

# MWPS-72694

## Swine Gestation Building

Two rows of stalls, 48 sows. This plan is a 24' x 54' (or 56') stud-frame building housing 48 gestations sows in individuals stalls. Mechanical ventilation is provided in cold weather ventilation doors are opened for natural ventilation in warm weather.

Plan A shows a totally slotted floor with pit manure storage Plan B show 30'' slats over flush gutters at the rear of the stalls.

### **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**

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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
Swine Gestation Building Two Rows of Stalls, 48 Sows
Title Page
MIDWEST PLAN NO. 72694

# Plan MWPS-72694 Swine Gestation Building

## Two Rows of Stalls, 48 Sows

This plan is for a 24' x 24' (or 36' x 36') frame building housing 48 gestation sows in individual stalls. Technical ventilation fans provide cold weather ventilation. Doors are opened for natural ventilation in weather equipped floor with or without storage. Plan B shows 30 stalls over lush growers at the rear of the stalls.

### General Specifications

**Fans:** Select exhaust fans for the static capacity at a static pressure, especially pit fans to prevent backdrafting when piglets turn on. Air movement in summer can be increased with undrafted fans mounted over the pens near the ends of the building and blowing parallel to the stalls. Air entrapment. Use steel pipe and accurately  
**Fans:** Use 36" x 36" concrete lined. Install steel and concrete. Pump out to within 6' of the bottom at least once a year. Check for solids buildup, increase agitation and pump from port nearest to solids building at next pumping.  
**Heat:** Provide a 24,000 Btu/hr space heater (300 Btu/hr sow).

### Protecting swine from fan failure

- The hog 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, in cold weather, or 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 standby generator to augment hand-operated doors, operate pit fans and, in hot weather, circulation fans.
- Consider automatic telephone call dials selected numbers when power fails.

### Manure storage pit

Pit depth is based on 0.15 cu ft/day manure per stall, 6' height in pit after pumping, 10' freeboard, and 12' additional clearance to improve underfloor ventilation.

### Stall designs

Dimensions in these plans assume concrete stalls as listed below and may need to be adjusted for other designs or materials. About 1/2" is allowed at each end of a stall for construction variation and grooming. Space stalls 3/4" apart in farrowing stalls, with slot widened to 1" behind the sows. For other swine buildings, use 1" slots.

Stall span	Pig nursery*	Finishing	Farrowing, Sow-pig Nursery, Gestation (Stalls)**	Gestation (pens), Bear (pens)
4' x 4' #3	4' x 4' #3	4' x 4' #3	4' x 4' #3	4' x 4' #3
6'	4' x 4' #3	4' x 4' #3	4' x 4' #3	4' x 4' #3
8'	4' x 5' #4	5' x 5' #4	4' x 6' #4	6' x 3' #5
10'	4' x 5' #4	5' x 5' #4	4' x 6' #5	6' x 3' #5

\*Width x depth. Lower bar size.  
 \*\*Gestation (Stalls) = Bear (pens).

**Design Loads**  
 Stalls: Per foot of stall  
 Beams: 50 psf  
 Columns: 35 psf  
 Per sq ft floor area: 50 psf  
 Per sq ft of stall: 100 psf  
 Per sq ft of stall: 150 psf  
 Per sq ft of stall: 150 psf  
 Per sq ft of stall: 65 psf  
 Per sq ft of stall: 65 psf

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

### Building space and production cycles

Although many variations are successful, the following are typical modern 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 per pen. Return sows to breeding and gestation facilities.
  - b) Wean pigs at 4-6 weeks (20-25 lb). Move pigs to nursery, putting 2-3 litters per pen. Return sows to breeding and gestation facilities.
- Or:
  - a) Wean pigs at 3-4 weeks (12-15 lb) to a pre-nursery, putting 1-2 litters per pen. Move pigs to nursery at 6 weeks (10-12 lb) to a nursery facility.
  - b) Move pigs to finishing unit at 10-12 weeks (60-75 lb). Move pigs to 20 weeks (150 lb) or reduce number of pigs per pen at about 20 weeks (150 lb).

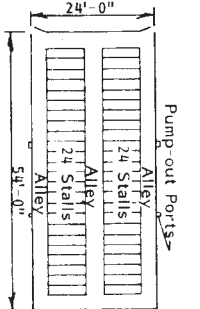
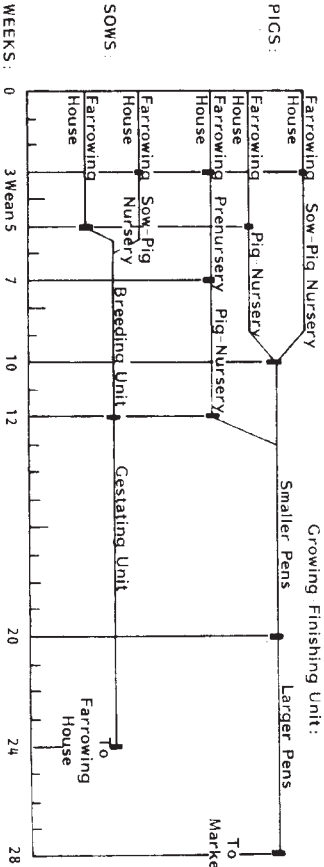
As they approach market weight, and if the finishing unit is crowded, larger hogs may have to be marketed early. Sows are rebred during the first or second heat period after weaning. They farrow about 16 weeks later.

### Size of gestation unit

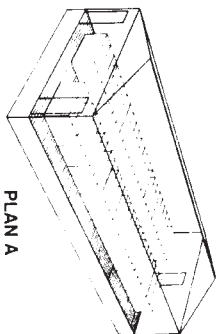
The building shown for 48 sows is adequate for farrowing 6 or 7 months year in a 20-sow farrowing house (three 20-sow groups). For 8 farrowings year (four 20-sow groups) increase to 72 sows (add 24' to building length) and/or provide space to hold one group of sows in breeding building. For 10 or 12 farrowings year (five 20-sow groups), increase to 96 sows (add 48' to building length). One group of sows could be housed in breeding building.

