MWPS-72680

Farrowing House

Slotted floor, 20 sows. This plan is for a 24'x64'' stud-frame building housing 20 sows in farrowing stalls. Year-round forced ventilation and liquid manure storage are provided. Plan A shows 7' stalls on 8' slats. Plan B has a completely slotted floor. Plan C shows 6' slats at the back of each stall and floor heat for pig comport at the front of each stall. If stalls are longer than 7 ft, increase building width to 26'.

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.

MIDWEST PLAN SERVICE
Cooperative Extension Work in Agriculture and Home Economics and Agricultural Experiment Stations of North Central Region - USDA Cooperating
Farrowing House Slotted floor, 20 sows
Title Page
MIDWEST PLAN NO. 72680

Plan MWPS-72680

Farrowing Stalls on Slotted Floors

This plan is for a 24'x64' stud-frame building housing 20 sows in farrowing stalls. Year-round forced ventilation and liquid manure storage are provided.

Plan A shows 7' stalls on 8' slats. Plan B has a completely slotted floor. Plan C shows 6' slats at the back of each stall and floor heat for pig comport at the front of each stall.

If stalls are longer than 7 ft, increase building width to 26'-0".

General Specifications

Fans: Select exhaust fans for the stated capacity at ⅛" static pressure, especially pit fans to prevent backdrafting when larger fans turn on.

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.

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

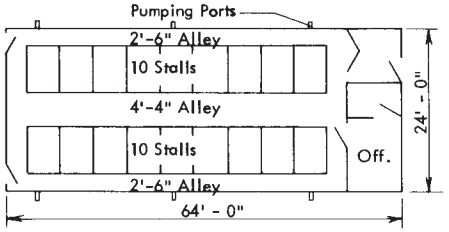
Heat: Desired room air temperature is about 72°F. Provide a 30,000 Btu space heater (1500 Btu/stall) with a thermostat set at 68°F.

- If heat is supplied in the floor (Plan C) or with heated mats on the slats (Plan A or B), provide about 150 watts (500 Btu) per stall floor heat, plus about 250 watts (900 Btu) per stall with overhead heat lamps or radiant heaters for use during farrowing.
- If no floor heat is used, provide overhead heat of about 600 watts (2000 Btu) per stall.

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.



GENERAL FLOOR PLAN

- 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.

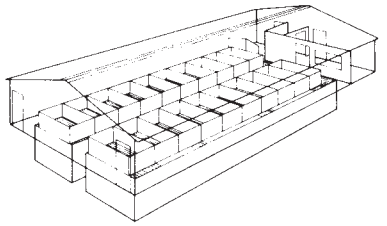
Slat designs

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.

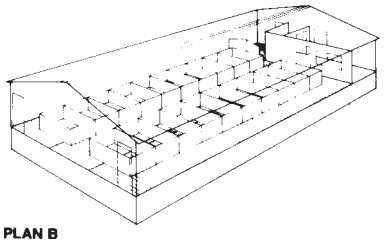
Space slats ⅝" apart in farrowing stalls, with the slot widened to 1" behind the sows. For other swine buildings, use 1" slots.

Pit depth based on 0.54 cu ft/day manure per stall, 6" in pit after pumping, 12" freeboard, and 12" additional clearance to improve underfloor ventilation.

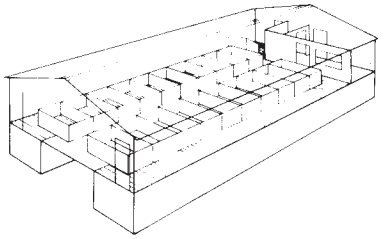
Slat span	Pig nursery	Finishing	Farrowing, sow-pig nursery, or gestation
	---Width x depth, lower bar size---		
4'	4" x4" #3	4" x4" #3	4" x4" #3
6'	4" x4" #3	4" x4½" #4	4" x4½" #4
8'	4" x4" #4	5" x5" #4	6" x5" #5
10'	4" x5" #4	5" x5½" #5	6" x6½" #5
Design Loads			
Slats	Per foot of slat		
	50 plf	100 plf	150 plf
Beams, columns	Per sq ft floor area		
	35 psf	50 psf	65 psf



PLAN A
Partly slotted floor. Slats under stalls.



PLAN B
Full slotted floor.



PLAN C
Partly slotted floor. Slats under side alleys and rear of stalls.

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.

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.

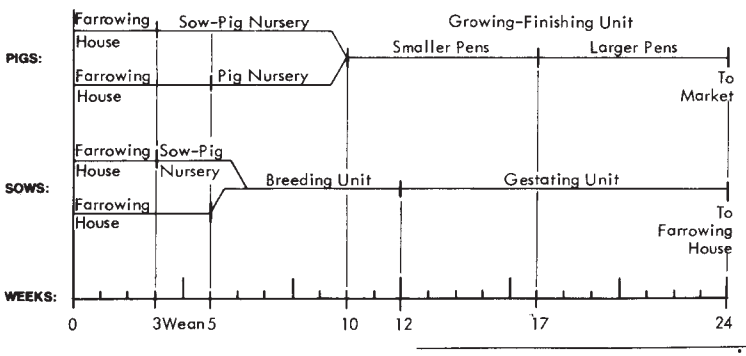
Move pigs to finishing unit at 10 weeks (60 lb). (As farrowing intensifies to more than 6 times per year, pigs may be moved at about 8 weeks.) Put into smaller pens if you have two pen sizes. Put more pigs per pen if you have only one pen size.

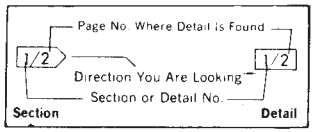
Move pigs to larger pens, or reduce number of pigs per pen, at about 17 weeks (125 lb).

