Wall Cylinder Assembly Instructions

The **Ash-Dome Wall Cylinder** materials for the most part have been cut to the correct dimension. The support wall cylinder stud locations are laid out and by following general basic carpentry methods you will have a quality structure.

1) Layout the circular sill plate segments; there are 2 complete sill plates, a **Bottom Sill Plate** marked with a B and a **Top Sill Plate** marked with a T. The plates are numbered on the overlapping joints with 1B, 2B, and 3B on the bottom plate's and1T, 2T, 3T on the top plates. The wall stud locations and the access door location are marked. All numbers and markings are on the top or UP side of the plates.

2) The segments for the Bottom Sill Plate are assembled number-to-number, **1B to 1B**, and **2B to 2B** and nailed or screwed together forming a complete circle. Before securing the Bottom Sill Plate to the support wall or curbing clean all access concrete and mortar from the anchor bolts. Note the entry door location and set accordingly. Straighten the anchor bolts if necessary. Using a leveling instrument take the elevations along the top of the support wall or curbing in order to locate the **High Point**. Mark this location on the support wall. Position the bottom sill plate 'B', on top of the anchor bolts. Measure the diameter of the sill plate in at least the N., S. and E., W. to insure the sill plate is round. If the wall stud locations are over the anchor bolts it is possible to adjust the sill plate slightly so as most anchor bolts will not interferer with the wall studs. You must keep the sill plate round however. Please note it is possible to notch out the wall studs for the bolt or worst case would be to cut the anchor bolt off. The anchor bolts must be cutoff in the doorway regardless.

3) With the sill plate resting on top of the anchor bolts, mark the anchor bolt locations. When all the locations have been marked move the sill plate on top of the anchors just enough so when drilling a hole the drill bit will not hit the anchor. **TIP:** Make sure you put something under the sill plate when drilling down through the wood or the drill bit will go through and hit the concrete. Clear away any drilling debris; turn the sill plate back and let it come down over the anchor bolts resting on top of the support curb.

4) Using a transit or a laser level you are now going to level and secure the bottom sill plate to the top of the curb. Locate the **High Point** previously marked on the support curb. Elevate the sill plate at this point using the wood shims provided approximately 1/4" placing the shims on each side of the anchor bolt. Using a washer and nut tighten the nut down and secure the sill plate at the **High Point** and read the new elevation from the top of the sill plate next to the nut & washer near the anchor bolt.

5) This reading will now be your new '0' elevation. You can use a stick and draw a pencil line across it for the '0' reference point. Work your way around the circle

shimming on each side of every anchor bolt and tightening down the sill plate. If possible try to not break the shims off on the outside of the wall yet. Make sure you take an elevation after tightening the nut and washer down on the anchor bolt because it is important this sill plate be level, + or –, 1/16" if possible. This will take time but a slight error at the bottom of the wall will result in a compounded error at the top of the wall. Visually, while you are leveling the sill plate you will notice that a 'wave' effect along the top of the curbing will seem to be happening. This 'wave' effect is the result of the top of the curbing not being level. The open area should be grouted tightly with cement or mortar mix to insure the sill plate will not sag in the future with the weight of the wall and dome.

6) The wall studs are cut to length; the door studs are marked and cut to fit either side of the doorway, beveled edges.

DO NOT MOVE THE WALL STUDS TO DIFFERENT LOCATIONS.

The locations have been laid out in such a way that when starting the plywood and the aluminum siding flush with the doorway running to the right. The centers around the outside of the framed stud wall will align with the centers of the plywood and the corrugated aluminum siding. Position the studs flush with the outside edge of the sill plate, centered in between the lines and toenail into position. When all the studs are secured into the bottom sill plate raise the Top Sill Plate as a complete ring and set it on top of the standing studs with the markings UP. Make sure to locate the top doorway over the bottom doorway on the bottom plate. Starting at the door stud nail down through the plate into the studs. Try to keep the studs as straight and plumb as possible.

7) Plumb the stud wall cylinder using a carpenter's level. Nail diagonals between studs to hold the wall straight and plumb when attaching the plywood and aluminum siding. Start flush with the door stud and work your way around to the right. Keep the lower edge of the plywood running level with the bottom edge of the sill plate. (Rest on the extended shims if possible) If the shims are broken off use a screwdriver to hold the plywood in position when nailing or screwing into the wall studs. The last sheet of plywood must be cut to fit.

8) Before installing the door and frame you must cut out the sill plate between the door studs. Then you will be able to install the pre-hung door and frame. The door swings out. Keep the bottom edge of the doorframe flush with the outside edge of the plywood. Plumb and shim the door. Lag bolt the frame and the door to the door studs. Cut a piece of plywood to trim over the top of the doorframe.

9) Install the metal siding. The panels have been cut to length and screw holes have been predrilled. **NOTE:** A starter sheet is provided and it is intended to start flush along the edge of the plywood on the right hand side of the doorframe. Use nails to hold this edge of the panel in position. The sheets run flush along the bottom edge of the wall cylinder are screwed onto the cylinder. All screw locations should align with wall studs. The overlaps on the siding will align on a stud. You may have to stretch or compress the panel slightly but the screw holes

will line up with the wall studs. The last piece of siding will have to be cut to fit. The edge on the door stud should be secured with nails. Reason being cylinder trim covers the edge along the doorframe.

10) A short length of angle is provided as a drip edge for above the doorframe. This should be installed at this time.

11) The 1/4" plywood and metal siding must not extend above the top of the sill plate. It must be trimmed flush with the top of the sill plate. A flashing for the top of the wall cylinder and covering the siding can be installed. Use bar clamps to tighten the trim angle snug to the top of the siding. Drill a small hole though the flashing and nail it down to the top of the wall cylinder. The last segment must be cut to length.

12) Tube caulk around the door trim, cylinder flashing and drip edge above and all around the door.

13) Select the locations for the tie down rods. These should be installed at quadrants inside the wall cylinder. The rods are secured to the anchor bolts and will go up through the wall cylinder and dome wall plate assembly.

14) The holes for the rods are drilled after the dome wall plate assembly has been set in place and secured to the top of the wall cylinder. Drill the holes slightly over size in the center of the wall plate assembly and in-between the dome roller wheel clips. The tie down rod holds the wall cylinder and observatory dome down directly to the concrete foundation. When you tighten the nut down run it down tight only. It is easy to continue pulling everything down and pull the wall and dome out of shape, do not do this.

15) Before the dome wall plate assembly is secured to the top of the support wall cylinder, steel shims must be slipped in-between the wall sill plate and the wall plate assembly. Then, drill, secure and use tube caulking along the outside edge of the wall plate and seal the seam between the flashing and the wall plate.

16) You are ready to start the **Ash-Dome** assembly.

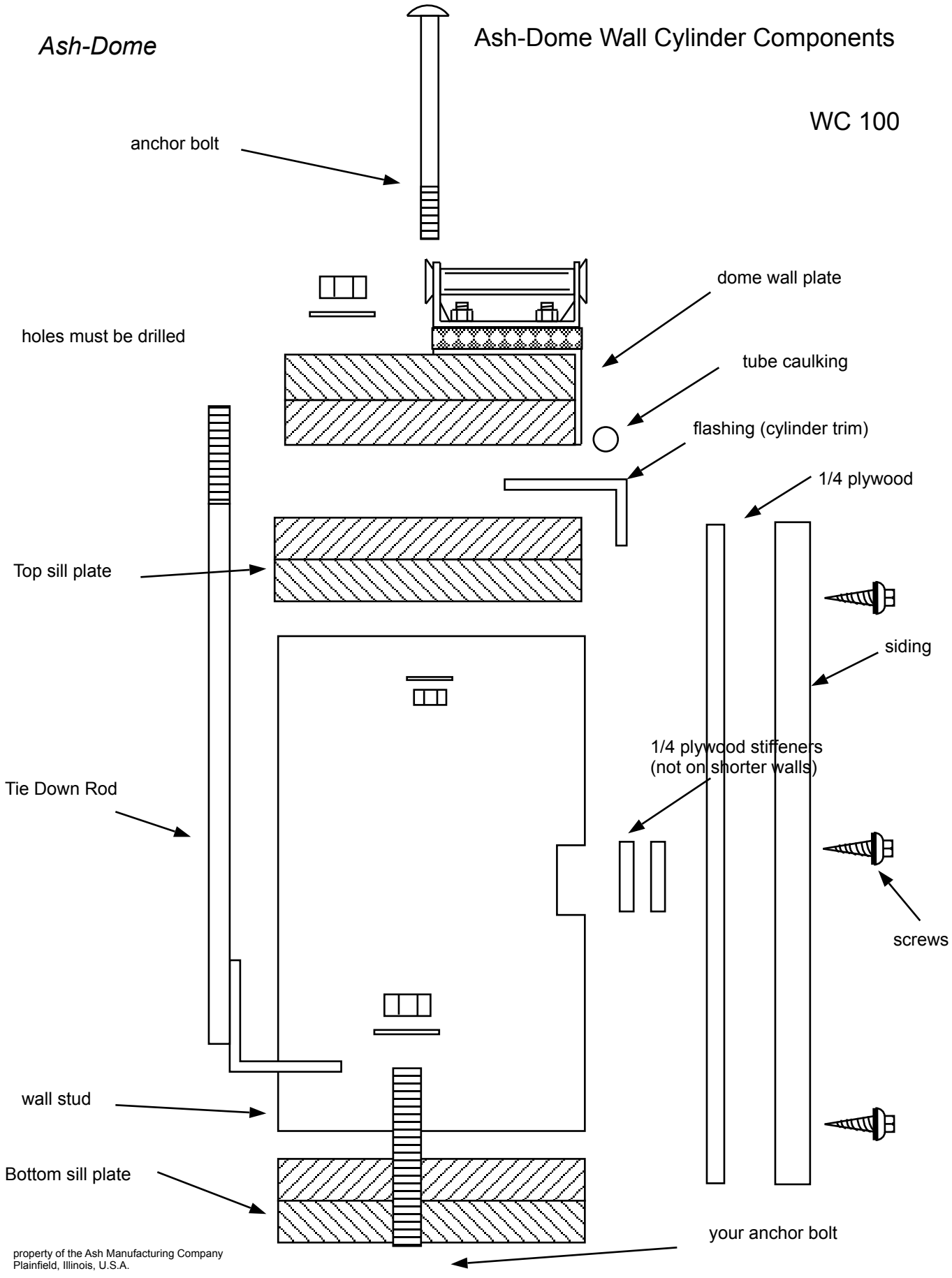
17) Any Questions Call: 815 436 9403

M-F, 07:00 AM to 3:30 PM Central Time

Ash-Dome

Ash-Dome Wall Cylinder Components

WC 100



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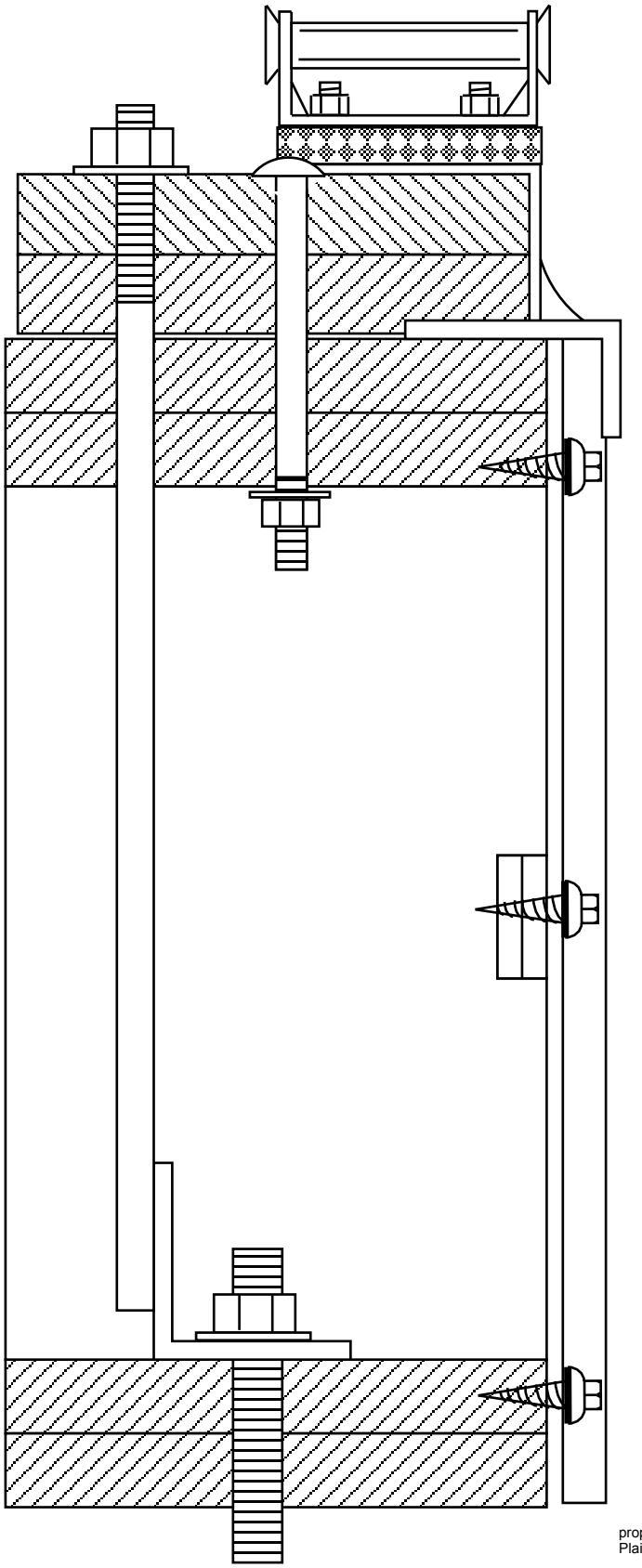
WC 101



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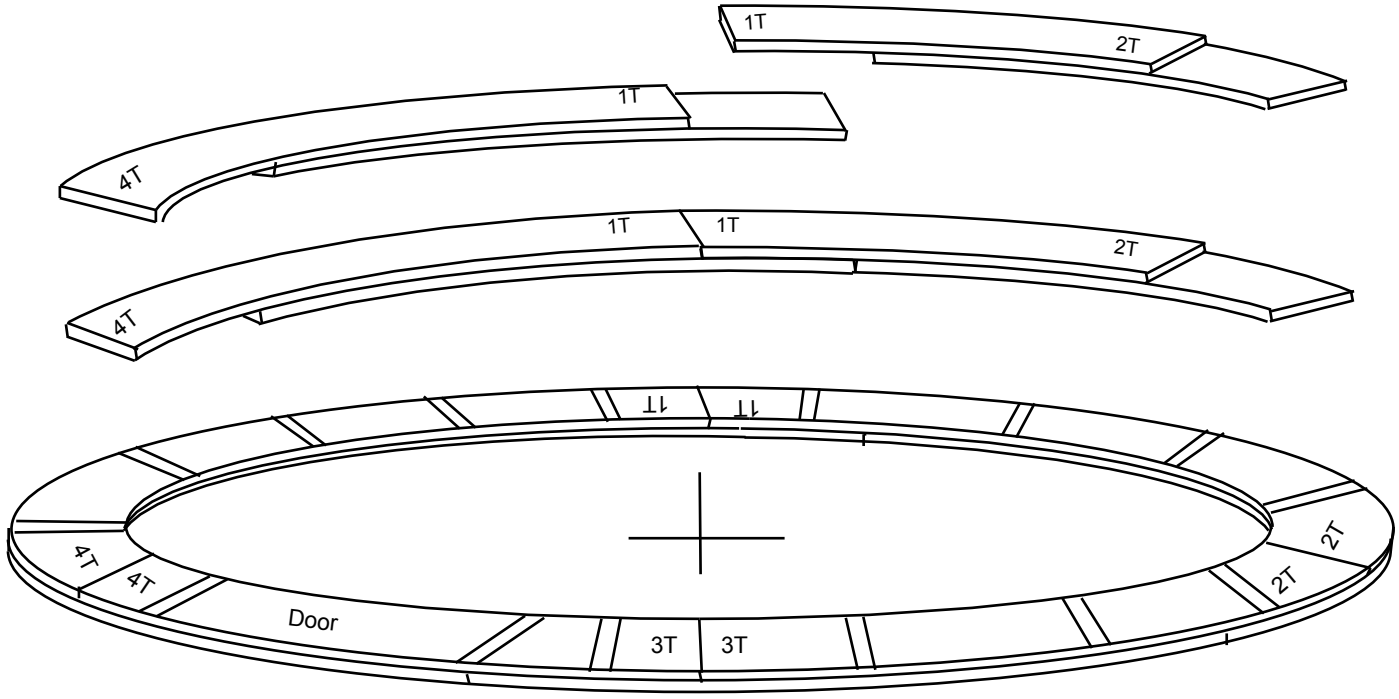
Ash-Dome Support Wall Cyinder

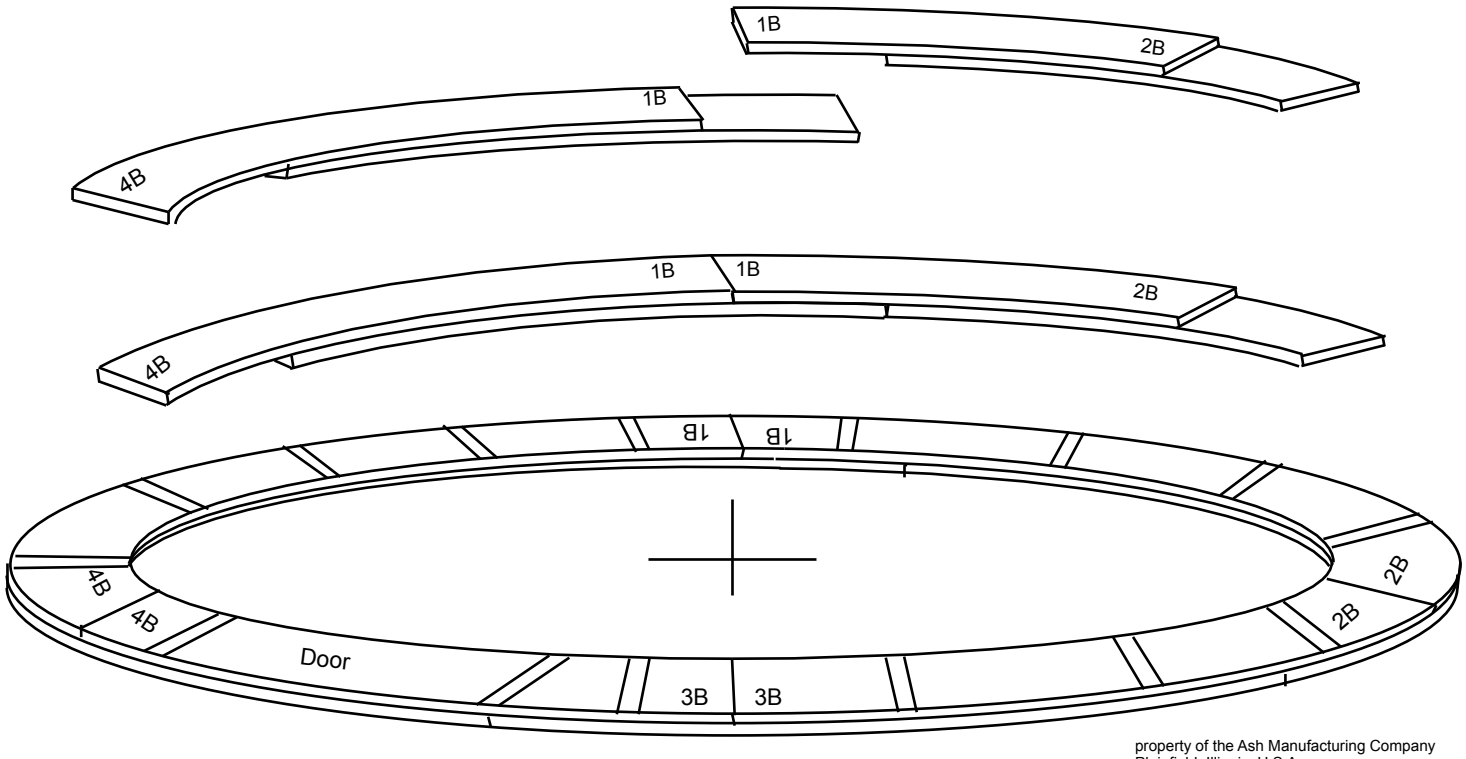
Ash-Dome

wall cylinder 100

top sill plates are in segments fitted 1T, to 1 T, 2T to 2T an on
'T' is top plate, studs marked on top side



bottom sill plates are in segments fitted 1B, to 1B, 2B to 2B an on
'B' is bottom plate, studs marked on top side



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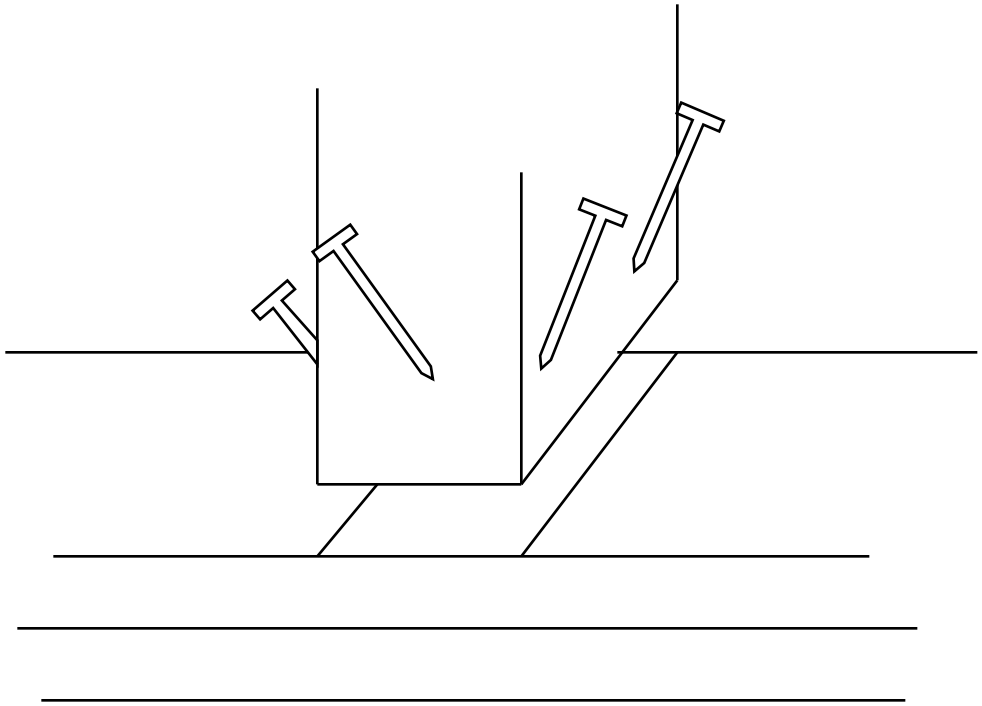
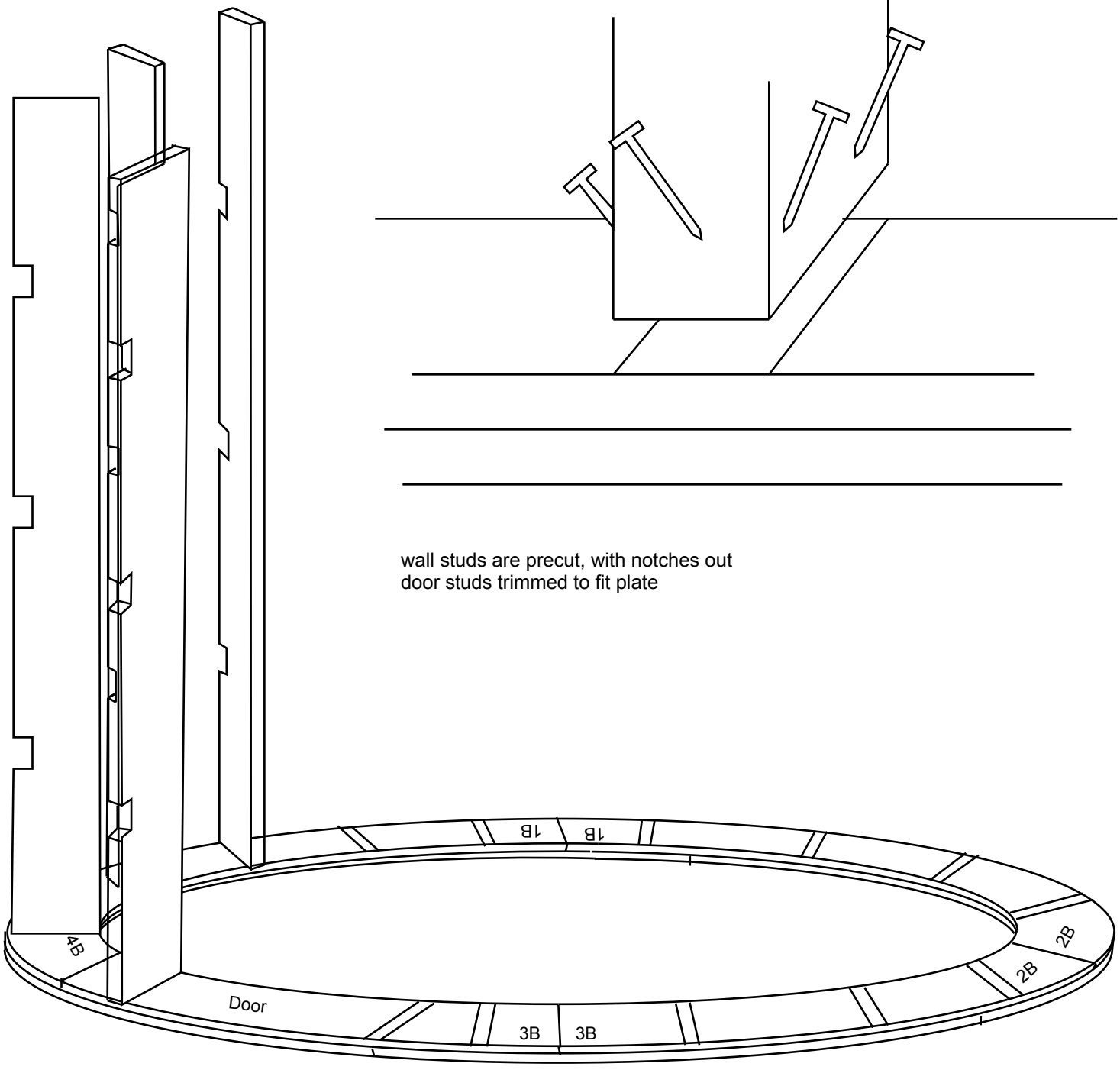
Ash-Dome Support Wall Cyinder

wall cylinder 101

Ash-Dome



wall studs are precut, with notches out
door studs trimmed to fit plate



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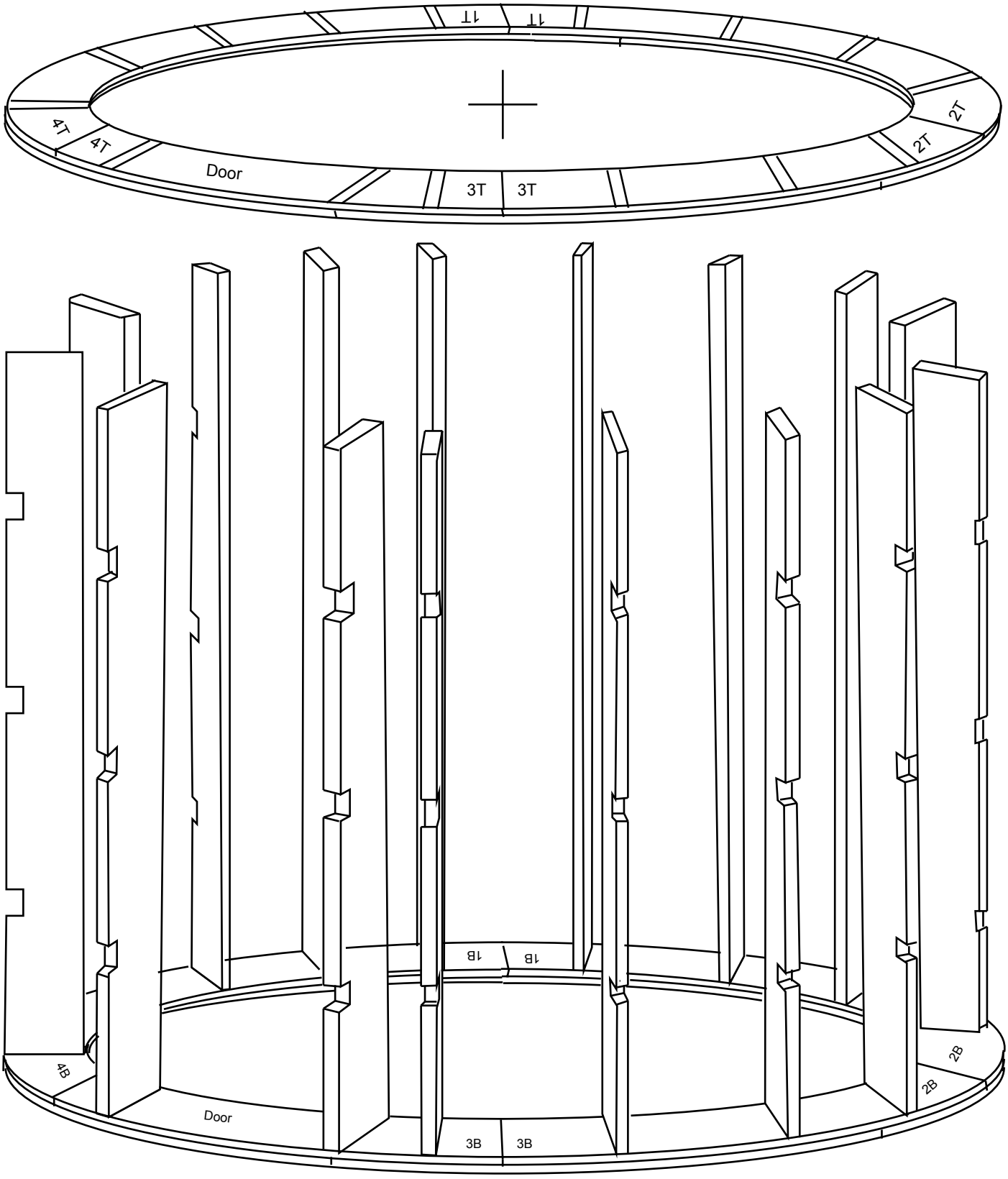
Ash-Dome Support Wall Cyinder

Ash-Dome

align top sill plate door studs
stud layout up, nail down

wall cylinder 102



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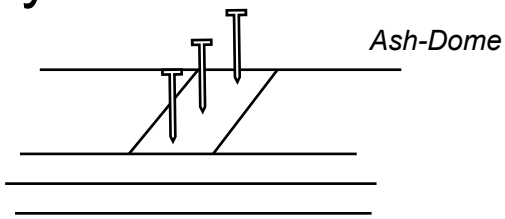
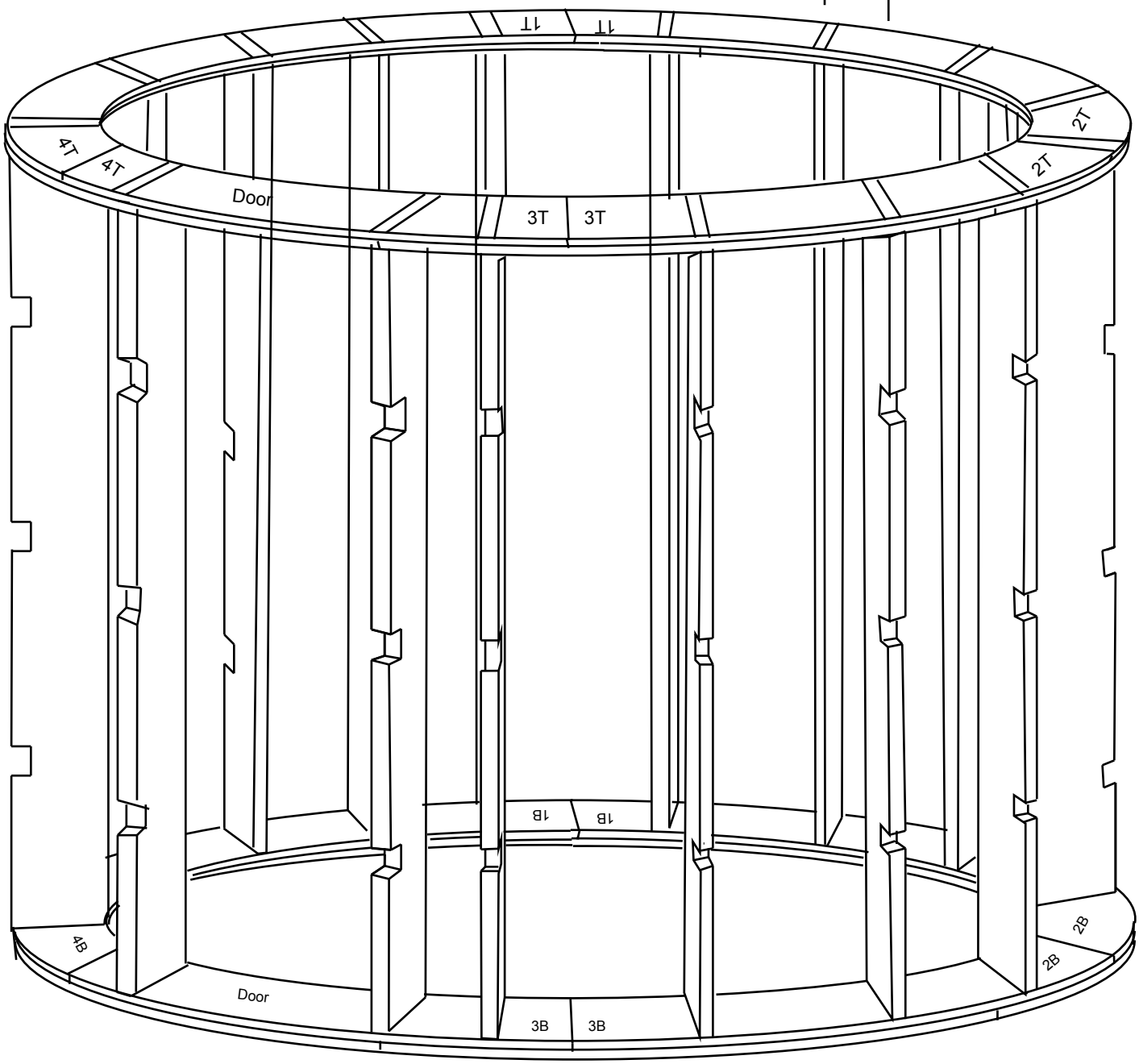
Ash-Dome Support Wall Cyinder

wall cylinder 103



align top sill plate door studs
stud layout up, nail down flush
outside edge of wall plate



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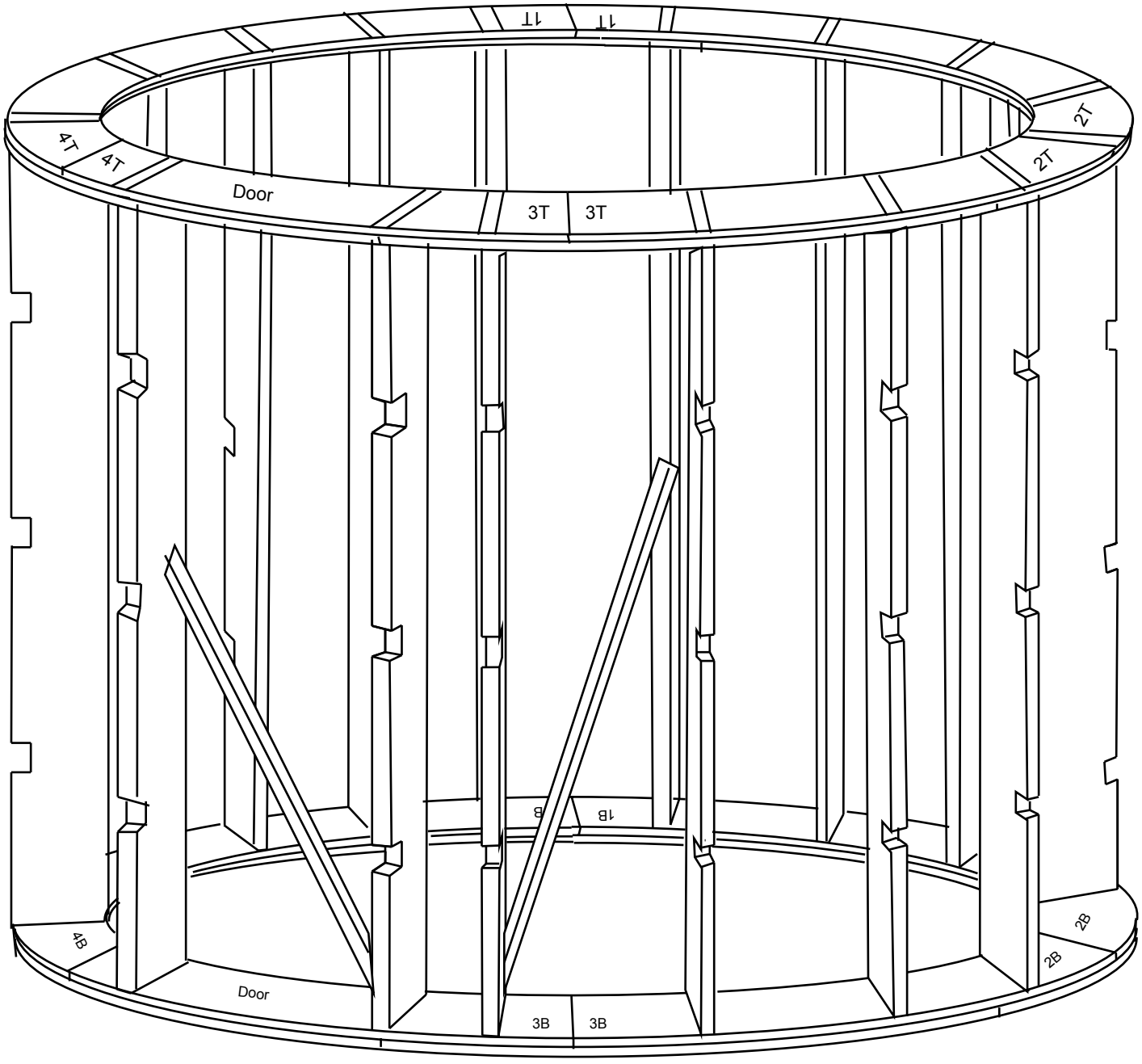
Ash-Dome Support Wall Cyinder

Ash-Dome

wall cylinder 104

plumb wall and brace securely



make sure door studs are plumb

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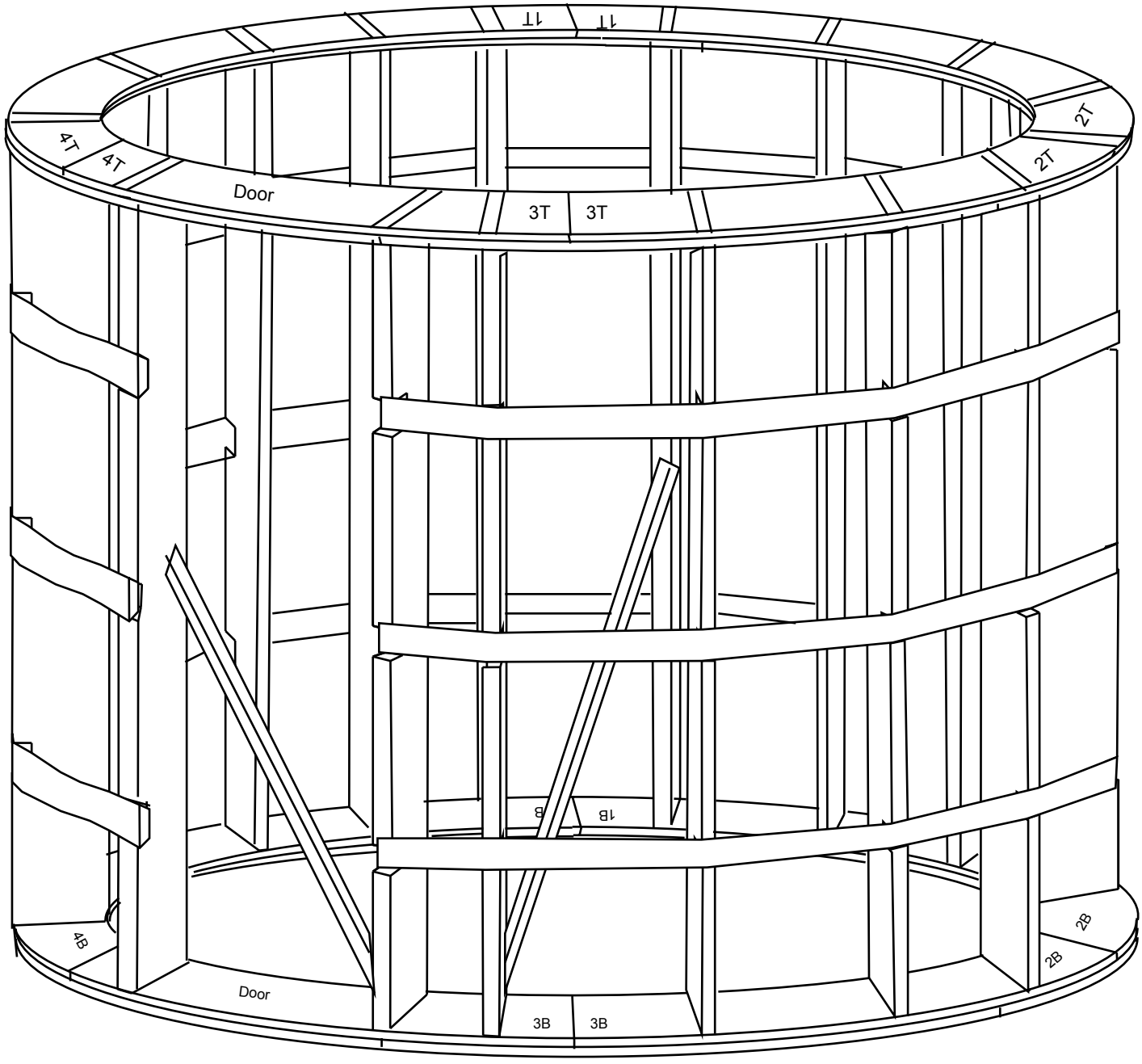
Ash-Dome Support Wall Cyinder

wall cylinder 105

Ash-Dome

install 2 layers of sway bracing in precut notches
stagger joints



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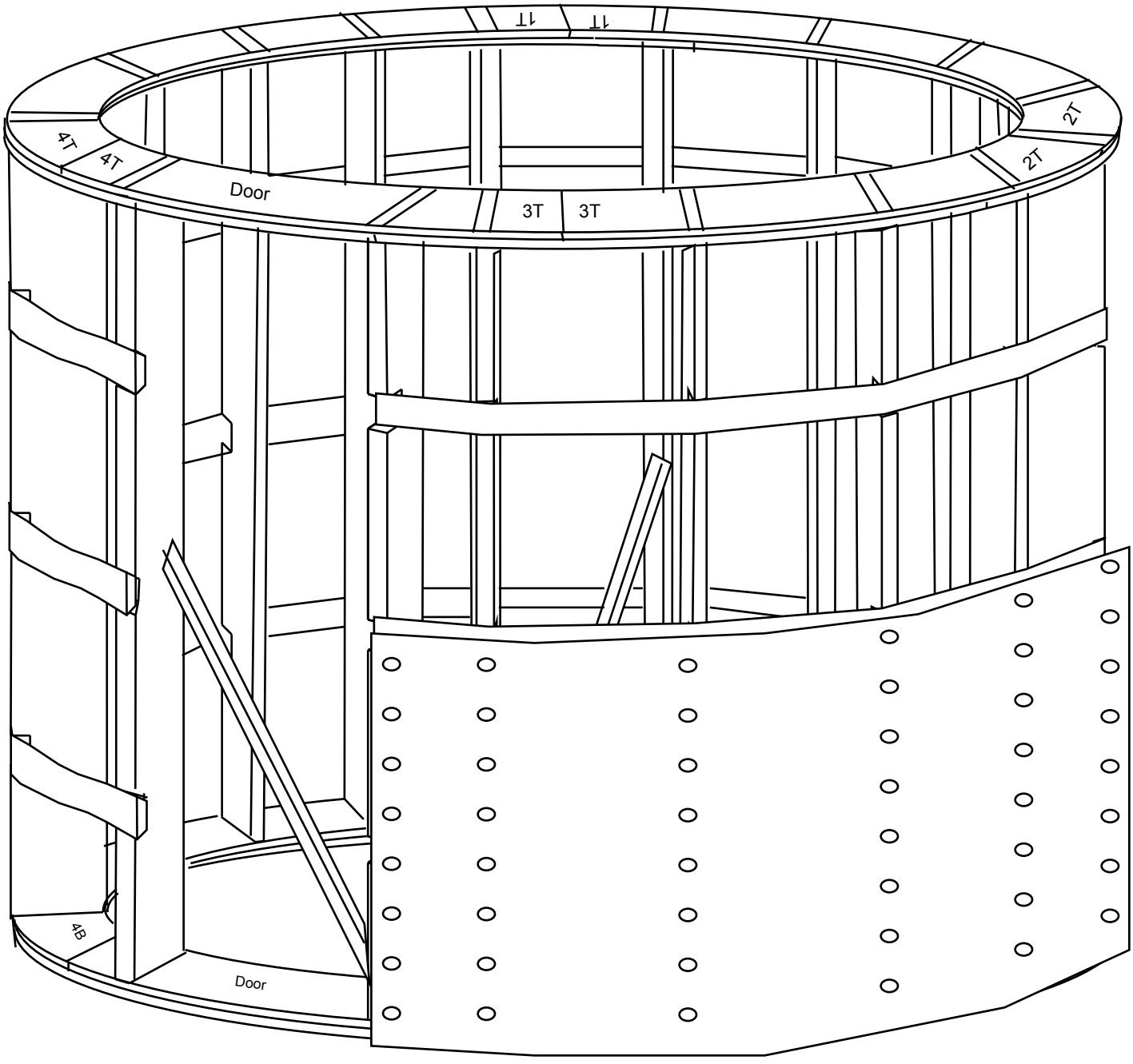
Ash-Dome Support Wall Cyinder

Ash-Dome

wall cylinder 106

attach plywood starting flush with edge of door stud



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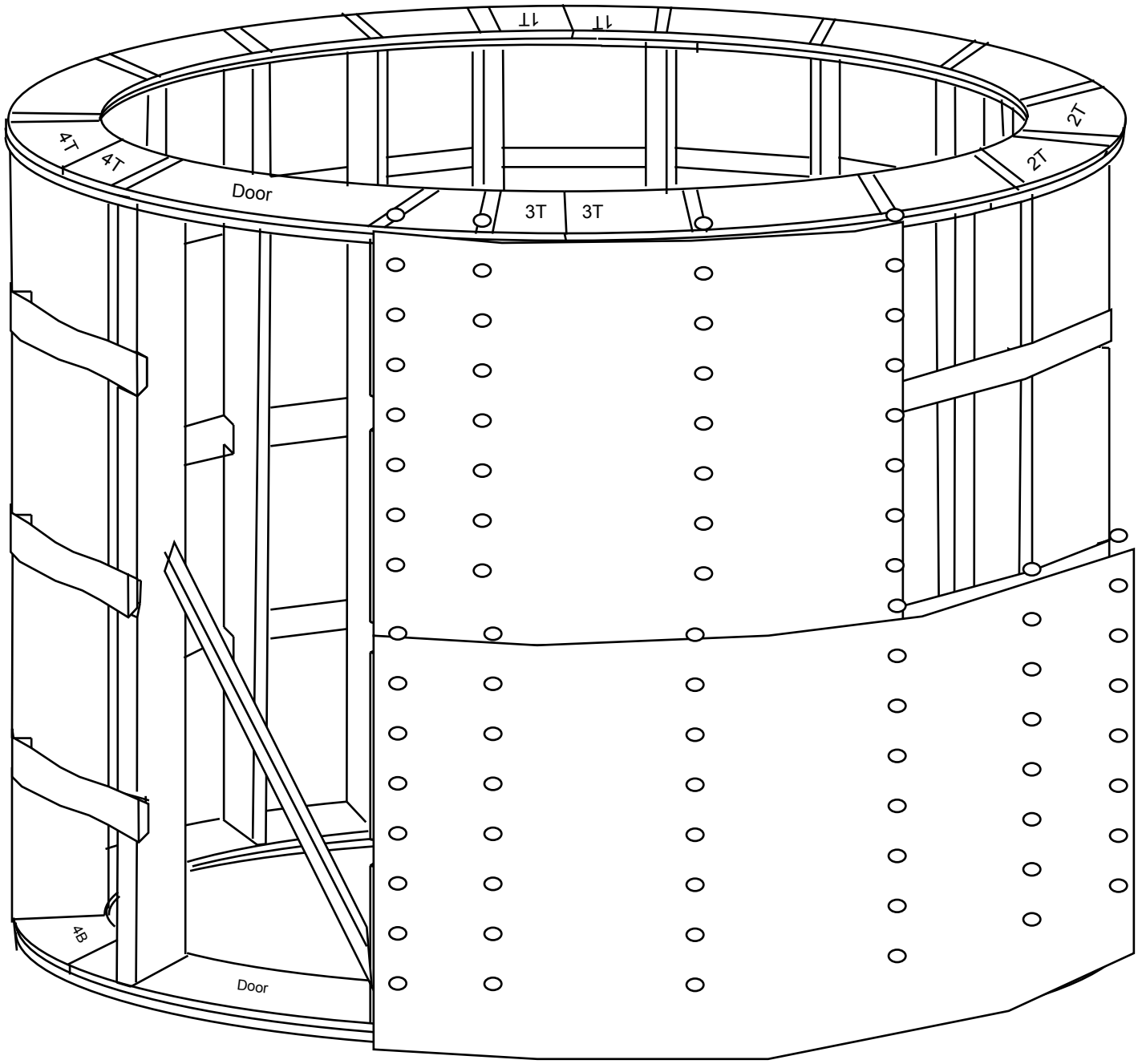
Ash-Dome Support Wall Cyinder

wall cylinder 107

Ash-Dome

attach plywood sheeting flush with edge of door stud
fit tightly to bottom plwood



