

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.

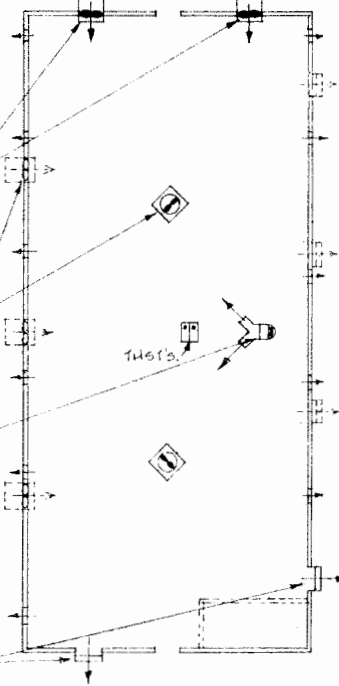
Fan and hood unit with backdraft shutter; mounted as high as possible in wall.

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

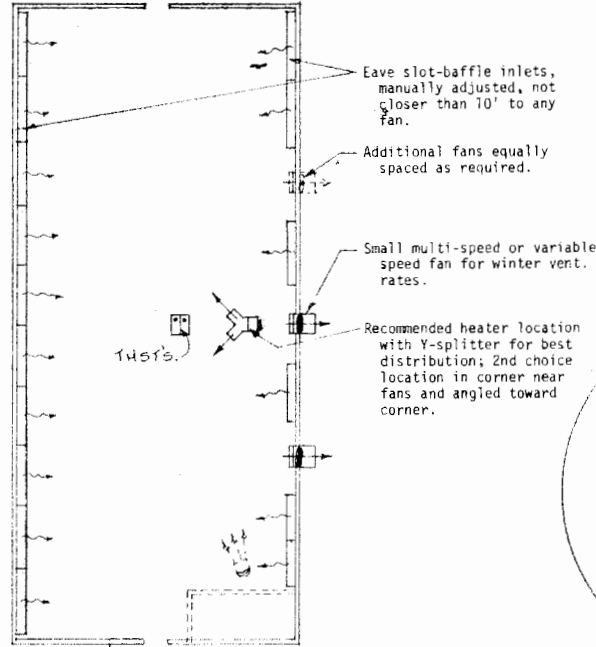
Outlet shutter mounted 3'-4' above floor.

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

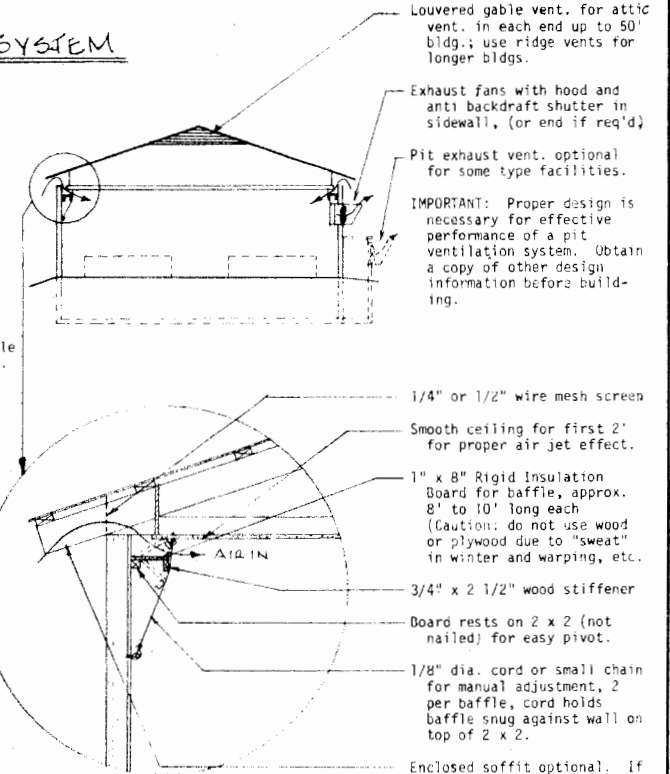


Eave slot-baffle inlets, manually adjusted, not closer than 10' to any fan.

