

MWPS-72690

Swine Finishing House

Off-center alley, 320 pigs. This plan is for a 32' x 80' (or 84') stud-frame building housing 320 pigs (about 40 litters). Plan A shows 6' and 10' slats over 8' deep pits for in building manure storage. Plan B shows 4' slats over flushed pits. Plan C shows open gutters that are flushed from two siphon-flush tanks. Ventilation: open front and ridge vents provide natural ventilation for this building. The open front can be closed down with doors, or rolled curtains.

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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MIDWEST PLAN SERVICE
Cooperative Extension Work in Agriculture and Home Economics and Agricultural Experiment Stations of North Central Region - USDA Cooperating
Swine Finishing House Off-Center Alley, 320 Pigs
Title Page
MIDWEST PLAN NO. 72690

**Plan MWPS-72690
SWINE FINISHING HOUSE
Off-Center Alley, 320 Pigs**

This plan is for a 32'x80' (or 84') stud-frame building housing 320 pigs (about 40 litters).
Plan A shows 6' and 10' slats over 8' deep pits for in-bunking manure storage. Plan B shows 4' slats over flushed pits. Plan C shows open gutters that are flushed from two siphon-flush tanks.

Ventilation: open front and ridge vents provide natural ventilation for this building. The open front can be closed down with doors, or rolled curtains.

General Specifications

Pits: Use 3500 psi concrete with 7% air entrainment. Use steel or at least 40,000 psi yield. Install steel and concrete carefully and accurately.

Pump pits: to within 6" of the bottom at least once a year. Check for solids buildups; increase agitation and pump from ports nearest to solids buildup at next pumping.

Floors: slope floors as shown on the plans. If dunting in the upper corners of the pens is a problem, shut down the feeders and floor feed near the gates.

Floor heat: Use heat lamps, radiant heaters, heat panels, or floor heat. Heat in the floor may be electric or hot water; see MWPS-8, Swine Housing and Equipment Handbook.

Insulation

An "R" value measures the insulating quality of a material—larger R's mean better insulation. The R values shown on the plan are for the insulation only—plywood, air spaces, etc. also add some insulation.

The minimum insulation for this building is R = 5 under the roofing. This small amount will reduce condensation in cold weather and improve comfort somewhat in summer, compared with an uninsulated metal roof.

Full insulation, R = 13 or more in the walls and roof, is recommended for animal comfort.

Slat designs

Dimensions in these plans assume concrete slats as listed below and may need to be adjusted for other designs or materials. About 1/2" is allowed at each end of a slat for construction variation and grouting.

Space slats 1" apart in farrowing stalls, with the slot widened to 1 1/2" behind the sows. For other swine buildings, use 1" slots.

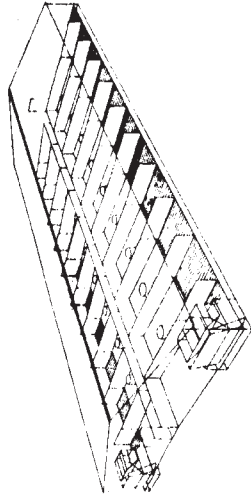
Manure Pit Storage

Pit depth based on 0.19 cu ft/day manure per 175-lb pig in larger pens, 6" in pit after pumping, and 12" freboard.

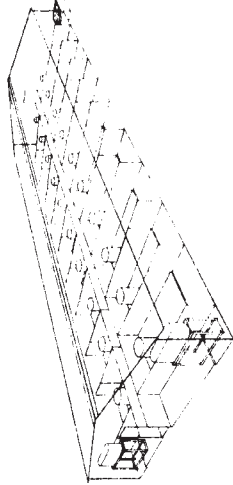
Slat Span	Pig nursery	Finishing	Farrowing, sow-pig nursery, or gestation
4	4 x 4 #3	4 x 4 #3	4 x 4 #3
6	4 x 4 #3	5 x 4 1/2 #4	6 x 5 1/2 #4
8	4 x 4 #3	5 x 4 1/2 #4	6 x 5 1/2 #5
10	4 x 5 #4	5 x 5 1/2 #5	6 x 6 1/2 #5

---Width x depth, lower bar size---

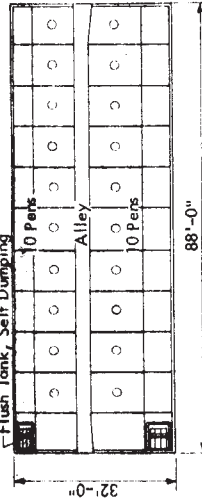
Design Loads	Per foot of slat
Slats	50 plf
Beams	100 plf
columns	35 psf
	50 psf
	150 plf
	65 psf



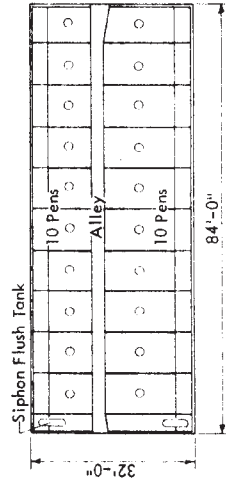
PLAN A—Flushed Gutter under Slats



PLAN B—Flushed Open Gutter



FLOOR PLAN A



FLOOR PLAN B

Building space and production cycles.

Although many variations are successful, the following are typical meat hog production systems: Plan building capacity for some extra animals to allow for large litter size or slow growth rate. Farrow during 3 weeks. Some stalls can be used twice.

