



Air Curtain Brochure



What is an Air Curtain?

An air curtain typically mounts above a door or opening that separates two different areas, such as an entrance door separating the inside from outside or a dock door between a production area and the offices. The air curtain creates a barrier of air that prevents outside air, bugs, fumes and other unwanted elements from entering.

Another key benefit is an air curtain's ability to keep conditioned air inside, complementing your buildings primary HVAC system. From the snow-covered north to the humid and tropical south, an air curtain prevents the conditioned air from escaping, lessening the burden on HVAC units. Ultimately, this leads to increases in energy savings.



How does an Air Curtain work?

This Computational Fluid Dynamic (CFD) simulation shows how a Powered Aire Air Curtain creates a barrier through which outside air, insects, dust, and debris cannot enter. The conditioned inside air is recirculated, helping save on energy costs. Research shows Air Curtains can have up to a 90 percent effectiveness rating in terms of separating indoor and outdoor environments. (2015 ASHRAE handbook - HVAC Applications, #12 Air Curtain Units)

**OUTDOOR
UNCONDITIONED AIR**

**INDOOR
CONDITIONED AIR**

UNIT & AIR INTAKE

AIR BARRIER

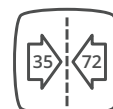
BLOCKED AIR

RECIRCULATED AIR

What are the benefits of an air curtain?



ENERGY SAVINGS
INSECT CONTROL
BUILDING AESTHETICS
ENVIRONMENTAL SEPARATION
INHIBIT DUST & POLLUTANTS
SECONDARY HEAT SOURCE
VESTIBULE EXCEPTION
KILL GERMS



SCAN OR
CLICK QR
TO LEARN
MORE

Commercial Applications

IMPROVING BUILDING EFFICIENCY

From architectural blueprints and engineering specifications to retrofit and renovations, air curtains play a critical role in improving the efficiency of a building.

"For commercial buildings, air infiltrations can be as high as 18% of the total heat loss. Air infiltrations (or air leakages) are often caused by unintentional or accidental introduction of outside air into a building through cracks in the building envelope and/or entrance doors. Infiltrations through door openings become quite significant when the doors are used frequently such as in restaurants, retail stores, supermarkets, offices and hospitals – Department of Energy, 2012)."

Air Curtains are an ideal solution for addressing these issues with their ability to separate environments, maintain internal temperatures, save on energy costs, improve employee comfort, and countless other benefits.





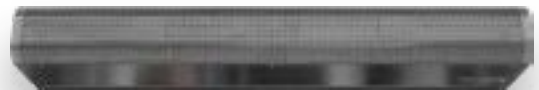
Visit PoweredAire.com/air-curtain/commercial to view complete line of commercial air doors

AESTHETIC STYLINGS

Air curtains blend seamlessly into the aesthetics and architectural styling of a building. Stainless steel housing, in-ceiling installation and quiet operation should all be considered when specifying an air curtain.

EVE

Multiple Mounting Options
Low Profile



ETA

Multiple Mounting Options



CHA

Ceiling Flush Mounted



HEATING OPTIONS

Powered Aire Air Curtains come with a variety of heating options to best meet the application and easily pair with the building's established heating method.

