

*Quality People. Building Solutions.*

Comfort Systems USA (Arkansas), Inc.  
P.O. Box 16620  
Little Rock, AR 72231  
Phone 501-834-3320  
Fax 501-834-5416

**Date:** 11/9/2023

**Return Request:** 11/19/2023

**Project:** UCA Snow – Fine Arts Center

**Supplier:** Custom Metals

**Manufacturer:** Greenheck

**Submittal:** Air Duct Accessories

**Submittal Number:** 23 33 00-01

**Drawing # and Installation:** Mechanical Drawings

**ARCHITECT**

H+N Architects  
1009 Main Street  
Conway, AR 72032  
501-327-7525

**ENGINEER**

Pettit & Pettit  
201 E. Markham St. #400  
Little Rock, AR 72201  
501-374-3731

**GENERAL CONTRACTOR**

Wagner General Contractors  
600 W. Race Ave.  
Searcy, AR 72143  
501-203-0704

**MECHANICAL SUBCONTRACTOR**

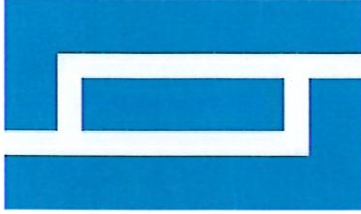
Comfort Systems USA (Arkansas), Inc.  
9924 Landers Rd.  
N. Little Rock, AR 72117  
501-834-3320

Notes:

**CSUSA PROJECT NO.**

**23-2020**

[chowell@comfortar.com](mailto:chowell@comfortar.com)



## **CUSTOM METALS**

A DIVISION OF LEXICON, INC.  
P.O. Box 16390, Little Rock, AR 72231  
Telephone (501) 490-4400 Fax (501) 490-4422  
[www.lexicon-inc.com](http://www.lexicon-inc.com)

Job: **UCA Snow Fine Arts Renovation**

Spec Section: **23 33 00 Air Duct Accessories**

Item: **Fire Dampers**

Submitted by:

Joe Minton Jr.

HVAC Project Manager

(501) 607-0043

10-30-2023

## FD-110 1 1/2 hour static rated fire damper

### APPLICATION & DESIGN

Model FD-110 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

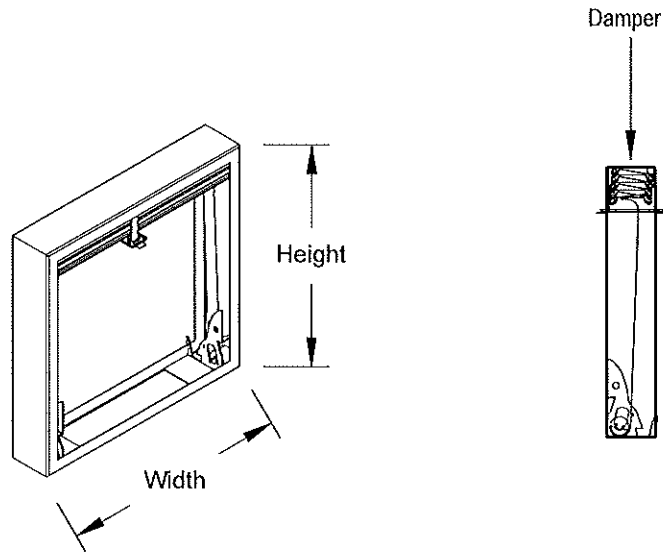
Fire Rating: 1 1/2 hours

### PRODUCT DETAILS

Frame: Galvanized Steel  
Frame Depth: 2.188  
Blade: Galvanized Steel  
Closure Device: Fusible Link  
Closure Temp: 165 F  
Sizing: Nominal

### OPTIONS & ACCESSORIES

Transition: A  
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.
- 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](http://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			
1-1		1	6.000 in.	4.000 in.	Sections Wide: 1	Sections High: 1	Blade Stack: 1.020 in.	Mounting: Vertical
1-2		3	6.000 in.	6.000 in.	Sections Wide: 1	Sections High: 1	Blade Stack: 1.190 in.	Mounting: Vertical
1-3		1	8.000 in.	6.000 in.	Sections Wide: 1	Sections High: 1	Blade Stack: 1.190 in.	Mounting: Vertical

**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**

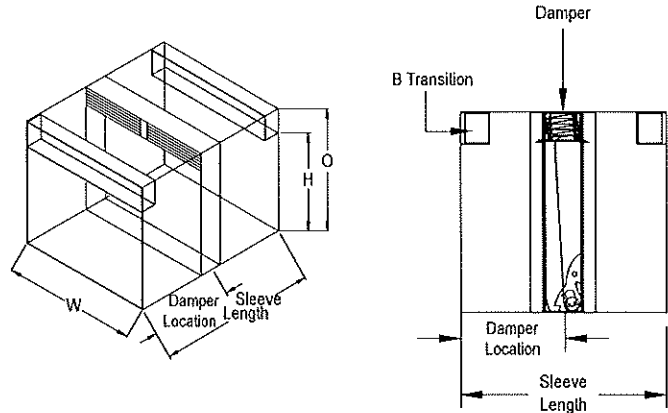
Fire Rating: 1 1/2 hours

**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](http://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			
2-1		1	54.000 in.	18.000 in.	Sections Wide: 2	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: 2.5			
2-2		1	58.000 in.	18.000 in.	Sections Wide: 2	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: 2.5			
2-3		2	70.000 in.	24.000 in.	Sections Wide: 2	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: 2.5			

