



**ClearSpan™ Storage Master
Solarguard™ Buildings
20' Wide**



Photo may show a different but similar model.

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

STK#	DIMENSIONS
PB02570R6_1D	20' W x 24' L

Revision date: 05.01.23



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

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

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

SAFETY PRECAUTIONS

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

ANCHORING INSTRUCTIONS

Prior to assembling this shelter, please read the anchoring precautions and instructions included with the kit. Anchoring instructions are included in the **MUST READ** document. *You must anchor the building after the frame is assembled and before the cover is installed.*

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

LOCATION

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

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

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

SITE

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

- The support structure must be level to properly and safely erect and anchor the frame.
- If the site is not level, use footing to provide a secure base for the structure. Pre-cast concrete blocks, pressure-treated wood posts, or poured footings are all acceptable when properly used.
- Drainage: Water draining off the structure and from areas surrounding the site should drain away from the site to prevent damage to the site, the structure, and contents of the structure.

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

ASSEMBLY PROCEDURE

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

The steps outlining the assembly process are as follows:

1. Verify that all parts are included in the shipment. Notify Customer Service for questions or concerns.
2. Read these instructions, the Must Read document, and all additional documentation included with the shipment **before** you begin assembling the shelter.
3. Gather the tools, bracing, ladders (and lifts), and assistants needed to assemble the shelter.
4. Check the weather **before** you install the roof cover and any panels (if equipped). Do not install covers or panels on a windy or stormy day.
5. Re-evaluate the location and site based on the information and precautions presented in the documentation included with the shipment.
6. Lay out the site (if this has not been completed).
7. Assemble the frame components in the order they are presented in these instructions.
8. Assemble the frame including the bracing (if equipped).
9. Consult the Must Read document for anchoring comments and instructions.
10. Install, tighten, and secure the end panel (if equipped) and main cover. This applies to fabric covers that stretch over the frame assembly.
11. Read the care and maintenance information at the end of these instructions.
12. Complete and return all warranty information as instructed.

LIST OF WORDS AND PHRASES

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

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

- **Chord:** The assembly of pipes that spans from one rafter leg to the other (on the same rafter assembly). For strength, brackets are used to attach struts between the chord and the rafter.
- **Conduit:** An assembly of pipes used to secure the main cover and end panels (if equipped). Purlins and some strut assemblies also consist of connected pipes to form a conduit. Each pipe joint of a conduit assembly is secured with a self-tapping Tek screw.
- **Coupler or Fitting:** A part of the frame assembly where legs, purlins and rafter pipes are inserted and secured. In most instances, 3-way and 4-way couplers are used. In some larger applications, couplers are used to secure the joints of the different rafter sections during the assembly of the rafters. Some shelters do not use couplers.
- **Foot, Rafter Foot , or Base Plate:** The part attached to and found at the base of the rafter or leg of the shelter. Depending on the shelter, the foot is an optional purchase. Some shelters do not offer an optional foot. Some use 1-way connectors; others use ground posts.
- **Must Read Document:** This document includes building and shelter anchoring instructions, steps for end wall reinforcement, safety precautions, and notices and warnings. The Must Read document is sent with all shelters and buildings. If you did not receive a Must Read document, contact Customer Service to request one.
- **On-Center:** Term used to describe a measurement taken from the vertical center of the rafter or frame member to the vertical center of another.
- **Purlin or Angled (or Lateral) Bracing:** The pipe assemblies that run perpendicular to the rafters or framework that supports the main cover. These assemblies are found on the sides and roof areas of the assembled frame, are evenly spaced, and typically run from the front to the back of the shelter.
- **Plain or Straight Pipe:** A term used to describe a pipe that has the same diameter or width throughout its entire length.
- **Strut:** A strut is usually a length of pipe with two flattened ends and is used for diagonal bracing of the shelter frame. A strut is typically secured to the frame work by special brackets, bolts, and/or clamps.
- **Swaged End or Swaged Pipe:** The term "swaged" refers to the tapered end of the pipe or tube. Swaged ends of a pipe can be inserted into couplers and the straight ends of other pipes of the same diameter.
- **Tek Screw:** A self-tapping fastener used to secure pipe joints and to fasten brackets to rafters.

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REQUIRED TOOLS

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

- Tape measure or measuring device
- Fine point marker to mark the location on tubing
- Variable speed drill and impact driver (cordless with extra batteries works best)
- Wrenches or ratchet and socket set (recommended)
- Metal-cutting saw
- Duct tape
- Magnetic nut setter (3/8" x 2-9/16")
- Adjustable pliers and self-locking pliers
- Scissors or utility knife to cut cover material and strap
- Tool to cut cable to the required length
- Hammers and gloves
- Ladders, work platforms, and other machinery for lifting designed to work safely at the height of the shelter
- Rope (or straps) for cover installation

UNPACK AND IDENTIFY PARTS

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

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 shelter diagrams throughout these instructions for clarification, or contact Customer Service.

NOTE: At this time, you do not need to open the plastic bags containing the fasteners (if used).

QUICK START GUIDE

For a quick overview of this shelter and its components, consult the Quick Start Guide near the back of these instructions.

The pages of the Quick Start Guide show exploded views of all critical connections. Use the diagrams in the Quick Start section to assemble the frame of your building.

Consult the remainder of these instructions for important details that will help during the construction.

SPECIAL NOTE: Baseboards for Frame

These instructions describe installing a baseboard (strongly recommended) on each side of the frame. The baseboard runs from the front to the back of the frame.

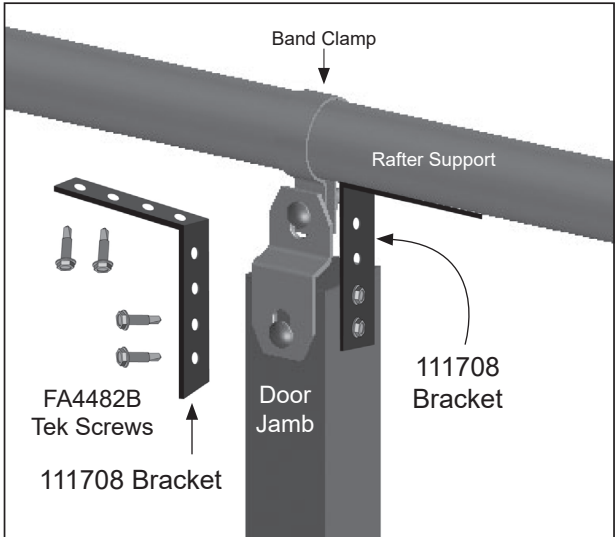
This baseboard is *not included* with the shipment and must be supplied by the customer. Treated or recycled plastic lumber works well for a baseboard.

The baseboard, when installed properly, helps prevent the shelter from sinking into the ground when anchored. Baseboards also provide a surface to attach rafter feet or other building components.

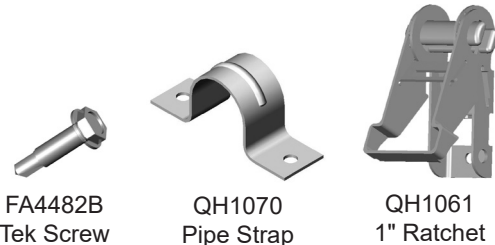
Consult these instructions, or contact Customer Service for additional information regarding baseboards.

ClearSpan

The following graphics and photos will help you identify the different parts of the building. Consult the Quick Start Guide for additional details and diagrams. (All parts are not shown.)



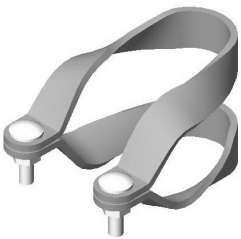
ATTENTION: Install the 111708 brackets as shown above during the assembly of the end wall frame. See the Door Jamb Addendum in the Quick Start section near the back of this guide for additional details.



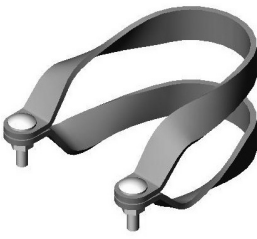
FA4482B
Tek Screw

QH1070
Pipe Strap

QH1061
1" Ratchet



102546
2.375" Cross Connector



102548
1.66" Cross Connector



103856
2.375" Band Clamp



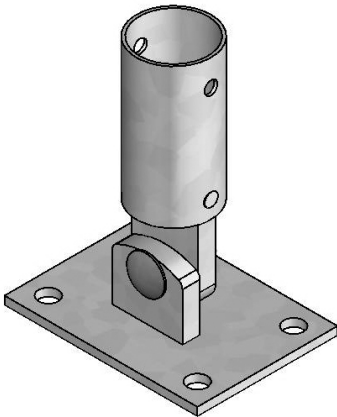
AS1094
1/4" Cable Thimble



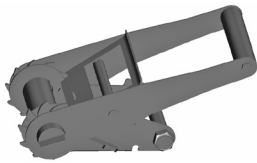
H-Channel



QH1402
1.66" Band Clamp



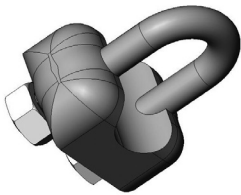
104302
Pipe Fitting with Base



QH1065
2" Ratchet



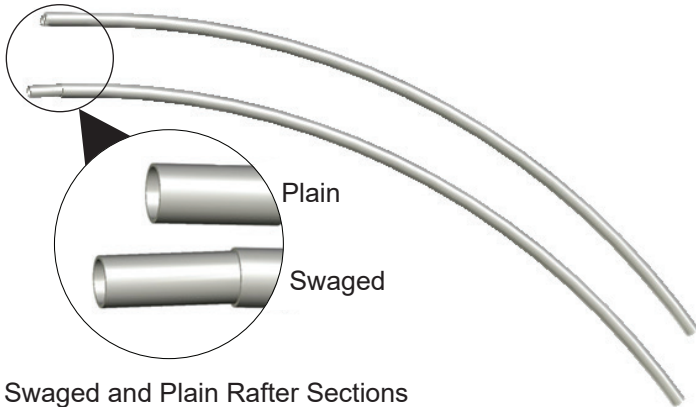
QH1402
1.66" Band Clamp



AS1003
3/16" Cable Clamp



104189 Turnbuckle



Swaged and Plain Rafter Sections
(not all pieces are shown)

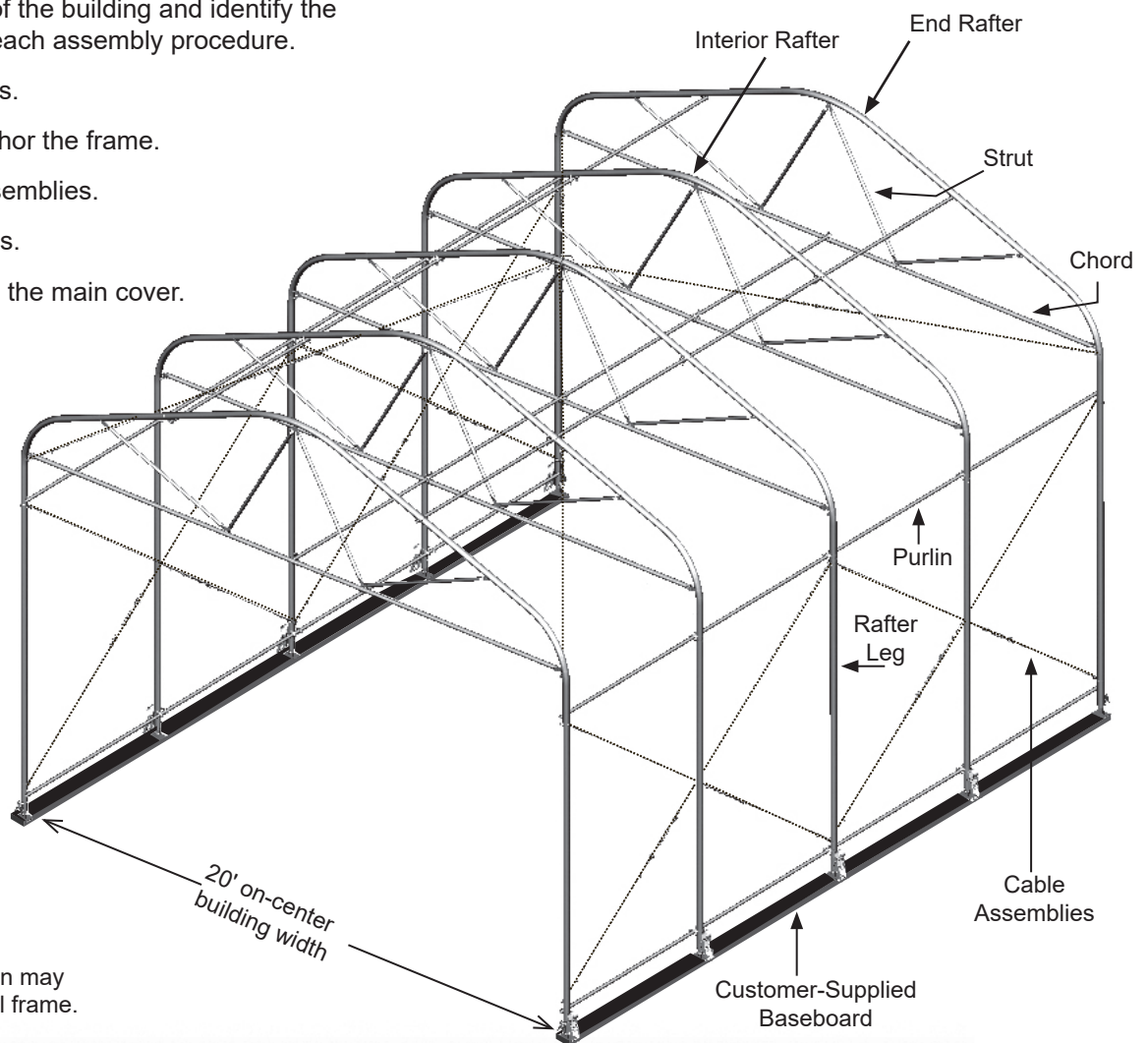


ClearSpan™ Storage Master Solarguard™ Buildings

OVERVIEW

This section describes assembling your building. For details of each assembly procedure, consult the Quick Start Guide and the individual sections of these instructions. See illustration below to identify the main shelter parts.

1. Mark the location of the building and identify the required parts for each assembly procedure.
2. Assemble all rafters.
3. Assemble and anchor the frame.
4. Install all cable assemblies.
5. Assemble end walls.
6. Prepare and install the main cover.



LAY OUT THE BUILDING SITE

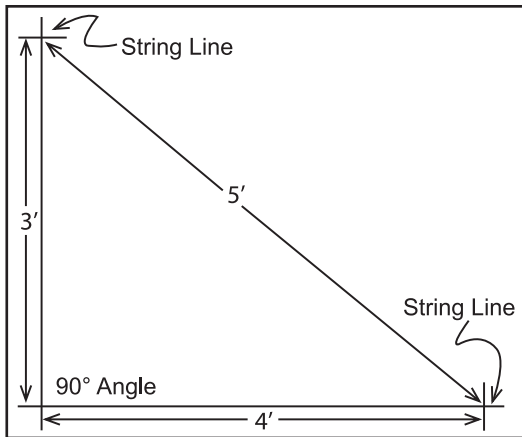
After the site is prepared, mark the locations of the shelter corners to help square the frame after it is assembled.

Taking these steps **before** assembling the shelter saves time and ensures that the structure is positioned as desired. The following procedure is a suggested method. Its use depends on the size of the shelter, shelter application, the footings, and the method used to anchor the shelter.

SQUARE THE SITE

1. Identify a corner where a building rafter will be positioned, drive in a stake, and string a line the exact width of the building and stake in place. (Width of the rafter is measured from center-to-center of the rafter legs.)
2. Sting a line at least as long as the building from the first stake at 90°.

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



3. After squaring the position of the building and placing a stake at all corners, string a line between the stakes to mark the base of the building.

NOTE: The example that follows shows treated baseboards set on the site. After marking the rafter spacing on the boards, the rafter feet are secured in place.

4. Consult the Framework Assembly instructions for the building and mark on the ground (or treated baseboards as recommended) the positions of the rafter feet.
5. After marking the on-center positions of all rafters (on the boards or site), attach rafter feet to the baseboards.

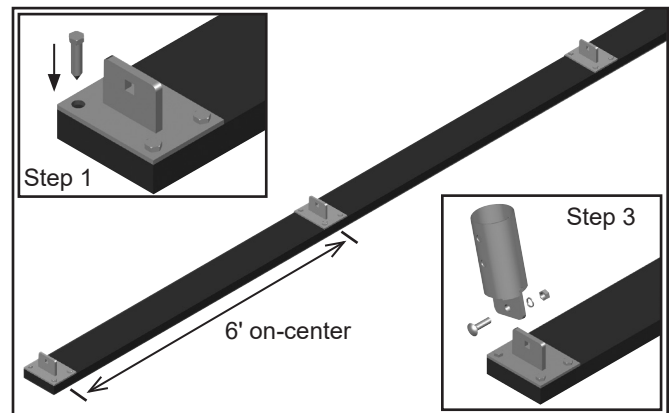
ATTACH RAFTER FEET TO BASEBOARDS

The following is an example of one way to position the rafter feet after the site has been prepared. *This is an example only.*

The site, anchoring system, and other factors affect preparing for the rafters. *Consult a knowledgeable construction professional for suggestions and other safe and acceptable alternatives.*

ATTENTION: *Placing treated baseboards under the rafter feet is strongly recommended.*

WARNING: Securing the rafter feet to a baseboard as shown *does not* anchor the shelter. The shelter must be anchored as stated in the MUST READ document included in the shipment.



NOTE: The above photo shows the rafter feet set at intervals of six foot (6') on center which is the rafter spacing of the shelter used in this example.

1. Anchor each rafter foot base to the boards using the appropriate *customer-supplied fasteners*.
2. Drive a short length of rebar inserted through a hole drilled in the boards into the ground to keep the boards in place as rafters are attached.

NOTE: Purchase the appropriate fasteners for sites that are concrete or stone and that will not allow you to drive a rod to keep the baseboards in position.

3. After the boards are set and the bases are fastened in place, attach the top of the rafter foot.

NOTE: At this time, **DO NOT** tighten the bolt that connects the two rafter foot parts. The upper part will be adjusted when the rafters are set in place.

4. Continue with the **END RAFTER AND INTERIOR RAFTER ASSEMBLY** procedures that follow.

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ASSEMBLING THE STORAGE MASTER BUILDING COMPONENTS

NOTE: Assistance is required to assemble the shelter.

After the site is prepared and squared, the rafter feet are assembled and anchored in place (if applicable to your shelter), and an inventory of parts is complete, assemble the rafters.

RAFTER ASSEMBLY

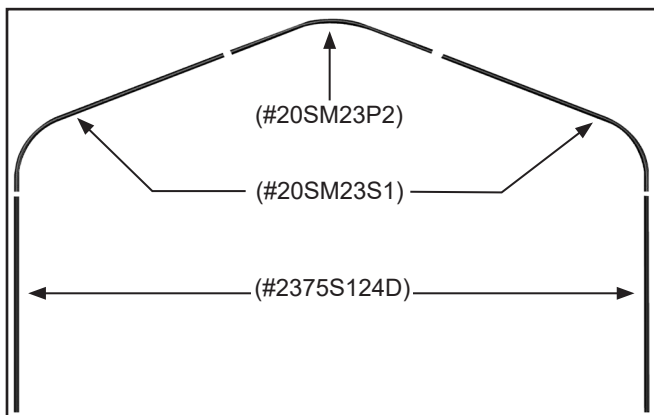
Gather the parts:

- Rafter pipe (#20SM23P2)
- Rafter pipe (#20SM23S1) & Rafter pipe (#2375S124D)
- Pipe 1.66" x 99" swaged (#166S099)
- Pipe 1.66" x 40" plain (#166P040)
- Band clamps (#QH1402 & 103856)
- Pipe strap (#QH1070)
- Tek screws (#FA4482)

Each rafter assembly consists of five (5) rafter sections: 1 curved center pipe (for the top or peak), 2 leg pipes that include *drilled holes near the bottom* to connect the rafter feet, and 2 curved pipes that connect the legs to the top center pipe.

Interior Rafter Assembly Procedure

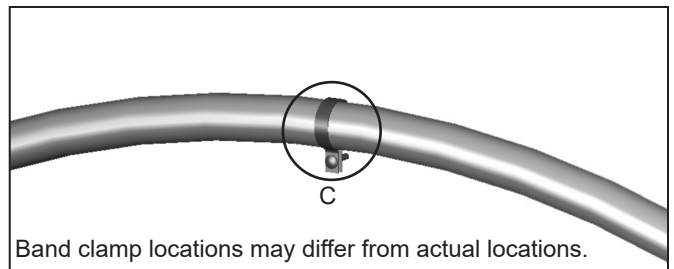
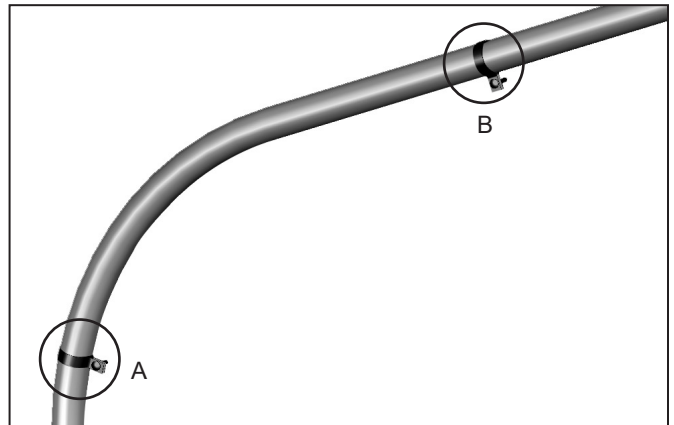
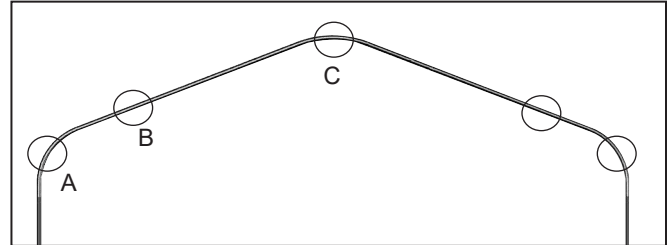
1. Select the five (5) pipes needed to assemble a rafter and arrange these on a flat surface as shown below for assembly.



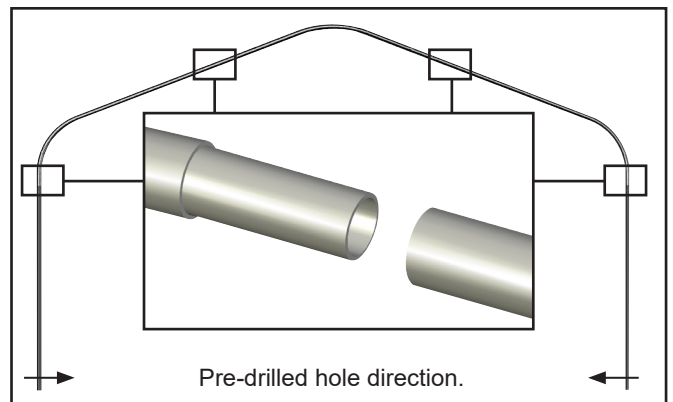
NOTE: DO NOT connect the sections at this time.

