RUSKIN®

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INSTALLATION INSTRUCTIONS

FSD60-3 and FSD60-3M COMBINATION FIRE AND SMOKE DAMPER

3 HOUR UL555 RATED UL555S LEAKAGE CLASS 1 RATED

APPLICATION

The FSD60-3 combination fire and smoke damper is designed to restrict the passage of flame and resist the passage of smoke. The FSD60-3 is designed for installation with the blades running horizontally. The standard installation is with the leading edge of the closed blades within the wall, partition, or masonry floor with a fire resistance rating of 3 hours or more.

FSD60-3 MAXIMUM UL CLASSIFIED SIZES – OPPOSED BLADE

Single section vertical – 30"w x 48"h (762 x 1219)
Single section horizontal – 30"w x 48"h (762 x 1219)
Multiple sections vertical – 120"w x 96"h (3048 x 2438)
Multiple sections horizontal – 144"w x 96"h (3658 x 2438)

FSD60-3M MAXIMUM UL CLASSIFIED SIZES – OPPOSED BLADE

Single section vertical – 30"w x 48"h (762 x 1219)
Single section horizontal – 30"w x 48"h (762 x 1219)
Multiple sections vertical – 120"w x 96"h (3048 x 2438)
60"w x 96"h (1524 x 2438)
Multiple sections horizontal – 120"w x 96"h (3048 x 2438)
60"w x 96"h (1524 x 2438)

Note: 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
- Fire and Combination Fire and Smoke Damper Installation in Concrete Floor with Steel Deck
- Drivemate No. 14880 Breakaway Connection
- Flanged System Breakaway Connections
- TS150 FireStat for "Reopenable" Combination Fire and Smoke Dampers
- SP100 Switch Package
- EFL Electric Resettable "Fuse" Link
- EFL/SP100 Electric Resettable "Fuse" Link and Switch Package
- PFL Pneumatic Fuse Link
- DSDF Flow Rated Duct Smoke Detector
- DSDN No-Flow Rated Duct Smoke Detector

CLASSIFIED C UL US

SEE COMPLETE MARKING ON PRODUCT

California State Fire Marshal Listing No.
FSD60-3 and 60-3M - 3235-0245:0126 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 opening shall be a minimum of 1/8" per foot (3 per 305) larger than the overall size of the damper/sleeve assembly. The maximum opening size shall not exceed 1/8" per foot (3 per 305) plus 2" (51), nor shall the opening be less than 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 gauge 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 gauge 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 gauge (1.6) for dampers up to 36" (914) wide by 24" (610) high and 14 gauge (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 must be installed with actuator above the floor and temperature release device below the floor.

5. Mounting Angles

Mounting angles shall be a minimum of 1 1/2" x 1 1/2" x 20 gauge steel (38 x 38 x 1.0), installed on both sides of the partition and attached only to the sleeve. Mounting angles must overlap the partition a minimum of 1" (25). Do not weld or fasten angles together at corners of dampers. Ruskin fire/smoke dampers may be installed using Ruskin PFMA.

a. Mounting Angle Fasteners

Mounting angle fasteners shall be #10 (M5) bolts or screws, #10 self-tapping concrete anchors or concrete screws, 1/2" (13) long tack welds or 3/16" (3) diameter steel rivets.

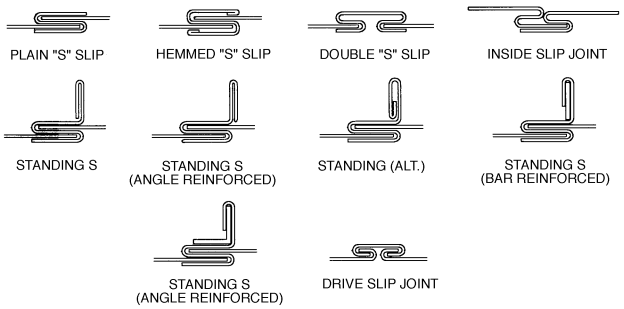
b. Mounting Angle Fastener Spacing

Fasteners shall be spaced at 8" (203) o.c. with a minimum of 2 fasteners on each side, top and bottom.

