



Quality People. Building Solutions.

Comfort Systems USA (Arkansas), Inc.
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Date: 2/21/2024

Return Request: 3/28/2024

Project: Little Rock West High School

Supplier: A/C Specialties

Manufacturer: Various

Submittal: Air Duct Accessories

Submittal Number: 23 33 00-01

Drawing # and Installation: Mechanical Drawings

ARCHITECT

Lewis Architects Engineers
11225 Huron Lane, Suite 104
Little Rock, AR 72211
501-223-9302

ENGINEER

Lewis Architects Engineers
11225 Huron Lane, Suite 104
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GENERAL CONTRACTOR

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1000 W. Capitol Ave.
Little Rock, AR 72201
501-374-8677

MECHANICAL SUBCONTRACTOR

Comfort Systems USA (Arkansas), Inc.
9924 Landers Rd.
N. Little Rock, AR 72117
501-834-3320

Notes:

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chowell@comfortar.com

9924 Landers Rd.
No. Little Rock, AR 72117

Dace Mfg.

orders@dacemfg.co

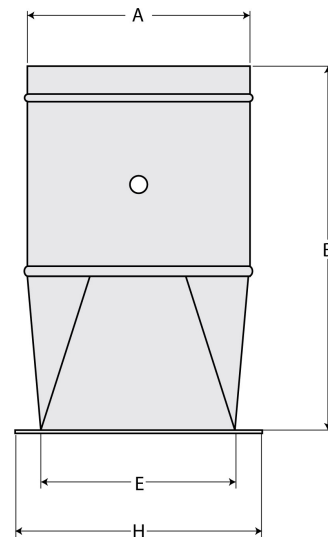
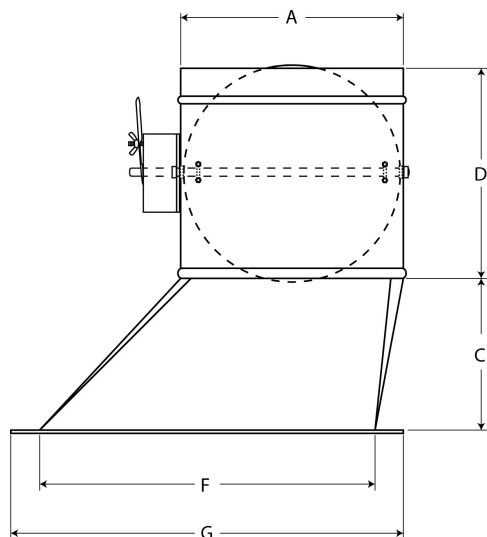
SUBMITTAL

Feb 2016

SIDE TAKEOFF FITTING w DAMPER

MODEL: STOD CO3

HIGH EFFICIENCY TAKEOFF



SIZE	A	B	C	D	E	F	G	H
4	3 7/8	9	6	3	4	8	10	6
5	4 7/8	9	6	3	5	9	11	7
6	5 7/8	9	6	3	5	9	11	7
7	6 7/8	9	6	3	6	11	13	8
8	7 7/8	9	6	3	6	12	14	8
9	8 7/8	9	6	3	7	13	15	9
10	9 7/8	9	6	3	8	14	16	10
12	11 7/8	9	6	3	10	16	18	12
14	13 7/8	9	6	3	12	18	20	14
16	15 7/8	9	6	3	14	20	22	16
18	17 7/8	9	6	3	16	22	24	18
20	19 7/8	9	6	3	18	24	26	20

STANDARD CONSTRUCTION DETAILS

- 26 gauge G90/60 corrosion resistant steel
- 1" flange with die formed corners & pre punched mounting holes
- entire unit is spot welded, SMACNA 3" WG minimum
- adhesive coated rubber perimeter gasket
- CO3 damper control: a 2" raised locking quadrant, 3/8" sq. axle, nylon bearings, fastened to the damper with U bolts.

OPTIONS IN CONSTRUCTION

- material 24 ga, 22 ga galvanized steel,
- all aluminum or all stainless steel

Dace Mfg.

orders@dacemfg.co

SUBMITTAL

Feb 2015

ROUND MANUAL BALANCE DAMPER

MODEL: RMBD CO3

Purpose Description:

The round manual balancing damper is used to regulate air flow in pipe.

CONSTRUCTION:

BARREL: (B) 6" long, beaded & tapered.

ALL DIAMETERS: (A) sized 1/8" under nominal

BODY MATERIAL:

26 gauge standard

OPTIONS:

24 gauge steel

22 gauge steel

SS 304

DAMPER BLADES:

26 gauge standard

OPTIONS:

24 GA,

22 GA steel,

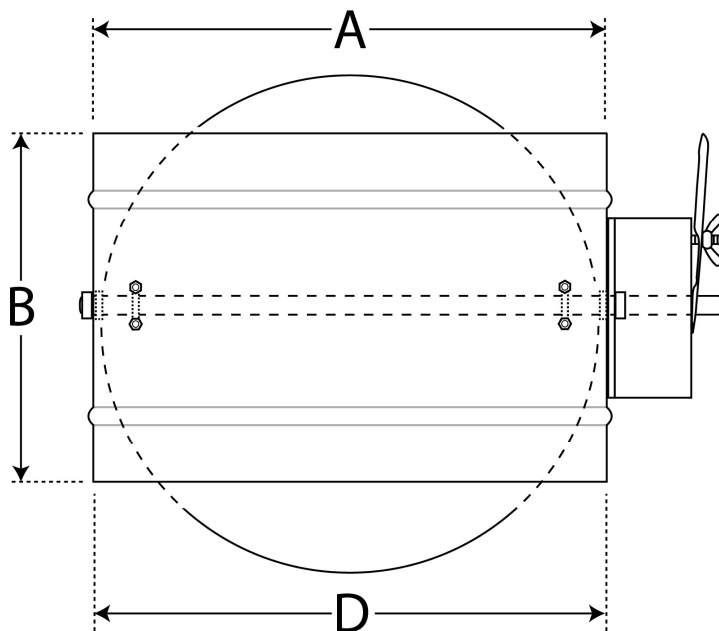
20 gauge—16 gauge steel

SS 304

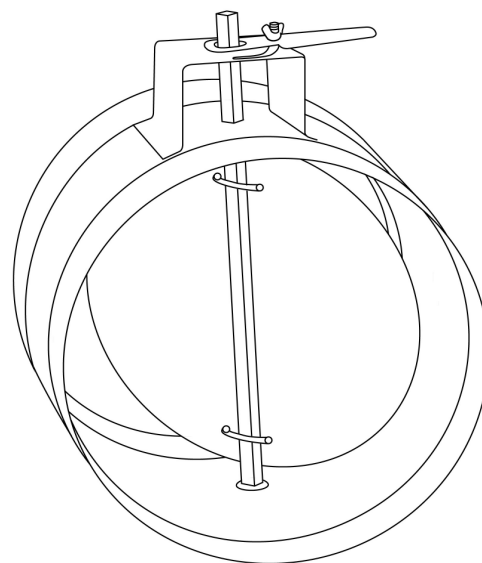
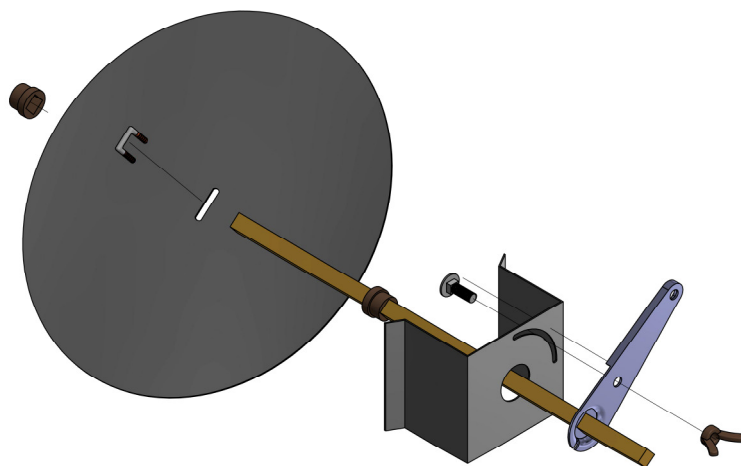
DAMPER CONTROL:

CO3 - 2" raised handle, locking quadrant, 3/8" square continuous rod, 'U' bolts, nylon bearings

All stainless steel option



RMBD-CO3



MBD-15 Multi-blade Manual Balancing Damper

APPLICATION & DESIGN

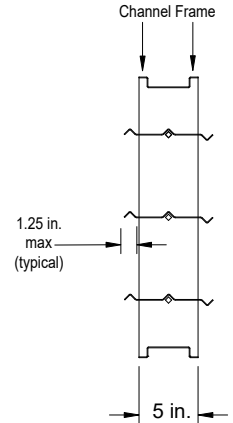
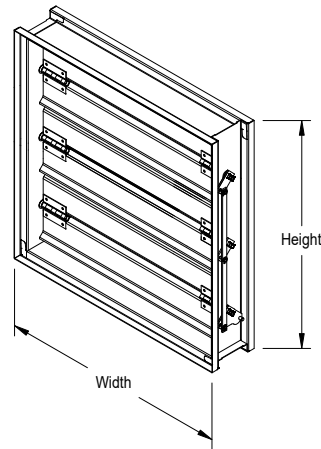
Model MBD-15 is a manual balancing damper designed to regulate the flow of air in a HVAC system. They are not intended to be used in applications as a positive shut off or for automatic control. The design incorporates heavy gauge galvanized steel construction for durability and longevity. MBD-15 meets SMACNA's recommended construction requirements for manual balancing dampers.

DAMPER RATINGS

Pressure 4 in. wg - pressure differential
Velocity Up to 2,000 ft/min
Temperature 180 F

PRODUCT DETAILS

Frame Type Channel
Frame Thickness 16 ga galvanized steel
Material Galvanized Steel
Blade Action Opposed
Linkage Material Steel
Axle Steel
Axle Bearings Synthetic
Extension Pins Steel
Sizing Nominal



- This drawing shows a general damper configuration and is not intended to depict the exact configuration of all dampers in this submittal.
- Width and height dimensions are undersize 0.250 in.
- Damper includes 0.500 in. locking manual quadrant with 0.500 in. diagonal reinforced pins that extend 3.500 in. beyond frame.
- Installation instructions available at www.greenheck.com

ACTUATOR INFORMATION

Actuator Type Manual Quadrant

OPTIONS & ACCESSORIES

Clean Wrap No
Standoff Bracket 2 in.
Union Label No Preference

SUMMARY

ID #	Tag	Qty	WIDTH	HEIGHT	CONFIGURATION		
1-1		1	18.000 in.	14.000 in.	Drive Arrg: Drive-CC-11-1FER-0	Actuator Qty: 1	Actuator Type: MANUAL QUADRANT
1-2		2	18.000 in.	18.000 in.	Drive Arrg: Drive-CC-11-1FER-0	Actuator Qty: 1	Actuator Type: MANUAL QUADRANT
1-3		1	16.000 in.	14.000 in.	Drive Arrg: Drive-CC-11-1FER-0	Actuator Qty: 1	Actuator Type: MANUAL QUADRANT
1-4		1	10.000 in.	8.000 in.	Drive Arrg: Drive-CC-11-1FER-0	Actuator Qty: 1	Actuator Type: MANUAL QUADRANT
1-5		1	12.000 in.	6.000 in.	Drive Arrg: Drive-CC-11-1FER-0	Actuator Qty: 1	Actuator Type: MANUAL QUADRANT

FD-150 1 1/2 hour static rated fire damper

APPLICATION & DESIGN

Model FD-150 is approved for use in walls, floors and partitions with fire resistance ratings less than 3 hours. UL 555 classifies static rated fire dampers for use in HVAC that automatically shut down in the event of a fire.

DAMPER RATINGS

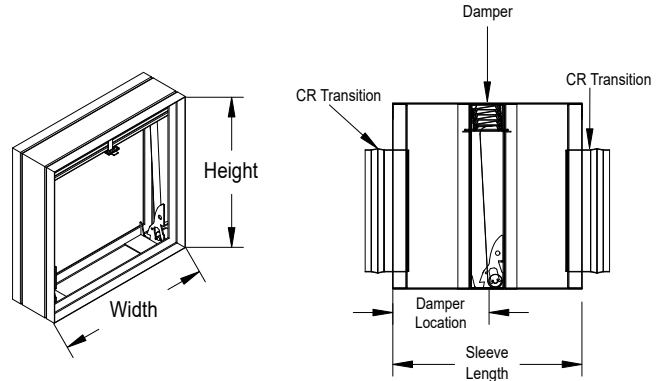
Fire Rating: 1 1/2 hours

PRODUCT DETAILS

Frame: Galvanized Steel
 Frame Depth: 3.688
 Blade: Galvanized Steel
 Closure Device: Fusible Link
 Closure Temp: 165 F
 Sizing: Nominal

OPTIONS & ACCESSORIES

Transition: CR
 Transition Location: Both Sides
 Union Label: No Preference



Damper Width = Diameter + 2 in.
 or 5 in. minimum
 Damper Height = "O" Dimension

• This drawing shows a general damper configuration and is not intended to depict the exact configuration of all dampers in this submittal.
 • Damper is furnished approximately 0.250 in. undersize.
 • Installation instructions available at www.greenheck.com.

CODES APPROVED

This model meets the requirements for fire dampers established by:

- UL Classified (U.S. and Canada)
 Standard UL 555 (Listing #R13317)
- National Fire Protection Association
 NFPA Standard 80,90A & 101
- IBC: International Building Codes
- California State Fire Marshal: CSFM listing # 3225-981:102



SUMMARY

ID #	TAG	QTY	DIAMETER	CONFIGURATION			
2-1		4	10.000 in.	Sections Wide: 1	Sections High: 1	"O" Dim: 13.000 in.	Sleeve Length: 12.000 in.
				Sleeve Thickness: 20 ga	Damper Location: 6.000 in.	Mounting: Vertical	
2-2		1	6.000 in.	Sections Wide: 1	Sections High: 1	"O" Dim: 9.000 in.	Sleeve Length: 12.000 in.
				Sleeve Thickness: 20 ga	Damper Location: 6.000 in.	Mounting: Vertical	

RAD Round Access Door

APPLICATION & DESIGN

Greenheck's round duct access doors provide a durable, practical and inexpensive means of gaining access to components inside the ductwork. Round duct access doors provide a solid leakage proof door that is simple to install.

