MWPS-72685

Sow & Pig Nursery

Part-slotted floor, 20 litters.

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.**

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
Sow & Pig Nursery Part-slotted floor, 20 litters
Title Page
MIDWEST PLAN NO. 72685

Plan MWPS-72685

20 Litter Sow and Pig Nursery

This plan is for a 24'x44' stud-frame building housing 20 sows and their pigs in 8'x10' pens with two sows per pen. Two 4'x10' pens are also included for use as sick pens, overflow, or storage. Year-round forced ventilation is provided.

Plan A shows 4' long slats over 6' deep pits for in-building manure storage. Plan B shows 4' long slats over shallow pits that are flushed from two siphon-flush tanks.

General Specifications

Fans: Select exhaust fans for the stated capacity at ⅛" static pressure.

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

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.

Heat: Desired room temperature is about 75°F. Floor heat in the creep areas supplies about 100 Btu/hr from hot water (30 Watts electric) for each sq ft; or, provide 250 watt heat lamps. A supplemental heater provides 15,000 Btu/hr for space heating.

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 0.54 cu ft/day manure per sow and litter, 6" in pit after pumping, and 12" clearance for underfloor ventilation. Increase slat length to 6' for 180 day manure storage.

Slat designs

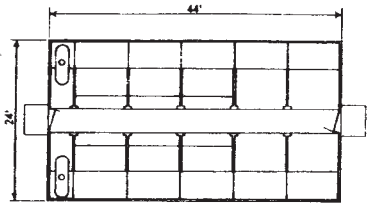
Dimensions in these plans assume concrete slats as listed below and may need to be adjusted for other designs or materials. About ½" is allowed at each end of a slat for construction variation and grouting.

Space slats ⅞" apart in farrowing stalls, with the slot widened to 1" behind the sows. For other swine buildings, use 1" slots.

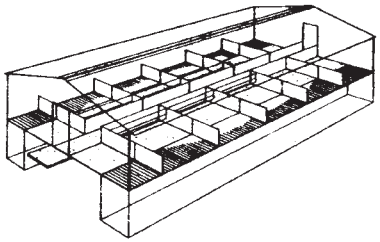
Slat span	Pig nursery	Finishing	Farrowing, sow-pig nursery, or gestation
	—Width x depth, lower bar size—		
4'	4"x4",#3	4"x4",#3	4"x4",#3
6'	4"x4",#3	4"x4½",#4	4"x4½",#4
8'	4"x4",#4	5"x5",#4	6"x5",#5
10'	4"x5",#4	5"x5½",#5	6"x6½",#5

Design Loads

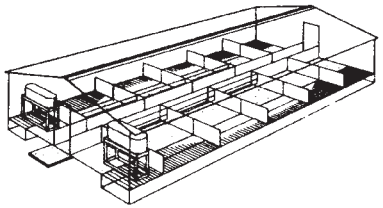
Slats	Per foot of slat		
	50 plf	100 plf	150 plf
Beams, columns	Per sq ft floor area		
	35 psf	50 psf	65 psf



GENERAL FLOOR PLAN



PLAN A
4' slats over storage pit



PLAN B
4' slats 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:

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.

Or:

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

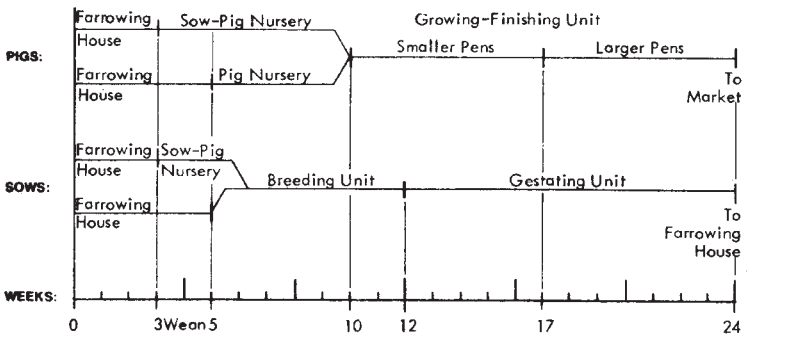
Move pigs to finishing unit at 10 weeks (60 lb). (As farrowing intensifies to more than 6 times per year, pigs may be moved at about 8 weeks.) Put into smaller pens if you have two pen sizes. Put more pigs per pen if you have only one pen size.

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



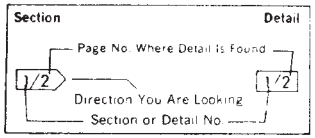
Lumber Specifications

Roof Purlins and Studs
Construction Grade (Doug Fir, Southern Pine or Hem Fir)
Trusses
See Truss Page
Plywood
Roof Sheathing—⅜" C-C Ext ("Identification Index" = 20/0)
Siding and Wall Lining and Ceiling—⅜" or ½" C-C 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 pcf, Penta—0.40 pcf, ACC—0.25 pcf, ACA or CCA (Type A or B)—0.23 pcf.

