



FIRE DAMPERS INSTALLATION INSTRUCTIONS

<u>Table of Contents:</u>	<u>Page #</u>
Unloading Inspection Instructions.....	Page 1
Required Fire Damper Installation Instruction Table.....	Page 2
Basic Fire Damper Installation.....	Page 3
Sleeve Thickness for Fire Dampers.....	Page 4
Duct Sleeve Connections.....	Page 5
Vertical Fire Damper Installations.....	Page 6
Horizontal Fire Damper Installations.....	Page 7
Fire Damper/Combination Damper Out of Wall.....	Page 8

These are the instructions on how to properly install your INDUSTRIAL DAMPERS. Depending on the actual field condition, the following are just minimum recommendations only. The installer shall be responsible to fully comply in accordance with the project specifications and the approved shop drawings and shall be responsible for adding the structural supports if necessary. All dampers should be checked and serviced on a regular schedule. Inspection intervals depend on system usage and atmospheric conditions within the system. The installer shall be responsible to seal dampers "watertight" before installing them.

RECEIVING/INSPECTION

- All dampers should be checked for freedom of movement. Shafts, bearings, pivot points etc. should be cleaned and lubricated with a light spray oil. Any and all access should be removed.
- Blades should be checked in the closed position to insure tight closure. Adjustments should be made at linkage to correct any misalignment.
- Motors (electric or pneumatic) should be visually checked through their complete cycle for defects, binding or misalignment. Operator anchorage and fittings should also be checked.
- Blades should be checked for freedom of movement. Blades should be disconnected from their operators and manually checked (Blades should move freely with no binding or twisting).
- Pins, straps and bushings should be checked for wear, corrosion or rust. Replace or paint is required.
- Check damper blade edge and jamb seals (where applicable).
- Check all linkage, connecting bars and operator connections for proper alignment and fit.
- Check overall installation to insure that damper was installed in a perfectly plumb and square position and proper clearance was allowed for blade linkage and operator movement.
 - Dampers with non-metallic or carbon sleeve bearings do not require lubrication.
- Any discrepancies should be reported to **SAFE-AIR DOWCO** immediately.

UNLOADING & HANDLING OF DAMPERS

Sound material handling practices must be utilized when unloading and handling the dampers. Carefully handle dampers to prevent dropping, dragging or twisting on products that may cause serious damage. In no case should a chain or hook be used inside the damper frame since this could damage and distort blades, seals, or frame. Actuator should NEVER be used as a lifting device.

STORAGE

Store in an orderly manner at a safe location away from construction traffic, material, etc. to prevent damage. Cover with plastic sheeting to protect from excessive moisture, dirt and debris. It is recommended that equipment, particularly with actuators and/or electrical accessories, be stored in a dry enclosed area in order to reduce condensation. Do not stack equipment directly on the ground or at elevations where possible flooding may occur. When stacking, dampers must be supported at a minimum of four equidistant places around the frame to insure that warping or bending of the frame does not occur. **DAMPER ACCESSORIES MUST REMAIN FREE OF ANY EXTERNAL LOADS.** Follow directions listed for damper storage.

In any case where dampers are stored outside, cover entire product with a vented weatherproof cover.

INSTRUCTION MANUAL MUST BE READ PRIOR TO INSTALLATION.

THOROUGHLY INSPECT ALL PRODUCTS BEFORE INSTALLATION. IF ANY DEFECTS ARE PRESENT, DO NOT BEGIN INSTALLATION, AND CONTACT SAFEAIR-DOWCO IMMEDIATELY.

1.

(TABLE 1-A – Required Fire Damper Installation Instructions)

ITEM	MANUFACTURER INFORMATION TO BE PROVIDED
1. Damper	a. function b. static or dynamic c. make (mfr.) d. model number
2. Fire Resistance Rating	a. time in hours
3. Approval	a. testing or listing agency
4. Sleeve	a. material b. thickness c. length (maximum) d. maximum distance of sleeve termination from wall (see UL 55)
5. Duct-to-Sleeve (or Frame) Connection	a. method(s) b. locations
6. Damper Attachment to Sleeve	a. method(s) b. locations
7. Retaining Angle	a. size b. material c. fastener locations
8. Maximum Rated Size of Damper	a. dimension
9. Assembly of Multiple Sections	a. methods b. fastener locations
10. Airflow	a. maximum velocity rating b. static pressure rating
11. Damper Orientation for Proper Closure	a. position
12. Illustrations	a. installation arrangement b. clearance category
13. Any Construction Detail Contingent on Approval for Listing by a Rating Authority	a. pertinent data (e.g. fusible link rating, opening framing provisions, etc.)

