



SETUP MANUAL



SINGLE CORRUGATED BINS



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PATENT INFORMATION



Meridian continuously enhances its product offering through product improvements and new product innovations. Marketplace feedback, technological innovation, new materials and manufacturing methods, and a philosophy of continuous improvement constantly challenge the company to develop new and better ways of addressing market needs. Meridian is committed to innovation and reinvestment and as a result, the company maintains a portfolio of patents and intellectual property. For more information on our patents please see our website: www.meridianmfg.com/patents

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Foundation Design

The foundations for the stiffened bin models are based on 4000 lbs. per sq. ft. (192 kPa) soil bearing capacity. All foundation designs use 3625 lbs. per sq. in. (25 MPa) ultimate compressive strength (after 28 days) for concrete and 43,5000 lbs. per sq. in. (300 MPa) re-bar. The foundation designs included in this manual are suggestions only, and will vary according to local soil conditions. Meridian will not assume any liability for results arising from their use.

IMPORTANT: Foundation should be uniform and level. Level should not vary by more than ¼" over a span of four feet under the bottom ring angle. Any variance from level must be shimmed under upright base assembly. If being utilized to support a full floor aeration system, this levelness requirement should extend across the complete floor area.

Method of Erection

The recommendations for erecting Meridian Grain Bins should be closely followed to achieve the full strength of the bin and to achieve adequate weather sealing. Warranty is void if the recommendations are not followed including but not limited to:

1. Wall sheets and/or uprights, which are not specified for a given tier, are used.
2. Foundations are found to be inadequate or out-of-level.
3. Anchor bolts (cast-in-place, drill-in, chemical type or other) are found to be inadequate.
4. Off-center loading or unloading is used. This does not apply to the use of approved side unloading systems.
5. Materials stored are not free-flowing or have a compacted bulk density greater than 55 lbs./ft³ (800 kg/m³)

If using Bin Jacks: Always lift on an upright. Choose a hoist with a suitable capacity for the expected empty bin deadload. Make sure the rated capacity of the hoist is not exceeded.

Design

These Meridian Grain Bins are designed for:

1. Non-corrosive, free-flowing materials up to 55 lbs./ft³ (880 kg/m³) average compacted bulk density.
2. Maximum horizontal gusted wind speed of 94 mph (151 km/h).
3. Seismic Zone 2a (U.B.C. 1997).
4. 15.0 lbs./ft² (.72 kPa) roof snow load.
24.0 lbs./ft² (1.15 kPa) roof snow load when the optional roof stiffening rings are installed.
5. 4000 lbs. (17.8 kN) evenly distributed on peak ring for 15' - 24' bins.
5000 lbs. (22.2 kN) evenly distributed on peak ring for 27' - 42' bins.

Site and Assembly

Unless otherwise specifically provided in writing, Meridian does not take responsibility for any defects or damages to any property, or injury to any persons, arising from or related to any site or assembly considerations, including but not limited to:

- Bin location and bin siting.

DISCLAIMERS

- Soil conditions and corresponding foundation requirements. (note that the examples provided in manuals are for specifically stated soil conditions)
- Bin assembly. (Meridian recommends the use of qualified bin installers; contact Meridian for information on installers in your area)
- Field modifications or equipment additions that affect the bin structure.
- Interconnections with neighbouring structures.
- Compliance with all applicable safety standards, including but not limited to fall restraint systems (ladders or other systems). Local safety authorities should be contacted as standards vary between jurisdictions.

Critical Assembly Requirements

1. Local code and jurisdictional requirements that are applicable to the grain bin installation must be adhered to.
2. Foundations must be designed for the loads being imparted to them, and for local soil conditions. Meridian foundations guidelines are for a set of stated conditions and may not be applicable to local conditions.
3. A foundation must provide uniform and level support to the grain bin structure being supported. Surface imperfections causing gapping must be remedied. This may involve, but not limited to - grouting under the bottom ring of a non-stiffened bin, and shimming under the uprights of a stiffened bin or under the legs of a hopper.
4. If extending an existing bin, ensure that the foundation is adequate for the increased loads that will be subjected to it.
5. If installing an existing bin on a hopper, ensure that the bin is designed for a hopper application, and that the foundation is capable of withstanding the substantial point loads that the hopper legs apply. If uprights are present, ensure that they are supported.
6. Ensure that the proper hardware is utilized for all bolted connections. Refer to the 'Hardware "Where Used" Chart' in the Installation Manual. If a shortage occurs do not substitute. Take the necessary steps to obtain the proper hardware. Ensure nuts are tightened to the required torque values as provided in the Installation Manual.
7. Refer to the appropriate Installation Manual to ensure a safe, proper structure, in particular but not exclusively for the wall sheet and upright layouts. **Do not deviate from the layouts provided.**
8. Ensure that an integral end-to-end overlap connection exists between mating uprights. Successive uprights must not overlap.
9. Vertical tolerances between uprights and wall sheets are tight. This can be affected by "jacking" techniques, which can allow the tolerance to grow or shrink depending on the technique used. The gapping between successive uprights must be monitored to ensure that upright holes align with bin sheet holes.
10. When installing roof stiffening rings, and if it is necessary to shorten the stiffening ring tubes, shorten them as little as possible. Initially the nuts on the expanders should be centered and as close together as possible. When tightening, share the amount of take-up between expanders such that the nuts remain centered, and the amount of engagement between all expanders on the same ring is equalized. On roofs with multiple stiffening rings, stagger the joints to avoid having more than one joint on the same roof sheet.
11. Before anchoring the bin to the foundation, ensure that the bin is round. The maximum variation from perfect roundness is 3/4" on the radius (see details in "wall sheet and bottom angle" section of the manual). Locate anchor bolts towards the outside of the anchor bolt holes (away from bin) to permit the incremental expansion that can occur with the initial filling.

IMPORTANT DISCLAIMERS

Grain Bin Use

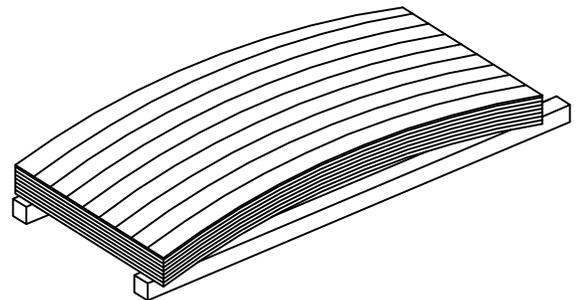
1. Do not off-center unload a grain bin. It is imperative to unload from the center of the bin first, until as much grain as possible has been removed, and only then proceed to unload from the next closest unload gate to the center. Continue utilizing the unload gates in succession from the center towards the outside. Gate control mechanisms should be clearly marked and interconnected to prevent an external gate from being opened first.
2. The only exception to center unloading is when a properly designed and installed side draw system is utilized. However, as bins tend to go out of round when employing side draws, the bin must be completely emptied before refilling.
3. When unloading a bin with a mobile auger through a properly designed auger chute, the entry end of the auger should be pushed into the center of the bin before the auger is engaged. Slower rates of flow are preferable.
4. Ensure that the inner door panels of grain bin doors are completely closed and latched before filling the grain bin.
5. Never enter a loaded grain bin for any reason.

Rust on Galvanized Parts

1. White rust forms when moisture is allowed to collect on galvanized surfaces that have yet to develop the durable zinc oxide layer. This zinc oxide layer naturally occurs as the surface interacts with carbon dioxide, and is characterized over time by the dull grey appearance that weathered galvanized surfaces get.
2. Parts that are not well ventilated or well drained can collect water between surfaces and develop white rust.
3. White rust is not a structural concern if its development is stopped in the early stages. A light film or powdery residue can occur after a period of heavy rainfall or a short time of improper storage. If white rust has started to develop, separate parts and wipe off any moisture. Next, using a clean cloth, apply a thin layer of petroleum jelly or food-grade oil to the entire part.
4. If moisture is left on parts, this white rust can become more aggressive and turn into red rust. Red rust can cause degradation in the material and become a structural concern. Any parts that have red rust should be replaced immediately.

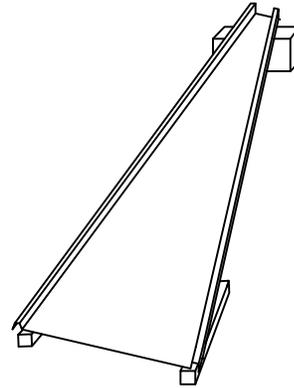
Storage Guidelines

1. Keep all bundles dry before assembly of the bin. Start assembly as soon as possible. Do not lay bundles on the bare ground, raise all bundles 6"-8" off the ground on wood blocks or timbers. Store curved wall sheets 'hump-up'. All other bundles material should be placed so that they are well sloped to promote good drainage.

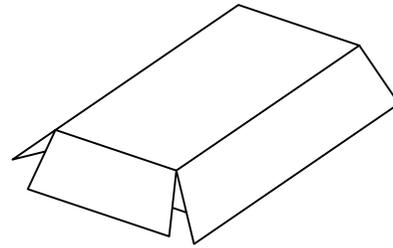


DISCLAIMERS

2. Roof sheets must be elevated at least 12" at the small end of the sheets.



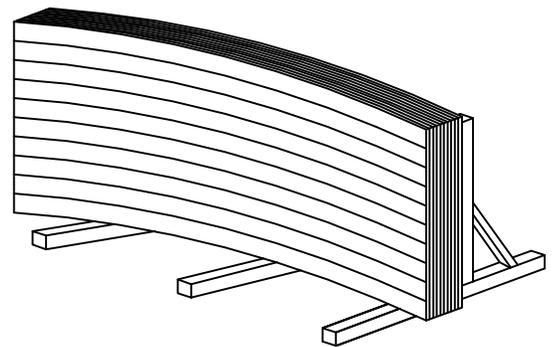
3. Temporary storage can be provided by erecting a simple framework supporting a waterproof tarp



4. All bin boxes, ladder boxes and hardware boxes should be stored inside. These are not waterproof, and will deteriorate in normal weather conditions, allowing moisture to contact the parts inside.

If Parts Become Wet

1. If goods become submerged or wet, the bundles should be opened as soon as possible, sheets or material separated and dried. Keep separated until assembly. Brace goods properly so as to avoid damage or injury from material falling when in storage.



2. Any boxed goods that become wet should be dried and stored in a new box that is free of moisture.
3. In addition to wiping down wall sheets, a food-grade oil can also be applied with a clean, lint-free cloth. This will assist in preventing any further moisture from contacting the galvanizing on the steel. Due to safety concerns with installation and use, Meridian does not recommend the use of oil on other parts such as roof sheets and safety ladders.

DISCLAIMERS

IMPORTANT NOTES

1. In order to maintain your wall sheets in good condition, separate sheets and allow air circulation between them. Store sheets in a dry place. Do not store sheets with sheet ends pointing upwards.
2. To keep an even pressure on walls, the bin must always be unloaded from the centre.
3. Contact local power officials for minimum power line clearance.
4. See “Disclaimers - Design” for materials which can be stored.
5. Tighten all bolts to the recommended torque setting (see Recommended Bolt Torques table in Appendix).
6. Do not locate grain bin close to high buildings, which might cause snow to fall onto or build up on the roof of the grain bin. Consider future expansion and allow space for loading and unloading of the bin. Your dealer and local government agricultural consultants can help you plan your storage system for maximum efficiency.

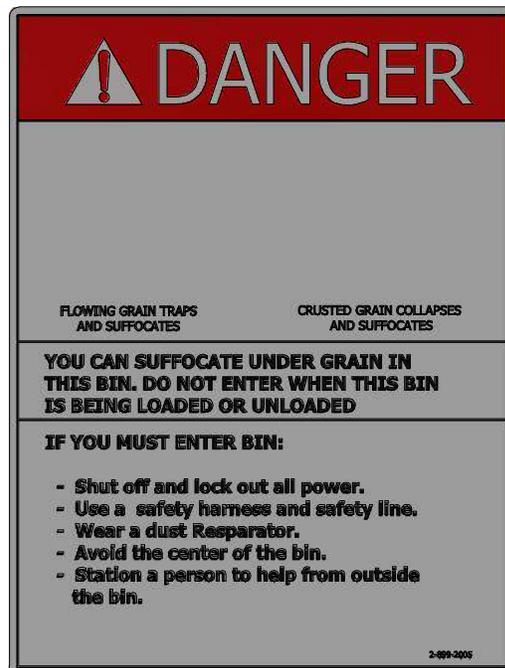
Shortages and Damaged Parts

Report damaged parts or shortages immediately to the delivering carrier, followed by a confirming letter requesting inspection by the carrier, if required. Order any replacement parts immediately to ensure that assembly will not be held up by missing parts. All parts will be charged for and credit will be issued by part at fault - no credit will be issued if freight bill are signed as received in good condition.

Order Optional Equipment

Optional equipment such as unloading augers, aeration equipment, anchor bolts, foundation sealant, external ladders, safety cage and platforms, etc., should all be on site and checked before assembly starts. Plan your installation in advance. For details, see assembly instructions supplied with optional equipment.

List of Warning Decals:



Consistent with Meridian Limited's policy of continued research and development of our products, we reserve the right to modify or change information contained in this publication without notice.

DISCLAIMERS

Instructions For Cutting Openings In Meridian Wide Corr Grain Bins**A. General Rules for Cutting Openings**

1. Never cut any uprights, roof ribs, or wall sheet bolted vertical seams to create an opening.
2. Openings shall be located so equipment being installed won't interfere with any bin components/accessories.
3. Openings shall be minimized as much as possible for structural integrity of grain bins.
4. Corners in openings shall be cut with minimum radius of 1/8" to reduce stress concentration.
5. Openings shall be sealed all the way around for all weather conditions.
6. Instructions shall be followed closely to avoid damage to bin structure.
7. Except cutting openings described below, any other modifications to Meridian bins shall be approved by a professional engineer.

B. Openings for Fan Transitions of Aeration Floors

1. Consult aeration floor installation instructions for information on planning floor layout.
2. Openings shall be centered to a wall sheet in horizontal direction.
3. Opening shall be cut as tight as it can be for the transition to go through and shall have no more than 1/4" gap on any side to the section of a fan transition going through a bin wall.
4. Opening height for fan transition shall be limited to 10" minimum (verify transition height before cutting. Do not exceed 12" in height) from bottom edge of a bottom wall sheet.
5. Opening width shall not exceed 46.5" for stiffened bins and 72.5" for unstiffened bins.
6. Vertical support shall be required to support load above opening.
7. Bottom angles may be cut flush to the sides of an opening to form part of an opening.

C. Openings for Unloading Augers of Wide Corr Bins with Full Floor Aeration

1. Consult aeration floor installation instructions for information on planning floor layout.
2. Openings shall be centered to a wall sheet in horizontal direction.
3. Openings shall be cut as tight as it can be for unloading auger to go through and shall have no more than 1/4" gap to auger flange section on any side.
4. Opening height for any auger shall be limited to 10" minimum (verify unload tube height before cutting. Do not exceed 12" in height) from the bottom edge of a bottom wall sheet.
5. Vertical flange of a bottom angle may be cut flush to sides of an opening to form part of an opening.

D. Openings for Roof Vents in Roof Sheets

1. Openings shall be centered between roof ribs and have 2.5" minimum distance between edge of opening and base of a roof rib.
2. Openings can be square, rectangular or round.
3. Openings shall be the same size as the inlet opening of a vent being installed.
4. Any side of a square/rectangular opening shall have a maximum length of 18" and a circular opening shall have a maximum diameter of 24".

IMPORTANT

READ CAREFULLY BEFORE ASSEMBLY

1. CHECK YOUR SHIPMENT

Upon delivery, first check all parts and packages against the packing list. Your new GRAIN BIN is composed of many pieces which are carefully checked at the time of shipment; however, you should check your shipment with the packing slip in order to be sure your system is complete. Also carefully check for parts that might have been damaged in transit. (Do not begin installation with parts missing, for this can only cause trouble.) When you are satisfied that all parts are in good condition, lay the parts out for convenient access, then carefully read and understand this manual before proceeding with erection.

2. SHORTAGE AND DAMAGED PARTS

Report damaged parts or shortages immediately to the delivery carrier, followed within ten days by a confirmation letter requesting inspection by that carrier, if required. Order necessary parts immediately to ensure that erection will not be held up by missing parts. All parts will be charged for and credit will be issued by the party at fault. No credit will be issued if delivery invoices are signed and received in good condition.

3. SHIPMENT STORAGE

If considerable time is involved between delivery and erection time, **INSIDE STORAGE IS RECOMMENDED**. Improperly stored galvanized steel quickly develops wet storage stains, sometimes called "white rust".

Check for moisture between pieces. If they are wet, open the bundles, separate pieces and dry off. Never lay steel directly on earth. Raise with blocks or timbers.

4. WARNING

A. ROOF DAMAGE

The manufacturer cannot warrant any roof damages due to excessive vacuum or internal pressure caused by fans or other air moving systems. Adequate roof ventilation and/or air circulation devices should be provided for all powered air handling systems.

Severe roof structural damage can result from any blocking of air passages. Running fans during certain high humidity /cold weather conditions can cause freezing over air exhaust or intake ports.

IMPORTANT: The maximum weight to be supported by and/or suspended from the roof is 2,500 lbs (1134kg).

B. BINS WITH STIRRING DEVICES

The effect of stirring devices is not certain. Sometimes additional loads imposed can cause bin or floor failure. If high-moisture grain is loaded too deep and too fast, any unstiffened bin wall can overload. Observe the following installation and operation procedures if your bin is to be equipped with a stirring device.

1. Read stirring device owner's manual and follow all instructions set forth by the manufacturer.

2. Install the switch for your stirring device in the bin near the roof manhole opening so that the unit can be observed while starting.

3. Run the unit one complete revolution after one ring of grain has been put into the bin, to see that the unit is operating correctly.

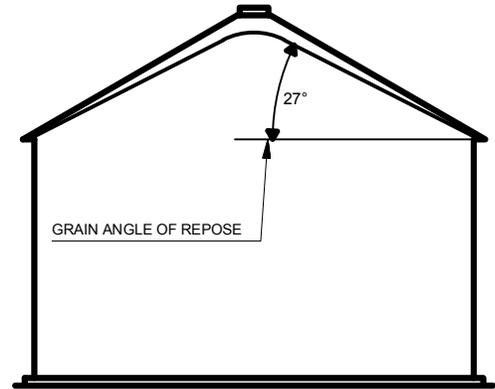
4. Operate the stirring device continuously while filling and drying to avoid compacted grain around the vertical screws.

5. If it becomes necessary to stop a stirring device with laterally moving screws, attempt to stop it with the vertical screws nearest the center of the bin (away from sidewall). Should the device stop or stall for any reason and remain inoperable for any length of time, the auger carriage should be supported to the grain surface before restarting. The vertical augers should be turned by hand (with a pipe wrench) before power is applied.

6. For best results, fill bin to one-half the final intended depth. Dry this grain to desired moisture percentage and continue filling (use filling rates specified by stirring device manufacturer). Do not overfill bin. Filling should be stopped at bottom of top ring or 30" (762mm) below the track.

7. The preceding steps are general instructions which apply to major types of stirring devices. Since there are several different manufacturers, it is important that you read the operator manual thoroughly for specific instructions applicable to your machine.

NOTE: Drying in bins over 5 rings high is not recommended.



NOTE: All instructions given in this manual shall be construed as recommendations only; because the actual installation may vary according to local conditions, the manufacturer assumes no liability for results arising from the use of such recommendations.

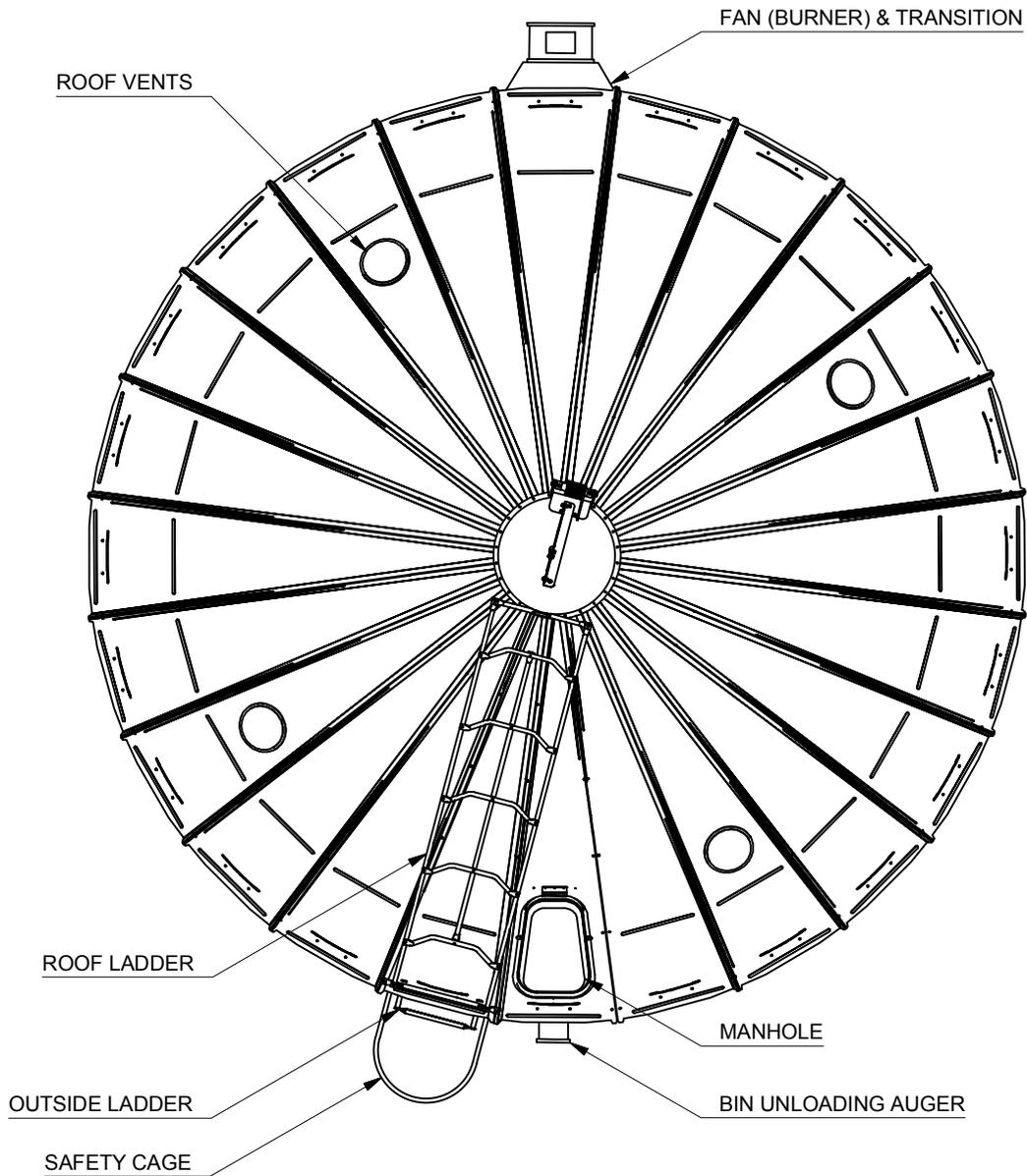
5. INSTALLATION

A. FOUNDATION

All foundations must be designed on a firm levelled and well drained soil bearing at least 3,000 lbs/ft² (14646 kg/m²). Reinforced concrete must have a minimum compressive strength of 3,625 psi (25MPa) after 28 days. Separate leaflets are available, giving full information and specifications for any type or size of bin foundation.

B. ACCESSORIES LOCATION

Below is a typical layout showing suggested location of bin accessories. The air moving unit and unloading auger are on opposite sides of the bin to allow good air flow. When locating the roof manhole be sure the ladder will not interfere with other bin accessories below. Roof vents should be spaced evenly around the roof.



Ø15' - Ø27' ROOF ASSEMBLY

1. Prior to construction, plan the orientation of bin components, including the location of the Meridian Logo, unloading devices, grain level indicator and ladder location. Each can affect the location of the inspection hatch, roof ladder location and lid orientation.
2. Bolt the roof rim to the sidewall using 3/8 x 3/4 bin bolts and nuts (or 3/8 x 1-1/4 if the connection includes a sidewall stiffener) with a flat washer inside the roof rim. Center the ends of roof rim pieces over the center of the sidewall sheets so that roof rim seams do not overlap wall panel seams. A continuous strip of caulking must be applied to the roof rim corrugated edges before assembling roof panels.
3. Before beginning roof panel assembly, build a center support to hold the roof flange in place at the proper height as shown in Fig. 2, during roof erection. Refer to the table Fig 3. for proper roof support height according to different bin diameters. Assemble the first four roof panels to the roof rim with 3/8 x 1-1/4 bin bolts, nuts and washers. Split the panel installation into four quadrants.
4. Once the first four roof panels are in place, secure them to the roof flange using 3/8 x 1-1/4 bin bolts and nuts. Add remaining panels to each section in a counterclockwise direction. Ensure left roof panel is always underneath the right panel as viewed looking towards the center of the bin. Bolt roof panels to each other using 3/8 x 1-1/4 bin bolts and nuts. Where the roof panel ribs meet the roof rim use 3/8 x 3 bin bolts and nuts. Add plastic inserts at eaves and foam closures around the roof flange before tightening.

NOTE: Ø27' bins require a roof stiffening ring, please refer to Roof Stiffening Ring Installation on page **A6**.

