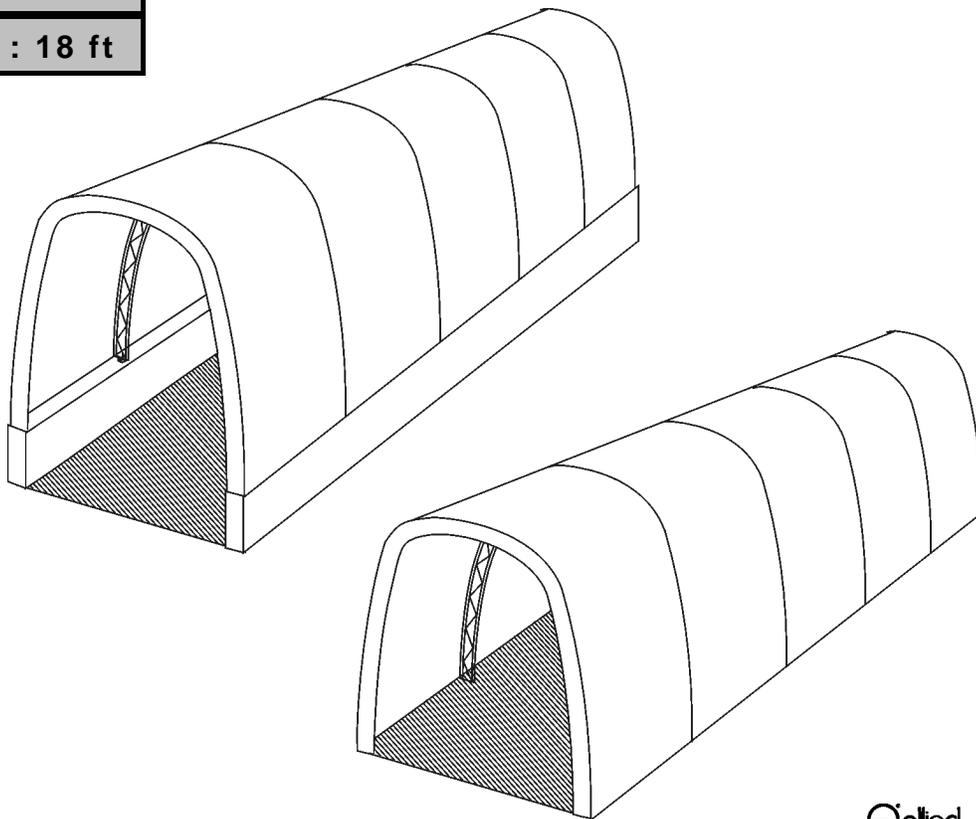


LEGEND BUILDING SERIES Installation Manual

LBS 18

WIDTH : 18 ft



WinchLoc™ Fastening System

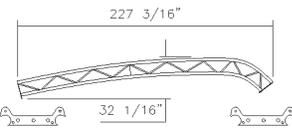
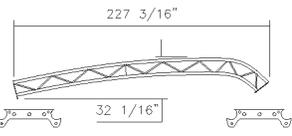
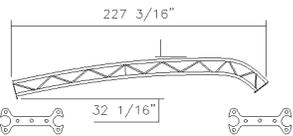
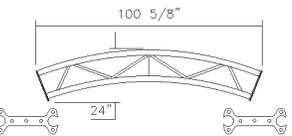
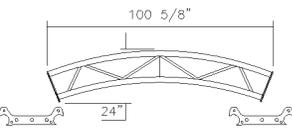
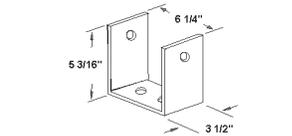
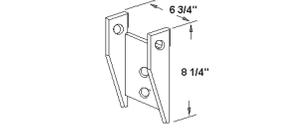
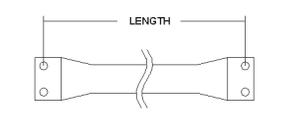
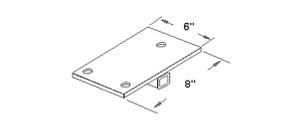
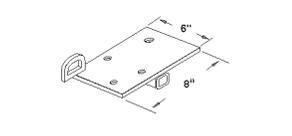
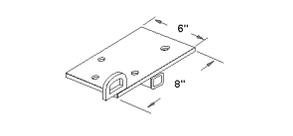
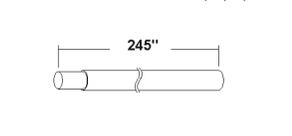
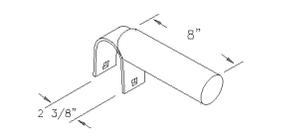
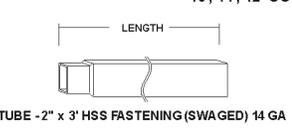
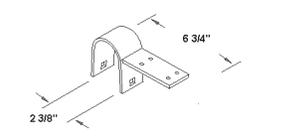
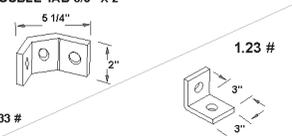
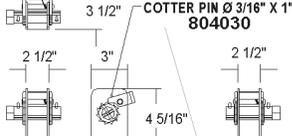
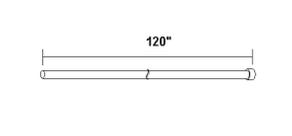
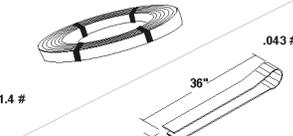
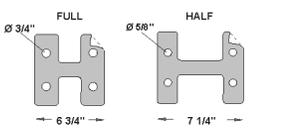
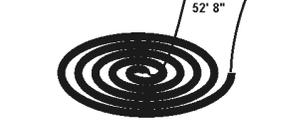
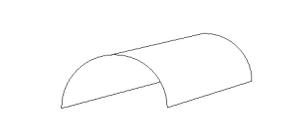
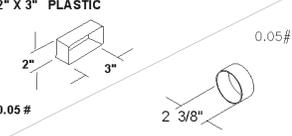
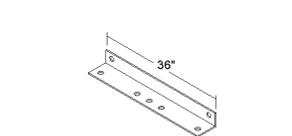
DURAWEAWE™ Covers

PVC Covers

INCLUDES
FRAMEWORK
COVER

SEPARATE MANUALS
ARE SUPPLIED FOR
END ENCLOSURES
DOORS
WARRANTY

Building Components

 <p>99.18#</p> <p>227 3/16"</p> <p>32 1/16"</p> <p>BASE END TRUSS LEFT TAS 18'</p> <p>30003115</p>	 <p>99.18#</p> <p>227 3/16"</p> <p>32 1/16"</p> <p>BASE END TRUSS RIGHT TAS 18'</p> <p>30003120</p>	 <p>101.66#</p> <p>227 3/16"</p> <p>32 1/16"</p> <p>BASE TRUSS COMMON TAS 18'</p> <p>30003110</p>	 <p>53.79#</p> <p>100 5/8"</p> <p>24"</p> <p>CENTER TRUSS COMMON TAS 18'</p> <p>30003100</p>																																																																								
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IMPORTANT – READ MANUAL FIRST

Improper Site Preparation, Assembly and Maintenance may invalidate warranty and cause unnecessary and costly mistakes. If you have any questions contact your local dealer.

MAINTENANCE SCHEDULE

Failure to comply with this maintenance schedule will invalidate the warranty.

A. INSTALLATION ADJUSTMENT

1. The cover of your Cover-All™ building may relax after installation. It is important to keep the cover tight to prevent wear and ensure a long life. Use a torque wrench to adjust winch tension on the *inside winches only* 35 - 45 ft. lbs. **Do not exceed 45 ft. lbs.** Tighten the end winches until the fastening pipe is level. Retighten end flaps.

NOTE: *Building covers installed during cooler weather tend to relax more than covers installed during warmer weather. If your cover was installed in cooler weather recheck its tightness on the first available warm sunny day.*

B. INSTALLATION INSPECTION - 1 WEEK

1. Lashing Winches - ensure the straps are secure and the cover is tight. Check tension on winches with a torque wrench 35 - 45 ft. lbs. **Do not exceed 45 ft. lbs.**
2. Belting - check for premature belting wear and ensure tightness.
3. End Flaps - ensure the flaps remain tight and securely fastened.
4. Aprons - ensure the aprons are securely fastened.
5. Steel - Seal all surface penetration marks with a sealant or high zinc content paint.

C. QUARTERLY MAINTENANCE

1. Repeat above "INSTALLATION INSPECTION - 1 WEEK" a minimum of 4 times per year.

D. GENERAL

1. **Cover** - Clean with water and non-abrasive soap. Do not use solvents or chemicals.
2. **Snowfall** - Snow accumulating on the cover could indicate that the cover needs re-tensioning. Remove snow and check tension.
3. Use caution when using heavy equipment to clear away avalanched snow.

E. ACCIDENTAL DAMAGE

Cover: Sharp objects can puncture and damage the cover. Do not attempt to seal or repair with conventional materials. Call your local Cover-All™ representative. He can assess the damage and facilitate replacement or provide a heat-weld service if the cover is repairable.

Structure: Report and document any damage to the steel structure, components or foundation immediately. Have your local Cover-All™ representative inspect the damage and provide a comprehensive evaluation. Perform any temporary or emergency repairs as determined. Replace or repair damaged components as determined.

Other: Any fabric or structural irregularities not resulting from accidents or extreme weather should be documented and reported immediately. Have your local Cover-All™ representative inspect the damage and provide a comprehensive evaluation.

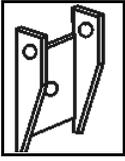


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END WALLS... BACK COVER

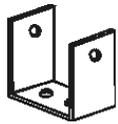
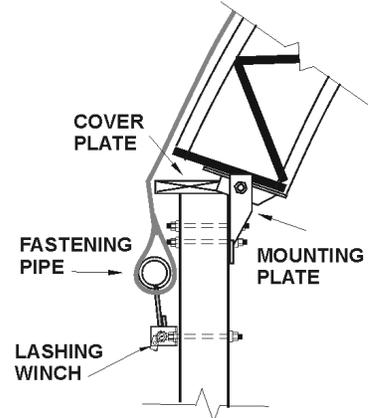
STEP 1

DETERMINE INSTALLATION TYPE



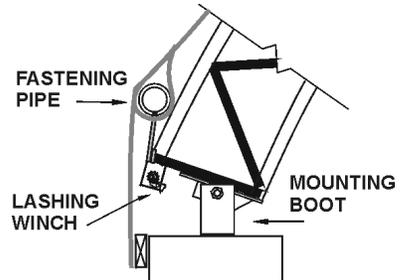
TYPE 220 INSTALLATION

- The mounting plate is attached to the inside of the foundation and secured through the foundation.
- The cover fastening pipe is located below the mounting plate, aside the foundation, and the cover lashing winches attach to the foundation.
- A **minimum 2" x 10"** dimensional lumber cover plate **is required** to tension the cover.
- Typically, the cover does not have a finish/seal apron.



TYPE 320 INSTALLATION

- The mounting boot attaches to the top surface of the foundation.
- The cover fastening pipe is located on the arch steel and the cover lashing winches attach to the bottom of the arch coupler plate.
- Typically the cover has an attached finish/seal apron.

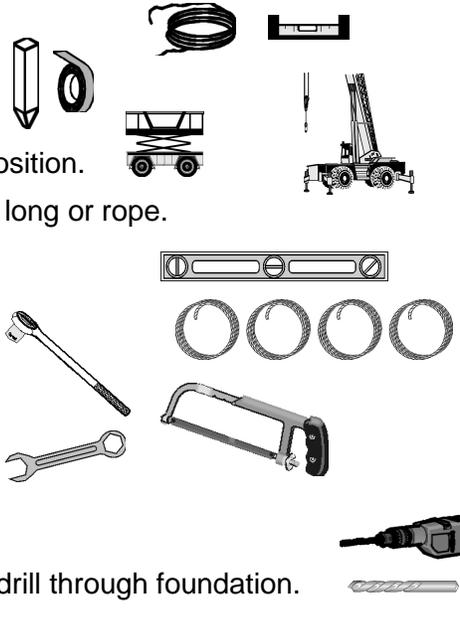


Custom buildings may have variations of these two installation types. Check with your Dealer or agent for details.

STEP 2

REQUIRED EQUIPMENT

1. String and string level for alignment.
2. Stakes and tape to mark the post/pile locations.
3. Movable scaffolding or a platform lift.
4. Crane or equivalent to lift arches into the vertical position.
5. Temporary bracing - 2 x 4" dimensional lumber 16' long or rope.
6. Square level.
7. 2 to 4 lengths of cover pull rope 100' or longer.
8. Torque wrench.
9. Hacksaw
10. 13/16" - 15/16" - 1 1/8" wrenches and sockets
11. **Optional** -A transit (available from a local rental store); power wrench.
12. **TYPE 220 Installation** - Drill and \varnothing 5/8" drill bit to drill through foundation.



REQUIRED FOR BUILDINGS OVER 140' IN LENGTH

1. Caulking gun

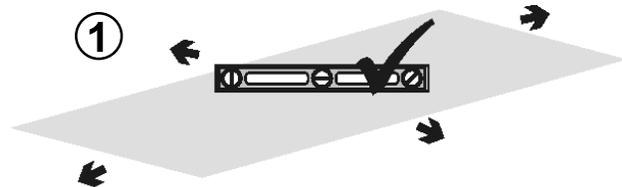


STEP 3

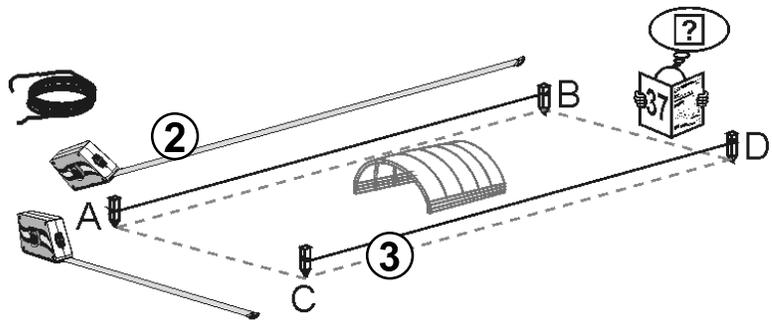
SITE PREPARATION

COVER-ALL™ BUILDING SYSTEMS IS NOT RESPONSIBLE FOR FOUNDATION DESIGN OR INSTALLATION.

