MWPS-72699

Farrowing & Gestation Building

20 farrowing & 25 gestation stalls. This plan is for a 33' x 64' (or 66') stud-frame building housing 20 farrowing sows and 25 gestation sows in the same room. Exposing the gestation sows to the farrowing room 6-7 weeks before farrowing allows them to adjust to the new environment and to build up an apparent immunity in their pigs. Year-round mechanical ventilation is provided. Plan A shows a totally slotted floor over a liquid manure storage pit Plan B shows a partly slotted floor over a flush gutter.

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 & Gestation Building 20 farrowing & 25 gestation stalls
Title Page
MIDWEST PLAN NO. 72699

Plan MWPS-72699
Farrowing and Gestation Building
20 Farrowing & 25 Gestation Stalls

This plan is for a 33'x 64' (or 66') stud-frame building housing 20 farrowing sows and 25 gestation sows in the same room. Exposing the gestation sows to the farrowing room 6-7 weeks before farrowing allows them to adjust to the new environment and to build up an apparent immunity in their pigs. Year-round mechanical ventilation is provided.

Plan A shows a totally slotted floor over a liquid manure storage pit. Plan B shows a partly slotted floor over a flush gutter.

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.

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

Heat: Desired room air temperature is about 72°F. Provide 70,000-75,000 Btu/hr supplemental heat (3000 Btu/hr/farrowing stall and 500 Btu/hr gestation stall).

If heat is supplied in the floor or with heated mats on the slats, provide about 150 watts (500 Btu) per farrowing stall of floor heat, plus about 250 watts (900 Btu) per farrowing 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/hr) per farrowing 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 newborn 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, circulation fans.
- Consider automatic telephone that dials selected numbers when power fails.

Manure storage pit

Pit depth is based on 0.54 cu ft/day manure per farrowing stall, 0.15 cu ft/day manure per gestation stall, 6" left in pit after pumping, 6" freeboard, and 12" additional clearance to improve underfloor ventilation.

Slat designs

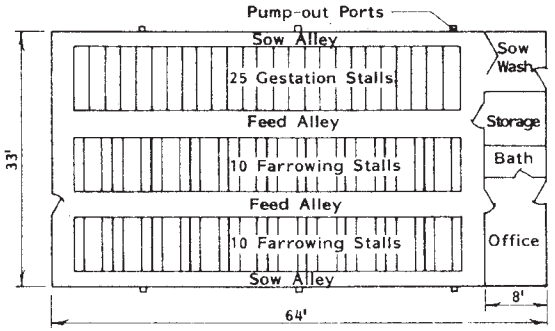
Dimensions in these plans assume concrete slats as listed below and may need to be adjusted for other designs or materials. Allow about ½" at each end of a slat for construction variation and grouting.

Slat span	Pig nursery*	Finishing	Farrowing, Sow-pig Nursery, Gestation (stalls)**	Gestation (pens), Boar (pens)
	Width x depth, lower bar size			
4'	4"x4",#3	4"x4",#3	4"x4",#3	4"x4",#3
6'	4"x4",#3	4"x4½",#4	4"x4½",#4	4"x4½",#4
8'	4"x5",#3	5"x5",#4	4"x6",#4	6"x5",#5
10'	4"x5",#4	5"x5½",#5	4"x6",#5	6"x6½",#5

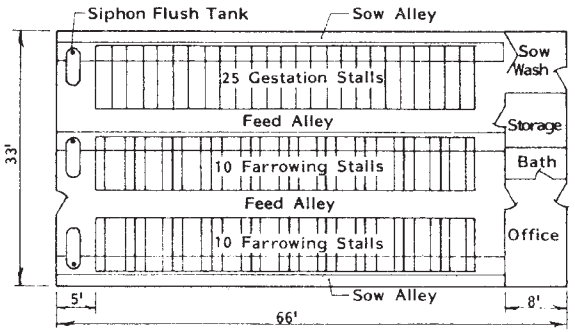
Design Loads

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

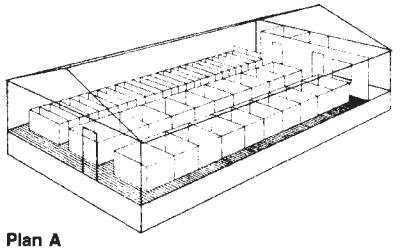
*Concrete slats are not recommended for pigs under 40 lb.
**For sows in stalls, use a maximum of 4" wide slats



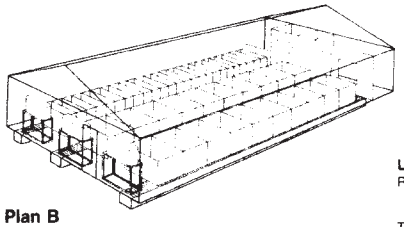
Floor Plan A



Floor Plan B



Plan A
Totally slotted floor over storage pit.



Plan B
Partly slotted floor, slats under rear of stalls.

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.

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 2-3 litters/pen. Return sows to breeding and gestation facilities.

Or:

b) Wean pigs at 4-6 weeks (20-25 lb). Move pigs to nursery, putting 2-3 litters/pen. Return sows to breeding and gestation facilities.

