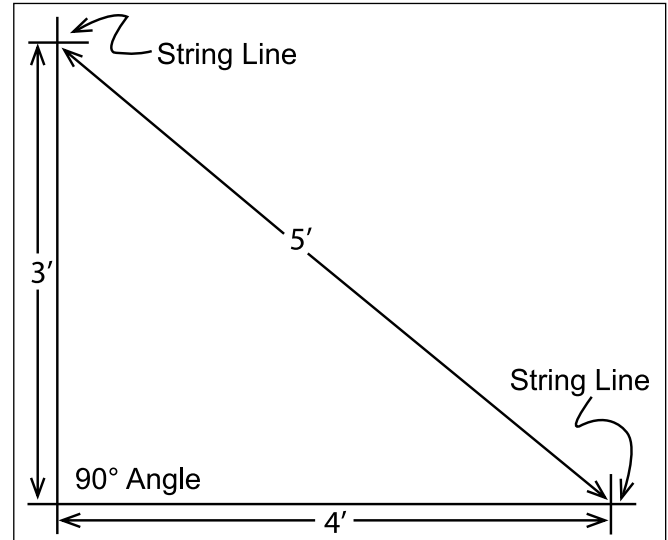


To align the bolt holes in the ground posts with those in the rafter *after driving the ground posts*, insert a tapered rod or pry bar into a ground post bolt hole and turn the post using the rod or pry bar.

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 another method to position the second post, and to drive the post 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 frame. 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 on-center locations of the remaining ground posts. *See the Side Profile diagrams in the Quick Start section for your frame.*
10. Drive the remaining ground posts into the ground at the required on-center rafter spacing and frame 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.

# GROWSPAN™ GOTHIC PREMIUM HIGH TUNNELS

## ASSEMBLING THE 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 high tunnel frame.

### RAFTER ASSEMBLY

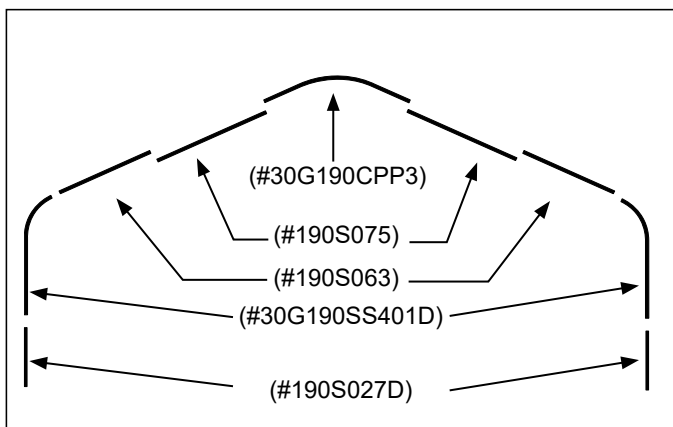
Gather the parts:

- Rafter pipe (#190S027D)
- Rafter pipe (#30G190CPP3)
- Rafter pipe (#30G190SS401D)
- Rafter pipe (#190S075)
- Rafter pipe (#190S063)
- End clamps (#102857)
- Tek screws (# FA4482B)
- Nut setter 3/8" x 2-9/16" magnetic

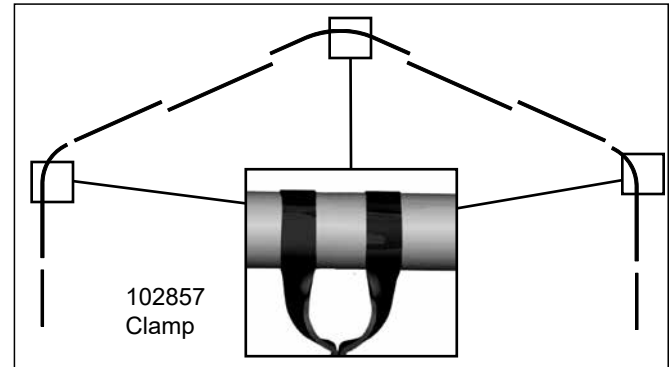
### END RAFTER ASSEMBLY

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 nine (9) pipes needed to assemble the first end rafter and arrange on a level surface.

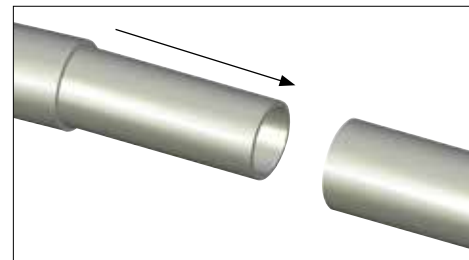


2. Slide one (1) end purlin clamp (102857) onto the peak rafter pipe and one clamp onto each leg pipe. Position end clamps on the rafter pipes as shown.

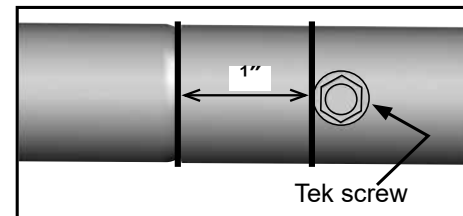


102857 clamp as seen from inside the assembled frame.

3. 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, install a Tek screw through the rafter pipes to secure each joint.



**IMPORTANT:** To prevent damage to the cover, position the Tek screws so the heads do not contact the cover when it is installed.

5. Repeat steps to assemble the remaining end rafter and set both end rafters aside. **Use a piece of duct tape to hold each clamp in place if needed.**
6. Continue by assembling the interior rafters. Interior rafters are assembled exactly the same, except the 102857 end clamps are not used. Consult the Front Profile diagram in the Quick Start Section for details.

**ATTENTION:** Depending on building length and available space, you may want to begin frame assembly after constructing a few interior rafters as opposed to constructing all interior rafters.

7. Continue by assembling the frame.

## ASSEMBLE THE FRAME

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

Gather the parts:

- All rafter assemblies and purlin pipe: See Side Profile diagram for your building in the Quick Start section for pipe identification and quantities.
- Band clamps (QH1404)
- Cross connector (102547)
- 5/16" x 2-1/2" (FAG336B) bolts and 5/16" nuts (FALB02B)
- Lifts, ladders, and assistants
- Rope or cable (supplied by customer)

Complete these steps:

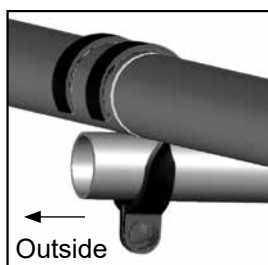
1. Carefully lift the *first end rafter*, slide a band clamp onto each rafter leg, and place the leg pipes into the first set of ground posts. **Secure to top hole in ground post.**

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.



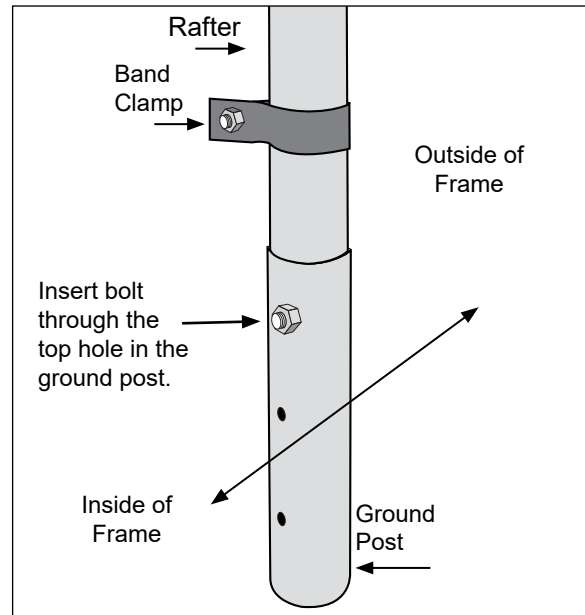
Rafter shown differs in design.

**ATTENTION:** Stand the rafter so the end clamp nuts and bolts are to the inside of the frame. Consult the diagrams on the following page and below.



Position end clamp as shown when setting the rafter into place.

2. Secure the leg pipes to the ground posts using the 5/16" x 2 1/2" bolts (FAG336B) and FALB02B nuts. **Secure using the top hole in the ground post.**

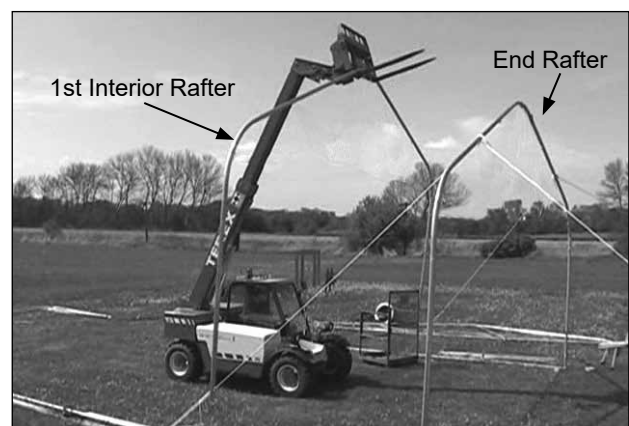


3. Use rope or cable to brace the rafter in position.



Rafter shown differs in design from actual rafter.

4. Carefully lift the first interior rafter, slide a band clamp onto each rafter leg, position in place, and secure the leg pipes to the ground posts.

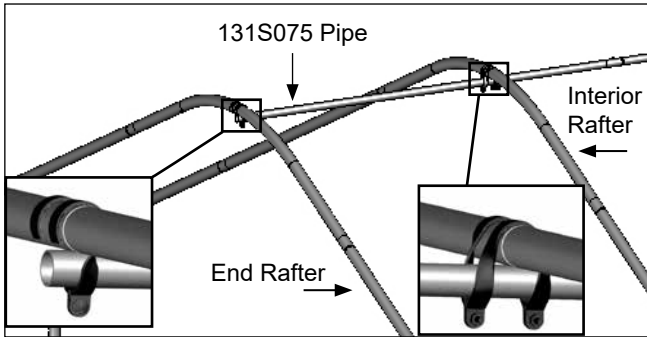


Rafter shown differs in design from actual rafter.

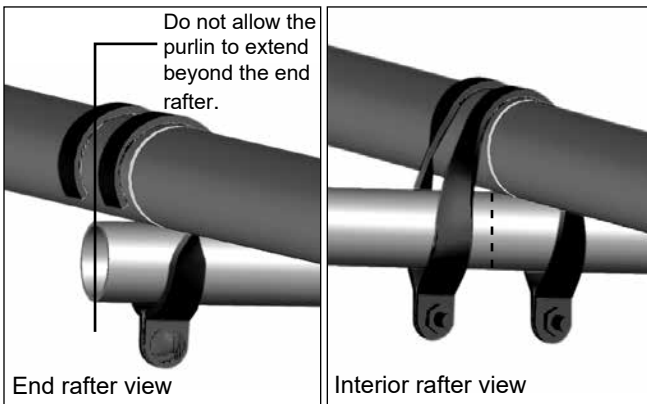
# GROWSPAN™ GOTHIC PREMIUM HIGH TUNNELS

## FRAME ASSEMBLY (continued)

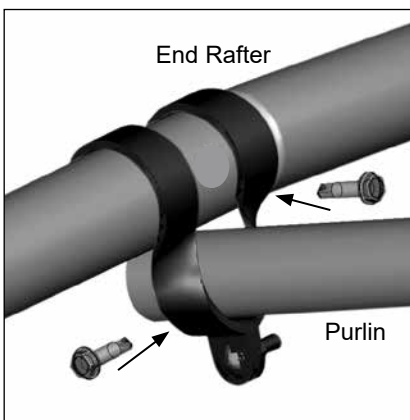
- As the second rafter is steadied, take one section of 131S075 pipe and insert the plain end through the upper end clamp of the end rafter and through a cross connector placed in the same position on the *interior rafter*.
- Align the plain end of the purlin with the center of the end rafter.



- Tighten the end clamp and secure it to the rafter using a Tek screw (FA4482B).

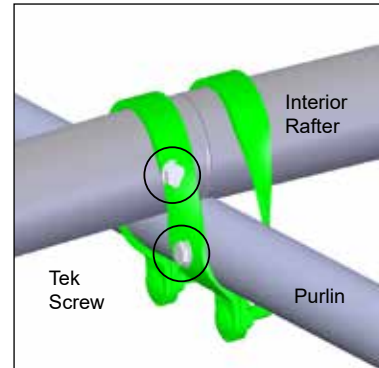


- Install Tek screw through end clamp and into the purlin pipe.



**NOTE:** View of connection as seen from inside the building frame.

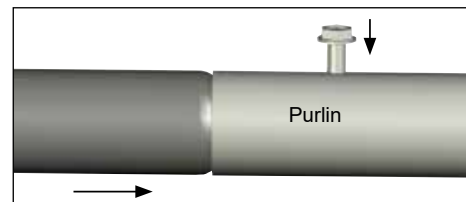
- Move to the interior rafter, verify that the rafter spacing is forty-eight inches (48") on-center (adjust as needed), and tighten the cross connector.



- Secure the cross connector to the rafter and to the purlin using FA4482B Tek screws. See Quick Start section if needed: Connection Details diagram.
- Take another section of 131S075 pipe and repeat steps 5 through 10 for the remaining purlin runs.
- Choose another interior rafter assembly and set it in position. **DO NOT USE THE REMAINING END RAFTER.**

**ATTENTION:** Do not add a band clamp. A band clamp is only added to the *end rafters* and the *first interior rafters* at either end of the frame.

- Secure the rafter legs to the ground posts as previously described and steady the rafter.
- Take additional sections of purlin pipe and attach these to the rafter/frame.
- Verify that the rafter spacing is 48" on-center (adjust as needed) and tighten the cross connector.
- Secure the purlin pipe joint with a Tek screw.



- Repeat the above steps as needed to stand and secure the remaining interior rafters and purlins to complete the frame assembly. Remember: *Slide a band clamp onto each leg of the last interior rafter and end rafter.*
- Stand the last end rafter and 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.**

**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. **Verify you have used the correct pipe before cutting.**

**FRAME ASSEMBLY (continued)**

**INSTALL ANGLED PURLINS**

Gather the Parts:

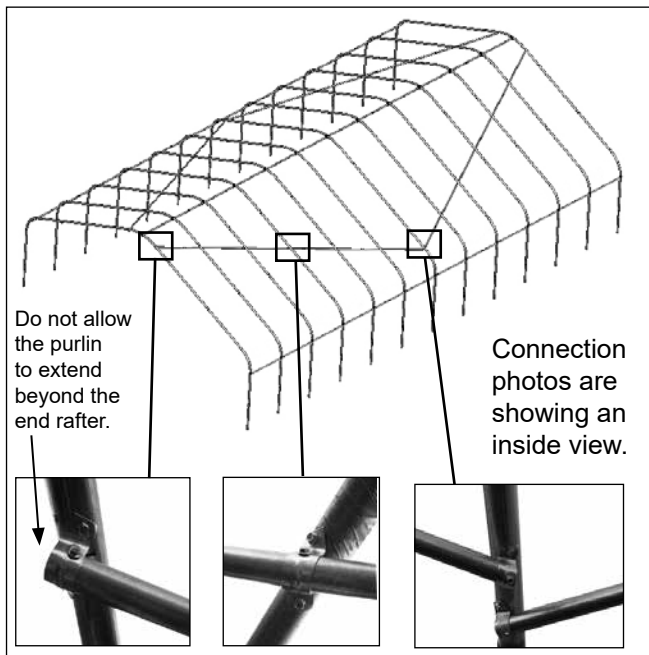
- Pipe 1.315" x 75" swaged (131S075)
- Pipe 1.315" x XX" plain (131P0XX): See Side Profile Diagram in the Quick Start section for your frame.
- Pipe straps (QH1070), Tek screws, and duct tape

**NOTE:** The angled purlins are part of the assembled frame and run diagonally on the underside of the rafter assemblies. Consult the Side Profile diagram in the Quick Start section for your high tunnel length to identify pipe.

Complete these steps:

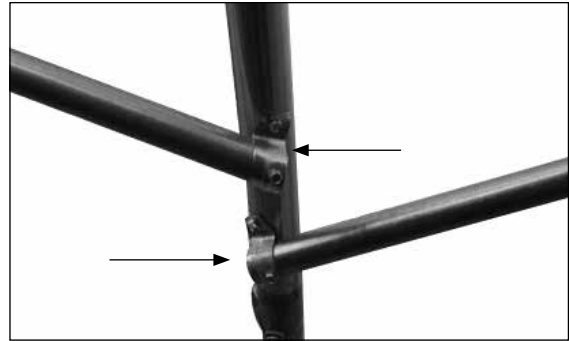
1. Select the required pipe sections for one purlin and connect these by inserting the swaged ends of the pipes into the plain ends until the entire purlin is assembled.
2. Verify that each pipe joint is properly seated and secure each joint by installing a Tek screw through the pipes.
3. Using the diagram below and the Side Profile diagram in the Quick Start section as guides, position a purlin diagonally **and secure to each rafter it crosses using pipe straps and Tek screws.**

**NOTE:** Bend the pipe strap and twist as needed to fit the purlin at a diagonal angle. If two angled purlins end on the same rafter, offset the purlins to fit on the rafter as shown in the diagram below.

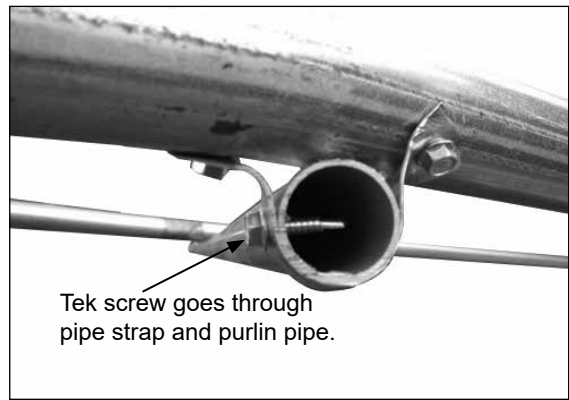


Actual frame length may differ. See page 60 for an enlarged view of these connections if needed.

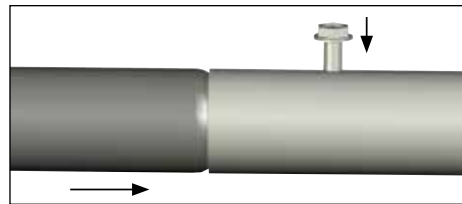
4. Verify that the purlin is in the correct position and secure the purlin to each pipe strap with a Tek screw.



5. Repeat steps 1 through 4 for the remaining three angled purlins.



6. Once all rafters are set and all purlins are in place and secure, **return to each pipe splice of each purlin and verify that each is secured with a Tek screw.** Install a screw if needed.



7. Continue by installing the diagonal struts.

# GROWSPAN™ GOTHIC PREMIUM HIGH TUNNELS

## SIDE STRUT INSTALLATION

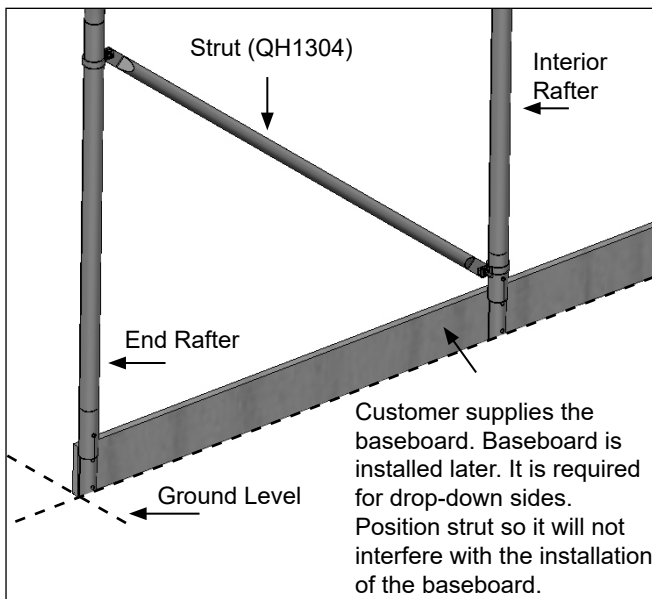
There are four (4) side struts for the frame. These struts are positioned between the end rafters and the first interior rafter on each side of the frame at each corner.

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

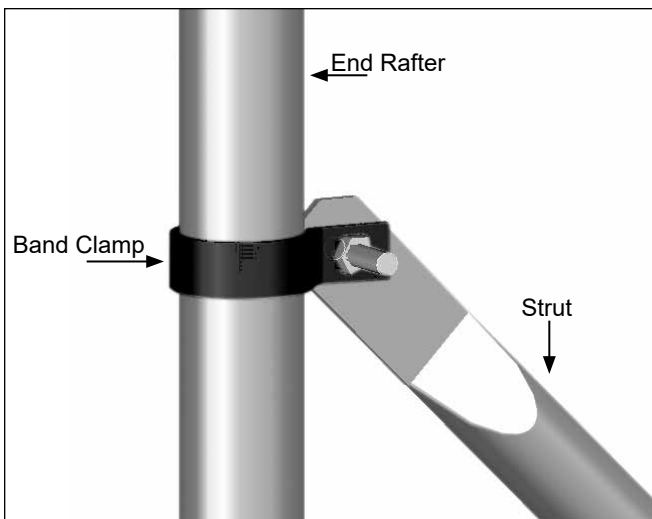
Gather the parts:

- Struts (QH1304)
- Band Clamps (QH1404)

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

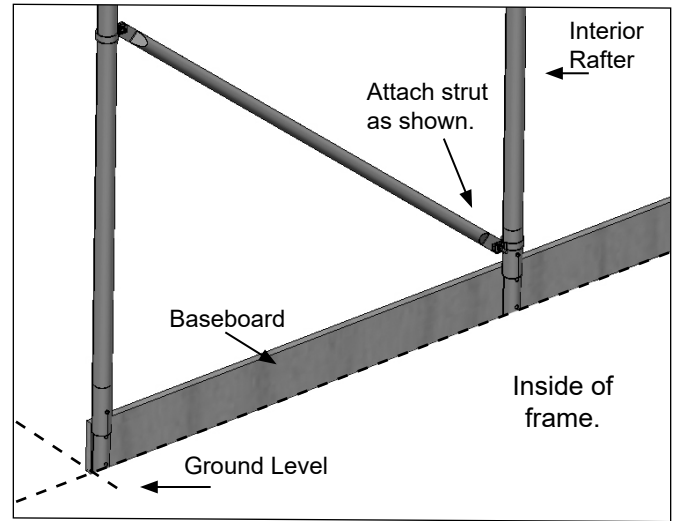


2. Attach one end of the strut to the band clamp as shown in the diagram below.



**NOTE:** To prevent contact with the sidewall panel, install bolt so nut is toward the inside of the frame.

3. Attach the remaining end of the strut to the added band clamp on the first interior rafter. See the diagram that follows for location.



4. Repeat the above steps to attach the remaining side struts to the frame.
5. After securing the struts, verify that all clamps are secured with a Tek screw to the rafters.
6. Verify that each pipe splice (purlin and rafter) is secured with a Tek screw.
7. Complete the next procedure.

**INSTALL BASEBOARDS**

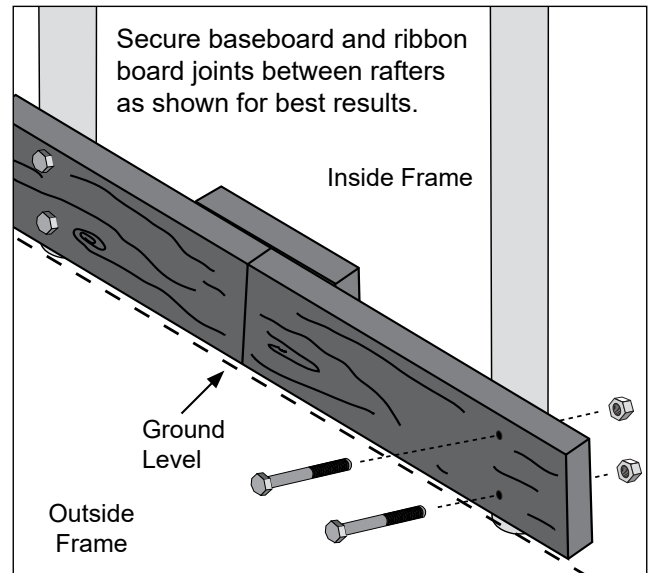
A customer-supplied baseboard *is required* to attach the drop-down side panels. The baseboard is strongly recommended for a building with roll-up sides. Review the information presented earlier on **pages 5-6** for your sidewall panel option.

The baseboard runs the length of the frame at ground level. *The baseboard is supplied by the customer.*

*Fasteners (1/4" x 4" carriage bolts (FAH009B) and FA4652 wood screws) are included. Use two (2) carriage bolts per rafter connection for the baseboard.*

**ATTENTION:** A baseboard is not required for buildings with a roll-up side panel, **but installing a baseboard is strongly recommended.** Fasteners are included to attach the boards. Customer supplies baseboard material. Minimum lumber dimension is 2" x 6". Use treated lumber if allowed by local codes for your application. Always check codes before purchasing treated lumber.

After installing the baseboards, continue by anchoring the frame.



**STEEL GIRT BASEBOARDS — ADDITIONAL PURCHASE REQUIRED**

If the steel girt baseboard kit was purchased at the time the high tunnel was purchased, install that baseboard according to the instructions *included with those baseboard components.* Then return to these instructions.

