

ASHRAE Approves Air Curtains in Monumental Ruling

Air Curtains added to Vestibule Exception Standard!

The leading policy-maker for the heating, refrigeration and air-conditioning industry has formally approved the use of properly certified and installed air curtains as an exception to the vestibule requirement.

This new standard is effective with the 2019 edition of ASHRAE/IES Standard 90.1-2019, Energy Standard for Buildings Except Low-Rise Residential Buildings. It is similar to the guidelines first established by the International Code Council (ICC), effective with its 2015 International Energy Conservation Code (IECC). However many states continued to defer to ASHRAE 90.1.

The ASHRAE version mirrors but is not identical to the IECC. It spells out previously approved exceptions to the vestibule requirement, but adds two provisions regarding the use of air curtains.

These exceptions allow for:

- **Self closing doors in buildings in Climate Zones 0, 3, and 4 that have an air curtain complying with Section 10.4.5.**
- **Self closing doors in buildings 15 stories or less in Climate Zones 5 thru 8 that have an air curtain complying with Section 10.4.5.**

This approval by ASHRAE follows an intense examination of the effectiveness of air curtains commissioned by the Air Movement and Control Association (AMCA) International in coordination with Concordia University. Analysis included three comprehensive studies conducted Dr. Liangzhu (Leon) Wang, an expert in energy simulation and airflow modeling, and project review by Dr. Gren Yuill, an authority on air infiltration into vestibules and through automatic doors.

This is a much anticipated move for the robust air curtain industry, which touts energy savings, climate control, comfort and the capability to repel flying insects as its hallmark. As



per the forward of its Public Review Draft, the addendum to ASHRAE 90.1 Energy reports that:

“Air curtains have been installed in buildings for over 60 years. The energy savings that air curtains provide has been thoroughly documented in the extensive research conducted by Concordia University. For more than 6 years Concordia University researchers have been studying air curtain energy usage and savings. They have also compared it to the energy savings and losses of vestibules. The results show that air curtains, in fact save more energy than vestibules.”

Section 10.4.5 of the ASHRAE 90.1 vestibule exception standard sets the criteria for approved vestibule air curtains. It reads that:

“Air curtain units shall be tested in accordance with ANSI/AMCA 220 or ISO 27327-1 and installed and commissioned in accordance with the manufacturer’s instructions to ensure proper operation and shall have a jet velocity of not less than 6.6 feet per second (2.0 m/s) at 6.0 in (15 cm) above the floor and direction not less than 20 degrees toward the opening. Automatic controls shall be provided that will operate the air curtain with the opening and closing of the door.”

Powered Aire Inc. offers four AMCA-rated models that meet the criteria for replacing a vestibule. The **ETA** unheated and electrically heated models are constructed of stainless steel and are installed exposed over a doorway. The **CHA** unheated and electrically heated models are installed out of sight above the ceiling.