Nailor® Industries Inc.

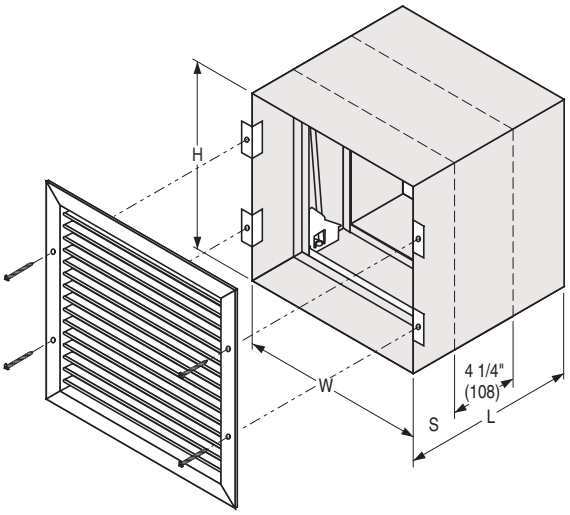
DYNAMIC CURTAIN TYPE FIRE DAMPER FOR GRILLES WITH CUSTOM SLEEVE

FOR USE IN DYNAMIC OR STATIC SYSTEMS
VERTICAL OR HORIZONTAL MOUNT
MODEL: D0100G (TYPES A, B & CR)

CLASSIFIED C UL US

QUALIFICATIONS:

- **UL 555 & CAN/ULC-S112 CLASSIFIED DYNAMIC FIRE DAMPER. 1 1/2 hr. label (File # R9492).**
- **Meets all the requirements of UL and NFPA 80, 90A and 101 for fire dampers in dynamic HVAC systems, as well as IBC and NBC (Canada) Building Code requirements.**
- **City of New York Board of Standards and Appeals. Cal. No. 460-88-SA.**
- **California State Fire Marshal: Fire Damper Listing No. 3225-0935:0113.**
- **Maximum velocity: 4000 fpm @ 4" w.g. (20 m/s @ 1 kPa).**



Model D0110G features a factory sleeve with 3/4" (19) grille mounting flanges, that simplifies installation, saves on field labor and eliminates the requirements for unsightly front retaining angles which commonly protrude from behind the grille. Steel grille with correctly located countersunk screwholes is available from Nailor and installs over and completely hides the mounting flanges. The dynamic fire damper is offset in the sleeve 3" (76) as standard to accommodate a single or double deflection supply air grille, single deflection supply air register or a return air grille or register.

STANDARD CONSTRUCTION:

Frame:	4 1/4" (108) wide, 22 ga. (0.85) roll-formed G60 galvanized steel.
Blades:	Curtain type interlocking blades, 22 ga. (0.85) roll-formed G60 galvanized steel.
Fusible Link:	165°F (74°C) standard. UL Listed. 212°F (100°C) available.
Standard Sleeve:	12" (305) x 20 ga. (1.01) G60 galvanized steel with 3/4" (19) wide grille mounting flanges.
Blade Closure:	Stainless steel closure springs and galvanized steel locking ramps.

Sizes (Duct W x H):

Velocity/ Pressure Rating	Single Section											
	Minimum						Maximum					
	Vertical			Horizontal			Vertical			Horizontal		
	A	B	C	A	B	C	A	B	C	A	B	C
24	6" x 6" (152 x 152)	6" x 4" (152 x 102)	4" (102) dia.	6" x 6" (152 x 152)	6" x 4" (152 x 102)	4" (102) dia.	24" x 24" (610 x 610)	24" x 21" (610 x 533)	22" (559) dia.	24" x 24" (610 x 610)	24" x 21" (610 x 533)	22" (559) dia.
34, 44	6" x 6" (152 x 152)	6" x 4" (152 x 102)	4" (102) dia.	—	—	—	24" x 24" (610 x 610)	24" x 21" (610 x 533)	22" (559) dia.	—	—	—

Note: Multiple section assemblies are not permitted.

CUSTOM SLEEVE:

Available in 10 (0.35) through 22 ga. (0.85) and 8" to 28" (203 – 711) in length.

SPECIFY:

- ❑ Length = _____ .
- ❑ Gauge = _____ .
- ❑ S Dimension = _____ .

OPTIONS:

- ❑ **QS1** Quick-set retaining angles (for the rear side of the damper).

DYNAMIC VELOCITY/PRESSURE RATING:

- ❑ **24** 2000 fpm @ 4" w.g. (Standard)
- ❑ **34** 3000 fpm @ 4" w.g. } (Optional)
- ❑ **44** 4000 fpm @ 4" w.g. }

For installation instructions, see IOM-FDGINST.

Dimensions are in inches (mm).

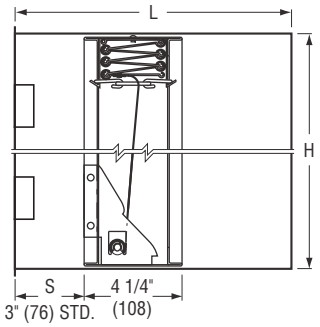
SCHEDULE TYPE:				
PROJECT:				
ENGINEER:	**DATE**	**B SERIES**	**SUPERSEDES**	**DRAWING NO.**
CONTRACTOR:	**11 - 10 - 17**	**FD**	**4 - 28 - 14**	**D0100-6A**

DYNAMIC CURTAIN TYPE FIRE DAMPER FOR GRILLES WITH CUSTOM SLEEVE
FOR USE IN DYNAMIC OR STATIC SYSTEMS
VERTICAL OR HORIZONTAL MOUNT
MODEL: D0100G (TYPES A, B & CR)

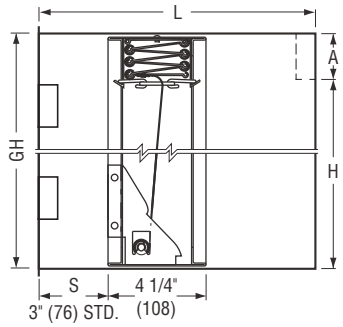
CLASSIFIED C UL US

STANDARD DAMPER/SLEEVE:

MODEL D0110G:
TYPE A



MODEL D0120G:
TYPE B DUCT CONNECTION ON ONE END
GH = H + A

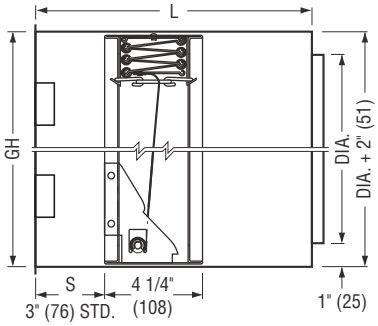


Duct Height (H)	Dim. 'A'
4" – 17" (102 – 432)	2" (51)
18" – 21" (457 – 533)	3" (76)

Nominal Grille Size = W x GH
GH = H + A

MODEL D0130G:
TYPE CR ROUND DUCT CONNECTION ON ONE END
GH = DIA. + 2" (51) + A

Nominal Grille Size = W x GH
W = Duct Dia. + 2" (51) + A
GH = Duct Dia. + 2" (51) + A



DETERMINING SLEEVE LENGTH/DAMPER POSITION:
To calculate minimum sleeve length, determine wall thickness and add 3" (76) minimum for rear retaining angles and duct connection. Front of assembly fits flush with wall. Damper offset (dimension 'S') should accommodate grille selection depth, but fire damper blade centerline must remain within the plane of the wall or floor. (Minimum wall thickness = S + 2 1/8" [54]). Maximum allowed sleeve projection is 6" (152). Standard 12" (305) sleeve requires a minimum wall thickness of 6" (152). For thinner walls, a shorter sleeve length is required. A reduced "S" dimension may also be required. For applications where the damper would be outside the plane of the wall or floor, refer to Model D0110GOW.

For installation instructions, see IOM-FDGINST.

Dimensions are in inches (mm).

SCHEDULE TYPE:				
PROJECT:				
ENGINEER:	**DATE**	**B SERIES**	**SUPERSEDES**	**DRAWING NO.**
CONTRACTOR:	**11 - 10 - 17**	**FD**	**4 - 28 - 14**	**D0100-6A**

Nailor® Industries Inc.

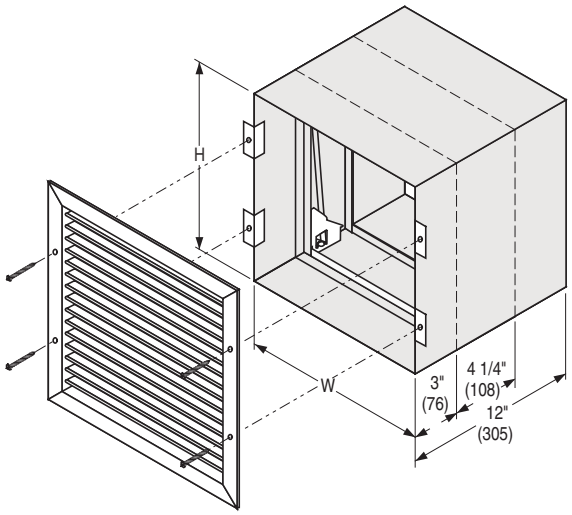
DYNAMIC INTEGRAL SLEEVE CURTAIN TYPE FIRE DAMPER FOR GRILLES

FOR USE IN DYNAMIC OR STATIC SYSTEMS
VERTICAL OR HORIZONTAL MOUNT
MODEL: D01X4G (TYPES A, B & CR)

CLASSIFIED C UL US

QUALIFICATIONS:

- **UL 555 & CAN/ULC-S112 CLASSIFIED DYNAMIC FIRE DAMPER. 1 1/2 hr. label (File # R9492).**
- **Meets all the requirements of UL and NFPA 80, 90A and 101 for fire dampers in dynamic HVAC systems, as well as IBC and NBC (Canada) Building Code requirements.**
- **City of New York Board of Standards and Appeals. Cal. No. 460-88-SA.**
- **California State Fire Marshal: Fire Damper Listing No. 3225-0935:0113.**
- **Maximum velocity: 4000 fpm @ 4" w.g. (20 m/s @ 1 kPa).**



Model D01X4G features a special factory sleeve with unique 3/4" (19) grille mounting flanges, that simplifies installation, saves on field labor and eliminates the requirements for unsightly front retaining angles which commonly protrude from behind the grille. Steel grille with correctly located countersunk screwholes is available from Nailor and installs over and completely hides the mounting flanges. The dynamic fire damper is offset in the sleeve 3" (76) to accommodate a single or double deflection supply air grille, single deflection supply air register or a return air grille or register.

STANDARD CONSTRUCTION:

Frame:	4 1/4" (108) wide, 22 ga. (0.85) roll-formed G60 galvanized steel.
Blades:	Curtain type interlocking blades, 22 ga. (0.85) roll-formed G60 galvanized steel.
Fusible Link:	165°F (74°C) standard. UL Listed. 212°F (100°C) available.
Integral Sleeve:	12" (305) x 22 ga. (0.85) G60 galvanized steel with 3/4" (19) wide grille mounting flanges.
Blade Closure:	Stainless steel closure springs and galvanized steel locking ramps.

Sizes (Duct W x H):

Velocity/ Pressure Rating	Single Section											
	Minimum						Maximum					
	Vertical			Horizontal			Vertical			Horizontal		
	A	B	C	A	B	C	A	B	C	A	B	C
24	6" x 6" (152 x 152)	6" x 4" (152 x 102)	4" (102) dia.	6" x 6" (152 x 152)	6" x 4" (152 x 102)	4" (102) dia.	24" x 24" (610 x 610)	24" x 21" (610 x 533)	22" (559) dia.	24" x 24" (610 x 610)	24" x 21" (610 x 533)	22" (559) dia.
34, 44	6" x 6" (152 x 152)	6" x 4" (152 x 102)	4" (102) dia.	—	—	—	24" x 24" (610 x 610)	24" x 21" (610 x 533)	22" (559) dia.	—	—	—

Note: Multiple section assemblies are not permitted.

OPTIONS:

❑ **QS1** Quick-set retaining angles (for the rear side of the damper).

DYNAMIC VELOCITY/PRESSURE RATING:

❑ **24** 2000 fpm @ 4" w.g. (Standard)
❑ **34** 3000 fpm @ 4" w.g.
❑ **44** 4000 fpm @ 4" w.g.
} (Optional)

NOTE:

Damper blade centerline must remain within the plane of the wall or floor. These models require a min. – max. wall thickness of 6" – 9" (152 – 229). Rear of sleeve requires retaining angles. Maximum allowable sleeve projection is 6" (152). For custom length/gauge sleeves refer to Model Series D0100G. For applications where the damper would be outside the plane of the wall or floor, refer to Model D0110GOW.

For installation instructions, see IOM-FDGINST.

Dimensions are in inches (mm).

SCHEDULE TYPE:				
PROJECT:				
ENGINEER:	**DATE**	**B SERIES**	**SUPERSEDES**	**DRAWING NO.**
CONTRACTOR:	**11 - 6 - 17**	**FD**	**NEW**	**D01X4G**

Nailor® Industries Inc.

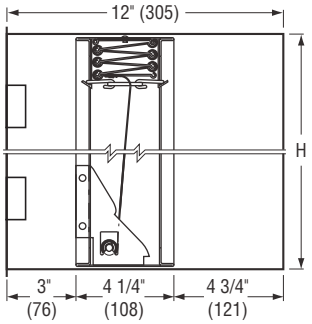
DYNAMIC INTEGRAL SLEEVE CURTAIN TYPE FIRE DAMPER FOR GRILLES

FOR USE IN DYNAMIC OR STATIC SYSTEMS
VERTICAL OR HORIZONTAL MOUNT
MODEL: D01X4G (TYPES A, B & CR)

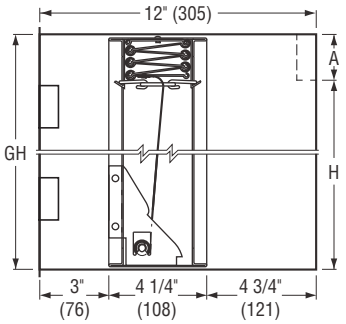
CLASSIFIED C UL US

INTEGRAL DAMPER/SLEEVE:

MODEL D0114G:
TYPE A



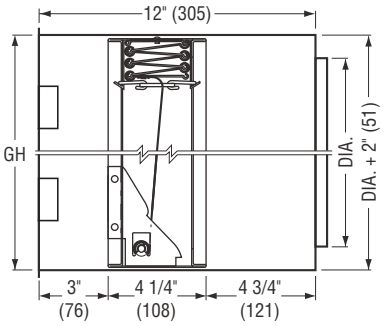
MODEL D0124G:
TYPE B DUCT CONNECTION ON ONE END
GH = H + A



Duct Height (H)	Dim. 'A'
4" – 17" (102 – 432)	2" (51)
18" – 21" (457 – 533)	3" (76)

Nominal Grille Size = W x GH
GH = H + A

MODEL D0134G:
TYPE CR ROUND DUCT CONNECTION ON ONE END
GH = DIA. + 2" (51)



Nominal Grille Size = W x GH
W = Duct Dia. + 2" (51)
H = Duct Dia. + 2" (51)

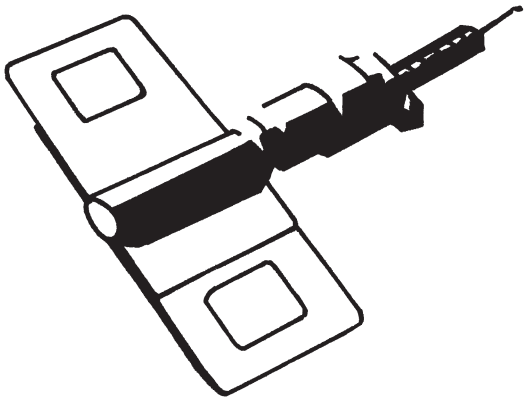
For installation instructions, see IOM-FDGINST.