Either:

a) Move sows and litters to sow-pig nursing pens at 1-3 weeks, depending on how soon the farrowing stalls are needed for the next sows.
Wean pigs at 3-6 weeks, putting 3-4 litters together.
Return sows to breeding and gestation facilities.

b) Wean pigs at 4-6 weeks (20-25 lb).
Move pigs to nursing facilities.
Return sows to breeding and gestating facilities.

Move pigs to finishing unit at 10 weeks (60 lb). (As farrowing intensifies to more than 6 times per year, pigs may be moved at about 8 weeks.) Put into smaller pens if you have two pen sizes. Put more pigs per pen if you have only one pen size.
Move pigs to larger pens, or reduce number of pigs per pen, at about 17 weeks (125 lb).
As they approach market weight, and if the finishing unit is crowded, larger hogs can be marketed early.
Sows are often rebred during the first or second heat period after weaning, and farrow about 16 weeks later.

LUMBER SPECIFICATIONS

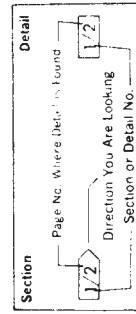
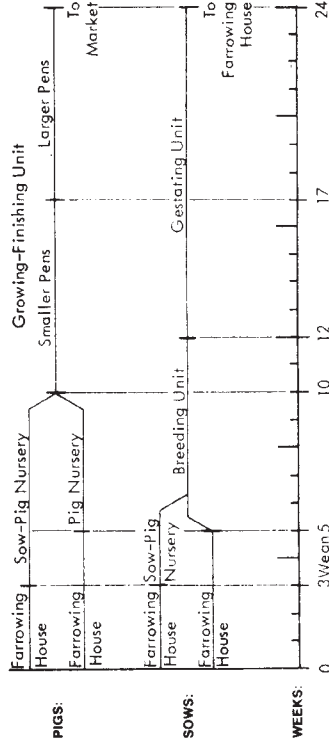
Roof Purlins and Studs
Construction Grade (Doug Fir, Southern Pine or Hem-Fir)
Truss Truss Piece
Plywood

Roof Sheathing—3/4" C-C-Ext (Identification Index = 200)
Siding and Wall Lining and Ceiling—1/2" or 5/8" C-C-Ext with Medium Density Overlay

Sills and Fascia
Pressure Preservative Treated (Southern Yellow Pine or equivalent) Creosote—8 pct. Pentachlorophenol (PCA)—0.25 pct. ACA or CCA (Type A or B)—0.25 pct.

P. T. means lumber pressure preservative treated against insect and fungus attack.

TYPICAL HOUSING CYCLES

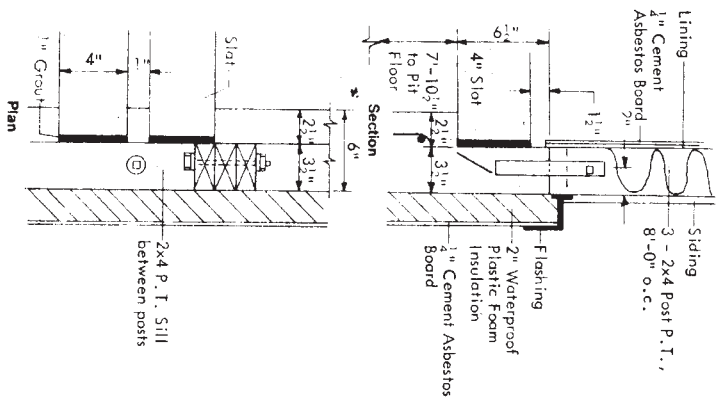


Section & Detail Indicator

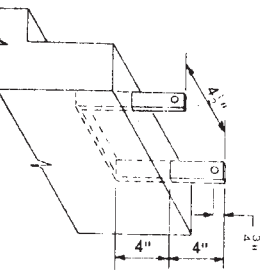
MWPS MIDWEST PLAN SERVICE
Cooperative Extension & Research in Agriculture & Home Economics in the 12 North Central Universities—USDA Cooperating
Off-Center Alley, 320 Pigs

8 Pages plus Plan No. **72690** Page **1** of **10**
32' Truss Sheet mwps: **72690**

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POLE & WALL DETAIL—3/2



POLE ANCHOR DETAIL—4/2

1/2" x 1 1/2" x 22" Steel Drill 9/16" Holes for 1/2" x 8" Machine Bolt.

