



FEMA-8
External Mount - 8" Deep FEMA Grille

UL File No. R27241



APPLICATION AND DESIGN

The **FEMA-8** is a heavy duty steel grille designed to protect exterior wall openings against severe circumstances on FEMA 320 or 361 compliant safe rooms and storm shelters. Usually the FEMA-8 is mounted in front of wall louvers, but can be installed in front of exterior wall openings that require protection. Grille design consists of inverted "V" blades which provide high free area and relatively low pressure drop. The FEMA-8 provides the ultimate protection against high wind loads and wind-borne debris and is designed to comply with **FEMA 361, and ICC 500** storm shelter and safe room standards. Model FEMA-8 is built to withstand wind loads of up to **265 psf**.

STANDARD CONSTRUCTION

Frame: 8" deep x .25" hot rolled steel, mounting flanges located at either Head/Sill, Jamb, or Both with welded construction. See page 2 for details on special flanges options.

Specify flange configuration

- Head / Sill Flange
- Jamb Flange
- Both Head/Sill/Jamb Flanges → Open Corners Closed Corners

Blades: 3" x 3" x .25" hot rolled steel, welded in place

Screen: .50" x 18 ga. galvanized steel

- Optional 304 stainless steel screen

Finish: Zinc Rich Primer (ready to paint)

Minimum Size: 12" w x 12" h

Maximum Single Section Size: 120" w x 76" h or 76" w x 120" h

Substrate Fastener Hole Size*

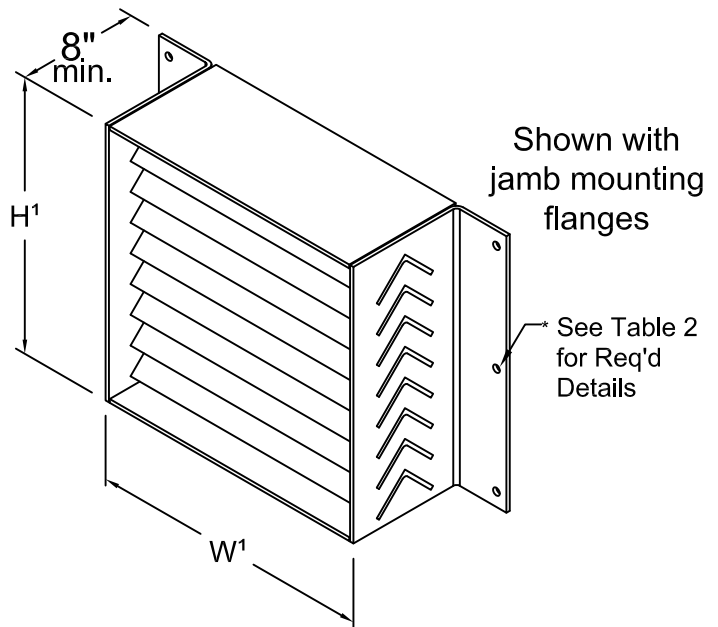
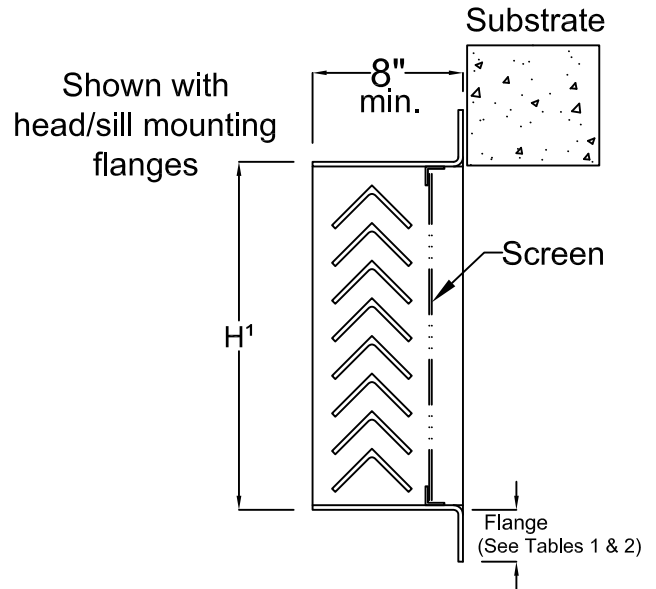
- Concrete 1/4" Tapcon 1/2" Red Head
- CMU 1/4" Tapcon 1/2" Red Head
- Steel 3/8" Bolt
- Wood 1/4" Lag Bolt

* See Installation Instructions for specific details on fasteners & flanges

AVAILABLE FINISHES: (1 year limited warranty- this product only)