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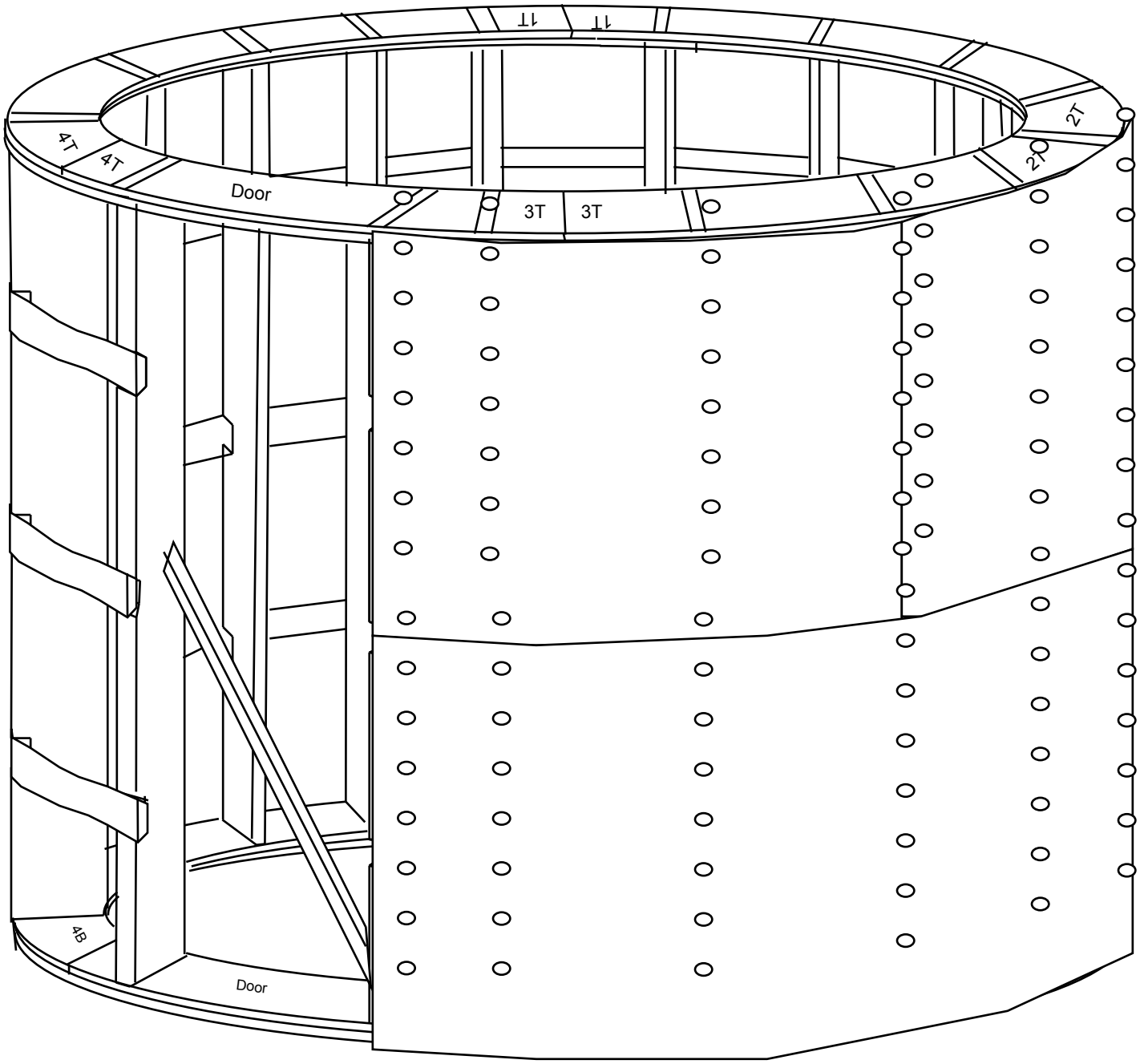
Ash-Dome Support Wall Cyinder

Ash-Dome

wall cylinder 108

attach all plywood siding



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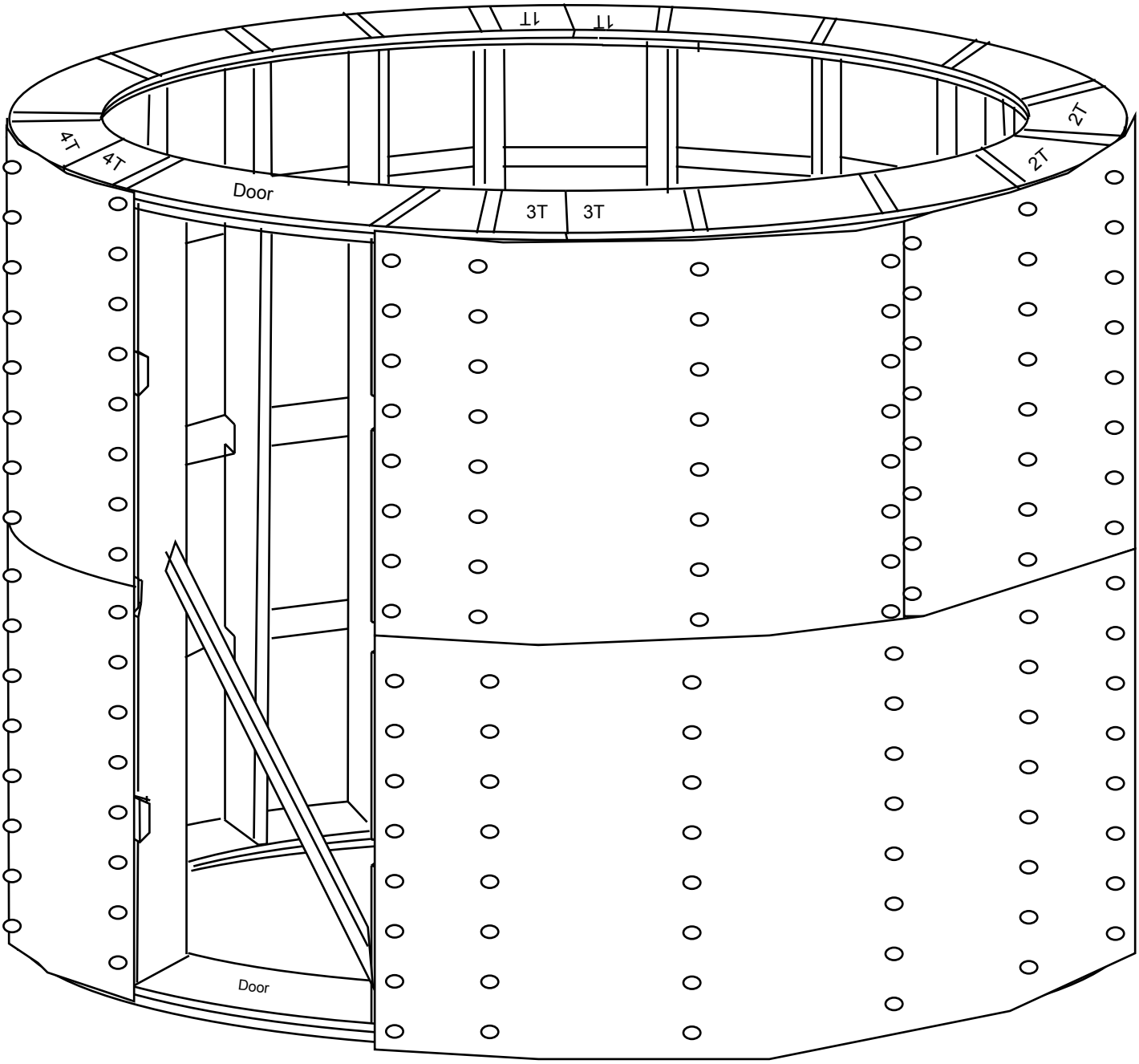
Ash-Dome Support Wall Cyinder

wall cylinder 109

Ash-Dome

attach all plywood siding trim last edge flush with inside of door stud



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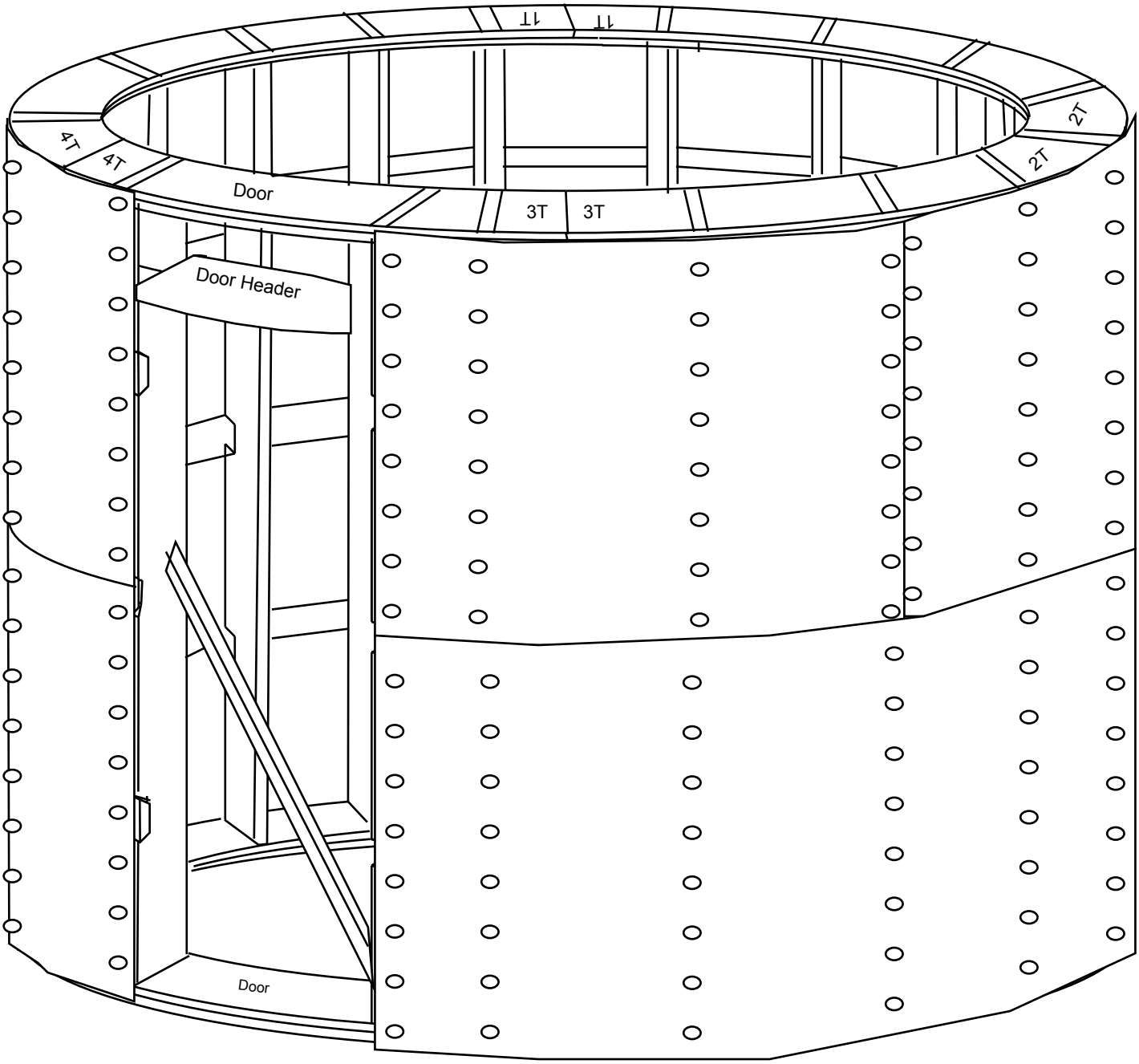
Ash-Dome Support Wall Cyinder

Ash-Dome

wall cylinder 110

measure height of door and secure door header



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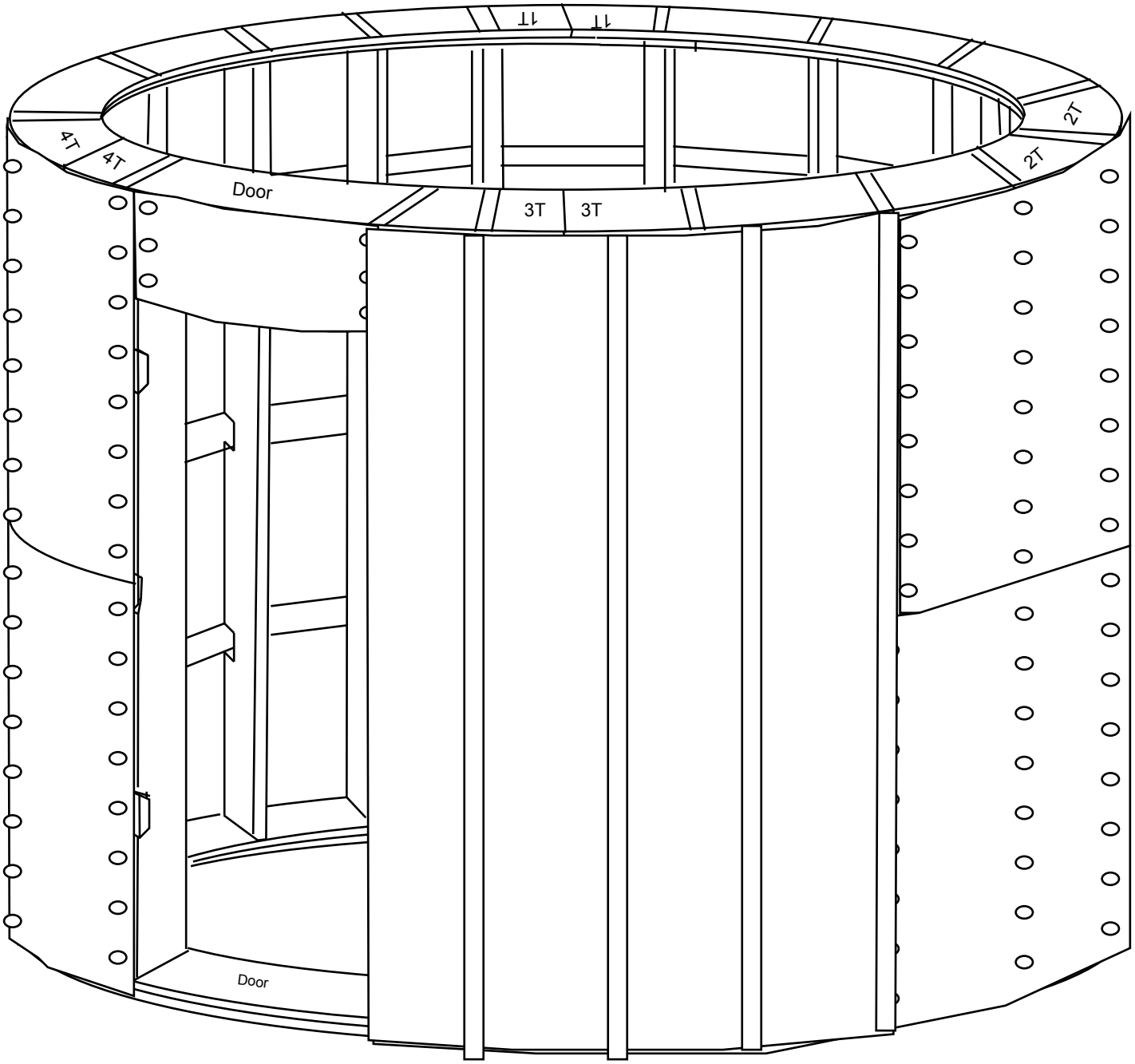
Ash-Dome Support Wall Cyinder

wall cylinder 111

Ash-Dome

measure and cut to fit plywood to finish over door
start siding flush with edge of door stud and flush
with bottom edge of wall cylinder



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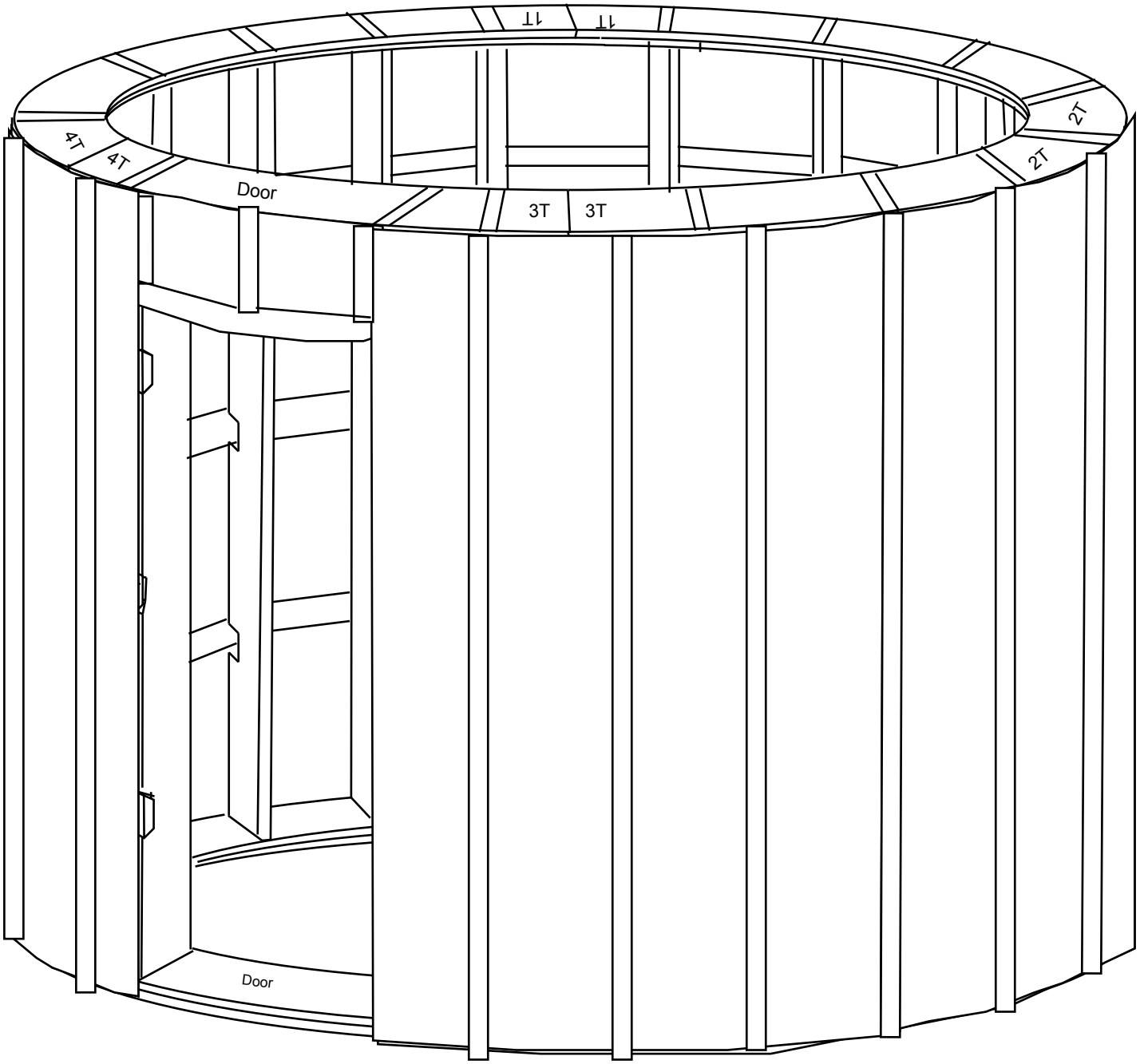
Ash-Dome Support Wall Cyinder

Ash-Dome

wall cylinder 112

attach siding and check each sheet for plumb, cut last piece to fit flush with door stud, install door drip trim, cut to fit metal over the top of doorway and secure



drill 3 holes in door studs spaced approx. hinge locations

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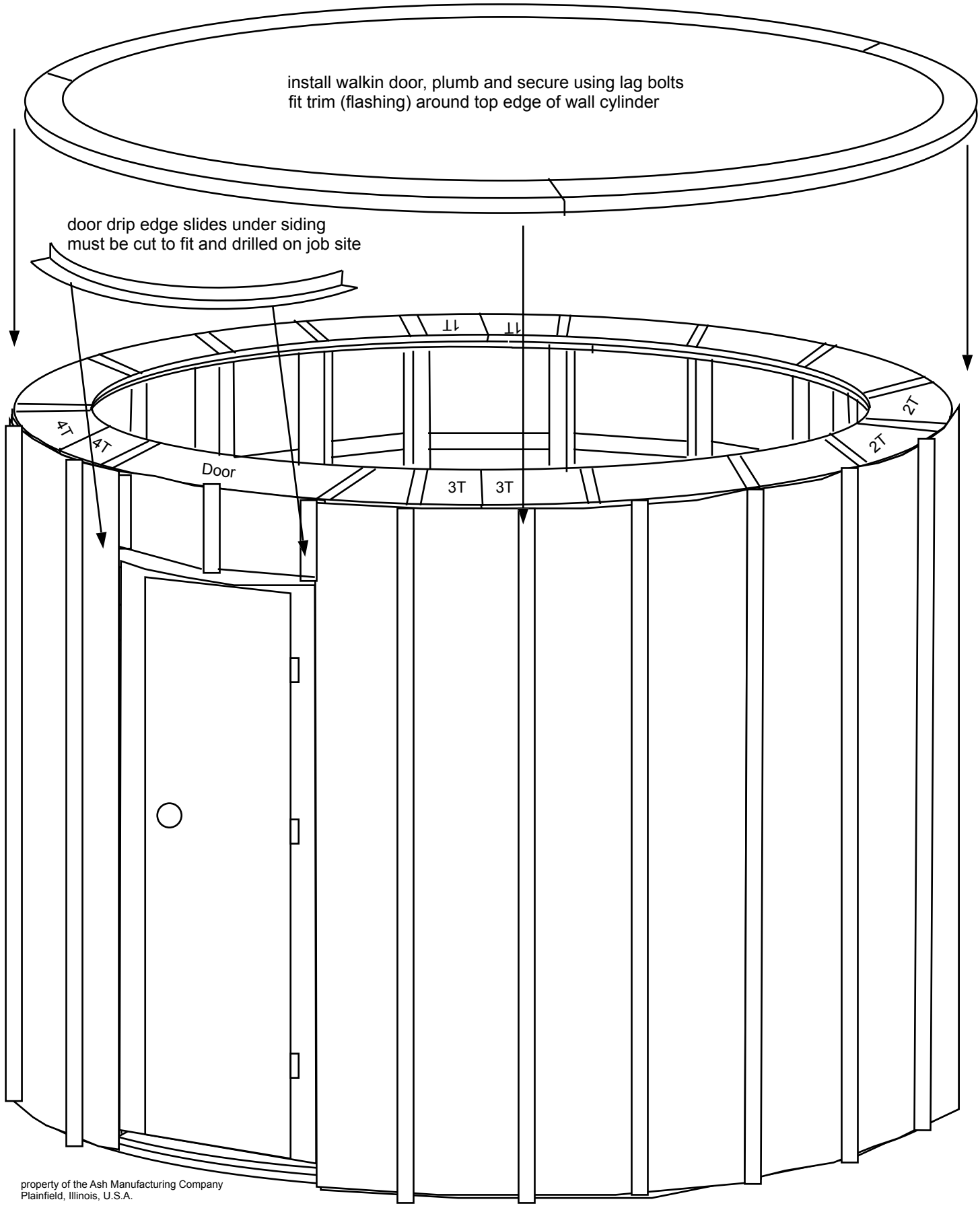
wall cylinder 113

Ash-Dome Support Wall Cyinder

Ash-Dome



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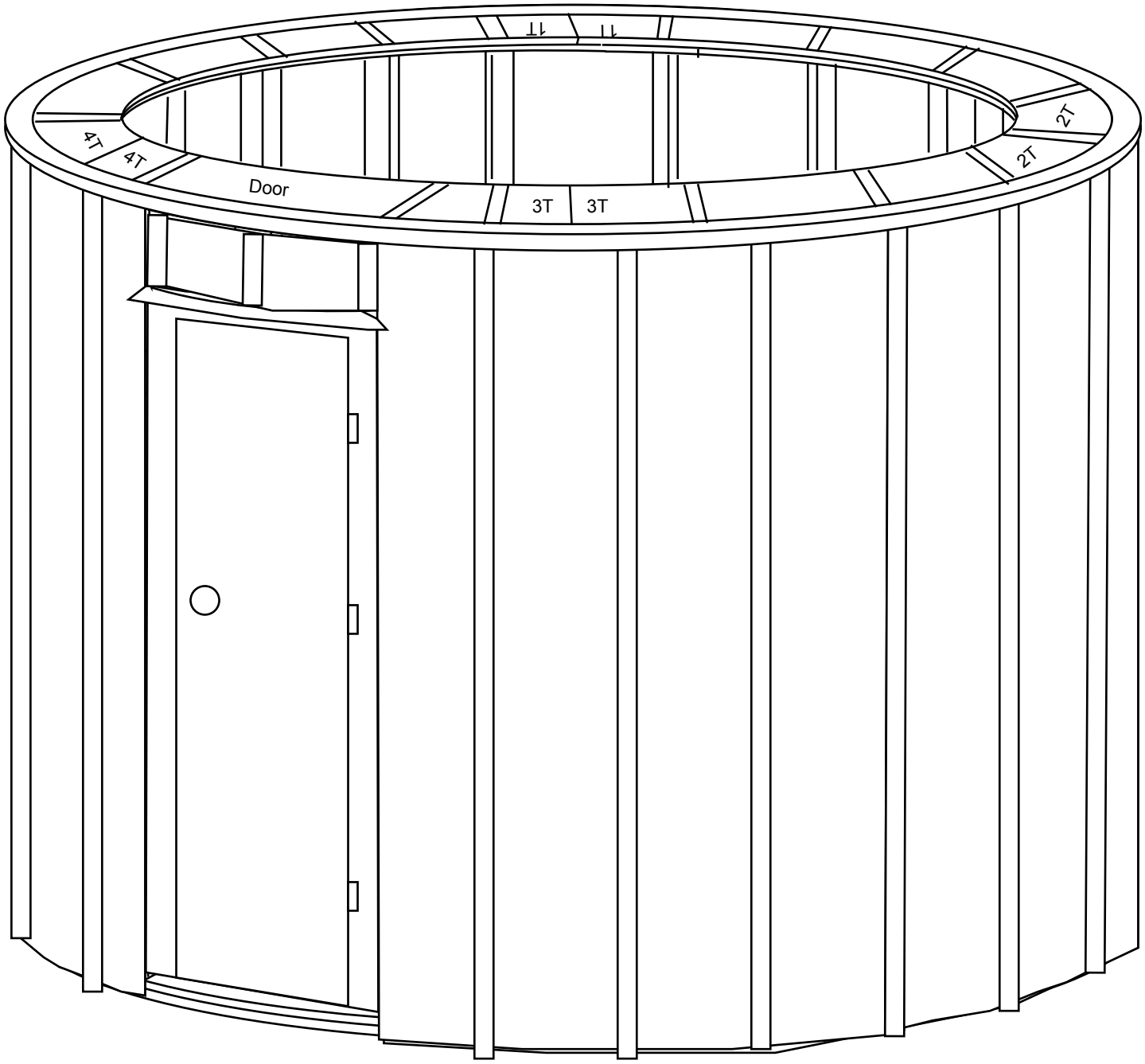
Ash-Dome Support Wall Cyinder

Ash-Dome

wall cylinder 114

drill holes in flashing and secure with samll nails



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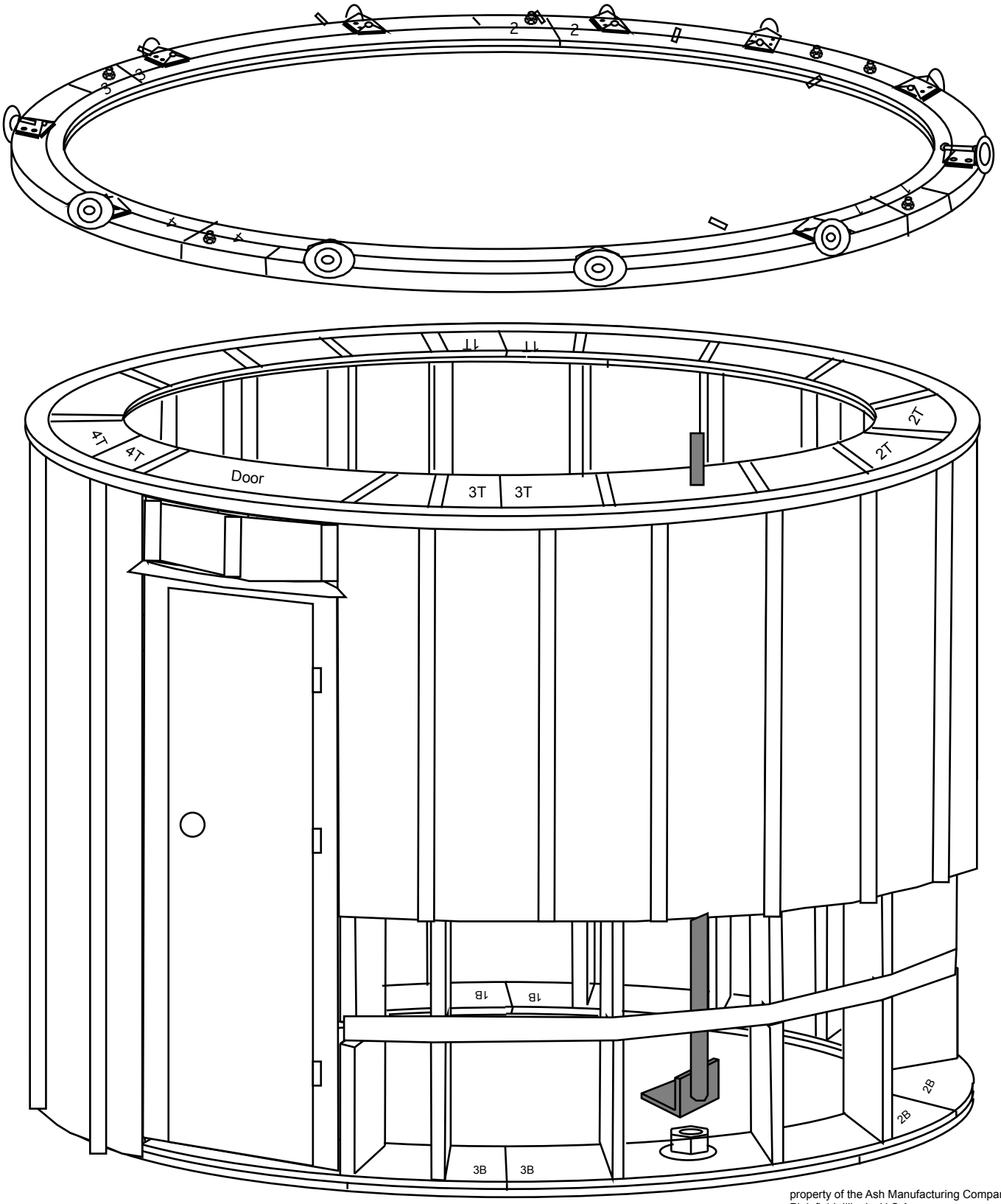
wall cylinder 115

Ash-Dome Support Wall Cyinder

Ash-Dome



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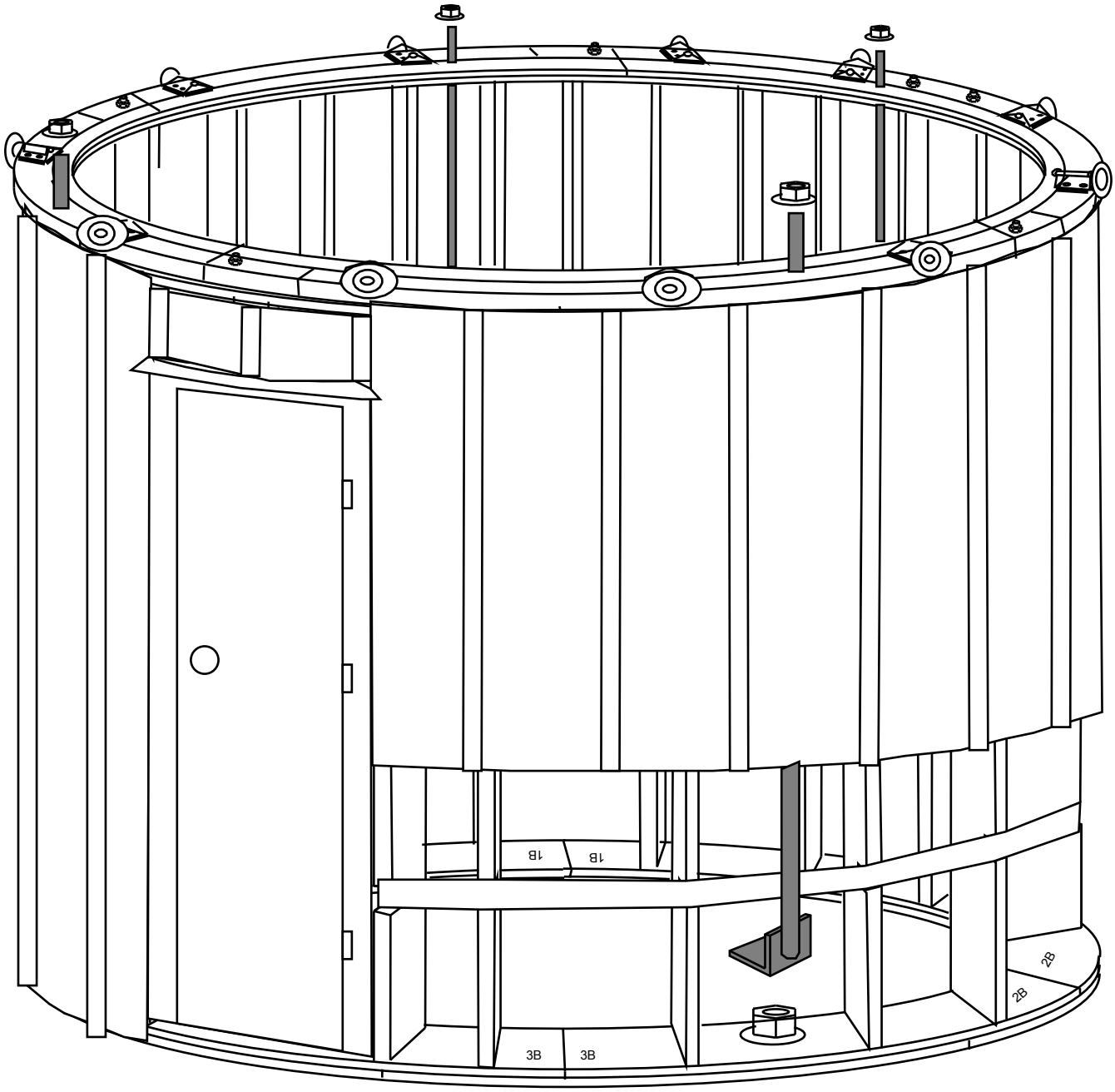
Ash-Dome Support Wall Cyinder



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Ash-Dome Tool List – Model R Dome

This is a basic tool list. Most items are common and are readily available if not on hand.

X - number of pairs of gloves – **WARNING** the materials have sharp edges

1 – banding cutter, tin snips

1 – metal cutting saw, hacksaw or other type

1 –electric drill & wood bits for drilling holes in wall plate for anchor bolts

NOTE: nuts, washers and anchor bolts are not furnished

1 – screw gun & various bits, 3/8 nut driver, 5/16 nut driver

2 – straight blade screwdrivers

1 – engineers level, laser level, water level or bubble level

2 – hammers

1 – 20 ft of more tape measures

1 – set of open end wrenches 3/8” to 3/4”

1 – 3/8” drive ratchet set, 3/8” to 3/4” deep sockets

1 – adjustable crescent wrench

2 - pry bars

2 – drift pins – (a tool used to align holes in metal)

2 – ‘C’ clamps (large)

2 – bar clamps (optional)

1 – caulking gun

2 – putty knives

4 – vise grips (locking pliers)

1 – electrical extension cord & electrical power on site

1 – razor knife

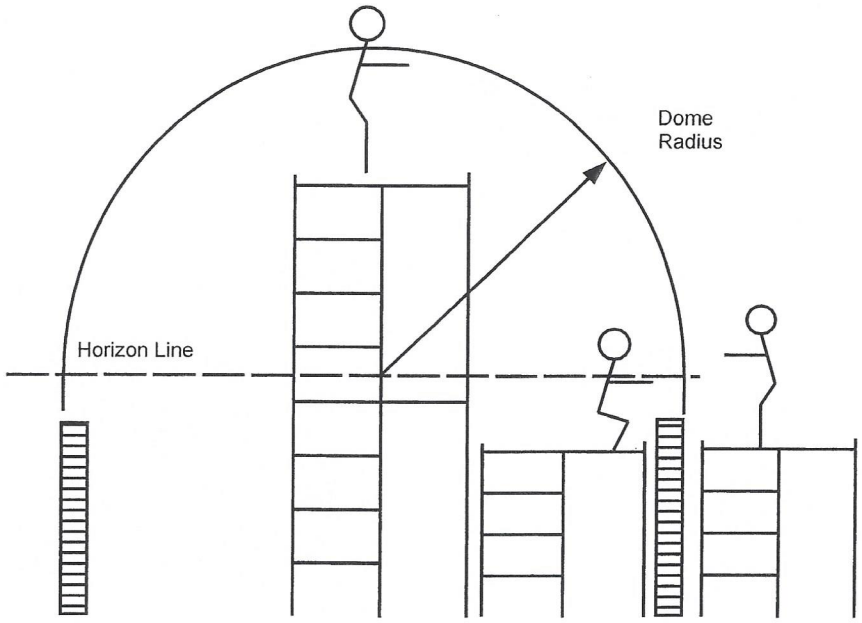
2 – step ladders

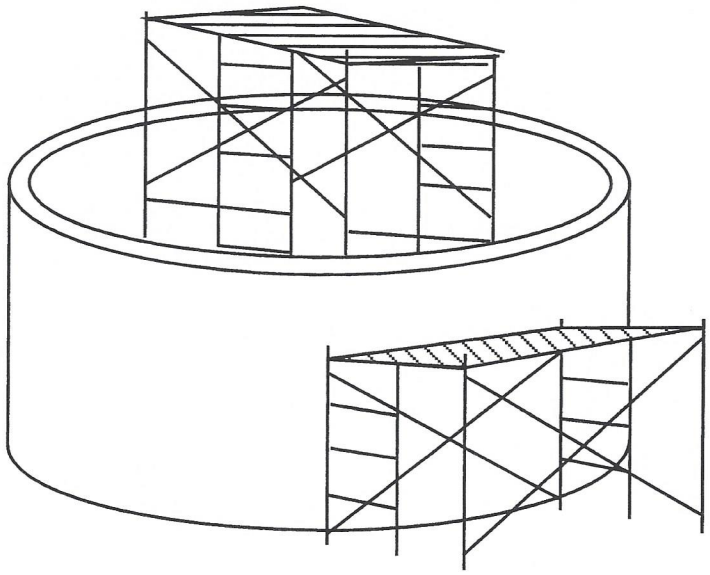
3 or 4 workers (usually carpenters) having knowledge of assembling wood or metal buildings

ASH-DOME

Scaffolding Requirements

Jan. 2016





A worker should be able to work safely at least chest high in the center of the dome.
You should also be able to work outside the support wall safely knee high in one location.

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ASH-DOME ASSEMBLY INSTRUCTIONS

GENERAL INFORMATION

All **ASH-DOME** units are completely fabricated to order. Upon completion of the assembly the observatory dome is thoroughly inspected and tested for operation. After which all components are numbered or lettered and the dome will then be disassembled. Cleaning and remarking of the materials is done before being made ready for shipment. Good carpenters or mechanics shall not find the assembly difficult. With the exception of an Engineers Level or Laser Leveling Instrument, the entire assembly process can be completed with the hand tools found in a carpenters or mechanics toolbox. Please see the Tools List provided.

The majority of the assembly work is done from the center of the dome, it is suggested a stable platform or scaffolding be erected approx. 4 or 5 feet below the top of the finished dome height. The assembler will need to work at chest height in the center of the dome. All of the dome roof panels, the shutter track rails, observing aperture trim members, aperture weather seals, shutter drive assembly and the shutter itself will be installed from this central platform. It is also necessary to have a work platform available on the outside of the support wall. Alignment of materials and the installation of nuts, bolts and screws around the outside of the dome structure will be done from this area. The height of the scaffolding should allow the assembler to work knee high at the top of the wall. When the dome track and skirt have been assembled the dome is continually turned to this assembler. During most of the assembly it will not be necessary for this assembler to move from this location.

UNLOADING THE DOME COMPONENTS

Wear gloves. Most of the parts are not extremely heavy but they are long and rolled to a radius. They are awkward to handle. It is suggested when removing dome components from the pallet or crate, layout the materials out in an orderly manner keeping similar shaped parts together. By doing this the assemblers will become familiar with the general appearance of the parts and gives them a reasonably good idea of their eventual locations during the assembly. Most parts are readily identifiable by their general appearance. The Wall Plate Assembly, Dome Track, Skirt Panels, Azimuth Gear Track, Shutter Tracks, Azimuth Weather Seals will become clear. Others are numbered to aid in locating their final positions. Please keep in mind while unloading that all parts are **ONE of ONE**.

CAUTION: **DO NOT** attempt to assemble an **ASH-DOME** unit during periods of high or gusting winds. Unexpected gusts may cause an installer to lose a roof panel or a high gust could tear apart a partially assembled dome from the structure. With the exercise of a reasonable amount of care, and closely following these instructions, it is certain the final result will be a very high quality observatory dome structure with excellent operating characteristics.

STEP # 1 - INSTALLING CIRCULAR WALL PLATE ASSEMBLY

For a cement or block support wall, first remove all excess cement and mortar from the top of the wall.

This is important: The **ASH-DOME** wall plate assembly must be round, lay flat and level. This is to ensure all the following components will align properly during the assembly. All anchor bolts should be straightened to a vertical position, (straight up and down). The **ASH -DOME** wall plate assembly consists of circular segments which when interlocked and bolted form a continuous circular base plate with evenly spaced dome roller fixtures. Layout the interlocking segments in a manner that brings similar numbers to be adjacent, 1 to 1, 2 to 2, 3 to 3 ect.

(Page #1) Interlock the segments and install the wall plate, **Splice Bolts** at this time. This will be 1 bolt coming up through the bottom of the wall plate and trim angle where each segment comes together. Secure the bolt with a nut. Next install the **Azimuth Roller Wheel Clips** at each splice, 4 bolts coming up through the wall plate and trim angle. Place the rubber pad on the bolts and then the wheel clip. The 4 nuts holding the wheel clips should be drawn down tightly, and then backed off until slightly tighter than finger tight. This allows the rubber pad to act as a cushion, and also allows for any slight variations in the level plane of the wall plate assembly. Rest the circular wall plate upon the ends of the anchor bolts noting the location of the azimuth motor mounting bolts; this will be the location of the azimuth drive unit. If necessary shift the wall plate until the azimuth motor mounting is in a location for electrical connections and minimizing interference between anchor bolts and dome support roller fixtures. Adjust the entire wall plate assembly to become concentric with the supporting wall. Check the outside diameter of the circular wall plate in at least 3 points and make adjustments to cause the plate to rest in a circular configuration. Next mark the locations of the anchor bolts and drill the mounting holes. Drill the holes slightly larger than the diameter of the anchor bolts. (It may be necessary to cut off any anchor bolts where they interfere with wheel fixtures or the azimuth motor mount.) Lower the wall plate assembly down over the anchor bolts to a resting position on the wall top. Using a leveling instrument determine the highest elevation around the top of the support wall. Record the elevations along the inside or outside edge of the wall plate for future reference. When the high point has been located, further elevate this point by approximately 1/4" by inserting tapered shims between the underside of the plate and the top of the wall on either side of the anchor bolt, as indicated on drawing **R-100**. Install a washer and nut on this anchor bolt and draw the nut down tight. This is the highest elevation on your support wall. You must bring all the other points up to this elevation by using the leveling instrument and the tapered shims provided. Adjust the entire wall plate to this elevation and secure to the support wall.

DO NOT - Take the elevations from the top of the roller fixtures attached to the wall plate. Taking elevations from the fixture on the rubber isolation pad will not give you an accurate reading. When the entire wall plate assembly has been adjusted and secured to a flat and level plane, it will be noted the width of the space between the underside of the wall plate and the wall top will vary as the elevations of the top of the support wall vary. This area must be filled with a cement grout or dry pack material; however, it can be done after the completion of the dome. Recheck all elevations and outside diameter

measurements, make any adjustments necessary to attain a truly circular, flat and level wall plate assembly. It is essential you use care in these adjustments of the wall plate assembly. This will guarantee the finished observatory dome structure will turn without any binding in the dome support track or support rollers. When starting the assembly from a level plain, all following components will come into alignment much easier. Trim off any excess length on the adjusting shims before installing the dome support track rails. The shims should be cut flush with the outside edge and the inside edge of the wall plate assembly. Take care not to loosen the shims during trimming. Cut off any extra length from the anchor bolts at this time. Access for packing the area between the top of your wall and the bottom of the wall plate assembly is easiest at this time.

STEP # 2 - DOME SUPPORT ROLLERS AND BOTTOM DOME TRACK SECTIONS

Apply any good grade of all weather lubricating grease to each dome support roller shaft and insert the shafts into the fixtures mounted about the wall plate. **(Page # 2)** When a minimum amount of lateral (run out) movement is desired, install a spacer washer on the roller shaft before inserting it into the roller fixture. This is not required on each roller shaft but possibly 1 at each splice in the wall plate. When all the dome rollers are mounted, locate the bottom dome track sections and note the numbers on each end of the track. **(Page # 3)** Install one segment of the dome track by placing one end of the track over a roller. Roll the section over the following dome rollers until the track section is supported on the rollers. Install following sections to cause similar numbers to become adjacent, 1 to 1, 2 to 2, 3 to 3, ext.

WARNING: This can be a finger pincher. The tips of your fingers can be caught between the rollers and the dome track. **Be careful**. **(Page # 4)** As each additional track section is installed, it must be bolted to the previously installed section. The overlapping joints are at the ends of the sections. Use the 5/16" x 3/4" low profile truss head bolts, these will be marked **Bottom Track Splice Nuts & Bolts**. Install only the bolts that are in a straight up-and-down position. The bolts are on the inside of the dome track, the bolts go down, and the nuts go on the bottom side of the dome track. This allows the dome track to roll around the wall plate assembly without any obstructions. The horizontal holes are used for the next step of the assembly. During the installation of the dome track rail segments, care must be exercised to prevent the support roller shafts from sliding out of the mounting fixtures. Roll the dome track on keeping it tight to the wall plate, as it will roll off just as easy as it rolls on at this time. Don't let the dome track section fall from the structure; this could result in a radius change causing the track section not turn as freely as it should. When all the segments have been installed and bolted together the track should revolve freely. The track may appear to be somewhat loose at this time but this condition will change when the dome skirt panels are in place.

STEP # 3 - DOME SKIRT ASSEMBLY

The dome skirt is installed around the outside of the dome track and is numbered on each end. The skirt panels are made in sections. The galvanized steel panels are curved with angles spot-welded to them and inter locking numbered joints on the ends. Numbers go to numbers 1 to 1, 2 to 2, 3 to 3, ext.

(Page # 5, 6) The sections sit on the outside edge of the dome track rail. Locate the **Back Center** and the **Front Center** on the dome track rails. These should be clearly marked and are directly across from

each other. Start with the section marked **Back Center**. Bolt in place using 5/16" x 3/4" stainless steel truss head bolts. These will be marked **Skirt Nuts & Bolts**. The bolts go from the inside of the dome skirt out. The nuts are on the outside of the dome skirt. Leave the last bolt and nut out of each panel. The bolts go through the interlocking joints on the ends of the skirt. Continue with sections on either side of **Back Center** keeping similar numbers together. The last skirt section is installed by slipping one end of the panel into place. Then slide the other end of the panel down locking it into position. Use these same nuts & bolts, 5/16" x 3/4" for all the splice joints in the skirt panels. It is recommended all nuts and bolts be installed snug and then go back and tighten all **Skirt Bolts** at the same time. This will tend to pull the panels into a final alignment.

STEP # 4 – AZIMUTH DRIVE GEAR TRACK

The dome skirt has a series of 1/4" holes drilled slightly above the dome track. This is the location for mounting the azimuth gear track **(Page # 7)**. Position the gear track segment with **Back Center** at the **Back Center** of the dome skirt. There is also a **Front Center** location for your reference. The gear track sections are numbered on each end and overlap. Align numbers, 1 to 1, 2 to 2, 3 to 3, ext. Fasten the sections together with the self-tapping sheet metal screws provided. The fasteners are marked **Azimuth Gear Track Splice Screws.** It maybe necessary to shim the azimuth gear track to keep it centered in the dome skirt. The shim locations are noted near the hole on the inside of the skirt panel. The azimuth gear track is secured to the skirt by using self-tapping screws. The screws are fed from the outside of the dome skirt, through the gear track and tap into a **Gear Track Chair**. The chairs support the gear track above the dome track and also lock it into position. It is suggested you secure the azimuth gear track starting at the quadrants. Should shimming be required, start at the quadrants. This will keep the azimuth drive track centered in the dome skirt.

