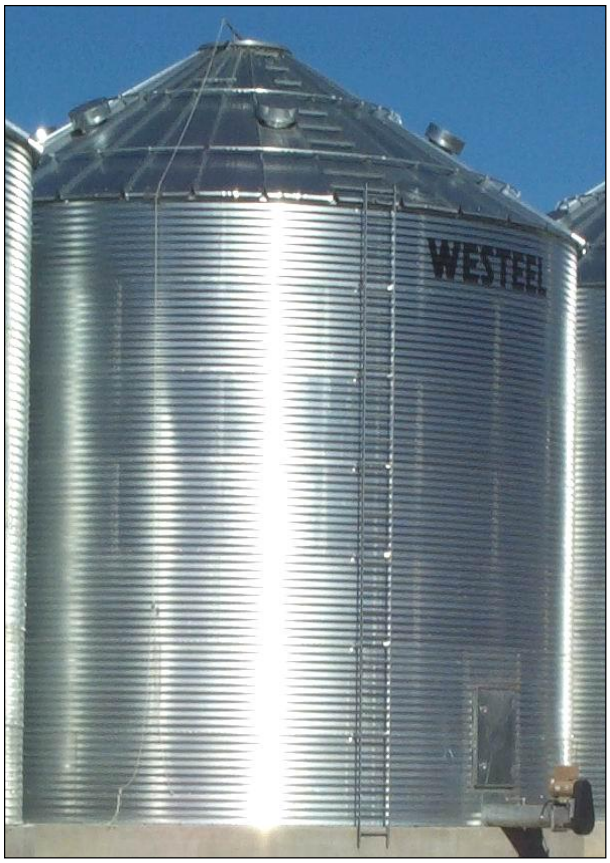
15' – 48' STIR & CIRC

Wide-Corr® Grain Bin
Installation and Storage Instructions



Read this manual before using product. Failure to follow instructions and safety precautions can result in serious injury, death, or property damage. Keep manual for future reference.

Part Number: 198843 R22

Revised: May, 2025

Original Instructions

New in this Manual

The following changes have been made in this revision of the manual:

Description	Section
Updated	5.2 Foundation Construction on page 27
Updated	5.2.2 Foundation Detail and Anchor Bolt Layout on page 29
Updated	5.2.3 Anchor Bolt Plan on page 29

CONTENTS

1. Introduction

Before assembling, please read this manual. Familiarize yourself with the process and the necessary precautions for efficient and safe assembly of this AGI 15' – 48' STIR & CIRC.

Everyone present at the assembly site is required to be familiar with all safety precautions.

Keep this manual available for frequent reference and review it with new personnel. Call your local distributor or dealer if you need assistance or additional information.

2. Safety

2.1. Safety Alert Symbol and Signal Words

This safety alert symbol indicates important safety messages in this manual. When you see this symbol, be alert to the possibility of injury or death, carefully read the message that follows, and inform others.

Signal Words: Note the use of the signal words **DANGER**, **WARNING**, **CAUTION**, and **NOTICE** with the safety messages. The appropriate signal word for each message has been selected using the definitions below as a guideline.

DANGER Indicates an imminently hazardous situation that, if not avoided, will result in serious injury or death.

WARNING Indicates a hazardous situation that, if not avoided, could result in serious injury or death.

CAUTION Indicates a hazardous situation that, if not avoided, may result in minor or moderate injury.

NOTICE Indicates a potentially hazardous situation that, if not avoided, may result in property damage.

2.2. General Safety Information

Read and understand all safety instructions, safety decals, and manuals and follow them when assembling the equipment.

- Only experienced personnel who are familiar with this type of assembly and installation should perform this work. Untrained assemblers/installers expose themselves and bystanders to possible serious injury or death.
- Do not modify the grain bin in any way or deviate from the instructions in this manual without written permission from the manufacturer. Unauthorized modification or methods may impair the function and/or safety. Any unauthorized modification will void the warranty.
- Follow a health and safety program for your worksite. Contact your local occupational health and safety organization for information.
- Contact your local representative or AGI if you need assistance or additional information.
- Always follow applicable local codes and regulations.

2.3. Personal Protective Equipment

The following Personal Protective Equipment (PPE) should be worn when installing the equipment.

- **Safety Glasses**

Wear safety glasses at all times to protect eyes from debris.

- **Coveralls**

Wear coveralls to protect skin.

- **Hard Hat**

Wear a hard hat to help protect your head.

- **Steel-Toe Boots**

Wear steel-toe boots to protect feet from falling debris.

- **Work Gloves**

Wear work gloves to protect your hands from sharp and rough edges.

2.4. Safety Equipment

The following safety equipment should be kept on site.

- **First-Aid Kit**

Have a properly-stocked first-aid kit available for use should the need arise, and know how to use it.

2.5. Auxiliary Equipment Safety

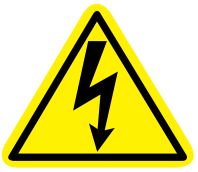
Unapproved auxiliary equipment could cause performance issues or structural failure, and is not covered by warranty.

- Do not install auxiliary equipment if the grain bin is not designed for use with it. Refer to the specific information provided in this manual for auxiliary equipment or check with AGI or your dealer for written approval, if necessary.
- Obtain, read, and understand the instructions and safety warnings of the auxiliary equipment manufacturer.
- Attach auxiliary safety decals to the grain bin as applicable.
- Store auxiliary operations/maintenance manuals in a safe place available for future use.

2.6. Working At Height Safety

- Ensure that all work at height is properly planned, organized and carried out by a competent person.
- Use appropriate work equipment and make sure that they are inspected to ensure safety.
- Select collective measures to prevent falls (such as guard rails and working platforms) before other measures which may only reduce the distance and consequences of a fall (such as nets or air bags) or may only provide fall-arrest through personal protection equipment.
- Ensure that those persons working at height are trained in how to avoid falling and how to avoid or minimise any injuries should they fall.
- Check the weather condition. Postpone any work at height until there is no risk to the health and safety of any person working at height.
- Ensure that nothing is thrown or tipped from height if it is likely to injure a person.

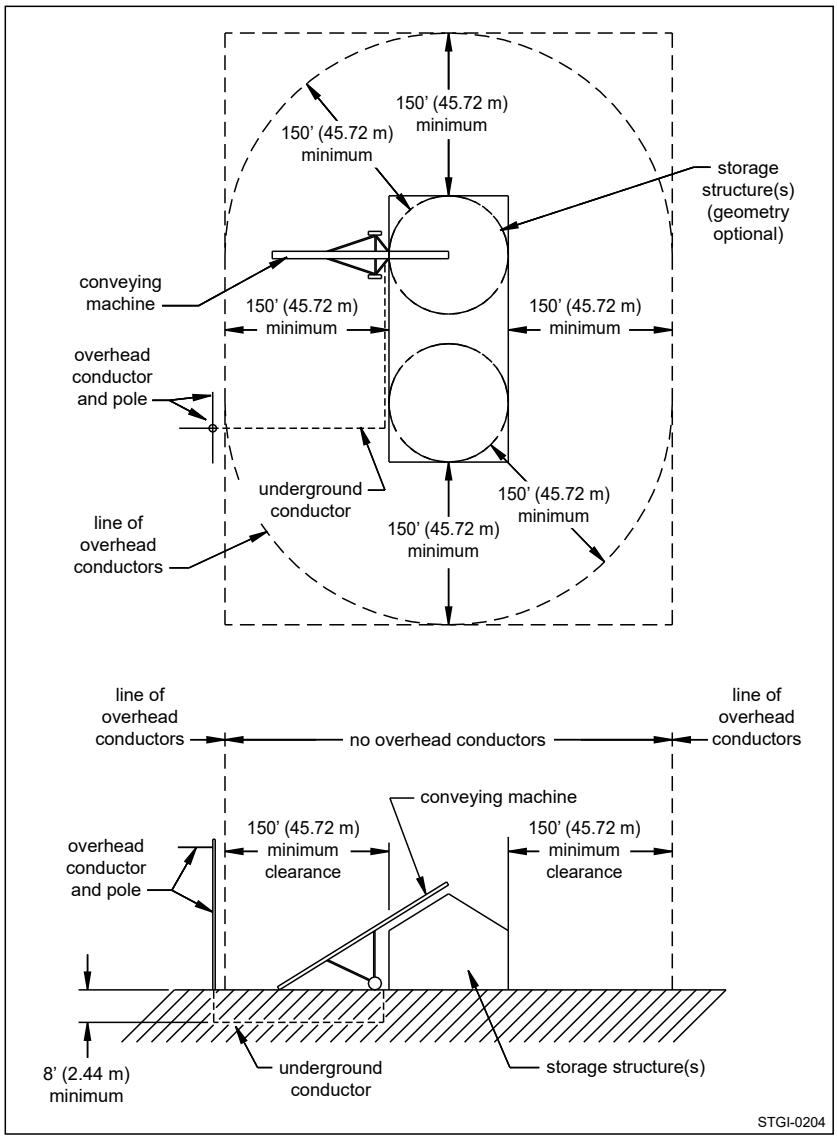
2.7. Overhead Power Lines



⚠ WARNING

- Keep grain bins a horizontal distance of at least 150 ft (45.7 m) from power lines. Increase distance to meet electrical code requirements where required.
- Do not load or unload the grain bin if there is a chance of any loading or unloading equipment contacting power lines.
- Do not locate grain bins on both sides of a power line or under a power line.
- Electrocution can occur without direct contact.

Figure 1. Power Lines and Conductor Clearance



2.8. Safety Decals

- Keep safety decals clean and legible at all times.
- Replace safety decals that are missing or have become illegible. See decal location figures that follow.
- Replaced parts must display the same decal(s) as the original part.
- Replacement safety decals are available **free of charge** from your distributor, dealer, or factory as applicable.

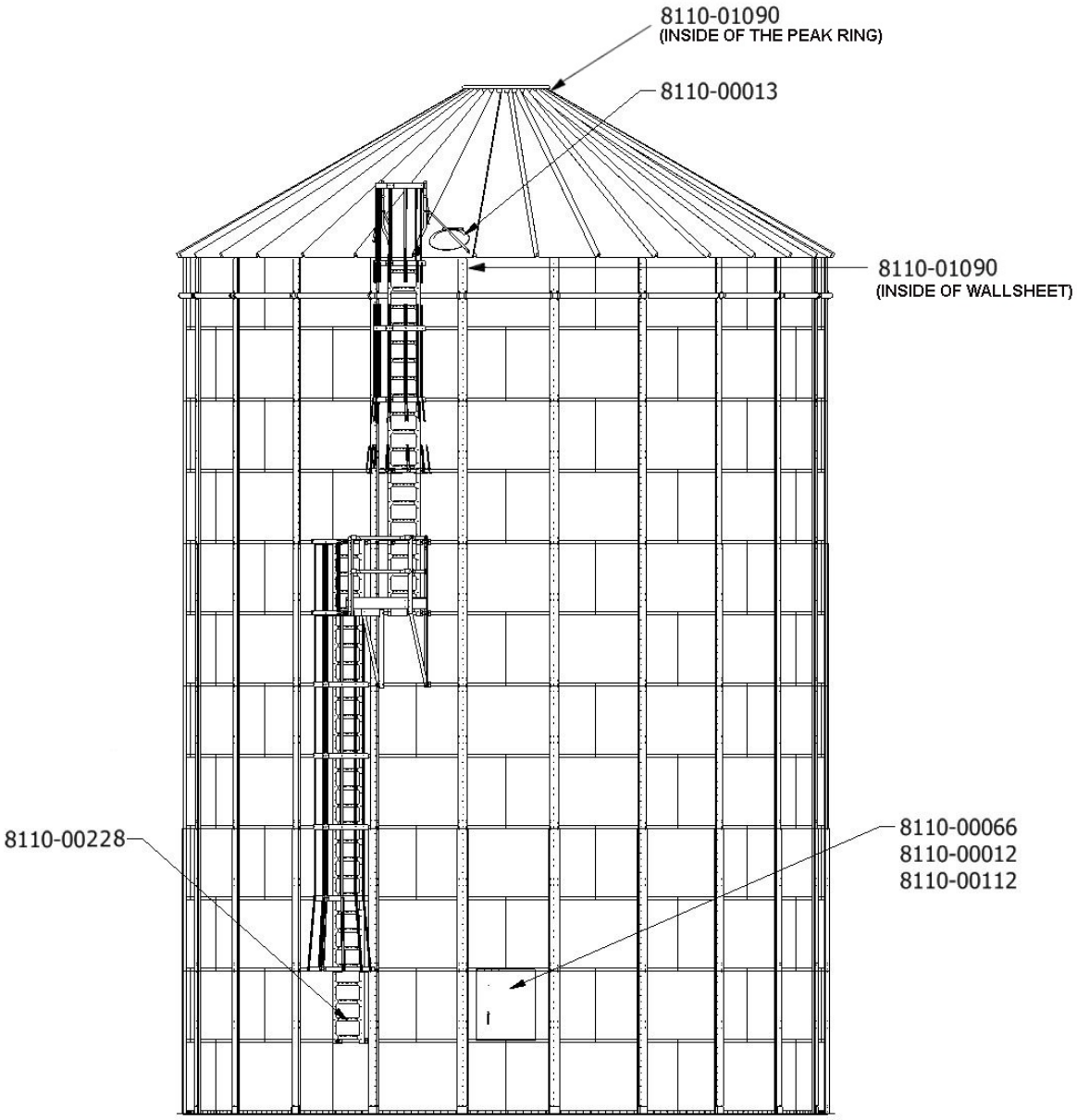
2.9. Decal Installation/Replacement

1. Decal area must be clean and dry, with a temperature above 50°F (10°C).
2. Decide on the exact position before you remove the backing paper.
3. Align the decal over the specified area and carefully press the small portion with the exposed sticky backing in place.
4. Slowly peel back the remaining paper and carefully smooth the remaining portion of the decal in place.
5. Small air pockets can be pierced with a pin and smoothed out using the decal backing paper.

2.10. Safety Decal Locations and Details

Replicas of the safety decals that are attached to the grain bin and their messages are shown in the figure(s) that follow. Safe operation and use of the grain bin requires that you familiarize yourself with the various safety decals and the areas or particular functions that the decals apply to, as well as the safety precautions that must be taken to avoid serious injury, death, or damage.

Safety Decal Locations



Safety Decals and Part Numbers

8110-00112

8110-00013

8110-01090

8110-00228

3. Before You Begin

3.1. Bin Design and Capacity

Standard STIR/CIRC AGI Grain Bins are designed for:

1. Non-corrosive free-flowing materials up to 52 lbs/ft^3 (833 kg/m^3) average compacted bulk density.
2. Maximum horizontal wind pressure based on 94 mph (151 km/h) as per NBCC 2015 and 105 mph (169 km/h) as per ASCE 7-16.
3. Zero seismic activity.

   Note

   Seismic resistance in grain bins varies with height and diameter. Many standard designs have significant seismic capabilities. Designs can be reviewed and/or modified to reflect local seismic requirements.

4. Roof loading capabilities vary with diameter, peak load and snow load.
   a. Peak Loads – standard peak loads follow. ***Upgrades are available.***

   Table 1. Peak Loads for Various Roofs

Size	Type of Roof	Load (lbs)	Load (kg)
15’ to 24’	non-structural	4000 lbs	1814 kg
27’ to 48’	non-structural	5000 lbs	2268 kg
48’	structural	20,000 lbs	9072 kg

   b. Roof Snow Loads (RSL) – at the above stated standard peak loads, standard RSLs vary with diameter and range from 16 psf (78 kg/m^2) to 45 psf (220 kg/m^2). ***Upgrades are available***.

      Note

      The correlation between ground snow load (GSL) and roof snow load (RSL) for grain bin designs vary with jurisdictions. In the US GSL = 2 x RSL. In Europe GSL = 1.25 x RSL. In Canada the correlation between GSL and RSL varies and is site specific.

5. Compatible AGI aeration floors.

   Important

   If aeration floors are to be installed in CIRC bins, extra floor supports and A-braces will be required for the center 50% of the floor area. Refer to full floor aeration manual (198836) for the layouts and quantities required.

6. NECO stirator system where:
   a. Maximum vertical pull on each down auger = 600 lbs.
   b. Top of grain pile must be level across complete diameter of bin and must not be higher than 30” below the eaves line
   c. When stirring machine is used, no additional load can be supported by the roof peak
   d. Augers should not extend into the hopper cone.
   e. The following table specifies the allowable number of down augers and stirring machine deadweight that can be used per bin model:

Table 2. Allowable Number of Down Augers and Stirring Machine Deadweight per Bin Model

Bin Series	Down Augers Allowed	Stirring Machine Deadweight
18	2	850
21	2	900
24	2	950
27	3	1200
30	3	1250
33	3	1300
36	4	1550
39	4	1600
42	4	1650
48	4	1750

3.2. Guidelines for Supporting Catwalks and other External Loads on AGI

Frequently catwalk and related equipment loads are supported on grain bins. Such connections are commonly made into the grain bin stiffeners and across the peak. A grain bin is a thin shell structure primarily designed to withstand the internal uniformly distributed loads inherent with the stored bulk material inside of the bin. Special considerations must be given to the manner in which external loads are supported. AGI has developed products which are compatible with these requirements and considerations. If a third party solution is provided, the provider assumes full responsibility of the structure, its load distribution, and the manner in which it is connected to the grain bin. The following guidelines must form part of the third party design considerations.

Connection to Stiffeners

1. The available catwalk support stiffeners in AGI stiffened bins are for 10,000 lb incremental catwalk loads and 20,000 lb incremental catwalk loads per upgraded stiffener. The actual loads subjected to a single stiffener by the mating catwalk support shall not exceed these maximum capacities.
2. AGI recommends that the vertical load transfer between the catwalk supports and the stiffener occur over a minimum distance of 66" for 10,000 lb loads and 120" for 20,000 lb loads. Adequate connection strength must be provided.
3. The catwalk support stiffener in AGI bins are designed to provide vertical load support only. Any lateral loads subjected to the grain bin must be negligible.
4. There is a restriction of 2 upgraded catwalk support stiffeners per bin location. Therefore, the maximum supported load at the grain bin eave is 20,000 lbs (for two 10,000 lb upgrades) and 40,000 lbs (for two 20,000 lb upgrades). This can be repeated on the opposing side of the bin at a second location. Deviation from this must be approved by AGI Engineering.

Connection to Peak Rings

1. The allowable vertical peak load to any AGI bin roof is restricted to its published rated capacity. The load must be centered and evenly distributed into the peak ring. Any off-centre load and/or improper load distribution may cause roof failure.
2. A AGI structural roof requires the peak support loads to be transferred directly into the compression ring/ roof rafter system. This is accomplished with peak load support brackets that are included with the structural roof. They must be installed as shown in the structural roof manual, connecting the peak support structure to the compression ring. They are required even if a non-AGI peak support structure is used. A non-AGI peak support structure needs to be designed to be able to connect with the brackets. The required bolt pattern is shown in the structured roof manual.
3. A AGI non-structural roof that is supporting a catwalk requires six clips to be installed in order to attach the flat cap to the peak ring. These clips are available from AGI.

3.3. Foundation Design and Loads

The foundations for the stiffened bin models are based on 3000 lbs. per sq. ft. (144 kPa) soil bearing capacity. All foundation designs use 3000 lbs. per sq. in. (21 MPa) ultimate compressive strength (after 28 days) for concrete and 43,500 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. AGI 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.

3.4. Lifting with Bin Jacks

Use bin jacks to lift the bin safely during assembly and help prevent strength and functionality problems later, including alignment, tolerance, bin roundness, distortion, and twisting issues.

⚠ WARNING To prevent risk of serious injury or damage to the equipment:

- Prior experience is required. Do not use bin jacks if you are not properly trained or have never used them.
- Do not use bin jacks in windy conditions.
- Do not exceed lifting capacity of a bin jack.
- Powered bin jacks are recommended. If using manually operated chain jacks, lift carefully and evenly to prevent damage.

For important additional information, refer to:

- Specifications section in your manual, the sales order, or approval drawing of the bin's radius and total weight of the grain bin (including roof, fasteners, stiffeners, and all accessories).
- Bin jack manufacturer's instructions and bin jack lifting capacity.

Tools and Equipment

Use the following to lift the bin:

- bin jacks (internal or external)
- scaffolding/ladders
- lifting lugs
- drift pin
- socket/impact set
- wrench set

Additional tools and equipment may be required.

General Bin Jacking Instructions

Refer to the bin jack manufacturer's instructions in addition to the following to safely lift the bin during assembly:

- Use one bin jack per wall sheet.
- Confirm that the number of bin jacks can support at least 5X the weight of the bin.
- Fabricate lifting lugs to match the hole spacing on the bin.
- Assemble the top 1-2 wall sheet rings directly on the foundation.
- Layout and space the bin jacks evenly at each stiffener/seam according to the bin's radius.
- Anchor the bin jacks securely to the concrete.
- Connect the bin jacks securely to the stiffeners/seams.
- Lift using the bin jacks at an even and slow pace.
- Align the stiffener/seam holes with the wall sheet holes using a drift pin.
- When not actively assembling, lower the bin fully and secure it to the foundation to protect against wind gusts and other conditions.

3.5. Lifting Wide-Corr® Bins with Cranes

The table below lists the maximum height and weight limits for each diameter of bin which AGI approves for lifting by the roof using a crane. These limits assume that the total lifted load is evenly distributed around the peak ring, through the use of a lifting tripod or similar device of adequate strength. Any bin exceeding EITHER the height or weight limit MUST be lifted using jacks or similar method which supports the wall sheets directly.

These limits are critical. Failure during lifting carries the risk of serious injury or death.

Table 3. Lifting Weights for Various Bin Sizes

Bin Diameter	Maximum Tier Height	Approximate Weight
15'	7	5,200 lbs
18'		
21'	8	9,000 lbs
24'		
27'	8	11,000 lbs
30'	8	13,000 lbs

Important Safety Notes

- Limits above are based on safe lifting of the bin only. They are not based on design factors for lifting people or objects over people. Adequate safety blocks or supports must be used when working under or near the bin wall.
- Extreme caution must be used when lifting bins more than a few inches, as occurs when mounting bins on hoppers. "Bouncing" of the load and/or wind gusts can add significantly to the loads on the roof and could cause overloading and/or failure.
- Please refer to any additional capacity information, lifting instructions, and safety information provided by the crane manufacturer.

3.6. Site and Assembly

Unless otherwise specifically provided in writing, AGI 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
- Soil conditions and corresponding foundation requirements
  (Note that the examples provided in manuals are for specifically stated soil conditions.)
- Bin assembly
  (AGI recommends the use of qualified bin installers. Contact AGI for information on installers in your area.)
- Field modifications or equipment additions that affect the bin structure
- Interconnections with neighboring structures
- Have the builder make all non-bin equipment in excess of AGI's recommendations. All such equipment including: LEGS, WALKWAYS, SPOUTING, and CONVEYORS must be self supporting.
- Compliance with all applicable safety standards, including but not limited to fall restraint systems (ladders or other systems). Contact local safety authorities as the standards vary between jurisdictions.

3.7. Methods of Installation

The recommendations for assembling and installing AGI grain bins must be closely followed to achieve the full strength of the bin and to achieve adequate weather sealing. The product warranty is void if:

1. Wall sheets and/or uprights 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 52 lbs/ft^3 (833 kg/m^3).

If using bin jacks during assembly, always lift on an upright. Choose a hoist with an adequate capacity for the expected empty bin deadload. Make sure the rated capacity of the hoist is not exceeded.

3.8. Cutting Openings in Wide-Corr® Grain Bins

This section provides instructions for cutting openings to accommodate fan transitions, unloading augers and roof vents.

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 modification to AGI bins shall be approved by a professional engineer.

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 12.5" inches 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 opening.

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 12.5" 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 opening.

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".

3.9. Critical Assembly Requirements

To ensure a successful, safe and reliable outcome you must comply with the following assembly techniques and practices:

1. Comply with all local code and jurisdictional requirements applicable to your grain bin installation.
2. Design and build foundations with the necessary strength for the loads they must support, and for local soil conditions. AGI foundation guidelines are based on specific stated conditions and may not be applicable to local conditions.
3. Your foundation must provide uniform and level support to the structure being supported. Surface imperfections causing gapping must be remedied. This may involve, but not be limited to a) grouting under the bottom ring of a non-stiffened bin or tank, and b) shimming under the uprights of a stiffened bin or tank, or under the legs of a hopper.
4. Make sure that the proper hardware is utilized for all bolted connections. If a shortage occurs, do not substitute. Take the necessary steps to obtain the proper hardware. Make sure nuts are tightened to the required torque values as specified in the appropriate assembly manual.
5. Comply with all assembly instructions provided in the appropriate assembly manual to make sure your whole grain bin is constructed safely. Important: Do not deviate from the wall sheet and upright layouts provided.
6. Before anchoring your structure to its foundation, make sure the structure is round. The maximum variation from perfect roundness is 3/4" on the radius. Locate anchor bolts toward the outside of the anchor bolt holes (away from the circle) to permit the incremental expansion that can occur with the initial filling.
7. When installing roof stiffening rings, 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.
8. If extending an existing bin or tank, ensure that the foundation is adequate for the increased loads it must support.

9. If installing an existing bin on a hopper, make sure 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, make sure that they are supported.
10. Make sure that an integral end-to-end connection exists between all mating uprights. Successive uprights must not overlap.
11. 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 wall sheet holes.
12. If catwalks are being installed on the structure, upright catwalk upgrades are likely required. The upgraded stiffeners must be installed in the correct locations to support the intended catwalk loads. Also, the structure must be properly oriented to ensure the eventual correct alignment between the catwalks and the supporting uprights. Finally, the connectors that tie into the uprights and support the catwalks are best installed during assembly of the structure. See the catwalk assembly manual for additional details.

3.10. Product Storage

If you won’t be assembling the bin right away, store the bundles and boxes inside a building with good ventilation to prevent white or red rust from forming.

Note

White rust can be removed and does not cause permanent damage.

NOTICE **Red rust causes permanent structural damage.**

Do not assemble any part containing red rust.

If you can’t store the bundles and boxes inside, follow the instructions below for outdoor storage.

