BC 07.1

Weather Louvers

WL BC - 20

Weather Louver

November - 2012

Selected Products of the company have been Classified / Listed / Tested by various international testing authorities.

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Beyond the Comfort Air ..

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BETEC CAD. Industries (FZC) Certifies Model WL BC 20 and WL BC 31 A Weather Louvers is licensed to bear the AMCA Seal.The ratings shown are based on tests and procedures performed in accordance with the requirements of the AMCA Certified Ratings Program. The AMCA Seal applies to air performance and water penetration ratings for Aluminum louvers only.

AMCA500 - L Tested Weather Louvers — BC 20 Series

Weather Louvers - WL - BC

BC - 20, Aluminum Construction (Extruded)

Louver Type: Drainable

BETEC CAD have variety of louvers to meet wide ranges of needs. Available with a highly weather / rain water resistant, fixed frame styles.

BETEC CAD. Industries (FZC) Certifies Model WL BC 20 Weather Louvers is licensed to bear the AMCA Seal.The ratings shown are based on tests and procedures performed in accordance with the requirements of the AMCA Certified Ratings Program. The AMCA Seal applies to air performance and water penetration ratings for Aluminum louvers only.

BETEC CAD also manufactures these louvers as plain louvers and louver with Damper combinations. which are designed for both intake and exhaust air applications. Weather louvers have been designed to ensure that the basic parameters of minimum pressure loss, low self-generated aerodynamic noise and minimal water ingress are satisfied and also construction includes aesthetically appearance when view from outside.

WL - BC - 20

Standard Construction

Frame Material: 2mm Extruded Aluminum profile.

Blade Material: Extruded Aluminum 1.6mm nominal wall thickness. Double drainable blades are sight proof and spaced approximately 2” (51mm) center to center.

Blade Orientation: Horizontal.

Blade Type : Fixed.

Screen: G.I steel to BSEN 10327 - DX51D+Z275, 0.4mm

Finish : Mill Finish.

Features

- Closely spaced horizontal blades minimize the penetration of wind-driven rain, reducing damage and additional operating expenses.
- The construction standards as per AMCA 500 - L
- Excellent pressure drop performance.
- Aluminum construction for low maintenance and high resistance to corrosion.
- ***BETEC CAD***'s louvers accommodate various blade angle with high free area for low pressure drop.

