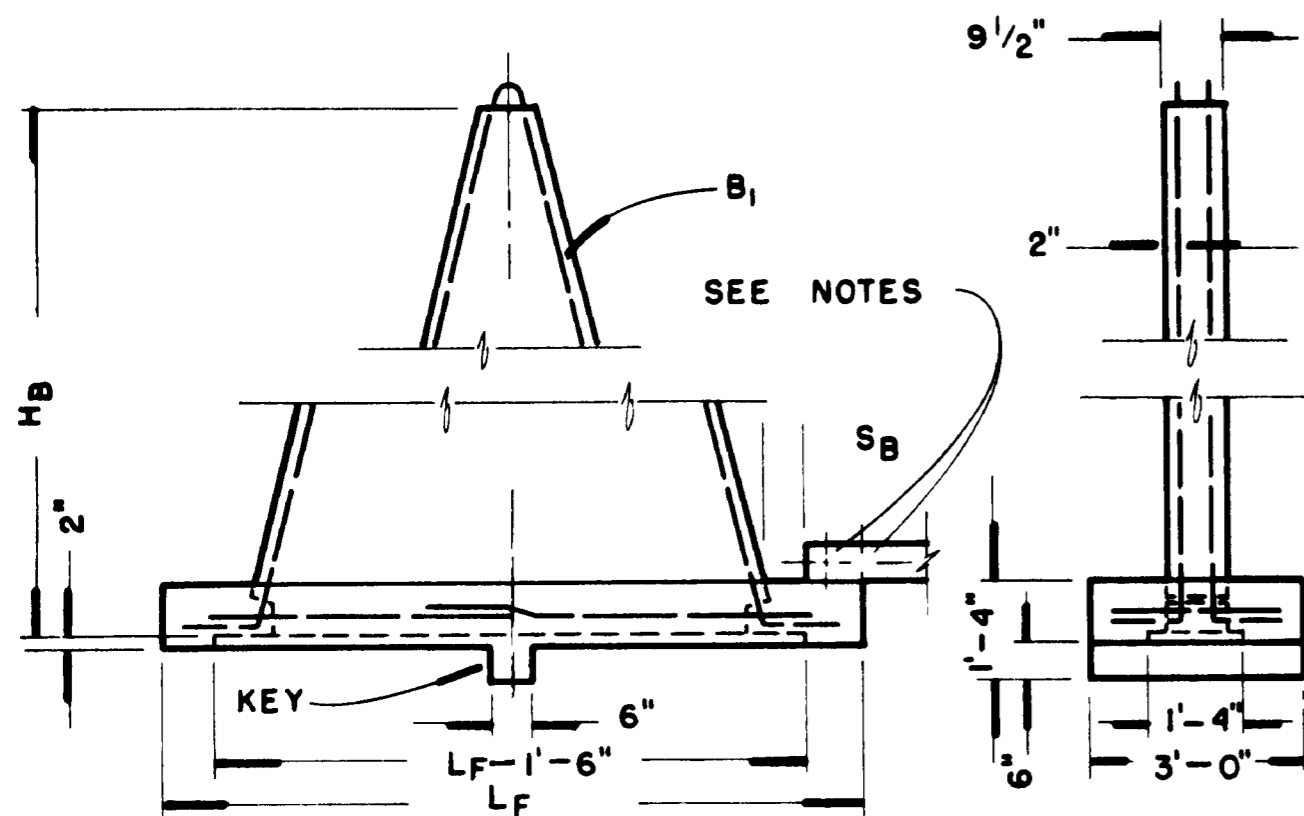


Important: Warranty Disclaimer for Plans

For the convenience of our clientele, this website makes available conceptual plans that can be helpful in planning buildings, facilities, or other structures. They were developed over many years by engineers at Land Grant universities through the former USDA Cooperative Farm Buildings Plan Exchange. *Regardless of the original intent, these are older plans that provide conceptual information only, and are not to be considered or used as construction plans.*

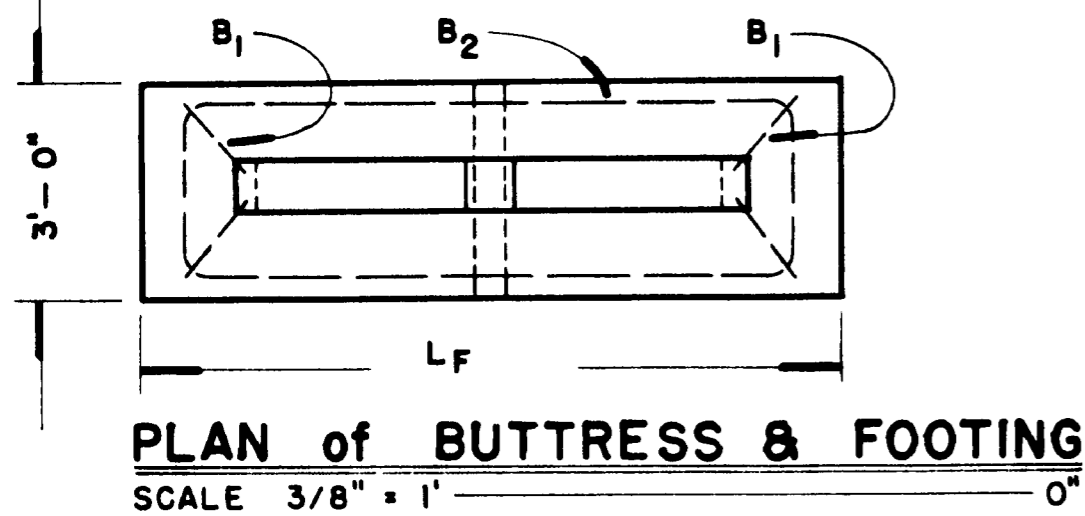
These plans do not claim to represent the most current technology or the most recent construction techniques, standards, or codes. For example, over the years there have been changes in the National Design Specifications for Wood Construction, changes in the strengths and types of building materials, and changes in fasteners, among other things. Those changes, along with variations in climate, building codes, and other factors, make it imperative that professional services be utilized for your specific project. Suggested services include, but are not limited to, structural design, assurance of compliance with codes and regulations, site selection, construction supervision, and provision for utilities, waste management, and access. *These plans do not replace the need for competent design assistance in developing safe, legal, and well-functioning agricultural buildings and systems.*

