

Roof Stair

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: 198934 R19 Revised: March 2025 Original Instructions

New in this Manual

Description	Section
New section	Section 5.9 – Optional Elevated Eave Block Off Platform (15'-39' PN 234848) or (42'-135' PN 234849) on page 42
New section	Section 6.3 – Elevated Eave Block Off Platform Parts on page 53
New section	Section 5.8 – Optional Roof Stair Block-Off Assembly on page 39
Updated	Section 5.2 – Planning the Location of Accessories Components on page 12
Updated	Section 5.4 – Typical Roof Stair Installation on page 14
Updated	Section 5.4.2 – Roof Stair Assembly (No Mid-Roof Walk Around) on page 17
Updated	Section 5.3 – Sidewall Accessory Assembly on page 13
Updated	Section 5.5 – Optional Peak Rail Assembly on page 30
Updated	Section 6.1 – Roof Stair Parts Identfication on page 49

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

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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 Roof Stair.

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 roof stair 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.

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. 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.

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.

3. Before You Begin

3.1. 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.

3.2. 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 roof stair installation.
- 2. 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.
- 3. Comply with all assembly instructions provided in the appropriate assembly manual to make sure your whole roof stair is constructed safely.

3.3. 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.



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.

3.4. 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.
- Contact local power officials for minimum power line clearance.
- Tighten all bolts to the recommended torque settings.

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 ladder sections
- Scaffolding

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 safety cages 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.

5. Assembly

5.1. Assembly Safety

• 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 roof stair.
- 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. Planning the Location of Accessories Components

Important

Timing (assembling components in the correct order and relative position) is very important when assembling ladders, circular stairs, eaves rails, roof stairs, platforms and inside ladders, and other bin components. Consideration must be given to this during the planning stages, before assembly of the bin is initiated.

Consider the following:

Inside Ladders

The inside ladder sections bolt to existing holes in the horizontal seams of the wall sheets, which are spaced at a consistent 9 3/8". The inside ladders should also be centered on the roof panel that contains the inspection hatch opening. This roof panel should be centered on the horizontal wall sheet hole that will be the center of the inside ladder sections. Spinning the top ring angles and roof sheets relative to this location on the wall sheets may be required to achieve optimum fit-up.

Roof Stairs

The roof stairs are bolt to the ribs of roof panels, and are positioned to the right or left of the inspection hatch. The hatch should be centered on the inside ladders, if present. It may also be desirable to position the roof stairs relative to some external elements such as overhead conveyors, or catwalks.

The roof panel that the roof stairs are bolted to, must be centered (as much as possible) to the elevated eave platform. To achieve optimum fit-up, it may be necessary to spin the top ring angles and roof sheets relative to the wall sheets, to align this roof panel relative to the intended location of the elevated eave platform.

Uprights

Stiffened bins must be given additional consideration since the external ladder/platform combinations must be mounted on either side of a stiffener location. On a stiffened wall sheet the upright locations can be identified by the line of vertical holes set in from either end. (See .)

Timing Considerations

For fully featured bins containing external ladders, eaves rails, platforms, roof stairs or roof ladders, and inside ladders, the following is an example of the timing considerations that should be undertaken prior to the construction of the bin.

- 1. Select the location of the various ladder or circular stair components relative to external elements such as conveyors or catwalks.
- 2. Select the location of the various ladder or circular stair components relative to other bin elements such as stencil sheets, door openings, remote vent opener, etc.
- 3. Determine the elevated eave platform location, relative to the upright positions. During the initial assembly phases mark these locations on the top ring of wall sheets. For non-stiffened bins this is not a consideration.
- 4. Determine if the inspection hatch is located on the right or left side of the roof stairs.
- 5. Locate the top ring angles and roof panels relative to this position such that the roof panel containing the inspection hatch is centered, as much as possible, on the hole in the wall sheet that is the center of the inside ladder sections.
- 6. In the absence of an internal ladder, center the roof panel to which the roof stairs are being bolted to, on the center of the elevated eave platform.

Note

North American layouts are shown throughout this document, unless otherwise noted.

Figure 1. Accessory Layout Example



5.3. Sidewall Accessory Assembly

When mated with a roof stair, the external ladder, or circular stairs, and elevated eave platform should be assembled as per the assembly instructions contained with those products. Installing these assemblies first will make it easier to position the roof stairs.

5.4. Typical Roof Stair Installation

Figure 2. Typical Roof Stair Module



Note

There are varying lengths of handrails used for different configurations roof stair modules.

