

# MWPS-72686

## Pig Nursery

Full-slotted floor, 20 litters. This plan is for a 24' x 32' (or 36') stud-frame building with year-round mechanical ventilation and housing 20 litters. Plan A shows a slotted floor over 4' deep manure storage pits. Plan B shows a slotted floor over shallow pits that are flushed by two siphon-flush tanks.

### **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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<b>MIDWEST PLAN SERVICE</b>
Cooperative Extension Work in Agriculture and Home Economics and Agricultural Experiment Stations of North Central Region - USDA Cooperating
Pig Nursery Full-slotted Floors, 20 litters
Title Page
MIDWEST PLAN NO. 72686

**Plan MWPS-72686  
PIG NURSERY**

**Full-slotted Floor, 20 Liters**

This plan is for a 24' x 32' (or 36') stud-frame building with year-round mechanical ventilation and housing 20 litters.

Plan A shows a slotted floor over 4 deep manure storage pits. Plan B shows a slotted floor over shallow pits that are flushed by two siphon-flush tanks.

**General Specifications**

**Fans:** Select exhaust fans for the stated capacity at 1/2" static pressure, especially pit fans to prevent backdrafting when larger fans are on.

**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.

**Heat:** Desired room temperature is about 78°F. Recommended heater provides 2200 Btu per litter. Heat lamps, radiant heaters, and heat pads are optional.

Set one 8" diam. PVC pumping port to serve as an emergency overflow from each pit. The lip of the plastic pipe must be below the pit ventilation inlets. Discharge any overflow to an approved facility. Pump from pits often enough to prevent overflow.

**Protecting swine from fan failure.**

We know of no device that will successfully ventilate a hog house automatically in the case of failure of one or more fans or the whole electric supply system.

- Install a loud automatic warning system to alert anyone at or near the farmstead.
- Have someone baby-sit your animals if you are going to be away for more than a few hours, if there are storm warnings out, or if your herd is in an especially sensitive stage (a number of new-born litters, for example).
- Post instructions on what to do in hot weather, mild weather, cold weather, who to phone for additional advice, etc.
- Prepare walk-doors and perhaps summer ventilation panels to be propped open part way or fully.
- Consider a stand-by generator to augment hand-opened doors, operate pit fans, and in hot weather, circulating fans.
- Consider automatic telephone that dials selected numbers when power fails.

**Manure Pit Storage**

Pit depth based on 0.05 cu ft/day manure per pig; 6" in pit after pumping; 18" freeboard, and additional clearance to improve underfloor ventilation.

**Slat designs**

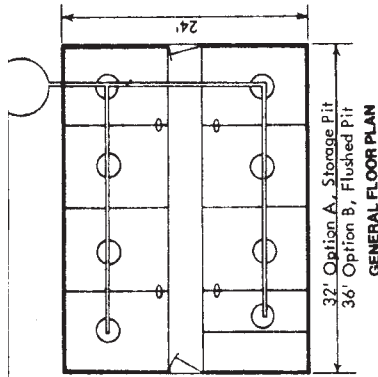
Dimensions in these plans assume concrete slats as listed below and may need to be adjusted for other design or materials. About 1/2" is allowed at each end of a slat for construction variation and grouting.

Space slats 1/4" apart in farrowing stalls, with the slats widened to 1" behind the sows. For other swine buildings, use 1" slats.

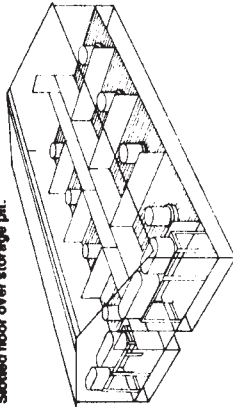
Slat span	Pig nursery	Finishing	Farrowing, sow-pig nursery, or gestation
4	4"x4" #3	Width x depth, lower bar size	4"x4" #3
6	4"x4" #4	4"x4" #4	4"x4" #4
8	4"x4" #4	5"x5" #4	6"x5" #5
10	4"x5" #4	5"x5" #5	6"x6" #5

Design Loads	
Slats	Per foot of slat 150 plf
Beams,	Per sq ft floor area 50 psf
columns	35 psf 65 psf



**PLAN A**  
Slotted floor over storage pit.



**PLAN B**  
Slotted floor over flushed pit.

**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.

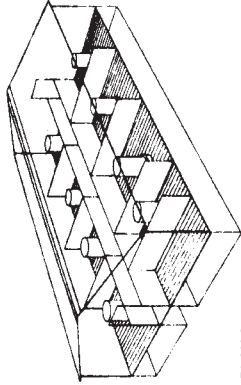
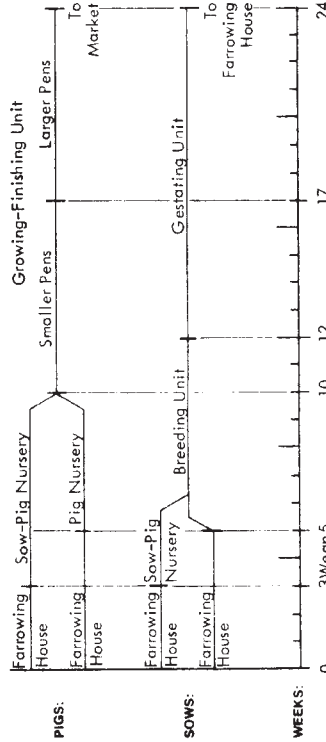
- Either:
- Move sows and litters to sow-pig nursing pens at 1-3 weeks, depending on how soon the farrowing stalls are needed for the next sow.
  - Return sows to breeding and gestation facilities.

