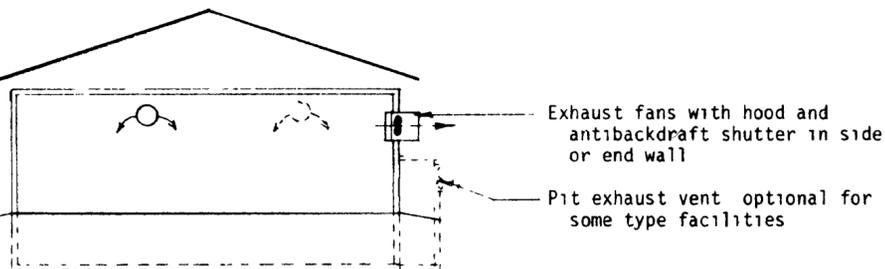
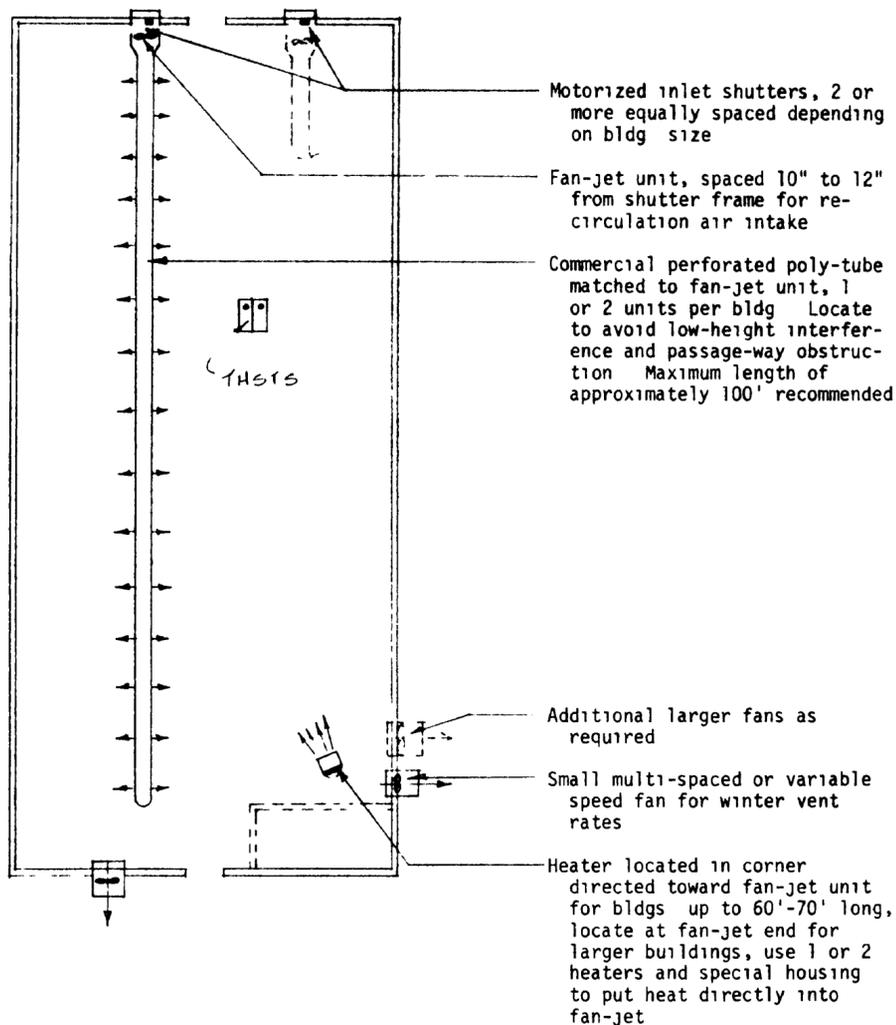


POLY-TUBE & EXHAUST FAN VENT. SYSTEM



EQUIPMENT NOTES

Smallest Fan Sized for "Winter Min" and "Winter Normal" vent rate per Table 1, multi-speed or variable-speed, solid-state controlled to provide proper vent rates (timer on a larger fan not recommended)

Larger Fans Maximum total capacity per Table 1, divided among all fans used to give 2 or 3 comparable stages of ventilation rate increase, with thermostatic control for automatic operation