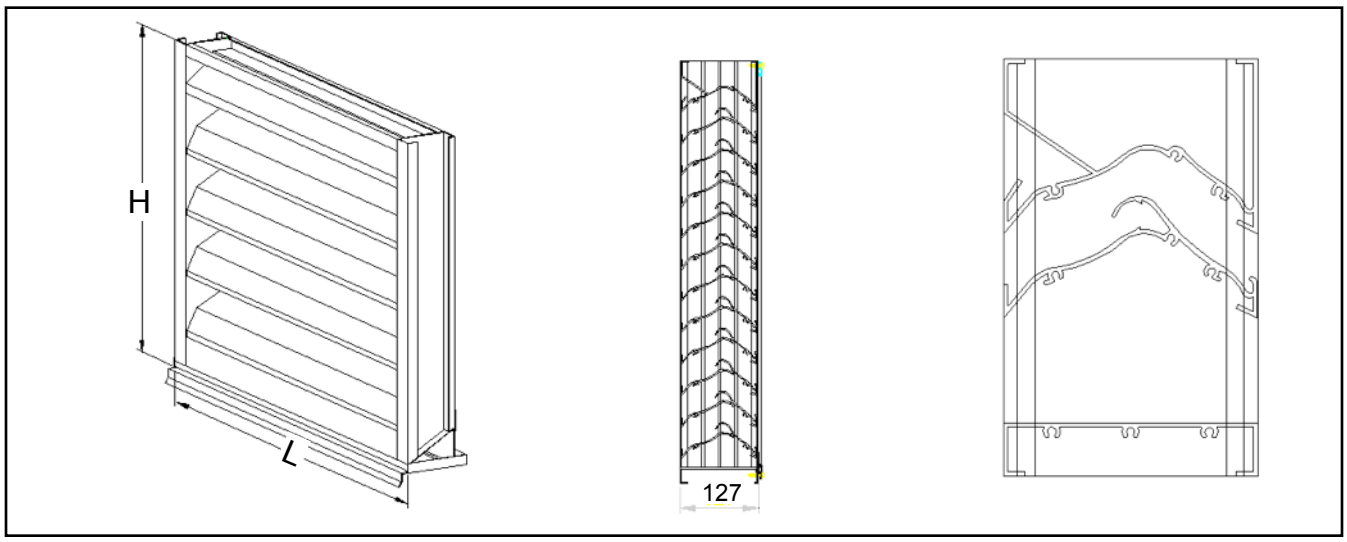
Optional Fittings

- Pre drilled screw holes.
- Hinged frame
- Security bars.
- Filter racks.
- Bird / insect screens. (Either rare are front.)
- Rain water drain tray.
- PVDF / Powder coated finishes to match any color.

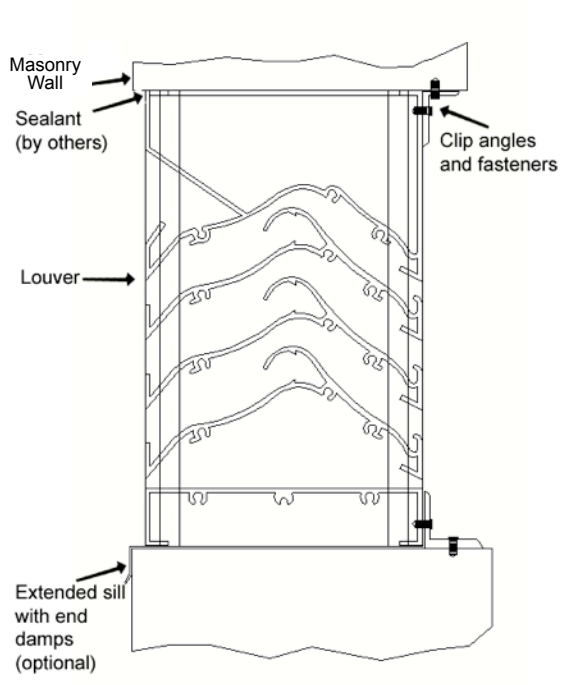
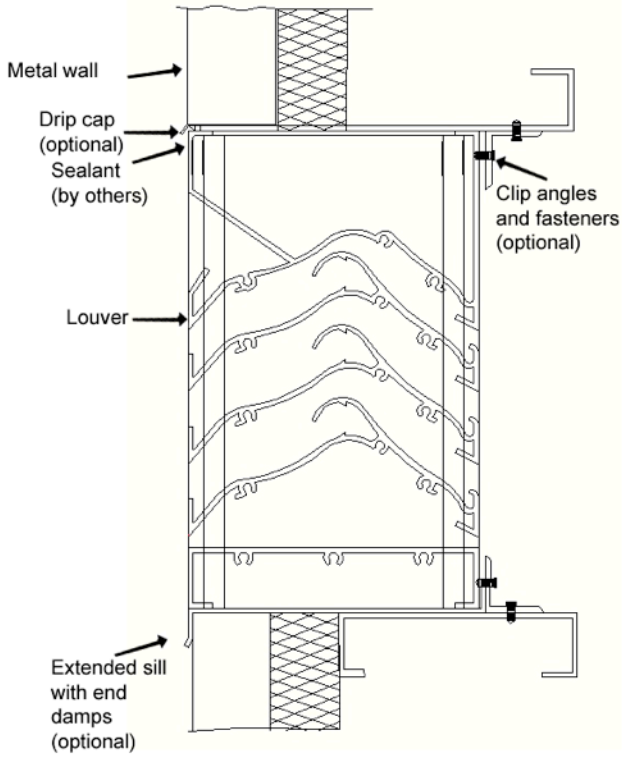
Size Limitation		
Module	Width x Height	Position
Single Min.	12" x 12"	V
Single Max.	48" x 48"	V
Single Multiple Max.	96" x 96"	V
*Multiple section size larger than 96” x 96” will require site assembly of the individual sections.		