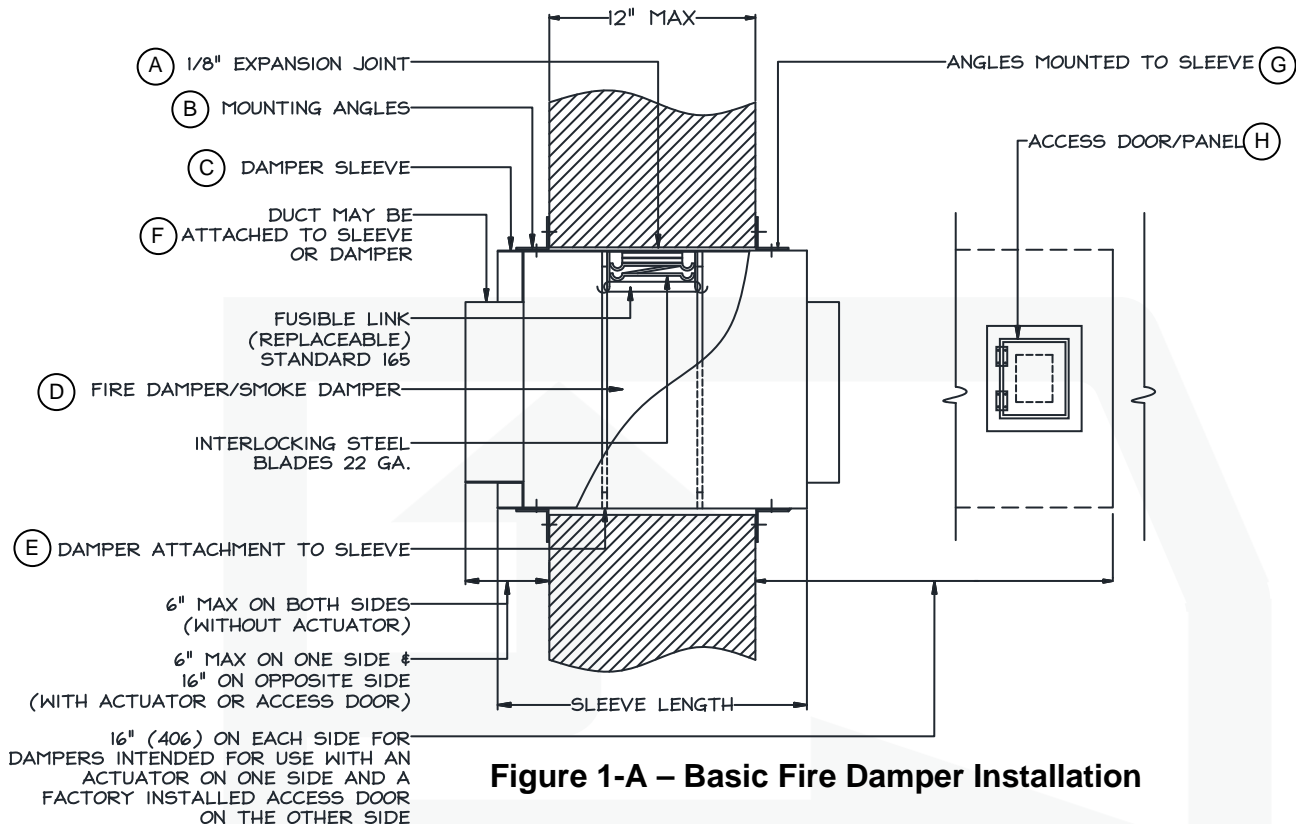


Figure 1-A – Basic Fire Damper Installation

Safe-Air Dowco's installation notes are applicable to fire dampers, smoke dampers and combination dampers on most occasions. The following information may vary among different manufacturers and should not serve as a general guide of damper installation.

