

Ladder, Safety Cage, & Platform Assembly for GSI Hopper Tanks

INSTALLATION MANUAL

MANUAL# PNEG-1451

DATE: 6-20-2005



PNEG-1451

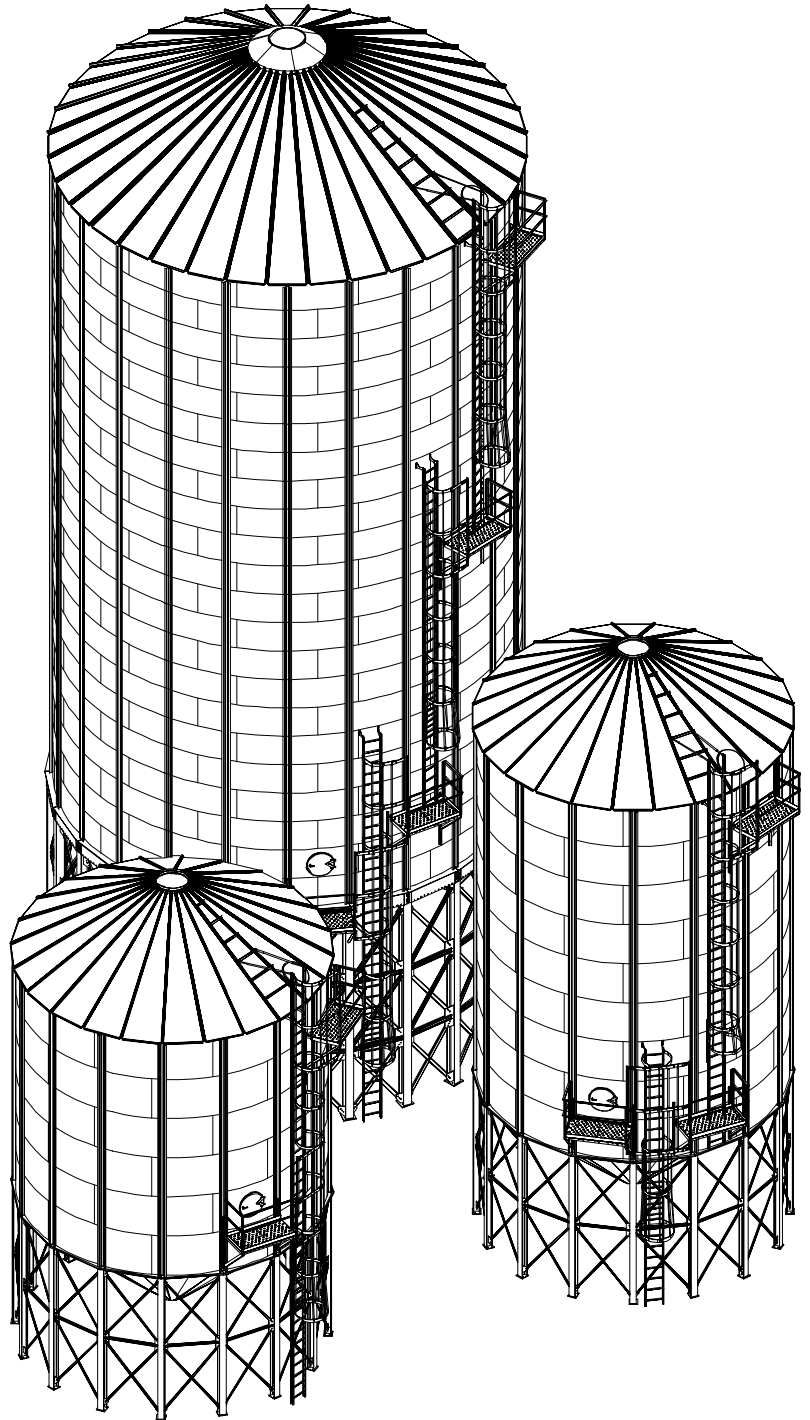


Table of Contents

General Detail Information	11
Ladder Section Assembly	12
Ladder Standoff Detail	13
Extension Angle Hole Detail	14
Cage Hoop Bracket Assembly	15
 2.66" Corrugated Commercial Hopper Tank 4-9 Rings	 17
2.66 Commercial Hopper Tank (NCHT) Ladder and Platform Layout 4-9 Rings	18
NCHT Ladder, Safety Cage, and Platform Instructions 4-9 Rings	19
Eave Starter Bracket Installation	19
Location of Field Drilled holes for Eave Ladder Starter Brackets	19
Eave Starter Bracket & Ladder Assembly with Safety Cage	20
EAVEADJUSTABLE BRACES	21
Eave Platform Mounting Angle Installation	22
Right Hand Platform and Platform Support Assembly	23
Eave Safety Cage Hoop Assembly	24
Vertical Supports	25
32" & 48" Safety Cage	25
Access Door Platform Mounting Angle Installation	26
Left Hand Platform and Platform Support Assembly	27
Access Door Safety Cage Hoop Assembly	28
24" - 48" Safety Cage Bell Sections	29
Ladder Support Detail	30
 2.66" Corrugated Commercial Hopper Tank 10-22 Rings	 31
2.66 Commercial Hopper Tank (NCHT) Ladder and Platform Layout 10-22 Rings	32
NCHT Ladder, Safety Cage, and Platform Instructions 10-22 Rings	33
Eave Starter Bracket Installation	33
Location of Field Drilled holes for Eave Ladder Starter Brackets	33
Eave Starter Bracket & Ladder Assembly with Safety Cage	34
Eave Adjustable Braces	35
Eave Platform Mounting Angle Installation	36
Right Hand Platform and Platform Support Assembly	37
Eave Safety Cage Hoop Assembly	38
Vertical Supports	39
48" Safety Cage	39
24" - 48" Safety Cage Bell Sections	40
Intermediate Platform Mounting Angle Installation	41
Location of Field-Drilled Holes for Intermediate Ladder Starter Brackets	42
Intermediate Starter Bracket & Ladder Assembly with Safety Cage	43
Intermediate & Base Safety Cage Hoop Assembly	44
Base Platform Mounting Angle Installation	45
Location of Field-Drilled Holes for Base Ladder Starter Brackets	46

Table of Contents

Base Starter Bracket & Ladder Assembly with Safety Cage	47
Access Door Platform Mounting Angle Installation	48
Left Hand Platform and Platform Support Assembly	49
Access Door Safety Cage Hoop Assembly	50
Ladder Support Detail	51
4.00" Corrugated Farm-Com Hopper Tanks (FCHT) 4-6 Rings	53
4.00" Farm-Com Hopper Tank Ladder and Platform Layout 4-6 Rings	54
FCHT Ladder, Safety Cage, and Platform Instructions 4-6 Rings	55
Eave Starter Bracket Installation	55
Location of Field Drilled holes for Eave Ladder Starter Brackets	55
Eave Starter Bracket & Ladder Assembly with Safety Cage	56
Eave Platform Mounting Angle Installation	58
Right Hand Platform and Platform Support Assembly	59
Eave Safety Cage Hoop Assembly	60
Vertical Supports	61
44" & 48" Safety Cage	61
Access Door Platform Mounting Angle Installation	62
Left Hand Platform and Platform Support Assembly	63
Access Door Safety Cage Hoop Assembly	64
24" - 48" Safety Cage Bell Sections	64
Ladder Support Detail	66
4.00" Corrugated Farm-Com Hopper Tank (FCHT) 7-9 Rings	67
4.00" Farm-Com Hopper Tank (FCHT) Ladder and Platform Layout	68
FCHT Ladder, Safety Cage, and Platform Instructions 7 - 9 Rings	69
Eave Starter Bracket Installation	69
Location of Field Drilled holes for Eave Ladder Starter Brackets	69
Eave Starter Bracket & Ladder Assembly with Safety Cage	70
Eave Platform Mounting Angle Installation	72
Eave Platform and Platform Support Assembly	73
Eave Safety Cage Hoop Assembly	74
Vertical Supports	75
48" Safety Cage	75
24" - 48" Safety Cage Bell Sections	76
Access Door/Base Platform Mounting Angle Installation	77
Location of Field-Drilled Holes for Base/Access Door Ladder Starter Brackets	78
Base/Access Door Starter Bracket & Ladder Assembly with Safety Cage	79
Access Door Platform and Platform Support Assembly	80
Base Platform and Platform Support Assembly	81
Access Door/Base Safety Cage Hoop Assembly	82
Base/Access Door Vertical Supports	83
Ladder Support Detail	84
Notes	85
Warranty (Inside Back cover)	86

SAFETY GUIDELINES

This manual contains information that is important for you, the owner/operator, to know and understand. This information relates to protecting **personal safety** and **preventing equipment problems**. It is the responsibility of the owner/operator to inform anyone operating or working in the area of this equipment of these safety guidelines. To help you recognize this information, we use the symbols that are defined below. Please read the manual and pay attention to these sections. Failure to read this manual and it's safety instructions is a misuse of the equipment and may lead to serious injury or death.



This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.



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



WARNING indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.



CAUTION indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.

CAUTION

CAUTION used without the safety alert symbol indicates a potentially hazardous situation which, if not avoided, may result in property damage.

NOTE

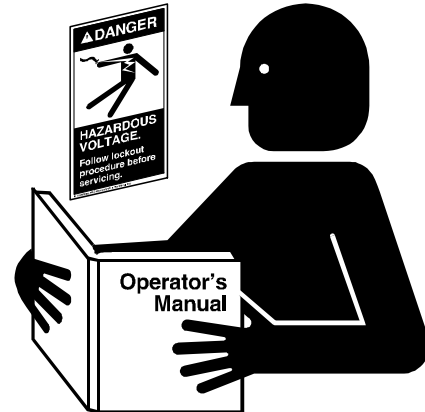
NOTE indicates information about the equipment that you should pay special attention to.

FOLLOW SAFETY INSTRUCTIONS

Carefully read all safety messages in this manual and safety signs on your equipment. Keep signs in good condition. Replace missing or damaged safety signs. Be sure new equipment components and repair parts include the current safety signs. Replacement safety signs are available from the manufacturer.

Never work alone.

If you do not understand any part of this manual and need assistance, contact your dealer.

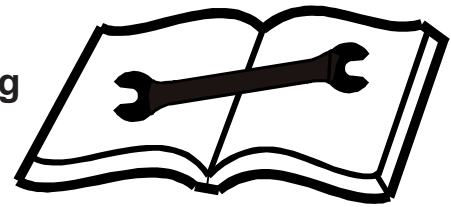


Read ALL Safety Information.

INSTALL EQUIPMENT PROPERLY

This equipment shall be installed in accordance with the current installation codes and applicable regulations which should be carefully followed in all cases. Authorities having jurisdiction should be consulted before installations are made.

Follow Building Codes.



STAY CLEAR OF HOISTED EQUIPMENT

Always use proper lifting/hoisting equipment when assembling or disassembling equipment.

Do not walk or stand under hoisted equipment.

Always use sturdy and stable supports when needed for installation.

Crush Hazard.



WEAR PROTECTIVE CLOTHING

Wear close fitting clothing and safety equipment appropriate to the job. Keep hair, loose clothing, & shoestrings away from rotating & moving parts.

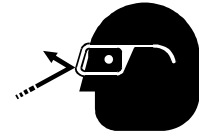
Safety glasses should be worn at all times to protect eyes from debris.

Wear gloves to protect your hands from sharp edges on plastic or steel parts.

A respirator may be needed to prevent breathing potentially toxic fumes and dust.

Wear hard hat and steel toe boots to help protect your head and toes from falling debris.

Eye Protection



Gloves



Steel Toe Boots



Respirator



Hard Hat



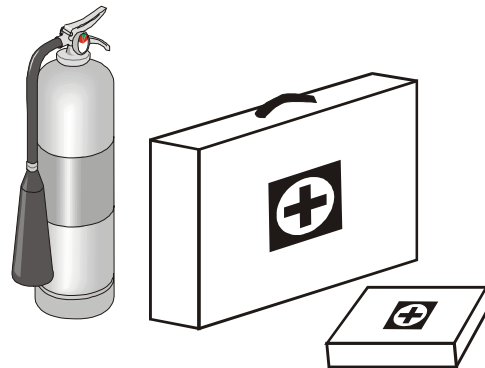
PREPARE FOR EMERGENCIES

Make sure someone is nearby who is aware of the proper emergency procedures in the event of an accident or emergency.

Be prepared if fire starts.

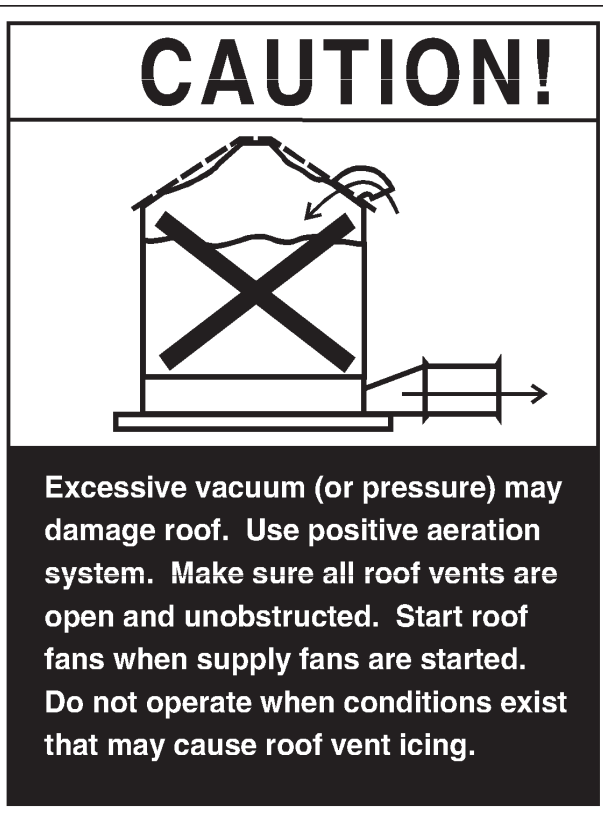
Keep a first aid kit and fire extinguisher handy.

Keep emergency numbers for doctors, ambulance service, hospital, and fire department near your telephone.



Have Emergency Equipment Ready.

Roof Damage Warning and Disclaimer



THE MANUFACTURER DOES NOT WARRANT ANY ROOF DAMAGE CAUSED BY EXCESSIVE VACUUM OR INTERNAL PRESSURE FROM FANS OR OTHER AIR MOVING SYSTEMS. ADEQUATE VENTILATION AND/OR "MAKEUP AIR" DEVICES SHOULD BE PROVIDED FOR ALL POWERED AIR HANDLING SYSTEMS. THE MANUFACTURER DOES NOT RECOMMEND THE USE OF DOWNWARD FLOW SYSTEMS (SUCTION). SEVERE ROOF DAMAGE CAN RESULT FROM ANY BLOCKAGE OF AIR PASSAGES. RUNNING FANS DURING HIGH HUMIDITY/COLD WEATHER CONDITIONS CAN CAUSE AIR EXHAUST OR INTAKE PORTS TO FREEZE.

ATTENTION: The decal shown below should be present on the inside of the two ring door cover, 24" porthole door cover and the roof manway cover. If a decal has been damaged or is missing in any of these locations contact the manufacturer for a free replacement decal.

DECALS
P.O. BOX 20
ASSUMPTION, IL. 62510-0020
(217) 226-4421



DANGER



Rotating flighting will kill or dismember.



Flowing material will trap and suffocate.



Crusted material will collapse and suffocate.

Keep clear of all augers. DO NOT ENTER this bin!

If you must enter the bin:

- 1. Shut off and lock out all power.**
- 2. Use a safety harness and safety line.**
- 3. Station another person outside the bin.**
- 4. Avoid the center of the bin.**
- 5. Wear proper breathing equipment or respirator.**

Failure to heed these warnings will result in serious injury or death.

DC-GBC-1A

ATTENTION: The decal shown below should be present on the outside of the two ring door cover, 24" porthole door cover and roof manway cover. If a decal has been damaged or is missing in any of these locations contact the manufacturer for a free replacement decal.

DECALS
P.O. BOX 20
ASSUMPTION, IL. 62510-00020
(217)-226-4421



WARNING



DON'T



DO

UNLOADING INSTRUCTIONS:

1. Use **CENTER FLOOR OUTLET ONLY** until **NO** grain remains above this outlet.
2. Side floor outlets to be used **ONLY** when above condition is satisfied.
3. Lock all side floor outlets to avoid accidental premature use.
4. See manufacturers instructions for proper use of factory supplied sidedraw (wall) discharge systems.

**Failure to heed these warnings
could result in serious injury, death,
structural damage or collapse of tank.**

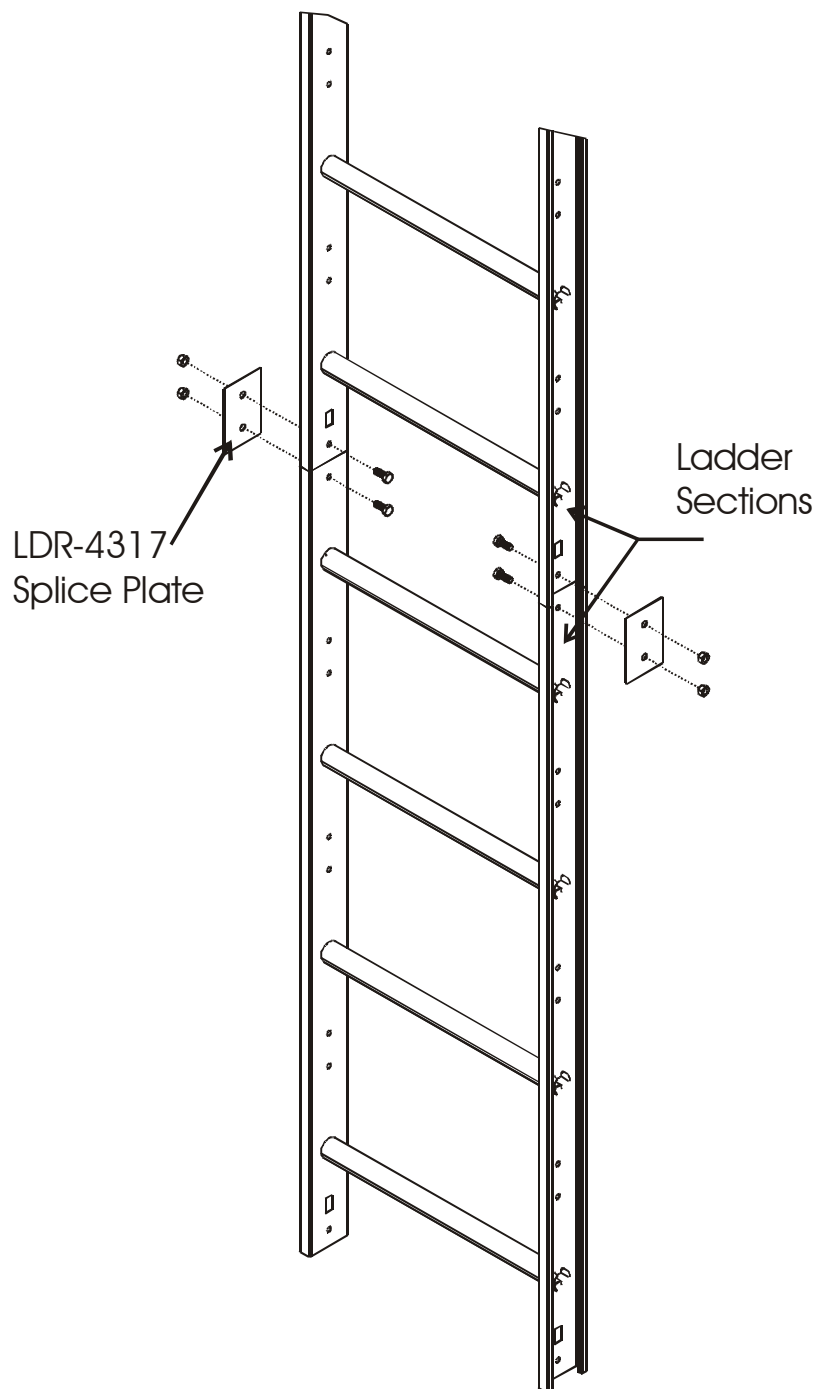
DC-GBC-2A

GENERAL DETAIL INFORMATION

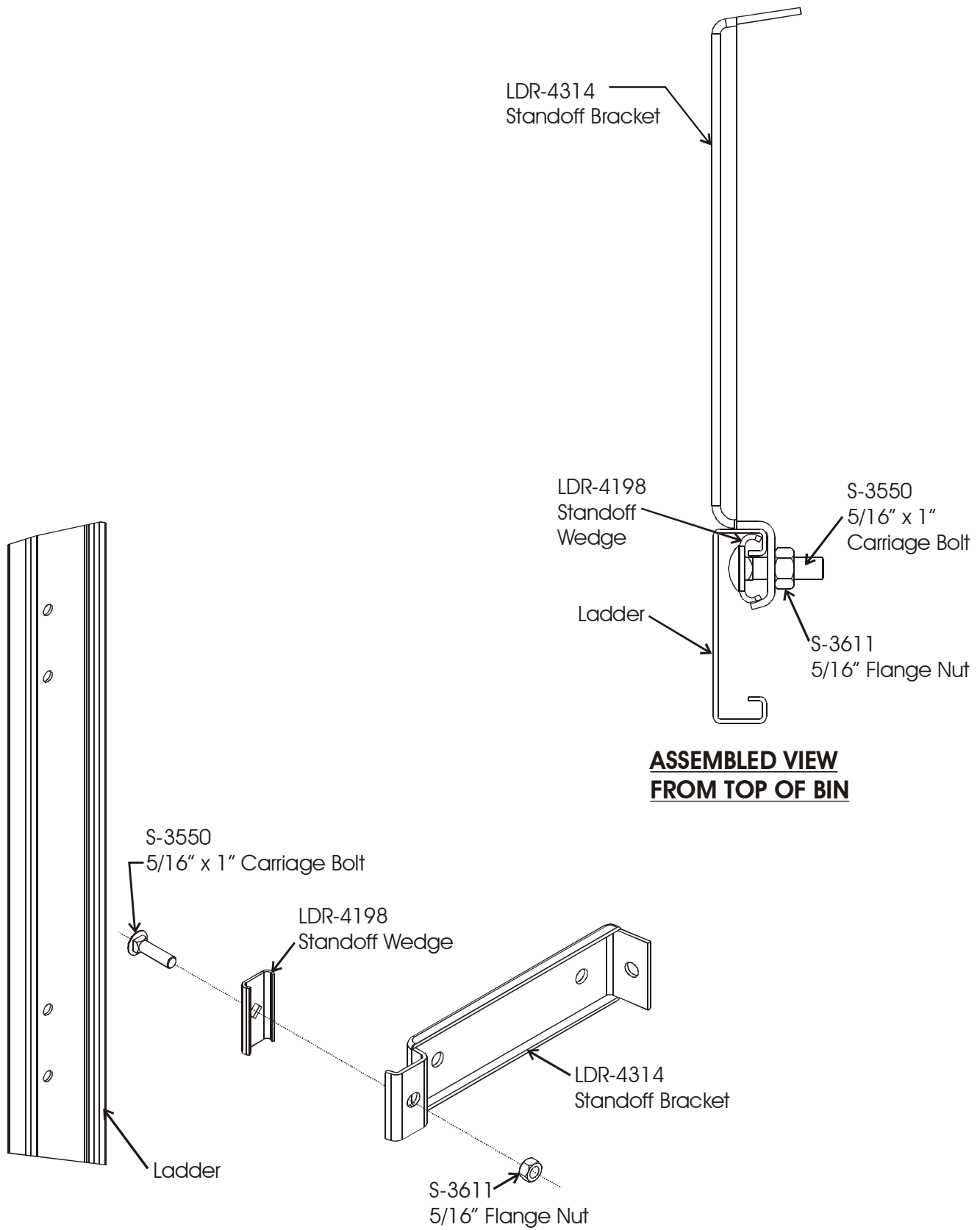
LADDER SECTION ASSEMBLY

(2) LDR-4317 splice plates are required to attach each ladder section. The head of the bolt should be to the inside of the ladder with the splice plate on the outside as shown. Use 5/16" x 3/4" bolts for all connections.

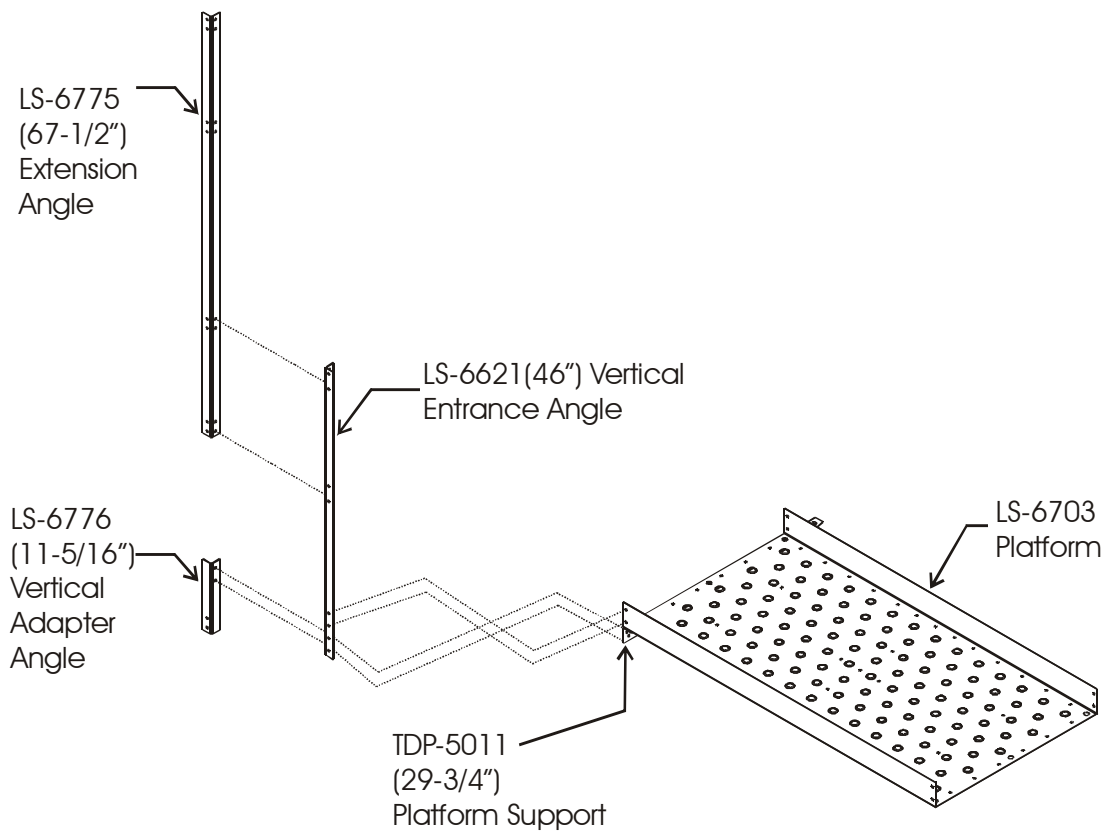
NOTE: With most installations, the last ladder section installed to reach either the ground, the base, or the intermediate platform will need to be cut to fit.



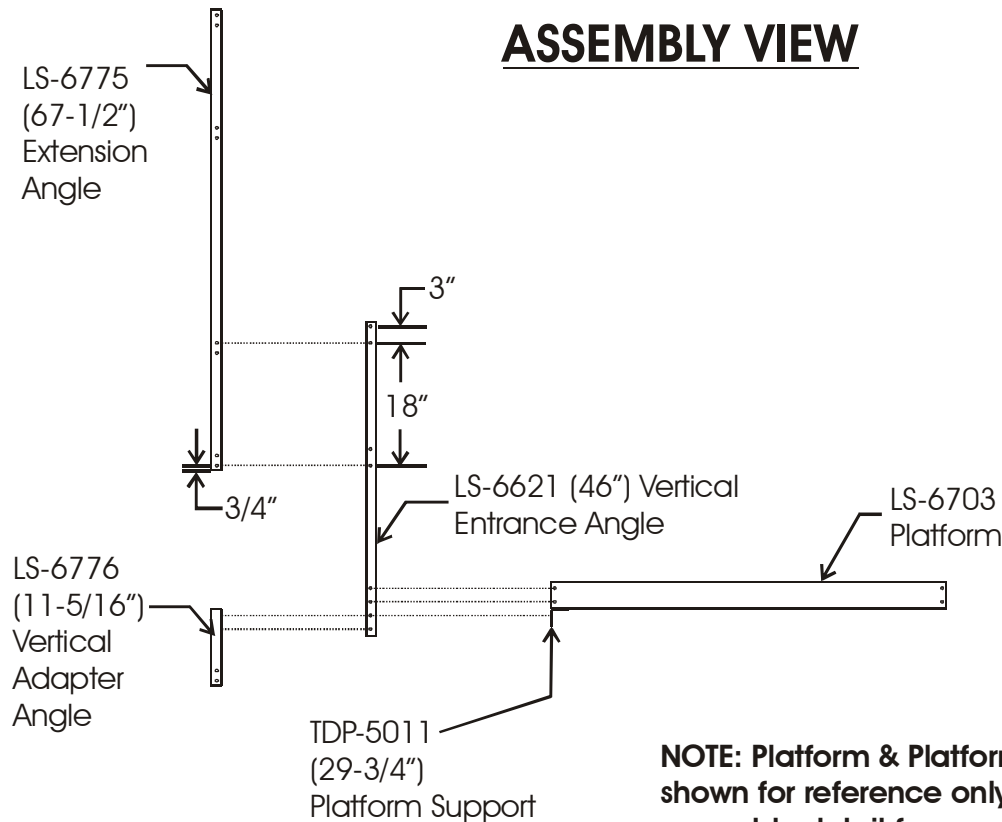
LADDER STANDOFF DETAIL



EXTENSION ANGLE HOLE DETAIL

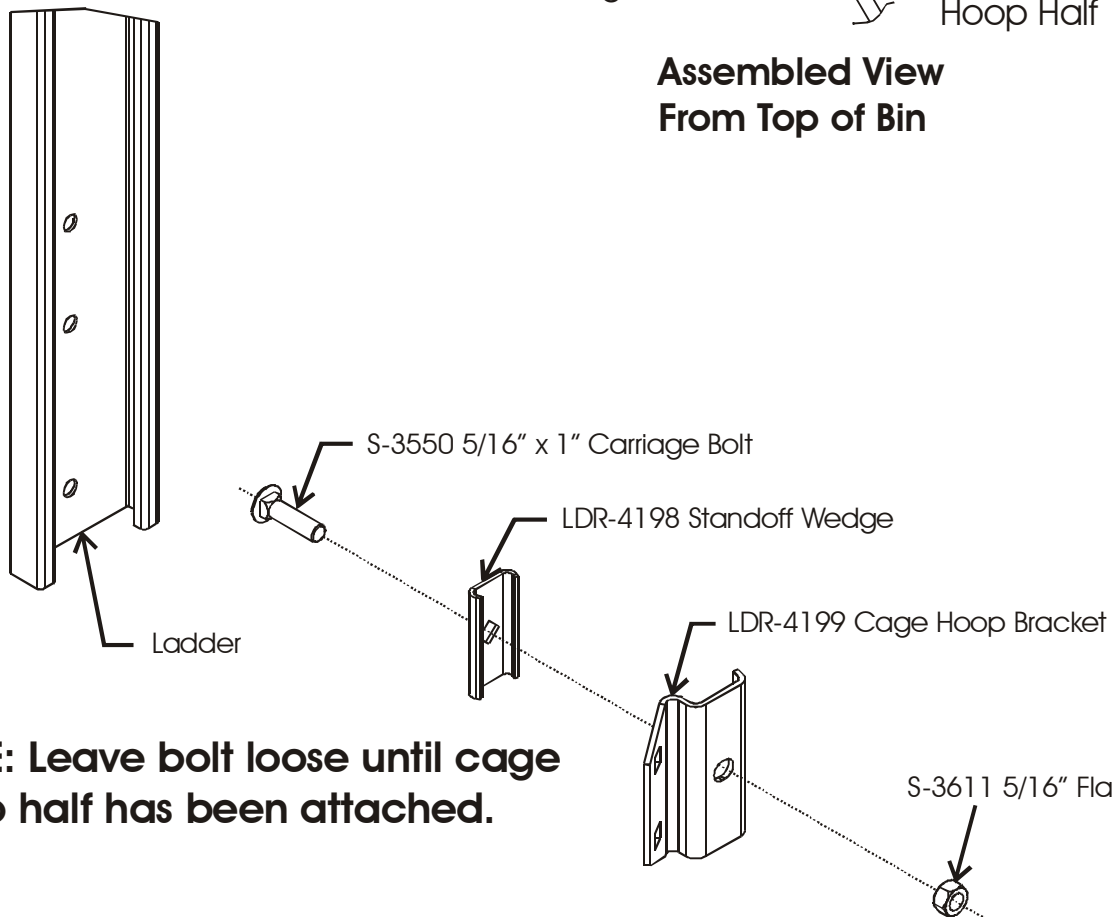
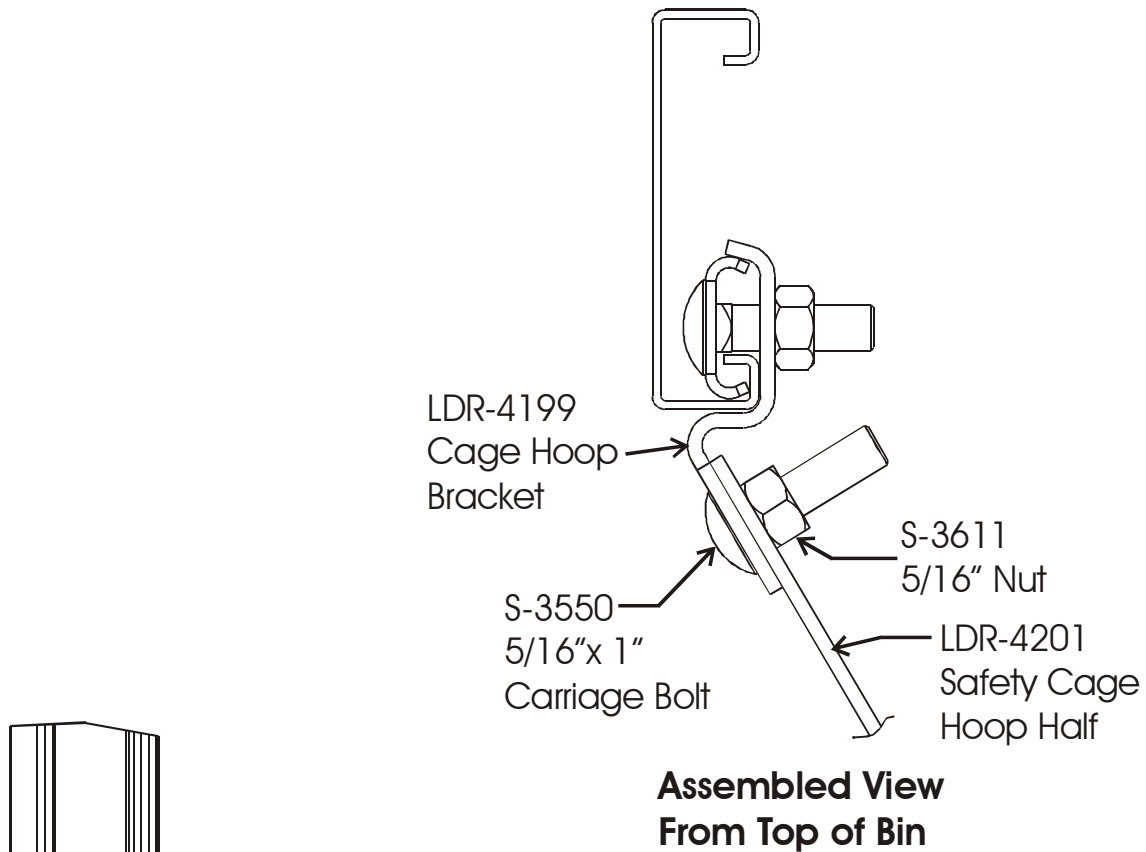


ASSEMBLY VIEW



NOTE: Platform & Platform Support shown for reference only. See platform assembly detail for complete installation instructions for these parts.

CAGE HOOP BRACKET ASSEMBLY



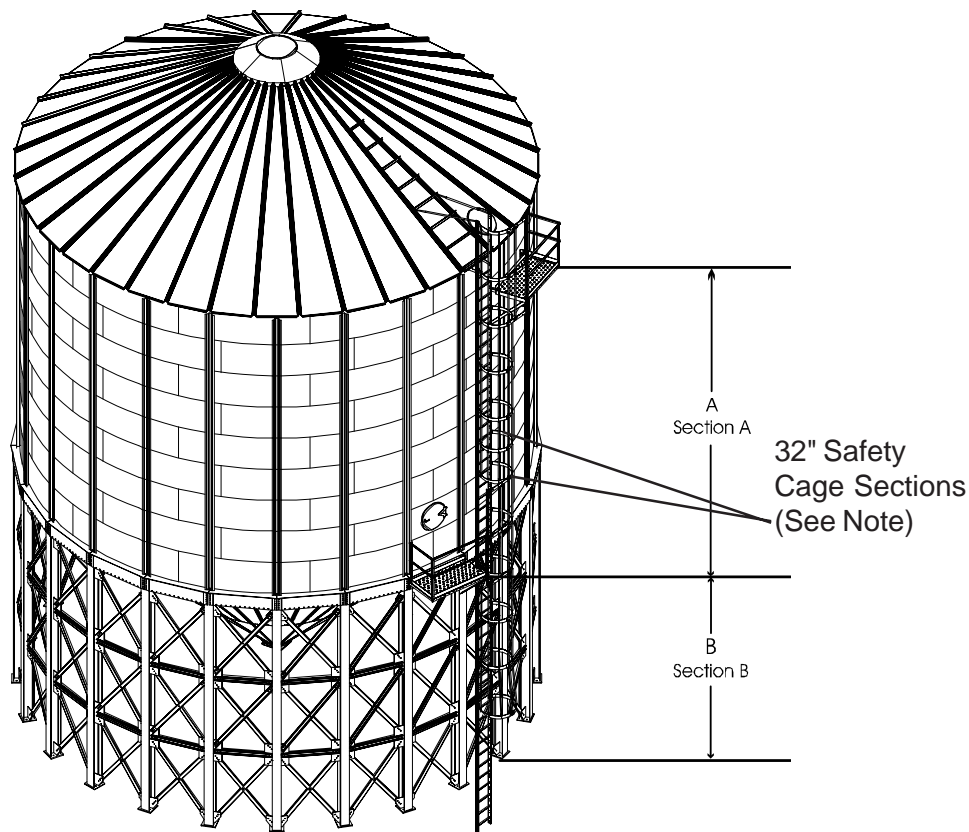
NOTE: Leave bolt loose until cage hoop half has been attached.

NOTES

2.66" CORRUGATED COMMERCIAL HOPPER TANK 4-9 RINGS

2.66" Corrugated Commercial Hopper Tank 4-9 Rings

2.66 COMMERCIAL HOPPER TANK (NCHT) LADDER AND PLATFORM LAYOUT 4-9 RINGS



9-RINGS

Ladder, Safety Cage, & Platform Location Chart

For Section A, find the proper ring grain bin & use the amounts of ladders & safety cages shown in the chart. For Section B, find the proper diameter grain bin and hopper slope, then use the amounts of ladders & safety cages shown in the chart.