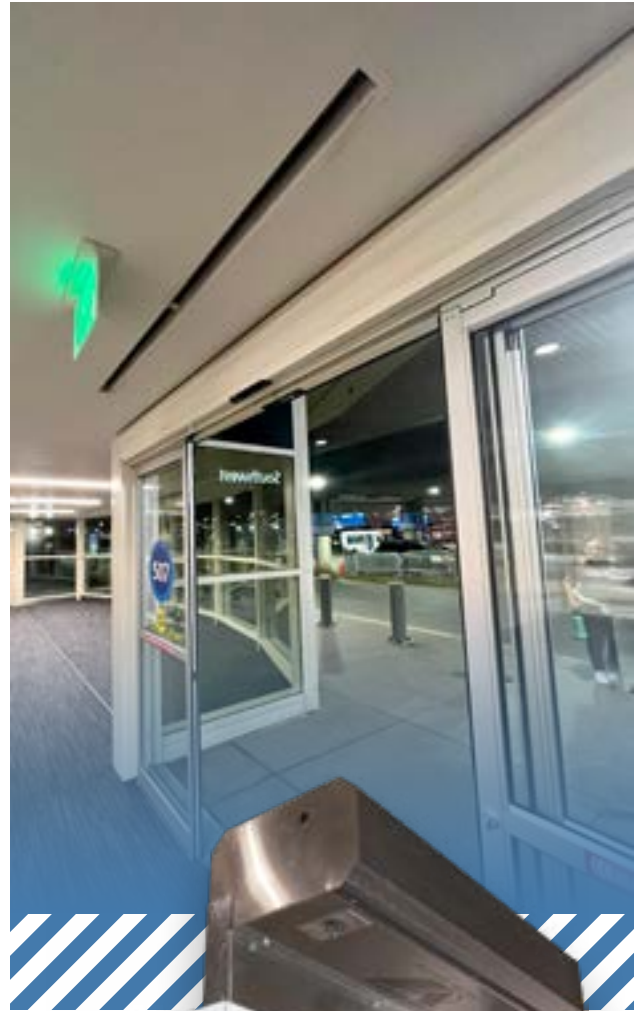
- Unheated
- Electric
- Hot Water
- Steam
- Gas

Application Spotlight



IN CEILING APPLICATIONS

Powered Aire's in-ceiling Chameleon offers the best of both worlds. The unit is largely out of sight but provides all the core air curtain benefits. These units can be specified into the build-out to ensure space and proper fit.



RECESS MOUNTED WITH NOZZLE EXTENSION

Recessed mounted Air Curtains use a nozzle extension and offer the cleanest, most low-profile look. The recessed mount can be incorporated into areas where mounting and/or overhead space is limited.

Application Core Benefits



ENERGY SAVINGS • CLIMATE CONTROL • SPACE HEATER
FLYING INSECT CONTROL • EMPLOYEE COMFORT

The Powered Aire Advantage

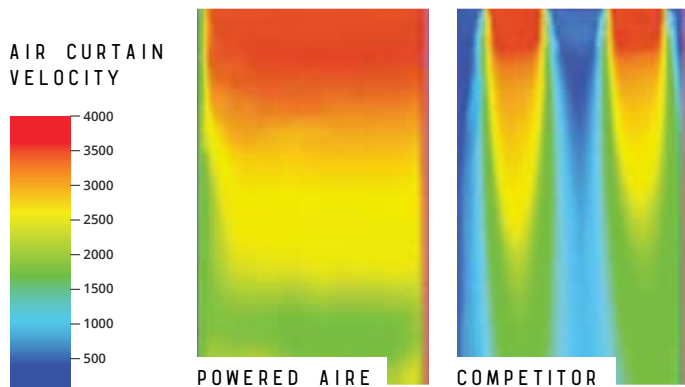
POWERED AIRE'S UNIQUE PLENUM DESIGN

The use of plenums in our air curtains make the air flowing out of the discharge more uniform across the entire length of the nozzle. Most of our competitors aim the discharge of each blower directly down and the air flows right out of the nozzle. These blowers cannot be placed directly beside each other since the return air enters from the sides. There are also motors in between the blowers spreading them out farther. When the blowers force air directly out of the discharge of the air curtain, there will be dead spots wherever there are spaces between the blowers.

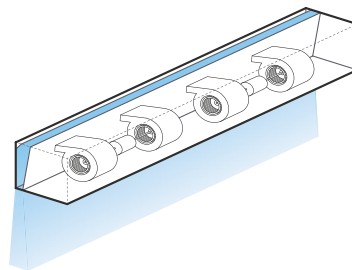
In Powered Aire's units, the air coming out of the blowers is pointed toward the back of the air curtain. Here it fills a specially designed plenum. When the plenum is pressurized, the air is then forced out evenly across the entire length of the plenum discharge.



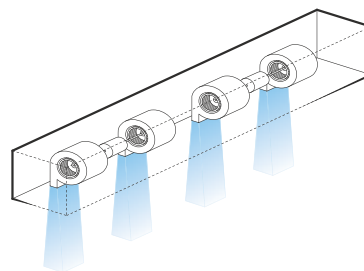
Airflow Across Opening



Powered Aire Plenum Design



Competitor's Design



ADDITIONAL ADVANTAGES



SmartTouch Controller

- Ability to control multiple air curtains at single location.
- BMS functionality for remote monitoring and management.
- Complete air curtain control including fan speed, heat modes, on/off, run cycles, service reminders.



