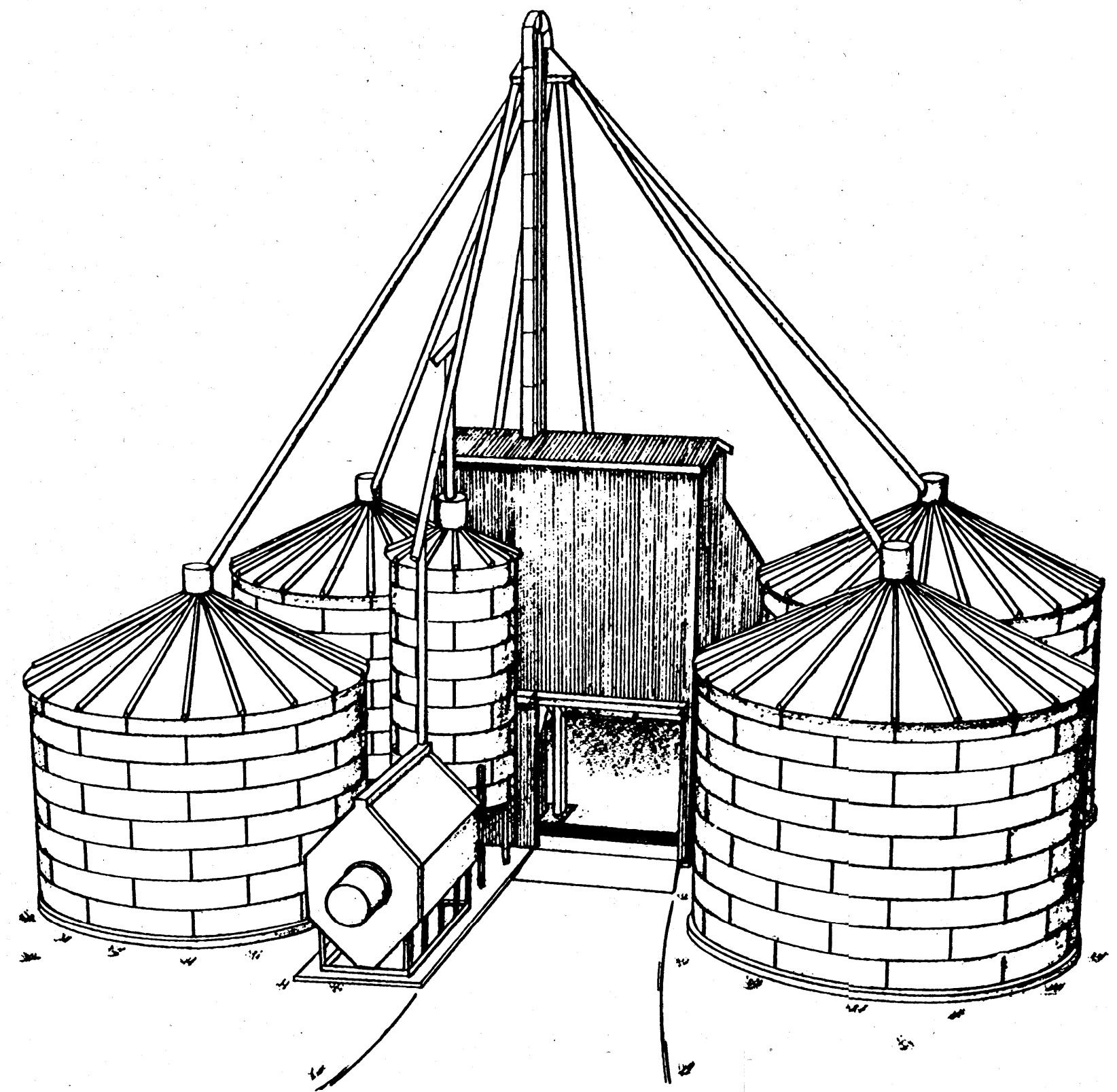


LAYOUT & MECHANIZATION SCHEMATIC



This plan was developed and prepared by:

BRUCE A. MCKENZIE and JOHN E. MENTZER,
Extension Agricultural Engineers, and
W. H. FRIDAY, Assistant Professor,
Agricultural Engineering Department,
Purdue University, Lafayette, Indiana.

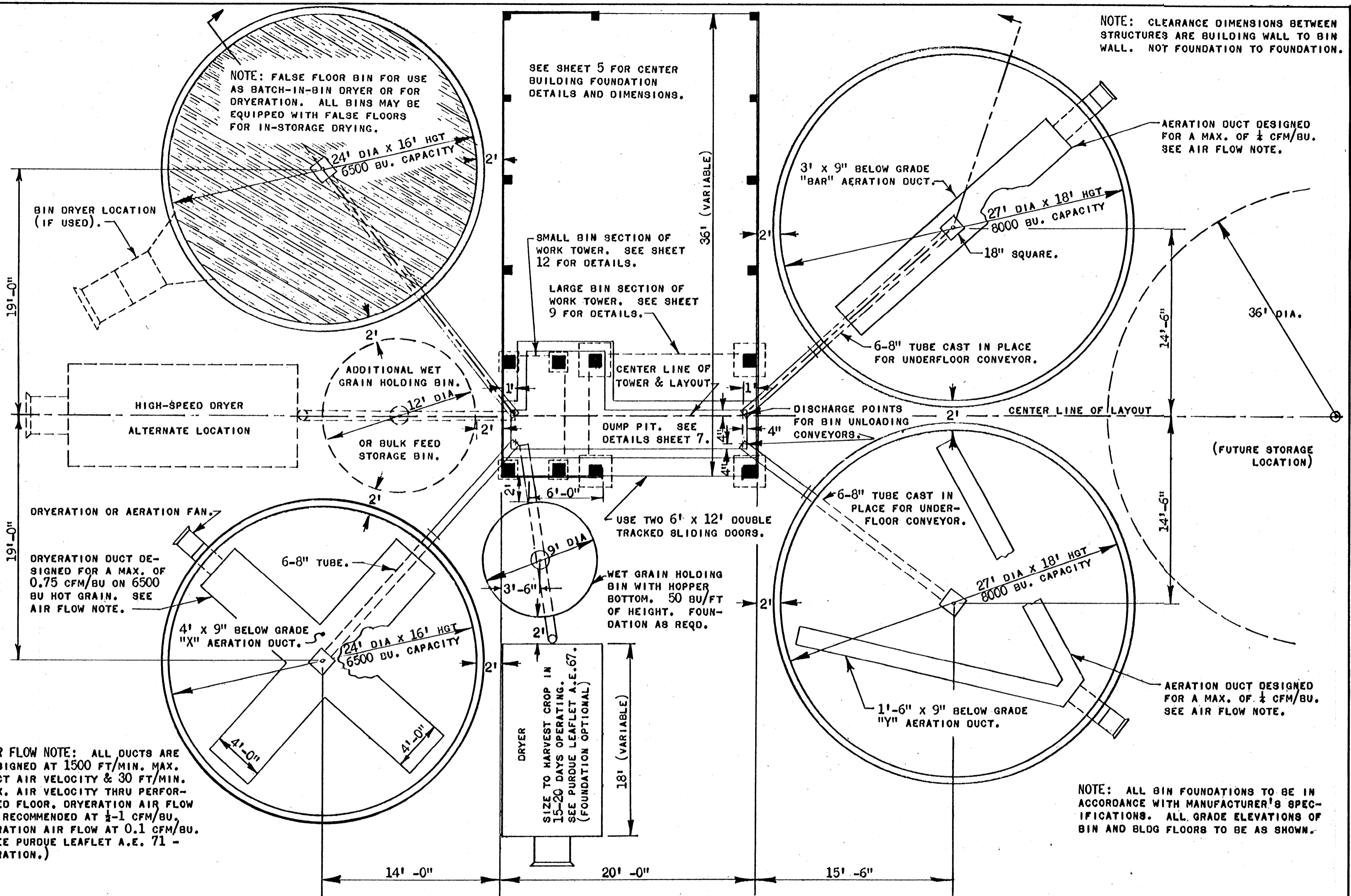
It was originally published by Purdue
University as Plan No. P73293 and is
reprinted with approval.

MPS 73293

COOPERATIVE EXTENSION WORK IN
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STATE OF MISSISSIPPI
MISSISSIPPI STATE UNIVERSITY
AND
UNITED STATES DEPARTMENT OF AGRICULTURE COOPERATING
GRAIN-FEED HANDLING CENTER

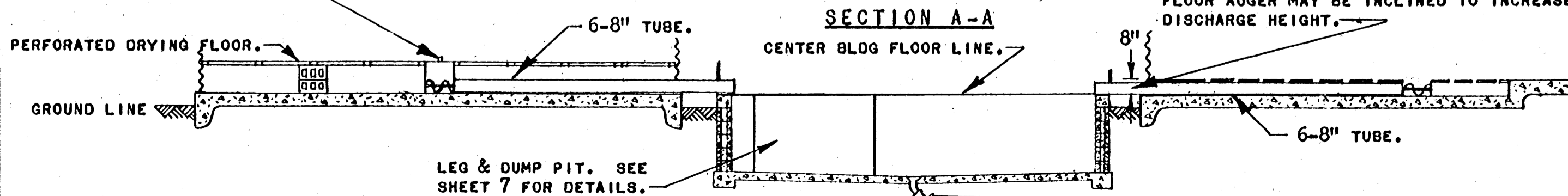
IND. '69 EX. 6069 SHEET 1 OF 14

NOTE: CLEARANCE DIMENSIONS BETWEEN STRUCTURES ARE BUILDING WALL TO BIN WALL. NOT FOUNDATION TO FOUNDATION.



AIR FLOW NOTE: ALL DUCTS ARE DESIGNED AT 1500 FT/MIN. MAX. DUCT AIR VELOCITY & 30 FT/MIN. MAX. AIR VELOCITY THRU PERFORATED FLOOR. DRYERATION AIR FLOW IS RECOMMENDED AT 1/2-1 CFM/BU. AERATION AIR FLOW AT 0.1 CFM/BU. (SEE PURDUE LEAFLET A.E. 71 - AERATION.)

PIVOT PIN FOR UNLOADER MOUNTED ON SKELEON FRAME.