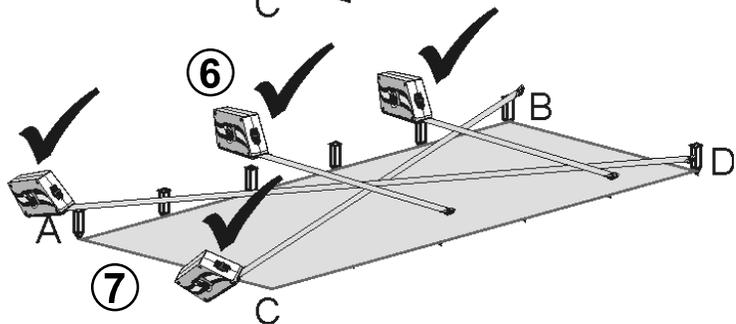
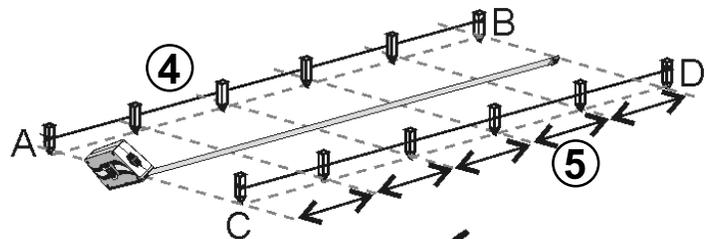
1. Start with a level site.
2. Measure and stake out the location of the corner posts/piles A, B, C and D. Use an accepted method to make the foundation straight and square.
See Squaring A Foundation on Page 29 for assistance.



3. String lines from A to B and from C to D.
4. Measure and stake the arch on-center intervals along the length of the building using a running measurement.



5. Check linear measurements by measuring the distance between each stake. Distance should be equal.
6. Check the width measurements the entire length of the building.
7. Check the square of the foundation by measuring diagonally. Diagonal measurements should be equal.



NOTE: Buildings over 140' in length have more than one cover. Even with this feature, the foundation continues as a running measurement for the entire length of the building.

STEP 4

CRITICAL FOUNDATION PLANNING

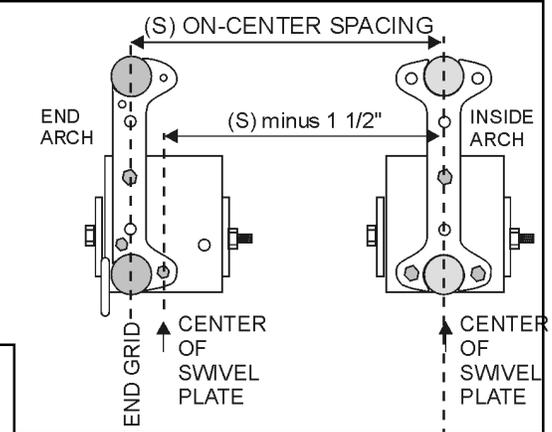
In order to maintain the correct on-center arch spacing YOU MUST INSTALL the foundation so that the end mounting brackets and boots can be safely attached 1 1/2" inside the end grid line.

TYPE 220 and TYPE 320

End arches have half coupler plates that bolt 1 1/2" off-center on a 4 hole end swivel plate.

The inside arches have full coupler plates and bolt to the center of the 3 hole swivel plates.

On-center arch spacing must be maintained when planning the foundation.



TYPE 220 INSTALLATION

PLAN A

THIS IS RECOMMENDED WHEN THE BUILDING DOES NOT HAVE AN END WALL.

When you install the end posts with their centers aligned 1 1/2" inside the end grid line the mounting bracket and swivel plate center will be positioned in the center of the post and the correct on-center arch spacing is maintained.

PLAN A
(S) - 1 1/2"

The instructions in this manual are for Plan A

PLAN B

THIS IS RECOMMENDED WHEN AN END WALL IS INSTALLED ON THE BUILDING.

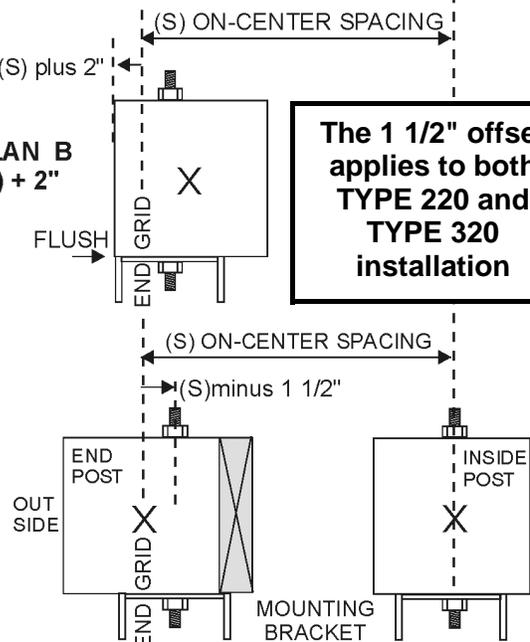
When you wish to finish the end of the building steel flush to the outside edge of the end post INSTALL THE EDGE OF THE POST PLUS 2" OUTSIDE the end grid line. The mounting bracket will be positioned flush to the edge of the post and the correct on-center arch spacing is maintained.

PLAN B
(S) + 2"

The 1 1/2" offset applies to both TYPE 220 and TYPE 320 installation

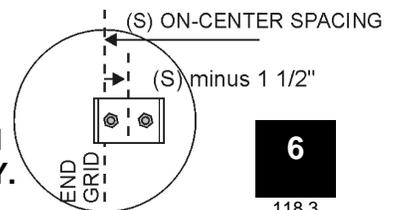
IF YOU INSTALL THE END POSTS WITH THEIR CENTERS ALIGNED ON THE END GRID LINE YOU CANNOT INSTALL THE END ARCH BRACKETS AND SWIVELS IN THE CENTER OF THE POST.

YOU MUST INSTALL the end mounting bracket 1 1/2" inside the grid line in order to maintain the correct on-center arch spacing. The mounting bracket and swivel plate center will be positioned offset on the end post. Add reinforcement to post. NOT RECOMMENDED.

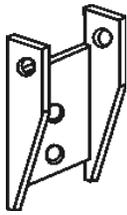


TYPE 320 INSTALLATION

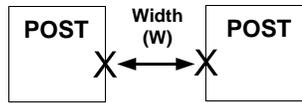
YOU MUST INSTALL THE END ARCH MOUNTING BOOTS 1 1/2" INSIDE THE END GRID LINE TO MAINTAIN THE CORRECT ARCH ON-CENTER SPACING. PLAN THE FOUNDATION ACCORDINGLY.



TYPE 220 INSTALLATION



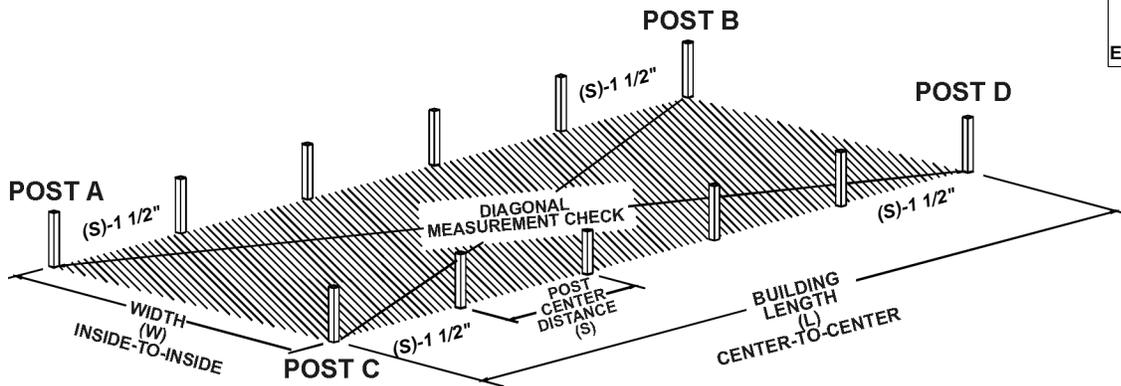
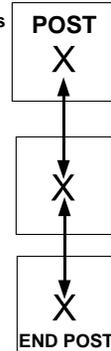
Inside-to-Inside Measurements



Center-to-Center Measurements

Building Length (L)
Post Distance (S)

EXCEPT END POSTS
Post Distance (S) minus 1 1/2"



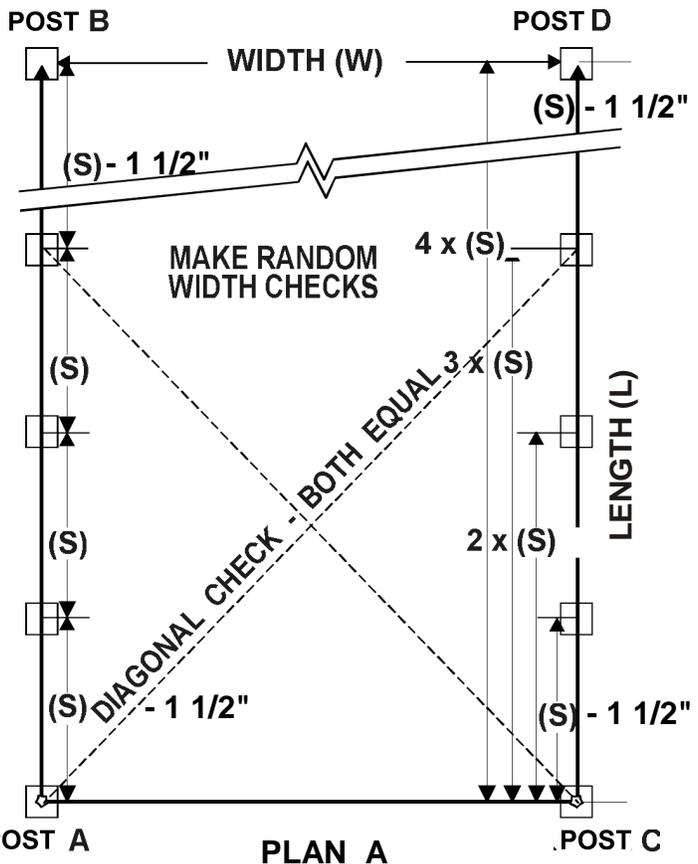
LBS 18
(W) WIDTH = 16' 8 3/4"

IMPORTANT

END ARCHES MOUNT 1 1/2" OFFSET ON THE SWIVEL PLATE.

PLAN A
MEASURE AND INSTALL THE END POST CENTERS AT (S) MINUS 1 1/2". THIS WILL ALLOW THE END ARCH MOUNTING BRACKETS TO BE MOUNTED IN THE CENTER OF THE POST

PLAN B
MEASURE AND INSTALL THE OUTSIDE EDGE OF THE END POST AT (S) PLUS 2". THIS WILL ALLOW FLUSH END FABRIC TERMINATION AT THE CORNERS.



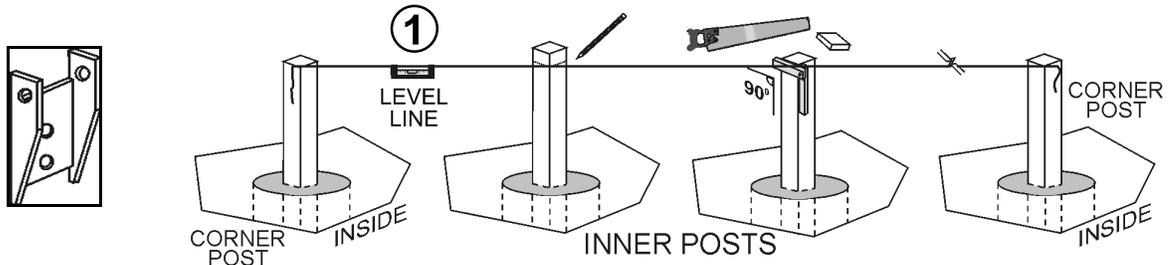
STEP 5

TYPE 220 - INSTALL THE COVER PLATE

THE 220 COVER CANNOT BE TENSIONED WITHOUT THE COVER PLATE

1. CUT POSTS TO DESIRED FINISHED HEIGHT

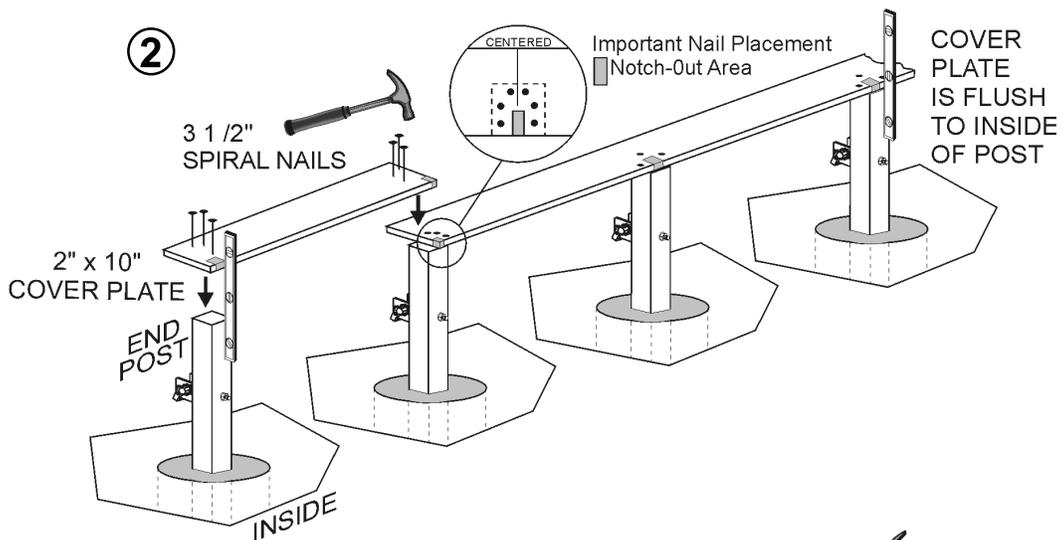
Tie a string line to the corner posts and mark the cut lines on the inner posts. Cut off the tops of each post along the line.