Shutters Inlet shutters to be motorized and sized for 1 sq. ft. opening per 800 CFM fan capacity. Shutter opposite fan-jet to be same size as fan-jet. Hood over inlet shutters optional but recommended. Antibrackdraft shutter on exhaust fans sized and mounted to match fans

Heater Same note as at left

Insulation Same note as at left

EQUIPMENT SPECIFICATIONS & VENT. RATES

To ensure dependable fan performance and operation, all fans should

- 1 Be A.M.C.A. rated and certified for required air delivery at 1/10 or 1/8 inch static pressure,
- 2 Have totally enclosed, ball bearing, thermally protected motors,
- 3 Have heavy duty welded frame and motor mount, with deep curved venturi,
- 4 Have welded steel or cast aluminum propeller blade with 1/8" to 1/4" maximum tip clearance in venturi

SHUTTERS SHOULD BE:

- 1 Heavy aluminum or painted steel frame,
- 2 Aluminum blades with reinforced or stiffened edges,
- 3 Nylon or bronze pivot bushings,
- 4 Tie-rod connected,
- 5 Balanced for gravity operation, or motorized

THERMOSTATS SHOULD BE:

- 1 Line voltage, farm duty with dust and humidity rating,
- 2 Amperage or Hp rating to equal or exceed motor amps

HEATERS SHOULD BE:

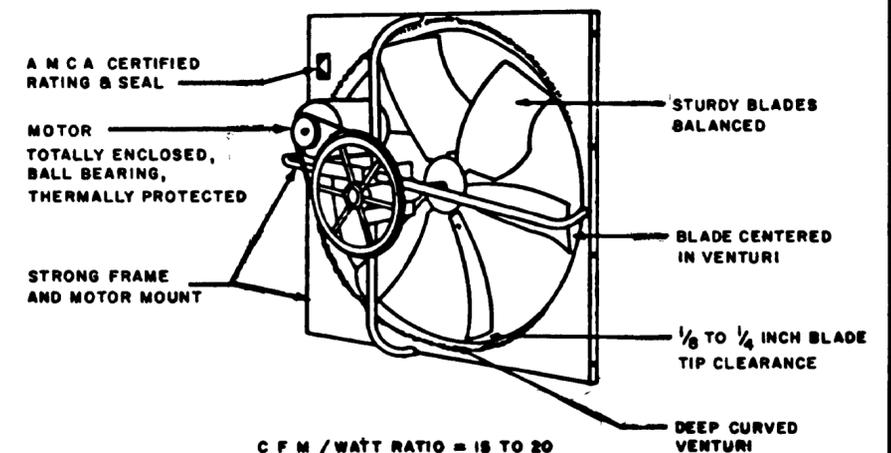
- 1 Gas or oil with safety vents, or electric,
- 2 With safety controls,
- 3 Thermostatic operated to maintain minimum temperature per Table 1 for animals

POSITION ALL FANS TO TAKE AIR into and through building with direction of prevailing winds (not against)

TABLE 1 VENTILATION DATA GUIDELINES

Animal Type	Temp	Winter		Summer	
		"Min" Rate	"Norm" Rate	Temp	Rate
Swine Farrowing	50°-60°	25 CFM	75 CFM	80°-85°	1 to 1 1/4 air change per minute (500-600 CFM per sow)
	with floor Ht., 70° for slatted floor	per sow & litter		Max	
Nursery	65°-70°	2-3 CFM per pig	8-10 CFM per pig	85°-90° Max	1 air change per min (40 CFM per pig)
Dairy Calves	45°-55°	5-8 CFM per calf	10-12 CFM per calf	80°-85° Max	1 air change per min (125 CFM per calf)
	Repl Heifers (1 to 6 wks)				
	60°-70°	Same	Same	Same	1 to 1 1/4 air change per min (150 CFM per calf)
	Veal Calves (1-14 wks)				

10 POINTS OF A GOOD FAN



COOPERATIVE EXTENSION WORK IN
AGRICULTURE AND HOME ECONOMICS
DEPARTMENT OF AGRICULTURE
COLLEGE OF AGRICULTURE
UNIVERSITY OF KENTUCKY
AND
UNITED STATES DEPARTMENT OF AGRICULTURE COOPERATING
FAN VENTILATION SYSTEMS
FOR ANIMAL FACILITIES
 KY '74 6190 SHEET 2 OF 2