Neither the University of Kentucky, the Midwest Plan Service, the United States Department of Agriculture, nor any of the cooperating Land Grant universities, warranty these plans. They are for conceptual use only and are not for use as construction plans.

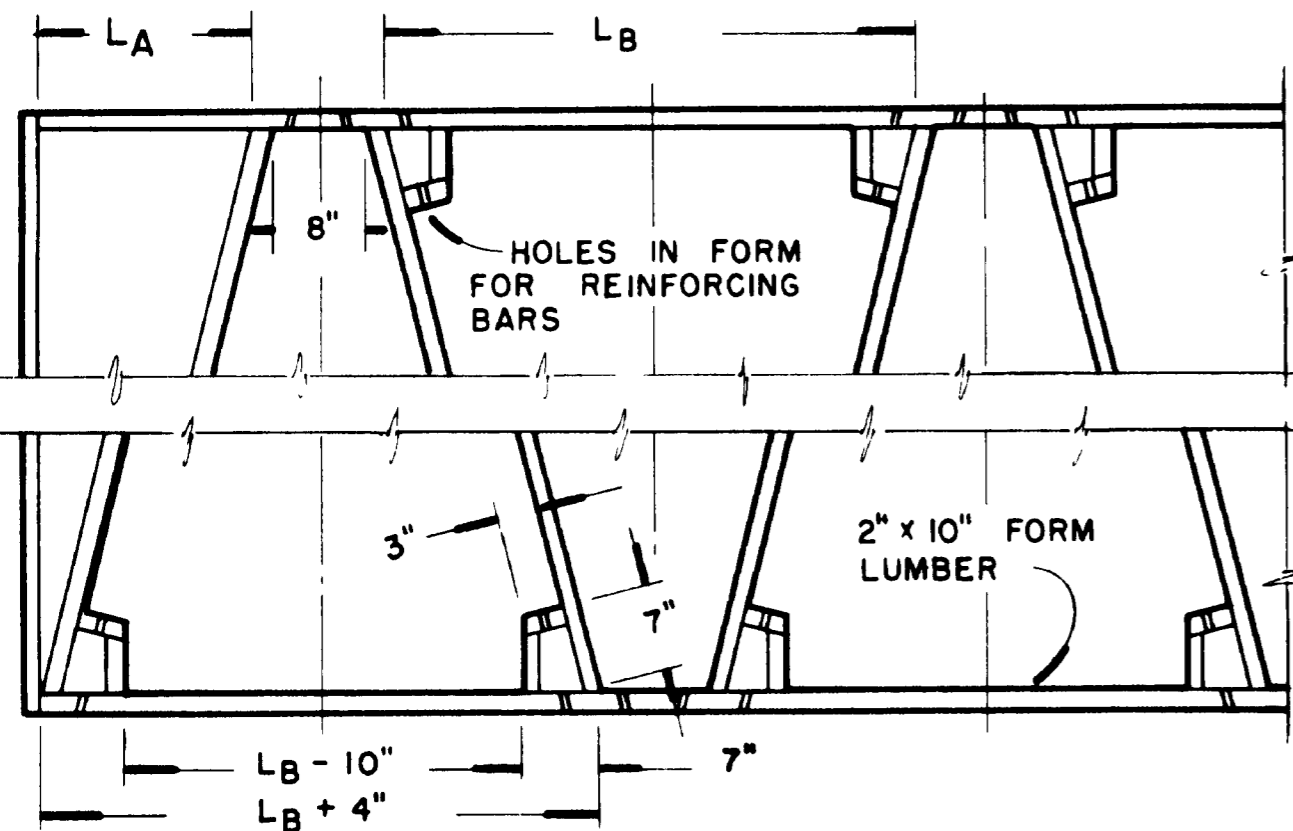


SIDE VIEW of BUTTRESS
SCALE 3/8" = 1' 0"