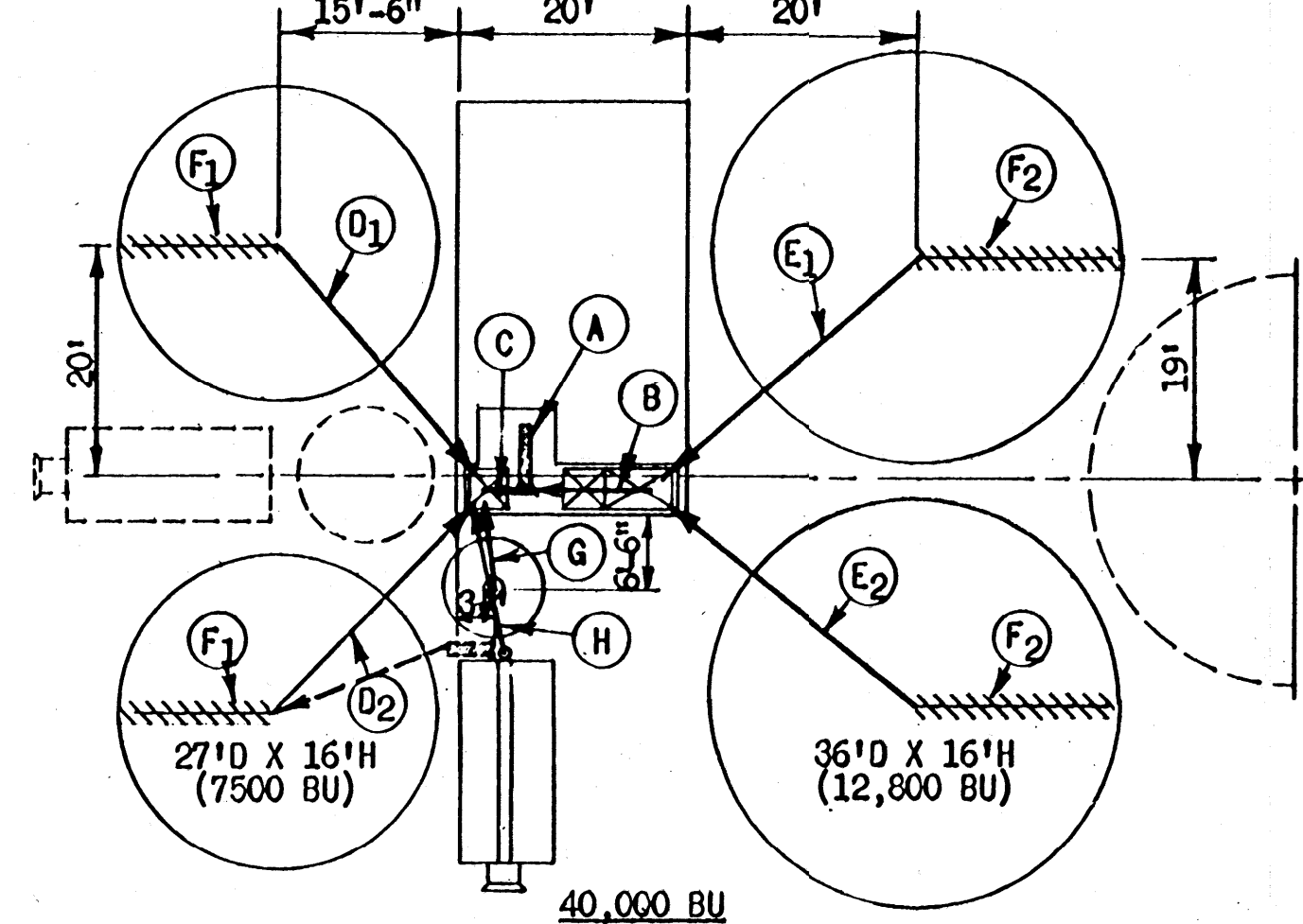
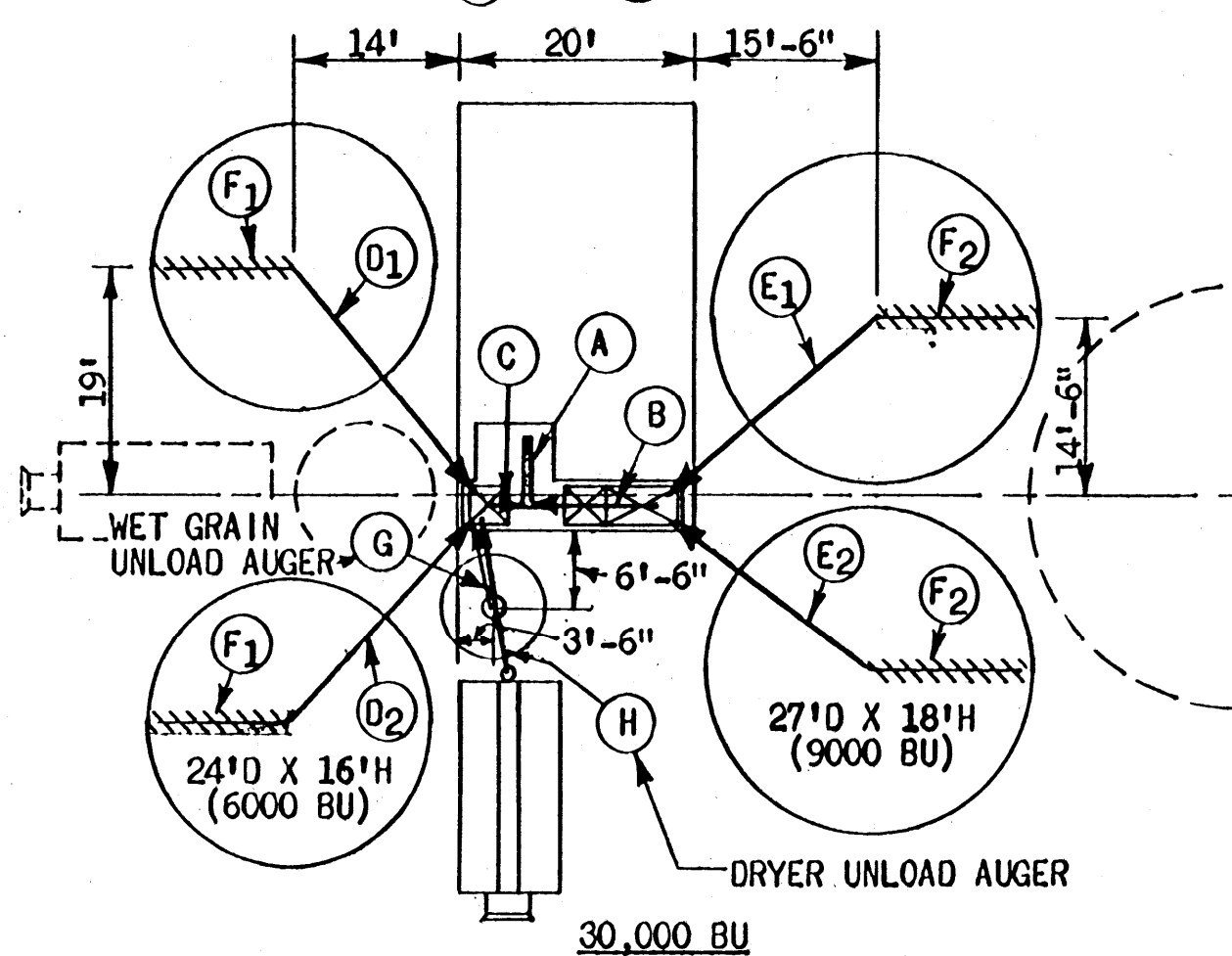
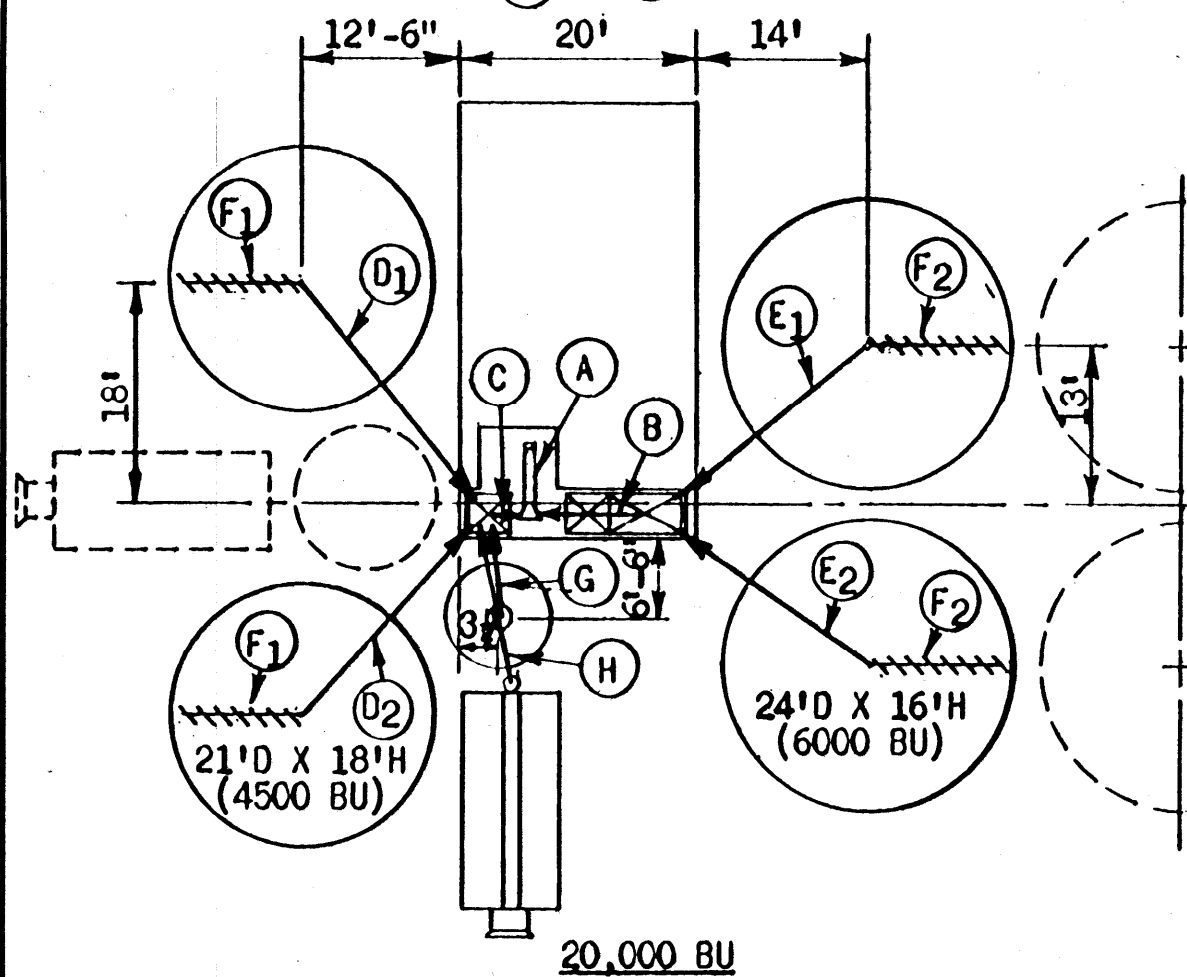
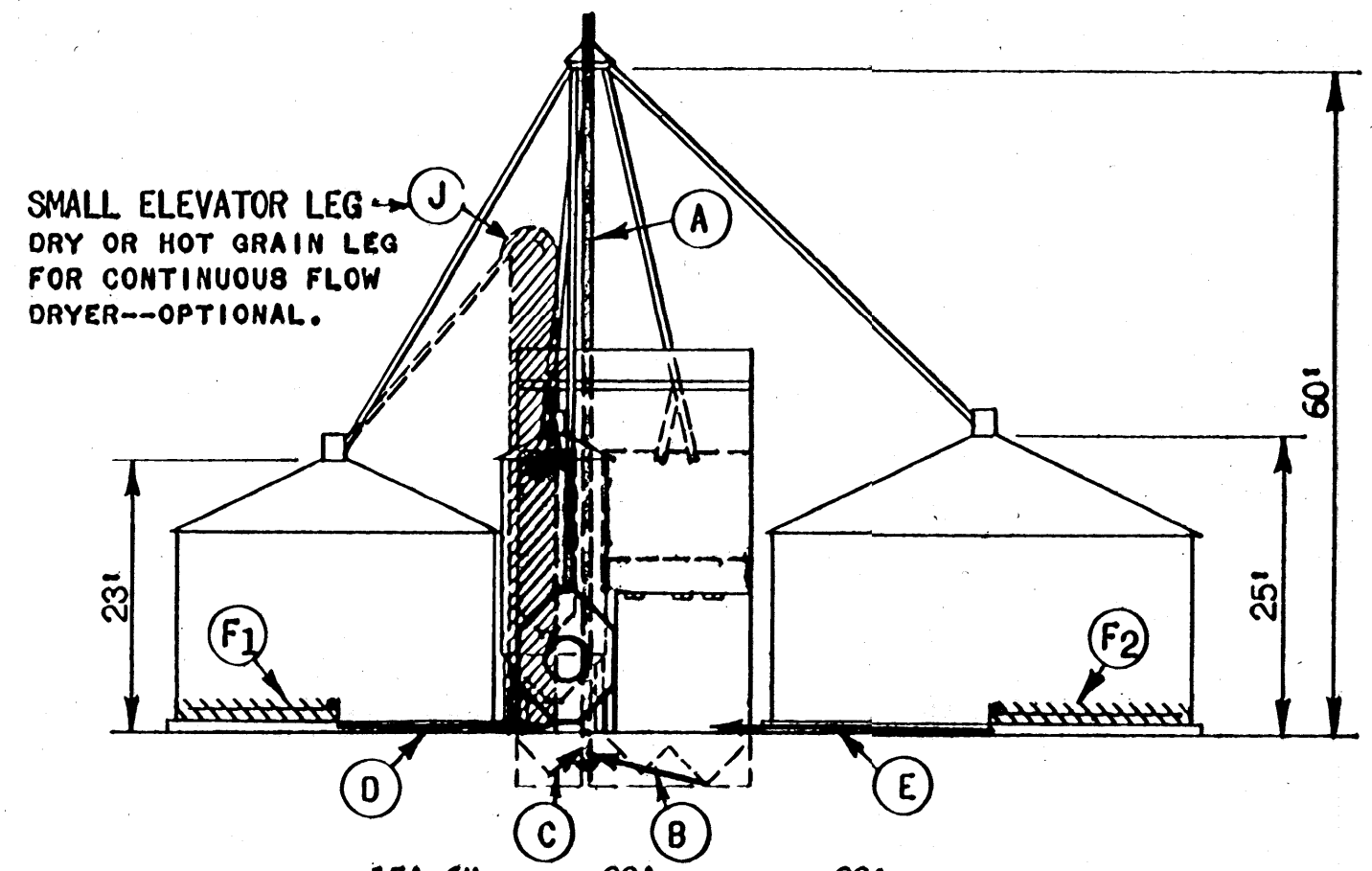
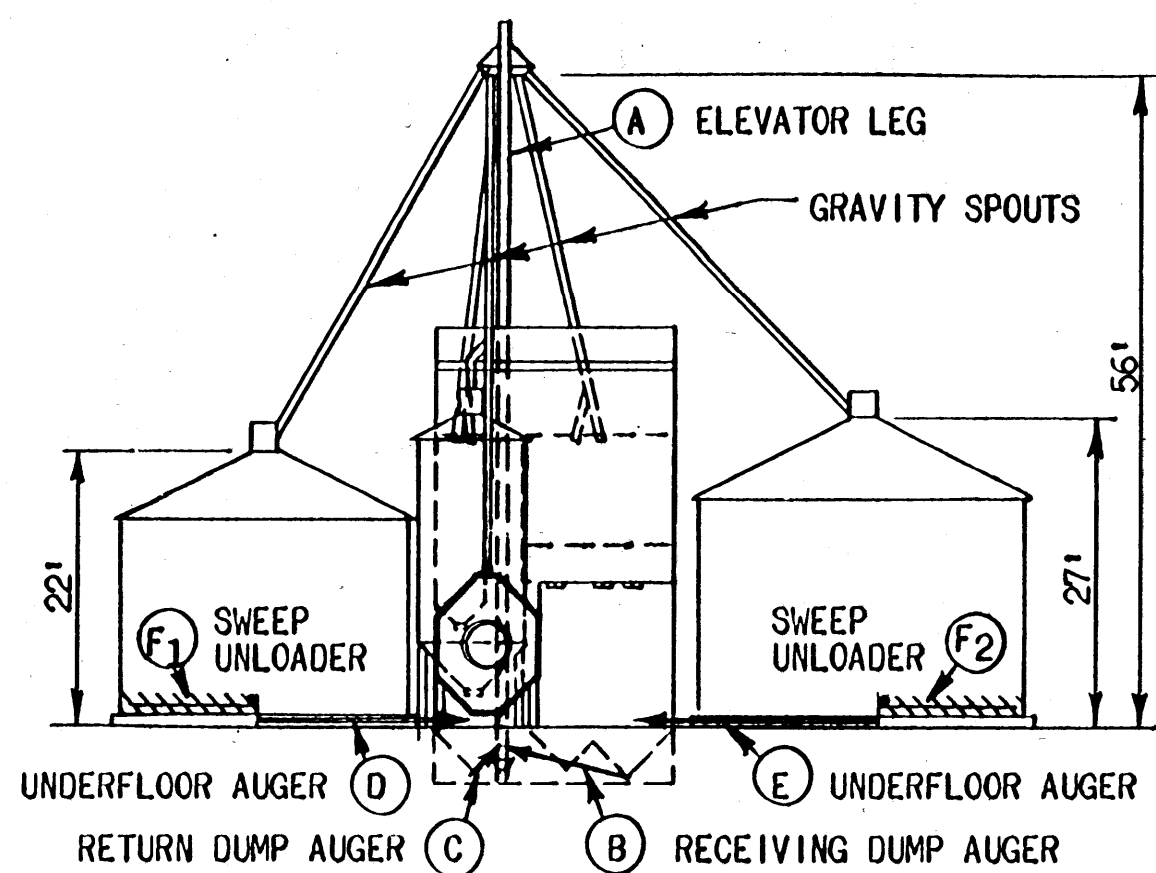
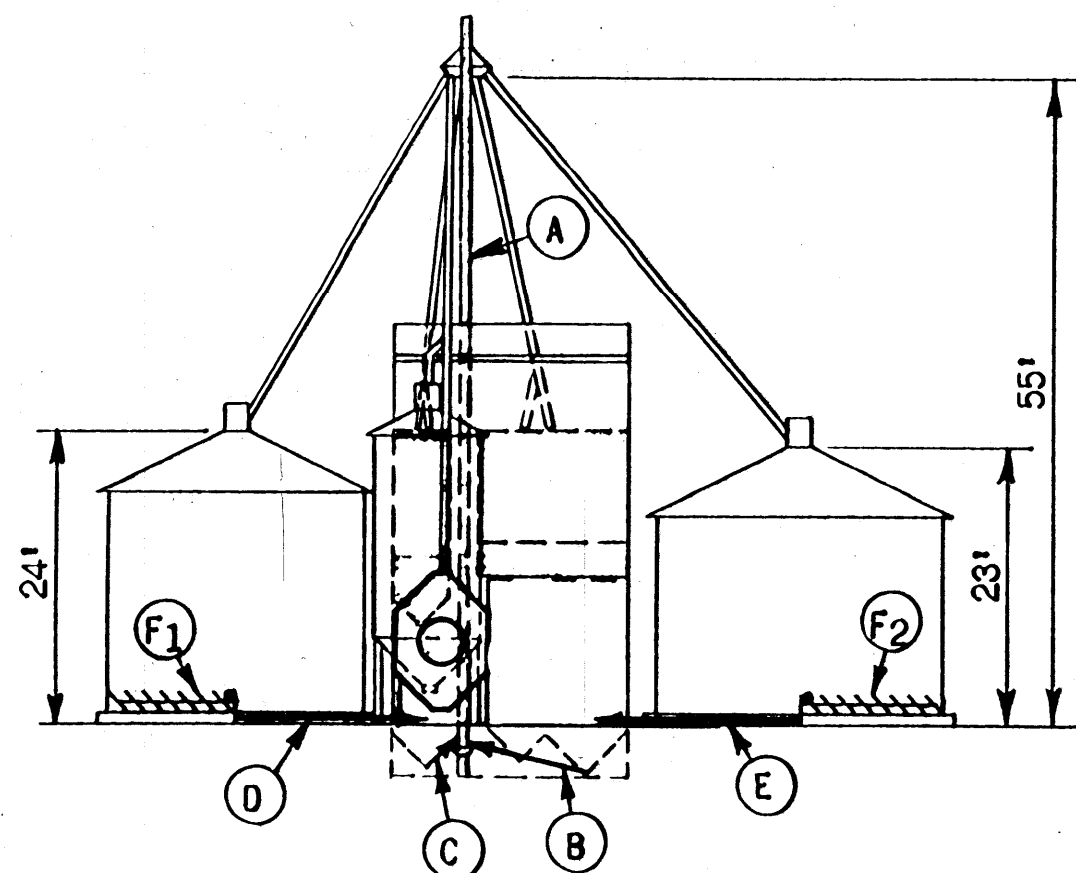


BIN FLOOR ELEVATION 8" MIN. ABOVE CENTER BLDG FLOOR GRADE FOR 6" AUGER. ADJUST AS REQUIRED FOR OTHER AUGER DIA. UNDER-FLOOR AUGER MAY BE INCLINED TO INCREASE DISCHARGE HEIGHT.