## 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

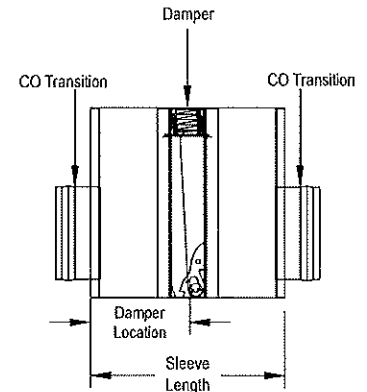
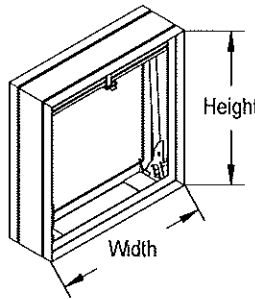
Fire Rating: 1 1/2 hours

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



Damper Width = Width + 2 In.

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](http://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			
3-1		1	24.000 in.	16.000 in.	Sections Wide:	Sections High:	"O" Dim:	Sleeve Length:
					1	1	20.000 in.	12.000 in.
					Sleeve Thickness:	Damper Location:	Mounting:	Ret. Angle Quantity:
					20 ga	6.000 in.	Horizontal	2
					Ret. Angle Size:			
					1.5			
3-2		1	28.000 in.	16.000 in.	Sections Wide:	Sections High:	"O" Dim:	Sleeve Length:
					1	1	20.000 in.	12.000 in.
					Sleeve Thickness:	Damper Location:	Mounting:	Ret. Angle Quantity:
					20 ga	6.000 in.	Horizontal	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**

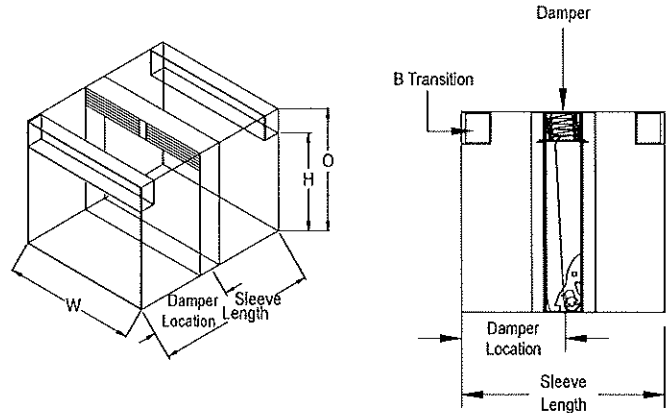
Fire Rating: 1 1/2 hours

**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](http://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		5	6.000 in.	6.000 in.	Sections Wide: 1	Sections High: 1	"O" Dim: 8.000 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			
4-2		9	10.000 in.	10.000 in.	Sections Wide: 1	Sections High: 1	"O" Dim: 12.000 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			
4-3		1	12.000 in.	4.000 in.	Sections Wide: 1	Sections High: 1	"O" Dim: 6.000 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			
4-4		1	14.000 in.	4.000 in.	Sections Wide: 1	Sections High: 1	"O" Dim: 6.000 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			

ID #	TAG	QTY	WIDTH	HEIGHT	CONFIGURATION			
4-5		1	14.000 in.	4.000 in.	Sections Wide:	Sections High:	"O" Dim:	Sleeve Length:
					1	1	6.000 in.	12.000 in.
					Sleeve Thickness:	Damper Location:	Mounting:	Ret. Angle Quantity:
					20 ga	6.000 in.	Vertical	2
					Ret. Angle Size:			
					1.5			
4-6		1	14.000 in.	16.000 in.	Sections Wide:	Sections High:	"O" Dim:	Sleeve Length:
					1	1	19.000 in.	12.000 in.
					Sleeve Thickness:	Damper Location:	Mounting:	Ret. Angle Quantity:
					20 ga	6.000 in.	Vertical	2
					Ret. Angle Size:			
					1.5			
4-7		1	16.000 in.	10.000 in.	Sections Wide:	Sections High:	"O" Dim:	Sleeve Length:
					1	1	12.000 in.	12.000 in.
					Sleeve Thickness:	Damper Location:	Mounting:	Ret. Angle Quantity:
					20 ga	6.000 in.	Vertical	2
					Ret. Angle Size:			
					1.5			
4-8		1	16.000 in.	12.000 in.	Sections Wide:	Sections High:	"O" Dim:	Sleeve Length:
					1	1	14.000 in.	12.000 in.
					Sleeve Thickness:	Damper Location:	Mounting:	Ret. Angle Quantity:
					20 ga	6.000 in.	Vertical	2
					Ret. Angle Size:			
					1.5			
4-9		2	16.000 in.	14.000 in.	Sections Wide:	Sections High:	"O" Dim:	Sleeve Length:
					1	1	16.000 in.	12.000 in.
					Sleeve Thickness:	Damper Location:	Mounting:	Ret. Angle Quantity:
					20 ga	6.000 in.	Vertical	2
					Ret. Angle Size:			
					1.5			
4-10		2	16.000 in.	16.000 in.	Sections Wide:	Sections High:	"O" Dim:	Sleeve Length:
					1	1	19.000 in.	12.000 in.
					Sleeve Thickness:	Damper Location:	Mounting:	Ret. Angle Quantity:
					20 ga	6.000 in.	Vertical	2
					Ret. Angle Size:			
					1.5			
4-11		1	18.000 in.	12.000 in.	Sections Wide:	Sections High:	"O" Dim:	Sleeve Length:
					1	1	14.000 in.	12.000 in.
					Sleeve Thickness:	Damper Location:	Mounting:	Ret. Angle Quantity:
					20 ga	6.000 in.	Vertical	2
					Ret. Angle Size:			
					1.5			
4-12		2	18.000 in.	14.000 in.	Sections Wide:	Sections High:	"O" Dim:	Sleeve Length:
					1	1	16.000 in.	12.000 in.
					Sleeve Thickness:	Damper Location:	Mounting:	Ret. Angle Quantity:
					20 ga	6.000 in.	Vertical	2
					Ret. Angle Size:			
					1.5			
4-13		21	20.000 in.	10.000 in.	Sections Wide:	Sections High:	"O" Dim:	Sleeve Length:
					1	1	12.000 in.	12.000 in.
					Sleeve Thickness:	Damper Location:	Mounting:	Ret. Angle Quantity:
					20 ga	6.000 in.	Vertical	2
					Ret. Angle Size:			
					1.5			
4-14		1	22.000 in.	10.000 in.	Sections Wide:	Sections High:	"O" Dim:	Sleeve Length:
					1	1	12.000 in.	12.000 in.
					Sleeve Thickness:	Damper Location:	Mounting:	Ret. Angle Quantity:
					20 ga	6.000 in.	Vertical	2
					Ret. Angle Size:			
					1.5			