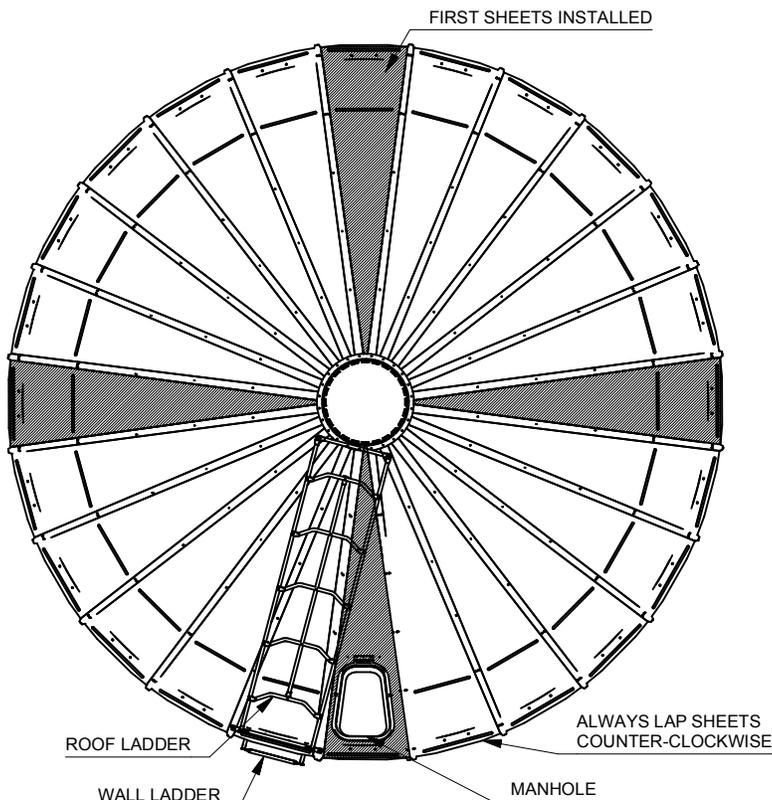


Fig. 1

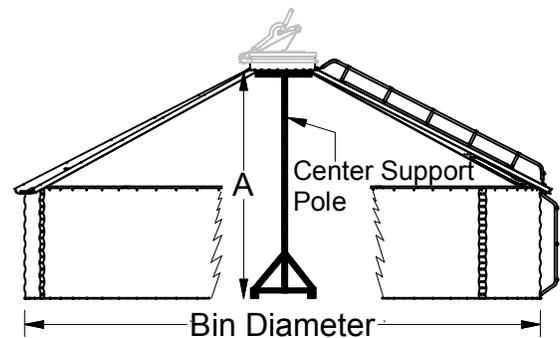


Fig. 2

BIN DIA.	A
15'	96" (2.43m)
18'	106" (2.69m)
21'	116" (2.94m)
24'	126" (3.21m)
27'	139" (3.53m)

Fig. 3

Ø30' - Ø42' ROOF ASSEMBLY

NOTES:

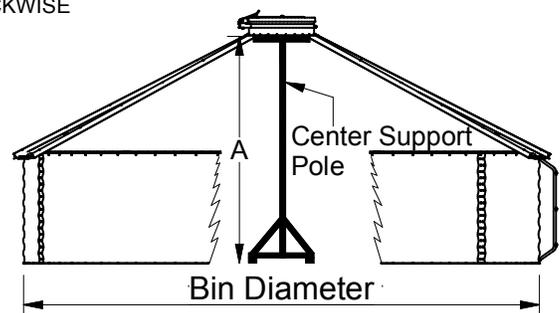
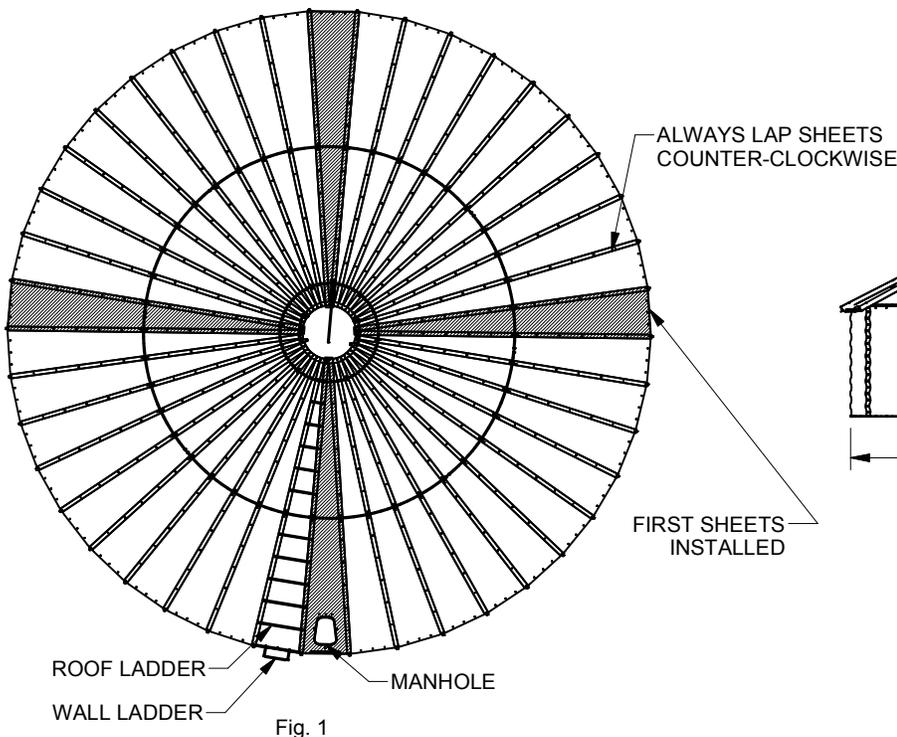
- Prior to construction, plan the orientation of bin components, including the location of the Meridian Logo, unloading devices, grain level indicator and ladder location. Each can affect the location of the inspection hatch, roof ladder location and bin lid orientation.
- During assembly do not tighten fasteners until the roof is completely assembled.

2. Bolt roof rim to sidewall using 3/8 x 3/4 bin bolts and nuts (or 3/8 x 1-1/4 if the connection includes a sidewall stiffener) with a flat washer inside the roof rim. Center the ends of roof rim pieces over the center of the sidewall sheets so that roof rim seams do not overlap wall panel seams. A continuous strip of caulking must be applied on roof rim corrugated edge before assembling roof panels.

3. Before beginning roof panel assembly, build a center support to hold the roof flange in place at the proper height as shown in Fig. 2, during roof erection. Refer to the table Fig 3. for proper roof support height according to different bin diameters.

4. Fasten the eaves of the first 4 roof panels to the roof rim using 3/8 x 3/4 bin bolts and nuts while supporting the opposite ends of the panels on the center support. See Fig. 1 below for which roof panels to assemble first. Fasten the top lid to the first 4 roof panels with 3/8 x 1-1/4 bin bolts and nuts. Ensure lid is oriented so it opens towards the roof ladder. Please note that due to the quantities of roof panels for bins over 30' diameter it may not be possible to split the roof into 4 equal quadrants, in that case split the roof up into 4 sections as nearly equal as possible.

5. Once the first four panels are in place, add remaining panels to each quadrant in a counter-clockwise direction. Ensure the left panel is always underneath the right panel as viewed looking toward the center of the bin. Bolt roof panels to each other using 3/8 x 1-1/4 bin bolts and nuts. Where the roof panel ribs meet the roof rim use 3/8 x 4 bin bolts and nuts.



BIN DIA.	A
30'	144" (3.66m)
33'	150" (3.81m)
36'	161" (4.09m)
42'	181" (4.60m)

Fig. 3

6. Caulk and place sealing foams between the roof flange and the top part of roof sheets. Sealing caps also must be inserted under sheet ribs at roof eave. At this point, assembly of the roof is completed. Securely tighten all bolts and make sure roof is completely watertight.

ROOF STIFFENING RING

Bins Ø27' - Ø42' diameter require roof stiffening rings. Fig. 1 below shows size and location of stiffening rings for different size bins. Note that the 42' bin requires 2 exterior stiffening rings as well as one interior stiffening ring.

1. Determine appropriate roof panel rib holes to install stiffening ring brackets. When counting roof panel holes shown in Fig. 2 below, count the roof lid flange hole as hole #1 and continue counting towards the outside of the bin from there. Bolt brackets in this determined location on each roof panel but don't fully tighten them.
2. Thread stiffening rings through brackets and install 3/4 x 6 threaded expansion bolts and two 3/4 nuts between each ring as shown in Fig. 3.
3. Tighten all bracket fasteners to roof panels. Ensure all roof panel bolts have been tightened. Extend all expansion bolts equally around the roof until the ring raises the roof to show a slight crown.

ROOF STIFFENING RING

ROOF STIFFENING RING CHART			
DIA.	LOCATION	EXTERIOR	INTERIOR
27' (8.23m)	6 Hole	6 - 18' Ø	-
30' (9.14m)	6 Hole	6 - 18' Ø	-
33' (10.06m)	7 Hole	7 - 21' Ø	-
36' (10.97m)	8 Hole	8 - 24' Ø	-
42' (12.80m)	2 Hole	2 - 6' Ø	8 - 24' Ø
	8 Hole	8 - 24' Ø	

Fig. 1

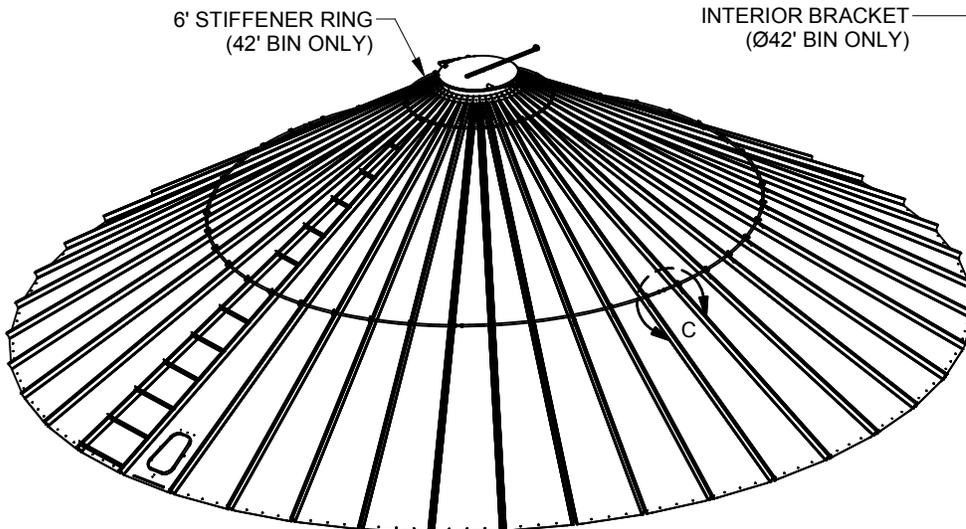
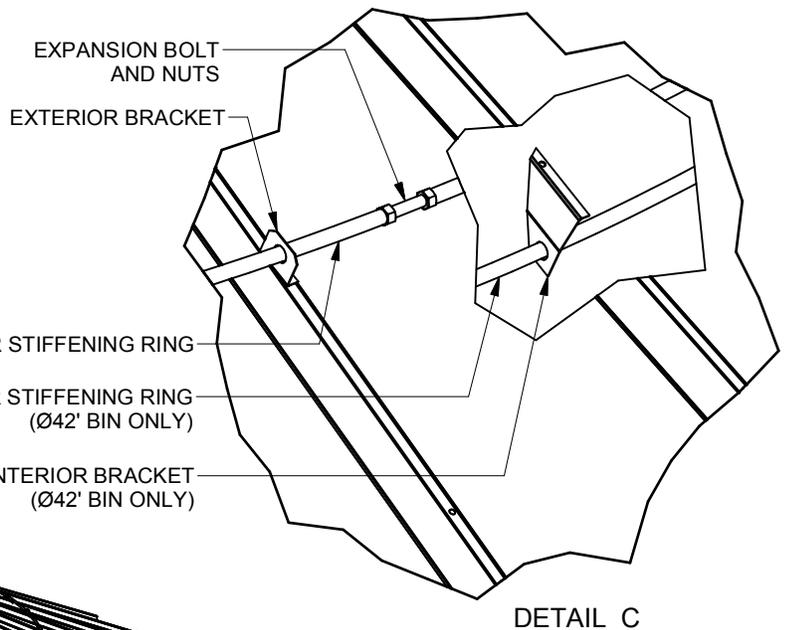


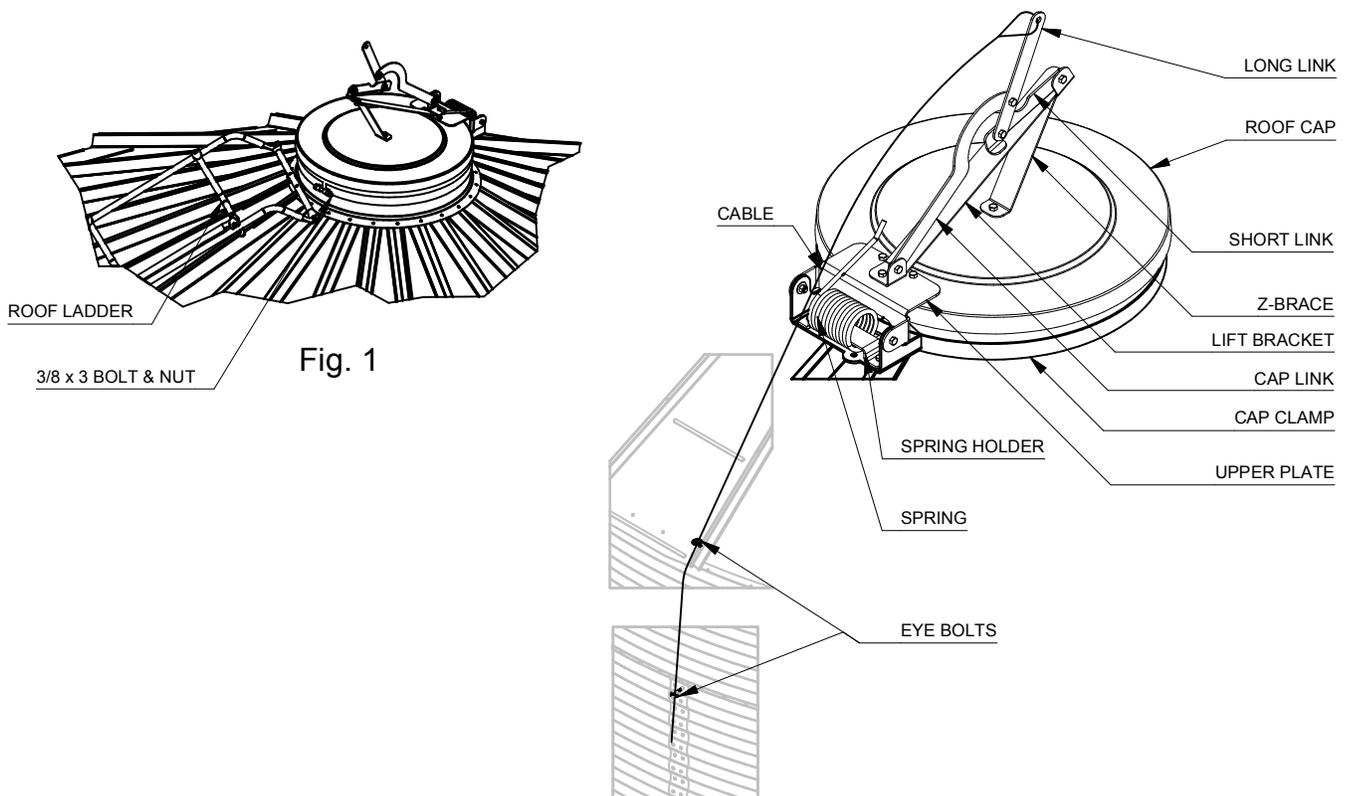
Fig. 2

Ø15' - Ø27' REMOTE ROOF CAP ASSEMBLY

Applies to Ø15' - Ø27' Bins

Notes: For the instructions below use a 3/8 x 1-1/4 bolt and nylon lock nut unless otherwise specified. Do not fully tighten bolts and nuts until step 5. Small bin remote cap is shipped partially assembled from the factory with the band clamp, roof cap, spring, spring holder and upper plate assembled together.

1. Bolt the lift bracket to the upper plate and the Z-brace to the roof cap, both using 3/8 x 3/4 bin bolt and 3/8 hex nut. Bolt the lift bracket to the Z-brace.
2. Bolt the short link to the upper bent flange of the lift bracket making sure that the half moon cut out is facing up and the extruded lip is facing away from the center Use a 3/8 x 1-1/4 bolt and 3/8 nylon lock nut.
3. Bolt the cap link to the lower bent flange of the lift bracket with the straight edge at the bottom and the cap link concave down.
4. Bolt the curved end of long link to middle hole on the cap link. Bolt the long link through the end hole nearest the center hole to the short link. Ensure the long link is bolted to the outside of both the short link and cap link, as shown below.
5. Tighten all the bolts assembled in steps 1 - 4 and position the roof cap assembly on the roof flange. Orient the roof cap so it opens away from the unloading device and away from the roof ladder. Tighten 3/8 x 3 bolt on the cap clamp to secure the cap on the flange. See Fig. 1
6. Secure cable by looping it through the remaining hole in the long link and clamp it to itself.
7. Install 1 eye bolt at roof eave and 1 in the sidewall near the bottom of bin. Ensure cable is run through both eye bolts.



Ø30' - Ø42' REMOTE ROOF CAP ASSEMBLY

Applies to Ø30' - Ø42' Bins

Notes: Large bin remote cap is shipped assembled from the factory, and is to be installed along with the roof. See **A5** and **A6** for large bin roof assembly.

1. Secure cable by looping it around the bolt in the lid extended arm and clamp the cable to itself.
2. Install eave roller on roof sheet near the direction the bin lid opens towards to ensure cable does not pull sideways on the bin lid. Route cable through eave roller.
3. Install eye bolts as necessary vertically along the sidewall of the bin, making sure they are spaced appropriately to secure the cable from swinging in the wind. Route cable through installed eye bolts.
4. Install lid open hook on the bin sidewall on the second ring from the bottom.
5. Route cable through supplied hex nut, spring and hex nut as shown.
6. Route cable through the handle pipe and use cable clamp to clamp the cable to itself. *Note:* Ensure hex nuts and spring are **above** clamp as shown in Fig. 1, below. Adjust location of clamp on the cable so that when the bin lid is open the spring is compressed against the underside of the open lid hook.

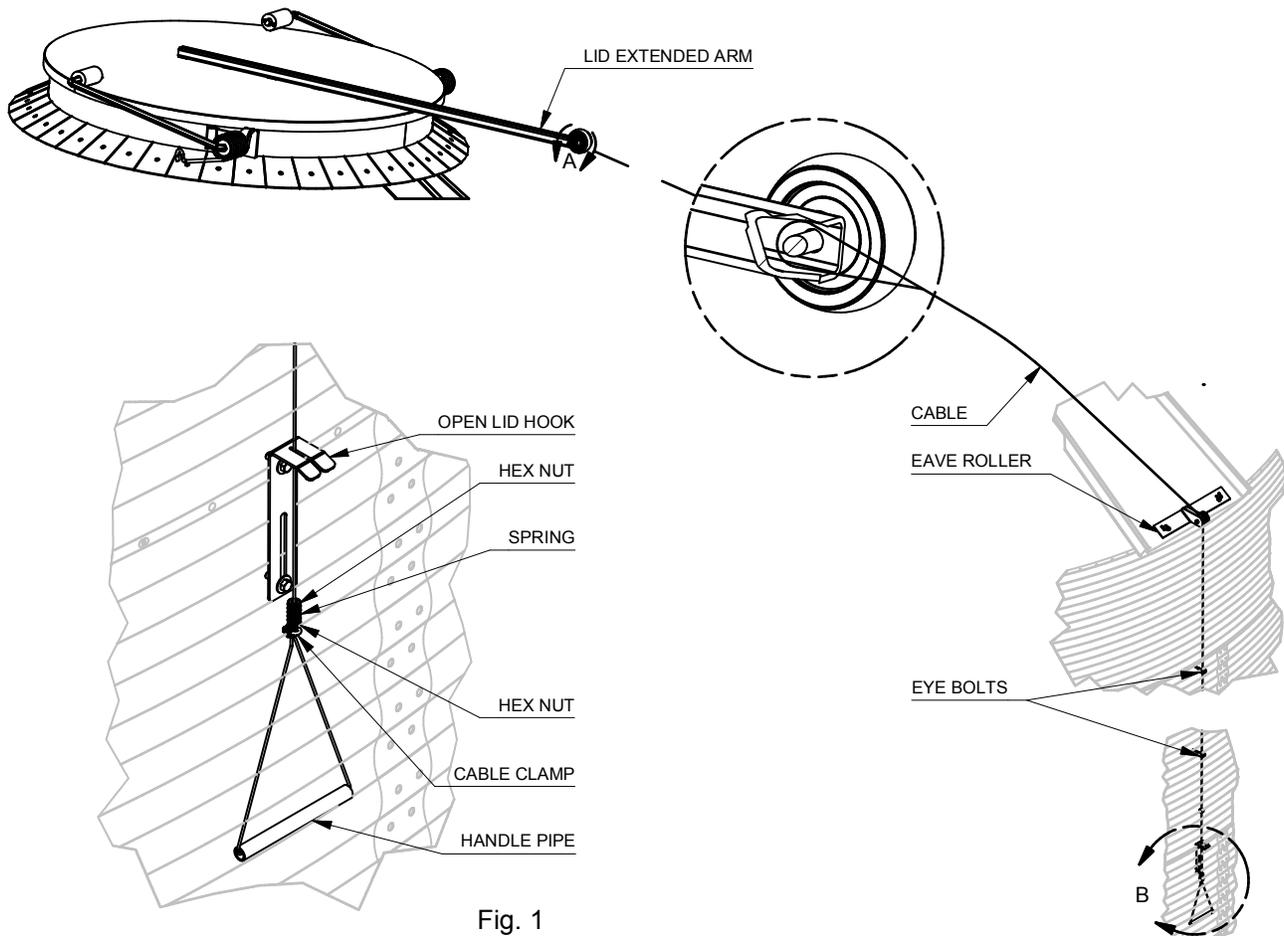


Fig. 1

ROOF LADDER ASSEMBLY

2 styles of bin ladders exist, Large Bin Rung Ladder and Small Bin Ladder, shown below. The Large Bin Rung Ladder is used on Ø30' - Ø42' bins *and also* Ø15' bins, the Small Bin Ladder is used on Ø18' - Ø27' bins.

Assemble and install roof ladder systems on a roof panel adjacent to the roof manhole and inline with the sidewall ladder. Ensure the roof panel supporting the ladder has a roof stiffener on each rib. The ladder should be assembled while the roof is still at ground level for ease.

Large Bin Rung Ladder Assembly:

1. Bolt ladder rungs to roof panel ribs using roof panel rib bolts (at rib eave use 3/8 x 3 for 15' bin or 3/8 x 4 for 30' - 42' bins and 3/8 x 1-1/4 for all other roof rib locations).

Small Bin Ladder Assembly:

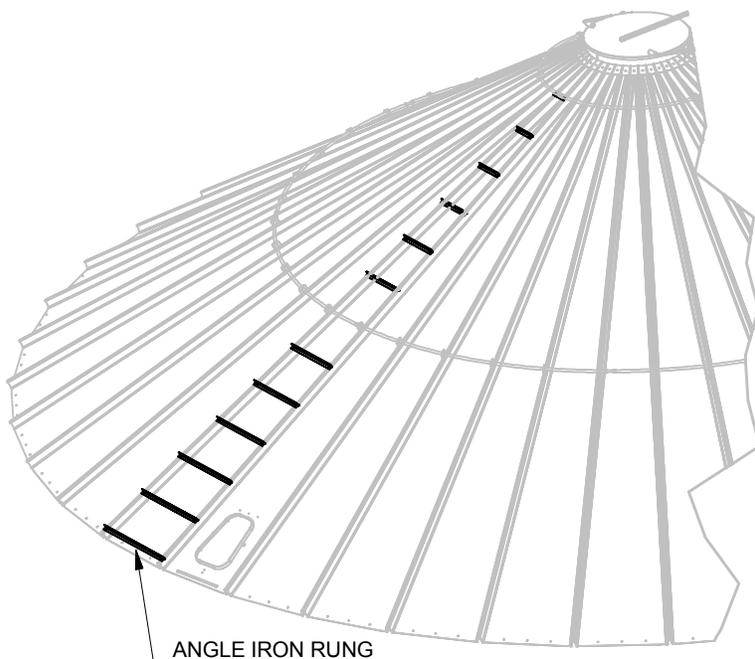
1. First bolt the two ladder rails to the upper and bottom rail braces using 3/8" x 1 1/2" hex bolts and nuts. Orient the ladder rung holes on the ladder rails nearest the upper rail brace.

2. Bolt ladder rungs to the ladder rails concave up using the holes by the upper rail first and working your way down. Use 3/8" x 1 1/2" hex bolts and nuts.

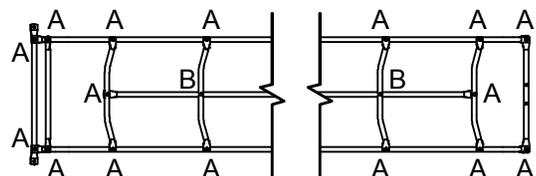
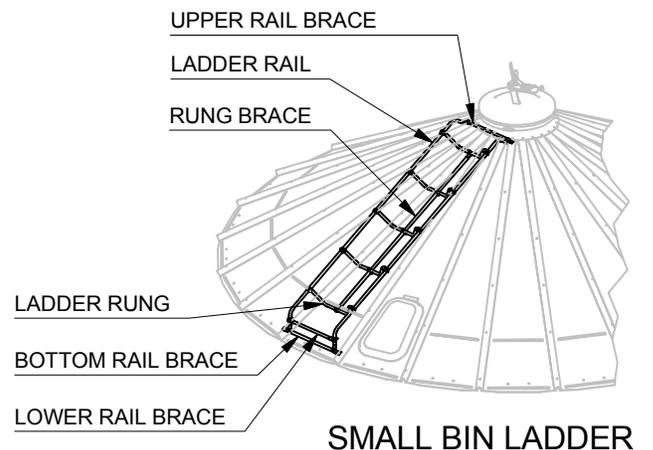
3. Bolt the rung brace to the ladder rungs using 3/8" x 1 1/2" bolts at the end rungs and 3/8" x 2 1/4" bolts on the middle rungs.

4. Bolt the lower rail brace to the ladder rail using 3/8" x 1 1/2" bolts.

5. Bolt the roof ladder assembly to the roof panel by bolting the upper rail brace to the roof flange (use 3/8 x 1-1/4 roof flange bolts) and bolting the bottom rail brace to the eaves on the roof panels (use 3/8 x 3 roof rib eave bolts).



LARGE BIN RUNG LADDER



CONNECTION 'A'
3/8" X 1 1/2" BOLT

CONNECTION 'B'
3/8" X 2 1/4" BOLT

SAFETY CAGE AND WALL LADDER ASSEMBLY

Sidewall ladder and safety cage must be centered directly under the roof ladder and installed as you raise the bin.