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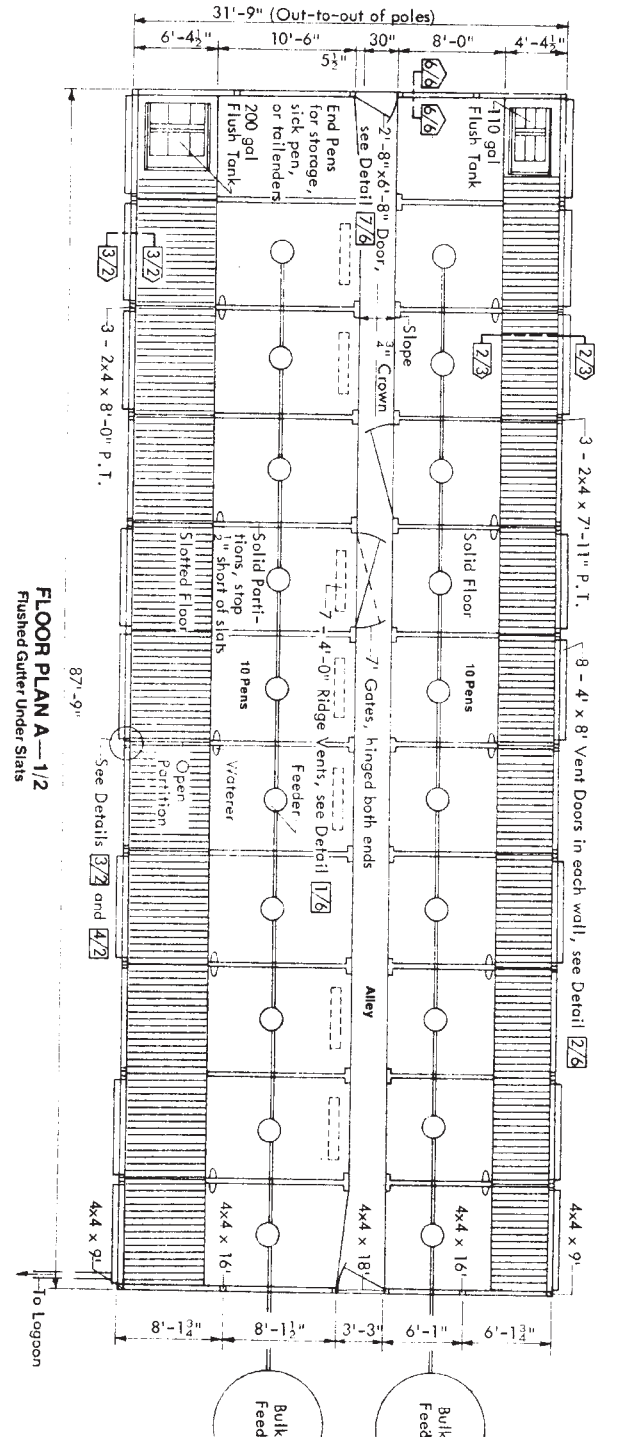
Cooperative Extension & Research in Agriculture & Home Economics in the 12 North Central Universities—USDA Cooperating

SWINE FINISHING HOUSE

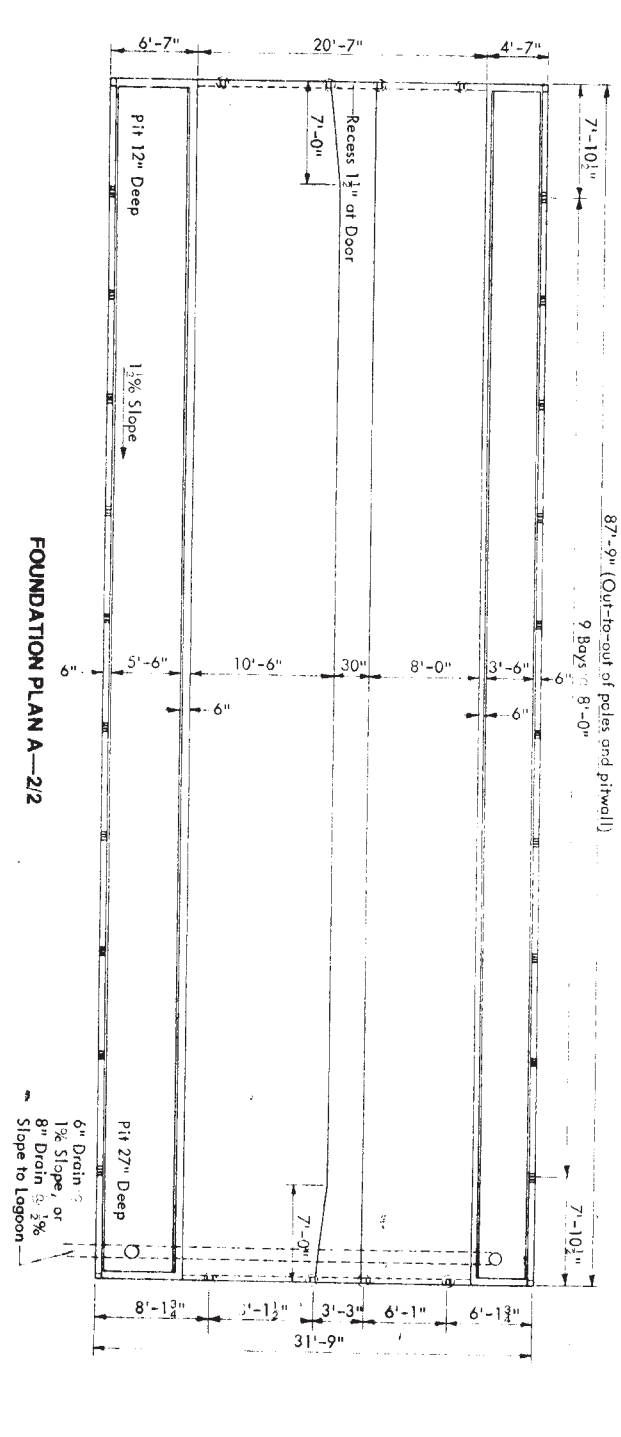
Off-Center Alley, 320 Pigs

# Pages plus	Plan No.	Page
32' Truss Sheet	72890	2 of 10

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FLOOR PLAN A—1/2
Flush Gutter Under Slats



FOUNDATION PLAN A—2/2

Open Ridge, Detail 17/8
 Prefabricated Roof Panels, see Detail 5/3

32' Span Trusses, 8' o.c. See Truss Page for Details.
 2x4 Purlins on edge, anchor with 1-60d ringshank nail per truss.

Maximum Spacing: Snow Zone 1, 32" o.c.
 Snow Zone 2, 24" o.c.
 Snow Zone 3, 20" o.c.

Roofing and Siding
 28 ga steel, 100 nails/100 sq ft or
 0.024" aluminum, 120
 nails/100 sq ft

5" Gutter

2x6 Top Girt
 4'x8' Pivoting Vent Door, see
 Detail 27/8, or roll-down curtains

150 watt Lights, 16' o.c.
 Provide outlets for 250 watt
 heat lamps.

