Purpose: The electric-blower ventilation system described below solves many of the problems of systems based on large fans. It is readily adaptable to, and economically installed in many existing buildings and different sizes of operation - one blower per sow. Maximum distribution of the ventilation air is obtained for all-season operation and with facilities partially or fully occupied. Total cost of the installation is comparable in cost to other successful systems. Minimum management is required.

Provide: Intake ducts for fresh air with:
1 Blower and one electrical outlet per farrowing stall, and
1 Thermostat controlling outlet circuit to each line of blowers.

Blower specification: 50 cfm @ 1/2" S.P., approximately 0.7 amps.

Summer: Operate one blower per occupied stall full-time, with thermostat set to turn units off at 60° F. Turn deflectors to blow air directly on sows in hot weather.

Fall: As outside temperatures drop, unplug enough of the blowers so those remaining connected run almost continuously during day time. Turn deflectors to blow toward the ceiling.

Winter: During cold weather most of the blowers will be disconnected. One out of 4 or 5 of the blowers should remain connected and should operate almost continuously during day time. Set the thermostat at 45° F.

Air Intake: Air may be drawn from the attic during winter months to obtain some preheating of the incoming air in the sun-warmed attic air space. Draw air directly from the outside during warm and hot weather.

Air Outlets: Provide screened (½" hardware cloth) hooded openings, about 1 sq. ft. free area per 10 blowers, in south wall. An alternate is to provide ceiling vents with insulated ducts to ridge ventilators. These ducts can be disconnected during summer so the exhaust air ventilates the attic.

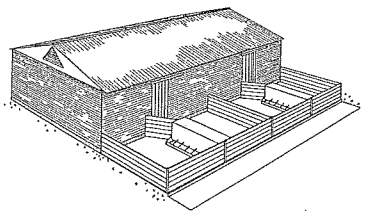
Heating: See "Swine Equipment Plans," MWPS-2, for details of floor heating systems and electric pig brooders. In colder climates space heating (up to 40,000 BTU per hour) may be required.

Cooling: A window air conditioner, 1/10 ton capacity per sow, can be added to the blower-duct unit for summer cooling.

Finishing: If pigs are raised to market weight, additional ventilation fan capacity of 7,500 cfm will be required.

BILL OF MATERIALS

ITEM	DESCRIPTION	NO.	FBM
Concrete			
Foundation	Cu. yards	5 1/2	
Floor	Cu. yards	11	
Foundation Insulation	24" wide, Ft.	120	
Anchor Bolts	½"x12"	24	
Sill	2"x4"x12'-0" Pressure-treated	10	80
Studs	2"x4"x 7'-0"	64	298 2/3
Plate	2"x4"x12'-0"	20	160
Knee Braces	2"x6"x 7'-0"	4	28
Trusses	See Page 3	10	
Girts	2"x4"x12'-0"	48	384
Siding	Sq. ft.	936	
Roofing	Sq. ft.	1008	
	Ln. ft. Eaves trough	72	
Louvers	2"x4"x 6'-0"	4	16
	1"x6"x10'-0"	10	50
	1"x2"x12'-0"	2	4
	Sq. ft. Screen	30	
Interior			
Lining	Sq. ft.	840	
Ceiling	Sq. ft.	864	
Insulation	2" Bat, Sq. ft.	840	
	3" Bat, Sq. ft.	864	
Farrowing Stalls	1¼"x4'-6" Pipe	36	
	2"x12"x7'-0"	64	896
	1"x12"x7'-0"	24	168
	1"x12"x10'-0"	6	60
	2"x2"x3/16"x2'-8" Angle	32	
	2"x2"x3/16"x1 1/6" Angle	12	
	3/4"x3/4"x3/8"x1'-0" Angle	64	
	3/16"x1 1/2"x16" Strap	96	
	3/8"x2 1/2" Bolts	384	
	2"x2"x 8'-0"	4	10 2/3
	1"x3"x 6'-0"	16	24
	3/4"x4'x8' c-c, Ext. Plywood	2	
	½"x4'x8' c-c, Ext. Plywood	4	
Ventilation	1"x12"x18'-0"	24	36
	11"x2"x 8'-0"	1	1 1/3
	14"x3"x 4'-0"	1	1
	2"x6"x 8'-0"	1	
	1" Insulation, Sq. ft.	2250	5 1/3
	3/8"x4'x8' c-c, Ext. Plywood	15	
	Blower Assemblies	16	
	Hardware cloth, Sq. ft.	2	