For weekly farrowing in four 10-sow rooms (five 48-sow herds, each handled in four 12-sow groups), 192 gestation stalls will be needed.

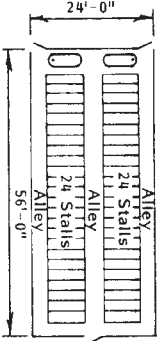
### TYPICAL HOUSING CYCLES



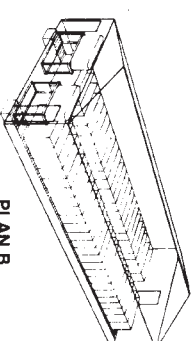
FLOOR PLAN A



PLAN A



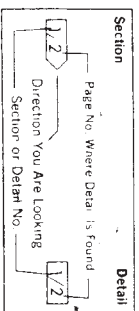
FLOOR PLAN B



PLAN B

### Lumber Specifications

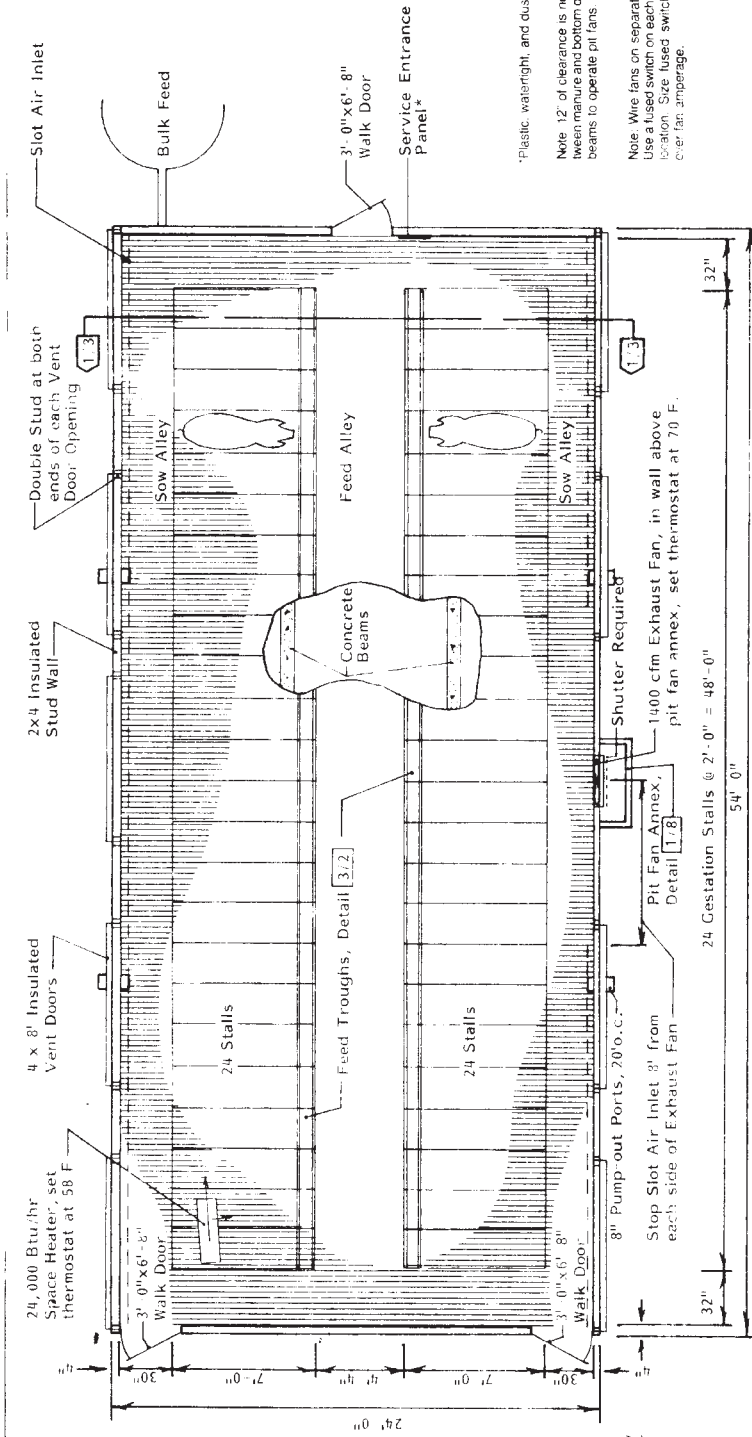
Roof Purlins and Stubs (Doug Fir, Southern Pine Construction Grade (Douglas Fir, Southern Pine or Western Fir))  
 Trusses: See Truss Page  
 Headers: No. 1 or 1500r machine rated (Doug Fir or Southern Pine)  
 Plywood: Roof Sheathing—1/2" CE-EX1 (identification index = 2001)  
 Siding and Wall Lining and Ceiling—1/2" or 3/4" 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 Douglas Fir, Construction Grade (Douglas Fir, Southern Pine or Western Pine) Type A or B, 40-60 per cent P.T. means lumber pressure preservative treated against insect and fungus attack.



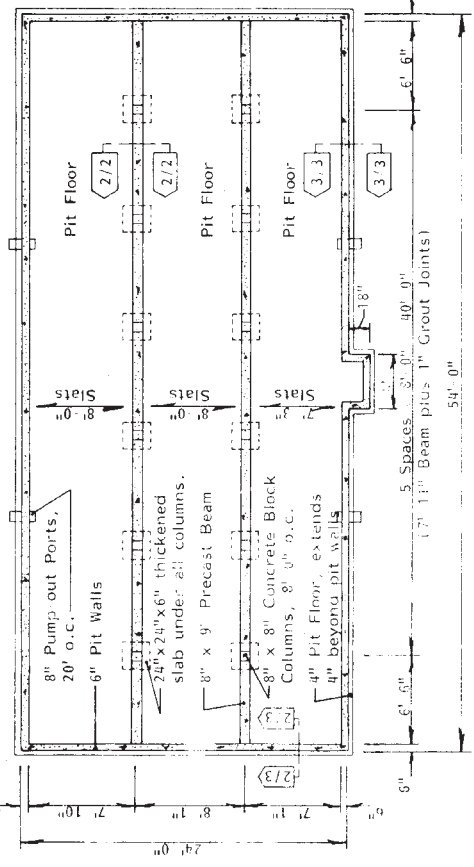
Section & Detail Indicator

MIDWEST PLAN SERVICE		
Cooperative Extension & Research in Agriculture & Home Economics in the 12 North Central Universities—USDA Cooperating		
<b>SWINE GESTATION BUILDING</b>		
Two Rows of Stalls, 48 Sows		
8 Pages plus	Plan No.	Page
24 Truss Sheet	MWPS-72694	1 of 10

