

MWPS-72681

Farrowing House

Flushed under slats, 20 sows. This plan is for a 24'x70' (or 66') stud-frame building housing 20 sows in farrowing stalls. Year-round forced ventilation is provided. Manure is flushed from pit under slotted floor.

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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Cooperative Extension Work in Agriculture and Home Economics and Agricultural Experiment Stations of North Central Region - USDA Cooperating
Farrowing House Flushed under slats, 20 sows
Title Page
MIDWEST PLAN NO. 72681

Plan NWPS-72681

Farrowing Stalls on Slotted Floors

This plan is for a 24'x70' (or 66') stud-frame building housing 20 sows in farrowing stalls. Year-round forced ventilation is provided. Manure is flushed from pit under slotted floor.

Plan A shows 7 stalls on 8' slats. Plan B shows 2 1/2' slats at the back of each stall and floor heat for pig comfort at the front of each stall.

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

General Specifications

Pressure: Select exhaust fans for the staled capacity at 1/2" static pressure.

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

Heat: Desired room air temperature is about 72°F. Provide a 30,000 Btu space heater (1500 Btu/slat) 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 (300 Btu) per stall floor heat, plus about 250 watts (500 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 (200 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, when to phone for additional advice etc.
- Prepare walk-stairs and perhaps summer ventilation parts to be propped open part way or fully.
- Consider a stand-by generator to augment hand-operated doors, operate pit fans and, in hot weather, circulating fans.
- Consider automatic telephone that dials selected numbers when power fails.

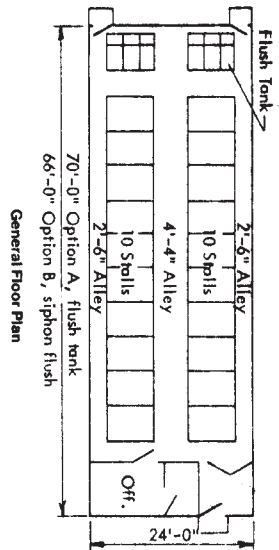
Slat designs

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

Space slats 1/2" 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
4	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
8	4' x 4" #4	5' x 5" #4	5' x 5" #4
10	4' x 5" #4	5' x 5" #5	6' x 6" #5

Design Loads
 Per foot of slat
 50 plf
 100 plf
 150 plf
 Beams: 35 psf
 50 psf
 65 psf
 Columns: 35 psf

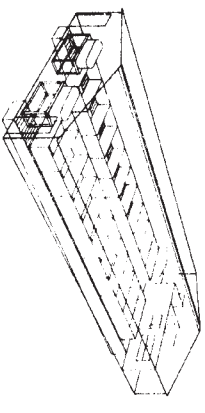
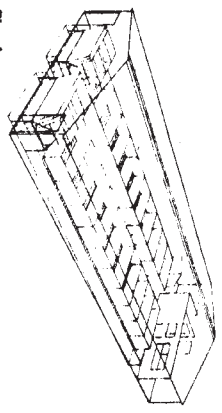
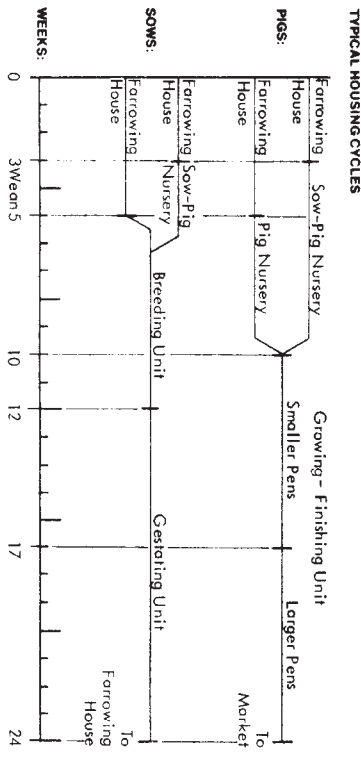


Building space and production cycles.

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.