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



Section & Detail Indicator

Use 24' trusses, 4' o.c.

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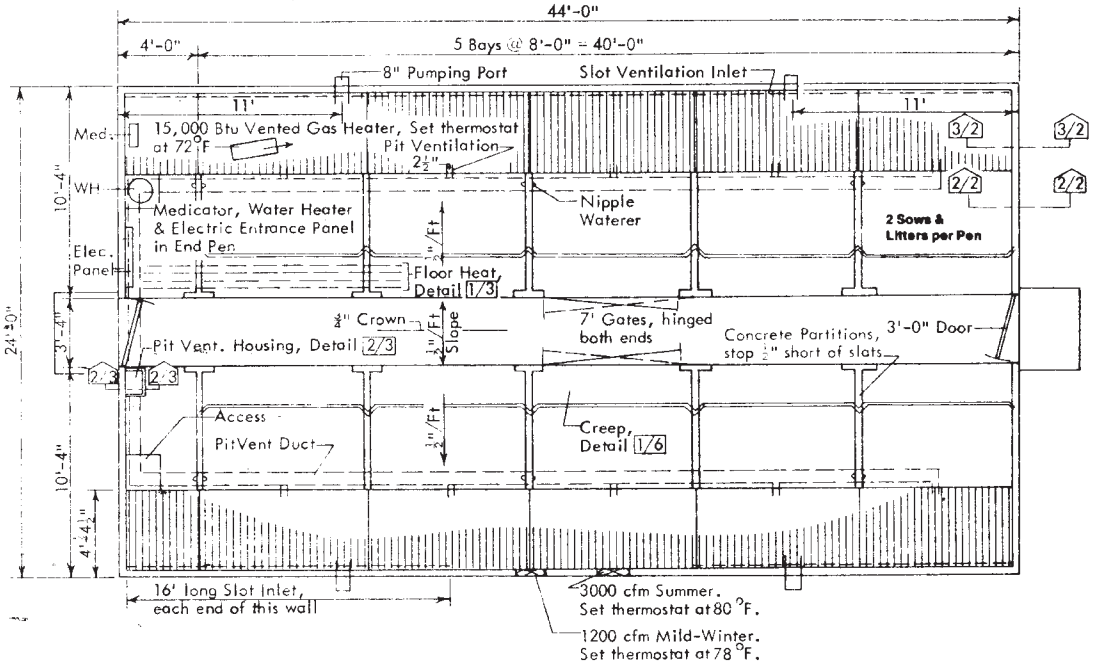
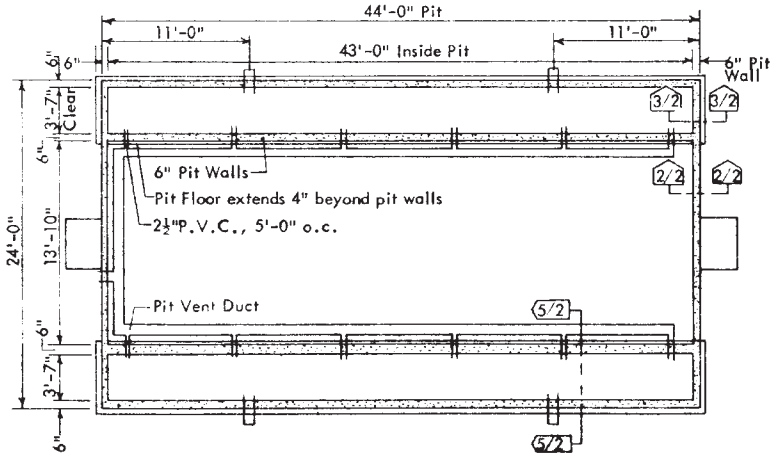
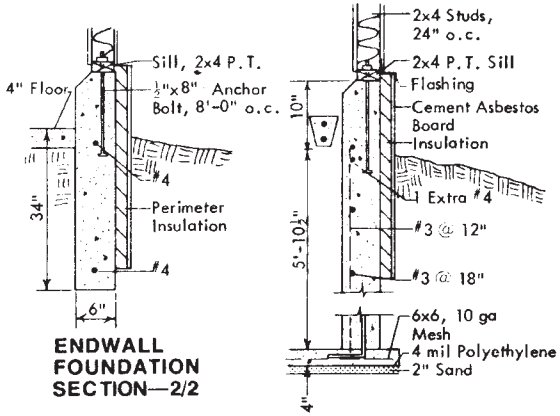
Feeders
Sow + litter: feed sow on floor; provide pig feeders in creeps.
Litters, weaned to 60 lb: open creeps; remove creep feeders; provide feeders between creep area and slats.



PLAN A. FLOOR PLAN—1/2
4' slats over storage pit.