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GRAIN-FEED HANDLING CENTER

IND.	'69	EX. 6069	SHEET 2 OF 14
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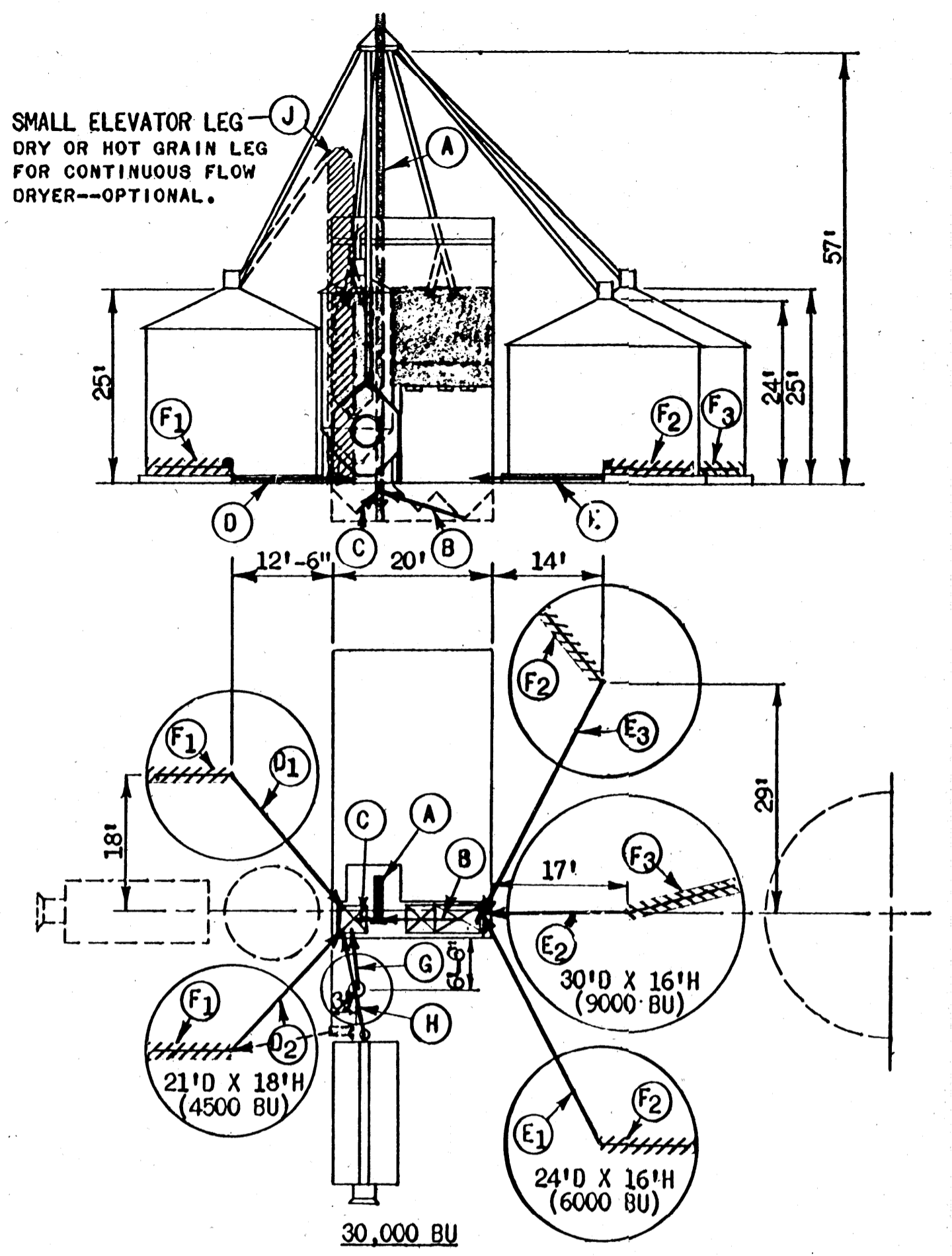
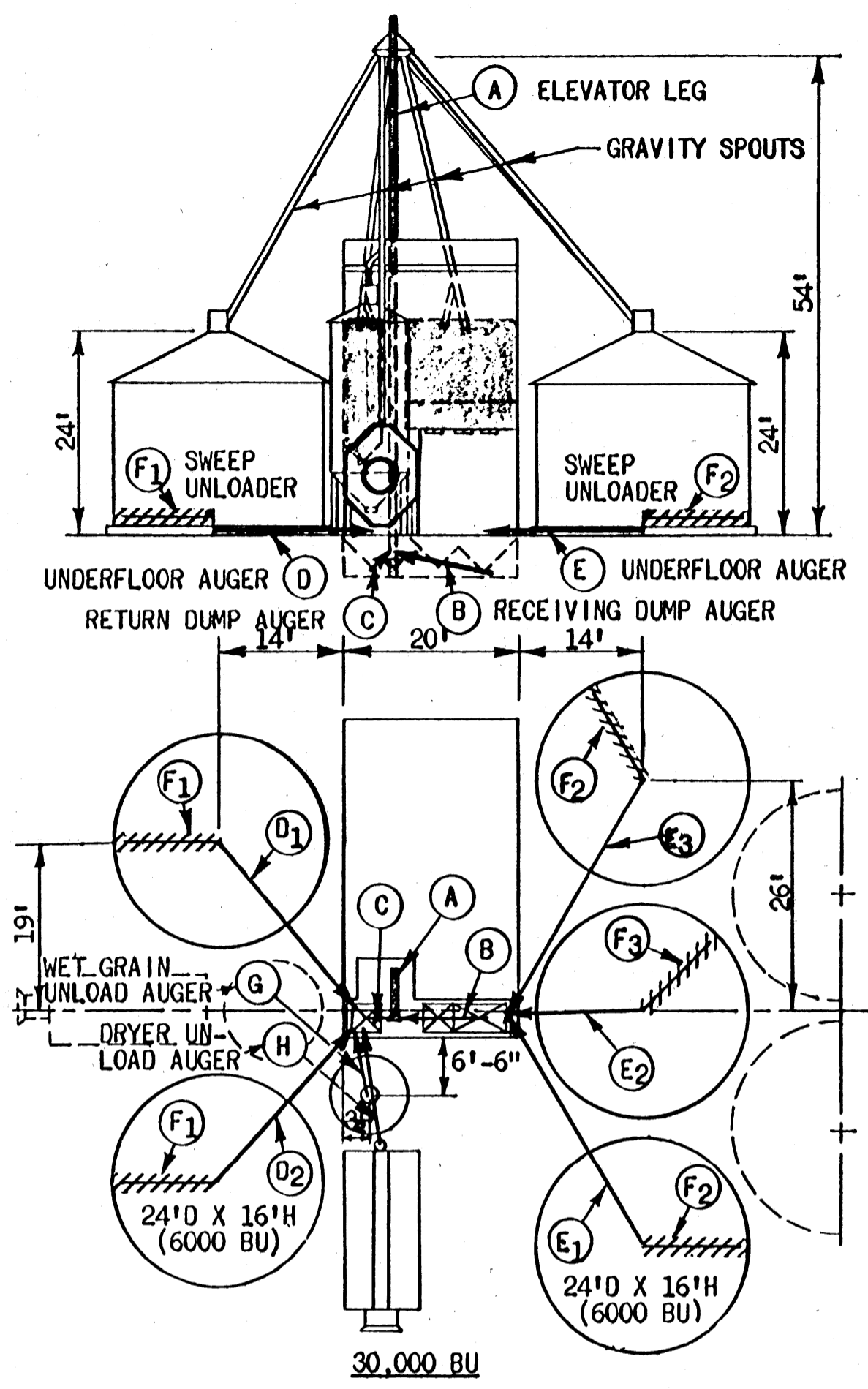
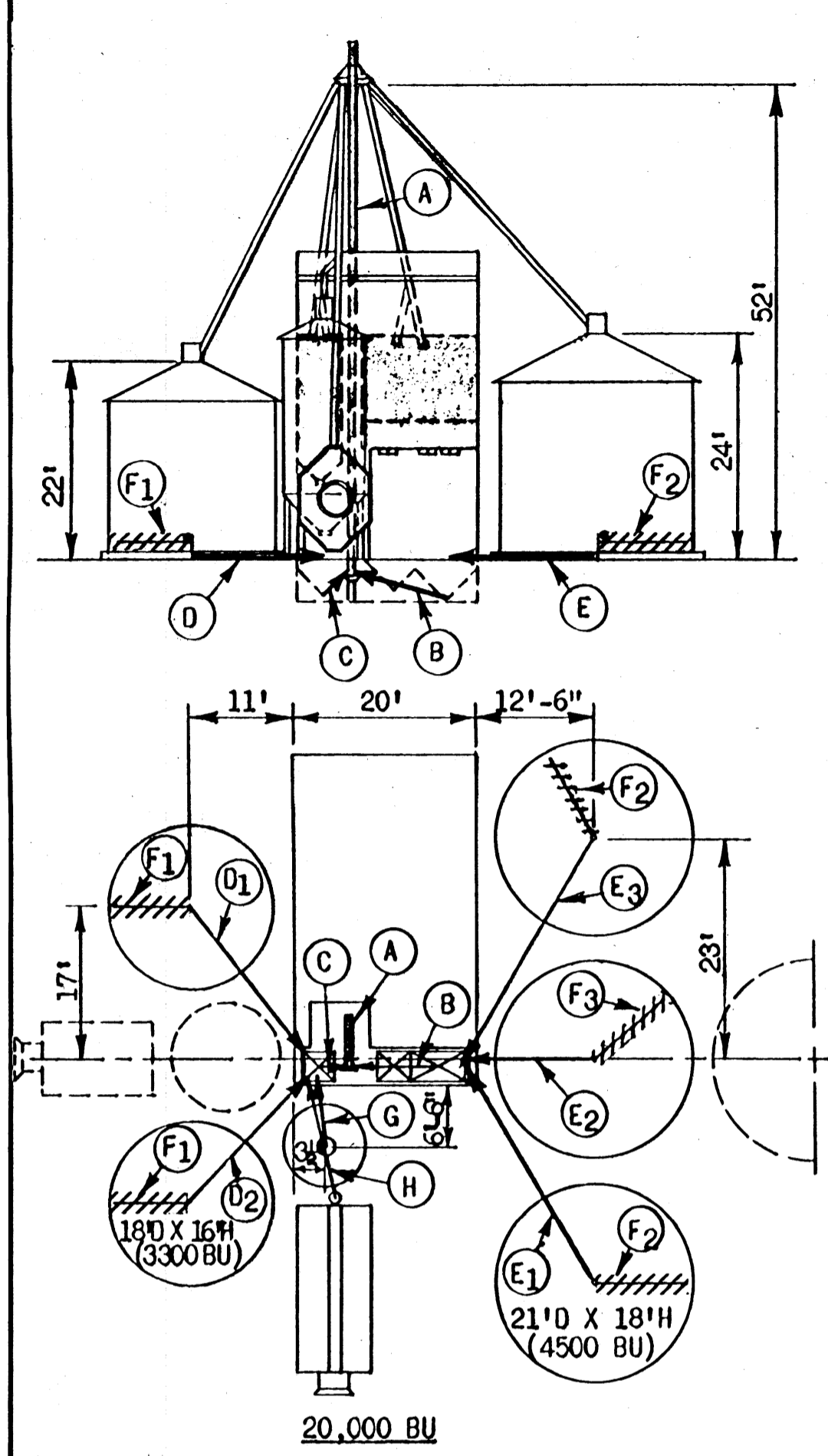
APPROXIMATE TOTAL CAPACITY-- ALTERNATIVE HANDLING RATES--	20,000 BU 1000-1200 BU/HR FLOW RATE					30,000 BU 1500-2000 BU/HR FLOW RATE					40,000 BU 2500-3000 BU/HR FLOW RATE				
GRAIN HANDLING EQUIPMENT	CODE	LENGTH OR HEIGHT	SIZE	ESTIMATED CAPACITY BU/HR	H-P	CODE	LENGTH OR HEIGHT	SIZE	ESTIMATED CAPACITY BU/HR	H-P	CODE	LENGTH OR HEIGHT	SIZE	ESTIMATED CAPACITY BU/HR	H-P
ELEVATOR LEG	A	55'	7x5"	1000-1200	2-3	A	56'	8x5 OR 9x5" 6"	1500-2000	3-5	A	60'	9x6"	2500-3000	7½
GRAVITY SPOUTS			6"										8"		
RECEIVING DUMP AUGER	B	11'	8"	1200(WET)	2-3	B	11'	10"		3-5	B	11'	12" 14"		3-5
RETURN DUMP AUGER	C	4'	8"	1200(WET)	1	C	4'	10"		1	C	4'	12"		1½
UNDERFLOOR AUGER	D ₁	23'	6"	1000-1200	2	D ₁	24'	6"	1500	3	D ₁	26'	8"	2500	5
UNDERFLOOR AUGER	D ₂	21'	6"	1000-1200	2	D ₂	22'	6"	1500	3	D ₂	24'	8"	2500	5
UNDERFLOOR AUGER	E ₁	20'	6"	1000-1200	2	E ₁	22'	6"	1500	3	E ₁	30'	8"	2500	5
UNDERFLOOR AUGER	E ₂	18'	6"	1000-1200	2	E ₂	20'	6"	1500	3	E ₂	28'	8"	2500	5
SWEEP UNLOADERS	F ₁	10'	4OR6"	1000	1	F ₁	11½'	6"	1000-1200	1	F ₁	13'	6"	1000-1200	1½
SWEEP UNLOADERS	F ₂	11½'	4OR6"	1000	1	F ₂	13'	6"	1000-1200	1½	F ₂	17½'	6"	1000-1200	2
WET GRAIN UNLOAD AUGER	G	8'	8"	1000-1200	1½	G	8'	10"	1500-2000	2-3	G	8'	12"		2
DRYER UNLOAD AUGER	H	14'	6"	1000-1200	1½	H	14'	6" 8"	1500 2000	2 3	H	14'	8"	2500	3
SMALL ELEVATOR LEG (FOR CONTINUOUS FLOW DRYER)	J	39'	(SEE RIGHT)			J	38'	(SEE RIGHT)			J	41'	4x6"	500-700	1

- HANDLING FLOW RATES ILLUSTRATED ARE WORKABLE COMBINATIONS AND NOT LIMITED TO EACH SPECIFIC FACILITY.
- AUGER INTAKE EXPOSURE MATCHED TO CAPACITY--MINIMUM EXPOSURE = AUGER DIAM; MAXIMUM EXPOSURE 2'. ADDITIONAL EXPOSURE INCREASES HORSEPOWER NOT CAPACITY.
- SWEEP UNLOADER CAPACITIES GIVEN FOR UNITS WITH GRAIN SHIELDS BEHIND AUGER.
- FLAT STORAGE STRUCTURES CAN BE SUBSTITUTED FOR BIN ON RIGHT SIDE OF LAYOUT. DOTTED BINS SHOWN FOR FUTURE EXPANSION ARE INTERCHANGABLE FOR ALL LAYOUTS.

