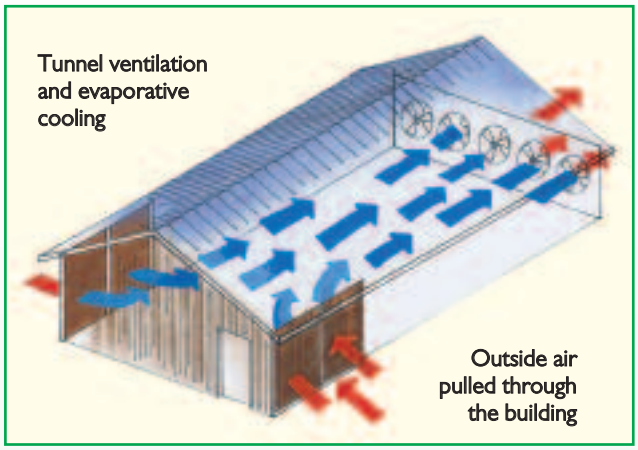
How building design affects production

by Greg Jackson, project manager, Betco International.

It is generally accepted that today's success in pig production depends on genetics, nutrition, management and building environment. If any one of these factors is deficient, it means trouble, or certainly reason to re-evaluate any area that is inadequate.

Why? Because a successful producer needs to control the type of animal it breeds and raises, to understand the kind of nutrition that will impact desirable growth, to operate a farm that provides a good return on investment, and to control the pigs' environment through all stages of maturation.



Good building environment

Building manufacturers have very little to do with genetics, nutrition, or management, but certainly they can impact the health and well being of the animals. A building environment that is too hot, too cold or improperly ventilated can stress otherwise normal, healthy animals.

For example, in hot climates stress can affect fertility, 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.

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.

In these ventilation systems, fans pull air through seemingly inconspicuous interior areas such as sidewalls, endwalls and ceilings, which require the expense of additional fans and ultimately wastes electricity.

Better building is the key

The better building is a sealed building – one devoid of leaks. Most mechanically ventilated swine 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 successful breeding and raising of market pigs.

Insulation makes sense

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 swine building, so it follows that it will generate the highest return on investment. In some cases, such as in moderate climates and for buildings raising young animals, minimum ventilation is sufficient. In these cases, ceiling inlets (controlled open-

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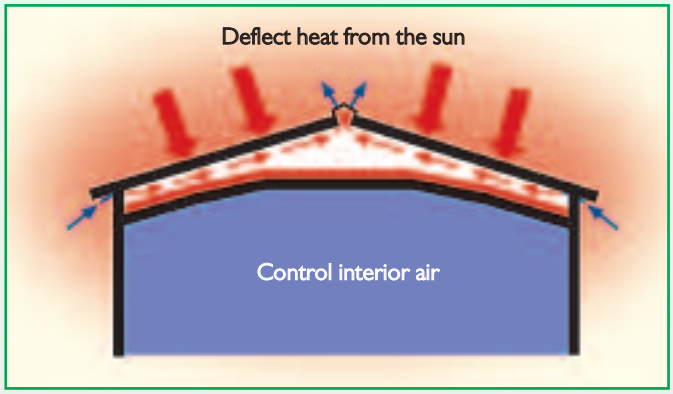
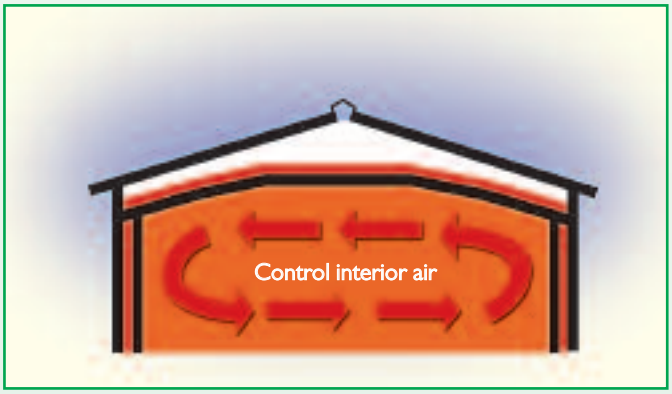
Warm climates.



Cool climates.



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ing and closing of small doors) can be adjusted to pull air in when the outside temperature is only slightly different from the desired interior temperature.

Understanding the process

Raising pigs is a sequential process and the producer has a designated period of time to get pigs to market.

Make sure your manufacturer can deliver houses specifically designed for breeding, gestation, farrowing, nursery, and finishing.

It may seem elementary, but some producers tend to make fundamental mistakes by doing business with building providers that do not fully understand what is needed.

Buy a system, not materials

Believing in the fact that a penny saved is a penny earned, pig producers generally can be catagorised as independent and resourceful. In the old days, this mindset might have been beneficial when erecting a swine house, but in today's market, one should purchase a system that produces pigs in the most economical way – one that provides the most return on investment.

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.

Beware of the shell game

Too often, customers purchase building shells from a manufacturer and try to adapt them for animal 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.

The cost of the building may be attractive initially, but serious problems will crop up sooner or later because swine houses play a very specific role in the overall success of operating a farm and a smart farmer should look at the big picture and not be diverted by saving money for the wrong reasons.

Even if a farmer pays a little more for a higher quality building, it 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%.

The better buildings use the highest quality building materials and are pre-engineered to customer specifications. Modern swine buildings should be designed from the ground up, so that all components fit properly, thus making the customer's construction process easier.

Meeting pre-determined production goals measures the success and profitability of farms and those goals will depend on the efficiency and productivity of the houses.

When reviewing building proposals, and one senses that the building being considered does not quite fit the price page, ask questions.

For instance, 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, such as insulation, curtains, PVC coated wire or doors 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? These are questions every producer should ask before committing to a building contract.

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 pig producers meet their goals and get a good return on their investment. While building environment is only one piece of the puzzle, its importance is critical. ■