2. INSTALL THE COVER PLATE

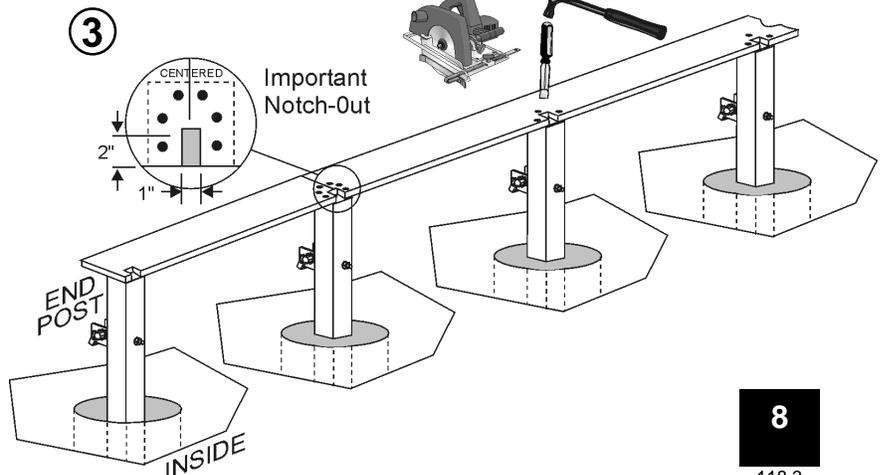
Using 3 1/2" spiral nails (not supplied), securely fasten a minimum 2" x 10" dimensional lumber cover plate to the top of the posts.

The top edge of the plate is flush to the inside of the post.



3. Cut out 2" x 1" notches in the cover plate at the posts where the mounting plate and boot swivel will be attached.

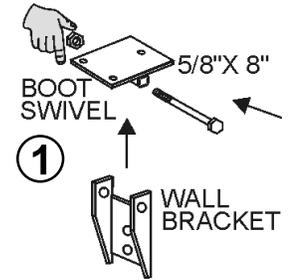
IMPORTANT:
Mounting brackets and swivels will not install properly without notch outs.



STEP 6**TYPE 220 - INSTALL MOUNTING BRACKETS**

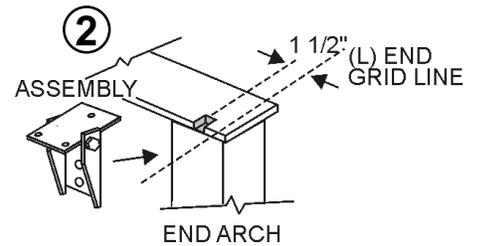
1. Temporarily assemble one TYPE 220 mounting bracket and a 3-hole INSIDE boot swivel using a 5/8" x 8" bolt/nut. FINGER TIGHT ONLY.

Use this assembly as a guide for drilling the mounting holes in all the posts including the end posts.



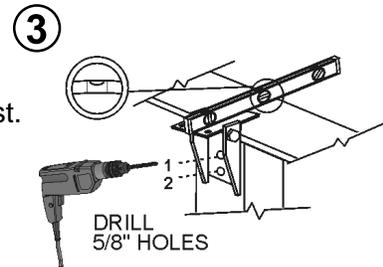
2. **END POSTS** - The center of the bracket assembly mounts 1 1/2" inside the end grid line.

Remember - If you have not installed the end posts at (S) minus 1 1/2", the bracket will not be centered on the post.



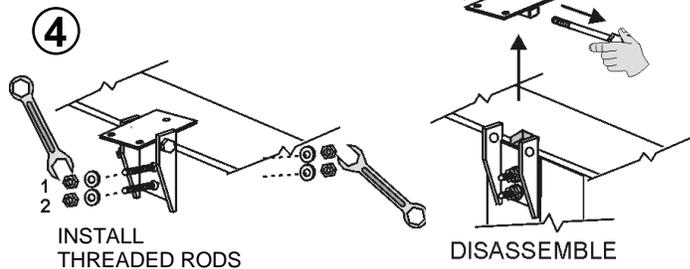
3. **INSIDE POSTS and END POSTS**
Set the guide assembly on the post so that the swivel plate is level and drill 2 of Ø 5/8" holes through the post.

Use the guide assembly to drill 2 of Ø 5/8" holes through every post.

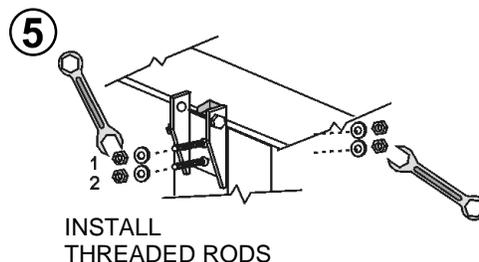


4. Attach the bracket and boot swivel assembly to the last drilled post using 2 of Ø 5/8" threaded rod/washers/nuts. Disassemble the bracket and boot swivel assembly.

Install 2 of Ø 5/8" threaded rods every post.



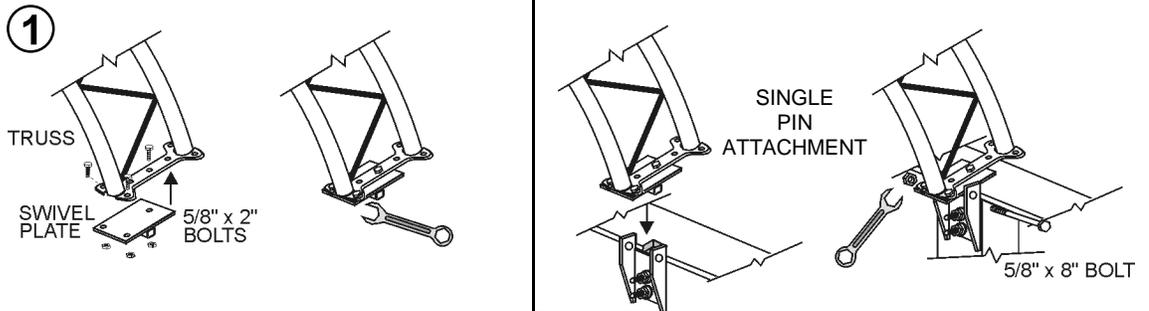
5. Attach the remaining mounting brackets to all posts using 2 of Ø 5/8" threaded rod/washers/nuts.



STEP 7

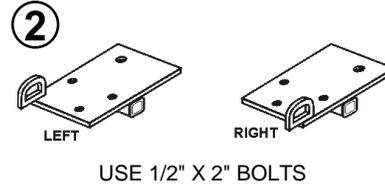
TYPE 220 - INSTALL SWIVEL PLATES

1. **INSIDE ARCHES** - Attach the 3 hole boot swivel plates to the base of the inside arches using 5/8" x 2" bolts/nuts. This will permit single pin attachment when installing the arches.



2. **END ARCHES** - Attach the 4 hole boot swivel plates with the welded on D-rings to the end arches using 1/2" x 2" bolts/nuts.

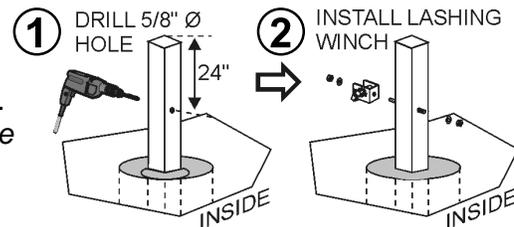
The welded D-rings are always on the **OUTSIDE** of the end of the building.
ALL POSTS



STEP 8

TYPE 220 - INSTALL COVER WINCHES

1. Drill a \varnothing 5/8" hole through the center of each post 24" below the top of the post.
2. Fasten a lashing winch to the outside of each post using 5/8" threaded rod, nuts, and washers. Tighten securely. *Mount lashing winches with the safety bar facing down.*

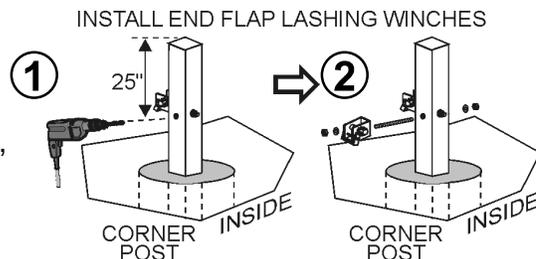


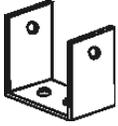
NOTE: If you are installing an eave on your building the lashing winches are mounted on the **INSIDE** of the posts.
ALL CORNERS

STEP 9

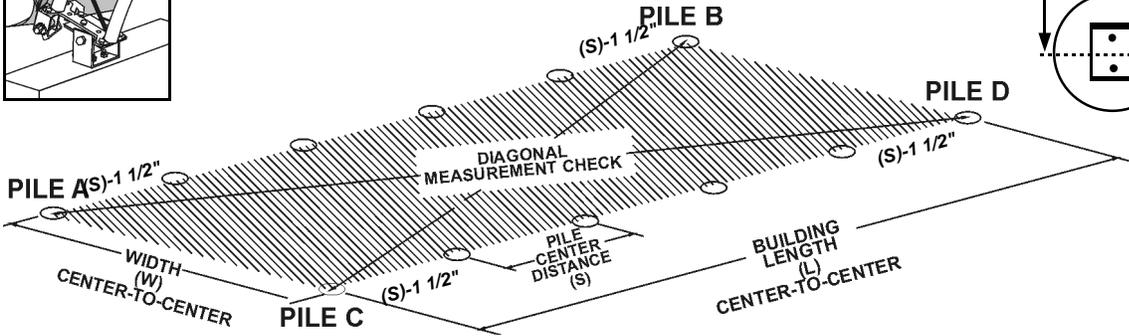
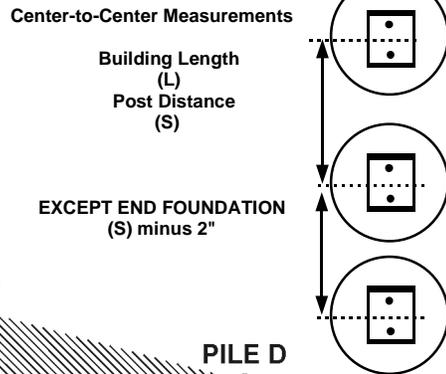
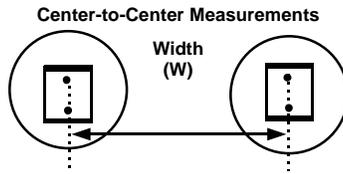
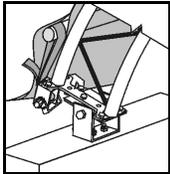
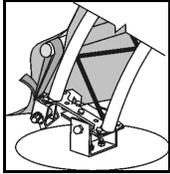
TYPE 220 - INSTALL END FLAP WINCHES

1. Drill a \varnothing 5/8" hole through the center of each corner post 25" below the top of the post.
2. Fasten a lashing winch to the outside (end) of each corner post using 5/8" threaded rod, nuts, and washers. Tighten securely. *Mount lashing winches with the safety bar facing down.*





TYPE 320 INSTALLATION



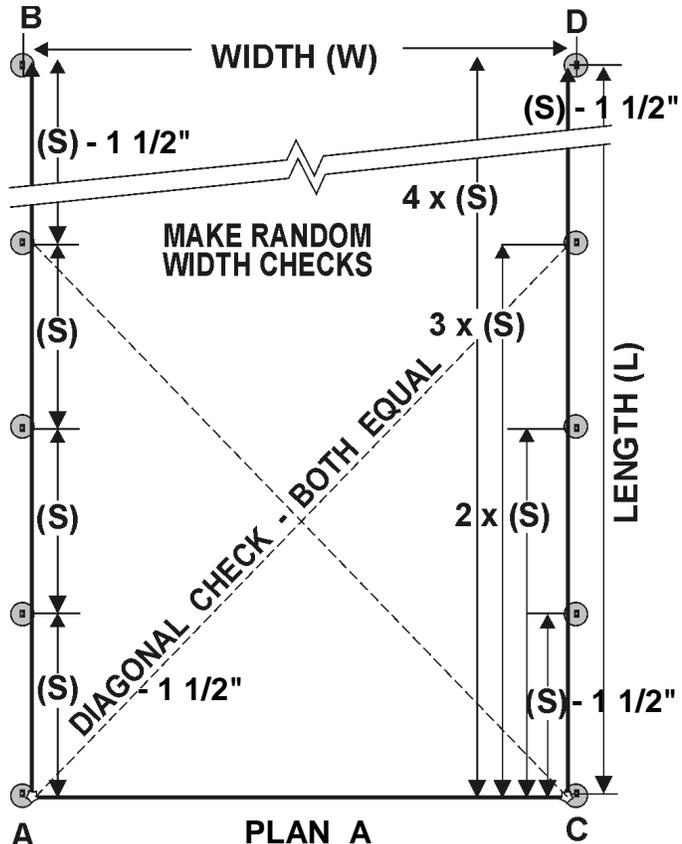
LBS 18
(W) WIDTH = 16' 6 3/4"

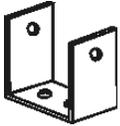
IMPORTANT

END ARCHES MOUNT 1 1/2" OFFSET ON THE SWIVEL PLATE.

PLAN A
MEASURE AND INSTALL THE END PILE CENTERS AT (S) MINUS 1 1/2". THIS WILL ALLOW THE END ARCH MOUNTING BOOTS TO BE MOUNTED IN THE CENTER OF THE PILE.

PLAN B
MEASURE AND INSTALL THE OUTSIDE EDGE OF THE FOUNDATION AT (S) PLUS 2". THIS WILL ALLOW FLUSH FABRIC TERMINATION AT THE CORNERS. FOUNDATION

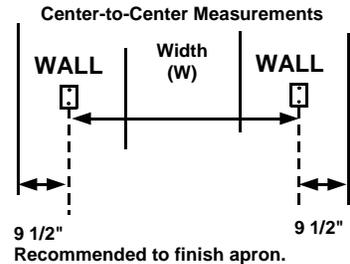
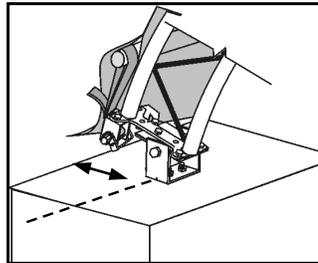




TYPE 320 - INSTALLATION continued

WIDE FOUNDATIONS

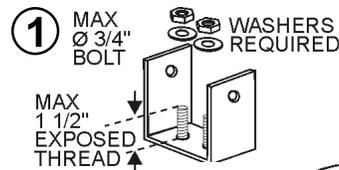
Planning the foundation so that the boot mounts 9 1/2" from the outside edge will permit the apron to finish straight down from the cover's tensioning point.



