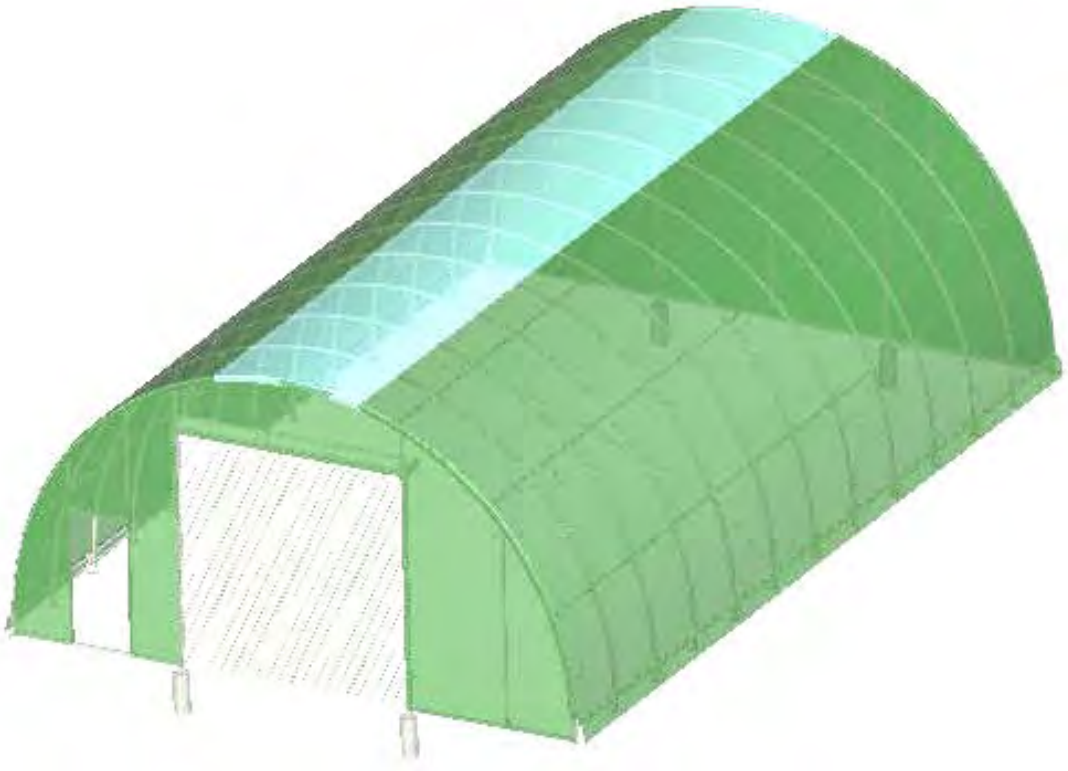
ClearSpan™ Storage Master SolarGuard™
30' Wide



Frame or cover (or both) shown above may differ from your shelter.

Use these instructions for the following building:

PB00100R3 & PB00100R4 (30' W x 48' L)
PB00110R3 & PB00110R4 (30' W x 60' L)
PB00120R3 & PB00120R4 (30' W x 72' L)

Revised: January 2006gj

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. This instruction manual includes 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 and cables.
- Use a portable GFCI 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 without proper ventilation.
- Provide proper ingress and egress to prevent entrapment.

ANCHORING INSTRUCTIONS

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

WARNING: The anchor assembly is an integral part of the shelter construction. Improper anchoring can cause shelter instability and failure of the structure to perform as designed. Failing to anchor the shelter properly will void the manufacturer's warranty and can 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 building in a place 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.

- A level site is required to properly and safely erect and anchor the structure.
- Drainage: Water draining off the structure and from areas surrounding the site should drain away from the site to prevent damage to the site, the structure, and contents of the structure.

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

ASSEMBLY PROCEDURE

Following the instructions as presented will help ensure the proper assembly of your shelter. 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. Check the weather ***before*** you install the main cover and any end panels. Do not install end panels (if equipped) and main cover on a windy or stormy day.
4. Re-evaluate the location and site based on the information and precautions presented in the documentation included with the shipment.

5. Lay out the site (if this has not been completed).

6. Assemble the frame components in the order they are presented in these instructions.

7. Assemble the frame.

8. Consult the Must Read document and properly anchor the assembled frame.

9. Assemble and install the cable assemblies (if equipped). These are typically found on larger shelters. Your shelter may include struts or other methods of bracing attached during the frame assembly procedure.

10. Install the End Wall assemblies. (These are optional items for some shelter types.)

11. Install, tighten, and secure the main cover. This applies to fabric covers that stretch over the frame assembly.

12. Read the Care and Maintenance information at the end of these instructions.

LIST OF WORDS AND PHRASES

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

The words and phrases below 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 are used to describe the shipped parts and can also be found on the materials list/spec sheets included with the shipment. To aid in the assembly, read through the following definitions *before* you begin to assemble your shelter.

- **Conduit:** An assembly of pipes used to secure the main cover and end panels (if equipped). Purlins and some strut assemblies also consist of connected pipes to form a conduit. Each pipe joint of a conduit assembly is secured with a self-tapping Tek screw.

- **Cross-connector:** Any one of the metal brackets used to "connect" or secure a purlin to a rafter.

- **Foot or Rafter Foot:** The part attached to and found at the base of the rafter or leg of the shelter. (Depending on the shelter, the foot is an optional purchase.)

- **Main Cover:** Fabric used to cover the roof and sides of the shelter.

- **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 at 1-800-245-9881 to request one.

- **Pipe Strap:** This metal clamp is used to secure purlins and struts to the assembled frame.

- **Purlin:** The pipe assembly that runs perpendicular to the rafters or framework that supports the main cover. Purlins are found on the sides and roof areas of the assembled frame, are evenly spaced, and typically run from the front to the back of the shelter.

- **Plain or Straight Pipe:** A term used to describe a pipe that has the same diameter throughout its entire length.

- **Swaged End or Swaged Pipe:** The term "swaged" refers to the tapered end of the pipe. Swaged ends of a pipe can be inserted into couplers and the straight ends of other pipes.

- **Tek Screw:** A self-tapping fastener used to secure pipe joints and to fasten brackets to rafters.

REQUIRED TOOLS

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

- Tape measure or measuring device
- Marker to mark locations on the pipes
- Variable speed drill and impact driver (cordless with extra batteries works best)
- Metal-cutting saw or tool to cut cable

- Wrenches and impact socket set, or an adjustable wrench
- Scissors or utility knife
- Hammers and gloves
- Adjustable pliers and self-locking pliers
- Ladders, work platforms, and other machinery for lifting designed to work safely at the height of the building
- Rope 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 box and place them where you can easily inventory the shipment. 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, contact customer service at 1-800-245-9881.

NOTE: At this time, you do not need to open the plastic bags containing the fasteners and clamps.

Space below is reserved for customer notes.

PART IDENTIFICATION

(All parts are not shown)

131S075
1.315” 75 PIPE
SWAGED

30R23S1
PIPE 2.375”
RAFTER POSITION 1

30R23P2
PIPE 2.375”
RAFTER POSITION 2

30R23S1D
PIPE 2.375” DRILLED
RAFTER POSITION 1

103856
2.375” O.D. BAND CLAMP

104302
1.90/2.375 PIPE FITTING
W/BASE

102546
2.375” PURLIN
CROSS CONNECTOR

QH1070
1.315” PURLIN PIPE
STRAP 1”

100441
3/8” NUT SETTER

QH1061
1” x 4000-LB. RATCHET

QH1065
2” RATCHET

FA4482
#14 x 1” TEK SCREW

AS1083
3/16” CABLE THIMBLE

FAG363
3/8” x 3” HEX CAP BOLT

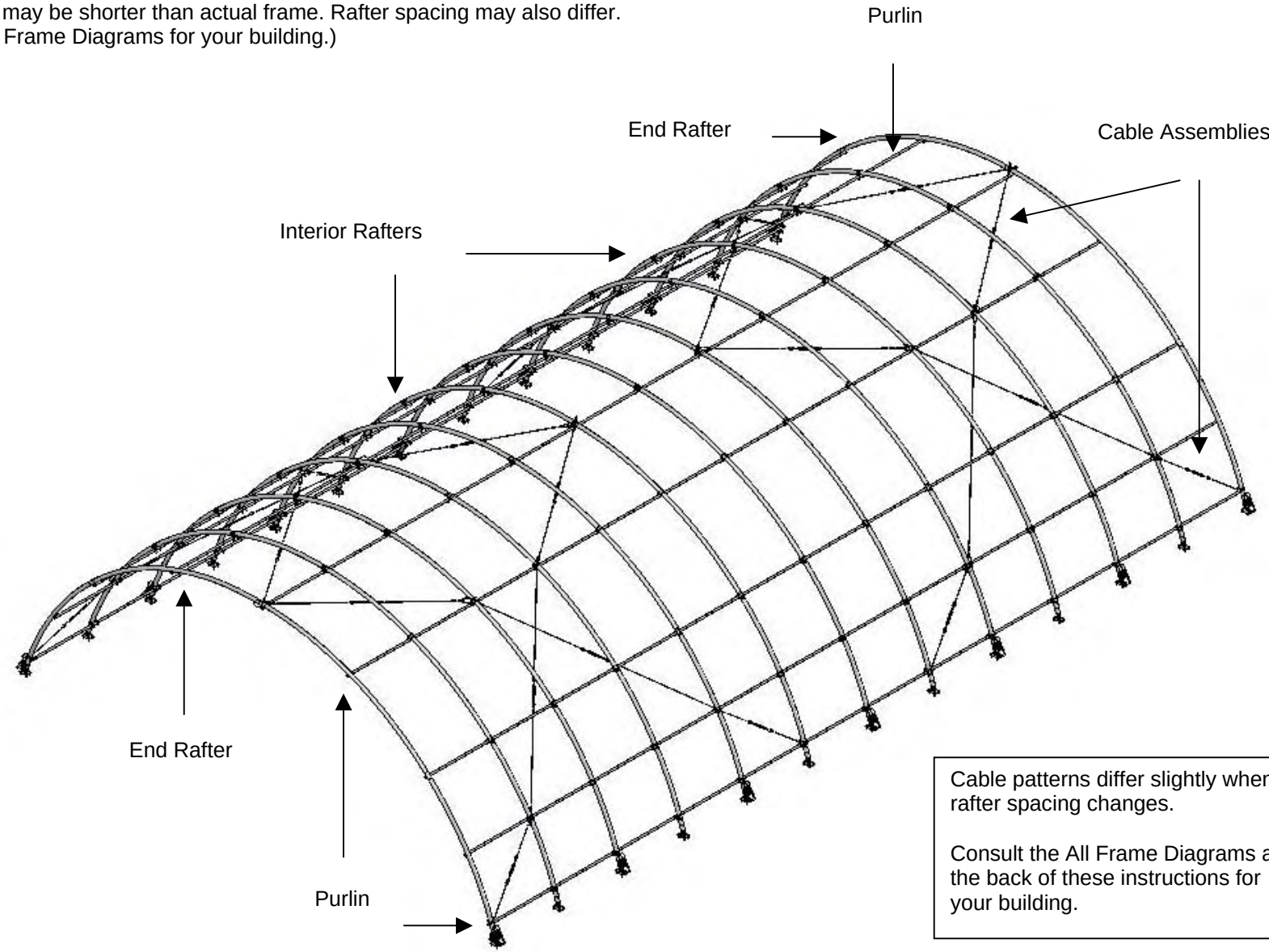
104189
TURNBUCKLE ½” X 6” JAW/JAW
GALVANIZED

AR1050
GALVANIZED
CABLE 3/16”

AS1003
3/16” CABLE CLAMP

Frame Assembly Diagram

(Frame shown may be shorter than actual frame. Rafter spacing may also differ. Consult the All Frame Diagrams for your building.)



Cable patterns differ slightly when rafter spacing changes.

Consult the All Frame Diagrams at the back of these instructions for your building.

Rafter Introduction

All rafters consist of the following four (4) pipes: 2 (30R23S1D), 1 (30R23S1), and 1 (30R23P2). The two 30R23S1D pipes include a hole drilled near the bottom to connect the rafter foot.

Assemble End Rafter

1. Connect the pipes in the order shown in the figure below.
2. With the rafter assembled on the ground, secure each pipe joint with one self-tapping Tek screw (FA4482). See Figure 1. Position screws so they will not interfere with the cover.
3. Attach all (QH1070) brackets to the rafter in the locations shown using two (2) Tek screws. These brackets are attached to the underside of the rafter and are positioned at each pipe joint and midway between each pipe joint as shown below.
4. Insert one rafter foot (104302) into the bottom of the rafter and secure with FAG363 bolt and nut. The head of the bolt must be to the outside of the rafter to prevent damage to the cover when it is installed. Repeat this step for the remaining rafter foot.
5. After attaching a foot to both ends of Rafter A, measure 10" from the bottom of each foot and mark a line on the inside of the rafter.
6. Position the bottom of one QH1070 bracket on the line and secure using two self-tapping Tek screws (Figure 2).
7. Repeat Step 6 for the other side of the rafter.
8. Repeat this procedure to assemble a second End Rafter when that rafter is needed.

FIGURE 1

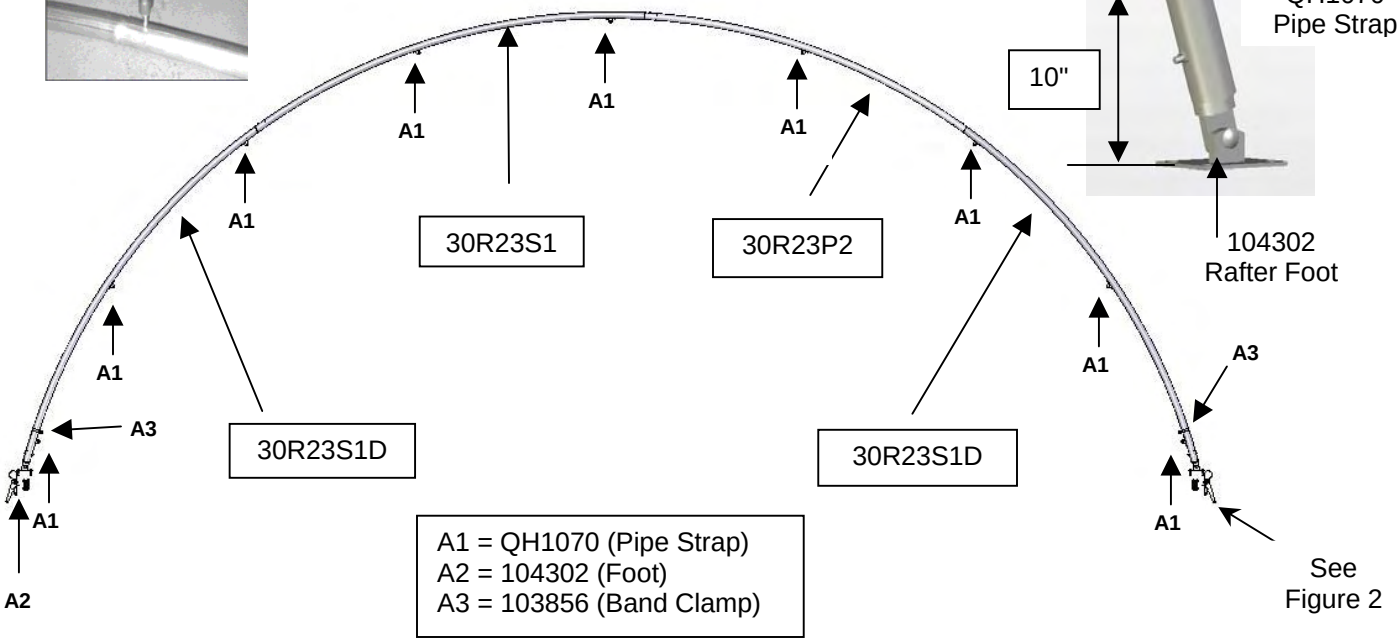
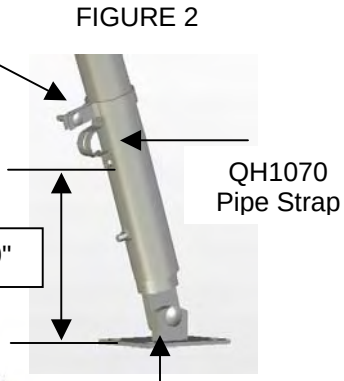


FIGURE 2



Assemble Mid Rafters

1. Select the proper pipes (see End Rafter Introduction: previous page) and assemble and secure as described in Steps 1 and 2 of the instructions for End Rafter.

