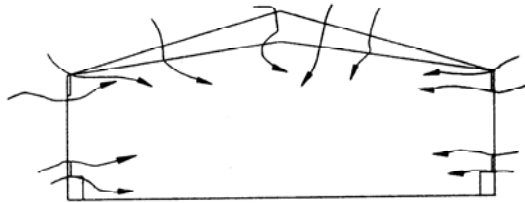




The University of Georgia Cooperative Extension Service

College of Agricultural and Environmental Sciences / Athens, Georgia 30602-4356



Poultry house tightness

January, 1992

*Michael Czarick
Extension Engineer*

*Michael Lacy
Extension Poultry Scientist*

Ceiling insulation is often considered the most important method of minimizing heat lost from a poultry house during the winter months. Though ceiling insulation is very important, there are other factors which can be of equal or greater importance. One of these is house tightness. If a house has a lot of cracks and holes, no level of ceiling insulation will reduce heating costs because heat leaves through the holes. Obviously, it is a lot easier for heat to leave through a hole than through an insulated ceiling. In fact, with just a slight breeze blowing, a poultry house will lose as much heat through a one square foot hole in a sidewall as through a 100' X 40' section of insulated ceiling.

It is important to realize there is a significant difference between air which drifts through cracks and holes and air drawn in through inlets by exhaust fans. Exhaust fans, timers and inlets insure that just enough air is brought in and that it is directed away from the birds toward the ceiling. Air entering through cracks and holes on the other hand, quickly drops to the floor causing drafts, litter caking, and heaters to come on. This results in poor feed conversion, increased condemnations, and excessively high fuel bills.

How tight is tight? Everybody would agree that houses with large holes in the curtains, doors which do not close completely, and insulation falling out of the ceiling would not be considered tight. But, this degree of looseness is usually the exception. In most cases it is difficult to determine how tight a house is just by looking at it.

There is a relatively simple way to determine how tight a house is. The only thing required is a static pressure meter. A static pressure meter measures the amount of vacuum created by the exhaust fans. If little effort is required by the exhaust fans to bring air into a house because of an abundance of cracks, little vacuum will be created. But, if a house is tight, a relatively high level of vacuum will be generated by the fans trying to bring air into the house through the limited number of cracks and holes.

To test the tightness of a house close the curtains and all inlets in the house. Then turn on two exhaust fans and place the tube from the static pressure meter outside the house. Take the measurement obtained and compare it to the chart on the back of this newsletter. The chart will give you a general tightness rating along with an idea of how much the cracks are costing you in terms of fuel usage during wintertime brooding on a daily basis. It is important to realize that drafts also cost you in terms of production. The chart does not take this into account.

PUTTING KNOWLEDGE TO WORK

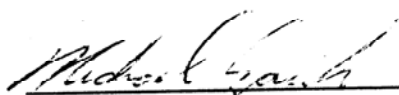
Two 36" fans running			
Pressure	Leakage area	Rating	Daily fuel cost
0 to 0.01"	45 ft ²	poor	\$36.30
0.01"	32 ft ²	poor	\$25.70
0.02"	23 ft ²	poor	\$18.20
0.03"	19 ft ²	fair	\$14.80
0.04"	16 ft ²	fair	\$12.90
0.05"	14 ft ²	fair	\$11.50
0.06"	13 ft ²	good	\$10.50
0.07"	12 ft ²	good	\$9.70
0.08"	11 ft ²	good	\$9.10
0.09"	10 ft ²	excellent	\$8.60
0.10" +*	10 ft ²	excellent	\$8.10

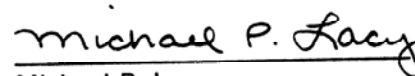
* a house with no leakage at all would have a pressure of approximately 0.2"

If you would like to improve you house tightness, look around the house for small openings. It is very useful to use smoke bombs to see where air is entering the house. You will find that the most of the cracks can be eliminated with minimal cost.

Listed below are a number of things to look for if you discover your house is too loose:

- 1) Do the curtain straps hold the curtains tight against the sides of the house?
- 2) Is there enough curtain overlap (minimum of 3")?
- 3) Are there shavings in the bottom of the curtain keeping it from closing completely.
- 4) Do the side wall and end wall doors close completely?
- 5) Are there holes in the ceiling?
- 6) Are exhaust fan shutters closing completely?
- 7) Are there holes in the side and end walls?
- 8) Do the end wall doors close completely?
- 9) Do the exhaust fans sit tightly against the side wall?
- 10) Are their holes in the curtains?


Michael Czarick
Extension Engineer
(404) 542-2154


Michael P. Lacy
Extension Poultry Scientist