AMCA500 - L Tested Weather Louvers — BC 20 Series

Structural Drawings WL - BC - 20



Installation Details

Masonry Wall	Metal Panel Wall
	

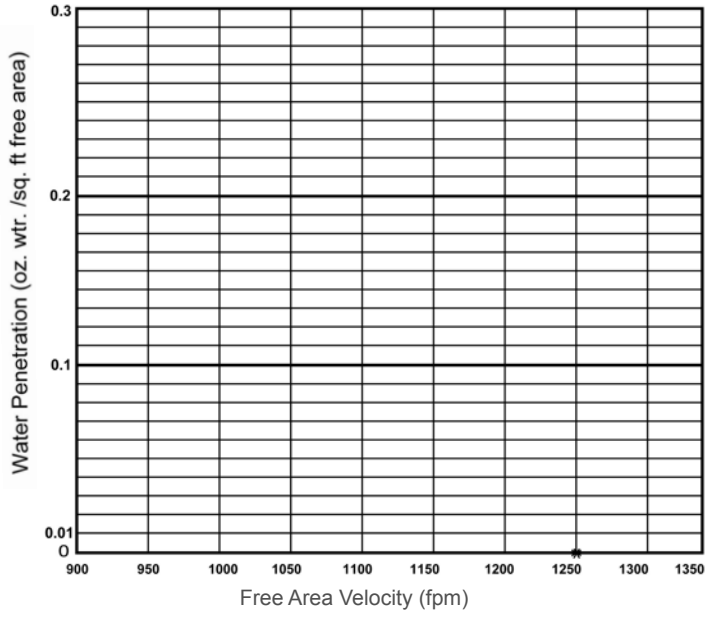
Weather Louvers — BC 20 Series

Engineering And Performance Data

Models : WL - BC 20 AMCA500 - L Tested Table for selection of Effective Face Area

Louver Free Area - Ak (Area Factor). Width x Height, for a Single module size.											
W / H	12" (300)	18" (450)	24" (600)	30" (750)	36" (900)	42" (1050)	48" (1200)	60" (1500)	72" (1800)	84" (2100)	96" (2400)
12" (300)	0.252 0.023	0.434 0.040	0.616 0.057	0.798 0.074	0.98 0.091	1.162 0.108	1.343 0.125	1.707 0.159	2.071 0.193	3.435 0.226	2.799 0.260
18" (450)	0.434 0.040	0.747 0.069	1.016 0.099	1.374 0.128	1.688 0.157	2.001 0.186	2.315 0.215	2.942 0.273	3.569 0.332	4.196 0.390	4.823 0.448
24" (600)	0.616 0.057	1.061 0.099	1.506 0.140	1.951 0.181	2.396 0.223	2.841 0.264	3.286 0.305	4.176 0.388	5.066 0.471	5.956 0.554	6.847 0.636
30" (750)	0.798 0.074	1.374 0.128	1.951 0.181	2.527 0.235	3.104 0.288	3.681 0.342	4.257 0.396	5.411 0.503	6.564 0.610	7.717 0.717	8.87 0.824
36" (900)	0.98 0.091	1.688 0.157	2.396 0.223	3.104 0.288	3.812 0.354	4.52 0.420	5.229 0.486	6.645 0.618	8.061 0.749	9.478 0.881	10.894 1.012
42" (1050)	1.161 0.108	2.001 0.186	2.841 0.264	3.681 0.342	4.52 0.420	5.36 0.498	6.2 0.576	7.879 0.732	9.559 0.888	11.238 1.044	12.918 1.201
48" (1200)	1.343 0.125	2.315 0.215	3.286 0.305	4.257 0.396	5.229 0.486	6.2 0.576	7.171 0.666	9.114 0.847	11.056 1.028	12.999 1.208	14.941 1.389
60" (1500)	1.707 0.159	2.942 0.273	4.176 0.388	5.411 0.503	6.645 0.618	7.879 0.732	9.114 0.847	11.582 1.076	14.051 1.306	16.52 1.535	18.989 1.765
72" (1800)	2.071 0.193	3.569 0.332	5.066 0.471	6.564 0.610	8.061 0.749	9.559 0.888	11.056 1.028	14.051 1.306	17.046 1.584	20.041 1.863	23.036 2.141
84" (2100)	2.435 0.226	4.196 0.390	5.956 0.554	7.717 0.717	9.478 0.881	11.238 1.044	12.999 1.208	16.52 1.535	20.041 1.863	23.562 2.190	27.084 2.517
96" (2400)	2.799 0.260	4.823 0.448	6.847 0.636	8.87 0.824	10.894 1.012	12.918 1.201	14.941 1.389	18.989 1.765	23.036 2.141	27.084 2.517	31.131 2.893
Note: units given in the ( ) are mm, rounded to zero for manufacturing convenience.											

