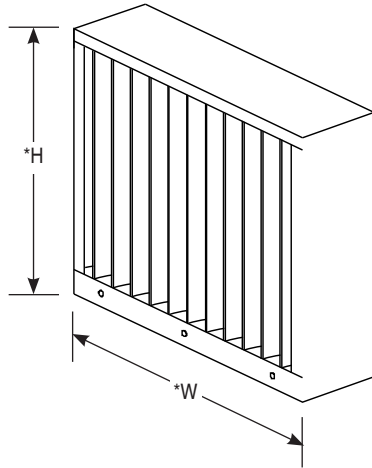


Specification Sheet

Model FRVB Channel Frame, FSVB Flanged Frame Extruded Aluminum Wind Driven Rain/Hurricane Louver

CARNES COMPANY 448 S. Main St., P. O. Box 930040, Verona, WI 53593-0040 Phone: (608)845-6411 Fax: (608)845-6504 www.carnes.com



Vertical Hurricane Louver

Miami-Dade Approved

Miami-Dade County, Florida Notice of Acceptance #: 15-0720.07

(Expires 08-18-20)

Florida Building Code Product Approval #: FL5778

Model FRVB

Standard Specifications

Frame: .125 extruded aluminum 6" deep

Blades: .081 extruded aluminum

Screen: 3/4" x .051 flattened aluminum in removable frame.

Screen is mounted as standard on inside (rear) as looking from exterior of building.

Finish: mill aluminum (standard)

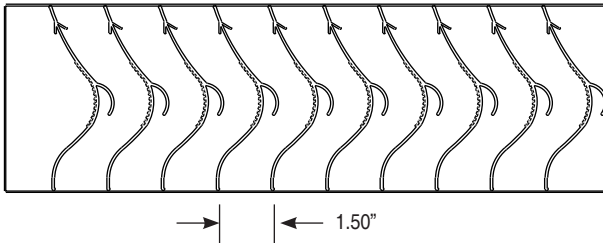
Maximum Panel Size: 48"w x 96"h

Minimum Panel Size: 12" x 12"

Options (at additional cost)

- Filter Racks
 - Security Bars
 - Variety of Screens
 - Sub-Frames
 - Selection of finishes; prime coat, kynar, baked enamel, clear and color anodize, epoxy and heresite.
- Consult Carnes for other special requirements.

Top View



*Width and height dimensions are approximately 1/4" under listed size.

Tag	Qty.	Size		Frame	Variations
		Width	Height		

**Project
Arch./Engr.
Representative**

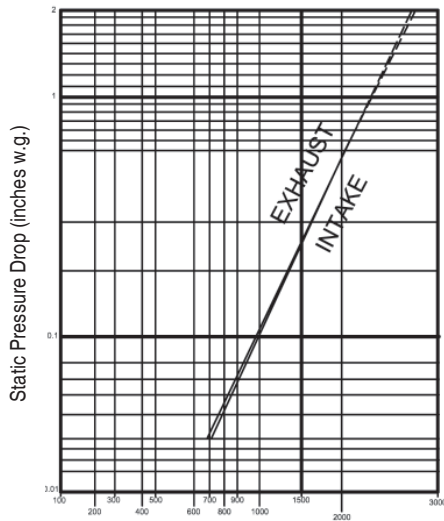
**Location
Contractor
Date**

Specification

Furnish and install louver as hereinafter specified where shown on plans or as described in schedules. Louver shall possess stationary vertical blades designed to prevent the penetration of wind driven rain. Louver blades shall be placed on 1.5" centers within a 6" deep frame. Louver components (heads, jambs, and blades) shall be factory assembled by Carnes. Louver sizes too large for shipping shall be built up by the contractor from factory assembled louver sections to provide overall sizes required. Louver design shall limit span between visible mullions to 5 ft. and shall withstand a wind load of 25 lbs. per sq. ft. (.86kpa)(equivalent of a 100 mph wind [145 kph] - specifier may substitute any loading required). Louver shall meet the performance requirements

established by the AMCA 500L test procedure and shall be licensed to bear the AMCA certified rating seal for air performance and wind driven rain at 29 mph and 50 mph. Louver shall have a minimum free area of 6.82 sq. ft. based on the standard 48" x 48" test specimen. Louver shall have a maximum static pressure drop of .102" (intake and exhaust) water gage based on 1000 FPM free area intake velocity. Louver shall carry a class A water penetration classification based on a ventilation core of 689 FPM at a rainfall rate of 3" per hour and a 29 mph simulated wind velocity. Louver shall carry a class A water penetration classification based on a ventilation core velocity of 689 FPM at a rainfall rate of 8" per hour and a 50 mph simulated wind velocity.