ID #	TAG	QTY	WIDTH	HEIGHT	CONFIGURATION			
4-15		3	24.000 in.	16.000 in.	Sections Wide:	Sections High:	"O" Dim:	Sleeve Length:
					1	1	19.000 in.	12.000 in.
					Sleeve Thickness:	Damper Location:	Mounting:	Ret. Angle Quantity:
					20 ga	6.000 in.	Vertical	2
					Ret. Angle Size:			
					1.5			
4-16		1	28.000 in.	10.000 in.	Sections Wide:	Sections High:	"O" Dim:	Sleeve Length:
					1	1	12.000 in.	12.000 in.
					Sleeve Thickness:	Damper Location:	Mounting:	Ret. Angle Quantity:
					20 ga	6.000 in.	Vertical	2
					Ret. Angle Size:			
					1.5			
4-17		2	28.000 in.	12.000 in.	Sections Wide:	Sections High:	"O" Dim:	Sleeve Length:
					1	1	14.000 in.	12.000 in.
					Sleeve Thickness:	Damper Location:	Mounting:	Ret. Angle Quantity:
					20 ga	6.000 in.	Vertical	2
					Ret. Angle Size:			
					1.5			
4-18		6	46.000 in.	12.000 in.	Sections Wide:	Sections High:	"O" Dim:	Sleeve Length:
					1	1	14.000 in.	12.000 in.
					Sleeve Thickness:	Damper Location:	Mounting:	Ret. Angle Quantity:
					20 ga	6.000 in.	Vertical	2
					Ret. Angle Size:			
					1.5			
4-19		1	46.000 in.	22.000 in.	Sections Wide:	Sections High:	"O" Dim:	Sleeve Length:
					1	1	26.000 in.	12.000 in.
					Sleeve Thickness:	Damper Location:	Mounting:	Ret. Angle Quantity:
					20 ga	6.000 in.	Vertical	2
					Ret. Angle Size:			
					1.5			
4-20		1	54.000 in.	16.000 in.	Sections Wide:	Sections High:	"O" Dim:	Sleeve Length:
					2	1	19.000 in.	12.000 in.
					Sleeve Thickness:	Damper Location:	Mounting:	Ret. Angle Quantity:
					20 ga	6.000 in.	Vertical	2
					Ret. Angle Size:			
					2.5			
4-21		1	58.000 in.	18.000 in.	Sections Wide:	Sections High:	"O" Dim:	Sleeve Length:
					2	1	21.000 in.	12.000 in.
					Sleeve Thickness:	Damper Location:	Mounting:	Ret. Angle Quantity:
					20 ga	6.000 in.	Vertical	2
					Ret. Angle Size:			
					2.5			
4-22		2	66.000 in.	18.000 in.	Sections Wide:	Sections High:	"O" Dim:	Sleeve Length:
					2	1	21.000 in.	12.000 in.
					Sleeve Thickness:	Damper Location:	Mounting:	Ret. Angle Quantity:
					20 ga	6.000 in.	Vertical	2
					Ret. Angle Size:			
					2.5			
4-23		2	72.000 in.	18.000 in.	Sections Wide:	Sections High:	"O" Dim:	Sleeve Length:
					2	1	21.000 in.	12.000 in.
					Sleeve Thickness:	Damper Location:	Mounting:	Ret. Angle Quantity:
					20 ga	6.000 in.	Vertical	2
					Ret. Angle Size:			
					2.5			