Stainless Steel Construction

Our custom stainless steel construction is corrosion resistant and is easy-to-clean. The stainless steel mirroring effect accentuates the environment and interior design.

Performance

HIGHLIGHTS

Quiet Operation

The unique design of Powered Aire air curtains also helps create an air curtain that operates both quietly and more efficiently. Most Air Curtains generate noise by forcing high volumes of air through a narrow, linear discharge. The Powered Aire plenum helps serve as a muffler, spreading out the air in a more even manner before being discharged through the plenum

Position of Heating Elements

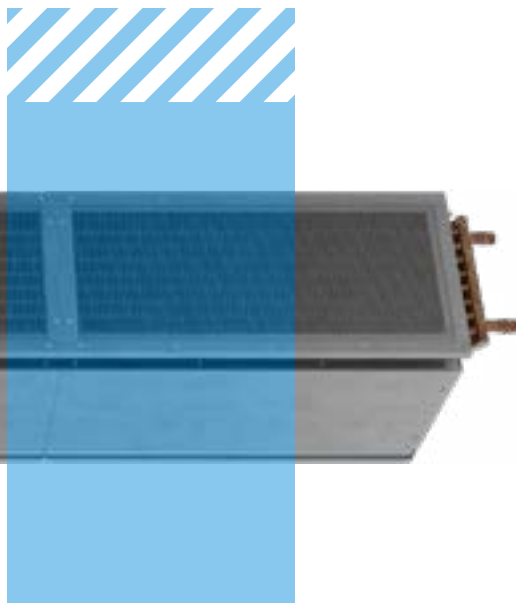
Positioning the heaters in the plenum allows ambient air to pass over the motors before being heated in plenum. This ensures a longer motor life while also heating the air for a longer period, creating more heat at the discharge.

Custom Coils

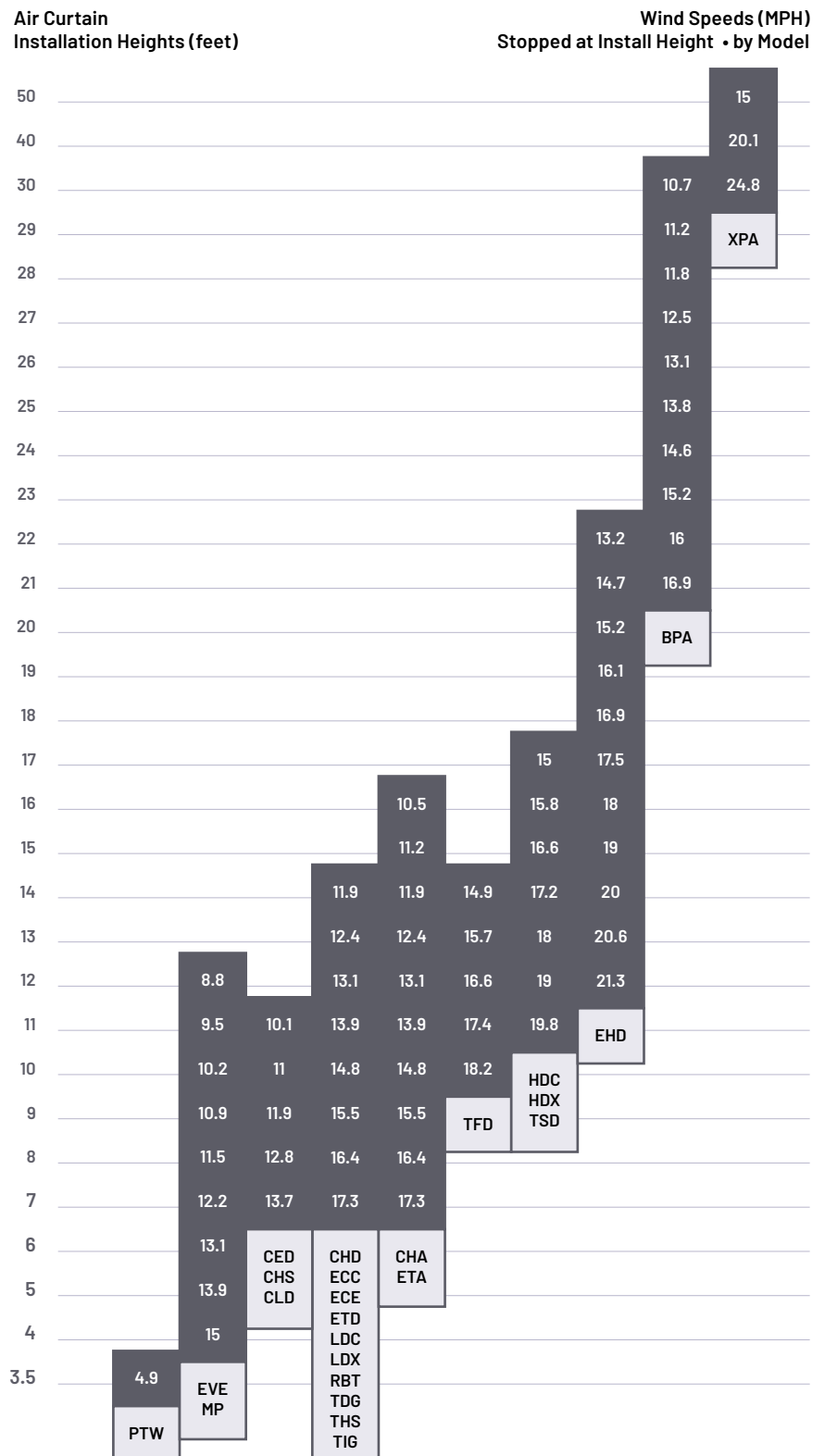
Made-to-order steam or hot water coils mounted to intake of air curtain. Coils consist of 5/8in. O.D. copper tubes and aluminum fins. Coils certified to ARI standard 410.