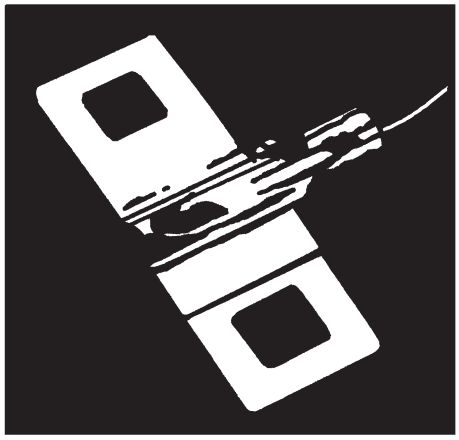
Dimensions are in inches (mm).

SCHEDULE TYPE:				
PROJECT:				
ENGINEER:	DATE	B SERIES	SUPERSEDES	DRAWING NO.
CONTRACTOR:	11 - 6 - 17	FD	NEW	D01X4G

Nailor Industries Inc.

CURTAIN FIRE DAMPER ACCESSORY ELECTRO-THERMAL LINK MODEL: ETL





ETL®

WHAT IT IS – WHAT IT DOES

The Electro Thermal Link (ETL®) is a multi purpose, dual responsive fusible link which reacts (melts) when subjected to;

1. Local heat (165°F (74°C)) exactly the same as an ordinary link.
2. External electrical impulse of low power and short duration.

It is specifically designed to substitute for ordinary links and/or actuators in existing and new installations of Fire Dampers, Fire Doors, Fire Extinguishers, Fire and Smoke Roof Hatches, Sprinklers, Smoke Towers, and chemical or gas Automatic Release Systems.

The substitution should be made in every installation of the above devices where it is desirable to improve life safety by making those devices responsive to -

SMOKE in the early form of invisible products of combustion through ionization detectors, or

FIRE at an earlier stage than ordinary links thru the use of rate of rise or maximum temperature devices.

The ETL's electro-response is the unique feature. It is not smoke responsive of itself, but its power requirement is so low that it can be released with an electrical impulse from any smoke detector's power source. It is compatible with every smoke detector on the market in the United States today.

The operating range is 6 to 30 volts AC or DC, less than 0.2 ampere of trip current required, and 1/2 millisecond (.0005 second) response at 24 v. The electrical response is a trigger for the chemical heating of the center element which is a self-contained exothermic reactor, yielding no noise, smoke, or gas - just quick heat to open the link in seven seconds.

The ETL's thermal response is identical to that of ordinary fusible links of identical temperature (165°F (74°C)) and strength (40#) rating.

In its capacity of converting a FIRE safety device into a FIRE/SMOKE safety device the ETL can be substituted for both an ordinary link and motor, or link and electromagnetic operator with advantages of simplicity, economy, operational reliability and wide acceptability. With its dual responsiveness the ETL can be substituted for two other devices at a savings in first cost as well as operating cost and maintenance. The ETL is a Space Age Device built to zero defect standards and to last at least fifty years and then still react properly – only on fire or smoke emergency. It is totally independent of power failures since it draws power from the detector standby source if needed. The ETL is listed by Underwriter's Laboratories, Inc. as a Fusible Link.

With the ongoing development of dynamic smoke control systems and building code changes in recent years, application and use of this product should be governed by acceptance of the local authority having jurisdiction.

SCHEDULE TYPE:	Dimensions are in inches (mm).			
PROJECT:				
ENGINEER:	**DATE**	**B SERIES**	**SUPERSEDES**	**DRAWING NO.**
CONTRACTOR:	**31 - 7 - 00R**	**ACC**	**1 - 98R/0100-6**	**ACC.ETL**

Nailor Industries Inc.

"QUICK-SET" RETAINING ANGLES
FOR ALL SLEEVED FIRE AND COMBINATION FIRE/SMOKE DAMPERS
MODELS: QS1 AND QS2

"QUICK-SET" RETAINING ANGLES BOTH SIMPLIFY AND SPEED INSTALLATION, SAVING BOTH TIME AND MONEY.

BENEFITS:

- One piece angles are fastened together in the corners. Only two sets of angles to handle per damper (rather than four separate angles per side).
- Angles are shipped with damper - no sorting or matching.
- Provided with pre-drilled fastening holes on 2" (51) centers to ensure correct angle/sleeve attachment.
- Factory fabricated by Nailor to suit the individual fire damper.
- Reduced cost when compared to conventional retaining angles.
- Dampers can ship directly to the job site complete with all necessary installation sheet metal hardware (saves on double handling at contractor's shop).
- Help ensure a correct installation as per U.L. approved installation instructions.

The majority of installing contractors view fire damper installation as a costly time consuming and troublesome procedure. Eight conventional angles must be custom fabricated for each damper either in a sheet metal shop or at the job site and sized to suit each individual damper. Invariably, they are mislaid or lost and must be matched to each factory supplied damper.

The Nailor "Quick-Set" solution solves the majority of problems. They are pre-formed to fit and ship with the individual damper for ultimate convenience. "Quick-Set" angles are supplied with correctly spaced pre-drilled screw-holes to ensure a quick, easy and accurate installation for all integral sleeve Nailor fire and combination fire/smoke dampers - no measuring required.

"Quick-Set" retaining angles provide the "complete" installation package. Simple, fast, convenient.

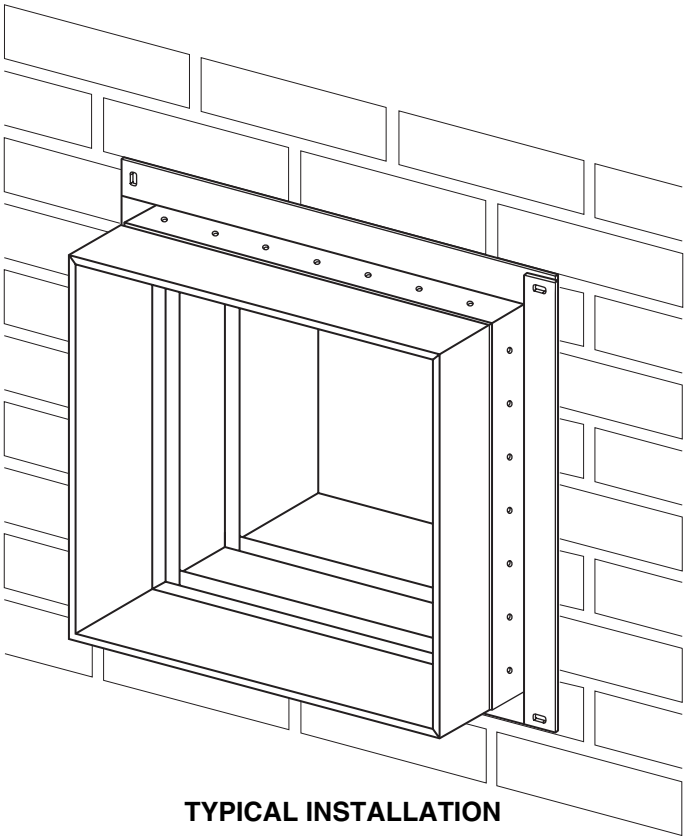
MODELS:

Nailor "Quick-Set" retaining angles are an accessory option for all dampers ordered with factory sleeves.

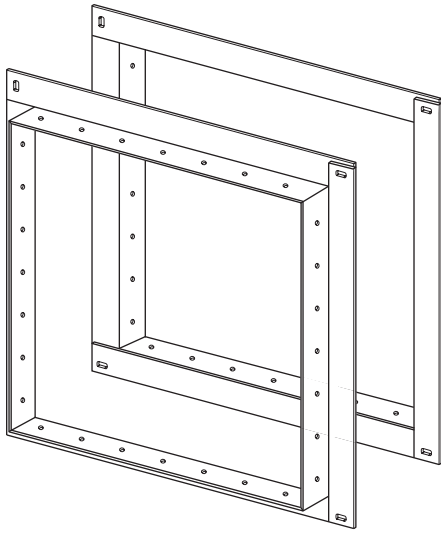
QS2: Two sides (pair). For standard installations where angles are installed on both sides of the fire partition.

QS1: One side (single set). For use in single side retaining angle installations and with grille mount and "out of wall" damper models.

Refer to the UL or ULC Classification marking the product.



TYPICAL INSTALLATION



TYPICAL PAIR OF PRE-ASSEMBLED QUICK-SET' RETAINING ANGLES

SCHEDULE TYPE:	Page 1 of 2 Dimensions are in inches (mm).			
PROJECT:				
ENGINEER:	**DATE**	**B SERIES**	**SUPERSEDES**	**DRAWING NO.**
CONTRACTOR:	**2 - 26 - 09**	**FD-ACC**	**6 - 5 - 03**	**QSRA**

Nailor Industries Inc.

"QUICK-SET" RETAINING ANGLES
FOR ALL SLEEVED FIRE AND COMBINATION FIRE/SMOKE DAMPERS
MODELS: QS1 AND QS2

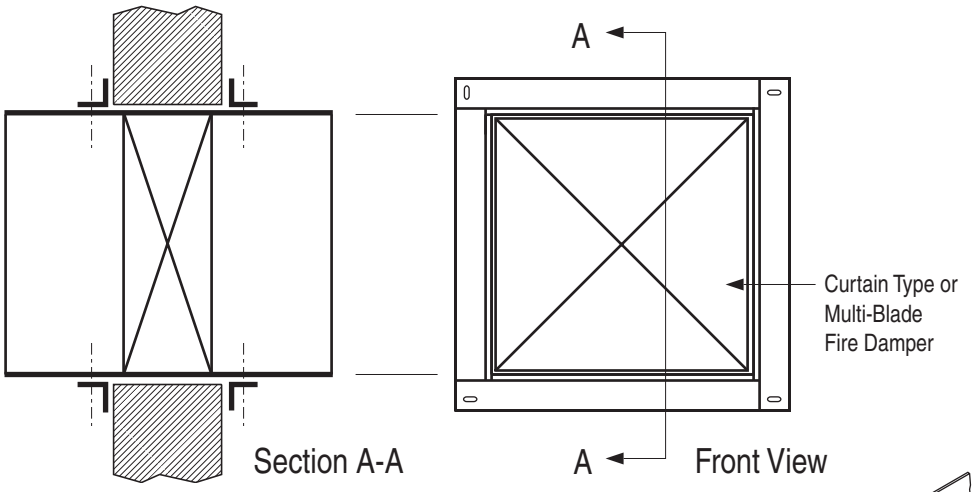


FIGURE 1. TYPICAL TWO SIDED INSTALLATION.

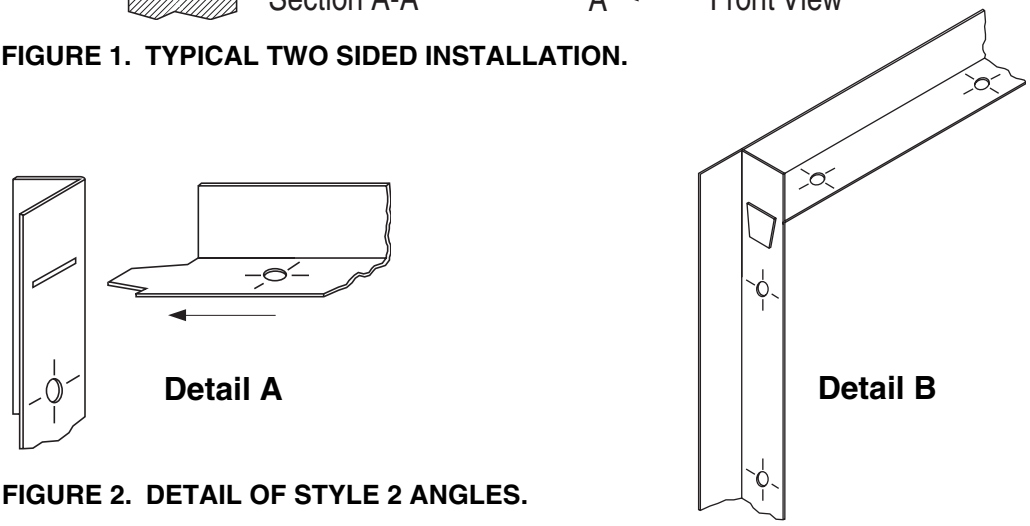


FIGURE 2. DETAIL OF STYLE 2 ANGLES.

APPLICATION:

The Nailor Quick-Set Retaining Angle System may be used in lieu of conventional retaining angles on all Nailor Fire and Combination Fire/Smoke Dampers.

Quick-Set angles are supplied in one of two styles, dependent upon fire resistance label, damper size and installation method.

Style 1: 1 1/2" x 1 1/2" x 20 ga. (38 x 38 x 1.0) Four sides are connected together with rivets in three corners.

Standard for the majority of applications with the following limitations:

- 1 1/2 hour label fire dampers.
- Maximum Size: 36" x 36" (914 x 914)
- Two sided installation only

Style 2: 1 1/2" x 1 1/2" x 16 ga. (38 x 38 x 1.6) Slot and tab design. The retaining angle assembly for each side has four angles, each with a tab end and a slot end (Detail A). The tabs are to be inserted into the slots and knocked down either before or after fastening to the sleeve (Detail B).

