

## Application

The ECV-645-MD is engineered and tested to withstand extreme loads, debris impact, and cyclic fatigue associated with the severe weather effects of hurricanes (Miami-Dade County approval #19-0711.05). For installation, the ECV-645-MD is available either with standard continuous angles or with an optional factory installed sleeve which eliminates the need for direct anchorage to the substrate. The ECV-645-MD is AMCA 540 and 550 listed, making it ideally suited for use in hurricane-prone and wind-borne debris regions as per the International Building Code.

## Standard Construction

**Material:** Mill finish 6063 extruded aluminum.

**Frame:** 6" deep x 0.125" thick (152 x 3) channel.

**Blades:** 45° x 0.081" (2) thick vertical chevron style.

**Screen:** 1/2" x 0.063" (12.7 x 1.6) expanded and flattened aluminum.

**Mullion:** Visible.

**Minimum Size:** 12" x 12" (305 x 305)

**Maximum Size:** Single section: 60" x 120" (1524 x 3048)  
 Multiple section: Unlimited width x 120" (3048)

**Shipping Weight (Approximate):** 10 lbs/ft<sup>2</sup> (48 kg/m<sup>2</sup>)

**Installation Hardware:** Standard continuous angles & associated fasteners (anchors to substrate by others - refer to installation instructions)

## Options

- ☐ Factory finish:
  - ☐ High Performance Fluoropolymer - 100% resin Newlar®/ 70% resin Kynar®
  - ☐ Baked Enamel
  - ☐ Clear or Color Anodized, Class 1
  - ☐ Prime Coat
- ☐ 1 1/2" (38) flange frame.
- ☐ Alternate bird or insect screens.
- ☐ Insulated or non-insulated blank-off panels.
- ☐ Head and/or sill flashing
- ☐ Filter racks.
- ☐ Full sleeve and retaining angles (eliminates need for anchors to substrate; 1 1/2" (38) flange frame required).

## Ratings

**Free Area:** [48" x 48" (1219 x 1219) unit]: 7.4 ft<sup>2</sup> (0.68 m<sup>2</sup>)  
 46.0%

### Performance @ Beginning Point of Water Penetration

**Free Area Velocity:** 1,250 fpm (6.35 m/s)  
**Air Volume Delivered:** 9,250 cfm (4.4 m<sup>3</sup>/s)  
**Pressure Loss:** 0.15 in.wg. (37 Pa)

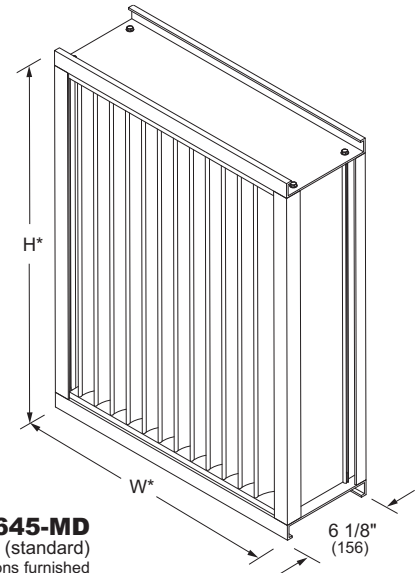
**Velocity @ 0.15 in.wg. Pressure Loss:** 1270 fpm (6.4 m/s)

**AMCA 540 (impact resistance, Enhanced protection) listed.**  
**AMCA 550 (high velocity rain resistance) listed.**

**Miami Dade County:** NOA No. 19-0711.05 (Expires 1/22/2024)  
 Approved to FBC TAS201-94, TAS202-94  
 and TAS203-94.

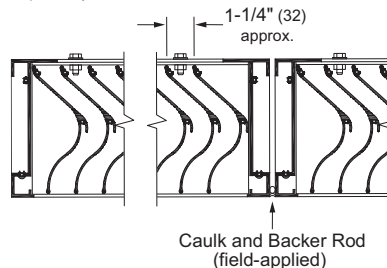
**Florida Building Code Approval (2017-FBC):** No. FL19134.1

**Std. Design Load:** 150 psf

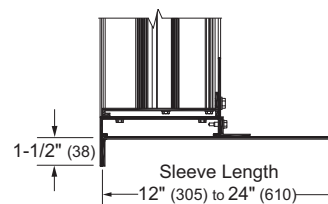


**Model ECV-645-MD**  
 (standard)  
 \*Louver dimensions furnished  
 approximately 1/2" (13) undersize.

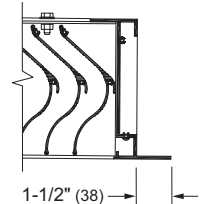
Screen adds approximately  
 3/16" (5) to louver depth.