Custom Heating

We are not limited to certain breaker sizes and can quickly modify a breaker size to ensure compliance with engineering specifications. Additionally, we can do single-point power to electrically heated units.



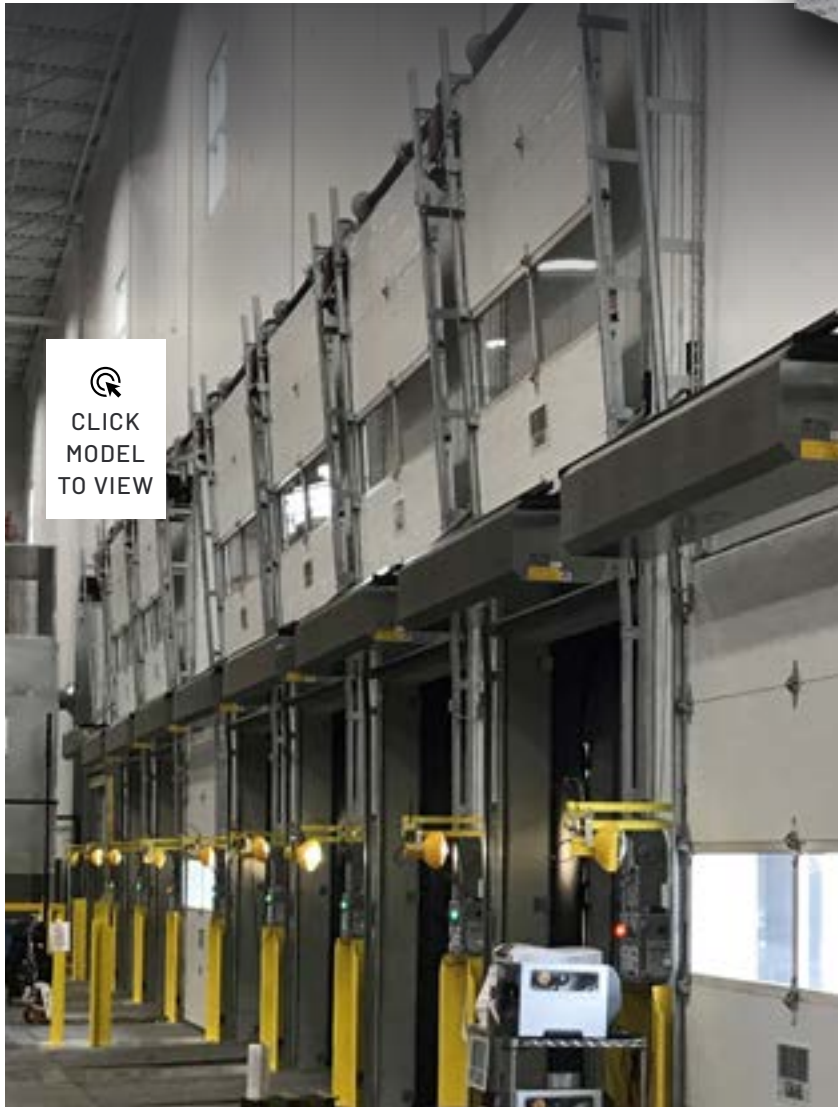
SIZING CHART: Install Height v. Wind Speed Stoppage



