

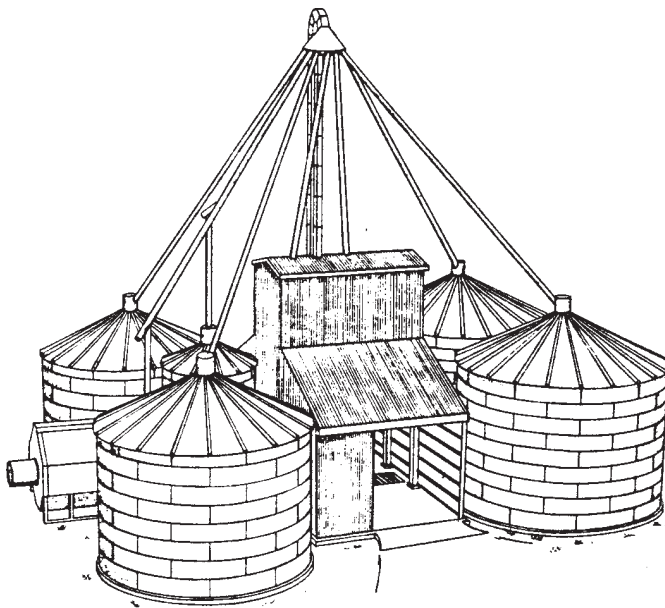
MWPS-73292

Grain-Feed Handling Center, Work Tower Across Drive, Equal Sheds

The bin arrangement and high temperature dryer position permit a larger wet grain holding area than does MWPS-73293. Good layout for a continuous flow drying system with two vertical legs. The divided work area lets the overhead bins feed two pieces of equipment, one loaded on each side of the leg.

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.



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Cooperative Extension Work in Agriculture and Home Economics and Agricultural Experiment Stations of North Central Region - USDA Cooperating
Grain-Feed Handling Center
Title Page
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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.**

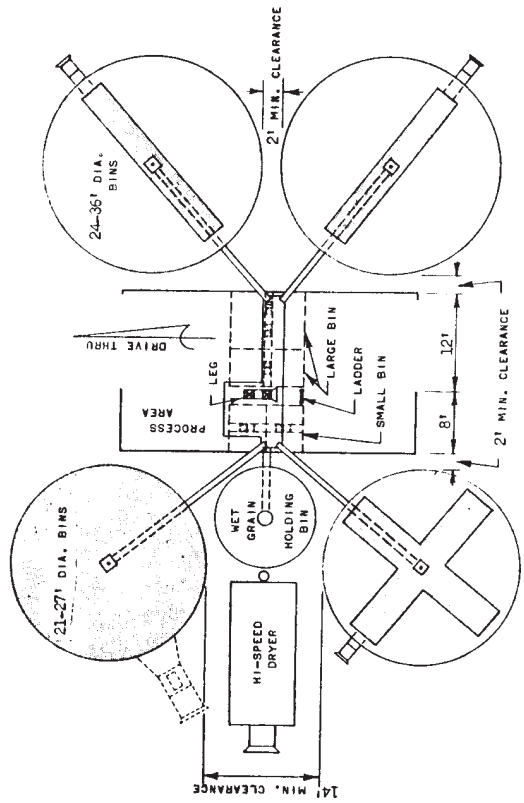
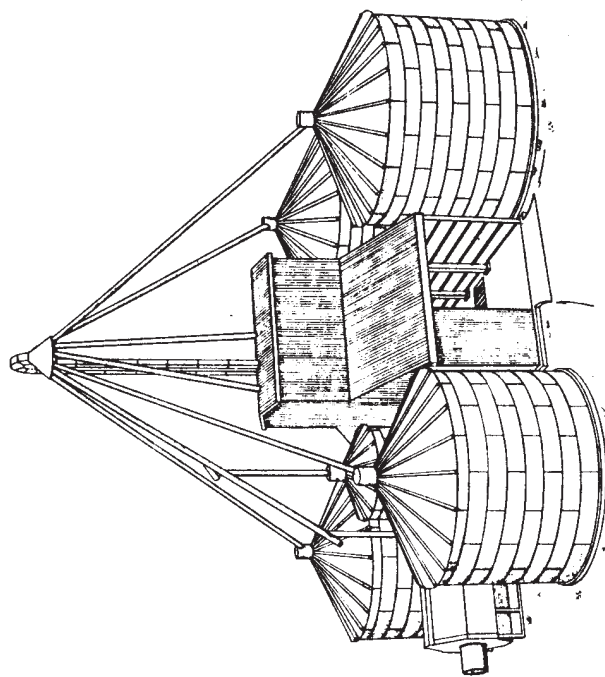
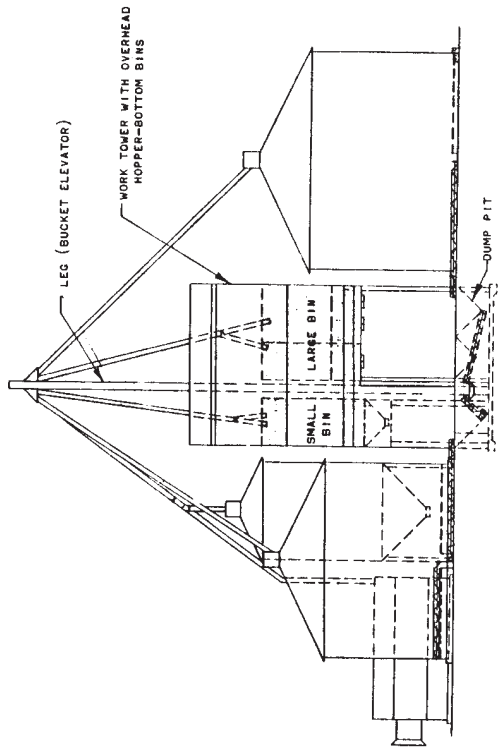


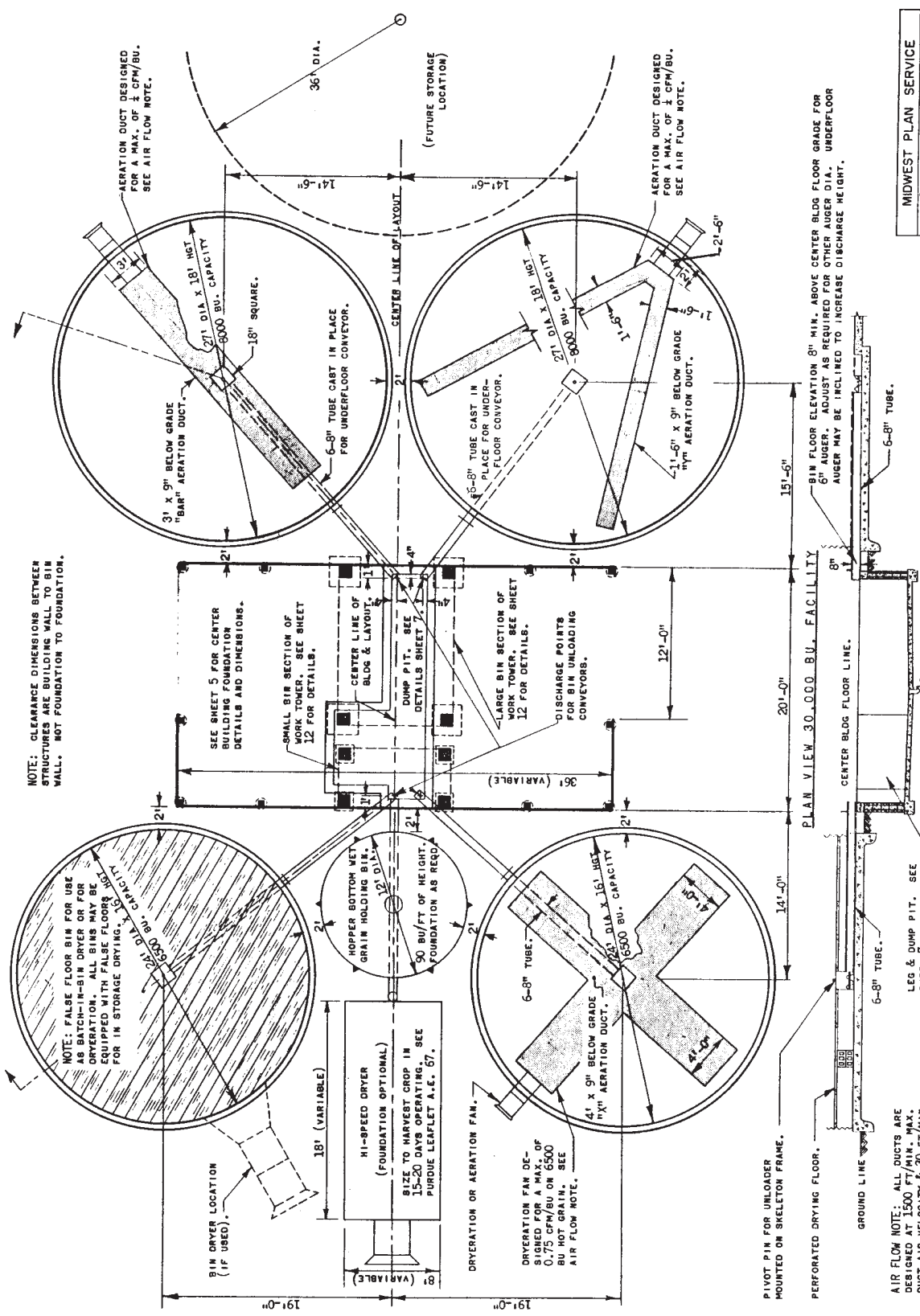
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This plan was developed and prepared by Bruce A. McKinnis and E. W. Merzner, Extension Agricultural Engineers, and W. H. Pritchard, Extension Professor, Agricultural Engineering Department, Purdue University, Lafayette, Indiana.
It was originally published by Purdue University as plan number P73292 and is reprinted with approval.

