

ALL SIZE PERFORATING

***Grain Bin Aeration Flooring Systems
with SYNTIRO Supports***

Supplement for 90' Spliced Floors



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SPECIAL CONSIDERATIONS WITH 90' FLOORS

Follow SAFETY Instructions

Carefully read all SAFETY messages in this Manual, your Base Construction Manual, and on your equipment safety signs. Follow recommended precautions and safe operating practices. Keep safety signs in good condition. Replace missing or damaged safety signs.

CAUTION!



The All Size Perforating Truss Floor and Syntiro Support System can be used for

both Commercial and farm grain bins. Improper use of the floor may cause floor damage.

Steel SYNTIRO Supports are designed to carry the floor load. Any modifications to support or use of other manufacturer's supports on the TRUSS floor planks may casue floor damage and will void your warrenty.

Grain Bins using Recirculating equipment require more floor supports. Failure to follow proper procedures for installation may cause floor damage.

The Warrenty does not cover damage to the TRUSS floor or SYNTIRO Supports from the use of another manufacturer's equipment.

Grain Bins with Sweeps or other Equipment

Bin Sweeps: Additional Track Plates must be added to spread out the Wheel/Track contact loads at intermediate locations and around the perimeter. Failure to follow the above guidelines for additional Track Plates for sweeps will void the manufacturer's warrenty.

Marking Support Chalklines

Locate the 22" x 35" Layout Diagram for 90' Floors. Use only the Diagram for your Grain Bin's height. See the Table and Figure 2 below.

22" x 35" Layout Diagram for 90' Floors		
Part NO.	Eave Height	
MFR1882	33-37 Rings/ 24-27 Tiers	88'-99" (26,822-30,175)
MFR1883	25-32 Rings/ 18-23 Tiers	66'-84" (20,117-25,603)
MFR1884	19-24 Rings/ 14-17 Tiers	51'-62" (15,549-18,898)
MFR1885	13-18 Rings/ 9-13 Tiers	33'-48" (10,058-14,630)

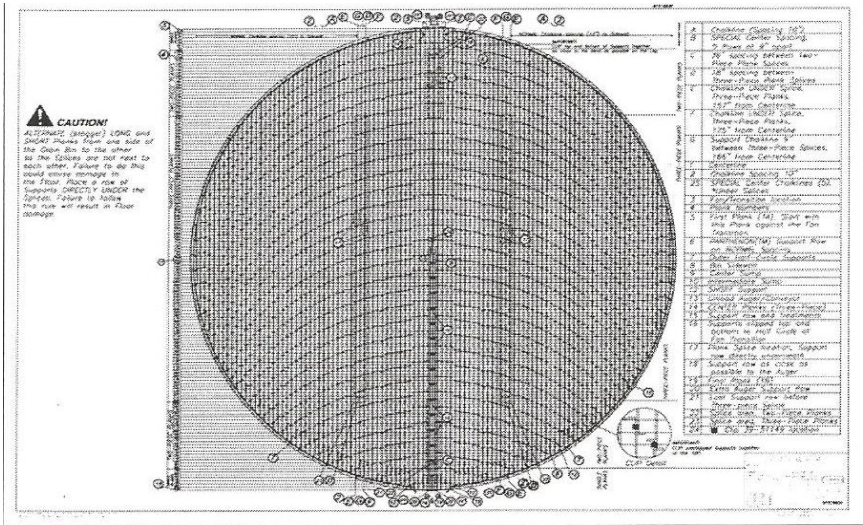
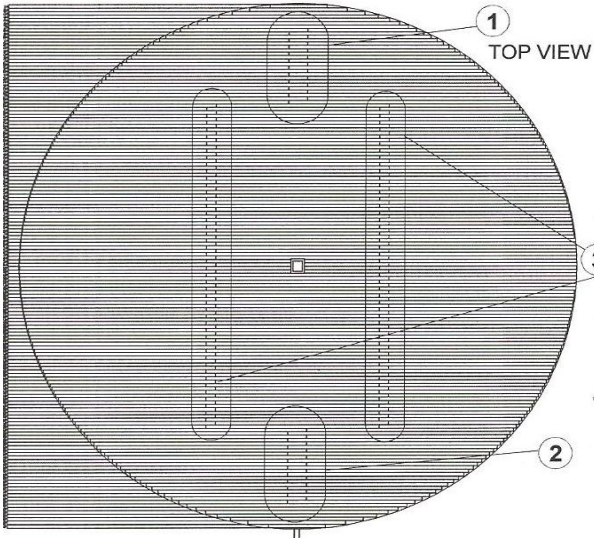


Figure 1. 22" 35" Layout Diagram, 90' Floor

IMPORTANT! Chalkline measuring is critical.
 90' Floors have **FOUR** splice areas. Two-piece planks splice 36" (914) apart down the center near the Transition (Item 1) and Unload Ends (Item 2). Three-Piece planks splice 18" (457) apart on both sides. (Item 3)

Item	Description
1	Splice area 36" staggered, two-piece planks at transition end.
2	Splice area 36" staggered, two-piece planks at unload area
3	Splice area 18" staggered, three-piece planks