- Or:
- Move pigs at 4-6 weeks (20-25 lb).  
Move pigs to nursery.
  - Return sows to breeding and gestating facilities.

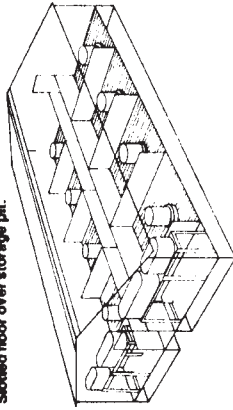
Move pigs to finishing unit at 10 weeks (60 lb). (As farrowing intensifies to more than 6 times per year, pigs may be moved at about 8 weeks.) Put into smaller pens if you have two pen sizes. Put more pigs per pen if you have only one pen size.

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.

**TYPICAL HOUSING CYCLES**



**PLAN A**  
Slotted floor over storage pit.



**PLAN B**  
Slotted floor over flushed pit.

**LUMBER SPECIFICATIONS**

Roof Purlins and Studs  
Construction Grade (Doug Fir, Southern Pine or Hem Fir)

Trusses  
See Truss Page

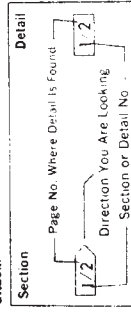
Plywood  
Roof Sheathing—3/4" C-CEX (Identification Index—W-200)

Stair and Wall Lining and Ceiling—3/4" Overlay—CC-Ext with Medium Density Overlay

FRP Plywood is a composite material using plywood overlaid with a layer of plastic. It is moisture resistant and more durable and easier to clean than plywood.

Sills and Fascia  
Pressure Preservative Treated (Southern Yellow Pine or equivalent) Creosote—8 pct. Penta—0.40 pct., ACC—0.25 pct. ACA or CCA (Type A or B)—0.23 pct.

