

MWPS-73294

Grain-Feed Handling Center

Work Tower Across Drive, offset Gable.

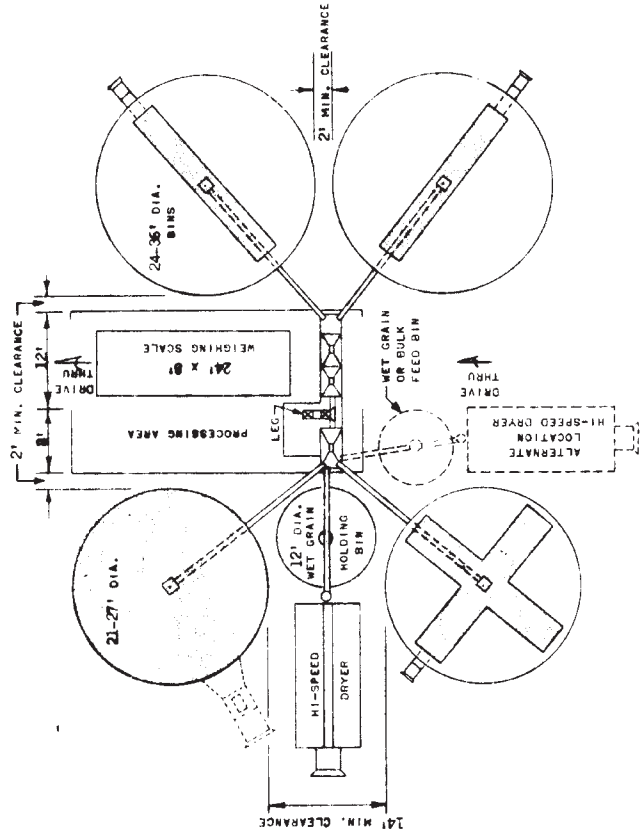
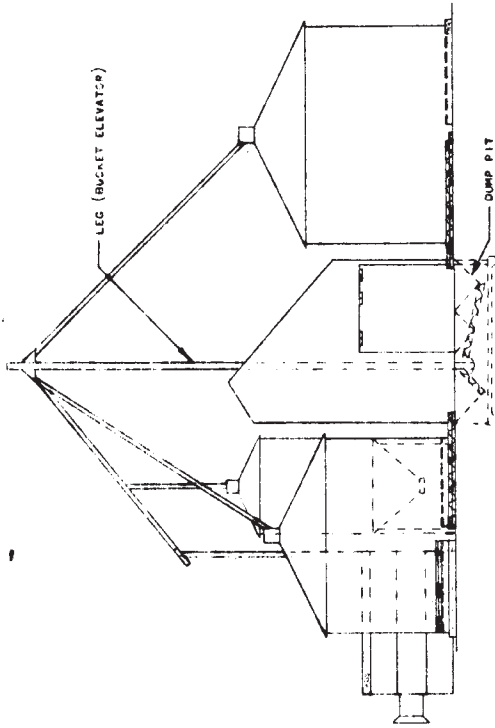
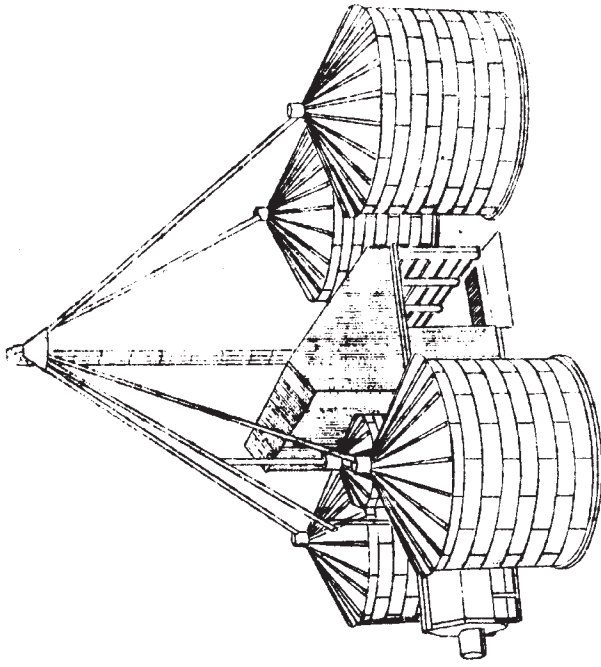
CAUTION!

