

## ELM90HFA ADJUSTABLE LOUVER EXTRUDED ALUMINUM

### APPLICATION

The Architecturally pleasing Ruskin ELM90HFA warehouse louver has a 6" deep frame with adjustable 90° degree blade angle. The ELM90HFA boasts a 74% free area and is specifically designed to provide high rates of ventilation air which is perfect for warehouse applications. Factory mounted and commissioned electric or pneumatic actuators are available upon request.

### STANDARD CONSTRUCTION

#### FRAME

6" (152) deep, 6063T6 extruded aluminum with .125" (3.2) nominal wall thickness. Caulking surfaces provided.

#### BLADES

6063T6 extruded aluminum with .081" (2.1) nominal wall thickness. J-style blades are adjustable to 90° angle. Blade spacing is approximately 5" (127) center to center.

#### 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.

#### SEALS

Flexible, compressible aluminum jamb seals.

#### BEARINGS

Stainless steel sleeve pressed into frame.

#### AXLES

1/2" (13) plated steel hex.

#### FINISH

Mill.

#### LINKAGE

Concealed in frame.

#### ACTUATOR

Locking louver quadrant.

#### MINIMUM SIZE

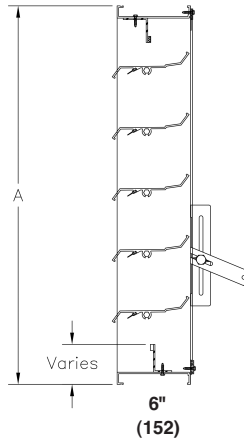
12" w x 12" h (305 x 305).

#### APPROXIMATE SHIPPING WEIGHT

4.5 lbs. per sq. ft.

#### MAXIMUM FACTORY ASSEMBLY SIZE

Shall be 60" x 96" (1524 x 2438) without seals. Louvers with standard jamb seals and/or optional blade seals shall be 48" x 96" (1219 x 2438). Standard construction includes jamb seals. Louvers larger than the maximum factory assembly size will require field assembly of smaller sections.



### FEATURES

The ELM90HFA offers:

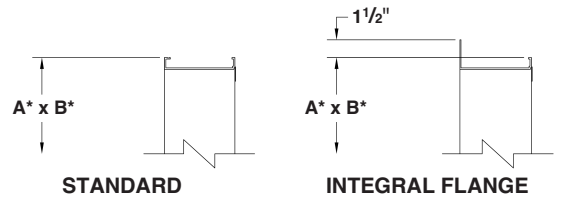
- 74% Free Area.
- Published performance ratings based on testing in accordance with AMCA Publication 511.
- Low torque operation and architecturally pleasing appearance with low leakage performance.
- Hexagonal shaped axles assure positive blade alignment and low operating torque.
- Concealed blade linkage is protected from weather exposure and reduces required installation depth.
- Jamb seals provide tight blade-to-frame closure.

### VARIATIONS

Ruskin model ELM90HFA is available with the following variations at additional cost.

- Blade edge seals.
  - Front or rear flange frame.
  - Filter racks.
  - Extended sill.
  - Front and rear security bars
  - A variety of bird and insect screens that can be mounted on rear or front of louver
  - Factory mounted and commissioned electric and pneumatic actuators, chain pull devices and manual locking handles.
  - 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).
  - Factory mounted sleeves.
- Consult Ruskin for other special requirements.

### FRAME CONSTRUCTION



Units furnished 1/4" (6) smaller than given opening dimensions.

Dimensions in inches, parenthesis ( ) indicate millimeters.

TAG	QTY.	SIZE		FRAME	VARIATIONS
		A*-WIDE	B*-HIGH		
<b>PROJECT ARCH/ENGR. REPRESENTATIVE</b>			<b>LOCATION CONTRACTOR DATE</b>		

# SUGGESTED SPECIFICATION

Furnish and install at locations shown on plans or as described in schedules. Adjustable louvers to incorporate adjustable blades in a single 6" (152) deep frame. Adjustable louvers shall be manufactured in an ISO-9001 certified factory.

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 incorporate structural supports required to withstand a wind load of 20 lbs. per sq. ft. (.96kPa). Adjustable louvers shall be furnished with bird and or insect screens, quadrant arm, electric, pneumatic or manual actuators, supports and finishes as specified and as required for a complete installation.

Louvers shall be Ruskin Model ELM90HFA extruded 6063T6 aluminum

alloy construction as follows:

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## MATERIAL

Frame: .125 (3.2) wall thickness, caulking surfaces provided.