**Vertical Mullion**  
 (standard)



**Sleeve**  
 (optional)



**Flange Frame**  
 (optional)



### Certified Ratings:

All-Lite certifies that the model ECV-645-MD shown herein is licensed to bear the AMCA seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 511 and comply with the requirements of the AMCA Certified Ratings Program. The AMCA Certified Ratings seal applies to air performance, water penetration and wind-driven rain ratings.



**HIGH VELOCITY  
 RAIN RESISTANT  
 AND IMPACT RESISTANT  
 LOUVER**  
**Enhanced Protection**

See [www.AMCA.org](http://www.AMCA.org) for all certified or listed products

This label does not signify AMCA airflow performance certification.

### Listing:

All-Lite certifies that the model ECV-645-MD shown herein is approved to bear the AMCA Listing Label. The ratings shown are based on tests and procedures performed in accordance with AMCA publications and comply with the requirements of the AMCA Listing Label Program. The AMCA Listing Label applies to High Velocity Driven Rain and Wind Borne Debris Impact Resistant Louvers.

Information is subject to change without notice or obligation.

**NOTE:** Dimensions in parentheses ( ) are millimeters.

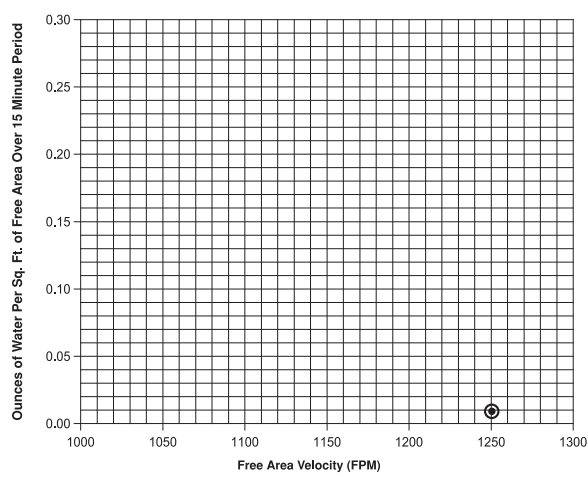
Performance Data

Free Area (ft²)

		Width (Inches)								
Height (Inches)		12	18	24	30	36	42	48	54	60
		0.2	0.4	0.5	0.7	0.9	1.1	1.3	1.5	1.6
12		0.3	0.7	1.0	1.3	1.7	2.0	2.3	2.7	3.0
24		0.5	0.9	1.4	1.9	2.4	2.9	3.4	3.9	4.3
30		0.6	1.2	1.9	2.5	3.2	3.8	4.4	5.1	5.7
36		0.8	1.5	2.3	3.1	3.9	4.7	5.5	6.3	7.0
42		0.9	1.8	2.8	3.7	4.6	5.6	6.5	7.5	8.4
48		1.0	2.1	3.1	4.2	5.2	6.3	7.4	8.4	9.5
54		1.2	2.4	3.7	4.9	6.1	7.4	8.6	9.9	11.1
60		1.3	2.7	4.0	5.4	6.7	8.1	9.5	10.8	12.2
66		1.4	3.0	4.5	6.0	7.5	9.0	10.5	12.0	13.5
72		1.6	3.3	4.9	6.6	8.2	9.9	11.6	13.2	14.9
78		1.7	3.5	5.4	7.2	9.0	10.8	12.6	14.4	16.2
84		1.9	3.8	5.7	7.6	9.6	11.5	13.4	15.4	17.3
90		2.0	4.1	6.2	8.2	10.3	12.4	14.5	16.6	18.7
96		2.1	4.4	6.6	8.8	11.1	13.3	15.5	17.8	20.0
102		2.3	4.6	7.0	9.3	11.7	14.0	16.4	18.7	21.1
108		2.4	4.9	7.4	9.9	12.4	14.9	17.4	19.9	22.4
114		2.5	5.2	7.9	10.5	13.2	15.8	18.5	21.1	23.8
120		2.7	5.5	8.3	11.1	13.9	16.7	19.5	22.3	25.2