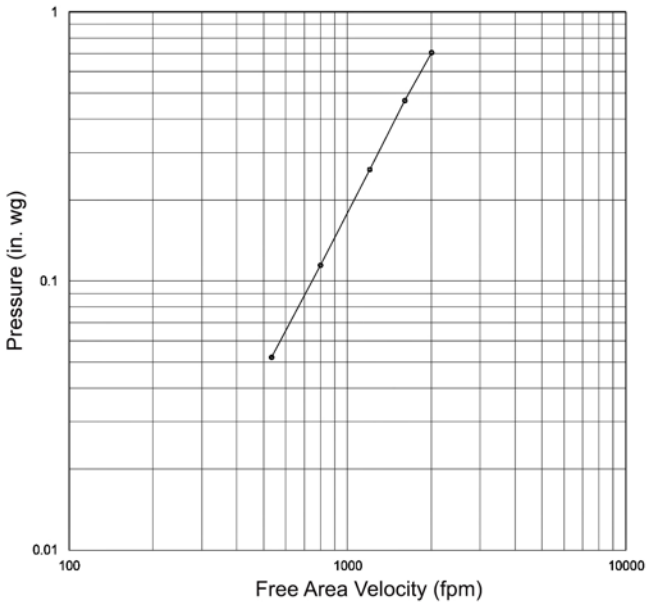
Models : WL - BC 20 Pressure Drop V/S Face velocity Graph. as per AMCA500L.



AMCA Standard 500-L Water Penetration Test (15 minutes Test Duration)

Figure 5.6 Setup for Size: 48" x 48"

The Beginning point of water penetration is greater than 1250 fpm.



AMCA Standard 500-L Intake Test

Figure 5.5 Setup for Size: 48" x 48"

Data is corrected to standard air density.

* Test data that goes above 1250 fpm, is beyond the limitations of chamber / software and is considered excellent as far as a "beginning point of water penetration".

BETEC CAD. Industries (FZC) Certifies Model WL BC 20 Weather Louvers is licensed to bear the AMCA Seal.The ratings shown are based on tests and procedures performed in accordance with the requirements of the AMCA Certified Ratings Program. The AMCA Seal applies to air performance and water penetration ratings for Aluminum louvers only.

Weather Louvers — BC 20 Series

WIND-DRIVEN RAIN PERFORMANCE

Size is 48" x 48" (1220 x 1220mm) Face area.

The AMCA Certified Ratings seal does not apply to Wind-Driven Rain.

Rain water penetration test v/s Effectiveness (For average wind speed driven applications (30 mph))				
V - Face Velocity, fpm (m/s)	Qv - Airflow cfm (m3 / min)	Vk - Passage Velocity fpm (m/sec.)	Effectiveness Ratio	Class
0 (0)	0 (0)	0 (0)	99.9%	A
98(.5)	1060 (30)	226 (1.1)	99.9%	A
197 (1.0)	2119 (60)	389 (2.0)	99.9%	A
287 (1.5)	3179 (90)	583 (3.0)	99.9%	A
381 (1.9)	4239 (120)	778 (4.0)	99.9%	A
476 (2.4)	5299 (150)	972 (4.9)	99.9%	A
586 (3.0)	6358 (180)	1167 (5.9)	99.8%	A
673 (3.4)	7418 (210)	1361 (6.9)	99.7%	A
763 (3.9)	8478 (240)	1556 (7.9)	98.9%	B
882 (4.5)	9537 (270)	1750 (8.9)	97.3%	B
987 (5.0)	10597 (300)	1944 (9.9)	95.3%	B

NOTES

1. Core area is the open area of the louver face (face area less lover frames). Core Velocity is the airflow velocity through the Core Area of the louver (1m x 1m).

2.Free Area as per AMCA standard 500-L.

3. Wind Driven Rain Penetration Classes:

Class	Effectiveness
A	1 to .99
B	0.989 to 0.95
C	0.949 to 0.80
D	Below 0.8

4. Intake Discharge Loss Class 2

Discharge Loss Coefficient is calculated by dividing a louvers' actual airflow rate vs. a theoretical airflow for the opening. It provides an indication of the louvers' airflow characteristics.