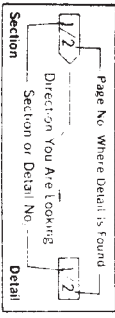
- Farrow during 3 weeks. Some stalls can be used twice.
- Either:
 - a) Move sows and litters to sow-pig nursing pens at 1-3 weeks, depending on how soon the farrowing stalls are needed for the next sows.
 - b) Wean pigs at 3-6 weeks, putting 3-4 litters together.
- Return sows to breeding and gestation facilities.
- Or:
 - Wean pigs at 4-6 weeks (20-25 lb).
 - Return sows 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.



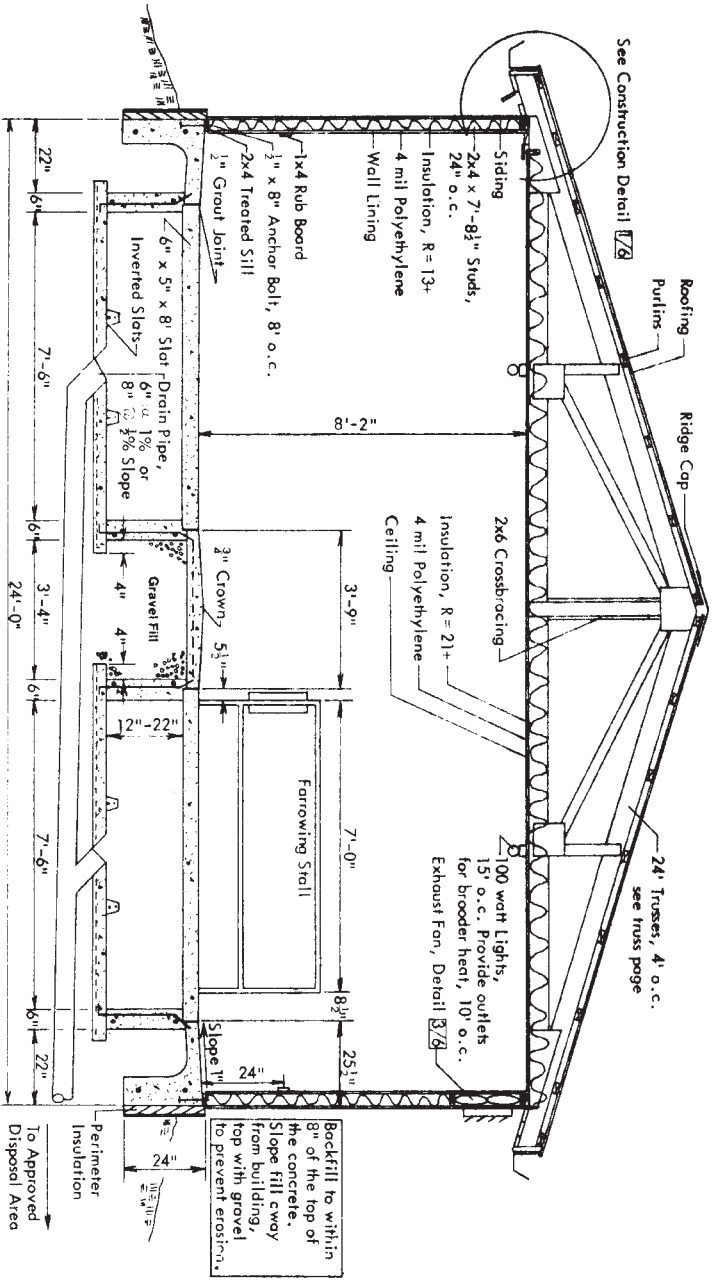
Lumber Specifications

Roof Purlins and Studs
 Construction Grade (Doug Fir, Southern Pine or Hem Fir)
 Trusses
 See Truss Page
 Plywood
 Roof Sheathing—3/4" C-C Ext 1 (Identification Index = 200)
 Siding and Wall Lining and Ceiling—1/2" or 3/4" 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 Fasco
 Pressure Preservative Treated (Southern Yellow Pine or equivalent) Creosote—8 pct. Pentas—0.40 pct. ACC—0.25 pct. ACA or COA (Type A or B)—0.23 pct.
 P. T. means lumber pressure preservative treated against insect and fungus attack.