- Powder Polyester TGIC** (2 coats) baked on at 410°F, 2.5 to 3.5 mils
- Powder Super durable polyester** (2 coats) baked on at 410°F, 2.5 to 3.5 mils
- Acrylic baked enamel** (ACRA-BOND® ULTRA) by AkzoNobel baked on at 350°F, 0.8 to 1.2 mils dry
- Kynar®** (ALUM*A*STAR®) 2 coats by AkzoNobel baked on at 450°F, 1.2 to 1.6 mils dry
- Kynar 500®** or HYLAR® 5000 70% TRINAR® (2 coats) by AkzoNobel baked on at 450°F, 1.2 to 1.6 mils dry.
- Kynar 500®** or HYLAR® 5000 (70% Tri-Escent II) (2 coats) by AkzoNobel, a superior finish to other metallic or anodized finishes. A blend of mica, ceramic, and inorganic pigments creates subtle yet dazzling design that goes beyond metallic color without the requirement of a clear coat. 14 standard colors - custom colors available. Baked on at 415°F, 1.4 to 1.8 mils dry.

- Clear coat available for all above finishes.
- Hylar® 5000 is a registered trademark of Solvay Solexis, Inc.
- Kynar® 500 is a registered trademark of Arkema.
- ALUM*A*STAR® 50 and TRINAR® are registered trademarks of AkzoNobel
- ACRA-BOND® ULTRA is a registered trademark of AkzoNobel



*Dimensions are exact size. Opening in substrate is suggested to also be exact size or smaller.

Job Name:	<input type="checkbox"/> MODEL: FEMA-8 (External Mount)		
Location:	DRAWN BY: SDC	DATE: 9-15-11	REV. DATE: 11-14-12
Architect:	REV. NO. 6	APPROVED BY: CLJ	DWG. NO.: A-24a
Engineer:			
Contractor:			

SUGGESTED SPECIFICATION

FEMA-8 PERFORMANCE DATA

Finish and install FEMA-8 Grilles as hereinafter specified where shown on plans or as described in schedules. Grilles shall be a UL listed and labeled product for installation into FEMA 361 and ICC 500 Windstorm-rated Assemblies. These units shall ship as a completed assembly. The units are to be installed via flanges located at the (**Head/Sill** or **Jamb** specifier select one). Grille frame and blades are to be a minimum of .25" steel. Units are to have 18 ga steel expanded screen located behind the blades for added protection. The units are to be installed (**internal** or **external**, specifier select one) to the wall. The units are to ship from the factory with (specifier select type of finish desired) finish. Grilles shall be by United Enertech, model FEMA-8.

PRESSURE DROP

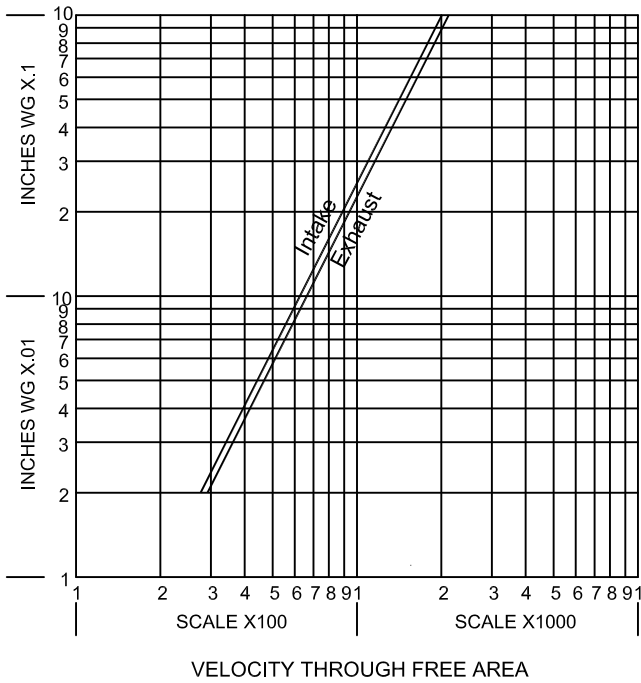


Table 1

Mounting Angle Leg Length	
Substrate	Min. Leg Length ²
Concrete (Min. 3000 psi)	3.75 Inch
CMU (Grout Filled, min. 1500 psi)	3.75 Inch
Steel (min. Fy 65,000 psi)	1.75 Inch
Wood, (G=0.55)	1.375 Inch

Table 2

Anchor/Fasteners Requirements				
Substrate Type	Anchor/Fastener Type	Min Edge Distance	Min. Embedment	Spacing (oc)
Concrete (Min. 3000 psi)	1/4" Tapcon	3.25 Inches	2.5 Inches	8 Inch
Concrete (Min. 3000 psi)	1/2" Red Head	3.25 Inches	2.5 Inches	12 Inch
CMU (Grout Filled, min. 1500 psi)	1/4" Tapcon	3.25 Inches	2.5 Inches	8 Inch
CMU (Grout Filled, min. 1500 psi)	1/2" Red Head	3.25 Inches	2.5 Inches	12 Inch
Steel (min. Fy 65,000 psi)	3/8" Bolt	1.0 Inches	0.25 Inches	12 Inch
Wood, (G=0.55)	1/4" x 3" Lag Bolt	.75 Inches	2.75 Inches	8 Inch

Based on STANDARD AIR- .075 lb. per cubic foot. Performance and free area does not include the effects of any additional louver installed with the FEMA-8 Grille.

