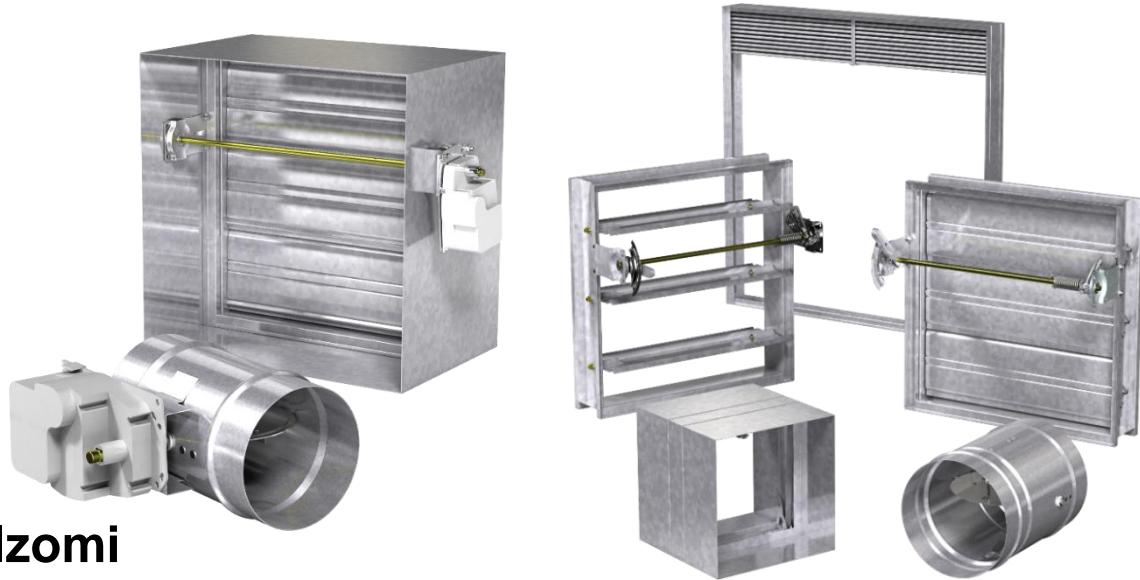




Life Safety Damper Installation Dos & Don'ts



Presented by:

Michael J. Bulzomi

Product Manager, Commercial Dampers



Speaker

Michael J. Bulzomi

Greenheck – Product Manager, Commercial Dampers

Chair: AMCA Smoke & Fire/Smoke Damper Taskforce

Chair: AMCA 503 Publication Committee

Member: AMCA Air Control Code Action & Review Committee (ACCARC)

Member: AMCA Damper Engineering Committee (DEC)

Member: ASHRAE

Member: NFPA

Member: SMACNA

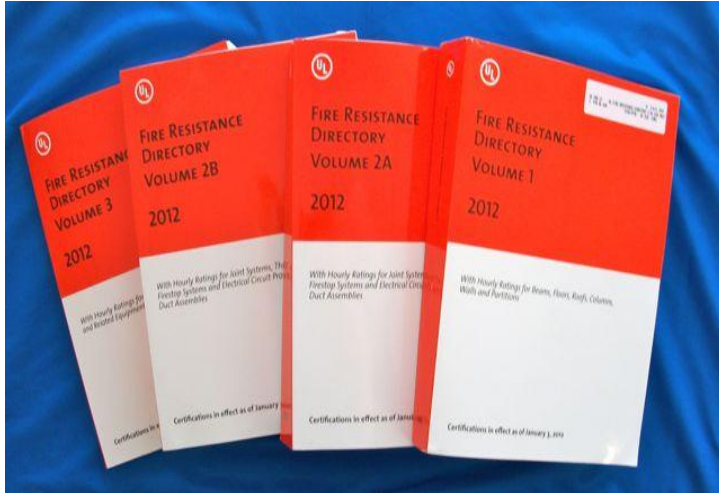


Life Safety Damper Types

- Fire Dampers
- Smoke Dampers
- Combination Fire/Smoke Dampers
 - Corridor Dampers
- Ceiling Radiation Dampers



Underwriters Laboratories (UL) Directory



UL Product iQ®

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Keyword
greenheck Search

UL Category Control Number
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File Number
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91 Results :: Keyword: greenheck

Action Display: General

Document Name	Company Name	Notes	UL CCN Description
AKUS.R18933	GREENHECK FAN CORP		Filters, Grease
AUUZ.E200616	GREENHECK FAN CORP		Commercial Applia
AUUZ7.E200616	GREENHECK FAN CORP		Commercial Applia
BHZF.R39668	GREENHECK FAN CORP		Discrete Products I
BXUV.L501	Aerix Industries AIR BALANCE INC AIR KING VENTILATION PRODUCTS		Fire-resistance Rati Fire-resistance Rati

All UL life safety products are listed in the UL Directories

www.UL.com





Purpose of Life-Safety Dampers

- Containment
 - Building codes require life-safety dampers to protect duct penetrations and air transfer openings in rated construction.
 - Fire- and smoke-rated construction is used to “compartmentalize” a building into fire & smoke zones to prevent the spread of fire and smoke.
- Engineered Smoke-Control Systems
 - Smoke and fire/smoke dampers can be used as part of an engineered smoke-control system to evacuate smoke and/or pressurize zones adjacent to a fire.



Fire Dampers

“A device, installed in an air distribution system, designed to close automatically upon detection of heat, to interrupt migratory airflow, and to **restrict the passage of flame.**” (NFPA 80)



Smoke Dampers

“A device within the air distribution system to **control the movement of smoke.**” (NFPA 105)



Combination Fire/Smoke Dampers

“A device that meets **both the fire damper and smoke damper requirements.**” (NFPA80)



Ceiling Radiation Dampers

“A device installed to **limit radiant heat transfer through an air outlet or air inlet opening in the ceiling of a floor-or roof-ceiling assembly** having not less than a 1 hour fire resistance rating.” (NFPA 90A)



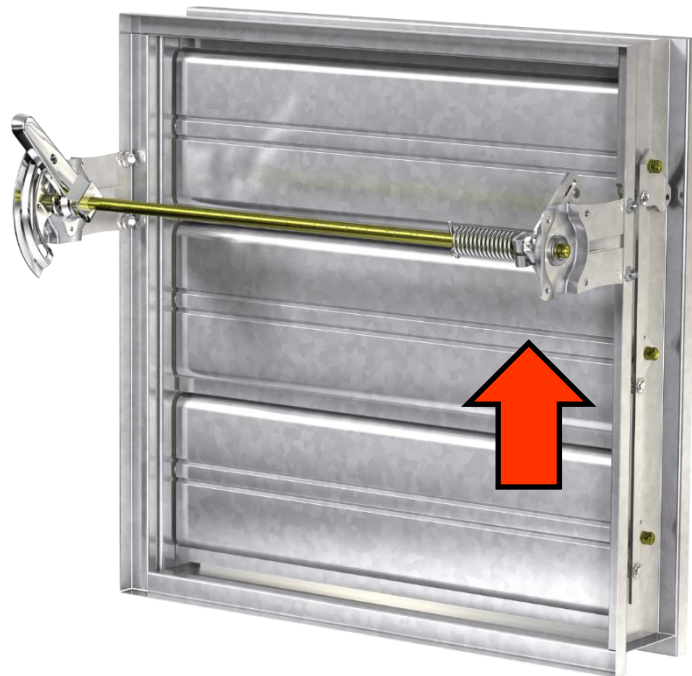
Fire Dampers: How do they work?



