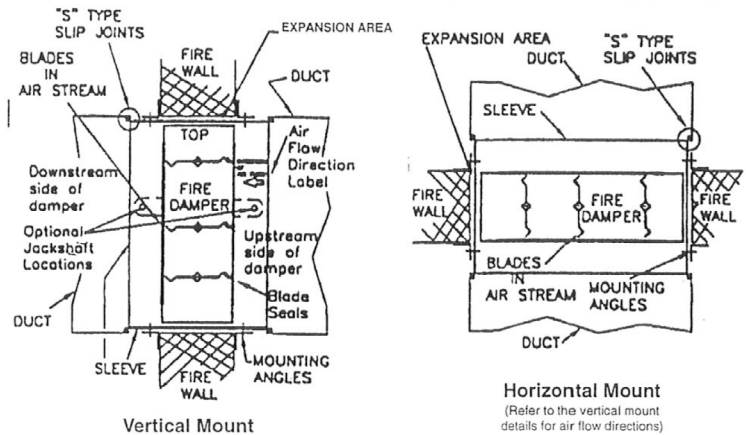


**Combination Fire and Leakage Rated Damper
 Vertical or Horizontal Mount 1-1/2 Hour Rating
 (for use in 2 hour or less rated partitions)**



FUSIBLE LINKS:
 Temperature rating is not to exceed 250° F.
 165° F is standard.
 Located in pin grooves.

Damper shall be fastened to sleeve with no. 10 x 3/4 sheet metal screws on 6" centers (max). No further than 2" from end. See "Sleeve Termination Installation Instructions Supplement" for additional connection information.

Angles shall be a minimum of 1-1/2" x 1-1/2" x 1/16" and fastened to the sleeve and damper only on all (4) sides with 1/4" bolts, 1/2" long welds, or #10 sheet metal screws on 8" maximum centers. (See note # for expansion and overlap) Angles shall not be fastened to each other at the corners or fastened to the fire wall. Angles may be reversed when diffusers or grilles require flush mountings. FASTENERS MUST BE PLACED WHERE THEY DO NOT INTERFERE WITH THE DAMPER OPERATION.

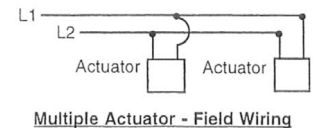
See Wood Stud and /or Metal Stud Framing for Fire Dampers in Drywall and/or Cavity Shaftwall Partitions Supplemental Installation Instructions for further vertical mount installation details.

NOTES:

1. Sleeves shall be of the same gauge or heavier than the duct to which it is attached. Gauges shall conform to SMACNA or ASHRAE standards.
2. When the following sleeve connections are used, the minimum gauge of the sleeve shall be 16 gauge on dampers not exceeding "36"W x 24"H and 14 gauge on larger dampers.
 - a. Angle reinforced standing seam
 - b. Angle reinforced pocket lock
 - c. Companion angles
 - d. Metal fasteners approximately 16" on centers
3. Clearance for expansion of 1/8" per foot of sleeve dimension is required. Angles should lap masonry a minimum of 1" around the entire opening.
4. Maximum sleeve extension is 6" on both sides of wall or floor opening for dampers with actuators. Maximum sleeve extension is 16" on both sides of wall or floor opening for dampers without actuators.
5. Dampers may be installed in wall or partition (masonry or gypsum wallboard) or concrete floor.
6. The connecting ducts shall not be continuous, but shall terminate at the sleeve or frame.
7. Dampers are supplied with factory mounted actuators designed to close automatically upon detecting heat, or the loss of actuator power.
8. The jackshift side of the damper may be installed either "Upstream" or "Downstream".
9. A continuous bead of Dow Corning 999A, Dow Corning RTV732 or GE-1200 silicone rubber sealant shall be applied between the damper and the sleeve and between sections of a multiple damper assembly. Sealant is only required on one side of the damper.
10. Installed damper units require operational checks upon completion to insure proper functioning. Before applying power to the operator/actuator, the power must be verified.
11. An access door is a NFPA requirement for damper inspection and testing.
12. For use in static and dynamic systems at labeled temp, velocities, and W.G.
13. Electric actuator connections shall conform to the National Electric Code.
14. Pneumatic actuators require metallic airline connections, and a minimum of 20PSI supply air (not to exceed 30PSI).
15. CAUTION: THE HEAVY DAMPER CLOSURE SPRING IS UNDER LOAD.