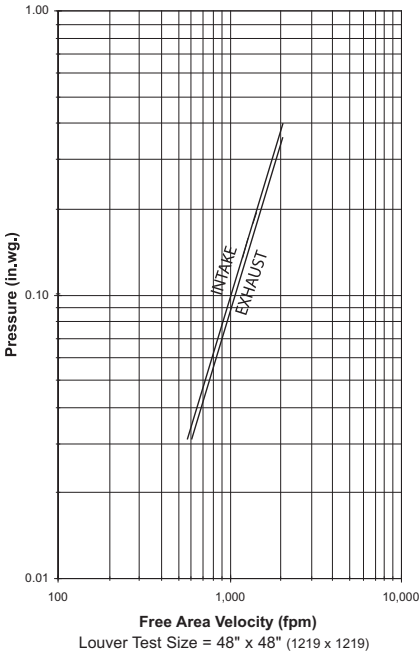
Water Penetration

Beginning Point of Water Penetration = Above 1250 fpm



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Pressure Loss (Data corrected to standard air density)



Pressure loss tested in accordance with Figure 5.5 of AMCA Standard 500-L.

Water Penetration

AMCA defines the beginning point of water penetration as the free area velocity at the intersection of a simple linear regression of test data and the line of 0.01 ounces of water per square foot of free area measured through a 48" x 48" louver during a 15 minute period. The AMCA water penetration test provides a method for comparing louver models and designs as to their efficiency in resisting the penetration of rainfall under specific lab conditions. All-Lite recommends that intake louvers are selected with a reasonable margin of safety below the beginning point of water penetration in order to avoid unwanted penetration during severe storm conditions.

Selection Criteria

Follow the steps listed below to calculate the louver size needed to satisfy the required air volume while minimizing the adverse effects of water penetration and pressure loss.

- Determine the Free Area Velocity (FAV) at the maximum allowable pressure loss using the *Pressure Loss* chart to the left. While job conditions vary, typically, the maximum allowable pressure loss should not exceed 0.15 in.wg., and the FAV for 0.15 in.wg. pressure loss is listed on the front page of this sheet.
- Intake Applications** If the FAV at the Beginning Point of Water Penetration (shown below) is less than the FAV from step 1, then use the FAV at the Beginning Point of Water Penetration in step 3, otherwise use the FAV from step 1.
- Exhaust Applications** Use the FAV from step 1 in step 3.
- Calculate the total louver square footage required using the following equation.

Required Air Volume cfm ÷ FAV fpm = Required Louver (Free-Area) Size in ft²

- Using the *Free Area* chart above, select a louver width and height that yields a free area ft² greater than or equal to the required louver size in step 3.

Wind Driven Rain Performance - AMCA 500-L Wind Driven Rain Test

8 in/hr Rainfall & 50 mph Wind Speed			
Airflow	Core Velocity <sup>1</sup>	Effectiveness	Class <sup>2</sup>
10,390 cfm	965 fpm	100%	A
Discharge Loss Coefficient Class <sup>3</sup> (Intake) = 1			

**NOTES:**  
1. Core Area is the open area of the louver face (face area less louver frame). Test louver core area is 39-3/8" x 39-3/8" (1m x 1m).

2. Wind Driven Rain Penetration Classes:

Class	Effectiveness
A	99% and above
B	95% to 98.9%
C	80% to 94.9%
D	below 80%

3. Discharge Loss Coefficient Classes:

Class	Coefficient
1	0.4 and above
2	0.3 to 0.399
3	0.2 to 0.299
4	below 0.2

Discharge Loss Coefficient is calculated by dividing the louver's actual airflow rate by the theoretical airflow rate for an unobstructed opening.