

# Louver Products

## Severe Duty, Stationary, Operable



BUILDING VALUE IN AIR.

 **GREENHECK**  
Building Value in Air.

November  
2017

In an effort to help locate and select the louver you need, this catalog organizes the more than 100 standard Greenheck louver models into easily navigated categories, organized by your application requirements.



## Conventional Application Louvers

### *Fixed Blade*

These conventional fixed blade louvers are among our most popular. All shown are AMCA Licensed for Air Performance and Water Penetration and may be applied in conventional intake or exhaust applications where provisions to manage water are present or some nuisance weather infiltration is acceptable or accounted for. These louvers shown are among the most economical options.



**EDJ-401**  
4-inch depth  
Stationary  
Drainable Head  
Extruded Aluminum  
J-Blade



**ESJ-401**  
4-inch depth  
Stationary  
Non-Drainable  
Extruded Aluminum  
J-Blade



**ESD-435**  
4-inch depth  
Stationary  
Drainable Blades  
Drainable Head  
Extruded Aluminum

56% Free Area



**ESJ-602**  
6-inch depth  
Stationary  
Non-Drainable  
Extruded Aluminum  
J-Blade



**ESD-635**  
6-inch depth  
Stationary  
Drainable Blades  
Drainable Head  
Extruded Aluminum

59% Free Area

## Wind Driven Rain Louvers

### Fixed Blade

These high performance wind driven rain fixed blade louvers are among our most popular. All shown are AMCA Licensed for Air Performance, Water Penetration and Wind Driven Rain and may be applied in intake or exhaust applications where provisions to manage water are limited. Wind Driven Rain louvers offer far superior protection against driving rain when compared to conventional louvers. Horizontal blade wind driven rain louvers perform extremely well, but vertical blade products offer the best performance considering both weather resistance and airflow performance. These louvers are commonly applied on Data Center projects.

#### EHH-501

5-inch depth  
Stationary  
Extruded Aluminum  
Horizontal Rain  
Resistant Blade



#### EVH-301

3-inch depth  
Stationary  
Extruded Aluminum  
Vertical Rain  
Resistant Blade

53% Free Area

#### EHH-601

6-inch depth  
Stationary  
Extruded Aluminum  
Horizontal Rain  
Resistant Blade



#### EVH-501

5-inch depth  
Stationary  
Extruded Aluminum  
Vertical Rain  
Resistant Blade

54% Free Area

## FEMA 361 Tornado Louver

This FEMA 361 louver is our most popular. The louver is tested in accordance to the ICC 500-2008 debris impact standard, which is a 15 lb. 2 x 4 traveling at 100 MPH. The louver is certified to withstand extremely high wind loads and is AMCA Licensed for Air Performance and Water Penetration. Additionally, this louver is a UL Classified Windstorm Rated assembly.



#### AFL-501

5-inch depth  
Stationary  
Extruded Aluminum  
Inverted V-Blade

## Miami-Dade County Qualified Florida Building Code Approved Hurricane Louvers

These Miami-Dade Approved and/or Florida Building Code Approved high performance products are among our most popular. All are tested and certified to withstand extremely high wind loads, wind borne debris impacts and, in some cases, high velocity wind driven rain. All are AMCA Licensed for Air Performance and Water Penetration. EHH and EVH models are also AMCA Licensed for Wind Driven Rain. **All are AMCA 540 Listed for wind borne debris impact resistance. EVH models are also AMCA 550 Listed for High Velocity Wind Driven Rain.**

### ESD-635X

6-inch depth  
Stationary  
Extruded Aluminum  
Florida Approved  
Drainable Blade



### EVH-501D

5-inch depth  
Stationary  
Drainable Head  
Miami-Dade Approved  
Vertical Rain  
Resistant Blades



55% Free Area

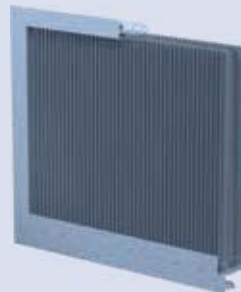
### EHH-501X

5-inch depth  
Stationary  
Extruded Aluminum  
Florida Approved  
Horizontal Rain  
Resistant Blade



### EVH-660D

6-inch depth  
Stationary  
Extruded Aluminum  
Miami-Dade Approved  
Vertical Rain  
Resistant Blades



### ESD-635D/DE

6-inch depth  
Stationary  
Extruded Aluminum  
Miami-Dade Approved  
Drainable Blade  
DE Lowest Cost



### EACA-601D

6-inch depth  
Combo Louver/Damper  
Extruded Aluminum  
Miami-Dade Approved  
Drainable Front Blade  
Airfoil Damper Blade



### EHH-601D/DE

6-inch depth  
Stationary  
Extruded Aluminum  
Miami-Dade Approved  
Horizontal Rain  
Resistant Blade  
DE Lowest Cost



## Adjustable Blade Louvers and Combination Louver/Dampers

These adjustable blade louvers and combination louver/dampers are among our most popular. Most often these louvers are powered open or closed via electric actuators, which are most frequently supplied and factory adjusted by Greenheck. All shown are AMCA Licensed for Air Performance and Water Penetration (EAH-690 Air Performance only). The most common application for these louvers are outside air intake or exhaust for warehouses, distribution facilities and manufacturing plants.



68% Free Area

### EAH-690

6-inch depth  
Adjustable  
Full Open 90° blades  
Extruded Aluminum

**EAD-601**  
6-inch depth  
Adjustable  
45° Drainable Blades  
Extruded Aluminum



### EACA-601

6-inch depth  
Adjustable  
Combo Louver/Damper  
Extruded Aluminum  
Airfoil Drainable Blades



**EAD-635**  
6-inch depth  
Adjustable  
35° Drainable Blades  
Extruded Aluminum



55% Free Area

### ECD-601

6-inch depth  
Adjustable  
Combo Louver/Damper  
Extruded Aluminum  
Drainable Front Blade



## Acoustical Louvers

These acoustical louvers are among our most popular. The louver blades are lined with sound absorbing insulation which results in a product that is highly effective at reducing nuisance noise to the exterior. All are AMCA Licensed for Air Performance, Water Penetration and Sound.