# 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

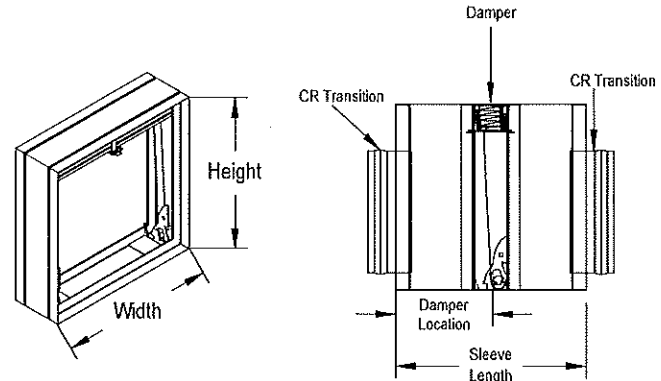
Fire Rating: 1 1/2 hours

## 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: CR  
 Transition Location: Both Sides  
 Retaining Angle Mounting: Loose  
 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](http://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			
5-1		6	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	Ret. Angle Quantity: 2
				Ret. Angle Size: 1.5			
5-2		13	8.000 in.	Sections Wide: 1	Sections High: 1	"O" Dim: 11.000 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			
5-3		8	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	Ret. Angle Quantity: 2
				Ret. Angle Size: 1.5			
5-4		10	12.000 in.	Sections Wide: 1	Sections High: 1	"O" Dim: 15.000 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			

ID #	TAG	QTY	DIAMETER	CONFIGURATION			
5-5		4	16.000 in.	Sections Wide: 1	Sections High: 1	"O" Dim: 20.000 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			

## 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.

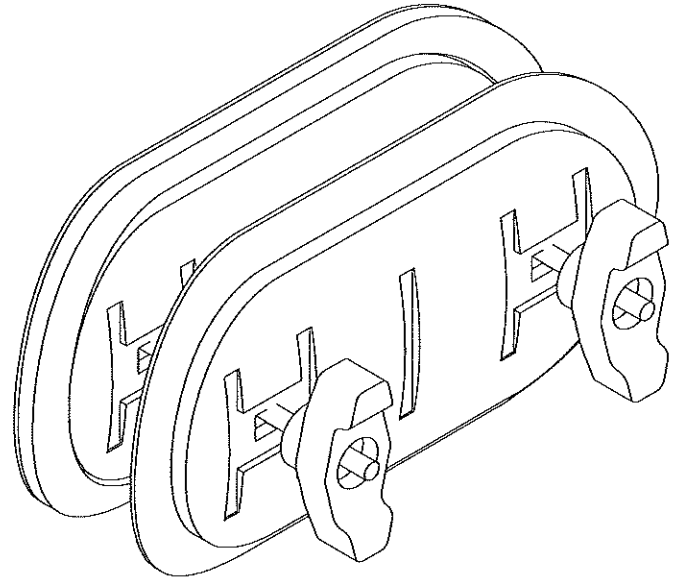
### RATINGS

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](http://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.)
6-1		6	6.000
6-2		13	8.000
6-3		8	10.000
6-4		10	12.000
6-5		4	16.000

## 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.

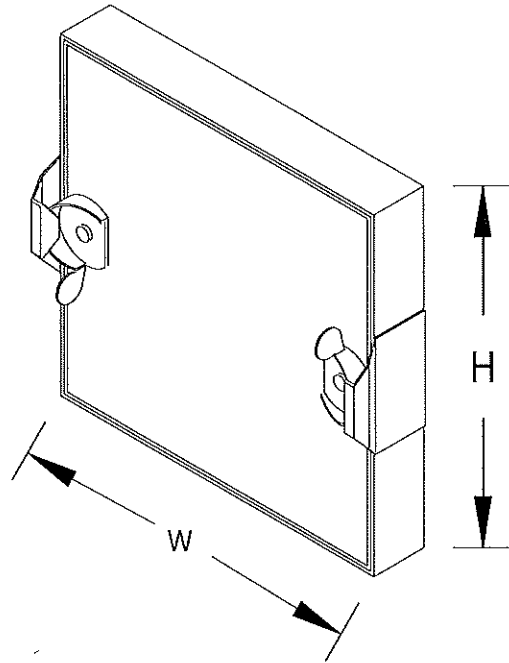
**Door Panels:** 24 ga galvanized steel (both sides of insulation)

**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](http://www.greenheck.com).

### SUMMARY

ID #	TAG	QTY	W (in.)	H (in.)
7-1		20	6.000	6.000
7-2		35	12.000	12.000
7-3		30	18.000	18.000

## 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

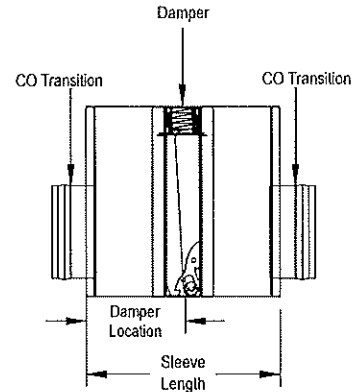
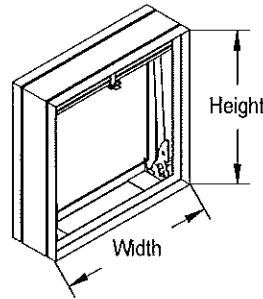
Fire Rating: 1 1/2 hours

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



Damper Width = Width + 2 in.