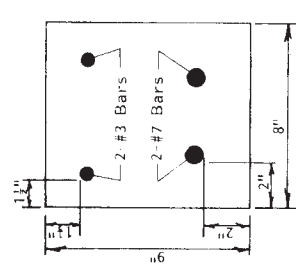
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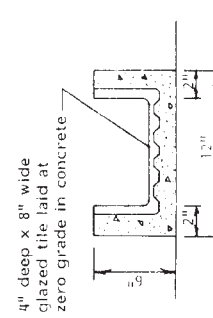
PLAN A: FLOOR PLAN—1/2  
Totally slotted floor.



PLAN A: FOUNDATION PLAN—4.2



BEAM DETAIL—2/2

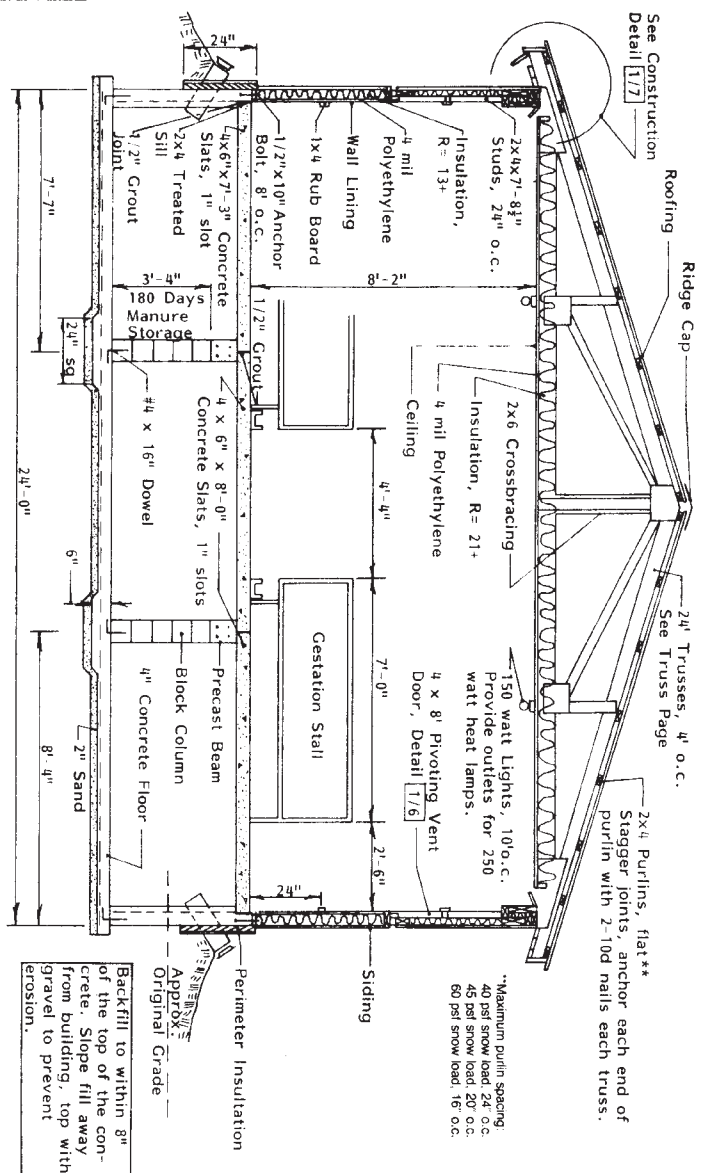


SOW FEED TROUGH DETAIL—3/2

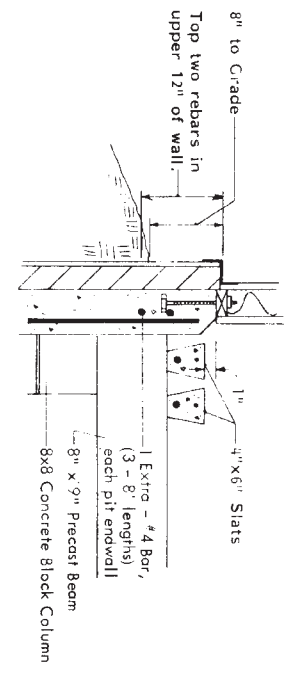
Note: Provide a level trough, manual or floor control water delivery and slot feed to the water. An alternative form B trough with a flat and dry rationing top and a wide slotted tapered 1/2" pitch slot.

Provide a door at one end of each alley to facilitate animal movement and for removing dead animals

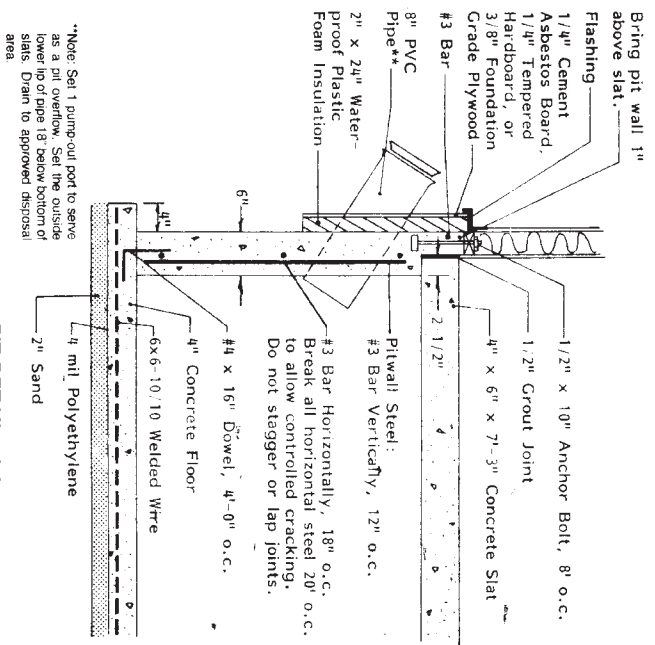
\*Plastic, watertight, and dust-tight.  
Note: 12" of clearance is needed between main and bottom of concrete beams to operate pit fans.  
Note: Wire fans on separate circuits. Use a fused switch on each fan at fan location. Size fused switch at 25% over fan amperage.