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GRAIN-FEED HANDLING CENTER

IND. '69	EX. 6069	SHEET 3 OF 14
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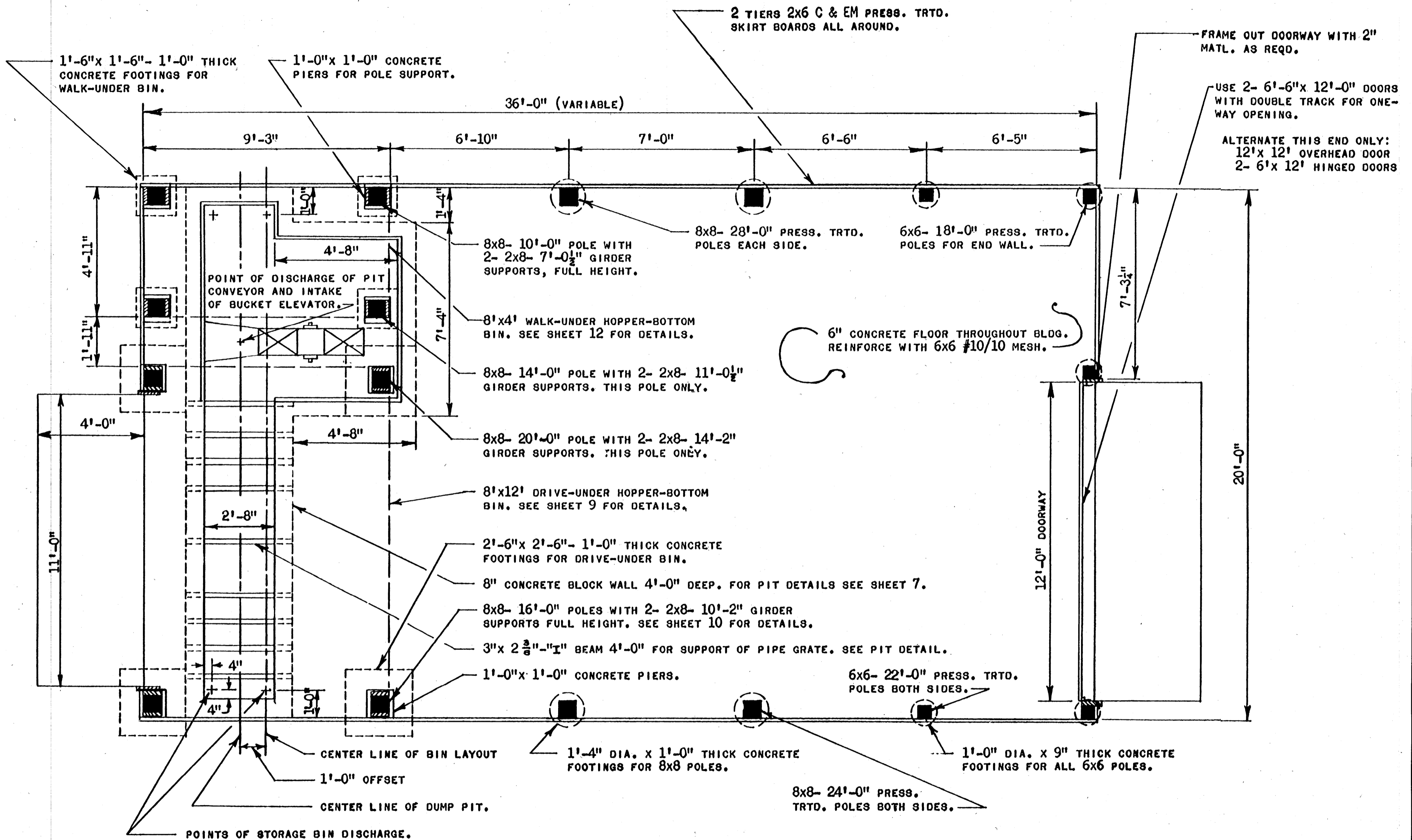
APPROXIMATE TOTAL CAPACITY-- ALTERNATIVE HANDLING RATES--	20,000 BU 1000-1200 BU/HR FLOW RATE					30,000 BU 1500-2000 BU/HR FLOW RATE					30,000 BU 2500-3000 BU/HR FLOW RATE				
	CODE	LENGTH OR HEIGHT	SIZE	ESTIMATED CAPACITY BU/HR	H-P	CODE	LENGTH OR HEIGHT	SIZE	ESTIMATED CAPACITY BU/HR	H-P	CODE	LENGTH OR HEIGHT	SIZE	ESTIMATED CAPACITY BU/HR	H-P
ELEVATOR LEG	A	52'	7x5"	1000-1200	2-3	A	54'	8x5"	1500-2000	3-5	A	57'	9x6"	2500-3000	7½
GRAVITY SPOUTS			6"					6"					8"		
RECEIVING DUMP AUGER	B	11'	8"	1200(WET)	2-3	B	11'	10"		3-5	B	11'	12" 14"		3-5
RETURN DUMP AUGER	C	4'	8"	1200(WET)	1	C	4'	10"		1	C	4'	12"		1½
UNDERFLOOR AUGER	D ₁	20'	6"	1000-1200	2	D ₁	24'	6"	1500	3	D ₁	22'	8"	2500	3
UNDERFLOOR AUGER	D ₂	22'	6"	1000-1200	2	D ₂	26'	6"	1500	3	D ₂	24'	8"	2500	3
UNDERFLOOR AUGER	E ₁	29'	6"	1000-1200	3	E ₁	30'	6"	1500	3	E ₁	31'	8"	2500	5
UNDERFLOOR AUGER	E ₂	14'	6"	1000-1200	1½	E ₂	16'	6"	1500	2	E ₂	19'	8"	2500	3
UNDERFLOOR AUGER	E ₃	27'	6"	1000-1200	3	E ₃	28'	6"	1500	3	E ₃	29'	8"	2500	5
SWEEP UNLOADERS	F ₁	8½'	4"		¾	F ₁	11½'	6"	1000-1200	1	F ₁	10'	6"	1000-1200	1
SWEEP UNLOADERS	F ₂	10'	6"	1000	1	F ₂	11½'	6"	1000-1200	1	F ₂	11½'	6"	1000-1200	1
SWEEP UNLOADERS	F ₃	10'	6"	1000	1	F ₃	11½'	6"	1000-1200	1	F ₃	14½'	6"	1000-1200	1½
WET GRAIN UNLOAD AUGER	G	8'	8"	1200(WET)	1½	G	8'	10"	1500-2000	2-3	G	8'	10"	1500-2000	2-3
DRYER UNLOAD AUGER	H	14'	6"	1000-1200	1½	H	14'	6"	1500	2	H	14'	8"	2500	3
SMALL ELEVATOR LEG (FOR CONTINUOUS FLOW DRYER)	J	34'	(SEE RIGHT)			J	40'	(SEE RIGHT)			J	38'	4x6"	500-700	1

- HANDLING FLOW RATES ILLUSTRATED ARE WORKABLE COMBINATIONS AND NOT LIMITED TO EACH SPECIFIC FACILITY
- AUGER INTAKE EXPOSURE MATCHED TO CAPACITY--MINIMUM EXPOSURE = AUGER DIAM; MAXIMUM EXPOSURE 2'±. ADDITIONAL EXPOSURE INCREASES HORSEPOWER NOT CAPACITY.
- SWEEP UNLOADER CAPACITIES GIVEN FOR UNITS WITH GRAIN SHIELDS BEHIND AUGER.
- FLAT STORAGE STRUCTURES CAN BE SUBSTITUTED FOR BIN ON RIGHT SIDE OF LAYOUT. DOTTED BINS SHOWN FOR FUTURE EXPANSION ARE INTERCHANGABLE FOR ALL LAYOUTS.

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GRAIN-FEED HANDLING CENTER

IND. '69	EX. 6069	SHEET 4 OF 14
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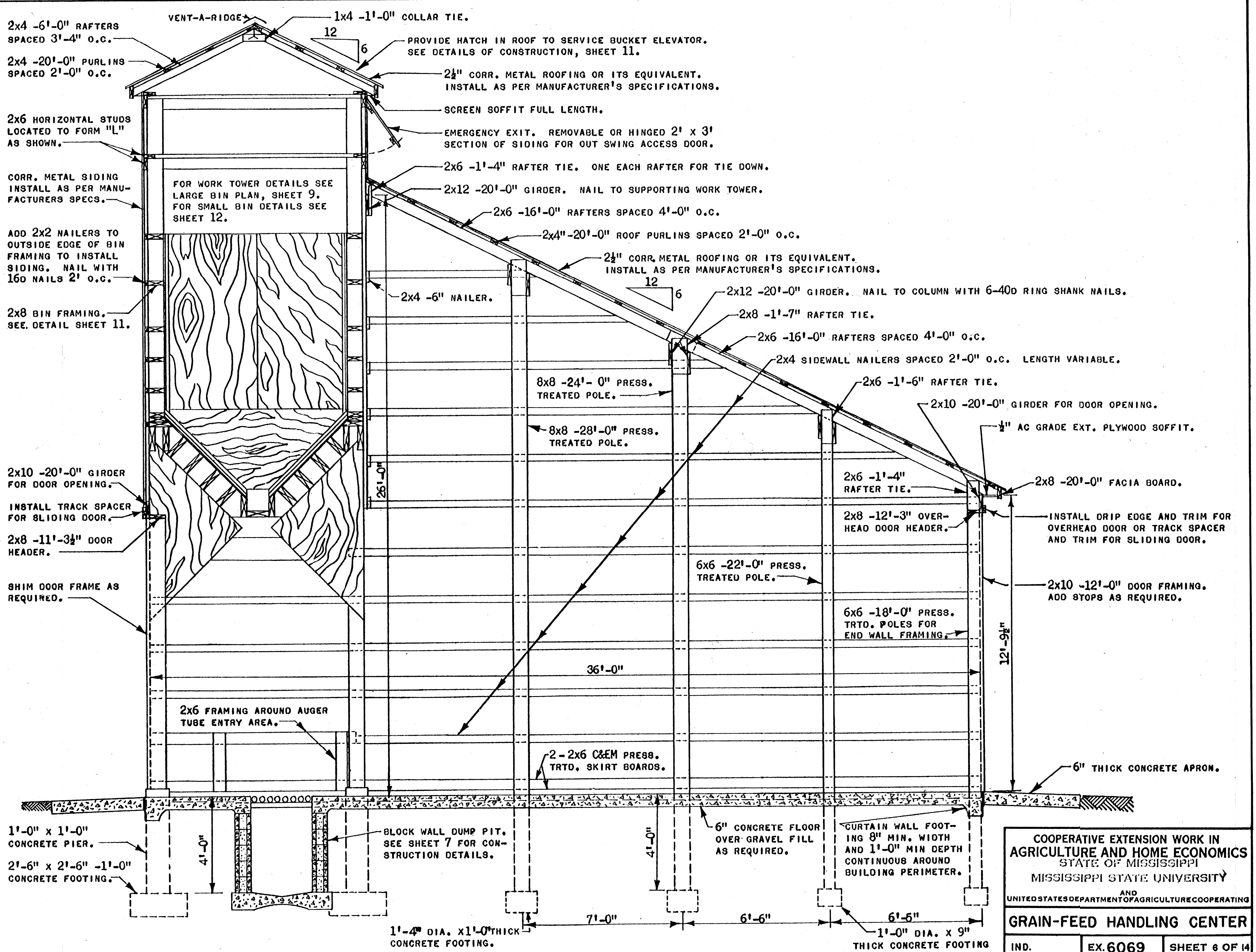
FLOOR & FOUNDATION PLAN

SCALE 3/8"=1'-0"

COOPERATIVE EXTENSION WORK IN
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GRAIN-FEED HANDLING CENTER

IND. '69 EX. 6069 SHEET 5 OF 14

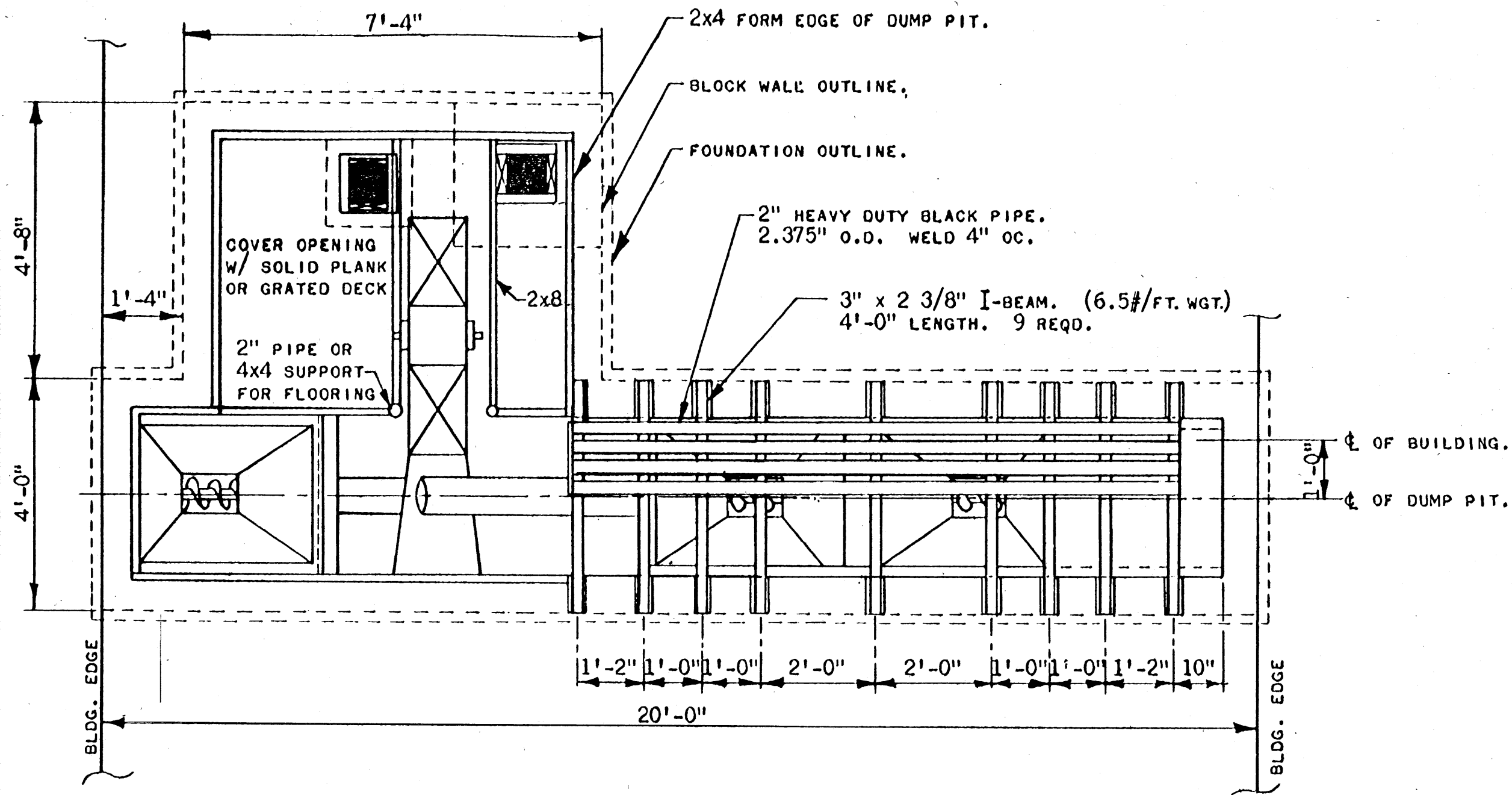


SECTION THRU DRIVEWAY

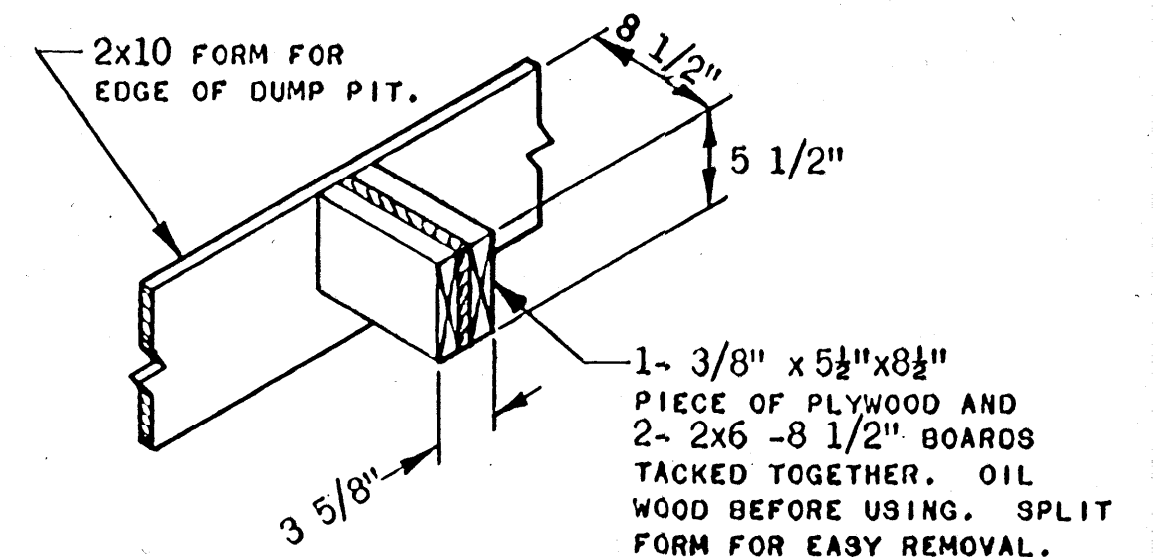
COOPERATIVE EXTENSION WORK IN
 AGRICULTURE AND HOME ECONOMICS
 STATE OF MISSISSIPPI
 MISSISSIPPI STATE UNIVERSITY
 AND
 UNITED STATES DEPARTMENT OF AGRICULTURE COOPERATING