2. Take five (5) of the larger band clamps (#103856) and slide these onto the different rafter pipes and position them near the marked locations. See circles below. *Do not secure these clamps at this time.*

Clamps are repositioned in a later step.



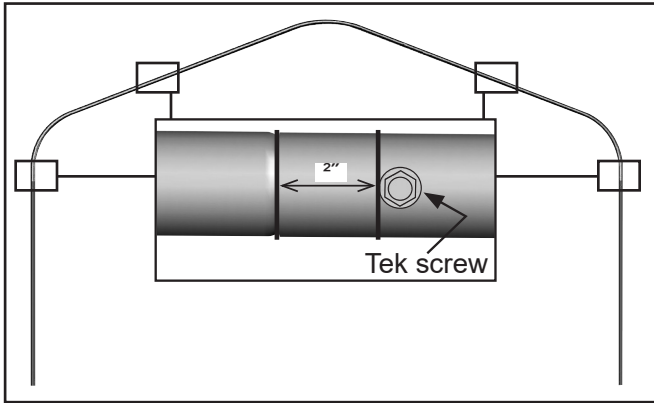
3. Slide the swaged portion of each rafter pipe into the plain end of the adjacent pipe.



IMPORTANT: The rafter foot mounting holes drilled in the sides near the bottom of each rafter leg must be *parallel with the ground* when viewed looking down at the rafter assembly on the ground.

RAFTER ASSEMBLY (CONTINUED)

- With the main rafter pipes seated at each joint and the rafter positioned on a flat surface, secure each joint with a single self-tapping Tek screw. Position Tek screw approximately 2" from pipe joint.

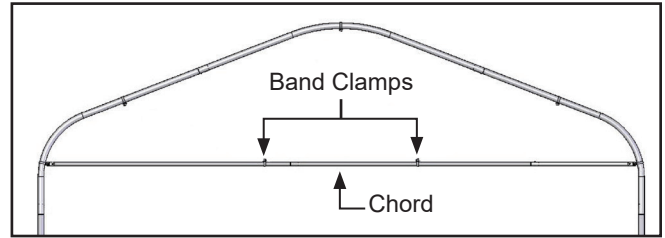


- After assembling the rafter, securing the joints, and setting the band clamps in position, cut a length of rope (or cable) that is the width of the shelter plus and additional 12 inches.
- After the rope (or cable) is cut, insert approximately 6" through the rafter foot mounting holes at the bottom of the rafter leg and clamp the cable in place using a clamp on the outside as shown below.



- Insert the remaining end of the cable through the other rafter bolt holes, measure the 20' on-center width dimension, and clamp the legs in place to prevent the rafter from spreading when the chord and struts are attached.

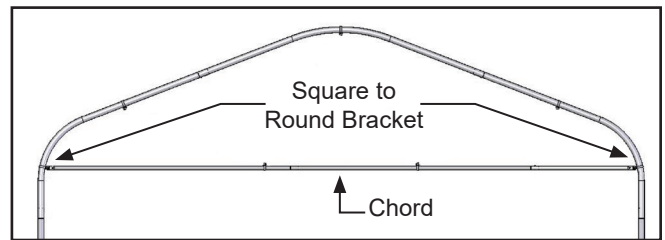
- Position two (2) sections of the 166S099 pipe (99" each) and one (1) 166P040 pipe (40") on the ground between the rafter legs, slide two (2) of the smaller band clamps (QH1402) onto one of the center pipe sections, and assemble the chord.



- Secure each pipe joint of the chord with one FA4482 Tek screw. Standing on the chord assembly helps to keep the pipes from turning as the screws are installed. Be certain each joint is properly seated before installing the screw.



- Position the assembled chord between the rafter legs and connect the chord to the rafter as shown below.

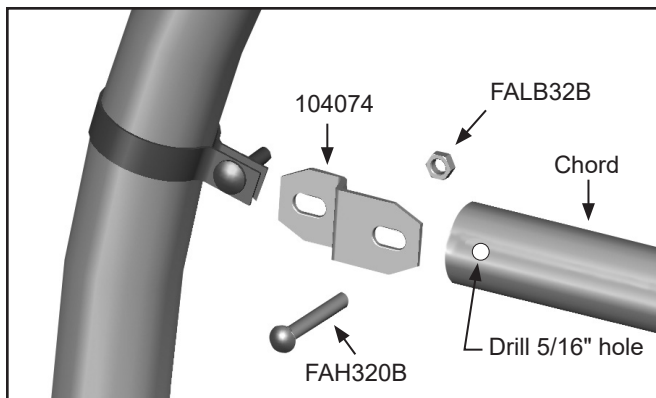


NOTE: For best results, attach a 104074 bracket to one end of the chord and then attach the chord to the rafter. Repeat the steps at the remaining end of the chord.

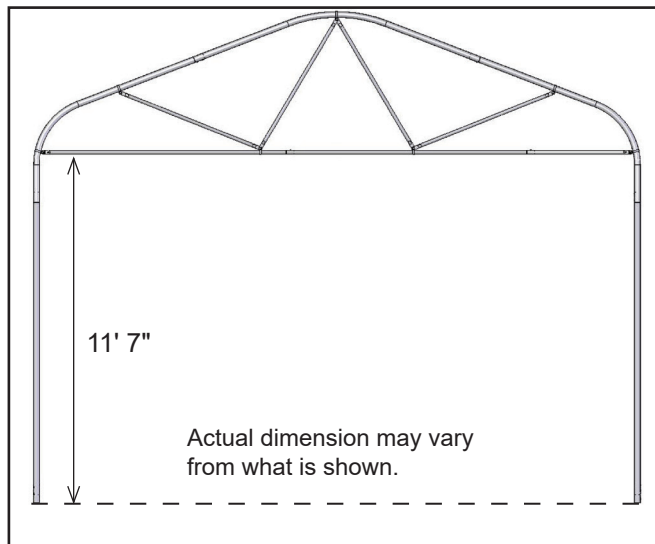
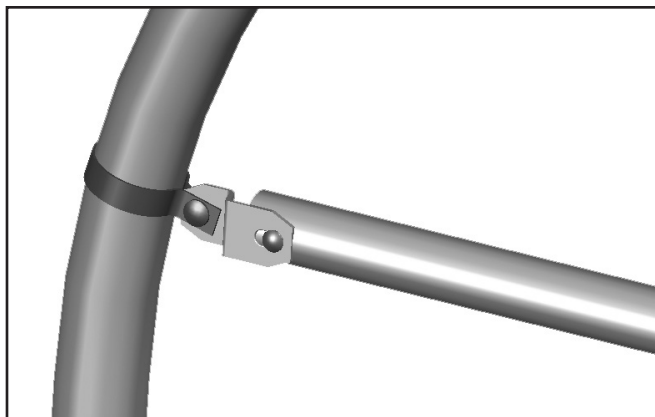
See the diagrams on the following page.

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RAFTER ASSEMBLY (CONTINUED)



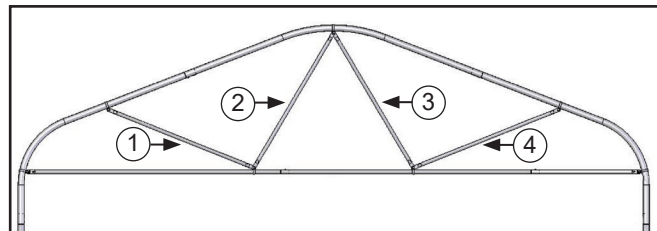
Do not fully tighten the connection at this time.



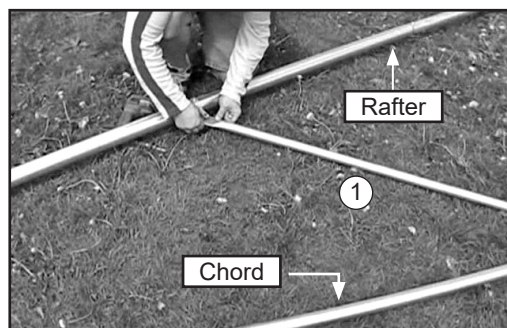
NOTE: The approximate distance from the end of the rafter to the chord is 11' 7". As the struts (shown above and installed later) are attached, adjust the chord position as needed to achieve the results shown.

- After attaching each end of the chord to the rafter, verify that the chord is evenly positioned between the legs of the rafter assembly and tighten the connections.

- Select four (4) of the 5' struts (QH1304) and position them on the ground between the upper part of the assembled rafter and the chord. *Strut pattern shown may vary slightly from actual rafter.*



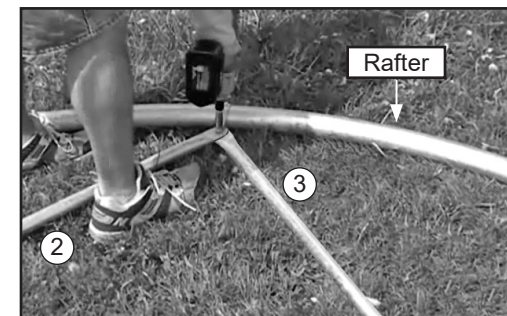
- Connect the first 5' strut to the clamp on the rafter. *Do not tighten at this time.* (Consult the connection details in the Quick Start section located at the back of these instructions.)



- Connect the other end of the same 5' strut and the second 5' strut to the band clamp on the chord assembly. *Do not tighten.*



- Attach the remaining end of the second 5' strut and third 5' strut to the same band clamp at the peak of the rafter.

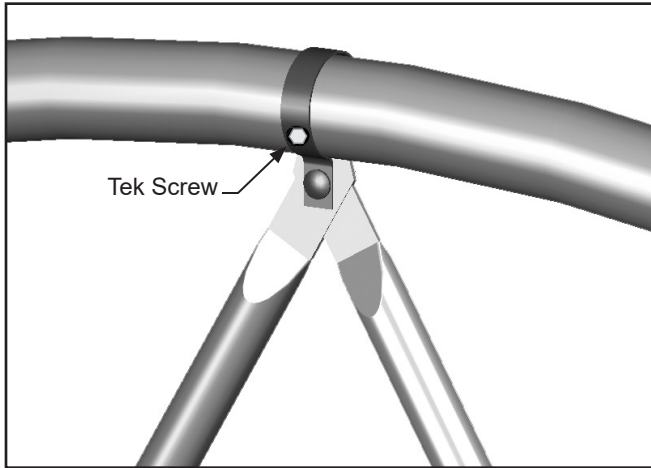


- Connect the remaining end of the third 5' strut and last 5' strut to the band clamp on the chord assembly.

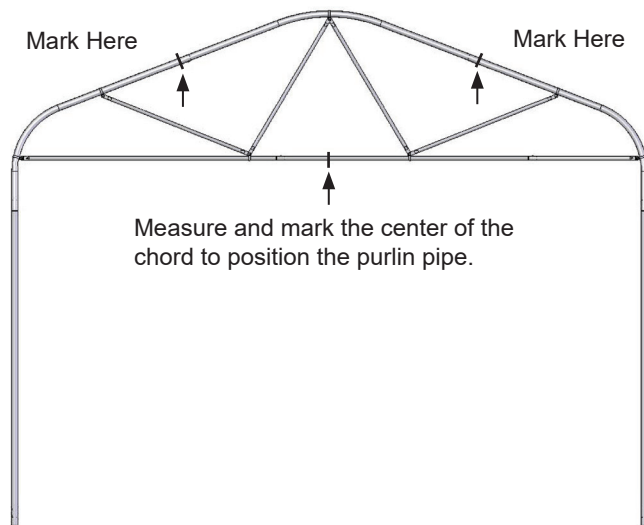
- Finish the pattern by connecting the other end of the 5' strut to the last clamp on the rafter.

RAFTER ASSEMBLY (CONTINUED)

18. After attaching the struts and verifying that all band clamps are tight, secure each band clamp to the chord using a FA4482 Tek screw. *Adjust struts if needed.*



The assembled rafter should resemble the rafter in the drawing shown below.



19. Use a permanent marker and mark where the purlins will be placed perpendicular to the rafter. See diagram above for locations.

NOTE: Except for the center mark located on top of the chord, all remaining marks shown above are near or on the rafter pipe joints at that location.

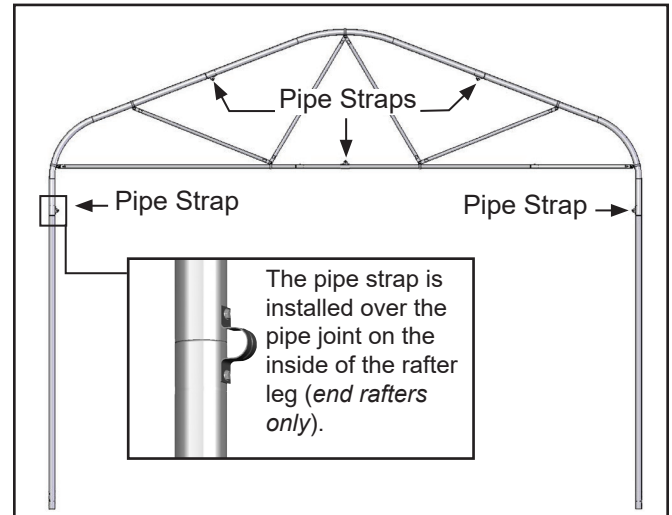
SPECIAL NOTE FOR LONGER SHELTERS: For longer shelters, conserve site space by assembling and setting the rafters as you work toward the end of the shelter.

20. Complete the next steps for *end rafters only*.

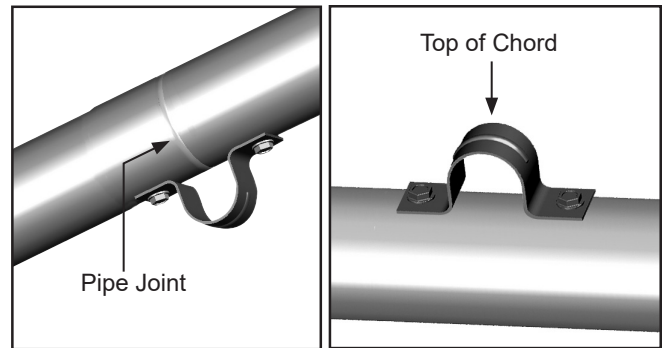
End Rafter Assembly Procedure

Complete the following steps *for the two end rafters only*.

1. Take two of the assembled rafters and place on a flat surface. These will be the end rafters.
2. Attach one pipe strap (QH1070) to each end rafter in the locations shown below.



These pipe straps are located on the inside of the rafter legs, underside of the rafter pipe (peak), and on top of the chord. *Do not tighten at this time.* Tighten these after installing the purlin.



NOTE: Except for the pipe strap located at the top of the rafter and on top of the chord, all remaining pipe straps shown above are installed near the pipe joints or over the pipe joints (as shown) at that location.

3. Continue with the FRAME ASSEMBLY instructions that follow.

ATTENTION: Some diagrams may show the purlins running in a slightly different location. Assemble your building using the diagrams as a guide.

Adjust the purlins as needed to keep them running straight and in line with each other.

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FRAME ASSEMBLY PROCEDURE

After all rafters are constructed and placed in an orderly fashion for frame assembly, proceed with standing the first end rafter.

⚠ WARNING: Rafter assemblies are heavy with most weight at the top. Forklifts and personnel booms are recommended for lifting and setting the rafters. Consult a construction professional if you are not familiar with construction techniques and erecting similar structures.

The following instructions assume that the rafter feet are properly spaced and are secured to concrete or a level surface as shown in the example on the Lay Out the Building Site page of this document. If your site does not include a level surface as recommended and you will not be securing the rafter feet to concrete or wood planks as shown in the example on the Lay Out the Building Site page, alter these instructions to accommodate the variations and specifics of your building site.

Gather the parts:

- Assembled Rafters
- 1.315" x 75" swaged (#131S075) and 1.315" x 73.5" plain (#131P0735) pipe
- Marker, tape measure, and FA4482 Tek screws

NOTE: The purlins are part of the assembled frame and run perpendicular to the rafter assemblies. Each purlin consists of 1.315" x 75" (#131S075) swaged pipes (see Side Profile diagram in the Quick Start section for quantity) and one (1) 1.315" x 73.5" (#131P0735) plain pipe.

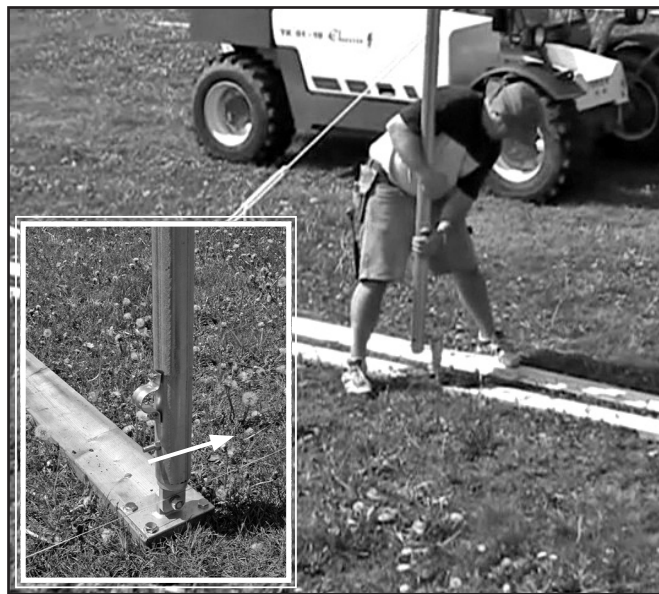
Complete these steps:

1. With the proper lift, lift the *first end rafter*. This rafter includes pipe straps (installed earlier).



ATTENTION: Consult a construction professional if you are not familiar with operating and using lifts. Observe all safety precautions when lifting the rafters into position.

2. Set the rafter on the first set of rafter feet at one end of the shelter and secure with 3/8" nut and 3" bolt (FAG363B).



ATTENTION: Position the FAG363 bolt head to the outside of the building. Arrow in the above photo points to the outside of the frame assembly. The pipe strap is attached to the inside of the rafter leg. All purlins run on the inside of the frame.

Exercise caution when setting the rafter leg on the rafter foot.

3. Anchor the first rafter with ropes or other temporary bracing. *Verify that the rafter is plumb (straight).*

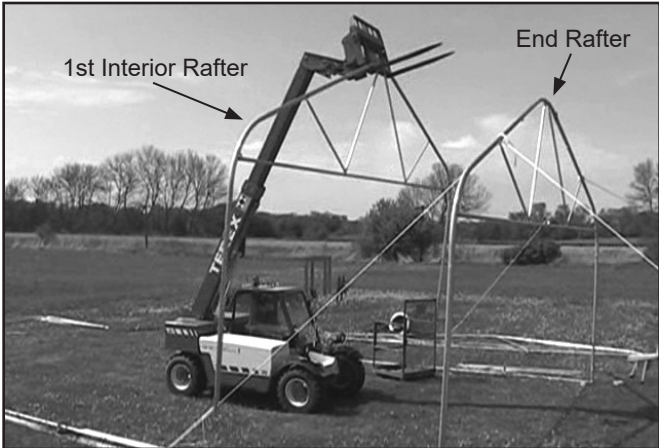


NOTE: In the above photo, ropes (identified by white lines for clarity) are used to temporarily anchor the rafter in place. For this first end rafter, all temporary bracing *must remain* in place until other rafters are set in place and attached to the first rafter and to each other.

Rafter shown above may differ slightly from the actual rafter.

FRAME ASSEMBLY (CONTINUED)

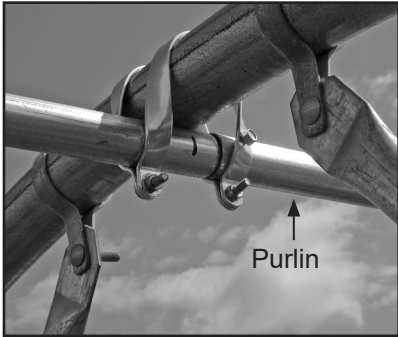
- 4. Set the second rafter (first inside rafter) in place and secure it to the rafter feet.



NOTE: After securing the inside rafter to the rafter feet, position someone at each leg to stabilize the rafter as the lift is removed.

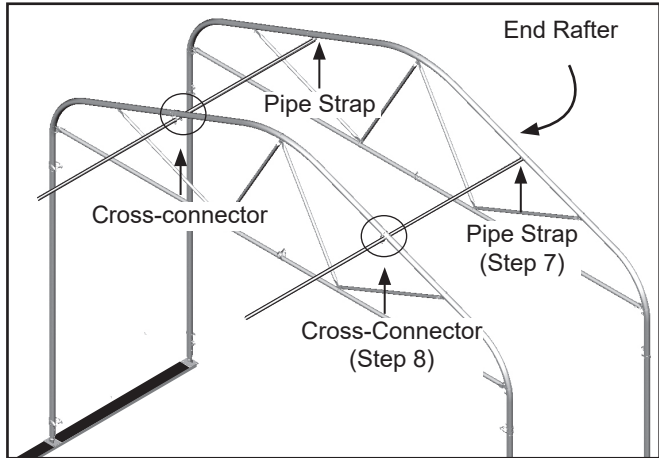
- 5. Place a cross-connector (#102546) over the inside rafter. See the diagram in Step 6.

Photo to the right shows purlin inserted through the cross-connector at the top of an interior rafter.



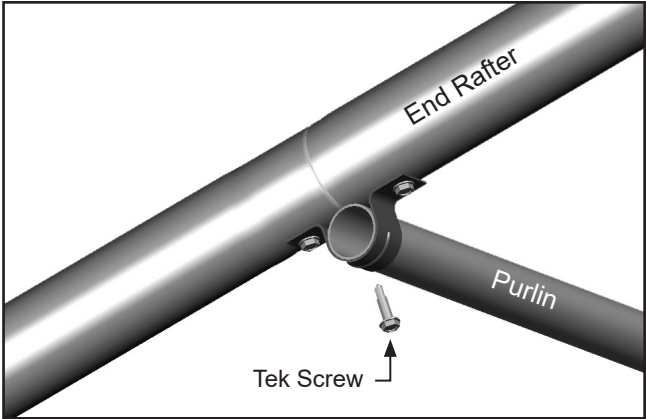
Sample rafter is shown. Actual rafter may differ.

- 6. Insert the first section of purlin (2 pieces of pipe—131S075 for the upper two purlins) through the cross-connector on the inside rafter and the pipe strap on the end rafter as shown below.