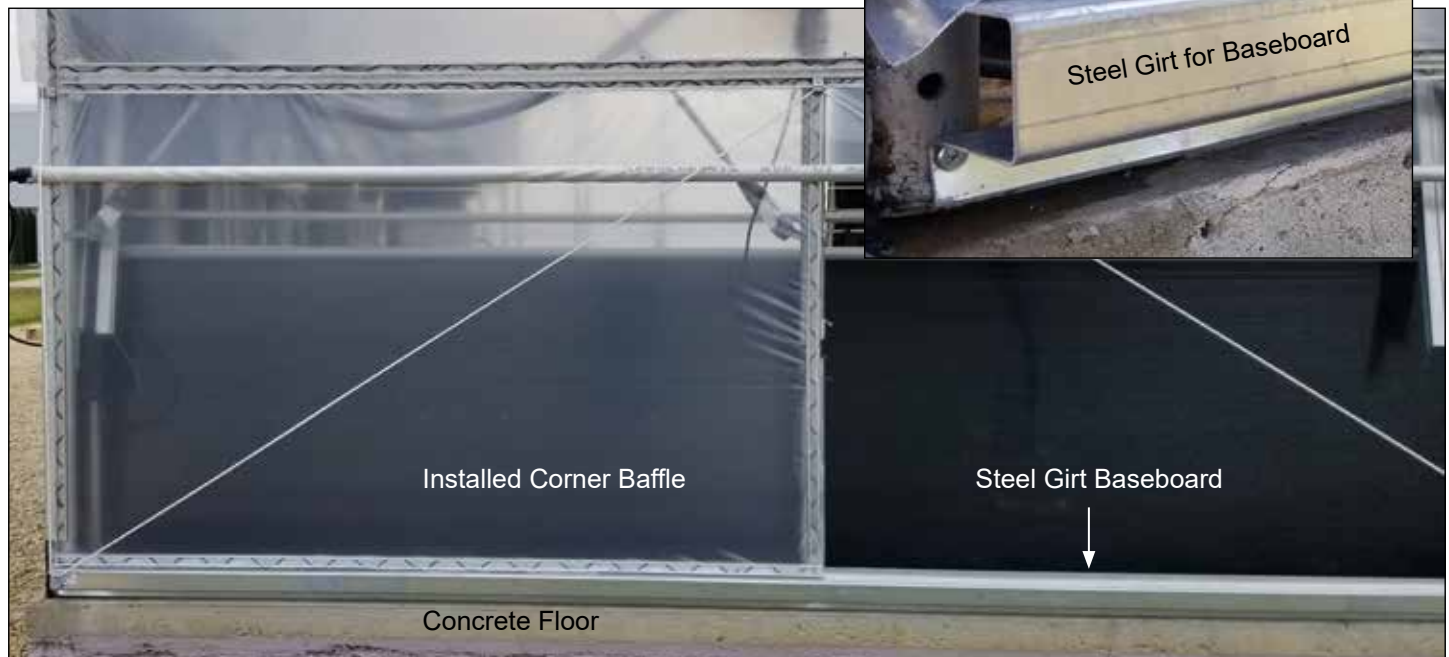


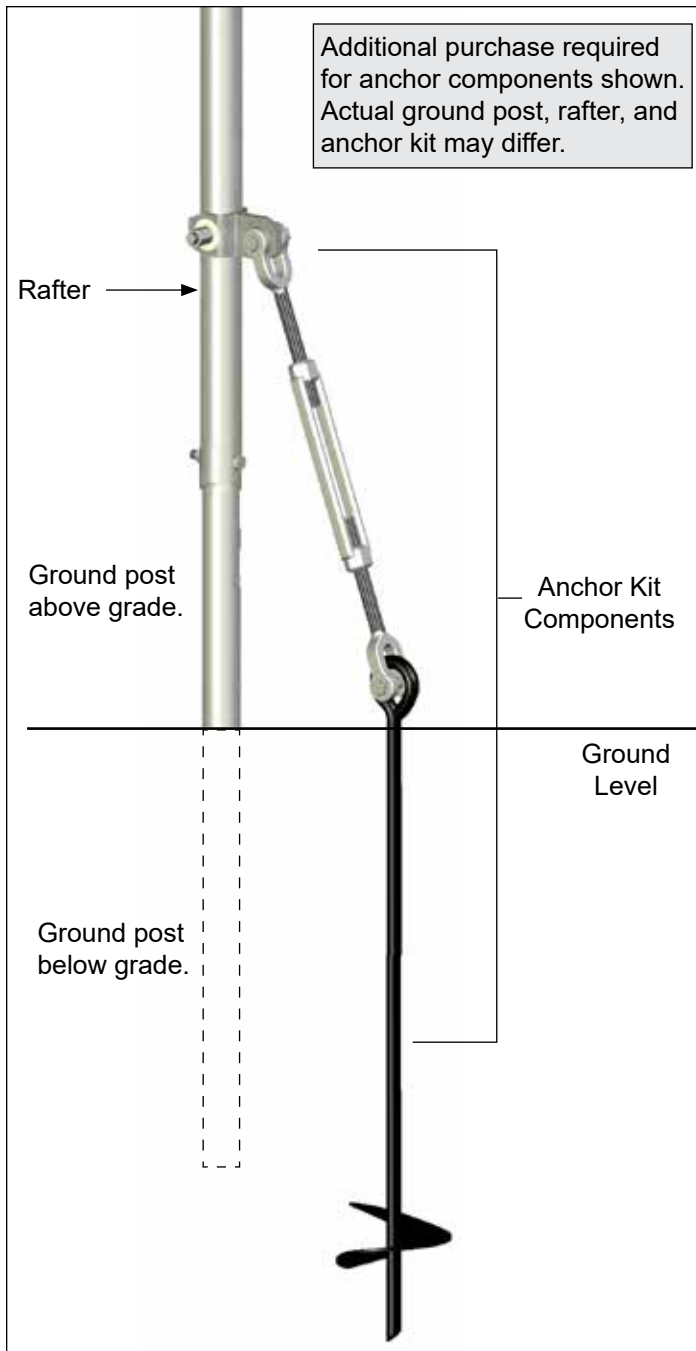
Photo above shows the steel girt baseboard running along the bottom of the rafters on the outside of the frame. Installed corner baffle components are also shown. **ACTUAL FRAME DIFFERS FROM THE EXAMPLE SHOWN.**

## ANCHOR ASSEMBLED FRAME

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

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

**ATTENTION:** If ground posts were set in concrete, skip this section. If ground posts were driven into place *and not set in concrete*, read the information on this page and anchor the high tunnel **before continuing**.



## AFTER ANCHOR INSTALL: INSPECT FRAME BEFORE COVER INSTALLATION

1. Inspect frame for sharp edges or fasteners that could damage cover.
2. Verify frame members are properly secured and bolts and pipe straps tight.
3. Recheck frame assembly for sharp edges, clamps, and bolts that may interfere with cover installation. *File smooth or tape sharp edges as needed.*
4. Reposition clamps and bolts as needed and tape all rafter pipe joints with duct tape to protect cover material.



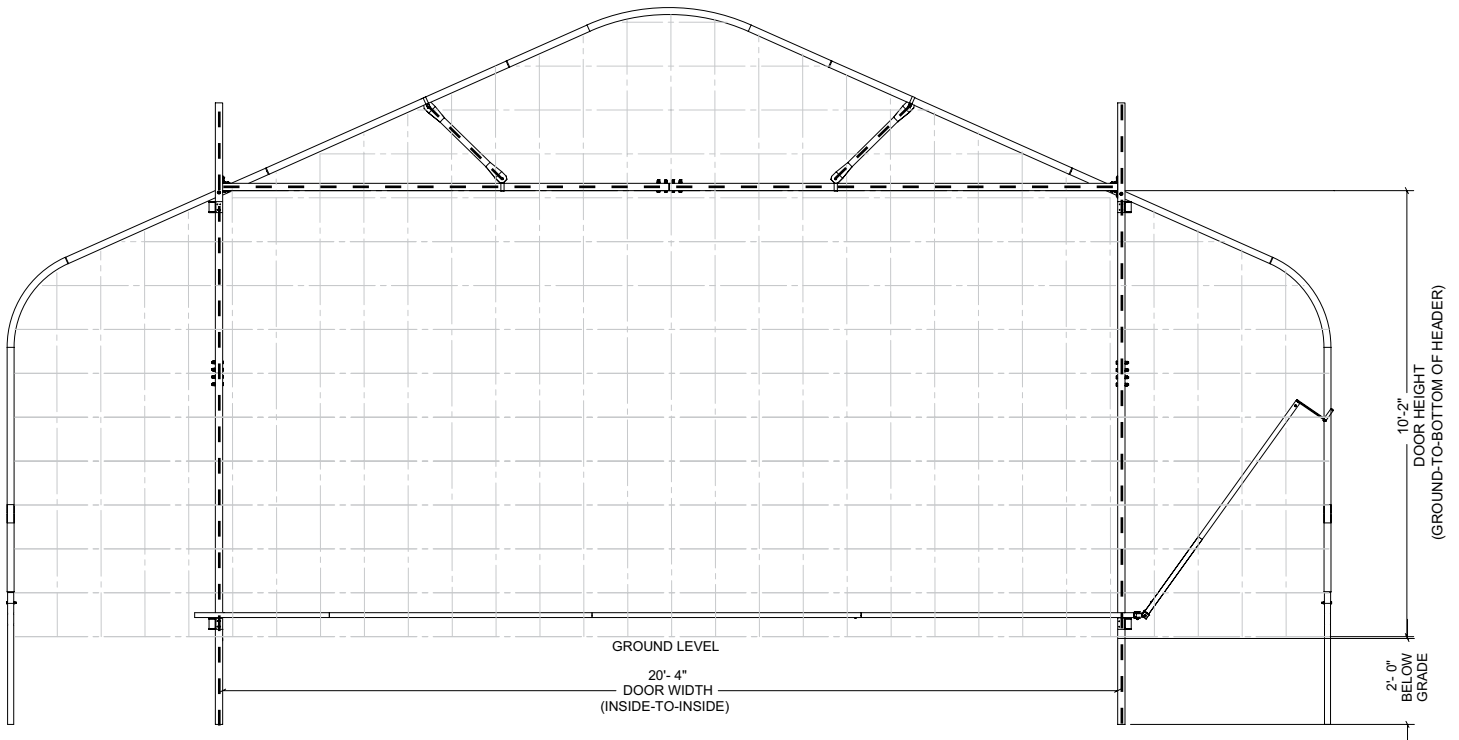
5. Verify main building frame is properly and adequately anchored.
6. Continue with the next procedure.



## 116675 ENDWALL HEADER KIT — 30' WIDE GOTHIC PREMIUM HIGH TUNNEL (additional purchase required)

If the 116675 endwall header kit was purchased for this high tunnel, consult those instructions now to assemble and install the kit components. Complete the assembly as noted in those instructions and return to this manual (pg. 20) as instructed.

**ATTENTION:** If the 116675 endwall header kit *was not purchased*, continue with the instructions on the next page to install the customer-supplied frame materials for the roll-up panel.



**ATTENTION:** Some components shown in the diagram above are included with the main building; others are included with the header kit. Dashed lines show the frame kit components and installed locations.

# GROWSPAN™ GOTHIC PREMIUM HIGH TUNNELS

## CUSTOMER-SUPPLIED END FRAME ASSEMBLY

Use these steps to install the end wall supports and connecting hardware. **See note on page 8.**

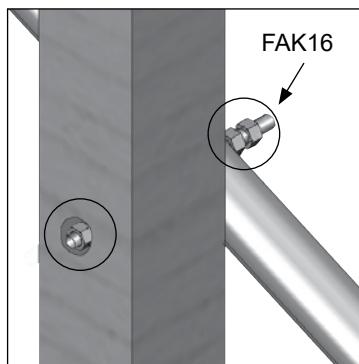
- Using the dimensions shown on the **End Framing diagram in the Quick Start section**, set the customer-supplied 4" x 4" posts.

**NOTE:** Use recognized construction practices when setting the customer-supplied 4" x 4" posts.

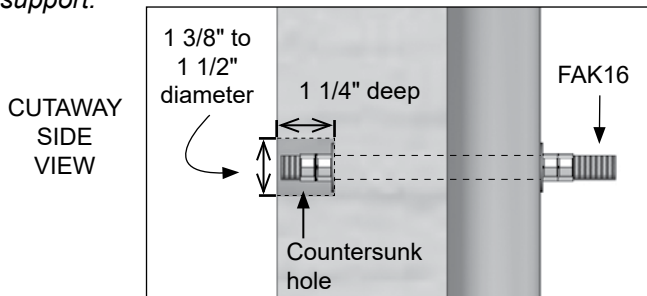
- After setting the posts, install the header. Consult the End Framing - Connections Details diagram in the Quick Start section.
- Secure posts to end rafters as shown. Consult End Framing diagrams in the Quick Start section for details.

Use two 3/8" nuts (FALB04B) and one flat washer (FAME08B) on each end of the rod to secure the connection.

Countersink holes in post to protect the roll-up door panel.



**NOTE:** Do not exceed 8" when cutting the individual lengths of rod from the bulk 3/8" threaded rod (FAK16). Cut the threaded rod after installation. *To prevent conflicts with the end panel, countersink the "head" of the threaded rod so that it is below the surface of the customer-supplied support.*



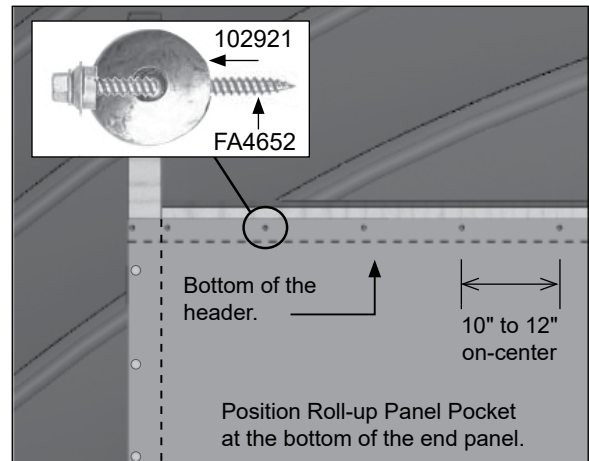
- Repeat the steps to install the support posts and header for the remaining end wall.
- Continue by installing the roll-up panel and guide posts.

## ROLL-UP PANEL INSTALLATION (QED108191)

Before attaching the guide posts, attach each roll-up panel to the customer-supplied end framing (4" x 4") using FA4652 wood screws and neo-bonded washers. Complete these steps to install the roll-up door panel conduit and hardware.

- Take one roll-up door panel, move to one end of the frame, and unfold the panel.

- With assistance, lift and center the panel into position against the 4" x 4" end frame and attach the top to the header using wood screws and neo-bonded washers.



**NOTE:** Verify that the lower edge of the panel is on the ground before securing the upper edge to the header.

- Refer to the End Framing diagram located in the Quick Start section to assemble the guide posts. Secure each pipe joint using a Tek screw.
- Install the guide posts and brackets over the roll-up door panel. Use FA4652 wood screws to secure brackets to the customer-supplied wood posts.

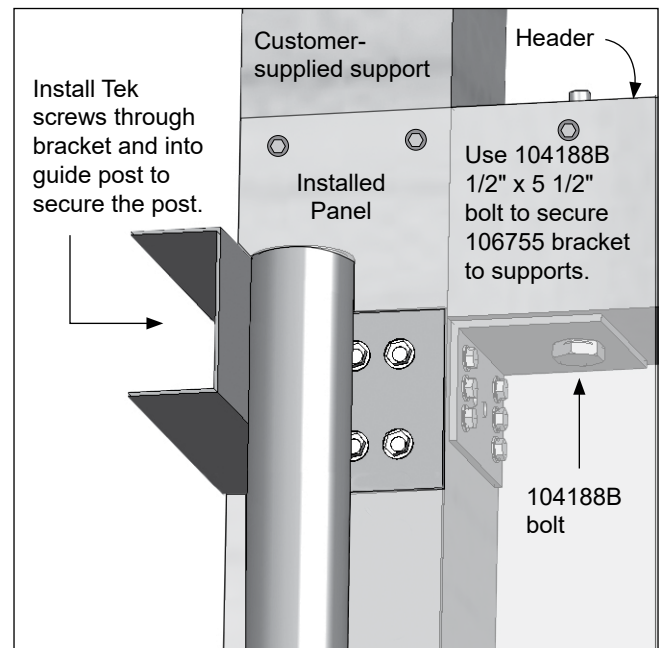
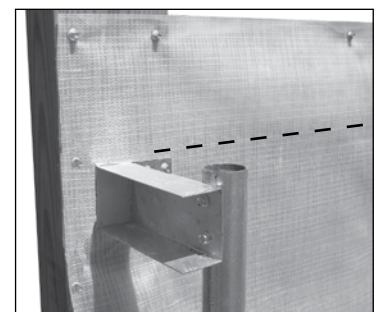


Diagram shows the guide post and bracket attached over/through the roll-up panel.

Dashed line shows bottom of header.



**ROLL-UP PANEL INSTALLATION (continued)**

5. Use the pipe diagrams on the End Framing diagram in Quick Start section to assemble the crank assembly.
6. Secure each splice using a Tek screw and cover the Tek screw with duct tape to protect the panel pocket.
7. Insert the assembly into the panel pocket. Verify that the assembly runs between the guide post and the wooden support posts. Allow a few inches to extend beyond the panel opposite the crank handle to keep the conduit in place during operation.
8. With the assembly in the proper position, flip up the skirt at the bottom of the panel and secure the conduit to the end panel using ten (10) CC6212 fabric clips and Tek screws. Space the clips evenly along the conduit.
9. Trim the panel skirt if needed to achieve the desired fit at the bottom around the brackets.
10. Test the roll-up panel.

**NOTE:** Verify that the 3/8" threaded rod that secures the customer-supplied end frame to the end rafter is sunk below the post surface (recommended) or has been cut off and taped to protect the roll-up panel.

11. Repeat the steps to install the remaining door panel.
12. Next, attach the end panel material to the end frame and end rafter. See next procedure and diagram below.

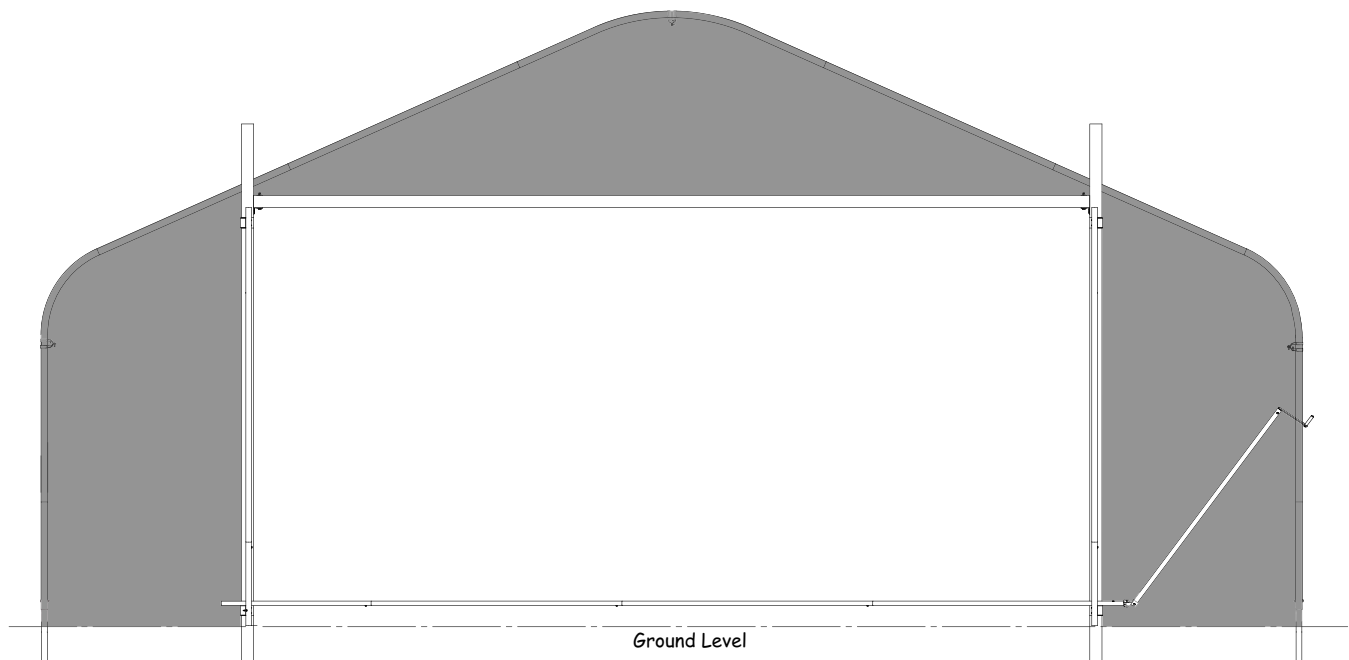
**END PANEL INSTALLATION—Use DCC4931 Material**

Consult the **End Panel Location** diagram near the back of this manual to view the areas that need to be covered with end panel material. Use these steps to cut and attach the end panel material to the end wall frame.

1. Measure the area of the end wall that needs to be covered with end panels and cut a section from the bulk DCC4931 material. Allow extra material to achieve the best fit.

**NOTE:** Due to differences in construction methods and customer-supplied support materials, the customer determines the best way to prepare the bulk material for installation.

2. Set the prepared end panel in place and attach it to the end frame using FA4652 wood screws and neo-bonded washers, or Tek screws if the header kit was purchased. Attach the panel to the rafter using FA4482B Tek screws and neo-bonded washers (102921B).
3. Repeat the steps to cut and attach the remaining end panels to cover the remaining end wall.
4. After installing all end panels, continue by installing the ribbon boards as described on the next page.



The shaded areas identify where to use the DCC4931 material. Material is cut to fit and attached to the wood frame using FA4652 wood screws and 102921B washers. (Use Tek screws if steel header kit was purchased.) Use FA4482B Tek screws and 102921B washers to attach the panel material to the rafters when needed. Roll out the material and use the building grid on the first page of the Quick Start section to estimate size. Measure actual space to cover so you do not run out of material.

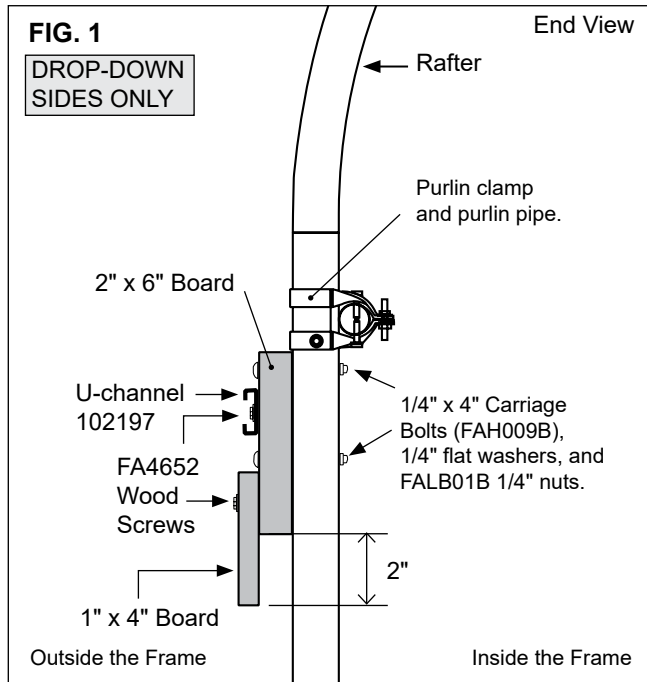
## GROWSPAN™ GOTHIC PREMIUM HIGH TUNNELS

**ATTENTION:** For those who purchased the 116675 endwall header kit, continue with these instructions at this point once those instructions are completed.

For those who just finished the end panel installation on the previous page, continue with the procedure that follows.

### RIBBON BOARD REQUIRED: DROP-DOWN SIDES

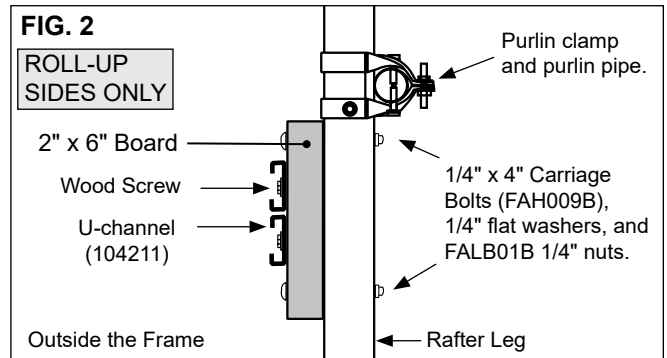
A customer-supplied two-piece ribbon board is required for the installation of the drop-down panel. Fasteners are included. *Customer supplies ribbon board materials.*



**ATTENTION:** The 102197 u-channel is installed in the next procedure.

### RIBBON BOARD OPTIONAL: ROLL-UP SIDES

A customer-supplied ribbon board is optional for the installation of the roll-up panel. Fasteners are included. *Customer supplies the materials for the ribbon board.*



**ATTENTION:** If a ribbon board is used for roll-up sides, install as shown above and described below. There is no second part (1" x 4" board) of a ribbon board for high tunnels with roll-up sides. *The 104211 double u-channel shown above is installed in the next procedure on the next page.*

If **no ribbon board is wanted for the roll-up side option**, skip this page and continue by installing the 104211 double u-channel as shown on the next page.

## RIBBON BOARD INSTALLATION

1. For drop-down and roll-up sides with a ribbon board, attach the first run of 2" x 6" lumber to the frame at the required height for the panel. See the Main Cover Details diagram in the Quick Start section for the sidewall height. **From ground-to-bottom of ribbon board, maximum height not to exceed 6' 6". Side panel is 7' top to bottom.**
2. Repeat for the remaining side of the frame.
3. For high tunnels **with roll-up sides**, continue with Step 4.

For high tunnels **with drop-down sides**, use the diagram above to attach the second board (1" x 4") to the ribbon board. Use FA4652 wood screws (included) spaced at 24". Repeat for the remaining side.

4. Inspect the frame assembly for sharp edges or clamps and bolts that may interfere with the installation of the side panels. File or tape sharp edges as needed. Reposition clamps if needed.
5. Continue with the installation of the u-channel and main cover.

**MAIN COVER INSTALLATION (Film or 5.2 oz Fabric)**

The steps to install the main cover include:

1. Attach the u-channel along the high tunnel sides and tops of the high tunnel *end rafters*.
2. Pull the cover material (film or 5.2 oz.) over the frame and attach to the end rafters.
3. Stretch and attach the cover.

**INSTALL U-CHANNEL**

**ATTENTION: IF NEEDED, REVISIT THE DIAGRAMS ON THE PREVIOUS PAGE FOR U-CHANNEL LOCATIONS.**

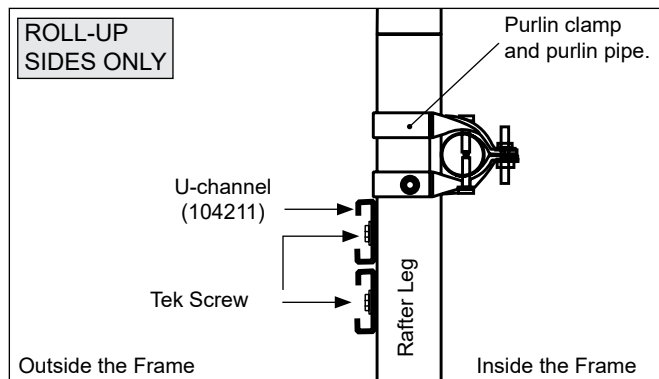
Complete these steps:

1. For high tunnels with drop-down sides, attach one section of 102197 u-channel flush to the end of the ribbon board using FA4652 wood screws **spaced every 12"**. Position near the top of the board.

For high tunnels with roll-up sides and an installed ribbon board (**FIG. 2**, previous page), attach the 104211 double u-channel to the ribbon board by installing a wood screw **in each channel every 24"**.

**ATTENTION:** For best results, predrill the mounting holes in the u-channel using a 3/16" drill bit.

For **high tunnels without a ribbon board**, attach the 104211 double u-channel directly to the rafters. Install a Tek screw in each channel and into each rafter. See the diagram that follows.

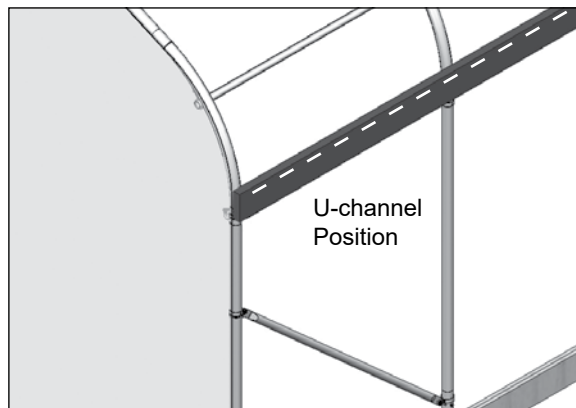


2. Continue attaching the u-channel sections to the ribbon board (or rafters for no ribbon board) and work toward the other end of the frame.
3. Cut the last section of u-channel to the required length so that it is flush with the end of the ribbon board.

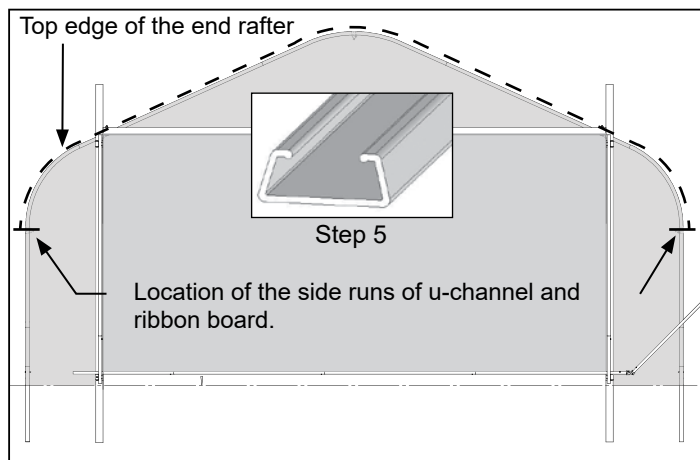
**REQUIRED PARTS**

- Single U-channel (102197) and 104211 Double U-channel for Roll-Up Side option.
- FA4652 Wood Screws and FA4482B Tek screws.

4. Repeat these steps to attach the u-channel to the ribbon board along the remaining side of the frame.



5. After attaching the u-channel to the ribbon board (or rafters for the roll-up side option), use Tek screws to attach the 102197 u-channel to the top of the end rafters. **Space screws every 12"-16"**.



**NOTE:** The 102197 u-channel will bend with the curve of the rafter as it is attached. **FOR BEST RESULTS, DO NOT SPLICE U-CHANNEL SECTIONS ON ANY RAFTER CURVE.**

6. Continue to attach the 102197 u-channel until it has been installed on the top of *both end rafters*.
7. Read the information on the following pages and continue as instructed.

***RIDGE VENT (HFD AND HFRU MODELS): ADDITIONAL PURCHASE***

If you purchased the optional ridge vent feature for your 5.2 oz. cover, continue with these steps. If you did not purchase the ridge vent feature, skip this procedure and continue with the installation of the main cover.