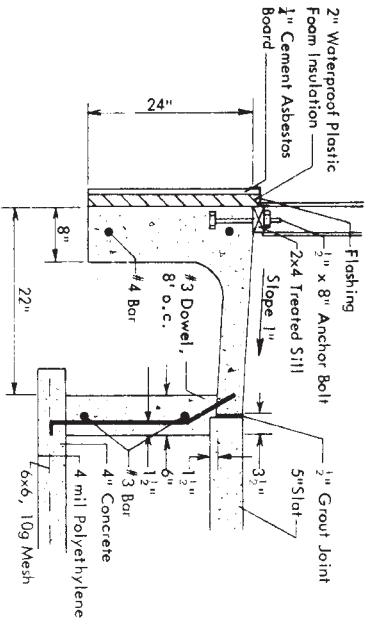


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FARROWING HOUSE
 Flushed under slats, 20 sows

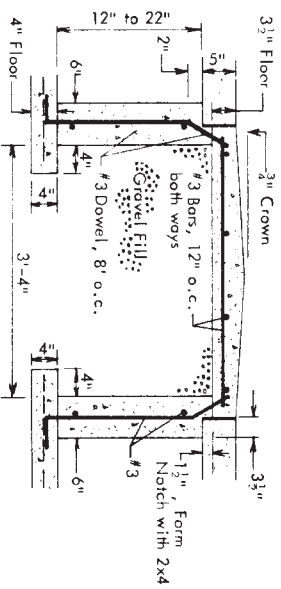
7 Pages plus Plan No. Page
 1-24 Truss Sheet NWPS-72681 1 of 10
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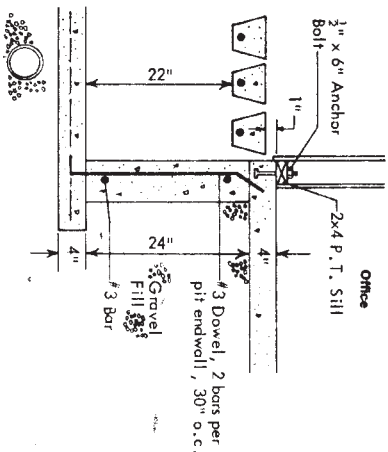
PLAN A. CROSS SECTION—1/3
Partly slatted floor. Slats under stalls.