Or:

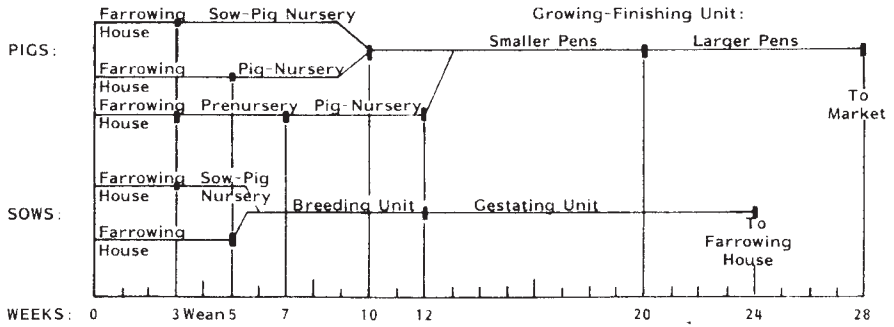
c) Wean pigs at 3-4 weeks (12-15 lb) to a prenursery, putting 1-2 litters/pen. At 6-8 weeks move pigs to a nursery, putting 2-3 litters/pen. Return sows to breeding and gestation facilities.

Move pigs to finishing unit at 10-12 weeks (60-75 lb). Move pigs to larger pens, or reduce number of pigs per pen, at about 20 weeks (150 lb).

As they approach market weight, and if the finishing unit is crowded, larger hogs may have to be marketed early.

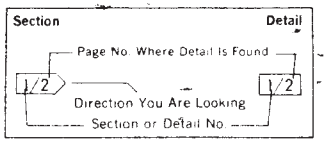
Sows are rebred during the first or second heat period after weaning. They farrow about 16 weeks later.

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 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—10 pcf, Penta—0.50 pcf, ACC—0.50 pcf, ACA or CCA (Type A or B)—0.40 pcf.
P. T. means lumber pressure preservative treated against insect and fungus attack.