Fire/Leakage rated dampers and qualified operators are tested together by Underwriters Laboratories and are factory installed to qualify for standard damper/operator warranties. These instructions comply with Underwriters Laboratories Safety Standards 555 and 555-S, NFPA90A, and SMACNA Fire Smoke And Radiation Installation Guide. UL File #R1520. The product is also listed by CSFM File #3225-1411:105.

SECTION SIZES	W x H
MAXIMUM	36" x 36"
MINIMUM Class I	12" x 8"
MINIMUM Class II	8" x 8"



Sleeve Termination - Installation Instructions Supplement

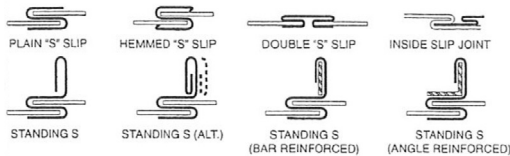


Application

All of the below connections may be used to terminate the damper sleeve in place of slip joints, for Shoemaker Manufacturing series:

- 2500 & 2600 curtain type dapers
- 2800 series dynamic fire dampers
- FSD111 combination fire-smoke dampers
- SD333 smoke dampers

1) Duct sleeve connections listed in UL 555, Fifth Edition, "Standard For Fire Dampers"



2) Additional duct-sleeve connections which were tested and witnessed by UL. The connections performed within the requirements of the UL test criteria.

a) Sheet metal screws-Rectangular Duct Connections

Joints using connections shown in 1) above with a maximum of two no.10 (M5) 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. Note: UL tested duct sealant may be used.

b) Sheet Metal Screws-Round & Oval Duct Connections

Joints where round or oval spiral ducts attach to round or oval collars which are part of the damper sleeve. No. 10 (M5) sheet metal screws are spaced equally around the circumference of the duct per the following:

- Duct diameters 22" and smaller-3 screws
- Duct diameters over 22" to and including 36"-5 screws

Notes:

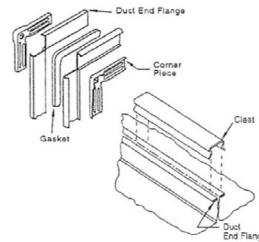
1. For flat oval ducts, the diameter shall be considered the largest (major) dimension of the duct.
2. UL tested duct sealant may be used.

c) Flat Drive Slips



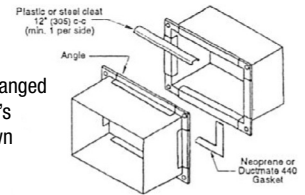
Joints using connectors of the types shown in 1) above on the top and the bottom and using flat drive slips not exceeding 20" duct height on the sides (see sketch above).

Note: UL tested duct sealant may be used.

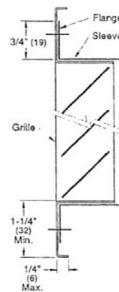
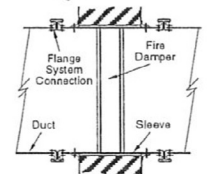


d) TDC and TDF roll-formed 4-bolt flanged connections using gaskets and metal cleats. Do not bolt corners together. Standard 6" metal clip may be used located within 6" of each corner. Clips shall also be placed at centers not exceeding 15" for 3" w.g. or lower static pressure, and not exceeding 12" for 4", 6" and 10" w.g.

e) Ductmate, Ward and Nexus slip on 4-bolt flanged connections assembled per the manufacturer's instructions using gaskets and cleats as shown above. Do not bolt corners together.



General Installation for Flanged Duct Connections
 Flange corner pieces insert into the hollow web of the angles

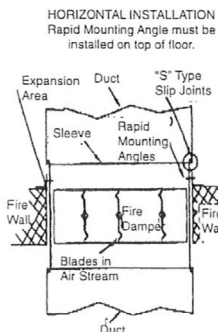
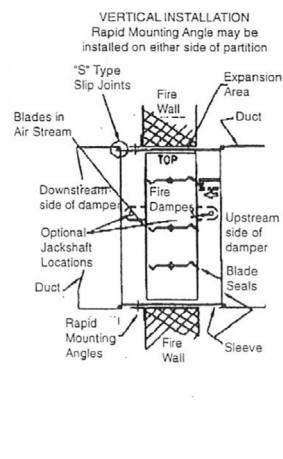


FLANGE TERMINATION AT A GRILLE

Grille (by others) must be a minimum 26 gauge steel.

Grille is to be screwed to minimum 3/4" x 20 gauge flange. Do not screw grille to the wall. Grille flange must be a minimum 1-1/4" and overlap the opening a minimum of 1/2". Select the damper with sleeve of sufficient length to permit attachment, with perimeter mounting angles, to duct work on one side of the wall, floor, or ceiling opening. Detail shown is for vertical application.