2x4 Truss Ties, continuous
 2 - 2x6 x 10' Crossbracing,
 installed during truss erection

2x6 and Siding
 2x6 Knee Brace,
 8' o.c.

7'-10" Solid Partition

10'-4" Solid Partition

3 - 2x4 x 8'-0" P. T.

Slope 1/4" / ft

Slope 1/4" / ft #3 Dowel, 8' o.c.

8'-0"

4' Slats, 1" apart
 #3 Dowel, 8' o.c.

4" Concrete Floor
 4" x 4 1/2" x 6' Slats,
 1" apart
 #3 Dowel,
 8' o.c.

4'-0"

1 1/2" Step

1 1/2" Step

6'-0"

3" Crown

Concrete 1 1/2" above
 Slats, Detail 5/6
 6" Pit Wall

4'-0"

3'-6"

5'-6"

6'-6"

4'-6"

10'-4 1/2"

6'-6"

7'-10 1/2"

31'-9" (Out-to-out of poles)

To Approved
 Disposal

Perimeter Insulation

Flashing

1/4" Cement

Abestos Board

2" x 24" Water-
 proof Foam
 Insulation

#3 Bar in
 Sidewalls

1" x 10" Anchor Bolt, 8' o.c.

1/2" Grout Joint

4" x 4" x 4'-0" Concrete Slats,
 1" apart

#3 Bar Vertically, 8' o.c.

#3 Bar Horizontally,
 18" o.c.

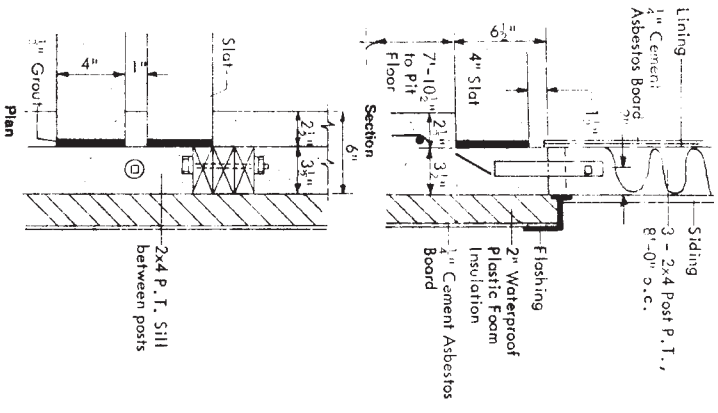
6x6, 10/10 Welded
 Wire

4"

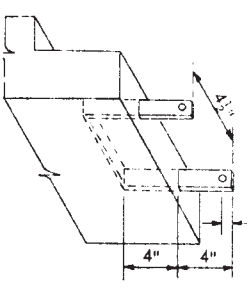
3'-6"

CROSS SECTION A-1/3
 Flushed Gutter Under Slats

SIDEWALL DETAIL-2/3



POLE & WALL DETAIL—3/4



POLE ANCHOR DETAIL—4/4

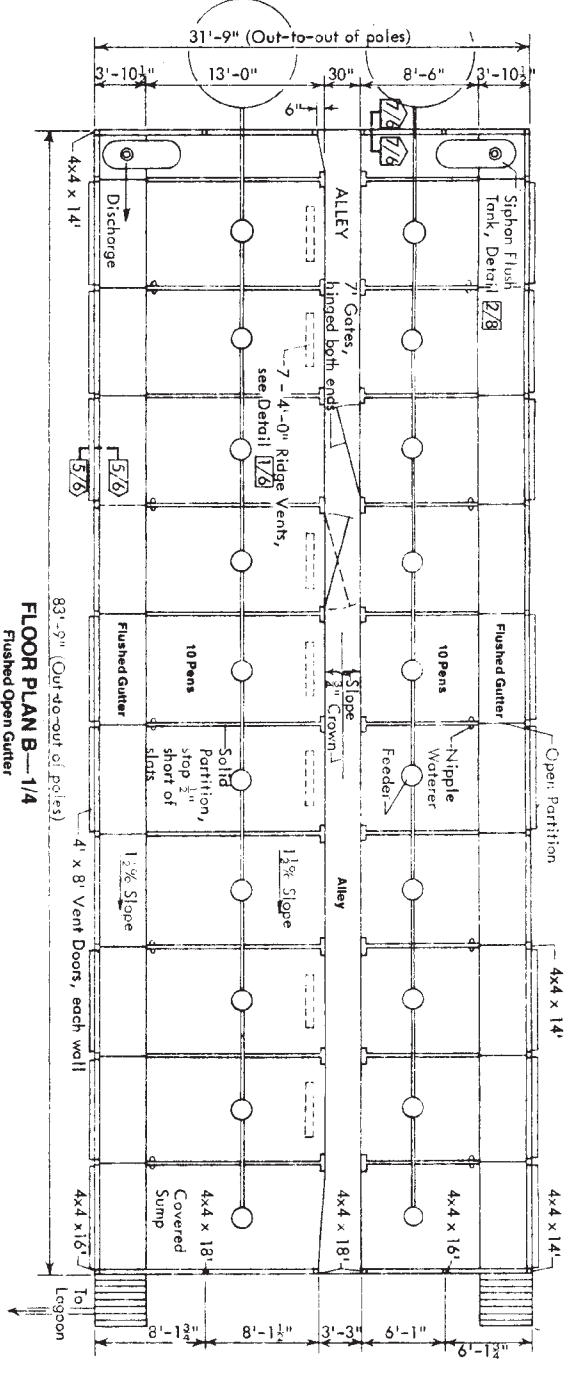
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& Home Economics in the 12 North Central
Universities—USDA Cooperating

