

SMACNA

RUSKIN

LIFE SAFETY DAMPERS



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Topics to Cover:

- UL Standards for Life Safety Dampers
- Damper Ratings
- Proper Installation & Options
- Field Installation Problems and Authority Having Jurisdiction (AHJ)
- Inspection & Maintenance & why it matters

RUSKIN



CODES & STANDARDS



“Ducts and Air Transfer openings that are protected with dampers shall comply with Section 716” - Ducts and Air Transfer Openings



Fire Dampers

UL555

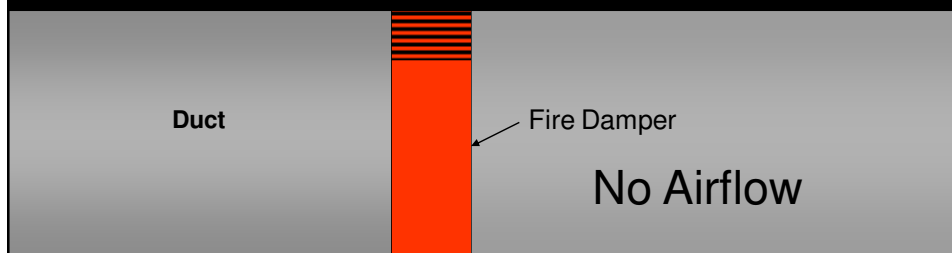
- **Fire Endurance Test**
- **Hose Stream Test**
- **Operational Reliability Test**
- **Dynamic Closure Test**



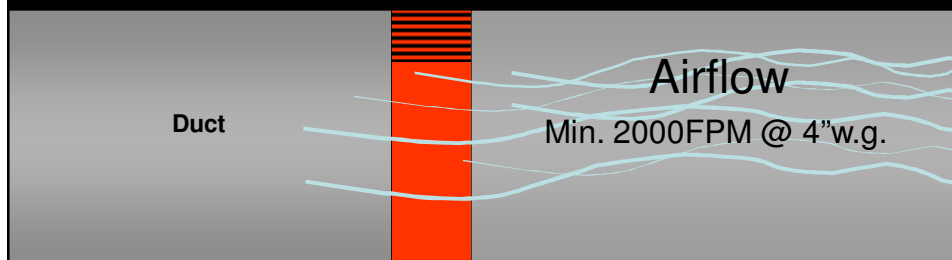
Hourly Ratings for Fire & Combination Fire/Smoke Dampers

- **1 ½ Hr** – Acceptable for penetrations rated less than 3 hours (**NFPA90A** & **IBC**)
- **3 Hr** – Acceptable for penetrations rated 3 hours or greater (**NFPA90A** & **IBC**)

STATIC RATED: Not Tested With Airflow Through Damper



DYNAMIC RATED: Tested With Heated Airflow Through Damper



Smoke Dampers

UL555S

- **Cycle Testing**
- **Elevated Temperature Test**
(250° or 350°)
- **Operation Test**
- **Leakage Test Ratings**

Leakage Class I – 8cfm @ 4" w.g.
Leakage Class II – 20cfm @ 4" w.g.
Leakage Class III – 80cfm @ 4" w.g.



Ceiling Dampers

UL555C

- **Fire Endurance/ Heat Radiation Test**
- **Operational Reliability Test**
- **Dust & Salt Spray Test**

