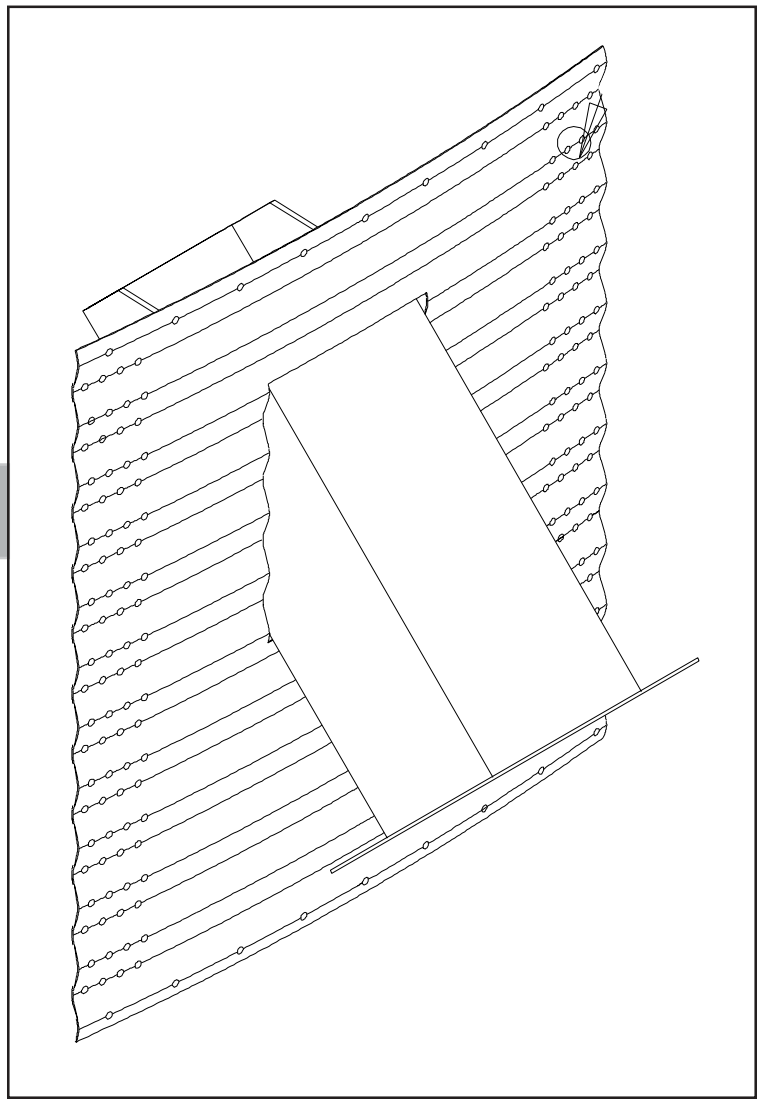
2.66" Side Draw Instructions
and
4.00" Side Draw Instructions

Instruction Manual

Manual # PNEG-066

REVISED: 12-9-03



a division of

THE GSI GROUP

PNEG-066

2.66" SIDE DRAW INSTRUCTIONS

Installation and Management Of Side Draw Systems

Grain Systems designs and manufacturers bins to the highest standards, however proper installation and good usage practices for a commercial flume system are essential, regardless of manufacturer. The following practices address general usage and installation criteria for such systems.

SIDE DRAW INSTALLATION

1.) Side discharge is only permitted in GSI commercial bins when a GSI manufactured side draw flume system has been installed. No corrugated steel bin should be unloaded through the sidewall without installation of such a system and permission of the manufacturer.

2.) Installation of a flume system may require installation of additional wind rings and 3/4" diameter anchor bolts. Reference the tank gauge sheet for wind ring placement or contact GSI. Reference the attached page on 1" anchor bolt usage.

Installation of multiple systems may require additional wind rings and must be placed a minimum of 90° apart. Installation of multiple systems requires approval of GSI.

3.) A side draw should not be the only discharge system available. A standard center discharge and conveyor should be installed.

SIDE DRAW MANAGEMENT AND USAGE

1.) Side draw systems are intended for use with dry flowable grain. Side draws are not to be used for poorly flowing products. This is not unique to GSI bins and flume systems but is a general rule for such systems.

2.) In multiple system installations only one side draw may be used at any one time.

3.) Filling should not be occurring at the same time as grain is being withdrawn through the side draw flume system.

4.) Prolonged storage of grain in the sloped condition produced by side draw discharge may accelerate differential settlement and result in deformations of the bin/silo. After using the side draw system the sloped grain should be returned to a near level condition by use of the center discharge. Leveling of the grain should also allow more even consolidation of foundation and fill soils and produce more even settlement of the bin/silo.

5.) If geotechnical investigations or past experience indicate significant foundation soil level variations or a site propensity toward differential settlement, side draw usage may be prohibited or severely restricted. In this situation the use of a flume system should be reviewed with geotechnical consultants or the foundation engineer.

1" Anchor Bolts Required With Sidedraw Systems Used With 2.66" Corrugation Commercial Tanks

CORRUGATION	TANK DIAMETER	TOTAL NUMBER OF 1" ANCHOR BOLTS
2.66"	42'	42
2.66"	48'	48
2.66"	54	54
2.66"	60'	60
2.66"	72'	72
2.66"	75'	75
2.66"	78'	78
2.66"	90'	90
2.66"	105'	105

Use 1" diameter anchor bolts at all of the required stiffener locations.

Additional Wind Rings Required For 2.66" Commercial Tanks With Side Draw Chute Systems

(One System Only)