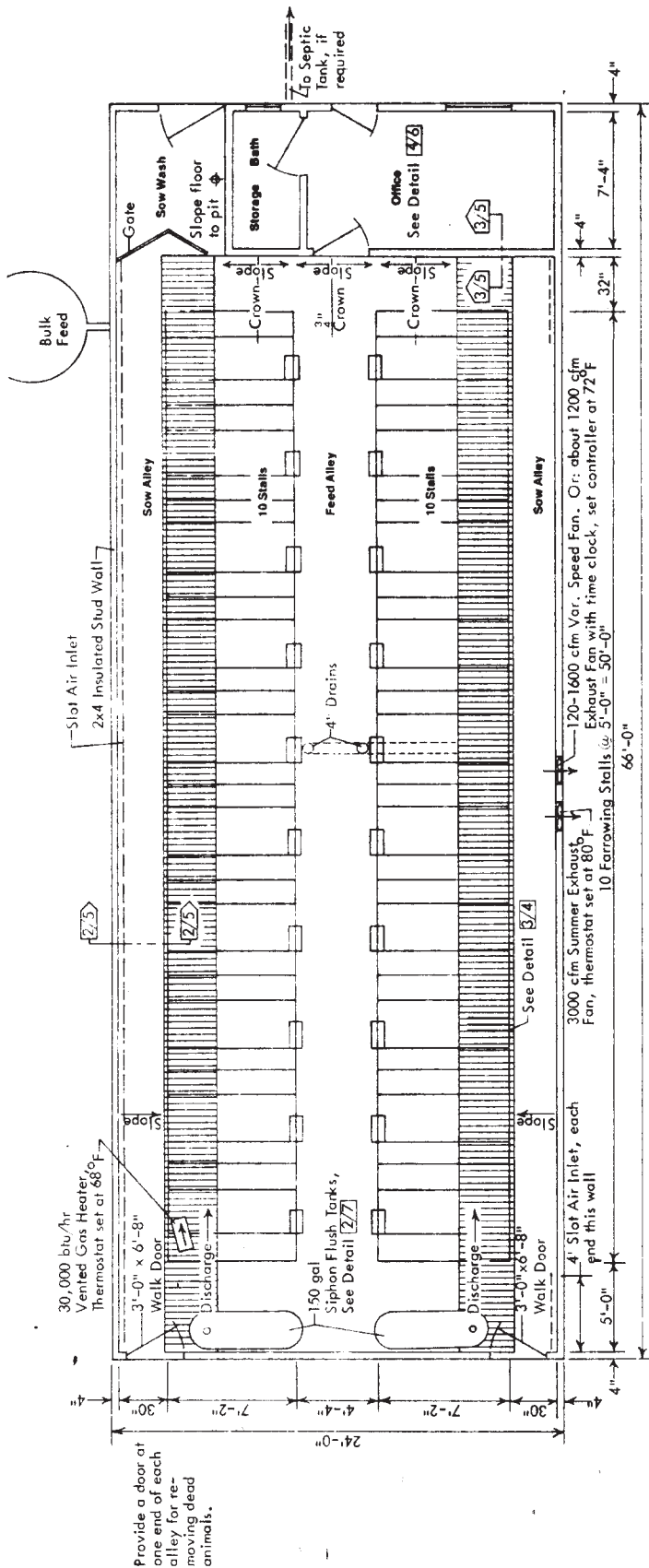
SIDEWALL DETAIL—2/3



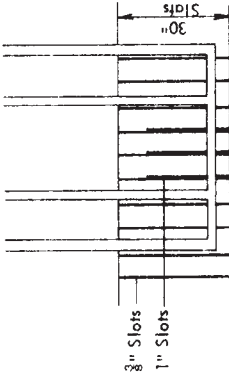
ALLEY FLOOR DETAIL—3/3



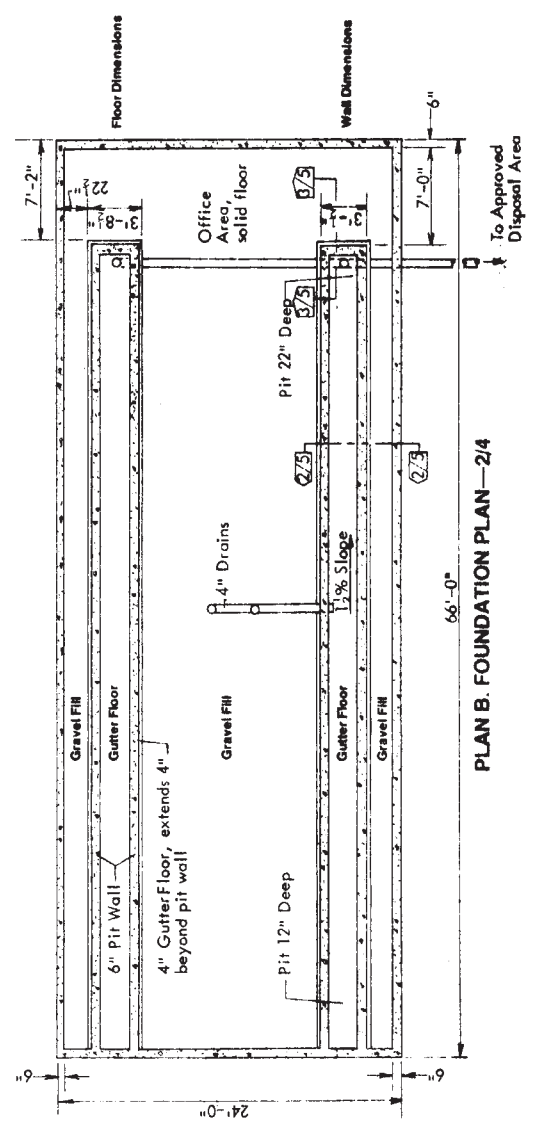
PIT ENDWALL DETAIL 4/3



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

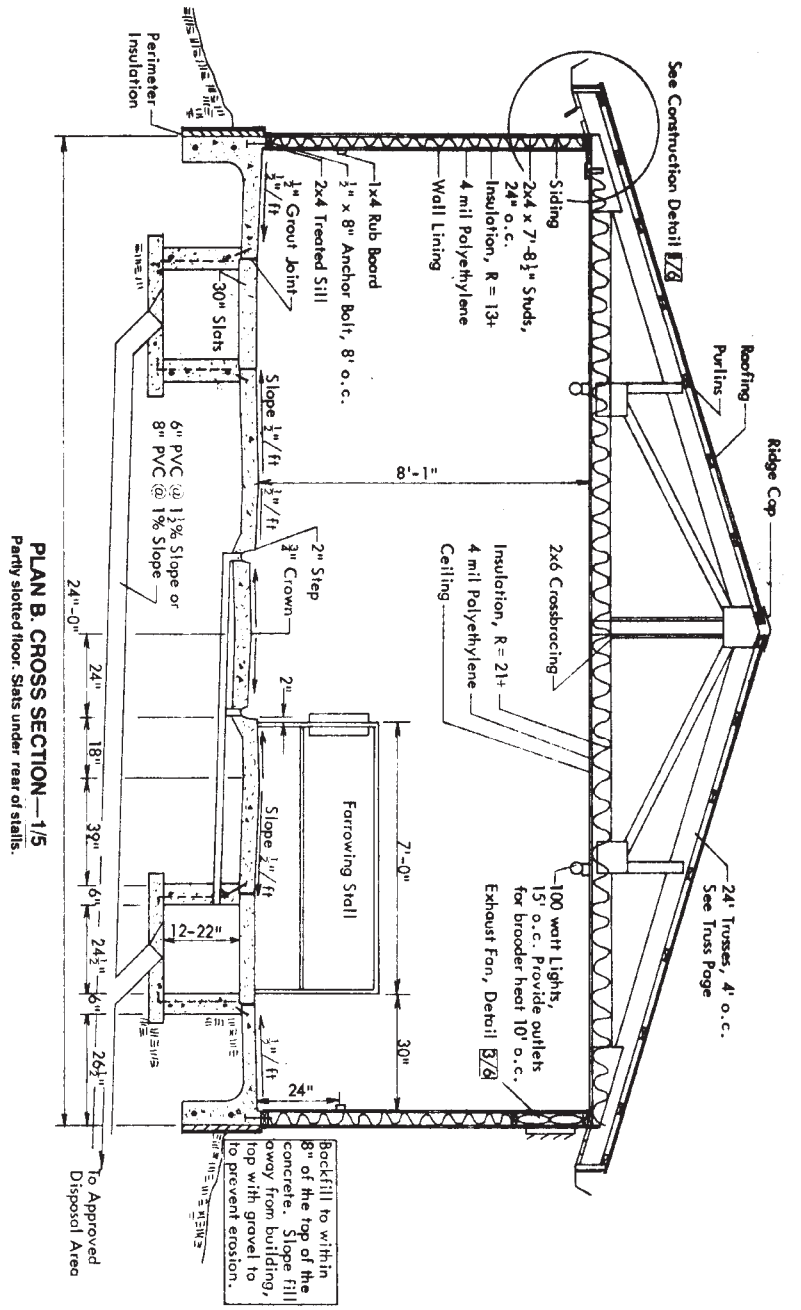