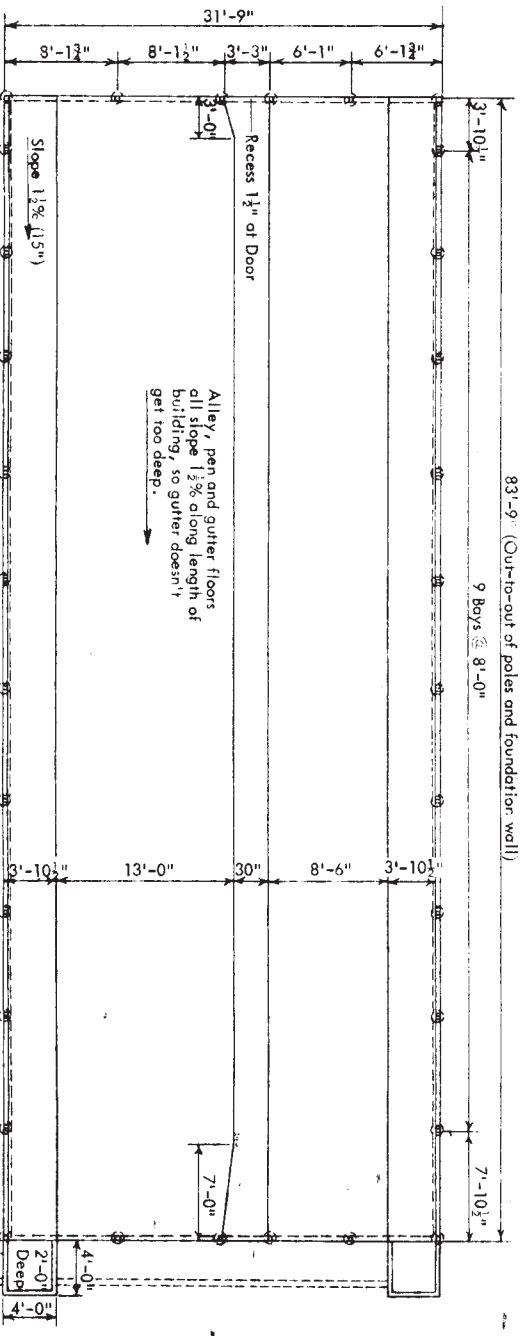
SWINE FINISHING HOUSE

On Center Alley, 320 Pigs

8 Programs	Plan No.	Page
321 Truss Steel	72890	4 of 10
Oct 27, 1978 Midwest Plan Service America 50011		



FLOOR PLAN B—1/4
Flushed Open Gutter



FOUNDATION PLAN B—2/4

Sump, 3/3" concrete
walls and floor
6" Drain @ 1% or
8" @ 1/2% Slope to Lagoon

32' Span Trusses, 8' o.c. See Truss Page for details.
 Roofing over Prefabricated Insulated Panels, Detail 17/6
 2x4 Purlins on edge, anchor with 1-60d ringside
 nail per truss.
 Maximum Spacing: Snow Zone 1, 32" o.c.
 Snow Zone 2, 24" o.c.
 Snow Zone 3, 20" o.c.

Open Ridge, Detail 17/6

12
 4

Roofing and Siding
 28 ga steel, 100 nails/100 sq ft, or
 0.024" aluminum, 120 nails/100 sq ft

5" Gutter
 24"
 4'-1"
 3'-2 1/2"
 7'-9 1/2"
 10 3/4"-25 1/2"

2x6 Top Girt
 2x4 Plate
 4' x 8' Pivoting Vent Door,
 Detail 17/6
 8'-5 1/2" Solid Partition
 8'-0"
 13'-0"

150 watt Lights,
 16' o.c.
 Provide outlets for
 250 watt heat lamps
 2x4 Truss Ties, continuous
 2 - 2x6 Crossbracing, installed
 during truss erection
 2x6 and Siding
 2x6 Knee Brace, 8' o.c.
 4x4 x 14' Treated Post

3'-10 1/2"
 8'-6"
 31'-9" (Out-to-out of posts)

12'-11 1/2" Solid Partition
 Slope 1/4"/ft
 4" Concrete Floor
 3 1/2" Step
 #4 Bar, top and
 bottom
 3'-10 1/2"

3"
 1"
 30"

CROSS SECTION B—1/5
 Flushed Open Gutter

1" Cement
 Asbestos Board
 8" CD-X Plywood
 Vapor Barrier
 Insulation, R-13+
 Siding
 Flashing
 About 4"
 Clearance
 2 Anchor Bolts
 per 8' P. I. Sill
 1" Crown
 3"
 3'-10 1/2"
 4" Floor
 #3 Dowel,
 8' o.c.
 3'-10 1/2"

GUTTER DETAIL—2/5

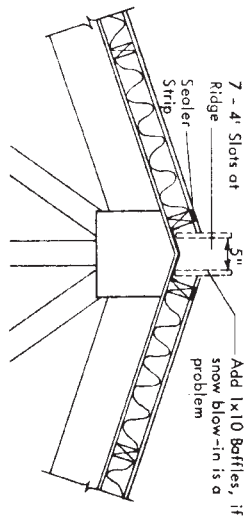
2" x 24" Waterproof
 Plastic Foam Insulation
 1" Cement Asbestos
 Board

13" to 28"
 3'-4 1/2"
 36"