	42'		48'		54'		60'		72'		75'		78'		90'		105'		
RINGS	STD	ADD	STD	ADD	STD	ADD	STD	ADD	STD	ADD	STD	ADD	STD	ADD	STD	ADD	STD	ADD	RINGS
37	--	--	--	--	7	1	7	1	7	1	8	1	8	1	--	--	--	--	37
36	--	--	--	--	6	1	6	1	7	1	7	1	7	2	--	--	--	--	36
35	--	--	--	--	6	1	6	1	6	1	7	1	7	1	7	1	--	--	35
34	--	--	--	--	5	1	5	1	6	2	6	2	6	2	6	2	6	2	34
33	--	--	--	--	4	2	4	2	5	2	5	3	5	3	5	3	6	2	33
32	4	1	4	1	4	1	4	1	5	2	5	2	5	2	5	2	5	3	32
31	3	2	3	2	4	1	4	1	4	2	4	2	4	2	4	2	5	3	31
30	3	2	3	2	4	1	4	1	4	1	4	1	4	1	4	2	4	3	30
29	2	1	3	1	3	2	3	2	3	2	3	2	3	2	4	2	4	3	29
28	2	1	2	1	2	2	2	2	2	2	3	2	3	2	3	3	4	3	28
27	1	1	2	1	2	2	2	2	2	2	3	2	3	2	3	3	3	4	27
26	1	1	1	1	2	2	2	2	2	2	2	2	3	2	3	3	3	4	26
25	--	1	1	1	1	2	1	2	2	2	2	2	2	2	3	3	3	4	25
24	--	1	--	1	1	2	1	2	2	2	2	2	2	2	2	3	3	3	24
23	--	1	--	1	1	2	1	2	2	2	2	2	2	2	2	3	2	4	23
22	--	1	--	1	1	2	1	2	2	2	2	2	2	2	2	3	2	3	22
21	--	1	--	1	--	3	1	2	2	2	2	2	2	2	2	3	2	3	21
20	--	1	--	1	--	3	1	2	2	2	2	2	2	2	2	3	2	3	20
19	--	1	--	1	--	3	1	2	1	3	2	2	2	2	2	3	2	3	19
18	--	1	--	1	--	3	1	2	1	3	1	3	2	2	2	3	2	3	18
17	--	1	--	1	--	3	1	2	1	2	1	2	1	2	2	2	2	2	17
16	--	1	--	1	--	3	--	3	1	2	1	2	1	2	1	2	1	2	16
15	--	1	--	1	--	3	--	3	1	2	1	2	1	2	1	1	1	2	15
14	--	1	--	1	--	2	--	2	--	2	--	2	--	2	1	2	1	2	14
13	--	1	--	1	--	1	--	2	--	2	--	2	--	2	--	2	1	1	13
12	--	--	--	--	--	1	--	2	--	2	--	2	--	2	--	2	1	1	12

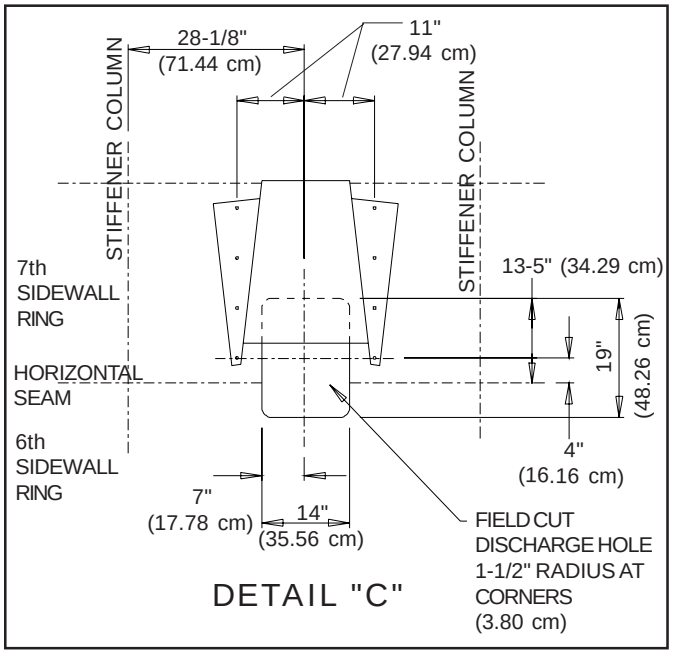
NOTE: Consult the gage sheet supplied with the tank for complete wind ring quantities and placement for the specific tank the sidedraw is being installed in.

2 POST
(Viewed From Inside Of Bin)

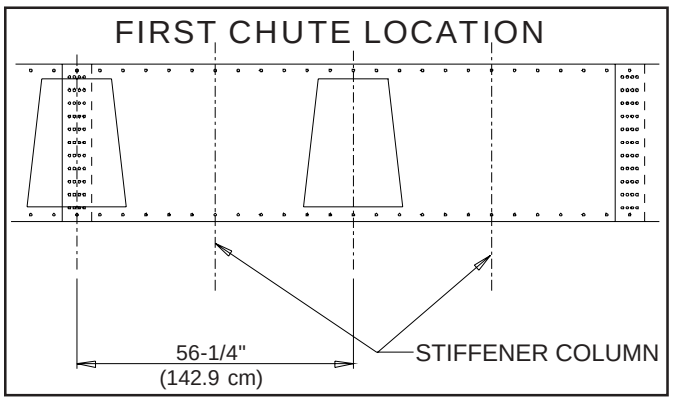
DISCHARGE TUBE INSTALLATION

1.) Use the bottom 2 holes in the last chute to locate discharge tube 28" below the 7th horizontal seam. Refer to Detail "C" for sidewall sheet hole dimensions.
2.) For proper water shed install plate so upper body sheet overlaps the plate, as shown in Detail "D".
3.) Use discharge tube assembly as a template, drill all holes 7/16" diameter.
4.) Use 2 beads of caulking to seal discharge plate to body sheets. Use 3/8" bolts & nuts provided to bolt discharge assembly to body sheets.

NUMBER OF RINGS IN TANK	CHUTE LOCATION HORIZONTAL STARTING LOCATION
ALL	1.) LOCATE 1st CHUTE IN 2nd RING FROM TOP
	2.) TOP BOLT HOLES IN CHUTE TO BE LOCATED ON 2nd CORRUGATION OF BODY SHEET.
11, 13, 15, 17, 19, 21 & 23	3.) CENTER CHUTE OVER VERTICAL SEAM.
10, 12, 14, 16, 18, 20, 22 & 24	3.) CENTER CHUTE 56.1/4" FROM THE 1st HORIZONTAL SEAM BOLT IN THE 2nd RING.