- 1. At every post location, bolt on a bracket for post (234132).
- 2. Use a 3/8" x 2 ½" bolt from the tread side, passing it through the bracket, stringer and the handrail post.
- 3. Once the bracket is bolted, install two self-drill screws (234131) per bracket into the stair tread as shown in Figure 3 Detail A.

Important

On all the brackets the upper hole is used to make the connection to the stringer and the post, the only exception to this is the bracket bolted to the first handrail post on the right stringer, which is moved up to allow access to the inspection hatch. In this location the lower hole on the bracket is used to make the connection. Also the lowest hole on that post attaches to the stair tread and stringer as shown in Figure 3 - Detail B.

4. For larger bin diameters, bolt together additional roof stair modules, as shown in the layout drawings.

Bottom Stair Module

Figure 3. Bottom Stair Module



- 1. Install hand-mid rail on each side of the bottom stair.
- 2. Install self-drilling screws through both rails at each joint location.

5.4.1 Roof Stair Module Layouts

Table 1. Roof Stairs (In Assembly Order)

BIN MODEL				STAIR TREA				
15'	5							
18'	7							
21'	8							
24'	6	5						
27'	5	7						
30'	6	7						
33'	8	7						
36'	8	8						
39'	5	7	7					
42'	6	7	7					
45'	6	8	8					
48'	8	8	7					
51'	5	7	7	7				
54'	6	7	7	7				
60'	8	8	7	7				
66'	6	6	6	8	8			
72'	8	8	8	7	7			
75'	8	8	8	8	7			
78'	7	7	7	7	7	7		
84'	5	5	7	7	7	7	7	
90'	8	8	8	8	8	8		
96'	6	6	8	8	8	8	8	
102'	7	7	7	7	7	7	7	7
105'	8	8	7	7	7	7	7	7
108'	5	5	8	8	8	8	8	8
NOTE: SHA	DED MODUL	E IS THE BOT	TOM MODU	LE	·		•	

Table 2. Non-Common Part Numbers

DESCRIPTION	5 TREAD MODULE	6 TREAD MODULE	7 TREAD MODULE	8 TREAD MODULE
STRINGER RIGHT	234059	234057	234055	234053
STRINGER LEFT	234058	234056	234054	234052

5.4.2 Roof Stair Assembly (No Mid-Roof Walk Around)

The following assembly instructions should be used in combination with the layouts provided in Section 5.4.1 – Roof Stair Module Layouts on page 16 for the bin diameter under construction. The layouts provide part numbers, and relative positioning of the principle components.

General

- 1. Unless otherwise noted, use 3/8" x 1" bolts and nuts for roof stair assembly.
- 2. Assemble as much as possible on the ground, then lift the completed assembly into place and secure it to the bin roof structure.
- 3. To determine the part numbers and their locations for the bin diameter being assembled, refer to Section 5.4.1 Roof Stair Module Layouts on page 16.
- 4. If multiple stringer sections are being utilized, assemble these sections together.
- 5. Note that there are left and right stringer sections, and that the stringer flanges point outward.

Assemble Stringers

1. Bolt together the stringer sections as shown in Figure 4.

Figure 4. Stringer Assembly



- 2. Bolt on the stair treads.
- 3. Complete the stair assembly as shown in Figure 5.



Note

For the larger bin diameters with many stair modules, assemble the stair in manageable parts and bolt the mating assemblies together as they are fitted to the roof.

Install Z-Supports

1. Bolt Z-supports to the stringers at the hole locations in the bottom flanges.

There should be a Z-support at every hole location.

2. Make sure the flange with the multiple slots is positioned downwards and mates to the roof ribs.

On the top flange of the Z-support there are three possible bolting locations. These allow the roof stairs to be shifted to the right or left in relation to the underlying roof panels.

3. Use the center bolting location, if possible.

At the bottom end of the roof stairs, it may be necessary to shift the Z-support to the right or left if there is the possibility of it interfering with the operation of the inspection hatch, or if it interferes with the use of the internal ladder sections. (See Figure 6.)





Note

For 60' – 108' Diameter Bins (Without a mid-roof walk around): For bins where there is a step in the roof ribs, there are two sizes of Z-supports to accommodate the additional height at the bottom of the roof.

- The standard Z-section (234070) is 4" high. These are used at the top of the roof.
- The extended Z-sections (234104) are 7 %" high and are used at the bottom of the roof.

(See Figure 7.)



Figure 7. Installing Z-supports on larger commercial roofs (without a mid-roof walk around)

Mount the Roof Stairs on the Roof

1. Position the roof stairs, so that the front edge of the bottom tread is aligned with the toe board of the elevated eave platform.