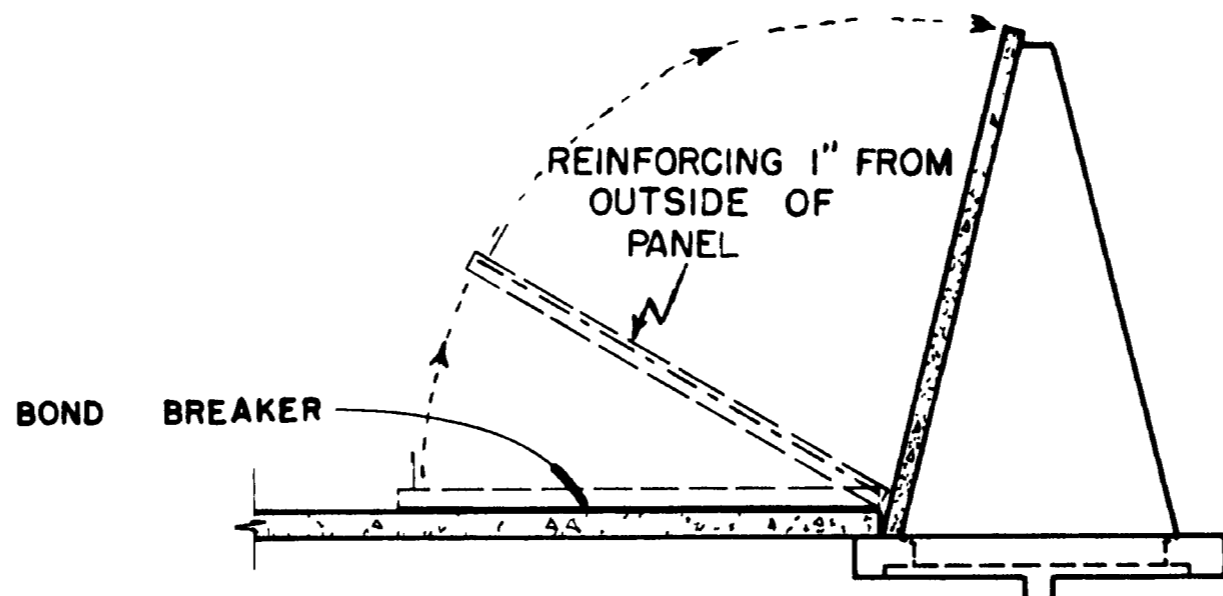
END VIEW of BUTTRESS
SCALE 3/8" = 1' 0"



PLAN of BUTTRESS & FOOTING
SCALE 3/8" = 1' 0"



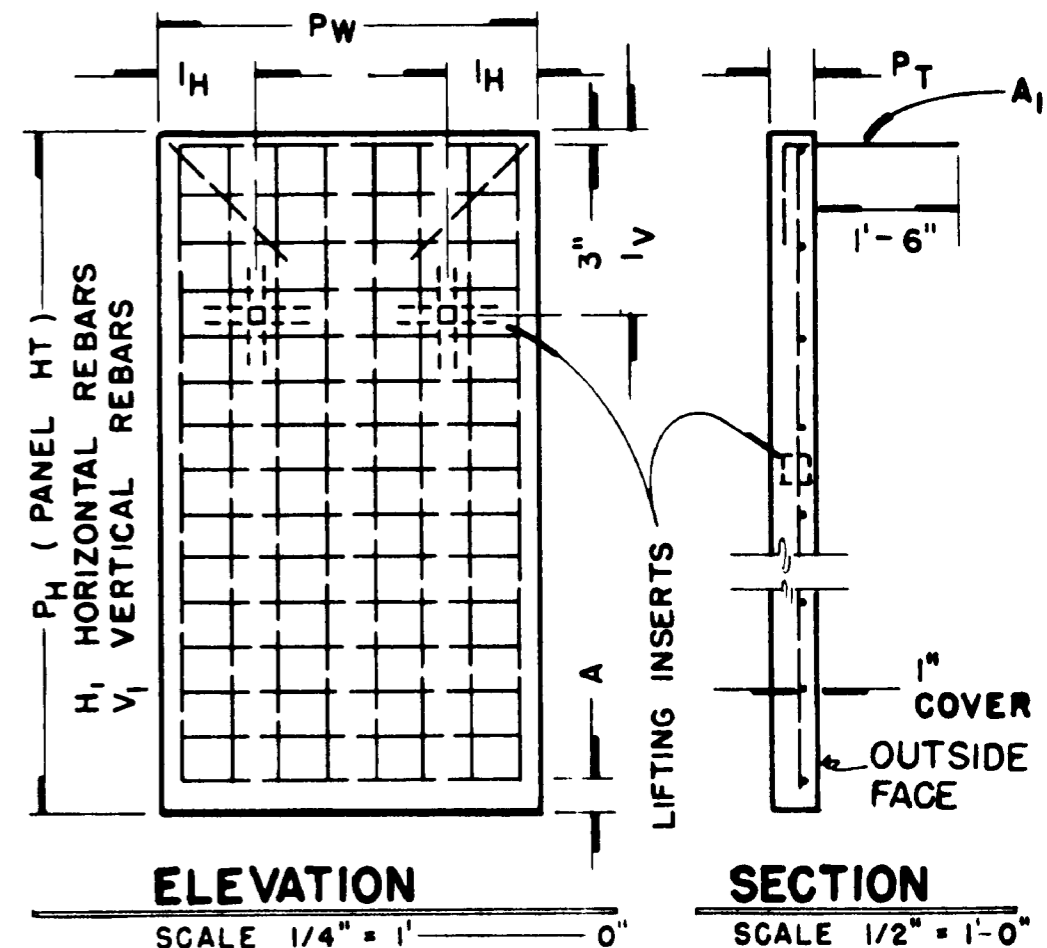
PLAN of BUTTRESS FORMS
SCALE 3/4" = 1' 0"



HALF SECTION of SILO
SCALE 1/4" = 1' 0"