STEP # 5 - INSTALLATION OF THE DOME ROOF PANELS

Again note the locations of the **Front Center** and **Back Center** on the dome skirt. The **Back Center** is where you will begin installing the roof panels **(Page # 8,9,10,11).** It should be noted that all roof panels are numbered at the bottom (wide) end, on the inside. It is suggested you lay the roof panels out in rights and lefts and in sequence. Straighten any bent or kinked edges on the panels or ribs. The only numbers you are concerned with are on the bottom, inside of the roof panels. The first panel to be installed is marked **Back Center** and will be numbered. (**NOTE** this number: You will be working up or down from this number.) The center of the panel aligns with the **Back Center** on the dome skirt. The panels will rest nearly flush on the outside trim angle of the dome skirt. During assembly, one person stands outside the dome skirt. The working area will turn to him. The other person is on scaffolding in the center of the dome. This person holds the roof panel while the other person aligns the screw holes and secures the panel to the dome skirt. The self-tapping sheet metal screws, rib spacers, nuts and bolts are installed at this time. The fasteners are marked **Roof Sheet Screws** and **Bottom Rib Nuts & Bolts**. Install the self-tapping roof sheet screws first into the small holes next to the dome ribs. By doing this you allow for slight adjustments to align other holes. Next install the **Rib Blocks**, rib nut and bolt securing the rib to the

skirt. It is suggested you do not tighten the rib nuts and bolts completely until all roof panels are in position. The bolts go from the outside in, nuts on the inside. When assembling the roof panels keep in mind you are working from the center of the hemisphere toward the dome aperture from each side of this **Back Center** panel. It is suggested you install a few panels each way from the **Back Center** to help bring the dome into shape. All panels can be installed from the scaffold or a platform inside the dome. The bottom end of each successive panel is slid into the top edge of the preceding roof panel's rib. It may be necessary pry the top outside edge of the rib open slightly. The next panel is then slid downward through the interlocking rib until it comes to rest on the dome skirt angle. It is suggested you use bar or liquid soap or any other non-petroleum type lubricant on the interlocking edge of the panels. Oil will stain the panels. Try and push the panel in a circular manner, along the curve of the roof. At the dome skirt the roof panels will slide in and out of the rib slightly to help align the self-tapping sheet metal screws and rib blocks. The first panel either to the right of left of center will be difficult. But as the panels are installed the roof will come into shape (hemisphere) and the panels will slide easier. **DO NOT DRILL ANY NEW HOLES**. Just take your time and the panels will come into alignment. When all the panels are in place, screwed and bolted you now have a semi-rigid dome structure. Now turning the dome go back and tighten all **Rib Nuts & Bolts**, do not crush the rib block.

Should your **ASH-DOME** have a diameter of 14'6" or larger, **(Page # 11)** it has been fitted with a circular reinforcing pipe ring. This ring is secured to the inside of the dome with fittings, which are attached to the ribs of each roof panel. In stall these **Pipe Blocks** with **Spacers** at this time. **(See Drawing R-105)**

STEP # 6 - INSTALLATION OF THE SHUTTER TRACK SYSTEM

There is a shutter track along each side of the dome aperture. The track goes up the front, over the top and down the backside of the dome. Each shutter track rail is made up of two 1/4-circles that are bolted together forming a right and left side **(Page # 12).** They are bolted together at a lap joint, which will be end up at the top of the dome when the track rails are lifted into position **(Page # 13).** The bolts and nuts are marked **Shutter Track Splice Nuts & Bolts**. Right and left can be determined by noting the spacing of the holes in the track rails **(Page # 14).** The aperture side of the dome has many more holes drilled into it than the backside of the dome. **Note:** The locations of the holes through the shutter track at the top of the dome skirt, front of dome and back of dome. The track rails are fastened at the bottom ends first, front and back. Suggestion: To hold the track in place after lifting hook a "C" clamp at the top of the dome to hold them in place. **(Page # 15)** It is suggested you layout the block's numbers and letters in order before starting. Next, bolt the rails onto the ribs using the **Shim Blocks.** These will usually be thin blocks first. One side of the aperture will be for the lettered blocks the other side will be for the numbered blocks. The wide part of the shim block is installed away from the aperture. The block helps hold the track rail straight up and down over the hemisphere. Install all these lose and when all are in place go back and tighten them securely. When the rails are secured using the blocks bolted through the ribs you are now ready to bolt the side trim angles into position **(Page # 16).** The 2 trim angles go from the bottom of the aperture to the top of the aperture, one on the inside both sides of the aperture. The bolts go through the shutter track, the roof sheet and the trim angle, nuts on the inside of the dome. **(Page # 17)** There will be a thin tapered aluminum shim block inside the angle at the dome skirt angle helping hold the track rails

straight when the bolts are drawn down tightly. **(Page # 18,19)** All shim blocks and their respective locations are clearly marked with numbers or letters. When two blocks are on the same bolt the block that fits on the outside of the dome will be the block with the mark on it. The other block fits in between the trim angle and the dome skin. This is tricky to get in but, if you take your time, it will fit. **(Page # 20)** Work you way up from the bottom of the aperture. By doing this you will draw the following holes into alignment.

STEP # 7 - INSTALLATION OF THE SHUTTER TRACK INSIDE BRACING

(Page # 21) When the track rails are in place the internal cross-braces (back bars) are now ready to be installed. This bracing fits on the inside of the dome on the bolts protruding the backside of the roof. **(Page 22, 23, 24)** The bolts are holding the shutter tracks on the dome down the backside. These locations are also marked. When installing the shim blocks on the backside of the dome you must put putty around the bolt on the inside of the dome. Also the specified number of washers to guarantee that leaking will not occur around these bolts. The **Motor Bar** supports the back end of shutter drive motor unit. This will be marked **Motor Bar**. The **Top Bar** supports the front of the shutter drive motor, and is marked **Top Bar**. This is a heavy angle that has a plate bolted onto it and mounts across the top of the dome aperture. Use the **Top Bar Rib Nuts, Bolts and Blocks** and secure this angle into position. These rib blocks will only fit one way and are, rights and lefts. Next install the gear hole frame marked **Gear Hole Trim** at the top of the aperture. The trim installs coming up from the inside and slipping into position between the roof panels and the **Top Bar**. This is the location where the shutter drive gear meets the shutter gear rack.

STEP # 8 - INSTALLATION OF THE SIDE WEATHER SEALS

The **Side Weather Seals** are now ready to be mounted **(Page # 25).** The weather seals fit along either side of the dome aperture and are bolted to the side of the shutter tracks. In order to mount the seals you must first remove the nuts from the shutter track splice bolts (3). The weather seals have 3 holes evenly spaced that will align with the 3 bolts in the track splice. Align all additional holes in the shutter tracks and side weather seals, install the **Side Seal Bolts & Nuts,** tighten and secure.

STEP # 9 – INSTALLATING BACK SHUTTER SEAL ANGLE

(Page # 26, 27) Next install the **Back Shutter Seal Angle.** This is mounted on the outside of the dome just past the gear hole trim. It will fit in-between the shutter tracks, the flange of the angle faces the gear hole trim. Use the bolts marked **Back Seal Angle Bolts.** The bolts go down into the dome, nuts on the inside. **(Page # 28)** There are two diagonal track rail braces on the back of the dome. These are marked **Back Braces, Right & Left** and should be installed at this time. **(Page # 28)** In some cases there might be 2 brackets marked **Right & Left** to support the ends of the shutter track.

STEP#10 – INSTALLATING GLAZING COMPOUND AND SEALING THE APERTURE

(Page # 29) This glazing compound is squeezed into the space between the track rails and the dome

skin, up both sides of the aperture. Start at the bottom of the aperture working your way up toward the top and over the back, past the Top Bar to the Back Seal Angle. Then go across the back under the **Back Seal Angle** and down the front of the aperture. **DO NOT CONTINUE OVER THE BACK PAST THE BACK SEAL ANGLE.** The area under the dome shutter in the closed position is the area sealed. Make certain that you have sealed all openings leading into the aperture completely. It is recommended a small amount of tube caulking be used around the head of each bolt used to secure the shutter track rails.

STEP # 11 - INSTALLATION OF THE REINFORCING RING

All **ASH-DOMES** with a diameter larger than 12'6" (3.8m) are built with one or more reinforcing rings installed. The reinforcing ring consists of interlocking steel tubes rolled into circular sections with adjustable ends **(Page # 30).** The ring mounts on the inside of the dome on the **Rib Blocks** attached to the ribs of each roof panel mounted earlier. The steel tube sections are clearly marked to indicate their sequence of assembly, 1 to 1, 2 to 2, 3 to 3, ect. Again, **Back Center** is the point of beginning and is marked on the first circular tube segment to be installed. The **Back Center** point will line up with the **Back Center** of the dome. Other segments are marked so as numbers will align. The adjustable ends will fasten to the sides of the observing aperture and will either screw or bolt to the interior trim. When the ends have been secured tighten the setscrews.

STEP # 12 - INSTALLATION OF THE SHUTTER DRIVE UNIT

(Page # 31) This is a heavy assembly and care should be taken not to damage any of the electrical components. All shutter drive gear units are mounted in a similar manner. The sequence of events is as follows. Remove the two retaining angles bolted through elongated slots on top of the drive gear housing. The purpose of these angles is to lock the gear in mesh with the shutter drive track after the shutter has been installed. The shutter drive track runs down the center on the upper shutter section. Remove one nut (flex lock nut) and washer from the front support bolt; also remove the flex lock nuts from the brackets at the back of the motor assembly. Lift the unit into position and insert the 1/2" bolt through the slotted hole at the center of the top bar. Replace the washer and the self-locking nut to hold the motor drive unit in position. Bolt the hanger bolts into the holes drilled in the motor bar and tighten so as to just start to squeeze the rubber grommet on the bolt. **(Page # 32)** Leave the self-locking nut on the front support bolt loose at this time.

STEP # 13 - INSTALLATION OF THE SHUTTER SECTIONS

(Page # 33) The main shutter section may now be raised into position over the observing aperture. Make certain the end of the shutter with the overlap is down. This is the bottom edge of the upper shutter.
Lift the shutter section onto the dome, resting upon the shutter track rails and side weather seals. Take care not to damage the weather seals. Place one person inside the dome aperture and two people on the outside of the dome. The person inside the dome lifts and guides the top of the shutter, the two people on the outside lift. When the door is over the edge of the dome skirt you can rest the shutter on the dome. Reposition the person on the inside and one of the people on the outside. The other person

on the outside locates a 2”x4”x6ft board. The people on the inside and outside lift the shutter slightly, 4 or 5 inches. The remaining person on the outside slips the 2x4 in between the dome skirt and the shutter just enough to carry the weight of the shutter. The shutter can then be rested on this 2x4 until the shutter rollers have been installed. You must hold this board in place.

(Page # 34) Remove the support roller mounting fixtures from the shutter side rails; insert the shaft of the support roller into each fixture. Then replace each fixture with the roller intact, locking it into the track rail. It is necessary to elevate the shutter somewhat to replace the fixtures with the roller installed. When all the rollers are in place, slide the shutter section upward until the top end is well past the back shutter seal angle. **DO NOT PUSH THE SHUTTER OVER THE BACK SIDE OF THE DOME. BE CAREFUL; SECURE THIS SECTION WITH A VISE GRIP IN THE TRACK SO THE SHUTTER CANNOT MOVE EITHER DIRECTION**. Now the shutter drive track is positioned over the shutter drive gear unit. Raise the shutter drive gear unit upward until the gear is meshed with the shutter drive rack, and reinstall the two small angle brackets which lock the gear into this position. Some slight forward or backward adjustment may be necessary to position the angles to allow freedom of movement, yet maintaining a permanent lock between the drive gear and the shutter drive track. Shifting the angle brackets slightly in the curved mounting slots will align them parallel with the top edge of the shutter gear rack. The angles will now appear to lay flat along the edge of the shutter drive track. Tighten the bolts in the angle brackets. Remove the vise grips, the shutter will beheld in place by the drive gear. Tighten the nut on the shutter drive unit on the front support bolt. Then back off 1/4 turn until about a 1/32" clearance. This provides the bolt to shift slightly with the movement of the shutter. The movement is necessary because of possible wind loading. The shutter drive unit is electrically operated and can not be moved unless connect to power. Install the short shutter section in the same manner as the upper shutter section. Make certain the locking device is upward and will be in proper position so that when the two sections are brought together they meet and lock. The two shutter sections then move together with the **TYPE "A"** shutter style. Should this be a **TYPE "B"** style the lower door is mounted on hinges and the two sections should meet evenly **(Page#33).** Run the main shutter section open and install the **Back Shutter Seal (Page#35).** Bring the lower door section up, also and install the **Front Shutter Seal (Page#36).** Some adjustment may be necessary so the shutter stops in the correct position **(Page#37).**

STEP # 14- INSTALLATION OF AZIMUTH DRIVE AND WEATHER SEAL

The azimuth motor seal fits under the motor so as to prevent dust from blowing in around the motor. **(Page #39).** The opening between the dome track rail, drive motor and the wall plate assembly sealed using this method. The Weather Seal around the rollers is laid over the bolts and roller fixtures around the wall plate assembly. The edge of this seal should wipe along the top edge of the dome track. It will fit into the space between the track and azimuth gear rack. **(Page #38)** Start the weather seal at the azimuth motor mount marked on the wall plate and work your way around the wall plate.

STEP # 15 - INSTALLING THE AZIMUTH DRIVE UNIT

The azimuth drive motor mounts over the seal. The two mounting bolts are extending upward from this location through the azimuth motor seal**. (Page #39)** Mount the unit in a manner, which causes the drive

gear to mesh with the circular azimuth gear rack. It should remain in this position throughout one complete revolution of the dome. It may be necessary to shift the unit somewhat to accomplish this. Using the hex nut and the locking wing nut, adjust gear down into the azimuth drive track. Tighten the hex nut down until light pressure is applied to the gear rack. Then lock the hex nut using the wing nut. The gear should more or less float in the gear track while still remaining engaged.

STEP # 16 - LUBRICATION

All dome and shutter support rollers have ball bearings and have been lubricated. It is suggested all shutter and dome support track rollers be lubricated with the same type lubricating oil. It is important the top, sides and punched track of the shutter drive track be greased over the entire length of the drive track. The drive motor gearboxes are filled with lubricating oil at the factory, however, it is suggested that the oil level be checked annually. All temperature oil should be suitable. See gear box information.

PAINTING

All ASH-DOMES are fabricated of galvanized and Galvalume steel. These materials do not require painting. Should it be desired to paint your Ash-Dome it is recommended you contact a local paint supplier and seek a paint used on commercial metal buildings.

OWNERS RESPONSIBILITIES

As the owner, you are responsible for maintaining your **ASH-DOME** properly. Repairs required as a result of failure to maintain your **Ash-Dome** properly are the owner's responsibility.

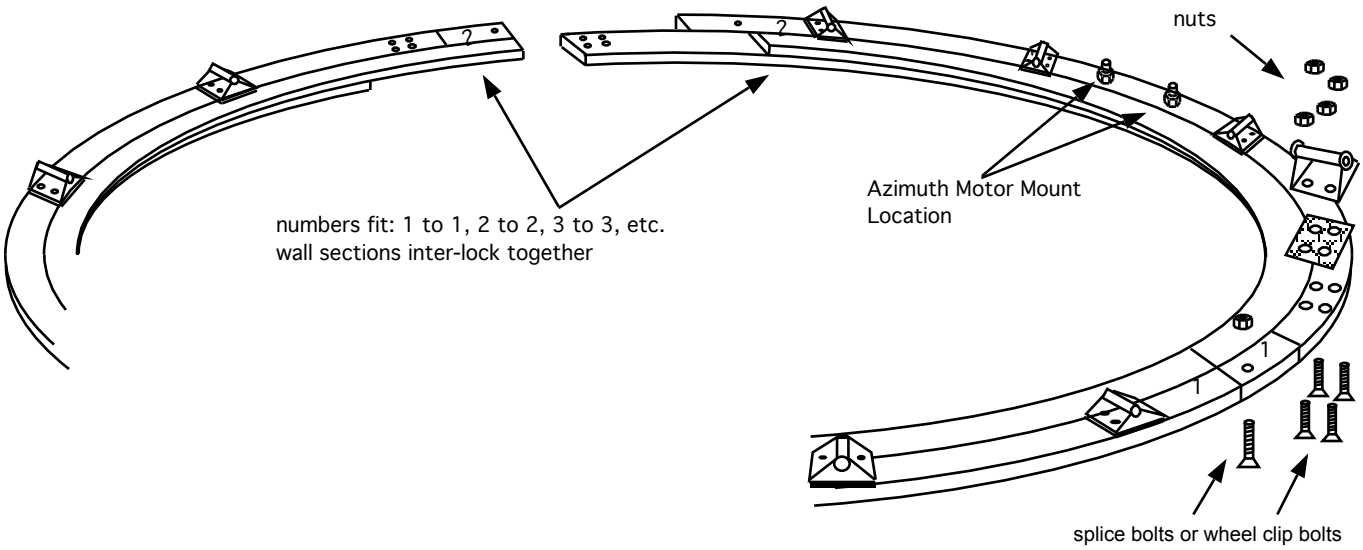
SHOULD YOU HAVE ANY QUESTIONS, PLEASE CALL

ASH MANUFACTURING COMPANY
P.O. Box 312
Plainfield, Illinois USA 60544

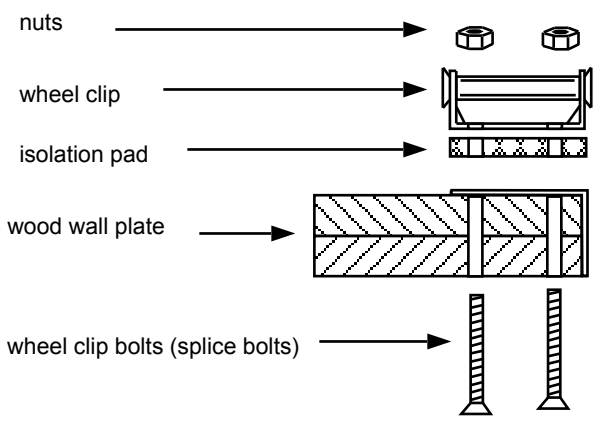
phone: 815 436 9403
fax: 815 436 1032
email: ashdome@ameritech.net

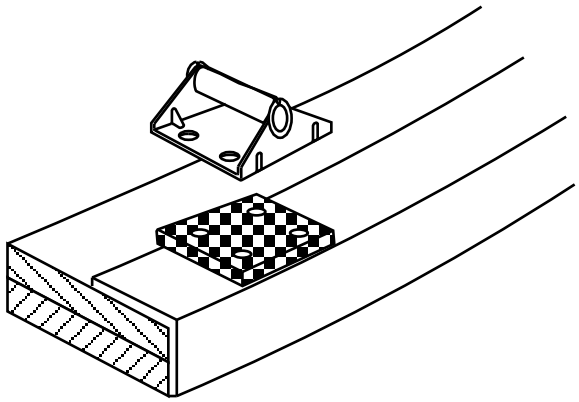
Wall Plate Assembly

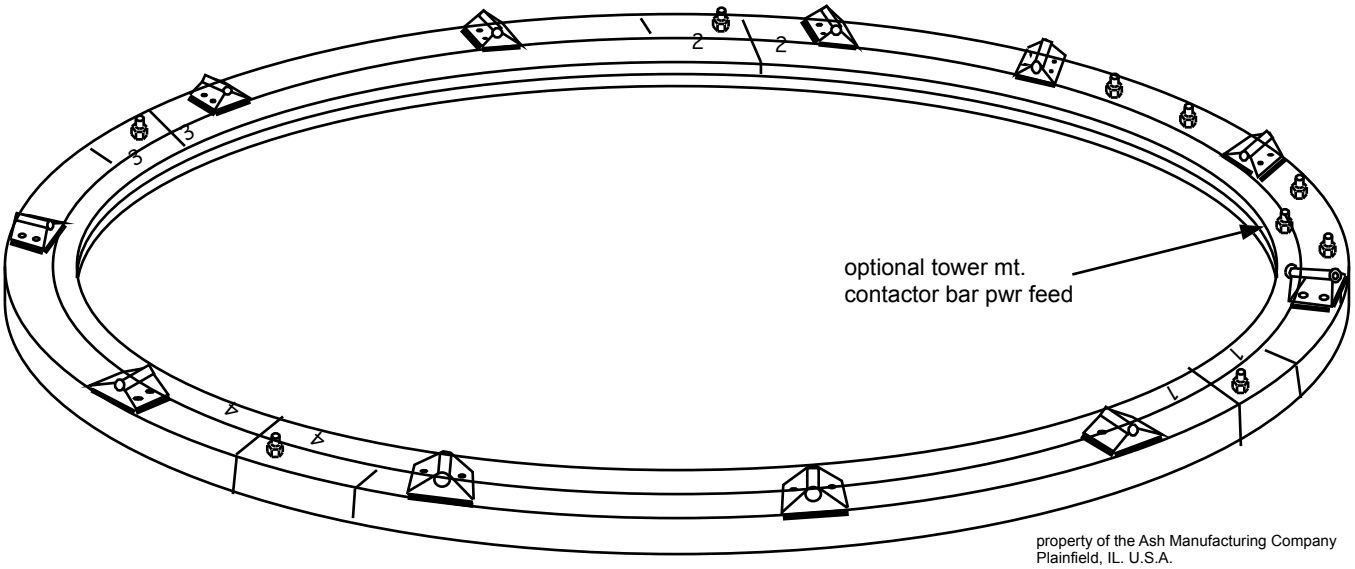
Step#1



Bolts come up through wood plate, steel trim, isolation pad and wheel clip.
TIP: Bolt holes for wheel clips will align easier if you install plate splice bolt first.







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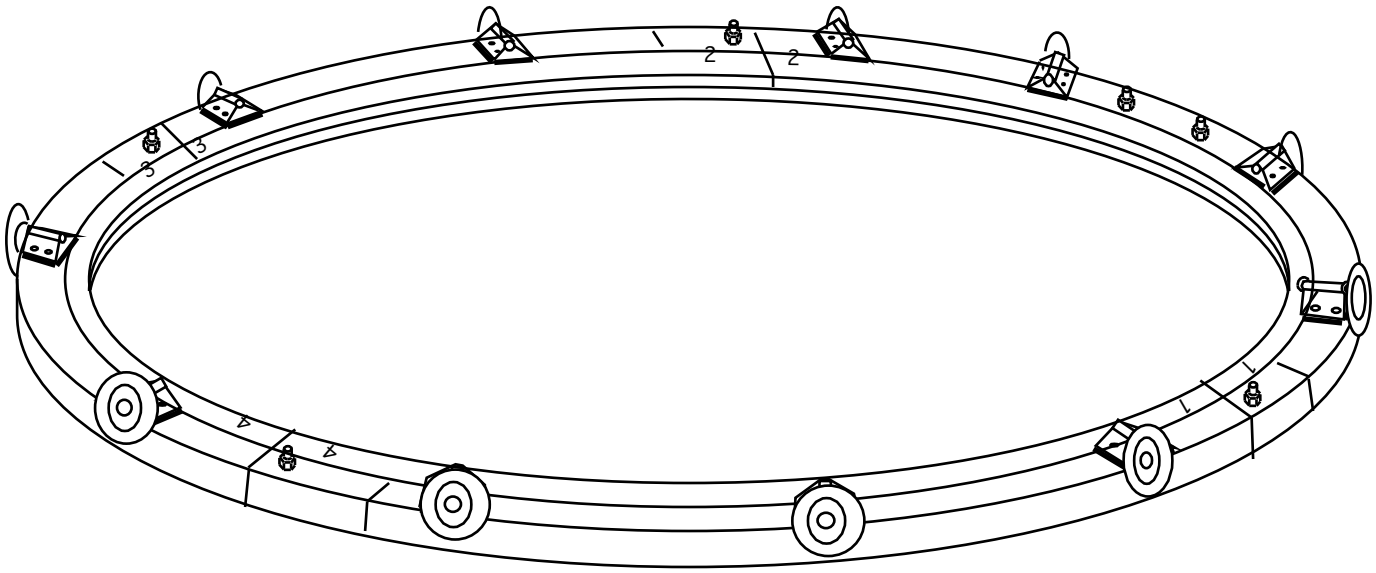
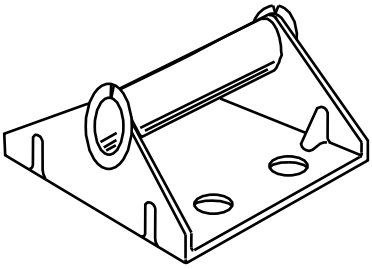
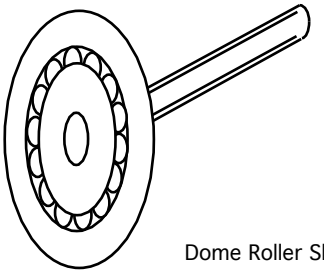
Dome Roller Installation

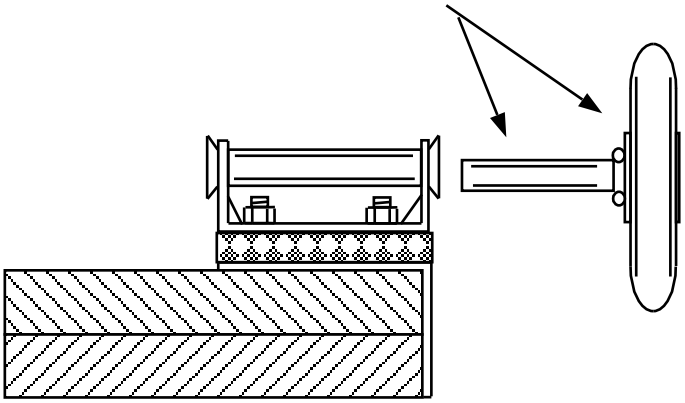
Step#1







Dome Roller Shaft & Bearing should be lubricated annually



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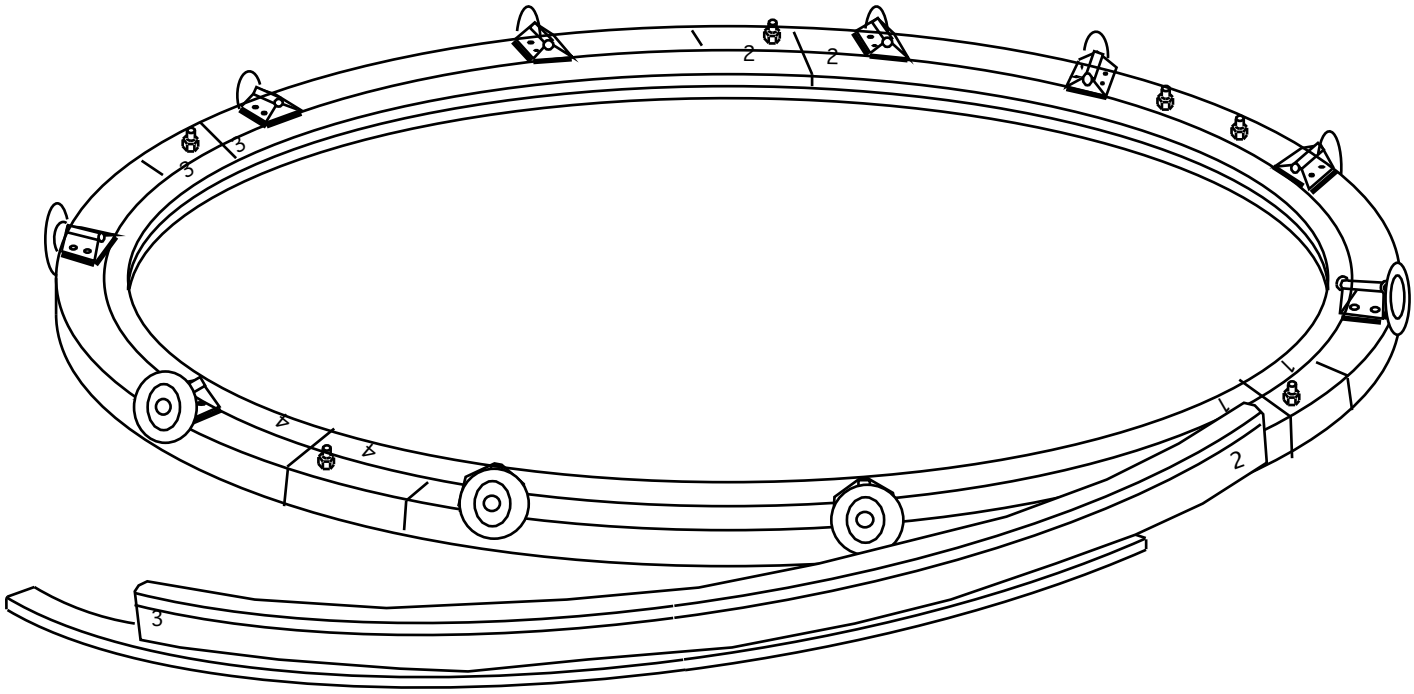
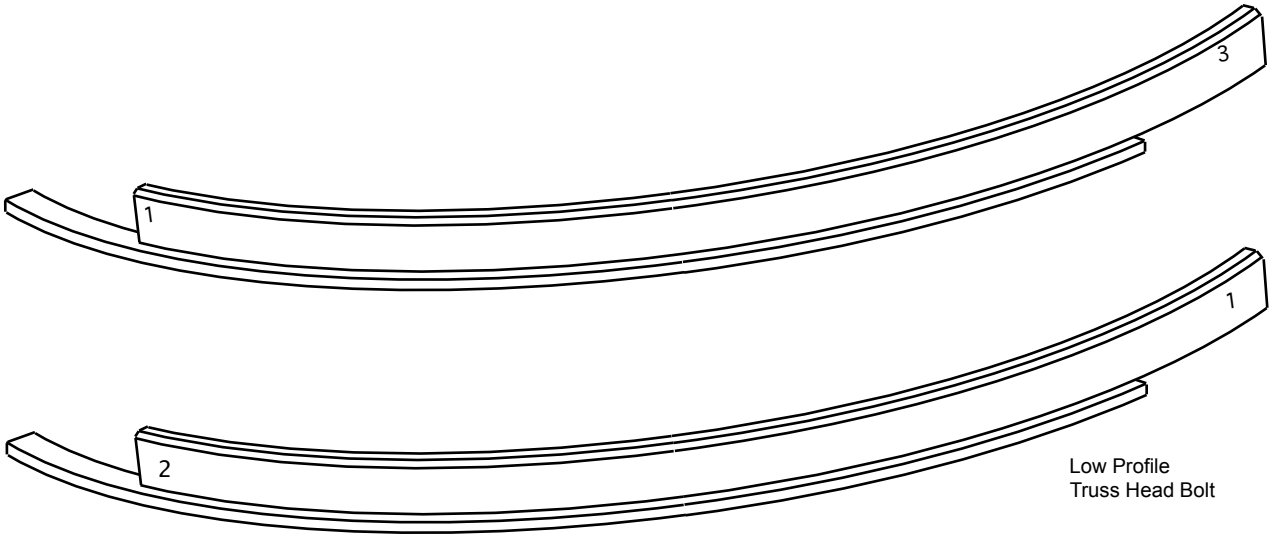
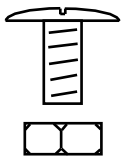
Installing Dome Bottom Track



INSIDE VIEW: To put dome track on the wall plate, place one end of the dome track over a roller and roll the track segment onto the rollers. Then roll the next track segment onto the rollers, the numbers on the track should be adjacent to each other, 1 to 1, 2 to 2, 3 to 3, etc.



Low Profile
Truss Head Bolt



Nut

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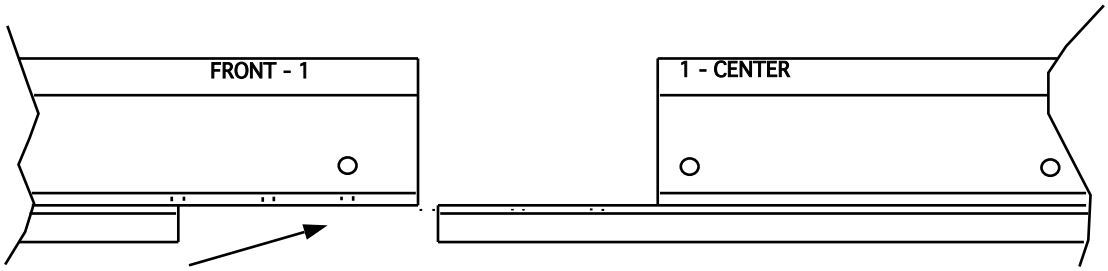
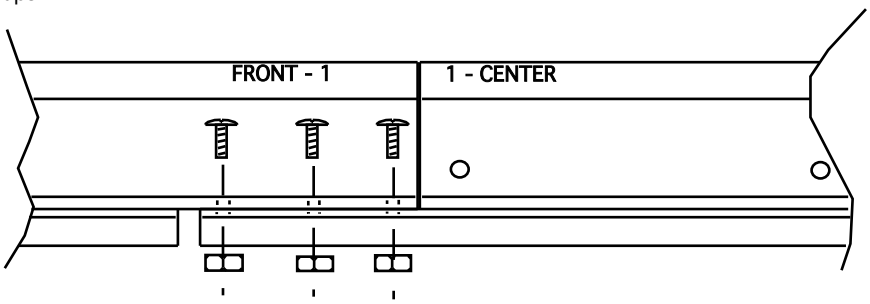
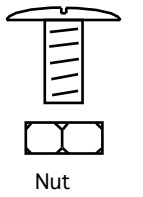
Installing Dome Support Track

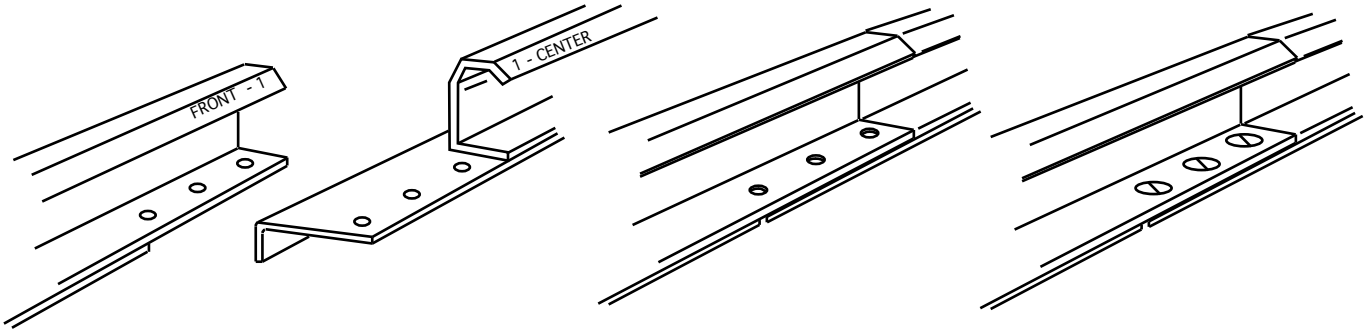
step#2



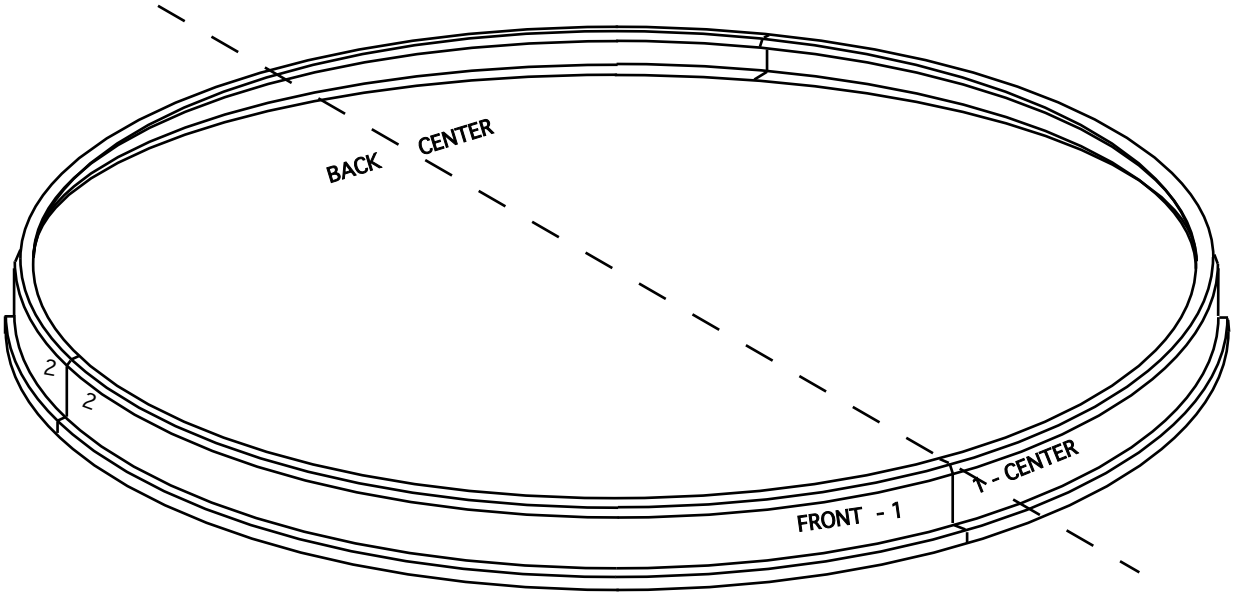




The bolts go down through the track , nuts on the bottom, this lets the dome track turn without hitting the bolts.



TIP: Assemble all dome track segments with the nuts and bolts finger tight. Then tighten all of them.



FRONT & BACK CENTER are always across from each other and will be your references during the construction.

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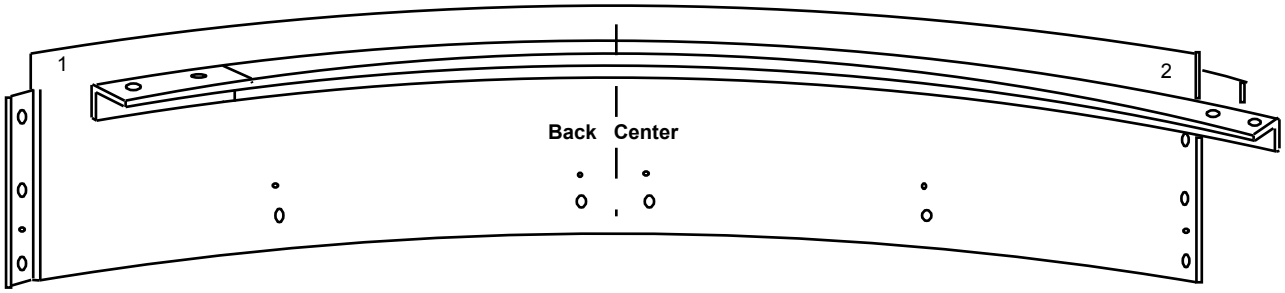
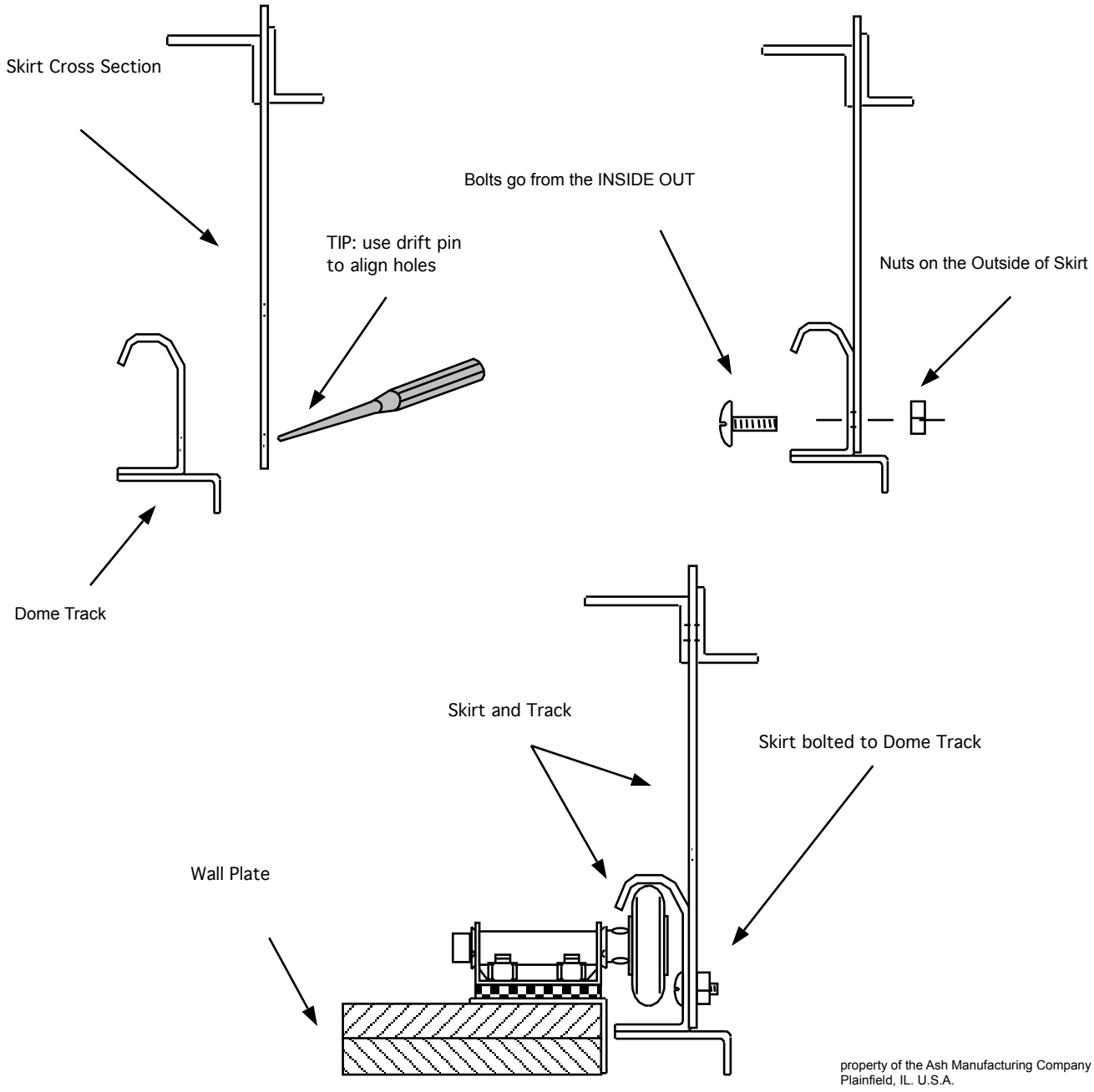
Dome Skirt Assembly



BACK CENTER is usually located in the center of a skirt panel
Panels fit 1 to 1, 2 to 2, 3 to 3, ect.



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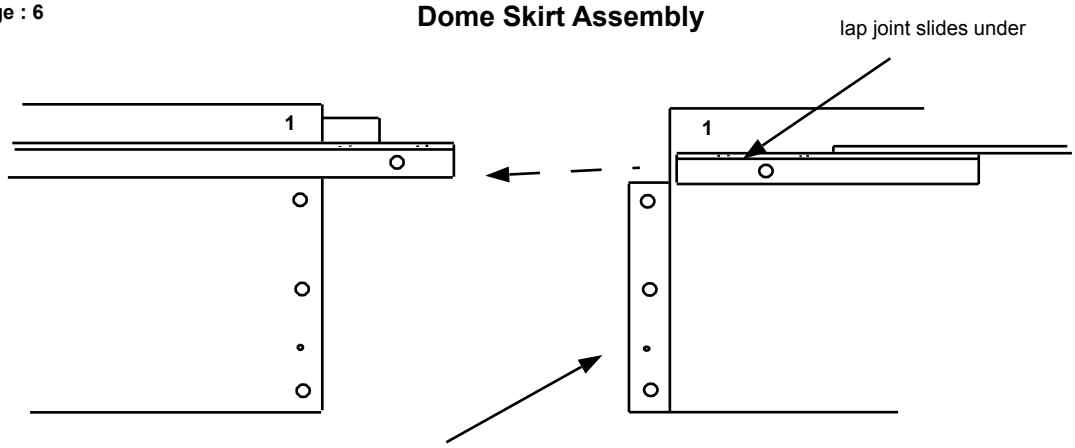
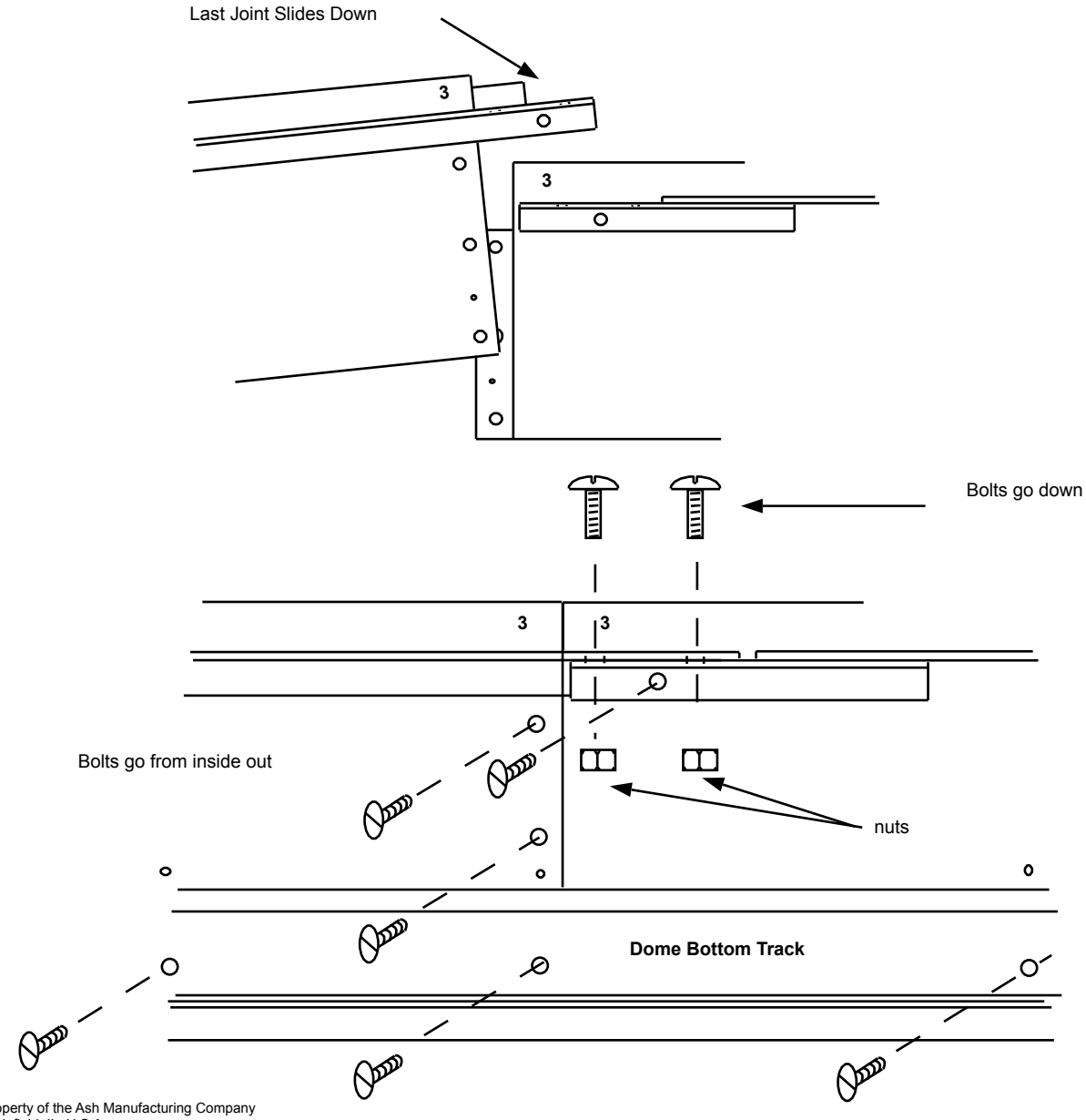
Dome Skirt Assembly



Skirt Tab goes over outside of adjacent panel, 1 to 1, 2 to 2, 3 to 3, ect.