### AFJ-801

8-inch depth  
Stationary  
Formed Aluminum  
Insulated J-Blade

**AFJ-601**  
6-inch depth  
Stationary  
Formed Aluminum  
Insulated J-Blade



### AFA-801

8-inch depth  
Stationary  
Formed Aluminum  
Insulated Airfoil Blade



# Louver Selection Guide

Louvers		Airflow		Aesthetics		AMCA Certifications					
Type	Model	Free Area 48 x 48 in. (sq. ft.)	Free Area 48 x 48 in. (%)	Depth (in.)	Blade Alignment	Wind Driven Rain	Water Penetration	Air Performance	Sound	AMCA 540	AMCA 550
Drainable Blade <i>page 9</i>	EDD-401	8.22	51	4	H		✓	✓			
	EDD-601	8.21	51	6	H		✓	✓			
	EHM-601	7.91	49	6	H		✓	✓			
	ESD-202	6.01	38	2	H		✓	✓			
	ESD-403	8.00	50	4	H		✓	✓			
	ESD-435	8.92	56	4	H		✓	✓			
	ESD-603	8.36	52	6	H		✓	✓			
	ESD-635	9.41	59	6	H		✓	✓			
Drainable Head <i>page 10</i>	EDJ-401	8.32	52	4	H		✓	✓			
	EDJ-430	8.35	52	4	H		✓	✓			
	EDJ-601	8.69	54	6	H		✓	✓			
	EDK-402	8.49	53	4	H		✓	✓			
	EDK-430	8.80	55	4	H		✓	✓			
	ESID-430 DISCHARGE	10.88	68	4	H						
	ESID-430 INTAKE	7.66	48	4	H						
Non-Drainable <i>page 11</i>	ESJ-202	6.01	38	2	H		✓	✓			
	ESJ-401	8.44	53	4	H		✓	✓			
	ESJ-602	8.73	55	6	H		✓	✓			
	ESK-402	8.45	53	4	H		✓	✓			
Adjustable Blade <i>page 12</i>	EAD-401	6.54	41	4	H		✓	✓			
	EAD-601	7.34	46	6	H		✓	✓			
	EAD-635	8.73	55	6	H		✓	✓			
	EAH-401	6.48	41	4	H		✓	✓			
	EAH-690 (45° BLADE)	6.32	40	6	H			✓			
	EAH-690 (90° BLADE)	10.87	68	6	H			✓			
Combination Louvers/Damper <i>page 13</i>	EAC-401	6.34	40	4	H		✓	✓			
	EAC-601	7.41	46	6	H		✓	✓			
	EACA-601	7.68	48	6	H		✓	✓			
	EACC-401	5.41	34	4	H						
	EACC-601	6.20	39	6	H						
	EACN-601	7.18	45	6	H		✓	✓			
	ECD-401	7.60	48	4	H		✓	✓			
	ECD-601	7.32	46	6	H		✓	✓			
	GCE-402	6.36	40	4	H						
	GCI-402	6.39	40	4	H						

# Louver Selection Guide

Louvers		Airflow		Aesthetics		AMCA Certifications					
Type	Model	Free Area 48 x 48 in. (sq. ft.)	Free Area 48 x 48 in. (%)	Depth (in.)	Blade Alignment	Wind Driven Rain	Water Penetration	Air Performance	Sound	AMCA 540	AMCA 550
<b>Sightproof</b> <i>page 14</i>	SED-401	5.16	32	4	H		✓	✓			
	SED-501	9.11	57	5	H		✓	✓			
	SEH-401	5.16	32	4	H		✓	✓			
	SES-202	3.75	24	2	H		✓	✓			
<b>Wind Driven Rain</b> <i>page 15</i>	EHH-201	6.20	39	2	H	✓	✓	✓			
	EHH-401	6.72	42	4	H	✓	✓	✓			
	EHH-501	6.80	43	5	H	✓	✓	✓			
	EHH-601	7.58	47	6	H	✓	✓	✓			
	EHH-701	6.99	43	7	H	✓	✓	✓			
	EVH-301	8.40	53	3	V	✓	✓	✓			
	EVH-501	8.77	55	5	V	✓	✓	✓			
<b>Florida Product Approved</b> <i>page 16</i>	EHH-501X	6.80	43	5	H	✓	✓	✓		✓	
	ESD-435X	8.92	56	4	H		✓	✓		✓	
	ESD-635X	9.41	59	6	H		✓	✓		✓	
<b>Miami-Dade Qualified</b> <i>page 18-19</i>	AFJ-601D	4.89	31	6	H		✓	✓	✓	✓	
	EACA-601D	7.27	45	6	H		✓	✓		✓	✓
	EHH-601D*	7.58	47	6	H	✓	✓	✓		✓	
	EHH-601DE	7.58	47	6	H	✓	✓	✓		✓	
	ESD-635D*	9.41	59	6	H		✓	✓		✓	
	ESD-635DE*	9.41	59	6	H		✓	✓		✓	
	EHV-901	8.66	54	9	H/V	✓	✓	✓		✓	✓
	EHV-901D	8.66	54	9	H/V	✓	✓	✓		✓	✓
	ESS-502D	8.19	51	5	H		✓	✓		✓	
	EVH-501D	8.77	55	5	V	✓	✓	✓		✓	✓
<b>Thinline</b> <i>page 20</i>	ESJ-155	7.35	46	1.5	H						
	ESU-153	11.20	70	1.5	H						
	ESU-153S	11.64	73	1.125	H						
	ESU-154	8.49	53	1.5	H						
	ESU-154S	8.77	55	1.125	H						
<b>Acoustical</b> <i>page 21</i>	AFA-801	5.21	33	8	H		✓	✓	✓		
	AFJ-120	3.39	21	12	H		✓	✓	✓		
	AFJ-601	4.89	31	6	H		✓	✓	✓		
	AFJ-801	4.28	27	8	H		✓	✓	✓		
	AFS-120	4.27	27	12	H		✓	✓	✓		
<b>Fabricated</b> <i>page 22</i>	FAD-402	5.98	38	4	H		✓	✓			
	FAD-635	8.77	55	6	H		✓	✓			
	FDS-402	7.03	44	4	H		✓	✓			
	FDS-602	8.15	51	6	H		✓	✓			
	FSJ-402	7.55	47	4	H		✓	✓			
	FSJ-602	7.57	47	6	H		✓	✓			

\*Optional factory installed VCD-40 control damper



Greenheck louvers are available in unlimited standard configurations that meet or exceed the industry's most stringent test performance standards while also providing exceptional aesthetic appeal. Choose from extruded aluminum or galvanized steel louvers with a variety of accessories, blade, head and sill designs to fit your application perfectly. Nearly all products are available in both standard and custom finishes and colors that compliment building facades.