Ladders on flat bottom bins begin above the 1st row of wall panel sheets. Ladders on all bins extend to the top of the top row of wall panel sheets.

Ladders are comprised of 3 components: Rungs (3 per wall panel row), rails (2 per wall panel row) and hardware kits (1 per wall panel row).

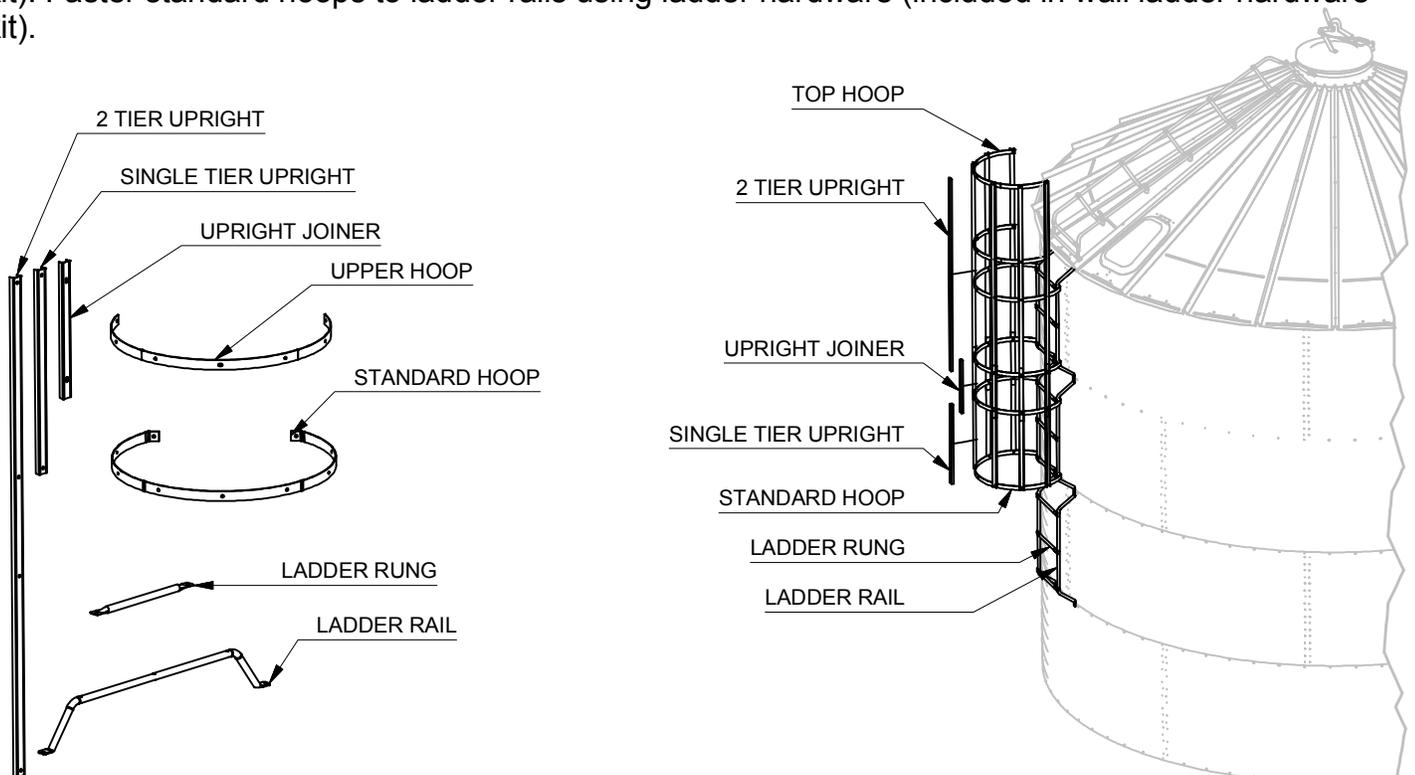
Top of all ladder cages extend 1 section above roof eave, bottom of ladder cages begin at the 2nd section of wall ladder.

The top 2 hoops in all ladder cage kits are special upper hoops that mount to the uprights only and do not have mounting tabs to mount to the ladder. All other hoops below these are standard hoops and mount to the ladder.

All ladder cages that span an odd number of bin rings (*not* counting the section that extends above the roof eave) do not use single tier uprights, only double tier uprights. Rows of uprights are joined by a row of upright joiners.

All ladder cages that span an even number of bin rings (*not* counting the section that extends above the roof eave) have their lowest section using single tier uprights. All uprights above this row are double tier uprights. All rows of uprights are joined by a row of upright joiners.

Fasten uprights, upright joiners and hoops together using 3/8 x 3/4 bolts and nuts (included in cage kit). Fasten standard hoops to ladder rails using ladder hardware (included in wall ladder hardware kit).



SIDEWALL STIFFENERS

All bins 8 rings and taller require stiffeners to strengthen sidewalls. Stiffeners are installed as the bin is raised in assembly, on each vertical seam and up the center of each sidewall panel (the center of each sidewall panel aligns with vertical seams on the rings above and below). See diagrams in sidewall assembly (dashed lines represent stiffener location) on page **A18**. Stiffeners are bolted to wall panels.

Stiffeners are joined vertically to each other using stiffener couplings (see diagrams below). Ensure stiffener coupling used is the same gauge as the stiffeners it is joining. If coupling is joining stiffeners of different gauges, ensure the coupling matches the heavier gauge stiffener.

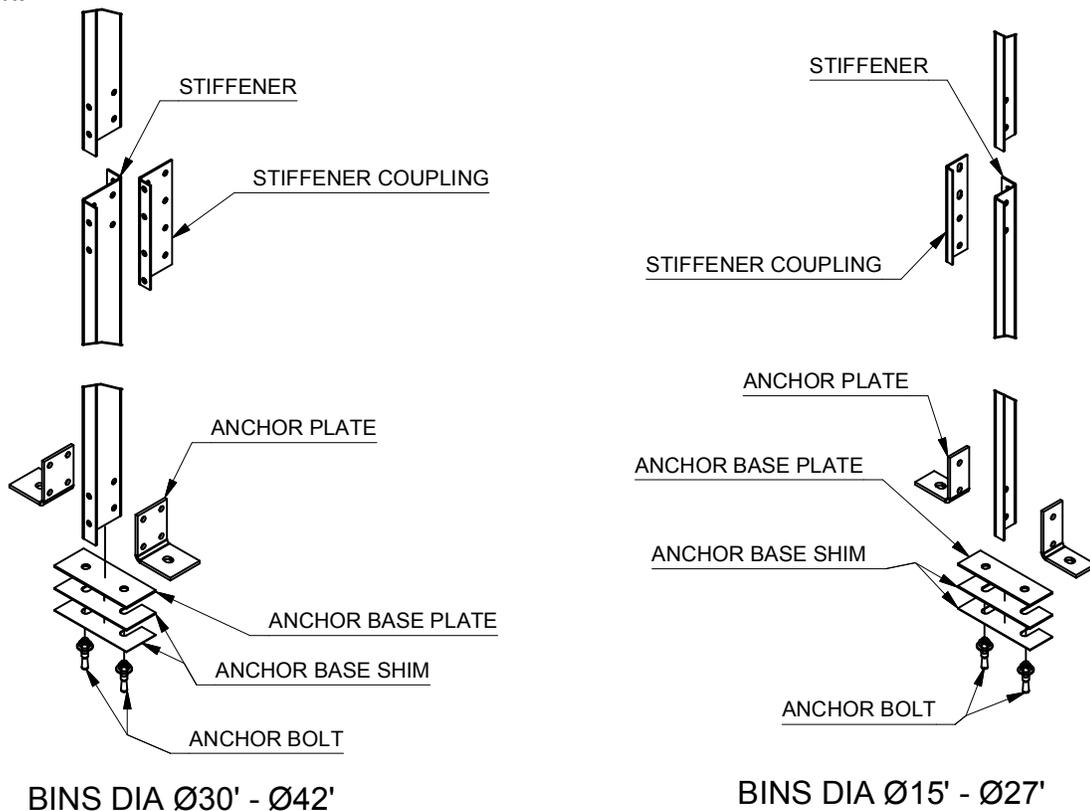
The bottom row of stiffeners get bolted to anchor plates. The anchor plates are then anchored to the foundation with anchor base plate. When anchoring these parts, ensure anchor bolts are installed in a position to allow slight expansion of the bin upon initial filling (see **A15**). In some cases, when installing bottom stiffeners and anchor plates and anchor base plates, the anchor base plates may not rest on the foundation due to unlevel concrete. In this case use spacing shims to support anchor base plates. **IMPORTANT:** If shims are not used where required, the downward pressure on the stiffeners will not be transferred directly to the foundation and bin damage or failure could result.

All stiffener connections use 3/8 x 1 bin bolts (stiffener to wall panel, stiffener coupling and anchor plate).

Regular stiffeners are 2 sidewall rings tall. Bins with an odd number of rings have a half height stiffener (1 sidewall ring tall) on the top ring.

On bins with complete floors, one stiffener is installed right in the middle of the transition entrance collar. The bottom stiffener must be precisely cut in the field so that the assembly rests on top of the entrance collar.

Bin packages are shipped with 1/2 x 4-1/2 anchor bolts to be used for fastening the anchor plate to the foundation.



STIFFENER SPECIFICATIONS FLAT BOTTOM BINS

Dia.	Standard Bin Stiffened	Stiffener Row					
		1	2	3	4	5	6
		Stiffener Gauge					
18'	4-218-3008	8	10	10	14		
	4-218-3009	8	10	10	14	14*	
	4-218-3010	8	8	10	10	14	
	4-218-3011	8	8	10	10	14	14*
		Stiffener Gauge					
21'	4-218-3008	8	10	10	14		
	4-218-3009	8	10	10	14	14*	
	4-218-3010	8	8	10	10	14	
	4-218-3011	8	8	10	10	14	14*
		Stiffener Gauge					
24'	4-218-3008	8	10	10	14		
	4-218-3009	8	10	10	14	14*	
	4-218-3010	8	8	10	10	14	
	4-218-3011	8	8	10	10	14	14*
		Stiffener Gauge					
27'	4-218-3008	8	10	10	14		
	4-218-3009	8	10	10	14	14*	
	4-218-3010	8	8	10	10	14	
	4-218-3011	8	8	10	10	14	14*

NOTE: * denotes half height stiffener

STIFFENER SPECIFICATIONS FLAT BOTTOM BINS

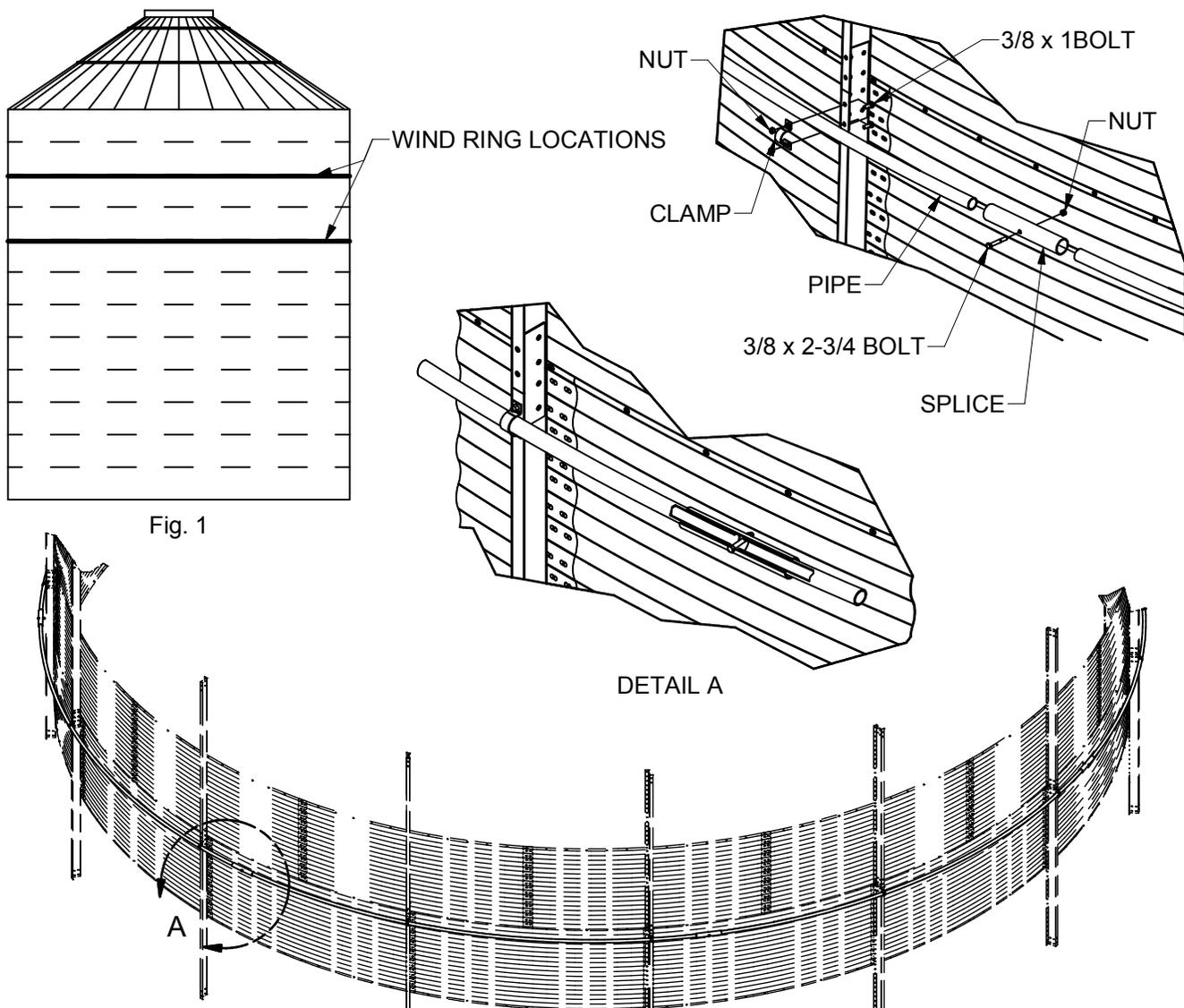
Dia.	Standard Bin Stiffened	Stiffener Row					
		1	2	3	4	5	6
		Stiffener Gauge					
30'	4-230-3008	8	10	10	14		
	4-230-3009	8	10	10	14	14*	
	4-230-3010	8	8	10	10	14	
	4-230-3011	8	8	10	10	14	14*
	4-230-3012	1/4	1/4	8	10	10	14
		Stiffener Gauge					
33'	4-233-3008	8	10	10	14		
	4-233-3009	8	10	10	14	14*	
	4-233-3010	8	8	10	10	14	
	4-233-3011	8	8	10	10	14	14*
	4-233-3012	1/4	1/4	8	10	10	14
		Stiffener Gauge					
36'	4-236-3008	8	10	10	14		
	4-236-3009	8	10	10	14	14*	
	4-236-3010	8	8	10	10	14	
	4-236-3011	8	8	10	10	14	14*
	4-236-3012	1/4	1/4	8	8	14	14
		Stiffener Gauge					
42'	4-242-3008	8	10	10	14		
	4-242-3009	8	10	10	14	14*	
	4-242-3010	8	8	10	10	14	
	4-242-3011	8	8	10	10	14	14*
	4-242-3012	1/4	1/4	8	8	10	10

NOTE: * denotes half height stiffener

WIND RING

Wind rings are installed on some bins that are 8-12 rings tall. A single wind ring is installed on bins 8-10 rings tall and is to be installed on the 1st (9 ring bin) or 2nd (8 & 10 ring bins) seam from the top of the bin. 2 wind rings are installed on bins 11 or 12 rings tall and are to be installed on the 1st and 3rd (11 ring bin) or 2nd and 4th (12 ring bin) seam from the top of the bin. Wind rings should be installed during sidewall assembly for ease.

1. Fasten appropriate bolts and nuts through each splice as shown. The bolts serve to keep the splice centered between pipes during installation and operation.
2. Position the first wind ring pipe on the bin by securing it at the appropriate height (see Fig. 1) with clamps bolted to 2 adjacent bin stiffeners moving around the bin. Note that each clamp will be fastened near the joint of 2 stiffeners. Ensure all clamps are fastened to the lower stiffener at the joint as shown.
3. Insert a splice onto the end of the first secured pipe. Ensure pipe is located on the bin so the splice does not interfere with clamps.
4. Secure the next pipe by inserting into the open end of the splice and fasten to next 2 adjacent stiffeners with clamps and fasteners as in step 2. Continue around the bin ensuring splices do not interfere with clamps. The last pipe may need to be measured and cut to length during installation.



BIN ROUNDNESS

It is imperative that the bin be as perfectly round as possible. Using a string anchored to the center of the concrete foundation scribe a circle with the required radius. See chart below for calculated radii. These radii are 3/4 in smaller than the wall sheet radius at the bottom, so that the scribed circle can be seen during assembly. A perfectly placed ring of sheets should be 3/4" on the outside of this line all the way around. This should be the first step in assembling the bin. The maximum amount that the bin can be out of round 3/4 in on the radius, when measured from the center of the bin. In addition the wall sheets must form a smooth circle with no flat or elongated portions. Before anchoring the bin to the foundation, ensure again that the bin is round, within tolerance. Locate anchor bolt towards the outside of the anchor bolt holes (away from the bin) to permit the slight expansion that can occur with the initial filling.

BIN NOMINAL DIAMETER	SCRIBE RADIUS
15'	7 ft 4 in
18'	8 ft 10-11/16 in
21'	10 ft 4-9/16 in
24'	11 ft 10-1/2 in
27'	13 ft 4-3/8 in
30'	14 ft 10-5/16 in
33'	16 ft 4-3/16 in
36'	17 ft 10-1/8 in
42'	20 ft 9-15/16 in

RAISING BIN

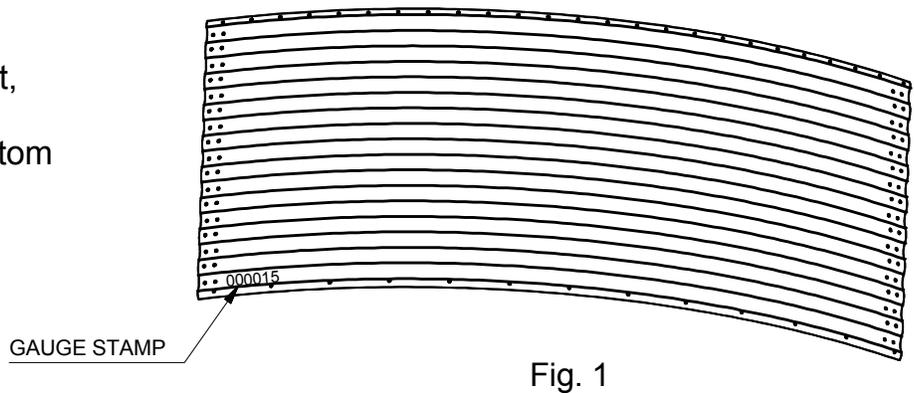
IMPORTANT: The number of jacks to be used is best determined by experience. Always space jacks evenly around the bin. Factors such as bin size, soil compaction, wind velocity and jack design are to be considered when deciding how many to use. If in doubt, use one jack per vertical seam. Ensure jacks have a capacity of 5 times the expected load, or more.

Securely fasten jack brackets to sidewall using bin bolts. Raise the bin just high enough to assemble the next ring. When lifting the bin, **crank all jacks at an equal rate**. This will prevent bowing previously assembled rings and make hole alignment easier. To the inside of the top ring, bolt the next ring. Be sure to stagger the sheets, to select the proper gauge material and to properly apply caulking on seams (see **A16**).

Lower the bin on foundation after assembling and tightening bolts of each new ring. Rebolt jack brackets to the lowest ring, raise bin and continue ring additions until you are ready for door installation.

SIDEWALL SHEET ASSEMBLY

On your standard bin sheet, the gauge of the sheet is stamped on the inside, bottom left hand corner.



Assembling Flat Bottom Bins Note:

The gauge stamp must be in the bottom left hand corner.

Position each wall panel so that standing inside the bin, each wall panel's **RIGHT** edge is **OUTSIDE** and **LEFT** edge is **INSIDE** the bin

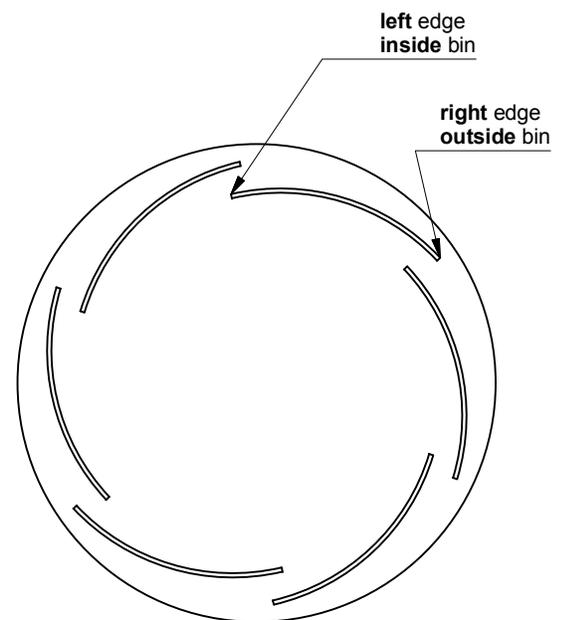
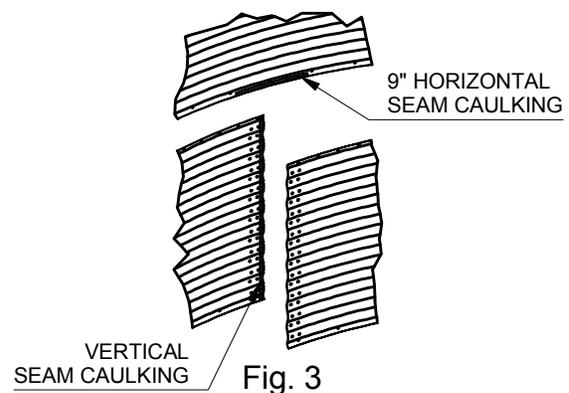


Fig. 2

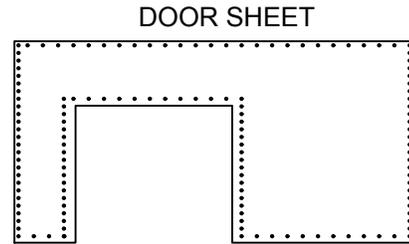
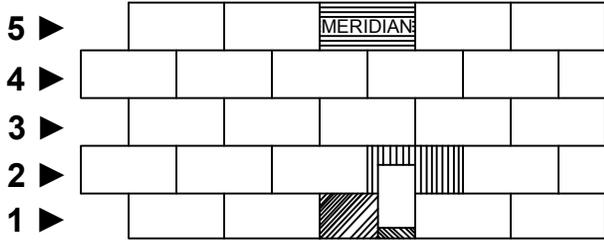
CAULKING

Wipe off any oil or dirt from the seams where caulking will be used. Apply a continuous strip of caulking to the weather edge on the outside of the holes on the vertical seams and along the bottom edge from the corner approximately 9" out.