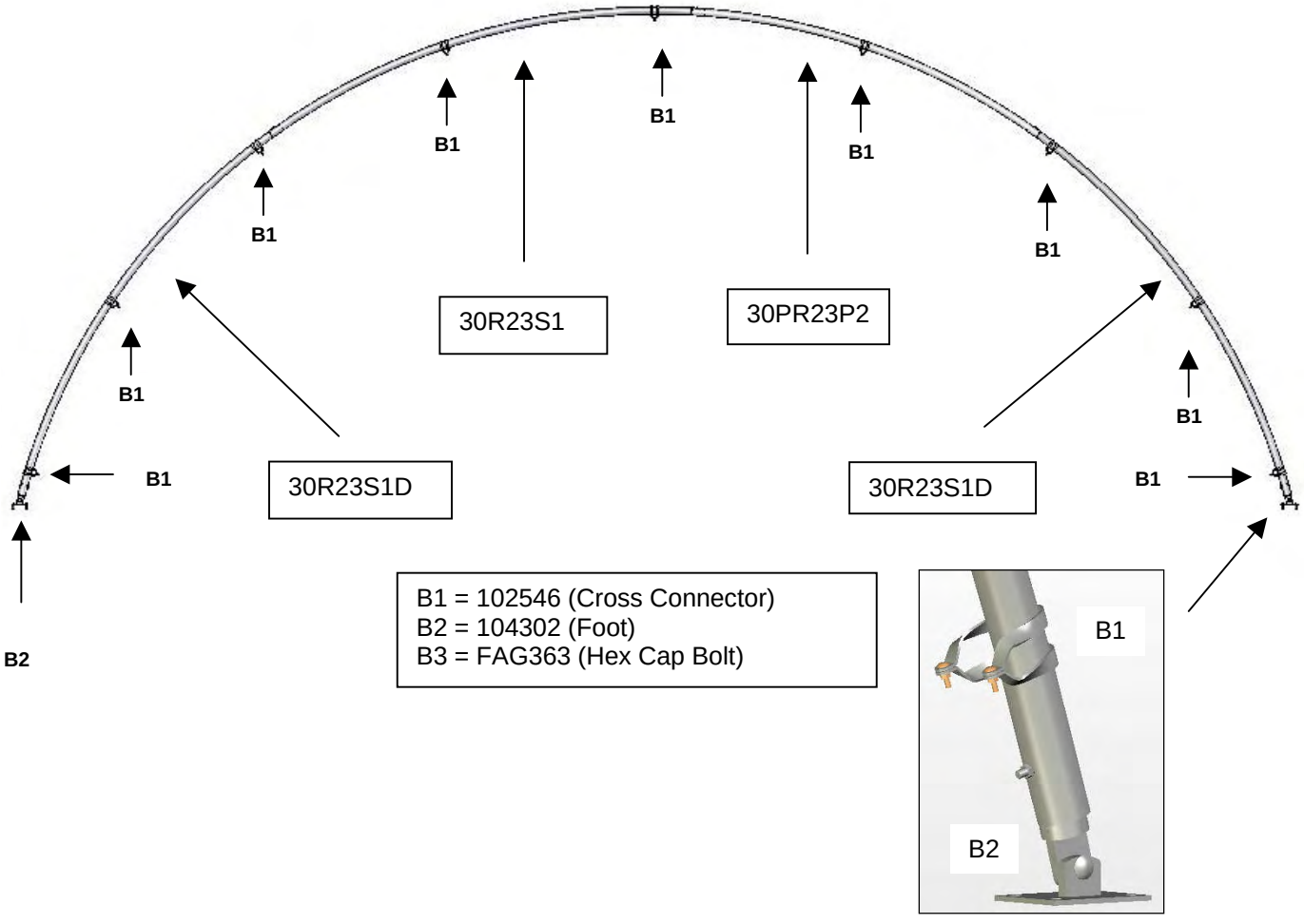
2. After securing each pipe joint with one self-tapping Tek screw, locate the midpoint between the pipe joints on the rafter and mark with a marker.

   NOTE: This mark corresponds to the positions of the QH1070 brackets attached to the end rafter in the previous procedure. It will help keep the purlins inline as you assemble the frame.

3. Attach rafter foot (104302) to the rafter using hex head bolt (FAG363) and secure with nut (FALB04B).

4. Repeat Step 3 for the remaining rafter foot.

5. Repeat the above procedure to assemble the remaining Mid Rafters.



Marking the Purlin Pipe (3’ and 4' Rafter Spacing)

Required 1.315” x 75” Swaged and 73.5” Plain pipe for the following lengths:

Building Length	75” Swaged Pipe	73.5” Plain pipe
48’	63	9
60’	81	9
72’	99	9

1. Beginning with a swaged pipe, assemble the first purlin by inserting the swaged end into the plain end of the next swaged pipe.
2. Continue this pattern until all swaged pipes are connected and end with the plain pipe.

   NOTE: At this time, do not fasten the pipes together. After marking, each purlin will be disassembled and added to the building in sections as the rafters are set in place.
3. Verify that all pipes are seated at the joints before marking the rafter spacing.
4. If your building is on 3’ Rafter Spacing, skip to and continue with Step 7.

   If your building is on a 4’ Rafter Spacing, continue with Steps 5 and 6. After completing Step 6, skip to and continue with Step 9.
5. (4' Rafter Spacing) With the purlin on the ground, measure 4' 0-3/4" from the end and make the first mark on the purlin.
6. From this mark, layout the rafter spacing in 4' intervals. After the purlin is marked, continue with Step 9.
7. (3' Rafter Spacing) With the purlin on the ground, measure 3' 0-3/4" from the end and make the first mark on the purlin.
8. From this mark, layout the rafter spacing in 3' intervals.
9. Repeat the above procedure until all purlins have been assembled and marked.
10. After assembling and marking all purlins, keep the pipes together and in an accessible place near the rafter assembly. As rafters are added, each purlin will be used (pulled apart) and attached to the rafter assembly for support.
11. Continue by assembling the frame.

Frame Assembly: Standing the Rafters

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

NOTE: Rafter spacing depends on your building. Consult the All Frame Diagrams for your building.

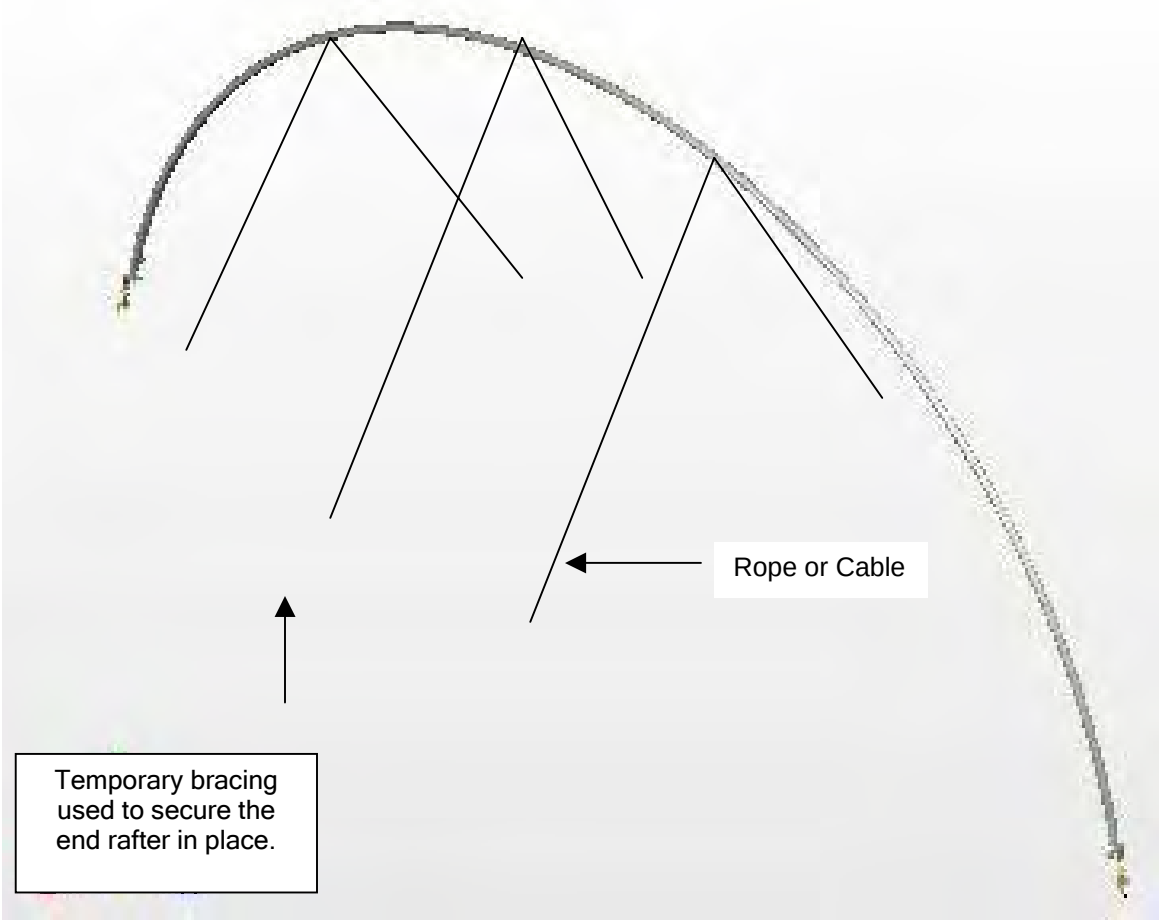
Stand and Secure the First End Rafter

ATTENTION: Use the proper lifts when standing the rafters. Rafter assemblies can be heavy and awkward to handle.

1. Stand the first end rafter and secure it using rope, cable, or some other form of bracing to hold the rafter in position. Use a level (or other leveling device) to plumb the end rafter.

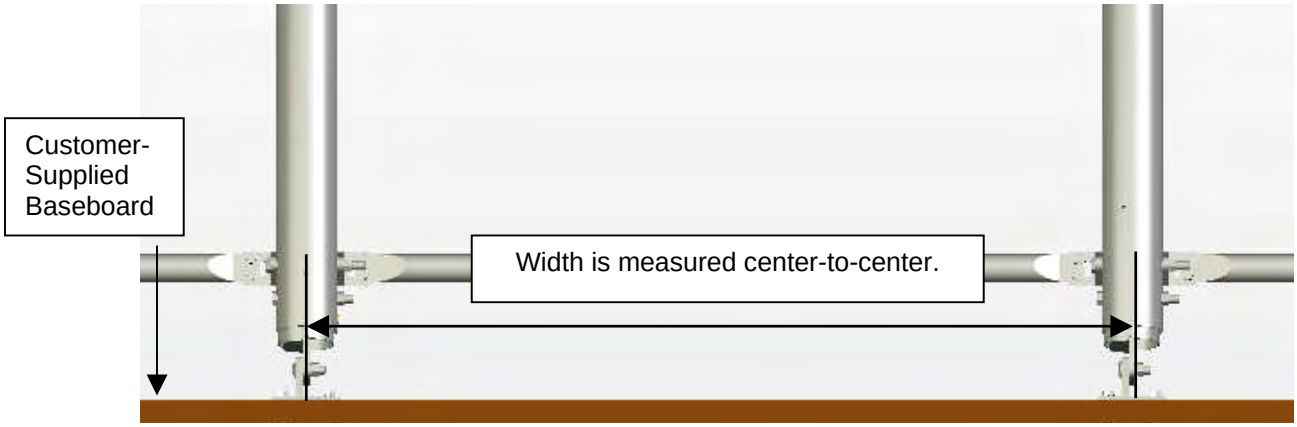
   NOTE: This rafter must be plumb. Plumbing the end rafter at this stage assists in placing the remaining rafters.

2. Secure the rafter feet to prevent the rafter from shifting.



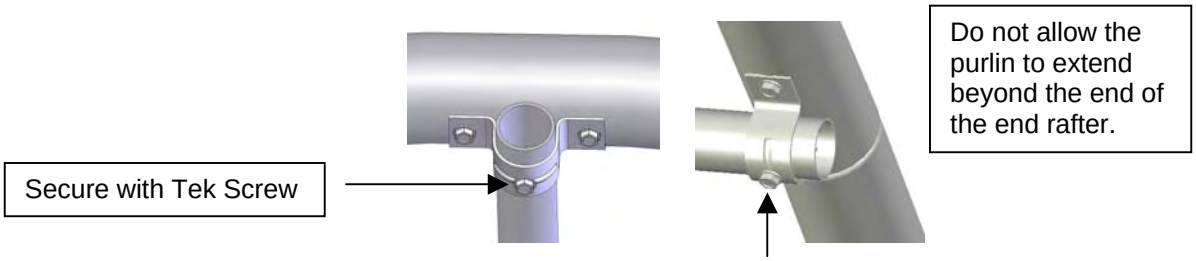
3. Stand the second rafter—the first interior rafter—and secure the rafter feet as before.

NOTE: Width between rafters is measured center-to-center.

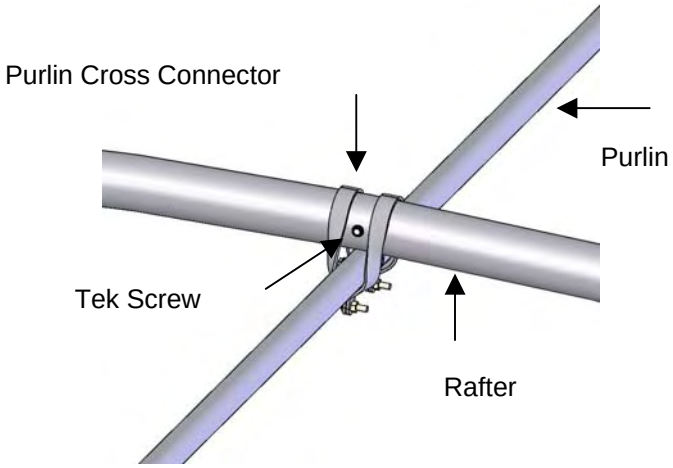


Frame shown above shows a different purlin design. Width is measured from the center of one rafter leg to the center of the adjacent rafter leg.

4. Using the first pipe from each assembled purlin (marked earlier), insert each pipe into the bracket on the first rafter. This pipe will serve as the purlin pipe between the first two rafters.

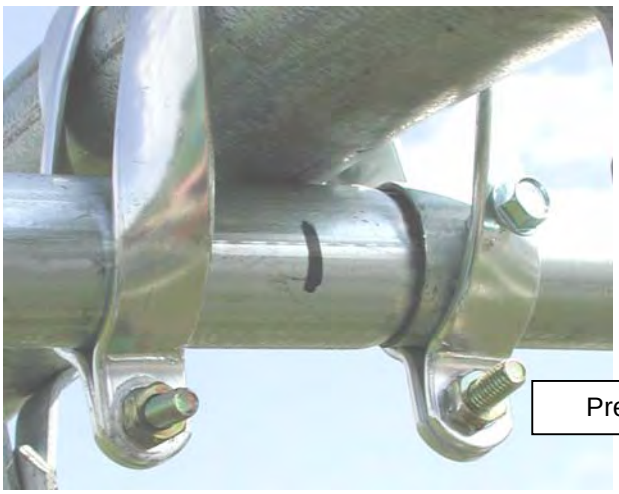


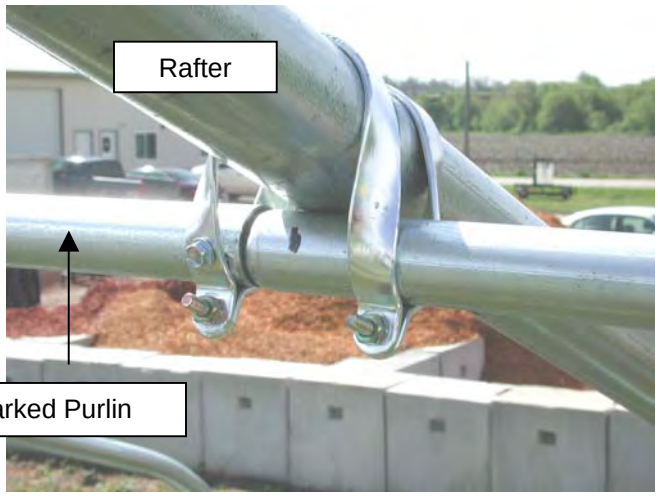
NOTE: All rafters positioned between the first and last rafters of the structure use a purlin cross connector (102546) to secure the purlins to each rafter.



In the above diagram, a Tek screw was used to mark the location of the cross connector; the Tek screw was installed when the rafter was assembled. Depending on the method used, the location may have been marked using a marker during the rafter assembly.