STEP 10

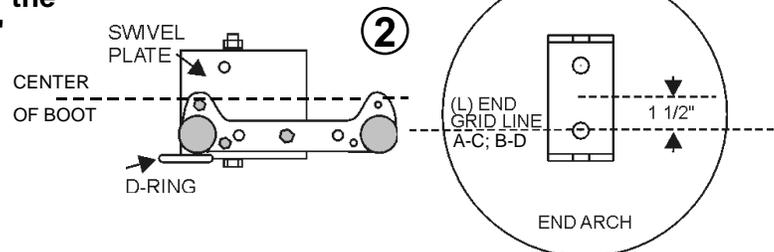
TYPE 320 - INSTALL MOUNTING BOOTS

- ANCHOR BOLTS** - Maximum $\text{\O} 3/4"$ bolts. Maximum 1 1/2" exposed thread. Washers required. **Tighten all anchor bolts securely.**



- END ARCHES** - The center of the mounting boot mounts 1 1/2" inside the end grid line.

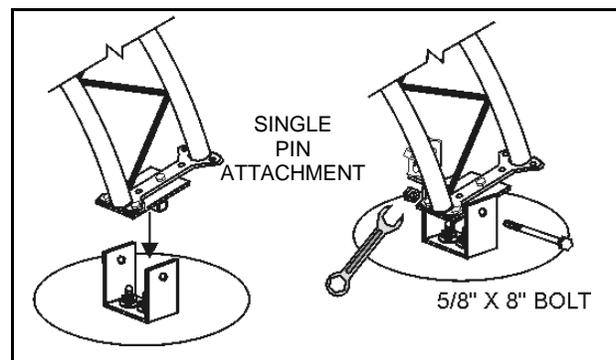
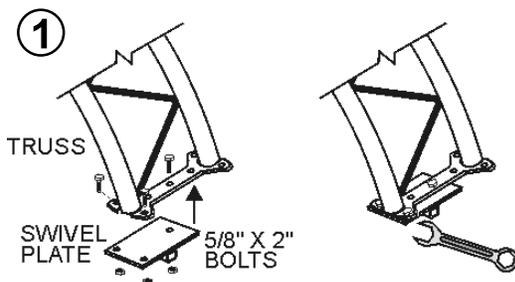
Remember - If you have not installed the end piles at (S) minus 1 1/2", the bracket will not be centered on the pile.



STEP 11

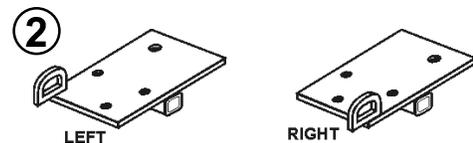
TYPE 320 - INSTALL SWIVEL PLATES

- INSIDE ARCHES** - Attach the 3 hole boot swivel plates to the base of the inside arches using 5/8" x 2" bolts/nuts. This will permit single pin attachment of the arches.



- END ARCHES** - Attach the 4 hole boot swivel plates with the welded on D-rings to the end arches using 1/2" x 2" bolts/nuts.

The welded D-rings are always on the OUTSIDE of the end of the building.



1/2" x 2" BOLTS

STEP 12

ASSEMBLE THE ARCHES

IDENTIFY AND LAYOUT ARCH TRUSSES.

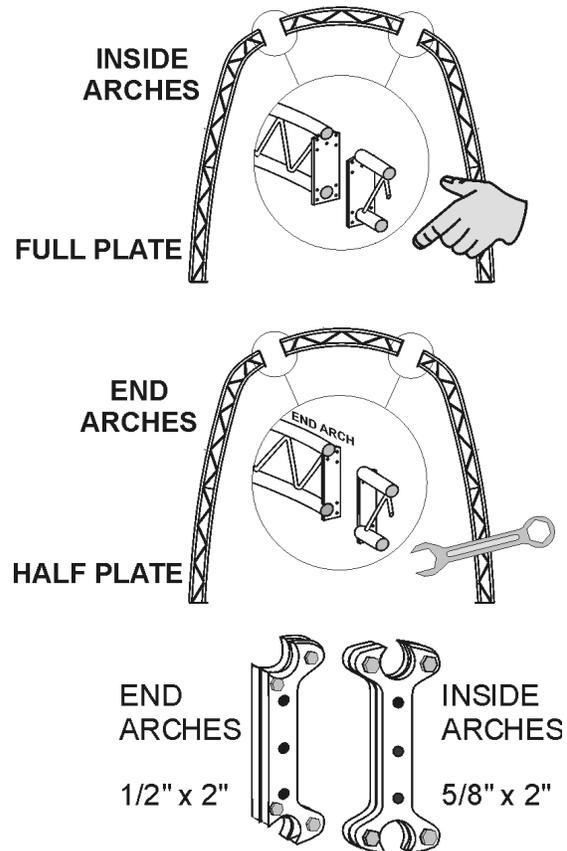
1. Identify and separate the inside trusses from the end trusses. Inside trusses have full coupler plates. End trusses have half coupler plates

LBS 18
Each completed arch requires 3 trusses.

ASSEMBLE ARCHES

2. **END ARCHES**
4 of 1/2" x 2" bolts/nuts
3. **INSIDE ARCHES**
4 of 5/8" x 2" bolts/nuts

LEAVE THE 3 HOLES IN THE CENTER OF THE COUPLER EMPTY

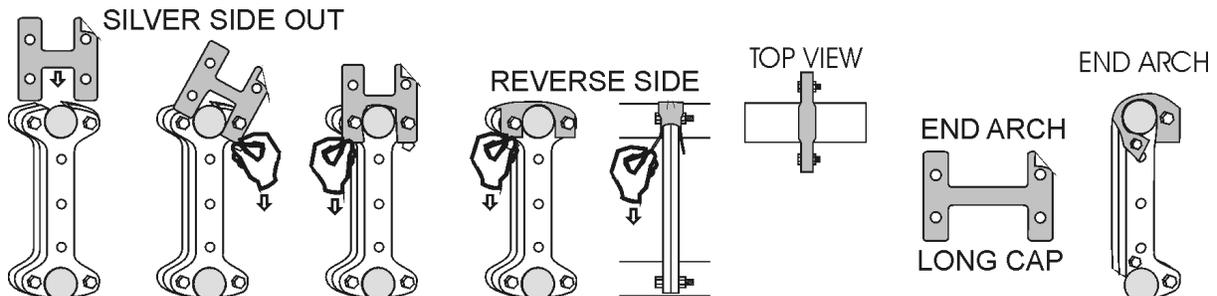


STEP 13

INSTALL COUPLER PROTECTORS

The coupler protectors fit OVER the bolt head and nuts of the TOP of the ASSEMBLED arches. The coupler protectors ARE REQUIRED to protect the fabric cover.

WARNING: FABRIC DAMAGE WILL OCCUR IF NOT INSTALLED. Remove or smooth any burs or irregularities before installing.



IMPORTANT - Do not attempt to install the coupler protectors UNDER the bolts or nuts. The fabric will deform, twist and tear off.

STEP 14

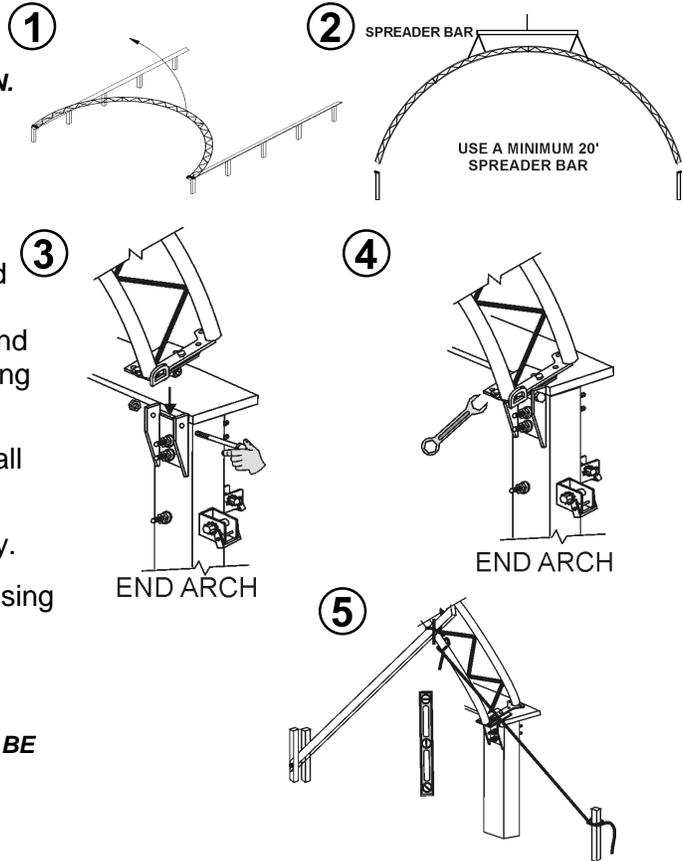
ERECT END ARCH

TYPE 220

**MOUNTING BRACKETS AND SWIVELS
MUST BE ATTACHED BEFORE ERECTION.**

MOVE END ARCH INTO POSITION

1. Position an end arch so that the arch can be tilted upright.
2. Attach a spreader bar to the arch and elevate the truss into its upright position, and center it on top of the end posts. Use extreme caution when lifting arches.
3. Lower the arch into position and install a 5/8" x 8" bolt/nut.
4. Tighten the 5/8" x 8" bolt/nut securely.
5. Plumb and brace the arch securely using rope or dimensional lumber.

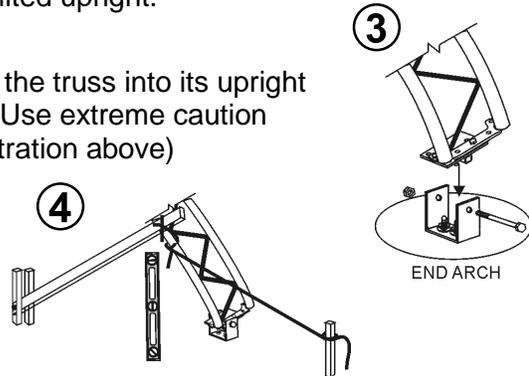


TYPE 320

**MOUNTING BOOTS AND SWIVELS MUST BE
ATTACHED BEFORE ERECTION.**

MOVE END ARCH INTO POSITION

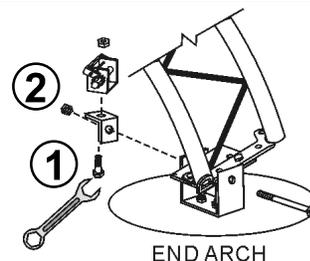
1. Position an end arch so that the arch can be tilted upright. (See ① TYPE 220 illustration above)
2. Attach a spreader bar to the arch and elevate the truss into its upright position, and center it on top of the end piles. Use extreme caution when lifting arches. (See ② TYPE 220 illustration above)
3. Lower the arch into position and install a 5/8" x 8" bolt/nut.
4. Plumb and brace the arch securely using rope or dimensional lumber



STEP 15

TYPE 320 - INSTALL END FLAP WINCHES

1. **End Arches Only** - Attach an end flap lashing winch to a winch mount bracket using a 5/8" x 2" bolt/nut.
2. Attach the bracket/winch assembly to the inside of arch boot 5/8" x 8" bolt. Tighten securely.

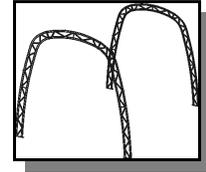
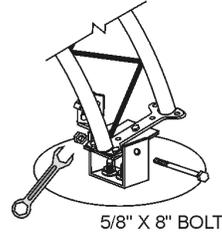
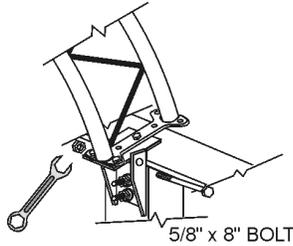
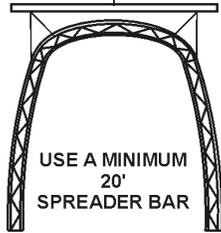


WARNING: TRUSS WILL FAIL AND WARRANTY IS VOID IF A SPREADER BAR IS NOT USED.