GRAIN-FEED HANDLING CENTER

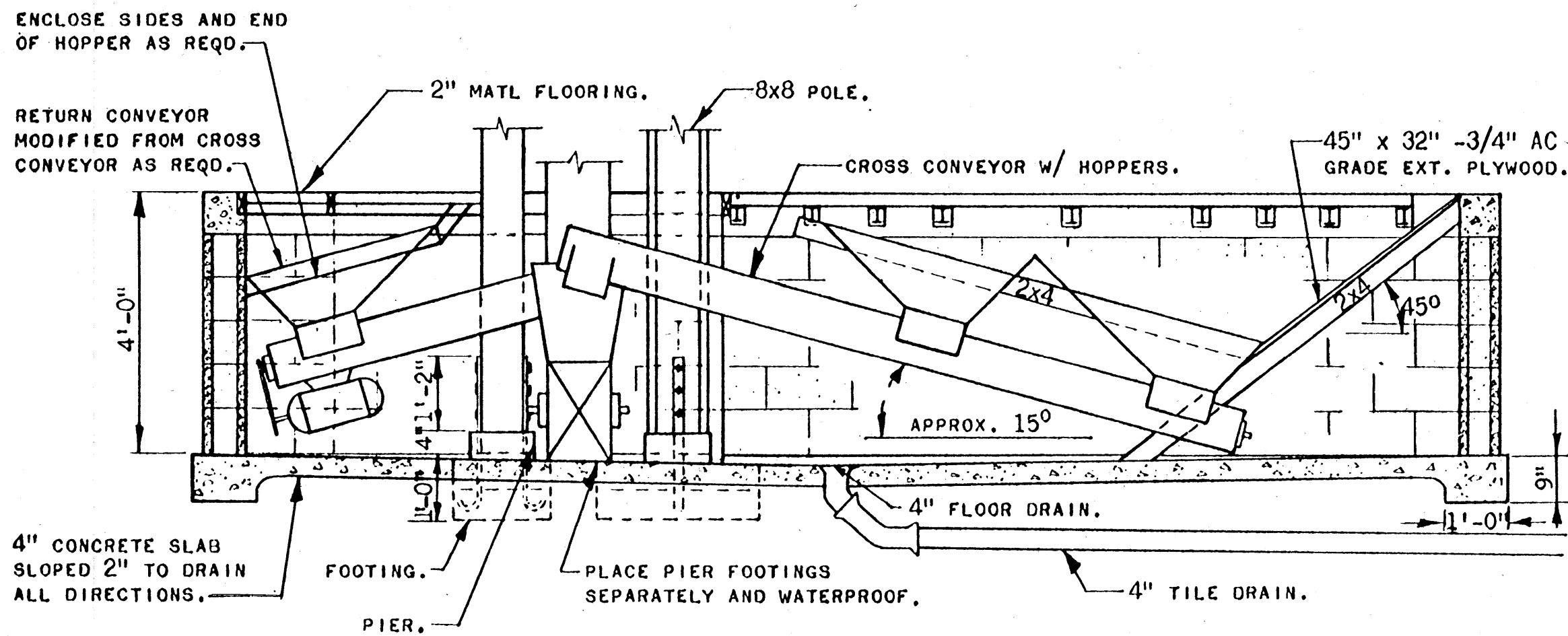
IND.	EX. 6069	SHEET 6 OF 14
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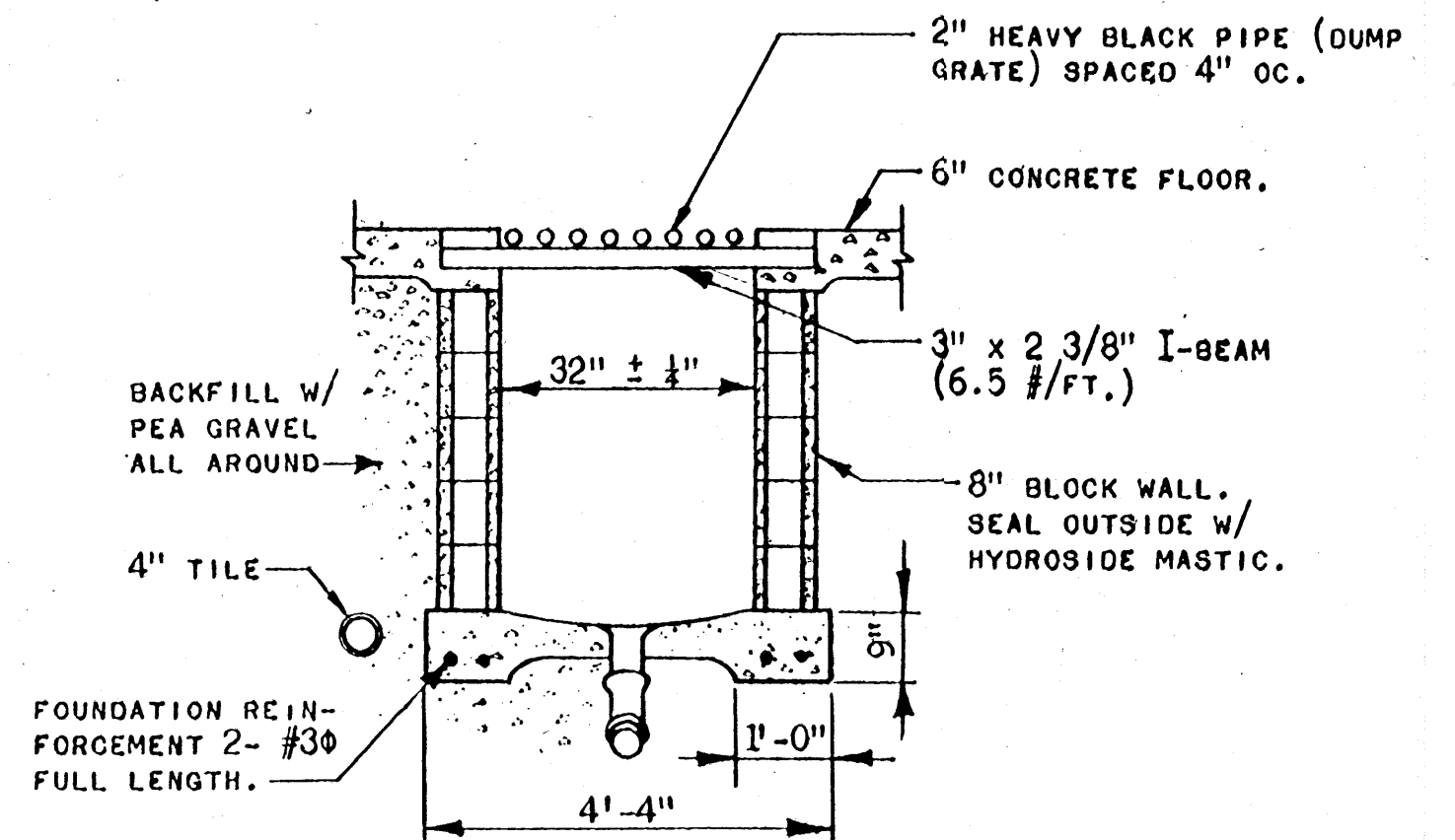
PLAN VIEW



I-BEAM NOTCH FORMING DETAIL



ELEVATION VIEW

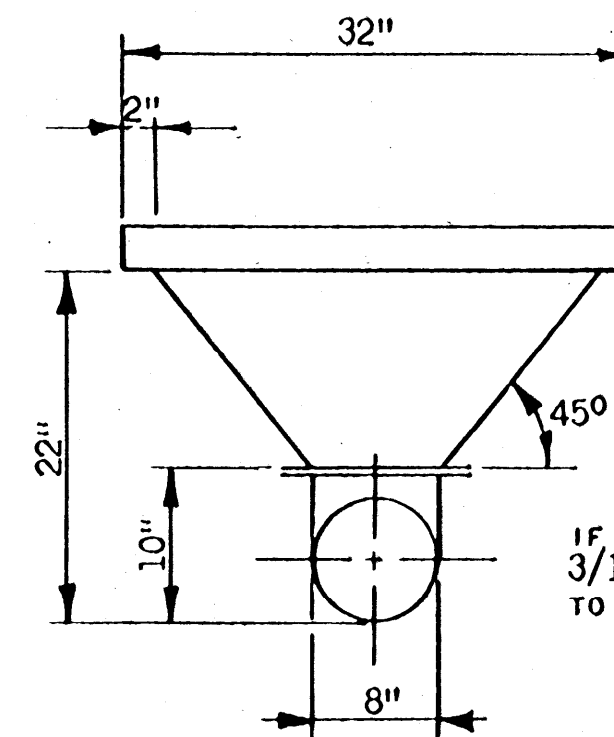
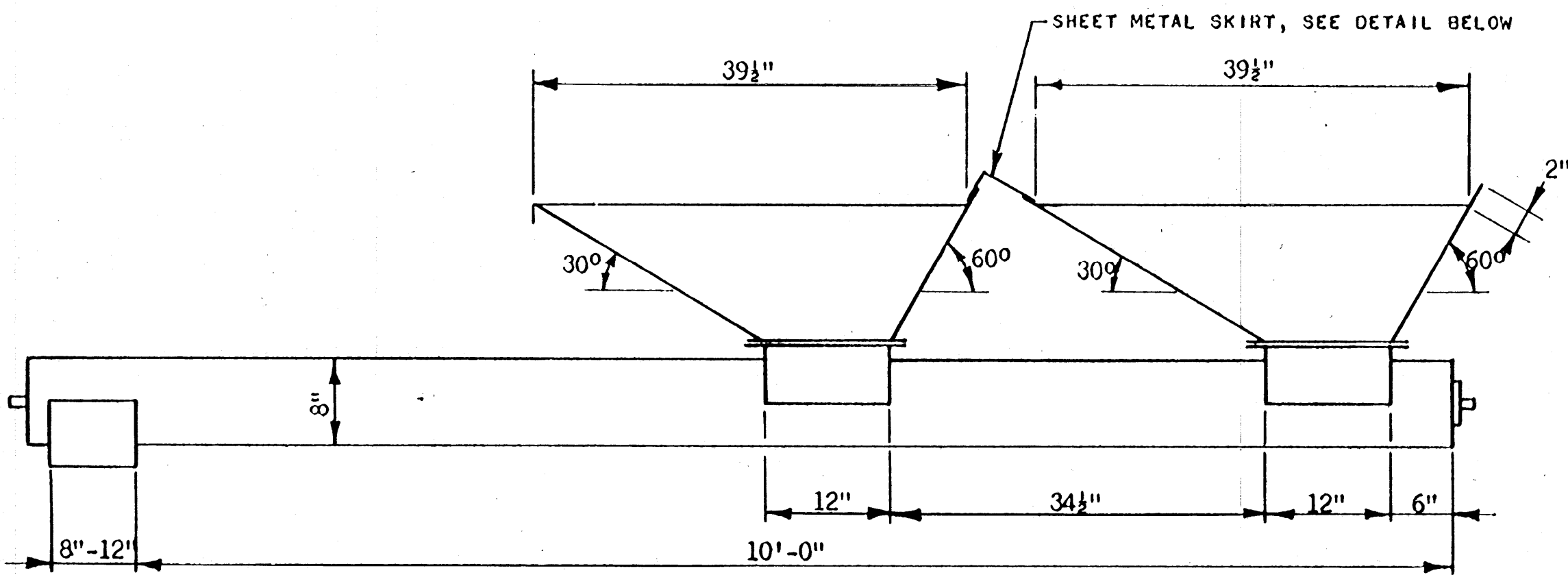
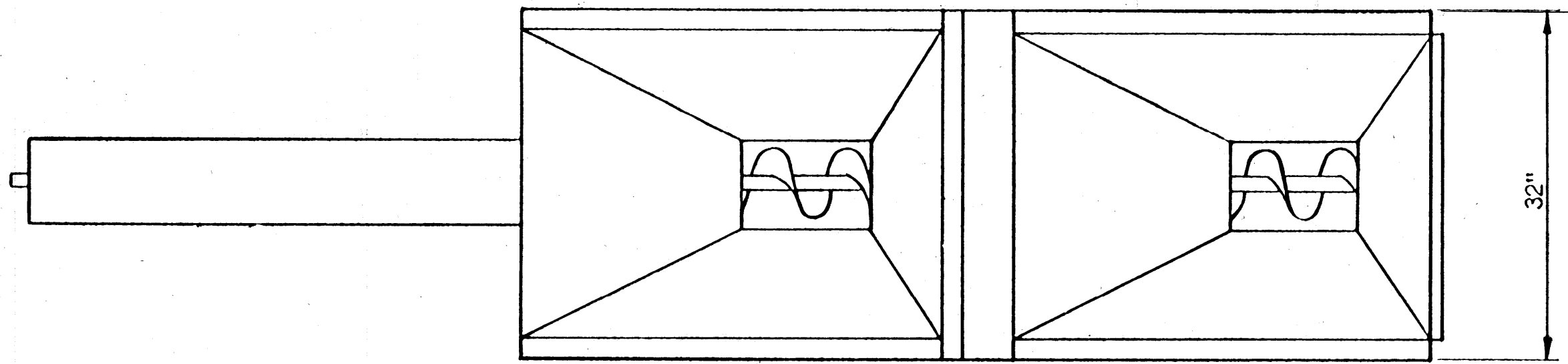


END SECTION OF DUMP PIT

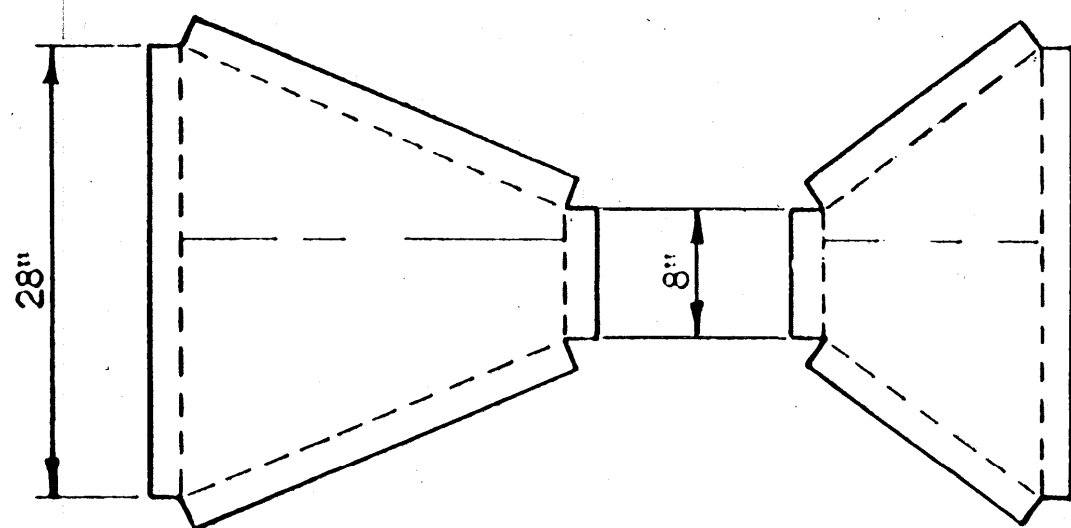
COOPERATIVE EXTENSION WORK IN
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 STATE OF MISSISSIPPI
 MISSISSIPPI STATE UNIVERSITY
 AND
 UNITED STATES DEPARTMENT OF AGRICULTURE COOPERATING

GRAIN-FEED HANDLING CENTER

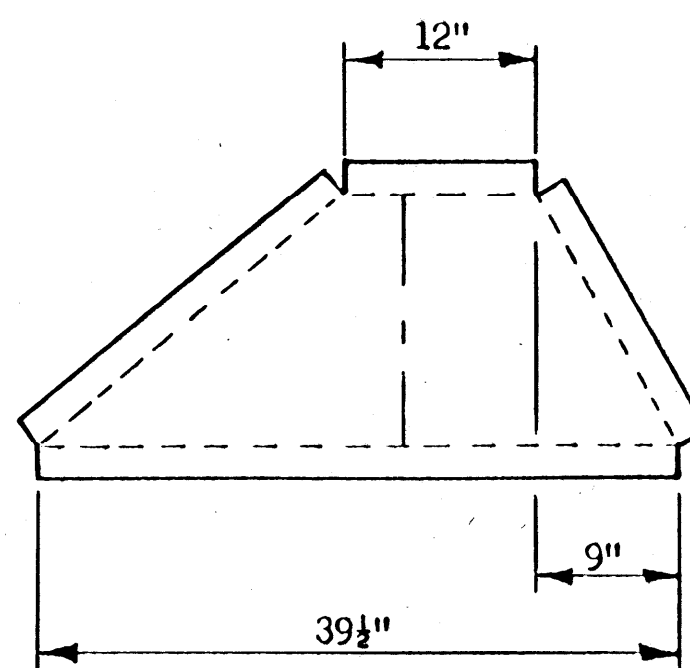
IND. '69 EX. 6069 SHEET 7 OF 14



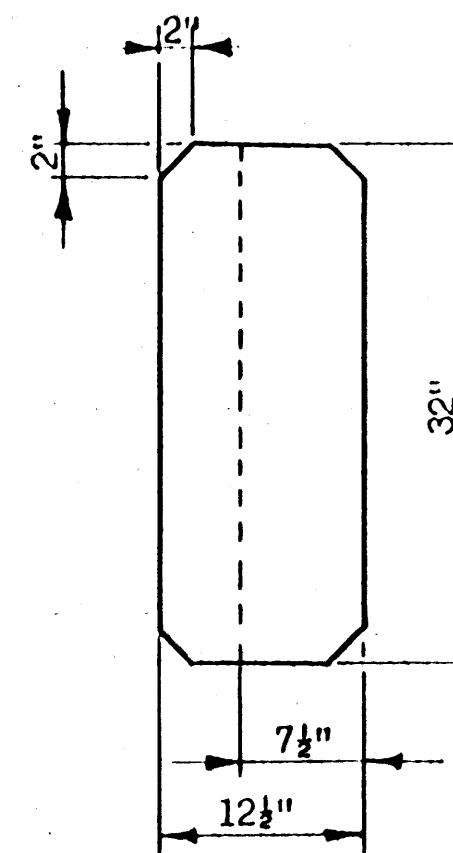
IF SLIDE IS DESIRED, USE 3/16" X 3/4" BAR STOCK TO SPACE EACH SIDE.