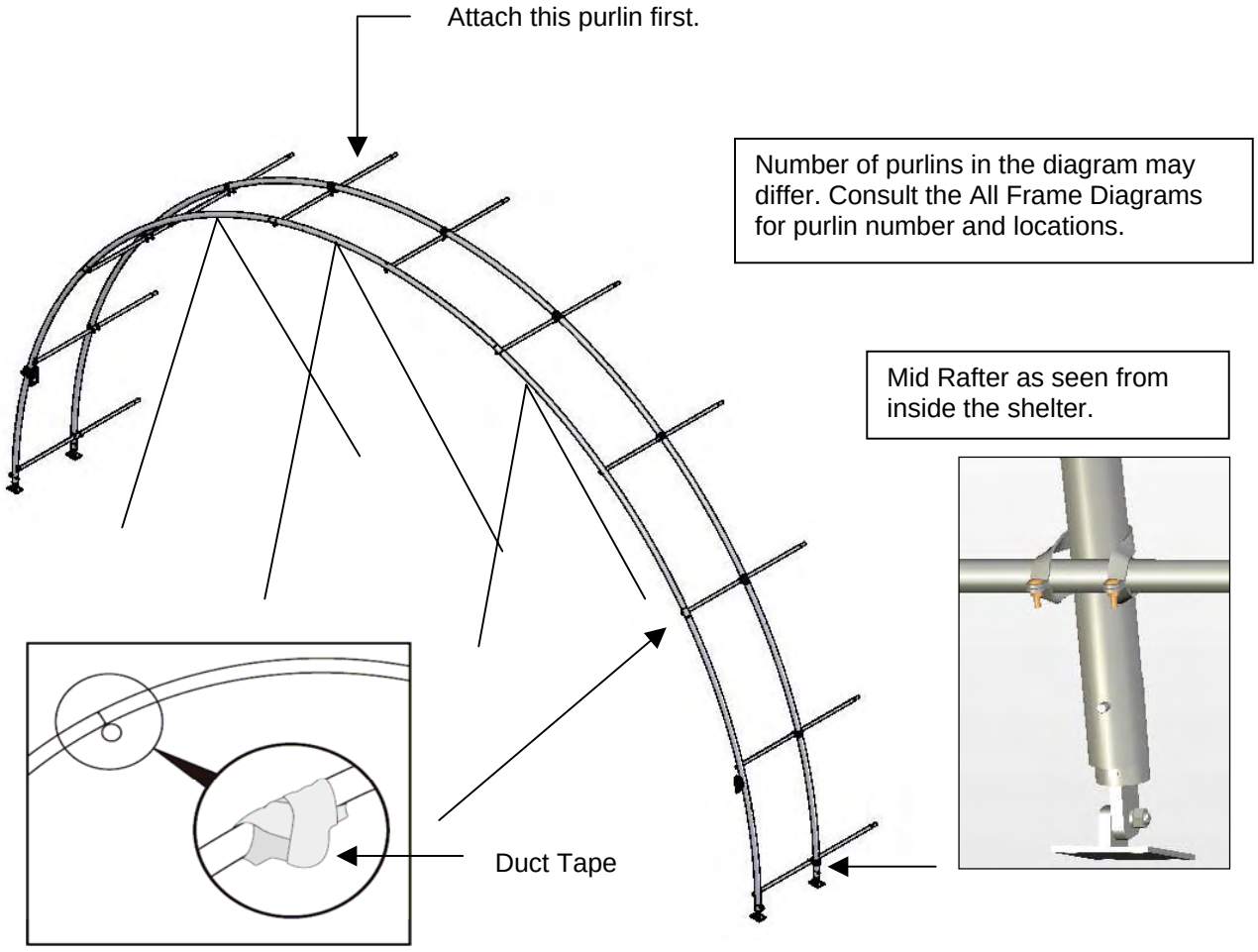
5. Using the marks <u>on the purlin pipes</u>, align the first mark with the center of the second rafter and attach the purlins to the second rafter using the purlin cross connectors (102546).





Frame shown in the photos above is different from your frame. The purlin assemblies are similar however.

6. With the top, center purlin in position, install the remaining purlins and cross connectors. Use the marks on the purlins to maintain even rafter spacing.



ATTENTION: As the purlins are attached, it may be necessary to tap the cross connectors with a hammer to keep the purlins inline and parallel with each other. To protect the cover, tape all rafter joints with duct tape.

7. Set the next rafter in place and repeat the process.

   NOTE: Always keep working from the same end of the purlins as you add rafters and purlin sections to the frame. As the sections of the purlins are added, secure each joint with one Tek screw to prevent separation.

   Consult the previous diagrams for additional information.

8. After all interior rafters are in place and secure, install the final end rafter.

   NOTE: Do not allow the purlin to extend beyond the end of the end rafter. See Step 4 if needed.

9. Secure all purlin pipe joints with a Tek screw. Additionally, secure each cross connector to the rafter and to the purlin using Tek screws. Position screws so they do not interfere with the cover to prevent damage.

10. Tape all rafter joints with duct tape to protect the cover. Also tape the purlins at the end rafters to protect the cover. See diagrams below. Remove any sharp edges from the frame so they do not cut the cover.

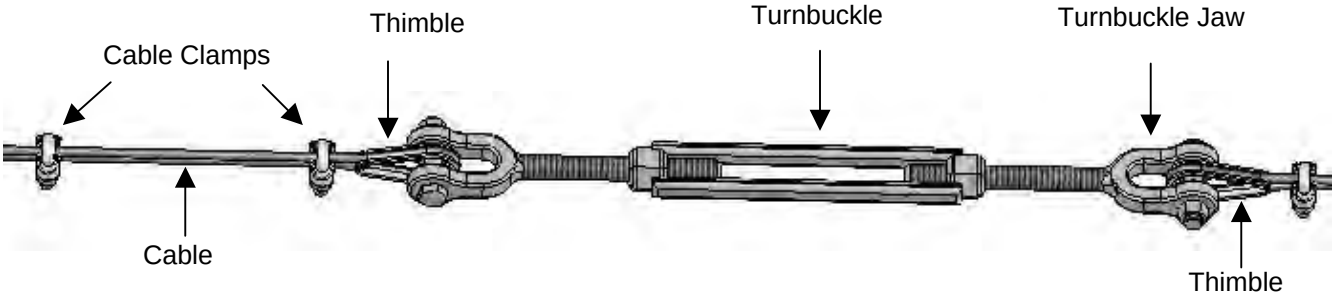
11. With all rafters in place, read the MUST READ document to anchor the frame. **Consult the MUST READ document for shelter anchoring information.**

12. After anchoring the frame, install the cabling for the shelter.

Cable Assemblies

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

- 2 lengths of cable cut to length
- 1 turnbuckle
- 4 cable thimbles
- 4 cable clamps



Typical of all Turnbuckles for this Building

NOTE: For each cable assembly, four (4) *additional* cable clamps are used to attach the cable assembly to the assembled frame. Consult the Cable Diagram on the following page and the All Frame Diagrams for clarification and cable locations. Always measure the cable length before you cut the cable.

Cable Assembly Instructions

Complete the following steps:

1. Cut the cable to the proper length for each assembly. More than the required cable has been sent for the cabling application. (Cut two lengths first and make a single assembly before proceeding to make all. This will allow a check to be sure a suitable length has been cut.) Make the necessary length adjustment if needed. CONSULT THE ALL FRAME DIAGRAMS FOR CABLE LOCATIONS.

   ATTENTION: Two cables are used for each turnbuckle. Rafter width will change the cable length. For best result and the least cable waste, use the Cable Location Diagram and measure the distance required for a specific cable. Additional cable is needed to anchor the cable to the frame and to attach the cable sections to the turnbuckle. Measure and cut the follow assemblies as needed.

   - Cable Assembly A: 16 cable lengths
   - Cable Assembly B: 16 cable lengths
   - Cable Assembly C: 16 cable lengths

2. Place one cable thimble approximately 12" from the end of a cable section and wrap the cable around the thimble as shown in the above figure.

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: The clamp must be positioned on the cable with its U-bolt portion over the long 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 (6) to eight (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. (Assemble as shown above.)
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 cable assemblies.

Cable Placement

The diagram and figures below identify the placement and proper way to attach the cable assemblies to the building.

NOTE: The positions of the cable assemblies are identical for the opposite side and the remaining end of the building that are not shown.

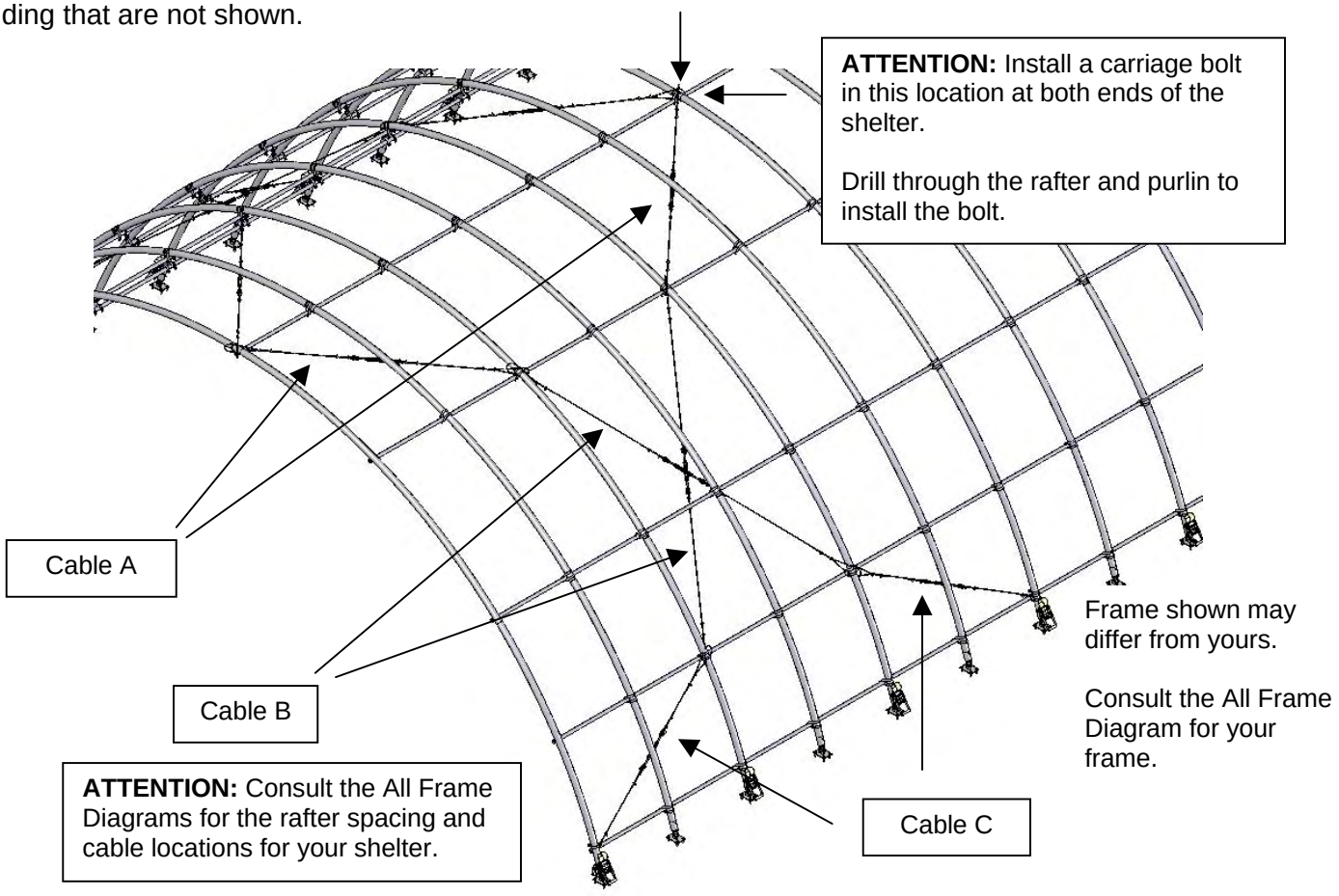


Figure 1

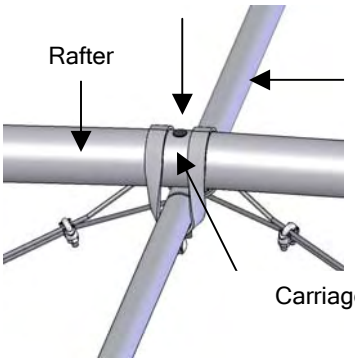
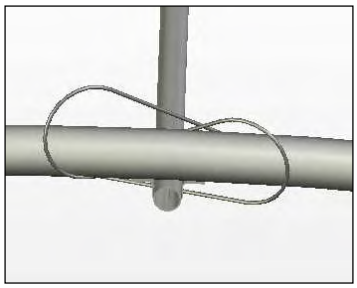
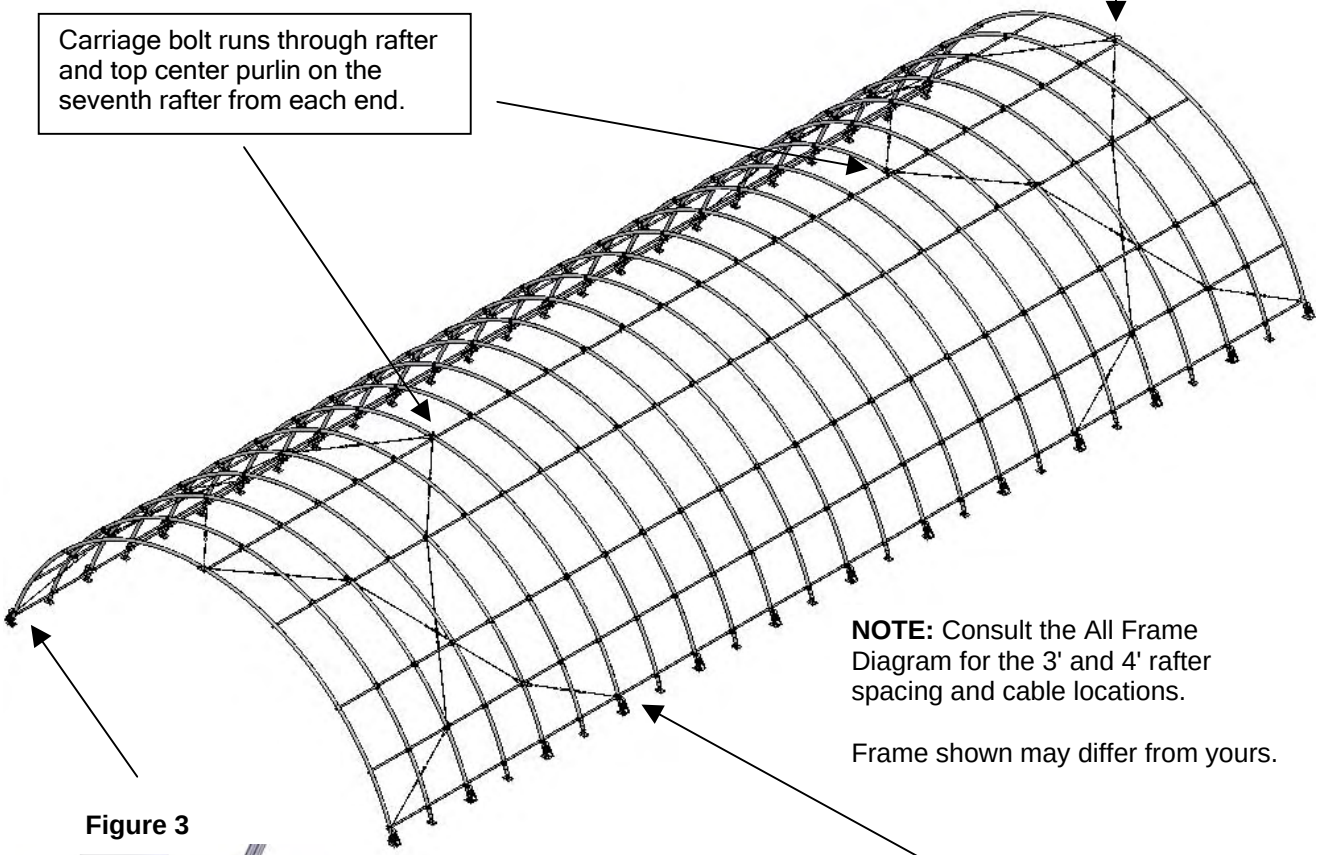


Figure 2



Apply duct tape over cables on end rafters to protect the main cover.

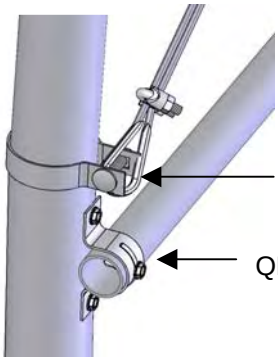
Carriage bolt runs through rafter and top center purlin on the seventh rafter from each end.



NOTE: Consult the All Frame Diagram for the 3' and 4' rafter spacing and cable locations.

Frame shown may differ from yours.

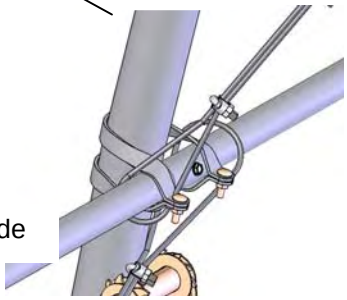
Figure 3



Band clamp (103856) is attached above the lowest pipe strap (QH1070). See Arrows on Illustration above for placement.

QH1070

Figure 4



As seen from the inside

Tighten the Cabling

The positions of the cable assemblies are identical for the opposite side and the remaining end of the building, which are not shown in the previous diagram. For cable locations for your building, consult the All Frame Diagram.

1. After attaching all cable assemblies to the building frame, return to the first set of turnbuckles and tighten the cables.

   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.

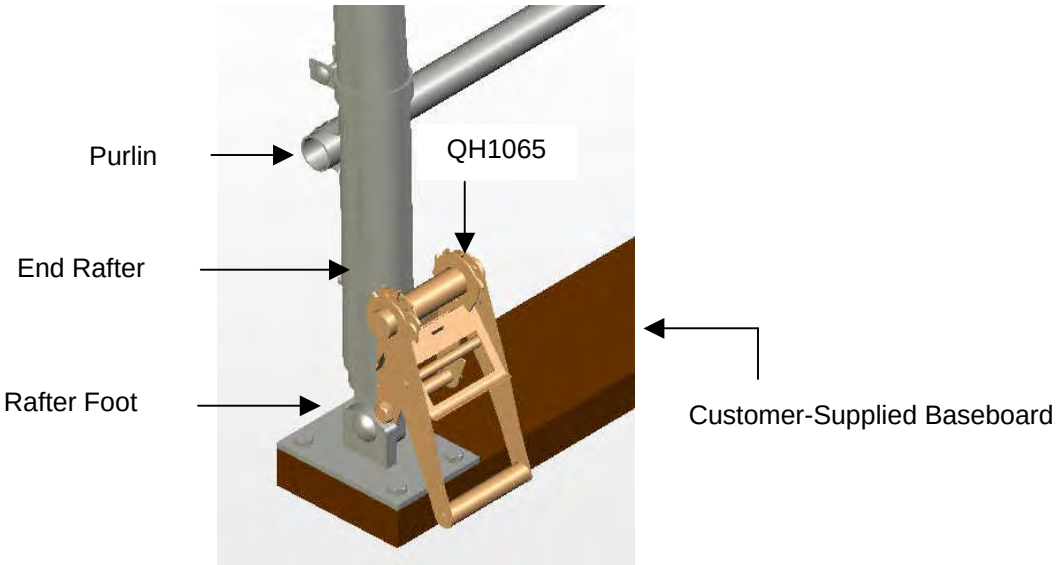
3. Repeat this process until all cables are tight.