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](http://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			
8-1		1	24.000 in.	16.000 in.	Sections Wide: 1	Sections High: 1	"O" Dim: 20.000 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			
8-2		1	28.000 in.	16.000 in.	Sections Wide: 1	Sections High: 1	"O" Dim: 20.000 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			
8-3		1	32.000 in.	16.000 in.	Sections Wide: 1	Sections High: 1	"O" Dim: 20.000 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			

ID #	TAG	QTY	WIDTH	HEIGHT	CONFIGURATION			
8-4		3	36.000 in.	16.000 in.	Sections Wide:	Sections High:	"O" Dim:	Sleeve Length:
					1	1	20.000 in.	12.000 in.
					Sleeve Thickness:	Damper Location:	Mounting:	Ret. Angle Quantity:
20 ga	6.000 in.	Vertical	2					
Ret. Angle Size:								
1.5								

## MBD-10 Single Blade Manual Balancing Damper

### APPLICATION & DESIGN

MBD-10 is a manual balancing damper designed to regulate the flow of air in an HVAC system. The MBD-10 is not intended for use in applications as a positive shut off for automatic control.

### DAMPER RATINGS

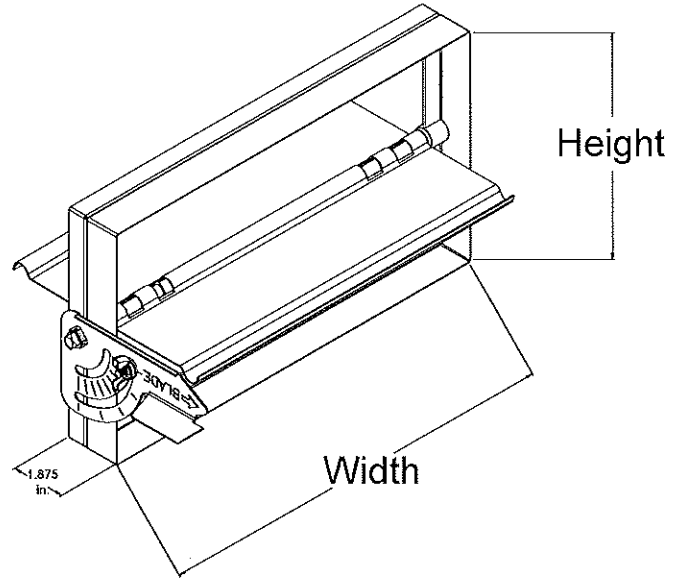
Pressure 1 in. wg - pressure differential  
Velocity Up to 2,000 ft/min  
Temperature 180 F

### PRODUCT DETAILS

Frame 22 ga galvanized steel  
Blade 20 ga galvanized steel  
Axle Integral 0.500 in. dia.  
Sizing Nominal

### OPTIONS & ACCESSORIES

Actuator Type Manual Quadrant  
Clean Wrap No  
Standoff Bracket 2 in.  
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.
- Manual quadrant is sent as a kit for field installation.
- Installation instructions available at [www.greenheck.com](http://www.greenheck.com)

### SUMMARY

ID #	Tag	Qty	WIDTH	HEIGHT	Actuator Qty	Actuator Type
9-1		1	6.000 in.	4.000 in.	1	MANUAL QUADRANT
9-2		2	6.000 in.	6.000 in.	1	MANUAL QUADRANT
9-3		2	8.000 in.	4.000 in.	1	MANUAL QUADRANT
9-4		2	8.000 in.	6.000 in.	1	MANUAL QUADRANT
9-5		6	8.000 in.	8.000 in.	1	MANUAL QUADRANT
9-6		2	10.000 in.	10.000 in.	1	MANUAL QUADRANT
9-7		1	12.000 in.	4.000 in.	1	MANUAL QUADRANT
9-8		2	12.000 in.	10.000 in.	1	MANUAL QUADRANT
9-9		7	12.000 in.	12.000 in.	1	MANUAL QUADRANT
9-10		1	14.000 in.	4.000 in.	1	MANUAL QUADRANT
9-11		2	16.000 in.	8.000 in.	1	MANUAL QUADRANT
9-12		1	20.000 in.	4.000 in.	1	MANUAL QUADRANT
9-13		2	24.000 in.	6.000 in.	1	MANUAL QUADRANT

## 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

### ACTUATOR INFORMATION

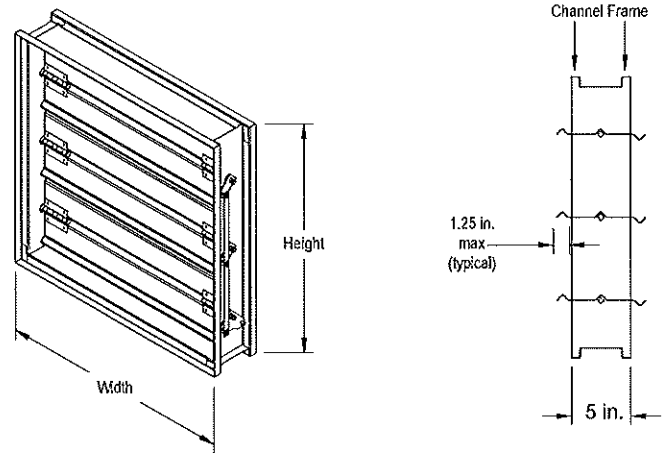
Actuator Type	Manual Quadrant
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### OPTIONS & ACCESSORIES