RATINGS

Pressure Setting: 2

Pressure: 20 in. wg and -10 in. wg

PRODUCT DETAILS

Panels: Three layers of precision stamped, hot dipped galvanized steel

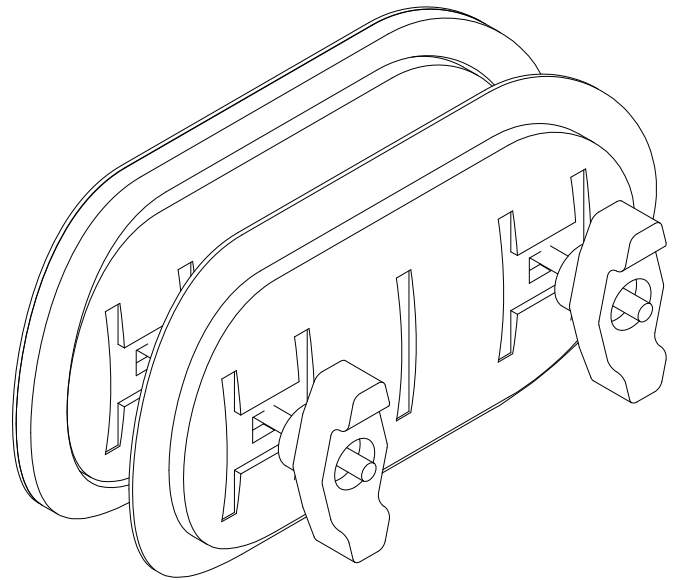
Gasket: Cellular sponge EPDM, permanently bonded to inside of door

Springs: Conical springs between the two plates

Knobs: High impact plastic knobs

Insulation: No

Union Label: No Preference



• This drawing shows a general damper configuration and is not intended to depict the exact configuration of all dampers in this submittal.
 • Installation instructions available at www.greenheck.com.

Door Size	Duct Size Diameter
8.625 in. x 4.188 in.	6.000 in. - 7.000 in.
8.625 in. x 4.250 in.	8.000 in. - 9.000 in.
8.625 in. x 4.313 in.	10.000 in.
8.625 in. x 4.375 in.	12.000 in. - 14.000 in.
13.000 in. x 8.375 in.	16.000 in.
13.000 in. x 8.500 in.	18.000 in.
12.000 in. x 8.000 in.	19.000 in. - 22.000 in.
16.000 in. x 12.000 in.	23.000 in. - 24.000 in.

SUMMARY

ID #	TAG	QTY	DUCT DIAMETER (in.)
3-1		1	6.000
3-2		4	10.000

OFD-150 1 1/2 hour static rated out-of-wall fire damper

APPLICATION & DESIGN

Model OFD-150 is approved for use in walls, floors and partitions with fire resistance ratings less than 3 hours. Removal of grille allows access to the damper and fusible link. UL 555 classifies static rated fire dampers for use in HVAC that automatically shut down in the event of a fire.

DAMPER RATINGS

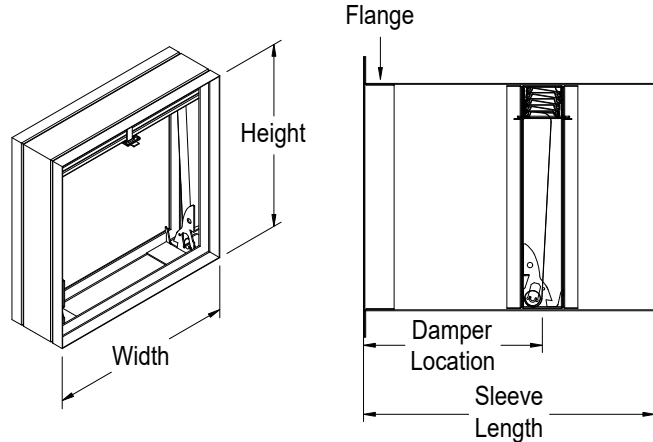
Fire Rating: 1 1/2 hours

PRODUCT DETAILS

Frame: Galvanized Steel
 Frame Depth: 3.688
 Blade: Galvanized Steel
 Closure Device: Fusible Link
 Closure Temp: 165 F
 Grille Depth: 1.750 in.
 OBD Depth: None
 Partition Depth: 6.000 in.
 Application: Grille
 Sizing: Nominal

OPTIONS & ACCESSORIES

Transition: A
 Sleeve Flange "K" Side: Yes
 Retaining Angle Mounting: Loose
 Union Label: No Preference



- This drawing shows a general damper configuration and is not intended to depict the exact configuration of all dampers in this submittal.
- W and H dimensions furnished approximately 0.250 in. undersize. (Add blanket thickness 0.125 in. plus sleeve thickness for overall sleeved damper dimension.)
- Oversize opening as follows: Nominal damper size + 0.125 in.
- Access doors that are smaller than 12.000 in. x 12.000 in. supplied on dampers with internal actuators or fusible links are intended for visual inspection.
- Installation instructions available at www.greenheck.com.

CODES APPROVED

This model meets the requirements for fire dampers established by:

- UL Classified (U.S. and Canada)
Standard UL 555 (Listing #R13317)
- National Fire Protection Association
NFPA Standard 80,90A & 101
- IBC: International Building Codes
- California State Fire Marshal: CSFM listing # 3225-981:102



SUMMARY

ID #	TAG	QTY	WIDTH	HEIGHT	CONFIGURATION			
4-1		1	10.000 in.	8.000 in.	Sections Wide:	Sections High:	Blade Stack:	Sleeve Length:
					1	1	1.360 in.	11.750 in.
					Sleeve Thickness:	Damper Location:	Flange Width:	Mounting:
4-2		1	12.000 in.	6.000 in.	20 ga	9.375 in.	0.625 in.	Vertical
					Damper Position:	Ret. Angle Quantity:	Ret. Angle Size:	
					N/A	1	1.5	
4-2		1	12.000 in.	6.000 in.	Sections Wide:	Sections High:	Blade Stack:	Sleeve Length:
					1	1	1.190 in.	11.750 in.
					Sleeve Thickness:	Damper Location:	Flange Width:	Mounting:
4-2		1	12.000 in.	6.000 in.	20 ga	9.375 in.	0.625 in.	Vertical
					Damper Position:	Ret. Angle Quantity:	Ret. Angle Size:	
					N/A	1	1.5	

FD-150 1 1/2 hour static rated fire damper

APPLICATION & DESIGN

Model FD-150 is approved for use in walls, floors and partitions with fire resistance ratings less than 3 hours. UL 555 classifies static rated fire dampers for use in HVAC that automatically shut down in the event of a fire.

DAMPER RATINGS

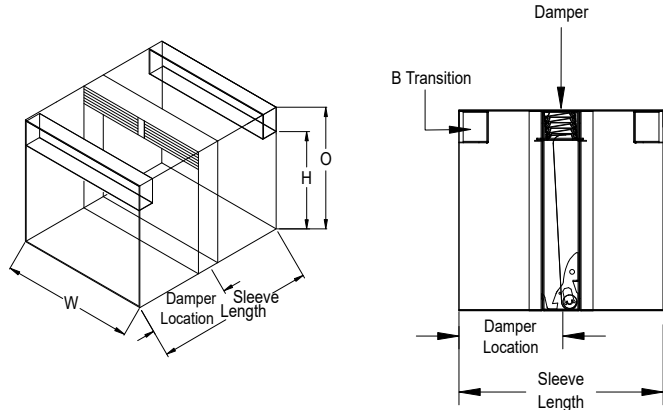
Fire Rating: 1 1/2 hours

PRODUCT DETAILS

Frame: Galvanized Steel
 Frame Depth: 3.688
 Blade: Galvanized Steel
 Closure Device: Fusible Link
 Closure Temp: 165 F
 Sizing: Nominal

OPTIONS & ACCESSORIES

Transition: B
 Transition Location: Both Sides
 Retaining Angle Mounting: Loose
 Union Label: No Preference



- This drawing shows a general damper configuration and is not intended to depict the exact configuration of all dampers in this submittal.
- Damper is furnished approximately 0.250 in. undersize.
- Installation instructions available at www.greenheck.com.