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GRAIN-FEED HANDLING CENTER WORK TOWER ACROSS DRIVE, EQUAL SHEDS Sheet 1 of 14 Sheets MIDWEST PLAN NO. 73292

LAYOUT & MECHANIZATION SCHEMATIC



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

NOTE: FALSE FLOOR BIN FOR USE AS BATCH-IN-BIN DRYER OR FOR DRYERATION. ALL BINS MAY BE EQUIPPED WITH FALSE FLOOR FOR IN STORAGE DRYING. 27' DIA. X 18' HGT. 9000 BU. CAPACITY.

HI-SPEED DRYER (FOUNDATION OPTIONAL) SIZE TO HARVEST CROP IN 15-20 DAYS OPERATING. SEE PURDUE LEAFLET A.E. 67.

DRYERATION OR AERATION FAN. DRYERATION FAN DESIGNED FOR A MAX. OF 0.75 CFM/BU ON 6500 BU HOT GRAIN. SEE AIR FLOW NOTE.

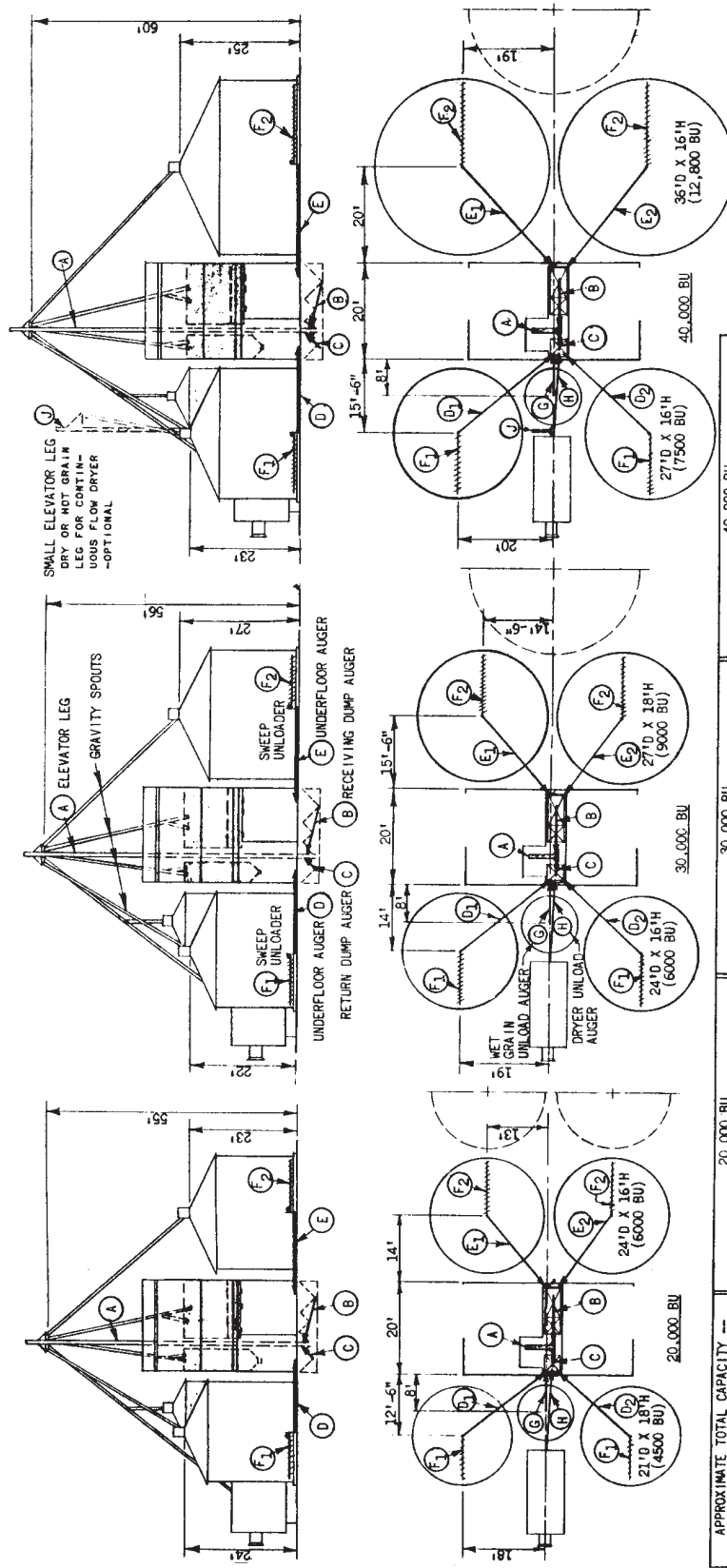
AIR FLOW NOTE: ALL DUCTS ARE DESIGNED AT 1500 FT/MIN. MAX. DUCT AIR VELOCITY & 30 FT/MIN. MAX. AIR VELOCITY THRU PERFORATED FLOOR. DRYERATION AIR FLOW IS RECOMMENDED AT 1/2-1 CFM/BU. AERATION AIR FLOW AT 0.1 CFM/BU. (SEE PURDUE LEAFLET A. E. 71 - AERATION.)