E. EXPANSION SPACE

- a. Fire Damper Sleeve Clearance within Wall/Floor Opening
 - i. Min. 1/8" (10) expansion joint per linear foot
 - ii. Listed clearance requirements are 1/8" per linear foot unless stated otherwise. Sleeve is not required to be centered, but can rest on the bottom of the opening.
 - iii. (e.g. a 36" x 20" fire damper sleeve will have an opening of (36-3/8" wide) by (20-1/4" high)
 - iv. The dimensions required for the opening shall be those remaining after the opening has been framed and fire resistive materials provided where required. The fire resistive material shall be equal to the requirements for fire resistive material used in the constructed wall that will be supplied by contractor.
 - v. Clearance may be greater than the 1/8" per linear foot of damper as allowed by manufacturer.

F. MOUNTING ANGLES

- a. Minimum 1 1/2" x 1 1/2" x 16 ga. (40 x 40 x 1.6mm)
 - i. Mounting angles must overlap opening 1 in. minimum and cover any corner openings.
 - ii. 16 gauge is typical thickness for mounting angles. According to manufacturer's specifications, smaller dampers may permit smaller angles whereas larger dampers may permit larger angles.

G. DAMPER SLEEVE

- a. Damper sleeve shall be steel, see table 2-A for details.

H. FIRE DAMPER/SMOKE DAMPER/COMBINATION FIRE DAMPER

- a. Approved Fire Damper – Curtain or multi-blade type

A. DAMPER ATTACHMENT TO SLEEVE

- a. Secure damper to sleeve on 8" (203) centers with:
 - i. 1/2" (12) long welds
 - ii. 3/4" (6) bolts and nuts
 - iii. No. 10 sheet metal screws
 - iv. Minimum 3/16" (5) steel rivets
 - v. Note: the size and spacing requirements may differ by manufacturer. Consult manufacturer's installation instructions.

B. CONNECTION TO DUCT

- a. Connect duct to sleeve as shown in Table 2-A and Figure 2-A.
 - i. Mounting angles must overlap opening 1 in. minimum and cover any corner openings.
 - ii. 16 gauge is typical thickness for mounting angles. According to manufacturer's specifications, smaller dampers may permit smaller angles whereas larger dampers may permit larger angles.

C. ANGLES MOUNTED TO SLEEVE

- a. Secure mounting angles to sleeve ONLY on 8" centers (203) with:
 - i. 1/2" (12) long welds
 - ii. 3/4" (6) bolts and nuts
 - iii. No. 10 sheet metal screws
 - iv. Minimum 3/16" (5) steel rivets
 - v. Note: The size and spacing requirements may differ by damper manufacturer. Consult manufacturer's installation instructions.

D. ACCESS DOOR OR PANEL

- a. INSTALL AS SHOWN IN FIGURE 1-A.
 - i. Mounting angles must overlap opening 1 in. minimum and cover any corner openings.
 - ii. 16 gauge is typical thickness for mounting angles. According to manufacturer's specifications, smaller dampers may permit smaller angles whereas larger dampers may permit larger angles.