FARROWING-NURSERY UNIT 16-STALL

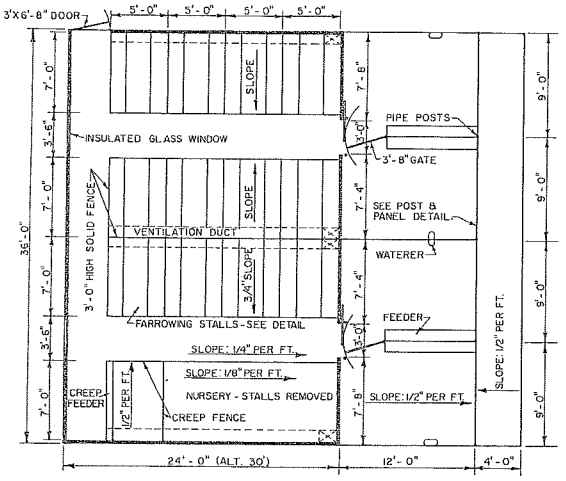
PLAN NO. 72671

MANAGEMENT

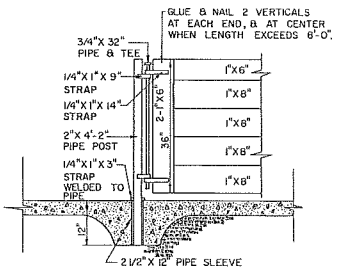
This plan shows a building suited to 2 or 4 farrowings per year with outdoor self-feeding of the sows. Sows are turned out twice daily for feed and water, during which time necessary inside cleaning and pig care may be performed.

Four-times farrowing
Capacity: 64 litters per year in 4 farrowings with two 16-sow herds.
Feed and water sows outside in lots of 4.
At weaning remove sows, and leave pigs in the building until time to clean for the next litters. After weaning, pigs may be fed outside with temperature above 40° F.
Farrowing stalls may be left in place throughout the farrowing cycle.
Move pigs to finishing area at 40 to 50 lbs.

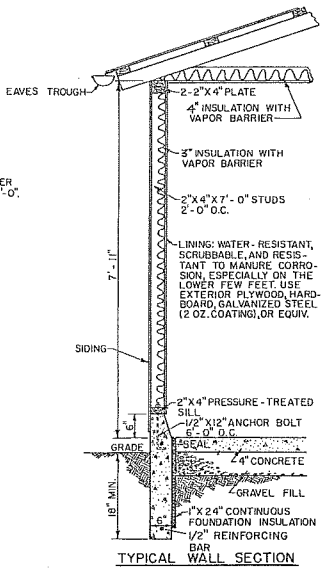
Two-times farrowing
Capacity: 32 litters per year in two farrowings with one 16-sow herd.
Same management as above except the pigs are kept in the same facilities until market. Remove farrowing stalls.
When the pigs outgrow the 7' x 20' pen, two pens can be combined, utilizing the alleys and outside pens. Under most farrowing schedules the pigs will be old enough to eat out-of-doors by the time they require more space than that afforded by the 7' x 20' pen.