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

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

SECTION A-A

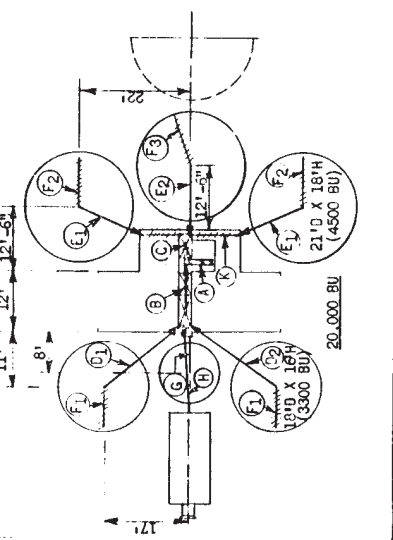
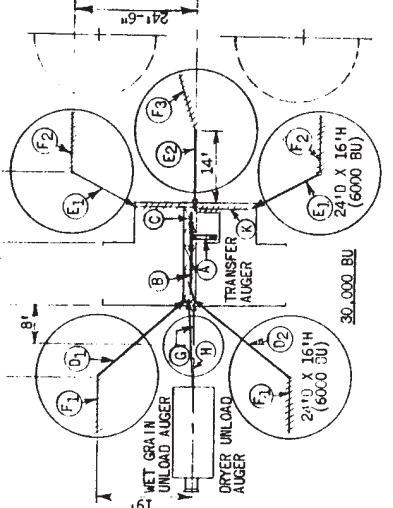
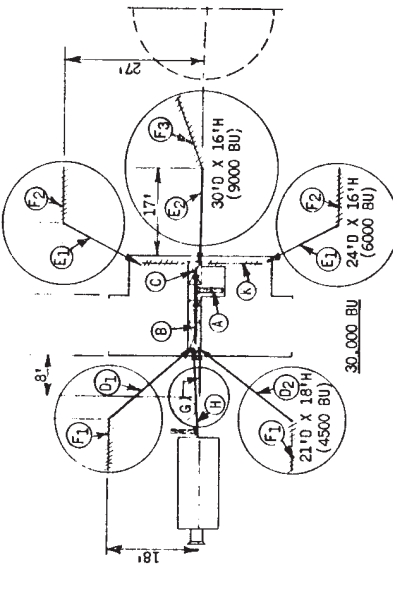
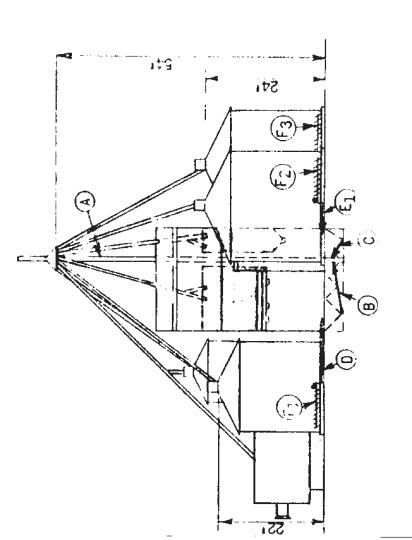
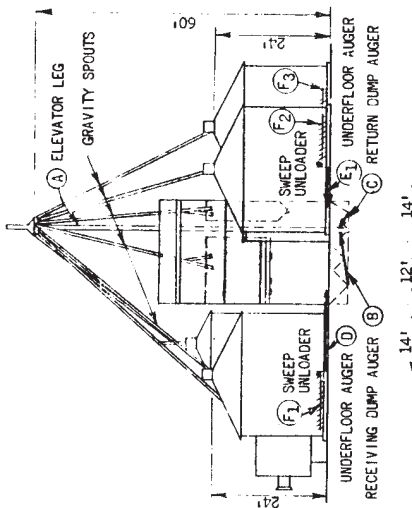
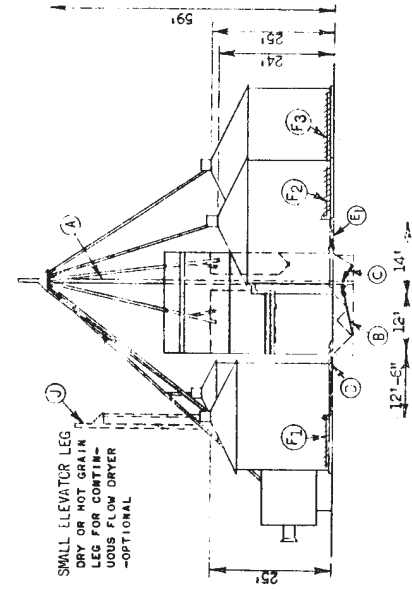
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GRAIN-FEED HANDLING CENTER WORK TOWER ACCESS DRIVE, EQUAL SHEDS
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GRAIN HANDLING EQUIPMENT	APPROXIMATE TOTAL CAPACITY - ALTERNATIVE HANDLING RATES -			20,000 BU			30,000 BU			40,000 BU		
	CODE	LENGTH OR HEIGHT	ESTIMATED CAPACITY BU/HR	ESTIMATED CAPACITY BU/HR	LENGTH OR HEIGHT	ESTIMATED CAPACITY BU/HR	LENGTH OR HEIGHT	ESTIMATED CAPACITY BU/HR	LENGTH OR HEIGHT	ESTIMATED CAPACITY BU/HR	LENGTH OR HEIGHT	ESTIMATED CAPACITY BU/HR
ELEVATOR LEG	A	55'	7x5"	1000-1200	56'	8x5 or 9x5"	1500-2000	60'	9x6"	2500-3000		
GRAVITY SPOUTS	B	8"	6"	2-3	B	10"	3-5	B	8"	7		
RECEIVING DUMP AUGER	C	4'	8"	2-3	C	10"	3-5	C	11'	3-5		
RETURN DUMP AUGER	D1	23'	6"	1	D1	24'	1500	D1	26'	1 1/2		
UNDERFLOOR AUGER	D2	21'	6"	2	D2	22'	1500	D2	24'	5		
UNDERFLOOR AUGER	E1	20'	6"	2	E1	22'	1500	E1	24'	5		
UNDERFLOOR AUGER	E2	18'	6"	2	E2	20'	1500	E2	20'	5		
SWEET UNLOADERS	F1	10'	4x6"	1000	F1	11 1/2'	1000-1200	F1	13'	1 1/2		
SWEET UNLOADERS	F2	11 1/2'	4x6"	1000	F2	13'	1000-1200	F2	17 1/2'	2		
WET GRAIN UNLOAD AUGER	G	10'	8"	1 1/2	G	10'	1500-2000 (WET)	G	10'	2		
DRYER UNLOAD AUGER	H	18'	6"	2-3	H	18'	1500-2000 (WET)	H	18'	3		
SMALL ELEVATOR LEG (FOR CONTINUOUS FLOW DRYER)	J	45'		(SEE RIGHT)	J	44'	2000	J	48'	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 1/2'. ADDITIONAL EXPOSURE INCREASES HORSEPOWER NOT CAPACITY.
- SWEET 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 INTERCHANGEABLE FOR ALL LAYOUTS.

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 Cooperative Extension Work in
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 GRAIN-FEED HANDLING CENTER
 WORK TOWER ACROSS DRIVE, EQUAL SHEDS
 Sheet 3 of 14 Sheets
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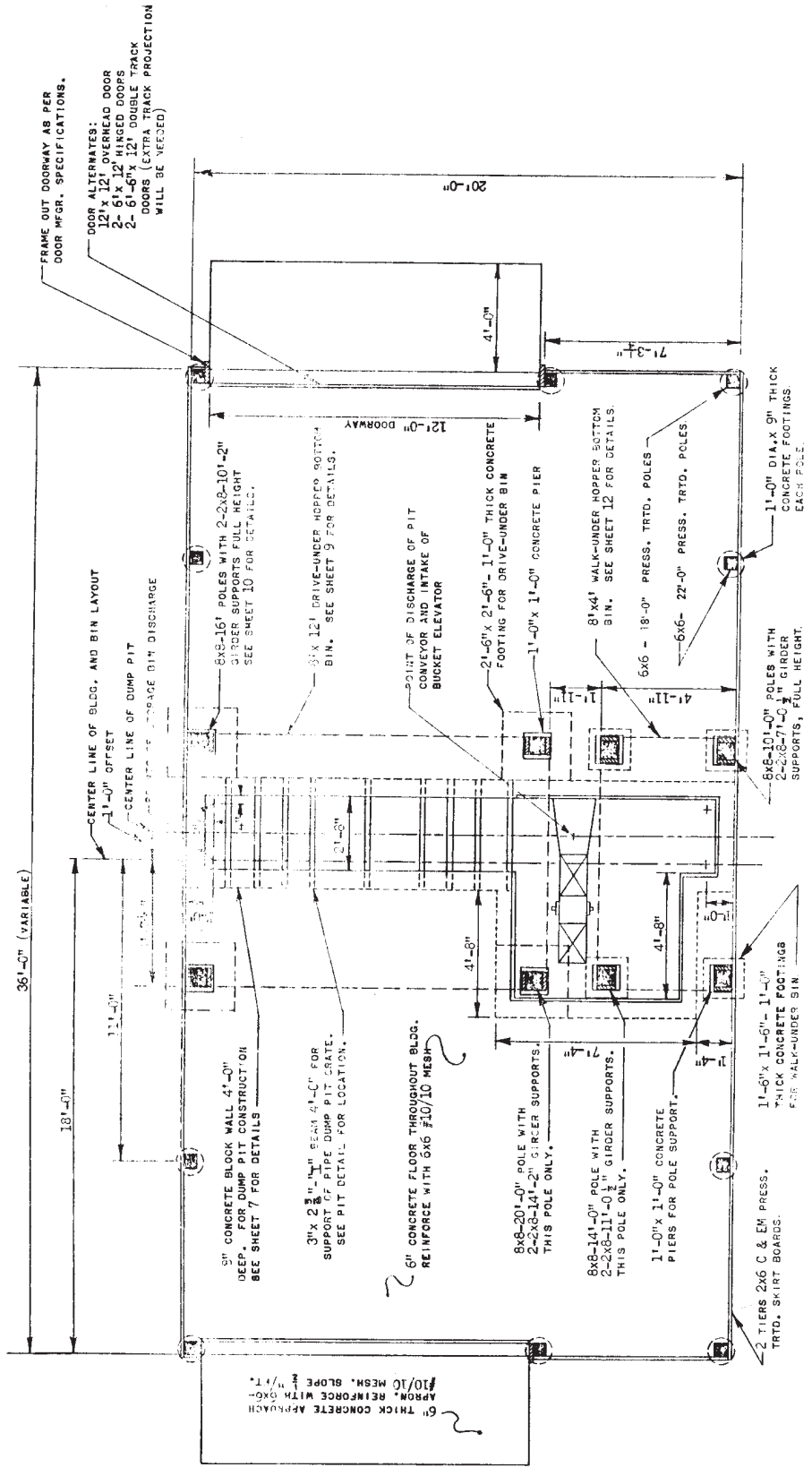