**OPTIONAL RIDGE VENT INSTALLATION:  
HFD & HFRU Models Only (Additional purchase required.)**

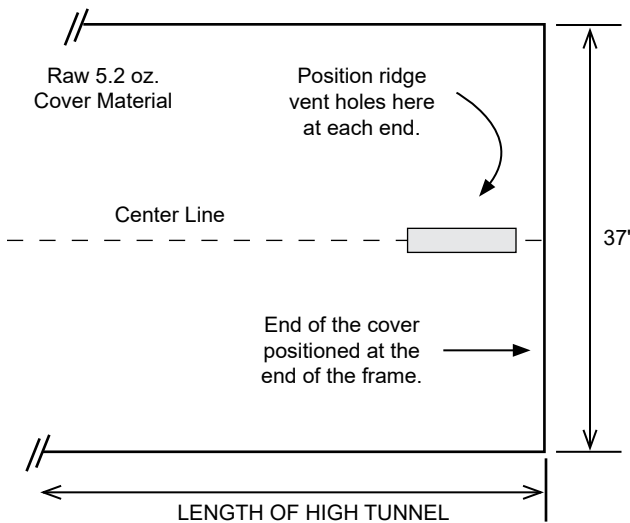
Before you install the 5.2 oz. main cover (HF models only), cut the vent holes in the cover as instructed in the Ridge Vent Kit Instructions that follow.

**ATTENTION:** If your building is the HC model that includes the 6 mil film cover, or you did not purchase the optional ridge vent kit, skip this section and continue with the installation of the main cover.

**COVER DIMENSIONS**

Before you cut the holes in the main cover material for the ridge vent, determine how the cover will sit on the frame. For some high tunnels the over-the-top measurement of the frame is greater than the length of the high tunnel. To avoid cutting the holes in the wrong ends of the cover material, consult the information below to cut the holes at the proper ends of the cover.

For all HF models (108190, 108191, 108192, 108193, and 108194), position the ridge vent holes at the center line along the 37' side of the raw cover material as shown. This is the over-the-top dimension.



**ATTENTION:** Do not cut holes in your cover if you did not purchase the ridge vent kit for your building or if the cover is film. Consult your sales representative for additional information and to purchase the kit for your building.

**RIDGE VENT KIT INSTRUCTIONS**

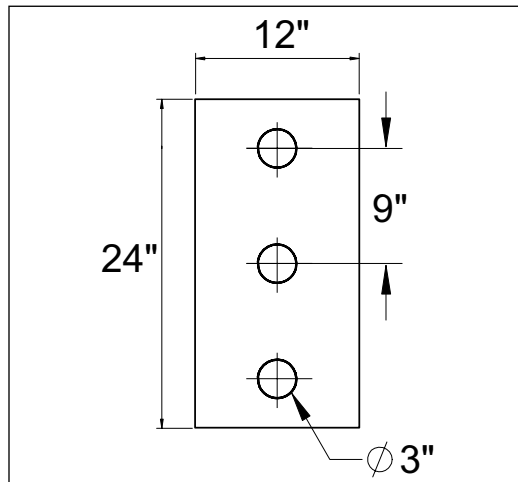
The optional Ridge Vent Kit is available *only on HF units with 5.2 oz. cover*. The kit allows control over ventilation, humidity buildup, and temperatures within the high tunnel.

Before installation, drill the ridge vent holes in the main cover. You will need a 3" hole saw and a customer-supplied vent hole template. Example shown on the next page.

1. Identify the ridge vent location and mark a line on the center of the cover using a non-permanent marker.
2. Measure and mark 3' in from the outside edge of the cover and every 9" consecutively until you have finished the pattern shown below.
3. Place the vent hole template on the lines of the pre-marked cover, stand on the edges of the template, and carefully drill vent holes in the cover using a 3" hole saw. *Adding a scrap piece of wood under the cover for support will help keep cover tight as holes are drilled.*
4. After drilling the first set of vent holes, repeat steps for the remaining end of the cover.
5. Once the ridge vents are complete, continue with the installation of the main cover.

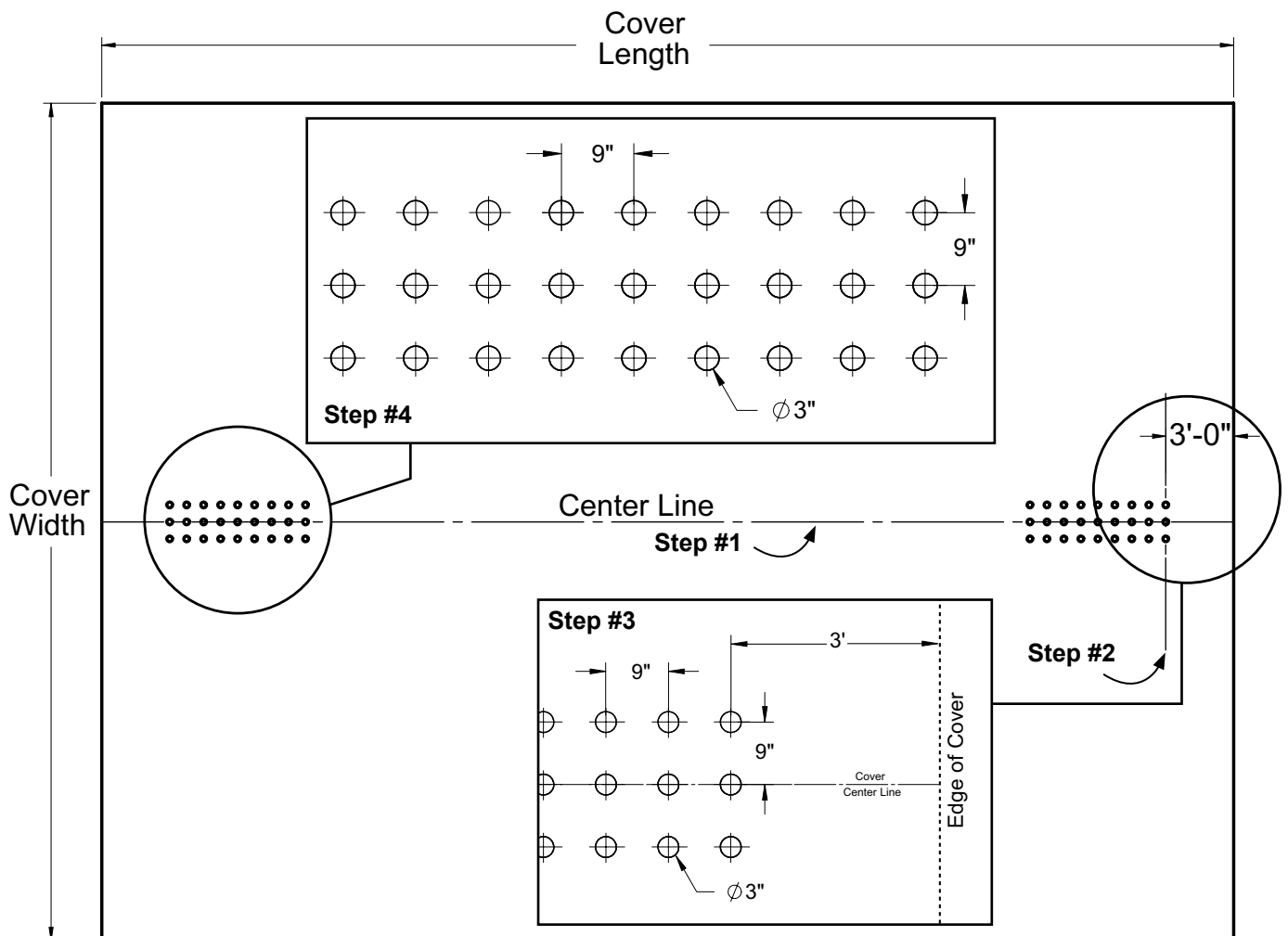
**CONSULT THE DIAGRAMS ON THE FOLLOWING PAGE FOR ADDITION INFORMATION.**

VENT HOLE TEMPLATE



**Hint:** Create a vent hole template using a 12" x 24" piece of plywood. Cut 3" holes into the template as shown above. Space the three (3) holes 9" on-center.

**ATTENTION:** Ridge vent kits are for the HF version (5.2 oz. cover material) of the high tunnel only. *Do not cut holes in the film cover of the HC building model.*



## GROWSPAN™ GOTHIC PREMIUM HIGH TUNNELS

### INSTALL MAIN COVER

Gather the parts:

- Main cover (Film or 5.2oz Clear)
- U-channel spring (102198)
- Ropes long enough to reach over the frame (provided by the customer, or use the anti-billow rope included.)
- Box cutter or utility knife



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

**WEAR EYE PROTECTION WHEN INSTALLING SPRING WIRE!**

After attaching u-channel along sides and to the end rafters, install the main cover. Ropes or straps are used to pull main cover onto and over the frame. The main cover material is typically cut two (2) feet longer than the frame length (e.g., length is 48'; film roll is 50'). For some frames, it is possible that the over-the-top dimension exceeds the length of the frame. Roll out the cover along the frame and take additional measurements to ensure you are pulling the cover onto the frame correctly.

Complete these steps:

1. Take the cover and position it at the frame base along one side.



**NOTE:** Unfold cover and locate edge. Cover ground if needed to protect film and to keep film clean and free of debris.

2. Along cover edge to pull over frame, tie rope (or strap) around a tennis ball, for example, and **toss free end of each rope over the frame**. See photo.

This procedure may not be required for small high tunnels; simply pull the cover over by hand.

**NOTE:** Evenly space ropes along side. Number of ropes depends on building length; use additional ropes spaced evenly throughout length to prevent tearing cover when pulled onto frame.





INSTALL COVER FILM (continued)

- After tying ropes to the cover, **toss the free end of each rope over the frame** and pull cover onto frame.

**IMPORTANT:** To prevent damage to the cover during installation, **use additional personnel and lifts as needed stationed inside frame** to help guide the cover onto the frame and to protect cover from door frame posts.



- Center side-to-side and end-to-end.
- Once main cover is in place and centered, begin at the peak at one end and install the 102198A wire spring into the 102197 u-channel.

**ATTENTION:** Ensure enough film is present to lock into u-channel flashing. Typically, cover film is cut longer than required to cover frame end-to-end. For easier anchoring, allow approximately 10" to extend past end rafter as film is anchored. Remove ropes (if used) after film is secure.

- Continue down both edges of first end rafter until film is secured.
- Pull film toward other end and stretch gently to remove wrinkles.



## GROWSPAN™ GOTHIC PREMIUM HIGH TUNNELS

### INSTALL COVER FILM (continued)

8. Move to the other end rafter, pull cover tight, and repeat steps to secure cover to the end rafter.
9. After securing cover end-to-end, move to one side, and install 102198A spring wire in the side u-channel.

**NOTE:** Beginning at the middle, work toward each end to remove wrinkles during installation. *Use the upper run of u-channel to secure the roof film for frames with the 104211 double u-channel.*



10. Next, move to remaining side, stretch cover, and secure in place. Pull snug during spring wire installation.
11. Trim away excess material if desired. Allow a few inches to remain in the event that the cover needs stretched in the future. **Sample high tunnel is shown. Actual frame design may differ.**
12. Complete the final frame check (next page) and install the drop-down or roll-up sides, depending on your high tunnel model.

**ATTENTION: FOR DROP-DOWN SIDES (all CD & FD models), CONTINUE WITH THE "INSTALL THE DROP-DOWN SIDES" PROCEDURE.**

**FOR ROLL-UP SIDES (all CRU & FRU models), CONTINUE WITH THE "INSTALL THE ROLL-UP SIDES" PROCEDURE.**

## FRAME CHECK

Before you attach the side panels, inspect the frame for sharp edges or fasteners that could damage the panel or kit components.

1. Verify that all frame members are properly secured.
2. Verify that all bolts and clamps are tight.
3. Recheck the frame assembly for sharp edges or clamps and bolts that may interfere with the installation of the panel. File or tape sharp edges as needed.
4. Reposition clamps and bolts as needed and tape all rafter pipe joints with duct tape to protect the panel.
5. Verify that the main building frame is properly and adequately anchored.

*Do not attach the side panels to an unanchored frame.*

6. Continue by installing the side panels and components.

## INSTALL THE DROP-DOWN SIDES

If your building includes roll-up sides, go to and complete the "Install Roll-Up Sides" procedure. **Do not continue with these drop-down panel steps.**

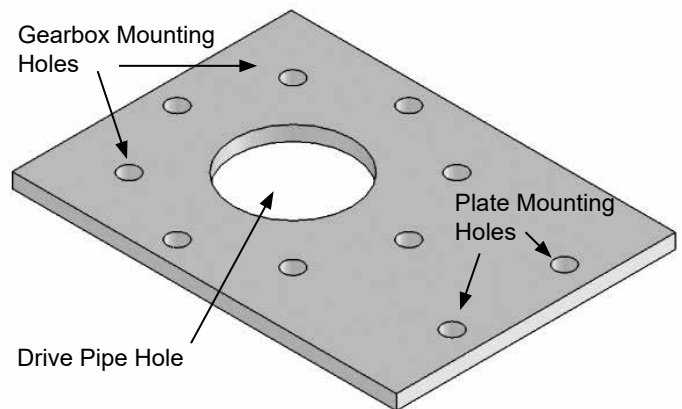
Locate these parts to attach the pulleys and drop-down panel drive pipe:

- 131S075 (1.315 swaged pipe for drive pipe) and 131P0XX (where XX represents the length needed to complete the drive pipe assembly). See side profile for pipe identification if needed.
- 106734 band clamp
- 103496 gearbox and 103544 mounting plate
- 102717 double drive
- FA4482B Tek screws (for drive pipe)
- FAH009B (1/4" x 4" carriage bolts) and FALB01B (1/4" nuts)—use with FAME50B flat washers on the nut side.
- FAH005B (1/4" x 2" hex head bolts)
- FALF15B (1/4" lock nut) and FAME50B (1/4" flat washer)—used to secure the mounting plate.

Continue with the steps that follow to install the drop-down panel components.

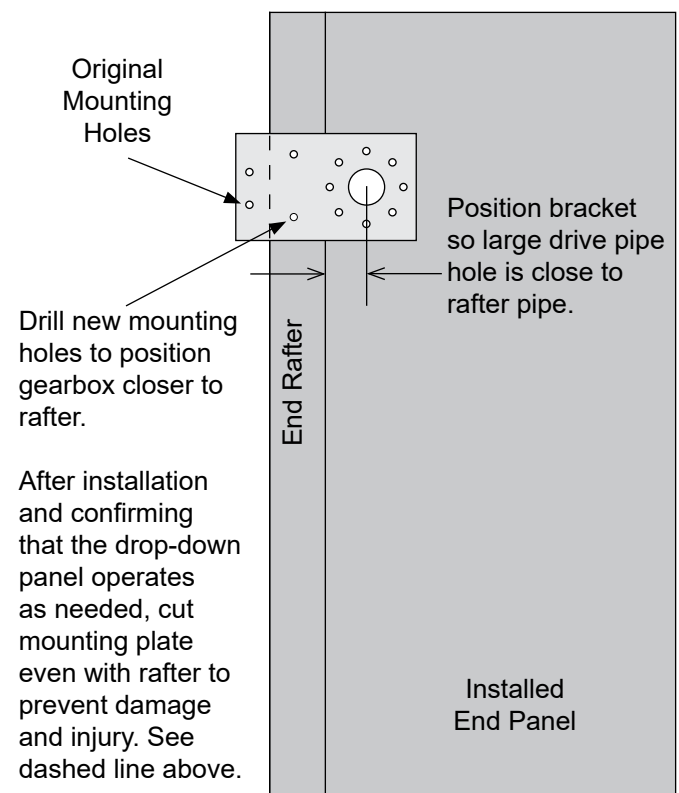
1. Take the 103544 mounting plate (shown below) and move outside the end wall where you want to position the gearbox.

103544 Mounting Plate (Figure 1)  
*Actual mounting plate may differ from what is shown.*



**ATTENTION:** Depending on the mounting plate design, it may be necessary to redrill and reposition the plate mounting holes to keep the drive pipe closer to the rafters. See the diagram below for an example.

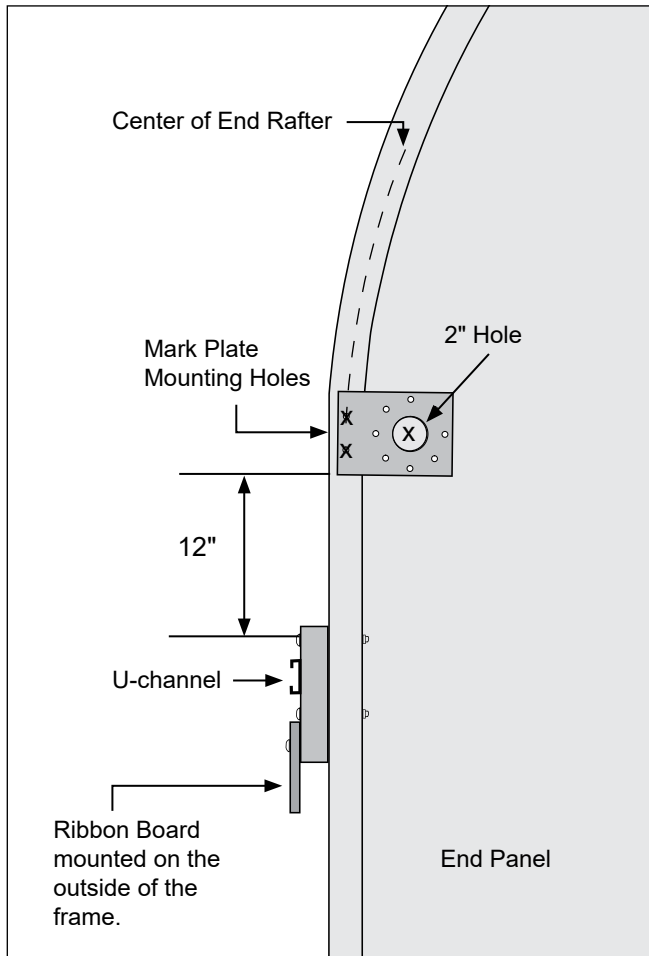
May not apply to all drop-down sides and mounting plates.



## GROWSPAN™ GOTHIC PREMIUM HIGH TUNNELS

### INSTALL THE DROP-DOWN PANEL (continued)

- Measure approximately 12" above the ribbon board along the end rafter, place the mounting plate against the end wall, and align the plate mounting holes with the center of the end rafter.
- Mark plate mounting hole locations and drill the holes. Use a 1/4" drill bit for the mounting holes.



**NOTE:** Do not position the mounting plate in a location where purlins, clamps, or other frame components will interfere with the installation of the drop-down panel components. *The drive pipe mounting clamps are installed on the underside of the rafters inside the frame.*

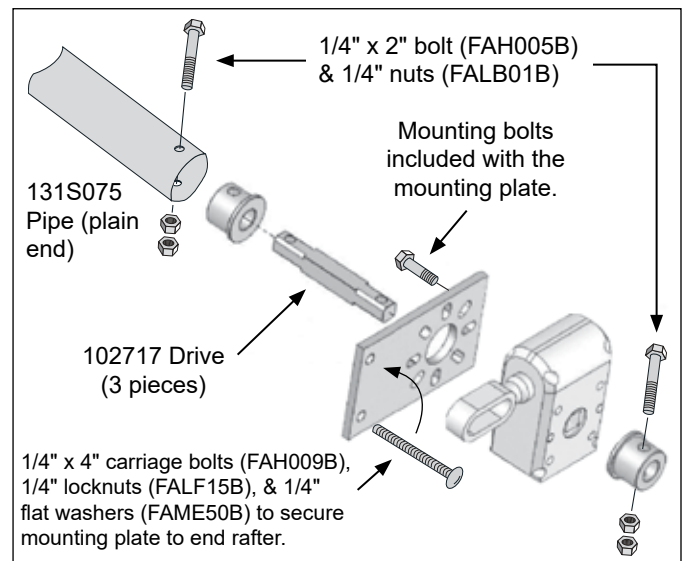
- Using the 1/4" x 4" carriage bolts and 1/4" nuts, temporarily secure the 103544 plate to the outside of the end wall.
- With the plate in place, mark the location of the 2" drive pipe hole on the end panel, remove the mounting plate, and cut the hole for the drive pipe.

**NOTE:** If the end wall is covered with a fabric panel, use a utility knife to cut a small X through the panel within the 2" hole position and continue.

- With the mounting plate attached to the end rafter, take the 103496 gearbox and place it against the mounting plate at the desired angle.
- Using a marker, trace the edges of the gearbox to mark the desired angle on the mounting plate.

**NOTE:** The gearbox can be tilted when mounted to the plate to allow easier access when using the crank handle.

- Set the gearbox aside and remove the mounting plate from the end rafter
- Using the diagram below and the marks made in Step 7, align and attach the 103496 gearbox and assemble the remaining components as shown.



**NOTE:** Attach the plain end of the 131S075 pipe to the 102717 drive hub. Actual components may differ slightly from those shown in the diagrams.

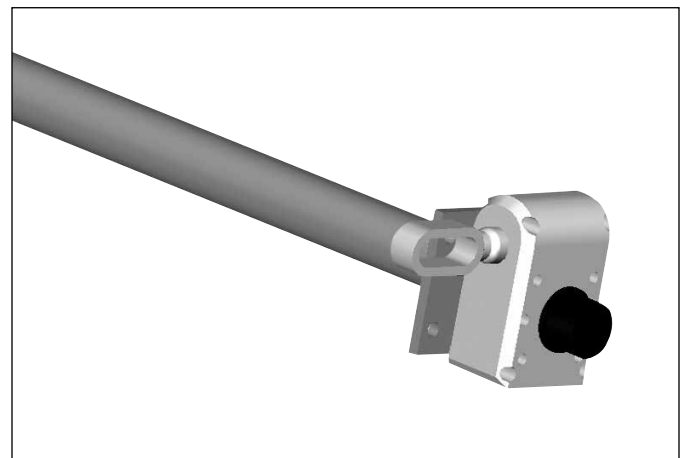
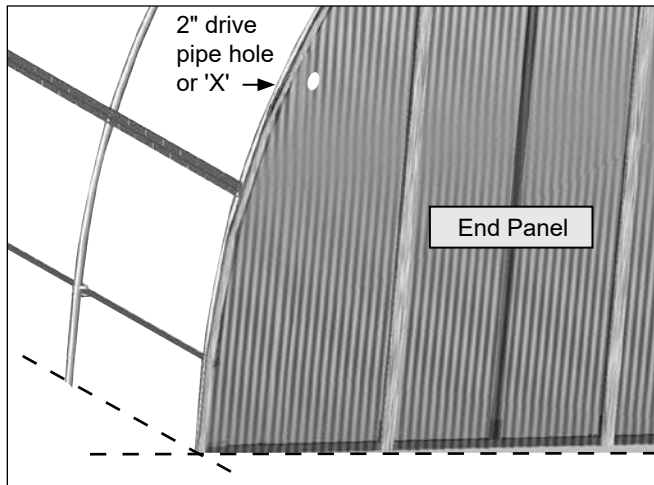


Diagram shows the assembled components. Insert the 1/4" x 4" mounting bolts into the mounting plate before mounting the gearbox if box will block the holes.

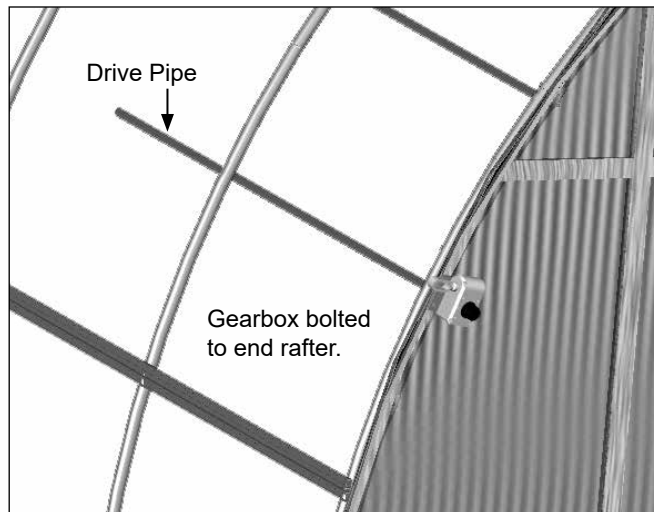
Actual position of gearbox on plate may differ.

**INSTALL THE DROP-DOWN PANEL (continued)**

10. Carefully lift the assembly and insert the tapered/free end of the 131S075 pipe through the 2" drive pipe hole, or 'X', in the end panel.

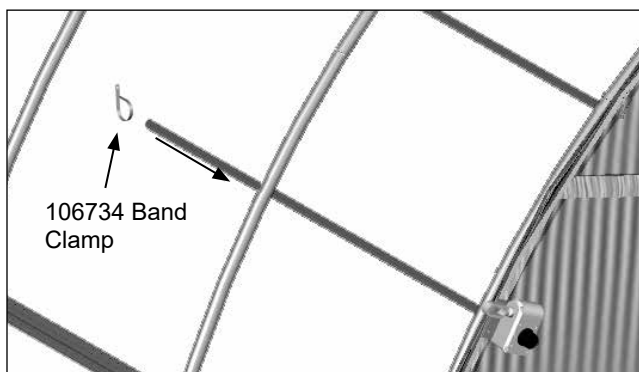


11. Align the plate mounting holes with the mounting holes drilled in the end rafter (Step 3) and reattach the mounting plate using two 1/4" x 4" carriage bolts, 1/4" lock nuts, and 1/4" flat washers.

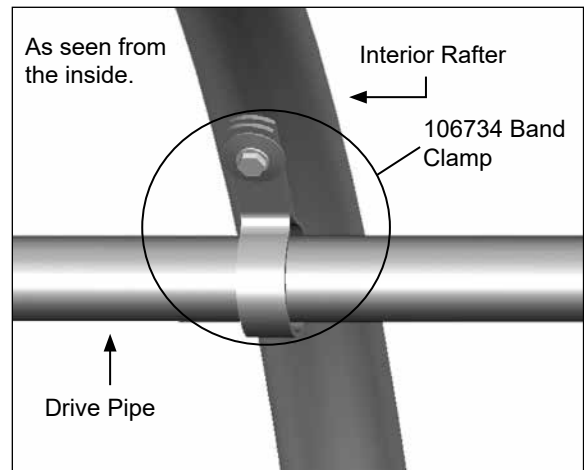


**NOTE:** Cover is not shown in the above diagram. Diagram shows gearbox mounted to the end rafter on the outside of the end wall cover.

12. Move inside the frame and slide a 106734 band clamp over the tapered end of the 131S075 pipe.

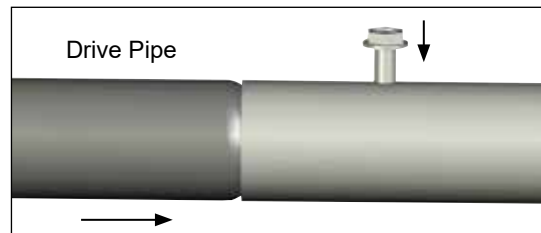


13. Verify that the pipe is level and secure the band clamp to the underside of the second rafter using an FA4482B Tek screw. Pipe should remain loose in the band clamp.

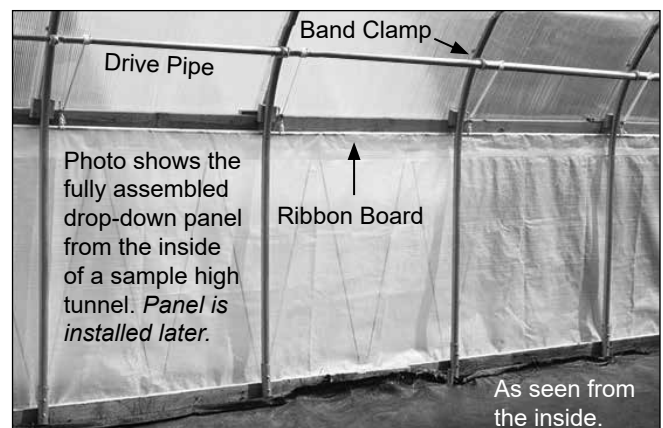


*Band clamps support the drive pipe at each rafter except the end rafter where the gearbox is mounted.*

14. Take a section of 131S075 pipe, attach it to the first, and secure the connection using one Tek screw.



15. Slide another band clamp onto the tapered/swaged end of the conduit, level the conduit, and secure the band clamp to the underside of the next rafter.
16. Continue adding conduit and band clamps and work toward the other end of the frame. Verify that the drive pipe remains level throughout the length. *Attach one band clamp to the inside of each rafter.*



17. Select the final section of plain pipe (131P0XX where XX represents the length needed to reach the end of your building. Consult side profile diagram for pipe identification.) **See page 60 for enlarged photo.**

## GROWSPAN™ GOTHIC PREMIUM HIGH TUNNELS

### INSTALL THE DROP-DOWN PANEL (continued)

**NOTE:** To prevent damage to the end panels, *do not allow the free end of the drive pipe to touch the inside surface of the end wall. Trim pipe if needed. Drive pipe must turn freely in the band clamps.*

18. After installing all sections of drive pipe for the first drop-down panel assembly, verify that the drive pipe is level and that each conduit splice is secured with a Tek screw (Step 14).