Curtain Fire Damper



Typical
Fusible Link



Multi-Blade Fire Damper

Fire/Smoke Damper Closure Devices

- RRL
 - Electronic link
 - Wired in series with actuator
- RRL/OCI
 - RRL (single temp) + Open Close blade position indicator
- TOR
 - RRL (dual temp hi/low) + Open Close blade position indicator
- *PRV*
 - *Pneumatic relief valve*
- *Fusible Link*



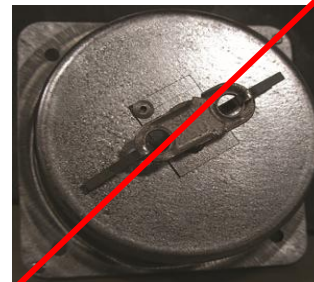
RRL



RRL/OCI



TOR



PRV

Building Codes & Test Standards



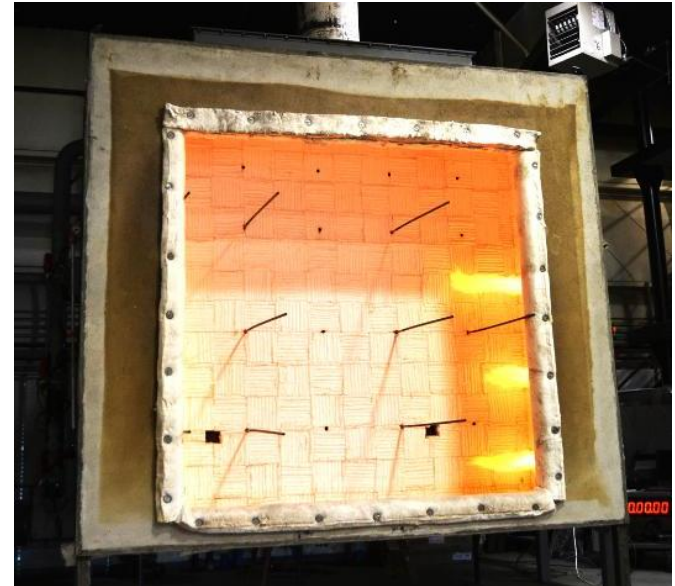


Underwriters Laboratories

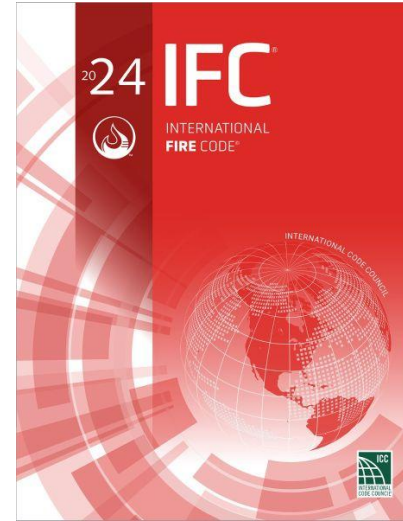
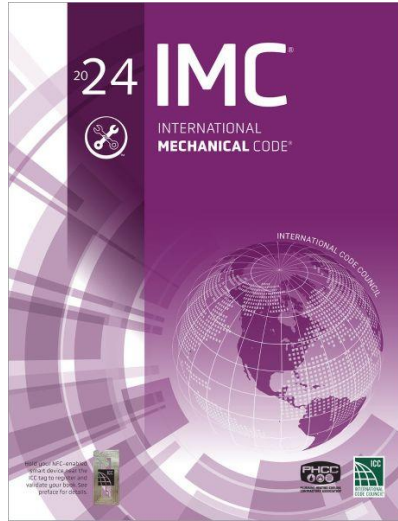
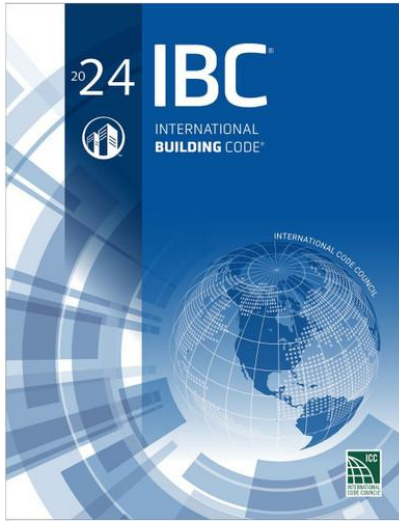
UL Standards for testing, evaluation and certification of dampers:

- **UL 555** - Fire dampers
- **UL 555S** - Smoke dampers
- **UL 555C** - Ceiling Radiation dampers

UL's "Follow-Up Service" ensures that dampers are built as they were tested



“I” Codes



- First published in 2000, combo of 3 legacy codes: BOCA National Building Code (BOCA/NBC), Uniform Building Code (UBC) & Standard Building Code (SBC)
- IBC – design of building; IMC – design of mechanical systems; IFC – regulate fire hazards, testing, maintenance in existing buildings



International Building Code (IBC)

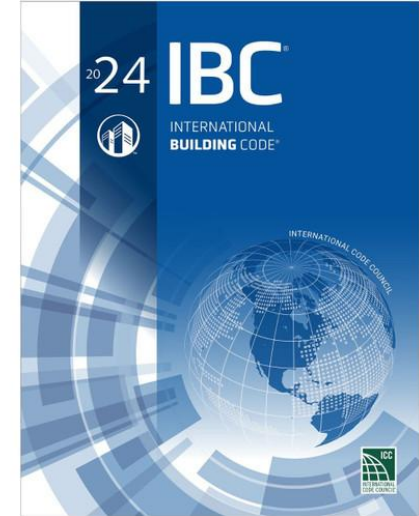
→ Ch. 7 – Fire & Smoke Protection Features

→ Sec. 717 – Ducts & Air Transfer Openings

Defines the type of damper required to protect penetrations through each type of rated building element

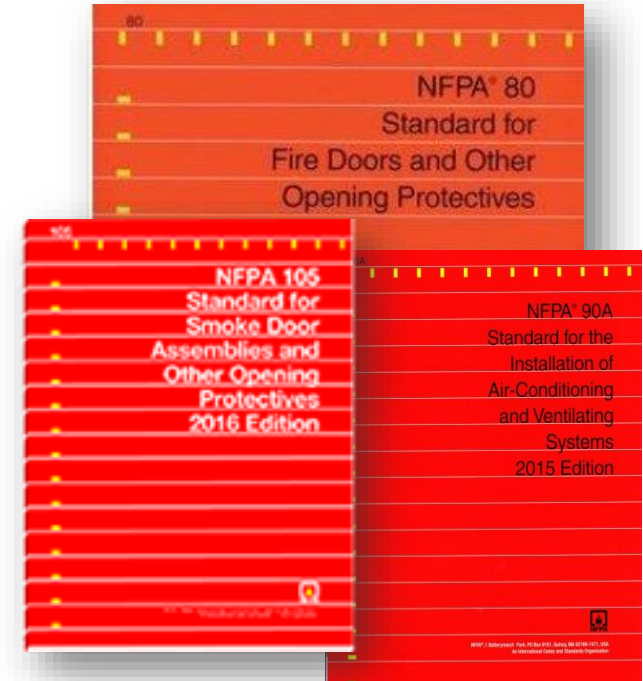
Requires that dampers must be:

- tested in accordance with applicable UL standard
- installed in accordance with manufacturer's instructions



National Fire Protection Association

- Installation, testing, and maintenance:
 - **NFPA 80 Standard for Fire Doors**
 - **NFPA 105 Standard for Smoke Doors**
 - NFPA 90A Standard for Installation of Air-Conditioning and Ventilating Systems
 - NFPA 92 Standard for Smoke-Control Systems



Life Safety Damper Installation



Installation Instructions (IOM)



Document 481318
**MULTI-BLADE FIRE AND
 COMBINATION FIRE SMOKE DAMPERS**
 DFD-XXX, DFD-XXX, DFD-XXX, DFD-XXX, DFD-XXX,
 IMO-XXX, SEDFD-XXX, SEFD-XXX, AND SEFD-XXX
 1½ and 3 Hour Fire & Combination Fire Smoke Dampers
 (with factory installed sleeve and actuator)
 Vertical and Horizontal Mount

Installation, Operation and Maintenance Manual

Please read and save these instructions for future reference. Read carefully before attempting to assemble, install, operate or maintain the product described. Protect yourself and others by observing all safety information. Failure to comply with instructions could result in personal injury and/or property damage!

These instructions apply to 1½ and 3 hour rated fire and combination fire smoke dampers mounted in: 1) masonry, block, or stud walls and 2) concrete floors. Specific requirements in these instructions are mandatory. Dampers must be installed in accordance with these instructions to meet the requirements of UL 555 and/or UL 555S.

Note: Combination fire smoke and fire dampers are manufactured and labeled for either vertical or horizontal installation. The dampers must be installed in accordance with labeling.



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Receiving and Handling

Upon receiving dampers, check for both obvious and hidden damage. If damage is found, record all necessary information on the bill of lading and file a claim with the final carrier. Check to be sure that all parts of the shipment, including accessories, are accounted for.

Dampers must be kept dry and clean. Indoor storage and protection from dirt, dust and the weather is highly recommended. Do not store at temperatures in excess of 100°F (38°C).

This manual is the property of the owner and is required for future maintenance. Please leave it with the owner when the job is complete.

1/3

481318 Multi-Blade Fire and Combination Fire Smoke Dampers

Safety Warning

Improper installation, adjustment, alteration, service or maintenance can cause property damage, injury or death. Read the installation, operating, and maintenance instructions thoroughly before installing or servicing this equipment.