SECTION A	RINGS ➡	4	5	6	7	8	9
	PLATFORM LOCATED IN RING:	2	2	2	2	2	2
	4 FT. LADDER SECTION	2	3	3	4	5	5
	SAFETY CAGE 32" SECTION	0	1	2	0	1	2
	SAFETY CAGE 48" SECTION	0	0	0	2	2	2
	DIMENSION A	96"	128"	160"	192"	224"	256"

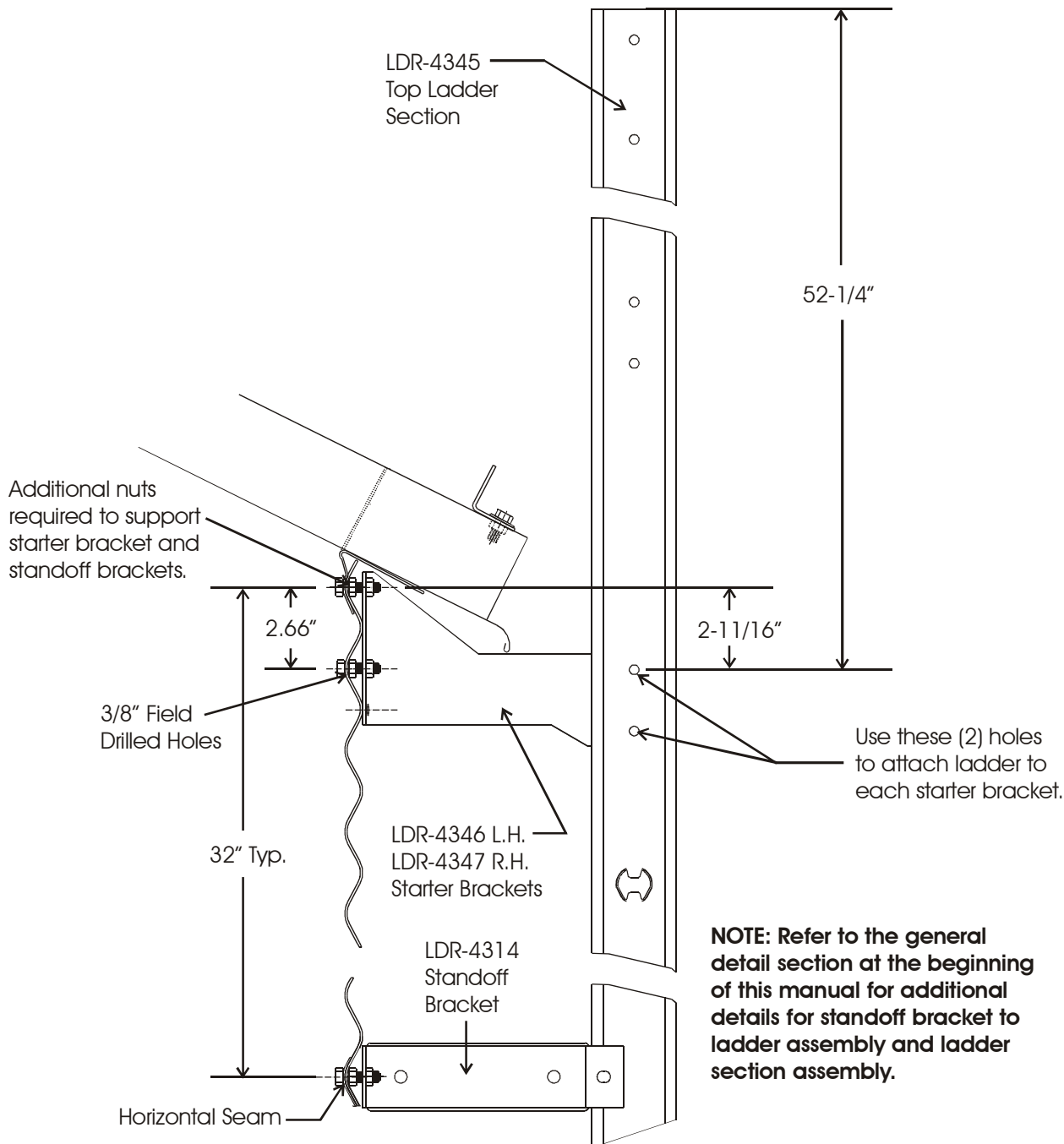
NOTE: The 32" safety cage section must be installed in section A of the ladder system. DO NOT install the 32" verticals in the eave or access door safety cage hoop assembly.

SECTION B	DIAMETER ➡	12'	12'	15'	15'	18'	18'	21'	21'	24'	27'	27'	30'	30'	36'	36'
	HOPPER SLOPE:	45	60	45	60	45	60	45	60	45	40	45	40	45	40	45
	4 FT. LADDER SECTION	2	3	3	4	3	5	3	5	4	3	4	4	5	4	5
	BELL SAFETY CAGE	0	1	0	1	1	1	1	1	1	1	1	1	1	1	1
	SAFETY CAGE 48" SECTION	0	0	0	1	0	1	0	2	0	0	1	0	1	1	2
	BELL SAFETY CAGE SIZE	N/A	24"	N/A	24"	24"	48"	48"	24"	48"	48"	24"	48"	48"	48"	48"
	DIMENSION B	91"	128"	108"	167"	128"	198"	144"	229"	162"	142"	179"	156"	195"	187"	236"

2.66" Corrugated Commercial Hopper Tank 4-9 Rings

EAVE STARTER BRACKET & LADDER ASSEMBLY WITH SAFETY CAGE

Once the (2) 3/8" holes have been drilled, attach the starter brackets to the sidewall as shown below. Check the top ladder section to make sure the ladder rung dimples are to the top surface and attach to the starter brackets using the holes located 52-1/4" from the top of the ladder. See the general detail information section for the proper installation of additional ladder sections required. Now, standoff brackets must be installed on the ladder sections and attached to the sidewall at each horizontal seam (repeating every 32"). Use 5/16" x 3/4" bin bolts for all connections.

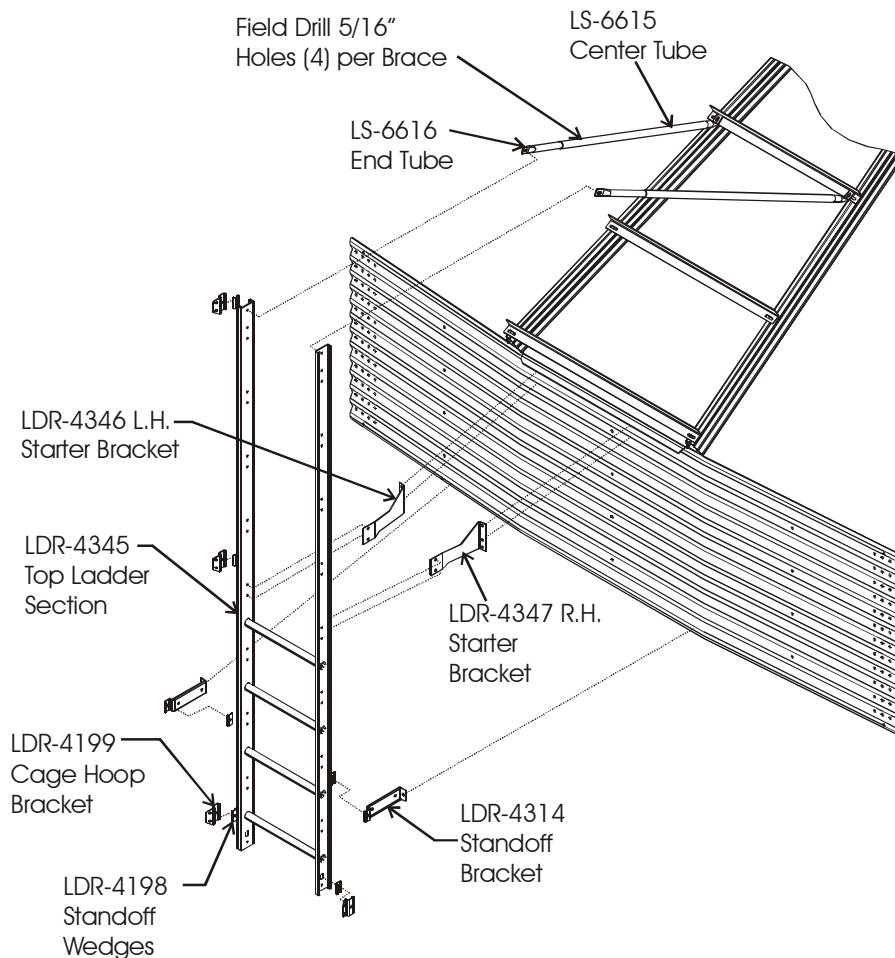


2.66" Corrugated Commercial Hopper Tank 4-9 Rings

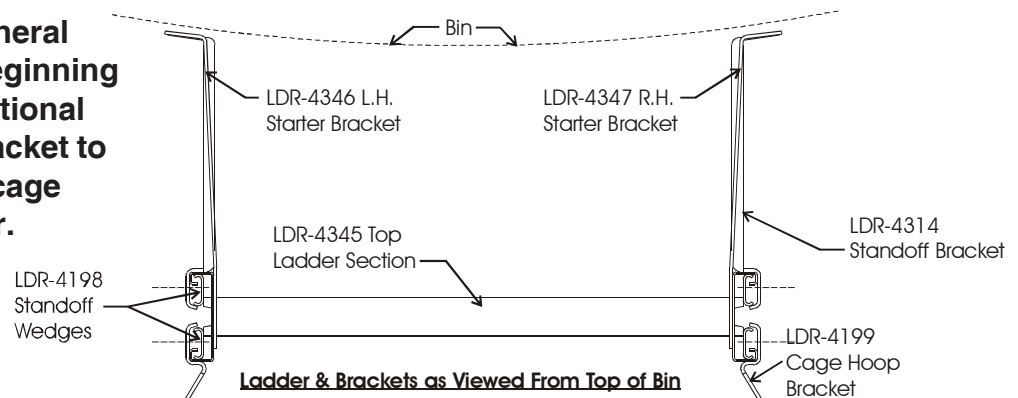
EAVE ADJUSTABLE BRACES

The adjustable braces must be attached at this time. A larger diameter tube and two smaller diameter tubes are used to make up one adjustable brace. Slip the smaller tubes inside the larger tube and attach one smaller tube to the top of the ladder. Adjust the other smaller tube so the bottom of the flattened tube reaches the roof rib. Field drill four 5/16" holes through both large and small adjustable tubes and bolt together using 1/4" x 1-1/2" bolts and nuts. This will keep the adjustable brace from slipping.

NOTE: Reference previous page for proper location of ladder starter brackets.



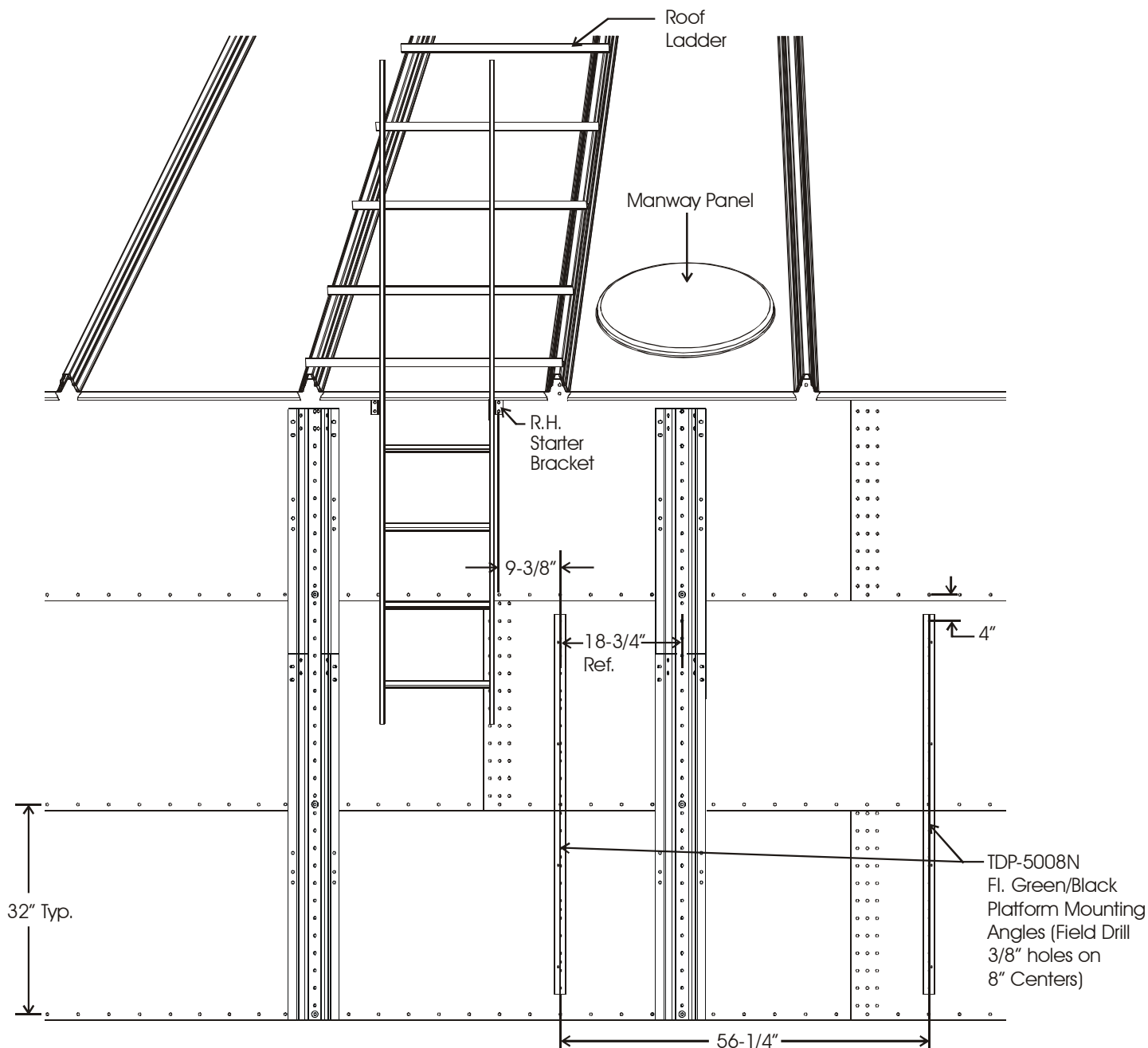
NOTE: Refer to the general detail section at the beginning of this manual for additional details for standoff bracket to ladder assembly and cage hoop bracket to ladder.



2.66" Corrugated Commercial Hopper Tank 4-9 Rings

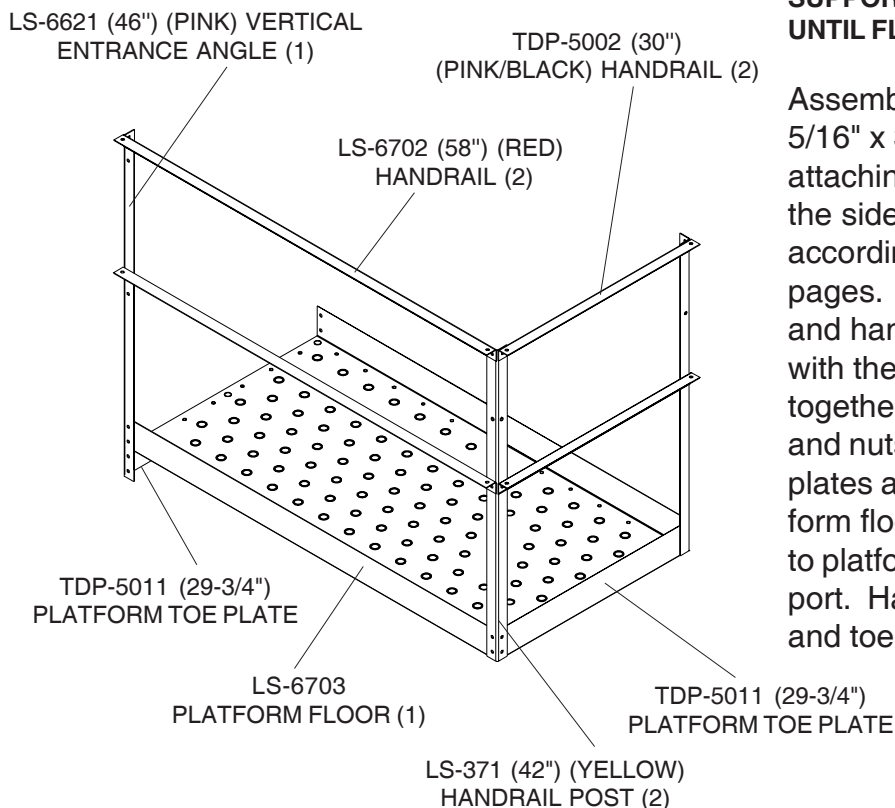
EAVE PLATFORM MOUNTING ANGLE INSTALLATION

The diagram below shows the location of the platform mounting angles. Each angle must be mounted starting 4" below the top horizontal seam of the 2nd ring with the first mounting angle offset 9-3/8" from the right hand starter bracket. The second mounting angle must be located 56-1/4" from the first mounting angle. Pay careful attention when installing these angles. The dimensions and locations of these angles are very critical to assure proper fit of all parts.



RIGHT HAND PLATFORM AND PLATFORM SUPPORT ASSEMBLY

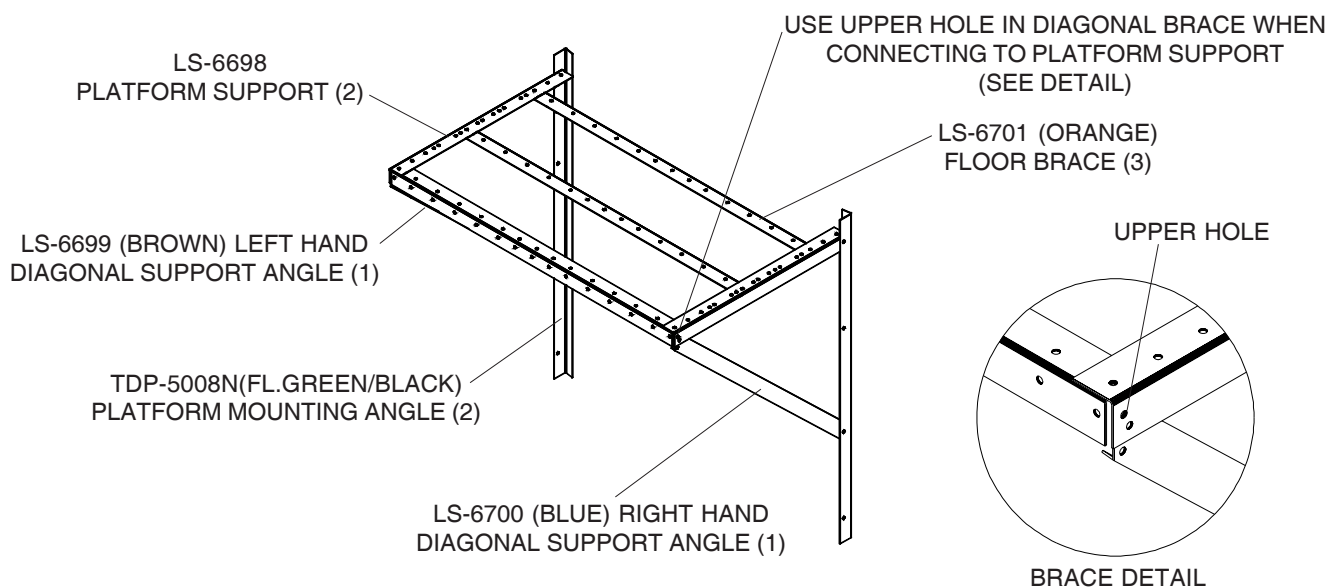
RIGHT HAND PLATFORM



NOTE: THE PLATFORM SUPPORTS SHOULD BE MOUNTED ON THE BIN FIRST. THE PLATFORM FLOOR SHOULD THEN BE ASSEMBLED ONTO THE SUPPORT FRAME. LEAVE PLATFORM SUPPORT TO FLOOR BRACE BOLTS LOOSE UNTIL FLOOR AND TOEPLATES ARE SECURE.

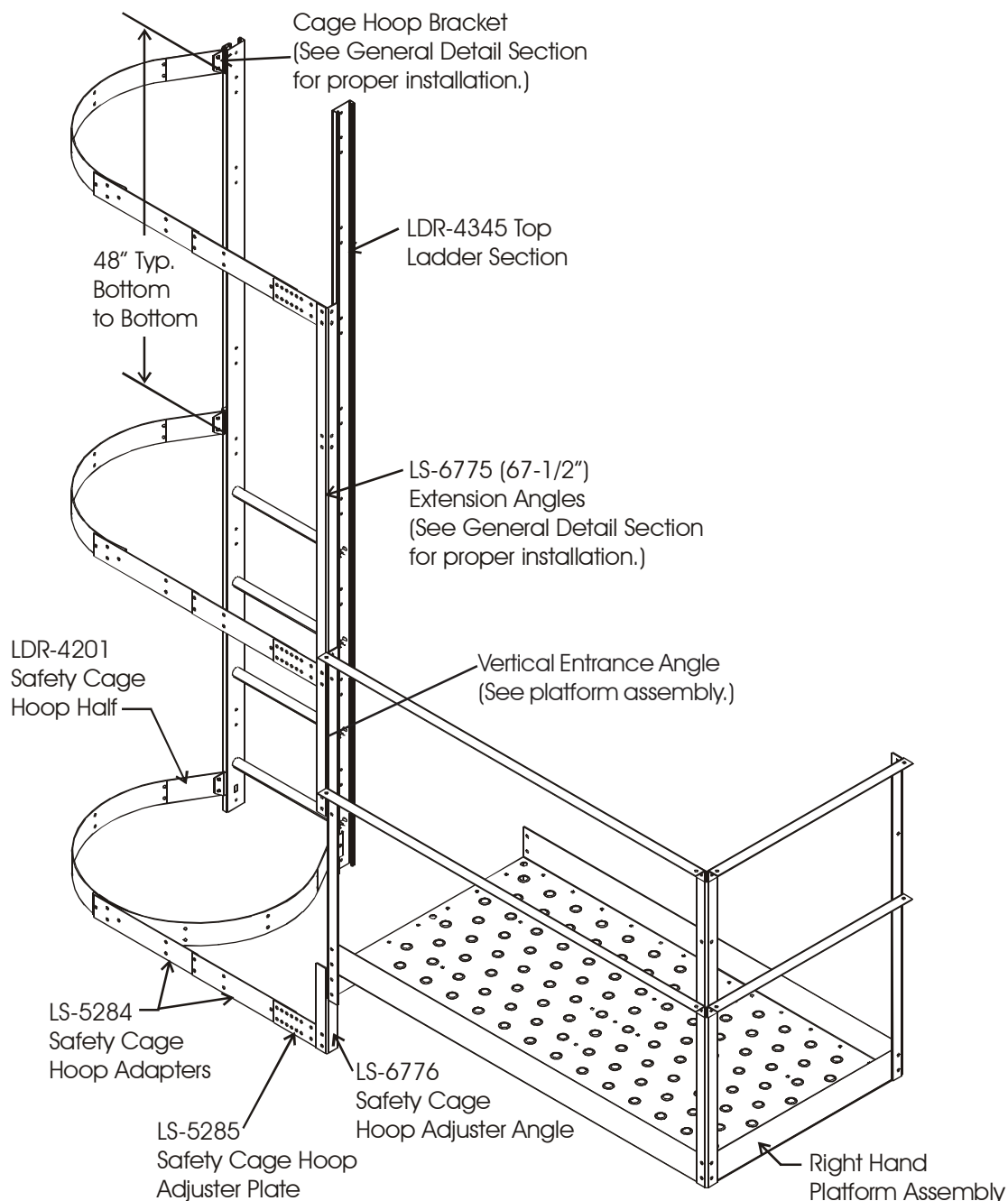
Assemble the platform support frame using 5/16" x 3/4" truss head bolts and nuts. When attaching the platform mounting angles to the sidewall, locate the mounting angles according to the instructions on previous pages. Now, proceed to the platform floor and handrails. Align holes on platform floor with the holes on platform supports and bolt together using 5/16" x 3/4" truss head bolts and nuts. Be sure and attach platform toe plates at the same time you attach the platform floor. Vertical entrance angle will bolt to platform floor, toeplate and platform support. Handrail post bolts to platform floor and toeplate as shown.

RIGHT HAND PLATFORM SUPPORT ASSEMBLY



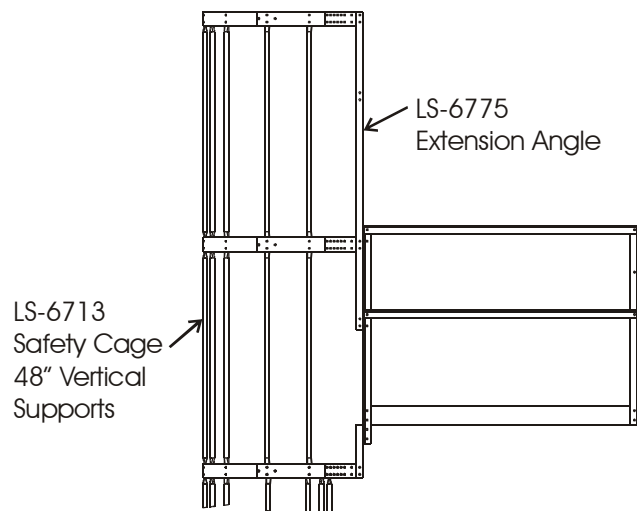
EAVE SAFETY CAGE HOOP ASSEMBLY

Before attaching any pieces to the ladders or platform, some pre-assembly will be required. Attach the safety cage brackets to the ladder section (see general detail section). Take the safety cage hoop adjuster plates and bolt them onto the extension angle as shown. Bolt the safety cage hoop adapters and safety cage hoop halves together using the proper holes depending on the diameter of the grain bin. Be sure to use the 5/16" x 3/4" bolt with the head of the bolt to the inside of the safety cage. You may now bolt these assemblies to the safety cage brackets and hoop adjuster plates, tighten bolts as you go. The bottom assembly requires two hoop halves and will be positioned just below the platform as shown. Use the safety cage hoop adjuster angle to secure the two-hoop half assembly to the vertical entrance angle on the platform assembly.



VERTICAL SUPPORTS

After all three hoop assemblies are in place you may attach the 48" vertical supports from hoop assembly to hoop assembly as shown. This will require 10 supports, 5 between each set of hoops. Bolts should have the head of the bolt to the inside of the safety cage.

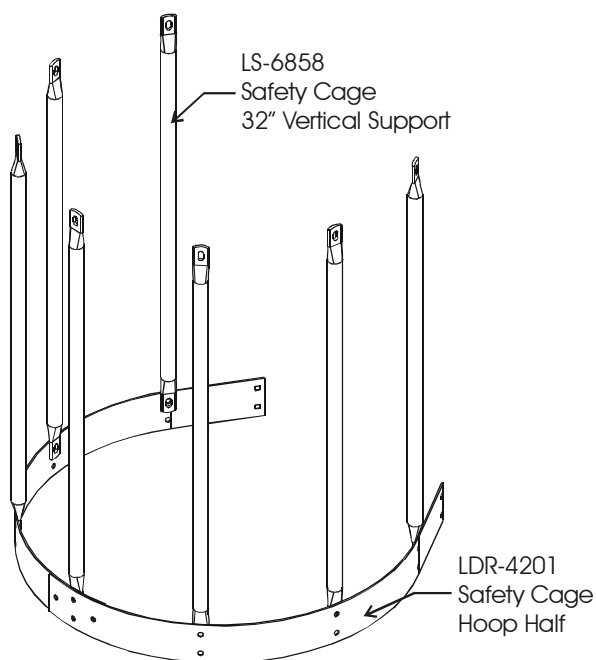


VERTICAL SUPPORTS

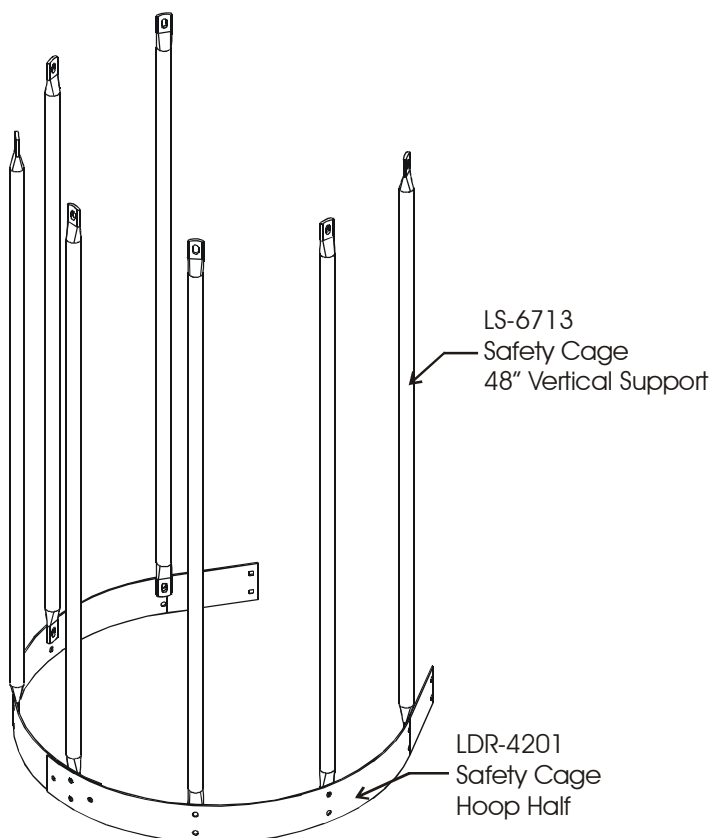
32" & 48" SAFETY CAGE

Attach the vertical support pieces to the existing hoop halves above using the 5/16" x 3/4" bolts and nuts (with the heads on the inside of the cage). Fasten two hoop halves together and bolt to other end of vertical supports. Attach cage hoop brackets to ladder, see general detail section for proper attachment. Once cage hoop brackets have been installed, attach cage hoop halves & tighten bolts. Repeat installation for each safety cage required.

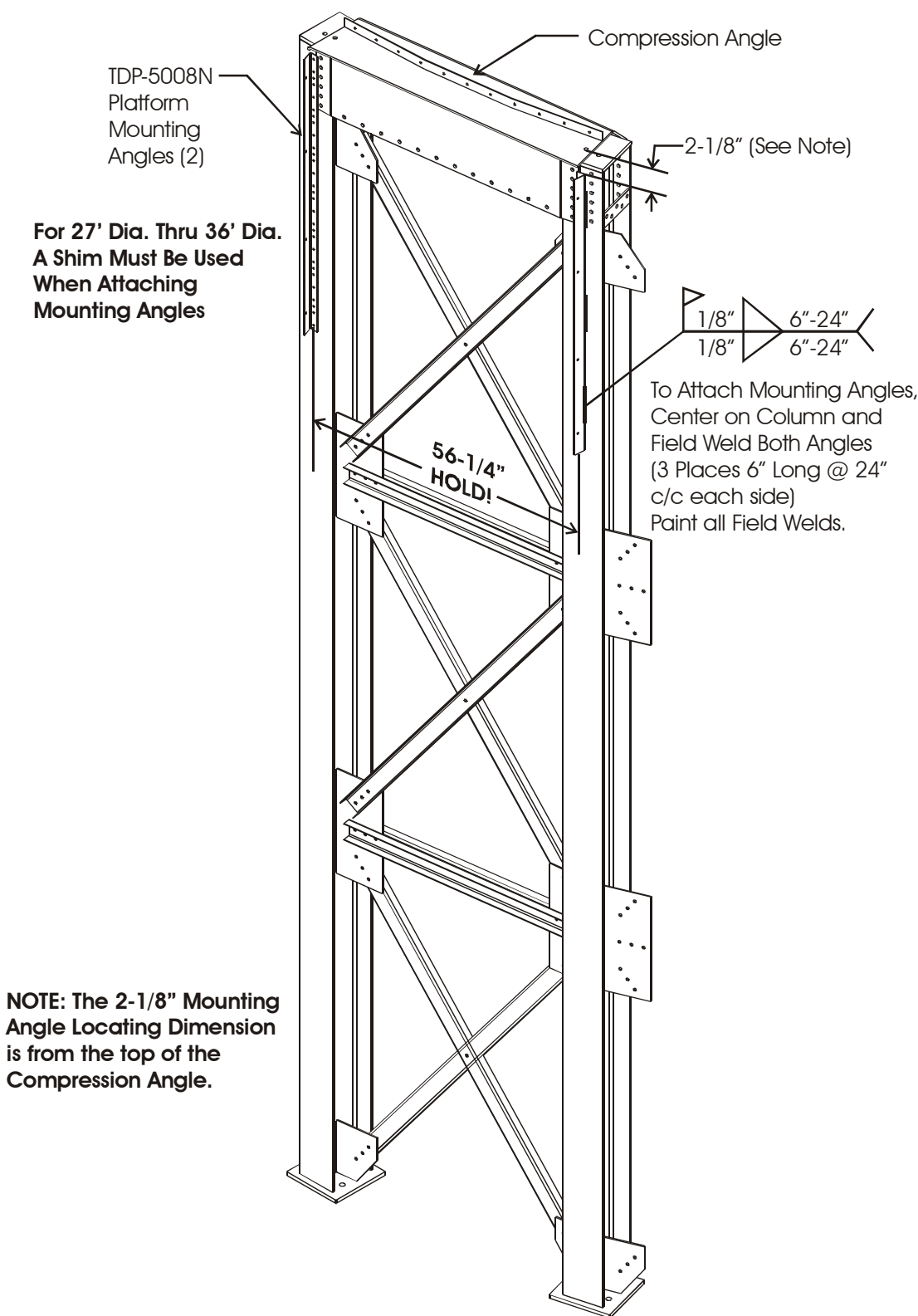
32" SAFETY CAGE



48" SAFETY CAGE

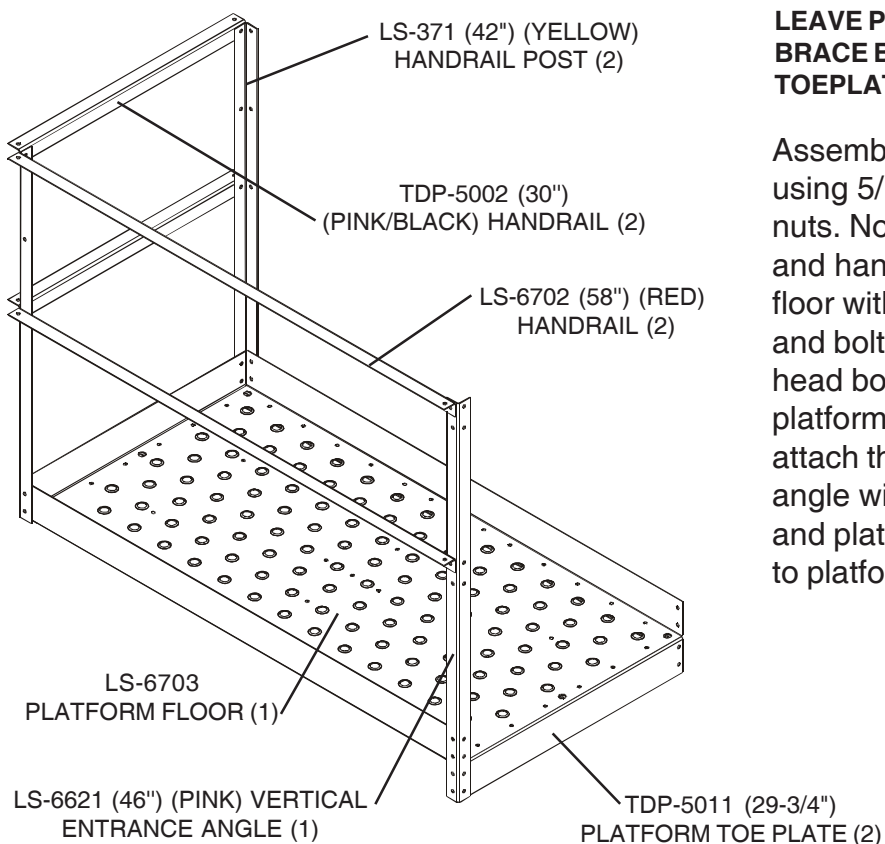


ACCESS DOOR PLATFORM MOUNTING
ANGLE INSTALLATION



LEFT HAND PLATFORM AND PLATFORM SUPPORT ASSEMBLY

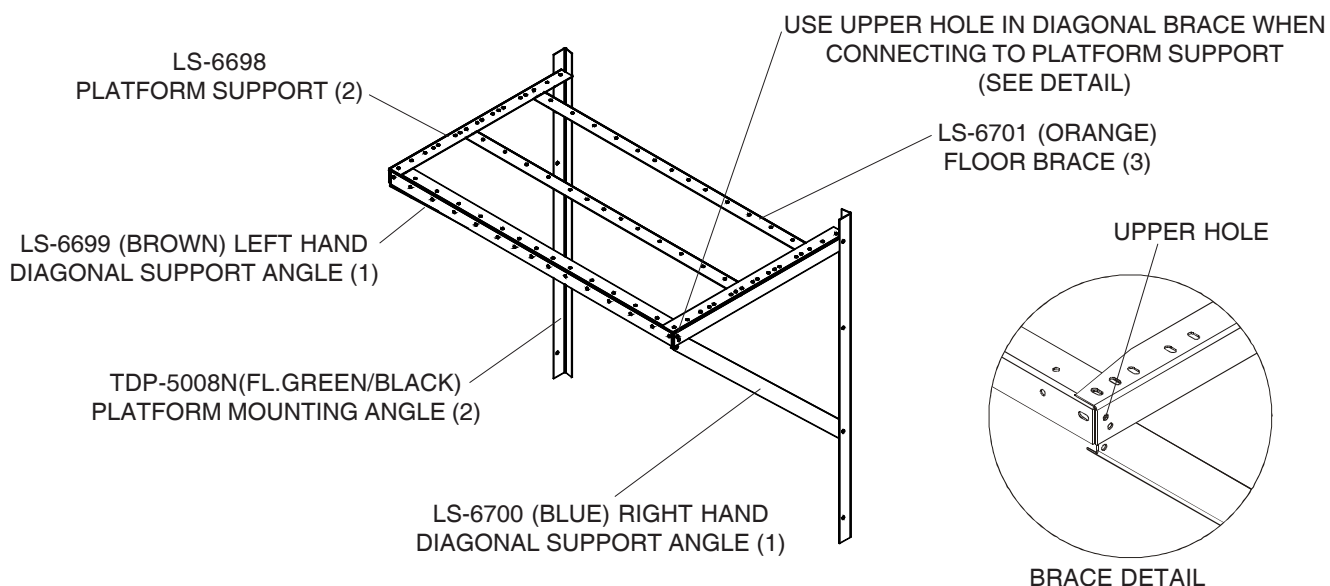
LEFT HAND PLATFORM



NOTE: THE PLATFORM MOUNTING ANGLES SHOULD BE MOUNTED ON THE COLUMNS FIRST. THE PLATFORM FLOOR SHOULD THEN BE ASSEMBLED ONTO THE SUPPORT FRAME. LEAVE PLATFORM SUPPORT TO FLOOR BRACE BOLTS LOOSE UNTIL FLOOR AND TOEPLATES ARE SECURE.

Assemble the platform support frame using 5/16" x 3/4" truss head bolts and nuts. Now, proceed to the platform floor and handrails. Align holes on platform floor with the holes on platform supports and bolt together using 5/16" x 3/4" truss head bolts and nuts. Be sure and attach platform toe plates at the same time you attach the platform floor. Vertical entrance angle will bolt to platform floor, toeplate and platform support. Handrail post bolts to platform floor and toeplate as shown.

