

**NOTES**

1. CONCRETE FLOOR SLAB 5 1/2", OVER 6" TO 8" GRAVEL BASE; SLOPE AT LEAST 1/8" PER 1'.
2. FLOOR SLAB, WITH IS ANY MULTIPLE OF 8'-0"; MINIMUM WITH IS 2 TIMES WALL HEIGHT TO ALLOW SPACE FOR CASTING WALL PANELS
3. CRACK CONTROL JOINTS GROOVED OR SAWN 1" INTO FLOOR SLAB 16' OC BOTH WAYS.
4. CONTINUOUS #4 REBAR, STOPS AT 3 LOCATE REBAR 2" IN FROM EDGE AND UP FROM BOTTOM OF SLAB.
5. BUTTRESS ON LEVELLING PADS.
6. BUTTRESS FOOTING.
7. CONCRETE WALL PANELS, TIED TO TOP OF BUTTRESSES.
8. BACKFILL, MINIMUM 3'-4" DEEP.
9. LIFT SIDES IN PLACE AS SHOWN.

**SPECIFICATIONS**

UNLESS OTHERWISE SPECIFIED, ALL CAST-IN-PLACE CONCRETE IS TO BE AT LEAST 4000 PSI @ 28 DAYS, 7% AIR ENTRAINED, 4" SLUMP. 3/4" MAX. AGGREGATE SIZE; USE SULPHATE RESISTANT CEMENT WITH ALKALI SOILS.

ALL REINFORCING STEEL TO BE AT LEAST 60 000 PSI YIELD STRENGTH DEFORMED BARS; PROVIDE 2" CONCRETE COVER REINFORCING STEEL.

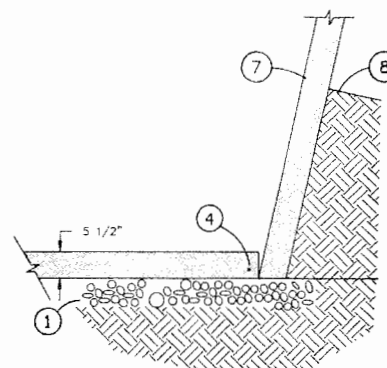
CONCRETE TO BE CURED IN FORMS, KEEPING EXPOSED SURFACES CONTINUOUSLY DAMP BY FREQUENT SPRINKLING OR COVER THE SURFACE WITH WETTED BURLAP; MINIMUM CURING TIMES AS FOLLOWS:

AVERAGE CURING TEMPERATURE	NORMAL PORTLAND CEMENT	HIGH EARLY STRENGTH CEMENT
ABOVE 68°F	5 DAYS	3 DAYS
50° - 68°F	7 DAYS	5 DAYS
BELOW 50°F	(SPECIAL PRECAUTIONS REQUIRED)	

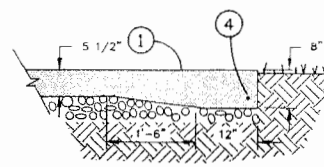
ALL EXPOSED STEEL TO BE GALVANIZED OR PAINTED TO RESIST CORROSION.