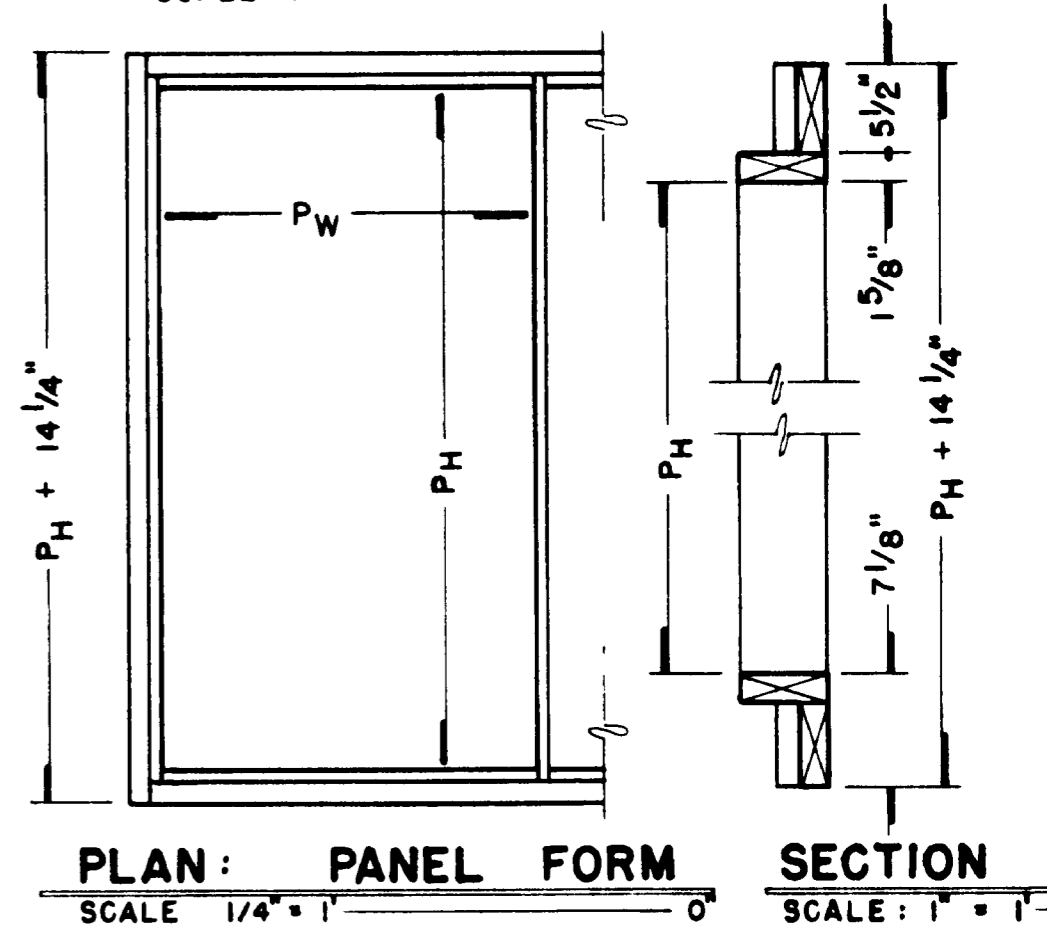
NOTES

PICK-UP INSERTS SHALL BE SUPERIOR 1/2" TYPE "S", RICHMOND 3/4" TYPE LCBI FOR 10' PANEL, FOR 12' & 14' PANELS USE 1" TYPE LCBI, OR EQUIVALENT.
USE 2x6 FORM BOARDS FOR 12 & 14 FOOT PANELS
USE 2x4 FORM BOARDS FOR 10 FOOT PANELS
SEE SHEET NO 2 FOR LIFTING INSERT DETAILS
2 NO 3 BARS REQUIRED ON BOTH SIDES OF SILO FLOOR, RUN BARS FULL LENGTH OF SILO.
MINIMUM LAP FOR ALL RE-BARS SHALL BE 10"



ELEVATION
SCALE 1/4" = 1' 0"

SECTION
SCALE 1/2" = 1' 0"



PLAN: PANEL FORM
SCALE 1/4" = 1' 0"

SECTION
SCALE: 1" = 1' 0"

PANEL DIMENSION SCHEDULE						
PANEL HT	PW	PT	A	IH	IV	WT
10'-0"	7'-11"	3 5/8"	3"	1'-6"	3'-0"	3400
12'-0"	7'-11"	5 1/2"	3"	1'-6"	3'-6"	6100
14'-0"	7'-11"	5 1/2"	3"	1'-6"	4'-0"	7200

PANEL REINFORCEMENT SCHEDULE												
	10 FOOT				12 FOOT				14 FOOT			
	SHAPE	NO.	SIZE	LGTH	SHAPE	NO.	SIZE	LGTH	SHAPE	NO.	SIZE	LGTH
H1	—	11	4	7'-6"	—	13	4	7'-6"	—	15	4	7'-6"
V1	—	8	4	9'-6"	—	8	4	11'-6"	—	8	4	13'-6"
A1	—	2	4	2'-6"	—	2	4	2'-6"	—	2	4	2'-6"