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





Section & Detail Indicator

MIDWEST PLAN SERVICE

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

FARROWING HOUSE
Slotted floor, 20 sows

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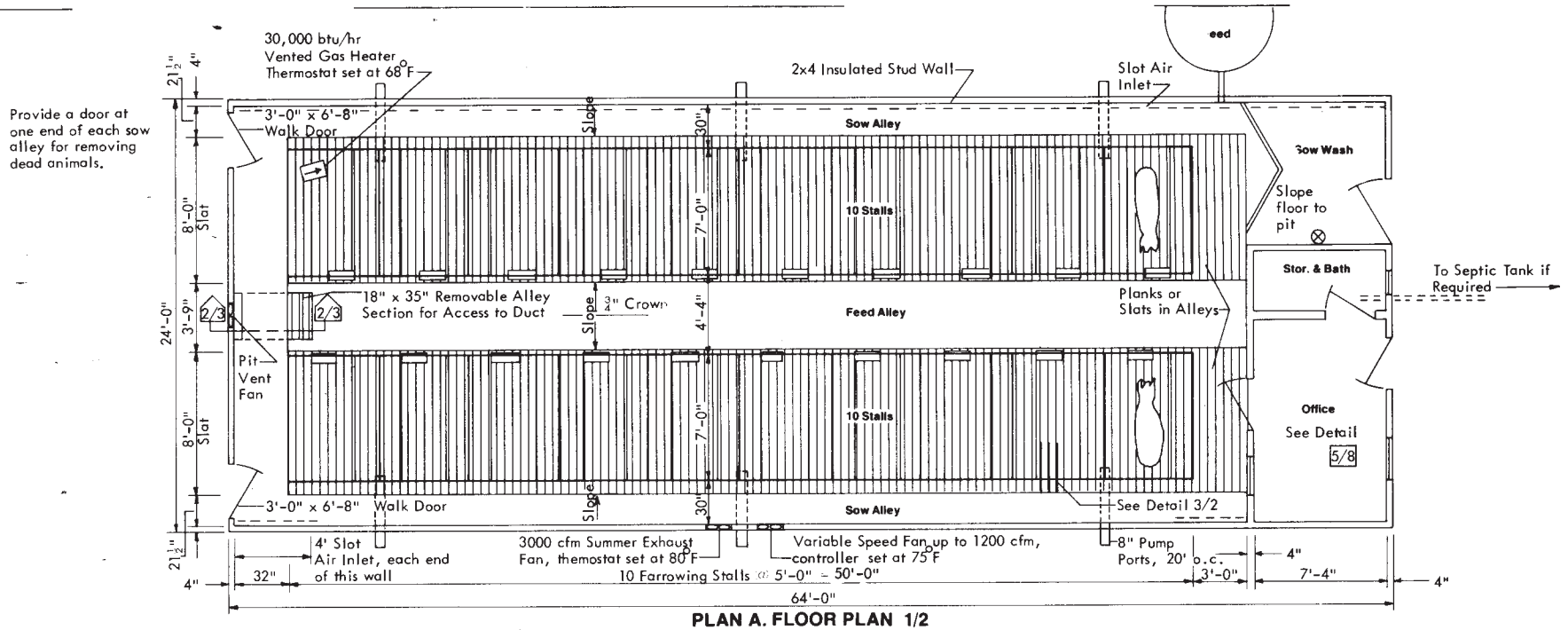
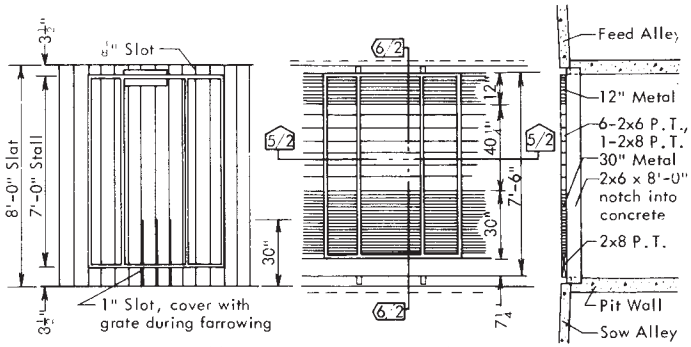


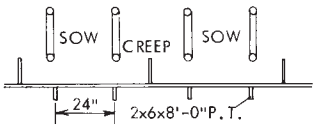
PLAN A. FLOOR PLAN 1/2
Partly slotted floor. Slats under stalls.



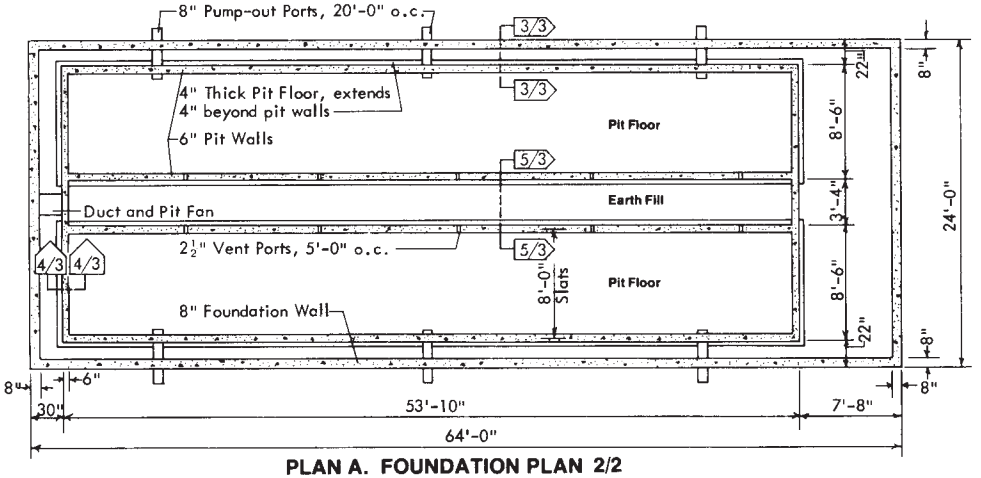
SLAT LAYOUT 3/2
Concrete Slats—7' stalls on 8' slats

PLAN 4/2
Wood Plank & Metal Slat Option

SECTION 6/2



SECTION 5/2



PLAN A. FOUNDATION PLAN 2/2

MIDWEST PLAN SERVICE

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FARROWING HOUSE
Slotted floor, 20 sows