**CONCRETE REQUIREMENTS, ft<sup>3</sup>**

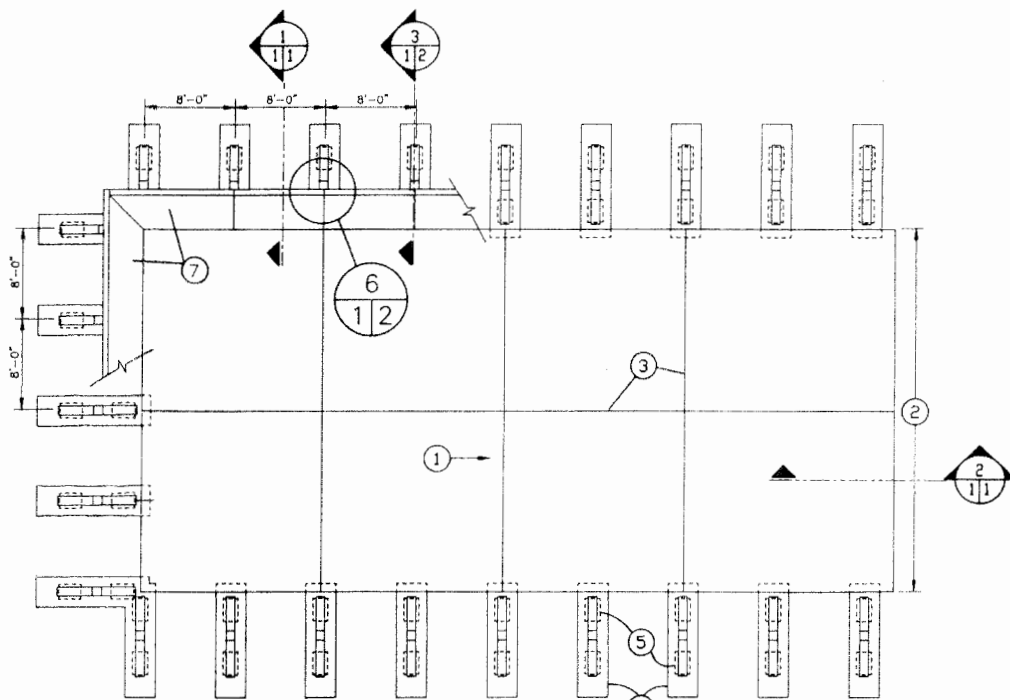
	WALL HEIGHT			
	20 ft	16 ft	12 ft	8 ft
FOOTING	85.1	58.6	37.5	31.5
BUTTRESS	74.8	49.8	30.5	15.6
WALL PANEL	74.2	60.4	44.5	29.6



**1 FLOOR EDGE DETAIL**



**2 FLOOR EDGE DETAIL**

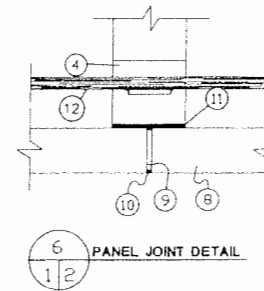
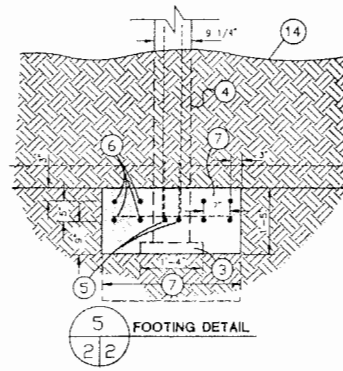
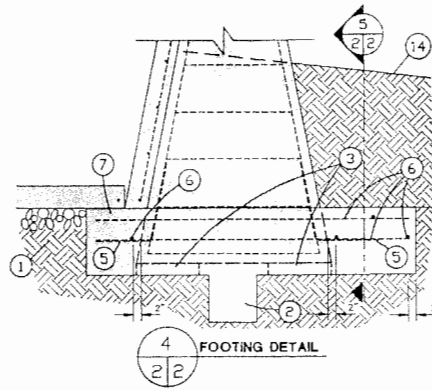
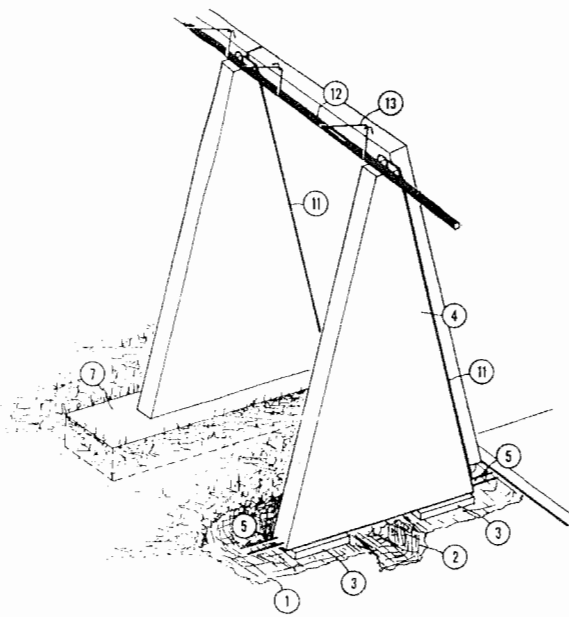


