



DYNAMIC OUT OF WALL FIRE DAMPER
 FOR THROUGH PENETRATIONS (DUCTED BOTH SIDES)
 FOR USE IN DYNAMIC OR STATIC SYSTEMS
 1 1/2 HR. LABEL • AIRFOIL BLADE
MODEL: D1201-DOW



QUALIFICATIONS:

- **UL 555 & CAN/ULC-S112 CLASSIFIED DYNAMIC FIRE DAMPER**
1 1/2 Hour Label (File # R9492).
- Meets NFPA 80, 90A and 101 as well as IBC and NBC (Canada) requirements.
- California State Fire Marshal: Fire Damper Listing No. 3225-0935:0101.
- Maximum velocity 4000 fpm @ 4" w.g. (20 m/s @ 1 kPa).
- For use in vertical or horizontal concrete partitions and vertical steel stud partitions only.

Model D1201-DOW is an "out of wall" (vertical mount) or "out of floor" (horizontal mount) for through penetration applications (ductwork is connected to both sides) where the damper cannot be installed within the plane of the wall or floor and is ideal for applications where building codes require a fire damper for the protection of ductwork penetrations in walls or floors that have a fire resistance rating of up to 2 hours.

Model D1201-DOW offers premium performance and a low pressure drop well suited to the majority of commercial applications. Unique, inter-locking double skin blade design eliminates combustible seals and provides flame protection under fire conditions at temperatures up to 2000°F (1093°C). Supplied as standard with an internal locking quadrant which holds the damper in the fully open position, but may also be used for system balancing if required.

STANDARD CONSTRUCTION:

- Frame:** 5" x 7/8" x 16 ga. (127 x 22 x 1.6) galvanized steel hat channel.
- Blades:** 14 ga. (2.0) equivalent galvanized steel formed airfoil on 5 1/2" (140) centers. Opposed action.
- Sleeve:** 16" x 20 ga. (406 x 1.0) galvanized steel standard.
- Insulation:** Intumescent thermal insulation on four sides.
- Linkage:** Concealed in frame. 12 ga. (2.7) plated steel.
- Bearings:** 1/2" (13) dia. self-lubricating oilite bronze.
- Axles:** 1/2" (13) dia. plated steel double bolted to blades.
- Jackshaft:** 1/2" (13) dia. cadmium plated steel.
Internal locking quadrant is factory installed.
- Fusible Link:** 165°F (74°C) standard. 212°F (100°C) available.

Sizes (Duct W x H):

Velocity/ Pressure Rating	Minimum		Maximum	
	Single Section		Single Section	
	Vertical/Horizontal	Vertical	Vertical	Horizontal
24, 34, 44	8" x 8" (203 x 203)	36" x 48" (914 x 1219)	32" x 48" (813 x 1219)	

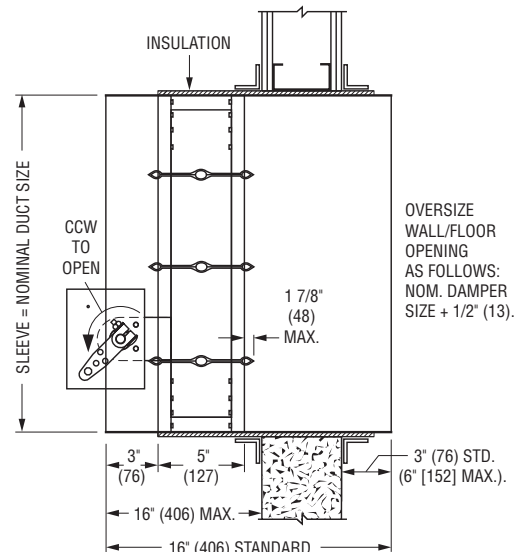
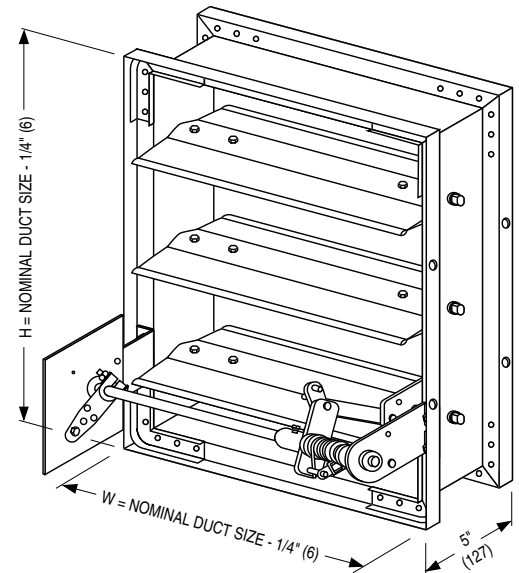
Note: Multiple section assemblies are not permitted.

BASE MODEL SELECTION:

- D1201-DOW** Standard factory sleeve. See above.
- D1201-DOW** Non-standard sleeve. Specify _____ length ____ ga.

DYNAMIC VELOCITY/PRESSURE RATING:

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



NOTE:

STANDARD SLEEVE/DAMPER (FOR 4" [102] WALL) PROVIDES 1" (25) OFFSET FROM WALL FACE TO EDGE OF DAMPER FRAME. FOR THICKER WALLS OR TO OFFSET DAMPER FARTHER FROM WALL FACE (MAX. 8" [203]) LENGTHEN SLEEVE ACCORDINGLY.

OPTIONS:

- BS** Stainless steel bearings
- JSM** Flexible metal jamb seals
- MLS-300** Position indicator switch pack
- QS2** Quick-set retaining angles (pair)
- TDF1** TDF Flange (one end)
- TDF2** TDF Flange (both ends)

SCHEDULE TYPE:

PROJECT:

ENGINEER:

CONTRACTOR:

For installation instructions, see IOM-D1201DOWINST.
 Dimensions are in inches (mm).

DATE	B SERIES	SUPERSEDES	DRAWING NO.
4 - 28 - 14	1200	3 - 28 - 11	D1201-DOW



DYNAMIC OUT OF WALL FIRE DAMPER
GRILLE MOUNT WITH DAMPER ACCESS
 FOR USE IN DYNAMIC OR STATIC SYSTEMS
 1 1/2 HR. LABEL • AIRFOIL BLADE
MODEL: D1201-OW



QUALIFICATIONS:

- **UL 555 & CAN/ULC-S112 CLASSIFIED DYNAMIC FIRE DAMPER**
1 1/2 Hour Label (File # R9492).
- **Meets NFPA 80, 90A and 101 as well as IBC and NBC (Canada) requirements.**
- **California State Fire Marshal: Fire Damper Listing No. 3225-0935:0101.**
- **Maximum velocity 4000 fpm @ 4" w.g. (20 m/s @ 1 kPa).**
- **For use in vertical or horizontal concrete partitions and vertical steel stud partitions only.**

Model D1201-OW is an "out of wall" high performance fire damper specifically designed for supply or return ducts that terminate at a grille and provides through the grille access to the damper. Standard sleeve length accommodates most commercial supply and return grilles/registers and is ideal for applications where building codes require a fire damper for the protection of ductwork penetrations in walls or floors that have a fire resistance rating of up to 2 hours.

Model D1201-OW offers premium performance and a low pressure drop well suited to the majority of commercial applications. Unique, inter-locking double skin blade design eliminates combustible seals and provides flame protection under fire conditions at temperatures up to 2000°F (1093°C). Supplied as standard with an internal locking quadrant which holds the damper in the fully open position, but may also be used for system balancing if required.

STANDARD CONSTRUCTION:

- Frame:** 5" x 7/8" x 16 ga. (127 x 22 x 1.6) galvanized steel hat channel.
- Blades:** 14 ga. (2.0) equivalent galvanized steel formed airfoil on 5 1/2" (140) centers. Opposed action.
- Sleeve:** 16" x 20 ga. (406 x 1.0) galvanized steel with 3/4" (19) flange on one end standard.
- Insulation:** Intumescent thermal insulation on four sides.
- Linkage:** Concealed in frame. 12 ga. (2.7) plated steel.
- Bearings:** 1/2" (13) dia. self-lubricating oilite bronze.
- Axles:** 1/2" (13) dia. plated steel double bolted to blades.
- Jackshaft:** 1/2" (13) dia. cadmium plated steel.
Internal locking quadrant is factory installed.
- Fusible Link:** 165°F (74°C) standard. 212°F (100°C) available.

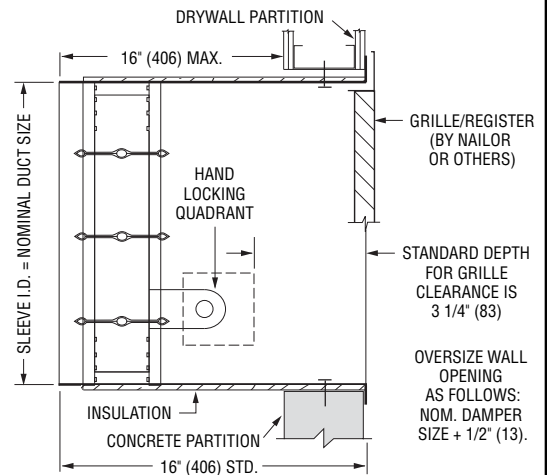
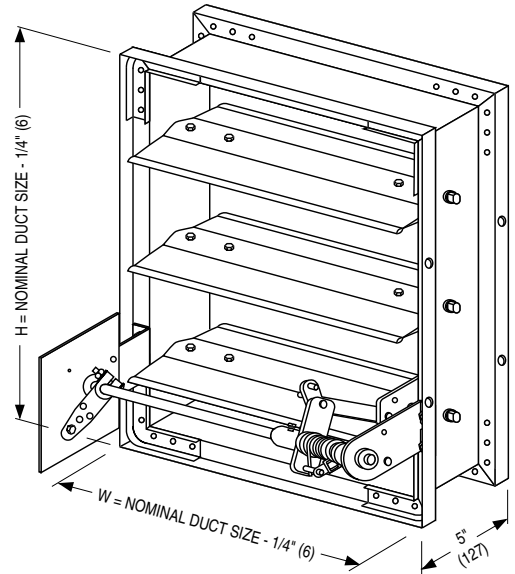
Sizes (Duct W x H):

Velocity/ Pressure Rating	Minimum		Maximum	
	Single Section		Single Section	
	Vertical/Horizontal	Vertical	Vertical	Horizontal
24, 34, 44	8" x 8" (203 x 203)	36" x 48" (914 x 1219)	32" x 48" (813 x 1219)	

Note: Multiple section assemblies are not permitted.

BASE MODEL SELECTION:

- D1201-OW** Standard factory sleeve. See above.
- D1201-OW** Non-standard sleeve. Specify _____ length ____ ga.
A custom length sleeve can be furnished when an other than standard grille depth clearance is required.



