

4DDWRGE

Wind-Driven Rain Resistant Stationary Louver Horizontal Blade

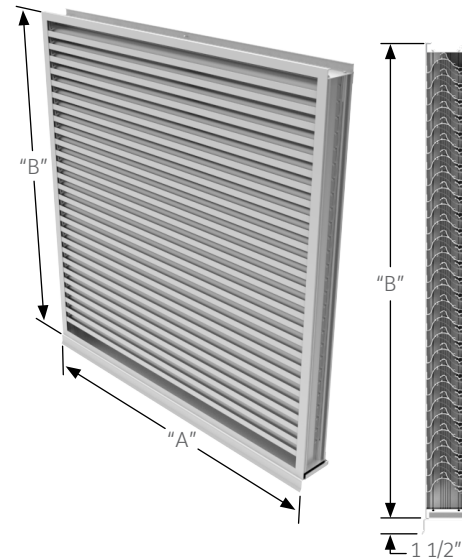
RELIABLE

APPLICATION

The 4DDWRGE is a 4" deep, mechanically fastened, extruded aluminum, double drainable, horizontal, stationary louver designed to protect air intake and exhaust openings in exterior walls. This louver offers exceptional protection against wind-driven rain under the most severe conditions. This louver is designed with a drainable gutter system that channels water from the blades to downspouts in the jambs. Here, water is exhausted out of the front of the louver.

STANDARD CONSTRUCTION

Frame	4" (102) deep, 6063T6 extruded aluminum with .081" (2.1) nominal wall thickness.
Blades	6063T6 extruded aluminum .063" (1.6) nominal wall thickness. Double drainable blades are sight-proof.
Screen	5/8" x .040" (16 x 1) expanded flattened aluminum bird screen in removable frame. Screen adds approximately 1/2" (13) to louver depth.
Finish	Mill.
Minimum Size	12"w x 6"h (305 x 153).
Approximate Shipping Weight	7 lbs. per sq. ft. (34.2 kg/m ²)
Maximum Factory Assembly Size	Shall be 75 sq. ft. (7m ²) per section. Single sections shall not exceed 120" x 90"h (3048 x 2286) or 90"w x 120"h (2286 x 3048). Louvers larger than the maximum single section size will require field assembly of smaller sections.
Supports	Louvers may be provided with rear mounted blade supports that increase overall louver depth depending on louver size, assembly configuration or windload.



VARIATIONS

Variations to the basic design of the louver are available at additional cost. They include:

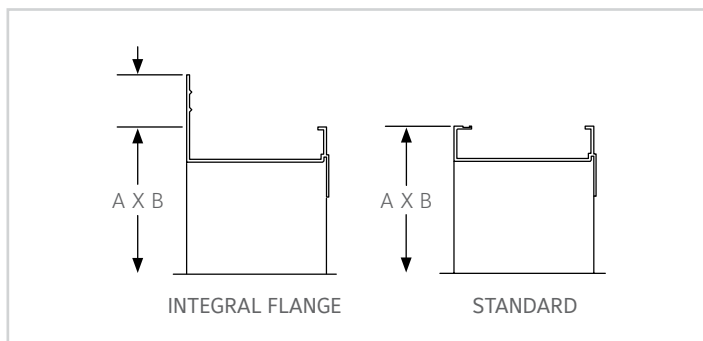
- Extended sill
- Hinged frame
- Front or rear security bars
- Filter racks
- Installation angles
- A variety of bird and insect screens
- Selection of finishes: Prime coat, 50% PVDF (modified fluoropolymer), Epoxy, Pearledize, 70% PVDF, Clear and Anodized finishes. (Some variation in anodize color consistency is possible)

Consult Reliable for other special requirements.