6. Duct/Sleeve Connections

a. Break-away Duct/Sleeve Connections

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



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 Systems Breakaway Connections Supplement.

TDC and TDF roll-formed flanged connections using 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 Systems 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 gauge (1.6) for dampers up to 36" (914) wide x 24" (610) high and 14 gauge (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

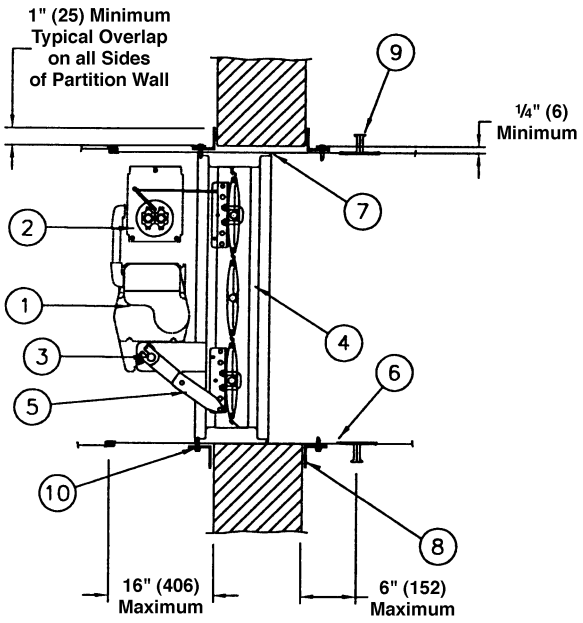
The damper must be installed so it is square and free from racking. Do not compress or stretch the damper frame into the duct or opening. Lift or handle the damper using sleeve or frame. Do not lift damper using blades or actuators. Each fire/smoke damper should be examined on a regular basis to ensure it is not rusted or blocked. In addition, each damper should be tested periodically, (NFPA recommends annually or semiannually, depending on the application) to ensure it will perform as intended. 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 air flow label on the damper.

ITEM DESCRIPTION

1. Actuator (location may vary).
2. Optional FireStat or SP-100.
3. Auxiliary Operating Jackshaft
4. Damper
5. Over-Center Link
6. Sleeve
7. Caulking Material
   (may be on either side of damper frame).
8. Mounting Angles (PFMA, FAST or conventional angles)
9. Duct/sleeve connection.

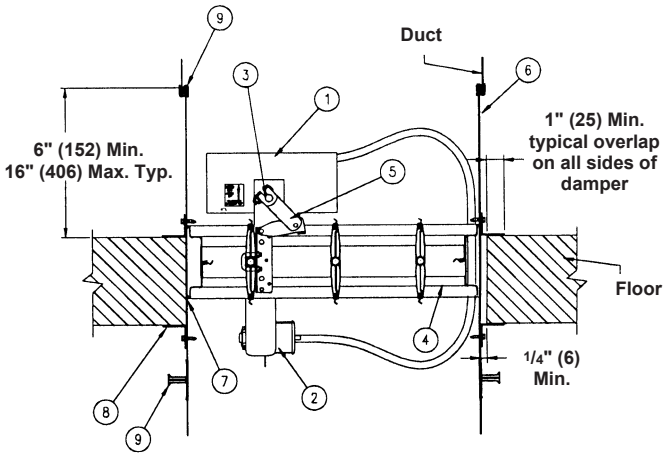


HORIZONTAL INSTALLATION

Damper must be installed with actuator the top side of the floor and temperature release device on the bottom side of the floor.

ITEM DESCRIPTION

1. Actuator
2. EFL or PFL as required (optional TS150 or SP100)
3. Auxiliary Operating Jackshaft
4. Damper
5. Over-Center Lock
6. Sleeve
7. Caulking Material
   (may be on either side of damper frame).
8. PFMA mounting angles
9. Duct/sleeve connection.