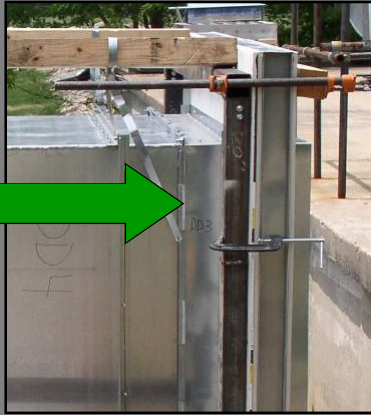






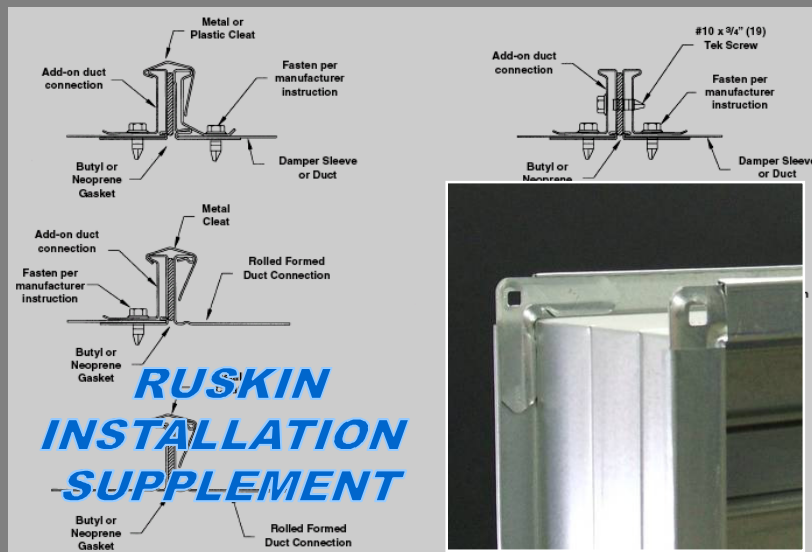
UL DUCT DROP BREAK-AWAY TEST

Duct to Damper Sleeve
Connection



FLANGED SYSTEM BREAKAWAY CONNECTIONS

WARD / DUCTMATE / NEXUS / TDC / TDF





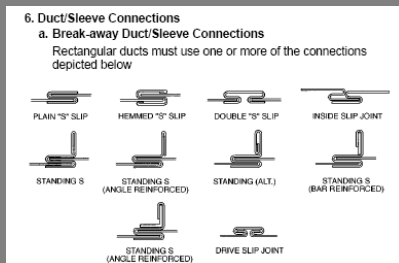
APPROVED DUCT SEALANTS

For OPTIONAL sealing of joints, any one of the 4 may be applied

- **Design Polymerics - DP1010**
- **Hardcast, Inc. - Iron Grip 601**
- **Eco Duct Seal - 44-52**
- **Precision - PA2084T**



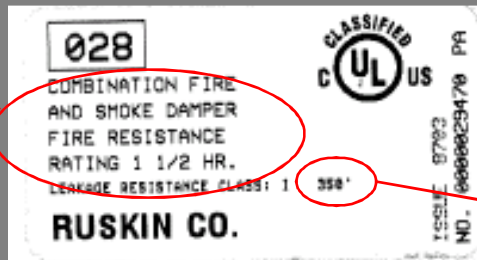
WATER BASED
LEED qualified



UL Certification

- The Label **Certifies** the Product meets stringent testing and performance requirements
 - Covered by UL's Follow Up Service

Indicates Damper Type & Rating



Assembly Temp. 350°

Example of UL Label for *Ruskin* Fire/Smoke Damper

FIRE DAMPERS

Operation:

Designed to close automatically when fire (heat) is present to stop the passage of flame