Single Side Retaining Angle - Installation Instructions Supplement



"Rapid Mounting Angles" (for use on one sided angle installment)

These instructions apply to 1-1/2 hour rated combination fire/smoke, smoke, Dynamic and curtain type fire dampers mounted in masonry, block, or metal stud walls and floor. VERTICAL OR HORIZONTAL MOUNT.

Angles shall be a minimum of 1-1/2" x 1-1/2" x 16 gauge for openings in metal stud and concrete/masonry walls and floors of 48"x36" and less. Mounting angles are only required on one side of the wall or top of the floor. They must be attached to both the sleeve and the wall board on metal installations only. Sizes larger will require the previous retaining angle design which consisted of 4 separate angles per side.

For one sided "Rapid Mounting Angle" installations, the sleeve fasteners shall be no.20 sheet metal screws spaced 3" from each end and no greater than 12" on center.

With a minimum of two (2) fasteners on each side, top and bottom, wall/floor fasteners shall be no.10 sheet metal screws, two screws on each side angle spaced 3" from each end; three screws on each head and sill angle with one screw in the center and one at each end spaced 3" from the ends.

Screw fasteners used in metal stud must engage the metal stud a minimum of 1/2".

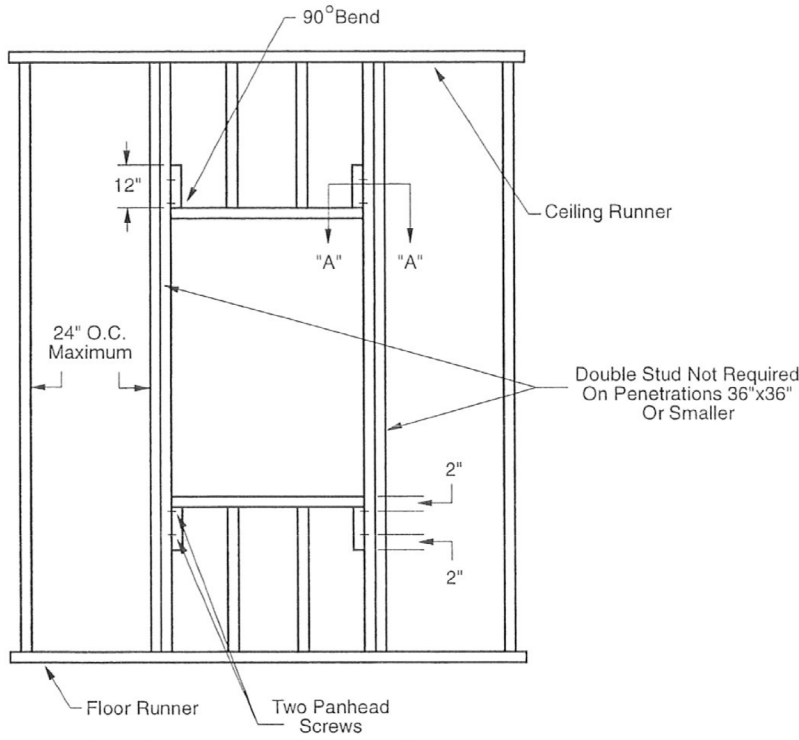
Screw fasteners used in masonry wall or floors must engage the wall or floor a minimum of 2".

Angles should overlap the partition a minimum of 1" around the entire opening.

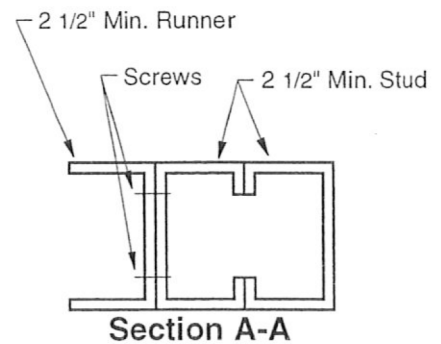
Installation per NFPA90A, UL555, And SMACNA Fire Smoke and Radiation Installation Guide.

FASTENERS MUST BE PLACED WHERE THEY DO NOT INTERFERE WITH THE DAMPER OPERATION.

