

**INSTALLATION INSTRUCTIONS**  
**FSD35SS, FSD36SS AND FSD37SS**  
**COMBINATION FIRE AND SMOKE DAMPERS**  
**1 1/2 HOUR UL555 RATED      UL555S LEAKAGE RATED CLASS 1, 2 AND 3**

### APPLICATION

The FSD35SS, FSD36SS and FSD37SS are combination fire and smoke dampers designed to restrict the passage of flame and resist the passage of smoke. These combination fire and smoke dampers are designed for installation with the blades running horizontally. The standard installation is with the leading edge of the blade with-in the walls, partitions or masonry floors with ratings of less than 3 hours. For out of the wall or grille access installations refer to the GA or OW version of the FSD35SS, FSD36SS and FSD37SS.

#### **FSD35SS AND FSD36SS MAXIMUM UL CLASSIFIED SIZES – OPPOSED BLADE**

Single section vertical or horizontal – 30"w x 48"h (762 x 1219)  
Multiple sections vertical or horizontal – 90"w x 48"h (2286 x 1219)

#### **FSD37SS MAXIMUM UL CLASSIFIED SIZES – OPPOSED BLADE**

Single section vertical or horizontal – 24"w x 32"h (610 x 813)  
Multiple sections vertical or horizontal – 90"w x 32"h (2286 x 813)

Dimensions shown in parentheses ( ) indicate millimeters.

### INSTALLATION SUPPLEMENTS

Refer to the appropriate Ruskin installation instructions supplements for additional information or special requirements:

- Optional Sealant of Dampers in Fire Rated Wall or Floor Openings
- Transfer Openings and Duct Terminations
- Optional FireStop Material
- Extension of Fire and Combination Fire and Smoke Damper Sleeves
- Drivemate No. 14880 Breakaway Connection
- Flanged System Breakaway Connection
- Cavity Shaft Wall Metal Stud Framing
- TS150 FireStat for "Reopenable" Combination Fire and Smoke Dampers
- SP100 Switch Package
- EFL Electric Resettable "Fuse" Link
- EFL/SP100 Electric Resettable "Fuse" Link
- PFL Pneumatic Fuse Link
- DSDF Flow Rated Duct Smoke Detector
- DSDN No-Flow Rated Duct Smoke Detector



**California State Fire Marshal Listing No.**

**FSD35(SS) – 3235-0245:0125**

**FSD36(SS) – 3235-0245:0124**

**FSD37(SS) – 3235-0245:0127**

**NYC Department Of Building MEA 252-05-E**

## 1. Opening Clearance

The opening in the wall or floor shall be larger than the damper/sleeve assembly to permit installation or expansion. The damper opening shall be a minimum of  $\frac{3}{16}$ " per foot (5 per 305) larger than the overall size of the damper/sleeve assembly. The maximum opening size shall not exceed  $\frac{3}{16}$ " per foot (5 per 305) plus 2" (51), nor shall the opening be less than  $\frac{1}{4}$ " (6) larger than the damper/sleeve assembly.

## 2. Fasteners and Multiple Section Assembly

When joining multiple damper assemblies or fastening the damper to the sleeve, dampers shall be fastened with 1/4-20 (M6) bolts, number 10 (M5) screws, or 1/2" (13) long welds staggered intermittently on both sides. Space fasteners 6" (152) on center and a maximum 2" (51) from the ends of the joining sections or from each corner. When joining multiple damper assemblies, a continuous 1/8" (3) bead of Dow-Corning 700, silastic 732 RTV, or GE RTV 108 sealant shall be applied on the mullion joint. Press the surface of the sealant in place to dispel any air. Another bead of the same sealant shall be applied between the damper and sleeve in the same manner. Only one side of the damper requires caulking. Note the sealant is not required when dampers are supplied for fire damper applications only and are not required to be leakage rated. Multiple section high vertical mount dampers include a 14 gage x 5" (2 x 127) wide steel mullion plate sandwiched between the damper frames where required. The mullion plate must be the same material as the dampers.

## 3. Damper Sleeve

Sleeve thickness must be equal to or thicker than the duct connected to it. Sleeve gage requirements are listed in the SMACNA Fire, Smoke and Radiation Damper Installation Guide for HVAC Systems and in NFPA90A. If a breakaway style duct/sleeve connection is not used, the sleeve shall be a minimum of 16 gage (1.6) for dampers up to 36" (914) wide by 24" (610) high and 14 gage (1.9) for dampers exceeding 36" (914) wide by 24" (610) high. Damper sleeve shall not extend more than 6" (152) beyond the fire wall or partition unless damper is equipped with an actuator and/or factory installed access door. Sleeve may extend up to 16" (406) beyond the fire wall or partition on sides equipped with actuator and/or factory installed access door. Sleeve shall terminate at both sides of wall within dimensions shown.