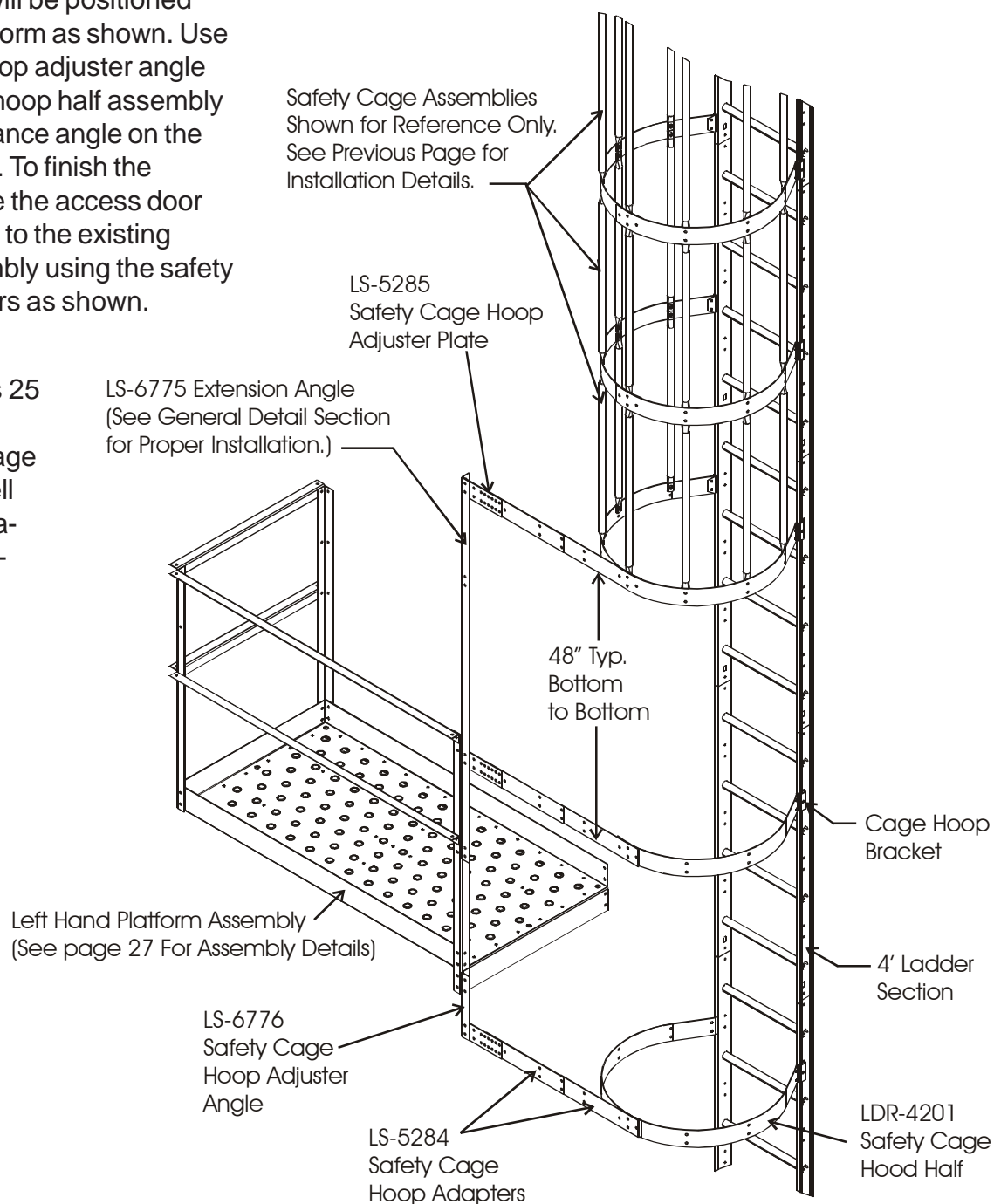
LEFT HAND PLATFORM SUPPORT ASSEMBLY



ACCESS DOOR SAFETY CAGE HOOP ASSEMBLY

Before attaching any pieces to the ladder or platform, some pre-assembly will be required. Attach the safety cage brackets to the ladder section (see general details section for proper installation instructions). Take the safety cage hoop adjuster plates and bolt them onto the extension angle as shown. For the middle hoop assembly, bolt the safety cage hoop adapters and safety cage hoop half together using the proper holes depending on the diameter of the bin. Be sure to use the 5/16" x 3/4" bolt with the head of the bolt to the inside of the safety cage. You may now bolt this assembly to the safety cage bracket and hoop adjuster plate, tighten as you go. The bottom assembly requires two hoop halves and will be positioned just below the platform as shown. Use the safety cage hoop adjuster angle to secure the two-hoop half assembly to the vertical entrance angle on the platform assembly. To finish the installation, secure the access door platform assembly to the existing safety cage assembly using the safety cage hoop adapters as shown.

NOTE: See pages 25 & 29 for vertical supports, safety cage installation, and bell safety cage installation details to complete the ladder assembly.

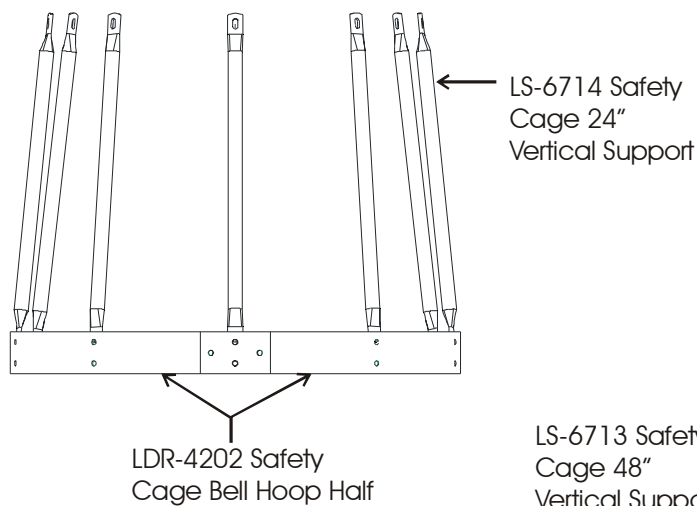


24" - 48" SAFETY CAGE BELL SECTIONS

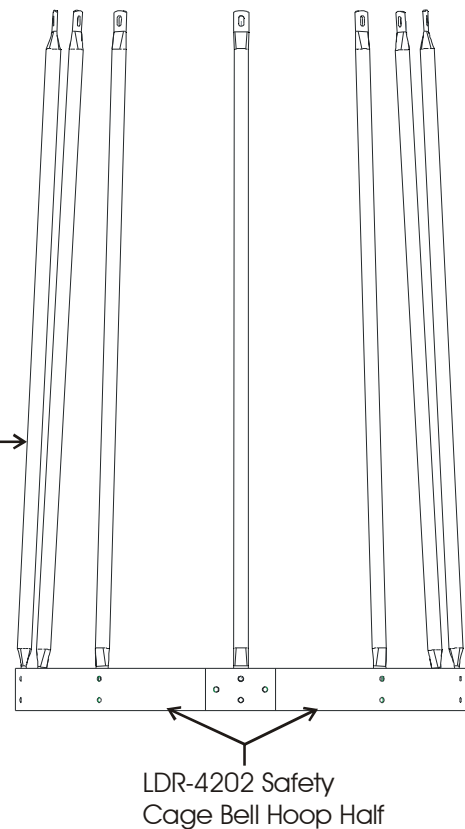
Attach the vertical supports to the hoop half assembly from the final safety cage installation using 5/16" x 3/4" bolts & nuts (with the heads on the inside of the cage). Assemble the special bell safety cage hoop halves and attach to other end of vertical supports. The vertical support will have to be bent at the flat area to allow for the angle of the bell section. Attach the safety cage brackets to the ladder as shown in the general details section. Once the safety cage brackets are installed, attach the bell safety cage hoop half assembly to the safety cage brackets & tighten bolts.

NOTE: The Safety cage bell section is to be used at the point of termination of the safety cage and should be just above the concrete (generally 7 to 8 feet).

24" Bell

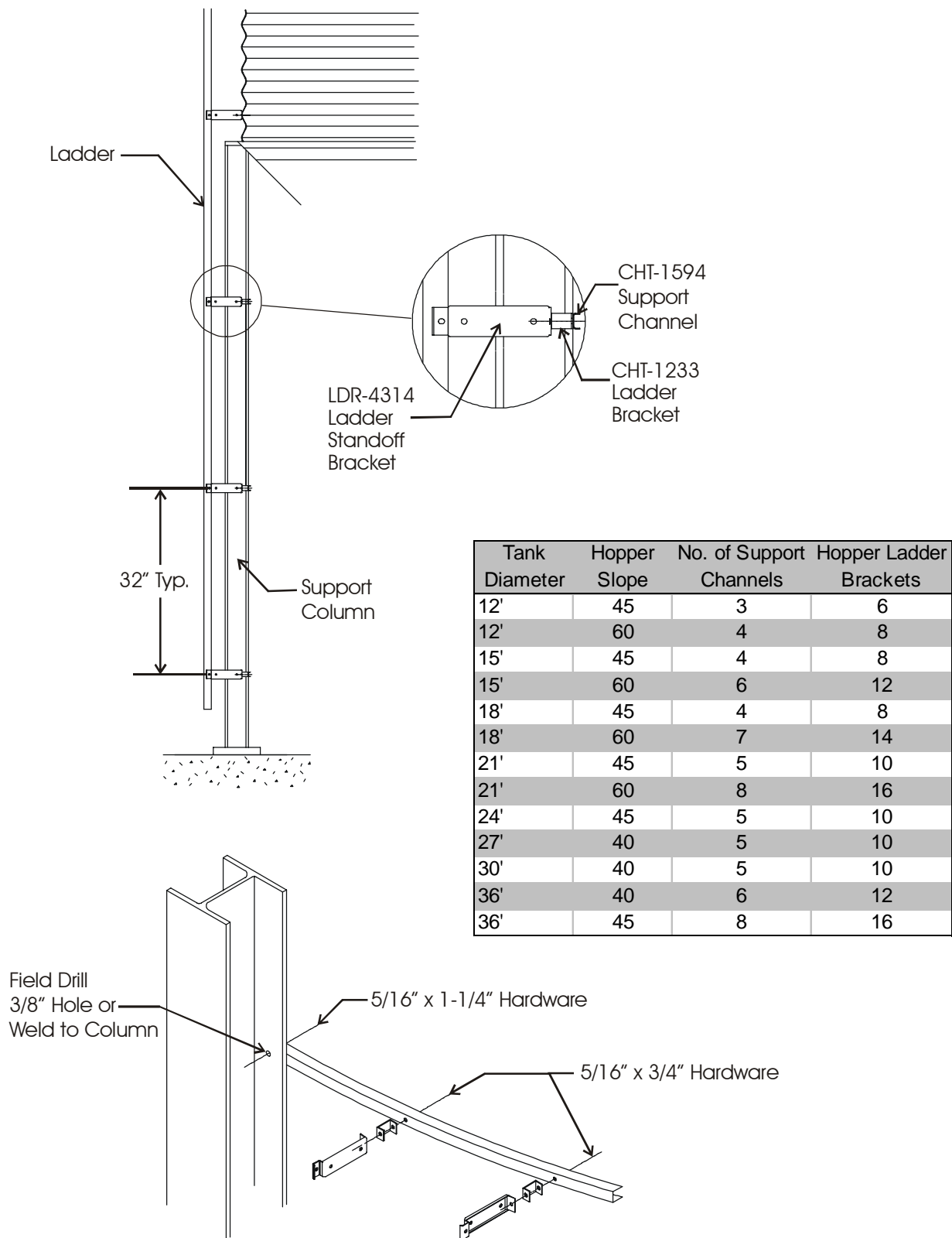


48" Bell



LADDER SUPPORT DETAIL

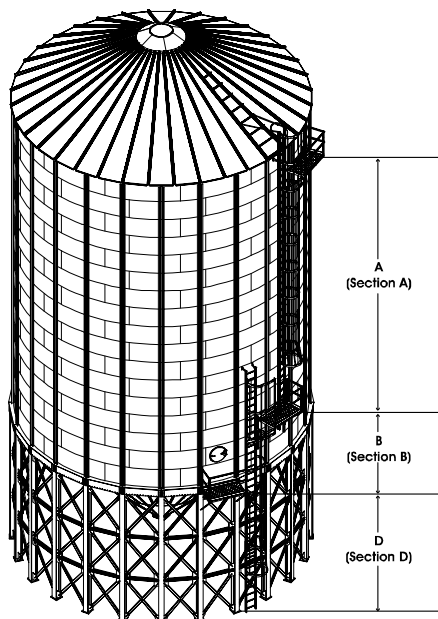
The ladder must be secured to the hopper support columns with ladder standoff brackets using support channels and ladder brackets as shown.



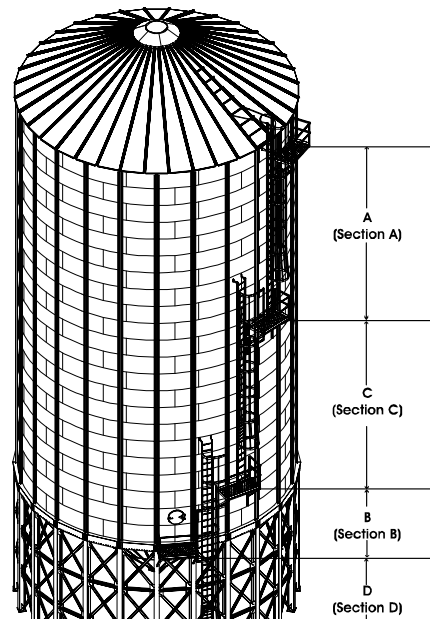
2.66" CORRUGATED COMMERCIAL HOPPER TANK 10-22 RINGS

2.66" Corrugated Commercial Hopper Tank 10-22 Rings

2.66 COMMERCIAL HOPPER TANK (NCHT) LADDER AND PLATFORM LAYOUT 10-22 RINGS





17 RINGS



22 RINGS

Ladder, Safety Cage, & Platform Location Chart

For Section A thru C, find the proper ring grain bin & use the amounts of ladders & safety cages shown in the chart. For Section D, find the proper diameter grain bin & hopper slope, use the amounts of ladders & safety cages shown in the chart.

SECTION B	SECTION A	RINGS 	10	11	12	13	14	15	16	17	18	19	20	21	22	
		PLATFORM LOCATED IN RING:	2	2	2	2	2	2	2	2	2	2	2	2	2	2
		4 FT. LADDER SECTION	4	5	5	6	7	7	8	9	3	5	5	5	5	6
		BELL SAFETY CAGE	1	1	1	1	1	1	1	1	1	1	1	1	1	1
		SAFETY CAGE 48" SECTION	1	2	2	3	4	4	5	6	0	2	2	2	2	3
		BELL SAFETY CAGE SIZE	48"	24"	48"	48"	24"	48"	48"	24"	48"	48"	48"	48"	48"	48"
		DIMENSION A	192"	224"	256"	288"	320"	352"	384"	416"	160"	256"	256"	256"	288"	288"
		PLATFORM LOCATED IN RING:	8	9	10	11	12	13	14	15	16	17	18	19	20	20
		4 FT. LADDER SECTION	4	4	4	4	4	4	4	4	4	4	4	4	4	4
		BELL SAFETY CAGE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SAFETY CAGE 48" SECTION	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
DIMENSION B	96"	96"	96"	96"	96"	96"	96"	96"	96"	96"	96"	96"	96"	96"		
SECTION C	PLATFORM LOCATED IN RING:									7	10	10	10	11		
	4 FT. LADDER SECTION									8	7	8	8	8		
	BELL SAFETY CAGE									1	1	1	1	1		
	SAFETY CAGE 48" SECTION									3	2	2	3	3		
	BELL SAFETY CAGE SIZE									48"	24"	48"	48"	48"		
	DIMENSION C									288"	224"	256"	288"	288"		
SECTION D	SECTION D	DIAMETER 	12'	12'	15'	15'	18'	18'	21'	21'	24'	27'	27'	30'	30'	
		HOPPER SLOPE:	45	60	45	60	45	60	45	60	45	40	45	40	45	
		4 FT. LADDER SECTION	2	3	3	4	3	5	3	5	4	3	4	4	5	
		BELL SAFETY CAGE	0	1	0	1	1	1	1	1	1	1	1	1	1	
		SAFETY CAGE 4' SECTION	0	0	0	1	0	1	0	2	0	0	1	0	1	
		BELL SAFETY CAGE SIZE	N/A	24"	N/A	24"	24"	48"	48"	24"	48"	48"	24"	48"	48"	
		DIMENSION D	91"	128"	108"	167"	128"	198"	144"	229"	162"	142"	179"	156"	195"	

NCHT LADDER, SAFETY CAGE, AND PLATFORM INSTRUCTIONS 10-22 RINGS

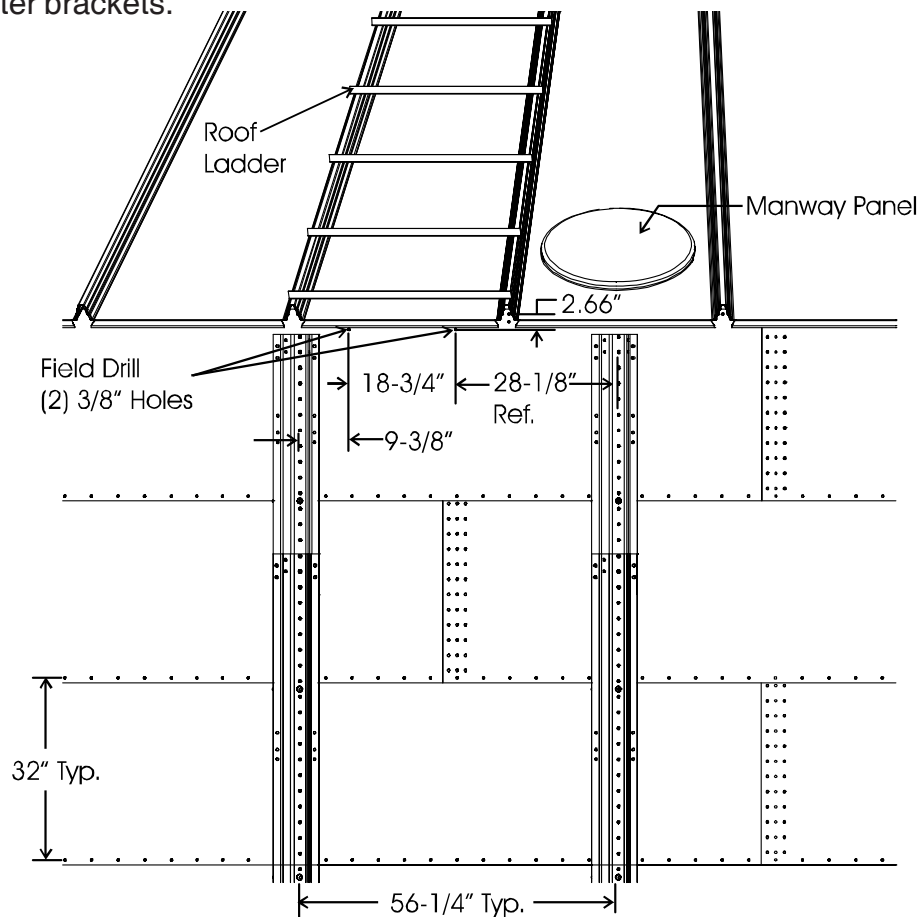
All packages have been structured with the correct components for each ring height grain bin from 10 rings to 22 rings and each diameter from 12' to 36'. Be sure and follow the complete instruction sheets for correct placement of parts. Failure to do so may result in improper fit or shortage of parts. Read through the complete set of instructions before proceeding with erection of grain bin. Considerable thought must be given as to location of ladders and platforms in relation to other equipment and structures.

EAVE STARTER BRACKET INSTALLATION

Correct placement of the eave ladder starter bracket is crucial in assuring proper fit of all ladder components as well as the correlation between platforms for proper installation of access door platform. If the eave starter brackets are mislocated, standard installation of the access door platform will not be possible.

LOCATION OF FIELD DRILLED HOLES FOR EAVE LADDER STARTER BRACKETS

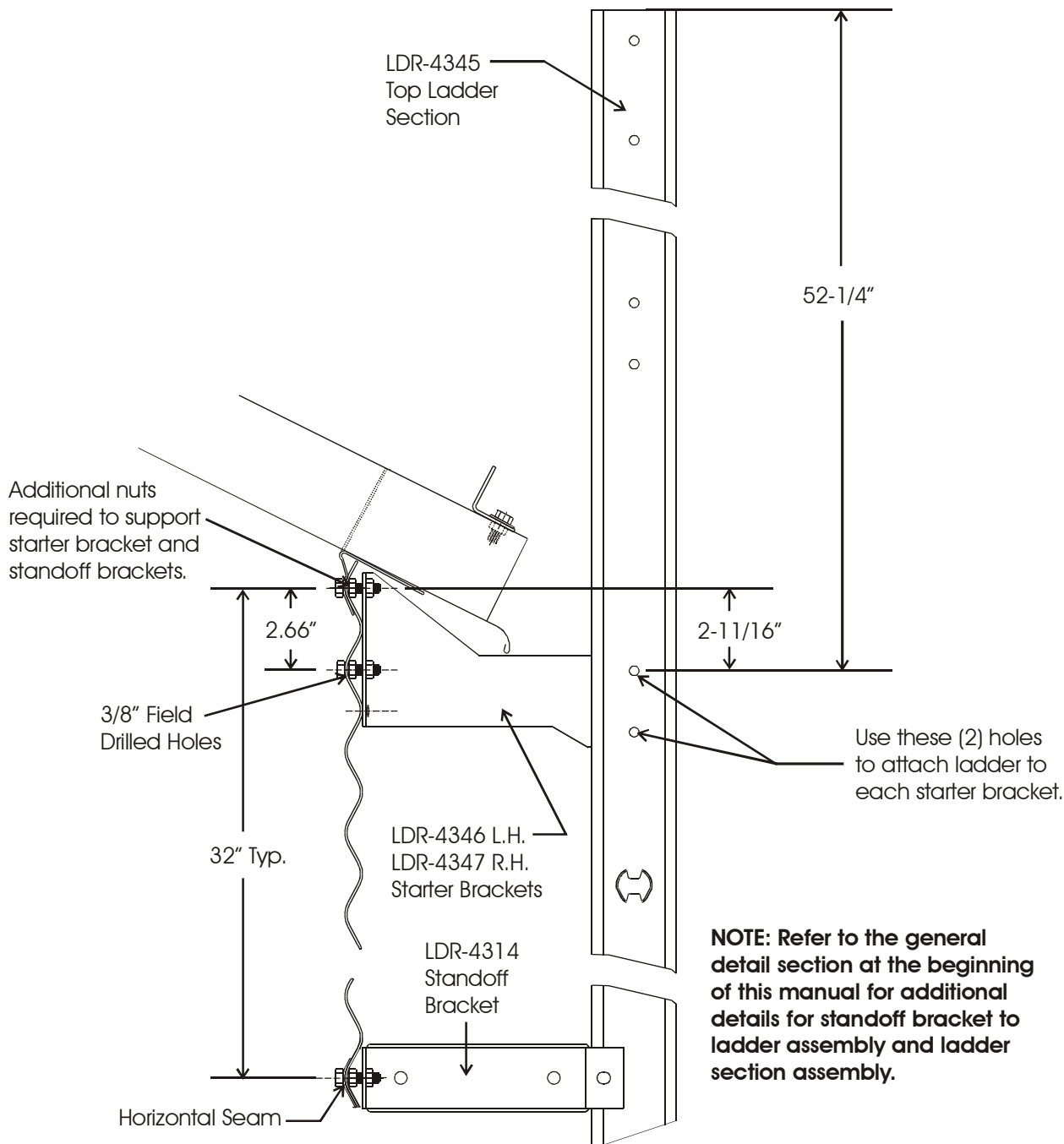
The starter brackets must be located directly below the roof ladder. Before the starter brackets can be installed, (2) 3/8" holes must be drilled. The holes must be located 2.66" below and directly in line with the top row of pre-punched horizontal holes. The first hole, required for the left-hand starter bracket, must be located 9-3/8" from the center of the stiffener to the center of the hole. The second hole, required for the right-hand bracket, must be located 18-3/4" from the center of the first hole. Refer to the diagram below for the proper location of the (2) 3/8" field-drilled holes required to install the starter brackets.



2.66" Corrugated Commercial Hopper Tank 10-22 Rings

EAVE STARTER BRACKET & LADDER ASSEMBLY WITH SAFETY CAGE

Once the (2) 3/8" holes have been drilled, attach the starter brackets to the sidewall as shown below. Check the top ladder section to make sure the ladder rung dimples are to the top surface and attach to the starter brackets using the holes located 52-1/4" from the top of the ladder. See the general detail information section for the proper installation of additional ladder sections required. Now, standoff brackets must be installed on the ladder sections and attached to the sidewall at each horizontal seam (repeating every 32"). Use 5/16" x 3/4" bin bolts for all connections.

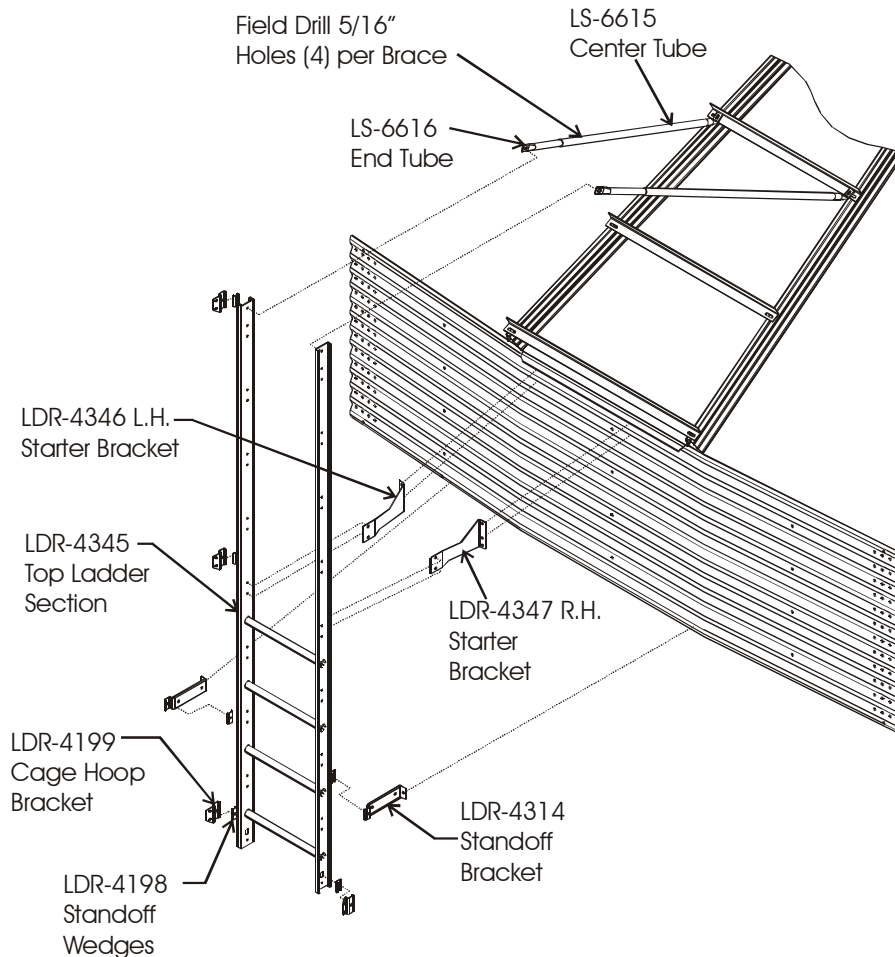


2.66" Corrugated Commercial Hopper Tank 10-22 Rings

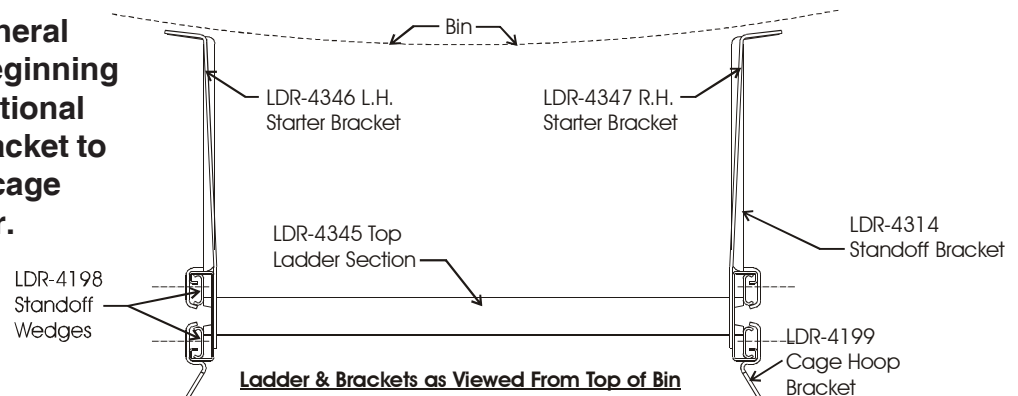
EAVE ADJUSTABLE BRACES

The adjustable braces must be attached at this time. A larger diameter tube and two smaller diameter tubes are used to make up one adjustable brace. Slip the smaller tubes inside the larger tube and attach one smaller tube to the top of the ladder. Adjust the other smaller tube so the bottom of the flattened tube reaches the roof rib. Field drill four 5/16" holes through both large and small adjustable tubes and bolt together using 1/4" x 1-1/2" bolts and nuts. This will keep the adjustable brace from slipping.

NOTE: Reference previous page for proper location of ladder starter brackets.



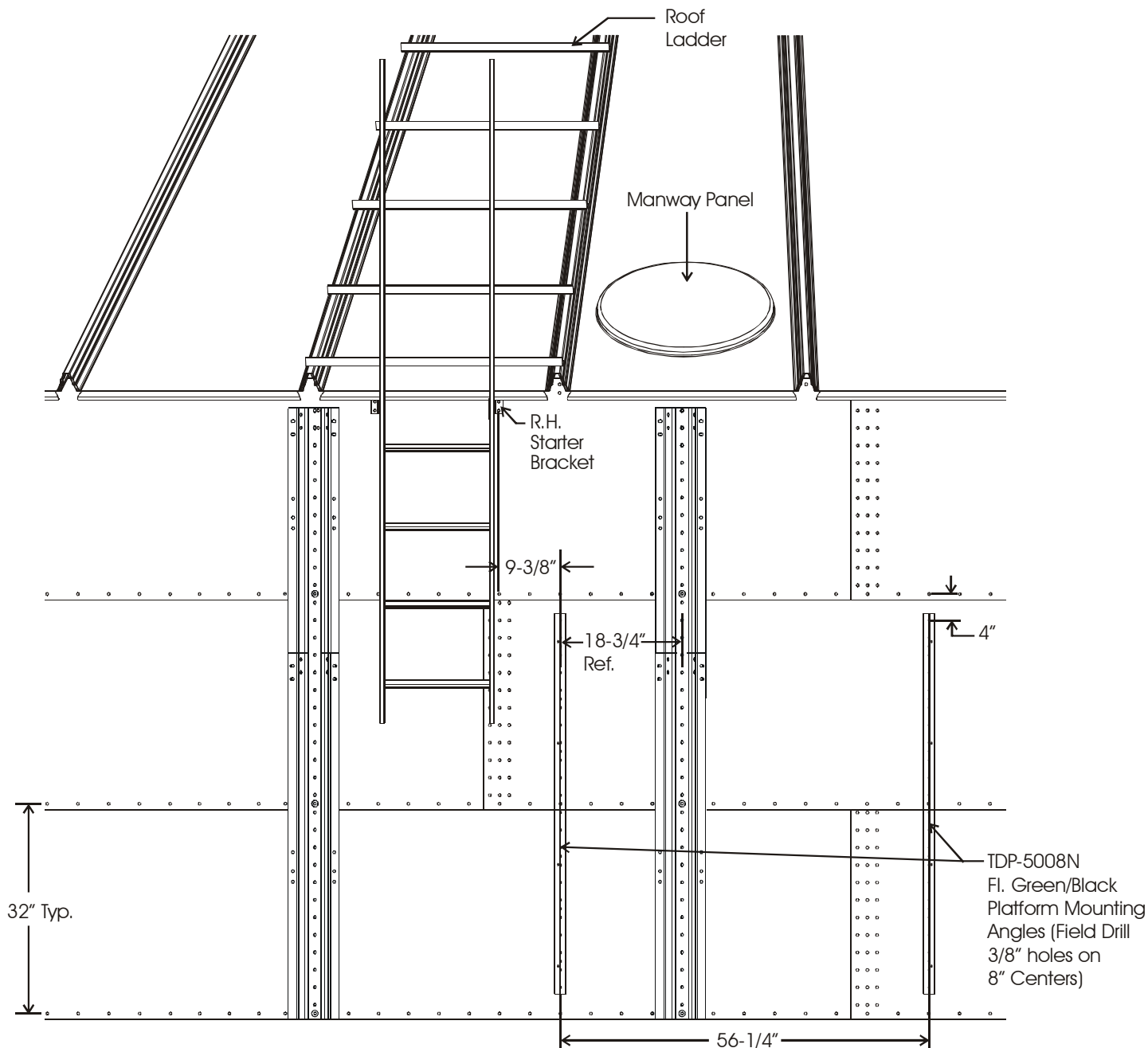
NOTE: Refer to the general detail section at the beginning of this manual for additional details for standoff bracket to ladder assembly and cage hoop bracket to ladder.



2.66" Corrugated Commercial Hopper Tank 10-22 Rings

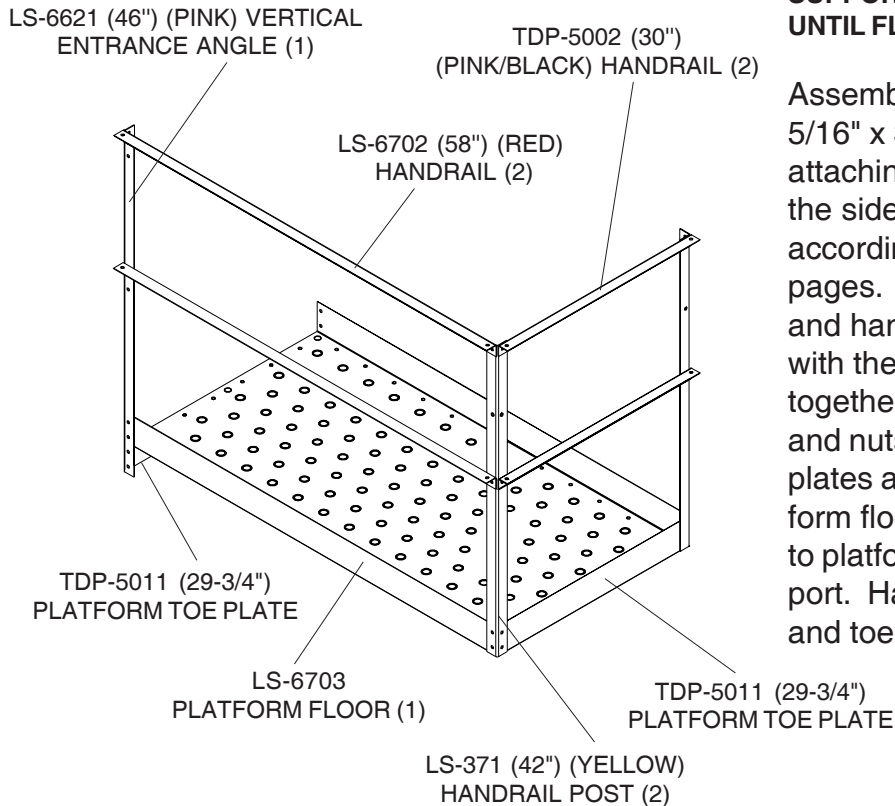
EAVE PLATFORM MOUNTING ANGLE INSTALLATION

The diagram below shows the location of the platform mounting angles. Each angle must be mounted starting 4" below the top horizontal seam of the 2nd ring with the first mounting angle offset 9-3/8" from the right hand starter bracket. The second mounting angle must be located 56-1/4" from the first mounting angle. Pay careful attention when installing these angles. The dimensions and locations of these angles are very critical to assure proper fit of all parts.



RIGHT HAND PLATFORM AND PLATFORM SUPPORT ASSEMBLY

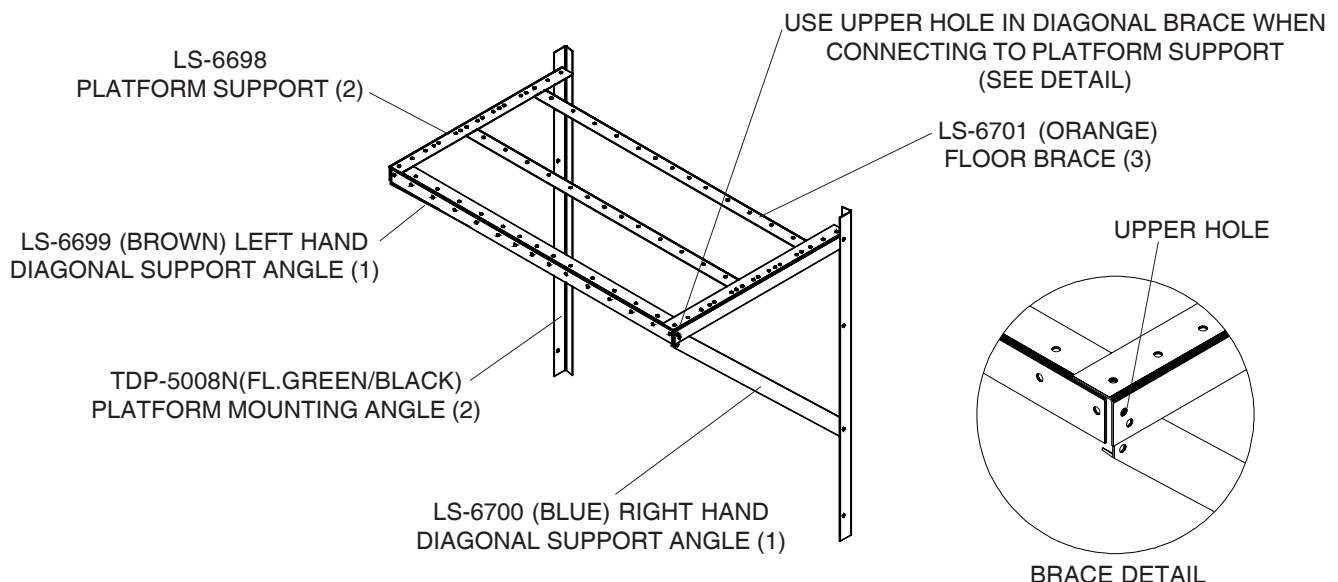
RIGHT HAND PLATFORM



NOTE: THE PLATFORM SUPPORTS SHOULD BE MOUNTED ON THE BIN FIRST. THE PLATFORM FLOOR SHOULD THEN BE ASSEMBLED ONTO THE SUPPORT FRAME. LEAVE PLATFORM SUPPORT TO FLOOR BRACE BOLTS LOOSE UNTIL FLOOR AND TOEPLATES ARE SECURE.