RECOMMENDED FRAMING FOR OPENINGS IN WOOD AND METAL STUD WALLS

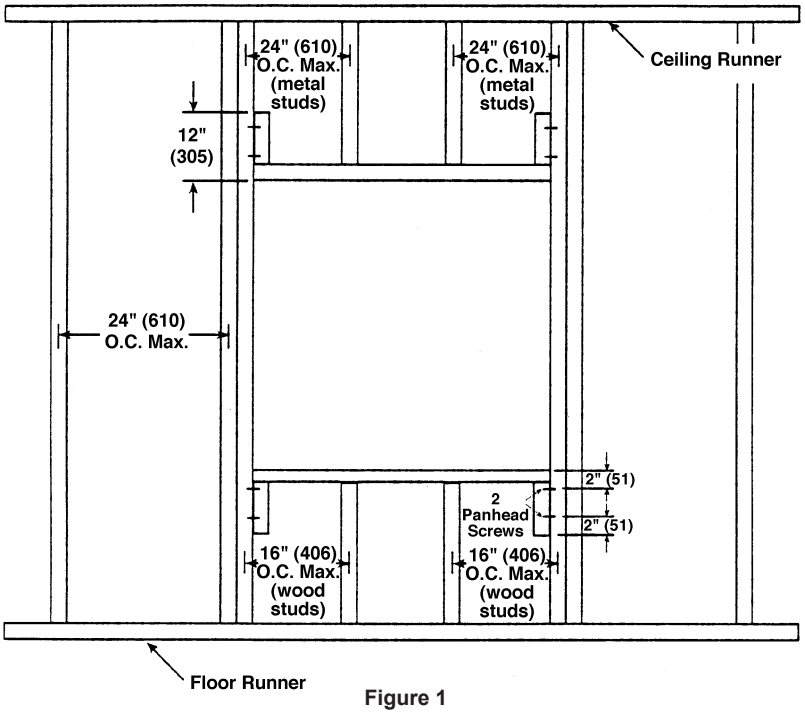


Figure 1

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.