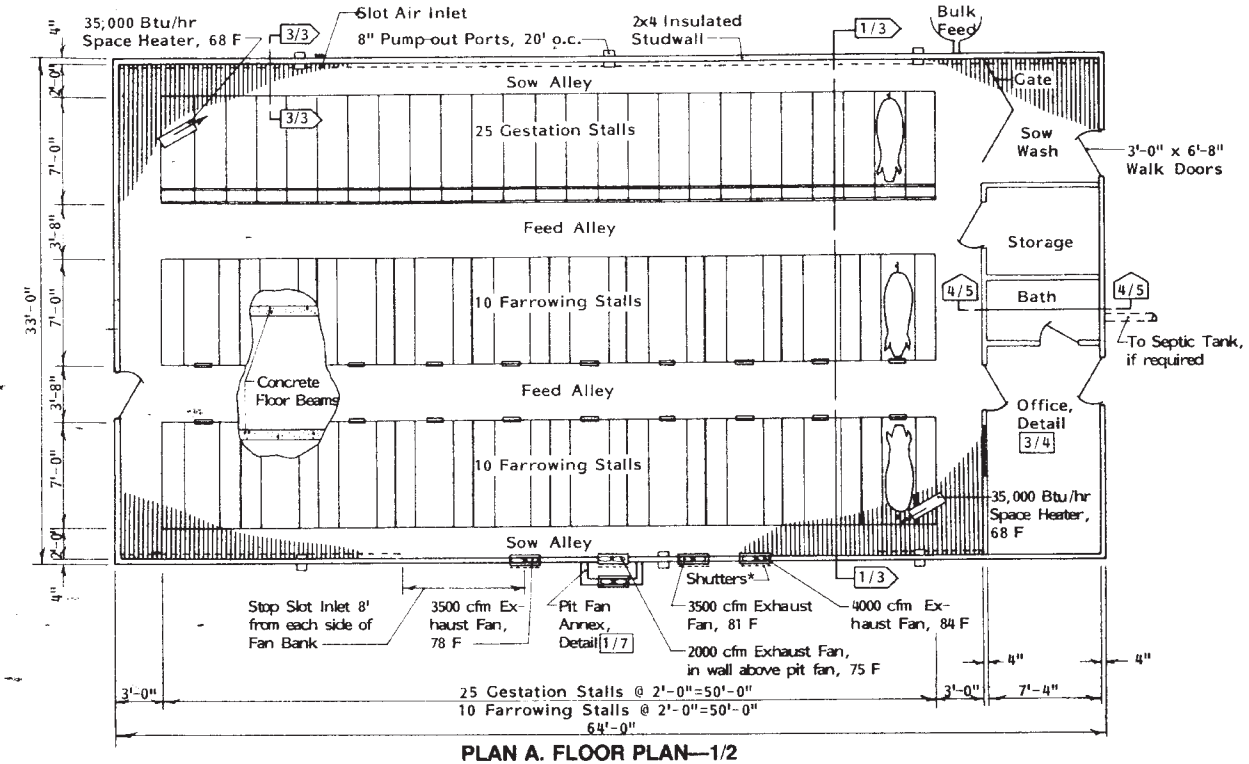
Section & Detail Indicator

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

FARROWING & GESTATION BUILDING
20 Farrowing & 25 Gestation Stalls

7 Pages plus 34' Truss Sheet	Plan No. mwps-72699	Page 1 of 9

Page 6 similar to pages 7 of 72694
Page 7 similar to page . of 72601



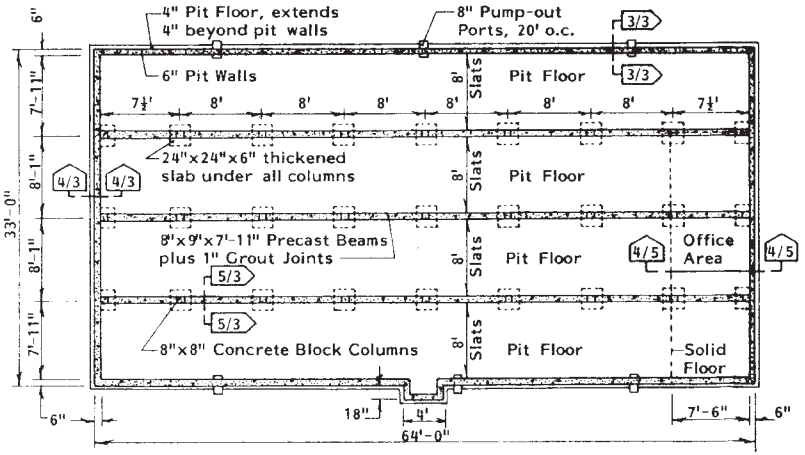
PLAN A. FLOOR PLAN—1/2

Totally slotted floor over storage pit.

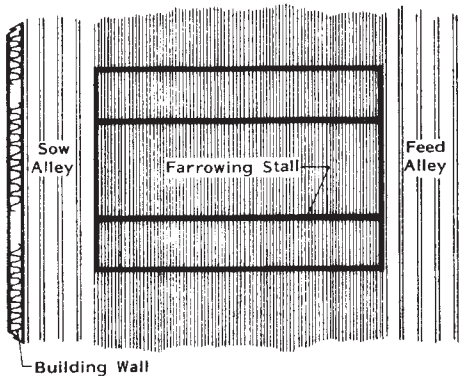
*Note:
Shutters are required on all exhaust fans except for the continuous fan.

Note:
12" of clearance is needed between manure and bottom of concrete beams to operate pit fans.

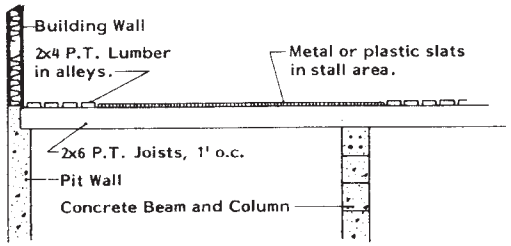
Note:
Wire each fan on a separate circuit. Use a fused switch at each fan location. Size fused switch at 25% over fan amperage.



PLAN B. FOUNDATION PLAN—3/2

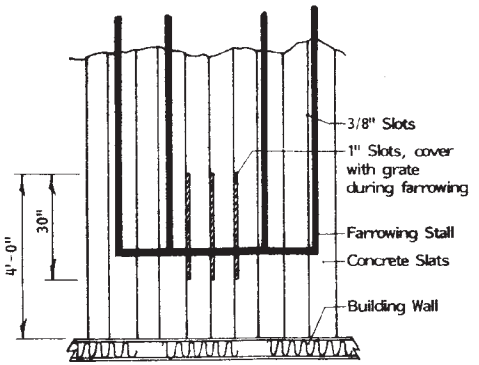


TOP VIEW



CROSS SECTION

METAL OR PLASTIC SLAT OPTION DETAIL—2/2



SLOT DETAIL—4/2

Farrowing floor only.

