

by Carrie Wirth and Beth Herman

John Blackburn Basics

Two California projects epitomize award-winning equestrian architect's penchant for natural lighting and ventilation.

Award-winning equestrian architect John Blackburn believes natural light and ventilation are the two most important considerations when designing and building a barn.

Two of his California projects epitomize these principles: Lucky Jack Farm in Rancho Santa Fe and Devine Ranch in Santa Cruz County. He designed another barn in California using no artificial lighting. Because the barn was designed to be open to the sunlight and wind currents, the carbon footprint and risk of barn fires were minimized.

"My barns are designed to function throughout the day without the use of artificial lighting, except in enclosed rooms such as bathroom/laundry," Blackburn explains. "This simple approach can greatly reduce the risk of fatal barn fires."

Vented skylights glazed with a translucent polycarbonate panel running the length of the barn are hallmarks of Blackburns' barns. The light source provides a low cost, shatter-proof feature that diffuses the light, thus eliminating harsh shadows, which could cause horses to spook.

All aspects of his designs provide natural light and reduce the dark damp areas at the floor of the stall where odors are created, but they also incorporate vertical ventilation of the barn. This vertical ventilation rids the barn of odors and of pathogens and infectious bacteria that could otherwise be transported from horse to horse.

The placement of the barn is also paramount. When siting a location, Blackburn checks the prevailing wind data to create a design that works with the forces of nature. Location was important for Lucky Jack Farm. Blackburn placed the barn higher in elevation than the initial structure and facing west in order to have better ventilation from the constant Pacific Ocean breezes cooling the site.

"Ventilation is one of the most important considerations when designing a barn that is healthy for your animals," the architect shares. "It is essential in every barn, regardless of whether it is located in a hot or cold climate. And, luckily, good ventilation does not require purchasing expensive equipment or running energy-guzzling systems."

Up, Up & Away

Vertical ventilation is the architect's goal for a healthy stable. Mechanical systems, in the form of electric exhaust fans, are not only expensive to maintain and run, but they can put the safety of the barn at risk. They can be a fire hazard and also pose a danger in the way traditional systems ventilate by drawing air laterally across the barn. This horizontal airflow increases the risk of passing pathogens and unhealthy gasses from one animal to the next. Blackburn designs barns that incorporate the Bernoulli principle of vertical lift which results in airflow similar to that found in a chimney. Air is pulled in low and vented out high, ventilating the barn naturally.

"Natural ventilation, specifically vertical ventilation, is the most important design consideration," Blackburn asserts. "We design the barn to be a natural machine, not just a static structure, by using the Bernoulli principle and the chimney effect. We place the barn perpendicular to the prevailing breeze in order to take the most advantage of the site. By angling and venting the roof, we create the contact of low and high pressure on either side of the roof. The reduced pressure on the leeward side of the roof, similar to the low pressure created by the shape of an airplane wing, pulls the air out of the barn through the openings in the roof or vented skylight."

The natural ventilation is augmented by a chimney effect created by the slope of the roof. Heat through the roof tends to rise before it radiates downward onto the horses. The heat of the horses, along with the heat from the skylight, creates a significant temperature difference between the ridge of the roof and the floor of the barn, adding to the chimney effect.

This upward, vertical ventilation reduces the risk of disease for horses by minimizing the amount of damp, stale, contaminated air in the barn. Blackburn's designs create this ventilation by harnessing natural solar and wind power to provide a strong interior current and upward movement of air in the barn. The air current within a well-designed barn is strong enough to ventilate the interior, even



Devine Ranch. Photo by Paul Schraub



Devine Ranch. Photo by Paul Schraub



Devine Ranch. Photo by Paul Schraub



Devine Ranch. Photo by Paul Schraub

on a hot California day.

Natural ventilation is also improved by the Dutch doors at each stall and open, screened venting along the underside of the eaves of the roof. The air from inside the barn is vented out through the triangular louvered roof vents and the continuous vent along the base of the ridge skylight and the ridge of the skylight itself.

At Devine Ranch in Santa Cruz County, the owner wanted an agriculturally minded horse farm with distant views of Monterey Bay. It was very important to build a residence and barn without stripping the land of its orchards and vineyards in such an agriculturally rich area. Because Devine Ranch is located near the San Andreas Fault, solid walls were needed to help fortify the entire structure for earthquakes.

"We like to say that in every project there are three things: the site, the owner and the horse," Blackburn explains. "While the first two may change, care and concern for the animal never does. That's the common thread that runs through all our work. We've been riding that horse for 30 years."

Spreading The Word

John Blackburn has spent the last 30 years designing more than 160 horse farms from small private stables to large equestrian facilities, highlighting his unique aesthetic and talent for creating beautiful, functional and sustainable equestrian architecture.

His clients have built facilities for racing, polo, hunters and jumpers, and Quarter Horses in a variety of climates and evolving site conditions across the United States. His designs have been featured in dozens of equestrian, architectural and luxury lifestyle publications.

Blackburn has been traveling the country on a well-attended book tour, where he visited many of the farms featured in his book *Healthy Stables By Design: A Common Sense Approach to the Health and Safety of Horses*. The book details his philosophy on equestrian architecture. In his designs, he combines the concepts of aerodynamic ventilation, strategic natural light and passive solar heating and cooling to create horse barns ranging from exquisite to functional while ensuring the health and safety of the horses.

"No one would think twice about building a house that brought comfort and protection for its human inhabitants, so why should horses be any different?" Blackburn asks. "Our primary concern should be the animal's health and appropriate conditions, which can be compounded when two or more are stabled together, with the best environment—one that closely approximates nature."

Blackburn generously donates all his author proceeds to various equine charities. "Horses have given me so much, and now it is time for me to give back to horses," he said.

For more information, visit www.healthystablesbydesign.com/tour.html



Lucky Jack Stables. Photo by David Hartig



Lucky Jack Stables. Photo by David Hartig



Lucky Jack Stables. Photo by David Hartig



Lucky Jack Stables. Photo by David Hartig