Installation Instructions Supplement
DRYWALL PARTITIONS METAL STUD FRAMING



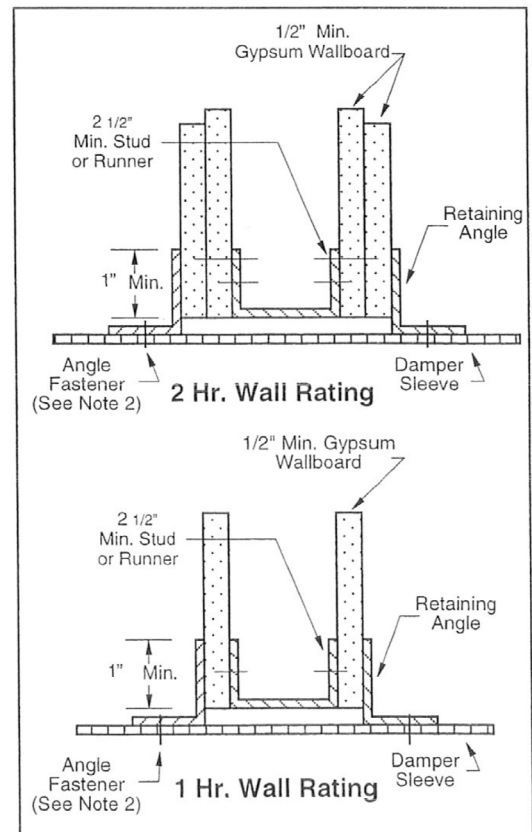
Opening Preparation Detail



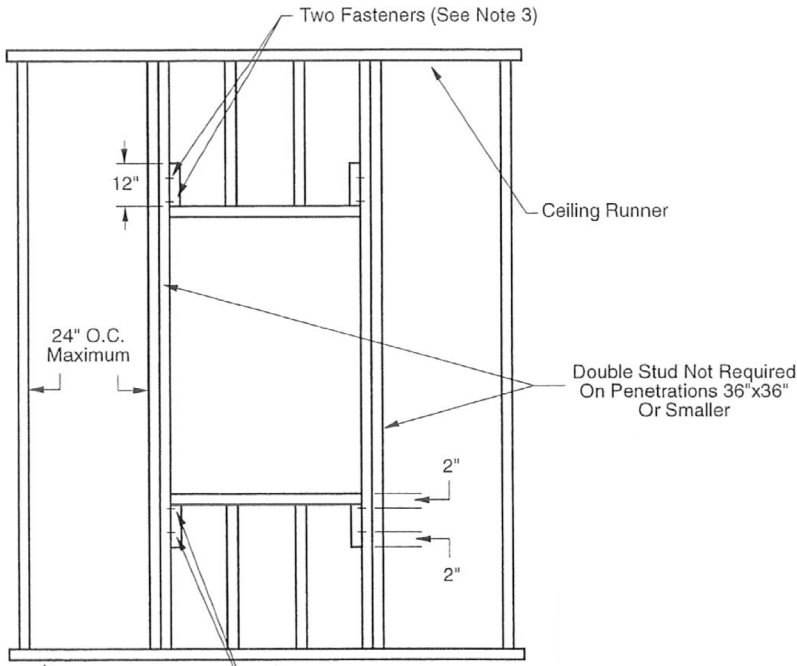
Section A-A

NOTES

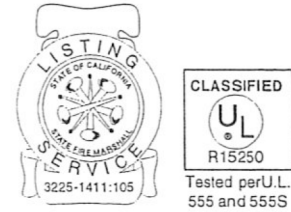
1. Gypsum panels must be screwed, 12" O.C. maximum, to all stud and runner flanges surrounding opening.
2. Mounting angles shall be a minimum of 1-1/2" x 1-1/2" x 1-16". The angles should be attached to the sleeve, not the partition, with no.10 sheet metal screws, or welds, or 1/4" x 20 gauge bolts at 6" O.C. maximum. A minimum of two connections per side, top and bottom. Mounting angles shall overlap the wall a minimum of 1". A minimum 3/4" x 20 gauge flange termination may be used in lieu of mounting angles on the corridor side of the damper sleeve. Refer to Sleeve Termination Supplemental Installation Instructions for further details.
3. See standard installation instruction sheet for additional details.