### **In-House Product Testing**

Our modern testing facilities position us as an industry leader in developing products that have exceptional performance. Our laboratory is devoted exclusively to the development and testing of louver products to meet the latest AMCA, Miami-Dade County and other industry standards.

### **Quick Build**

Greenheck's Louver quick build program consists of the most complete offering of louvers anywhere. Customers may select 1, 3, 5, and 10-day manufacturing cycles with mill finished louvers or 5, 10, and 15-day manufacturing cycles with finished louvers.

### **Options and Accessories**

We have a full line of accessories, so whether your project necessitates security bars or filter racks, we have what you need. An extensive line of standard finishes, including Kynar® paint, baked enamel paint, industrial coatings or anodize finishes are also available. In addition to our complete line of standard colors, our custom color matching capabilities are endless. These accessories and options allow Greenheck to complete your project just as you envision it.

### **Building Value in Air**

Greenheck Louvers deliver value to mechanical engineers by helping them select the correct louver for their specific application with a comprehensive collection of top quality, innovative louver products. We offer extra value to contractors by providing easy-to-install, competitively priced, reliable products that arrive on time.



- Drainable blades offer excellent resistance to water penetration
- Drain gutters located on every blade to capture water
- Integral downspouts located within the jambs to channel water downward to sloped sill for drainage away from the louver
- **EDD Series** incorporates dual drainable blades for additional water capture
- **EHM Series** incorporates recessed mullion design for continuous blade appearance for multi-width sections
- **Models ESD-435 and ESD-635** lend 56% and 59% free area respectfully



EDD-401



EHM-601



ESD-403



ESD-435



ESD-603



ESD-635

Model Name	Depth (in.)	Blade Style	Blade Thickness (in.)	Frame Thickness (in.)	AMCA Licensed Ratings	Free Area 4' x 4' Unit	Beginning Point of Water Penetration (ft/min)	Pressure Drop @ 6,000 CFM Intake Velocity (in. wg)	Max Intake Volume Flow Rate (cfm)	Exhaust Volume Flow Rate @ 0.15 in. wg (cfm)
EDD-401	4	DD	0.081	0.081	AP, WP	8.22 51	992	0.08	8154	8312
EDD-601	6	DD	0.081	0.081	AP, WP	8.21 51	1107	0.08	9088	8399
EHM-601	6	DD	0.081	0.081	AP, WP	7.91 49	1065	0.09	8424	6577
ESD-202	2	D	0.063	0.063	AP, WP	6.01 38	1058	0.15	6359	5963
ESD-403	4	D	0.081	0.081	AP, WP	8.00 50	1007	0.08	8056	8188
ESD-435	4	D	0.081	0.081	AP, WP	8.92 56	989	0.06	8822	9219
ESD-603	6	D	0.081	0.081	AP, WP	8.36 52	1027	0.08	8586	8359
ESD-635	6	D	0.081	0.081	AP, WP	9.41 59	1250	0.06	11763	9954

DD = Dual Drainable, D = Drainable

AP = Air Performance, WP = Water Penetration

- Drainable head member improves ability to prevent water penetration due to an additional drain gutter
- **Models EDJ-430** and **EDK-430** have optional 30-degree blades designed to maximize free area
- **Model ESID-430** is an air intake/discharge louver, which helps prevent the short cycling of air



EDJ-401



EDJ-430



EDJ-601



EDK-402



EDK-430



ESID-430

Model Name	Depth (in.)	Blade Style	Blade Thickness (in.)	Frame Thickness (in.)	AMCA Licensed Ratings	Free Area 4' x 4' Unit	Beginning Point of Water Penetration (ft/min)	Pressure Drop @ 6,000 CFM Intake Velocity (in. wg)	Max Intake Volume Flow Rate (cfm)	Exhaust Volume Flow Rate @ 0.15 in. wg (cfm)
EDJ-401	4	J	0.081	0.081	AP, WP	8.32 52	963	0.08	8012	8325
EDJ-430	4	J	0.081	0.081	AP, WP	8.35 52	941	0.06	7861	9139
EDJ-601	6	J	0.081	0.081	AP, WP	8.69 54	998	0.07	8673	8563
EDK-402	4	K	0.081	0.081	AP, WP	8.49 53	934	0.08	7930	8219
EDK-430	4	K	0.081	0.081	AP, WP	8.80 55	1002	0.06	8818	9309
ESID-430 (Intake)	4	K	0.081	0.081	NR	7.66 48	-	-	4979	-
ESID-430 (Discharge)	4	DC	0.081	0.081	NR	10.88 68	-	-	-	13056

J = J Style, K = K Style, DC = Discharge

AP = Air Performance, WP = Water Penetration, NR = Not Rated

- Traditional stationary J or K blade styles
- K blade has an additional offset or “rain hook” for extra protection against water penetration
- Design incorporates hidden mullions for continuous blade appearance when multi-width sections are needed



ESJ-202



ESJ-401



ESJ-602



ESK-402

Model Name	Depth (in.)	Blade Style	Blade Thickness (in.)	Frame Thickness (in.)	AMCA Licensed Ratings	Free Area 4' x 4' Unit	Beginning Point of Water Penetration (ft/min)	Pressure Drop @ 6,000 CFM Intake Velocity (in. wg)	Max Intake Volume Flow Rate (cfm)	Exhaust Volume Flow Rate @ 0.15 in. wg (cfm)
ESJ-202	2	J	0.063	0.063	AP, WP	6.01 38	688	0.16	4015	5853
ESJ-401	4	J	0.081	0.081	AP, WP	8.44 53	691	0.09	5832	7962
ESJ-602	6	J	0.081	0.081	AP, WP	8.73 55	739	0.08	6452	8401
ESK-402	4	K	0.081	0.081	AP, WP	8.45 53	689	0.08	5822	8216

J = J Style, K = K Style

AP = Air Performance, WP = Water Penetration

- Design incorporates operable blades that can be opened or closed to protect air intake and exhaust openings in exterior building walls
- Louver blades are center pivoted and can be operated manually or by electric or pneumatic actuators
- **EAD** and **EAH Series** offer concealed blade linkage
- **Model EAH-690** provides 68% free area when blades are in full 90-degree open position