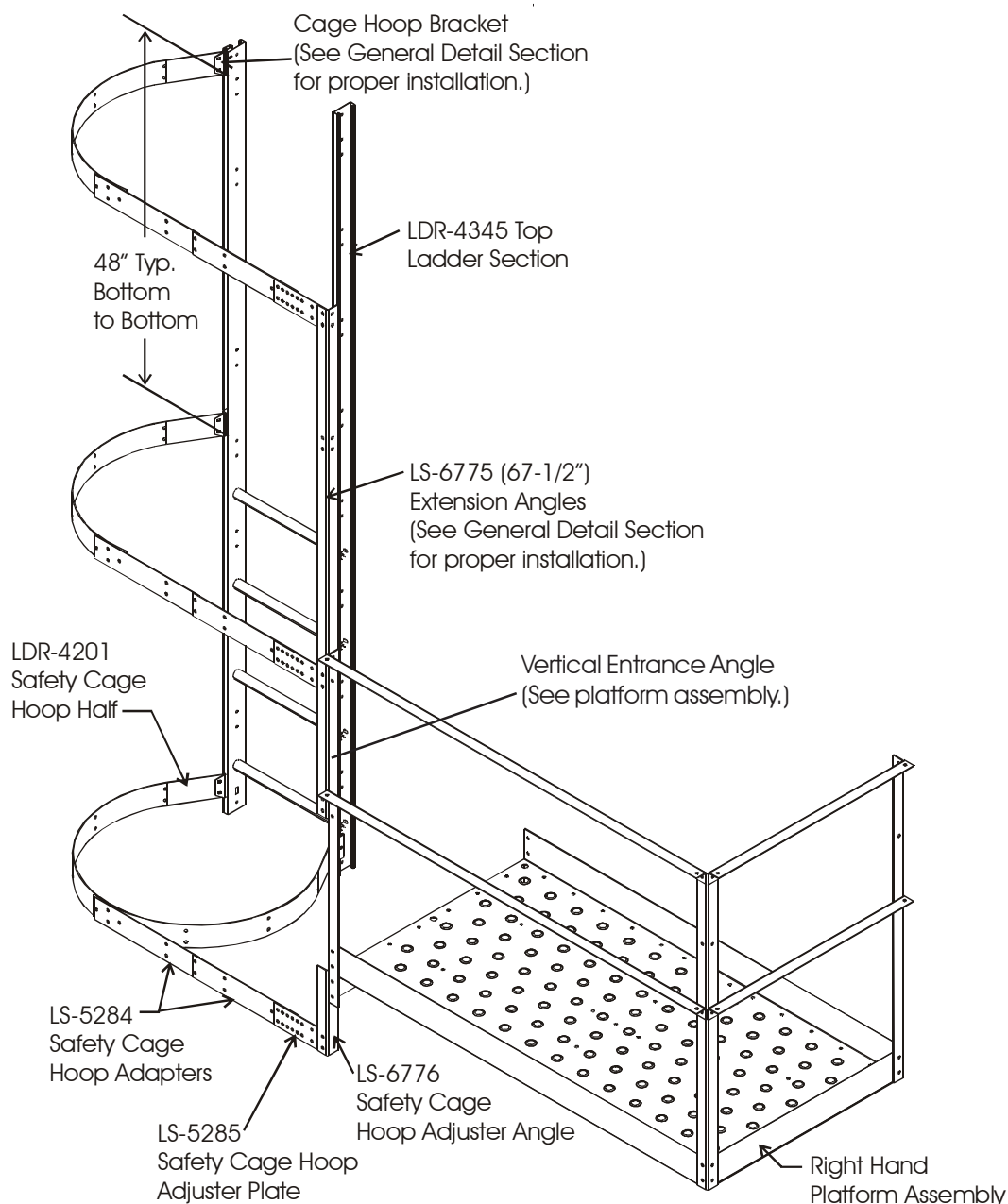
Assemble the platform support frame using 5/16" x 3/4" truss head bolts and nuts. When attaching the platform mounting angles to the sidewall, locate the mounting angles according to the instructions on previous pages. Now, proceed to the platform floor and handrails. Align holes on platform floor with the holes on platform supports and bolt together using 5/16" x 3/4" truss head bolts and nuts. Be sure and attach platform toe plates at the same time you attach the platform floor. Vertical entrance angle will bolt to platform floor, toeplate and platform support. Handrail post bolts to platform floor and toeplate as shown.

RIGHT HAND PLATFORM SUPPORT ASSEMBLY



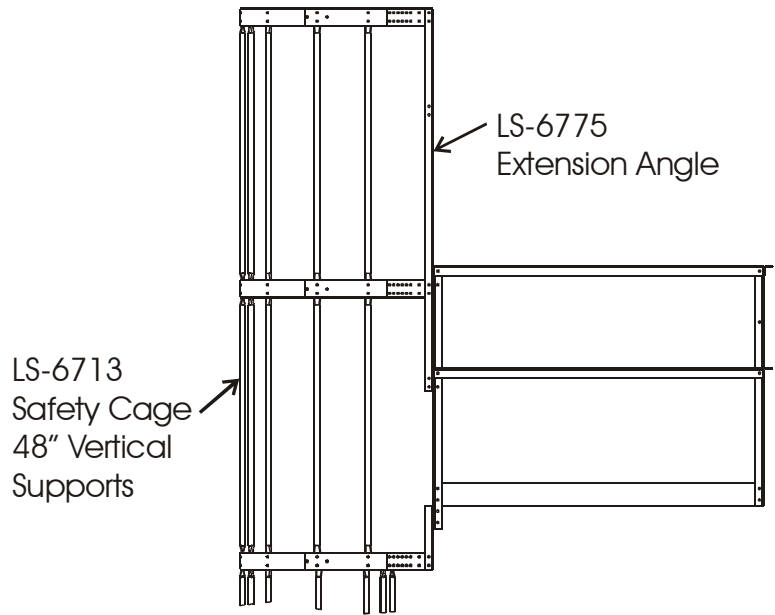
EAVE SAFETY CAGE HOOP ASSEMBLY

Before attaching any pieces to the ladders or platform, some pre-assembly will be required. Attach the safety cage brackets to the ladder section (see general detail section). Take the safety cage hoop adjuster plates and bolt them onto the extension angle as shown. Bolt the safety cage hoop adapters and safety cage hoop halves together using the proper holes depending on the diameter of the grain bin. Be sure to use the 5/16" x 3/4" bolt with the head of the bolt to the inside of the safety cage. You may now bolt these assemblies to the safety cage brackets and hoop adjuster plates, tighten bolts as you go. The bottom assembly requires two hoop halves and will be positioned just below the platform as shown. Use the safety cage hoop adjuster angle to secure the two-hoop half assembly to the vertical entrance angle on the platform assembly.



VERTICAL SUPPORTS

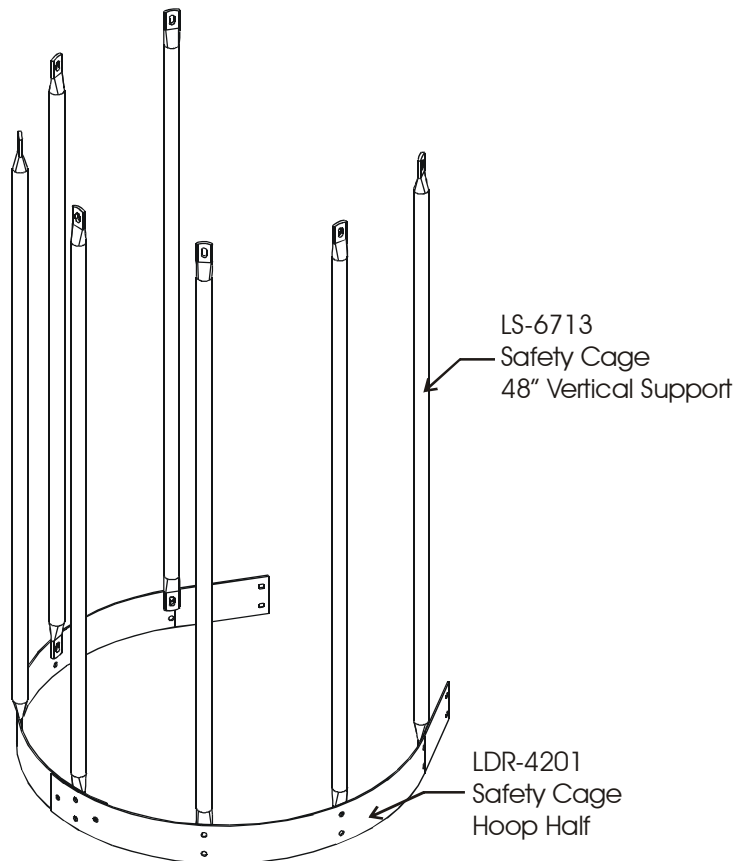
After all three hoop assemblies are in place you may attach the 48" vertical supports from hoop assembly to hoop assembly as shown. This will require 10 supports, 5 between each set of hoops. Bolts should have the head of the bolt to the inside of the safety cage.



VERTICAL SUPPORTS

48" SAFETY CAGE

Attach the vertical support pieces to the existing hoop halves above using the 5/16" x 3/4" bolts and nuts (with the heads on the inside of the cage). Fasten two hoop halves together and bolt to other end of vertical supports. Attach cage hoop brackets to ladder. (See general detail section for proper attachment.) Once cage hoop brackets have been installed, attach cage hoop halves & tighten bolts. Repeat installation for each safety cage required.



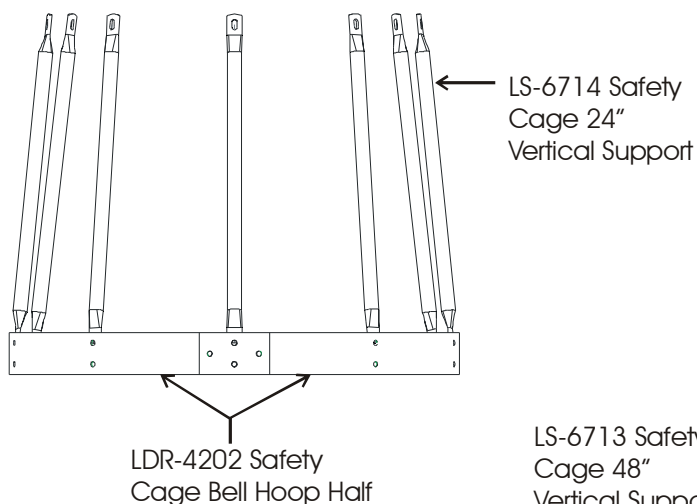
48" SAFETY CAGE

24" - 48" SAFETY CAGE BELL SECTIONS

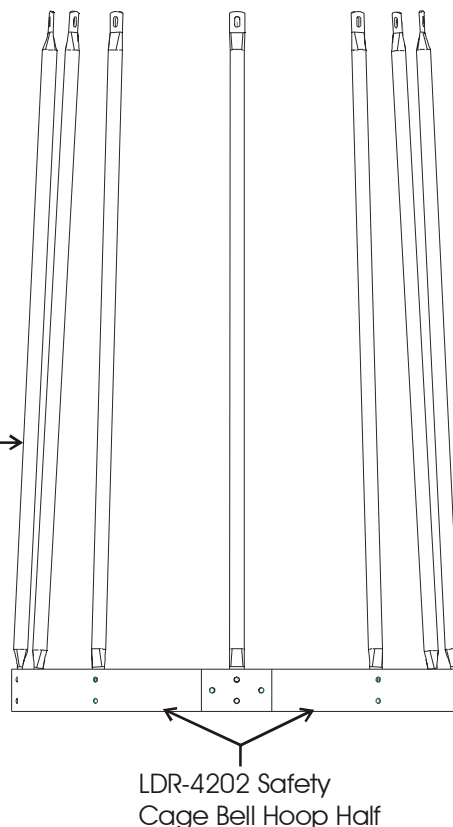
Attach the vertical supports to the hoop half assembly from the final safety cage installation using 5/16" x 3/4" bolts & nuts (with the heads on the inside of the cage). Assemble the special bell safety cage hoop halves and attach to other end of vertical supports. The vertical support will have to be bent at the flat area to allow for the angle of the bell section. Attach the safety cage brackets to the ladder as shown in the general details section. Once the safety cage brackets are installed, attach the bell safety cage hoop half assembly to the safety cage brackets & tighten bolts.

NOTE: The Safety cage bell section is to be used at the point of termination of the safety cage and should be just above the intermediate or base platform (generally 7 to 8 feet).

24" Bell

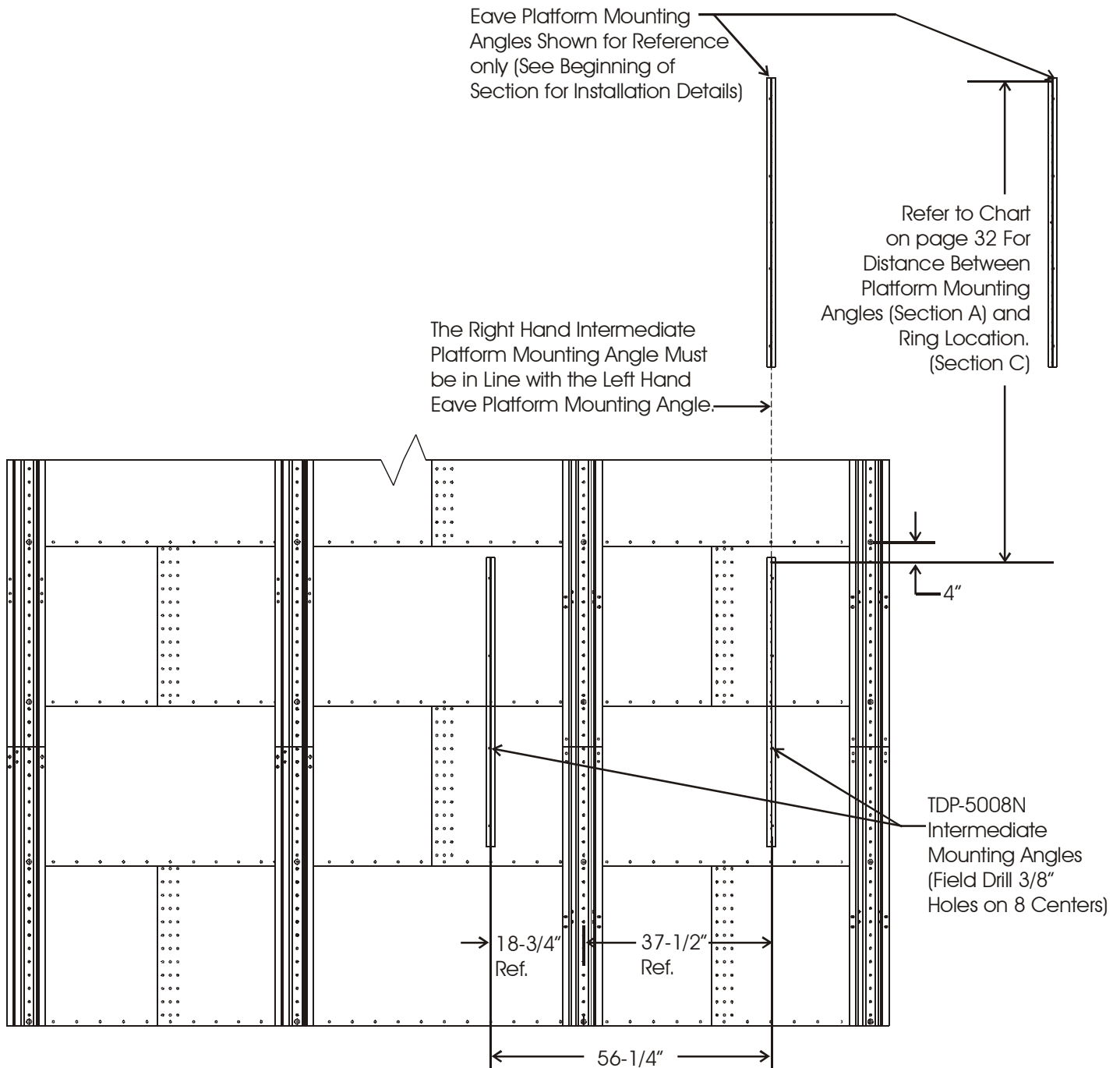


48" Bell



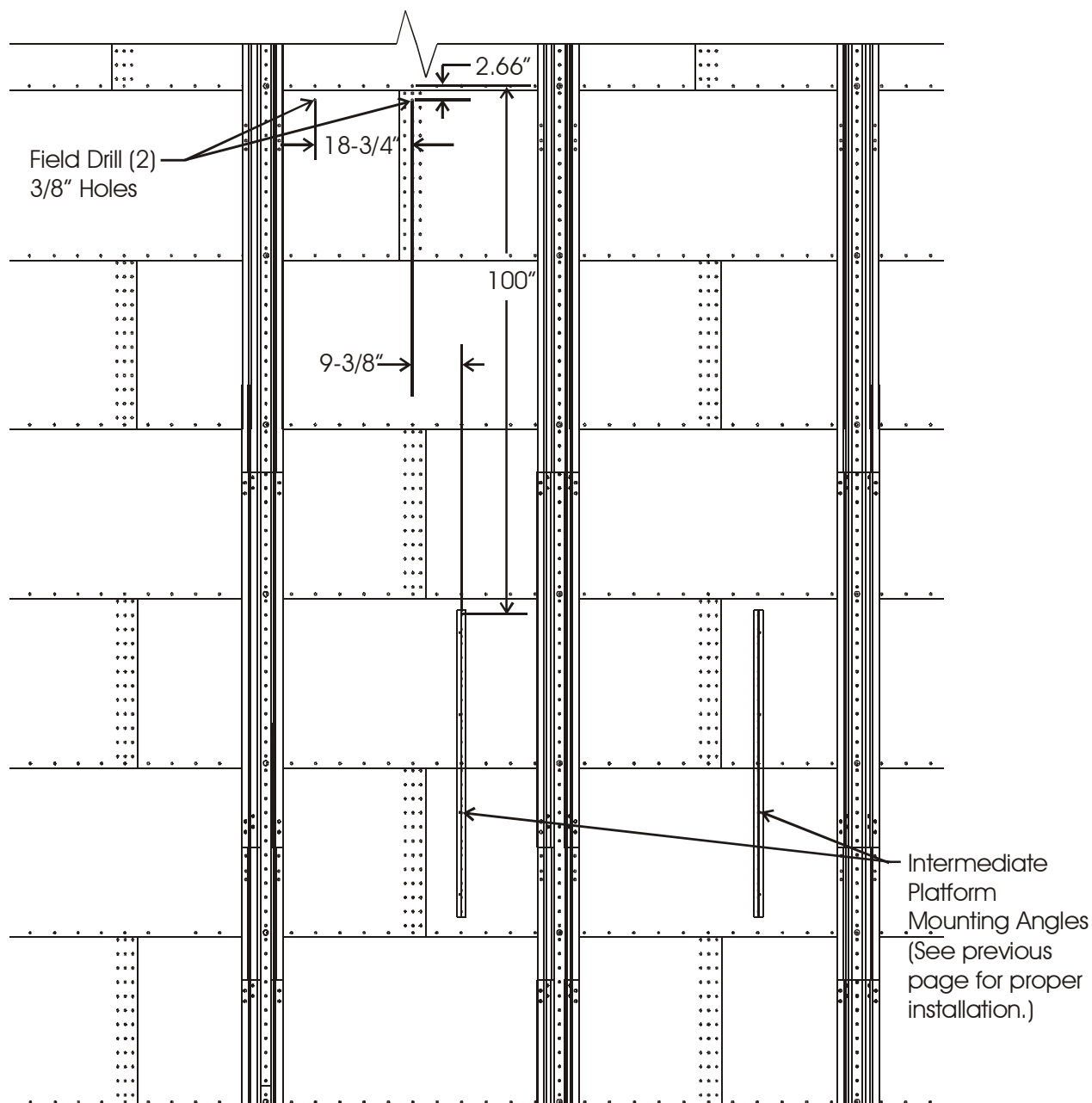
INTERMEDIATE PLATFORM MOUNTING ANGLE INSTALLATION

For Tanks with 18 to 22 rings, an intermediate platform is required. The diagram below shows the location of the intermediate platform mounting angles. Each angle must be mounted starting 4" below the top horizontal seam of the ring specified in the chart on page 32 with the first mounting angle directly in line with the left-hand eave mounting angle. The second mounting angle must be located 56-1/4" to the left of the first mounting angle. Pay careful attention when installing these angles. The dimensions and locations of these angles are very critical to assure proper fit of all parts.



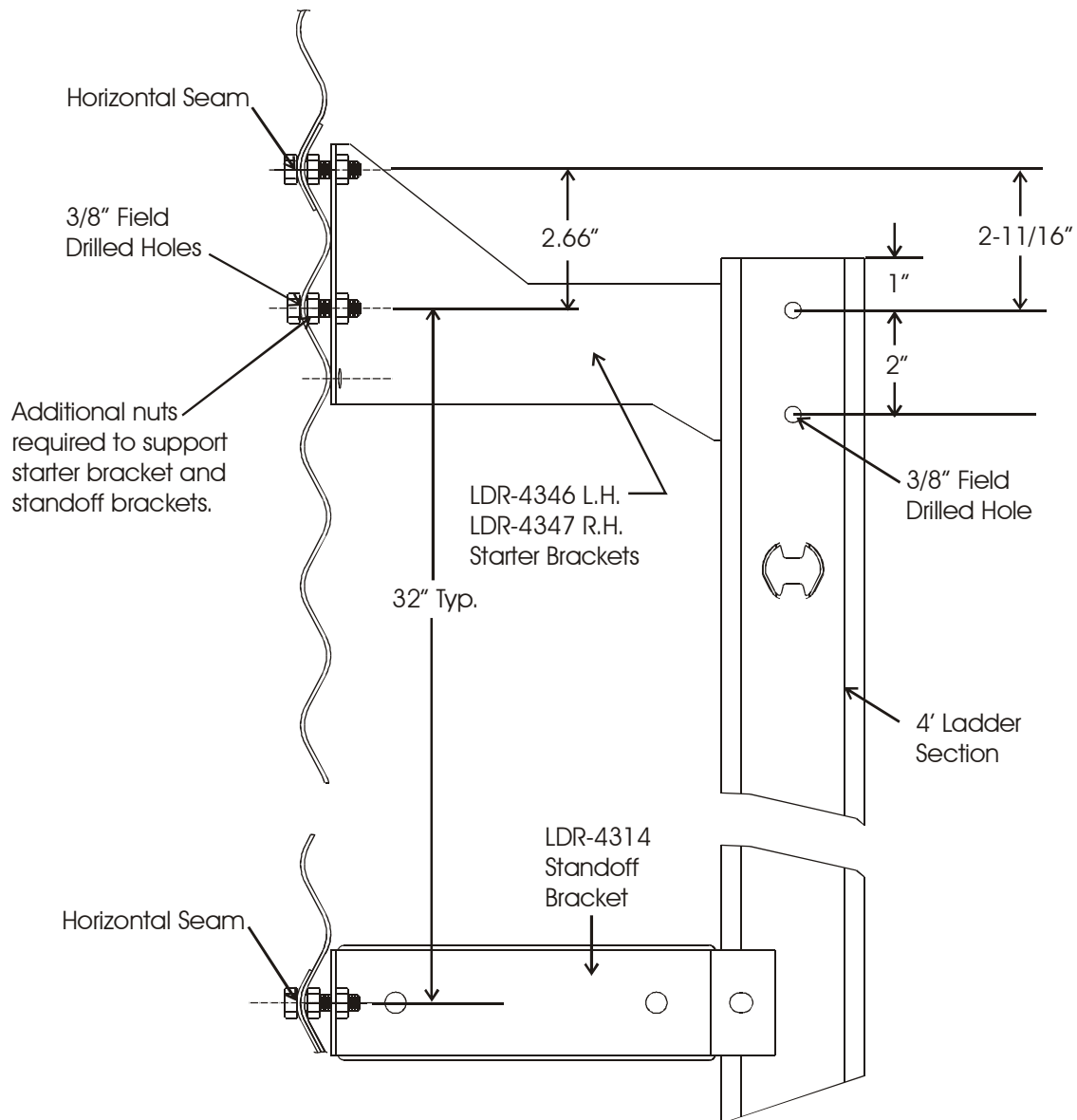
LOCATION OF FIELD-DRILLED HOLES FOR INTERMEDIATE LADDER STARTER BRACKETS

Before the starter brackets can be installed, (2) $\frac{3}{8}$ " holes must be drilled. The holes must be located 2.66" below and directly in line with the top horizontal seam holes located in the 3rd ring up from the intermediate platform mounting angles. The first hole, required for the right-hand starter bracket, must be located $9\frac{3}{8}$ " from the center of the left-hand intermediate platform mounting angle to the center of the hole. The second hole, required for the left-hand bracket, must be located $18\frac{3}{4}$ " from the center of the first hole. Refer to the diagram below for the proper location of the (2) $\frac{3}{8}$ " field-drilled holes required to install the starter brackets.



INTERMEDIATE STARTER BRACKET & LADDER ASSEMBLY WITH SAFETY CAGE

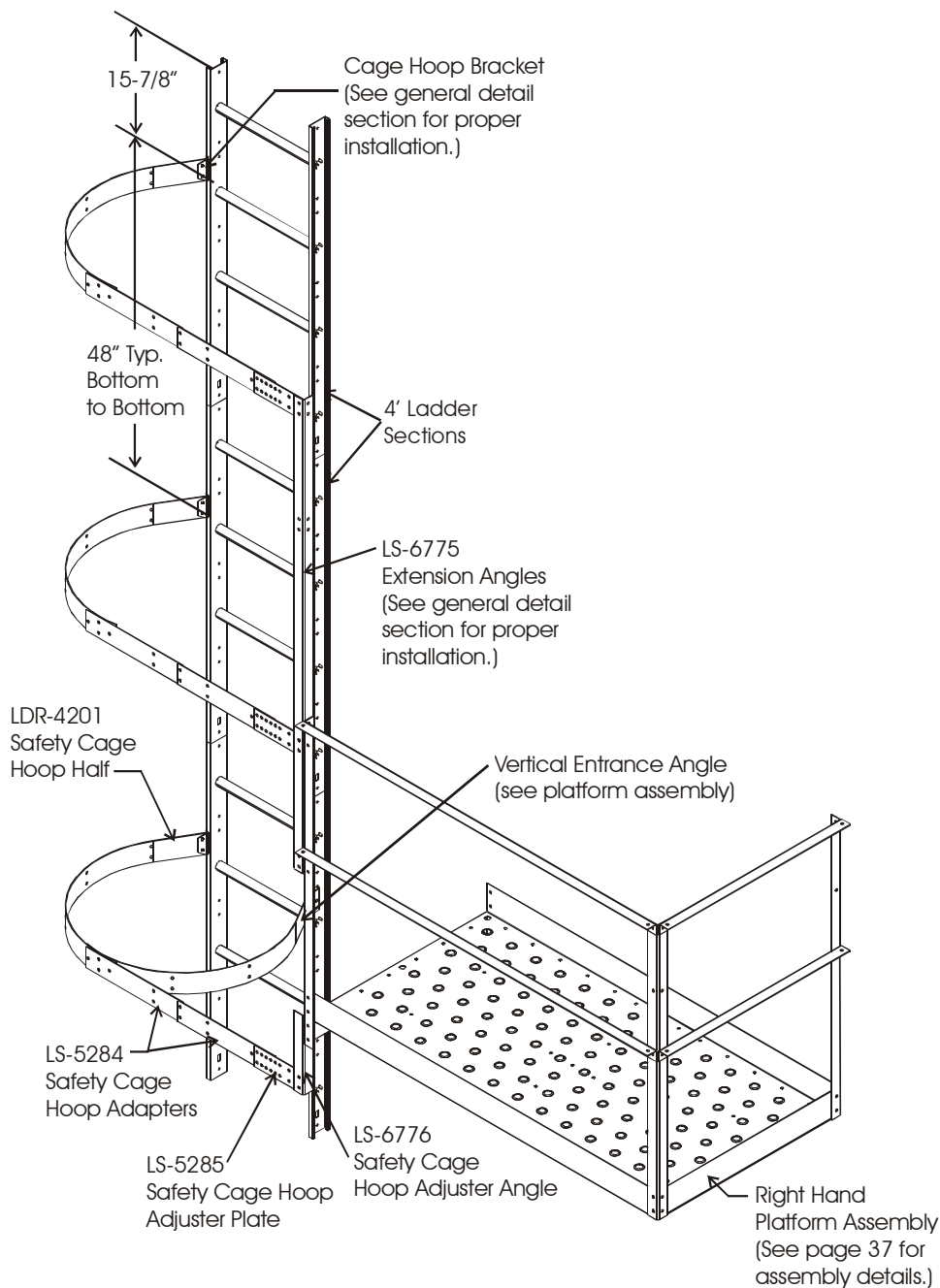
Once the (2) 3/8" holes have been drilled, attach the starter brackets to the sidewall as shown below. Check the top ladder section to make sure the ladder rung dimples are to the top surface and attach to the starter brackets using the holes located 1" from the top of the ladder. See the general detail section for proper installation of additional ladder sections required. Now, standoff brackets must be installed on the ladder sections and attached to the sidewall at each horizontal seam (repeating every 32") until reaching the base platform. (Use 5/16" x 3/4" bin bolts for all connections). Refer to the section in these instructions that reference the location of the base platforms.



INTERMEDIATE & BASE SAFETY CAGE HOOP ASSEMBLY

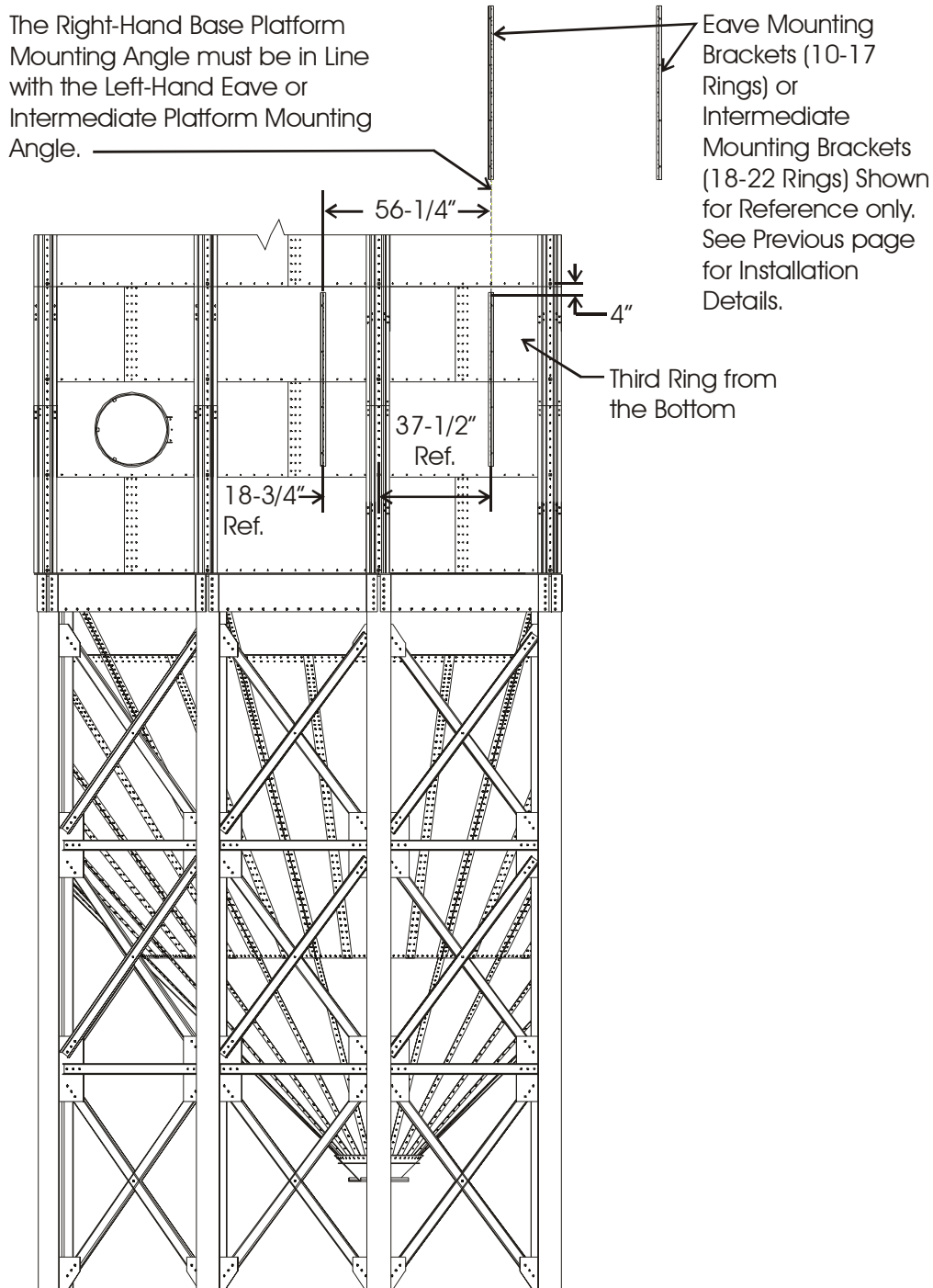
Before attaching any pieces to the ladders or platform, some pre-assembly will be required. Attach the safety cage brackets to the ladder section (see general details section). Take the safety cage hoop adjuster plates and bolt them onto the extension angle as shown. Bolt the safety cage hoop adapters and safety cage hoop halves together using the proper holes depending on the diameter of the grain bin. Be sure to use the 5/16" x 3/4" bolt with the head of the bolt to the inside of the safety cage. You may now bolt these assemblies to the safety cage brackets and hoop adjuster plates, tighten bolts as you go. The bottom assembly requires two hoop halves and will be positioned just below the platform as shown. Use the safety cage hoop adjuster angle to secure the two-hoop half assembly to the vertical entrance angle on the platform assembly.

NOTE: See pages 39 & 40 for vertical supports, Safety cage and bell cage installation details to complete the intermediate ladder assembly.



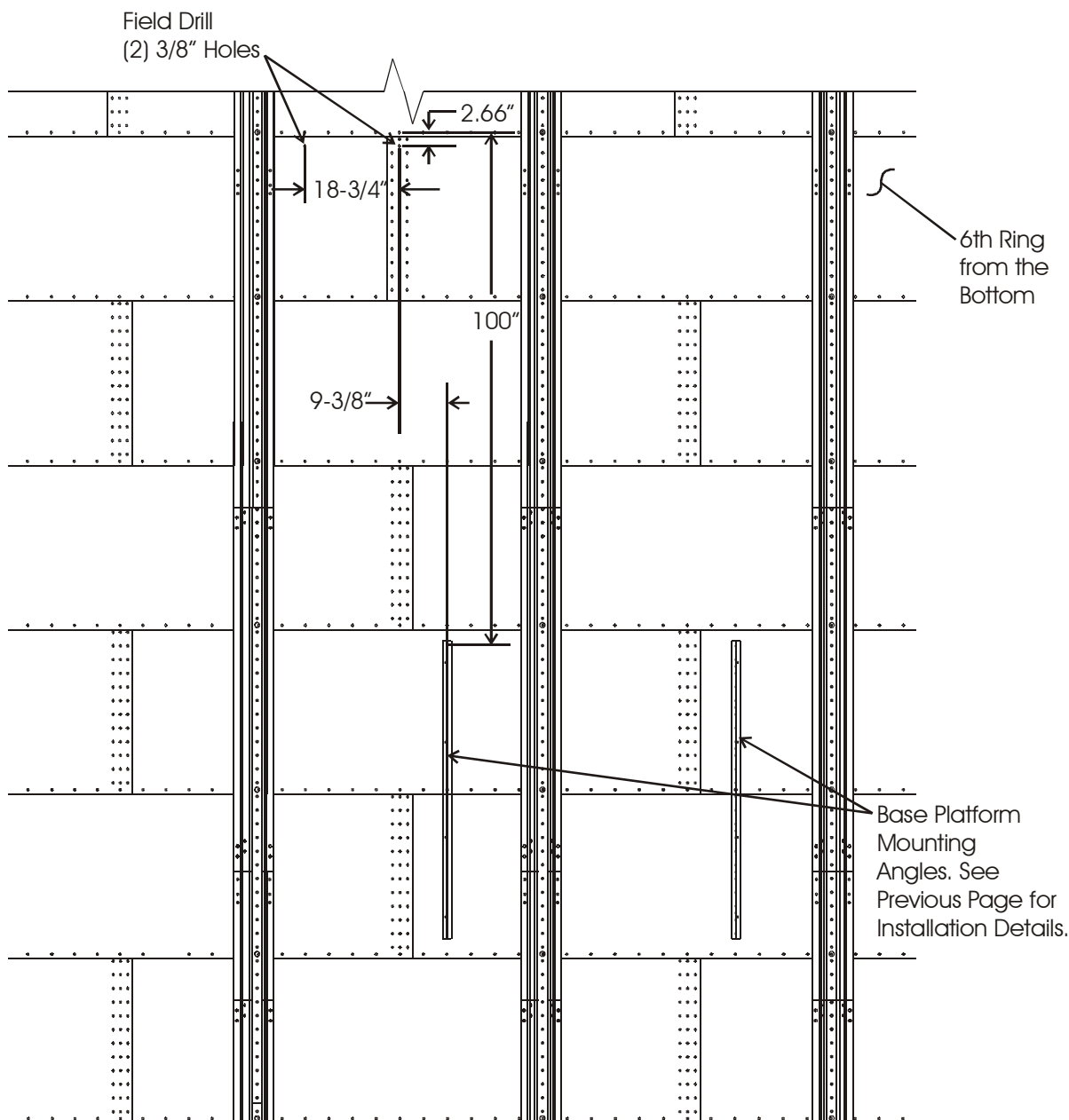
BASE PLATFORM MOUNTING ANGLE INSTALLATION

The diagram below shows the location of the base platform mounting angles. Each angle must be mounted starting 4" below the top horizontal seam of the 3rd ring from the bottom of the tank with the first mounting angle directly in line with the left-hand eave or intermediate (if applicable) mounting angle. The second mounting angle must be located 56-1/4" to the left of the first mounting angle. Pay careful attention when installing these angles. The dimensions and locations of these angles are very critical to assure proper fit of all parts and integration with the access door platform.



LOCATION OF FIELD-DRILLED HOLES FOR BASE LADDER STARTER BRACKETS

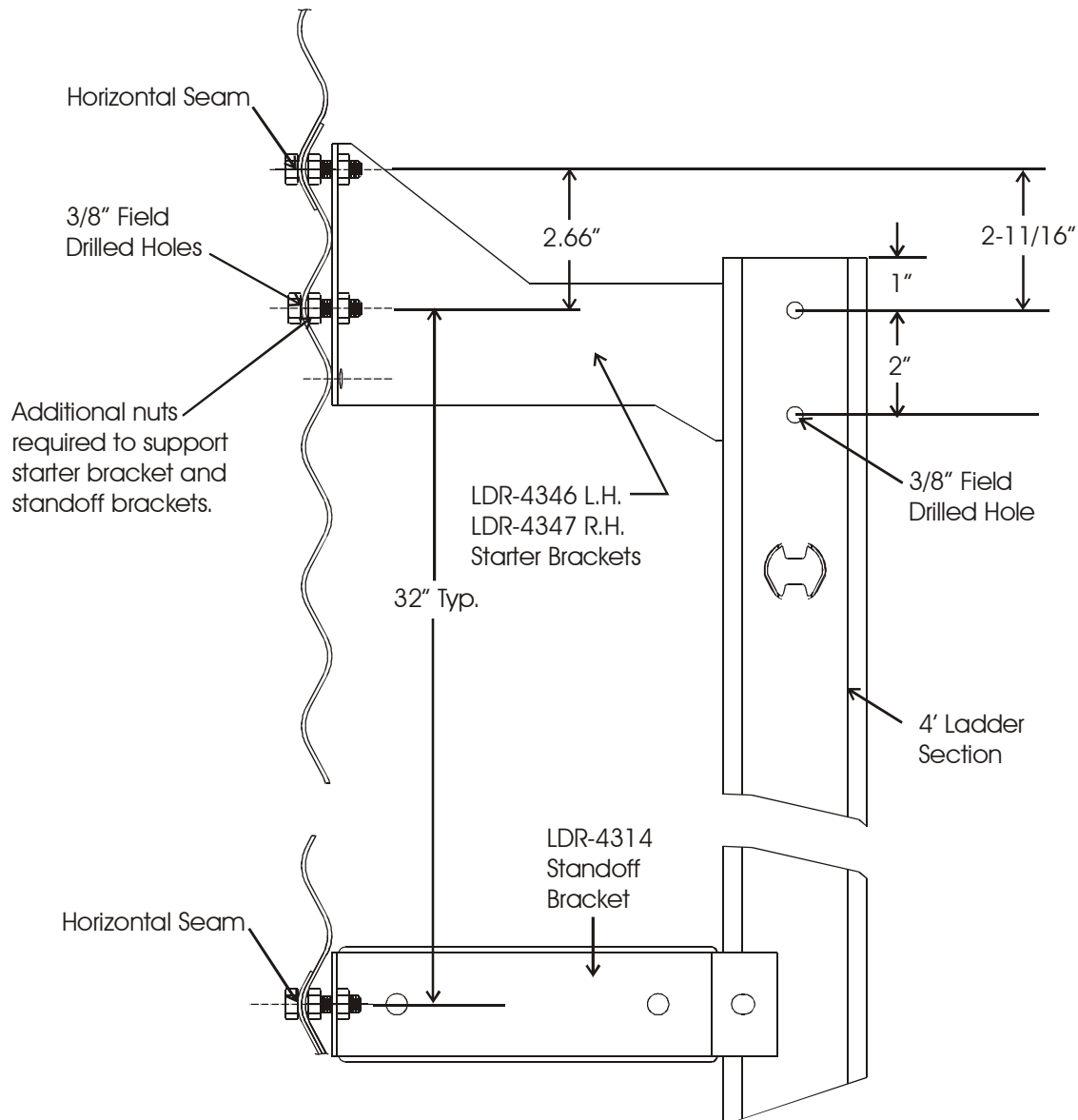
Before the starter brackets can be installed, (2) $\frac{3}{8}$ " holes must be drilled. The holes must be located 2.66" below and directly in line with the top horizontal seam holes located in the 6th ring from the bottom of the tank. The first hole, required for the right-hand starter bracket, must be located $9\frac{3}{8}$ " from the center of the left-hand base platform mounting angle to the center of the hole. The second hole, required for the left-hand bracket, must be located $18\frac{3}{4}$ " from the center of the first hole. Refer to the diagram below for the proper location of the (2) $\frac{3}{8}$ " field-drilled holes required to install the starter brackets.