FEATURES

- Horizontal architectural blades minimize the penetration of wind-driven rain, reducing damage and additional operating expenses
- AMCA certified wind-driven rain results
- Published performance ratings based on testing in accordance with AMCA Publication 511
- 40% Free Area
- AMCA 540 Listed (Enhanced Protection)
- AMCA 550 Listed for High Velocity Wind-Driven Rain with Damper
- TAS203 Cycle Pressure to 120psf

FRAME CONSTRUCTION



Note:

- Dimensions in inches, parenthesis () indicate millimeters.
- Units can be furnished actual size or with size deducts.

PERFORMANCE DATA

Reliable certifies that the 4DDWRGE shown herein is approved to bear the AMCA Listing Label. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication and comply with the requirements of the AMCA Listing Label Program.

The AMCA Listing Label to Wind Borne Debris Impact Resistant Louvers (with optional CD40, CD50 or SD60 damper in the closed position).



Reliable certifies that the 4DDWRGE 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.

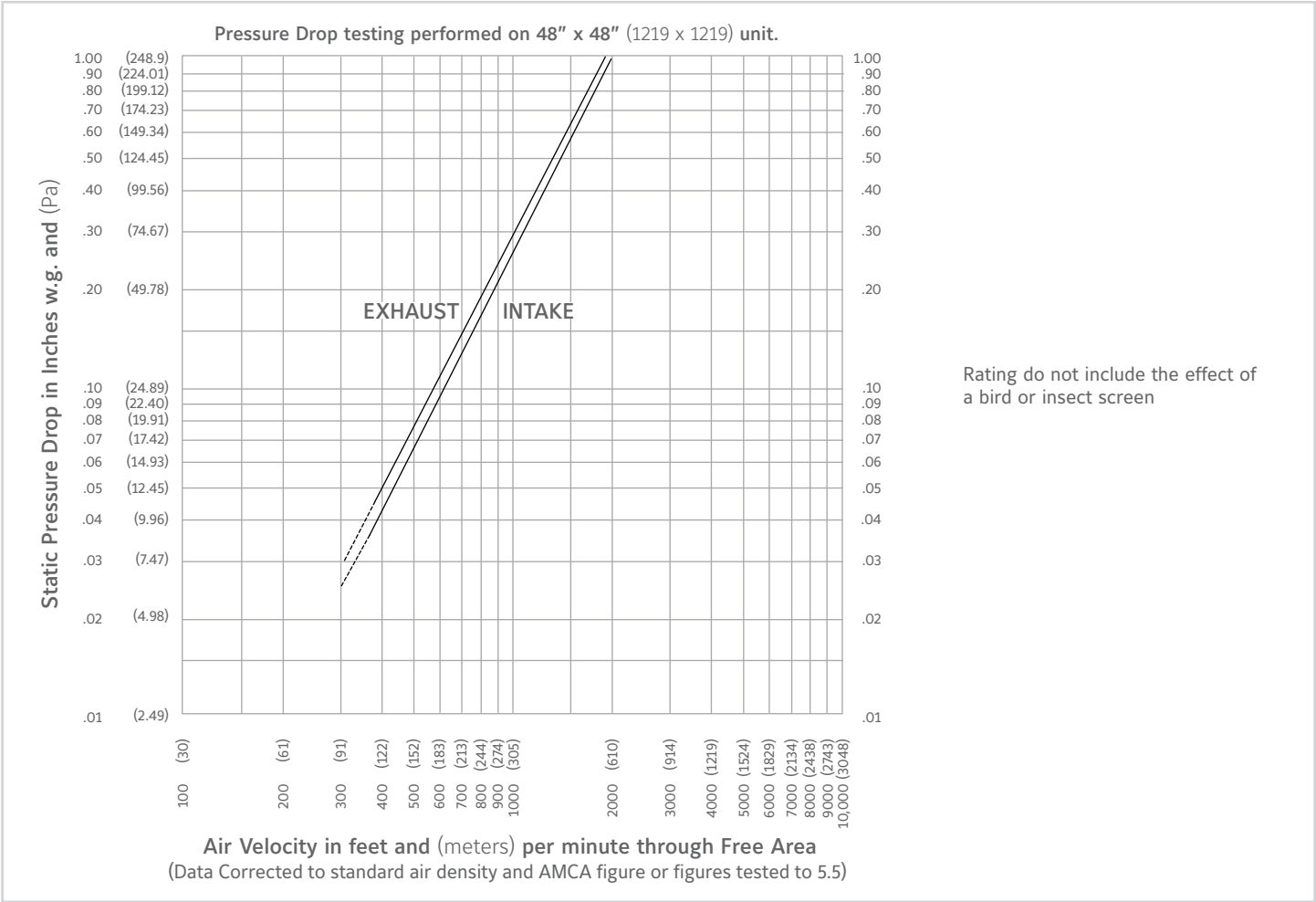
The AMCA Listing Label applies to wind Born Debris Impact Resistant and High Velocity Wind Driven Rain Resistant Louvers (with optional CD40 or CD50 damper in the closed position)