**FLOOR PLAN**

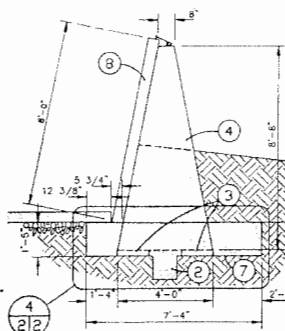
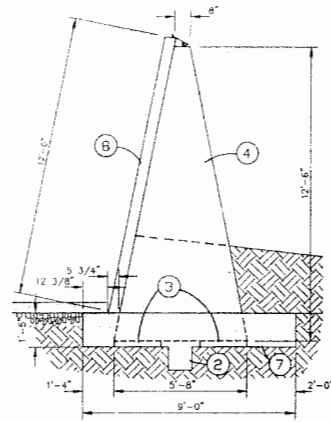
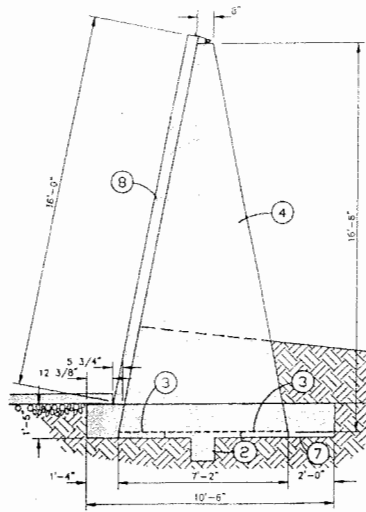
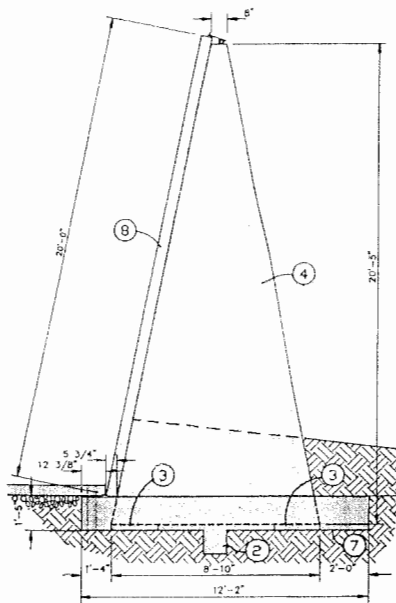
**LSU**  
**AgCenter**  
Research & Extension

**BUTTRESSED CONCRETE HORIZONTAL SILO 8-20 ft. HIGH**

C.P.S. '88	6408	SHEET 1 OF 3
------------	------	--------------



- 1 undisturbed soil
- 2 footing key 12" x 12"
- 3 buttress levelling pads, 3" thick
- 4 concrete buttress, see reinforcing on sheet 3
- 5 #8 x 3'-0" bent rebar from buttress, see sheet 3
- 6 #5 rebars around buttress (4 sides)
- 7 concrete footing, level under floor; oil edge of floor before placing concrete; footing width is:  
5'-0" for 20' wall  
4'-0" for 16' wall  
3'-0" for 12' wall  
3'-0" for 8' wall
- 8 wall panel, see reinforcing on sheet 3, tie to buttress
- 9 1 1/4" foam backing rod
- 10 1/2" deep caulking bead
- 11 1/2" ethafoam gasket (2 layers if base is very rough)
- 12 1 1/2" galv. steel pipe, weld to buttress lifting loop as soon as each buttress is plumb
- 13 #4 rebar, through wall panel lifting loop and weld to 12
- 14 backfill, minimum 3'-4"