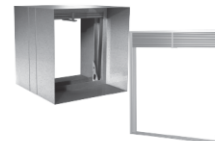
Document number 481324
CURTAIN FIRE DAMPERS
 DFD, DFD-150X, FD, FD-150X, SSDFD, SSFD, AND KFD Series
 1½ and 3 Hour Curtain Fire Dampers
 Vertical and Horizontal Mount

Installation, Operation and Maintenance Manual

Please read and save these instructions for future reference. Read carefully before attempting to assemble, install, operate or maintain the product described. Protect yourself and others by observing all safety information. Failure to comply with instructions could result in personal injury and/or property damage!

These instructions apply to 1½ and 3 hour rated fire dampers mounted (blades must be horizontal) in: 1) masonry, block, or stud walls and 2) concrete floors. Specific requirements in these instructions are mandatory. Dampers must be installed in accordance with these instructions to meet the requirements of UL 555.

Note: Fire dampers are manufactured and labeled for either vertical or horizontal installation. The dampers must be installed in accordance with labeling.



Receiving and Handling

Upon receiving dampers, check for both obvious and hidden damage. If damage is found, record all necessary information on the bill of lading and file a claim with the final carrier. Check to be sure that all parts of the shipment, including accessories, are accounted for.

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1/3

481324 Curtain Fire Dampers

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Required Elements of an “Approved” Life-Safety Damper Installation

1. Rated Barrier

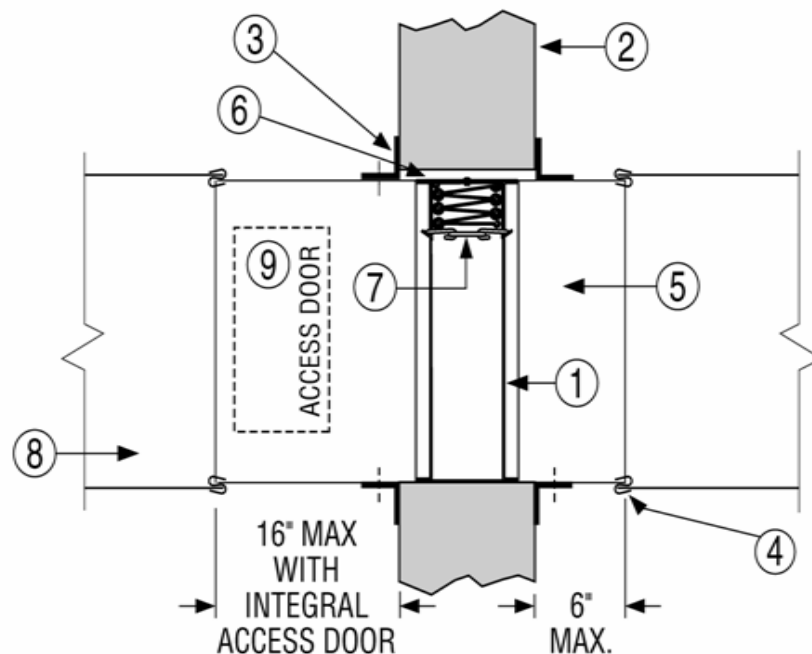
2. Listed Product

3. Installation Requirements



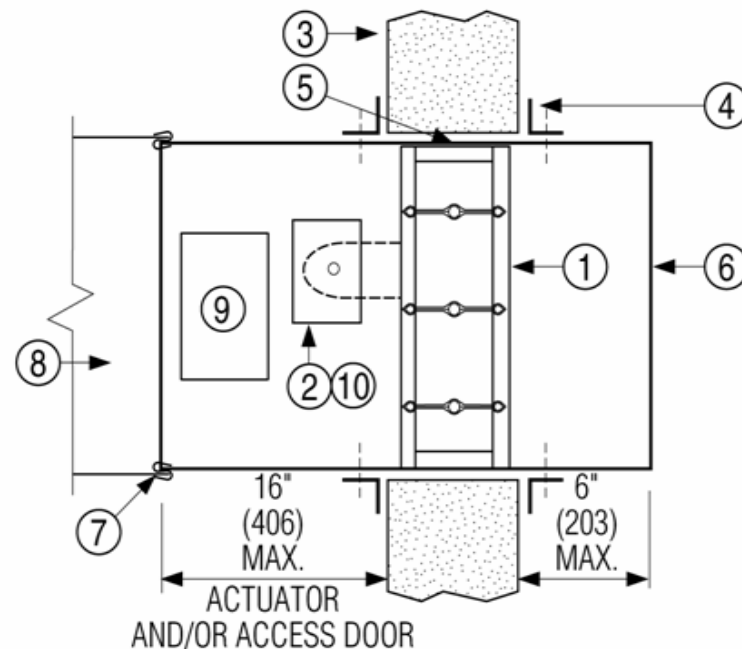
Fire Damper - Curtain Type Typical Installation

- ① **UL CLASSIFIED FIRE DAMPER - DYNAMIC OR STATIC**
1 1/2 Hr. Label - For fire separations up to 2 Hrs.
3 Hr. label - For fire separations up to 4 hrs.
- ② **FIRE SEPARATION**
- ③ **RETAINING ANGLES**
- ④ **BREAKAWAY JOINT**
- ⑤ **SLEEVE (DUCT GAUGE MIN. SMACNA/NFPA 90A SPEC.)**
- ⑥ **EXPANSION CLEARANCE**
- ⑦ **UL LISTED HEAT RESPONSE DEVICE (FUSIBLE LINK)**
- ⑧ **DUCT**
- ⑨ **ACCESS DOOR**



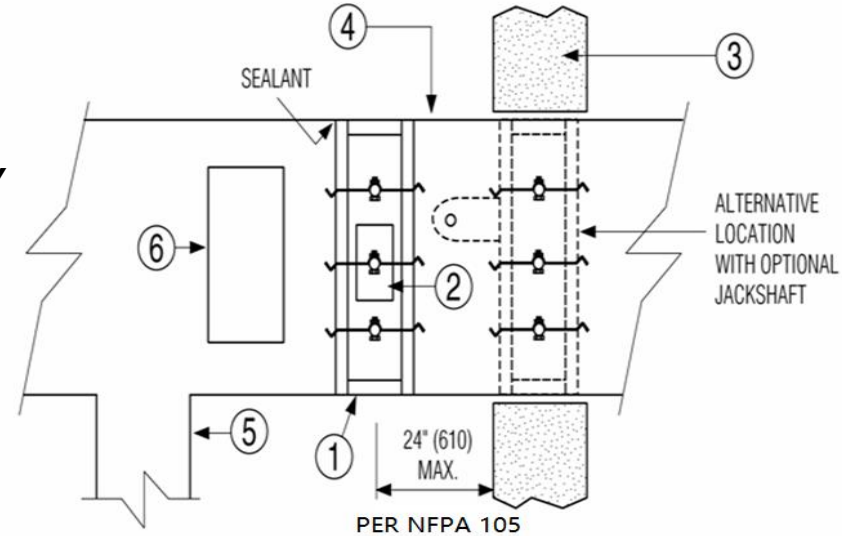
Combination Fire/Smoke Damper Typical Installation

1. UL CLASSIFIED AS BOTH A DYNAMIC FIRE DAMPER AND A LEAKAGE RATED SMOKE DAMPER
2. UL QUALIFIED DAMPER/ACTUATOR ASSEMBLY
Pneumatic or Electric Actuators
3. FIRE SEPARATION & SMOKE BARRIER
4. RETAINING ANGLES
5. EXPANSION CLEARANCE
6. SLEEVE
7. BREAKAWAY JOINT
8. STEEL DUCT
9. ACCESS DOOR
10. UL LISTED HEAT RESPONSIVE DEVICE



Smoke Damper Typical Installation

- ① **UL CLASSIFIED LEAKAGE RATED SMOKE DAMPER**
- ② **UL QUALIFIED ACTUATOR/DAMPER ASSEMBLY**
Pneumatic or Electric Actuators
- ③ **SMOKE BARRIER**
- ④ **DUCT**
- ⑤ **1st DUCT OUTLET**
- ⑥ **ACCESS DOOR**