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

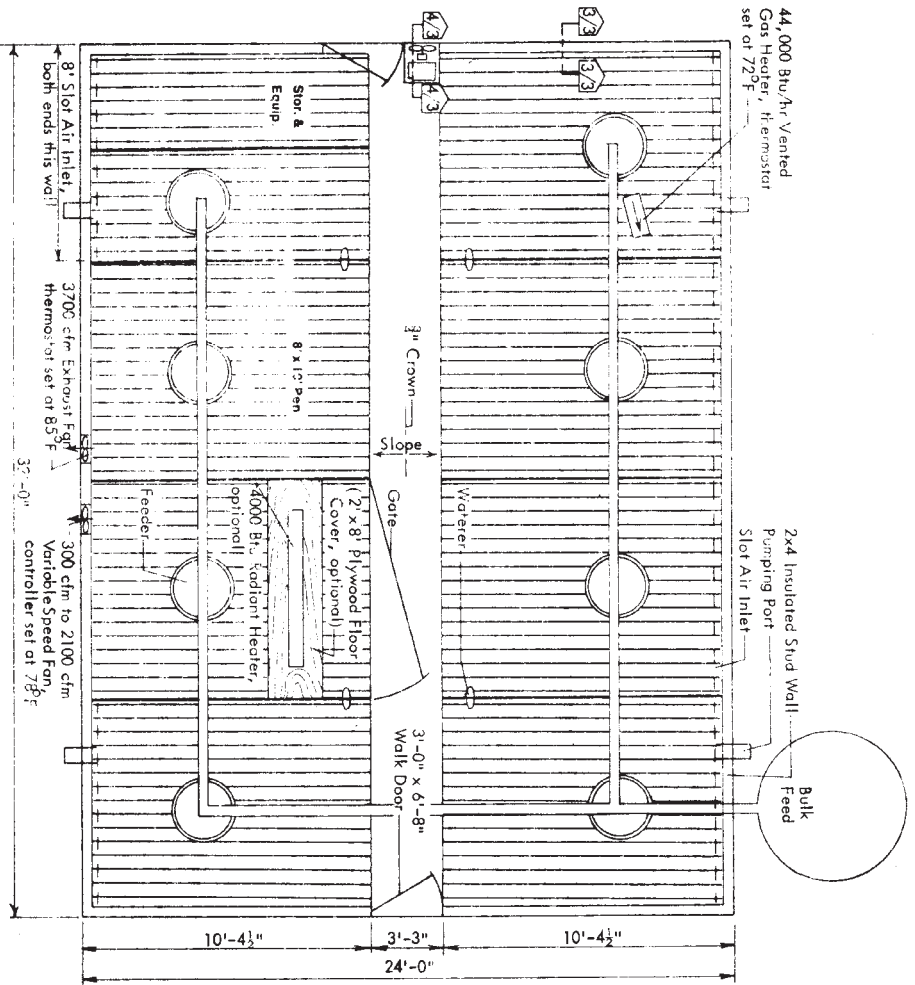


**Section & Detail Indicator**

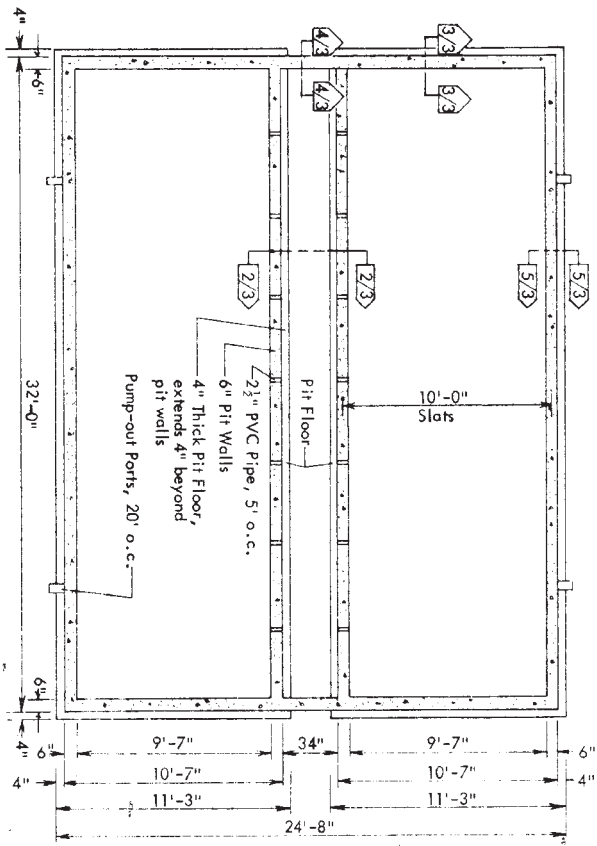
MIDWEST PLAN SERVICE	
Cooperative Extension & Research in Agriculture & Home Economics in the 12 North Central Universities—USDA Cooperating	
PIG NURSERY Full-slotted Floor, 20 Liters	
7 Pages plus	Plan No.
24" Truss Sheet	mwpss-72686
Page	1 of 10

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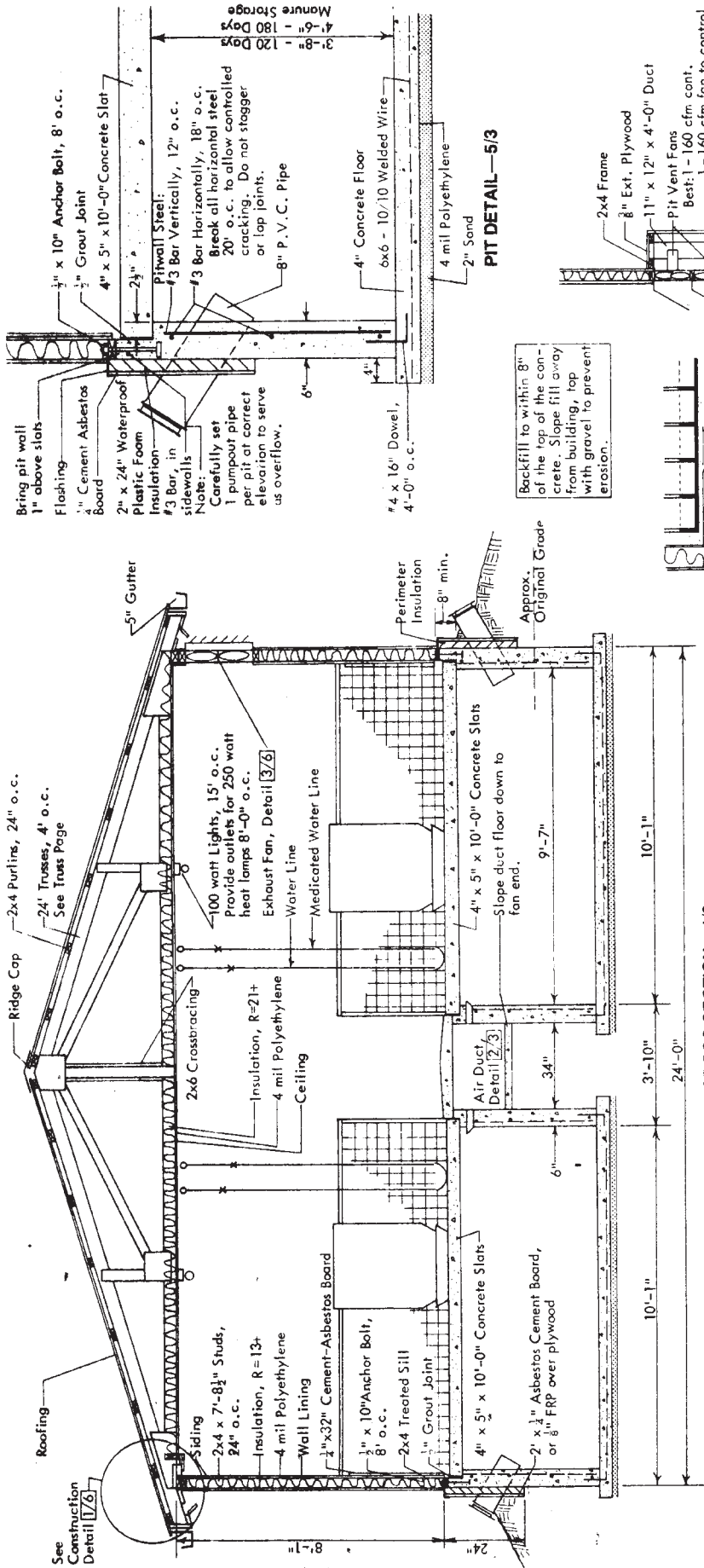
<b>MIDWEST PLAN SERVICE</b>			
Cooperative Extension & Research in Agriculture & Home Economics in the 12 North Central Universities—USDA Cooperating			
Pig Nursery			
Full-Styled Floors, 20 Litters			
7 Pages plus 34 Truss Schems	Plan No. 77566	Page 2 of 10	