19. Move to the gearbox and test the assembly using the crank handle.

**NOTE:** The assembled drive pipe should turn freely throughout the length of the frame. Adjust the band clamps as needed. Reposition clamps and screws if these prevent smooth operation of the drive pipe.

20. Repeat the procedure to assemble and attach the gearbox and drive pipe *to the other side of the frame.*

21. Continue by preparing and attaching the drop-down panels to the frame and drive pipe of both drop-down assemblies.

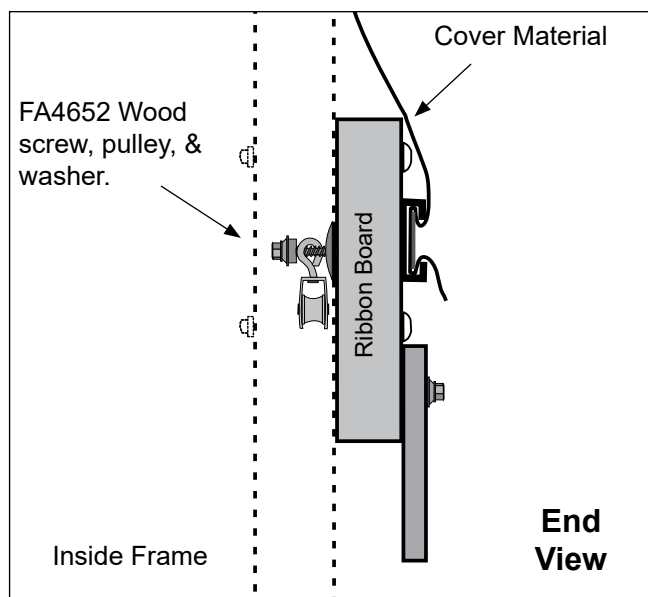
### ATTACH DROP-DOWN PANEL PULLEYS

Locate these parts:

- 131S075 pipe conduit & CC5525 (1/4" panel cord)
- FA4652 Wood Screws & AS5020 pulleys
- Duct tape
- Drop-down panel (Panel ID begins with DD.)

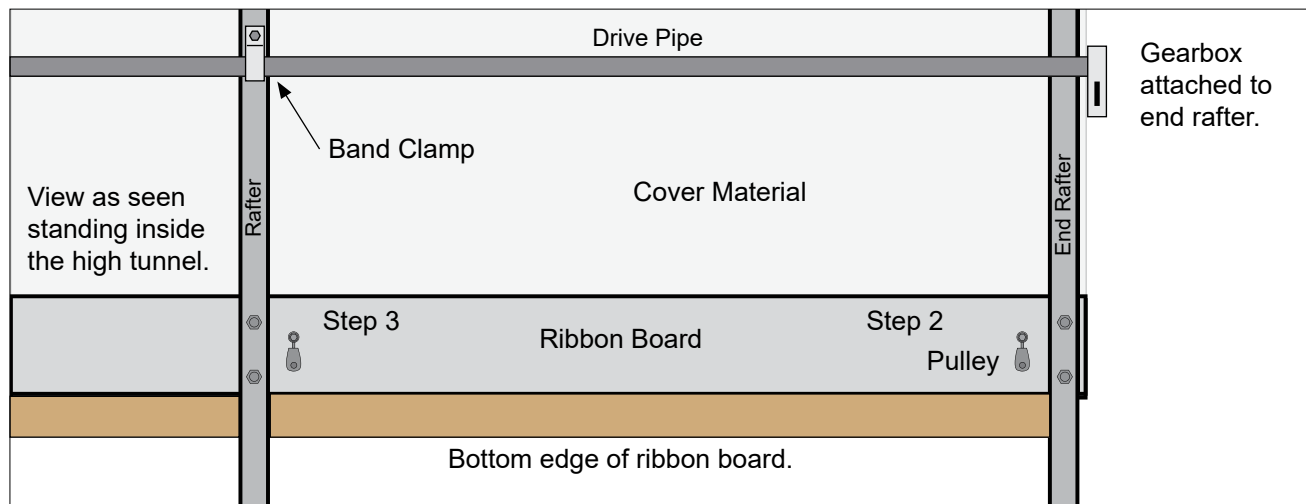
Continue with the steps that follow:

1. Gather the pulleys and the same quantity of FA4652 wood screws and move inside of the high tunnel.
2. Position the first pulley against the ribbon board approximately 2"-4" from the end rafter where the gearbox is attached.



**NOTE:** Pulley should hang freely from the wood screw. *Do not overtighten the screw. See diagram above.*

3. Move to the next rafter and repeat the steps to install another pulley. *Install one pulley for each rafter along each side.*



4. Continue attaching pulleys to the ribbon board *next to each rafter* until all pulleys are installed *along both sides of the high tunnel.*

5. Install the panel conduit and attach cords as described in the next procedure.

**INSTALL THE DROP-DOWN PANEL (continued)**

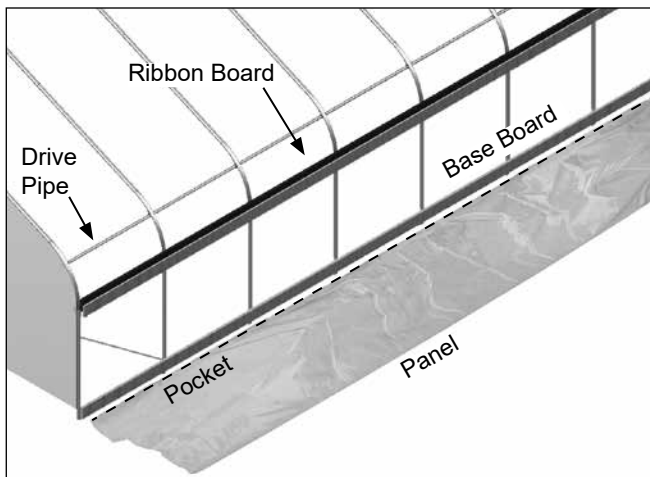
**INSTALL PANEL CONDUIT AND ATTACH ROPE**

After installing all pulleys, locate the drop-down panels, 131S075 conduit, 1/4" rope (CC5525), FA4652 screws, and duct tape.

Complete these steps:

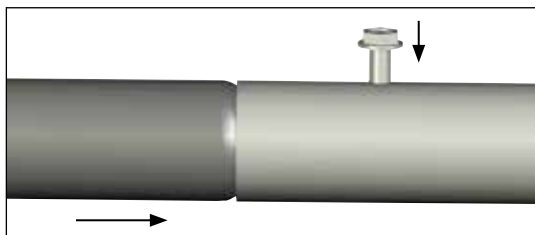
1. Unfold the panel along one side of the frame and position the conduit pocket along the baseboard.

**Panel is longer than the length of the assembled frame. Panel can be trimmed to the desired length before or after installation depending on preference.**



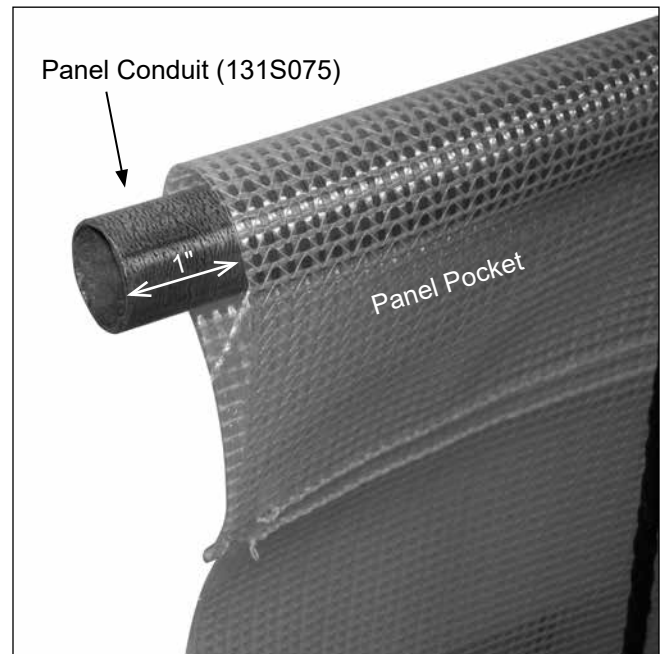
**NOTE:** Dashed line shows where to position the pocket of the panel.

2. Take one 131S075 conduit and insert the plain end (not the tapered end) into the panel pocket.
3. With the first conduit section in the pocket, add another conduit to the first (plain end over tapered/swaged end), secure joint using an FA4482B Tek screw, and tape the conduit joint using duct tape.



4. Continue adding conduit sections and taping each joint until the conduit is as long as the panel.

5. Complete the panel conduit installation by cutting the conduit so that it extends from the panel pocket as desired.
6. Align the panel and the installed panel conduit with the end rafters of the frame.



7. Position the panel conduit at the base of the baseboard along the outside of the frame.
8. Measure the distance from the panel conduit up to the drive pipe mounted to the frame and add 12" to ensure that the chord length is sufficient.

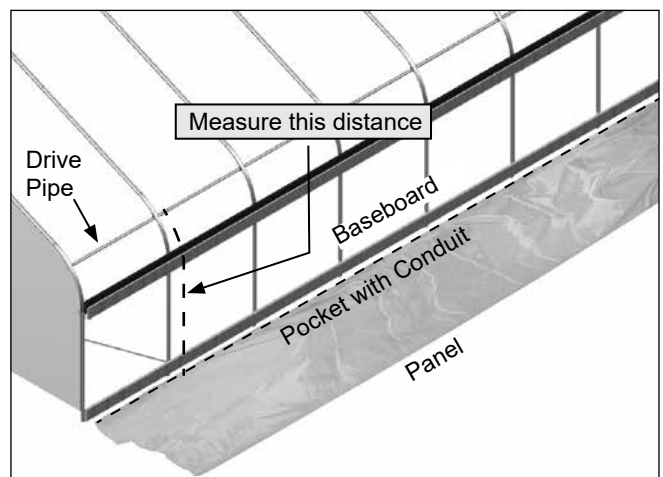
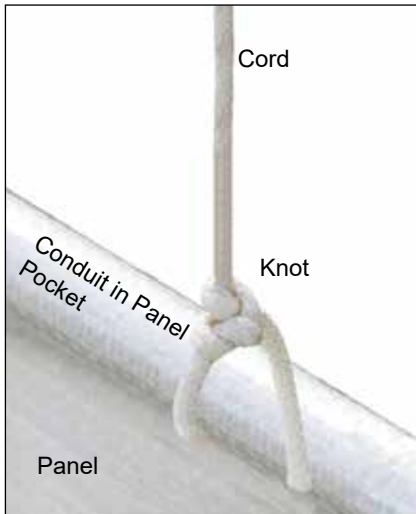


Diagram above shows where to measure to determine cord length.

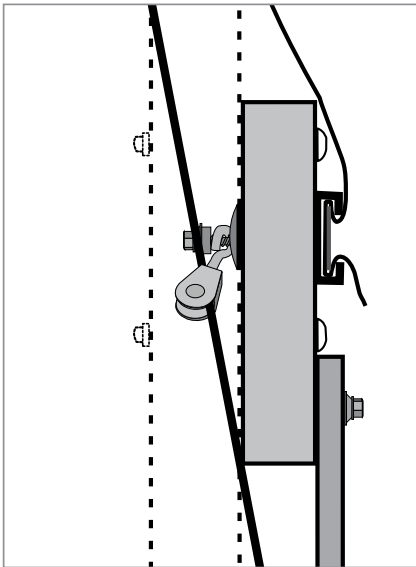
## GROWSPAN™ GOTHIC PREMIUM HIGH TUNNELS

### INSTALL THE DROP-DOWN PANEL (continued)

9. Locate the 1/4" panel cord (CC5525) and cut a section of cord to the length determined in the previous step.
10. Beginning at one end of the frame, move to the panel conduit in the panel pocket, and make a small cut in the material *below* the conduit and in line with a pulley.
11. Insert the end of the cord through the opening in the panel and tie the cord to the conduit.



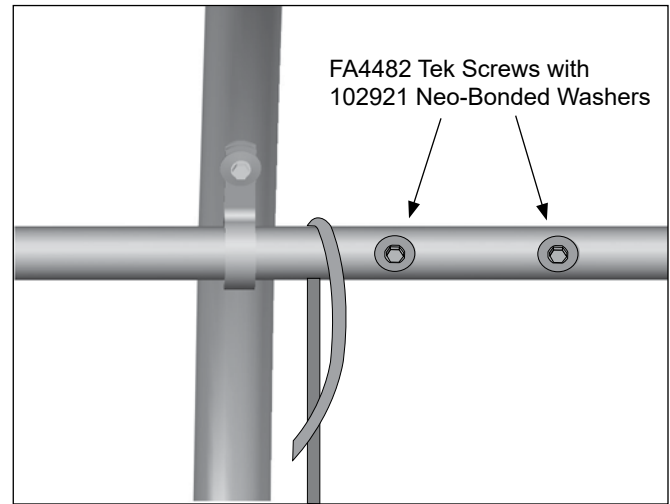
12. Take the free end of the cord, thread it through the pulley, *wrap it over and around the drive pipe*, and temporarily tie it to the drive pipe.



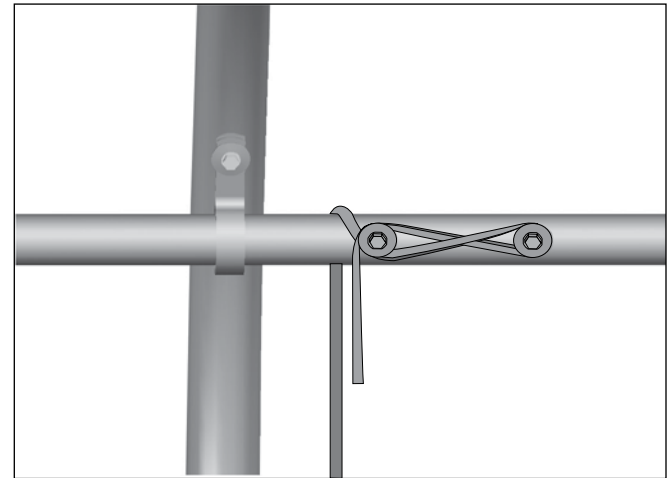
**NOTE:** Verify that the cord is properly aligned with the pulley and with the other end of the cord tied to the panel conduit.

*The cord must remain aligned for proper panel operation.*

13. Drive two (2) FA4482 Tek screws with neo-bonded washers (102921) into the drive pipe where the cord is located. *Do not fully seat the Tek screws to the conduit.* Allow space to remain between the washer and conduit.



14. Verify that the panel conduit remains against the baseboard and pull the slack from the cord.
15. Weave the cord around the Tek screws as shown and tighten the screws to secure the cord to the drive pipe.



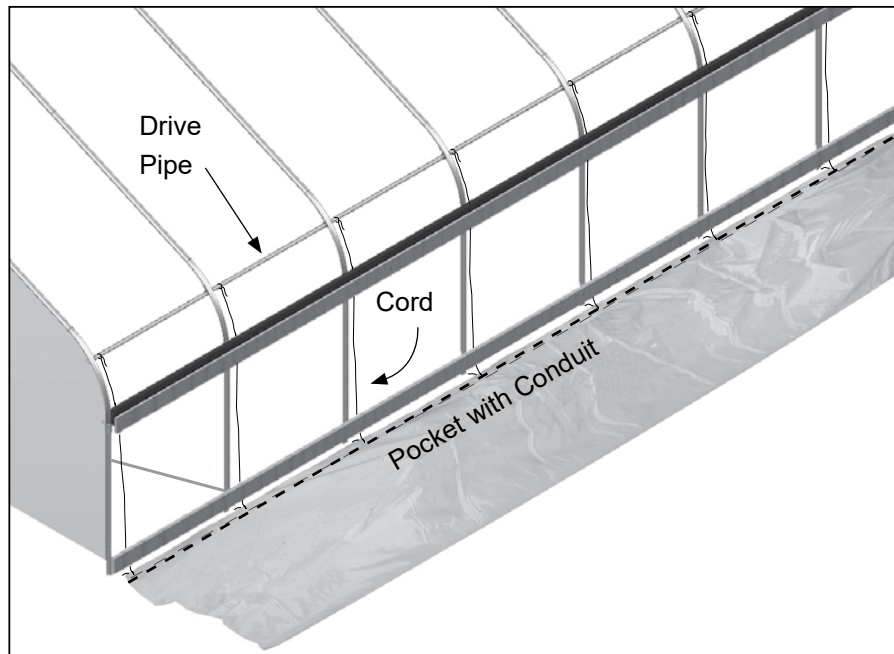
16. Move to the next pulley position and repeat the steps to measure, cut, and attach another cord to the panel and drive pipe.

**ATTENTION:** If the cord length was correct for the first, cut additional cords to the same length. To ensure that the panel remains level during operation, verify that additional cords are wrapped around the drive pipe in the same direction as the first cord. Continue this pattern for all remaining cord-to-drive pipe connections.



INSTALL THE DROP-DOWN PANEL (continued)

17. Repeat the above steps until all cords are attached to the first panel along one side of the high tunnel.



**ATTENTION:** Diagram shows cords attached to the panel conduit and to the drive pipe. Dashed line shows the position of the panel conduit. Photo below shows the inside view of an installed drop-down panel with all cords attached and the panel closed. Actual high tunnel differs from the example shown.

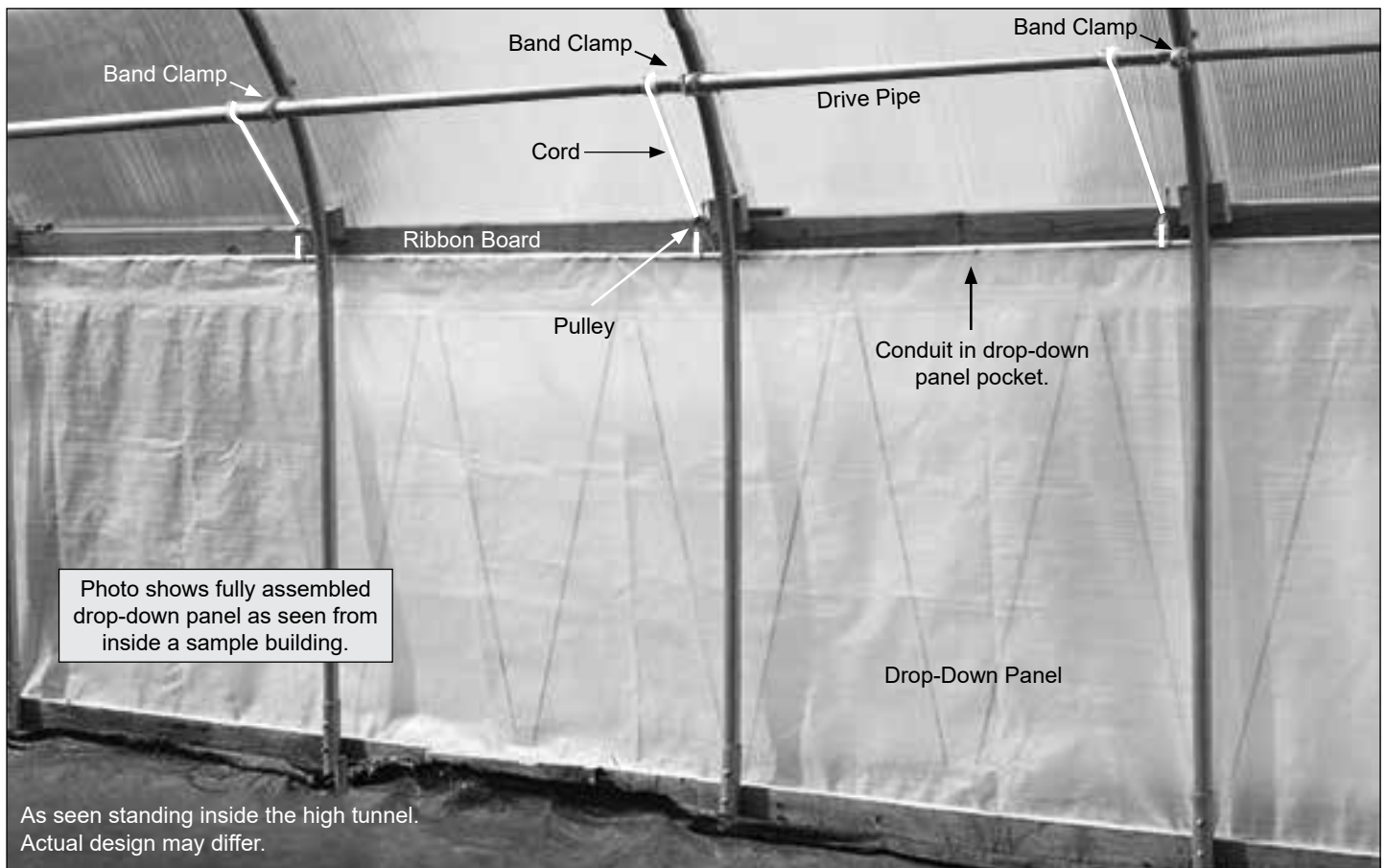


Photo shows fully assembled drop-down panel as seen from inside a sample building.

As seen standing inside the high tunnel.  
Actual design may differ.

18. Continue by attaching the lower panel edge to the baseboard for the first panel installation.

## GROWSPAN™ GOTHIC PREMIUM HIGH TUNNELS

### ATTACH LOWER EDGE OF PANEL TO BASEBOARD

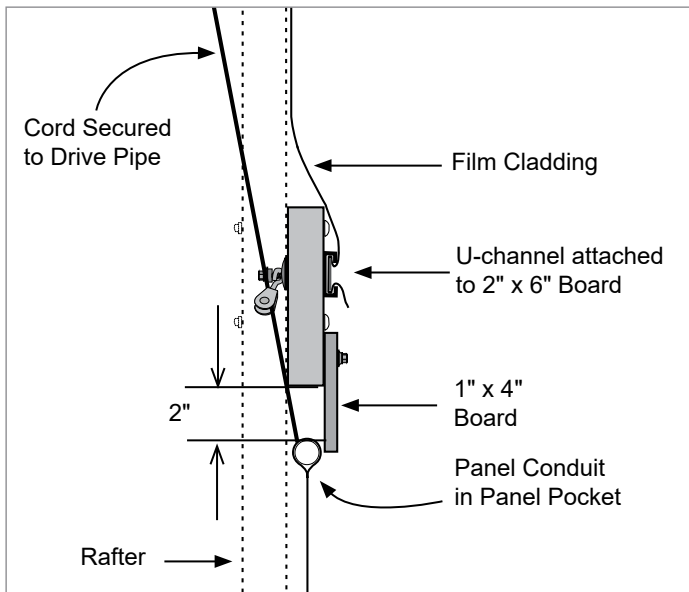
Use customer-supplied dimension lumber as a retaining board for the lower edge of the panel.

The retaining board must be **at least 1" x 2"** to adequately secure the panel to the baseboard. See the diagram below for an example.

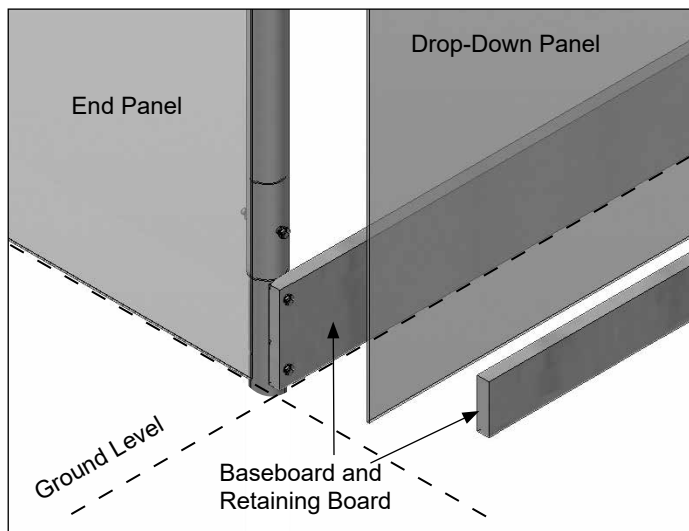
**CAUTION:** Do not attempt to attach the panel to the baseboard during stormy or windy conditions or when such conditions are expected.

Complete these steps to attach the lower edge of the panel to the customer-supplied baseboard.

1. Using the supplied-crank handle, roll the panel up to within 2" of where it will seat into the channel created by the ribbon boards.

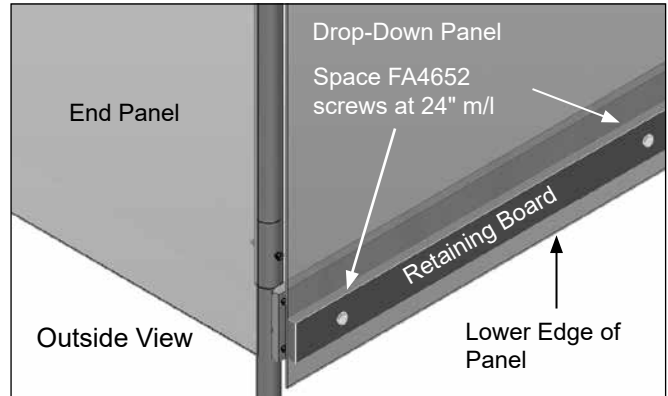


2. Move to the bottom of the panel and with assistance, evenly stretch the panel end-to-end along the baseboard.



3. Take the first section of customer-supplied retaining board and place it against the panel and the baseboard to hold the panel in position.

**NOTE:** Evenly and gently pull the panel edge down to remove wrinkles. *Applying too much force may bend the panel conduit.*



4. Using the supplied FA4652 fasteners, secure the retaining board to the baseboard as shown.
5. Repeat the steps to secure the remaining lower edge of the panel to the baseboard along the side.
6. Return to the gearbox and check the operation of the drop-down panel using the crank handle. Adjust cords as needed for a level panel.
7. Skip to and continue with the install of the anti-billow ropes (**PAGE 42**) then return to this section and repeat the steps to attach the remaining drop-down panel.
8. Finally, install the anti-billow ropes for the remaining side.

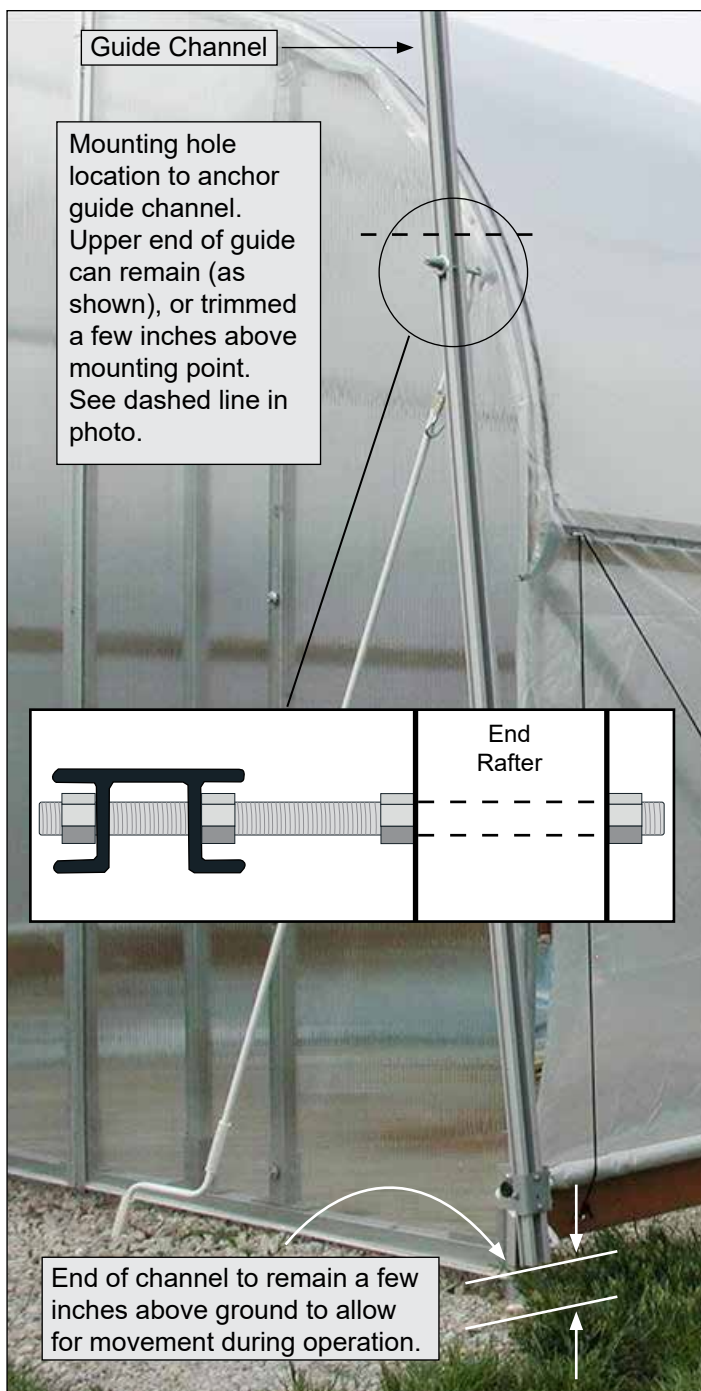
Diagrams may show a different frame and panel assembly.