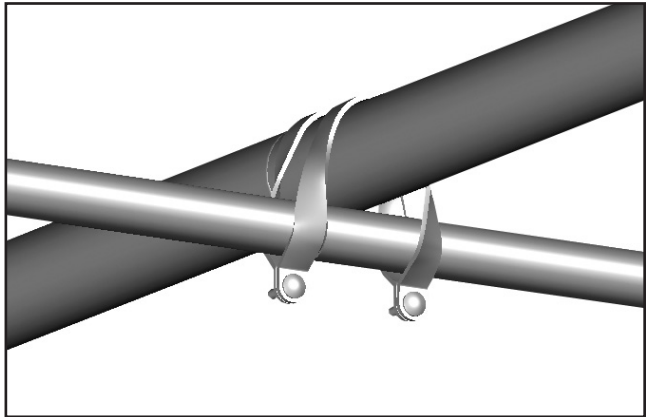


IMPORTANT NOTE: The upper purlins should extend through the pipe strap of the end rafter by one-half inch. To prevent cover damage, do not allow the purlin to extend beyond the end rafter.

- 7. With the purlins in position, tighten each pipe strap and secure each purlin in the pipe strap using a Tek screw.

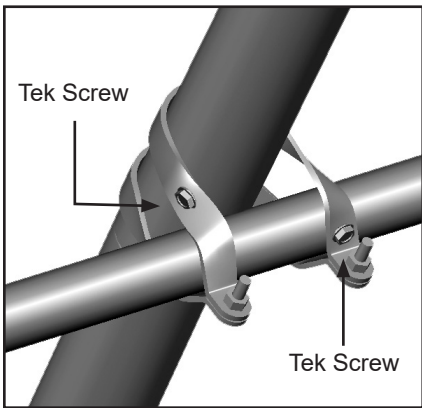


- 8. Verify that the rafters are plumb and spaced 6' on-center and tighten the cross-connectors (#102546).



NOTE: Use a hammer to tap the cross-connector and the purlin to align the purlin as needed.

- 9. After tightening the cross-connector, install a Tek screw (FA4482) through the cross-connector and into the purlin and through the connector and into the rafter.



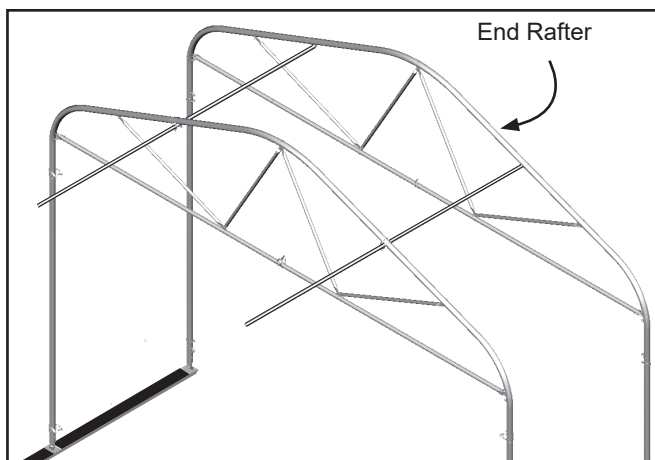
Position the Tek screw so that it will not touch the cover when it is installed. Frame shown differs from actual frame.

- 10. Locate the joint where the two purlin pipe sections of each purlin run are connected and install a Tek screw to secure the pipes.

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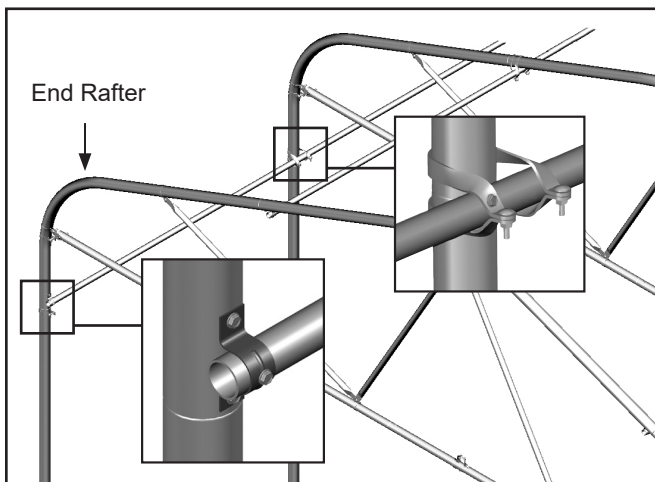
FRAME ASSEMBLY (CONTINUED)

The upper purlins and the first two rafters should appear as shown below.



NOTE: Do not remove the temporary bracing until additional rafters are in place.

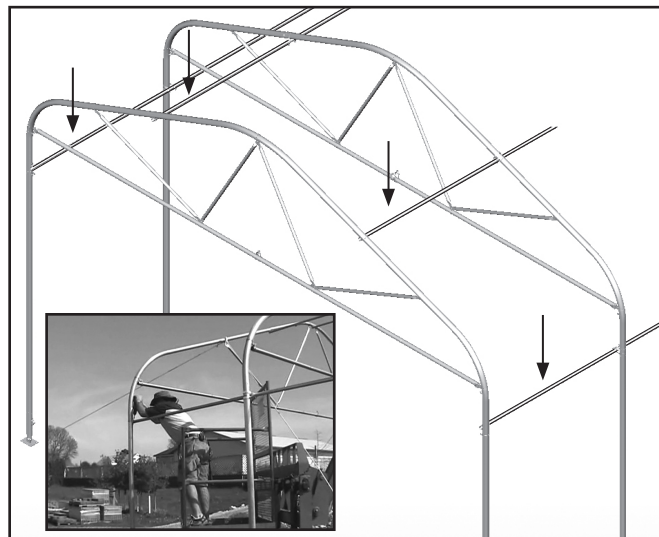
11. Move down the interior rafter assembly to the location that is in line with the pipe strap attached to the end rafter *below the chord* and place a cross-connector (#102546) over the rafter pipe.



The inserts show the purlin, pipe strap and cross-connector as seen from the inside of the building.

12. Insert the first two sections of the purlin run through the cross-connector and into the pipe strap in the same position on the end rafter.
13. Tighten the pipe strap and secure the purlin to the pipe strap using a Tek screw (FA4482B).
14. Verify the 6' on-center spacing and tighten the cross-connector. Purlins run parallel with the ground and with other purlins.
15. Repeat Steps 9-10 to secure the components.

16. Move to the remaining joint below the chord on the inside rafter and attach the first two sections of the next purlin.



The drawing above shows the top four (4) purlins assembled up to this point.

17. Set the next *inside rafter assembly* in position and secure it to the feet as previously instructed.



18. Continue to add the cross-connectors and the purlin sections and secure these to the rafter assemblies as previously instructed.

ATTENTION: The last rafter to place in position will be the remaining end rafter. This end rafter includes the pipe straps attached during the rafter assembly procedures and is identical to the first end rafter set in place.

FRAME ASSEMBLY (CONTINUED)

19. Set the end rafter in place and align the purlins with the pipe straps (previously attached to the rafter). Insert the rafter feet mounting bolts (bolt head to the outside) and tighten as previously instructed.
20. Begin with the upper pipe straps and ensure that approximately half an inch of the purlin extends through the pipe strap and tighten the pipe strap mounting bolts.
21. Verify that the end rafter is plumb.



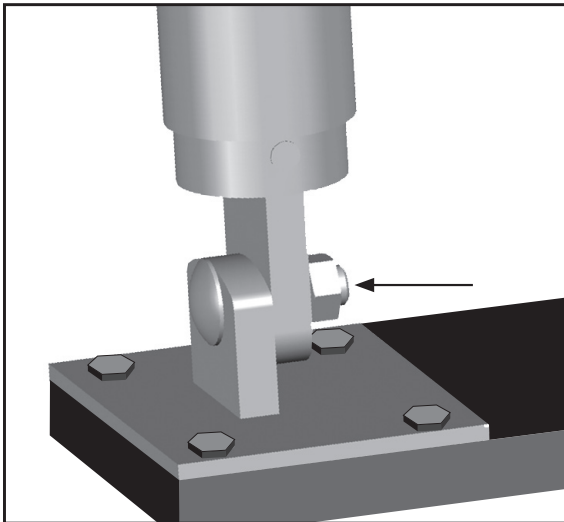
Space below is reserved for customer notes.

NOTE: If the rafter is not plumb (straight up and down) and more of the purlin pipe needs to extend through the pipe strap and beyond the edge of the rafter, it may be necessary to cut the purlin to the required length.

Typically, purlins do not require cutting. Verify that you have selected the correct pipe before cutting any pipe to length.

To prevent cover damage, *do not allow the purlin to extend beyond the edge of the rafter.*

22. With all rafters in place and the top four (4) purlins installed and tightened, return to the rafter feet and tighten the main bolt that attaches the bottom plate of the rafter foot to the upper portion of the foot.



23. Complete the ATTACH THE BOTTOM and ATTACH THE CHORD PURLIN procedures that follow.

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ATTACH THE LOWER PURLINS

After the upper four (4) runs of purlins are in place and secure, complete these steps to install the remaining purlins.

Required tools:

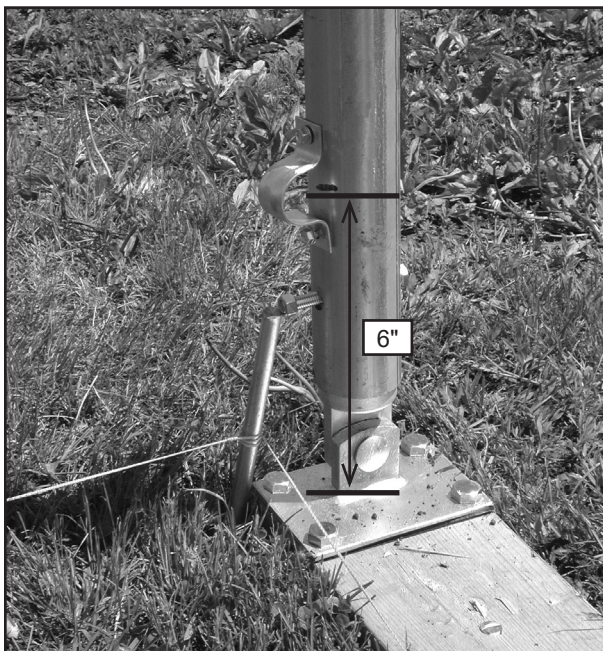
- Tape measure
- Permanent marker

ATTENTION: The lower purlins run on the inside of the rafter legs near the bottom of those rafter legs.

1. Begin at one end of the frame assembly and measure approximately 6" up from the rafter foot mounting plate on the end rafter and mark the inside of the rafter leg.

NOTE: This mark and the remaining marks identify the location of the lower purlin for each side. *The mark identifies the center of the purlin.*

2. After marking the end rafter, attach a pipe strap to the inside of the rafter leg so that the strap is positioned with the mark at its center. Do not tighten the strap Tek screws at this time.



3. Move to the remaining leg on the same rafter assembly and mark as instructed in the previous steps.
4. Repeat Steps 1-3 for the remaining end rafter assembly.
5. Stretch a chalk line from one end rafter to the other along the same side of the frame. Align the chalk line with the marks on the rafter legs and snap the line to mark the purlin height on the interior rafters.
6. Repeat Step 5 to mark the interior rafters on the other side of the assembled frame.

7. Return to each chalk mark and remark the position using a permanent marker.
8. After marking the purlin height, place a cross-connector at the base of each interior rafter leg.

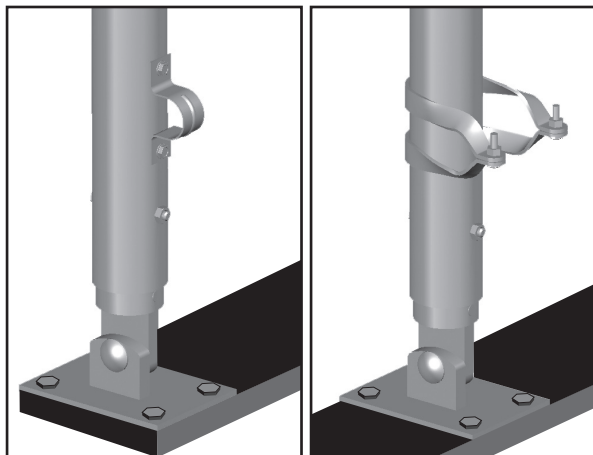
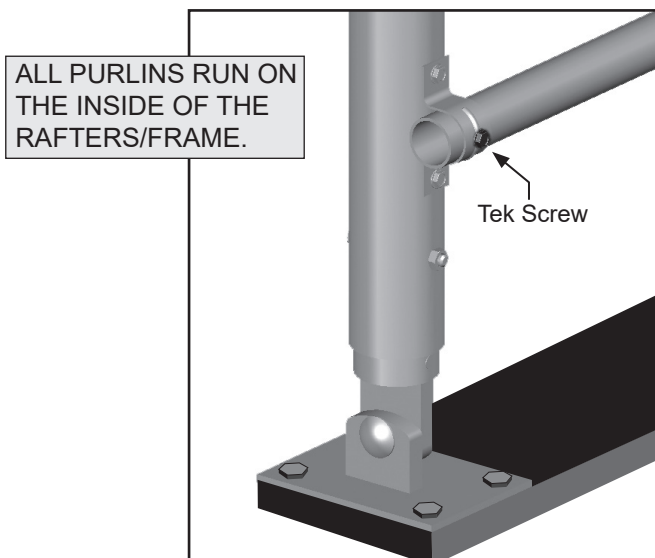


Figure 1

Figure 2

ATTENTION: Attach pipe straps to the end rafters only (Fig. 1). Cross-connectors are used to secure the lower purlins to the inside rafter assemblies (Fig. 2).

9. Connect the first two pipes of a lower purlin, insert the section through the cross-connector on the inside rafter leg, and insert the plain end into the pipe strap attached to the end rafter (below).



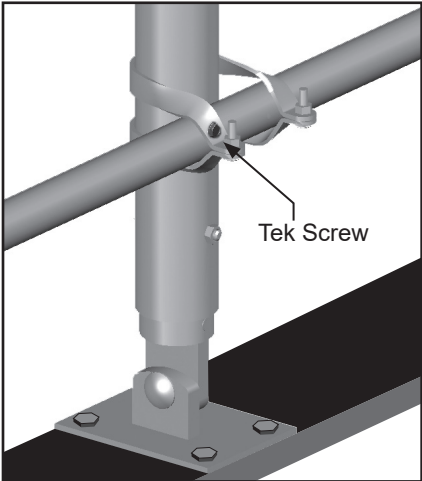
10. Tighten the Tek screws to secure the pipe strap to the end rafter leg as described for the other purlins.
11. Install a Tek screw (FA4482) through the pipe strap and into the purlin to anchor the purlin in place.

FRAME ASSEMBLY (CONTINUED)

- 12. Using the mark on the inside of the rafter leg as a guide, slide the cross-connector (#102546) and purlin so that the center of the purlin pipe is in line with the mark on the rafter leg.
- 13. Tighten the bolts on the cross-connector to secure the purlin.
- 14. Install a Tek screw (FA4482) through the cross-connector and into the purlin and through the cross-connector into the rafter.



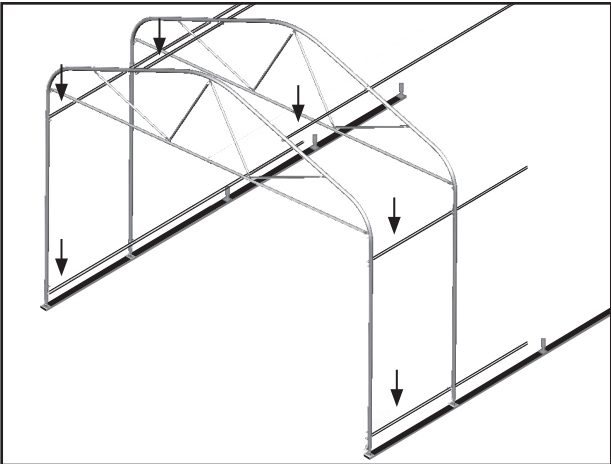
Space below is reserved for customer notes.



- 15. Continue to assemble and attach the remainder of the same lower purlin until the entire purlin is assembled and secured to the frame.

Secure each purlin pipe splice using a Tek screw.

- 16. Repeat the above steps for the remaining lower purlin. The frame with the purlins assembled to this point should resemble the drawing below. There are six (6) purlins in the drawing. (See the arrows for location.)



- 17. Continue by installing the chord purlin. Procedures are similar to previous purlin installations.

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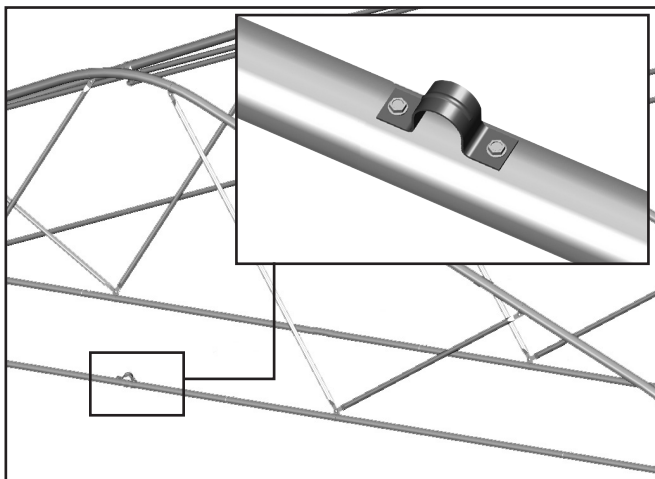
FRAME ASSEMBLY (CONTINUED)

ATTACH THE CHORD PURLIN

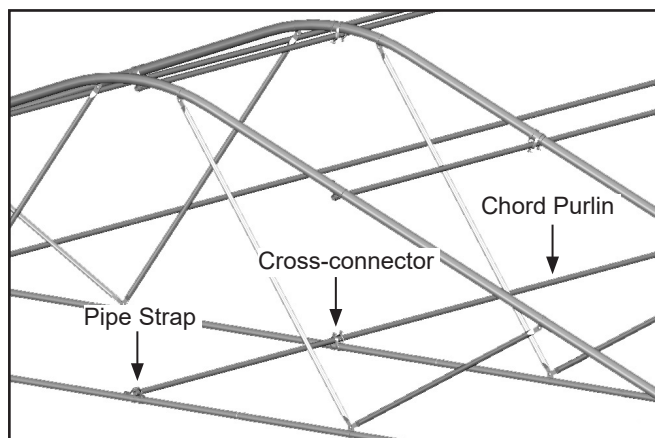
The chord purlin is attached to and runs *on top of the chord* throughout the length of the shelter. As before, regarding *all end rafter purlin connections*, the chord purlin is attached using a pipe strap. A cross-connector (#102548) is used to secure the chord purlin to the chord of the inside rafters only.

Complete these steps:

1. Locate the center of the chord of the end rafter and install a pipe strap *on top of the chord* (if not installed earlier). **Do not tighten at this time.**



2. Mark the center of the chord on the inside rafter and mark the location. (A chalk line can also be used to mark the center of each rafter chord. Refer to the Lower Purlin procedure for details if needed.)
3. Assemble the first two sections of the remaining chord purlin and position a cross-connector (#102548) for 1.66" pipe over the chord of the interior rafter.
4. Insert the purlin through the pipe strap (#QH1070) on the chord (end rafter) and through the cross-connector on the chord of the inside rafter.



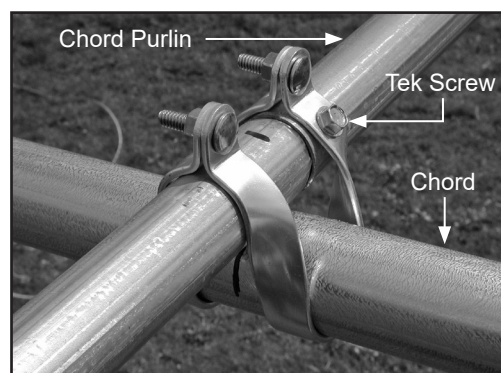
REMEMBER: The chord purlin runs *on top of the chord*. Plain pipe end is in the pipe strap.

NOTE: Differences in how the rafters were assembled and how the center was marked on the chord can cause the chord purlin to appear off center. It may be necessary to "adjust" the chord purlin so that its appearance is in line with the other purlins.

To achieve this, the cross-connectors can remain loose after the purlin is inserted to allow a final viewing to see if the purlin is centered. With the cross-connectors loose, the purlin can then be tapped into the desired position.

When the purlin appears centered, return to each cross-connector, check to see that the pipes of the purlin are properly seated, and tighten the bolts. Once each cross-connector is tight, install a Tek screw through the cross-connector and into the purlin.

5. Position the purlin as needed and tighten the cross-connector bolts.



6. Install a Tek screw through the cross-connector and through the purlin as shown above.
7. Return to the end rafter and verify that approximately half-an-inch of the chord purlin extends through the pipe strap. Adjust the chord (forward or backward) if needed and tighten the Tek screws that secure the pipe strap to the chord.

REMEMBER: To prevent damage to the end panels, the chord purlin must not extend beyond the edge of the chord.

8. Install a Tek screw through the pipe strap and into the chord purlin.
9. Repeat the above steps for the remaining inside rafter assemblies and work toward the remaining end of the shelter.
10. At the remaining end rafter, repeat the steps to secure the chord purlin to the chord.
11. After attaching the final purlin, square the frame.

SQUARING THE ASSEMBLED FRAME

If the *Lay Out the Building Site* procedure was completed as presented near the beginning of this document and baseboards were used, check the frame for square as shown in the diagram below following Step 3.

Rafter width is measured from center of one leg to the center of the other leg on the same rafter assembly.

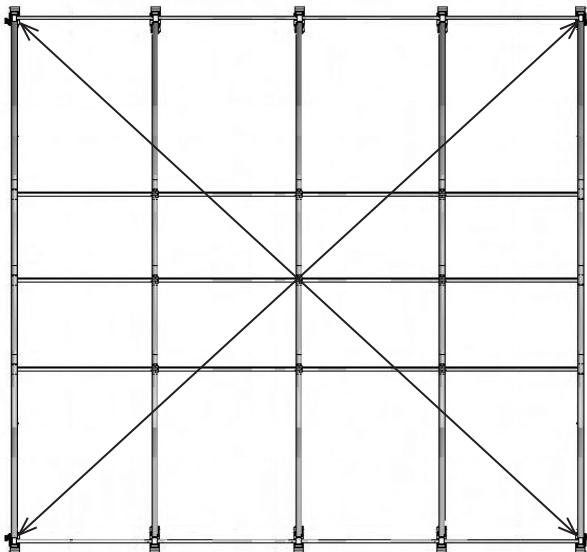
If the framework was assembled on the site without using the recommended treated lumber for a baseboard, complete these step to square the assembled frame.

1. Align all rafters using a straight line (if needed) or the marks on the site from the *Lay Out the Building Site* procedure completed earlier.
2. Beginning with the first rafter, verify that the on-center width of the rafter is equal to the on-center width of the building. Adjust if needed.

ATTENTION: Tap rafter legs together or apart to achieve the correct on-center width. Width is measured center-to-center. Consult the Quick Start diagrams.

3. After adjusting the rafters, perform a final square of the structure by measuring diagonally (corner-to-corner), and verify that the two measurements are equal.