APPROXIMATE TOTAL CAPACITY -- ALTERNATIVE HANDLING RATES --	20,000 BU			30,000 BU			30,000 BU		
	CODE	LENGTH OR HEIGHT	ESTIMATED CAPACITY BU/HR	CODE	LENGTH OR HEIGHT	ESTIMATED CAPACITY BU/HR	CODE	LENGTH OR HEIGHT	ESTIMATED CAPACITY BU/HR
GRAIN HANDLING EQUIPMENT									
ELEVATOR LEG	A	54'	7x5"	A	60'	8x5 9/8"	A	59'	9x5"
GRAVITY SPOUTS	B	11'	8"	B	11'	10"	B	11'	12"
RECEIVING DUMP AUGER	C	4'	6"	C	4'	10"	C	4'	14"
RETURN DUMP AUGER	D1	20'	6"	D1	26'	6"	D1	22'	8"
UNDERFLOOR AUGERS	D2	22'	6"	E1	14'	6"	D2	24'	8"
UNDERFLOOR AUGERS	E1	14'	6"	E2	16'	6"	E1	16'	8"
UNDERFLOOR AUGERS	E2	16'	6"	F1	11 1/2'	6"	E2	20'	8"
SWEET UNLOADERS	F1	8 1/2'	4"	F1	11 1/2'	6"	F1	10'	6"
SWEET UNLOADERS	F2	10'	6"	F2	11 1/2'	6"	F2	11 1/2'	6"
SWEET UNLOADERS	F3	10'	6"	F3	11 1/2'	6"	F3	14 1/2'	6"
WET GRAIN UNLOAD AUGER	H	18'	6"	H	18'	6"	G	10'	12"
TRANSFER AUGER	K	10'	6"x10"	K	12'	6"x10"	H	18'	8"
SMALL ELEVATOR LEG (FOR CONTINUOUS FLOW DRYER)	J	42'	(SEE RIGHT)	J	46'	(SEE RIGHT)	J	45'	4x6"

- 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 21". ADDITIONAL EXPOSURE INCREASES HORSEPOWER, NOT CAPACITY.
- SWEET UNLOADER CAPACITIES GIVEN FOR UNITS WITH GRAIN SHIELDS BEHIND AUGER.
- FLAT STORAGE STRUCTURES CAN BE SUBSTITUTED FOR DIN ON RIGHT SIDE OF LAYOUT. DOTTED LINES SHOWN FOR FUTURE EXPANSION ARE INTERCHANGEABLE FOR ALL LAYOUTS.

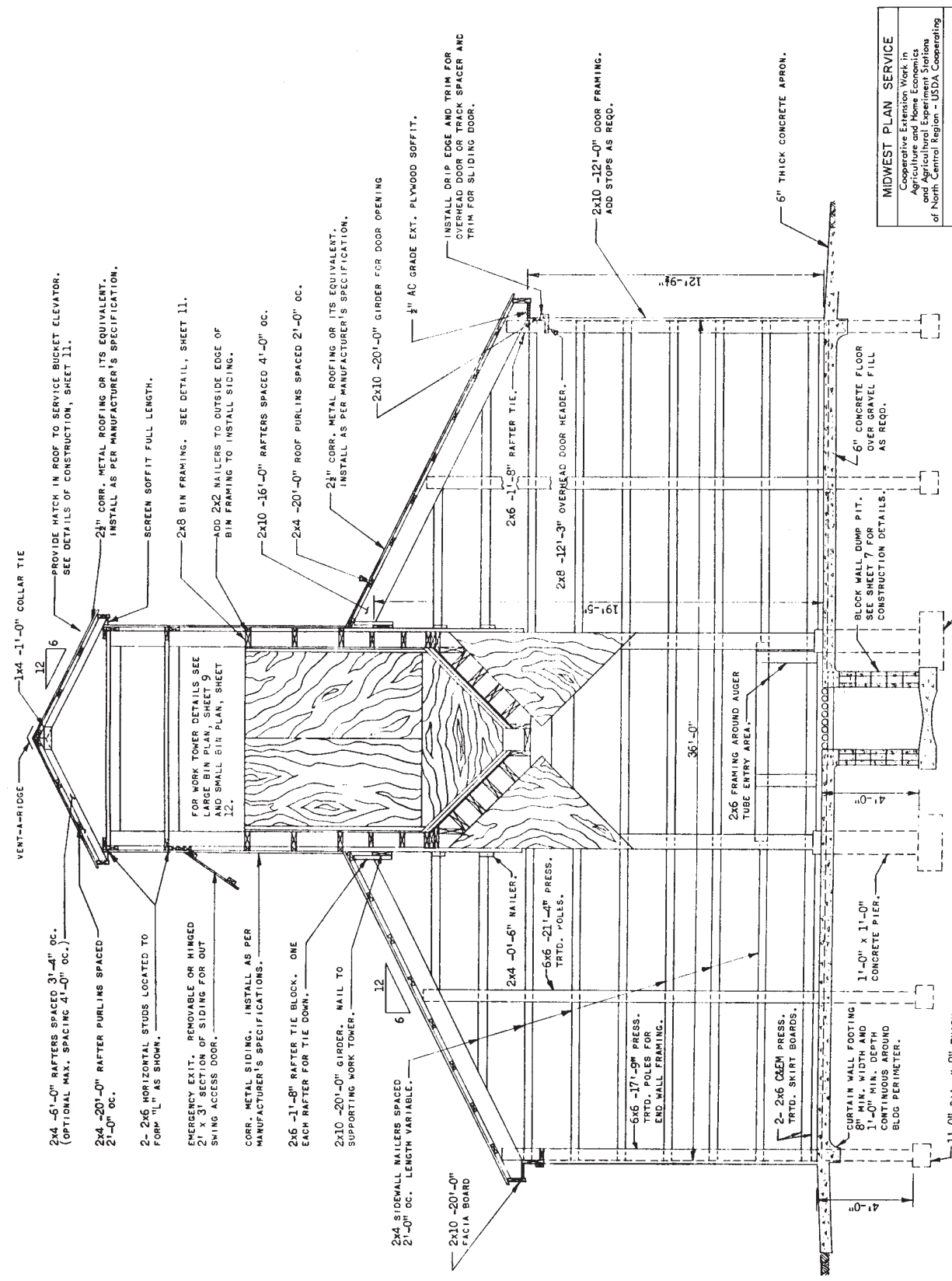
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GRAIN-FEED HANDLING CENTER
 WORK TOWER ACROSS DRIVE, EQUAL SHEDS
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 SHEET 4 OF 15 SHEETS