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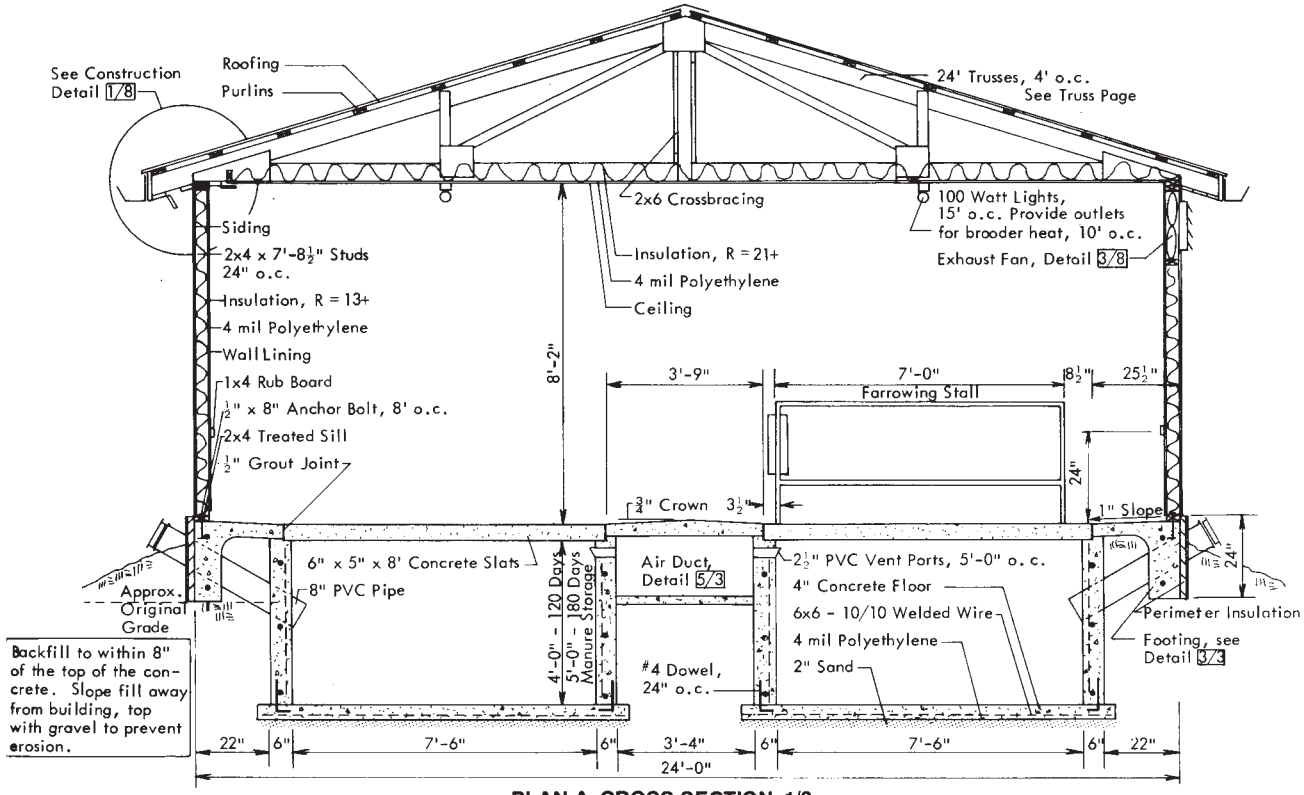
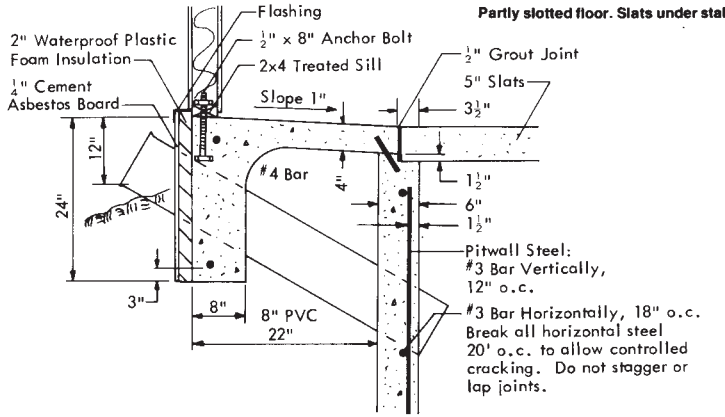


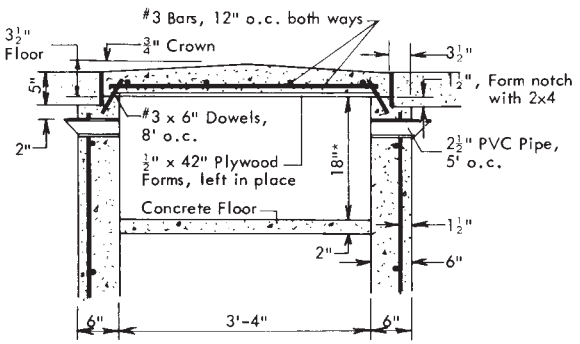
PLAN A. CROSS SECTION 1/3

Partly slotted floor. Slats under stalls.