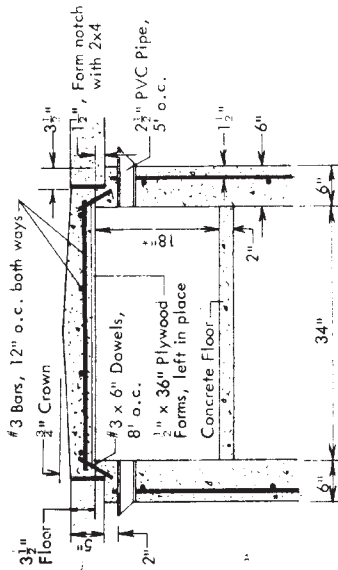
**PLAN A. FLOOR PLAN—1/2**  
Pig nursery over storage pit



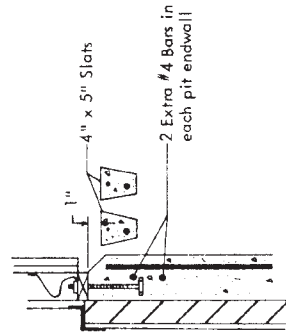
**PLAN A. FOUNDATION PLAN—2/2**



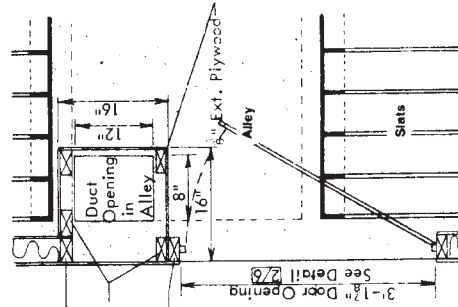
**PLAN A. CROSS SECTION—1/3**  
Pig nursery over storage pit.



**ALLEY FLOOR DETAIL—2/3**  
\*Slope to 20" at Fan End



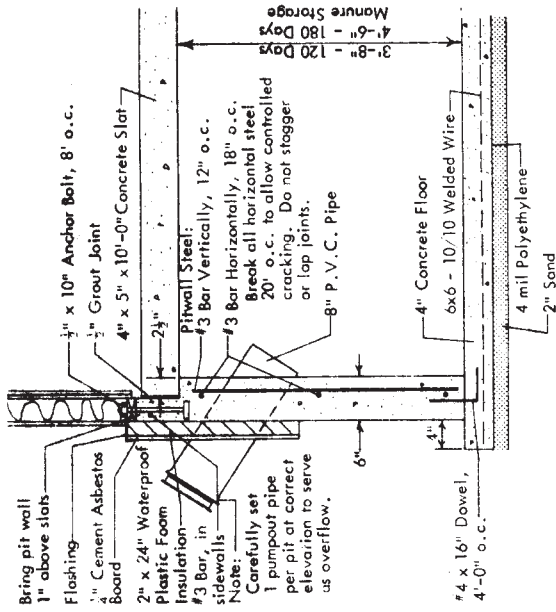
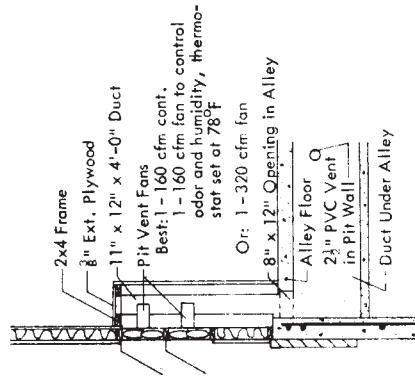
**PIT ENDWALL DETAIL—3/3**