Additional professional services will be required to tailor this plan to your situation, including but not limited to: assurance of compliance with codes and regulations; review of specifications for materials and equipment; supervision of site selection, bid letting and construction; and provision for utilities, waste management, roads or other access. **Furthermore, any deviation from the given specifications may result in structural failure, property damage, and personal injury including loss of life.**

WARRANTY DISCLAIMER

This plan provides conceptual information only. **Neither midwest plan service nor any of the cooperating land-grant universities, or their respective agents or employees, have made, and do not hereby make, any representation, warranty or covenant with respect to the specifications in this plan.** Additional professional services will be required to tailor this plan to your situation, including but not limited to: assurance of compliance with codes and regulations; review of specifications for materials and equipment; supervision of site selection, bid letting and construction; and provision for utilities, waste management, roads or other access.

MIDWEST PLAN SERVICE
Cooperative Extension Work in Agriculture and Home Economics and Agricultural Experiment Stations of North Central Region - USDA Cooperating
Grain-Feed Handling Center Work Tower Across Drive, Offset Gable
Title Page
MIDWEST PLAN NO. 73294



LAYOUT & MECHANIZATION SCHEMATIC

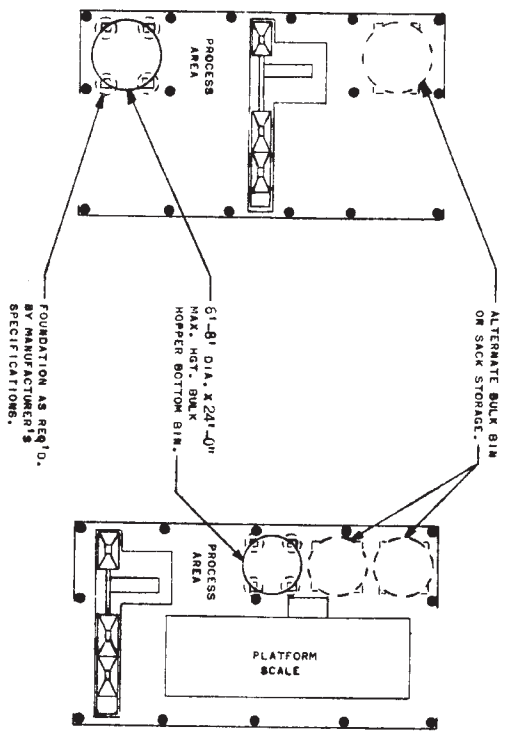
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MIDWEST PLAN SERVICE
 Cooperative Extension Service
 Agricultural Engineering Station
 125 North Central Region - USDA Cooperative
 Grain Feed Handling Center
 1700 POWER BLDG DRIVE, OFFICE 608
 West Lafayette, Indiana
 Sheet 1 of 8
 MIDWEST PLAN NO. 73294
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This plan was developed and prepared by Bruce A. McKenzie and John E. Menzies, Extension Agricultural Engineers, and W. H. Friday, Assistant Professor, Agricultural Engineering Department, Purdue University, Lafayette.

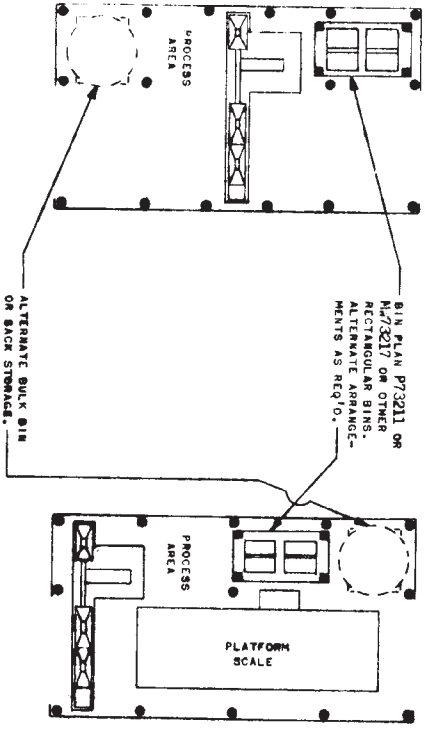
It was originally published by Purdue University as plan number P-3294 and is reprinted with approval.



FOUNDATION AS REQ'D,
BY MANUFACTURER'S
SPECIFICATIONS.

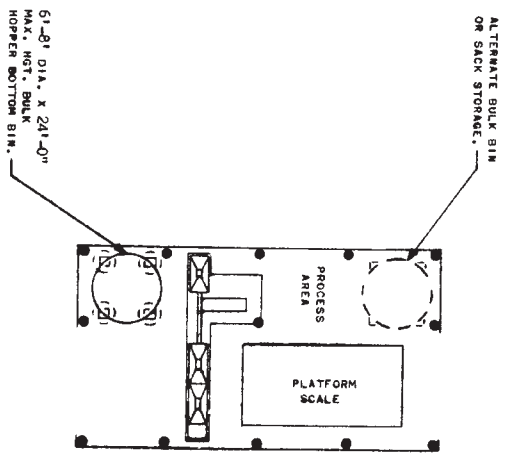
61'-8" DIA. X 241'-0"
MAX. HGT. BULK
HOPPER BOTTOM BIN.