**Installation Instructions Supplement
 DRYWALL PARTITIONS WOOD STUD FRAMING**



Opening Preparation Detail



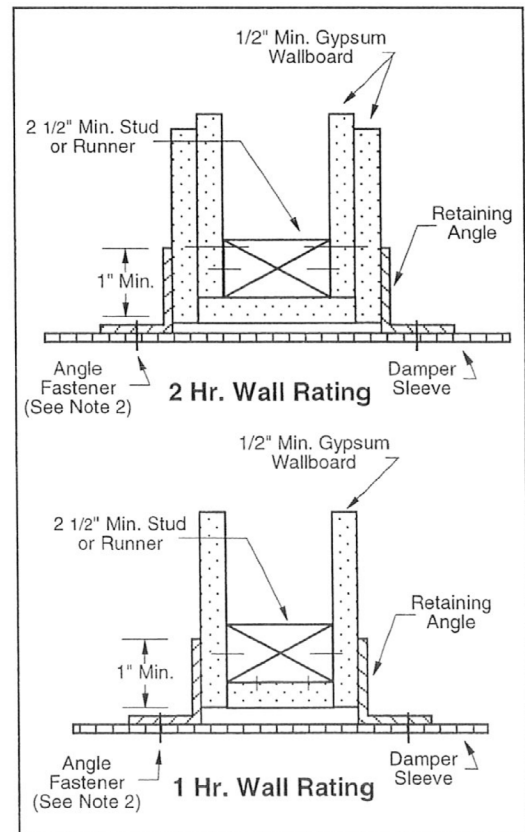
NOTES:

1. Gypsum panels must be fastened 12" O.C. maximum, to all stud and runner flanges surrounding opening.
2. Mounting angles shall be a minimum of 1-1/2" x 1-1/2" x 1/16". The angles should be attached to the sleeve, not the partition, with no.10 sheet metal screws, or welds, or 1/4" x 20 gauge bolts at 6" o.c. maximum. A minimum of two connections per side, top, and bottom. Mounting angles shall overlap the wall a minimum of 1". A minimum 3/4" x 20 gauge flange termination may be used in lieu of mounting angles on the corridor side of the damper sleeve. Refer to Sleeve Termination Supplemental Installation Instructions for further details.
3. All fasteners to be per U.L. Classified wall design.
4. See standard installation instruction sheet for additional details.

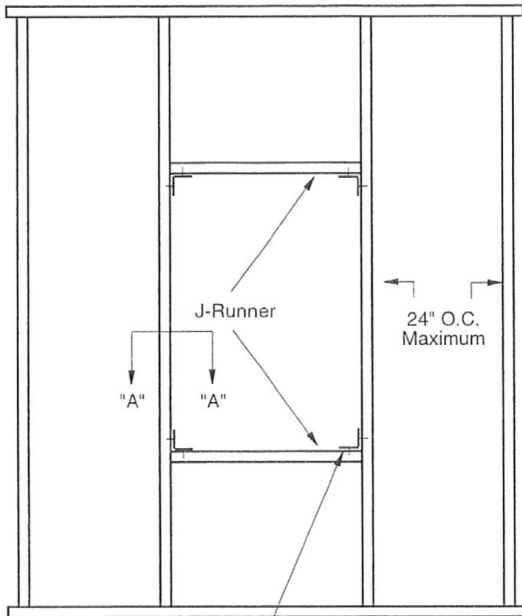
APPLICATION

For Shoemaker Manufacturing series:

- 2500 & 2600 curtain type dampers
- 2800 series dynamic fire dampers
- FSD111 combination fire-smoke dampers
- SD333 smoke dampers

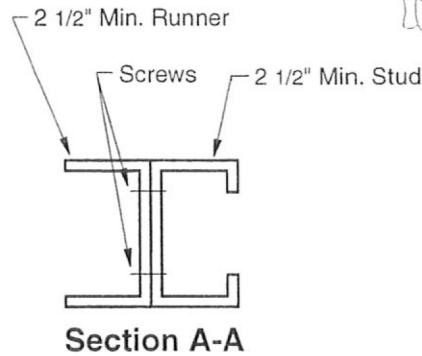
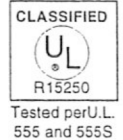


Installation Instructions Supplement
CAVITY SHAFTWALL PARTITIONS METAL STUD FRAMING



1-1/2" x 1-1/2" x 2" (Min)
 Angle Screw Attached with
 5/8" Type S-12 (Min) Screw

