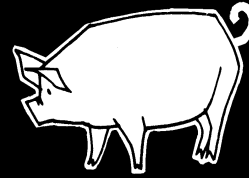




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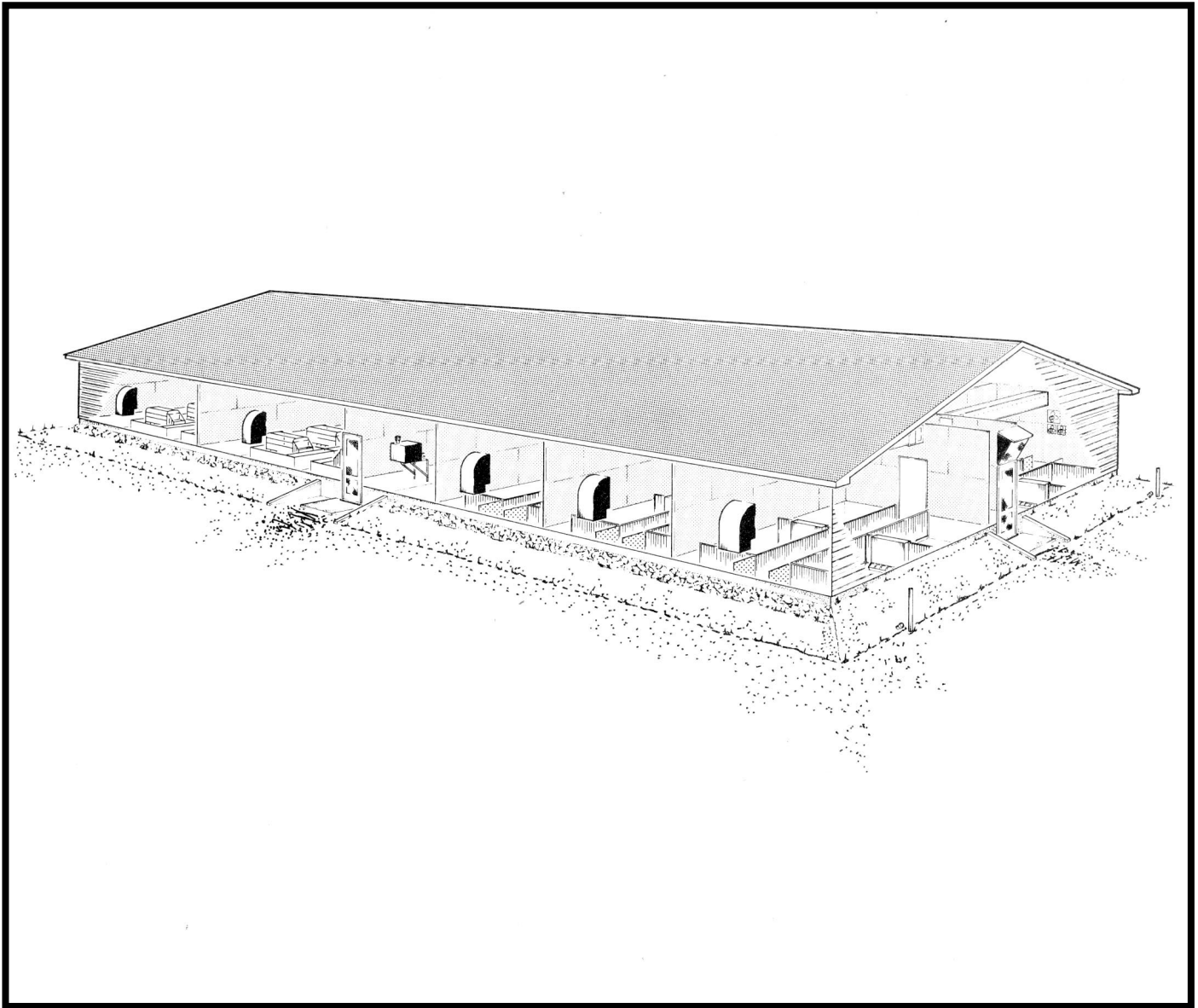
Agricultural Building Systems Handbook



