Farm Structures
FACTSHEET

BRITISH COLUMBIA
Ministry of Agriculture, Food and Fisheries

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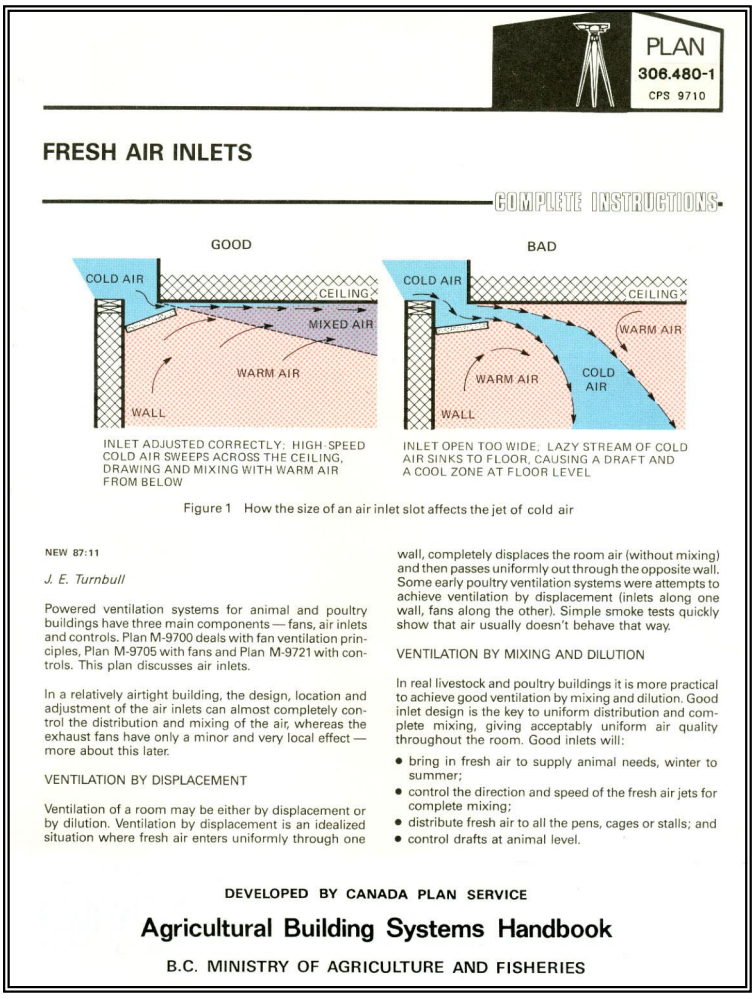
Fresh Air Inlets



PLAN
306.480-1
CPS 9710

FRESH AIR INLETS

COMPLETE INSTRUCTIONS

GOOD

INLET ADJUSTED CORRECTLY: HIGH-SPEED COLD AIR SWEEPS ACROSS THE CEILING, DRAWING AND MIXING WITH WARM AIR FROM BELOW

BAD

INLET OPEN TOO WIDE; LAZY STREAM OF COLD AIR SINKS TO FLOOR, CAUSING A DRAFT AND A COOL ZONE AT FLOOR LEVEL

Figure 1 How the size of an air inlet slot affects the jet of cold air

NEW 87:11

J. E. Turnbull

Powered ventilation systems for animal and poultry buildings have three main components — fans, air inlets and controls. Plan M-9700 deals with fan ventilation principles, Plan M-9705 with fans and Plan M-9721 with controls. This plan discusses air inlets.

In a relatively airtight building, the design, location and adjustment of the air inlets can almost completely control the distribution and mixing of the air, whereas the exhaust fans have only a minor and very local effect — more about this later.

VENTILATION BY DISPLACEMENT

Ventilation of a room may be either by displacement or by dilution. Ventilation by displacement is an idealized situation where fresh air enters uniformly through one wall, completely displaces the room air (without mixing) and then passes uniformly out through the opposite wall. Some early poultry ventilation systems were attempts to achieve ventilation by displacement (inlets along one wall, fans along the other). Simple smoke tests quickly show that air usually doesn't behave that way.

VENTILATION BY MIXING AND DILUTION

In real livestock and poultry buildings it is more practical to achieve good ventilation by mixing and dilution. Good inlet design is the key to uniform distribution and complete mixing, giving acceptably uniform air quality throughout the room. Good inlets will:

- bring in fresh air to supply animal needs, winter to summer;
- control the direction and speed of the fresh air jets for complete mixing;
- distribute fresh air to all the pens, cages or stalls; and
- control drafts at animal level.

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Agricultural Building Systems Handbook

B.C. MINISTRY OF AGRICULTURE AND FISHERIES

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