Mark SPECIAL Chalklines to Support Splice Areas

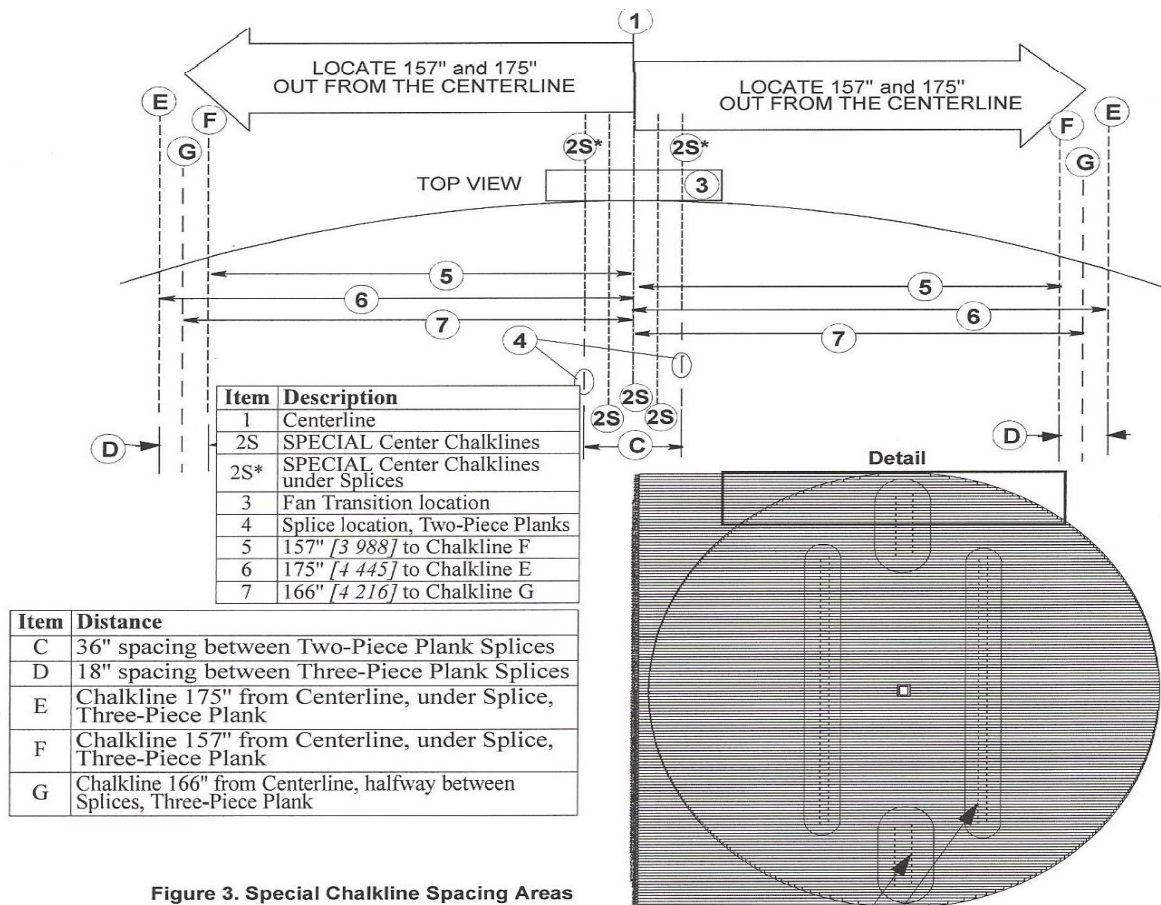
90' Floors have a center lane - from the Fan Transition to the Unload - where a SPECIAL Chalkline spacing may differ from the Normal Chalkline Spacing outside that area. Because Two-Piece Planks are spliced 36" (914) apart in these areas, this special spacing places Support Rows directly under the Plank Splices. See Figure 3 below.

This center spacing is noted on your Large Layout Diagram as Items 2S (Chalklines).

There will be either five Chalklines spaced 9" (229) apart or four Chalklines spaced 12" (305) apart in this area. Splices are located at Chalklines 2S* with an asterisk.

As outlined in Figure 1, 90' Floors have two additional side lanes where exact spacing from the Centerline is required to support splices in Three-Piece Planks. From the Centerline outward, measure 157" (3988) and 175" (4445) in both directions (Items E and F). Using a different color chalk for these lines will help identify them later. Exactly 9" (229) between Chalklines E and F, mark a Chalkline for an additional row of Supports (Item G).

CAUTION! It is very important that these spacings for Splice Support be followed. Failure to follow this instruction could result in Floor damage.



NORMAL Chalkline Support Spacing																		
Eave Height	22'	26'	29'		33'	37'	40'	44'-48'	51'	55'-59'	62'	66'	70'-73'	77'	81'-84'	88'	92'-95'	99'
44" TIERS:	6	7	8		9	10	11	12-13	14	15-16	17	18	19-20	21	22-23	24	25-26	27
32" RINGS:	9	10	11	12	13	14	15-16	17-18	19-20	21-22	23-24	25-26	27-28	29-30	31-32	33-34	35-36	37
SUPPORT Spacing	17" [432]	15" [381]	14" [356]	13" [330]	12" [305]	12" [305]	12" [305]	12" [305]	11" [280]	11" [280]	11" [280]	10" [254]	10" [254]	10" [254]	10" [254]	9" [229]	9" [229]	9" [229]
SPECIAL Center Chalkline Support Spacing																		
Group A: Requires 4 Rows at 12" [305] apart at the CENTER.									Group B: Requires 5 Rows at 9" [229] apart at the CENTER.									
Floors with NORMAL Chalkline spacing between 12" - 17" [305 - 432]: This locates two (2) Support rows (Item 2S*) directly under the Splices. From the Center Sump to the Unload, keep the center two rows of Supports (on each side of the Unload Auger) as close as possible to the Unload.									Floors with NORMAL Chalkline spacing between 9" - 11" [229 - 280]: One Support row will be on the Centerline from the Fan Transition to the Center Sump. This locates two (2) Support rows (Item 2S*) directly under the Splices. From the Center Sump to the Unload, there will be two (2) additional rows of Supports—one on each side of the Unload.									

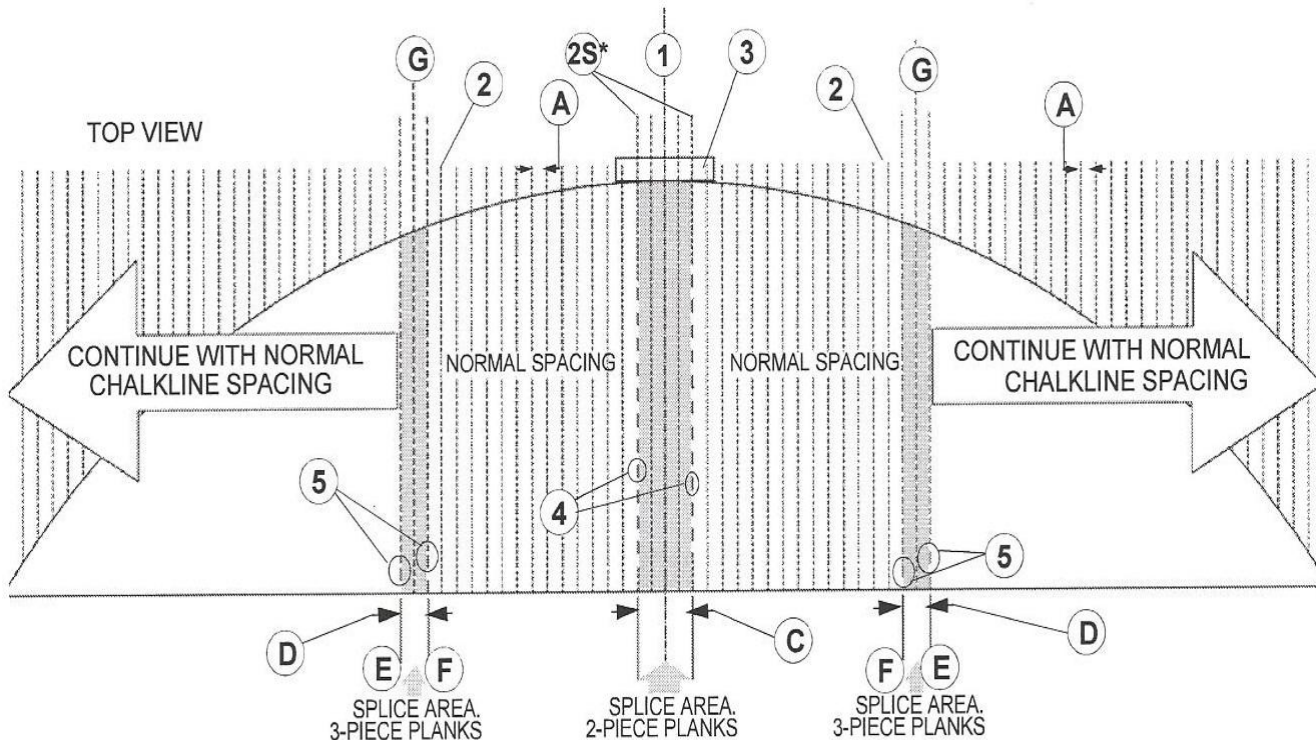
Resume NORMAL Chalkline Distances

Fill in the area between the SPECIAL Center Chalklines over to Chalkline F by marking NORMAL Chalkline Support Spacing distances. Refer to the Chart on Page 5 or your Large Layout Diagram. See Figure 4.