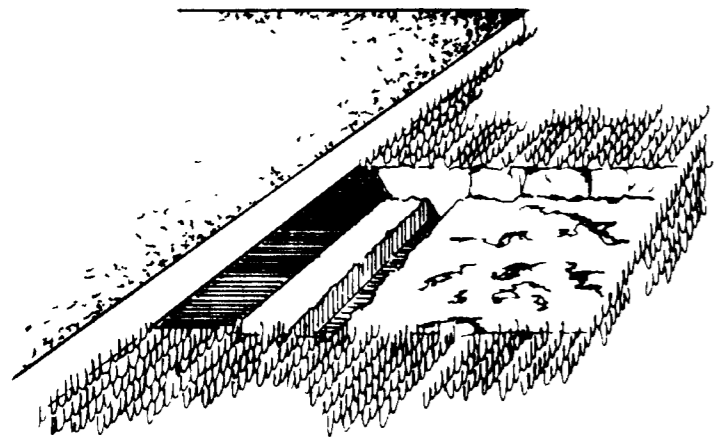
BUTTRESS & FOOTING SCHEDULE									
DIMENSIONS						REINFORCING			
HB	LF	LB	LA	SB	WT	B1		B2	
9'-8"	7'-8"	5'-8"	2'-6"	3 5/8"	3,700	2*4 @24'-0"		2*4 @10'-9"	
11'-8"	8'-8"	6'-8"	3'-0"	5 1/2"	5,200	2*4 @28'-0"		2*4 @11'-9"	
13'-8"	9'-8"	7'-8"	3'-6"	5 1/2"	6,900	2*6 @32'-0"		2*4 @12'-9"	

COOPERATIVE EXTENSION WORK IN
AGRICULTURE AND HOME ECONOMICS

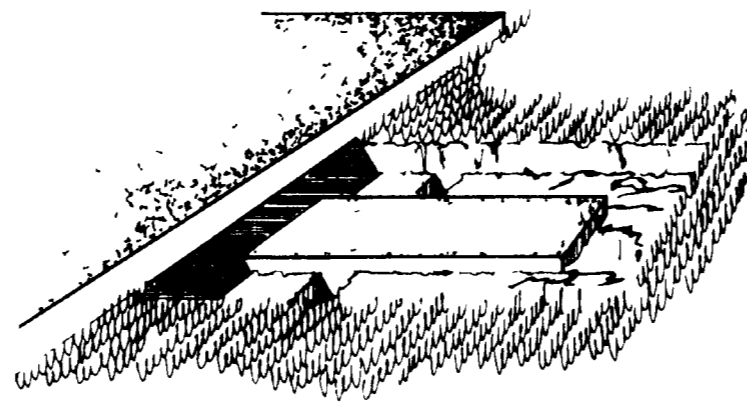
AND
UNITED STATES DEPARTMENT OF AGRICULTURE COOPERATING