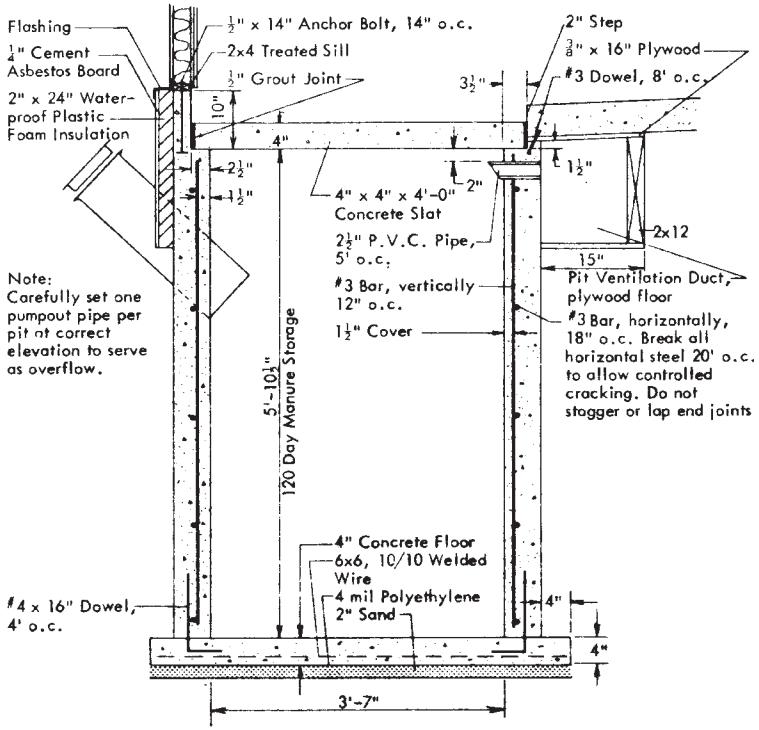


PLAN A. FOUNDATION PLAN—4/2



ENDWALL FOUNDATION SECTION—2/2

PIT ENDWALL SECTION—3/2



PIT CROSS SECTION—5/2

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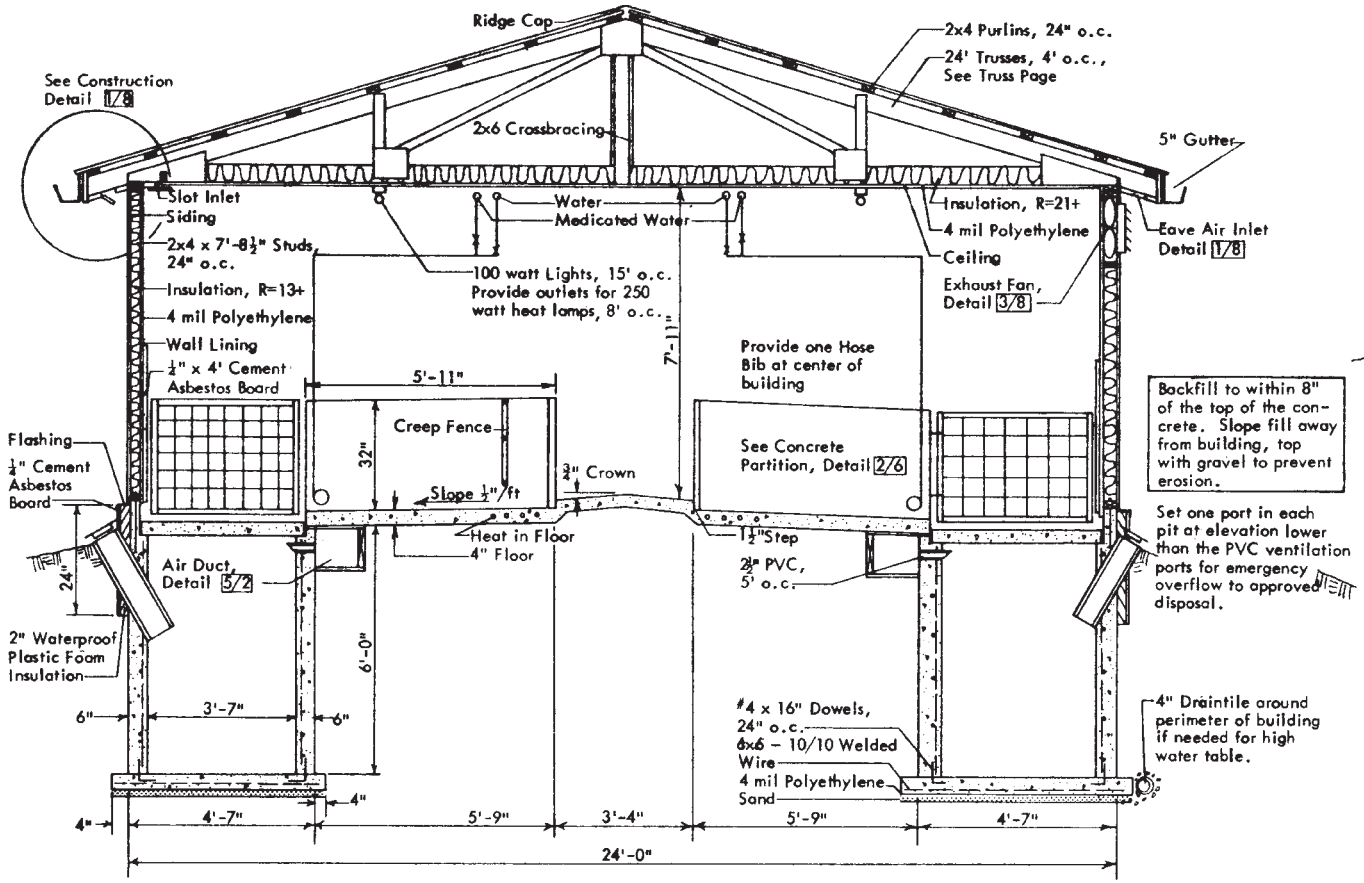