## 4. Damper Orientation

Damper is designed to operate with blades running horizontally and must be installed with center line of damper frame within the wall or floor when they are in the closed position. Use "Mount With Arrow Up" label as a guide for proper damper orientation. Horizontal mount dampers may be installed with actuator above or below the floor.

## 5. Mounting Angles

Mounting angles shall be a minimum of  $1\frac{1}{2}$ " x  $1\frac{1}{2}$ " x 20 gage steel (38 x 38 x 1.0). For openings in metal stud, wood stud walls and concrete/masonry wall/floor, mounting angles on both sides of the wall or floor and must be attached only to the sleeve. Mounting angles must overlap the partition a minimum of 1" (25). Do not weld or fasten angles together at the corners of dampers.

### a. Mounting Angle Fasteners

Sleeve #10 bolts or screws,  $\frac{3}{16}$ " (3) steel rivets or 1/2" (13) long welds.

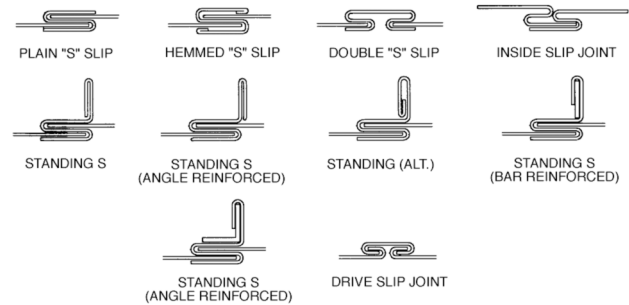
### b. Mounting Angle Fastener Spacing

Two angle installations the fasteners shall be spaced at 8" (205) o.c.

## 6. Duct/Sleeve Connections

### a. Break-away Duct/Sleeve Connections

Rectangular ducts must use one or more of the connections depicted:



A maximum of two #10 (M5) sheet metal screws on each side and the bottom, located in the center of the slip pocket and penetrating both sides of the slip pocket may be used. Connections using these slip joints on the top and bottom with flat drive slips up to 20" (508) long on the sides may also be used.

### b. Round and Oval Break-away Connections

Round and flat oval break-away connections must use either a 4" (102) wide drawband or #10 (M5) sheet metal screws spaced equally around the circumference of the duct as follows:

- Duct diameters 22" (559) and smaller – maximum 3 screws.
- Duct diameters over 22" (559) and including 36" (914) – maximum 5 screws.
- Duct diameters over 36" (914) and up to and including 191" (4851) total perimeter – maximum 8 screws.

For flat oval ducts, the diameter is considered the largest (major) dimension of the duct. These connections are depicted in the SMACNA Fire, Smoke, and Radiation Damper Installation Guide.

**Note:** When optional sealing of these joints is desired, the following sealants may be applied in accordance with the sealant manufacturer's instructions:

Design Polymerics – DP 1010                      Precision – PA2084T  
Hardcast, Inc. – Iron Grip 601                      Eco Duct Seal 44-52

### c. Flanged Break-away Style Duct/Sleeve Connections.

Flanged connection systems manufactured by Ductmate, Nexus or Ward are approved break-away when installed as shown on the Flanged System Breakaway Connections Supplement.

TDC and TDF roll-formed flanged connections using  $\frac{3}{8}$ " (10) steel bolts and nuts, and metal cleats, as tested by SMACNA, are approved break-away connections when installed as shown on the Flanged System Breakaway Connections Supplement.

### d. Non-Break-away Duct/Sleeve Connections

If other duct/sleeve connections are used, the sleeve shall be a minimum of 16 gage (1.6) for dampers up to 36" (914) wide x 24" (610) high and 14 gage (2.0) for dampers 36" (914) wide x 24" (610) high.

## 7. Actuator Connections

Electric and pneumatic actuators are to be connected in accordance with wiring and piping diagrams developed in compliance with applicable codes, ordinances and regulations.