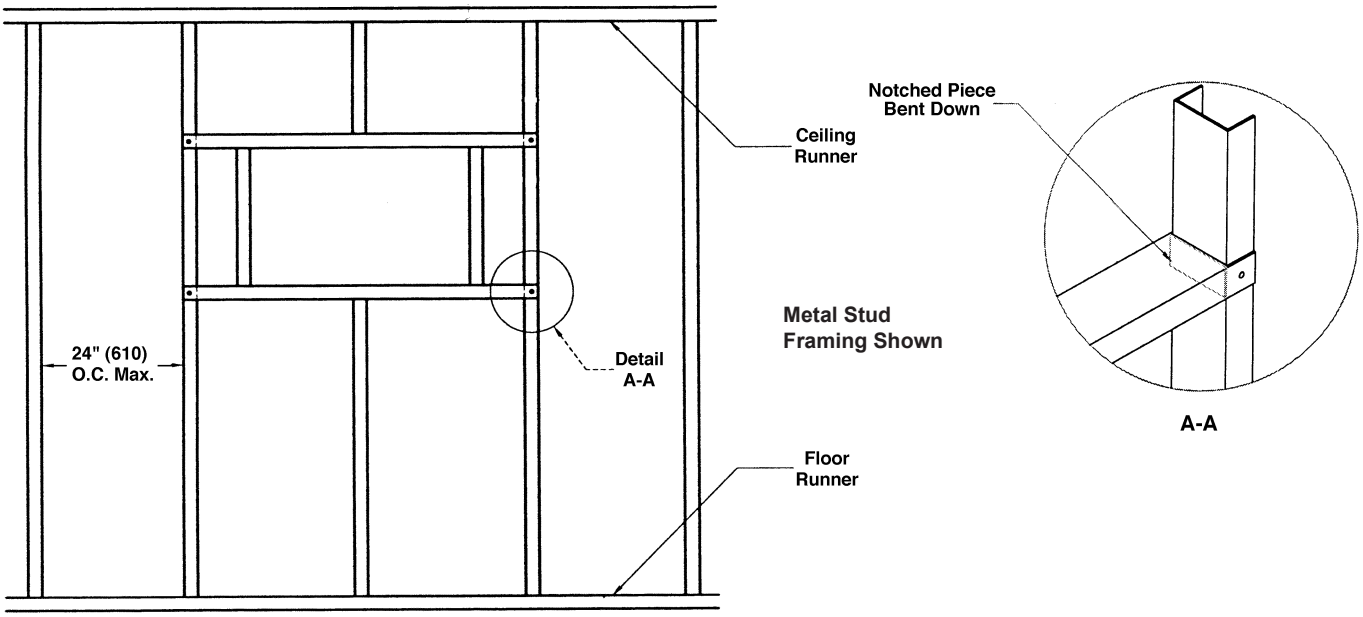
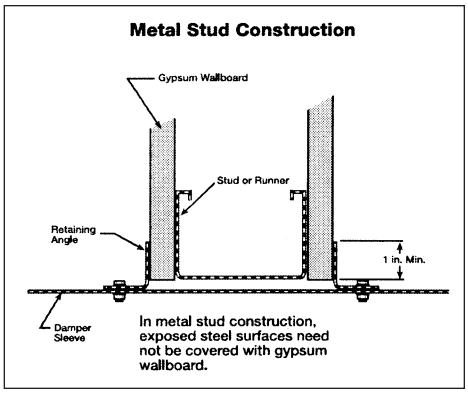
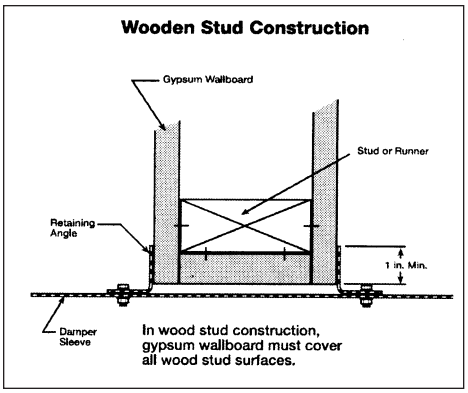