EAD-401



EAD-601



EAD-635



EAH-401



EAH-690

Model Name	Depth (in.)	Blade Style	Blade Thickness (in.)	Frame Thickness (in.)	AMCA Licensed Ratings	Free Area 4' x 4' Unit		Beginning Point of Water Penetration (ft/min)	Pressure Drop @ 6,000 CFM Intake Velocity (in. wg)	Max Intake Volume Flow Rate (cfm)	Exhaust Volume Flow Rate @ 0.15 in. wg (cfm)
						ft <sup>2</sup>	%				
EAD-401	4	DA	0.081	0.125	AP, WP	6.54	41	920	0.11	6017	7074
EAD-601	6	DA	0.081	0.125	AP, WP	7.34	46	1007	0.09	7391	7962
EAD-635	6	DA	0.081	0.125	AP, WP	8.73	55	1107	0.05	9664	9932
EAH-401	4	J	0.081	0.125	AP, WP	6.48	41	1023	0.19	6629	5397
EAH-690 (45° Blade)	6	J	0.081	0.125	AP	6.32	40	1069	-	6756	5056
EAH-690 (90° Blade)	6	J	0.081	0.125	AP	10.87	68	-	-	-	10055

DA = Drainable Adjustable, J - J Blade

AP = Air Performance, WP = Water Penetration

- Maintains a stationary appearance when adjustable blades are closed
- **ECD Series** offer exposed on-blade linkage
- **EAC Series** and **Model EACN-601** offer concealed linkage and center pivot operable blades
- **Model EACA-601** incorporates airfoil blades
- **EACC Series** offer both concealed blade linkage and concealed electric actuator
- **GCE** and **GCI Series** require an exhaust or intake fan for proper operation



EAC-401



EACA-601



EACC-401



EACN-601



ECD-401



ECD-601



GCE-402



GCI-402

Model Name	Depth (in.)	Blade Style	Blade Thickness (in.)	Frame Thickness (in.)	AMCA Licensed Ratings	Free Area 4' x 4' Unit	Beginning Point of Water Penetration (ft/min)	Pressure Drop @ 6,000 CFM Intake Velocity (in. wg)	Max Intake Volume Flow Rate (cfm)	Exhaust Volume Flow Rate @ 0.15 in. wg (cfm)
EAC-401	4	DA	0.081	0.125	AP, WP	6.34 40	1192	0.15	7557	6062
EAC-601	6	DA	0.081	0.125	AP, WP	7.41 46	1020	0.11	7558	7146
EACA-601	6	DAF	0.081	0.125	AP, WP	7.68 48	1221	0.06	9377	9586
EACC-401	4	DA	0.081	0.125	NR	5.41 34	1192	0.20	6449	5171
EACC-601	6	DA	0.081	0.125	NR	6.20 39	1020	0.15	6324	5977
EACN-601	6	J	0.081	0.125	AP, WP	7.18 45	1193	0.09	8566	7593
ECD-401	4	DA	0.081	0.081	AP, WP	7.60 48	1018	0.09	7737	7769
ECD-601	6	DA	0.081	0.081	AP, WP	7.32 46	1035	0.09	7576	7700
GCE-402	4	JG	0.081	0.081	NR	6.36 40	-	-	-	-
GCI-402	4	JG	0.081	0.081	NR	6.39 40	-	-	-	-

DA = Drainable Adjustable, DAF = Drainable Airfoil, J = J Blade, JG = J Blade Gravity

AP = Air Performance, WP = Water Penetration, NR = Not Rated

- Louvers are designed to prevent visual see-through, can be applied as air intake or discharge louvers, or can be applied as louvered equipment screens
- **SES Series** most economical of all sightproof models
- **SEH Series** incorporates a drainable head member for increased protection against water penetration
- **SED Series** offer both a drainable head member and drainable blades for maximum protection against water penetration
- **Model SED-501** offers 57% free area



SED-401



SED-501



SEH-401



SES-202

Model Name	Depth (in.)	Blade Style	Blade Thickness (in.)	Frame Thickness (in.)	AMCA Licensed Ratings	Free Area 4' x 4' Unit	Beginning Point of Water Penetration (ft/min)	Pressure Drop @ 6,000 CFM Intake Velocity (in. wg)	Max Intake Volume Flow Rate (cfm)	Exhaust Volume Flow Rate @ 0.15 in. wg (cfm)
SED-401	4	CD	0.081	0.081	AP, WP	5.16 32	747	0.81	3855	2589
SED-501	5	CD	0.081	0.081	AP, WP	9.11 57	1134	0.10	10331	7364
SEH-401	4	C	0.081	0.081	AP, WP	5.16 32	765	0.76	3947	2664
SES-202	2	C	0.063	0.063	AP, WP	3.75 24	516	1.20	1935	2118

CD = Chevron Drainable, C = Chevron

AP = Air Performance, WP = Water Penetration

- The most effective line of products for minimizing water penetration through openings that are sensitive to rain penetration
- All models incorporate a drainable head member and either vertical (**EVH Series**) or horizontal (**EHH Series**) rain-resistant blades to provide maximum resistance to wind driven rain, as tested by the stringent AMCA 500L test procedure



EHH-501



EVH-501

Wind Driven Rain Test Results				Wind Velocity - 29 mph Rainfall - 3 in./hr. <sup>2</sup>		Wind Velocity - 50 mph Rainfall - 8 in./hr. <sup>2</sup>	
	Airflow (cfm)	Free Area Velocity (fpm)	Core Area Velocity (fpm) <sup>1</sup>	Water Penetration Effectiveness	Water Penetration Classification	Water Penetration Effectiveness	Water Penetration Classification
EHH-201	1372 0	298 0	127 0	99.6% -	A -	- 99.1%	- A
EHH-401	9281 4200	1391 625	681 391	99.9% -	A -	- 99.9%	- A
EHH-501	8350 7351	1228 1081	776 683	99.1% -	A -	- 99.2%	- A
EHH-601	10544 9338	1391 1232	763 676	99.8% -	A -	- 99.2%	- A
EHH-701	8430 7222	1522 1304	783 671	100% -	A -	- 99.5%	- A
EVH-301	14818 14448	1764 1720	993 968	99.3% -	A -	- 99.6%	- A
EVH-501	14678 13066	1685 1500	991 882	100.0% -	A -	- 99.3%	- A
EVH-602	10806 10662	1795 1771	981 968	99.9% -	A -	- 100.0%	- A

Wind Driven Rain Penetration Classes	
Class	Effectiveness
A	1 to 0.99
B	0.989 to 0.95
C	0.949 to 0.80
D	Below 0.8

<sup>1</sup> Core area is the open area of the lower face (face area less lower frames). Core area velocity is the airflow velocity through the core area of the louver.