FLOOR FOUNDATION PLAN
 SCALE 3/8" = 1'-0"

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GRAIN-FEED HANDLING CENTER WORK TOWER ACROSS DRIVE, EQUAL SHEDS
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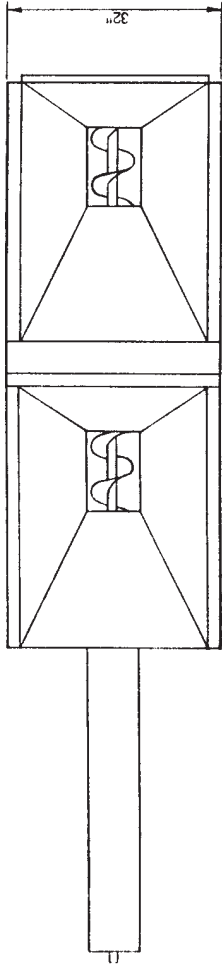
VENT-A-RIDGE
 1x4 -1'-0" COLLAR TIE
 PROVIDE MATCH IN ROOF TO SERVICE BUCKET ELEVATOR. SEE DETAILS OF CONSTRUCTION, SHEET 11.
 2x4 -6'-0" RAFTERS SPACED 3'-4" OC. (OPTIONAL MAX. SPACING 4'-0" OC.)
 2x4 -20'-0" RAFTER PURLINS SPACED 2'-0" OC.
 2- 2x6 HORIZONTAL STUDS LOCATED TO FORM "I" AS SHOWN.
 EMERGENCY EXIT. REMOVABLE OR HINGED 21' X 31' SECTION OF SIDING FOR OUT SWING ACCESS DOOR.
 CORR. METAL SIDING. INSTALL AS PER MANUFACTURER'S SPECIFICATIONS.
 2x6 -1'-8" RAFTER TIE BLOCK. ONE EACH RAFTER FOR TIE DOWN.
 2x10 -20'-0" GIRDER. NAIL TO SUPPORTING WORK TONER.
 2x4 SIDING WALL MAILERS SPACED 2'-0" OC. LENGTH VARIABLE.
 2x10 -20'-0" FACIA BOARD
 2x4 -0'-6" MAILER.
 6x6 -21'-4" PRESS. TRTD. POLES.
 6x6 -17'-9" PRESS. TRTD. POLES FOR END WALL FRAMING.
 2- 2x6 O&EM PRESS. TRTD. SKIRT BOARDS.
 CURTAIN WALL FOOTING 8" MIN. WIDTH AND 1'-0" MIN. DEPTH CONTINUOUS AROUND BLDG PERIMETER.
 1'-0" DIA. X 9" THICK CONCRETE FOOTINGS.

FOR WORK TOWER DETAILS SEE LARGE BIN PLAN, SHEET 9 AND SMALL BIN PLAN, SHEET 12.
 2x8 BIM FRAMING. SEE DETAIL, SHEET 11.
 ADD 2x2 NAILERS TO OUTSIDE EDGE OF BIM FRAMING TO INSTALL SIDING.
 2x10 -16'-0" RAFTERS SPACED 4'-0" OC.
 2x4 -20'-0" ROOF PURLINS SPACED 2'-0" OC.
 2x10 CORR. METAL ROOFING OR ITS EQUIVALENT. INSTALL AS PER MANUFACTURER'S SPECIFICATION.
 2x10 -20'-0" GIRDER FOR DOOR OPENING
 1/2" AC GRADE EXT. PLYWOOD SOFFIT.
 INSTALL DRIP EDGE AND TRIM FOR OVERHEAD DOOR OR TRACK SPACER AND TRIM FOR SLIDING DOOR.
 2x6 -1'-8" RAFTER TIE.
 2x8 -12'-3" OVERHEAD DOOR HEADER.
 2x10 -12'-0" DOOR FRAMING. ADD STOPS AS REQD.
 6" THICK CONCRETE APPROX.

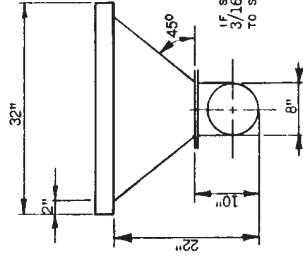
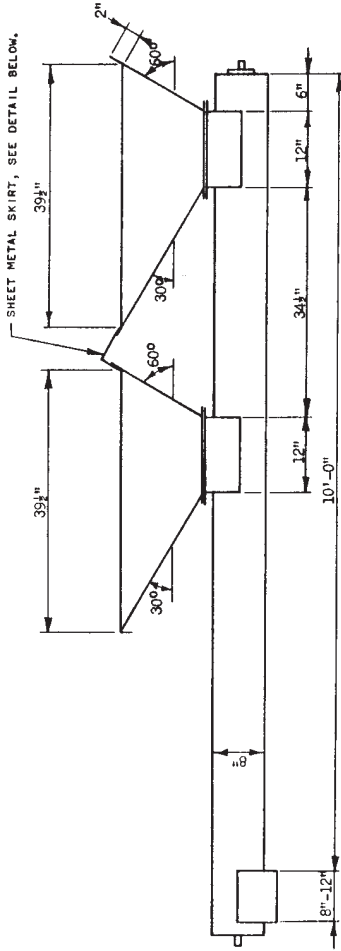
12'-0"
 19'-5"
 12'-9"
 36'-0"
 2x6 FRAMING AROUND AUGER TUBE ENTRY AREA.
 6" CONCRETE FLOOR OVER GRAVEL FILL AS REQD.
 BLOCK WALL DUMP PIT. SEE SHEET 7 FOR CONSTRUCTION DETAILS.
 21'-6" x 21'-6" - 1'-0" THICK CONCRETE FOOTINGS.

SECTION THRU DRIVEWAY

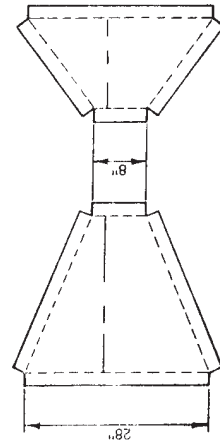
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GRAIN-FEED HANDLING CENTER WORK TOWER ACROSS DRIVE, EQUAL SHEDS	Sheet 6 of 14 Sheets
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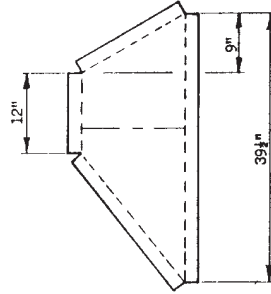
SHEET METAL SKIRT, SEE DETAIL BELOW.



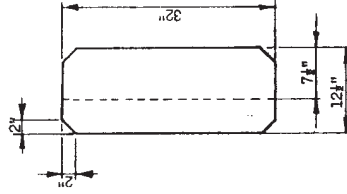
IF SLIDE IS DESIRED, USE 3/16" X 3/4" BAR STOCK TO SPACE EACH SIDE.