4. Continue with installing the ratchets for the main cover.

Install the Ratchets for the Main Cover

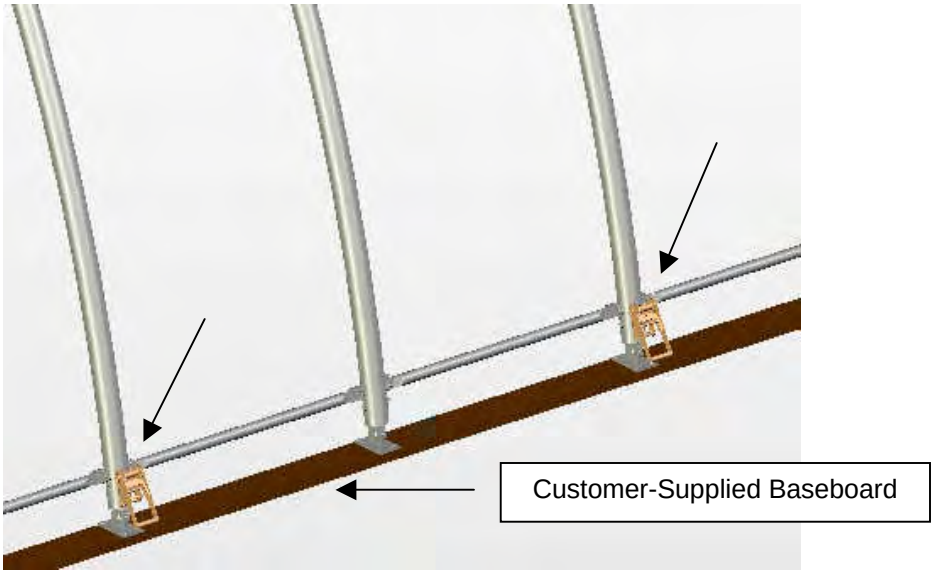
The side ratchets are attached to the legs of select rafters on the outside of the rafter leg. Complete the following steps to position and secure the ratchets to the rafter legs.

NOTE: The four (4) QH1061 ratchets used to secure the bonnet of the main cover are attached to the bottom frame tube of the end wall *after* the end wall and end panel are installed. Install only the larger QH1065 ratchets to the rafter legs along the side at this time. The steps are described below.

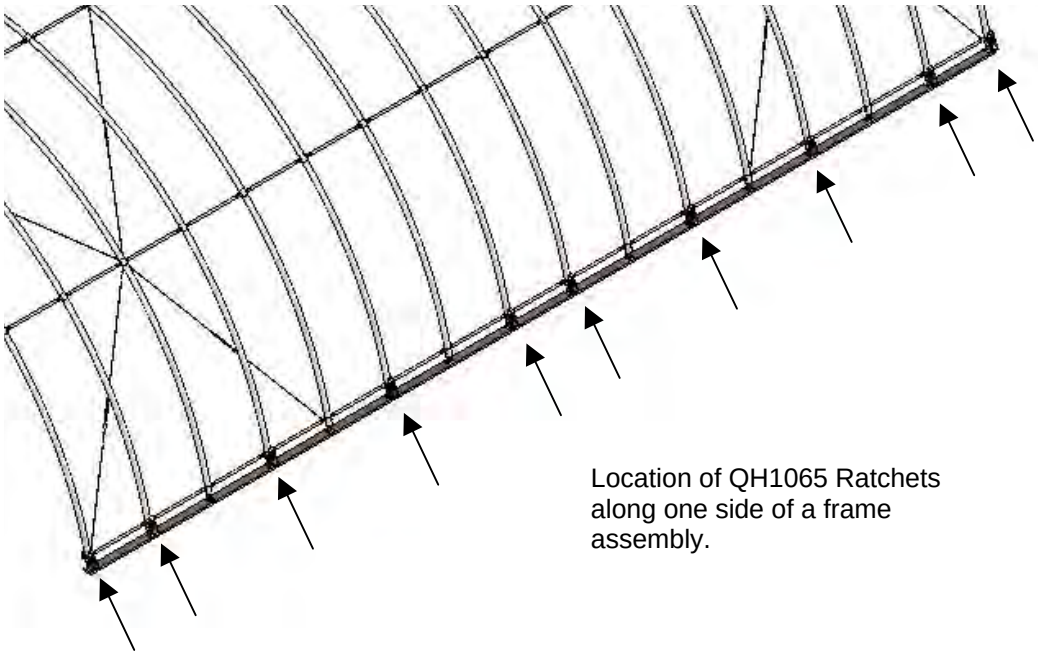


1. At each leg of each end rafter, attach one QH1065 ratchet on the outside of the rafter leg in the location shown above.

2. Select the remaining QH1065 ratchets and evenly space these along each side of the frame. The following is an example of where to attach the remaining ratchets.



NOTE: Depending on the length of your structure, you may not be able to install the ratchets on every other rafter as shown above. The main point is to space the ratchets as evenly as possible so you can stretch and secure the main cover. See the example below. Frame shown may be shorter than your frame.



Location of QH1065 Ratchets along one side of a frame assembly.

3. After all side ratchets are installed, continue with the end wall and panel installation procedures.

END WALL INSTALLATION

Both end walls are designed the same to allow for the installation of a second door kit if desired. Consult the end wall diagrams *before* you begin.

The general steps to install the end walls include the following:

1. Prepare and secure posts for the door framing. (See End Wall Diagrams.)
2. Assemble and attach all end wall framing.
3. Prepare and attach end panel.

Install Ground Post for the Door Frame

The following steps describe one way to set the ground posts for the vertical end wall 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 and mark that location on the ground as well.

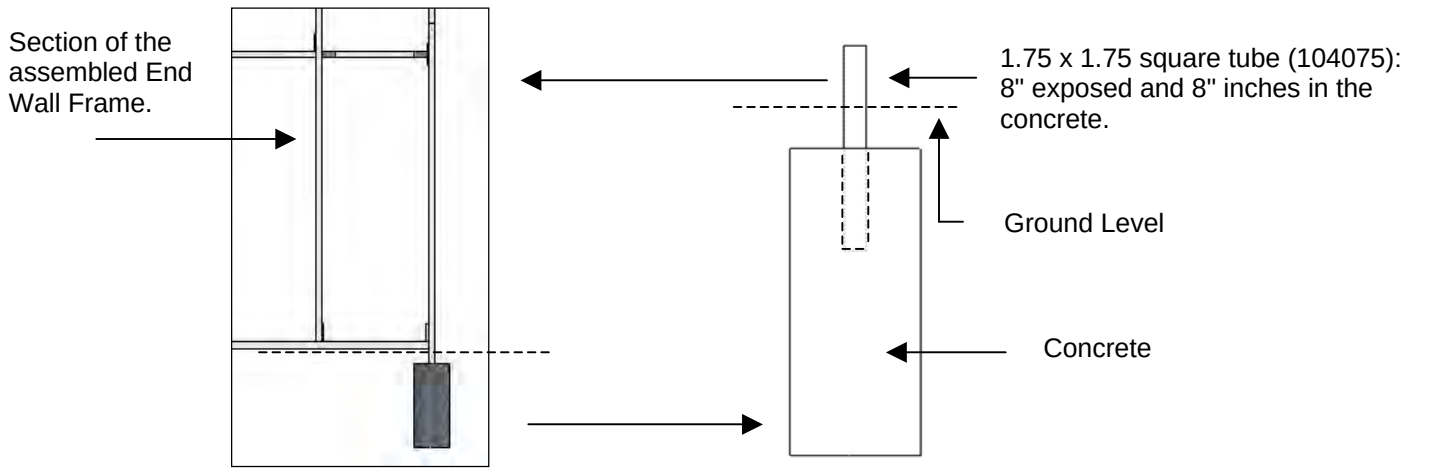
   NOTE: Mark the center of the end wall so multiple measurements can be made as needed.

2. Using the dimensions shown on the diagram, locate the positions of the vertical frame members for the door framing.

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 at least 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". Repeat the step and verify that the tubes are plumb and the correct distance apart. Use the diagram to space the vertical doorframe members.



ASSEMBLE THE END WALL FRAME

After the ground posts are set, assemble the remainder of the end wall.*

NOTE: Tek screws are used to fasten the following connectors:

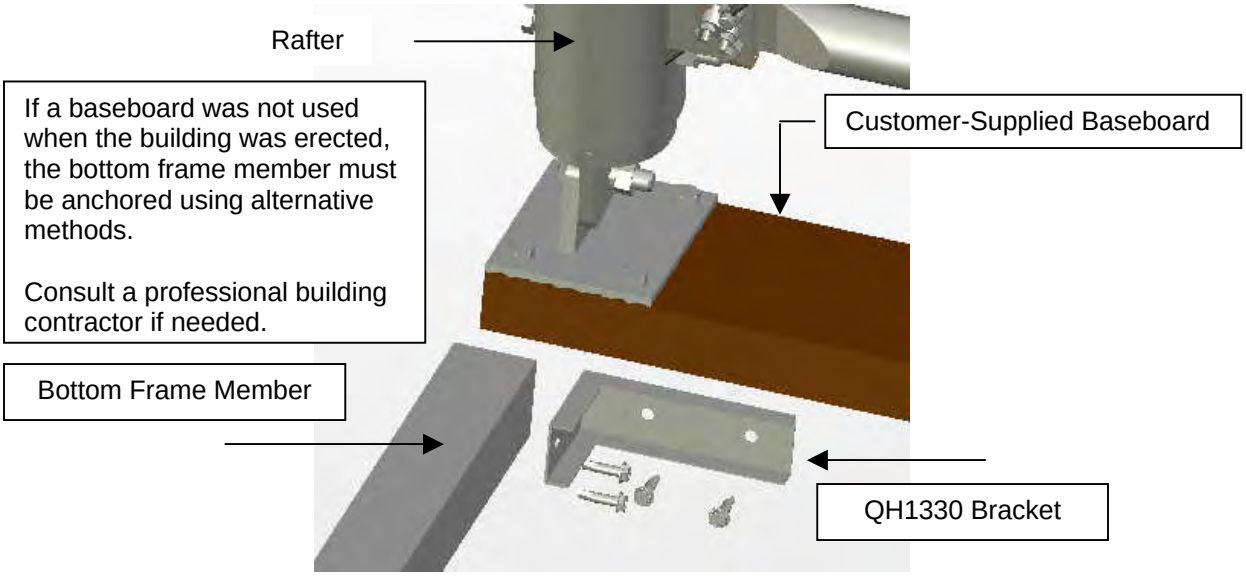
- QH1330 Angle Bracket
- 104624 Square Tube Fitting (with 1-way plate)
- 104075 1.75” x 1.75" Square Tube Connector

*Refer to the End Wall Diagrams for locations of additional pedestrian door framing and connecting hardware.

Complete the following steps:

1. Using the dimensions on the End Wall Frame diagrams and the 2" x 2" square tubing, related hardware, and connectors, assemble the doorframe and the base frame tube of the end wall.

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



2. Repeat the steps to assemble the remaining end wall framing using the 1.5" x 1.5" square tubing and the related connectors.

   NOTE: Consult the End Wall Diagrams for additional information and details.

3. Repeat the procedures to assemble the remaining end wall. See the Doorframe Diagram for special notes.

4. After both end walls are assembled, continue with the End Panel Installation procedure that follows.

END PANEL INSTALLATION

Complete these steps to install the end panel.

1. Position the panel flat on ground with the long edge against the bottom end wall frame member.

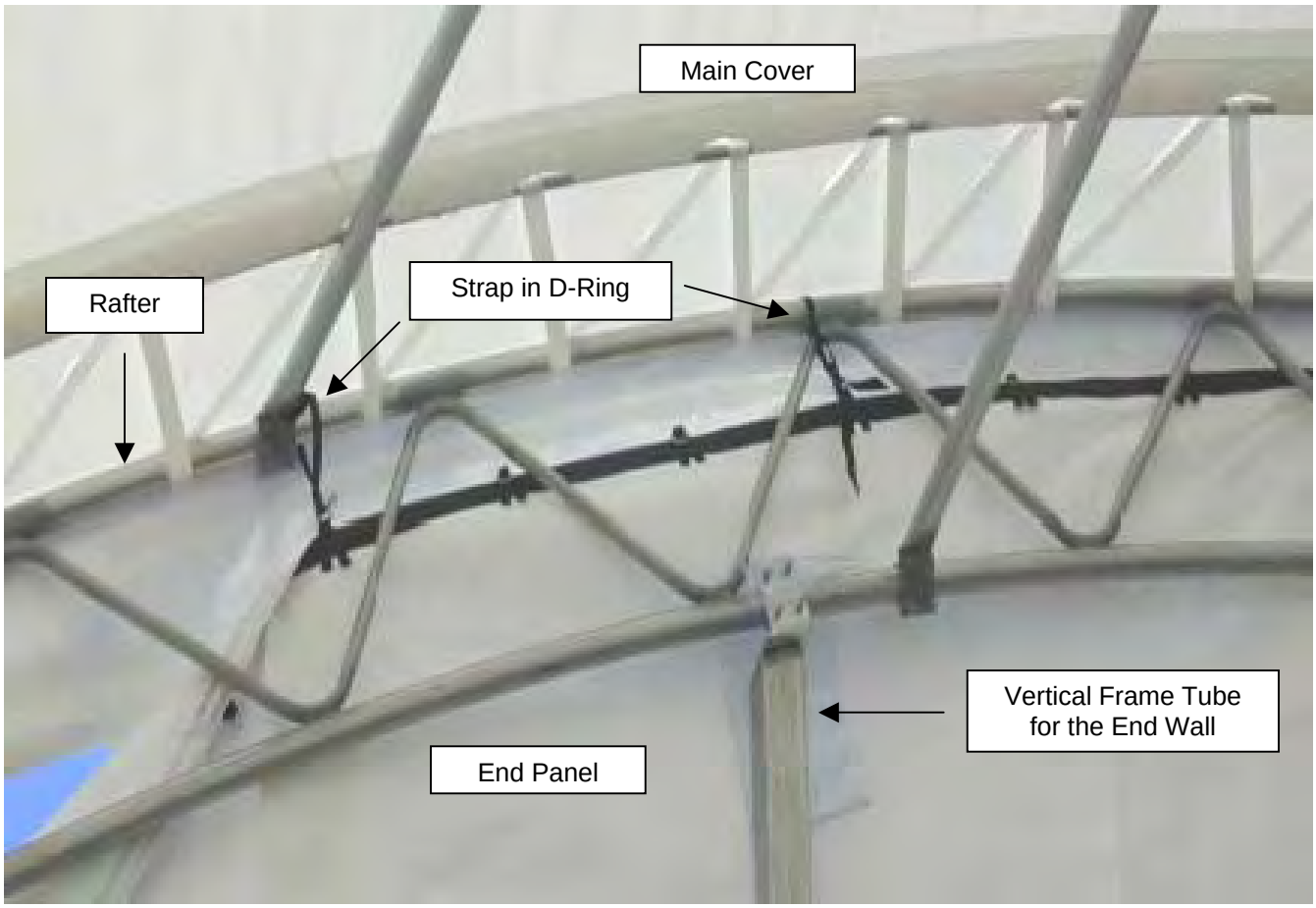
2. Locate the D-Rings, which line the top of the end panel, and insert a three-foot piece of black strapping into the center most D-Ring. Insert 2 additional straps on each side of the center D-Ring if needed. (Space these at every other D-Ring.)

   NOTE: These straps are used to *temporarily* secure the end panel in place. Add more strapping if needed. To prevent personal injury or property damage, do not install end panel or main cover during stormy or windy conditions.

3. With the black strapping in place, raise the end panel to the end wall and secure to the end rafter using the D-Rings and strapping.

   NOTE: Pull the top edge of the end panel to within 6" of the rafter. (Approximately 1 to 2 feet of the end panel material will remain at and run along the base of the end wall. In a later step, this can be wrapped under the bottom tube of the end wall frame, or remain as a skirt to direct water away from the shelter.)

   The end panel must touch the ground after the top edge of the panel is secured to the rafter.



View is from the inside of the shelter looking at the end panel. Frame and rafter shown are different from your frame. The technique used to secure the end panel is the same however. Photo shows the main cover already installed.

4. Once the end panel is temporarily secured, take the roll of black strapping and weave the end of the strap through the D-Rings and around the rafter pipe as shown below.