**ROLL-UP SIDES —  
ASSEMBLY & INSTALLATION**

**TWIST-OF-THE-WRIST ASSEMBLY**

Complete these steps:

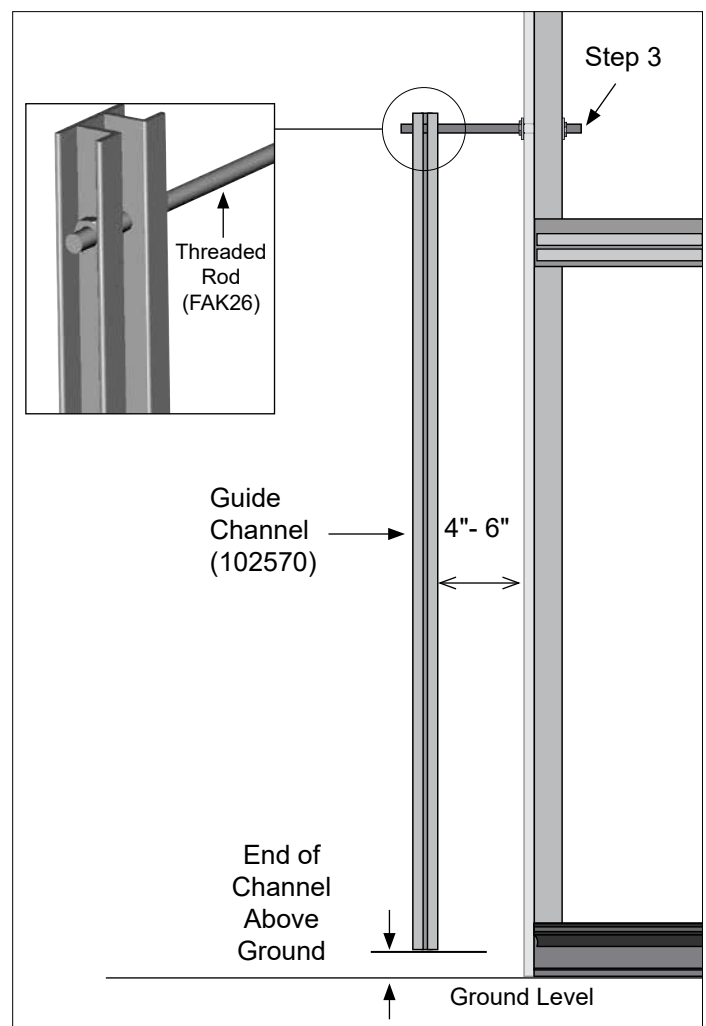
1. At building end where roll-up gearbox will be located, take one guide channel (102570) and use it to mark mounting hole location. See photo below. Excess channel length above threaded rod is removed later.
2. After marking hole position, drill a 3/8" hole through *end panel and end rafter*. See diagram (lower left).



Gather the parts:

- Aluminum channel (102570) and drive handle (102480)
- Gearbox (103496) and gearbox drive (102717)
- Mounting plate (103544), bearing (102569), and threaded rod (FAK26)
- 3/8" nuts (FALB04B) and 3/8" washers (FAME08B)

3. Next, insert 3/8" threaded rod through mounting hole and attach using a 3/8" nut and washer on each side. Tighten. *Install so most of the rod extends outside high tunnel.*
4. Place guide channel in position and mark where threaded rod end meets channel.



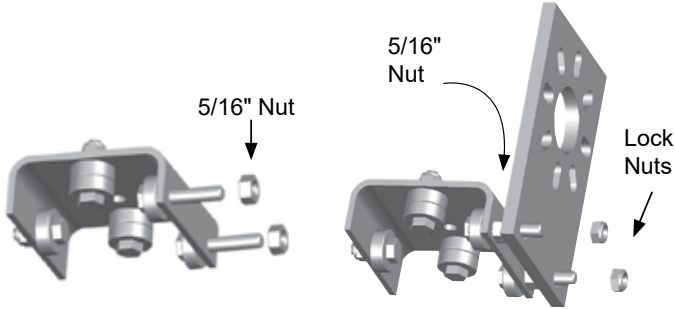
**ATTENTION:** Lower end of channel will "float" slightly above ground when installed at correct height. Lower end is not anchored. *Do not allow channel end to contact ground.*

5. Drill 3/8" hole through guide channel and secure using 3/8" nut on each side. **Do not tighten at this time.**
6. Continue with next procedure.

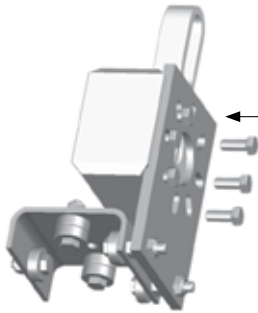
***ROLL-UP SIDES —  
ASSEMBLY & INSTALLATION***

**ASSEMBLE BEARINGS AND GEARBOX**

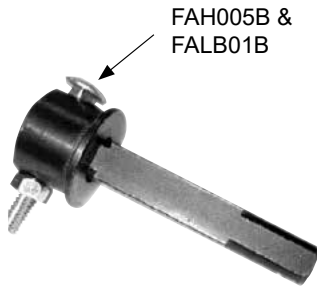
1. Select 102569 bearing assembly and slide 103544 mounting plate over the long bolts and secure plate using lock nuts (included with bearings).



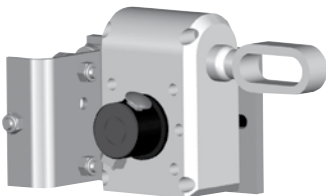
2. Attach gearbox to mounting plate using hex head bolts. *Gearbox can attach to either side of flat mounting bracket.*



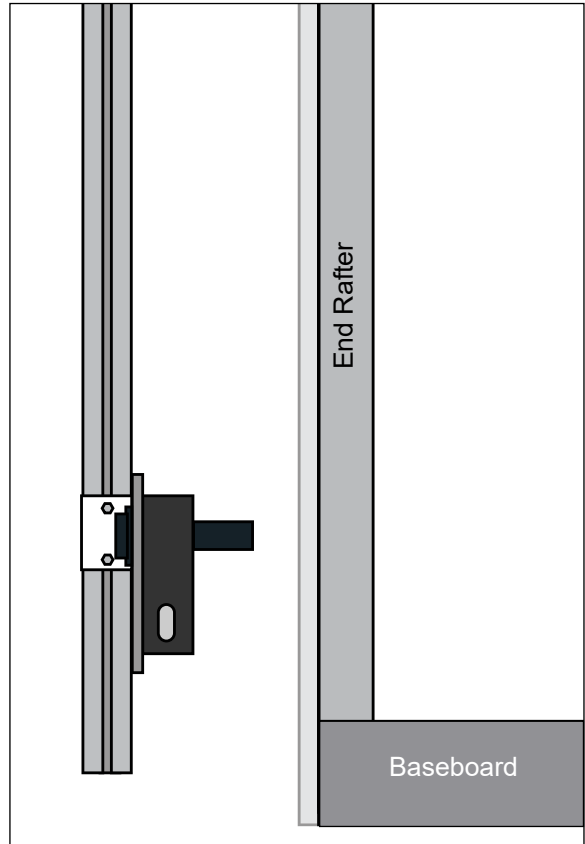
3. Using a 1/4" x 2" carriage bolt (FAH005B) and nut (FALB01B), attach square shaft to a tubing adapter.



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



5. Slide the gearbox assembly onto the aluminum channel — ground end. (This is the free end of channel opposite the threaded mounting rod.)

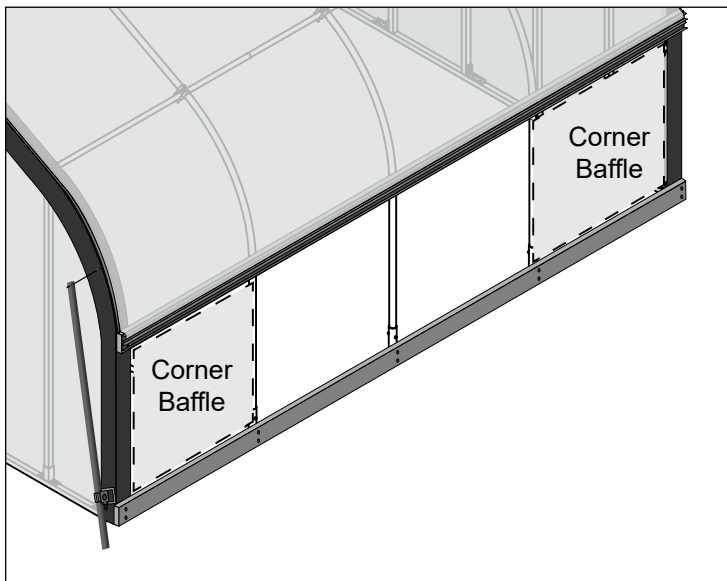


6. Repeat for the remaining side.
7. Continue with next procedure.

***INSTALL CORNER BAFFLES FOR ROLL-UP SIDES ONLY***

**ATTENTION: SKIP THIS SECTION IF YOUR HIGH TUNNEL INCLUDES DROP-DOWN SIDES.**

If you do not want corner baffles installed, skip this section and continue with the next page. Corner baffles for roll-up sides can be installed later; however, it is easier to install before installing roll-up panels and the anti-billow ropes.

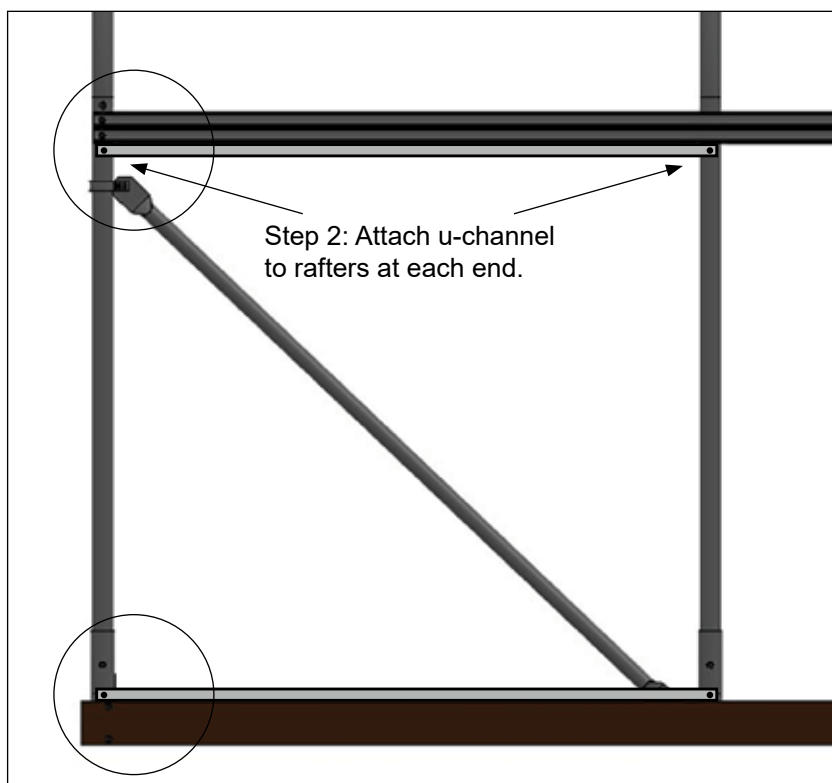
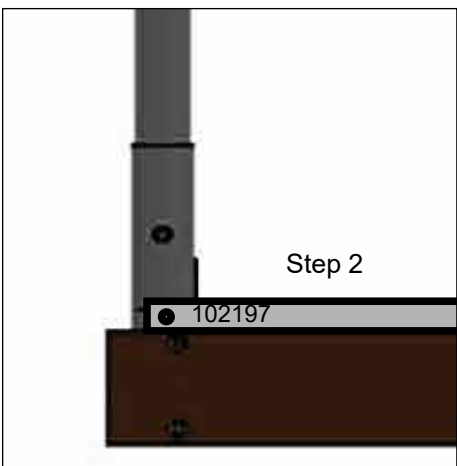
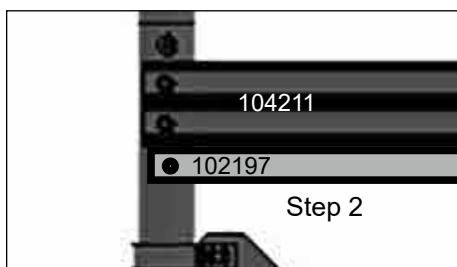


**REQUIRED PARTS:**

- 102197 U-channel
- 102198A Poly-Coated Spring Wire
- 108654 6' Wide 6 MIL Film
- FA4482B Tek Screws

Complete these steps to install a baffle at each corner of the assembled frame.

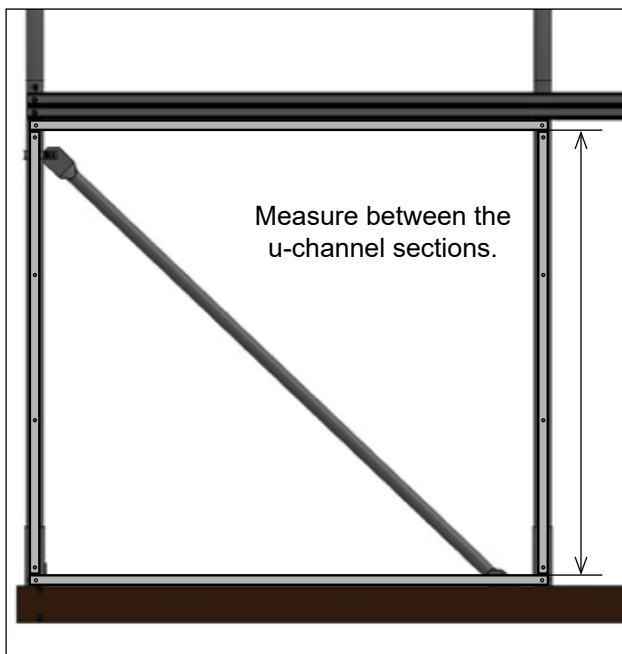
1. Locate four (4) pieces of 102197 single u-channel, additional 102198A spring wire, and the 108654 roll of 6 mil film.
2. At one corner, cut and attach the 102197 u-channel to the end rafter and first interior rafter as shown. Install these horizontal runs of single u-channel above the baseboard and below the double u-channel.



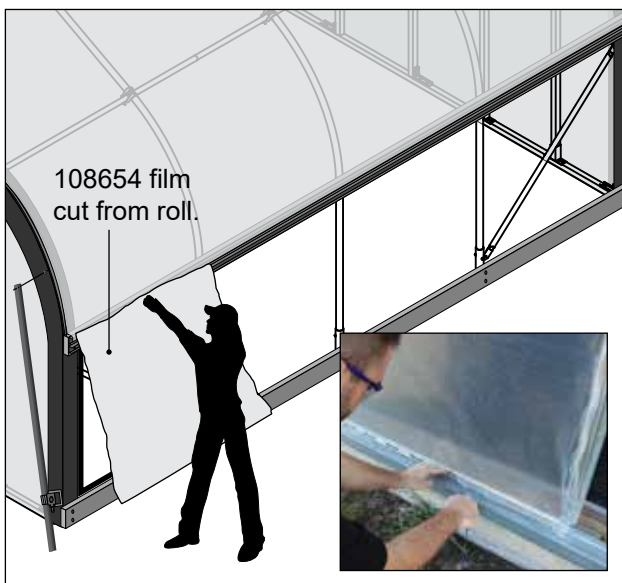
## GROWSPAN™ GOTHIC PREMIUM HIGH TUNNELS

### INSTALL CORNER BAFFLES (continued)

3. Measure the distance between the upper and lower single u-channel installed in Step 2. Cut two additional u-channel sections to this length and attach these vertical runs to the end rafter and interior rafter. *Space Tek screws (FA4482B) approximately 12" on-center. Vertical channel runs may consist of multiple small lengths of available u-channel.*



4. Take the 108654 roll of 6 mil film and cut a piece to cover the end bay opening framed by the single u-channel. Roll out the film and measure length to determine the best way to cut the film. You need four (4) identical panels from the film roll.
5. With assistance, secure the film panel in the u-channel using the 102198A wire spring.



6. Trim the film as needed and repeat the steps to install all remaining corner baffles.
7. After installing all baffles, continue with the next procedure.

## ROLL-UP SIDES — ASSEMBLY & INSTALLATION

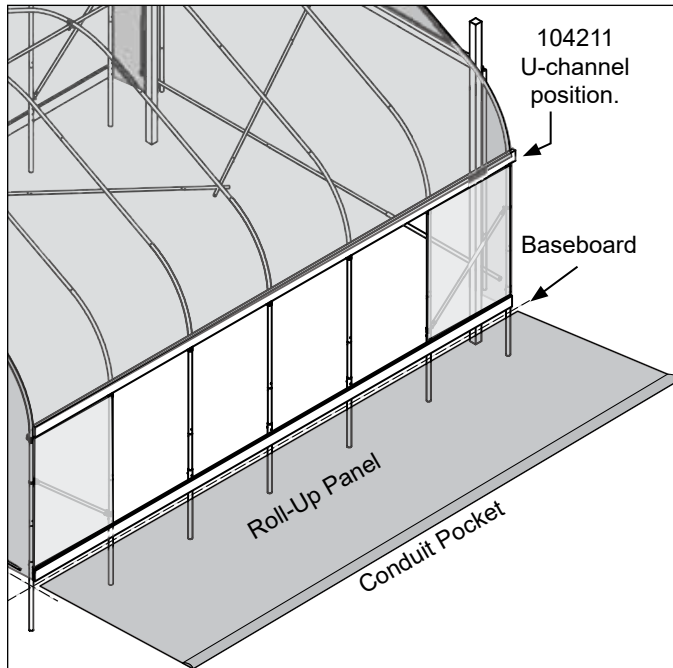


**CAUTION: Risk of Injury**  
Always wear eye protection when installing the 102198A spring!

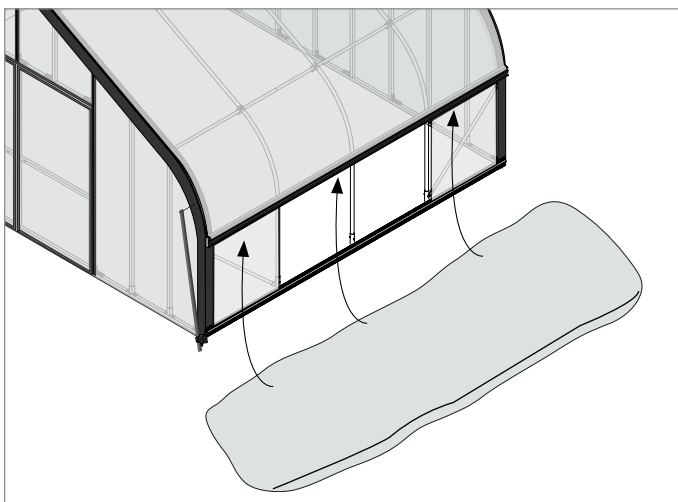
### INSTALL ROLL-UP SIDE PANELS

Complete the following steps:

1. Locate a roll-up side panel (DD084) and roll it out along the side of the frame. Position the pocket of the panel away from the frame. See diagram below.
2. Stretch the panel and center it from end-to-end.

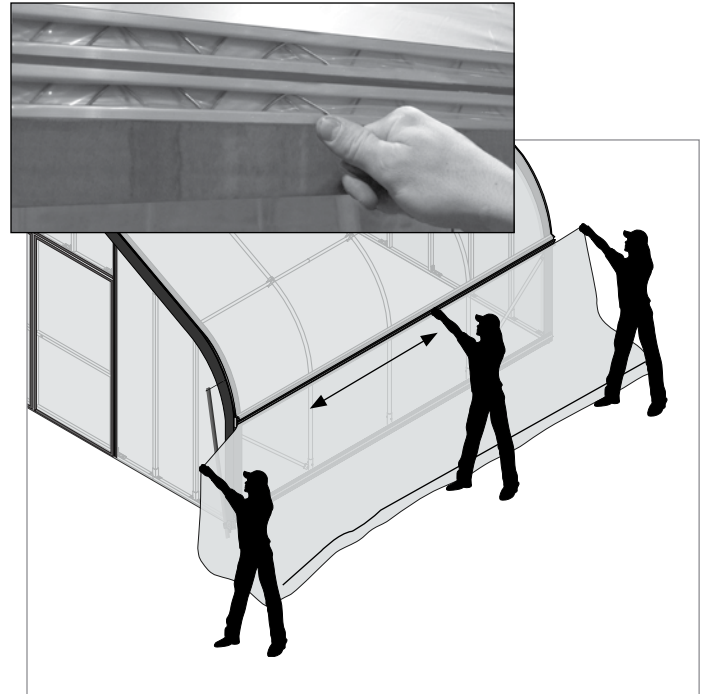


3. With assistance, lift the panel (no pocket) edge up to the lower channel of the double u-channel.

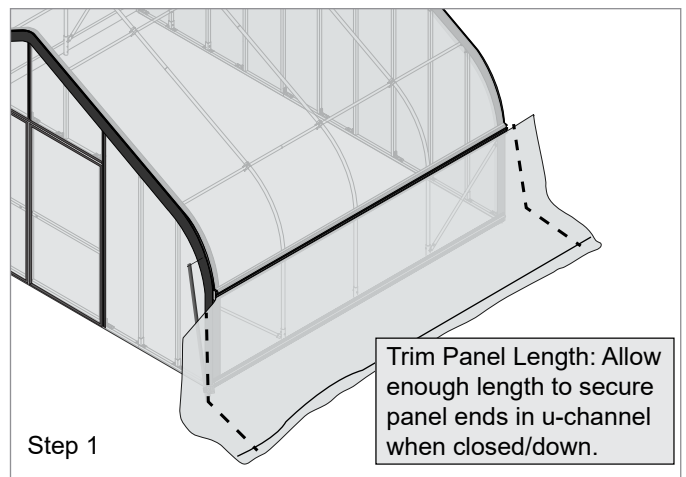


**NOTE:** Keep panel centered and stretched during this step.

4. Secure panel in the lower channel using the 102198A u-channel spring.



**NOTE:** Begin at one end of the u-channel and work toward the other. Verify that the panel is centered on the frame. Roll-up panels are longer than the frame.



5. Trim panel so it is a few inches longer than the frame.
6. With the top edge secured, spread the free/loose edge of the panel (with pocket) out so that it hangs down evenly from the u-channel.
7. Continue with the following roll-up procedures to finish the installation.

***ROLL-UP SIDES —  
ASSEMBLY & INSTALLATION***

**ASSEMBLE THE ROLL-UP SIDE CONDUIT**

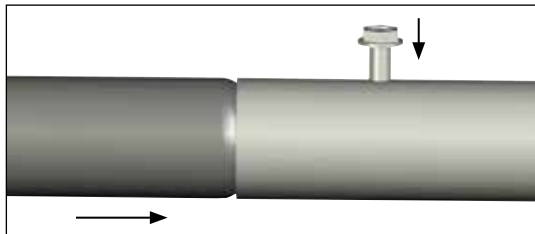
Gather the parts:

- Pipe 1.315" x 75" swaged (131S075)
- Tek screws (FA4482B)

The roll-up side conduit assembly slides into the panel pocket. This assembly runs the length of the frame and serves as the center pipe that the panel wraps around when is open to ventilate the high tunnel.

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

1. Locate all sections of pipe (131S075) needed to assemble the conduit. Consult the Side Profile diagram in the Quick Start section for details.
2. Insert the swaged end of a pipe into the plain end of another pipe.
3. Secure the pipe joint using a Tek screw (FA4482B) and tape over the screw using duct tape.



4. Slide the conduit into the panel pocket and repeat steps 2-3 until the conduit is assembled.
5. Allow approximately 12" to extend from the pocket at the end of the panel where the gearbox will be located. Pipe is trimmed to length once the twist-of-the-wrist assembly is installed and used as a guide.

**ATTENTION:** Consult the *Twist-of-the-Wrist Assembly procedure on the next page for diagrams that show an assembled roll-up side.*

6. Continue with the procedure that follows to attach the conduit to the roll-up side panels using fabric clips.



CC6212  
Fabric Clip

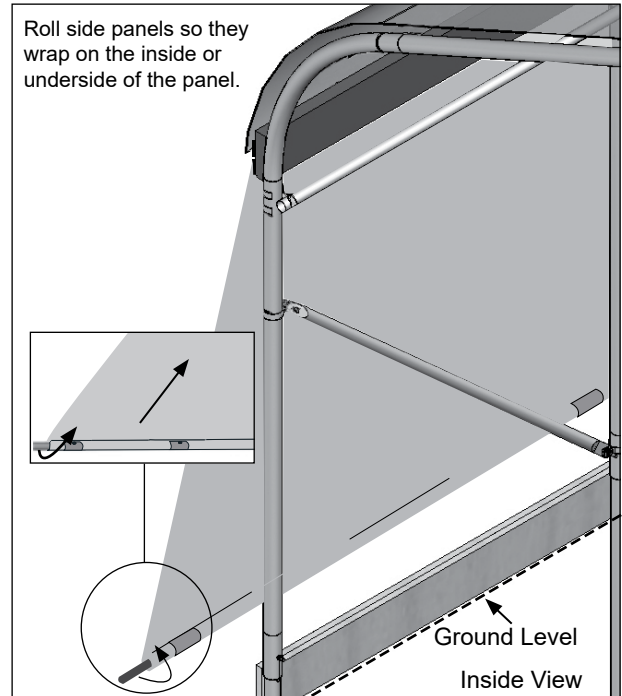
**ATTACH CONDUIT TO ROLL-UP SIDE PANEL**

Gather the parts:

- Fabric clips CC6212 (One for each rafter position.)
- Tek screws (FA4482B)

To this point, the roll-up side panel is secured to and hanging down from the aluminum u-channel. The assembled roll-up conduit is in the panel pocket.

1. Using one CC6212 fabric clip at each rafter and FA4482B screws, secure the panel to the conduit.



**NOTE:** Twist the conduit in a direction that wraps the panel toward the inside of the frame. This allows water to drain off the roll-up panel.

2. Continue to roll the conduit until the excess panel is wound around the conduit and the lower edge is positioned at the base of the frame.
3. Temporarily anchor the conduit and panel to the frame or ground and repeat the steps to complete the installation of the roll-up side panel for the remaining side of the building up to this point.