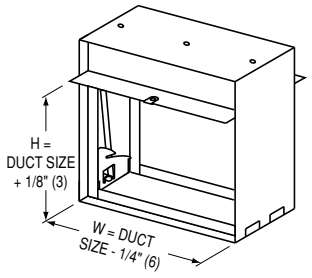
- 1 1/2 or 3 hour label fire dampers
- Maximum Size: 90" x 48" (2286 x 1219) or 48" x 90" (1219 x 2286)
- Single side (1 1/2 hour only. Refer to Single Side Retaining Angles Supplementary Installation Instructions for size limitations) or two sided installation

Refer to the Following Installation Instructions:

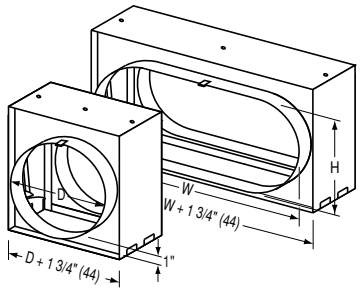
Quick-Set Retaining Angles	FDQSRA
Curtain Type Fire Dampers (D)0100 & (D)0500	FDINST
Curtain Type Fire Dampers 0200 & 0500 Thinline	FDTINST
Multi-Blade Fire Dampers 1200 & 1250	MBFDINST
Combination Fire/Smoke Dampers 1220	1220INST
Combination Fire/Smoke Dampers 1270	1270INST
Single Side Retaining Angles	FDSSRAINST

SCHEDULE TYPE:	Page 2 of 2 Dimensions are in inches (mm).			
PROJECT:				
ENGINEER:	**DATE**	**B SERIES**	**SUPERSEDES**	**DRAWING NO.**
CONTRACTOR:	**2 - 26 - 09**	**FD-ACC**	**5 - 5 - 03**	**QSRA**

DIMENSIONAL DATA:

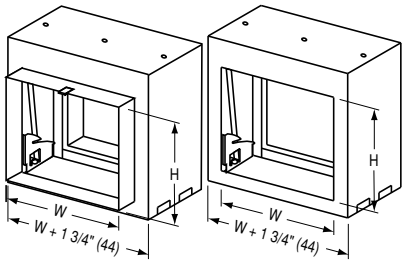


MODEL D0120: TYPE B



MODEL D0130: TYPE CR

MODEL D0130: TYPE CO



MODEL D0140: TYPE CSR WITH COLLAR (STANDARD)

MODEL D0140: TYPE CSR WITHOUT COLLAR

For overall damper dimensions see sizing chart on page D53.

PERFORMANCE DATA:

MODEL SERIES: D0100 - 1 1/2 HOUR LABEL

Curtain type fire dampers impose minimal resistance to air flow in the system. The following charts indicate both free area for the different damper types and static pressure losses for various velocities.

Type A Damper Free Area – sq. ft.

		Duct Width in inches (mm)									
		6" (152)	12" (305)	18" (457)	24" (610)	30" (762)	36" (914)	42" (1067)	48" (1219)	54" (1372)	60" (1524)
Duct Height in inches (mm)	6" (152)	.14	.33	.52	.70	.89	1.1	1.3	1.5	1.7	1.8
	12" (305)	.31	.72	1.1	1.5	1.9	2.4	2.8	3.2	3.6	4.0
	18" (457)	.48	1.1	1.7	2.4	3.0	3.7	4.3	4.9	5.6	6.2
	24" (610)	.65	1.5	2.4	3.2	4.1	5.0	5.8	6.7	7.5	8.4
	30" (762)	.82	1.9	3.0	4.1	5.2	6.3	7.3	8.4	9.5	10.6
	36" (914)	.99	2.3	3.6	4.9	6.3	7.6	8.9	10.2	11.5	12.8
	42" (1067)	1.2	2.7	4.2	5.8	7.3	8.8	10.4	11.9	13.4	15.0
	48" (1219)	1.3	3.1	4.9	6.6	8.4	10.2	11.9	13.7	15.5	17.2
	54" (1372)	1.5	3.5	5.5	7.5	9.5	11.5	13.5	15.5	17.5	19.4
	60" (1524)	1.7	3.9	6.1	8.3	10.6	12.8	15.0	17.2	19.4	21.7

Type B Damper Free Area – sq. ft.

		Duct Width in inches (mm)									
		6" (152)	12" (305)	18" (457)	24" (610)	30" (762)	36" (914)	42" (1067)	48" (1219)	54" (1372)	60" (1524)
Duct Height in inches (mm)	6" (152)	.17	.39	.62	.84	1.1	1.3	1.5	1.7	2.0	2.2
	12" (305)	.36	.83	1.3	1.8	2.3	2.7	3.2	3.7	4.1	4.6
	18" (457)	.54	1.3	2.0	2.7	3.4	4.2	4.9	5.6	6.3	7.1
	24" (610)	.73	1.7	2.7	3.7	4.6	5.6	6.6	7.5	8.5	9.5
	30" (762)	.92	2.1	3.4	4.6	5.8	7.0	8.3	9.5	10.7	11.9
	36" (914)	1.1	2.6	4.1	5.5	7.0	8.5	9.9	11.4	12.9	14.4
	42" (1067)	1.3	3.0	4.7	6.5	8.2	9.9	11.6	13.4	15.1	16.8
	48" (1219)	1.5	3.5	5.4	7.4	9.4	11.4	13.3	15.3	17.3	19.2
	54" (1372)	1.7	3.9	6.1	8.3	10.6	12.8	15.0	17.2	19.5	21.7

Type C Dampers have Free Area equal to Nominal Duct Area.

To calculate Free Area of round duct: Diameter^2 x .00545 = Free Area (sq ft.)

D0100 Series - Maximum Performance Ratings	
UL 555 Fire Resistance Rating	1 1/2 Hour
Maximum Velocity	4000 fpm (20 m/s)
Maximum Pressure	4 in. w.g. (1 kPa)

To determine pressure drop across open damper, calculate **free area velocity** as shown, find velocity on curve and read across for s.p. differential.

Free Area Velocity (fpm) = $\frac{\text{cfm}}{\text{Free Area}}$

Example:
1 – 36" x 24" Damper required for 8,500 cfm. (Type A)

FAV = $\frac{8500}{5 \text{ sq. ft.}}$ = 1700 fpm

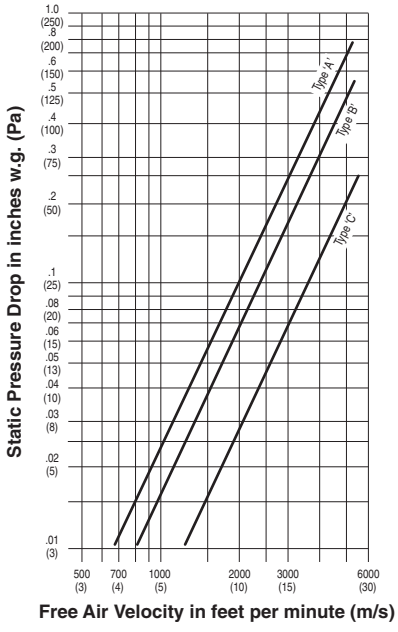
1700 fpm located on the 'A' curve shows a pressure drop of .07 in. wg.

cfm = cubic feet per minute
fpm = feet per minute velocity
S.P. = static pressure in inches water gauge
FAV = Free Area Velocity

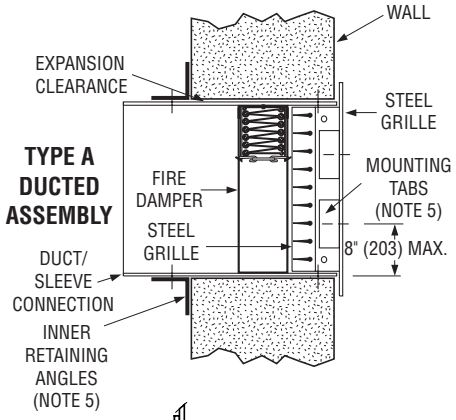
Imperial System Shown
To convert to SI (metric) system:

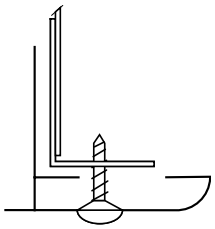
Multiply cfm by .4719 for liters per second
Multiply fpm by .00508 for meters per second
Multiply in. wg. by .2486 for kilopascals
Multiply sq. ft. by .0929 for square meters.

Pressure Drop

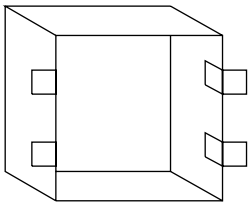


CURTAIN TYPE FIRE DAMPERS WITH GRILLE INSTALLATION INSTRUCTIONS • 1-1/2 HOUR MODEL SERIES: 0200G (THINLINE), D0100G (DYNAMIC) AND 0100G

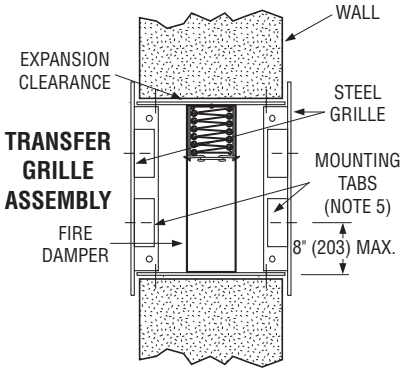




STEEL GRILLE FRAME
(Minimum 0.019" Material)



ISOMETRIC OF TYPICAL SLEEVE/
MOUNTING TABS (NOTE 5)



QUALIFICATIONS:

- **Meets all the requirements of UL 555.**
- **CAN/ULC-S112 Fire Damper Assemblies.**
- **Meets the requirements for BOCA, SBCCI, UBC, IBC, NBC (Canada) and associated local building codes.**
- **California State Fire Marshal Listing No. 03225-0935:100/113.**
- **City of New York Board of Standards and Appeals. Cal. No. 460-88-SA.**

CLASSIFIED C UL US — Refer to the UL Classification Marking on the Product

NOTES:

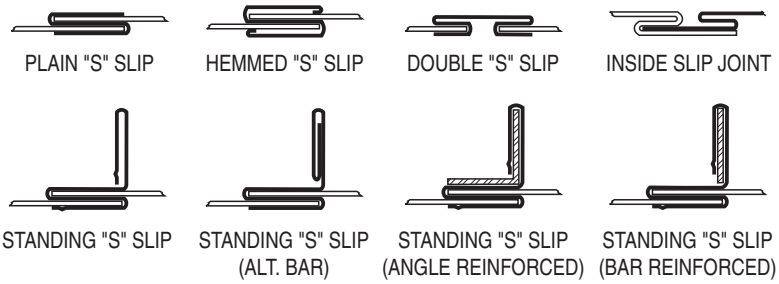
1. Installation shall be in accordance with the appropriate requirements of the National Fire Protection Association Standard NFPA 90A latest edition.

2. Damper Sleeve: Sleeve thickness must be equal to or thicker than the duct connected to it. Sleeve gauge requirements are listed in the SMACNA Fire, Smoke and Radiation Damper Installation Guide for HVAC Systems and in NFPA 90A. If a break-away style duct/sleeve connection is not used, damper sleeves up to 24" wide by 24" (610 x 610) high of not less than 16 gauge (1.61) coated steel may be attached to the duct with screws or other types of mechanical fasteners. The maximum sleeve thickness for such rigid joints is 10 gauge (3.51) for coated steel.

The connecting duct shall not be continuous thru the wall or floor opening but shall terminate at the sleeve. Sleeves shall extend a maximum of 6" (152) from the wall or floor opening.

3. Break-away duct/sleeve connections:

a. Rectangular ducts must use one or more of the following connections if the gauge is less than the requirement in note 2 for rigid connections:



In addition:

- A maximum of two #10 sheet metal screws on each side and on the bottom, located in the center of the slip pocket and penetrating both sides of the slip pocket may be used.
- One of the above connections on the top and bottom joints with flat drive slip connections on the side joints may be used for dampers up to 20" (508) in height.

FLAT DRIVE SLIP

b. Round and oval duct may be attached to the round or oval collar which is part of the damper/sleeve in the following manner:

- Duct diameters 22" (559) and smaller must use three #10 sheet metal screws equally spaced around the circumference.

Note: When optional sealing of these break-away connections is desired, the duct sealant shall be PA2084T Duct Sealant by Precision or water based DP1010 by Design Polymetrics.

c. For the use of approved alternative Ductmate or TDC/TDF break-away connections, refer to the supplements noted on next page.

Dimensions are in inches (mm).

4. **Damper/sleeve attachment:** The standard blade damper shall be secured to the sleeve with 1/4" (6) long welds, 3/16" (4.76) steel rivets, 1/4" (6.35) bolts and nuts, #8 sheet metal screws, or 3/16" (4.76) buttonlocks on both sides at 6" (152) centers and a maximum of 4" (102) from the corners of the damper on all four sides. The thinline blade damper shall be secured to the sleeve with 1/4" (6) long welds on both sides at 6" (152) on center, or 3/4" x 3/4" x 18 gauge (19 x 19 x 1.37 ga.) angles all around on both sides attached to the sleeve with 1/4" (6.35) bolts and nuts, 3/16" (4.76) steel rivets, or #8 sheet metal screws at 6" (152) on center and 2" (51) maximum from the corner of the damper on all four sides.
5. **Retaining angles:** The inner retaining angles shall be a minimum of 1 1/2" x 1 1/2" x 16 gauge (38 x 38 x 1.61). Secure the inner retaining angles, where used, to the sleeve with 1/2" (12.7) long welds, 1/4" (6.35) bolts and nuts, 3/16" (4.76) steel rivets, or #8 sheet metal screws at not less than 8" (203) on centers, and 2" (51) maximum from the corners of the sleeve on all four sides. The inner retaining angles must lap the structural opening by 1" (25.4) minimum. Where the sleeve terminates at the wall, either on one or both sides, 1 1/2" x 2" x 20 gauge (32 x 51 x 1.00) mounting angle tabs are fastened to the sleeve. Mounting tabs may be installed on top and bottom, or sides, or a combination of both. Tabs are bent over to a 3/4" (19) flange after installing the damper in the opening. A steel grille frame with a minimum 1" (25.4) flange is then fastened to the mounting angle tabs with sheet metal screws.
6. **Expansion clearance** between the sleeve and the wall opening shall be a minimum 1/8" (3.18) per foot of the sleeve in either dimension. The maximum size of the opening shall be 1/8" (3.18) larger in each dimension than the allowable minimum size. For example: a sleeve dimension of 24" x 24" (610 x 610) shall have an opening size of 24 1/4" x 24 1/4" (616 x 616) minimum and 24 3/8" x 24 3/8" (619 x 619) maximum.
7. The Type A fire damper sizes and installation limitations are as follows:

Model Series	System	Mounting		Minimum Size	Maximum Size
0200G	Static	Vertical or Horizontal	(1 1/2 hr. label)	4" x 4" (102 x 102)	24" x 24" (610 x 610)
D0100G	Dynamic or Static	Vertical or Horizontal	(1 1/2 hr. label)	6" x 6" (152 x 152)	24" x 24" (610 x 610)
0100G	Static	Vertical or Horizontal	(1 1/2 hr. label)	4" x 4" (102 x 102)	24" x 24" (610 x 610)

Multiple section assemblies are not permitted.

IMPORTANT

DO NOT CAST DAMPER IN PLACE.
DO NOT FASTEN RETAINING ANGLES OR DAMPER DIRECTLY TO WALL OR FLOOR.
DO NOT INSTALL DAMPER OUT OF SQUARE OR OUT OF FLAT.
VERTICAL MOUNTING SHOWN ON MASONRY WALL.
FOR INSTALLATION IN DRYWALL FRAMING, SEE DOC. FDSWSFINST.
HORIZONTAL MOUNTING SIMILAR FOR MASONRY FLOOR.