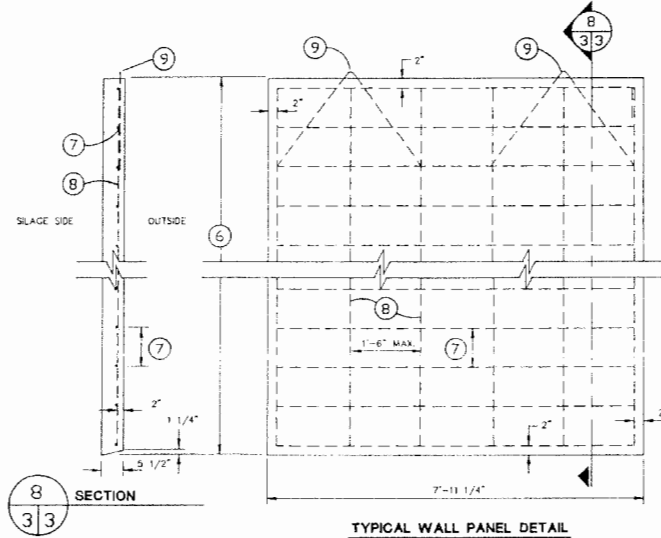
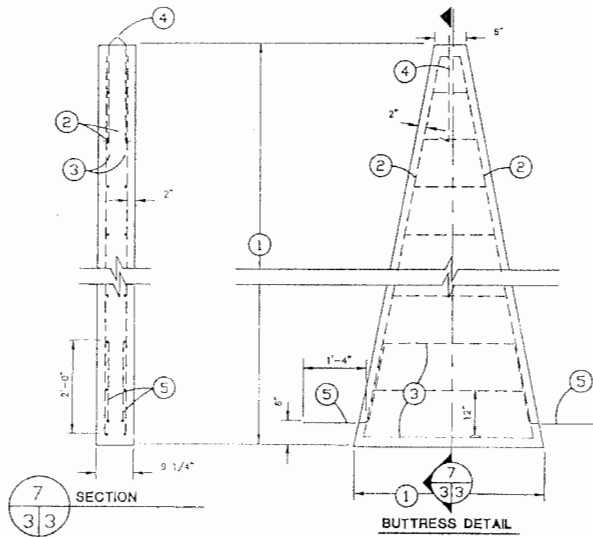