**PLAN A. CROSS SECTION-1/3**  
Totally slotted floor.



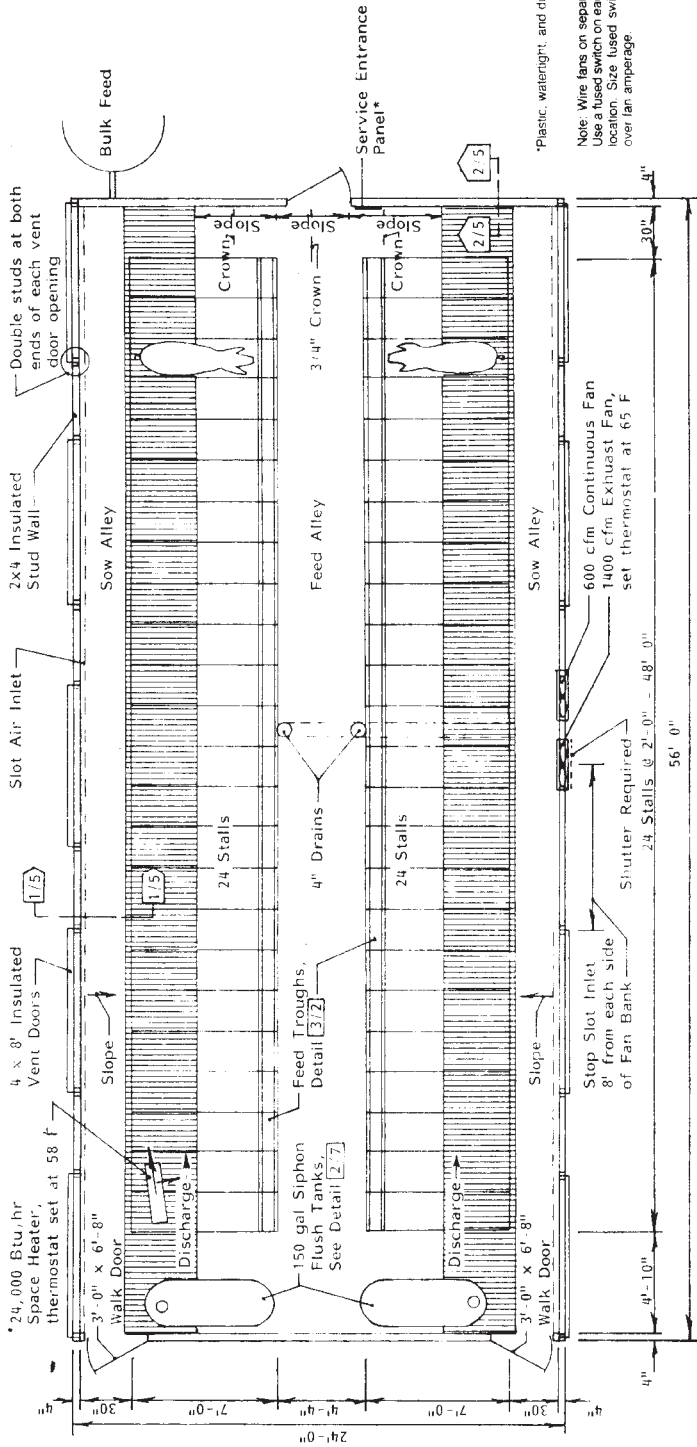
**PIT ENDWALL DETAIL-2/3**



**PIT DETAIL-3/3**

\*Note: Set 1 pump-out port to serve as a pit overflow. Set the outside lower lip of pipe 18\"/>

<b>MIDWEST PLAN SERVICE</b>	
<b>SWINE GESTATION BUILDING</b>	
Two Rows of Stalls, 48 Sows	
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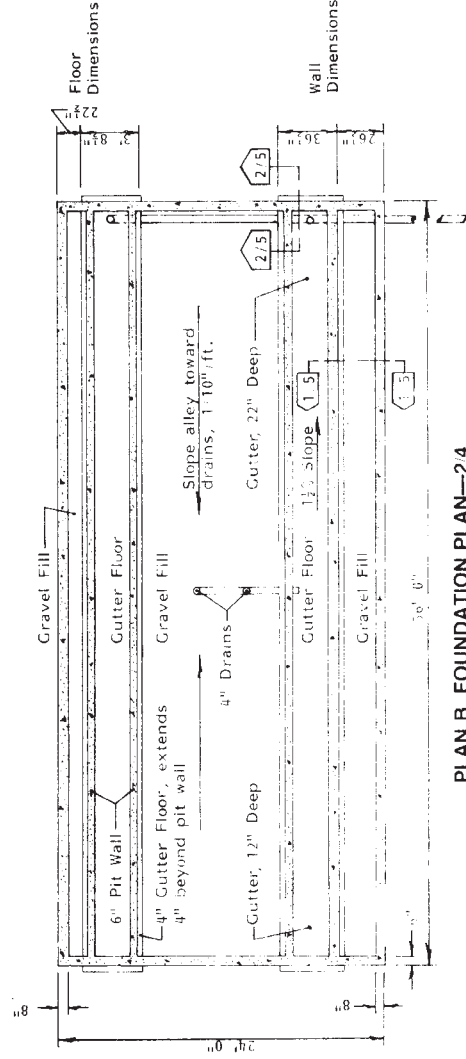


Provide a door at one end of each sow alley to facilitate animal movement and for removing dead animals

\*Plastic, watertight, and dust-tight.