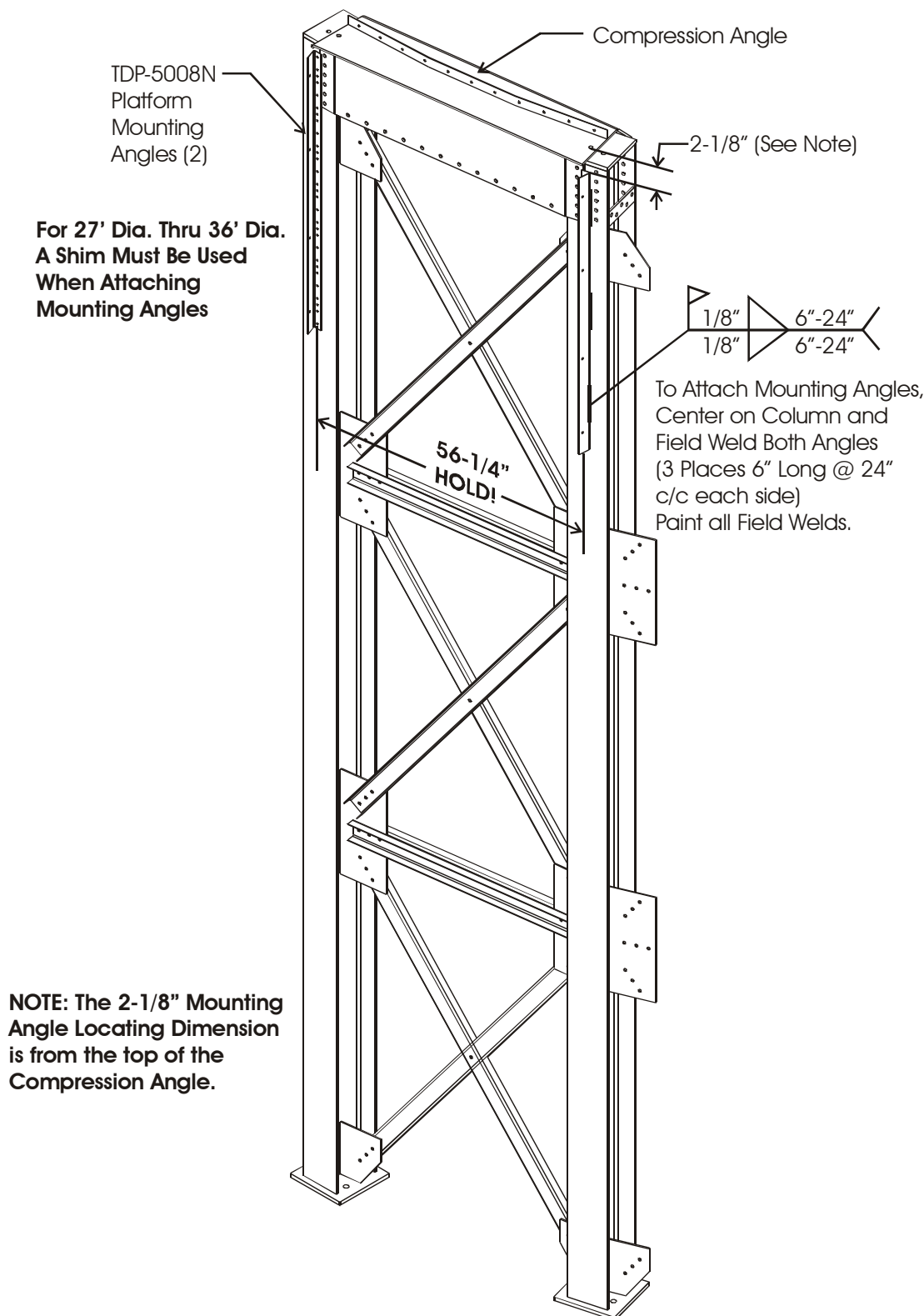
BASE STARTER BRACKET & LADDER ASSEMBLY WITH SAFETY CAGE

Once the (2) 3/8" holes have been drilled, attach the starter brackets to the sidewall as shown below. Check the top ladder section to make sure the ladder rung dimples are to the top surface and attach to the starter brackets using the holes located 1" from the top of the ladder. See general detail section for proper installation of additional ladder sections required. Now, standoff brackets must be installed on the ladder sections and attached to the sidewall at each horizontal seam (repeating every 32") until reaching the bottom of the tank. (Use 5/16" x 3/4" bin bolts for all connections).

NOTE: See page 44 for safety cage hoop assembly, page 37 for platform assembly, and page 39 for vertical support installation. **DO NOT** install any safety cages or safety cage bells yet. The access door platform assembly must be installed first.

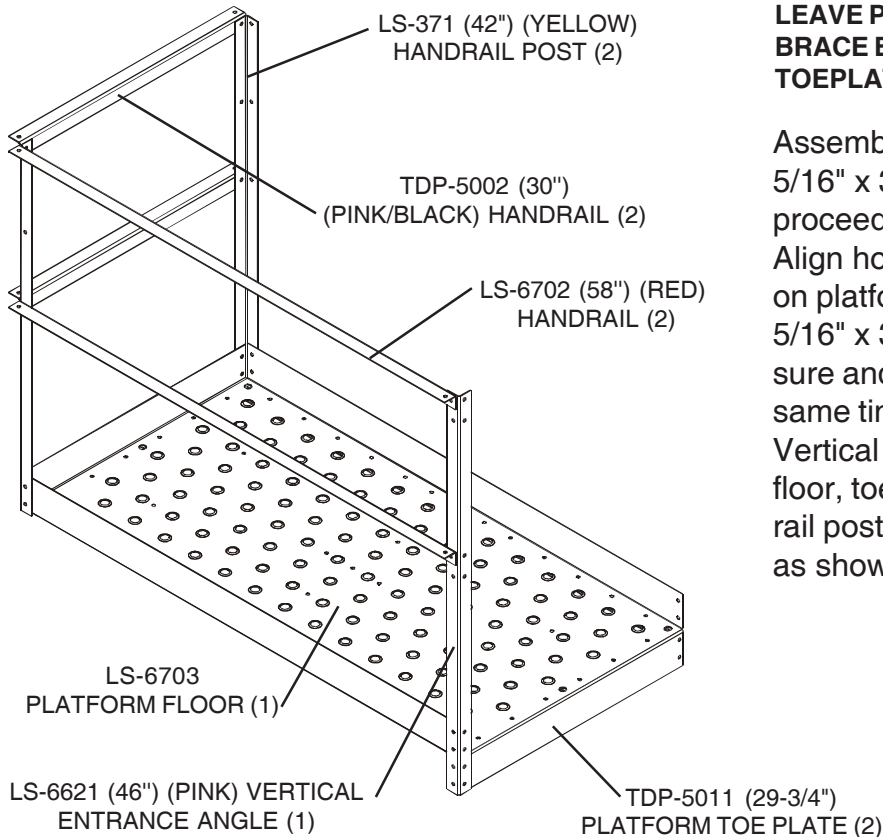


ACCESS DOOR PLATFORM MOUNTING
ANGLE INSTALLATION



LEFT HAND PLATFORM AND PLATFORM SUPPORT ASSEMBLY

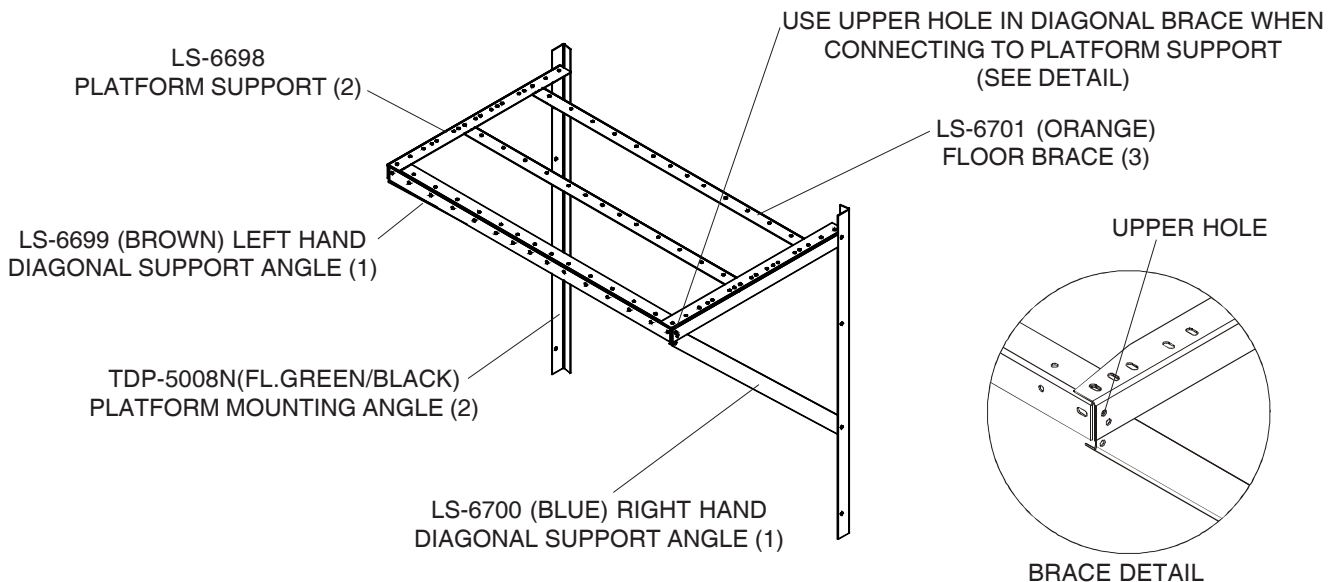
LEFT HAND PLATFORM



NOTE: THE PLATFORM MOUNTING ANGLES SHOULD BE MOUNTED ON THE COLUMNS FIRST. THE PLATFORM FLOOR SHOULD THEN BE ASSEMBLED ONTO THE SUPPORT FRAME. LEAVE PLATFORM SUPPORT TO FLOOR BRACE BOLTS LOOSE UNTIL FLOOR AND TOEPLATES ARE SECURE.

Assemble the platform support frame using 5/16" x 3/4" truss head bolts and nuts. Now, proceed to the platform floor and handrails. Align holes on platform floor with the holes on platform supports and bolt together using 5/16" x 3/4" truss head bolts and nuts. Be sure and attach platform toe plates at the same time you attach the platform floor. Vertical entrance angle will bolt to platform floor, toeplate and platform support. Hand-rail post bolts to platform floor and toeplate as shown.

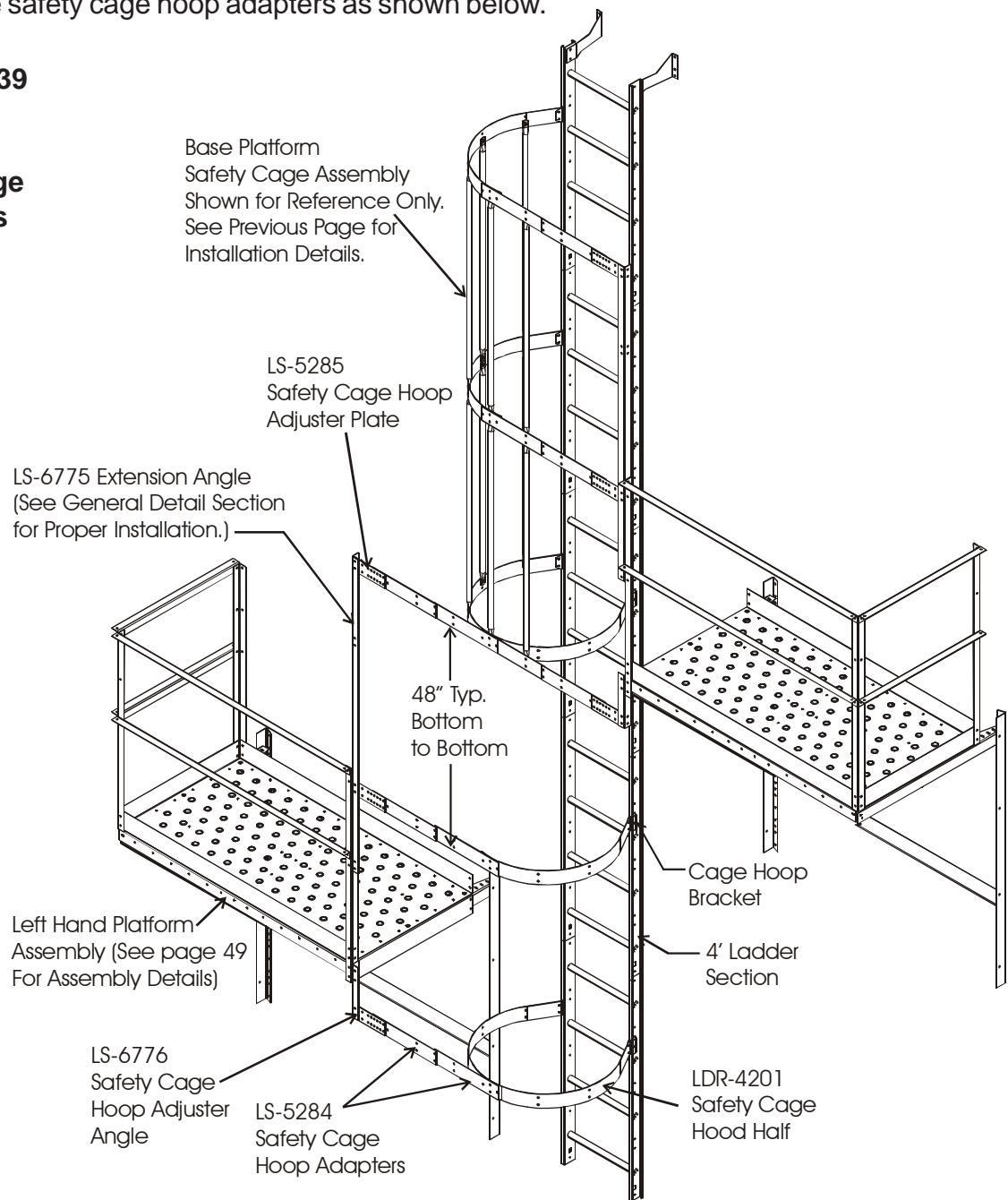
LEFT HAND PLATFORM SUPPORT ASSEMBLY



ACCESS DOOR SAFETY CAGE HOOP ASSEMBLY

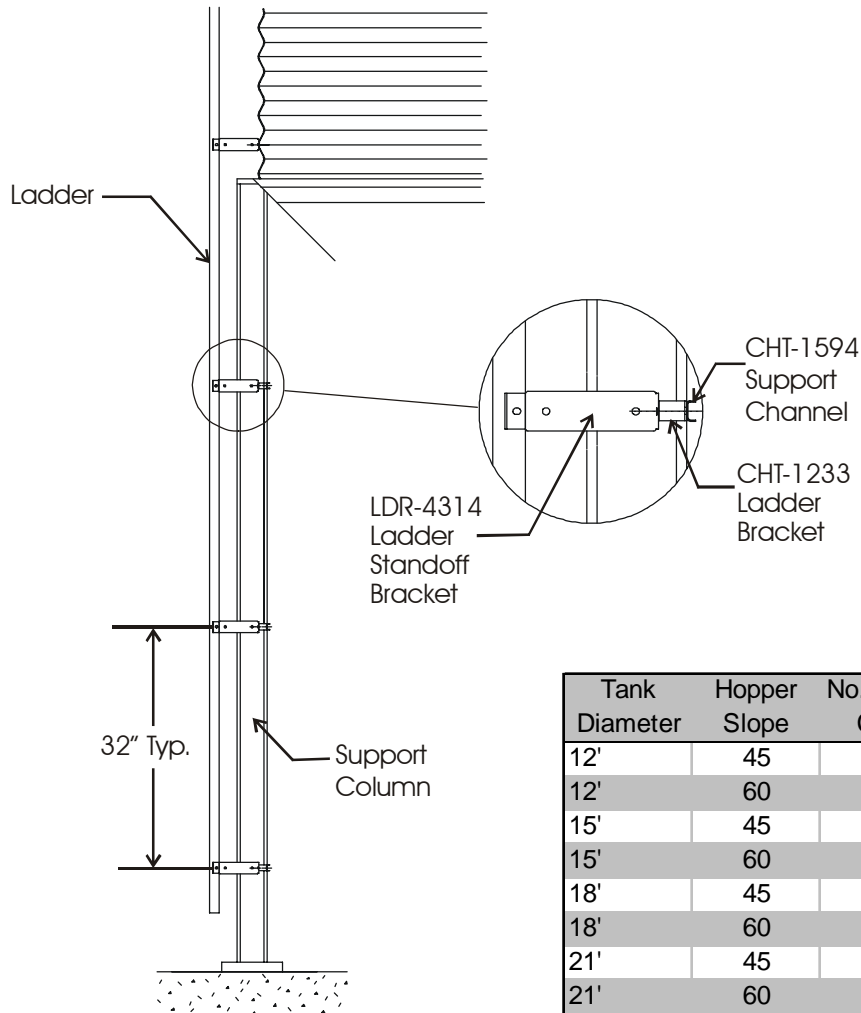
Before attaching any pieces to the ladder or platform, some pre-assembly will be required. Attach the safety cage brackets to the ladder section (see general details section for proper installation instructions). Take the safety cage hoop adjuster plates and bolt them onto the extension angle as shown. For the middle hoop assembly, bolt the safety cage hoop adapters and safety cage hoop half together using the proper holes depending on the diameter of the bin. Be sure to use the 5/16" x 3/4" bolt with the head of the bolt to the inside of the safety cage. You may now bolt this assembly to the safety cage bracket and hoop adjuster plate, tighten as you go. The bottom assembly requires two hoop halves and will be positioned just below the platform as shown. Use the safety cage hoop adjuster angle to secure the two-hoop half assembly to the vertical entrance angle on the platform assembly. To finish the installation, secure the access door platform assembly to the base platform assembly using the safety cage hoop adapters as shown below.

NOTE: See page 39 & 40 for vertical support, safety cage, and bell cage installation details to complete the ladder assembly.

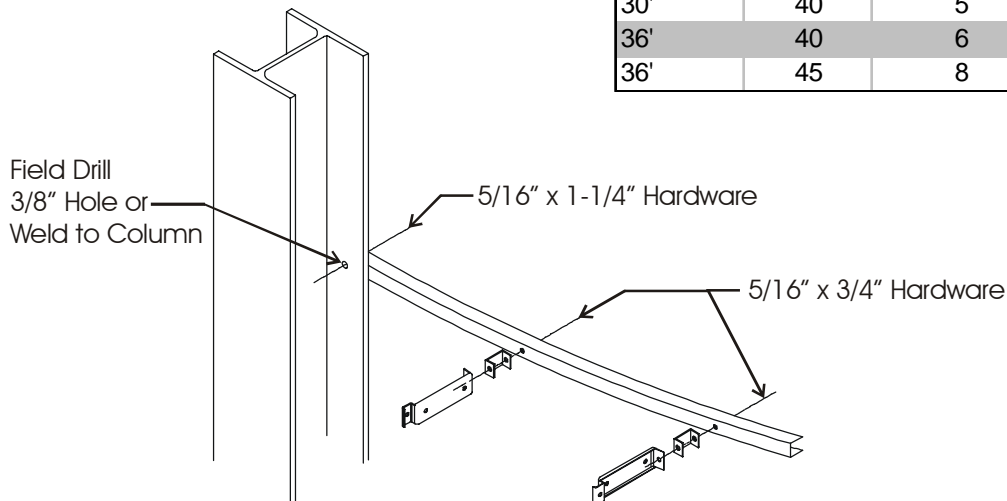


LADDER SUPPORT DETAIL

The ladder must be secured to the hopper support columns with ladder standoff brackets using support channels and ladder brackets as shown.



Tank Diameter	Hopper Slope	No. of Support Channels	Hopper Ladder Brackets
12'	45	3	6
12'	60	4	8
15'	45	4	8
15'	60	6	12
18'	45	4	8
18'	60	7	14
21'	45	5	10
21'	60	8	16
24'	45	5	10
27'	40	5	10
30'	40	5	10
36'	40	6	12
36'	45	8	16

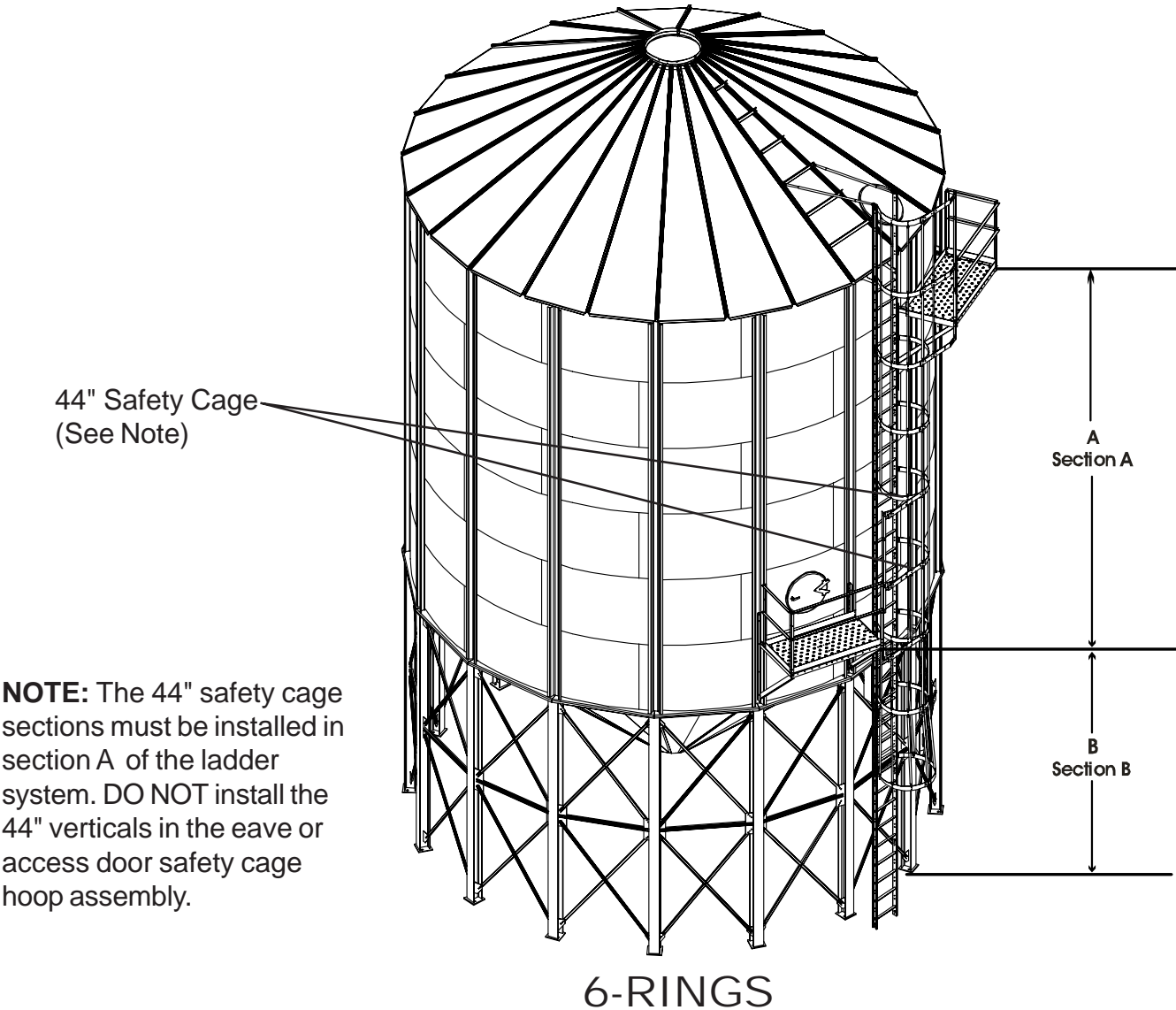


NOTES

4.00" CORRUGATED
FARM-COM HOPPER
TANKS (FCHT)
4-6 RINGS

4.00" Corrugated Farm-Com Hopper Tank (FCHT) 4-6 Rings

4.00" FARM-COM HOPPER TANK LADDER AND
PLATFORM LAYOUT 4-6 RINGS



NOTE: The 44" safety cage sections must be installed in section A of the ladder system. DO NOT install the 44" verticals in the eave or access door safety cage hoop assembly.

Ladder, Safety Cage, & Platform Location Chart

For Section A, find the proper ring grain bin & use the amounts of ladders & safety cages shown in the chart. For Section B, find the proper diameter grain bin & hopper slope & use the amounts of ladders & safety cages shown in the chart.

SECTION A	RINGS ➡	4	5	6
	PLATFORM LOCATED IN RING:	1	1	1
	4 FT. LADDER SECTION	2	3	4
	BELL SAFETY CAGE	0	0	0
	44" SAFETY CAGE	0	1	2
	BELL SAFETY CAGE SIZE	0	0	0
	DIMENSION A	96"	140"	184"

SECTION B	DIAMETER ➡	18'	21'	24'
	HOPPER SLOPE:	45	45	45
	4 FT. LADDER SECTION	4	4	5
	BELL SAFETY CAGE	1	1	1
	SAFETY CAGE 48" SECTION	1	1	1
	BELL SAFETY CAGE SIZE	24"	48"	48"
	DIMENSION B	176"	192"	204"

FCHT LADDER, SAFETY CAGE, AND PLATFORM INSTRUCTIONS 4-6 RINGS

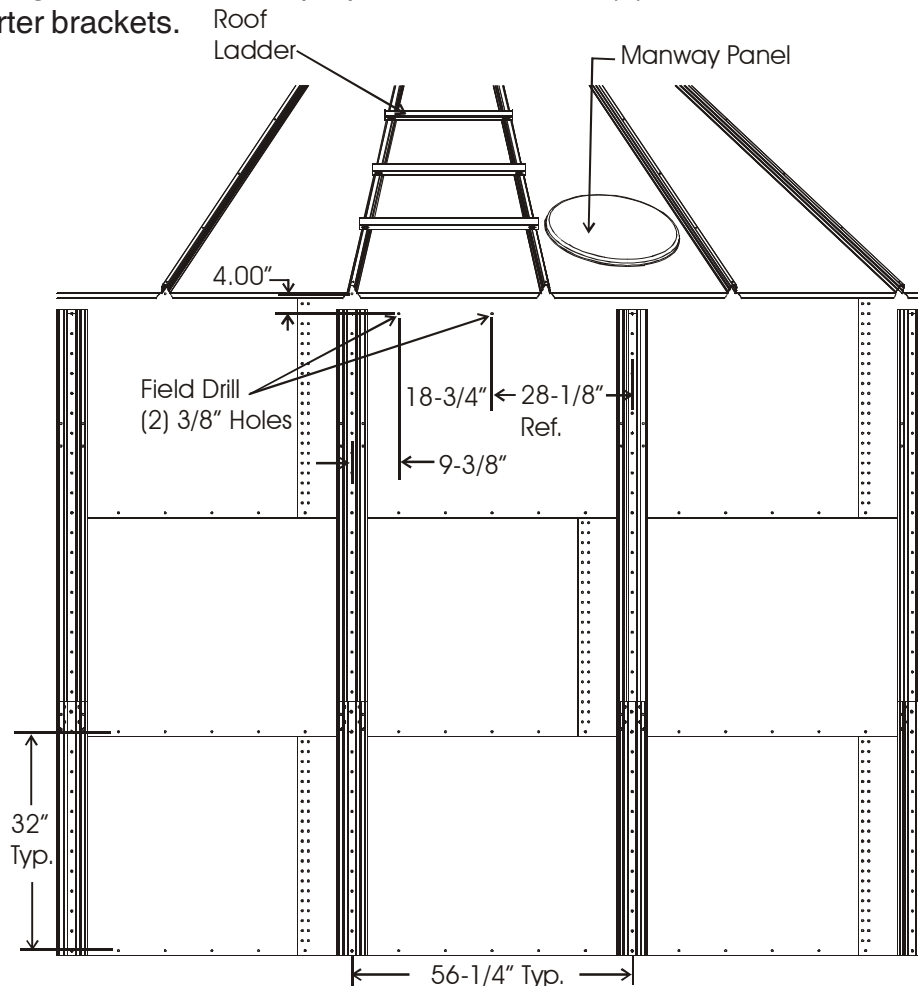
All packages have been structured with the correct components for each ring height grain bin from 4 rings to 6 rings and each diameter from 18' to 24'. Be sure and follow the complete instruction sheets for correct placement of parts. Failure to do so may result in improper fit or shortage of parts. Read through the complete set of instructions before proceeding with erection of grain bin. Considerable thought must be given as to location of ladders and platforms in relation to other equipment and structures.

EAVE STARTER BRACKET INSTALLATION

Correct placement of the eave ladder starter bracket is crucial in assuring proper fit of all ladder components as well as the correlation between platforms for proper installation of access door platform. If the eave starter brackets are mislocated, standard installation of the access door platform will not be possible.

LOCATION OF FIELD DRILLED HOLES FOR EAVE LADDER STARTER BRACKETS

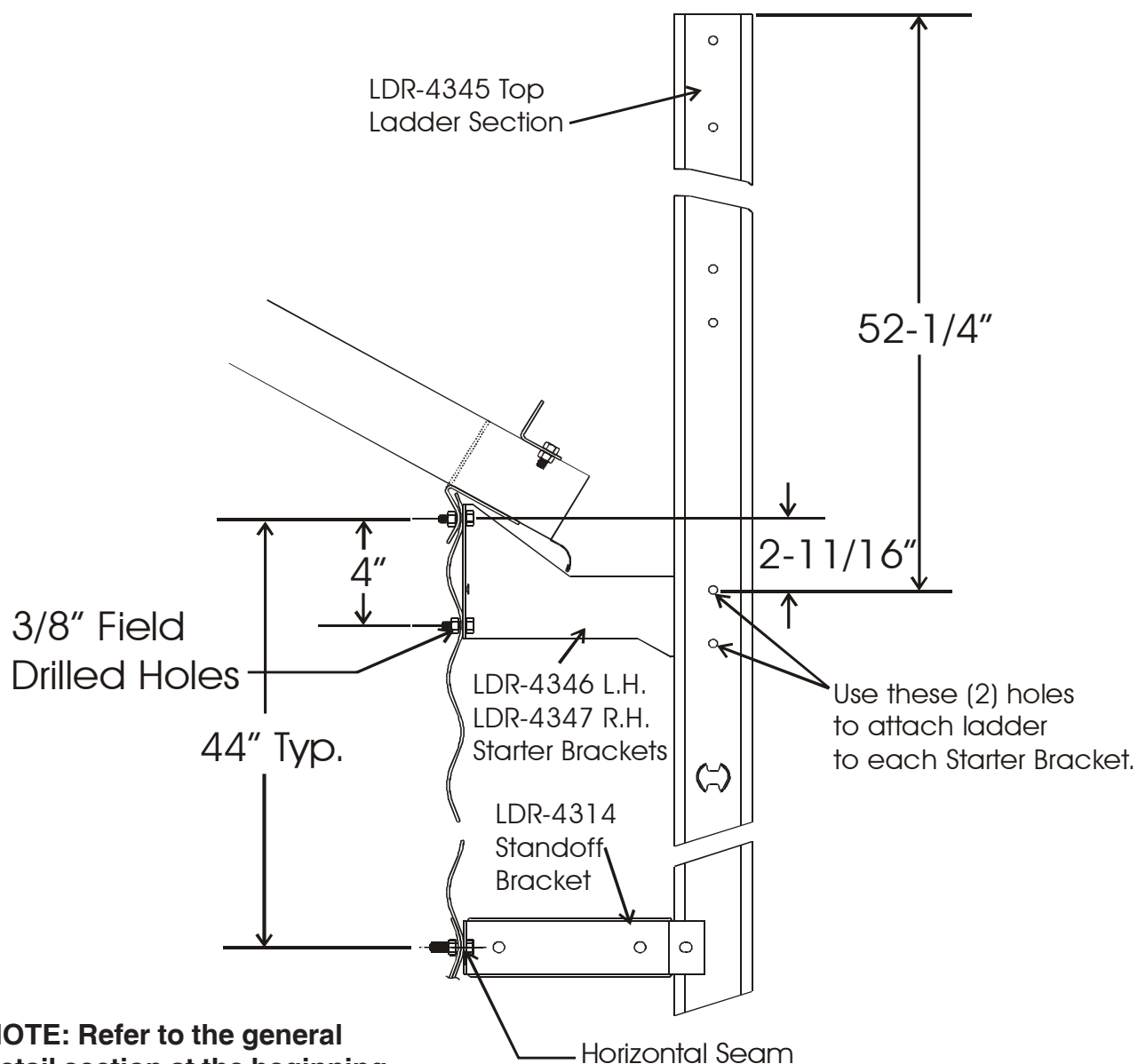
The starter brackets must be located directly below the roof ladder. Before the starter brackets can be installed, (2) 3/8" holes must be drilled. The holes must be located 4" below and directly in line with the top row of pre-punched horizontal holes. The first hole, required for the left-hand starter bracket, must be located 9-3/8" from the center of the stiffener to the center of the hole. The second hole, required for the right-hand bracket, must be located 18-3/4" from the center of the first hole. Refer to the diagram below for the proper location of the (2) 3/8" field-drilled holes required to install the starter brackets.



4.00" Corrugated Farm-Com Hopper Tank (FCHT) 4-6 Rings

EAVE STARTER BRACKET & LADDER ASSEMBLY WITH SAFETY CAGE

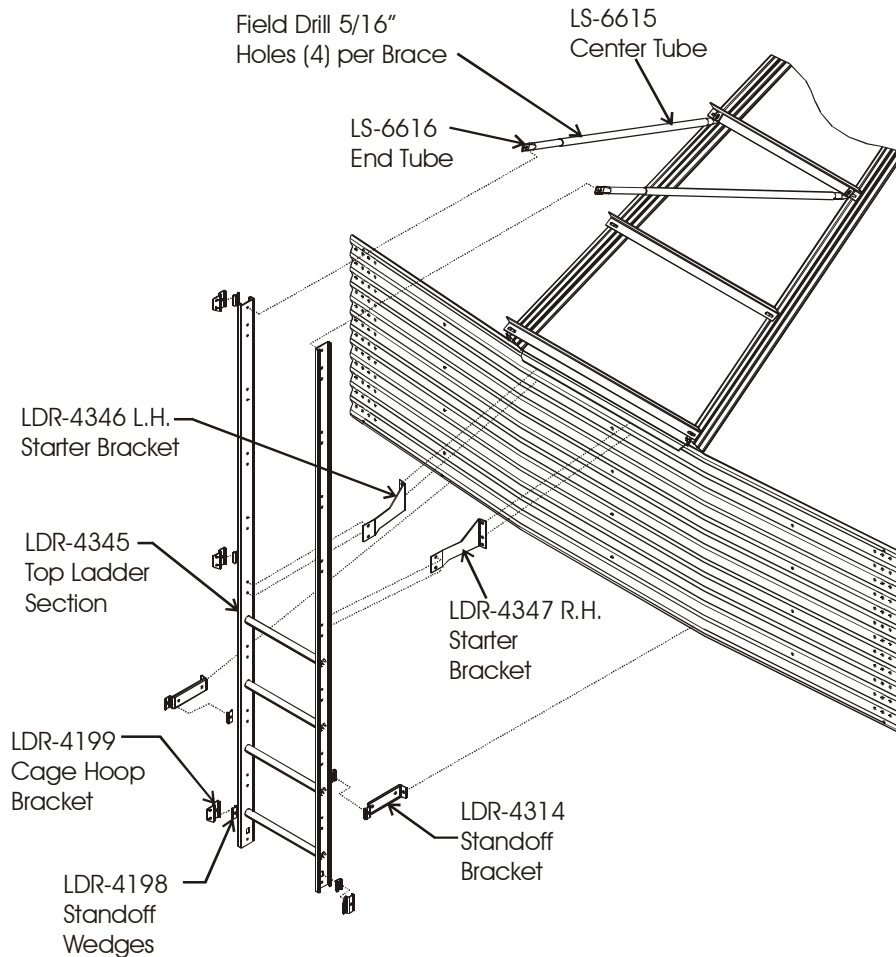
Once the (2) 3/8" holes have been drilled, attach the starter brackets to the sidewall as shown below. Check the top ladder section to make sure the ladder rung dimples are to the top surface and attach to the starter brackets using the holes located 52-1/4" from the top of the ladder. See the general detail information section for the proper installation of additional ladder sections required. Now, standoff brackets must be installed on the ladder sections and attached to the sidewall at each horizontal seam (repeating every 44"). Use 5/16" x 3/4" bin bolts for all connections.



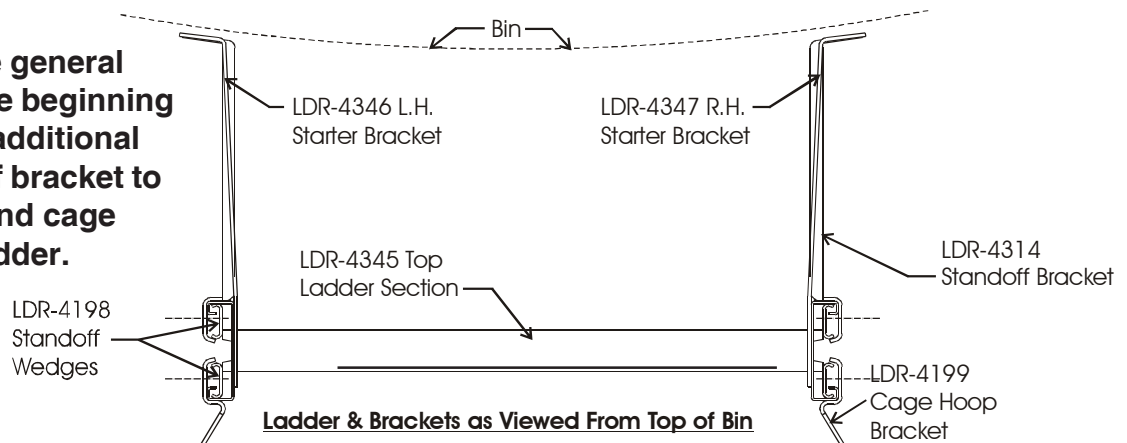
NOTE: Refer to the general detail section at the beginning of this manual for additional details for standoff bracket to ladder assembly and ladder section assembly.

4.00" Corrugated Farm-Com Hopper Tank (FCHT) 4-6 Rings

NOTE: Reference previous page for proper location of ladder starter brackets.



NOTE: Refer to the general detail section at the beginning of this manual for additional details for standoff bracket to ladder assembly and cage hoop bracket to ladder.