DYNAMIC VELOCITY/PRESSURE RATING:

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

OPTIONS:

- BS** Stainless steel bearings
- JSM** Flexible metal jamb seals
- MLS-300** Position indicator switch pack
- QS1** Quick-set retaining angle (one side)
- TDF1** TDF Flange (one end)

SCHEDULE TYPE:	For installation instructions, see IOM-D1201DOWINST.			
PROJECT:	Dimensions are in inches (mm).			
ENGINEER:	DATE	B SERIES	SUPERSEDES	DRAWING NO.
CONTRACTOR:	4 - 28 - 14	1200	1 - 1 - 12	D1201-OW

**"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.

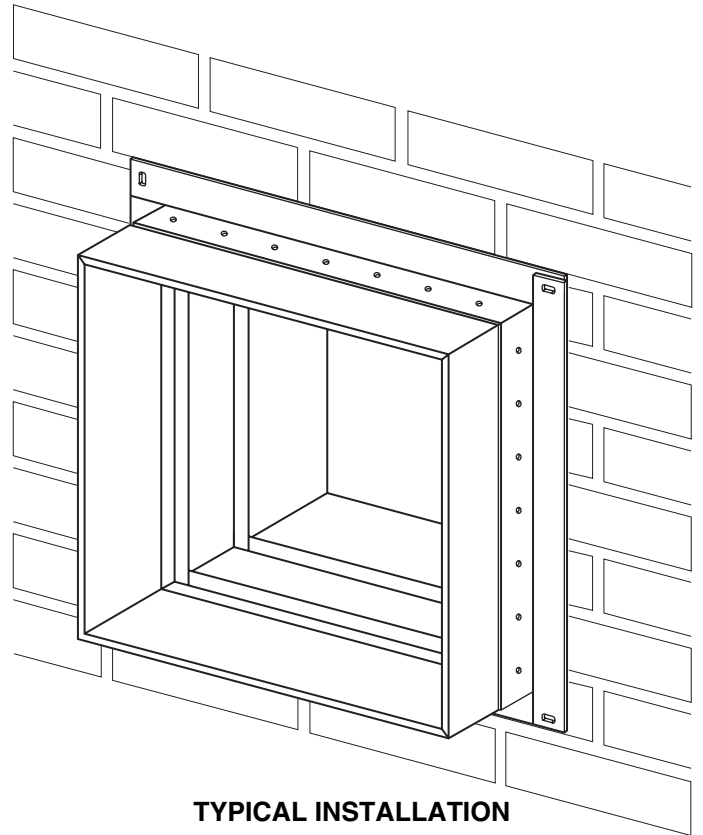
"Quick-Set" retaining angles provide the "complete" installation package. Simple, fast, convenient.

MODELS:

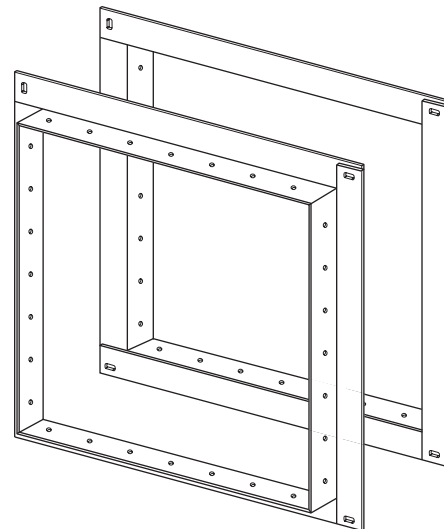
Nailor "Quick-Set" retaining angles are an accessory option for all dampers ordered with factory sleeves.

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.



TYPICAL INSTALLATION



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



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

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

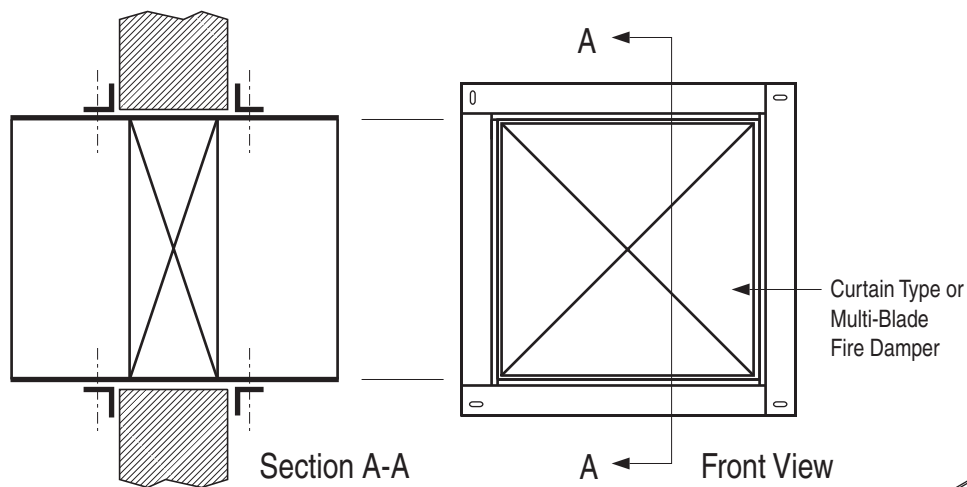


FIGURE 1. TYPICAL TWO SIDED INSTALLATION.

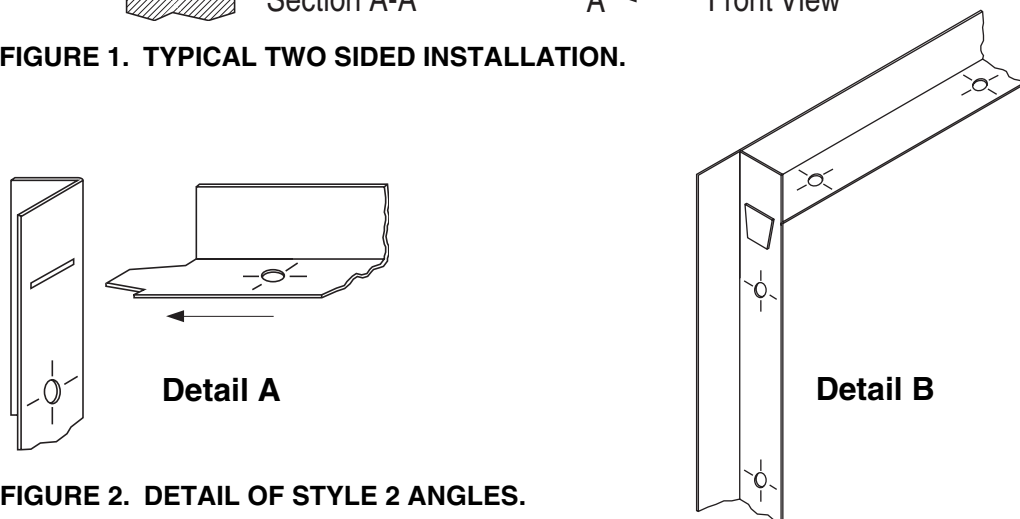


FIGURE 2. DETAIL OF STYLE 2 ANGLES.

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:

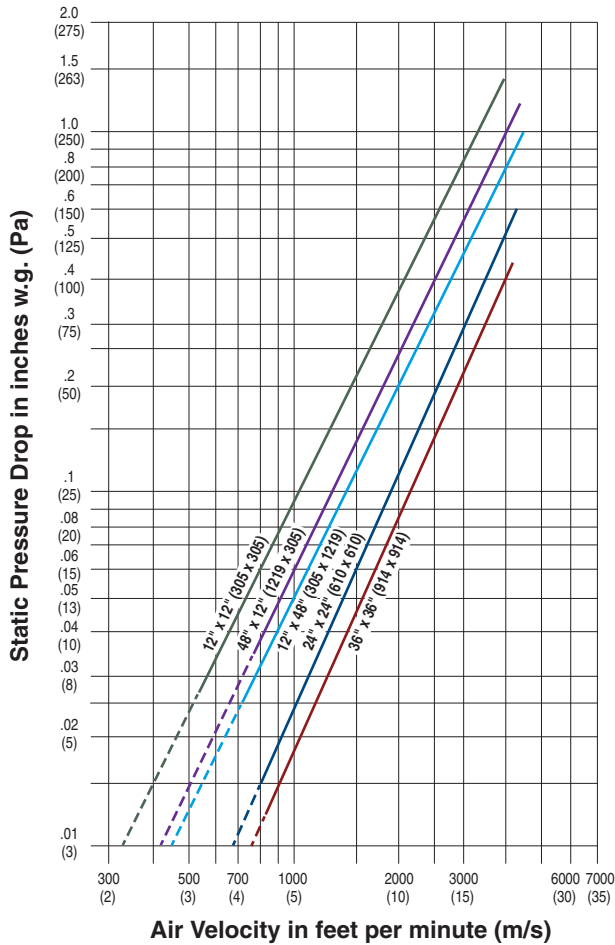
Quick-Set Retaining Angles	FDQSRA
Curtain Type Fire Dampers (D)0100 & (D)0500	FDINST
Curtain Type Fire Dampers 0200 & 0500 Thinline	FDTINST
Multi-Blade Fire Dampers 1200 & 1250	MBFDINST
Combination Fire/Smoke Dampers 1220	1220INST
Combination Fire/Smoke Dampers 1270	1270INST
Single Side Retaining Angles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

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

PERFORMANCE DATA:

MODEL: D1201-DOW - 1 1/2 HOUR LABEL

PRESSURE DROP:



Pressure drop tested per AMCA Standard 500-D, Figure 5.3. Data corrected to standard air density of 0.075 lbs/ft.³.

D1201-DOW Series Maximum Performance Ratings	
UL 555 Fire Rating	1 1/2 Hour
Maximum Velocity	4000 fpm (20 m/s)
Maximum Pressure	4 in. w.g. (1 kPa)

HOW TO SPECIFY

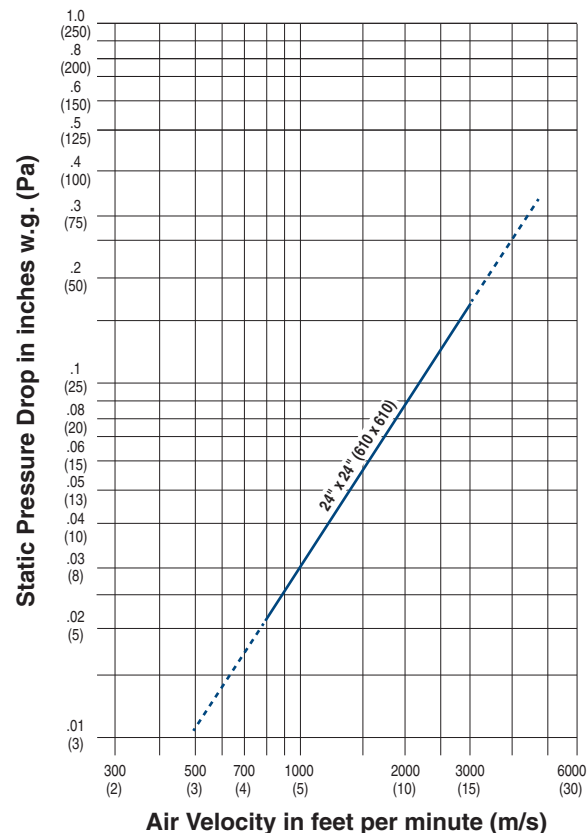
SUGGESTED SPECIFICATION:

Provide and install, as shown on plans and/or schedules, Out of Wall Multi-Blade Dynamic Fire Dampers as manufactured by Nailor Industries, Inc. which meet or exceed the following criteria: Fire dampers shall meet the requirements of NFPA 80, 90A and 101 and shall be manufactured, tested and labeled in accordance with UL 555. Each damper shall bear a UL fire resistance rating label of 1 1/2 hours and in addition, a label verifying the airflow and closure pressure ratings of (**specifier select rating**) 2000 fpm (10 m/s) or 3000 fpm (15 m/s) or 4000 fpm (20 m/s), at 4" w.g. (1 kPa) static pressure differential, as established by the Dynamic Closure Test. Each fire damper shall also be marked with the words "For use in dynamic systems". Dampers marked "For use in static systems only" are not acceptable. Damper shall be provided from the factory in an integral 16 ga. (1.6) galvanized steel sleeve of appropriate length with intumescent thermal insulation on four sides. Frame shall be constructed of 16 ga. (1.6) galvanized steel hat channel with mitered corners reinforced with die-formed corner gussets for strength. Blades shall be 14 ga. (2.0) equivalent galvanized steel formed double skin, airfoil design, on 5 1/2" (140) centers. Dampers shall be of opposed blade configuration with an inter-locking blade design. Blade seals are not acceptable. Blade axles shall be plated steel, double bolted at each end of blade to provide positive locking connection. Hex, square friction-fit or press-fit axles are not acceptable. Bearings shall be self-lubricating oilite bronze type. Blade linkage shall be zero-maintenance, concealed in frame, out of airstream. Each fire damper shall be complete with a (**specifier select temperature**) 165°F (74°C) or 212°F (100°C) UL Listed fusible link that will cause the damper to close and lock in closed position by means of an over center/knee lock linkage for assured closure. Each damper shall be supplied with an internal manual quadrant(s) for setting and locking of blades in desired position. Contractor shall provide and install an access door at each fire damper, of appropriate size to allow for inspection, testing and fusible link replacement. Data submitted for approval shall include confirmation of UL qualifications in addition to manufacturer's installation instructions. Each shipment of fire dampers shall include same installation instructions. Standard of acceptance shall be Nailor Model D1201-DOW.

PERFORMANCE DATA:

MODEL: D1201-OW - 1 1/2 HOUR LABEL

PRESSURE DROP:



Pressure drop tested per AMCA Standard 500-D, Figure 5.2.
Data corrected to standard air density of 0.075 lbs/ft.³.

D1201-OW Series Maximum Performance Ratings	
UL 555 Fire Rating	1 1/2 Hour
Maximum Velocity	4000 fpm (20 m/s)
Maximum Pressure	4 in. w.g. (1 kPa)

HOW TO SPECIFY

SUGGESTED SPECIFICATION:

Provide and install, as shown on plans and/or schedules, Out of Wall Multi-Blade Dynamic Fire Dampers as manufactured by Nailor Industries, Inc. which meet or exceed the following criteria: Fire dampers shall meet the requirements of NFPA 80, 90A and 101 and shall be manufactured, tested and labeled in accordance with UL 555. Each damper shall bear a UL fire resistance rating label of 1 1/2 hours and in addition, a label verifying the airflow and closure pressure ratings of **(specifier select rating)** 2000 fpm (10 m/s) or 3000 fpm (15 m/s) or 4000 fpm (20 m/s), at 4" w.g. (1 kPa) static pressure differential, as established by the Dynamic Closure Test. Each fire damper shall also be marked with the words "For use in dynamic systems". Dampers marked "For use in static systems only" are not acceptable.

Damper shall be provided from the factory in an integral 16 ga. (1.6) galvanized steel sleeve of appropriate length with intumescent thermal insulation on four sides. Frame shall be constructed of 16 ga. (1.6) galvanized steel hat channel with mitered corners reinforced with die-formed corner gussets for strength. Blades shall be 14 ga. (2.0) equivalent galvanized steel formed double skin, airfoil design, on 5 1/2" (140) centers. Dampers shall be of opposed blade configuration with an inter-locking blade design. Blade seals are not acceptable. Blade axles shall be plated steel, double bolted at each end of blade to provide positive locking connection. Hex, square friction-fit or press-fit axles are not acceptable. Bearings shall be self-lubricating oilite bronze type. Blade linkage shall be zero-maintenance, concealed in frame, out of airstream.

Each fire damper shall be complete with a **(specifier select temperature)** 165°F (74°C) or 212°F (100°C) UL Listed fusible link that will cause the damper to close and lock in closed position by means of an over center/knee lock linkage for assured closure. Each damper shall be supplied with an internal manual quadrant(s) for setting and locking of blades in desired position. Contractor shall provide and install an access door at each fire damper, of appropriate size to allow for inspection, testing and fusible link replacement. Data submitted for approval shall include confirmation of UL qualifications in addition to manufacturer's installation instructions. Each shipment of fire dampers shall include same installation instructions. Standard of acceptance shall be Nailor Model D1201-OW.

QUALIFICATIONS:

- UL 555 & CAN/ULC-S112 CLASSIFIED DYNAMIC FIRE DAMPER 1 1/2 Hour Label (File # R9492).
- Meets NFPA 80, 90A and 101 as well as IBC and NBC (Canada) requirements.
- California State Fire Marshal: Fire Damper Listing No. 3225-0935:0101.
- Maximum velocity 4000 fpm @ 4" w.g. (20 m/s @ 1 kPa).
- For use in vertical or horizontal concrete partitions and vertical steel stud or wood stud partitions only.

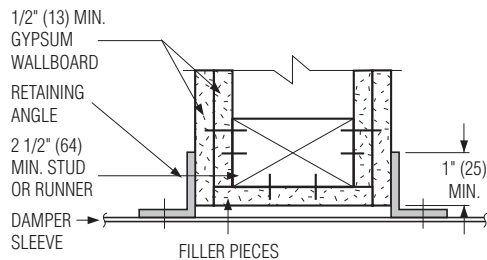


APPLICATION:

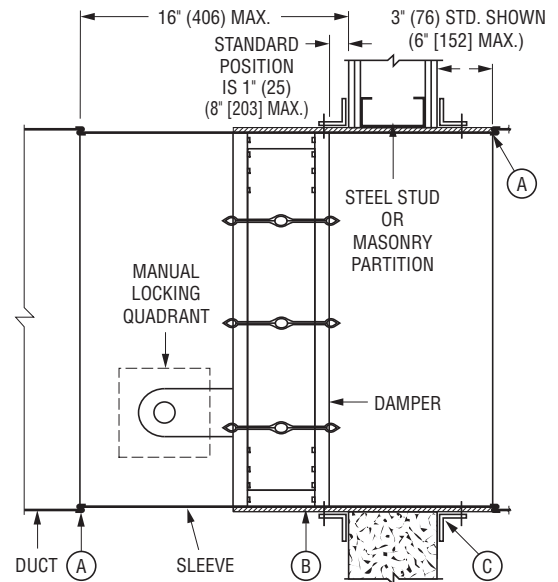
Model D1201-DOW fire damper is specially designed for "out of wall" (vertical mount) or "out of floor" (horizontal mount) through penetration applications (ductwork is connected to both sides) where the damper cannot be installed within the plane of the wall or floor.

ITEMS:

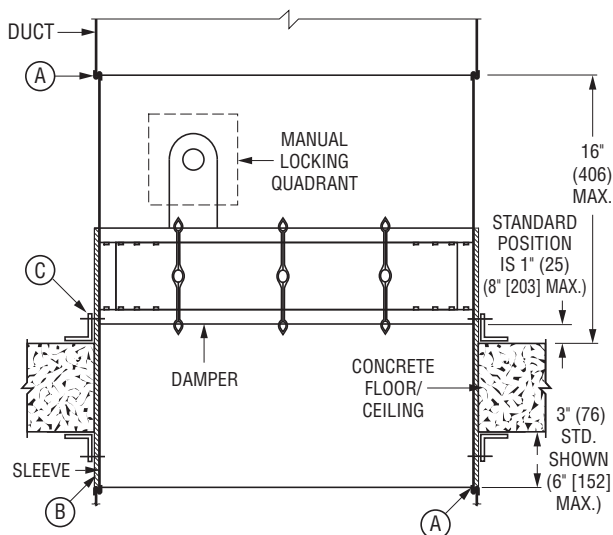
- (A) Duct/sleeve connection (See Note #4).
- (B) Intumescent material (insulation).
- (C) Retaining angles and fasteners (See Note #6).
- (D) Typical 2 Hour Rated Vertical Wood Stud Construction



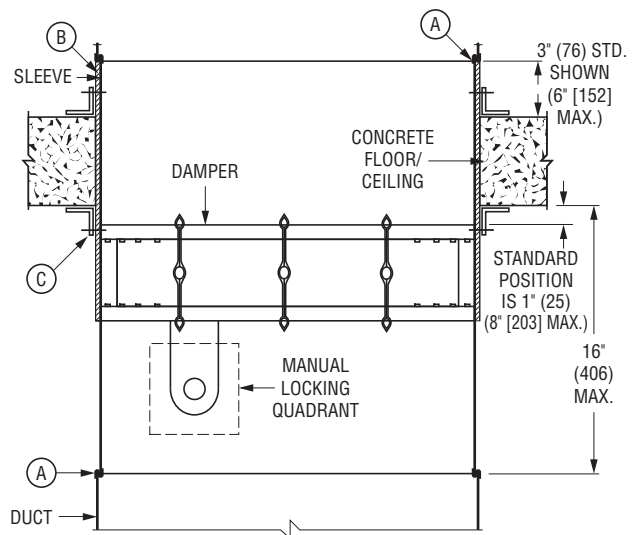
D: Wood Stud Detail



VERTICAL INSTALLATION



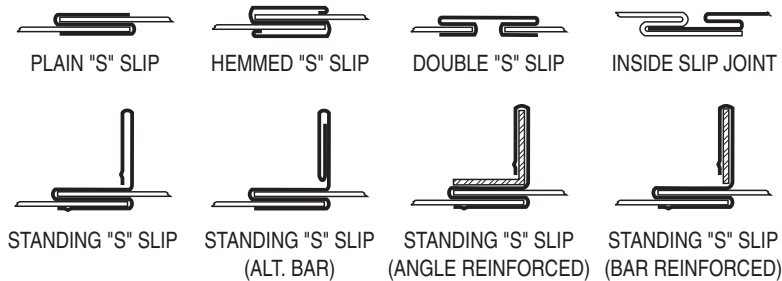
ABOVE FLOOR INSTALLATION



BELOW FLOOR INSTALLATION

NOTES:

1. Installation shall be in accordance with the appropriate requirements of the National Fire Protection Association Standard NFPA 90A latest edition.
2. **Damper Location Within Sleeve:** The maximum distance that the leading edge of the damper frame can be installed outside the wall or floor is as follows:
 Steel Stud, Wood Stud or Masonry Walls: 8" (203).
 Concrete Floors: 8" (203).
3. **Damper Sleeve:** Factory furnished sleeves shall not be less than 20 gauge. (1.01) coated steel.
 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 36" wide by 24" (914 x 610) high of not less than 16 gauge (1.61) coated steel, or larger sleeves of not less than 14 gauge (1.99) thick 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 16" (406) from the wall/floor on the damper/actuator side and maximum 6" (152) on the other side.
4. **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 3 for rigid connections:



In addition:

- 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.