CURTAIN STYLE



MULTI-BLADE

Frame Styles



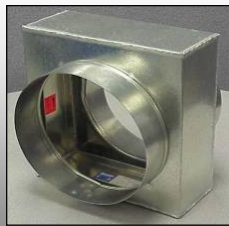
A style



B style – More Free Area



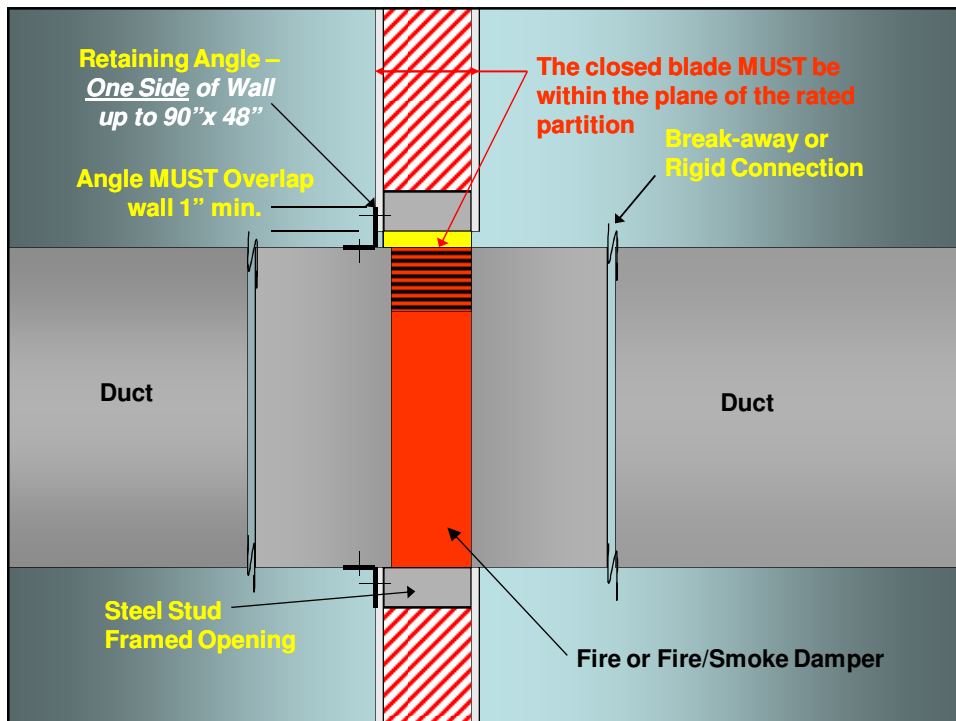
C style – Most Free Area

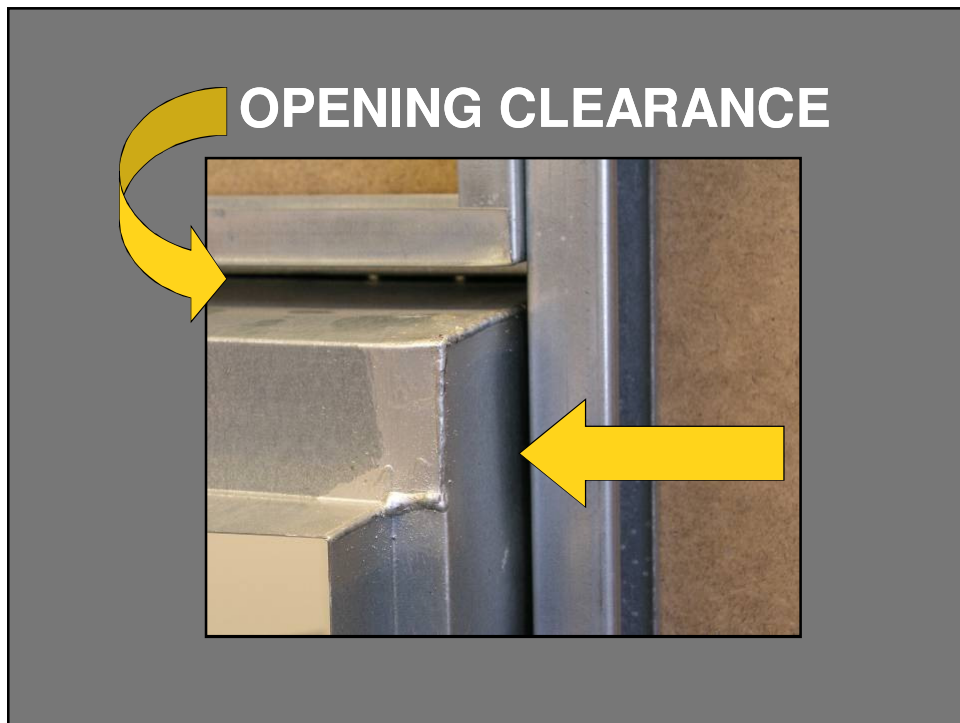
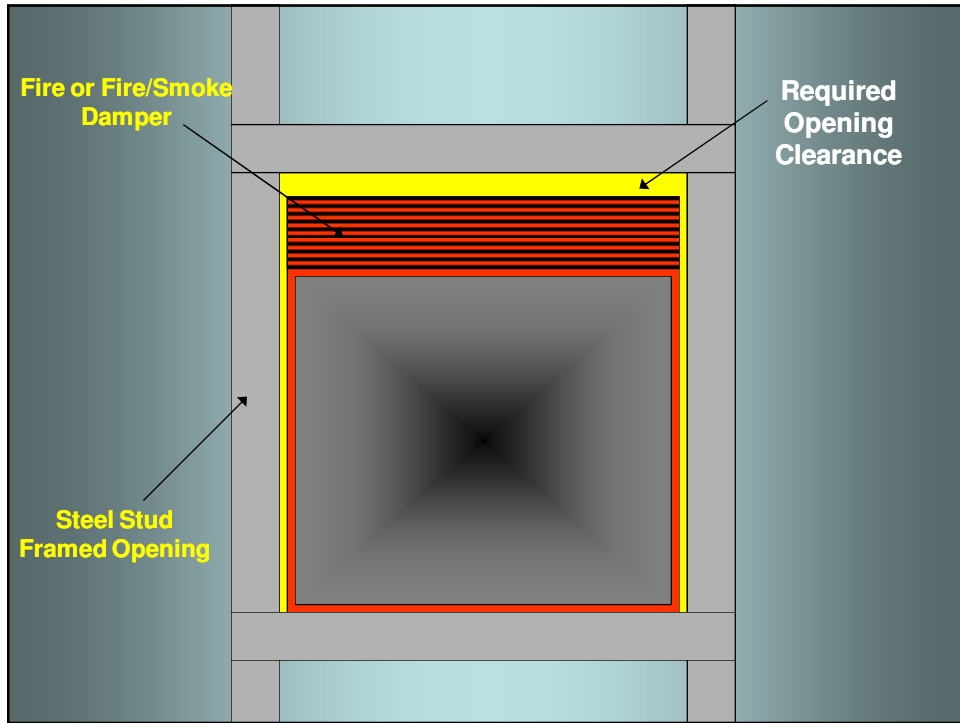