FREE AREA GUIDE

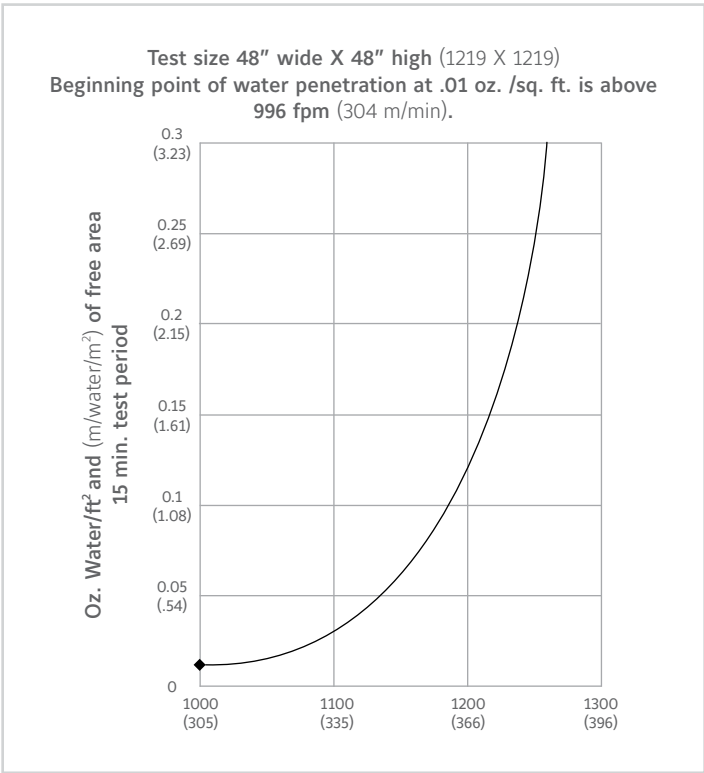
Free Area Guide shows free area in ft² and m² for various sizes of 4DDWRGE.