CEILING & WALL FAN PRESSURIZED VENT SYSTEM

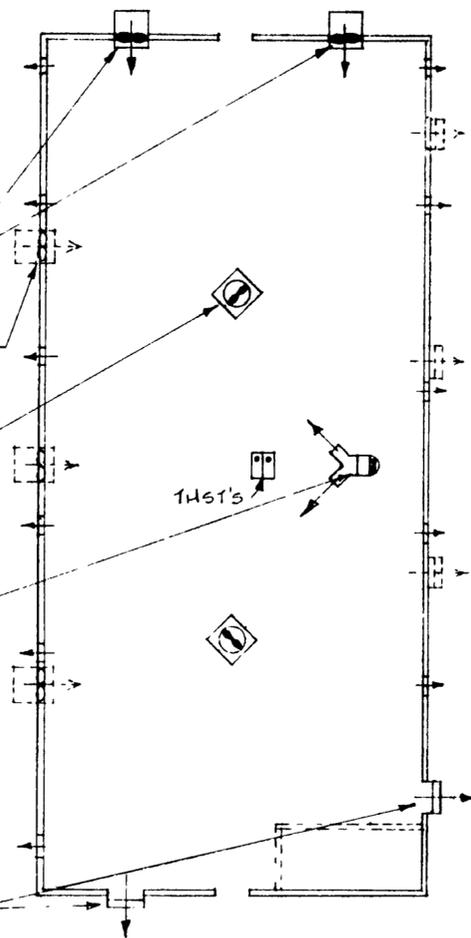
Summer Wall fans in one end for Buildings up to 50'-60', in both ends for longer buildings up to 90'-100', or if can't put in ends, equally space down sidewall with fans working in groups of two (2)

Wall fans, when used, sized and located to serve length equal 1 to 1 1/2 times building width

Ceiling fan and baffle, 1 fan for length equal 1 to 1 1/2 times building width baffle turned diagonally

Recommended heater location, with Y-splitter for best distribution, 2nd choice in corner angled toward opposite corner

Motorized or well balanced gravity outlet shutters in opposite end or side-corner from end-wall fans, same size as fans, or put in sidewall opposite fans, use one more shutter than fans and stagger positions for cross-flow



Louvered gable vent per note at right

Plywood baffle 1 5 x Dia of fan, suspended 6 x Dia below ceiling by chain or wire each corner

Eave vents with 1/4" or 1/2" wire mesh screen

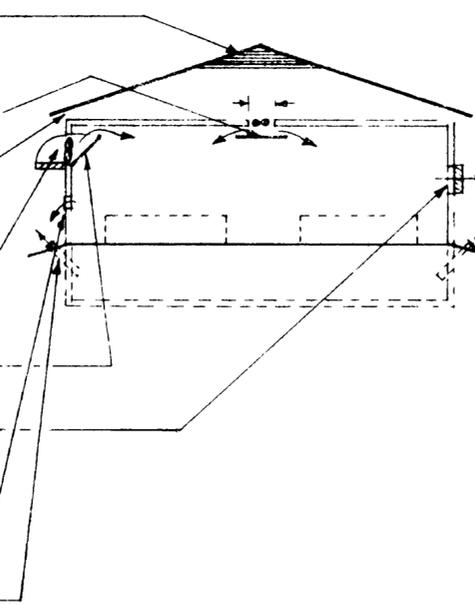
Fan and hood unit with backdraft shutter, mounted as high as possible in wall