Model Name	Depth (in.)	Blade Style	Blade Thickness (in.)	Frame Thickness (in.)	AMCA Licensed Ratings	Free Area 4' x 4' Unit	Beginning Point of Water Penetration (ft/min)	Pressure Drop @ 6,000 CFM Intake Velocity (in. wg)	Max Intake Volume Flow Rate (cfm)	Exhaust Volume Flow Rate @ 0.15 in. wg (cfm)
EHH-201	2	RR	0.063	0.063	AP, WP, WDR	6.20 39	914	0.18	5667	5487
EHH-401	4	RR	0.063	0.081	AP, WP, WDR	6.72 42	1250	.016	8400	5782
EHH-501	5	RR	0.063	0.081	AP, WP, WDR	6.80 43	1250	0.15	8500	5998
EHH-601	6	RR	0.081	0.081	AP, WP, WDR	7.58 47	1250	0.15	9475	6091
EHH-701	7	RR	0.081	0.081	AP, WP, WDR	6.99 43	1250	0.26	8962	4522
EVH-301	3	RR	0.050	0.063	AP, WP, WDR	8.40 53	1250	0.07	10500	8794
EVH-501	5	RR	0.060	0.081	AP, WP, WDR	8.77 55	1250	0.08	10888	8190
EVH-602	6	RR	0.081	0.081	AP, WP, WDR	6.02 39	1250	0.17	7350	8146

RR = Rain Resistant

AP = Air Performance, WP = Water Penetration, WDR = Wind Driven Rain

- All mechanically fastened Florida Product Approved models comply with TAS-202 and Uniform Static Pressure Test (ASTM E330)
- Models also comply with TAS-201 Large Missile Impact Test (ASTM E1996) and TAS-203 Cyclic Wind Pressure Load Test with optional welded construction
- Approved for use in Florida's High-Velocity Hurricane Zone if Miami-Dade Notice of Acceptance is not required



ESD-435X  
FPA No.: FL6876.3 / 15718.3



ESD-635X  
FPA No.: FL6876.4 / 15718.4



EHH-501X  
FPA No.: FL6876.2 / 15718.2

Model Name	Depth (in.)	Blade Style	Blade Thickness (in.)	Frame Thickness (in.)	AMCA Licensed Ratings	Free Area 4' x 4' Unit	Beginning Point of Water Penetration (ft/min)	Pressure Drop @ 6,000 CFM Intake Velocity (in. wg)	Max Intake Volume Flow Rate (cfm)	Exhaust Volume Flow Rate @ 0.15 in. wg (cfm)
ESD-435X	4	D	0.081	0.081	AP, WP, 540	8.92 56	989	0.16	8881	8670
ESD-635X	6	D	0.081	0.081	AP, WP, 540	9.41 59	1250	0.06	11763	9954
EHH-501X	5	RR	0.081	0.081	AP, WP, WDR, 540	6.80 43	1250	0.15	8500	5998

D = Drainable, RR = Rain Resistant

AP = Air Performance, WP = Water Penetration, WDR = Wind Driven Rain, 540 = AMCA 540 Listed



Model Name Max. Wind-load	AMCA Certifications	AMCA Listed	Miami-Dade County, FL NOA No.	Florida Product Approved No.	Protocols	Minimum Opening	Maximum Section	Maximum Opening
						Dimensions – inches (mm)		
<b>Miami-Dade County Qualified Louvers and Penthouses</b>								
AFJ-601D 150 PSF	Water, Sound and Air	AMCA 540 Enhanced Level E	16-0201.09 EXP. 11/20/19	FL16786.1	TAS 201, TAS 202, TAS 203  TAS 100A: ESD-635D & EHH-601D with VCD-40 Damper  TAS 100A: EVH-660D with or without VCD-40 Damper	12 W x 12 H (305 W x 305 H)	60 W x 120 H (1524 W x 3048 H)	Unlimited W x 120 H (Unlimited W x 3048 H)
ESS-502D 110 PSF	Water, Air		16-0201.08 EXP. 8/5/19	FL12941.1		8 W x 7 H (203 W x 178 H)	144 W x 144 H, Limited to 72 ft <sup>2</sup> (3658 W x 3658 H, Limited to 6.7 m <sup>2</sup> )	Unlimited W x 144 H (Unlimited W x 3658 H)
ESD-635D* 150 PSF		AMCA 540 Basic Level D, AMCA 540 Enhanced Level E (with 0.125 blade/ frame)	17-0919.04 EXP. Pending	FL10088.3		12 W x 12 H (305 W x 305 H)	72.563 W x 144.813 H (1843 W x 3678 H)	Unlimited W x 144.813 H (Unlimited W x 3678 H)
ESD-635DE 150 PSF		AMCA 540 Basic Level D	15-1109.04 EX. 2/4/21	FL19675		12 W x 12 H (305 W x 305 H)	48 W x 48 H (1219 W x 1219 H)	48 W x 48 H (1219 W x 1219 H)
EACA-601D 110 PSF			16-1020.04 EXP. 12/5/18	FL16781.1		12 W x 13 H (305 W x 330 H)	60 W x 120 H (1524 W x 3048 H)	Unlimited W x 120 H (Unlimited W x 3048 H)
EHH-601D* 150 PSF		Water, Air and Wind Driven Rain	AMCA 540 Enhanced Level E	17-0919.05 EXP. Pending		FL10088.1	12 W x 7 H (305 W x 178 H)	72.563 W x 144.813 H (1843 W x 3678 H)
EHH-601DE 150 PSF	15-1013.12 EXP. 12/24/20			FL19665		12 W x 7 H (305 W x 178 H)	48 W x 48 H (1219 W x 1219 H)	48 W x 48 H (1219 W x 1219 H)
EHV-901D 130 PSF	AMCA 550, AMCA 540 Enhanced Level E		16-0607.11 EXP. 7/28/21	FL19683		12 W x 12 H (305 W x 305 H)	60 W x 120 H (1524 W x 3048 H)	Unlimited W x 120 H (Unlimited W x 3048 H)
EVH-501D 130 PSF		15-0415.05 EXP. 8/6/20	FL19277.1	12 W x 12 H (305 W x 305 H)		120 W x 120 H, Limited to 70 ft <sup>2</sup> (3048 W x 3048 H, Limited to 6.5 m <sup>2</sup> )	Unlimited W x H (Unlimited W x H)	
EVH-660D 150 PSF		17-0807.20 EXP. Pending	FL16785.1 FL16086.1	6 W x 12 H (153 W x 305 H)		48 W x 144 H (1219 W x 3658 H)	Unlimited W x 144 H (Unlimited W x 3658 H)	
EHH-601PD 115 PSF	Not Applicable	Not Applicable	16-0201.05 EXP. 6/19/18	FL11350.1	Minimum Throat W x L x Max. H 12 x 12 x 12 (305 x 305 x 305)	Maximum Throat W x L x Max. H 84 x 108 x 84 (2134 x 2743 x 2134)	Maximum Throat W x L x Max. H 84 x 108 x 84 (2134 x 2743 x 2134)	
ESD-635PD 115 PSF			16-0201.04 EXP. 6/19/18	FL11350.2	Minimum Throat W x L x Max. H 12 x 12 x 12 (305 x 305 x 305)	Maximum Throat W x L x Max. H 84 x 108 x 84 (2134 x 2743 x 2134)	Maximum Throat W x L x Max. H 84 x 108 x 84 (2134 x 2743 x 2134)	
<b>Florida Product Approved Louvers</b>								
ESD-435X* Max. 200 PSF <sup>^</sup>	Water, Air	AMCA 540 Basic Level D	Not Applicable	FL6876.3, FL15718.3	Standard: TAS 202  Welded: TAS 201, TAS 202, TAS 203	12 W x 9 H (305 W x 229 H)	120 W x 144 H Limited to 70 ft <sup>2</sup>  (3048 W x 3658 H Limited to 6.5m <sup>2</sup> )	Unlimited W x 144 H or 120 W x Unlimited H  (Unlimited W x 3658 H or 3048 W x Unlimited H)
ESD-635X* Max. 200 PSF <sup>^</sup>		AMCA 540 Basic Level D, AMCA 540 Enhanced Level E (with 0.125 blade/ frame)		FL6876.4, FL15718.4		12 W x 12 H (305 W x 305 H)		
EHH-501X* Max. 200 PSF <sup>^</sup>		Water, Air and Wind Driven Rain		AMCA 540 Enhanced Level E		FL6876.2, FL15718.2		
<b>FEMA 361 Tornado Grille</b>								
FSG-801 Max. 248 PSF	Not Applicable			ICC 500- 2008	12 W x 12 H (305 W x 305 H)	57 ft <sup>2</sup> (configuration dependent)	Unlimited W x Unlimited H (Limited to 1 section W or H)	
AFL-501 Max. 300 PSF	Water, Air	Not Applicable		ICC 500- 2008	12 W x 12 H (305 W x 305 H)	120 W x 120 H Limited to 72 ft <sup>2</sup> (3048 W x 3048 H)	Configuration Dependant	