STEP 16

ERECT THE NEXT ARCH

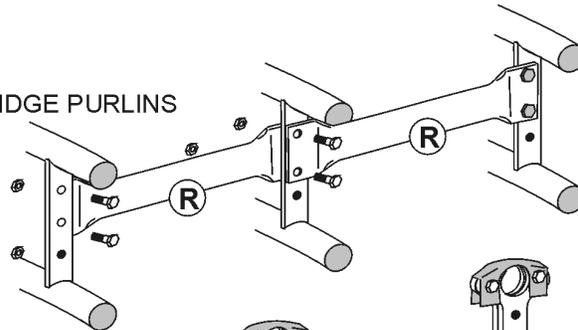
SPREADER BAR



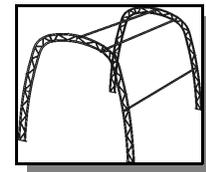
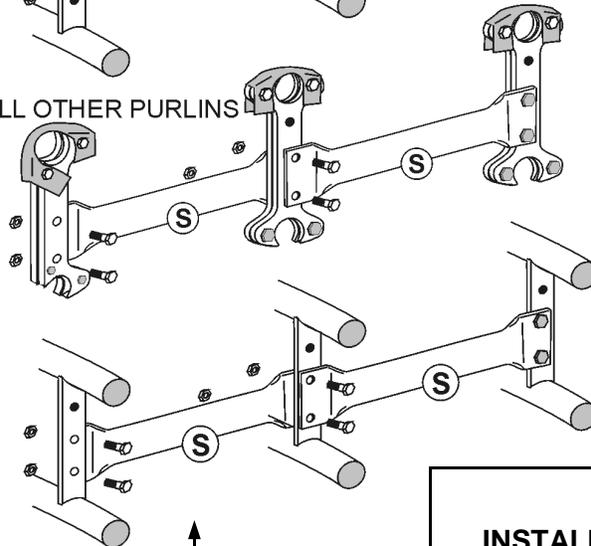
STEP 17

INSTALL PURLINS

RIDGE PURLINS



ALL OTHER PURLINS



ATTACH
PURLINS USING
5/8" X 2" BOLTS

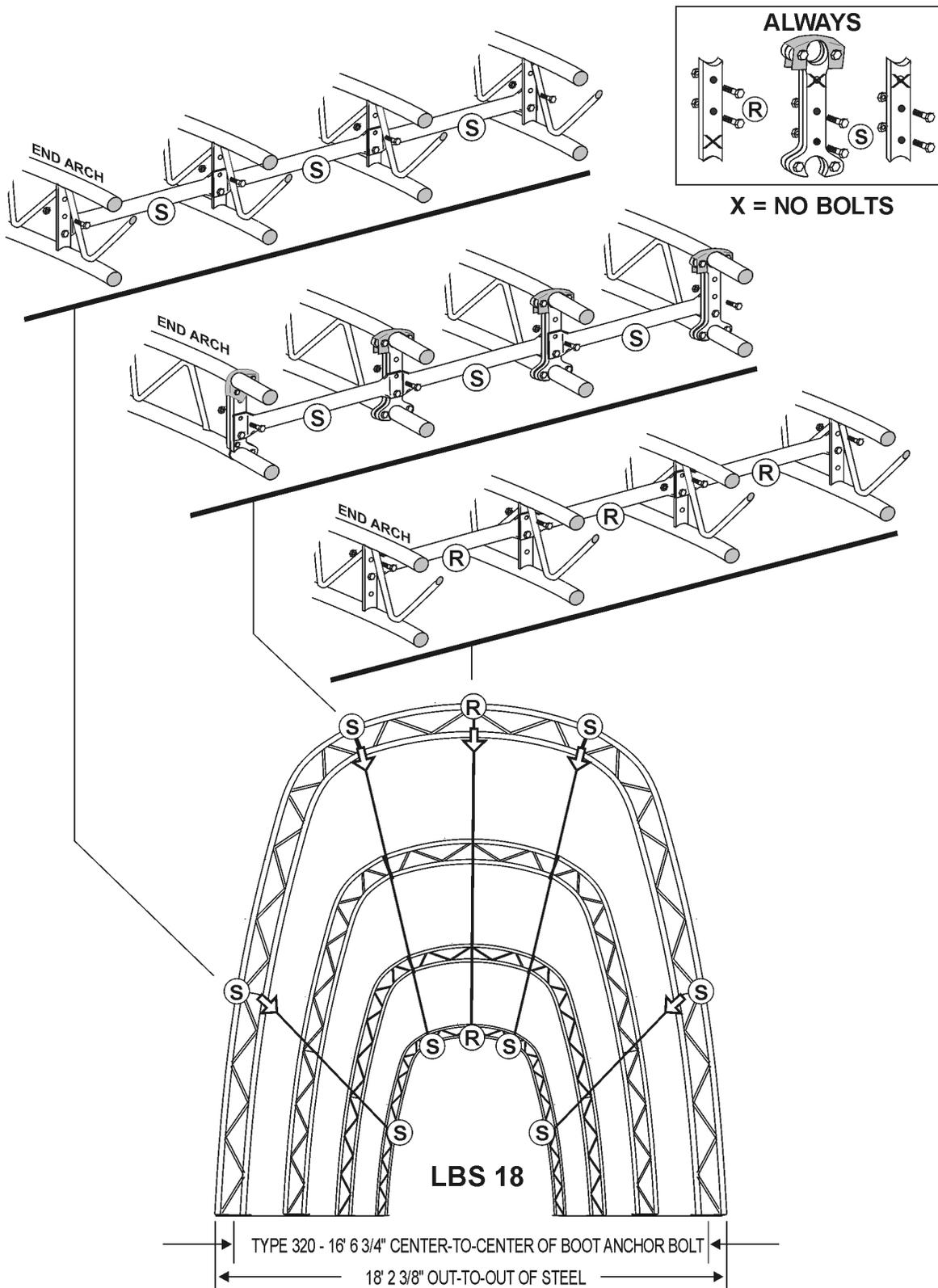
IMPORTANT
INSTALL ALL PURLINS BETWEEN
THESE FIRST TWO
ARCHES BEFORE PROCEEDING

END BAYS ONLY



3 1/2" DIA PURLINS
16' OC ARCH SPACING ONLY

LBS 18



STEP 18

INSTALL CROSS CABLES

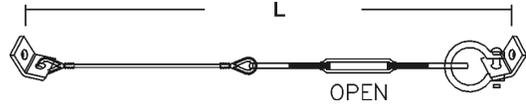
Cross cabled end arch (or arches) create a structural frame for the rest of the building.

This LBS 18 building uses three cable lengths.

The SHORT cables install in LOCATION **A**.

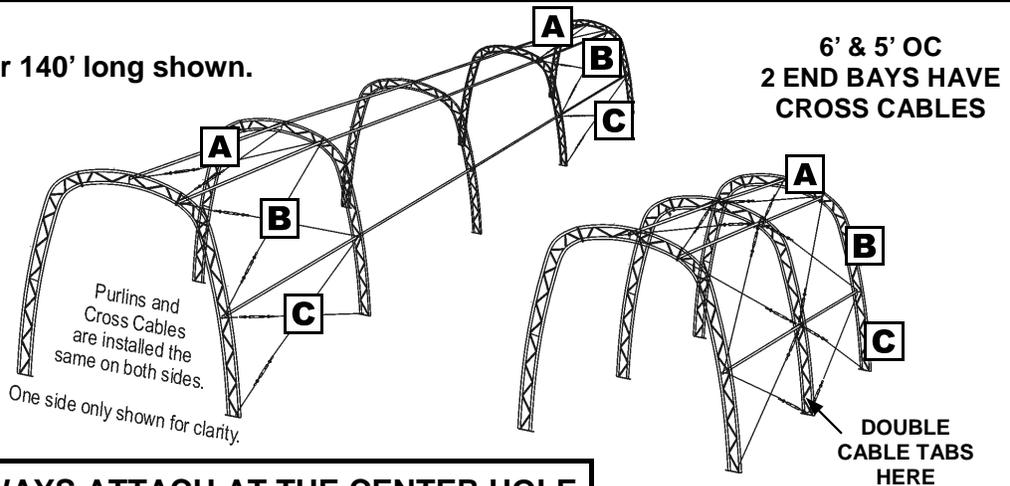
The MEDIUM cables install in LOCATION **B**.

The LONG cables install in LOCATION **C**.

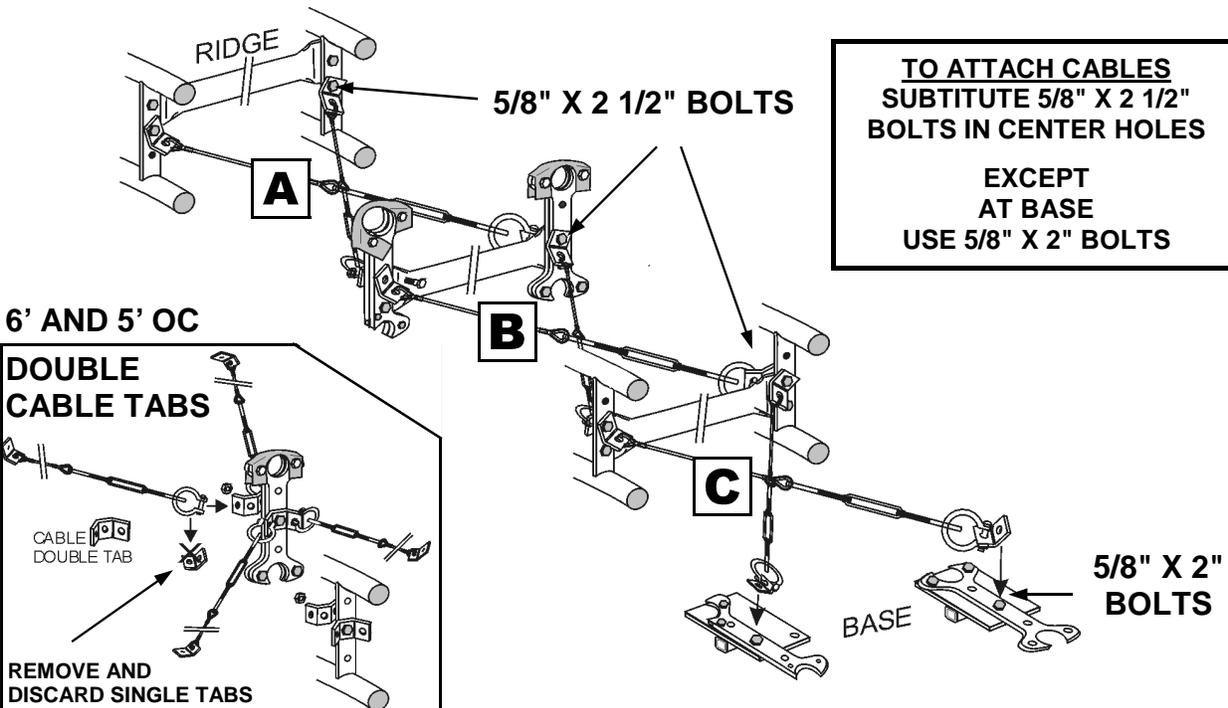


NOTE: Arch spacing determines cable length. More than one cable length is supplied when any portion of the building has a different arch spacing. See Building Components, Page 1, of this manual for cable lengths for specific arch spacings.

Buildings under 140' long shown.

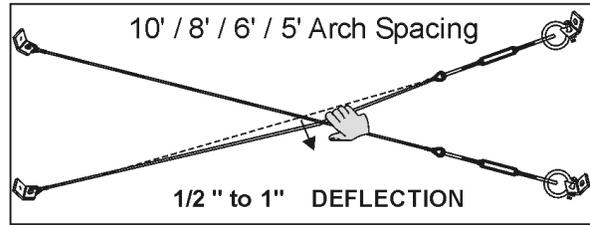
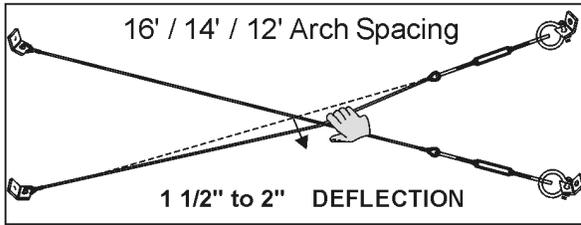


CABLES ALWAYS ATTACH AT THE CENTER HOLE



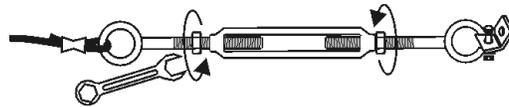
STEP 19

TENSION CROSS CABLES



STEP 20

TIGHTEN CABLE TURNBUCKLE LOCKNUTS



STEP 21

ERECT ALL REMAINING ARCHES

ERECT ALL REMAINING ARCHES. AND INSTALL ALL PURLINS AND ALL CROSS CABLES

STEP 22

BUILDINGS OVER 140' LONG - SEE APPENDIX A

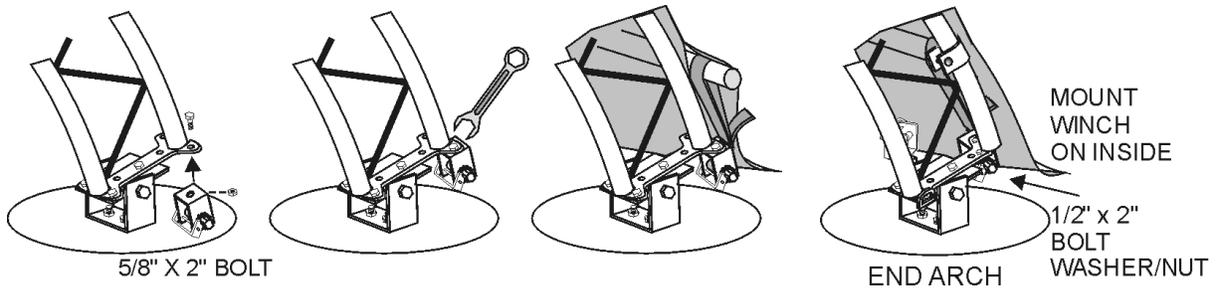
If you are erecting a building that is over 140' long go to APPENDIX A on Page 25 of this manual to determine cross cable placement and cross cable double tab placement.

STEP 23

TYPE 320 - INSTALL COVER LASHING WINCHES

Install one lashing winch per arch base on the underside of the arch base.

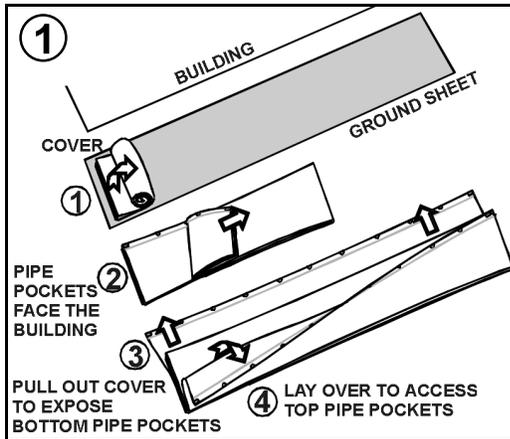
Inside Arches - 5/8" X 2" bolt/nut. **End Arch** - 1/2" x 2" bolt/washer/nut.