HOPPER END PANELS



HOPPER SIDE PANELS

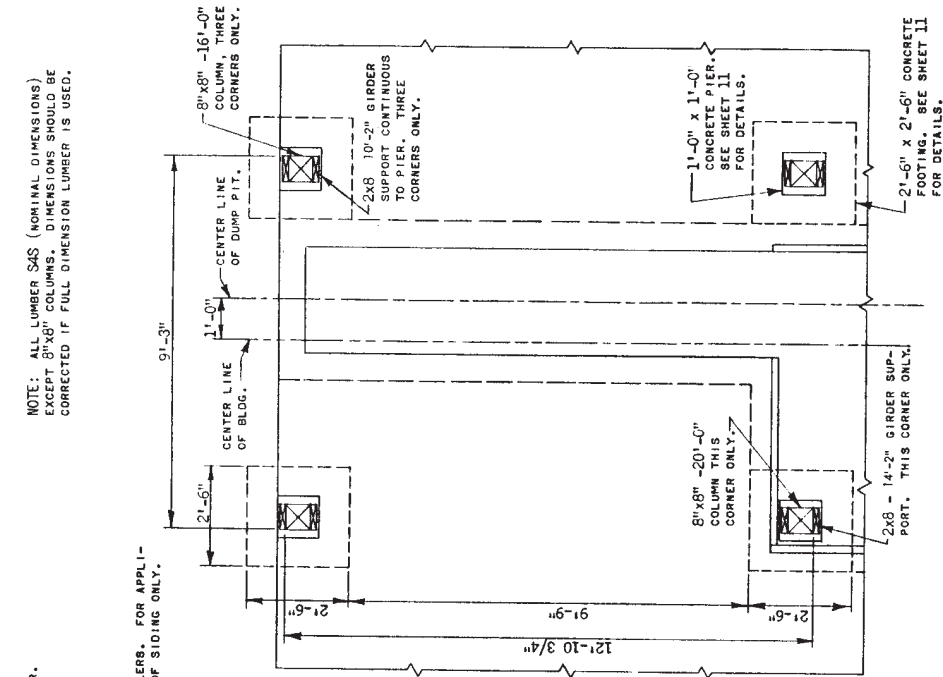


SKIRT BETWEEN HOPPERS

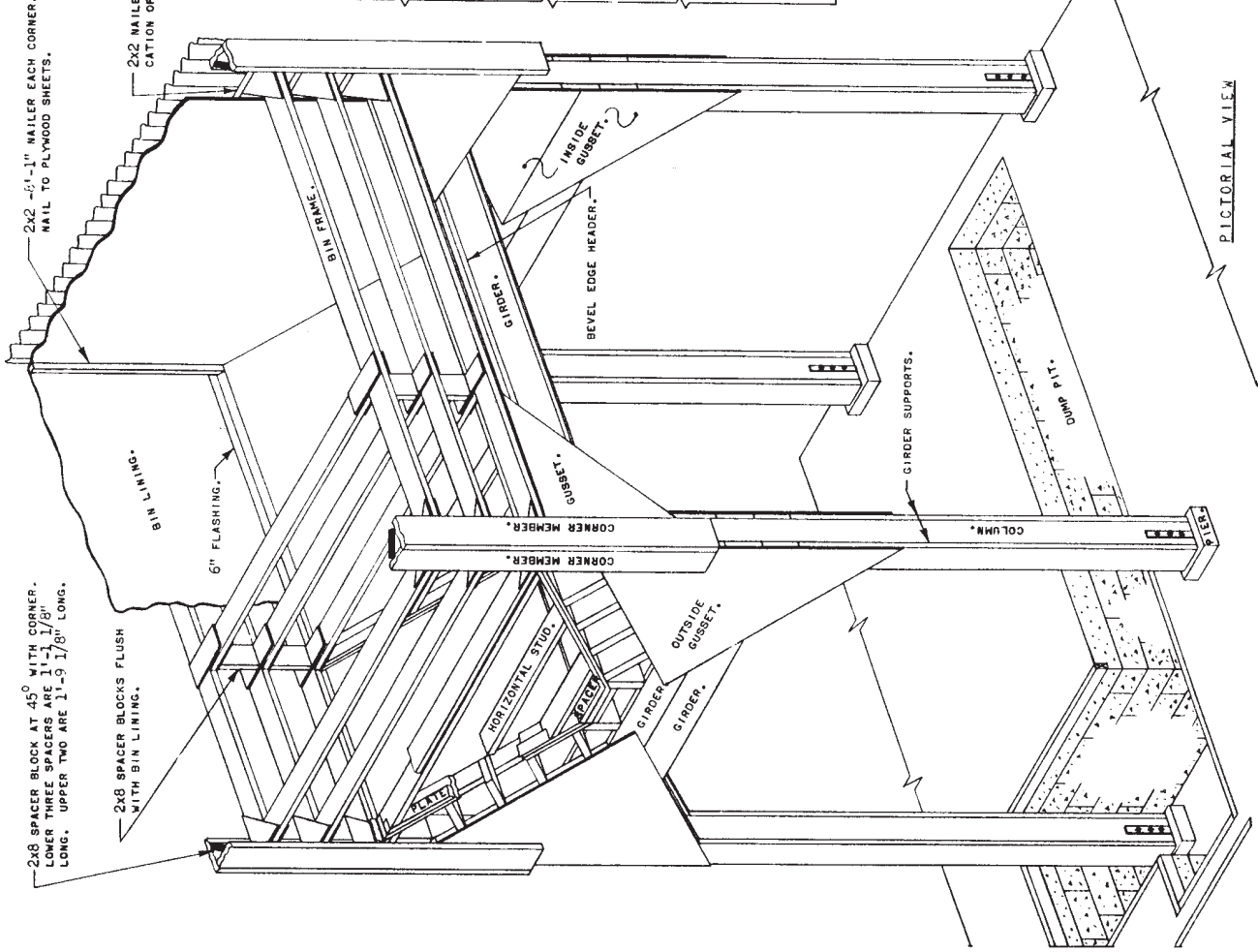
NOTE: ALL FLANGES ARE DRAWN 2" BUT MAY BE MODIFIED TO SUIT. IF GRC STEEL IS SUGGESTED MODIFICATIONS MAY BE NECESSARY TO ADAPT TO A PARTICULAR SCREW CONVEYOR.

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AUGER DUMP PIT ACCESSORIES Sheet 8 of 14 Sheets
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NOTE: ALL LUMBER SIZES (NOMINAL DIMENSIONS) EXCEPT 8"x8" COLUMNS. DIMENSIONS SHOULD BE CORRECTED IF FULL DIMENSION LUMBER IS USED.