FEMA-8 FREE AREA IN SQ. FT.

Louver Height Inches	Width - Inches																	Louver Height Inches		
	12	18	24	30	36	42	48	54	60	66	72	76	84	90	96	102	108		114	120
12	0.44	0.67	0.90	1.13	1.36	1.59	1.82	2.05	2.28	2.52	2.75	2.90	3.21	3.44	3.67	3.90	4.13	4.36	4.59	12
18	0.68	1.04	1.40	1.75	2.11	2.47	2.82	3.18	3.54	3.89	4.25	4.49	4.96	5.32	5.68	6.03	6.39	6.75	7.10	18
24	0.92	1.40	1.88	2.37	2.85	3.33	3.81	4.29	4.77	5.25	5.73	6.06	6.70	7.18	7.66	8.14	8.62	9.10	9.58	24
30	1.25	1.89	2.54	3.19	3.84	4.49	5.14	5.79	6.44	7.09	7.74	8.17	9.04	9.69	10.34	10.99	11.64	12.29	12.94	30
36	1.49	2.26	3.04	3.81	4.59	5.36	6.14	6.91	7.69	8.46	9.24	9.75	10.79	11.56	12.34	13.11	13.89	14.66	15.44	36
42	1.73	2.63	3.53	4.43	5.33	6.23	7.13	8.03	8.93	9.83	10.73	11.34	12.54	13.44	14.34	15.24	16.14	17.04	17.94	42
48	1.97	2.99	4.02	5.05	6.07	7.10	8.12	9.15	10.18	11.20	12.23	12.91	14.28	15.31	16.33	17.36	18.39	19.41	20.44	48
54	2.21	3.36	4.51	5.66	6.82	7.97	9.12	10.27	11.42	12.58	13.73	14.50	16.03	17.19	18.34	19.49	20.64	21.79	22.95	54
60	2.53	3.85	5.17	6.49	7.81	9.12	10.44	11.76	13.08	14.40	15.72	16.60	18.36	19.68	21.00	22.32	23.64	24.95	26.27	60
66	2.77	4.21	5.66	7.10	8.55	9.99	11.44	12.88	14.33	15.77	17.21	18.18	20.10	21.55	22.99	24.44	25.88	27.33	28.77	66
72	3.01	4.58	6.15	7.72	9.29	10.86	12.43	14.00	15.57	17.14	18.71	19.76	21.85	23.43	25.00	26.57	28.14	29.71	31.28	72
76	3.25	4.95	6.64	8.34	10.03	11.73	13.43	15.12	16.82	18.51	20.21	21.34	23.60	25.30	26.99	28.69	30.38	32.08	33.78	78
84	3.49	5.31	7.13	8.96	10.78	12.60	14.42	16.24	18.06	19.89	21.71	22.92	n/a	n/a	n/a	n/a	n/a	n/a	n/a	84
90	3.73	5.68	7.63	9.57	11.52	13.47	15.41	17.36	19.31	21.26	23.20	24.50	n/a	n/a	n/a	n/a	n/a	n/a	n/a	90
96	4.05	6.17	8.28	10.39	12.51	14.62	16.74	18.85	20.97	23.08	25.19	26.60	n/a	n/a	n/a	n/a	n/a	n/a	n/a	96
102	4.29	6.53	8.77	11.01	13.25	15.49	17.73	19.97	22.21	24.45	26.69	28.19	n/a	n/a	n/a	n/a	n/a	n/a	n/a	102
108	4.53	6.90	9.26	11.63	14.00	16.36	18.73	21.09	23.46	25.82	28.19	29.76	n/a	n/a	n/a	n/a	n/a	n/a	n/a	108
114	4.77	7.26	9.75	12.24	14.73	17.23	19.72	22.21	24.70	27.19	29.68	31.34	n/a	n/a	n/a	n/a	n/a	n/a	n/a	114
120	5.02	7.63	10.25	12.87	15.48	18.10	20.72	23.33	25.95	28.57	31.18	32.93	n/a	n/a	n/a	n/a	n/a	n/a	n/a	120