Technical Articles

Industrial Fan Selection
J.T. Greenzweig, FlaktWoods Americas

This article reviews major concepts related to fan performance definitions and selection criteria that are that help ensure an appropriate fan is chosen for a given application. It is the first in a series of articles by AMCA’s Industrial Process/Power Generation Group on various aspects of fan performance and design that are significant to fan applications in Industrial Process and Power Generation markets. Because the primary purpose of purchasing a fan for such large-scale applications is to obtain a machine to provide the motive force for moving air or gas within the system, and the cost of the fan is often relatively small compared to the cost of the entire plant or the value of the end-product or service provided by the facility, making sure that the fan is properly selected is of utmost importance.

Note: First Draft completed

Weather-Resistant Dampers and AMCA Standard 550
Dan Rau, Ruskin

To provide building protection during a hurricane event, louvers must be capable of removing enormous amounts of water from the system air stream. If a louver with high water performance is not used, a damper must be located behind the louver and it must be closed during the event. If a damper is not provided, large amounts of water will penetrate the building resulting in water damage to the interior contents. To provide specifiers with information regarding the performance of
louvers and louver/damper combinations during hurricane events, AMCA has introduced AMCA Standard 550 Test Method for High Velocity Wind Driven Rain Resistant Louvers, which serves as the basis for rating louvers for this specific application, and for certifying them under AMCA's Certified Ratings Program. This article describes AMCA 550 and how to apply it in designs for commercial buildings.

Note: First Draft completed.

High Performance Air Systems for New and Existing Buildings
By Tom Edwards, Ruskin; Wade Smith, Executive Director, AMCA International; and Dustin Meredith, Ingersoll Rand / Trane.

High-performance air systems (HPAS) apply current design approaches with current available products and technology to achieve optimal energy efficiency, comfort, and indoor air quality. High-performance air systems use high-efficiency fans, low-leakage dampers, low pressure-loss ducts and louvers, and the means to monitor and control and diagnose system performance. HPAS designs and products can be applied to new construction during the design phase, and as retrofits and refinements to existing buildings. They apply to constant volume and variable air volume applications, and to all types of buildings where air distribution systems can be used. This article describes the HPAS concept and compares performance to system alternatives, including Variable Refrigerant Flow, and Chilled Beam systems.

Note: Article not finished.

Air Curtains and Energy Savings: Research Results and Codes/Standards Update

A research project on the energy impacts of air curtains was conducted in 2012/2013 by Liangzhu (Leon) Wang, Ph.D. from the Department of Building, Civil and Environmental Engineering of Concordia University, Canada. The research concluded that air curtains provide energy benefits by reducing infiltration losses and wasted heating energy. Savings were most pronounced in cold climates. Air curtain performance was compared against single-door entries with and without vestibules using computational fluid dynamics software and energy models. This article discusses the research that was conducted, and the results, and describes how codes and standards for energy efficiency and construction can be updated to provide greater opportunities to realize the savings of air curtains.

Note: Research completed; Article not finished
Departments

Codewatch: U.S. Energy Codes, Standards, and Regulations Involving Air Systems
By Michael Ivanovich, Director of Strategic Energy Initiatives, AMCA International

This article describes published and proposed changes to U.S. energy and construction codes and standards, including, for energy, ASHRAE 90.1-2013 and 2015 International Energy Conservation Code; and, for high-performance construction, ASHRAE 189.1-2014 and the 2016 International Green Construction Code. Also covered is a progress report on the U.S. Dept. of Energy’s initiative to develop a federal energy efficiency regulation for commercial and industrial fans.

Asian Market Update, by Goh Swee Lee - Executive Director, Asia AMCA International
Debuting in this issue of AMCA inmotion is a profile of AMCA’s activity in the Asia region and regulatory developments that are recently completed or in progress.

European Market Update, by Neil Jones, Neil Jones, as Director of European Regulatory Affairs, European AMCA
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