## 8. Installation and Maintenance

To ensure optimum operation and performance, the damper must be installed so it is square and free from racking. Do not compress or stretch the damper frame into the duct or opening. Lift or handle the damper using sleeve or frame. Do not lift damper using blades or actuators. Dampers and their actuator(s) must be maintained, cycled and tested in accordance with the latest editions of NFPA 80, 90A, 92A, 92B, 105, UL864, AMCA 503 and local codes. The actuator(s) should follow the actuator manufacturer recommendations. Care should be exercised to ensure that such tests are performed safely and do not cause system damage.

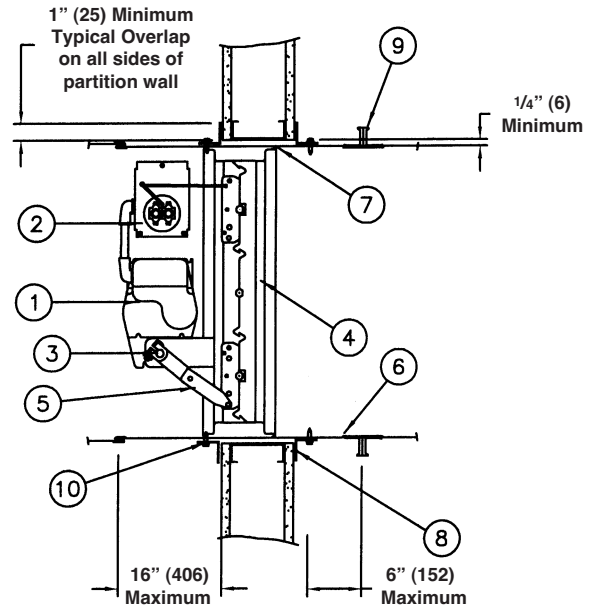
# VERTICAL INSTALLATION

Damper may be installed with actuator on either side of the partition in accordance with the mounting label on the damper.

## TWO ANGLE INSTALLATION

Angles are required on both sides of the partition.

ITEM	DESCRIPTION
1.	Actuator (location may vary)
2.	Heat Actuated Device (EFL, TS150, EFL/SP100 or PFL)
3.	Auxiliary Operating Jackshaft
4.	Damper
5.	Over-Center Link
6.	Sleeve
7.	Caulking Material (See Instruction #2)
8.	PFMA Mounting angles (See Instruction #5)
9.	Duct/Sleeve Connection (See Instruction #6)
10.	Mounting angle Fasteners (See Instruction #5A and B)

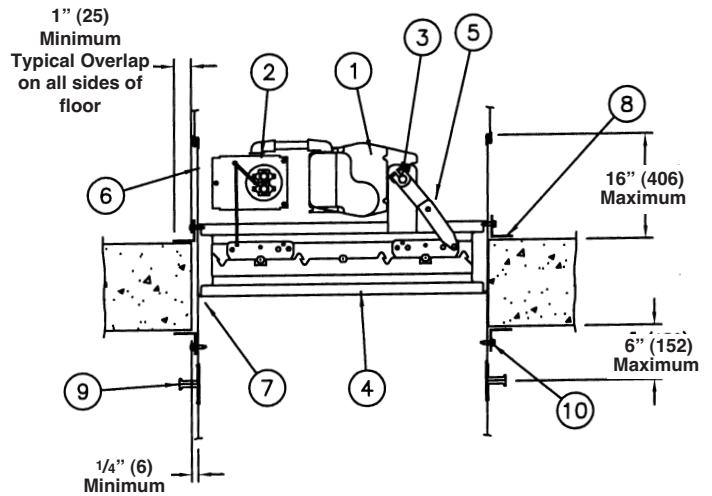
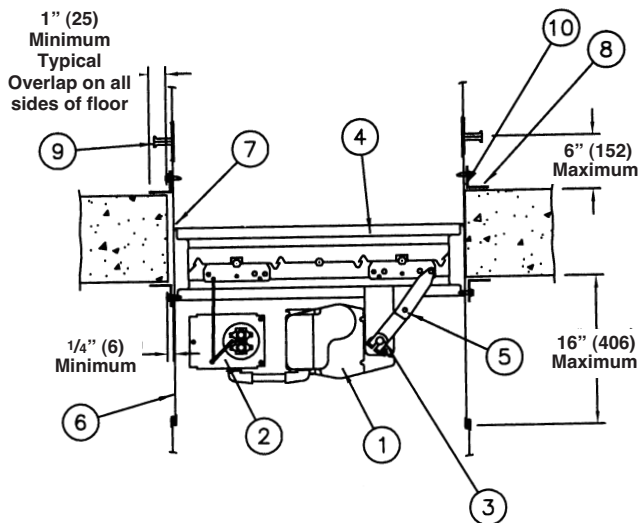