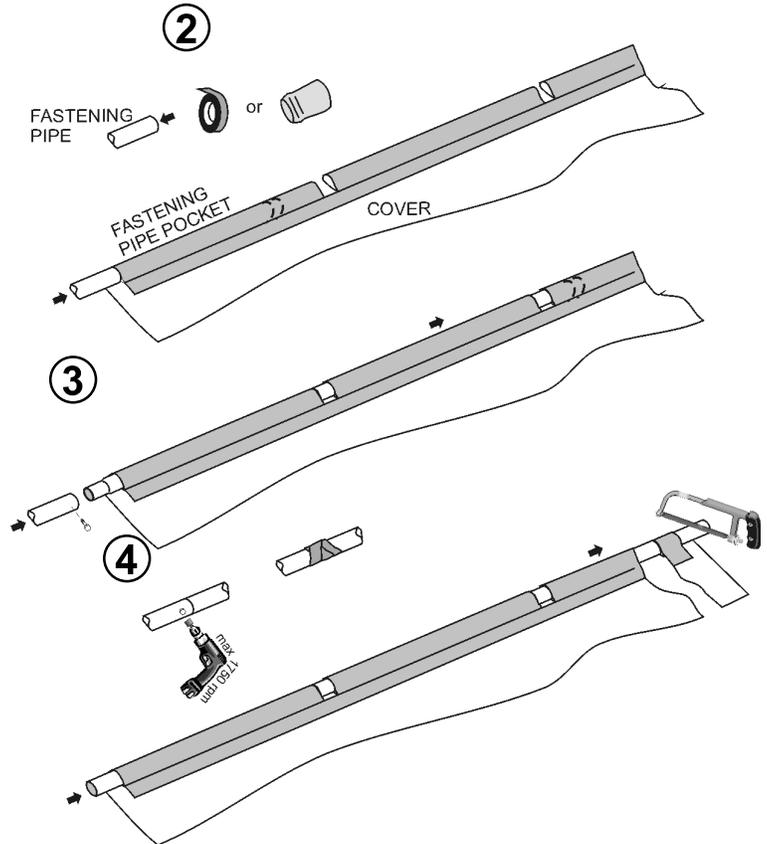
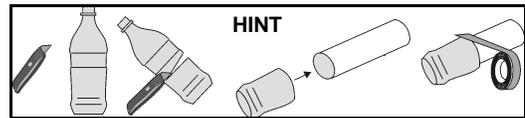
STEP 24

INSTALL COVER FASTENING PIPES

Use a ground sheet to protect the cover while it is being prepared for installation.



1. Roll out the cover and leave a small walk area along the building. Align the cover evenly to each end of the frame.
2. Pipe raw edge can damage pocket fabric. Wrap or cap leading edge of pipe.
3. Install BOTH fastening pipes.
4. Use 1/4 x 3/4" Tek self-drilling screws to fasten the pipes together. Wrap with duct tape.



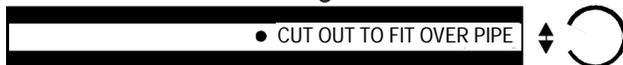
NOTE: Fastening pipes are supplied in factory cut lengths. Some buildings will require measured cuts, possibly on two lengths of pipe.

16', 14' & 12' OC BUILDINGS USE 2" x 3" FASTENING TUBES

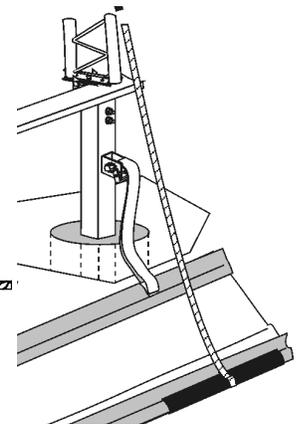
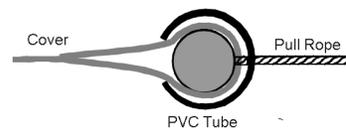


HINT: Make an ABS or PVC Pull-Over Pipe for every arch pull point. This reduces leading edge friction and risk of damage to the fabric when used in conjunction with the recommended installation procedure for covers.

3" PVC Tube 24" Long



Drill hole to accommodate pull rope

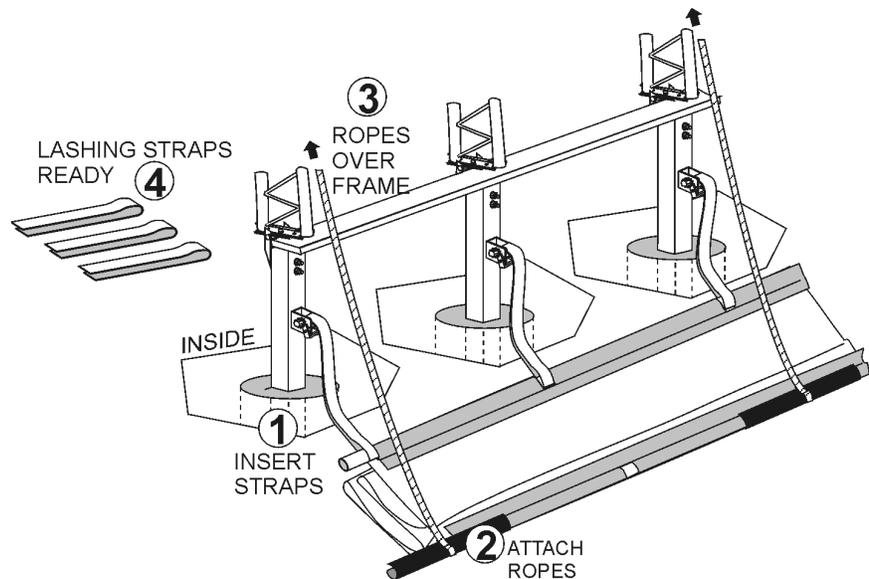
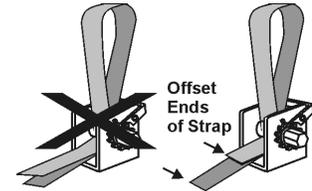


STEP 25

INSTALL THE COVER

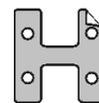
NOTE: DO NOT install the cover onto the frame in high wind conditions. A slight breeze is the most advantageous for cover installation. Take advantage of the breeze by pulling the cover up over the arches with the breeze blowing into the cover . . . like a sail filled with air.

1. Loop the lashing straps around the inner fastening pipe and secure both ends of the straps in the lashing winches.
2. **On the opposite side of the cover** (the side of the cover that is furthest from the frame), tie several ropes, approximately 30 feet apart, to the steel fastening pipe through the notched hole.
3. Throw the free end of the ropes over the frame to the opposite side of the building.
4. Ready the lashing straps on the opposite side of the building.



CHECK LIST:

- **BEFORE** proceeding ensure that the cover is **POCKET SIDE** up.
- **ALL** coupler plates have coupler protectors.
- **BOTH** fastening pipes are in place.
- Fastening straps near side are **SECURED** in the lashing winches.
- Ropes are secured to the **OPPOSITE** pipe and passed over the frame.
- **NO WIND** or there can be a light breeze (ideally from rope pulling side).



WARNING: NEVER USE MOTORIZED EQUIPMENT (IE. VEHICLES, TRACTORS, TRUCKS) TO ASSIST IN PULLING THE COVER OVER THE FRAME. OBTAIN ADDITIONAL CREW MEMBERS IF REQUIRED.

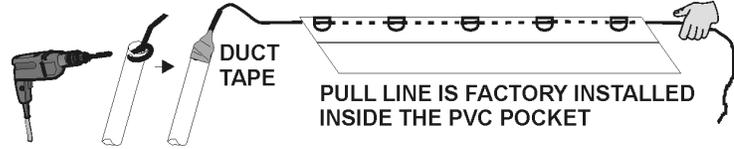
5. Pull the cover over the frame **EVENLY**, **CAREFULLY** and **SLOWLY**.
6. Loop the lashing straps around the fastening pipe and **loosely secure** in the lashing winches. **DO NOT TIGHTEN**. Adjust the cover so that it is square and evenly centered on the frame. *The end flaps should overhang evenly at both ends.*

NOTE: DO NOT LEAVE THE COVER UNATTENDED UNDER ANY CIRCUMSTANCES until final assembly and tightening has been completed.

STEP 26

INSTALL COVER PVC PIPE

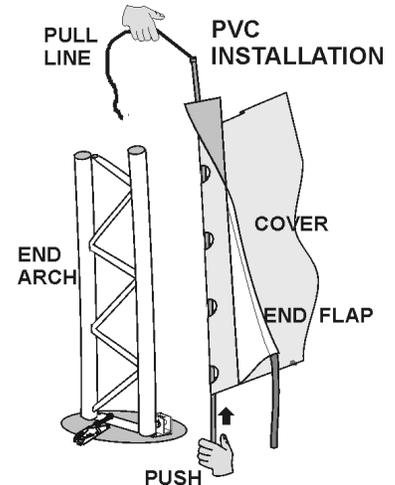
1. Once the cover is on the frame and is sitting centered, square and straight, visually check to ensure the cover extends approximately 12" on both ends of the building.
2. Drill a hole in the smooth end of one PVC tube and tie the pull line to it. Wrap this leading end with duct tape.



Hint - A small funnel or cone (not supplied) on the leading edge of the PVC will help spread the PVC pocket.

3. Push - Pull the PVC into the pocket. Glue the lengths of PVC together as you proceed.

Hint: PVC tubes should slide easily into the pockets. Do not force. Check for twisted fabric or misaligned pocket openings if you experience difficulty.



STEP 27

TENSION COVER ENDS

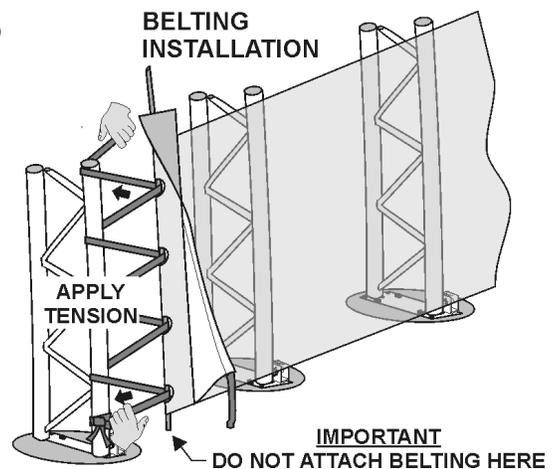
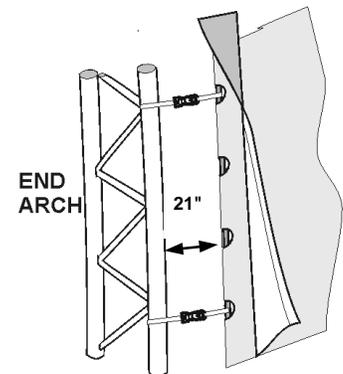
1. Operate the cover fastening tube end arch lashing winches to remove the slack from the lashing straps. **DO NOT TENSION.**

Hint - Use ratchet straps (not supplied) on both ends, evenly spaced, to tension and hold the cover lengthwise. Adjust to obtain a distance of 21" between the Arch tube and the PVC pipe at both ends. Then lace the cover to the end arch.

2. **Lace - start at the base.** Lace the 1" belting around the PVC tube through the notches and then back to the top truss tube of the end arch all the way up to the top center of the building. Secure the belting to the top arch tube. **Repeat lacing from other base.**

Hint - The cover shifts down when final tension is applied. Always try to lace the belting on the down side of the web weld.

2. **Tension - start at the top center.** Work your way down from the secured end use force to tighten the belting and finish by tying the belting off at the base. The PVC tube should be parallel with the end arch all the way around.
3. Lace and tension the opposite end of the building. The cover should be tight and secure from end to end when finished.

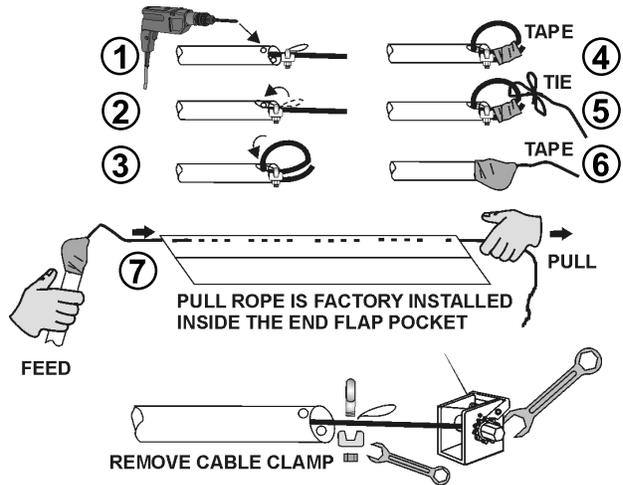


Hint: Trim the belting excess after you have finished the tighten-down.

STEP 28

INSTALL END FLAP CABLE

1. Secure BOTH the cable and PVC tube casing to the end flap pull rope in an acceptable manner. Protect the fabric from any sharp edges.
2. Feed and pull the cable through the end flap until it is equal on both sides.
You may require a third person on a lift to assist the cable through the folds and creases. You can try flipping the end flap flat over the top of the building.
3. The cable clamps can be removed after the cable is secured into the lashing winch.



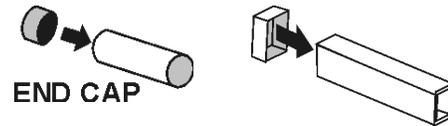
WARNING - Pull slowly or rope burn will damage fabric.

STEP 29

TERMINATE THE COVER FASTENING PIPE

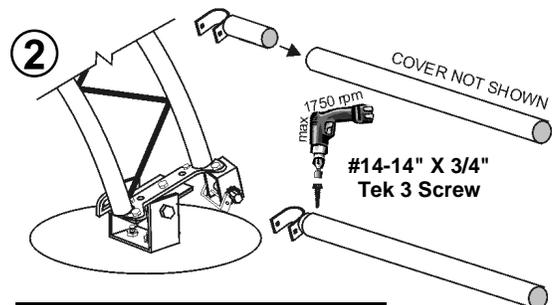
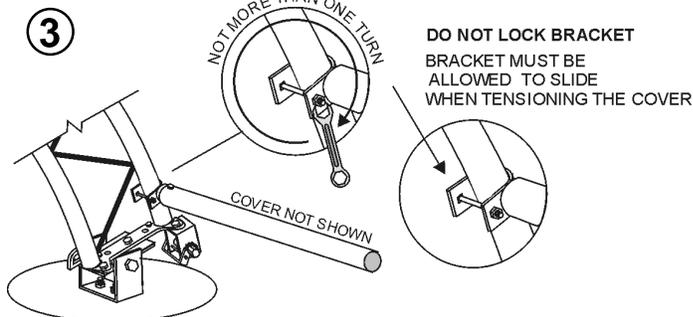
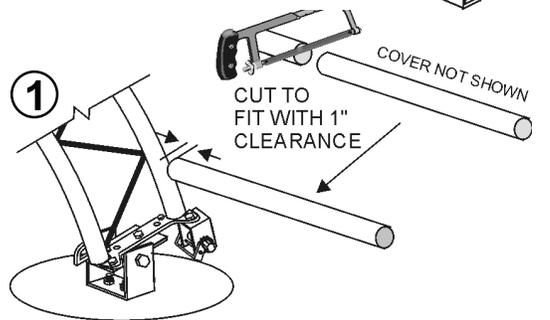
TYPE 220 INSTALLATION

1. Trim the fastening pipe to the end of the building and install plastic end caps.

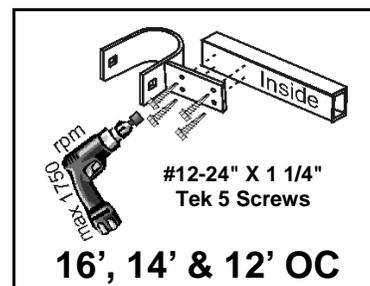


TYPE 320 INSTALLATION

1. Cut the ends of the fastening pipe to fit inside the arch with 1/2" - 1" clearance.
2. Install the saddle bracket in the end of the tube and secure using a single 1/4 x 3/4" Tek screw.
3. Fit the saddle over the arch tube and install a 7/16" x 4" carriage bolt/nut.