\*Also available in architectural shapes.    ^Size/section dependent.

- Use within Florida's High-Velocity Hurricane Zone when a Miami-Dade Notice of Acceptance is required
- All models comply with Miami-Dade structural test protocols TAS-201, Large Missile Impact Test (ASTM E1996); TAS-202, Uniform Static Pressure Test (ASTM E330); and TAS-203, Cyclic Wind Pressure Test
- **Models EHH-601D and EHH-601DE with VCD-40** also comply with Miami-Dade's test protocol TAS-100(A), Wind Driven Rain Resistance Test



AFJ-601D  
FPA No.: FL16786.1  
NOA No.: 16-0201.09



EACA-601D  
FPA No.: FL16781.1  
NOA No.: 16-1020.04



EHH-601D  
FPA No.: FL10088.1  
NOA No.: 17-0919.05

EHH-601DE  
(sizes up to 48x48)  
FPA No.: FL19665  
NOA No.: 15-1013.12



ESD-635D  
FPA No.: 10088.3  
NOA No.: 17-0919.04

ESD-635DE  
(sizes up to 48x48)  
FPA No.: FL19675  
NOA No.: 15-1109.04



ESS-502D  
FPA No.: FL12941.1  
NOA No.: 16-0201.08



EHV-901 & EHV-901D  
FPA No.: FL19683  
NOA No.: 16-0607.11



EVH-501D  
FPA No.: FL19277.1  
NOA No.: 15-0415.05



EVH-660D  
FPA No.: FL16785.1  
FL16086.1  
NOA No.: 17-0807.20



ESD-635PD  
FPA No.: FL11350.2  
NOA No.: 16-0201.04



EHH-601PD  
FPA No.: FL11350.1  
NOA No.: 16-0201.05

Model Name	Depth (in.)	Blade Style	Blade Thickness (in.)	Frame Thickness (in.)	AMCA Licensed Ratings	Free Area 4' x 4' Unit	Beginning Point of Water Penetration (ft/min)	Pressure Drop @ 6,000 CFM Intake Velocity (in. wg)	Max Intake Volume Flow Rate (cfm)	Exhaust Volume Flow Rate @ 0.15 in. wg (cfm)
AFJ-601D	6	J	0.080	0.080	AP, WP, S, 540	4.89 31	799	0.15	3907	6015
EACA-601D	6	DAF	0.081	0.125	AP, WP, 540, 550	7.27 45	1221	0.18	9377	9586
EHH-601D <sup>1,2</sup>	6	RR	0.081	0.081	AP, WP, WDR, 540	7.58 47	1250	0.35	9475	5794
EHH-601DE <sup>1,2</sup>	6	RR	0.081	0.081	AP, WP, WDR, 540	7.58 47	1250	0.15	970	6024
ESD-635D <sup>1</sup>	6	D	0.081	0.125	AP, WP, 540	9.41 59	1250	0.06	11763	9954
ESD-635DE <sup>1</sup>	6	D	0.081	0.081	AP, WP, 540	9.41 59	1250	0.06	11763	9954
ESS-502D	5	C	0.081	0.081	AP, WP, 540	8.19 51	1036	0.14	8485	6286
EHV-901	9	RR	0.081	0.081	AP, WP, WDR, 540, 550	8.66 54	974	.16	8434	6088
EHV-901D	9	RR	0.081	0.081	AP, WP, WDR, 540, 550	8.66 54	974	.16	8434	6088
EVH-501D	5	RR	0.063	0.081	AP, WP, WDR, 540, 550	8.77 55	1250	0.08	10888	8190
EVH-660D <sup>3</sup>	6	RR	0.063	0.095	AP, WP, WDR, 540, 550	7.29 45	1250	0.10	9113	7160

J = J Blade, DAF = Drainable Airfoil, D = Drainable, C = Chevron, RR = Rain Resistant

AP = Air Performance, WP = Water Penetration, WDR = Wind Driven Rain, S = Sound, 540 = AMCA 540 Listed, 550 = AMCA 550 Listed

<sup>1</sup> Available with optional VCD-40 damper mounted on the interior of the louver.

