

Aluminum FEMA 361 Louver Chevron Blade

Application and Design

AFL-501 is an aluminum louver designed to protect exterior wall penetrations on FEMA 361 or FEMA 320 compliant storm shelters or safe rooms. Design incorporates inverted V style blades, which lend high free area, good protection against water penetration under ambient conditions and very low resistance to airflow while providing maximum protection against extremely high wind loads and wind-borne debris. The AFL-501 is a UL Classified Wind-Storm Rated Assembly in accordance with FEMA Guidelines P-320 (2014) and P-361 (2015), and ICC 500 (2014) to static and cyclical design pressures of positive/negative 250 PSF and debris impact of a 15 lb 2x4 traveling at 100 MPH. The AFL-501 is an extremely efficient louver with AMCA Certified Performance Data enabling design professionals to select and apply with confidence.

Standard Construction

Mounting Channel Frame Recessed/Flush

Frame 5 1/2 in. deep formed 1/4 in. thick aluminum

Blades 3 in. x 3 in. x 1/4 in. thick inverted V style extruded aluminum

Construction . . . Welded

Screen Internally mounted 1/16 in. thick flattened expanded aluminum

Finish Mill aluminum

Mounting Angles

. Factory attached 1/4 in. thick formed aluminum

Minimum Section Size

. 11 1/2 in. W x 11 1/2 in. H (Actual)

Maximum Single Section Size

. Dependent upon substrate condition and louver configuration

Maximum Opening Width

. Unlimited, larger openings may be configured of multiple louver panels without additional structural reinforcing when configured as head and sill mount

Maximum Opening Height

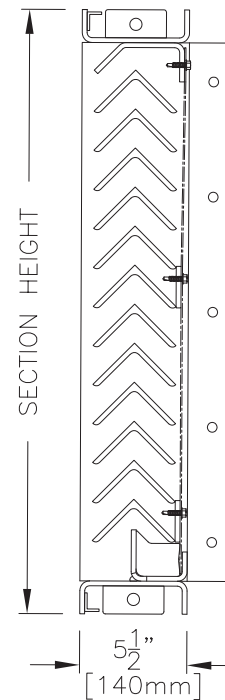
. 120 1/2 in.

*Maximum section sizes are dependent on the configuration selected. Reference the details shown herein for further information. Maximum section sizes shown are based on mill finish.

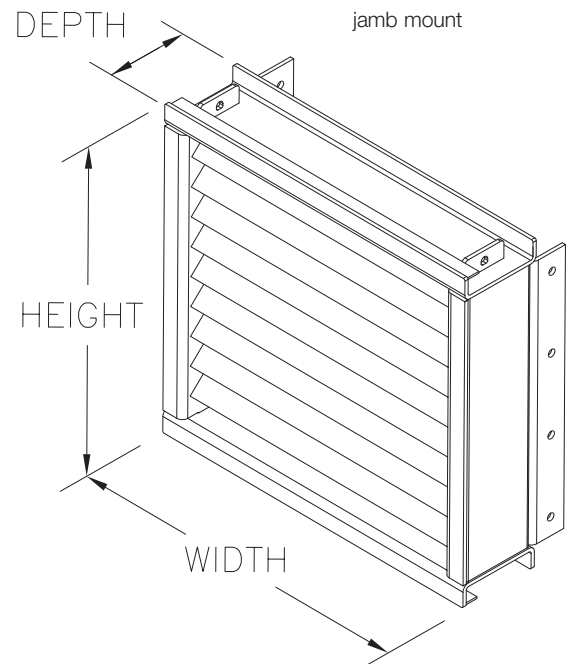
Approx. Weight . . 13 lbs./sq. ft. (integral lifting lugs included)

Options (at additional cost)


- Flanged frame
- Cantilever style mounting
- Insect screen
- Extended sills
- Variety of architectural finishes including:
 - 70% Kynar paint
 - 50% Kynar paint
 - Baked enamel paint