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

### SUMMARY

ID #	Tag	Qty	WIDTH	HEIGHT	CONFIGURATION		
10-1		4	12.000 in.	18.000 in.	Drive Arrg: Drive-CC-11-1FER-0	Actuator Qty: 1	Actuator Type: MANUAL QUADRANT
10-2		2	14.000 in.	13.000 in.	Drive Arrg: Drive-CC-11-1FER-0	Actuator Qty: 1	Actuator Type: MANUAL QUADRANT
10-3		10	16.000 in.	15.000 in.	Drive Arrg: Drive-CC-11-1FER-0	Actuator Qty: 1	Actuator Type: MANUAL QUADRANT
10-4		2	16.000 in.	18.000 in.	Drive Arrg: Drive-CC-11-1FER-0	Actuator Qty: 1	Actuator Type: MANUAL QUADRANT
10-5		6	18.000 in.	18.000 in.	Drive Arrg: Drive-CC-11-1FER-0	Actuator Qty: 1	Actuator Type: MANUAL QUADRANT



• This drawing shows a general damper configuration and is not intended to depict the exact configuration of all dampers in this submittal.  
 • 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](http://www.greenheck.com)

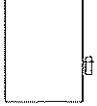


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Damper Drive Arrangements Job Summary -Start-

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

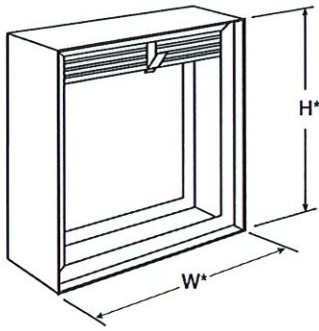


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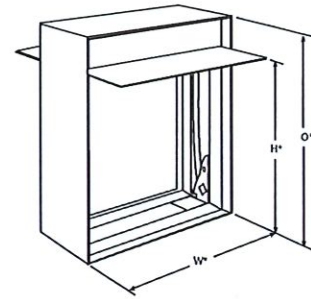
Damper Drive Arrangements Job Summary -End-

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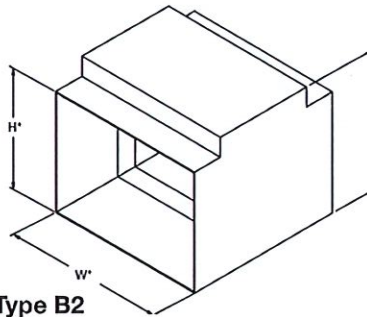
# Transitions for Curtain Fire Dampers



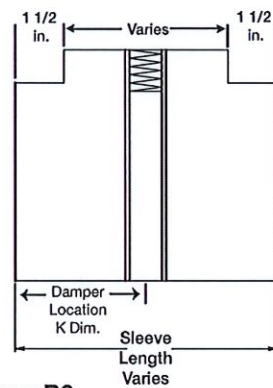
Type A



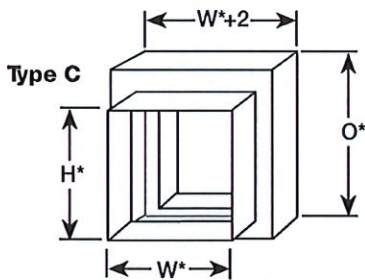
Type B



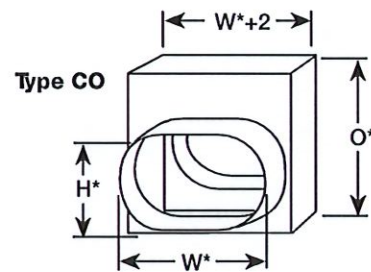
Type B2



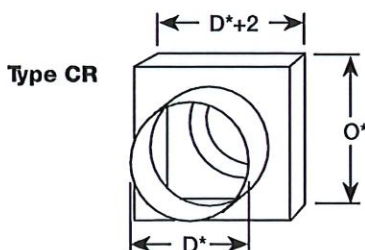
Type B2



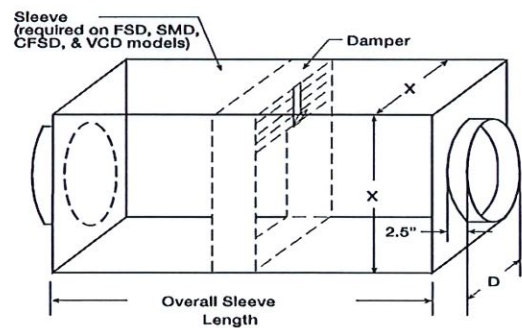
Type C



Type CO



Type CR



Type R

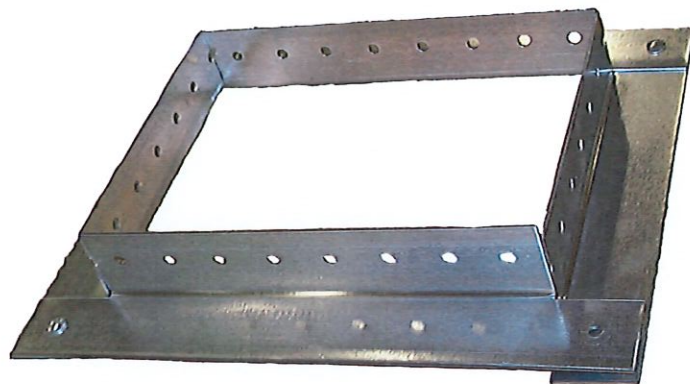
## Application

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 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.