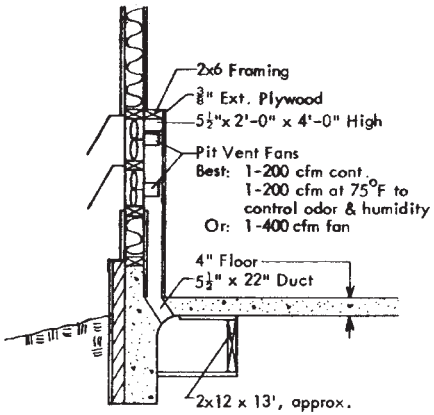
PLAN A. CROSS SECTION—1/3

4' slats over storage pit.

Consider longer slats to increase the storage capacity and the proportion of slotted floor. Shorten concrete partitions accordingly.

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

Set one port in each pit at elevation lower than the PVC ventilation ports for emergency overflow to approved disposal.



PIT FAN DETAIL—2/3

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Feeders
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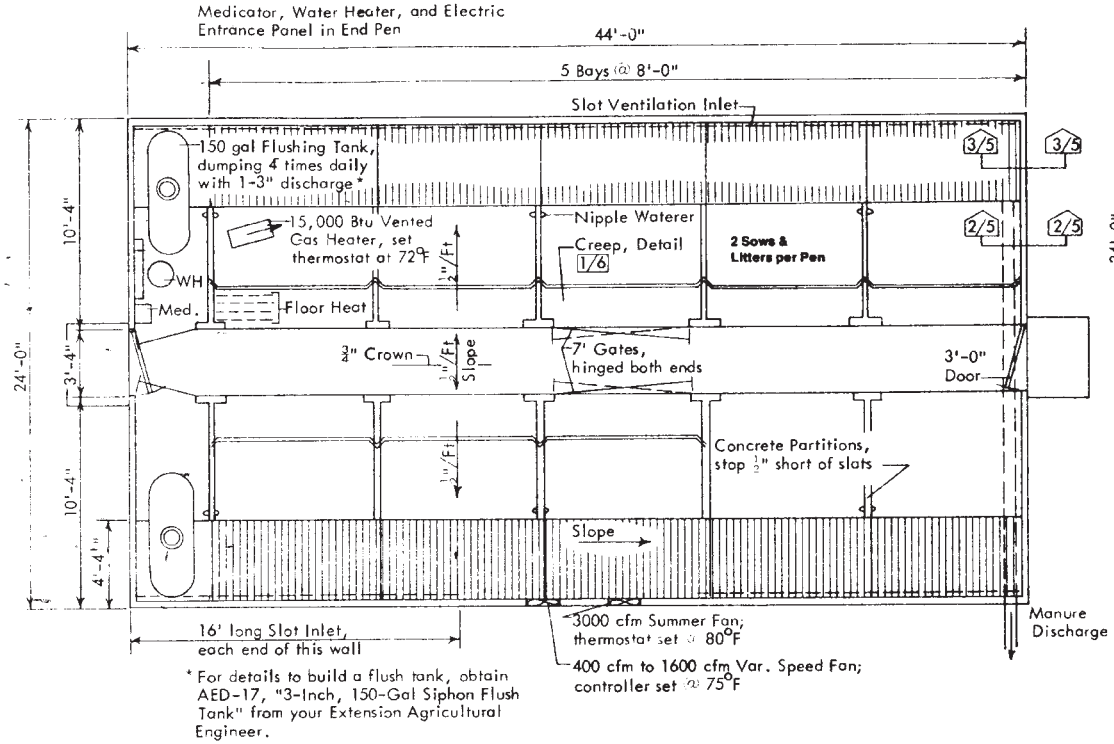
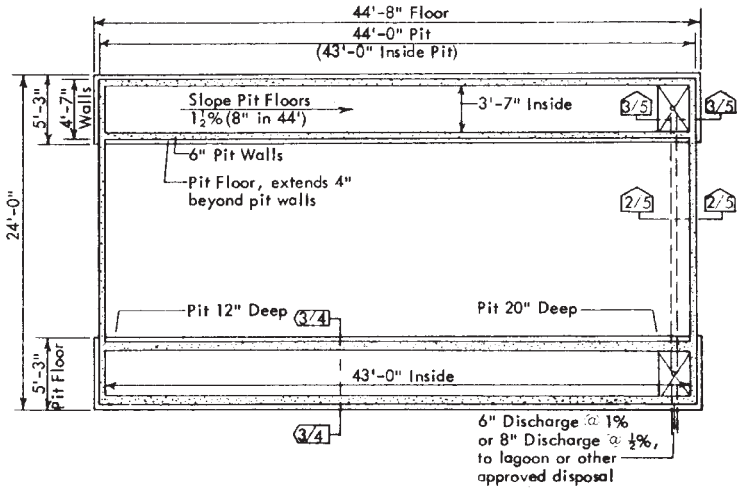
Litters, weaned to 60 lb: open creeps; remove creep feeders; provide feeders between creep area and slats.



