BLUE GIANT®
BLUE GIANT EQUIPMENT CORPORATION

Air Curtains

Air curtains, which are normally mounted above doorways, separate interior and exterior temperatures with an airstream that hits the floor with a particular position and velocity. They prevent outdoor air infiltration while also supporting an unobstructed entryway.

Installing air curtains at warehousing, manufacturing, food-processing, and cold-storage facilities represent a huge benefit in energy savings and improved indoor air quality. According to the ASHRAE (American Society of Heating, Refrigerating and Air Conditioning Engineers) handbook, an air curtain can be up to **80 percent effective** in preventing infiltration through an open door.

Energy Savings

An article in the November 2009 issue of *Professional Door Dealer* magazine indicated that one air curtain manufacturer did a case study on the effectiveness of air curtains during the cooler months. The indoor temperature was 67.6°F while the outside temperature was 36.5°F. When a 12’ W x 14’ H door was opened for two minutes without the air curtain operating, the inside temperature plummeted to 42.2°F. The chill could be felt as far back as 30’ from the door. When the overhead door was opened while the air curtain was running, the building temperature dropped less than one degree, preventing the heating system from working overtime to preserve a comfortable work environment.

Loading Docks

Loading dock doors result in considerable heat loss in the winter, create cooling problems in the summer, and are susceptible to insect-control problems at all times of the year. All of these problematic conditions can be improved by installing an air curtain.

Many dock doors have seals or shelters to reduce infiltration by outside elements during loading and unloading. These units work well, but they don’t eliminate the problem entirely. With pit-style dock levelers, doors are left open while the truck backs in. Some trucks are too small to be properly contained by a seal or shelter. There are also areas around the truck hinges, dock leveler lip, and bumpers that let air into the building while cross-docking is taking place.

Air curtains are an ideal solution to significantly limit energy loss and higher operating expenses in all of these situations.

Coolers and Freezers

Air curtains are a positive asset for coolers and freezers because of their effectiveness in dealing with temperature differentials in airflow. By reducing warm air infiltration into the building

and / or freezer, the refrigeration equipment doesn't have to work as hard to maintain the necessary temperature, saving energy costs and improving the working life of the equipment.

Crunching the Numbers

So, what kind of ROI can an air curtain customer expect?

Chicago's McCormick Place West convention center, which cost $850 million to build, has over 375 linear feet of doors for freight and pedestrian traffic. These doors are typically open 10-14 hours every day during the setup period for major winter conventions and trade shows. McCormick Place West's management ran some data calculations that considered a 26-week heating season with each door open 10 hours weekly for a total of 260 hours per year. When air curtains are in place, there was a calculated hourly savings of $269.79 when all the doors are open at the same time.

Energy prices aren't going to go down any time soon, so facility managers should be considering every possible energy advantage. The studies referenced in this paper indicate that air curtains offer operational savings in the battle against rising energy costs.