# HORIZONTAL INSTALLATION

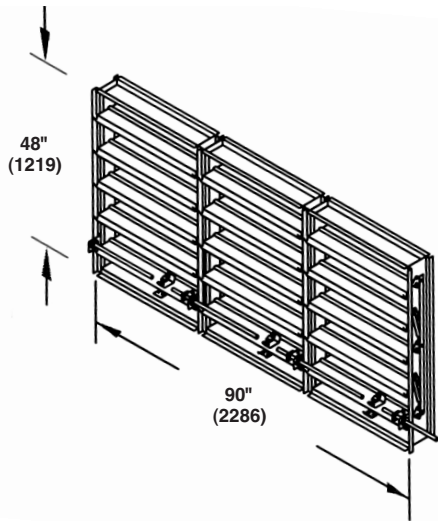
Damper may be installed with actuator on either side of the floor in accordance with the mounting label on the damper.

## TWO ANGLE INSTALLATION

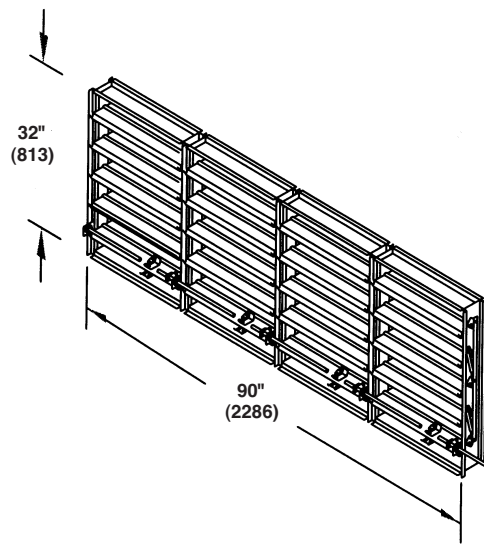
Angles are required on both sides of the floor.



**MAXIMUM UL CLASSIFIED SIZE  
FSD35SS and FSD36SS**



**MAXIMUM UL CLASSIFIED SIZE  
FSD37SS**



**NOTE**

All multiple section dampers are constructed of equal single section sizes no greater than the maximum single section sizes indicated above.

## RECOMMENDED FRAMING FOR OPENINGS IN WOOD AND METAL STUD WALLS

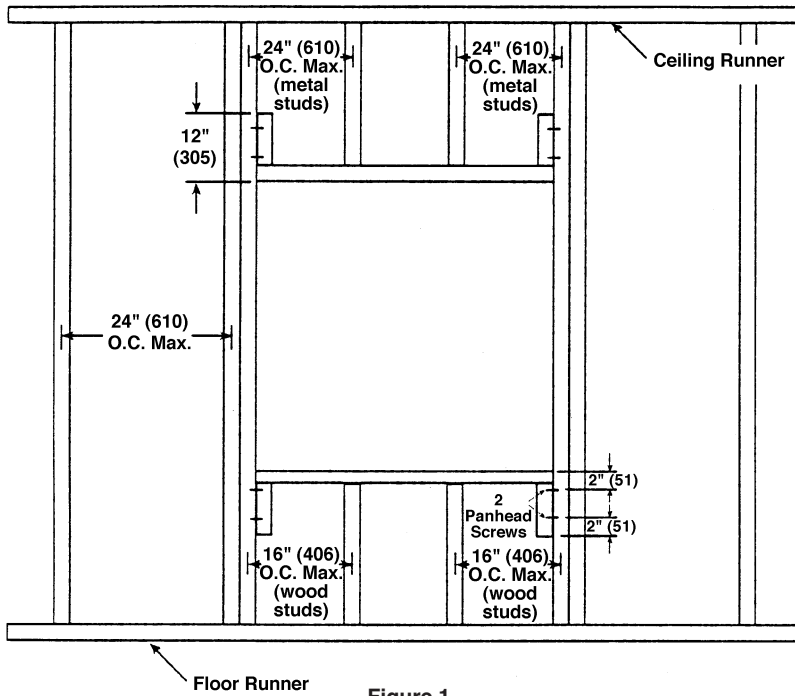


Figure 1

### INSTRUCTIONS

1. Frame wall openings as shown.
2. Double vertical studs are not required for openings 36" w x 36" h (914 x 914) or smaller.
3. All construction and fasteners must meet the requirements of the appropriate wall design and/or local codes.
4. Consult the authority having jurisdiction for other acceptable framing methods.