REFER TO THE APPROPRIATE NAILOR INSTALLATION INSTRUCTION SUPPLEMENTS FOR THE FOLLOWING SPECIAL REQUIREMENTS:

STEEL AND WOOD STUD FRAMING	FDSWSFINST
CAVITY SHAFT WALL PARTITIONS	FDCSWINST
DUCTMATE BREAKAWAY CONNECTIONS	FDDMINST
TDC/TDF FLANGED DUCT CONNECTION	FDTDCFINST
QUICK-SET RETAINING ANGLES	FDQSRA

Dimensions are in inches (mm).

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Calgary, Canada
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Fax: 403-279-5035

OPERATION AND MAINTENANCE PROCEDURES
CURTAIN TYPE FIRE DAMPERS
MODEL SERIES: (D)0100, 0200, 0300 AND (D)0500

Dampers are an essential part of the fire protection system in a building. The NFPA recommends that fire dampers be tested periodically to verify the operational abilities of each installed damper. See NFPA 80, *Standard for Fire Doors and Other Opening Protectives*, for Operational Test and Periodic Inspection and Testing details.

CAUTION:

Some curtain fire dampers utilize high torque springs under tension; ensure HVAC fans are turned off. Testing spring assisted fire dampers under airflow conditions is **NOT RECOMMENDED** and may severely damage or destroy ductwork. Use protective eyewear or safety glasses. Keep hands out of the blade path, as this can cause serious injury. Keep any hard objects or tools out of the blade path as they can damage the blades when closing.

Periodic Inspection, Testing and Maintenance

Consult your local building code to verify whether there is a required maintenance and testing schedule. Most local jurisdictions reference NFPA 80 for Fire Dampers. Per NFPA 80, each damper should be tested and inspected 1 year after installation and then every 4 years, except for hospitals, where the frequency is every 6 years.

1. Remove any obstructions, dirt, rust, corrosion, or other observed conditions that could impede proper damper operation.

2. Check closure springs (if applicable). If damaged or defective, repair or replace.

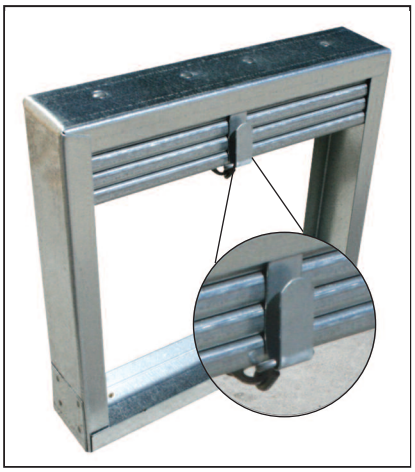
3a. Non-Spring Assisted Dampers

Bend metal straps away from damper frame so that they are straight. Remove fusible link and allow the blade package to drop and close naturally by the force of gravity. See Detail 1. Use caution, keeping fingers, hands, arms and tools out of the blade path.

3b. Dynamic Rated or Spring Assisted Dampers

AS SOON AS THE LINK HAS BEEN REMOVED, THE SPRING WILL FORCE THE BLADES TO CLOSE INSTANTANEOUSLY. THE BLADE PATH MUST BE KEPT CLEAR.

4. Ensure the damper closes completely, without assistance. If the damper design incorporates a locking ramp to hold the damper in the fully closed position, confirm that the ramp locks properly.



Detail 1

5. Clean damper blades and other moving parts if necessary. Use of a mild detergent or solvents is recommended for any cleaning required. Lubricate moving parts with a dry lubricant (such as T.F.E. Dry Lube). Never use a regular lubricating oil on dampers, as it will attract dirt and grit.

6. Lift the blade package to the top of the damper to reopen and replace the fusible link. Take care not to rack, deform or damage the blades when reopening.

Reopening spring assisted fire dampers may be extremely difficult and in some cases, impossible. If it is determined that the damper is impossible or impractical to test or reopen, a thorough examination of the blade path is required to ensure that nothing will prevent the damper from closing. Common obstructions include: racked damper frames, retaining angle installation screws, construction debris and contaminants.

7. Slide the replacement fusible link onto the metal straps. When replacing the fusible link, make sure it is the same temperature rating of the link you are replacing. If a different temperature, contact factory. Install fusible link so that the temperature rating is facing outward and is visible.

8. Bend the metal straps up to hold the fusible link in place.

Receiving, Storage, Preparation

Upon delivery, inspect shipping containers and contents closely. Note any damages on freight carrier's delivery receipt.

Store dampers in a cool, dry and safe location in an orderly manner away from construction site, warehouse traffic, other materials, etc. Cover with plastic sheeting to protect from excessive moisture, dirt and debris.

Inspect dampers prior to installation. Dampers must be cleaned per procedures outlined in this document prior to installation if dirt, rust or corrosion is observed.

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Fax: 403-279-5035

INTEGRAL SLEEVE DYNAMIC CURTAIN TYPE FIRE DAMPERS • 1 1/2 HR. LABEL • VERT. OR HORIZ. MOUNT FOR USE IN DYNAMIC OR STATIC SYSTEMS
MODELS: D0114-1X, D0124-1X AND D0134-1X

QUALIFICATIONS:

- **UL 555 & CAN/ULC-S112 CLASSIFIED DYNAMIC FIRE DAMPER. 1 1/2 hr. label (File # R9492).**
- **Meets all the requirements of UL and NFPA 80, 90A and 101 for fire dampers in dynamic HVAC systems, as well as IBC and NBC (Canada) Building Code requirements.**
- **City of New York Board of Standards and Appeals. Cal. No. 460-88-SA.**
- **California State Fire Marshal: Fire Damper Listing No. 3225-0935:0113.**
- **Maximum velocity: 4000 fpm @ 4" w.g. (20 m/s @ 1 kPa).**

Refer to the UL Classification Marking on the Product

The D0100 curtain fire dampers are UL approved for use where local building codes require the protection of HVAC ductwork penetrations in walls, partitions or floors that have a fire resistance rating of up to 2 hours. The D0100s are classified for use in dynamic "fans on" systems where the HVAC system remains operative in the event of a fire. Damper closure under airflow is assured.

Integral sleeve fire dampers offer convenience and labor savings. The costly requirement to field or shop fabricate custom sleeves is eliminated and dampers can therefore ship directly from the manufacturer to the job site – saving time and money.

Optional "Quick-Set" retaining angles complete the installation package. Factory fabricated, sized and shipped with damper, they install quickly, provide further labor savings and eliminate the need for any field fabrication.

STANDARD SPECIFICATION:

INTEGRAL

SLEEVE/FRAME: 22 ga. (0.85) roll-formed G60 galvanized steel.
D01 x 4 -12 Length 12" (305)
D01 x 4 -14 Length 14" (356)
D01 x 4 -16 Length 16" (406)

BLADES: Curtain type interlocking blades, 22 ga. (0.85) roll-formed G60 galvanized steel.

FUSIBLE LINK: 165°F (74°C) standard. UL Listed. 212°F (100°C) available.

BLADE CLOSURE: Stainless steel closure springs and galvanized steel locking ramps.

OPTIONS:

❑ Non-standard temperature fusible link. Specify _____ .

❑ **QS1** Quick-set retaining angles (single set).

❑ **QS2** Quick-set retaining angles (pair).

Hemmed Sleeve for slip and drive connection (Type A and B only):

❑ **HM2** (both ends). ❑ **HM1** (one end).

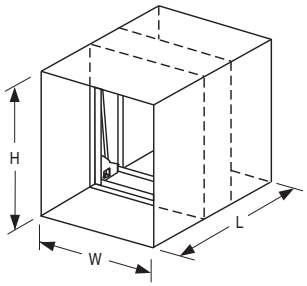
❑ **PT** Pull Tab Release. Permits simple reset of spring loaded damper when access door is located below damper (opposite side of locking ramp). (See dwg. ACC-PTR for details).

NOTES:

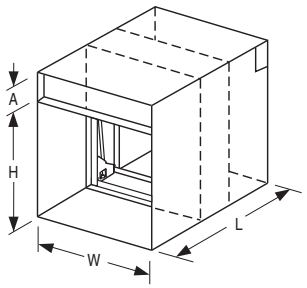
1. Building code and UL Classification require damper installation in accordance with manufacturer's instructions. Refer to document IOM-FDINST.

Manufactured by members of S.M.W.I.A.

Dimensions are in inches (mm).

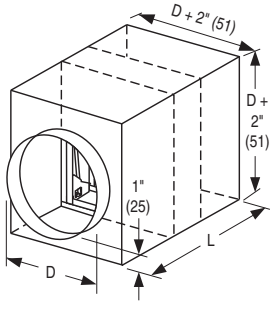


Model: D0114-1X
Type A – Blades and frame in the airstream.
Min. size - 6" x 6" (152 x 152)
Max. size - 36" x 36" (914 x 914)



Model: D0124-1X
Type B – Blades out of airstream.
Min. size - 6" x 4" (152 x 102)
Max. size - 36" x 33" (914 x 838)

Damper Height (H)	Dim. 'A'
4" – 17" (102 – 432)	2" (51)
18" – 27" (457 – 686)	3" (76)
28" – 33" (711 – 838)	4" (102)



Model: D0134-1X
Type CR – Round transition collars.
Blades partially in airstream
Min. size - 4" dia. (102)
Max. size - 32" dia. (813)

Nailor Industries Inc.

FIRE DAMPER SIZING CHART • IMPERIAL

STANDARD FRAME (4 1/4" WIDE)

MODEL SERIES 0100, 0500

DUCT OPENING HEIGHT (inches)	TYPE "A" OVERALL HEIGHT (inches)	TYPE "B" OVERALL HEIGHT (inches)	TYPE "C" OVERALL HEIGHT (inches)
4	3 3/4	6 1/8	5 3/4
5	4 3/4	7 1/8	6 3/4
6	5 3/4	8 1/8	8 3/4
7	6 3/4	9 1/8	9 3/4
8	7 3/4	10 1/8	10 3/4
9	8 3/4	11 1/8	11 3/4
10	9 3/4	12 1/8	12 3/4
11	10 3/4	13 1/8	13 3/4
12	11 3/4	14 1/8	14 3/4
13	12 3/4	15 1/8	15 3/4
14	13 3/4	16 1/8	16 3/4
15	14 3/4	17 1/8	17 3/4
16	15 3/4	18 1/8	18 3/4
17	16 3/4	19 1/8	19 3/4
18	17 3/4	21 1/8	21 3/4
19	18 3/4	22 1/8	22 3/4
20	19 3/4	23 1/8	23 3/4
21	20 3/4	24 1/8	24 3/4
22	21 3/4	25 1/8	25 3/4
23	22 3/4	26 1/8	26 3/4
24	23 3/4	27 1/8	27 3/4
25	24 3/4	28 1/8	28 3/4
26	25 3/4	29 1/8	29 3/4
27	26 3/4	30 1/8	30 3/4
28	27 3/4	32 1/8	32 3/4
29	28 3/4	33 1/8	33 3/4
30	29 3/4	34 1/8	34 3/4
31	30 3/4	35 1/8	35 3/4
32	31 3/4	36 1/8	36 3/4
33	32 3/4	37 1/8	37 3/4
34	33 3/4	38 1/8	38 3/4
35	34 3/4	39 1/8	39 3/4
36	35 3/4	40 1/8	40 3/4
37	36 3/4	42 1/8	42 3/4
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39	38 3/4	44 1/8	44 3/4
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46	45 3/4	52 1/8	52 3/4
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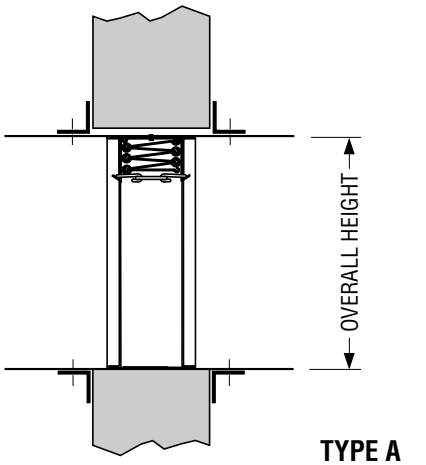
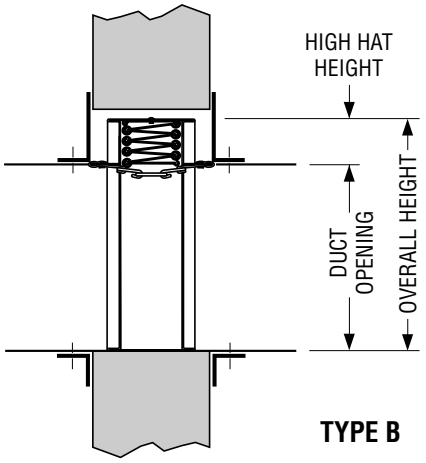
51	50 3/4	57 1/8	57 3/4
52	51 3/4	58 1/8	58 3/4
53	52 3/4	59 1/8	59 3/4
54	53 3/4	60 1/8	
55	54 3/4		
56	55 3/4		
57	56 3/4		
58	57 3/4		
59	58 3/4		
60	59 3/4		

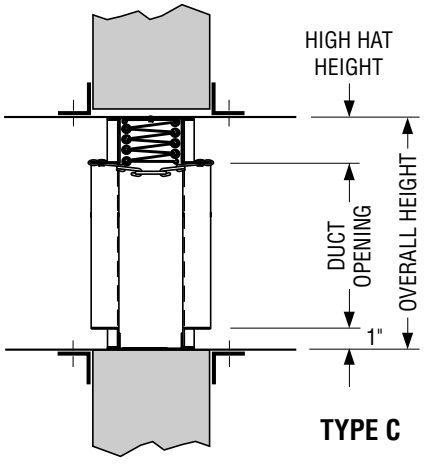
DAMPER WIDTH OVERALL
Type "A" = Duct Opening - 1/4".
Type "B" = Duct Opening - 1/4".
Type "C" = Duct Opening + 1 3/4".



TYPE A



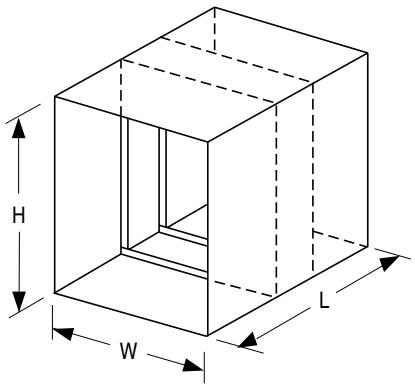
TYPE B



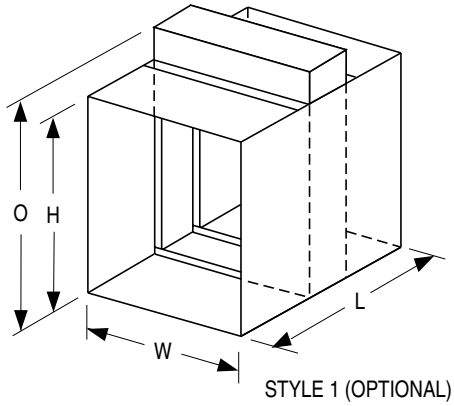
TYPE C

Dimensions are in inches (mm).