- 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.
- b. Round or 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 may use three #10 sheet metal screws equally spaced around the circumference.
 - Duct diameters over 22" (559) up to and including 36" (914) may use five #10 sheet metal screws equally spaced around the circumference.
 - Duct diameters larger than 36" (914) high or diameter may use eight #10 sheet metal screws equally spaced around the circumference.
 - c. For the use of approved alternative Ductmate or TDC/TDF break-away connections, refer to the supplements noted on this page.
- 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.
5. **Opening Size:** Expansion clearance is not required, however the opening size in partition should be sized 1/2" (13) larger than nominal damper size in all directions to allow for sleeve thickness and insulation.
 6. **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 retaining angles to the sleeve with 1/2" (12.7) long welds, 1/4" (6.35) dia. bolts and nuts, 3/16" (4.76) dia. steel rivets or #8 sheet metal screws, 8" (203) on center and 2" (51) maximum from corner of sleeve on all four sides. The retaining angles must lap the structural opening by 1" (25.4) minimum. Field fabricated retaining angles are not to be mechanically fastened at the corners.
 7. **Maximum Size Limitations:** Vertical: 36" x 48" (914 x 1219), Horizontal: 32" x 48" (813 x 1219). Minimum size is 8" x 8" (203 x 203).
 8. **Actuator and Accessories:** Nailor multi-blade fire dampers are supplied with an internal locking quadrant as standard to hold damper blades in the open position. If MLS-300 position indicators are used, refer to the proper installation instructions for the MLS-300.

REFER TO THE APPROPRIATE NAILOR INSTALLATION INSTRUCTION SUPPLEMENTS FOR ADDITIONAL INFORMATION OR SPECIAL REQUIREMENTS:

MLS-300 (Nailor) POSITION INDICATOR	MLS3N
STEEL AND WOOD STUD FRAMING	FDSWSFINST
CAVITY SHAFT WALL PARTITIONS	FDCSWINST
FLANGED TYPE ALTERNATE BREAKAWAY CONNECTIONS	FDFABCINST
TDC/TDF FLANGED DUCT CONNECTION	FDTDCCINST
QUICK-SET RETAINING ANGLES	FDQSRA

Dimensions are in inches (mm).



Houston, Texas
 Tel: 281-590-1172
 Fax: 281-590-3086

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

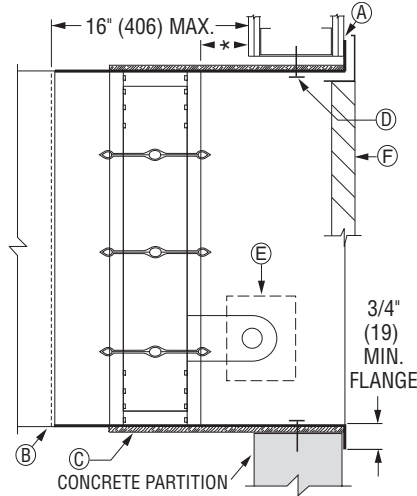
Toronto, Canada
 Tel: 416-744-3300
 Fax: 416-744-3360

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

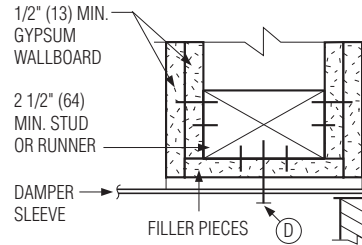


ITEMS:

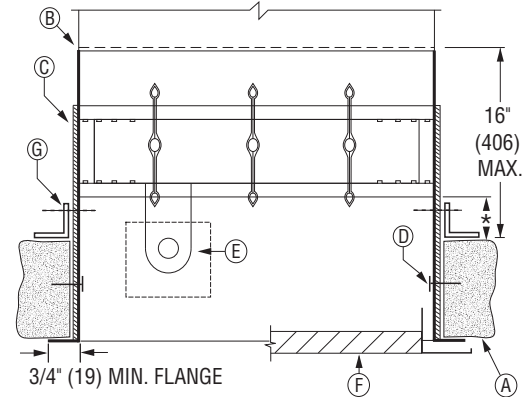
- A** Typical 2 hour rated vertical concrete or steel stud construction and horizontal concrete fire partition
- B** Duct connection (see Note #3)
- C** Intumescent material (insulation)
- D** #10 steel screws or concrete anchors (see Note #5)
- E** Manual Locking Quadrant
- F** Grille/Diffuser
- G** Rear retaining angle (see Note #5)
- H** Typical 2 Hour Rated Vertical Wood Stud Construction



VERTICAL MOUNT



H: Wood Stud Detail



HORIZONTAL MOUNT

QUALIFICATIONS:

- Meets all the requirements of UL 555 and CAN/ULC-S112.
- Meets the requirements for NFPA 80, 90A and 101 as well as IBC and NBC (Canada) building codes.
- California State Fire Marshal Listing No. 03225-0935:0101.
- City of New York. MEA #366-03-M.

***NOTE:** Damper to be located maximum 8" (203) out of wall/floor.

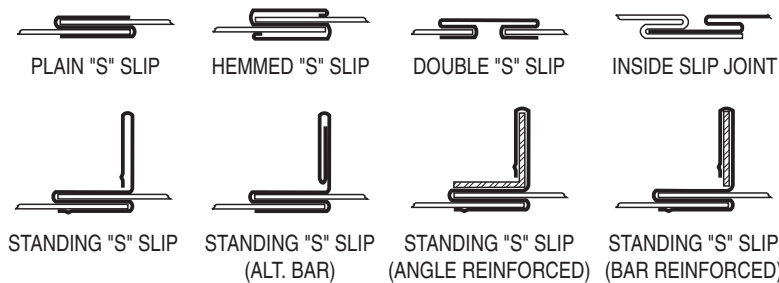
NOTES:

IMPORTANT: DAMPER IS FURNISHED FULL-SIZE (See Note #4)

1. Installation shall be in accordance with the appropriate requirements of the National Fire Protection Association Standard NFPA 90A latest edition.
2. **Damper Sleeve:** Factory furnished sleeves shall not be less than 20 gauge. (1.01) coated steel. 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 36" wide by 24" (914 x 610) high of not less than 16 gauge (1.61) coated steel, or larger sleeves of not less than 14 gauge (1.99) thick 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 16" (406) from the wall.

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

Dimensions are in inches (mm).

- b. Round or 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.
 - Duct diameters over 22" (559) up to and including 36" (914) may use five #10 sheet metal screws equally spaced around the circumference.
 - Duct diameters larger than 36" (914) high or diameter may use eight #10 sheet metal screws equally spaced around the circumference.
- c. For the use of approved alternative Ductmate or TDC/TDF break-away connections, refer to the supplements noted on this page.
- 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.
- 4. Opening Size:** Dampers are furnished full ordered size to facilitate grille installation. Opening size in partition should be sized 1/2" (13) larger in all directions to allow for sleeve thickness and insulation.
- 5. Fasteners and Retaining Angles.** For installation in a masonry wall or floor/ceiling and metal stud drywall partitions, no rear retaining angles are required. Insert damper/sleeve combination into opening so that the 3/4" (19) flange is tight to the drywall or concrete. Secure the damper in the wall opening from inside the sleeve as shown above by use of the following:
- In metal stud/drywall walls, partitions and cavity shaft wall partitions, use minimum #10 sheet metal screws.
 - In masonry walls or floor/ceilings use minimum #10 self-tapping concrete anchors. Anchors must penetrate wall minimum 1 1/2" (38).
 - In wood stud, use minimum #10 steel screws, 2 1/2" (64) long with minimum 1 1/2" (38) penetration into framing.
- Fasteners shall be spaced a maximum of 6" (152) on center and 2" (51) maximum from corners, a minimum of two per side is required.
- Alternatively, 1 1/2" x 1 1/2" x 16 gauge (38 x 38 x 1.61) rear retaining angles may be used in lieu of the above prescribed method and secured to the sleeve with 1/2" (12.7) long welds, 1/4" (6.35) dia. bolts and nuts, 3/16" (4.76) dia. steel rivets or #8 sheet metal screws, 8" (203) on center and 2" (51) maximum from corner of sleeve on all four sides.
- 6. Maximum Size Limitations:** Vertical: 36" x 48" (914 x 1219), Horizontal: 32" x 48" (813 x 1219). Minimum size is 8" x 8" (203 x 203).
- 7. Actuator and accessories:** Nailor multi-blade fire dampers are supplied with a hand locking quadrant as standard to hold blades in the open position. If MLS-300 position indicators are used, refer to the proper installation instructions for the MLS-300.

REFER TO THE APPROPRIATE NAILOR INSTALLATION INSTRUCTION SUPPLEMENTS FOR ADDITIONAL INFORMATION OR SPECIAL REQUIREMENTS:

MLS-300 (Honeywell) POSITION INDICATOR	MLS3H
MLS-300 (Nailor) POSITION INDICATOR	MLS3N
STEEL AND WOOD STUD FRAMING	FDSWSFINST
CAVITY SHAFT WALL PARTITIONS	FDCSWINST
FLANGED TYPE ALTERNATIVE BREAKAWAY CONNECTIONS	FDFABC
TDC/TDF FLANGED DUCT CONNECTION	FDTDCFINST
QUICK-SET RETAINING ANGLES	FQDSRA

Dimensions are in inches (mm).

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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 and Periodic Inspection and Testing details.

CAUTION:

High torque helical spring 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.

Releasing of the fusible link

1. Using a suitable heat source, apply heat at a slightly higher temperature than the rating of the fusible link until the link melts. When applying the heat to the fusible link position the heat source in a manner so no heat is directed towards the spring as the excessive heat can negatively affect the spring performance.

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

Reloading the spring assembly

2. Loosen the jackshaft from the bolt on crank arm quadrant, located on the jackshaft side opposite of the spring assembly (A). Do not remove the bolt completely. See Detail 1.

3. Attach a pair of vise grips on the jackshaft (B) and turn upwards until the two pins on the spring assembly are at a distance at which the new fusible link can be installed (C). This is approximately 90° of rotation. See Detail 2.

Note: On smaller size dampers, two vise grips may be required to open the damper. Use one vice grip to open as much as the duct free area will allow, then set the second vise grips on the jackshaft per above. Unlock the first set of vise grips, remove and turn the second set upwards as free area will allow. Repeat as necessary.

4. Place the new fusible link over the two pins on the spring assembly (making sure temperature rating is visible) and locate in the pin grooves (C). See Detail 2.

Required Items:

- (1) Protective eyewear or safety glasses
- (1) Pair of work gloves
- (1) Suitable heat source
- (2) Vise grips
- (1) 1/2" (13) wrench
- (1) Needle nose pliers
- (1) Replacement "Globe" Fusible link per damper section, of the same temperature rating as the original link.