CODES APPROVED

This model meets the requirements for fire dampers established by:

- UL Classified (U.S. and Canada)
Standard UL 555 (Listing #R13317)
- National Fire Protection Association
NFPA Standard 80,90A & 101
- IBC: International Building Codes
- California State Fire Marshal: CSFM listing # 3225-981:102



SUMMARY

ID #	TAG	QTY	WIDTH	HEIGHT	CONFIGURATION			
5-1		1	22.000 in.	16.000 in.	Sections Wide: 1	Sections High: 1	"O" Dim: 19.000 in.	Sleeve Length: 12.000 in.
					Sleeve Thickness: 20 ga	Damper Location: 6.000 in.	Mounting: Horizontal	Ret. Angle Quantity: 2
					Ret. Angle Size: 1.5			
5-2		1	24.000 in.	20.000 in.	Sections Wide: 1	Sections High: 1	"O" Dim: 23.000 in.	Sleeve Length: 12.000 in.
					Sleeve Thickness: 20 ga	Damper Location: 6.000 in.	Mounting: Horizontal	Ret. Angle Quantity: 2
					Ret. Angle Size: 1.5			
5-3		1	22.000 in.	18.000 in.	Sections Wide: 1	Sections High: 1	"O" Dim: 21.000 in.	Sleeve Length: 12.000 in.
					Sleeve Thickness: 20 ga	Damper Location: 6.000 in.	Mounting: Horizontal	Ret. Angle Quantity: 2
					Ret. Angle Size: 1.5			
5-4		1	30.000 in.	22.000 in.	Sections Wide: 1	Sections High: 1	"O" Dim: 26.000 in.	Sleeve Length: 12.000 in.
					Sleeve Thickness: 20 ga	Damper Location: 6.000 in.	Mounting: Horizontal	Ret. Angle Quantity: 2
					Ret. Angle Size: 1.5			

ID #	TAG	QTY	WIDTH	HEIGHT	CONFIGURATION			
5-5		2	22.000 in.	20.000 in.	Sections Wide: 1	Sections High: 1	"O" Dim: 23.000 in.	Sleeve Length: 12.000 in.
					Sleeve Thickness: 20 ga	Damper Location: 6.000 in.	Mounting: Horizontal	Ret. Angle Quantity: 2
					Ret. Angle Size: 1.5			
5-6		1	38.000 in.	26.000 in.	Sections Wide: 1	Sections High: 1	"O" Dim: 30.000 in.	Sleeve Length: 12.000 in.
					Sleeve Thickness: 20 ga	Damper Location: 6.000 in.	Mounting: Horizontal	Ret. Angle Quantity: 2
					Ret. Angle Size: 1.5			
5-7		1	32.000 in.	22.000 in.	Sections Wide: 1	Sections High: 1	"O" Dim: 26.000 in.	Sleeve Length: 12.000 in.
					Sleeve Thickness: 20 ga	Damper Location: 6.000 in.	Mounting: Horizontal	Ret. Angle Quantity: 2
					Ret. Angle Size: 1.5			
5-8		1	38.000 in.	28.000 in.	Sections Wide: 1	Sections High: 1	"O" Dim: 32.000 in.	Sleeve Length: 12.000 in.
					Sleeve Thickness: 20 ga	Damper Location: 6.000 in.	Mounting: Horizontal	Ret. Angle Quantity: 2
					Ret. Angle Size: 1.5			
5-9		1	34.000 in.	24.000 in.	Sections Wide: 1	Sections High: 1	"O" Dim: 28.000 in.	Sleeve Length: 12.000 in.
					Sleeve Thickness: 20 ga	Damper Location: 6.000 in.	Mounting: Horizontal	Ret. Angle Quantity: 2
					Ret. Angle Size: 1.5			
5-10		1	18.000 in.	16.000 in.	Sections Wide: 1	Sections High: 1	"O" Dim: 19.000 in.	Sleeve Length: 12.000 in.
					Sleeve Thickness: 20 ga	Damper Location: 6.000 in.	Mounting: Horizontal	Ret. Angle Quantity: 2
					Ret. Angle Size: 1.5			
5-11		1	20.000 in.	14.000 in.	Sections Wide: 1	Sections High: 1	"O" Dim: 16.000 in.	Sleeve Length: 12.000 in.
					Sleeve Thickness: 20 ga	Damper Location: 6.000 in.	Mounting: Horizontal	Ret. Angle Quantity: 2
					Ret. Angle Size: 1.5			
5-12		1	32.000 in.	28.000 in.	Sections Wide: 1	Sections High: 1	"O" Dim: 32.000 in.	Sleeve Length: 12.000 in.
					Sleeve Thickness: 20 ga	Damper Location: 6.000 in.	Mounting: Horizontal	Ret. Angle Quantity: 2
					Ret. Angle Size: 1.5			
5-13		2	28.000 in.	22.000 in.	Sections Wide: 1	Sections High: 1	"O" Dim: 26.000 in.	Sleeve Length: 12.000 in.
					Sleeve Thickness: 20 ga	Damper Location: 6.000 in.	Mounting: Horizontal	Ret. Angle Quantity: 2
					Ret. Angle Size: 1.5			
5-14		1	22.000 in.	20.000 in.	Sections Wide: 1	Sections High: 1	"O" Dim: 23.000 in.	Sleeve Length: 12.000 in.
					Sleeve Thickness: 20 ga	Damper Location: 6.000 in.	Mounting: Horizontal	Ret. Angle Quantity: 2
					Ret. Angle Size: 1.5			

ID #	TAG	QTY	WIDTH	HEIGHT	CONFIGURATION			
5-15		1	24.000 in.	22.000 in.	Sections Wide: 1	Sections High: 1	"O" Dim: 26.000 in.	Sleeve Length: 12.000 in.
					Sleeve Thickness: 20 ga	Damper Location: 6.000 in.	Mounting: Horizontal	Ret. Angle Quantity: 2
					Ret. Angle Size: 1.5			
5-16		2	36.000 in.	26.000 in.	Sections Wide: 1	Sections High: 1	"O" Dim: 30.000 in.	Sleeve Length: 12.000 in.
					Sleeve Thickness: 20 ga	Damper Location: 6.000 in.	Mounting: Horizontal	Ret. Angle Quantity: 2
					Ret. Angle Size: 1.5			
5-17		1	36.000 in.	24.000 in.	Sections Wide: 1	Sections High: 1	"O" Dim: 28.000 in.	Sleeve Length: 12.000 in.
					Sleeve Thickness: 20 ga	Damper Location: 6.000 in.	Mounting: Horizontal	Ret. Angle Quantity: 2
					Ret. Angle Size: 1.5			

FD-150 1 1/2 hour static rated fire damper

APPLICATION & DESIGN

Model FD-150 is approved for use in walls, floors and partitions with fire resistance ratings less than 3 hours. UL 555 classifies static rated fire dampers for use in HVAC that automatically shut down in the event of a fire.