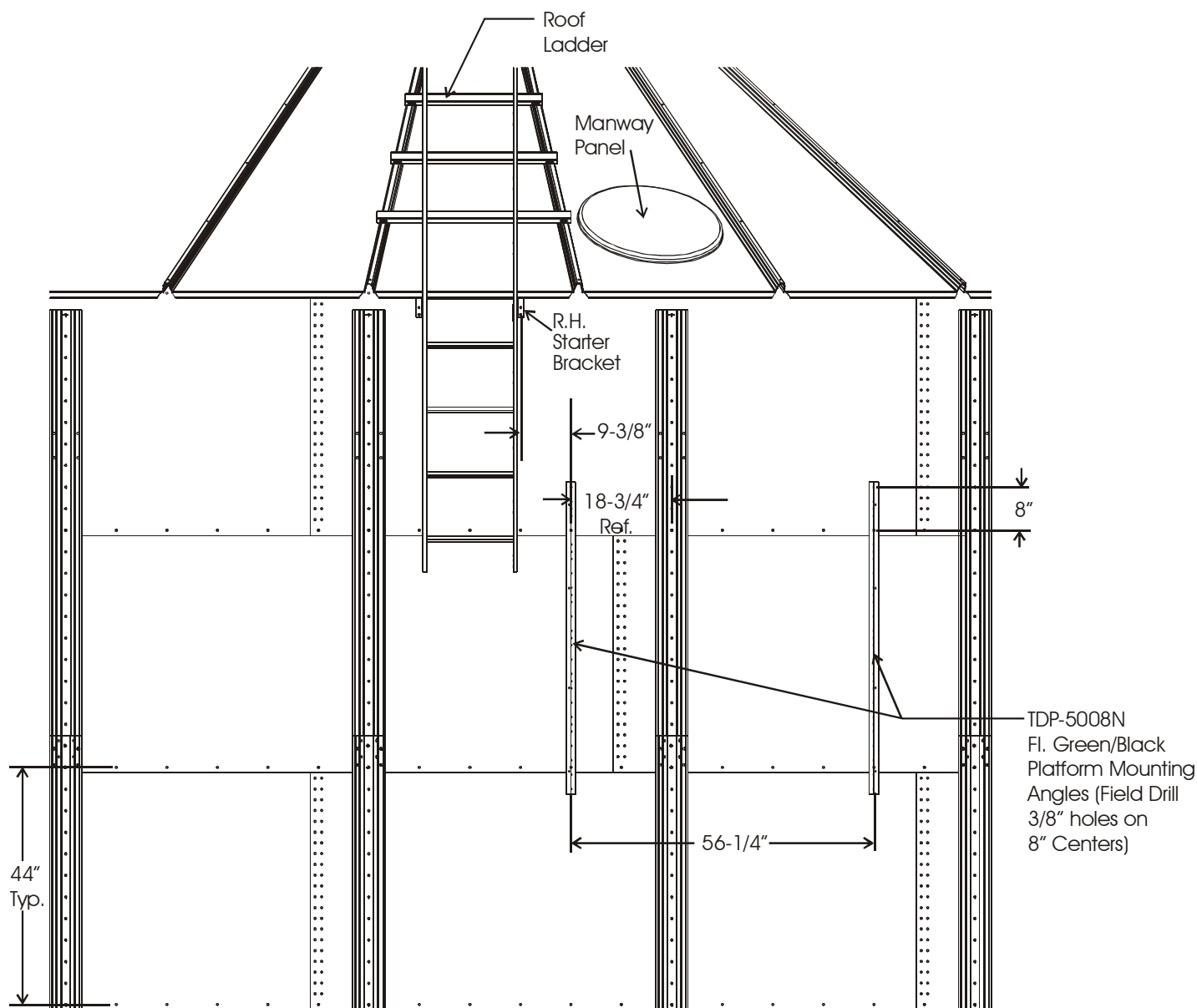
EAVE ADJUSTABLE BRACES

The adjustable braces must be attached at this time. A larger diameter tube and two smaller diameter tubes are used to make up one adjustable brace. Slip the smaller tubes inside the larger tube and attach one smaller tube to the top of the ladder. Adjust the other smaller tube so the bottom of the flattened tube reaches the roof rib. Field drill four 5/16" holes through both large and small adjustable tubes and bolt together using 1/4" x 1-1/2" bolts and nuts. This will keep the adjustable brace from slipping.

4.00" Corrugated Farm-Com Hopper Tank (FCHT) 4-6 Rings

EAVE PLATFORM MOUNTING ANGLE INSTALLATION

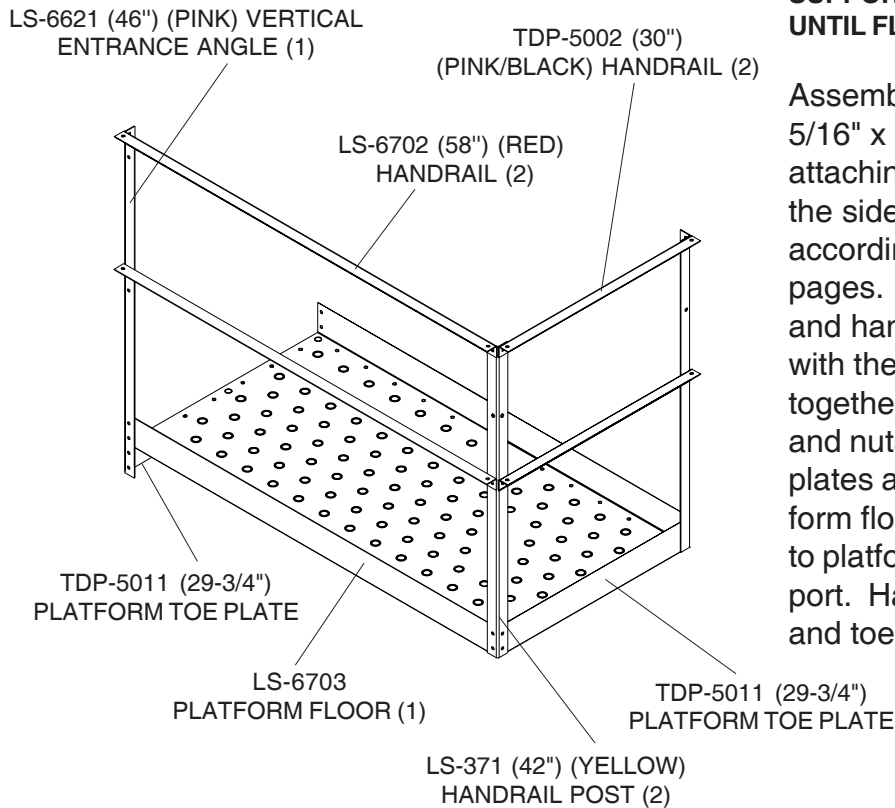
The diagram below shows the location of the platform mounting angles. Each angle must be mounted starting 8" above the top horizontal seam of the 2nd ring with the first mounting angle offset 9-3/8" from the right hand starter bracket. The second mounting angle must be located 56-1/4" from the first mounting angle. Pay careful attention when installing these angles. The dimensions and locations of these angles are very critical to assure proper fit of all parts.



4.00" Corrugated Farm-Com Hopper Tank (FCHT) 4-6 Rings

RIGHT HAND PLATFORM AND PLATFORM SUPPORT ASSEMBLY

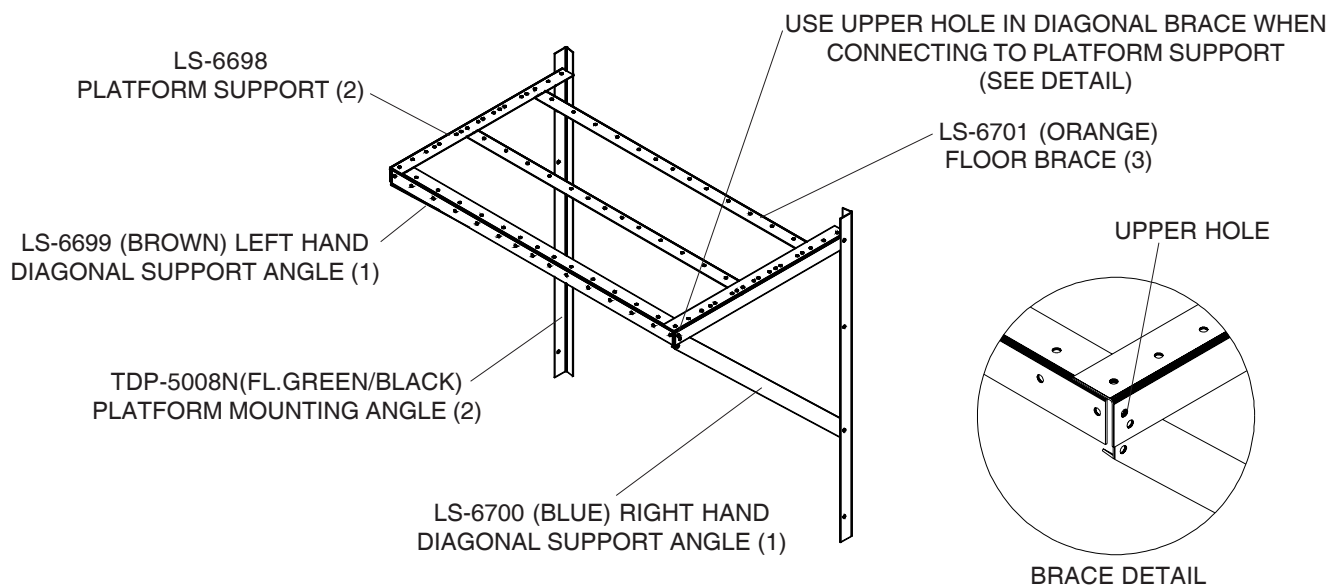
RIGHT HAND PLATFORM



NOTE: THE PLATFORM SUPPORTS SHOULD BE MOUNTED ON THE BIN FIRST. THE PLATFORM FLOOR SHOULD THEN BE ASSEMBLED ONTO THE SUPPORT FRAME. LEAVE PLATFORM SUPPORT TO FLOOR BRACE BOLTS LOOSE UNTIL FLOOR AND TOEPLATES ARE SECURE.

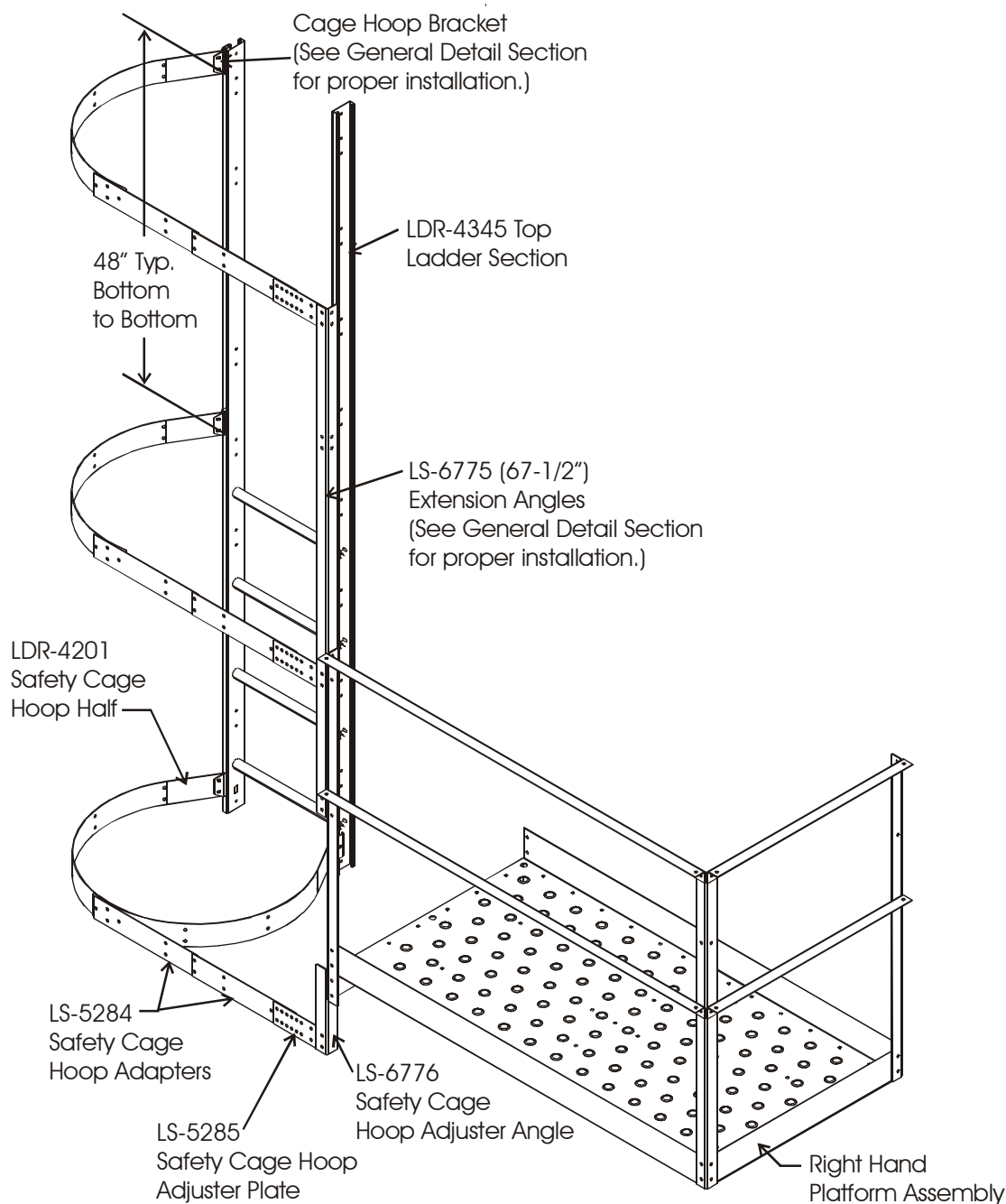
Assemble the platform support frame using 5/16" x 3/4" truss head bolts and nuts. When attaching the platform mounting angles to the sidewall, locate the mounting angles according to the instructions on previous pages. Now, proceed to the platform floor and handrails. Align holes on platform floor with the holes on platform supports and bolt together using 5/16" x 3/4" truss head bolts and nuts. Be sure and attach platform toe plates at the same time you attach the platform floor. Vertical entrance angle will bolt to platform floor, toeplate and platform support. Handrail post bolts to platform floor and toeplate as shown.

RIGHT HAND PLATFORM SUPPORT ASSEMBLY



EAVE SAFETY CAGE HOOP ASSEMBLY

Before attaching any pieces to the ladders or platform, some pre-assembly will be required. Attach the safety cage brackets to the ladder section (see general detail section). Take the safety cage hoop adjuster plates and bolt them onto the extension angle as shown. Bolt the safety cage hoop adapters and safety cage hoop halves together using the proper holes depending on the diameter of the grain bin. Be sure to use the 5/16" x 3/4" bolt with the head of the bolt to the inside of the safety cage. You may now bolt these assemblies to the safety cage brackets and hoop adjuster plates, tighten bolts as you go. The bottom assembly requires two hoop halves and will be positioned just below the platform as shown. Use the safety cage hoop adjuster angle to secure the two-hoop half assembly to the vertical entrance angle on the platform assembly.



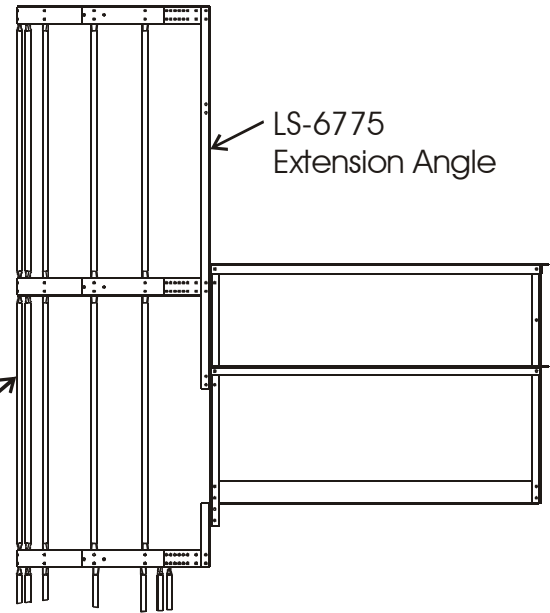
VERTICAL SUPPORTS

After all three hoop assemblies are in place you may attach the 48" vertical supports from hoop assembly to hoop assembly as shown. This will require 10 supports, 5 between each set of hoops. Bolts should have the head of the bolt to the inside of the safety cage.

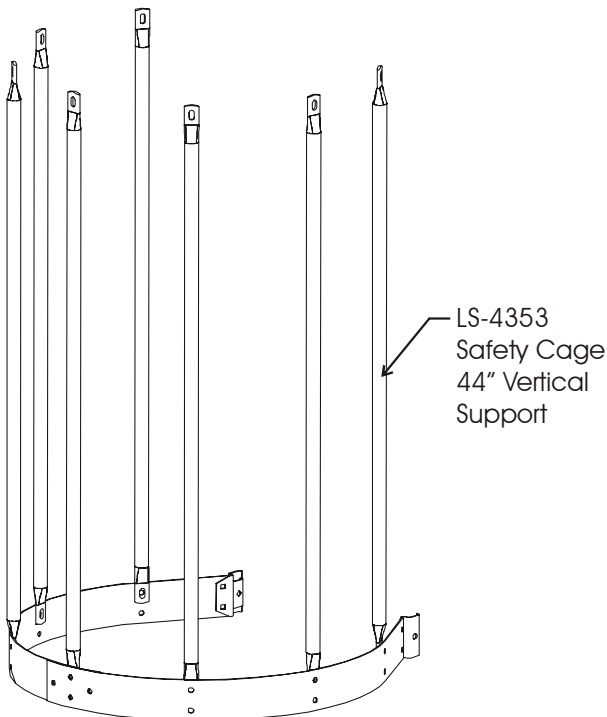
44" & 48" SAFETY CAGE

Attach the vertical support pieces to the existing hoop halves above using the 5/16" x 3/4" bolts and nuts (with the heads on the inside of the cage). Fasten two hoop halves together and bolt to other end of vertical supports. Attach cage hoop brackets to ladder, see general detail section for proper attachment. Once cage hoop brackets have been installed, attach cage hoop halves & tighten bolts. Repeat installation for each safety cage required.

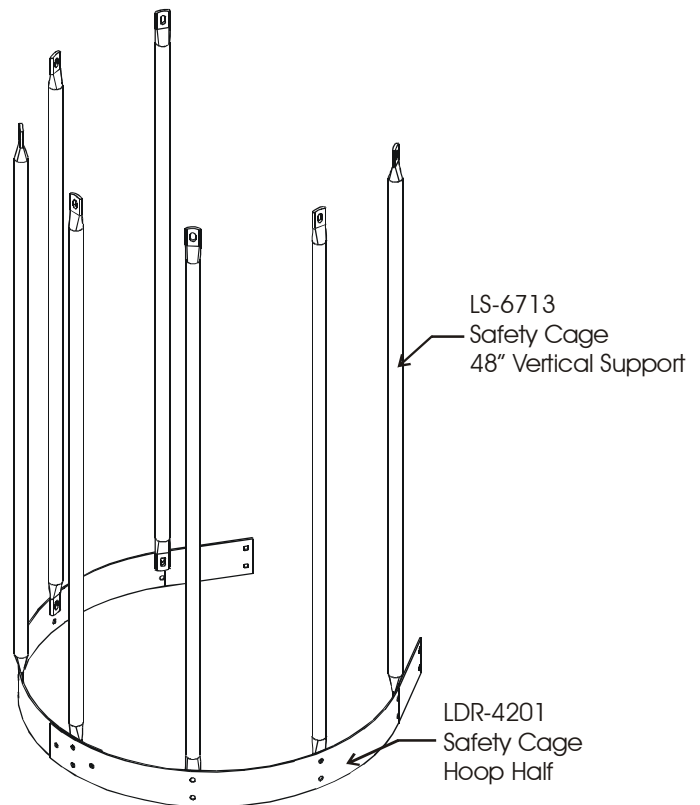
LS-6713
Safety Cage
48" Vertical
Supports



VERTICAL SUPPORTS



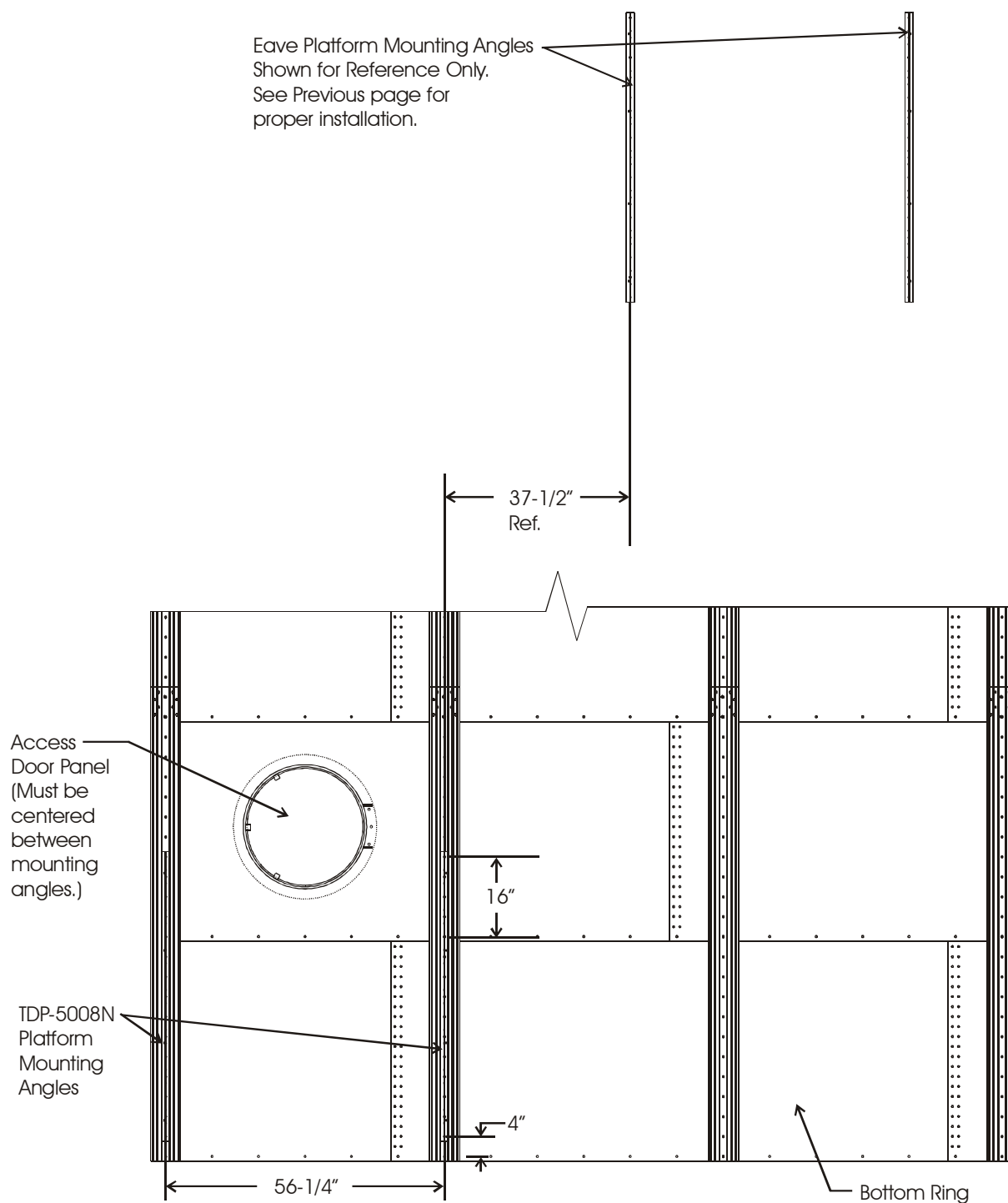
44" SAFETY CAGE



48" SAFETY CAGE

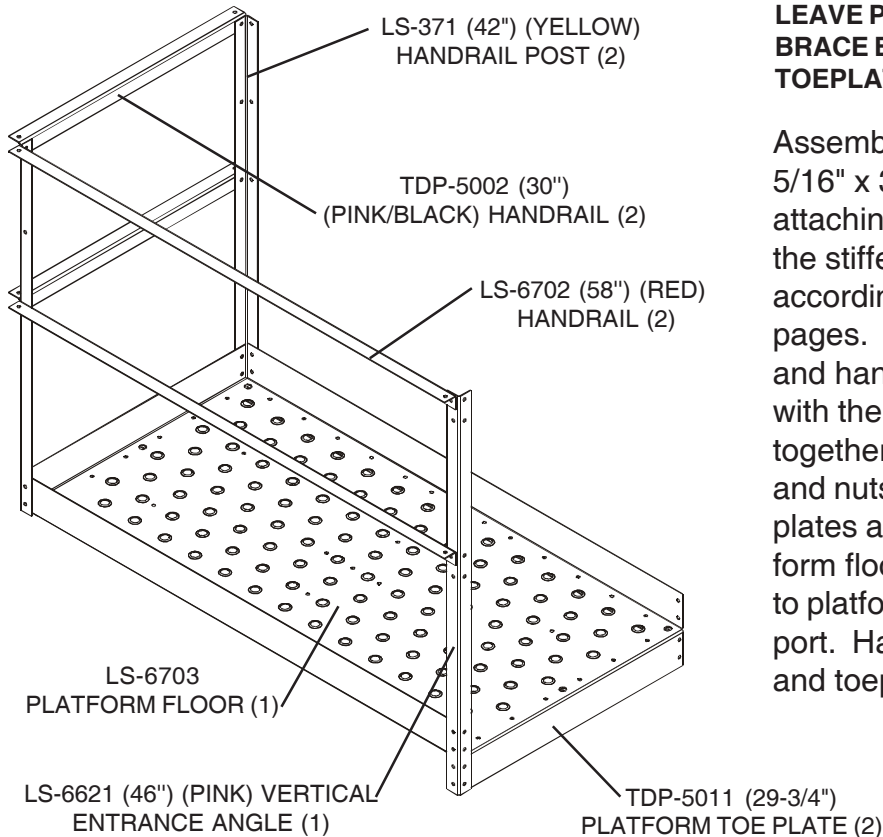
ACCESS DOOR PLATFORM MOUNTING ANGLE INSTALLATION

The diagram below shows the location of the access door platform mounting angles. Each angle must be mounted starting 16" above the top horizontal seam of the bottom ring and installed in the stiffeners located on each side of the access door. When installed correctly, these angles should be offset from the eave platform mounting angles 37-1/2". Pay careful attention when installing these angles. The dimensions and locations of these angles are very critical to assure proper fit of all parts.



LEFT HAND PLATFORM AND PLATFORM SUPPORT ASSEMBLY

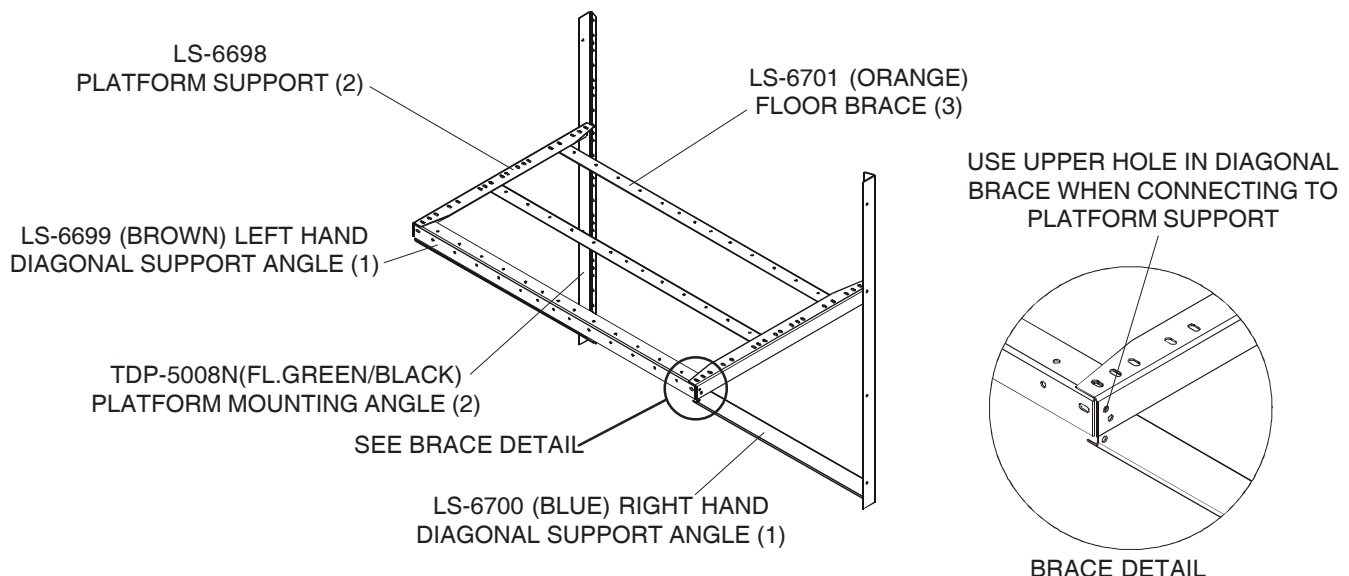
LEFT HAND PLATFORM



NOTE: THE PLATFORM MOUNTING ANGLES SHOULD BE MOUNTED ON THE BIN FIRST. THE PLATFORM FLOOR SHOULD THEN BE ASSEMBLED ONTO THE SUPPORT FRAME. LEAVE PLATFORM SUPPORT TO FLOOR BRACE BOLTS LOOSE UNTIL FLOOR AND TOEPLATES ARE SECURE.

Assemble the platform support frame using 5/16" x 3/4" truss head bolts and nuts. When attaching the platform mounting angles to the stiffeners, locate the mounting angles according to the instructions on previous pages. Now, proceed to the platform floor and handrails. Align holes on platform floor with the holes on platform supports and bolt together using 5/16" x 3/4" truss head bolts and nuts. Be sure and attach platform toe plates at the same time you attach the platform floor. Vertical entrance angle will bolt to platform floor, toeplate and platform support. Handrail post bolts to platform floor and toeplate as shown.

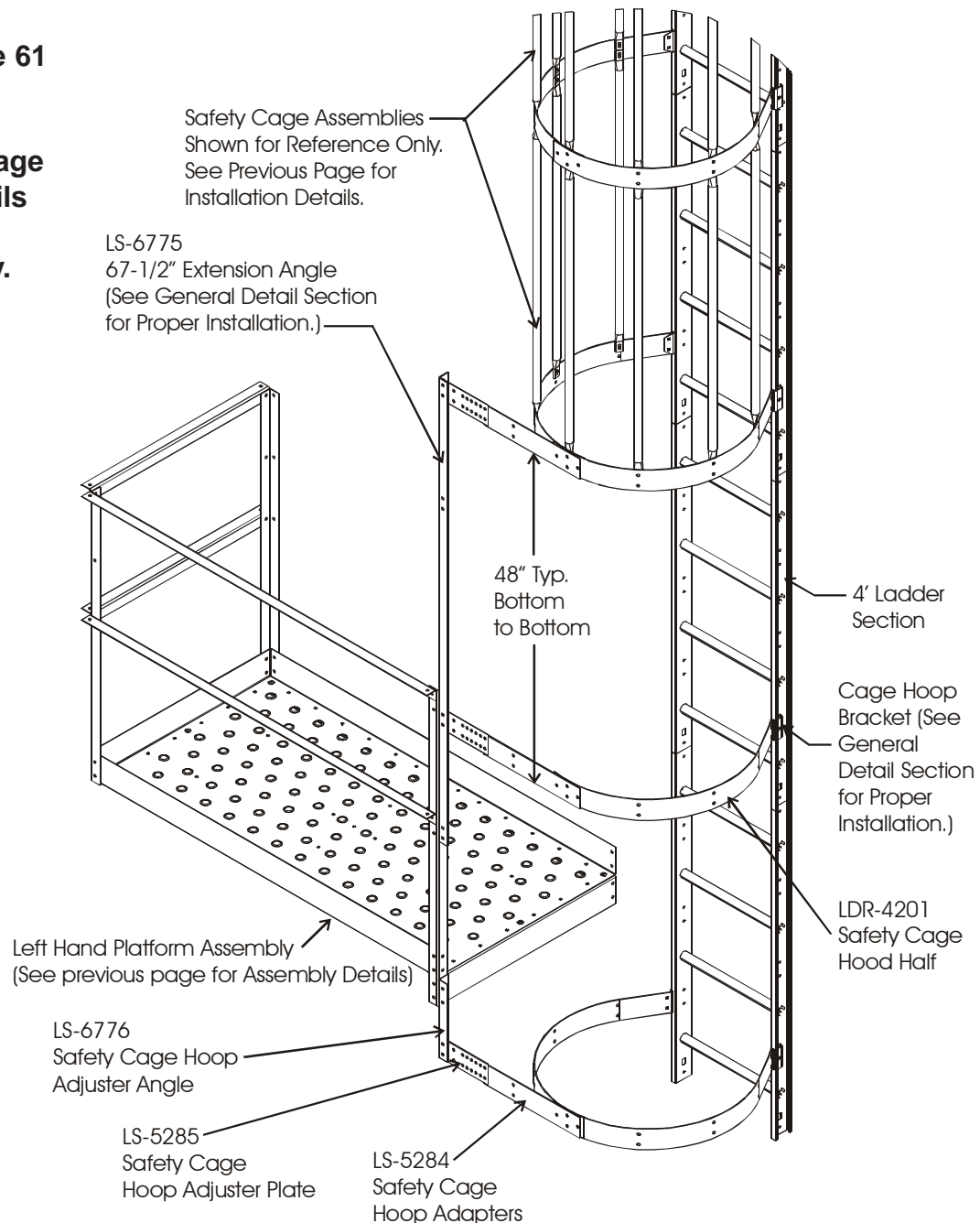
LEFT HAND PLATFORM SUPPORT ASSEMBLY



ACCESS DOOR SAFETY CAGE HOOP ASSEMBLY

Before attaching any pieces to the ladder or platform, some pre-assembly will be required. Attach the safety cage brackets to the ladder section (see general details section for proper installation instructions). Take the safety cage hoop adjuster plates and bolt them onto the extension angle as shown. For the middle hoop assembly, bolt the safety cage hoop adapters and safety cage hoop half together using the proper holes depending on the diameter of the bin. Be sure to use the 5/16" x 3/4" bolt with the head of the bolt to the inside of the safety cage. You may now bolt this assembly to the safety cage bracket and hoop adjuster plate, tighten as you go. The bottom assembly requires two hoop halves and will be positioned just below the platform as shown. Use the safety cage hoop adjuster angle to secure the two-hoop half assembly to the vertical entrance angle on the platform assembly. To finish the installation, secure the access door platform assembly to the existing safety cage assembly using the safety cage hoop adapters as shown below.

NOTE: See page 61 & 65 for vertical support, safety cage, and bell cage installation details to complete the ladder assembly.

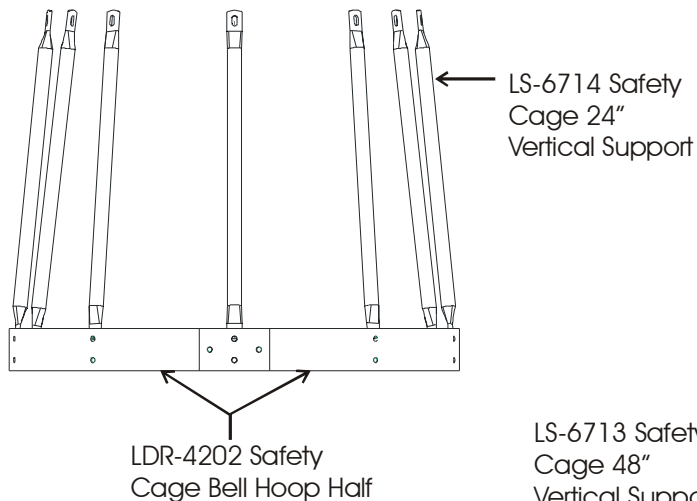


24" - 48" SAFETY CAGE BELL SECTIONS

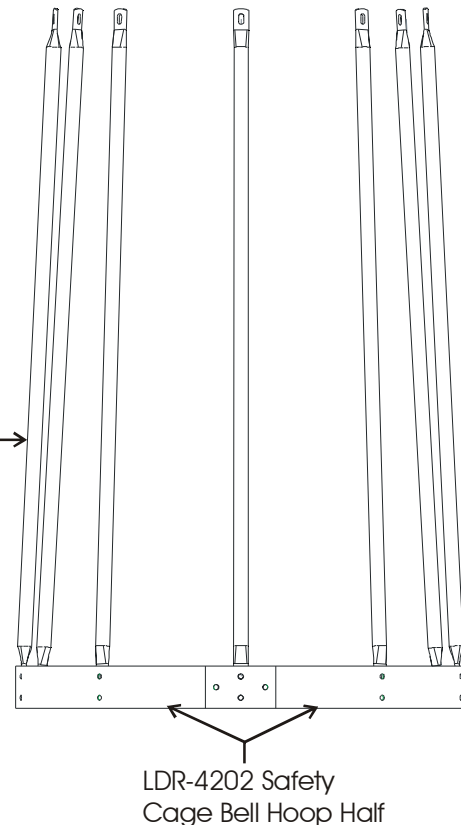
Attach the vertical supports to the hoop half assembly from the safety cage installation using 5/16" x 3/4" bolts & nuts (with the heads on the inside of the cage). Assemble the special bell safety cage hoop halves and attach to other end of vertical supports. The vertical supports will have to be bent at the flat area to allow for the angle of the bell section. Attach the safety cage brackets to the ladder as shown in the general details section. Once the safety cage brackets are installed, attach the bell safety cage hoop half assembly to the safety cage brackets & tighten bolts.

NOTE: The Safety cage bell section is to be used at the point of termination of the safety cage and should be just above the concrete (generally 7 to 8 feet).

24" Bell

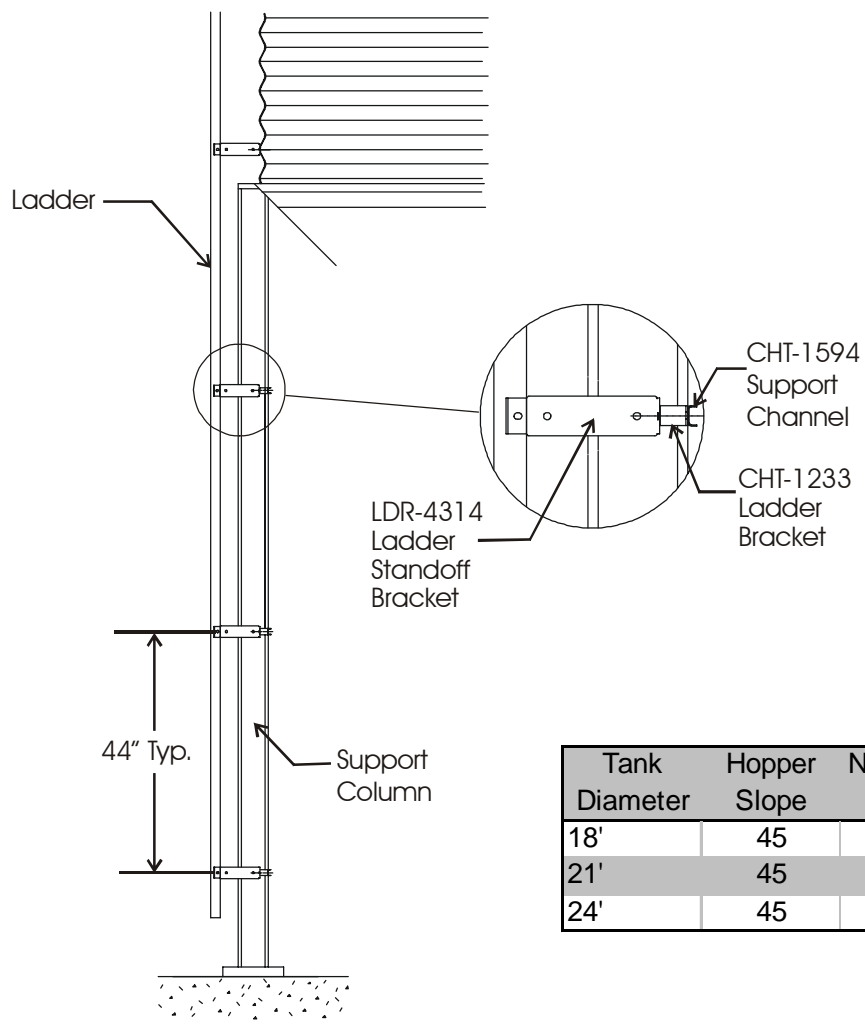


48" Bell

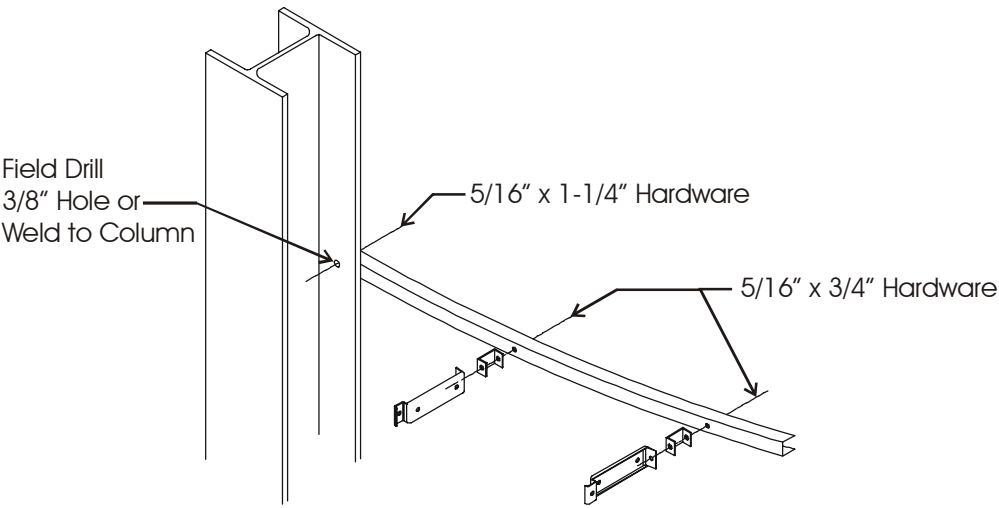


LADDER SUPPORT DETAIL

The ladder must be secured to the hopper support columns with ladder standoff brackets using support channels and ladder brackets as shown.