Detail 1

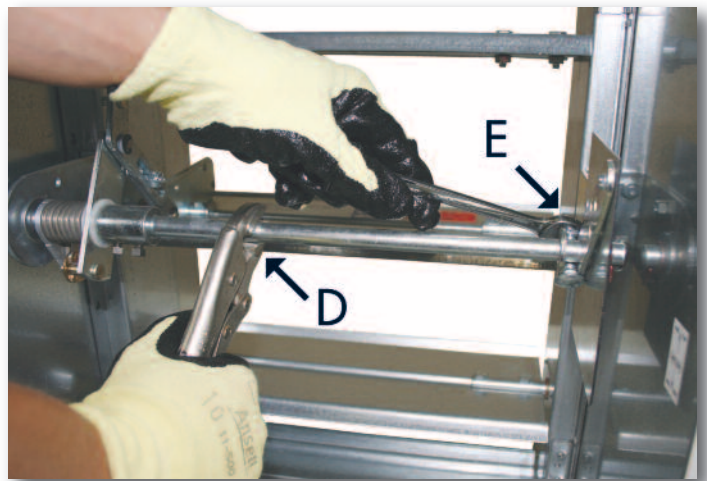


Detail 2

5. Manually open the damper to 100% full open position (D). See Detail 3.

6. Tighten the bolt on the crank arm (E). See Detail 3.

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.



Detail 3

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 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. Clean damper blades and other moving parts if necessary. Use of a mild detergent or solvents is recommended for any cleaning required.

2. Check closure springs. If damaged or defective, repair or replace.

3. Linkage and jackshaft bearing brackets should be lubricated 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. Blade linkage is concealed in the side jamb out of the airstream and is maintenance free. Bearings are self-lubricating oilite bronze (or stainless steel for -SS models).

4. If firing of the fusible link is not required by local code, cycle damper with its quadrant handle to verify that it fully opens and closes. HVAC fans should be shut down. Care should be exercised to ensure that such tests are performed safely and do not cause system damage.

5. All inspections and testing shall be documented indicating the location of the damper, date of inspection, name of inspector, deficiencies detected, and how deficiencies were corrected.

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.

SPARE PARTS LIST		PART NUMBER
Fusible Links: Model 1200, 1250, 1290	165°F/74°C	B2-037
	212°F/100°C	B2-038

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:

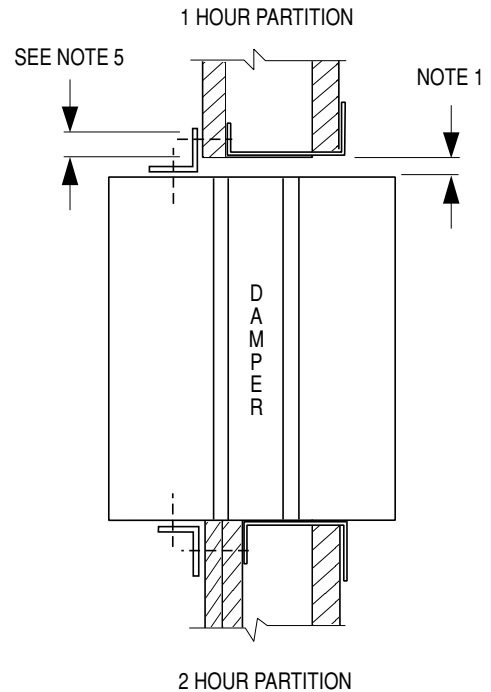
- 1. Expansion Clearance:** Opening in wall shall be a minimum 1/8" (3) per linear foot larger than overall size of damper and sleeve assembly in either dimension. Maximum opening not to exceed 1/8" (3) per foot plus two inches. Opening shall not be less than 1/4" (6) larger for any size damper and sleeve 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) buttonlocks 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.

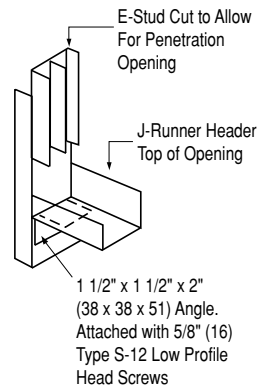
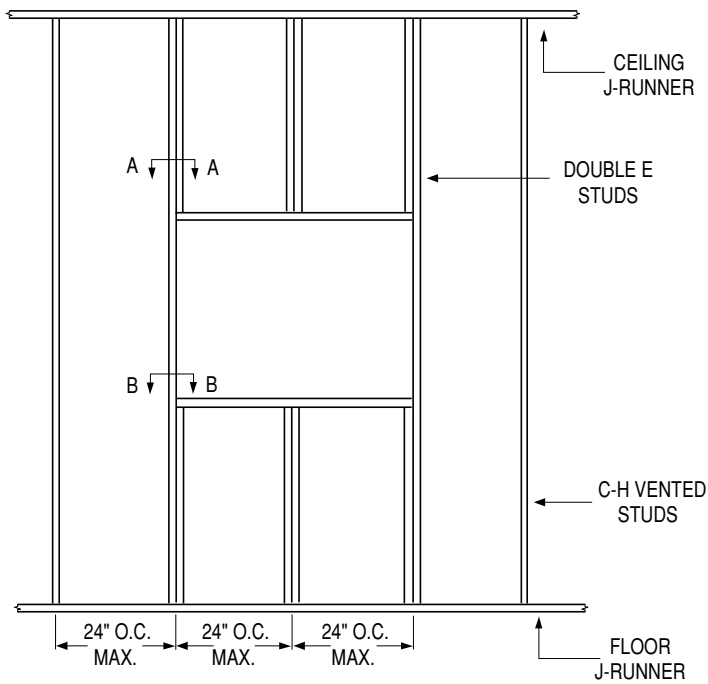
- 6.** See framing detail on next page for opening preparation. Refer to the appropriate installation supplements for the following requirements:

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

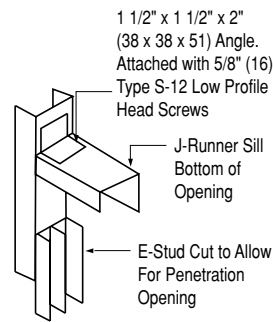
- 7.** Refer to Underwriters Laboratories Inc. Fire Resistance Directory Vol. II for details on UL Design No. U438, U469 and U497.



**FRAMING DETAIL FOR ASSEMBLIES
(U438 AND U469)**

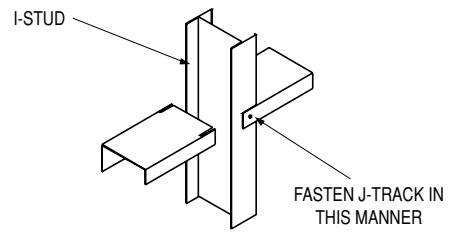
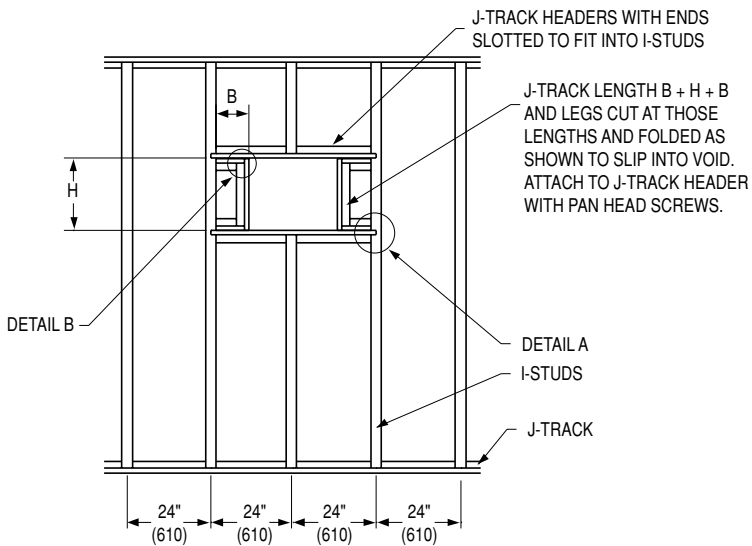


SECTION A-A

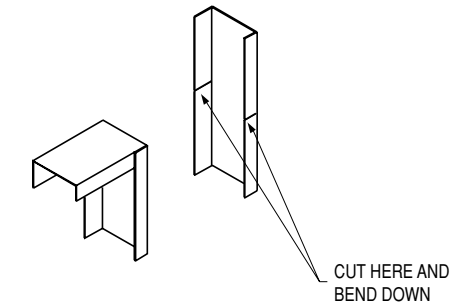


SECTION B-B

**FRAMING DETAIL FOR
ASSEMBLIES (U497)**



DETAIL A



DETAIL B

Dimensions are in inches (mm).

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Nailor[®] FIRE DAMPER INSTALLATION SUPPLEMENT Industries Inc. FLANGED TYPE ALTERNATE BREAKAWAY CONNECTIONS

These instructions provide details for an alternate breakaway connection between a fire damper or combination fire smoke damper sleeve and an adjoining duct. This alternate connection is classified with U.L. under the certification of the damper. These instructions apply to a connection using a manufactured add-on flange system by Ductmate, Ward, or Nexus and a TDC or TDF roll-formed flange system. These connections allow for both the use of the same flange type or the combining of mixed flange types. The following instructions depict the use of metal or plastic cleats and bolted or non-bolted corners:



1. Install the manufactured flange system onto the damper sleeve or duct per the manufacturer's instructions.
2. To seal the two flange systems together, Neoprene or Butyl gasketing may be applied between the mating surfaces.
3. Align the two flange systems together. An optional 3/8" (9) bolt may be used in the corners to help with the alignment. These bolts do not have to be removed.
4. Install the cleat or #10 tek screw approximately equally spaced, per the following schedule:
 - Width or height less than 24" (610); use one cleat or screw per side
 - Width or height 24" (610) to less than 36" (914); use 2 cleats or screws per side
 - Width or height 36" (914) to less than 54" (1372); use 3 cleats or screws per side
 - Width or height 54" (1372) to less than 72" (1829); use 4 cleats or screws per side
 - Width or height 72" (1829) or greater; use 5 cleats or screws per side