SLOT DETAIL—3/4
Other kinds of slats are satisfactory.

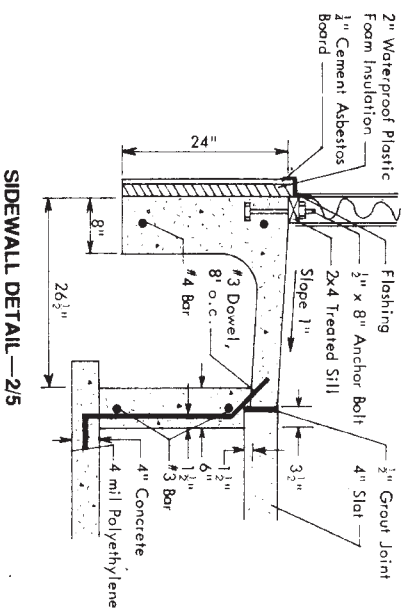


PLAN B. FOUNDATION PLAN—2/4

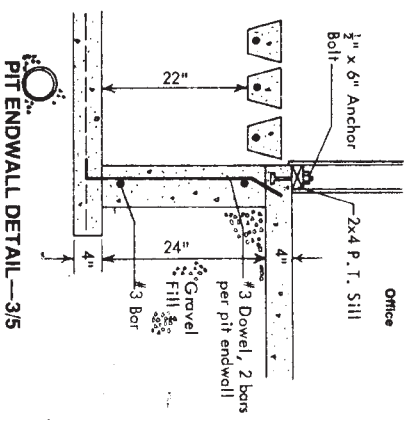
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PLAN B. CROSS SECTION—1/5
Partly slotted floor. Slats under rear of stalls.