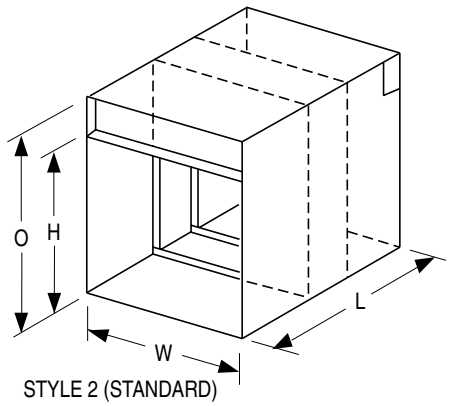
FACTORY FURNISHED SLEEVES FOR CURTAIN TYPE FIRE DAMPERS
(NON-INTEGRAL SLEEVE MODELS)



TYPE 'A'
BLADES AND FRAME IN AIRSTREAM



STYLE 1 (OPTIONAL)



STYLE 2 (STANDARD)

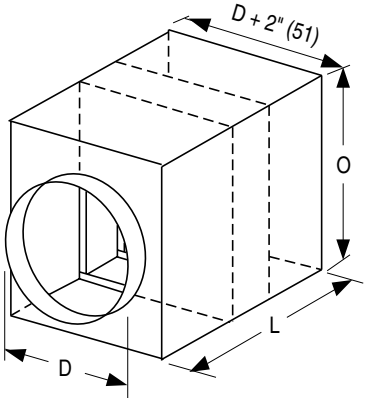
TYPE 'B' BLADES OUT OF AIRSTREAM

NOTES:

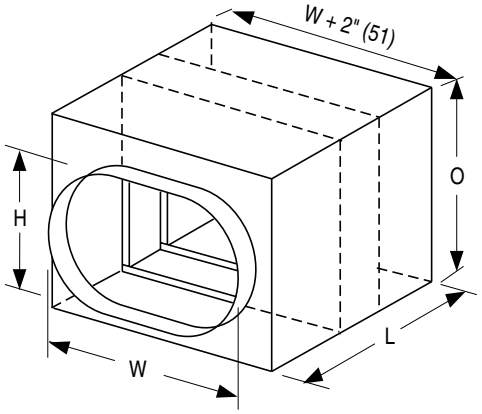
1. **Dimensional Data.**
   W = Nominal duct width
   H = Nominal duct height
   L = Sleeve length
   O = Overall damper height
   For 'O' dimension and relationship to duct height, refer to dwgs. FDSC (standard frame) or FDTSC (thinline frame) depending on damper model.
   Type CR duct collars are furnished 1/8" (3) undersize for duct dimensions up to 36" dia. (914) and 1/4" (6) undersize on larger sizes.
   Type CO and CSR duct collars are furnished 1/8" (3) undersize for duct dimensions up to 36" x 24" (914 x 610) and 1/4" (6) undersize on larger sizes. Collars are 1 1/4" (32) minimum length.
2. Sleeves are available in lengths up to 36" (914) and in 10 through 22 gauge (3.51 through 0.85) galvanized steel as required for application.
   Standard sleeve is 12" (305) long x 20 gauge (1.01).
   Sleeve gauge must conform to SMACNA Duct Construction Standards and shall not be less than the gauge of the duct to which it is attached for sleeves exposed to the airstream.
3. See individual models for minimum and maximum size limitations.
4. Dampers are centered in sleeve unless specified otherwise.
5. Multiple section damper assemblies are shipped knocked down for field assembly.

Type CR, CO and CSR Option:

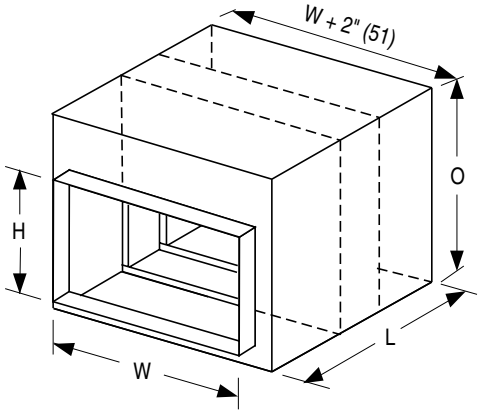
- ❑ LP Unsealed. Suitable for low pressure systems.
- ❑ HP Sealed. Suitable for medium/high pressure systems. Externally caulked (up to 6" w.g./1.5 kPa).



TYPE 'CR'
ROUND TRANSITION COLLARS/DUCT.
100% FREE AREA.



TYPE 'CO'
FLAT OVAL TRANSITION COLLARS/DUCT.
100% FREE AREA.



TYPE 'CSR'
RECTANGULAR TRANSITION COLLARS/DUCT. 100% FREE AREA.

Dimensions are in inches (mm).

SUPPLEMENTARY INSTALLATION INSTRUCTIONS
FIRE AND COMBINATION FIRE/SMOKE DAMPER
INSTALLATION IN CONCRETE FLOOR WITH STEEL DECK

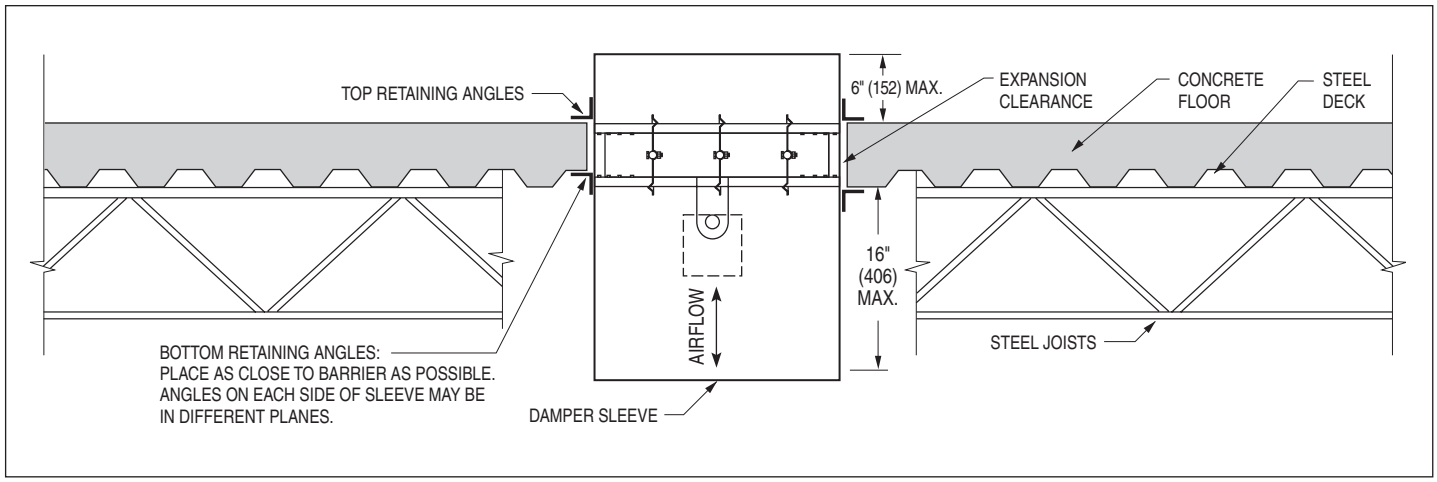


Fig. 1. Floor Opening Detail.

APPLICATION:

Horizontal installation of fire and combination fire/smoke dampers in concrete floors utilizing a steel deck may not allow the bottom angles to be placed against the steel deck on an even plane. This installation details how to properly install the required angles next to the steel deck.

NOTES:

1. Retaining angles are required on top and bottom sides of the damper as detailed in the damper installation instructions for the specific model. Angles may be reversed so that one leg of the angle points into the floor opening provided the required clearance is maintained between angle leg fasteners and the floor opening.
   Important: When positioning damper in floor and attaching retaining angles to sleeve, ensure fasteners clear and do not penetrate damper frame. Failure to do so may prevent correct damper operation or closure due to fouling of linkage or damper blades.
2. Installation of the bottom angle against the uneven steel deck shall be done so the angles on each side of the sleeve are as close to the barrier as possible. The angles may be in different planes relative to each other (see Figures 1 and 2).
3. When viewed from the end of the sleeve, the angles must overlap each other in the corners to prevent "see through".

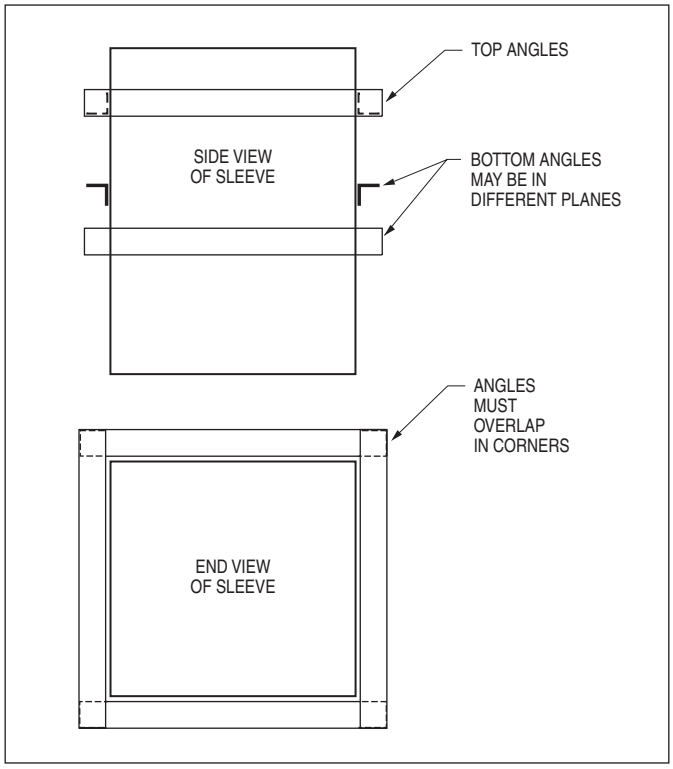


Fig. 2. Retaining Angle Detail

Refer to the Following Installation Instructions:

Curtain Type Fire Dampers (D)0100 & (D)0500	FDINST
Curtain Type Fire Dampers 0200 & 0500 Thinline	FDTINST
Multi-Blade Fire Dampers 1200 & 1250	MBFDINST
Combination Fire/Smoke Dampers 1220	1220INST
Combination Fire/Smoke Dampers 1270	1270INST

CLASSIFIED C UL US

Refer to the UL Classification Marking on the Product

Dimensions are in inches (mm).

SUPPLEMENTARY INSTALLATION INSTRUCTIONS
UL CLASSIFIED CURTAIN TYPE AND MULTI-BLADE FIRE DAMPERS AND FIRE/SMOKE DAMPERS
1 1/2 HOUR LABEL, VERTICAL MOUNT
IN FIRE RESISTANT CAVITY SHAFT WALL PARTITIONS

APPLICATION:

This vertical fire damper installation is for metal stud framing in UL resistant cavity shaft wall designs (1 and 2 hr.) including Nos. U438, U469 and U497. It differs from conventional fire damper installations in that it requires retaining angles on one side of the wall only, which are fastened to the wall as well as the damper for opening sizes up to 48" W x 36" H (1219 x 914). Larger openings require retaining angles on both sides.

GENERAL INSTALLATION:

1. **Expansion Clearance:** Opening in wall shall be a minimum 1/8" (3) per linear foot larger than overall size of damper and sleeve assembly in either dimension. Maximum opening not to exceed 1/8" (3) per foot plus two inches. Opening shall not be less than 1/4" (6) larger for any size damper and sleeve assembly.
2. **Damper Sleeve:** Sleeve gauge shall be at least equal to the gauge of the duct as defined by the appropriate SMACNA duct construction standard and described in NFPA 90A when one or more of the following duct-sleeve connections are used (TDC/TDF breakaway, ductmate breakaway, plain "S" slip, hemmed "S" slip, standing "S" slip, reinforced standing "S" slip, inside slip joint, and double "S" slip.)

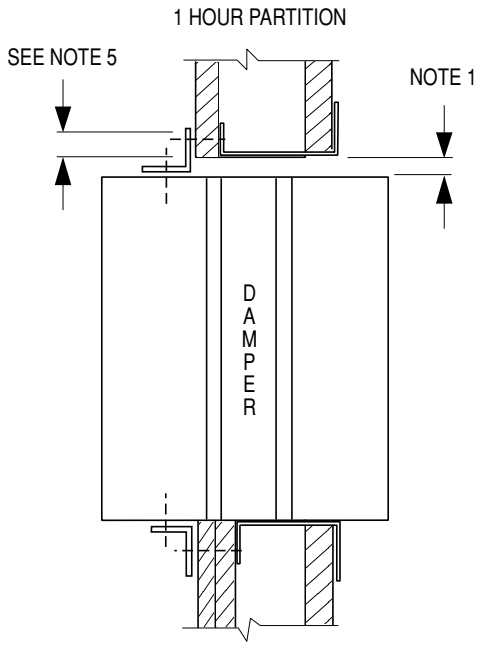
   In addition, the following connections are acceptable:

   A. On rectangular duct, a standing S slip connection, with two #10 sheet metal screws on each side and bottom of the joint and with duct sealant* applied to each connection, may be used.

   B. On rectangular duct, a standing S slip connection on top and bottom joints and flat drive connections on side joints with duct sealant* applied to each connection, may be used for dampers 48" x 20" (1219 x 508) and smaller. Plain S and hemmed S slip connections can also be used in lieu of the standing S connections described above.

   C. A round duct may be attached to the round adapter which is part of the damper sleeve in the following manner:
   (a) Duct diameters 22" (559) and smaller must use three #10 sheet metal screws equally spaced around the circumference and with duct sealant* applied to the connection.
   (b) Duct diameters over 22" (559) up to and including 36" (914) may use five #10 sheet metal screws equally spaced around the circumference and with duct sealant* applied to the connection.
   (c) Duct diameters larger than 36" (914) wide or diameter may use eight #10 sheet metal screws equally spaced around the circumference.

   *The duct sealant must be PA2084T Duct Sealant Adhesive as manufactured by Precision or water based DP1010 by Design Polymetrics.
3. If any other duct-sleeve connections are used, sleeve shall be minimum of 16 gauge (1.6) for dampers up to 36" w x 24"h (914 x 610) and 14 gauge (1.9) if damper width exceeds 36" (914) or height exceeds 24" (610).
4. **Damper/Sleeve Attachment:** Damper shall be secured to sleeve with 1/4" (6) long welds, 3/16" (5) steel rivets, 1/4" (6) bolts and nuts, #8 sheet metal screws, or 3/16" (5) buttonloks on both sides at 6" (152) on center and 2" (51) maximum from the corner of the damper on all four sides. For field assembled sleeves, the inner dimensions of the sleeve shall be equal to the outer dimensions of the damper.