Pressure Drop



FREE AREA VELOCITY (FT/MIN)

Standard air - .075 lbs per cu ft

Ratings do not include the effects of a wire birdscreen

Test based on a 48" x 48" test size



The Carnes Company certifies that the model FRVB/FSVB louver 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 ratings and wind driven rain ratings.

75 mm/h (3 in/h) Rainfall & 13 m/s (29 mph) Wind Velocity		
Ventilation Air Core Velocity m/s (fpm)	Water Penetration Effectiveness %	*Water Penetration Classification
0.0 (0)	100.0	A
0.5 (98)	100.0	A
1.0 (197)	100.0	A
1.5 (295)	100.0	A
2.0 (394)	100.0	A
2.5 (492)	100.0	A
3.0 (591)	100.0	A
3.5 (689)	100.0	A

* AMCA Classes for maximum allowable water penetrations

200 mm/h (8 in/h) Rainfall & 32 m/s (50 mph) Wind Velocity		
Ventilation Air Core Velocity m/s (fpm)	Water Penetration Effectiveness %	*Water Penetration Classification
0.0 (0)	100.0	A
0.5 (98)	100.0	A
1.0 (197)	100.0	A
1.5 (295)	100.0	A
2.0 (394)	100.0	A
2.5 (492)	100.0	A
3.0 (591)	100.0	A
3.5 (689)	100.0	A

* AMCA Classes for maximum allowable water penetrations

Wind Driven Rain Penetration Classes	
Class	Effectiveness
A	1 to 0.99
B	0.989 to 0.95
C	0.949 to 0.80
D	Below 0.8

Wind Driven Rain Performance AMCA 500-L

Test Size 1m x 1m (39" x 39") core

* Discharge Loss Intake	
Wind Velocity (mph)	Class
29	2
50	2

* Discharge loss coefficient is the theoretical air flow of an opening divided by the actual flow rate of a louver the same size.

Class	Discharge Loss Coefficient
1	0.4 and above
2	0.3 to 0.399
3	0.2 to 0.299
4	.0199 and below

(the higher the coefficient, the less resistance to airflow)

Miami-Dade County Test Performance

TAS 100(A)-95 Wind Driven Rain Resistance Test (Louver Only):

WIND VELOCITY MPH (KPH)	RAIN FALL RATE IN/HR (MM/HR)	ALLOWABLE PENETRATION OZ (ML)	ACTUAL PENETRATION OZ (ML)
35 (56)	8.8 (224)	0	0
70 (113)	8.8 (224)	0	0
90 (145)	8.8 (224)	1.44 (42.6)	0.51 (15)
110 (177)	8.8 (224)	0.48 (14.2)	.017 (5)

TAS 100(A)-95 Wind Driven Rain Resistance Test (Louver with optional control damper):

WIND VELOCITY MPH (KPH)	RAIN FALL RATE IN/HR (MM/HR)	ALLOWABLE PENETRATION OZ (ML)	ACTUAL PENETRATION OZ (ML)
35 (56)	8.8 (224)	0	0
70 (113)	8.8 (224)	0	0
90 (145)	8.8 (224)	1.44 (42.6)	0
110 (177)	8.8 (224)	0.48 (14.2)	0

TAS 201-94 Large Missile Impact Test:

MISSILE TYPE	VELOCITY IN FT./SEC. (M/SEC)	IMPACTS
9 lb. Southern Yellow Pine 2" x 4" x 88-1/2" long	50 (15.24)	10

Louver allowed no inboard missile penetration during impacts.

TAS 202-94 Uniform Static Air Pressure Test (Louver only):

LOAD IN PSF (kPA)	LOAD DURATION	LOUVER RECOVERY
+150 (+7.18)	30 Seconds	100%
-150 (-7.18)	30 Seconds	100%
+225 (+10.76)	30 Seconds	100%
-225 (-10.76)	30 Seconds	100%

TAS 202-94 Uniform Static Air Pressure Test (Louver with optional control damper):

LOAD IN PSF (kPA)	LOAD DURATION	LOUVER RECOVERY
+150 (+7.18)	30 Seconds	100%
-150 (-7.18)	30 Seconds	100%
+225 (+10.76)	30 Seconds	100%
-225 (-10.76)	30 Seconds	100%