Top View



4. Examine the frame and remove any sharp edges from the frame or reposition clamps and screws so they do not come in contact with the end panels (if equipped) or the main cover.

5. Tape all rafter splices with duct tape to protect the main cover when it is installed.
6. Verify that *all pipe splices* are secured using Tek screws.
7. After the framework is squared, read or reread the MUST READ document and anchor the framework in place.

ANCHOR THE SHELTER

At this point, anchor the frame. Once the frame is anchored properly, continue with these instructions.

⚠ WARNING: Securing the rafter feet to wood boards set on the site is not a substitute for properly anchoring the shelter. You must anchor the shelter as described in the MUST READ document.

FAILING TO PROPERLY ANCHOR THE SHELTER WILL RESULT IN DAMAGE TO THE SHELTER AND MAY CAUSE PERSONAL INJURY.

READ THE MUST READ DOCUMENT TO PROPERLY ANCHOR THE SHELTER.



The photo above shows how an auger anchor is attached to one rafter leg.

Consult the MUST READ document for additional information about anchoring the shelter.

FINISH ROUGH EDGES

Gather the parts:

- Duct tape (customer supplied)
 - Metal file (may not be needed)
1. Check for sharp edges on the frame. If present, file these smooth so they will not cut the cover.
 2. Apply two layers of heavy duct tape over all pipe connections and clamps that may contact the cover.
 3. Install band clamps for the cabling as described in the next procedure.

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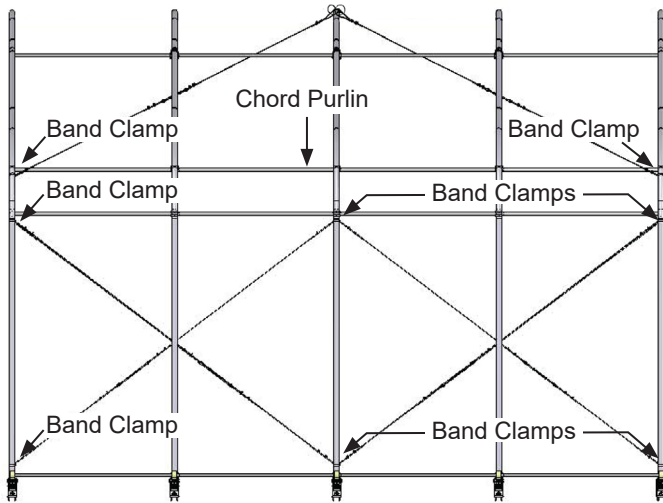
ATTACH BAND CLAMPS FOR CABLING

Cables attached to both ends of the shelter provide the diagonal bracing for the shelter. Band clamps secure the cable bracing to the shelter.

Eight (8) band clamps (#103856) are used on each side of the frame to secure the cable ends. Consult the diagram below and in the Quick Start section for cable locations.

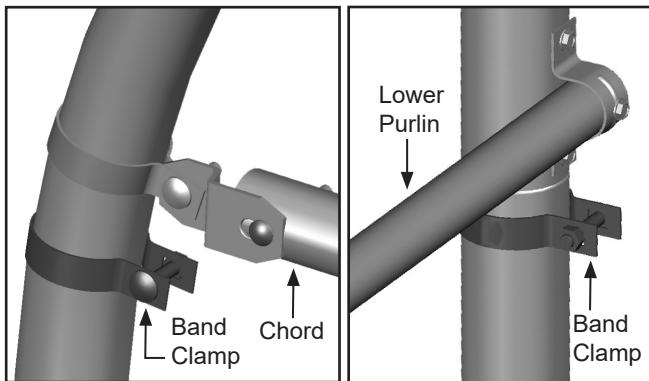


Space below is reserved for customer notes.



Complete these steps to install the band clamps:

1. Remove the nut and bolt from the clamp, carefully bend the band clamp open, and slide it over rafter in the proper location.
2. With the clamp in place, use a pair of adjustable pliers to squeeze the clamp back into shape and reinstall the bolt and nut. *Do not fully tighten at this time.*



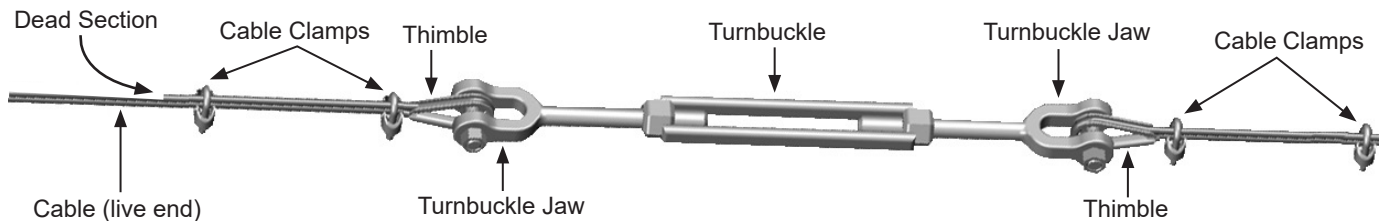
Band Clamp Location

3. Slightly tighten the nut and bolt or use a small piece of duct tape to hold the clamp in position.
4. Continue by assembling the cables.

CABLE ASSEMBLY

Cable assemblies provide diagonal bracing for the building. Each cable assembly includes the following items:

- Two (2) lengths of cable (Measure from point-to-point on the frame and cut as needed.)
- Turnbuckle (1)
- Cable thimbles (4) and cable clamps (4)

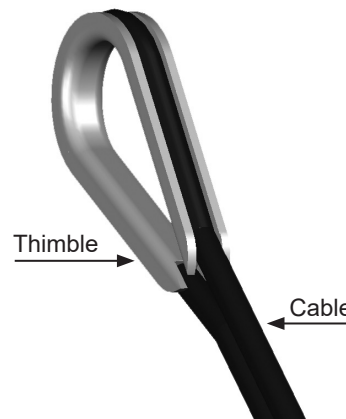


Typical Turnbuckle Assembly

NOTE: For each cable assembly, two (2) additional thimbles and four (4) additional cable clamps are used to attach the cable assembly to the purlin clamps. Consult the Cable Diagram on the following page and the All Frame Diagram for clarification and cable locations.

Cable Assembly Procedure:

1. Using the Side Profile diagram (and others) in the Quick Start section as a guide, measure the distance needed on the frame and cut the cable to the proper length for each assembly. Extra cable has been sent for the cabling. (Make a single assembly *before* making others. This allows a check to be sure the correct length has been cut.) Make the necessary length adjustments as needed. **Always measure twice to verify length!**
2. Place one cable thimble approximately twelve inches (12") from the end of a cable section and wrap the cable around the thimble as shown in the figure to the right.
3. Grasp both sections of the cable near the thimble and position one cable clamp one inch away from the thimble as shown above.



NOTE: Position the clamp on the cable with its U-bolt portion over the short/dead section of the cable.

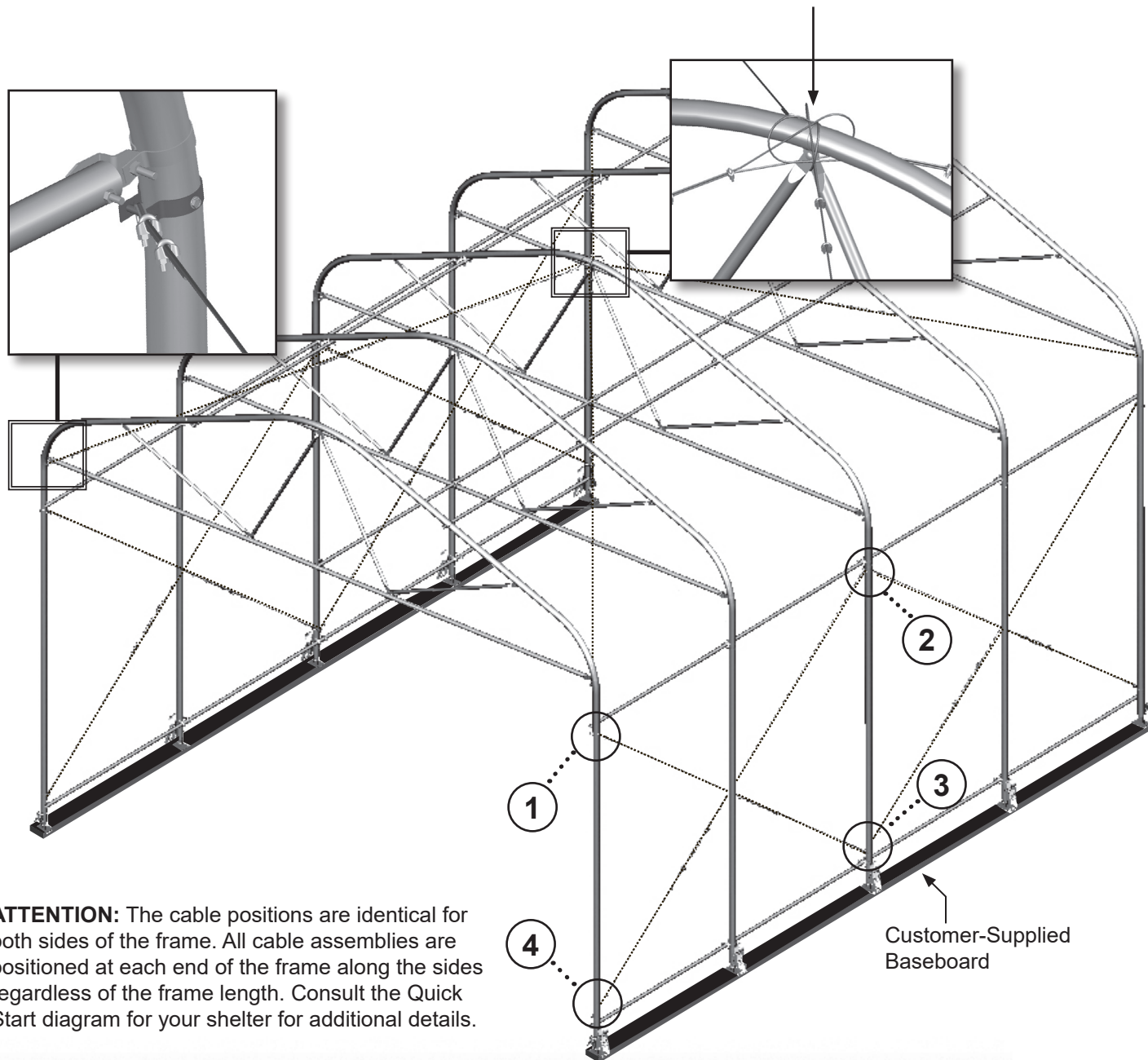
4. With the saddle portion of the cable clamp in position, thread the nuts onto the U-bolt section of the clamp and tighten slightly to maintain the position of the clamp on the cable.
5. Install a second cable clamp on the cable six to eight (6"-8") inches from the first clamp.
6. Tighten both clamps.
7. Remove the bolt from the jaw of the turnbuckle and position the cable end with the thimble into the jaw of the turnbuckle.
8. Insert the bolt through the eye of the turnbuckle and the cable thimble, thread the nut onto the bolt, and tighten.
9. Repeat Steps 2-8 for the remaining length of cable for this assembly.
10. Open the turnbuckle to its longest position.
11. Repeat the above procedure for all remaining side and upper cable assemblies.

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CABLE PLACEMENT

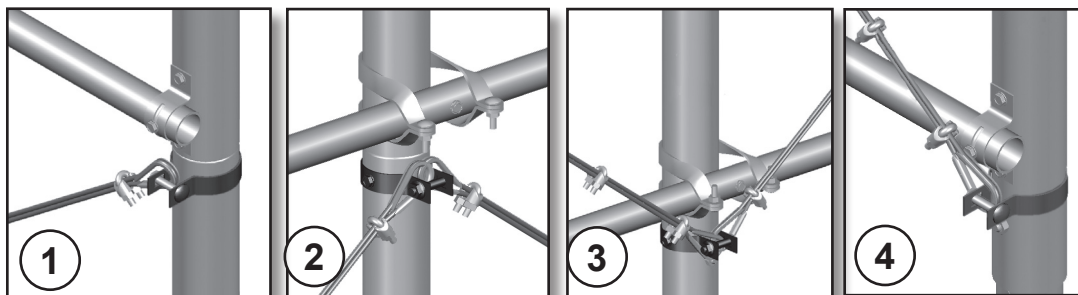
The diagram and inserts below identify the placement and proper way to attach the cable assemblies to the building using **103856** band clamps.

ATTENTION: Wrap this cable connection using duct tape to protect the cover.



ATTENTION: The cable positions are identical for both sides of the frame. All cable assemblies are positioned at each end of the frame along the sides regardless of the frame length. Consult the Quick Start diagram for your shelter for additional details.

All inserts show the circled locations as seen standing inside the frame.



TIGHTEN THE CABLING

The positions of the cable assemblies are identical for the opposite side and the remaining end of the building that are not shown in the previous diagram. For cable locations for your building, consult the Side Profile diagram.

1. After attaching all cable assemblies to the building frame, return to the first set of turnbuckles and tighten the cables. *Do not overtighten the turnbuckles.*

NOTE: Tighten the cables in each section evenly so that the frame remains plumb.

2. After one set of cables is tightened, move to another set and repeat the tightening steps.
3. Repeat this process until all cables are tight.
4. Continue with installing the ratchets for the main cover.

INSTALL THE SIDE RATCHETS FOR THE MAIN COVER

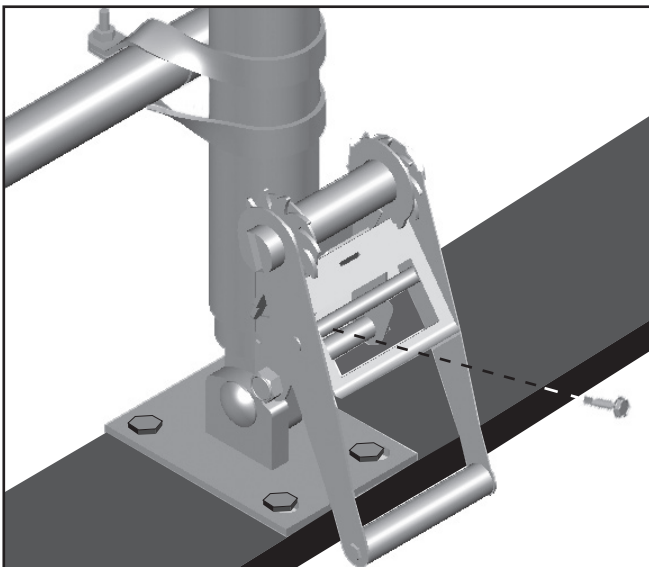
Side ratchets can be attached to the inside or outside surface of the rafter. Ratchet shown is attached to the outside of the assemble frame.

Gather the parts:

- Large ratchet (#QH1065)
- Tek screws (#FA4482)

Complete the following steps to locate and secure the ratchets to the rafter legs.

1. Locate all QH1065 ratchets and divide the quantity in half. Use half for each side of the frame.
2. Consult the Side Profile diagram for your building in the Quick Start section to determine the ratchet positions



3. Attach the QH1065 ratchet to the rafter using a Tek screw as shown above.

ATTENTION: Space ratchets along each side of the shelter and directly across from each other on the *same rafter assembly*. See Side Profile diagram.

4. After installing all side ratchets and a final frame check is complete, continue with the end wall installation procedures.

FINAL FRAME CHECK

1. Verify that all rafter pipe splices and purlin splices are secured with a Tek screw.
2. Recheck the frame assembly for sharp edges or clamps and bolts that may interfere with the installation of the cover. Reposition clamps and bolts as needed. Tape all rafter pipe joints with duct tape to protect the cover.
3. Check all turnbuckles to verify that they are tight.
4. Tape the loose or frayed ends of all cables to protect the cover.
5. Verify that all bolts and clamps are tight.



Space below is reserved for customer notes.

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END WALL INSTALLATION

Consult the end wall diagrams in the Quick Start section of these instructions *before* you begin.

Assistance is required to assemble the end wall. Lifts designed to reach the top of the end rafter are also needed. Consult a qualified construction professional if you are not familiar with the construction of similar frame structures.

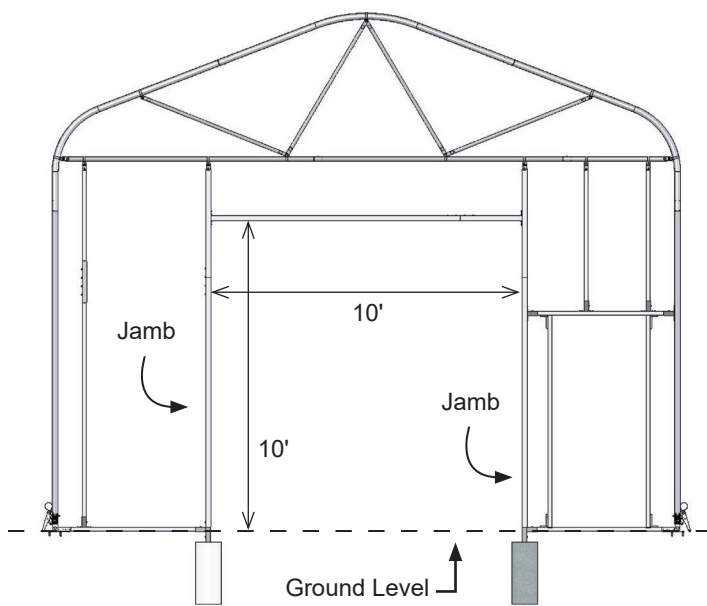
Install the Ground Posts for Door Frame Tubes

The following steps describe one way to set the ground posts for the door frame tubes.

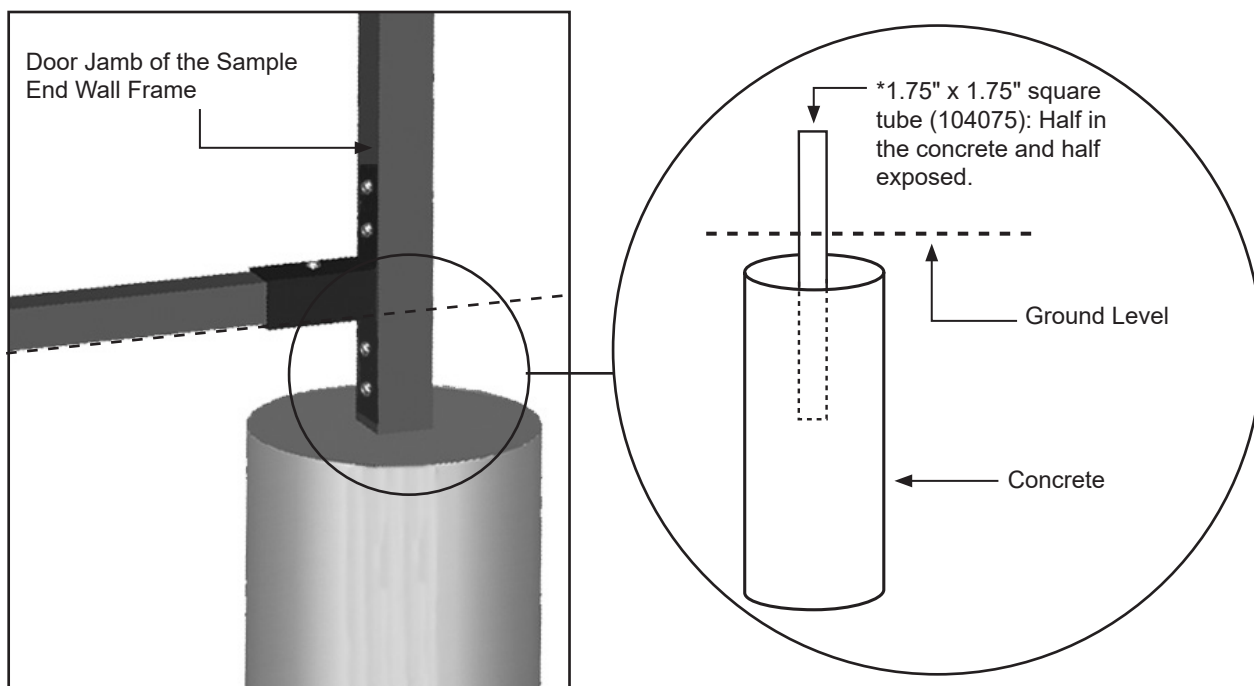
1. At ground level, measure *between the legs of the end rafter* to locate the center of the end wall. Use a plumb line to identify the center of the overhead rafter chord and mark that location on the ground as well. (See Quick Start guide.) Center the door in the end wall.

NOTE: Marking the center of the end wall allows multiple measurements to be made as needed.

2. Using the dimensions on the End Wall Frame diagrams, mark the positions of the *vertical door frame members (jamb)* for the door. The width of the door determines the frame dimensions for the door opening. *Consult the diagrams and documentation sent with the door for the correct spacing of the door frame verticals.*
3. Dig a 12" diameter hole *at the locations found in previous step* to a depth that is below the geographic frost line.
4. Add concrete to the hole. Concrete should remain 2"- 4" below ground level so that it does not interfere with construction and installation of other end wall components.
5. Determine the required width of the door and insert one 1.75" x 1.75" square tube (104075) into the concrete approximately 8". See diagram below. Repeat the step and verify that the tubes are plumb, square with the end rafters and frame, and the correct distance apart. *When installed correctly, ground posts are directly below the lower chord of the end rafter.*



Dimensions shown above are inside-to-inside.



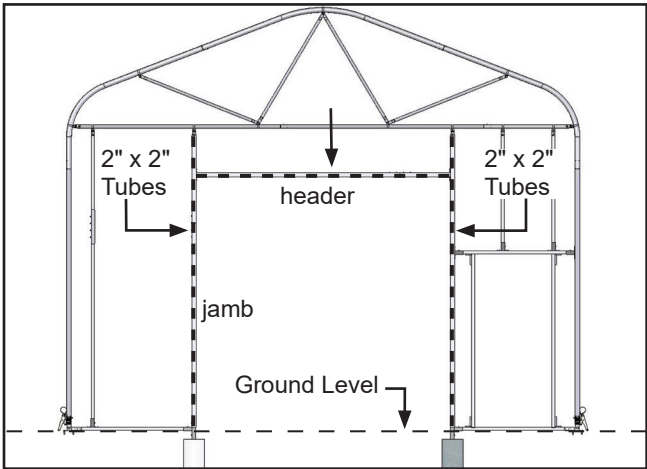
END WALL INSTALLATION (CONTINUED)

Assemble the End Wall Framing

After the concrete has set, assemble the remainder of the end wall.