		Width – Inches and Meters																		
Height – Inches and Meters		12	18	24	30	36	42	48	54	60	66	72	78	84	90	96	102	108	114	120
		0.30	0.45	0.60	0.75	0.90	1.05	1.20	1.35	1.50	1.65	1.80	1.95	2.10	2.25	2.40	2.55	2.70	2.85	3.00
	12	0.15	0.25	0.35	0.45	0.56	0.66	0.76	0.86	0.96	1.07	1.17	1.27	1.37	1.47	1.57	1.68	1.78	1.88	1.98
	0.30	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09	0.10	0.11	0.12	0.13	0.14	0.15	0.16	0.17	0.17	0.18
	18	0.35	0.58	0.82	1.06	1.30	1.54	1.77	2.01	2.25	2.49	2.72	2.96	3.20	3.44	3.67	3.91	4.15	4.39	4.63
	0.45	0.03	0.05	0.08	0.10	0.12	0.14	0.16	0.19	0.21	0.23	0.25	0.28	0.30	0.32	0.34	0.36	0.39	0.41	0.43
	24	0.54	0.92	1.29	1.67	2.04	2.41	2.79	3.16	3.53	3.91	4.28	4.65	5.03	5.40	5.77	6.15	6.52	6.89	7.27
	0.60	0.05	0.09	0.12	0.15	0.19	0.22	0.26	0.29	0.33	0.36	0.40	0.43	0.47	0.50	0.54	0.57	0.61	0.64	0.68
	30	0.69	1.17	1.64	2.12	2.59	3.07	3.55	4.02	4.50	4.97	5.45	5.92	6.40	6.87	7.35	7.82	8.30	8.78	9.25
	0.75	0.06	0.11	0.15	0.20	0.24	0.29	0.33	0.37	0.42	0.46	0.51	0.55	0.60	0.64	0.68	0.73	0.77	0.82	0.86
	36	0.89	1.50	2.11	2.73	3.34	3.95	4.56	5.17	5.78	6.39	7.00	7.62	8.23	8.84	9.45	10.06	10.67	11.28	11.89
	0.90	0.08	0.14	0.20	0.25	0.31	0.37	0.42	0.48	0.54	0.59	0.65	0.71	0.77	0.82	0.88	0.94	0.99	1.05	1.11
	42	1.09	1.84	2.58	3.33	4.08	4.82	5.57	6.32	7.07	7.81	8.56	9.31	10.05	10.80	11.55	12.30	13.04	13.79	14.54
	1.05	0.10	0.17	0.24	0.31	0.38	0.45	0.52	0.59	0.66	0.73	0.80	0.87	0.94	1.00	1.07	1.14	1.21	1.28	1.35
	48	1.24	2.09	2.94	3.78	4.63	5.48	6.33	7.18	8.03	8.88	9.73	10.58	11.43	12.27	13.12	13.97	14.82	15.67	16.52
	1.20	0.12	0.19	0.27	0.35	0.43	0.51	0.59	0.67	0.75	0.83	0.90	0.98	1.06	1.14	1.22	1.30	1.38	1.46	1.54
	54	1.44	2.42	3.41	4.39	5.38	6.36	7.34	8.33	9.31	10.30	11.28	12.27	13.25	14.24	15.22	16.21	17.19	18.18	19.16
	1.35	0.13	0.23	0.32	0.41	0.50	0.59	0.68	0.77	0.87	0.96	1.05	1.14	1.23	1.32	1.42	1.51	1.60	1.69	1.78
	60	1.63	2.75	3.88	5.00	6.12	7.24	8.36	9.48	10.60	11.72	12.84	13.96	15.08	16.20	17.32	18.44	19.56	20.68	21.81
	1.50	0.15	0.26	0.36	0.46	0.57	0.67	0.78	0.88	0.99	1.09	1.19	1.30	1.40	1.51	1.61	1.72	1.82	1.92	2.03