Blades: .081 (2.1) thick drainable blades are adjustable to 90° degree angle with 5" (127) center to center blade spacing. Blades overlapping frames is unacceptable.

- Bearings: Stainless steel sleeve bearings pressed into frame
- Axle: ½" (13) diameter hexagonal positively locked into the louver blade.
- Linkage: Concealed out of airstream, within the louver frame to reduce pressure drop and noise
- Jamb Seals: Stainless steel compression type to prevent leakage between blade end and damper frame
- Screen: 5/8" x .040 (16 x 1) expanded flattened aluminum bird screen in removable frame.
- Finish: Select finish specification from Ruskin Finishes Brochure.

Published louver performance data bearing the AMCA Certified Ratings Seal for Air Performance must be submitted for approval prior to fabrication and must demonstrate pressure drop equal to or less than the Ruskin model specified. Moveable Warehouse louver shall be in all respects equivalent to the Ruskin model ELM90HFA.

# PERFORMANCE DATA

## FREE AREA GUIDE

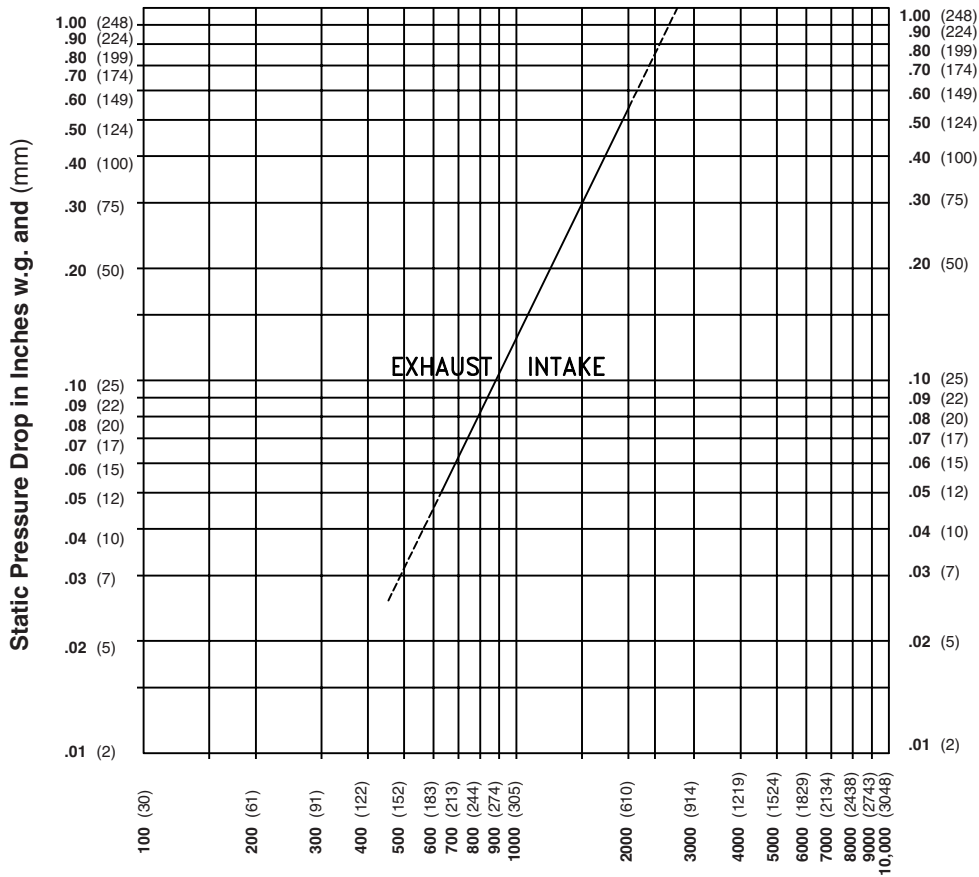
Free Area Guide shows free area in ft² and m² for various sizes of ELM90HFA.

