ANSI/AMCA Standard 500-L-12

Laboratory Methods of Testing Louvers for Rating

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AIR MOVEMENT AND CONTROL ASSOCIATION INTERNATIONAL, INC.

The International Authority on Air System Components

ANSI/AMCA Standard 500-L-12

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AMCA Publications

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Related AMCA Documents

Related Publications	AMCA Publication 501	*Application Manual for Louvers*
	AMCA Publication 504	*Application Manual for Sun Control Devices*
	AMCA Publication 511	*Certified Ratings Program - Product Rating Manual for Air Control Devices*
	AMCA Publication 512	*AMCA Listing Label Program*
Related Standards	ANSI/AMCA Standard 540	*Test Method for Louvers Impacted by Wind Borne Debris*
	ANSI/AMCA Standard 550	*Test Method for High Velocity Wind Driven Rain Resistant Louvers*

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Laboratory Methods of Testing Louvers for Rating

1. Purpose

The purpose of this standard is to establish uniform laboratory test methods for louvers. Characteristics to be determined include air leakage, pressure drop, water penetration, wind driven rain, and operational torque.

It is not the purpose of this standard to establish minimum or maximum performance ratings.

2. Scope

This standard may be used as a basis for testing louvers with air used as the test gas.

Tests conducted in accordance with the requirements of this standard are intended to demonstrate the performance of a louver and are not intended to determine acceptability level of performance. It is not the scope of this standard to indicate actual sequences of testing, nor is it in its scope to specify minimum or maximum criteria for testing.

The parties to a test for guarantee purposes may agree to exceptions to this standard in writing, prior to the test. However, only a test which does not violate any mandatory requirement of this standard shall be designated as a test conducted in accordance with this standard.

3. Definitions / Units of Measurement / Symbols

3.1 Definitions

3.1.1 Louver
A louver is a device comprised of multiple blades which, when mounted in an opening, permits the flow of air but inhibits the entrance of other elements.

3.1.1.1 Fixed blade louver
A louver in which the blades do not move.

3.1.1.2 Adjustable blade louver
A louver in which the blades may be operated either manually or by mechanical means.

3.1.1.3 Combination louver
A louver having both fixed and adjustable blades.

3.1.3 Free area
The minimum area through which air can pass.

For horizontal blade louvers, free area is determined by multiplying the sum of the minimum distances between intermediate blades, top blade and head and bottom blade and sill, by the minimum distance between jambs.

For vertical blade louvers, it is determined by multiplying the sum of the minimum distances between intermediate blades, left blade and left jamb and right blade and right jamb, by the minimum distance between head and sill.

The percent of free area is the free area thus calculated, divided by the gross area of the air control louver × 100. See louver cross-sections (Figure 1).

3.1.3.1 Free area velocity
Airflow through a louver divided by its free area.

3.1.4 Face area and core area

3.1.4.1 Face area
The total cross sectional area of a louver, duct or wall opening.

3.1.4.1.1 Face area velocity
Airflow through a louver divided by its face area.

3.1.4.2 Core area
The product of the minimum height, H, and minimum width, W, of the front opening in the louver assembly with the louver blades removed (see Annex G).

3.1.4.2.1 Louver calibration plate
The louver calibration plate is a plate having an opening of the same geometric shape and dimensions as the core area of the test specimen.

3.1.4.2.2 Core area velocity
The airflow rate through the louver divided by the core area.

3.1.4.2.3 Core ventilation rate
The airflow rate through the core area of the louver.

3.1.5 Psychrometrics

3.1.5.1 Dry-bulb temperature (t_d)
The air temperature measured by a dry temperature sensor.

3.1.5.2 Wet-bulb temperature (t_w)
The temperature measured by a temperature sensor covered by a water-moistened wick and exposed to air in motion. When properly measured, it is a close approximation of the temperature of adiabatic saturation.