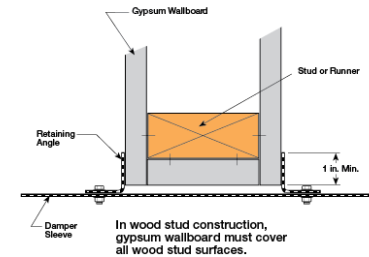
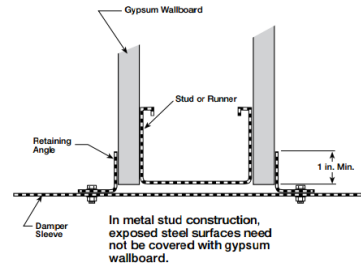
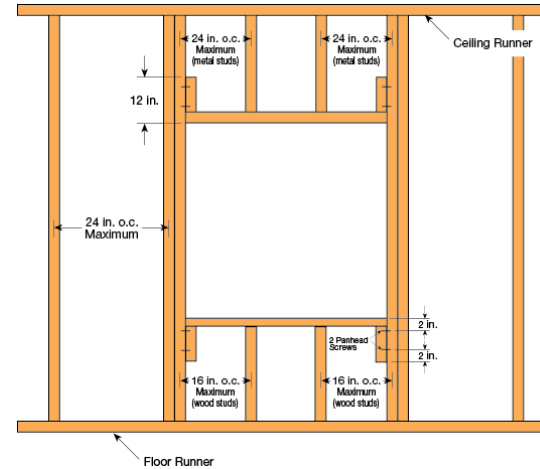


Damper Framing



Framing Requirements

- Framing of Opening
 - Double vertical over 36 in. x 36 in.
 - Wood studs must be covered with sheet rock
 - Steel studs do not need to be covered with sheet rock



Square Opening



Fire Dampers: Types



Curtain Fire
Damper



True Round
Fire Damper

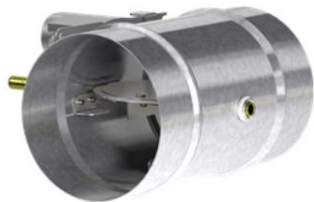


Multi-blade
Fire Damper

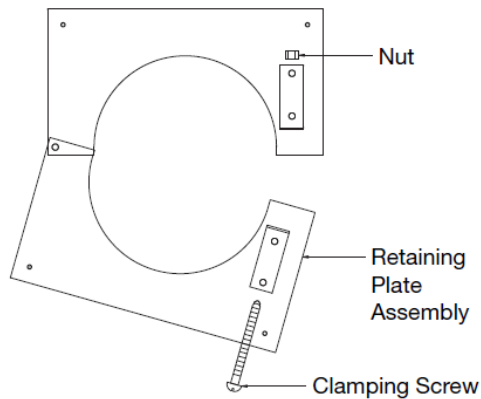
True Round Life-Safety Dampers



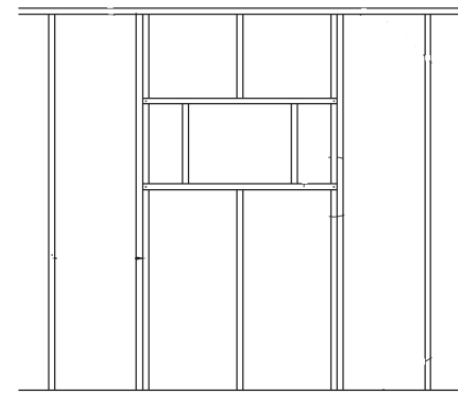
DFDR-510
True Round
Dynamic Fire Damper



FSDR-510
True Round
Fire Smoke Damper



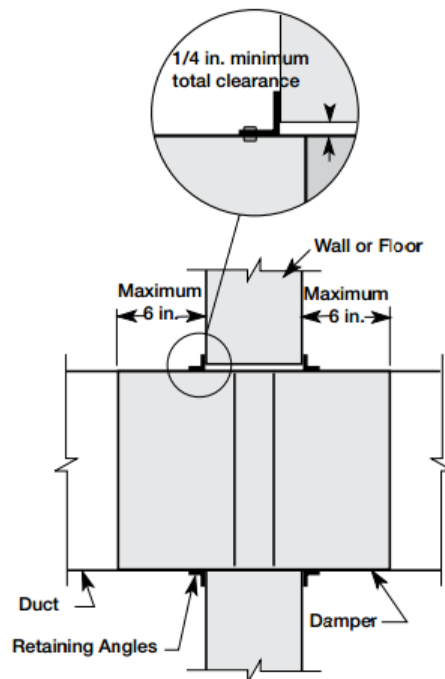
Retaining Plate
Included with the Damper



The Opening in the Wall
Does Not Have to be
Round!

Clearance Requirements (FD/FSD)

- The centerline of the damper must be within the plane of the wall.
- The required thermal expansion clearances between the damper sleeve and wall/floor opening must be maintained.
 - “annular space”, “expansion gap”, “expansion clearance”



Clearance Requirements



Document number 481324

CURTAIN FIRE DAMPERS

DFD, DFD-150X, FD, FD-150X, SSDFD, SSFD, AND KFD Series
1½ and 3 Hour Curtain Fire Dampers

Vertical and Horizontal Mount

Installation, Operation and Maintenance Manual

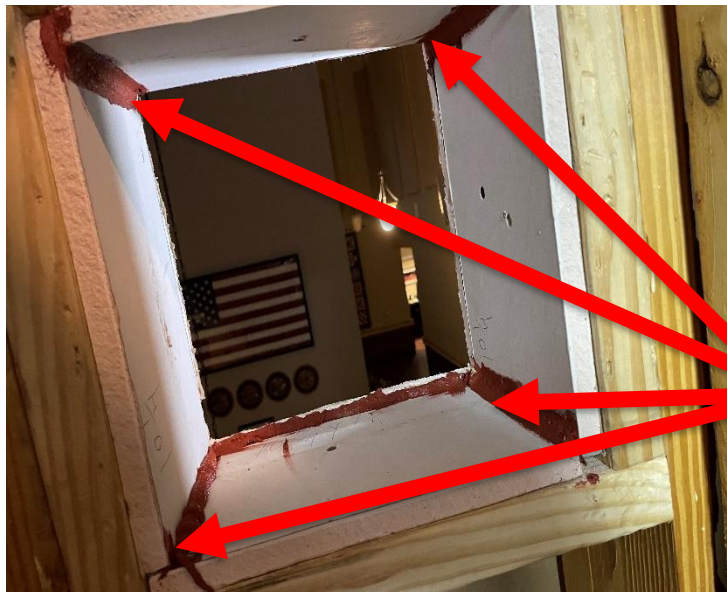
Please read and save these instructions for future reference. Read carefully before attempting to assemble, install, operate or maintain the product described. Protect yourself and others by observing all safety information. Failure to comply with instructions could result in personal injury and/or property damage!

- For galvanized steel fire dampers and sleeves: ½ in. per foot (3mm per .3 m) of damper width and ½ in. per foot (3mm per .3 m) height with a minimum clearance of ¼ in. (6mm), maximum of 1½ in. (38mm).
- For stainless steel fire/smoke dampers and stainless steel or galvanized sleeves: ⅜ in. per foot (5mm per .3 m) of damper width and height with a minimum clearance of ¼ in. (6mm), maximum of 2 in. (51mm).

Although the minimum requirements are listed above, for ease of installation the following are the recommended clearances for galvanized dampers:

- Width/Height of 48 in. (1219 mm) or less - ½ in. (13mm) clearance
- Width/Height between 48.01 in. (1220 mm) and 96 in. (2438 mm): 1 in. (25mm) clearance
- Width/Height greater than 96 in. (2438 mm): 1½ in. (38 mm) clearance

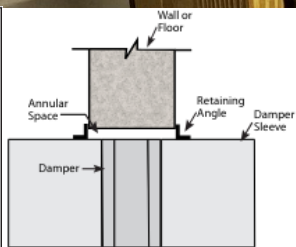
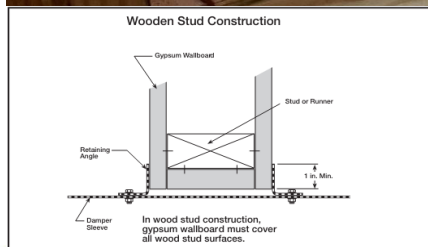




What's wrong with this picture?

UL 555 rated fire dampers do not require sealant to maintain it's UL 555 classification. However, approved sealants can be used as long as you follow the damper manufacturers UL approved installation instructions.

For installations in WOOD STUD walls, the studs are required to be lined in sheetrock. Those seams are not required to be sealed. Use of sealant may impact the performance of the damper and potentially void the UL listing. Always check with the damper manufacturer and Authority Having Jurisdiction (AHJ) prior to use application of sealants.