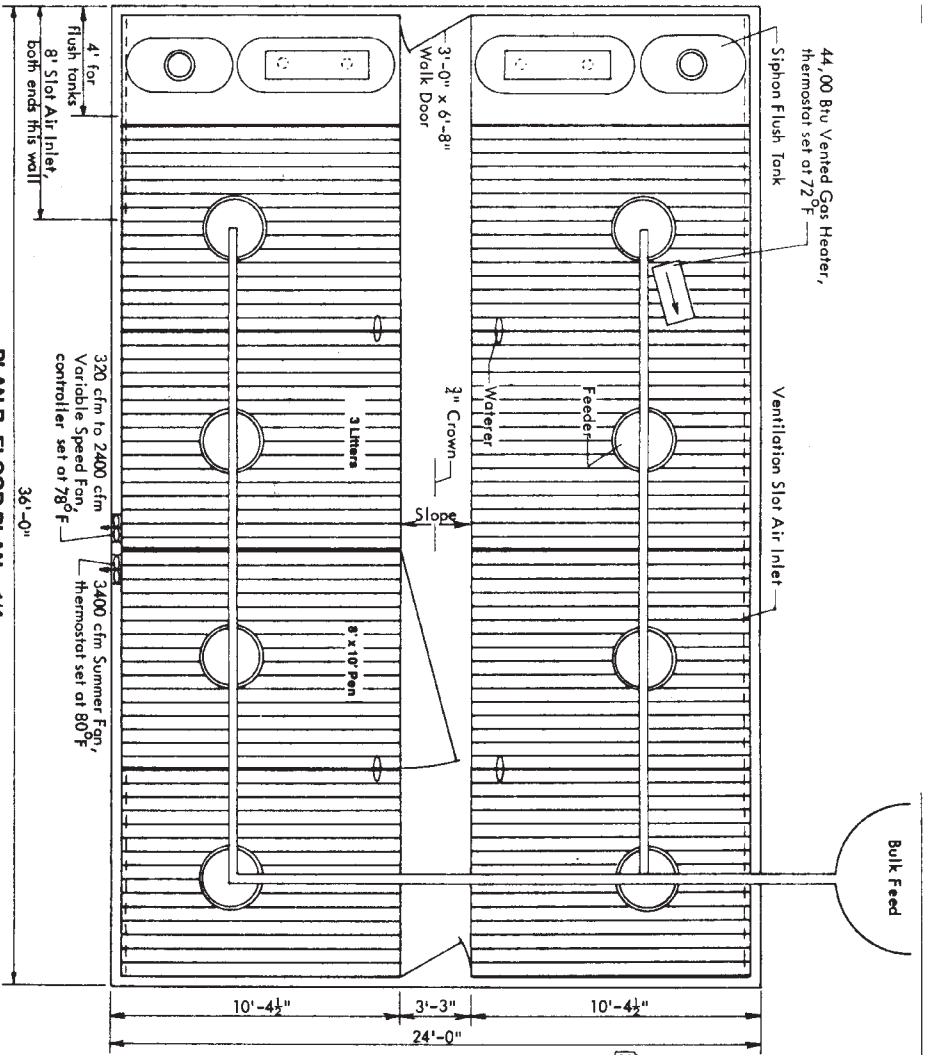
**PIT FAN DETAIL—4/3**

Backfill to within 8" of the top of the concrete. Slope fill away from building, top with gravel to prevent erosion.

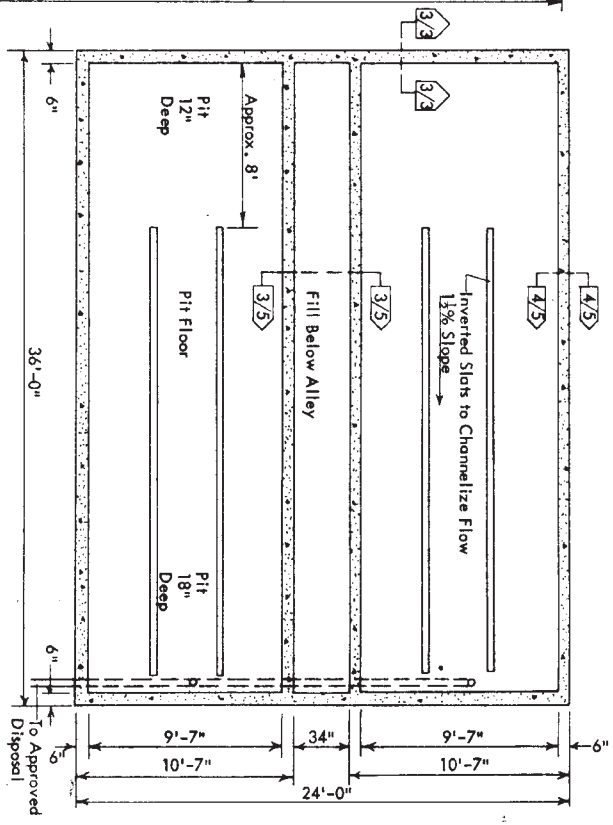
**PIT DETAIL—5/3**



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<b>PIG NURSERY</b>	
Full-Scotched Floors, 20 Liters	
7 Pages plus	Plan No.
24' Truss Sheet	mwpss-72686
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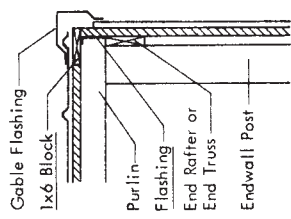
**PLAN B. FLOOR PLAN—1/4**  
Pig nursery over flushed pit