5. **Retaining Angles:**
   A. Shall be a minimum of 1 1/2" x 1 1/2" x 16 gauge (38 x 38 x 1.61) and fastened with #10 bolts or screws, 1/2" (13) long welds, or 3/16" (5) rivets to sleeve at a maximum spacing of 8" (152) O.C. and not more than 2" (51) from each end with a minimum of two connections on each side, top and bottom (See Illustration).
   Nailor 'Quick-Set' Retaining Angles can be used in lieu of conventional mounting angles. Retaining angles must overlap the structural opening by 1" (25) minimum.
   B. Retaining angles screw to wall with #10 screws. Use a minimum of two fasteners per side, top and bottom 12" (305) O.C. maximum.
6. See framing detail on next page for opening preparation.
   Refer to the appropriate installation supplements for the following requirements:

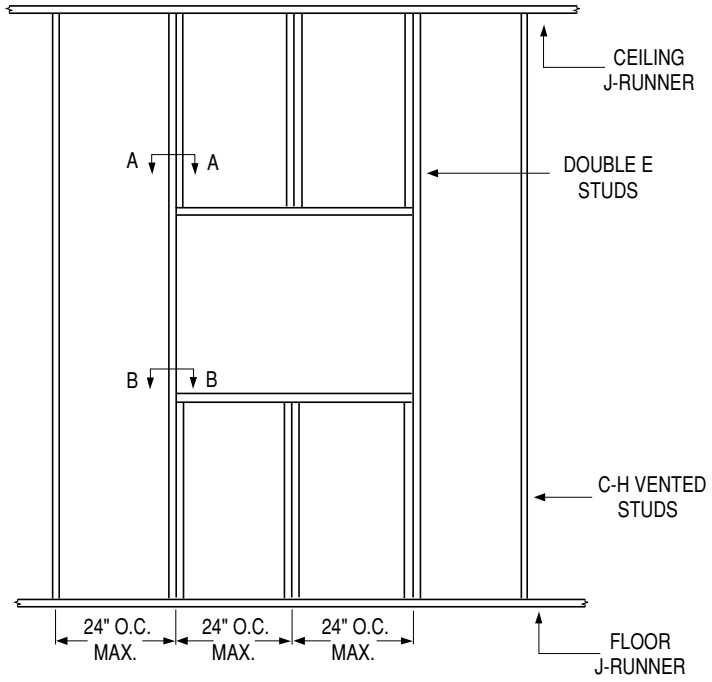
Ductmate Breakaway Connection	Doc. FDDMINST
Flange System Breakaway Connections	Doc. FDTDCFINST
'Quick-Set' Retaining Angles.	Doc. FDQSRA

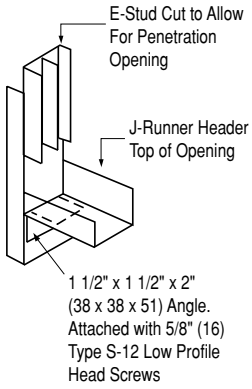
7. Refer to Underwriters Laboratories Inc. Fire Resistance Directory Vol. II for details on UL Design No. U438, U469 and U497.

Refer to the UL Classification Marking on the Product

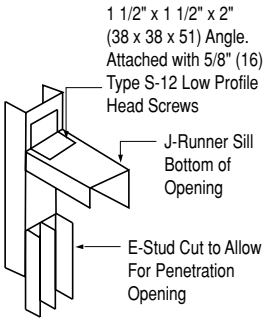
Dimensions are in inches (mm).

FRAMING DETAIL FOR ASSEMBLIES (U438 AND U469)



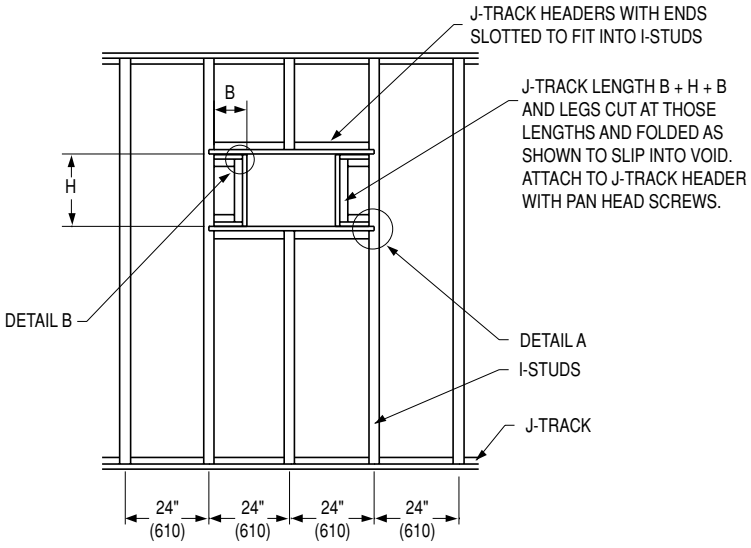


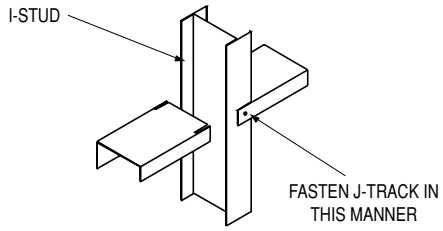
SECTION A-A



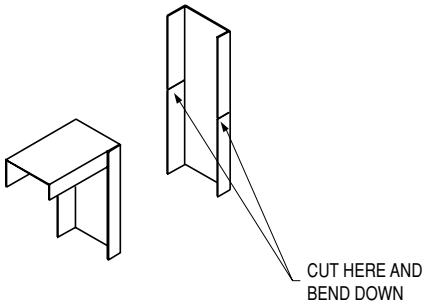
SECTION B-B

FRAMING DETAIL FOR ASSEMBLIES (U497)





DETAIL A



DETAIL B

Dimensions are in inches (mm).

Nailor Industries Inc.

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Fax: 281-590-3086

Las Vegas, Nevada
Tel: 702-648-5400
Fax: 702-638-0400

Toronto, Canada
Tel: 416-744-3300
Fax: 416-744-3360

Calgary, Canada
Tel: 403-279-8619
Fax: 403-279-5035

SUPPLEMENTARY INSTALLATION INSTRUCTIONS FIRE AND COMBINATION FIRE/SMOKE DAMPER FIELD EXTENSION OF FACTORY SLEEVES

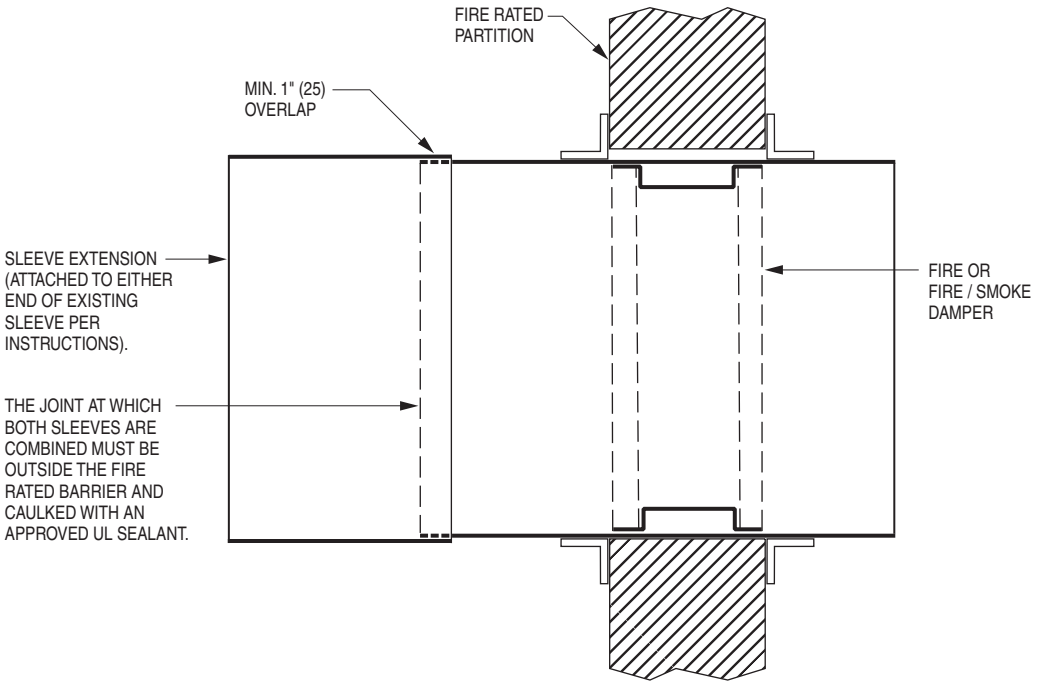


Figure 1. Sleeve Extension Detail

APPLICATION:

Factory installed sleeves may sometimes need to be extended in the field when of insufficient length for ductwork connection relative to the depth of the fire partition. This supplement installation instruction provides details for attachment of the sleeve extension. Consult Authority Having Jurisdiction for approval.

NOTES (Refer to Figure 1):

1. Sleeve extension must be same material and gauge as factory sleeve.
2. The inside dimensions of the sleeve extension must be the same dimensions as the outside dimensions of the factory sleeve.
3. Sleeve extension must overlap the factory sleeve a minimum of 1" (25).
4. All four sides of the sleeve extension must be attached to the factory sleeve. Attachments must be spaced a maximum of 6" (152) on center and a maximum of 2" (51) from corners. A minimum of 2 attachments per side (8 per damper) are required. Attach the sleeve extension using 1/2" (13) long tack or spot welds, #10 sheet metal screws, 1/4" (6.35) dia. bolts and nuts or 3/16" (5) steel pop rivets.
5. Products with a smoke leakage rating require that the joint between the two sleeves be sealed with a continuous 1/8" (3) bead of GE RTV108 or Dow Corning RTV732 silicone sealant.
6. Sleeve extensions can be made to either end of the factory sleeve. However, the sleeve cannot extend beyond the fire partition more than 6" (152) on either side or 16" (406) on one side if equipped with an actuator or integral access door.
7. The joint created by the factory sleeve and sleeve extension cannot be in the plane of the partition.

Refer to the Following Installation Instructions:

Curtain Type Fire Dampers (D)0100 & (D)0500	FDINST
Curtain Type Fire Dampers 0200 & 0500 Thinline	FDTINST
Multi-Blade Fire Dampers 1200 & 1250	MBFDINST
Combination Fire/Smoke Dampers 1220	1220INST
Combination Fire/Smoke Dampers 1270	1270INST

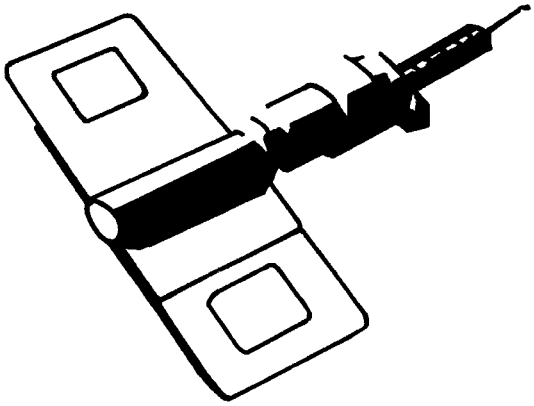
CLASSIFIED C UL US

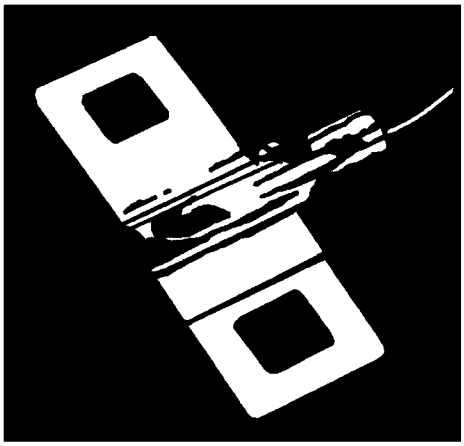
Refer to the UL Classification Marking on the Product

Dimensions are in inches (mm).

Nailor Industries Inc.

CURTAIN FIRE DAMPER ACCESSORY
ELECTRO-THERMAL LINK
MODEL: ETL





ETL®

WHAT IT IS – WHAT IT DOES

The Electro Thermal Link (ETL®) is a multi purpose, dual responsive fusible link which reacts (melts) when subjected to;

1. Local heat (165°F (74°C)) exactly the same as an ordinary link.
2. External electrical impulse of low power and short duration.

It is specifically designed to substitute for ordinary links and/or actuators in existing and new installations of Fire Dampers, Fire Doors, Fire Extinguishers, Fire and Smoke Roof Hatches, Sprinklers, Smoke Towers, and chemical or gas Automatic Release Systems.

The substitution should be made in every installation of the above devices where it is desirable to improve life safety by making those devices responsive to -

SMOKE in the early form of invisible products of combustion through ionization detectors, or

FIRE at an earlier stage than ordinary links thru the use of rate of rise or maximum temperature devices.

The ETL's electro-response is the unique feature. It is not smoke responsive of itself, but its power requirement is so low that it can be released with an electrical impulse from any smoke detector's power source. It is compatible with every smoke detector on the market in the United States today.

The operating range is 6 to 30 volts AC or DC, less than 0.2 ampere of trip current required, and 1/2 millisecond (.0005 second) response at 24 v. The electrical response is a trigger for the chemical heating of the center element which is a self-contained exo-thermic reactor, yielding no noise, smoke, or gas - just quick heat to open the link in seven seconds.

The ETL's thermal response is identical to that of ordinary fusible links of identical temperature (165°F (74°C)) and strength (40#) rating.

In its capacity of converting a FIRE safety device into a FIRE/SMOKE safety device the ETL can be substituted for both an ordinary link and motor, or link and electro-magnetic operator with advantages of simplicity, economy, operational reliability and wide acceptability. With its dual responsiveness the ETL can be substituted for two other devices at a savings in first cost as well as operating cost and maintenance. The ETL is a Space Age Device built to zero defect standards and to last at least fifty years and then still react properly – only on fire or smoke emergency. It is totally independent of power failures since it draws power from the detector standby source if needed. The ETL is listed by Underwriter's Laboratories, Inc. as a Fusible Link.

With the ongoing development of dynamic smoke control systems and building code changes in recent years, application and use of this product should be governed by acceptance of the local authority having jurisdiction.

Nailor® Industries Inc.

SUPPLEMENTARY INSTALLATION INSTRUCTIONS "QUICK-SET" RETAINING ANGLES

FOR ALL SLEEVED FIRE AND COMBINATION FIRE/SMOKE DAMPERS

"QUICK-SET" RETAINING ANGLES BOTH SIMPLIFY AND SPEED INSTALLATION, SAVING BOTH TIME AND MONEY.