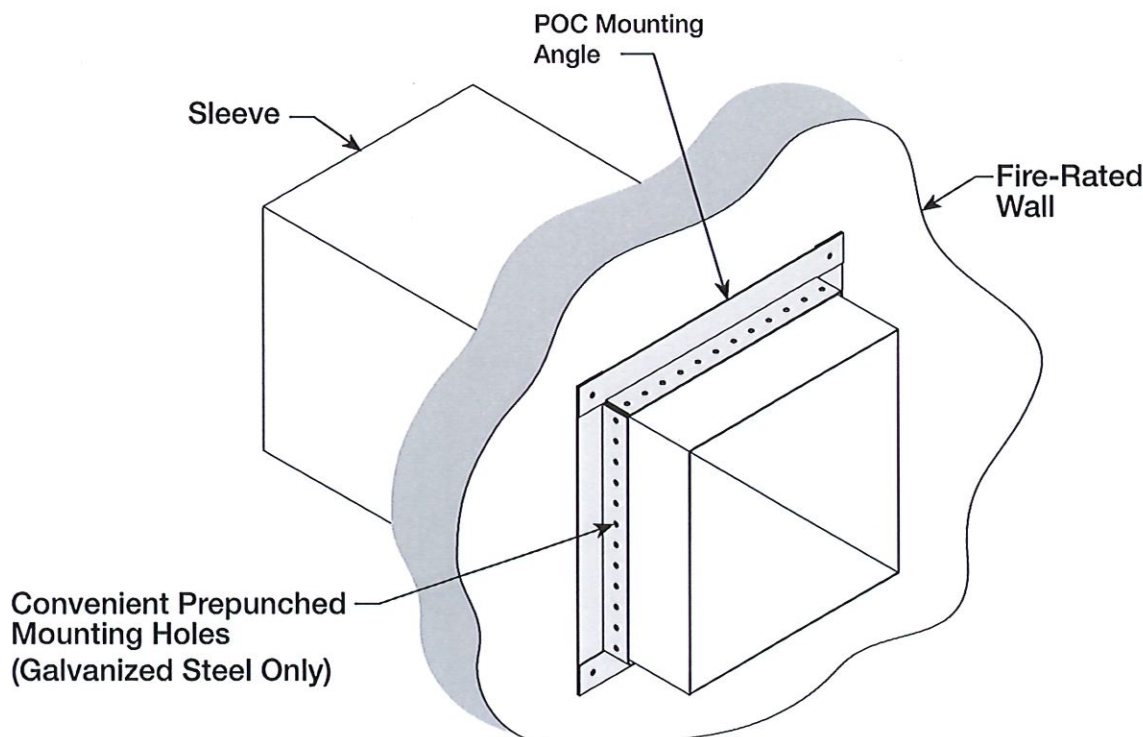
## Construction

### 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)



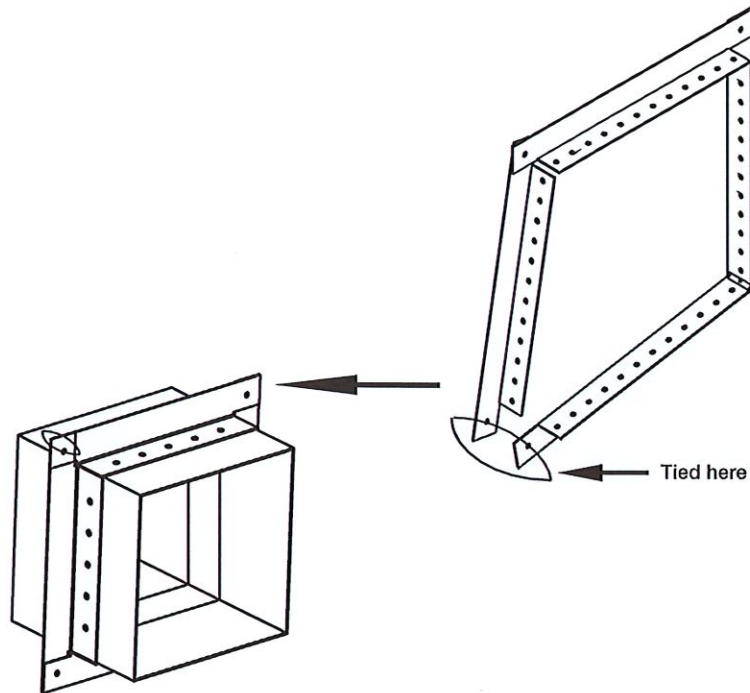
Retaining angle as mounted in the field.

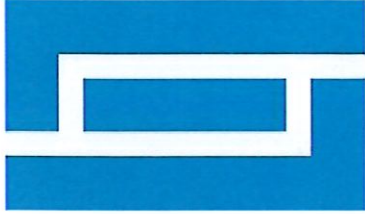
The POC angle wraps around the sleeve. The factory provides prepunched mounting holes to further simplify installation. SS retaining angles are provided without prepunched mounting holes.

## 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)





## **CUSTOM METALS**

A DIVISION OF LEXICON, INC.  
P.O. Box 16390, Little Rock, AR 72231  
Telephone (501) 490-4400 Fax (501) 490-4422  
[www.lexicon-inc.com](http://www.lexicon-inc.com)

Job: **UCA Snow Fine Arts Renovation**

Spec Section: **23 33 00 Air Duct Accessories**

Item: **High Efficiency Takeoffs**

Submitted by:

Joe Minton Jr.