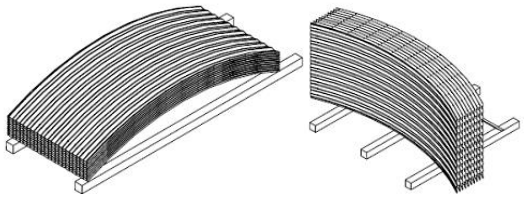
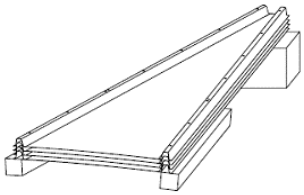
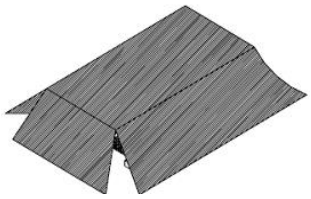
Storing Bin Bundles and Boxes Outdoors

Required Materials:

- Wood blocks
- Waterproof tarp

Storage Procedure:

1. First, place the bundles and boxes on wood blocks about 6"-8" off the ground.

Place the curved wall sheets with the hump facing up.	
Elevate the roof sheets at least 12" at the small end of the sheets.	
Place all the other bundles so they are well-sloped.	

2. For the bin boxes, ladder boxes, and hardware boxes: build a simple framework to support, cover with a waterproof tarp, and secure.

   Note

   The boxes are not waterproof and will deteriorate in normal weather conditions, allowing moisture to contact the parts inside.

If Parts Become Wet

1. Open the bundles as soon as possible.
2. Separate and dry the bin sheets or parts. Keep the parts separated until assembly.

   ⚠ WARNING **Risk of injury or damage.**

   Brace parts securely to avoid damage or injury from material falling when in storage.

3. Dry any boxed parts that are wet and store them in a new, dry box.
4. After drying the wall sheets, apply a food-grade oil with a clean, lint-free cloth.

   Note

   Applying oil will help prevent moisture to contact with the dried wall sheets.

   ⚠ WARNING **Risk of slipping.**

   Do not use oil on roof sheets, ladders, or other parts where a person may walk or stand after the bin is assembled.

3.11. Grain Bin Use

- Fill the bin through the center roof opening only.
- Do not overfill the bin roof area! This may cause roof damage or failure.
- 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.
- 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.
- 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 and should not exceed the capacity of an 8" auger.
- Ensure that the inner door panels of grain bin doors are completely closed and latched before filling the grain bin.
- Never enter a loaded grain bin for any reason. Grain can be a killer.

3.12. Important Notes

- AGI does not provide a foundation design for this product, and is not liable for any damages or injuries related to inadequately designed or constructed foundations. Customers must contract professional services for all foundation design and construction work.
- 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.
- To keep an even pressure on walls, the bin must always be unloaded from the center.
- Contact local power officials for minimum power line clearance.
- See Section 3.9 – Critical Assembly Requirements on page 20 for mandatory siting and assembly requirements.
- Store only non-corrosive, free-flowing materials up to 55 lbs/ft^3 (880 kg/m^3) average compacted density in AGI .
- Tighten all bolts to the recommended torque settings.
- Do not locate grain bins 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.

4. Preparation

4.1. Check the Shipment

Unload the parts at the assembly site and compare the packing slip to the shipment. Ensure that all items have arrived and that none are damaged.

Report damaged parts or shortages immediately to your dealer. Your dealer will order 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 party at fault. No credit will be issued if freight bills are signed as received in good condition.

4.2. List of Tools and Equipment

Use quality tools and equipment. Use them safely, and correctly, for their intended use. Tools for this application should include:

Tools

- Electric or pneumatic (air) impact tools
- Power drill and drill bits
- Sockets (multiple 9/16” and 1/2” sockets recommended)
- Large-pocket carpenter pouch
- 8” (20 cm) metal punches (for aligning bolt holes)
- Step and extension ladders, construction grade
- 6-point wrenches (Imperial, box end)
- Metal-cutting saw suitable for cutting roof rings and wind rings
- Scaffolding
- Centre-post bin stand
- Crane and/or bin jacks

Minimum Recommended Safety Equipment

- A properly-stocked first-aid kit
- Eye, foot, head, and hand protection (safety glasses, steel-toed boots, hard hat, work gloves)
- Cable, chain, or rope to tie-off bin or jacks in case of wind
- Body harness and lifeline (for use where falling hazard exists)
- Ground fault interrupt protected electrical hook-ups

4.3. 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 instruction supplied with optional equipment.

4.4. Pre-Plan Assembly

Before assembling:

1. Read and understand this manual.
2. Develop an assembly plan, with consideration given to the layout of accessories and auxiliary equipment.
3. Predetermine the locations for access doors, anchor bolts, ladders, manways, side draws, roof steps, roof vents, fans, and other auxiliary equipment.
4. Plan your construction in accordance with your assembly and layout plan.

Important

Installation of accessories or equipment on grain systems equipment/structures that overstresses the bin in any manner will void the warranties.

In cases where additional loading is involved, if you do not already have specific recommendations from AGI, contact AGI engineering department before installation begins.

Do not install 15' – 48' STIR & CIRC controls or the like near anything having a strong electromagnetic field such as large power transmission lines or transformers.

4.4.1 Pre-Planning: Side Draw Discharge, Aeration, and Unload Equipment

Side draw discharge pre-planning: Make certain side draw discharge does not fall on a vertical sidewall seam.

Figure 2. Never Position a Side Draw Opening at a Sidewall Seam

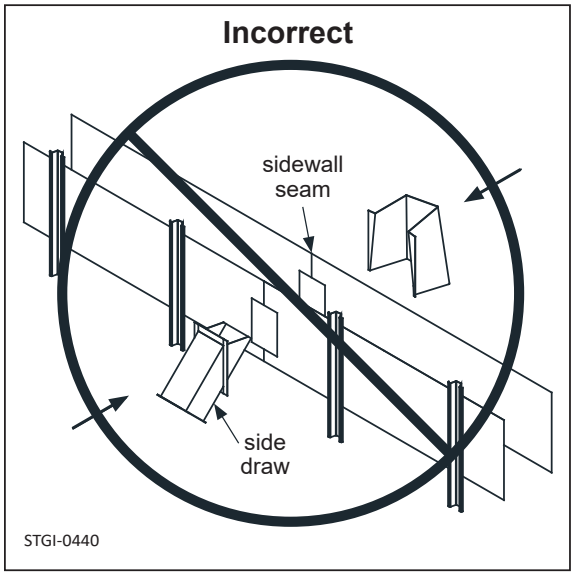
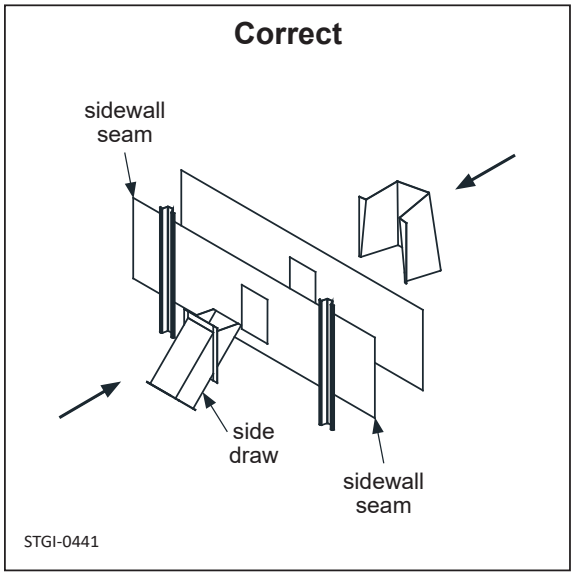
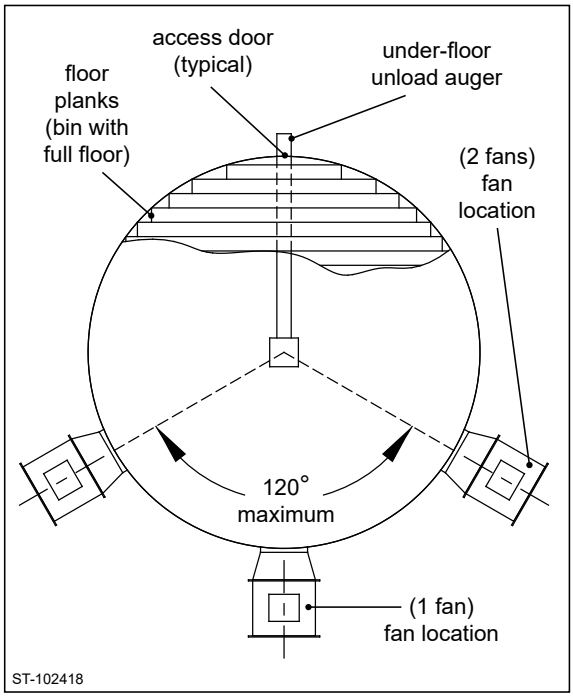


Figure 3. Position Midway Between Stiffeners and Not on a Vertical Seam



The following Figure 4 is one suggested guide for locating aeration fans and floor unload equipment.

Figure 4. Example Fan and Unload Equipment Layout



5. Assembly

5.1. Assembly Safety

⚠ WARNING

- Do not take chances with safety. The components can be large, heavy, and hard to handle. Always use the proper tools, rated lifting equipment, and lifting points for the job.
- Do not stand on, under, or near any component that is not secured.
- Carry out assembly in a large open area with a level surface.
- Always have two or more people assembling the grain bin.
- Make sure you have sufficient lighting for the work area.
- Tighten all fasteners according to their specifications. Do not replace or substitute bolts, nuts, or other hardware that is of lesser quality than the hardware supplied by the manufacturer.
- Stay away from overhead power lines and other obstructions during assembly. Contact with power lines can cause electrocution.
- Do not work in high winds.
- The equipment shall be installed in accordance with applicable local codes and regulations.

5.2. Foundation Construction

1. Choose a site that is well drained and has a minimum soil-bearing capacity of 3000 lbs. per sq. ft. (144 kPa). If soil-bearing capacity is not known, consult a local engineering representative.
2. Use 4" to 6" (100-150 mm) of well compacted coarse gravel below slab and ring footing.
3. Use 3000 lbs. per sq. in. (21 MPa) concrete.
4. Make sure the foundation is level. The bin wall must have a uniform support to carry the wall loads and weather-sealing the bottom is made easier if the foundation is level. Camber the outside edge of the concrete to ensure that water drains.
5. The bin may be anchored using either 1/2" drill-in anchor bolts or 1/2" cast-in-place anchor bolts. Layout dimensions are provided in Section 5.2.1 – Foundation Specifications on page 28.
6. Install one anchor bolt for every hole provided (6 per bottom ring angle section).

   Note

   For areas where wind speeds exceed 100km/h, use an additional 5/8" washer underneath the 1/2" anchor bolt washer. The 5/8" washer should have an OD of at least 1.4" and a thickness of a least 1/10". This is needed to provide adequate resistance against angle uplift.

7. Additional information for rebar:
   a. 15" rebar end laps are included in weights
   b. Standard length assumed to be 6 m (19 ft., 8 in.)
   c. Add 15" (380 mm) for each additional lap if using shorter lengths
   d. For 10M add 0.3 kg.
   e. For #3 imp. add 0.5 lb

f. For #4 imp. add 0.8 lb

Note

One 1/2" anchor bolt needs to be installed into every slot in the bottom angle (6 per angle) to ensure that the bin is fixed at the bottom. The minimum embedment depth of the anchor bolts is 3"

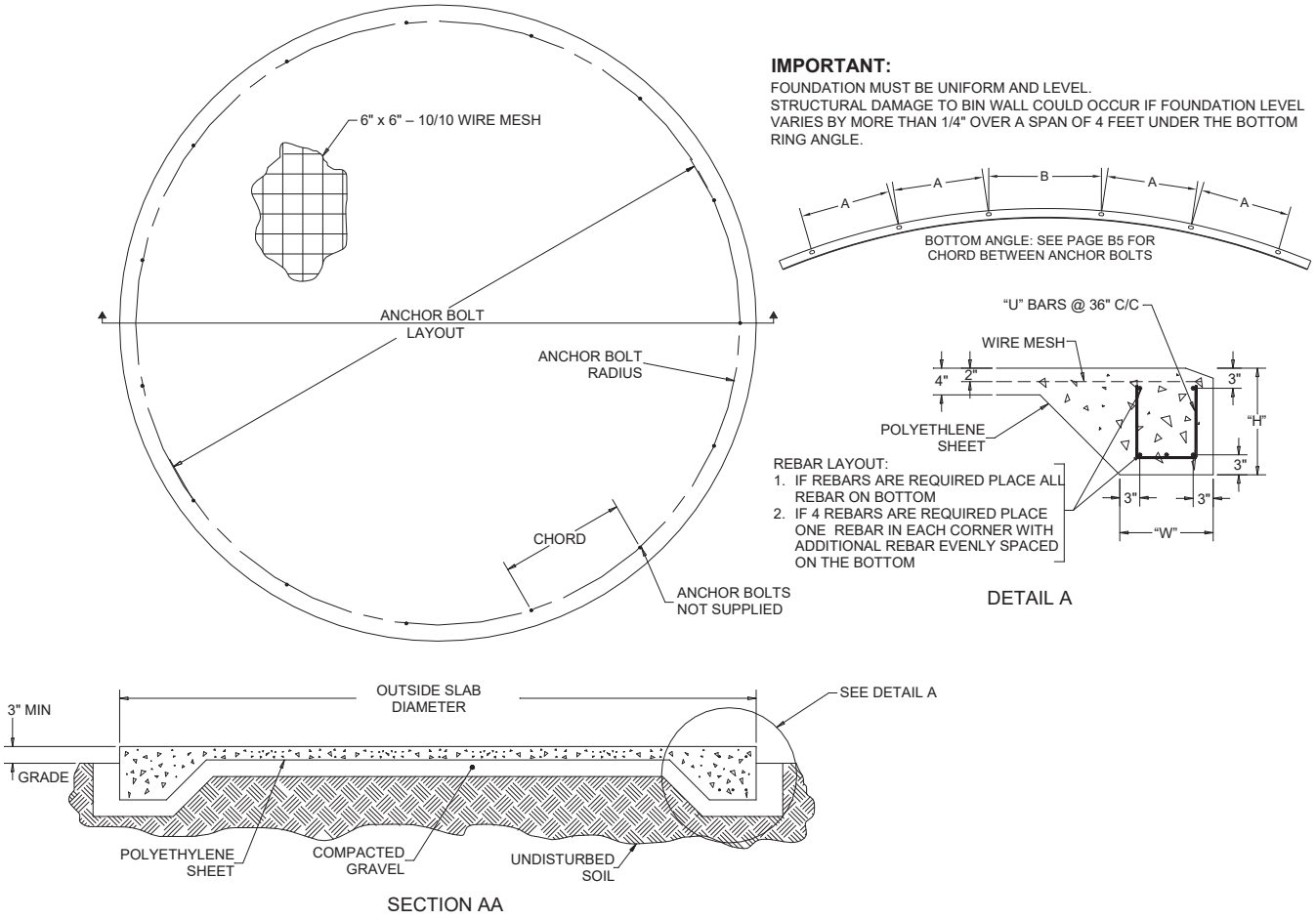
5.2.1 Foundation Specifications

Table 4. Foundation Specifications

Bin model	Slab dia.	"H"	"W"	Rebar - metric			Rebar - imperial				Wire mesh sq. ft.	Anchor bolt circle	Anchor bolt radius	Chord between anchor bolts		Min. no. 1/2" dia. anchors	Concrete (3000 psi) yards
				qty. & size	qty. of 1m "U" bars	kg.	qty. & size	lb.	qty. of 39" "U" bars	lb.				A	B		
1505-06	15'-11"	16"	14"	(3)10M	-	36	(2)#4	53	-	-	200	15'-1 3/8"	7'- 6 11/16"	19"	23 5/8"	30	5.5
1805-06	18'-11"	16"	14"	(3)10M	-	43	(2)#4	80	-	-	281	18'- 1 3/16"	9'-0 19/32"	18 31/32"	23 19/32"	36	7
2105-06	21'-11"	16"	14"	(3)10M	-	51	(2)#4	94	-	-	377	21'- 1"	10'- 6 1/2"	18 15/16"	23 9/16"	42	8
2405-06	24'-11"	16"	15"	(3)10M	-	57	(2)#4	100	-	-	488	24'-0 13/16"	12'-0 13/32"	18 15/16"	23 17/32"	48	11
2705-06	27'-11"	16"	15"	(3)10M	-	65	(2)#4	120	-	-	612	27'-0 5/8"	13'- 6 5/16"	18 29/32"	23 17/32"	54	13
3005-06	30'-10"	16"	15"	(3)10M	-	71	(2)#4	133	-	-	747	30'-0 3/8"	15'-0 3/16"	18 29/32"	23 1/2"	60	15
3305-06	33'-10"	16"	15"	(3)10M	-	79	(2)#4	147	-	-	900	33'-0 3/16"	16'- 6 3/32"	18 7/8"	23 1/2"	66	17.5
3605-06	36'-10"	16"	15"	(3)10M	-	86	(2)#4	160	-	-	1065	36'-0"	18'-0"	18 7/8"	23 1/2"	72	20
3905–06	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4205-06	42'-10"	18"	16"	(4)10M	(43)10M	168	(4)#4	372	(43)#3	54	1440	41' –11 5/8"	20'-11 13/16"	18 7/8"	23 15/16"	84	28.5
4505-06	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4805-06	48' -10"	18"	17"	(4)10M	(49)10M	192	(4)#4	425	(49)#3	61	1873	47' –11 5/16"	23'-11 21/32"	18 27/32"	23 15/16"	96	36

5.2.2 Foundation Detail and Anchor Bolt Layout

Figure 5. Foundation and Anchor Bolt Detail



See Section 5.2.1 – Foundation Specifications on page 28 for chord between anchor bolts.

5.2.3 Anchor Bolt Plan

One 1/2" anchor bolt needs to be installed into every slot in the bottom angle (6 per angle) to ensure that the bin is fixed at the bottom. The minimum embedment depth of the anchor bolt is 3".

5.3. Bin Entry Anchor System: Non-Structured Roof

Important

The fall restraint bracket is rated for a maximum load of 2,000 lbs. The bin owner and user are responsible for correctly installing, using, and operating the Bin Entry Anchor System. The rope, pulley, and harness are not supplied by AGI.

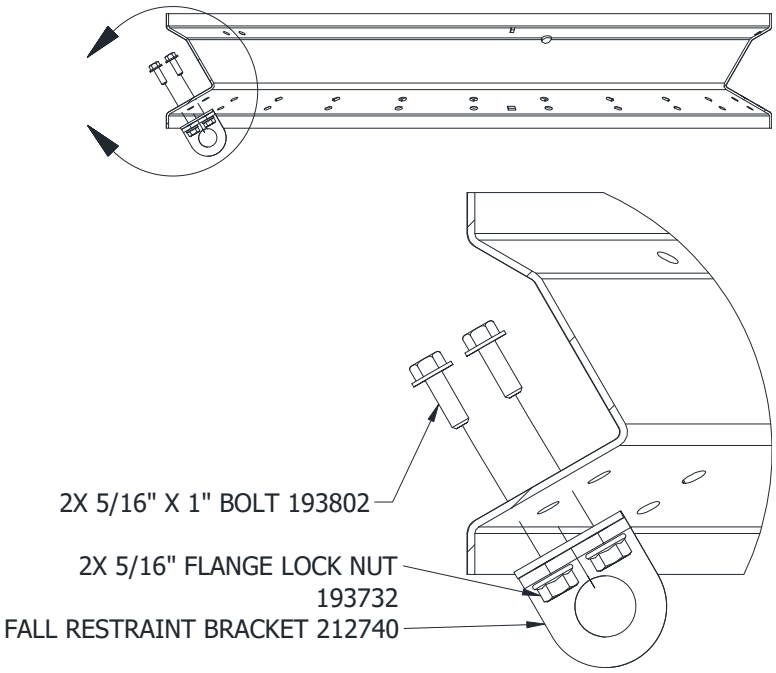
⚠ WARNING Failure to install correctly as instructed below may result in serious injury or death.

Note

Before installing the Bin Entry Anchor System, verify that it does not interfere with the stirrator system. Do not install the Bin Entry Anchor System if there is interference with the stirrator system.

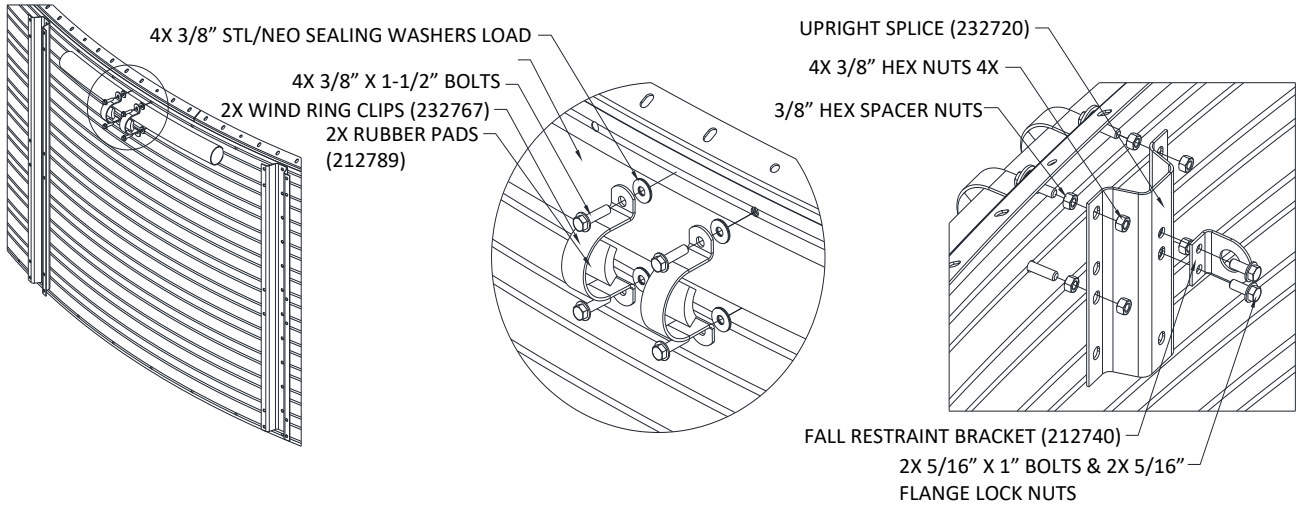
1. Install fall restraint bracket under peak ring as shown. Make sure to bolt the fall restraint bracket to the roof sheet with the inspection hatch cut out. (See Figure 6 on page 30.)

Figure 6. Installing the fall restraint bracket



2. Bolt the second fall restraint bracket to the upright splice. Then bolt the upright splice along the top wall sheet horizontal seam with the wind ring clips, sandwiching the load spreader tube and rubber pads as shown. (See Figure 7 on page 31.)
   a. Field drill holes as needed on the wall sheet and top angle for the wind ring clip connections. Washers must be sandwiched between the wind ring clips and the wall sheet for sealing. (See Figure 7 on page 31.)
   b. The load spreader tube and upright splice can be installed off center (between the uprights on stiffened bins) for better reachability from the inspection hatch. Do not install the load spreader tube over a vertical wall sheet seam. (See Figure 7 on page 31.)

Figure 7. Installing the load spreader tube



3. Place the Fall Restraint Anchor Point Decals (PN 8110-01090) on the bin, see Section 2.9 – Decal Installation/ Replacement on page 10 and Section 2.10 – Safety Decal Locations and Details on page 11 for installation instructions and placement.

5.4. Bin Roundness

It is imperative that the bin be as round as possible. The following steps describe how to ensure the bin is round.

1. Verify that the foundation meets all the requirements of the installation.
2. Scribe the bin circumference onto the foundation as follows:
   a. Anchor a string to the exact center of the concrete foundation.
   b. Consult the following table to find the scribe radius for the size of the bin being assembled.
   c. Using the required string length, scribe the bin circumference onto the foundation.

      The radius values given in the chart are 3/4–inch smaller than the wall sheet radius at the bottom. This ensures that the scribed circle can be seen during assembly. A perfectly placed ring of sheets should be 3/4 inch on the outside of this scribed circle.
3. After the first ring of wall sheets has been assembled, check the position and roundness of the ring:
   a. Verify that the maximum amount that the bin is out of round is no more than 0.75" on the radius, when measured from the center of the bin.
   b. Verify that the wall sheets form a smooth circle with no flat spots or cauliflower shaped curves.
   c. Before anchoring the bin to the foundation, re-check to ensure that the bin is round and within tolerance.

      Note

      The longer you wait, the more it becomes difficult to correct the bin roundness.
4. Locate anchor bolts towards the outside of the anchor bolt slots (away from bin) to permit the incremental expansion that can occur with the initial filling of the bin.
5. When setting jacks, make sure they are also set round and that they are anchored to the concrete.

Table 5. Scribe Radius – 15' to 48' Bins

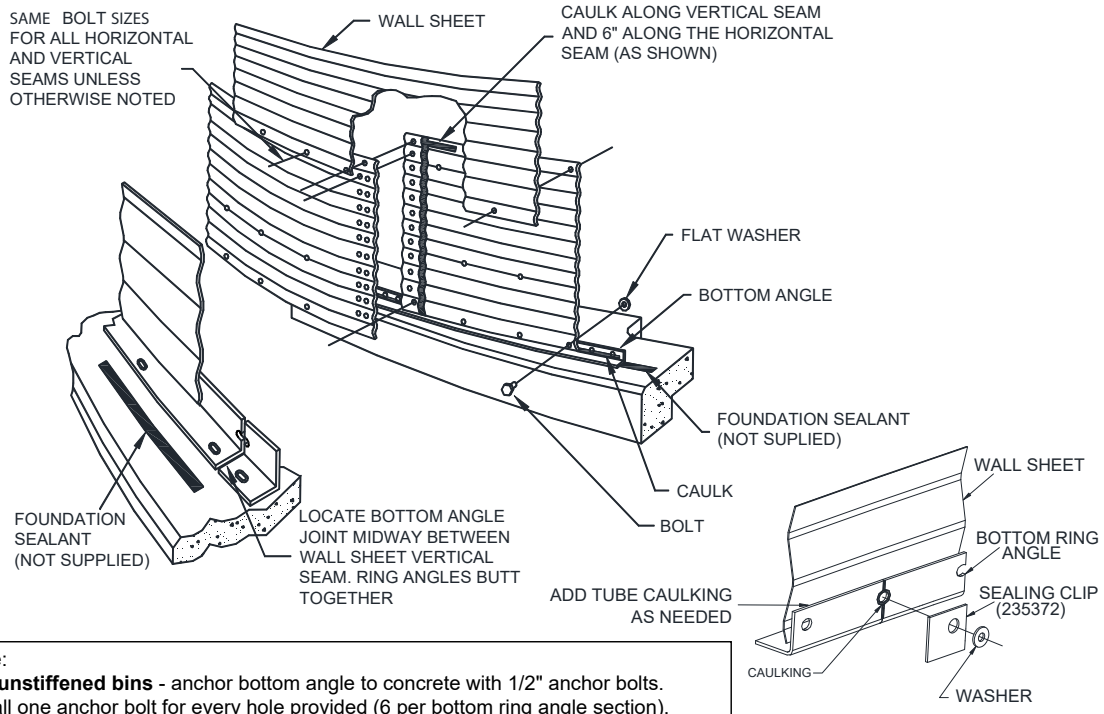
Nominal Bin Diameter (ft)	Scribe Radius (ft in)	Nominal Bin Diameter (ft)	Scribe Radius (ft in)
15	7'4-3/4"	33	16'4-3/16"
18	8'10-11/16"	36	17'10-1/8"
21	10'4-9/16"	39	19'4"
24	11'10-1/2"	42	20'9-15/16"
27	13'4-3/8"	45	22'3-13/16"
30	14'10-5/16"	48	23'9-3/4"

5.5. Wall Sheet and Bottom Angle Assembly

Note

For bin hardware specification, refer to .