Shown as channel frame recessed/flush jamb mount

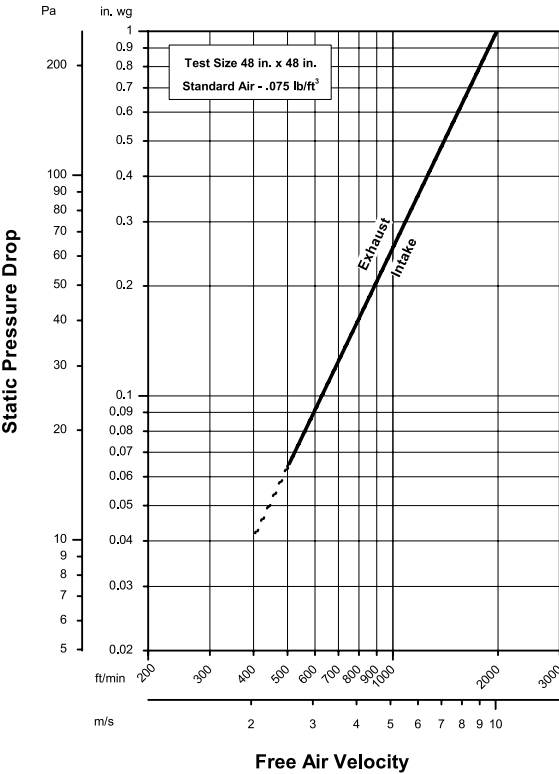


*Width and height dimensions under-sized 1/2 inch unless configured actual size. (Actual size selection only available on recessed/flush mount configuration)



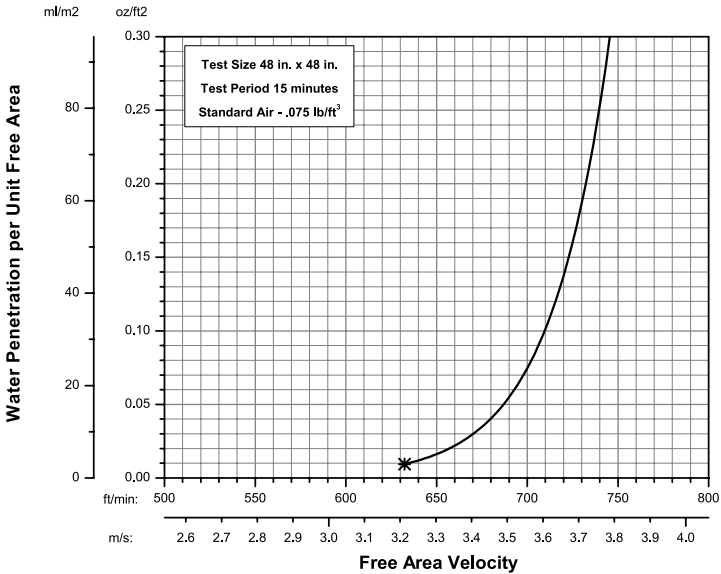
Greenheck Fan Corporation certifies that the AFL-501 louvers shown herein are licensed to bear the AMCA Seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 511 and comply with the requirements of the AMCA Certified Ratings Program. The AMCA Certified Ratings Seal applies to air performance and water penetration ratings.

Airflow Resistance (Standard Air - .075 lb/ft³)



Model AFL-501 resistance to airflow (pressure drop) varies depending on louver application (air intake or air exhaust). Free area velocities (shown) are higher than average velocity through the overall louver size. (Tested to AMCA Figure 5.5)

Water Penetration
(Test Size 48 in. x 48 in. Test Duration of 15 min.)



The AMCA Water Penetration Test provides a method for comparing various louver models and designs as to their efficiency in resisting the penetration of rainfall under specific laboratory test conditions. The beginning point of water penetration is defined as that velocity where the water penetration curve projects through 0.01 oz. of water (penetration) per sq. ft. of louver free area. ***The beginning point of water penetration for Model AFL-501 is 634 fpm free area velocity.** These performance ratings do not guarantee a louver to be weather-proof or stormproof and should be used in combination with other factors including good engineering judgement in selecting louvers.