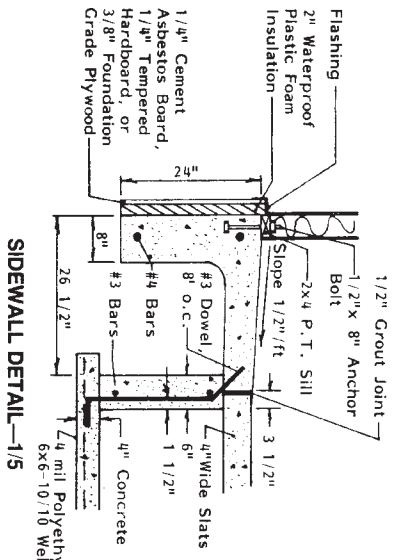
Note: Wire fans on separate circuits. Use a fused switch on each fan at fan location. Size fused switch at 25% over fan amperage.

PLAN B. FLOOR PLAN—1/4  
Partly slotted floor. Slats under rear of stalls.

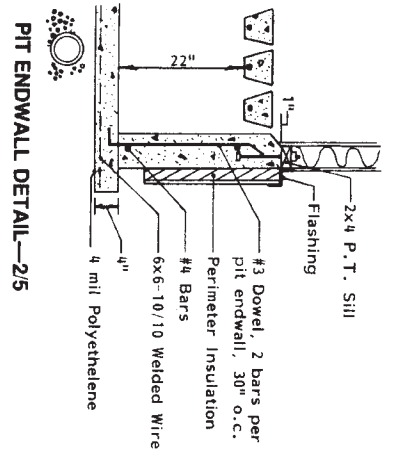


PLAN B. FOUNDATION PLAN—2/4

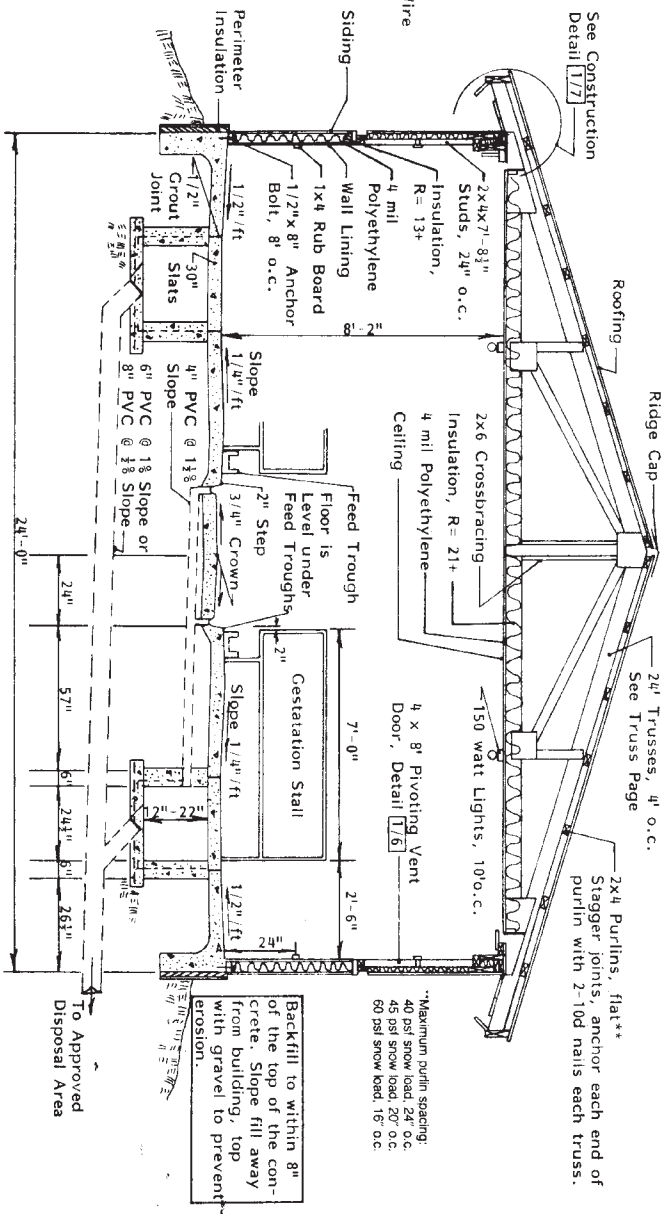
Note: Mechanical scrapers could be used in stalls in place of the flush siphon tanks. Contact your mechanical scraper systems. Contact scraper supplier for more details on gutter design.