Figure 8. Mounting the roof stairs





- 2. For best results center the roof stair on the roof panel, and on the elevated eave platform. (See Timing Considerations.)
- 3. Drill hole locations into the roof ribs as required and secure with hardware.
- 4. Put the sealing washer on the inside to ensure a water tight seal.

Note

If the layouts are followed correctly, and if the roof stairs are located properly, there should be no interference between the Z-supports and existing bolt locations along the roof rib.

- 5. If interference does occur, move the complete stair assembly up or down slightly to avoid these bolt locations.
- 6. Alternately, rotate the Z sections at these locations such that the bottom flange is pointing upwards.

Connect the Top of the Roof Stairs

- 1. For extra stability at the top of the stairs, locate the point where the Z-section protrudes across neighboring roof ribs.
- 2. Using the closest slot in the bottom flange of the Z-support as a guide, drill a 3/8" hole through the underlying rib.
- 3. Insert a 3/8" x 4-1/2" fully threaded bolt (150475), washers and triple nut as shown in Figure 9.

Figure 9. Bolting the Z-section to roof ribs



- 4. Secure the bolt to the roof rib with one nut, and sandwich the flange on the Z-section with the remaining two nuts.
- 5. Adjust to take up the slack and tighten to lock in position.
- 6. Repeat on the other side and at other locations where convenient.
- 7. Put a sealing washer (taken from a 3/8" bin bolt) on the inside to ensure a water tight seal.

Handrail P-Straps

WARNING If handrail P-straps become deformed, replace them immediately as deformed P-straps may not allow proper clamping force to the handrail.

Figure 10. Example P-Strap



Install Handrails and Guardrails

- 1. Install the U-handrail to the bottom roof stairs posts. Put the longer U-handrail leg at the top.
 - a. Install P-straps at the top of the post and at mid post to receive the U-handrail. See the following figure.
 - b. Leave nuts finger-tight.
 - c. Slide the U-handrail bottom bend as close to the lower P-strap as possible.
 - d. Leave hardware loose until all the rails have been installed to allow for any adjustment that may be required.





2. Start installing the rest of the handrails. See the following figure. Position the unswaged handrails at the handrail run end.

Figure 12. Install Connecting Handrails



3. Connect handrails together at handrail ends using self-drilling screws as shown in the following figure.

Figure 13. Self-Drilling Screw Connection / Splice Locations



Note

When installing the roof stairs handrails, also install the guardrail brackets and guardrails along all stair inclines as shown in the following figures.

4. Install P-straps to posts and guardrail brackets using 3/8" bolts.

- 5. Install guardrail brackets to posts using 3/8" x 1" bin bolts.
- 6. Install handrails and guardrails through P-straps.





- 7. After the other handrails are in position tighten all assembly hardware.
- 8. Trim any excess handrails at the stairs upper end.





9. Finish the roof stair handrails installation. Install end caps at the railing ends.

Figure 16. Install End Caps



5.4.3 Roof Stair Hardware Usage

All roof stair and related connections are made using 3/8" x 1" bolts and 3/8" nuts, except for the following:

• For stability, "Z" supports secure to roof ribs using 3/8" x 4 1/2" fully threaded bolts and 3 - 3/8" nuts at each location.

Table 3. 241800	– Roof Stairs	Hardware	Package
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Part Number	Description	Quantity
150475	Bolts - 3/8" x 4 1/2"	18
193805	Nuts - 3/8"	30
18896001	Stair End Cap 1.5"	8
198934	Manual - WC Roof Stairs	1

5.4.4 Roof Stair Packages

Table 4. Roof Stair Packages (15' to 48' bins)