mwps **MIDWEST PLAN SERVICE**

FARROWING & GESTATION BUILDING

20 Farrowing & 25 Gestation Stalls

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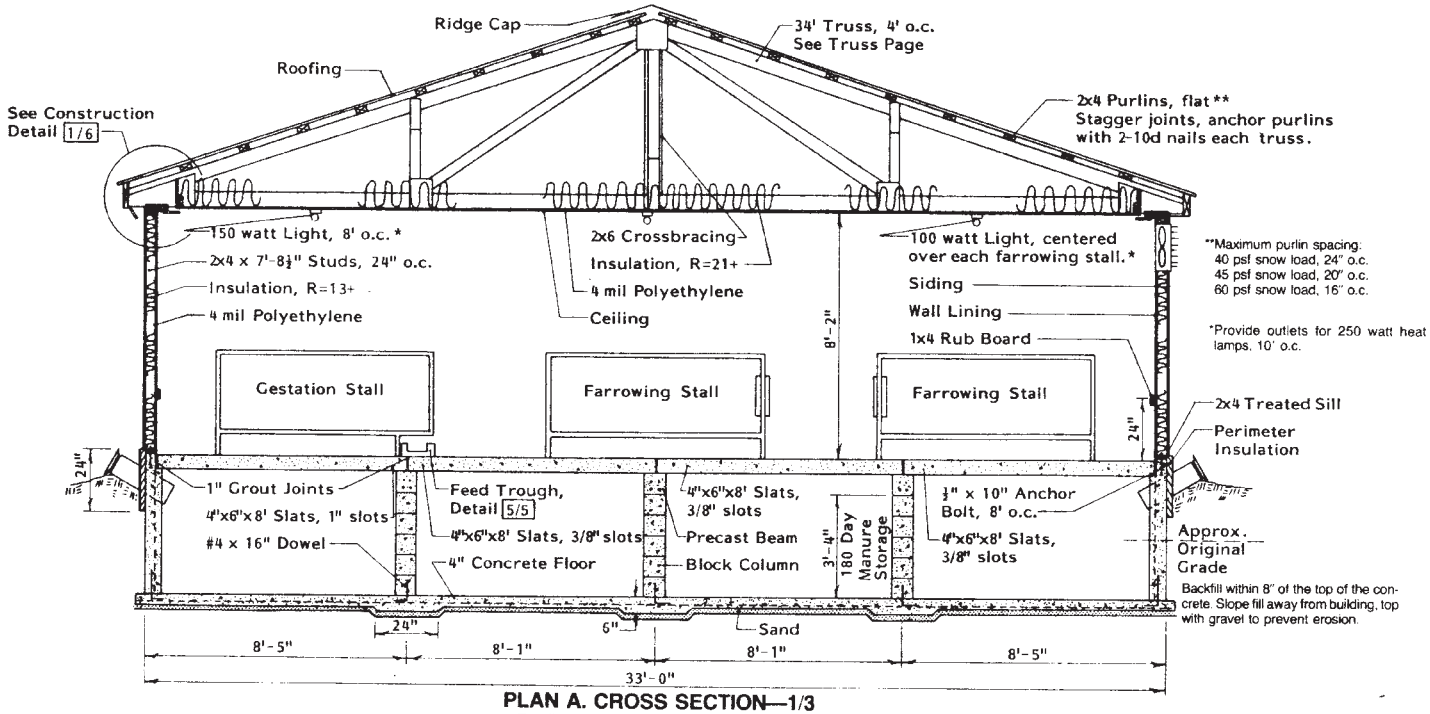
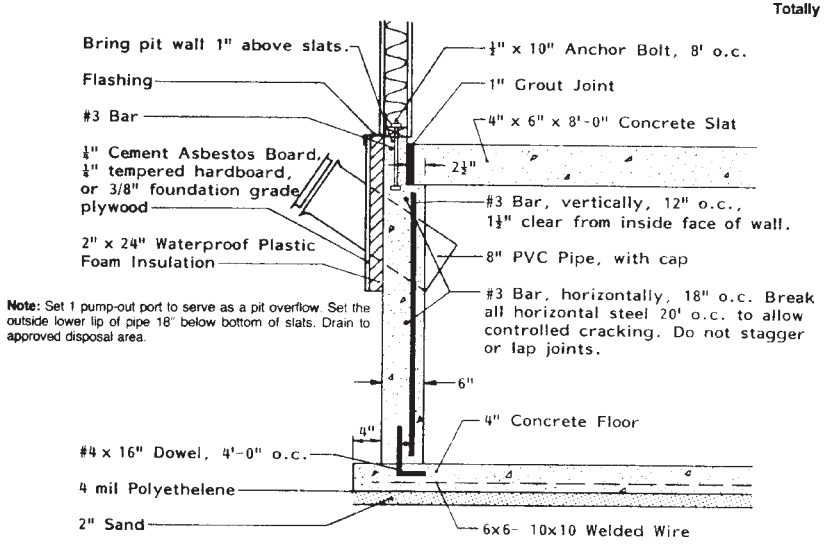
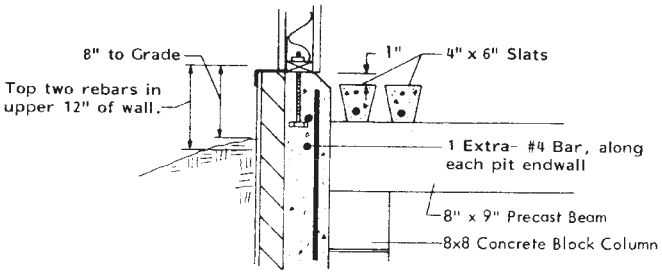


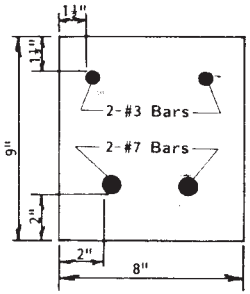
PLAN A. CROSS SECTION—1/3
Totally slotted floor over storage pit.



PIT DETAIL—3/3



PIT ENDWALL DETAIL—4/3



CONCRETE BEAM DETAIL—5/3

MIDWEST PLAN SERVICE
FARROWING & GESTATION BUILDING
20 Farrowing & 25 Gestation Stalls