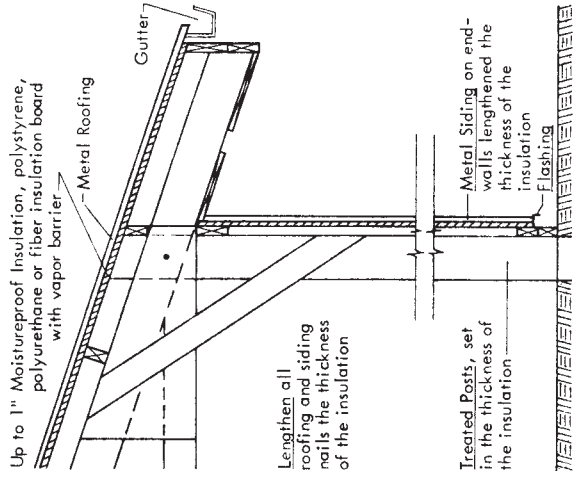
**PLAN B. FOUNDATION PLAN—2/4**

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PWS MEMBERSHIP		
Full-Student Floor, 20 Letters		
7 Pages plus	Plan No.	Page
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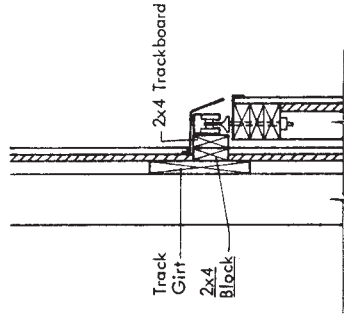
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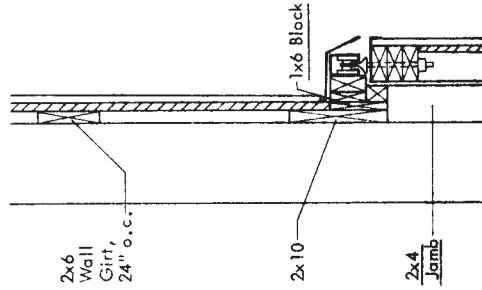
**TYPICAL GABLE END SECTION—2/6**



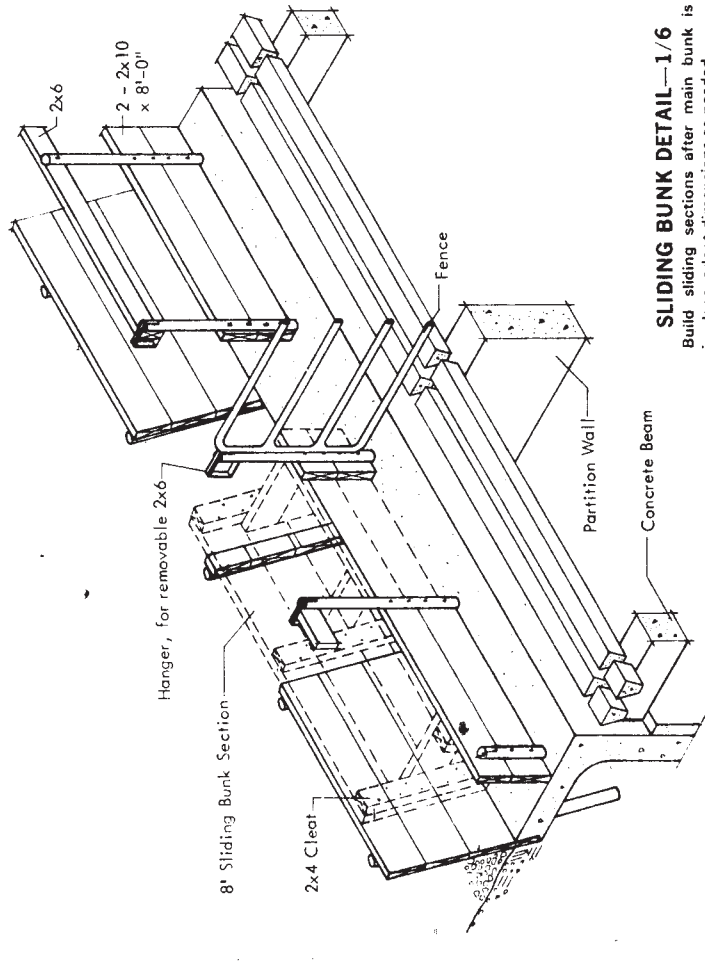
**WALL SECTION—4/6**



**ENDWALL SECTION—3/6 With Sliding Door**



**TRACK GIRT SECTION—5/6**

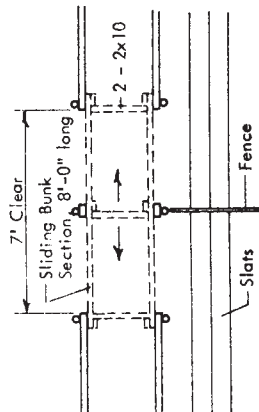


**SLIDING BUNK DETAIL—1/6**

Build sliding sections after main bunk is in place, adapt dimensions as needed.

**Alternate Lumber Specifications, Spacing and Sizes**

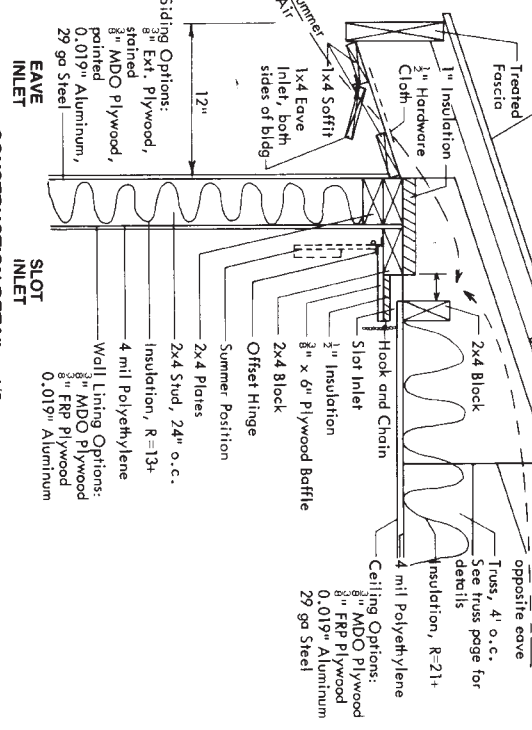
- 2x4 Roof Purlins (Construction Grade Hem-Fir)
- Min. Spacing 1: 28" o.c.
- Snow Zone 2: 24" o.c.
- Snow Zone 3: 18" o.c.
- 2x6 Wall Girts (No. 2 Hem-Fir)
- Min. Spacing: 20" o.c.
- Trusses (No. 1 Hem-Fir)
- See 17th Page, Sawn
- Posts (No. 2 Hem-Fir)
- 5x8 = ASA or ASAE Class 5, 6.0" Top Diameter
- 4x6 = ASA or ASAE Class 7, 4.8" Top Diameter
- 4x4 = ASA or ASAE Class 10, 3.8" Top Diameter