(TABLE 2-A – Recommended Minimum Sleeve Thickness for Fire Dampers)*

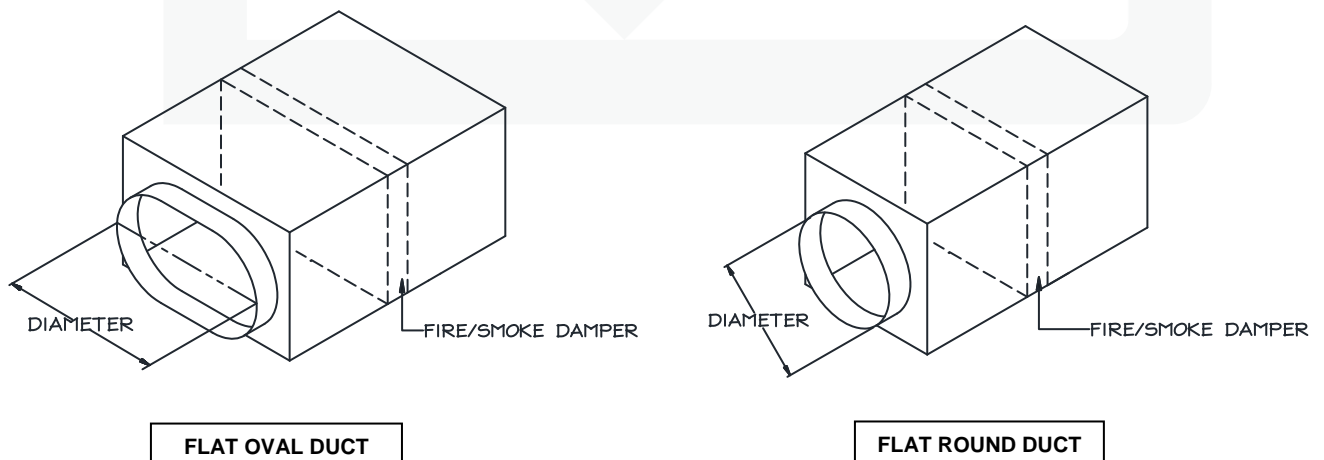
Type of Connection	Duct	Duct Dimension	Sleeve Gage
RIGID	ROUND – RECTANGLAR	24 in. (610) maximum diameter 24 in. (610) maximum height and 36 in. (915) maximum width	16 (1.613) (Breakaway connection not required)
RIGID	ROUND – RECTANGLAR	Over 24 in. (610) diameter Over 24 in. (610) height and Over 36 in. (915) width	14 (1.994) (Breakaway connection not required)
BREAKAWAY (SEE FIGURE 2-A)	ROUND- RECTANGULAR	12 in. (305) or less 12-30 in. (330-760) 31-54 in. (785-1370) 55-84 in. (1400-2130) 85 in. (2160) or more	26 (.55) 24 (.70) 22 (.85) 18 (1.3)

By UL 555, all ducts are required to terminate at the fire damper sleeves or the damper frames. Sleeve thickness is contingent on the type of connection. All UL listed dampers also have maximum dimensions associated with the test rating. Contingent on sleeve thickness a rigid connection may be used in lieu of a breakaway connection. Sleeves may be omitted where dampers are designed to be in non-ducted air passages or where damper housing permits attachment of retaining angles to the housing. Attachment of retaining angles must not restrict operation of the fire damper. Certain UL approved designs do not require retaining angles.

Where the fire damper sleeve is exposed to the airstream, the metal sleeve will be of the same material as the duct system. A steel sleeve, of the type or finish specified by the system designer, will be used for fibrous glass ductwork and where the fire damper sleeve is not exposed to the airstream.

Figure 2-A: Damper/ Sleeve Assemblies with Collars for Round and Flat Oval Ducts

- A) Diameter will equal the largest dimension for flat oval ducts.
- B) Duct sealant may be used as recommended by the damper manufacturer.