Figure 8. Wall Sheet and Bottom Angle Assembly Detail



Note:
For unstiffened bins - anchor bottom angle to concrete with 1/2" anchor bolts. Install one anchor bolt for every hole provided (6 per bottom ring angle section).

For stiffened bins - the bottom angle anchors are not required for stiffened bins as long as the stiffener base assembly anchors are making a good seal between the bottom angle and the foundation. If the seal is not good due to uneven concrete it is recommended to also anchor the bottom angle with as many 1/2" anchor bolts as are needed to achieve a good seal.

5.6. Farm Series Sheet Part Number Matrix

Table 6. Farm Series Sheet Part Number Matrix

CORRUGATED FLAT WALL SHEETS						PUNCHED WALL SHEETS PRE 2005		PUNCHED WALL SHEETS 2005 AND LATER	
THICKNESS NOM (MIN)	GAUGE	LABEL COLOUR	WEIGHT lbs	LENGTH Overall (hole-to-hole)	FLAT	REGULAR	BOTTOM	REGULAR	BOTTOM
.040 (.036)	20	Yellow	58.3	116.5" (112.5")	194651	194910 Stencil		194546 Stencil	
					194698	n/a		194576 Grain-Gauge	
					194679	194926	194940	194550	194560
.050 (.045)	18	Orange	72.8		194652	194913 Stencil		194547 Stencil	
					194699	n/a		194577 Grain-Gauge	
					194680	194927	194949	194551	194561
.057 (.052)	17	Red	83.0		194681	194928	194941	194552	194562
.066 (.061)	15	Pink	97.7		194682	194929	194942	194553	194563
.076 (.070)	14	Lime	112.2		194683	194930	194943	194554	194564
					194653			194548 Stencil	
					194718			194549 Grain-Gauge	
.096 (.088)	13	Green	141.1		194684	194936 for Seed-Stor only		194555	194565
						194931	194944		
.116 (.107)	12	Blue	171.4		194685	194932	194945	194556	194566
.126 (.117)	11	Purple	188.2		194686	194933	194946	194557	194567
.139 (.130)	10	Black	208.5		194687	194934	194947	194558	194568
.168 (.159)	8	Tan	251.0		194688	194935	194948	194559	194569
SHORT SHEETS INSTALLED BESIDE WALK-IN DOOR									
.076 (.070)	14	Lime	67.1	69.6" (65.625")	194672	194952	194953	194570	194573
.116 (.107)	12	Blue	102.4		194674	194962	194963	194571	194574
.168 (.159)	8	Tan	150.0		194650	194986	194987	194572	194575

Bottom wall sheets are punched for full floor aeration flashing. Use bin bolts provided to plug unused holes if a full floor aeration system is not being used.

5.7. Wall Sheet Caulking Detail

Figure 9. Wall Sheet Caulking Detail (inside view) — Imperial

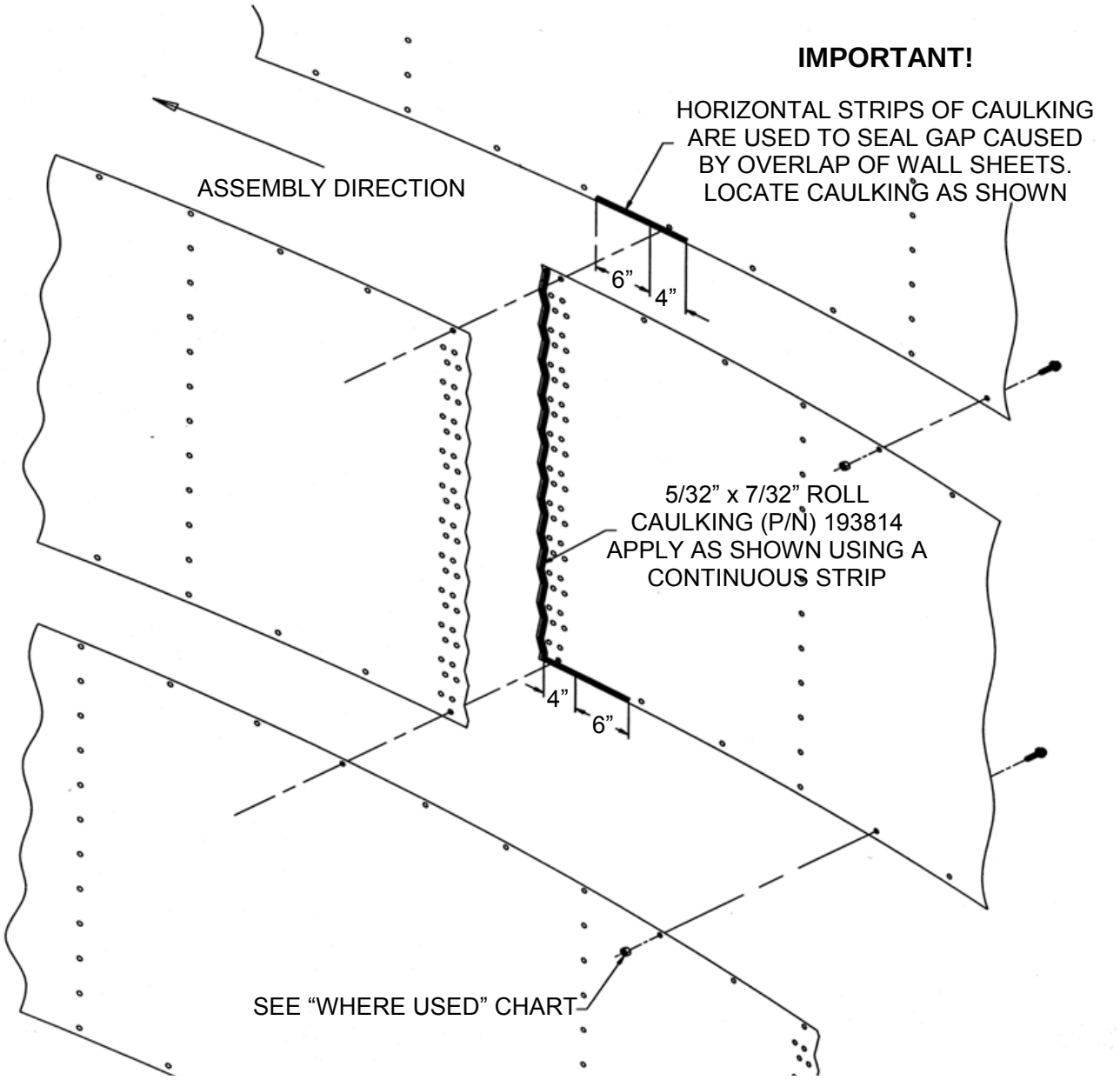
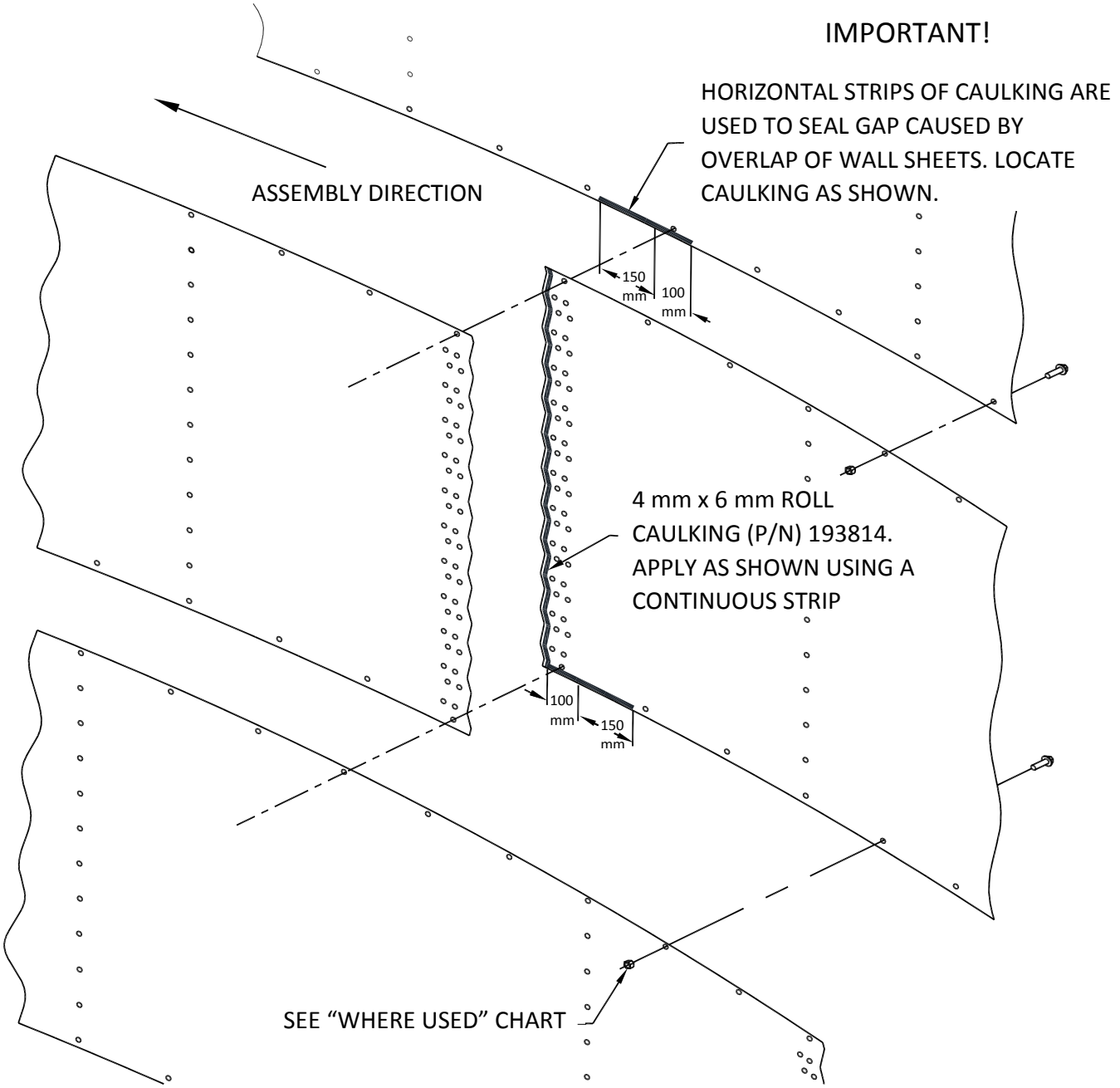
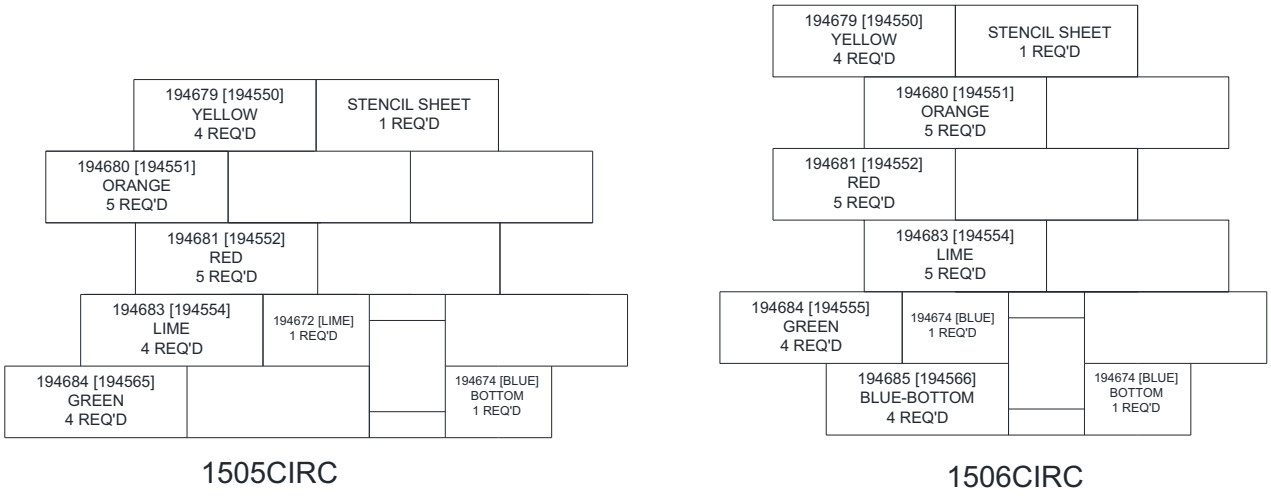


Figure 10. Wall Sheet Caulking Detail (inside view) — Metric



5.8. Wall Sheet Layouts - CIRC Series

Figure 11. Wall Sheet Layouts — 15’ CIRC Bins



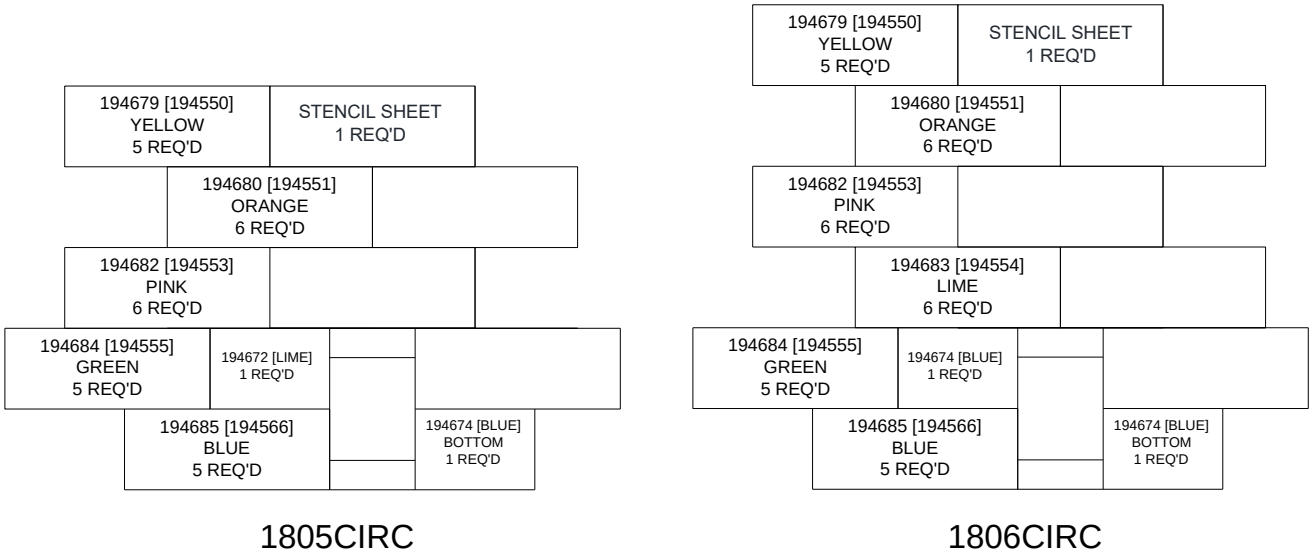
Note

1. Colors match part number label and indicate wall sheet thickness
2. Stencil sheet is AGI - 194894 [194546] (YELLOW) or WESTEEL - 194651 [194645]
3. Use 3/8” x 1” bolts in the horizontal and vertical seams, except around the door, where 3/8” x 1¼” are used
4. Door options:

236810 (Supplied with 2 door boards)	236830 (for use with auger chute) + 236840 Auger Chute
1505 – 1506	1505 – 1506

Check with AGI customer service for information on converting the door to door with auger chute or door with two door boards if necessary.

Figure 12. Wall Sheet Layouts — 18’ CIRC Bins



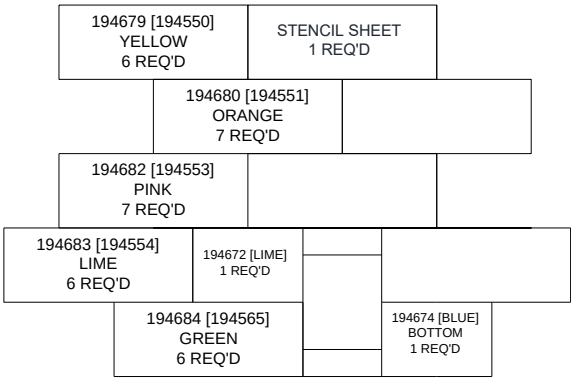
Note

1. Colors match part number label and indicate wall sheet thickness
2. Stencil sheet is AGI - 194894 [194546] (YELLOW) or WESTEEL - 194651 [194645]
3. Use 3/8” x 1” bolts in the horizontal and vertical seams, except around the door, where 3/8” x 1¼” are used
4. Door options:

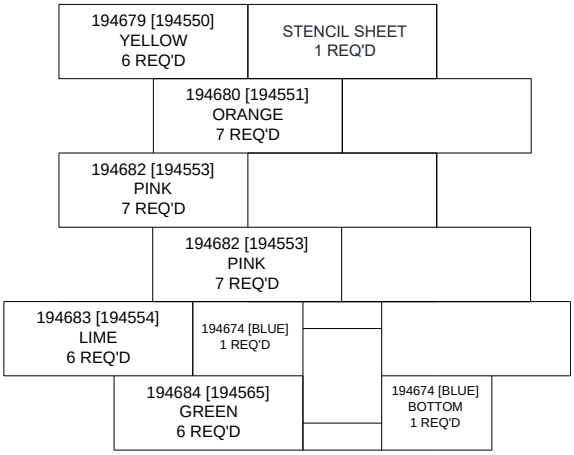
236810 (Supplied with 2 door boards)	236830 (for use with auger chute) + 236840 Auger Chute
1805 – 1806	1805 – 1806

Check with AGI customer service for information on converting the door to door with auger chute or door with two door boards if necessary.

Figure 13. Wall Sheet Layouts — 21’ CIRC Bins



2105CIRC



2106CIRC

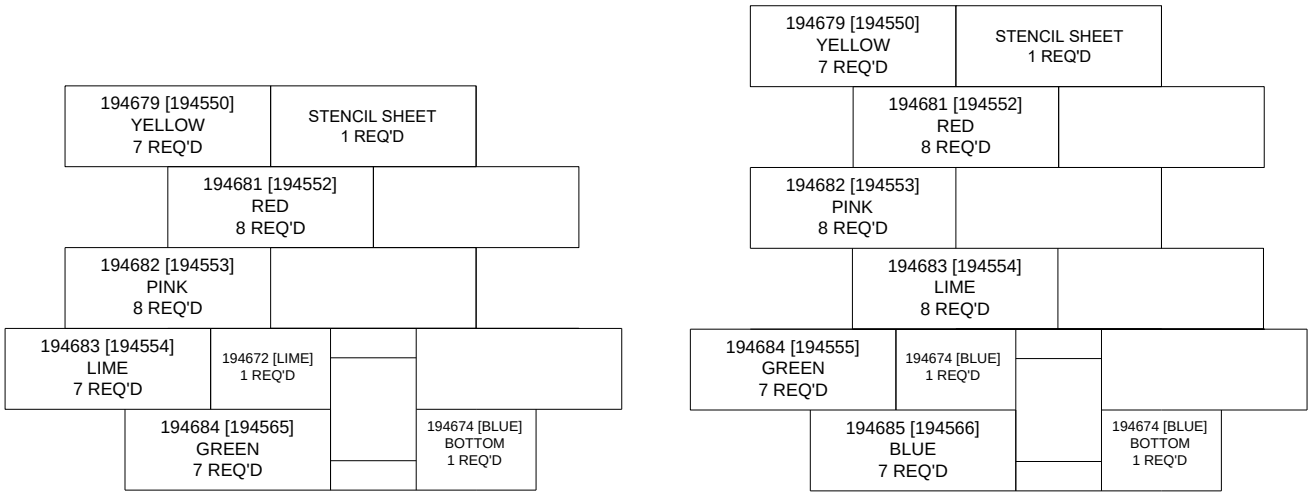
Note

1. Colors match part number label and indicate wall sheet thickness
2. Stencil sheet is AGI - 194894 [194546] (YELLOW) or WESTEEL - 194651 [194645]
3. Use 3/8” x 1” bolts in the horizontal and vertical seams, except around the door, where 3/8” x 1¼” are used
4. Door options:

236810 (Supplied with 2 door boards)	236830 (for use with auger chute) + 236840 Auger Chute
2105 – 2106	2105 – 2106

Check with AGI customer service for information on converting the door to door with auger chute or door with two door boards if necessary.

Figure 14. Wall Sheet Layouts — 24’ CIRC Bins



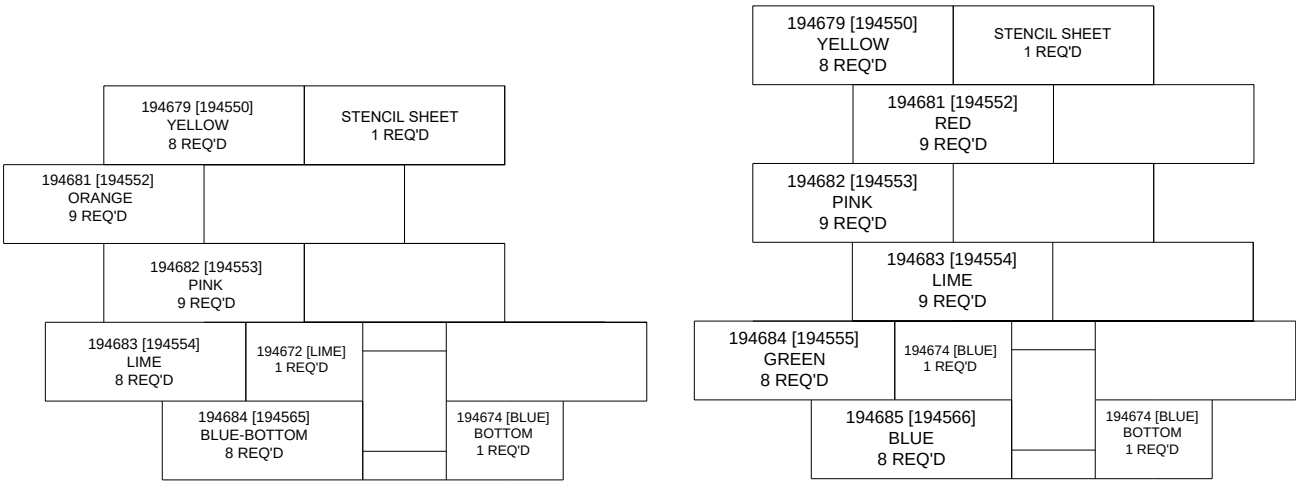
Note

1. Colors match part number label and indicate wall sheet thickness
2. Stencil sheet is AGI - 194894 [194546] (YELLOW) or WESTEEL - 194651 [194645]
3. Use 3/8” x 1” bolts in the horizontal and vertical seams, except around the door, where 3/8” x 1¼” are used
4. Door options:

236810 (Supplied with 2 door boards)	236830 (for use with auger chute) + 236840 Auger Chute
2405 – 2406	2405 – 2406

Check with AGI customer service for information on converting the door to door with auger chute or door with two door boards if necessary.

Figure 15. Wall Sheet Layouts — 27’ CIRC Bins



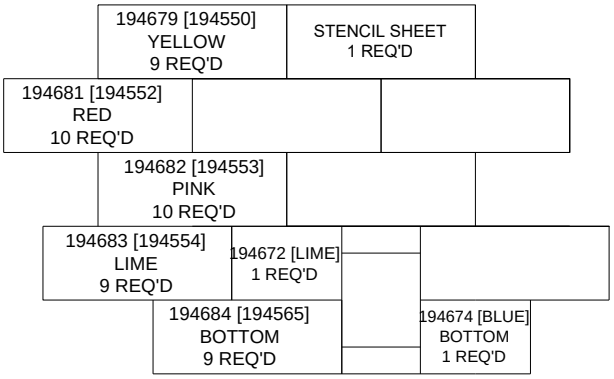
Note

1. Colors match part number label and indicate wall sheet thickness
2. Stencil sheet is AGI - 194894 [194546] (YELLOW) or WESTEEL - 194651 [194645]
3. Use 3/8” x 1” bolts in the horizontal and vertical seams, except around the door, where 3/8” x 1¼” are used
4. Door options:

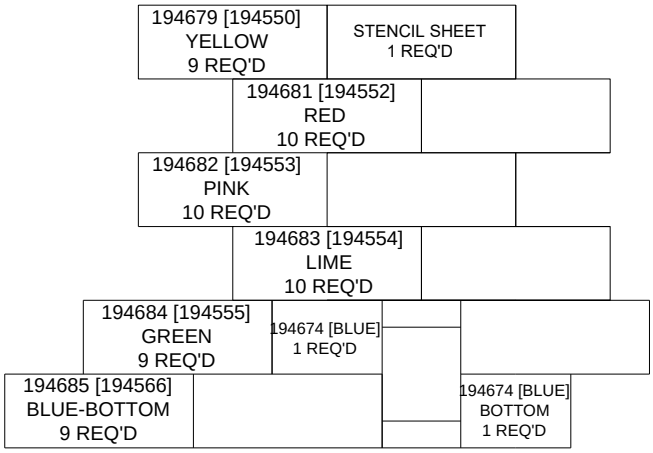
236810 (Supplied with 2 door boards)	236830 (for use with auger chute) + 236840 Auger Chute
2705 – 2706	2705

Check with AGI customer service for information on converting the door to door with auger chute or door with two door boards if necessary.