IMPORTANT: Deform the bracket by tightening the 7/16' bolt/nut as far as possible. This will reduce any protruding edges. **Then release the nut** until you achieve a one turn lock. The bracket must be allowed to slide on the truss tube when the cover is tensioned.

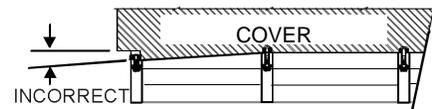
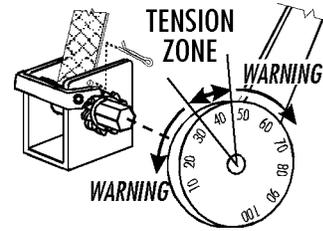


It is now safe to remove all ropes used to steady the frame and install the cover.

STEP 30

TENSION THE COVER

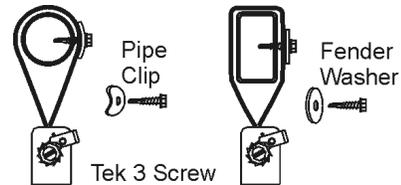
1. Use a 1 1/8" wrench to tighten the cover lashing straps **EXCEPT THE END STRAPS** on both sides of the building. The tension for the lashing winches on this building has been calculated at **35 - 45 ft. lbs.** **DO NOT EXCEED 45 ft. lbs.** Use a *torque wrench*. The cover should be free of all creases and wrinkles when finished.
2. Now tension end lashing straps until the cover fastening pipes are level.
3. Install a cotter pin in the lashing winch pilot holes to lock the release lever.



STEP 31

SECURE END LASHING STRAPS

1. Secure the outside (end) lashing straps (4) to the fastening pipe by using pipe clips or fender washers and 1/4 x 3/4" Tek 3 self-drilling screws. Install the bolts **through the fastening strap** into the fastening pipe.

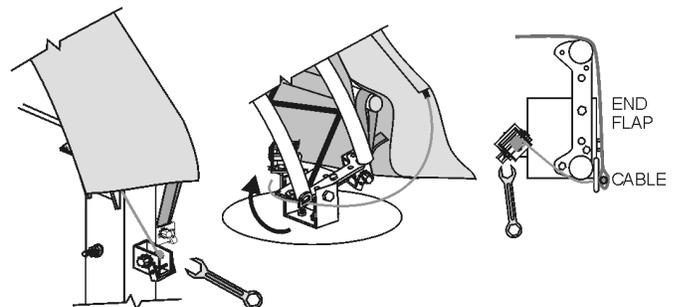
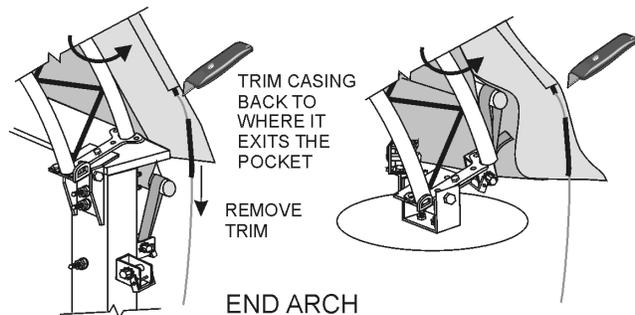


NOTE: *Failure to secure the corner fastening straps to the pipe could result in possible damage to the cover.*

STEP 32

TENSION THE END FLAP CABLES

1. **Trim** the plastic cable casing back to where it exits the fabric pocket.
TYPE 220 - Insert the cable in the end flap winches so that the windings bind the cable end.
TYPE 320 - Thread the end flap cable through the D-ring on the swivel plate then on the inside of the truss tube and insert into the end flap winches.
2. Tighten both sides of the building's end flaps until the slack in the flap is gone. *Repeat this procedure for the opposite end of the building.*



STEP 33

TYPE 320 - SECURE THE APRON

ALWAYS SECURE THE APRON

The fabric is designed to be under tension at all times.

GROUND

Use dimensional lumber to attach the apron to the frame or foundation.
Or back fill the apron at the foundation.

WALL

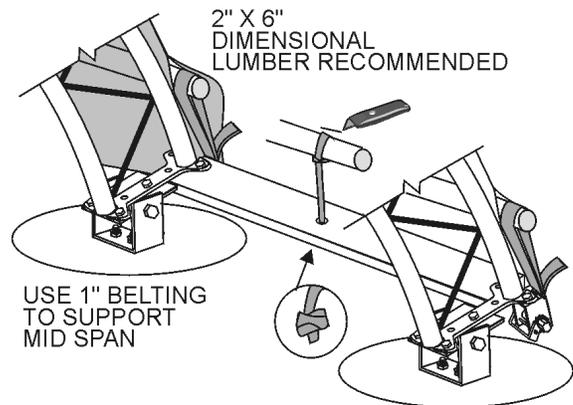
Depending on the width of the wall you may want to consider the following finishing option.

Protruding edges on fabric are potential wear points.

1. Attach dimensional lumber to the underside of the arch bases so that the apron can be wrapped around the lumber and away from protruding edges.

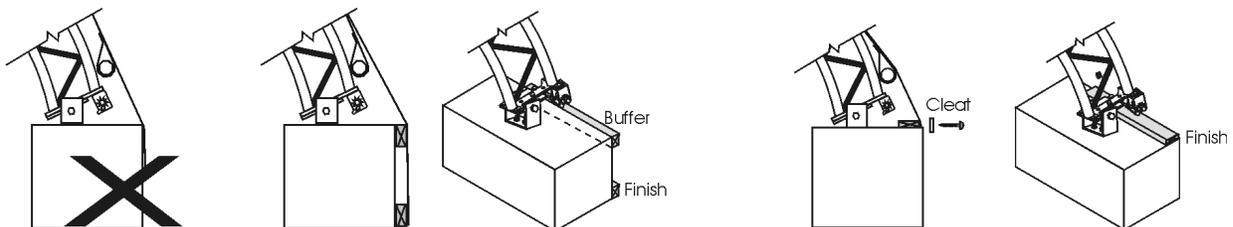
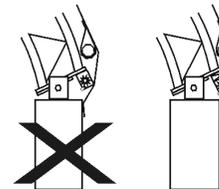
NOTE: Longer bolts may be required to re-attach the lashing winches.

2. Drill a 1" hole mid span in the dimensional lumber and pass a short section of 1" belting through the hole. Tie a permanent knot below the lumber that will not pass through the hole.
3. Slit the fastening tube pocket directly above the hole and loop the 1" belting around the fastening tube. Level the dimensional lumber and tie a releasable knot.
4. This belting will keep the dimensional lumber from sagging. The belting length may need to be adjusted when cover tension is adjusted.



CONCRETE

Never install fabric over concrete edges.
Always install a dimensional lumber buffer or equivalent.



STEP 34

READ MAINTENANCE SCHEDULE Page 2

STEP 35

COMPLETE WARRANTY REGISTRATION

APPENDIX A

BUILDINGS OVER 140' IN LENGTH

Multiple covers are provided for buildings over 140' in length.

This enables ease of onsite handling and installation.

Normally covers are supplied in equal or near equal lengths. The longest cover length is 140'.

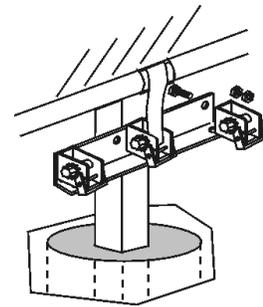
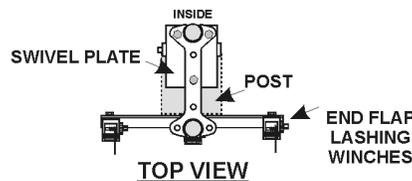
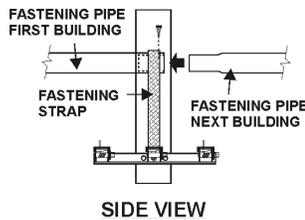
Eg. - a 140' building with 10' spacing is supplied with one 70' and one 80' cover.

1. SITE PREPARATION

- a. Arch spacing (running measurement) is the same for the entire length of the building. (the covers share a common arch). *Eg. - 140' building on 10' centers has 16 piles/posts on each side.*

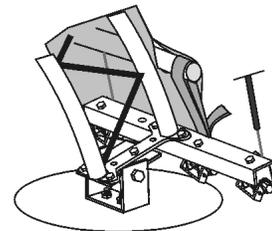
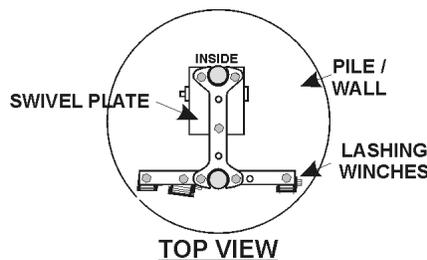
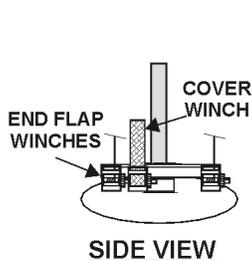
2. TYPE 220 INSTALLATION - JOINER BRACKET

- a. Install a joiner bracket to the common arch post. The bracket installs under the cover lashing winch on the threaded rod. Add an end flap lashing winch to each end of the bracket using 5/8" x 2" bolts and nuts.



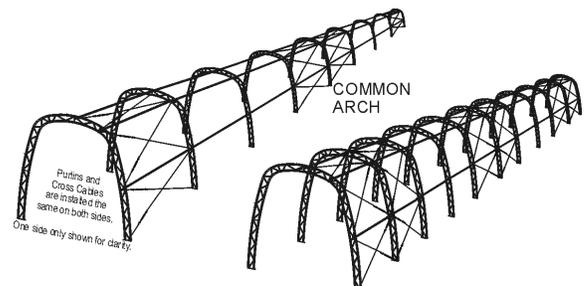
3. TYPE 320 INSTALLATION - JOINER BRACKET

- a. Install a joiner bracket to the underside of the arch base between the cover lashing winch and the base using 2 of 5/8" x 2" bolts/nuts. Add an end flap lashing winch to each end of the bracket using 5/8" x 2" bolts and nuts.



4. CROSS CABLE INSTALLATION

- a. Buildings over 140' long require additional cross cables at the center of the building and some require additional end bay cabling.

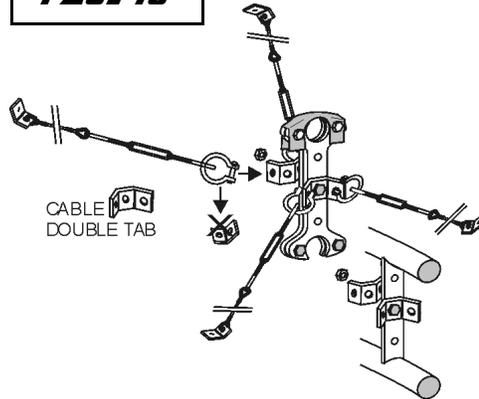


THE COMMON ARCH IS ALWAYS WHERE THE COVERS JOIN.

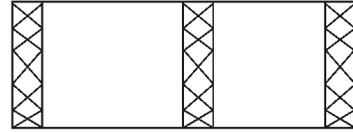
**STEP 22
FROM
PAGE 18**

DOUBLE TAB AND CROSS CABLE PLACEMENT

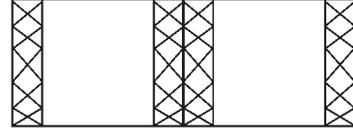
- b. Use double tabs where cables are installed in adjacent bays. Remove and discard the single tabs.