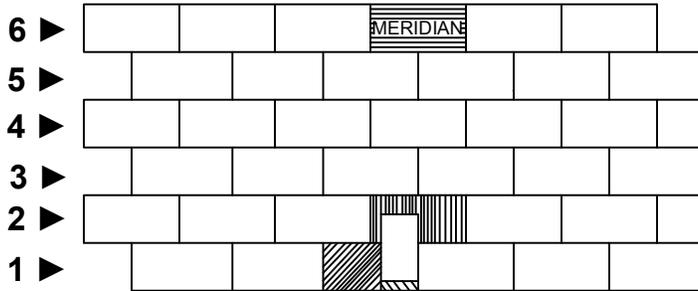


FLAT BOTTOM SIDEWALL SHEET DIAGRAMS LOW PROFILE DOOR

MERIDIAN
15FT DIA. LOW PROFILE DOOR



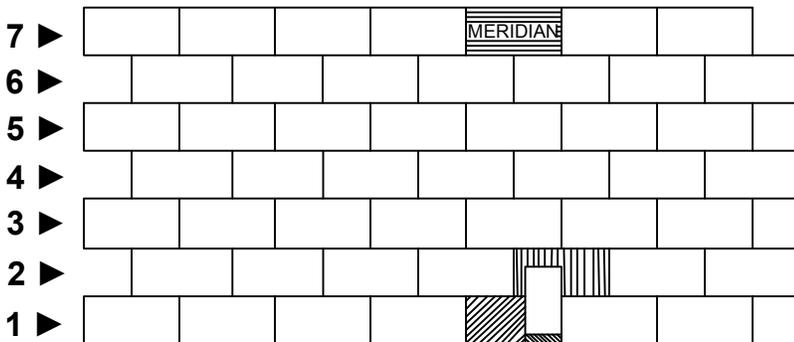
18FT DIA. LOW PROFILE DOOR



MEDIUM SHEET



21FT DIA. LOW PROFILE DOOR

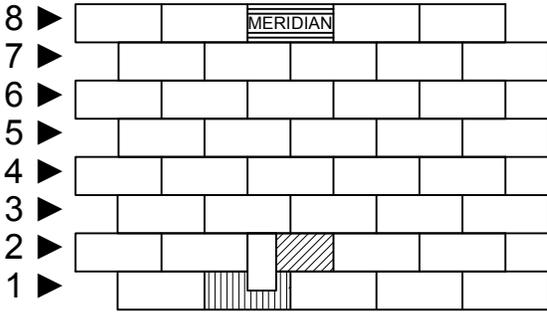


UNDER DOOR FILL
SHEET

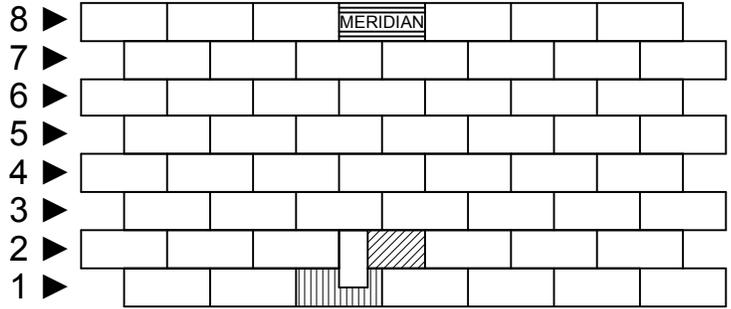


FLAT BOTTOM SIDEWALL SHEET DIAGRAMS STANDARD DOORS

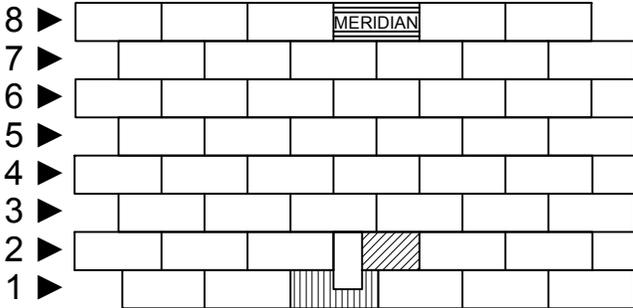
15FT DIA. STANDARD DOOR



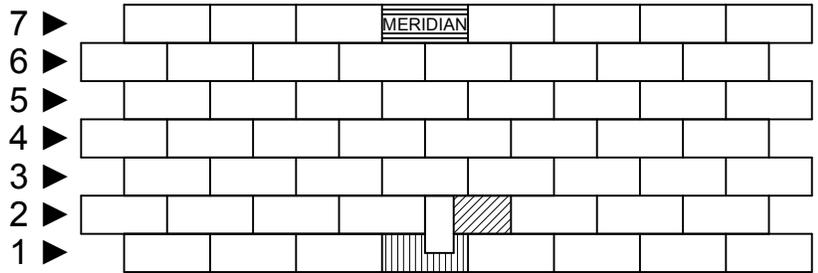
21FT DIA. STANDARD DOOR



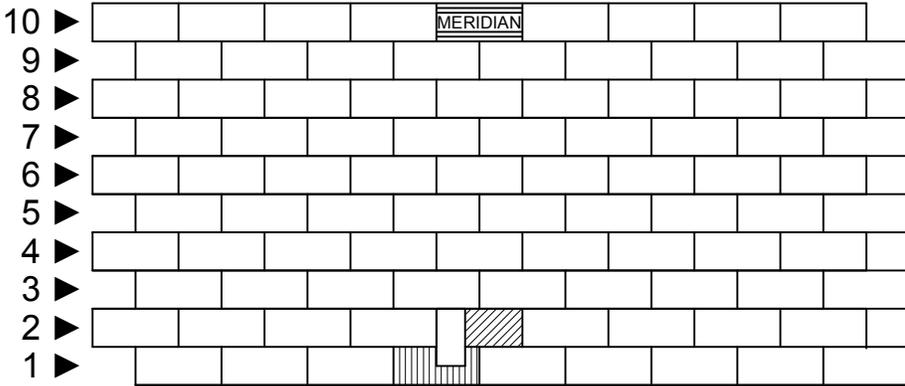
18FT DIA. STANDARD DOOR



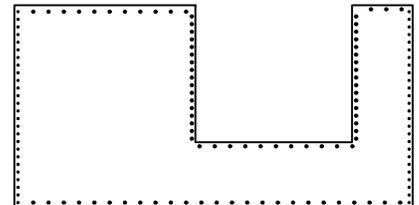
24FT DIA. STANDARD DOOR



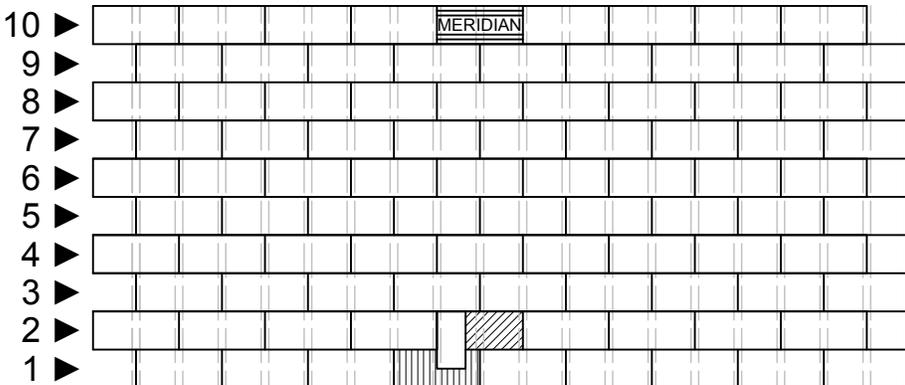
27FT DIA. STANDARD DOOR



DOOR SHEET



BINS WITH STIFFENERS



MEDIUM SHEET



SIDEWALL SPECIFICATIONS FLAT BOTTOM UNSTIFFENED BINS

Dia.	Standard Bin Unstiffened	Sidewall Row						
		1	2	3	4	5	6	7
		Sidewall Gauge						
15'	4-215-2004	17	18	20	20			
	4-215-2005	15	17	18	20	20		
	4-215-2006	14	15	17	18	20	20	
	4-215-2007	13	14	15	17	18	20	20
		Sidewall Gauge						
18'	4-218-2004	16	17	20	20			
	4-218-2005	15	17	18	20	20		
	4-218-2006	14	15	16	18	20	20	
	4-218-2007	13	14	15	16	18	20	20
		Sidewall Gauge						
21'	4-221-2004	15	17	20	20			
	4-221-2005	14	16	18	20	20		
	4-221-2006	13	14	16	18	20	20	
	4-221-2007	12	13	14	16	18	20	20
		Sidewall Gauge						
24'	4-224-2004	15	17	18	20			
	4-224-2005	14	16	17	18	20		
	4-224-2006	13	14	16	17	18	20	
	4-224-2007	12	13	14	16	17	18	20
		Sidewall Gauge						
27'	4-227-2004	15	17	18	20			
	4-227-2005	14	15	17	18	20		
	4-227-2006	13	14	15	17	18	20	
	4-227-2007	12	13	14	15	17	17	18

SIDEWALL GAUGE THICKNESS								
GAUGE #	12	13	14	15	16	17	18	20
THICKNESS (mm/in)	2.753/1.084	2.372/.0934	1.994/.0785	1.803/.0710	1.613/.0635	1.460/.0575	1.310/.0516	1.005/.0396

SIDEWALL SPECIFICATIONS FLAT BOTTOM UNSTIFFENED BINS

Dia.	Standard Bin Unstiffened	Sidewall Row						
		1	2	3	4	5	6	7
		Sidewall Gauge						
30'	4-230-2004	14	15	17	18			
	4-230-2005	14	15	16	17	18		
	4-230-2006	13	14	15	16	17	18	
	4-230-2007	12	13	13	14	15	17	18
		Sidewall Gauge						
33'	4-233-2004	14	15	17	18			
	4-233-2005	14	14	16	17	18		
	4-233-2006	13	13	14	15	17	18	
	4-233-2007	12	12	13	14	14	17	18
		Sidewall Gauge						
36'	4-236-2004	14	15	17	18			
	4-236-2005	14	14	16	17	18		
	4-236-2006	13	13	14	15	17	18	
	4-236-2007	12	12	13	14	14	17	18
		Sidewall Gauge						
42'	4-242-2004	14	15	17	18			
	4-242-2005	13	14	15	17	18		
	4-242-2006	12	13	14	15	17	18	
	4-242-2007	12	12	13	14	15	17	18

SIDEWALL SPECIFICATIONS FLAT BOTTOM STIFFENED BINS

Dia.	Standard Bin Stiffened	Sidewall Row											
		1	2	3	4	5	6	7	8	9	10	11	12
		Sidewall Gauge											
18'	4-0218-03008	18	18	20	20	20	20	20	20				
	4-0218-03009	18	18	18	20	20	20	20	20	20			
	4-0218-03010	17	18	18	18	20	20	20	20	20	20		
	4-0218-03011	17	17	18	18	18	20	20	20	20	20	20	
	4-0218-03012	17	17	17	18	18	18	20	20	20	20	20	20
		Sidewall Gauge											
21'	4-0221-03008	18	18	20	20	20	20	20	20				
	4-0221-03009	18	18	18	20	20	20	20	20	20			
	4-0221-03010	17	18	18	18	20	20	20	20	20	20		
	4-0221-03011	17	17	18	18	18	20	20	20	20	20	20	
	4-0221-03012	17	17	17	18	18	18	20	20	20	20	20	20
		Sidewall Gauge											
24'	4-0224-03008	17	18	20	20	20	20	20	20				
	4-0224-03009	17	18	18	20	20	20	20	20	20			
	4-0224-03010	17	18	18	18	20	20	20	20	20	20		
	4-0224-03011	17	17	18	18	18	20	20	20	20	20	20	
	4-0224-03012	17	17	17	18	18	18	20	20	20	20	20	20
		Sidewall Gauge											
27'	4-0227-03008	17	18	18	20	20	20	20	20				
	4-0227-03009	17	18	18	18	20	20	20	20	20			
	4-0227-03010	17	17	18	18	18	20	20	20	20	20		
	4-0227-03011	17	17	17	18	18	18	20	20	20	20	20	
	4-0227-03012	16	17	17	17	18	18	18	20	20	20	20	20

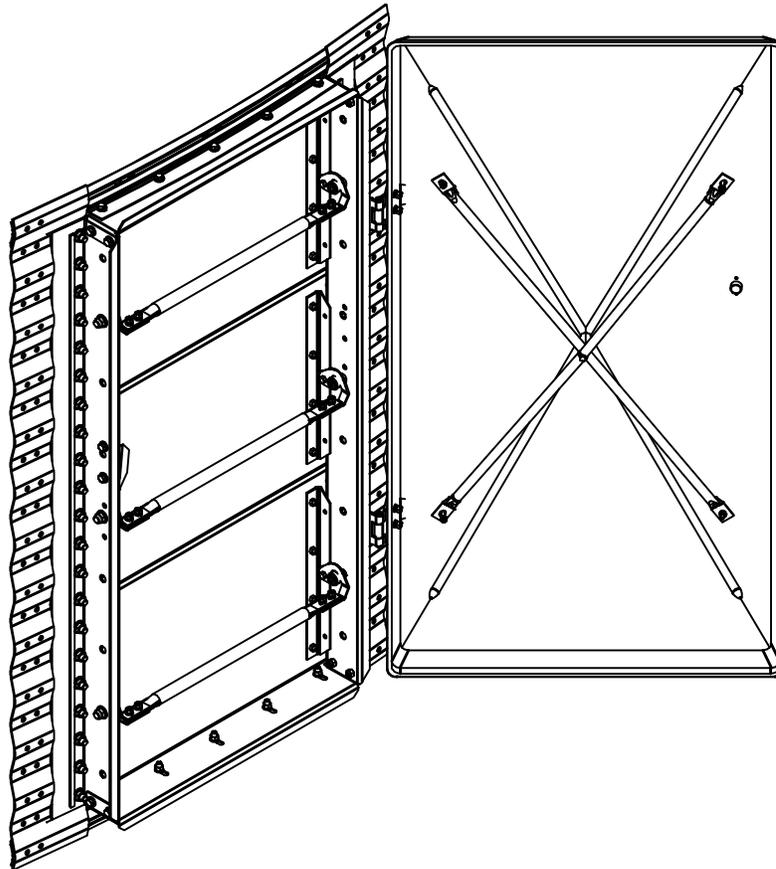
SIDEWALL SPECIFICATIONS FLAT BOTTOM STIFFENED BINS

Dia.	Standard Bin Stiffened	Sidewall Row											
		1	2	3	4	5	6	7	8	9	10	11	12
		Sidewall Gauge											
30'	4-0230-03008	14	17	17	18	18	20	20	20				
	4-0230-03009	14	16	17	17	18	18	20	20	20			
	4-0230-03010	14	15	16	17	17	18	18	20	20	20		
	4-0230-03011	14	15	16	16	17	17	18	18	20	20	20	
	4-0230-03012	13	14	15	16	16	17	17	18	18	20	20	20
		Sidewall Gauge											
33'	4-0233-03008	14	15	17	17	18	18	20	20				
	4-0233-03009	14	15	16	17	17	18	18	20	20			
	4-0233-03010	14	15	16	16	17	17	18	18	20	20		
	4-0233-03011	14	15	15	16	16	17	17	18	18	20	20	
	4-0233-03012	13	14	15	15	16	16	17	17	18	18	20	20
		Sidewall Gauge											
36'	4-0236-03008	14	15	16	17	17	18	18	20				
	4-0236-03009	14	15	16	16	17	17	18	18	20			
	4-0236-03010	14	15	15	16	16	17	17	18	18	20		
	4-0236-03011	14	14	15	15	16	16	17	17	18	18	20	
	4-0236-03012	13	14	14	15	15	16	16	17	17	18	18	20
		Sidewall Gauge											
42'	4-0242-03008	14	15	15	16	17	17	18	18				
	4-0242-03009	14	15	15	16	16	17	17	18	18			
	4-0242-03010	14	14	15	15	16	16	17	17	18	18		
	4-0242-03011	13	14	14	15	15	16	16	17	17	18	18	
	4-0242-03012	13	13	14	14	15	15	16	16	17	17	18	18

STANDARD DOOR INSTALLATION

The standard door is used on all bins Ø24' and larger

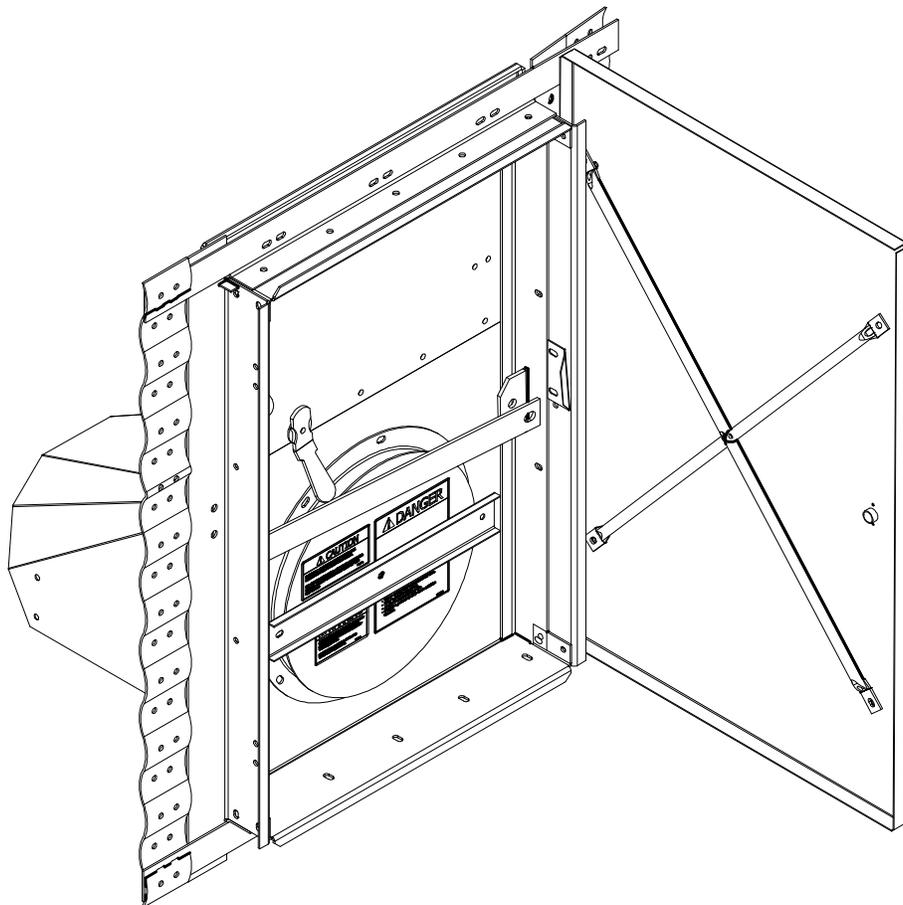
1. All doors are completely assembled at the factory. The installation of the door on the bin sidewall should be made after or during the addition of the bottom rings. See bin diagrams for proper door placement on page **A17-A18**.
2. Before inserting door, apply a double layer of caulking to the **inside** of the bin sidewall along all vertical and horizontal door mating surfaces.
3. With the door **inside** the bin, align bolt holes in the corrugated door frame with the sidewalls and insert all bolts. 3/8x3/4 bolts are supplied for installing the door. Tighten bolts and check for complete water tightness and add caulking if necessary.
4. Drill hole in bin door top corner and install supplied eye bolt into hole. Install supplied door hook into bin sidewall in an appropriate location for holding door open.



LOW PROFILE DOOR INSTALLATION

The low profile door is used on all bins Ø21' and smaller without aeration floors.

1. All doors are completely assembled at the factory. The installation of the door on the bin sidewall should be made after or during the addition of the bottom rings. See bin diagrams for proper door placement on page **A17-A18**.
2. Before inserting door, apply a double layer of caulking to the **inside** of the bin sidewall along all vertical and horizontal door mating surfaces.
3. With the door **inside** the bin, align bolt holes in the corrugated door frame with the sidewalls and insert all bolts. 3/8x3/4 bolts are supplied for installing the door. Tighten bolts and check for complete water tightness and add caulking if necessary.
4. Drill hole in bin door top corner and install supplied eye bolt into hole. Install supplied door hook into bin sidewall in an appropriate location for holding door open.



BASE ANGLE & ANCHOR PLATES

BASE ANGLE

Install the base angle ring to the lower edge of bottom sidewall rim with 3/8x1 bolts. Next raise the bin high enough to apply the bin foundation sealing strip. Thick caulking is supplied specifically for this location.

ANCHOR PLATES

Bolt anchor plates at vertical seams as shown in Fig. 1, using 3/8 x 1 bolts and hex nuts. 1/2 x 4-1/4 anchor bolts are supplied to secure the bin on foundation, shown in Fig. 1. When installing anchor bolts, ensure they are installed in a position to allow slight expansion of the bin upon initial filling (see **A15**). Caulk any open spaces along the base to ensure a good seal between bin and foundation.

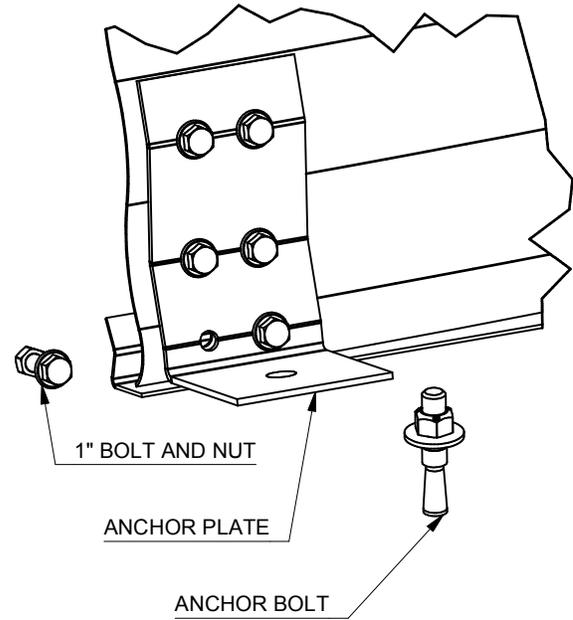


Fig. 1

NOTE: Bins with stiffeners do not use the anchor plates shown on this page. See **A11** for stiffened bin anchor system.

BOTTOM FLOOR SHEETS

For grain bins equipped with complete floors special bottom ring wall panels are supplied with a horizontal line of pierced holes for floor flashing. Panels should be oriented so that factory pierced holes for floor flashing assembly are located nearest concrete foundation.

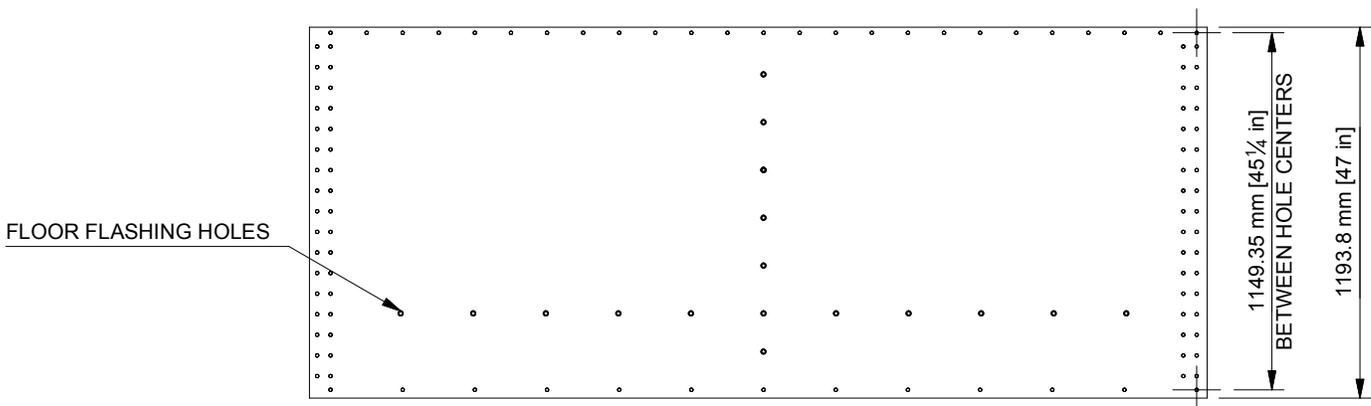


Fig. 2

SAFETY CAGE AND WALL LADDER ASSEMBLY

Sidewall ladder and safety cage must be centered directly under the roof ladder and installed as you raise the bin.

Ladders on hopper mounted bins begin on the 1st row of wall panel sheets. Ladders on all bins extend to the top of the top row of wall panel sheets.

Ladders are comprised of 3 components: Rungs (3 per wall panel row), rails (2 per wall panel row) and hardware kits (1 per wall panel row).

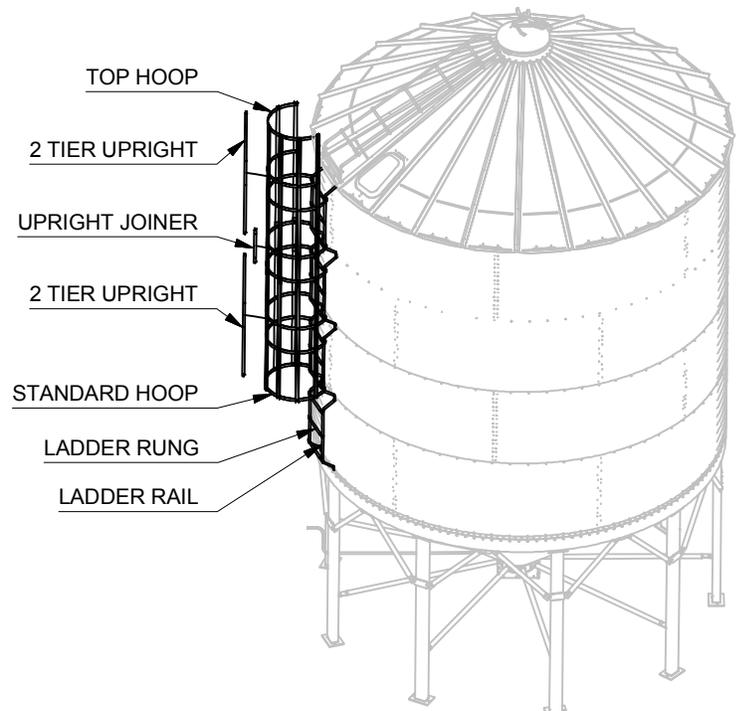
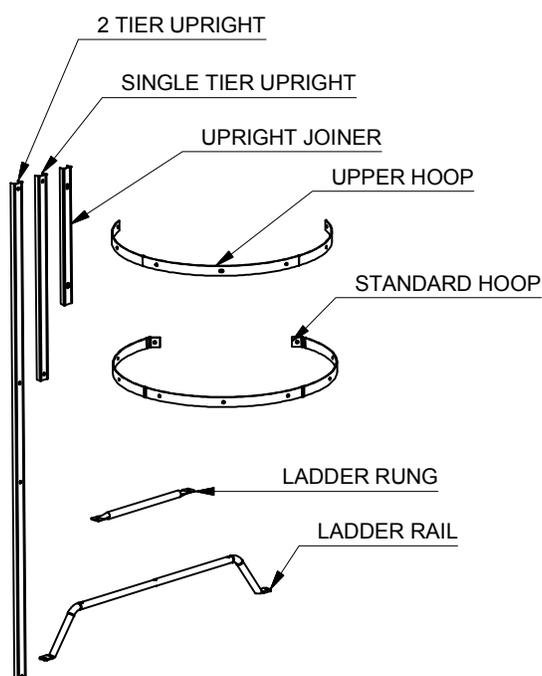
Top of all ladder cages extend 1 section above roof eave, bottom of ladder cages begin at the 2nd section of wall ladder.

The top 2 hoops in all ladder cage kits are special upper hoops that mount to the uprights only and do not have mounting tabs to mount to the ladder. All other hoops below these are standard hoops and mount to the ladder.

All ladder cages that span an odd number of bin rings (*not* counting the section that extends above the roof eave) do not use single tier uprights, only double tier uprights. Rows of uprights are joined by a row of upright joiners.

All ladder cages that span an even number of bin rings (*not* counting the section that extends above the roof eave) have their lowest section using single tier uprights. All uprights above this row are double tier uprights. All rows of uprights are joined by a row of upright joiners.

Fasten uprights, upright joiners and hoops together using 3/8 x 3/4 bolts and nuts (included in cage kit). Fasten standard hoops to ladder rails using ladder hardware (included in wall ladder hardware kit).