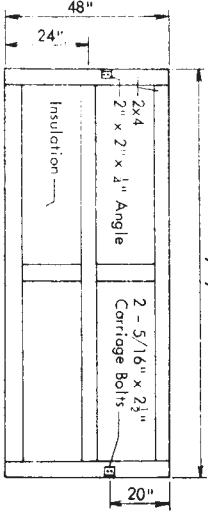
4" Floor
 4" Floor

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Cooperative Extension & Research in Agriculture & Home Economics in the 12 North Central Universities—USDA Cooperating	
SWINE FINISHING HOUSE Off-Center Alley, 320 Pigs	
# Pages plus 32' Truss Sheet	Plan No maps 72690
Page 5 of 10	



OPEN RIDGE VENT DETAIL—1/6

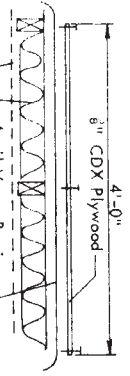


Glue end nail 3/4" CC Exterior Plywood on the inside. Install insulation. Nail metal siding on the outside.

* Alter this dimension for other than 4" wide sliding posts or other than 8" o.c.

VENTILATION DOOR—2/6

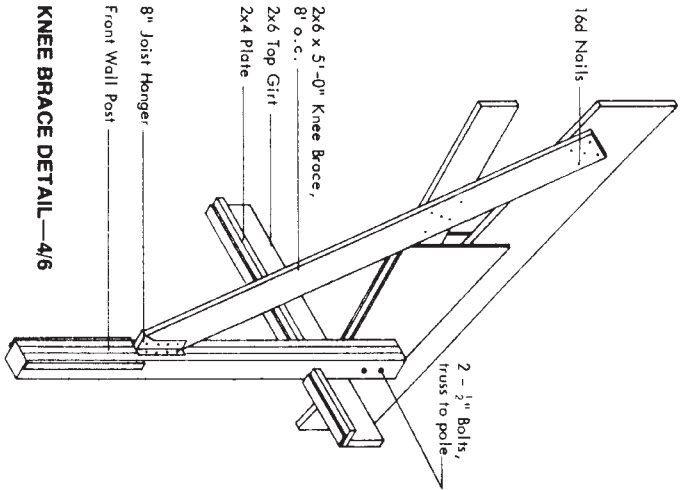
Consider commercial automatic door openers.



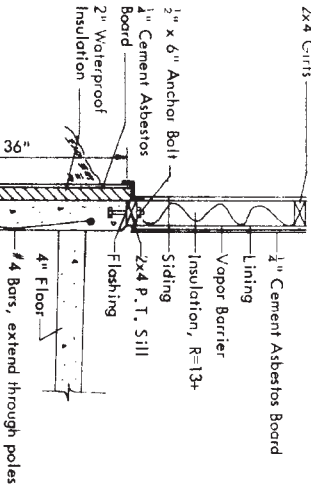
Fabricate 4x8 and 4x16 panels upside down. Invert and install the panels, staggering the end joints.

INSULATED ROOF PANELS—3/6

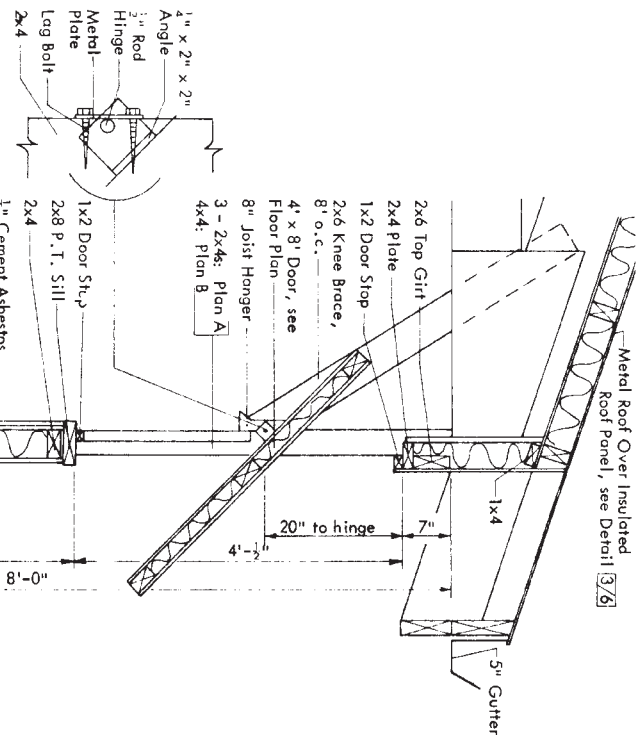
Reduce heat gain in summer and heat loss in winter.



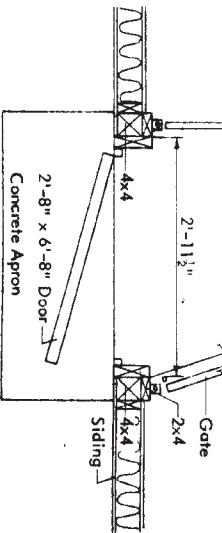
KNEE BRACE DETAIL—4/6



ENDWALL SECTION—6/6



INSULATED WALL SECTION—5/6



WALK DOOR DETAIL—7/6

Alley and door sill are 1/2" below top of foundation wall.