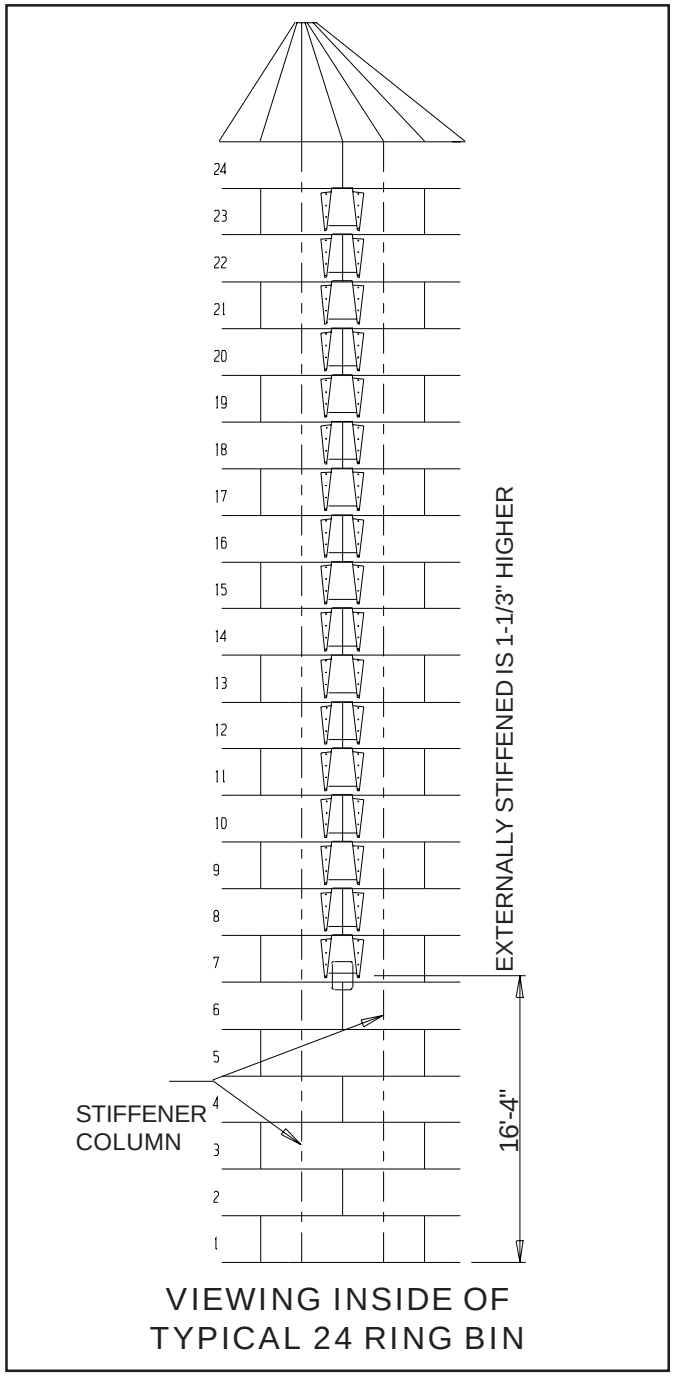


DETAIL "C"



WIND RING INSTALLATION

Tanks that use wind rings require 2-3/4" dia. holes passing through the side draw chute; with the center no less than 6" from either end and 4-3/8" from the sidewall. The wind ring must penetrate through the chute and form a complete ring. Do not locate wind ring in 8" space at chute entrance. Field drill stiffeners for wind ring attachment bracket. (if required)



VIEWING INSIDE OF
TYPICAL 24 RING BIN

NOTE: ***Unload tubes and support from rack & pinion not provided by G.S.I.***

3 Post (Viewed From Inside Of Bin)

These instructions for 90' diameter tanks and smaller. See PNEG-972 or PNEG-1343 for 105' diameter tank sidedraw installation instructions.

DISCHARGE TUBE INSTALLATION

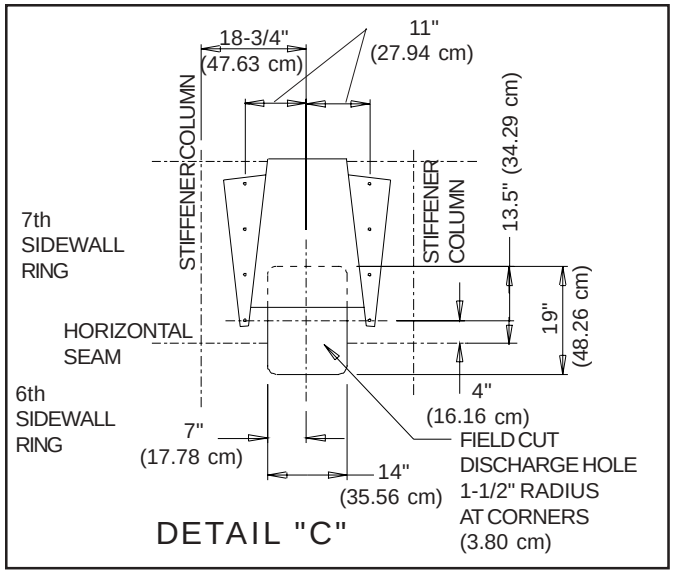
1.) Use the bottom 2 holes in the last chute to locate discharge tube 28" below the 7th horizontal seam. Refer to Detail "C" for sidewall sheet hole dimensions.

2.) For proper water shed install plate so upper body sheet overlaps the plate, as shown in Detail "D".

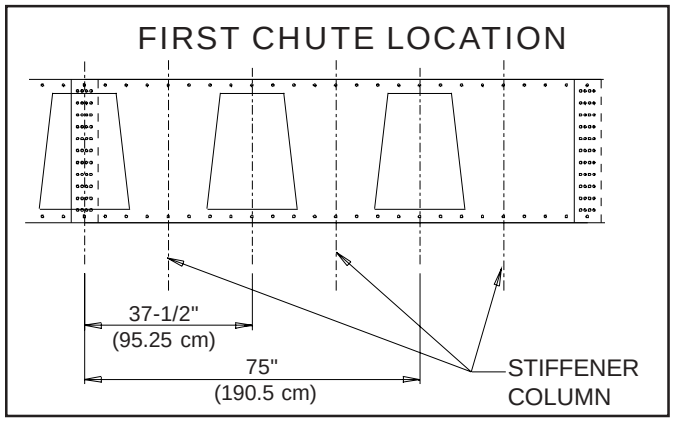
3.) Use discharge tube assembly as a template, drill all holes 7/16" diameter.

4.) Use 2 beads of caulking to seal discharge plate to body sheets. Use 3/8" bolts & nuts provided to bolt discharge assembly to body sheets.For all locations where the sidewall uses 3/8" x 1-1/2" Long Bolts, use the same bolt to install the discharge tube.

NUMBER OF RINGS IN TANK	CHUTE LOCATION HORIZONTAL STARTING LOCATION
ALL	1.) LOCATE 1ST CHUTE IN 2ND RING FROM TOP 2.) TOP BOLT HOLES IN CHUTE TO BE LOCATED ON 2ND CORRUGATION OF BODY SHEET
11, 14, 17, 20, 23, 26, 29, & 32, 35	3.) CENTER CHUTE 75 INCHES (LEFT TO RIGHT) FROM 1ST HOLE IN 2ND BODY SHEET
10, 13, 16, 19, 22, 25, 28, & 31,34, 37	3.) CENTER CHUTE 37.500 INCHES (LEFT TO RIGHT) FROM 1ST HOLE IN 2ND BODY SHEET
12, 15, 18, 21, 24, 27, 30, & 33, 36	3.) CENTER CHUTE OVER VERTICAL SEAM.

