COOLING transition cows in hot climates is essential to maintain cow health, calf birth weights, and milk production in early lactation. By maintaining reproductive performance, it will also ensure a more even calving cycle and throughput through the facility. Kansas State researchers recommend two rows of fans — one over the feed bunk and another over head-to-head stalls. To obtain the desired airflow of 800 to 1,000 cfm (cubic feet per minute) per cow, they suggest that 36-inch diameter fans be spaced every 30 feet, angled down 15 to 25 degrees, and hung 8 feet above the stall surface. If 48-inch fans are used, they should be spaced every 40 feet and mounted higher at 9 to 10 feet above the stall. The fans should be activated above 65° F. For additional cooling, low-pressure sprinklers (10 to 25 psi) may be used along the feed bunk, set to provide 0.11 liters or 0.03 gallons of water per square foot of wetted area per sprinkler per cycle above temperatures of 75° F. The wetted pen alleys is not clear. If stalls are poorly designed, rubber may increase standing times in the alley and may even lead to some cows lying in the alley.

Two studies have documented a negative behavioral influence of rubber alleys, and one study found only a small benefit to claw health and only in a pen with sand stalls rather than mattress stalls. In order of importance, rubber flooring is most valuable in:

1. the sloped return alleys from the parlor
2. in the holding area for the parlor
3. along return alleys between the pens and the milking center
4. finally, along the feed alley in the pen, only if the free-stalls are comfortable and well-designed

Self-locking stanchions or “headlocks” at the feeding fence are a useful way to manage and handle groups that require intensive monitoring. They are probably essential for the post-fresh group. This is obviously not the most appropriate time for a first-lactation heifer to be introduced to headlocks, and a period of training is beneficial. Therefore, even the far-dry pens may need to have some headlocks. It is wise to provide an additional area in each pen where the feed-bunk has only a post and rail so that wary heifers can maintain DIM in a new situation.

Building must have a payback . . .

The building of a special needs facility which provides for housing, milking, diagnosis, and treatment is costly and must be supported by improvements in health, milk yield, and reduced herd turnover rate. Kansas researchers ascribed costs for such a facility for cows from the closeup period through 14 days in milk for a 2,400-lactating-cow dairy herd. Total annual expense per cow, including bedding costs, interest on the loan, and a depreciation period of 10 years, ranged from $23 to $83.25 per cow, depending on the number of groups and whether a treatment parlor was included.

Such an investment would require an extra 1 to 7.5 pounds of milk per cow per day for break-even at typical milk prices. Improvements in health would also be expected, but cost savings are difficult to quantify. However, for the high-end facility, with the average cost of a fresh cow health event (including milk fever, ketosis, retained placenta, and metritis) of $334, a 2,400-cow dairy herd would have to reduce the number of events by 625, or 26 per 100 cows. Such reductions are very achievable.

Improved building designs come from a better understanding of the behavioral needs of the dairy cow. The costs to provide for these needs in the facility must be offset by improved milk production, health, and longevity. Research is still required to more fully understand the health implications of many building design considerations and their impact on disease.

Perhaps the most important end result of an improved environment for the transition cow, however, is an improved milk recording. Better buildings that accommodate the behavioral needs of cows present “win-win” situations where dairy cattle thrive and work is more enjoyable. This results in improved image for the industry, greater consumer confidence in the quality and safety of the final food product, and a prosperous dairy industry.