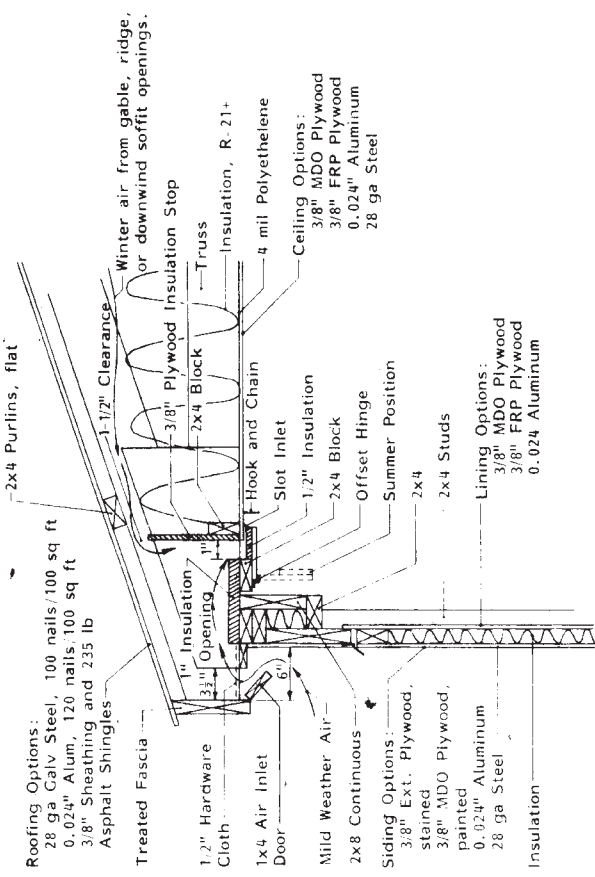
**SIDEWALL DETAIL-1/5**



**PIT ENDWALL DETAIL-2/5**



**PLAN B. CROSS SECTION-3/5**  
Partly slotted floor. Slats under rear of stalls.



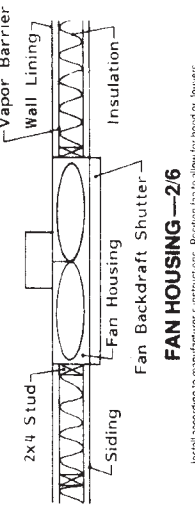
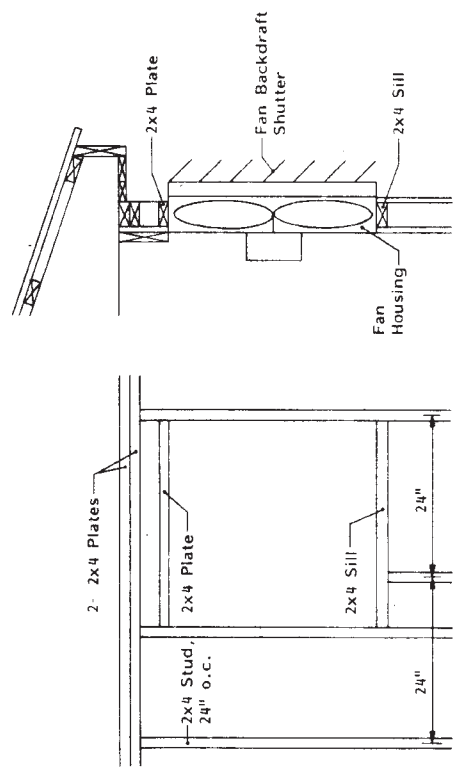
**EAVE INLET CONSTRUCTION DETAIL—1/6**

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.

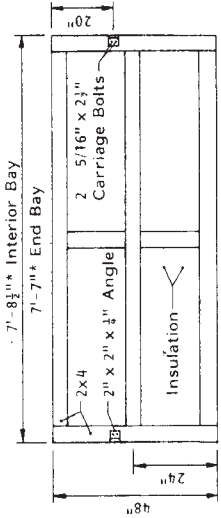
**Winter:** Close upwind soffit doors so all the air is drawn in from the ridge, gable or downwind soffit openings (16 sq ft total covering into attic needed).  
 Fasten all the slot inlet baffles in up position to force cold air across the ceiling. Keep vent doors closed and tightly sealed. Minimum Slot Openings <sup>1/4</sup>/<sub>8</sub>.

**Mild Weather:** Open 3/4 eave inlets. Open slot inlet baffles to <sup>90</sup>/<sub>0</sub>.

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



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

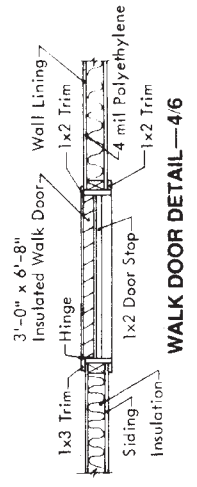
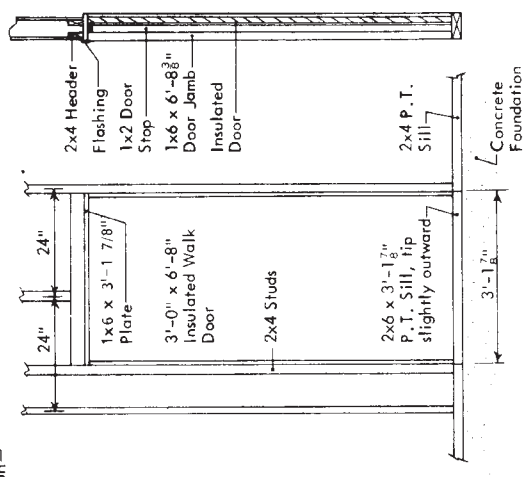


**VENTILATION DOOR—3/6**

Consider commercial automatic door openers.

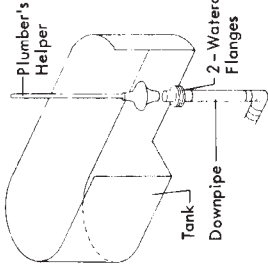
Glue and nail 1/2" CC Exterior Plywood on the inside. Install insulation <sup>1/2</sup>/<sub>8</sub> meter siding on the outside.

\*Alter this dimension for other than 8' o.c.

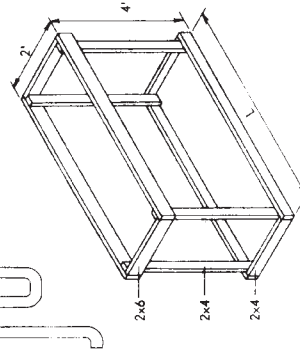
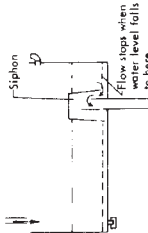
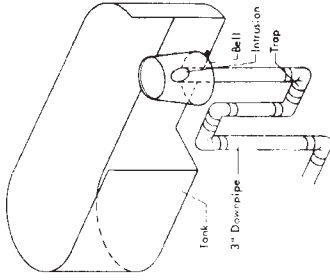