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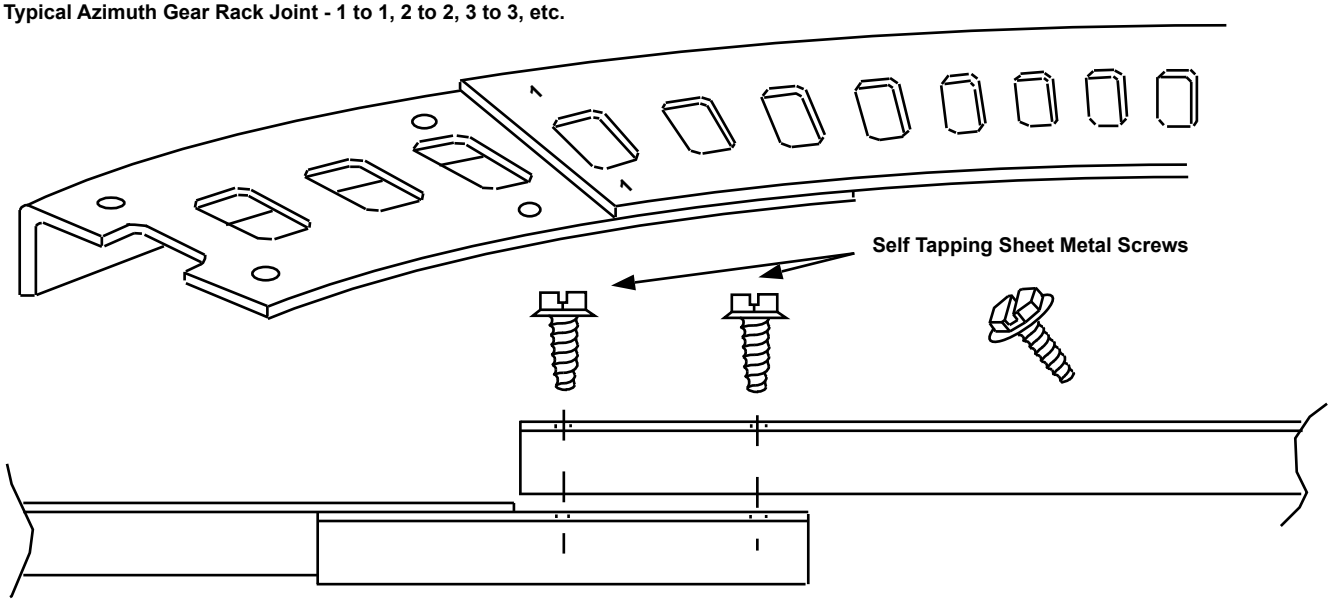
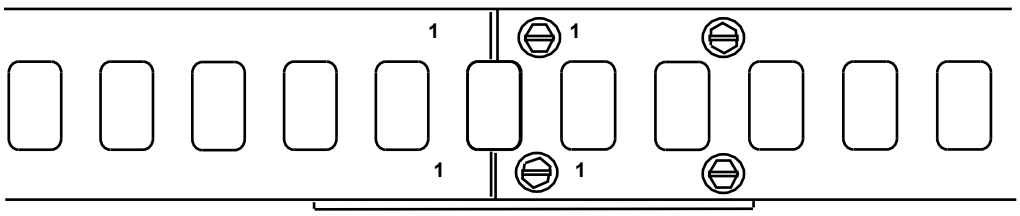
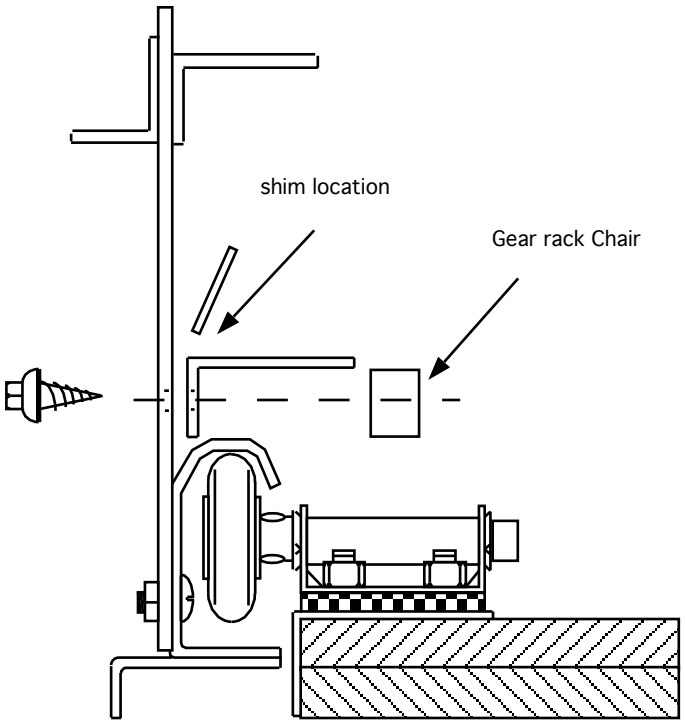
Azimuth Gear Rack Installation

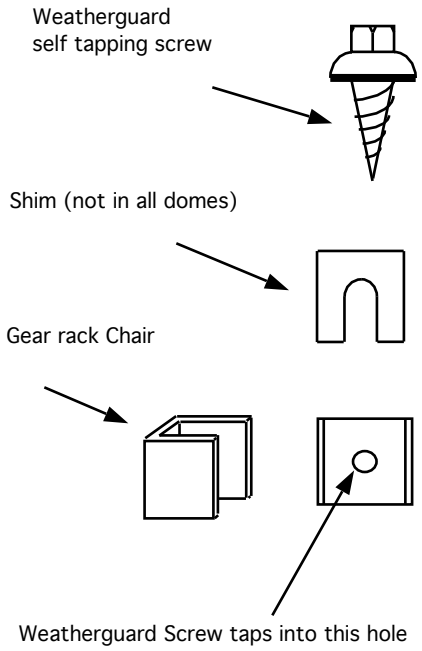
Typical Azimuth Gear Rack Joint - 1 to 1, 2 to 2, 3 to 3, etc.



Top View







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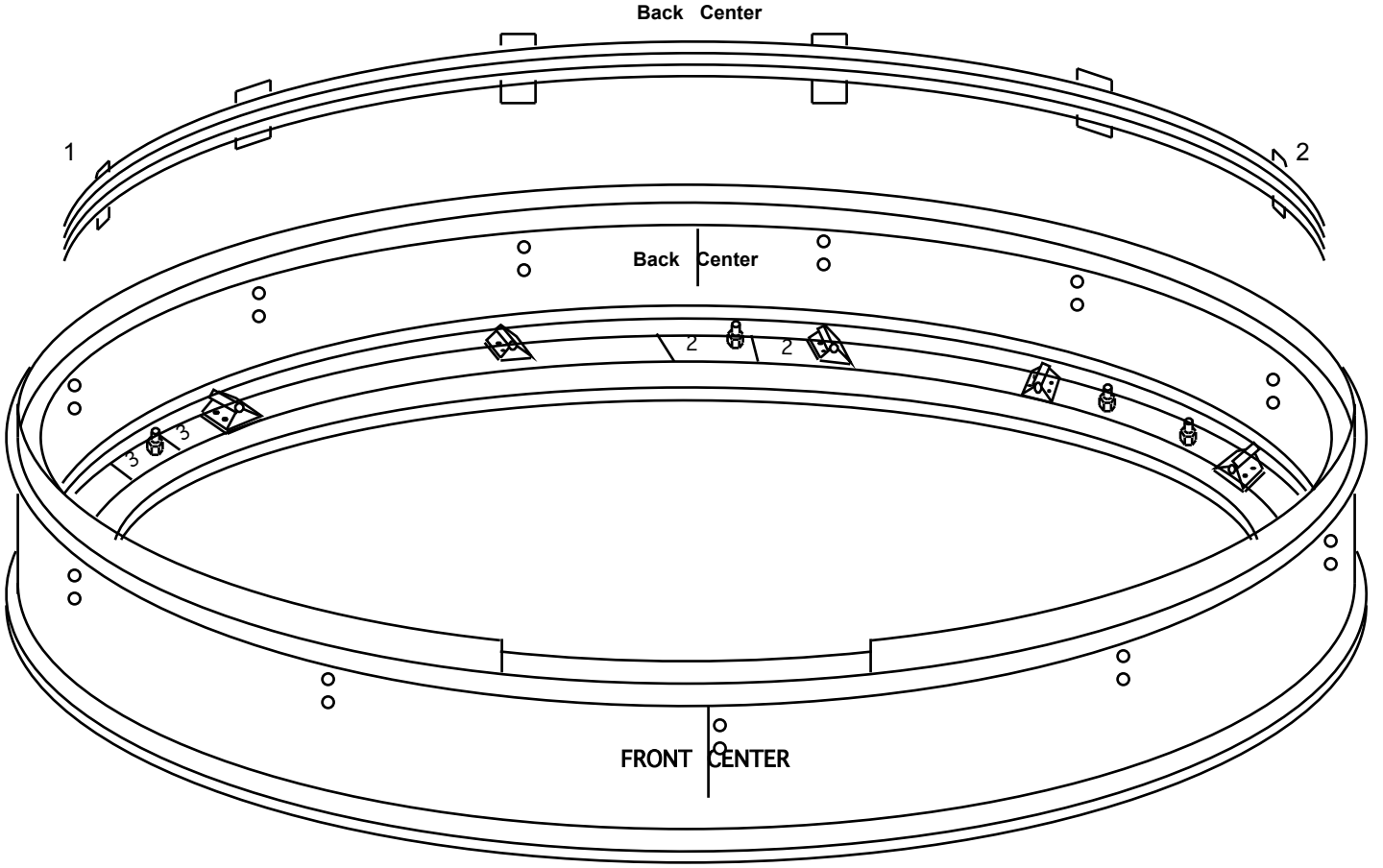
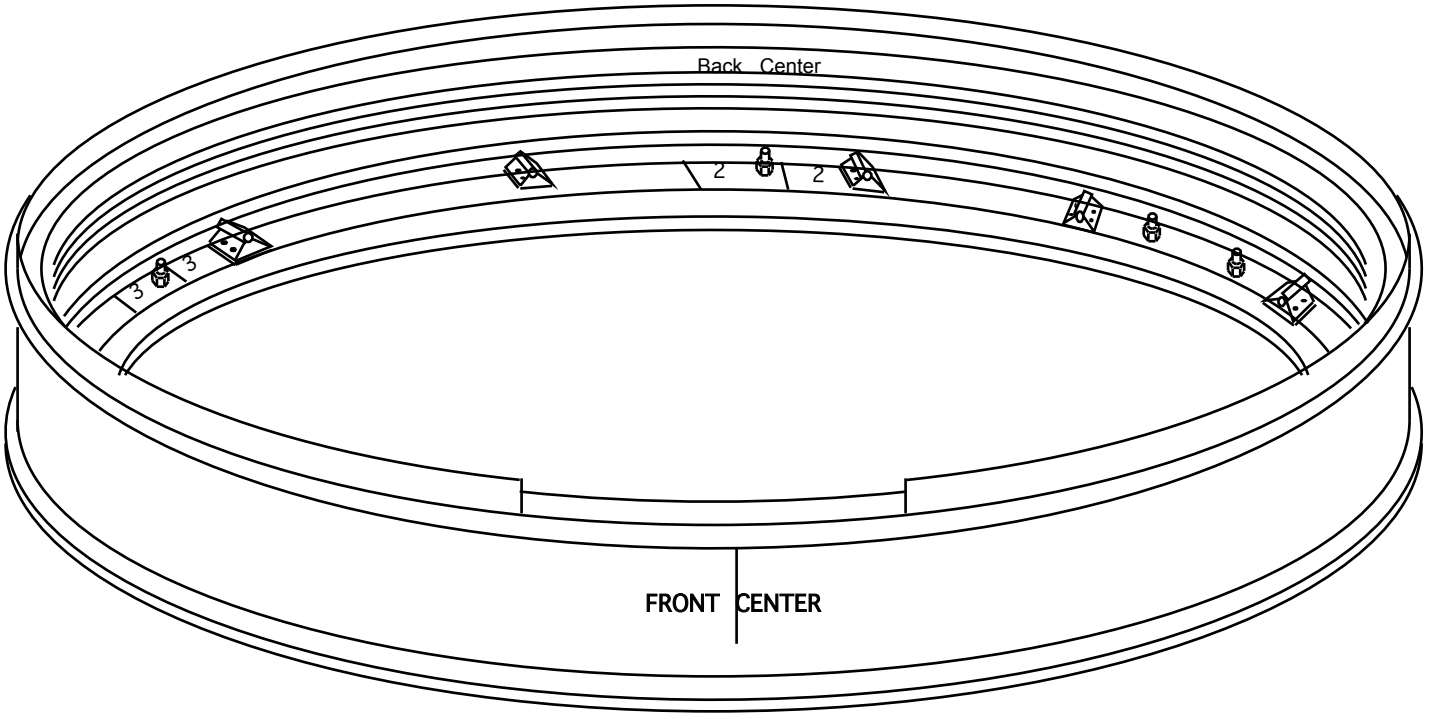
Ash-Dome

Contactor Bar Instructions (slip rings)

Install contactor bars before putting up the roof sheets.
Check all plastic hangers to insure they are secured on bars.





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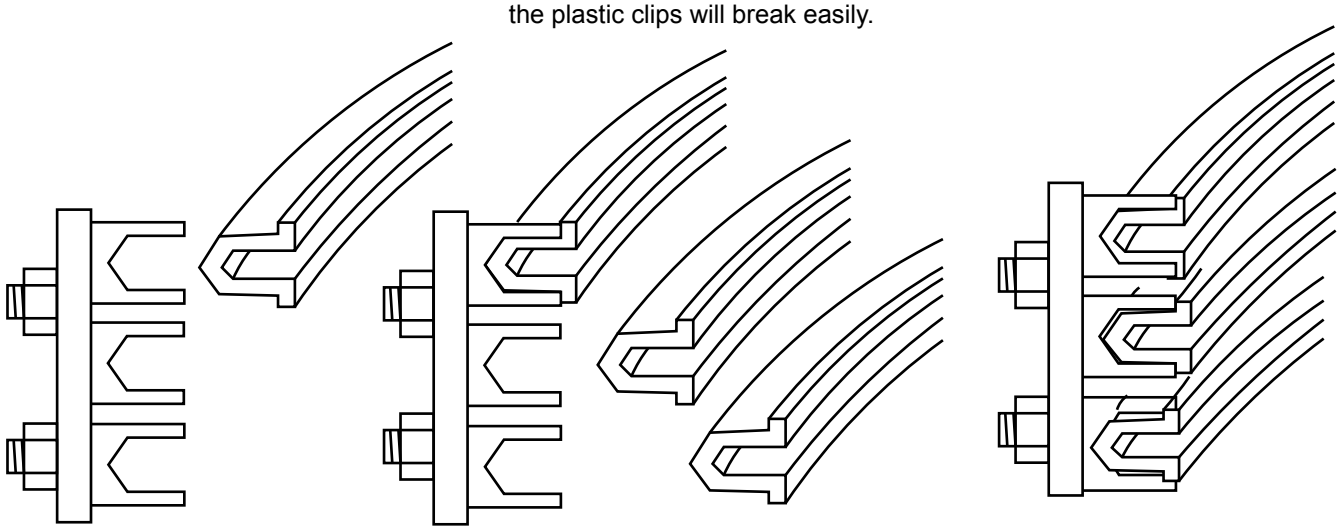
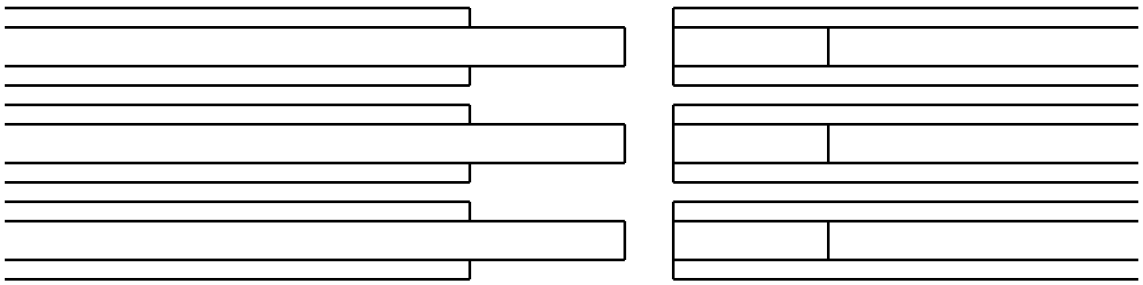
Ash-Dome

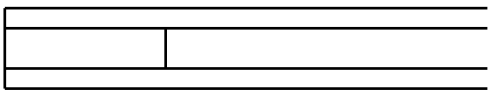
Contactor Bar Instructions (slip rings)

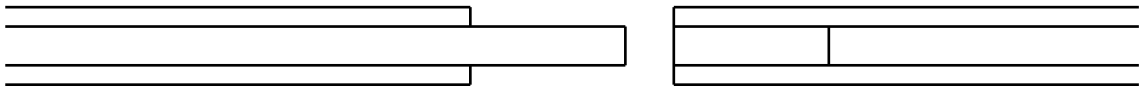
Becareful snaping contactor bars into place
the plastic clips will break easily.





contactor bars interlock





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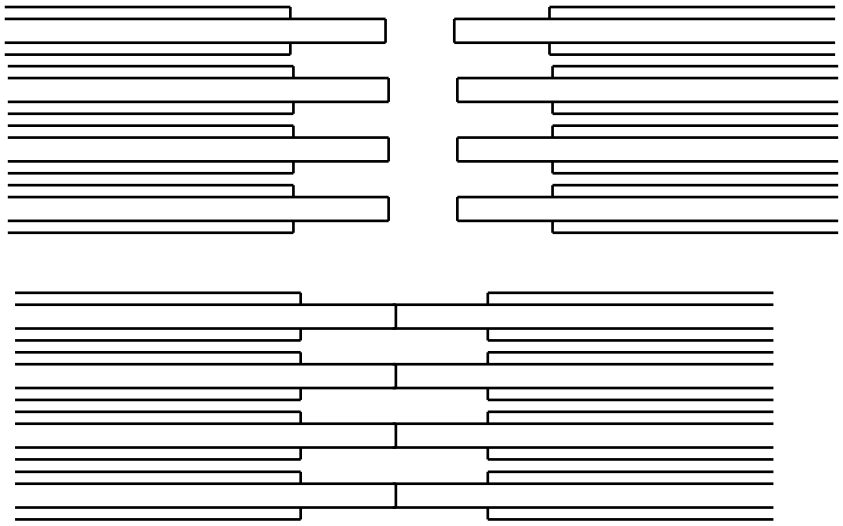
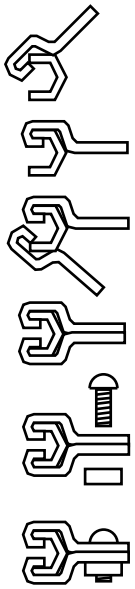
Ash-Dome

Contactor Bar Instructions (slip rings)

The last joint on every contactor bar will need to be spliced using the copper splice kits.

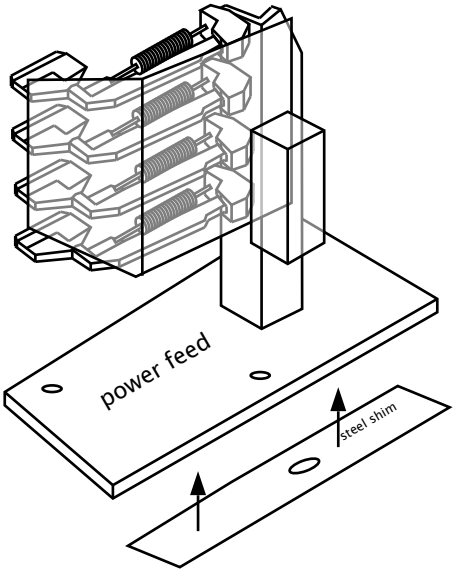


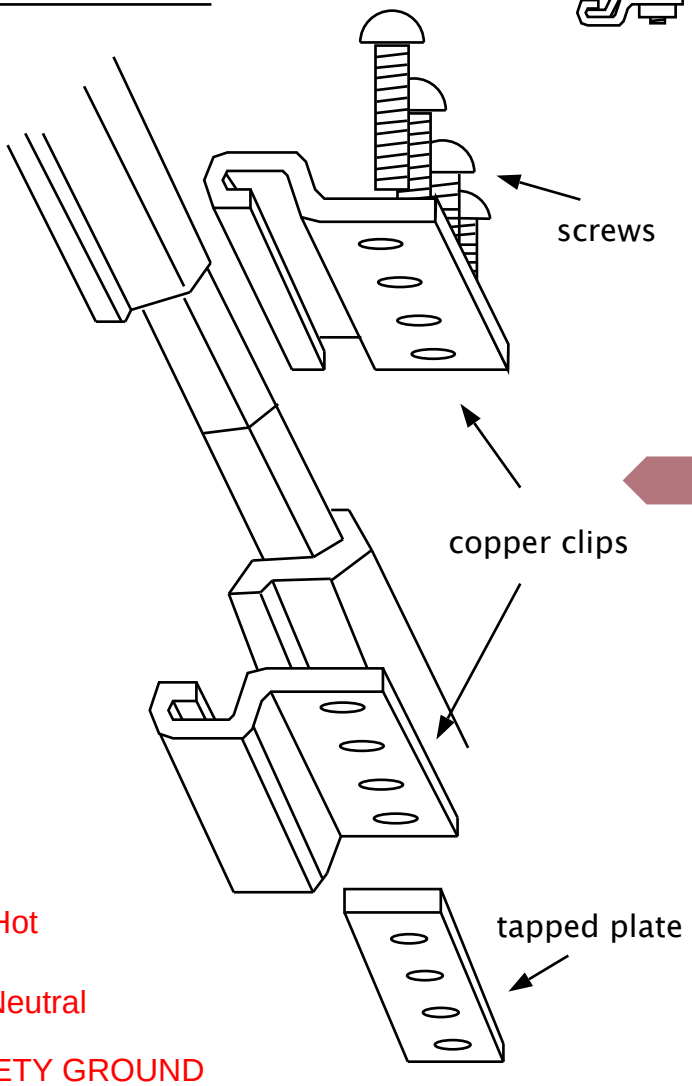


copper clips
secure bottom and
top of contaactor bar

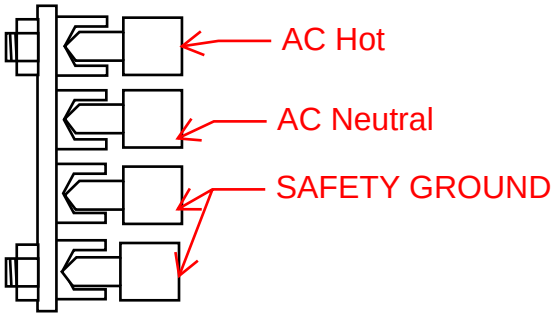
screws thread into
tapped plate

The power feed mounts on the Ash-Dome Wall Plate Assembly in between roller fixtures. Choose a location close to electrical power when installing dome wall plate assembly.





brush contacts will need to be adjusted with light pressure between spring arm and contractor bar



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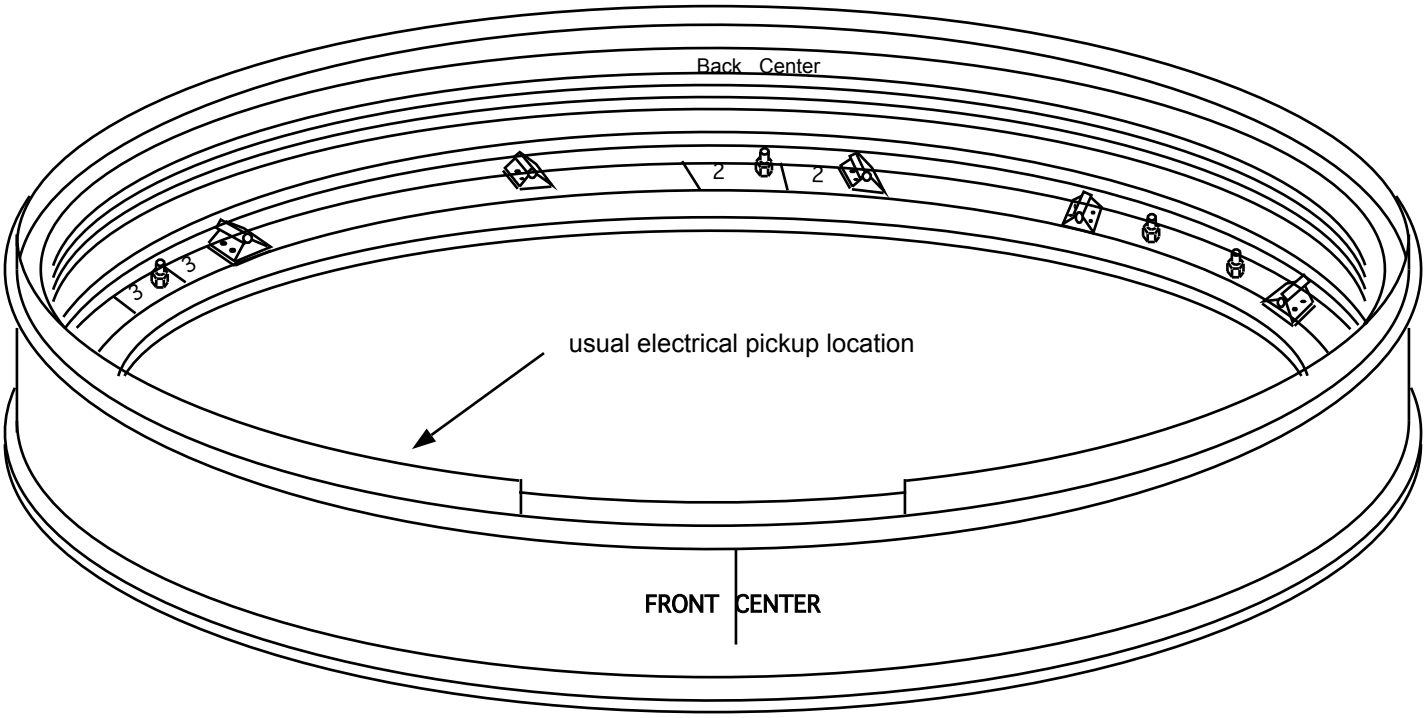
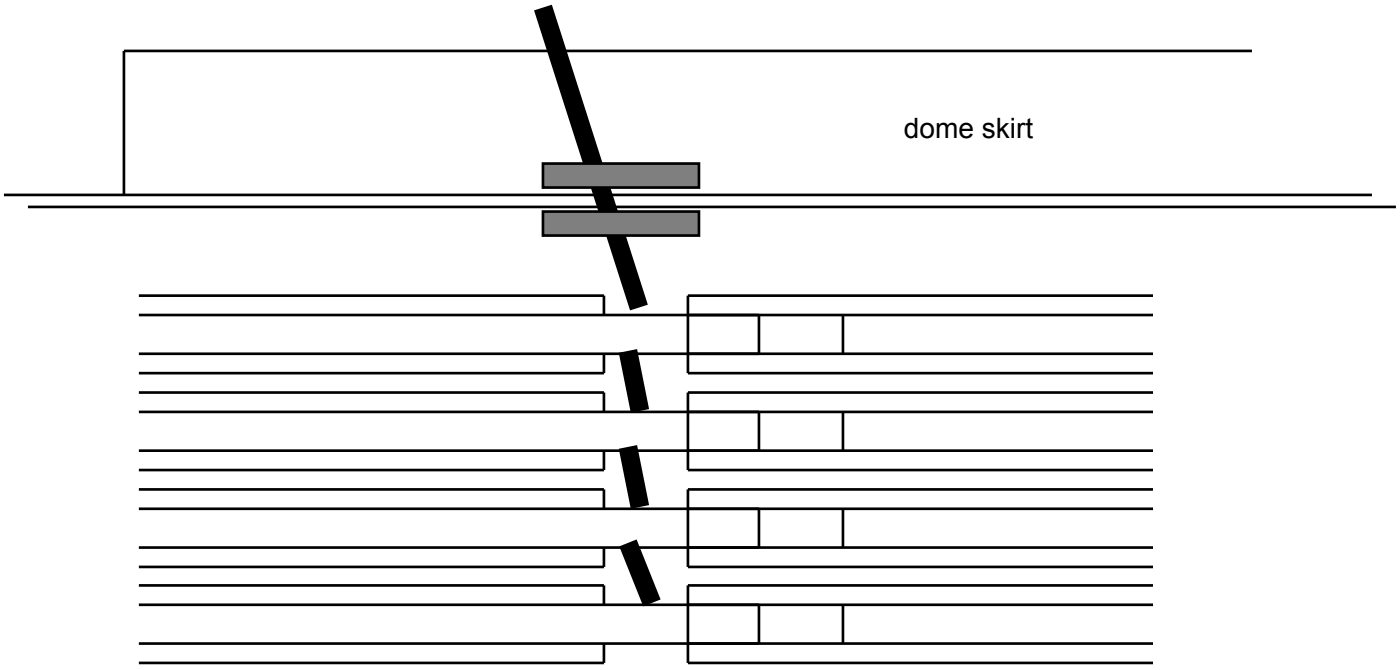
Ash-Dome

Contactor Bar Instructions (slip rings)

The line from the switch runs through rubber grommet.





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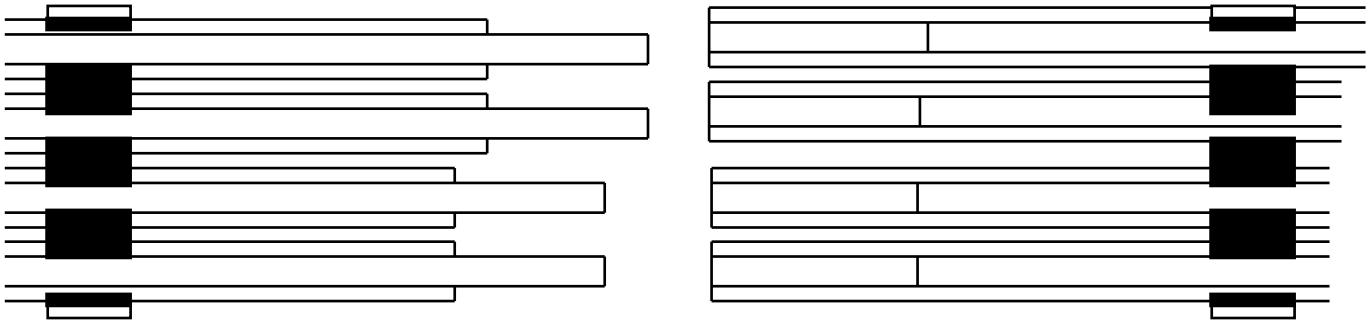
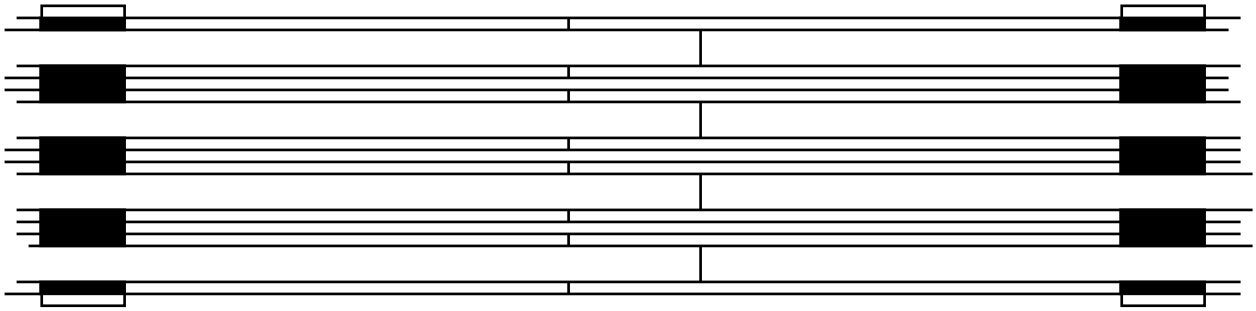
Ash-Dome

Contactor Bar Instructions (slip rings)

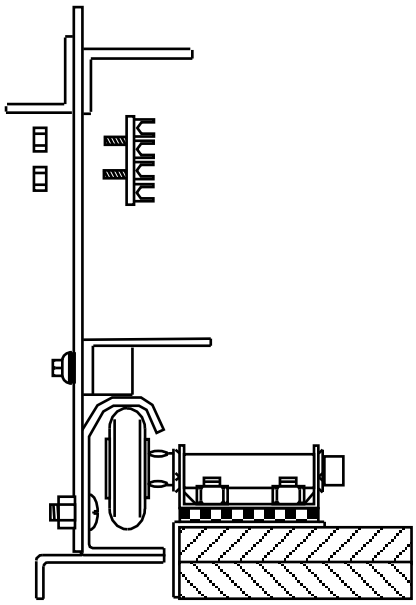
Start in BACK CENTER, work either direction, right or left.

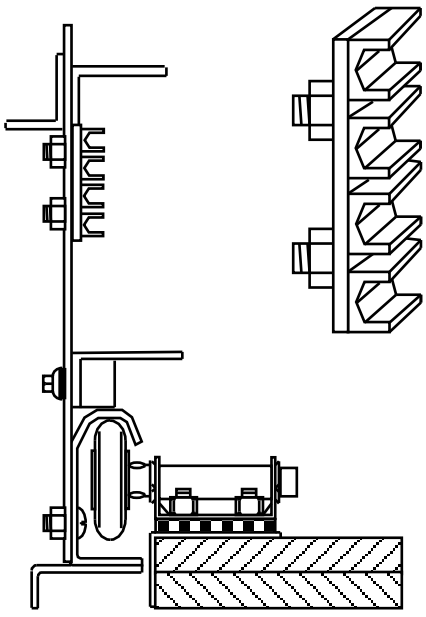


joints interlock



No. 1 interlocks to No. 1, 2 to 2, 3 to 3, 4 to 4, ect.
All interlocking joints MUST HAVE covers on before operating the dome drives.





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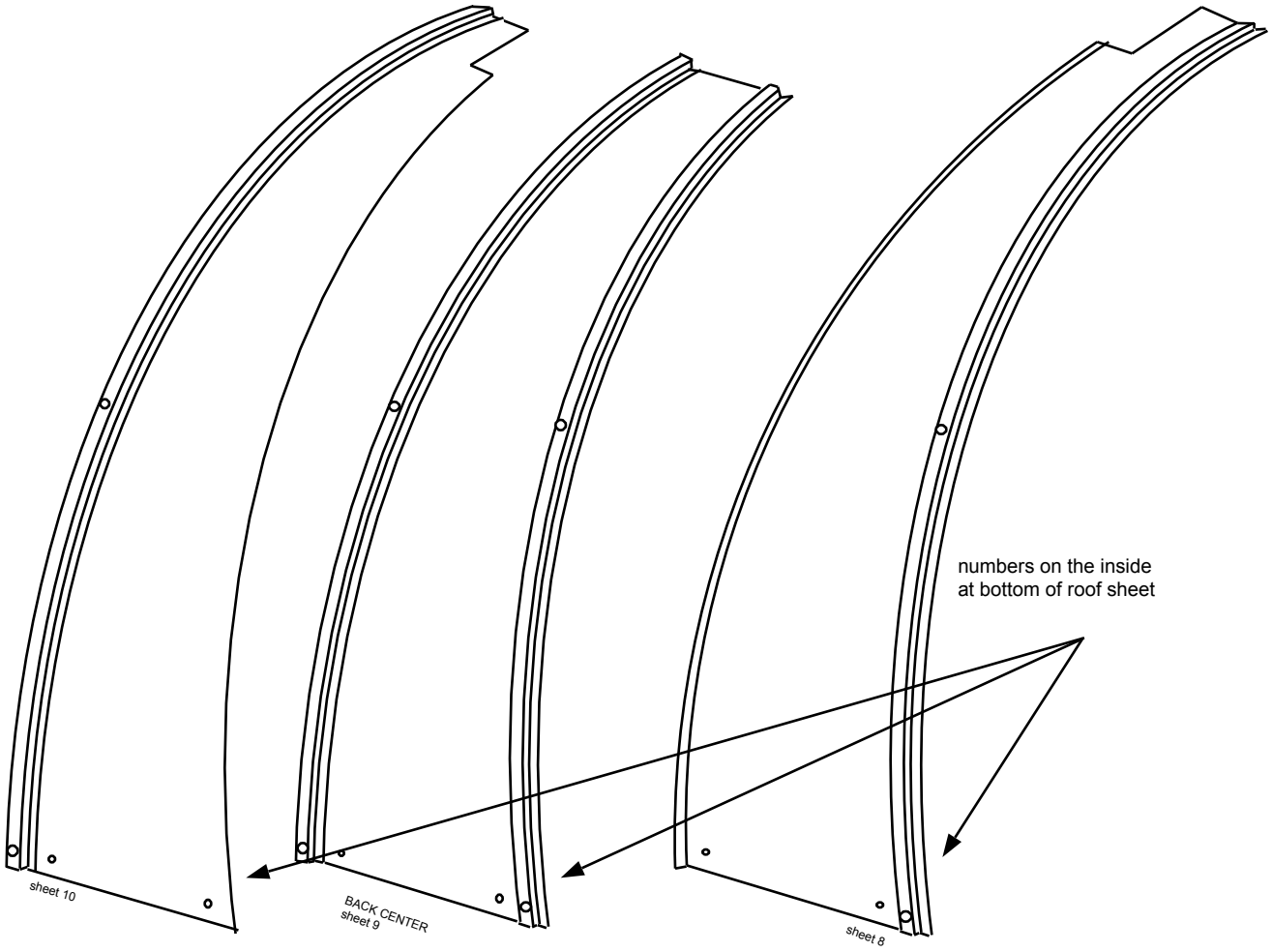
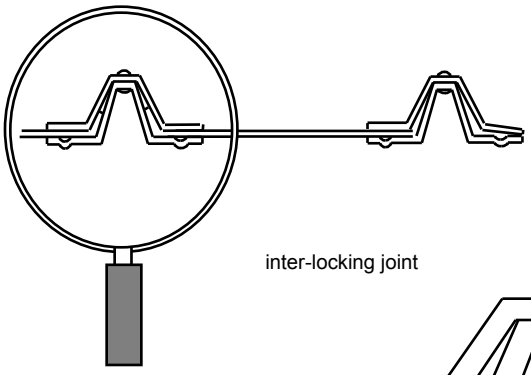
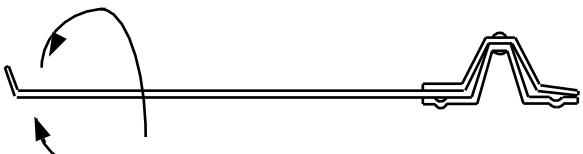
Installing Dome Roof Sheets - Layout

EXAMPLE

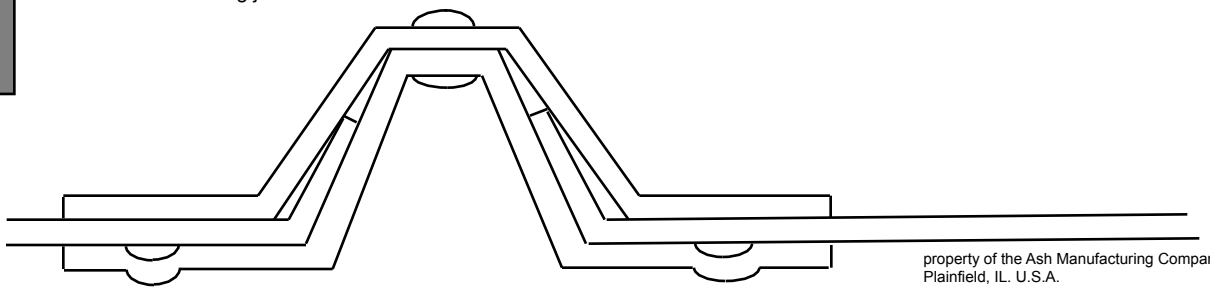




inter-locking joint



TIP: use soap or wax to lubricate interlock
both sides of sheet
DO NOT USE OIL- oil will stain the roof



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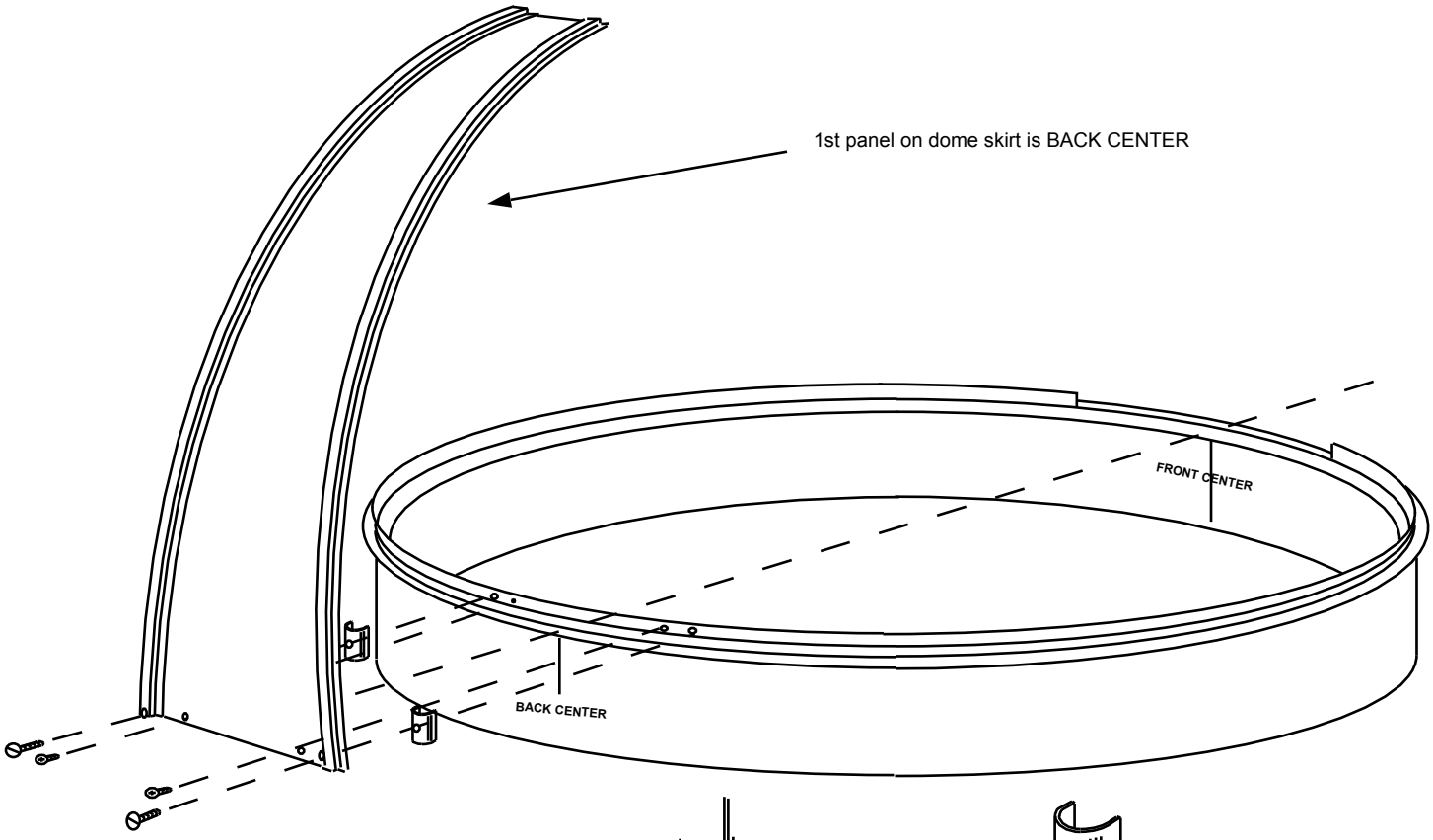
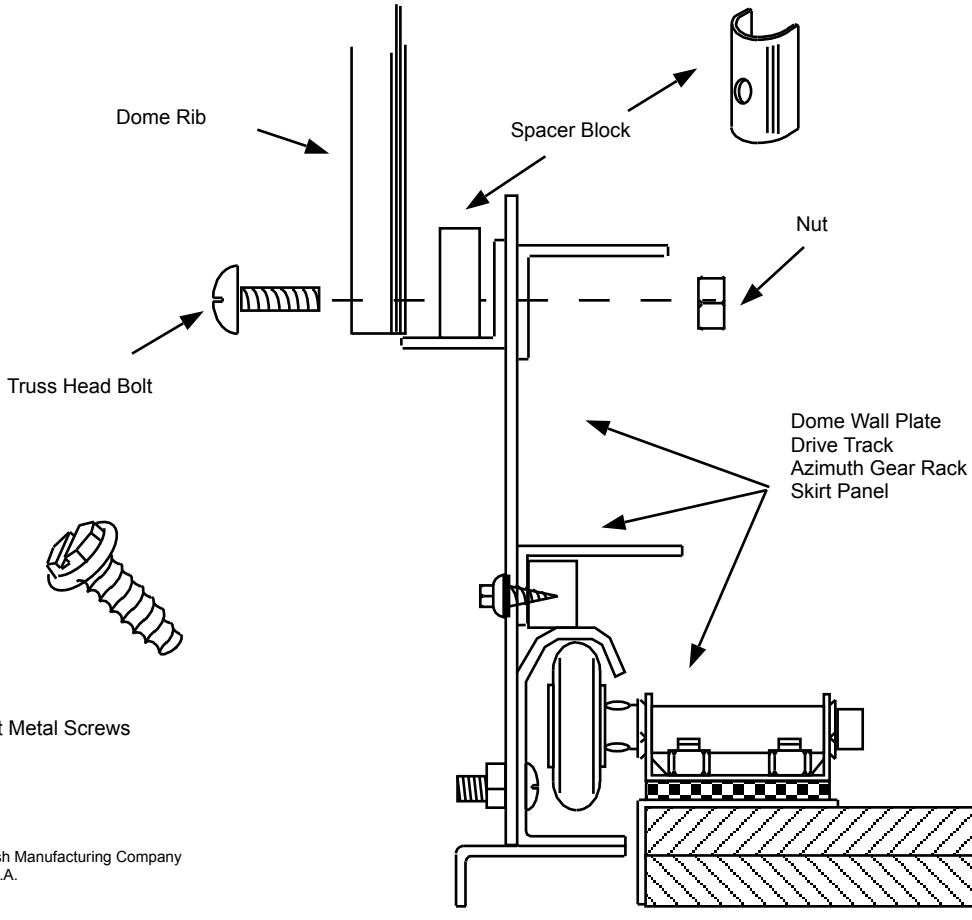
Installing Dome Roof Sheets





18-8 SS - Self Tapping Sheet Metal Screws

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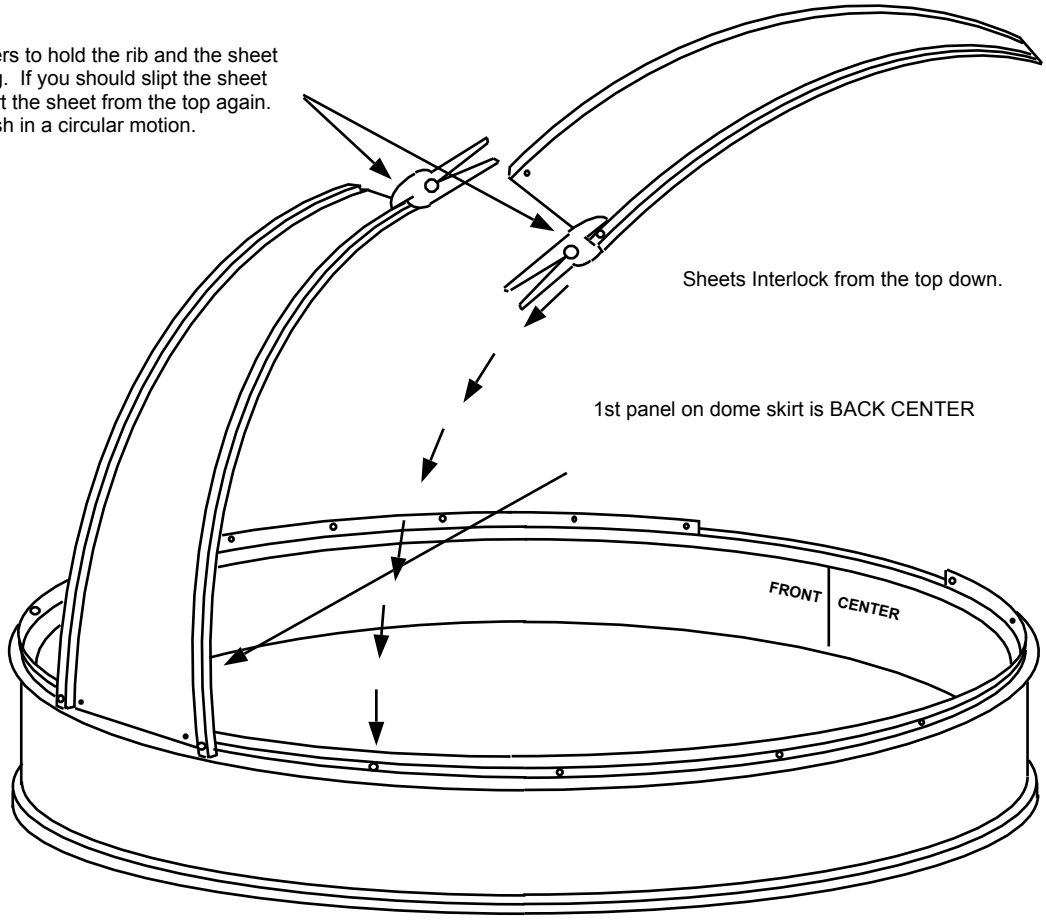
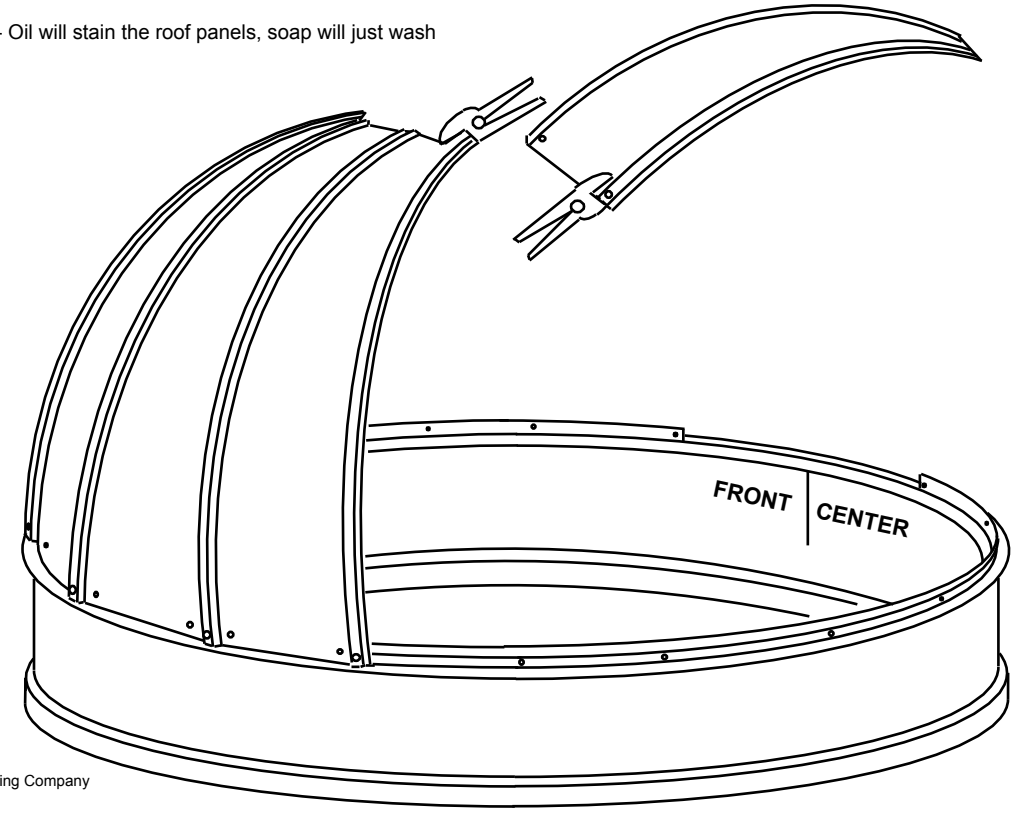
Dome Roof Panels

TIP: Use locking plyers to hold the rib and the sheet together when sliding. If you should slipt the sheet and rib you must start the sheet from the top again. Wear gloves and push in a circular motion.