PERFORMANCE DATA

AFL-501

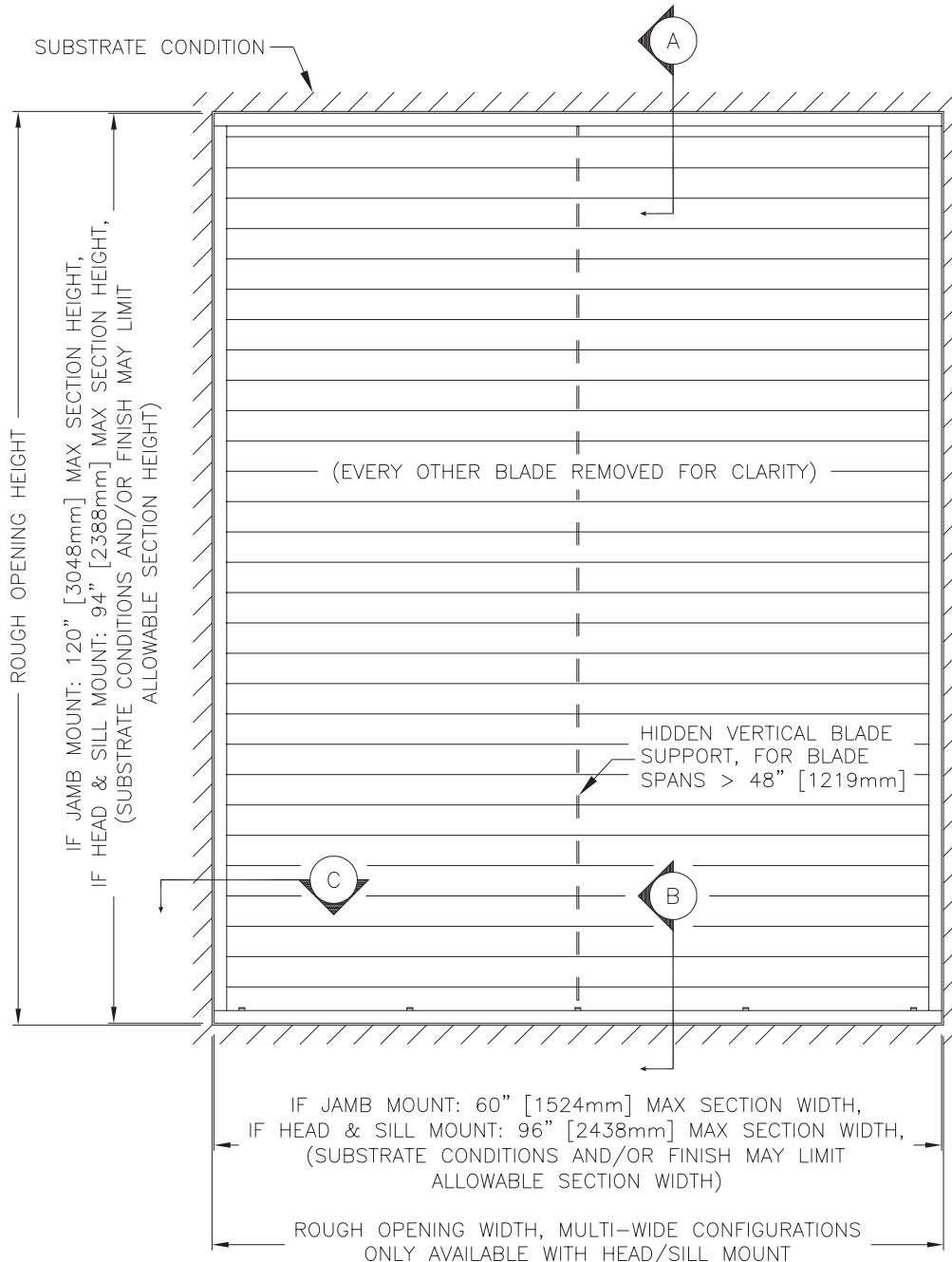
FEMA 361 Louver Chevron Blade
Aluminum

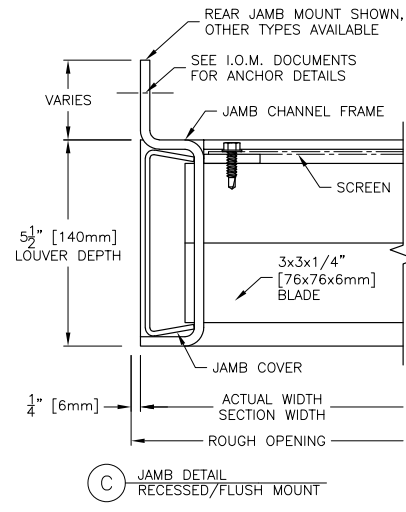
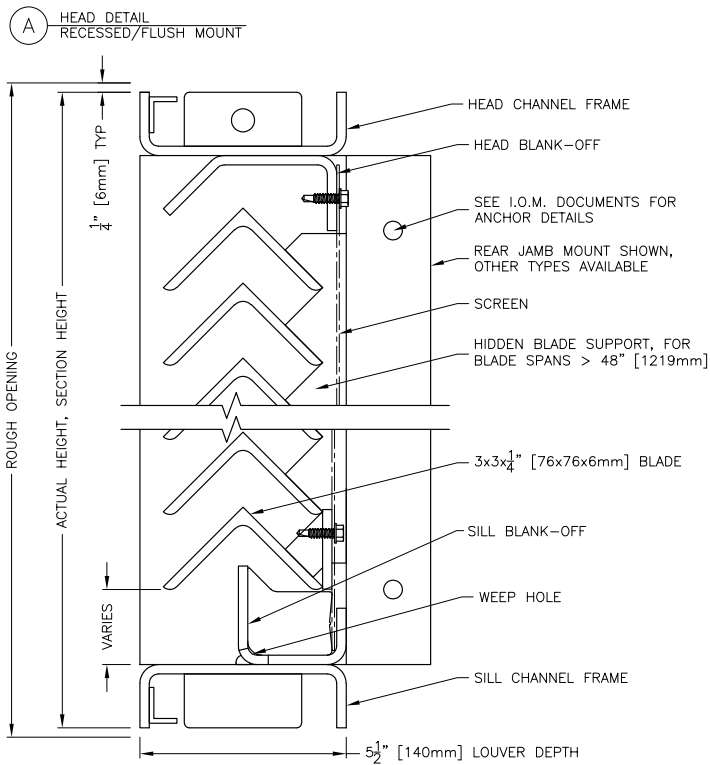
Free Area Chart (Sq. ft.)