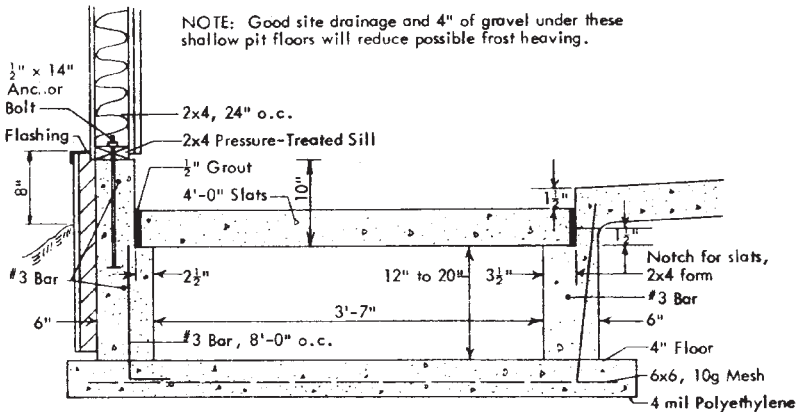
* For details to build a flush tank, obtain AED-17, "3-Inch, 150-Gal Siphon Flush Tank" from your Extension Agricultural Engineer.

PLAN B. FLOOR PLAN—1/4
4' slats over flushed pit.

Option: If Self Dumping Flush Tank is used, add 2 ft to the building length.



PLAN B. FOUNDATION PLAN—2/4



PIT CROSS SECTION—3/4

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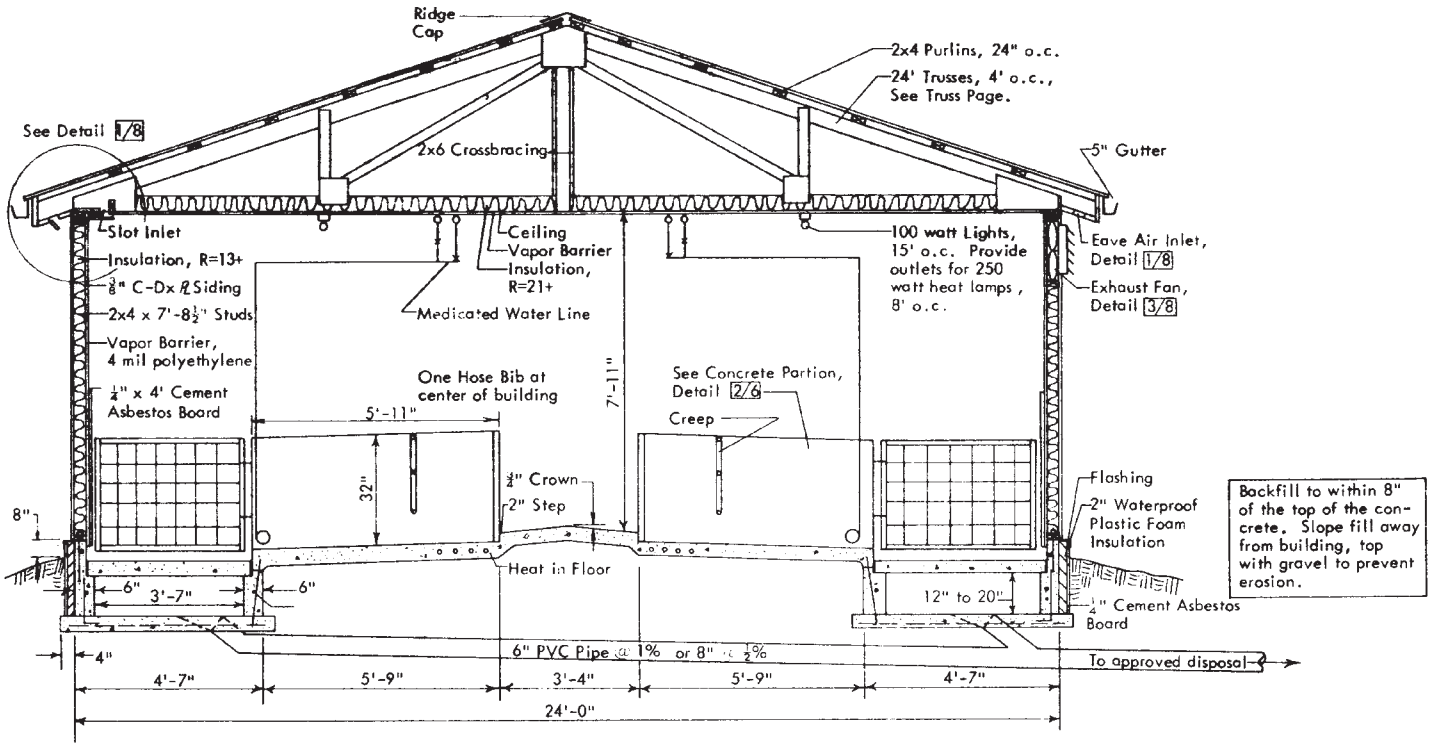
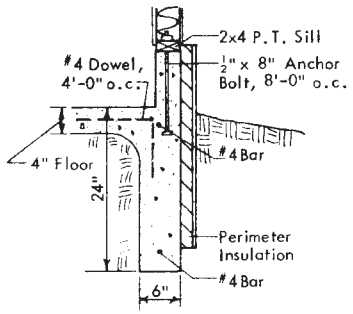
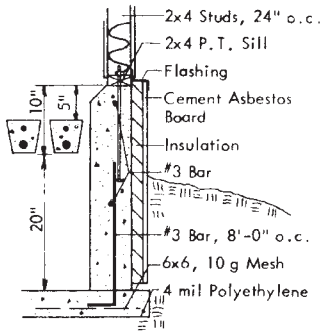