FLOOR PLAN



PICTORIAL VIEW

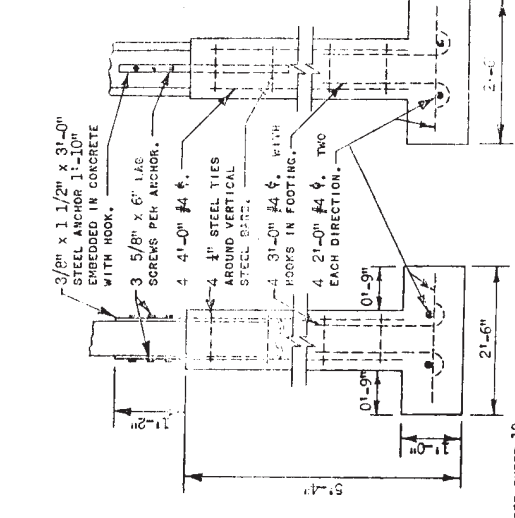
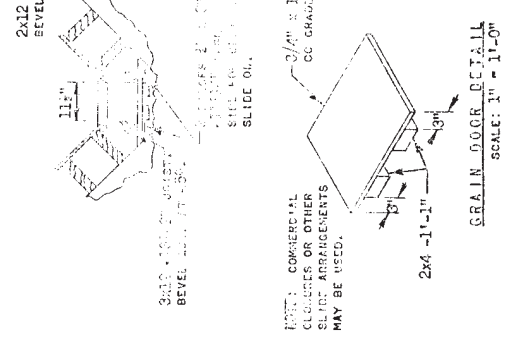
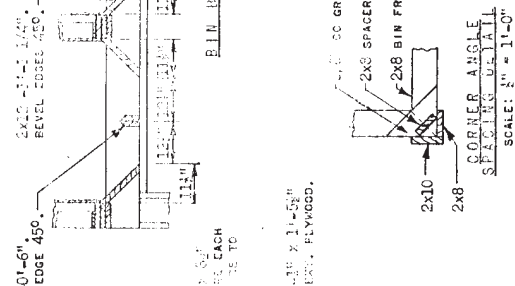
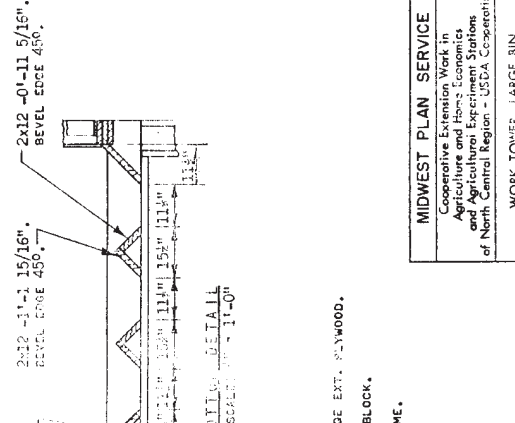
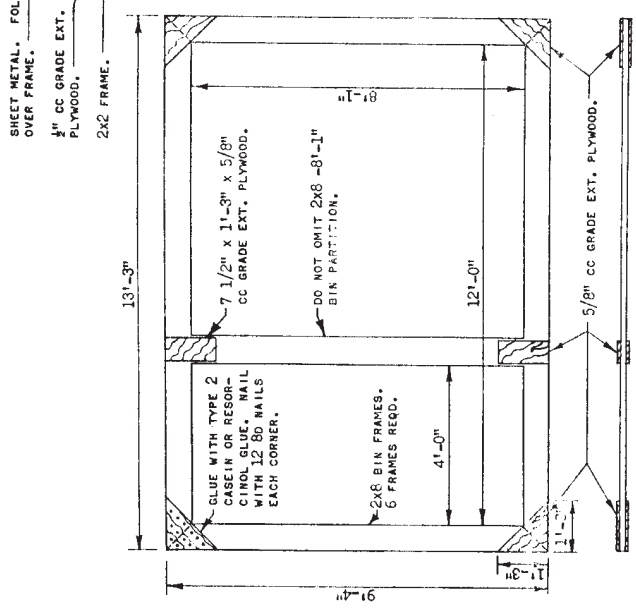
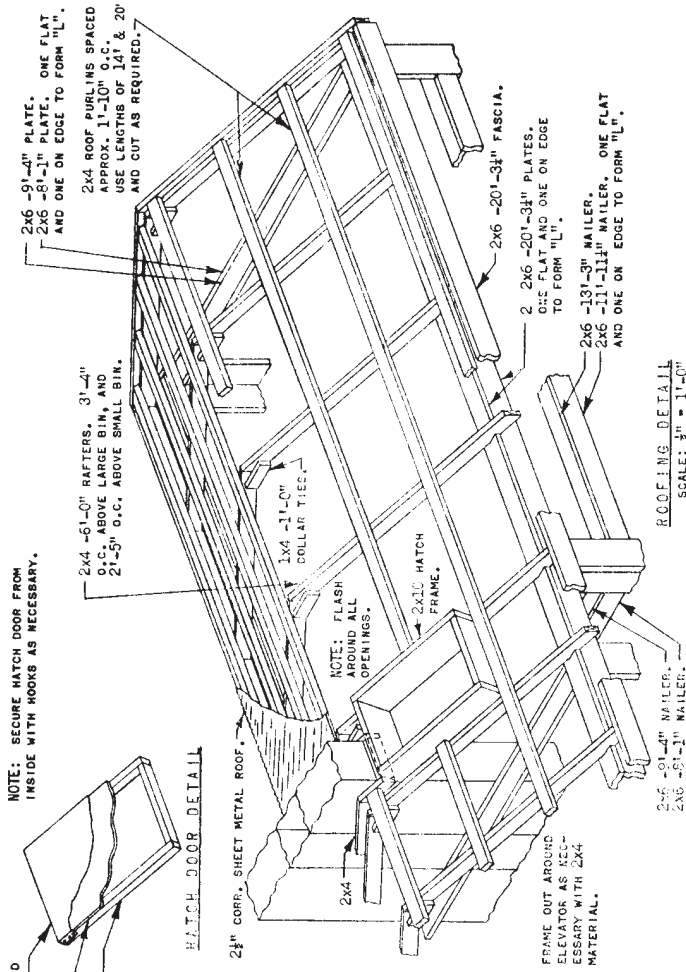
BIN CAPACITY

230 BU.	450 BU.
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WORK TOWER, LARGE BIN,
 FLOOR PLAN

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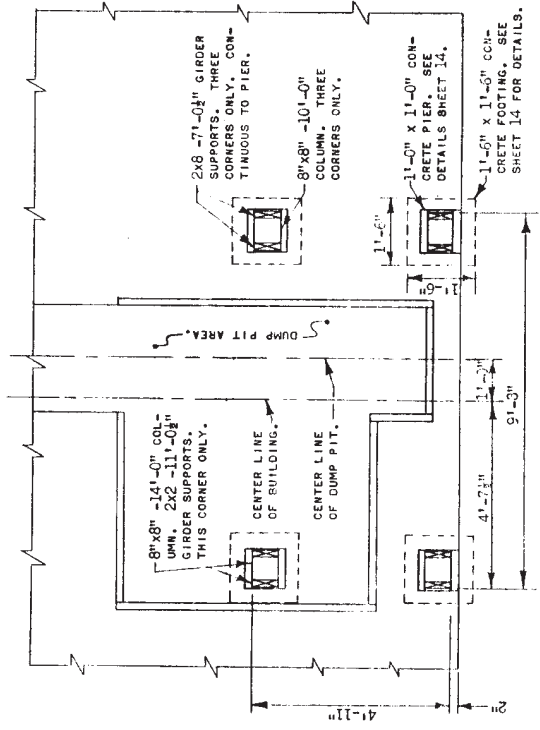
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WORK TOWER, LARGE BIN,
DETAILS

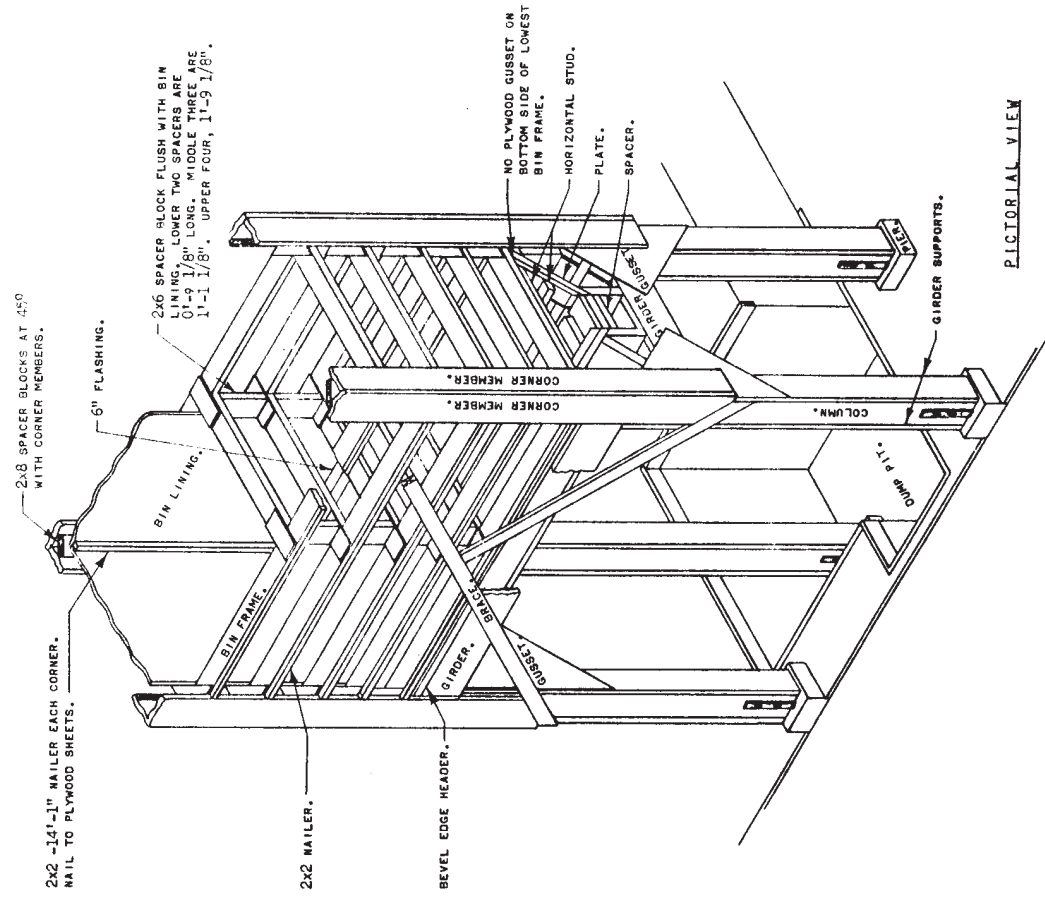
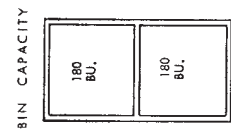
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SEE SHEET 10
FOR THE SHORT
FOOTING DETAIL.