Tank Diameter	Hopper Slope	No. of Support Channels	Hopper Ladder Brackets
18'	45	3	6
21'	45	4	8
24'	45	4	8



4.00" CORRUGATED
FARM-COM HOPPER
TANK (FCHT)
7-9 RINGS

4.00" Corrugated Farm-Com Hopper Tank (FCHT) 7-9 Rings

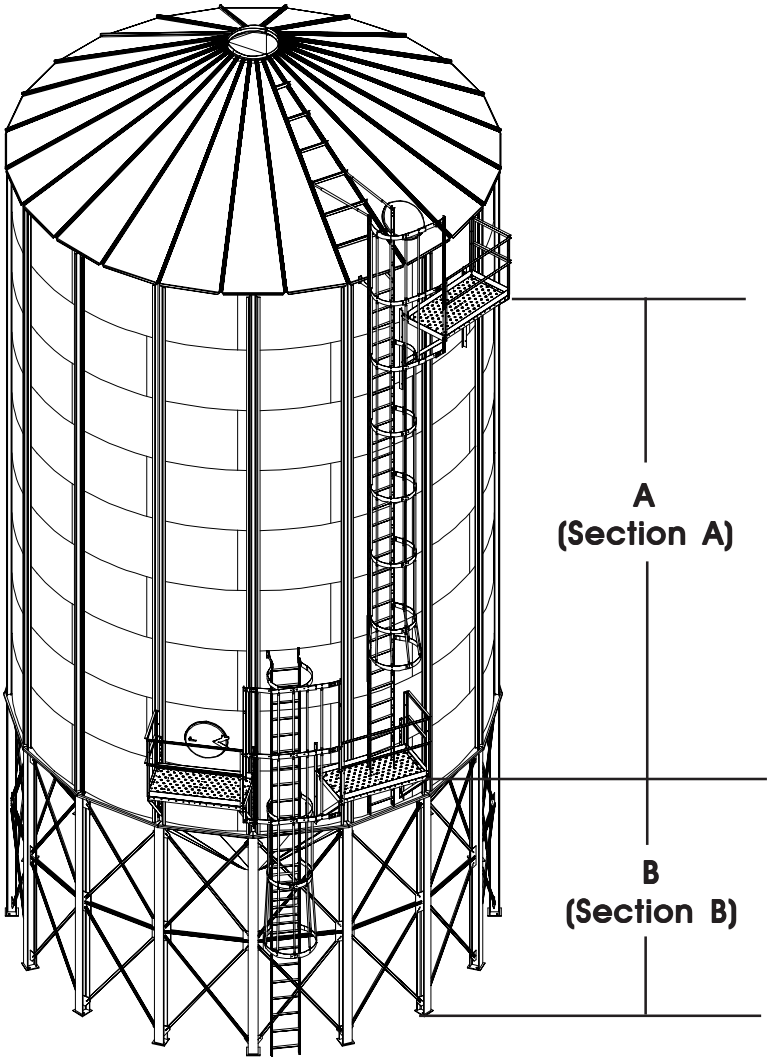
4.00" FARM-COM HOPPER TANK (FCHT) LADDER AND PLATFORM LAYOUT

Ladder, Safety Cage, & Platform Location Chart

For Section A, find the proper ring grain bin & use the amounts of ladders & safety cages shown in the chart. For Section B, find the proper diameter grain bin & hopper slope & use the amounts of ladders & safety cages shown in the chart.

SECTION A	RINGS ➡	7	8	9
	PLATFORM LOCATED IN RING:	1	1	1
	4 FT. LADDER SECTION	5	6	7
	BELL SAFETY CAGE	1	1	1
	SAFETY CAGE 4' SECTION	2	3	4
	BELL SAFETY CAGE SIZE	24"	24"	24"
	DIMENSION A	228"	272"	316"

SECTION B	DIAMETER ➡	18'	21'	24'
	HOPPER SLOPE:	45	45	45
	4 FT. LADDER SECTION	6	6	6
	BELL SAFETY CAGE	1	1	1
	SAFETY CAGE 4' SECTION	1	1	1
	BELL SAFETY CAGE SIZE	24"	48"	48"
	DIMENSION B	176"	192"	204"



9-RINGS

FCHT LADDER, SAFETY CAGE, AND PLATFORM INSTRUCTIONS 7 - 9 RINGS

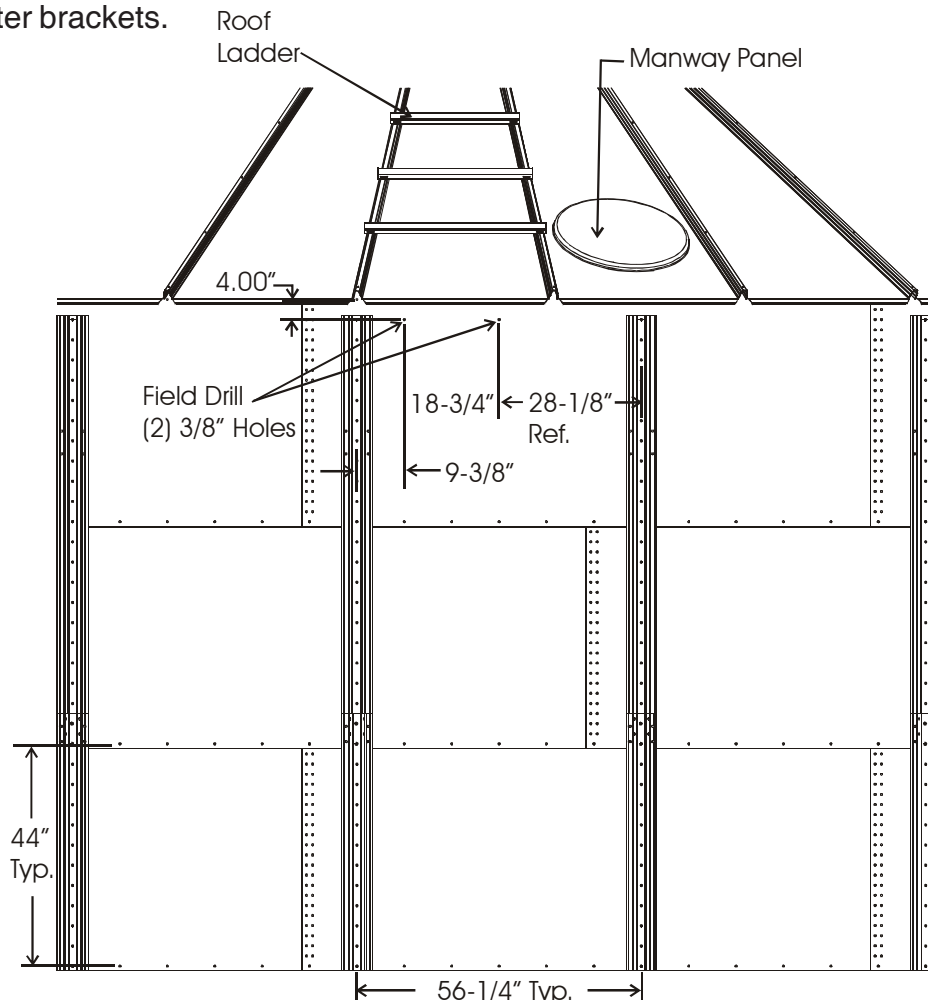
All packages have been structured with the correct components for each ring height grain bin from 7 rings to 9 rings and each diameter from 18' to 24'. Be sure and follow the complete instruction sheets for correct placement of parts. Failure to do so may result in improper fit or shortage of parts. Read through the complete set of instructions before proceeding with erection of grain bin. Considerable thought must be given as to location of ladders and platforms in relation to other equipment and structures.

EAVE STARTER BRACKET INSTALLATION

Correct placement of the eave ladder starter bracket is crucial in assuring proper fit of all ladder components as well as the correlation between platforms for proper installation of access door platform. If the eave starter brackets are mislocated, standard installation of the access door platform will not be possible.

LOCATION OF FIELD DRILLED HOLES FOR EAVE LADDER STARTER BRACKETS

The starter brackets must be located directly below the roof ladder. Before the starter brackets can be installed, (2) $\frac{3}{8}$ " holes must be drilled. The holes must be located 4" below and directly in line with the top row of pre-punched horizontal holes. The first hole, required for the left-hand starter bracket, must be located $9\frac{3}{8}$ " from the center of the stiffener to the center of the hole. The second hole, required for the right-hand bracket, must be located $18\frac{3}{4}$ " from the center of the first hole. Refer to the diagram below for the proper location of the (2) $\frac{3}{8}$ " field-drilled holes required to install the starter brackets.

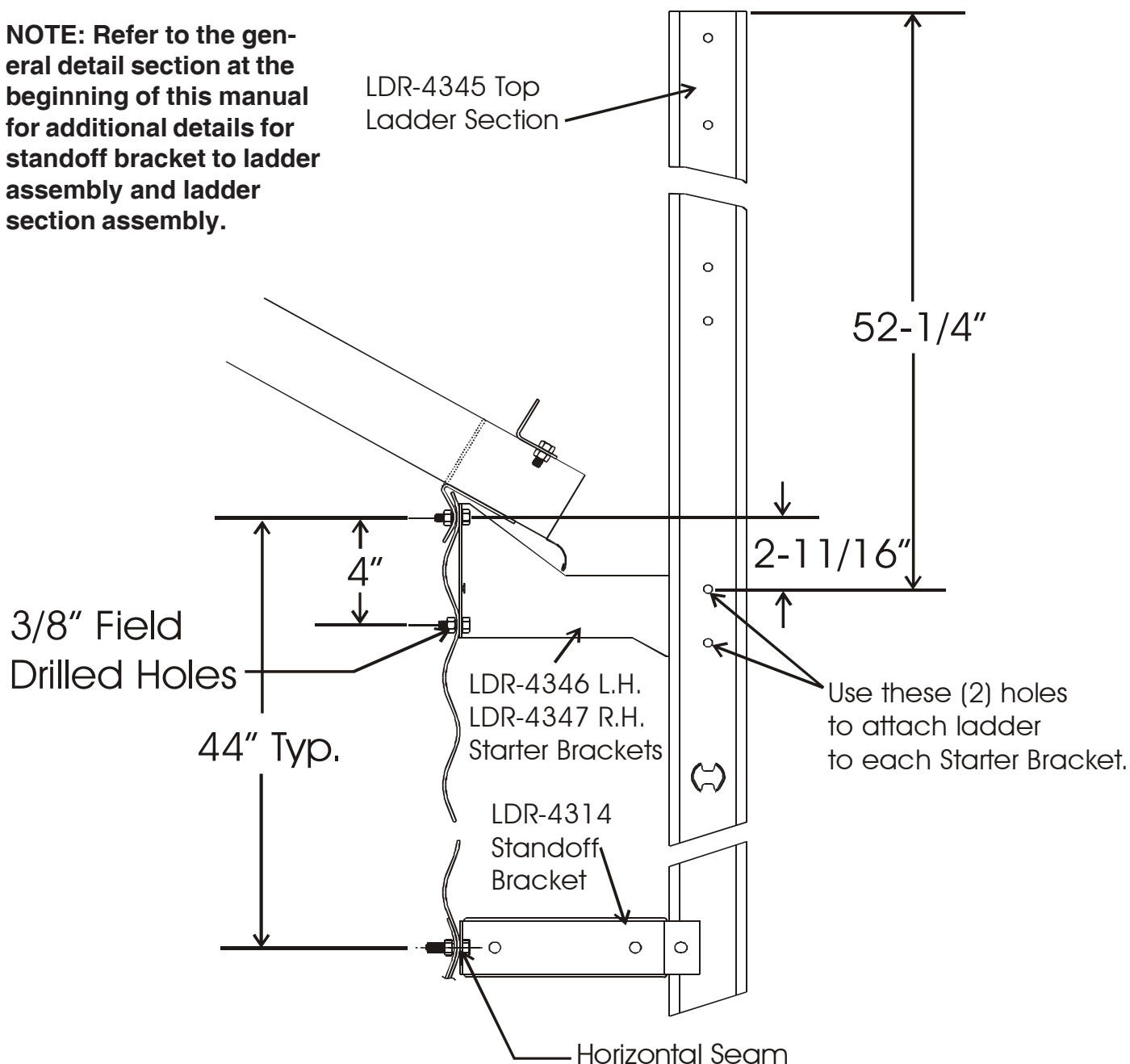


4.00" Corrugated Farm-Com Hopper Tank (FCHT) 7-9 Rings

EAVE STARTER BRACKET & LADDER ASSEMBLY WITH SAFETY CAGE

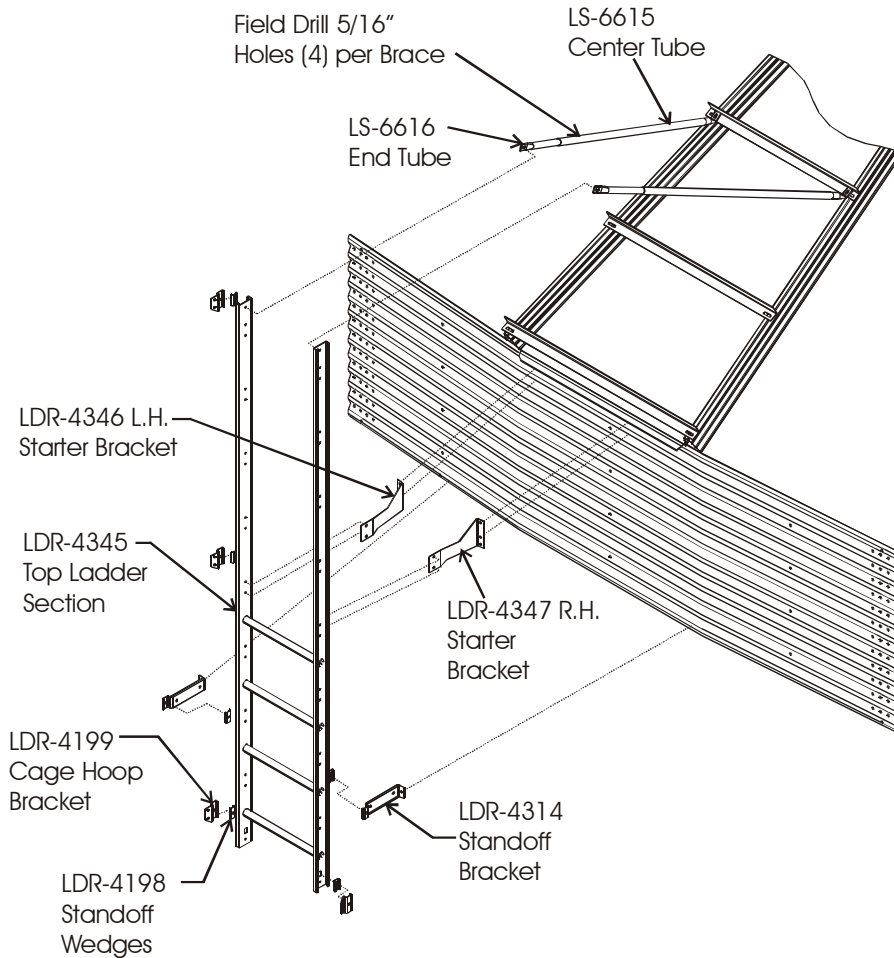
Once the (2) 3/8" holes have been drilled, attach the starter brackets to the sidewall as shown below. Check the top ladder section to make sure the ladder rung dimples are to the top surface and attach to the starter brackets using the holes located 52-1/4" from the top of the ladder. See the general detail information section for the proper installation of additional ladder sections required. Now, standoff brackets must be installed on the ladder sections and attached to the sidewall at each horizontal seam (repeating every 44"). Use 5/16" x 3/4" bin bolts for all connections.

NOTE: Refer to the general detail section at the beginning of this manual for additional details for standoff bracket to ladder assembly and ladder section assembly.

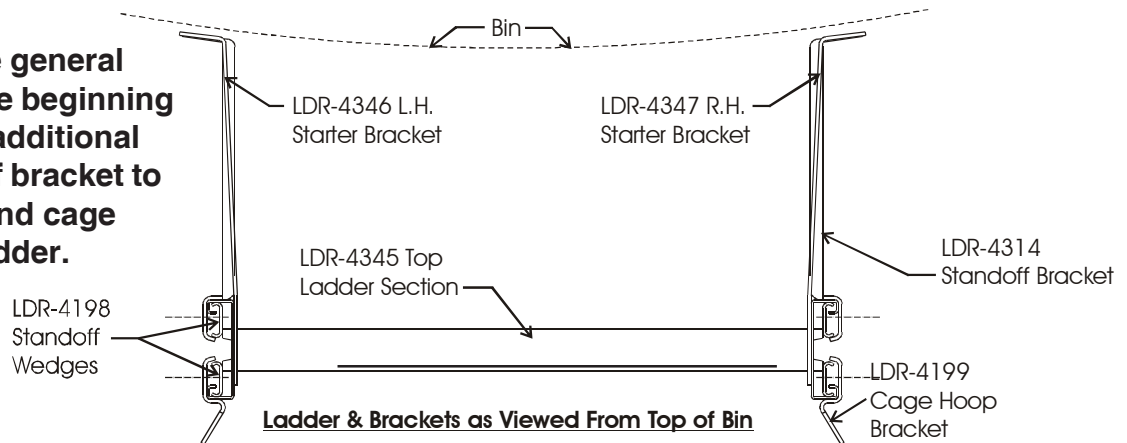


4.00" Corrugated Farm-Com Hopper Tank (FCHT) 7-9 Rings

NOTE: Reference previous page for proper location of ladder starter brackets.



NOTE: Refer to the general detail section at the beginning of this manual for additional details for standoff bracket to ladder assembly and cage hoop bracket to ladder.



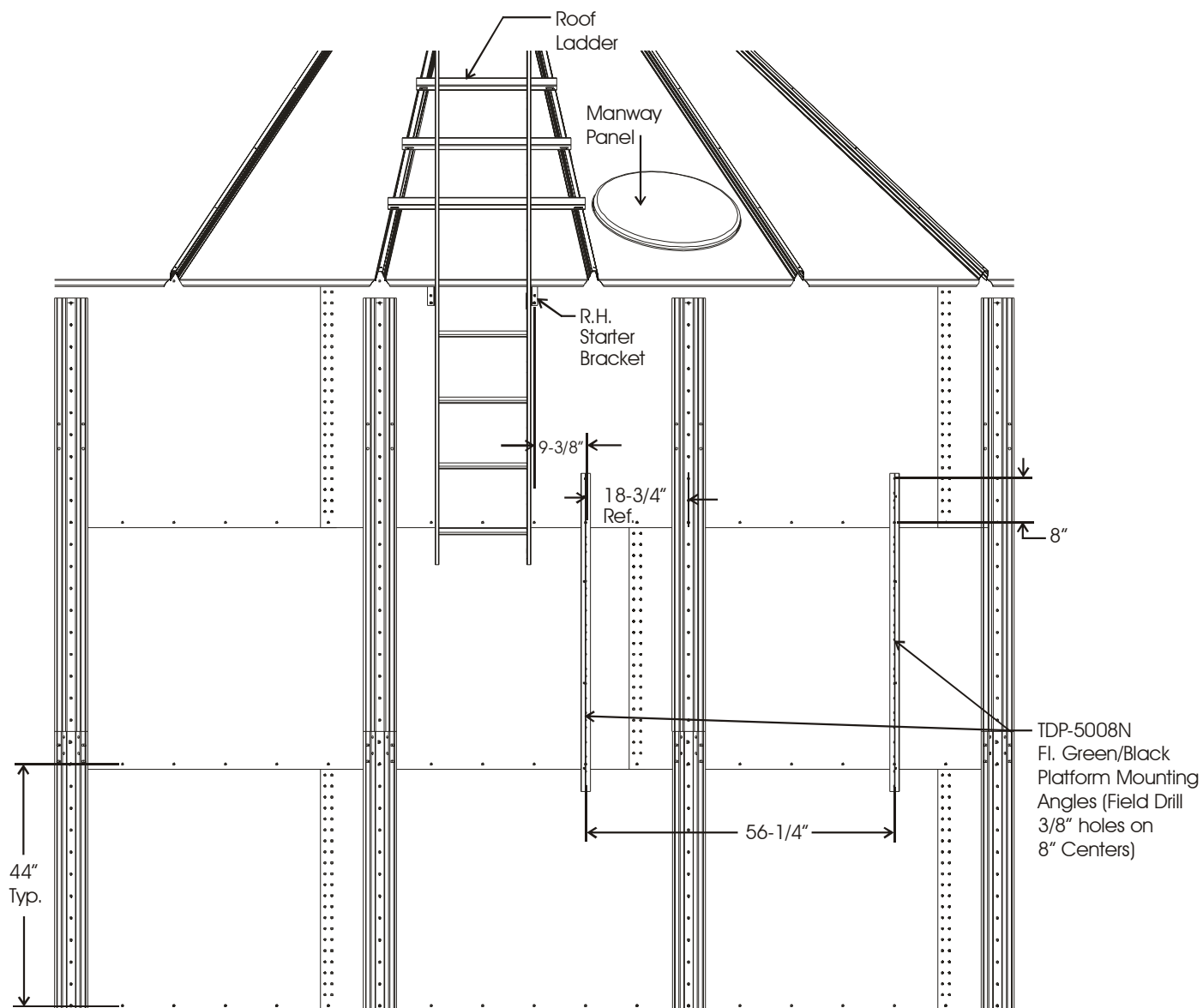
EAVE ADJUSTABLE BRACES

The adjustable braces must be attached at this time. A larger diameter tube and two smaller diameter tubes are used to make up one adjustable brace. Slip the smaller tubes inside the larger tube and attach one smaller tube to the top of the ladder. Adjust the other smaller tube so the bottom of the flattened tube reaches the roof rib. Field drill four 5/16" holes through both large and small adjustable tubes and bolt together using 1/4" x 1-1/2" bolts and nuts. This will keep the adjustable brace from slipping.

4.00" Corrugated Farm-Com Hopper Tank (FCHT) 7-9 Rings

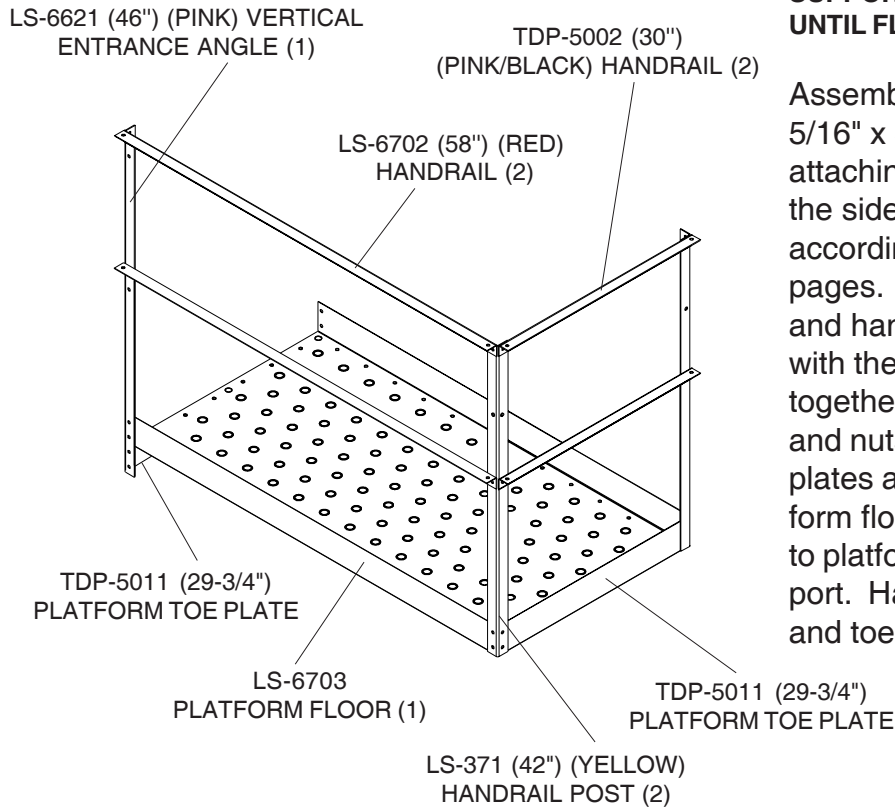
EAVE PLATFORM MOUNTING ANGLE INSTALLATION

The diagram below shows the location of the platform mounting angles. Each angle must be mounted starting 8" above the top horizontal seam of the 2nd ring with the first mounting angle offset 9-3/8" from the right hand starter bracket. The second mounting angle must be located 56-1/4" from the first mounting angle. Pay careful attention when installing these angles. The dimensions and locations of these angles are very critical to assure proper fit of all parts.



EAVE PLATFORM AND PLATFORM SUPPORT ASSEMBLY

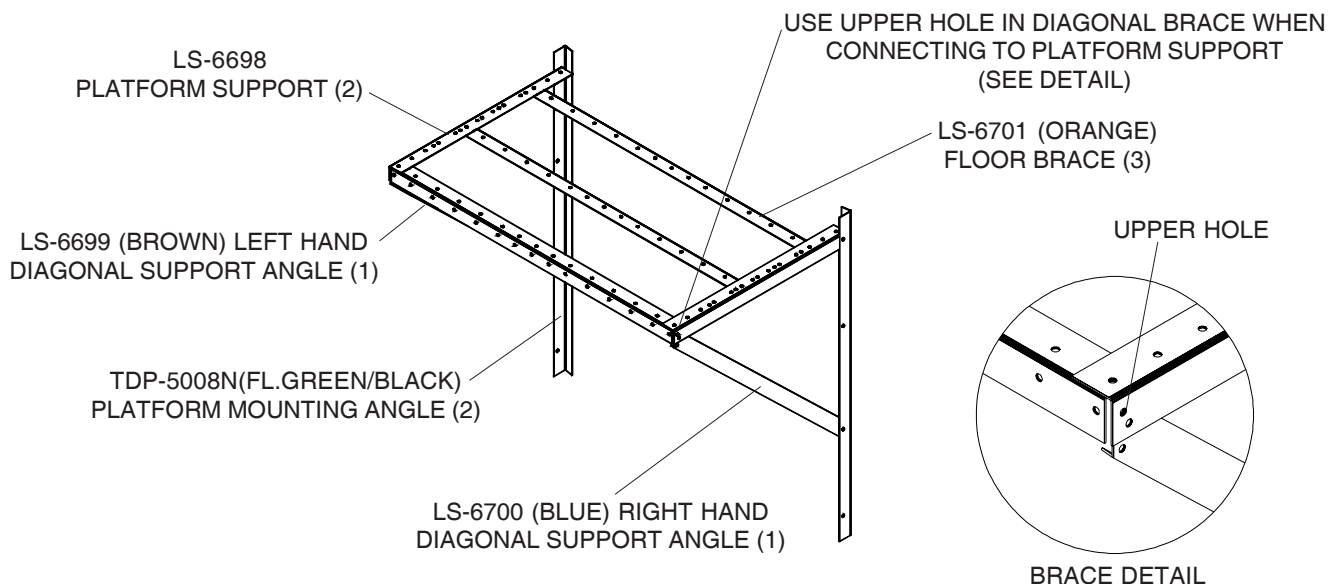
EAVE PLATFORM



NOTE: THE PLATFORM SUPPORTS SHOULD BE MOUNTED ON THE BIN FIRST. THE PLATFORM FLOOR SHOULD THEN BE ASSEMBLED ONTO THE SUPPORT FRAME. LEAVE PLATFORM SUPPORT TO FLOOR BRACE BOLTS LOOSE UNTIL FLOOR AND TOEPLATES ARE SECURE.

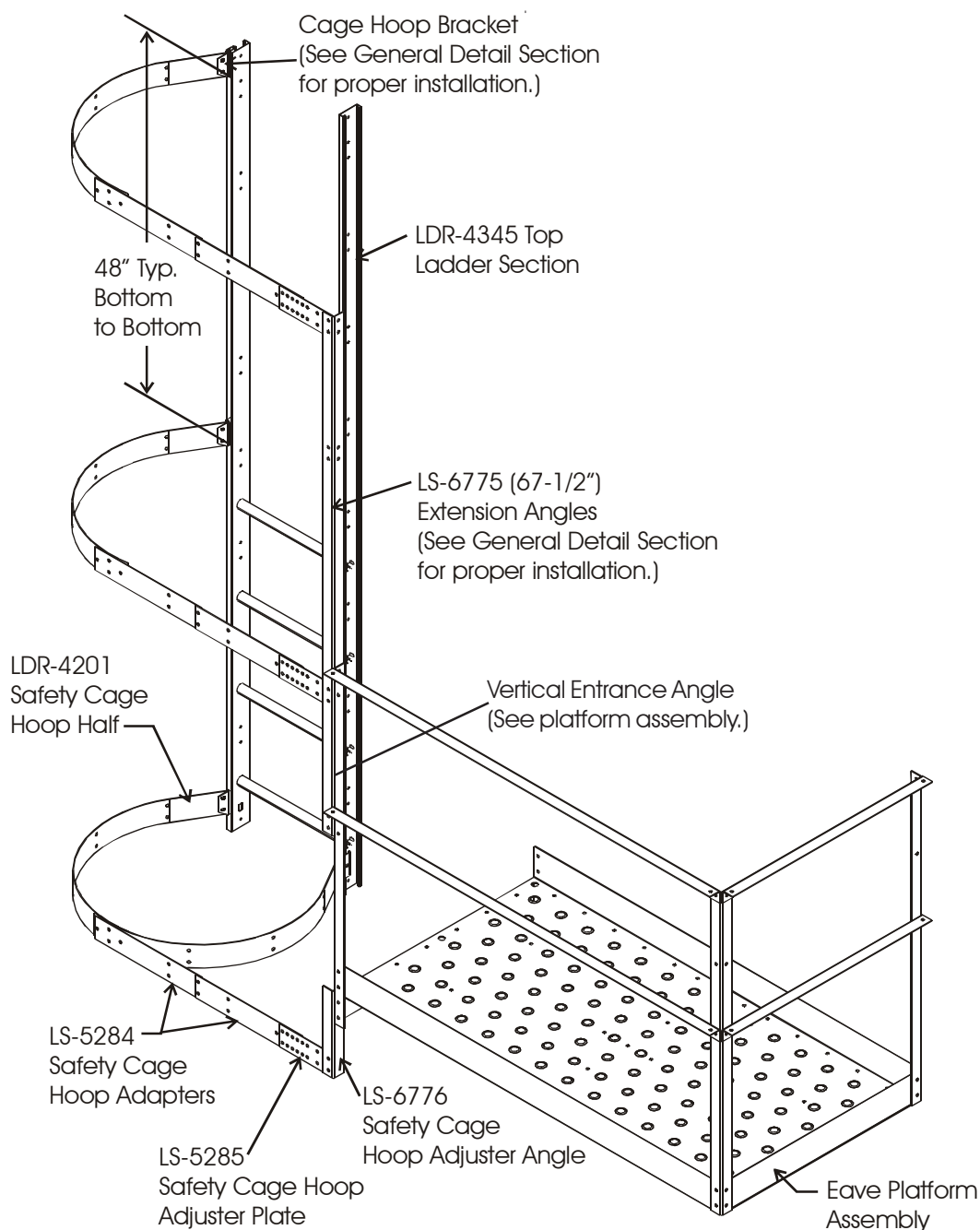
Assemble the platform support frame using 5/16" x 3/4" truss head bolts and nuts. When attaching the platform mounting angles to the sidewall, locate the vertical supports according to the instructions on previous pages. Now, proceed to the platform floor and handrails. Align holes on platform floor with the holes on platform supports and bolt together using 5/16" x 3/4" truss head bolts and nuts. Be sure and attach platform toe plates at the same time you attach the platform floor. Vertical entrance angle will bolt to platform floor, toeplate and platform support. Handrail post bolts to platform floor and toeplate as shown.

EAVE PLATFORM SUPPORT ASSEMBLY



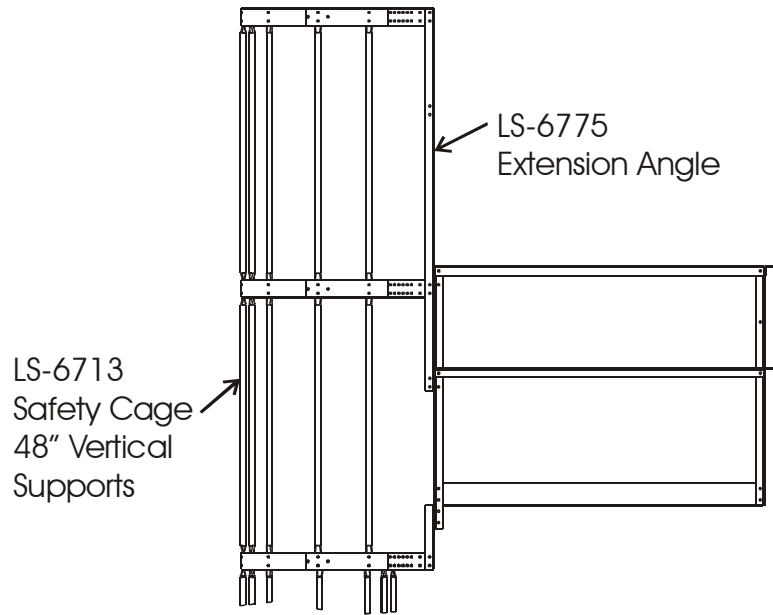
EAVE SAFETY CAGE HOOP ASSEMBLY

Before attaching any pieces to the ladders or platform, some pre-assembly will be required. Attach the safety cage brackets to the ladder section (see general detail section for proper installation). Take the safety cage hoop adjuster plates and bolt them onto the extension angle as shown. Bolt the safety cage hoop adapters and safety cage hoop halves together using the proper holes depending on the diameter of the grain bin. Be sure to use the 5/16" x 3/4" bolt with the head of the bolt to the inside of the safety cage. You may now bolt these assemblies to the safety cage brackets and hoop adjuster plates, tighten bolts as you go. The bottom assembly requires two hoop halves and will be positioned just below the platform as shown. Use the safety cage hoop adjuster angle to secure the two-hoop half assembly to the vertical entrance angle on the platform assembly.



VERTICAL SUPPORTS

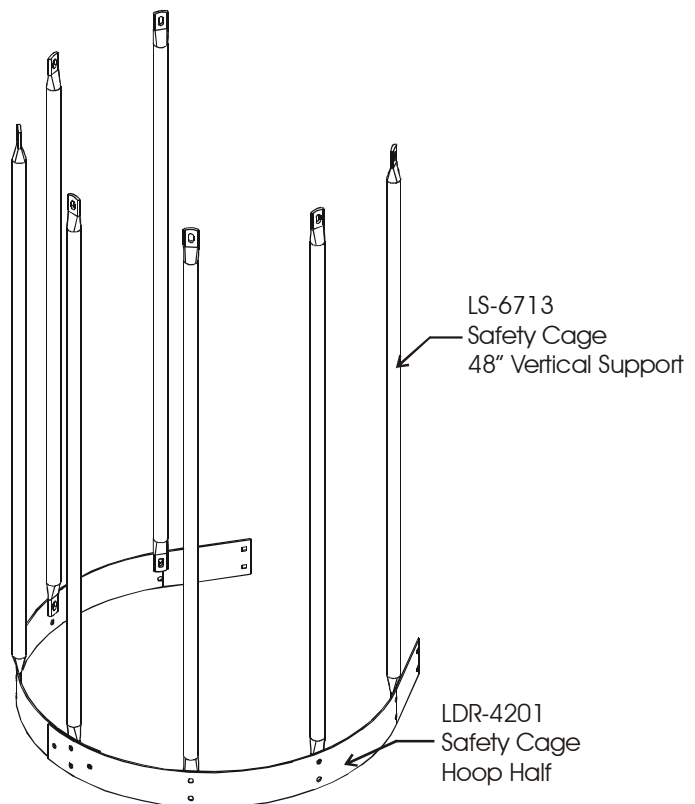
After all three hoop assemblies are in place you may attach the 48" vertical supports from hoop assembly to hoop assembly as shown. This will require 10 supports, 5 between each set of hoops. Bolts should have the head of the bolt to the inside of the safety cage.



VERTICAL SUPPORTS

48" SAFETY CAGE

Attach the vertical support pieces to the existing hoop halves above using the 5/16" x 3/4" bolts and nuts (with the heads on the inside of the cage). Fasten two hoop halves together and bolt to other end of vertical supports. Attach cage hoop brackets to ladder, see general detail section for proper attachment. Once cage hoop brackets have been installed, attach cage hoop halves & tighten bolts. Repeat installation for each safety cage required.



48" SAFETY CAGE

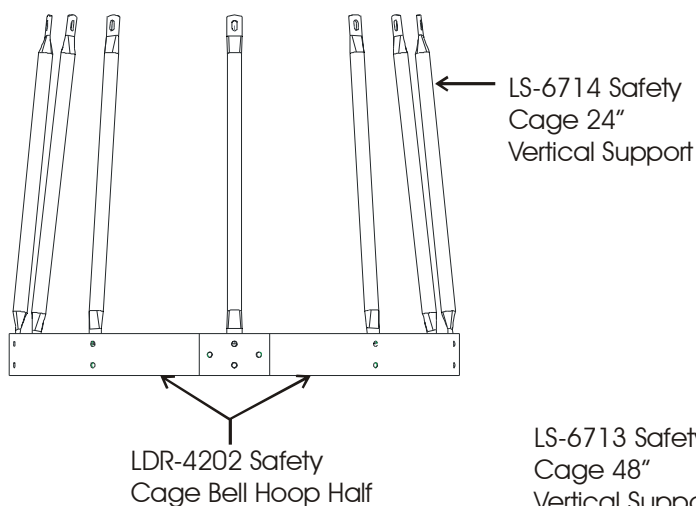
4.00" Corrugated Farm-Com Hopper Tank (FCHT) 7-9 Rings

24" - 48" SAFETY CAGE BELL SECTIONS

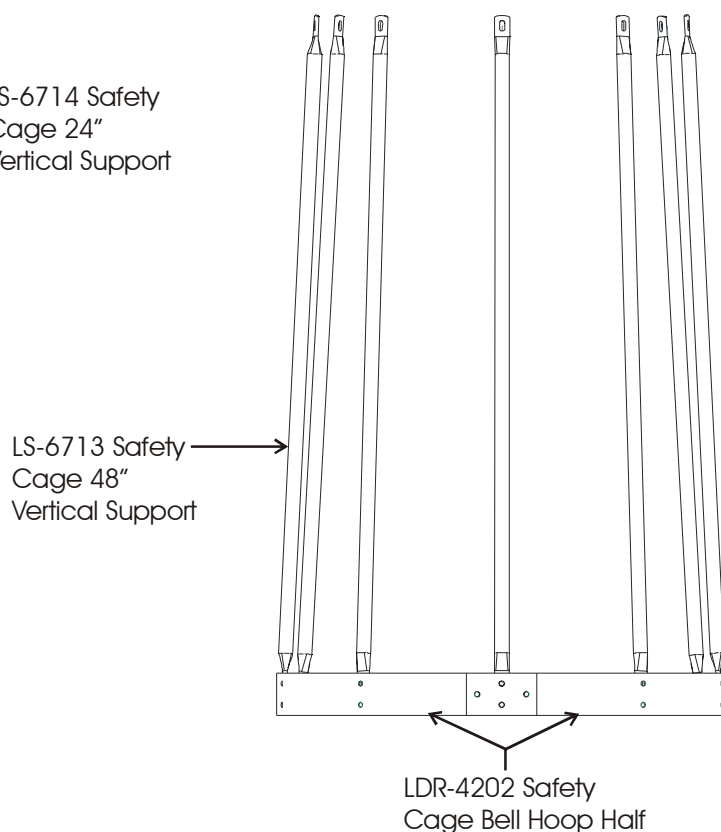
Attach the vertical supports to the hoop half assembly from the final safety cage installation using 5/16" x 3/4" bolts & nuts (with the heads on the inside of the cage). Assemble the special bell safety cage hoop halves and attach to other end of vertical supports. The vertical support will have to be bent at the flat area to allow for the angle of the bell section. Attach the safety cage brackets to the ladder as shown in the general details section. Once the safety cage brackets are installed, attach the bell safety cage hoop half assembly to the safety cage brackets & tighten bolts.