When sliding the roof panels you may squirk a liquid soap into the joints to ease the assembly.

DO NOT USE OIL - Oil will stain the roof panels, soap will just wash away in time.



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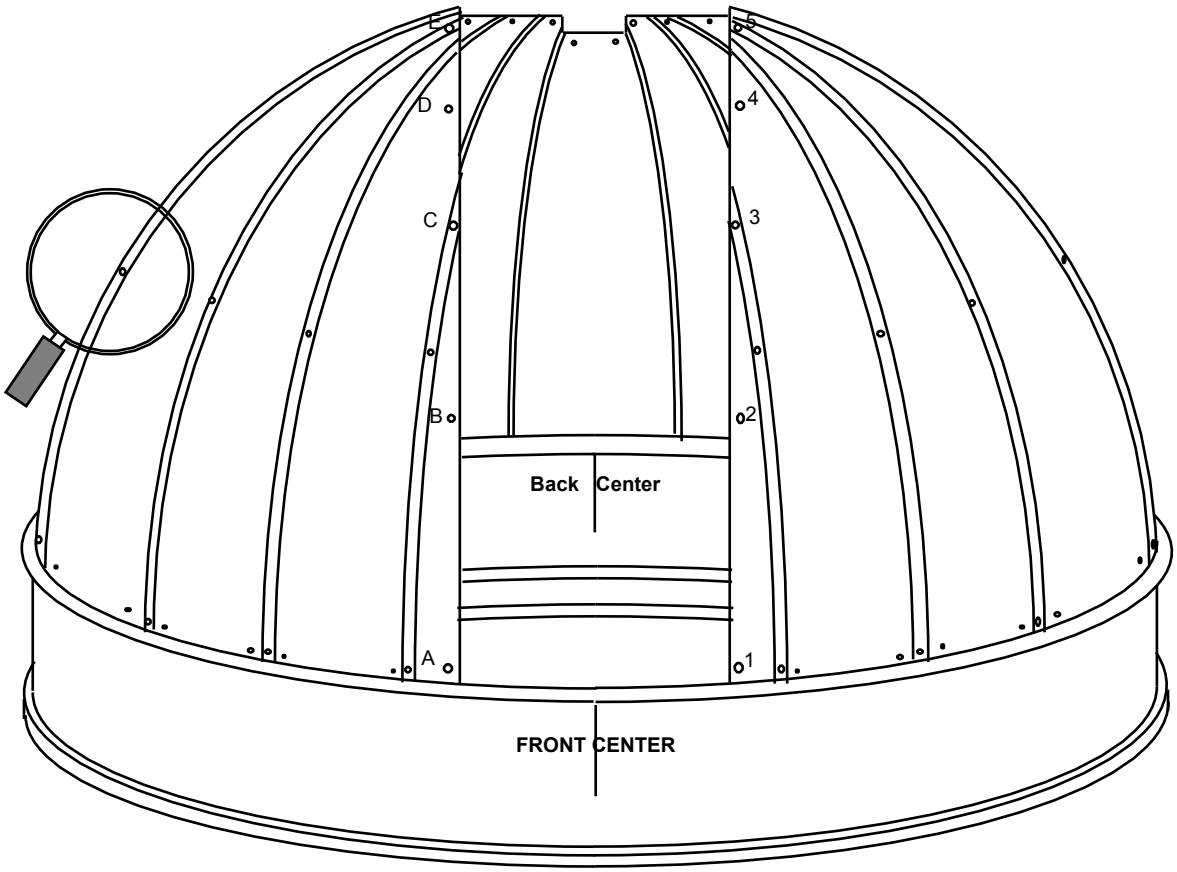
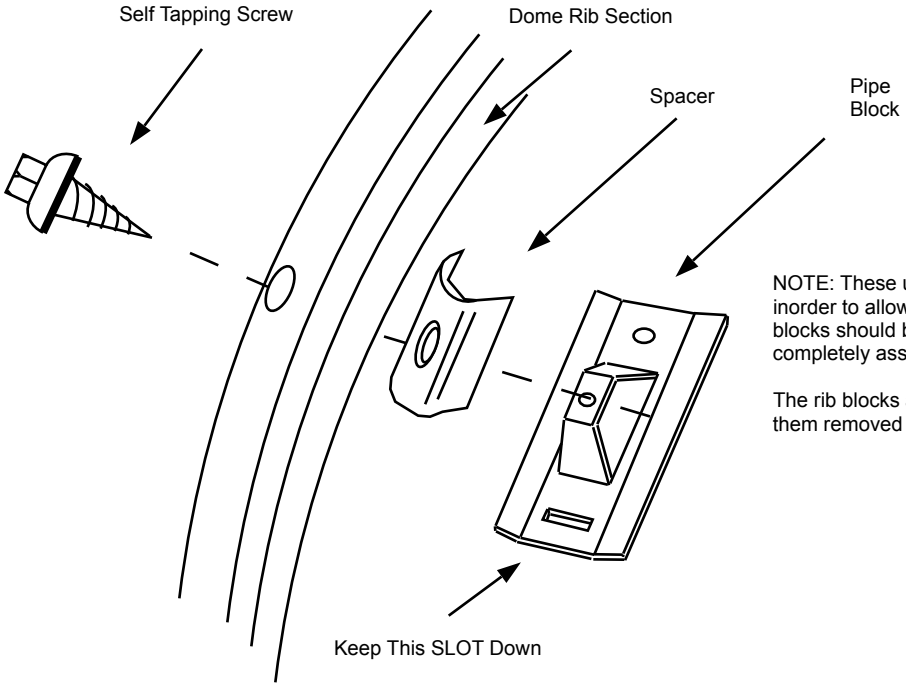
Installation of Pipe Reinforcing Blocks





NOTE: These units are shipped without the pipe rib blocks inorder to allow the roof sheets to be packed properly. These rib blocks should be installed after the roof sheets have been completely assembled.

The rib blocks also tighten the ribs on the roof panel and having them removed will let the sheets slide easier.

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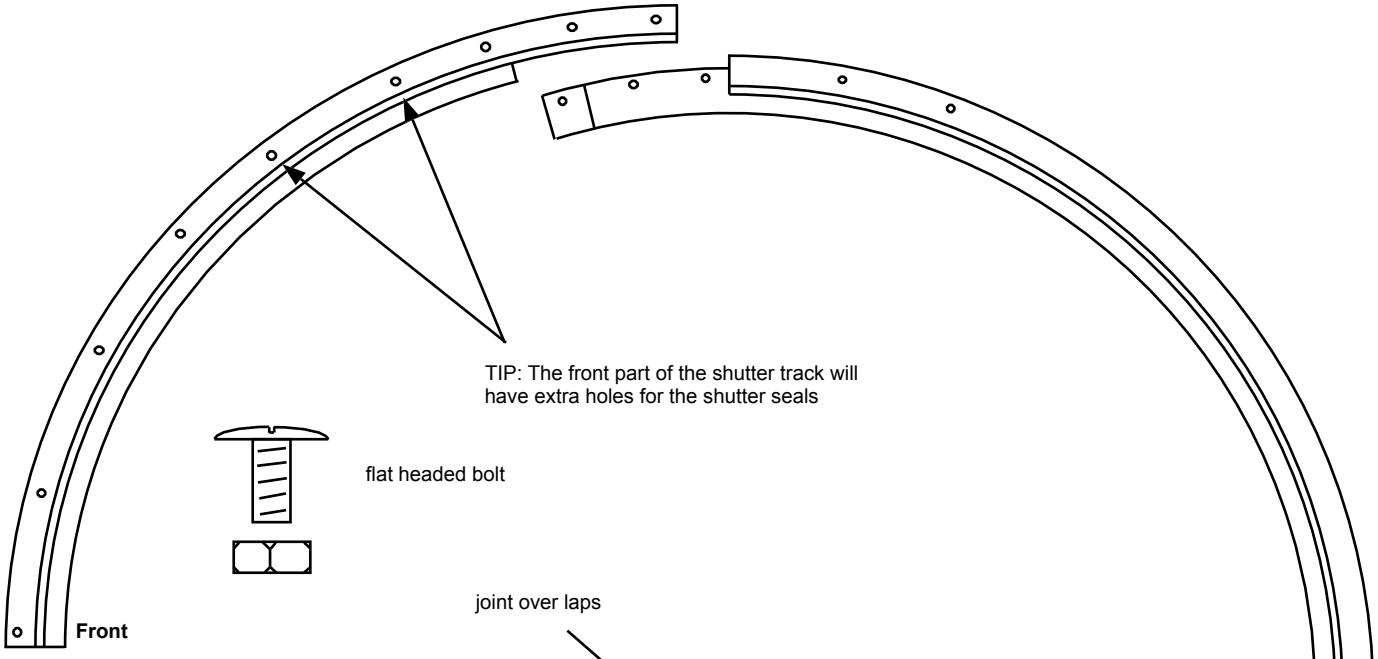
Shutter Track Assembly

NOTE: The shutter tracks are right and left sides

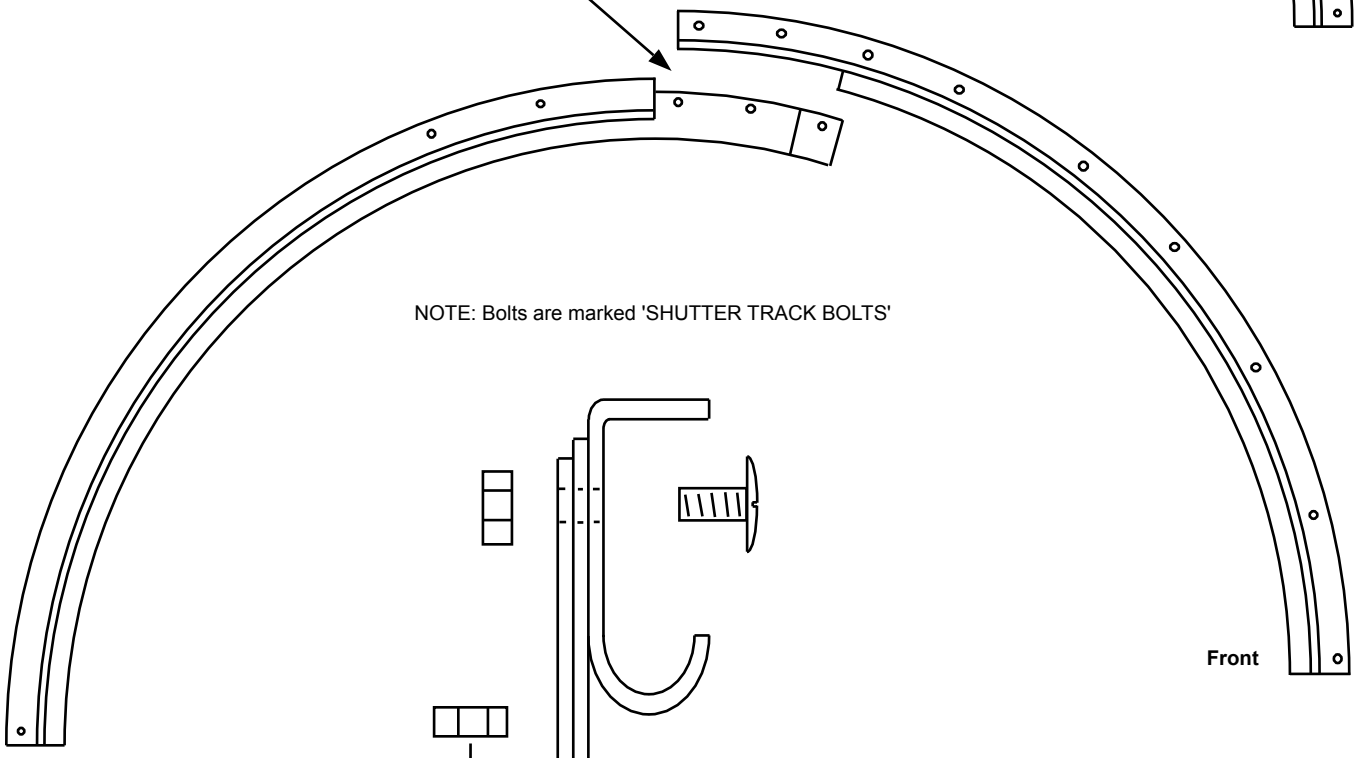


TIP: The front part of the shutter track will have extra holes for the shutter seals

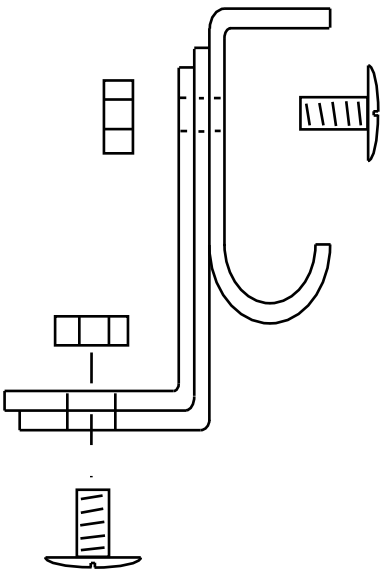
flat headed bolt

Front

joint over laps



NOTE: Bolts are marked 'SHUTTER TRACK BOLTS'



Front

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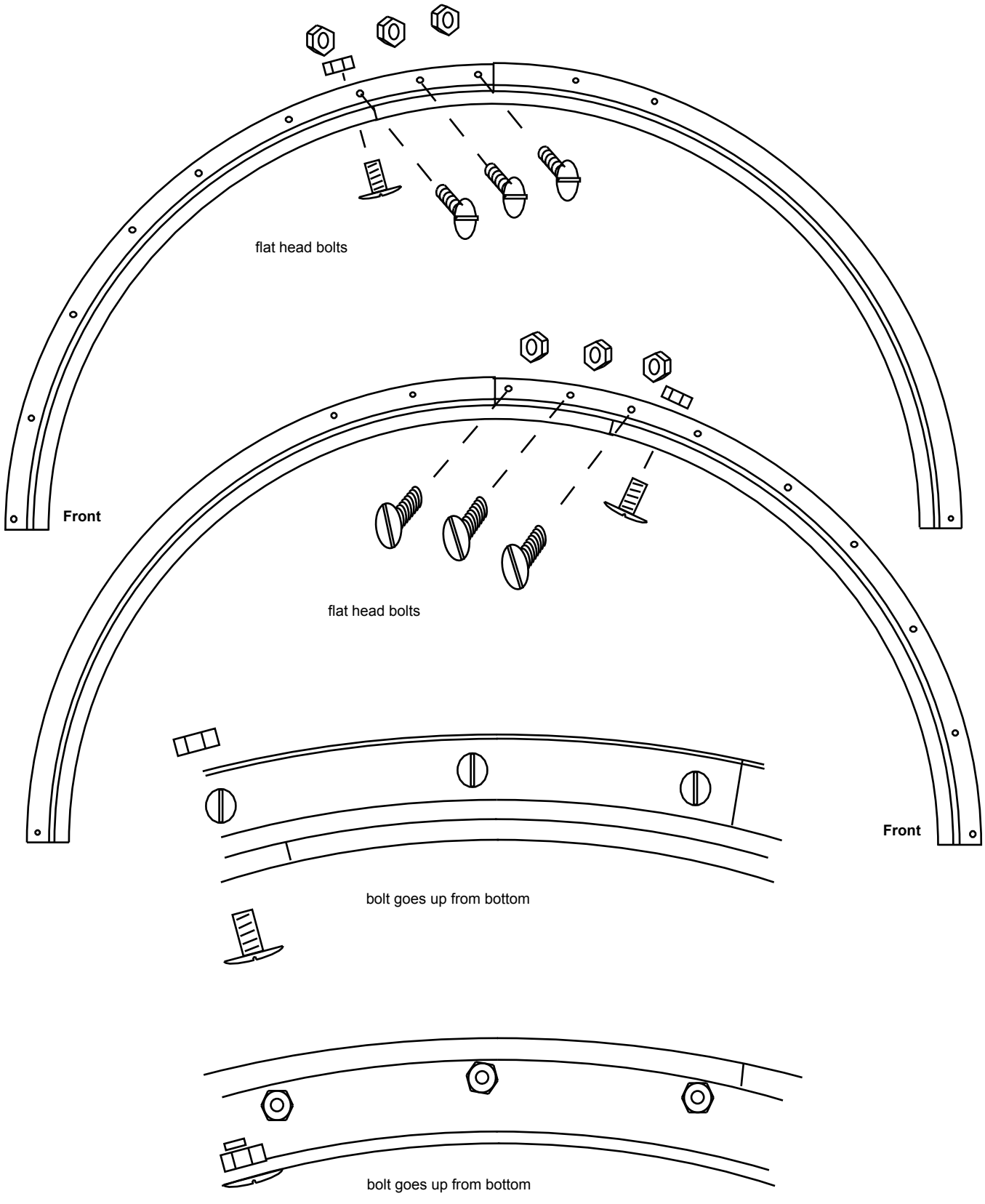
Shutter Track Assembly



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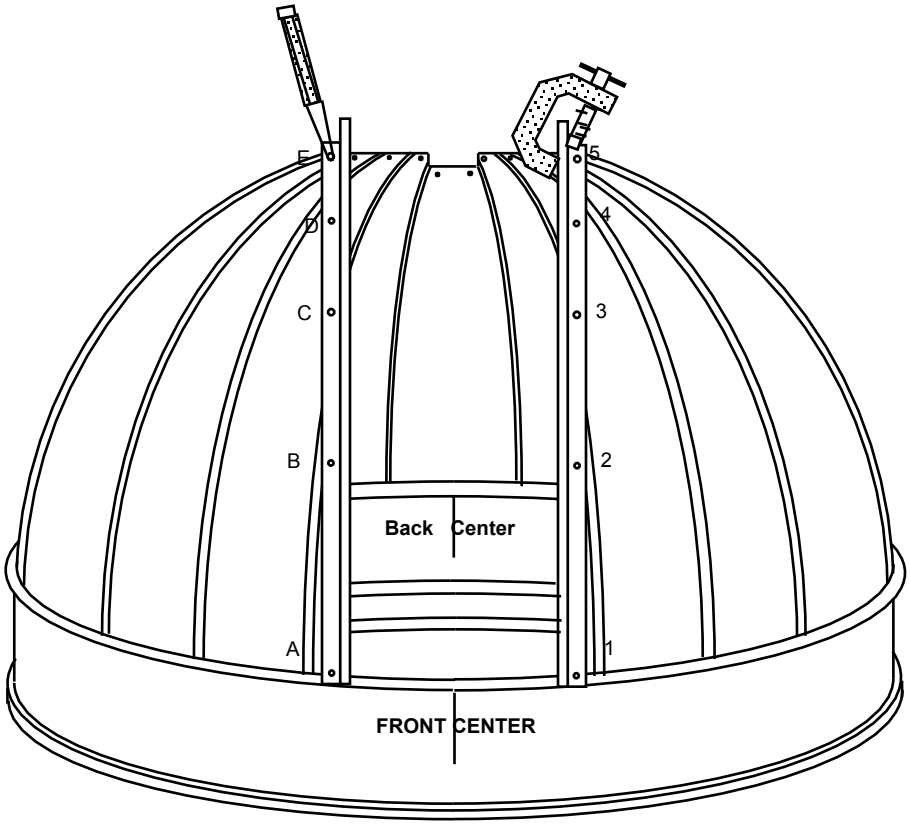
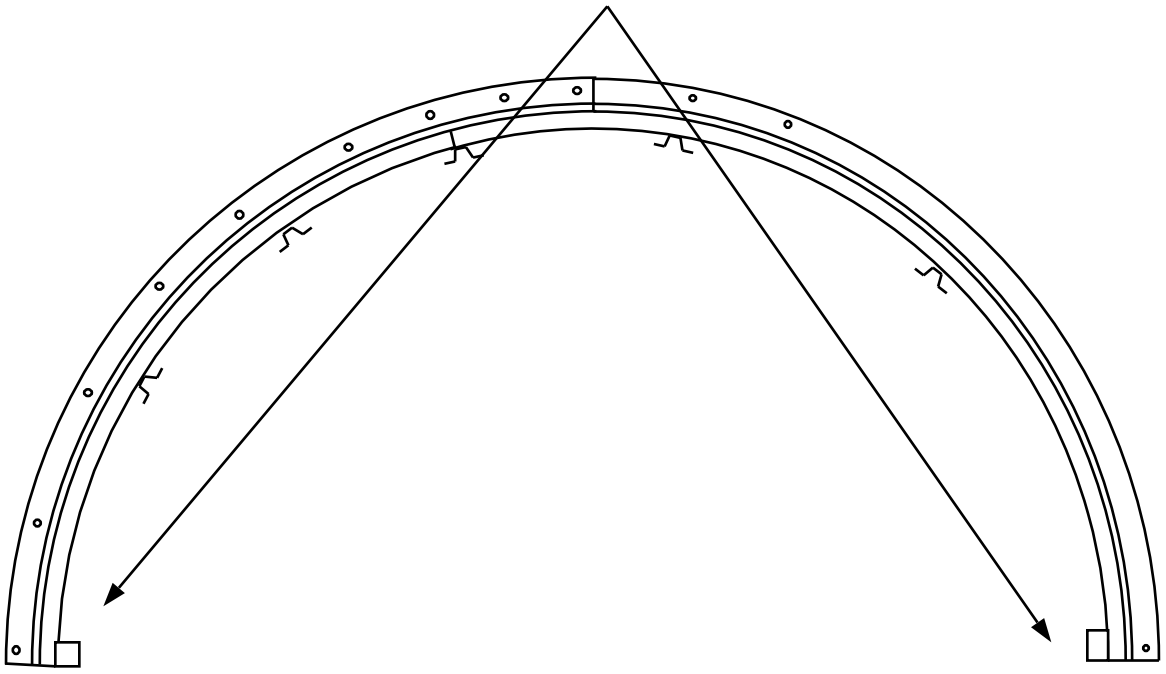
Installing Shutter Track on Dome

NOTE: a large 'C' clamp and a 'drift pin' are needed for this assembly



NOTE: Secure the block at the bottom on backside of the tracks first and then come back around to the front. Install either lettered block A or No.1. Install the thin blocks in the dome ribs first. Work your way up the front from the bottom up. This will pull the following holes into alignment.



Front of Dome

Back of Dome

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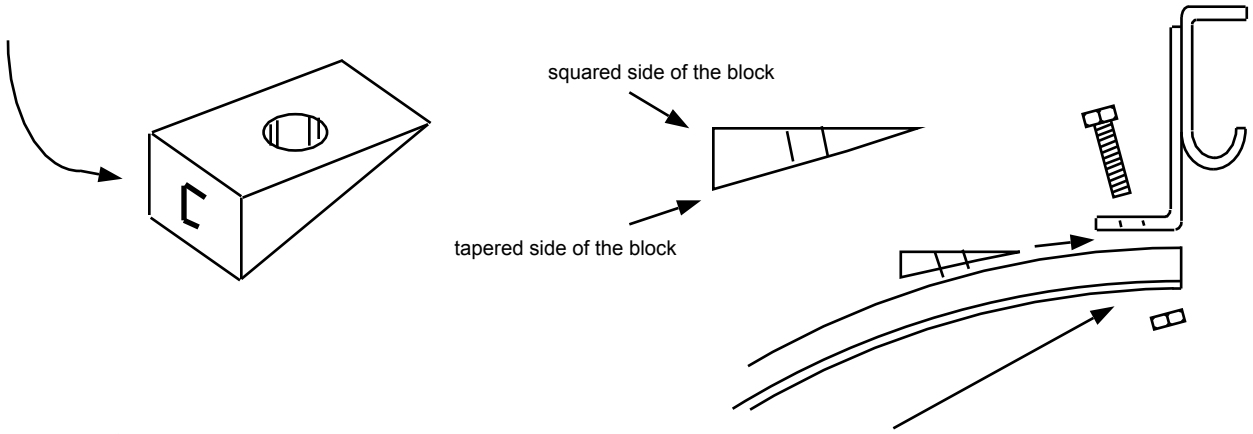
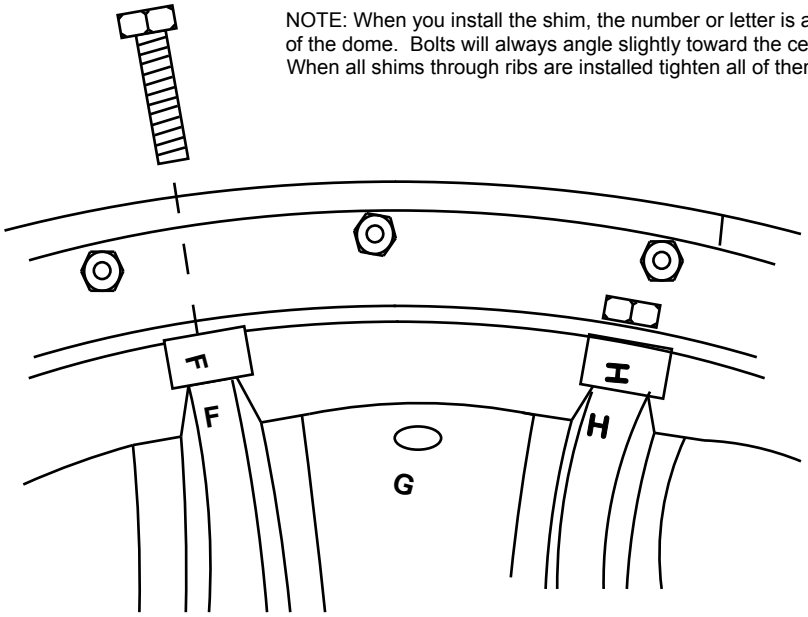
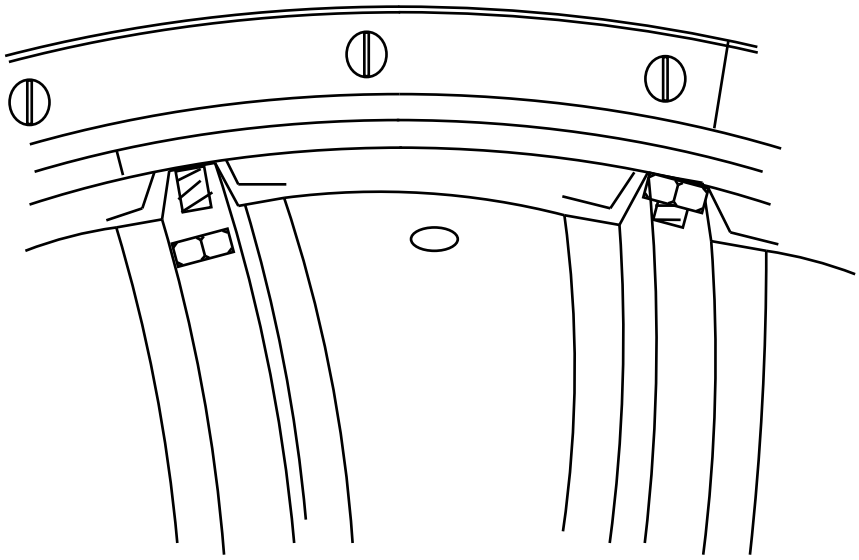
Installing Shutter Track on Dome

NOTE: All blocks are lettered or numbered.
These will always be on the outside edge of the block.



NOTE: When you install the shim, the number or letter is always on the outside of the dome. Bolts will always angle slightly toward the center of the dome. When all shims through ribs are installed tighten all of them before next step.





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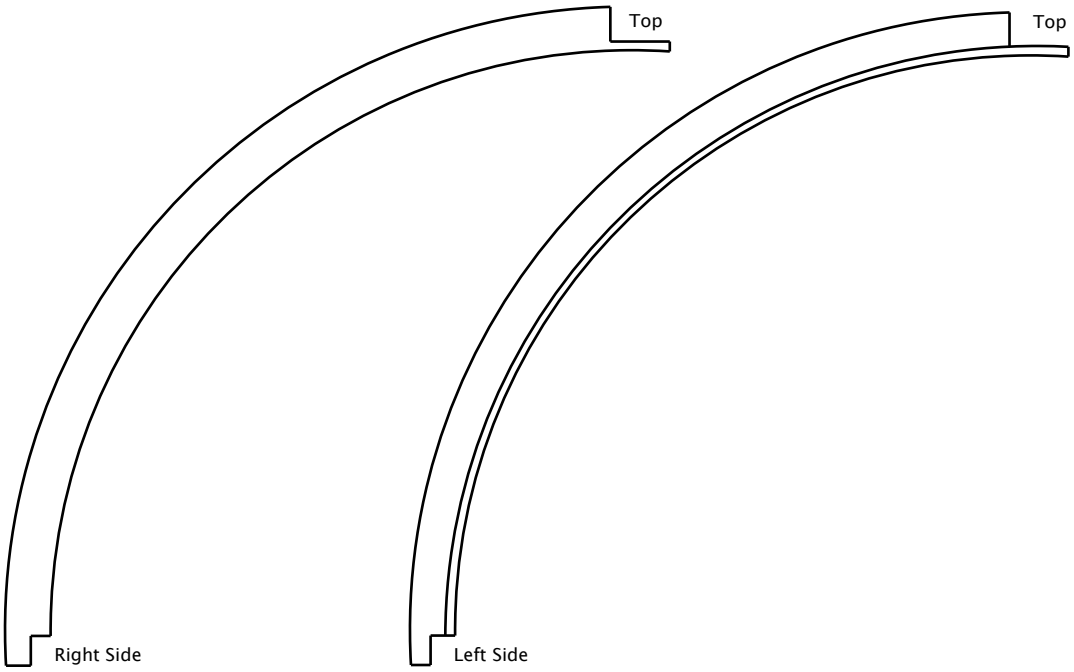
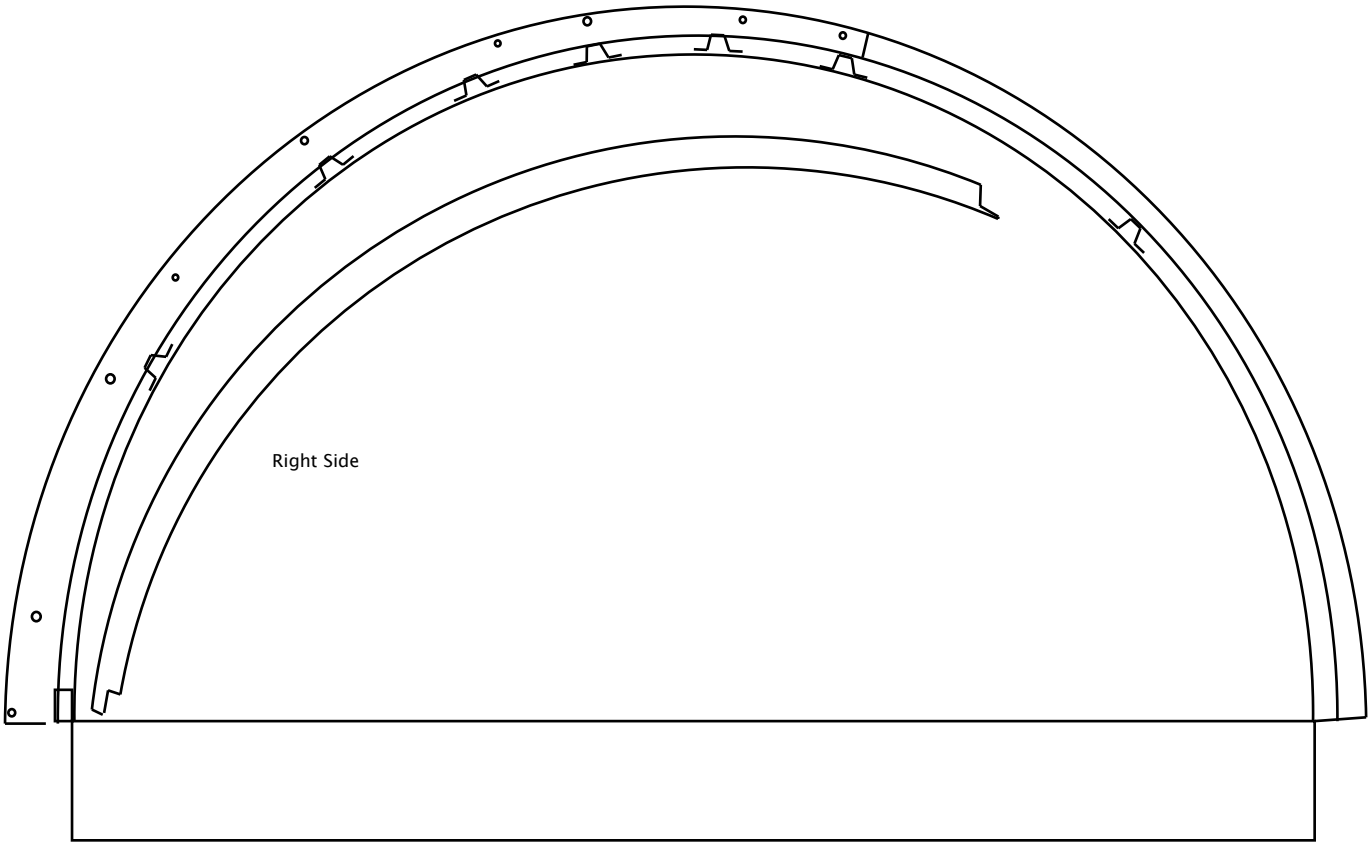
Installing Inside Aperture Trim Angles





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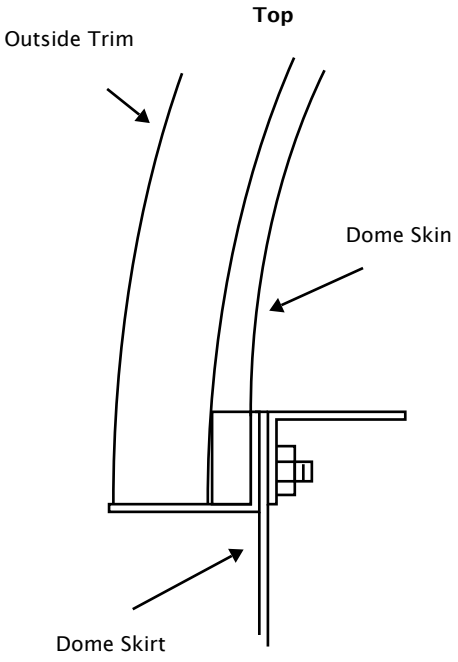
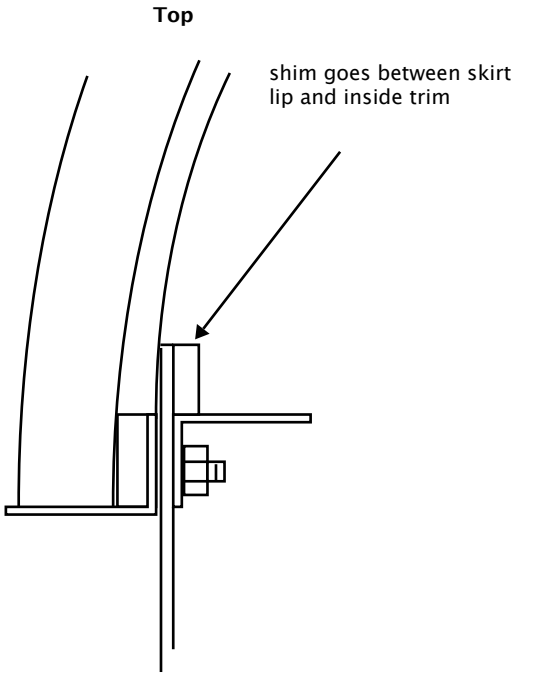
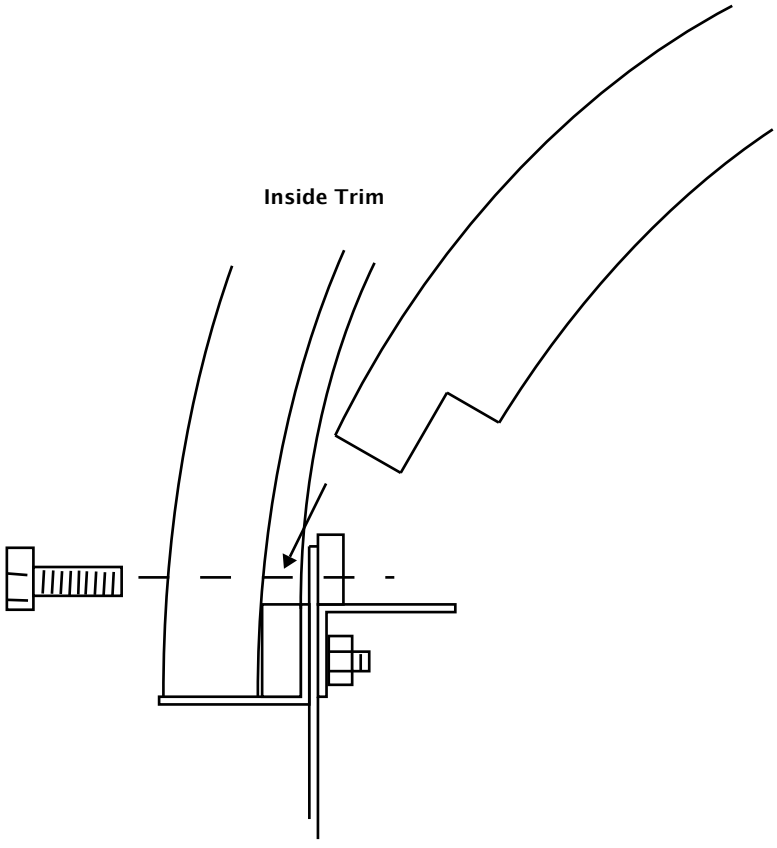
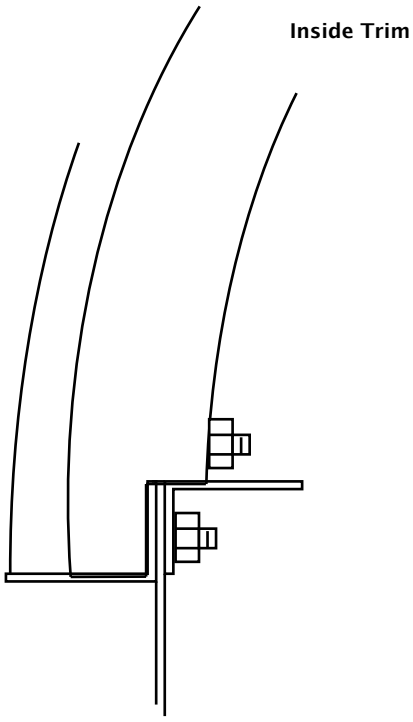
Inside Aperture Trim









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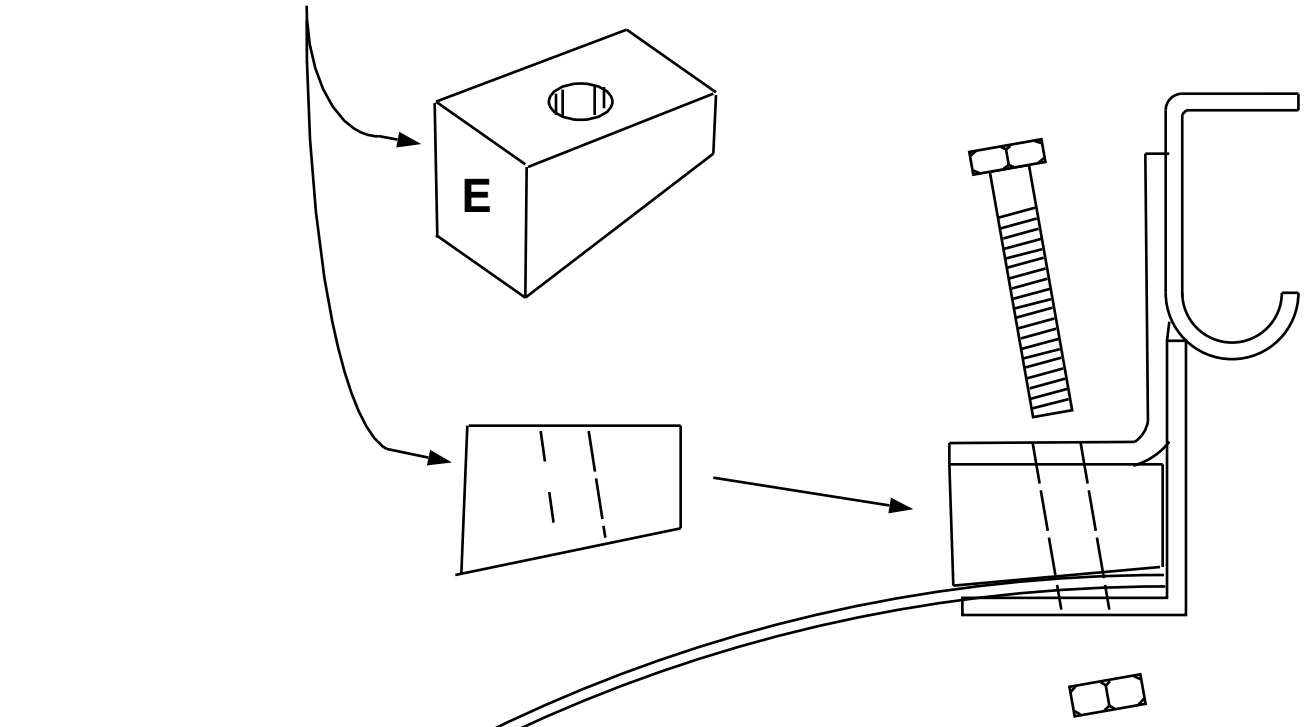
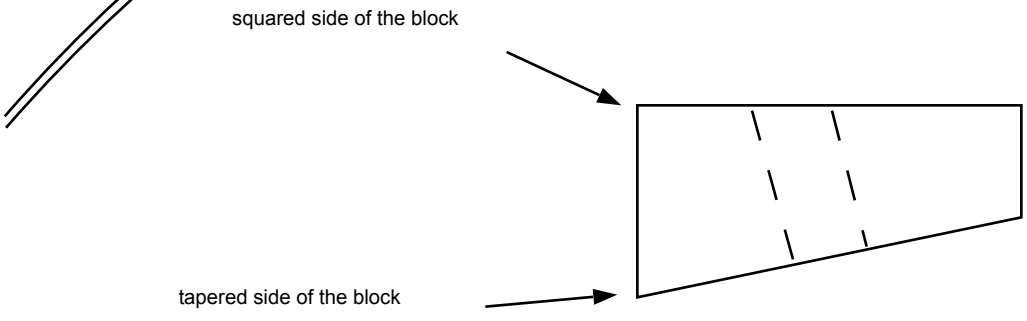
Plainfield, IL. U.S.A.

Installing Shutter Track on Dome

NOTE: All blocks are lettered or numbered.
These will always be on the outsie edge of the block.



NOTE: Bolts will always angle slightly toward the center of the dome.



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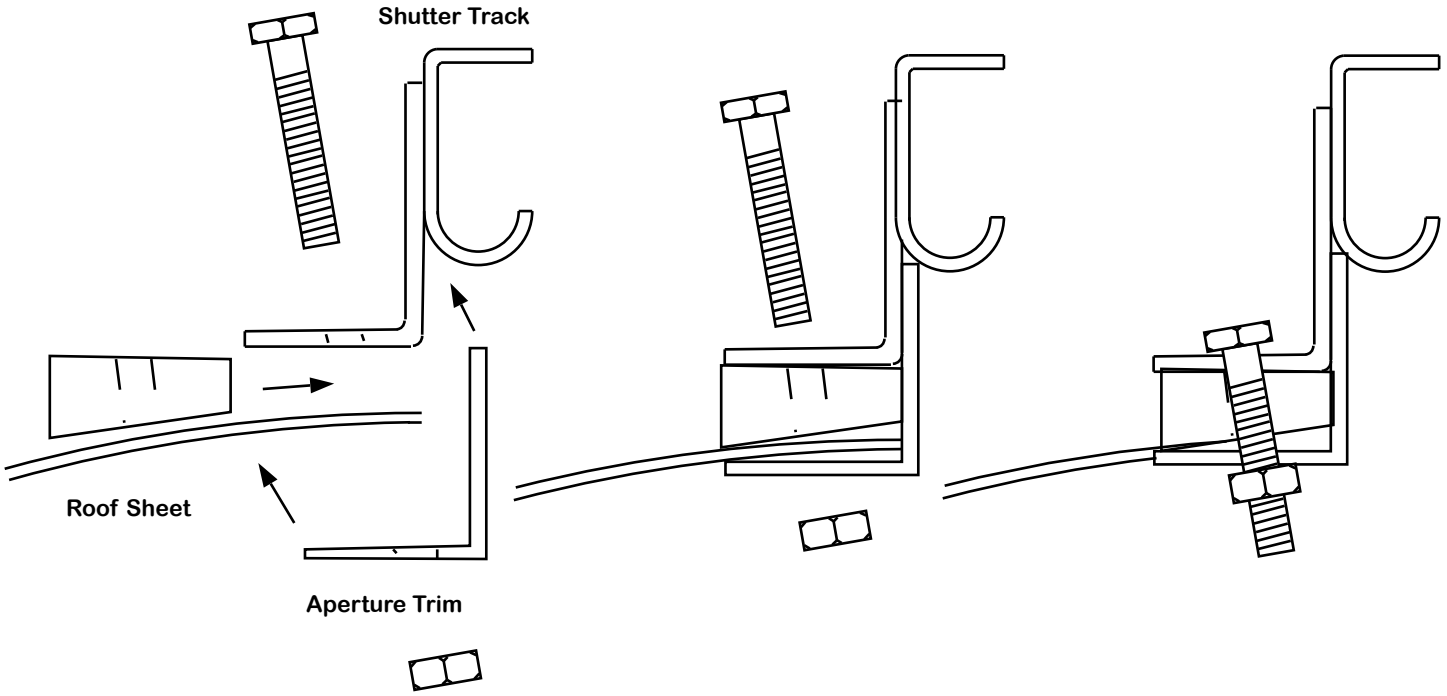
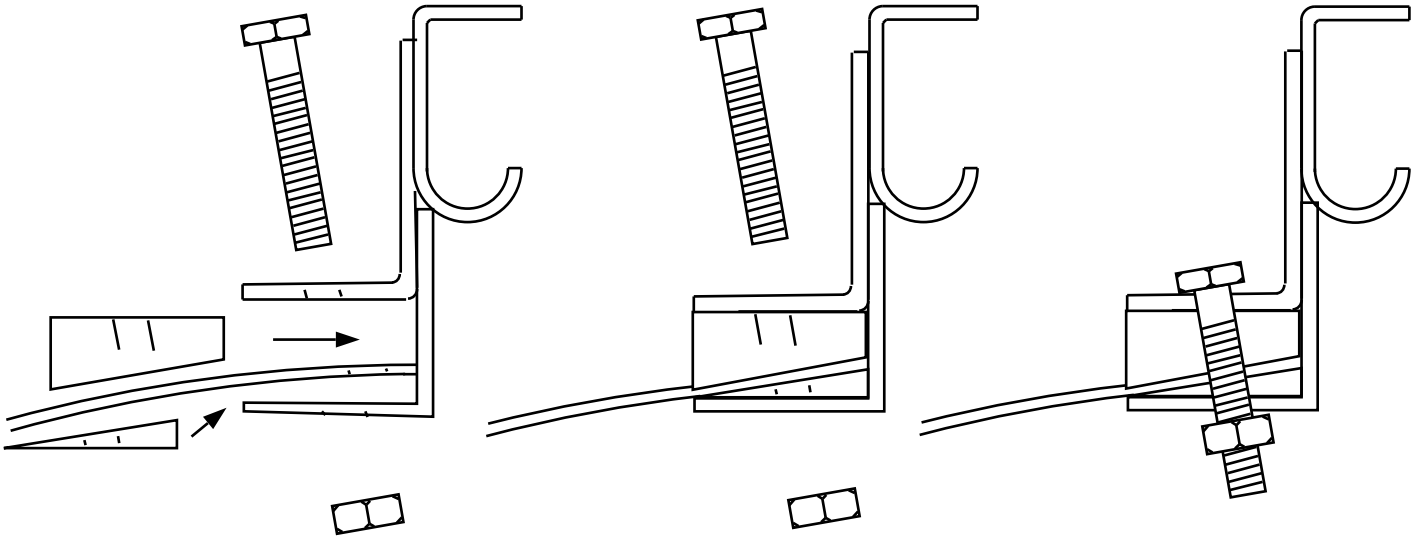
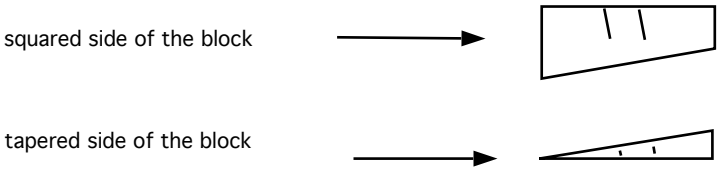
Installing Shutter Track on Dome and Aperture Trim



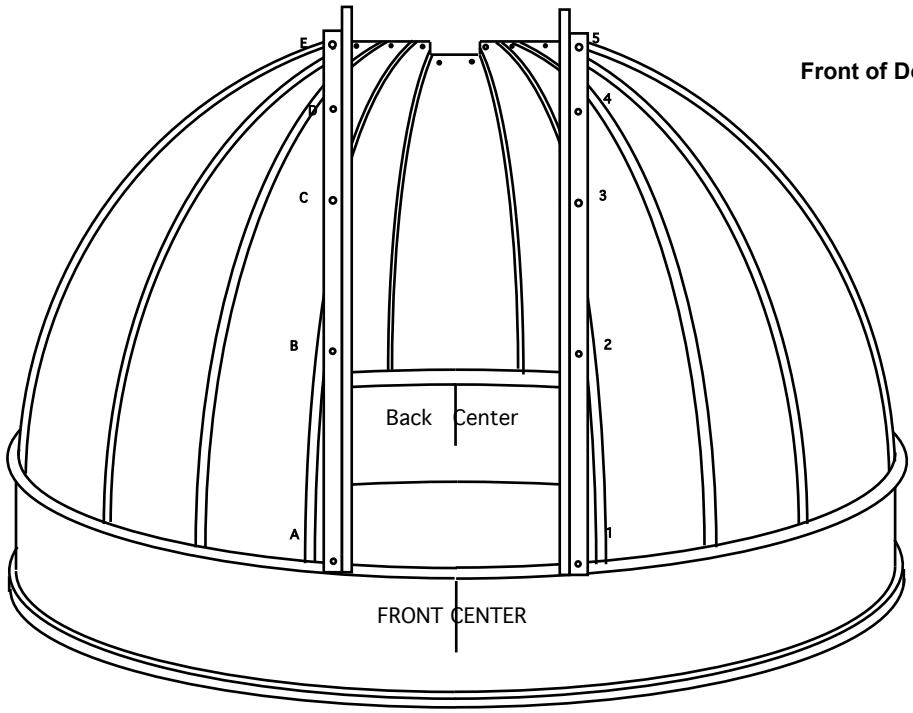
NOTE: If you have a double shim, the number or letter is always on the outside of the dome. Bolts will always angle slightly toward the center of the dome.