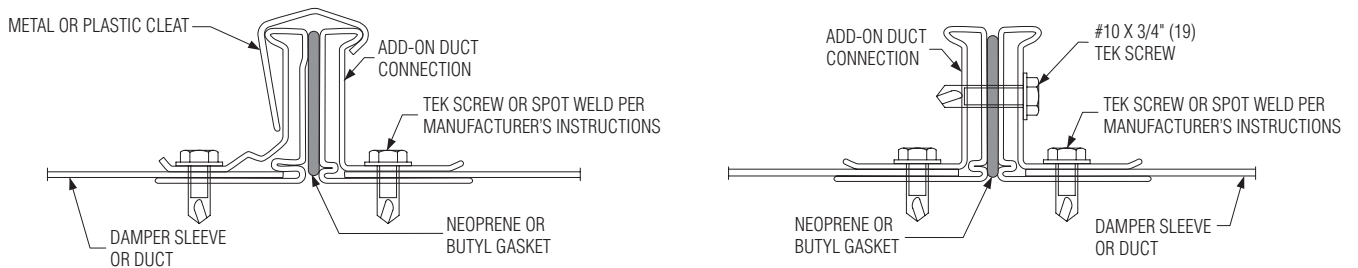


FIGURE 1. ADD-ON/ADD-ON

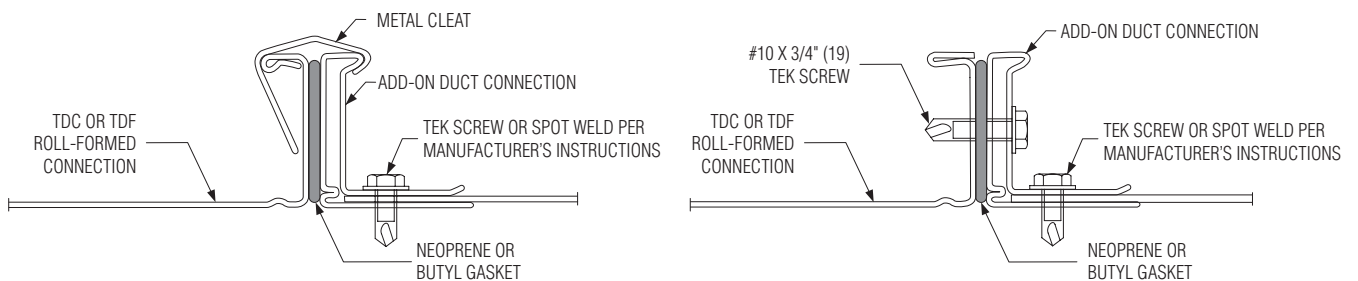


FIGURE 2. ROLL-FORMED/ADD-ON

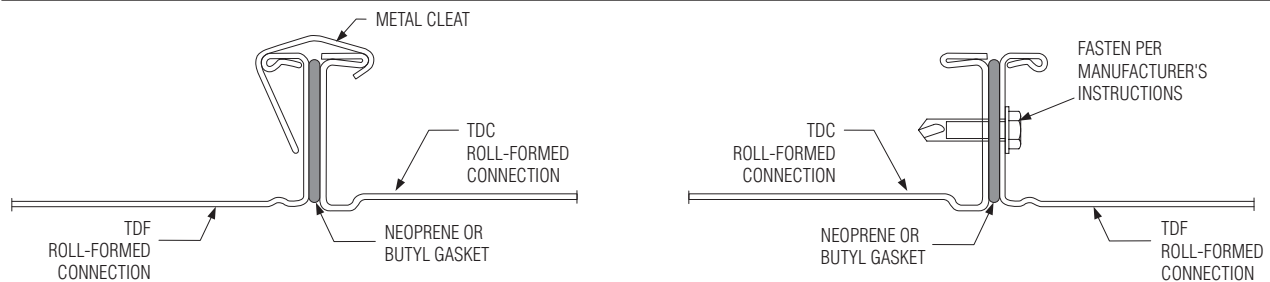


FIGURE 3. ROLL-FORMED/ROLL-FORMED

Dimensions are in inches (mm).



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

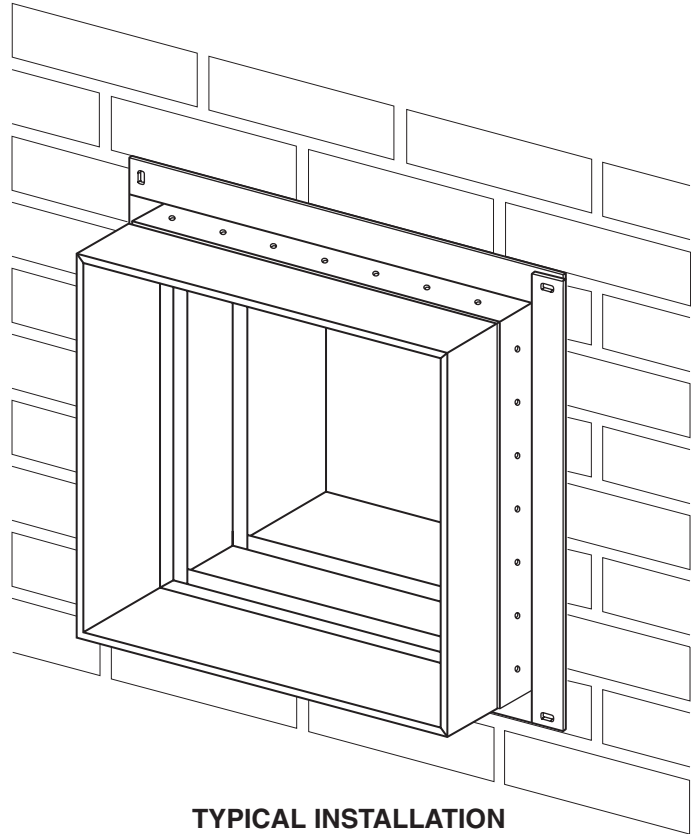
BENEFITS:

- 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.

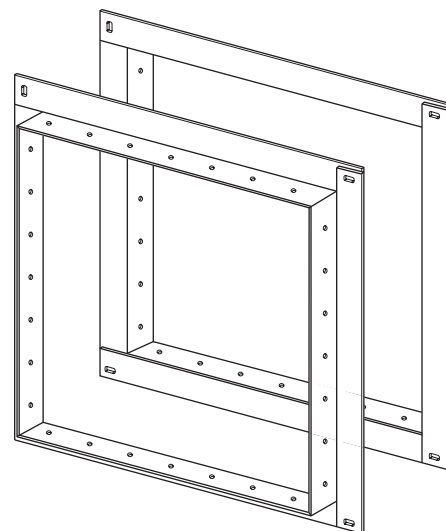
The majority of installing contractors view fire damper installation as a costly time consuming and troublesome procedure. Eight conventional angles must be custom fabricated for each damper either in a sheet metal shop or at the job site and sized to suit each individual damper. Invariably, they are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



TYPICAL INSTALLATION



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

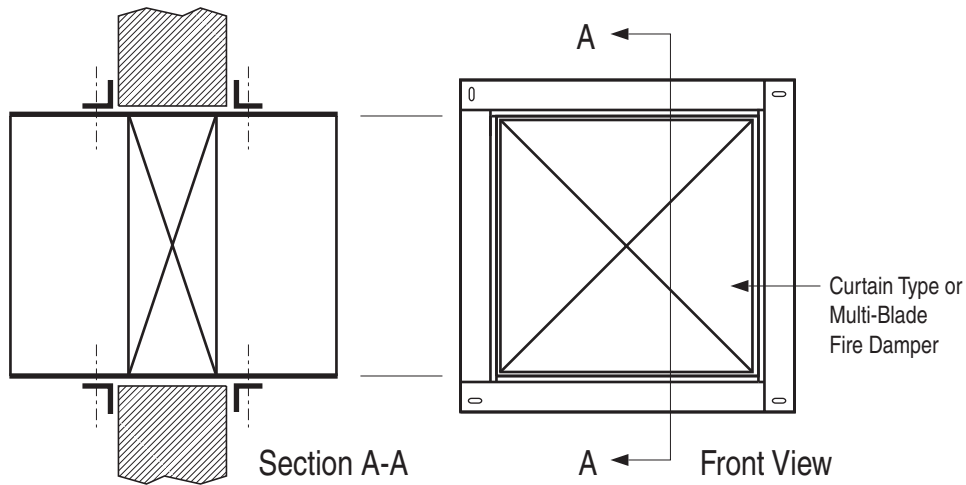


FIGURE 1. TYPICAL TWO SIDED INSTALLATION.

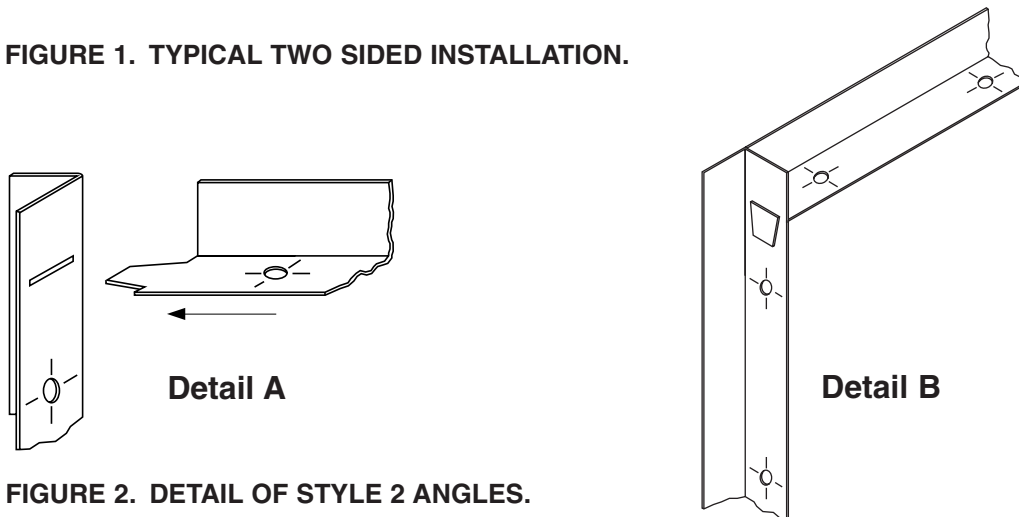


FIGURE 2. DETAIL OF STYLE 2 ANGLES.

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:

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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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.

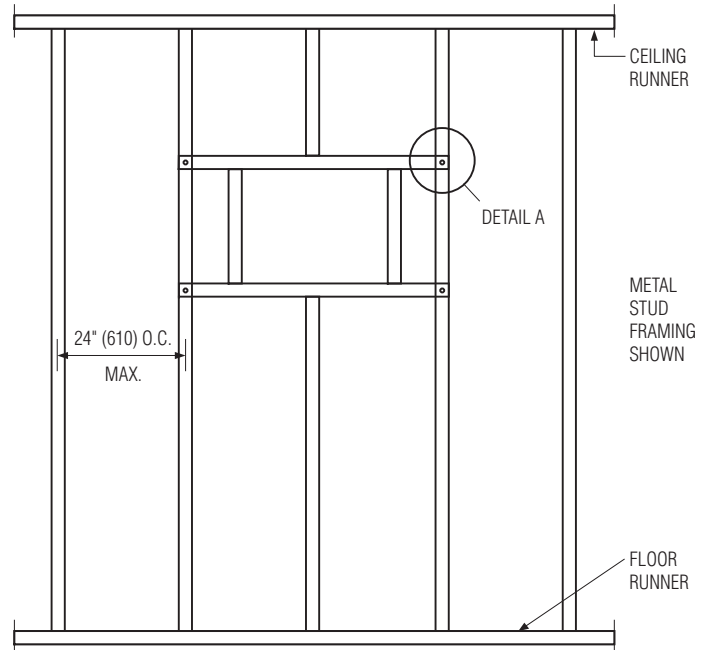


FIGURE 1. SINGLE VERTICAL STUD OPENING PREPARATION DETAILS.
 DAMPERS UP TO 36" x 36" (914 x 914).