Discharge Loss Classes:

Class	Discharge Loss Coefficient
1	0.4 and above
2	0.3 to 0.399
3	0.2 to 0.299
4	0.199 and below

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

5. The AMCA Wind Driven Rain standard as performed in house testing. storms may create conditions not considered by the AMCA. Penthouse and similar applications where wind can pass through multiple louvers in an enclosure is another condition that is not simulated by AMCA. These applications can create elevated water penetration rates through any louver. Because of these uncontrolled situations, it is recommended that provisions to manage water penetration through louvers be included in the building design.

AMCA500 - L Tested Weather Louvers — WL BC 31A

Weather Louvers - WL - BC

BC - 30, Aluminum Construction (Extruded)

Models : 1 - 140 Blade;

A - Wall Mounted; B - Duct Mounted

Louver Type : Non Drainable

BETEC CAD have variety of louvers to meet wide ranges of needs. Available with a highly weather / rain water resistant, fixed frame styles.

BETEC CAD. Industries (FZC) Certifies Model WL BC 31 A Weather Louvers is licensed to bear the AMCA Seal.The ratings shown are based on tests and procedures performed in accordance with the requirements of the AMCA Certified Ratings Program. The AMCA Seal applies to air performance and water penetration ratings for Aluminum louvers only.

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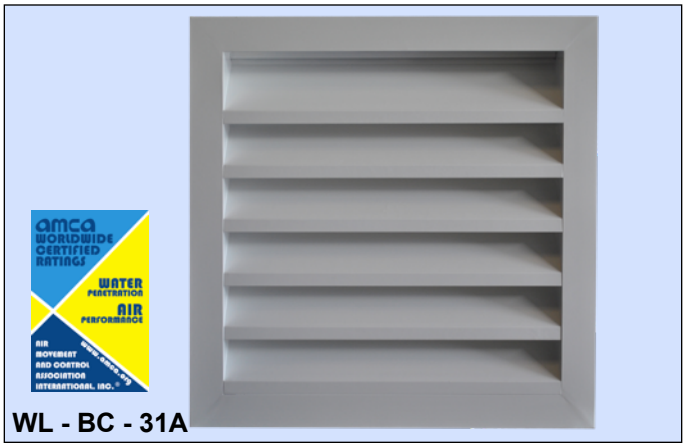


WL - BC - 31A

Features

- Closely spaced horizontal blades minimize the penetration of wind-driven rain, reducing damage and additional operating expenses.
- The construction standards as per AMCA 500 - L
- Excellent pressure drop performance.
- Aluminum construction for low maintenance and high resistance to corrosion.
- ***BETEC CAD***'s louvers accommodate various blade angle with high free area for low pressure drop.

Standard Construction

Frame Material: 3mm Extruded Aluminum profile.

Blade Material: 2.5mm Extruded Aluminum profile.

Blade Orientation: Horizontal.

Blade Type : Fixed.

Blade Angle : 45˚

Screen: G.I steel to BSEN 10327 - DX51D+Z275, 0.4mm

Finish : Mill Finish.