DAMPER RATINGS

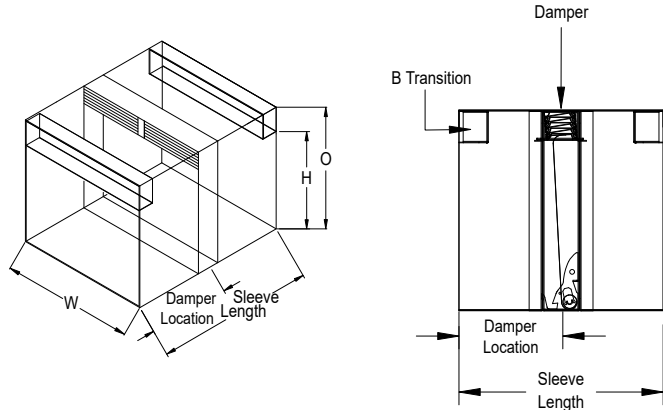
Fire Rating: 1 1/2 hours

PRODUCT DETAILS

Frame: Galvanized Steel
 Frame Depth: 3.688
 Blade: Galvanized Steel
 Closure Device: Fusible Link
 Closure Temp: 165 F
 Sizing: Nominal

OPTIONS & ACCESSORIES

Transition: B
 Transition Location: Both Sides
 Retaining Angle Mounting: Loose
 Union Label: No Preference



- This drawing shows a general damper configuration and is not intended to depict the exact configuration of all dampers in this submittal.
- Damper is furnished approximately 0.250 in. undersize.
- Installation instructions available at www.greenheck.com.

CODES APPROVED

This model meets the requirements for fire dampers established by:

- UL Classified (U.S. and Canada)
Standard UL 555 (Listing #R13317)
- National Fire Protection Association
NFPA Standard 80,90A & 101
- IBC: International Building Codes
- California State Fire Marshal: CSFM listing # 3225-981:102



SUMMARY

ID #	TAG	QTY	WIDTH	HEIGHT	CONFIGURATION			
6-1		1	24.000 in.	14.000 in.	Sections Wide: 1	Sections High: 1	"O" Dim: 16.000 in.	Sleeve Length: 12.000 in.
					Sleeve Thickness: 20 ga	Damper Location: 6.000 in.	Mounting: Vertical	Ret. Angle Quantity: 2
					Ret. Angle Size: 1.5			
6-2		1	22.000 in.	16.000 in.	Sections Wide: 1	Sections High: 1	"O" Dim: 19.000 in.	Sleeve Length: 12.000 in.
					Sleeve Thickness: 20 ga	Damper Location: 6.000 in.	Mounting: Vertical	Ret. Angle Quantity: 2
					Ret. Angle Size: 1.5			
6-3		2	22.000 in.	22.000 in.	Sections Wide: 1	Sections High: 1	"O" Dim: 26.000 in.	Sleeve Length: 12.000 in.
					Sleeve Thickness: 20 ga	Damper Location: 6.000 in.	Mounting: Vertical	Ret. Angle Quantity: 2
					Ret. Angle Size: 1.5			
6-4		1	16.000 in.	12.000 in.	Sections Wide: 1	Sections High: 1	"O" Dim: 14.000 in.	Sleeve Length: 12.000 in.
					Sleeve Thickness: 20 ga	Damper Location: 6.000 in.	Mounting: Vertical	Ret. Angle Quantity: 2
					Ret. Angle Size: 1.5			

CAD-10 CAM Style Access Door

APPLICATION & DESIGN

Greenheck duct access doors provide a durable, practical and inexpensive means of gaining access to components inside the ductwork. Recommended for use in low to medium pressure duct systems.

RATINGS

Max. Pressure: 4.5 in. wg - pressure differential
 Pressure Setting: 2

PRODUCT DETAILS

Frame: Galvanized steel
 24 ga: up to 12.000 in. x 12.000 in.
 22 ga: 14.000 in. x 14.000 in. up to 24.000 in. x 24.000 in.

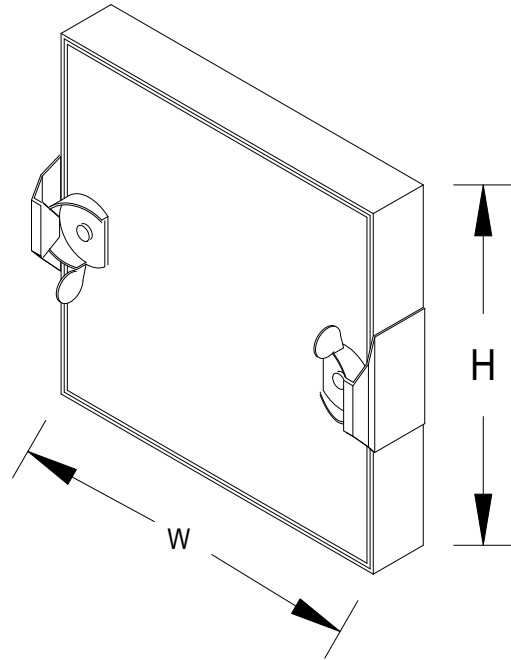
Door Panels: 24 ga galvanized steel (both sides of insulation)

Insulation: 1.000 in. fiberglass

Gasket: Door to frame and frame to duct
 0.500 in. wide dual gasket (compressable synthetic type)

Latches: Plated steel with galvanized steel strikes

Union Label: No Preference



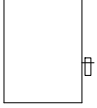
• This drawing shows a general damper configuration and is not intended to depict the exact configuration of all dampers in this submittal.
 • Installation instructions available at www.greenheck.com.

SUMMARY

ID #	TAG	QTY	W (in.)	H (in.)
7-1		23	12.000	12.000

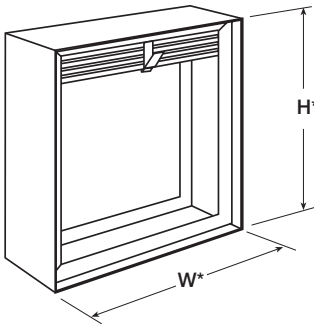
Damper Drive Arrangements Job Summary -Start-

