The summer season is when we usually find out the limits of our dairy housing ventilation. However, there are several signs to look for that will indicate a need for more or better ventilation throughout the year.

The most obvious is temperature. Once the temperature is in the 70’s and above, a properly ventilated barn will keep the inside temperature of the barn within a few degrees of the outside temperature. While this much ventilation may seem excessive to humans when the lower 70 degree temperatures feel good, the hard working dairy cow will start to feel stressed at these same levels. As the temperature goes up, cows will breathe faster to try to get rid of heat. When the respiration rate increases to the point where the animal is panting and her tongue is hanging out, there is an obvious need for relief through either more fresh air or cooling with water or both. If opening the barn walls up or turning on all of the fans doesn’t keep the temperature within 5 degrees of outside readings, it may be time to make some changes to the system.

Another ventilation or air flow issue is indicated if there are temperature differences with in the barn. Areas that are blocked from airflow such as behind walls or in closed corners can trap heat and stale air. Removing obstructions such as solid wall panels and stall dividers to allow air passage can remedy some areas inside the building. Other areas may require redirecting air by adding or moving fans to improve air movement. Providing more openings in the sidewalls for air inlets/outlets in cow areas can also help. Moving inlets so the air flow is kept at cow level would also be beneficial.

Moisture is the one of the important reasons proper ventilation is needed. At any time of the year condensation can build up on the ceilings or walls and indicate a need for more ventilation and air exchange. Warm water vapor from urine and respiration will quickly condense on colder surfaces on cold days if not removed. This same moisture will build up and create poor air quality on warmer days also, possibly increasing respiratory issues. Proper ventilation will exchange the moist inside air with drier outside air to remove this moisture and help keep the facilities dry and the air fresher.

Along with moisture, odors and gases can be present. Ammonia levels are a good indication of adequate air handling. One indication of inadequate ventilation in calf barns is to walk through the facility and check for signs of an ammonia smell remaining in your clothes after you step outside. Any time a noticeable odor lingers in clothes indicates poor air exchange in the area walked through. If the smell is strong in the alleys, the ammonia will generally be stronger in the pens where the calves are exposed to it constantly. A properly designed and working ventilation system will aid in removing most of these smells and improve conditions for the calves.

A high incidence of coughing and respiratory problems in calf facilities is a common indication of ventilation woes. Especially during the first few weeks of life, young calves are especially susceptible to drafts and poor air quality issues. The result is respiratory problems that can damage their lungs and decrease their potential over their lifetime. Research has shown that higher airborne bacteria counts occur in areas with poor air
quality. While most of these bacteria are not pathogenic, lower numbers in the air reduce the stress on the calves’ immune defense system. Many respiratory illnesses can be eliminated by making sure that the calves are getting plenty of fresh air into the pens at a rate that will reduce airborne bacteria counts without causing a chilling draft on the animals.

Manure pit gases getting into a facility can be a definite sign of an air quality issue. Well over 100 odorous compounds have been identified in various types of farm manure. Besides making conditions in livestock housing unpleasant, high levels of gases such as ammonia and hydrogen sulfide can be detrimental to the health of cattle and people. Measures should be taken to prevent these gases from entering the barn. These include keeping pit openings inside the barn blocked or closed and installing an exhaust fan in the pit to vent the fumes outside the housing area.

Poor air movement will also be indicated by dust build up on surfaces inside the facility. Dust from bedding and feed hanging in the air will tend to exit the barn if there is any amount of air flow going through. Slower air flow rates can allow some particles to settle on surfaces while very little will settle in higher flows. Related to this is the removal of disease organisms. If the dust is removed, many airborne organisms will be exhausted with exiting air, improving air quality.

There are many benefits to having adequate ventilation. Besides being more comfortable for both the people and cows, animal performance will improve resulting in better milk production, reproduction, general health, and rate of gain. A properly designed and managed ventilation system will quickly pay for itself.

In the meantime, feel free to contact me with any of your facility or ventilation questions.