Dort No.	Description	15	18	21	24	27	30	33	36	39	42	45	48
Fart NO.	Description	241801	241802	241802	241803	241803	241804	241804	241805	241805	241806	241806	241807
234052	STRINGER - 8 TREAD LEFT			1				1	2			2	2
234053	STRINGER - 8 TREAD RIGHT			1				1	2			2	2
234054	STRINGER - 7 TREAD LEFT		1			1	1	1		2	2		1
234055	STRINGER - 7 TREAD RIGHT		1			1	1	1		2	2		1
234056	STRINGER - 6 TREAD LEFT				1		1				1	1	
234057	STRINGER - 6 TREAD RIGHT				1		1				1	1	
234058	STRINGER - 5 TREAD LEFT	1			1	1				1			
234059	STRINGER - 5 TREAD RIGHT	1			1	1				1			
234064	STAIR TREAD	5	7	8	10	11	12	14	15	17	18	20	21
234070	Z-SUPPORT 4"	2	2	2	3	3	3	3	3	4	4	4	4
234411	HAND/MID/GUARD RAIL 5 TREAD	6			6	6				6			
234412	HAND/MID/GUARD RAIL 6 TREAD				6		6				6	6	
234413	HAND/MID/GUARD RAIL 7 TREAD		6			6	6	6		12	12		6
234414	HAND/MID/GUARD RAIL 8 TREAD			6				6	12			12	12
234415	GUARD RAIL END	2	2	2	2	2	2	2	2	2	2	2	2
234416	HAND-MID RAIL CONNECTOR	2	2	2	2	2	2	2	2	2	2	2	2
234410	HANDRAIL POST	4	6	6	8	8	10	10	10	12	14	14	14
234132	BRACKET FOR HANDRAIL POST	4	6	6	8	8	10	10	10	12	14	14	14
234044	GUARD RAIL BRACKET	4	6	6	8	8	10	10	10	12	14	14	14
M34982- 57	AGI CIRC STAIR HANDRAIL POST STRAP	12	18	18	24	24	30	30	30	36	42	42	42
241800	AGI ROOF STAIR PARTS BAG	1	1	1	1	1	1	1	1	1	1	1	1
234131	BLT SLFDRILL #12-14X.75 ZN (Bag of 12)	3	4	4	5	5	6	6	6	7	8	8	8
235943	BLT HFW .375-16X1.0 GR8.2 (50)	2	2	2	3	3	3	3	3	4	4	4	5
235951	NUT HX .375-16 GR5 (100)	1	1	1	2	2	2	2	2	2	2	2	
235950	NUT HX .375-16 GR5 (300)												1

Table 5. Roof Stair Packages (51' to 108' bins)

Davit Nia	Description	51	54	60*	60**	66	72	75	78	84	90	96	102	105	108
Part No.	Description	241813	241814	241815	241816	241817	241818	241819	241820	241821	241822	241823	241824	241825	241826
234052	STRINGER - 8 TREAD LEFT			2	2	2	3	4			6	5		2	6
234053	STRINGER - 8 TREAD RIGHT			2	2	2	3	4			6	5		2	6
234054	STRINGER - 7 TREAD LEFT	3	3	2	2		2	1	6	5			8	6	
234055	STRINGER - 7 TREAD RIGHT	3	3	2	2		2	1	6	5			8	6	
234056	STRINGER - 6 TREAD LEFT		1			3						2			
234057	STRINGER - 6 TREAD RIGHT		1			3						2			
234058	STRINGER - 5 TREAD LEFT	1								2					2
234059	STRINGER - 5 TREAD RIGHT	1								2					2
234064	STAIR TREAD	23	24	27	27	30	34	35	37	39	43	46	49	51	51
234070	Z-SUPPORT 4"	5	5	5	2	2	3	3	3	3	3	3	4	2	4
234104	Z-SUPPORT 7.87"				3	4	3	3	4	5	4	5	5	7	5
234411	HAND/MID/GUARD RAIL 5 TREAD	6								12					12
234412	HAND/MID/GUARD RAIL 6 TREAD		6			18						12			
234413	HAND/MID/GUARD RAIL 7 TREAD	18	18	12	12		12	6	36	30			48	36	
234414	HAND/MID/GUARD RAIL 8 TREAD			12	12	12	18	24			36	30		12	36
234415	GUARD RAIL END	2	2	2	2	2	2	2	2	2	2	2	2	2	2
234416	HAND-MID RAIL CONNECTOR	2	2	2	2	2	2	2	2	2	2	2	2	2	2
234410	HANDRAIL POST	16	18	18	18	22	22	22	26	26	26	30	34	34	30
234132	BRACKET FOR HANDRAIL POST	16	18	18	18	22	22	22	26	26	26	30	34	34	30
234044	GUARD RAIL BRACKET	16	18	18	18	22	22	22	26	26	26	30	34	34	30
M34982- 57	AGI CIRC STAIR HANDRAIL POST STRAP	48	54	54	54	66	66	66	78	78	78	90	102	102	90
241800	AGI ROOF STAIR PARTS BAG	1	1	1	1	1	1	1	1	1	1	1	1	1	1
234131	BLT SLFDRILL #12- 14X.75 ZN (Bag of 12)	9	10	10	10	12	12	12	14	15	15	16	19	19	17
235943	BLT HFW .375-16X1.0 GR8.2 (50)	5	5					1	1	2	2	3	4	4	3
235951	NUT HX .375-16 GR5 (100)					1	1	1	1	1	1	2	2	2	2
235950	NUT HX .375-16 GR5 (300)	1	1	1	1	1	1	1	1	1	1	1	1	1	1
235941	BLT HFW .375-16X1.0 GR8.2 (325)			1	1	1	1	1	1	1	1	1	1	1	1
*Non-Stru **Structu	ictural ral			•								•			

5.5. Optional Peak Rail Assembly

The peak rail is an option to the roof stairs and is intended to be assembled to the roof stairs.

