

Report from the Field:

How Much Should I Spend on Retrofitting an Old House?

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We continually get calls from growers and integrators regarding questions about how much can or should be spent on redoing an old broiler house, and to upgrade its ventilation or environmental control systems.

The first question that needs to be answered before making any decision to spend money on a chicken house is, “Does the house have good structural integrity?” Many times people are talking about retrofitting houses that have structural problems. If a house has structural problems that are likely to get worse and possibly make the house unusable within a few years, then this house is probably not worth trying to upgrade. So you first need to evaluate the house to see what structural problems it may have. Then you need to determine how much it would cost to fix any structural problems, before considering any upgrade.

Some important structural items to look for are leaning walls or trusses, posts that are in bad shape, and roof problems. Attic inspections are essential to find out if there is condensation damage, ruined insulation, or broken or rotten lumber. Also, observe the roof from a distance. Is the ridge straight or does it sag in places? An uneven ridge line is a tell-tale sign of framing problems in the attic that mean the house is probably beyond its prime. Broken braces or joints will produce sagging roof lines. If the house has old two-piece tin roofing, this is going to need to be replaced.

The electrical capacity of older houses also needs to be addressed. New houses use 200-amp 42-space main breaker panels. These are used because the electrical load in a new or upgraded house is usually much larger than in houses that may be only 10 to 15 years old. If an older house doesn't have the electrical capacity to support the equipment required today, the house will have to be rewired or at least the main panel and perhaps the main feed to the house will have to be reworked. Houses with 60- to 100-amp electrical service boxes will certainly need to be upgraded if they are to be kept in production over the long haul.

Another house-upgrading problem we get questions about is the possibility of removing center posts in older type houses that were built without clear-span ceilings. A big cost today in the poultry business is the cost of catching chickens, and it is simply not possible to run automatic catching equipment in houses that have center line posts. Several companies have come up with methods to replace the center posts with a series of trusses installed under the ceiling. This gives the grower the option of continuing to utilize the house for production. However, the cost of these center-post removal renovations runs around \$50 per linear foot. So to rework a 40 x 400 foot house would cost in the neighborhood of \$20,000.

This is a significant outlay, and it should be understood that this cost may not include the replacement of the tri-ply or the ceiling insulation. And, while this type of structural improvement may enable the grower to stay in production, it has still done nothing to enhance the production performance of the house itself. The installation of heating, cooling, and ventilation systems to achieve significant improvements in performance can easily amount to an additional \$30,000. We must remember that if we make any significant investment in upgrading an older house, whether for removal of the center posts alone or for taking the next step of modernizing the heating and ventilation systems, we need to feel confident that we will stay in the poultry business long enough and be profitable enough to recoup our investment.

For example, if a grower finances a \$50,000 retrofit at 8% interest for 5 years, he will have to cover an additional \$12,500 per year for 5 years. Will his performance gain generate enough additional revenue each settlement to make this investment worthwhile?

When and if a grower does decide to take the steps to retrofit a house, it should be understood that this also requires learning how to use the new equipment that will be installed. The principles of negative pressure ventilating in newer tunnel houses differ from conventional methods used in older houses. And the grower will have to learn how to operate controllers and evaporative cooling systems. These houses will perform much differently than they did before retrofitting, and the grower must recognize those differences and quickly learn how to properly manage the new technology.

Realistically, some owners of older houses in poor condition may be in the situation where they must decide whether they would be better off getting out of the chicken business, because staying in the business would require an economic investment nearly as great as starting a new operation, if the shortness of the repay period is considered. There comes a point in time when a poultry house is not worth spending additional funds on just to continue operation. Can a twenty year old poultry house be retrofitted for better performance? Yes. Can the same house be retrofitted to perform at the level of a new house? Maybe, but not likely. It is much more difficult to do. The economic calculations must be done and the grower must do them himself after he has become well informed with the facts (and the numbers) pertaining to his particular farm situation.

In summary, the basic questions to ask regarding any possible renovation or upgrade expenditure on older poultry housing are:

- 1) Is the house in good enough condition so that if I spend the money on the house I will be able to grow chickens for a long enough period to recoup my investment?
- 2) If I am upgrading ventilation or environmental control equipment, will improvements in production performance generate sufficient income to pay for these improvements?

These questions are not new. They have been around as long as we have been in the mechanized poultry business, and they remain just as important.



The posts in this poultry house were not set deeply enough in the ground. Because of the shallow embedment depth, this wall is leaning almost a foot. This type of structural problem is difficult to fix. It will definitely shorten the life of the poultry house.



Growers should inspect the attics of their houses at least once a year. While in the attic they may notice that insulation has been blown around by the wind. Moved insulation can cause sweating and therefore deterioration of the house.



This shot in the attic of a relatively new house shows that there is a roof leak near the second purlin. A nail or screw probably was misdriven. If this leak is not repaired the truss will be rotted and the purlin will break, causing a serious structural problem. An attic inspection during a light rain is an excellent way to find these deficiencies.



From a distance the ridge line of this house looks straight and the house appears to be in good shape. Looking closer, however, you can see serious sagging in the roof framing of this house. This house has center rows of posts. Removal of the posts and replacement with a modern truss will not correct this sagging. It is questionable whether houses with sagging roofs should have extensive upgrades made to them.



When checking the attic of your house be sure to crawl all the way to the end of the house to observe the bracing at the last truss. This photograph shows adequate bracing to help stabilize the two end walls of the house.



If older houses are structurally sound and removing center posts makes good long-term economic sense, free-standing trusses such as these can be erected in the house under the ceiling and the posts can be removed.