Industrial Air Curtains

FOR DOORS
UP TO 50' HIGH

MODELS:




CLICK
MODEL
TO VIEW

Powered Aire's Industrial Advantages

- Air curtains for every size door: from conveyors to docks and pedestrian openings to oversized doors
- Stainless Steel and welded construction
- Fully-assembled cabinets with direct-drive motors ensure that units are durable and ready to install
- Units can be paired for longer widths
- Can be mounted around obstacles and obstructions like door tracks and roll-up doors
- High efficiency plenum design ensures the best uniformity and lowest noise levels
- No guess work – Powered Aire handle the brackets, switches, and even freight
- Need Supplemental heat? Use electric heaters, indirect gas, steam, or hot water for additional comfort

Industrial Heating Options



ELECTRIC
HEAT



HOT WATER/
STEAM HEAT



INDIRECT
GAS HEAT



Installation Highlight

Leading freight carrier using TFD-2-96

Air Curtains on dock doors to prevent outside air and insects from entering through open doors

TFD

Industrial Air Curtain



Mounting

COMMERCIAL & INDUSTRIAL

COMMERCIAL
FLUSH MOUNT

Mounting Options

Air curtains need to be positioned correctly to maximize their effect. Powered Aire air curtains can be mounted in a variety of ways to accomplish this goal. These are just some of the examples.