BENEFITS:

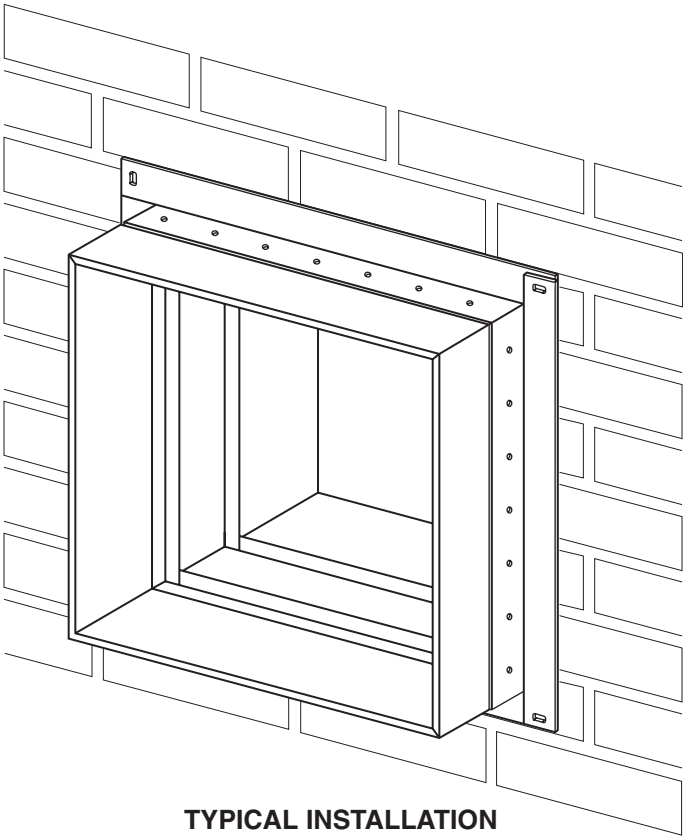
- One piece angles are fastened together in the corners. Only two sets of angles to handle per damper (rather than four separate angles per side).
- Angles are shipped with damper - no sorting or matching.
- Provided with pre-drilled fastening holes on 2" (51) centers to ensure correct angle/sleeve attachment.
- Factory fabricated by Nailor to suit the individual fire damper.
- Reduced cost when compared to conventional retaining angles.
- Dampers can ship directly to the job site complete with all necessary installation sheet metal hardware (saves on double handling at contractor's shop).
- Help ensure a correct installation as per U.L. approved installation instructions.

The majority of installing contractors view fire damper installation as a costly time consuming and troublesome procedure. Eight conventional angles must be custom fabricated for each damper either in a sheet metal shop or at the job site and sized to suit each individual damper. Invariably, they are mislaid or lost and must be matched to each factory supplied damper.

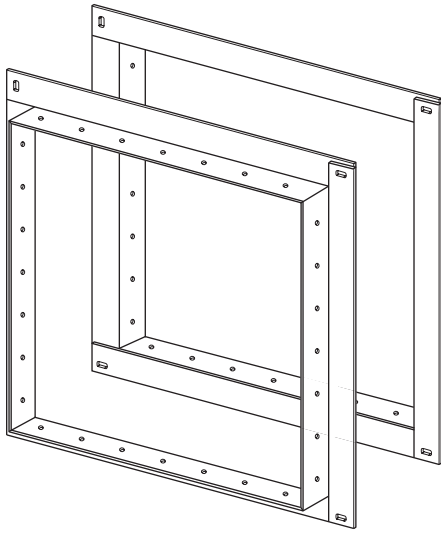
The Nailor "Quick-Set" solution solves the majority of problems. They are pre-formed to fit and ship with the individual damper for ultimate convenience. "Quick-Set" angles are supplied with correctly spaced pre-drilled screw-holes to ensure a quick, easy and accurate installation for all integral sleeve Nailor fire and combination fire/smoke dampers - no measuring required.
"Quick-Set" retaining angles provide the "complete" installation package. Simple, fast, convenient.

CLASSIFIED C UL US

Refer to the UL Classification Marking on the Product



TYPICAL INSTALLATION



TYPICAL PAIR OF PRE-ASSEMBLED 'QUICK-SET' RETAINING ANGLES

Dimensions are in inches (mm).

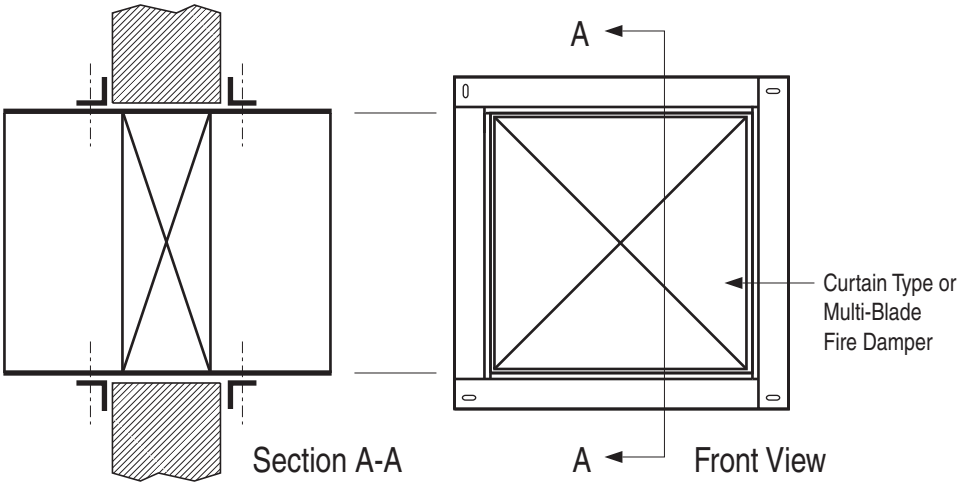


FIGURE 1. TYPICAL TWO SIDED INSTALLATION.

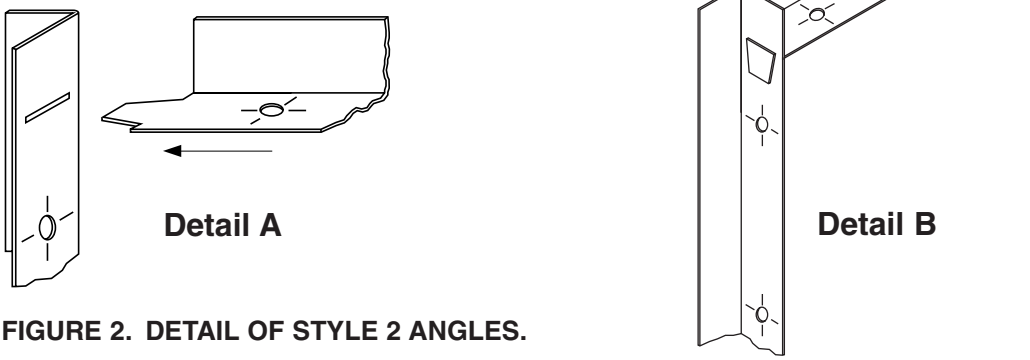


FIGURE 2. DETAIL OF STYLE 2 ANGLES.

APPLICATION:

The Nailor Quick-Set Retaining Angle System may be used in lieu of conventional retaining angles on all Nailor Fire and Combination Fire / Smoke Dampers.

Quick-Set angles are supplied in one of two styles, dependent upon fire resistance label, damper size and installation method.

Style 1: 1 1/2" x 1 1/2" x 20 ga. (38 x 38 x 1.0) Four sides are connected together with rivets in three corners.

Standard for the majority of applications with the following limitations:

- 1 1/2 hour label fire dampers
- Maximum Size: 36" x 36" (914 x 914)
- Two sided installation only

Refer to the UL or ULC Classification marking on the product.

Style 2: 1 1/2" x 1 1/2" x 16 ga. (38 x 38 x 1.6) Slot and tab design. The retaining angle assembly for each side has four angles, each with a tab end and a slot end (Detail A). The tabs are to be inserted into the slots and knocked down either before or after fastening to the sleeve (Detail B).

- 1 1/2 or 3 hour label fire dampers
- Maximum Size: 90" x 48" (2286 x 1219) or 48" x 90" (1219 x 2286)
- Single side (1 1/2 hour only. Refer to Single Side Retaining Angles Supplementary Installation Instructions for size limitations) or two sided installation

Refer to the Following Installation Instructions:

Curtain Type Fire Dampers (D)0100 & (D)0500	FDINST
Curtain Type Fire Dampers 0200 & 0500 Thinline	FDTINST
Multi-Blade Fire Dampers 1200 & 1250	MBFDINST
Combination Fire/Smoke Dampers 1220	1220INST
Combination Fire/Smoke Dampers 1270	1270INST
Single Side Retaining Angles	FDSSRAINST

Dimensions are in inches (mm).

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Toronto, Canada
Tel: 416-744-3300
Fax: 416-744-3360

Calgary, Canada
Tel: 403-279-8619
Fax: 403-279-5035

SUPPLEMENTARY INSTALLATION INSTRUCTIONS OPTIONAL SEALING OF FIRE DAMPERS AND COMBINATION FIRE/SMOKE DAMPERS IN WALL/PARTITION OR FLOOR OPENINGS

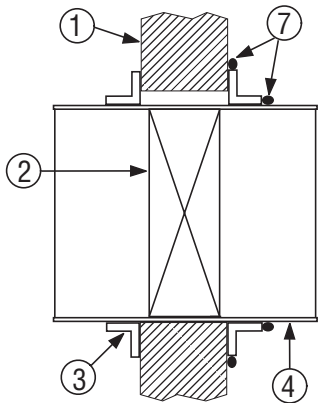


Figure 1. Damper ducted both sides.

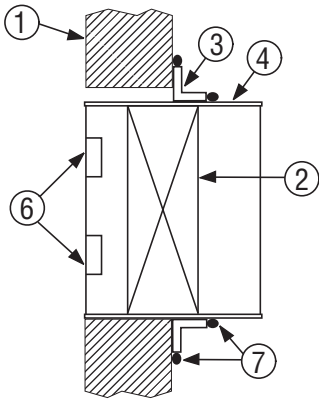


Figure 2. Damper sleeve with tabs for grille mounting

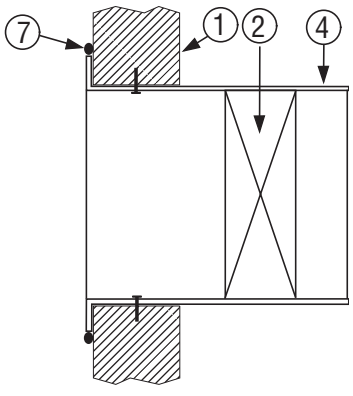


Figure 3. Out of Wall damper with flanged sleeve for grille mounting

APPLICATION:

Application of sealant between the retaining angles, retaining plates, or sleeve retaining flange and the fire rated wall or floor as applicable to the damper installation is not required by UL as a standard procedure. However, if an airtight seal is required by specification or local building code, sealant shall be applied as shown.

METHOD

Follow the sealant manufacturers' directions; remove dirt, grease, and moisture from the surfaces to be sealed. Apply a continuous bead of Dow Corning RTV732, Hilti Corporation FS-One, Nuco Inc. Self-Seal GG-200, Johns Manville Firetemp C1 or GE RTV108 sealant. Location of sealant should be as shown in Figures 1 through 4 and may be applied on one or both sides of the fire separation, as applicable to the model specific installation.

IMPORTANT:

Do not apply sealant within the required expansion gap between the damper and the fire rated wall or floor.

Press the surface of the sealant in place to dispel any air. Allow sealant to set and become tack-free before operating the damper.

Refer to the appropriate damper installation instructions for details on damper installation.

ITEMS

1. Fire Rated Wall or Floor
2. Damper
3. Retaining Angles
4. Sleeve
5. Retaining Plate
6. Mounting Tabs
7. Sealant (refer to text for specific sealant)

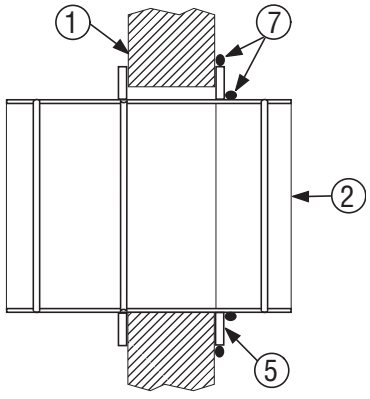
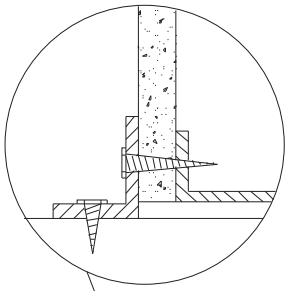


Figure 4. Round damper

Dimensions are in inches (mm).

SUPPLEMENTARY INSTALLATION INSTRUCTIONS
SINGLE-SIDE RETAINING ANGLES FOR UL/ULC CLASSIFIED FIRE DAMPERS

1 1/2 HR. LABEL • VERTICAL OR HORIZONTAL MOUNT



Detail 1A
Angle over drywall.

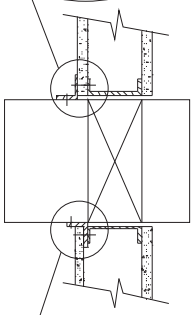
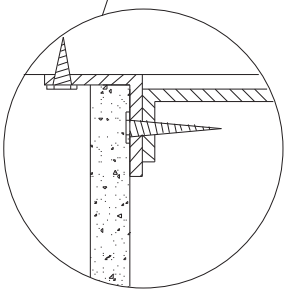


Figure 1
Metal Stud



Detail 1B
Angle under drywall.

