How building design affects production

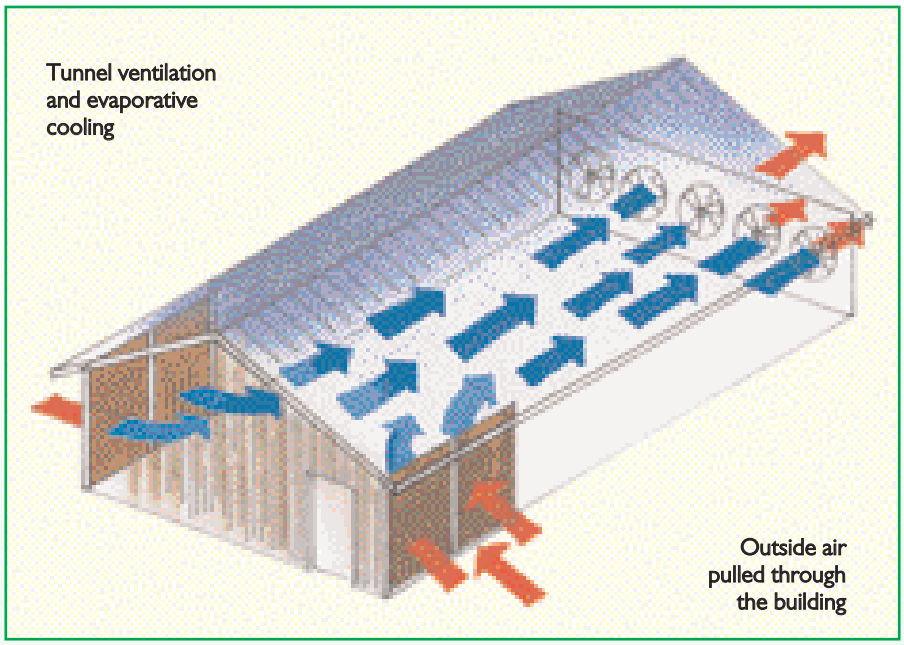
by Greg Jackson, project manager, Betco International.

Building manufacturers have very little to do with genetics, nutrition or management, but they can certainly impact the health and well being of the birds through the proper use of ventilation and insulation.

A building environment that is too hot, too cold or improperly ventilated can stress otherwise normal, healthy birds. For example, in hot climates stress can affect feed consumption and daily rate of gain. By contrast, in cold climates, increased feed consumption will affect the feed conversion and ultimately, the return on investment.

Two key prerequisites

Simply put, the interior environment of a poultry house is dependent on two things – ventilation and insulation. More importantly, these processes must be applied regardless of geographic location, natural surroundings and climatic conditions.



What to look for when building a poultry house

- Make sure your manufacturer is reputable and can deliver houses specifically designed for pullet, parent stock, and broiler buildings. Modern poultry houses should be designed from the 'ground up', so that all components fit properly, thus making the customer's construction process easier.

- Buy a 'system' not just building materials. Securing building materials from a variety of low cost suppliers will likely compromise the integrity of the system and increase production costs for the life of the building. For instance, customers may purchase building 'shells' from a manufacturer and try to adapt them for poultry production without sufficient knowledge of the design criteria. Their motive is price, but some negative results may occur by creating 'cold spots', 'hot spots', or 'dead spots' in the building interior, which translates to little or no movement of air.

- Look at the 'big picture'. Paying a little more for a higher quality building will pay off in the long run. Then too, in many overseas markets, locally built houses do not measure up in quality, as well as construction time. In fact, a reputable manufacturer can cut construction time by as much as 25%.

- Ask questions. For instance, when reviewing building proposals, do you sense that the building does not quite fit the price quoted? Is the building designed and engineered to local requirements, such as wind, snow or seismic factors? To what code is the building designed? Are all components needed coming from a single source, or are others being outsourced? Does the manufacturer provide an on-site, certified supervisor to ensure that the construction process moves along on schedule and on time? Can the components be easily shipped and quickly erected?