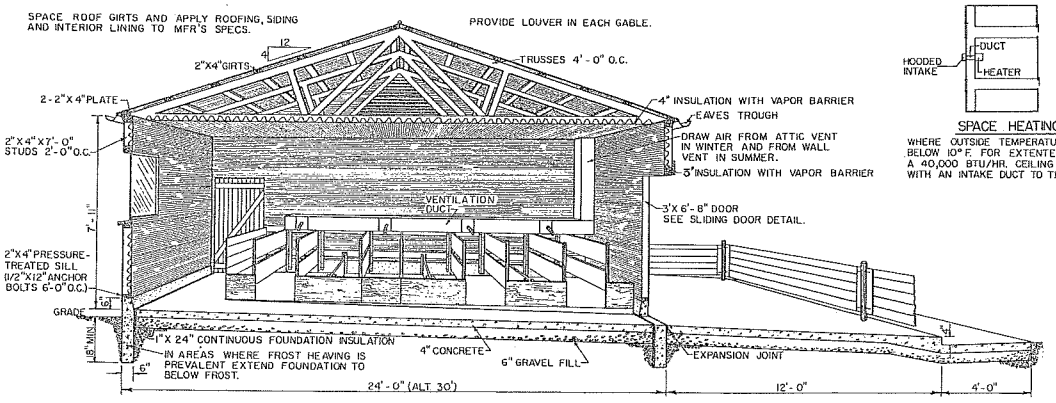
NOTE: FOR DETAILS OF BROODER LAMP OR FLOOR HEATING INSTALLATION, SEE "SWINE EQUIPMENT PLANS" MWPS-2.



POST & PANEL DETAIL



TYPICAL WALL SECTION



SPACE HEATING

WHERE OUTSIDE TEMPERATURES ARE APT TO BE BELOW 10° F. FOR EXTENTED PERIODS, PROVIDE A 40,000 BTU/HR. CEILING MOUNTED SPACE HEATER WITH AN INTAKE DUCT TO THE OUTSIDE WALL.

MIDWEST PLAN SERVICE

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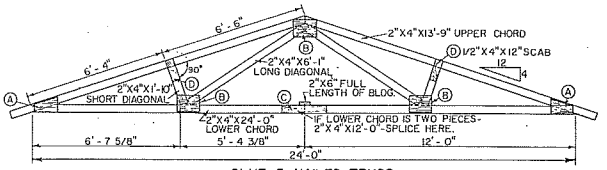
16-PEN FARROWING NURSERY UNIT

Mar '63 Sheet 1 of 2 Sheets

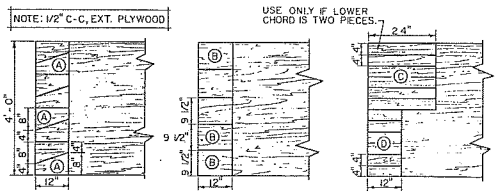
MIDWEST PLAN NO. 72671



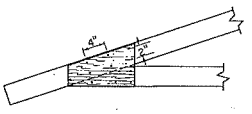
GLUE & NAILED TRUSS

SCALE: 1/4"=1'-0"

NOTES:
1. Glue and nail 1/2" exterior plywood gusset plates on both sides of all joints. Omit plates on the outside face of the two gable-end trusses.
2. Use type "A" casein or resorcinol resin glue and 6d box nails.
3. Mix glue according to manufacturer's specifications and apply to both surfaces to be joined.
4. Select members which are relatively straight, smooth, and clean. Moisture content should not exceed 15%. Fabricate in a room or outdoor temperature above 70° F.
5. All truss members are in the same plane and all joints are butt joints.
6. Truss members are cut to length, and the truss is assembled in a jig in a horizontal position.
7. The assembled truss may be moved carefully from the jig immediately after gusset plates have been applied.
8. Leave trusses stacked in horizontal position for at least 24 hours after assembly.



