

ROBERTS GORDON®

Air Curtains

For Commercial/Industrial Applications



Helping enhance air quality, health, safety, and comfort

www.robertsgordon.com

What is an Air Curtain?

An air curtain separates one environment from another by creating a “curtain” of moving air projected over a doorway or opening.

This invisible wall of air creates a barrier preventing outside air, bugs, dust, debris, fumes, and other elements from entering the space.

Typically, air curtains separate two different areas:

- Dock door between a production area and office space
- Entrance door separating inside from outside.

Air curtains are an ideal solution for maintaining inside temperature near loading dock doors, man doors, or even office doors.



Quick Payback*

Air curtains, when professionally installed and operated, can pay for themselves in less than two years and energy savings can exceed \$4,000!

*Savings based on location, season, and other factors.

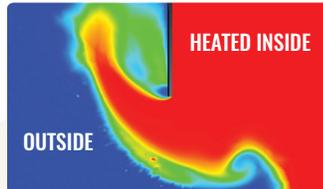
How does an Air Curtain work?

This Computational Fluid Dynamic (CFD) simulation shows how an air curtain creates a barrier through which outdoor air and other contaminants cannot enter.

The conditioned inside air is recirculated, helping save on energy costs. Research shows air curtains can have up to a 90% effectiveness rating in terms of separating indoor and outdoor environments.

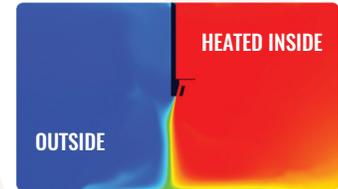
(2015 ASHRAE handbook - HVAC Applications, #12 Air Curtain Units)

Air Curtain Off



Due to density differences, hot air leaves the building through the top of the opening while cold air enters at the bottom.

Air Curtain On



The thermal barrier of air keeps the inside at a uniform, warmer temperature.

Smoke Test

Via smoke, these pictures simulate how outside air infiltrates into a conditioned environment.



With the air curtain off, ambient air is pulled into the colder environment.



With the air curtain on, the barrier of air helps block the ambient air from entering.

Air Curtain Benefits

- **Optimum comfort** - innovative plenum design evenly distributes air creating an inviting space for occupants
- **Environmental protection** - wall of air blocks insects and prevents infiltration of dirt, dust, and debris
- **Space aesthetics** - attractive, modern design and quiet operation
- **Climate control** - thermal barrier of air maintains interior temperature, especially near doors
- **Energy savings** - keeps conditioned air inside, complementing the building's primary HVAC system, helping reduce load on HVAC units
- **Increased building space** - American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE) Standard 90.1 approved the usage of air curtains as an exception to vestibules
- **Safety** - invisible barrier allows full visibility to prevent collisions
- **Versatility, durability** - features sturdy construction, corrosion-resistant painted steel, heavy-duty direct-drive motors, flexible mounting options, and galvanized fans
- **Secondary heat source** - unheated or electric heat options

Annual Cost Savings

Using a Roberts-Gordon air curtain on a retail customer entry door during heating season.