| | | Rough Opening Width (Inches) | | | | | | | | | | | | | | | | | | | |
|---------------------------------------|----------------------------------|------------------------------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Equivalent Cantilever R.O. Size | Rough Opening Height (Inches) | Recessed/ Flanged | - | 12 | 14.13 | 20.13 | 26.13 | 32.13 | 38.13 | 44.13 | 50.13 | 56.13 | 60 | 62.13 | 68.13 | 72 | 74.13 | 80.13 | 86.13 | 92.13 | 96 |
| | | | 12 | 15.88 | 18 | 24 | 30 | 36 | 42 | 48 | 54 | 60 | 63.88 | 66 | 72 | - | 78 | 84 | 90 | 96 | - |
| - | 12 | | 0.24 | 0.35 | 0.41 | 0.58 | 0.76 | 0.93 | 1.11 | 1.28 | 1.45 | 1.62 | 1.74 | 1.80 | 1.97 | 2.08 | 2.15 | 2.32 | 2.50 | 2.67 | - |
| 12 | 15.88 | | 0.37 | 0.54 | 0.64 | 0.91 | 1.17 | 1.44 | 1.71 | 1.98 | 2.24 | 2.51 | 2.69 | 2.78 | 3.05 | 3.23 | 3.32 | 3.59 | 3.86 | 4.13 | 4.31 |
| 14.13 | 18 | | 0.43 | 0.64 | 0.75 | 1.07 | 1.38 | 1.70 | 2.02 | 2.34 | 2.64 | 2.96 | 3.16 | 3.28 | 3.59 | 3.80 | 3.91 | 4.23 | 4.55 | 4.86 | 5.07 |
| 20.13 | 24 | | 0.62 | 0.92 | 1.09 | 1.55 | 2.01 | 2.47 | 2.93 | 3.39 | 3.83 | 4.29 | 4.59 | 4.75 | 5.21 | 5.51 | 5.67 | 6.14 | 6.60 | 7.06 | 7.36 |
| 26.13 | 30 | | 0.82 | 1.21 | 1.42 | 2.03 | 2.63 | 3.23 | 3.84 | 4.44 | 5.02 | 5.63 | 6.02 | 6.23 | 6.83 | 7.23 | 7.44 | 8.04 | 8.65 | 9.25 | 9.64 |
| 32.13 | 36 | | 1.01 | 1.49 | 1.76 | 2.51 | 3.25 | 4.00 | 4.75 | 5.50 | 6.21 | 6.96 | 7.44 | 7.71 | 8.46 | 8.94 | 9.20 | 9.95 | 10.70 | 11.45 | 11.93 |
| 38.13 | 42 | | 1.21 | 1.78 | 2.10 | 2.99 | 3.88 | 4.77 | 5.66 | 6.55 | 7.40 | 8.30 | 8.87 | 9.19 | 10.08 | 10.65 | 10.97 | 11.86 | 12.75 | 13.64 | 14.21 |
| 44.13 | 48 | | 1.40 | 2.07 | 2.43 | 3.47 | 4.50 | 5.54 | 6.57 | 7.60 | 8.60 | 9.63 | 10.30 | 10.66 | 11.70 | 12.37 | 12.73 | 13.77 | 14.80 | 15.83 | 16.50 |
| 50 | 53.88 | | 1.59 | 2.35 | 2.77 | 3.95 | 5.13 | 6.30 | 7.48 | 8.66 | 9.79 | 10.96 | 11.72 | 12.14 | 13.32 | 14.08 | 14.50 | 15.67 | 16.85 | 18.03 | 18.79 |