	66	1.78	3.01	4.23	5.45	6.67	7.90	9.12	10.34	11.56	12.79	14.01	15.23	16.45	17.68	18.90	20.12	21.34	22.57	23.79
	1.65	0.17	0.28	0.39	0.51	0.62	0.73	0.85	0.96	1.08	1.19	1.30	1.42	1.53	1.64	1.76	1.87	1.98	2.10	2.21
	72	1.98	3.34	4.70	6.06	7.41	8.77	10.13	11.49	12.85	14.21	15.56	16.92	18.28	19.64	21.00	22.36	23.71	25.07	26.43
	1.80	0.18	0.31	0.44	0.56	0.69	0.82	0.94	1.07	1.19	1.32	1.45	1.57	1.70	1.83	1.95	2.08	2.21	2.33	2.46
	78	2.18	3.67	5.17	6.66	8.16	9.65	11.14	12.64	14.13	15.63	17.12	18.61	20.11	21.60	23.10	24.59	26.09	27.58	29.07
	1.95	0.20	0.34	0.48	0.62	0.76	0.90	1.04	1.18	1.31	1.45	1.59	1.73	1.87	2.01	2.15	2.29	2.43	2.56	2.70
	84	2.38	4.01	5.64	7.27	8.90	10.53	12.16	13.79	15.42	17.05	18.68	20.31	21.94	23.57	25.20	26.83	28.46	30.09	31.72
	2.10	0.22	0.37	0.52	0.68	0.83	0.98	1.13	1.28	1.43	1.59	1.74	1.89	2.04	2.19	2.34	2.49	2.65	2.80	2.95
	90	2.53	4.26	5.99	7.72	9.45	11.19	12.92	14.65	16.38	18.11	19.84	21.58	23.31	25.04	26.77	28.50	30.24	31.97	33.70
	2.25	0.23	0.40	0.56	0.72	0.88	1.04	1.20	1.36	1.52	1.68	1.85	2.01	2.17	2.33	2.49	2.65	2.81	2.97	3.13
	96	2.72	4.59	6.46	8.33	10.19	12.06	13.93	15.80	17.67	19.53	21.40	23.27	25.14	27.00	28.87	30.74	32.61	34.47	36.34
	2.40	0.25	0.43	0.60	0.77	0.95	1.12	1.30	1.47	1.64	1.82	1.99	2.16	2.34	2.51	2.69	2.86	3.03	3.21	3.38
	102	2.92	4.93	6.93	8.93	10.94	12.94	14.94	16.95	18.95	20.95	22.96	24.96	26.96	28.97	30.97	32.97	34.98	36.98	38.99
	2.55	0.27	0.46	0.64	0.83	1.02	1.20	1.39	1.58	1.76	1.95	2.14	2.32	2.51	2.69	2.88	3.07	3.25	3.44	3.63
	108	3.07	5.18	7.28	9.39	11.49	13.60	15.70	17.81	19.91	22.02	24.12	26.23	28.34	30.44	32.55	34.65	36.76	38.86	40.97
	2.70	0.29	0.48	0.68	0.87	1.07	1.26	1.46	1.66	1.85	2.05	2.24	2.44	2.64	2.83	3.03	3.22	3.42	3.61	3.81
	114	3.27	5.51	7.75	9.99	12.23	14.47	16.72	18.96	21.20	23.44	25.68	27.92	30.16	32.40	34.65	36.89	39.13	41.37	43.61
	2.85	0.30	0.51	0.72	0.93	1.14	1.35	1.55	1.76	1.97	2.18	2.39	2.60	2.81	3.01	3.22	3.43	3.64	3.85	4.06
	120	3.47	5.84	8.22	10.60	12.97	15.35	17.73	20.11	22.48	24.86	27.24	29.61	31.99	34.37	36.75	39.12	41.50	43.88	46.25
	3.00	0.32	0.54	0.76	0.99	1.21	1.43	1.65	1.87	2.09	2.31	2.53	2.75	2.98	3.20	3.42	3.64	3.86	4.08	4.30