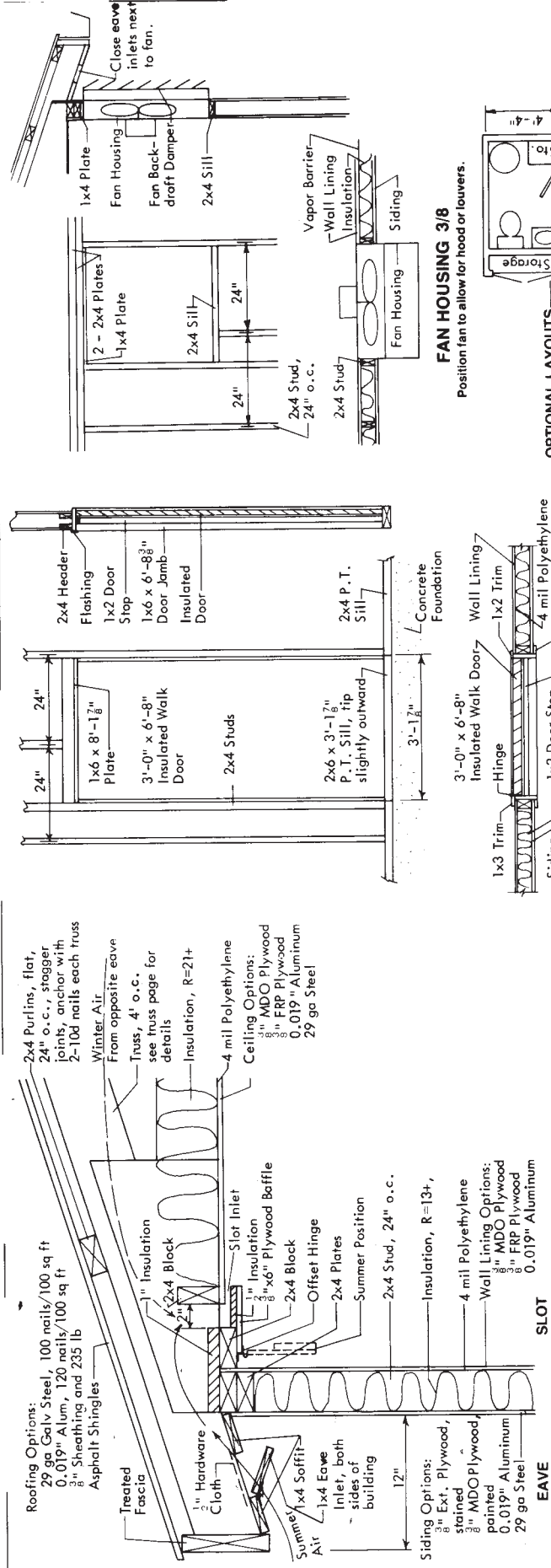
SIDEWALL DETAIL—2/5



PIT ENDWALL DETAIL—3/5

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.

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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: 1/2"

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

EAVE INLET

Roofing Options:
29 ga Galv Steel, 100 nails/100 sq ft
0.019" Alum, 120 nails/100 sq ft
3/8" Sheathing and 235 lb Asphalt Shingles

2x4 Purlins, flat, 24" o.c., stagger joints, anchor with 2-10d nails each truss

Winter Air From opposite eave

Truss, 4' o.c. see truss page for details

Insulation, R=21+

4 mil Polyethylene Ceiling Options:
3/8" MDO Plywood
3/8" FRP Plywood
0.019" Aluminum
29 ga Steel

2x4 Stud, 24" o.c.