1. Duct sleeve connections listed in UL 555, sixth edition, *Standard for Fire Dampers*

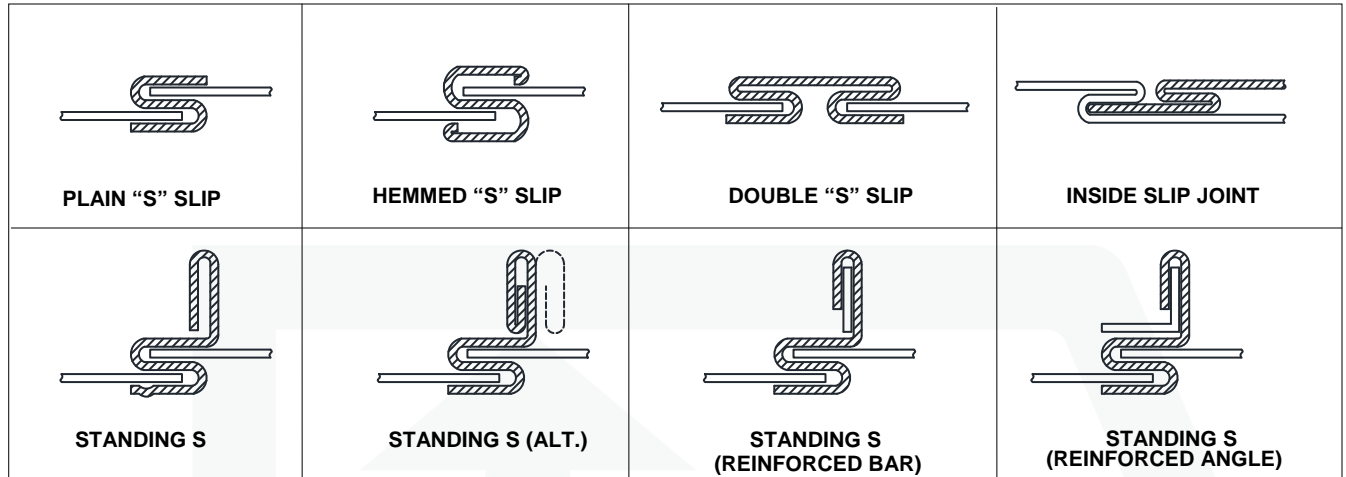


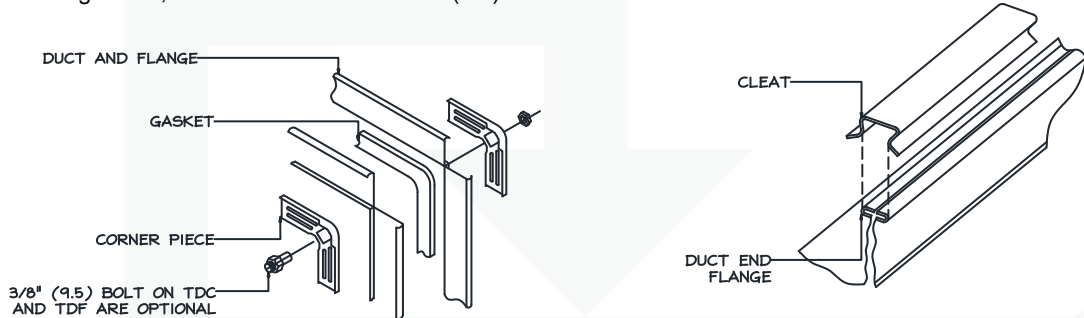
Figure 3-A – Sleeve Connections

2. Fasteners may be used as followed.

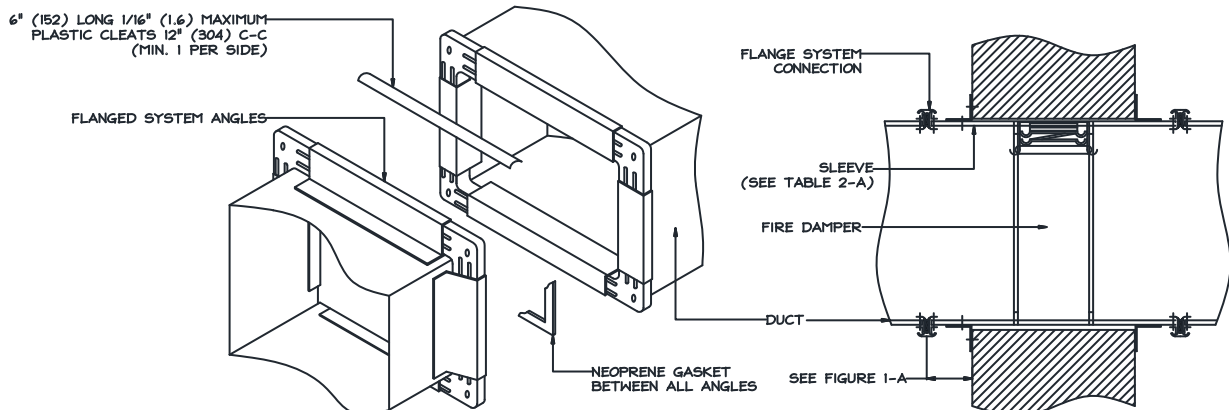
- a. Joints using connections shown in 1. above with a maximum of two #10 sheet metal screws on each side and on the bottom located in the center of the slip pocket and penetrating both sides of the slide pocket.