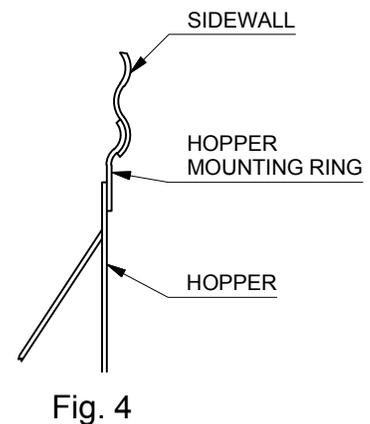
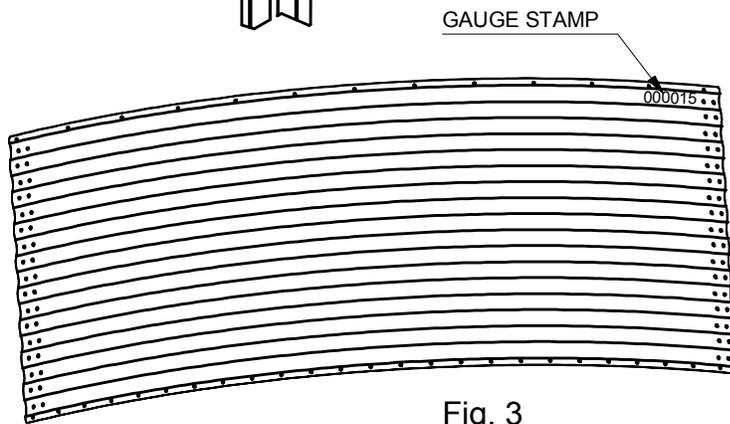
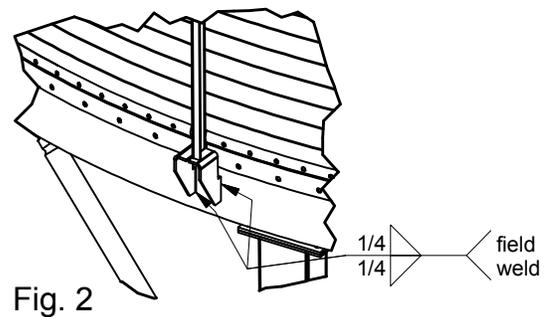
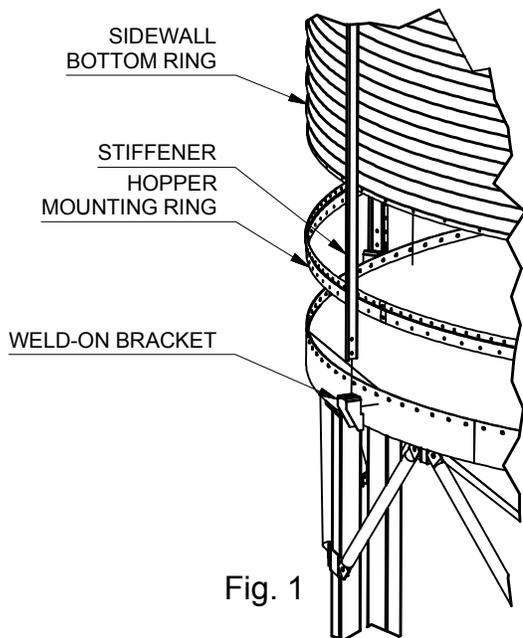


STIFFENER, HOPPER MOUNTING RING AND BOTTOM RING ASSEMBLY

The bottom ring of sidewall panels needs to be flipped end for end, compared to the sidewall panels in all other rings. The bottom ring must have the gauge stamp in the top corner, and the long edge with more hole must go to the bottom to mount to the hopper mounting ring as shown in Fig. 3.

Once the last ring of sidewall panels is assembled onto the bin the hopper mounting ring needs to be installed. The hopper mounting ring mates the bottom sidewall ring to the hopper. The hopper mounting rings must be staggered with the sidewall panels. Unlike the sidewall panels, the hopper mounting rings do not overlap each other. The hopper mounting ring to be installed on the inside of the bottom sidewall ring and outside the hopper as in Fig. 4 below. 3/8 x 1-1/4 bolts are supplied for the sidewall panel to hopper mounting ring connection as well as the hopper mounting ring to hopper connection.

On stiffened bins, install the bottom row of stiffeners after the hopper mounting ring is installed. Weld-on brackets are supplied to support the stiffeners vertically. Once the stiffeners are bolted to the sidewall panels and the sidewall panels, hopper mounting ring and hopper are bolted together, butt the weld-on bracket up to the bottom of the stiffener, ensure it is centered with the stiffener and fillet weld as per Fig. 2. The stiffener is not to be welded to the weld-on bracket.



STIFFENER SPECIFICATIONS HOPPER MOUNT BINS

Dia.	Standard Bin Stiffened	Stiffener Row				
		1	2	3	4	5
		Stiffener Gauge				
18'	4-218-3005	12	14	14*		
	4-218-3006	10	12	14		
	4-218-3007	10	12	14	14*	
	4-218-3008	8	10	12	14	
	4-218-3009	8	8	10	12	14*
		Stiffener Gauge				
21'	4-221-3005	12	14	14*		
	4-221-3006	10	12	14		
	4-221-3007	10	12	14	14*	
	4-221-3008	8	10	12	14	
	4-221-3009	8	8	10	12	14*
		Stiffener Gauge				
24'	4-224-3005	12	14	14*		
	4-224-3006	10	12	14		
	4-224-3007	10	12	14	14*	
	4-224-3008	8	10	12	14	
	4-224-3009	8	8	10	12	14*
		Stiffener Gauge				
27'	4-224-3005	12	14	14*		
	4-224-3006	10	12	14		
	4-224-3007	10	12	14	14*	
	4-224-3008	8	10	12	14	
	4-224-3009	8	8	10	12	14*

NOTE: * denotes half height stiffener

SIDEWALL SPECIFICATIONS

HOPPER MOUNT UNSTIFFENED BINS

Dia.	Hopper Mount Bin Unstiffened	Sidewall Row						
		1	2	3	4	5	6	7
		Sidewall Gauge						
15'	4-215-2203	16	18	20				
	4-215-2204	16	17	18	20			
	4-215-2205	15	16	17	18	20		
	4-215-2206	13	14	15	17	20	20	
	4-215-2207	12	13	13	14	15	18	20
		Sidewall Gauge						
18'	4-218-2203	17	18	20				
	4-218-2204	16	17	18	20			
	4-218-2205	15	16	17	18	20		
	4-218-2206	13	14	15	17	20	20	
	4-218-2207	12	13	13	14	15	18	20
		Sidewall Gauge						
21'	4-221-2203	16	18	20				
	4-221-2204	15	16	18	20			
	4-221-2205	14	15	16	18	20		
	4-221-2206	13	14	15	17	18	20	
		Sidewall Gauge						
24'	4-224-2204	15	16	18	20			
	4-224-2205	14	15	16	18	20		
	4-224-2206	13	14	15	16	18	20	
		Sidewall Gauge						
27'	4-227-2204	16	18	20				
	4-227-2205	15	16	18	20			

SIDEWALL GAUGE THICKNESS

GAUGE #	12	13	14	15	16	17	18	20
THICKNESS (mm/in)	2.753/1.084	2.372/.0934	1.994/.0785	1.803/.0710	1.613/.0635	1.460/.0575	1.310/.0516	1.005/.0396

SIDEWALL SPECIFICATIONS

HOPPER MOUNT STIFFENED BINS

Dia.	Hopper Mount Bin Stiffened	Sidewall Row								
		1	2	3	4	5	6	7	8	9
		Sidewall Gauge								
15'	4-215-2208	13	14	15	16	17	18	18	20	
	4-215-2209	13	13	14	15	16	17	18	18	20
		Sidewall Gauge								
18'	4-218-2208	13	14	15	16	17	18	18	20	
	4-218-2209	13	13	14	15	16	17	18	18	20
		Sidewall Gauge								
21'	4-221-2206	15	16	17	18	18	20			
	4-221-2207	14	15	16	17	18	18	20		
	4-221-2208	13	14	15	16	17	18	18	20	
	4-221-2209	12	13	14	15	16	17	18	18	20
		Sidewall Gauge								
24'	4-224-2205	16	17	18	18	20				
	4-224-2206	15	16	17	18	18	20			
	4-224-2207	14	15	16	17	18	18	20		
		Sidewall Gauge								
27'	4-227-2205	16	17	18	18	20				
	4-227-2206	15	16	17	18	18	20			
	4-227-2207	14	15	16	17	18	18	20		
	4-227-2208	13	14	15	16	17	18	18	20	
	4-227-2209	12	13	14	15	16	17	18	18	20

UNSTIFFENED BIN FOUNDATIONS

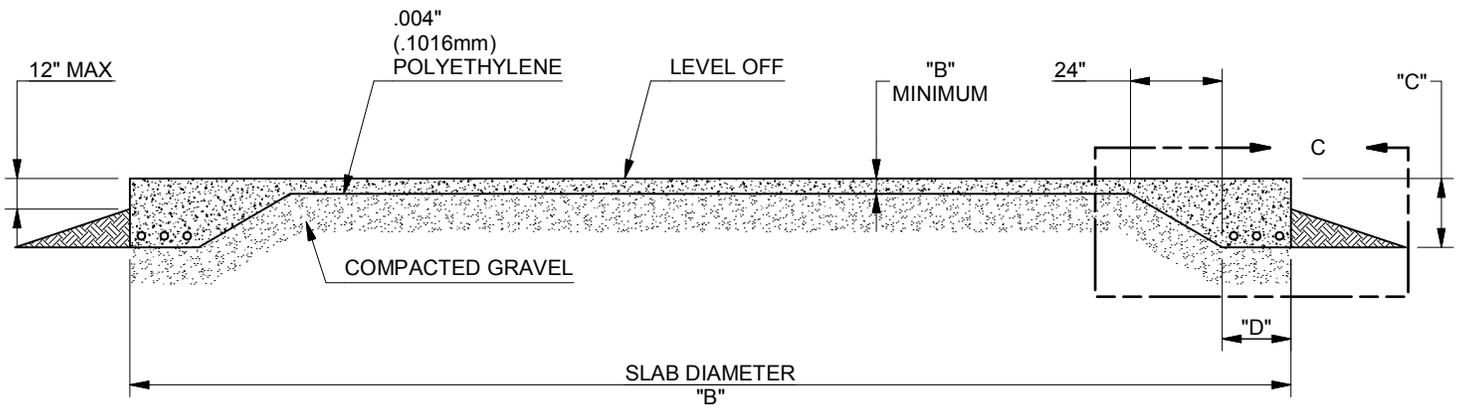
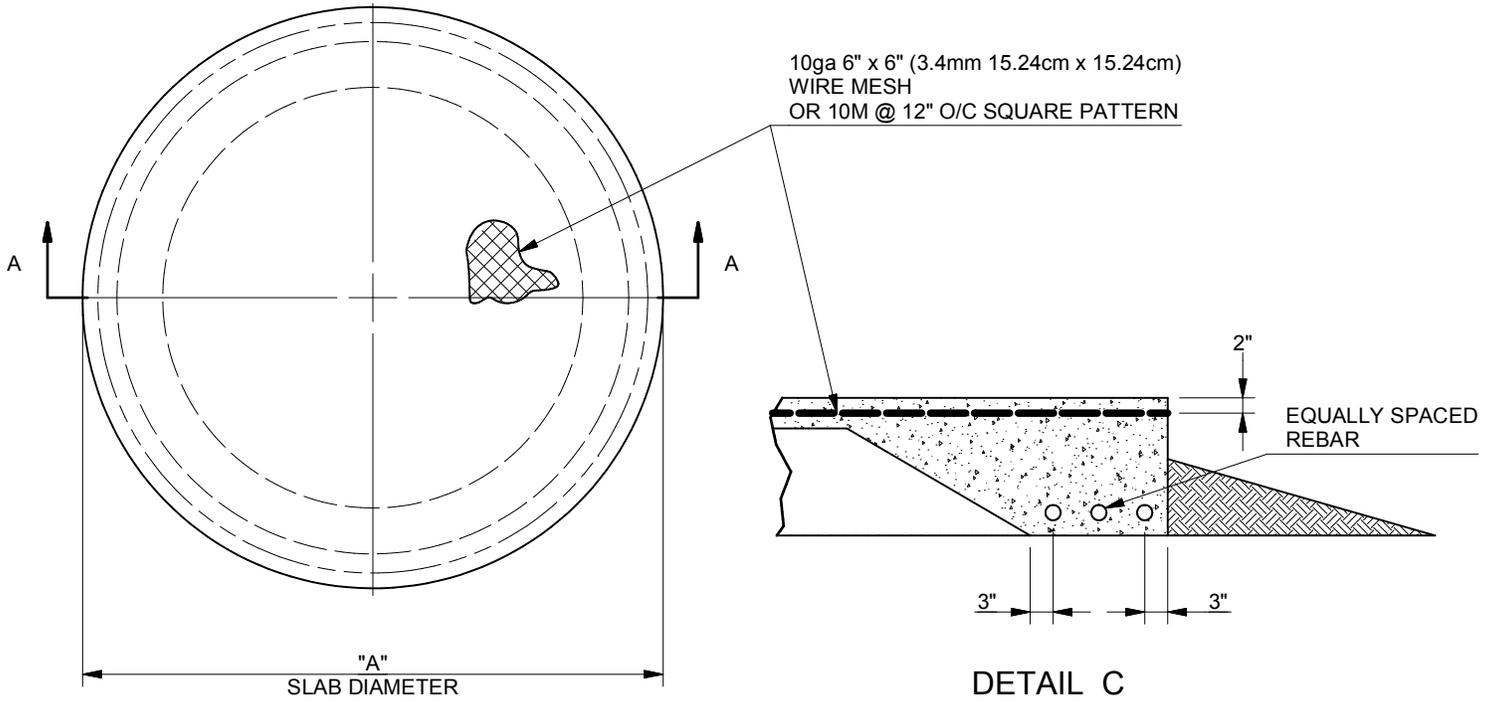
IMPORTANT

All foundation specifications shall be interpreted as recommendations only, because of the many variable conditions in actual installation. The manufacturer assumes no liability for results arising from the use of such recommendations. However, these minimum standards must be respected to assure bin warranty applicability.

FOUNDATION SPECIFICATIONS

1. All foundations must be designed on a leveled soil bearing 3,000lb/sq. ft. (14,646kg/m²). When in doubt, consult a local civil engineer.
2. All soil or organic material on the site of the foundation must be excavated and replaced by porous frost-proof material to provide proper draining under foundation and reduce frosting problems (gravel, sand, ballast, crushed stone). This underlying basis is then compacted and covered with polyethylene plastic which will act as a moisture barrier.
3. Once the forms have been prepared, begin the placement of reinforcement rods in your foundation (see foundation drawing details). These reinforcement rods offer their greatest strength when they have been joined together, either by weld or wire. The footing of the foundation is to have reinforcement rods running around the diameter. Quantities and locations of these bars vary by bin size. A 6" x 6" (15.24 x 15.24cm) wire mesh or 10M (#3) at 12" O/C each way must cover the entire area of the foundation. See following diagrams and charts for quantities and locations of reinforcing bar required per bin size. This completes preparation before beginning concrete pouring.
4. Concrete must have a minimum compressive strength of 3,625lb/sq. in. (25MPa) after 28 days.
5. Approximate concrete volume quantities found in corresponding tables.
6. Foundation surface must be level. Sloped floors cannot be used in drying bins.
7. If the bin cannot be erected immediately, component parts (especially wall panels) should be stored in a dry location. The infiltration of a small film of water between piled wall panels can leave a hard to remove white stain on the steel. The stains do not impair the sheets galvanized coating.

FOUNDATIONS



NOMINAL BIN DIA.	SLAB "A"	MIN. SLAB "B"	"C"	"D"	FOOTING ROD QUANTITY & SIZE		ANCHOR QTY	CONCRETE QUANTITY
					METRIC	IMPERIAL		
15'	16'-4"	4"	16"	16"	3 @ 10M	2 @ #4	5	6.3yd ³ (4.8m ³)
18'	19'-4"	4"	16"	16"	3 @ 10M	2 @ #4	6	8.2yd ³ (6.3m ³)
21'	22'-4"	4"	16"	16"	3 @ 10M	2 @ #4	7	10.2yd ³ (7.8m ³)
24'	25'-4"	4"	18"	18"	3 @ 10M	2 @ #4	8	14yd ³ (10.6m ³)
27'	28'-4"	4"	18"	18"	3 @ 10M	2 @ #4	9	16.5yd ³ (12.6m ³)
30'	31'-4"	4"	18"	18"	3 @ 10M	2 @ #4	10	19.2yd ³ (14.7m ³)
33'	34'-4"	5"	20"	18"	3 @ 10M	2 @ #4	11	25.8yd ³ (19.7m ³)
36'	37'-4"	5"	20"	18"	3 @ 10M	3 @ #4	12	29.5yd ³ (22.5m ³)
42'	43'-4"	5"	20"	18"	4 @ 10M	4 @ #4	14	37.5yd ³ (28.7m ³)

STIFFENED BIN FOUNDATIONS

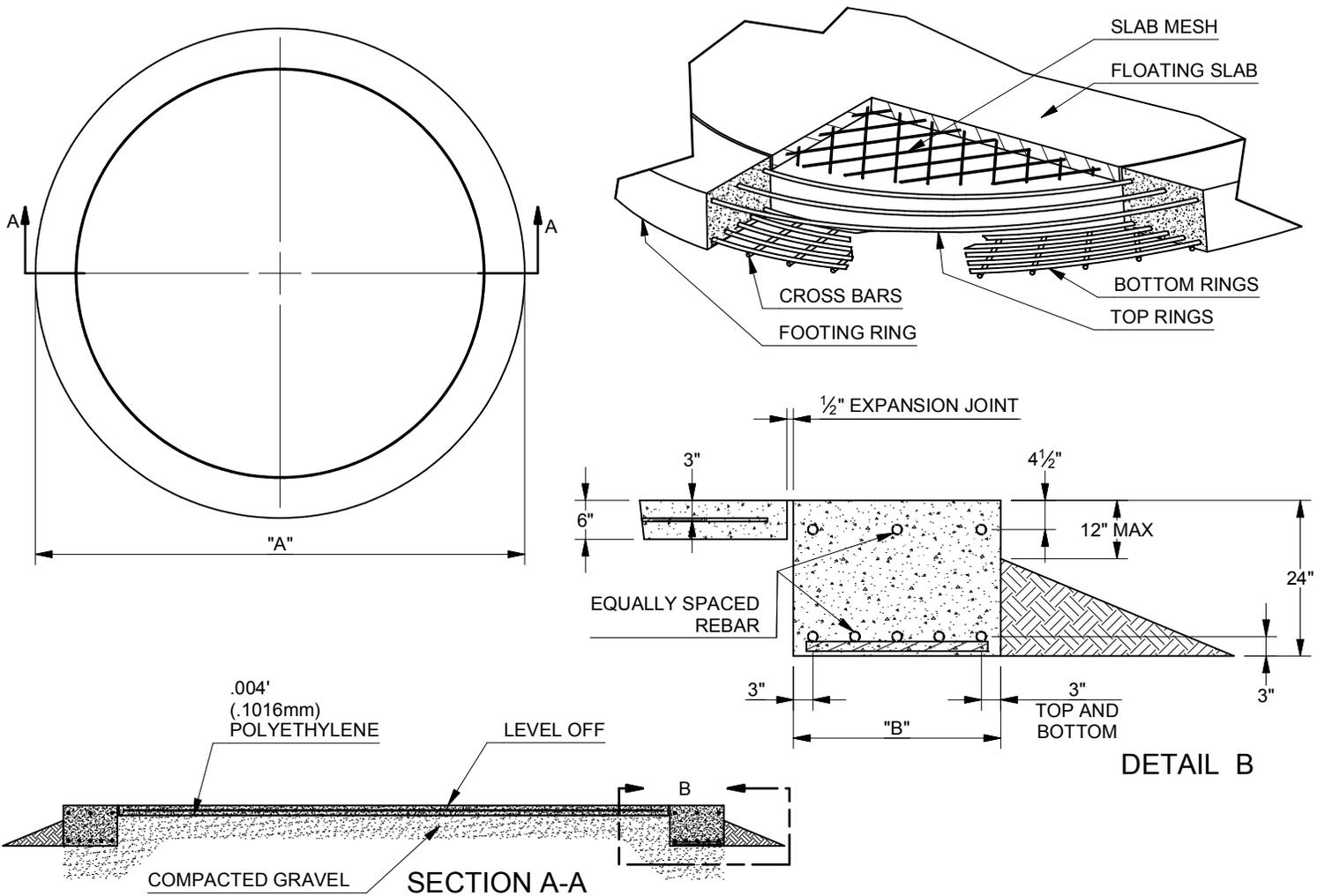
IMPORTANT

All foundation specifications shall be interpreted as recommendations only, because of the many variable conditions in actual installation. The manufacturer assumes no liability for results arising from the use of such recommendations. However, these minimum standards must be respected to assure bin warranty applicability.

FOUNDATION SPECIFICATIONS

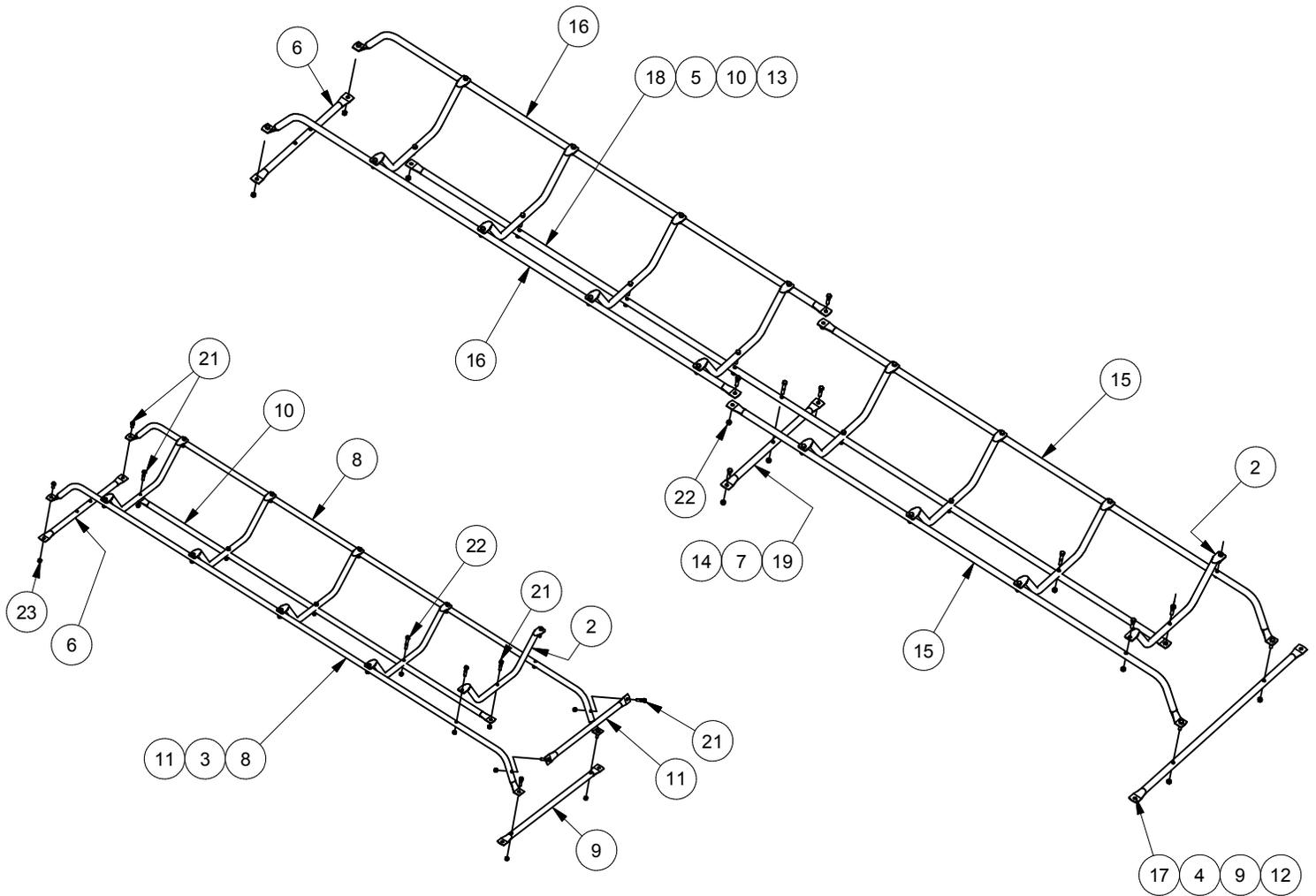
1. All foundations must be designed on a leveled soil bearing 3,000lb/sq. ft. (14,646kg/m²). When in doubt, consult a local civil engineer.
2. All soil or organic material on the site of the foundation must be excavated and replaced by porous frost-proof material to provide proper draining under foundation and reduce frosting problems (gravel, sand, ballast, crushed stone). This underlying basis is then compacted and covered with polyethylene plastic which will act as a moisture barrier.
3. Once the forms have been prepared, begin the placement of reinforcement rods in your foundation (see foundation drawing details). These reinforcement rods offer their greatest strength when they have been joined together, either by weld or wire. Note that the stiffened bin foundations are comprised of a footing ring and a center slab, separated by an expansion joint. The footing ring is to have reinforcement rods running in rings around the diameter in 2 different layers, top and bottom. Quantities of rebar rings vary by layer, bin size and Smetric or imperial size used. They must be evenly spaced within each layer. The footing ring also has cross bars joining the bottom layer of rebar rings together, again quantity and spacing vary by bin size. The center slab is to have 6" x 6" (15.24 x 15.24cm) wire mesh or 10M (#3) at 12" O/C each way covering the entire area of the foundation. See following diagrams and charts for quantities and locations of reinforcing bar required per bin size. This completes preparation before beginning concrete pouring.
4. Concrete must have a minimum compressive strength of 3,625lb/sq. in. (25MPa) after 28 days.
5. Approximate concrete volume quantities found in corresponding tables.
6. Foundation surfaces must be level. Sloped floors cannot be used in drying bins.
7. If the bin cannot be erected immediately, component parts (especially wall panels) should be stored in a dry location. The infiltration of a small film of water between piled wall panels can leave a hard to remove white stain on the steel. The stains do not impair the sheets galvanized coating.