PLAN B. CROSS SECTION—1/5
4' slats over flushed pit.



ENDWALL FOUNDATION SECTION—2/5



PIT ENDWALL SECTION—3/5

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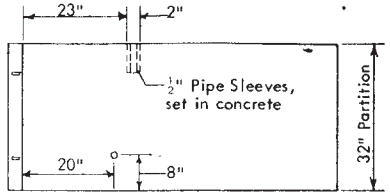
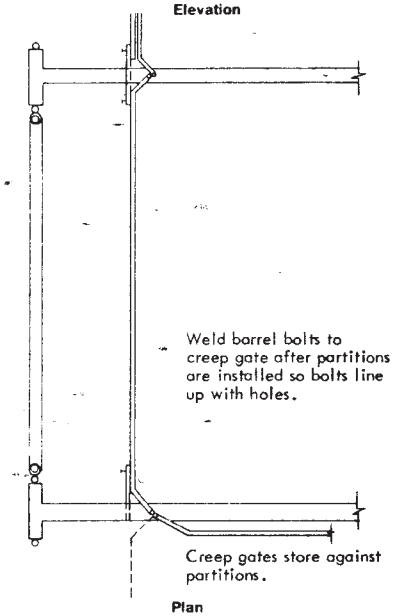


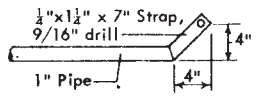
Elevation



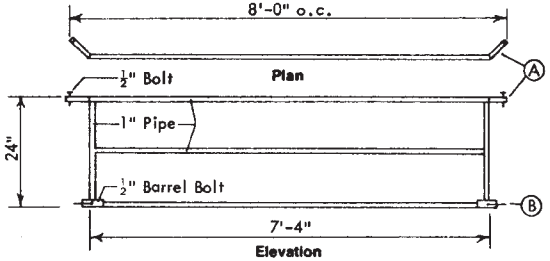
Weld barrel bolts to creep gate after partitions are installed so bolts line up with holes.

Creep gates store against partitions.

Plan

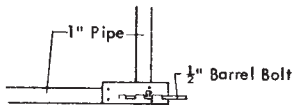


DETAIL A
Top View



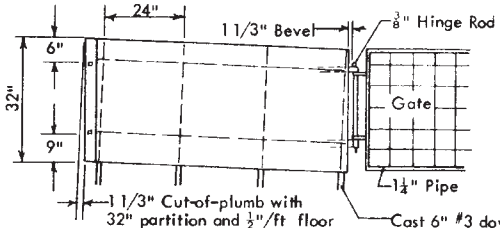
Elevation

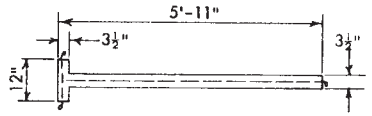
CREEP GATE

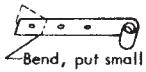


DETAIL B
Side View

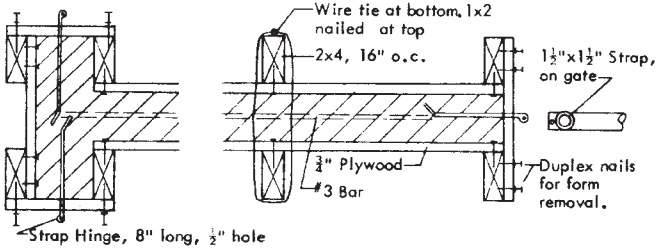
CREEP DETAIL—1/6







Bend, put small bolt in 1 hole, or weld to #3 rods.