- 1. The peak rail assembly tubes are supported at each end by the stair support posts via a connector clip. The remainder of the peak rail is supported on vertical posts (which are angled steel) via U-bolts.
- 2. Preassemble the peak rail support posts (234092) to the support clips (234093) such that when the clips match the slope of the roof, the support posts are vertical. The flange on the support posts should be oriented such that the peak rails are attached on the inside of the support posts.

Figure 17. Preassemble peak rail support posts to support clips



- 3. Using connector clips, loosely secure one peak rail tube to the roof stair handrail support posts and the second tube to a mid-point on the handrail support posts.
 - a. At each location, make sure the tubes butt up against the ladder posts and do not protrude inside of the plane of the handrail support.
 - b. Level the tubes (as described in the following steps).
 - c. Secure the ends of the tubes using self-drilling screws at the locations shown in the following diagram.

Figure 18. Securing peak rail tubes to support posts



4. The support posts should be roughly distributed among the available roof ribs.

- a. Start with the support post that is across from the roof stairs.
- b. Using the peak rail tubes as guides, position this support post such that it mates with both tubes at the two desired locations.
- c. Drill the roof rib to mate with the holes in the support clip.
- d. Secure the support post assembly to the ribs and to the safety tubes.
- e. Make sure the support posts are vertical.

Figure 19. Position the support posts



- 5. Locate the remaining support posts such that the spaces between them are roughly equal.
 - a. Secure to the peak rail tubes using the U-bolts.
 - b. Drill into the roof ribs.
 - c. Secure with the hardware provided.

Figure 20. Securing support posts



- 6. Install pipe plugs (234102) into the end of the peak rail tubes.
- 7. Tighten all connections.

- 8. Install two support arms (234504) on two support posts at roughly 90° to the roof stairs (one of either side) to brace the structure laterally.
 - a. Bolt the support arms to the flange of the support posts.
 - b. Attach the other end to the roof rib using the support arm brackets (234518).

Figure 21. Installing support arms



Variation: It is possible to install the peak rails independent of the roof stairs.



Figure 22. Installing the peak rails independently of the roof stairs

5.5.1 Peak Rail Hardware Usage

All peak rail connections are made using 3/8" x 1" bolts and 3/8" nuts except for the following:

• Safety tubes are secured to support posts by 5/16" U-bolts and 5/16" lock nuts and to the vertical handrail supports on the roof stairs by corner clips and self-tapping screws.

Table 6. 234095 - Roof Peak Rail Package (15' to 27' Roofs)

Part Number	Description	Quantity
234091	Ring for 15' - 27' Bins	2
234092	Support Post	7
234097	Hardware Package	1
234504	Support Arm	4

Table 7. 234096 - Roof Peak Rail Packages (30' to 108' Roofs)

Part Number	Description	Quantity
234094	Ring for 30' - 108' Bins	2
234092	Support Post	9
234097	Hardware Package	1
234504	Support Arm	4

Table 8. 234097 - Roof Peak Rail Hardware Package

Part Number	Description	Quantity
235943	Bolt 3/8" x 1" (Bag of 50)	1
234099	Bolt "U"-Round 5/16"	18
235955	Nut - 3/8"	1
900225	Nut - 5/16" Hex Nylon Lock	40
234093	Roof Clip	9
234102	Pipe Plug	4
157042	1" Self-Drilling Screw	10
234518	Support Arm Bracket	4
198934	Roof Stair Manual	1
213029	Hand Rail Corner Clip	6
234131	0.75" Self- drilling screw (12)	2

5.6. Optional Peak Platform Assembly

The peak platform is an option to the roof stairs and peak rails, and must be assembled in conjunction with them.

- 1. The peak platform support ring is located similarly to the peak rail tubes that are provided with the peak rail assembly, towards the bottom of the peak rail support posts and roof stair handrail posts.
 - a. The support ring is secured to the support ring posts using the half-round clips (234114) and ¼" diameter self drilling screws.
 - b. Bolt the half-round clips onto all of the posts with the supporting ends facing inward towards the peak ring.
 - c. Securely seat the supporting 1.66" diameter tube into the half-round cradles.
 - d. Secure with a self drilling screw that is drilled in from the backside.