STIFFENED BIN FOUNDATIONS



NOMINAL BIN DIA.	RINGS (UP TO)	FOOTING RING "A"	FOOTING RING "B"	BOTTOM RINGS		TOP RINGS		CROSS BARS		CONCRETE QUANTITY
				Metric	Imperial	Metric	Imperial	QTY	SPACING	
18'	10	20'-0"	2'-0"	4 @ 10M	4 @ #4	2 @ 10M	2 @ #4	38	~18	12.2yd ³ (9.3m ³)
	12	20'-3"	2'-6"	6 @ 10M	5 @ #4	2 @ 10M	2 @ #4	37	~18	13.8yd ³ (10.5m ³)
21'	10	23'-0"	2'-0"	5 @ 10M	4 @ #4	2 @ 10M	2 @ #4	44	~18	15.1yd ³ (11.5m ³)
	12	23'-3"	2'-6"	6 @ 10M	5 @ #4	3 @ 10M	3 @ #4	49	~16	17yd ³ (13m ³)
24'	10	26'-6"	2'-6"	5 @ 10M	4 @ #4	2 @ 10M	2 @ #4	50	~18	20.7yd ³ (15.9m ³)
	12	26'-9"	2'-9"	6 @ 10M	5 @ #4	3 @ 10M	3 @ #4	57	~16	22yd ³ (16.8m ³)
27'	10	29'-6"	2'-6"	5 @ 10M	4 @ #4	2 @ 10M	2 @ #4	57	~18	24.5yd ³ (18.7m ³)
	12	30'-0"	3'-0"	6 @ 10M	5 @ #4	3 @ 10M	3 @ #4	64	~16	27.3yd ³ (20.9m ³)
30'	10	32'-8"	2'-8"	5 @ 10M	4 @ #4	3 @ 10M	3 @ #4	63	~18	29.5yd ³ (22.6m ³)
	12	33'-6"	3'-6"	7 @ 10M	5 @ #4	4 @ 10M	4 @ #4	81	~14	34.7yd ³ (26.5m ³)
33'	10	35'-9"	2'-9"	5 @ 10M	4 @ #4	3 @ 10M	3 @ #4	69	~18	34.5yd ³ (26.4m ³)
	12	36'-6"	3'-6"	7 @ 10M	5 @ #4	4 @ 10M	4 @ #4	104	~12	39.6yd ³ (30.3m ³)
36'	10	38'-10"	2'-10"	5 @ 10M	4 @ #4	4 @ 10M	3 @ #4	75	~18	39.8yd ³ (30.4m ³)
	12	40'-0"	4'-0"	7 @ 10M	6 @ #4	5 @ 10M	4 @ #4	113	~12	48.5yd ³ (37.1m ³)
42'	10	45'-0"	3'-0"	6 @ 10M	5 @ #4	4 @ 10M	3 @ #4	88	~18	51.5yd ³ (39.4m ³)
	12	46'-0"	4'-0"	7 @ 10M	6 @ #4	5 @ 10M	4 @ #4	132	~12	60.1yd ³ (46m ³)

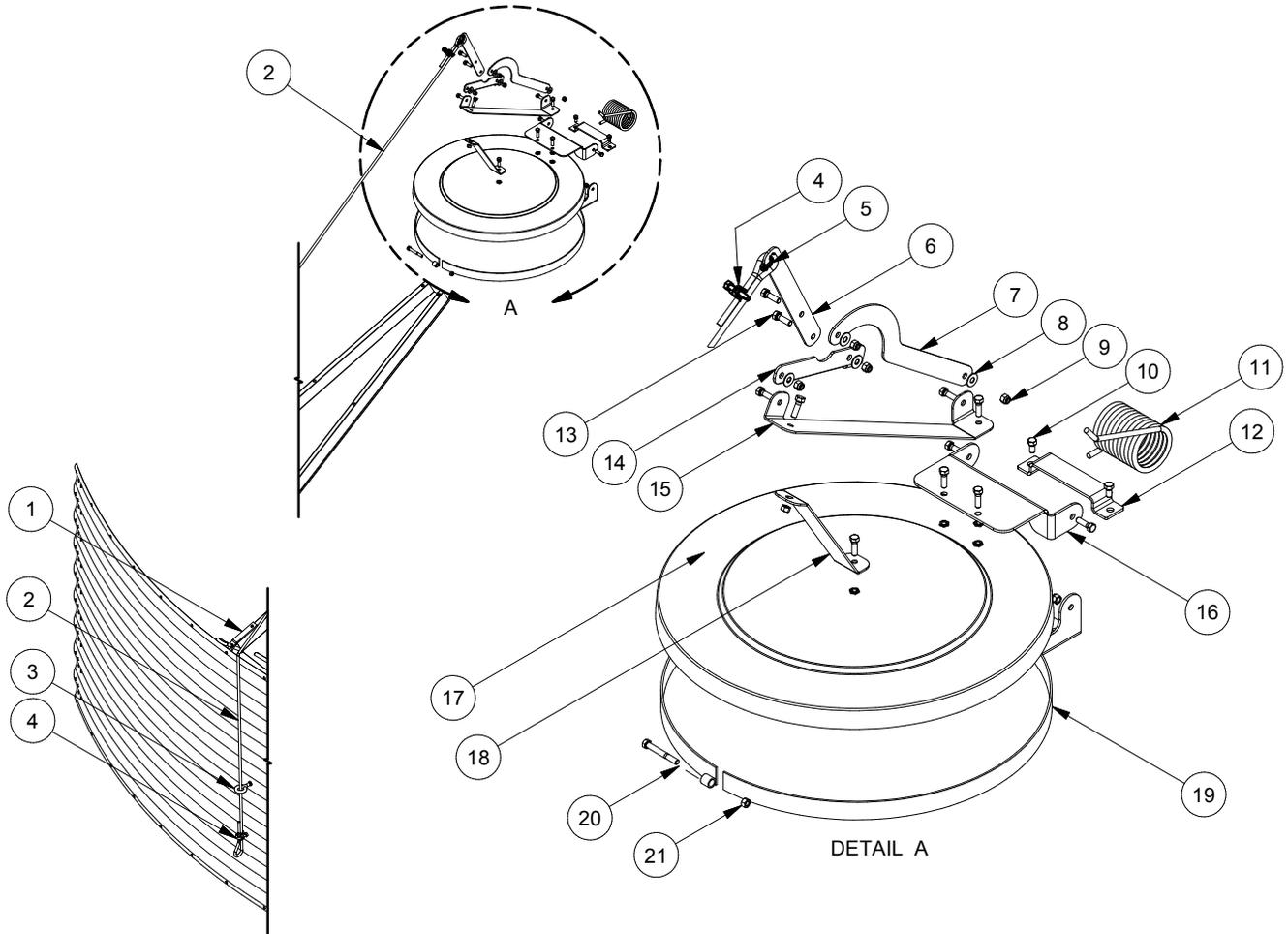
ROOF LADDER



REF #	PART #	DESCRIPTION	QTY			
			18' BIN	21' BIN	24' BIN	27' BIN
1	996404	Lower Rail Brace	1	1	1	
2	996405	Ladder Rung	5	6	7	8
3	996601	Ladder Rail		2		
4	996602	Bottom Rail Brace		1		
5	996603	Rung Brace		1		
6	996604	Upper Rail Brace	1	1	1	1
7	996605	Cross Brace		1		
8	996606	Ladder Rail	2			
9	996607	Bottom Rail Brace	1			
10	996608	Rung Brace	1			
11	996612	Ladder Rail			2	
12	996613	Bottom Rail Brace			1	
13	996614	Rung Brace			1	
14	996615	Cross Brace			1	
15	996616	Ladder Bottom Rail				2
16	996617	Ladder Top Rail				2
17	996618	Bottom Rail Brace				1
18	996619	Rung Brace				1
19	996620	Cross Brace				1
20	13070206024	Hex Bolt - 3/8 x 1-1/2 UNC	22	26	28	30
21	13070206040	Hex Bolt - 3/8 x 2-1/4 UNC	3	5	6	7
22	13072500006	Hex Nut - 3/8 UNC	25	31	34	37

PARTS

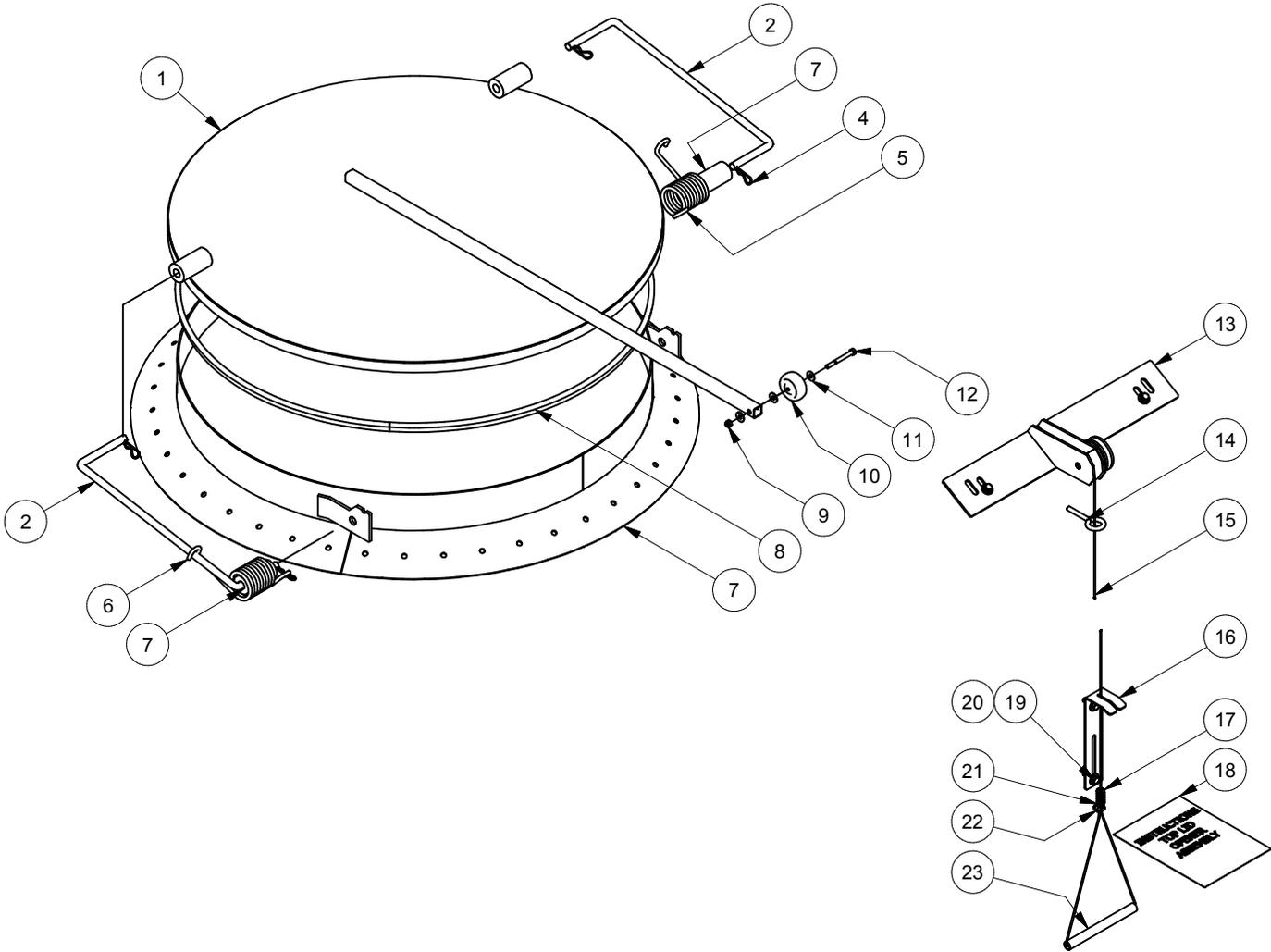
Ø15' - Ø27' REMOTE ROOF CAP



BIN			
REF #	PART #	QUANTITY	DESCRIPTION
1	3-201-4107	1	Cable Bracket
2	3-201-4108	1	40' Cable - Ø1/8"
2	3-201-4108-80	1	80' Cable - Ø1/8"
3	3-201-4106	2	Eye Bolt - Pigtail 3/8 x 4
4	3-201-4109	2	Cable Clamp - 1/8
5	13000002434-00	1	Thimble - 5/16 Cable
6	217757	1	Long Link
7	217758	1	Cap Link
8	13-0735-00006	4	Plain Washer - 3/8
9	13-0729-00006	6	Nylock Nut - 3/8 Std NC
10	3-716-4054	2	Bin Bolt - 3/8-16 UNC - 0.75 Gr 2 c/w LDPE Washer
11	217759S	1	Roof Cap Spring
12	217756	1	Spring Holder
13	3-716-4057	11	Bin Bolt - 3/8-16 UNC - 1.25 Gr 8 c/w LDPE Washer
14	217754	1	Short Link
15	217755	1	Lift Bracket
16	217753	1	Upper Plate
17	217522A	1	Cap Tank Roof
18	217751	1	Z-Brace
19	215214S	1	Cap Clamp
20	3-716-4070	1	Bin Bolt - 3/8-16 UNC - 3 Gr 8 c/w LDPE Washer
21	3-729-0356	8	Bin Nut - 3/8-16 UNC Heavy Finish

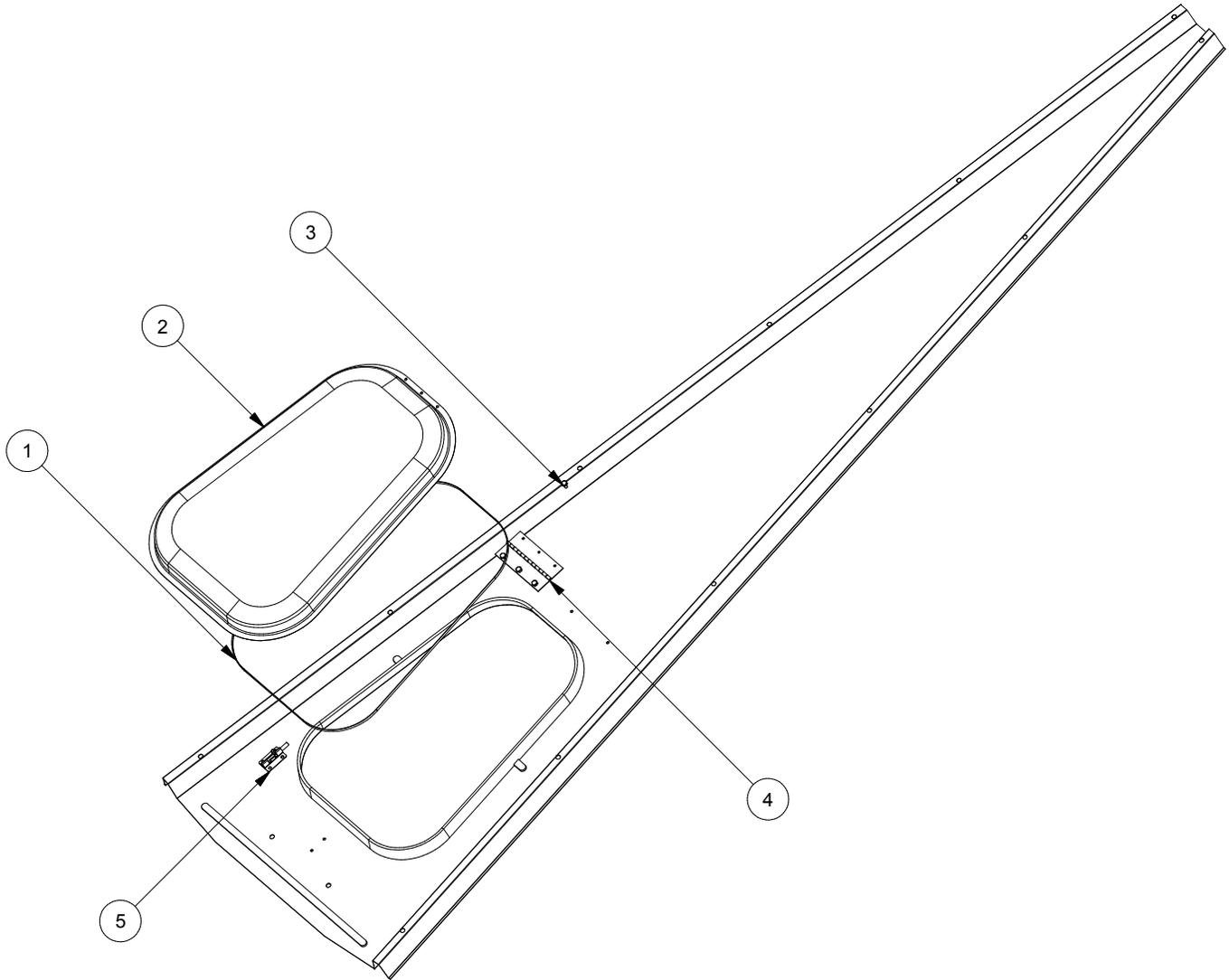
PARTS

Ø30' - Ø42' REMOTE ROOF CAP



BIN			
REF #	PART #	QUANTITY	DESCRIPTION
1	3-201-2521	1	COVER - BIN LID
2	3-201-2517	2	ROD - COVER - BIN LID
4	13073704032	4	Cotter Pin 1/8 x 1
5	3-201-2448	1	SPRING RH - BIN LID
6	3-201-2445	1	SPRING LH - BIN LID
7	3-201-2528	1	RING - ASSEMBLY - BIN LID 42'
8	3-201-2514	1	SEAL - RUBBER - BIN LID
9	130729000005	1	5/16 Std NC Nylock Nut
10	3-201-2459	1	WHEEL - BIN LID
11	130735000005	3	Flat Washer 5/16
12	13070205048	1	BOLT, HEX, 5/16-18 UNC X 3 Steel, Mild
13	3-201-2490	1	EAVE ROLLER - BIN LID
14	3020104106	2	Bolt Eye - Pigtail 3/8 x 4
15	3020104108	1	Cable, Lid Opener -1/8 IN
16	05-0001-01	1	Lid Open Hook
17	130731000005	2	NUT, HEX, FLANGED, Stainless Steel 5/16-18 UNC
18	3-201-2532	1	INSTRUCTIONS - EAVE ROLLER AND HOOK INSTALLATION - BIN LID
19	13070206020	2	BOLT, HEX, 3/8-16 UNC X 1.25 Steel, Mild
20	130735000006	2	Flat Washer - 3/8 Yellow Zinc Plated
21	3057-00	1	Door Closure Spring
22	3-201-4109	1	40' Cable Clamp - Ø1/8 - roof lid
22	3-201-4109-80	1	80' Cable Clamp - Ø1/8 - roof lid
23	3-201-2496	1	PIPE - CABLE HANDLE - BIN LID

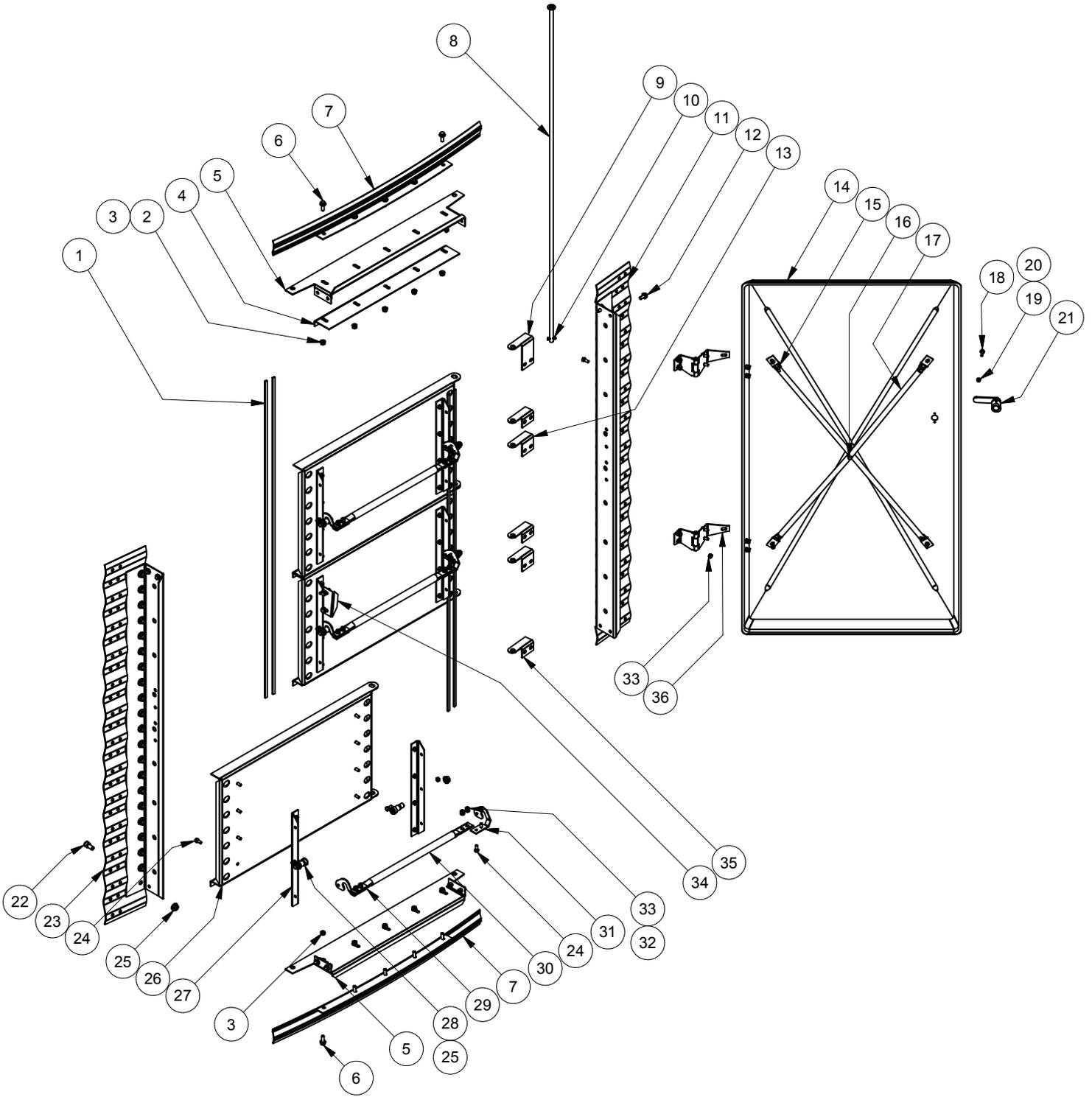
INSPECTION HATCH



BIN			
REF #	PART #	QUANTITY	DESCRIPTION
1	3-203-0093	1	Manhole & Lid Rubber Gasket
2	3-201-2016	1	Man-Hole Cover
3	3-732-1025	10	3/16" Rivet - Bin Roof Sheet
4	3-201-2015	1	Hinge - Bin Manhole
5	3-201-2018	1	Latch Barrel Bolt

