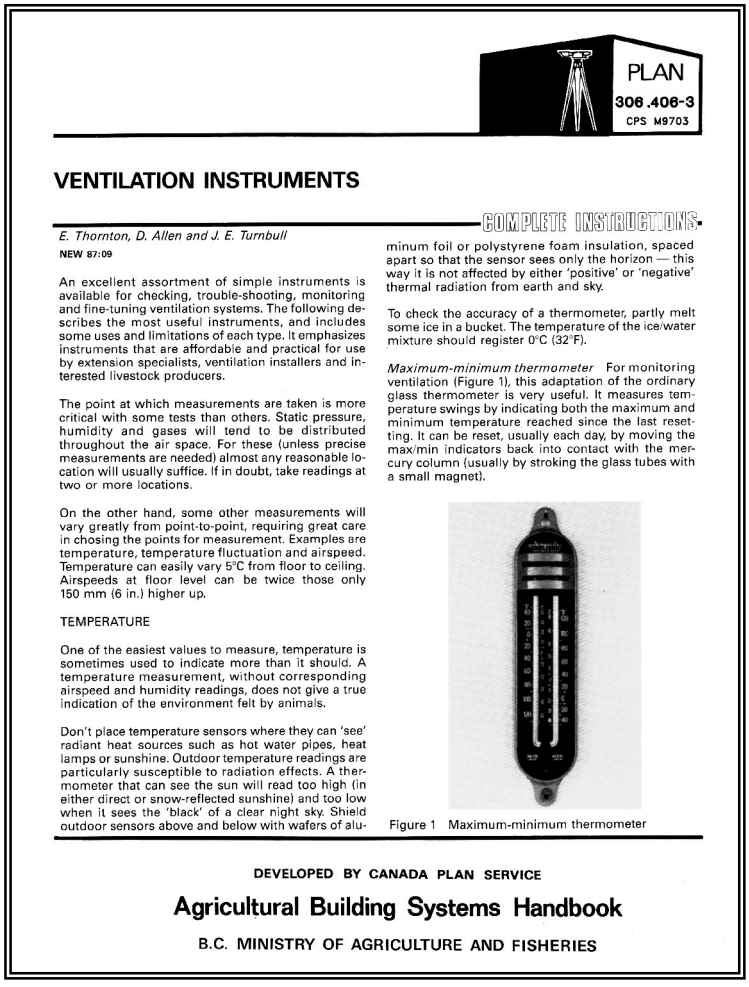
Farm Structures FACTSHEET

BRITISH COLUMBIA
Ministry of Agriculture, Food and Fisheries

Order No. 306.406-3
CPS: 9703
September 1987

Ventilation Instruments



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306.406-3
CPS M9703

VENTILATION INSTRUMENTS

COMPLETE INSTRUCTIONS

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An excellent assortment of simple instruments is available for checking, trouble-shooting, monitoring and fine-tuning ventilation systems. The following describes the most useful instruments, and includes some uses and limitations of each type. It emphasizes instruments that are affordable and practical for use by extension specialists, ventilation installers and interested livestock producers.

The point at which measurements are taken is more critical with some tests than others. Static pressure, humidity and gases will tend to be distributed throughout the air space. For these (unless precise measurements are needed) almost any reasonable location will usually suffice. If in doubt, take readings at two or more locations.

On the other hand, some other measurements will vary greatly from point-to-point, requiring great care in chosing the points for measurement. Examples are temperature, temperature fluctuation and airspeed. Temperature can easily vary 5°C from floor to ceiling. Airspeeds at floor level can be twice those only 150 mm (6 in.) higher up.

TEMPERATURE

One of the easiest values to measure, temperature is sometimes used to indicate more than it should. A temperature measurement, without corresponding airspeed and humidity readings, does not give a true indication of the environment felt by animals.

Don't place temperature sensors where they can 'see' radiant heat sources such as hot water pipes, heat lamps or sunshine. Outdoor temperature readings are particularly susceptible to radiation effects. A thermometer that can see the sun will read too high (in either direct or snow-reflected sunshine) and too low when it sees the 'black' of a clear night sky. Shield outdoor sensors above and below with wafers of aluminum foil or polystyrene foam insulation, spaced apart so that the sensor sees only the horizon — this way it is not affected by either 'positive' or 'negative' thermal radiation from earth and sky.

To check the accuracy of a thermometer, partly melt some ice in a bucket. The temperature of the ice/water mixture should register 0°C (32°F).

Maximum-minimum thermometer For monitoring ventilation (Figure 1), this adaptation of the ordinary glass thermometer is very useful. It measures temperature swings by indicating both the maximum and minimum temperature reached since the last resetting. It can be reset, usually each day, by moving the max/min indicators back into contact with the mercury column (usually by stroking the glass tubes with a small magnet).

Figure 1 Maximum-minimum thermometer

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Agricultural Building Systems Handbook

B.C. MINISTRY OF AGRICULTURE AND FISHERIES

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