PLAN

362-33

## FIVE-ROOM FARROWING, FIVE-ROOM WEANLING UNIT



DEVELOPED BY CANADA PLAN SERVICE

# FIVE-ROOM FARROWING, FIVE-ROOM WEANLING UNIT

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With larger sow herds it is better to use all-in/all-out (or multiple-room) housing for the farrowing and weanling unit. This has several advantages:

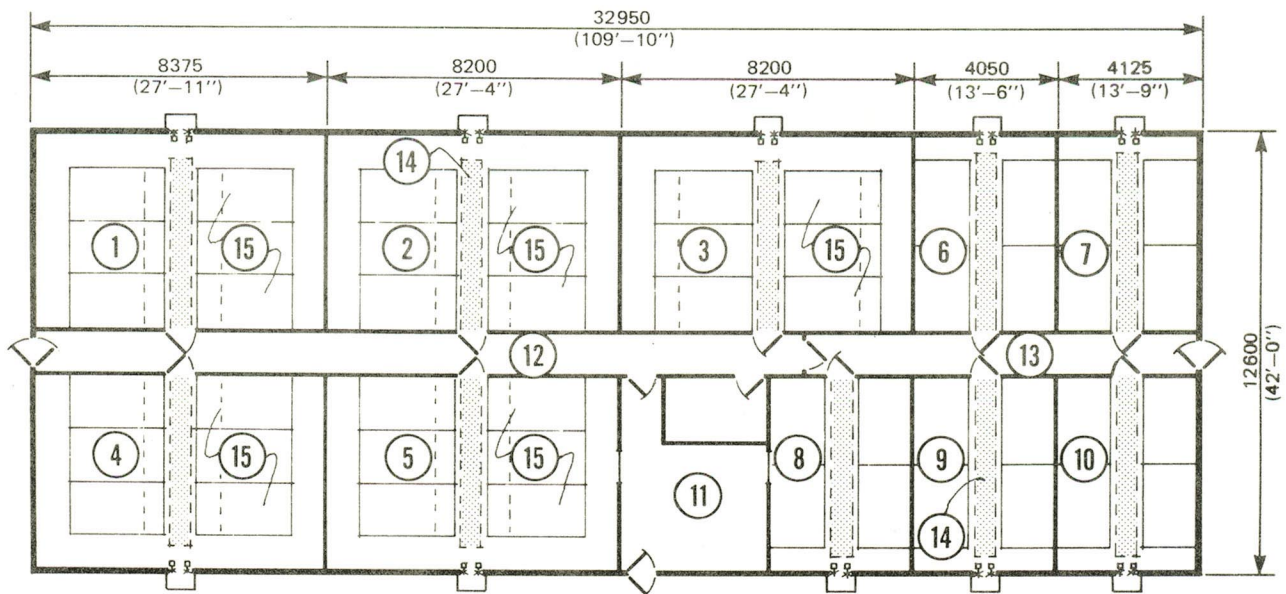
- more thorough cleaning for better disease control
- easier cleaning (the room is empty and there is no concern about spraying neighboring crates);
- ventilation, heating (and even lighting) can be better adjusted to the exact needs of each stage.

This plan has five farrowing rooms and five weanling rooms, sized for an active breeding herd of about 150 sows, with breedings timed to give six farrowings per week. The litters are weaned at approximately 4 weeks of age (on Thursday, to avoid weekend breedings) and are moved into a clean weaner room for a 5-week stay, by which time they should weigh 20 kg (44 lb).

