

## CRYSTAL CREEK® NOW OFFERS CALF BARN VENTILATION DESIGN SERVICES



Ryan Leiterman, D.V.M.

Crystal Creek® is excited to offer ventilation consulting services to calf raisers. Proper calf barn ventilation is more than just having fans in the barn. Crystal Creek® has the expertise to bring creative, effective calf barn ventilation solutions to any calf raising operation.

Each ventilation system is custom designed specifically for each barn by our Director of Technical Services, Dr. Ryan Leiterman.

He holds degrees in both Agricultural Engineering and Veterinary Medicine. Dr. Leiterman has worked with new construction and retrofitted existing buildings to create an environment conducive to improved respiratory health.

Delivering the appropriate amount of fresh outside air to the calf without creating a draft is the basic goal of any properly designed ventilation system. Making the investment in a professionally designed, customized ventilation system for your barn will have one of the largest impacts on your calf raising profitability.

### How do these systems work?

Positive pressure tube systems are used to provide accurate, controlled, fresh air delivery to calf pens. These systems use a fan mounted at the end of the barn on an outside wall connected to a heavy duty fabric duct. The duct carries fresh outside air the length of the barn and discharges it evenly through holes in the duct. The hole size, spacing and configuration is custom engineered for each barn to ensure the air is delivered accurately and without a draft.



Positive pressure tube ventilation system in group housed calves.

### How does the design process work?

Upon request, a Calf Barn Ventilation Design Packet will be mailed to your farm to be filled out and mailed back to Crystal Creek®. The packet contains a detailed questionnaire that provides the information required for Dr. Leiterman to design a customized ventilation system; specific to your barn's configuration and pen layout.

Expect multiple phone conversations with Dr. Leiterman throughout the course of the design process, as clear and frequent communication will help create a system that meets your needs.

Crystal Creek® works with a premier duct manufacturer who can produce ducts with any hole size, spacing and layout configuration. They can also make ducts with 45 degree and 90 degree bends, as well as, T's for running multiple smaller ducts off one large duct. This provides the flexibility to create a ventilation system that is customized for your individual barn.

### Won't this added ventilation make it too cold in the winter?

Great care is taken in the design of each ventilation

system to ensure that the fresh air is delivered to the calf without creating a draft. A properly designed ventilation system delivers a blanket of fresh air that gently settles over each calf. The use of variable speed fans and hole reducing plugs offers greater control of the air speed delivered to the calf. Advancements in design software and tube

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## Group Pen Sizing and Calf Movement

### How do I determine pen size based on my calf movement plan?

Each group pen should be designed to provide a minimum of 35-40 square feet per calf. The pen should be sized to accommodate seasonal irregularities in herd's calving cycle. *It is important to note that most automated calf feeder companies do not recommend having over 25 calves per feeding station, as it increases competition for feed.* To determine pen size you must first determine how long calves will stay in each pen before being moved. Then apply these equations:

$$30 \div (\text{Days in the pen}) = A$$

B = 1 if you raise your bull calves

B = 0.5 if you sell your bull calves soon after birth

$$(\text{Average number of calvings per month} \div A) \times B \times 1.4 = \text{Number of calves in that pen}$$

*Example: A dairy wants to bottle feed their calves for 10 days before introducing them to the automated feeder. They average 20 calvings per month and they keep all their bull calves. They plan on the pen rotation described below:*

### Calf Movement Schedule

Days of Age: 0-10 bottle fed in individual pens

Days of Age: 11-35 moved to pen 1 to be introduced to the automated feeder

Days of Age: 36-56 moved to pen 2 with similar age/size calves

Days of Age: 56+ moved to weaned pen

Time in pen 1: 24 days  $A = (30 \div 24) = 1.25$

Time in pen 2: 20 days  $A = (30 \div 20) = 1.5$

Size of pen 1:  $(20 \div 1.25) \times 1 \times 1.4 = 22 \text{ calves} \times 40 \text{ sq ft per calf} = 880 \text{ sq ft}$

Size of pen 2:  $(20 \div 1.5) \times 1 \times 1.4 = 19 \text{ calves} \times 40 \text{ sq ft per calf} = 760 \text{ sq ft}$

In conclusion, the success of an automated calf feeding system is based on more than the brand of feeder purchased. Consider the impact that barn ventilation and pen layout can have on the success of your automated calf feeding operation. If you have any questions regarding automated calf feeders or calf barn ventilation technology feel free to call Crystal Creek®.

## CALF BARN VENTILATION (CONTINUED FROM THE COVER)

manufacturing techniques help ensure a draft free ventilation system.

### How long can the ventilation tube be?

Experience has shown a practical operating length of 200 feet for a single fan system. Longer runs can be accomplished but will require specialized fan equipment and advanced design considerations. In most situations, a tube can ventilate a width of 20-25 feet.

### Are there any drawbacks or limitations to positive pressure ventilation systems?

Positive pressure ventilation systems do not deliver the volume of air necessary for heat abatement during periods of hot weather. Additional fans, commonly in the form of high velocity basket fans, are used to supplement positive pressure tube systems during the summer months.

### Are these systems easy to install?

Yes! The positive pressure tube system comes complete with the hardware necessary for installation along with an installation diagram. The tube system is suspended from the ceiling with heavy duty metal snaps along a suspended cable.

### I am interested in putting a ventilation system in my calf barn.

#### How do I get started?

Call Crystal Creek® and request a Calf Barn Ventilation Design Packet. This packet is free and is mailed directly to your farm.

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