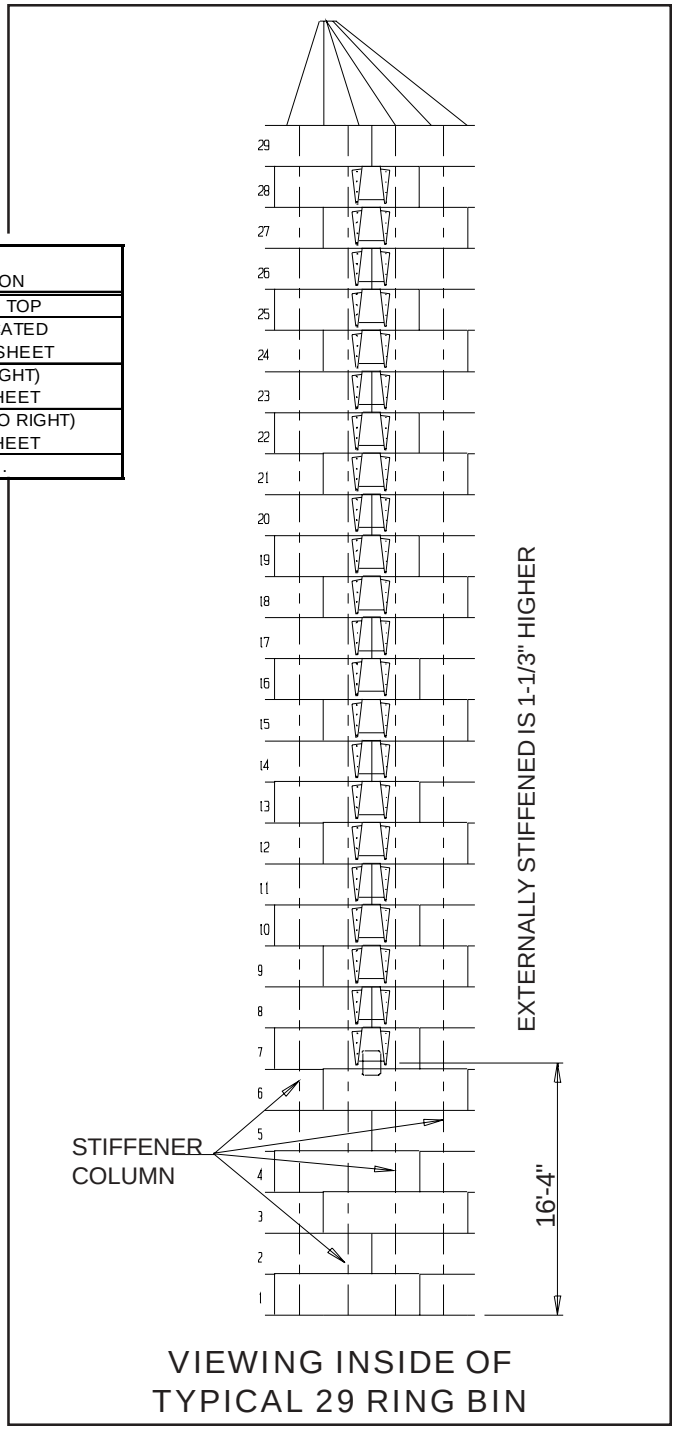


DETAIL "C"



WIND RING INSTALLATION

Tanks that use wind rings require 2-3/4" dia. holes passing through the side draw chute; with the center no less than 6" from either end and 4-3/8" from the sidewall. The wind ring must penetrate through the chute and form a complete ring. Do not locate wind ring in 8" space at chute entrance. Field drill stiffeners for wind ring attachment bracket. (if required.)



VIEWING INSIDE OF TYPICAL 29 RING BIN

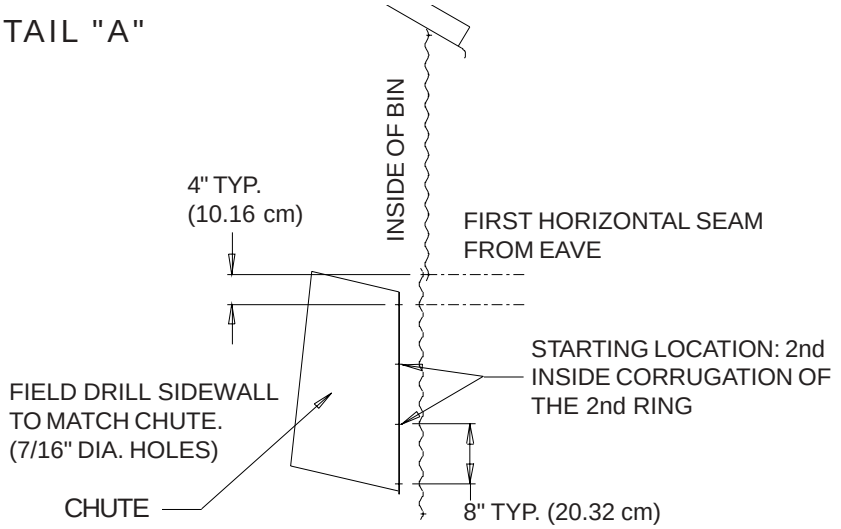
NOTE: ***Unload tube and supports from rack & pinion not provided by G.S.I.***

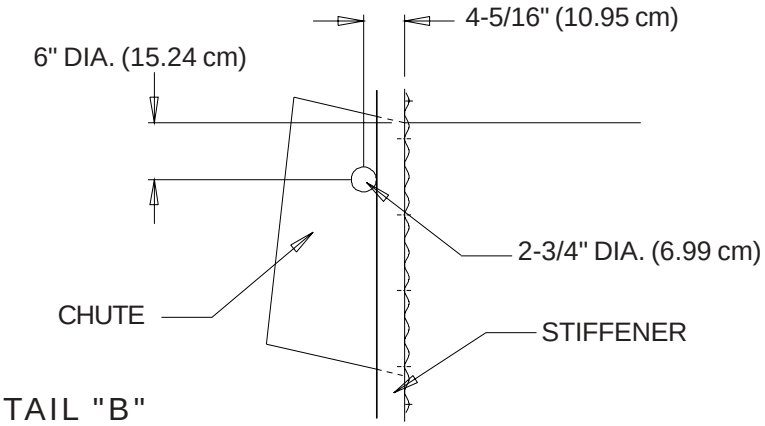
2 & 3 Post (Internally Stiffened)

Field cutting of chutes is necessary to except the wind rings. Locate wind rings as shown. The wind ring must be assembled in to a complete ring and penetrate through the chute. Field drill stiffeners for attachment bracket. (IF REQUIRED)

NOTE: Unload tubes and supports from rack & pinion not provided by G.S.I.