   NOTE: Maintain an even space between the rafter and the top of the end panel. The end panel flap that extends beyond the D-Rings is tucked between the rafter and the main cover after the main cover is laced to the end rafter.

   Not all main covers are laced to the end rafters. Typically, covers *longer than 48'* include stretch pockets at each end.

   <u>DO NOT attach the flap to the end rafter at this time.</u>

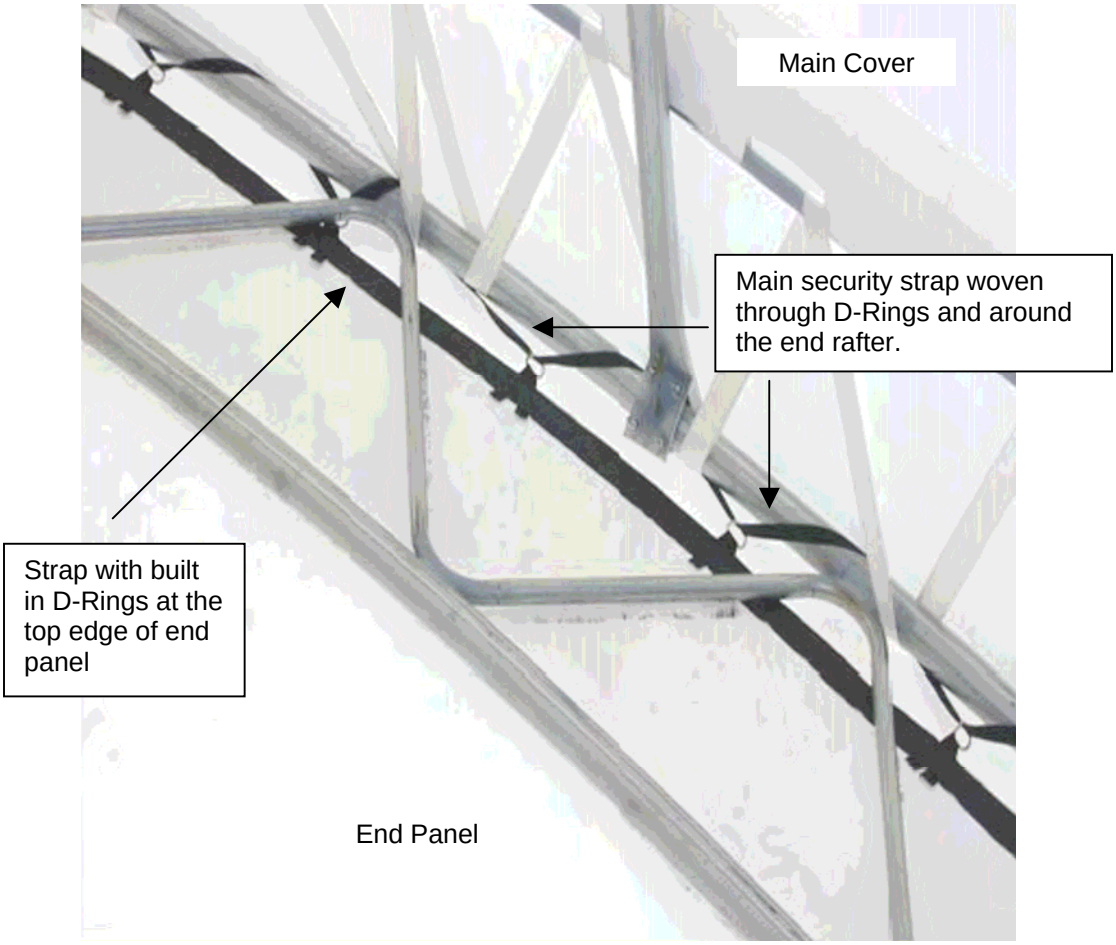


   Photo above shows a building with the main cover already installed. View is from the inside looking up at the rafter and main cover.

5. Stretch the bottom of the end panel evenly out on the ground along the bottom frame tube of the end wall frame (if needed) and tighten the black strap at the top of the end panel. Top of end panel must remain as close to the rafter as possible without lifting the bottom of the panel off the ground.

6. Pull the bottom of the end panel under the bottom rail of the end wall frame and secure it to the top, inside surface of the bottom rail. See photo on page 24 for an example.

7. With the end panel secured, continue by cutting the opening for the door (or doors).

   NOTE: If you are installing an end panel and no door openings are needed, skip to and continue with the INSTALL THE VERTICAL PVC END PANEL CONDUITS procedure that follows the CUT DOOR OPENINGS steps.

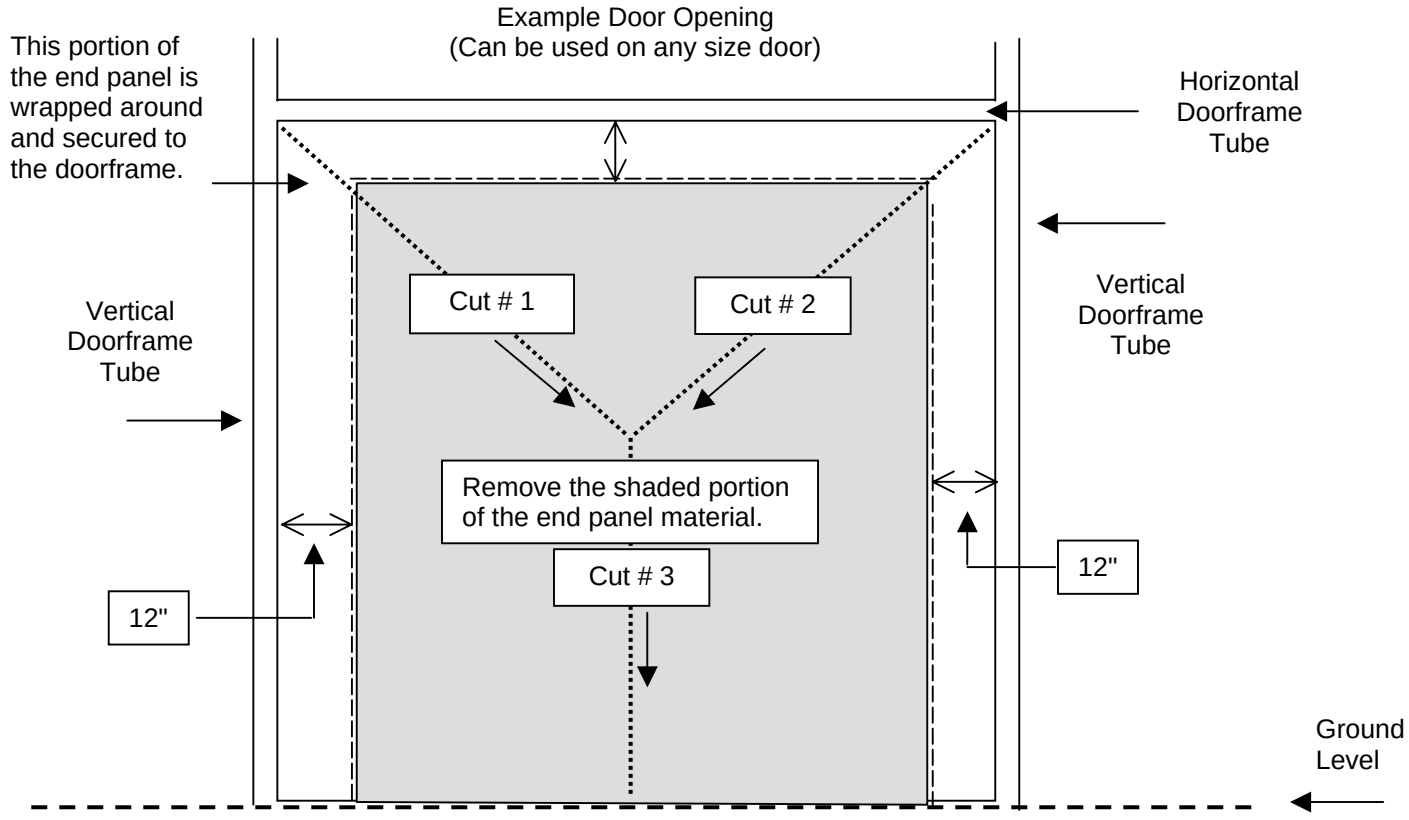
CUT DOOR OPENINGS

Follow these steps to cut a door opening.

1. To cut the opening, begin at either top corner of the doorframe and make a cut at a 45-degree angle from that top corner to the center of the panel where the opening will be located. (Consult the diagram below.)

2. Cut another (and equal) 45-degree angle from the opposite top corner to the end of cut #1.

3. From the ends of cuts #1 and #2, make a vertical cut to the ground (Cut #3). See diagram below.



4. After the (3) separate flaps are created (Cuts 1, 2, and 3), trim each flap so that 12" of end panel material remains around the door opening. These 12" flaps are wrapped around the door framing and secured to the inside of the doorframe *after* installing the end panel conduit.

5. Continue with the End Panel Conduit Installation steps that follow.

INSTALL THE VERTICAL PVC END PANEL CONDUITS

NOTE: The PVC conduits are attached to the vertical frame member closest to the end panel pocket in which the conduit is located. See photos below.

DO NOT ATTACH THE VERTICAL PVC CONDUIT TO ANY PART OF ANY DOORFRAME. Doing so will interfere with the installation of the door.

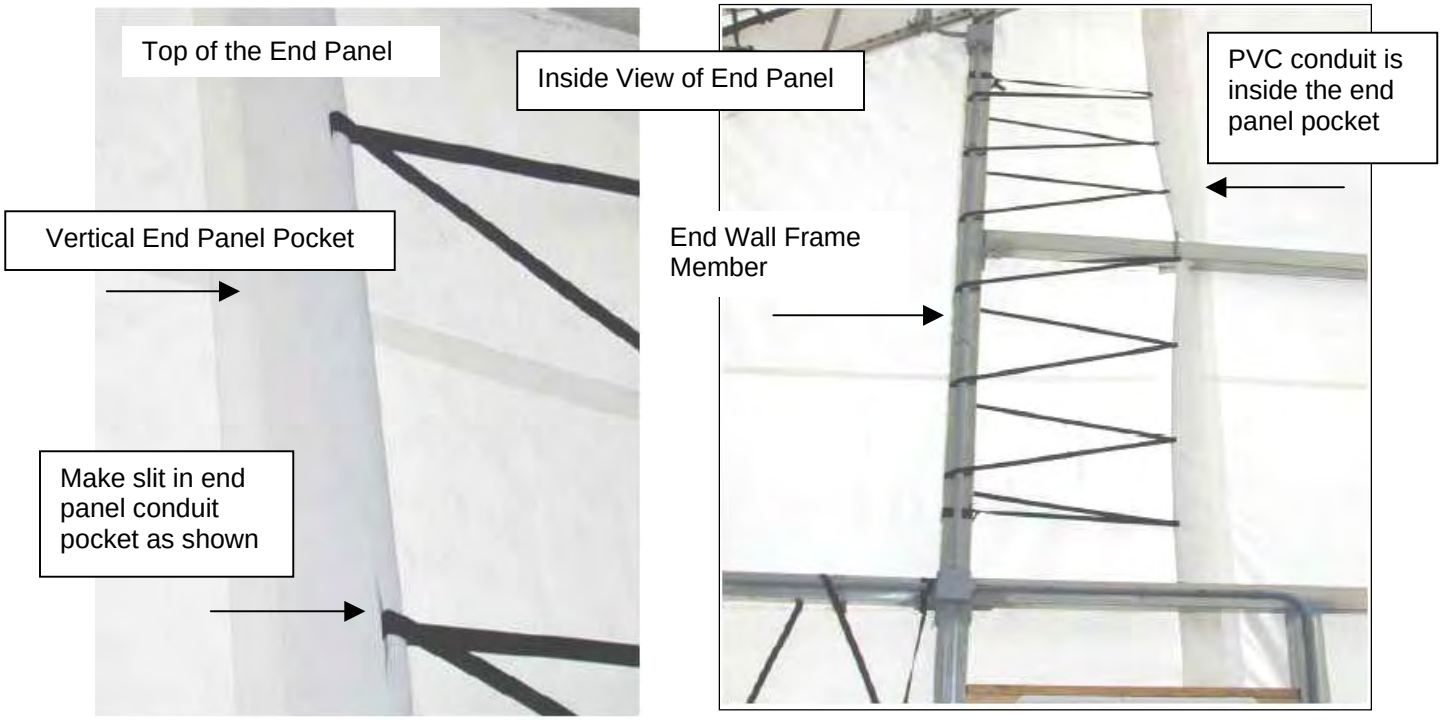
1. Take the PVC conduit and seat the separate conduit sections into one another to achieve the required length and secure the joint with a Tek screw, wrap with duct tape, and slide the assembled conduit into one vertical pocket.

   NOTE: PVC glue can be used to secure each PVC joint. PVC glue is not included. The PVC is flexible enough to feed up from the bottom and into the end panel pocket.

2. At approximately every 2 feet, cut a 6" vertical slit in the vertical conduit pocket of the end wall.

   ATTENTION: DO NOT cut the end panel. Cut only the conduit pocket.

3. Beginning at the bottom of the conduit pocket, take the 1" black strap and weave the strap through the slit, around the PVC conduit, and around the closest vertical end wall frame member that is not part of the doorframe.



Frame shown above is different from your frame. End panel is attached in a similar manner however.

4. Move to the next slit and repeat the process and work up the conduit and pocket.

5. Once the strap is in place, tie the upper end to the vertical end wall frame tube.

6. Slightly tighten the end panel by working the vertical strap between the conduit and vertical end wall frame tube.

   NOTE: Do not tighten completely at this time.

7. Cut (if needed) and tie the remaining (lower) end of the strap to the end wall frame.

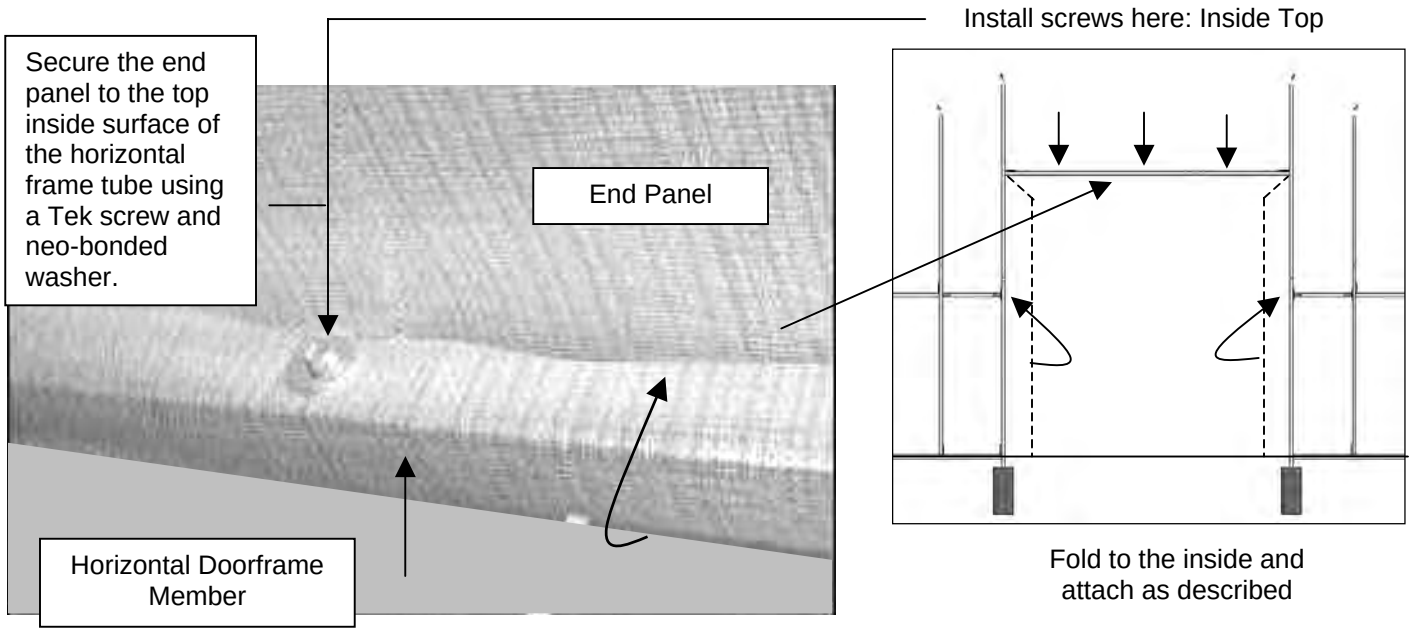
8. Repeat the steps to install the strap for the remaining vertical end wall PVC conduit.

   ATTENTION: The back end panel may include three (3) vertical PVC conduits that are used.

9. Slightly tighten the PVC vertical conduits to keep the panel tight to the end wall framing.

10. Secure the end panel to the doorframe (or doorframes). See the diagram below.

    NOTE: For the exposed corners of the doorframe that remain, cut out a 16"x16" piece of material <u>from the scrap end panel material</u> and secure the piece to the exposed corners using Tek screws and neo-bonded washers.



Inside Views of the End Wall

ATTENTION: <u>DO NOT secure the end panel to the inside or backside of the doorframe tubes</u>. Some doors kits use this surface for tracks and brackets.

11. After securing the end panel around the doorframes and along the bottom edge (as previously described), tighten the vertical PVC end panel conduits, and install the door (or doors) according to the instructions included with those components.