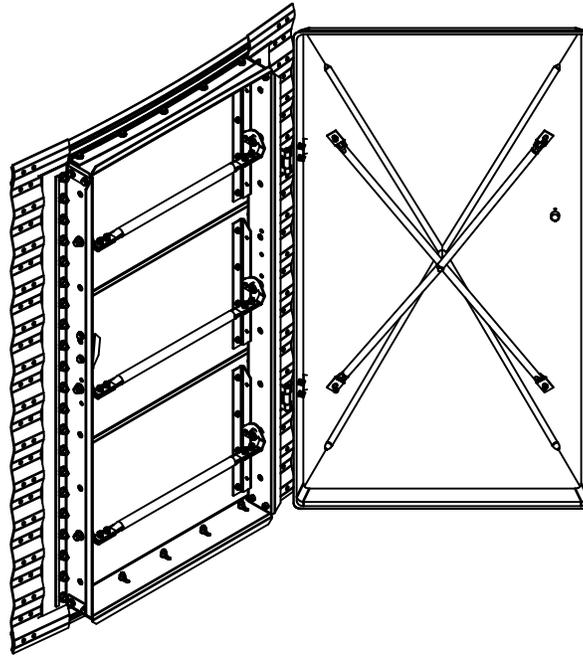
D4

STANDARD DOOR



PARTS

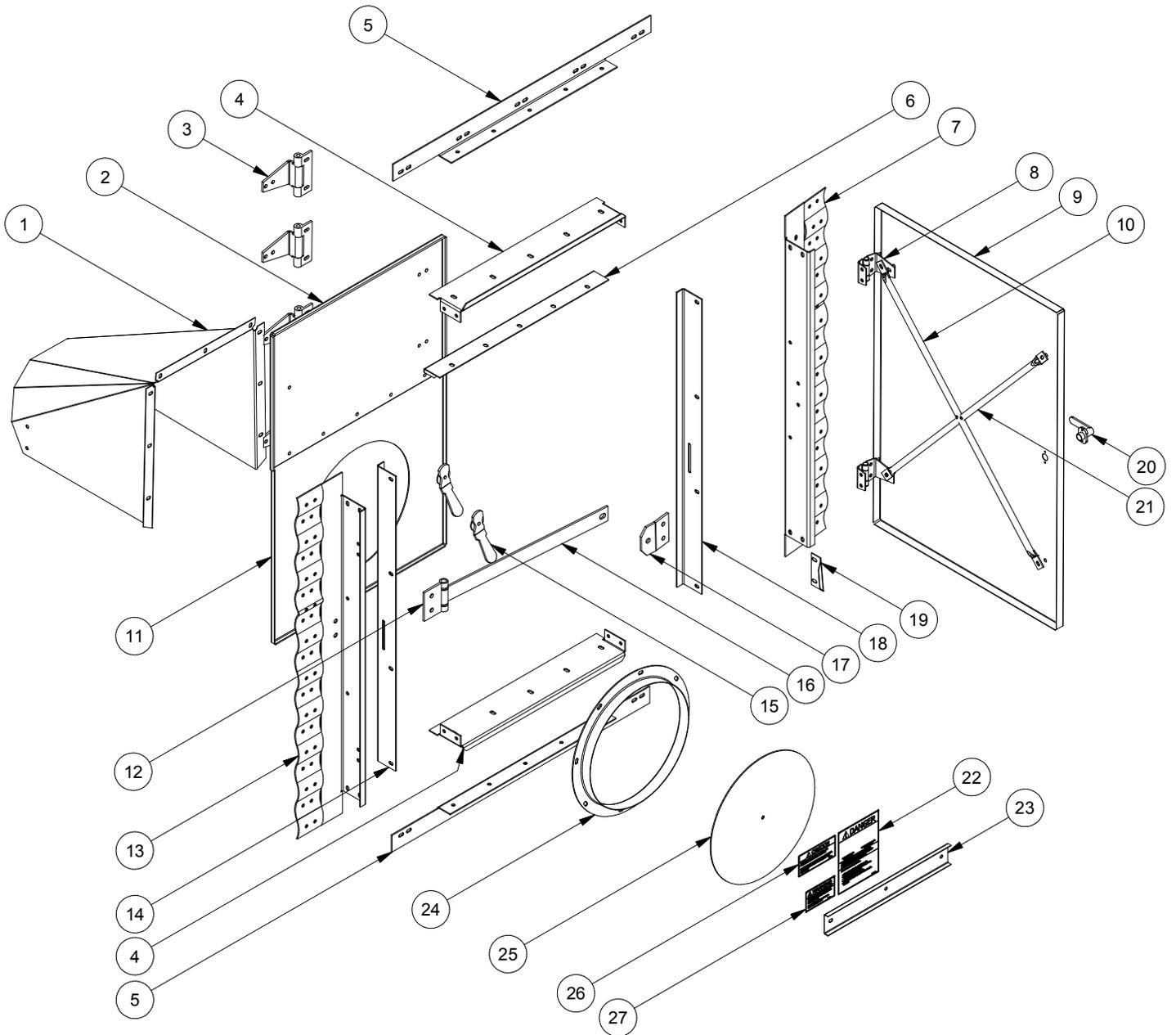
STANDARD DOOR



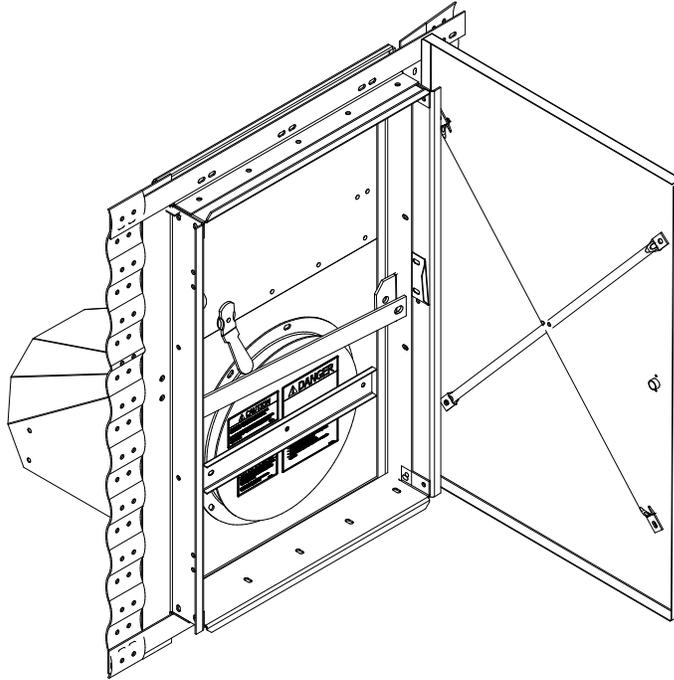
BIN

REF #	PART #	QUANTITY	DESCRIPTION
1	3-201-2499	4	INSULATING FOAM TAPE 3/16in x 3/8in
2	13073400006	12	LOCK WASHER 3/8"
3	13072500006	20	HEX NUT 3/8"-16 UNC
4	3020102512	1	Top Cover
5	3020102504	2	Door Frame
6	3-716-5056	12	BOLT, HEX, FLANGED 3/8-16 UNC X 1
7	3020102306	2	Door Flashing
8	3020102507	1	Door Rod Hinge
9	3020102534	1	Rod Bracket - Long
10	13073705024	1	COTTER PIN 5/32" x 3/4"
11	3020102501	1	Door Jamb - RH
12	3-716-4054	8	BOLT, HEX, FLANGED 3/8-16 UNC X 0.75
13	3020102533	2	Rod Bracket - Medium
14	3020102503	1	Outer Door
15	3020102314	1	Reinforcing Bar - Bin Std Door
16	13070204028	1	HEX BOLT 1/4"-20 UNC X 1.75"
17	3020102315	1	Dented Stiffner - Bin Door
18	13071204016	4	HEX FLANGE BOLT 1/4"-20 UNC X 1"
19	13072500004	5	HEX NUT 1/4"-20 UNC
20	13073400004	4	LOCK WASHER 1/4"
21	1-738-9104	1	DOOR HANDLE
22	13072008016	42	SOCKET HEAD C/S 1/2" - 13 UNC X 1"
23	3020102502	1	Door Jamb - LH
24	13070205012	50	HEX BOLT 5/16"-18 UNC X 0.75"
25	13073100008	48	NUT, HEX, FLANGED 1/2-13 UNC
26	3020102506	3	Inner Top Door Panel
27	3020102508	6	Lever Holder
28	13070012012	6	SOCKET SHOULDER BOLT 3/4" x 5/8"-11 UNC
29	3020102511	3	Lever Piece - LH
30	3020102509	3	Lever Handle
31	3020102510	3	Lever Piece - RH
32	13073400005	26	LOCK WASHER 5/16"
33	13072500005	50	HEX NUT 5/16"-18 UNC
34	3020104007	1	Door Catch
35	3020102505	3	Rod Bracket
36	3-201-2318	2	HINGE

LOW PROFILE DOOR

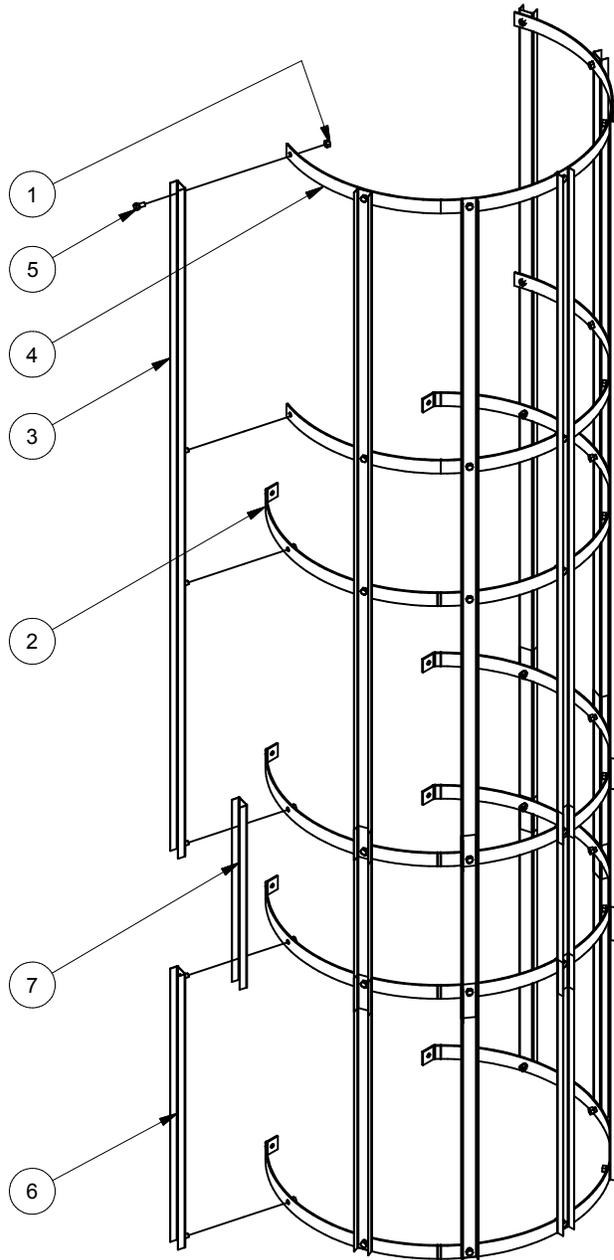


LOW PROFILE DOOR



BIN			
REF #	PART #	QUANTITY	DESCRIPTION
1	3-201-4019	1	Chute Auger
2	3-201-4015	1	Top Inner Door
3	3-201-4017	4	Hinge - Inner Door
4	3-201-4002	2	Door Frame (Top & Bottom)
5	3-201-2306	2	Auger Chute Bracket
6	3-201-4018	1	Inner Door Stiffener
7	3-201-4001	1	Door Frame LH
8	3-201-4003	2	Hinge - Door Outer
9	3-201-4020	1	Outer Door
10	3-201-2315	1	Dented Stiffener - Bin Door
11	3-201-4013	1	Auger Chute Door
12	3-201-4008	1	Tie Bar Hinge
13	3-201-4000	1	Door Frame LH
14	3-201-4004	1	Door Filler RH
15	3-201-4016	2	Inner Door Latch
16	3-201-4009	1	Tie Bar
17	3-201-4006	1	Bracket Tie Bar
18	3-201-4005	1	Door Filler LH
19	3-201-4007	1	Door Catch
20	1-738-9104	1	Door Handle - Outer Door, Bin
21	3020102314	1	Straight Stiffener - Bin Std Door
22	2-899-2005	1	Decal Bin - Suffocation
23	3-201-4010	1	Auger Chute Bracket
24	3-201-4012	1	Auger Chute Angle
25	3-201-4011	1	Auger Chute Filler
26	2-899-2003	1	Decal - Caution
27	2-899-2004	1	Decal Bin - Aeration - Small
28	3-201-4027	1	Hardware Bag - Bin Door - Low Profile

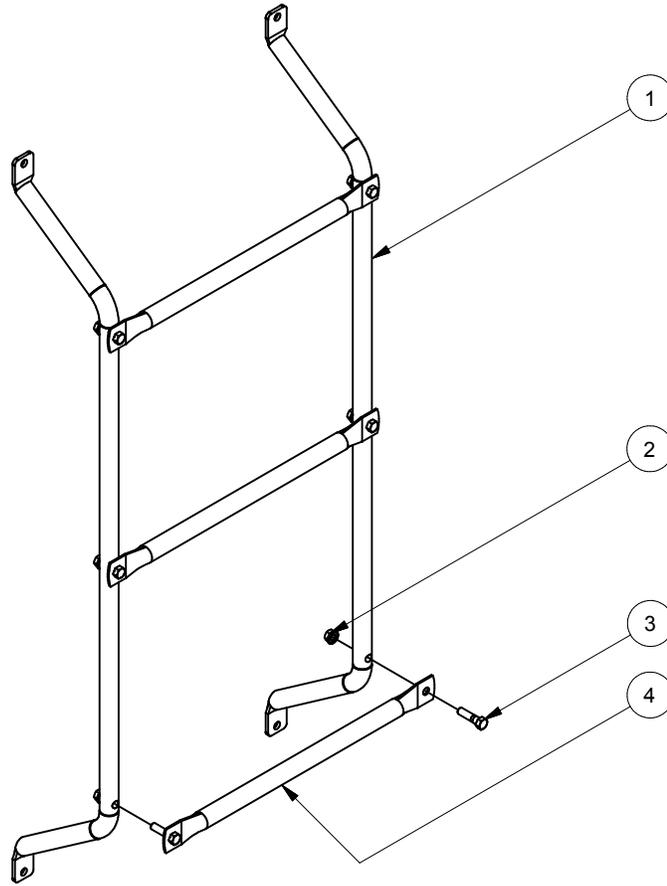
SAFETY CAGE



Note: BOM is for flat bottom bins. For hopper mount bin use BOM column for 1 ring larger. (For 4 ring hopper mount bin, use quantities from 5 ring flat bottom bin below)

REF #	PART #	DESCRIPTION	QTY									
			3 RING	4 RING	5 RING	6 RING	7 RING	8 RING	9 RING	10 RING	11 RING	12 RING
1	03072900356	Hex Nut 3/8"-16 Heavy Finished	30	45	60	75	100	110	120	135	150	165
2	3-202-2067	81" Horizontal Support	2	4	6	8	10	12	14	16	18	20
3	3-202-2068	77" Vertical Support	7	7	14	14	21	21	28	28	35	35
4	3-202-2071	61.5" Horizontal Support	2	2	2	2	2	2	2	2	2	2
5	13-0702-06012	Bolt - 3/8-16 UNC - 0.75	30	45	60	75	100	110	120	130	150	165
6	3-202-2069	31.5" Vertical Support	0	7	0	7	0	7	0	7	0	7
7	3-202-2070	21" Vertical Support	0	7	7	14	14	21	21	28	28	35

WALL LADDER

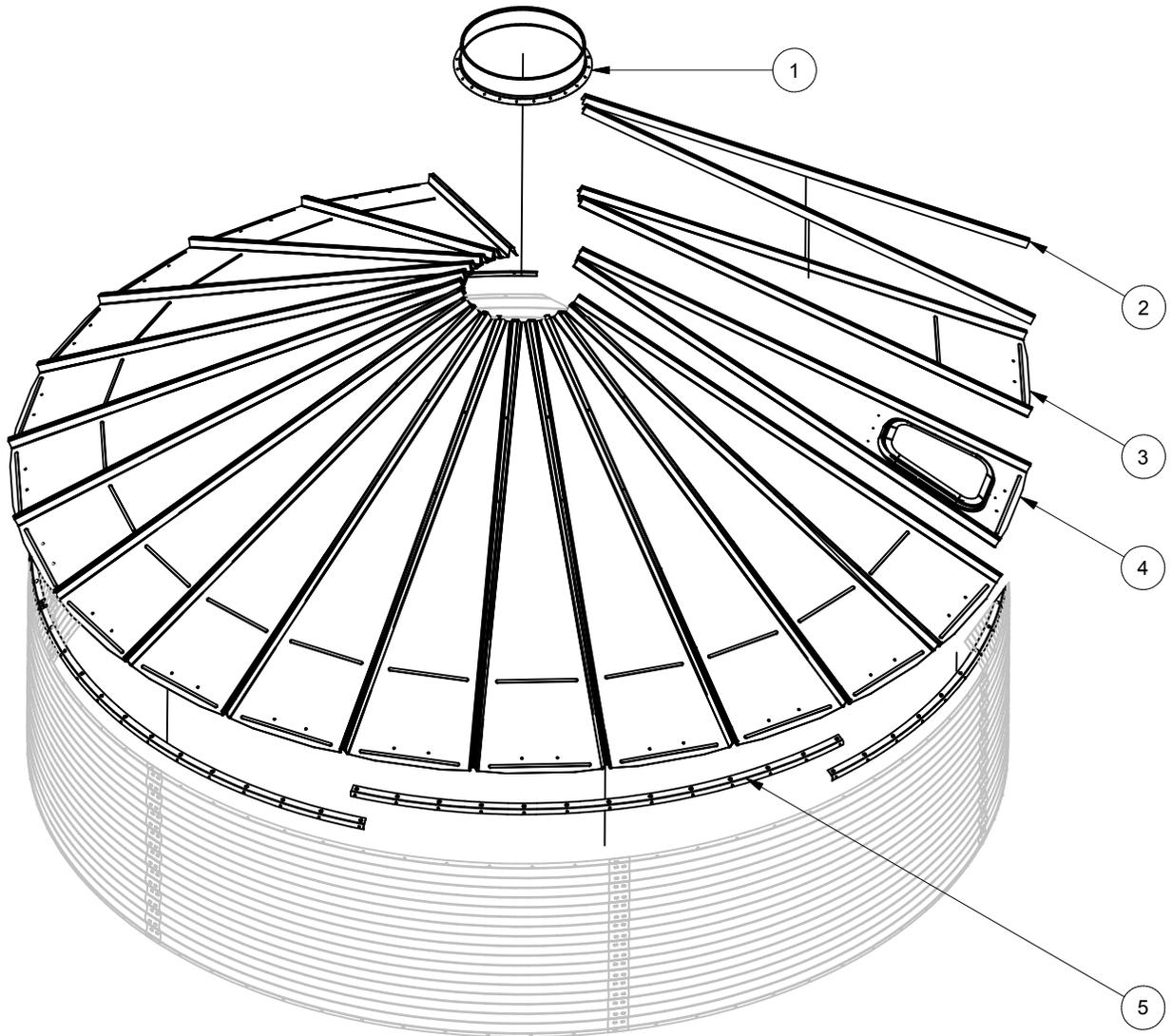


Note: BOM is for flat bottom bins. For hopper mount bin use BOM column for 1 ring larger. (For 4 ring hopper mount bin, use quantities from 5 ring flat bottom bin below)

REF #	PART #	DESCRIPTION	QTY									
			3 RING	4 RING	5 RING	6 RING	7 RING	8 RING	9 RING	10 RING	11 RING	12 RING
1	996431	Ladder Rail - Wall	4	6	8	10	12	14	16	18	20	22
2	13073100006	Flange Lock Nut - 3/8	12	18	24	30	36	42	48	54	60	66
3	13070206024	Bolt - 3/8-16 UNC - 1.5	12	18	24	30	36	42	48	54	60	66
4	996432	Ladder Rung - Wall	6	9	12	15	18	21	24	27	30	33

D10

ROOF PARTS

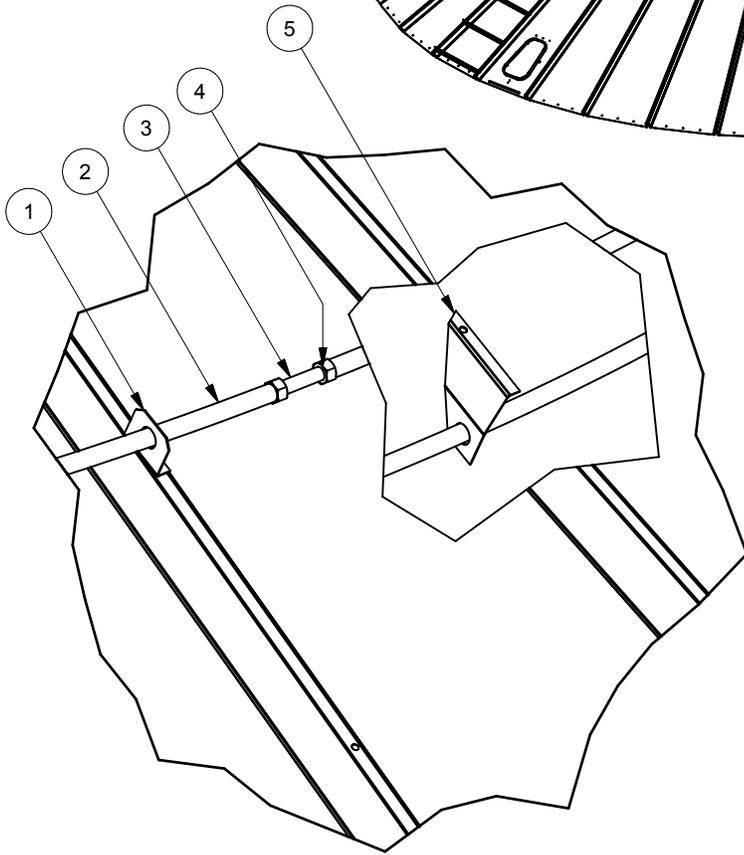
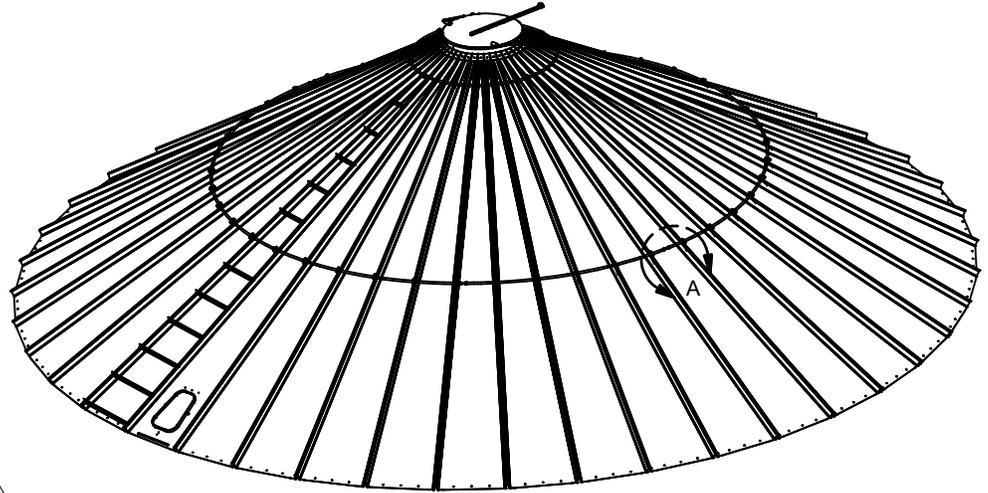


* 'XX' represents nominal bin diameter in part #

BIN			
REF #	PART #	QUANTITY	DESCRIPTION
1	217818	1	Roof Ring (Ø15' - Ø27' bins only)
2	3-1XX-2050	2	Roof Stiffener
3	3-1XX-2000	varies	Sheet - Roof - Standard
4	3-1XX-2004	1	Sheet - Roof - Manhole
5	3-2XX-2055	varies	Roof Rim

D11

ROOF STIFFENING RING PARTS

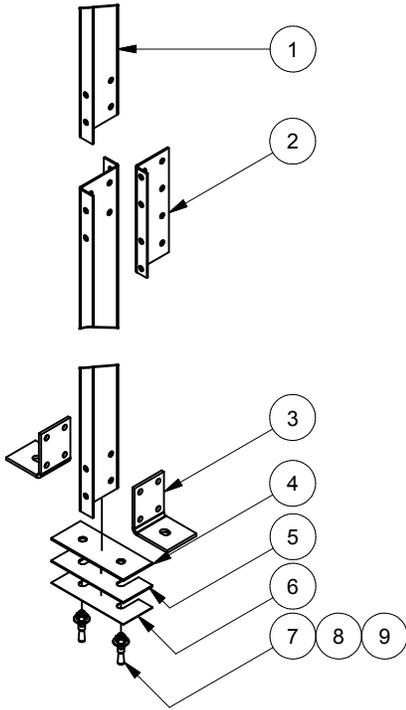


DETAIL A

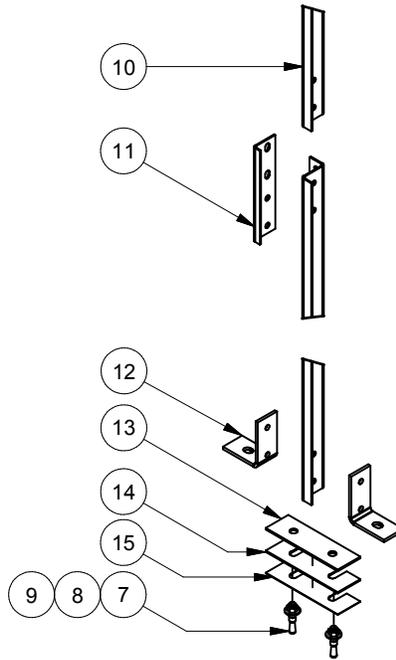
* Qty's of reinforcing ring tubes represent 1 ring.
See page **A6** for application of rings per bin size

BIN			
REF #	PART #	QUANTITY	DESCRIPTION
1	3-201-2042	varies	Exterior Ring Support Bracket
2	3020102045	8	Reinforcing Ring Tube - Ø24'
2	3020102047	6	Reinforcing Ring Tube - Ø18'
2	3020102048	2	Reinforcing Ring Tube - Ø6'
2	3020102049	7	Reinforcing Ring Tube - Ø21'
3	3-201-2050	varies	Expansion Bolt
4	13072500012	varies	Hex Nut 3/4 - 10
5	3-201-2041	varies	Interior Ring Support Bracket

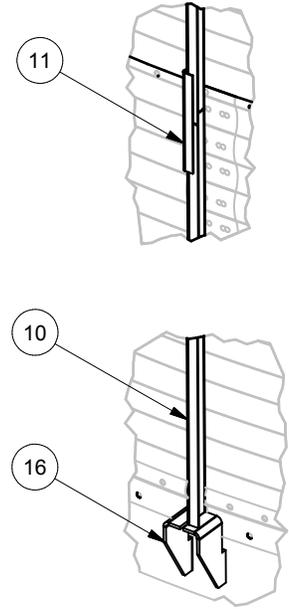
SIDEWALL STIFFENER PARTS



BINS DIA Ø30' - Ø42'



BINS DIA Ø15' - Ø27'

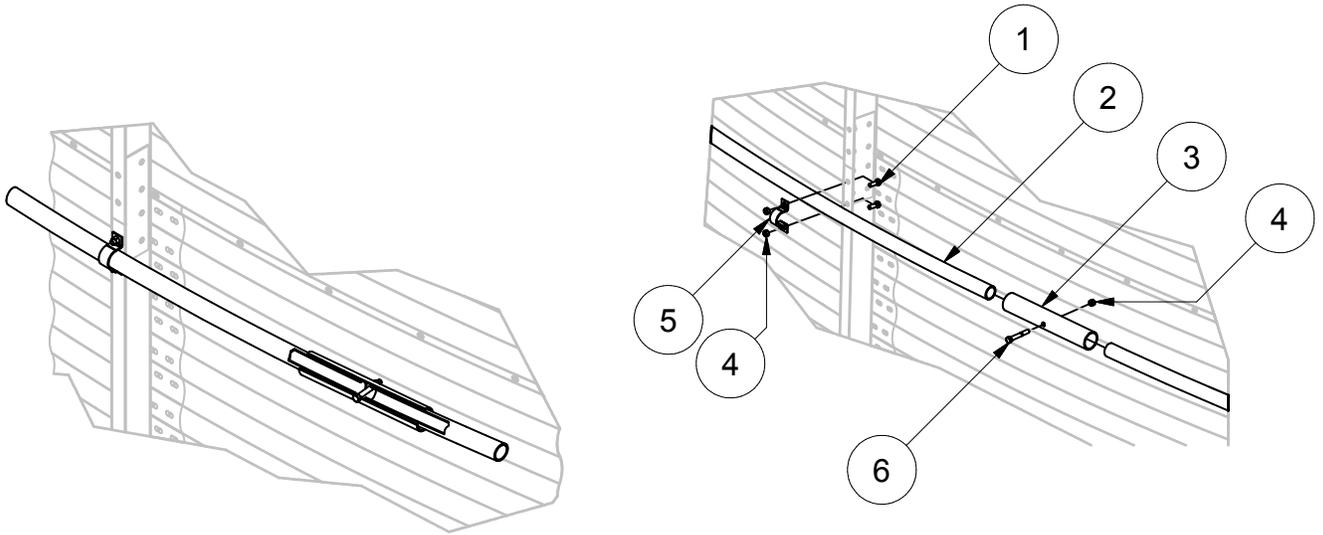


HOPPER MOUNT BIN

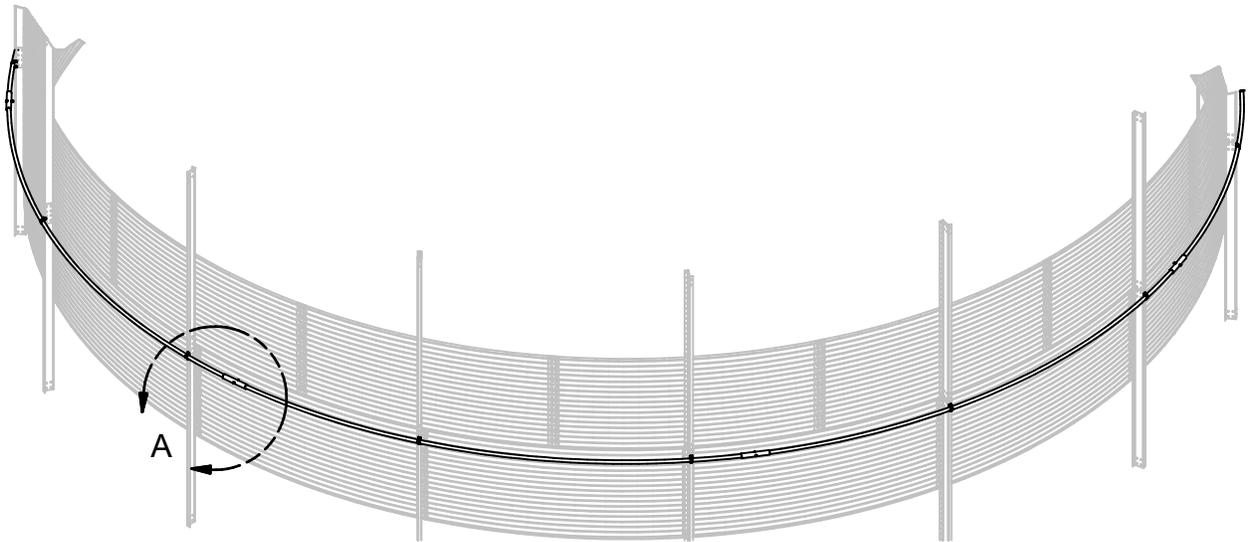
* Qty's vary based on bin diameter and height