IMPORTANT! The last normal Chalkline next to Chalkline F may be too close for Support legs to fit.

In this case, DIVIDE the remaining space, moving this Support line (Item 2) toward the Centerline. Moving the Support Row this direction ensures that any Plank span will always be supported by at least the NORMAL distance.

Outside Chalkline E and proceeding all the way to the sidewall, resume NORMAL Chalkline spacing. When ALL Chalklines are drawn correctly, you are then ready to assemble and install your floor supports.



Item	Description
A	NORMAL Chalkline spacing
C	36" spacing between Two-Piece Plank Splices
D	18" spacing between Three-Piece Plank Splices
E	Chalklines under Splice, Three-Piece Plank
F	Chalklines under Splice, Three-Piece Plank
G	Support Chalkline 9" between Three-Piece Splices

Item	Description
1	Centerline
2S*	SPECIAL Center Chalklines, 9" shown (*under Splices)
2	Last NORMAL Chalkline before Splice
3	Entrance Collar
4	Splice location, Two-Piece Planks
5	Splice location, Three-Piece Planks


Figure 4.
SPECIAL and NORMAL Chalkline Support Spacing

ASSEMBLE SUPPORTS

Refer to Pages 13-16 in the **Base Floor Manual** to assemble Floor Supports.

Start Center Support Rows under Plank 1A (at Transition)

Tilt a support row upright and set it on one of the Chalklines in the "Center lane." Extend this row wall-to-wall, from the Transition to the Unload.

All Center rows under Plank #1A will be full-length from bin wall to bin wall, with the exception of those which stop at the Center Sump. **Clip**  **overlapped Supports** together at the top as shown in Detail B and C. Figure 5.

IMPORTANT! Finish all Supports rows in the "Center lane." Finish any additional rows that fall under Plank #1A.

Extend the middle Support Rows to the Center Sump. Between the Center Sump and Unload, the amount of extra support needed is determined by the NORMAL Chalkline Spacing of the Floor. Follow the notes for Groups A and B on Page 5 of this manual.

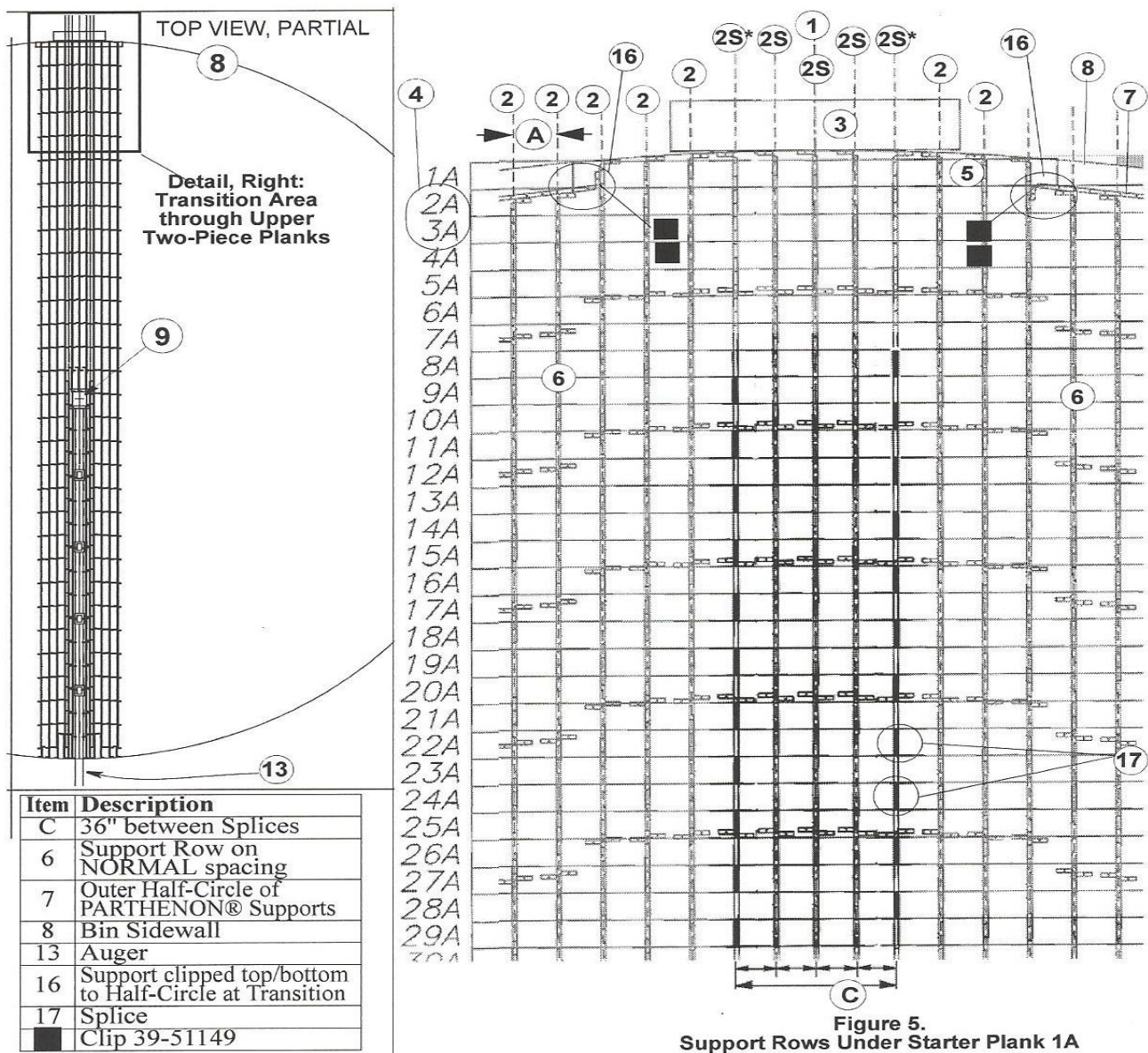


Figure 5.
Support Rows Under Starter Plank 1A

MFR1872B

MANAGING LONGER SUPPORT ROWS AND LONGER PLANKS

It may be beneficial to install **only the first half** of each Support row running toward the Unload end before starting Plank installation.