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<b>48' CONFINED BEEF SHED</b> sloated floor, open-front, inside bunk
Page 6 of 7 Pages
<b>MIDWEST PLAN NO. 72440</b>

**INSULATION DETAILS**  
Underlines show materials that change when insulation is added.

Roofing Options:  
 29 ga Galv Steel, 100 nails/100 sq ft, or  
 0.019" Alum, 120 nails/100 sq ft  
 8" Sheathing and 235 lb Asphalt  
 Shingles



**CONSTRUCTION DETAIL—1/8**

Install eave inlet along both long walls. Install slot inlet along the long wall toward the prevailing winter winds. Install fans, and 16" slot inlet near the corners, along the other long wall.

**Summer:** Open eave inlet next to slot inlet to draw air directly into building. Close eave inlet along far wall. Drop slot inlet baffle. When eave inlet is closed, windward eave inlet along far wall to draw air across attic and through slot inlet. Fasten slot inlet baffle in "up" position to force cold air across ceiling.

Hold vent doors and baffles in position with hooks and eyes.

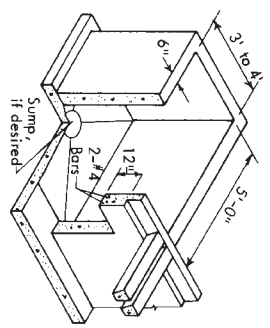
Slot Opening: 1/2"

Other ventilation systems are shown in MWPS—8, Swine Housing and Equipment Handbook.

**ANNEX FOR CHOPPER PUMP—2/8**

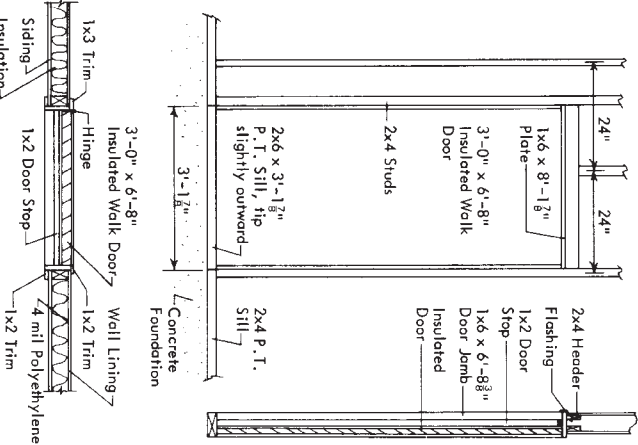
For chopper pump, use pit wall steel reinforcing in annex walls. Install at midlength of each sidewall or extend pits beyond end wall. Provide insulated cover.

Note: Steel same as pitwalls.

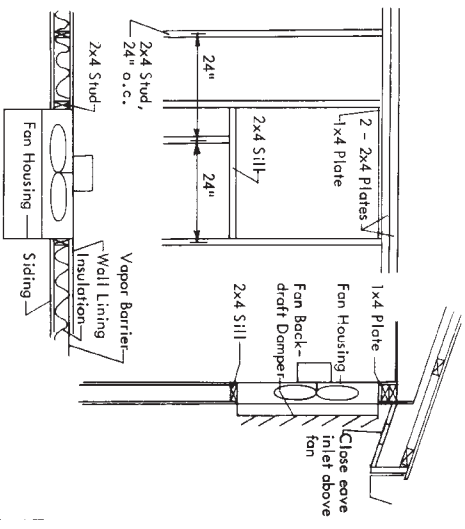


<b>MIDWEST PLAN SERVICE</b>
Cooperative Extension Work in Agriculture and Home Economics of North Central Region - USDA Cooperating
SOW & PIG NURSERY
Part-Slatted Floor, 20 Liters
Page 8 of 10 pages
MIDWEST PLAN NO. 7284S

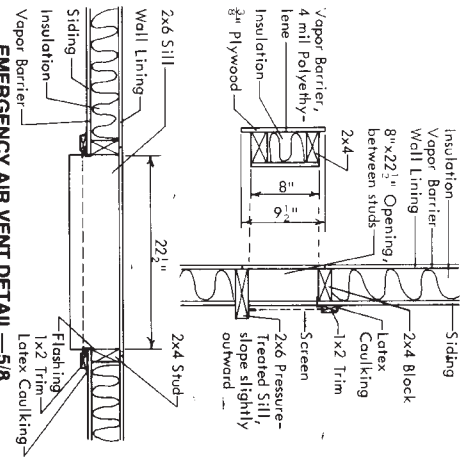
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**WALK DOOR DETAIL—4/8**



**FAN HOUSING—3/8**  
 Position fan to allow for hood or louvers.



**EMERGENCY AIR VENT DETAIL—5/8**  
 One vent every 20' of sidewall can supplement walk doors for natural ventilation during power outage and to supplement fans in hot weather. Omit in the wall section adjacent to the summer fans.