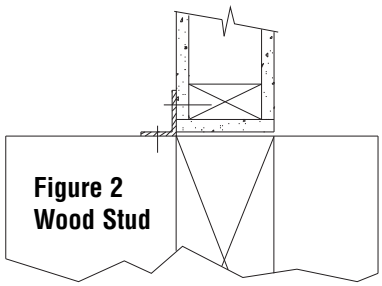


Figure 2
Wood Stud

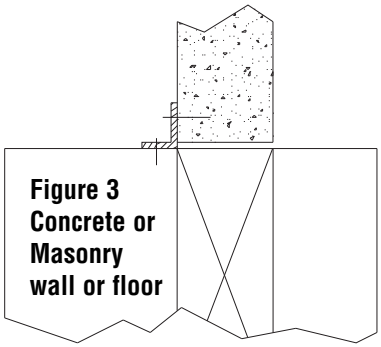


Figure 3
Concrete or Masonry wall or floor

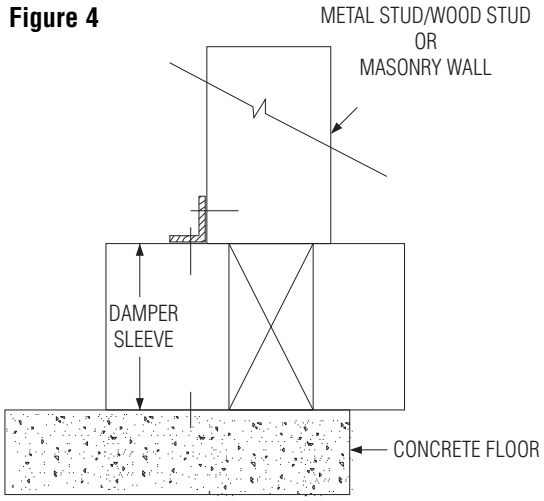
NOTES:

1. For the maximum sizes listed below, all Nailor 1 1/2 hour labeled curtain, multi-blade and combination fire/smoke dampers may be installed using single-side retaining angles in lieu of the conventional two-sided retaining angle method. Retaining angles may be field fabricated or factory supplied and may be installed in metal/wood stud or masonry walls and concrete floors.
2. Install dampers in accordance with the appropriate damper installation instruction sheet in conjunction with this supplement. Replace conventional two-sided retaining angles with single-sided retaining angles as appropriate. Retaining angles may be installed on either side for vertical partition installations, but must be installed on the top side for a floor installation. Retaining angles must be attached to both the sleeve and the wall or floor.
3. Retaining angles required on all four sides unless installed on top of a concrete floor slab (See Note 6).
4. Single-sided retaining angles shall be a minimum of 1 1/2" x 1 1/2" x 16 ga. (38 x 38 x 1.61) steel for metal stud, masonry walls or concrete floors. For wood stud partitions, retaining angles shall be a minimum of 2" x 1 1/2" x 16 ga. (51 x 38 x 1.61) steel. For metal stud partitions only, the single-side retaining angle may be directly attached to the metal stud prior to the installation of the drywall. See Detail 1B.
5. Attach the 1 1/2" (38) leg of the retaining angles to the damper sleeve using 1/2" (13) long welds, 1/4" (6) diameter bolts and nuts, 3/16" (5) diameter steel rivets or #8 sheet metal screws, 6" (152) o.c.. Secure the retaining angles to the structural members of a vertical drywall wall using drywall screws. In the case of wood stud construction (see Figure 2), the screws should be a minimum of 2 1/2" (64) long, with minimum 1 1/4" (32) penetration into framing. In the case of masonry walls or concrete floors (see Figure 3), use 1/4" (6) masonry anchors 1 1/2" (38) minimum length, with minimum 1 1/4" (32) penetration into wall or floor. All fasteners to be on a maximum of 12" (305) o.c. with a minimum of two fasteners per side, top, and bottom.
6. In the case where the damper sits directly on a concrete floor slab, the bottom retaining angle is not required if the damper sleeve is fastened directly to the slab using 1/4" (6) masonry anchors 1 1/2" (38) minimum length, with minimum 1 1/4" (32) penetration into the floor. All fasteners to be on a maximum of 12" (305) o.c. with a minimum of 2 fasteners (See Figure 4).

Refer to the UL or ULC Classification Marking on the Product

Dimensions are in inches (mm).

Figure 4



7. No firestop caulking is required on this product.

Underwriters' Laboratories file # R9492.
Also conforms to NFPA 90A and NFPA 92.
Maximum sizes: 96" W x 36" H (2438 x 914) or
36" W x 96" H (914 x 2438).

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SUPPLEMENTARY INSTALLATION INSTRUCTIONS STEEL AND WOOD STUD FRAMING FOR FIRE DAMPERS IN DRYWALL PARTITIONS

(CURTAIN TYPE, MULTI-BLADE AND COMBINATION FIRE/SMOKE)

NOTES:

1. These details are based upon tests conducted by the Gypsum Association. Consult the local authority having jurisdiction for other acceptable framing methods.
2. Frame wall openings as shown in Figure 1 or 2.
3. Gypsum panels must be screwed to all stud and runner flanges, 12" (305) max. o.c. surrounding opening.
4. All fasteners to be per UL/ULC Classified wall design.
5. UL/ULC wood stud designs require gypsum wallboard filler pieces to be installed around entire opening, screwed 12" (305) o.c. to web of runners and studs, covering all wood stud surfaces.
   In UL metal stud designs, exposed steel surfaces need not be covered with gypsum wallboard. ULC metal stud construction however may still require filler pieces, check with the local authorities.
6. Refer to standard installation instructions sheet for additional details.

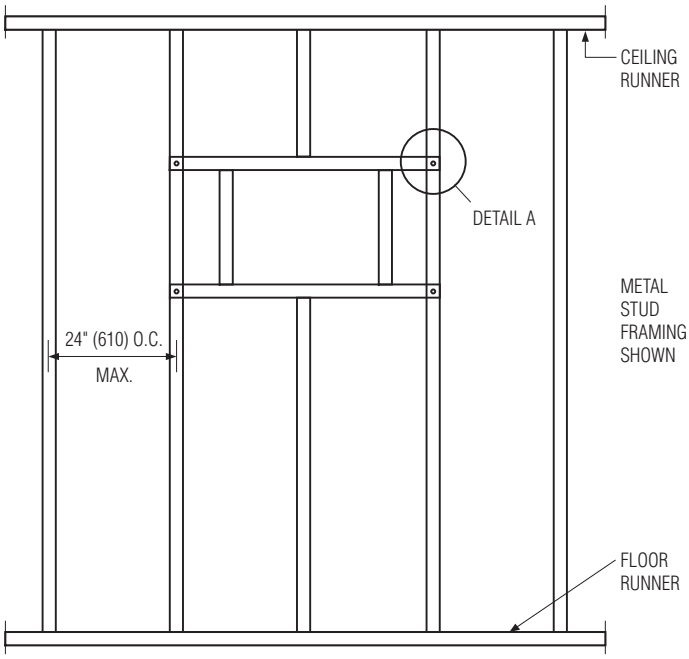
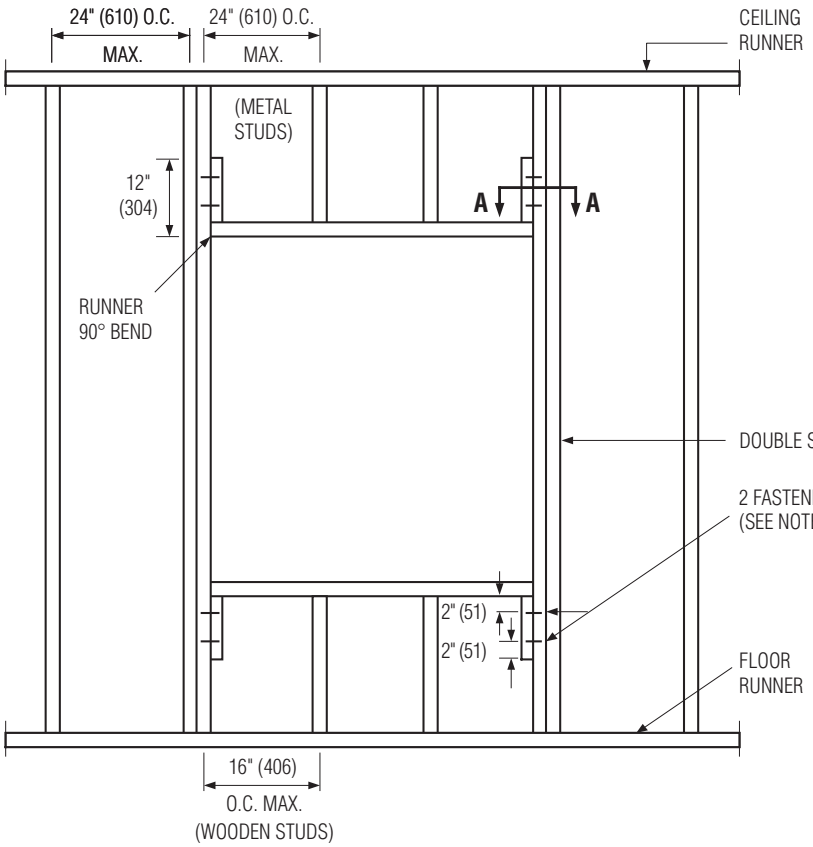
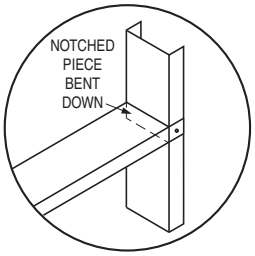
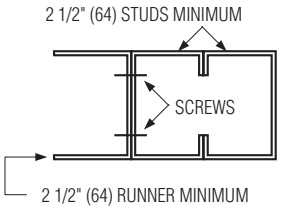


FIGURE 1. SINGLE VERTICAL STUD OPENING PREPARATION DETAILS.
DAMPERS UP TO 36" x 36" (914 x 914).





Detail A



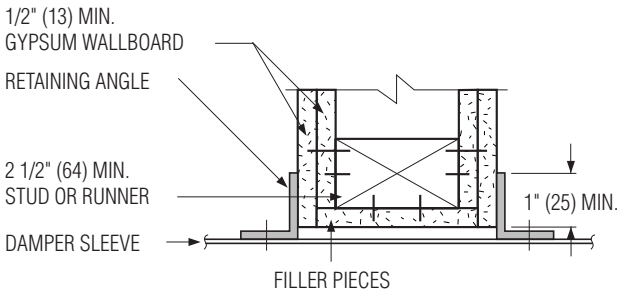
Framing Detail Section A-A

FIGURE 2. DOUBLE VERTICAL STUD OPENING PREPARATION DETAILS.
DAMPERS OVER 36" x 36" (914 x 914).

Dimensions are in inches (mm).

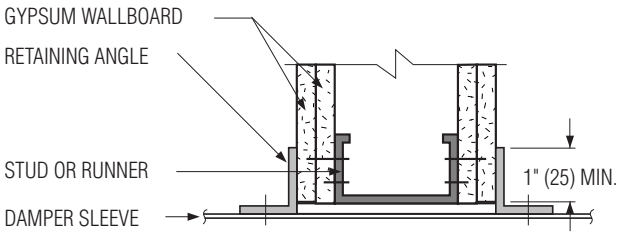
TYPICAL STUD WALL DETAILS (See Notes on Page 1)

WOOD STUD DETAIL

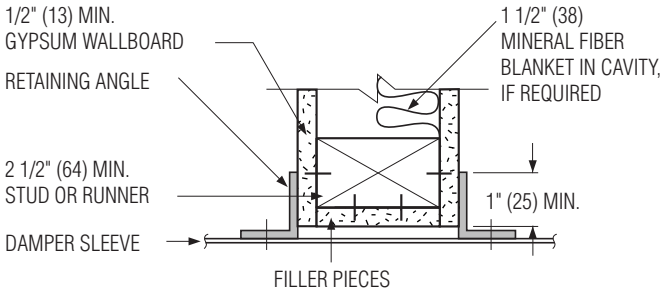


2 Hour Partition Rating

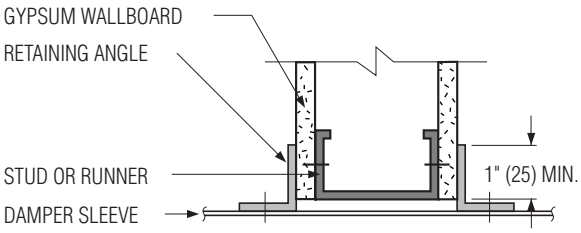
METAL STUD DETAIL (UL DESIGN)



2 Hour Partition Rating



1 Hour Partition Rating



1 Hour Partition Rating

Dimensions are in inches (mm).

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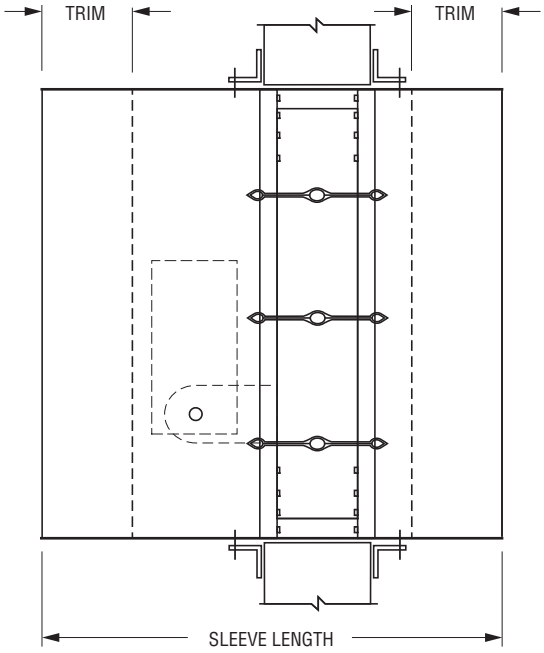
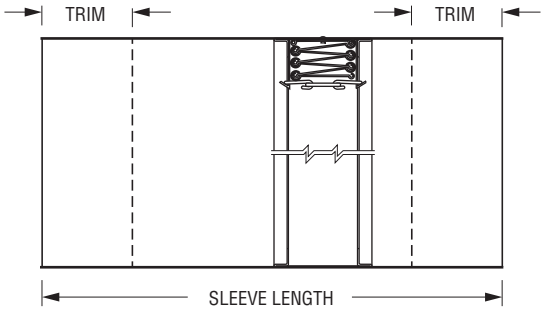
SLEEVE TRIMMING OF FIRE AND COMBINATION FIRE/SMOKE DAMPERS
INSTALLATION INSTRUCTIONS

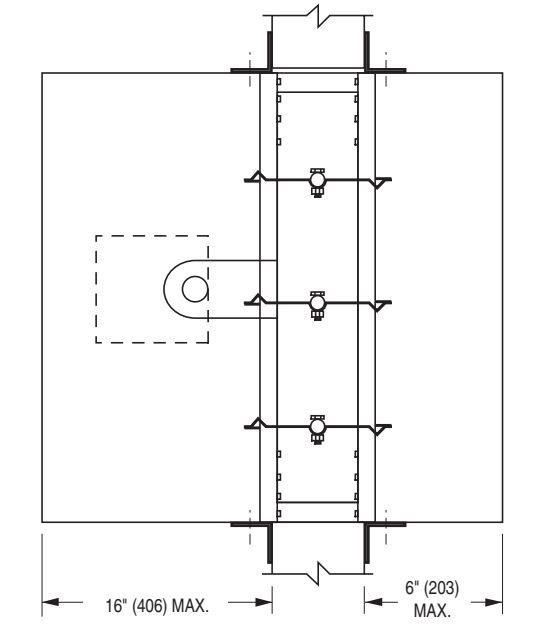
Trimming of factory-supplied sleeves may be necessary to accommodate field conditions or applications. Other damper components such as actuators and fuse links should not be altered.

NOTES:

1. **Sleeve Length on Non-actuator side:** 6" (152) maximum sleeve length beyond fire-rated barrier on non-actuator side.
2. **Sleeve Length on Actuator side:** 16" (406) maximum sleeve length beyond fire-rated barrier on actuator side.







Dimensions are in inches (mm).

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