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	0.46	0.61	0.76	0.91	1.07	1.22	1.37	1.52	1.68	1.83	1.98	2.13	2.29	2.44	2.59	2.74	2.90	3.05
12	0.43	0.68	0.94	1.19	1.45	1.71	1.96	2.22	2.47	2.65	2.90	3.16	3.41	3.67	3.93	4.18	4.44	4.69	4.95
0.30	0.04	0.06	0.09	0.11	0.13	0.16	0.18	0.21	0.23	0.25	0.27	0.29	0.32	0.34	0.37	0.39	0.41	0.44	0.46
18	0.76	1.22	1.68	2.14	2.59	3.05	3.51	3.97	4.43	4.73	5.19	5.65	6.10	6.56	7.02	7.48	7.94	8.39	8.85
0.46	0.07	0.11	0.16	0.20	0.24	0.28	0.33	0.37	0.41	0.44	0.48	0.53	0.57	0.61	0.65	0.70	0.74	0.78	0.82
24	1.14	1.82	2.51	3.19	3.87	4.56	5.24	5.92	6.61	7.06	7.75	8.43	9.11	9.80	10.48	11.16	11.85	12.53	13.21
0.61	0.11	0.17	0.23	0.30	0.36	0.42	0.49	0.55	0.61	0.66	0.72	0.78	0.85	0.91	0.97	1.04	1.10	1.17	1.23
30	1.52	2.42	3.33	4.24	5.15	6.06	6.97	7.88	8.79	9.39	10.30	11.21	12.12	13.03	13.94	14.85	15.76	16.67	17.58
0.76	0.14	0.23	0.31	0.39	0.48	0.56	0.65	0.73	0.82	0.87	0.96	1.04	1.13	1.21	1.30	1.38	1.47	1.55	1.63
36	1.83	2.93	4.02	5.12	6.22	7.32	8.41	9.51	10.61	11.34	12.44	13.53	14.63	15.73	16.83	17.92	19.02	20.12	21.22
0.91	0.17	0.27	0.37	0.48	0.58	0.68	0.78	0.88	0.99	1.05	1.16	1.26	1.36	1.46	1.56	1.67	1.77	1.87	1.97
42	2.24	3.59	4.94	6.29	7.63	8.98	10.33	11.67	13.02	13.92	15.27	16.61	17.96	19.31	20.65	22.00	23.35	24.69	26.04
1.07	0.21	0.33	0.46	0.58	0.71	0.84	0.96	1.09	1.21	1.29	1.42	1.55	1.67	1.80	1.92	2.05	2.17	2.30	2.42
48	2.58	4.13	5.68	7.23	8.78	10.33	11.87	13.42	14.97	16.00	17.55	19.10	20.65	22.20	23.75	25.30	26.85	28.39	29.94
1.22	0.24	0.38	0.53	0.67	0.82	0.96	1.10	1.25	1.39	1.49	1.63	1.78	1.92	2.06	2.21	2.35	2.50	2.64	2.78
54	2.96	4.73	6.51	8.28	10.06	11.83	13.60	15.38	17.15	18.34	20.11	21.88	23.66	25.43	27.21	28.98	30.76	32.53	34.31
1.37	0.28	0.44	0.61	0.77	0.94	1.10	1.27	1.43	1.60	1.71	1.87	2.04	2.20	2.37	2.53	2.70	2.86	3.03	3.19
60	3.33	5.33	7.33	9.33	11.33	13.33	15.33	17.33	19.33	20.67	22.67	24.67	26.67	28.67	30.67	32.67	34.67	36.67	38.67
1.52	0.31	0.50	0.68	0.87	1.05	1.24	1.43	1.61	1.80	1.92	2.11	2.29	2.48	2.67	2.85	3.04	3.22	3.41	3.60
66	3.65	5.84	8.02	10.21	12.40	14.59	16.78	18.97	21.15	22.61	24.80	26.99	29.18	31.37	33.56	35.74	37.93	40.12	42.31
1.68	0.34	0.54	0.75	0.95	1.15	1.36	1.56	1.76	1.97	2.10	2.31	2.51	2.71	2.92	3.12	3.32	3.53	3.73	3.93
72	4.06	6.50	8.94	11.38	13.82	16.25	18.69	21.13	23.57	25.19	27.63	30.07	32.51	34.94	37.38	39.82	42.26	44.70	47.13
1.83	0.38	0.60	0.83	1.06	1.28	1.51	1.74	1.97	2.19	2.34	2.57	2.80	3.02	3.25	3.48	3.70	3.93	4.16	4.38
78	4.40	7.04	9.68	12.32	14.96	17.60	20.24	22.88	25.52	27.28	29.92	32.56	35.20	37.84	40.48	43.12	45.76	48.40	51.04
1.98	0.41	0.65	0.90	1.15	1.39	1.64	1.88	2.13	2.37	2.54	2.78	3.03	3.27	3.52	3.76	4.01	4.26	4.50	4.75
84	4.78	7.64	10.51	13.37	16.24	19.10	21.97	24.83	27.70	29.61	32.47	35.34	38.21	41.07	43.94	46.80	49.67	52.53	55.40
2.13	0.44	0.71	0.98	1.24	1.51	1.78	2.04	2.31	2.58	2.75	3.02	3.29	3.55	3.82	4.09	4.35	4.62	4.89	5.15
90	5.15	8.24	11.33	14.43	17.52	20.61	23.70	26.79	29.88	31.94	35.03	38.12	41.21	44.31	47.40	50.49	53.58	56.67	59.76
2.29	0.48	0.77	1.05	1.34	1.63	1.92	2.20	2.49	2.78	2.97	3.26	3.55	3.83	4.12	4.41	4.70	4.98	5.27	5.56
96	5.47	8.75	12.02	15.30	18.58	21.86	25.14	28.42	31.70	33.89	37.17	40.45	43.73	47.00	50.28	53.56	56.84	60.12	63.40
2.44	0.51	0.81	1.12	1.42	1.73	2.03	2.34	2.64	2.95	3.15	3.46	3.76	4.07	4.37	4.68	4.98	5.29	5.59	5.90