Insulation, R=13+, 4 mil Polyethylene

Wall Lining Options:
3/8" MDO Plywood
3/8" FRP Plywood
0.019" Aluminum
29 ga Steel

1" Insulation

2x4 Block

3/8" x 6" Plywood Baffle

Slot Inlet

1" Insulation

2x4 Block

2x4 Stud, 24" o.c.

Summer Position

2x4 Plates

Offset Hinge

1/2" Hardware

1/4" Eave Inlet, both sides of building

1x4 Soffit

Summit Air

12"

Siding Options:
3/8" Ext. Plywood, stained

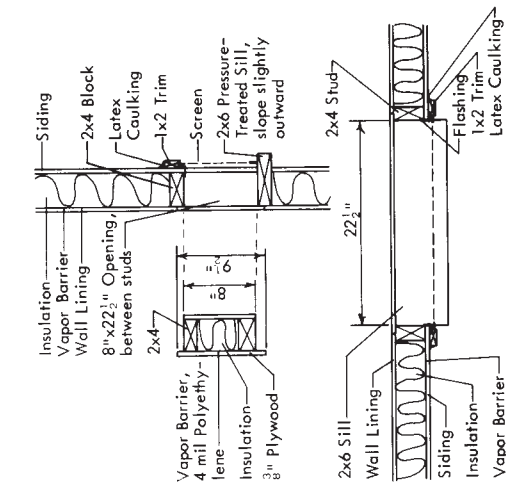
3/8" MDO Plywood, painted

0.019" Aluminum

29 ga Steel

SLOT INLET

WALK DOOR DETAIL 2/8

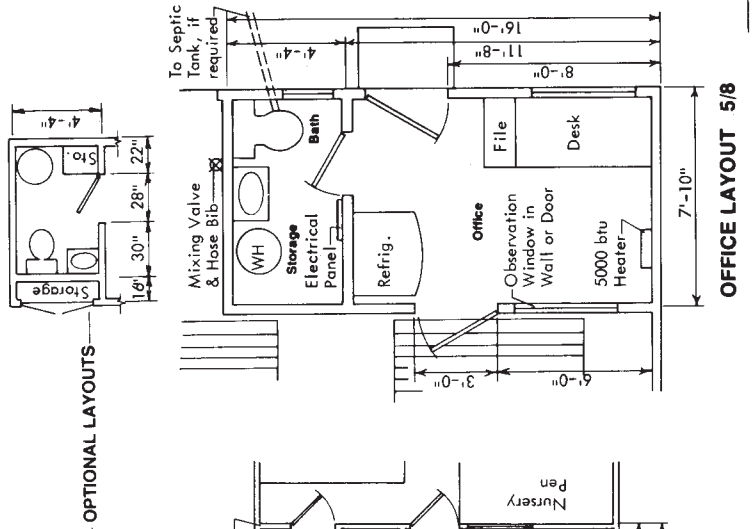


EMERGENCY AIR VENT DETAIL 4/8

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.

FAN HOUSING 3/8

Position fan to allow for hood or louvers.



OPTIONAL LAYOUTS

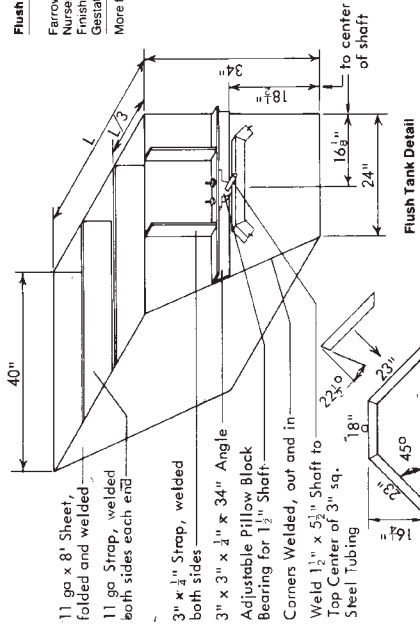
OFFICE LAYOUT 5/8

Variable Dimensions

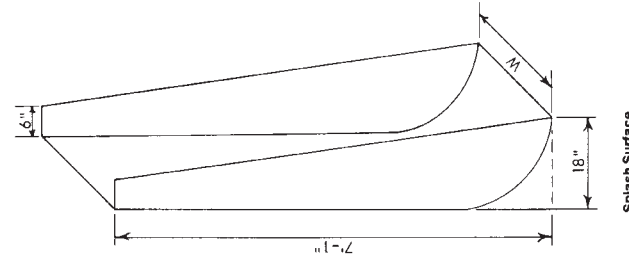
Gutter width	2 1/2"	4"	6"	8" and wider
Tank length, L	23"	41"	65"	88"
Back splash width, W	29"	47"	71"	96"
Flush volume, gal	100	150	300	400