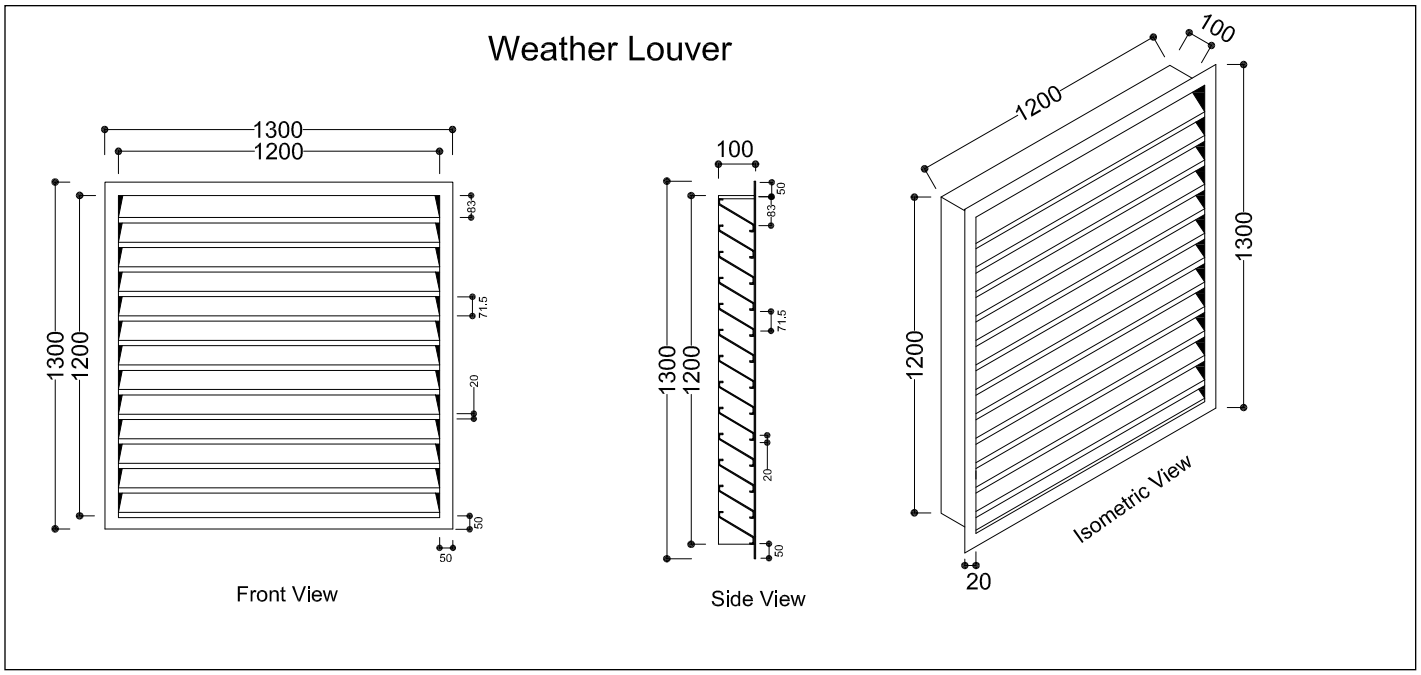
Optional Fittings

- Pre drilled screw holes.
- Hinged frame
- Security bars.
- Filter racks.
- Bird / insect screens. (Either rare are front.)
- Rain water drain tray.
- PVDF / Powder coated finishes to match any color.

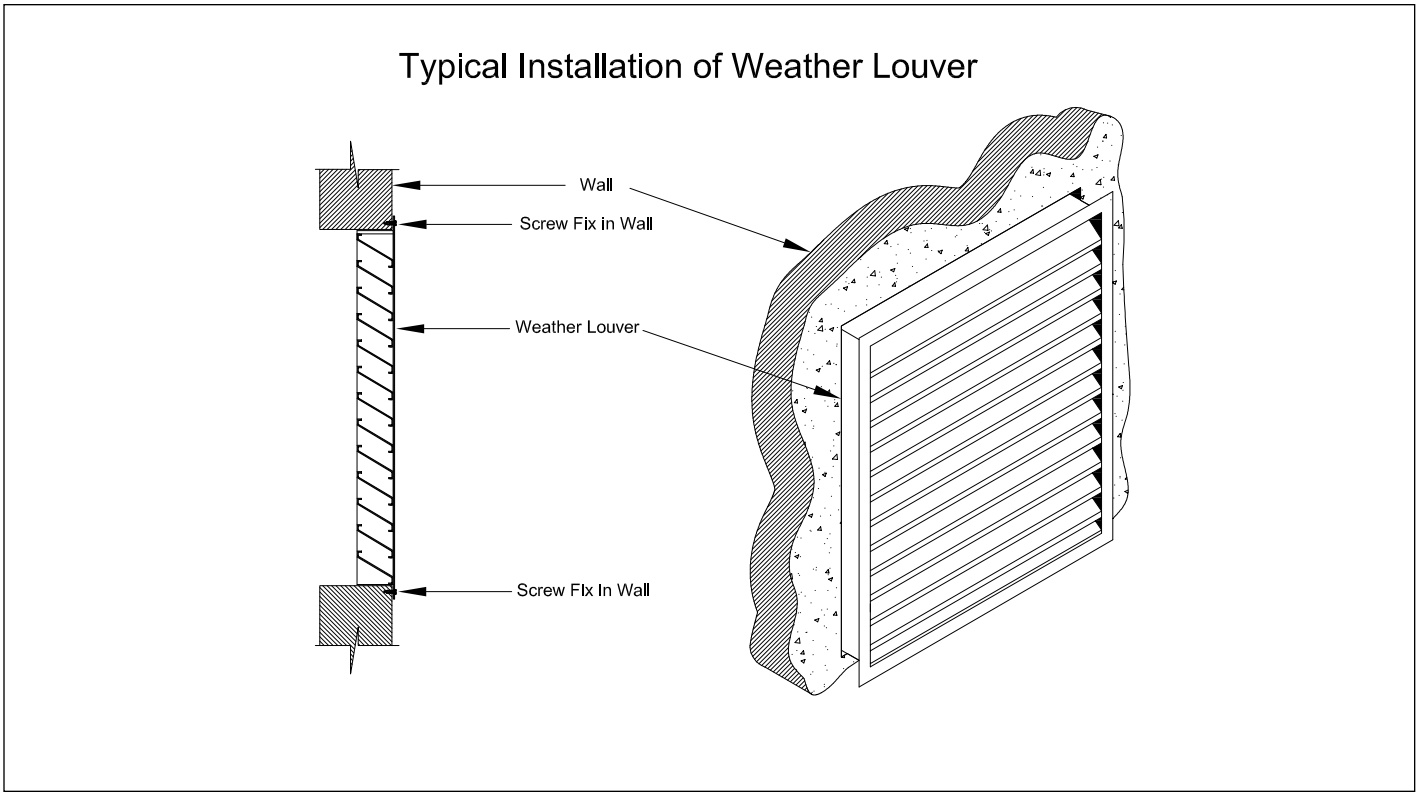
Size Limitation		
Module	Width x Height	Position
Single Min.	12" x 12"	V
Single Max.	48" x 48"	V
Single Multiple Max.	*96" x 96"	V
*Multiple section size larger than 96” x 96” will require site assembly of the individual sections.		