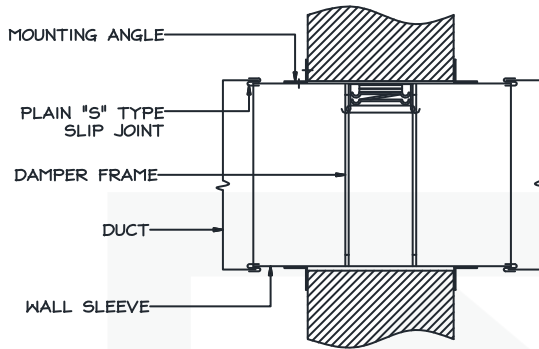
- b. Joints using connectors of the type shown in 1. above on the top and the bottom and using flat drive slips not exceeding 20 in (510) duct height on the sides. (see figure above)
- c. Joints where round or oval spiral ducts attach to round or oval collars which are part of the damper sleeve as shown below. #10 sheet metal screws are spaced equally around the circumference of the duct per the following:
 - i. Duct diameters 22 in. (560) and smaller ---3 screws
 - ii. Duct diameters over 22 in. (560) to and including 36 in. (915) --- 5 screws
- d. TDC and TDF Roll-formed 4-bolt flanged connections assemblies per the manufacturer's instructions using gaskets, metal cleats and four 3/8" (9.5) metal nuts and bolts.



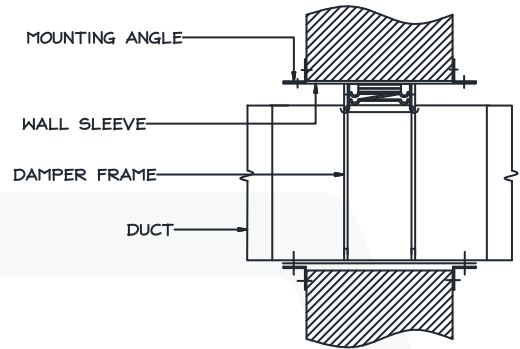
- e. Manufactured slip on 4-Bolt flanged connections assembled per the manufacturer's instructions using gaskets and plastic cleats as shown below.



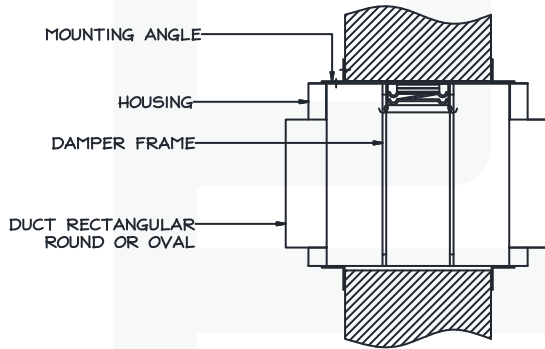
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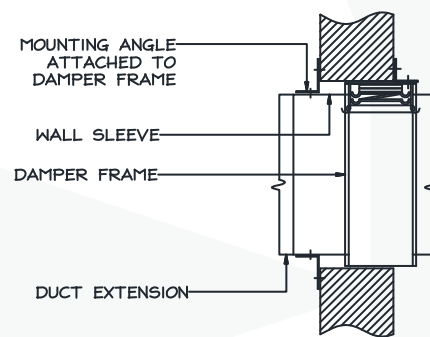
TYPE 2



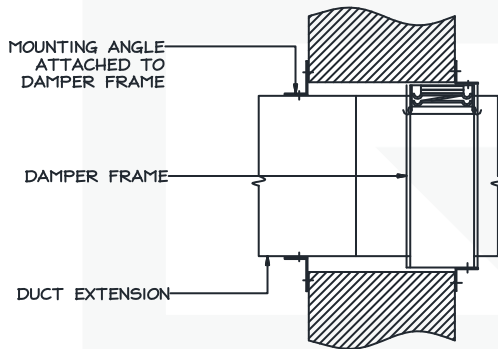
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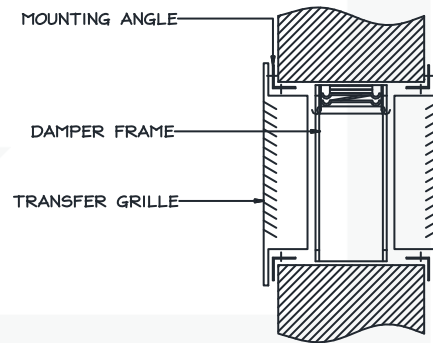
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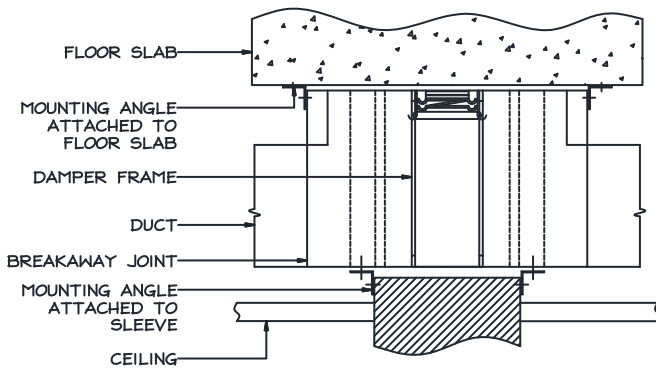
TYPE 5*