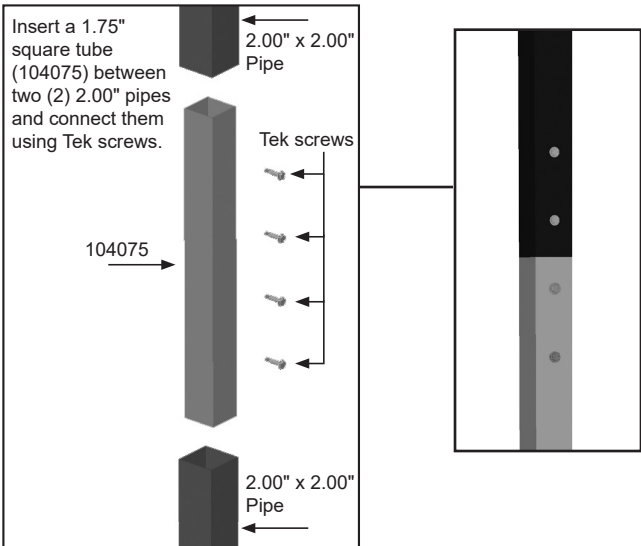
- Angled brackets (QH1330)
- 1-way fittings (104624)
- 5/16" carriage bolts and nuts and Tek screws (FA4482B)
- Band clamps (QH1402) and brackets (104074)
- 2" x 2" square tube (105328) and inserts (104075)
- 1.5" x 1.5" square tube (end wall frame)

NOTE: The dashed lines in the diagram below show where to install the 2" x 2" square tubes for the door frames.



Complete these steps to assemble the door frames for the overhead doors of the end wall:

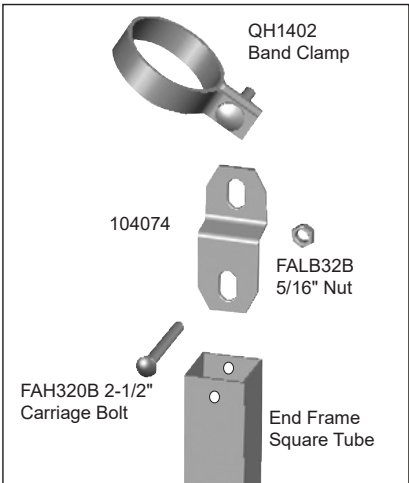
1. Using the door dimensions and the 2" x 2" square tubing (105328), take two 105328 tubes and connect them using a 104075 (1.75" x 1.75") square tube insert. Install Tek screws to secure the splice. See below.



NOTE: Consult the End Frame diagram to properly position and connect the brackets.

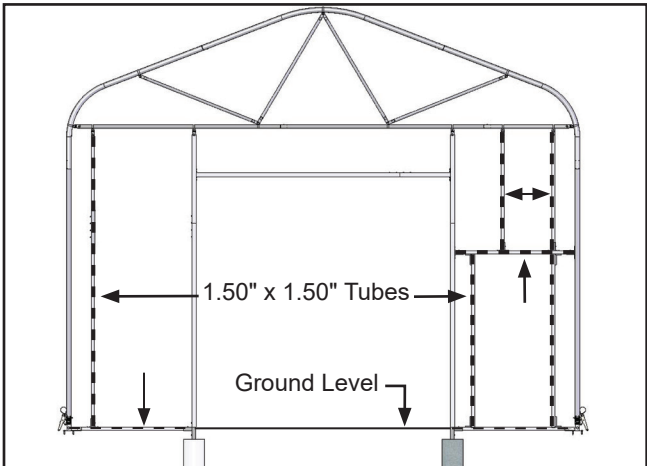
2. Measure the required length for this first door jamb and cut the assembled 2" x 2" frame member to length. *Before* you cut the tube, consult the diagram below to account for the hardware that will be attached to the upper end of *each door jamb*. Repeat for the remaining 2" x 2" door jamb.
3. After cutting the jambs to length, attach the 104074 brackets, place the band clamps over the lower chord of the end rafter, and install the door jambs.

End Frame-to-Rafter Exploded View



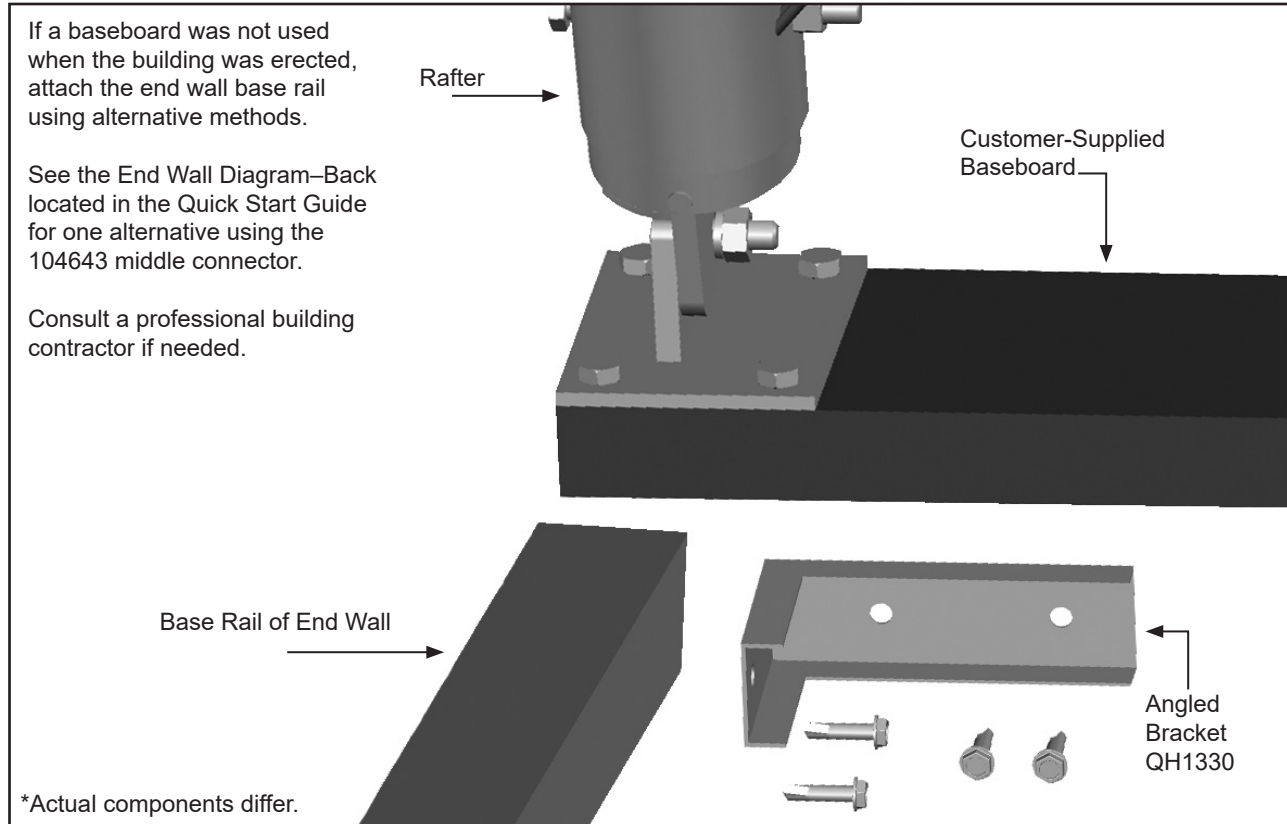
ATTENTION: The lower end of each 2" x 2" main door jamb slides over each 1.75" x 1.75" ground post set in concrete. Secure the 2" x 2" jamb to the ground posts by installing Tek screws. *Do not install Tek screws on the front or back side of the vertical door frame tubes. These surface are reserved for the end panels and the door track when an overhead door is installed.*

4. Assemble, cut and attach the 2" x 2" header.
5. Repeat the steps as needed to assemble the remaining end wall framing using the 1.50" x 1.50" square tubing (104779) and the related connectors. See dashed lines below.



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END WALL INSTALLATION (CONTINUED)



NOTE: Consult the End Frame diagrams in the Quick Start section for connection details. Cut the 1.5" x 1.5" square tubes to length as needed. Secure each tube splice using Tek screws. Install the screws in a position that will not interfere with the installation of additional end frame components or the end panels.

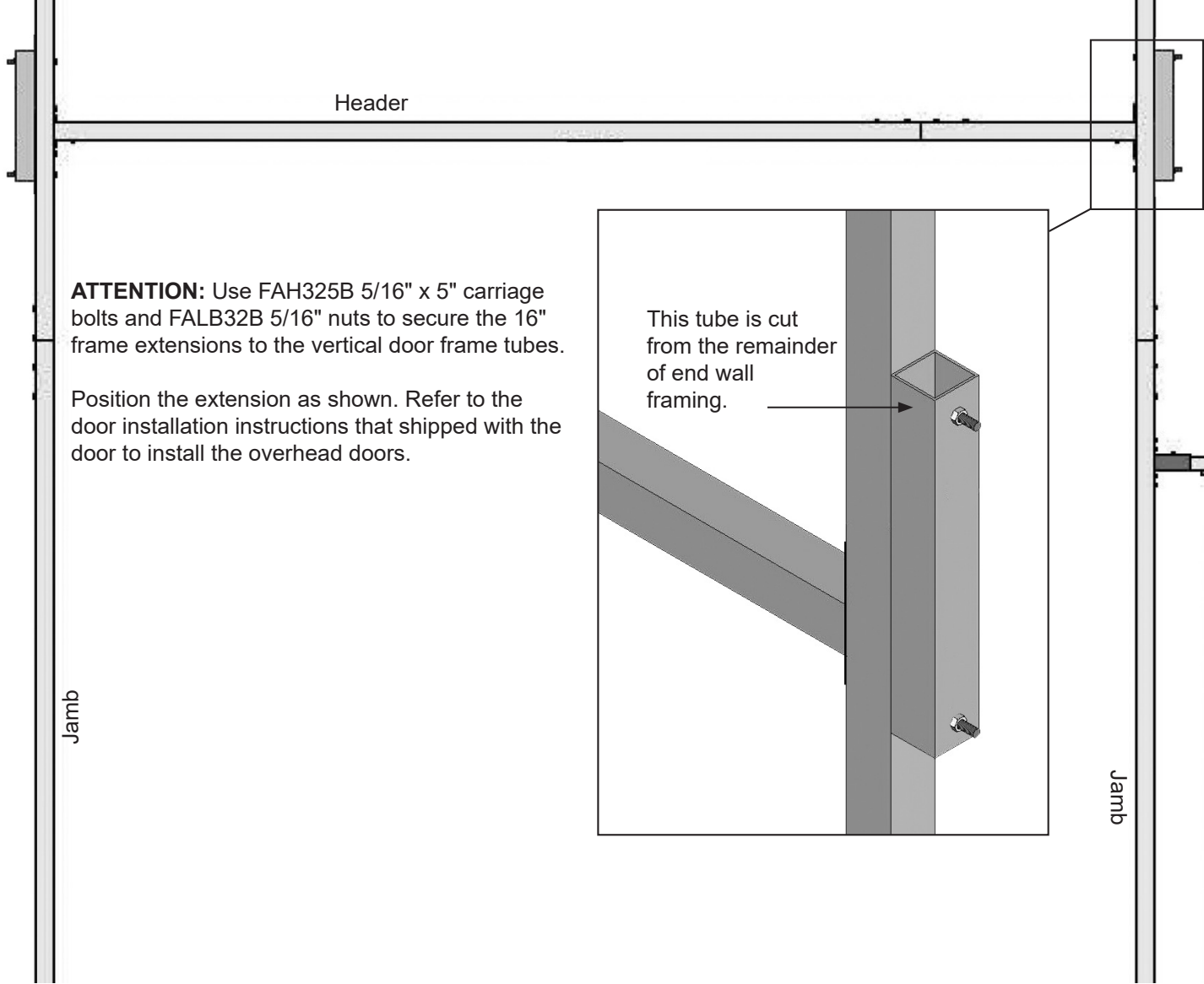
6. Measure the pedestrian door that shipped with the building and frame the opening accordingly.

ATTENTION: Depending on dimensions and spacing, it may be necessary to first assemble the frame and door and then attach the assembly to the end wall frame between the overhead door frames. Assistance is required.

7. After installing the end framing for the first end wall, consult the End Frame diagram for the back end wall and frame that end wall.
8. With both end walls assembled, continue with the instructions that follow.

DOOR FRAME DIAGRAM: SPECIAL NOTE

ATTENTION: For some overhead doors, the upper brackets must be mounted wider than the actual door frame. In those instances, cut a 16" section of stock 2" x 2" door frame tubing and mount it to the outside of each vertical door frame using the supplied carriage bolts and nuts in the locations shown in the diagram below. (Frame shown may differ from actual frame.)



CLEARSPAN™ STORAGE MASTER

Install PolyCor™ Front End Wall

PolyCor™ is installed on the front end wall of the shelter. It is attached using FA4474 Tek screws and neo-bonded washers. Consult the PolyCor™ Installation diagram in the Quick Start section to determine where the panels are seamed and where to attach the panel to the end wall framing.

⚠ IMPORTANT: Install the pedestrian door *before* installing the panels adjacent to and above the pedestrian door opening. *Secure the pedestrian door to the end wall frame using 112234B #14 self-tapping screws included with the hardware.* Install the door now if equipped.

The materials and parts needed to install the panels include:

- PolyCor™ panels and H-channel
- Tek screws and neo-bonded washers

Read the information below before you begin:

- Use FA4474 Tek screws and 102921 neo-bonded washers to secure the panels to the end frame.
- Install H-channel at each seam where panels meet.
- During preparation, rest the edges of the panels on cardboard or other material to protect them from dirt and damage.
- Consult the PolyCor™ Installation diagram in the Quick Start section for the location and lengths of the panels. (The Quick Start section is located at the back of these instructions.)

The following steps describe one way to attach the panels. The quantity of the panels and the number of H-channel pieces sent with the shelter is based on installing the panels in the pattern described below and as shown on the diagrams.

ATTENTION: Changing the pattern of the panel placement and the location of the seams may require the purchase of additional panels and H-Channel.

Complete the following steps to install the PolyCor™ panels.

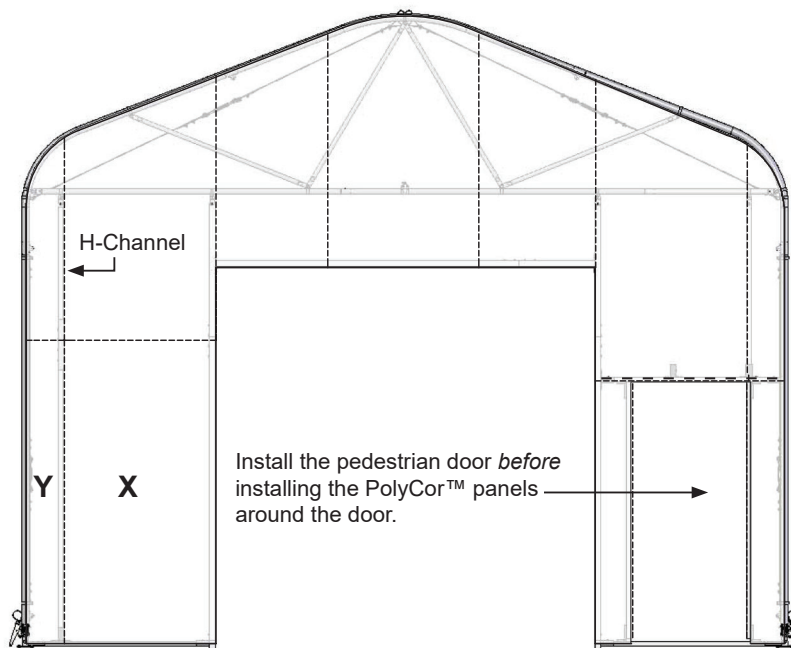
1. After installing the pedestrian door, attach the lower 4' x 8' section of PolyCor™ to the vertical frame members (Panel X) using FA4474 Tek screws and washers evenly spaced (approximately 18" to 24").

The dash lines identify the locations of H-channel. H-channel is installed between all PolyCor™ panels.

Install H-channel on the panel edges around the pedestrian door to finish these edges.

DO NOT install H-channel to the panel edges around the large door opening.

Install FA4474 Tek screws and washers around the outer edges of the side and upper panels to secure the panel to the rafter. Tape over these fasteners to protect the cover and cover bonnet.



ATTENTION: The section of PolyCor™ marked with an Y in the above diagram is cut from a full 4' x 8' sheet. Cut panels so that seams fall on the vertical end wall frame tubes. Consult the PolyCor™ Installation Diagram for additional information.

Install PolyCor™ Front End Wall (CONTINUED)

2. Install the first section of H-Channel to the attached PolyCor™ panel.

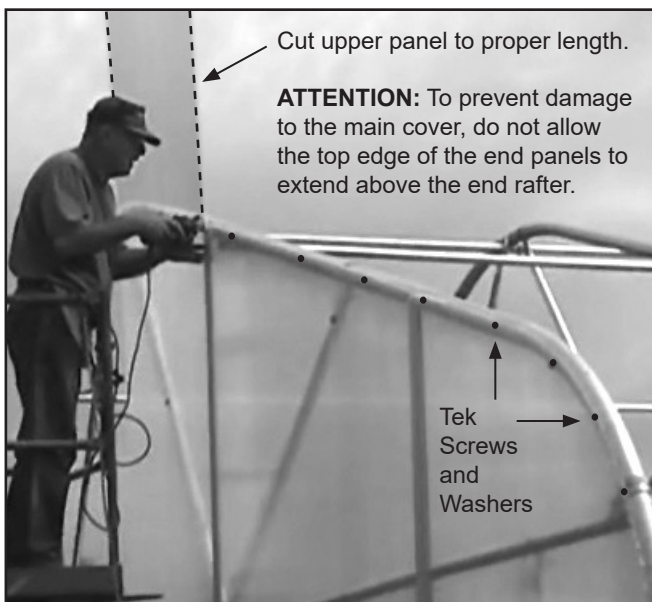
NOTE: DO NOT install H-Channel around the perimeter of the large door opening. (See dashed line in the previous diagram.) *Cut the H-Channel shorter than the panel* to allow the top of the panels to be capped with another section of H-Channel that will run horizontally and between the lower and upper PolyCor™ panels.

3. Trim another 4' x 8' sheet of PolyCor™ to cover the remaining lower portion of the end wall. See Panel Y in the previous diagram.

ATTENTION: Refer to the diagrams when attaching the panels and installing the H-Channel.

4. Insert one edge of the panel into the remaining track of the H-Channel and secure the panel to the rafter leg and vertical end wall support using the Tek screws and washers as previously described.
5. Cut and install another section of H-Channel at the tops of the first two panels to complete the installation. See the arrow in the previous diagram.
6. Using the above steps as a guide, repeat the procedures to complete the installation of the remaining PolyCor™ panels.

SPECIAL NOTES FOR INSTALLATION: When installing the upper row of PolyCor™, set each panel in place and attach it to the end frame. Once all upper panels are installed and attached *and* the H-channel is installed between the panels, use the end rafter as a guide to cut and remove the portion of the panel that extends above the rafter.



Cut upper panel to proper length.

ATTENTION: To prevent damage to the main cover, do not allow the top edge of the end panels to extend above the end rafter.

Tek
Screws
and
Washers

Frame shown above may differ from the actual frame.

IMPORTANT: Install the pedestrian door before installing the panels adjacent to and above the pedestrian door opening. Install H-channel on the panel edges around the pedestrian door to finish these edges.

DO NOT INSTALL H-CHANNEL ON THE PANELS AROUND THE OVERHEAD DOOR OPENING OR OPENINGS.

7. Once all the PolyCor™ panels are installed for the front end wall, which includes the overhead door or doors, continue with installing the zippered end panel for the back end wall.

ATTACH ZIPPERED END PANEL

Gather the parts:

- Zippered end panel, fabric clips #CC6216, and Tek screws (#FA4482B)
- Scissors, rope, tape measure, lift or ladders to reach top of frame, and assistants to install and tighten strap

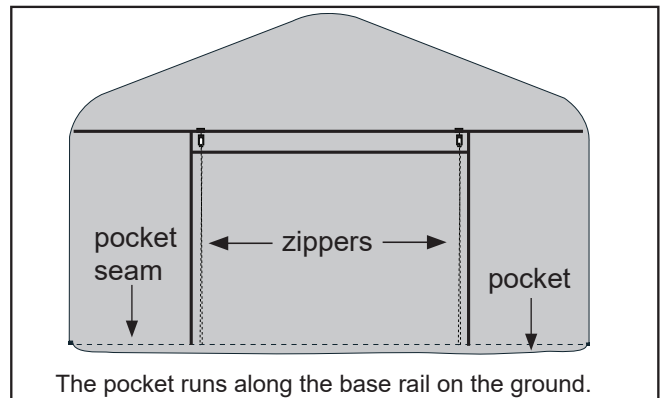
Install Zippered End Panel

This procedure describes hanging the panel from the end rafter and securing it to the frame from the outside using Tek screws and neo-bonded washers. Tek screws and fabric clips are used to secure the top edge of the panel to the inside of the end rafter. This is one way to stretch and secure the end panel to the frame:

1. Unfold the zippered end panel on the ground with the vertical pockets facing up and place it at the base of the end wall.
2. Pull the top edge of the panel up and over the end rafter and align the zippers of the door panel with the vertical frame members of the end wall door opening.

NOTE: The vertical door frame tubes should be slightly to the outside edge of each zipper.

3. While keeping the zippers aligned with the door frame, continue pulling the end panel over the end rafter until the seam of the *lower pocket is aligned with the base rail* of the end wall frame. See dashed line.

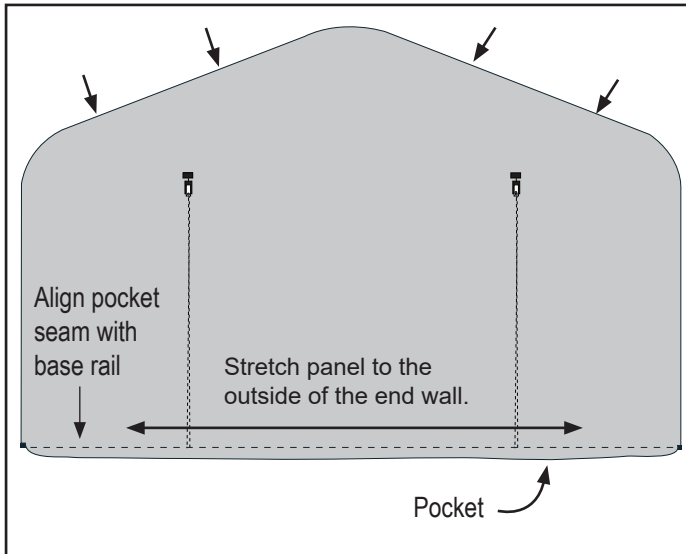


The pocket runs along the base rail on the ground.