AMCA500 - L Tested Weather Louvers WL BC 31A

Structural Drawings WL - BC - 31 A



Installation Details



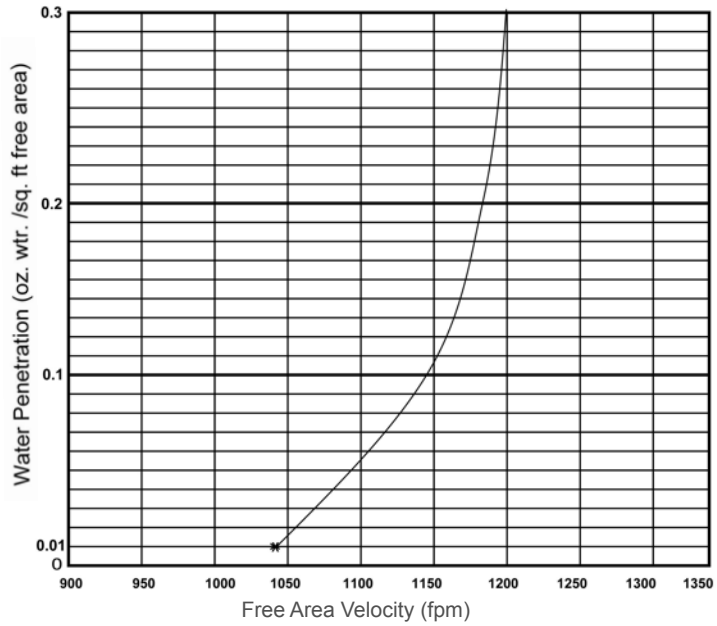
AMCA500 - L Tested Weather Louvers — WL BC 31A