PRESSURE DROP



WATER PENETRATION GRAPH



Reliable certifies that the 4DDWRGE 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 Seal Applies to air performance ratings, water penetration ratings, and wind driven rain ratings only.

AMCA550 DAMPER OPTIONS

CONTROL DAMPER

CD40 (Thin Line Control Damper)

(The CD40 combines the lowest leakage attainable—6cfm/sq.ft. at 4" w.g. with thin line, 4" overall depth when the damper is completely open.)

- Damper Frame and Blade Depth 4"
- Max Single Section 60"x72"
- Opposed Blade
- Mill Finish
- Factory-Installed, pneumatic and electric actuators
- SP100 Switch Package
- Jack shafted or Extended Shaft option
- Concealed Linkage

CD50

(The CD50 is a low Leak, extruded aluminum damper designed with air foil blades for higher velocities and pressure HVAC systems. It meets the leakage requirements of the International energy Conservation Code by leaking less than 3cfm.sq.ft. at 1" of static pressure and is AMCA licensed as a Class 1A damper)

- Air Leakage AMCA Class 1A
- Damper Frame Depth is 5" and Blade width is 6"
- Max Single Section 60"x72"
- Opposed Blade
- Mill Finish
- Factory-Installed, pneumatic and electric actuators
- SP100 Switch Package
- Jack shafted or Extended Shaft option
- Concealed Linkage

WIND-DRIVEN RAIN PERFORMANCE

Test size is 1m x 1m (39" x 39") core area, 1.04m x 1.12m (41" x 44") nominal. Free Area of test louver is 5.45 ft² (.51m²).

29 mph (13 m/s) wind & 3" (76) per hour rain conditions				
Core Velocity ₁ fpm (m/s)	Airflow cfm (m ³ /min)	Free Area Velocity ₂ fpm (m/sec.)	Effectiveness Ratio	Class ₃
0 (0)	0 (0)	0 (0)	99.9%	A
0 (0)	0 (0)	0 (0)	99.9%	A
0 (0)	0 (0)	0 (0)	99.9%	A
283 (1.4)	3052 (86.4)	726 (221.3)	99.9%	A
376 (1.9)	4049 (114.7)	964 (293.8)	99.9%	A
464 (2.4)	4992 (141.4)	1190 (362.7)	99.1%	A
578 (2.9)	6224 (176.3)	1482 (451.9)	96.5%	B
681 (3.5)	7334 (207.7)	1746 (532.2)	93.2%	C

50 mph (22 m/s) wind & 8" (203) per hour rain conditions				
Core Velocity ₁ fpm (m/s)	Airflow cfm (m ³ /min)	Free Area Velocity ₂ fpm (m/sec.)	Effectiveness Ratio	Class ₃
0 (0)	0 (0)	0 (0)	99.9%	A
101 (.5)	1084 (30.7)	259 (78.9)	99.8%	A
175 (.9)	1889 (53.5)	349 (136.9)	99.7%	A
296 (1.5)	3189 (90.3)	759 (231.3)	99.3%	A
390 (2.0)	4199 (118.9)	1000 (304.8)	98.3%	B
491 (2.5)	5289 (149.8)	1259 (383.7)	97.2%	B
567 (2.9)	6104 (172.9)	1454 (443.2)	96.0%	B
687 (3.5)	7392 (209.3)	1762 (537.1)	91.6%	C

NOTE:

1. Core area is the open area of the louver face (face area less louver frames). Core Velocity is the airflow velocity through the Core Area of the louver (1m x 1m).
2. Free Area of test size is calculated 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 3

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.