Opening Preparation Detail

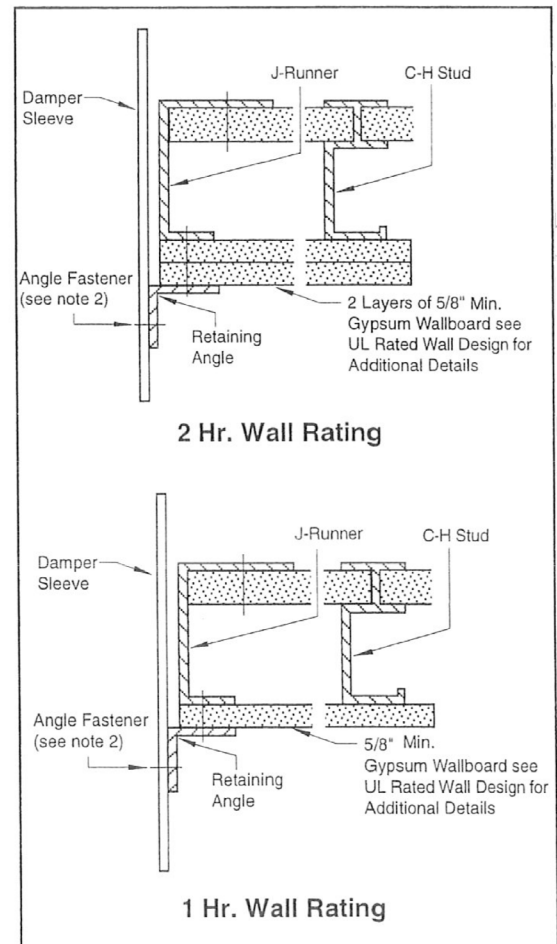


NOTES:

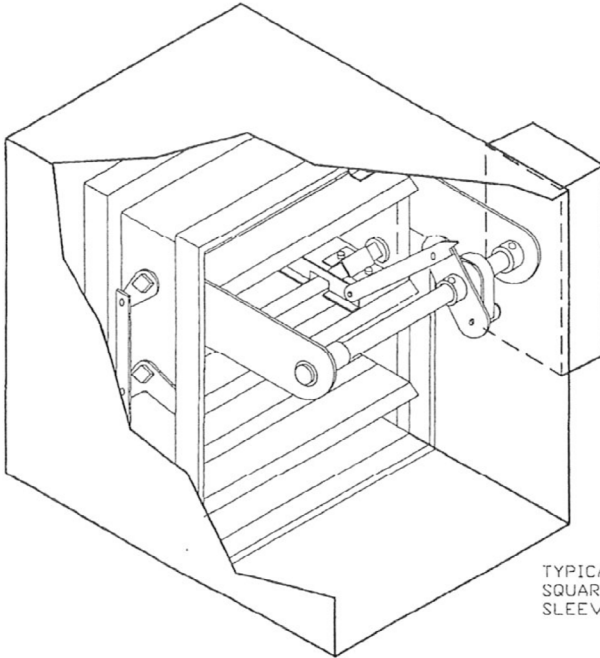
1. Gypsum panels must be fastened 12" O.C. maximum, to all stud and runner flanges surrounding opening.
2. Mounting angles shall be a minimum of 1-1/2" x 1-1/2" x 1/16". For opening sizes ≤ 48" x 36" retaining angles are only required on one side of the partition (see adjacent drawings) and must be attached to the sleeve and the partition. For larger openings (or optional on smaller openings as well), retaining angles are required on both sides of the partition and must be attached to the sleeve. Attachment to the sleeve and-or the partition shall be with no.10 (M5) sheet metal screws, or welds, or 1/4" x 20 bolts at 12" o.c. maximum. A minimum 3/4" x 20 gauge flange termination may be used in lieu of mounting angles. Refer to Sleeve Termination Supplemental Installation Instructions for further details.
3. See standard installation instruction sheet for additional details.
4. These installation instructions apply to wall design numbers U438, U469 < U497 in the UL Fire Resistance Directory.