Installing the first half of the Planks onto the Supports is also an option. Avoid getting "walled in" by finished Support rows at the sidewall. It is recommended that you assemble and stand Support rows **from the outside and move toward the center.**

Outermost Support Rows at the Widest Plank

The outermost Support Row at the widest part of the Floor may need to be adjusted inward toward the Centerline for Support Legs to clear the Legs on the Outer Circle of Supports. See **Figure 7**.

Finishing Support Row Lower Ends:

Clip Extra Supports as Needed

Alternate (stagger) Long and Short Planks (from one side of the Grain Bin to the other) so the splices are not next to each other. Failure to do this could cause damage to the Floor. Insert Splices into the Planks, following instructions on Pages 12-13 of this Supplement. Place a row of Supports DIRECTLY UNDER the Splices. Failure to follow this rule will result in Floor damage.

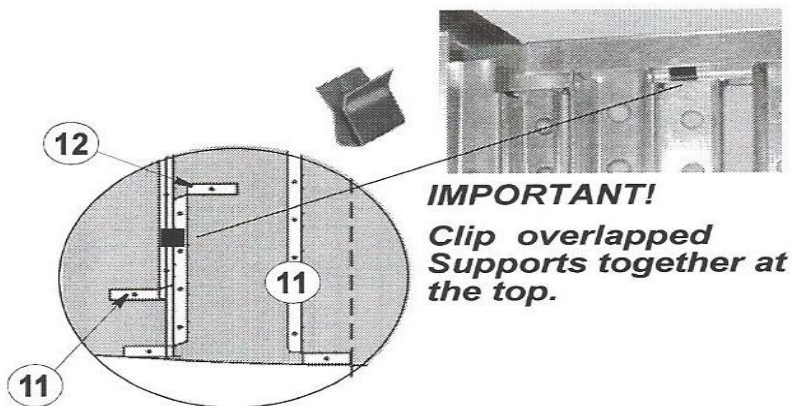
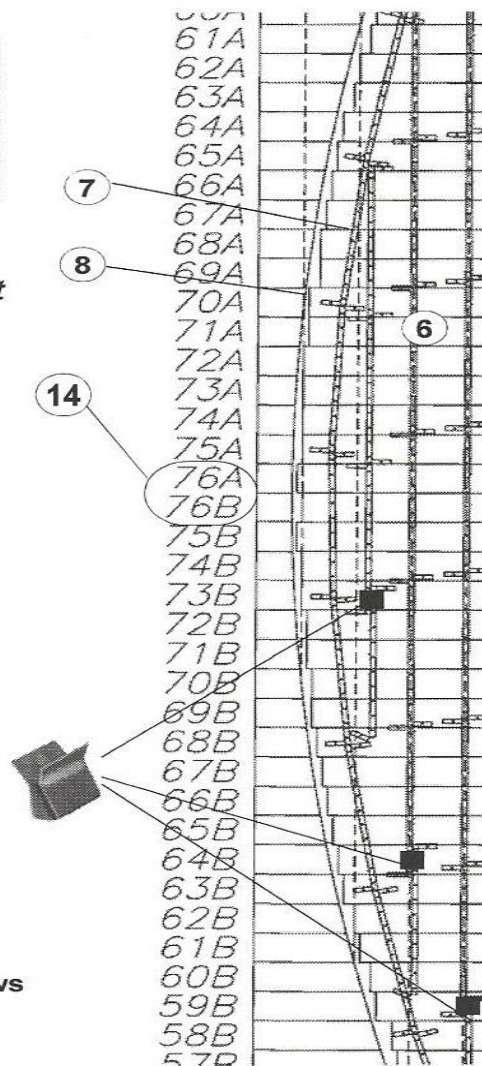


Figure 6.
Overlapped/Clipped Supports

Item	Description
6	Support Row on NORMAL spacing
7	Outer Half Circle of PARTHENON® Supports
8	Bin Sidewall
11	LONG Support
12	SHORT Support
14	Widest Planks
	Clip 39-51149

Figure 7.
Outermost Support Rows



SUPPORTING THE CENTER SUMP TO UNLOAD AREA

CAUTION! Additional Auger Support is required. Failure to follow this instruction could cause damage to the Floor and/or Auger. If your Floor falls within NORMAL Spacing 11" (279) or less place a full row of Supports along each side of the Auger (Item 18), as close as possible to the Auger. **Place an additional full row** of Supports between that row and the next Chalkline row.

If your 90' Floor falls within NORMAL Spacing 12"-17" (305-432) place a full row of Supports along each side of the Auger (Item 18, **Figures 8 and 9**), as close as possible to the Auger, from the Center Sump to the Unload Area.

See Figures 8 and 9.

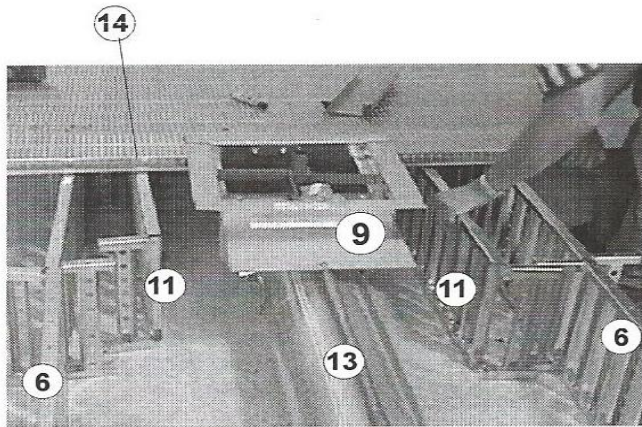
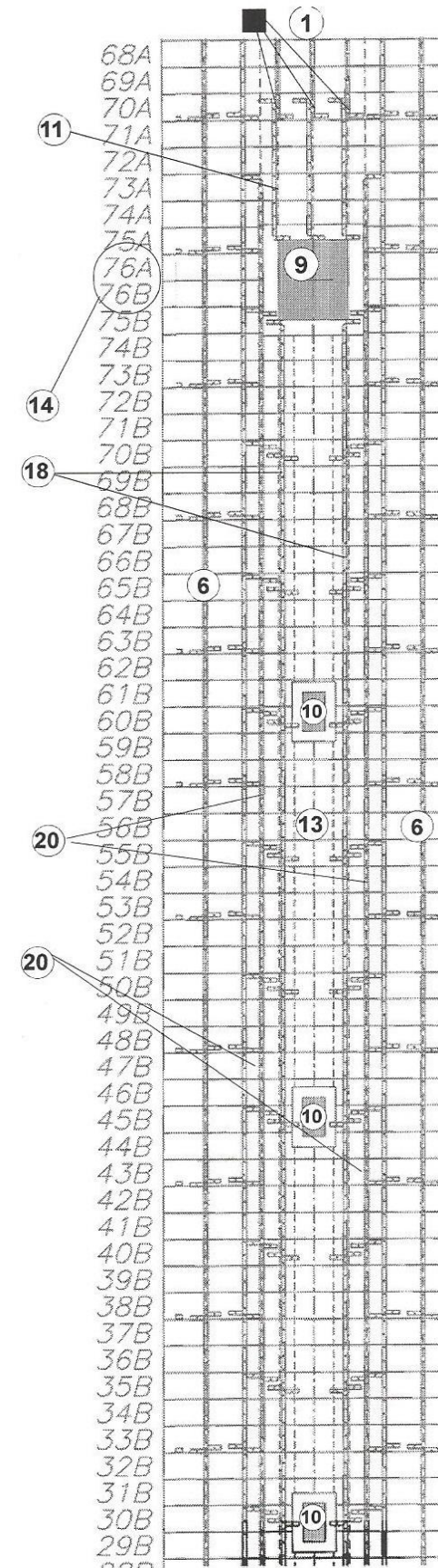