TYPE 6



TYPE 7

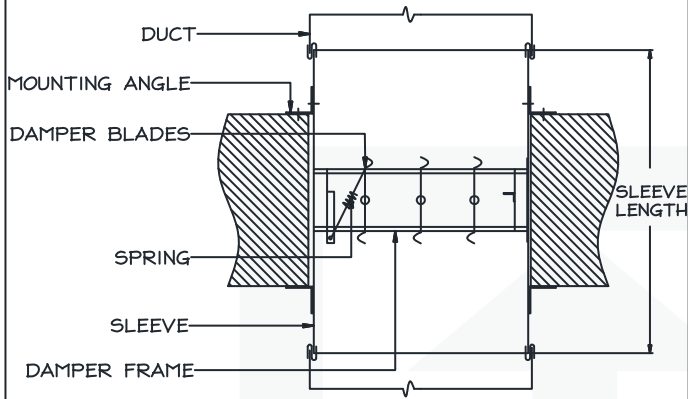


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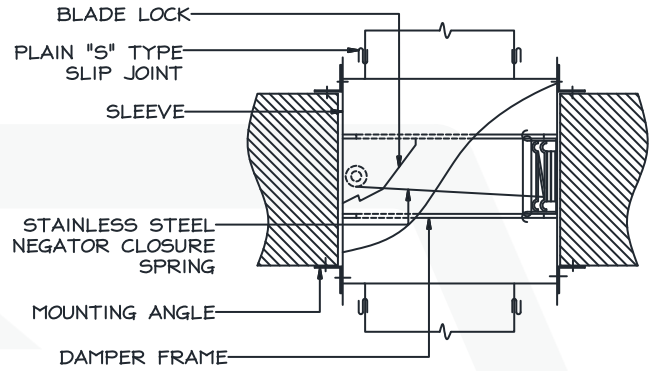
* - NO SLEEVE IS REQUIRED BUT MOUNTING ANGLES MUST NOT OBSTRUCT DAMPER BLADE MOVEMENT. WALL THICKNESS WILL AFFECT DAMPER DEPTH.

-REFER TO FIGURE 3-A FOR VARIOUS SLEEVE CONNECTION TYPES

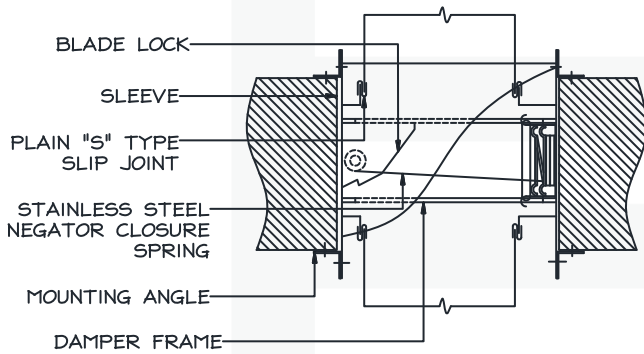
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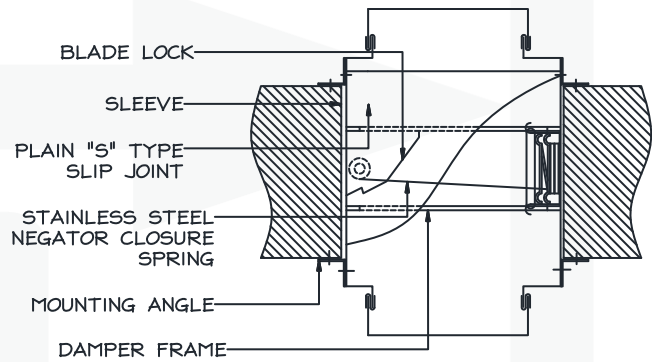
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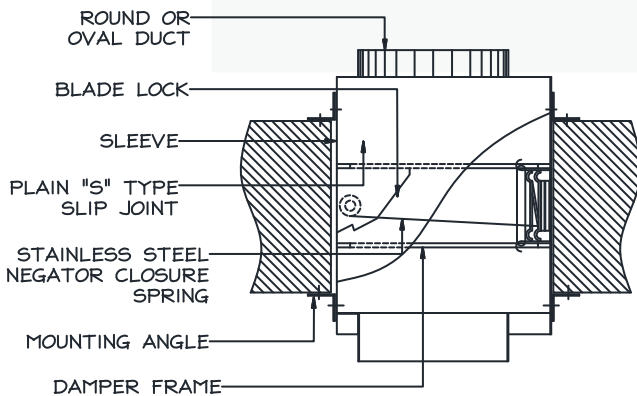
TYPE 3