The work routine is shown in the following table:

WEEKLY WORK ROUTINE, 5 FARROWING/  
 5 WEANLING ROOMS

Week	Day	Farrowing room①	Weanling room⑥
1	Wed		empty & clean
	Thur	wean & clean	fill
	Fri	fill	
2		farrow	grow
3		nurse	grow
4		nurse	grow
5		nurse	grow
6	Wed		empty & clean
	Thur	wean & clean	fill
	Fri	fill	
7		farrow	grow
8		nurse	grow



- 1-5 farrowing section, 5 rooms x 6 pens = 30 pens; 6 farrowings per week, 150-sow breeding herd
- 6-10 weanling section, 5 rooms x 4 pens = 20 pens; weanling pens 2.4 x 1.5 m = 3.6 m<sup>2</sup>, 12 weaner pigs @ 0.3 m<sup>2</sup>/pig
- 11 service area, viewing windows to room ⑤ and ⑧
- 12 farrowing area preheat hallway
- 13 weanling area preheat hallway
- 14 air inlet duct at ceiling, from ⑫ or ⑬
- 15 farrowing pens with front or side creeps (plan M-3800)

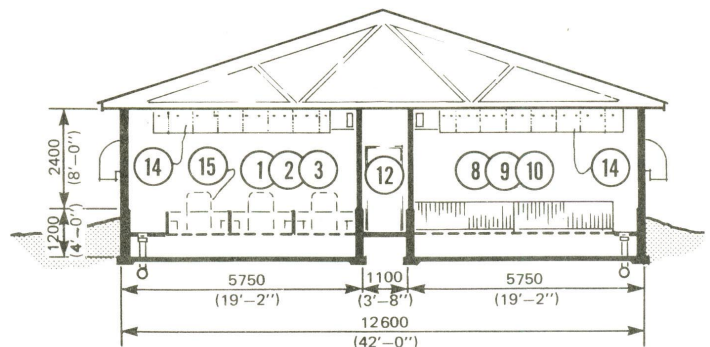


Figure 2 Large multiple-room farrowing/weanling unit

Farrowing rooms ②, ③, ④ and ⑤ are cycled (respectively) 1, 2, 3 and 4 weeks later than farrowing room ①. The five weanling rooms are cycled in the same 1-week sequence.

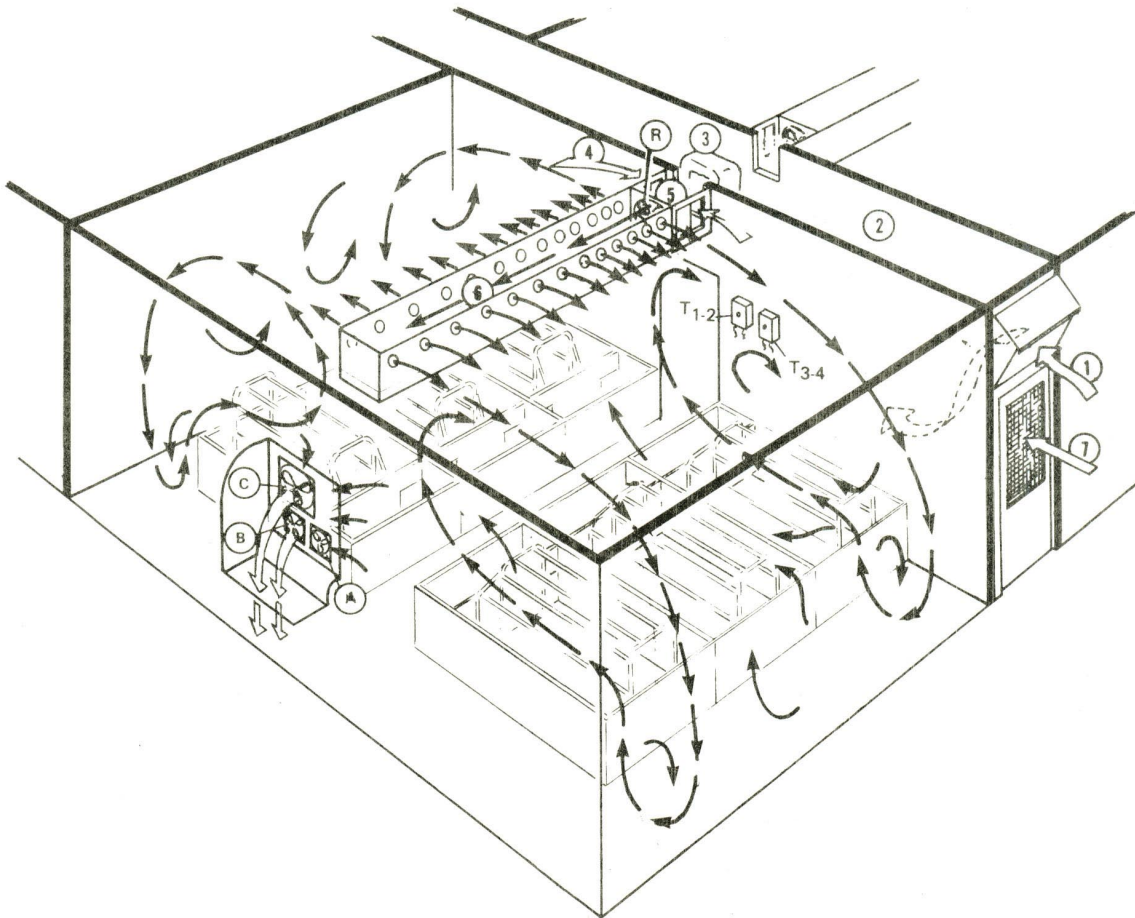
**VENTILATION** The multiple-room farrowing and weanling building is only part of a management package that helps produce more healthy weaned pigs per sow. Another important aspect is the ventilation system. First, a preheat hallway (⑫ and ⑬, Figure 2) is used in winter to warm the cold outside air to above freezing, before it is pulled into each farrowing and weanling room. This hallway may be preheated in a variety of ways, such as fan-forced electric or hot-water radiators.