**ATTENTION: IF THERE IS A CHANCE THAT WIND WILL LIFT THE PANEL DURING THE NEXT PROCEDURE, SKIP TO AND COMPLETE THE "INSTALL THE ANTI-BILLOW ROPE" STEPS THEN RETURN TO AND COMPLETE THE TWIST-OF-THE-WRIST STEPS THAT FOLLOW.**

4. Continue with the installation of the Twist-of-the-Wrist components for the roll-up sides.



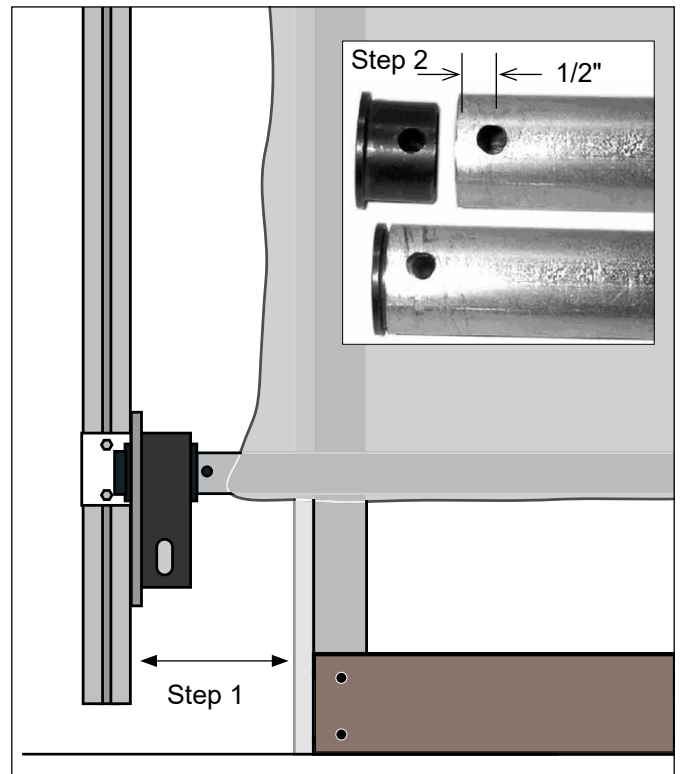
## *ROLL-UP SIDES — ASSEMBLY & INSTALLATION*

### ATTACH ROLL-UP CONDUIT TO GEARBOX

Complete these steps:

1. Using threaded rod and adjusting nuts, adjust position of channel so roll-up conduit can attach to gearbox. Cut the conduit to length if needed.
2. Drill a 5/16" hole through roll-up conduit 1/2" from end that attaches to gearbox. Insert tubing adapter into conduit and align holes.
3. Attach roll-up conduit to square shaft by inserting a 1/4" x 2" carriage bolt (FAH005B) through hole. Add 1/4" nuts (FALB01B) and tighten.
4. Test roll-up curtain assembly and ***roll panel to fully opened (upper) position. Do not allow to remain in lower position at this time.***

**NOTE: DO NOT ROLL PANEL TO ITS CLOSED/DOWN POSITION WITHOUT FIRST INSTALLING ANTI-BILLOW ROPES AS SHOWN IN THE NEXT PROCEDURE.**



5. Repeat steps to install remaining roll-up panel and Twist-of-the-Wrist assembly.
6. Once both assemblies are installed, install anti-billow rope as described in next procedure.

***INSTALL ANTI-BILLOW ROPES (ROLL-UP & DROP-DOWN SIDES)***

**ANTI-BILLOW ROPE INSTALLATION**

TO PREVENT DAMAGE AND POSSIBLE INJURY, INSTALL ANTI-BILLOW ROPES **IN SHORT LENGTHS** ALONG EACH SIDE. DO NOT INSTALL AS A SINGLE LENGTH TIED AT EACH END. DOING SO WILL RESULT IN A LOOSE SIDE PANEL IF SINGLE ROPE BREAKS. **CONSULT THE SIDE PROFILE DIAGRAM FOR YOUR FRAME LENGTH IN THE QUICK START SECTION FOR ROPE PATTERN AND ROPE HOOK LOCATIONS.**

Follow these general steps to attach the 117063 rope hooks and install the anti-billow ropes:

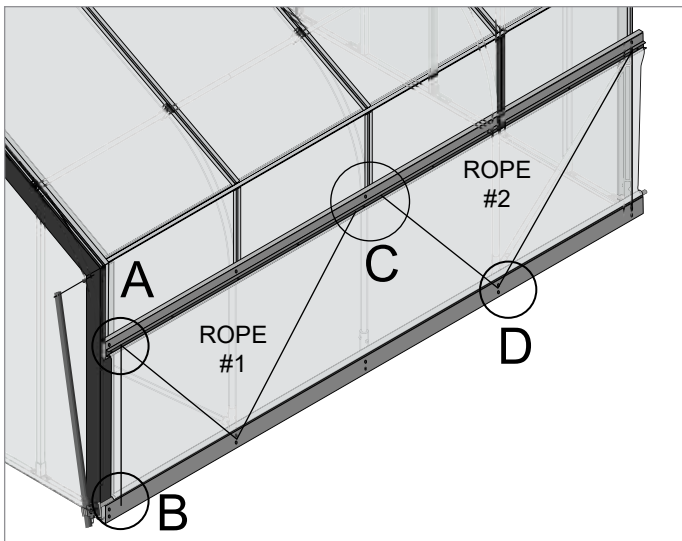
1. Determine the location of rope hooks and the number of anti-billow ropes for each side using the Side Profile diagram in the Quick Start section for your frame length.
2. Attach the 117063 rope hooks using wood screws for wood and Tek screws for metal. Be sure to note where one rope stops and the next rope begins.
3. Take the CC5525 (1/4") rope and install it in short lengths along each side. Pull tight to keep panels in place.
4. Test the operation of the roll-up or drop-down side.
5. Repeat to install the anti-billow rope for the remaining side once the panel is installed.
6. With all anti-billow ropes installed, continue with the next page.



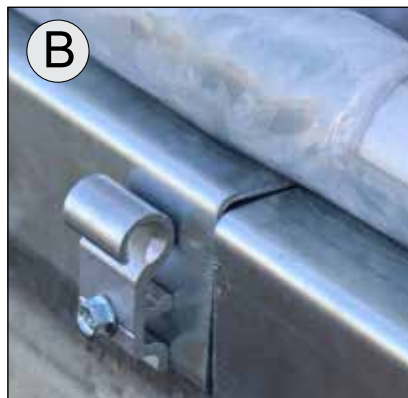
**C**



**D**



**A**



**B**

**NOTE:** In those instances when two ropes terminate at the baseboard or lower position (D), install the rope snaps and rope as shown in these photos.



**INSTALL ROLL-UP END PANEL ROPES**

The roll-up panel ropes lace through the roll-up panel. These ropes wrap around hook lags that are screwed into the sides of the door frame. Ropes help to keep the roll-up panel in place when it is fully or partially closed. These steps describe one way to lace the roll-up panel.

Gather the parts:

- Hook lags (FAX120) — Wood door frame only.
- Rope (CC5525)
- Zipper extension pole (CC2235)

**ATTENTION: SKIP TO STEP 3 IF THE STEEL HEADER KIT WAS PURCHASED AND INSTALLED.**

1. Beginning on the *outside of a door frame*, attach a hook lag between the first two grommet holes below the bracket. Position the open end of the hook lag towards the end panel.

**IMPORTANT:** Screw the hook lags into the sides of the door frame, not the front. *Do not screw into the roll-up panel.*

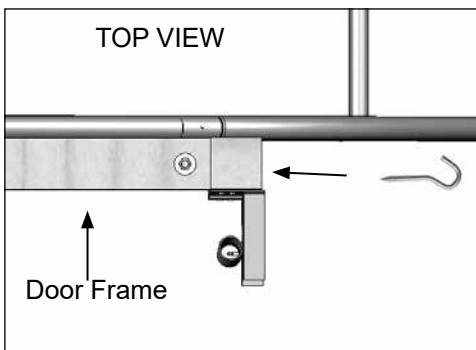
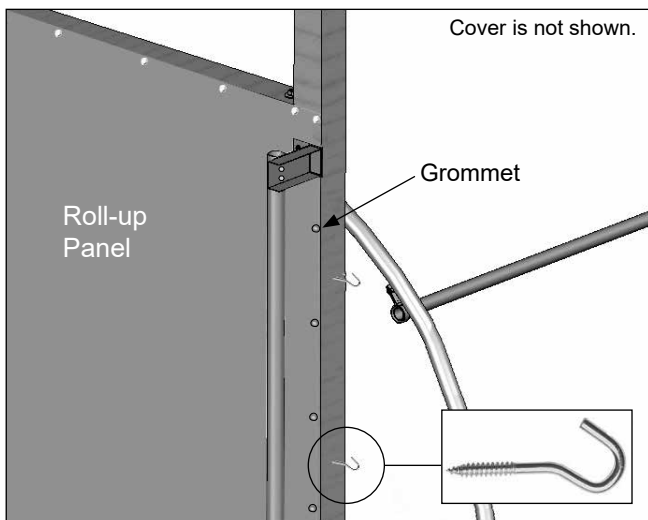
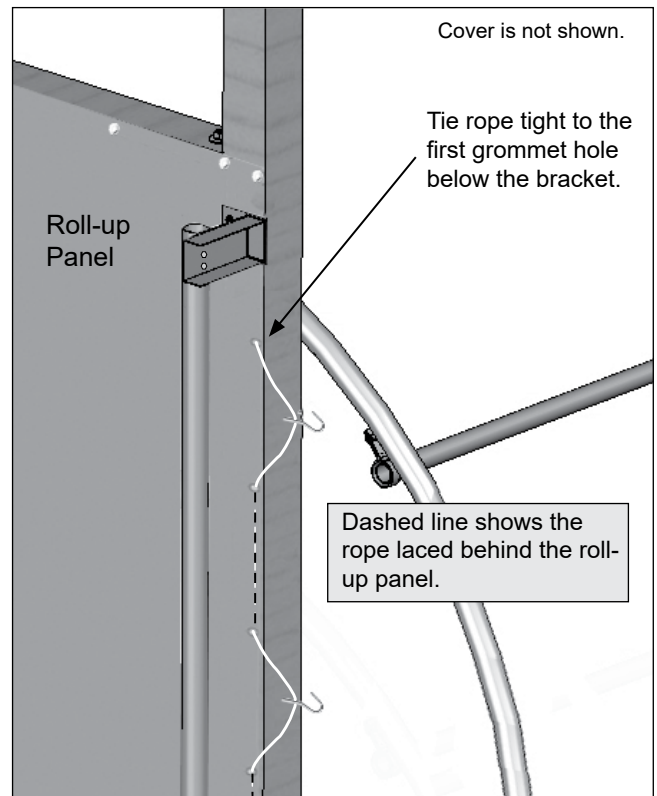


Photo shows the open end of the hook lag facing the end panels.

2. Install a hook lag at every other grommet interval as shown in the diagram below. Use five (5) hooks for each side.



3. Tie a length of rope to the first grommet hole below the guide post bracket, loop it around the first hook lag, and lace it back through the next grommet. Repeat this process until the rope is through the last grommet.



4. Leaving some slack, loosely tie the rope off at the bottom grommet hole.
5. Repeat steps as needed for the other side of the door frame.
6. Once the ropes on both sides are laced and hooked in the correct position, untie the rope at the bottom grommet holes, pull tight to remove excess slack, and tie off at the bottom grommet holes.
7. Repeat for the remaining end.

**NOTE:** Use the included zipper extension pole (CC2235) to unhook the rope to open the roll-up panel. The pole can also be used to loop the rope back onto the hook lags when the roll-up panel is closed.

8. Continue as directed on the next page.

## GROWSPAN™ GOTHIC PREMIUM HIGH TUNNELS

### INSTALL THE RIDGE VENT COVER (ADDITIONAL PURCHASE REQUIRED)

If you purchased the ridge vent kit for your HF model, continue with the steps below to complete the cover installation for the kit. **Skip this section if you did not purchase the additional ridge vent kit.**

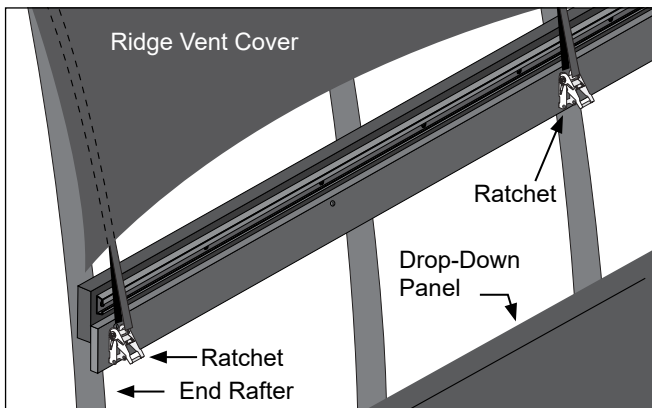
Gather the parts included with ridge vent kit:

- Cover with straps (QC10824x) and ratchets (QH1061)
- Customer-supplied fasteners: *Due to the different materials used for the ribbon board, the customer is responsible for supplying the required fasteners. Consult the advice of a qualified professional contractor if needed.*

**WARNING:** To prevent damage and injury, do not leave the cover unattended if it has not been properly secured.

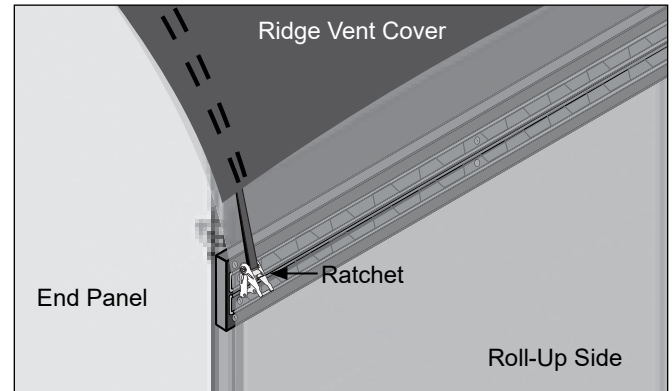
Complete the following steps to install the ridge vent cover.

1. Set ridge vent cover on top of the high tunnel, center the cover, and unfold in both directions toward the ribbon board attached along the sides of the frame.
2. Using the cover straps as a guide, attach two (2) ratchets (QH1061) to the board as shown in the following diagrams.



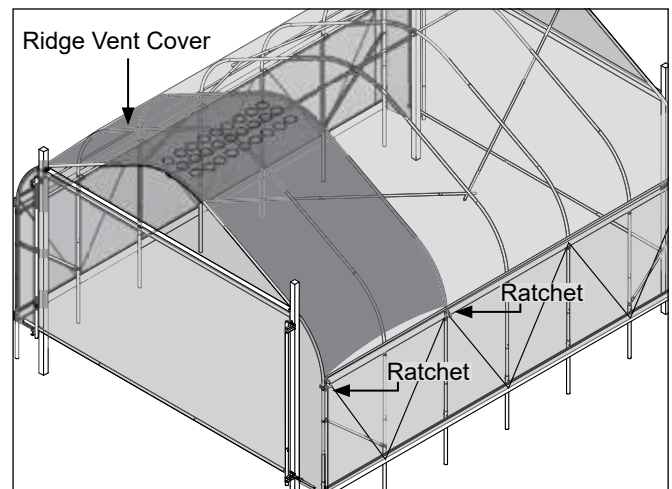
**NOTE: Drop-Down Panel:** Attach the ratchets to the ribbon board below the u-channel using customer-supplied fasteners.

**Roll-Up Side Panel:** Pre-drill through upper u-channel and ribbon board before attaching ratchets using customer-supplied fasteners.

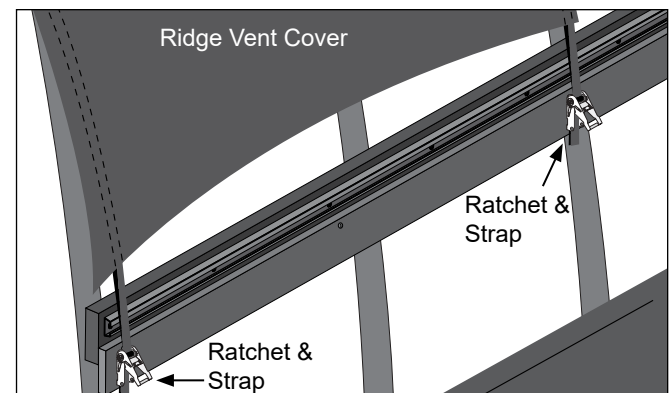


3. Install the remaining two (2) ratchets on the other side of the frame immediately across from the first ratchets installed in Step 2.

*Two (2) QH1061 ratchets are used on each side of the high tunnel to secure one ridge vent cover.*



4. With assistants holding the strap ends along one side of the frame, feed the strap ends on the opposite side through the center slot in each ratchet. Operate the ratchet to wrap the strap onto the center hub just enough to keep the strap secure.



**NOTE:** Do not tighten completely at this time.

**INSTALL THE RIDGE VENT COVER (continued)**

- Repeat the previous steps to secure the opposite side.

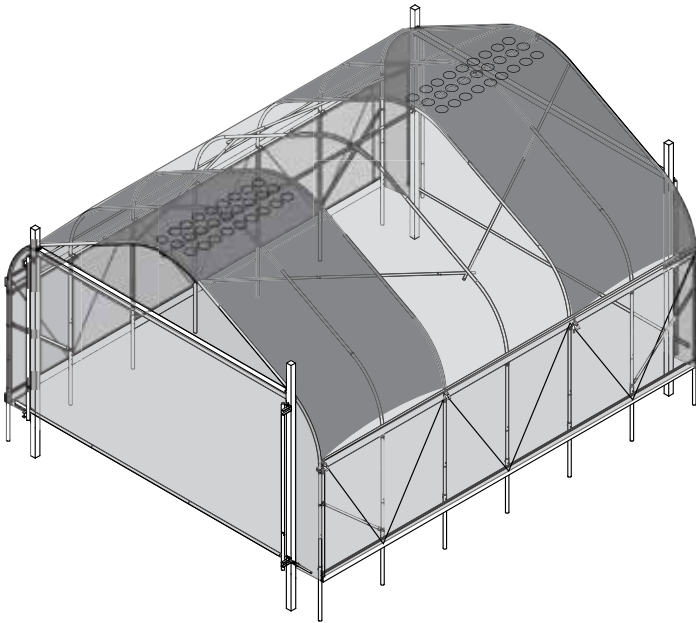


Photo above shows an example of a high tunnel with the ratchets attached and the ridge vent cover secured.

- After all side straps are in place and slightly tightened and the ridge vent cover is centered on the frame, tighten all ratchets evenly.

**NOTE:** Edge of the vent cover will overlap the second rafter and will be snug against the main cover to keep in place.

- Repeat steps to install additional ridge vent cover for the remaining end of the high tunnel. (Additional purchase required.)
- Read the care and maintenance information that follows.

**HIGH TUNNEL CARE AND MAINTENANCE**

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

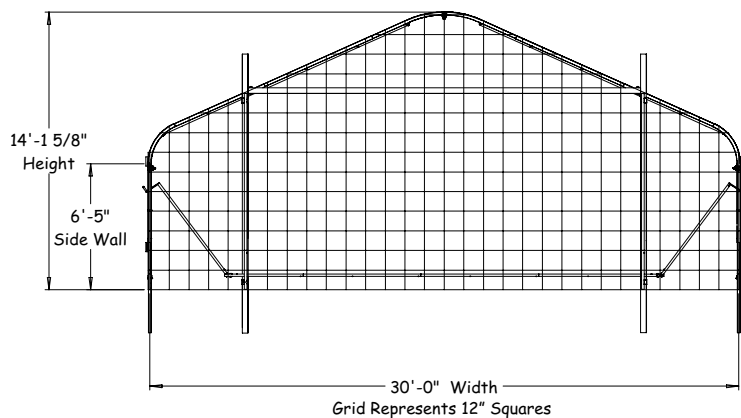
- Regularly check the cover or covers to see that these are tight and in proper repair. Tighten and adjust the tension as needed to prevent damage and wear.
- Check connections and all fasteners to verify that they remain tight and in good condition.
- Do not climb or stand on the high tunnel at anytime.
- Inspect the anchoring system to verify that all components remain tight and in good condition.
- Verify that the roll-up end panel components are in good working condition.
- Do not allow drop-down panel to remain in the down position for extended periods. Raise the panel to allow it to dry and for cleaning.
- Replace anti-billow rope immediately if worn or broken.
- Remove debris and objects that can accumulate on the high tunnel. Use tools that will not damage the cover when removing debris.
- Check the corner baffles periodically to ensure the film is tight and intact. Replace film when needed.
- Remove snow to prevent excess accumulation. Use tools that will not damage the cover when removing snow.
- Check the contents of the high tunnel to verify that nothing is touching the cover that could cause damage.
- If the high tunnel is dismantled and moved, inspect all parts and connections before using.
- Depending on the contents, construction of the high tunnel, high tunnel materials, and 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.





**QUICK START GUIDE**

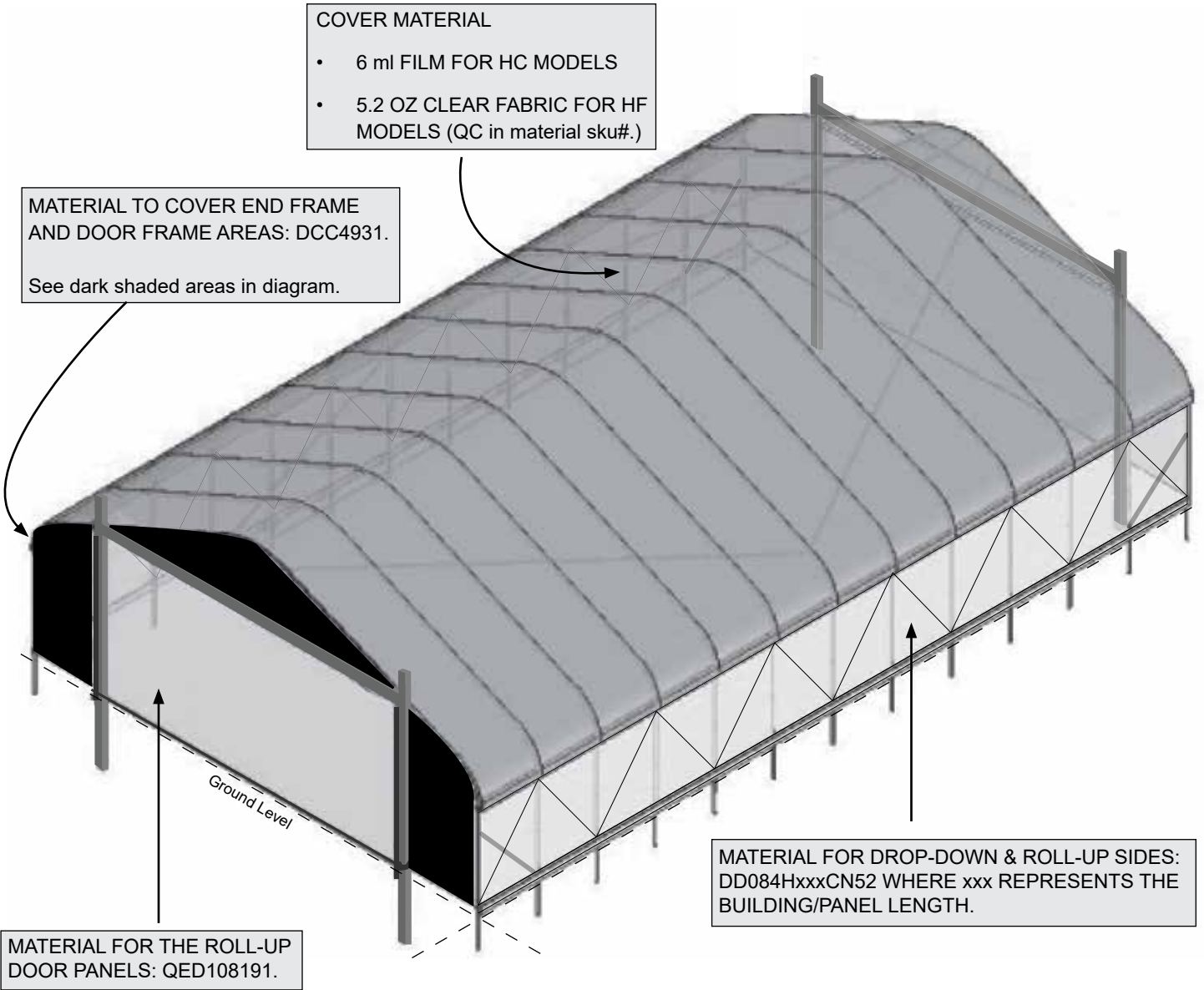
30' Gothic Premium High Tunnels



**COVER MATERIAL**

- 6 ml FILM FOR HC MODELS
- 5.2 OZ CLEAR FABRIC FOR HF MODELS (QC in material sku#.)

MATERIAL TO COVER END FRAME AND DOOR FRAME AREAS: DCC4931.  
See dark shaded areas in diagram.



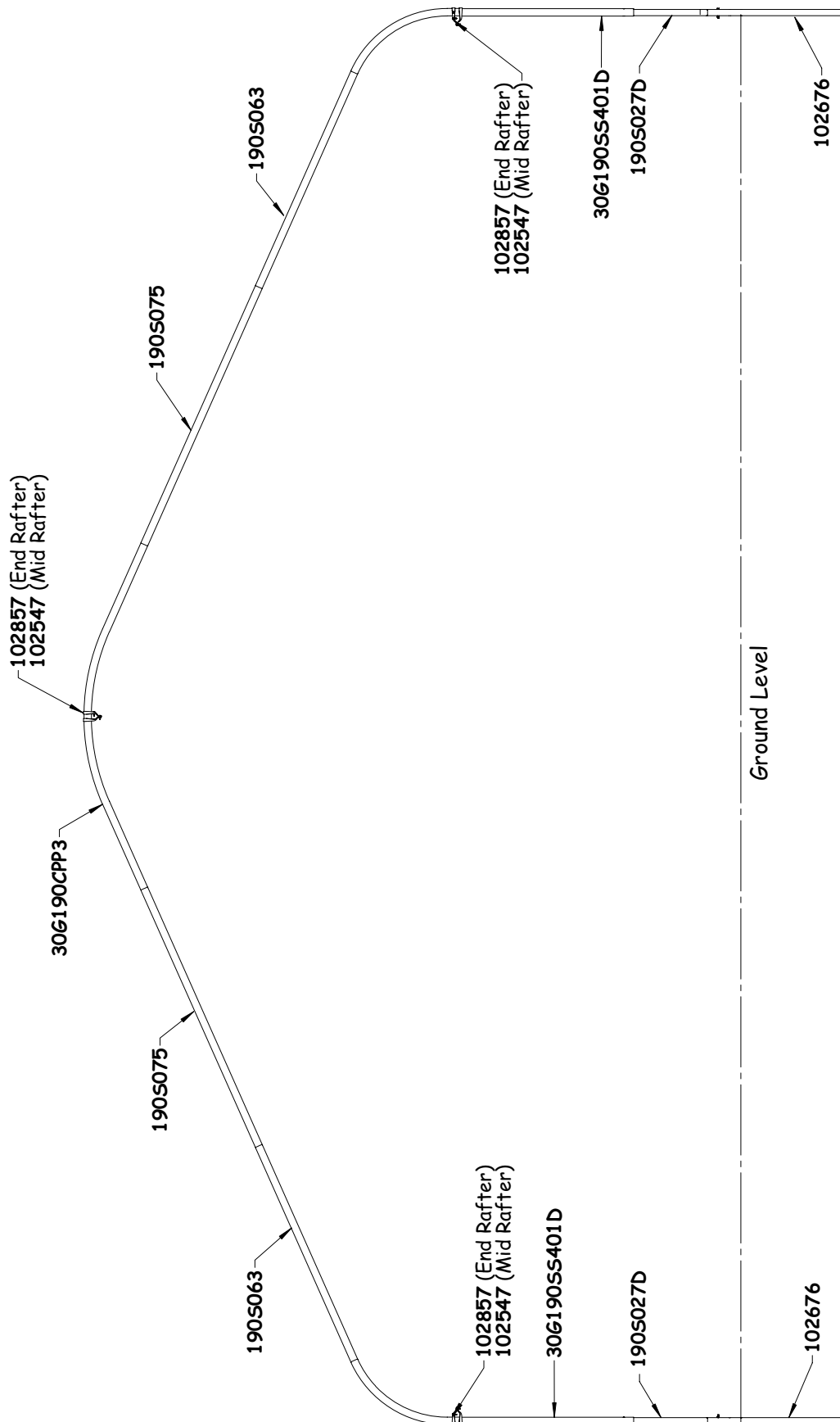
MATERIAL FOR DROP-DOWN & ROLL-UP SIDES: DD084HxxxCN52 WHERE xxx REPRESENTS THE BUILDING/PANEL LENGTH.

MATERIAL FOR THE ROLL-UP DOOR PANELS: QED108191.

**MATERIAL IDENTIFICATION DIAGRAM**

Frame shown may differ in length from actual frame.