**LSU**  
**AgCenter**  
Research & Extension

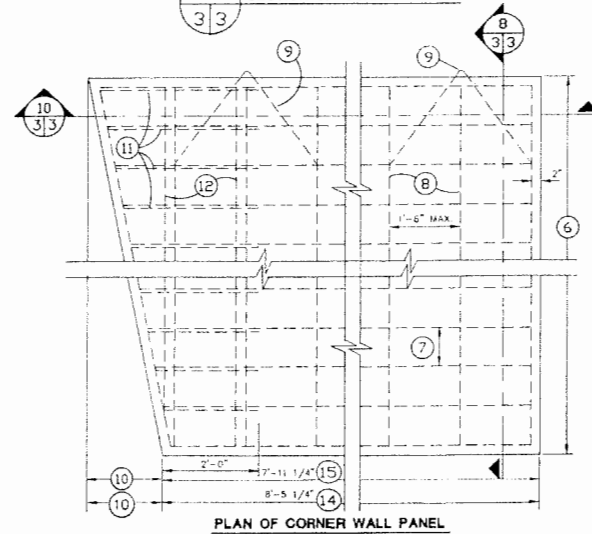
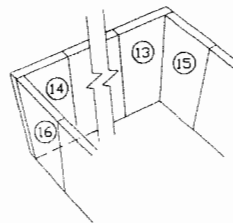
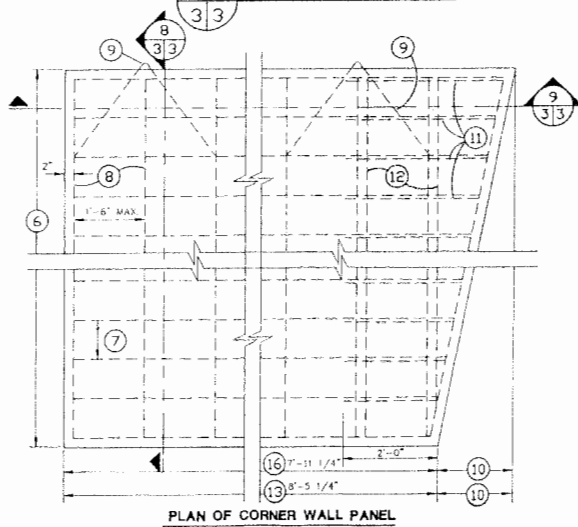
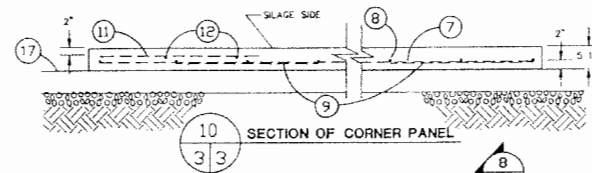
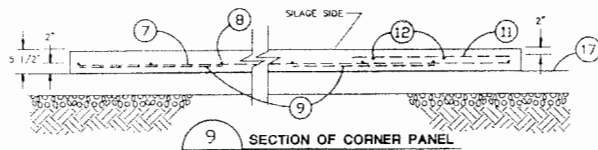
BUTRESSED CONCRETE HORIZONTAL  
SILO 8-20 ft. HIGH

C.P.S. '88 6408

SHEET 2 OF 3



- 1 concrete buttress height varies, see sheet 2
- 2 - #8 vertical rebar
- 3 #5 stirrups @ 12" oc
- 4 #5 x 5'-0" bent rebar
- 5 #8 x 3'-0" rebar bent and tied to (2)
- 6 concrete wall panel, height varies: 20', 16', 12', 8'
- 7 #5 horizontal rebar:  
@ 10" oc for 20' wall  
@ 12" oc for 16' wall  
@ 16" oc for 12' & 8' wall
- 8 #5 vertical rebar @ 19" oc max.
- 9 #5 x 5'-0" bent rebar, tied to (7)
- 10 dimension varies:  
3'-11" for 20' wall  
3'-1 1/4" for 16' wall  
2'-4 1/4" for 12' wall  
1'-6 5/8" for 8' wall
- 11 #5 horizontal rebar, for corner panels only (same spacing as (7))
- 12 #5 vertical rebar, for corner panels only (same spacing as (8))
- 13 end wall corner panel, right side
- 14 end wall corner panel, left side
- 15 side wall corner panel, right side
- 16 side wall corner panel, left side
- 17 silo floor, use for pouring wall panels



**LSU**  
**AgCenter**  
Research & Extension

BUTTRESSED CONCRETE HORIZONTAL  
SILO 8-20 ft. HIGH

C.R.S. '88

6408

SHEET 3 OF 3

## Disclaimer

This site makes available conceptual plans that can be helpful in developing building layouts and selecting equipment for various agricultural applications. These plans do not necessarily represent the most current technology or construction codes. They are not construction plans and do not replace the need for competent design assistance in developing safe, legal and well-functioning agricultural building system. The LSU Agriculture Center, the Mid-West Plan Service, the United States Department of Agriculture and none of the cooperating land-grant universities warranty these plans.