BIN			
REF #	PART #	QUANTITY	DESCRIPTION
1	3-201-2339		Z Wall Stiffener - 1/4"
1	3-201-2343		Z Wall Stiffener - 8ga
1	3-201-2340		Z Wall Stiffener - 10ga
1	3-201-2342		Z Wall Stiffener - 14ga
1	3-201-2344		Z Wall Stiffener - 14ga - 1/2 height
2	3-201-2350		Stiffener Coupling - 1/4"
2	3-201-2349		Stiffener Coupling - 8ga
2	3-201-2348		Stiffener Coupling - 10ga
2	3-201-2352		Stiffener Coupling - 14ga
3	3-201-2347		Anchor Plate
4	3020102346		Base Anchor Plate
5	3020102549		Stiffener Base Shim - 1/8" - 30+
6	3020102550		Stiffener Base Shim - 16ga - Ø30' up
7	3071709709		Anchor - Wedge - 1/2" x 4-1/2"
8	13073500008		Flat Washer - 1/2"
9	13072500008		Stover Locknut 1/2" - 13
10	3-201-2432		Z Wall Stiffener - 8ga
10	3-201-2433		Z Wall Stiffener - 10ga
10	3-201-2434		Z Wall Stiffener - 12ga
10	3-201-2435		Z Wall Stiffener - 14ga
10	3-201-2436		Z Wall Stiffener - 14ga - 1/2 height
11	3-201-2428		Stiffener Coupling - 8ga
11	3-201-2429		Stiffener Coupling - 10ga
11	3-201-2430		Stiffener Coupling - 12ga
11	3-201-2431		Stiffener Coupling - 14ga
12	3020102447		Anchor Plate
13	3020102446		Stiffener Base Anchor Plate
14	3020102551		Stiffener Base Shim - 10ga - Ø27' dn
15	3020102552		Stiffener Base Shim - 16ga - Ø27' dn
16	3-201-2427		Weld-on Stiffener Bracket

WIND RING PARTS



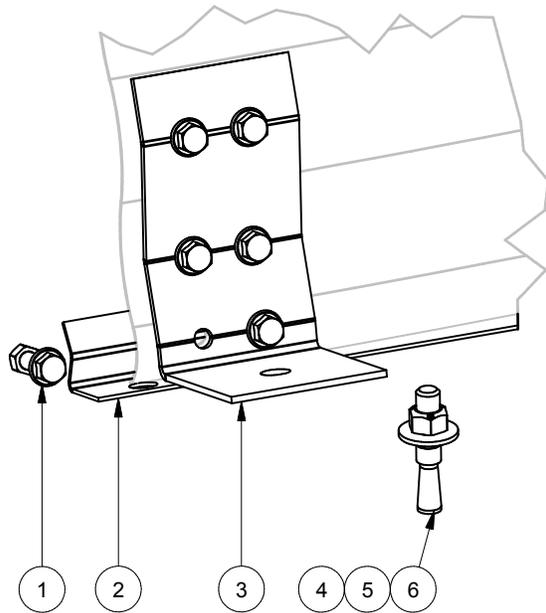
DETAIL A



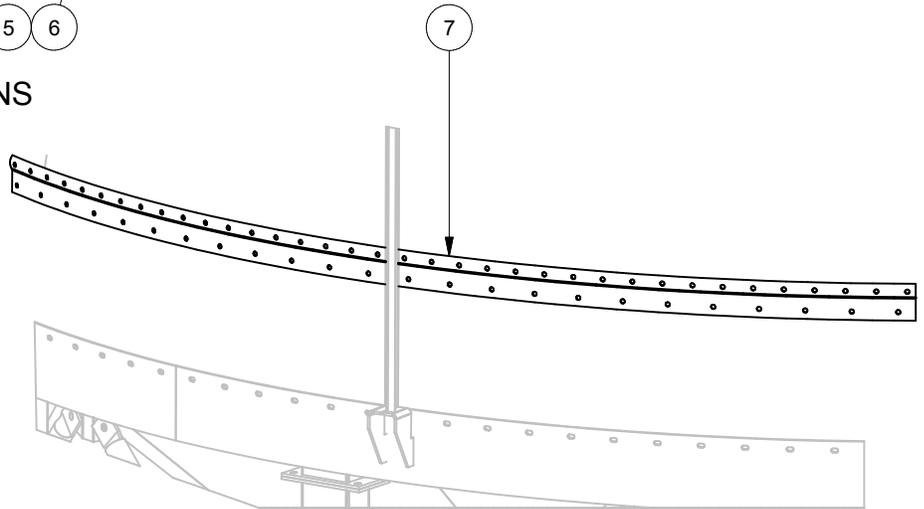
*Qty's represent 1 stiffening ring

BIN			
REF #	PART #	QUANTITY	DESCRIPTION
1	13070206016	28	Hex Bolt, 3/8-16 UNC X 1
2	3020102545-00	7	Pipe - Wind Ring 42'
3	3020102546-00	7	Splice - Wind Ring
4	13072500006	35	Hex Nut, 3/8-16 UNC
5	3020102544-00	14	Clamp - Wind Ring
6	13070206044	7	Hex Bolt, 3/8-16 UNC X 2.75

BASE ANGLE, ANCHOR PLATE & HOPPER MOUNTING RING PARTS



FLAT BOTTOM BINS



HOPPER MOUNT BINS

*'XX' represents nominal bin diameter in part #
 * some qty's vary based on bin diameter

BIN			
REF #	PART #	QUANTITY	DESCRIPTION
1	3071605056-100		Bin Bolt - 3/8 x 1 c/w Nut & sealing washer - bag of 100
2	3-2XX-3004	1	Angle Base Bundle
3	3-201-2540		Anchor Plate
4	13073000008		Stover Locknut 1/2" - 13
5	13073500008		Flat Washer - 1/2"
6	3071709709		Anchor - Wedge - 1/2" x 4-1/4"
7	3-2XX-2536	1	Hopper Mounting Ring Bundle

ROOF KITS

Dia.	Kit (P/N)	P/N	QTY.	Description
12' (3.66m)	Roof Kit - 12' (3-212-2000R)	3-212-2000	23	Standard Roof Sheet - 12'
		3-212-2004	1	Assembly, Manhole Roof Sheet - 12'
		3-212-2050	2	Stiffener, Bin Roof - 16Ga - 12'
15' (4.57m)	Roof Kit - 15' (3-215-2000R)	3-215-2000	23	Standard Roof Sheet - 15'
		3-215-2004	1	Assembly, Manhole Roof Sheet - 15'
		3-215-2050	2	Stiffener, Bin Roof - 16Ga - 15'
18' (5.49m)	Roof Kit - 18' (3-218-2000R)	3-218-2000	23	Standard Roof Sheet - 18'
		3-218-2004	1	Assembly, Manhole Roof Sheet - 18'
		3-218-2050	2	Stiffener, Bin Roof - 16Ga - 18'
21' (6.4m)	Roof Kit - 21' (3-221-2000R)	3-221-2000	23	Standard Roof Sheet - 21'
		3-221-2004	1	Assembly, Manhole Roof Sheet - 21'
		3-221-2050	2	Stiffener, Bin Roof - 16Ga - 21'
24' (7.32m)	Roof Kit - 24' (3-224-2000R)	3-224-2000	23	Standard Roof Sheet - 24'
		3-224-2004	1	Assembly, Manhole Roof Sheet - 24'
		3-224-2050	2	Stiffener, Bin Roof - 16Ga - 24'
27' (8.23m)	Roof Kit - 27' (3-227-2000R)	3-227-2000	23	Standard Roof Sheet - 27'
		3-227-2004	1	Assembly, Manhole Roof Sheet - 27'
		3-227-2050	2	Stiffener, Bin Roof - 16Ga - 27'
30' (9.14m)	Roof Kit - 30' (3-230-2000R)	3-230-2000	29	Standard Roof Sheet - 30'
		3-230-2004	1	Assembly, Manhole Roof Sheet - 30'
		3-230-2050	2	Stiffener, Bin Roof - 16Ga - 30'
33' (10.06m)	Roof Kit - 33' (3-233-2000R)	3-233-2000	32	Standard Roof Sheet - 33'
		3-233-2004	1	Assembly, Manhole Roof Sheet - 33'
		3-233-2050	2	Stiffener, Bin Roof - 16Ga - 33'
36' (10.97m)	Roof Kit - 36' (3-236-2000R)	3-236-2000	35	Standard Roof Sheet - 36'
		2-236-2004	1	Assembly, Manhole Roof Sheet - 36'
		3-236-2050	2	Stiffener, Bin Roof - 16Ga - 36'
42' (12.80m)	Roof Kit - 42' (3-242-2000R)	3-242-2000	41	Standard Roof Sheet - 42'
		2-242-2004	1	Assembly, Manhole Roof Sheet - 42'
		2-246-2050	2	Stiffener, Bin Roof - 16Ga - 42'

ROOF RIM BUNDLES

Dia.	P/N	Description
12'	3-212-3002	Roof Rim Bundle 12' Dia
15'	3-215-3002	Roof Rim Bundle 15' Dia
18'	3-218-3002	Roof Rim Bundle 18' Dia
21'	3-221-3002	Roof Rim Bundle 21' Dia
24'	3-224-3002	Roof Rim Bundle 24' Dia
27'	3-227-3002	Roof Rim Bundle 27' Dia
30'	3-230-3002	Roof Rim Bundle 30' Dia
33'	3-233-3002	Roof Rim Bundle 33' Dia
36'	3-236-3002	Roof Rim Bundle 36' Dia
42'	3-242-3002	Roof Rim Bundle 42' Dia

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996602	D1	4	3020104108	D3	15	2-899-2003	D8	26
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996604	D1	6	3071709709	D15	6	2-899-2005	D8	22
996605	D1	7	3072900356	D9	1	3020102544-00	D14	5
996606	D1	8	13070012012	D6	28	3020102545-00	D14	2
996607	D1	9	13070204028	D6	16	3020102546-00	D14	3
996608	D1	10	13070205012	D6	24	3057-00	D3	21
996612	D1	11	13070205048	D3	12	3071605056-100	D15	1
996613	D1	12	13070206016	D14	1	3-115-2000	D11	3
996614	D1	13	13070206020	D3	19	3-115-2004	D11	4
996615	D1	14	13070206024	D1	20	3-115-2050	D11	2
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996617	D1	16	13070206040	D1	21	3-118-2000	D11	3
996618	D1	17	13070206044	D14	6	3-118-2004	D11	4
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3020102047	D12	2	13072500005	D6	33	3-121-2004	D11	4
3020102048	D12	2	13072500006	D1	22	3-121-2050	D11	2
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3020102314	D6	15	13072500008	D13	9	3-124-2004	D11	4
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3020102503	D6	14	13073500005	D3	11	3-130-2004	D11	4
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3020102505	D6	35	13073500008	D13	8	3-130-2055	D11	5
3020102506	D6	26	13073500008	D15	5	3-133-2000	D11	3
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3-201-2042	D12	1	3-201-4010	D8	23			
3-201-2050	D12	3	3-201-4011	D8	25			
3-201-2306	D8	5	3-201-4012	D8	24			
3-201-2315	D8	10	3-201-4013	D8	11			
3-201-2318	D6	36	3-201-4015	D8	2			
3-201-2339	D13	1	3-201-4016	D8	15			
3-201-2340	D13	1	3-201-4017	D8	3			
3-201-2342	D13	1	3-201-4018	D8	6			
3-201-2343	D13	1	3-201-4019	D8	1			
3-201-2344	D13	1	3-201-4020	D8	9			
3-201-2347	D13	3	3-201-4027	D8	28			
3-201-2348	D13	2	3-201-4106	D2	3			
3-201-2349	D13	2	3-201-4107	D2	1			
3-201-2350	D13	2	3-201-4108	D2	2			
3-201-2352	D13	2	3-201-4108-80	D2	2			
3-201-2427	D13	16	3-201-4109	D2	4			
3-201-2428	D13	11	3-201-4109	D3	22			
3-201-2429	D13	11	3-201-4109-80	D3	22			
3-201-2430	D13	11	3-202-2067	D9	2			
3-201-2431	D13	11	3-202-2068	D9	3			
3-201-2432	D13	10	3-202-2069	D9	6			
3-201-2433	D13	10	3-202-2070	D9	7			
3-201-2434	D13	10	3-202-2071	D9	4			
3-201-2435	D13	10	3-203-0093	D4	1			
3-201-2436	D13	10	3-215-2536	D15	7			
3-201-2445	D3	6	3-215-3004	D15	2			
3-201-2448	D3	5	3-218-2536	D15	7			
3-201-2459	D3	10	3-218-3004	D15	2			
3-201-2490	D3	13	3-221-2536	D15	7			
3-201-2496	D3	23	3-221-3004	D15	2			
3-201-2499	D6	1	3-224-2536	D15	7			
3-201-2514	D3	8	3-224-3004	D15	2			
3-201-2517	D3	2	3-227-2536	D15	7			

BIN CAPACITY SPECS

SINGLE CORRUGATED BINS

Bin Diameter	Number of Tiers	Capacity		Height		Shipping Weight	
		BU	MT	Eave	Overall	lbs	kgs
12' (3.66m)	4	1548	42	15' 2" (4.62m)	18' 6" (5.64m)	2048	929
	5	1908	52	19' 0" (5.79m)	22' 3" (6.78m)	2513	1140
15' (4.57m)	4	2462	67	15' 2" (4.62m)	19' 4" (5.89m)	2613	1185
	5	3027	82	19' 0" (5.79m)	23' 1" 7.04m)	3215	1458
	6	3592	98	22' 9" (6.93m)	26' 10" (8.18m)	3777	1713
	7	4157	113	26' 6" (8.08m)	30' 8" (9.35m)	4572	2074
18' (5.49m)	4	3598	98	15' 2" (4.62m)	20' 2" (6.15m)	3296	1495
	5	4412	120	19' 0" (5.79m)	23' 11" (7.29m)	3899	1769
	6	5226	142	22' 9" (6.93m)	27' 9" (8.46m)	4785	2170
	7	6040	164	26' 6" (8.08m)	31' 6" (9.60m)	5562	2523
	8	6854	187	30' 4" (9.25m)	35' 3" (10.74m)	6680	3030
	9	7668	209	34' 1" (10.39m)	39' 0" (11.89m)	6599	2993
	10	8482	231	37' 10" (11.53m)	42' 9" (13.03)	6898	3129
	11	9266	252	41' 7" (12.68m)	46' 6" (14.18m)	7566	3432
21' (6.4m)	4	4968	135	15' 2" (4.62m)	21' 1" (6.43m)	3695	1676
	5	6076	165	19' 0" (5.79m)	24' 10" (7.57m)	4606	2089
	6	7184	196	22' 9" (6.93m)	28' 7" (8.71m)	5726	2597
	7	8292	226	26' 6" (8.08m)	32' 4" (9.86m)	6958	3156
	8	9400	256	30' 4" (9.25m)	36' 2" (11.02m)	8191	3715
	9	10508	286	34' 1" (10.39m)	39' 11" (12.17m)	7138	3238
	10	11616	316	37' 10" (11.53m)	43' 8" (13.31m)	8841	4010
	11	12724	346	41' 7" (12.68m)	47' 5" (14.46m)	8818	4000
	12	13832	376	45' 4" (13.82m)	51' 2" (15.60m)	10428	4730

BIN CAPACITY SPECS

SINGLE CORRUGATED BINS

Bin Diameter	Number of Tiers	Capacity		Height		Shipping Weight	
		BU	MT	Eave	Overall	lbs	kgs
24' (7.32m)	4	6582	179	15' 2" (4.62m)	21' 11" (6.68m)	4429	2009
	5	8029	219	19' 0" (5.79m)	25' 8" (7.82m)	5577	2530
	6	9476	258	22' 9" (6.93m)	29' 6" (8.99m)	6854	3109
	7	10923	297	26' 6" (8.08m)	33' 3" (10.13m)	8313	3771
	8	12370	337	30' 4" (9.25m)	37' 0" (11.28m)	7839	3556
	9	13817	376	34' 1" (10.39m)	40' 9" (10.39m)	8276	3754
	10	15264	415	37' 10" (11.53m)	44' 7" (13.59m)	9239	4191
	11	16711	455	41' 7" (12.68m)	48' 3" (14.71m)	10128	4594
27' (8.23m)	4	8455	230	15' 2" (4.62m)	22' 11" (6.98m)	5208	2362
	5	10286	280	19' 0" (5.79m)	26' 9" (8.15m)	6480	2939
	6	12117	330	22' 9" (6.93m)	30' 6" (9.30m)	7820	3547
	7	13948	380	26' 6" (8.08m)	34' 3" (10.44m)	9589	4349
	8	15779	429	30' 4" (9.25m)	38' 1" (11.61m)	9073	4115
	9	17610	479	34' 1" (10.39m)	41' 10" (12.75m)	9633	4369
	10	19441	529	37' 10" (11.53m)	45' 7" (13.89m)	10797	4897
	11	21272	579	41' 7" (12.68m)	49' 4" (15.04m)	11811	5357
30' (9.14m)	4	10584	288	15' 2" (4.62m)	23' 9" (7.24m)	6734	3054
	5	12845	350	19' 0" (5.79m)	27' 7" (8.41m)	7788	3533
	6	15106	411	22' 9" (6.93m)	30' 11" (9.42m)	9341	4237
	7	17367	473	26' 6" (8.08m)	35' 1" (10.69m)	11423	5181
	8	19628	534	30' 4" (9.25m)	38' 11" (11.86m)	11507	5219
	9	21889	596	34' 1" (10.39m)	42' 8" (13.00m)	12865	5835
	10	24150	657	37' 10" (11.53m)	46' 5" (14.15m)	14663	6651
	11	26411	719	41' 7" (12.68m)	50' 2" (15.29m)	15940	7230
12	28672	780	45' 4" (13.82m)	53' 11" (16.44m)	18573	8425	

BIN CAPACITY SPECS

SINGLE CORRUGATED BINS

Bin Diameter	Number of Tiers	Capacity		Height		Shipping Weight	
		BU	MT	Eave	Overall	lbs	kgs
33' (10.06m)	4	12980	353	15' 2" (4.62m)	24' 4" (7.42m)	8345	3785
	5	15718	428	19' 0" (5.79m)	28' 2" (8.58m)	9502	4310
	6	18456	502	22' 9" (6.93m)	31' 11" (9.73m)	11210	5085
	7	21194	577	26' 6" (8.08m)	35' 8" (10.87m)	13496	6122
	8	23932	651	30' 4" (9.25m)	39' 6" (12.04m)	14118	6404
	9	26670	726	34' 1" (10.39m)	43' 3" (13.18m)	15771	7154
	10	29408	800	37' 10" (11.53m)	47' 0" (14.32m)	17482	7930
	11	32146	875	41' 7" (12.68m)	50' 9" (15.47m)	19816	8988
36' (10.97m)	4	15658	426	15' 2" (4.62m)	25' 3" (7.70m)	9594	4352
	5	18912	515	19' 0" (5.79m)	29' 1" (8.86m)	10856	4924
	6	22166	603	22' 9" (6.93m)	32' 10" (10.01m)	12717	5768
	7	25420	692	26' 6" (8.08m)	36' 7" (11.15m)	15183	6887
	8	28674	780	30' 4" (9.25m)	40' 5" (12.32m)	16344	7414
	9	31928	869	34' 1" (10.39m)	44' 2" (13.46m)	18149	8232
	10	35182	957	37' 10" (11.53m)	47' 11" (14.60m)	20160	9144
	11	38436	1046	41' 7" (12.68m)	51' 8" (15.75m)	21977	9969
42' (12.8m)	4	21884	596	15' 2" (4.62m)	26' 11" (8.20m)	11920	5407
	5	26314	716	19' 0" (5.79m)	30' 9" (9.37m)	14088	6390
	6	30744	837	22' 9" (6.93m)	34' 6" (10.51m)	16566	7514
	7	35174	957	26' 6" (8.08m)	38' 3" (11.66m)	19703	8937
	8	39604	1078	30' 4" (9.25m)	42' 1" (12.83m)	20444	9273
	9	44034	1198	34' 1" (10.39m)	45' 10" (13.97m)	23008	10436
	10	48646	1324	37' 10" (11.53m)	49' 7" (15.11m)	25799	11702
	11	52894	1440	41' 7" (12.68m)	53' 4" (16.26m)	27571	12506
	12	57324	1560	45' 4" (13.82m)	57' 1" (17.40m)	31742	14398

BIN HARDWARE 'WHERE USED' CHART

Connection Location	3/8" X 3/4" Flange Bolt and Hex Nut	3/8" x 1" Flange Bolt and Hex Nut	3/8" x 1 1/4" Flange Bolt and Hex Nut	3/8" x 3" Flange Bolt and Hex Nut	3/8" x 4" Flange Bolt and Hex Nut	3/8" Flat Washer
Bolt Part Number	13070206012	13070206016	13070206020	13070206048	13070206064	13073600006
Nut Part Number	13072500006	13072500006	13072500006	13072500006	13072500006	
Stiffener to Wall Panel to Roof Rim			X			X
Wall Panel to Wall Panel	X					
Wall Panel to Stiffener		X				
Stiffener Coupler to Stiffener Upright to Wall Panel (Ø30' - Ø42' only)			X			
Ø15' - Ø27' Roof Ring To Roof Panel Rib				X		
Ø30' - Ø42' Roof Ring To Roof Panel Rib					X	
Low Profile Door To Wall Panels	X					
Standard Door To Wall Panels	X					
Wall Panel To Hopper Mount Ring			X			
Hopper Mount Ring To Hopper			X			
Floor Base Angle To Stiffener Upright To Wall Panel			X			
Roof Panel Rib to Roof Panel Rib			X			

IMPORTANT

ENSURE ALL BOLTS AND NUTS ARE INSTALLED AND TIGHTENED WITH PROPER ASSEMBY PROCEDURE

All bolts supplied with Meridian bins are $\text{Ø}3/8$ Gr 8.2 bolts. The recommended torque for these bolts is **520in-lb / 43ft-lb / 58N-m**.

Periodically check bolt assembly with an accurate torque wrench to ensure that above torque specification is maintained. A properly tightened bolt will compress sealing washer noticeably.

For proper sealing, do not overtighten wall seam connections. Sealing is not critical on upright splice connections; these connections should be tightened securely to prevent loosening.

Hold bolt head securely and spin only the nut to tighten. This will prevent damage to the sealing washer.

ALWAYS TIGHTEN THE NUT, NOT THE BOLT

Avoid bin assembly at temperatures below -10°C (14°F) if possible. Erection in low temperatures does not ensure strong, well sealed connections. Do not substitute bolts in place of those supplied by Meridian.

WARRANTY

1. The manufacturer guarantees its products against any defects in materials or workmanship for a period of twelve (12) months from the date of purchase, provided that the said products are set up according to its instructions and recommendations and also that the said products are operated and used in proper conditions and according to its instructions and recommendations.
2. The manufacturer's responsibility and obligations under this warranty shall be limited to replacement of parts and shall not extend to parts, equipment or accessories that are component parts of manufacturer's products but that are manufactured by other manufacture's. Those manufacture's warranty will apply to such parts, equipment or accessories. Any parts set up by reason of the application of this warranty shall be amenable to the terms of this warranty except that the period of twelve (12) months applicable to such parts shall be peremptory and that upon termination of the said period, warranty shall be null and void, for any purpose whatsoever with the respect to said parts substituted to it before the termination of the said period of twelve (12) months.
3. This warranty shall not extend to loss and damage to content of the products, neither to property or loss of revenue. Moreover it shall not extend to bodily injuries, including death, sustained by any person or animal.
4. The purchaser shall give notice to the manufacturer, without delay, of any damage or defects to its products that he may ascertain before they be set up, otherwise this warranty will not apply to such damage or defects.
5. Any modification or incorporation whatsoever made to products, except those authorized or recommended by the manufacturer, shall void this warranty; this warranty shall not apply to damages resulting from improper installation or erection of products by purchaser.
6. This warranty is the sole and only warranty and it is in lieu of any other warranty, express or implied, statutory or not.
7. Any claim under this warranty shall be notified in writing to the manufacturer's head office within thirty (30) days from the failure.

Specifications and descriptions are subject to change without notice

MERIDIAN MANUFACTURING INC.

With over 65 years of experience,
Meridian is your storage and handling expert.



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