Figure 8.
Extra Supports Under the Center Sump

Item	Description
1	Support Row on Centerline
6	SYNTIRO Support Row on NORMAL Chalkline Spacing
9	Center Sump
10	Intermediate Sump
11	Single Supports
13	Auger
14	Center Planks (longest planks)
18	Support Row as close as possible to Auger
20	Extra Support Row at Auger



	SUPPORT Counts for 90' Floor																		
Eave Height		22'	26'	29'		33'	37'	40'	44'-48'	51'	55'-59'	62'	66'	70'-73'	77'	81'-84'	88'	92'-95'	99'
44" TIERS:		6	7	8		9	10	11	12-13	14	15-16	17	18	19-20	21	22-23	24	25-26	27
32" RINGS:	8	9	10	11	12	13	14	15-16	17-18	19-20	21-22	23-24	25-26	27-28	29-30	31-32	33-34	35-36	37
LONG SUPPORTS						2240			2459			2645			2927				
SHORT SUPPORTS						26			26			40			44				

FLOOR PLANKS

90' Floor Plank Layout

Last three (3) digits of the Plank Part No. indicate length of the Plank in inches.

Total Floor Planks = 152. See Figure 10.

Floor Screw Kit Par No. 9-23623

Plank numbers 1 through 7 are single pieces.

Plank numbers 8 through 29 are two pieces.

Planks number 30 through 76 are three pieces.

IMPORTANT!

Study and follow the steps for Support installation (Pages 13-22) and the steps for Plank installation (Pages 23-27) in the Base Manual.

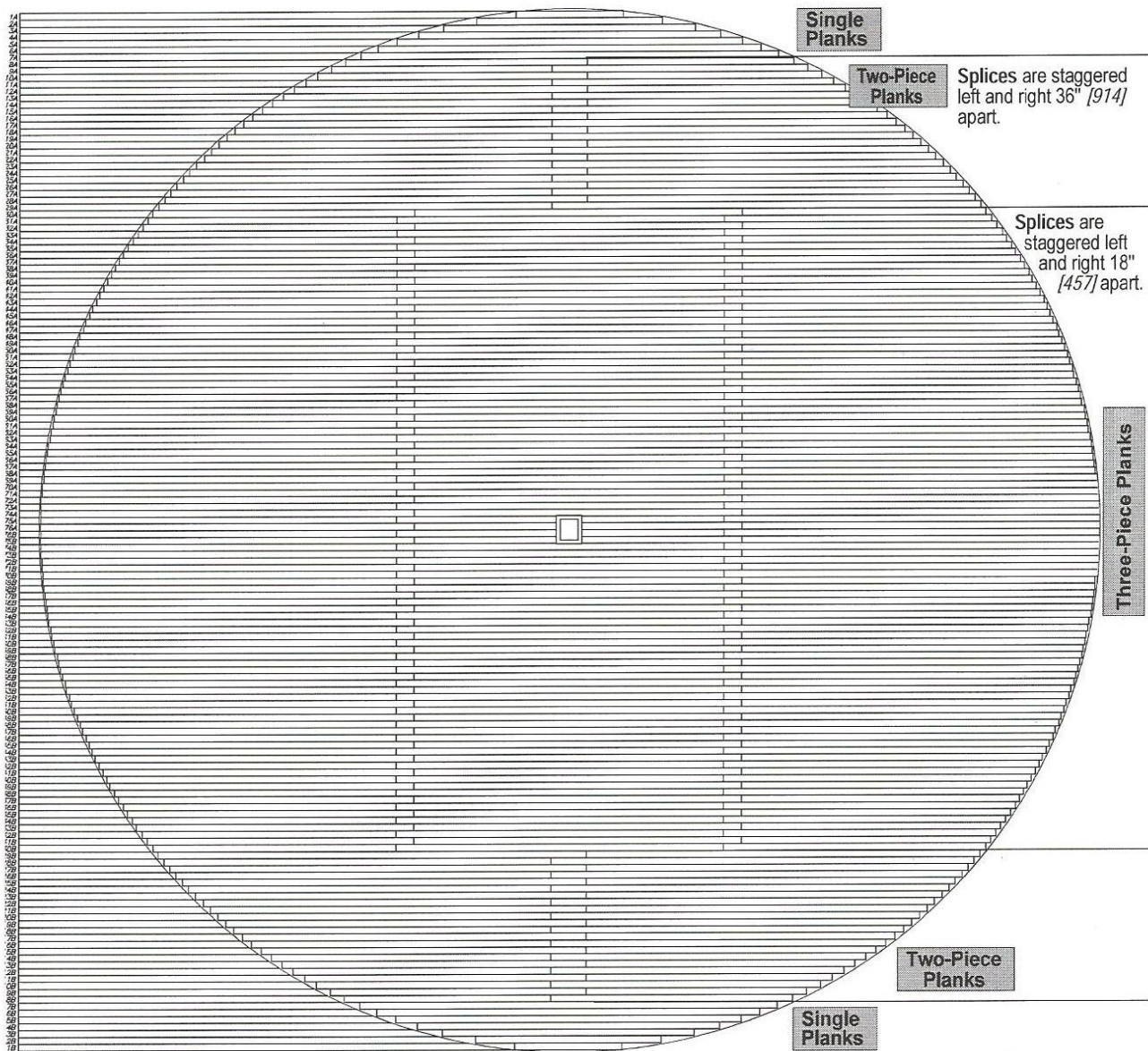


Figure 10. Planks on 90' dia. Floor (Top View)

90' FLOOR PLANK PART NUMBERS

Single Planks

Plank No.	Part No.
1A	9-18109
2A	9-18188
3A	9-18255
4A	9-18306
5A	9-18350
6A	9-18388
7A	9-18423