| 50.13 | 54 | | 1.59 | 2.35 | 2.77 | 3.95 | 5.13 | 6.30 | 7.48 | 8.66 | 9.79 | 10.96 | 11.72 | 12.14 | 13.32 | 14.08 | 14.50 | 15.67 | 16.85 | 18.03 | |
| 56.13 | 60 | | 1.79 | 2.64 | 3.11 | 4.43 | 5.75 | 7.07 | 8.39 | 9.71 | 10.98 | 12.30 | 13.15 | 13.62 | 14.94 | 15.79 | 16.26 | 17.58 | 18.90 | 20.22 | |
| 62.13 | 66 | | 1.98 | 2.93 | 3.45 | 4.91 | 6.37 | 7.84 | 9.30 | 10.77 | 12.17 | 13.63 | 14.58 | 15.10 | 16.56 | 17.51 | 18.02 | 19.49 | 20.95 | 22.42 | |
| 67 | - | | 2.15 | 3.18 | 3.75 | 5.34 | 6.93 | 8.52 | 10.11 | 11.70 | 13.23 | 14.82 | 15.84 | 16.41 | 18.00 | 19.03 | | | | | |
| 68.13 | 72 | | 2.18 | 3.21 | 3.78 | 5.39 | 7.00 | 8.61 | 10.21 | 11.82 | 13.36 | 14.97 | 16.00 | 16.57 | 18.18 | | | | | | |
| 72.13 | 76 | | 2.31 | 3.41 | 4.01 | 5.71 | 7.41 | 9.12 | 10.82 | 12.52 | 14.15 | 15.86 | 16.96 | 17.56 | 19.26 | | | | | | |
| 74.13 | 78 | | 2.37 | 3.50 | 4.12 | 5.87 | 7.62 | 9.37 | 11.12 | 12.87 | 14.55 | 16.30 | 17.43 | | | | | | | | |
| 80.13 | 84 | | 2.56 | 3.79 | 4.46 | 6.35 | 8.25 | 10.14 | 12.03 | 13.93 | 15.74 | 17.64 | 18.86 | | | | | | | | |
| 86.13 | 90 | | 2.76 | 4.07 | 4.80 | 6.83 | 8.87 | 10.91 | 12.94 | 14.98 | 16.93 | 18.97 | 20.29 | | | | | | | | |
| 92.13 | 96 | | 2.95 | 4.36 | 5.13 | 7.31 | 9.49 | 11.67 | 13.85 | 16.03 | 18.12 | 20.30 | 21.71 | | | | | | | | |
| 98.13 | 102 | | 3.15 | 4.65 | 5.47 | 7.79 | 10.12 | 12.44 | 14.76 | 17.09 | 19.31 | 21.64 | 23.14 | | | | | | | | |
| 104.13 | 108 | | 3.34 | 4.93 | 5.81 | 8.27 | 10.74 | 13.21 | 15.67 | 18.14 | 20.51 | 22.97 | 24.57 | | | | | | | | |
| 110.13 | 114 | | 3.53 | 5.22 | 6.14 | 8.75 | 11.37 | 13.98 | 16.59 | 19.20 | 21.70 | 24.31 | 25.99 | | | | | | | | |
| 116.13 | 120 | | 3.73 | 5.51 | 6.48 | 9.24 | 11.99 | 14.74 | 17.50 | 20.25 | 22.89 | 25.64 | 27.42 | | | | | | | | |
| 120 | - | | - | 5.70 | 6.71 | 9.56 | 12.40 | 15.25 | 18.10 | 20.95 | 23.68 | 26.53 | 28.37 | | | | | | | | |