Plywood deflector baffle, 45° angle, ends closed, top edge even with fan shaft

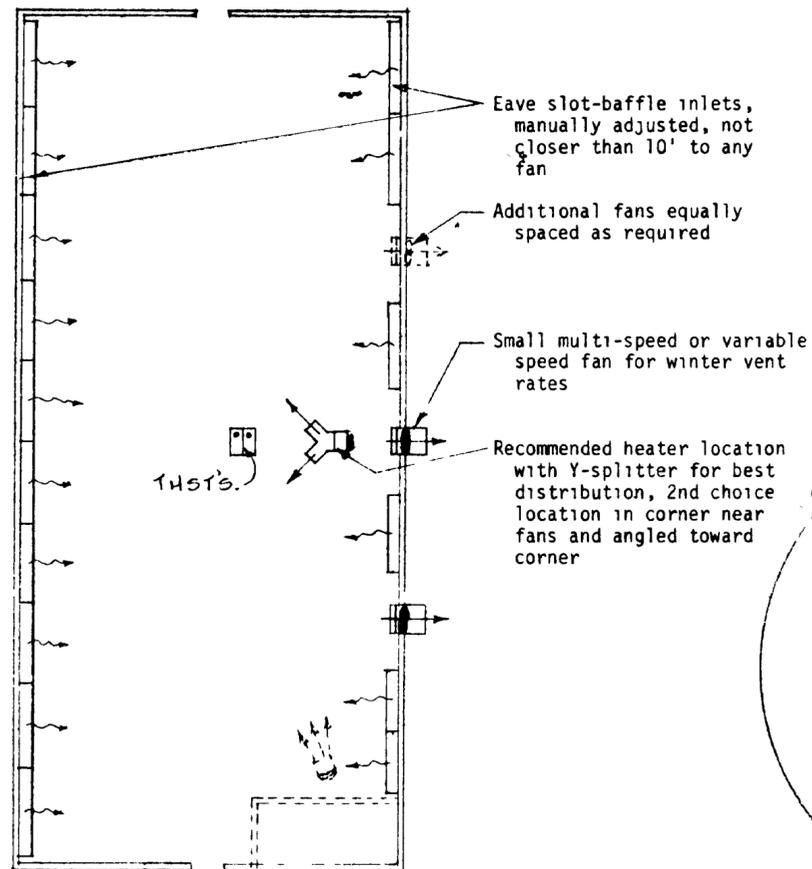
Outlet shutter mounted 3'-4' above floor

Plastic or canvas flap-covered winter air outlet, 8" x 16" size at 15' spacing, 3' above floor