Three-Piece Planks

Plank No.	SHORT Plank Part No.	MID Plank Part No.	LONG Plank Part No.
30A	9-18246	9-18332	9-18265
31A	9-18252	9-18332	9-18270
32A	9-18257	9-18332	9-18275
33A	9-18262	9-18332	9-18281
34A	9-18267	9-18332	9-18285
35A	9-18272	9-18332	9-18290
36A	9-18276	9-18332	9-18295
37A	9-18281	9-18332	9-18299
38A	9-18285	9-18332	9-18303
39A	9-18289	9-18332	9-18308
40A	9-18293	9-18332	9-18311
41A	9-18297	9-18332	9-18315
42A	9-18301	9-18332	9-18319
43A	9-18304	9-18332	9-18323
44A	9-18308	9-18332	9-18326
45A	9-18311	9-18332	9-18329
46A	9-18314	9-18332	9-18333
47A	9-18317	9-18332	9-18336
48A	9-18320	9-18332	9-18339
49A	9-18323	9-18332	9-18341
50A	9-18326	9-18332	9-18344
51A	9-18328	9-18332	9-18347
52A	9-18331	9-18332	9-18349
53A	9-18333	9-18332	9-18352
54A	9-18335	9-18332	9-18354
55A	9-18338	9-18332	9-18356
56A	9-18340	9-18332	9-18358
57A	9-18342	9-18332	9-18360
58A	9-18343	9-18332	9-18362
59A	9-18345	9-18332	9-18364
60A	9-18347	9-18332	9-18365
61A	9-18348	9-18332	9-18367
62A	9-18350	9-18332	9-18368
63A	9-18351	9-18332	9-18370
64A	9-18353	9-18332	9-18371
65A	9-18354	9-18332	9-18372
66A	9-18355	9-18332	9-18373
67A	9-18356	9-18332	9-18374
68A	9-18357	9-18332	9-18375
69A	9-18357	9-18332	9-18376
70A	9-18358	9-18332	9-18377
71A	9-18359	9-18332	9-18377
72A	9-18359	9-18332	9-18378
73A	9-18360	9-18332	9-18378
74A	9-18360	9-18332	9-18378
75A	9-18360	9-18332	9-18379
76A	9-18360	9-18332	9-18379

Two-Piece Planks

Plank No.	SHORT Plank Part No.	LONG Plank Part No.
29B	9-18398	9-18434
28B	9-18392	9-18428
27B	9-18386	9-18422
26B	9-18380	9-18416
25B	9-18373	9-18410
24B	9-18367	9-18406
23B	9-18360	9-18396
22B	9-18352	9-18389
21B	9-18345	9-18381
20B	9-18337	9-18374
19B	9-18329	9-18366
18B	9-18321	9-18357
17B	9-18312	9-18348
16B	9-18303	9-18339
15B	9-18393	9-18330
14B	9-18383	9-18319
13B	9-18272	9-18309
12B	9-18261	9-18298
11B	9-18249	9-18268
10B	9-18237	9-18273
9B	9-18223	9-18260
8B	9-18209	9-18245

Two-Piece Planks

Plank No.	SHORT Plank Part No.	LONG Plank Part No.
8A	9-18209	9-18245
9A	9-18223	9-18260
10A	9-18237	9-18273
11A	9-18249	9-18286
12A	9-18261	9-18298
13A	9-18272	9-18309
14A	9-18283	9-18319
15A	9-18293	9-18330
16A	9-18303	9-18339
17A	9-18312	9-18348
18A	9-18321	9-18357
19A	9-18329	9-18366
20A	9-18337	9-18374
21A	9-18345	9-18381
22A	9-18352	9-18389
23A	9-18360	9-18396
24A	9-18367	9-18403
25A	9-18373	9-18410
26A	9-18380	9-18416
27A	9-18386	9-18422
28A	9-18392	9-18428
29A	9-18398	9-18434

Single Planks

Plank No.	Part No.
7B	9-18423
6B	9-18388
5B	9-18350
4B	9-18306
3B	9-18255
2B	9-18188
1B	9-18109

For ease in installation, all CENTER Planks are 332" [8 433] long.

LAY SINGLE FLOOR PLANKS ON THE 90' FLOOR

IMPOTANT!

When you have assembled Support Rows for all the Chalklines under Plank 1A, running from the Fan Transition Sidewall to the Unload Sidewall, proceed to Pages 23-24 in the Base Manual and follow the instructions for laying Planks.

Lay Single Planks numbered 1A through 7A.

Two-Piece Planks

Lay Two-Piece planks numbered 8 through 29, alternating LONG and SHORT Planks.

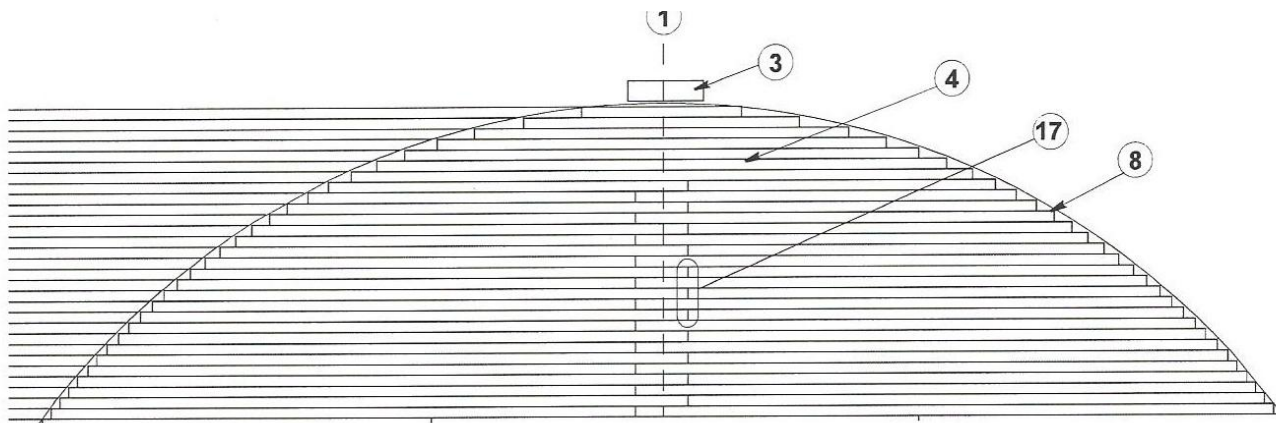
See **Figures 10 and 11**. Make sure the plank ends sit **directly over the Supports**

so the Splices will have Supports directly underneath.

CAUTION!



Alternate (stagger) Two-Piece LONG and SHORT Planks (36" from one side of the Grain Bin to the other) so the Splices are not next to each other. Failure to do this could cause damage to the Floor. See Figures 10 and 13.



Item	Description
1	Centerline
3	Entrance Collar
4	Single Planks
8	Sidewall
17	Splices, Two-Piece Planks

Figure 11.
LONG and SHORT Two-Piece Planks, Splices Staggered

SUPPORT THE SPLICES

CAUTION!



Under Two-Piece (and Three-Piece) Planks be sure a row of Supports is on a Chalkline DIRECTLY UNDER the Splices (where ends of the Short and Long Planks butt together). See Figure 12. Failure to follow this rule will result in Floor damage.

