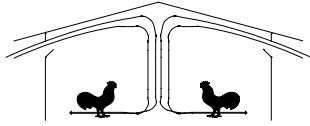




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# *Poultry Housing Tips*

## **Flying Chicken Houses?**

Volume 8 Number 9

September, 1996

At first glance of the photograph below, you might conclude that the house was simply blown over by a strong wind (Figure 1). But if you look closer you can tell that the house was actually picked up, then blown over. If the house were blown over, the sidewall would be next to the block wall foundation. But, as you can see, the side wall is about six feet from the foundation.



Figure 1. Wind damaged broiler house.

Many if not most poultry house failures that occur during wind storms are primarily caused by the house being lifted by the wind. The wind lifts the house, which weakens the structure, then blows it over. Though this is especially a problem for houses with block walls, it can happen to houses with posts if they are not placed deeply enough in the ground.

Why does this happen? If you look at a poultry house from the end it resembles an airplane wing (Figures 2 and 3). Like an airplane wing, as the air moves over the house it creates a low pressure zone, or vacuum, above the house. (You have probably experienced this lift when holding an umbrella in a strong wind). The low pressure area above the house tends to lift the house off the ground.

The upward force created by strong wind can be significant. For instance, a 20-foot section of a typical broiler house weighs approximately 7,000 pounds. This means there are 3,500 pounds pushing down on each side wall. An 80-mile-per-hour wind, well below tornado speed, will create an uplift of the windward wall of approximately 4,300 pounds. Since you have more force lifting the house than it weighs, the side wall will begin to "fly."

In Georgia, 50-year-frequency storms (expected to occur about every 50 years on average), range from 70 to 90 mph, so it is possible that a house could be built and be in service its entire life and never experience this kind of wind, but are you willing to take that chance? The Southern Building

Code requires that all buildings be built to withstand a 50-year-frequency storm.

If you don't want to take this kind of gamble, you should make sure that your walls are securely fastened to the foundation, not just sitting on top of it as many houses built in Georgia and the Southeast are. The house in the photograph was not fastened to its foundation. Properly anchoring a wall to its foundation is not a major expense as the building is built, but it is very difficult and expensive to do it later. If you have existing housing that is not anchored, you should talk to a builder about your options for tying it down, but by all means, you should not allow any future houses to be built without proper anchoring.

In addition, once your walls are properly anchored, you need to make sure that your roof trusses are secured to the sidewalls. If the roof trusses are sitting on top of a "plate" (usually two 2 by 4's), it should be tied to the plate using "hurricane straps." These straps are steel straps designed to hold the roof on in a high wind situation. Toe-nailing the trusses to the plate gives very little protection against an uplifting wind. Securely fastened "knee braces" (diagonal brace from the sidewall to the ceiling) also add strength to the structure in high winds. These should be present in all houses, but are absolutely necessary in houses with block or poured concrete foundations.

Here are some factors to consider to minimize the possibility of your house being blown down during a wind storm:

- 1) Make sure that the sill sitting on top of a block wall foundation is bolted to the foundation every 8'.
- 2) In post houses, make sure the posts are a minimum of 30" in the ground.
- 3) Knee braces tend to stiffen a house, making it more difficult to blow over.
- 4) Knee braces are a must in houses with block wall or poured foundations!
- 5) If the trusses are placed on top of a plate, they should be tied down to the side wall using "hurricane straps."

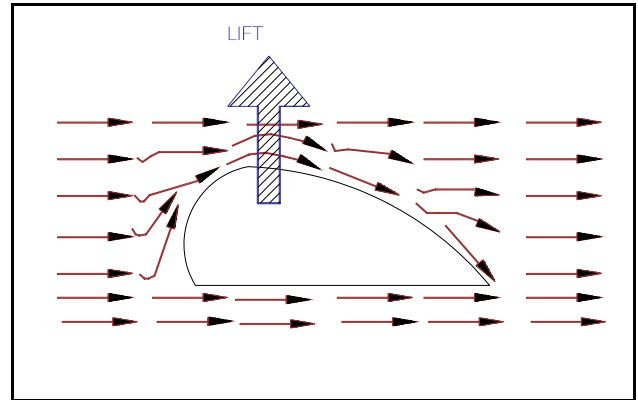


Figure 2. Lift created by air flowing over wing.

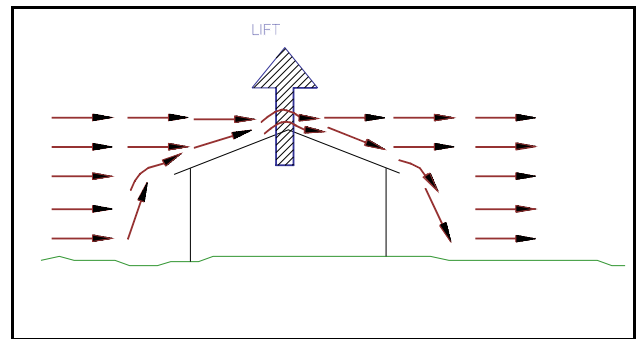


Figure 3. Lift created by air flowing over house.

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