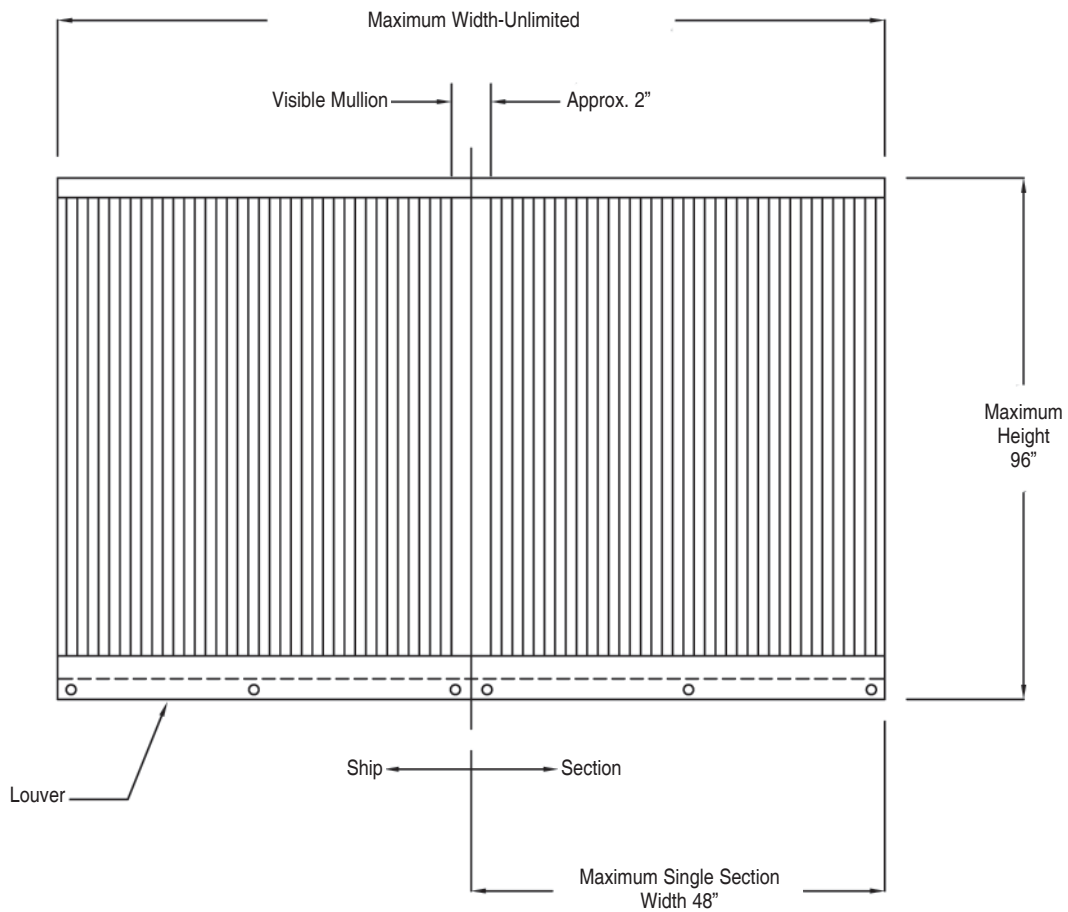
TAS 203-94 Fatigue Loading Test (Louver only):

CYCLES	LOAD IN PSF (kPA)	LOAD DURATION CYCLE	LOUVER RECOVERY
600	+75 (+3.59)	1 to 3 Seconds	100%
600	-75 (-3.59)	1 to 3 Seconds	100%
70	+90 (+4.31)	1 to 3 Seconds	100%
70	-90 (-4.31)	1 to 3 Seconds	100%
1	+195 (+9.33)	1 to 3 Seconds	100%
1	-195 (-9.33)	1 to 3 Seconds	100%

TAS 203-94 Fatigue Loading Test (Louver with optional control damper):

CYCLES	LOAD IN PSF (kPA)	LOAD DURATION CYCLE	LOUVER RECOVERY
600	+75 (+3.59)	1 to 3 Seconds	100%
600	-75 (-3.59)	1 to 3 Seconds	100%
70	+90 (+4.31)	1 to 3 Seconds	100%
70	-90 (-4.31)	1 to 3 Seconds	100%
1	+195 (+9.33)	1 to 3 Seconds	100%
1	-195 (-9.33)	1 to 3 Seconds	100%

Installation Details



General Notes:

1. Reference separate installation instruction sheets for installation details. The installation methods indicated must be complied for Miami-Dade Approval. It is the responsibility of the installing contractor to properly install the louvers per the appropriate detail.
2. On special orders, Carnes may provide submittal and/or shop drawings. Reference these drawings for additional installation information.
3. Louvers wider than the maximum single section width will be shipped in multiple sections and will require field assembly. Field assembly is not by Carnes.
4. Installation angles are shipped loose.

Must be installed per approval drawings as approved and labeled by Miami-Dade Co.