Engineering And Performance Data

Models : WL - BC 31A Table for selection of Effective Face Area

Louver Free Area - Ak (Area Factor). Width x Height, for a Single module size.											
W / H	12" (300)	18" (450)	24" (600)	30" (750)	36" (900)	42" (1050)	48" (1200)	60" (1500)	72" (1800)	84" (2100)	96" (2400)
12" (300)	0.103 0.010	0.215 0.020	0.326 0.030	0.438 0.041	0.550 0.051	0.661 0.061	0.773 0.072	0.996 0.093	1.220 0.113	1.443 0.134	1.666 0.155
18" (450)	0.215 0.020	0.447 0.042	0.68 0.063	0.912 0.085	1.145 0.106	1.377 0.128	1.61 0.150	2.075 0.193	2.54 0.236	3.005 0.279	3.47 0.322
24" (600)	0.326 0.030	0.68 0.063	1.033 0.096	1.387 0.129	1.74 0.162	2.093 0.195	2.447 0.227	3.153 0.293	3.86 0.359	4.567 0.424	5.274 0.490
30" (750)	0.438 0.041	0.912 0.085	1.387 0.129	1.861 0.173	2.335 0.217	2.809 0.261	3.283 0.305	4.232 0.393	5.18 0.481	6.129 0.570	7.077 0.658
36" (900)	0.55 0.051	1.145 0.106	1.74 0.162	2.335 0.217	2.93 0.272	3.525 0.328	4.12 0.383	5.31 0.494	6.501 0.604	7.691 0.715	8.881 0.825
42" (1050)	0.661 0.061	1.377 0.128	2.093 0.195	2.809 0.261	3.525 0.328	4.241 0.394	4.957 0.461	6.389 0.594	7.821 0.727	9.253 0.860	10.685 0.993
48" (1200)	0.773 0.072	1.61 0.150	2.447 0.227	3.283 0.305	4.12 0.383	4.957 0.461	5.794 0.538	7.467 0.694	9.141 0.850	10.815 1.005	12.488 1.161
60" (1500)	0.996 0.093	2.075 0.193	3.153 0.293	4.232 0.393	5.31 0.494	6.389 0.594	7.467 0.694	9.624 0.894	11.781 1.095	13.938 1.295	16.095 1.496
72" (1800)	1.22 0.113	2.54 0.236	3.86 0.359	5.18 0.481	6.501 0.604	7.821 0.727	9.141 0.850	11.781 1.095	14.422 1.340	17.062 1.586	19.703 1.831
84" (2100)	1.443 0.134	3.005 0.279	4.567 0.424	6.129 0.570	7.691 0.715	9.253 0.860	10.815 1.005	13.938 1.295	17.062 1.586	20.186 1.876	23.31 2.166
96" (2400)	1.666 0.155	3.47 0.322	5.274 0.490	7.077 0.658	8.881 0.825	10.685 0.993	12.488 1.161	16.095 1.496	19.703 1.831	23.31 2.166	26.917 2.502
Note: units given in the ( ) are mm, rounded to zero for manufacturing convenience.											

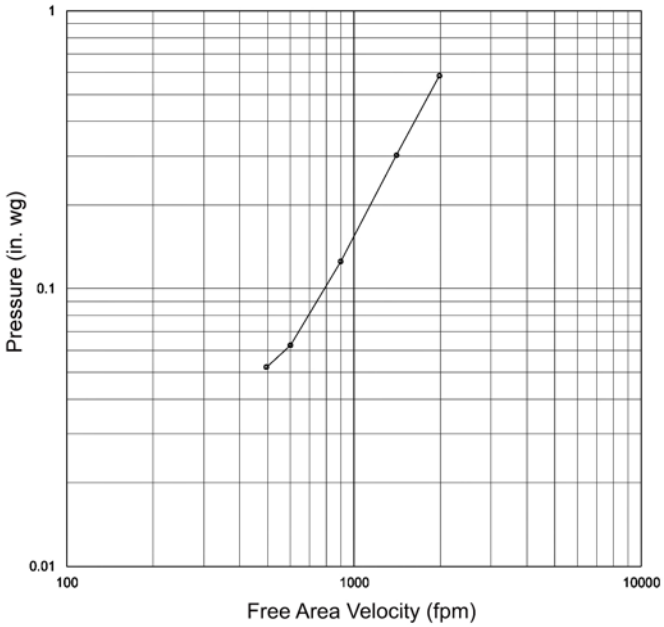
Models : WL - BC 31 A Pressure Drop V/S Face velocity Graph. as per AMCA500 - L.



AMCA Standard 500-L Water Penetration Test (15 minutes Test Duration)

Figure 5.6 Setup for Size: 48" x 48"

The Beginning point of water penetration is 1045 fpm.



AMCA Standard 500-L Intake Test

Figure 5.5 Setup for Size: 48" x 48"

Data is corrected to standard air density.

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