HOPPER END PANELS



HOPPER SIDE PANELS



SKIRT BETWEEN HOPPERS

NOTE: ALL FLANGES ARE DRAWN 2", BUT MAY BE MODIFIED TO EASE FABRICATION. 16 GAGE STEEL IS SUGGESTED. MODIFICATIONS MAY BE NECESSARY TO ADAPT TO A PARTICULAR SCREW CONVEYOR.

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GRAIN-FEED HANDLING CENTER

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2x8 SPACER BLOCK AT 45° WITH CORNER. LOWER THREE SPACERS ARE 1'-1 1/8" LONG. UPPER TWO ARE 1'-9 1/8" LONG.

2x2 -8'-1" NAILER EACH CORNER. NAIL TO PLYWOOD SHEETS.

NOTE: ALL LUMBER S4S (NOMINAL DIMENSIONS) EXCEPT 8"x8" COLUMNS. DIMENSIONS SHOULD BE CORRECTED IF FULL DIMENSION LUMBER IS USED.

2x8 SPACER BLOCKS FLUSH WITH BIN LINING.

BIN LINING.

2x2 NAILERS. FOR APPLICATION OF SIDING ONLY.

6" FLASHING.

9'-3"
2'-6"
1'-0"
CENTER LINE OF BLDG.
CENTER LINE OF DUMP PIT.

8"x8" -16'-0" COLUMN, THREE CORNERS ONLY.

BIN FRAME.

2x8 -10'-2" GIRDER SUPPORT CONTINUOUS TO PIER, THREE CORNERS ONLY.

HORIZONTAL STUD.

GIRDER.

12'-10 3/4"
9'-9"
2'-6"

SPACER

GUSSET.

INSIDE GUSSET.

8"x8" -20'-0" COLUMN THIS CORNER ONLY.

1'-0" x 1'-0" CONCRETE PIER. SEE SHEET 11 FOR DETAILS.

GIRDER

OUTSIDE GUSSET.

BEVEL EDGE HEADER.

2x8 -14'-2" GIRDER SUPPORT, THIS CORNER ONLY.

2'-6" x 2'-6" CONCRETE FOOTING. SEE SHEET 11 FOR DETAILS.

CORNER MEMBER.

CORNER MEMBER.

GIRDER SUPPORTS.

COLUMN.

DUMP PIT.

PIER.

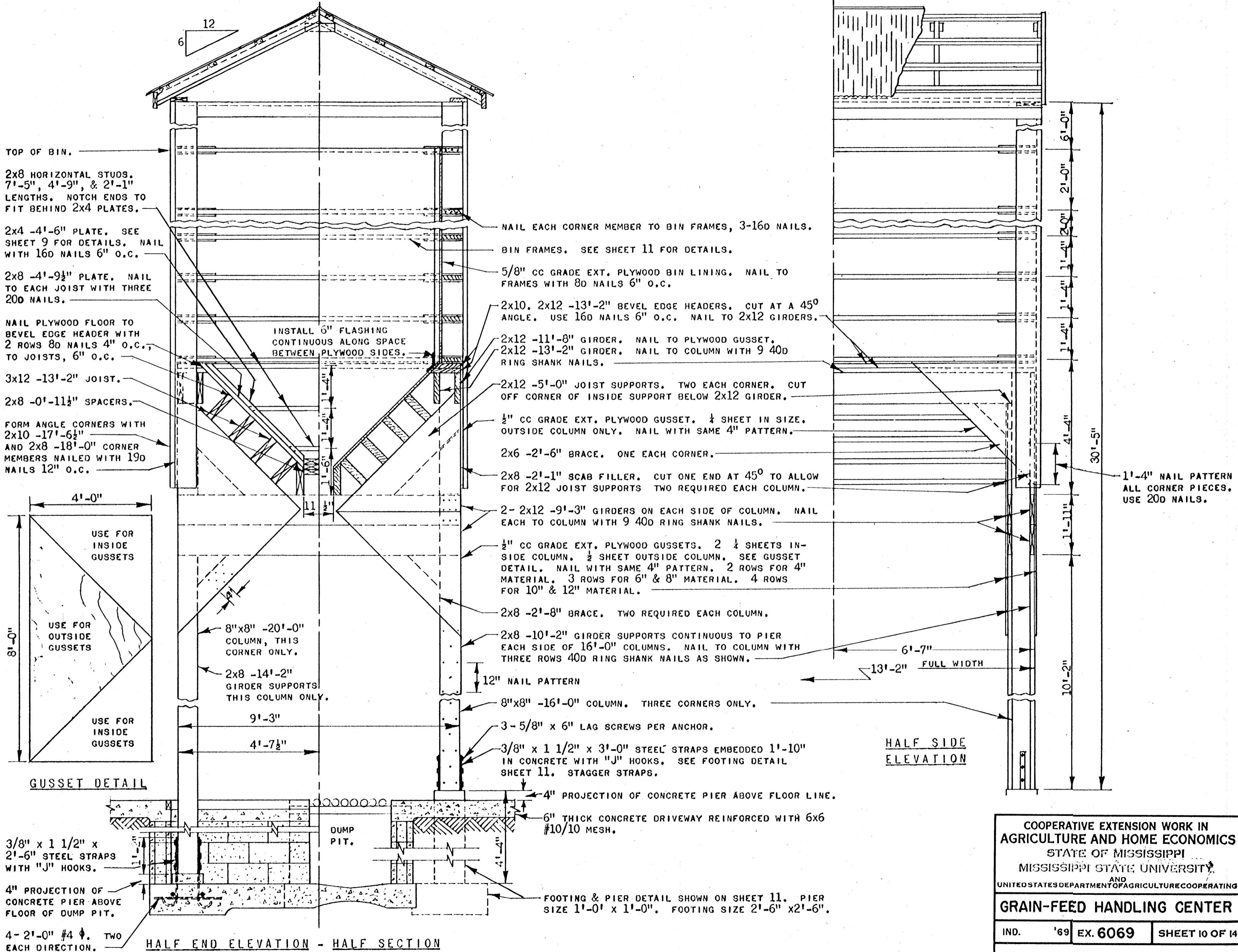
FLOOR PLAN

PICTORIAL VIEW

COOPERATIVE EXTENSION WORK IN AGRICULTURE AND HOME ECONOMICS
STATE OF MISSISSIPPI
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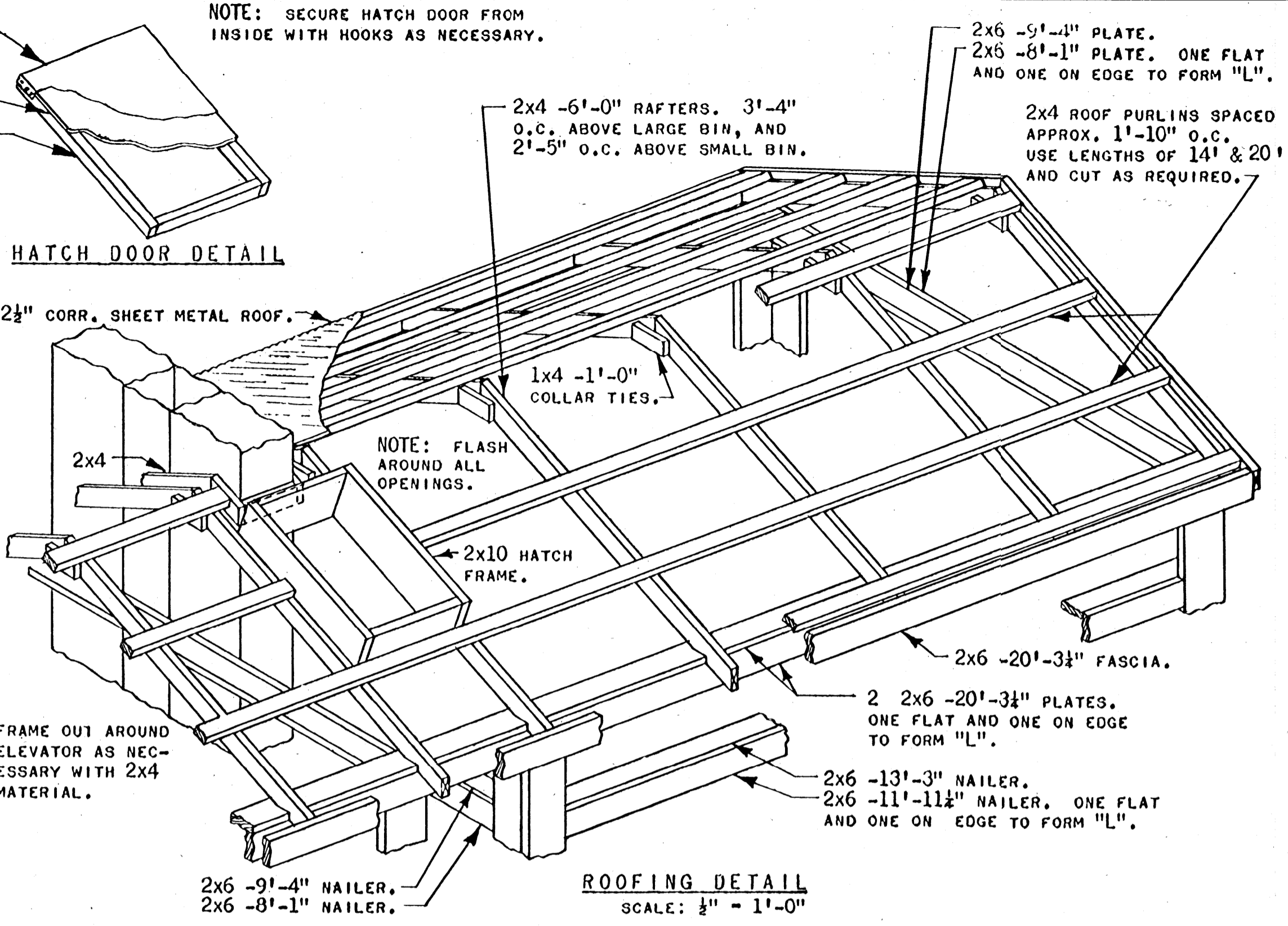
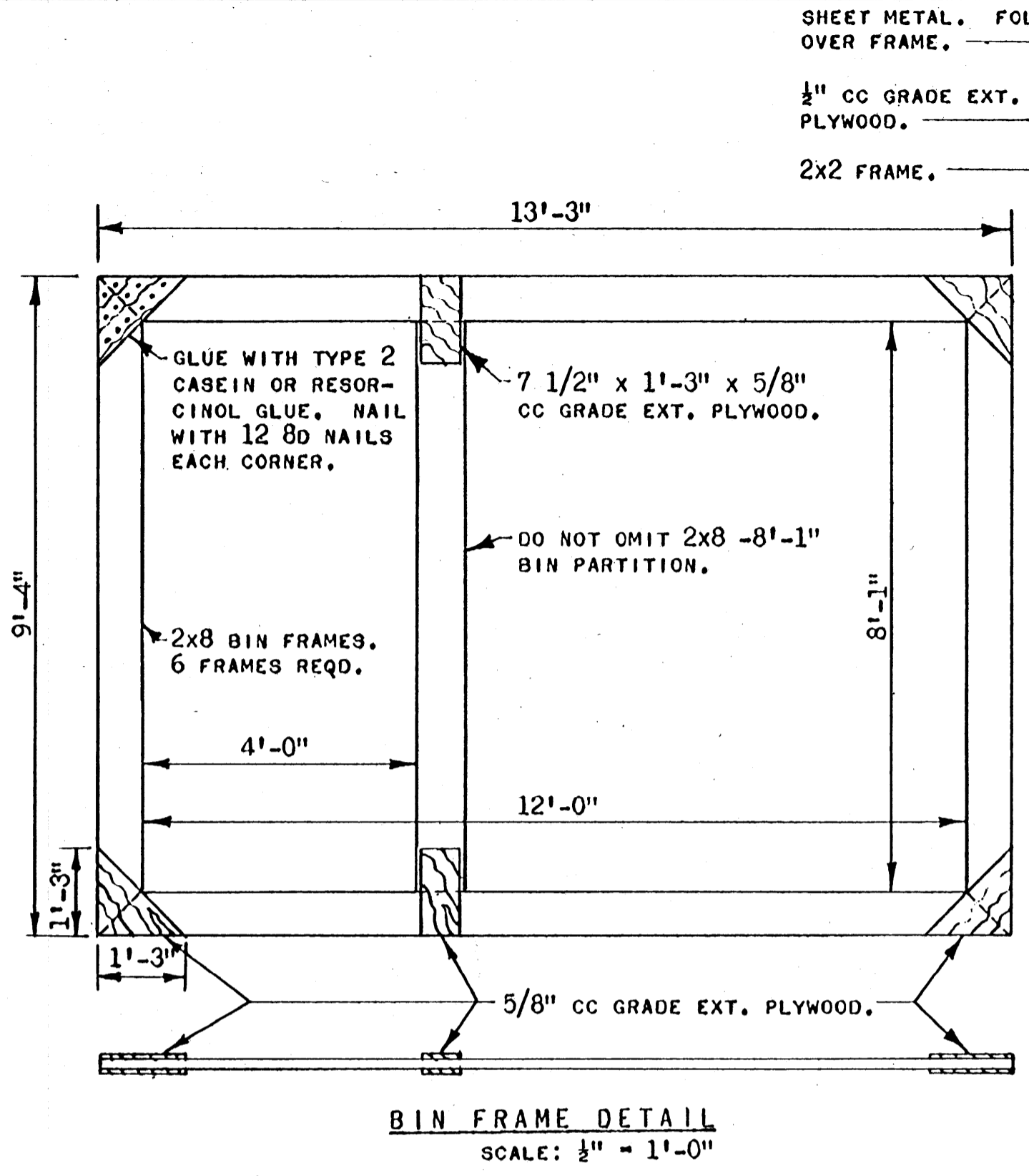
GRAIN-FEED HANDLING CENTER

IND.	'69	EX.6069	SHEET 9 OF 14
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GRAIN-FEED HANDLING CENTER



HATCH DOOR DETAIL

2 1/2" CORR. SHEET METAL ROOF.

FRAME OUT AROUND ELEVATOR AS NECESSARY WITH 2x4 MATERIAL.

NOTE: SECURE HATCH DOOR FROM INSIDE WITH HOOKS AS NECESSARY.

SHEET METAL. FOLD OVER FRAME.
1/2" CC GRADE EXT. PLYWOOD.
2x2 FRAME.

2x6 -9'-4" PLATE.
2x6 -8'-1" PLATE. ONE FLAT AND ONE ON EDGE TO FORM "L".
2x4 ROOF PURLINS SPACED APPROX. 1'-10" O.C. USE LENGTHS OF 14' & 20' AND CUT AS REQUIRED.

2x4 -6'-0" RAFTERS. 3'-4" O.C. ABOVE LARGE BIN, AND 2'-5" O.C. ABOVE SMALL BIN.

1x4 -1'-0" COLLAR TIES.