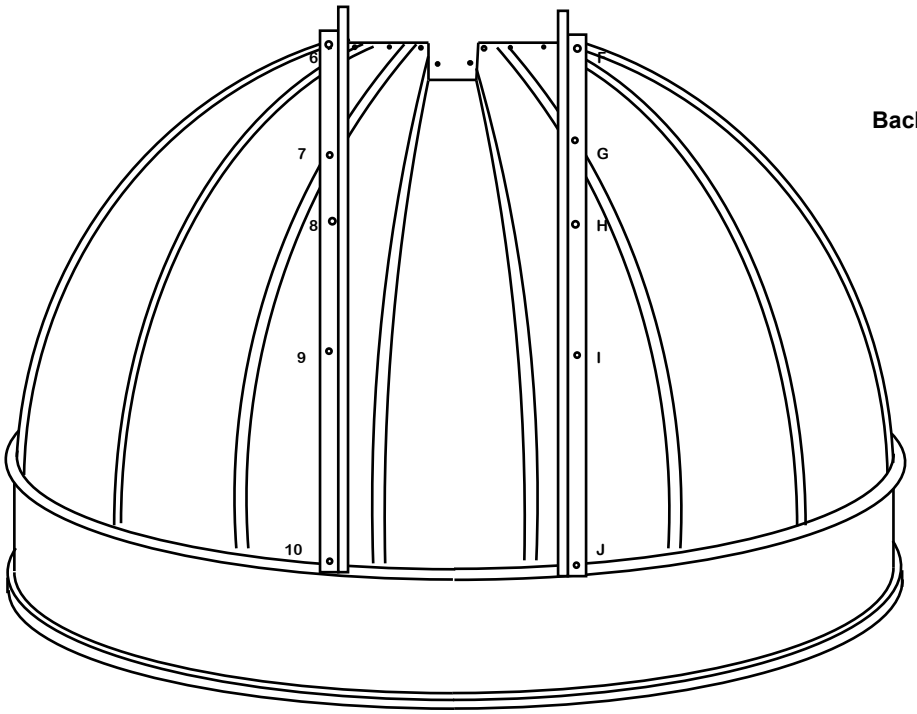


property of the Ash Manufacturing Company
Plainfield, IL. U.S.A.

Installed Shutter Track on Dome



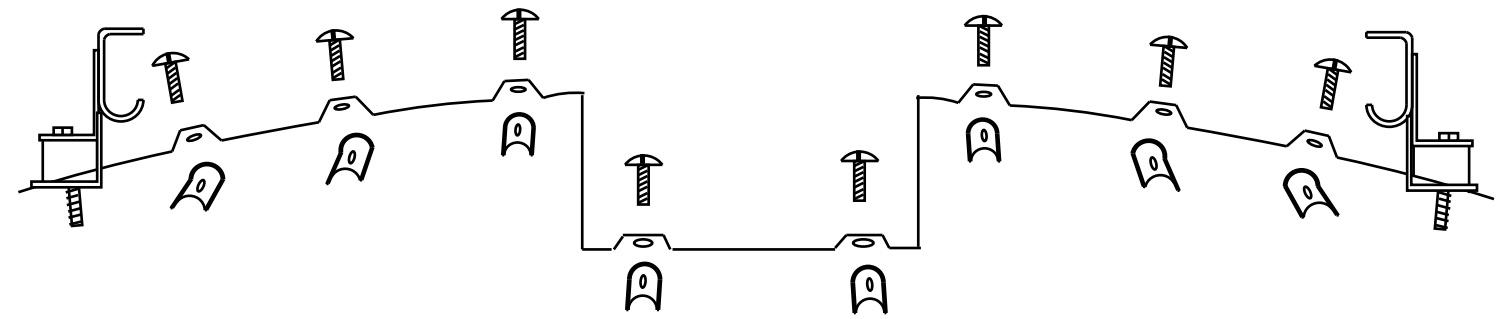
Front of Dome

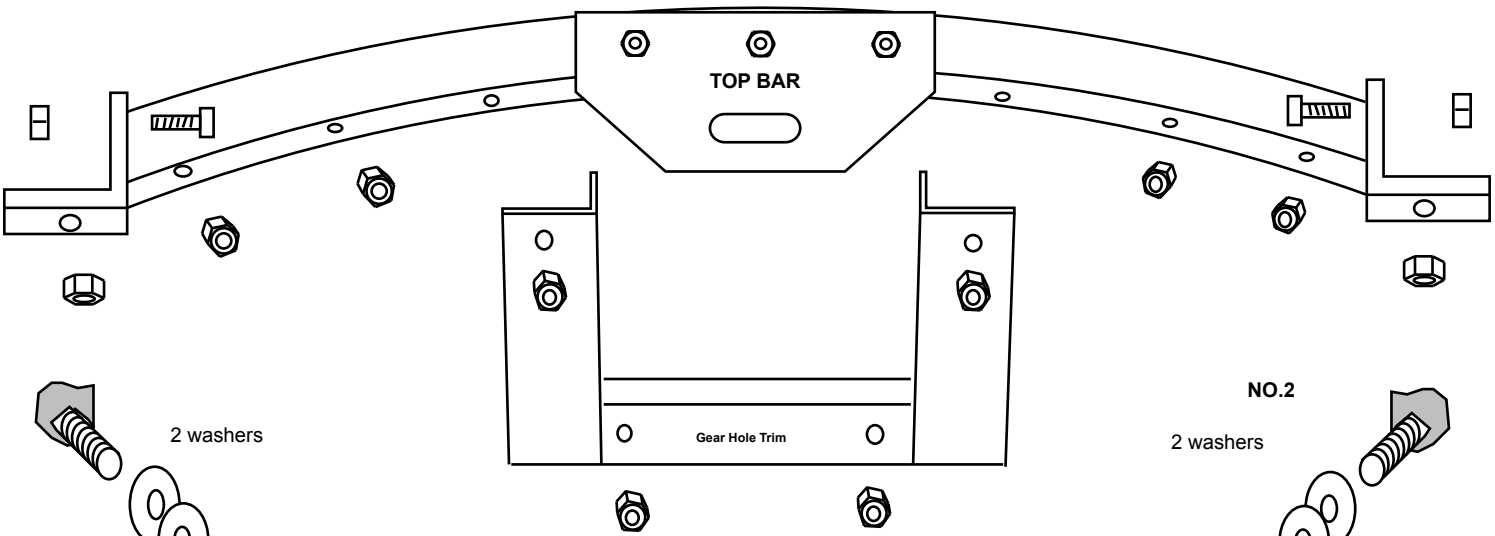


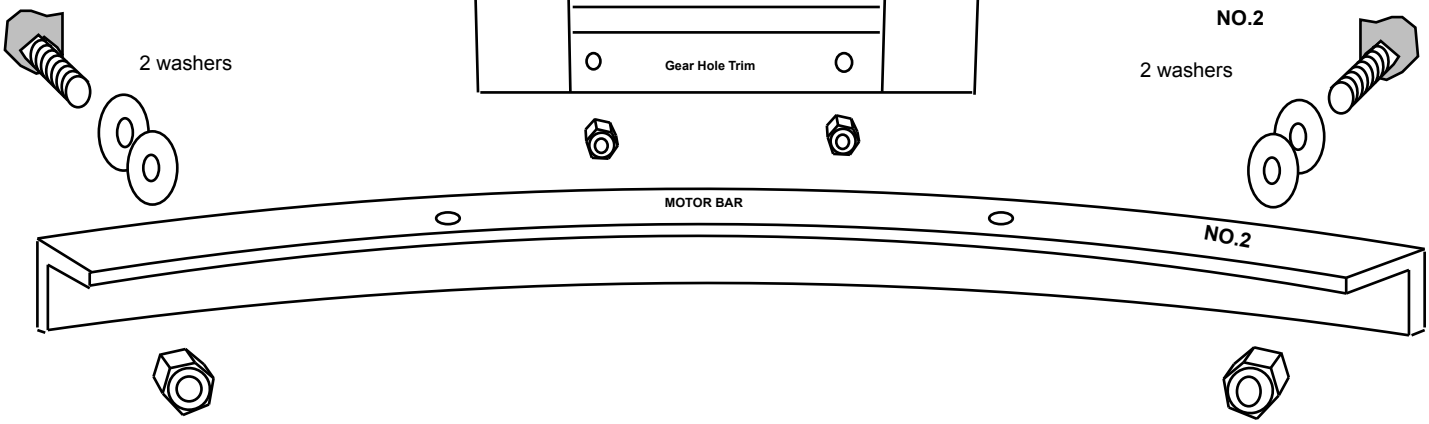
Back of Dome

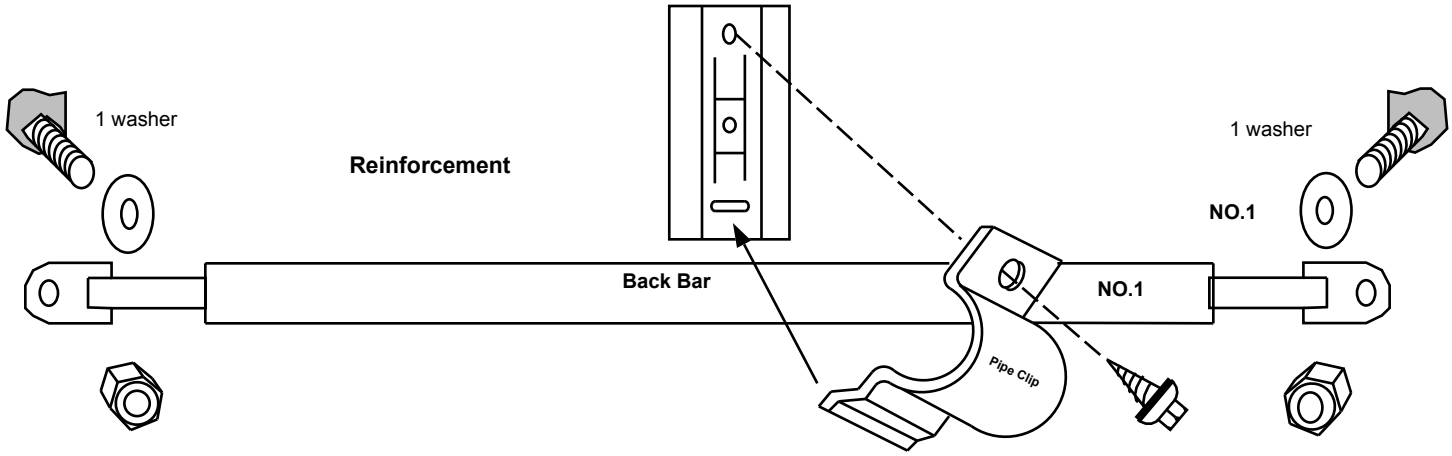
property of the Ash Manufacturing Company
Plainfield, IL. U.S.A.

Installing Interior Bracing and Gear Hole Trim



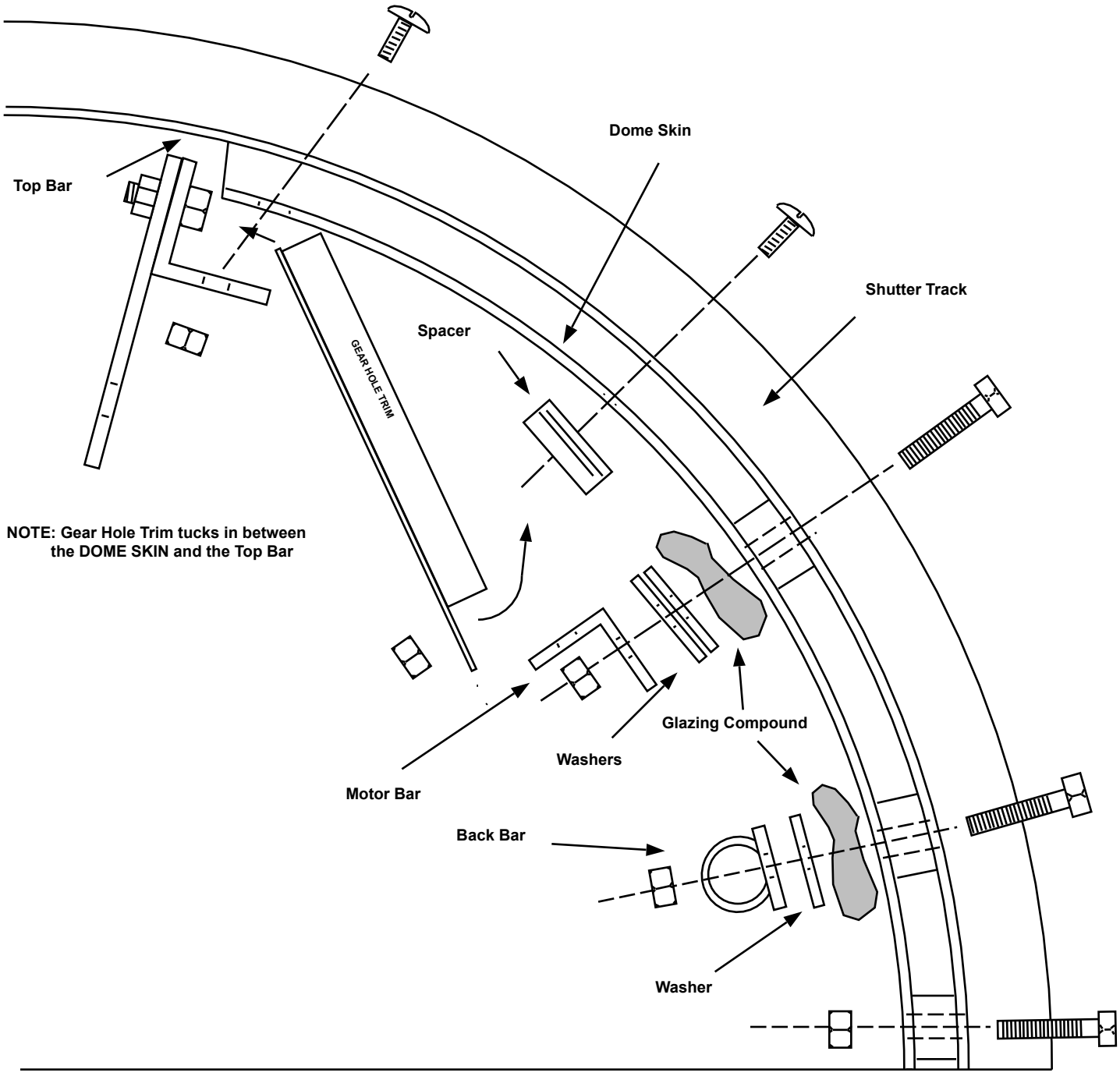






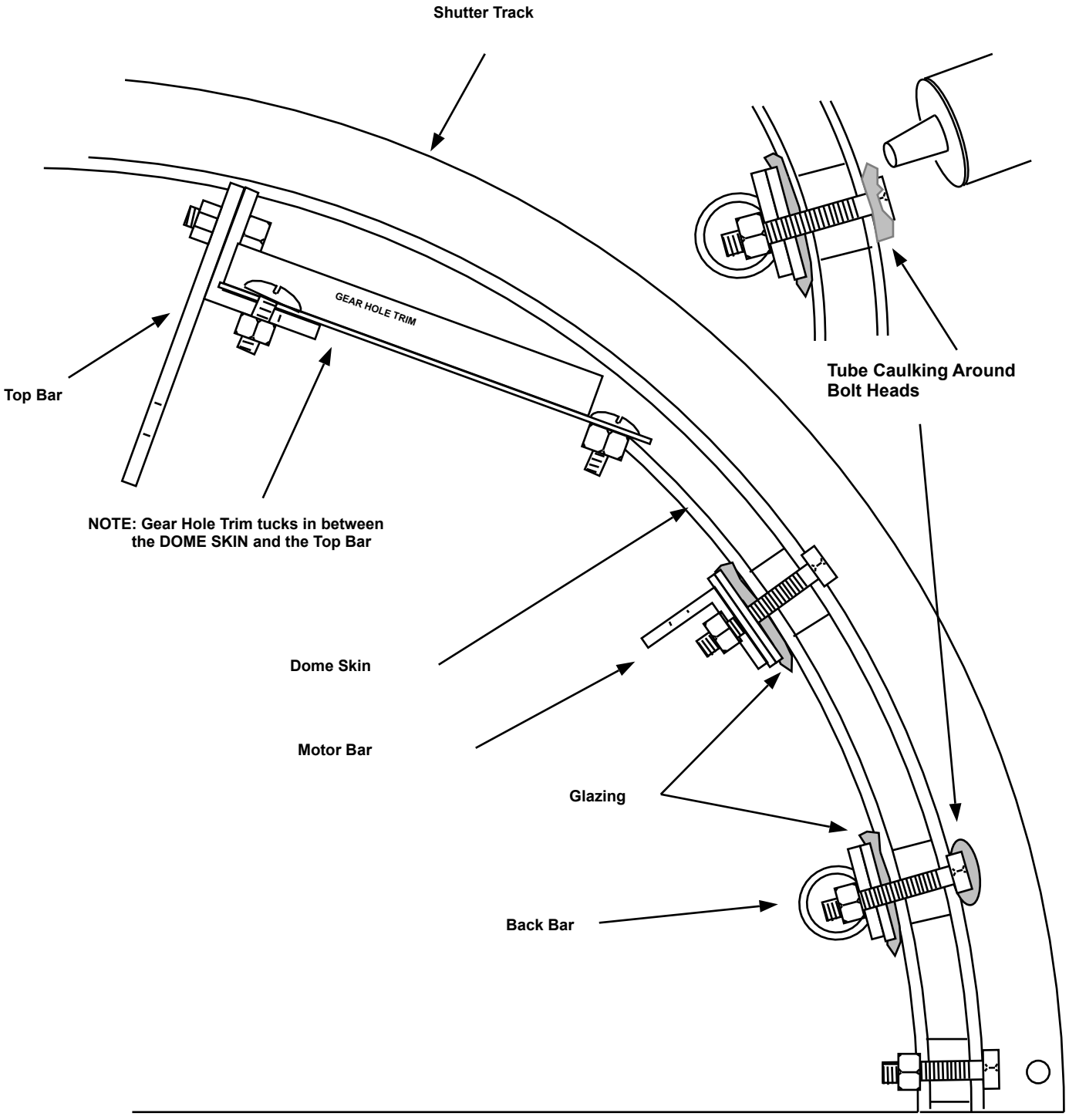
property of the Ash Manufacturing Company
Plainfield, IL. U.S.A.

Installing Interior Reinforcing and Gear Hole Trim



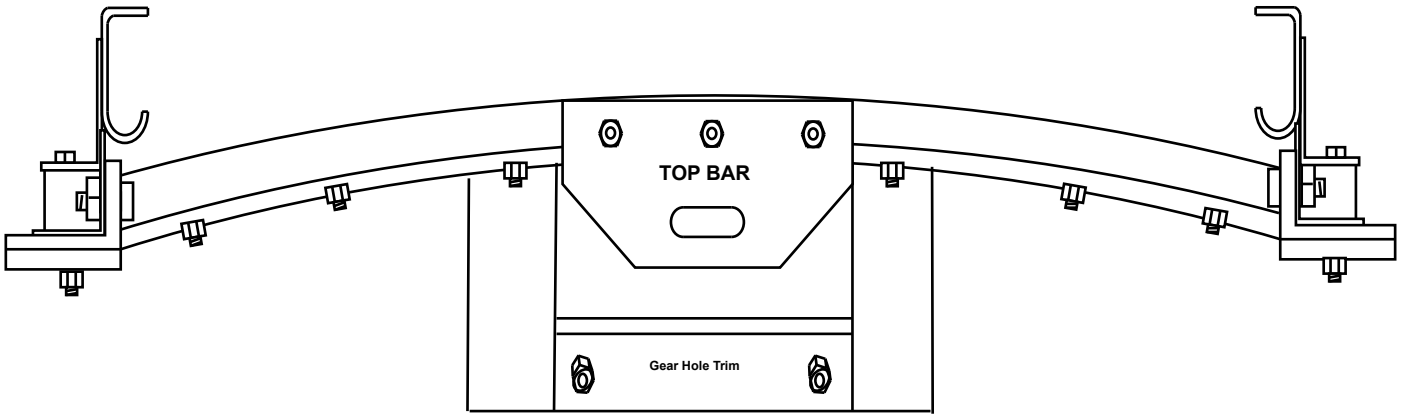
property of the Ash Manufacturing Company
Plainfield, IL. U.S.A.

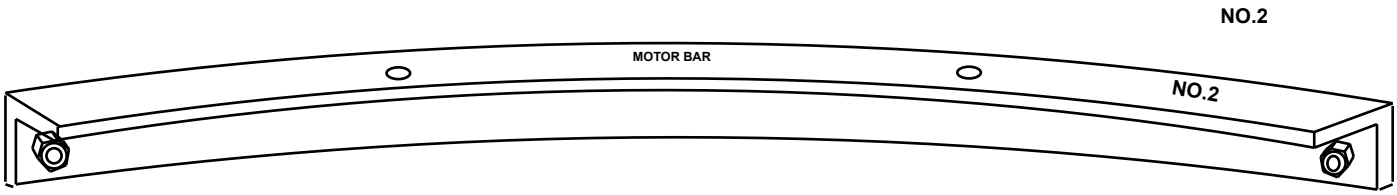
Installed Interior Reinforcing and Gear Hole Trim

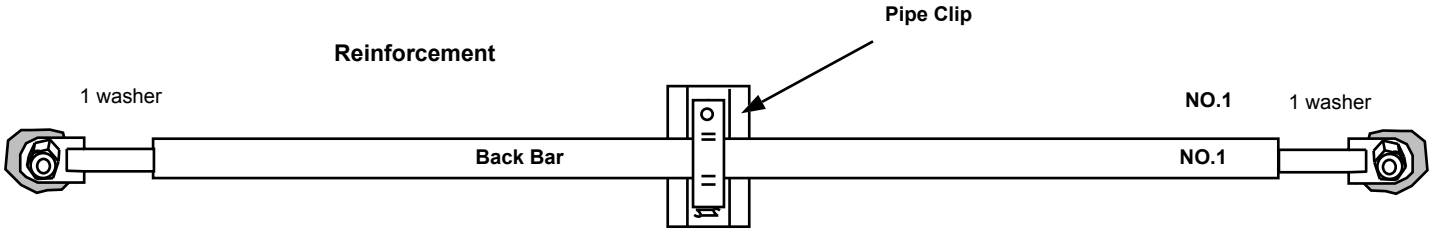


property of the Ash Manufacturing Company
Plainfield, IL. U.S.A.

Installed Interior Bracing and Gear Hole Trim



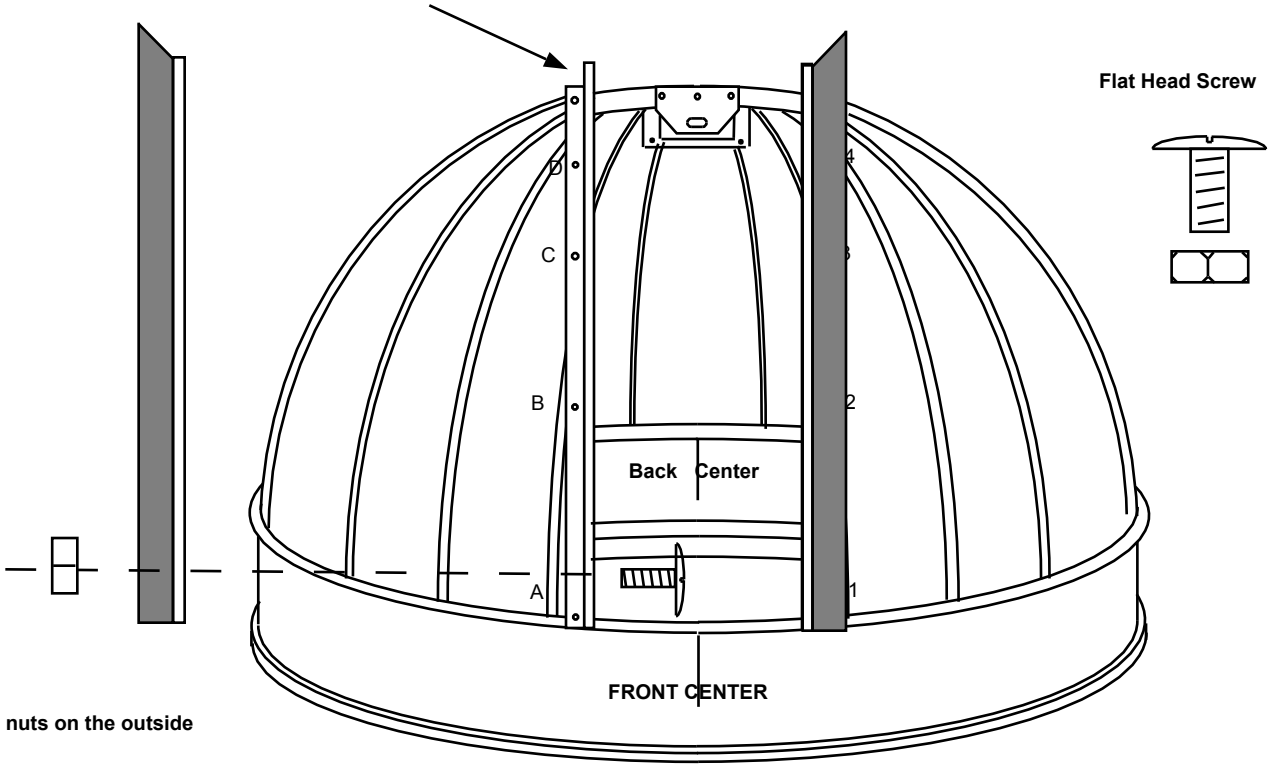


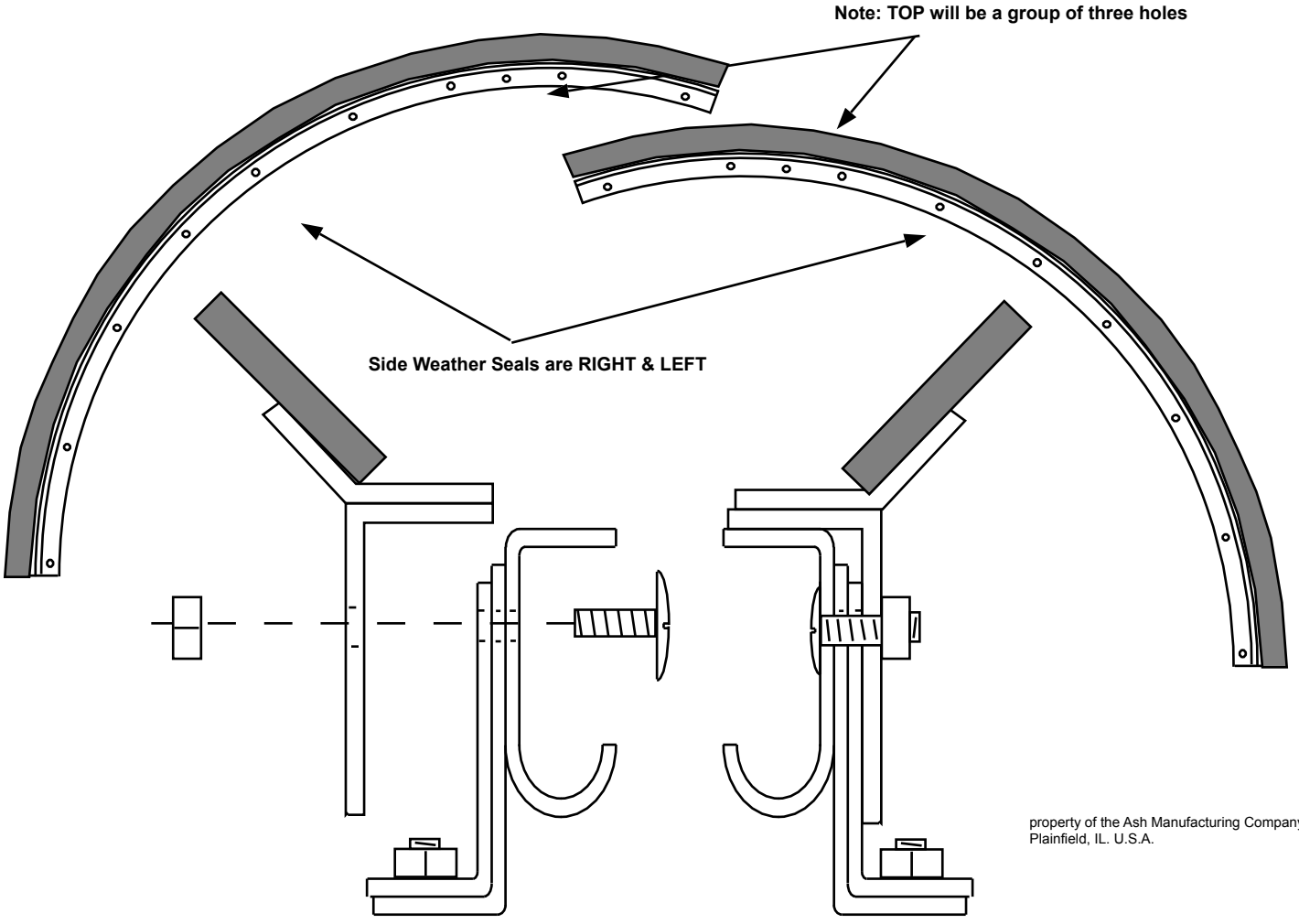


property of the Ash Manufacturing Company
Plainfield, IL. U.S.A.

Installing Shutter Side Weather Seals

NOTE: You will have to remove the Shutter Track Splice nuts & bolts and reinstall

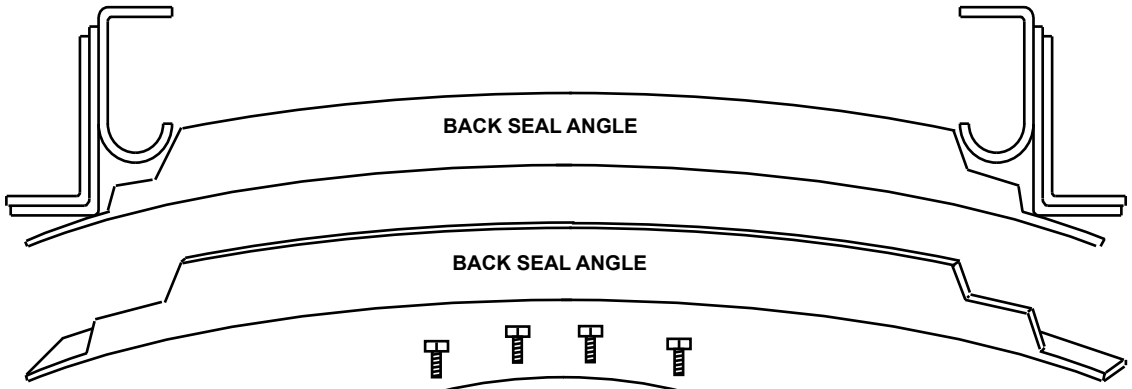




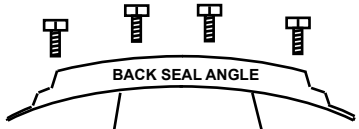
property of the Ash Manufacturing Company
Plainfield, IL. U.S.A.

Installing Back Seal Angle and Back Shutter Track Braces

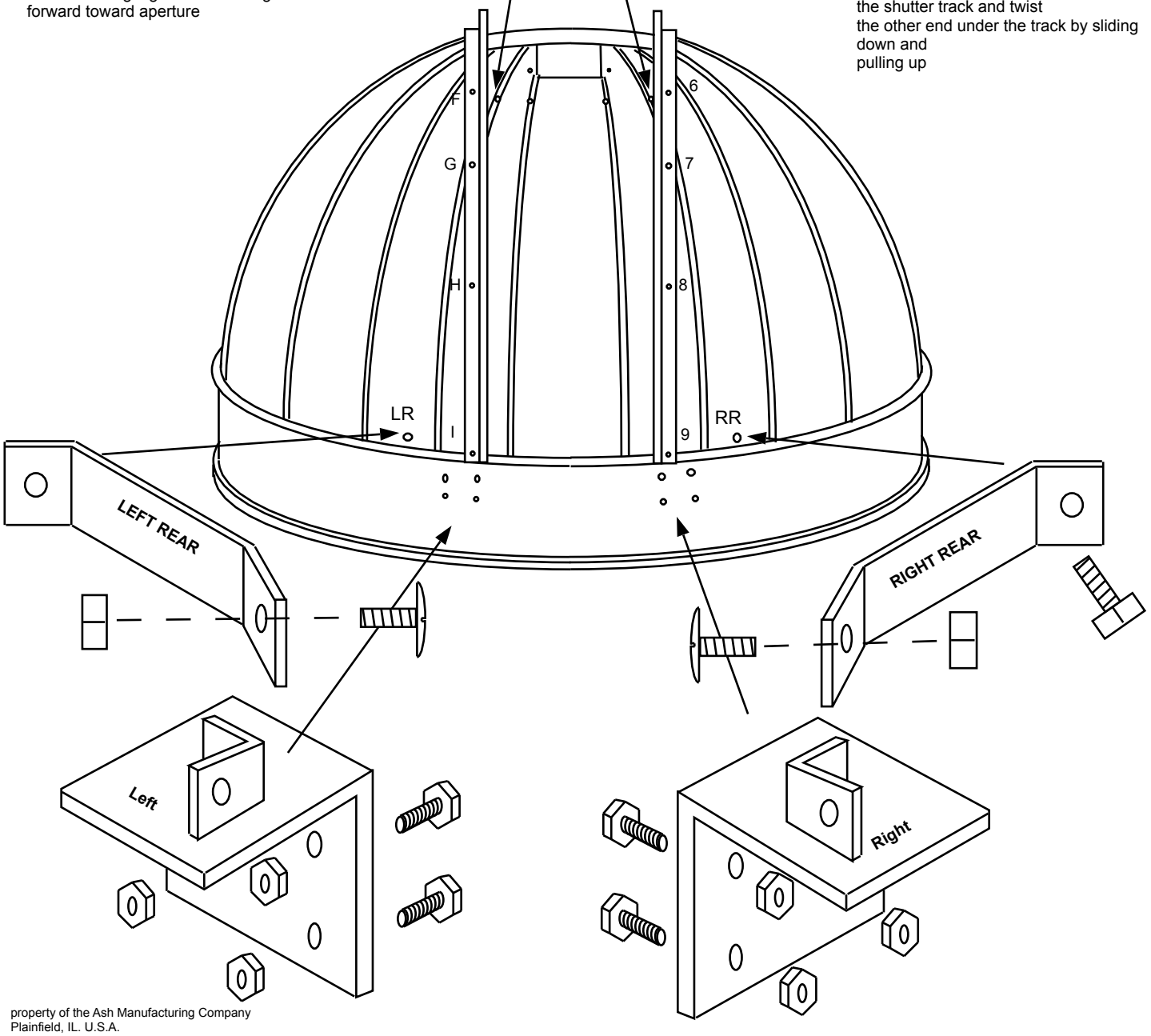
step#5



Back Seal Angle goes with the leg forward toward aperture



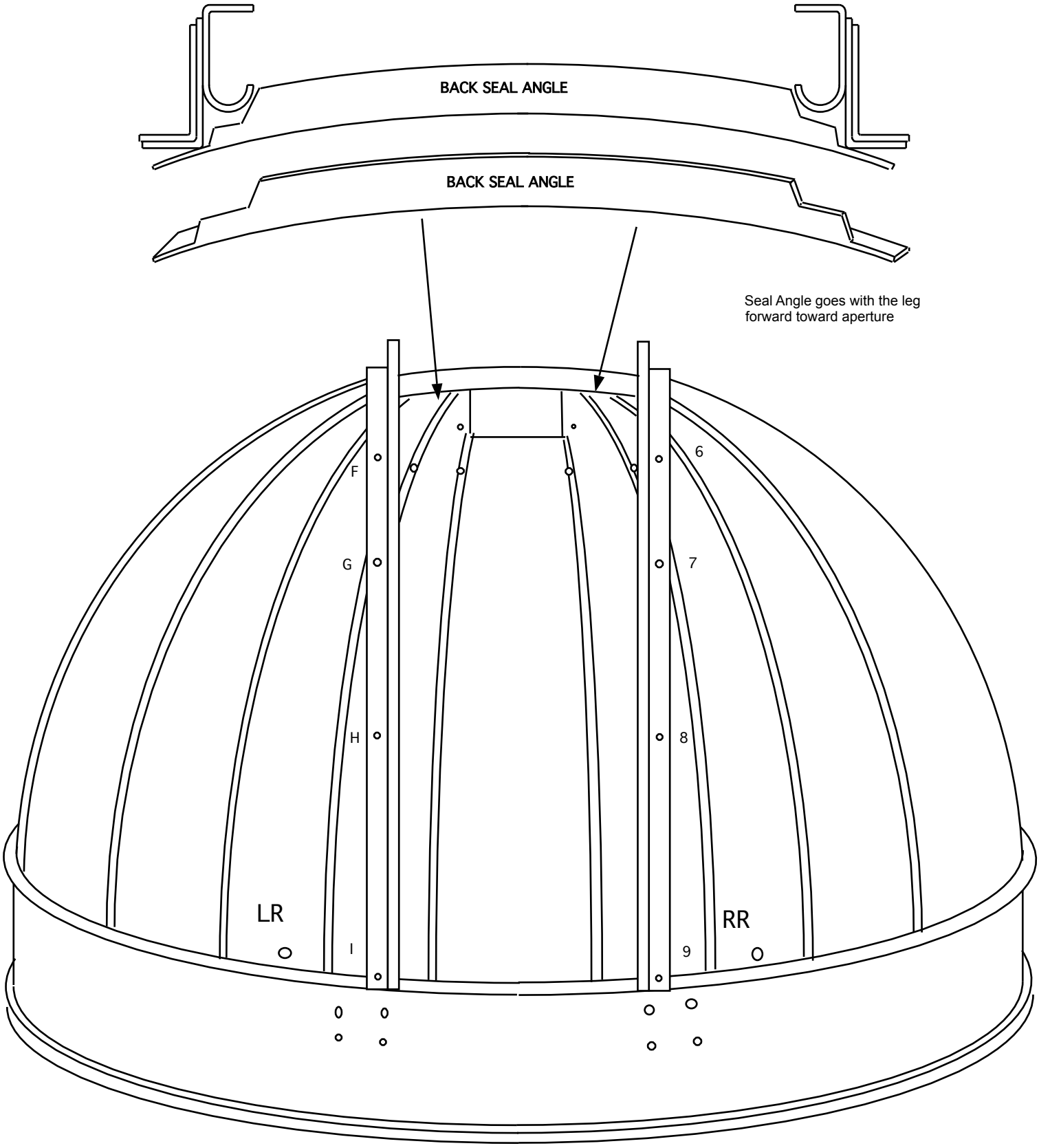
NOTE: tuck one end of the Back Seal Angle under the shutter track and twist the other end under the track by sliding down and pulling up



property of the Ash Manufacturing Company
Plainfield, IL. U.S.A.

In some cases you might have a bracket to secure the back of the shutter track

Installing Back Seal Angle and Back Shutter Track Braces

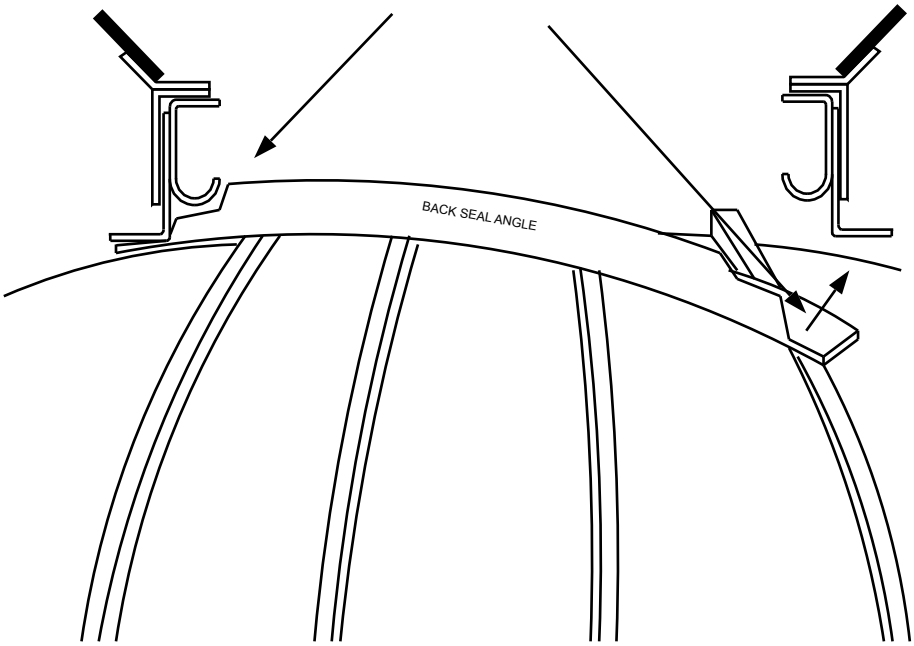


property of the Ash Manufacturing Company
Plainfield, IL. U.S.A.

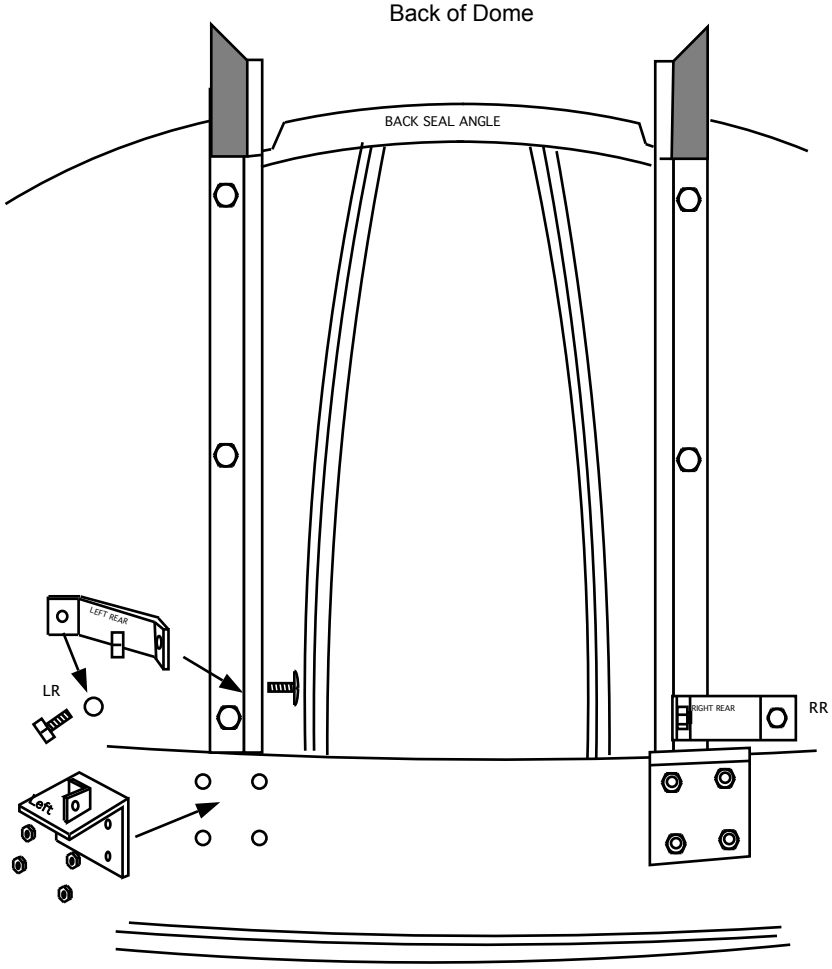
Backside of Dome

Installing Back Seal Angle and Back Shutter Track Braces

NOTE: tuck one end of the Back Seal Angle under the shutter track and twist the other end under the track by sliding down and pulling up



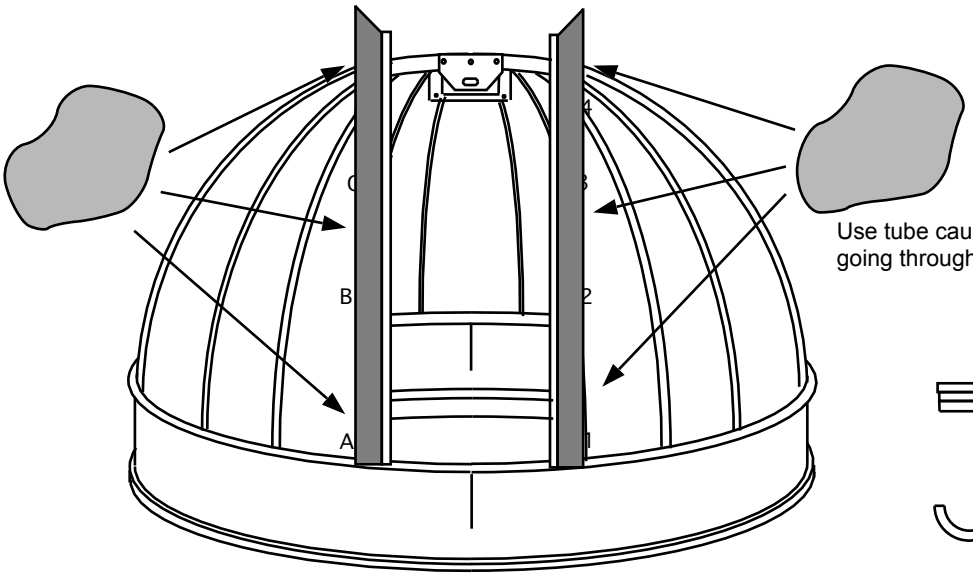
Back of Dome



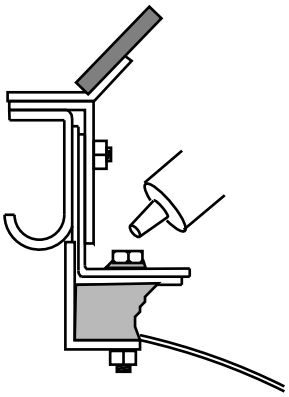
property of the Ash Manufacturing Company
Plainfield, IL. U.S.A.

In some cases you might have a bracket to secure the back of the shutter tracks

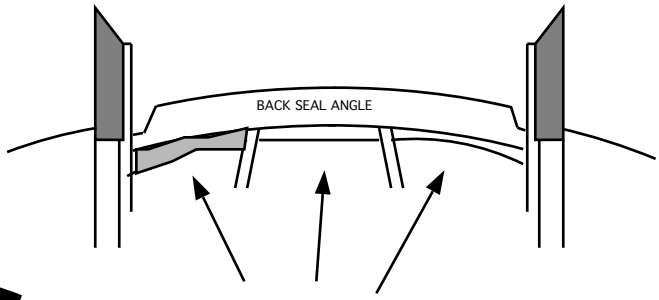
Installing Caulking Sealant along Dome Aperture and across under the Back Seal Angle



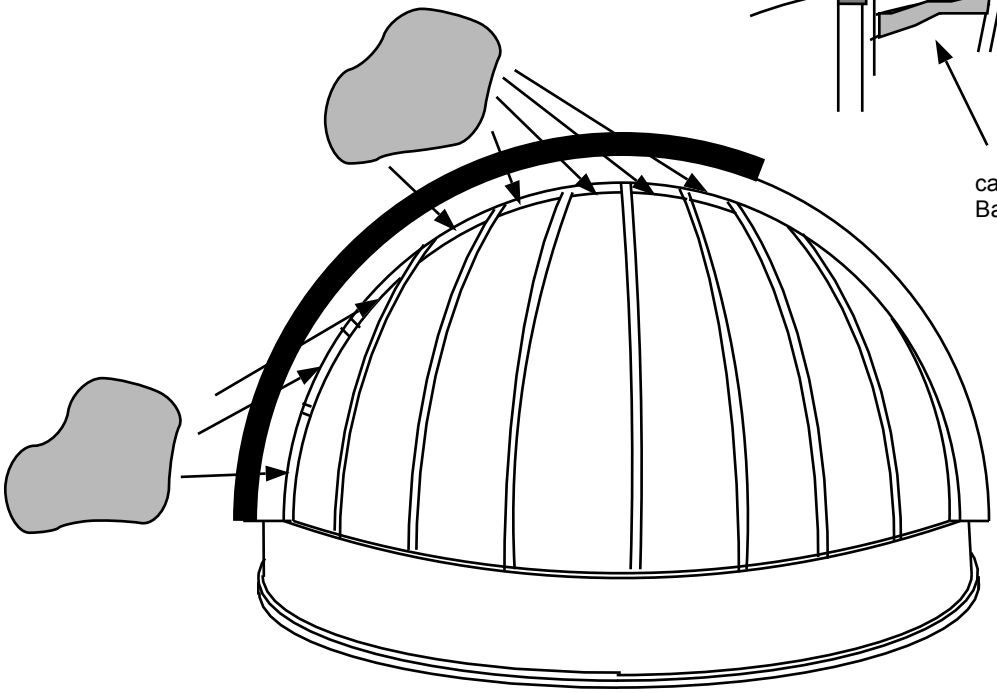
Use tube caulking around bolt heads going through shutter tracks.