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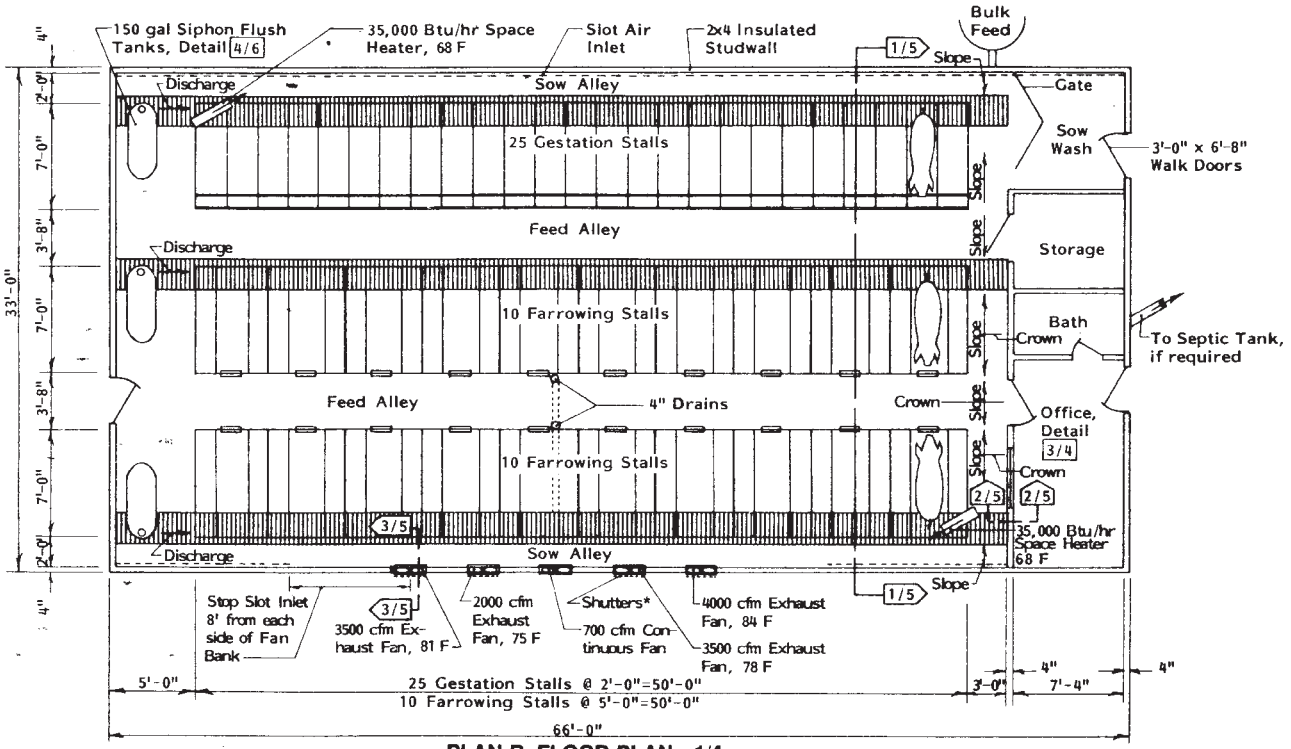
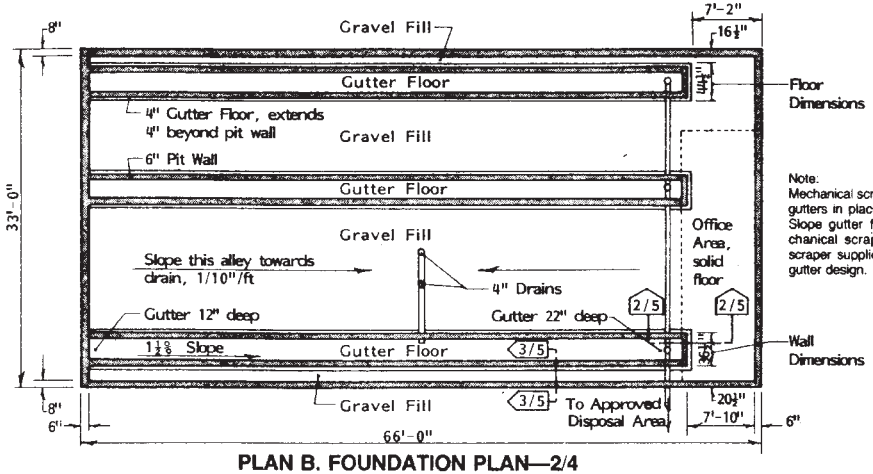


PLAN B. FLOOR PLAN—1/4

Partly slotted floor. Slats under rear of stalls.

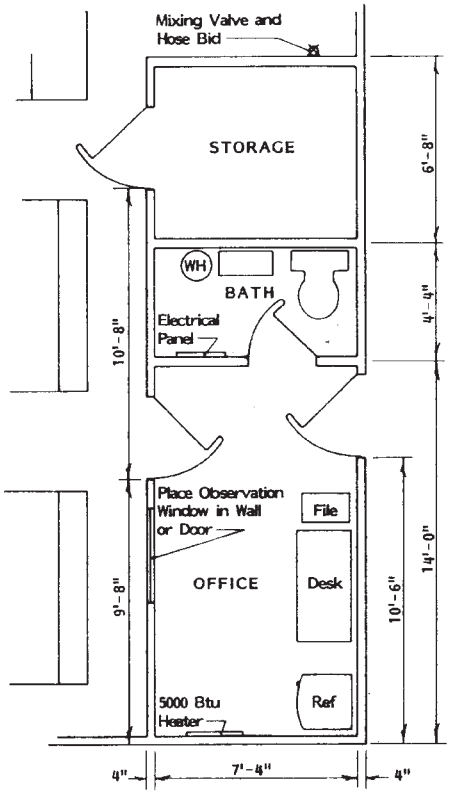
*Note:
Shutters are required on all exhaust fans except for the continuous fan.

Note:
12" of clearance is needed between manure and bottom of concrete beams to operate pit fans.



PLAN B. FOUNDATION PLAN—2/4

Note:
Mechanical scrapers could be used in gutters in place of the flush system. Slope gutter floors at ½% for mechanical scraper systems. Contact scraper supplier for more details on gutter design.