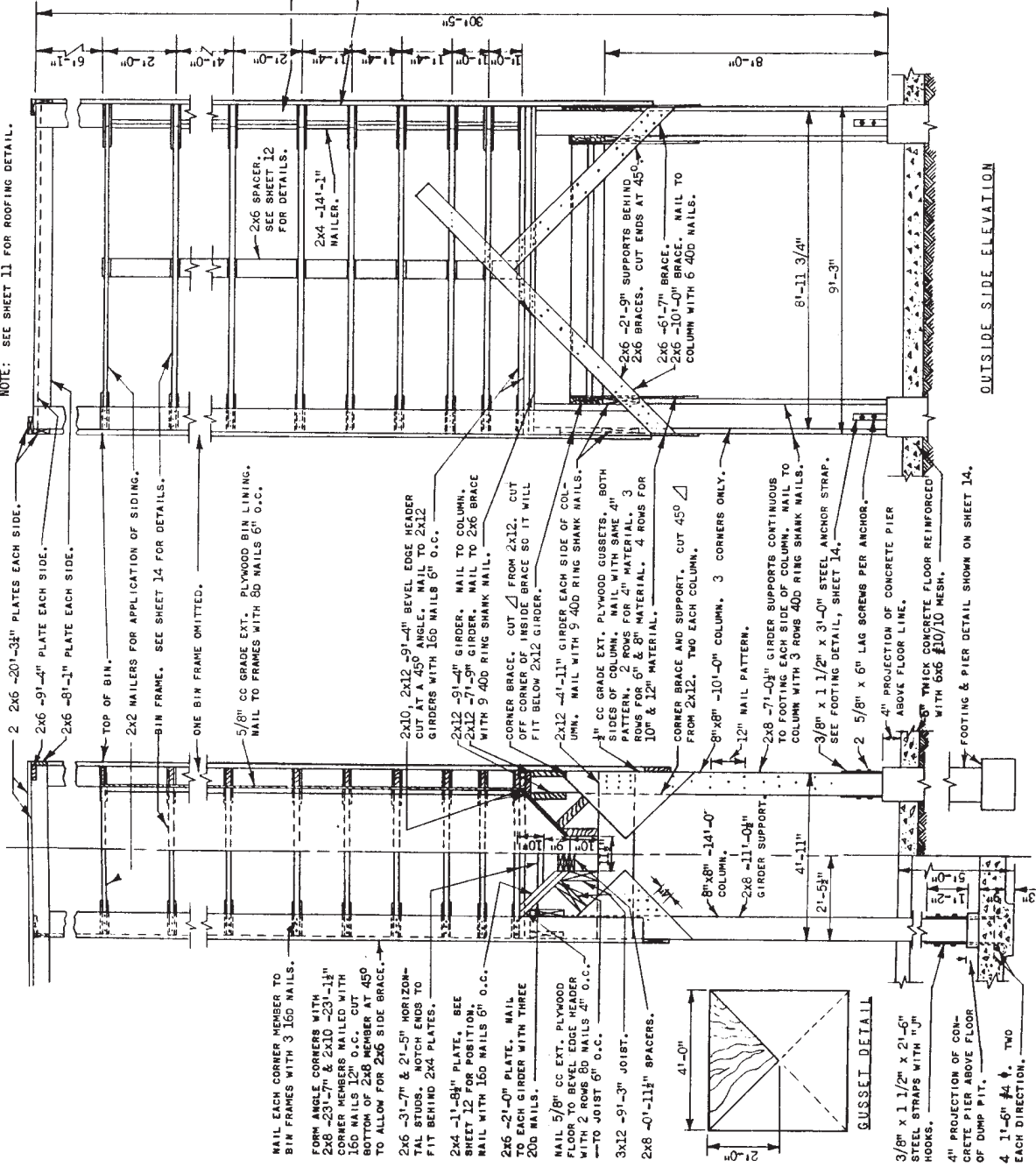
FLOOR PLAN



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WORK TOWER - SMALL BIN, FLOOR PLAN,
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NOTE: SEE SHEET 11 FOR ROOFING DETAIL.

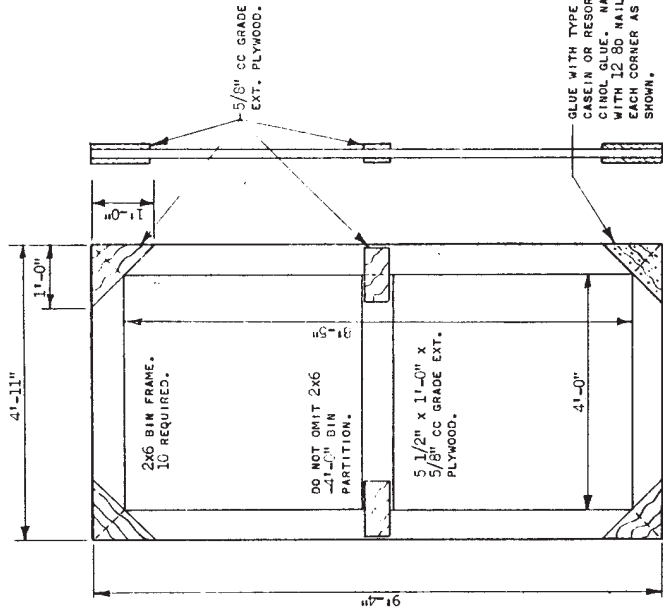


OUTSIDE SIDE ELEVATION

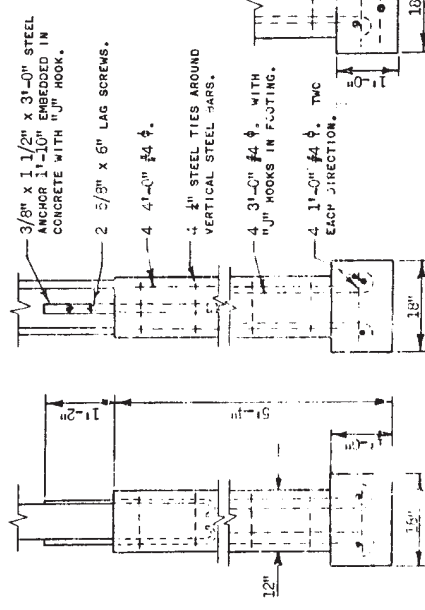
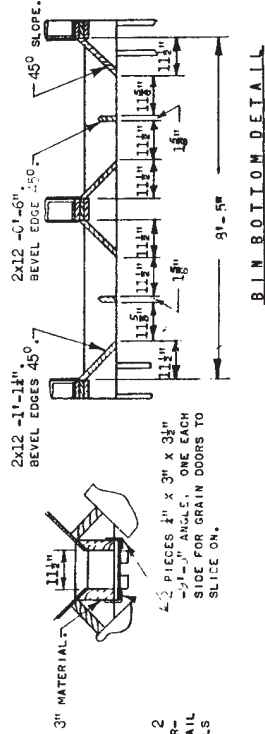
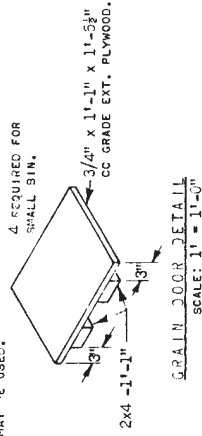
HALF SECTION - HALF SECTION

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WORK TOWER, SMALL BIN, SECTIONS	Sheet 13 of 14 Sheets
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NOTE: THE BOTTOM BIN FRAME IS CONSTRUCTED WITH PLYWOOD ONE SIDE ONLY. SEE SECTION DETAIL SHEET 13.



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



SEE SHEET 13 FOR DETAILS OF THE STEEL FOOTING.

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

<p>MIDWEST PLAN SERVICE Cooperative Extension Work in Agriculture and Home Economics and Agricultural Experiment Stations of North Central Region - USDA Cooperating</p>
<p>WORK TOWER, SMALL BIN, DETAILS</p>
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