

## 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. Constructed from 6063-T6 extruded aluminum, the ECV-645-MD accommodates single sections up to 60" x 120" (1524 x 3048) and multiple-section assemblies of unlimited width. The ECV-645-MD offers an optional anchorless installation utilizing specially-designed flanged clips and retaining angles. This unique configuration allows quick and easy attachment to any substrate without the use of expensive and time-consuming mechanical anchors. If desired, a full sleeve is also available for ducted applications. The ECV-645-MD incorporates vertical blades and is offered in a wide array of anodized and painted finishes, including custom color matching.

## Standard Construction

- Material:** Mill finish 6063-T6 extruded aluminum.
- Frame:** 6" deep x 0.081" thick (152 x 2) 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:** 13 1/2" x 7" (343 x 178)
- Maximum Size:** Single section: 60" x 120" (1524 x 3048)  
Multiple section: Unlimited width x 120" (3048)
- Installation Hardware:** Standard installation clips & associated fasteners (anchors to substrate by others - refer to installation drawing)

## 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.
- Filter racks.
- Head and/or sill flashing.
- Anchorless installation clips (1 1/2" flange frame required)
- Full sleeve (aluminum or galvanized steel)
  - 20-GA  16-GA
- Burglar bars:
  - Shipped loose  Shipped mounted
- Frame closure.
- Florida Building Code Construction.  
(Refer to FBC Installation Instructions for additional requirements)

## 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)

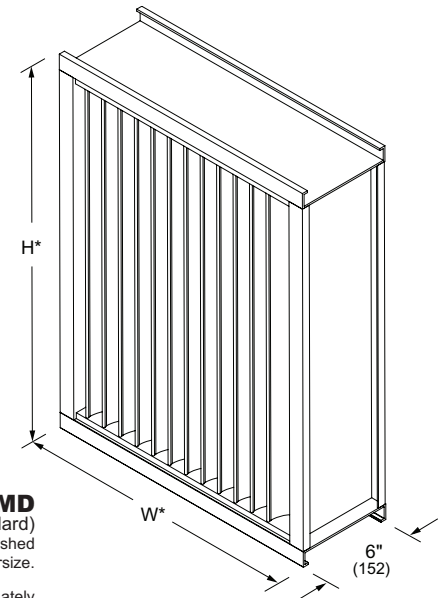
**Velocity @ 0.15 in.wg. Pressure Loss:** 1270 fpm (6.4 m/s)

**Tested in accordance with AMCA 540 (impact resistance) and AMCA 550 (high velocity wind-driven rain).**

**Miami Dade County:** NOA No. 14.0605.12 (Expires 1/22/2020)  
Approved to FBC TAS201-94, TAS202-94 and TAS203-94.

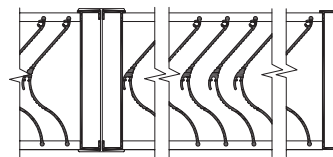
\* **Florida Building Code Approval (2014-FBC):** No. FL19134.1

**Std. Design Load:** 150 psf

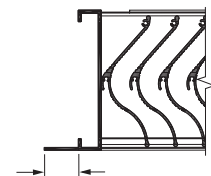


Model **ECV-645-MD**  
(standard)  
\*Louvers dimensions furnished approximately 1/2" (13) undersize.

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



**Vertical Mullion**  
(standard)



1-1/2" (38)  
**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 test 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**  
*Basic Protection*

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

This label does not signify AMCA airflow performance certification.

### Certified Ratings:

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 Rain and Impact resistance.

\*Optional - Requires Florida Building Code Construction

Information is subject to change without notice or obligation.

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

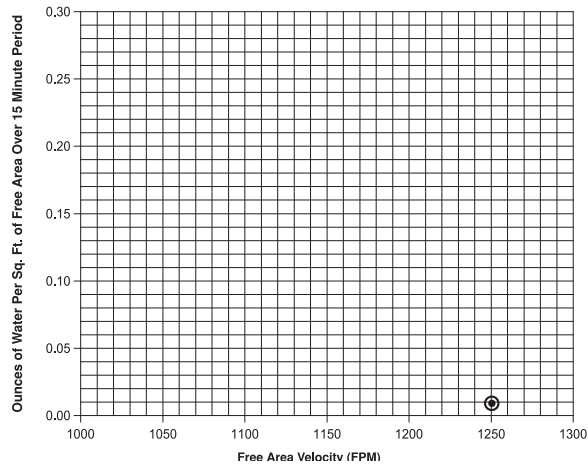
# Performance Data

## Free Area (ft<sup>2</sup>)

Height (Inches)	Width (Inches)									
	12	18	24	30	36	42	48	54	60	
12	0.2	0.4	0.5	0.7	0.9	1.1	1.3	1.5	1.6	
18	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	

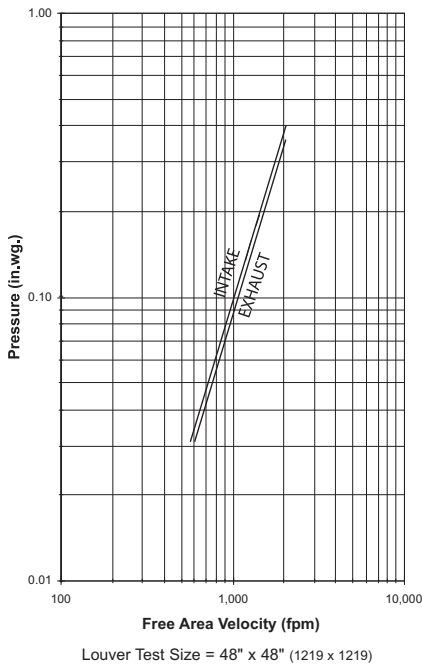
## Water Penetration

Beginning Point of Water Penetration = Above 1250 fpm



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## Pressure Loss (Standard Air Density @ 0.075 lbs./ft.)



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 and is 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.

1. 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.
2. **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.
3. Calculate the total louver square footage required using the following equation.

$$\frac{\text{Required Air Volume}}{\text{FAV}} = \frac{\text{Required Louver (Free-Area) Size in ft}^2}{\text{ft}^2}$$

4. Using the *Free Area* chart above, select a louver width and height that yields a free area ft<sup>2</sup> greater than or equal to the required louver size in step 3.

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

Test Louver Core Area, is 39 3/8" x 39 3/8".

Model	Wind Velocity	Rainfall	Airflow	Core Velocity	Effectiveness Ratio	Wind Class <sub>2</sub>	Discharge Class <sub>3</sub>
ECV-645-MD	50 mph	8 in/hr	10,390 cfm	965 fpm	100%	A	1

**NOTES 1.** Core area is the open area of the louver face (face area less louver frames). **2.** Wind Driven Rain Penetration Classes. **3.** Discharge Loss Coefficient is calculated by dividing the louvers' actual airflow rate by the theoretical airflow rate for an unobstructed opening. The higher the coefficient, the lower the resistance to air flow.

Wind Driven Rain <sub>2</sub>		Discharge Loss <sub>3</sub>	
Class	Effectiveness	Class	Coefficient
A	1.000 to 0.99	1	0.4 to 1.000
B	0.989 to 0.95	2	0.3 to 0.399
C	0.949 to 0.80	3	0.2 to 0.299
D	0.799 to 0.00	4	0.0 to 0.199

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