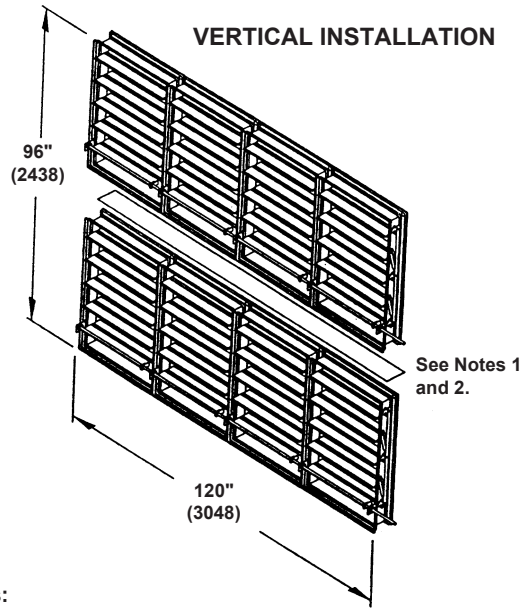
Figure 2



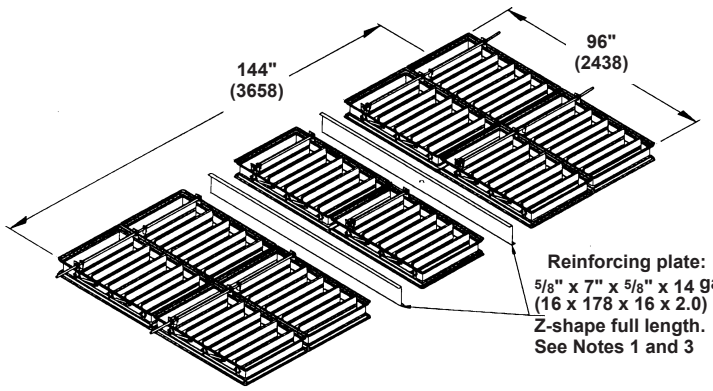


MAXIMUM UL CLASSIFIED SIZES

VERTICAL INSTALLATION



HORIZONTAL INSTALLATION

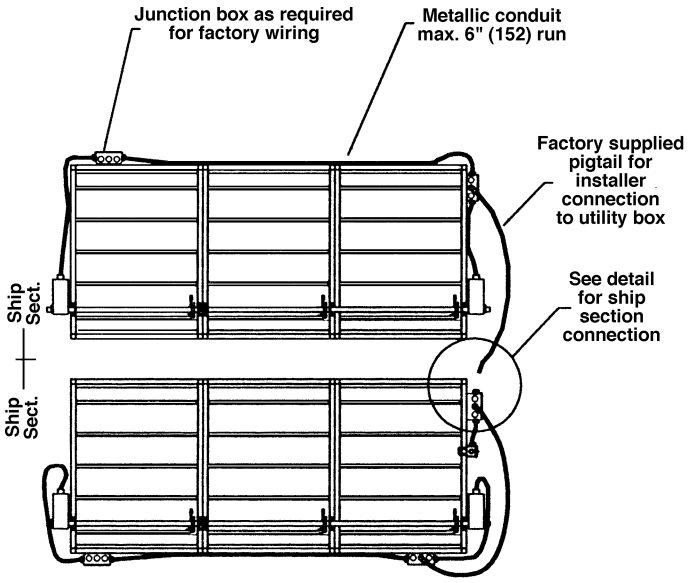


Notes:

1. All multiple section dampers are constructed of equal single section sizes no greater than the maximum single section sizes indicated above.
2. Two section high dampers require a 14 gauge reinforcing plate unless overall height is less than 91" (2311) and width is less than 32" (813). When using two individually sleeved units, the sleeve acts as the reinforcing plate, therefore no plate is required.
3. Horizontal dampers over 2 sections wide and 1 section high require a 14 gauge reinforcing plate per horizontal installation detail. When using two individually sleeved units, the sleeve acts as the reinforcing plate, therefore no plate is required.

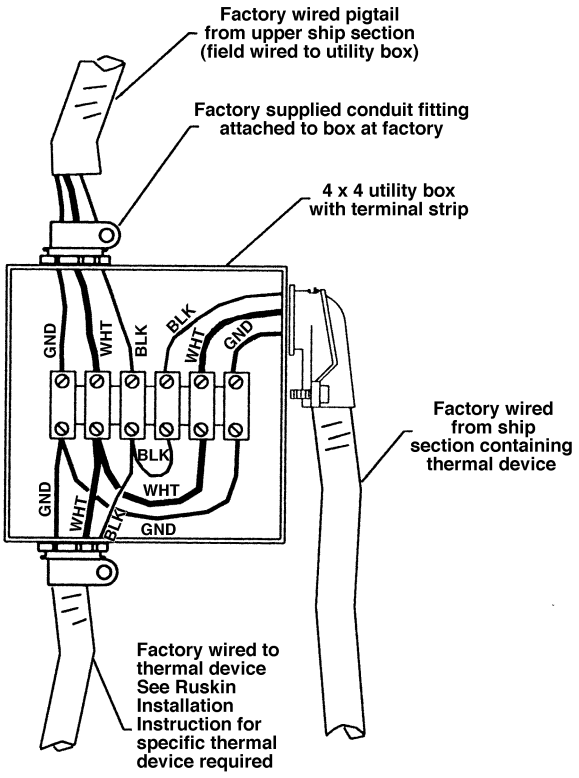
MULTIPLE ACTUATOR DAMPER ASSEMBLIES

Damper assemblies requiring more than one actuator must have all actuators wired to single heat actuated device (EFL or TS150) as shown below. This is required for simultaneous closure of all sections.



TYPICAL SHIP SECTION DETAIL

Note: All actuators must be wired to single thermal device.



SHIP SECTION FIELD CONNECTION

Note: Installer to run supply power to damper assembly thru thermal device.

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