



Cynthia McFarland photo

### MULTIPLE ADVANTAGES

*Inset steel mesh panel adds light, increases ventilation, and decreases a horse's boredom. An outer door that slides over the panel closes the opening, if desired*

more natural light without using electricity, you make it less expensive and safer."

Installing skylights and additional windows can literally flood a once-dim barn with natural light. The upfront cost of skylights and windows may be higher than the cost of simply adding more light fixtures, Blackburn admitted but, once installed, there is no operational cost.

"Skylights can often be added without modifying the structure," he said,

"but if you want to go the extra mile and really add something to the building, you may have to take it a step further and modify the structure. For example, if you wanted to have a band of skylights running down the ridge of the roof, which would add light to the center of the barn where you need it most, this may require modification of the structure for strength and safety."

Transom windows are another way to bring in additional light. They can run the length along the outer stall walls, or a single window can be installed in each outside stall wall. "By putting them high, they will

bring in outside light better and you won't have to put bars over them for protection," Blackburn said. "Transom windows can be glass or made from the same plastic material found in skylights. They can be either clear or translucent. Since you aren't looking through high windows, translucent panes can be used since they diffuse light better than clear panes."

Adding exterior stall doors is a popular upgrade that increases both light and ventilation, as well as im-

proves safety by adding another stall exit. Instead of a door, some owners are opting for steel mesh panels on the outside walls. Although this does not provide a second exit, the horse still has the benefits of added light and ventilation, plus the stall will not feel as confining.

When trying to improve air flow in a barn, remember that ventilation works from bottom to top. Cooler outside air enters at the lower level

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and pushes the warm air up and out of the barn. There must be an opening at the top of the barn for the warm air to escape, but to get air moving where it is need most—the stall—there must be openings at

stall level. Adding exterior stall doors or panels will provide a way for outside air to enter.

If adding exterior doors is not practical, stall vents can be installed. Similar to the air-conditioning vents

found in houses, stall vents are approximately 24 inches wide by eight inches tall. Situated at, or near, the bottom of the outside wall, these vents have a protective cover on both the inside and outside walls. If nec-

essary, a screen can be installed in between the walls.

If your barn does not have adequate openings at roof level, there are several options for adding them. Ridge vents span the peak of the roof and are among the most economical to install. The opening is generally six inches wide, covered by a screen to keep birds and insects out.

Louvered ventilators can be installed in the form of dormers, windows, or openings in the space under the eaves. Blackburn pointed out, "Adjustable louvers can allow you to control the flow of air to replicate all the advantages of Mother Nature."

Often round or hexagonal in shape, cupolas may be equipped with operational windows and louvers, if desired. "Cupolas are sometimes more decorative than functional," Blackburn said. "The amount of light admitted can be relatively concentrated in one area and not distributed throughout the barn as can occur with a continuous ridge skylight."

for a week? If water runoff and drainage around the barn are not up to par, the area may need to be regraded.


Depending on the site, you may only need to bring in fill material and grade the area. Some situations may require subsurface soil work with the installation of drain pipes to get moisture away from the barn area.

What about footing inside the barn? Concrete floors by themselves are not generally considered horse friendly, but you can upgrade to provide both safety and comfort.

"With new construction, many people are having the aisleway floor depressed to accommodate rubber mats," noted Steve Kenworthy of Big Sun Equine Products in Ocala. Big Sun serves as a consultant and supplier for both new construction and refurbishing projects, and also carries fencing, and complete barn, stable, and racetrack equipment and supplies.

"At Jerry Bailey's training facility here, his concrete barn floors were depressed three-quarters of an inch so that when the mats were installed, the floor was all even and

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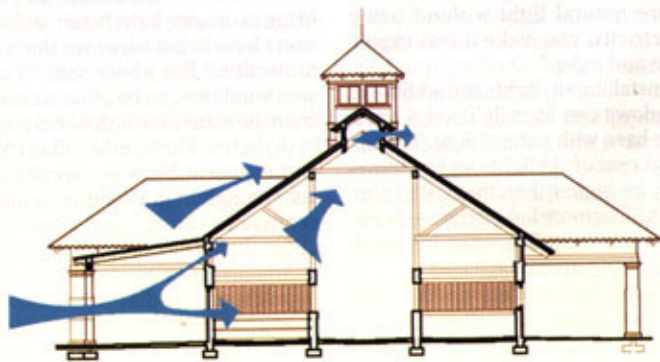
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**WHERE IS THE AIR**