**HORIZONTAL SILO
TILT-UP CONSTRUCTION**

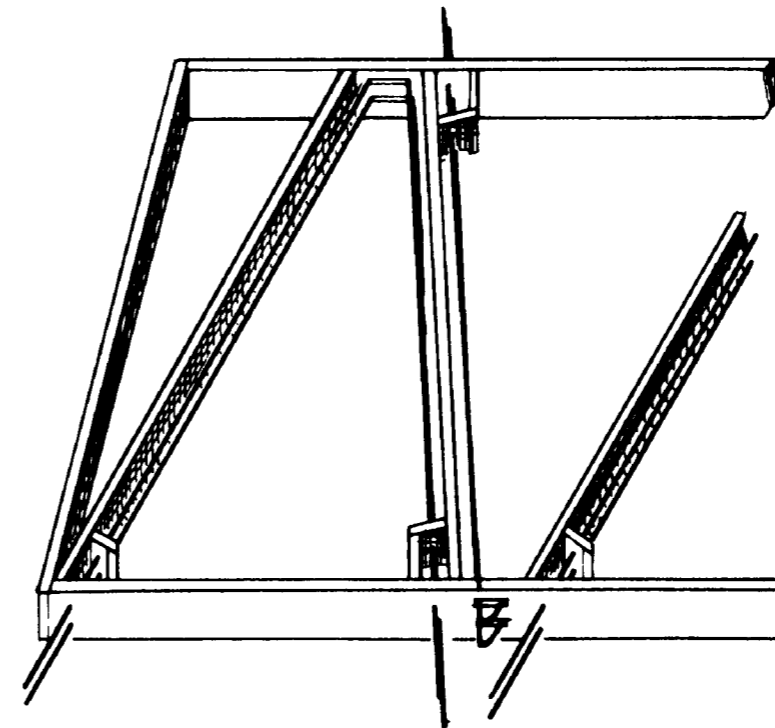
NEBR '68 EX. 6055 SHEET 1 OF 2



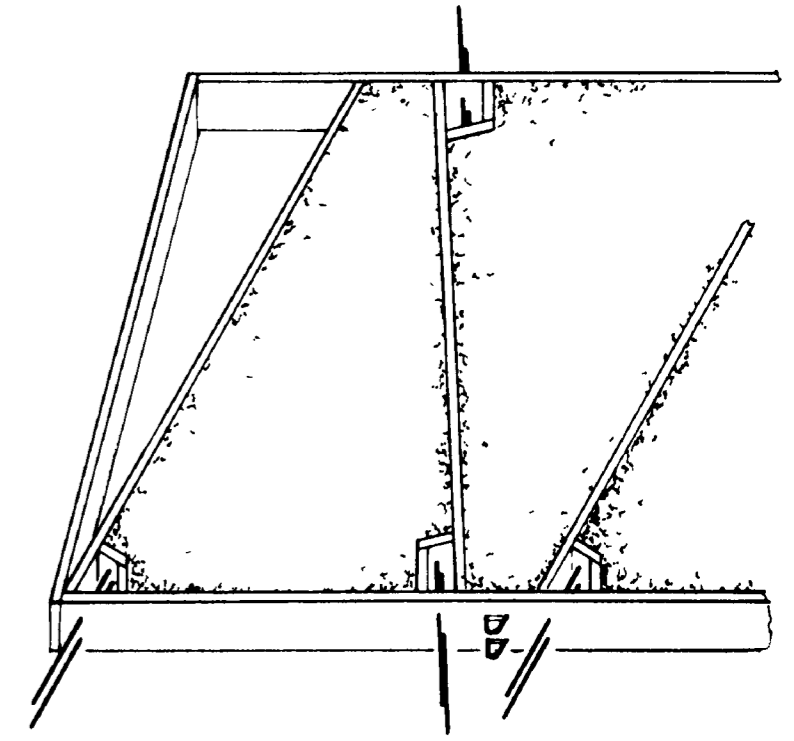
1 EXCAVATION FOR BUTTRESS BASE WITH KEY. DEPTH OF EXCAVATION IS 1'-4" BELOW TOP OF SLAB



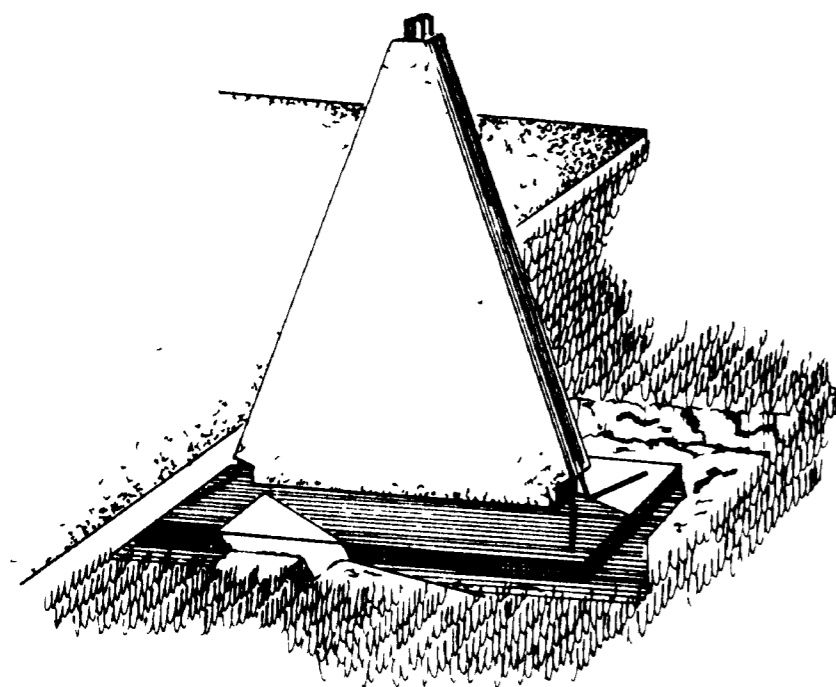
2 CONCRETE PAD 2" THICK, 1'-4" WIDE WITH KEY. DO NOT PLACE CONCRETE IN KEY TRENCH ADJACENT TO PAD