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

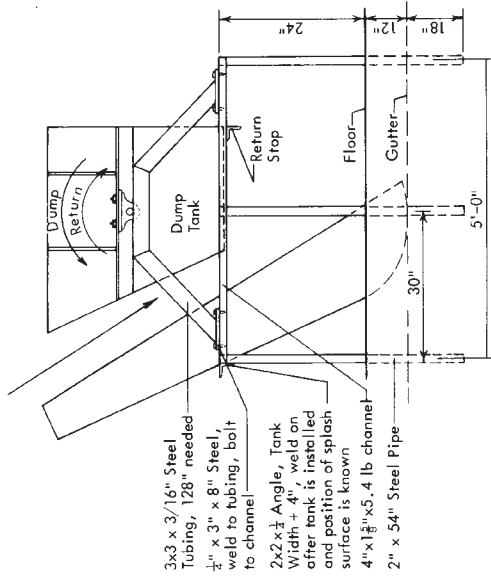
More flushes per day tend to decrease odors.



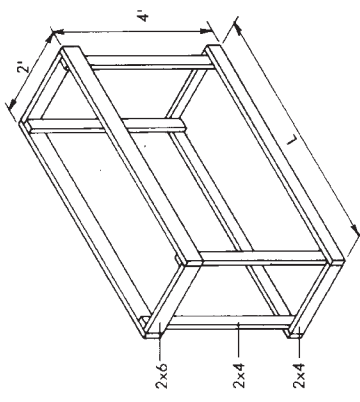
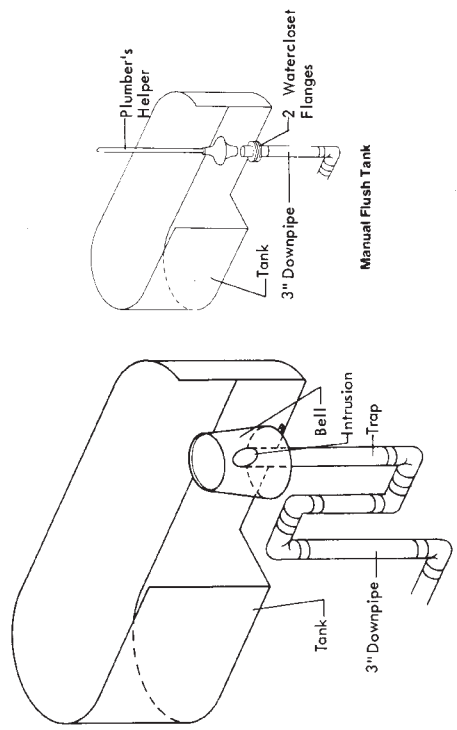
Flush Tank Detail



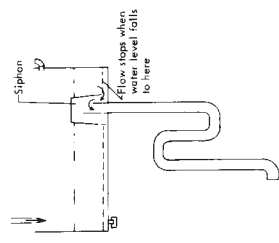
Splash Surface



3x3 x 3/16" Steel Tubing, 128" needed
 1/2" x 3" x 8" Steel, weld to tubing, bolt to channel
 2x2 x 1/4" Angle, Tank Width + 4", weld on other tank is installed and position of splash surface is known
 4" x 1 1/2" x 5.4 lb channel
 2" x 54" Steel Pipe



Siphon Flush Tank Support Frame



Install siphon flush tank as shown in diagram. Then install siphon flush tank as shown in diagram. Then install siphon flush tank as shown in diagram.

SIPHON FLUSH TANK—2-7
 See MWPS AED-17

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FLUSH TANK, Self Dumping—17