This diagram shows how outside air travels through a barn designed to maximize air flow

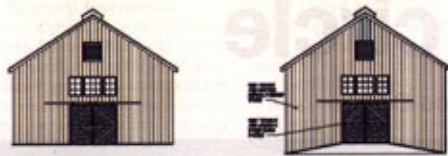
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#### GOOD USE OF TOBACCO

The typical tobacco barn is naturally well ventilated and has columns with 12-foot spacing that works well to create stalls

#### Increase safety

Have an electrician inspect your existing wiring and light fixtures if the barn is older, or if you have any doubts. "In older barns, the wiring may be wrapped in plastic, which can be damaged by rodents," Blackburn explained. "You need to inspect wiring for fire hazard and, if necessary, rip it out and install new wiring, preferably steel armor-wrapped or in conduit."

Even if wiring is in good condition, make sure it is suitable to handle the load from the electrical equipment you are using. If fans are commonly used in the summer, additional outlets can be installed in

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(Note: These contacts were interviewed for the accompanying article and by no means represent an exclusive list of architect firms that serve the equine industry. Consult your local directory.)

order to avoid the danger of extension cords.

Installing a fly-spray system can be a big plus in a well-maintained barn. "It's not the answer to getting rid of flies if stalls aren't cleaned regularly," said Kenworthy. "But if stalls are mucked regularly, the fly-spray system does its job well. It keeps the barn free of not only flies, but also roaches, spiders, ants, and mosquitoes. With the current concern about West Nile virus, getting rid of mosquitoes is important." ☼

Cynthia McFarland is a free-lance writer based in Florida.

there was no stumbling hazard," said Kenworthy. "The mats are just laid down in place. Each 4x6-foot mat is three-quarters of an inch thick and weighs 100 pounds, so they aren't going anywhere. If a barn already has concrete floors that are not depressed, we will lay the mats in place, then screw down the mats on the ends. This keeps all the mats from moving." (Mats also can be glued down.)

If you are upgrading a wash area, Kenworthy suggests installing half-inch-thick rubber mats with raised buttons that provide extra traction. These mats are also excellent in horse trailers.

If you want to upgrade a dirt aisleway, Blackburn recommended asphalt over concrete, if you are not planning on putting mats over the concrete. "Asphalt is softer than concrete and is more flexible," Blackburn said. "It will bend a little if the ground freezes and heaves, and 're-heals' itself if it cracks in cold weather. Of course, too much of this will even break up asphalt, but it is more forgiving than concrete."

Another plus is that water tends to seep into asphalt, rather than puddle on the surface, which causes an ice hazard in winter.

# POSITIVE IMPACT

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### **Upgrade the stalls**

Stall doors are often replaced when upgrading a barn. Simply replacing old hinged doors with new sliding doors can make a great improvement. "Round-track stall doors are very popular now," said Kenworthy. "They have stainless-steel, ball-bearing wheels with a round track (holding the door) and are easy to open and close with little effort.

"The all-metal doors are about all we sell now. These are the most popular because of their increased ventilation, visibility, and light, plus there is no maintenance because there isn't any wood."

Kenworthy sells about an equal number of stall doors of two specific styles: those with bars on top and three-quarter-inch metal mesh on the bottom, and those with bars on top and one-inch square cross hatch on the bottom.

Adding mats inside the stall is a popular upgrade that will save money over the long haul.

"People are realizing the value of stall mats," noted Kenworthy. "It really saves on bedding. Usually, in a three-year period, an average 20-stall barn will pay for the mats by the savings in shavings."

Big Sun sells only solid rubber mats because Kenworthy has found mats with holes do not wear well over the long run. "They allow seepage into the subsurface and you'll still have odor. The solid mats form a vapor barrier, so urine and liquid don't get down to the dirt and create odor."