Drive Arrangement: Drive-CC-11-1FER-0

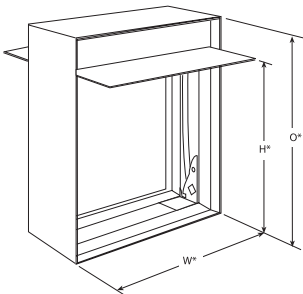


Damper Drive Arrangements Job Summary -End-

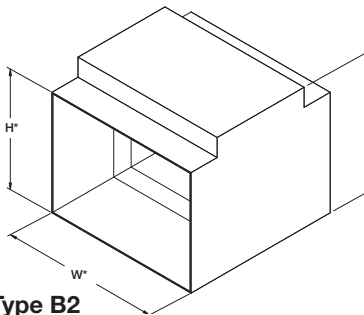
Transitions for Curtain Fire Dampers



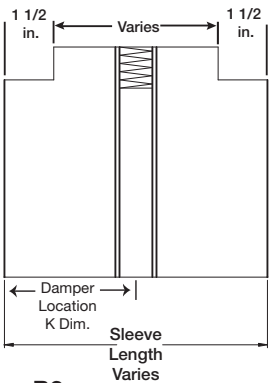
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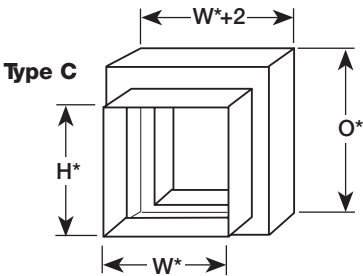
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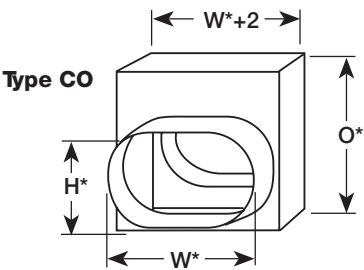
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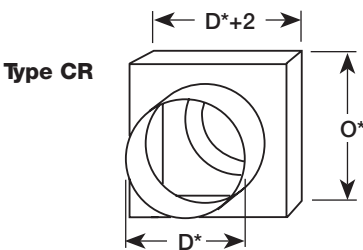
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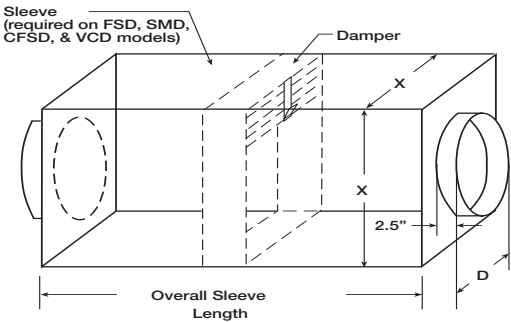
Type C



Type CO



Type CR



Type R

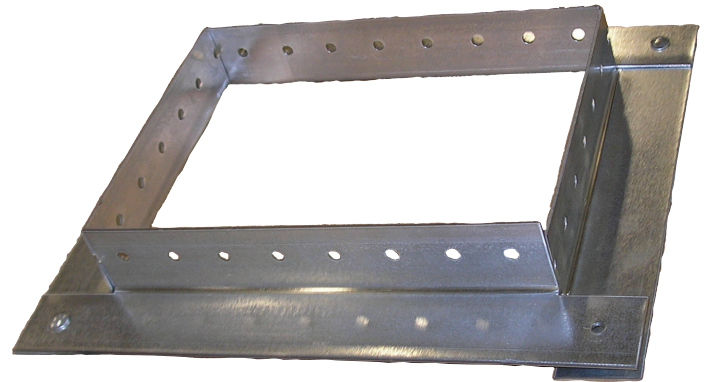
Application

Greenheck's one piece retaining angle, the POC (literally named for being a "Piece of Cake") makes damper installation a breeze. The POC angle is designed by fastening four pieces together to form one piece. When installed the angles simply wraps around the sleeve of the damper and is fastened in place.

Retaining angles for 1½ hour rated fire and combination fire smoke dampers with a width and height 48 in. (1219mm) or less must be a minimum of 20 ga. (1mm) steel. Retaining angles for all 3 hour rated dampers and all dampers with a width or height greater than 48 in. (1219mm) must be a minimum of 16 ga. (1.5mm).

If the damper width plus damper height is less than or equal to 44 inches (1117mm), then the POC angles ship in one piece. If damper width plus damper height is greater than 44 in. (1117mm), the POC angle ships in two pieces.

The POC retaining angles meets the requirements of UL 555 and UL 555S.



Retaining angle as shipped from the factory.

The four sides are connected together by rivets in three corners allowing for easy installation.

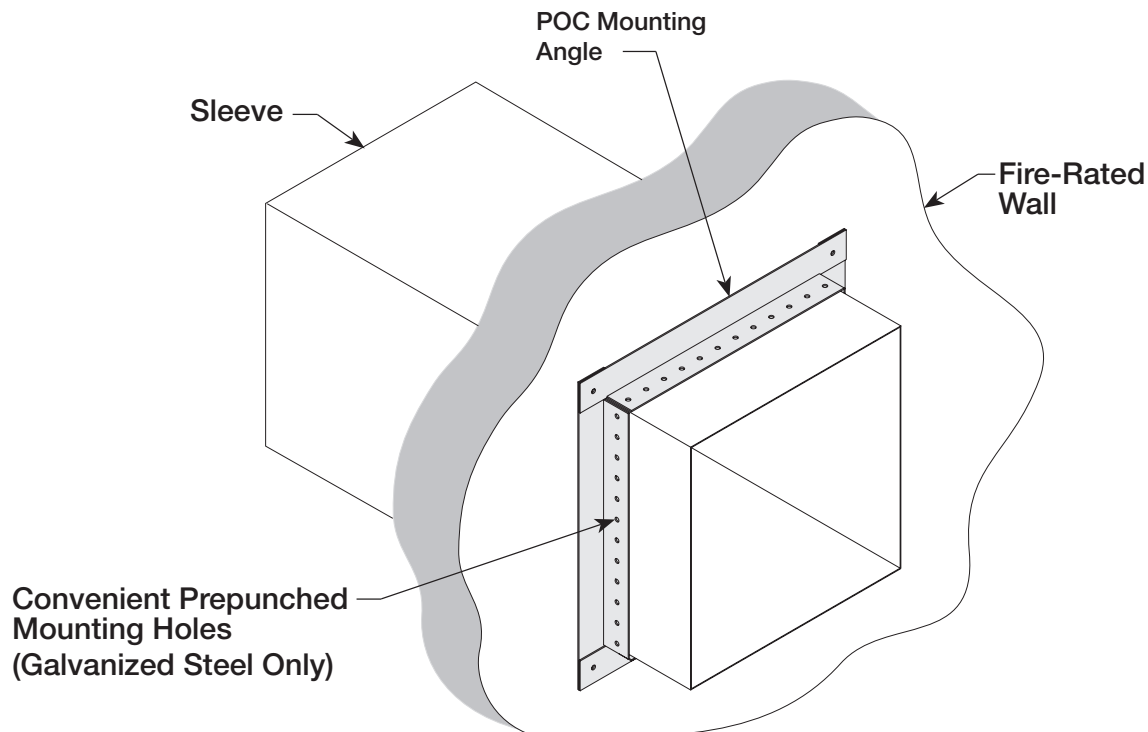
Construction

Material

20 ga. (1mm) or 16 ga. (1.5mm) galvanized steel

Sizes

1½ in. x 1¼ in. (38mm x 32mm) or 2½ x 1½ in. (64mm x 38mm) for sizes greater than 48 inches (1219mm)



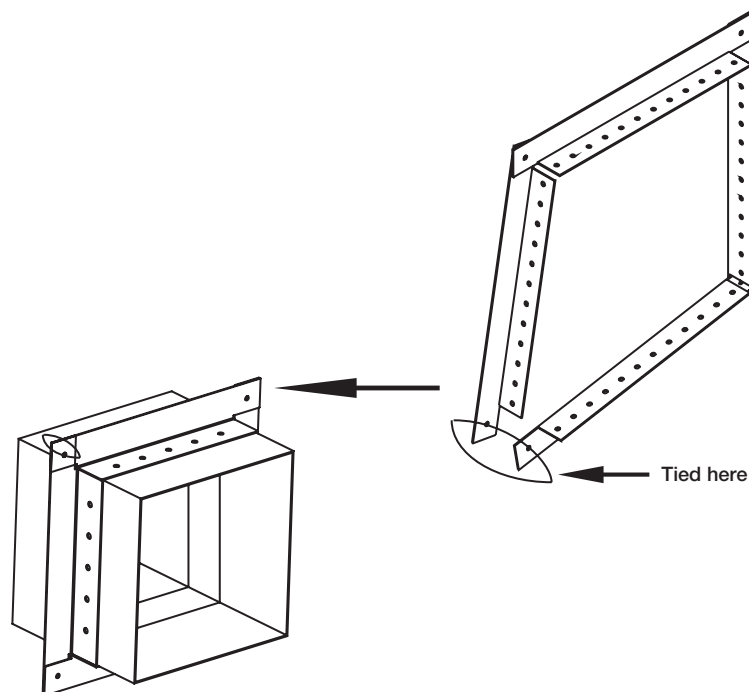
Retaining angle as mounted in the field.