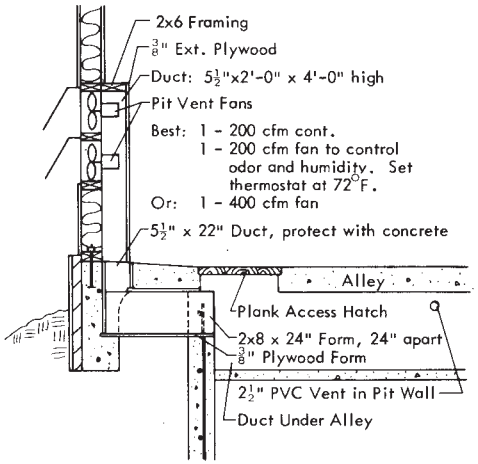
SIDEWALL DETAIL 3/3

at correct elevation to serve as

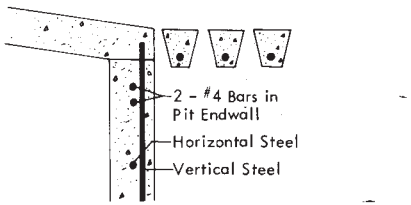


ALLEY FLOOR DETAIL 5/3

***Slope to 20" at Fan End**



PIT FAN DETAIL 2/3



PIT ENDWALL DETAIL 4/3

MIDWEST PLAN SERVICE

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FARROWING HOUSE

Slotted floor, 20 sows

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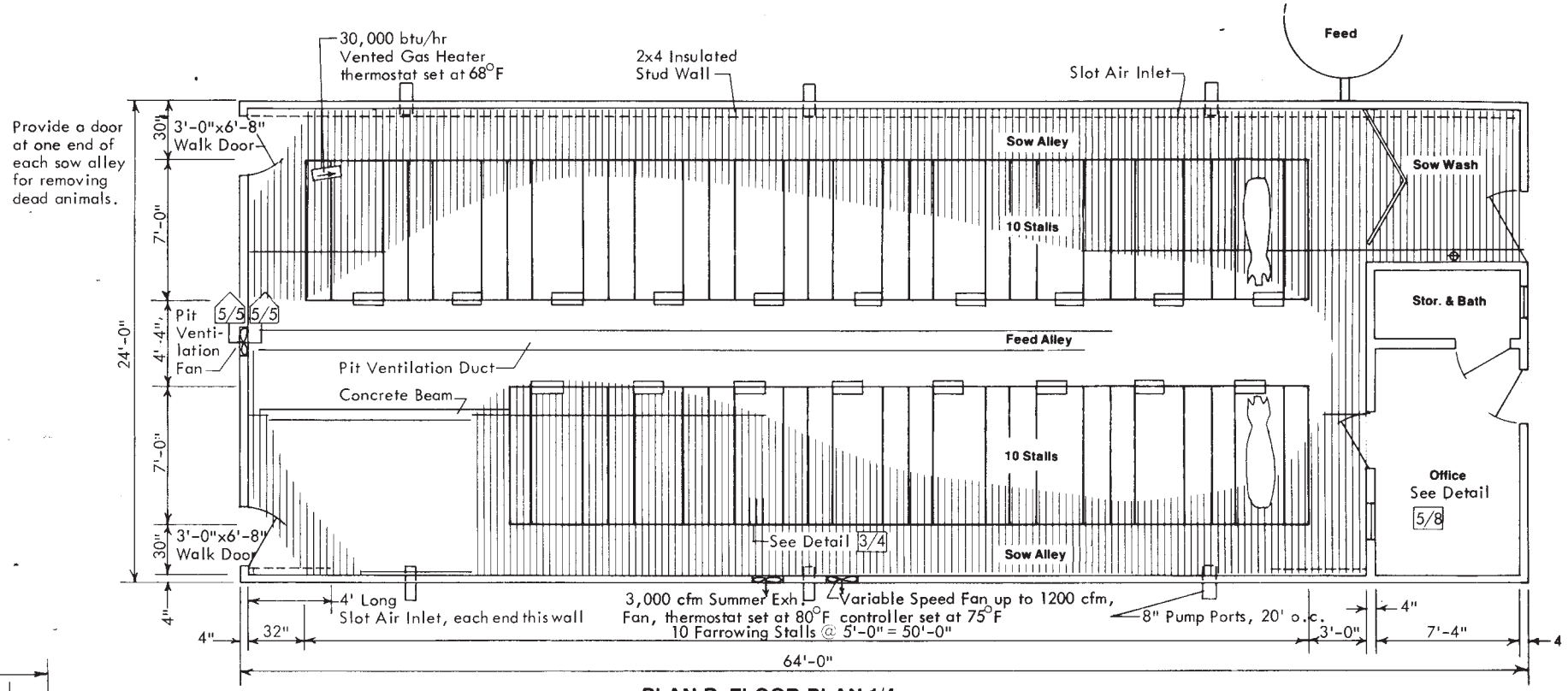
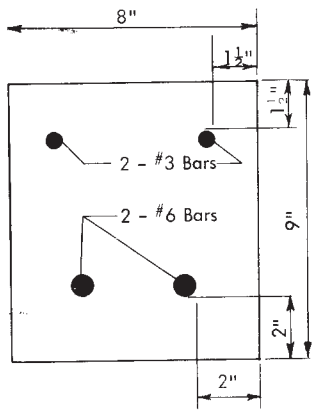
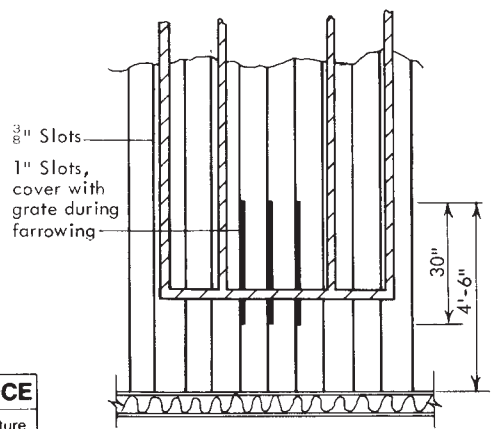


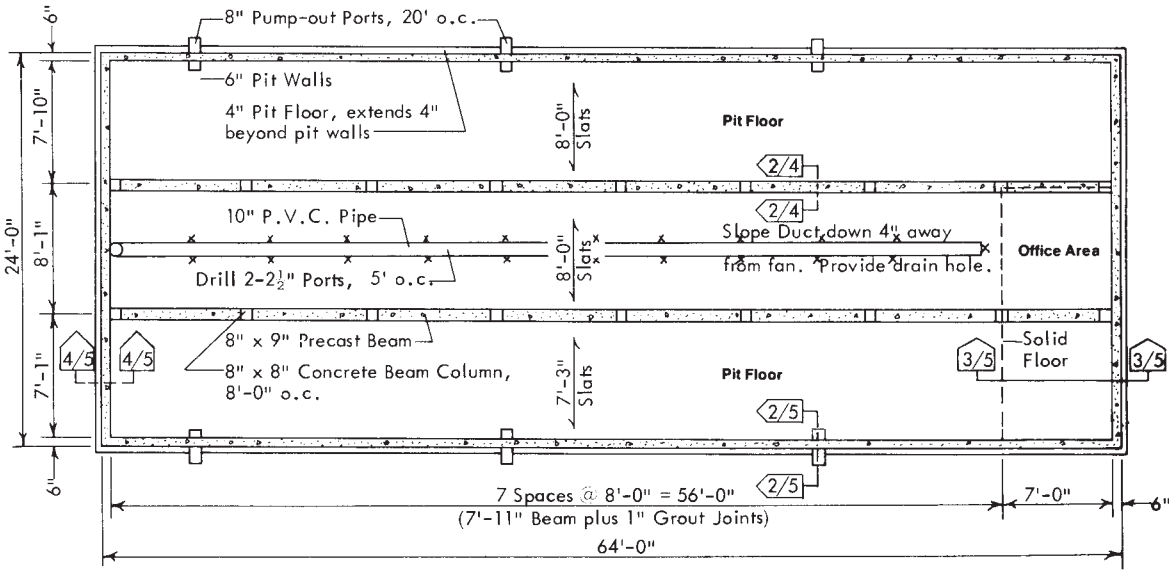
PLAN B. FLOOR PLAN 1/4
Full slotted floor.



BEAM DETAIL 2/4



SLOT DETAIL 3/4



PLAN B. FOUNDATION PLAN 4/4

MIDWEST PLAN SERVICE

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FARROWING HOUSE
Slotted floor, 20 sows