Figure 23. Installing the peak platform support ring (optional)



- 2. The peak platform deck pieces (234118) are evenly distributed around the peak ring such that the amount of overlap between adjacent pieces is roughly even.
 - a. Support the wider end on the support ring.
 - b. Rest the narrow end on the ribs of the roof sheets.
- 3. To initiate the alignment, center one deck piece on the top roof stair tread.
 - a. There will be interference between the deck piece and the skid resistance indentations on the stair tread. The best way to overcome this interference is to shorten the peak platform deck piece enough to avoid the skid resistance indentations that are on the top surface of the stair tread.
 - b. Secure the deck piece to the stair tread with at least two self drilling screws.

Figure 24. Aligning the peak platform deck pieces



4. Distribute the remaining deck pieces around the roof such that the amount of overlap between adjacent pieces is roughly equal. Align the deck pieces such that at least two of the ¼" pilot holes on the wide end are squarely aligned over the center of the support ring and secure with the self drilling screws.

Figure 25. Installing the remaining deck pieces



- 5. Position the toe board pieces (234119) such that they loop around the outside circumference of the deck pieces and bridge between the support posts.
 - a. Overlap mating toe board pieces at the support post locations.
 - b. Secure to the support posts using self drilling screws.
 - c. If necessary, shorten toe board pieces to prevent unsightly overhang.

Figure 26. Installing toe board pieces



Variation:It is possible to install the peak rail and platform independent from the roof stairs. There will be no need to shorten the one deck piece to avoid interference with the top roof stair tread. However, it will be necessary to provide a means of supporting the wide end of the one deck piece that would normally be supported by the stair tread. This can be done by bridging between the two support posts on either side of the entry point. Secure the deck piece to this support using the self drilling screws.





5.6.1 Peak Platform Hardware Usage

All peak Platform connections are made using 3/8" x 1" bolts and nuts except for the following:

- Make sure support ring tubes are sitting fully in the half round clips (234114) and secure to the support posts using ¼" self drilling screws through the pilot hole in each support post.
- Secure platform deck pieces using ¼" self drilling screws.
- Secure toe boards using ¼" self drilling screws.

Table 9. 234115 - Peak Platform 15 - 27 Bin	Table 9.
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Part Number	Description	Quantity
234112	Support Ring - Small	1
234118	Platform Piece	12
234119	Toe Board	3
234117	Hardware	1

Table 10. 234116 - Peak Platform 30' - 108' Bins

Part Number	Description	Quantity
234113	Support Ring - Large	1
234118	Platform Piece	16
234119	Toe Board	4
234117	Hardware	1

Table 11. 234117 Peak Platform Hardware Package

Part Number	Description	Quantity
234114	Support Ring Clip	9
235943	Bolt - 3/8" x 1" (Bag of 50)	1
235955	Hex Nut - 3/8" (Bag of 50)	1
157042	1" Self Drilling Screw	100

5.7. Catwalk Access

Catwalks can be accessed from a roof stair with the aid of a plate fabricated as shown in Figure 28 on page 38. Bolt the plate to the back of any stair tread on the roof stair. The plate supports the bottom of a standard ladder section (234500) which can then tie in with an access point on the catwalk. Ladder sections must be supported structurally every 44".

Figure 28. Catwalk Access



5.8. Optional Roof Stair Block-Off Assembly

The Roof Stair Block-off Package is an option that mates with a roof stair package when the roof stairs is not used in combination with a AGI sidewall access accessories (ladder or circular stairs). Such would be the case if the roof stair was being accessed from an overhead conveyor. The Stair Block-off Package is intended to provide a barrier at the lower end of the roof stair to prevent somebody from stepping off into space.

The Roof Stair Block-Off Assembly, can be paired with the optional Inspection Hatch Cage assembly.

- 1. As shown in the following diagram, position one of the vertical support tubes (234069) to align with the inspection hatch roof sheet rib that is furthest away from the roof stair.
 - a. The bend in the support tube bridges the eave of the roof sheets and aligns alongside the top wall sheet.
 - b. Keep the support pushed up as high as possible.
 - c. Using the holes in the support tube as guides, and keeping the support tube in a vertical orientation, drill 3/8" holes through the crest of the mating wall sheet corrugations.
 - d. Attach using 3/8" x 2 ½" bolts.
 - e. Put the sealing washers on the inside to ensure a water tight seal.

Figure 29. Installing vertical support tubes



- 2. Attach four 1" diameter support arms (234504) to the vertical support tube, as illustrated using support arm clips (234517).
 - a. Position the lowest just above the bend in the vertical support tube, the highest toward the top, and the other two roughly equidistant apart.
 - b. Attach a fifth support arm onto the upper portion of the vertical support tube in the same manner and brace down to the nearest roof rib, as shown.
 - c. Secure the lower portion of the support arm with a support arm bracket (234518) that is secured to the roof rib.