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:

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.

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

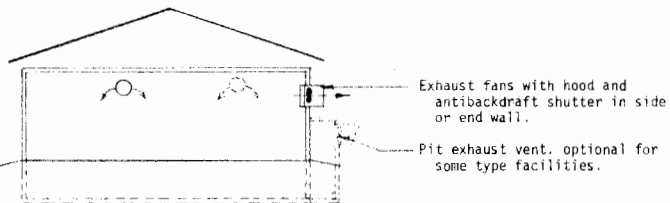
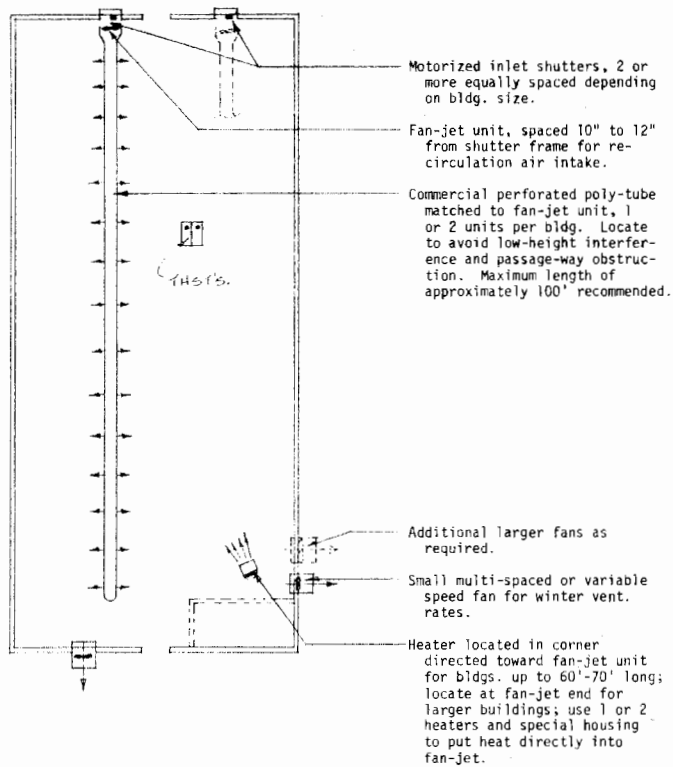
GENERAL LAYOUT AND DATA 3 RECOMMENDED FAN VENTILATION SYSTEMS



FAN VENTILATION SYSTEMS
FOR ANIMAL FACILITIES

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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. (fimer 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. Antbackdraft 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:

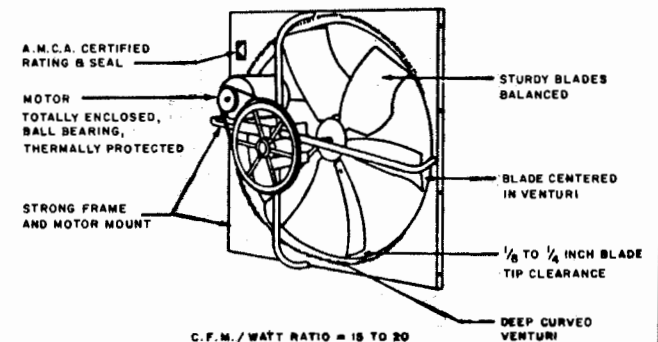
1. Gas or oil with safety vents; or electric,
2. With safety controls,
3. Thermostatic operated to maintain minimum temperature per Table 1 for animals.

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

TABLE 1 VENTILATION DATA GUIDELINES

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

10 POINTS OF A GOOD FAN



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FAN VENTILATION SYSTEMS
FOR ANIMAL FACILITIES

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Disclaimer

This site makes available conceptual plans that can be helpful in developing building layouts and selecting equipment for various agricultural applications. These plans do not necessarily represent the most current technology or construction codes. They are not construction plans and do not replace the need for competent design assistance in developing safe, legal and well-functioning agricultural building system. The LSU Agriculture Center, the Mid-West Plan Service, the United States Department of Agriculture and none of the cooperating land-grant universities warranty these plans.