12. After all doors are installed according to the door manufacturer's instructions, install the main cover.

    ATTENTION: The steps to secure the flaps of the end panels are presented later in these instructions.

Main Cover Installation

WARNING: To prevent personal injury and damage to the structure and main cover, **do not** attempt to install the main cover on a windy or stormy day.

Assemble Cover Conduits

Cover conduits are pipe assemblies that are slid into pockets sewn into the bottom edge of the main cover. These conduit assemblies consist of the following pipes:

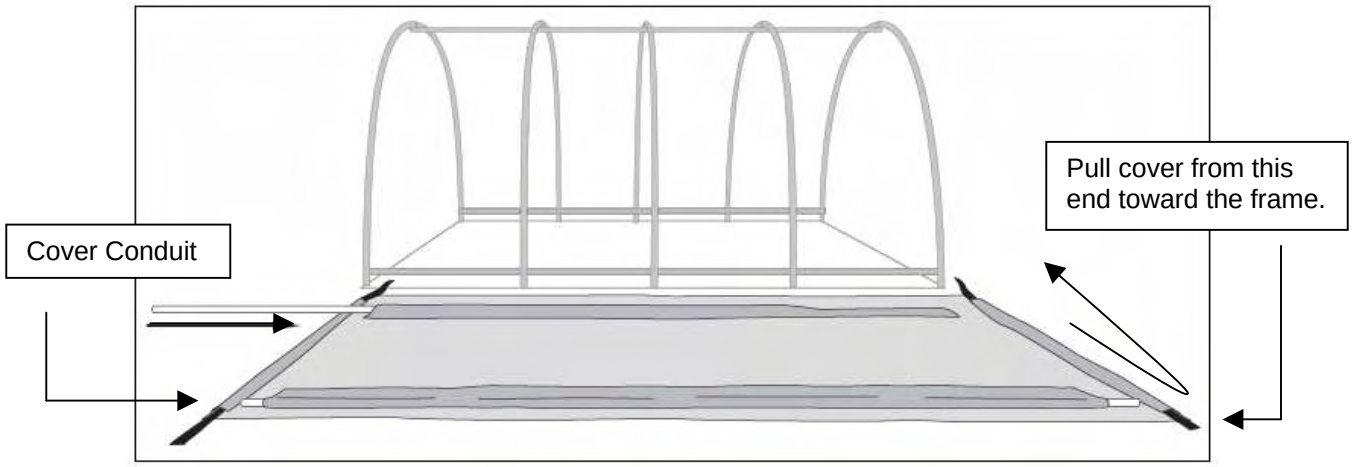
1.66" Cover Conduit (Quantity 2):	99" (166S099) Swaged pipe
	96" (166P096) Plain pipe (Use this pipe last to end the run of pipe.)

Locate the cover conduit pipes and assemble them. The conduits can be assembled at once or in short sections. Secure each joint with a Tek screw and use duct tape to tape the joint and screw to protect the cover.

Install the Main Cover

1. Unpack the main cover and unfold it with the inside surface facing up. (The pockets for the cover conduits should be visible when the cover is unfolded.) See the example below.

2. Locate the ends of the main cover with the strapping and align the ends with the front and back of the frame assembly.



Frame shown is to illustrate the location of the cover during installation.

3. Slide one of the 1.66" cover conduits into the hem opening and repeat this step using the other 1.66" cover conduit and the remaining hem opening. Remember to secure the conduit joints with a Tek screw and to tape the joint with duct tape.

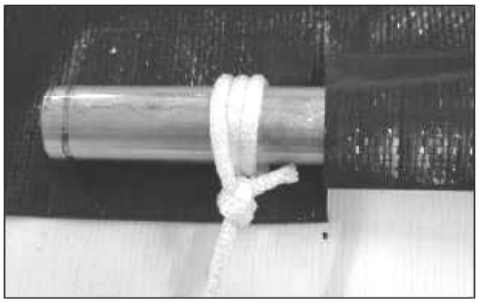
4. Grasp each end of the cover conduit and carry the main cover toward the frame assembly and place on the ground along the frame side.

   ATTENTION: Do not use the black straps in the main cover to pull the cover into position. They will pull out of the cover hem and must be rethreaded to properly secure the cover.

5. With the cover in position near the edge of the frame, attach ropes to both ends of the cover conduit.

   NOTE: For long shelters, attaching ropes at every rafter position where a ratchet is located is recommended. If needed, a small slit can be made on the inside of the sleeve that holds the conduit, which will allow the use of

additional ropes. This slit can be used later when the straps for the ratchets are installed. **DO NOT cut through to the outside of the main cover.** Cut only the sleeve in which the conduit rests.



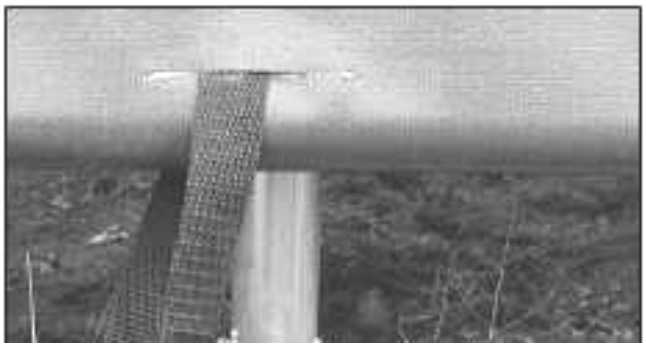
6. With all ropes tied securely to the conduit, toss the free ends over the frame assembly and pull the cover over the assembly and into place.

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

7. Once in place, center the main cover on the frame. Center the cover side-to-side and end-to-end.

   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.

8. Along the sides, lift the main cover skirt, locate the QH1065 ratchets attached to the rafters, and make a slit in the cover conduit sleeve at these locations.



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

9. Select one of the 5' tie down straps that shipped with the building and insert one end of the strap through the sleeve opening, around the cover conduit, and back through the opening.

10. Feed both ends of the strap through the slot in the ratchet and tighten slightly.

    NOTE: If excess strap builds up in the ratchet, loosen the ratchet, remove excess strap, and retighten slightly as needed.

Photo shows a different shelter with a similar ratchet and cover design. The procedures to secure the main cover are identical despite the differences in the frame assembly.

NOTE: Do not fully tighten the strap at this time.

11. Repeat Steps 9 and 10 for the remaining straps.

12. After all side security straps are in place and slightly tightened and the cover is centered evenly on the frame, complete the following steps to install the PVC cover conduit as described in the following procedure.

Installing the Main Cover PVC Conduit and Tightening the Main Cover (Not for the 48' length.)

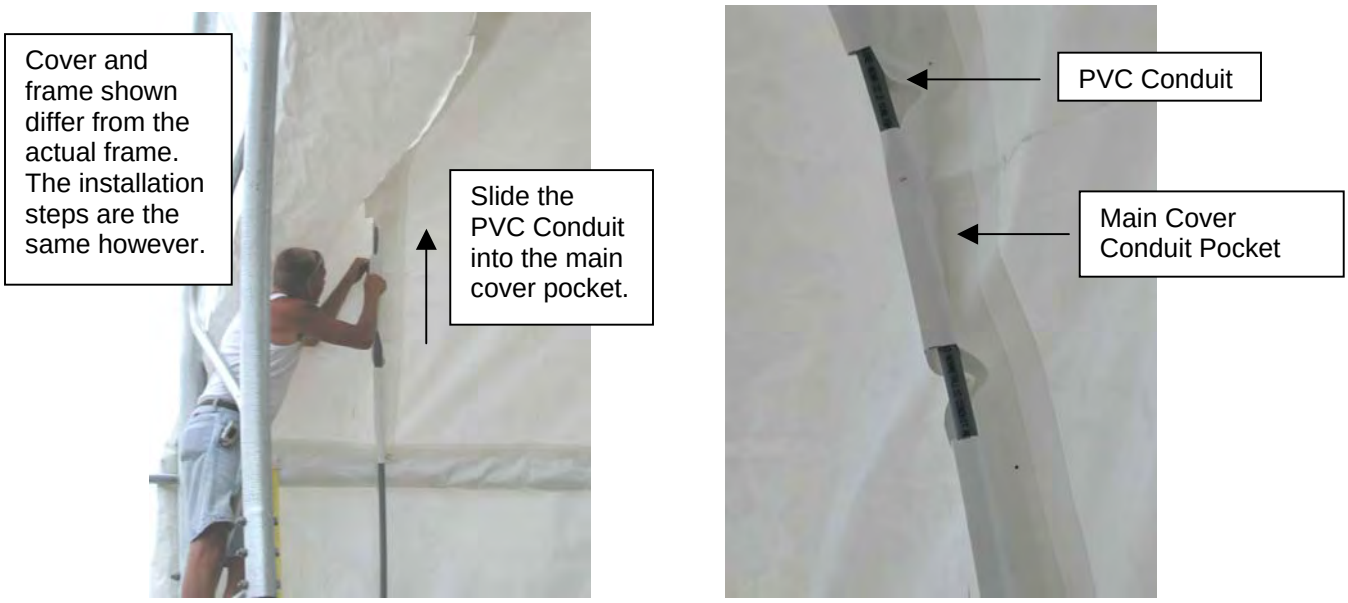
To better secure the main cover on buildings longer than 48', PVC conduits are used near the ends of the cover to provide an additional tie-down position. Complete these steps to assemble and install the PVC conduits.

ATTENTION: For the 48' length, skip Steps 1-8 and continue with Step 9 of the procedure that follows.

1. With the main cover in position on the frame, locate the pocket for the PVC conduit near the end of the main cover and insert one length of the PVC pipe (smooth end first).

2. Select another piece of PVC, feed it into the pocket of the main cover and into the bell end of the first piece of PVC. Use duct tape (or PVC glue–not provided) to secure each PVC joint.

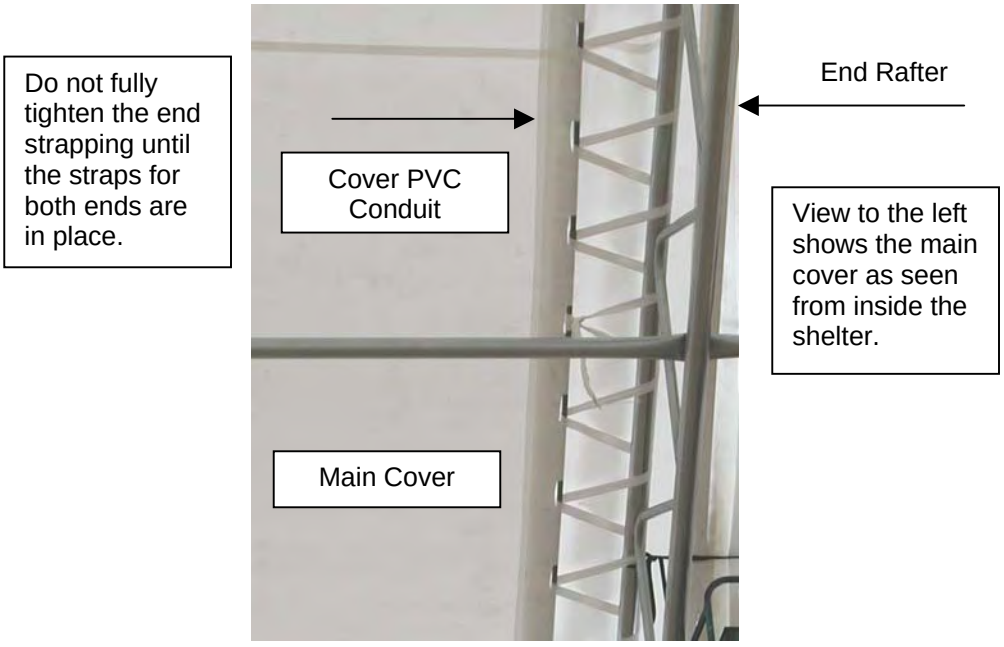
3. Continue feeding the PVC conduit into the cover pocket in this pattern until the PVC conduit is completely assembled and inserted for one end of the shelter. Repeat these steps for the other end of the main cover.



4. Once the conduits are assembled and installed, fold the main cover bonnet back to expose the end rafter.

5. Using the 1" strapping provided, start at the base of the building and lace the strap around the PVC conduit that shows through the open notches of the main cover and tie the strap end to the rafter.

6. From this point, lace the strap as shown below and work up and around the end rafter.



Frame shown differs from your shelter. The steps to secure the cover are similar however.

7. Repeat the steps to lace the strap for the remaining end of the main cover.

   NOTE: When fully laced, the PVC conduit should be even and run parallel with the rafter at both ends of the building.

8. Tighten the straps for both PVC conduits. Keep the cover (and straps) even as the straps are tightened.

9. Move to the top of the end rafter and pull the end panel flap over the top of the end rafter. The end panel flap will be between the rafter and the main cover when the main cover bonnet is pulled into position.

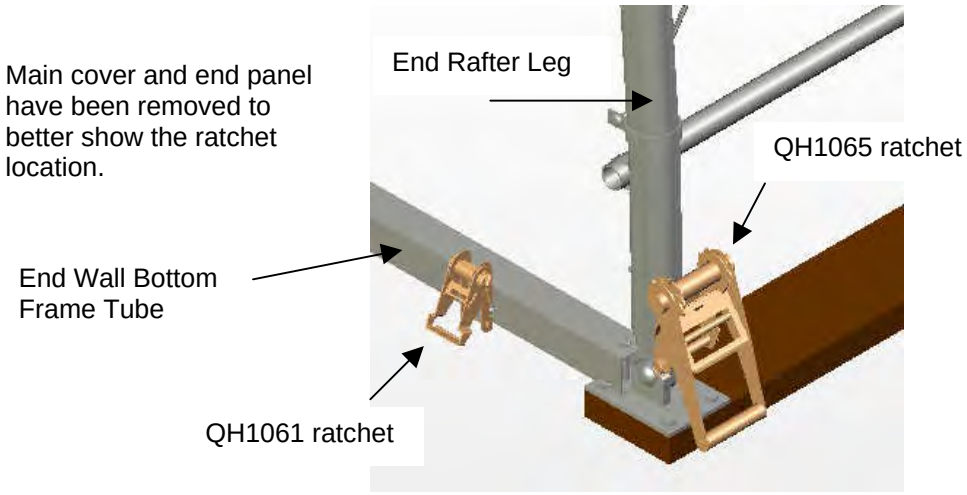
10. Secure the end panel flap to the end rafter using Tek screws and fabric clips (CC6216) evenly spaced. Attach the clips to the backside of the end rafter so these do not touch the main cover when the cover bonnet is pulled back into position.

    NOTE: If the main cover is equipped with at stretch pocket at each end (shelters longer than 48"), do not install Tek screws through the straps wrapped around the end rafters and used to stretch the main cover.

11. Repeat the steps for the remaining end panel flap.

12. Once the end panels are secured, pull the main cover bonnet back into position and over the end rafters.

13. Take two QH1061 ratchets, measure approximately 6" in from the end rafter legs along the bottom frame member of the end wall framing and attach the ratchets to the bottom frame member as shown.



    NOTE: Install the QH1061 ratchet so it lines up with the strap in the bonnet of the main cover.

14. Repeat the steps to install the QH1061 ratchets to the remaining end of the building.

15. With all ratchets installed, insert the bonnet straps into the QH1061 ratchets and tighten slightly. If strap buildup in the ratchet is too great, loosen the strap and trim off the excess as needed, and retighten slightly.

16. Move to the side QH1065 ratchets and tighten and stretch the main cover.

    TIP: For easier tightening of the main cover and to get a uniform appearance, multiple individuals can be used to complete this procedure.

17. After the cover is properly tightened and secured along the sides, return to the QH1061 ratchets at the end and tighten the bonnet of the main cover.