OFFICE LAYOUT—3/4

MIDWEST PLAN SERVICE

FARROWING & GESTATION BUILDING

20 Farrowing & 25 Gestation Stalls

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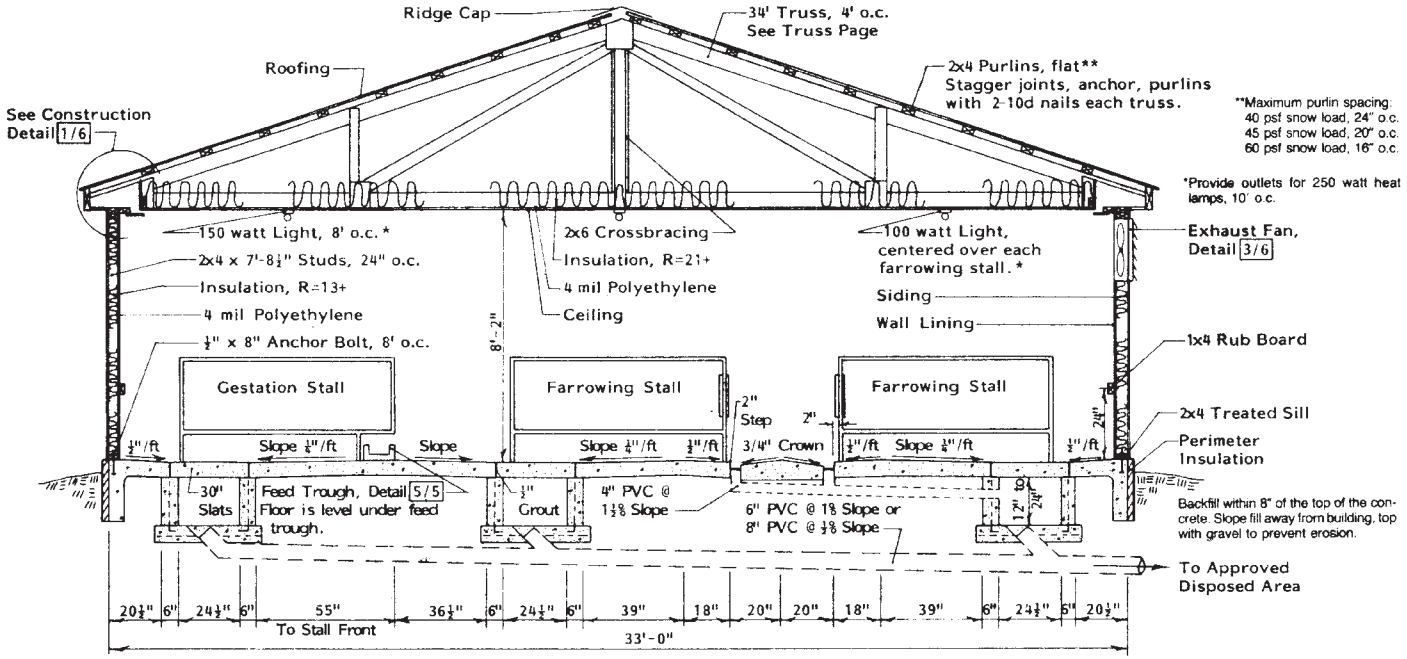
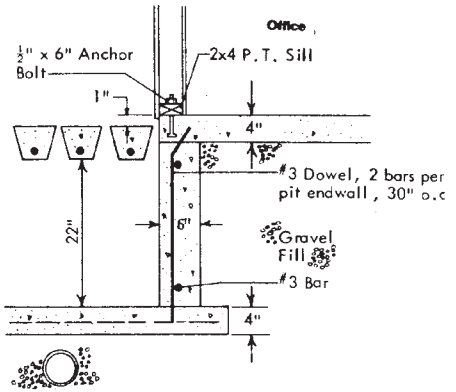
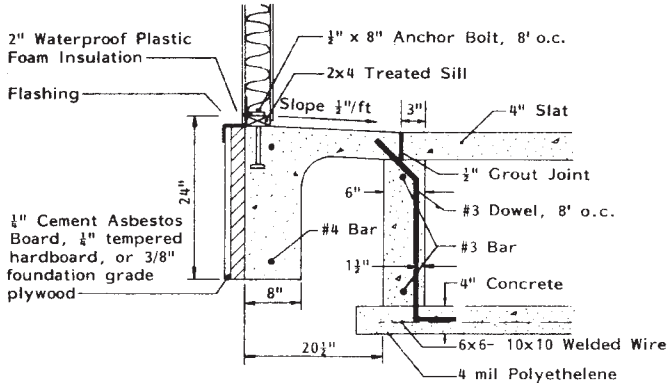


PLAN B. CROSS SECTION—1/5

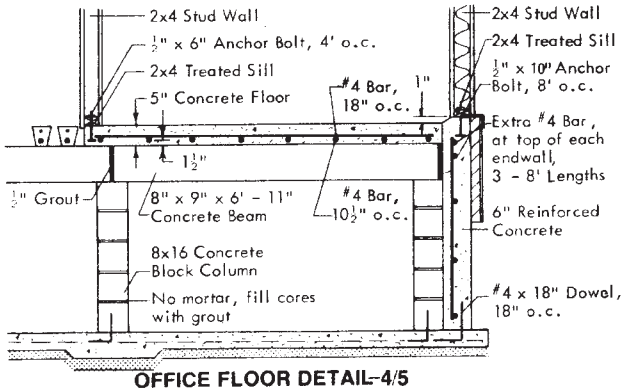
Partly slotted floor. Slats under rear of stalls.