ALTERNATE BULK BIN
ON SACK STORAGE.



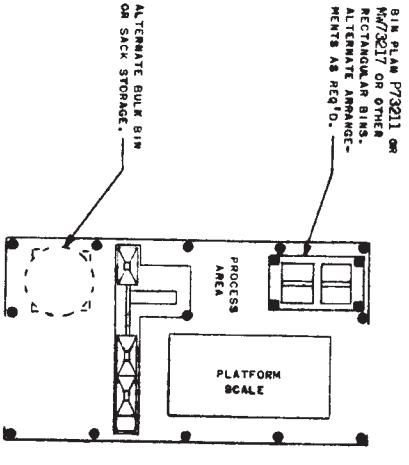
BIN PLAN P73211 OR
N473217 OR OTHER
RECTANGULAR BINS.
ALTERNATE ARRANGEMENTS
AS REQ'D.

ALTERNATE BULK BIN
ON SACK STORAGE.



61'-8" DIA. X 241'-0"
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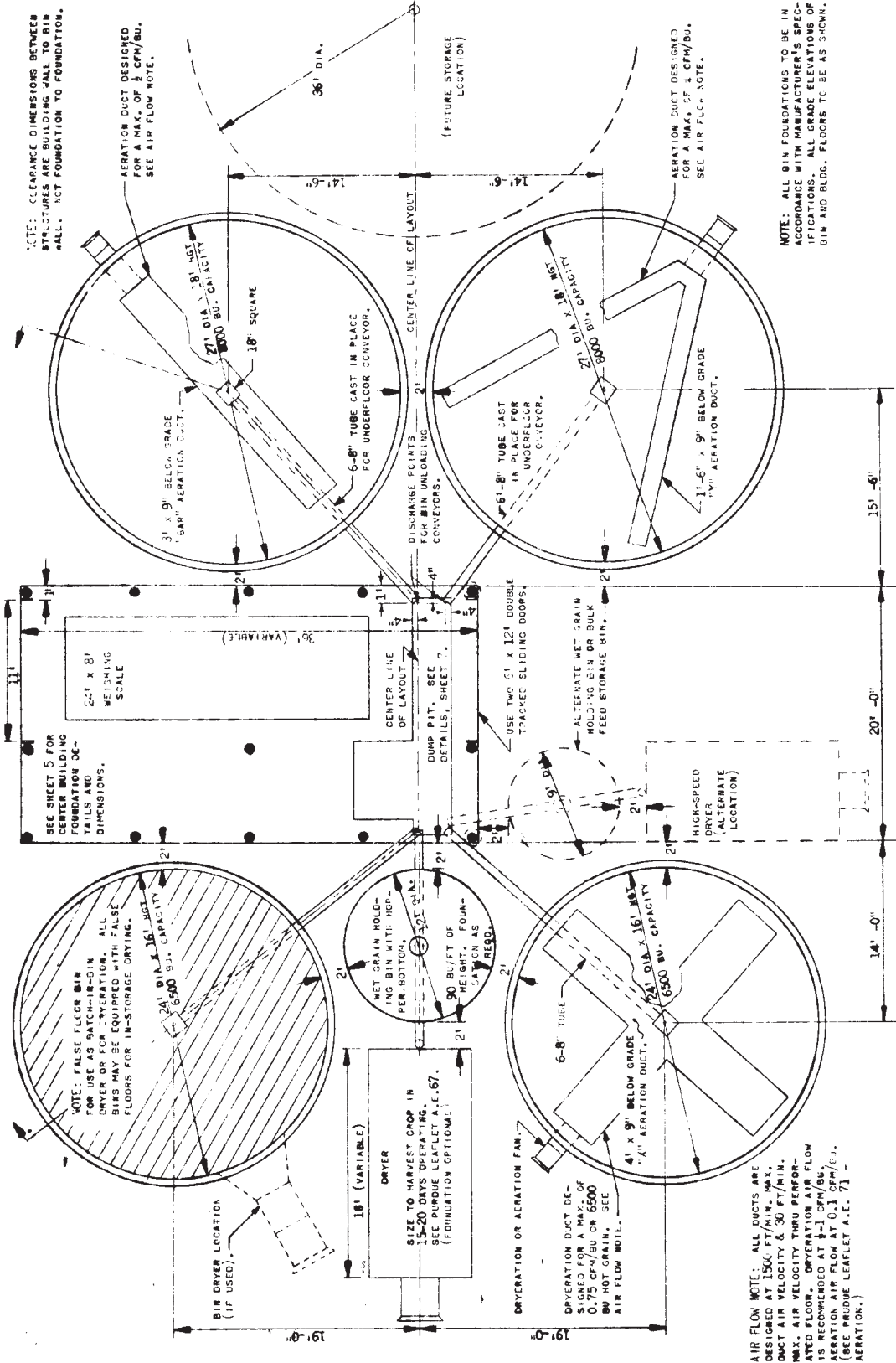
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BIN PLAN P73211 OR
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RECTANGULAR BINS.
ALTERNATE ARRANGEMENTS
AS REQ'D.