- 3. Using the four support arms as guides, place them horizontally and position a second vertical support tube such that it attaches to the other end of the support arms using the support arm clips, bridges the eave of the roof panel and aligns alongside the top wall sheet. Secure in a similar manner to the first.
- 4. Position the second vertical support tube in close proximity to the bottom stair tread on the roof stair.
 - a. Pick the location where the vertical support tube crosses the flange of the stair tread and drill a 3/8" hole through both.
 - b. Secure using a 3/8" x 4 ½" fully threaded bolt (150475) that is triple nutted as shown.
 - c. Secure the bolt to the vertical support tube with one nut, and sandwich the flange on the stair tread with the remaining two nuts.
 - d. Adjust the relative position of the nuts and tighten to lock into position.

Figure 30. Attaching the second vertical support tube to the bottom stair tread



- 5. Assemble the rest of the support arms (if using with the Inspection Hatch Cage assembly):
 - a. Attach four more 1" diameter support arms to the second vertical support tube in a similar manner to 3 Step # 2 on page 40.
 - b. Using these as guides, position and secure the third and last vertical support tube as per 3 Step #3 on page 40.
 - c. Use the last support arm to brace the third vertical support tube to the roof rib as per 3 Step # 2 on page 40.
- 6. Prevent the support arm clips from sliding down the vertical support tubes by securing with the self drilling screws provided (900461).

Figure 31. Completing support arms assembly



7. Secure the plastic caps (234559) to the vertical support arm tubes.

5.9. Optional Elevated Eave Block Off Platform (15'-39' PN 234848) or (42'-135' PN 234849)

5.9.1 Platform Supports, Platform Bases General Assembly Instructions

The Elevated Eave Block Off Platform is an option that mates with a roof stair package when the roof stairs are not used in combination with sidewall access accessories (ladder or circular stairs). Such would be the case if the roof stair was being accessed from an overhead conveyer. The Elevated Eave Block Off Platform is intended to provide a barrier at the lower end of the roof stair to prevent somebody from stepping off into space.

- 1. Build each triangle-shaped platform support assembly and position the angles/supports in the assemblies as shown in the following two figures.
- 2. Use 3/8" x 1" bin bolts and serrated flange nuts to make the following connections.
 - a. Assemble the support gusset angle to the platform vertical support angle fourth hole from the bottom.
 - b. Assemble the floor support angle or elevated eave support to the platform vertical support top hole(s) as shown.
 - c. Connect the support gusset angle top hole to the floor support angle or elevated eave support as shown.

Figure 32. Build Each Triangle-Shaped Platform Support Assembly for Elevated Eave and Double Platforms



- 3. Install platform support angles to the sidewall with 3/8" x 1" bin bolts with seal washers, and 3/8" flange nuts (as shown in the following figure).
 - a. Typical: Securely bolt through sidewall "hills" to the top, middle and bottom support angle holes to attach the angle (bolting through 5 locations on each angle).
 - b. Position the bolt head and seal washer on the inside of the bin.

Figure 33. Installing Platform Support Angles to the Sidewall



Note

Platform base and floor support angle holes are labeled below (A1, A2, B1, B2, C1, and C2).

- 4. Assemble platform bases to the triangle shaped platform-support assemblies.
 - a. Connect together holes (A1 with A1), (A2 with A2), (B1 with B1), and (B2 with B2), (C1 with C1), and (C2 with C2). Use 3/8" x 1" truss head bolts and 3/8" serrated flange nuts.





Note

For the steps below, see the figure above.

- 5. Install both center post gussets to the underside of the platform base to platform base assembly center location.
 - a. Use 3/8" x 1-1/2" bin bolts and 3/8" serrated flange nuts to make these connections.
- 6. Assemble together platform base to platform base by filling all other mating holes at the platform bases connection location.
 - a. Use 3/8" x 1" bin bolts and serrated flange nuts.
- 7. Install the toe-board splice to the platform base inner toe-boards.

5.9.2 Assembling the Elevated Eave Block Off Platform

The elevated eave block off platform is reversible. It can be installed so the step down section is on the left side or the right side of the platform. The following Figure 35 is an assembly layout for this platform. If your step down section is on the opposite side simply reverse the assembly layout shown.





Support Cross Braces Installation

Use $3/8" \times 1"$ hex bolts and 3/8" flange nuts for this installation. Locate bolt heads on the outside of the base supports for ease of installation.