COMMERCIAL
SIDE EXTENSION

COMMERCIAL
THREADED ROD

COMMERCIAL
THREADED ROD
AND STRUT

COMMERCIAL WALL
MOUNT BRACKETS

COMMERCIAL WALL
MOUNT BRACKETS
AND THREADED ROD

INDUSTRIAL
THREADED ROD

INDUSTRIAL
VERTICAL INSTALL

INDUSTRIAL WALL
MOUNT BRACKETS AND
UNISTRUT EXTENSIONS

INDUSTRIAL WALL
MOUNT BRACKETS,
UNISTRUT EXTENSIONS
AND THREADED ROD

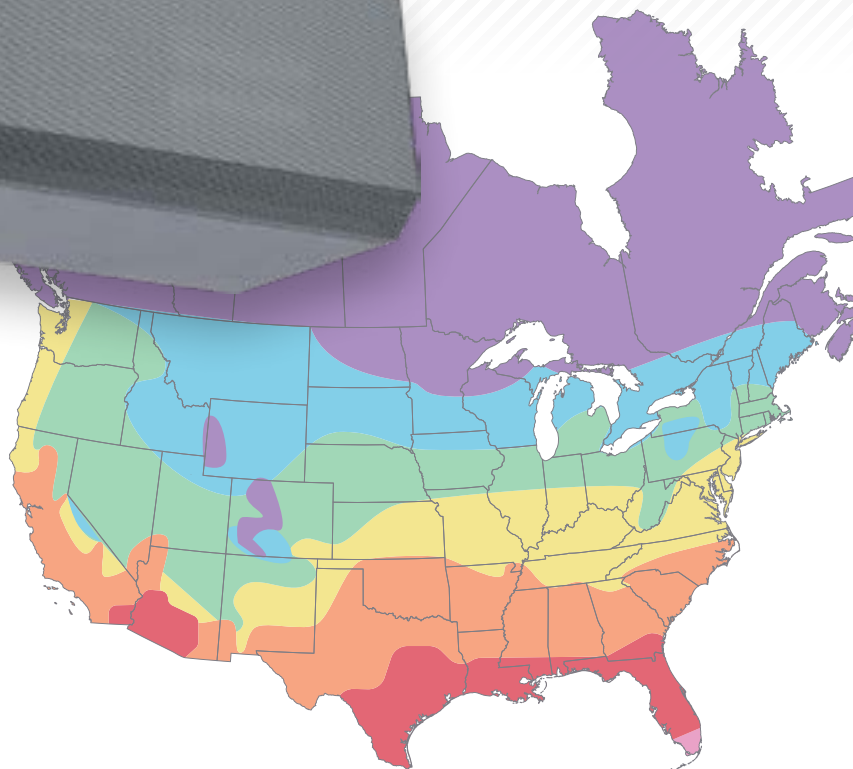
INDUSTRIAL
EXTENDED
ANGLE BRACKET

INDUSTRIAL
ANGLE BRACKET
AND UNI STRUT

Annual Cost Savings

USING A POWERED AIRE CED AIR CURTAIN
ON A RETAIL CUSTOMER ENTRY DOOR
DURING HEATING SEASON

DOORWAY 6'W BY 7'H
INSIDE TEMPERATURE 70F
HOURS/DAY DOOR IS OPEN 4 HRS
TIME FRAME OF USE 7AM-11PM
DAYS PER WEEK USE 7



CLIMATE ZONES



	HEATING SEASON	COOLING SEASON
ANCHORAGE	\$3,422	N/A
EDMONTON	\$4,218	N/A
BISMARCK	\$5,160	N/A
MONTREAL	\$4,785	N/A
TORONTO	\$4,465	N/A
DENVER	\$2,955	\$58
CHICAGO	\$4,547	\$58
NEW YORK	\$4,126	\$167
BOISE	\$2,827	\$126
SEATTLE	\$2,397	N/A
ST. LOUIS	\$3,330	\$459
ALBUQUERQUE	\$2,186	\$480
LAS VEGAS	\$1,410	\$1,445
ATLANTA	\$1,948	\$527
LOS ANGELES	\$585	\$31
HOUSTON	\$796	\$690
ORLANDO	\$219	\$813
PHOENIX	\$397	\$1,146



SCAN OR
CLICK OR
TO VIEW
MODEL CED

Vestibule Exception

CONSTRUCTION CHALLENGES IN A POST-PANDEMIC WORLD

Post-Pandemic has taken on many different meanings. If you're managing a construction project, it means that costs have soared, deadlines have tightened, and there seems to be a lack of just about every type of building material. To accommodate, project managers are looking for way to save money, cut costs and reduce resources.

Consider Using a Vestibule Exception Air Curtain Instead of Building a Vestibule

As the name implies and as the ASHRAE/IES 90.1-2019 standard dictates, air curtains can now be used to replace vestibules, helping to save time, money and precious retail space.

In 2019, ASHRAE (the American Society of Heating, Refrigerating and Air Conditioning Engineers) approved the use of properly installed and certified air curtains as an exception to the vestibule requirement. A similar exception was added to the IECC (International Energy Conservation Code) in 2015. These changes were made after independent studies proved that air curtains are equal to or better than vestibules at preventing infiltration in all climate zones.