Structural criteria

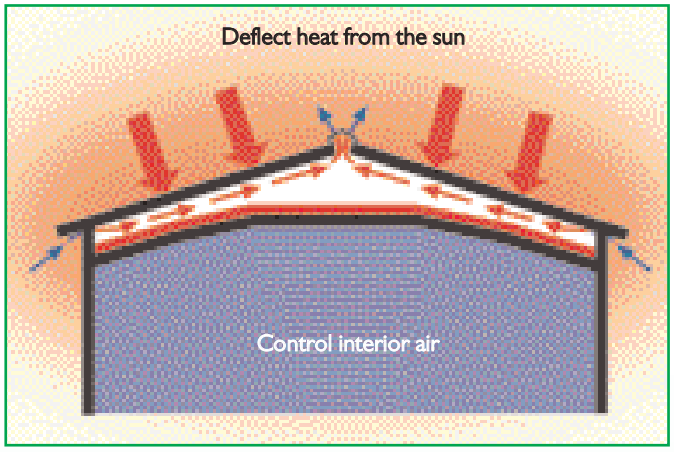
More specifically, it means understanding that materials and structural criteria suitable for one location may not be right for another.

In a sense, this kind of certified building design customises the house to the proper locale, which ensures that producers only pay for the building features needed and not be put in a position that forces them to buy standard components that may be extraneous and unnecessary.

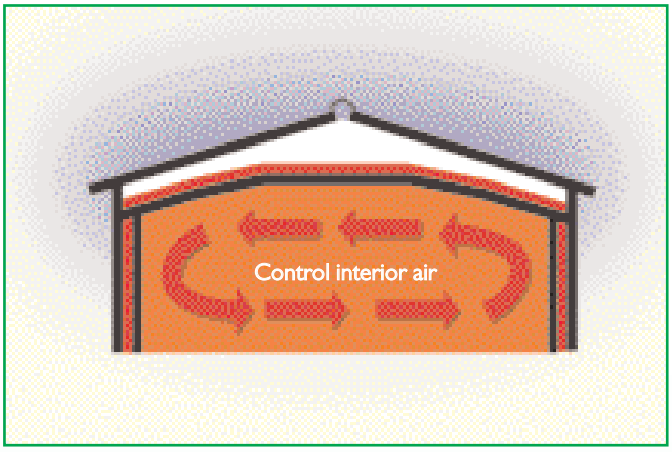
Ventilation

Originally, the ventilation 'pioneers', who developed modern ventilation systems that are being used today, probably conducted their research and testing in houses that were designed and constructed without sufficient thought given to the importance of a 'tight' structure.

Continued on page 19



Warm climates.



Cool climates.

Continued from page 17

In these ventilation systems, fans pull air through seemingly inconspicuous interior areas such as side walls, end walls and ceilings, which require the expense of additional fans and ultimately wastes energy.

The better building is a 'sealed" building' – one devoid of 'leaks'. Most mechanically ventilated buildings, with curtained side walls or ones totally enclosed, use a negative pressure ventilation system, which pulls outside air through a 'cooling pad' into the building interior.

This dual process is known as evaporative cooling and tunnel ventilation, and it controls the interior temperature and quality of air. It creates a 'zone of thermal neutrality', which means regardless of the outside climate the system can be adjusted to 'neutralise' the interior environment to the desired effect.

The ability to control these factors results in the high density production and maximum genetic potential for meat and egg production year round.

Insulation

Another way of controlling the interior environment is the use of proper insulation. With a drop ceiling, insulation can be installed that will reduce the heat transfer from the sun in warmer climates and prevent the loss of heat in the colder climates.

The attic becomes a 'buffer' zone. This results in lower energy costs and the ability to maintain consistent interior temperatures.

Then too, insulation is the least expensive component of a poultry building, so it follows that it will generate the highest return on investment.

The choice of an experienced and dependable manufacturer that has a history of producing quality houses and offering dependable customer service will go a long way toward helping poultry producers meet their goals and get a good return on their investment.

While building environment is only one piece of the puzzle, its overall importance is critical. ■