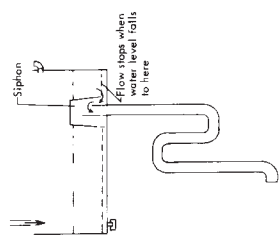
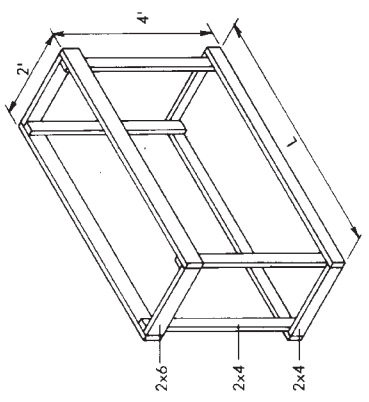
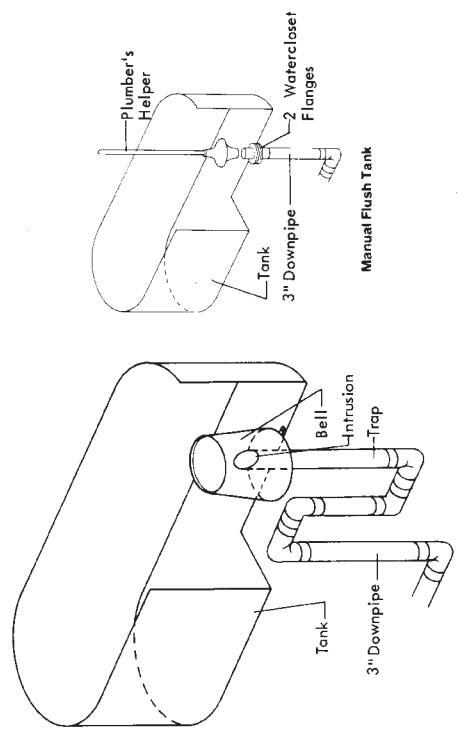
**Variable Dimensions**

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

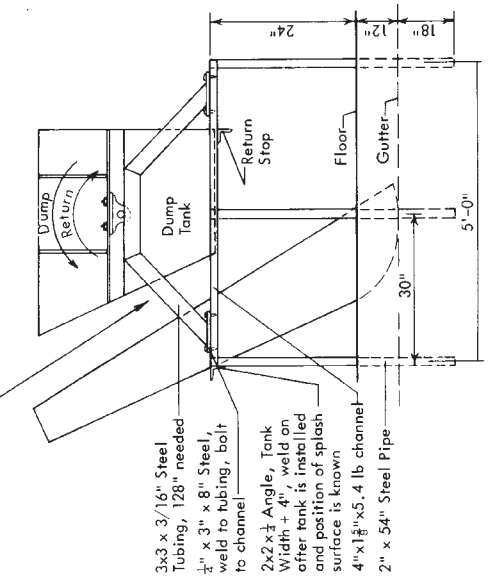
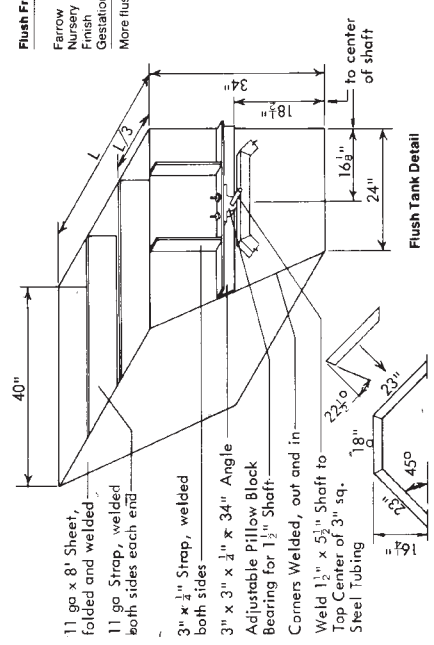
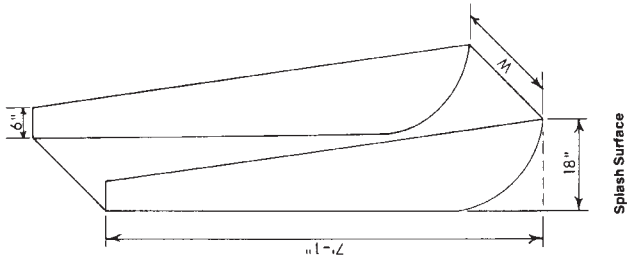
<b>Flush Frequency—minimum flushes per day</b>	
Under slats	Open gutter
Farrow	2
Nursery	4
Finish	6
Gestation	12
	4

More flushes per day tend to decrease odors.



... Tank Support Frame  
... than 6" install  
... of the  
... cross-  
... main cover top

**SIPHON FLUSH TANK—27**  
See MWPS AED-17



**FLUSH TANK, Self Dumping—17**

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**FARROWING HOUSE**  
Flushed under slats, 20 sows

7 Pages plus	Plan No.	Page
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