If welded wire mesh is available in flat sheets (not rolls), it can be used instead of ⅜" bars.

CONCRETE PARTITION DETAIL—2/6

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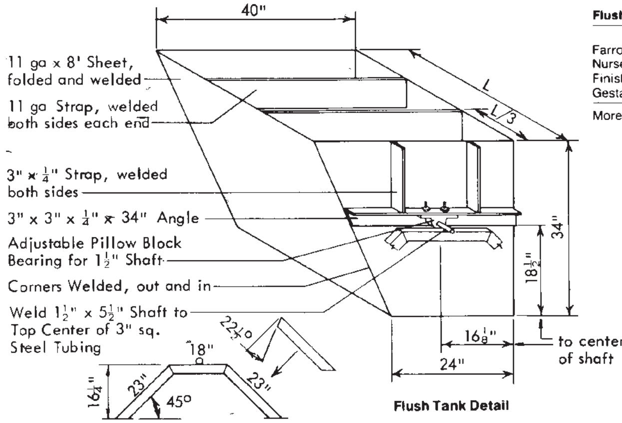


Flush Tank Detail

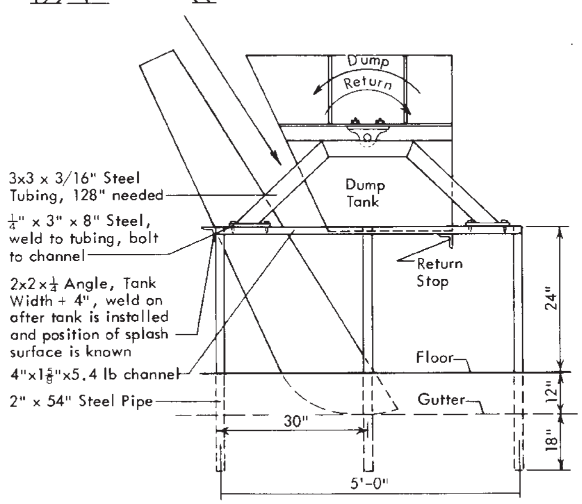
Variable Dimensions

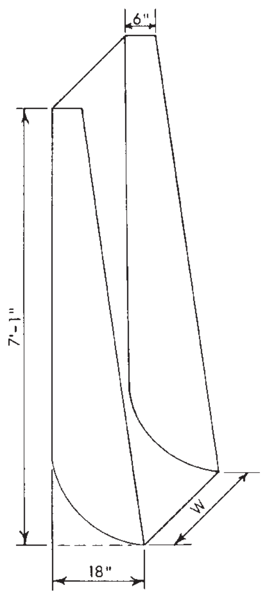
Gutter width	2½'	4'	6'	8' and wider
Tank length, L	23"	41"	65"	89"
Back splash width, W	29"	47"	71"	95"
Flush volume, gal	100	190	300	400

Flush Frequency—minimum flushes per day

	Under slats	Open gutter
Farrow	2	--
Nursery	4	--
Finish	6	12
Gestation	4	6

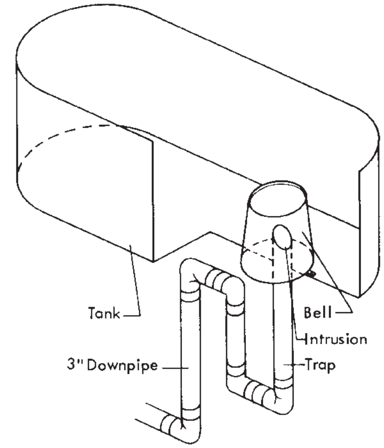
More flushes per day tend to decrease odors.