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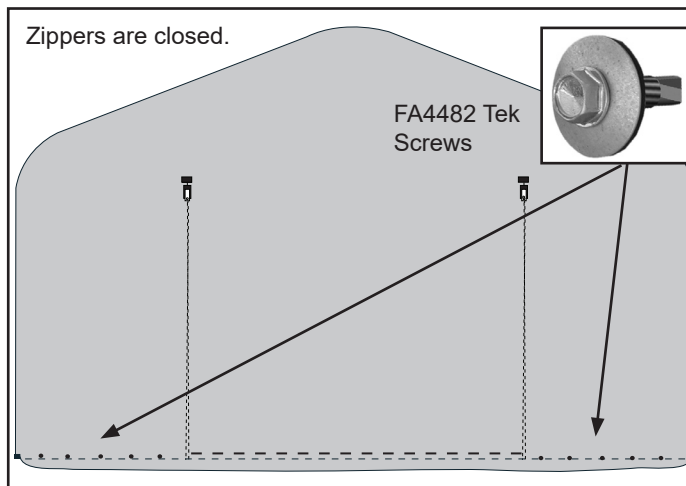
ATTACH ZIPPERED END PANEL (CONTINUED)

- Temporarily secure the top of the panel to the end rafter using a few fabric clips (CC6216) and Tek screws to hold the panel in place. See arrows below.
- Move to the bottom edge of the panel, and with assistants at each end, pull the panel from end-to-end to stretch it around the end rafter legs.



NOTE: Align the pocket seam with the base rail. The final stretching of the end panel occurs when the top of the panel is attached to the inside surface of the end rafter. *Panel pocket runs along the ground with the base rail to help direct water from around the building.*

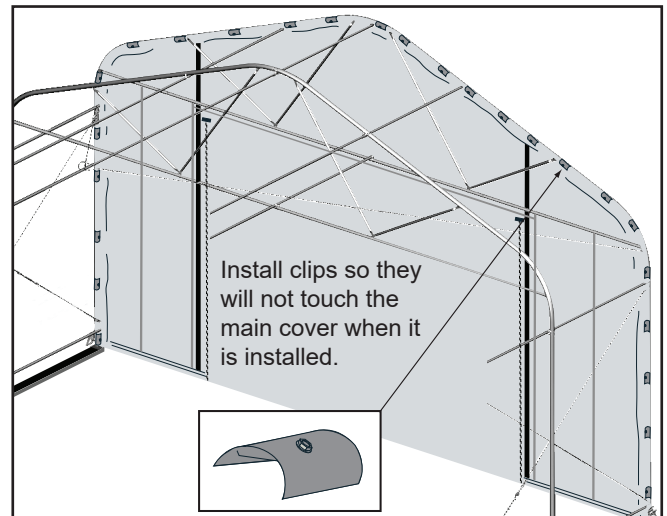
- Hold the pocket seam in line with the base rail and fasten the panel to the rail using Tek screws and washers. (View is from the outside of the frame.)



ATTENTION: Evenly space the Tek screws and washers (12"-16") along the base rail and drive through seam to secure the panel.

Do not attach the door section of the panel to the base rail. See double dashed line above—door panel.

- With assistance, remove the temporary clips and attach the top edge of the panel to the inside of the end rafter using Tek screws and fabric clips.

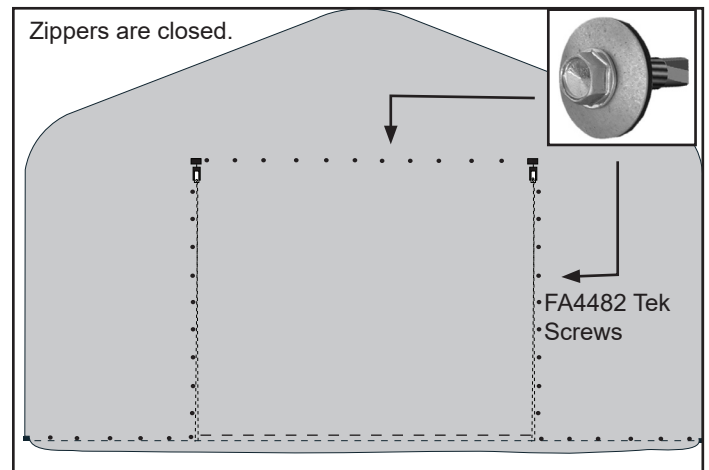


NOTE: Count the number of clips and evenly space these along the rafter. Fold the panel edges around the rafter pipe and secure using Tek screws and the #CC6216 fabric clips.

Stretch the panel toward the top and to the outside as you secure the panel in place. It may be necessary to loosen clips and stretch the panel to minimize wrinkles.

Trim the end panel as needed to achieve the best fit around pipes and end frame connections.

- After all clips are installed and the panel is stretched as desired, move to the outside of the frame and install Tek screws and neo-bonded washers through the panel and into the door jambs and header. See the diagram below.



NOTE: Space the screws evenly at 12"-16". These screws and washers secure the panel and allow the zippers to work freely.

- With the end panel secured to the end frame, install the Roll-Up Crank Assembly for the end panel.

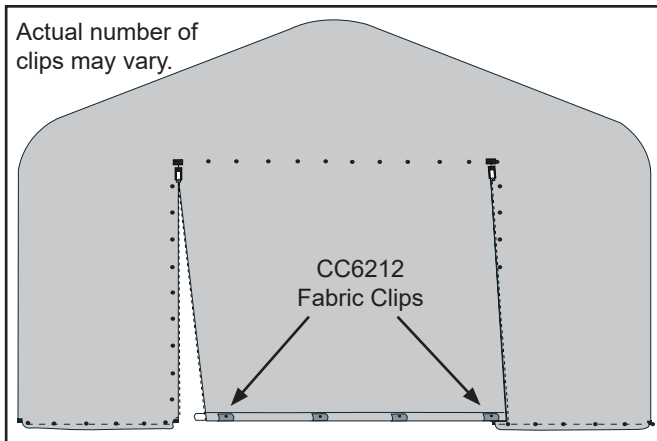
INSTALL ROLL-UP CRANK ASSEMBLY

Gather the parts:

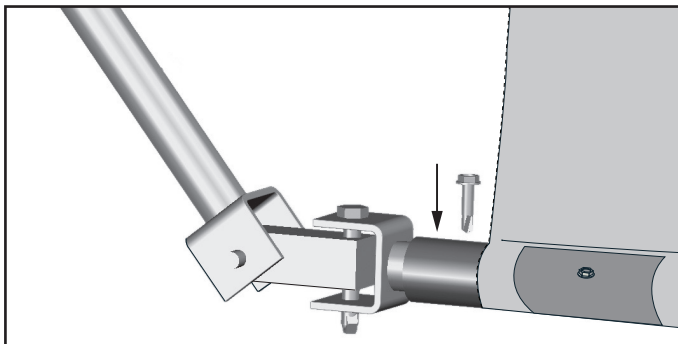
- 131S075 swaged pipe (joined and cut to the desired length)
- Zipper extension pole (#CC2235), spin handle, and universal joint
- Fabric clips (#CC6212) and FA4482 Tek screws

Assembly Procedure

1. Assemble the roll-up door conduit by connecting two (2) 75" swaged pipes, secure joint using a Tek screw (FA4482), and tape over the Tek screw with duct tape to protect the end panel.
2. Insert the conduit assembly into the door pocket and cut the conduit to the correct length if desired. When installed correctly, the conduit is flush at one end of the roll-up panel and will extend a few inches beyond the other end of the panel where the crank will be attached.

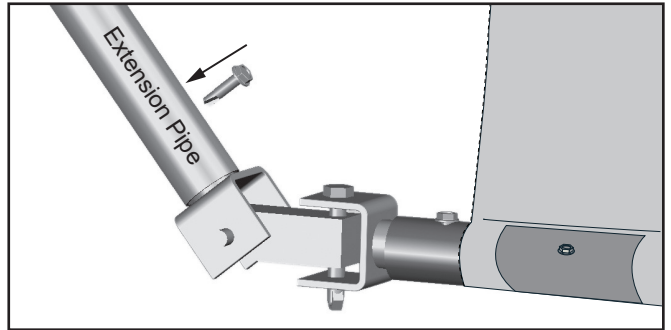


3. Secure the conduit to the panel using the CC6212 fabric clips as shown below. Evenly space the clips.

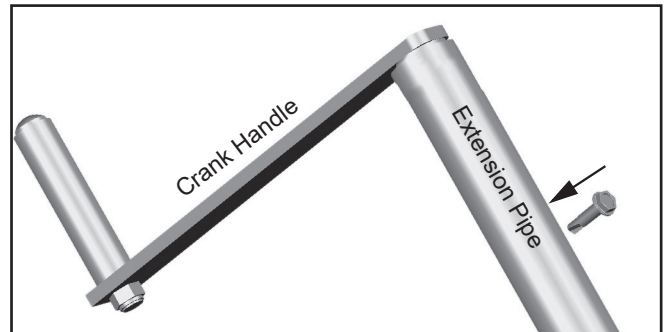


4. Remove the swaged/tapered section of the pipe if needed and attach the universal joint to the conduit using a Tek screw to secure the connection.
5. For the extension pipe, connect two (2) 75" swaged pipes and secure the joint using a Tek screw.

6. Secure the extension pipe to the remaining end of the universal joint using a Tek screw.



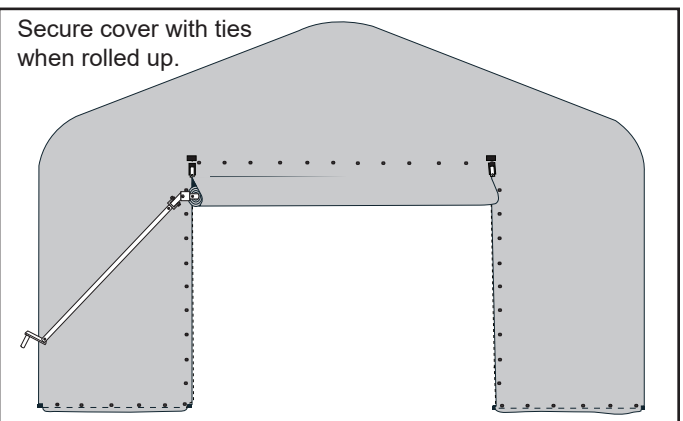
7. Remove the swaged part of the pipe and secure the spin handle to the extension pipe using a Tek screw.



8. Use the CC2235 zipper extension pole to unzip the door. Test the crank handle.

ATTENTION: Roll the door panel to the top of the opening and secure it in place using the cover ties attached to the end panel.

To prevent damage and possible injury, always use the straps to hold the end panel in the OPEN position.



If desired, cut the extension pipe to a length that is comparable to the height of the door. This allows the door flap to be rolled to the top of the zippered seams and the extension pipe and handle to be wedged against the ground to hold the panel in place as the straps are tied.

9. Install the end ratchets for the main cover bonnet.

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ATTACH END RATCHETS

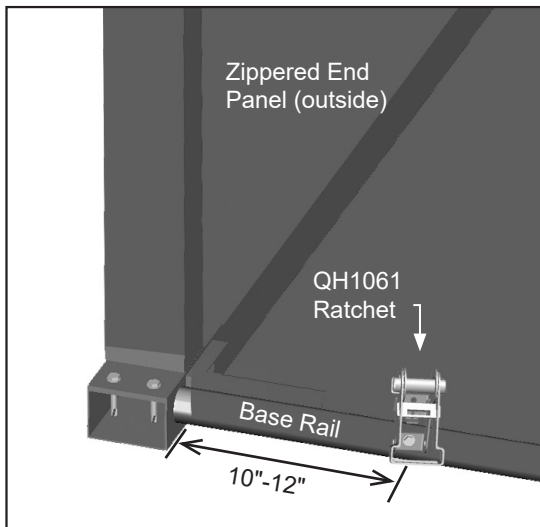
The QH1061 end ratchets secure the bonnet portion of the main cover. These ratchets are installed after the end panel (back) and PolyCor™ panels (front) are installed.



Space below is reserved for customer notes.

Complete these steps:

1. Locate one (1) QH1061 ratchet and attach it to the base rail of the end wall using a Tek screw as shown below. (Sample frame is shown. Actual frame differs.)



2. Repeat the step to install the ratchet for the remaining end of the first end wall and for the remaining end wall.
3. Once an end ratchet is attached to the base rail at each end wall corner, continue with the installation of the main cover.

PREPARE MAIN COVER

Gather the parts:

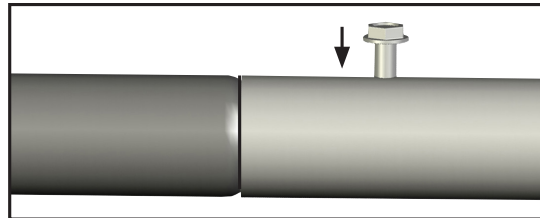
- Pipe 1.315" x 75" swaged
- Pipe 1.315" x 73.5" plain
- Main cover
- Tek screws

Assembly Procedure

NOTE: When handling the main cover and setting it in position, do not pull on the end straps. They will pull out of the cover. Position the pre-installed straps of the main cover at the ends of the assembled and anchored frame.

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

1. Assemble two main cover conduits. Start each conduit assembly with one (1) plain pipe and add swaged pipes to arrive at the correct length.
 - a. Locate all sections of pipe needed to assemble the cover conduit.
 - b. Insert the swaged end of each pipe into the plain end of another pipe until the conduit is assembled.
 - c. Secure each pipe joint with a Tek screw.



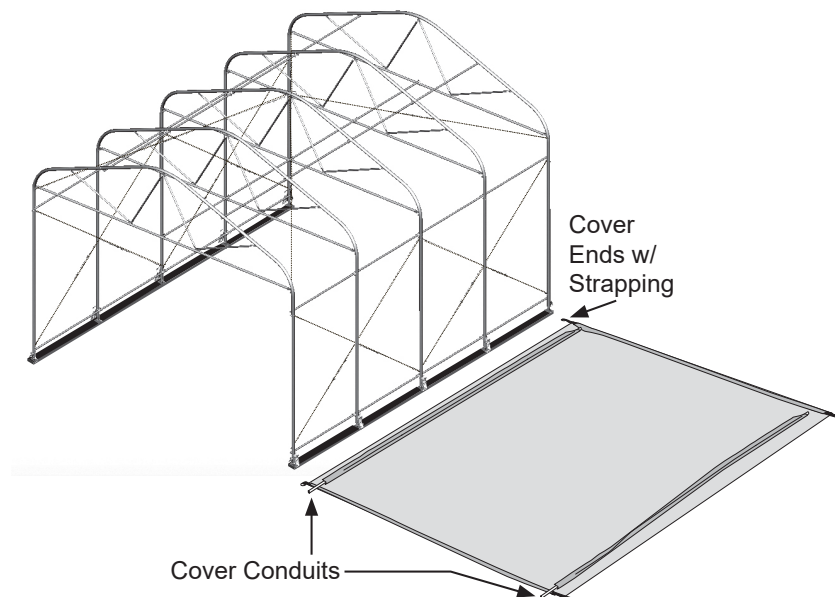
NOTE: Duct tape over the Tek screws to prevent damage to main cover.

These cover conduits are inserted into the pockets sealed into the main cover. The conduits are used to tighten and secure the main cover.

2. After assembling the cover conduits, locate the main cover and unfold it on a clean, smooth surface near the frame.

NOTE: Unfold the main cover with the inside surface facing up.

3. Locate the cover ends with strapping and align with the front and back of the shelter.
4. Insert the cover conduits into the pockets of the main cover.



End wall frames are not shown.

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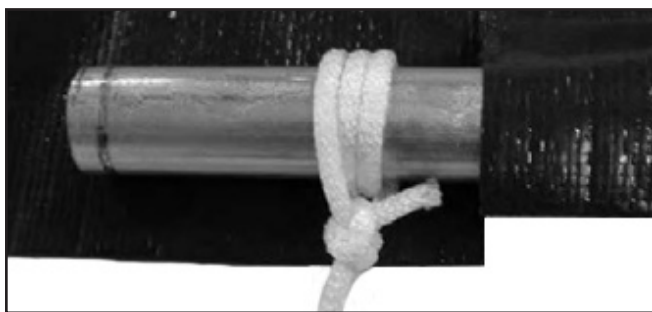
ATTACH MAIN COVER

Gather the parts:

- Main cover (with conduits already inserted)
- Ropes long enough to reach over the frame (provided by customer)
- Box cutter or utility knife

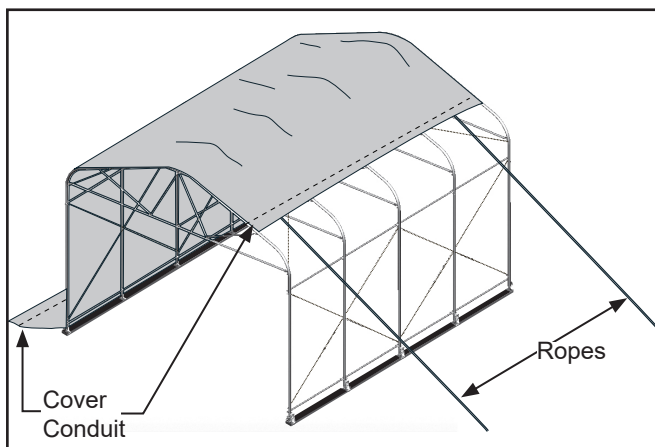
Assembly Procedure

1. To pull the cover over the frame, attach ropes to both ends of the cover conduit. Wrap the rope around the conduit a few times to prevent it from slipping off.



NOTE: Depending on the length of the cover it may be necessary to attach additional ropes to the cover conduit between the end ropes by cutting a small opening in the cover pocket and tying the rope around the conduit. **DO NOT** cut through the main cover. *Cut through the conduit pocket only.*

2. With all ropes attached to the cover conduit, lift the conduit and carry the cover toward the base of the frame.
3. Toss the ropes over the frame and pull the cover into position. One person is required at each rope.



NOTE: Use lifts and additional assistants (if needed) to help pull the cover up and over the frame.

4. Once the main cover is pulled into position, center the cover on the frame and remove the ropes. Loosely secure the ends of the cover to the ratchets attached to the front and back end rafters.

⚠ WARNING: To prevent damage and injury, do not leave the cover unattended if it has not been properly secured. The ropes can be used to temporarily keep the cover from blowing off the frame.

5. Locate the black straps at the front and rear hems and feed the straps through the center slot in the end ratchets located on outside each end rafter.

NOTE: Do not tighten completely at this time. This helps to temporarily secure the cover.

6. Tie the ropes (or straps), used to pull the cover into position, to the frame to help hold the cover.
7. Move to the other side conduit of the cover and temporarily secure that side of the cover to the frame.

NOTE: Tie ropes to the ends of the side conduit and directly across from the ropes or straps tied to the other side conduit to temporarily secure the cover to the frame. Once side straps are installed and slightly tightened, the cover is stretched end-to-end.

8. Continue with the installation of the side straps.

INSTALL THE MAIN COVER SIDE STRAPS

The side straps wrap around slits created in the side conduit pocket. The strap ends of each strap are then fed into each side ratchet attached to the rafter legs and slightly tightened to keep the cover in position.

Required parts and tools:

- 2" strap (Strap may ship as individual lengths or as a bulk roll.)
- Tool to cut slits in cover conduit pockets

Complete these steps to install the side straps:

1. Move to one side ratchet attached to a rafter and cut a slit in the *conduit pocket* just above the conduit and in line with the ratchet.



Photos above show using a utility knife to cut a slit above the conduit, which has been inserted into the main cover side pocket. Cover, rafter, and frame design differ from actual shelter. Procedure is the same.

NOTE: If ropes were used at these locations when the main cover was pulled in place, a slit in the cover pocket may already be present.

When creating the slit in the pocket for the strap, *do not cut the main cover. Cut only the pocket material.*

2. Using the ratchet and conduit positions as guides, measure and cut or select a tie down strap that shipped with the building.



NOTE: Cut the strap length so that the strap can wrap around the cover conduit and both ends can be inserted into the ratchet.

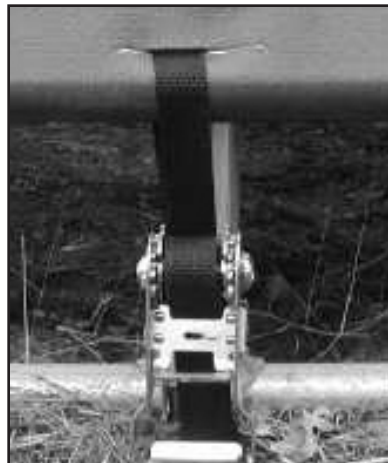
3. After cutting the strap, feed one end through the slot in the cover pocket and around the conduit.
4. Feed both ends of the strap through the slot in the ratchet and slightly tighten the ratchet.



NOTE: Do not tighten completely at this time.

Frame and ratchet location differ from actual frame. Steps to install the main cover are similar however.

5. Repeat the previous steps to install and slightly tighten the remaining straps.



NOTE: Do not tighten completely at this time.

6. After all side security straps are in place and slightly tightened and the cover is centered evenly on the frame side-to-side and end-to-end, complete the following steps to tighten the ratchets.

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TIGHTEN THE RATCHETS

Before continuing, verify that the cover is in the desired position and centered on the frame. (Loosen and reposition if needed.) Continue with these steps to tighten the side ratchets.

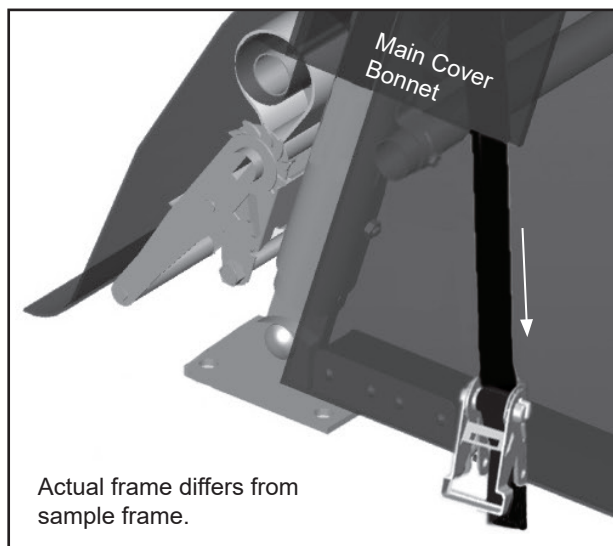
1. Move to the side ratchets attached to each leg of one rafter. Begin at an inside rafter near the center of the frame.
2. With an assistant at one side ratchet and someone at the other side ratchet on the same rafter, tighten the ratchets to secure the cover.

Tightening the ratchets at the same time on the same rafter helps keep the cover centered and results in a more uniform appearance.

3. Move to another rafter and repeat the steps to tighten the side ratchets attached to that rafter.

NOTE: If the strap builds up in the ratchet, loosen the ratchet, remove some of the strap, and retighten.

4. After all side ratchets are tight, position someone at each ratchet attached to the end rafter where the bonnet straps of the cover were previously inserted.



Sample frame is shown above. Actual frame differs.

5. Tighten the end ratchets to secure the bonnet portion of the main cover.
6. Move to the other end of the building and secure the bonnet at that end.
7. Read the care and maintenance information that follows.