Figure 16. Wall Sheet Layouts — 30’ CIRC Bins



3005CIRC



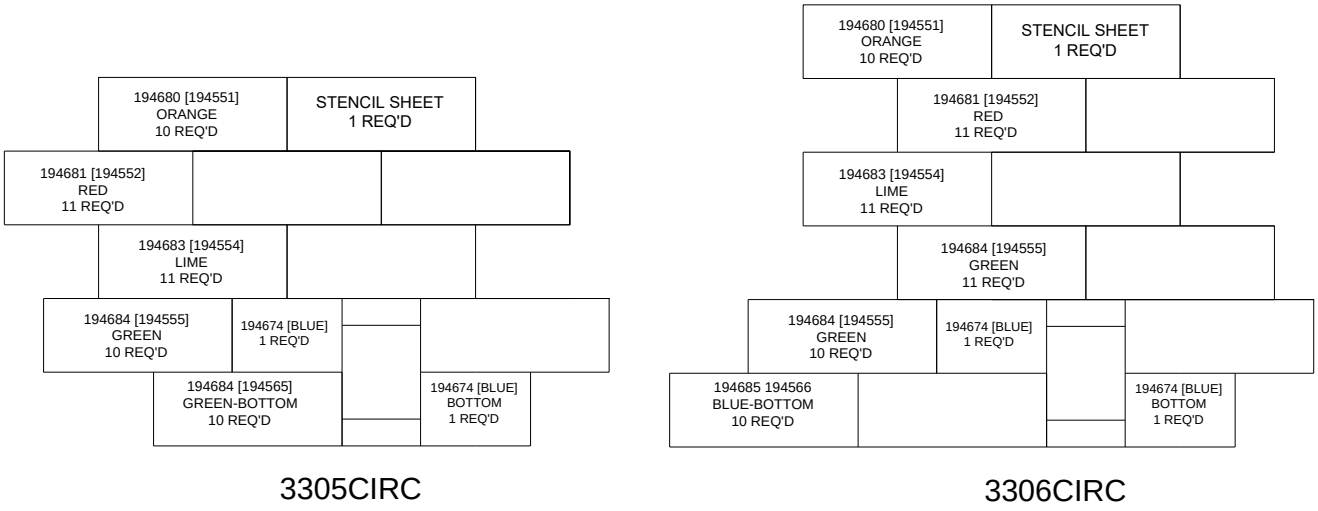
3006CIRC

Note

1. Colors match part number label and indicate wall sheet thickness
2. Stencil sheet is AGI - 194894 [194546] (YELLOW) or WESTEEL - 194651 [194645]
3. Use 3/8” x 1” bolts in the horizontal and vertical seams, except around the door, where 3/8” x 1¼” are used
4. Door options:

236810 (Supplied with 2 door boards)	236830 (for use with auger chute) + 236840 Auger Chute
3005 – 3006	Not Available

Figure 17. Wall Sheet Layouts — 33’ CIRC Bins

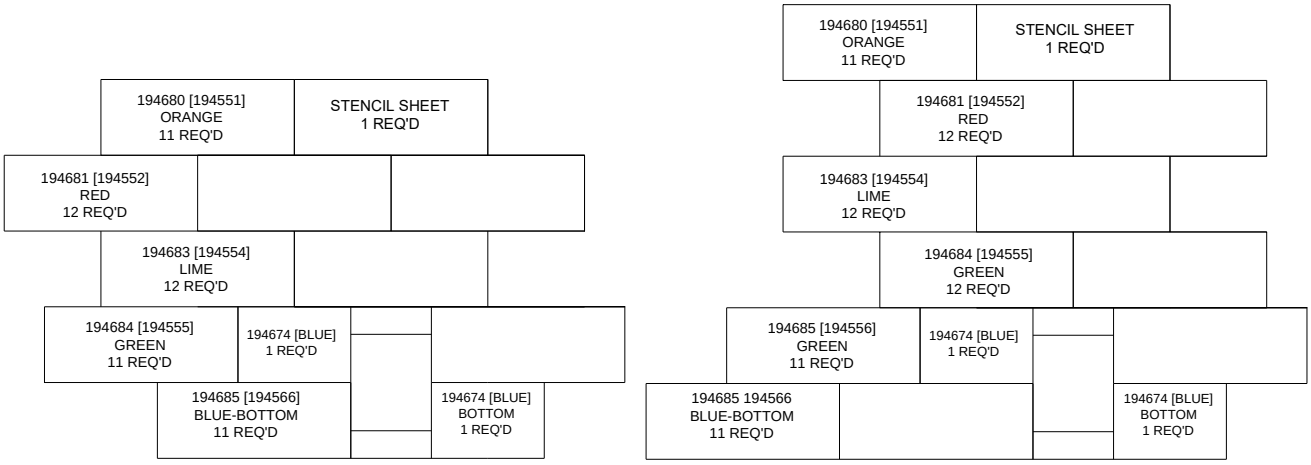


Note

1. Colors match part number label and indicate wall sheet thickness
2. Stencil sheet is AGI - 194894 [194546] (YELLOW) or WESTEEL - 194651 [194645]
3. Use 3/8” x 1” bolts in the horizontal and vertical seams, except around the door, where 3/8” x 1¼” are used
4. Door options:

236810 (Supplied with 2 door boards)	236830 (for use with auger chute) + 236840 Auger Chute
3305 – 3306	Not Available

Figure 18. Wall Sheet Layouts — 36’ CIRC Bins

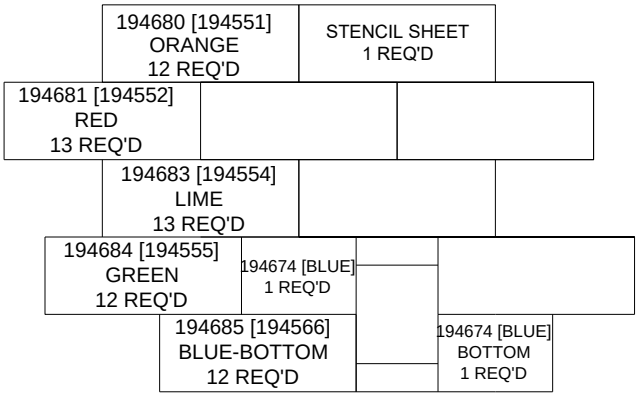


Note

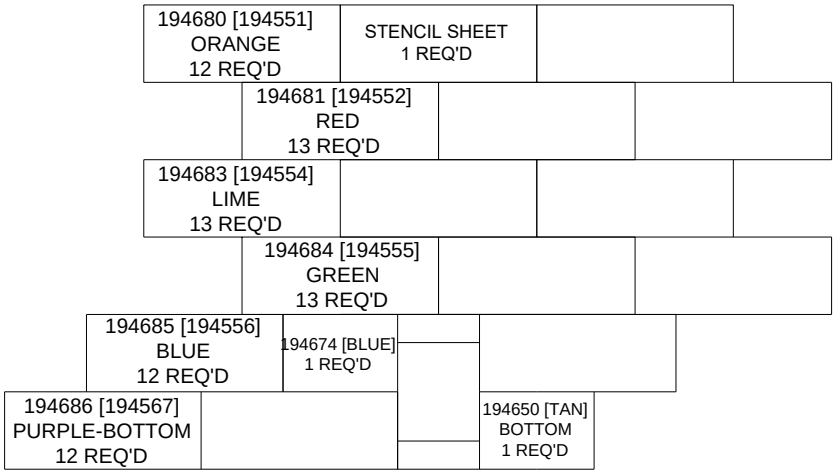
1. Colors match part number label and indicate wall sheet thickness
2. Stencil sheet is AGI - 194896 [194897] (ORANGE) or WESTEEL - 194652 [194547] (ORGANGE)
3. Use 3/8” x 1” bolts in the horizontal and vertical seams, except around the door, where 3/8” x 1¼” are used
4. Door options:

236810 (Supplied with 2 door boards)	236830 (for use with auger chute) + 236840 Auger Chute
3605 – 3606	Not Available

Figure 19. Wall Sheet Layouts — 39’ CIRC Bins



3905CIRC



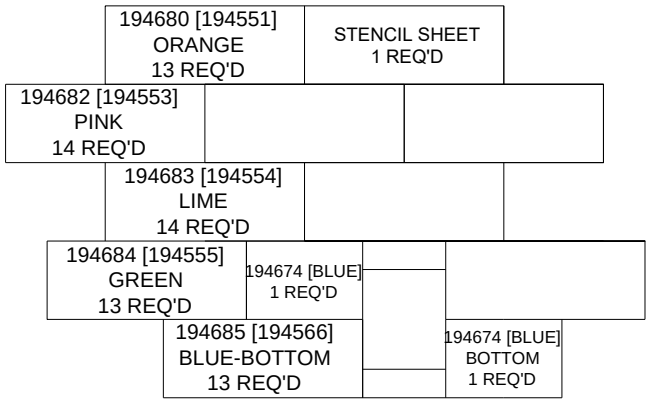
3906CIRC

Note

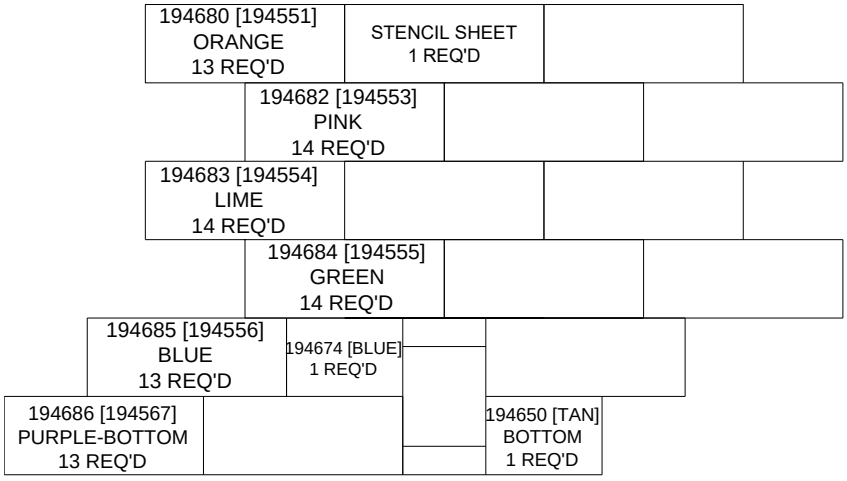
1. Colors match part number label and indicate wall sheet thickness
2. Stencil sheet is AGI - 194896 [194897] (ORANGE) or WESTEEL - 194652 [194547] (ORGANGE)
3. Use 3/8” x 1” bolts in the horizontal and vertical seams, except around the door, where 3/8” x 1¼” are used
4. Door options:

236810 (Supplied with 2 door boards)	236830 (for use with auger chute) + 236840 Auger Chute
3905 – 3906	Not Available

Figure 20. Wall Sheet Layouts — 42’ CIRC Bins



4205CIRC



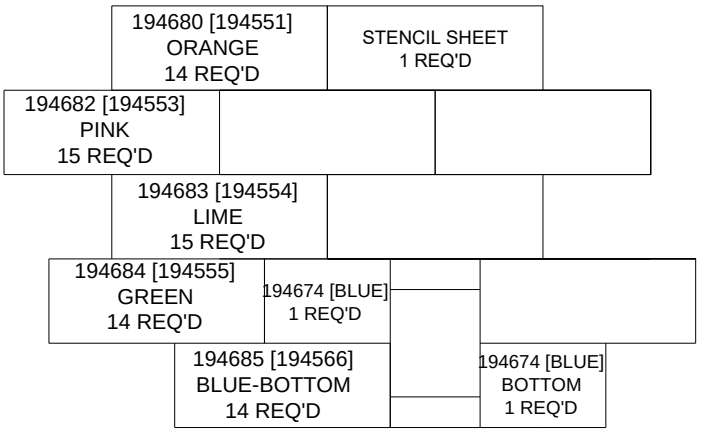
4206CIRC

Note

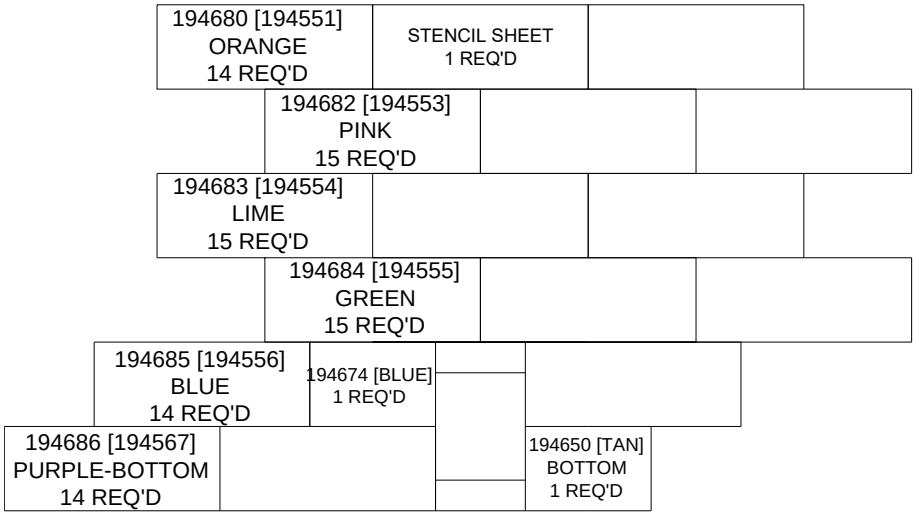
1. Colors match part number label and indicate wall sheet thickness
2. Stencil sheet is AGI - 194896 [194897] (ORANGE) or WESTEEL - 194652 [194547] (ORGANGE)
3. Use 3/8” x 1” bolts in the horizontal and vertical seams, except around the door, where 3/8” x 1¼” are used
4. Door options:

236810 (Supplied with 2 door boards)	236830 (for use with auger chute) + 236840 Auger Chute
4205 – 4206	Not Available

Figure 21. Wall Sheet Layouts — 45’ CIRC Bins



4505CIRC



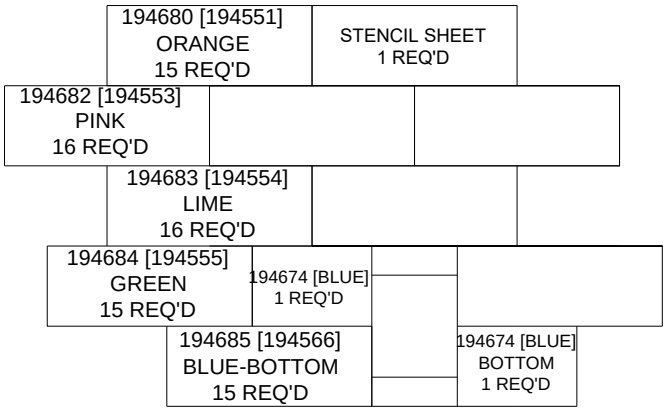
4506CIRC

Note

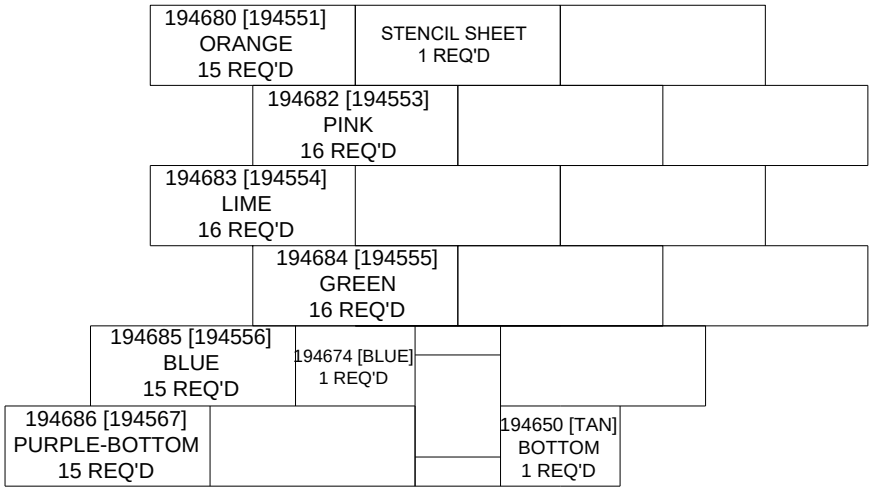
1. Colors match part number label and indicate wall sheet thickness
2. Stencil sheet is AGI - 194896 [194897] (ORANGE) or WESTEEL - 194652 [194547] (ORGANGE)
3. Use 3/8” x 1” bolts in the horizontal and vertical seams, except around the door, where 3/8” x 1¼” are used
4. Door options:

236810 (Supplied with 2 door boards)	236830 (for use with auger chute) + 236840 Auger Chute
4505 – 4506	Not Available

Figure 22. Wall Sheet Layouts — 48’ CIRC Bins



4805CIRC



4806CIRC

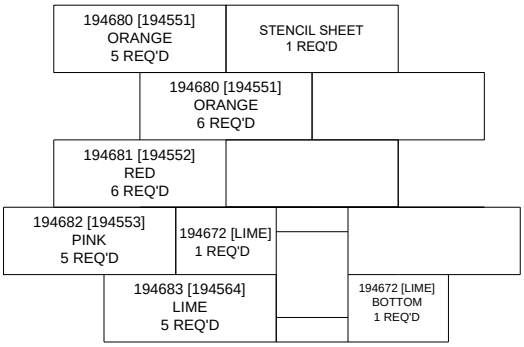
Note

1. Colors match part number label and indicate wall sheet thickness
2. Stencil sheet is AGI - 194896 [194897] (ORANGE) or WESTEEL - 194652 [194547] (ORGANGE)
3. Use 3/8” x 1” bolts in the horizontal and vertical seams, except around the door, where 3/8” x 1¼” are used
4. Door options:

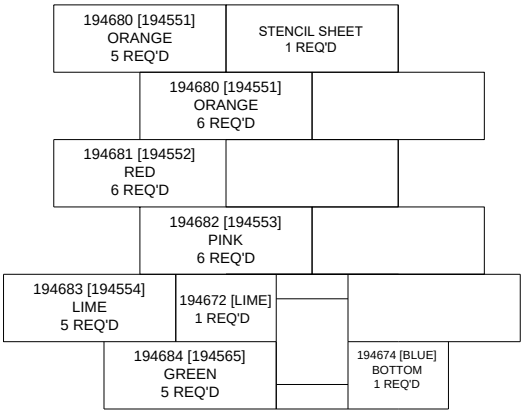
236810 (Supplied with 2 door boards)	236830 (for use with auger chute) + 236840 Auger Chute
4805 – 4806	Not Available

5.9. Wall Sheet Layouts - STR Series

Figure 23. Wall Sheet Layouts — 18’ STR Bins



1805STR



1806STR

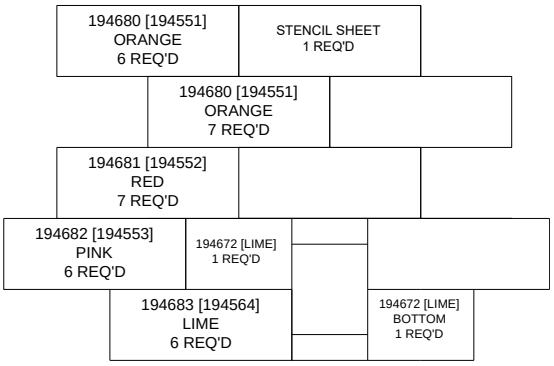
Note

1. Colors match part number label and indicate wall sheet thickness
2. Stencil sheet is AGI - 194896 [194897] (ORANGE) or WESTEEL - 194652 [194547] (ORGANGE)
3. Use 3/8” x 1” bolts in the horizontal and vertical seams, except around the door, where 3/8” x 1¼” are used
4. Door options:

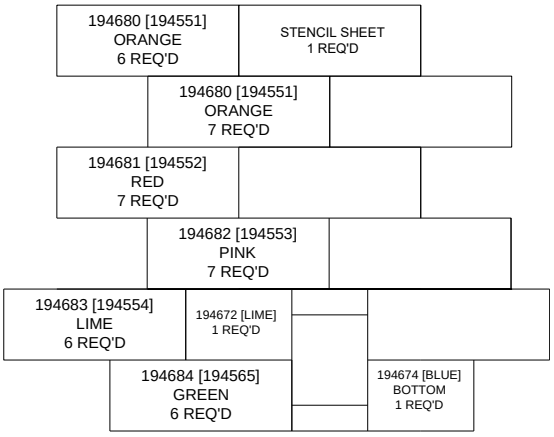
236810 (Supplied with 2 door boards)	236830 (for use with auger chute) + 236840 Auger Chute
1805 – 1806	1805 – 1806

Check with AGI customer service for information on converting the door to door with auger chute or door with two door boards if necessary.

Figure 24. Wall Sheet Layouts — 21’ STR Bins



2105STR



2106STR

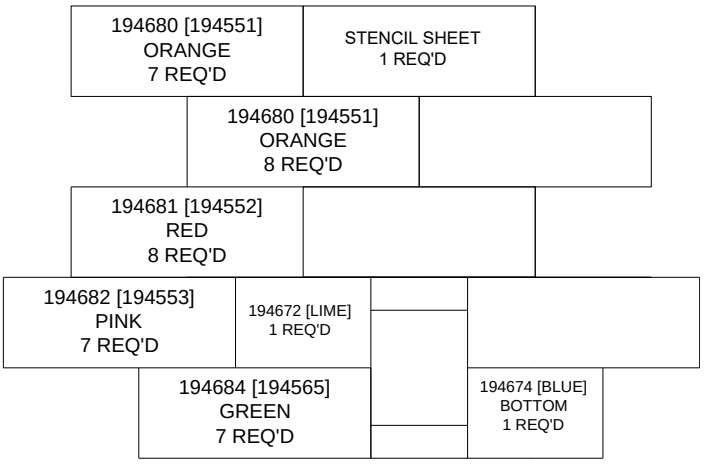
Note

1. Colors match part number label and indicate wall sheet thickness
2. Stencil sheet is AGI - 194896 [194897] (ORANGE) or WESTEEL - 194652 [194547] (ORGANGE)
3. Use 3/8” x 1” bolts in the horizontal and vertical seams, except around the door, where 3/8” x 1¼” are used
4. Door options:

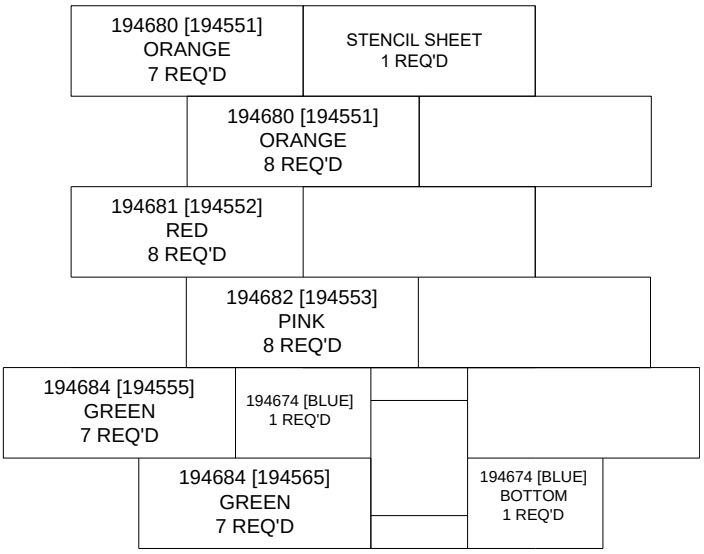
236810 (Supplied with 2 door boards)	236830 (for use with auger chute) + 236840 Auger Chute
2105 – 2106	2105 – 2106

Check with AGI customer service for information on converting the door to door with auger chute or door with two door boards if necessary.

Figure 25. Wall Sheet Layouts — 24’ STR Bins



2405STR



2406STR

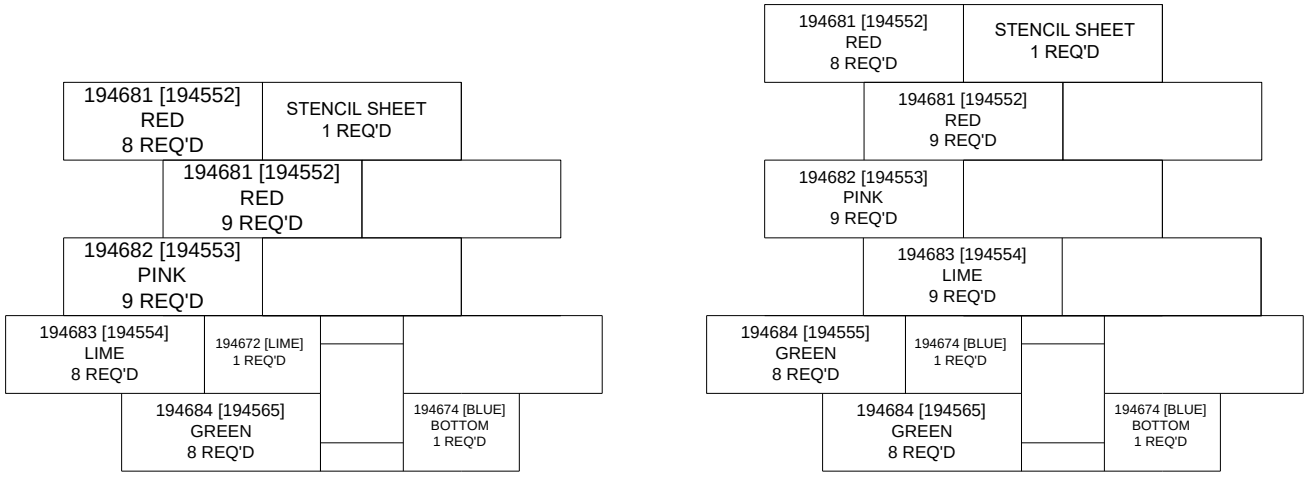
Notes:

1. Colors match part number labels and indicate wall sheet thickness
2. Stencil sheet is AGI - 194896 [194897] (ORANGE) or WESTEEL - 194652 [194547] (ORGANGE)
3. Use 3/8” x 1” bolts in the horizontal and vertical seams, except around the door, where 3/8” x 1¼” are used.
4. Door options:

236810 (Supplied with 2 door boards)	236830 (for use with auger chute) + 236840 Auger Chute
2405 – 2406	2405 – 2406

Check with AGI customer service for information on converting the door to door with auger chute or door with two door boards if necessary.