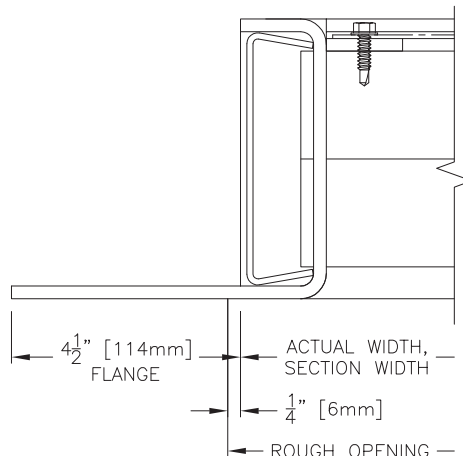
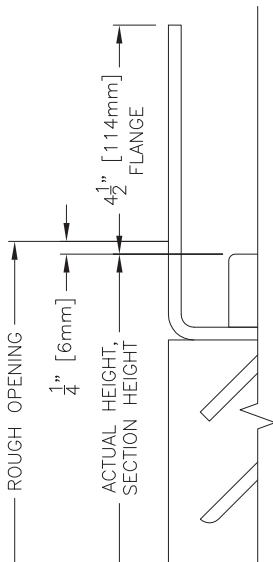
Maximum single section size for model AFL-501 is contingent on the configuration required and existing building substrate conditions. Reference information shown herein along with information shown on individual configuration IOM documents for sizing constraints along with installation anchorage requirements. When configured as head and sill mount individual AFL-501 sections may be stacked side-by-side without additional reinforcing. When configured as recessed/flush mount model AFL-501 width and height dimensions will be undersized ½ in. when compared to the specified or ordered rough opening dimensions. Structural reinforcing members along with any associated installation hardware is not provided by Greenheck unless indicated otherwise by Greenheck. Options and accessories are not subject to structural analysis unless indicated otherwise by Greenheck.