PLYWOOD GUSSET CUTTING DIAGRAM

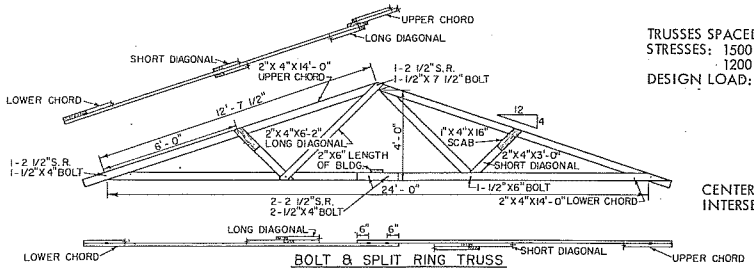


NAIL PATTERN

BILL OF MATERIALS

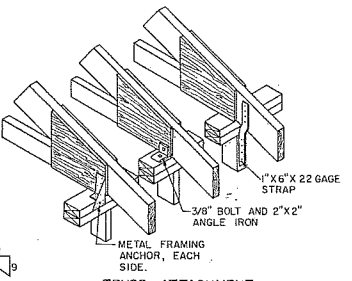
ONE TRUSS

ITEM	NO.	DESCRIPTION
GLUE & NAILED TRUSS	1	
Upper Chord	2	2" X 4" X 14' - 0"
Lower Chord	1	2" X 4" X 24' - 0"
Long Diagonal	1	2" X 4" X 14' - 0"
Short Diagonal	1	2" X 4" X 4' - 0"
Plywood	1/3	Sheet, 1/2" c-c, Ext.
Glue	1/2 lb.	Casein type "A" or resorcinol resin

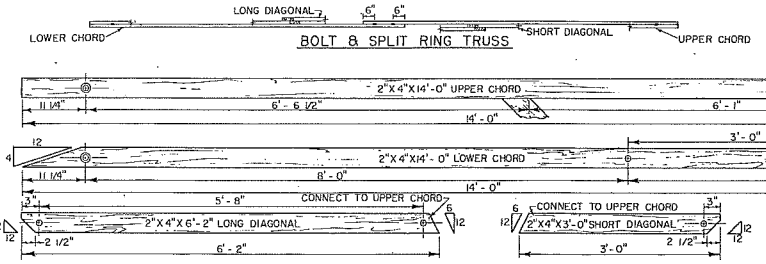


TRUSSES SPACED UP TO 4'-0" O.C.
STRESSES: 1500 PSI BENDING
1200 PSI COMPRESSION
DESIGN LOAD: 32 PSF

CENTER BOLT AND SPLIT RING ON INTERSECTION OF CENTER LINES.