Figure 26. Wall Sheet Layouts — 27’ STR Bins



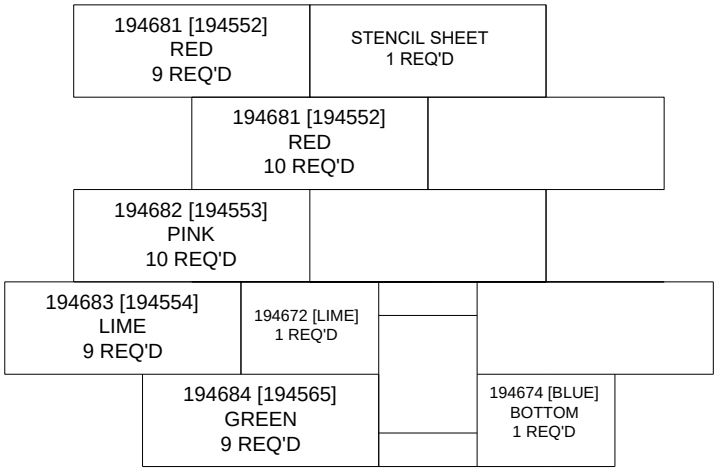
Notes:

1. Colors match part number label and indicate wall sheet thickness
2. Stencil sheet is AGI - 194925 [194348] (LIME) or WESTEEL - 194653 [194548] (LIME)
3. Use 3/8” x 1” bolts in the horizontal and vertical seams, except around the door, where 3/8” x 1¼” are used.
4. Door options:

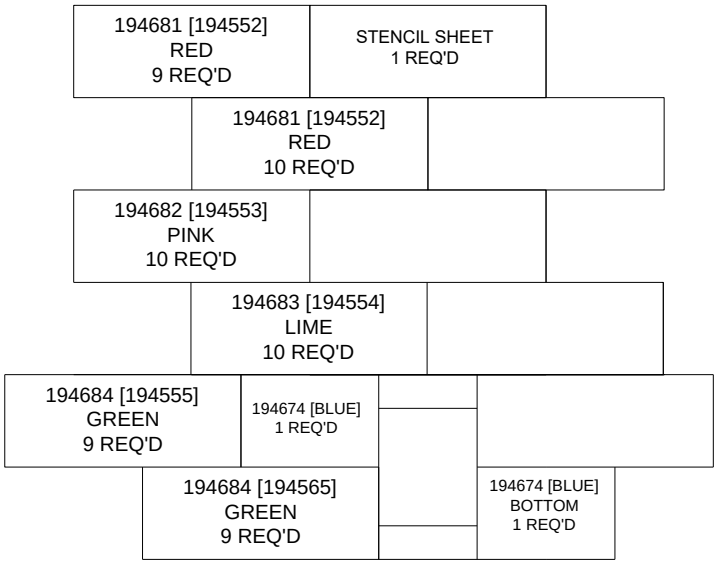
236810 (Supplied with 2 door boards)	236830 (for use with auger chute) + 236840 Auger Chute
2705 – 2706	2705

Check with AGI customer service for information on converting the door to door with auger chute or door with two door boards if necessary.

Figure 27. Wall Sheet Layouts — 30’ STR Bins



3005STR



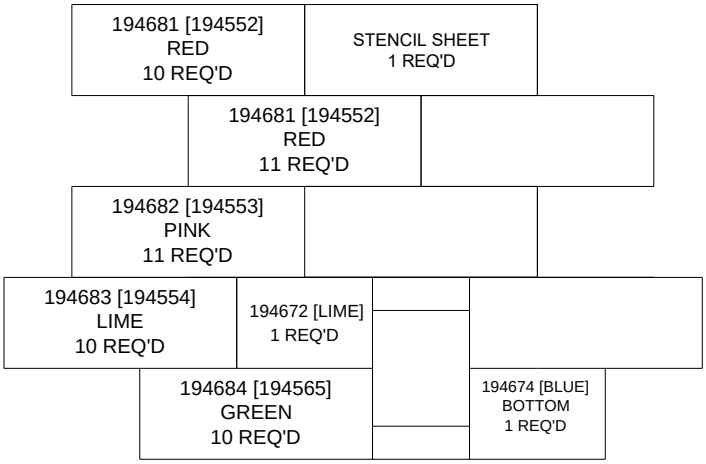
3006STR

Notes:

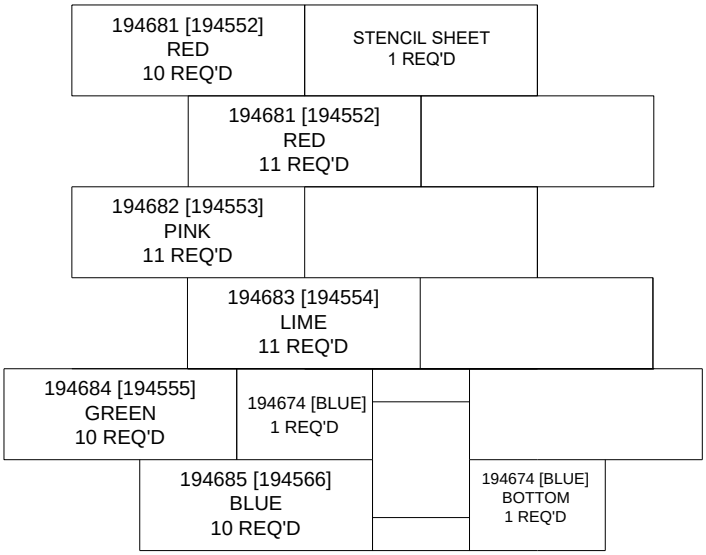
1. Colors match part number label and indicate wall sheet thickness
2. Stencil sheet is AGI - 194925 [194348] (LIME) or WESTEEL - 194653 [194548] (LIME)
3. Use 3/8” x 1” bolts in the horizontal and vertical seams, except around the door, where 3/8” x 1¼” are used.
4. Door options:

236810 (Supplied with 2 door boards)	236830 (for use with auger chute) + 236840 Auger Chute
3005 – 3006	Not Available

Figure 28. Wall Sheet Layouts — 33’ STR Bins



3305STR



3306STR

Notes:

1. Colors match part number label and indicate wall sheet thickness

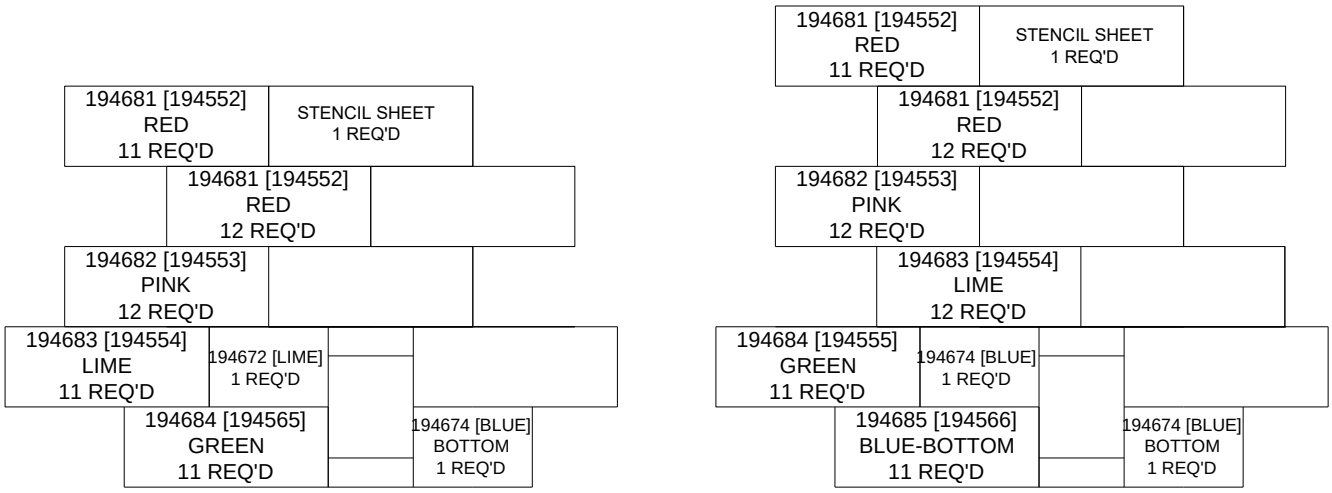
2. Stencil sheet is AGI - 194925 [194348] (LIME) or WESTEEL - 194653 [194548] (LIME)

3. Use 3/8” x 1” bolts in the horizontal and vertical seams, except around the door, where 3/8” x 1¼” are used.

4. Door options:

236810 (Supplied with 2 door boards)	236830 (for use with auger chute) + 236840 Auger Chute
3305 – 3306	Not Available

Figure 29. Wall Sheet Layouts — 36’ STR Bins



Notes:

1. Colors match part number label and indicate wall sheet thickness

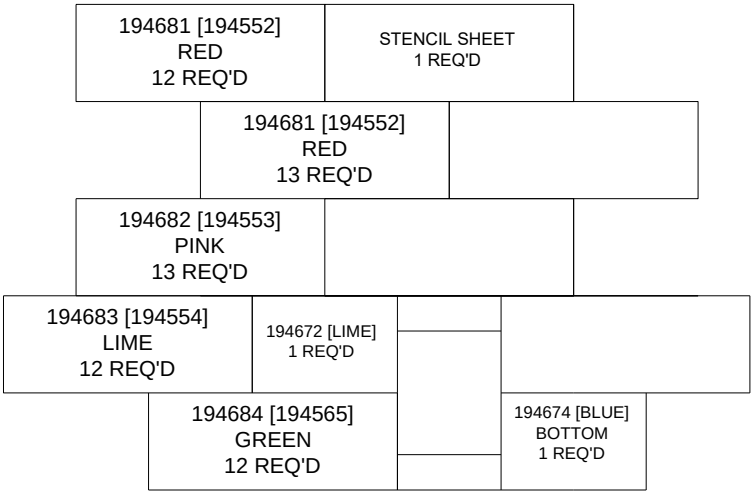
2. Stencil sheet is AGI - 194925 [194348] (LIME) or WESTEEL - 194653 [194548] (LIME)

3. Use 3/8” x 1” bolts in the horizontal and vertical seams, except around the door, where 3/8” x 1¼” are used.

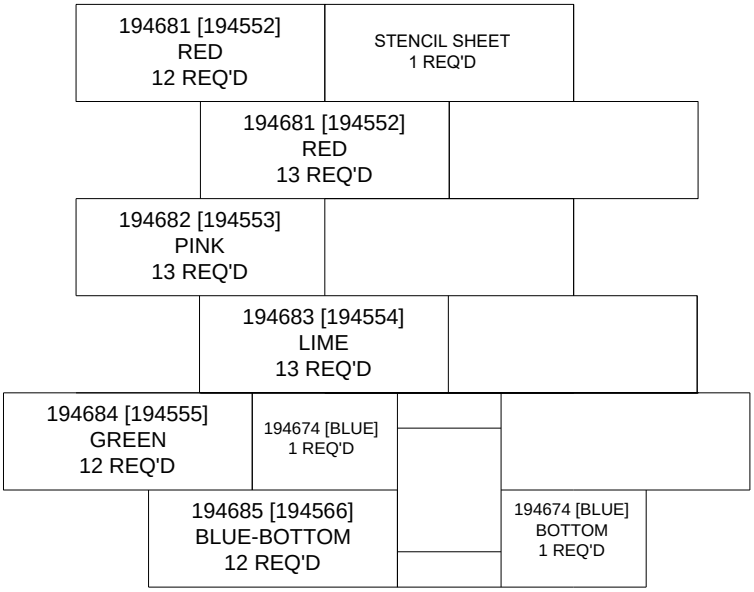
4. Door options:

236810 (Supplied with 2 door boards)	236830 (for use with auger chute) + 236840 Auger Chute
3605 – 3606	Not Available

Figure 30. Wall Sheet Layouts — 39’ STR Bins



3905STR



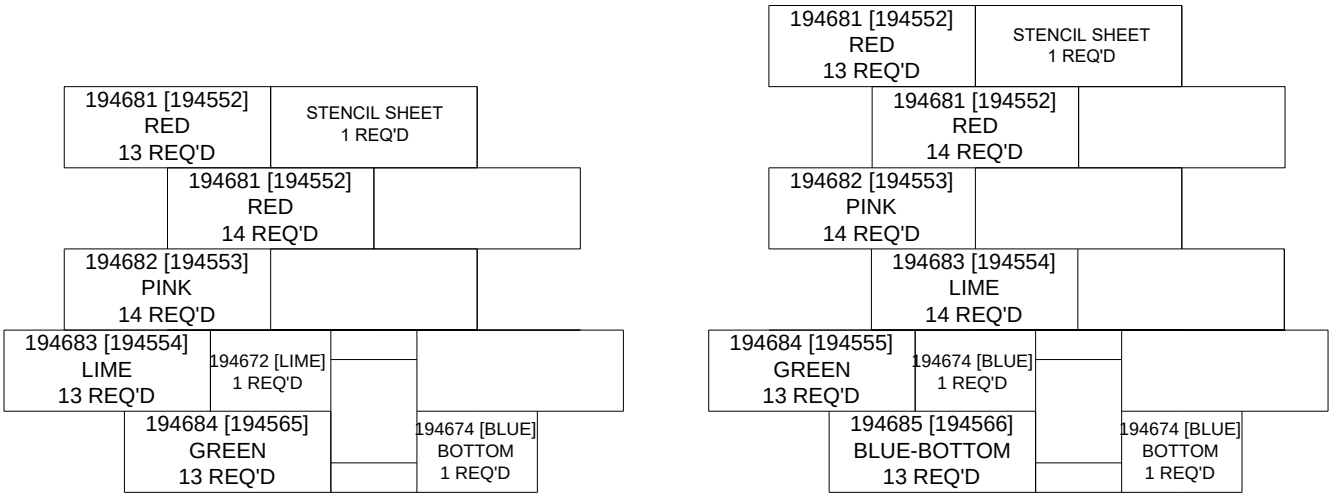
3906STR

Notes:

1. Colors match part number label and indicate wall sheet thickness
2. Stencil sheet is AGI - 194925 [194348] (LIME) or WESTEEL - 194653 [194548] (LIME)
3. Use 3/8” x 1” bolts in the horizontal and vertical seams, except around the door, where 3/8” x 1¼” are used.
4. Door options:

236810 (Supplied with 2 door boards)	236830 (for use with auger chute) + 236840 Auger Chute
3905 – 3906	Not Available

Figure 31. Wall Sheet Layouts — 42’ STR Bins

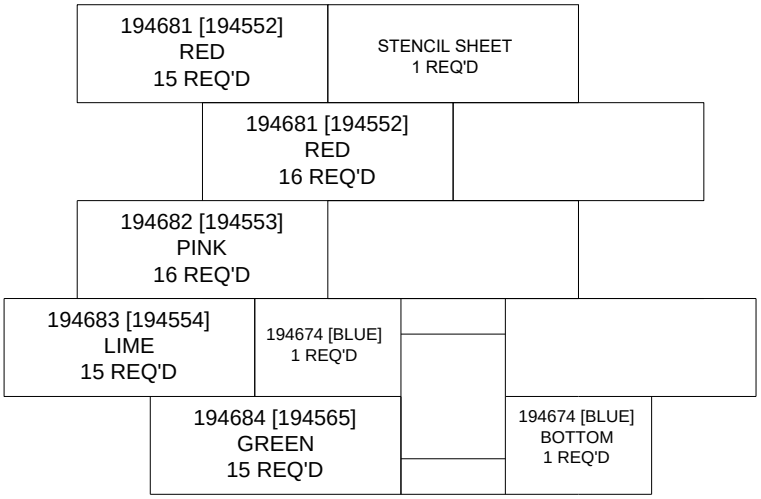


Notes:

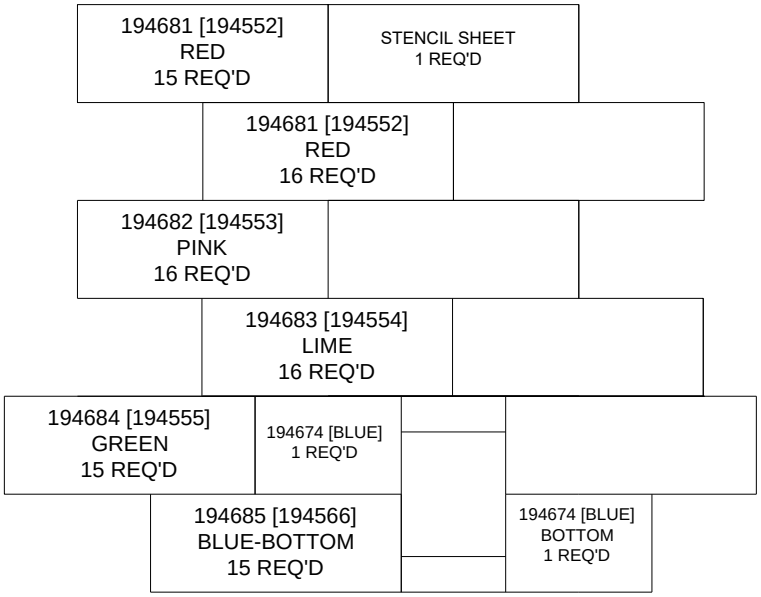
1. Colors match part number label and indicate wall sheet thickness
2. Stencil sheet is AGI - 194925 [194348] (LIME) or WESTEEL - 194653 [194548] (LIME)
3. Use 3/8” x 1” bolts in the horizontal and vertical seams, except around the door, where 3/8” x 1¼” are used.
4. Door options:

236810 (Supplied with 2 door boards)	236830 (for use with auger chute) + 236840 Auger Chute
4205 – 4206	Not Available

Figure 32. Wall Sheet Layouts — 48’ STR Bins



4805STR



4806STR

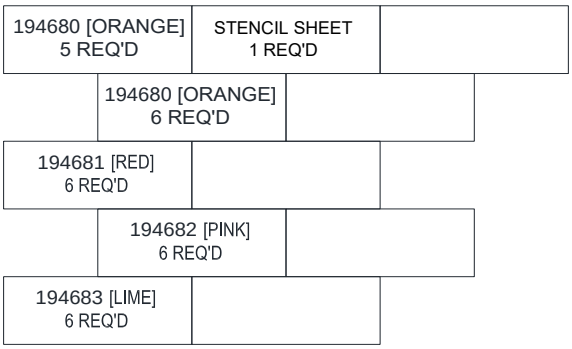
Notes:

1. Colors match part number label and indicate wall sheet thickness
2. Stencil sheet is AGI - 194925 [194348] (LIME) or WESTEEL - 194653 [194548] (LIME)
3. Use 3/8” x 1” bolts in the horizontal and vertical seams, except around the door, where 3/8” x 1¼” are used.
4. Door options:

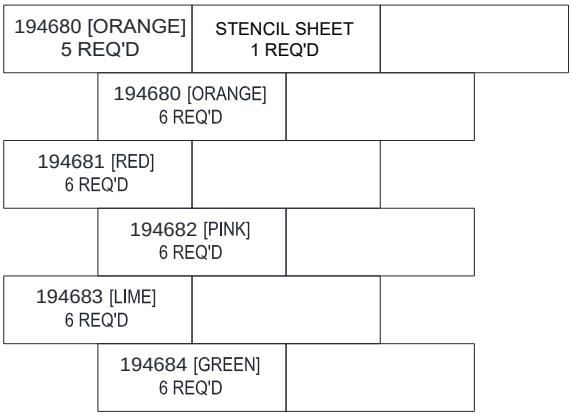
236810 (Supplied with 2 door boards)	236830 (for use with auger chute) + 236840 Auger Chute
4805 – 4806	Not Available

5.10. Wall Sheet Layouts - STRH Series

Table 7. Model 1805STRH to 1806STRH



1805STRH

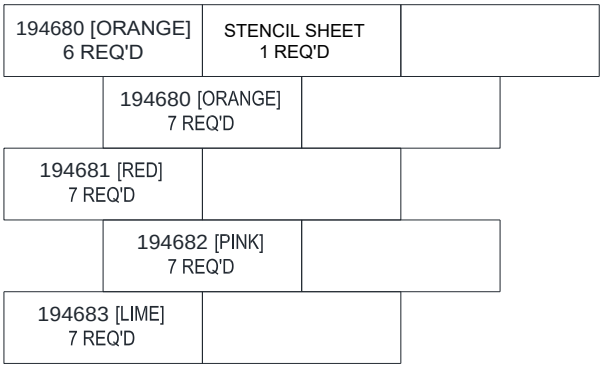


1806STRH

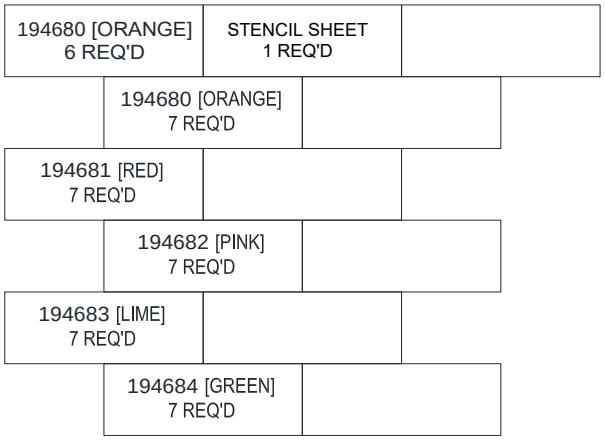
NOTES:

1. Colors match part number label and indicate wall sheet thickness
2. Stencil Sheet is AGI - 194896 [194897] (ORANGE) or WESTEEL - 194652 [194547] (ORGANGE)

Table 8. Model 2105STRH to 2106STRH



2105STRH

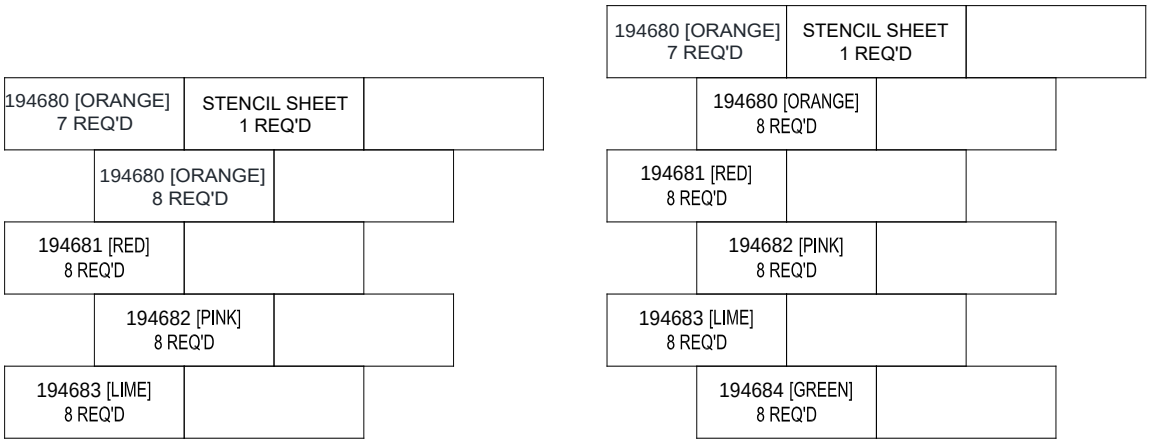


2106STRH

NOTES:

1. Colors match part number label and indicate wall sheet thickness
2. Stencil Sheet is AGI - 194896 [194897] (ORANGE) or WESTEEL - 194652 [194547] (ORGANGE)

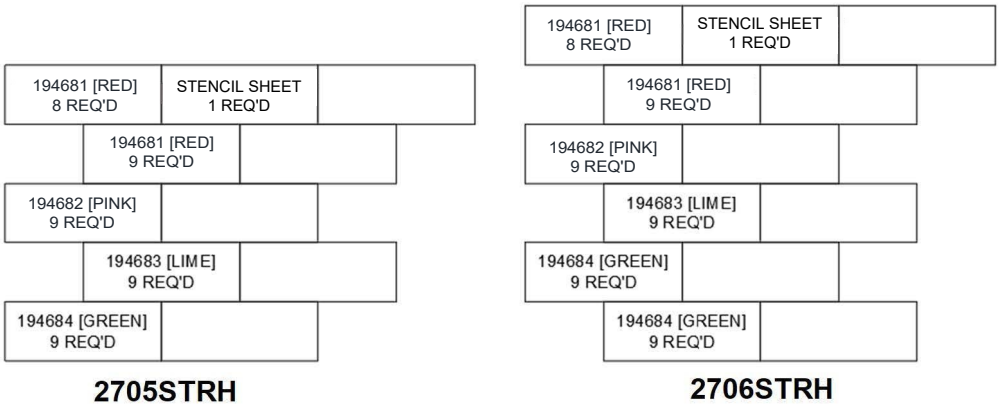
Table 9. Model 2405STRH to 2406STRH



NOTES:

1. Colors match part number label and indicate wall sheet thickness
2. Stencil Sheet is AGI - 194896 [194897] (ORANGE) or WESTEEL - 194652 [194547] (ORGANGE)

Table 10. Model 2705STRH to 2706STRH



NOTES:

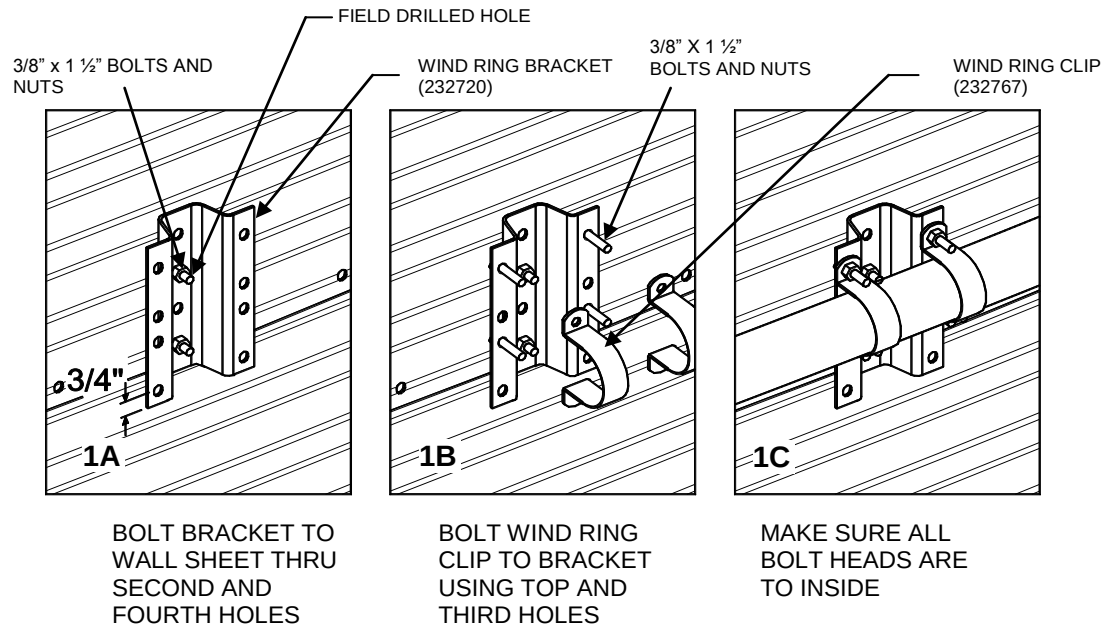
1. Colors match part number label and indicate wall sheet thickness
2. Stencil Sheet is AGI - 194925 [194348] (LIME) or WESTEEL - 194653 [194548] (LIME)

5.11. Wind Ring Assembly

One or more optional wind rings may be installed to increase the wind resistance of the bin when empty, for high wind areas. Typically, one wind ring is installed at the bottom of the top tier of wall sheets. Two wind ring brackets (232720) per sheet are attached to the outside of the wall sheet using two 3/8” x 1 ½” bolts (193797).