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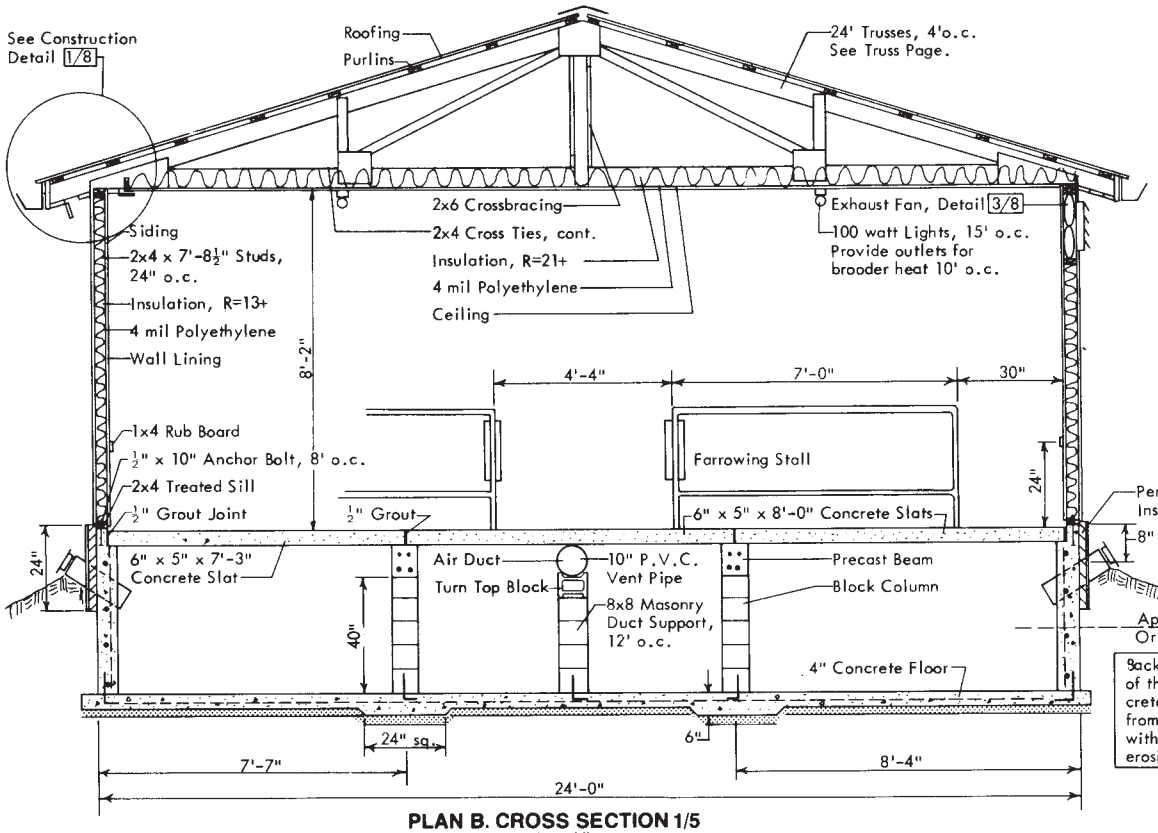
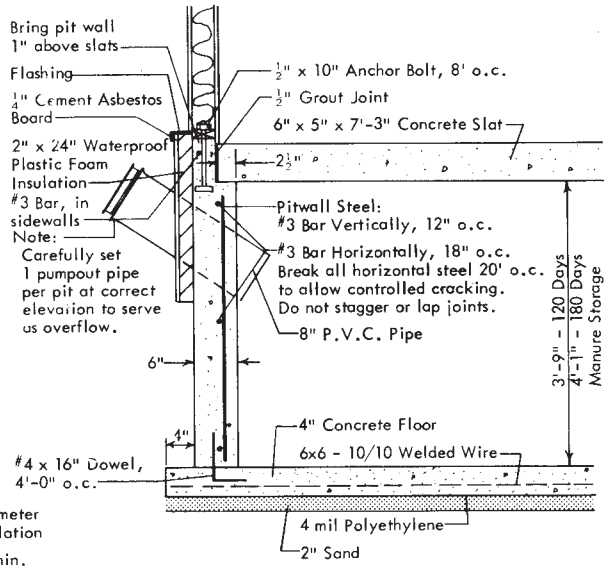
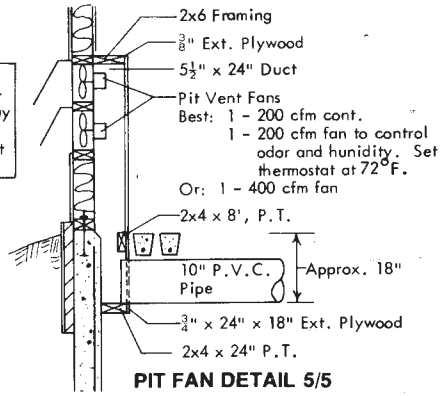


PLAN B. CROSS SECTION 1/5
Full slotted floor.

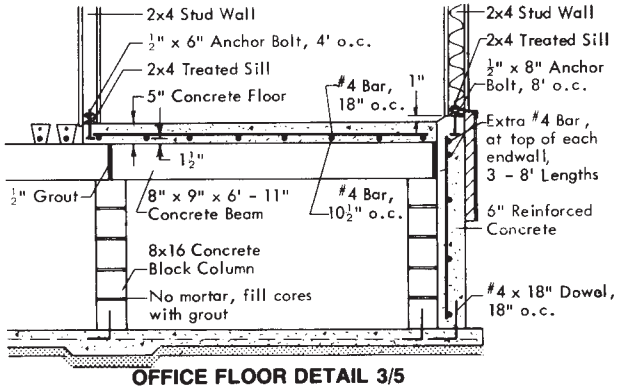


PIT DETAIL 2/5

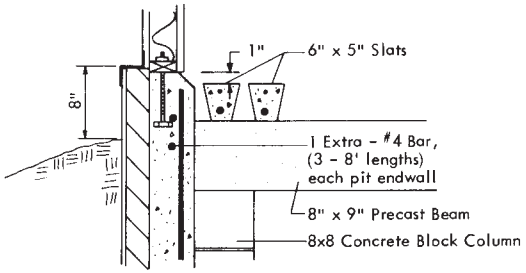


PIT FAN DETAIL 5/5

Replace slat with wood frame, install plenum for 10" plastic pipe and 4" x 24" duct to pit vent fans. Slope 10" duct slightly away from fan, cut small drain hole in far end.