Recessed/Flush Jamb Mount



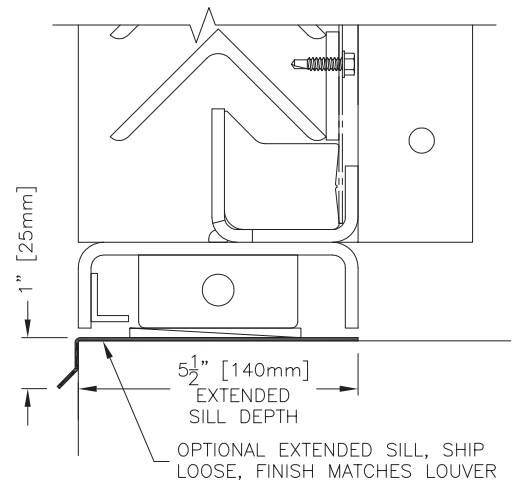


(B) SILL DETAIL
RECESSED/FLUSH MOUNT



(D) HEAD DETAIL, SILL SIMILAR
OPTIONAL COSMETIC FLANGE

(E) JAMB DETAIL, TYP
OPTIONAL COSMETIC FLANGE



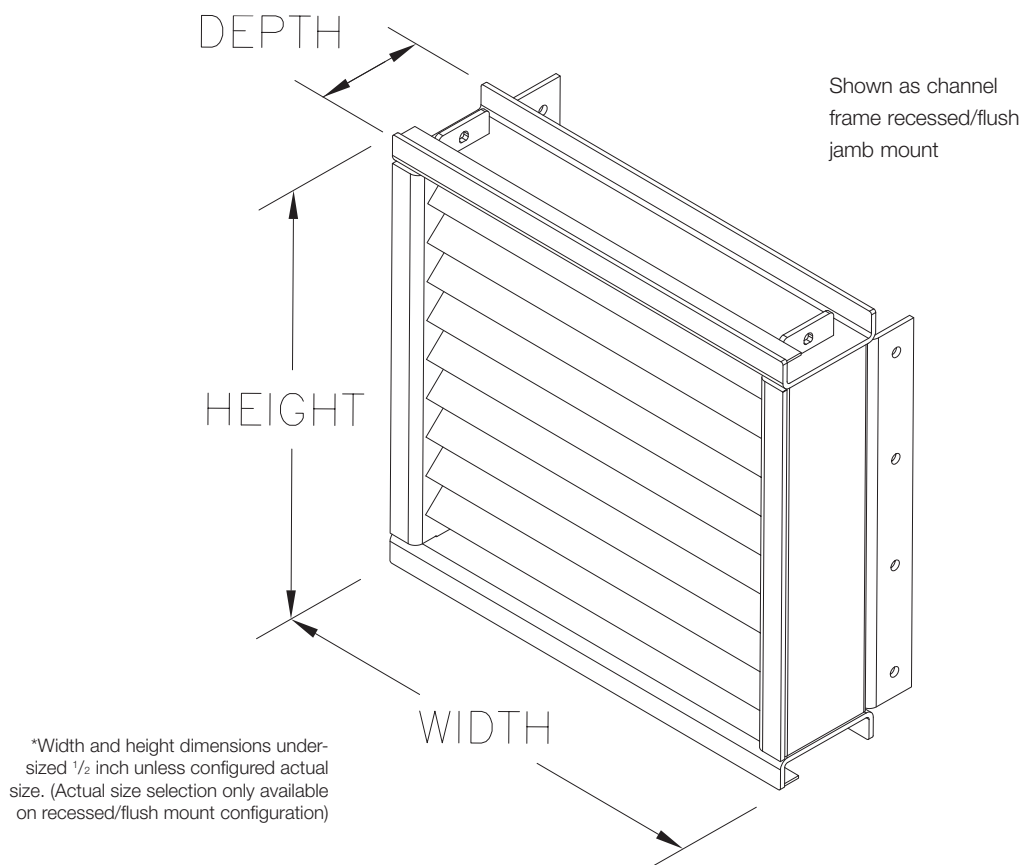
(F) SILL DETAIL
OPTIONAL EXTENDED SILL

SIZE LIMITATIONS

AFL-501

FEMA 361 Louver Chevron Blade
Aluminum

| | | | | Max Section Size (in.) | | Aluminum | | |
|------------------------------|---------------------------------------|-----------------|---|---------------------------------------|---------------------------------------|--|----------|---|
| Substrate Material | Min Structure Depth (in.) | Anchor Location | Configuration | Mill | Finished | Notes | | |
| Concrete | 7 or more | Jambs | Flush (Rear) Mount, No Flange | 60 x 120 | | Wall depth < 11 in. requires secondary mounting angle. | | |
| | | | Flush (Rear) Mount w/ Cosmetic Flange | 60 x 120 | 60 x 112 | | | |
| | | | Exterior/Interior Flange | 54 x 120 | 54 x 104 or 48 x 116 | | | |
| | | | Exterior/Interior Cantilever | 60 x 120 | 60 x 88 or 48 x 104 | | | |
| | | Head & Sill | Flush (Rear) Mount, No Flange | 48 x 94 72 x 76 (1) 96 x 66 | | Wall depth < 12 in. requires secondary mounting angle. (1) Height reduced to 64 in. if secondary mounting angle is required. | | |
| | | | Flush (Rear) Mount w/ Cosmetic Flange | 48 x 94 | | | | |
| | | | | 72 x 76 (1) | 72 x 68 (1) | | | |
| | | | | 96 x 66 | | | | |
| | | | Exterior/Interior Flange | 48 x 94 72 x 64 96 x 48 | | | | |
| | | | Exterior/Interior Cantilever | 48 x 94 | | | | |
| | | | | 72 x 67 | 72 x 58 | | | |
| | | | | 96 x 50 | | | | |
| Grout Filled CMU | 8 or more | Jambs | Flush (Rear) Mount, No Flange | 60 (2) x 120 | | Wall depth < 12 in. requires secondary mounting angle. (2) Width reduced to 48 in. if secondary mounting angle is required. | | |
| | | | Flush (Rear) Mount w/ Cosmetic Flange | 60 (2) x 120 | 60 (2) x 112 | | | |
| | | | Exterior/Interior Flange | 54 x 120 | 54 x 104 48 x 116 | | | |
| | | | Exterior/Interior Cantilever | 60 x 120 | 60 x 88 48 x 104 | | | |
| | | Head & Sill | Flush (Rear) Mount, No Flange or w/ Cosmetic Flange | 48 x 72 72 x 48 96 x 36 | | Secondary mounting angle is always required. | | |
| | | | Exterior/Interior Flange | 48 x 48 72 x 32 | | | | |
| | | | Exterior/Interior Cantilever | 48 x 84 72 x 56 96 x 42 | | | | |
| | | Steel | 5 or more | Jambs | Flush (Rear) Mount, No Flange | 60 x 120 | | Wall depth < 8 in. requires secondary mounting angle. |
| | | | | | Flush (Rear) Mount w/ Cosmetic Flange | 60 x 120 | 60 x 112 | |
| Exterior/Interior Flange | 60 x 120 | | | | 60 x 102 48 x 120 | Structure depth can be less if minimum embedment is satisfied. | | |