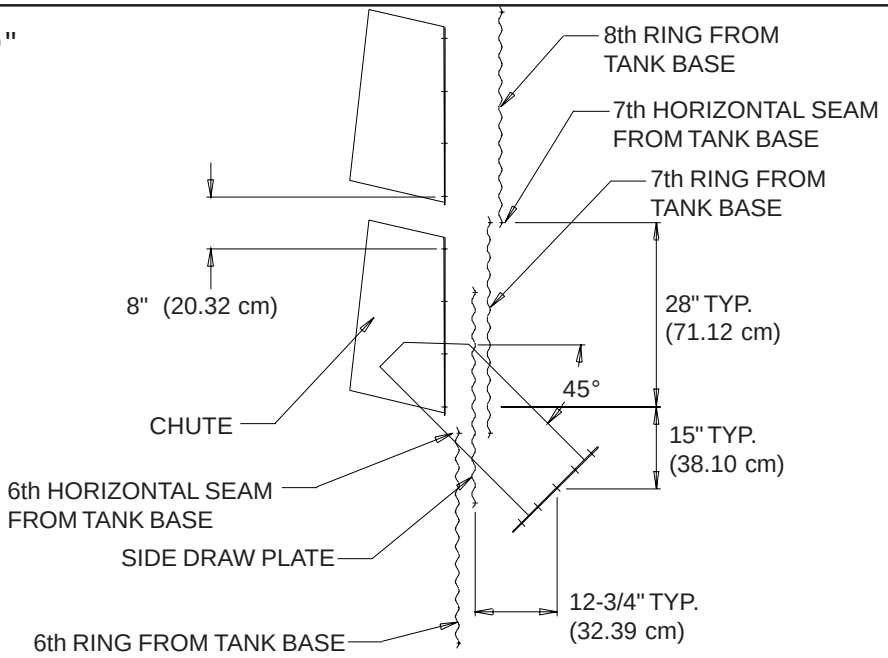
DETAIL "A"





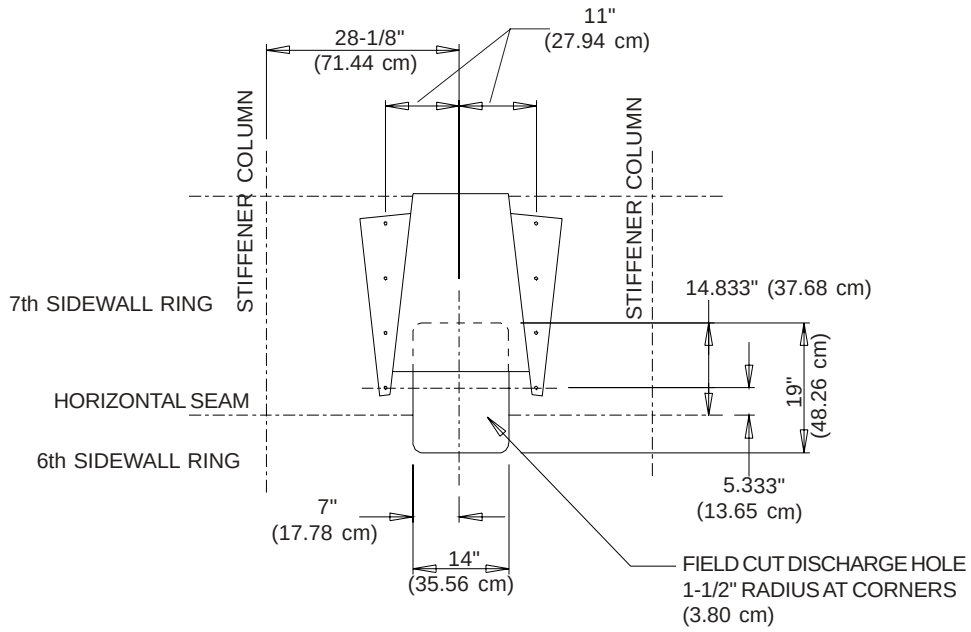
DETAIL "B"

DETAIL "D"

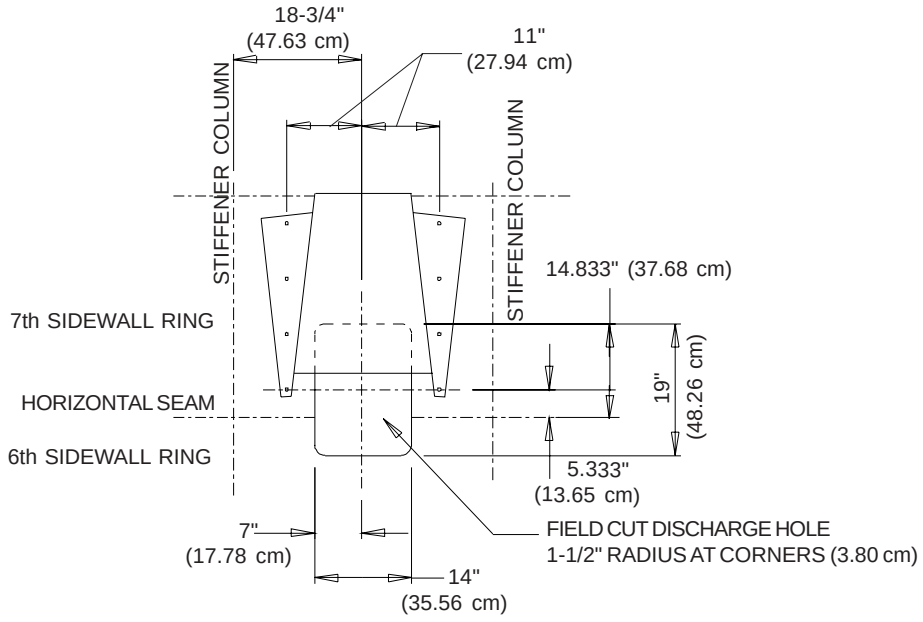


2 & 3 Post (Externally Stiffened)

NOTE: Unload tubes and supports from rack & pinion down are not provided by G.S.I.



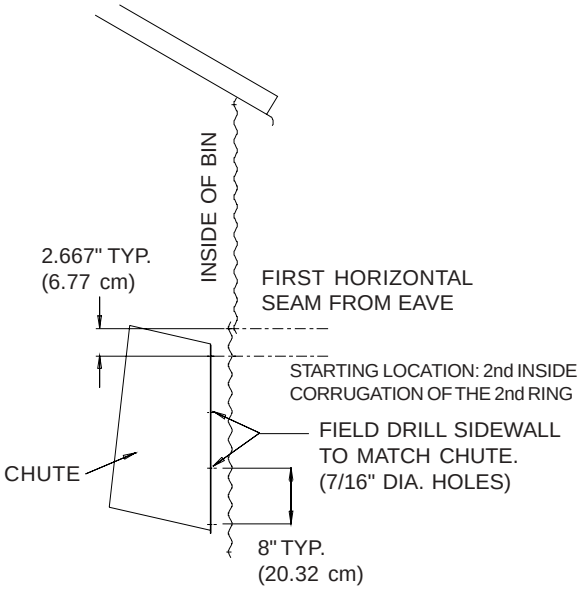
DETAIL "C" (EXTERNALLY STIFFENED) (2 POST)



DETAIL "C" (EXTERNALLY STIFFENED) (2 POST)