1. Position the first bracket approximately 28” in from a vertical wall sheet seam at the fourth bolt hole in the horizontal seam.
2. Orientate the bracket with the 0.75” mounting hole down, as shown in Detail 1A in Figure 33 on page 61.
3. Line up the 2nd and 4th holes from the top onto the bolt hole at the horizontal seam and the crest of the corrugation 4” above.
4. Use the bracket as a template to drill the upper hole (13/32” or 7/16” dia) through the wall sheet and attach.
5. Position the second bracket on the wall sheet 56.25” (6 bolt spacings) removed from the 1st bracket, as shown in Figure 34 on page 62, field drilling and attaching it in the same manner.
6. Repeat on other wall sheets around the bin.

Figure 33. Mounting the brackets and ring



Adjacent tubes are aligned and secured to each other with wind ring splices (232769). A 3/8” x 3¾” bolt (235949) through the splice keeps it centered on the connection.

Figure 34. Bracket and splice positioning

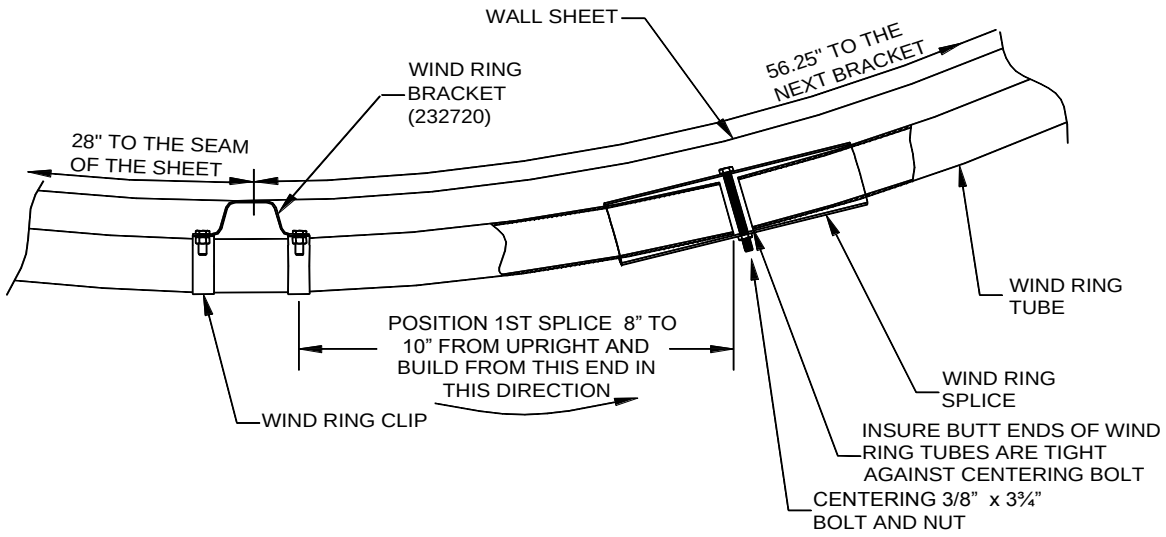
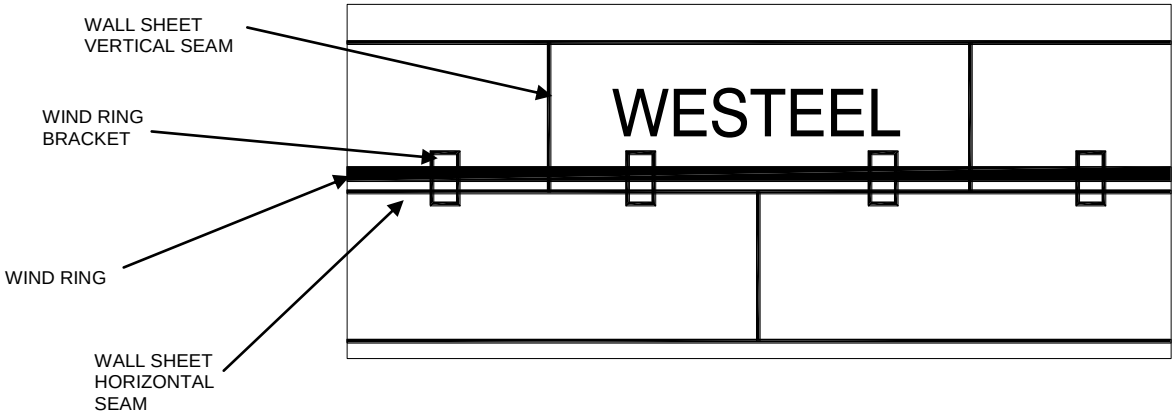


Figure 35. Wind Ring Placement



Externally Stiffened Bins

1. Once the wind ring brackets have been secured to the bin walls, position the first wind ring tube and secure it to the bracket using the wind ring clips provided.

   The clips use the 1st and 3rd holes on the bracket flanges as shown in Detail 1B in Figure 33 on page 61. Two clips are required per bracket, one on each flange.

2. Position the wind ring such that a wind ring splice (with bolt inserted) can be slipped onto the end of the tube without interfering with the upright or the wind ring clips.

   The splice should be orientated such that the bolt is horizontal.

3. Insert the end of the next wind ring tube into the open end of the wind ring splice.
4. Ensure that the ends of both tubes are tight against the centering bolt.
5. Secure the wind ring tube to the brackets with the wind ring clips.
6. Continue around the bin.

Tip

When placing the first wind ring tube in place, place one end close to an upright with a 8” to 10” overhang, and continue building from that end. This will reduce the need for multiple cuts.

7. Make all wind ring splice connections in the space between brackets. Do not encroach into the area where the wind ring clips are securing the wind ring tube to the brackets.
8. To avoid interference with brackets and the need to make multiple cuts, position an end of the first tube relatively close to a bracket, such that the space between the end of the tube and the next bracket is maximized, and build from that end.
9. Ensure that both ends of the tube are far enough away from the closest brackets to avoid interference with the splice.

   When progressing around the bin, this space between the end of the tube and the next brackets may shrink with each additional tube that is installed. On large diameter bins, if this space shrinks to the point where the wind ring splice interferes with the bracket, then the tube will need to be cut. Make the cut such that the space that is created between the end of the tube and the next bracket is similar to the identical space on the first tube that was installed. In this manner, there will not be a shortage of tube.

   Tip

   When tightening wind ring clips, always tighten in sequence starting at the spliced end of the tube, which has already been secured, and work towards the free, and as yet unspliced, end.

10. The final wind ring tube in a circle will need to be cut to length. Secure one end of the last tube in the previously installed wind ring splice as described above.
11. Hold the tube in place and mark the cut-line relative to the previously installed tube at the other end.
12. Ensure that allowance is made for the 3/8” diameter bolt.
13. Once the tube has been cut, install one end of the tube as described above.
14. On the other end slide the wind ring splice completely onto the free end.
15. Position this end relative to the previously installed tube, and slide the splice onto the second tube until it is centered.
16. Insert the centering bolt.
17. Install all wind ring clips.
18. Tighten all bolts.

5.12. Door Installation

Install the door from the inside of the bin using 3/8” x 1½” bolts. The door should overlap the top spacer sheet as shown below. Place caulking on the top spacer sheet above and below the row of holes where it will meet with the door frame. The bottom spacer sheet overlaps the door from the inside as shown. Place caulking above and below the row of holes where it will meet the door frame. Both spacer sheets must be installed below the door if auger chute and full floor aeration are used. Locate door tie-back to secure door in open position.

Any of the chain links can be used to bolt through to the bin at an existing or field drilled wall sheet or stiffening hole. Chain links can be cut if shorter door tie back is needed. The door tie back uses a hook to attach to the door handle’s lockable ring.

Figure 36. Door Installation Detail

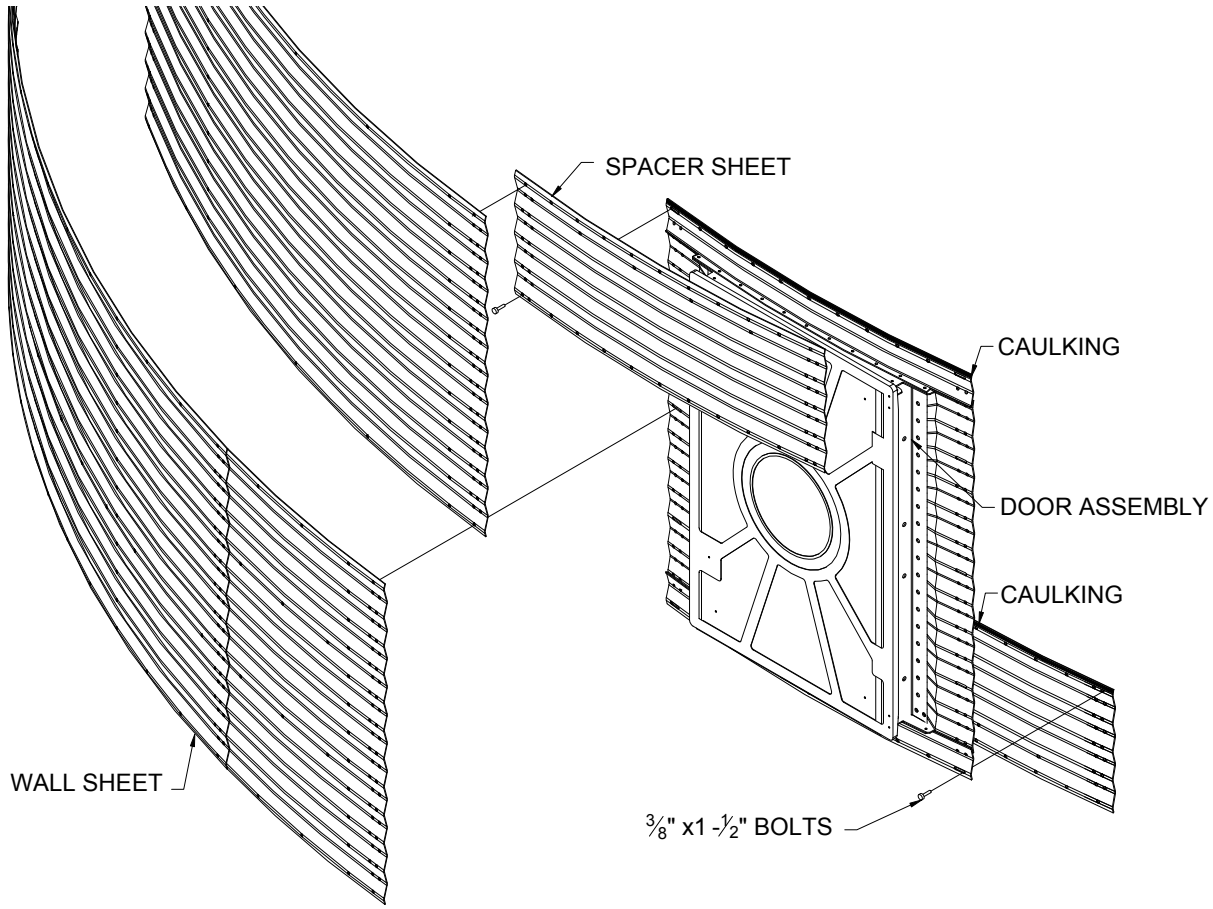


Table 11. Door Types

Standard c/w Two Door Boards – 236810		Standard c/w Auger Chute – 236830 + 236840*	
1505	1506	1505	1506
1805	1806	1805	1806
2105	2106	2105	2106
2405	2406	2405	2406
2705	2706	2705	
3005	3006		
3305	3306		
3605	3606		

Table 11 Door Types (continued)

Standard c/w Two Door Boards – 236810		Standard c/w Auger Chute – 236830 + 236840*	
3905	3906		
4205	4206		
4505	4506		
4805	4806		

*For the standard door with Auger Chute both 236830 and 236840 need to be ordered

- Entries that are bordered must use 236869 Support Kit if using Auger Chute. For all others it is optional. -

5.13. Door Cover Sidewall Latch Installation

Install the door cover sidewall latch (236783) on the swing side of the door cover.

- When possible, re-use the bin bolt on the horizontal wall sheet seam that lines up with the door cover.
- If existing bin bolt cannot be used, drill a 7/16" hole on top of a wall sheet corrugation approximately halfway up the door cover and install latch with a 3/8" bin bolt and nut. Use the door cover swing to help position the field drill hole.

Important

The door cover should snap shut and sit within the channel on the latch once installation is complete.

Figure 37. Door Sidewall Latch (236783)

(Supplied with the door frame and not included in the parts box.)

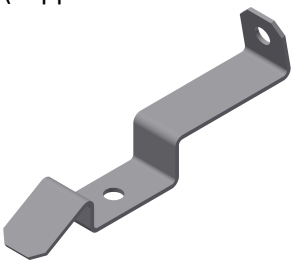
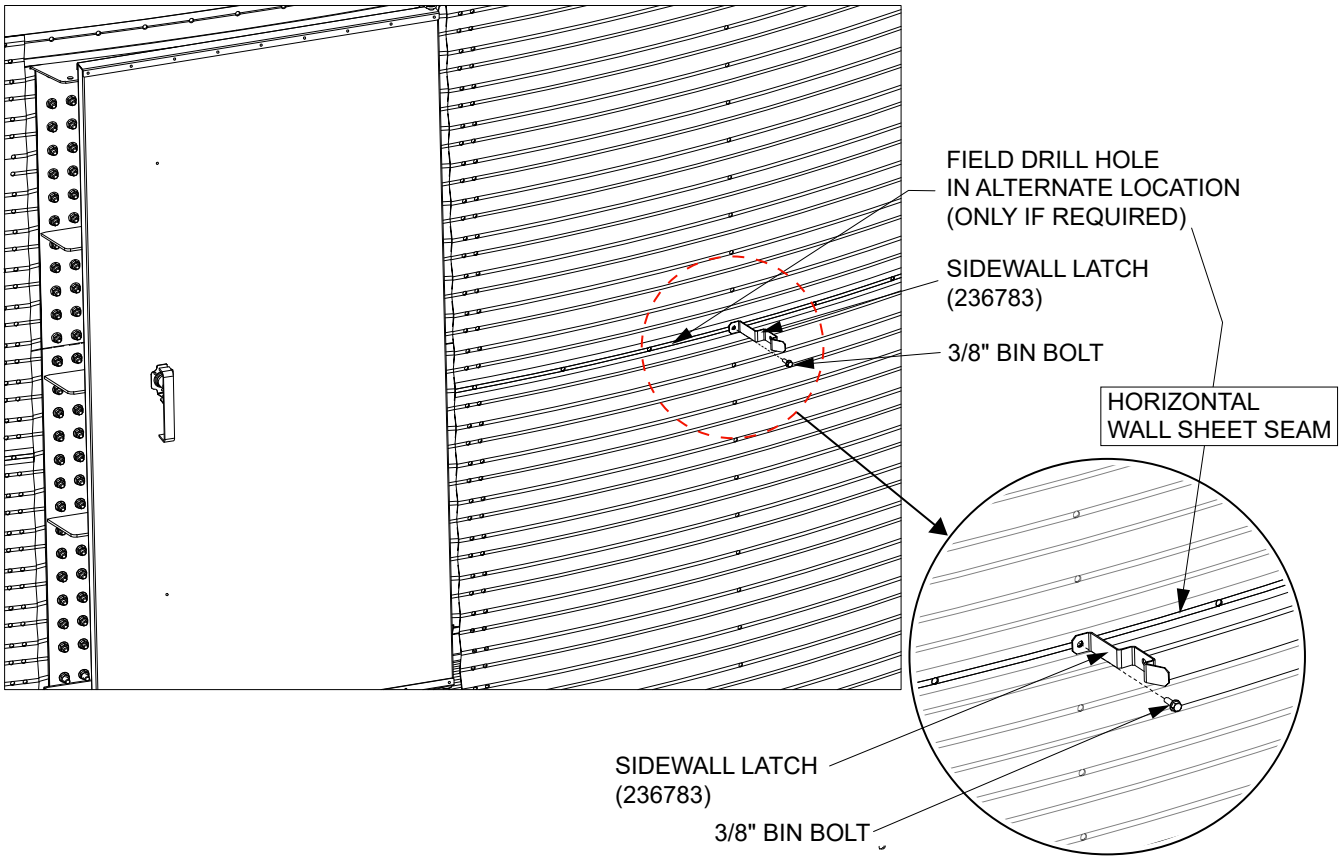


Figure 38. Install the Sidewall Latch



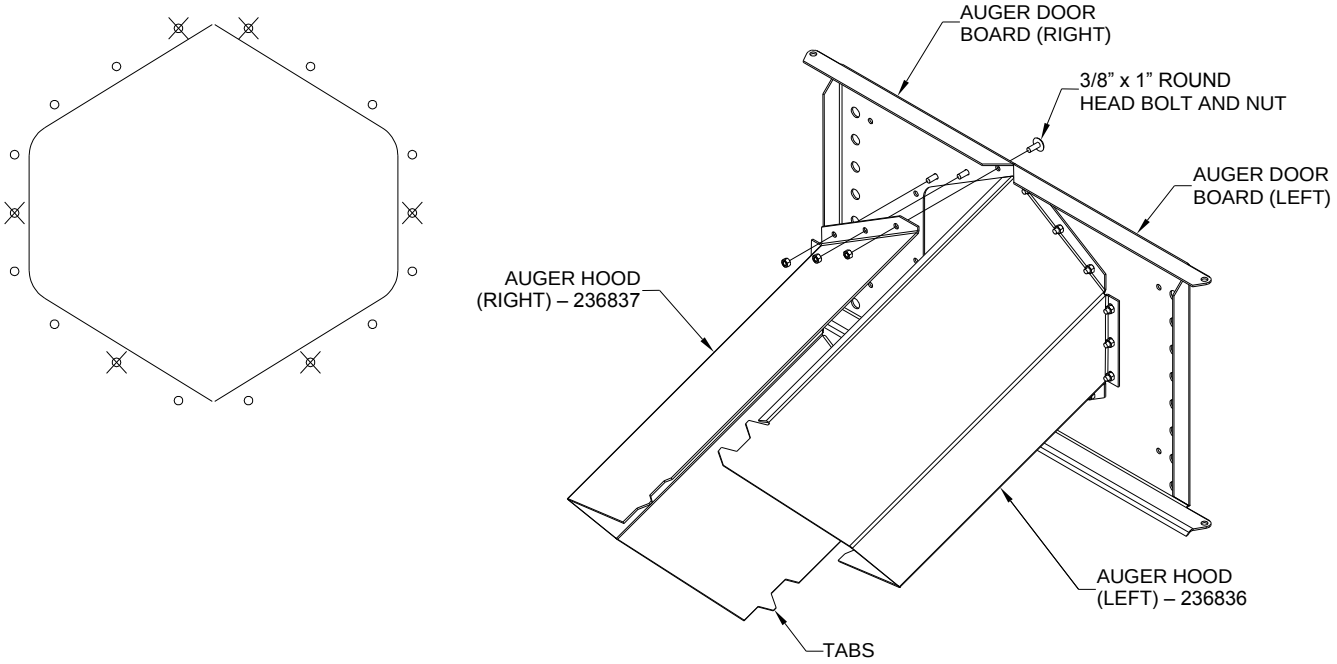
5.14. Auger Chute Installation

Bolt the auger chute hood to the auger door board, as shown below using the 3/8" x 1" round head bolts (150594) provided with the door. Install the auger hood pieces with the door board closed. Before tightening the nuts, position the two auger hoods such that the tabs near the back of the auger hoods fit snugly together and such that the top seam where the left and right chutes come together is sealed tight. Tighten nuts.

Note

If planning to use an auger hood block-off plate, use 3/8" x 1-½" bolts as illustrated below at the six locations marked with an “X”.

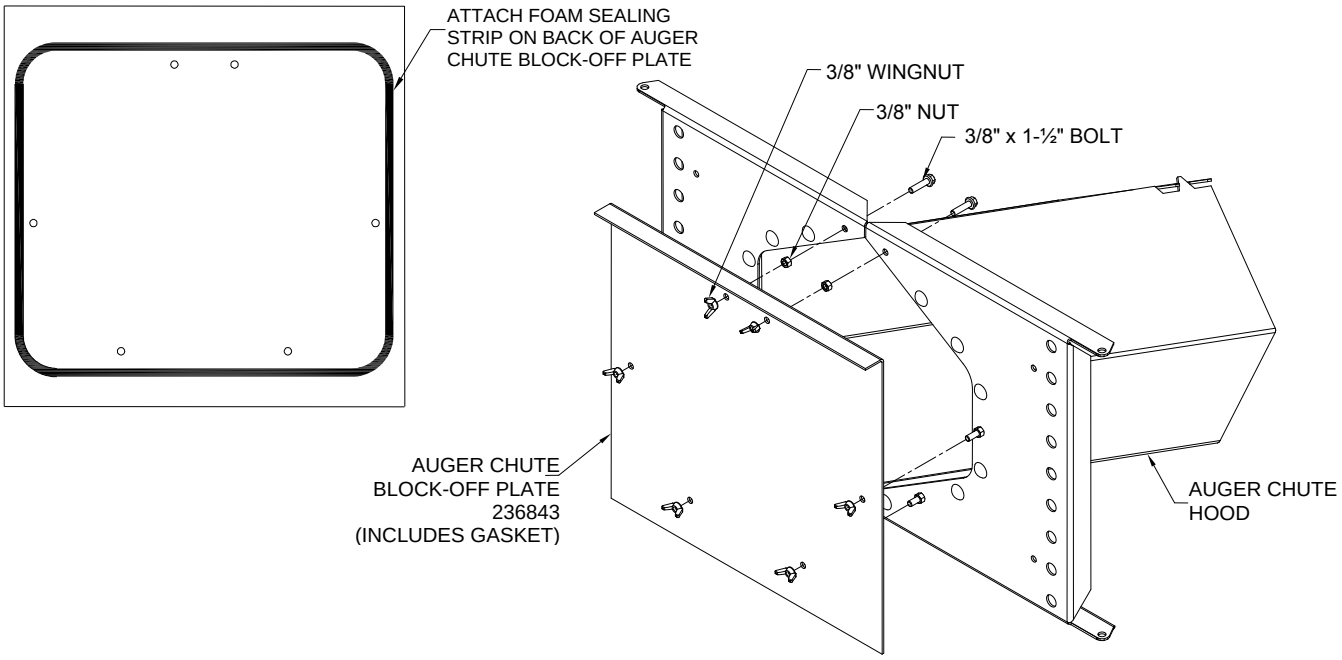
Figure 39. Auger Chute Detail



5.15. Auger Chute Block-Off Plate Installation

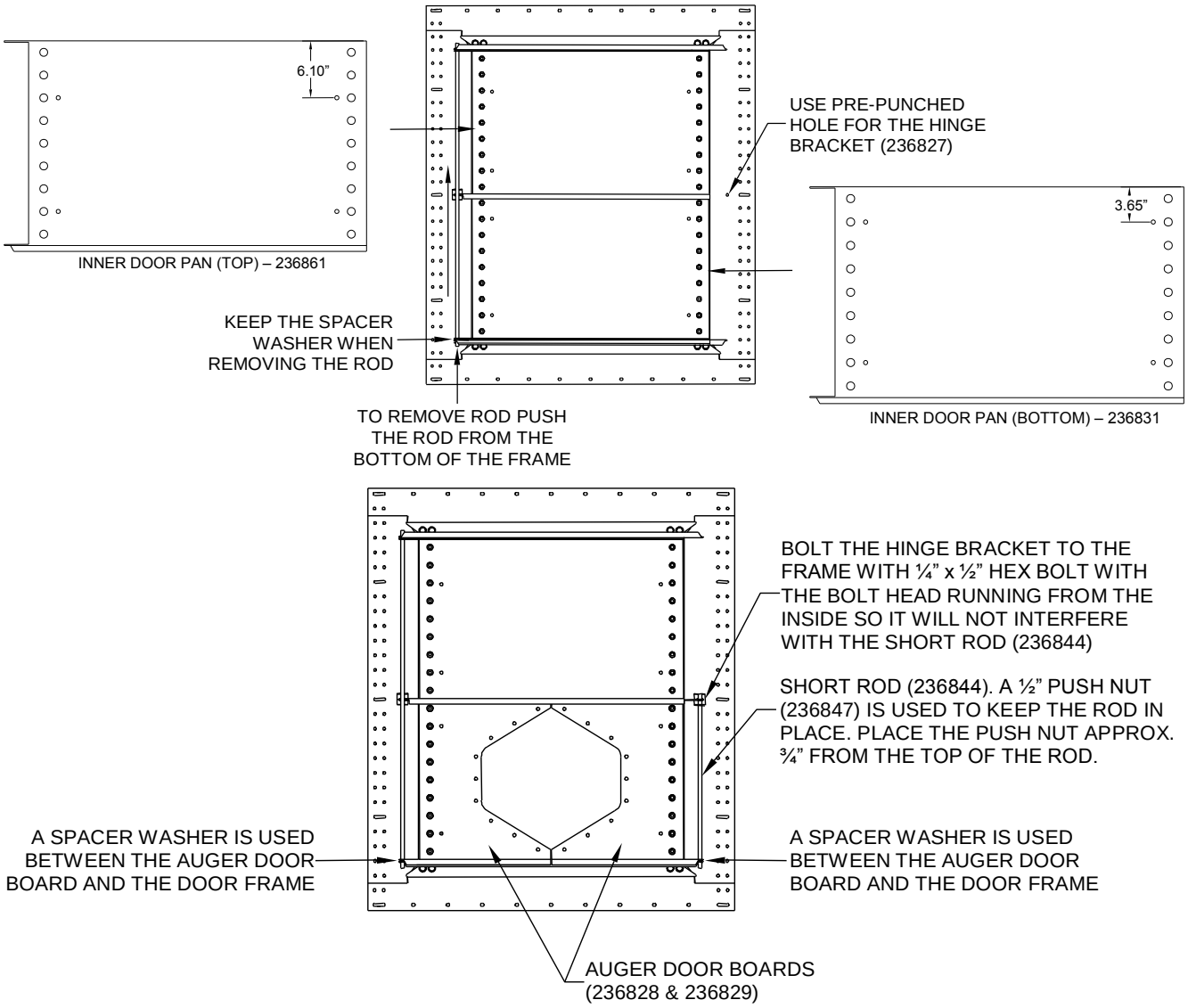
Bolt the auger chute block-off plate to the auger door boards using 3/8" x 1-½" bolts, 3/8" nut and 3/8" wing nut as shown below and remove the corresponding round head bolts. To remove the plate, remove the wing nuts.