TYPE 4



TYPE 5

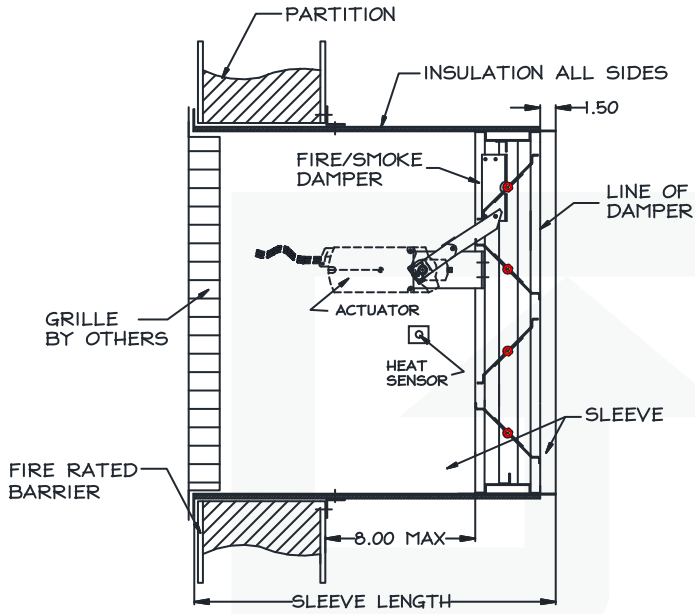


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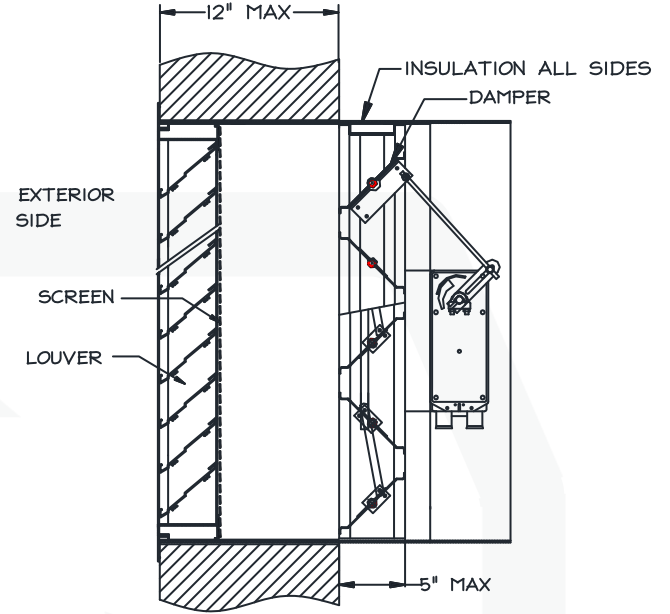
* - NO SLEEVE IS REQUIRED BUT MOUNTING ANGLES MUST NOT OBSTRUCT DAMPER BLADE MOVEMENT. WALL THICKNESS WILL AFFECT DAMPER DEPTH.

-REFER TO FIGURE 3-A FOR VARIOUS SLEEVE CONNECTION TYPES

TYPE 1



TYPE 2



TYPE 3