Tile for vacuum pumping and pit ventilation



EAVE SLOT-BAFFLE EXHAUST VENT. SYSTEM

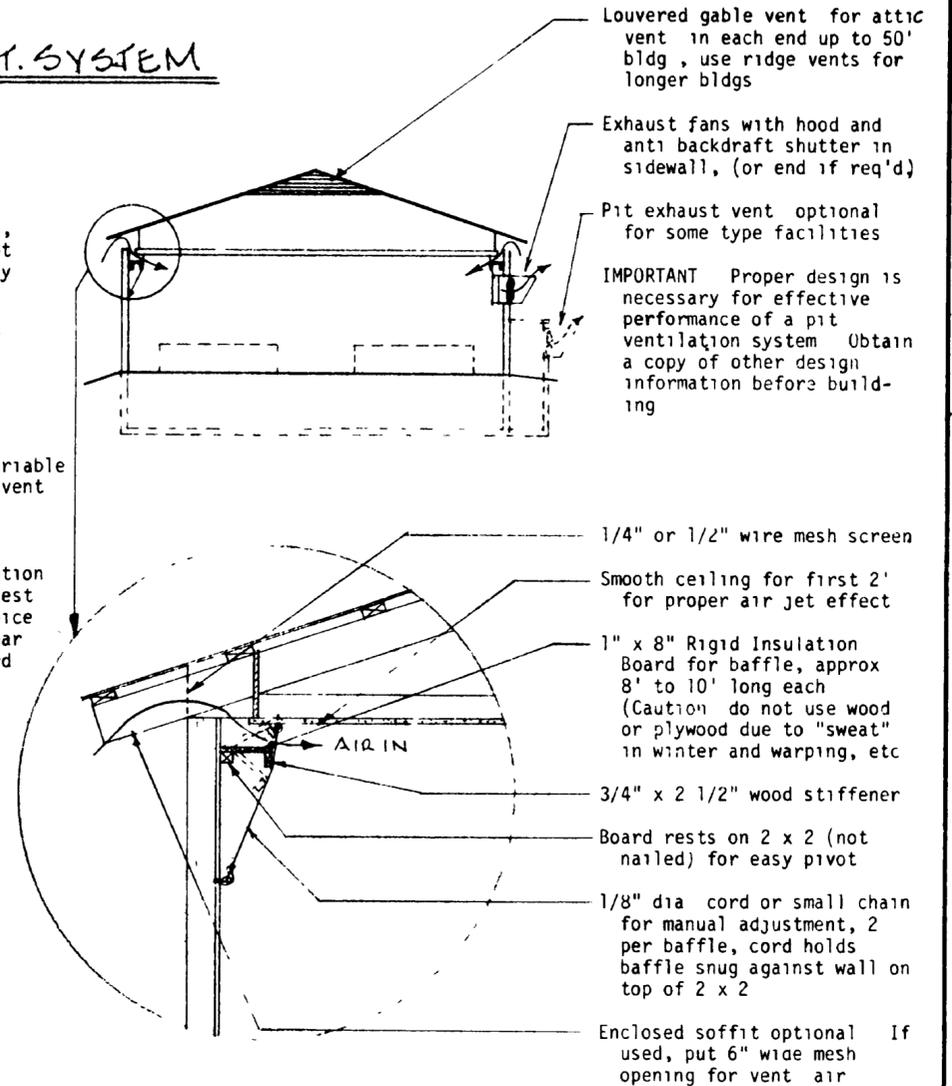


Eave slot-baffle inlets, manually adjusted, not closer than 10' to any fan

Additional fans equally spaced as required

Small multi-speed or variable speed fan for winter vent rates

Recommended heater location with Y-splitter for best distribution, 2nd choice location in corner near fans and angled toward corner



Louvered gable vent for attic vent in each end up to 50' bldg, use ridge vents for longer bldgs

Exhaust fans with hood and anti backdraft shutter in sidewall, (or end if req'd)

Pit exhaust vent optional for some type facilities

IMPORTANT Proper design is necessary for effective performance of a pit ventilation system Obtain a copy of other design information before building

1/4" or 1/2" wire mesh screen

Smooth ceiling for first 2' for proper air jet effect

1" x 8" Rigid Insulation Board for baffle, approx 8' to 10' long each (Caution do not use wood or plywood due to "sweat" in winter and warping, etc)

3/4" x 2 1/2" wood stiffener

Board rests on 2 x 2 (not nailed) for easy pivot

1/8" dia cord or small chain for manual adjustment, 2 per baffle, cord holds baffle snug against wall on top of 2 x 2

Enclosed soffit optional If used, put 6" wide mesh opening for vent air

EQUIPMENT NOTES

Smallest Fan Sized for "Winter Min" and "Winter Normal" per Table 1, multi-speed or variable speed, solid-state controller (Timer on larger fan not recommended)

Larger Fans Maximum total capacity per Table 1, divided among all fans used to give 2 or 3 comparable stages of ventilation rate increase, with thermostatic control for automatic operation

Shutters. Antibackdraft shutter sized and mounted to match fans

Heater: Same note as at left **Insulation.** Same note as at left

EQUIPMENT NOTES

CEILING FANS Lowest Rate = "Winter Min", Table 1, equally divided among fans, lowest rate obtained by proper solid-state speed control to match fan

Highest Rate = "Winter Normal", Table 1, with thermostat control to switch from lowest to highest rate

WALL FANS Maximum total capacity per Table 1, divided among wall fans to give 2 to 3 comparable stages of ventilation rate increase, with thermostatic control for automatic operation

OUTLET SHUTTERS Same size as above fans

HEATER Sized by proper calculations for amount of insulation, temperature desired, and minimum rate of ventilation

INSULATION. "R" factor and moisture resistance per other literature for type of building and animals housed

GENERAL LAYOUT AND DATA 3 RECOMMENDED FAN VENTILATION SYSTEMS

COOPERATIVE EXTENSION WORK IN AGRICULTURE AND HOME ECONOMICS DEPARTMENT OF AGRICULTURAL ENGINEERING COLLEGE OF AGRICULTURE UNIVERSITY OF KENTUCKY AND UNITED STATES DEPARTMENT OF AGRICULTURE COOPERATING		
FAN VENTILATION SYSTEMS FOR ANIMAL FACILITIES		
KY	'74	6190 SHEET 1 OF 2