Figure 40. Auger chute Block-Off Plate Detail



5.16. Door Conversion

Figure 41. Door Conversion Detail



To convert a standard door configuration to an auger hood version:

1. Remove the lower door board by pushing up the long hinge rod sufficiently to clear the door board. Save the spacer washer at the bottom of the door board.
2. Insert the proper auger door board as shown. Reinsert the long rod and spacer washer.
3. Bolt the hinge bracket to the frame using ¼" x ¾" hex bolts. Put the head of the bolt on the inside of the door. Orient the hinge bracket similar to the other hinge bracket on the other side.
4. Put the ½" push nut on one end of the short hinge rod. Push it down about ¾".
5. Position the second auger door board and insert the short rod through the hinge bracket, through the auger door board and through the door frame at the bottom. Remember to insert the spacer washer as shown.
6. Bolt on the auger chutes as provided elsewhere.

To convert an auger hood door version to a standard door configuration:

1. Remove the two auger door boards by pulling the hinge rods sufficiently to clear them. The short rod can be removed completely. Save the spacer washer.
2. Insert the lower door board and reinsert the long hinge rod. Remember to insert the spacer washer.
3. Be sure that the top and bottom door boards are positioned properly with respect to each other. This can be determined by the handle location on the door as shown above (6.1" from the top on the top door board and 3.65" from the top on the bottom door board). Another check is to insure that the handles align with the mating studs on the door frame.

5.17. Hopper Cone to STRH Bin Installation

New Bin Application

Use only AGI Hopper Cones which are specifically designed to suit AGI Wide-Corr Bins. When installing a hopper cone to a new bin installation refer to the following instructions:

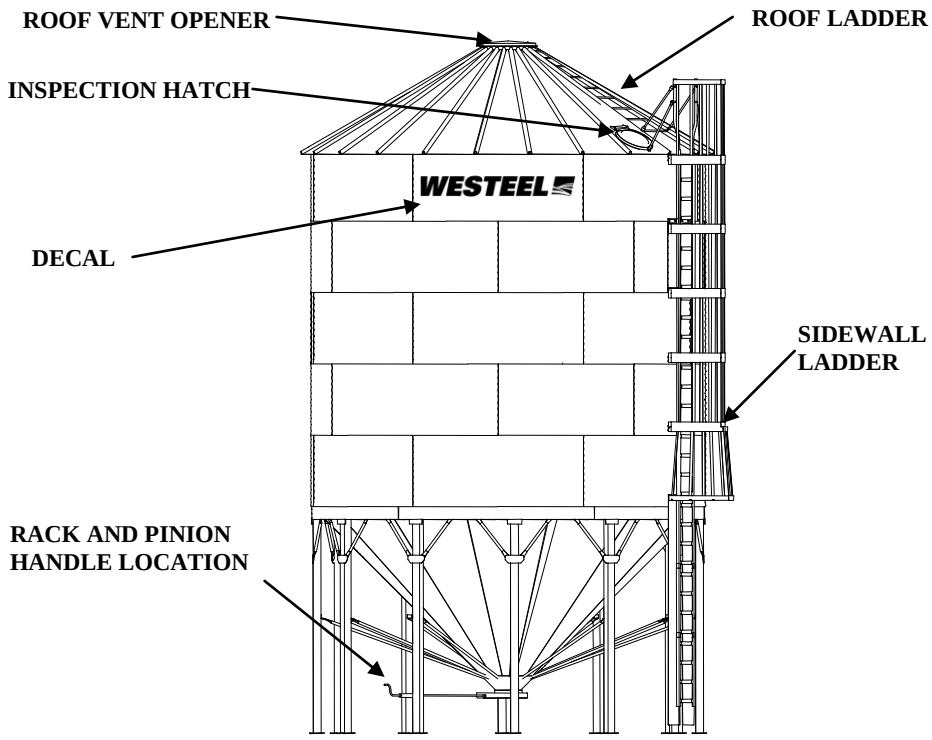
1. Pour the foundation as per instructions provided with your hopper.
   - Ensure the foundation has fully cured before continuing the assembly of your bin.
   - If a AGI skid base is used, a compacted gravel base can be used instead of a concrete foundation.
   - Follow the soil bearing information and site preparation instructions in Section 3. – Before You Begin on page 13.
2. Assemble the bin as per the instructions in Section 5. – Assembly on page 27.
   - For wall sheet layouts for the 18’ – 27’ bin for hopper, refer to .
   - The bottom ring angle and door installation instructions may be disregarded when your WC bin is installed on a hopper cone.
3. Position hopper cone on foundation and align hopper with bin as shown in Figure 42 on page 71.
   - Ensure all bottom holes on the bottom wall sheets are clear of bolts.
4. Use of a bin crane to lift your bin is recommended.
   - Ensure the crane and all other lifting devices have adequate capacity to handle the maximum bin weight safely.
   - Lift the bin by placing a round support or 'tripod' inside the bin, directly under the vent collar.
5. Leave the vertical seam bolts loose on the bottom tier only for easy assembly.
6. Align the bin with the cone as shown in Figure 42 on page 71.
7. Fasten the bin to hopper cone with 3/8” x 1-1/2" bolts, nuts and washers.
8. Insert one bolt on one side, the next bolt on the opposite side of bin, then the next two bolts at right angles to the first two.

   This will position the bin on the hopper properly.
9. Once the bin is in place, insert all other bolts and tighten the loose bolts.

Important

- Use only lifting devices of adequate rated capacity.
- Make sure the hopper cone is level and all load points contact the foundation.
- Make sure all fasteners are tightened as per torque instructions in Section 7.5 – Recommended Bolt Assembly on page 87.
- Augers should not extend into the hopper cone.

Figure 42. Hopper Cone to Bin Installation



6. Specifications

6.1. Wide-Corr® CIRC Series Grain Bin Specifications

Note

Farm series bins up to and including 10,000 bushels, can use the auger chute. All other bins require center unloading equipment.

Table 12. Wide-Corr® CIRC Series Grain Bin Specifications

MODEL	NO OF TIERS	BIN DIAMETER	MAXIMUM CAPACITY			EAVE HEIGHT		OVERALL HEIGHT	
			bu(1)	m²	Tonnes(2)	ft	m	ft	m
1505CIRC	5	14’11” 4.55 m	2940	98	80	18.5	5.64	22.6	6.89
1506CIRC	6		3490	116	95	22.2	6.76	26.3	8.01
1805CIRC	5	17’11” 5.46 m	4290	143	116	18.5	5.64	23.5	7.16
1806CIRC	6		5080	169	138	22.2	6.76	27.1	8.27
2105CIRC	5	20’11” 6.37 m	5910	197	160	18.5	5.64	24.3	7.42
2106CIRC	6		6980	233	189	22.2	6.76	28.0	8.54
2405CIRC	5	23’10” 7.28 m	7820	261	212	18.5	5.64	25.2	7.68
2406CIRC	6		9220	308	250	22.2	6.76	28.9	8.80
2705CIRC	5	26’10” 8.19 m	10010	335	272	18.5	5.64	26.1	7.94
2706CIRC	6		11780	394	320	22.2	6.76	29.7	9.06
3005CIRC	5	29’10” 9.10 m	12510	419	339	18.5	5.64	26.5	8.09
3006CIRC	6		14700	491	399	22.2	6.76	30.2	9.20
3305CIRC	5	32’10” 10.01 m	15320	513	416	18.5	5.64	27.4	8.35
3306CIRC	6		17960	601	487	22.2	6.76	31.1	9.47
3605CIRC	5	35’10” 10.91 m	18450	618	500	18.5	5.64	28.3	8.61
3606CIRC	6		21590	723	586	22.2	6.76	31.9	9.73
3905CIRC	5	38’10” 11.82 m	21900	734	594	18.5	5.64	29.1	8.87
3906CIRC	6		25590	857	694	22.2	6.76	32.8	9.99
4205CIRC	5	41’9” 12.73 m	25690	862	697	18.5	5.64	30.0	9.14
4206CIRC	6		29970	1004	813	22.2	6.76	33.6	10.25
4505CIRC	5	44’9” 13.64 m	29830	1001	809	18.5	5.64	30.8	9.40
4506CIRC	6		34740	1165	942	22.2	6.76	34.5	10.52
4805CIRC	5	47’9” 14.55 m	34320	1153	931	18.5	5.64	31.7	9.66
4806CIRC	6		39910	1338	1083	22.2	6.76	35.4	10.78

CAPACITIES SHOWN INCLUDE 28° ROOF CONE.

1. Based on 1.244 cu. ft. per Bushel and 6% compaction in cylinder.
2. Based on 770 kg/m^3 and 6% compaction in cylinder.

Note

Upgraded STIR or CIRC bins should be used with stirring or recirculating devices

6.2. Wide-Corr® STIR Series Grain Bin Specifications

Note

Farm series bins up to and including 10,000 bushels, can use the auger chute. All other bins require center unloading equipment.

Table 13. Wide-Corr® STIR Series Grain Bin Specifications

MODEL	NO OF TIERS	BIN DIAMETER	MAXIMUM CAPACITY			EAVE HEIGHT		OVERALL HEIGHT	
			bu(1)	m²	Tonnes(2)	ft	m	ft	m
1805STIR	5	17’11” 5.46 m	3250	108	88	18.5	5.64	23.5	7.16
1806STIR	6		4040	134	110	22.2	6.76	27.1	8.27
2105STIR	5	20’11” 6.37 m	4430	147	120	18.5	5.64	24.3	7.42
2106STIR	6		5500	183	149	22.2	6.76	28.0	8.54
2405STIR	5	23’10” 7.28 m	5790	192	157	18.5	5.64	25.2	7.68
2406STIR	6		7180	239	195	22.2	6.76	28.9	8.80
2705STIR	5	26’10” 8.19 m	7320	243	199	18.5	5.64	26.1	7.94
2706STIR	6		9090	302	247	22.2	6.76	29.7	9.06
3005STIR	5	29’10” 9.10 m	9040	300	245	18.5	5.64	26.5	8.09
3006STIR	6		11230	373	304	22.2	6.76	30.2	9.20
3305STIR	5	32’10” 10.01 m	10940	364	297	18.5	5.64	27.4	8.35
3306STIR	6		13580	451	368	22.2	6.76	31.1	9.47
3605STIR	5	35’10” 10.91 m	13020	433	353	18.5	5.64	28.3	8.61
3606STIR	6		16160	537	438	22.2	6.76	31.9	9.73
3905STIR	5	38’10” 11.82 m	15280	508	414	18.5	5.64	29.1	8.87
3906STIR	6		18970	630	515	22.2	6.76	32.8	9.99
4205STIR	5	41’9” 12.73 m	17720	589	481	18.5	5.64	30.0	9.14
4206STIR	6		22000	731	597	22.2	6.76	33.6	10.25
4805STIR	5	47’9” 14.55 m	23140	769	628	18.5	5.64	31.7	9.66
4806STIR	6		28740	955	779	22.2	6.76	35.4	10.78

CAPACITIES SHOWN INCLUDE 28° ROOF CONE.

1. For STRH bins, these specifications are for the bin section only, and do not include the hopper section.
2. Based on 1.244 cu. ft. per bushel and 6% compaction in cylinder.
3. Based on 770 kg/m³ and 6% compaction in cylinder.

Note

Upgraded STIR or CIRC bins should be used with stirring or recirculating devices.

6.3. Foundation Loads - Farm Bin (CIRC)

Important

- Grain Bin Anchoring: Adequate anchoring is critical to a successful bin installation. The anchoring of the bin is dependent on local wind loading conditions and forms part of the site specific design requirements. The anchor bolt details must form part of the site specific foundation design.
- For stiffened bins the primary anchor bolt locations are through the base plates at each and every upright location. The anchor bolt design, plus connection details to the base plate, must accommodate the total shear and uplift loads that can occur due to wind loading at the site in question.
- In addition AGI suggests the use of 1/2" x 3" embedment anchor bolts through the bottom ring angle to insure bin roundness, for sealing purposes, and for additional localized lateral stability.

Table 14. Foundation Loads — Farm Bin (CIRC) 15', 18' & 21' (Imperial-Unfactored)

Model		1505	1506	1805	1806	2105	2106
Vertical dead load	lbs/ft	70	88	72	90	73	91
Vertical grain load	lbs/ft	2,478	3,527	3,697	4,958	2,654	3,828
Vertical roof snow load *	lbs/ft	90	90	109	109	127	127
Vertical roof peak load	lbs/ft	85	85	71	71	61	61
Bin floor pressure	lbs/ft^2	696	765	754	835	802	893
Number of anchor bolts		30	30	36	36	42	42

* Based on maximum snow load of 24 psf

Table 15. Foundation Loads — Farm Bin (CIRC) 24', 27', 30' & 33' (Imperial-Unfactored)

Model		2405	2406	2705	2706	3005	3006	3305	3306
Vertical dead load	lbs/ft	75	93	79	97	81	99	88	107
Vertical grain load	lbs/ft	2,713	3,930	2,760	4,013	2,799	4,081	2,832	4,138
Vertical roof snow load *	lbs/ft	145	145	163	163	181	181	199	199
Vertical roof peak load	lbs/ft	53	53	59	59	53	53	48	48
Bin floor pressure	lbs/ft^2	843	943	880	987	912	1,026	942	1,061
Number of anchor bolts		48	48	54	54	60	60	66	66

* Based on maximum snow load of 24 psf

Table 16. Foundation Loads — Farm Bin (CIRC) 36', 39', 42', 45' & 48' (Imperial-Unfactored)

Model		3605	3606	3905	3906	4205	4206	4505	4506	4805	4806
Vertical dead load	lbs/ft	94	113	96	117	99	120	101	122	104	125
Vertical grain load	lbs/ft	2,859	4,186	2,883	4,228	2,903	4,264	2,921	4,296	2,937	4,324
Vertical roof snow load *	lbs/ft	217	217	235	235	253	253	271	271	290	290
Vertical roof peak load	lbs/ft	44	44	41	41	38	38	36	36	33	33
Bin floor pressure	lbs/ft^2	970	1,094	997	1,124	1,021	1,152	1,045	1,068	1,068	1,205
Number of anchor bolts		72	72	78	78	84	84	90	90	96	96

* Based on maximum snow load of 24 psf

6.4. Foundation Loads - Farm Bin (STIR)

Important

- Grain Bin Anchoring: Adequate anchoring is critical to a successful bin installation. The anchoring of the bin is dependent on local wind loading conditions and forms part of the site specific design requirements. The anchor bolt details must form part of the site specific foundation design.
- For stiffened bins the primary anchor bolt locations are through the base plates at each and every upright location. The anchor bolt design, plus connection details to the base plate, must accommodate the total shear and uplift loads that can occur due to wind loading at the site in question.
- In addition AGI suggests the use of 1/2" x 3" embedment anchor bolts through the bottom ring angle to insure bin roundness, for sealing purposes, and for additional localized lateral stability.

Table 17. Foundation Loads — Farm Bin (STIR) 18', 21' & 24' (Imperial-Unfactored)

Model		1805	1806	2105	2106	2405	2406
Vertical dead load	lbs/ft	67	83	68	83	72	87
Vertical grain load	lbs/ft	1,573	2,110	1,129	1,629	1,154	1,672
Vertical roof snow load *	lbs/ft	109	109	127	127	145	145
Vertical roof peak load	lbs/ft	71	71	61	61	53	53
Bin floor pressure	lbs/ft^2	754	835	802	893	843	943
Number of anchor bolts		36	36	42	42	48	48

* Based on maximum snow load of 24 psf

Table 18. Foundation Loads — Farm Bin (STIR) 27', 30', 33' & 36' (Imperial-Unfactored)

Model		2705	2706	3005	3006	3305	3306	3605	3606
Vertical dead load	lbs/ft	82	97	83	99	85	104	88	106
Vertical grain load	lbs/ft	1,175	1,708	1,191	1,736	1,205	1,761	1,217	1,781
Vertical roof snow load *	lbs/ft	163	163	181	181	199	199	217	217
Vertical roof peak load	lbs/ft	59	59	53	53	48	48	44	44
Bin floor pressure	lbs/ft^2	880	987	912	1,026	942	1,061	970	1,094
Number of anchor bolts		54	54	60	60	66	66	72	72

* Based on maximum snow load of 24 psf

Table 19. Foundation Loads — Farm Bin (STIR) 39', 42' & 48' (Imperial-Unfactored)

Model		3905	3906	4205	4206	4805	4806
Vertical dead load	lbs/ft	89	108	91	110	96	114
Vertical grain load	lbs/ft	1,227	1,799	1,235	1,815	1,250	1,840
Vertical roof snow load *	lbs/ft	235	235	253	253	290	290
Vertical roof peak load	lbs/ft	41	41	38	38	33	33
Bin floor pressure	lbs/ft^2	997	1,124	1,021	1,152	1,068	1,205
Number of anchor bolts		78	78	84	84	96	96

* Based on maximum snow load of 24 psf

7. Appendix

7.1. CIRC/STIR Parts Box Listing (Common Parts)

Table 20. CIRC/STR Parts Box Listing (Common Parts)

Part Number	Description	Unit weight (lbs)	15'	18'	21'	24'	27'	30'	33'	36'	39'	42'	45'	48'
212201	PEAK RING 15	30.7	1	-	-	-	-	-	-	-	-	-	-	-
212203	PEAK RING 18	30.7	-	1	-	-	-	-	-	-	-	-	-	-
212204	PEAK RING 21	30.7	-	-	1	-	-	-	-	-	-	-	-	-
212205	PEAK RING 24	30.7	-	-	-	1	-	-	-	-	-	-	-	-
212206	PEAK RING 27	30.7	-	-	-	-	1	-	-	-	-	-	-	-
VARIES	PEAK RING (30' - 48')		-	-	-	-	-							
212228	PEAK RING FOAM for 15-27, 51-54	0.4	1	1	1	1	1	-	-	-	-	-	-	-
212229	PEAK RING FOAM for 30-48	0.5	-	-	-	-	-	1	1	1	1	1	1	1
185010	CARTON 37x37x9 for BIN PARTS 15-27	9.4	1	1	1	1	1	-	-	-	-	-	-	-
185011	CARTON 53x27x7 for BIN PARTS 30-54	8.3	-	-	-	-	-	1	1	1	1	1	1	1
193062	LADDER RUNG 14.5 (6.0 CTR)	1	-	-	-	-	-	-	-	-	-	-	-	1
193063	LADDER RUNG 14.5 (8.0 CTR)	1	-	-	-	1	1	-	-	1	1	1	1	1
193064	LADDER RUNG 14.5 (10.0 CTR)	1	-	-	1	-	-	1	1	-	-	1	1	-
193065	LADDER RUNG 14.5 (12.0 CTR)	1	-	1	-	-	1	-	-	1	1	1	1	1
193066	LADDER RUNG 16.5 (14.0 CTR)	1.1	1	-	-	1	-	1	1	-	1	-	1	1
193067	LADDER RUNG 18.5 (16.0 CTR)	1.3	-	-	1	-	1	-	1	1	1	1	-	1
193068	LADDER RUNG 20.5 (18.0 CTR)	1.4	-	1	-	1	-	1	-	1	-	1	1	-
193069	LADDER RUNG 22.5 (20.0 CTR)	1.5	-	-	1	-	1	-	1	-	1	-	-	1
193070	LADDER RUNG 24.5 (22.0 CTR)	1.7	1	-	-	1	-	1	-	1	-	-	1	1
193071	LADDER RUNG 26.5 (24.0 CTR)	3.2	-	1	-	-	1	-	1	-	-	1	1	-
193072	LADDER RUNG 28.5 (26.0 CTR)	3.4	-	-	1	-	-	1	1	-	1	1	1	-
193073	LADDER RUNG 30.5 (28.0 CTR)	3.6	1	-	-	1	1	-	-	1	1	1	-	1
193074	LADDER RUNG 32.5 (30.0 CTR)	3.9	-	1	-	-	-	1	1	1	-	-	1	1
193075	LADDER RUNG 34.5 (32.0 CTR)	4.1	-	-	1	1	1	-	-	-	1	1	1	1
193076	LADDER RUNG 36.5 (34.0 CTR)	4.4	-	-	-	-	-	1	1	1	1	1	1	1
193077	LADDER RUNG 38.5 (36.0 CTR)	4.6	1	1	1	1	1	1	1	1	1	1	-	-
193078	LADDER RUNG 40.5 (38.0 CTR)	4.8	-	-	-	-	-	-	-	-	-	-	1	1
195063	STIFFENING RING BRACKET	0.31	-	-	-	-	-	-	33	36	39	42	45	96
195074	STIFFENING RING SPLICE 1.375	1.35	-	-	-	-	-	-	3	3	3	3	3	6
195080	STIFFENING RING GASKET - BAG 50	0.05	-	-	-	-	-	-	1	1	1	1	1	2
195085	STIFFENING RING EXPANDER 1.375	4.66	-	-	-	-	-	-	2	2	2	2	2	5
195149	PEAK RING BULB GASKET 105"	0.9	1	1	1	1	1	-	-	-	-	-	-	-
195150	PEAK RING BULB GASKET 168"	1.44	-	-	-	-	-	1	1	1	1	1	1	1
195638	EAVES SHIM - BAG 115	4.6	-	-	-	-	-	2	2	2	2	1	1	1
195639	EAVES SHIM - BAG 165	6.6	1	1	1	1	1	-	-	-	-	1	1	1
195695	DOOR TIE BACK CHAIN 17.75" LONG	0.52	1	1	1	1	1	1	1	1	1	1	1	1
212230	BIRD STOP	0.127	15	18	21	24	27	30	33	36	39	42	45	48
212231	FOAM ROOF RIB CLOSURE (12)	0.06	2	2	2	2	3	3	3	3	4	4	4	4

Table 20 CIRC/STR Parts Box Listing (Common Parts) (continued)

Part Number	Description	Unit weight (lbs)	15'	18'	21'	24'	27'	30'	33'	36'	39'	42'	45'	48'
212400	RCO SLIDE ROD 15-27	2.45	1	1	1	1	1	-	-	-	-	-	-	-
212401	RCO SLIDE ROD 30-48	3.06	-	-	-	-	-	1	1	1	1	1	1	1
212402	RCO SLIDE ROD ANGLE	2.15	1	1	1	1	1	1	1	1	1	1	1	1
234815	RCO GUIDE RAIL 30-60	0.80	-	-	-	-	-	2	2	2	2	2	2	2
212404	RCO CABLE GUIDE	3.5	1	1	1	1	1	-	-	-	-	-	-	-
212731	LOAD SPREADER TUBE 15	8.6	1	-	-	-	-	-	-	-	-	-	-	-
212732	LOAD SPREADER TUBE 18	8.6	-	1	-	-	-	-	-	-	-	-	-	-
212733	LOAD SPREADER TUBE 21	8.6	-	-	1	-	-	-	-	-	-	-	-	-
212734	LOAD SPREADER TUBE 24	8.6	-	-	-	1	-	-	-	-	-	-	-	-
212735	LOAD SPREADER TUBE 27	8.6	-	-	-	-	1	-	-	-	-	-	-	-
212736	LOAD SPREADER TUBE 30	8.6	-	-	-	-	-	1	-	-	-	-	-	-
212737	LOAD SPREADER TUBE 33-36	8.6	-	-	-	-	-	-	1	1	-	-	-	-
212738	LOAD SPREADER TUBE 39-45	8.6	-	-	-	-	-	-	-	-	1	1	1	-
212739	LOAD SPREADER TUBE 48-54	8.6	-	-	-	-	-	-	-	-	-	-	-	1
212740	FALL RESTRAINT BRACKET	0.3	2	2	2	2	2	2	2	2	2	2	2	2
212789	RUBBER PAD	0.06	2	2	2	2	2	2	2	2	2	2	2	2
232720	UPRIGHT SPLICE	2.14	1	1	1	1	1	1	1	1	1	1	1	1
232767	WIND RING CLIP	0.44	2	2	2	2	2	2	2	2	2	2	2	2
232798	STIFFENING RING EXPANDER CLIP	0.125	-	-	-	-	-	-	2	2	2	2	2	5
234157	U-BOLT, ROUND .312 x 1.75W x 2.8L	0.12	-	-	-	-	-	-	33	36	39	42	45	96
234804	RCO HARDWARE PACKAGE 15- 27	4.79	1	1	1	1	1	-	-	-	-	-	-	-
235151	SELFDRILL SCREW .25 x 1.0 - BAG 7	0.13	-	-	-	-	-	-	1	1	1	1	1	2
234812	RCO ROPE ARM 15-60	4.12	1	1	1	1	1	2	2	2	2	2	2	2
235219	RCO ROPE ARM SUPPORT 15-27	0.26	1	1	1	1	1	-	-	-	-	-	-	-
235220	RCO ROPE ARM SUPPORT 30-48	0.42	-	-	-	-	-	1	1	1	1	1	1	1
235279	RCO ROOF EAVE PLATE	3.02	-	-	-	-	-	1	1	1	1	1	1	1
234808	ROOF CAP 15-27	21.5	1	1	1	1	1	-	-	-	-	-	-	-
234814	RCO PIVOT ARM BRACKET 15-27	0.85	2	2	2	2	2	-	-	-	-	-	-	-
234810	RCO PIVOT ARM 15-27	3.01	1	1	1	1	1	-	-	-	-	-	-	-
234805	RCO HARDWARE PACKAGE 30- 60	7.60	-	-	-	-	-	1	1	1	1	1	1	1
235337	RCO PIVOT ARM BRACKET 30-48	1.37	-	-	-	-	-	2	2	2	2	2	2	2
234811	RCO PIVOT ARM 30-60	7.12	-	-	-	-	-	1	1	1	1	1	1	1
235372	SEALING CLIP for BOTTOM ANGLE	0.12	5	6	7	8	9	10	11	12	13	14	15	16
235798	RCO CABLE 9/32 x 45' GALV	0.75	1	1	1	1	1	1	-	-	-	-	-	-
235799	RCO CABLE 9/32 x 70' GALV	1.14	-	-	-	-	-	-	1	1	1	1	1	1
235817	RCO WINCH ASSEMBLY	5.0	-	-	-	-	-	1	1	1	1	1	1	1
234813	RCO WINCH BRACKET	2.40	-	-	-	-	-	1	1	1	1	1	1	1
235882	INSPECTION HATCH BULB GASKET 76"	0.5	1	1	1	1	1	1	1	1	1	1	1	1
235890	INSPECTION HATCH LID	7.48	1	1	1	1	1	1	1	1	1	1	1	1
235891	INSPECTION HATCH LATCH	0.81	1	1	1	1	1	1	1	1	1	1	1	1
235914	BOLT HFS .313 x 1.00 GR8.2 - BAG 250	8.5	-	-	1	1	1	1	2	2	3	3	4	4
235915	BOLT HFS .313 x 1.00 GR8.2 - BAG 50	1.7	3	4	-	1	3	3	1	2	-	2	-	2
235916	BOLT HFS .313 x 1.25 GR8.2 - BAG 80	3.04	2	2	2	3	3	4	3	4	5	4	5	6
235917	BOLT HFS .313 x 1.25 GR8.2 - BAG 50	1.9	-	1	1	-	1	-	2	1	-	2	1	-

Table 20 CIRC/STR Parts Box Listing (Common Parts) (continued)

Part Number	Description	Unit weight (lbs)	15'	18'	21'	24'	27'	30'	33'	36'	39'	42'	45'	48'
235923	HEX FLANGE NUT .313 - BAG 250	3.5	1	1	2	2	3	3	4	4	5	5	6	7
235925	HEX FLANGE NUT .313 - BAG 50	0.7	2	3	-	2	-	-	-	2	-	3	2	1
235973	WSHR SEAL .313 STL/NEO - BAG 25	0.1	1	1	1	1	1	1	1	1	1	2	2	2
235935	BOLT HFS .375 x 1.50 GR8.2 - BAG 55	3.41	1	1	1	1	1	1	1	1	1	1	1	1
235974	WSHR SEAL .375 STL/NEO - BAG 25	0.16	1	1	1	1	1	1	1	1	1	1	1	1
198843	MANUAL - WC STIR & CIRC BINS	0.2	1	1	1	1	1	1	1	1	1	1	1	1
	Shaded items are not included in the parts box, rather they are shipped individually.													