| Exterior/Interior Cantilever | 60 x 120 | | | | 60 x 88 48 x 104 | | | |
| Head & Sill | Flush (Rear) Mount, No Flange | | | 48 x 94 72 x 76 (3) 96 x 66 (4) | | Wall depth < 10 in. requires secondary mounting angle. (3) Height reduced to 64 in. if secondary mounting angle is required. (4) Height reduced to 48 in. if secondary mounting angle is required. | | |
| | Flush (Rear) Mount w/ Cosmetic Flange | | | 48 x 94 | | | | |
| | | | | 72 x 76 (3) | 72 x 68 (3) | | | |
| | | | | 96 x 66 (4) | | Structure depth can be less if minimum embedment is satisfied. | | |
| | Exterior/Interior Flange | | | 48 x 94 72 x 64 96 x 48 | | | | |
| | Exterior/Interior Cantilever | | | 48 x 94 | | | | |
| | | | | 72 x 67 | 72 x 58 | | | |
| | | | | 96 x 50 | | | | |



FINISHES

| Finish Type | Description/Application | Color Selection | Standard Warranty (Aluminum) |
|---|--|---|---------------------------------|
| AAMA 2605 100% Fluoropolymer (FEVE) 2-Coat 70% Kynar® (PVDF) 3-Coat 70% Kynar® (PVDF) 4-Coat 70% Kynar® (PVDF) | "Best." The premier finish for extruded aluminum. Tough, long-lasting coating has superior color retention and abrasive properties. Resists chalking, fading, chemical abrasion and weathering. | Standard Colors: Any of the 27 standard colors shown can be furnished in 70% or 50% Kynar®, 100% Fluoropolymer or Baked Enamel. Mica Colors: Greenheck offers 6 standard Mica colors for 70% Kynar® or 100% Fluoropolymer. Custom Colors: Custom color matching is available. Consult your Greenheck representative for cost and/or lead-time implications if a custom color is required. | 10 Years (20 Years Optional) |
| AAMA 2604 50% Kynar® / Acroflur® | "Better." Tough, long-lasting coating has excellent color retention and abrasive properties. Resists chalking, fading, chemical abrasion and weathering. | | 5 Years |
| AAMA 2603 Baked Enamel | "Good." Provides good adhesion and resistance to weathering, corrosion and chemical stain. | | 1 Year |
| Prime Coat | Louvers or architectural products shall be cleaned, pre-treated and receive a prime coat finish suitable for field painting. Greenheck does not recommend prime coat or field painting of materials. | | n/a |
| Mill | Materials may be supplied in natural aluminum or galvanized steel finish when normal weathering is acceptable and there is no concern for color or color change. | | n/a |

Finishes meet or exceed AAMA 2605, AAMA 2604, and AAMA 2603 requirements. Please consult www.greenheck.com for complete information on standard and extended paint warranties. Paint finish warranties are not applicable to steel products.