ALTERNATE BULK BIN
ON SACK STORAGE.

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



NOTE: FALSE FLOOR BIN FOR USE AS BATCH-18-BIN DRYER OR FOR AERATION. ALL BINS MAY BE EQUIPPED WITH FALSE FLOORS FOR 18-STORAGE DRYING.

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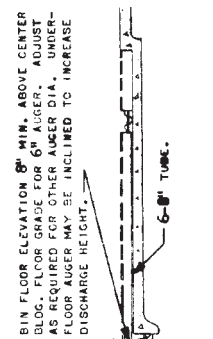
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AIR FLOW NOTE: ALL DUCTS ARE DESIGNED AT 1500 FT/MIN. MAX. DUCT AIR VELOCITY & 30 FT/MIN. MAX. AIR VELOCITY THRU PERFORATED FLOOR. OPERATIONAL AIR FLOW IS RECOMMENDED AT 1-1 CFM/BU. AERATION AIR FLOW AT 0.1 CFM/BU. (SEE PRUDDE LEAFLET A.E. 71 - AERATION.)

NOTE: ALL BIN FOUNDATIONS TO BE IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS. ALL GRADE ELEVATIONS OF BIN AND BLOC. FLOORS TO BE AS SHOWN.



PLAN VIEW 30,000 BU. FACILITY

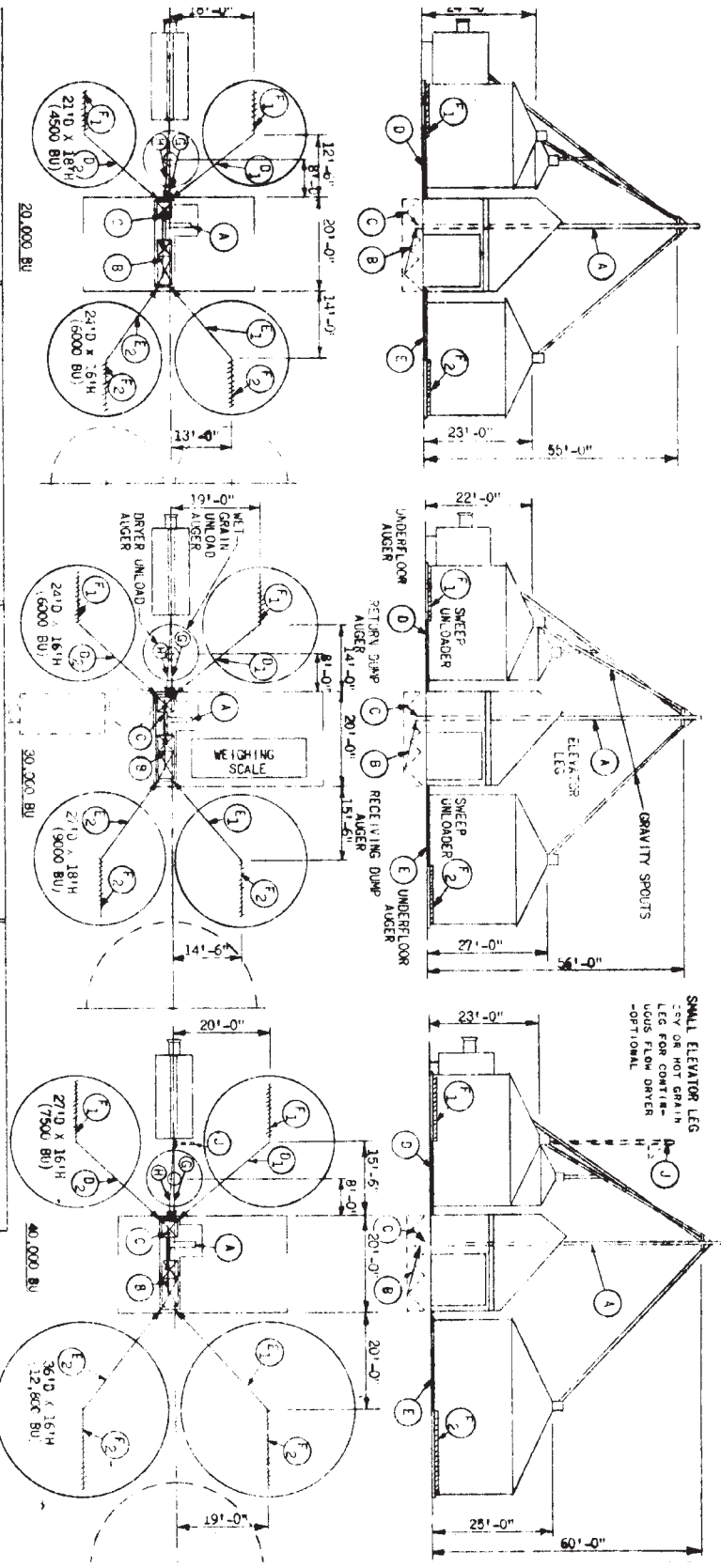
SECTION A-A

MIDWEST PLAN SERVICE
 Cooperative Extension Work in Agriculture and Home Economics
 of North Central Region - USDA Cooperating

GRAIN-FEED HANDLING CENTER
 WORK TOWER ACROSS DRIVE, OFFSET TABLE
 SHEET 2 of 8 Sheets
 MIDWEST PLAN NO. 73294
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BIN FLOOR ELEVATION 8" MIN. ABOVE CENTER BLOC. FLOOR GRADE FOR 6" AUGER. ADJUST AS REQUIRED FOR OTHER AUGER DIA. UNDER-FLOOR AUGER MAY BE INCLINED TO INCREASE DISCHARGE HEIGHT.

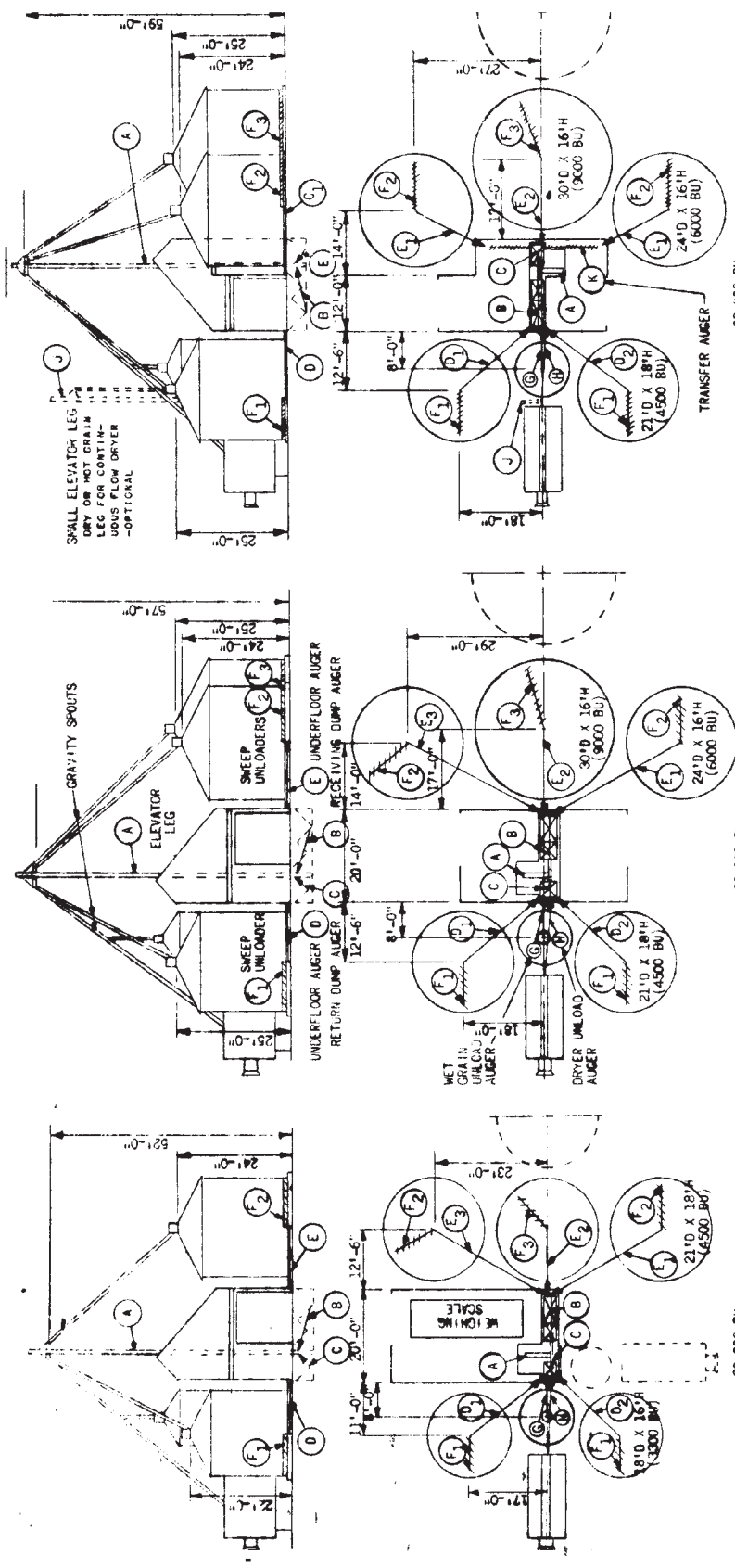
LEG & DUMP PIT. SEE SHEET 7 FOR DETAILS.