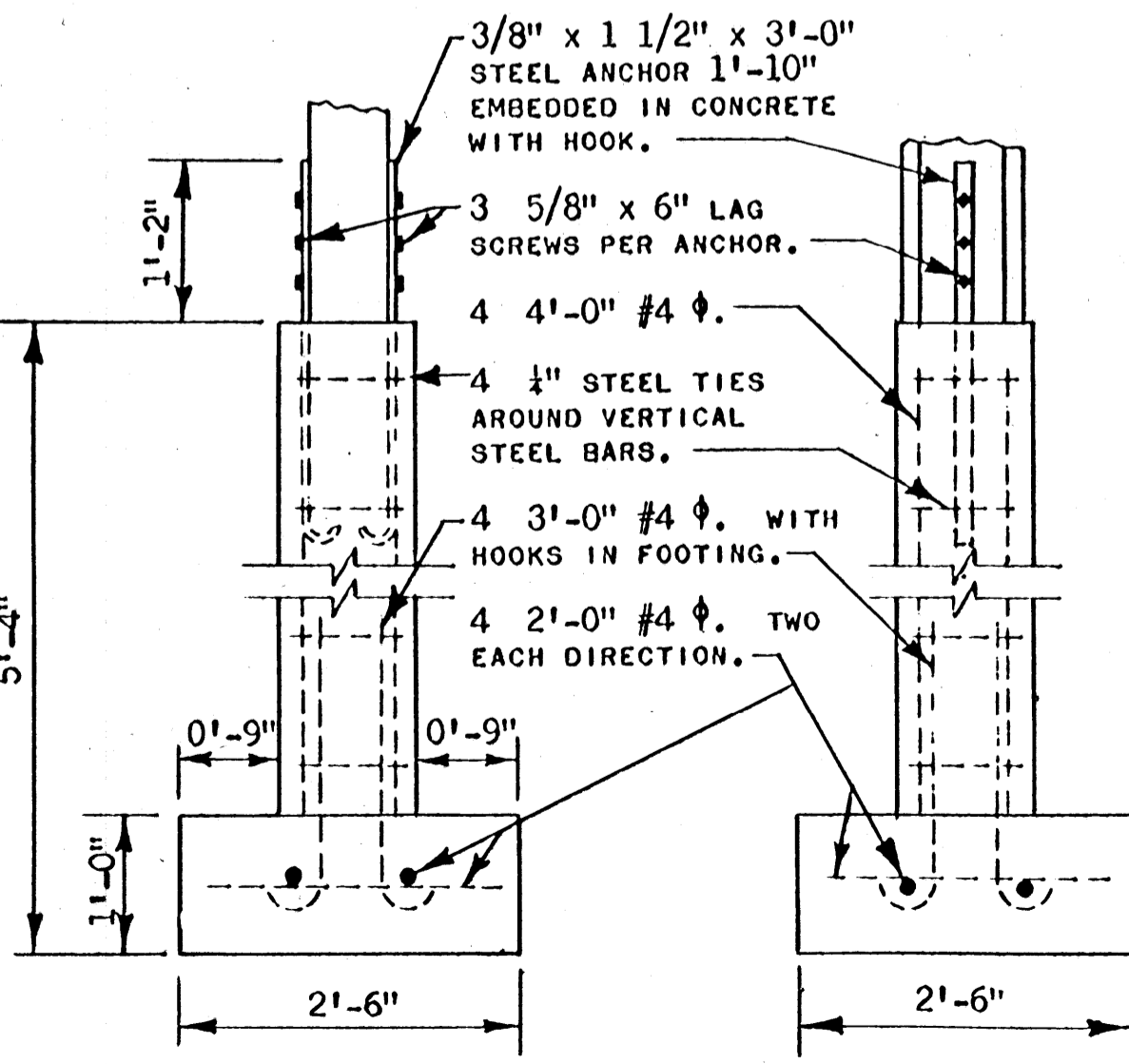
NOTE: FLASH AROUND ALL OPENINGS.

2 2x6 -20'-3 1/2" PLATES. ONE FLAT AND ONE ON EDGE TO FORM "L".

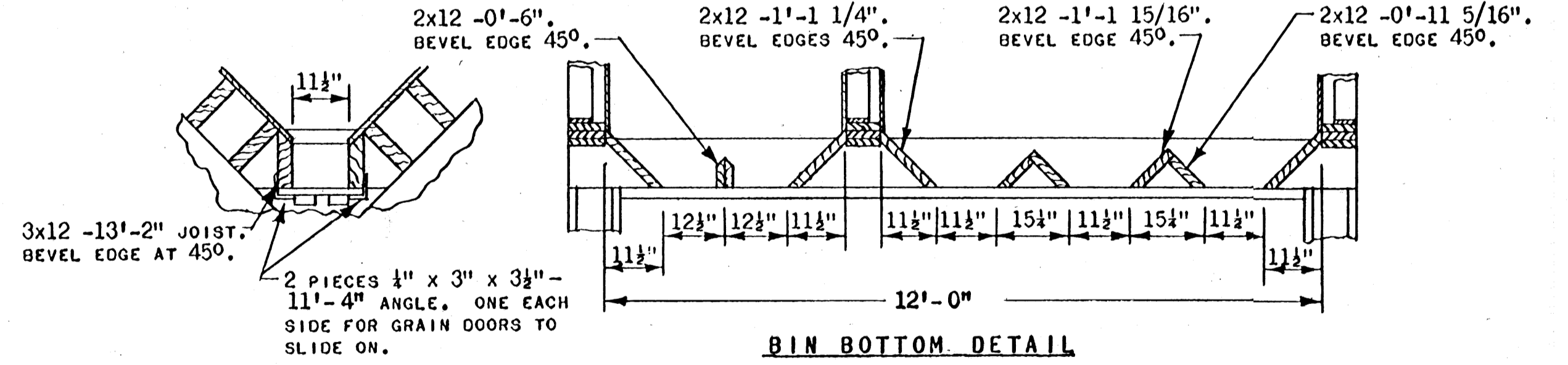
2x6 -13'-3" NAILER.
2x6 -11'-11 1/2" NAILER. ONE FLAT AND ONE ON EDGE TO FORM "L".

2x6 -9'-4" NAILER.
2x6 -8'-1" NAILER.

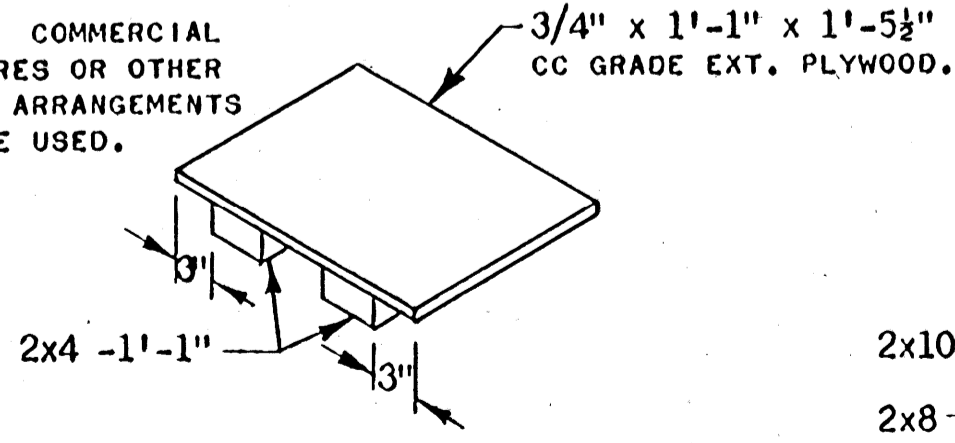
SCALE: 1/2" = 1'-0"



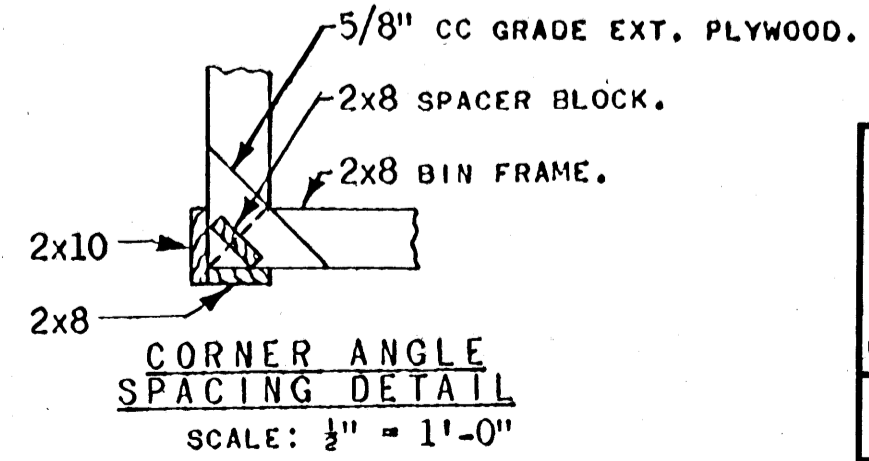
SEE SHEET 10 FOR THE SHORT FOOTING DETAIL.



NOTE: COMMERCIAL CLOSURES OR OTHER SLIDE ARRANGEMENTS MAY BE USED.



5 REQD FOR LARGE BIN.



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IND.	'69	EX. 6069	SHEET 11 OF 14
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2x2 -14'-1" NAILER EACH CORNER.
NAIL TO PLYWOOD SHEETS.

2x8 SPACER BLOCKS AT 45°
WITH CORNER MEMBERS.

6" FLASHING.

BIN LINING.

2x6 SPACER BLOCK FLUSH WITH BIN
LINING. LOWER TWO SPACERS ARE
0'-9 1/8" LONG. MIDDLE THREE ARE
1'-1 1/8". UPPER FOUR, 1'-9 1/8".

2x2 NAILER.

BEVEL EDGE HEADER.

BIN FRAME.

GIRDER.

GUSSET.

BRACE.

CORNER MEMBER.

CORNER MEMBER.

NO PLYWOOD GUSSET ON
BOTTOM SIDE OF LOWEST
BIN FRAME.

HORIZONTAL STUD.

PLATE.

SPACER.

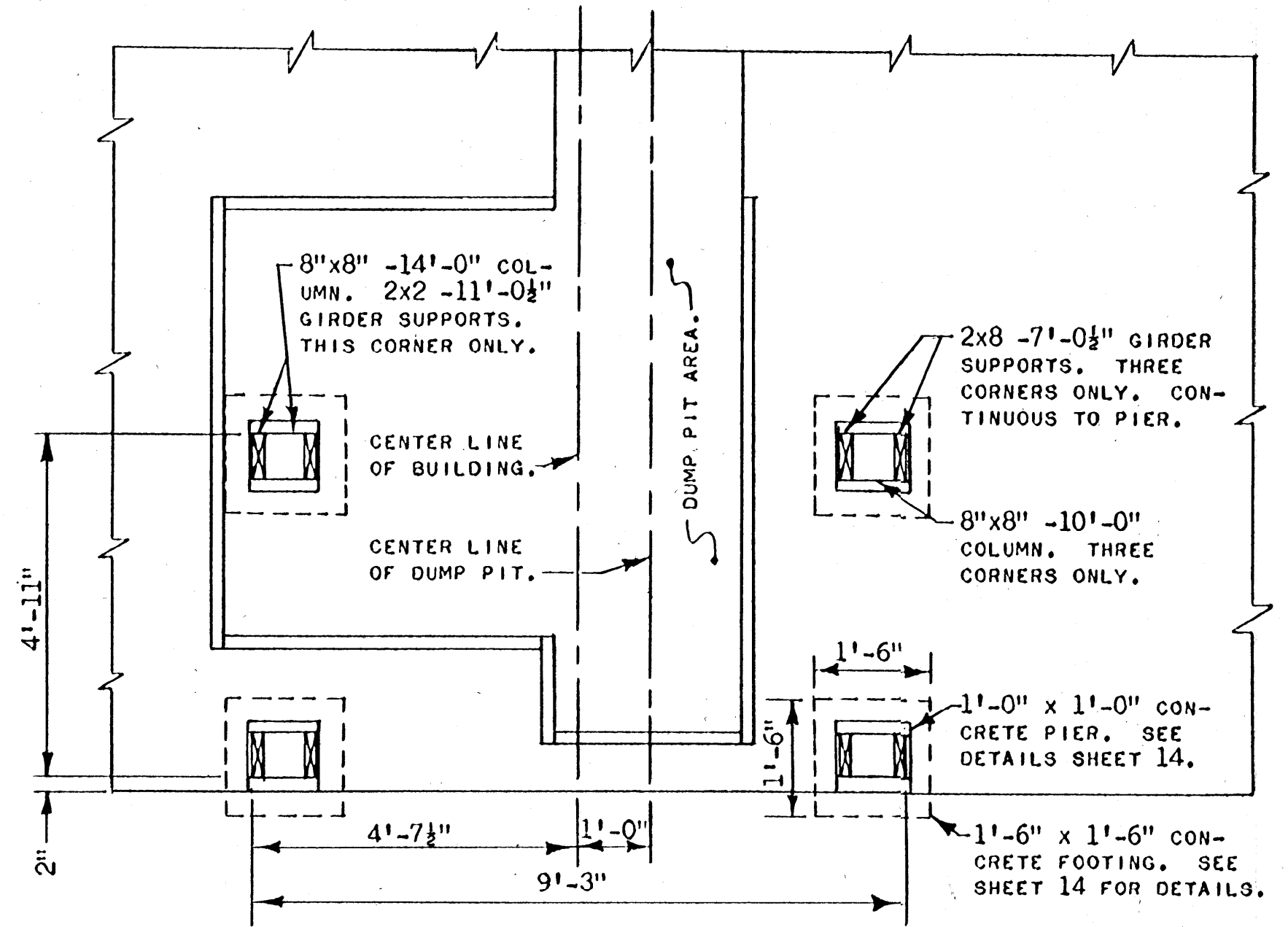
GIRDER GUSSET.

DUMP PIT.

COLUMN.

GIRDER SUPPORTS.

PICTORIAL VIEW



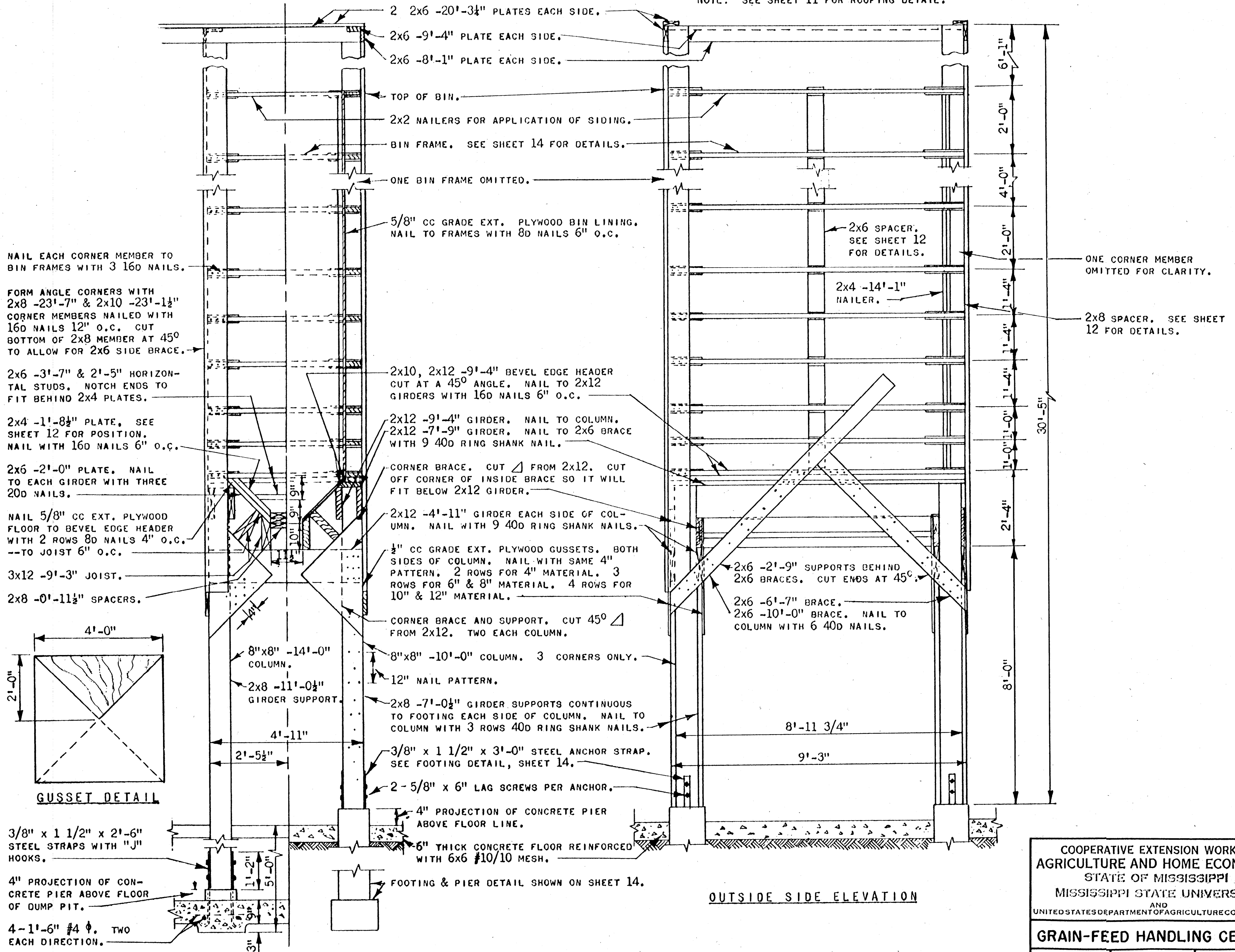
FLOOR PLAN

COOPERATIVE EXTENSION WORK IN
AGRICULTURE AND HOME ECONOMICS
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GRAIN-FEED HANDLING CENTER

IND. '69 EX. 6069 SHEET 12 OF 14

NOTE: SEE SHEET 11 FOR ROOFING DETAIL.