APPLICATION

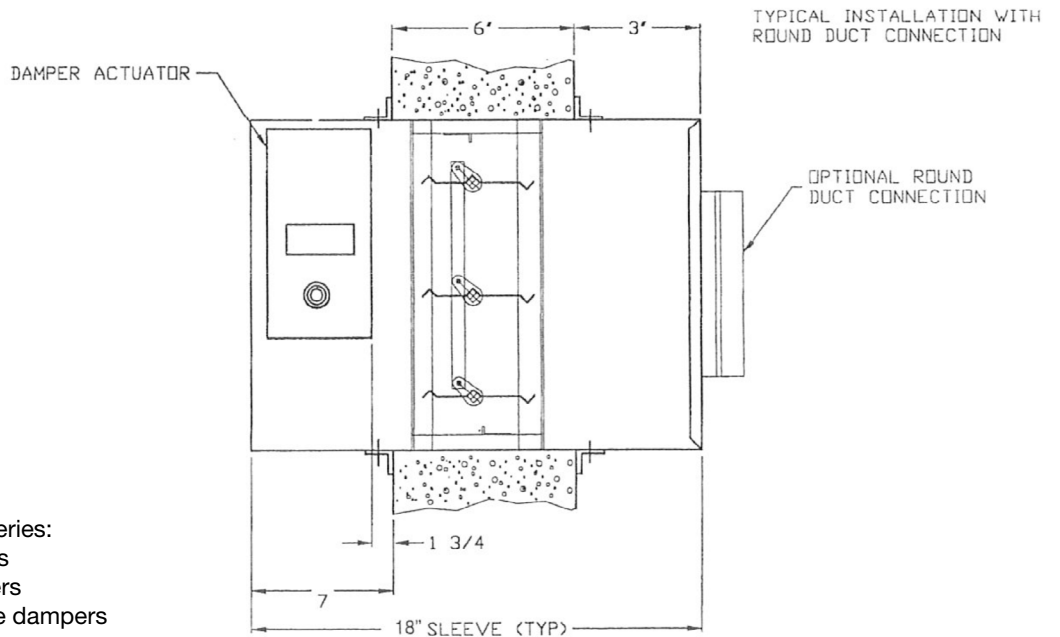
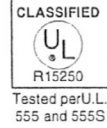
- For Shoemaker Manufacturing series:
- 2500 & 2600 curtain type dampers
 - 2800 series dynamic fire dampers
 - FSD111 combination fire-smoke dampers
 - SD333 smoke dampers



Installation Instructions Supplement
TYPICAL SLEEVE INSTALLATIONS



TYPICAL INSTALLATION WITH
 SQUARE OR RECTANGULAR
 SLEEVE.



APPLICATION

- For Shoemaker Manufacturing series:
- 2500 & 2600 curtain type dampers
 - 2800 series dynamic fire dampers
 - FSD111 combination fire-smoke dampers
 - SD333 smoke dampers

Installation Instructions Supplement with Factory Mounted Duct Smoke Detector For:
SD Series - Smoke Dampers
FSD Series - Combination Fire/Smoke Dampers
CFSD Series - Corridor Ceiling Dampers

NOTES:

1. Minimum air velocity for smoke detector operation is 500 fpm. Maximum is 4000 fpm.
2. Since the smoke detector is not rated for use at velocities below 500 fpm, local code may require an alternate means of damper closure such as zone detection or automated damper closure when the system is shut down. The local authority having jurisdiction should be consulted prior to the installation of the damper and smoke detector.
3. Holes on sampling tube must face the airstream.
4. Smoke detector specifications are:

Operating temperature range: 23°F to 131°F

Operating humidity range: 10% to 93%Rr.H.

Operation voltage: 24VAC/DC or 120/240 VAC

5. Refer to System Sensor, DH100ACDC, Installation and Maintenance Instructions for further installation details.
6. Refer to System Sensor, DH100ACDC, Installation and Maintenance Instructions for maintenance and field tests.
7. System Sensor

3825 Ohio Avenue
 St. Charles, Illinois 60174
 Phone 1-800-SENSOR2 · Fax 1-630-377-6495
 Website: <http://www.systemsensor.com>

Refer to:

- “Installation Instructions for SD Series Leakage Rated Smoke Dampers” or
- “Installation Instructions for FSD Series Combination Fire/Smoke Dampers” or
- “Installation Instructions for CFSD Series Corridor Ceiling Dampers”