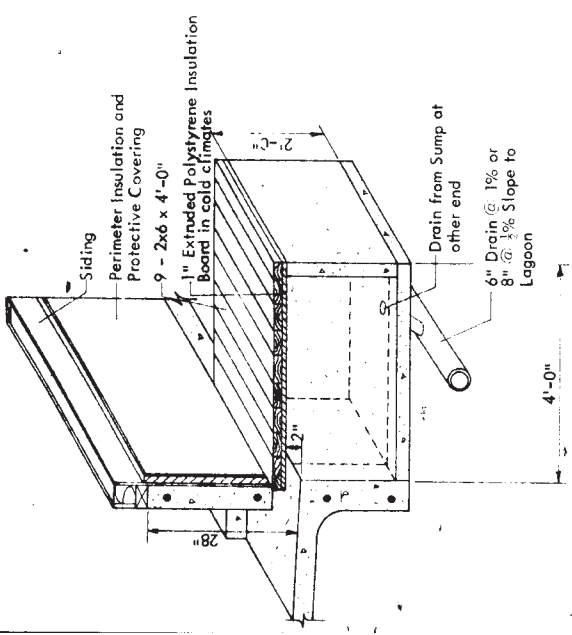
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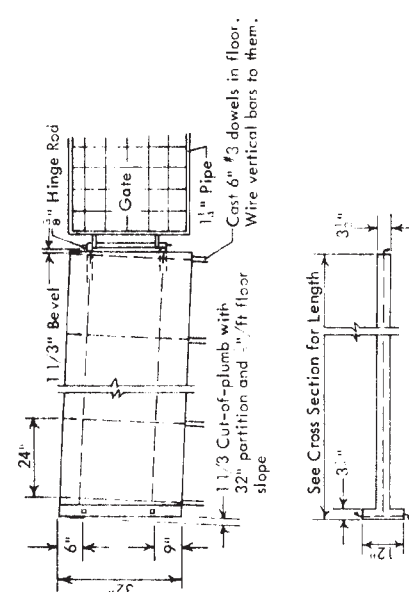
SWINE FINISHING HOUSE

Off-Center Alley, 300 Pigs

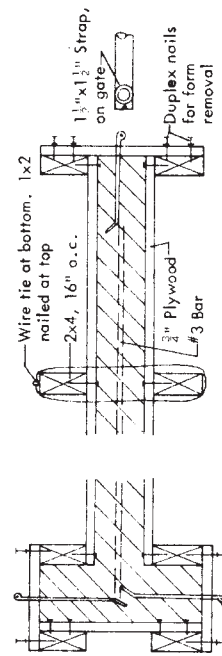
8 Pages Plus	Plan No.	Page
32' Truss Sheet	maps: 72890	6 of 10



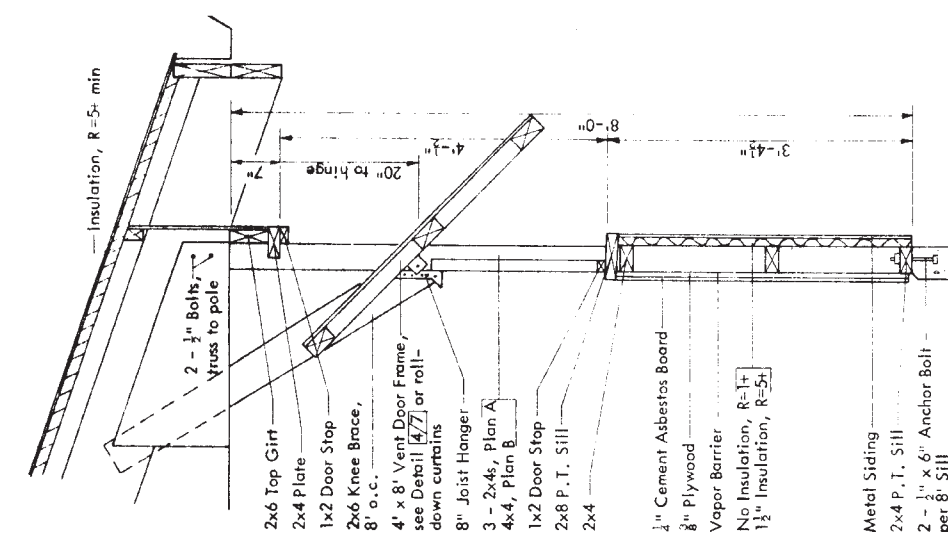
SUMP DETAIL—1/7



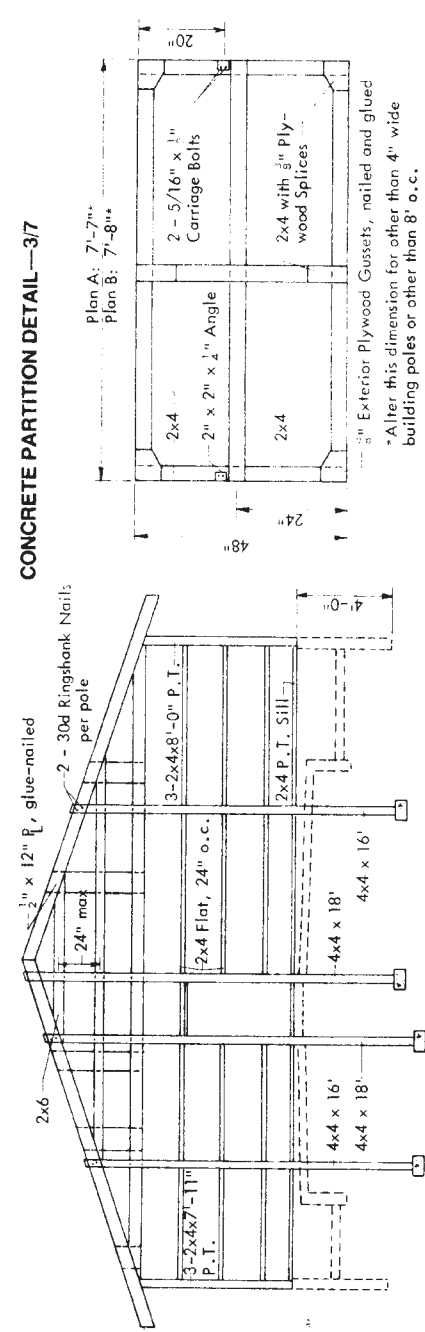
1 1/3 Bevel
3/8" Hinge Rod
Gate
1 1/2" Pipe
Cast 6" x 8" x 3" dowels in floor.
Wire vertical bars to them.
1 1/3 Cut-of-plumb with
32" partition and 1/2" floor
slope
See Cross Section for Length