HALF END ELEVATION - HALF SECTION

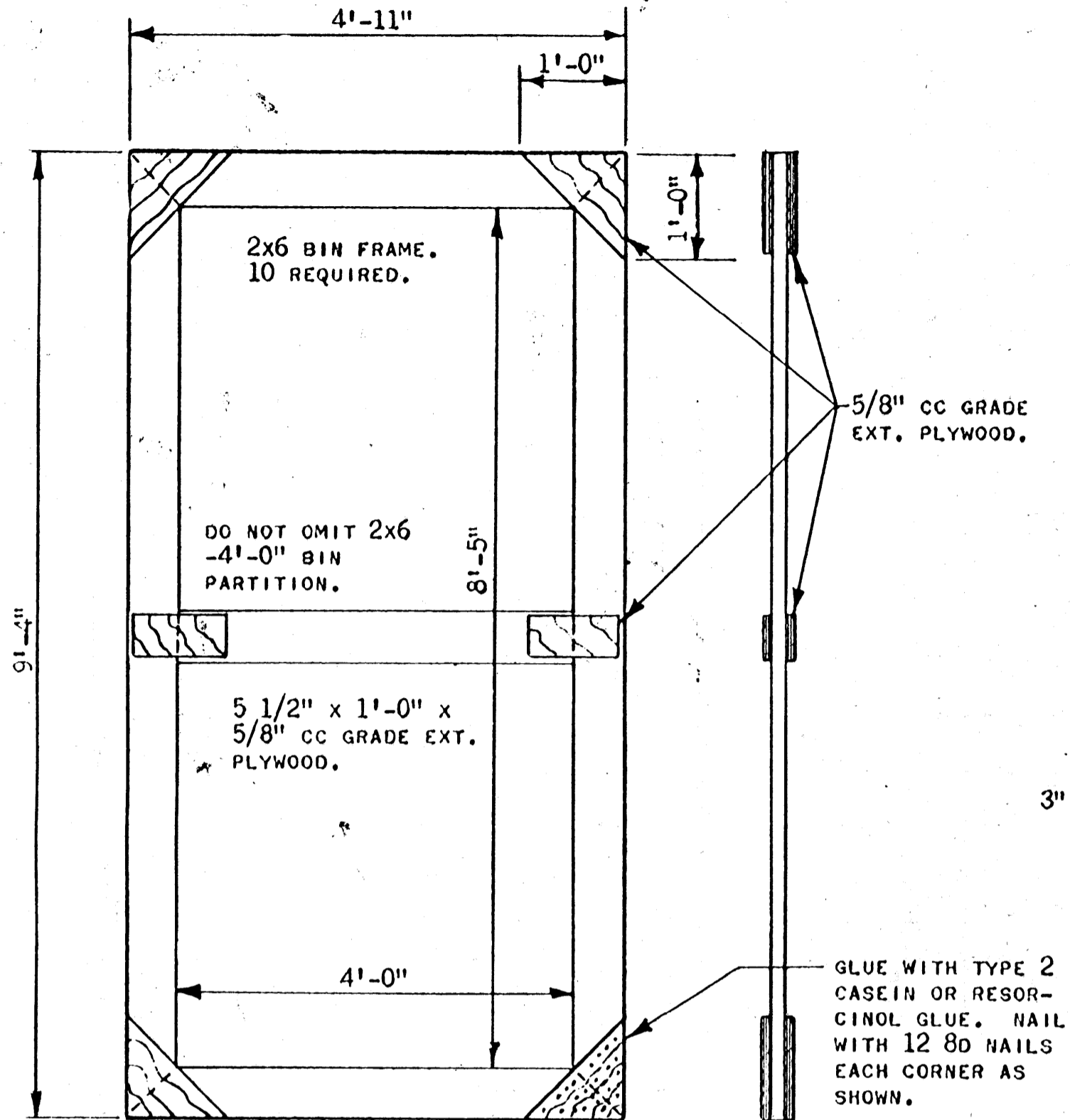
OUTSIDE SIDE ELEVATION

COOPERATIVE EXTENSION WORK IN
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 UNITED STATES DEPARTMENT OF AGRICULTURE COOPERATING

GRAIN-FEED HANDLING CENTER

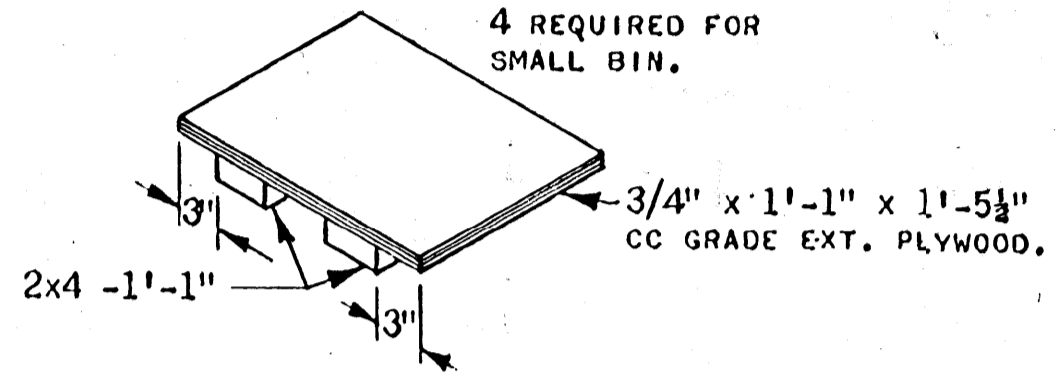
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NOTE: THE BOTTOM BIN FRAME IS CONSTRUCTED WITH PLYWOOD ONE SIDE ONLY. SEE SECTION DETAIL SHEET 13.

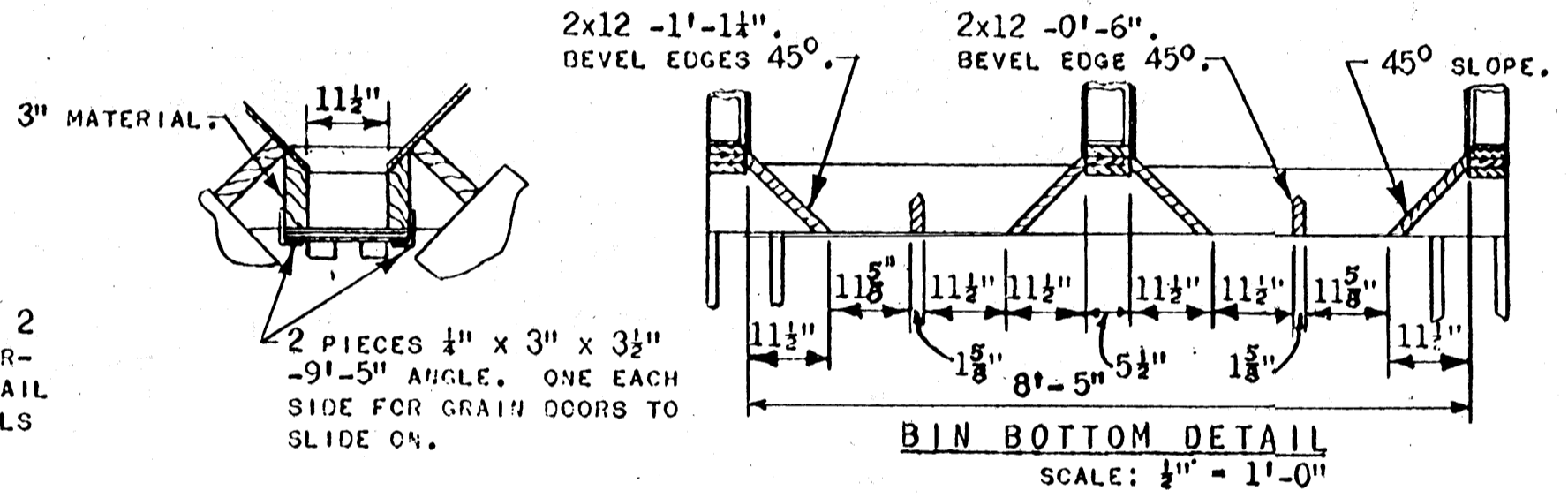


BIN FRAME DETAIL
SCALE: 3/4" = 1'-0"

NOTE: COMMERCIAL CLOSURES OR OTHER SLIDE ARRANGEMENT MAY BE USED.

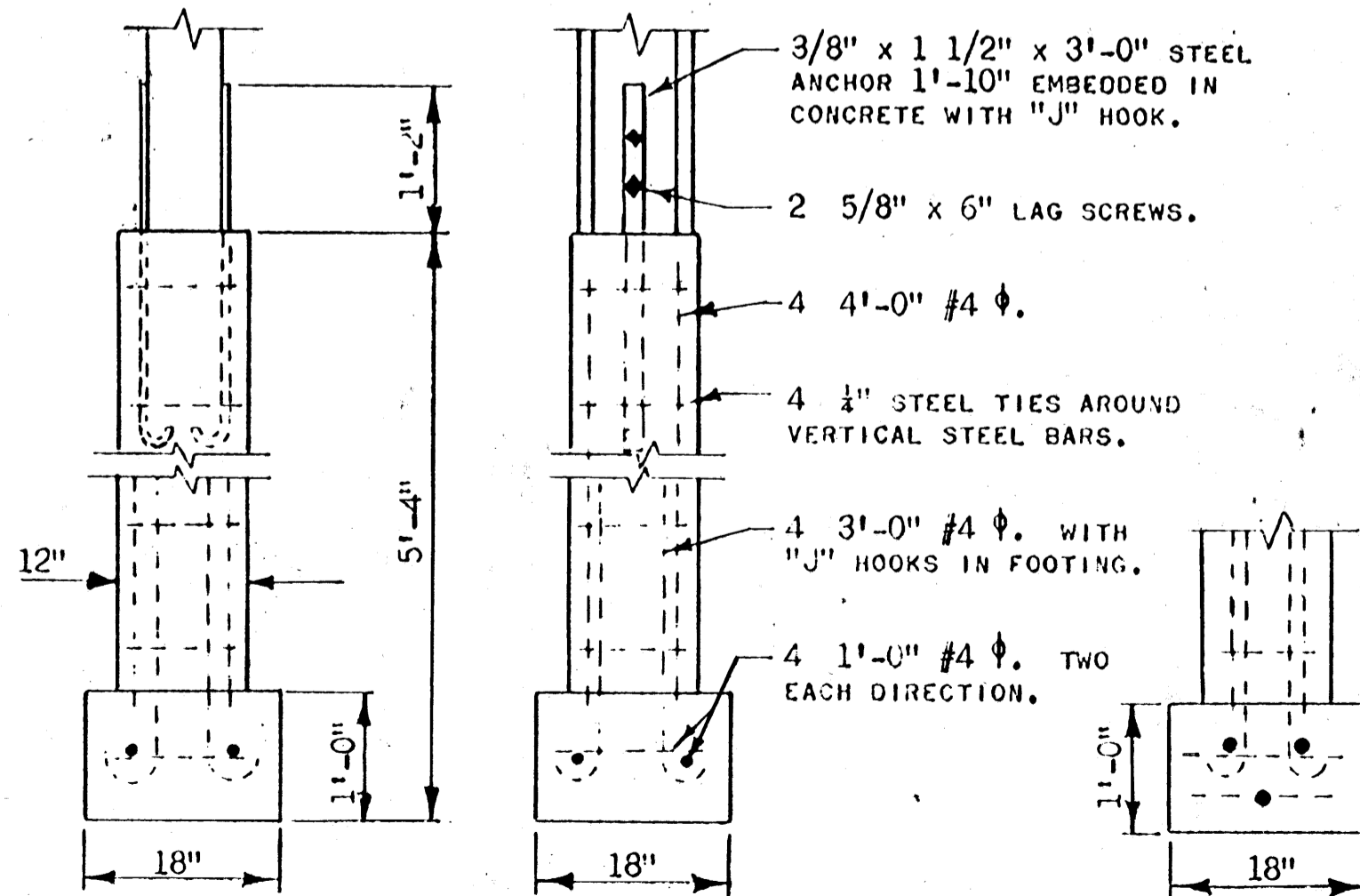


GRAIN DOOR DETAIL
SCALE: 1' = 1'-0"

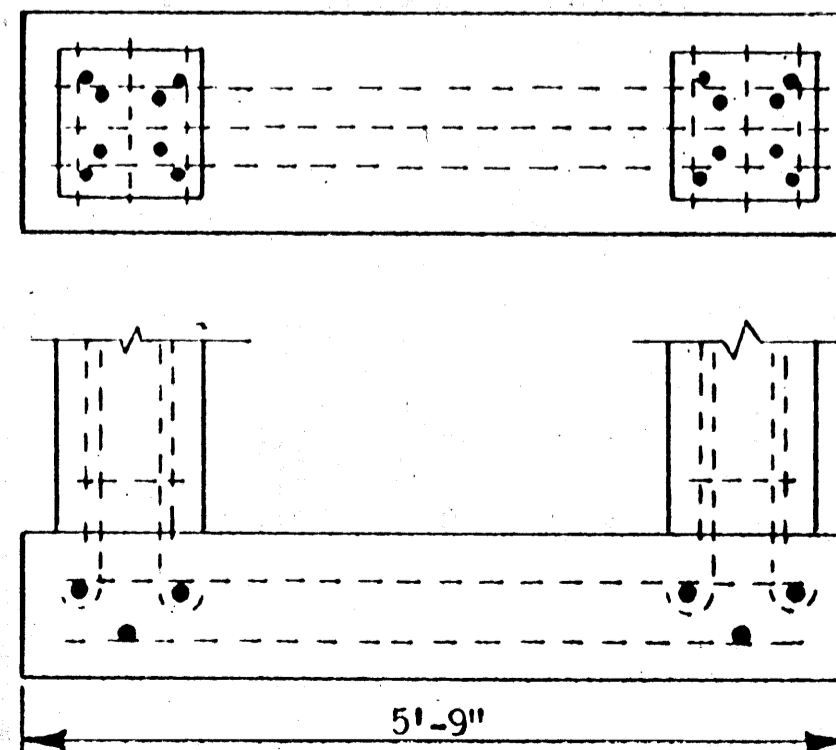


BIN BOTTOM DETAIL
SCALE: 1/2" = 1'-0"

SEE SHEET 13 FOR DETAILS OF THE SHORT FOOTING.



FOOTING DETAIL
SCALE: 3/4" = 1'-0"



OPTIONAL FOOTING DETAIL
SCALE: 3/4" = 1'-0"

COOPERATIVE EXTENSION WORK IN
AGRICULTURE AND HOME ECONOMICS
STATE OF MISSISSIPPI
MISSISSIPPI STATE UNIVERSITY
AND
UNITED STATES DEPARTMENT OF AGRICULTURE COOPERATING

GRAIN-FEED HANDLING CENTER

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