OFFICE FLOOR DETAIL 3/5



PIT ENDWALL DETAIL 4/5

MIDWEST PLAN SERVICE

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FARROWING HOUSE
Slotted floor, 20 sows

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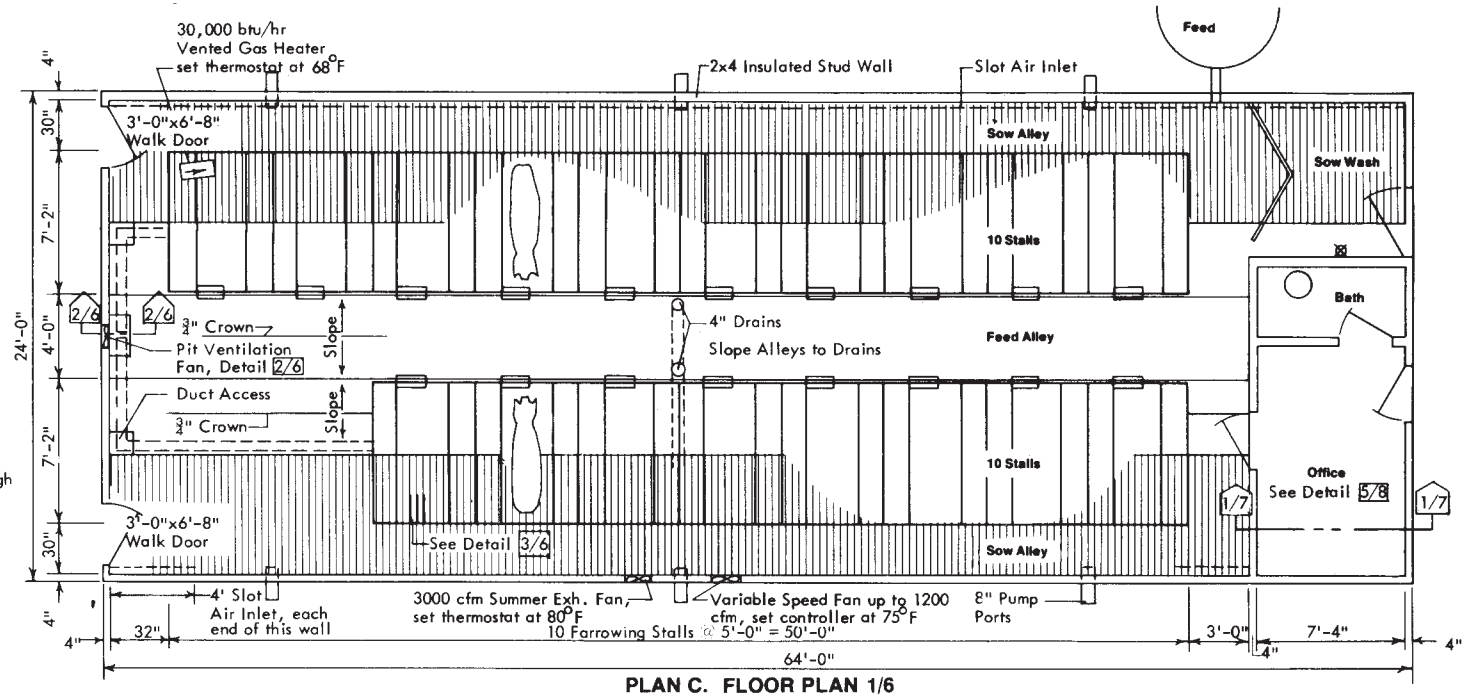
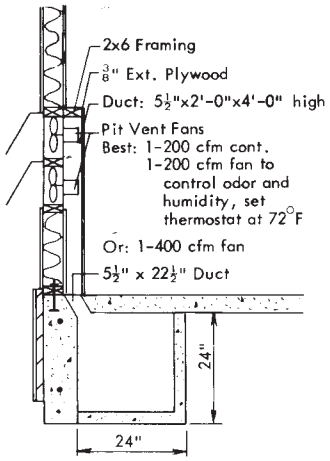
Provide a door at one end of each sow alley for removing dead animals.



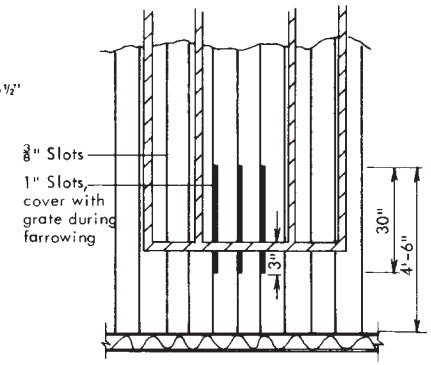
PLAN C. FLOOR PLAN 1/6

Partly slotted floor. Slats under side alleys and rear of stalls.

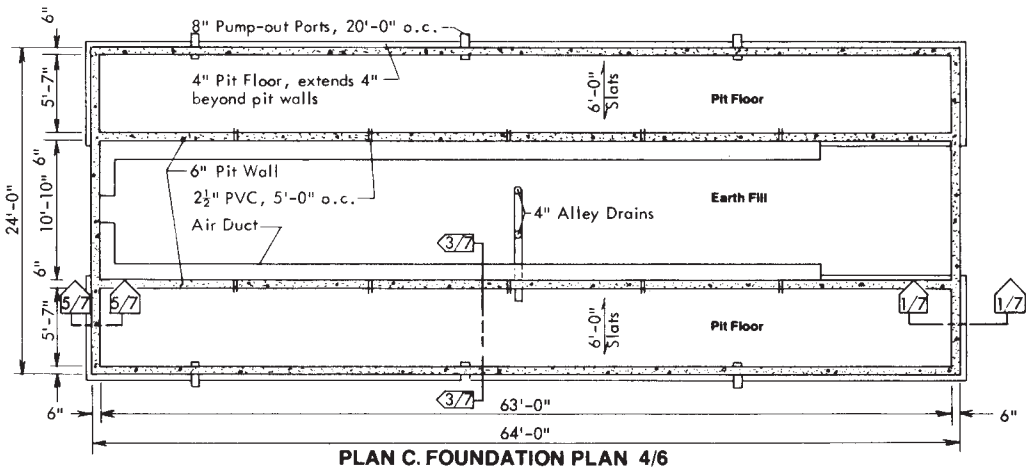


PIT FAN DETAIL 2/6

Form plenum to receive 2 pit vent ducts. Cast 5½" x 22" duct into foundation and alley floor.