SHELTER CARE AND MAINTENANCE

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

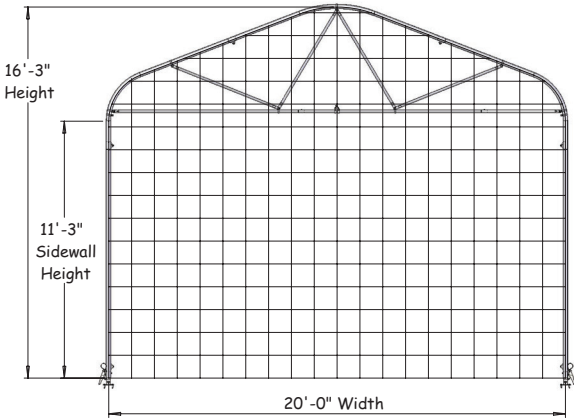
- Regularly check the main cover and panels (if equipped) to see that these remain tight and in proper repair.
- Check the cable turnbuckles and cable clamps to see that these remain tight. Tighten as needed. Check the cable to verify that it is not worn or wearing on a frame member.
- Check connections and all fasteners to verify that they remain tight.
- Do not climb or stand on the shelter at anytime.
- Remove debris and objects that may accumulate on the shelter. Use tools that will not damage the cover when removing debris.
- Remove snow to prevent excess accumulation. Use tools that will not damage the cover when removing snow. **NEVER ALLOW SNOW TO ACCUMULATE ON THE COVER OR PILE UP AGAINST THE SIDES OR END PANELS (IF EQUIPPED).**
- Check the contents of the shelter to verify that nothing is touching the cover or the side panels that could cause damage.
- Check the anchoring system to ensure that all components are tight and in good repair.
- If the shelter is moved, inspect all parts and connections before reassembling.
- For replacement or missing parts, call 1-800-245-9881 for assistance.

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

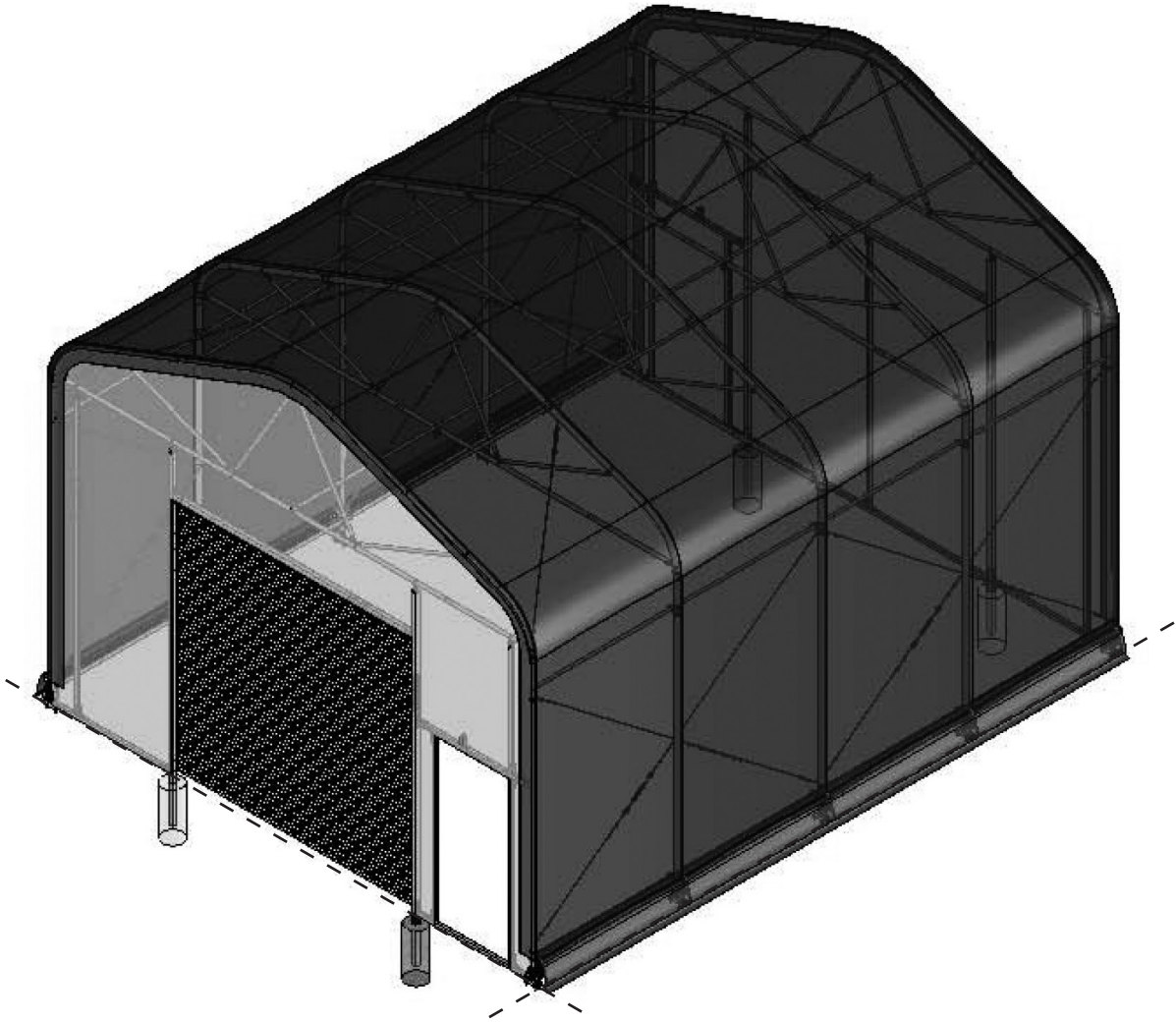


QUICK START GUIDE

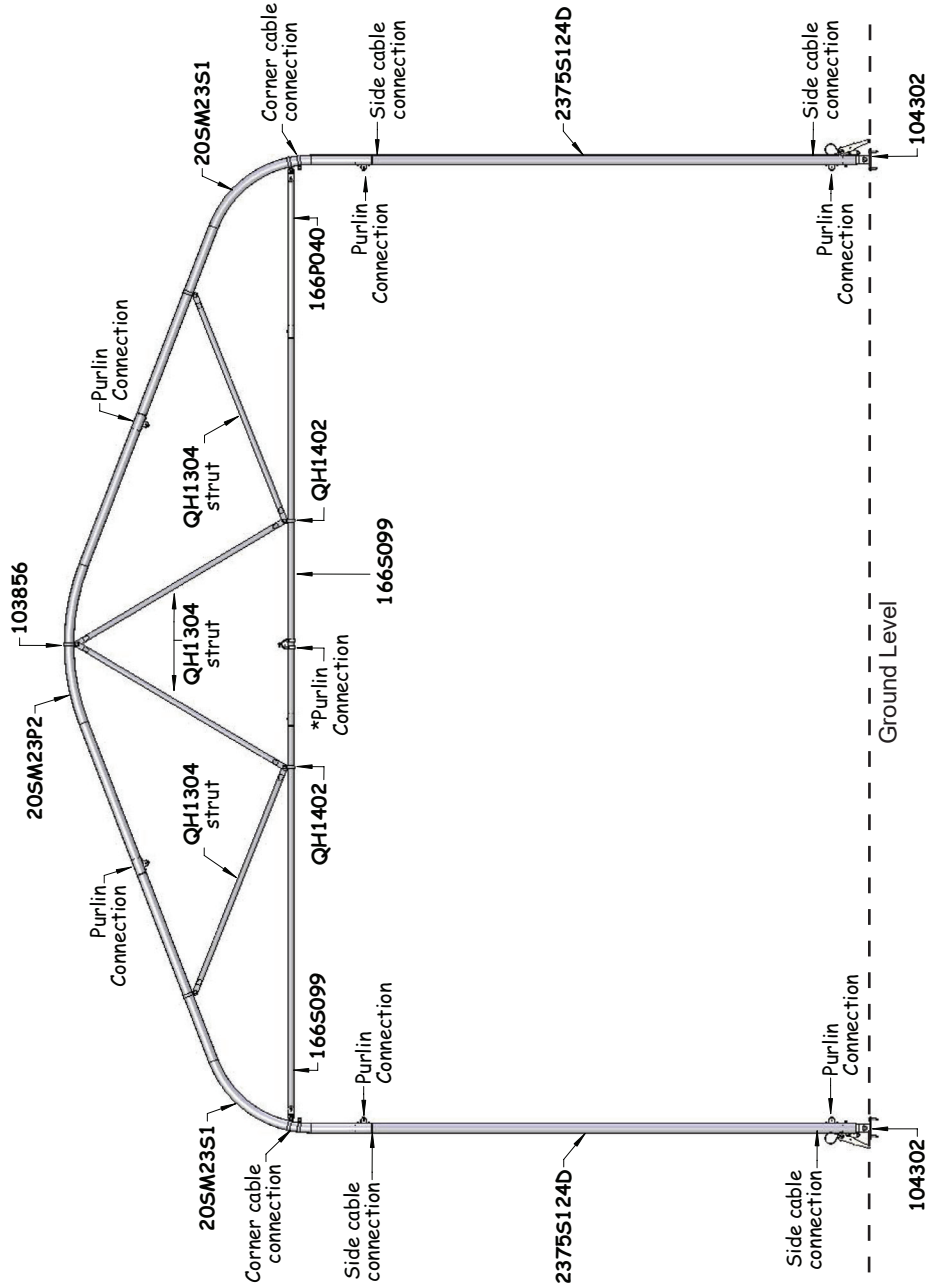
20' Wide Storage Master Building



FRONT
Grid Represents 12" Squares



FRONT PROFILE



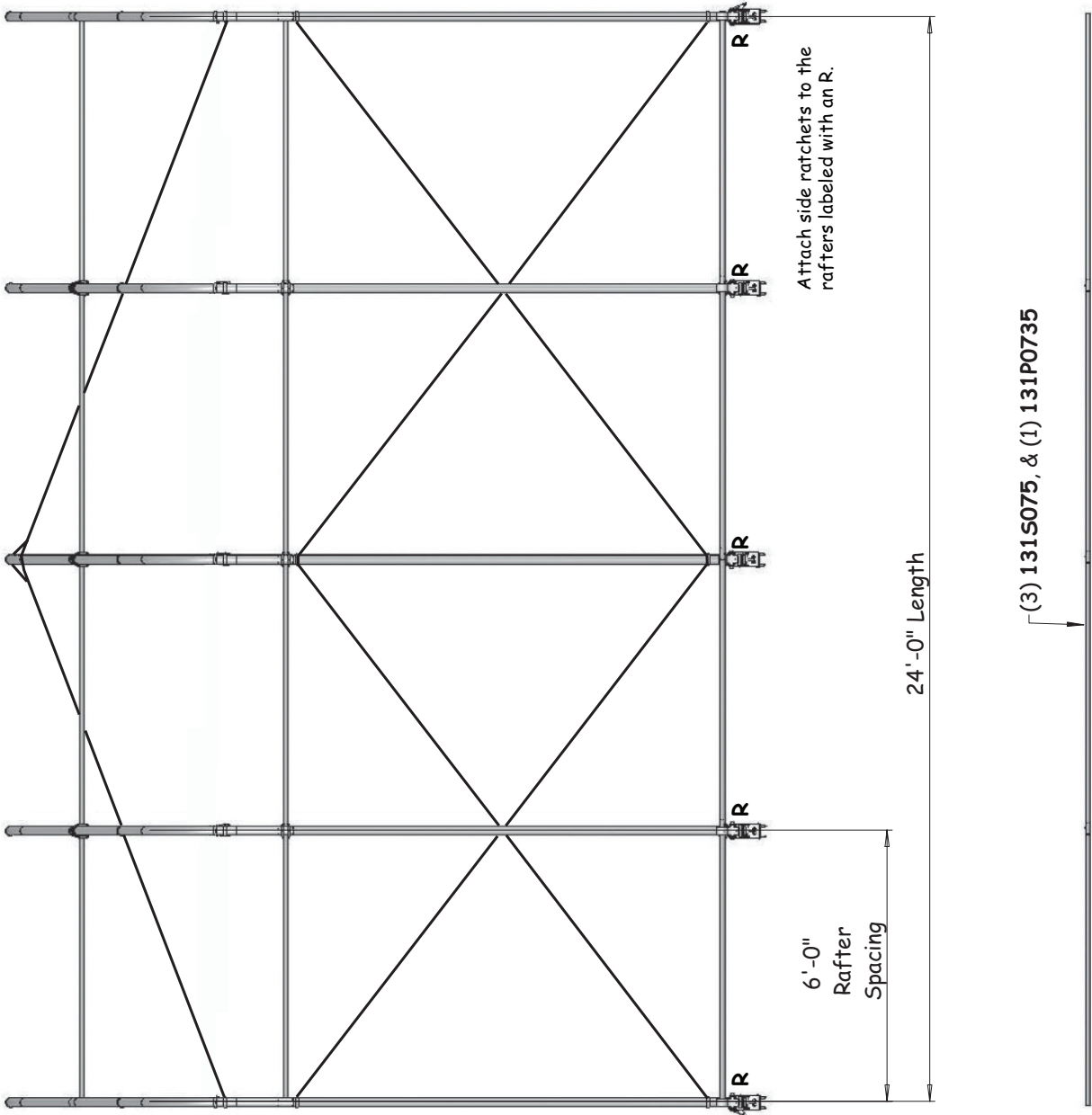
Purlin Connection Note:

- Purlin connected to end rafters using QH1070 pipe strap.
- *One purlin run connected to end rafter using QH1070 pipe strap.
- Purlin connected to mid rafters using 102546 2.375" cross connectors.
- *Purlin connected to mid rafters using 102548 1.66" cross connectors.

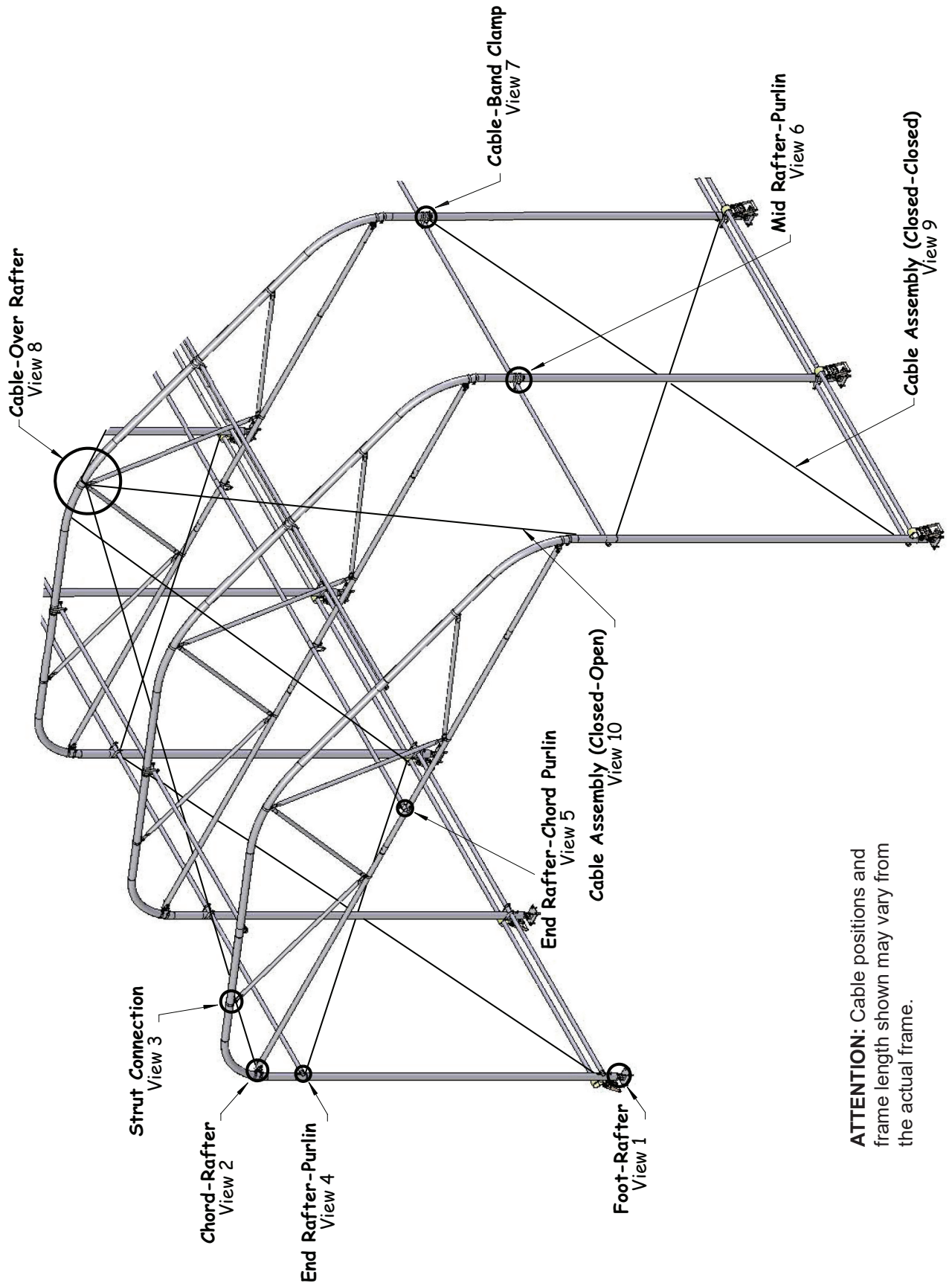
Cable Connection Note:

- Clamps used for cable connections are not installed on every rafter.
- Sidewall cable connections installed on end and 2nd from end rafters only.
- Corner cable connections installed on end rafters only.

SIDE PROFILE - PB02570R6_1D

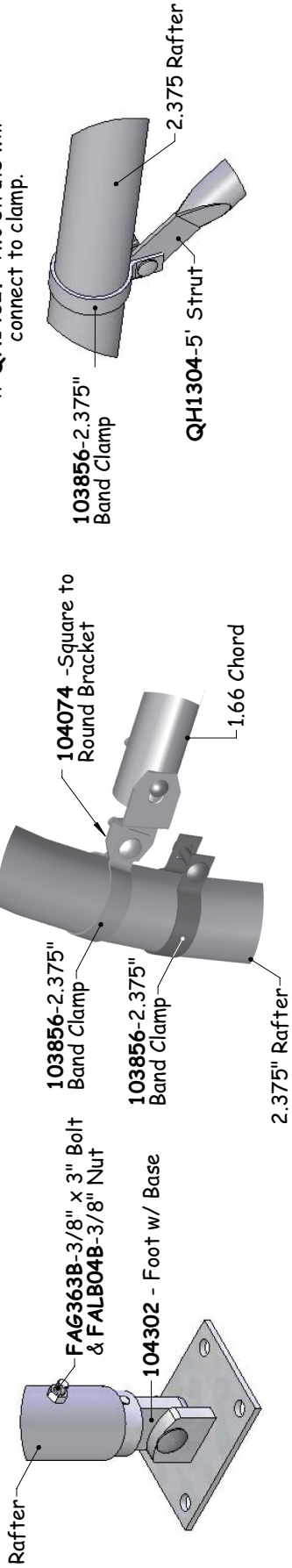


CONNECTIONS



ATTENTION: Cable positions and frame length shown may vary from the actual frame.

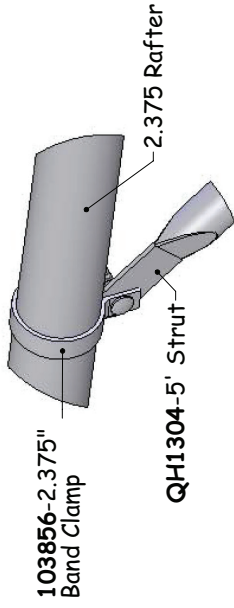
CONNECTION - DETAILS 1-6



Foot-Rafter

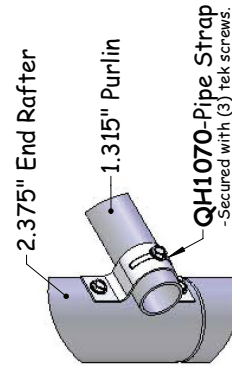
View 1

Note: Similar connection for strut to chords using clamp # QH1402. Two struts will connect to clamp.



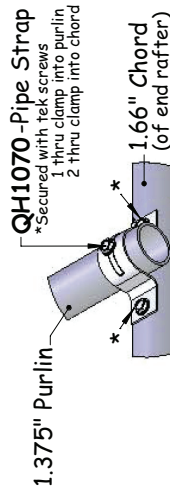
Strut Connection

View 3



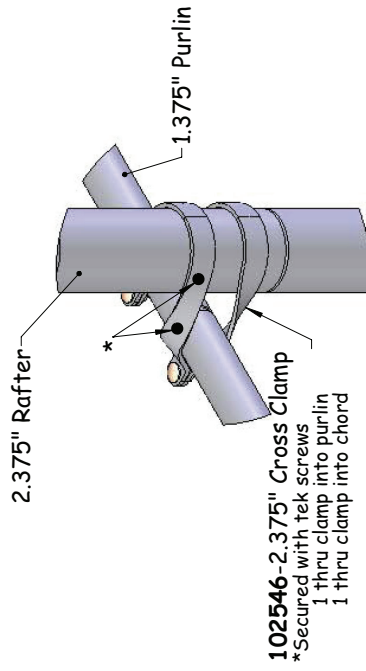
End Rafter-Purlin

View 4



Chord-Rafter

View 2



Note: Similar connection for purlin to mid chords using clamp # 102548

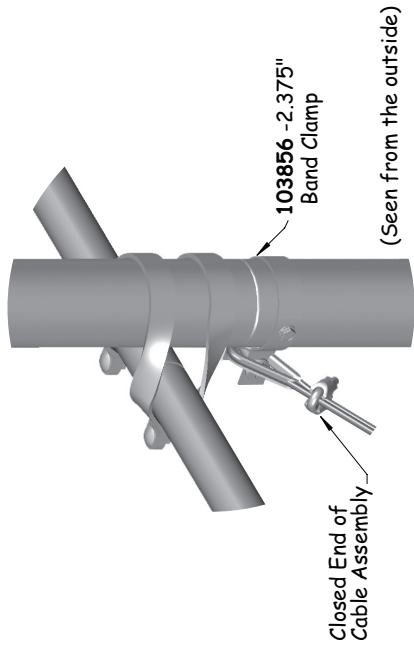
Mid Rafter-Purlin

View 6

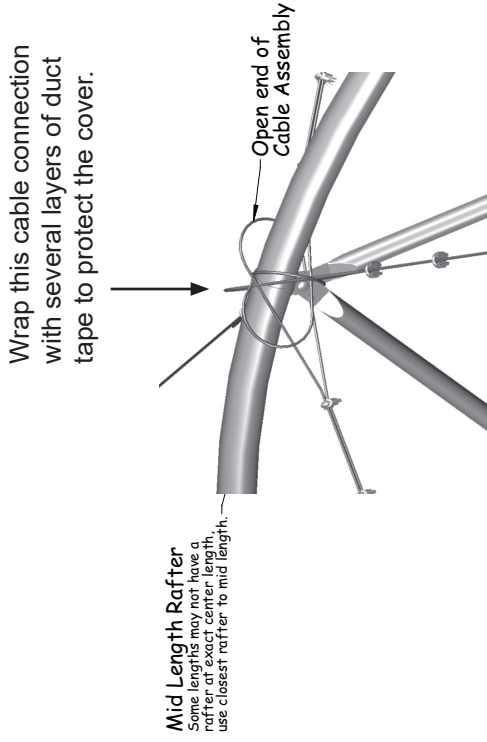
End Rafter-Chord Purlin

View 5

CONNECTION - DETAILS 7-10

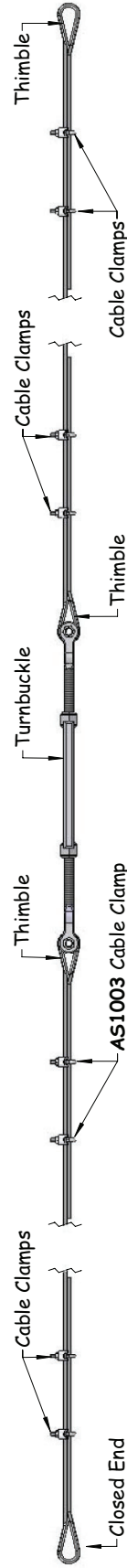


Cable-Band Clamp
View 7

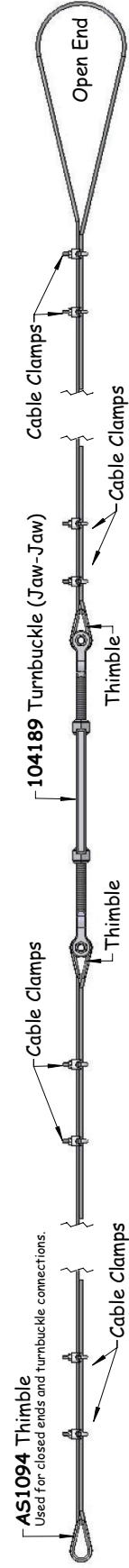


Note: Each cable assembly spans to the corners of the shelter, secure at top of straight side.