# PRESSURE DROP



**Air Velocity in feet and (meters) per minute through Free Area**  
 (Data corrected to standard air density and AMCA figure or figures tested to 5.5)

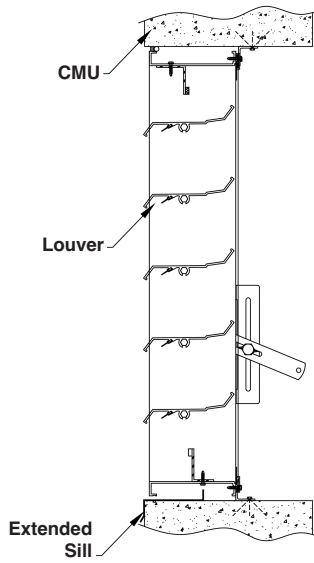


Ruskin Company certifies that the ELM90HFA louvers shown herein are licensed to bear the AMCA Seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 511 and comply with the requirements of the AMCA Certified Ratings Program. The AMCA Certified Ratings Seal applies to air performance ratings.

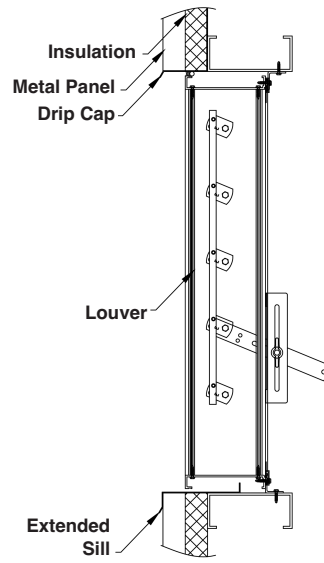
Ratings do not include the effect of a bird screen.

# TYPICAL INSTALLATION DETAILS

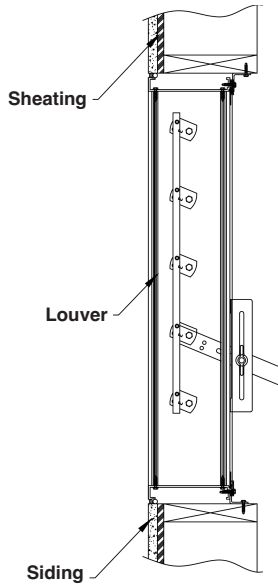
**Masonry Wall**



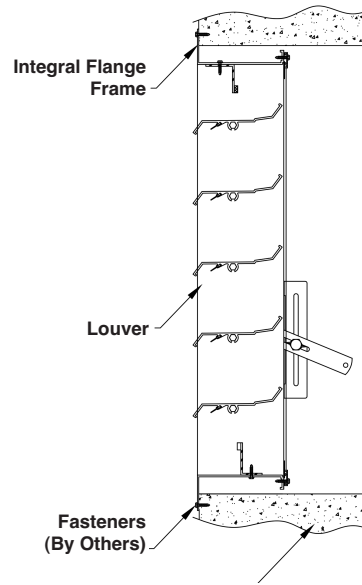
**Metal Panel Wall**



**Wood Installation**



**Flange Mount**



Accessories at additional cost.