Damper Sleeves



Sleeve Requirements

Sleeve Requirements

All fire dampers must be installed in a steel sleeve of the required gauge and length. Note that DFD-150X and FD-150X series dampers are provided with an integral sleeve. See **Table on page 10** for required minimum sleeve gauges. Maximum sleeve thickness is 10 gauge (3.5mm). Sleeve inside dimensions must equal damper outside dimensions.

Sleeves shall extend a maximum of 6 in. (152mm) beyond the wall or floor opening on each side. When a factory mounted access door is incorporated as a part of the sleeve the sleeve may extend a maximum of 16 in. (406mm) beyond the wall or floor opening on the access door side.

Fire dampers must be attached to sleeves as shown in **Figure 6**. All four sides of the damper frame must be attached to the sleeve with one row of attachments on each side of the blade channel. Attachments must be spaced a maximum of 6 in. (152mm) on centers and a maximum of 2 in. (51mm) from corners. A minimum of 4 attachments (2 on each side of the blade channel) per side (16 per damper) are required. One of the methods of attachment shown below must be used:

- tack or spot welds
- #10 sheet metal screws
- ¼ in. (6mm) bolts and nuts
- ⅜ in. (4.7mm) steel pop rivets

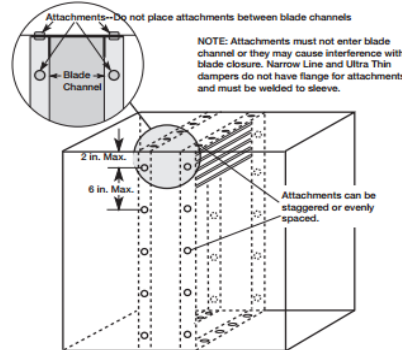


Figure 6: Field attachment of fire dampers to sleeves.

Sleeve Extension



Document number 462103

Sleeve Extensions

Installation Instruction Supplement

FD & DFD Series

1½ Hour Curtain Fire Dampers and

FSD Series

Combination Fire Smoke Dampers

Refer to:

"Installation Instructions for FD, DFD, DFD X series, and FD X series Fire Damper Models" (Part #481324)

or

"Installation Instructions for FSD-XXX, DFD-XXX, and SSFSD-XXX Series Fire & Combination Fire Smoke Dampers" (Part #481318) for additional details.

"UL CLASSIFIED (see complete marking on product)"

"UL CLASSIFIED to Canadian safety standards (see complete marking on product)"

Standard 555 and 555S (Listing #R13317)



Application

Factory installed sleeves may need to be extended in the field. This supplement covers the following applications:

- When the factory sleeve extends all the way through the rated barrier (**Figure 1**)
- When the factory sleeve ends in the plane of the rated barrier (**Figure 2**).

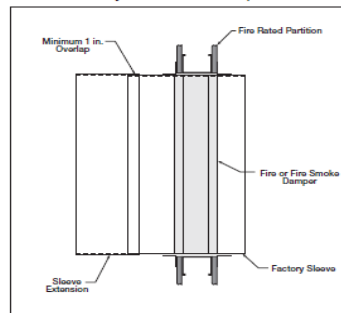


Figure 1: Factory sleeve extends all the way through the rated barrier.

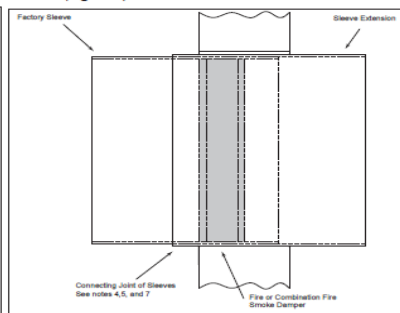


Figure 2: Factory sleeve ends in the plane of the rated barrier.

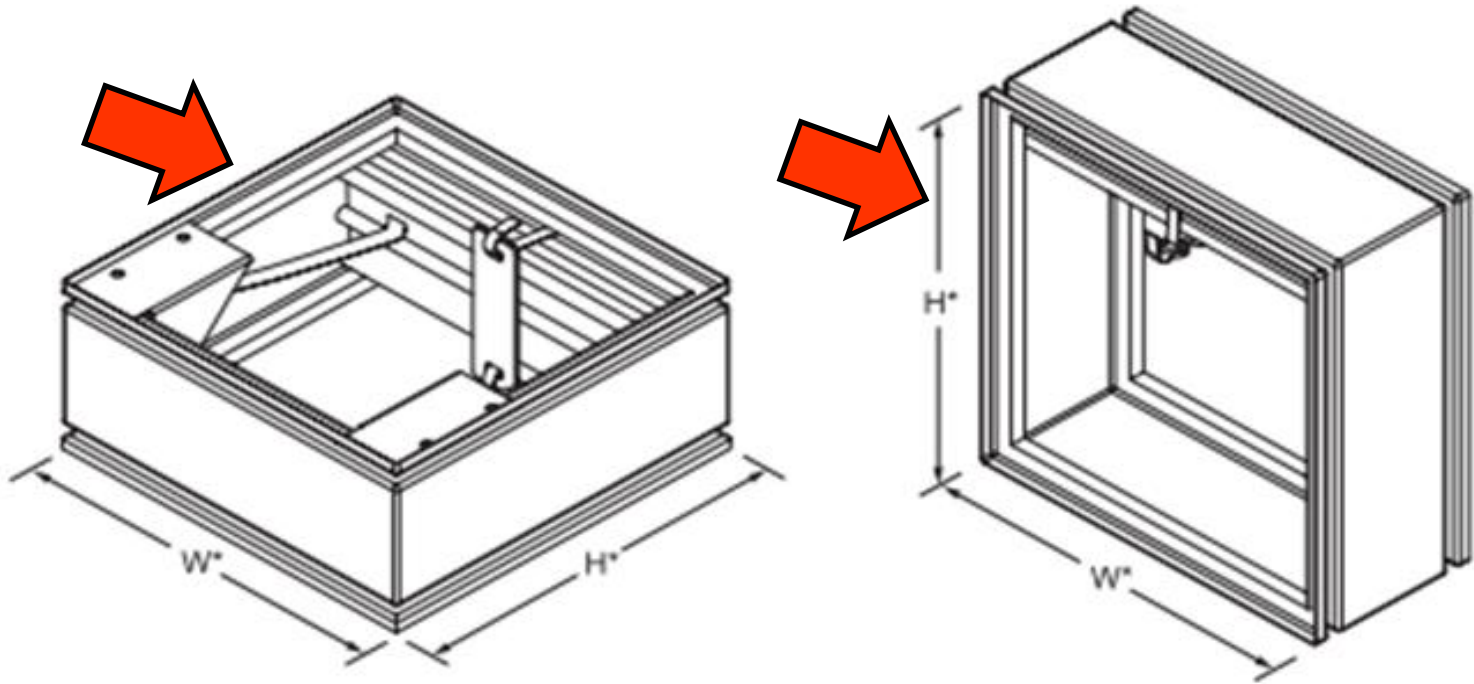


Inserting damper into opening



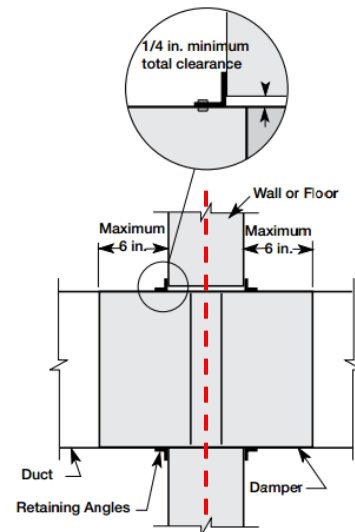
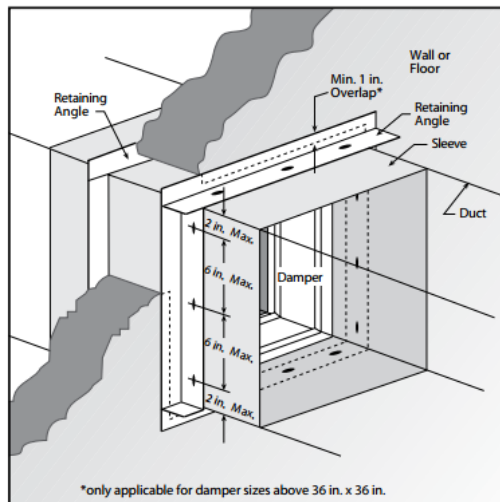
Mounting Position

Why orientation (V or H) matters:



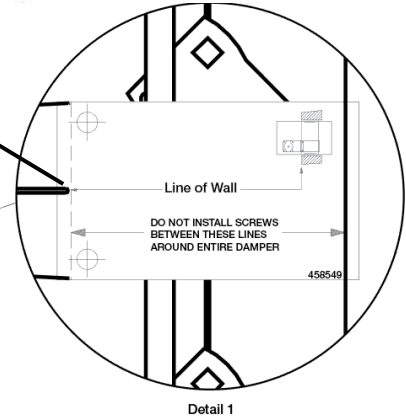
Traditional “In wall” Installation

- The centerline of the damper frame must be in the plane of the wall/floor
- Requires annular space between the damper sleeve and wall opening
- Retaining Angle Installation
 - Angles must be fastened to the sleeve (not to the barrier)



Inserting Damper - FSD-311

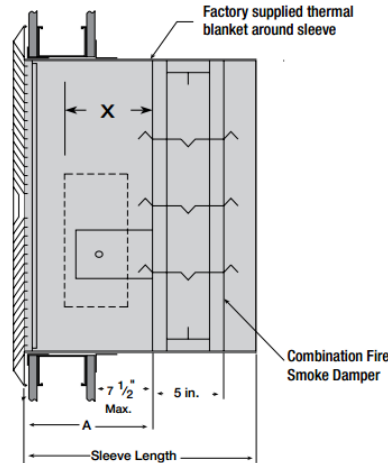
- Label on the outside of the sleeve for the recommended location of the damper
- Centerline of damper frame remains within the plane of the wall or floor
- Do not penetrate the “No screw area”
- 16 in. maximum sleeve beyond the wall or floor on actuator side, and 6” opposite side



“Out-Of-Wall” Installation Methods

Only valid for specific models that were tested outside the plane of the rated barrier

Commonly used in shaft walls installations where there is no external access to the actuator.



What's wrong with this picture?



It is critical to understand the damper position and service/installation clearance dimensions shown in submittal and installation documents.

Wall thickness will affect the length of sleeve required to make a proper installation. A 16" standard sleeve is sufficient for most commercial applications using a 4" deep wall. As wall thickness increases, damper sleeve length should increase to ensure proper placement of the damper inside the opening, allow for service clearance of the actuator, and provide enough space to mount any necessary retaining angles.

- Cutting a hole in the sheetrock to allow clearance for the actuator is not a valid installation and should not be accepted by an AHJ.
- Modifying the damper/actuator from its originally shipped condition may impact the UL rating and performance of the damper. Consult Greenheck and AHJ prior to modifying dampers.

Not an approved installation method



What's wrong with this picture?



UL rated dampers can be installed using several types of fasteners, most commonly #10 sheetmetal screws. Retaining angles and other accessories or devices can be field mounted to the damper and it is the installing contractors responsibility not to interfere with the dampers operation.

Damper manufacturers will label their dampers with warning labels that indicate the dampers position within the sleeve and advise NOT to penetrate that area with any fasteners or tools.

- **Pictured is a curtain fire damper with a screw head in the jamb, causing the damper blade stack to hang up and not fully close. Not adhering to the warning labels and penetrating the damper sleeve will cause issues with damper operation.**

What's wrong with this picture?



Here's one from the archives. I received this picture of an "installed" curtain fire damper in 2012, has been in every one of my damper presentations since then!

- Damper is not installed in the plane of the wall, nor is it an out-of-wall style damper.
- The damper is not installed correctly, there is no degree "off horizontal" allowed for a fire damper (true round dampers can have this allowance).
- There is no retaining angle or breakaway connection.
 - Note: duct insulation should not interfere with the breakaway joint or pass through the opening (NFPA 90A).
- BONUS: There is an access door for code required periodic testing and maintenance

Duct Connections



Duct to Sleeve Connections

Sleeve Gauge and Connection Type Requirements

The size of the damper/duct determines the required sleeve gauge and the required duct to sleeve connection (see table to the right). The sleeve thickness must also not be less than the gauge of the connecting duct. Any duct connection other than the breakaway connections described below are considered rigid.

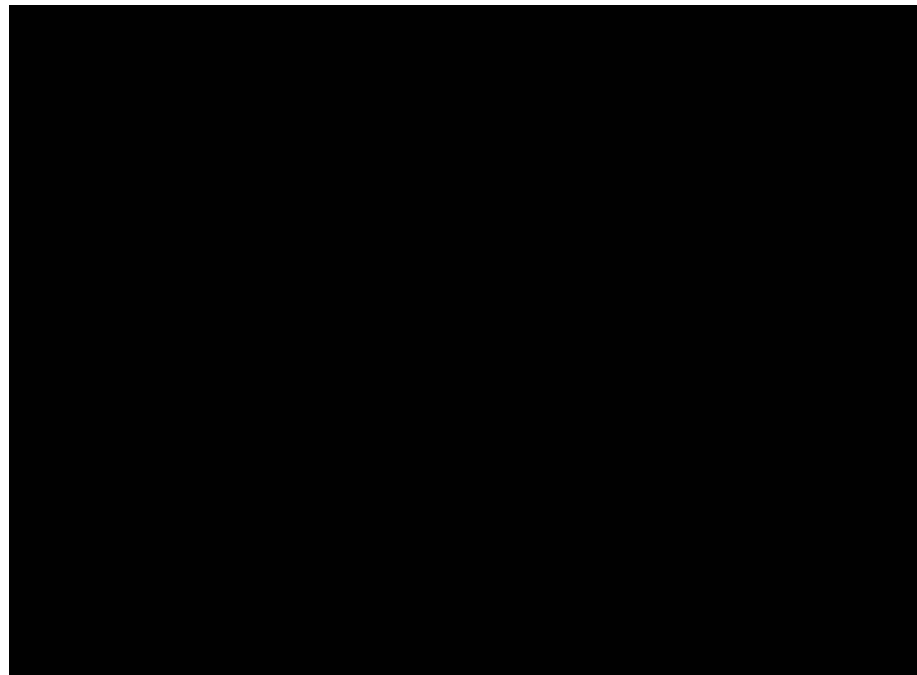
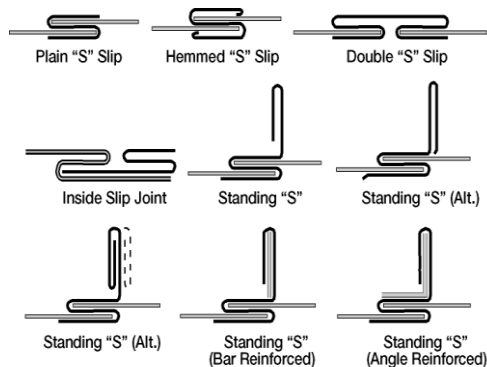
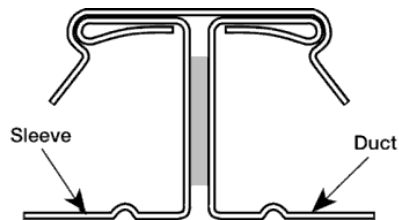
Sleeve Gauge	Duct Dimension	Type of Duct to Sleeve Connection Permitted
14 ga. (0.075 in.) - 10 ga. (0.138 in.) [2mm - 3.5mm]	All duct sizes	Rigid or Breakaway
16 ga. (0.060 in.) [1.5mm]	36 in. (914mm) max. width 24 in. (610mm) max. height 24 in. (610mm) diameter	Rigid or Breakaway
16 ga. (0.060 in.) [1.5mm]	All duct sizes	Breakaway only
18 ga. (0.048 in.) [1.2mm]	85 in. (2159mm) wide and over	
20 ga. (0.036 in.) [0.9mm]	55 in. - 84 in. wide (1397mm - 2134mm)	
22 ga. (.030 in.) [0.76mm]	31 in. - 54 in. wide (787mm - 1372mm)	
24 ga. (0.024) [0.6mm]	13 in. - 30 in. wide (330mm - 762mm)	
26 ga. (0.018 in.) [0.46mm]	12 in. wide and under (305mm)	
See Breakaway Connection section for additional information. UL Standard 555 requires all ducts to terminate at fire damper sleeves.		