- 1. Connect the base support cross braces to the left and right base supports. Install one bolt through center of cross braces finger tight.
- 2. Once all four corners are snug, tighten center bolt.
- 3. Connect bottom support cross braces to sloped edge of the base supports. Install one bolt through center of cross braces finger tight.
- 4. Once all four corners are snug tighten center bolt.

Figure 36. Installing Support Cross Braces



Figure 37. Completed Elevated Eave Block Off Platform



5.9.3 Elevated Eave Block Off Platform Layout

Important

The layout dimensions should always be as indicated in the following figure. However, the stiffener locations, sidewall sheet hole locations, and the locations where this set of assemblies mount to the sidewall may differ per your installation.

Note

The elevated eave block off platform is reversible. It can be installed so the step down section is on the left side or the right side of the platform. The following figure is a sidewall assembly layout for this platform. If your step down section is on the opposite side simply reverse the assembly layout shown.

Note

See Section 5.9.1 – Platform Supports, Platform Bases General Assembly Instructions on page 42 for instructions on installing the platform supports to the sidewall.

Figure 38. Elevated Eave Block Off Platform Sidewall Supports Locations Layout



6. Appendix

6.1. Roof Stair Parts Identfication



Figure 40. Roof Stair Parts – 2







6.2. Peak Rail and Platform Parts Identification

Figure 41. Peak Rail and Platform Parts – 1







6.3. Elevated Eave Block Off Platform Parts

Table 12. Elevated Eave Block Off Platform 15'-39'

PART NO.	DESCRIPTION	Quantity
234355	INNER POST 15'-39'	4
M080618	LADDER PLTFRM BASE 15-39'	3
M080794	BASE SUPPORT	4
M080793	SIDEWALL SUPPORT	6
M080795	SUPPORT GUSSET	4
234353	OUTER POST 15'-39'	3
M080619	GUARDRAIL END	6
M080469	CENTER POST GUSSET 15'-39'	2
M080621	GUARDRAIL 15'-39'	9
M080467	DOUBLE PLATFORM TOEBOARD SPLICE	1
M080620	TOEBOARD END	3
M080796	BASE SUPPORT RH	1
M080797	BASE SUPPORT LH	1
234439	STAIR INNER POST 15'-39'	1
234438	STAIR OUTER POST 15'-39'	1
M080798	SUPPORT GUSSET	2
M080799	BACK SUPPORT CROSS BRACE	2
234440	CORNER SPLICE 15'-39'	1
M080804	BOTTOM SUPPORT CROSS BRACE	2
M080805	STEP HANDRAIL	1
234595	STAIR TREAD	1
234831	STAIR RIGHT BRACKET	1
234830	STAIR LEFT BRACKET	1
235943	BLT HFW .375-16X1.0 GR8.2 (50)	4
235955	NUT HX FLLK.375-16 GR5 (50)	4
198934	AGI OSHA/ANSI ROOF STAIR MANUAL	1
193797	BLT HFW .375-16X1.5 JS500 GR8.2	4

PART NO.	DESCRIPTION	Quantity
234360	INNER POST 42'-135'	4
M080634	LADDER PLTFRM BASE 42'-135'	3
M080794	BASE SUPPORT	4
M080793	SIDEWALL SUPPORT	6
M080795	SUPPORT GUSSET	4
234359	OUTER POST 42'-135'	3
M080619	GUARDRAIL END	6
M080482	CENTER POST GUSSET 42'-135'	2
M080635	GUARDRAIL 42'-135'	9
M080483	DOUBLE LANDING TOEBOARD SPLICE 42-135'	1
M080620	TOEBOARD END	3
M080796	BASE SUPPORT RH	1
M080797	BASE SUPPORT LH	1
234591	STAIR INNER POST 42'-135'	1
234592	STAIR OUTER POST 42'-135'	1
M080798	SUPPORT GUSSET	2
M080799	BACK SUPPORT CROSS BRACE	2
234593	CORNER SPLICE 42'-135'	1
M080804	BOTTOM SUPPORT CROSS BRACE	2
M080805	STEP HANDRAIL	1
234595	STAIR TREAD	1
234830	STAIR LEFT BRACKET	1
234831	STAIR RIGHT BRACKET	1
235943	BLT HFW .375-16X1.0 GR8.2 (50)	4
235955	NUT HX FLLK.375-16 GR5 (50)	4
198934	AGI OSHA/ANSI ROOF STAIR MANUAL	1
193797	BLT HFW .375-16X1.5 JS500 GR8.2	4

Table 13. Elevated Eave Block Off Platform 42'-135'

7. 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 Smoo	thwall Bins	
Paint	1 Year	
Structural	10 Year	
Commercial Sr	noothwall 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.

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198934 R19

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