### NOTE:

The Metal Stud Construction and Wood Stud Construction figures at the bottom of the page depict mounting angles installed on both sides of the partition. A single angle may be sufficient. Refer to the instructions for single angle installation requirements.

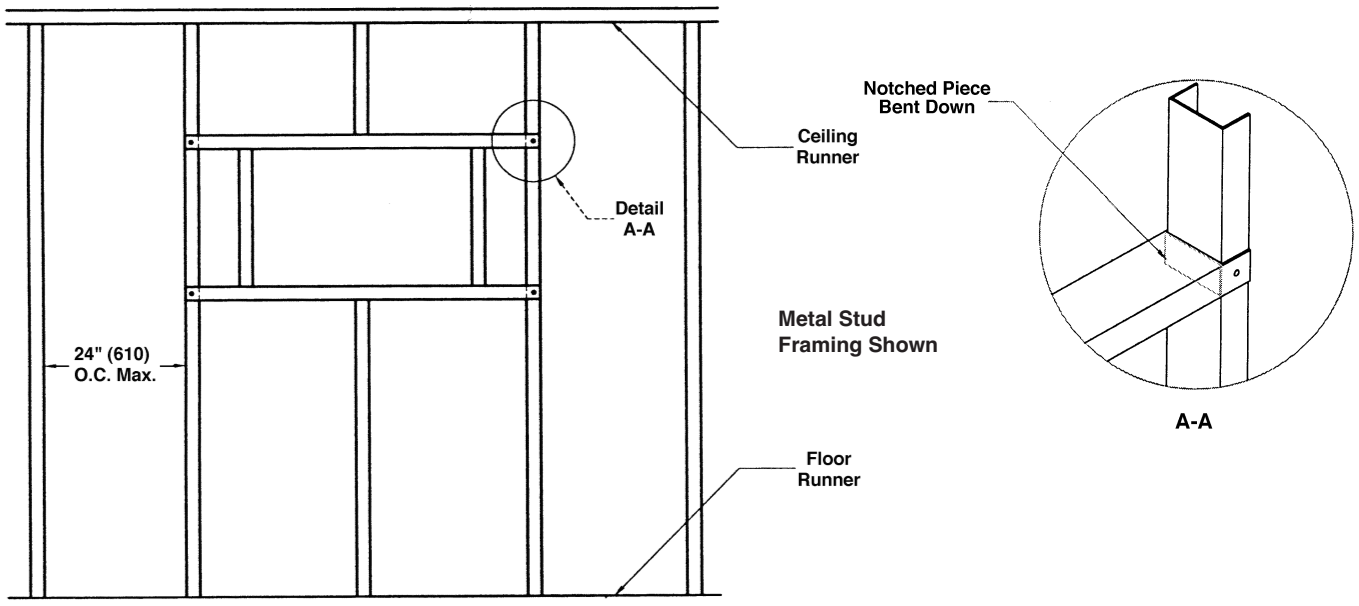
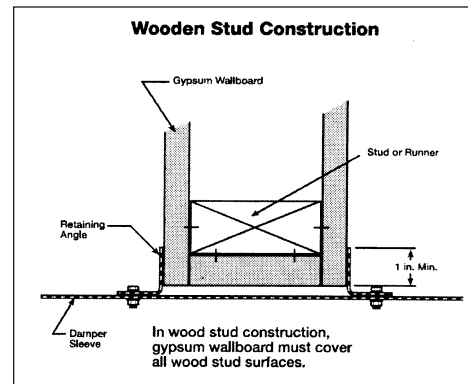
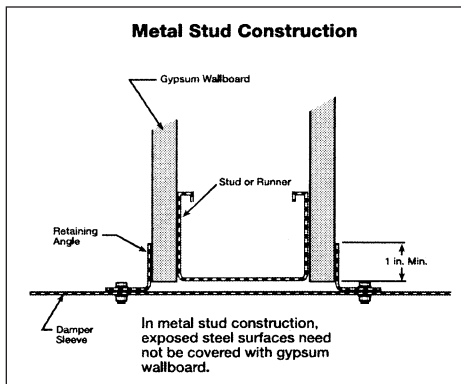


Figure 2



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