ITEM	DESCRIPTION
2*	Support Row under Splice
4	SHORT Plank
5	LONG Plank
6	Splice Channel (see next page)

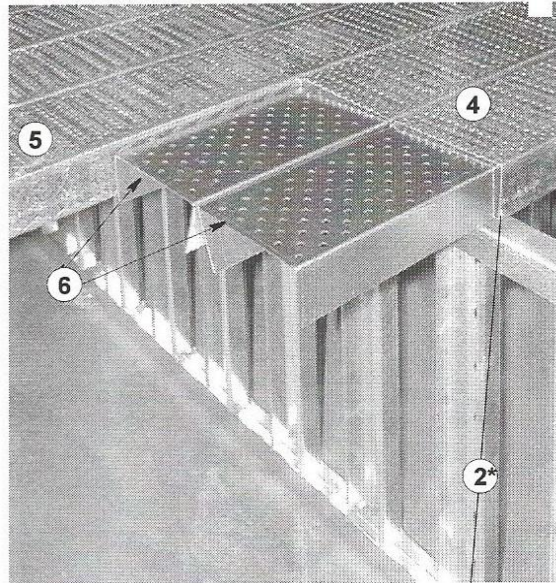


Figure 12.
Support Row Under Splice

Connect the Splices

A Floor **Splice Channel** (9-49485) is 11 7/8" (301.6) long. At **all** Splice points, center a pair of Floor splice channels **inside** the Planks to **join** the butted Floor Planks.

See **Figure 13**.

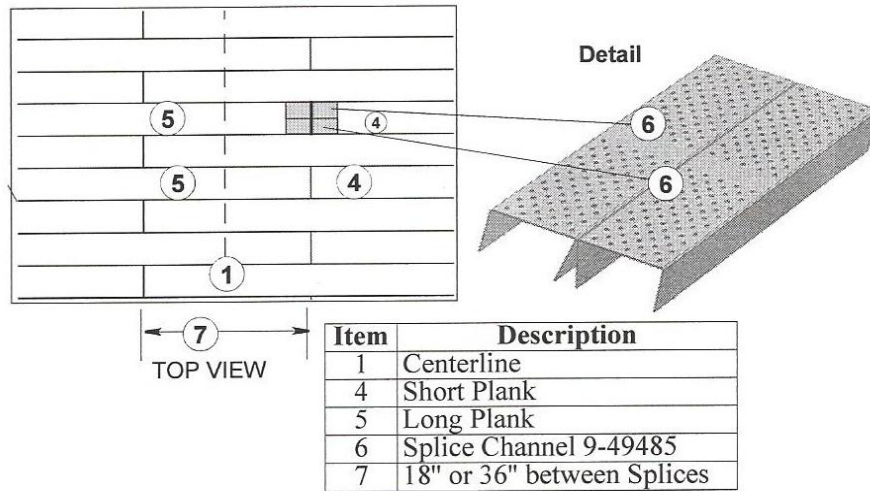


Figure 13.
Splice Channel Placement in Typical Staggered Splice

Four drill Screws (39-20126) per planks are used from above to secure each Splice Channel. See **Figure 14**.

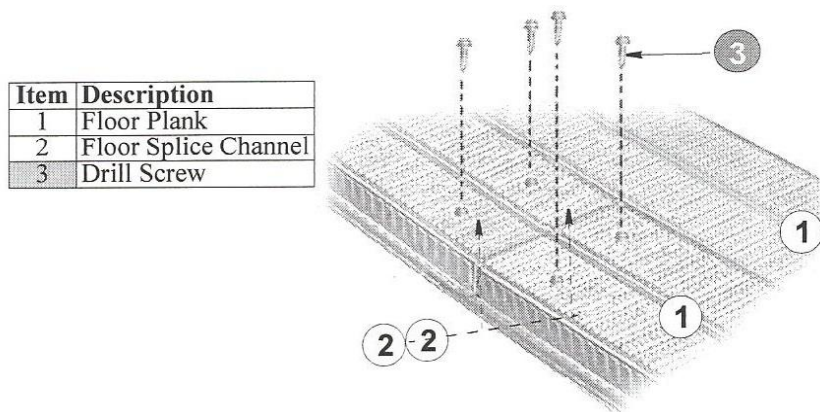


Figure 14.
Secure the Splice

Lay Three-Piece Planks: Start with the Center Piece

Plank No. 30A is the first Three-Piece Plank. Locate the **Center** piece of Plank 30A. The Center piece (9-18332) is 332" (8,433), or 27'8".

Every **Center** Three-Piece Plank is this same length and same Part Number. Referring to your Layout Diagram (**Figure 2** on Page 3 of this Supplement), position this Center piece so the left end is on Support Chalkline E and the right end is on Support Chalkline F. See **Figure 4** on Page 10.

CAUTION!



IMPORTANT!

Alternate (stagger) Three-Piece LONG and SHORT Planks with the CENTER Plank (18" between Splice areas) so the Splices are not next to each other. Failure to do this could cause damage to the Floor.

Make sure Plank ends fall directly over the Supports so the Splices will have Supports directly underneath.

Butt the LONG 30A Plank against the left end of the Center Plank. Butt the SHORT 30 A Plank on the right end of the Center Plank.

Complete Splices as shown previously on Pages 12 and 13.

Locate the next Plank no. 31A. Stagger the Center piece of 31A by lining up its ends with Support Chalklines F (left) and E (right) this time. The Short 31 A piece will butt on the left and the Long 31 A piece will butt on the right. Complete the Splices.

Continue alternate staggering of all remaining Three-Piece Planks. Plank 30B is the final Three-Piece Plank. See **Figure 15**.

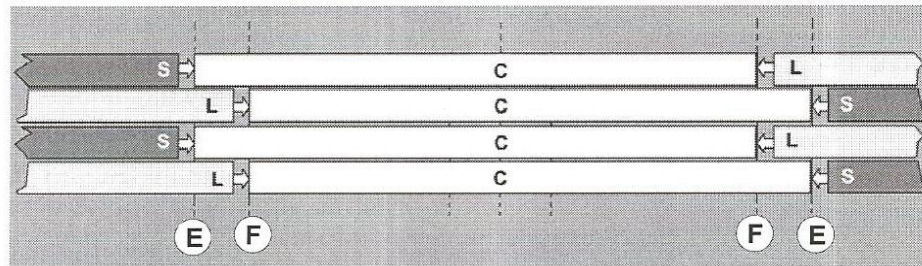


Figure 15. Staggering Three-Piece Planks
C = Center L = Long S = Short

Lay and Trim Planks at Sump Areas

**Refer to your, ("Supporting the Center Sump to the Unload Area," Page 9 of this Supplement)
AND your 22"x 35" Layout Diagram for marking Chalklines and setting Auger Support Rows
from the Center Sump to the Unload.**

If these Support Rows are properly placed, proceed to lay the Planks on these Supports.
Planks 75A and 75B are the Center Planks that are positioned across the center Sump area.
They are Three-Piece Planks.
Cut the Center Piece of both Planks to fit around the Center Sump.
Finish the Sump area by trimming the Floor Planks to the proper length. Lift the Sump
frame and place the Floor Planks underneath. See **Figure 16**.