NOTE: The Safety cage bell section is to be used at the point of termination of the safety cage and should be just above the base platform. (generally 7 to 8 feet).

24" Bell

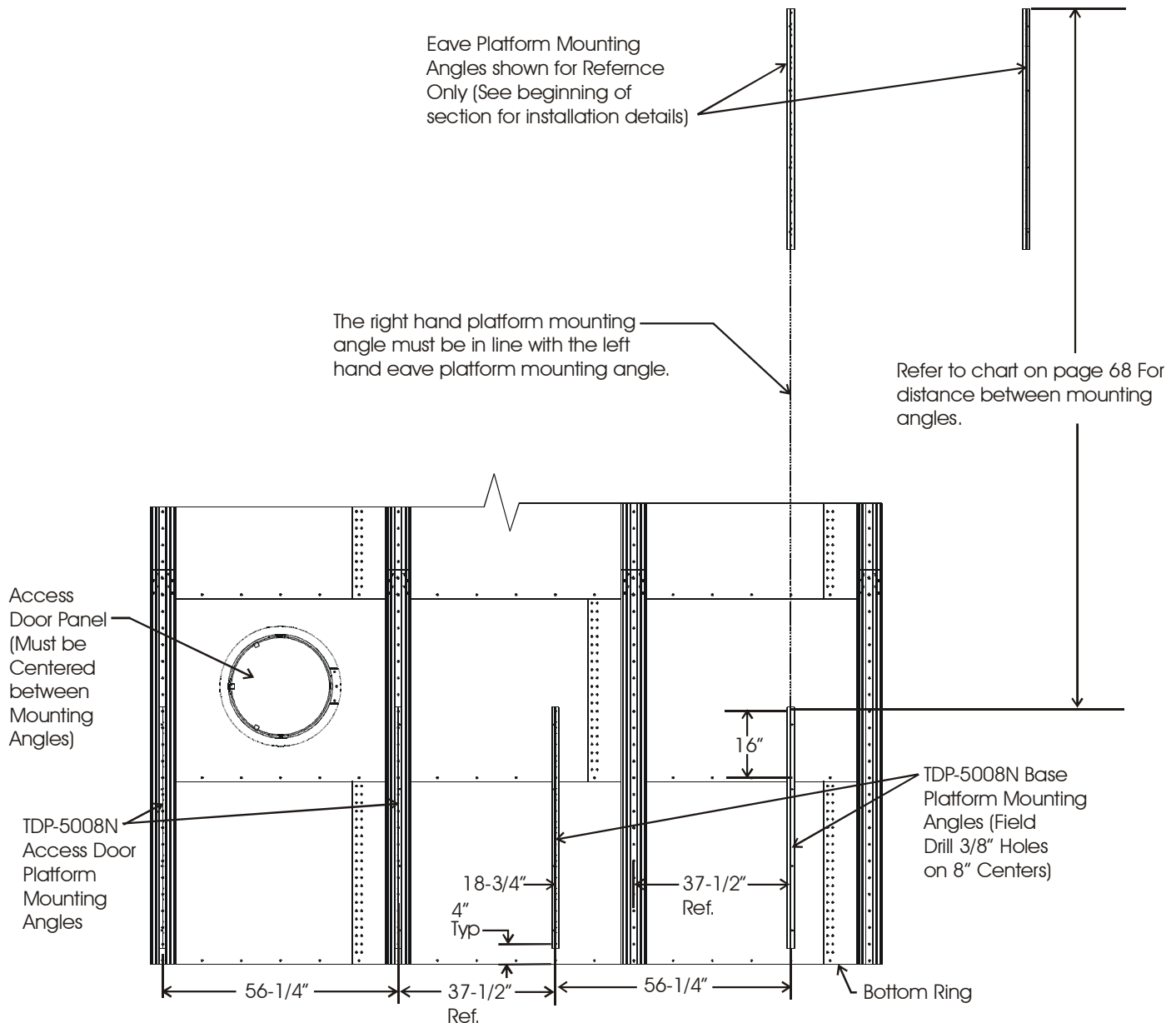


48" Bell



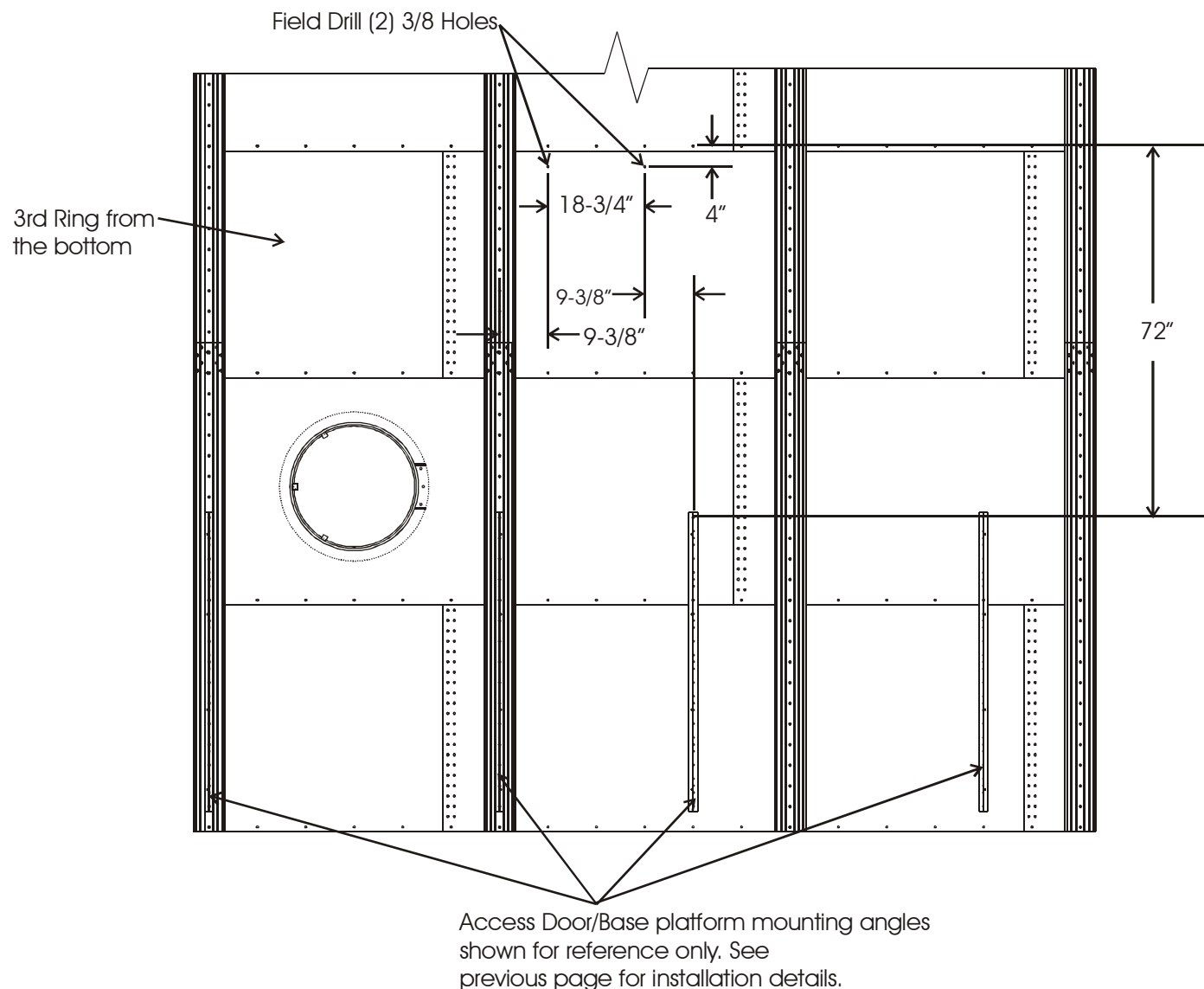
ACCESS DOOR/BASE PLATFORM MOUNTING ANGLE INSTALLATION

The diagram below shows the location of the access door platform mounting angles. All (4) angles must be mounted starting 16" above the top horizontal seam of the bottom ring with the first mounting angle directly in line with the left-hand eave mounting angle. The second mounting angle must be located 56-1/4" to the left of the first mounting angle. The remaining (2) mounting angles will be installed in the stiffeners located on each side of the access door. When installed correctly, there should be 37-1/2" between the two sets of mounting angles. Pay careful attention when installing these angles. The dimensions and locations of these angles are very critical to assure proper fit of all parts.



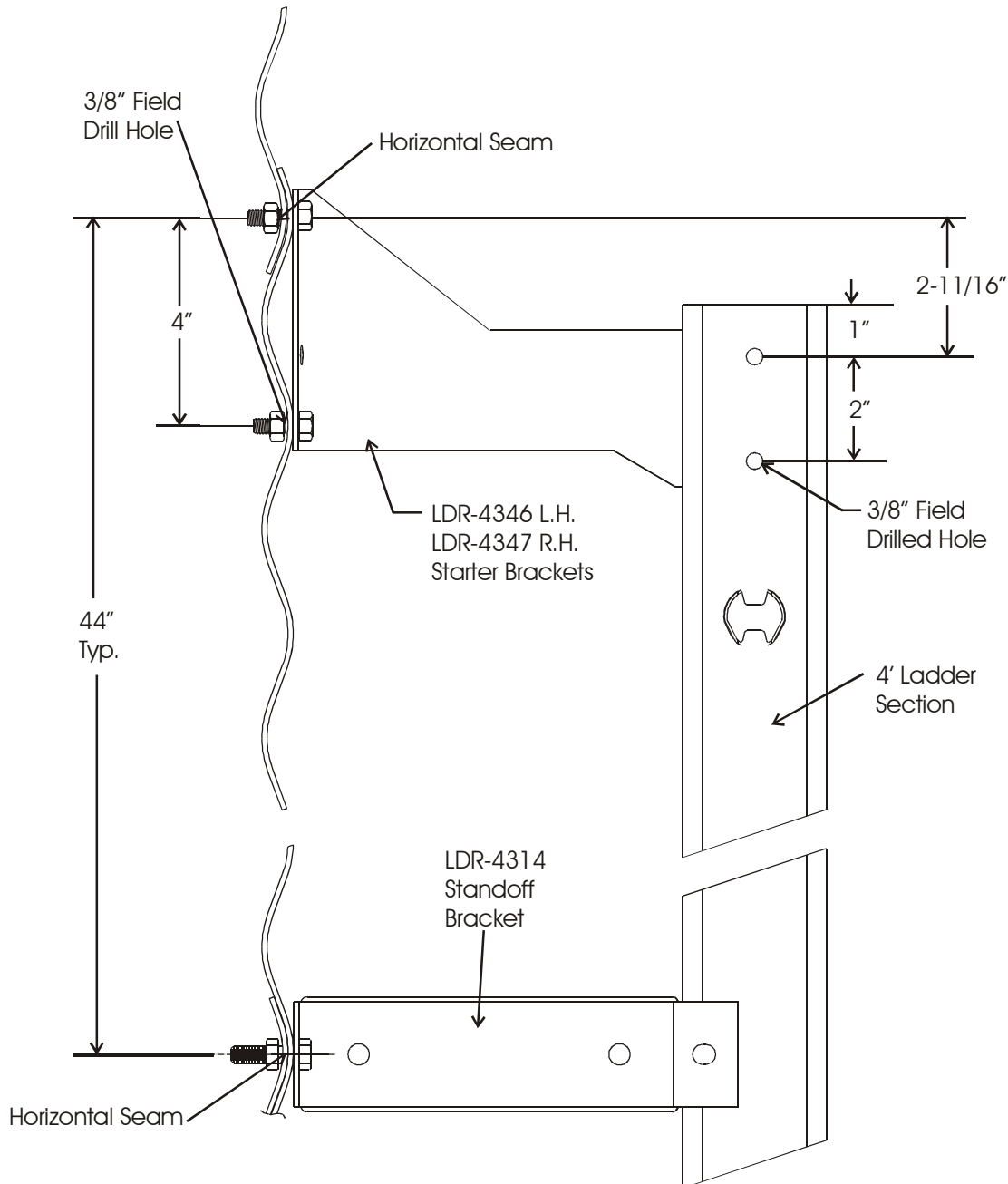
LOCATION OF FIELD-DRILLED HOLES FOR BASE/ ACCESS DOOR LADDER STARTER BRACKETS

Before the starter brackets can be installed, (2) $\frac{3}{8}$ " holes must be drilled. The holes must be located 4" below and directly in line with the top horizontal seam holes located in the 3rd ring from the bottom of the tank. The first hole, required for the right-hand starter bracket, must be located $9\frac{3}{8}$ " from the center of the left-hand base platform mounting angle to the center of the hole. The second hole, required for the left-hand bracket, must be located $18\frac{3}{4}$ " from the center of the first hole. When located correctly, the holes will be centered between the (2) sets of mounting angles. Refer to the diagram below for the proper location of the (2) $\frac{3}{8}$ " field-drilled holes required to install the starter brackets.



BASE/ACCESS DOOR STARTER BRACKET & LADDER ASSEMBLY WITH SAFETY CAGE

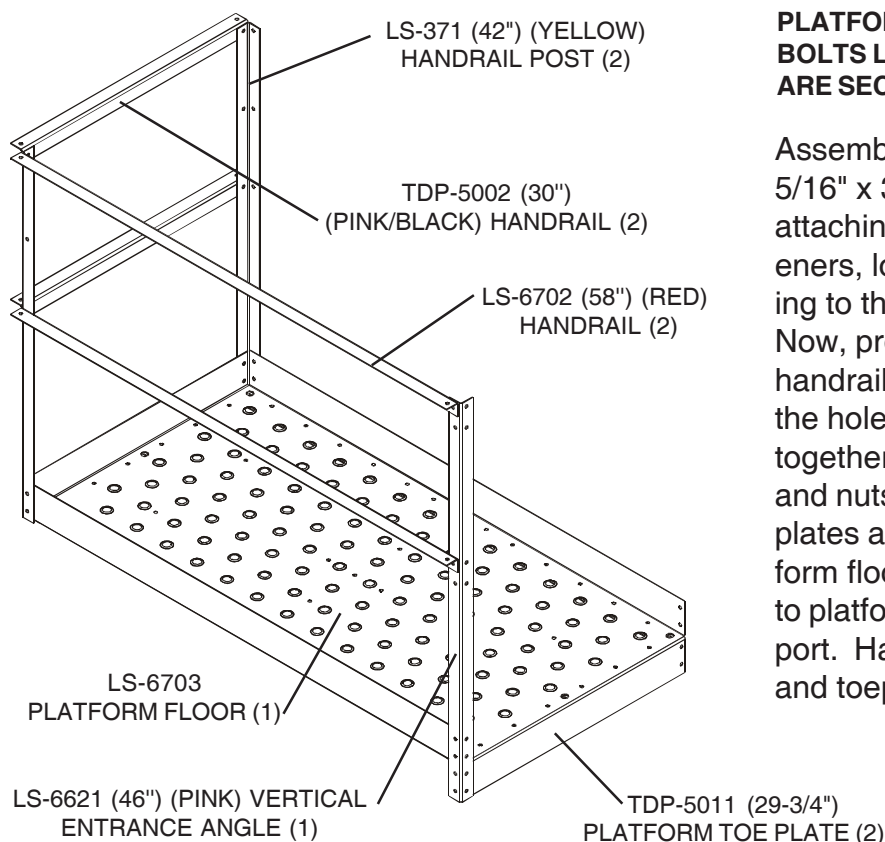
Once the (2) 3/8" holes have been drilled, attach the starter brackets to the sidewall as shown below. Check the top ladder section to make sure the ladder rung dimples are to the top surface and attach to the starter brackets using the holes located 1" from the top of the ladder. See the general detail section for installation of additional ladder sections required. Now, standoff brackets must be installed on the ladder sections and attached to the sidewall at each horizontal seam (repeating every 44") until reaching the ground. (Use 5/16" x 3/4" bin bolts for all connections.)



NOTE: Refer to the general detail section at the beginning of this manual for additional details for standoff bracket to ladder assembly and ladder section assembly.

ACCESS DOOR PLATFORM AND PLATFORM SUPPORT ASSEMBLY

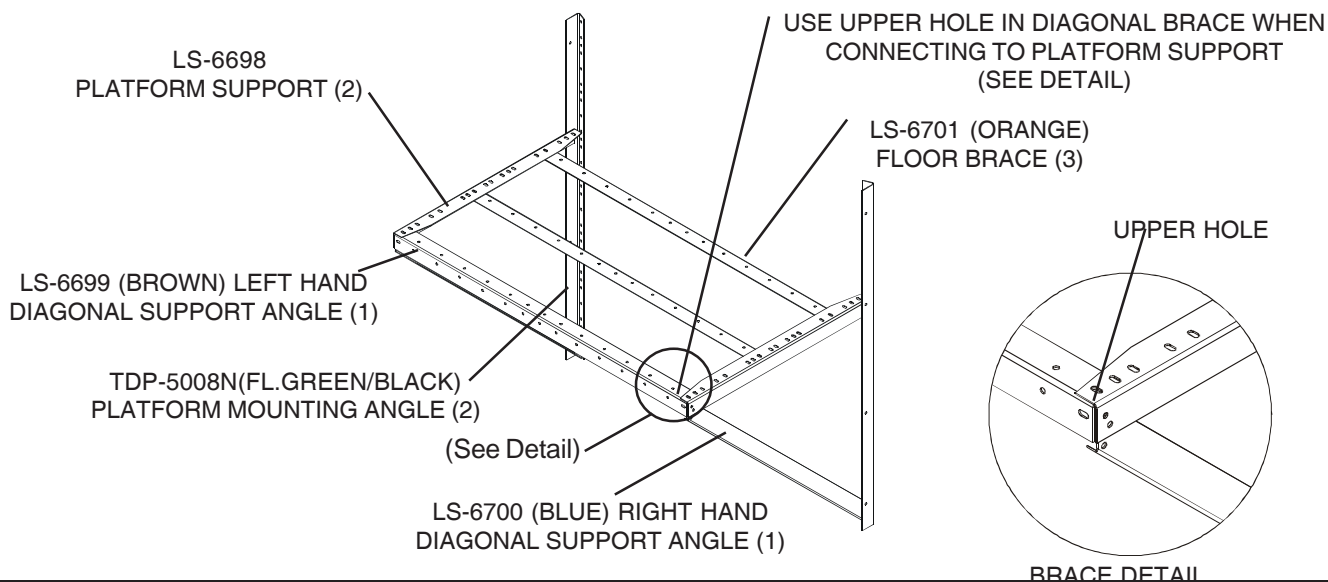
ACCESS DOOR PLATFORM



NOTE: THE PLATFORM MOUNTING ANGLES SHOULD BE MOUNTED ON THE BIN FIRST. THE PLATFORM FLOOR SHOULD THEN BE ASSEMBLED ONTO THE SUPPORT FRAME. LEAVE PLATFORM SUPPORT TO FLOOR BRACE BOLTS LOOSE UNTIL FLOOR AND TOEPLATES ARE SECURE.

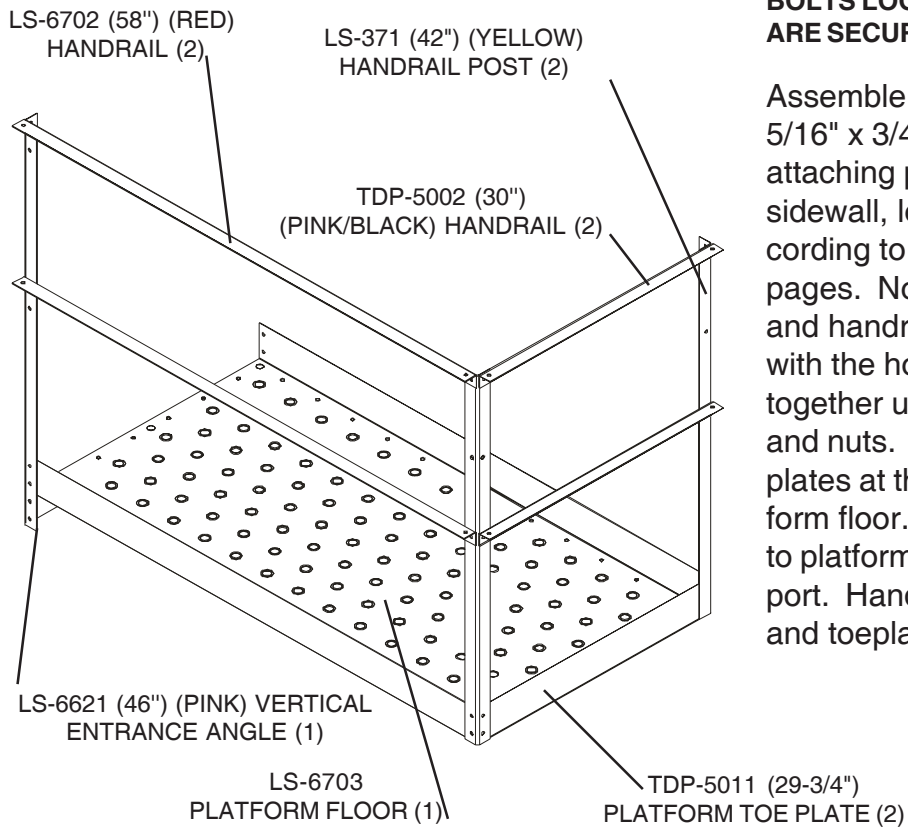
Assemble the platform support frame using 5/16" x 3/4" truss head bolts and nuts. When attaching platform mounting angles to stiffeners, locate the mounting angles according to the instructions on previous pages. Now, proceed to the platform floor and handrails. Align holes on platform floor with the holes on platform supports and bolt together using 5/16" x 3/4" truss head bolts and nuts. Be sure and attach platform toe plates at the same time you attach the platform floor. Vertical entrance angle will bolt to platform floor, toeplate and platform support. Handrail post bolts to platform floor and toeplate as shown.

ACCESS DOOR PLATFORM SUPPORT ASSEMBLY



BASE PLATFORM AND PLATFORM SUPPORT ASSEMBLY

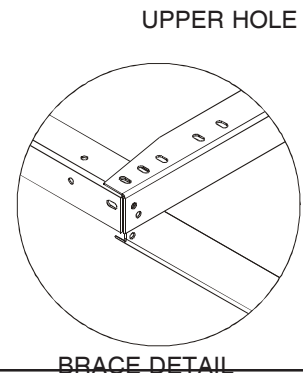
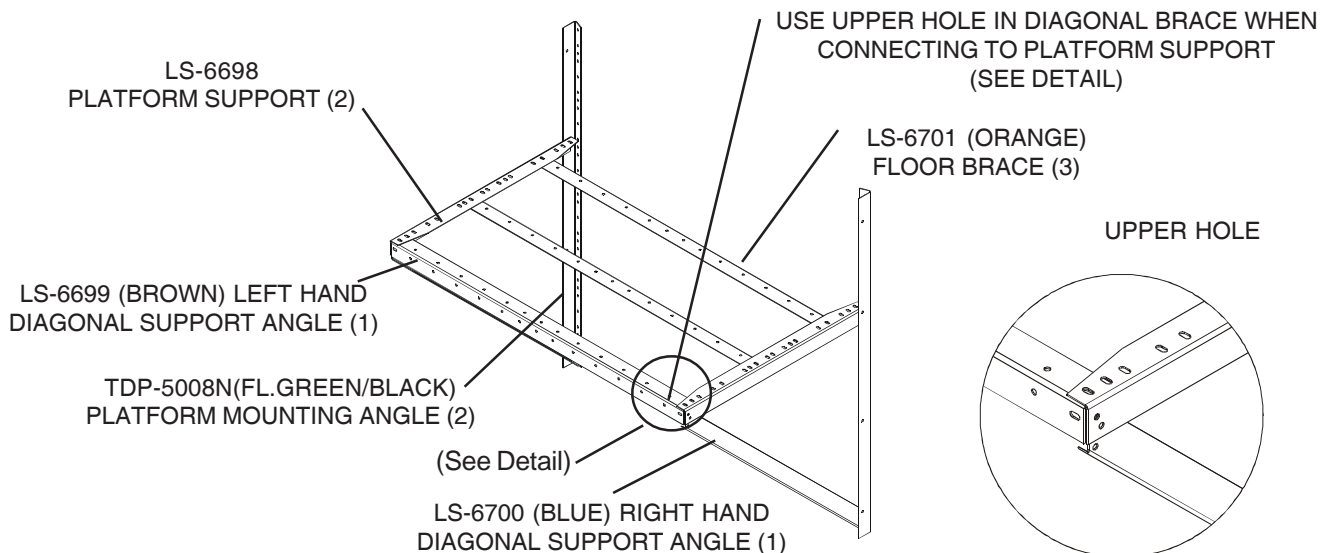
BASE PLATFORM



NOTE: THE PLATFORM MOUNTING ANGLES SHOULD BE MOUNTED ON THE BIN FIRST. THE PLATFORM FLOOR SHOULD THEN BE ASSEMBLED ONTO THE SUPPORT FRAME. LEAVE PLATFORM SUPPORT TO FLOOR BRACE BOLTS LOOSE UNTIL FLOOR AND TOEPLATES ARE SECURE.

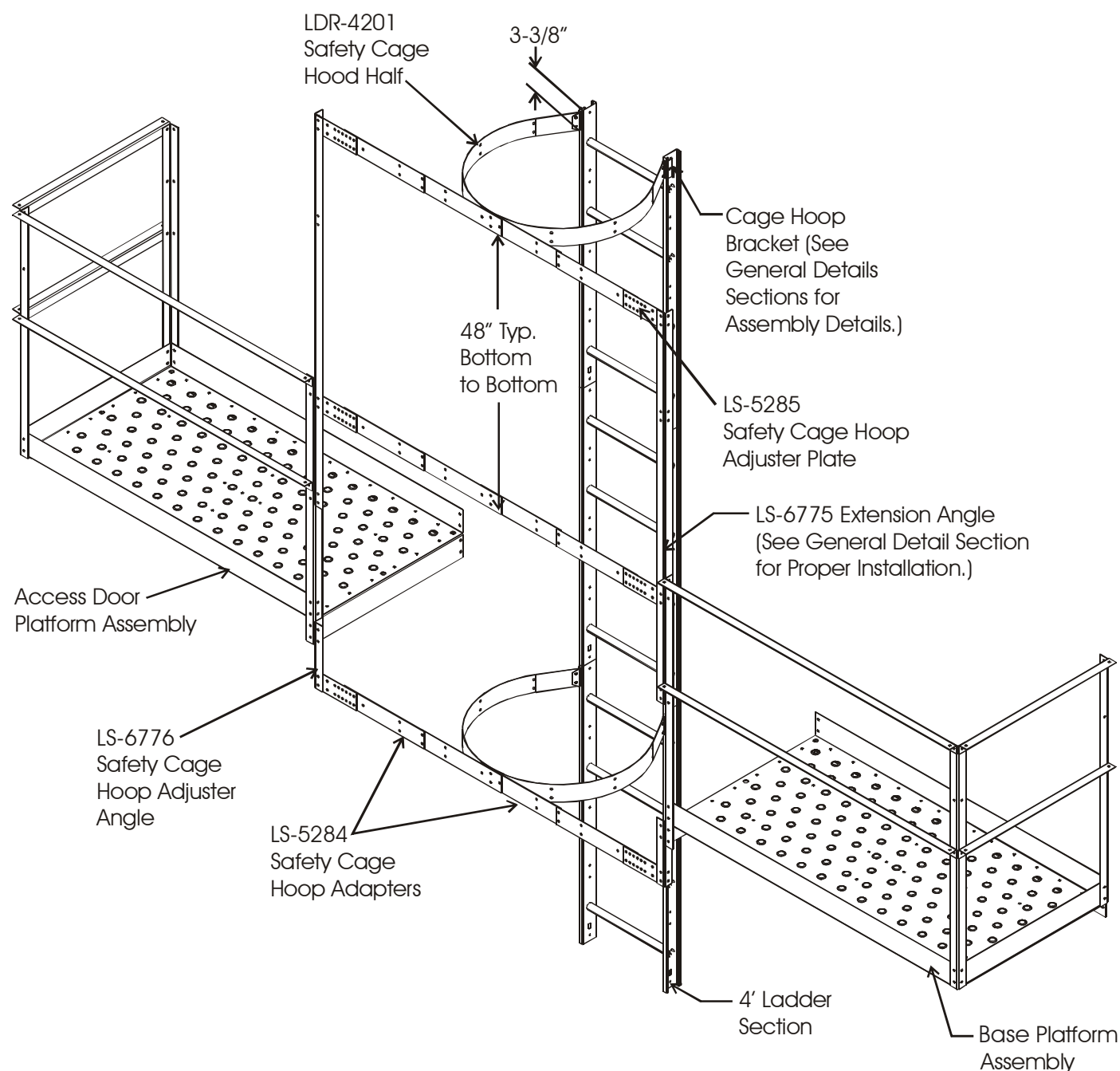
Assemble the platform support frame using 5/16" x 3/4" truss head bolts and nuts. When attaching platform mounting angles to sidewall, locate the mounting angles according to the instructions on previous pages. Now, proceed to the platform floor and handrails. Align holes on platform floor with the holes on platform supports and bolt together using 5/16" x 3/4" truss head bolts and nuts. Be sure and attach platform toe plates at the same time you attach the platform floor. Vertical entrance angle will bolt to platform floor, toeplate and platform support. Handrail post bolts to platform floor and toeplate as shown.

BASE PLATFORM SUPPORT ASSEMBLY



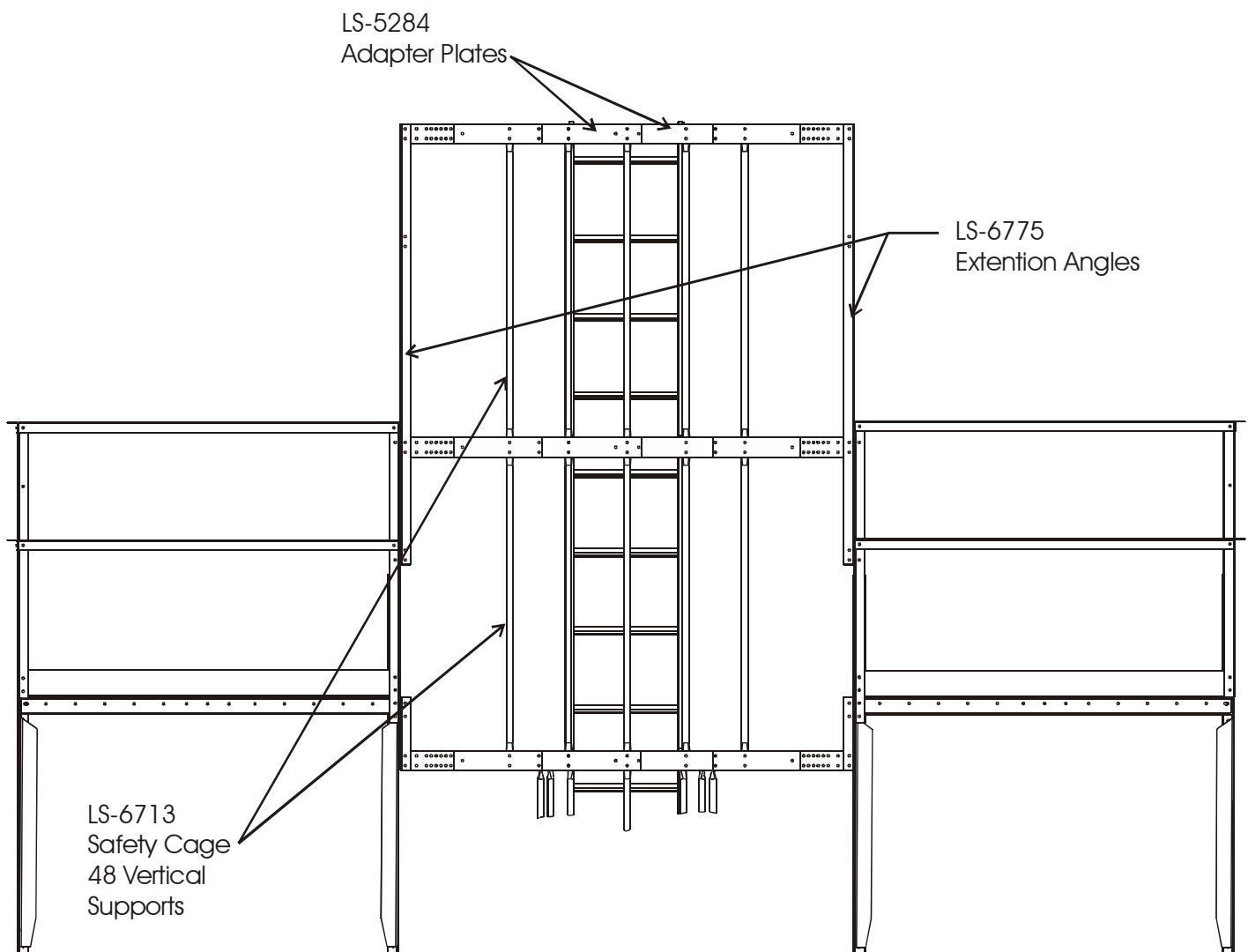
ACCESS DOOR/BASE SAFETY CAGE HOOP ASSEMBLY

Before attaching any pieces to the ladder or platform, some pre-assembly will be required. Attach the safety cage brackets to the ladder section (see general details section for proper installation instructions). Take the safety cage hoop adjuster plates and bolt them onto the extension angle as shown. For the middle hoop assembly, bolt the safety cage hoop adapters and safety cage hoop half together using the proper holes depending on the diameter of the bin. Be sure to use the 5/16" x 3/4" bolt with the head of the bolt to the inside of the safety cage. You may now bolt this assembly to the safety cage bracket and hoop adjuster plate, tighten as you go. Use the safety cage hoop adjuster angle to secure the two-hoop half assembly to the vertical entrance angle on the platform assembly. To finish the installation, secure the bottom hoop assembly to the vertical entrance angle on the platform assembly



ACCESS DOOR\BASE PLATFORM VERTICAL SUPPORTS

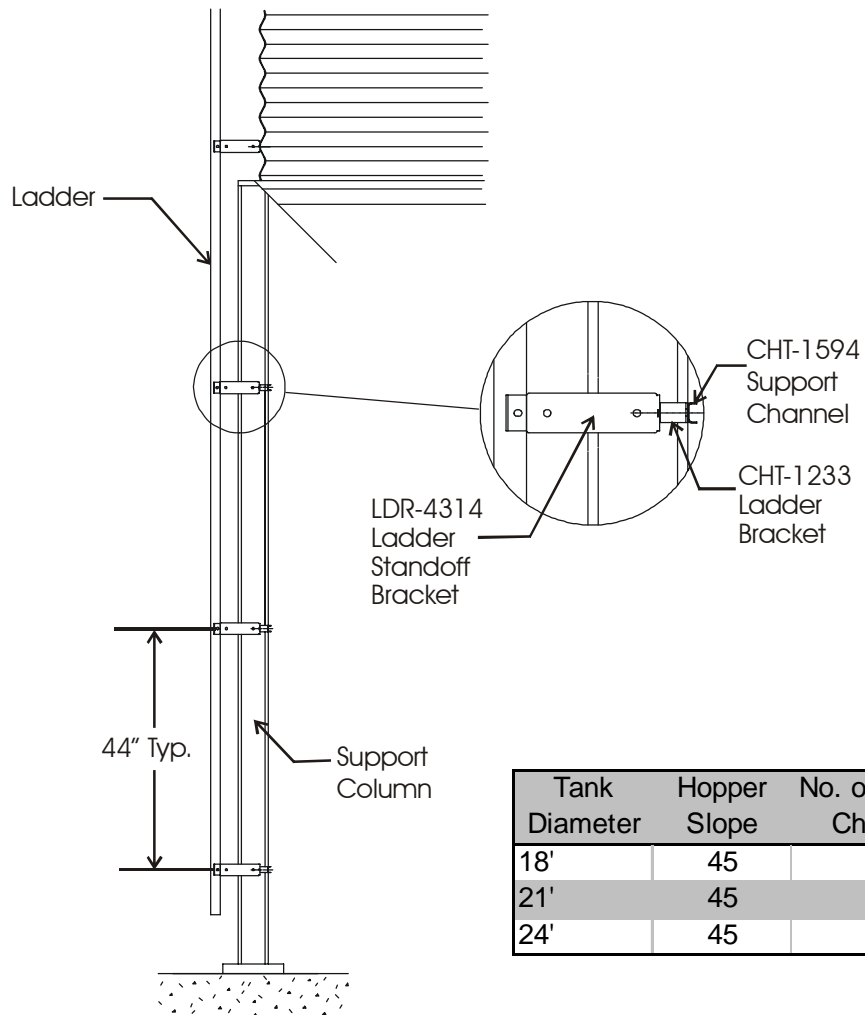
After completing the safety cage frame, you may attach the 48" vertical supports from adapter plate to adapter plate as shown. This will require 10 supports, 5 between each set of adapter plates. Bolts should have the head of the bolt to the inside of the safety cage. Refer to page 75 & 76 for safety cage & bell cage installation to complete access door ladder assembly.



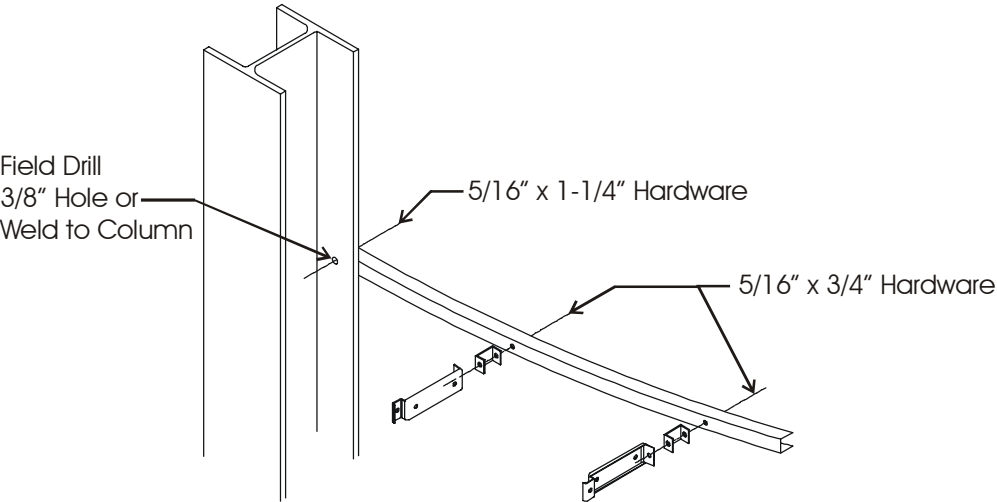
4.00" Corrugated Farm-Com Hopper Tank (FCHT) 7-9 Rings

LADDER SUPPORT DETAIL

The ladder must be secured to the hopper support columns with ladder standoff brackets using support channels and ladder brackets as shown.



Tank Diameter	Hopper Slope	No. of Support Channels	Hopper Ladder Brackets
18'	45	3	6
21'	45	4	8
24'	45	4	8



NOTES

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