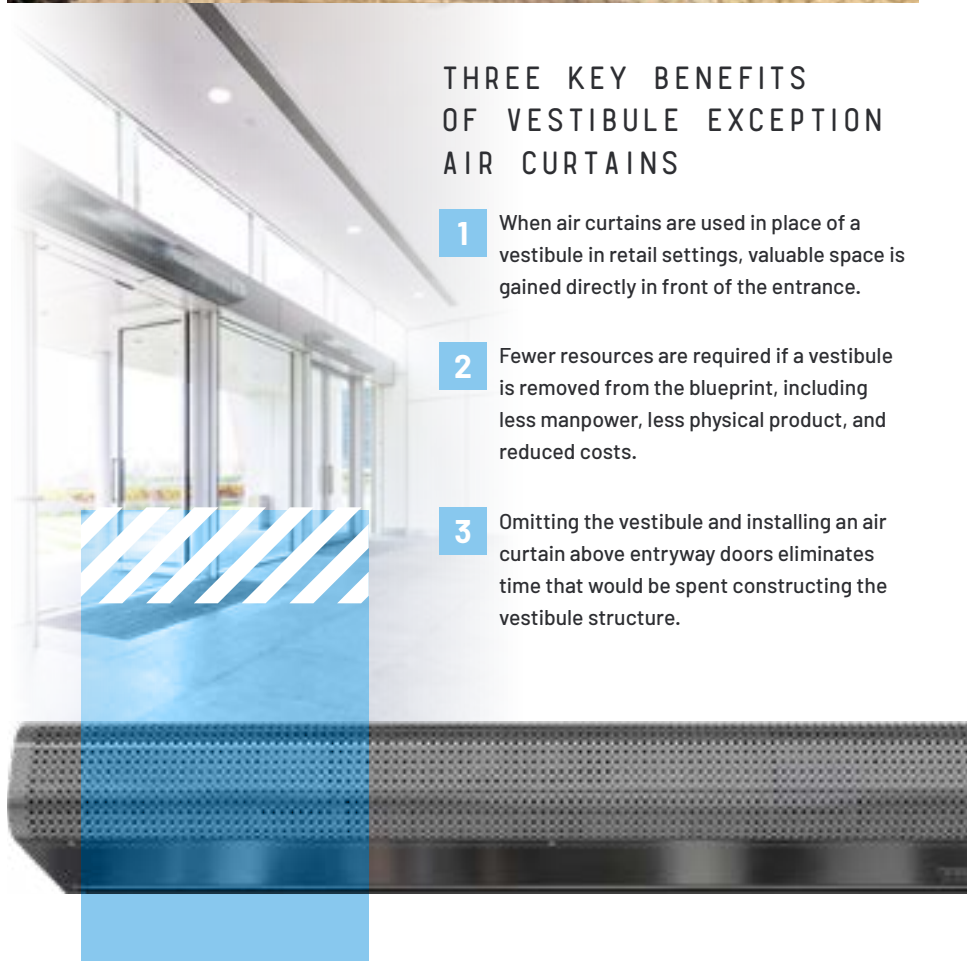
It isn't just new construction that can benefit

Adding an air curtain to an existing vestibule will help remedy poorly designed applications where both sets of doors are open at the same time, letting in outside air, dust and debris. Depending on aesthetics, space and design requirements, air curtains can be placed above a door or recessed into the ceiling where they are hidden from view.



THREE KEY BENEFITS OF VESTIBULE EXCEPTION AIR CURTAINS

- 1 When air curtains are used in place of a vestibule in retail settings, valuable space is gained directly in front of the entrance.
- 2 Fewer resources are required if a vestibule is removed from the blueprint, including less manpower, less physical product, and reduced costs.
- 3 Omitting the vestibule and installing an air curtain above entryway doors eliminates time that would be spent constructing the vestibule structure.



Application Spotlight

AIR CURTAINS FOR COOLERS & FREEZERS

If you're familiar with Cold Storage operations, you know there is a constant battle against condensation, ice, and fog around the door openings. These hazards may create unsafe conditions for workers and equipment while bringing workflow to a halt. Powered Aire's Freezer and Cooler Air Curtains are effective, affordable solutions for your cold storage challenges.

Benefits of Air Curtain on a Cooler or Freezer Door

- ✓ Reduce ice or frost on the walls and header of the freezer doors
- ✓ Improve safety with streamline workflow
- ✓ Reduce/eliminate frozen or wet-ground hazards in door areas
- ✓ Prevent icing and condensation on high-speed cooler and freezer door panels
- ✓ Replacement for strip doors/curtains that may create visibility, safety, and sanitation problems
- ✓ Separate conditioned coolers and freezers from unconditioned temperatures in warehouses



SCAN OR CLICK FOR COLD STORAGE MODELS

AIRE CONTROLLER 3.0

Complete control of cold storage air curtain, including fan speed, fan mode, timing and other functionality



- 2.8-inch High-Speed LCD Touch Screen
- Ideal for daily operation of high speed and cold storage doors that face issues related to fog, condensation and moisture build up
- Eliminates need for multiple remote or unit mounted switches
- Adjustable cycle timer
- Remote mounting (no ladders or forklifts required to make adjustments)
- Lockable home screen



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