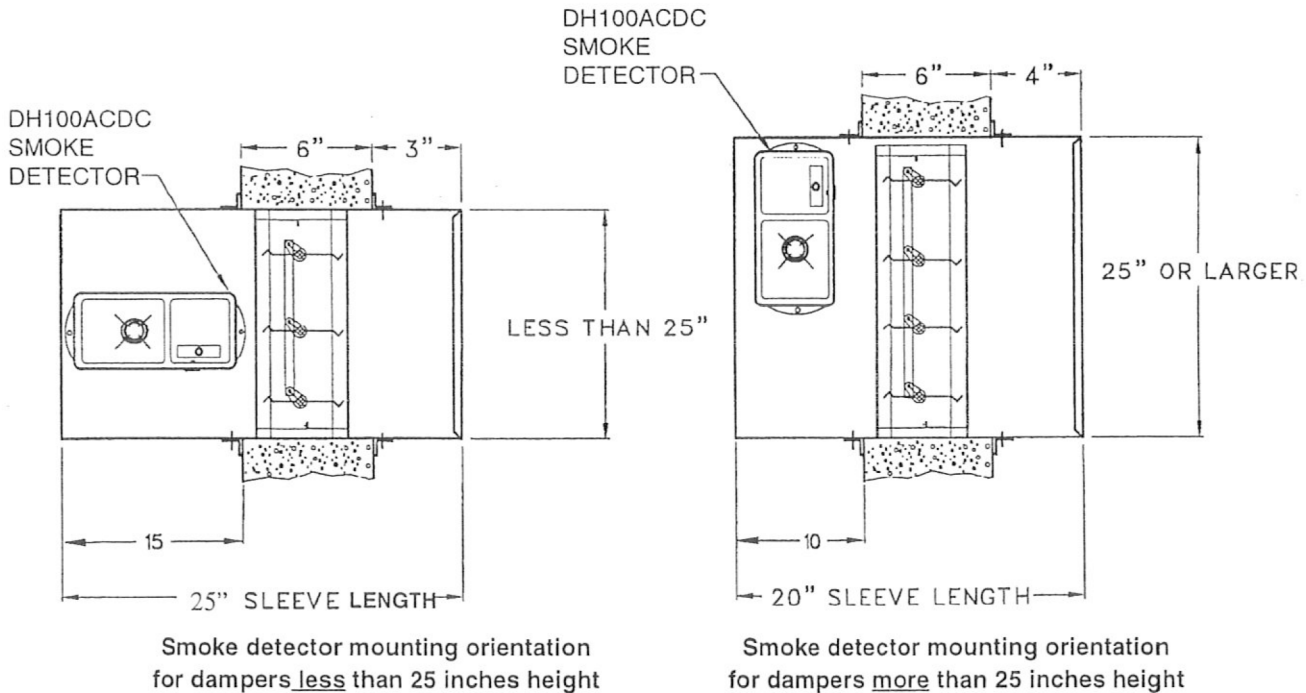
UL CLASSIFIED (see complete marking on product)

CLASSIFIED

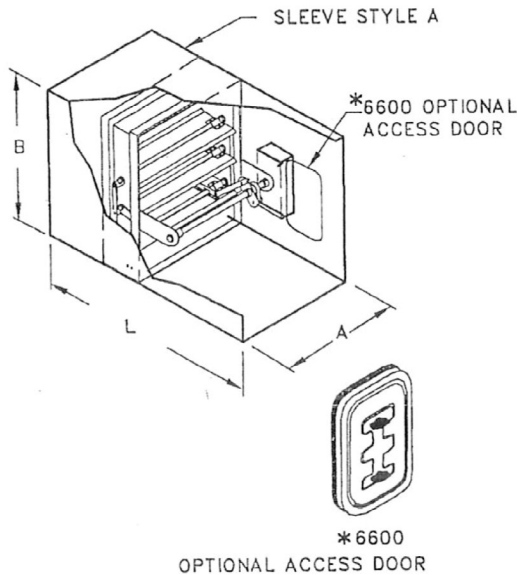


Listing #R15250

Tested per U.L. 555 and 555S



Installation Instructions Supplement with Factory Mounted Access Door For:
SD Series - Smoke Dampers
FSD Series - Combination Fire/Smoke Dampers
CFSD Series - Corridor Ceiling Dampers

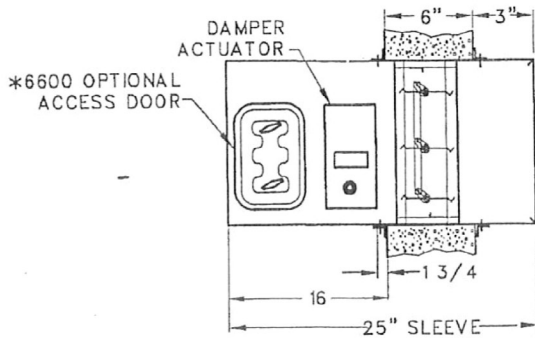


Damper Installed with Series 6600 Access Door

- Minimum sleeve length is 25"
- Dual panel access door provides easy access into air ducts and units
- 3 layers of precision stamped steel provides a solid, well-insulated, leakproof door. (Tested to 20" W.G. positive and 10" negative)
- Access door has high density fiberglass insulation
- Zinc plated bolts are clinched and sealed to the inner door

Refer to:

"Installation Instructions for SD Series Leakage Rated Smoke Dampers"
 or
 "Installation Instructions for FSD Series Combination Fire/Smoke Dampers"
 or
 "Installation Instructions for CFSD Series Corridor Ceiling Dampers"



UL CLASSIFIED (see complete marking on product)