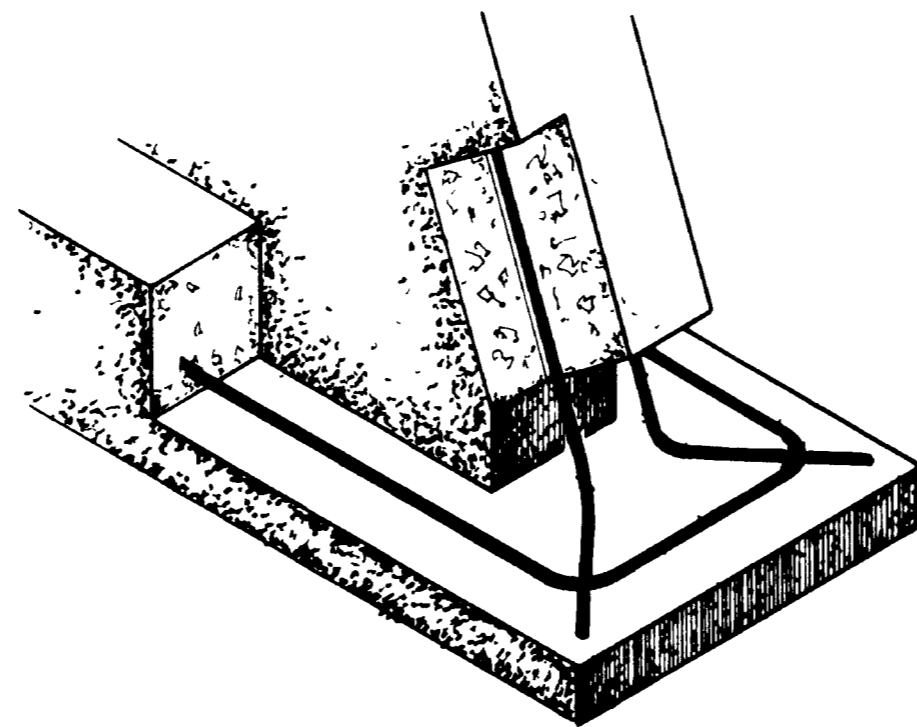
3 VIEW SHOWING BUTTRESS FORMS WITH REINFORCING BARS IN PLACE



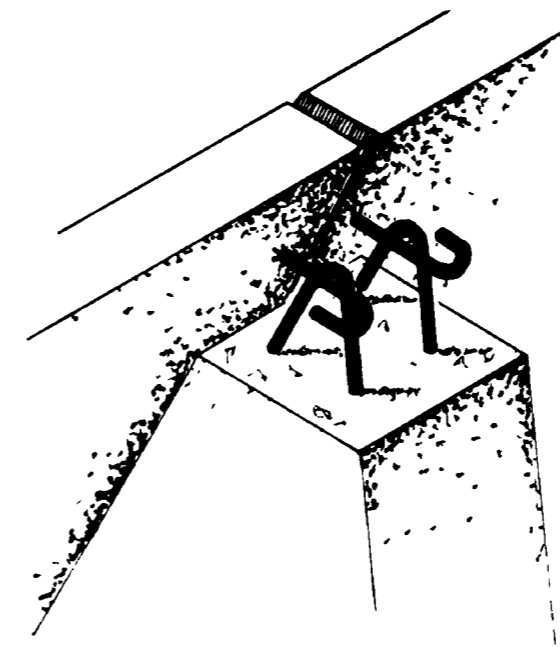
4 CONCRETE FOR BUTTRESS AFTER BEING PLACED IN FORMS



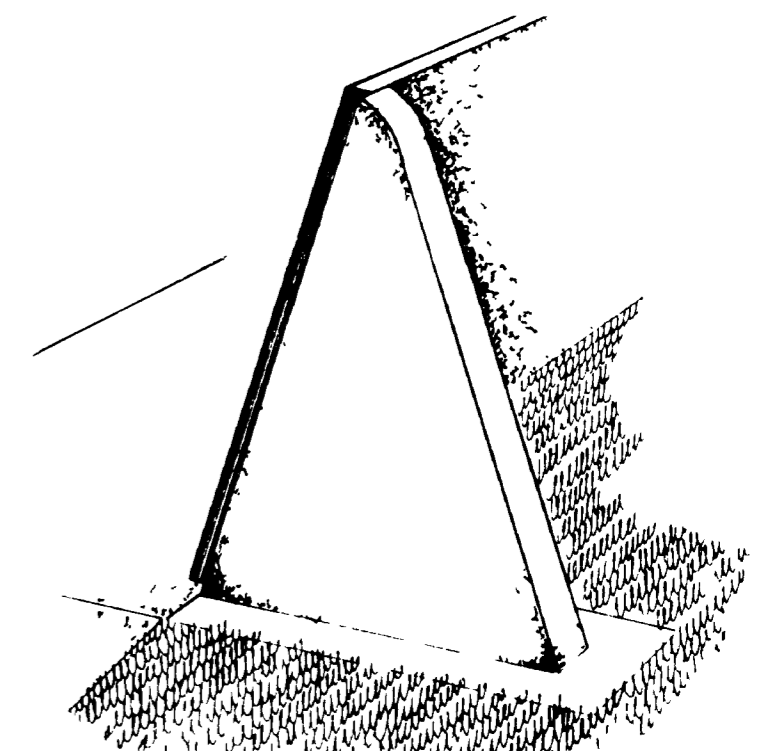
5 PLACE BUTTRESS ON 2" CONCRETE PAD PLUMB AND ALIGN USING WOOD TEMPLATES TO POSITION BUTTRESS



6 CUT-AWAY VIEW OF FOOTING AND BUTTRESS SHOWING POSITION OF REINFORCING BARS



7 TOP OF BUTTRESS SHOWING PANEL TIE BACK RODS BENT AROUND BUTTRESS LOOPS



8 END VIEW OF SILO SHOWING THE CAPPED BUTTRESS AND COMPLETED ASSEMBLY

SPECIFICATIONS FOR T/U SILO

I CONCRETE MIX

- A MINIMUM CEMENT FACTOR = 7 SACKS PER CUBIC YARD OF CONCRETE
- B MAXIMUM TOTAL MIXING WATER PER SACK OF CEMENT = 6 GALLONS
- C USE ENTRAINED AIR