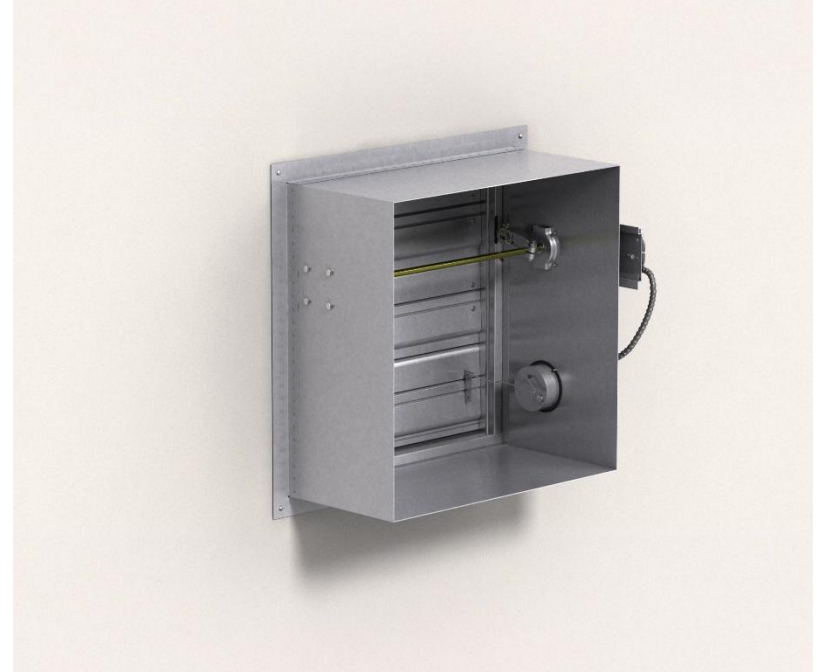
Duct to Sleeve Connections

- Types

- Rigid
- Breakaway



Retaining Angles



Retaining Angles



POC RETAINING ANGLE

Greenheck's one piece retaining angle, the POC (literally named for being a "Piece of Cake") makes damper installation a breeze. The POC angle is designed by fastening four pieces together to form one piece. When installed the angles simply wraps around the sleeve of the damper and is fastened in place.

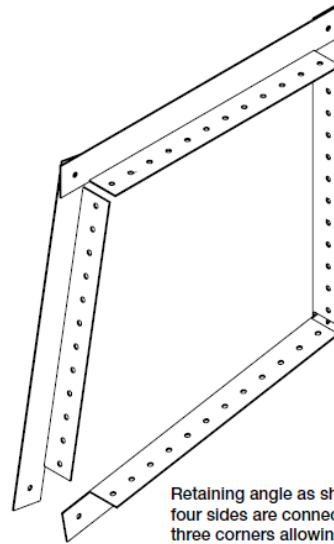
Construction

20 ga. (1mm) or 16 ga. (1.5mm) galvanized steel.

1½ in. x 1¼ in. (38mm x 32mm) or
2½ in. x 1¼ in. (64mm x 32mm) for sizes greater
than 48 inches (1219mm)

Retaining angles for 1½ hour rated fire and combination fire smoke dampers with a width and height 48 in. (1219mm) or less must be a minimum of 20 ga. (1mm) steel. Retaining angles for all 3 hour rated dampers and all dampers with a width or height greater than 48 in. (1219mm) must be a minimum of 16 ga. (1.5mm). If damper width plus damper height is less than or equal to 44 in. (1117mm) then the POC angles ships in one piece. If damper width plus damper height is greater than 44 in. (1117mm) then the POC angles ships in two pieces.

Meets requirements of UL 555 and UL 555S.

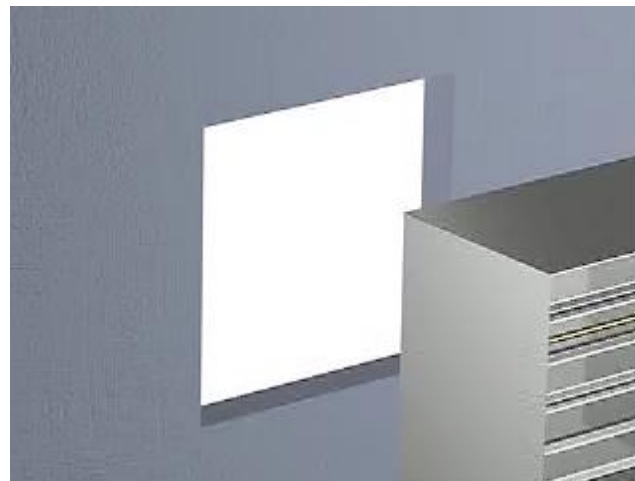


Retaining angle as shipped from factory. The four sides are connected together by rivets in three corners allowing for easy installation.



Factory Supplied Retaining Angles

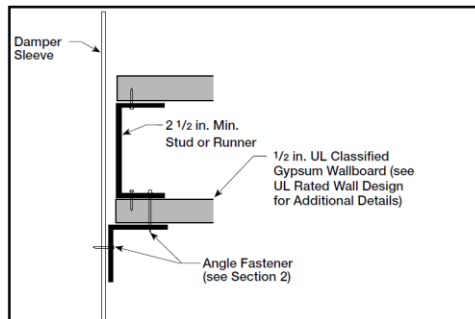
- Meet the requirements of NFPA 90A
- “Two-sided”
 - Attached to the damper sleeve on both sides
- “Single-sided”
 - Attached to the damper sleeve and wall/floor on one side
 - 80” x 50” or 50” x 80” or 40” x 100” on vertical mount
 - 144” x 96” on horizontal mount



Alternative Installation Methods

Single Side Installation

- No annular space requirements
- Angles must be attached to both the sleeve and the barrier
- Allowable damper sizes:
 - Vertical Mount:
 - 80"x50"
 - 50"x80"
 - 40"x100"
 - Horizontal Mount
 - 144"x96"



* Larger assemblies and 3 hour ratings require angles on *both* sides of barrier

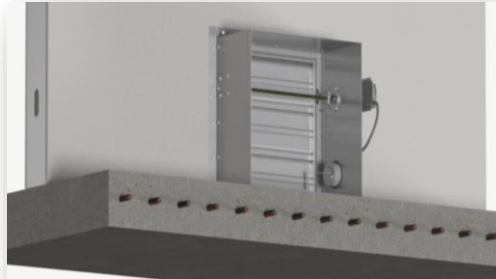


Alternative Installation Methods

3 Sided Retaining Angle Installation Method



- The retaining angle may be omitted from any of the four sides
- UL approved



Other considerations

Access Doors

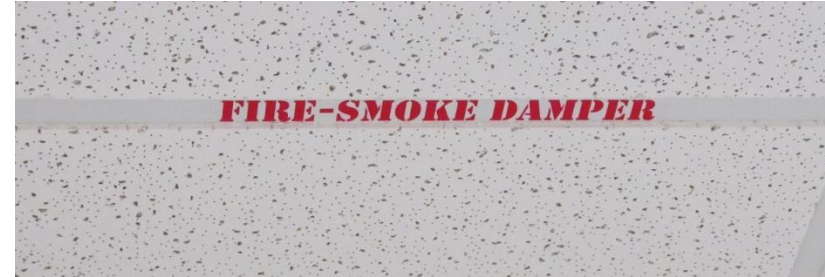
- NFPA 105

- Dampers equipped with fusible links and/or internal operators shall be provided with an access door that is not less than 12 in.² or provided with removable duct section.



- NFPA 80

- The damper access panel shall be labeled the words “Fire Damper”, “Smoke Damper”, or “Fire Smoke Damper” in letters not less than 1 in. height.



Common question: **Do I HAVE TO seal around retaining angles?**

- Sealing of retaining angles is NOT REQUIRED.
- Sealing of retaining angles IS PERMITTED when done in accordance with UL approved installation instructions.
- Specific requirements for location and type of sealant to be used.

Consult manufacturer's installation manual for specific requirements for each damper manufacturer and damper type.



Refer to:

'Installation Instructions for FD, DFD, DFD X, and FD X series Fire Damper models' (Part # 481324)

or

'Installation Instructions for FSD-xxx, DFD-xxx, & SSFSD-xxx series Fire & Combination Fire Smoke Dampers' (Part # 481318) for additional details.

The field or factory installation of a sleeve on a fire rated damper does not require any application of sealant to maintain the UL 555 classification of the fire damper assembly. However, the sealant can be used along any seams of a fire rated damper assembly (except along blade edges) to help prevent air leakage in high pressure applications.

The general installation of a fire rated damper is addressed in the UL 555 (Standard for Fire Dampers Seventh Edition July 12, 2006) in Section 18 "Installation and Operating Instructions". In reference to the use of a sealant in the area between the inside of the wall opening and the outside of the fire damper sleeve (referred to as the "annular space" see **Figure 1**), UL 555 provides the following information:

18 General

- 18.1 A copy of the installation and operating instructions shall be used as a reference in the examination and testing of the damper. For these purposes, a final printed copy is not required.
- 18.2 Each shipping container that contains a damper(s) shall be provided with legible instructions pertaining to the installation and operation of the damper. Illustrations are used with the required instructions to clarify the intent. Dampers shipped in a common container are required to be provided with one copy of the installation and operating instruction only.
- 18.3 The instruction shall specify:
 - a) the type of wall or partition (masonry or gypboard) or floor, as applicable;
 - b) the clearances required for expansion of the fire damper, as applicable;

Document 462703

Sealant Usage in Conjunction
with Fire Rated Dampers

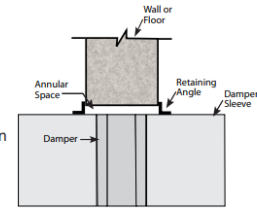


Figure 1



Common question:
Do I HAVE TO seal around retaining angles?