APPROXIMATE TOTAL CAPACITY -- ALTERNATIVE HANDLING RATES	20,000 BU			30,000 BU			40,000 BU								
	CODE	LENGTH OR HEIGHT	SIZE	ESTIMATED CAPACITY BU/HR	ESTIMATED HP	CODE	LENGTH OR HEIGHT	SIZE	ESTIMATED CAPACITY BU/HR	ESTIMATED HP	CODE	LENGTH OR HEIGHT	SIZE	ESTIMATED CAPACITY BU/HR	ESTIMATED HP
GRAIN HANDLING EQUIPMENT	A	55'	7.5"	1000-1200	2-3	A	36'	8.5" or 9.5"	1500-2000	3-5	A	60'	9x6"	2500-3000	7.5
	B	11'	8"	1200(WET)	2-3	B	11'	10"	1500-2000	3-5	B	11'	12" or 12"	2500-3000	7.5
	C	4'	8"	1200(WET)	1	C	4'	10"	1500	1	C	4'	12"	2500	5
	D	23'	6"	1000-1200	2	D	24'	6"	1500	3	D	26'	8"	2500	5
	E	21'	6"	1000-1200	2	E	22'	6"	1500	3	E	24'	8"	2500	5
	F	20'	6"	1000-1200	2	F	22'	6"	1500	3	F	30'	8"	2500	5
	G	18'	6"	1000-1200	2	G	20'	6"	1500	3	G	26'	8"	2500	5
	H	10'	6"	1000-1200	2	H	13'	6"	1000-1200	1	H	13'	6"	1000-1200	1.5
	I	10'	6"	1000	1	I	13'	6"	1000-1200	1.5	I	17'	6"	1000-1200	2
	J	11 1/2'	6"	1000	1.5	J	13'	6"	1000-1200	2	J	17'	6"	1000-1200	2
ELEVATOR LEG	A	55'	7.5"	1000-1200	2-3	A	36'	8.5" or 9.5"	1500-2000	3-5	A	60'	9x6"	2500-3000	7.5
	B	11'	8"	1200(WET)	2-3	B	11'	10"	1500-2000	3-5	B	11'	12" or 12"	2500-3000	7.5
	C	4'	8"	1200(WET)	1	C	4'	10"	1500	1	C	4'	12"	2500	5
	D	23'	6"	1000-1200	2	D	24'	6"	1500	3	D	26'	8"	2500	5
RECEIVING DUMP AUGER	B	11'	8"	1200(WET)	2-3	B	11'	10"	1500-2000	3-5	B	11'	12" or 12"	2500-3000	7.5
	C	4'	8"	1200(WET)	1	C	4'	10"	1500	1	C	4'	12"	2500	5
	D	23'	6"	1000-1200	2	D	24'	6"	1500	3	D	26'	8"	2500	5
	E	21'	6"	1000-1200	2	E	22'	6"	1500	3	E	24'	8"	2500	5
UNDERFLOOR AUGER	E	21'	6"	1000-1200	2	E	22'	6"	1500	3	E	24'	8"	2500	5
	F	20'	6"	1000-1200	2	F	22'	6"	1500	3	F	30'	8"	2500	5
	G	18'	6"	1000-1200	2	G	20'	6"	1500	3	G	26'	8"	2500	5
	H	10'	6"	1000-1200	2	H	13'	6"	1000-1200	1	H	13'	6"	1000-1200	1.5
SHEEP UNLOADERS	F	20'	6"	1000-1200	2	F	22'	6"	1500	3	F	30'	8"	2500	5
	G	18'	6"	1000-1200	2	G	20'	6"	1500	3	G	26'	8"	2500	5
	H	10'	6"	1000-1200	2	H	13'	6"	1000-1200	1	H	13'	6"	1000-1200	1.5
	I	10'	6"	1000	1	I	13'	6"	1000-1200	1.5	I	17'	6"	1000-1200	2
WET UNLOADERS	G	18'	6"	1000-1200	2	G	20'	6"	1500	3	G	26'	8"	2500	5
	H	10'	6"	1000-1200	2	H	13'	6"	1000-1200	1	H	13'	6"	1000-1200	1.5
	I	10'	6"	1000	1	I	13'	6"	1000-1200	1.5	I	17'	6"	1000-1200	2
	J	11 1/2'	6"	1000	1.5	J	13'	6"	1000-1200	2	J	17'	6"	1000-1200	2
SMALL ELEVATOR LEG (FOR CONT. FLOW DRYER)	J	45'	6"	1000-1200	1.5-2	J	44'	6" or 8"	1500-2000	2-3	J	48'	4x6"	500-700	1