**MIDWEST PLAN SERVICE**  
**SWINE GESTATION BUILDING**  
 Three Rows of Stalls, 120 Sows

Plan No. 72601  
 Date 6-10



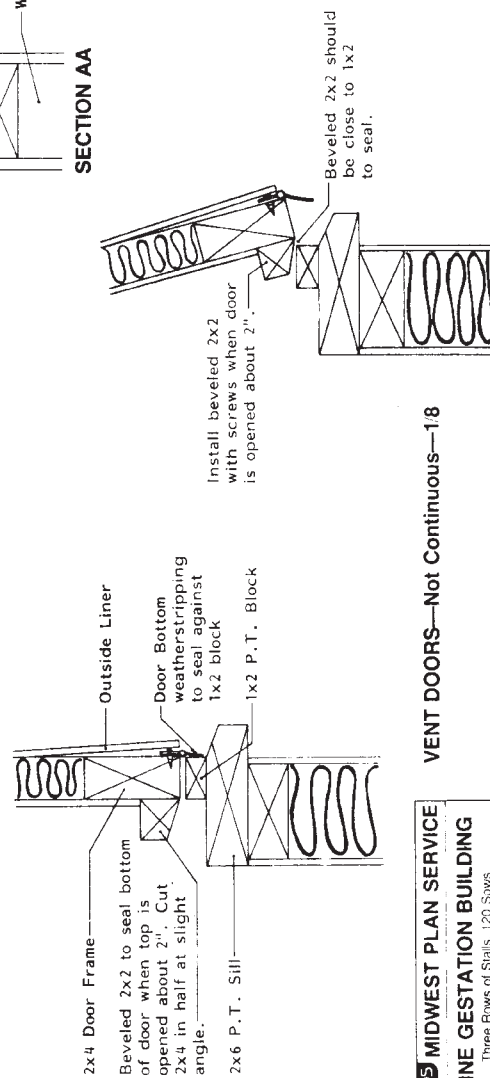
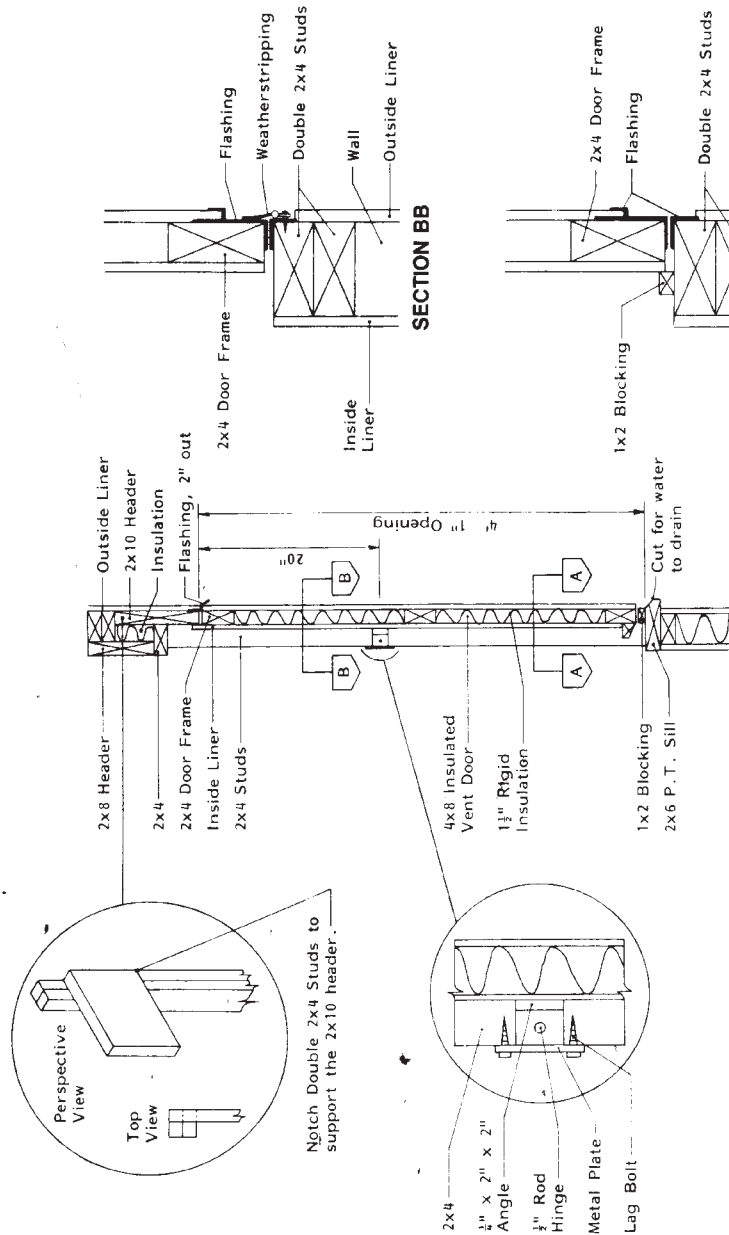
Manual Flush Tank



Siphon Tank Support Frame  
 L = Tank length - 1'. If L is greater than 6', install 2x4 post near center of span. Provide crossbracing if frame not attached to wall. Cover top with 1" plank.

**SIPHON FLUSH TANK—218**  
 See MWPS AED-17

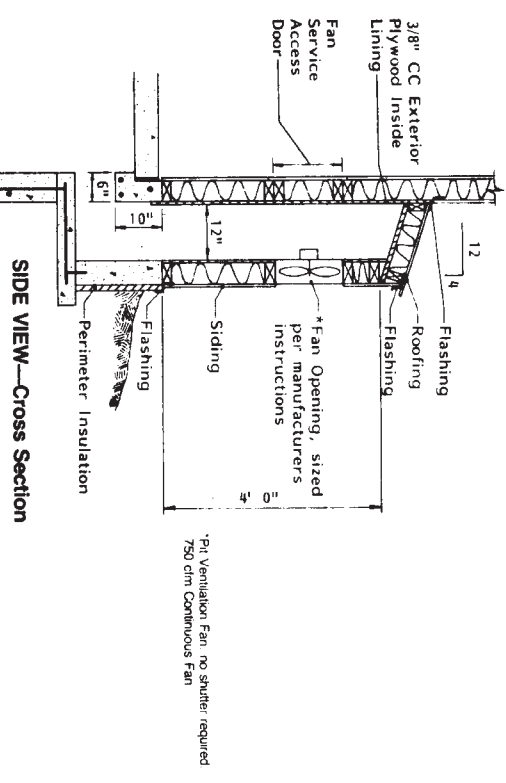
Flush Frequency—minimum flushes per day		Open gutter
Farrow	2	2
Nursery	4	4
Finish	6	6
Gestation	4	6
More flushes per day tend to decrease odors		



