

## Application

The ECV-645 offers exceptional protection against wind-driven rain under the most severe conditions and is ideally suited for high wind areas or applications that are sensitive to wind-driven rain penetration. The ECV-645 incorporates vertical blades and is available in a wide array of anodized and painted finishes including custom color matching.

## Standard Construction

**Material:** Mill finish 6063-T5 extruded aluminum.

**Frame:** 6" deep x 0.081" thick (152 x 2) channel.

**Blades:** 45° x 0.081" (2) thick vertical 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)  
120" x 60" (3048 x 1524)  
Multiple section: Unlimited

## 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.
- Welded construction.
- Alternate bird or insect screens.
- Insulated or non-insulated blank-off panels.
- Filter racks.
- Hinged frame.
- Head and/or sill flashing.

## Ratings

**Free Area:** [48" x 48" (1222 x 1222) unit]: 7.4ft<sup>2</sup> (0.68 m<sup>2</sup>)  
46.0%

### Performance @ Beginning Point of Water Penetration

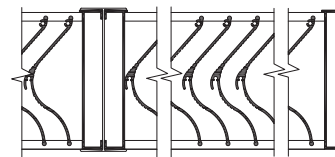
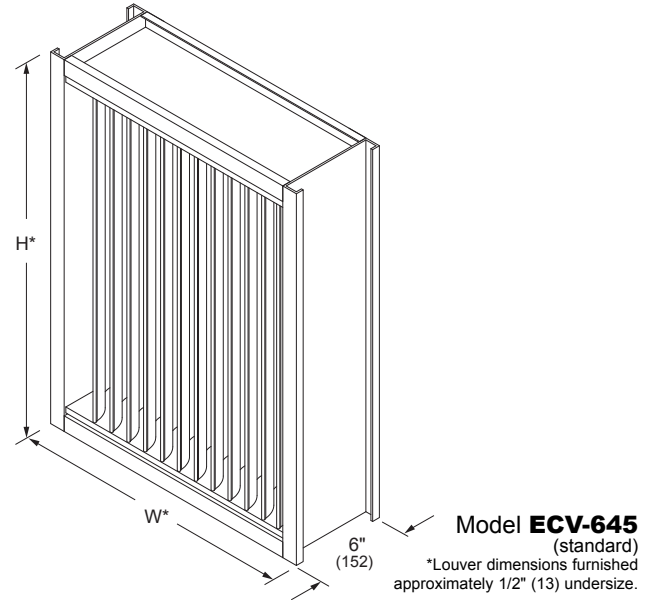
**Free Area Velocity:** 1,250 fpm (6.35 m/s)

**Air Volume Delivered:** 9,250 cfm (4.4 m<sup>3</sup>/s)

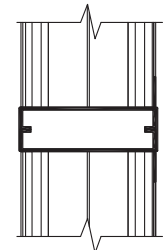
**Pressure Loss:** 0.15 in.wg. (37 Pa)

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

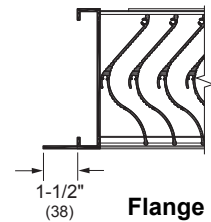
**Design Load:** 30 psf



**Vertical Mullion**  
(standard)



**Horizontal Mullion**  
(standard)



**Flange Frame**  
(optional)



### Certified Ratings:

All-Lite certifies that the model ECV-645 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 wind driven rain ratings.

# Performance Data

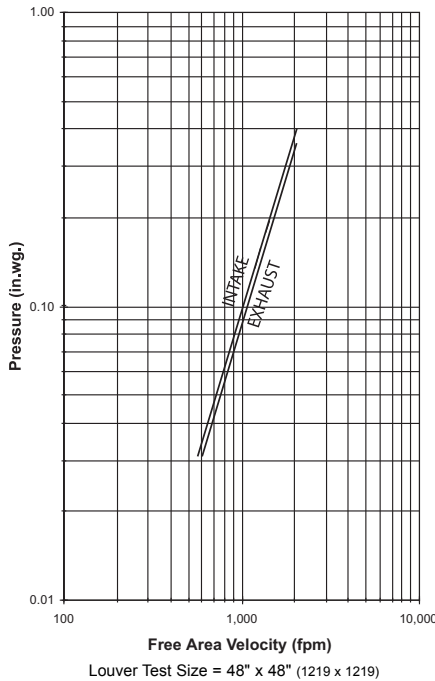
## Free Area (ft<sup>2</sup>)