1. HANDLING EQUIPMENT LIST ILLUSTRATED ARE APPROXIMATE CAPACITIES AND NOT LIMITED TO ANY SPECIFIC FACILITY.
2. AUGER SQUARE EXPOSURE MATCHED TO FACILITY - EXCESSIVE EXPOSURE AUGER DIA. CAUSING EXCESSIVE WEAR, AUSTIN AND EXCESSIVE INCREASES WASTEFULNESS BEHIND AUGER.
3. SPECT UNLOADERS CAPACITIES GIVEN FOR CONITS WITH GRAIN SERVICES BEHIND AUGER.
4. THAT SQUARE EXPOSURES CAN BE SUBSTITUTED FOR SQUARE EXPOSURES ON EITHER SIDE OF LAYOUT.
5. TESTED SINCE SHOWS FOR FUTURE EXPANSION AND INTERCHANGEABLE FOR ALL LAYOUTS.

MIDWEST PLAN SERVICE
 Cooperative Extension on Work in
 Agriculture and Home Economics
 and Agricultural Experiment Stations
 of North Central Region - USDA Cooperating
 GAINFED HANDLING CENTER
 WORK TOWER ACROSS DRIVE, OFFSET CABLE
 SHEET 3 OF 8 SHEETS
 MIDWEST PLAN NO. 73294
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APPROXIMATE TOTAL CAPACITY-- ALTERNATIVE HANDLING RATES--	20,000 BU			30,000 BU			30,000 BU		
	CODE	LENGTH OR HEIGHT	ESTIMATED CAPACITY BU/HR	CODE	LENGTH OR HEIGHT	ESTIMATED CAPACITY BU/HR	CODE	LENGTH OR HEIGHT	ESTIMATED CAPACITY BU/HR
ELEVATOR LEG	A	52'	1000-1200	A	57'	2500-3000	A	59'	2500-3000
GRAVITY SPOUTS									
RECEIVING DUMP AUGER	B	11'	1200(WET)	B	11'	3-5	B	11'	3-5
RETURN DUMP AUGER	C	4'	1200(WET)	C	4'	1 1/2	C	4'	1 1/2
UNDERFLOOR AUGER	D1	20'	1000-1200	D1	22'	2500	D1	22'	2500
UNDERFLOOR AUGER	D2	22'	1000-1200	D2	24'	2500	D2	24'	2500
UNDERFLOOR AUGER	E1	29'	1000-1200	E1	31'	2500	E1	16'	2500
UNDERFLOOR AUGER	E2	14'	1000-1200	E2	19'	2500	E2	20'	2500
UNDERFLOOR AUGER	E3	27'	1000-1200	E3	29'	2500	E2	14'	2500
SWEET UNLOADERS	F1	84'	3/4	F1	10'	2500	(K)	14'	2500
SWEET UNLOADERS	F2	10'	1000	F1	10'	1000-1200	F1	10'	1000-1200
SWEET UNLOADERS	F3	10'	1000	F2	11 1/2'	1000-1200	F2	11 1/2'	1000-1200
NET GRAIN UNLOAD AUGER	G	8'	1200(WET)	F3	144'	1000-1200	F3	144'	1000-1200
DRYER UNLOAD AUGER	H	14'	1000-1200	G	8'	1500-2000	G	10'	1500-2000
SMALL ELEVATOR LEG (FOR CONT. FLOW UNLOAD)	J	34'	1000-1200	H	14'	2500	H	18'	2500
				J	38'	(SEE RIGHT)	J	45'	500-700