SLOT DETAIL 3/6



PLAN C. FOUNDATION PLAN 4/6

MIDWEST PLAN SERVICE		
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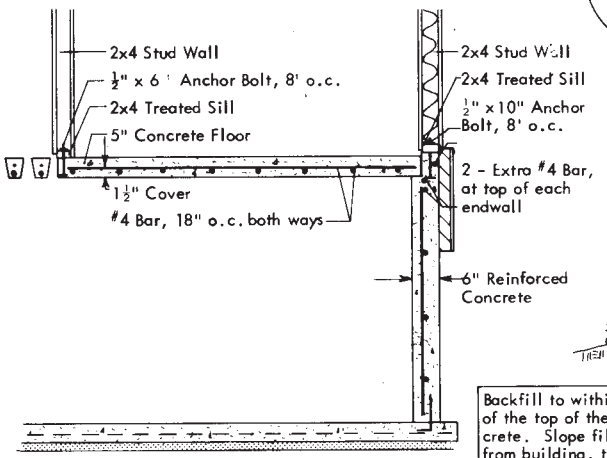
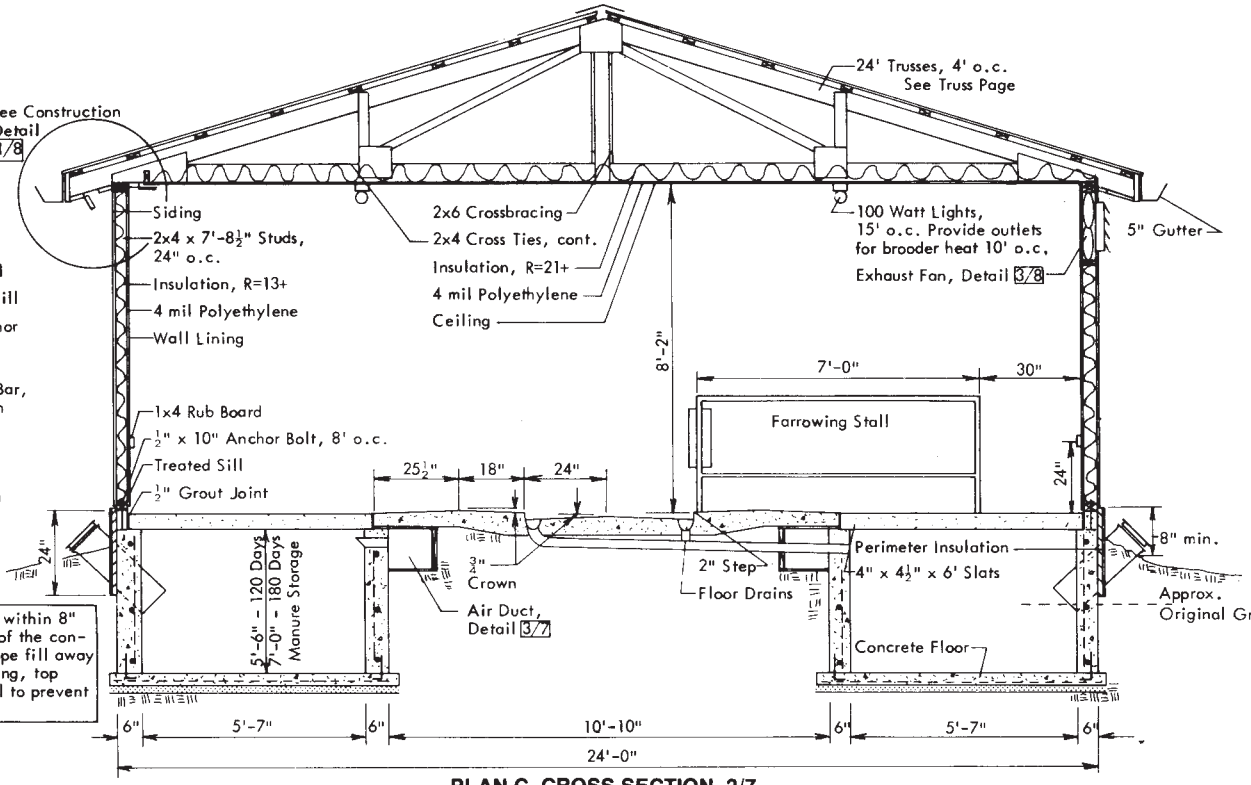
Creep Heat
Use heat lamps, radiant heaters, heat pads, or floor heat. Heat in the floor may be electric or hot water; see MWPS-8, Swine Housing and Equipment Handbook.

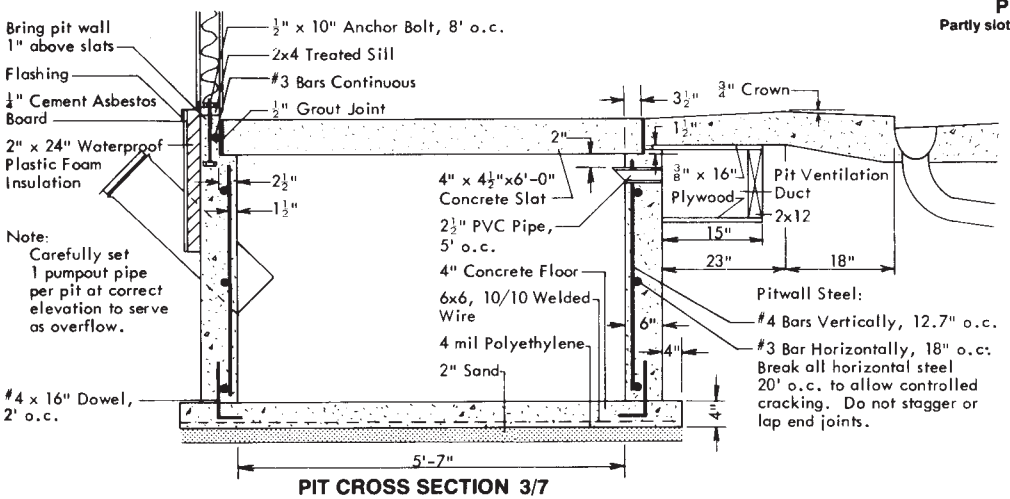


OFFICE FLOOR DETAIL 1/7

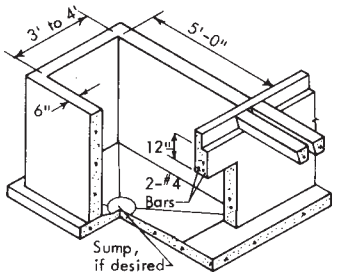
Backfill to within 8" of the top of the concrete. Slope fill away from building, top with gravel to prevent erosion.



PLAN C. CROSS SECTION 2/7
Partly slotted floor. Slats under side alleys and rear of stalls.



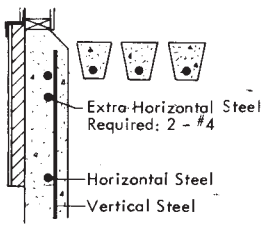
PIT CROSS SECTION 3/7



ANNEX FOR CHOPPER PUMP 4/7

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

Note: Steel same as pitwalls.