HVAC Project Manager

(501) 607-0043

10-30-2023

# Dace Mfg.

orders@dacemfg.co

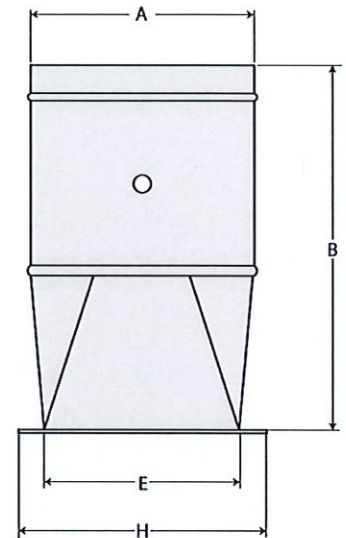
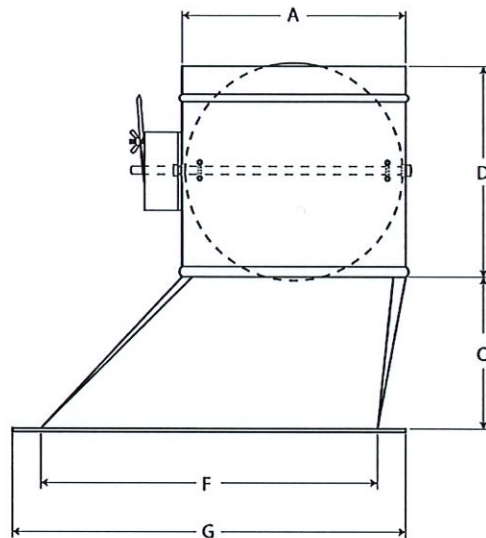
SUBMITTAL

Feb 2016

SIDE TAKEOFF FITTING w DAMPER

MODEL: STOD CO3

## HIGH EFFICIENCY TAKEOFF



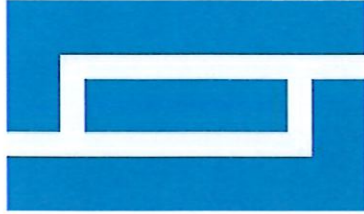
SIZE	A	B	C	D	E	F	G	H
4	3 7/8	9	6	3	4	8	10	6
5	4 7/8	9	6	3	5	9	11	7
6	5 7/8	9	6	3	5	9	11	7
7	6 7/8	9	6	3	6	11	13	8
8	7 7/8	9	6	3	6	12	14	8
9	8 7/8	9	6	3	7	13	15	9
10	9 7/8	9	6	3	8	14	16	10
12	11 7/8	9	6	3	10	16	18	12
14	13 7/8	9	6	3	12	18	20	14
16	15 7/8	9	6	3	14	20	22	16
18	17 7/8	9	6	3	16	22	24	18
20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



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Telephone (501) 490-4400 Fax (501) 490-4422  
[www.lexicon-inc.com](http://www.lexicon-inc.com)

Job: **UCA Snow Fine Arts Renovation**

Spec Section: **23 33 00 Air Duct Accessories**

Item: **Round Manual Dampers**

Submitted by:

Joe Minton Jr.

HVAC Project Manager

(501) 607-0043

10-30-2023

# 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:** (8) 6" long, beaded & tapered.

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

## BODY MATERIAL:

26 gauge standard

## OPTIONS:

24 gauge steel

22 gauge steel

SS304

## DAMPER BLADES:

26 gauge standard

## OPTIONS:

24GA,

22 GA steel,

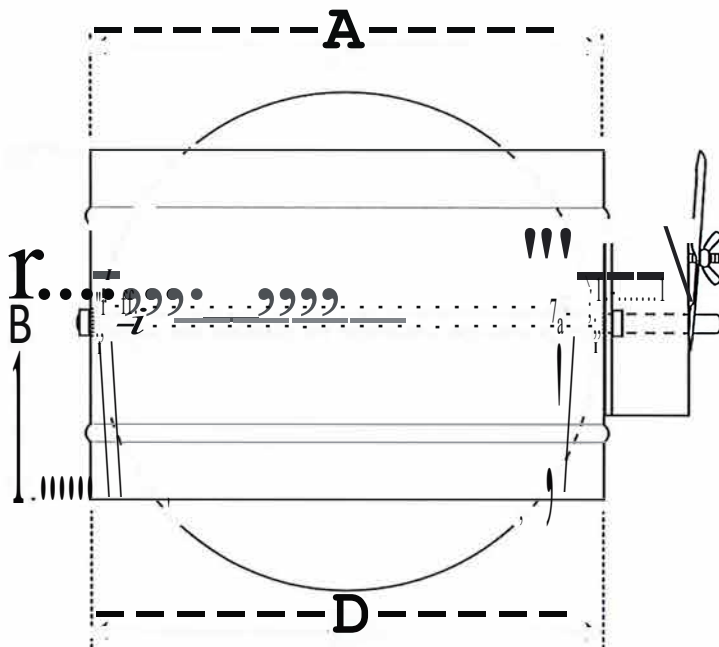
20 gauge-16 gauge steel

SS304

## DAMPER CONTROL:

C03 - 2' raised handle, locking quadrant, 3/8" square continuous rod, 'U' bolts, nylon bearings

All stainless steel option



## RMBD-C03