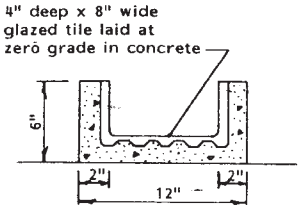
GUTTER ENDWALL DETAIL—2/5



SIDEWALL DETAIL—3/5



OFFICE FLOOR DETAIL-4/5



Note:
Provide a level trough, manual or float controlled water delivery, and add feed to the water.

SOW FEED TROUGH DETAIL—5/5

MIDWEST PLAN SERVICE

FARROWING & GESTATION BUILDING

20 Farrowing & 25 Gestation Stalls

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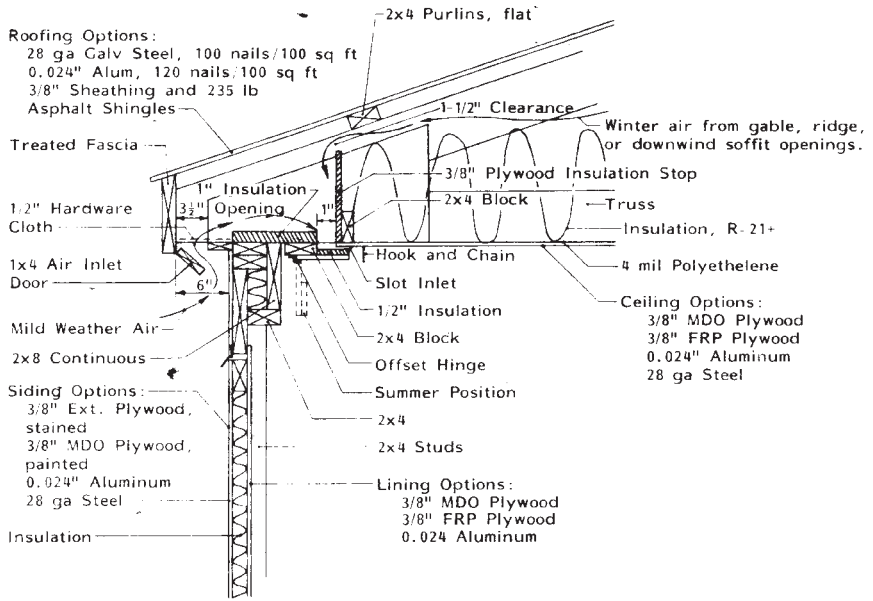


EAVE INLET **SLOT INLET**

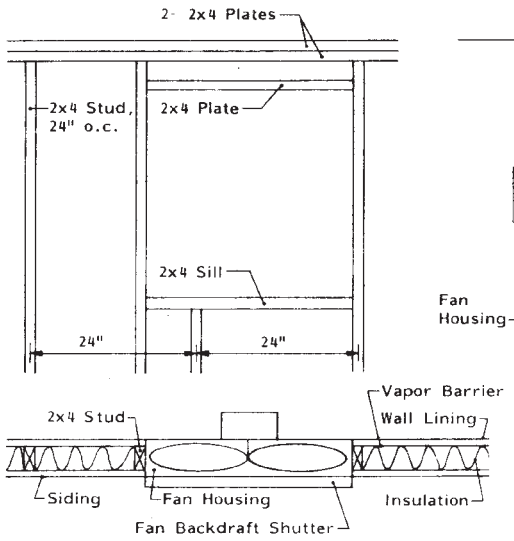
CONSTRUCTION DETAIL—1/6

Install eave inlet and slot inlet along both long walls. Install fans in the long wall opposite winter prevailing winds. Do not install slot inlet at fans or 8' from fans.

Winter: Close upwind soffit doors so all the air is drawn in from the ridge, gable or downwind soffit openings (18 sq ft total opening into attic needed).
Fasten all the slot inlet baffles in "up" position to force cold air across the ceiling. Keep vent doors closed and tightly sealed.
Minimum Slot Openings: 1/4"

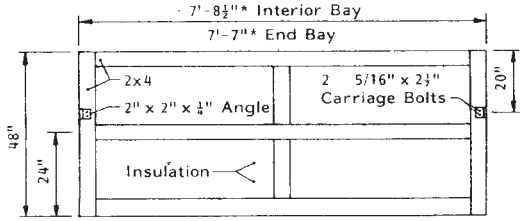
Mild Weather: Open all eave inlets. Open slot inlet baffles to 3/8".

Summer: Open 4' x 8' vent doors—both sides. Shut fans off.



FAN HOUSING—2/6

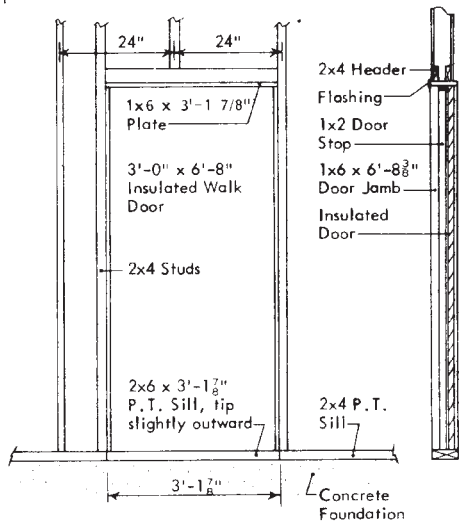
Install according to manufacturer's instructions. Position fan to allow for hood or louvers.