18. Read the Care and Maintenance information that follows.

Care and Maintenance

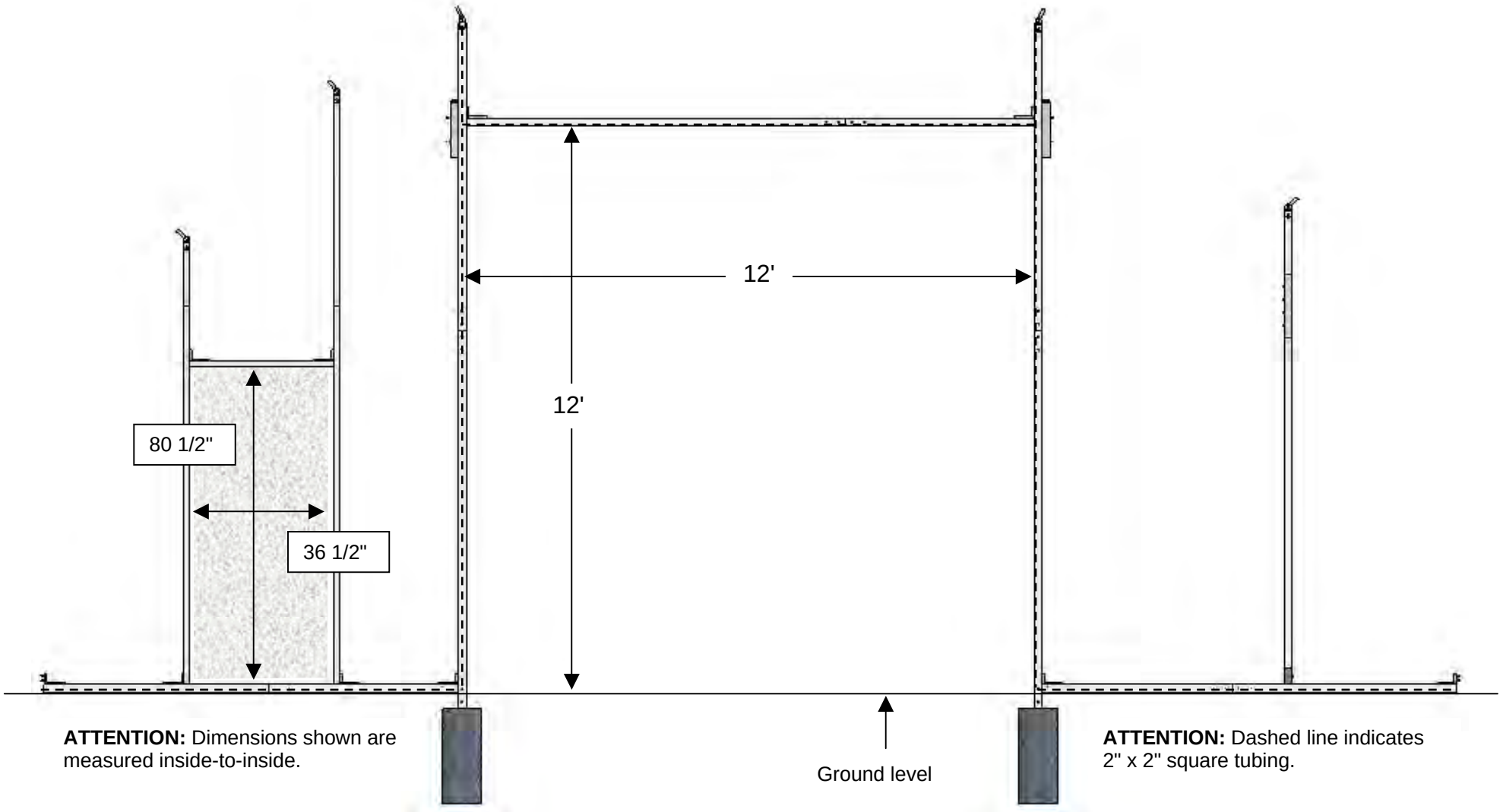
Proper care and maintenance of your ClearSpan™ building helps to ensure years of service. The following items identify areas that must be periodically checked to ensure that your building is maintained properly:

- Regularly check the cover to see that it is tight and in proper repair. Tighten and adjust the tension as needed to prevent damage and wear.
- 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 building at anytime.
- Remove debris and objects that can accumulate on the shelter. Use tools that will not damage the cover when removing debris.
- Remove snow to prevent excess accumulation. Use tools that will not damage the cover when removing snow.
- Check the contents of the shelter to verify that nothing is touching the cover that could cause damage.
- Check the pony wall periodically to ensure that it is in good repair and that all rafter mounts are secure.
- Depending on the contents, construction of the shelter, shelter materials, and shelter location, the potential for condensation exists. ClearSpan™ offers several items that can be used to alleviate a condensation condition. Please contact a ClearSpan™ representative for additional information.
- 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.

End Wall Frame
30' Wide

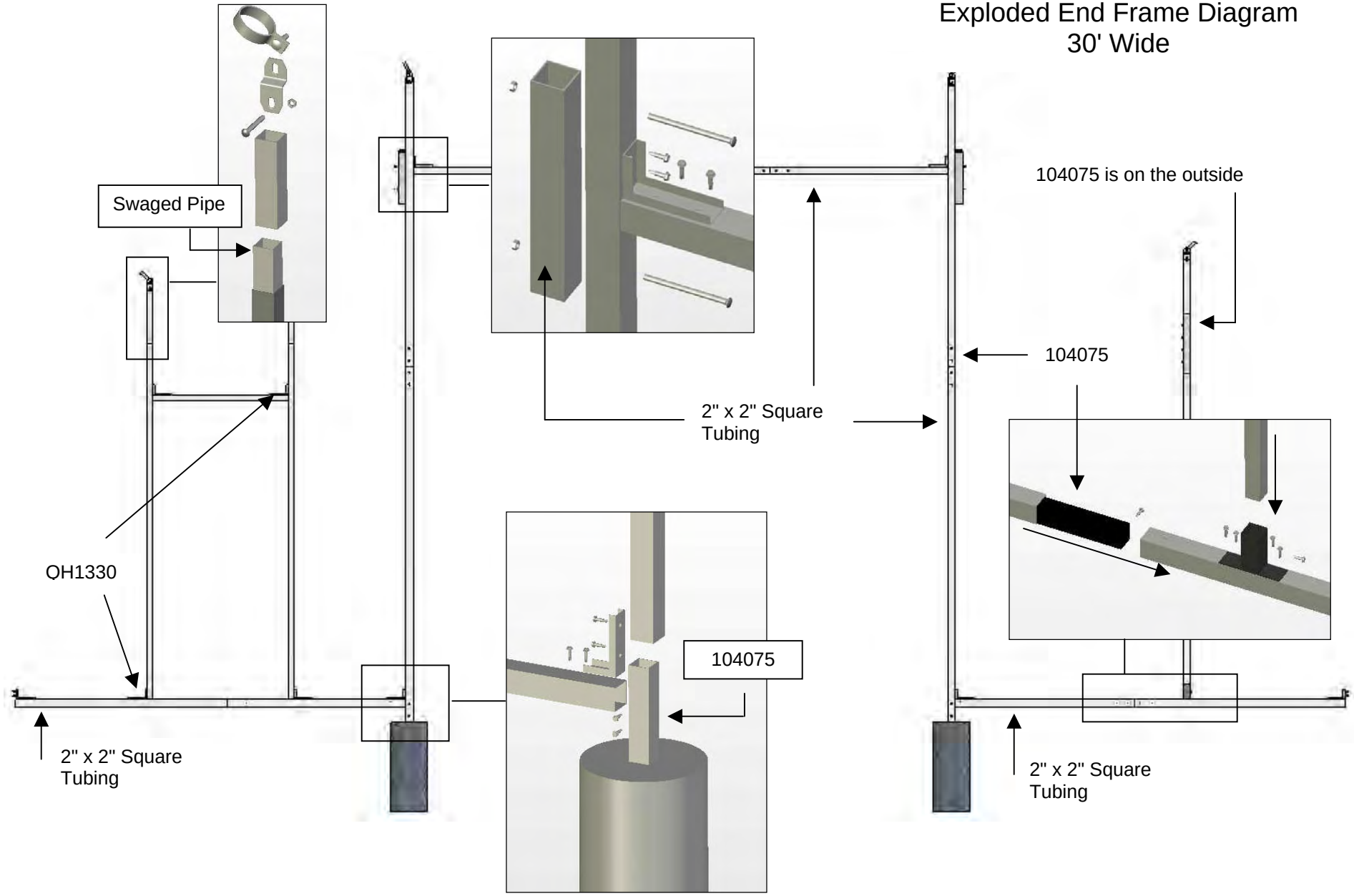
NOTE: The pedestrian door is centered between the rollup door and the edge of the end wall. It can be positioned on either side of the 12' x 12' rollup door.



ATTENTION: Dimensions shown are measured inside-to-inside.

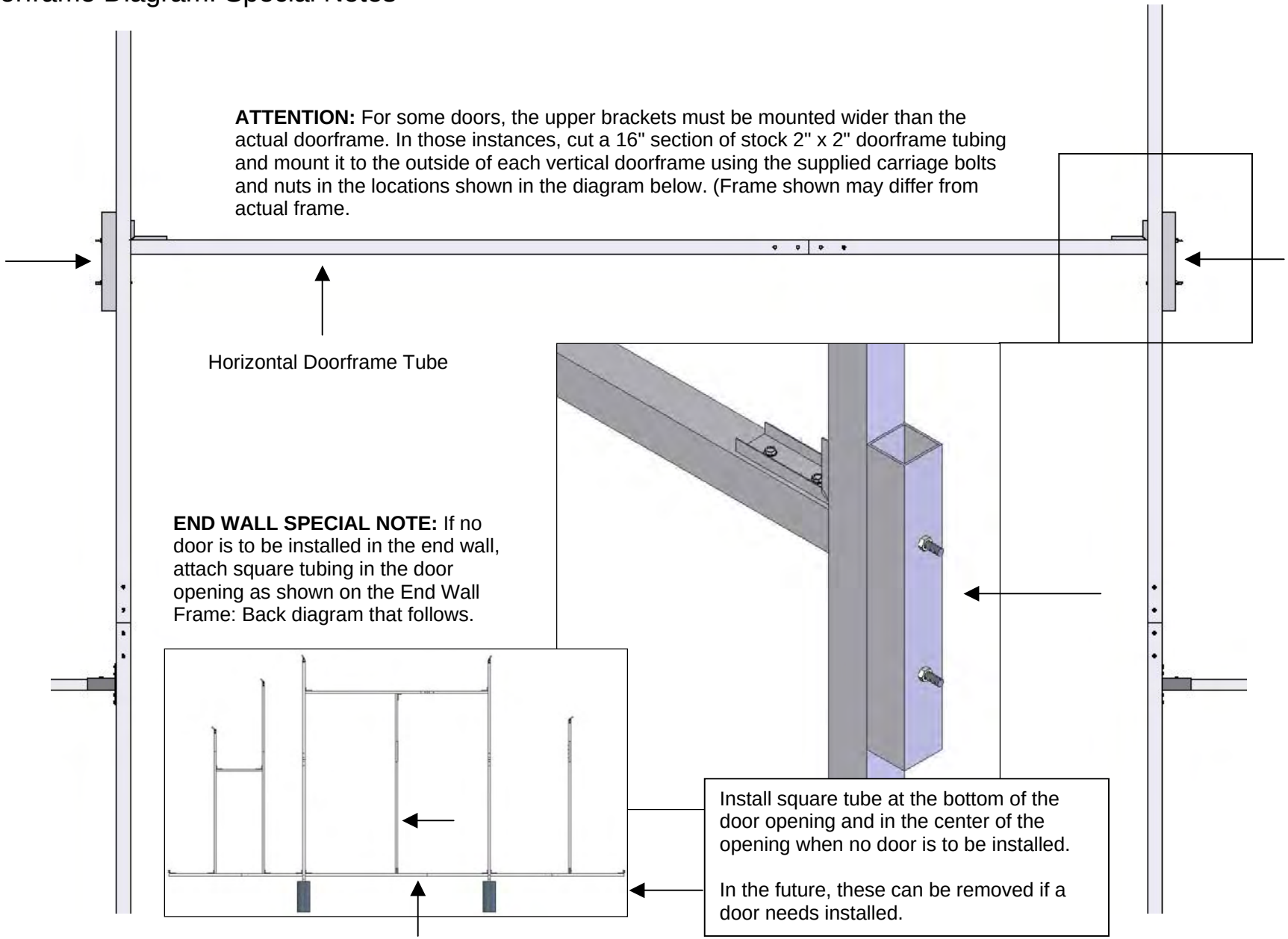
ATTENTION: Dashed line indicates 2" x 2" square tubing.

Exploded End Frame Diagram
30' Wide



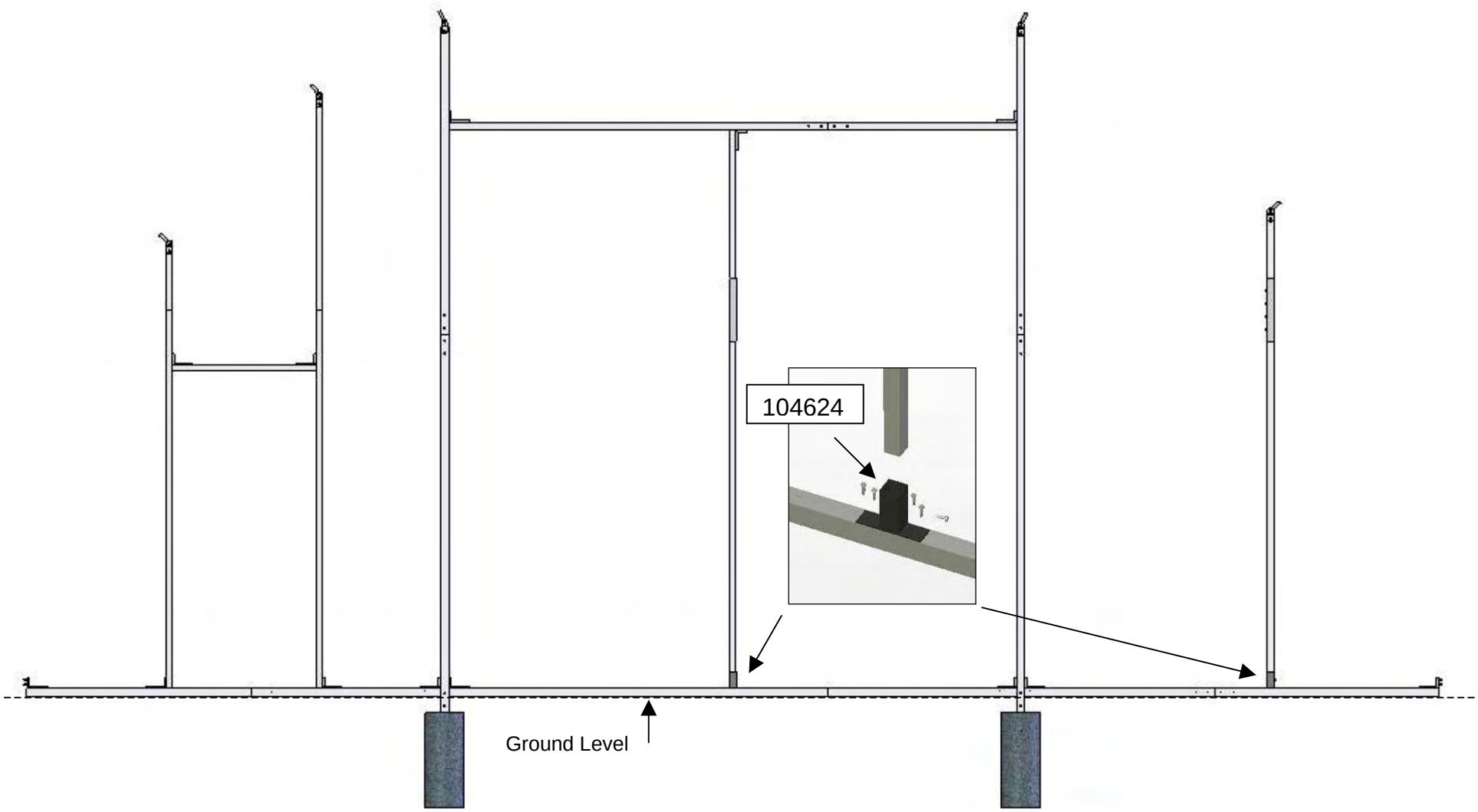
Doorframe Diagram: Special Notes

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



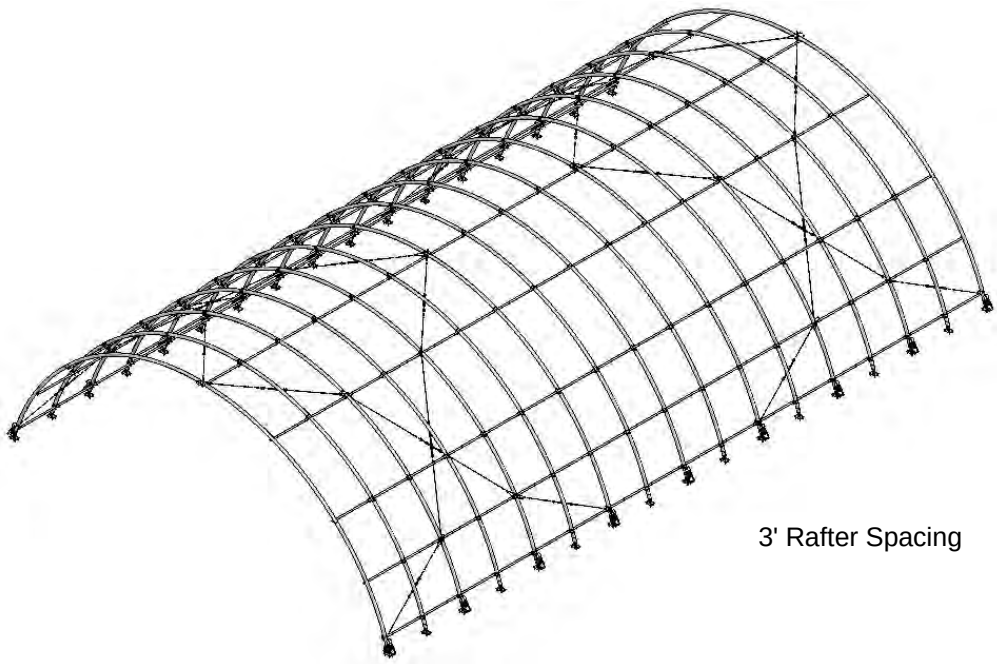
End Wall Frame: Back
30' Wide

ATTENTION: The frame dimensions for the back end wall are the same as those of the front end wall. An additional vertical (1.5" x 1.5") frame tube is positioned in the opening for the large door as shown.