When might this come up?

NFPA 1: Fire Code 12.7.7.1 (NFPA 101: 8.3.4.1)

12.7.7 Opening Protectives.

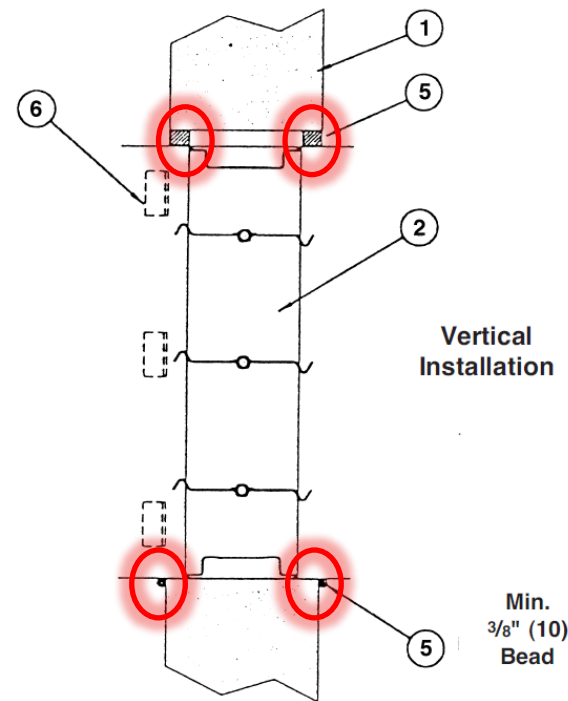
12.7.7.1 Every opening in a fire barrier shall be protected to limit the spread of fire and restrict the movement of smoke from one side of the fire barrier to the other [101: 8.3.4.1]



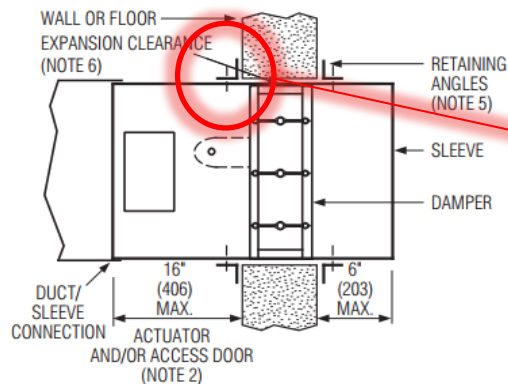
Common question: **Do I HAVE TO fill the gap around fire dampers?**

- The space around a fire damper or fire/smoke damper is commonly referred to as the annular space or expansion gap.
- Almost every manufacturer and damper on the market states “DO NOT” to fill the gap!!
- There is only 1 manufacturer (*that I am aware of) that has an optional installation method using fire stopping caulk around the damper in the gap. THIS INSTALLATION IS VERY SPECIFIC.

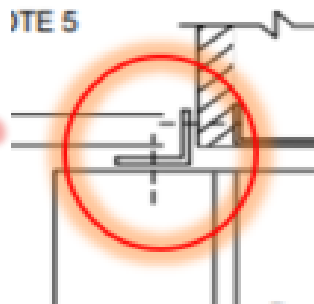
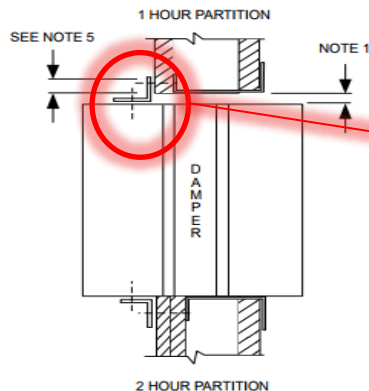
Consult manufacturer's installation manual for specific requirements for each damper manufacturer and damper type.



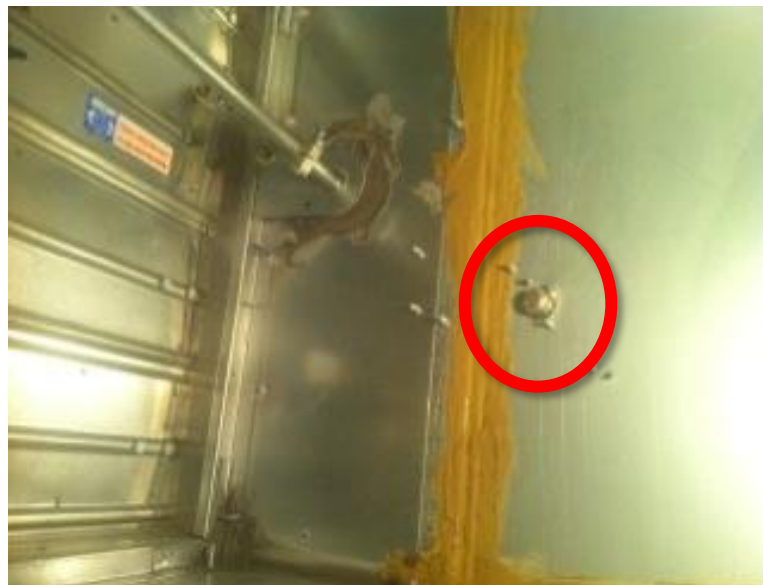
Common question: **Do I HAVE TO anchor the retaining angle into the wall?**



- Anchoring the retaining angle into the wall is usually **NOT REQUIRED** on a standard 2 sided angle installation (partition wall).
- Anchoring the retaining angle into the wall is usually **REQUIRED** on a standard 1 sided angle installation (shaft wall).



Consult manufacturer's installation manual for specific requirements for each damper manufacturer and damper type.



Modifying the damper in the field

Fire & Smoke Damper NFPA mandated Inspection/Testing/Maintenance



NFPA Standards

Includes installation, testing and maintenance requirements:

- NFPA 80: Standard for Fire Doors
- NFPA 105: Standard for Smoke Doors
- NFPA 90A: Standard for Installation of Air-conditioning and Ventilating Systems
- NFPA 92: Standard for Smoke-Control Systems



Code MANDATED testing of dampers

The various model building codes do not detail all of the periodic testing requirements. They refer to the NFPA standard that applies to the damper type.

After commissioning, the testing requirements generally are as follows (**NFPA 80, NFPA 105**):

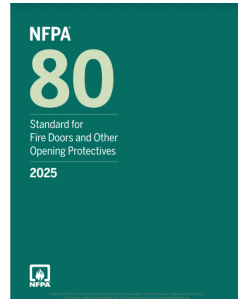
- Each damper tested and inspected after installation
- Each damper tested and inspected 1 year after installation.
- Each damper tested and inspected every 4 years thereafter, except in hospitals where the frequency is every 6 years.



NFPA 80

Chapter 20 - Installation, Testing, and Maintenance of Dampers

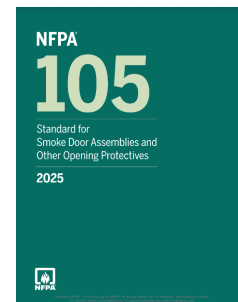
- After damper installation:
 - Perform operational test
 - After operational test, perform visual inspection
 - Perform documentation after inspection
 - Acceptance test
 - Perform visual inspection prior to acceptance test
 - Perform documentation after inspection
- 1 year later, then every 4 years (or 6 in hospitals):
 - Perform periodic test
 - Perform visual or remote inspection methods as prescribed
 - Perform documentation after inspection



NFPA 105

Chapter 7 - Installation, Testing, and Maintenance of Smoke Dampers

- After building has been balanced:
 - Perform operational test
 - Perform documentation after testing
 - Acceptance test
 - Perform visual inspection prior to acceptance test
 - Perform documentation after inspection
- 1 year later, then every 4 years (or 6 in hospitals):
 - Perform periodic test
 - Perform visual or remote inspection methods as prescribed
 - Perform documentation after inspection



Thank you for your time!





The mission of Greenheck is to be the market leader in the development, manufacture and worldwide sale of quality air moving and control equipment with total commitment to customer service.