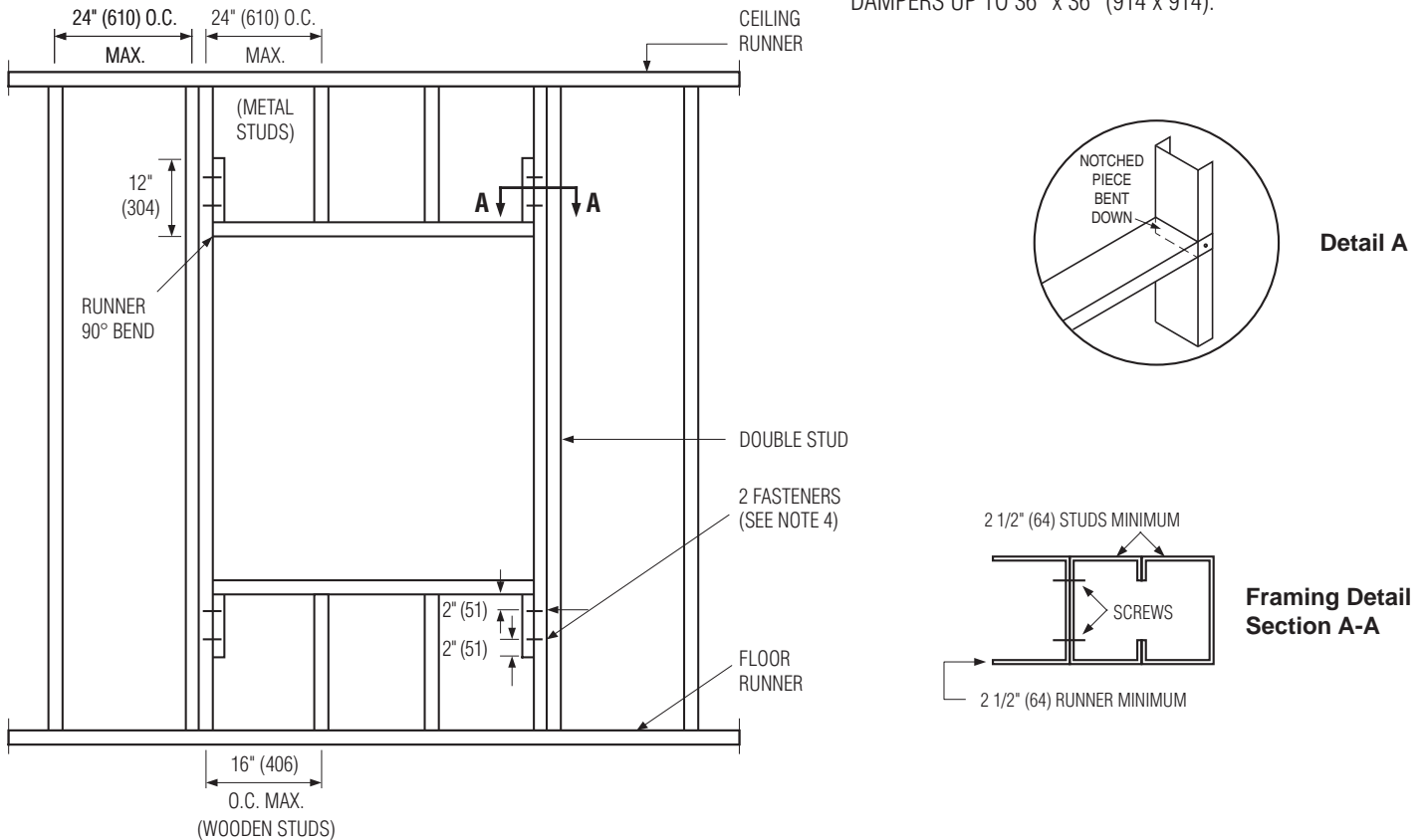
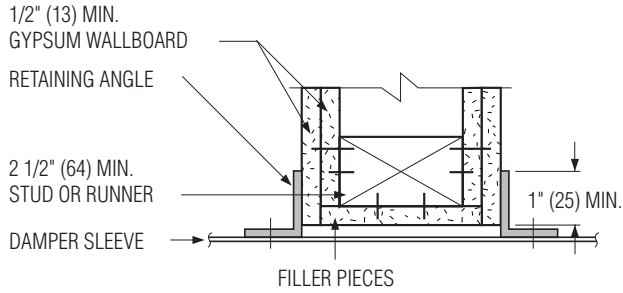


FIGURE 2. DOUBLE VERTICAL STUD OPENING PREPARATION DETAILS.
 DAMPERS OVER 36" x 36" (914 x 914).

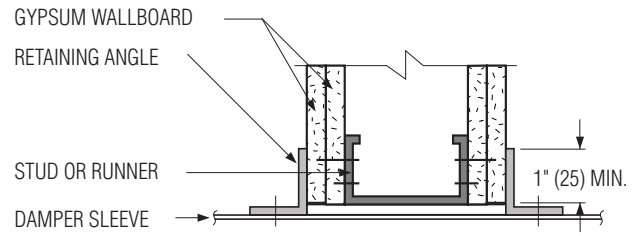
TYPICAL STUD WALL DETAILS (See Notes on Page 1)

WOOD STUD DETAIL

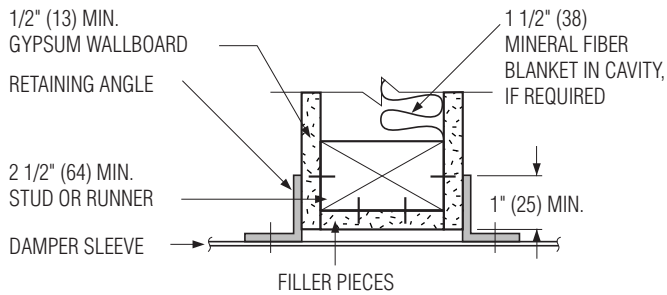


2 Hour Partition Rating

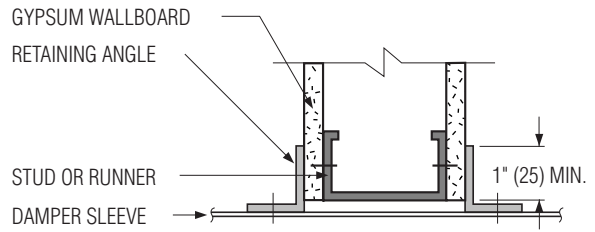
METAL STUD DETAIL (UL DESIGN)



2 Hour Partition Rating



1 Hour Partition Rating



1 Hour Partition Rating

Dimensions are in inches (mm).

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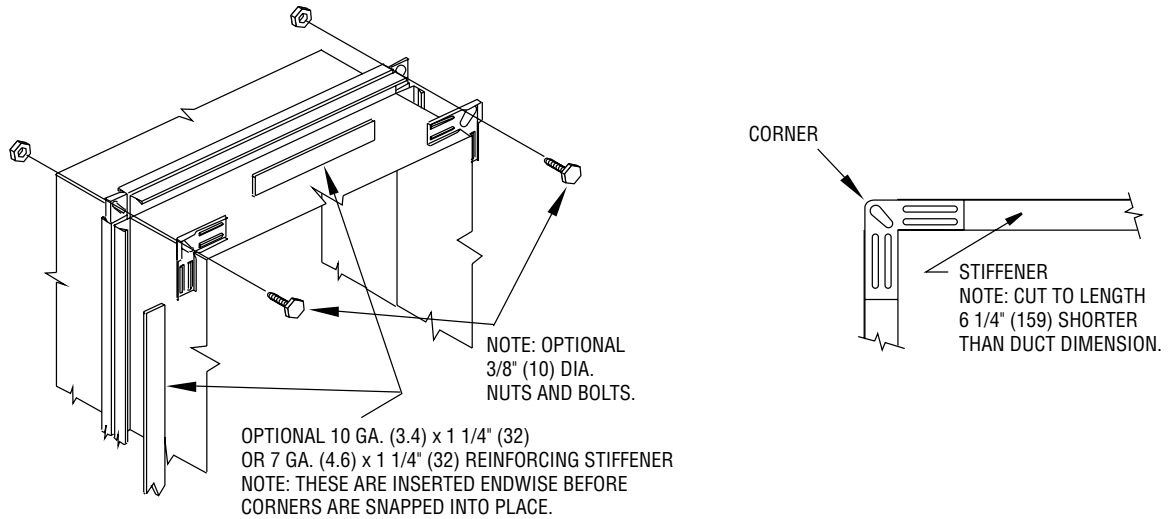


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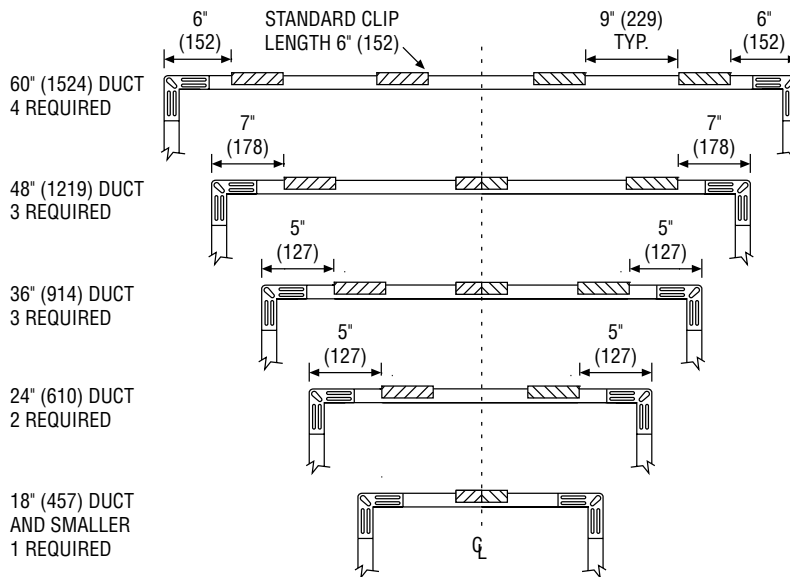
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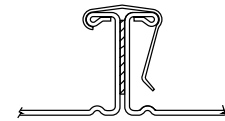
Calgary, Canada
Tel: 403-279-8619
Fax: 403-279-5035



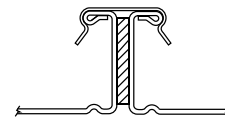
RECOMMENDED CLIP SPACING



CLEAT DETAILS



TDC CROSS SECTION



TDF CROSS SECTION

Damper Type	Max. Size W x H		No. Cleats Per Side
	(inches)	(mm)	
Curtain	18 x 18	457 x 457	1
	24 x 24	610 x 610	2
	48 x 48	1219 x 1219	3
	60 x 60	1524 x 1524	4
Multi-Blade	18 x 18	457 x 457	1
	24 x 24	610 x 610	2
	36 x 48	914 x 1219	3

APPLICATION:

TDC (by Lockformer) and TDF (by Engle) are approved as breakaway connections for joining the fire damper sleeve and the duct. The slip joints shown in standard installation instructions for curtain type fire dampers, multi-blade fire dampers and combination fire/smoke dampers may be replaced by one of these systems.