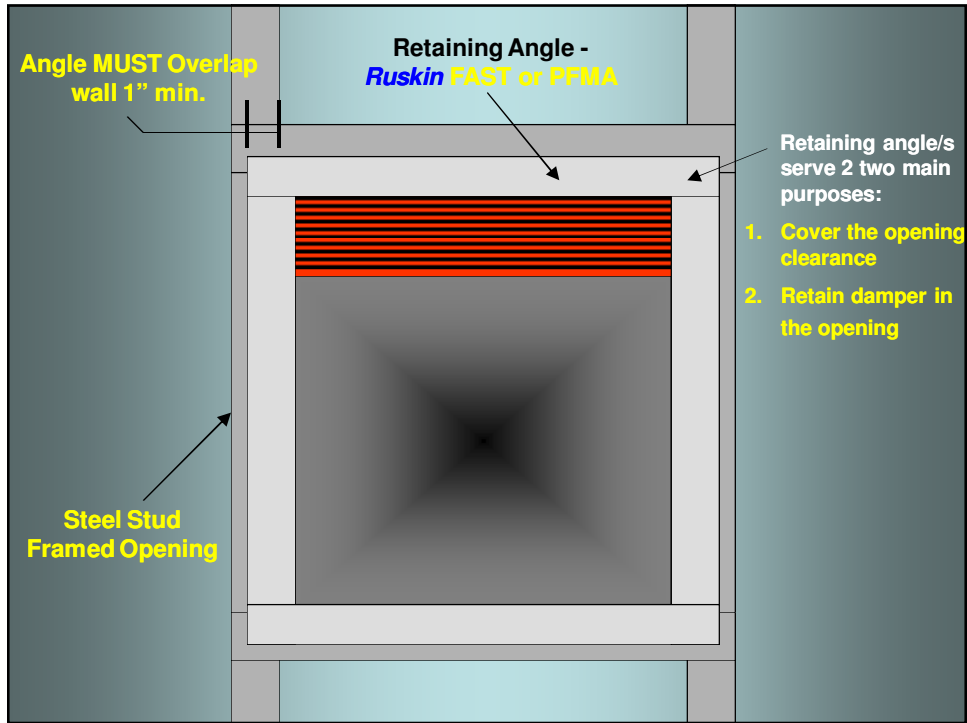
R style – Round Duct



O style – Oval Duct



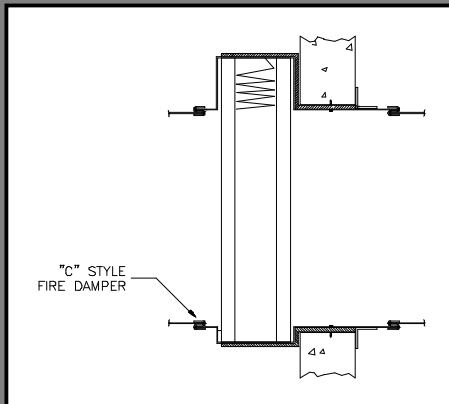
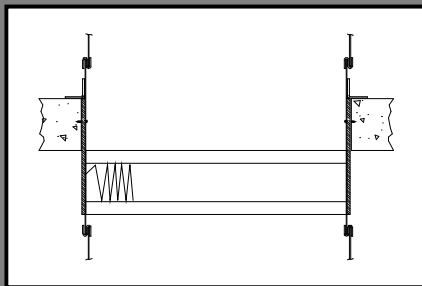