Table 21. STRH Parts Box Listing (Common Parts)

Part Number	Description	Unit Weight (lbs)	18'	21'	24'	27'
212203	PEAK RING 18	30.7	1	-	-	-
212204	PEAK RING 21	30.7	-	1	-	-
212205	PEAK RING 24	30.7	-	-	1	-
212206	PEAK RING 27	30.7	-	-	-	1
212228	PEAK RING FOAM for 15-27, 51-54	0.4	1	1	1	1
212230	BIRD STOP	0.127	18	21	24	27
212231	FOAM ROOF RIB CLOSURE (12)	0.06	2	2	2	3
185010	CARTON 37x37x9 for BIN PARTS 15- 27	9.4	1	1	1	1
193063	LADDER RUNG 14.5 (8.0 CTR)	1	-	-	1	1
193064	LADDER RUNG 14.5 (10.0 CTR)	1	-	1	-	-
193065	LADDER RUNG 14.5 (12.0 CTR)	1	1	-	-	1
193066	LADDER RUNG 16.5 (14.0 CTR)	1.1	-	-	1	-
193067	LADDER RUNG 18.5 (16.0 CTR)	1.3	-	1	-	1
193068	LADDER RUNG 20.5 (18.0 CTR)	1.4	1	-	1	-
193069	LADDER RUNG 22.5 (20.0 CTR)	1.5	-	1	-	1
193070	LADDER RUNG 24.5 (22.0 CTR)	1.7	-	-	1	-
193071	LADDER RUNG 26.5 (24.0 CTR)	3.2	1	-	-	1
193072	LADDER RUNG 28.5 (26.0 CTR)	3.4	-	1	-	-
193073	LADDER RUNG 30.5 (28.0 CTR)	3.6	-	-	1	1
193074	LADDER RUNG 32.5 (30.0 CTR)	3.9	1	-	-	-
193075	LADDER RUNG 34.5 (32.0 CTR)	4.1	-	1	1	1
193077	LADDER RUNG 38.5 (36.0 CTR)	4.6	1	1	1	1
195639	EAVES SHIM — BAG 165	6.60	1	1	1	1
N032491	SMARTSTIR PEAK BRACKET	1.52	3	3	3	3
195149	PEAK RING BULB GASKET 105"	0.9	1	1	1	1
212400	RCO SLIDE ROD 15-27	2.45	1	1	1	1
212402	RCO SLIDE ROD ANGLE	2.15	1	1	1	1
212404	RCO CABLE GUIDE	3.5	1	1	1	1
212732	LOAD SPREADER TUBE 18	8.6	1	-	-	-
212733	LOAD SPREADER TUBE 21	8.6	-	1	-	-
212734	LOAD SPREADER TUBE 24	8.6	-	-	1	-
212735	LOAD SPREADER TUBE 27	8.6	-	-	-	1
212740	FALL RESTRAINT BRACKET	0.3	2	2	2	2

Table 21 STRH Parts Box Listing (Common Parts) (continued)

Part Number	Description	Unit Weight (lbs)	18'	21'	24'	27'
212789	RUBBER PAD	0.06	2	2	2	2
232720	UPRIGHT SPLICE	2.14	1	1	1	1
232767	WIND RING CLIP	0.44	2	2	2	2
234804	RCO HARDWARE PACKAGE 15-27	4.70	1	1	1	1
234812	RCO ROPE ARM 15-60	4.12	1	1	1	1
235219	RCO ROPE ARM SUPPORT 15-27	0.26	1	1	1	1
234808	ROOF CAP 15-27	21.5	1	1	1	1
234814	RCO PIVOT ARM BRACKET 15-27	0.85	2	2	2	2
234810	RCO PIVOT ARM 15-27	3.01	1	1	1	1
235799	RCO CABLE 9/32 x 70' GALV	1.14	1	1	1	1
235882	INSPECTION HATCH BULB GASKET 76"	0.5	1	1	1	1
235890	INSPECTION HATCH LID	7.48	1	1	1	1
235891	INSPECTION HATCH LATCH	0.81	1	1	1	1
235914	BOLT HFS .313 x 1.00 GR8.2 - BAG 250	8.5	-	1	1	1
235915	BOLT HFS .313 x 1.00 GR8.2 - BAG 50	1.7	4	-	1	3
235916	BOLT HFS .313 x 1.25 GR8.2 - BAG 80	3.04	2	2	3	3
235917	BOLT HFS .313 x 1.25 GR8.2 - BAG 50	1.9	1	1	-	1
235923	HEX FLANGE NUT .313 - BAG 250	3.5	1	2	2	3
235925	HEX FLANGE NUT .313 - BAG 50	0.7	3	-	2	-
235973	WSHR SEAL .313 STL/NEO - BAG 25	0.1	1	1	1	1
235974	WSHR SEAL .375 STL/NEO - BAG 25	0.16	1	1	1	1
198843	MANUAL - STIR & CIRC BINS	0.20	1	1	1	1

7.2. CIRC/STIR Series Pail and Parts Box Listing (Non-Common Parts)

Table 22. CIRC/STR Series Pail and Parts Box Listing (Non-Common Parts)

MODEL	235941	235943	235944	235950	235951	235954	235955	235957	193814	170445	235956	N032491
	BOLT HFS .375 x 1.0 GR8.2 - BAG 325	BOLT HFS .375 x 1.0 GR8.2 - BAG 50	BOLT HFS .375 x 1.25 GR8.2 - BAG 100	HEX NUT .375 - BAG 300	HEX NUT .375 - BAG 100	HEX FLANGE NUT .375 GR5 - BAG 300	HEX FLANGE NUT .375 GR5 - BAG 50	FLAT WASHER .375 - BAG 75	CAULKING 40' ROLL	CAULKING 300 ml TUBE	FLAT WASHER .375 - BAG 200	Hanger Bracket
1505CIRC	3	-	1	3	2	-	2	1	5	2	-	-
1506CIRC	3	5	2	4	2	-	3	2	6	2	-	-
1805STR	3	3	1	4	-	-	2	2	6	2	-	3
1806STR	4	1	1	5	-	-	2	2	7	2	-	3
1805CIRC	3	3	1	4	1	-	2	2	6	2	-	-
1806CIRC	4	3	2	5	2	1	-	2	7	2	-	-
2105STR	4	-	1	4	2	-	2	2	7	2	-	3
2106STR	5	-	1	5	2	-	2	2	8	2	-	3
2105CIRC	4	1	1	5	-	-	2	2	7	2	-	-
2106CIRC	5	2	2	6	2	1	-	-	8	2	1	-
2405STR	4	4	1	5	1	-	2	2	8	2	-	3
2406STR	5	2	2	6	1	-	2	2	9	2	-	3
2405CIRC	4	4	1	5	1	-	2	2	8	2	-	-
2406CIRC	6	1	2	7	1	1	-	-	9	2	1	-
2705STR	5	2	1	6	-	-	3	2	9	2	-	3
2706STR	6	-	2	7	1	-	3	2	10	2	-	3
2705CIRC	5	2	1	6	-	-	3	2	9	2	-	-
2706CIRC	7	-	2	8	1	1	-	1	10	2	1	-
3005STR	1	3	1	2	-	-	3	2	10	2	-	3
3006STR	-	1	2	1	-	-	3	2	11	2	-	3
3005CIRC	1	3	1	2	-	-	3	2	10	2	-	-
3006CIRC	1	1	2	2	-	1	-	1	11	2	1	-
3305STR	-	-	1	-	1	-	3	2	11	2	-	3
3306STR	2	-	2	3	-	1	-	1	12	2	1	3
3305CIRC	-	-	2	-	1	-	3	2	11	2	-	-
3306CIRC	2	-	2	3	-	1	-	1	12	2	1	-
3605STR	-	3	1	1	-	-	3	-	12	2	1	3
3606STR	-	4	2	1	1	1	-	2	13	2	1	3
3605CIRC	1	3	2	2	1	1	-	2	12	2	1	-
3606CIRC	1	5	2	2	2	1	-	2	13	2	1	-
3905STR	1	1	1	1	2	1	-	-	12	2	1	3
3906STR	1	3	2	2	1	1	1	2	14	2	1	3
3905CIRC	-	-	2	-	2	1	1	2	12	2	1	-
3906CIRC	-	4	2	1	1	1	1	2	14	2	1	-
4205STR	1	4	1	2	1	1	-	-	13	2	1	3
4206STR	-	-	2	-	2	1	1	2	15	2	1	3
4205CIRC	-	4	2	1	1	1	1	2	13	2	1	-
4206CIRC	1	3	2	2	1	1	1	2	15	2	1	-

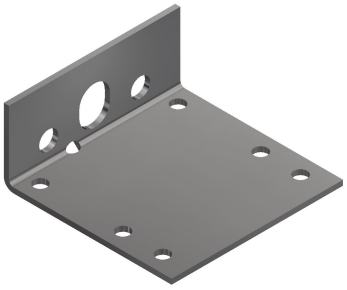
Table 22 CIRC/STR Series Pail and Parts Box Listing (Non-Common Parts) (continued)

MODEL	235941	235943	235944	235950	235951	235954	235955	235957	193814	170445	235956	N032491
	BOLT HFS .375 x 1.0 GR8.2 - BAG 325	BOLT HFS .375 x 1.0 GR8.2 - BAG 50	BOLT HFS .375 x 1.25 GR8.2 - BAG 100	HEX NUT .375 - BAG 300	HEX NUT .375 - BAG 100	HEX FLANGE NUT .375 GR5 - BAG 300	HEX FLANGE NUT .375 GR5 - BAG 50	FLAT WASHER .375 - BAG 75	CAULKING 40' ROLL	CAULKING 300 ml TUBE	FLAT WASHER .375 - BAG 200	Hanger Bracket
4505CIRC	1	2	2	2	1	1	2	-	14	2	2	-
4506CIRC	-	1	2	1	-	1	2	-	16	2	2	-
4805STR	-	4	1	1	-	1	-	1	15	2	1	3
4806STR	1	4	2	2	2	1	2	-	17	2	2	3
4805CIRC	2	-	2	3	-	1	2	-	15	2	2	-
4806CIRC	1	-	2	2	-	1	2	-	17	2	2	-

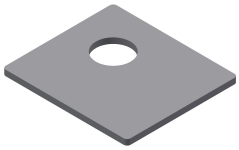
Table 23. STRH Parts Box Listing (Non-Common Parts)

MODEL	235941	235943	235946	235935	235950	235951	235957	193814	170445
	BOLT HFS .375 x 1.0 GR8.2 - BAG 325	BOLT HFS .375 x 1.0 GR8.2 - BAG 50	BOLT HFS .375 x 1.5 GR8.2 - BAG 100	BOLT HFS .375 x 1.5 GR8.2 - BAG 55	HEX NUT .375 - BAG 300	HEX NUT .375 - BAG 100	FLAT WASHER .375 - BAG 75	CAULKING - 40' ROLL	CAULKING - 300 ml TUBE
1805STRH	3	-	1	-	3	2	1	6	6
1806STRH	3	4	1	-	4	1	1	7	6
2105STRH	3	4	1	-	4	1	2	7	7
2106STRH	4	2	1	-	5	-	2	8	7
2405STRH	4	1	1	1	5	-	2	8	8
2406STRH	5	-	1	1	5	2	2	9	8
2705STRH	4	2	1	1	5	1	2	8	9
2706STRH	5	2	1	1	6	1	2	10	9

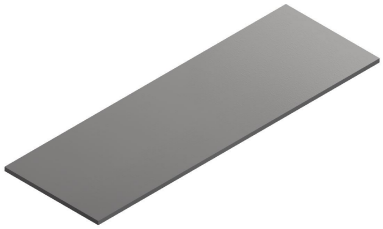
7.3. Parts Identification (Bin) - Parts Box



232735 – Anchor Bracket

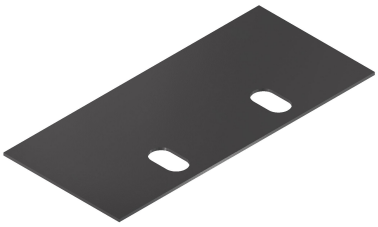


235372 – Bottom Angle Sealing Clip



236583 – SSK Shim (6" x 2")

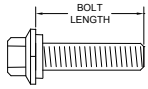
194120 - Grain Gauge



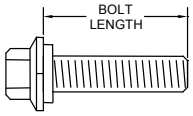
236595 – Shim 7.5 x 3.4 for “F” Profile

7.4. Hardware Usage

Table 24. Roof Hardware

	1/4" x 1" Self Drilling Screw	5/16" x 1" Flanged Hex Bolt (Washer)	5/16" x 1-1/4" Flanged Hex Bolt (Washer)	5/16" Flanged Lock Nut	5/16" STL/NEO Sealing Washer	3/8" x 1-1/2" Flanged Hex Bolt (Washer)	3/8" Hex Nut	3/8" STL/NEO Sealing Washer
	235151 (7)	235914 (250) 235915 (50)	235916 (80) 235917 (50)	235923 (250) 235925 (50)	235973 (25)	235935 (55)	232850 (700) 235950 (300) 235951 (100)	235974 (25)
TOP RING ANGLE to WALL SHEET			●	●				
ROOF SHEET to PEAK RING		●		●				
ROOF SHEET to PEAK RING to HANGAR BRACKET		●		●				
ROOF SHEET to SHIM to TOP RING ANGLE			●	●				
ROOF SHEET RIB to ROOF SHEET RIB		●		●				
LADDER RUNG to ROOF SHEET RIB			●	●	●			
STIFFENING RING BRACKET to ROOF SHEET RIB			●	●				
STIFFENING RING EXPANDER CLIP to STIFFENING RING	●							
ROOF VENT to ROOF SHEET VENT CUTOUT		●		●				
INSPECTION HATCH LID ASSEMBLY to ROOF SHEET HATCH CUTOUT		●		●				
INSPECTION HATCH LATCH to ROOF SHEET		●		●	●			
ROOF SHEET to PEAK RING to FALL RESTRAINT BRACKET		●		●				
WIND RING CLIP to WALL SHEET to UPRIGHT SPLICE						●	●	●
FALL RESTRAINT BRACKET to UPRIGHT SPLICE		●		●				
BIRD STOP to TOP RING ANGLE		●		●				

Bin Hardware

	3/8" x 1" Flanged Hex Bolt (Washer)	3/8" x 1" Round Head Bolt	3/8" x 1-1/2" Flanged Hex Bolt (Washer)	3/8" Flanged Lock Nut	3/8" Hex Nut	3/8" Wingnut	3/8" Flat Washer
	232850 (700) 235941 (325) 235943 (50)	150594	235946 (100) 235935 (55) 193797	235954 (300) 235955 (50)	232850 (700) 235950 (300) 235951 (100) 193805	154208	235956 (200) 235957 (75)
WALL SHEET to WALL SHEET	●				●		
WALL SHEET to BOTTOM RING ANGLE	●			●			●
DRYING FLOOR FLASHING HOLES in BOTTOM WALL SHEET	●				●		
WALL SHEET to DOOR			●		●		
DOOR TIE-BACK to WALL SHEET	●				●		
AUGER CHUTE HOOD to AUGER DOOR BOARD		●			●		
AUGER CHUTE BLOCK-OFF PLATE to AUGER DOOR BOARD			●		●	●	
BIN WALL to HOPPER ASSEMBLY			●		●		●

7.5. Recommended Bolt Assembly

When tightening bolts, tighten the nut on the bolt until a “snug-tightened condition” has been achieved. A “snug-tightened condition” is defined in *Specification for Structural Joints Using ASTM A325 or A490 Bolts* (Research Council on Structural Connections: June 2004), which states:

“*The snug-tightened condition is the tightness that is attained with a few impacts of an impact wrench or the full effort of an ironworker using an ordinary spud wrench to bring the connected plies into firm contact.”*

A properly tightened bolt will compress the sealing washer noticeably. All assembly crew members must be made aware of this requirement, and must know how to achieve a snug-tightened condition using common bin-building tools.

It is important that the bolts in the vertical wall sheet seams are tightened enough to squeeze the caulking and bring the wall sheet surfaces into firm contact with each other. This is especially important to monitor when installing bolts in temperatures approaching -10°C (14°F).

The following table shows the minimum impact gun torque capacity necessary to achieve a snug-tightened condition for bolts used in the assembly process.

Table 25. Recommended Impact Gun Torque Values Capacity to Achieve Snug-Tightened Bolts

Bolt Diameter	Bolt Grade	Grade Mark	Recommended Torque Capacity		
			in-lb	ft-lb	N-m
1/4"	Grade 8.2		75	6	8
5/16"	Grade 8.2		215	18	24
3/8"	Grade 8.2		370	31	42
7/16"	Grade 8.2		600	50	68
1/2"	Grade 8.2		960	80	108
5/8"	Grade 8.2		1800	150	203
3/4"	Grade 5		3230	269	365

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

Hold the bolt head securely when tightening the nut to prevent damage to the sealing washer.

Important

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 AGI.

Important

Do not substitute any other bolts/fasteners for those supplied by the **AGI** factory.

8. Warranty

AGI Grain Bin Products

Ag Growth International, Inc. ("AGI") warrants that the goods and/or services being supplied (the "Goods") will be free from defects in materials and workmanship under normal conditions, use, service, and maintenance, for a period of twelve (12) months from the date of first operation of the Goods, but in no event more than eighteen (18) months from the date of delivery of the Goods to the end-user (or as otherwise set out in the chart below) (the "Warranty Term"). If the Goods are being used for rental purposes, the Warranty Term for the subject Goods shall be limited to 90 days.

Galvanized Bins	5 Years
SureTrack	2 Years
Easyflow2	2 Years
Fans	3 Years
Heaters	1 Year
Side Draw	5 Year
Transitions	3 Years
Roof Exhauster	1 Year
Floors	5 Years
Catwalk	1 Year
Bulk Feed Tanks	2 Years
Hopper Tanks	5 Year
SeedStor-K Cones	
Paint	1 Year
Structural	10 Year
Commercial HBB Hopper	
Paint	1 Year
Structural	10 Year
Welded Cone(s)	
Paint	1 Year
Structural	10 Year
Farm Smoothwall Bins	
Paint	1 Year
Structural	10 Year
Commercial Smoothwall Bins	
Paint	1 Year
Structural	10 Year
SMARTStir Accessories	
Trolley	1 Year
Down Auger	1 Year
Disconnected Box	1 Year
Grain Spreader	1 Year
EasyDry Accessories	
Plenum	5 Year
Controls	1 Year
Blower Heater	1 Year

Subject to AGI's sole discretion, if the Goods, or a component thereof, are found to have a default in materials and/or workmanship within the Warranty Term, AGI will, at its own option and expense, repair or replace the subject Goods or refund the purchase price for the applicable Goods. Any warranty related expenses incurred on behalf of or by the end-user without the prior written consent of AGI shall be the sole responsibility of the end-user. Expenses relating to travel, customs or import duties and tariffs, equipment rental, and any costs associated with accessing the Goods are the sole responsibility of the customer. Warranty shall be void in the event that the Goods are returned or disposed of without the written consent of AGI.

The customer shall not assert a claim that the Goods are defective unless the customer gives written notice to AGI of such defect within forty-eight (48) hours of discovering such defect. In the event of a warranty claim, the customer must complete any and all information

required by AGI in order to properly assess or investigate the claim. AGI shall be given a reasonable opportunity to inspect and test the Goods in question. Failure by the customer to notify AGI of such claim within 48 hours shall operate as a waiver of any and all such claims by the customer.

THIS IS THE SOLE AND EXCLUSIVE WARRANTY GIVEN BY AGI WITH RESPECT TO THE GOODS AND IS IN LIEU OF AND EXCLUDES ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, ARISING BY OPERATION OF LAW OR OTHERWISE, INCLUDING WITHOUT LIMITATION, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE WHETHER OR NOT THE PURPOSE OR USE HAS BEEN DISCLOSED TO SELLER IN SPECIFICATIONS, DRAWINGS, OR OTHERWISE, AND WHETHER OR NOT AGI'S GOODS ARE SPECIFICALLY DESIGNED AND/OR MANUFACTURED BY AGI FOR BUYER'S USE OR PURPOSE.

This limited warranty extends solely to Goods manufactured by AGI and does not cover any third-party parts, components, or materials. To the extent permitted by the manufacturer, AGI will pass on applicable warranties on third-party parts, components or materials to the end-user. This warranty does not extend to any losses or damages due to misuse, use of a kind and/or to a degree not reasonably expected to be made of the Goods, any use of the Goods which is not an intended use as specified in AGI's published product literature or otherwise specified by AGI in writing, accident, acts of God, abuse, neglect, normal wear and tear (including corrosion and cosmetic issues), any equipment attached to or used in conjunction with the Goods, any field modifications or substitutions to original Goods, component damage incurred during shipping and handling, modification or alteration, used beyond rated capacity, or improper installation, maintenance or application.

THE SOLE AND EXCLUSIVE REMEDY FOR ANY CLAIM HEREUNDER SHALL BE LIMITED TO REPAIR, REPLACEMENT, OR REFUND OF THE PURCHASE PRICE. AGI SHALL NOT BE LIABLE FOR DAMAGES CAUSED BY DELAY IN PERFORMANCE AND IN NOT EVENT, REGARDLESS OF THE FORM OF THE CLAIM OR CAUSE OF ACTION (WHETHER BASED IN CONTRACT, INFRINGEMENT, NEGLIGENCE, STRICT LIABILITY, OTHER TORT OR OTHERWISE), SHALL AGI'S LIABILITY TO BUYER AND/OR ITS CUSTOMERS EXCEED THE PURCHASE PRICE OF THE GOODS. BUYER AGREED THAT IN NO EVENT SHALL AGI'S LIABILITY TO BUYER AND/OR ITS CUSTOMERS EXTEND TO INCLUDE INCIDENTAL, CONSEQUENTIAL, OR PUNITIVE DAMAGES. THE TERM "CONSEQUENTIAL DAMAGES" SHALL INCLUDE, BUT NOT BE LIMITED TO, LOSS OF ANTICIPATED PROFITS, LOSS OF USE, LOSS OF REVENUE, FAILURE TO MEET GOVERNMENT AND/OR ADMINISTRATIVE REQUIREMENTS, CLEAN UP COSTS, COST OF CAPITAL AND DAMAGE OR LOSS TO OTHER GOODS, PROPERTY OR EQUIPMENT.

To the fullest extent permitted by law, Buyer, on behalf of itself, its suppliers, their agents, employees or any entity or person for which Buyer is or may be responsible ("Indemnitors") shall fully indemnify, save and hold AGI, its agents, employees, officers, directors, partners and related entities harmless from and against all liability, damage, loss, claims, demands, actions and expenses of any nature whatsoever, including, but not limited to reasonable attorney's fees which arise out of or are connected with: (a) any negligent act, error or omission by any Indemnitor in the performance of this agreement; (b) the failure of the Indemnitor to comply with the laws, statutes, ordinances or regulations of any governmental or quasi-governmental authority; or (c) the material breach of any term or condition of this agreement by any of the Indemnitors. Without limiting the generality of the foregoing, the indemnity hereinabove set forth shall include all liability, damage, loss, claims, demands, and actions on account of personal injury, death or property loss to any third party, any Indemnitee, any of Indemnitee's employees, agents, licensees or invitees. The indemnity set forth herein shall survive any termination of this agreement.

THIS WARRANTY IS NON-TRANSFERABLE AND APPLIES ONLY TO THE ORIGINAL END-USER AND SHALL BE CONSIDERED VOID IF NOT REGISTERED WITHIN 30 DAYS OF RECEIPT OF THE GOODS BY THE ORIGINAL END USER.

AGI is a leading provider of equipment solutions for agriculture bulk commodities including seed, fertilizer, grain, and feed systems with a growing platform in providing equipment and solutions for food processing facilities. AGI has manufacturing facilities in Canada, the United States, the United Kingdom, Brazil, South Africa, India and Italy and distributes its products globally.

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If you have any comments or questions on this manual, or find an error, email us at comments@aggrowth.com.
Please include the part number listed on the cover page in your message.