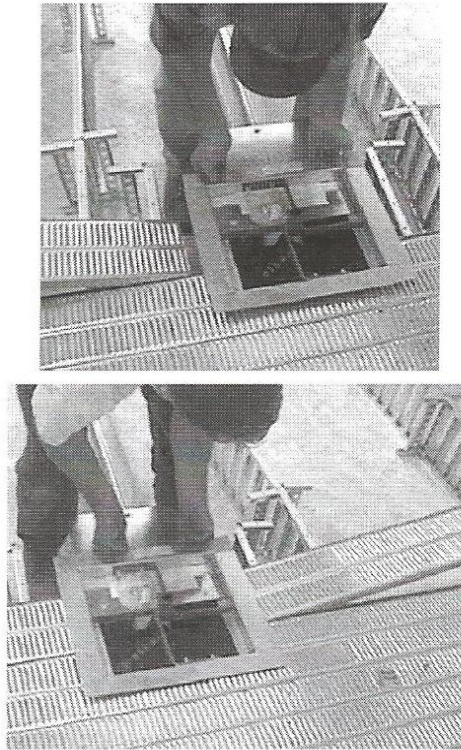


Figure 16. Floor Planks at the Sump

Lay Two-Piece Planks near the Unload Area

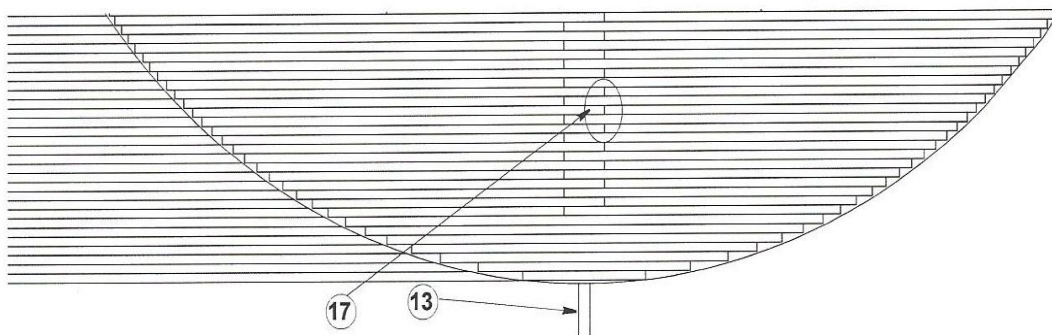
Plank 29B will be a Two-Piece Plank. Resume the staggering in the center of the Floor, locating Splices 36" apart directly on the SPECIAL Center Support Rows. See **Figure 17**. Complete Splices as shown previously.

CAUTION!



ALTERNATE (stagger) TWO-Piece LONG and SHORT Planks (36" from one side of the Grain Bin to the other) so the Splices are not next to each other. Failure to do this could cause damage to the Floor.

Make sure Plank ends fall directly over the Supports so the Splices will have Supports directly underneath.



**Figure 17.
LONG and SHORT Two-Piece
Planks at Unload**

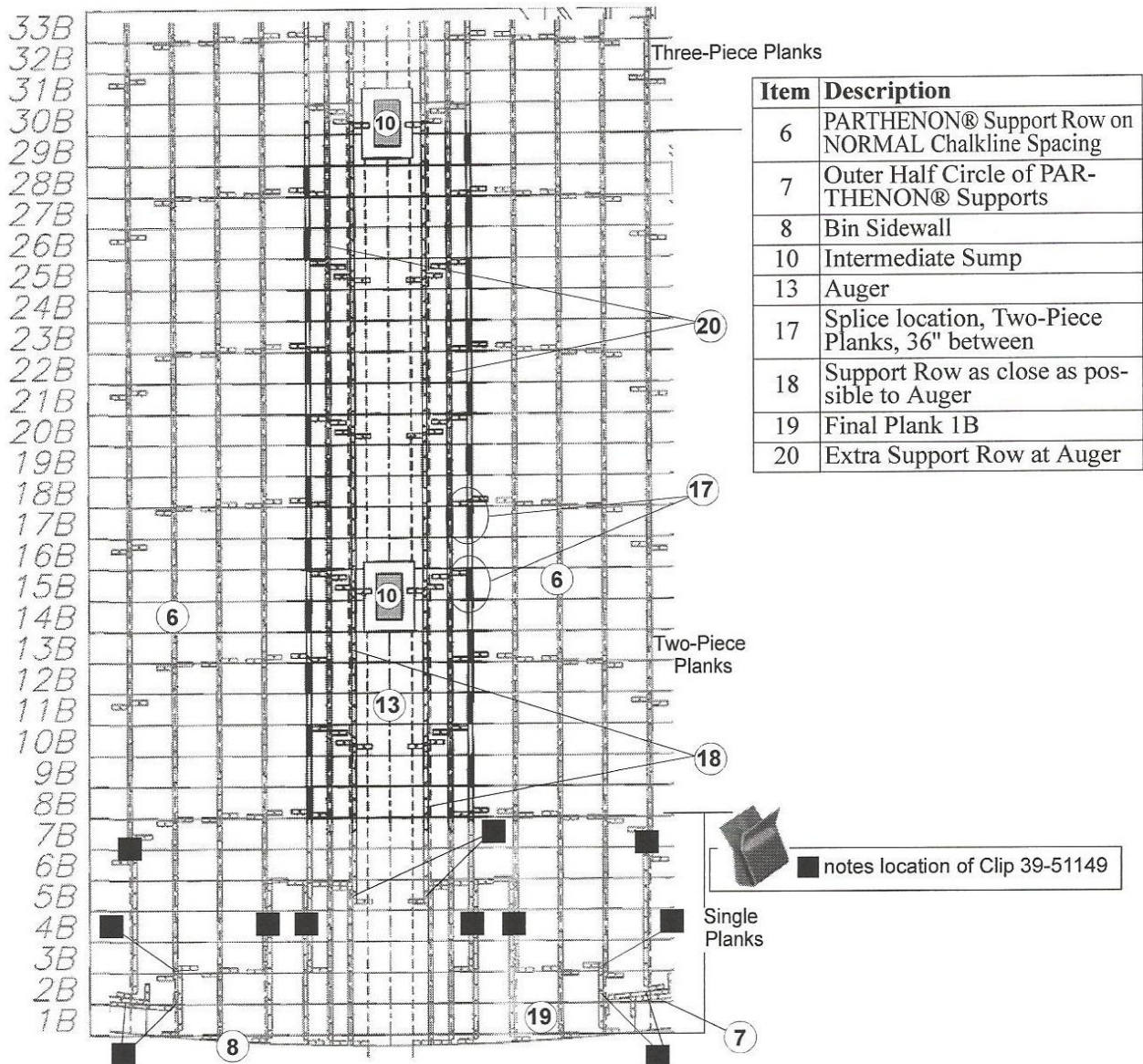


Figure 18.
Detail, Two-Piece Planks, Unload Area