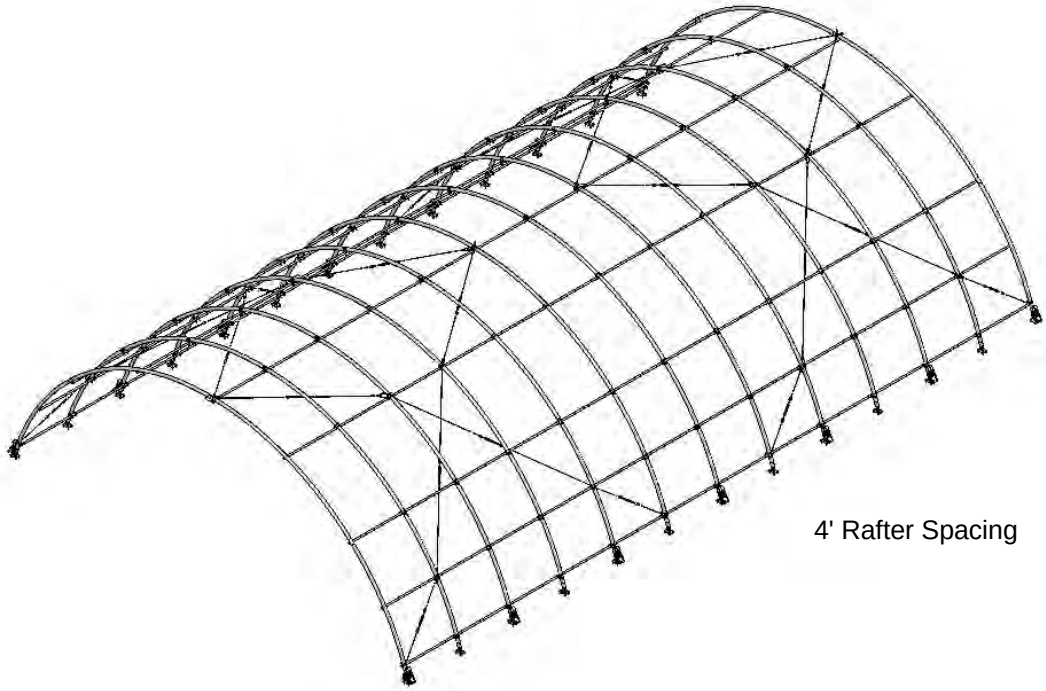
All Frame Diagrams:
30' Wide Storage Master SolarGuard™

PB00100R3
(30' W x 48' L)



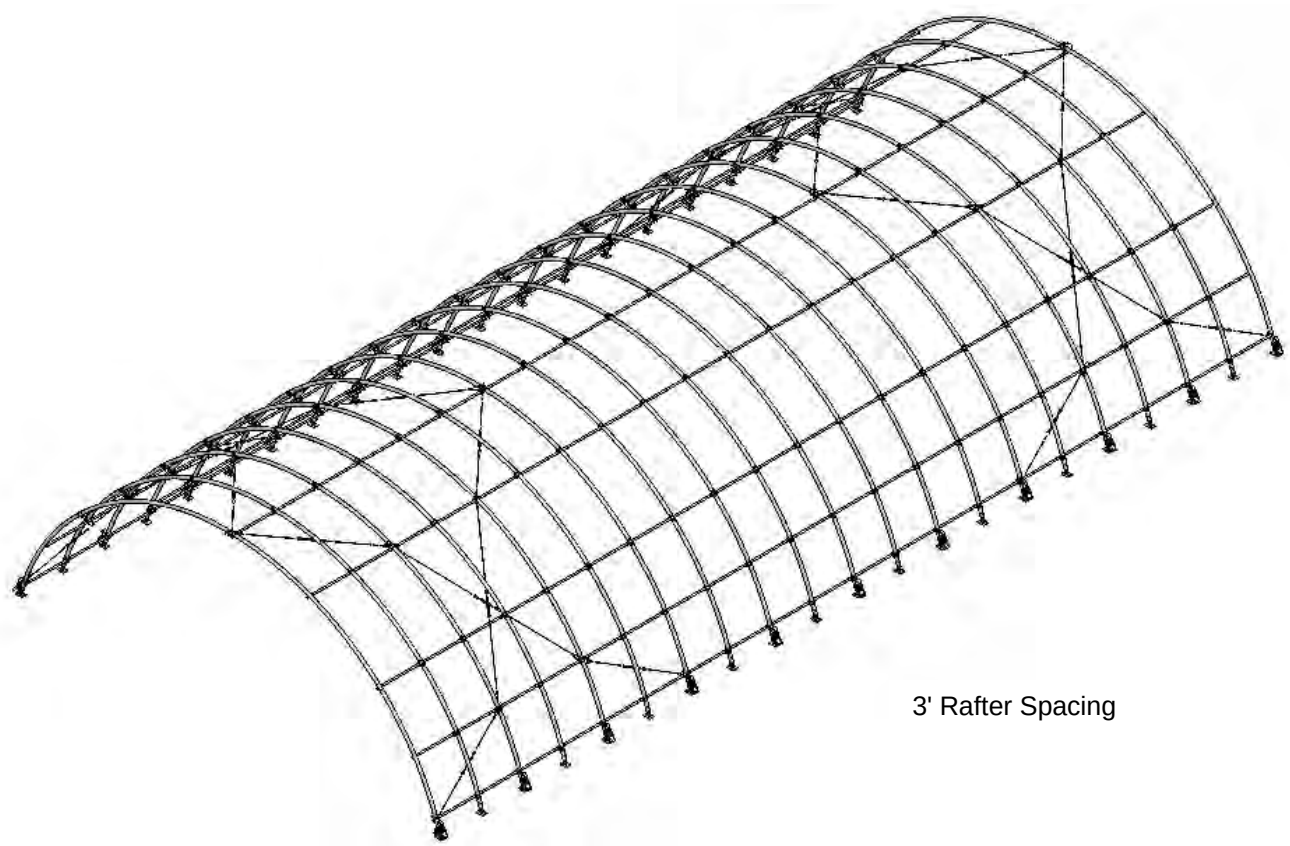
3' Rafter Spacing

PB00100R4
(30’ W x 48’ L)



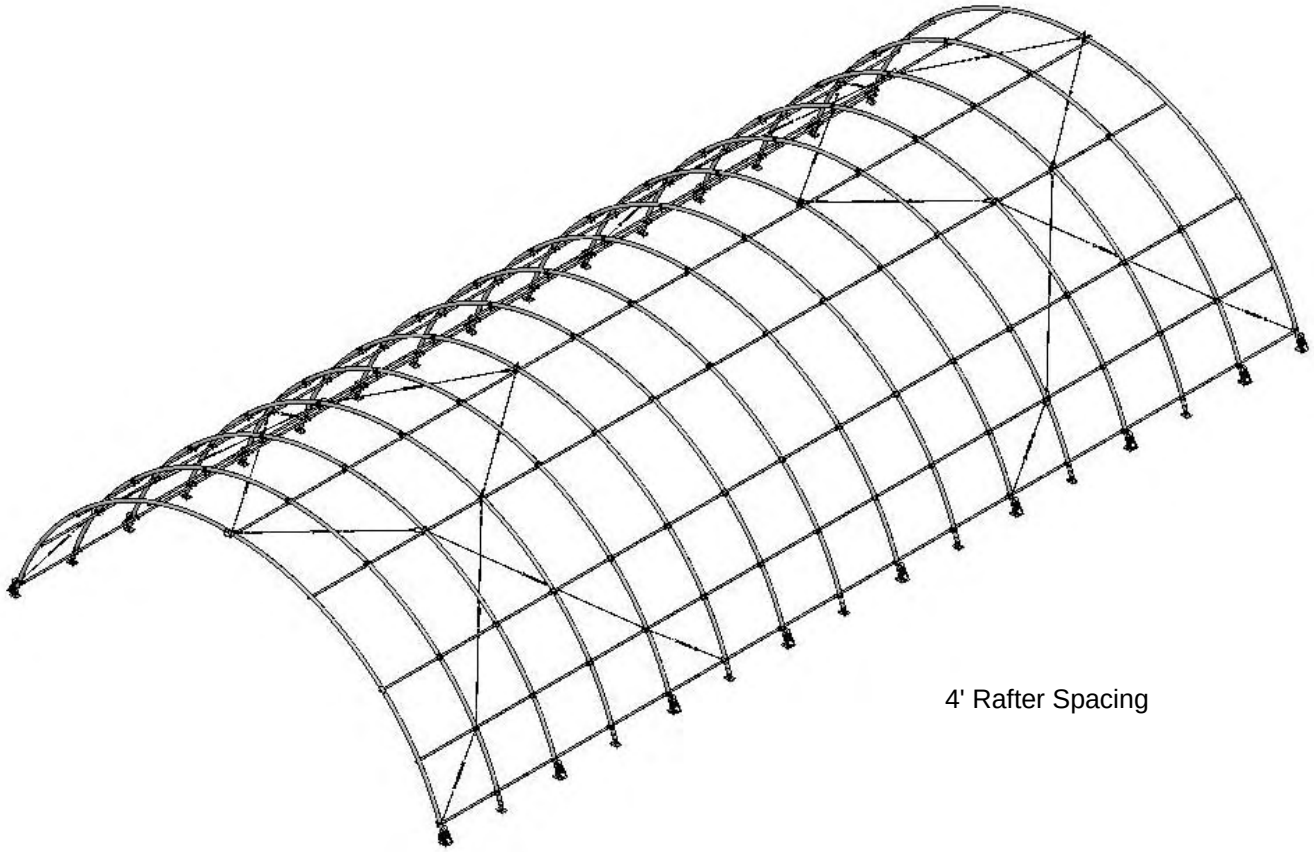
4' Rafter Spacing

PB00110R3
(30’ W x 60’ L)



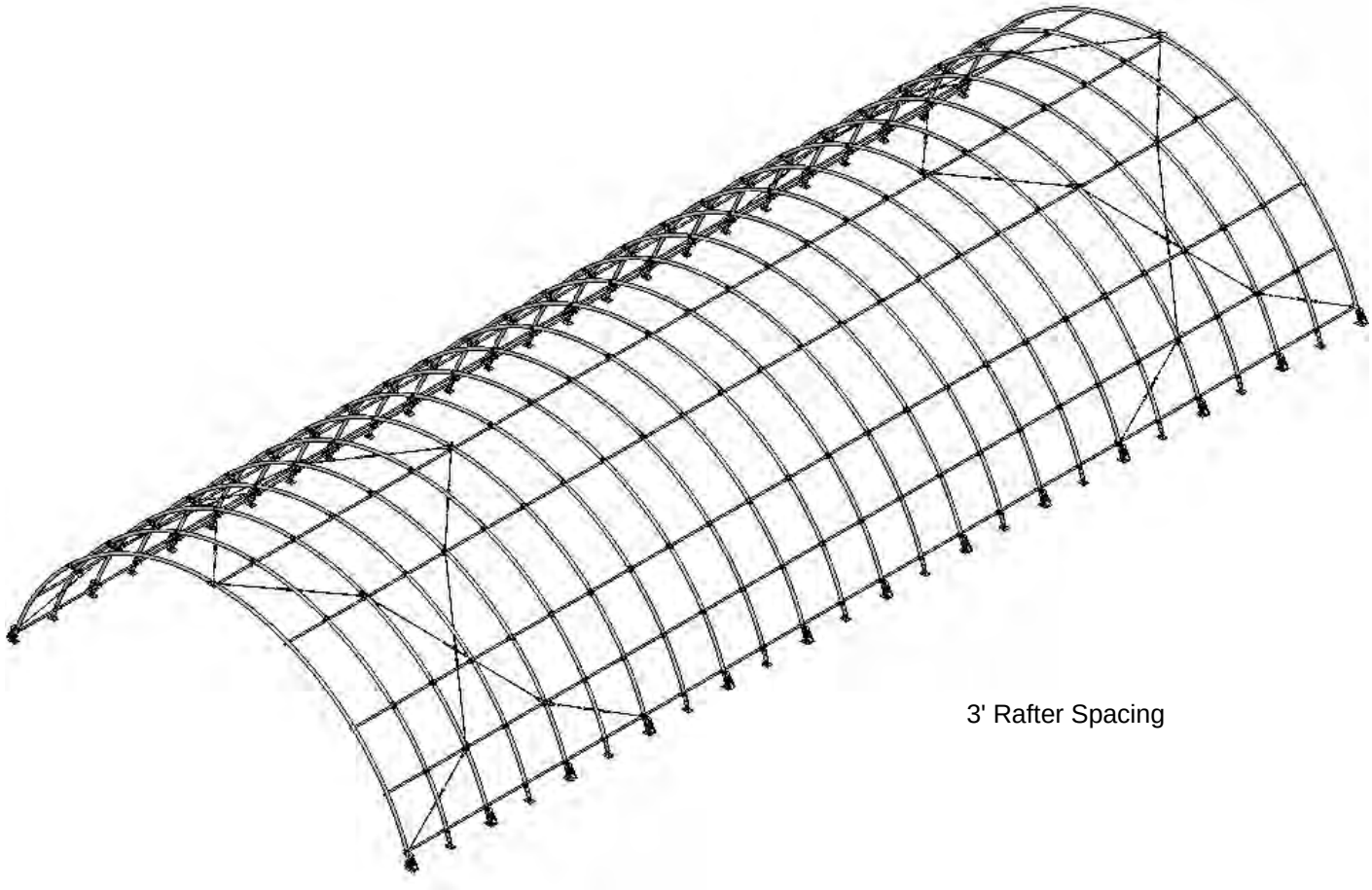
3' Rafter Spacing

PB00110R4
(30’ W x 60’ L)



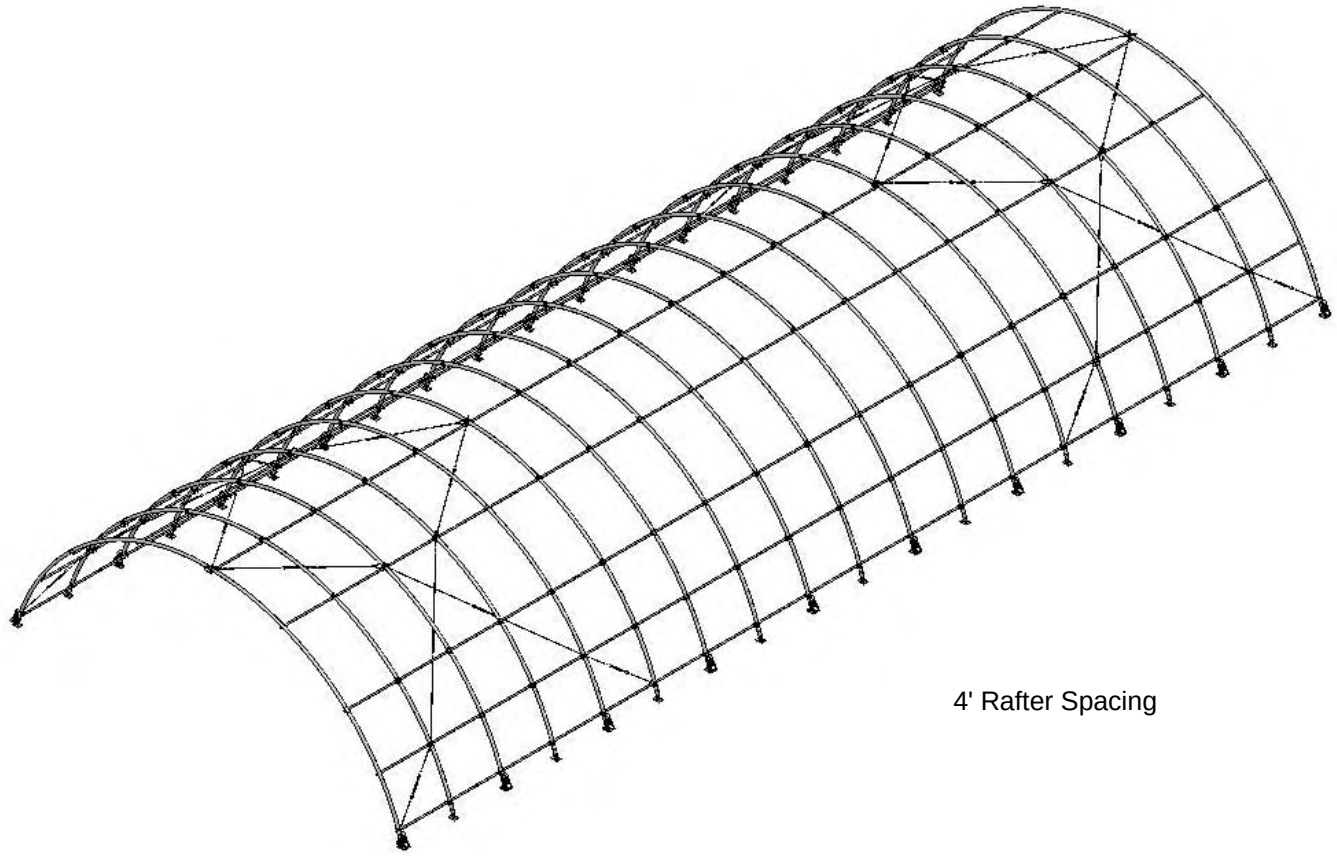
4' Rafter Spacing

PB00120R3
(30’ W x 72’ L)



3' Rafter Spacing

PB00120R4
(30' W x 72' L)



4' Rafter Spacing

Notes and Comments