Cable-Over Rafter
View 8

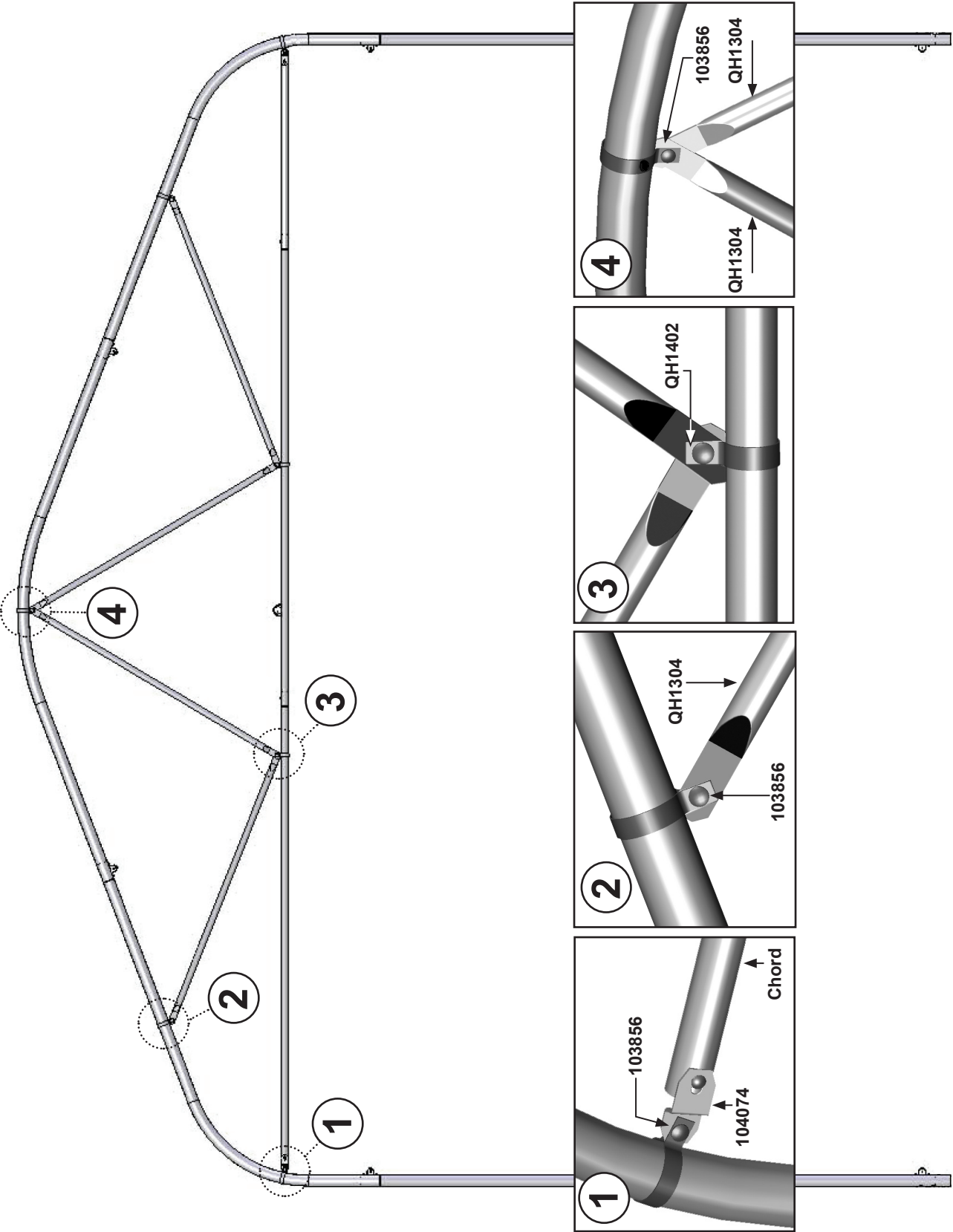


Cable Assembly (Closed-Closed)
View 9

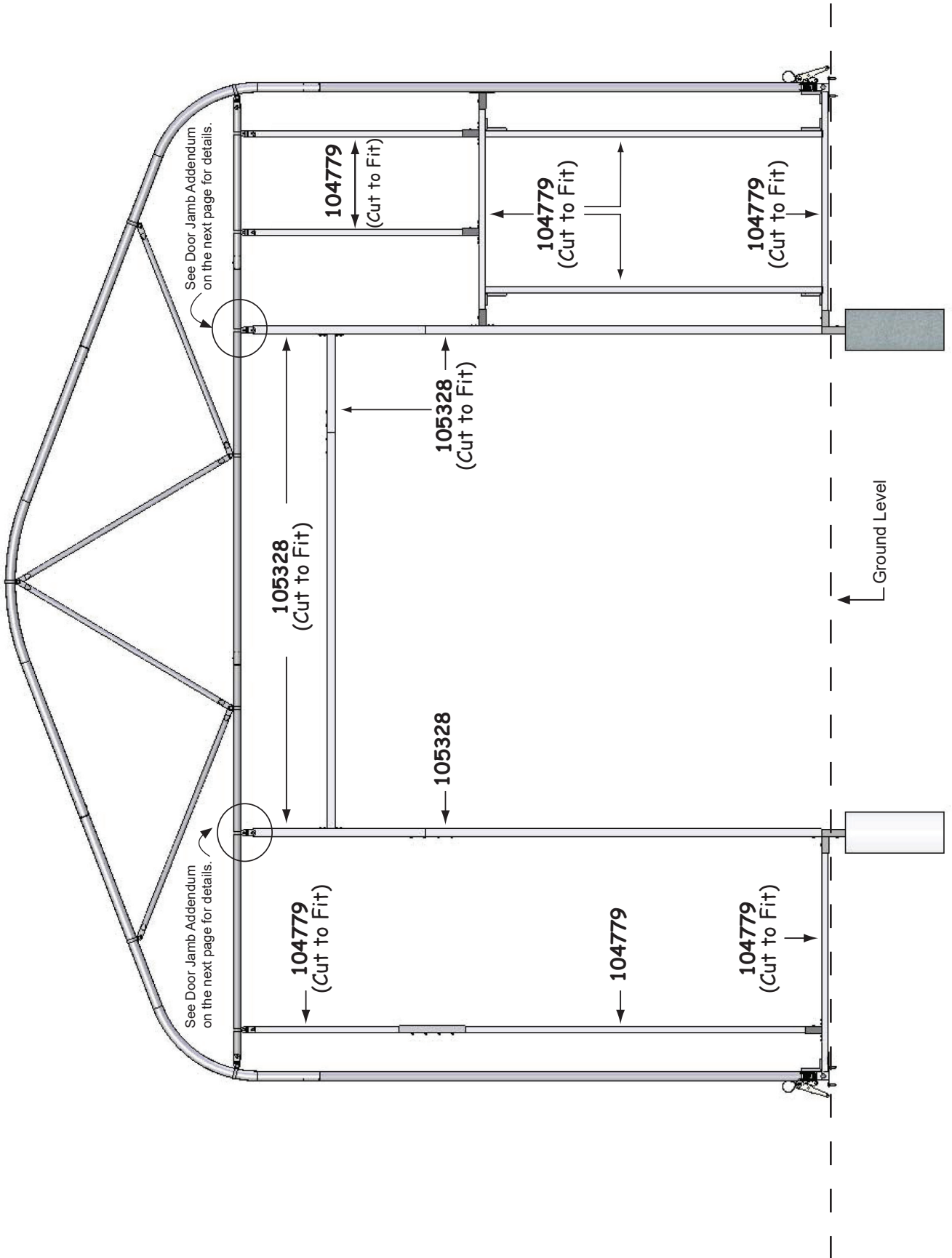


Cable Assembly (Closed-Open)
View 10

CONNECTIONS - RAFTER



END FRAMING - FRONT



Door Jamb Addendum

ADDITIONAL 111708 BRACKET INSTALLATION FOR DOOR JAMBS (Door Installation Only.)

In addition to the standard door jamb and end frame installation instructions presented in this guide, please install the 111708 connection brackets as described below. **These brackets are not shown in any of the main building diagrams in this manual.** Use the diagrams on this page for proper bracket placement and installation.

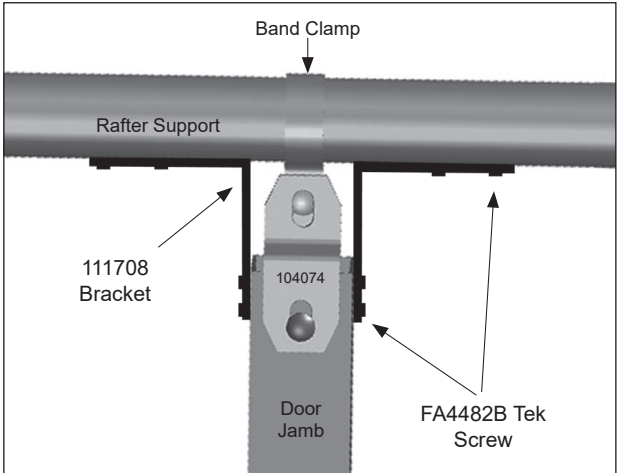
NOTE: The door jambs are the vertical frame members that the door is attached to when it is installed.

Complete these steps:

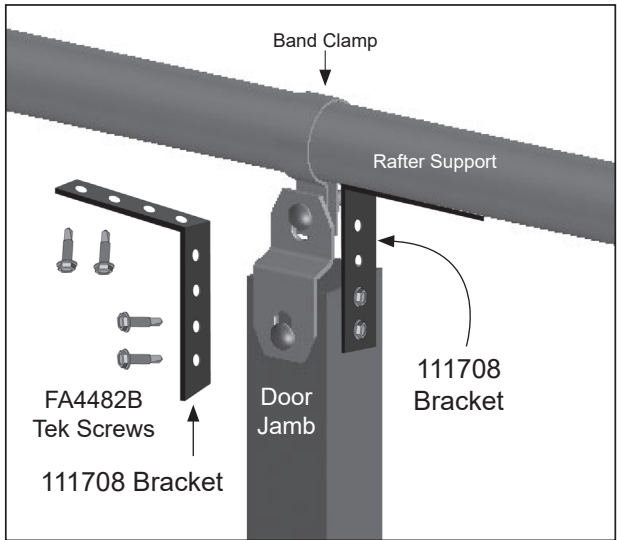
1. Locate the 111708 brackets and FA4482B Tek screws included with the building.
2. After installing the door jambs and end wall framing, bend each 111708 bracket as needed to install.

ATTENTION: Brackets are shipped as flat plates. Bend each one as needed to attach to the end rafter support. To bend the plate, tightly clamp it in a vise so the bend point is centered between the mounting holes. Lightly tap the free end of the plate with a small maul until the 90° angle is created.

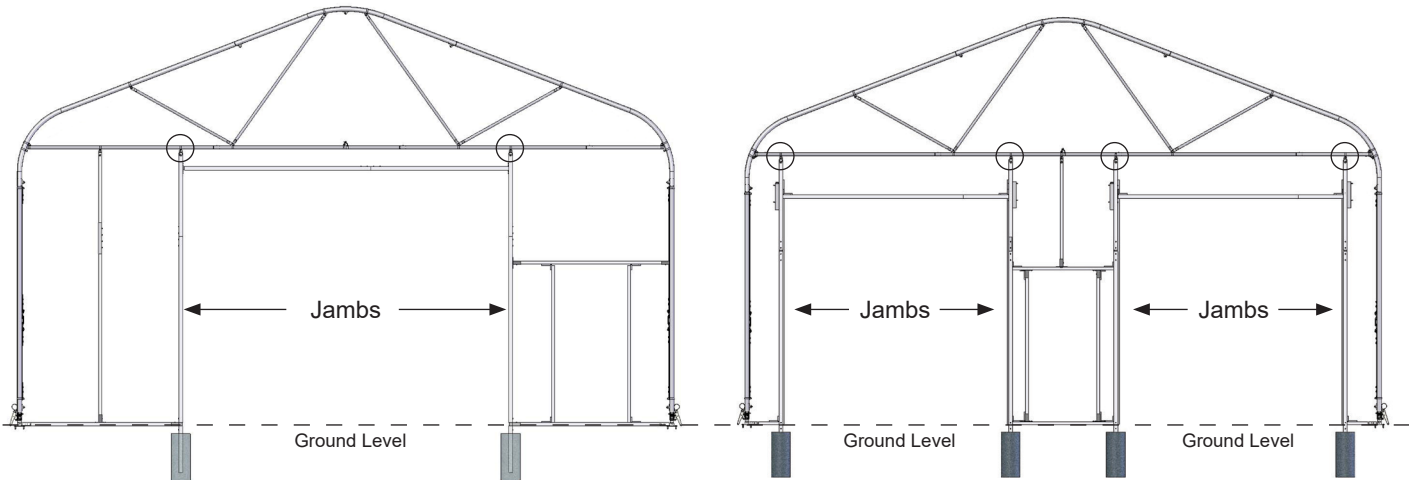
3. Use four (4) FA4482B Tek screws to attach each 111708 bracket. **Brackets are used to secure the door jambs only. Do not use these for any other vertical frame member of the end wall. See diagrams below for your end frame.**



Door Jamb and Band Clamp: Install one 111708 bracket on each side of each door jamb.

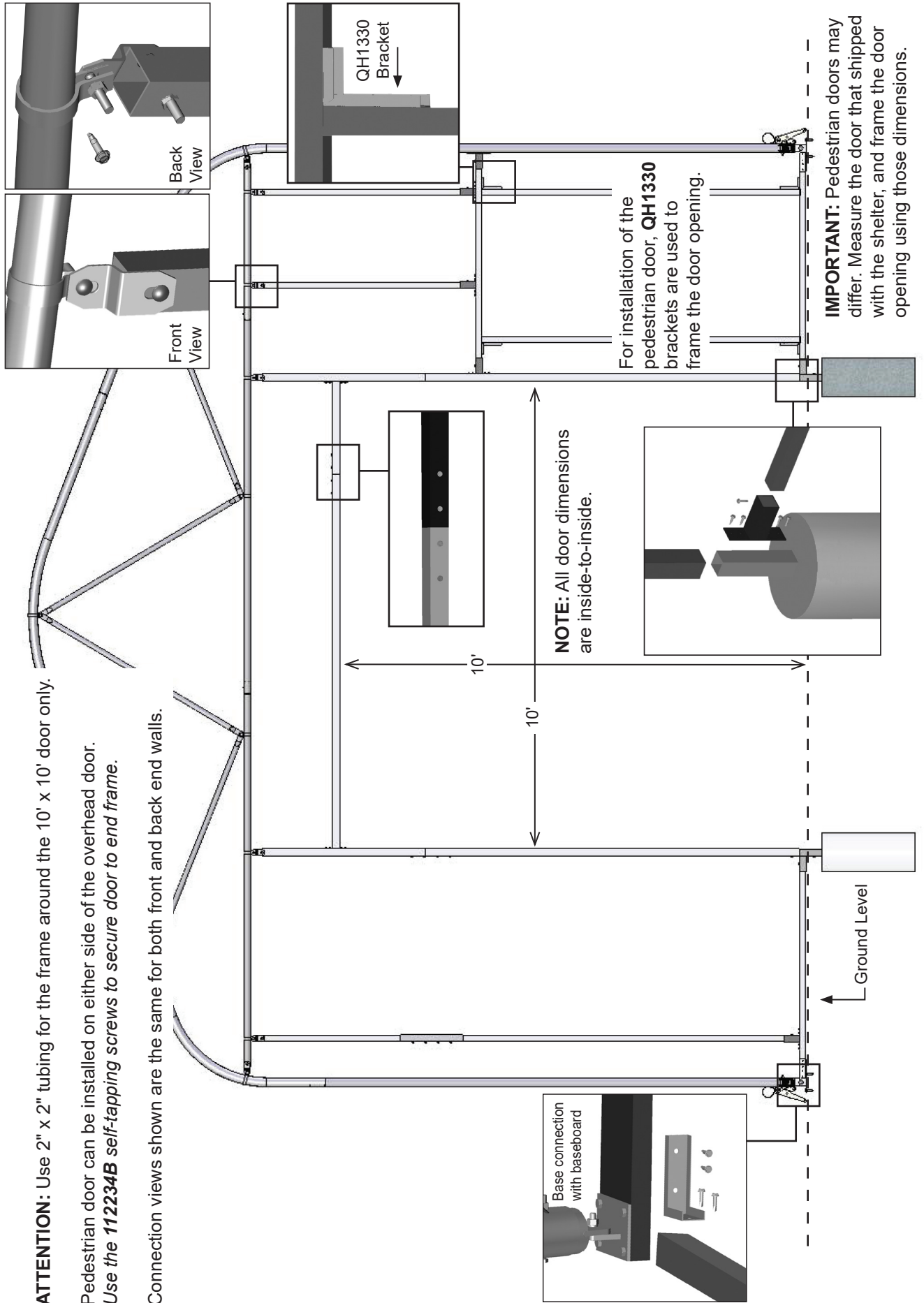


Storage Master End Frame Designs: 1-Door & 2-Door



Diagrams show the locations of the door jambs. Circles show where to attach the 111708 brackets.

END WALL DIAGRAM - FRONT

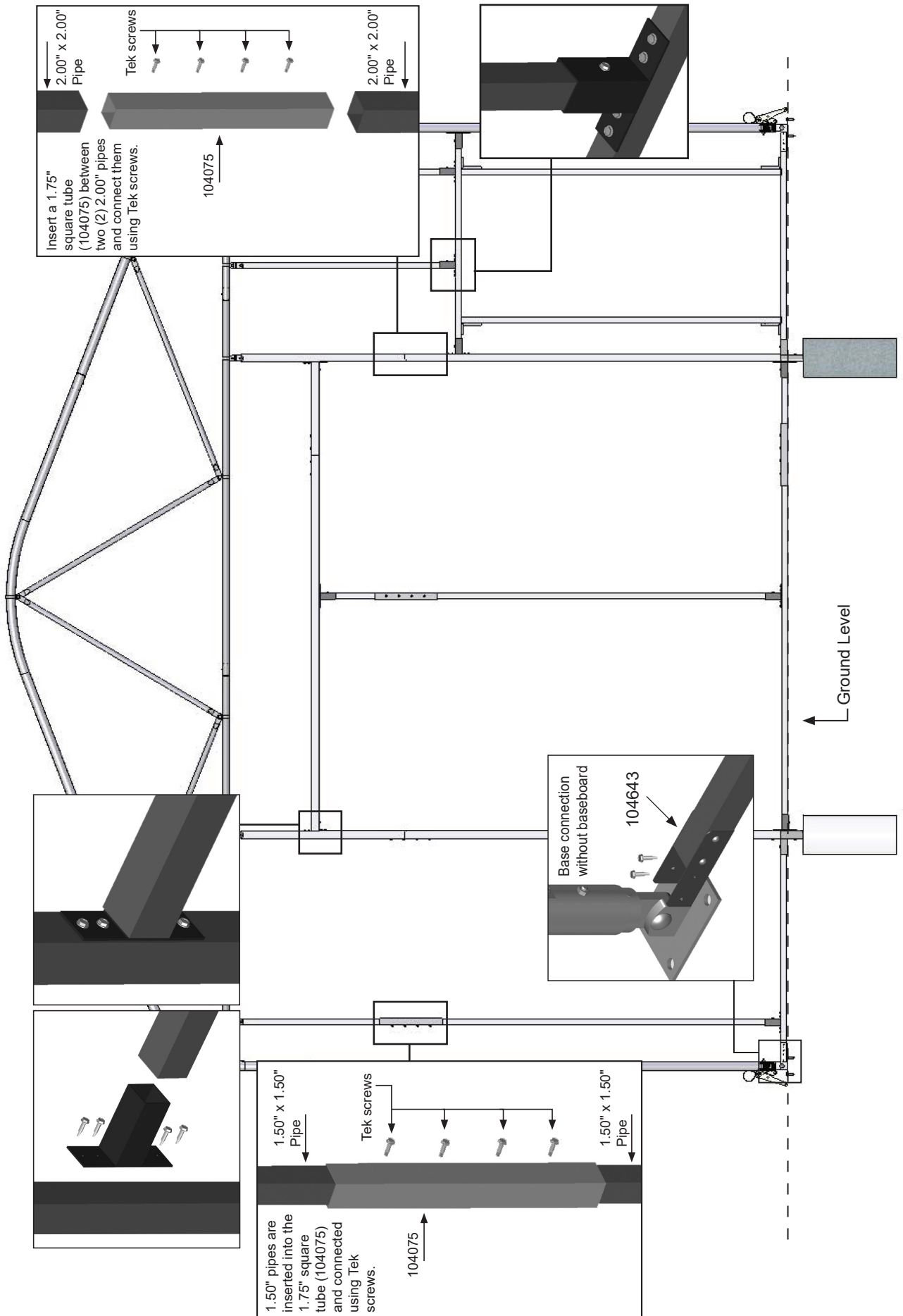


ATTENTION: Use 2" x 2" tubing for the frame around the 10' x 10' door only.

Pedestrian door can be installed on either side of the overhead door. Use the **112234B** self-tapping screws to secure door to end frame.

Connection views shown are the same for both front and back end walls.

END WALL DIAGRAM - BACK



POLYCOR™ INSTALLATION DIAGRAM