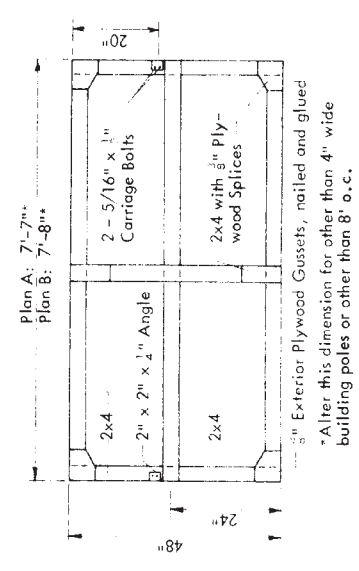
CONCRETE PARTITION DETAIL—3/7



OPTION—UNINSULATED WALL—5/7



PLAN A. ENDWALL FRAMING—2/7



4' x 8' VENT DOOR FRAME—4/7
Consider commercial automatic door openers.

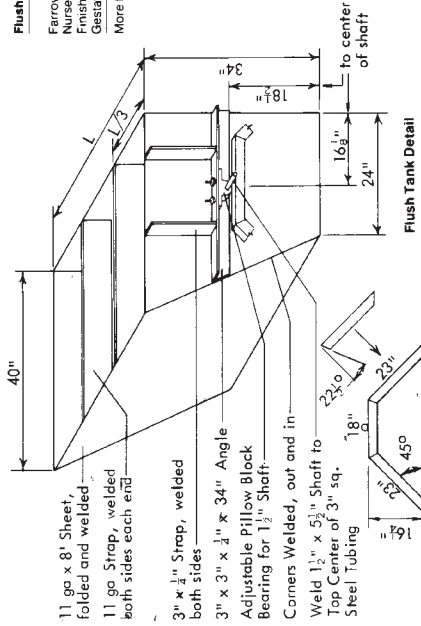
Variable Dimensions

Gutter width	2 1/2	4	6	8 and wider
Tank length, L	23"	41"	65"	89"
Back splash width, W	29"	47"	71"	95"
Flush volume, gal.	100	150	300	400

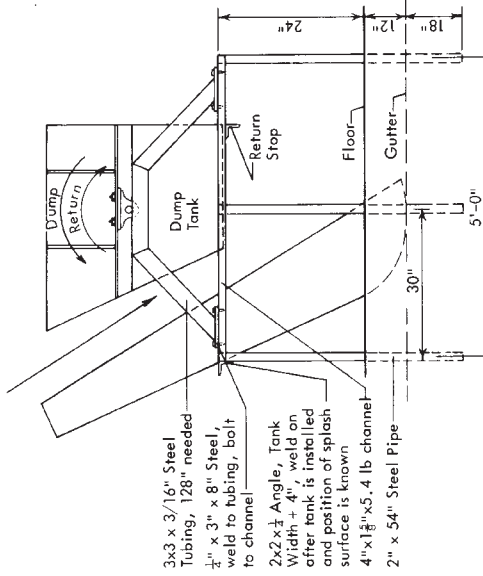
Flush Frequency—minimum flushes per day

Farrow	2	Open gutter
Nursery	4	
Finish	6	12
Gestation	4	6

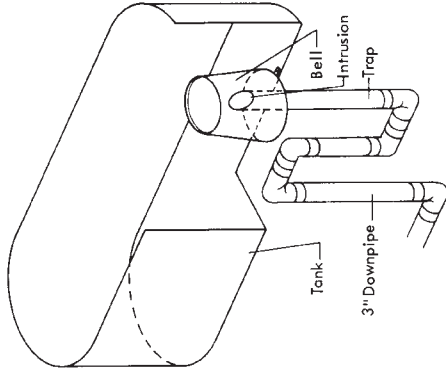
More flushes per day tend to decrease odors.



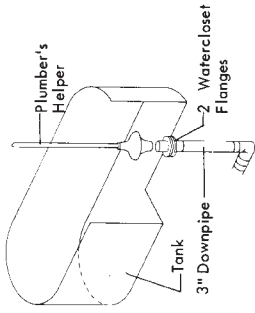
Flush Tank Detail



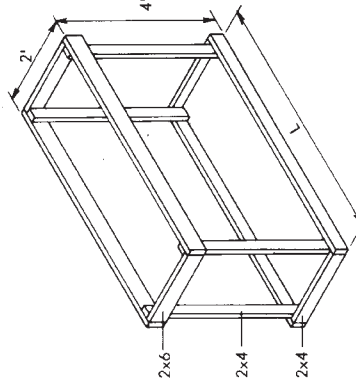
FLUSH TANK, Self Dumping—177



SIPHON FLUSH TANK—27
See MWPS AED-17



Manual Flush Tank



Flush Tank Support Frame

... than 6" install ... of

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FARROWING HOUSE
Flushed under slats, 20 sows

7 Pages plus	Plan No.	Page
24 Truss Sheet	mpps: 72681	7 of 10

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3/79 5/78