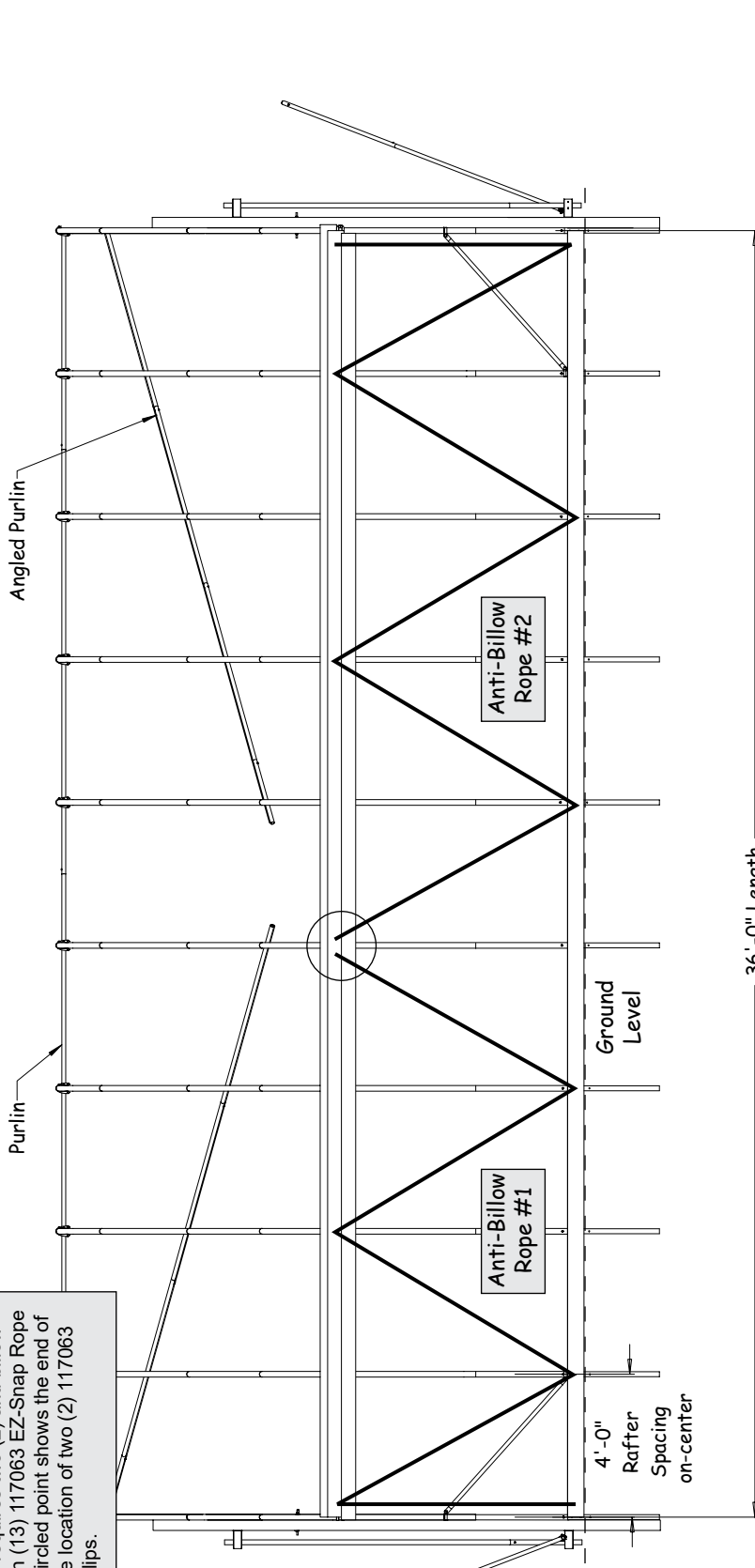
# FRONT PROFILE



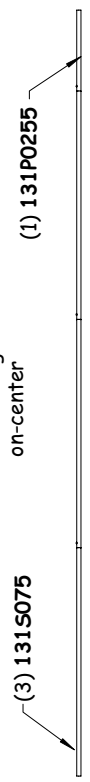


# SIDE PROFILE - 108190H

**ANTI-BILLOW ROPES PER SIDE**  
 This frame length requires two (2) anti-billow ropes and thirteen (13) 117063 EZ-Snap Rope Clips **per side**. Circled point shows the end of each rope and the location of two (2) 117063 EZ-Snap Rope Clips.



**ATTENTION: TO PREVENT DAMAGE AND POSSIBLE INJURY, INSTALL THE ANTI-BILLOW ROPE IN SHORT LENGTHS ALONG EACH SIDE OF THE FRAME. DO NOT INSTALL AS A SINGLE LENGTH TIED AT EACH END. DOING SO WILL RESULT IN A LOOSE SIDE PANEL SHOULD THE ROPE BREAK DURING STRONG WINDS.**



**Angle Purlin Assembly**

(5) 131S075 & (1) 131P0735

**Purlin Assembly**

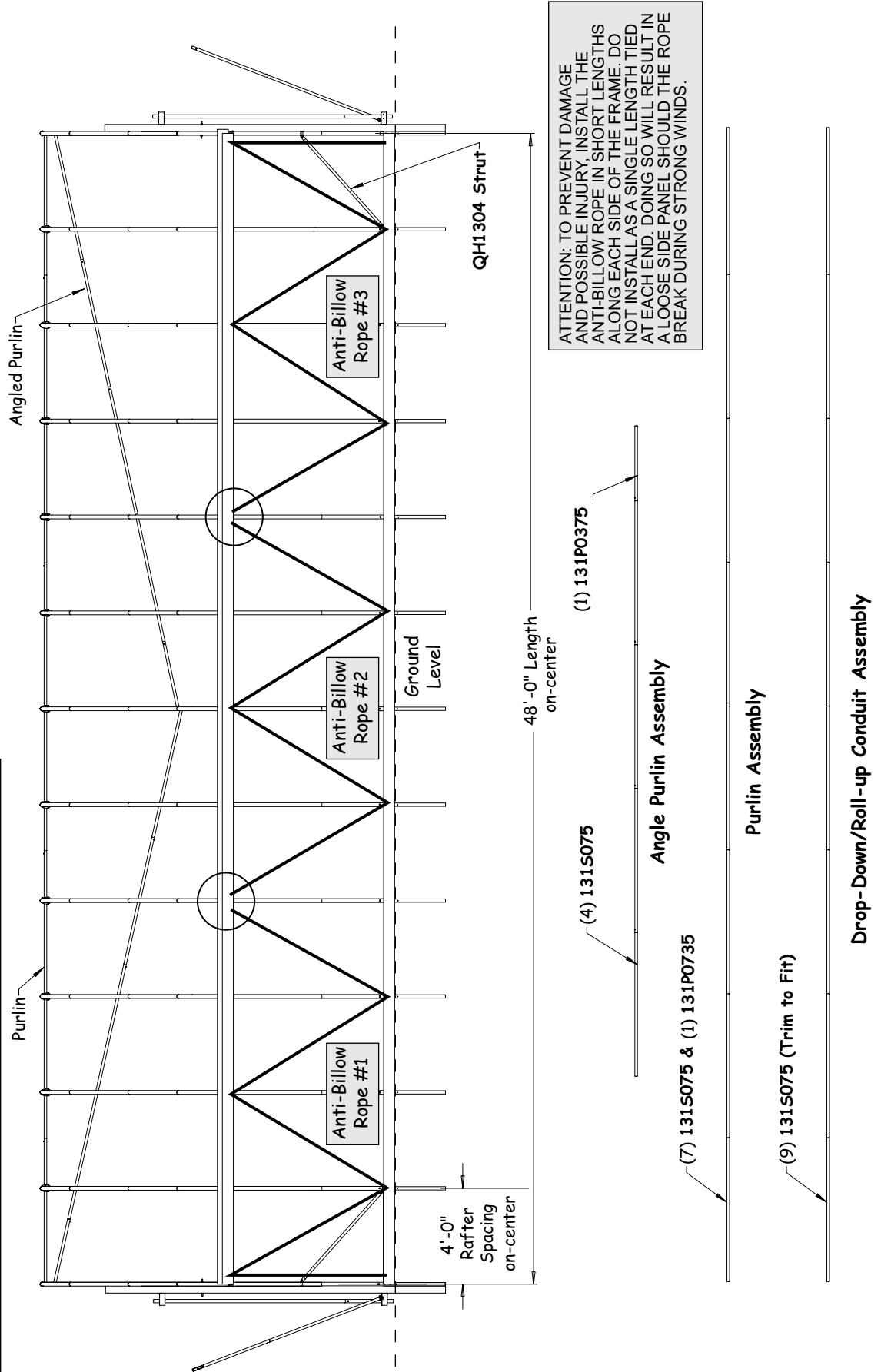
(7) 131S075 (Trim to Fit)

**Drop-Down/Roll-up Conduit Assembly**

# SIDE PROFILE - 108191H

## ANTI-BILLOW ROPES PER SIDE

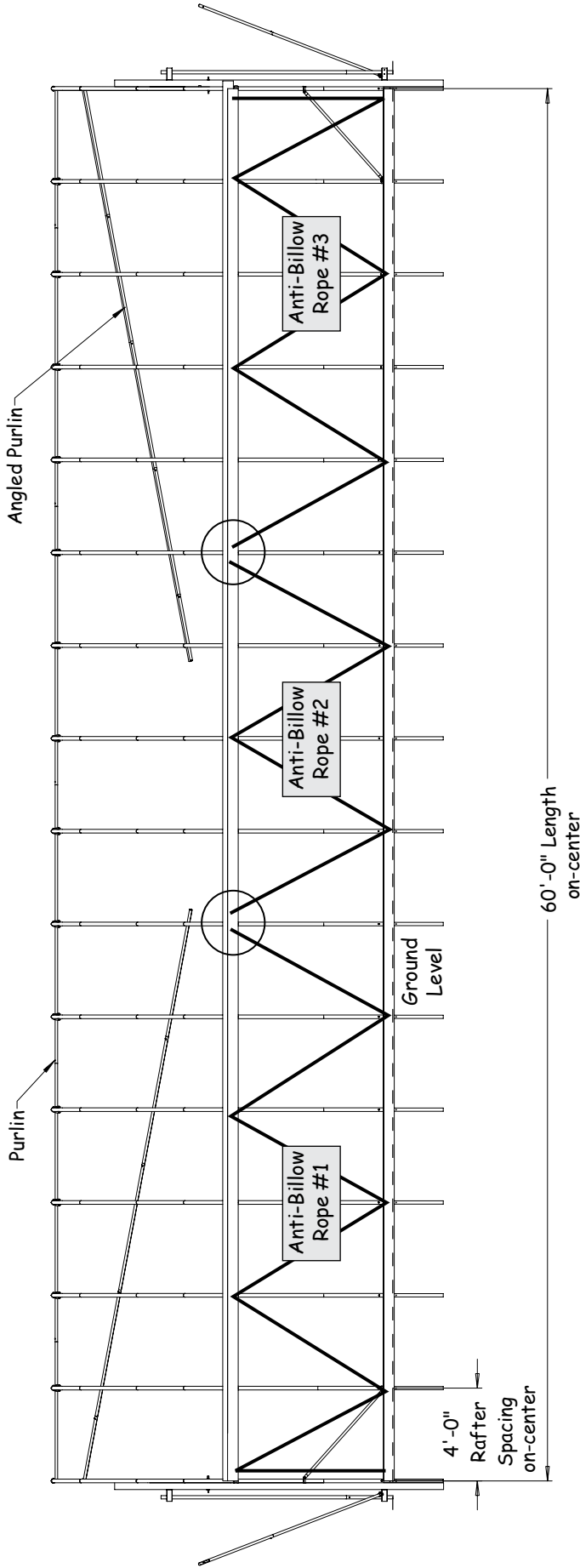
This frame length requires three (3) anti-billow ropes and seventeen (17) 117063 EZ-Snap Rope Clips **per side**. Circled point shows the end of each rope and the location of two (2) 117063 EZ-Snap Rope Clips.



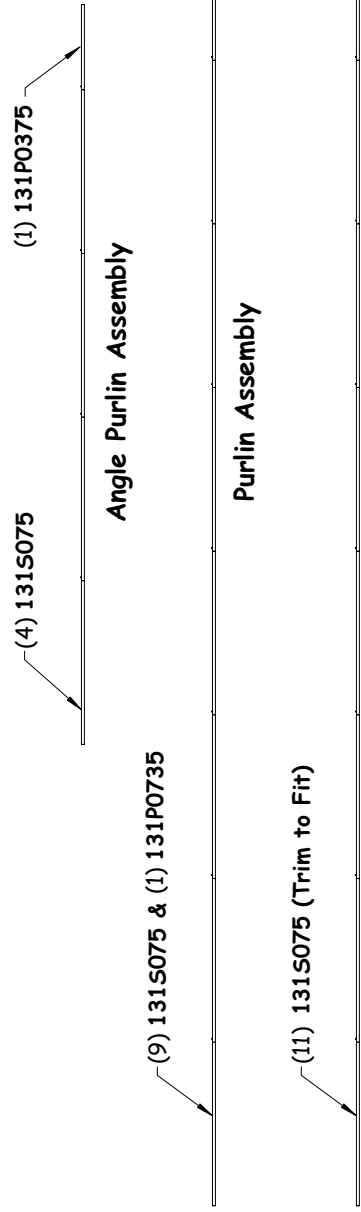
# SIDE PROFILE - 108192H

## ANTI-BILLOW ROPES PER SIDE

This frame length requires three (3) anti-billow ropes and twenty (20) 117063 EZ-Snap Rope Clips *per side*. Circled point shows the end of each rope where two (2) 117063 EZ-Snap Rope Clips are installed.



ATTENTION: TO PREVENT DAMAGE AND POSSIBLE INJURY INSTALL THE ANTI-BILLOW ROPE IN SHORT LENGTHS ALONG EACH SIDE OF THE FRAME. DO NOT INSTALL AS A SINGLE LENGTH TIED AT EACH END. DOING SO WILL RESULT IN A LOOSE SIDE PANEL SHOULD THE ROPE BREAK DURING STRONG WINDS.

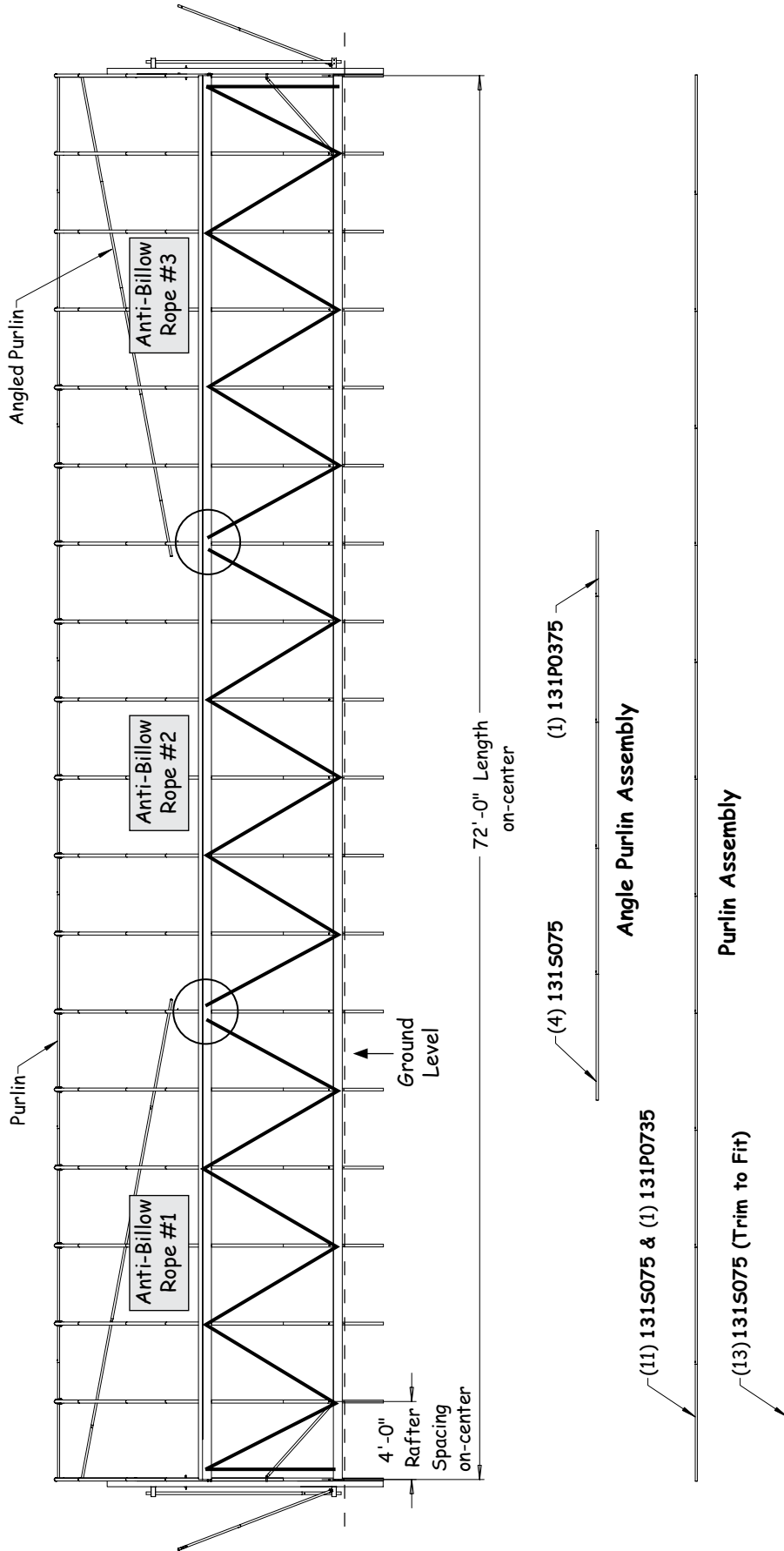


Drop-Down/Roll-up Conduit Assembly

# SIDE PROFILE - 108193H

## ANTI-BILLOW ROPES PER SIDE

This frame length requires three (3) anti-billow ropes and twenty-three (23) 117063 EZ-Snap Rope Clips *per side*. Circled point shows the end of each rope where two (2) 117063 EZ-Snap Rope Clips are installed.



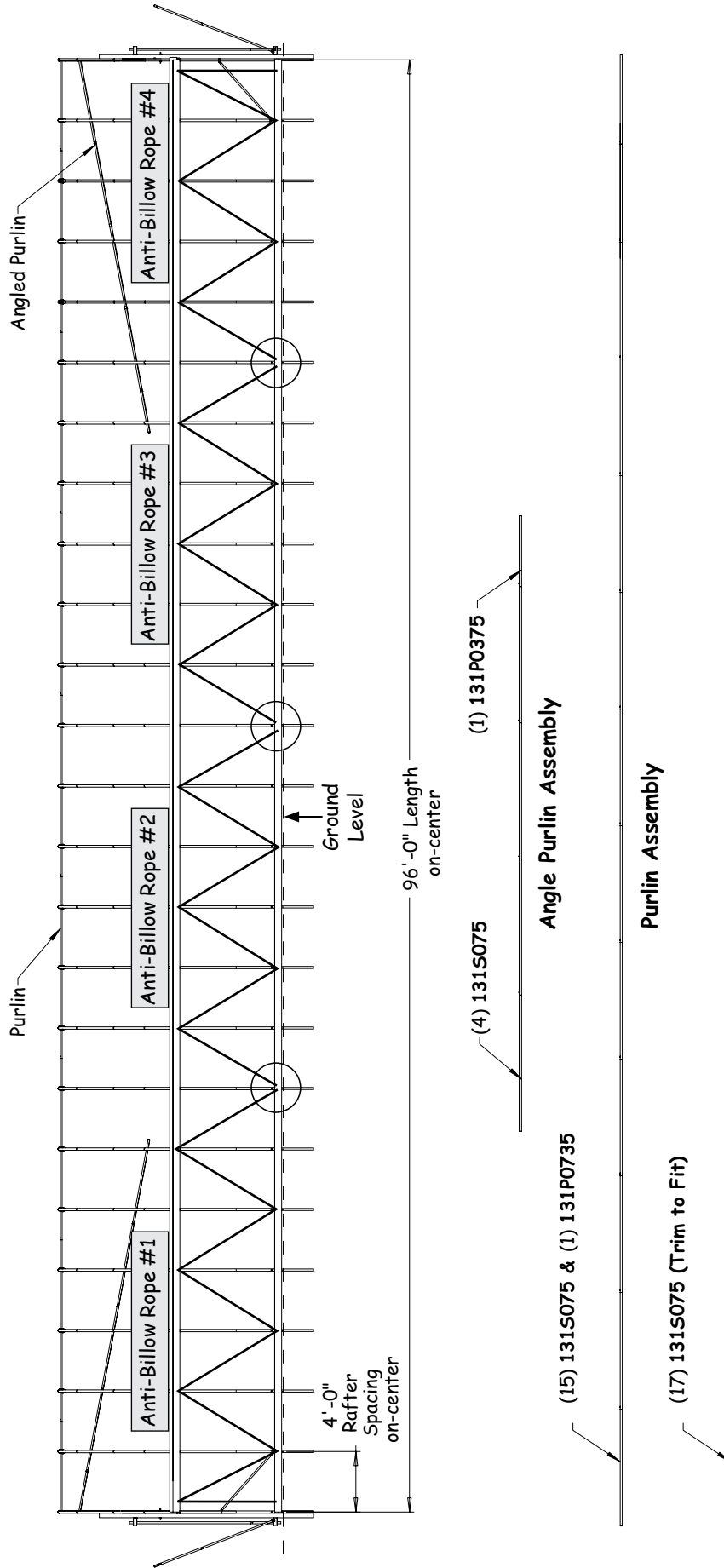
ATTENTION: TO PREVENT DAMAGE AND POSSIBLE INJURY, INSTALL THE ANTI-BILLOW ROPE IN SHORT LENGTHS ALONG EACH SIDE OF THE FRAME. DO NOT INSTALL AS A SINGLE LENGTH TIED AT EACH END. DOING SO WILL RESULT IN A LOOSE SIDE PANEL SHOULD THE ROPE BREAK DURING STRONG WINDS.

## Drop-Down/Roll-up Conduit Assembly

# SIDE PROFILE - 108194H

## ANTI-BILLOW ROPES PER SIDE

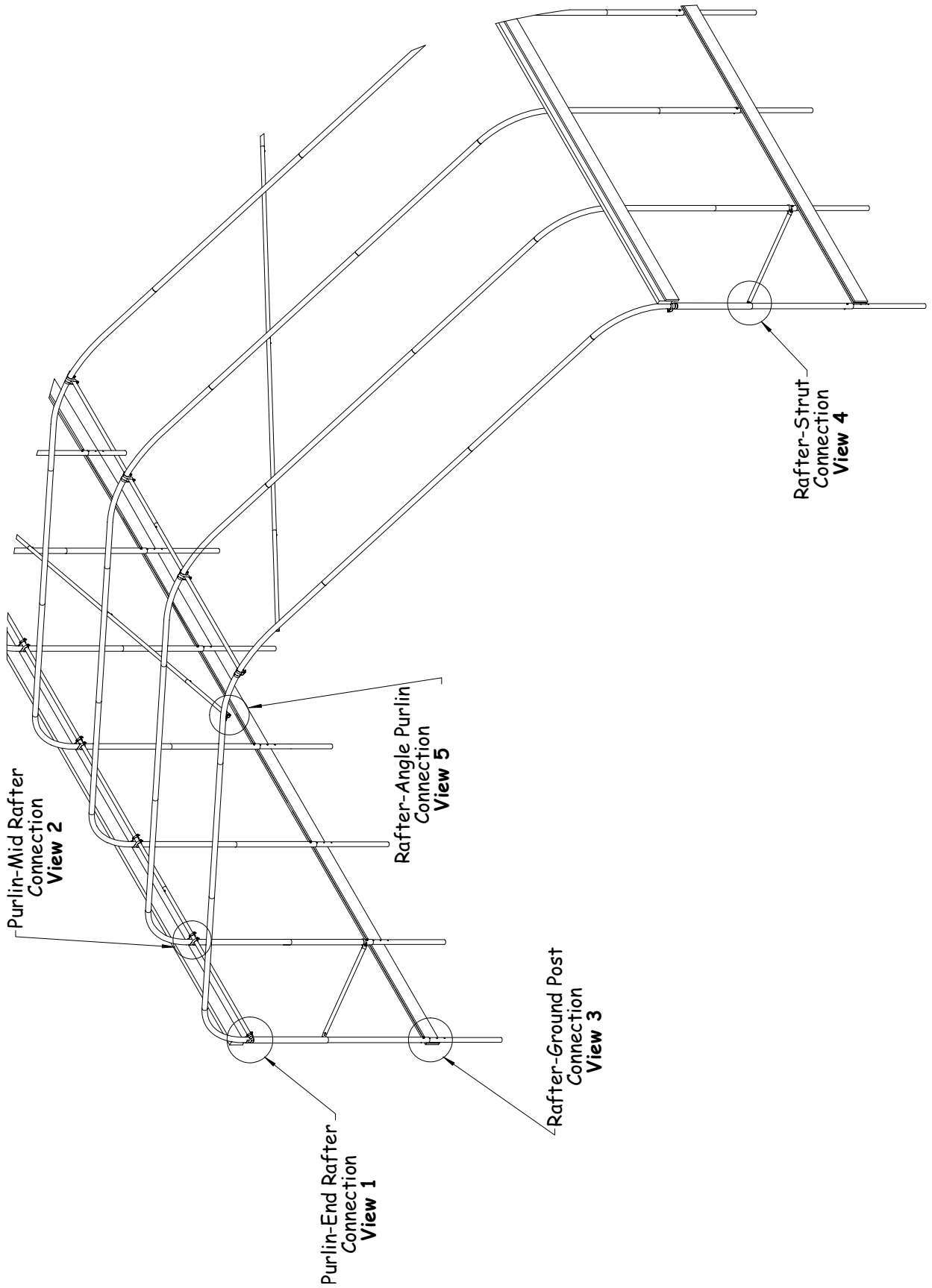
This frame length requires four (4) anti-billow ropes and thirty (30) 117063 EZ-Snap Rope Clips *per side*. Circled point shows the end of each rope where two (2) 117063 EZ-Snap Rope Clips are installed.



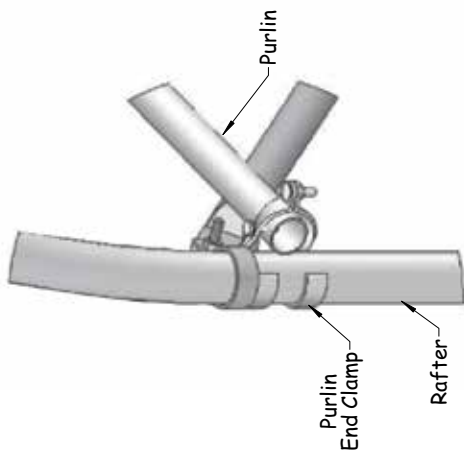
ATTENTION: TO PREVENT DAMAGE AND POSSIBLE INJURY, INSTALL THE ANTI-BILLOW ROPE IN SHORT LENGTHS ALONG EACH SIDE OF THE FRAME. DO NOT INSTALL AS A SINGLE LENGTH TIED AT EACH END. DOING SO WILL RESULT IN A LOOSE SIDE PANEL SHOULD THE ROPE BREAK DURING STRONG WINDS.