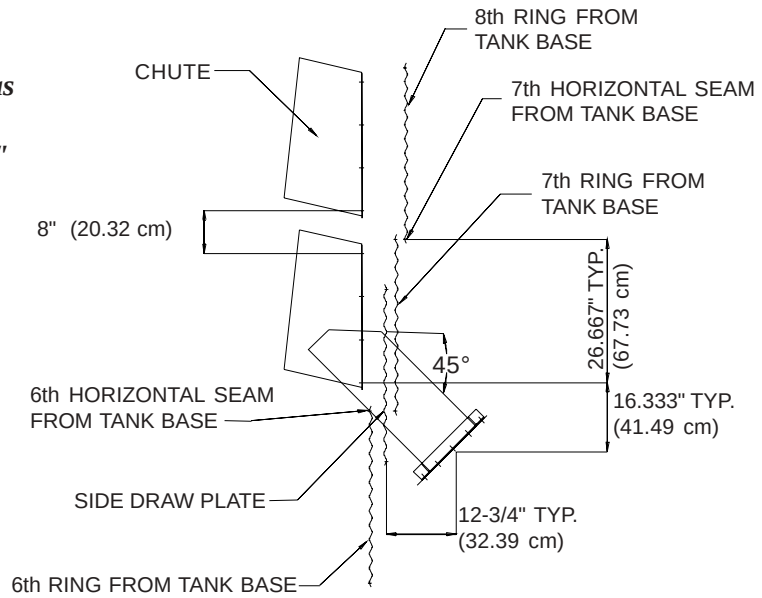
2 & 3 Post (Externally Stiffened)

NOTE: Unload tubes and supports from rack & pinion down are not provided by G.S.I.



DETAIL "A" (EXTERNALLY STIFFENED)

NOTE: When installing the discharge weldment, use the same 3/8" bolts as the installtion rings vertical seam. IE: If 3/8" x 1-1/2" bolts were used, utilize that size bolt.



DETAIL "D" (EXTERNALLY STIFFENED)

4.00'' SIDE DRAW INSTRUCTIONS

Installation and Management Of Side Draw Systems in FCDL Series Bins/Silos

Grain Systems designs and manufacturers bins to the highest standards, however proper installation and good usage practices for a commercial flume system are essential, regardless of manufacturer. The following practices address general usage and installation criteria for such systems.

SIDE DRAW INSTALLATION

1.) Side discharge is only permitted in GSI stiffened bins when a GSI manufactured side draw flume system has been installed. No corrugated steel bin should be unloaded through the sidewall without installation of such a system and permission of the manufacturer.

2.) Installation of a flume system may require installation of additional wind rings and 3/4" diameter anchor bolts. Reference the attached pages or contact GSI. Installation of multiple systems requires additional wind rings and must be placed minimum of 90 degrees apart. Installation of multiple systems requires approval of GSI.

3.) A side draw should not be the only discharge system available. A standard center discharge and conveyor should be installed.

SIDE DRAW MANAGEMENT AND USAGE

1.) Side draw systems are intended for use with dry flowable grain. Side draws are not to be used for poorly flowing products. This is not unique to GSI bins and flume systems but is a general rule for such systems.

2.) In multiple system installations only one side draw may be used at any one time.

3.) Filling should not be occurring at the same time as grain is being withdrawn through the side draw flume system.

4.) Prolonged storage of grain in the sloped condition produced by side draw discharge may accelerate differential settlement and result in deformations of the bin/silo. After using the side draw system the sloped grain should be returned to a near level condition by use of the center discharge. Leveling of the grain should also allow more even consolidation of foundation and fill soils and produce more even settlement of the bin/silo.

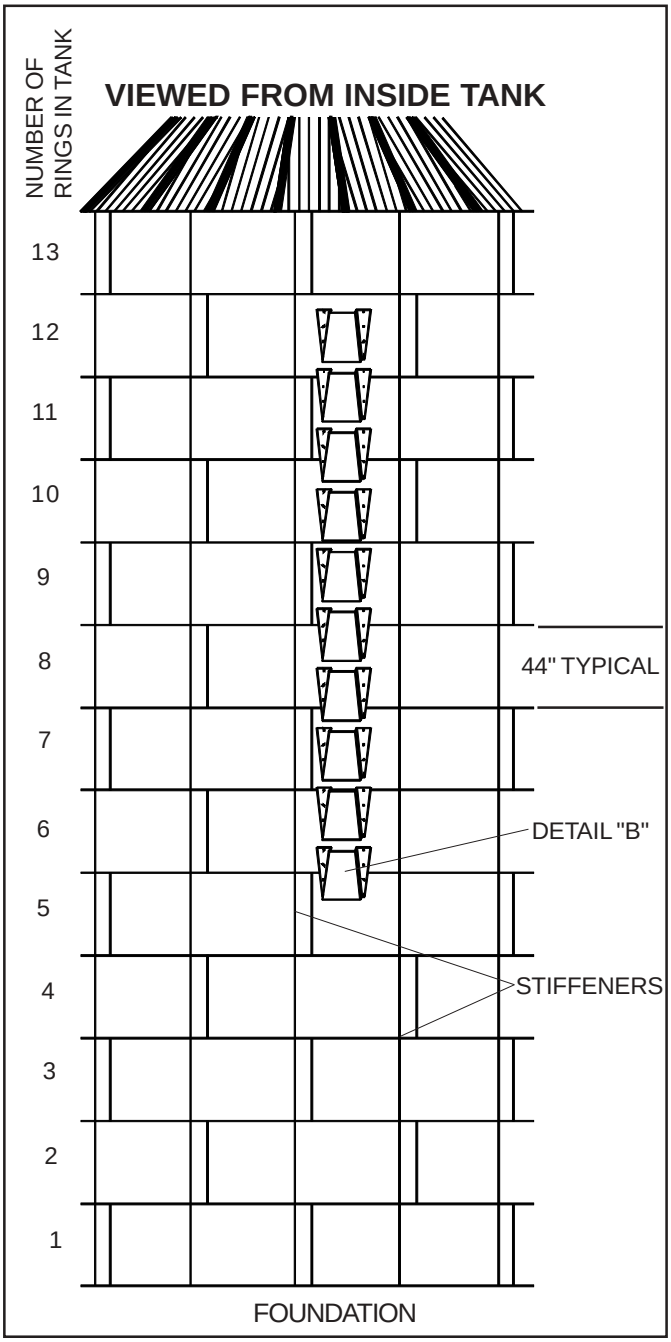
5.) If geotechnical investigations or past experience indicate significant foundation level soil variations or a site propensity toward differential settlement, side draw usage may be prohibited or severely restricted. In this situation the use of a flume system should be reviewed with geotechnical consultants or the foundation engineer.