**VENT DOORS—Not Continuous—118**

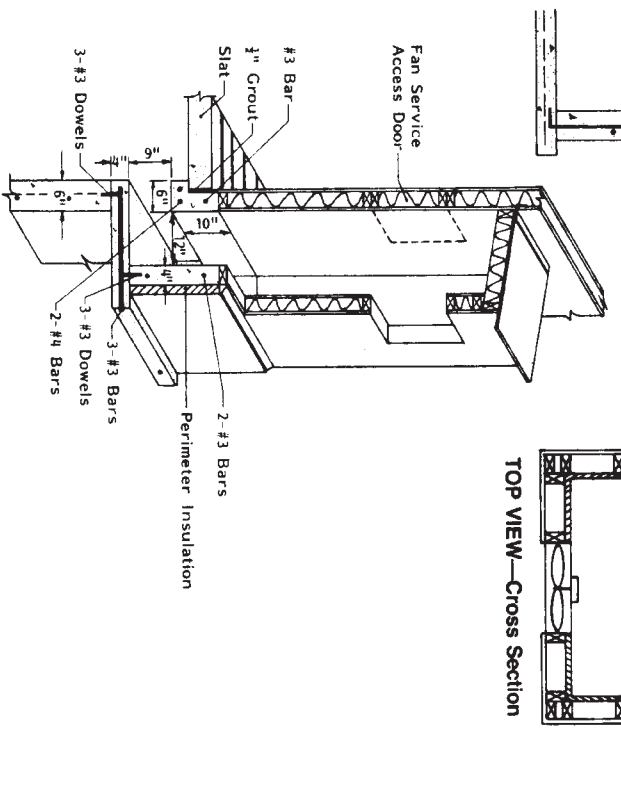
**MIDWEST PLAN SERVICE**  
**SWINE GESTATION BUILDING**  
 Three Rows of Stalls, 120 Sows  
 Plan No. **72601** Page **8** of **10**  
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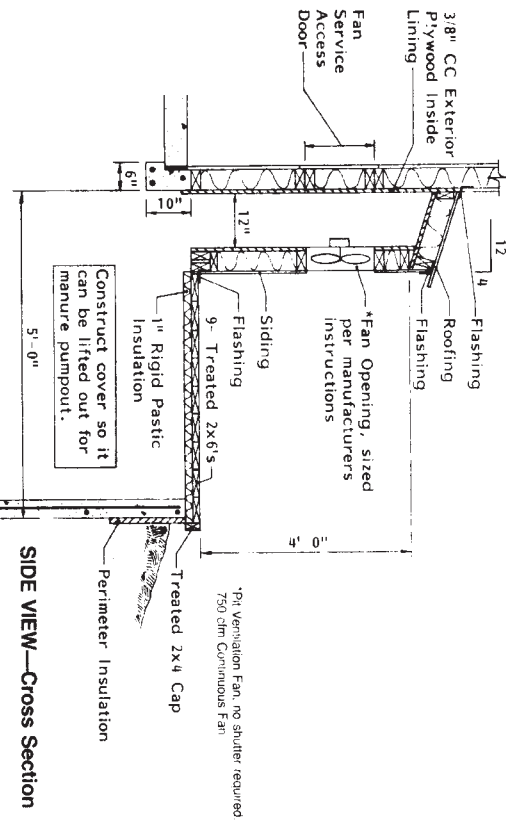


SIDE VIEW—Cross Section

TOP VIEW—Cross Section

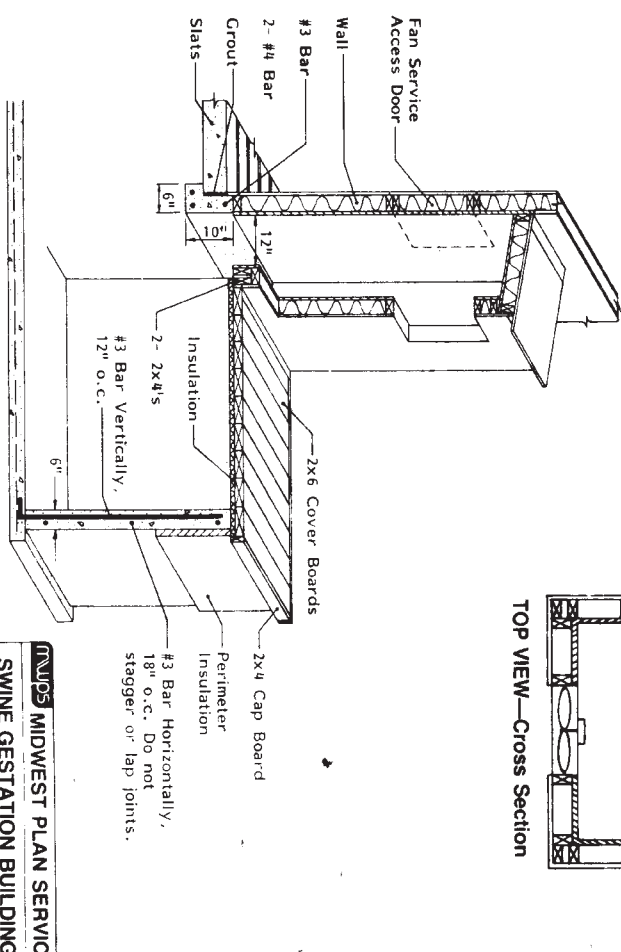


PIT FAN ANNEX DETAIL—17  
Annex is about 4' wide inside.



SIDE VIEW—Cross Section

TOP VIEW—Cross Section



OPTIONAL PIT FAN AND CHOPPER PUMP ANNEX—27  
Annex is about 4' wide inside.