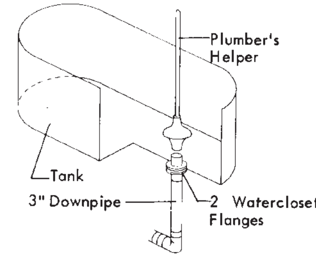




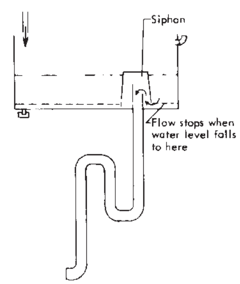
Splash Surface

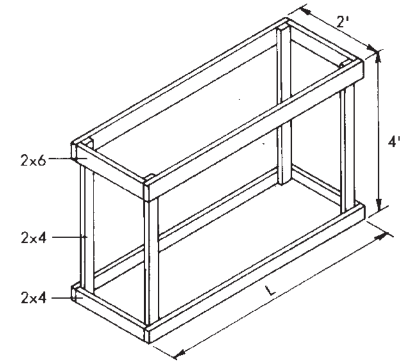
FLUSH TANK, Self Dumping—1/7





Manual Flush Tank





Tank Support Frame

SIPHON FLUSH TANK—2/7

See MWPS AED-17

MIDWEST PLAN SERVICE

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

FARROWING HOUSE

Flushed under slats, 20 sows

7 Pages plus 24' Truss Sheet	Plan No. mwps- 72681	Page 7 of 10

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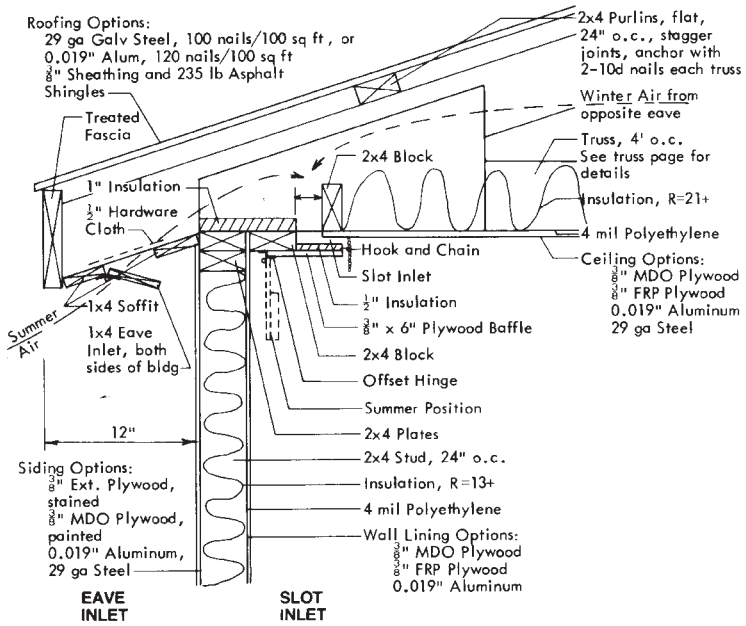


CONSTRUCTION DETAIL—1/8

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

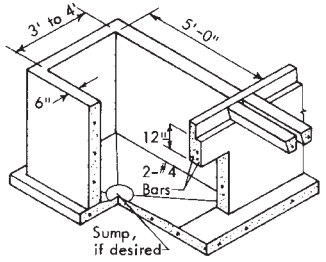
Summer: Open eave inlet next to slot inlet to draw air directly into building. Close eave inlet along far wall. Drop slot inlet baffle.

Winter: Close eave inlet next to slot inlet. Open 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.

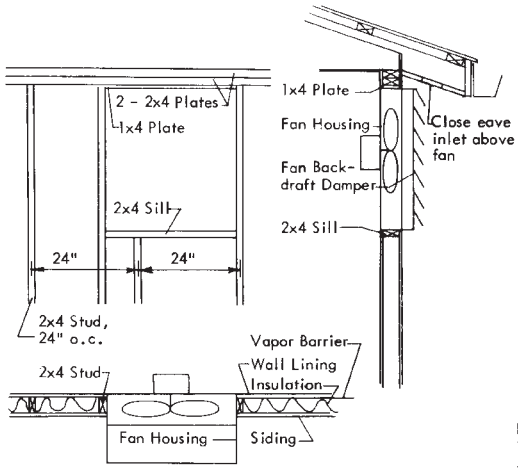
Slot Opening: ¼"

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



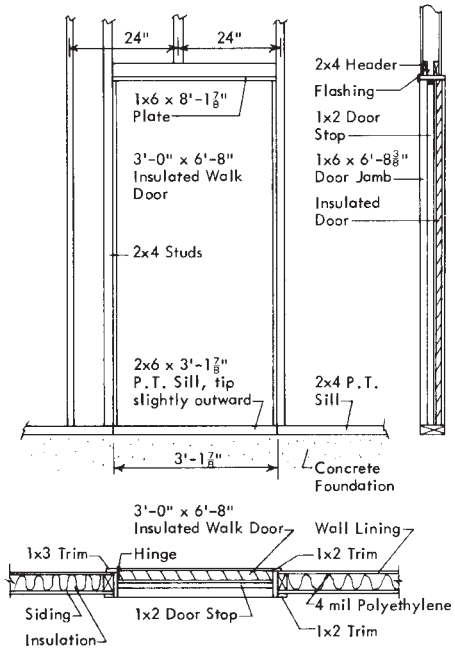
ANNEX FOR CHOPPER PUMP—2/8

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.

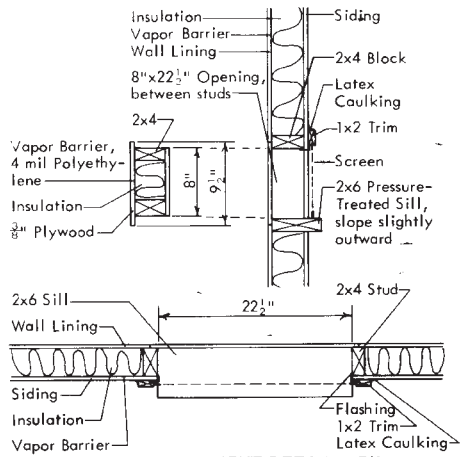


FAN HOUSING—3/8

Position fan to allow for hood or louvers.



WALK DOOR DETAIL—4/8



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.

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