INSTALLATION:

TDC and TDF roll-formed 4-bolt flanged connections assembled per the manufacturers instructions using gaskets, metal cleats 6" (152) long with spacing as shown and four 3/8" (9.5) metal nuts and bolts. See also the TDC or TDF addendum to the SMACNA Duct Construction Standards.



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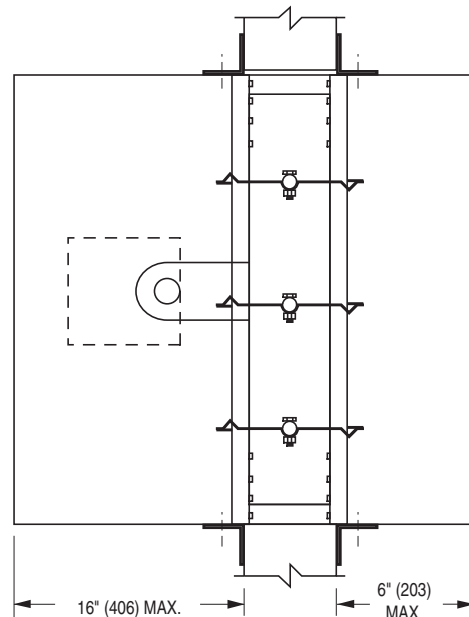
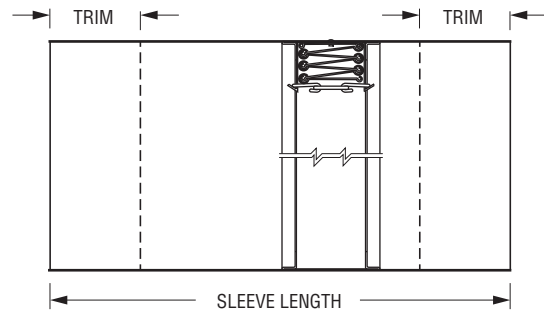
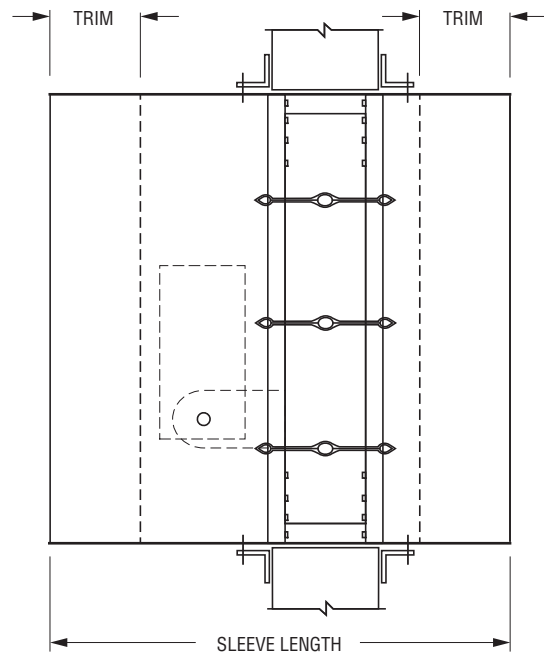
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Trimming of factory-supplied sleeves may be necessary to accommodate field conditions or applications. Other damper components such as actuators and fuse links should not be altered.

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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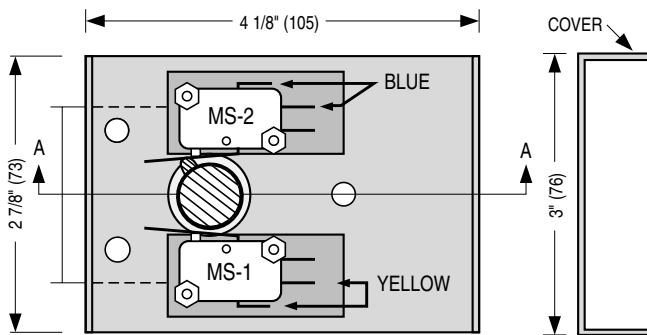
Las Vegas, Nevada
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Toronto, Canada
Tel: 416-744-3300
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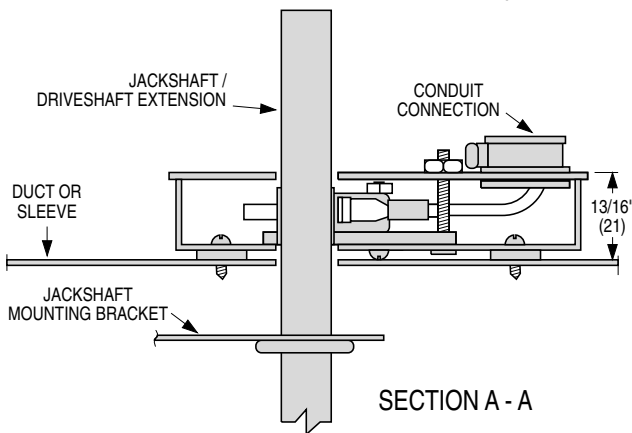
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APPLICATION:

- The MLS-300 Position Indicator Package operates as a function of the damper blade position and provides the ability to remotely indicate damper blade position.
- The MLS-300 incorporates two SPDT switches and provides a positive open or closed signal when used in conjunction with remote indicator lights. MLS-300's are used in active smoke control management systems to positively indicate the status of all combination fire/smoke and smoke dampers in the building.
- The MLS-300 is available only as a factory installed option on combination fire / smoke and smoke dampers.



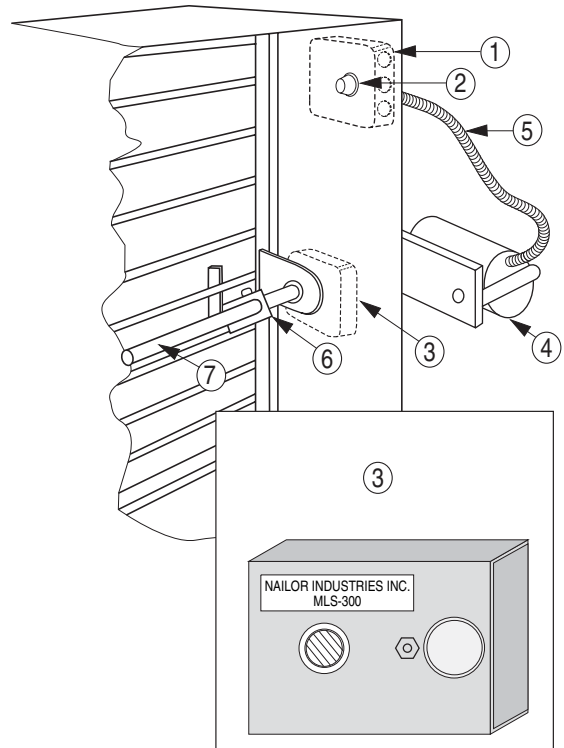
EXTERNAL RIGHT HAND MOUNTING: FRONT VIEW (LESS COVER)



SECTION A - A

Position Indicator Microswitch Data:

Switch Type: Single Pole double throw (2)
 15 Amps, 1/3 HP, 125, 250 Vac or 24 Vdc.
 1/2 Amp, 125 Vdc. 1/4 Amp, 250 Vdc.



Typical Combination Fire / Smoke Damper Installation With UL Listed Actuator
Description:

1. Electrical Junction Box. [and EP switch with pneumatic actuator(s)]
2. ERL 165, 212, 250, 350 Electric Resettable Link (Heat Sensor)
3. MLS-300 Position indicator package
4. Actuator (pneumatic illustrated).
5. Silicone Tubing or Flexible Conduit
6. Over-Center Knee Lock
7. Jackshaft

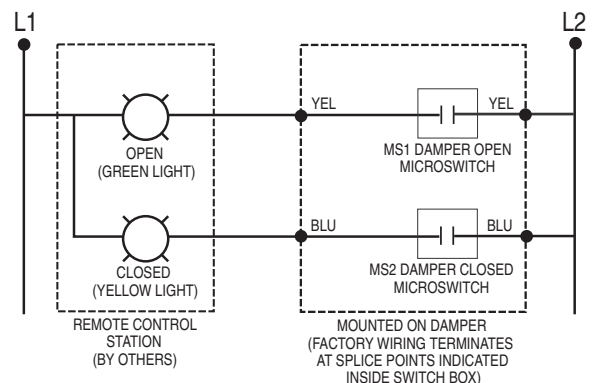


Figure 1. MLS-300 Wiring Schematic.

Dimensions are in inches (mm).

Electrical Connections:

1. Remove cover of junction box. There are four or six coded color wires. Four wires are the MLS-300 position indicator package. If six wires are present, the additional two are the field connection for either an electric actuator or an EP switch for a pneumatic actuator.

MS1 is damper open signal.

MS2 is damper closed signal.

Important: Installer must double check continuity of **MS1** and **MS2** before wiring to confirm which switch signals the damper's open or closed position.

2. Connect external wiring and electrical power supply (120 or 24 Vac) in accordance with N.E.C. and any applicable local codes.
3. Replace junction box cover and check operation.

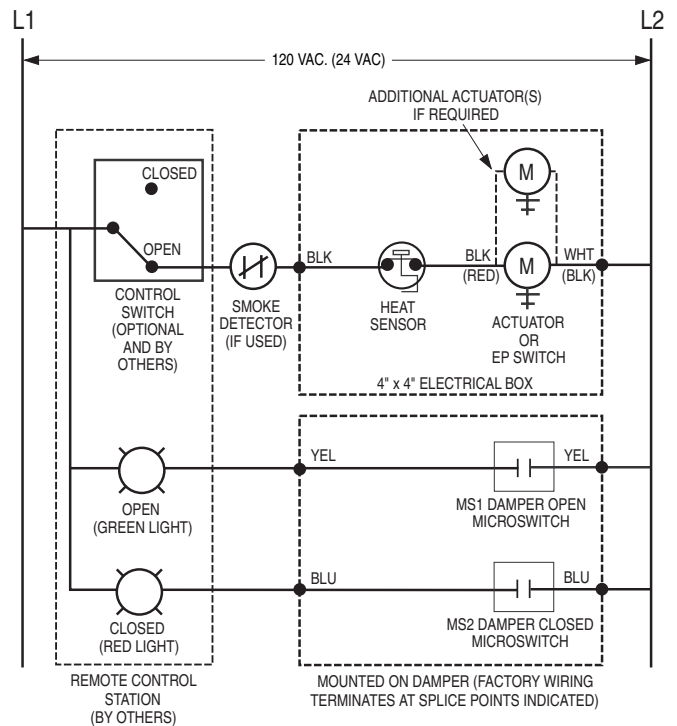


Figure 2. Combination Fire/Smoke Damper Wiring Schematic.

Dimensions are in inches (mm).

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