The POC angle wraps around the sleeve. The factory provides pre-punched mounting holes to further simplify installation. SS retaining angles are provided without pre-punched mounting holes.

Available Retaining Angle Options:

Model Description

- **Loose** - Angle(s) ships unattached to the damper. (DFD series , FD Series, FSD series, VCD series)
- **Wrapped** - Angle is wrapped around the damper sleeve and tied together. (DFD series , FD Series, FSD series)



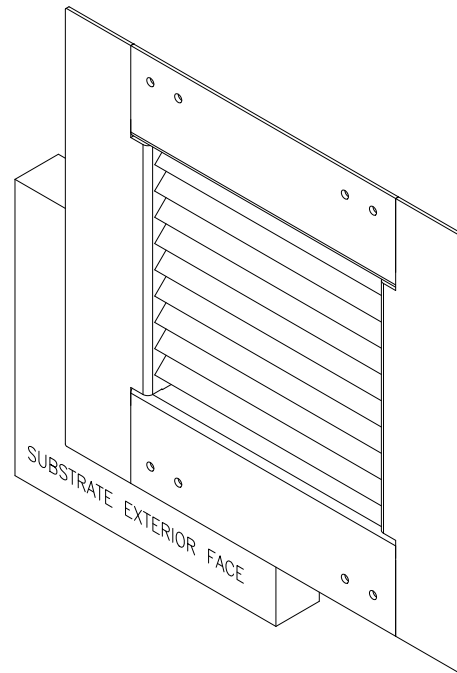
AFL-501 5.5 in. Aluminum FEMA Louver

APPLICATION & 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 and P-361, and ICC 500 (2020) to static and cyclical design pressures of positive/negative 250 PSF and debris impact of a 15 lb 2 in. x 4 in. traveling at 100.0 MPH. The AFL-501 is an extremely efficient louver with AMCA Certified Performance Data enabling design professionals to select and apply with confidence.

PRODUCT DETAILS

Model Configuration:	Exterior Flange
Flange Width (in.):	6.5
Frame Thickness (in.):	0.25
Frame Type:	Flanged
Blades:	0.25 in. Fixed Blade Thickness
Material:	Aluminum
Sizing:	Rough Opening
Construction:	Welded
Mount Configuration:	Flange
Mount Location:	Front
Anchor Location:	Head/Sill
Mounting Holes:	Yes



OPTIONS & ACCESSORIES

Finish:	Painted
Finish Performance:	AAMA 2605
Coating Type:	2Ct 70%Kynar/100%Fluoropolymer
Color:	Standard TBS
Bird Screen:	0.5 in. x 0.081 in., Flat Expanded Aluminum, Internal, Mill Finish
Build. Substrate Cond.:	Concrete
Substrate Depth (in.):	12
Installation Location:	Exterior Wall, frames sealed
Extended Sill:	No
Union Label:	No Preference
Warranty:	1 Yr (Standard) Product Warranty 10 Yrs (Standard) Finish Warranty

Summary

ID #	TAG	QTY.	W (in.)	H (in.)	FREE AREA (ft2)	UNIT WEIGHT (lb)	SECT. WIDE	SECT. HIGH	SHIP SECT.
8-1	L-1	1	60	80	16.75	427	2	1	2
8-2	L-2	1	60	80	16.75	427	2	1	2
8-3	L-3	1	60	80	16.75	427	2	1	2
8-4	L-4	1	60	80	16.75	427	2	1	2
8-5	L-5	1	60	80	16.75	427	2	1	2
8-6	L-10	1	60	80	16.75	427	2	1	2
8-7	L-11	1	60	80	16.75	427	2	1	2
8-8	L-12	1	60	80	16.75	427	2	1	2
8-9	L-13	1	60	80	16.75	427	2	1	2
8-10	L-6	1	48	80	13.22	341	1	1	1
8-11	L-7	1	48	80	13.22	341	1	1	1
8-12	L-8	1	48	80	13.22	341	1	1	1
8-13	L-9	1	48	80	13.22	341	1	1	1
8-14	L-4	1	48	80	13.22	341	1	1	1

ID #	TAG	QTY.	W (in.)	H (in.)	FREE AREA (ft2)	UNIT WEIGHT (lb)	SECT. WIDE	SECT. HIGH	SHIP SECT.
8-15	L-15	1	48	80	13.22	341	1	1	1
8-16	L-16	1	48	80	13.22	341	1	1	1
8-17	L-17	1	48	80	13.22	341	1	1	1
8-18	L-18	1	48	80	13.22	341	1	1	1
8-19	L-19	1	48	80	13.22	341	1	1	1

Total Louver Qty: 19 **Total Weight (lb):** 7,252 **Louver Area (ft2):** 567
Total Ship Sect.: 28

**Weight shown is an estimate only based on the default base product configuration without options or accessories.

Larger openings may require field assembly of multiple louver panels to make up the overall opening size. Individual louver panels are designed to withstand windloads up to a maximum of 25 PSF (size and configuration dependent). Design, materials and installation of structural reinforcement required to adequately support large sections or multiple section assemblies within a large opening are not provided by Greenheck. Unless specifically indicated, the following are NOT included in the quote provided: structural steel, installation hardware (anchors, angle clips, continuous angles, shims, fasteners, inserts, backer rod and sealant), field measuring and/or installation, miscellaneous flashing, trim or enclosures, blank off panels, mullion covers or mullion hardware, hinged frames or removable subframes, custom bird/insect screen, 3-coat, metallic and/or exotic paint finishes, bituminous paints for unlike metals, any applicable taxes, stamped and sealed structural calculations seismic calculations or job specific engineered submittal drawings.