Doorway: 6'W by 7'H

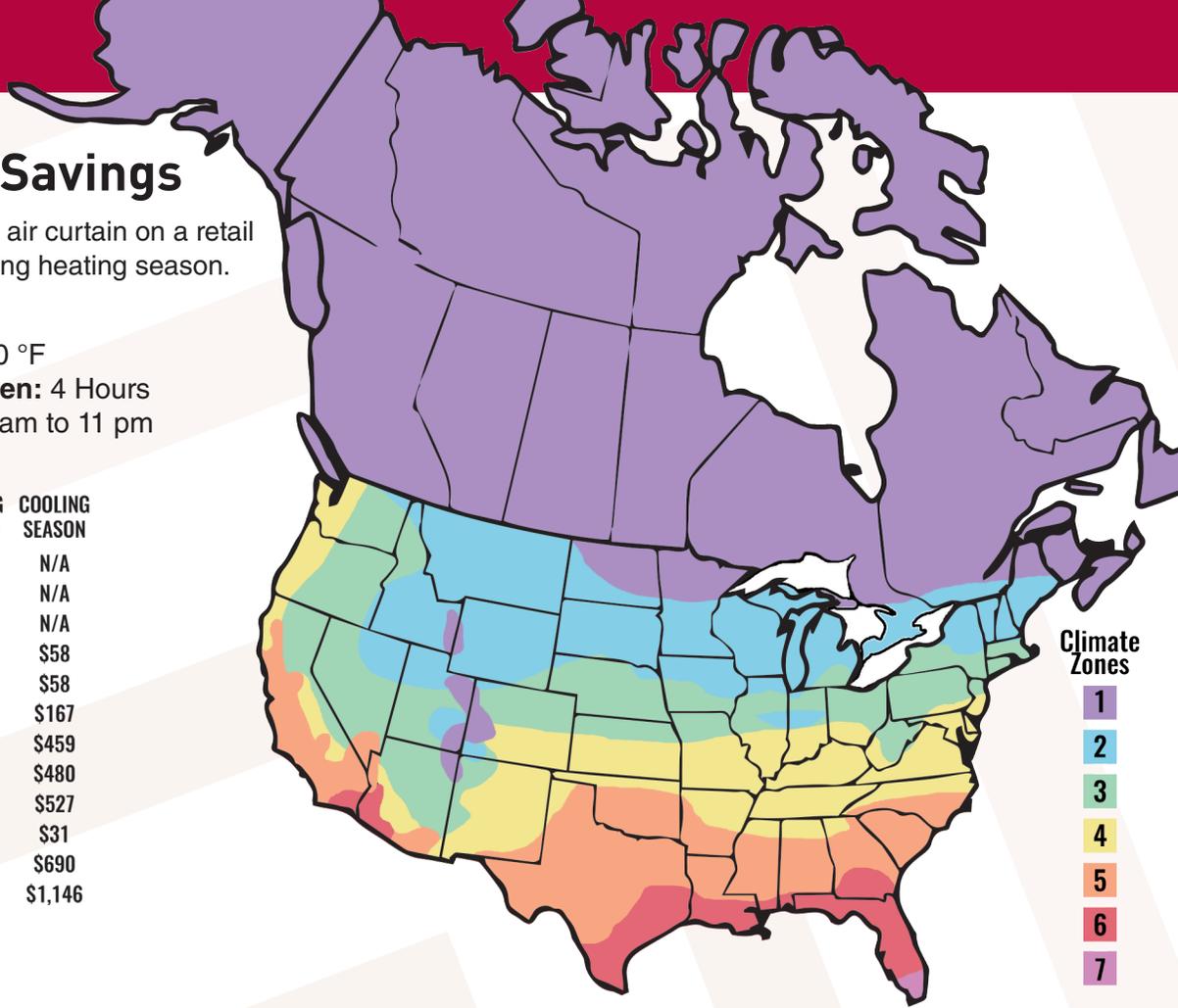
Inside Temperature: 70 °F

Hours/Day Door is Open: 4 Hours

Time Frame of Use: 7 am to 11 pm

Days Per Week Use: 7

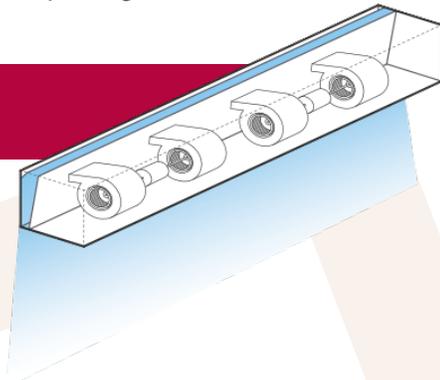
	HEATING SEASON	COOLING SEASON
ANCHORAGE.....	\$3,422	N/A
EDMONTON.....	\$4,218	N/A
TORONTO.....	\$4,465	N/A
DENVER.....	\$2,955	\$58
CHICAGO.....	\$4,547	\$58
NEW YORK.....	\$4,126	\$167
ST. LOUIS.....	\$3,330	\$459
ALBUQUERQUE.....	\$2,186	\$480
ATLANTA.....	\$1,948	\$527
LOS ANGELES.....	\$585	\$31
HOUSTON.....	\$796	\$690
PHOENIX.....	\$397	\$1,146



Industry-Leading Plenum Design

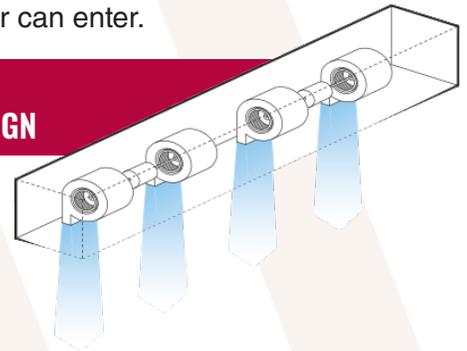
Our air curtain's unparalleled plenum design uniformly discharges air across the entire length of the nozzle. With backward-facing blowers, our air curtain discharges pressurized air uniformly across the entire opening.

OUR PLENUM DESIGN



Most competitors discharge air directly downward from the blowers without first pressurizing the plenum. The gaps between the blowers, resulting from the motors and the need for air to enter from the sides, create "dead spots" across the opening through which insects and unconditioned air can enter.

COMPETITOR'S NON-PLENUM DESIGN



SmartTouch Controller

The innovative SmartTouch Controller provides complete and customized control as well as service reminders.

These controllers can also be paired with BMS functionality for remote monitoring/management and complete air curtain control including fan speed, heat modes, on/off, and run cycles.



Applications



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.

Vestibule Exception Air Curtain

Installing a vestibule exception air curtain instead of building a vestibule saves money, time, valuable space, and other resources.

ASHRAE/IES 90.1-2019 approved the use of professionally installed and certified air curtains as an exception to the vestibule requirement. A similar exception was added to the IECC (International Energy Conservation Code).

These changes were made after independent studies proved that air curtains are equal to or better than vestibules at preventing infiltration in most climate zones.

Existing vestibules can also benefit from adding an air curtain to help remedy poorly designed applications where both sets of doors are open at the same time, letting in outside air, dust, and debris.



Cold Storage Air Curtains

Cold storage air curtains are an effective, affordable way to help reduce workplace hazards and work stoppages for coolers and freezers.

- Reduces ice or frost on walls and header of freezer doors
- Helps streamline workflow while maintaining a safer environment
- Reduces frozen or wet-ground hazards in door areas
- Prevents icing and condensation on high-speed cooler and freezer door panels
- Can replace strip doors and curtains to improve visibility, safety, and sanitation
- Separates conditioned coolers and freezers from unconditioned temperatures in warehouse



Contact your local rep.
Visit: www.robertsgordon.com/distributors

ROBERTS GORDON®
INFRARED HEATING

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