Height (Inches)	Width (Inches)																		
	12	18	24	30	36	42	48	54	60	66	72	78	84	90	96	102	108	114	120
12	0.2	0.4	0.5	0.7	0.9	1.1	1.3	1.5	1.6	1.8	2.0	2.2	2.4	2.6	2.7	2.9	3.1	3.3	3.5
18	0.3	0.7	1.0	1.3	1.7	2.0	2.3	2.7	3.0	3.3	3.7	4.0	4.3	4.7	5.0	5.3	5.7	6.0	6.3
24	0.5	0.9	1.4	1.9	2.4	2.9	3.4	3.9	4.3	4.8	5.3	5.8	6.3	6.8	7.2	7.7	8.2	8.7	9.2
30	0.6	1.2	1.9	2.5	3.2	3.8	4.4	5.1	5.7	6.3	7.0	7.6	8.2	8.9	9.5	10.1	10.8	11.4	12.0
36	0.8	1.5	2.3	3.1	3.9	4.7	5.5	6.3	7.0	7.8	8.6	9.4	10.2	11.0	11.8	12.5	13.3	14.1	14.9
42	0.9	1.8	2.8	3.7	4.6	5.6	6.5	7.5	8.4	9.3	10.3	11.2	12.1	13.1	14.0	15.0	15.9	16.8	17.8
48	1.0	2.1	3.1	4.2	5.2	6.3	7.4	8.4	9.5	10.5	11.6	12.6	13.7	14.8	15.8	16.9	17.9	19.0	20.1
54	1.2	2.4	3.7	4.9	6.1	7.4	8.6	9.9	11.1	12.3	13.6	14.8	16.1	17.3	18.5	19.8	21.0	22.2	23.5
60	1.3	2.7	4.0	5.4	6.7	8.1	9.5	10.8	12.2	13.5	14.9	16.3	17.6	19.0	20.3	21.7	23.1	24.4	25.8
66	1.4	3.0	4.5	6.0	7.5	9.0	10.5	12.0	13.5	15.0	16.6	18.1	19.6	21.1	22.6	24.1	25.6	27.1	28.6
72	1.6	3.3	4.9	6.6	8.2	9.9	11.6	13.2	14.9	16.5	18.2	19.9	21.5	23.2	24.8	26.5	28.2	29.8	31.5
78	1.7	3.5	5.4	7.2	9.0	10.8	12.6	14.4	16.2	18.0	19.9	21.7	23.5	25.3	27.1	28.9	30.7	32.5	34.4
84	1.9	3.8	5.7	7.6	9.6	11.5	13.4	15.4	17.3	19.2	21.2	23.1	25.0	27.0	28.9	30.8	32.8	34.7	36.6
90	2.0	4.1	6.2	8.2	10.3	12.4	14.5	16.6	18.7	20.7	22.8	24.9	27.0	29.1	31.2	33.2	35.3	37.4	39.5
96	2.1	4.4	6.6	8.8	11.1	13.3	15.5	17.8	20.0	22.2	24.5	26.7	29.0	31.2	33.4	35.7	37.9	40.1	42.4
102	2.3	4.6	7.0	9.3	11.7	14.0	16.4	18.7	21.1	23.5	25.8	28.2	30.5	32.9	35.2	37.6	39.9	42.3	44.6
108	2.4	4.9	7.4	9.9	12.4	14.9	17.4	19.9	22.4	25.0	27.5	30.0	32.5	35.0	37.5	40.0	42.5	45.0	47.5
114	2.5	5.2	7.9	10.5	13.2	15.8	18.5	21.1	23.8	26.5	29.1	31.8	34.4	37.1	39.7	42.4	45.1	47.7	50.4
120	2.7	5.5	8.3	11.1	13.9	16.7	19.5	22.3	25.2	28.0	30.8	33.6	36.4	39.2	42.0	44.8	47.6	50.4	53.2



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## Pressure Loss



## 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.

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

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 calculated in step 3.

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

Test Louver Core Area<sub>1</sub> is 39<sup>3</sup>/<sub>8</sub>" × 39<sup>3</sup>/<sub>8</sub>".

Model	Wind Velocity	Rainfall	Airflow	Core Velocity	Effectiveness Ratio	Wind Class <sub>2</sub>	Discharge Class <sub>3</sub>
ECV-645	50 mph	8 in/hr	14214 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, Class		Discharge Loss, 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