1. HANDLING FLOW RATES ILLUSTRATED ARE WORKABLE COMBINATIONS AND NOT LIMITED TO EACH SPECIFIC FACILITY.

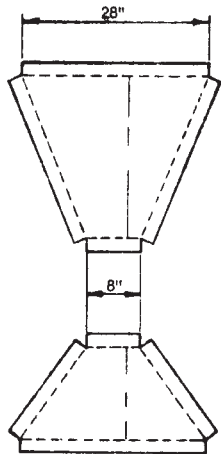
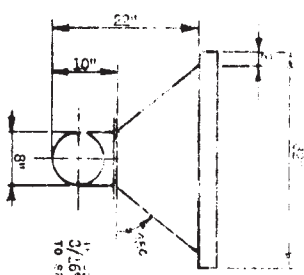
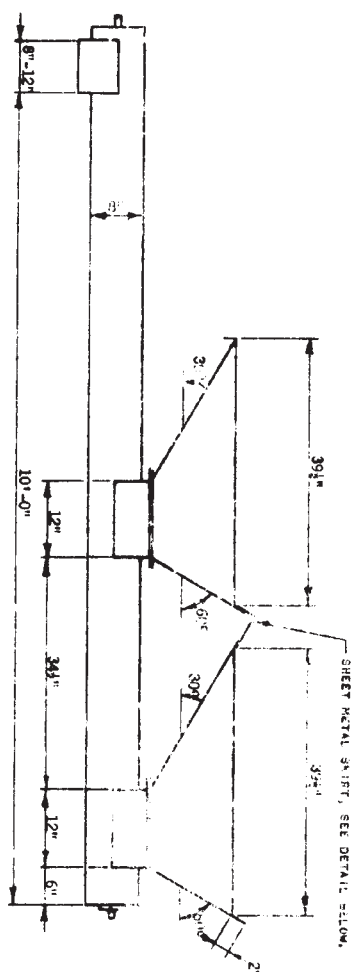
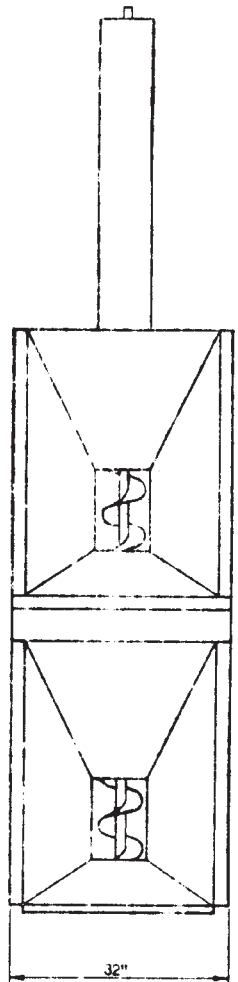
2. AUGER INTAKE EXPOSURE MATCHED TO CAPACITY--MINIMUM EXPOSURE = AUGER DIA. MAXIMUM EXPOSURE 2 1/2'. ADDITIONAL EXPOSURE INCREASES HORSEPOWER, NOT CAPACITY.

3. SWEET UNLOADER CAPACITIES GIVEN FOR UNITS WITH GRAIN SHIELDS BEHIND AUGER.

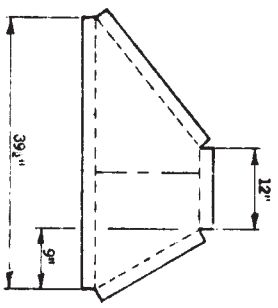
4. FLAT STORAGE STRUCTURES CAN BE SUBSTITUTED FOR BIN ON RIGHT SIDE OF LAYOUT. DOTTED LINES SHOWN FOR FUTURE EXPANSION ARE INTERCHANGEABLE FOR ALL LAYOUTS.

MIDWEST PLAN SERVICE
 Cooperative Extension Work
 Agricultural Experiment Stations
 and Agricultural Experiment Stations
 of North Central Region - USDA Cooperating

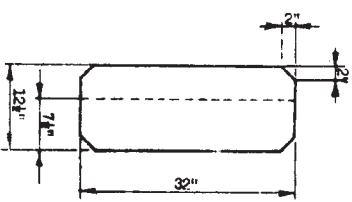
GRAIN-FEED HANDLING 651-775
 WORK TOWER BESIDE DRIVE, OFFSET GABLE
 MIDWEST PLAN NO. 73294
 Sheet 4 of 8 Sheets
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HOPPER END PANELS



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.

MIDWEST PLAN SERVICE Cooperative Extension Work in Agriculture and Home Economics and Agricultural Experiment Stations of North Central Region - USDA Cooperating
AUGER DUMP PIT ACCESSORIES
MIDWEST PLAN NO. 73295
Sheet 8 of 14 Sheets

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