TRUSS ATTACHMENT



BOLT & SPLIT RING TRUSS

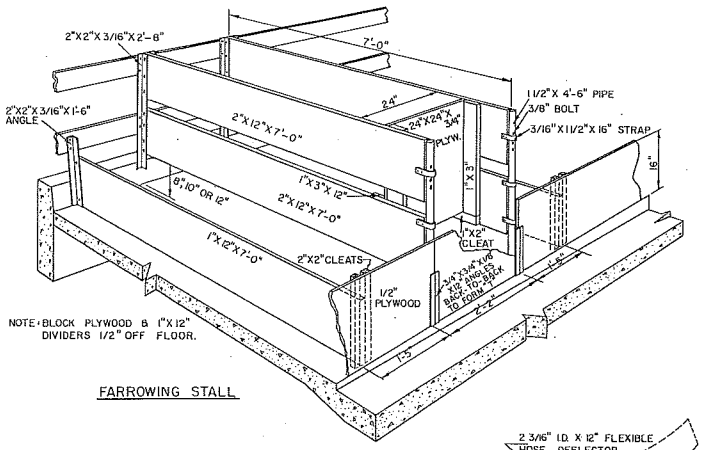
RING & BOLT SPACING DETAIL

BILL OF MATERIALS

ONE TRUSS

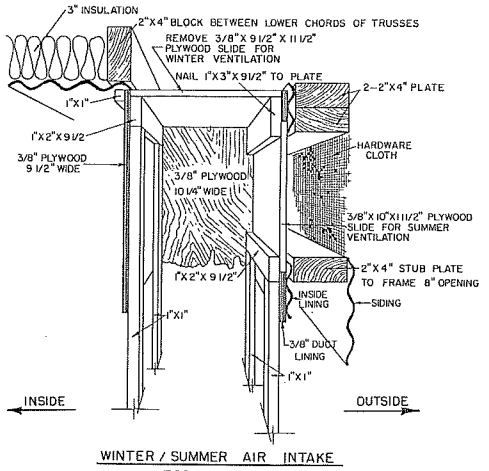
ITEM	NO.	DESCRIPTION
RING & BOLT TRUSS	1	
Upper Chord	2	2" X 4" X 14' - 0"
Lower Chord	2	2" X 4" X 14' - 0"
Long Diagonal	1	2" X 4" X 14' - 0"
Short Diagonal	1	2" X 4" X 6' - 0"
Scabs	1	1" X 4" X 6' - 0"
Split Ring	5	2 1/2"
Bolts & Washers	1	1/2" X 7 1/2"
	4	1/2" X 4"
	2	1/2" X 6"

NOTES:
1. Use 2 1/2" split ring (S. R.) connectors and 1/2" bolts where shown.
2. Use a special grooving tool with a 1/2" electric drill.
3. Measure and drill accurately.
4. Cut, drill, and groove two of each member shown by the ring spacing detail for each truss required.

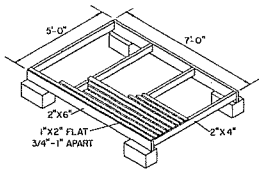


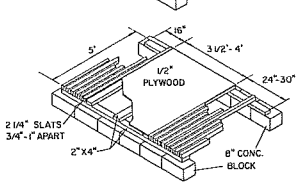
NOTE: BLOCK PLYWOOD B 1"X 12" DIVIDERS 1/2" OFF FLOOR.

FARROWING STALL



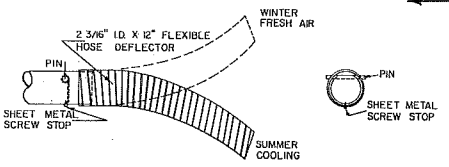
WINTER / SUMMER AIR INTAKE FOR BLOWERS



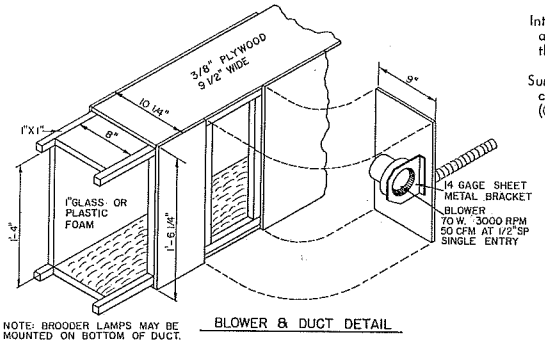


The drawings show two ways of adapting present farrowing facilities to a slatted floor system. Each 5' x 7' section is built so it can be moved for cleaning. Hosing or scraping will prevent manure build-ups. The units should be thoroughly cleaned between litters.

SLATTED FLOORS FOR FARROWING



BACKDRAFT VALVE DETAIL



NOTE: BROODER LAMPS MAY BE MOUNTED ON BOTTOM OF DUCT.

BLOWER & DUCT DETAIL

INDIVIDUAL BLOWER VENTILATION
See drawings, and discussion on back page.
CONVENTIONAL VENTILATION
Wall fan and thermostat.

Farrowing-nursery: The individual blowers shown can be replaced with a single 2500 cfm (@⅛" s.p.) fan.

Intakes: Provide a 1" continuous slot in the ceiling along the outside walls. Draw air from the attic in the winter with exhaust fans. Reverse fan in summer.

Summer Finishing: The small blowers will be insufficient for summer finishing -- provide a 7500 cfm (@⅛" s.p.) intake fan.

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16-PEN FARROWING NURSERY UNIT

Mar '63 Sheet 2 of 2 Sheets

MIDWEST PLAN NO. 72671