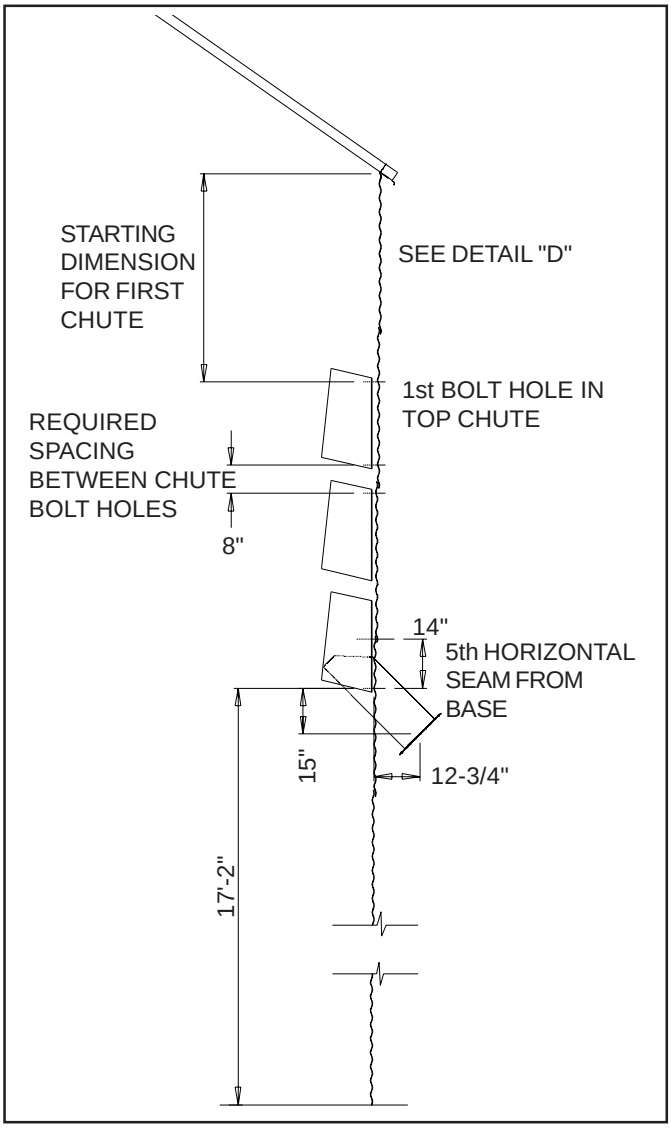
FCL (4.00" CORR.) SIDE DRAW INSTRUCTIONS

SIDE DRAW CHUTE INSTALLATION			
NUMBER OF RINGS	**STARTING DIMENSION**	**NUMBER OF CHUTES**	**HORIZONTAL LOCATION FOR FIRST CHUTE**
13	54"	10	MIDDLE OF SHEET
12	42"	9	MIDDLE OF SHEET
11	62"	7	MIDDLE OF SHEET
10	50"	6	MIDDLE OF SHEET
9	38"	5	MIDDLE OF SHEET
8	58"	4	MIDDLE OF SHEET
7	48"	3	MIDDLE OF SHEET

Wind Ring Requirements							
Rings	30'	33'	36'	42'	48'	54'	60'
10			1	1	1	1	1
11		1	1	1	1	1	1
12	1	1	1	1	1	1	1
13	1	1	1	1	1	**	**

FCL (4.00" CORR.) SIDE DRAW INSTRUCTIONS





WIND RING INSTALLATION

Installation of side draw systems on some 4.00" Corrugation tanks require additional wind rings.

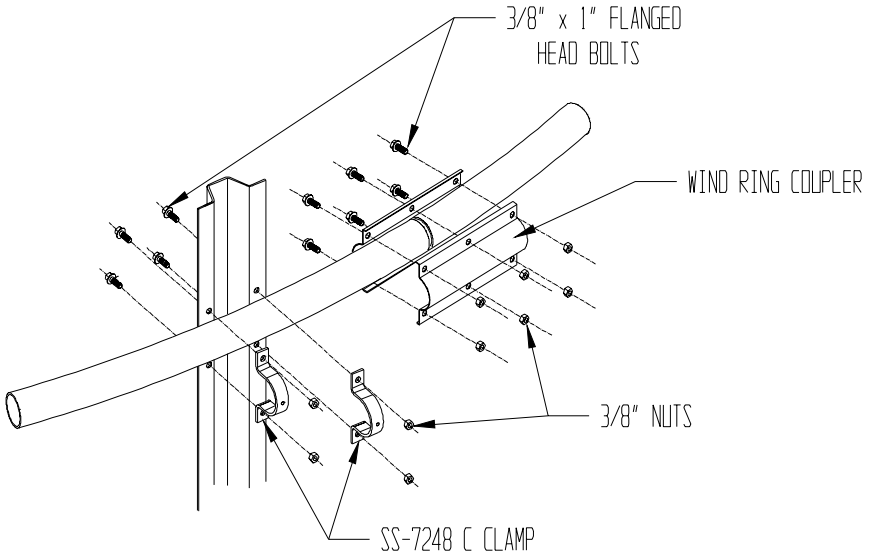
NOTE: Unloading tube and support from rack and pinion are not provided by G.S.I

Discharge Tube Installation

1. Use bottom holes in last chute to locate discharge tube. See Detail "B" for hole dimensions in sidewall sheet. (Approximately 14" below 5th horizontal seam.)
2. For proper watershed, install plate so upper body sheet overlaps plate as in detail "C".
3. Use discharge tube assembly for template. Drill all holes 3/8" diameter.
4. Use 2 beads of caulking to seal discharge plate to body sheets, use 3/8" bolts and nuts provided to bolt discharge sheets to body sheets.

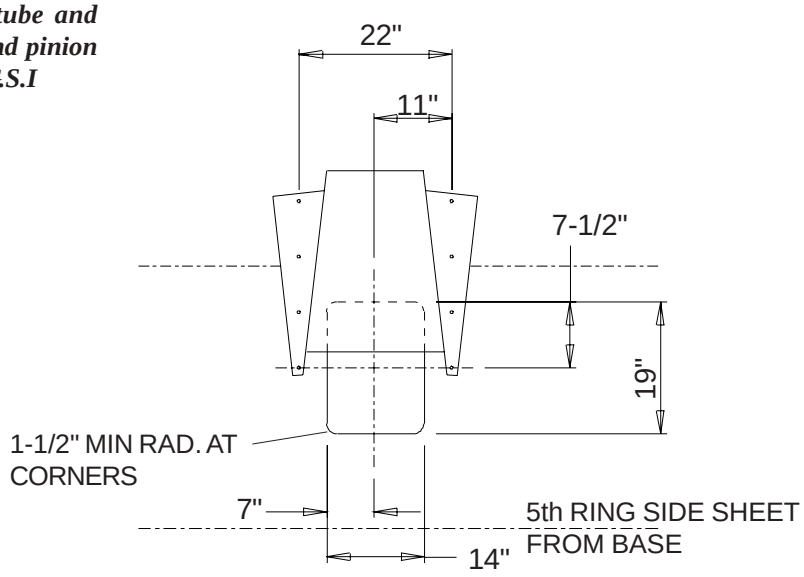
WIND RING INSTALLATION

Installation of side draw systems on some 4.00" Corrugation tanks require additional wind rings.