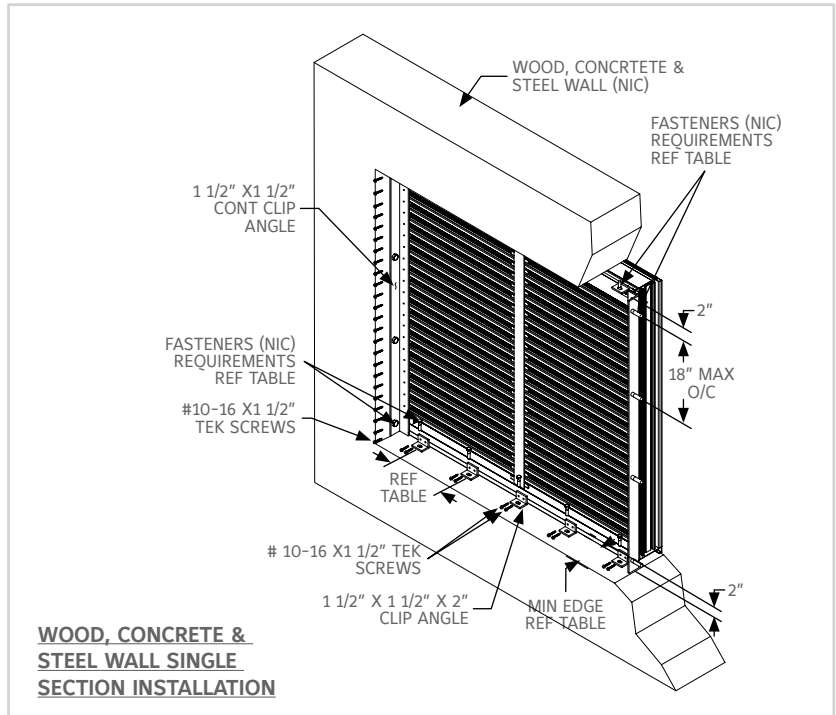
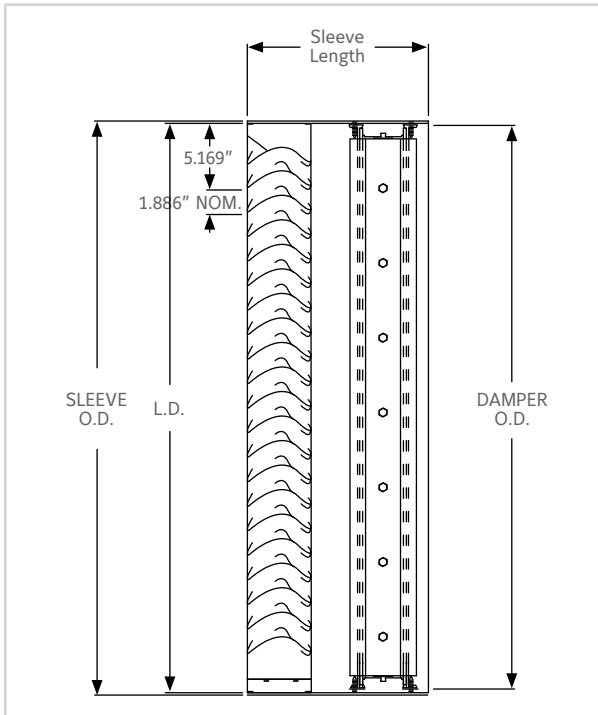
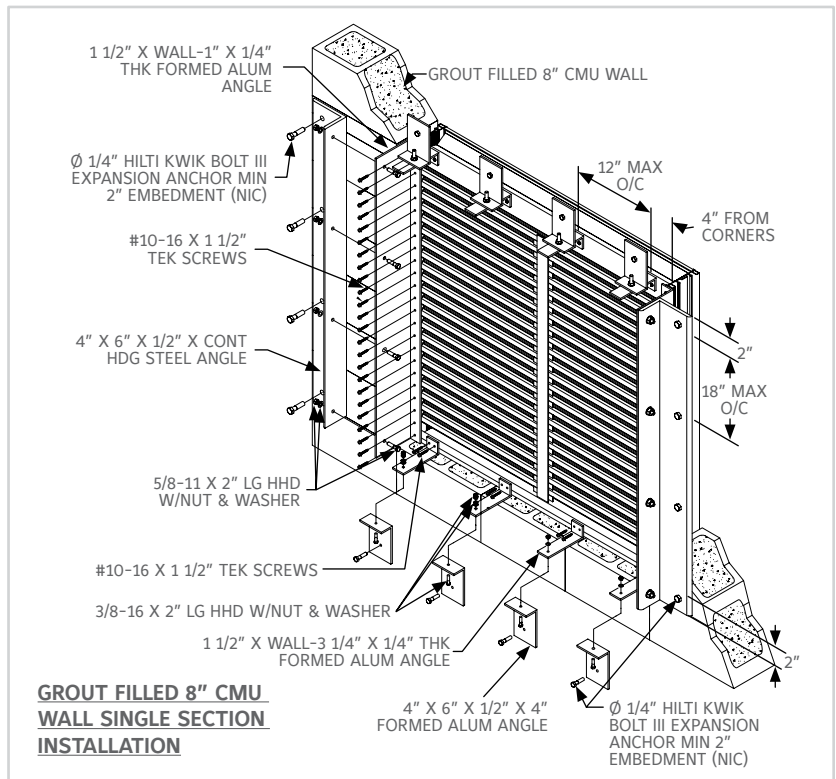
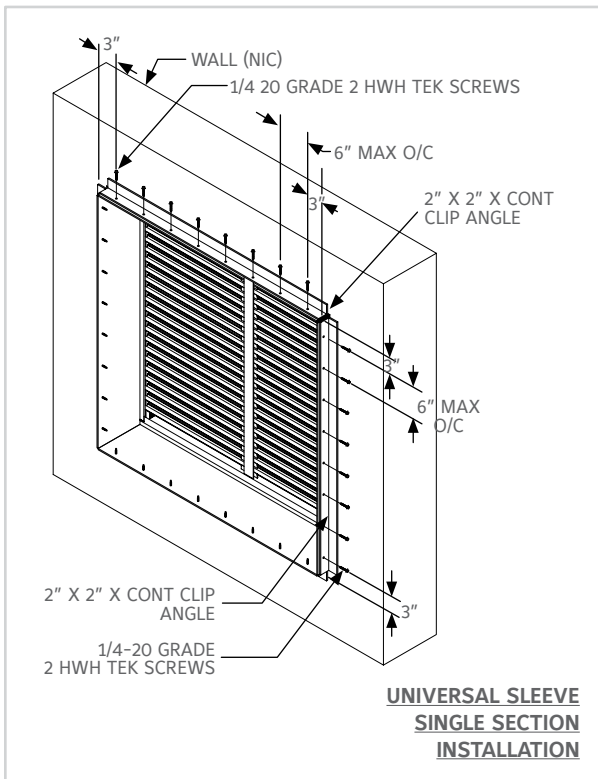
Discharge Loss Classes:

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 Test is performed in a laboratory environment and incorporates controlled wind, water and system airflow effects. In actual field installations, storms may create conditions not considered by the AMCA test. Penthouse and similar applications where wind can pass through multiple louvers in an enclosure is another condition that is not simulated by AMCA tests. 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.

TYPICAL INSTALLATION DETAILS



1. Reference separate Installation Instruction sheets for installation details. It is the responsibility of the installing contractor to properly install the louvers per the appropriate detail.
2. Louvers wider than the maximum single section width will be shipped in multiple section and will require field assembly. Field assembly is not by Reliable.

SUGGESTED SPECIFICATION

Furnish and install louvers as hereinafter specified where shown on plans or as described in schedules. Drainable stationary louver and meeting the performance criteria established by AMCA and tested to TAS 203 (Cyclic Wind Loading), as called out in AMCA540. Louvers shall be manufactured in an ISO 9001 certified factory. Louvers shall be stationary type contained within a 4" (102) frame. Louver components (heads, jambs, sills, blades, and mullions) shall be factory assem-bled by the louver manufacturer. Louver sizes too large for shipping shall be built up by the contractor from factory assembled louver sections to provide overall sizes required.

Louvers shall be Reliable Model 4DDWRGE construction as follows:

Material

Frame: .081" (2.1) aluminum channel.

Blades: .063" (1.6) nominal wall thickness.

Screen: 5/8" mesh x .040" (16 x 1) expanded flattened aluminum bird screen in removable frame. Drainable blades are positioned at 37 1/2°.

Finish: Select finish specification from Reliable Finishes Brochure.

Published louver performance data bearing the AMCA Certified Ratings Seal for Air Performance and Water Penetration must be submitted for approval prior to fabrication and must demonstrate pressure drop equal to or less than the Reliable model specified.

Structural Design

Integral structural supports can be designed and furnished by the louver manufacturer to carry a wind load of not less than ±120 psf (5.74 kPa).

LINKS TO IMPORTANT DOCUMENTS

Document Title
Finishes and Color Guide
Limited Warranty Document



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580, Geneva, Alabama 36340
Tel: 334-684-3621
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