PIT ENDWALL DETAIL 5/7

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

MIDWEST PLAN SERVICE

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FARROWING HOUSE
Slotted floor, 20 sows

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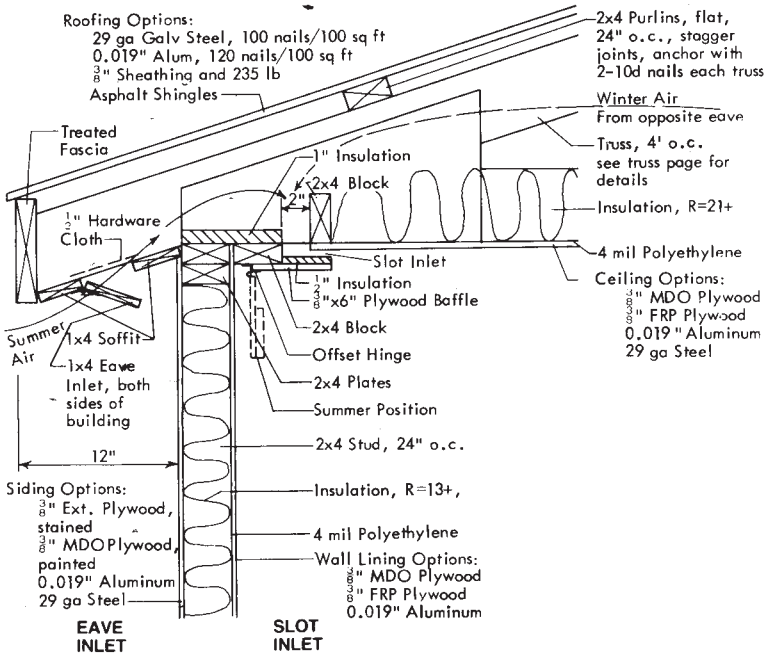


CONSTRUCTION DETAIL 1/8

Install eave inlet along both long walls. Install slot inlet along the long wall toward the prevailing winter winds. Install fans, and 4' of slot inlet near the corners, along the other long wall.

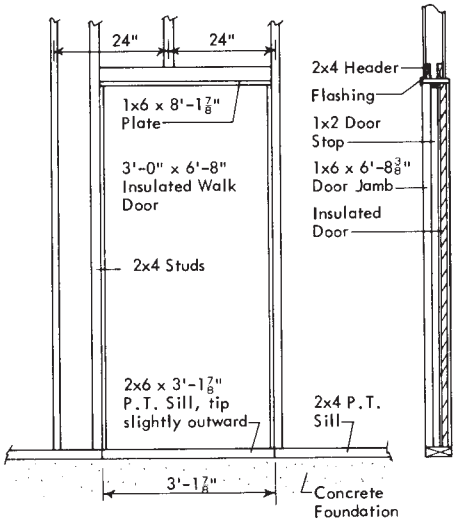
Summer: Open eave inlet next to slot inlet to draw air directly into building. Close eave inlet along far wall. Drop slot inlet baffle.

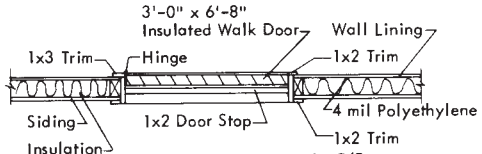
Winter: Close eave inlet next to slot inlet. Open eave inlet along far wall to draw air across attic and through slot inlet. Fasten slot inlet baffle in "up" position to force cold air across ceiling.

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

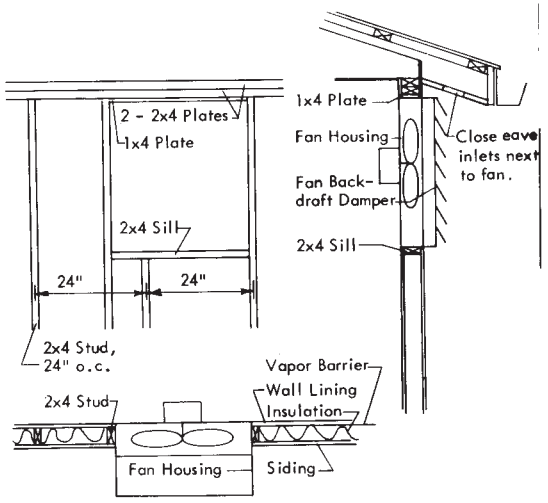
Slot Opening: ¼"

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



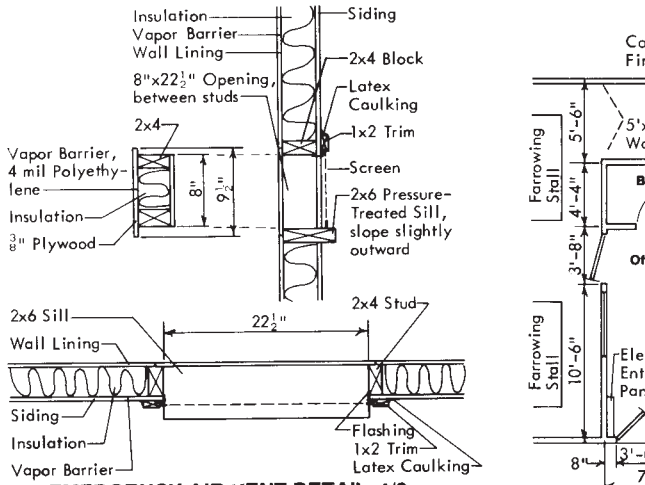


WALK DOOR DETAIL 2/8



FAN HOUSING 3/8

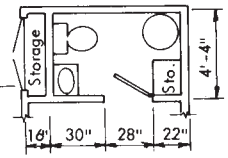
Position fan to allow for hood or louvers.

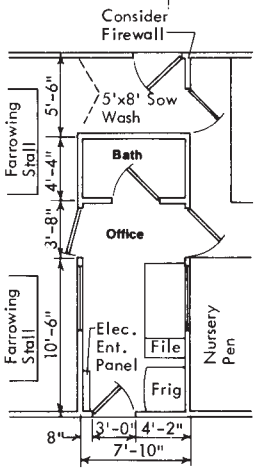


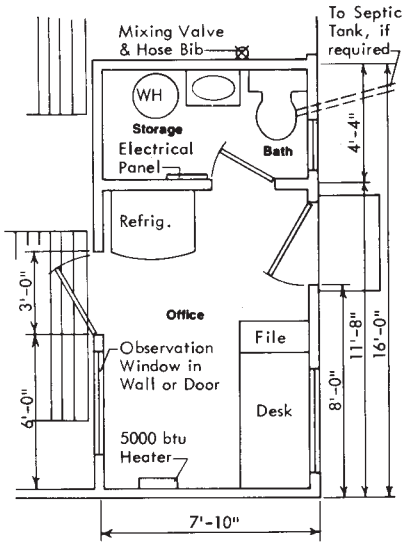
EMERGENCY AIR VENT DETAIL 4/8

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. Use similar construction for the larger openings for evaporative cooling.

OPTIONAL LAYOUTS







OFFICE LAYOUT 5/8

MWPS MIDWEST PLAN SERVICE

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

FARROWING HOUSE
Slotted floor, 20 sows

8 Pages plus	Plan No.	Page
24' Truss Sheet	mwps- 72680	8 of 10

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