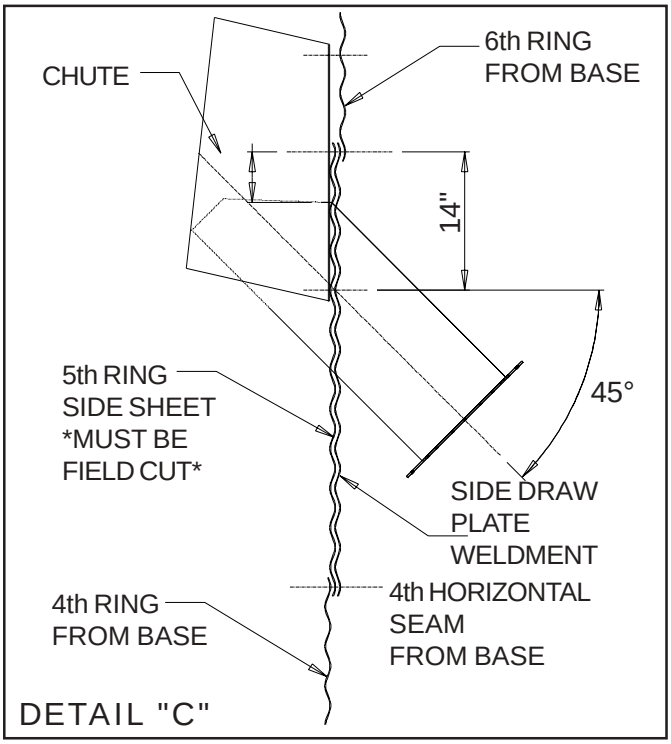
DETAIL "A"

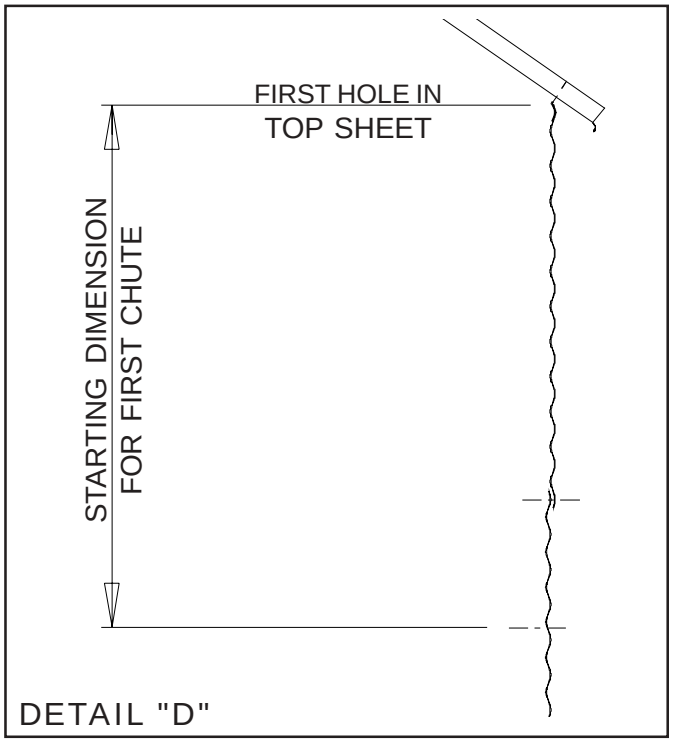
NOTE: Unloading tube and support from rack and pinion are not provided by G.S.I

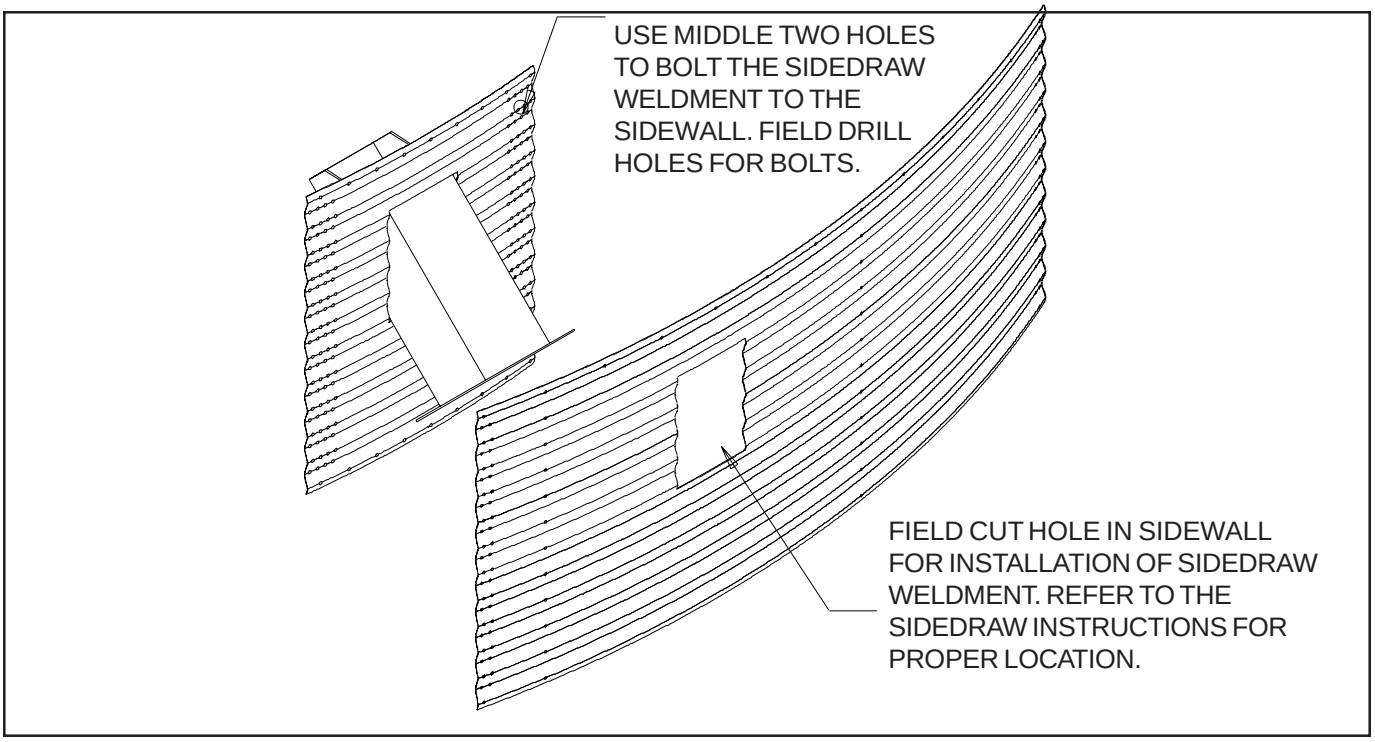


DETAIL "B"

Discharge Tube Installation







NOTES

WARRANTY

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PRIOR TO INSTALLATION, PURCHASER HAS THE RESPONSIBILITY TO RESEARCH AND COMPLY WITH ALL FEDERAL, STATE AND LOCAL CODES WHICH MAY APPLY TO THE LOCATION AND INSTALLATION

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