Drop-Down/Roll-up Conduit Assembly

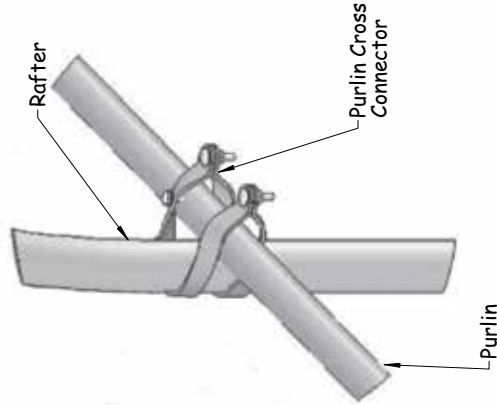
# CONNECTIONS



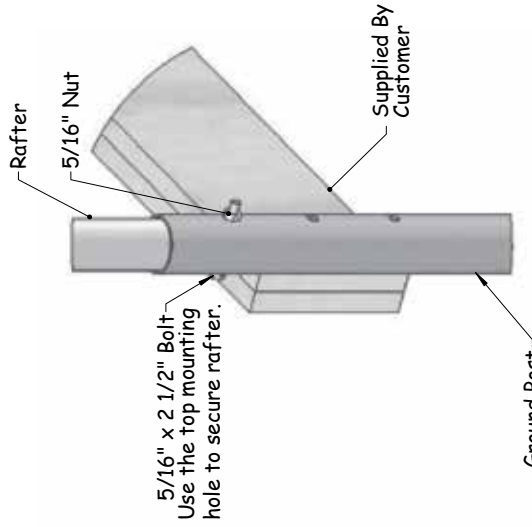
# CONNECTION - DETAILS



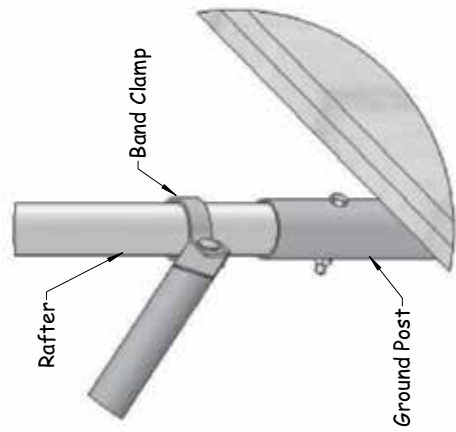
**View 1**  
Purlin-End Rafter  
Connection



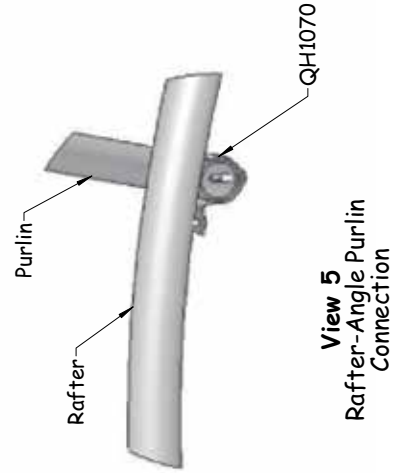
**View 2**  
Purlin-Mid Rafter  
Connection



**View 3**  
Rafter-Ground Post  
Connection

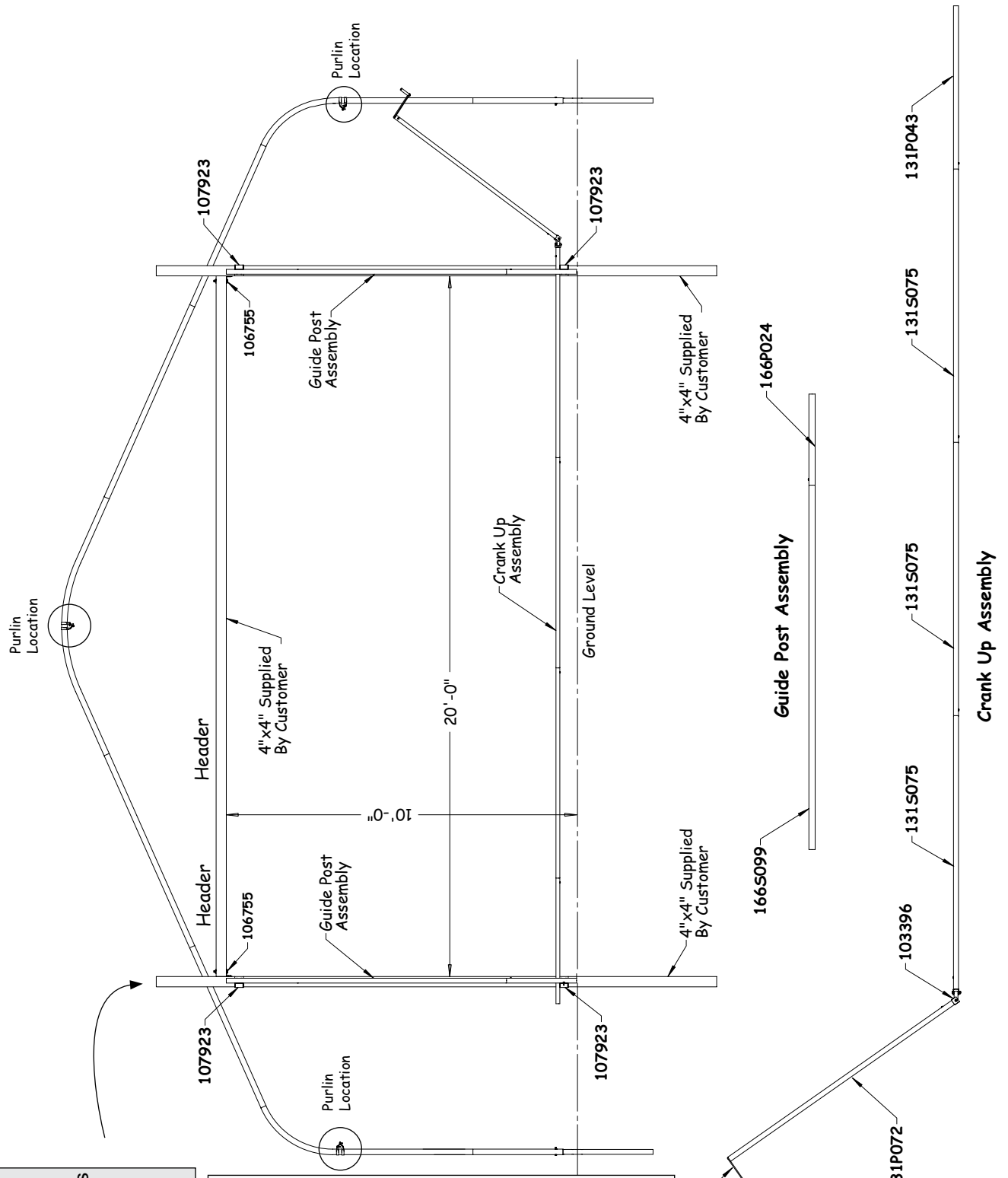


**View 4**  
Rafter-Strut  
Connection



**View 5**  
Rafter-Angle Purlin  
Connection

# END FRAMING



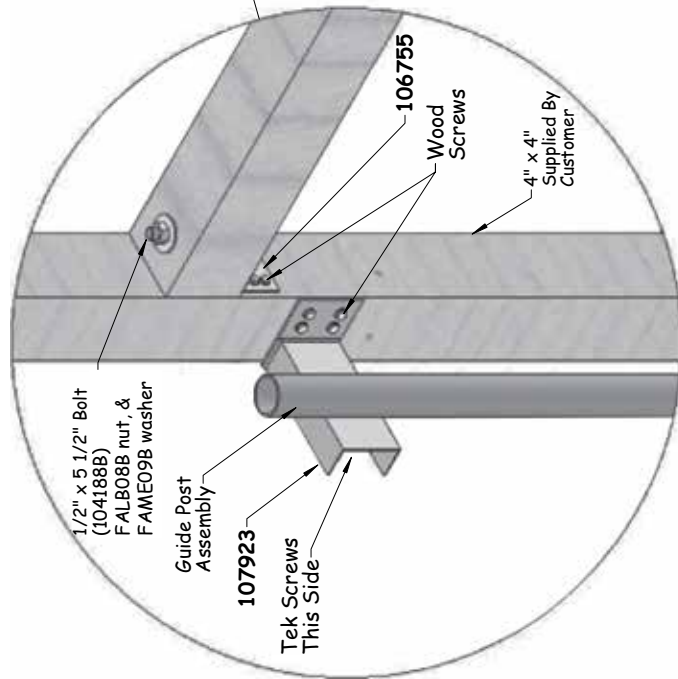
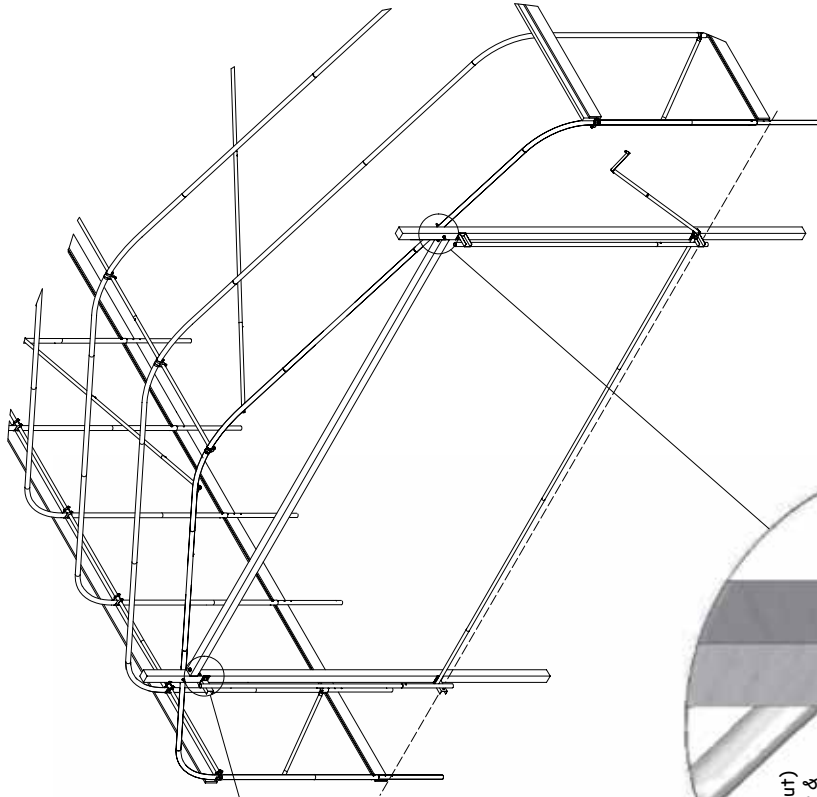
**ATTENTION:** Construct the end wall frame as shown with the vertical jambs extending above the header 18" to 24". This provides an anchor point for cables if you decide to install them now or in the future.

**CUSTOMER-SUPPLIED END FRAME:** Construct the end frame for the roll-up end panel using 4" x 4" wood posts. The door frame materials are supplied by the customer. If quality 4" x 4" lumber at the lengths needed is not available, construct 2-ply wood beams using 2" x 6" boards secured together with exterior grade bolts and nuts. Center the doorframe in the end wall and dig the holes for the doorjambs.

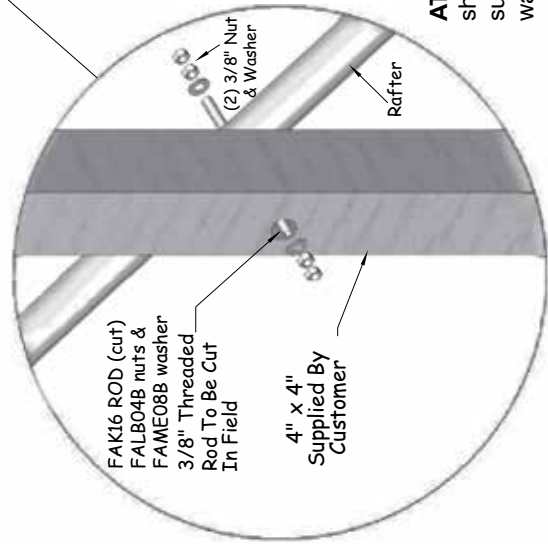
**Stagger all joints. Do not align. Use treated lumber and set in concrete for best results.**



# END FRAMING - CONNECTION DETAILS



Threaded rod and rafter are not shown. Roll-up door panel is not shown.



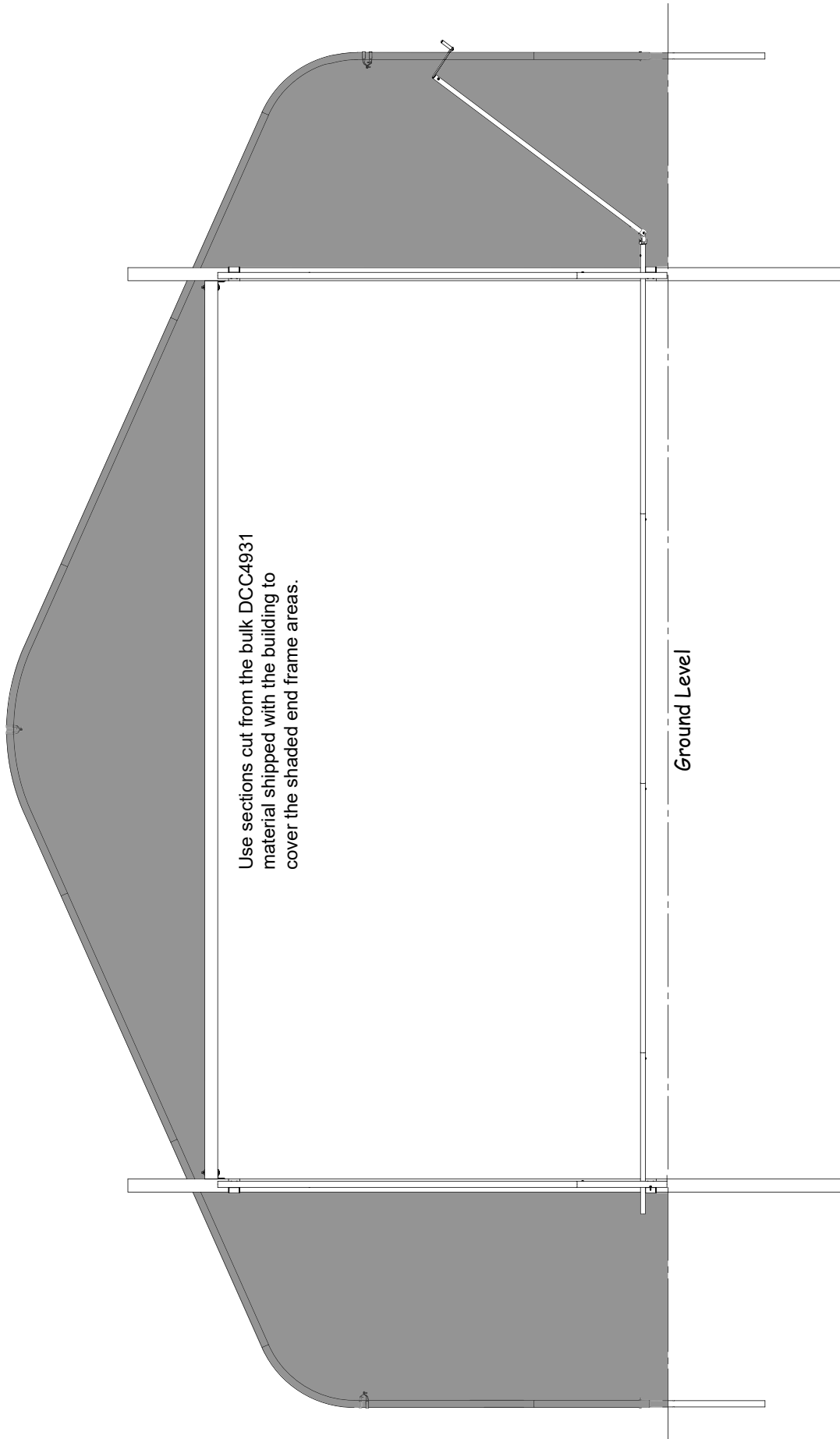
End of threaded rod must be below surface of support.

**ATTENTION:** Roll-up door panel is not shown. Sink threaded rod below the surface of the customer-supplied end wall post. See details on page 18.

**CUSTOMER-SUPPLIED END FRAME:** Construct the end frame for the roll-up end panel using 4" x 4" wood posts. The doorframe materials are supplied by the customer. If quality 4" x 4" lumber at the lengths needed is not available, construct 2-ply wood beams using 2" x 6" boards secured together with exterior grade bolts and nuts. Center the doorframe in the end wall and dig the holes for the doorjambes.

**Stagger all joints. Do not align. Use treated lumber and set in concrete for best results.**

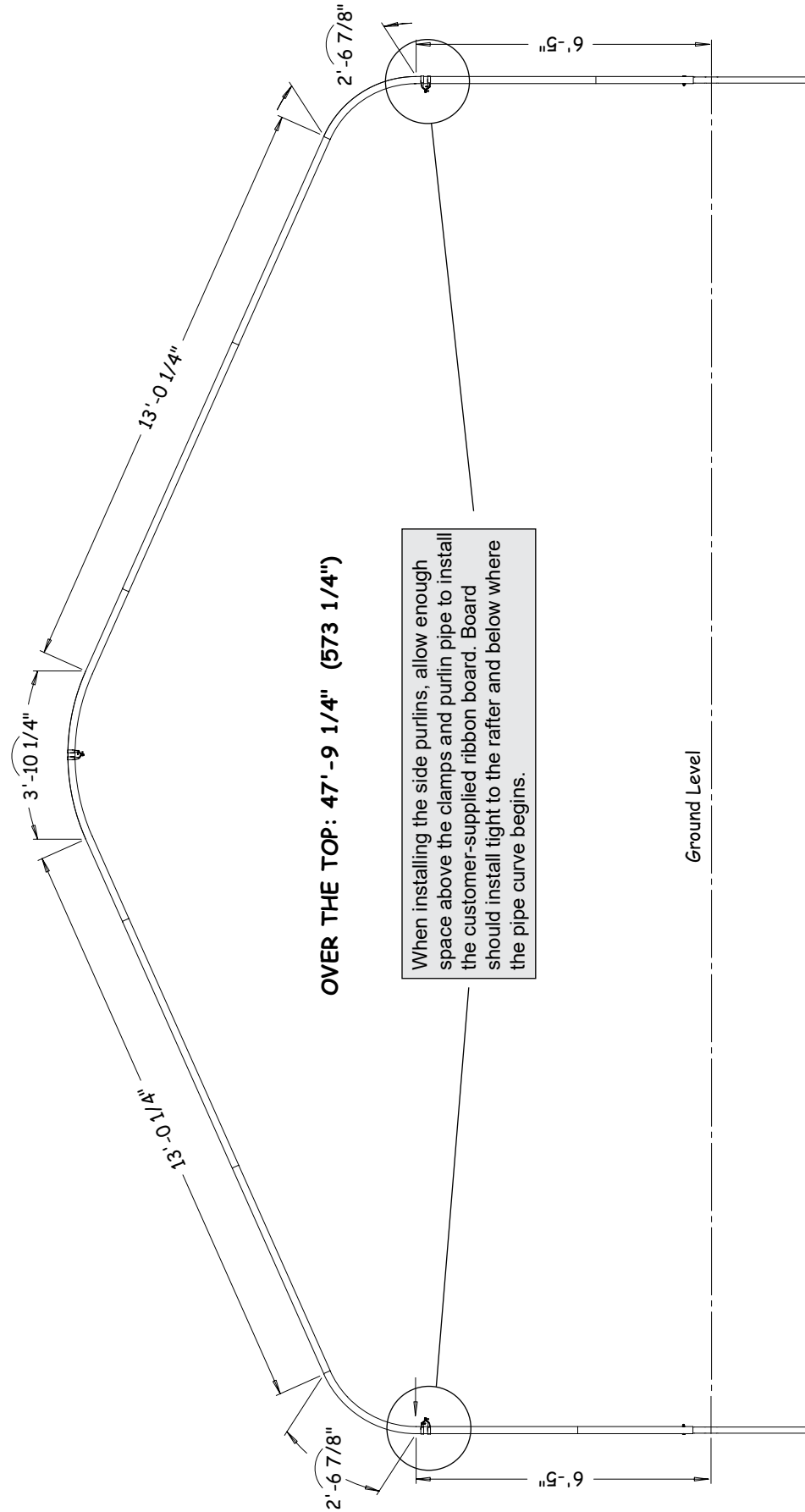
# END PANEL LOCATION DIAGRAM



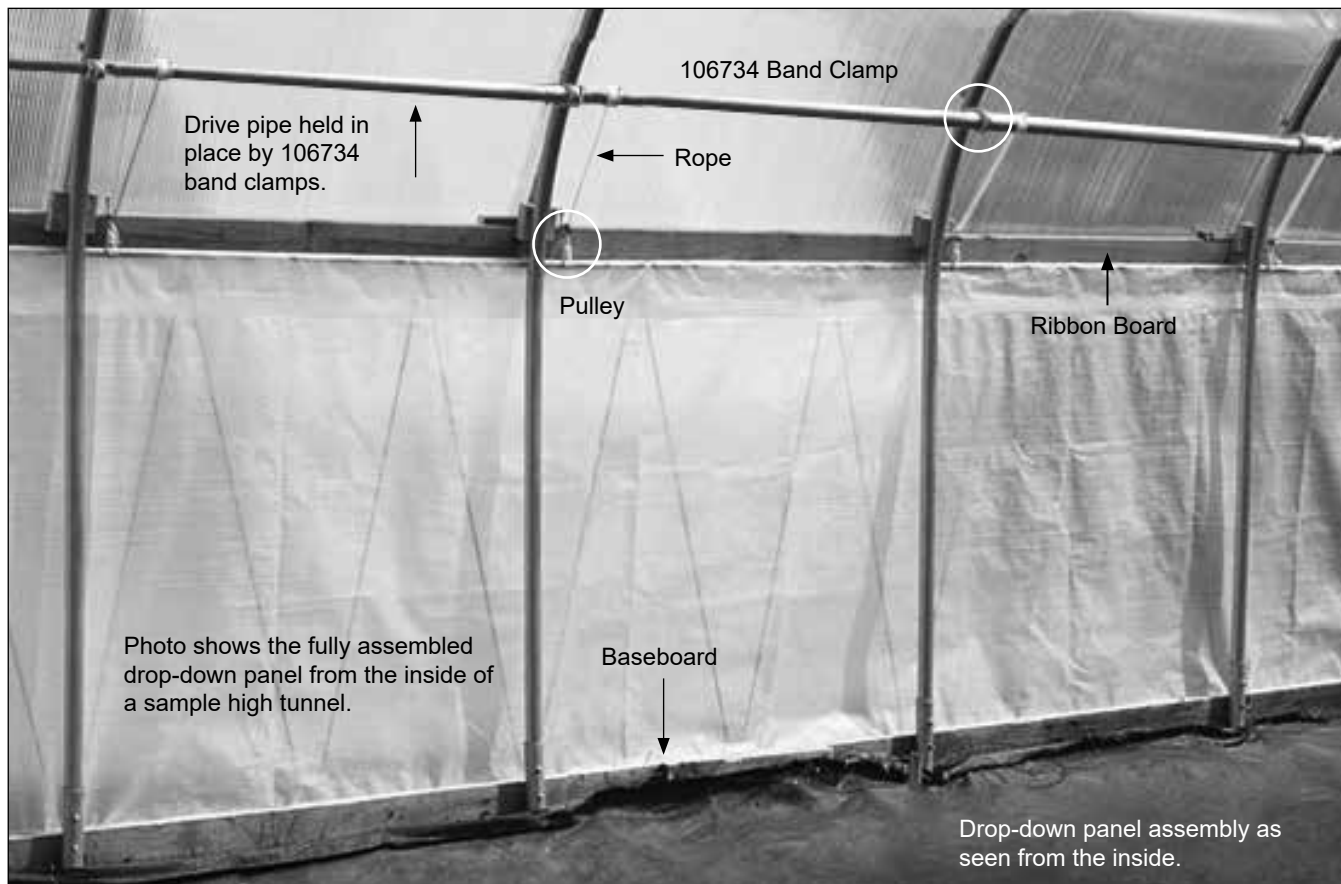
**ATTENTION:** The shaded areas above identify where to install the end panel material. Measure each area, cut a section from the bulk DCC4931 material, and attach the material to the end frame using FA4482B Tek screws and 102921B washers.

For best results, cut a rectangular piece of material to cover a section and trim the piece to size after attaching it to the frame.

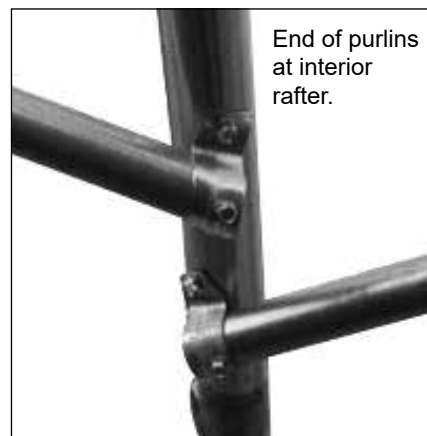
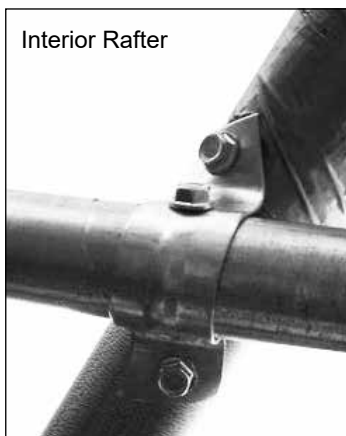
# MAIN COVER DETAILS



**ADDITIONAL PHOTOS PAGE**

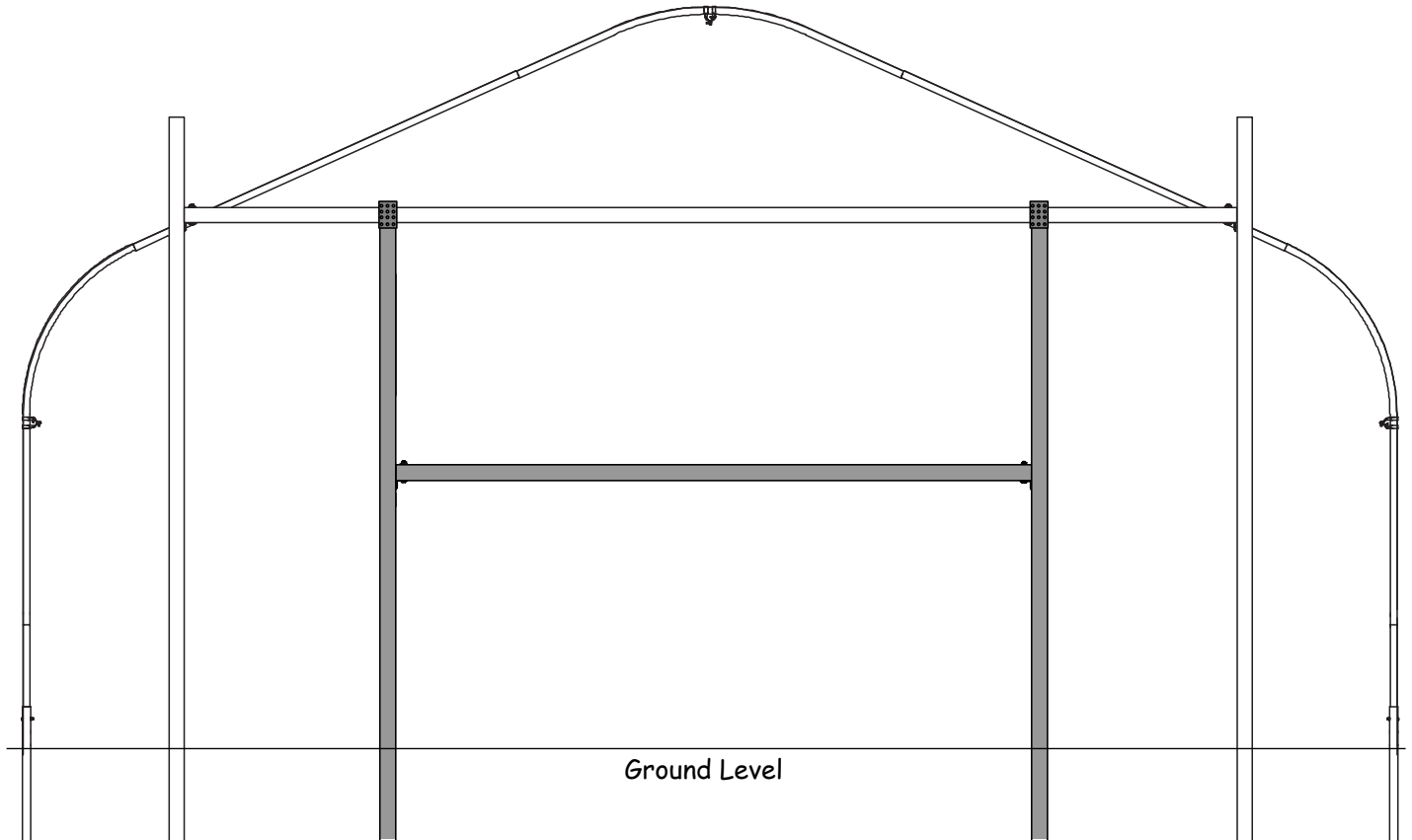


The above photo shows a typical drop-down side panel as installed on a sample building. This photo applies to buildings equipped with drop-down sides only. It does not apply to buildings equipped with roll-up sides.



The above photo shows how to secure the angled purlin to the underside of the assembled rafters and frame. Use FA4482B Tek screws and QH1070 pipe straps.

## Suggestions: Winterizing the High Tunnel



Using customer-supplied materials, create "H" bracing within the roll-up end panel frame to support the panel during winter months and strong winds. Secure horizontal support using pins for easy removal. Vertical bracing can remain throughout the year if spaced according to needs.

For added cold protection below ground, bury 2" foam insulation board down to the frost line around the perimeter of the building. Consult a qualified construction contractor **before erecting the high tunnel** to determine how best to install the customer-supplied 2" insulation board.