These can be located to face the air inlet for each room and interlocked with the step 1/step 2 room thermostat (see plan 306.460-1). The hallway is divided by a door between the farrowing and weanling

sections so that the weanling section hallway ⑬ can be kept a little warmer than the farrowing hallway ⑫.

In ventilation of small farrowing and weanling rooms, a frequent problem is that winter ventilation rates are too low to properly mix the warm air. This results in a layer of warm air that 'floats' to the ceiling and a layer of cooler air that remains near the floor (where warmth is needed). Figure 3 shows how a recirculating air duct can be used to overcome this. A two-speed recirculating fan R picks up some preheated fresh air from the hallway ③, mixes it with recirculated room air ④ and pressurizes the duct ⑥. Rows of round holes on both sides of the duct jet this blended air into the room, close to the ceiling so that drafts are not felt down in the pens where the little pigs are.

The recirculating fan (R) is set manually at high speed in summer, but at low in winter to minimize draftiness. The duct hole-spacing is varied (close together near



- |   |  |
|---|--|
| <ul style="list-style-type: none"> <li>1. winter air intake to hallway ②, or see ⑧</li> <li>2. preheat hallway</li> <li>3. fan-forced heater (one for each room)</li> <li>4. recirculated air enters ⑤, opening adjustable</li> <li>5. mixing chamber, opening from ②</li> <li>6. air duct at ceiling, bottom opens for cleaning</li> <li>7. screen door, summer air intake to ②</li> </ul> | <ul style="list-style-type: none"> <li>8. winter air enters top of solar collector (plan M-9732, optional)</li> <li>9. warmed winter air enters ②</li> <li>R recirculating fan, 2-speed manual control</li> <li>A step 1, variable 2-speed exhaust fan</li> <li>B step 2/step 3, 2-speed exhaust fan</li> <li>C step 4, 1-speed exhaust fan</li> </ul> |
|---|--|

Figure 3 Preheat hallway and farrowing room ventilation system

the fan, further apart towards the other end) to give uniform airflow throughout the room. The proportion of recirculated versus fresh air can be adjusted by setting slide valves at ④.

In summer, when the duct must handle a much greater ventilation rate (step 4), its bottom panel (suspended on furnace chain or nylon chords) is lowered to make a pair of tapered slots in addition to the round holes, and the slide valves ④ are set almost closed so that little air is recirculated.