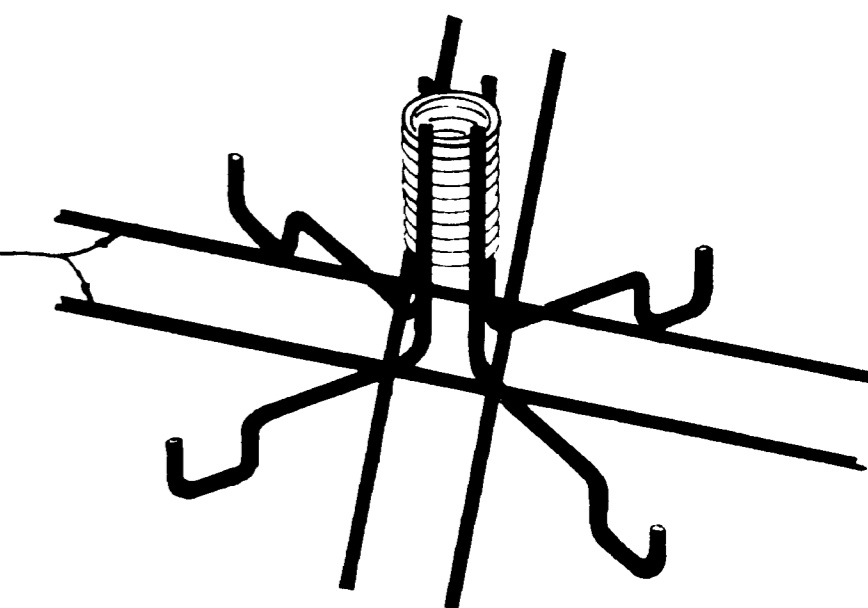
II CURING OF CONCRETE

- A CURE PANELS AND BUTTRESSES 5 TO 7 DAYS AT 50° TO 100° F BEFORE TILTING. USE ONE OF THE FOLLOWING CURING METHODS:
 - 1 PONDING, USE WET SAND OR WET BURLAP
 - 2 WET SURFACE OF CONCRETE THEN COVER PANEL WITH WATERPROOF PAPER OR POLYETHYLENE SHEET
 - 3 SPRAY WITH CURING COMPOUND IMMEDIATELY AFTER SCREEDING
 - 4 IN COLD WEATHER COVER WITH 24" OF STRAW TO PREVENT FREEZING. DO NOT TILT PANEL FOR 10 DAYS IF TEMPERATURES ARE 40° TO 50° TO INSURE INCREASED STRENGTH AND DURABILITY OF THE CONCRETE

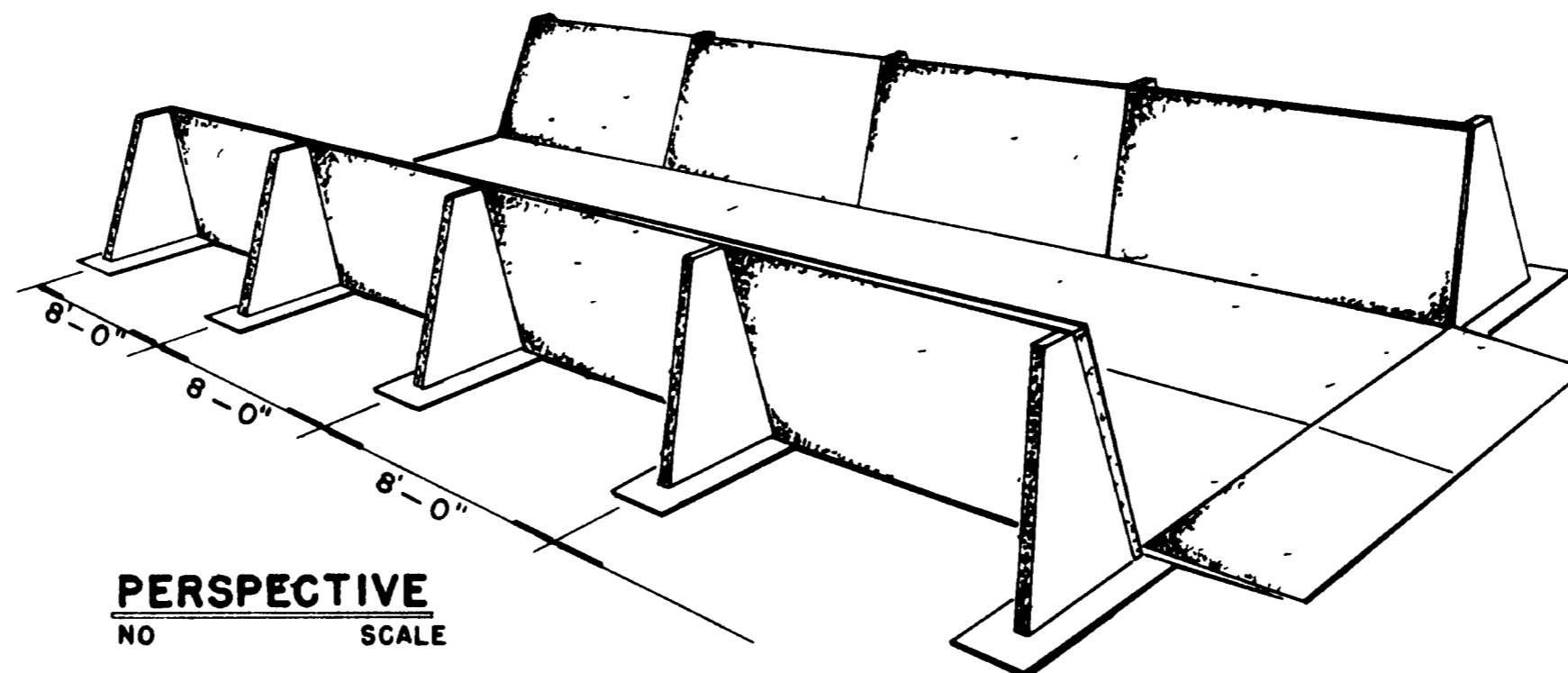
III SILO FLOOR

- A A DESIRABLE UNIFORM SLOPE OF 1" PER 8' OF LENGTH
- B CAST FLOOR IN LENGTHWISE STRIPS 10' TO 12' WIDE (NOTE REBARS ALONG EDGE OF SLAB)
- C UNIFORM THICKNESS OF 5"
- D THICKEN EDGE AT OUTLET TO 8"

*4 BARS 24" LONG



PANEL LIFTING INSERT
NO. _____ SCALE



PERSPECTIVE
NO. _____ SCALE

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

HORIZONTAL SILO TILT-UP CONSTRUCTION

NEBR. '68	EX 6055	SHEET 2 OF 2
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