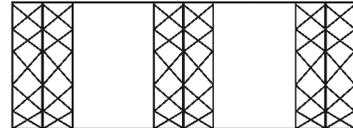
16' Arch Spacing



14' / 12' / 10' / 8' Arch Spacing



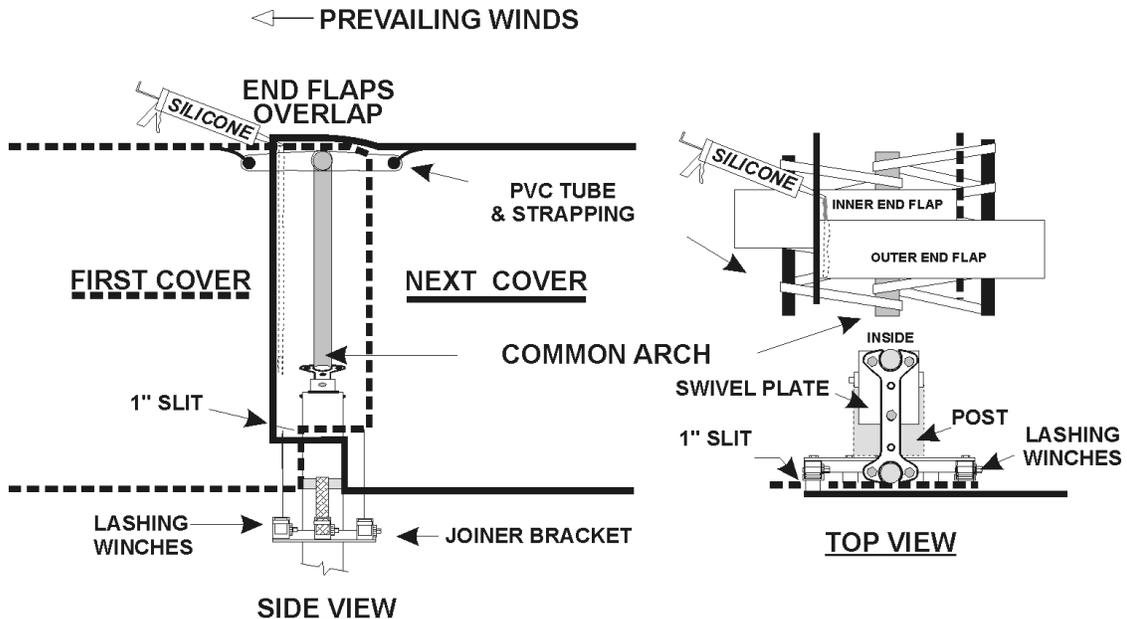
6' / 5' Arch Spacing



5. COVER INSTALLATION

- a. Install the first cover as directed in STEPS 24-32 (Pages 19-23), **except that** : the end flap on the common arch is *not* secured at this time, flip the end flap back and out of the way; the joiner bracket is installed under the lashing winch; and the end flap lashing winches are secured to the joiner bracket.
- b. Install the next cover in the same manner, *lacing the PVC tube to the common arch*. Do not tighten the lashing winches of this cover at this time.

TYPE 220 INSTALLATION



- c. Release the fastening strap in the end arch winch of the first building. Join the fastening pipe of both covers and secure with Tek self-drilling bolts. Place the fastening strap over the fastening pipe and re-install the end fastening strap in the winch. Retighten this lashing winch and tighten all of the winches of the next cover.

The tension for the lashing winches on this building has been calculated at **35 - 45 ft. lbs.** **DO NOT EXCEED 45 ft lbs.** Use a torque wrench. The cover should be free of all creases and wrinkles when finished.

- d. Place the end flap of the first cover over the next cover's lacing. Attach the end flap cable for this first (inner) end flap to the lashing winches. Tension the lashing winches.

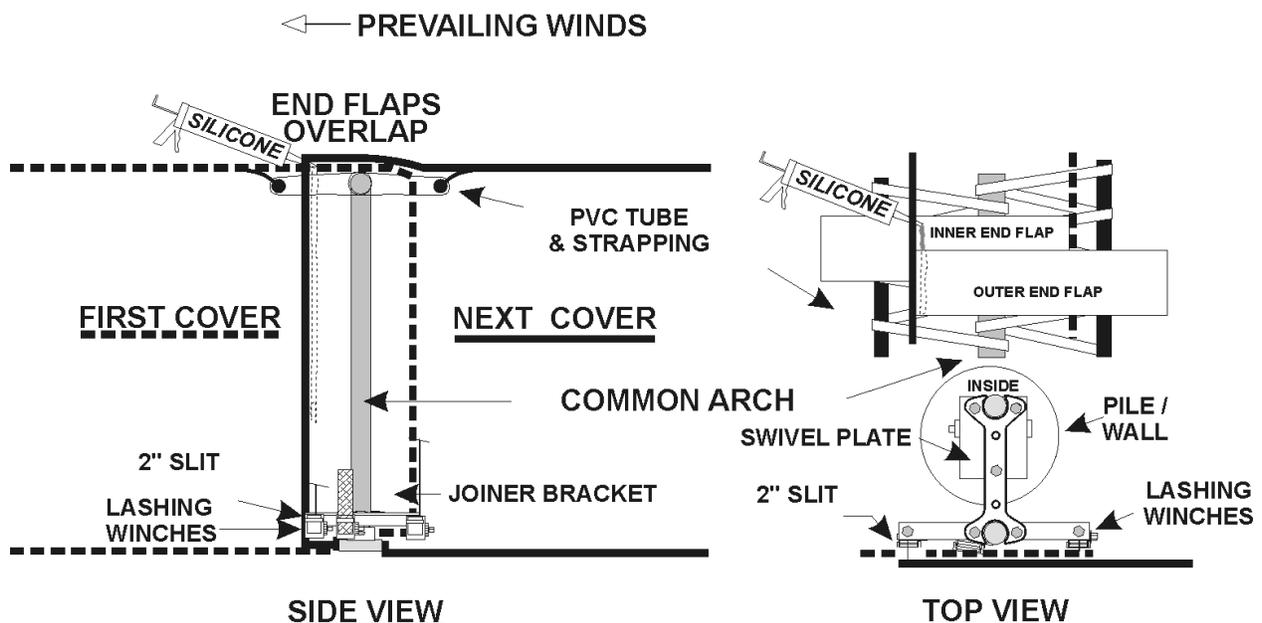
NOTE: If your building is subject to prevailing winds, you should secure the end flaps to protect the overlap.

- e. Place the end flap (outer) of the next cover over the first (inner) end flap. Cut a slit in the first (inner) end flap at the point where the end flap cable for the outer end flap exits its pocket. Feed the fastening cable through the slit and attach to the lashing winches. Tension the lashing winches.

It is best to have the end flap black cable casing passing through the fabric or against any part of the fabric rather than the end flap steel cable.

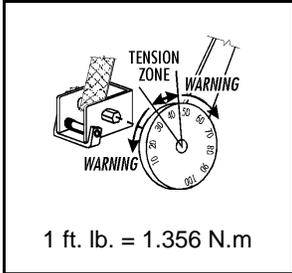
- f. Apply a bead of silicone (supplied) between the outer end flap and the cover. Insert the tube tip between the layers with all straps fastened securely. Walk on the building to seal the top portion of the end flap and use a ladder or lift equipment to reach the sides. Where it is difficult to reach some areas, unsealed portions should not exceed 3 feet.

TYPE 320 INSTALLATION

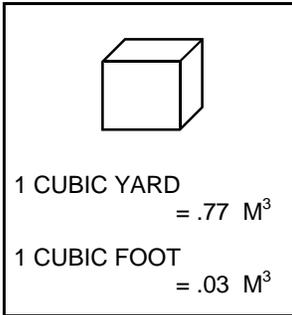


CONVERSIONS

INCHES					MILLIMETERS	
1/32"						
2/32	1/16"				1.6	
3/32						
4/32	2/16	1/8"			3.2	
5/32						
6/32	3/16"				4.8	
7/32						
8/32	4/16	2/8	1/4"		6.4	
	5/16					
	6/16	3/8"			9.5	
	7/16					
	8/16	4/8	2/4	1/2"	12.7	
	9/16					
	10/16	5/8"			15.9	
	11/16					
	12/16	6/8	3/4"		19.0	
	13/16					
	14/16	7/8"			22.2	
	15/16					
	16/16	8/8	4/4	2/2	1"	25.4



FEET	METERS
1'	.305
2	.610
3	.914
4	1.219
5	1.524
6	1.829
7	2.134
8	2.438
9	2.743
10	3.048
25	7.620
30	9.144
35	10.668
40	12.192
45	13.716
50	15.240
60	18.288
70	21.336
80	24.384
90	27.432
100'	30.480



TORQUE VALUES

SUGGESTED ASSEMBLY TORQUE VALUES FOR STRUCTURAL BOLTS				
SIZE DIA (INCH)	THREADS PER INCH	GRADE 5 ft – lbs		
		DRY	WET	
3/8	16	30	23	
7/16	14	50	35	
1/2	13	75	55	
5/8	11	150	110	
3/4	10	260	200	
1 1/4	7	1120	840	

SQUARING A FOUNDATION

IMPORTANT

Depending on the size of your building, you may need a qualified contractor or engineer to lay out the foundation of your building to ensure that it is straight and square.

The following is a suggested method only.

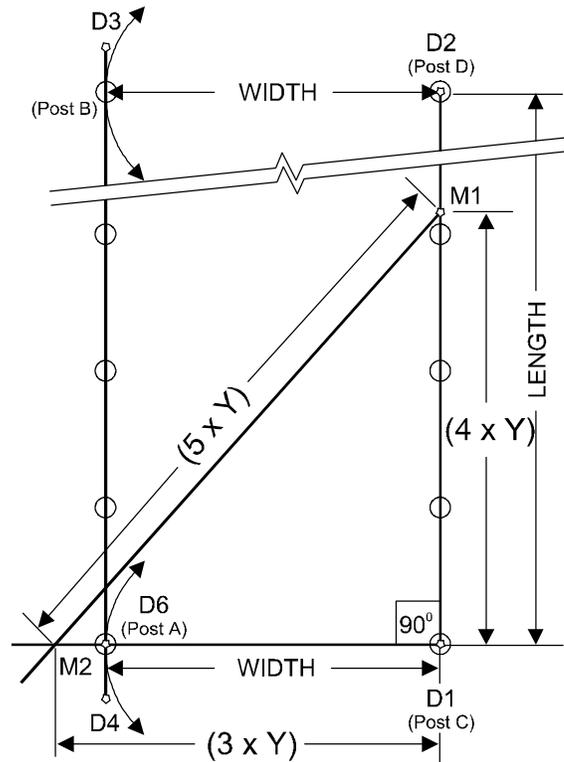
Cover-All Building Systems™ is not responsible for foundations.

1. Measure and string a straight line the exact length of the building (D1-D2).
2. Attach a measuring tape to stake D2 and measure the exact width of the building perpendicular to line D1-D2. Make an arc in the dirt at that exact measurement. Repeat this procedure at stake D1 and make a second arc.
3. String an extended line (D3-D4) at the crowns of these two arcs. Recheck width measurements.

USING THE 3-4-5 METHOD TO SQUARE THE FOUNDATION

4. With the measuring tape still attached to stake D1, measure the distance ($4 \times Y$) from stake D1 towards stake D2 and place a stake (M1). See chart this page for a suggested value for Y for your building.
5. With the measuring tape still attached to stake D1, measure the distance ($3 \times Y$) through the crown of the arc, and past line D3-D4, to M2.
6. With a second tape attached to stake M1, measure the distance ($5 \times Y$) to M2.
7. Keeping the tapes tight, cross the two tapes at exactly the ($3 \times Y$) measurement and the ($5 \times Y$) measurement and hold in position. Place a stake (D6) exactly **where line D1-M2 crosses line D3-D4**. Remove stake M2.
8. Follow the linear and diagonal measurement checks beginning on Page 6 of this manual.

SERIES/ SIZE	SUGGESTED Y VALUE
18/20	7'
22	8'
26	9'
30/32	11'
36	12'
40	14'
42	15'
50	17'
55	19'
62	22'
72	25'
82	30'



Maintenance Recommendations For Buildings in Corrosive Environments

BUILDING STEEL

Cover-All™ manufactured steel components are hot dipped galvanized, hot zinc plated or coated with a high quality sealant. *It is recommended that the building owner/operator:*

- Prevent corrosive material or product from resting against or covering the building steel.
- Remove any environmental residue that accumulates on the building steel.
- Seal all surface penetration marks with a high quality sealant or a high zinc content paint.

BUILDING HARDWARE

Hardware components are made of galvanized steel or aluminum alloy; are zinc plated with an added leachant-sealant; or are zinc or cadmium plated. *It is recommended that the building owner/operator:*

- Prevent corrosive material or product from coming in direct contact with the building hardware.
- Remove any environmental residue that accumulates on the building hardware.
- Seal or protect from corrosion any non-building components that are connected to, or that come in contact with, the building hardware.

ANCHOR BOLTS *It is recommended that the building owner/operator:*

- Seal the exposed anchor bolt threads with a high quality sealant or a high zinc content paint.

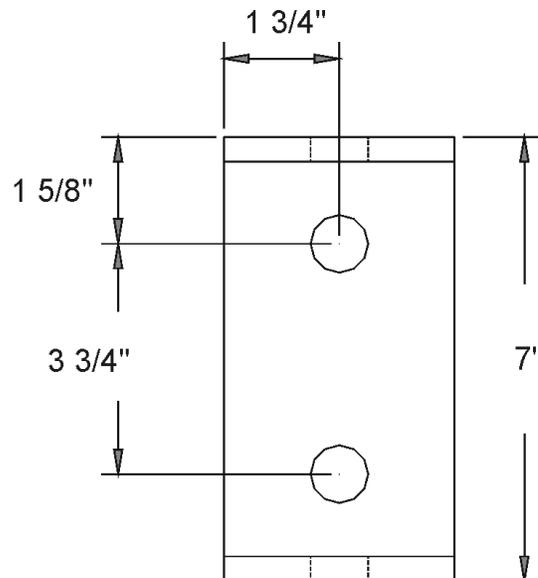
FABRIC LASHING WINCHES *It is recommended that the building owner/operator:*

- Spray the lashing winches with a moisture displacing filming lubricant. (WD40 or equivalent)

DURAWEAVE® FABRIC *It is recommended that the building owner/operator:*

- Prevent corrosive material or product from resting against or covering the building fabric.
- Remove any environmental residue that accumulates on the building fabric. Where moisture will not contribute to corrosion – wash with water and non-abrasive soap.

TYPE 320 MOUNTING BOOT TEMPLATE



BUILDING ENDWALLS

AN IMPORTANT MESSAGE FOR INSTALLERS AND OWNERS

FABRIC END WALLS must be supported by a framework that is constructed to meet wind load ratings and building safety standards.

If you are constructing a framework for Cover-All supplied fabric end panels the framework **MUST BE DESIGNED to match the fastening system of the fabric end panel and must be constructed to meet wind load ratings and building safety standards or the fabric end panel warranty is void.**

Contact a structural engineer or your Cover-All representative for details.

DISCLAIMER

This manual contains the most current details and instructions for a safe and proper installation of the building product at the time of its issue.

This manual is designated as a DRAFT version in compliance with Cover-All Building Systems' document management system and will display this disclaimer until such time that all document approval criteria are met.

FOR TECHNICAL ASSISTANCE CALL YOUR LOCAL DEALER OR SALES REPRESENTATIVE OR 1-800-268-3768



**WELDING
CERTIFICATION**
For Fusion Welding
Of Steel Structures



3815 Wanuskewin Road, Saskatoon, SK Canada S7P 1A4

www.coverall.net

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