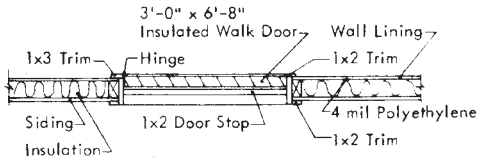


VENTILATION DOOR—3/6

Consider commercial automatic door openers.

Glue and nail 1/2" CC Exterior Plywood on the inside. Install insulation and metal siding on the outside.
*Alter this dimension for other than 8' o.c.





WALK DOOR DETAIL—4/6

MIDWEST PLAN SERVICE

SWINE GESTATION BUILDING

Three Rows of Stalls, 120 Sows

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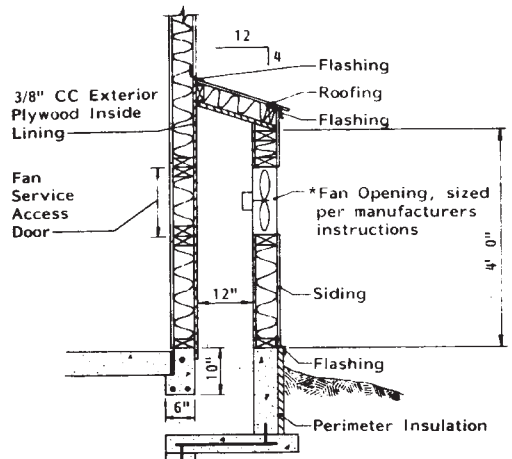
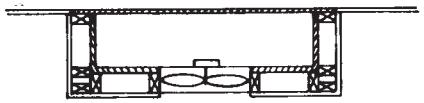
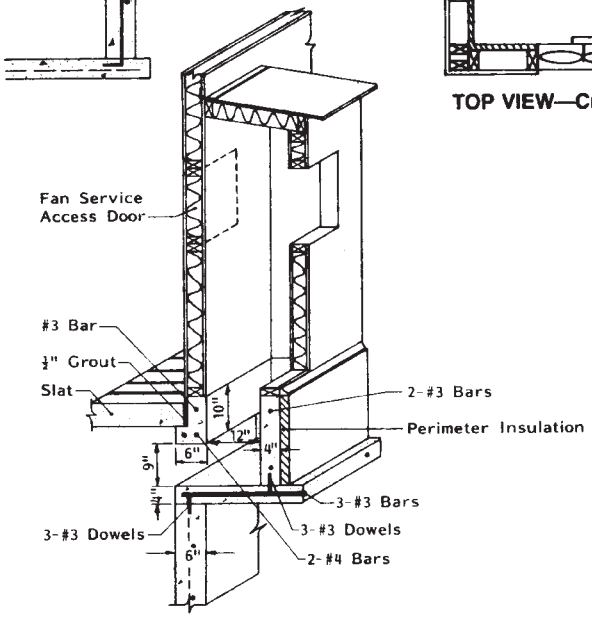


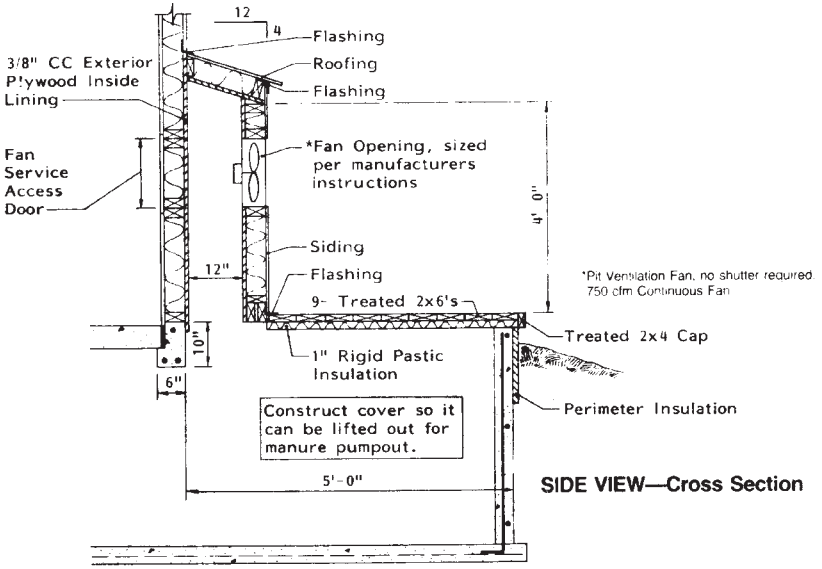
SIDE VIEW—Cross Section



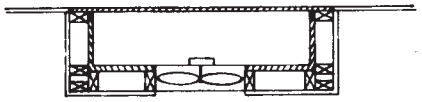
TOP VIEW—Cross Section



PIT FAN ANNEX DETAIL—1/7
Annex is about 4' wide inside.



SIDE VIEW—Cross Section



TOP VIEW—Cross Section

OPTIONAL PIT FAN AND CHOPPER PUMP ANNEX—2/7
Annex is about 4' wide inside.

MIDWEST PLAN SERVICE
SWINE GESTATION BUILDING
Three Rows of Stalls, 120 Sows

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