The exchange of air through each farrowing and weanling room is assisted by the recirculation fan R and duct ⑥, but the actual rate of exchange is controlled by exhaust fans A and B and C. Fan A in this case is a small 2-speed CANARM<sup>a</sup> fan, wired at 'slow' speed and further reduced by an inexpensive manual speed control (a heavy-duty light-dimmer). This is one way to get down to the low ventilation rate required in cold weather by the small groups of pigs in each farrowing or weanling room. Other manufacturers may have other ways to obtain the low step 1 rates required here. The manual speed control (Figure 4) is best used to preset the step 1 rate according to need in each room. For example, when the farrowing pens are only partly filled, heat energy can be saved by reducing the step 1 ventilation rate accordingly.

Another energy-saving idea (also shown in Figure 4) is to interlock the air heater ③ in the hallway so that it turns off when thermostat T<sub>2-3</sub> starts fan B, and vice versa.

In warmer weather, the larger fan C starts to run (step 4). In effect we have a four-step ventilation system controlled with only two working thermostats and three exhaust fans. The T<sub>1</sub> thermostat shown in Figure 4 serves only as a safety cut off in case of heating failure.

**MANURE SYSTEM** The manure system shown in the detailed plan sheets is the popular 'stop-and-flow' gutter system. With this, manure accumulates in shallow gutters under the farrowing and weanling pens. At the end of the pen cycle (when the room is washed and sanitized), a drain plug is pulled, flushing the manure into a sewer pipe and through a gas trap into long-term storage.

The stop-and-flow manure system is not ideal, in that manure is held several weeks under the pens, causing some gases and odors. Another option, particularly suitable for farrowing pens, is the cantilever slotted floor, described in plan 362-62.

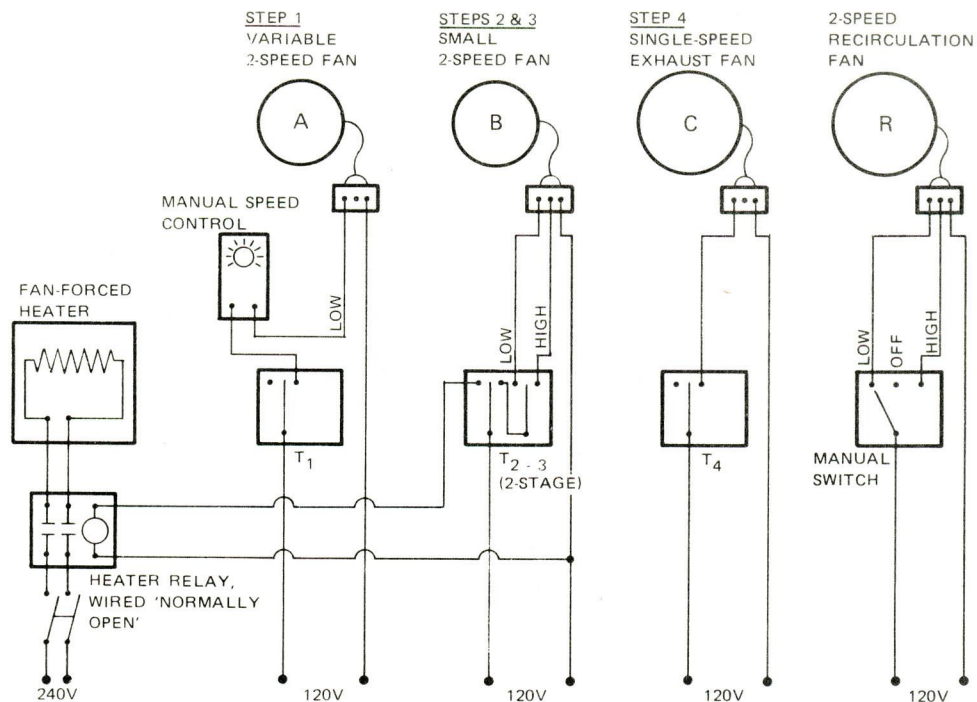


Figure 4 Fan and heater control each farrowing and weanling room

<sup>a</sup> CANARM LTD., Brockville, Ontario, Canada. Reference to a specific manufacturer here serves only to illustrate a control principle; see other manufacturers for comparable equipment and specifications.