Caulking is pushed to back of flashing from Bottom Front to the Back Seal Angle on each side.

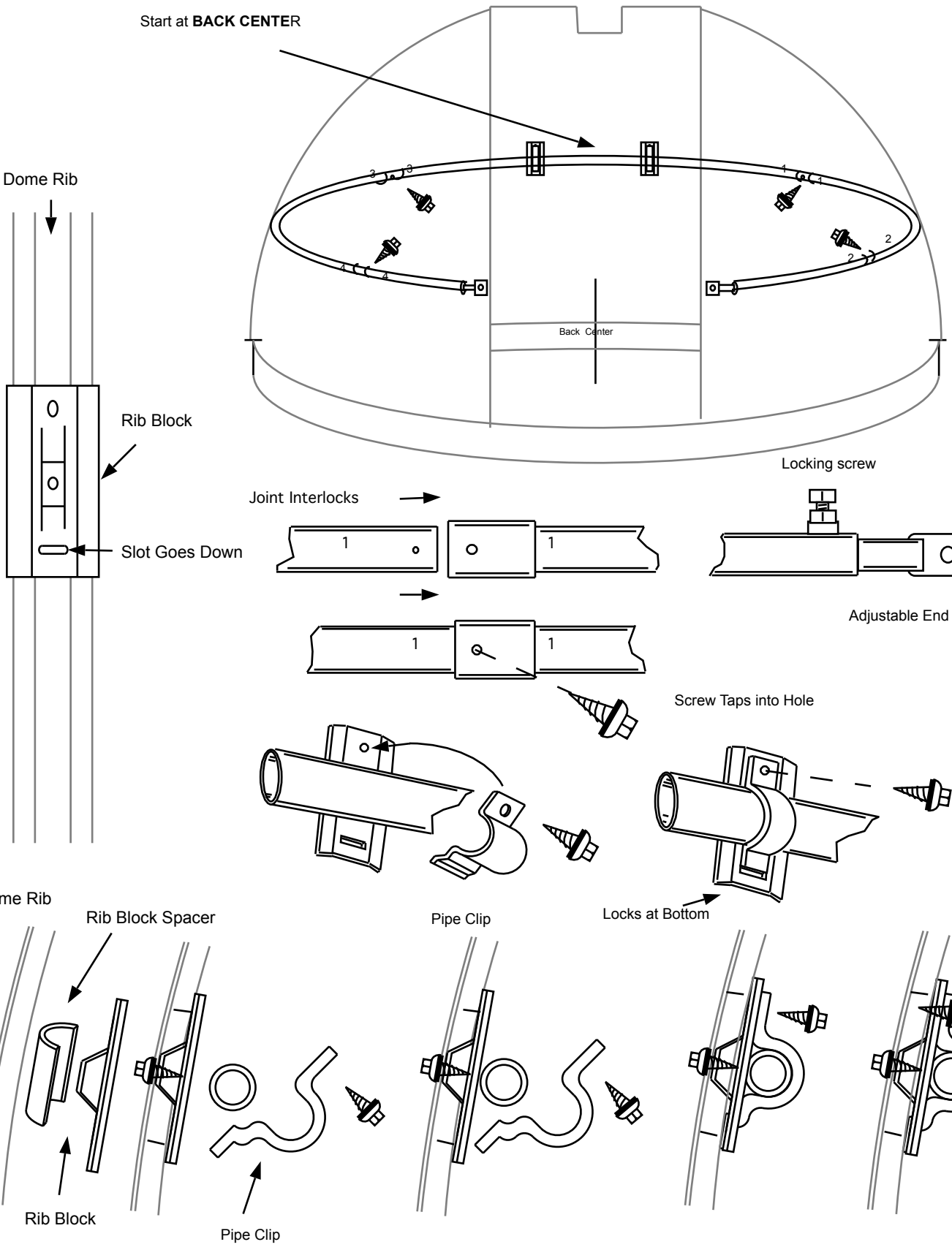


caulk these areas under Back Seal Angle



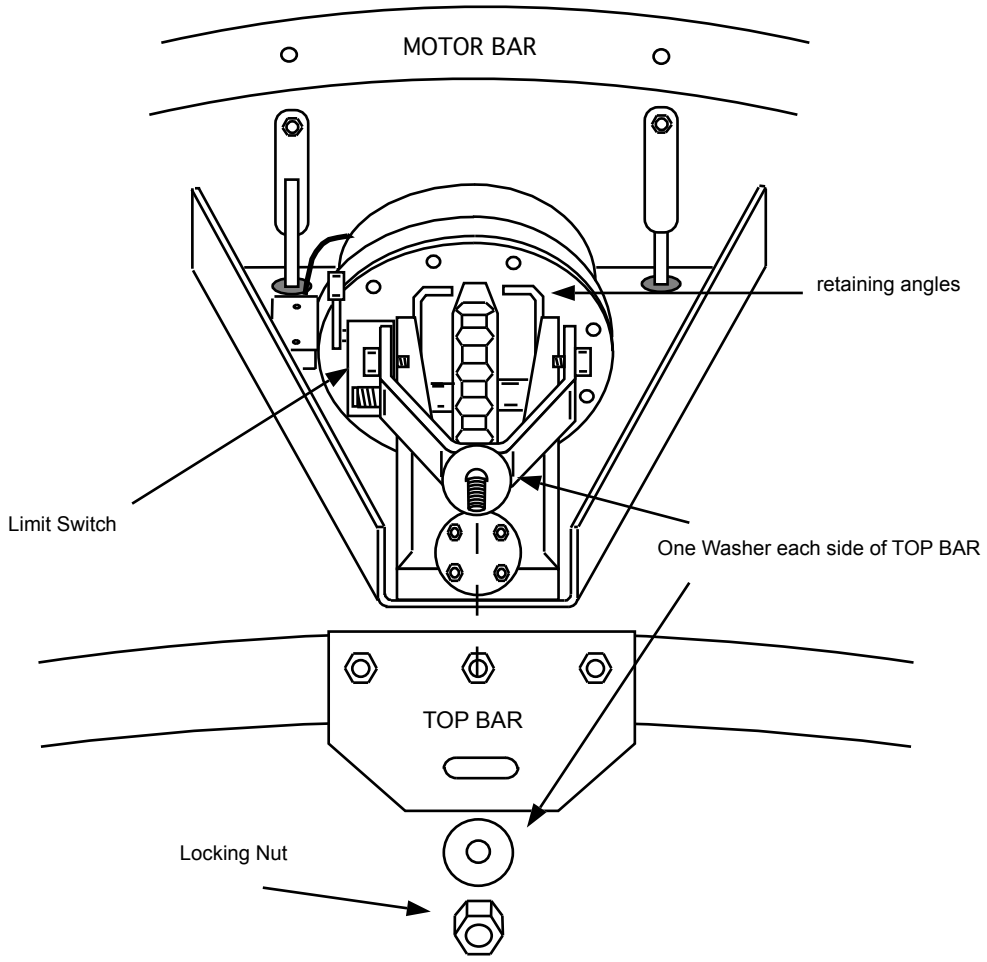
property of the Ash Manufacturing Company
Plainfield, IL. U.S.A.

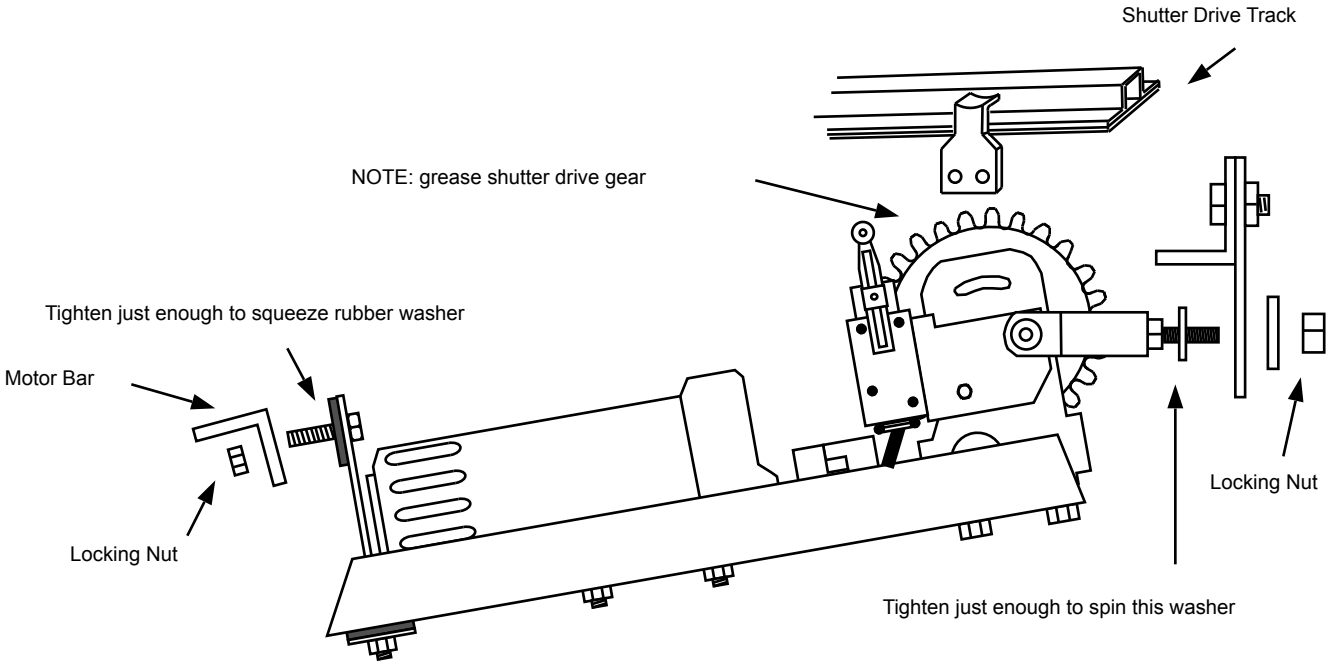
Installation of Reinforcing Ring - 14'6" & Larger Domes



property of the Ash Manufacturing Company
Plainfield, IL. U.S.A.

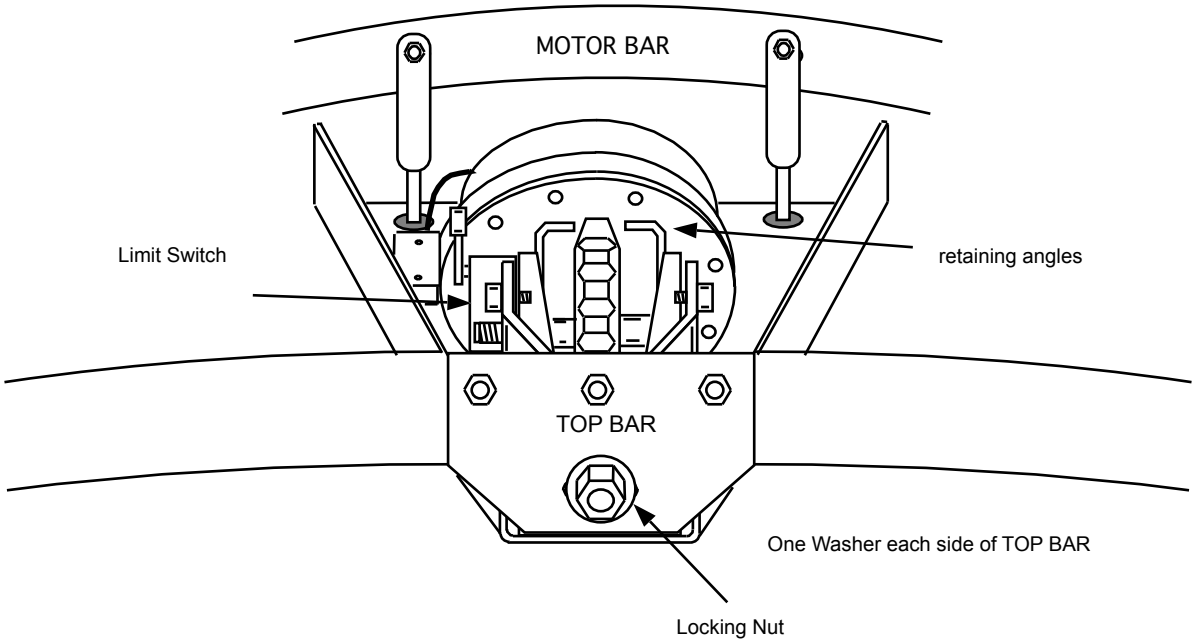
Installation of Shutter Drive Unit

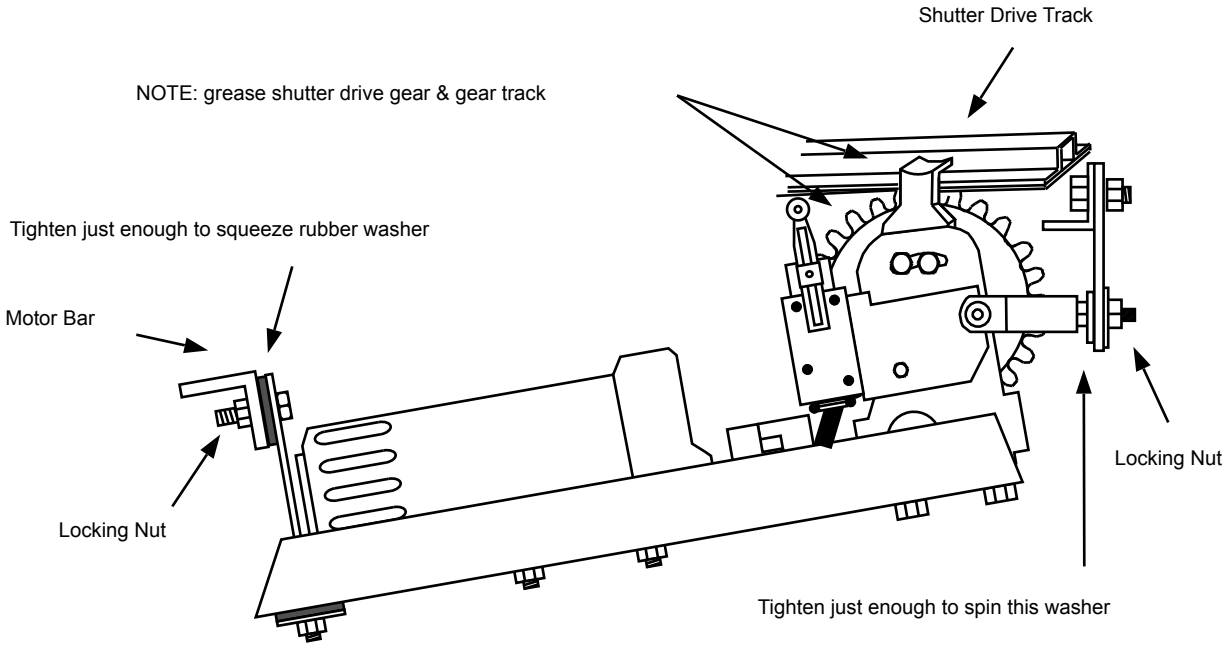




property of the Ash Manufacturing Company
Plainfield, IL. U.S.A.

Installation of Shutter Drive Unit

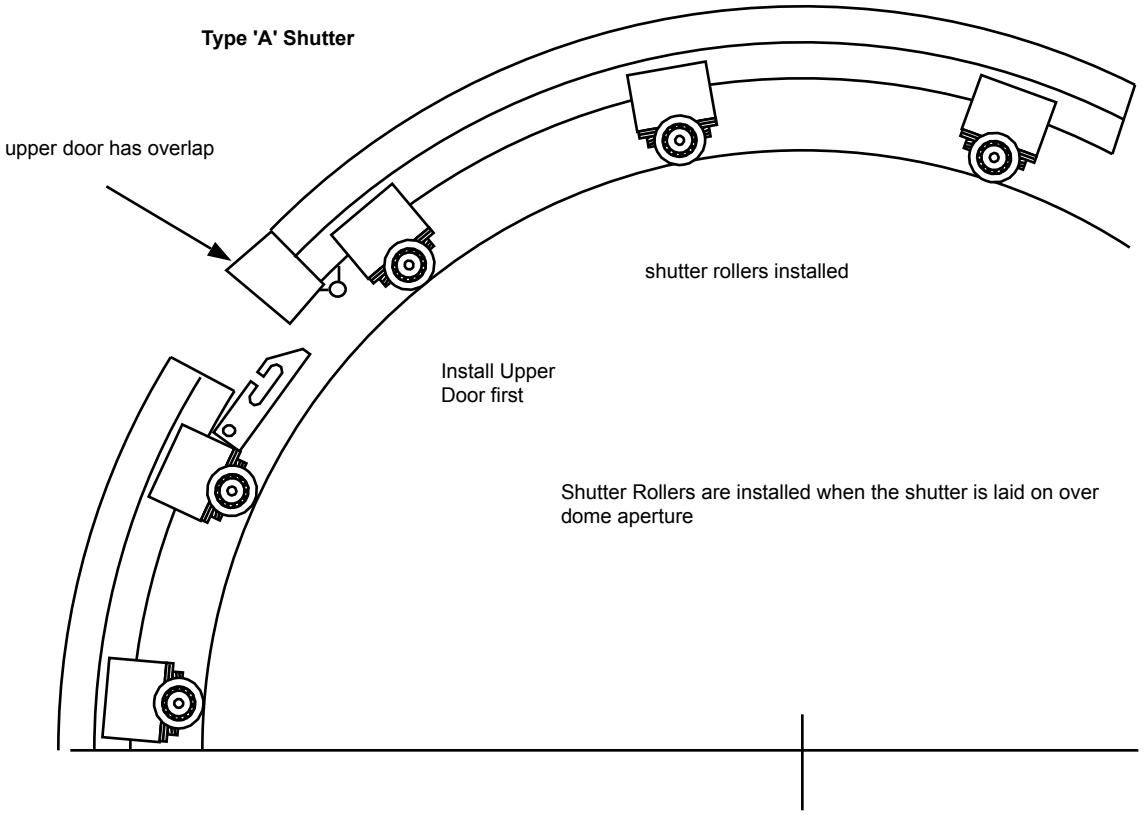




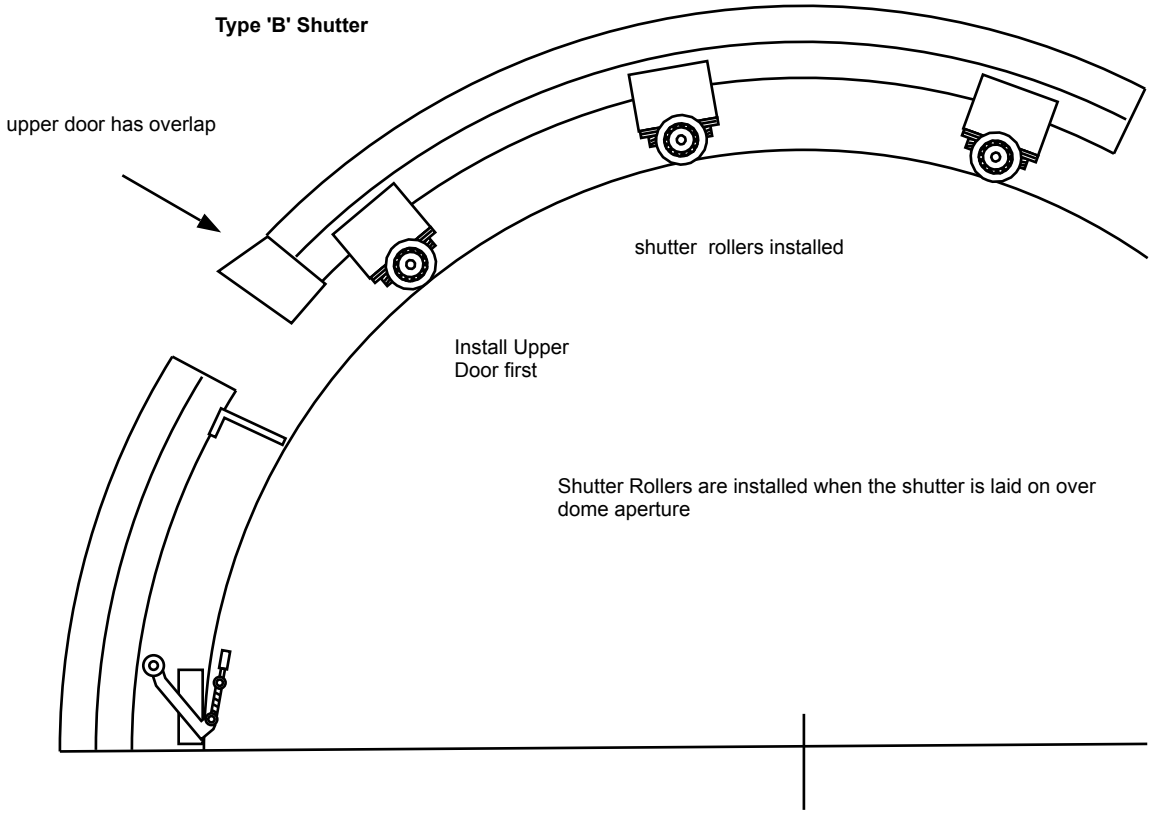
property of the Ash Manufacturing Company
Plainfield, IL. U.S.A.

Installation of Shutter Sections

Type 'A' Shutter

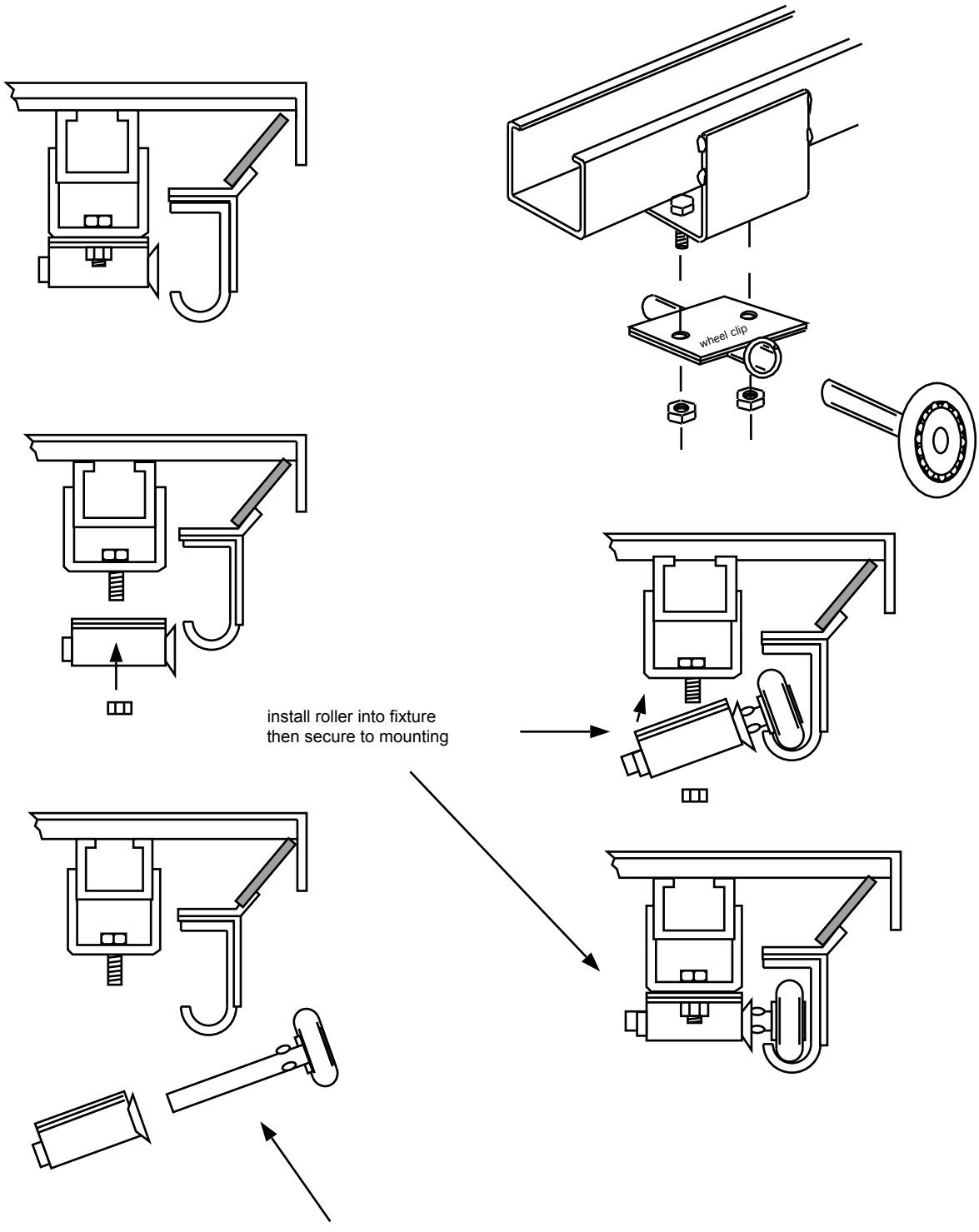


Type 'B' Shutter



property of the Ash Manufacturing Company
Plainfield, IL. U.S.A.

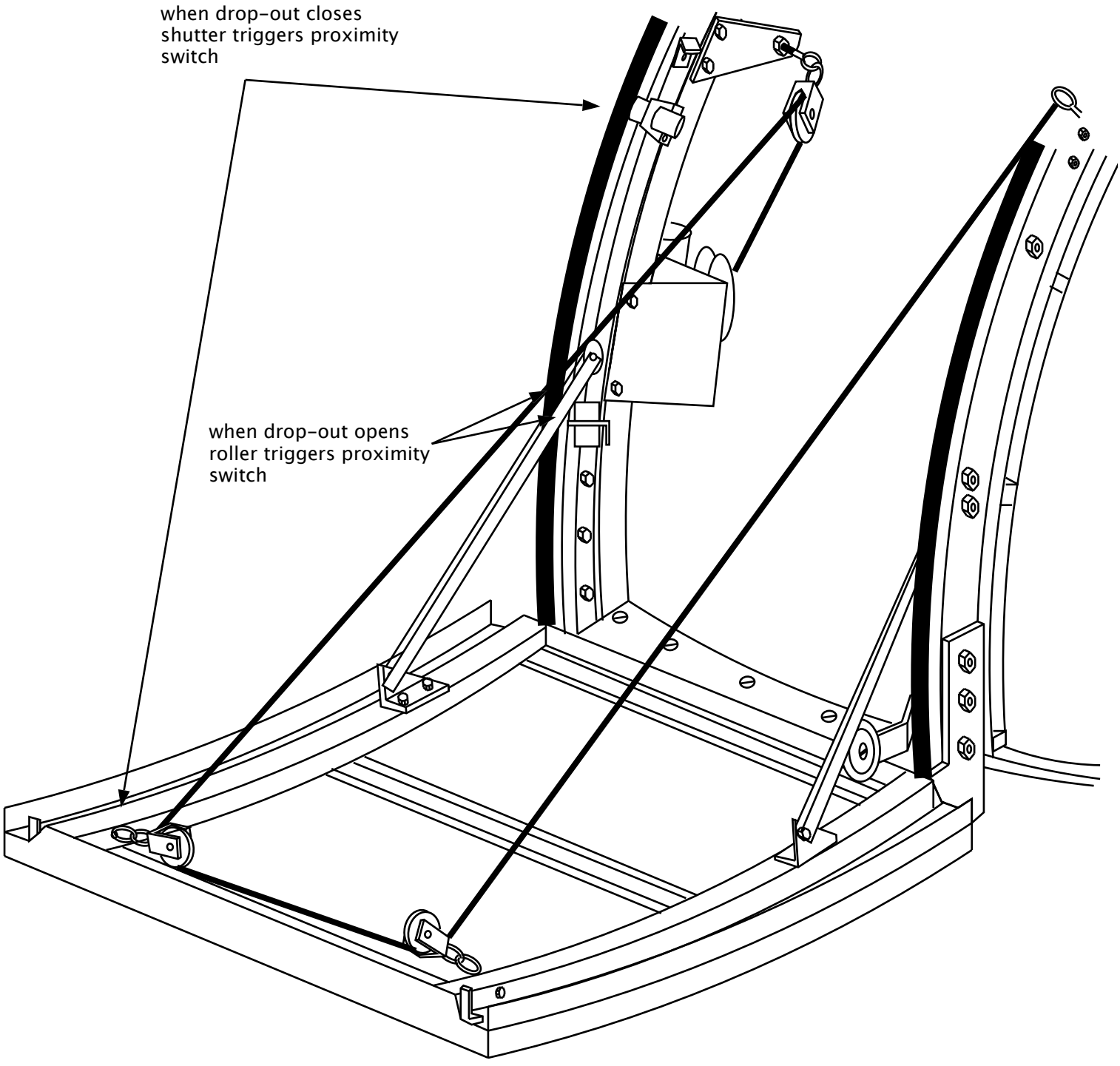
Installation of Shutter Sections



shutter roller shaft should be greased at this time

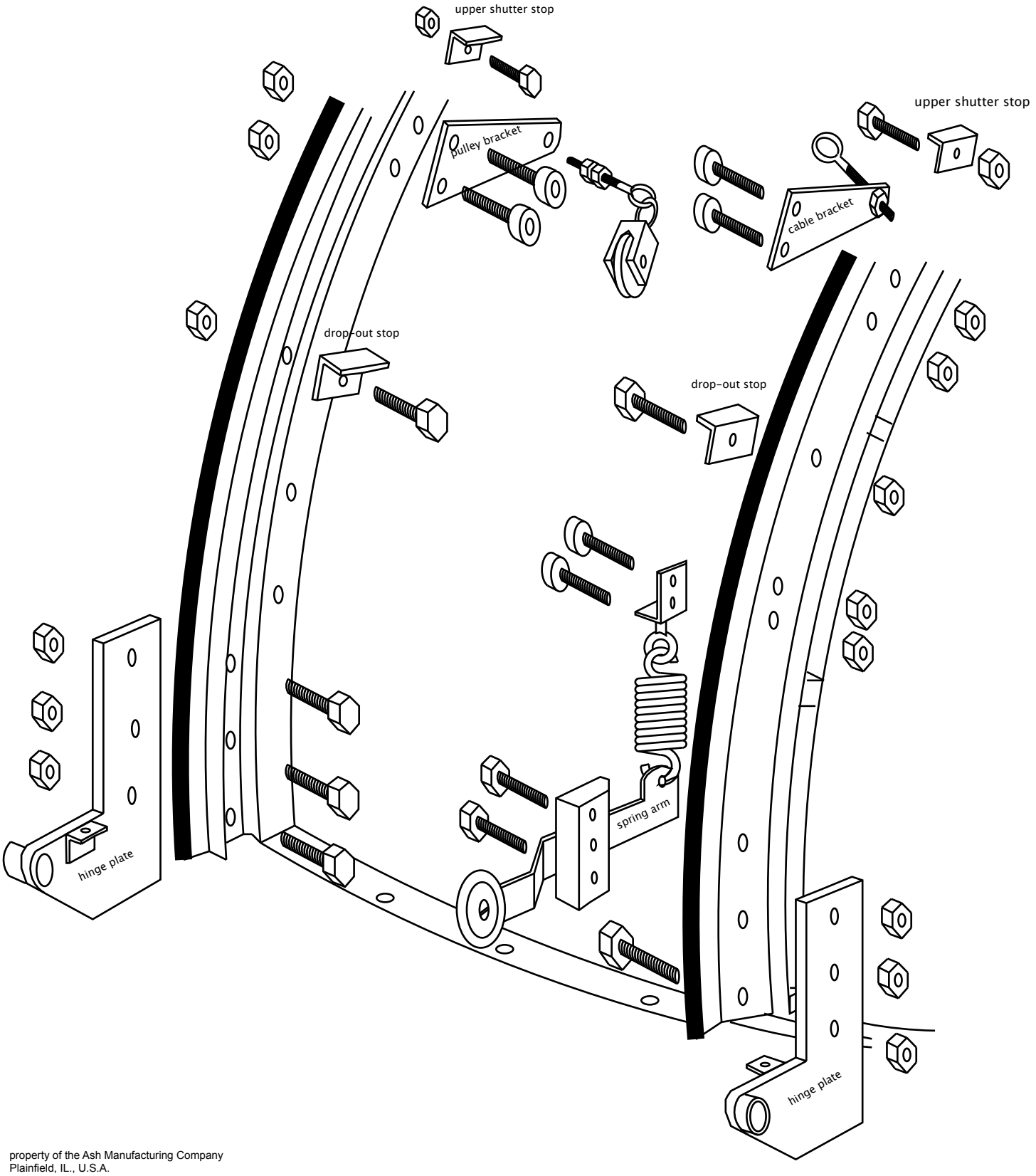
property of the Ash Manufacturing Company
Plainfield, IL. U.S.A.

Type 'B' Drop-out Information



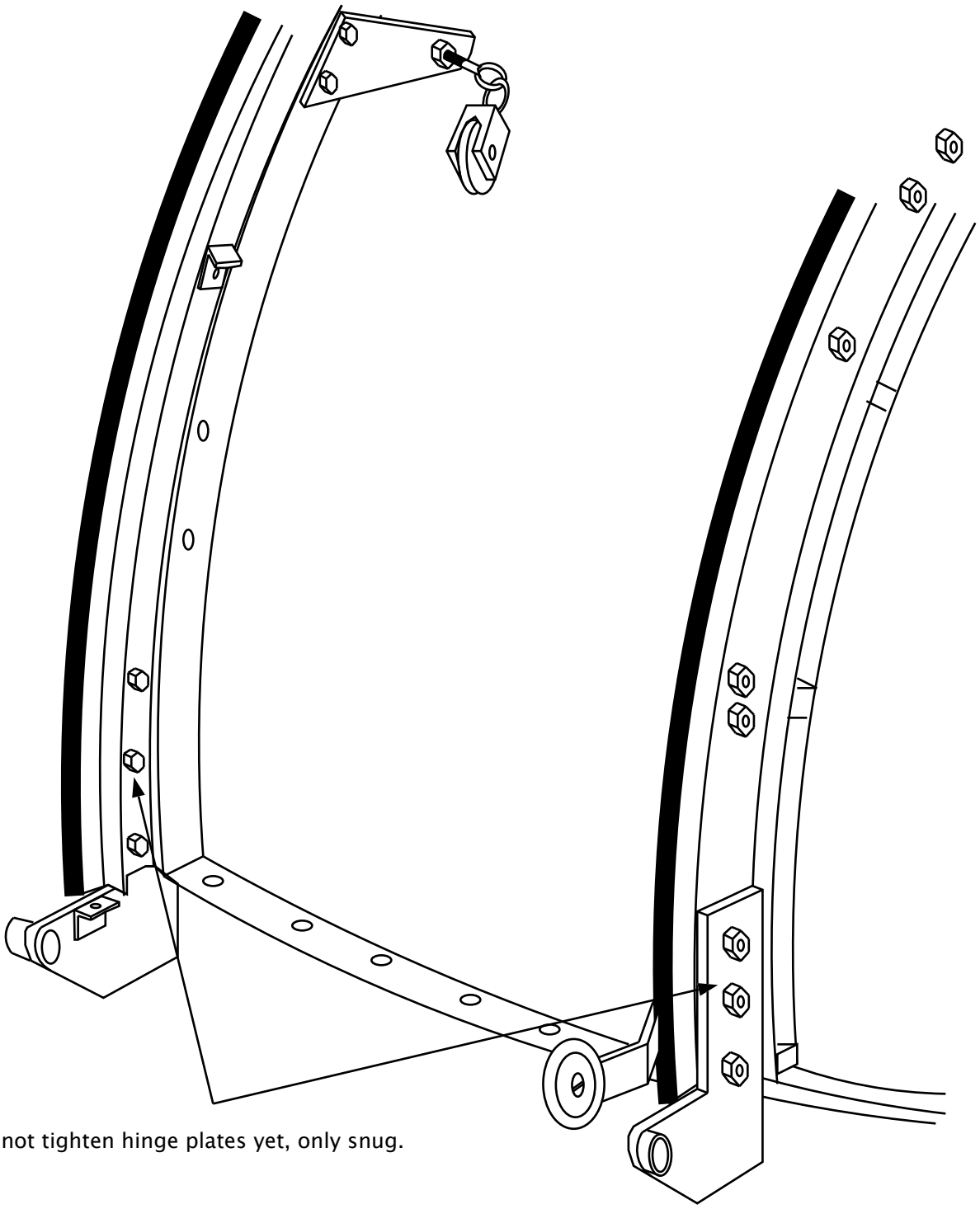
property of the Ash Manufacturing Company
Plainfield, IL., U.S.A.

Type 'B' Drop-out Information



property of the Ash Manufacturing Company
Plainfield, IL., U.S.A.

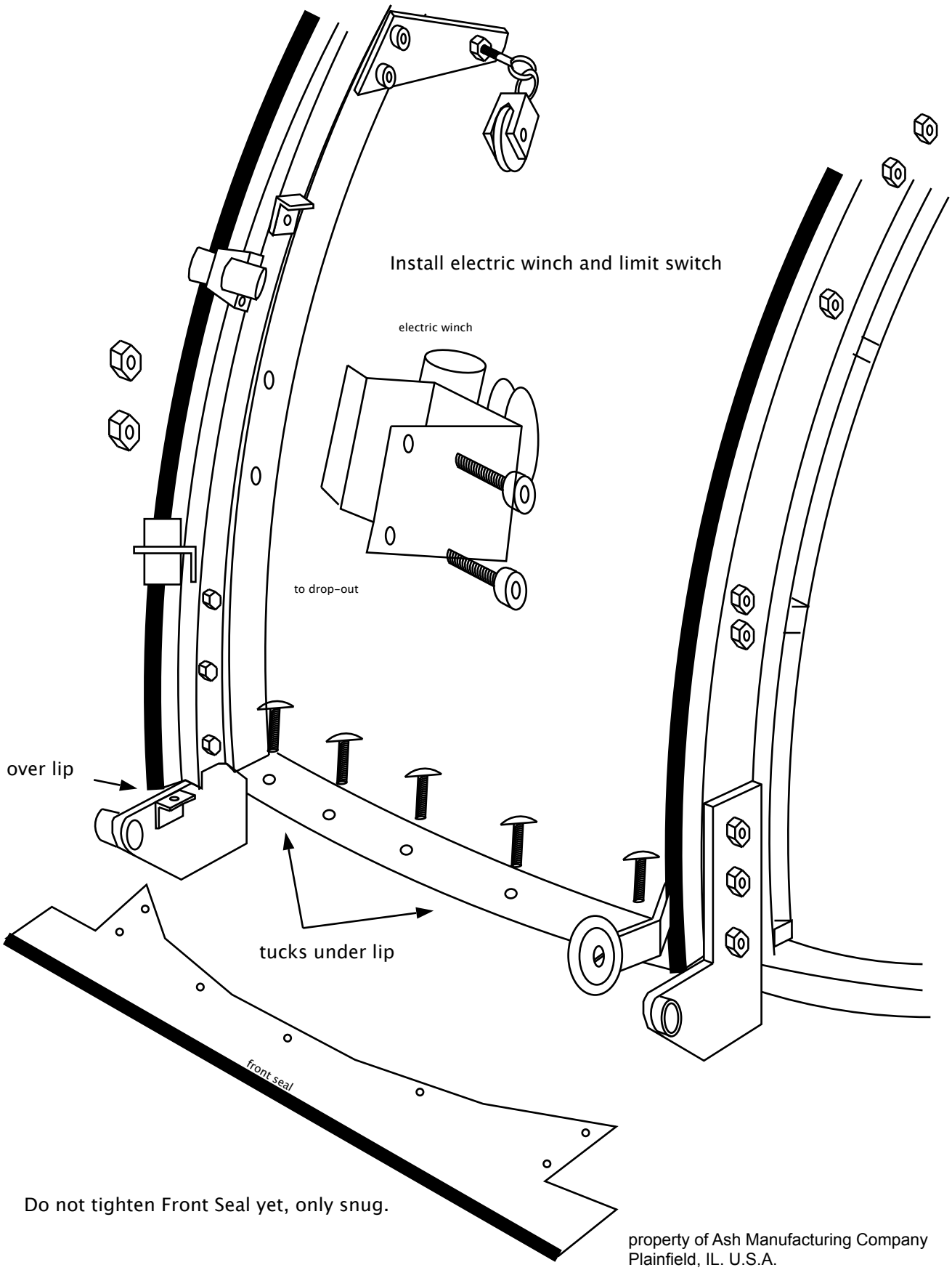
Type 'B' Drop-out Information



Do not tighten hinge plates yet, only snug.

property of the Ash Manufacturing Company
Plainfield, IL., U.S.A.

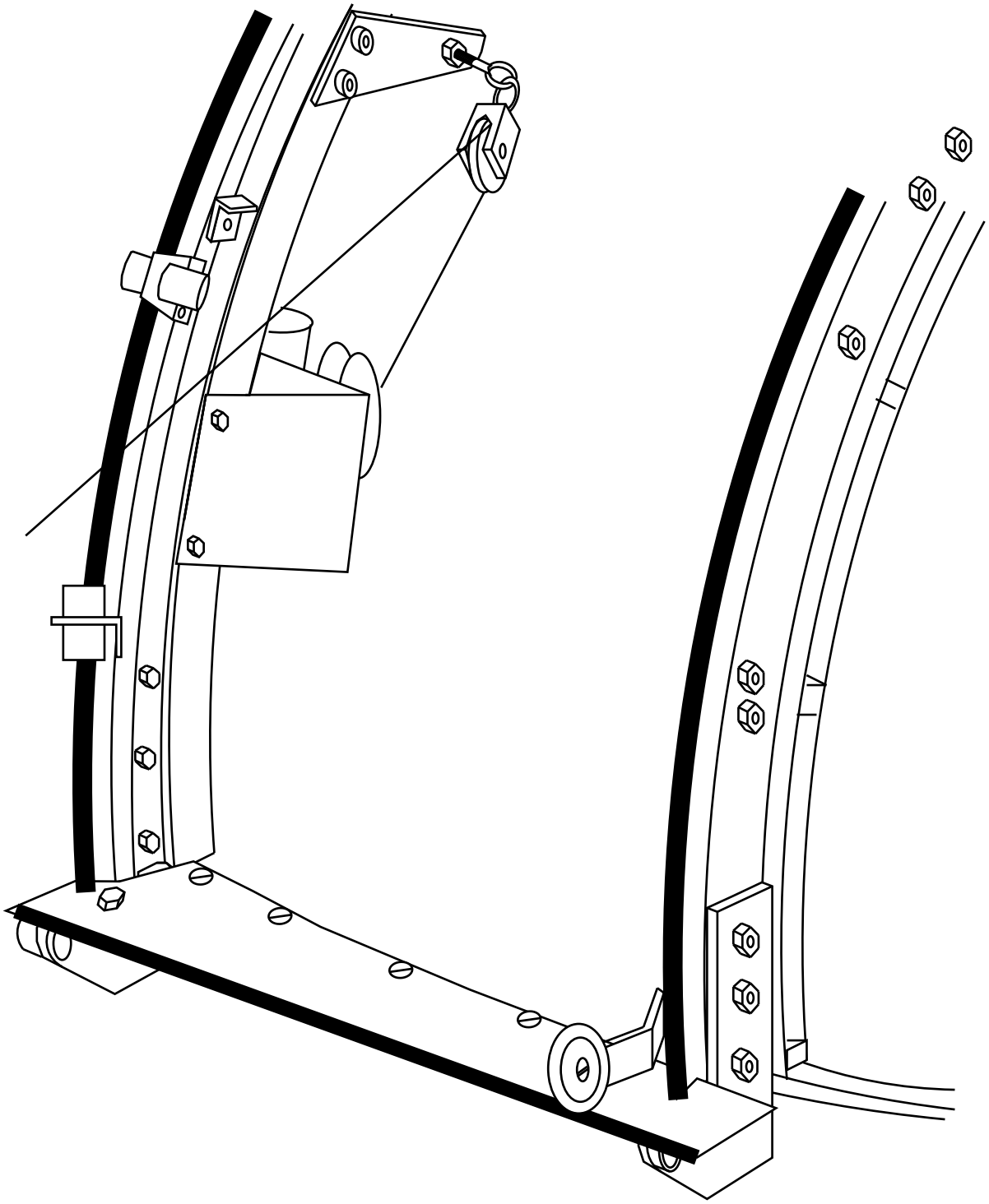
Type 'B' Drop-out Information



Do not tighten Front Seal yet, only snug.

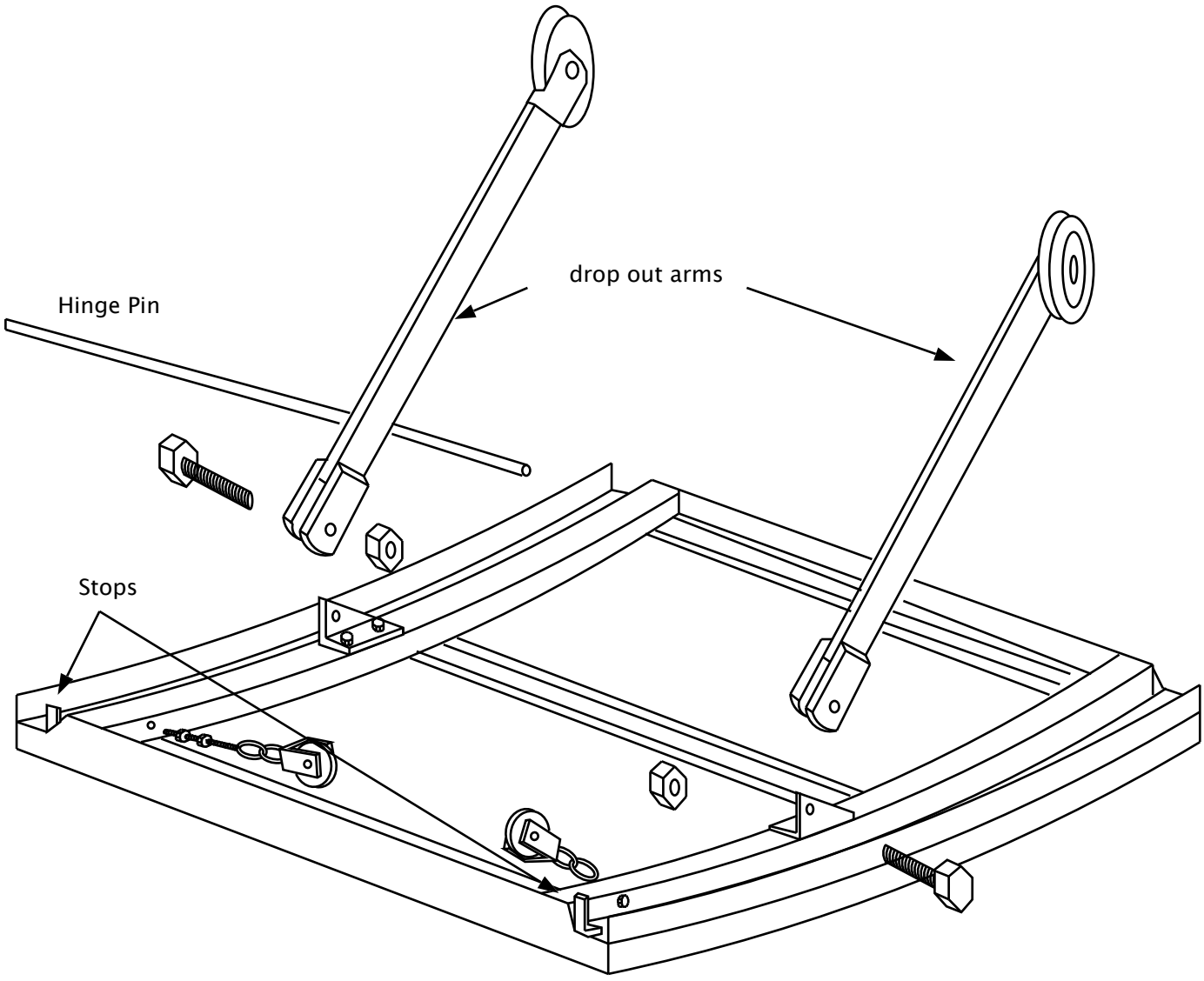
property of Ash Manufacturing Company
Plainfield, IL. U.S.A.