<sup>2</sup> Complies with TAS-100(A) when damper is applied. <sup>3</sup> Complies with TAS-100(A).

- Narrow profile products designed for interior and exterior applications
- Framed units ideal for installation in curtain wall and window wall systems
- **Models ESU-153S and ESU-154S** are frameless and offer a total product depth of only 1.125-inches
- **Models ESU-153 and ESU-154** offer high free area and are low airflow resistance



ESJ-155



ESU-153



ESU-153S



ESU-154



ESU-154S

Model Name	Depth (in.)	Blade Style	Blade Thickness (in.)	Frame Thickness (in.)	AMCA Licensed Ratings	Free Area 4' x 4' Unit	Beginning Point of Water Penetration (ft/min)	Pressure Drop @ 6,000 CFM Intake Velocity (in. wg)	Max Intake Volume Flow Rate (cfm)	Exhaust Volume Flow Rate @ 0.15 in. wg (cfm)
ESJ-155	1.5	J	0.056	0.063	NR	7.35 46	-	-	-	-
ESU-153	1.5	T	0.050	0.063	NR	11.20 70	-	-	-	-
ESU-153S	1.125	T	0.050	NA	NR	11.64 73	-	-	-	-
ESU-154	1.5	T	0.050	0.063	NR	8.49 53	-	-	-	-
ESU-154S	1.125	T	0.050	NA	NR	8.77 55	-	-	-	-

J - J Blade, T = Thinline

NR = Not Rated

- Acoustically insulated blades provide sound absorption from escaping noise
- Available in formed aluminum or steel material
- **AFJ Series** is the most economical of all acoustical models
- **Model AFA-801** offers the highest free area, has the lowest airflow resistance, and is designed with acoustical blades
- **Model AFS-120** offers the best sound absorption performance and incorporates sightproof blades



AFA-801



AFJ-120



AFJ-601



AFJ-801



AFS-120

Model Name	Depth (in.)	Blade Style	Blade Thickness (in.)	Frame Thickness (in.)	AMCA Licensed Ratings	Free Area 4' x 4' Unit	Beginning Point of Water Penetration (ft/min)	Pressure Drop @ 6,000 CFM Intake Velocity (in. wg)	Max Intake Volume Flow Rate (cfm)	Exhaust Volume Flow Rate @ 0.15 in. wg (cfm)
AFA-801	8	AF	0.080	0.080	AP, WP, S	5.21 33	879	0.10	4580	7508
AFJ-120	12	J	0.080	0.080	AP, WP, S	3.39 21	1108	0.31	3258	4198
AFJ-601	6	J	0.080	0.080	AP, WP, S	4.89 31	799	0.15	3907	6015
AFJ-801	8	J	0.080	0.080	AP, WP, S	4.28 27	887	0.10	3796	5192
AFS-120	12	C	0.080	0.080	AP, WP, S	4.27 27	830	0.37	3544	3839

AF = Airfoil, J = J Blade, C = Chevron

AP = Air Performance, WP = Water Penetration, S = Sound

- Fabricated from galvanized steel and are low cost when compared to extruded aluminum models
- All fabricated models are available in stainless steel material
- **FSJ and FDS Series** have stationary blades only
- **FAD Series** are adjustable blade models



FDS-402



FDS-602



FSJ-402



FSJ-602



FAD-402



FAD-635

Model Name	Depth (in.)	Blade Style	Blade Thickness (in.)	Frame Thickness (in.)	AMCA Licensed Ratings	Free Area 4' x 4' Unit	Beginning Point of Water Penetration (ft/min)	Pressure Drop @ 6,000 CFM Intake Velocity (in. wg)	Max Intake Volume Flow Rate (cfm)	Exhaust Volume Flow Rate @ 0.15 in. wg (cfm)
FDS-402	4	D	20	16	AP, WP	7.03 44	1056	0.08	8788	8444
FDS-602	6	D	20	16	AP, WP	8.15 51	948	0.07	7726	8661
FSJ-402	4	J	20	16	AP, WP	7.55 47	839	0.11	6335	6894
FSJ-602	6	J	20	16	AP, WP	7.57 47	896	0.10	6783	7398
FAD-402	4	DA	16	16	AP, WP	5.98 38	1086	0.10	6494	7478
FAD-635	6	DA	16	16	AP, WP	8.77 55	959	0.04	8410	11093

D = Drainable, J = J Blade, DA = Drainable Adjustable

AP = Air Performance, WP = Water Penetration

## FEMA 361 Louver

FEMA 361 louver products are used to protect exterior building openings from flying debris caused by extreme weather events such as tornadoes or hurricanes. FEMA 361 louver products must be capable of withstanding extremely high wind loads. FEMA 361 louver products should be applied on any FEMA funded community safe room.

- Model AFL-501 is construction of aluminum materials for maximum weatherability
- Model FSG-801 is constructed of steel materials
- Models AFL-501 and FSG-801 are UL Classified Windstorm Rated assemblies
- Model AFL-501 is AMCA Licensed for Air Performance and Water Penetration
- Models AFL-501 and FSG-801 are tested in accordance with and pass the ICC-500-2008 debris impact criteria as indicated within FEMA 361-2008 (15 lb. 2x4 traveling at 100 mph)



AFL-501



## Sand Louver

Greenheck's sand louver is designed to protect air intake and exhaust openings in building exterior walls from wind driven sand. Design incorporates vertical sightproof blades to separate sand from the airstream, which is then channeled out at the sloped sill.

Model FSL-401 was tested per ASHRAE Standard Method 52.1-1992 (previously ASHRAE Standard 52-76), in an independent third-party test lab using crushed quartz (150-300 µm) dust medium. Standard construction material is galvanized steel and optional formed aluminum is available. Frame depth: 4 in.



FSL-401



## Penthouses & Equipment Screens

**Model PEV-400** is a gravity ventilator comprised of three sides of standard stationary non-drainable louver model ESJ-401, along with one side of 0.125-in. thick plate glass that can be broken with the pressure of a fire hose. A fire smoke damper is located in the throat of the curb and wired into the fire control panel. The unit is shop-assembled and shipped complete.

