

AIR CURTAINS 101: CLIMATE CONTROL VS. INSECT CONTROL. WHAT'S RIGHT FOR YOUR APPLICATION?

THE SITUATION

When applied properly, air curtains can be a force in providing year-round energy savings, insect control and comfort for customers and personnel. With so many variables like temperature, wind, insects, mounting room, obstructions, and opening sizes, selecting the right air curtain may seem overwhelming.

How do you know if the air curtain you are supplying is right for your customer's application? Below, we are taking a look how to apply air curtains based on two of the most common reasons to use them: climate control and insect control.



BUG OUT: AIR CURTAINS FOR CONTROLLING INSECTS

Unlike climate control applications that traditionally require low velocity streams of air, air curtains used primarily for insect control require significantly higher air velocity with high air flow uniformity. It takes considerable velocity across an entire opening, especially near the floor, to influence and change the flight path of flying insects (especially the big ones). Insect control applications usually prioritize insect control over energy savings. Common insect control applications include restaurant back doors or loading docks in the food and beverage industry. Preventing insects from entering these sensitive areas is critical for the health and safety of both personnel and consumers.



CHILL OUT: AIR CURTAINS FOR CONTROLLING CLIMATE



Air curtains are often used to for climate (environmental) separation. When applied properly, air curtains can be extremely effective in separating two environments. Climate control is usually broken down into two specific applications: exterior separation to protect against elements like temperature, dirt, and dust; and interior separation to control two interior environments. For climate control, we recommend mounting the air curtain on the inside or "conditioned" side. This allows the air curtain to take in and discharging conditioned inside air, which circulates back inside the building.

What if I Need Both?

Many applications are going to require both temperature and insect control. While it may be difficult to prioritize one over the other, there are options available. One consideration is to choose an air curtain, like Powered Aire's ECE or ETD models, that offer speed control. The air curtains can run on high speed during periods where insects and high winds are more prevalent. The air curtain can run on low speed when temperature control is the major issue.



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Climate Control

Air curtains are often used to for climate (environmental) separation. When applied properly, air curtains can be extremely effective in separating two environments. Climate control is usually broken down into two specific applications: exterior separation and interior separation. For climate control, we recommend mounting the air curtain on the inside or "conditioned" side. This allows the air curtain to take in and discharging conditioned inside air, which circulates back inside the building.

When used on exterior openings, air curtains are effective at preventing undesirable, exterior elements like temperature, dust, dirt, or smoke from entering the building. They are also effective at keeping conditioned air, including heated or air conditioned, in the building by entraining the inside, conditioned air into the stream and using that to create a barrier. Exterior climate control is often required on loading docks. In the winter, air curtains help prevent colder, exterior air from entering the dock area while preventing expensive, heated, conditioned air from escaping. In the summer, they help prevent warm, humid air from entering conditioned spaces.

When used on interior building openings, air curtains are effective at separating two rooms or spaces, often between a conditioned space and an unconditioned space. Common applications include separating a loading dock area and a conditioned production area and on an opening between a cooler and ambient environment. In many cases air curtains are used in conjunction with another primary door such as a high-speed door. As a primary door opens, the air curtain turns on, preventing unconditioned air from entering the conditioned space.

In most climate control applications, air flow uniformity and average velocity are more critical than velocity. Consistent, uniform air streams that entrain conditioned air into the air stream help to ensure the entire opening width and height are covered without stirring up too much air at the floor. High uniformity, lower velocity air curtains tend to have quieter noise levels too, ideal for interior applications.

Insect Control

Unlike climate control applications that traditionally require low velocity streams of air, air curtains used primarily for insect control require significantly higher air velocity with high air flow uniformity. The reason: it takes considerable velocity over an entire opening, especially near the floor, to influence and change the flight path of flying insects (especially the big ones). Insect control applications usually prioritize insect control over energy savings. Common insect control applications include the back door of restaurants or loading docks in the food and beverage industry. Preventing insects from entering these sensitive facilities is critical for the health and safety of both personnel and consumers.

Exterior Mounting Considerations

Often times, insect control may be the sole purpose of using an air curtain, such as on the back door of a restaurant. In these applications, many people mount the air curtain on the outside of the building. The air curtain takes in outside air, which may be unconditioned, and discharges it. When the air hits the ground and splits, some of the exterior air will deflect inside the building. This may defeat the purpose of an air curtain and require some additional modification to protect the air curtain from exterior elements.

What if I Need Both?

Many applications are going to require both temperature and insect control. While it may be difficult to prioritize one over the other, there are options available. Powered Aire's ECE or ETD models offer speed control. The air curtains can run on high speed during periods where insects and high winds are more prevalent. The air curtain be adjusted to run on low speed when temperature control is the major issue.

How Do I Select the Right Air Curtain?

Our goal is to make selecting the right air curtain easy and comfortable. Powered Aire's sales and customer service team is ready to help you apply the right air curtain for your customer's application.

[Use the Air Curtain Selector Tool Now](#)