Type 'B' Drop-out Information



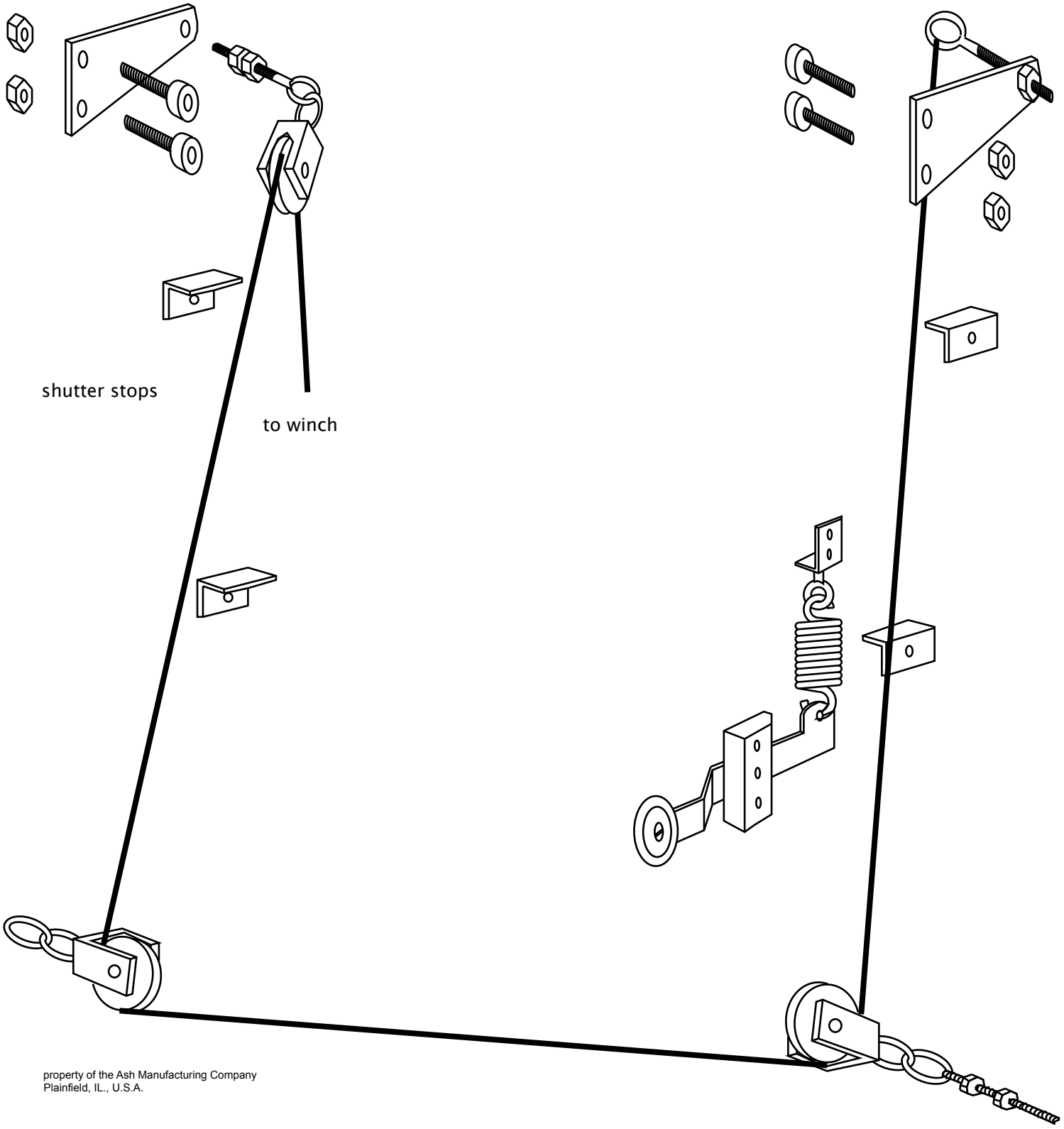
property of Ash Manufacturing Company
Plainfield, IL. U.S.A.

Type 'B' Drop-out Information



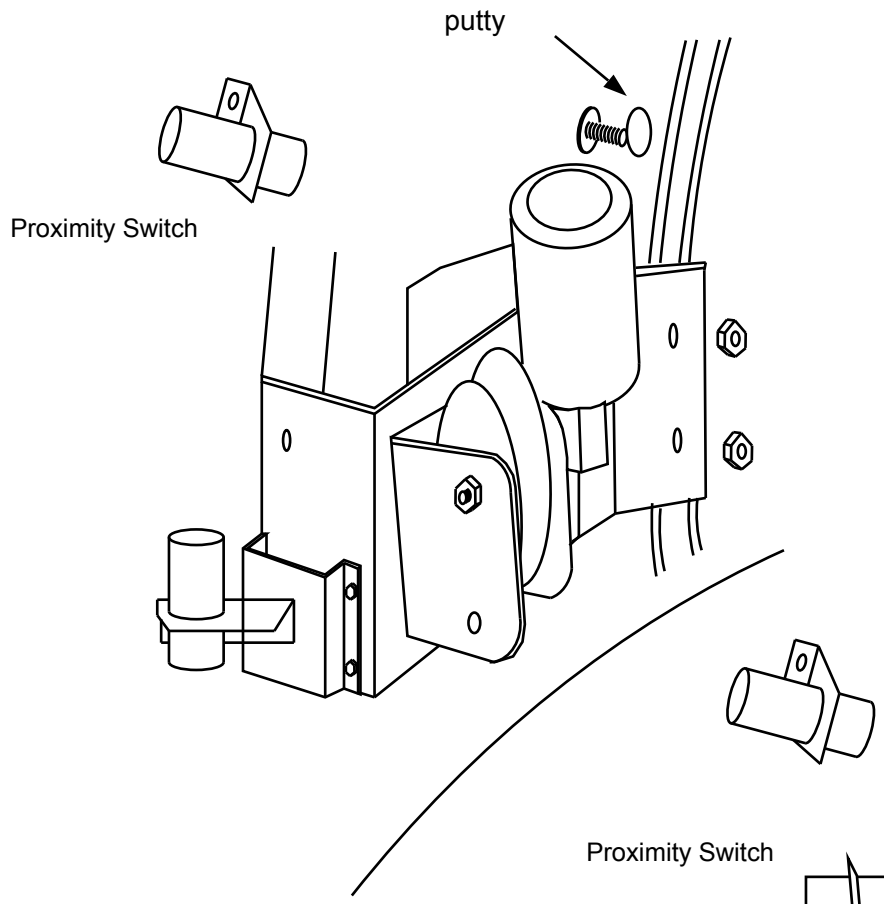
property of the Ash Manufacturing Company
Plainfield, IL., U.S.A.

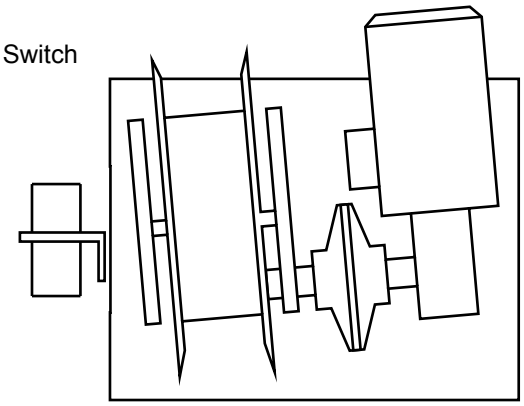
Type 'B' Drop-out Information

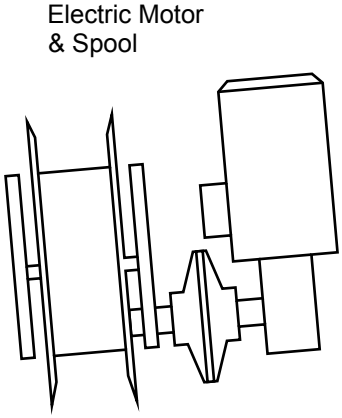


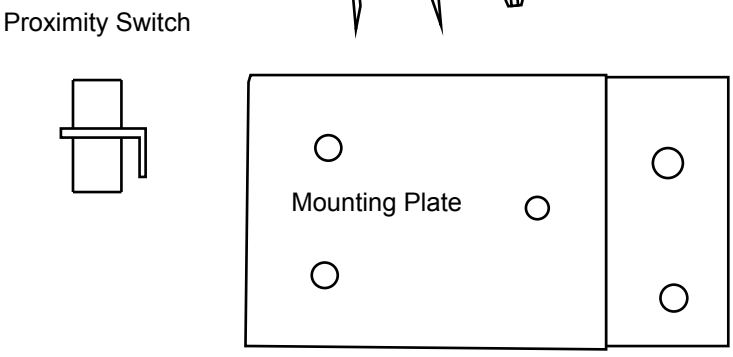
property of the Ash Manufacturing Company
Plainfield, IL., U.S.A.

Type 'B' Drop-out Information



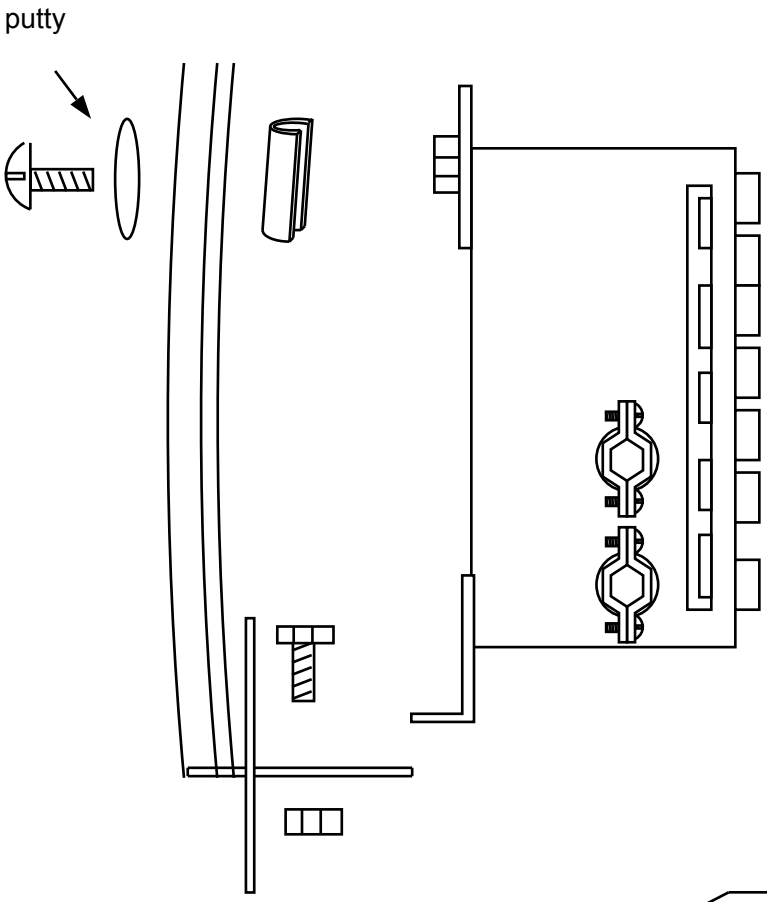


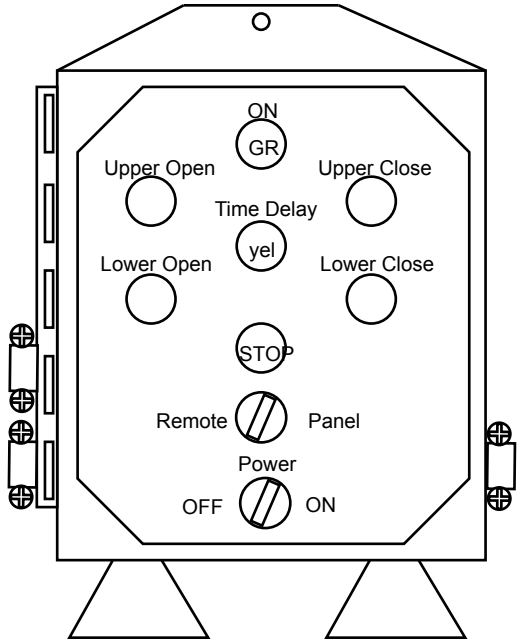




property of Ash Manufacturing Company
Plainfield, IL. U.S.A.

Type 'B' Drop-out Information

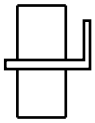




property of Ash Manufacturing Company
Plainfield, IL. U.S.A.

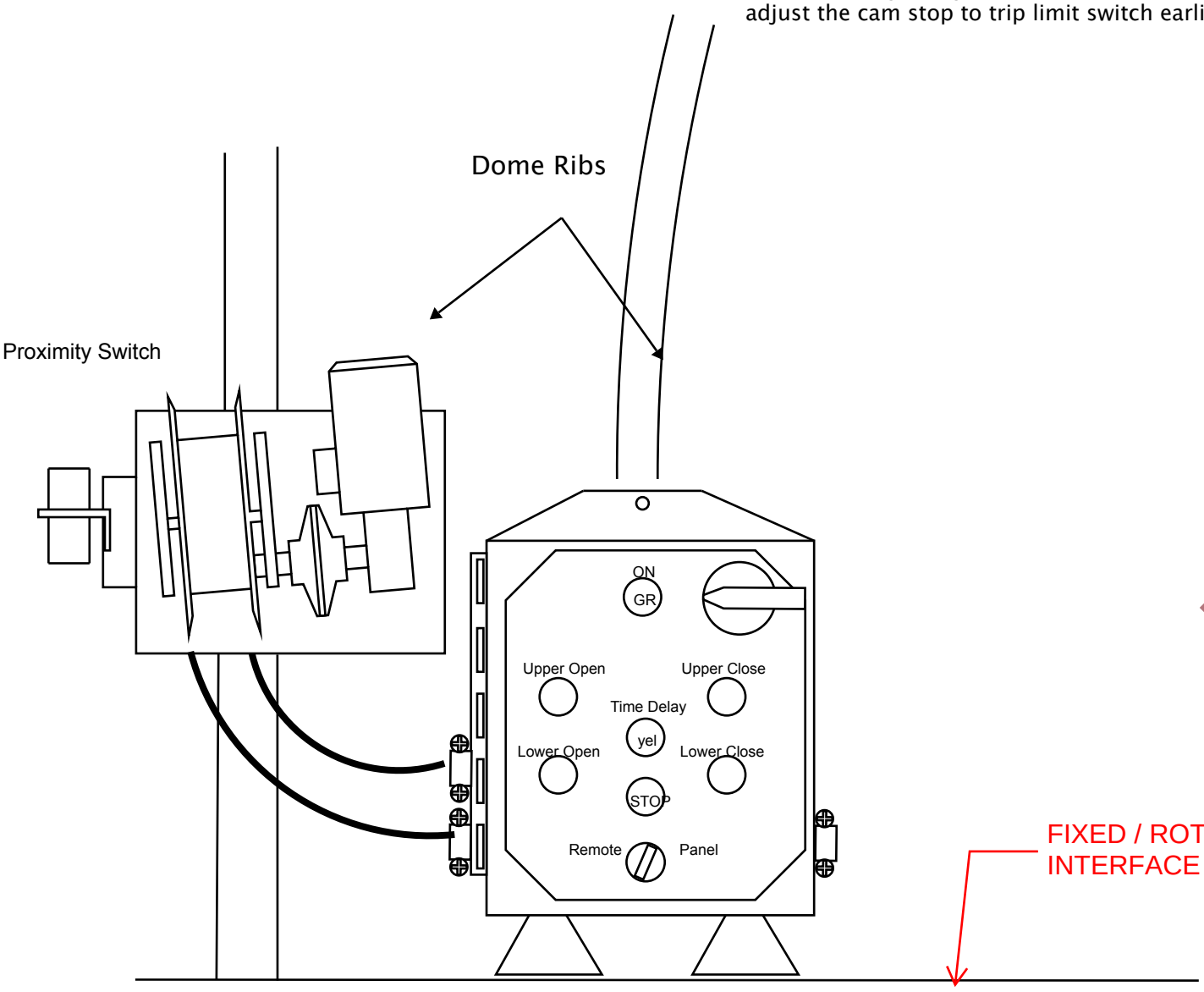
Type 'B' Drop-out Information

Proximity Switch



Inside Looking Out

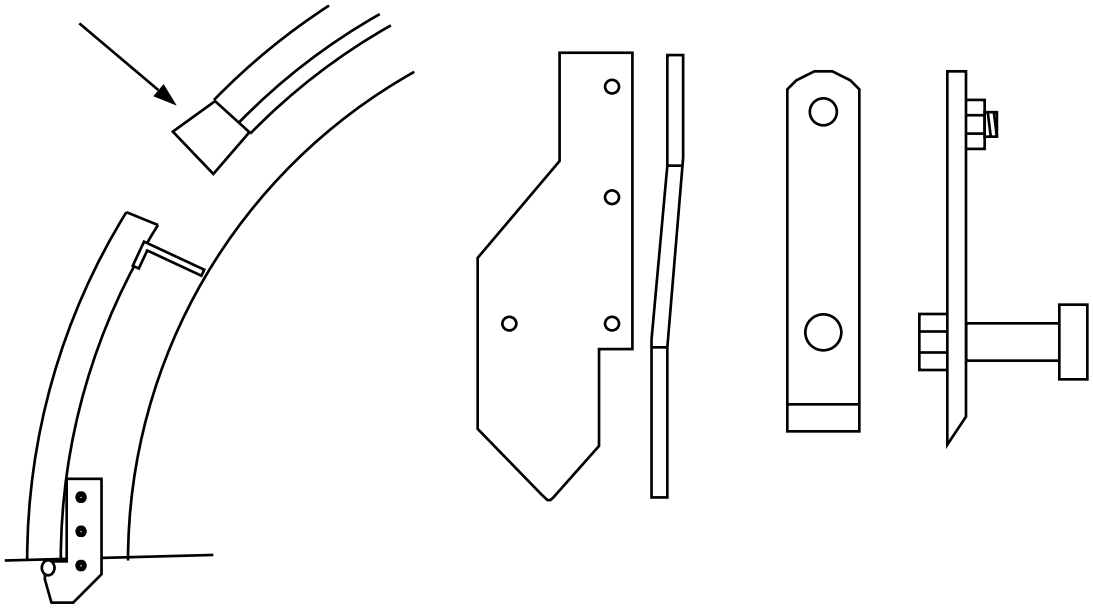
When the drop-out comes completely closed the cable will tighten and the cluch will slip once or twice. 'Bang, Bang'. This is OK. If 3 or 4 times adjust the cam stop to trip limit switch earlier.



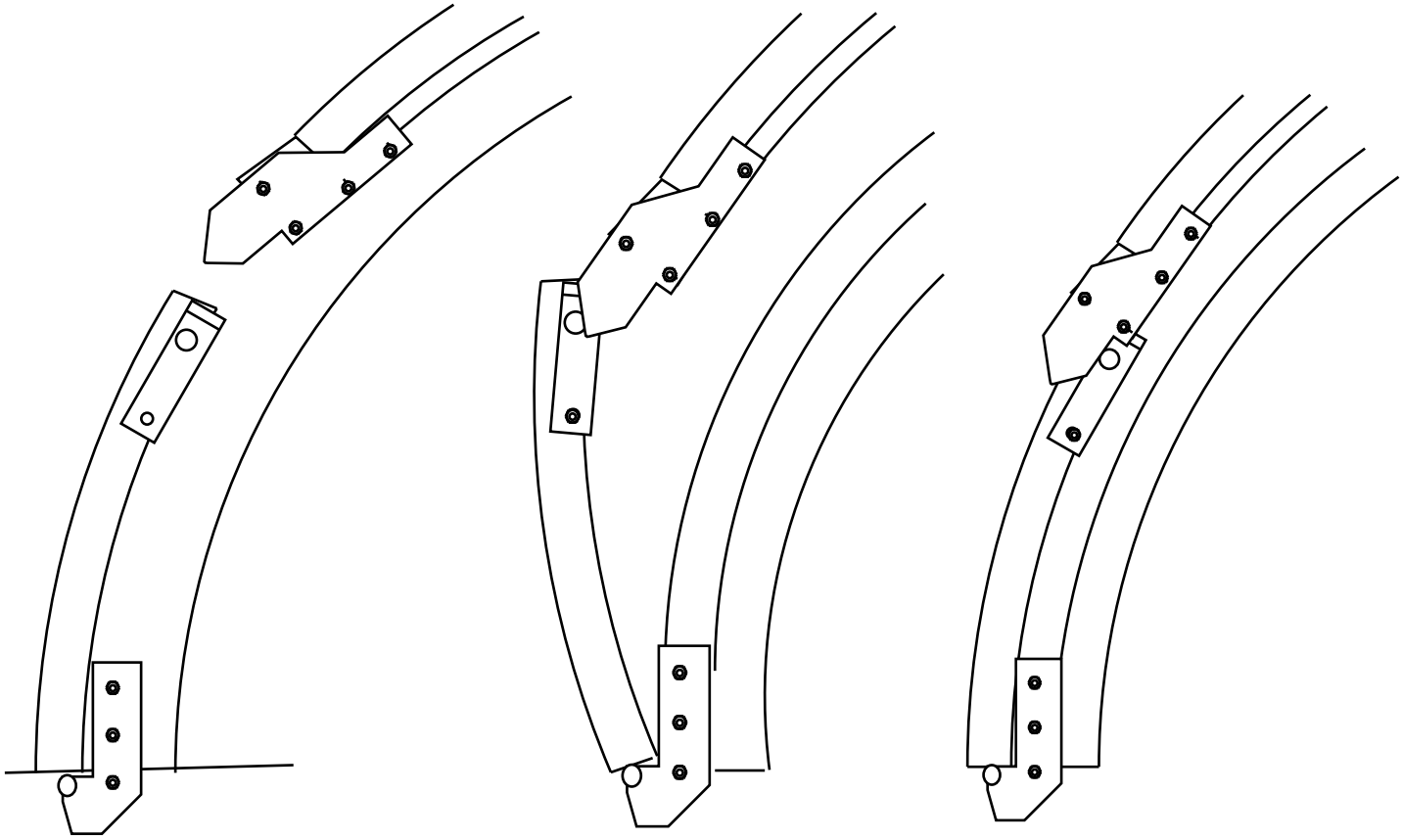
property of Ash Manufacturing Company
Plainfield, IL. U.S.A.

Type 'B' Shutter Mechanical Safety

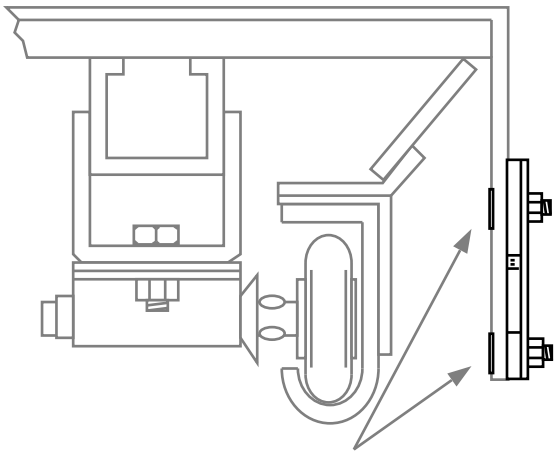
upper door has overlap



The idea is if the Lower Door is not completely closed the Arrow Head will either force the lower door closed or force it open enough to clear the flap on the upper shutter section. Basically it keeps to 2 doors from crashing together and possibly knocking the hinge out of alignment.

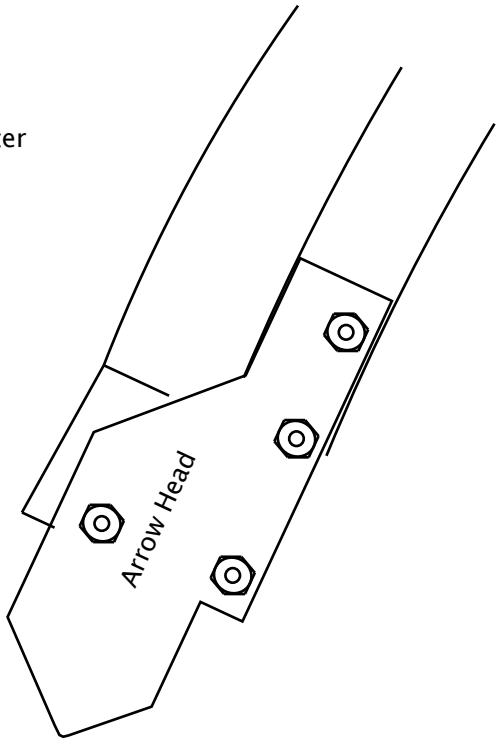


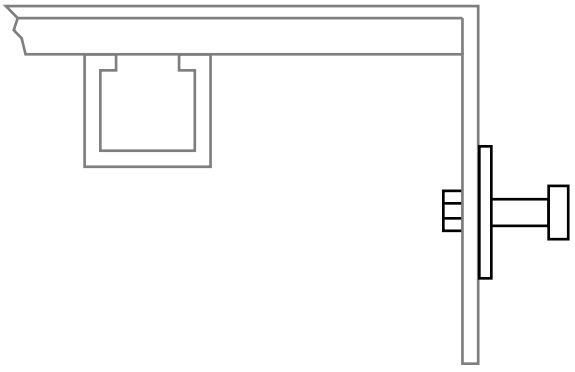
Type 'B' Shutter Mechanical Safety



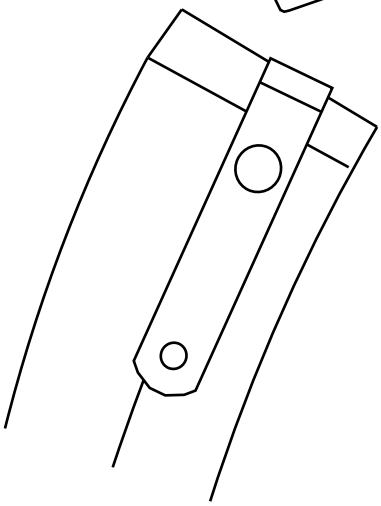
Use flat head bolts. nuts on the outside

Upper Shutter

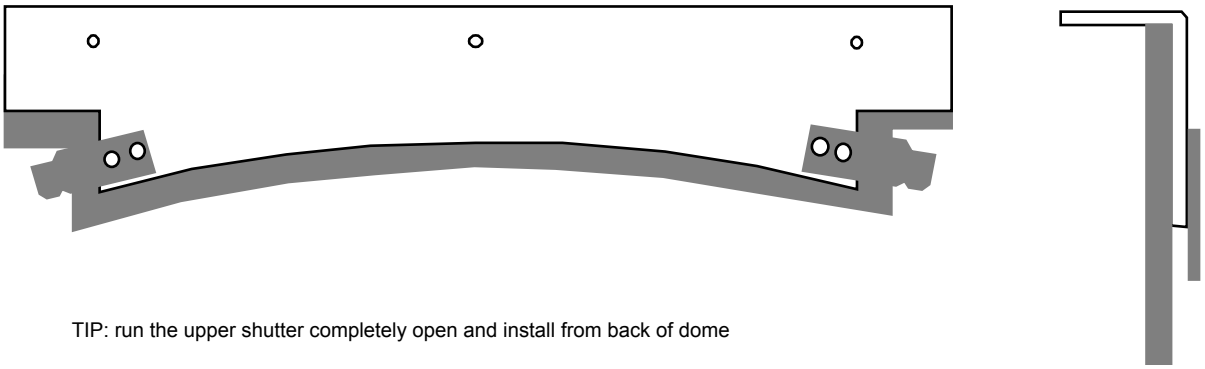




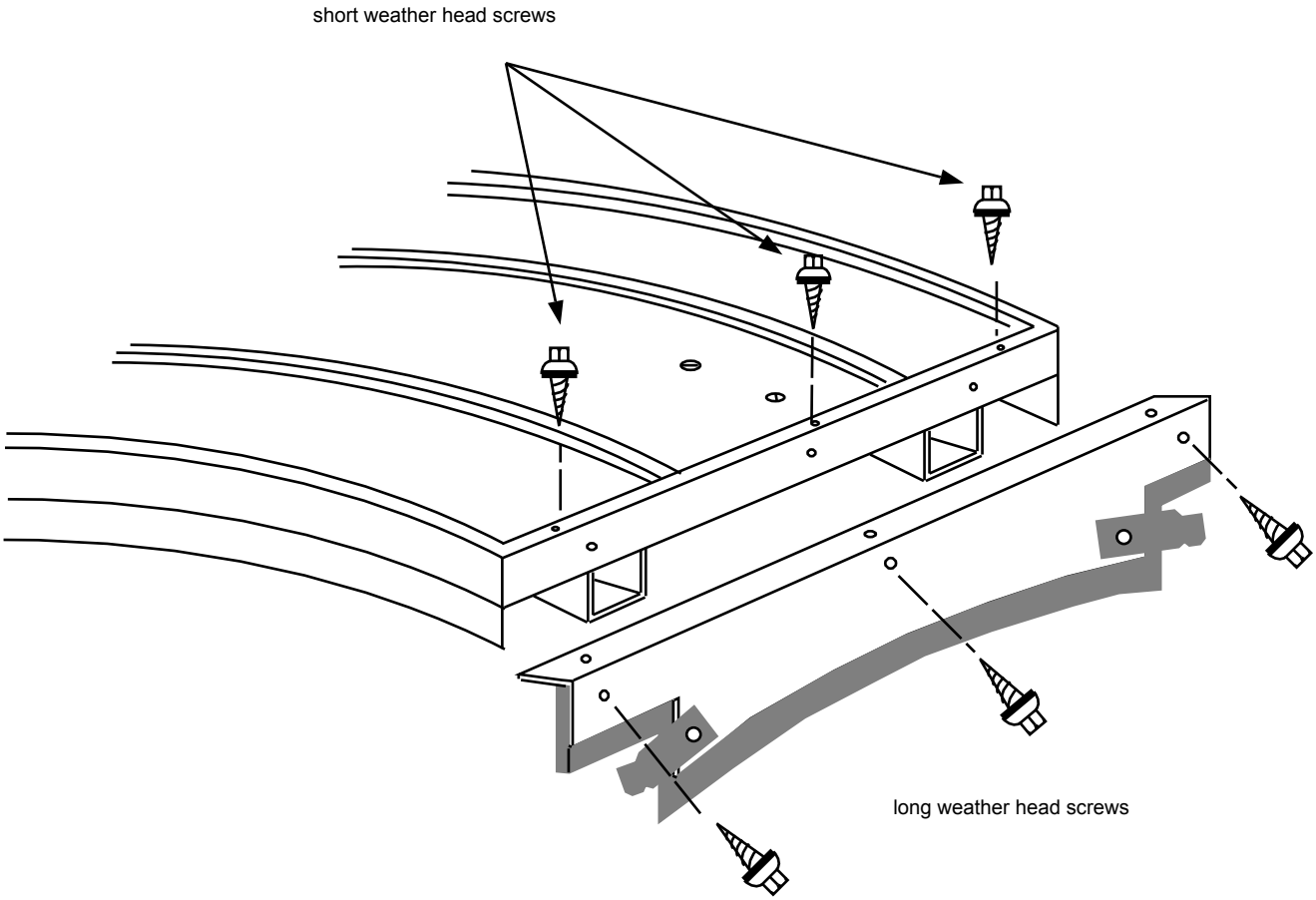
Type 'B' Drop-out Shutter



Installation of Back Shutter Seal



TIP: run the upper shutter completely open and install from back of dome



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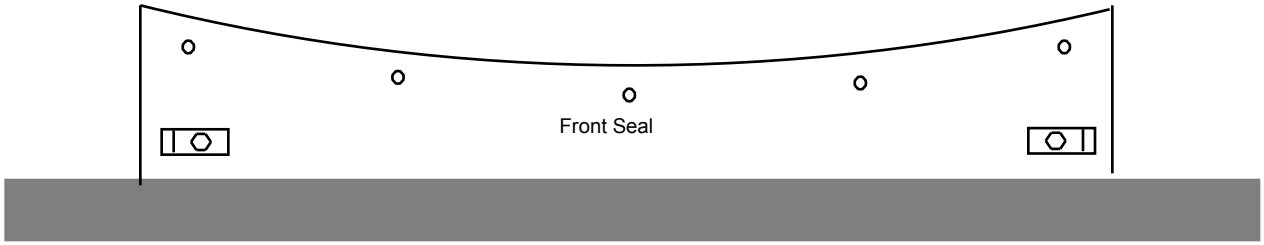
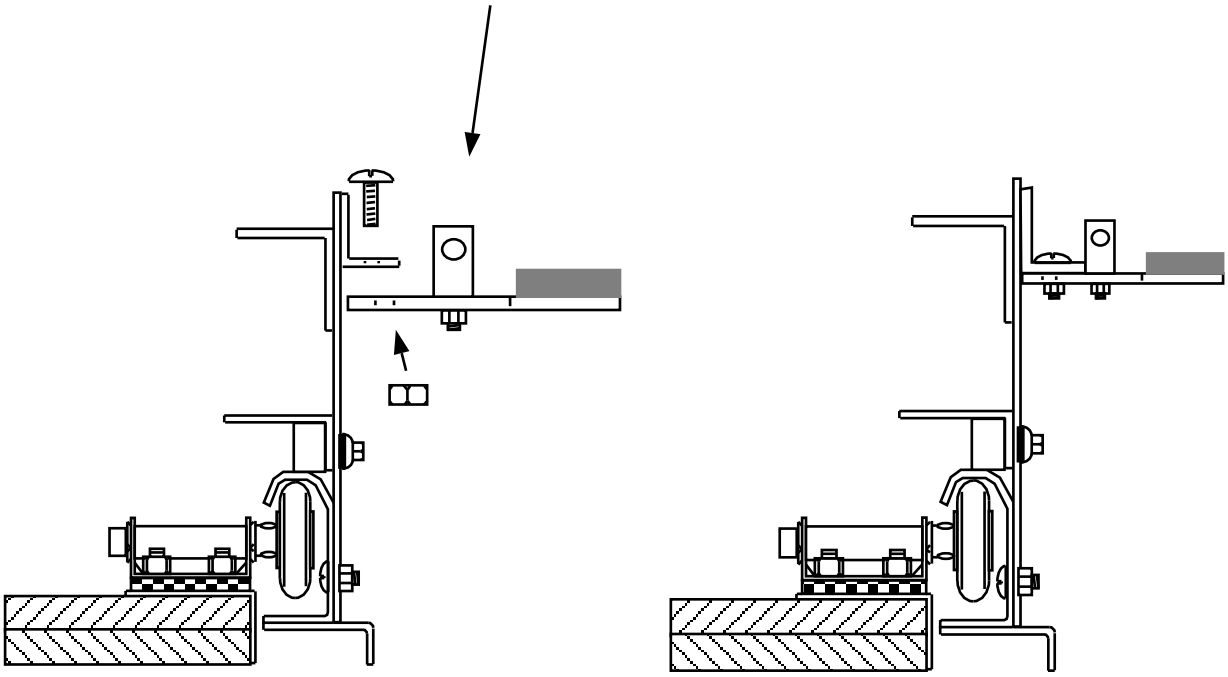
Installation of Front Shutter Seal

step#8



TAB bolt goes through overhead shutter track



Front Shutter Seal slides under front of skirt

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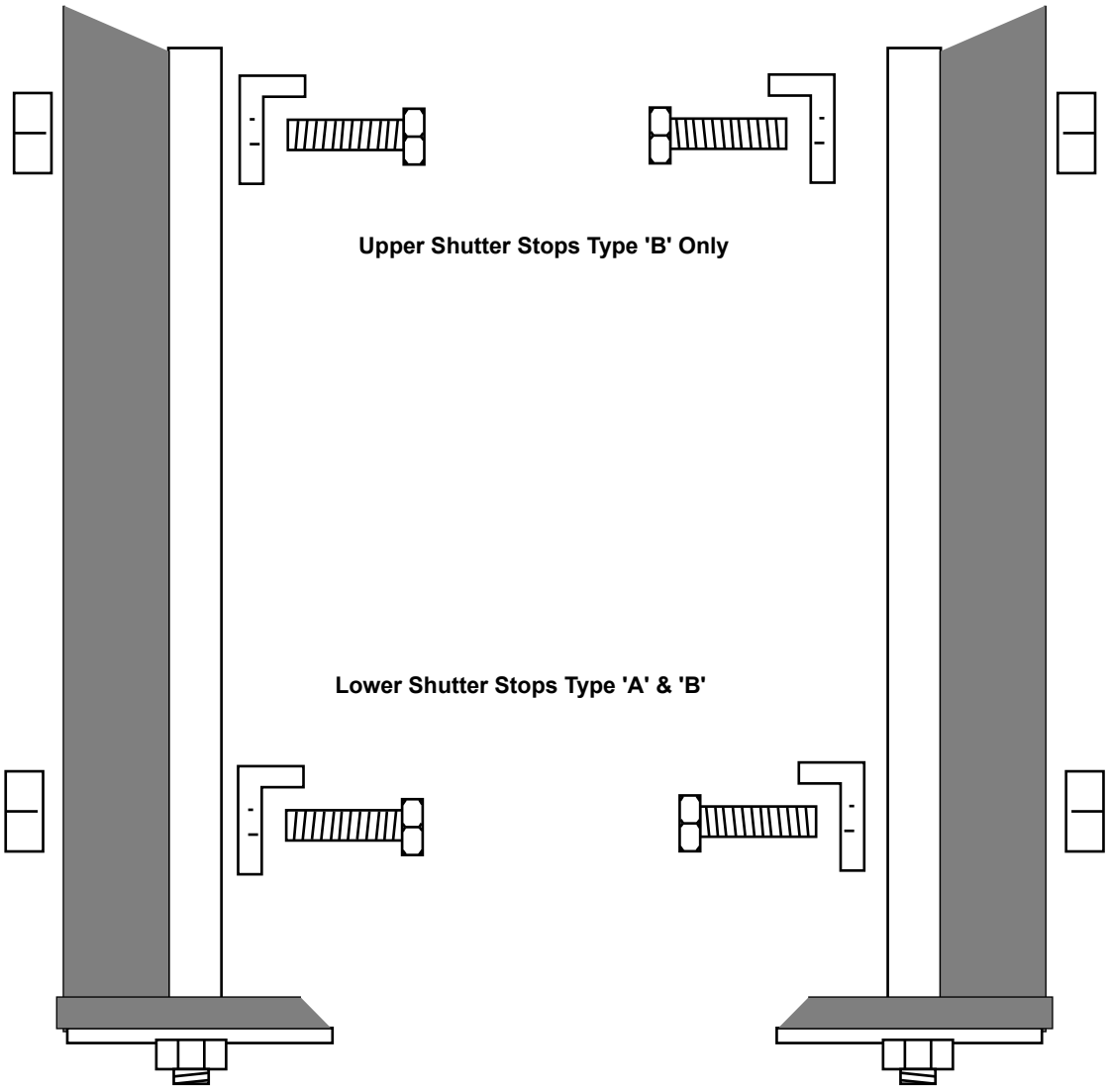
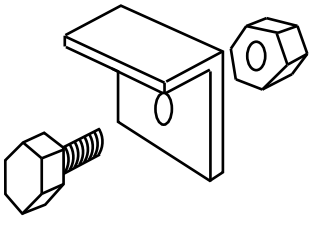
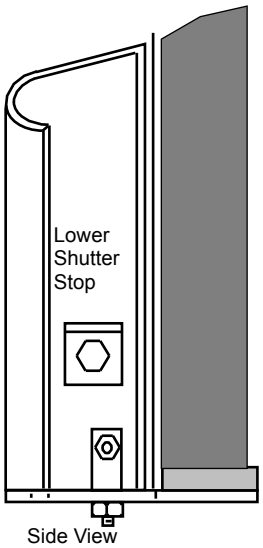
Shutter Stops



Upper Shutter Stops Type 'B' Only

Lower Shutter Stops Type 'A' & 'B'





Side View

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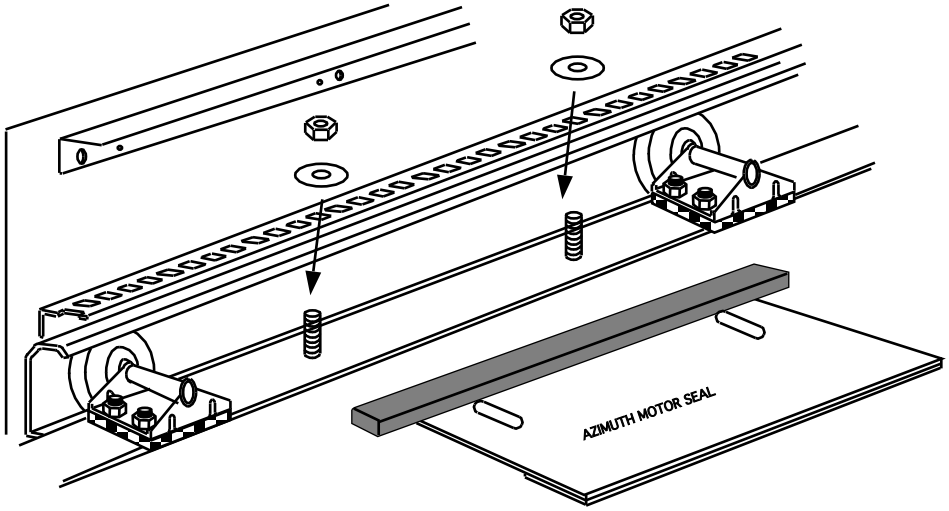
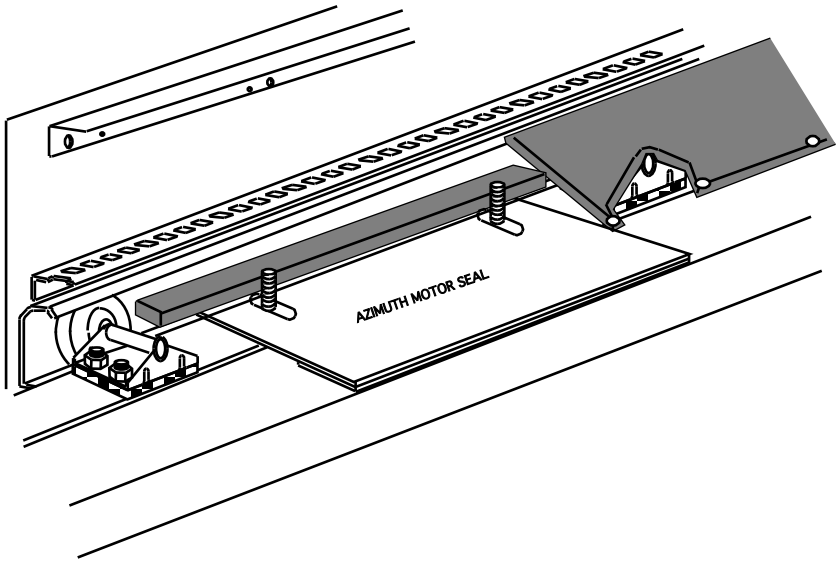
remove nuts and washers





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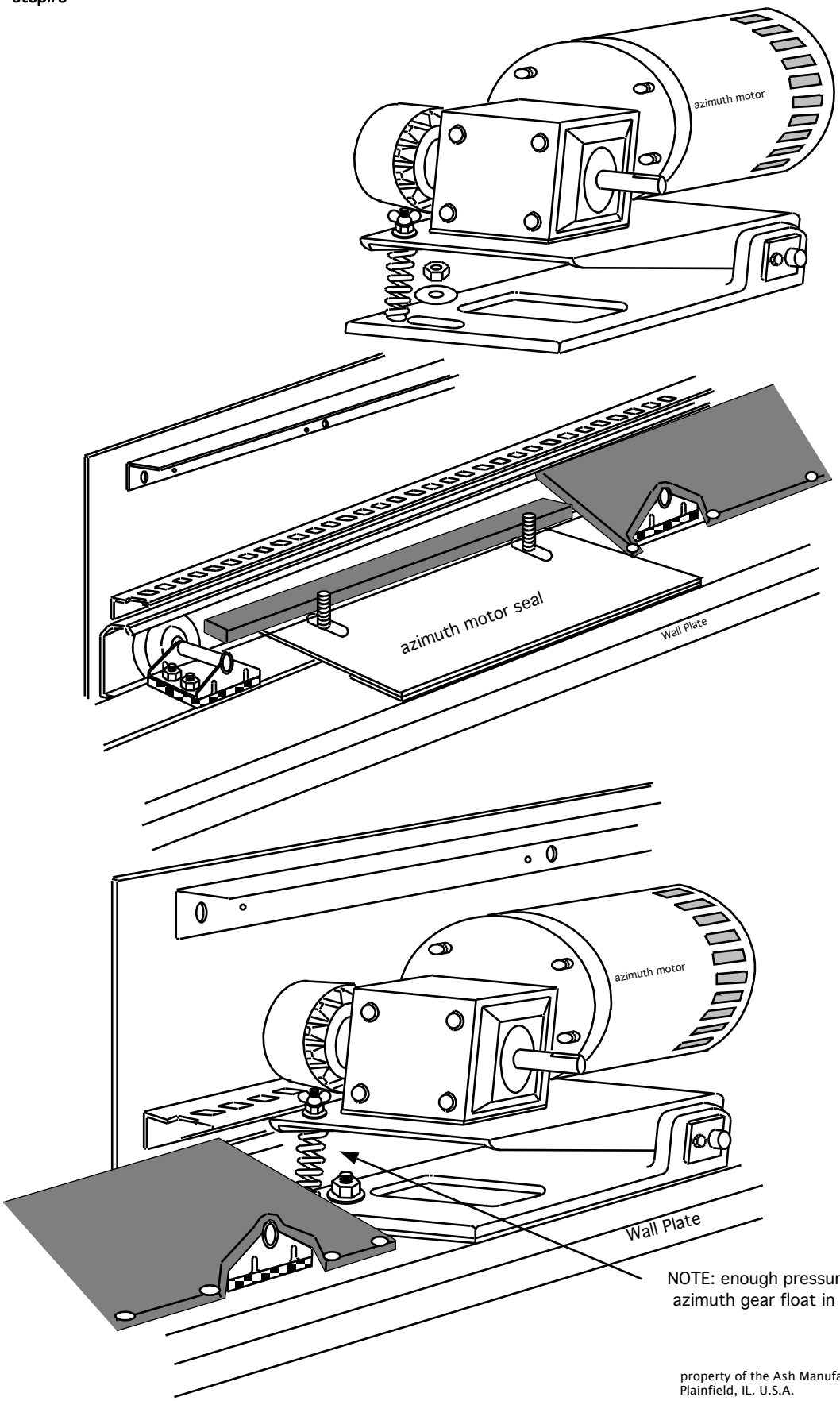
Installing Azimuth Motor



NOTE: enough pressure on spring to allow the azimuth gear float in track

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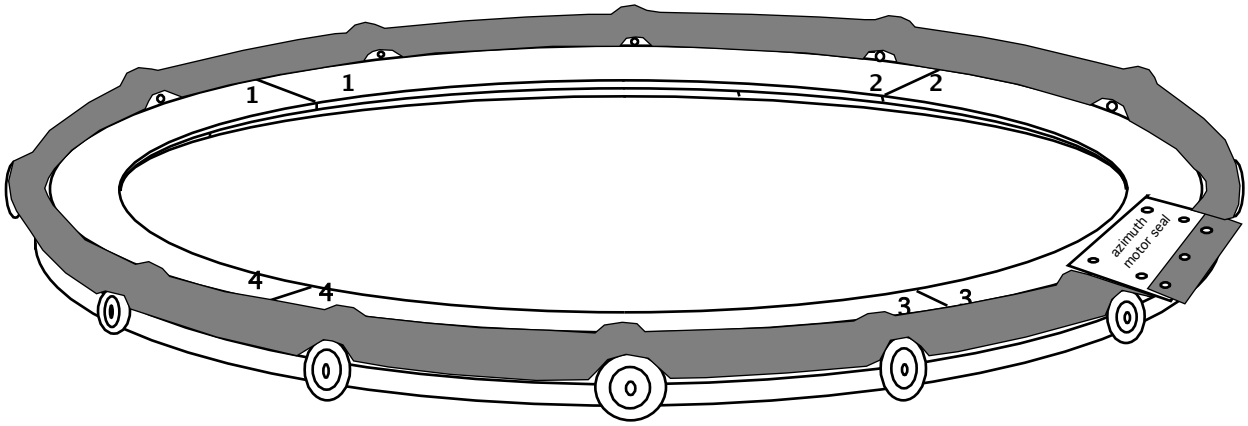
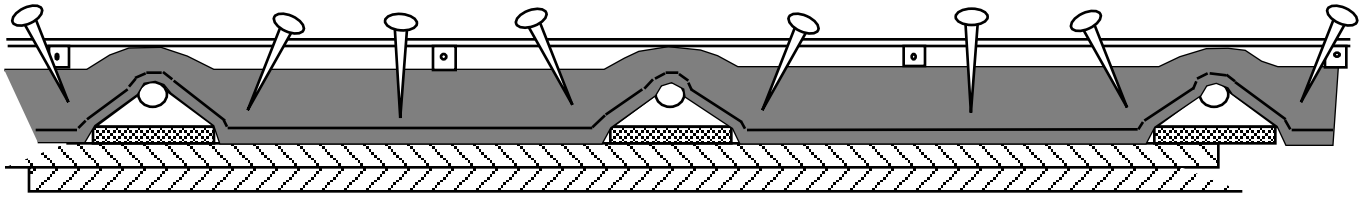
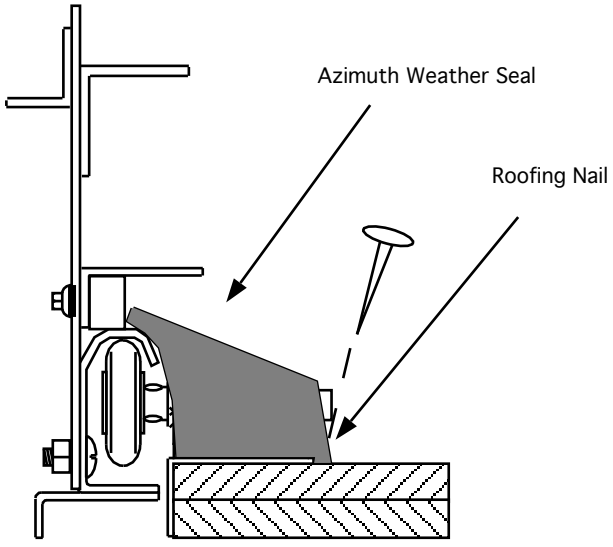
Azimuth Weather Seal



inside dome looking at dome skirt





Ash-Dome wall plate

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