Greenheck penthouse models **WIH and WRH** offer clean horizontal lines, mitered corners, all aluminum construction, removable hoods, and weather-resistant blades. Custom louvered penthouses are also available to meet your specifications. For more information contact your local rep or visit [greenheck.com](http://greenheck.com)

For screen applications, model **EES-401** is an inverted horizontal equipment screen offering extruded aluminum "J" style blades. As always, custom configurations are available.



PEV-400



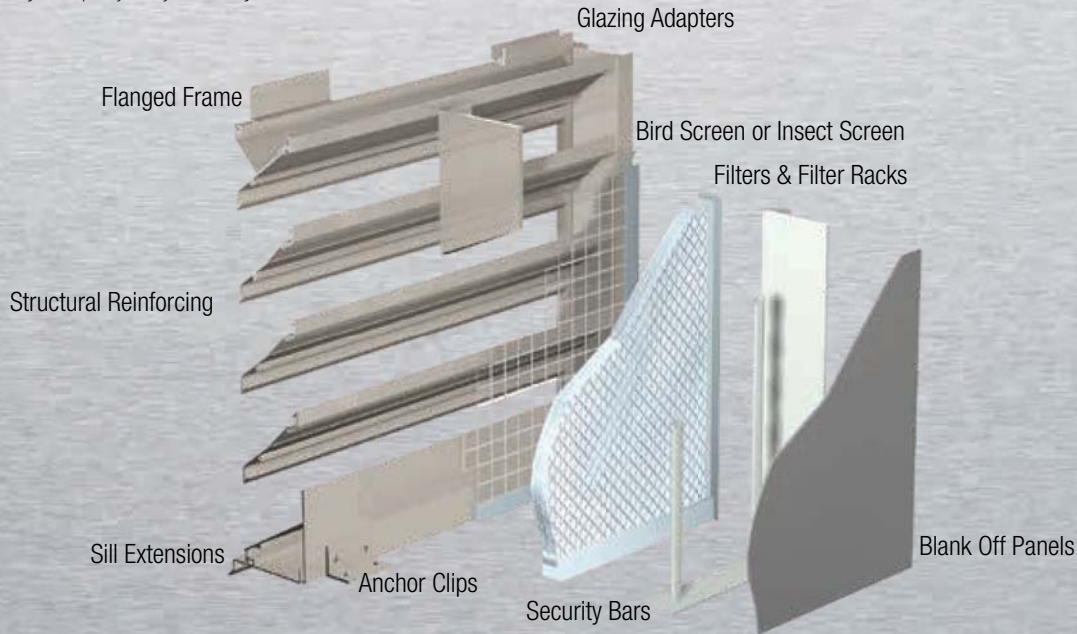
WIH & WRH



EES-401

# Options and Accessories

We have a full line of accessories, so whether your project necessitates security bars or filter racks, we have what you need. An extensive line of standard finishes, including Kynar® paint, baked enamel paint, industrial coatings or anodize finishes are also available. In addition to our complete line of standard colors, our custom color matching capabilities are endless. These accessories and options allow Greenheck to complete your project just as you envision it.



**AMCA WORLDWIDE CERTIFIED RATINGS**

**WATER PENETRATION**  
**AIR PERFORMANCE**  
**WIND DRIVEN RAIN**

**AIR MOVEMENT AND CONTROL ASSOCIATION INTERNATIONAL, INC.**

Greenheck Fan Corporation certifies that models EHH-201, 401, 501, 601, 701; EVH-301, 501, 602; EHH-501X; EHH-601D; EHH-601DE; EHV-901; EHV-901D; EVH-501D and EVH-660D 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 water penetration, air performance and wind driven rain.

**AMCA WORLDWIDE CERTIFIED RATINGS**

**WATER PENETRATION**  
**AIR PERFORMANCE**

**AIR MOVEMENT AND CONTROL ASSOCIATION INTERNATIONAL, INC.**

Greenheck Fan Corporation certifies that models EDD-401, 601; EHM-601, ESD-202, 403, 435, 603, 635; EDJ-401, 430, 601; EDK-402, 430; ESJ-202, 401, 602; ESK-402; EAD-401, 601, 635; EAH-401; EAC-401, 601; EACA-601; EACN-601; ECD-401, 601; SED-401, 501; SEH-401; SES-202; ESD-435X; ESK-635X; EACA-601D; ESD-635D; ESD-635DE; ESS-502D; FAD-402, 635; FDS-402, 602 and FSJ-402, 602 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 water penetration and air performance.

**AMCA WORLDWIDE CERTIFIED RATINGS**

**WATER PENETRATION**  
**SOUND**  
**AND**  
**AIR PERFORMANCE**

**AIR MOVEMENT AND CONTROL ASSOCIATION INTERNATIONAL, INC.**

Greenheck Fan Corporation certifies that models AFA-801; AFJ-120, 601, 801; AFS-120 and AFJ-601D 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 water penetration, air performance and sound ratings.

**AMCA WORLDWIDE CERTIFIED RATINGS**

**AIR PERFORMANCE**

**AIR MOVEMENT AND CONTROL ASSOCIATION INTERNATIONAL, INC.**

Greenheck Fan Corporation certifies that models EAH-690 with blade angle at 90° and FSL-401 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.

**AMCA INTERNATIONAL LISTED**

**IMPACT RESISTANT LOUVER**  
*Enhanced Protection*

This label does not signify AMCA air flow performance certification.

See www.AMCA.org for all certified or listed products

The Greenheck Fan Corporation certifies that Louver Type ESD-635X, ESD-635D, ESD-635DE, AFJ-601D, EHH-501X, EHH-601D, EHH-601DE and ESS-502D shown herein are 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.

**AMCA INTERNATIONAL LISTED**

**IMPACT RESISTANT LOUVER**  
*Basic Protection*

This label does not signify AMCA air flow performance certification.

See www.AMCA.org for all certified or listed products

The Greenheck Fan Corporation certifies that Louver Type ESD-435X and EACA-601D shown herein are 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.

**AMCA INTERNATIONAL LISTED**

**HIGH VELOCITY RAIN RESISTANT AND IMPACT RESISTANT LOUVER**  
*Enhanced Protection*

This label does not signify AMCA air flow performance certification.

See www.AMCA.org for all certified or listed products

The Greenheck Fan Corporation certifies that Louver Type EVH-602X, EVH-660D, and EVH-501D shown herein are 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.

## Our Commitment

*As a result of our commitment to continuous improvement, Greenheck reserves the right to change specifications without notice.*

Specific Greenheck product warranties are located on [greenheck.com](http://greenheck.com) within the product area tabs and in the Library under Warranties.



Prepared to Support Green Building Efforts