EACC-401 4 in. Frame, Concealed Actuator

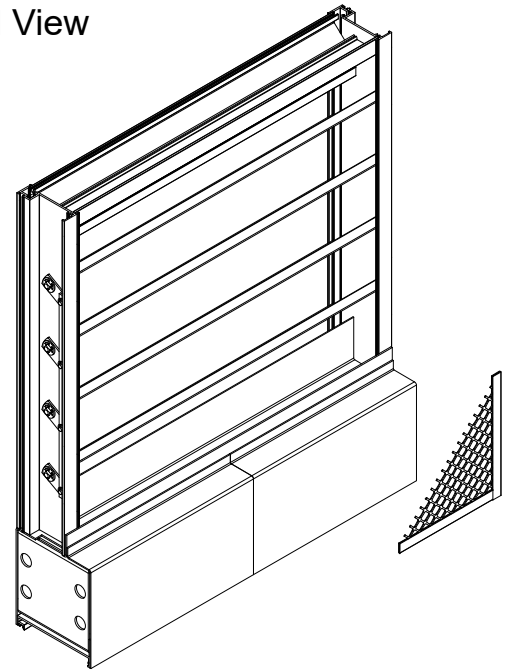
APPLICATION & DESIGN

EACC-401 is a combination louver/damper designed to protect air intake and exhaust openings in building exterior walls that, at times, require tight air shut off. Design incorporates a drainable head member, drainable stationary blades, operable blades and a concealed actuator within the louver sill. When the operable blades are open, airflow is permitted through the louver, when the blades are closed, a tight seal is created to prevent the passage of air.

PRODUCT DETAILS

Frame:	4 in. x 0.125 in. Frame Thickness
Frame Type:	Channel
Blades:	0.081 in. Adjustable Blade Thickness
Material:	Aluminum
Sizing:	1/4 Inch Under
Blade Seal:	Yes
Jamb Seal:	Yes
Axle Bearings:	Synthetic
Axle Material:	Steel
Shape:	Rectangular
Construction:	Mechanically Fastened

Internal View



OPTIONS & ACCESSORIES

Finish:	Mill
Bird Screen:	0.75 in. x 0.05 in., Flat Expanded Aluminum, Internal, Mill Finish
Actuator:	120 VAC, Mounting: In Airstream, Failure Pos.: Open, Operating Mode: Two Position, Nema Enclosure: 1, Transformer: None, Aux. Switches: Yes, Access: Internal
Union Label:	No Preference
Warranty:	1 year Standard Product Warranty

SUMMARY

ID #	TAG	QTY	W (in.)	H (in.)	FREE AREA (ft2)	FREE AREA (%)	DRIVE ARR.	ACTUATOR MODEL	ACTUATOR LOCATION	SECT. WIDE	SECT. HIGH	SECT. SHIP	ACT./SHIP SECT.
9-1		9	60	80	13.31	40.2	11-1FIBL-0	AFBUP-S	Left Bottom	1	1	9	1
9-2		10	48	80	10.52	39.8	11-1FIBL-0	AFBUP-S	Left Bottom	1	1	10	1
9-3	L-29	1	24	24	0.63	16	11-1FIBL-0	TFB120-S	Left Bottom	1	1	1	1
9-4	L-30	1	24	24	0.63	16	11-1FIBL-0	TFB120-S	Left Bottom	1	1	1	1

*** Louver requires actuator to operate. When no actuator is selected, no actuator mounting brackets, linkage, jackshafts, or hardware will be provided.**

Total Louver Qty:	21	Total Weight (lb):	2,280	Louver Area (ft2):	575
Total Ship Sect.:	21				

**Weight shown is an estimate only based on the default base product configuration without options or accessories.

Larger openings may require field assembly of multiple louver panels to make up the overall opening size. Individual louver panels are designed to withstand windloads up to a maximum of 25 PSF (size and configuration dependent). Design, materials and installation of structural reinforcement required to adequately support large sections or multiple section assemblies within a large opening are not provided by Greenheck. Options and accessories including, but not limited to, screens, filter racks, louver doors, and blankoff panels are not subject to structural analysis unless indicated otherwise by Greenheck. Unless specifically indicated, the following are NOT included in the quote provided: structural steel, installation hardware (anchors, angle clips, continuous angles, shims, fasteners, inserts, backer rod and sealant), field measuring and/or installation, miscellaneous flashing, trim or enclosures, blank off panels, mullion covers or mullion hardware, hinged frames or removable subframes, custom bird/insect screen, 3-coat, metallic and/or exotic paint finishes, bituminous paints for unlike metals, any applicable taxes, stamped and sealed structural calculations seismic calculations or job specific engineered submittal drawings.

ESD-635 6 in. Frame, 35 deg Blade

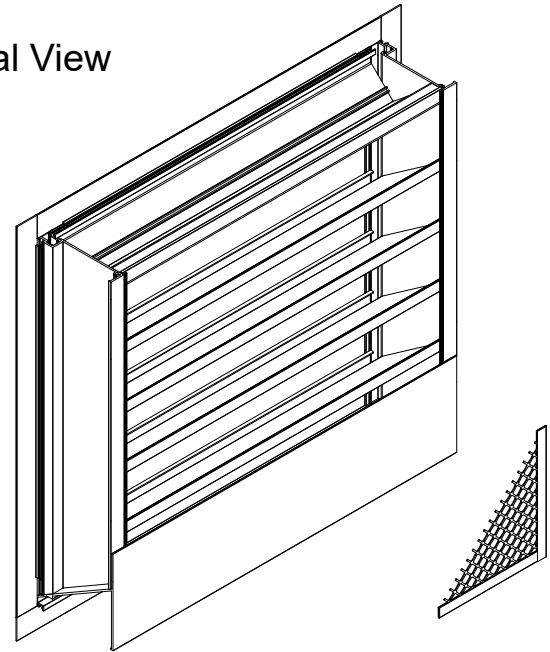
APPLICATION & DESIGN

ESD-635 is a weather louver designed to protect air intake and exhaust openings in building exterior walls. Design incorporates drain gutters in the head member and horizontal blades to channel water to the jambs where water is further channeled through vertical downspouts and out at the sloped sill. The ESD-635 is an extremely efficient louver with AMCA LICENSED PERFORMANCE DATA enabling designers to select and apply with confidence.

PRODUCT DETAILS

Frame: 6 in. x 0.081 in. Frame Thickness
Frame Type: Flanged, 1.5 in., Exterior
Blades: 0.081 in. Fixed Blade Thickness
Material: Aluminum
Sizing: 1/4 Inch Under
Shape: Rectangular
Construction: Mechanically Fastened

Internal View



OPTIONS & ACCESSORIES

Finish: Painted
Finish Performance: AAMA 2605
Coating Type: 2Ct 70%Kynar/100%Fluoropolymer
Color: Standard TBS
Bird Screen: 0.75 in. x 0.05 in., Flat Expanded Aluminum, Internal, Match Louver Finish
Union Label: No Preference
Warranty: 1 year Standard Product Warranty
 10 year Standard Finish Warranty

SUMMARY

ID #	TAG	QTY.	W (in.)	H (in.)	FREE AREA (ft2)	FREE AREA (%)	SECT. WIDE	SECT. HIGH	SHIP SECT.
10-1	L-20	1	24	16	0.92	35.2	1	1	1
10-2	L-21	1	24	16	0.92	35.2	1	1	1
10-3	L-22	1	24	20	1.37	42	1	1	1
10-4	L-23	1	24	20	1.37	42	1	1	1
10-5	L-24	1	20	20	1.11	41	1	1	1
10-6	L-25	1	20	20	1.11	41	1	1	1
10-7	L-28	1	20	20	1.11	41	1	1	1
10-8	L-26	1	80	80	27.44	62.1	1	2	2
10-9	L-27	1	80	80	27.44	62.1	1	2	2

Total Louver Qty: 9 **Total Weight (lb):** 427 **Louver Area (ft2):** 109
Total Ship Sect.: 11

**Weight shown is an estimate only based on the default base product configuration without options or accessories.

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