OUT OF WALL/FLOOR

Optional Installation Solutions

- Retrofit Applications
- Through Penetration
- Duct Termination



OPTIONAL SEALANT

AROUND THE OPENING PERIMETER

Where Retaining Angle meets the wall & sleeve



**RUSKIN
INSTALLATION
SUPPLEMENT**

OPTIONAL FIRESTOP SEALANT

AROUND THE OPENING PERIMETER

Where Retaining Angle meets the wall & sleeve

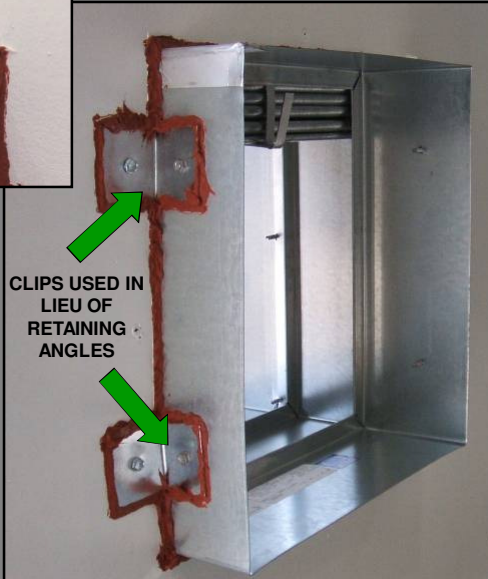


**RUSKIN
INSTALLATION
SUPPLEMENT**

OPTIONAL FIRESTOP INSTALLATION



Hilt FS-One
SpecSeal® Series SSS or LCI
Johns Manville Firetemp™ C1

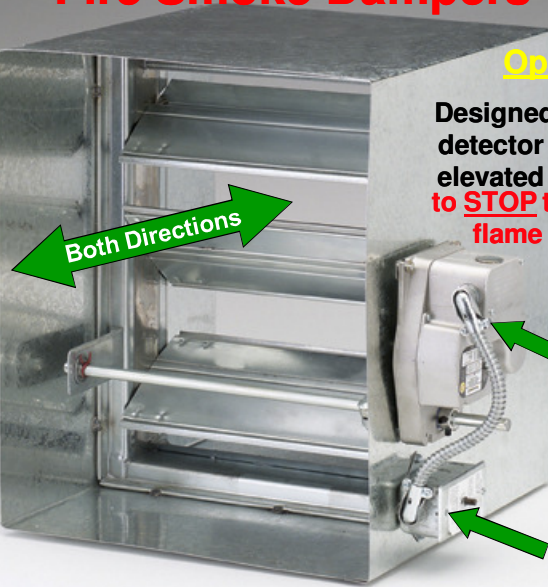
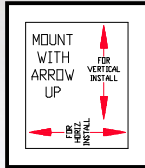
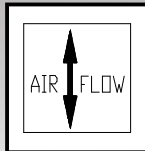


CLIPS USED IN LIEU OF RETAINING ANGLES

Fire Smoke Dampers

Operation:

Designed to close upon detector of smoke or at elevated temperature... to **STOP** the passage of flame and smoke



Two-position Spring Return Actuator

Electronic Heat Sensor

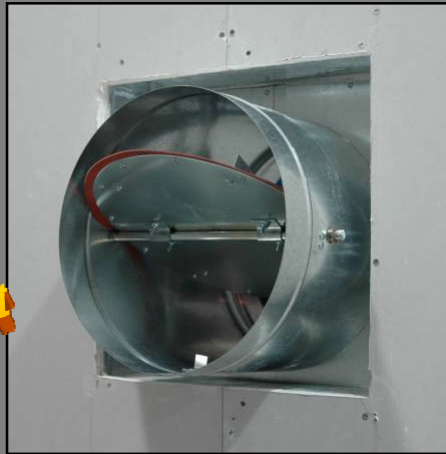
FSDR25

TRUE ROUND Fire/Smoke Damper

"Cinch" Plate on One-Side ONLY



**Best Choice
for Round Duct**



"GRILLE ACCESS" Models



FSD35GA/ 36GA/ 60GA

**No Retaining
Angles Needed!**



Shaft Penetrations



FSD36FA/ 60FA

FSDFA “Front Access”

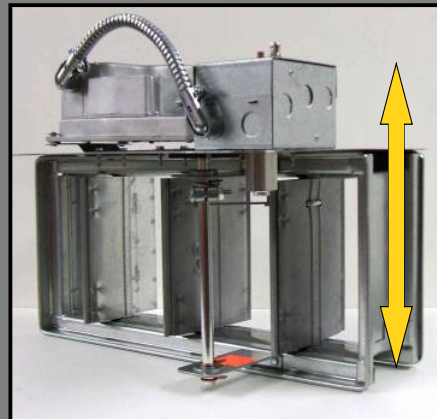
- Allows for shortest sleeve possible
- Access to actuator & other components through the grille
- Thermal insulation on damper allows out of wall installation



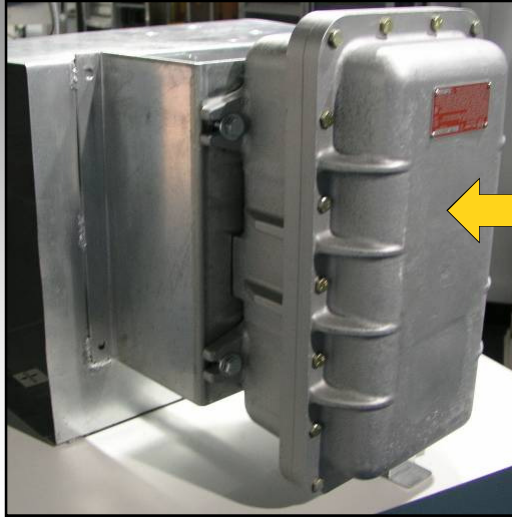
FSD60-V

Vertical Blade Fire Smoke Damper

For applications where ducts run side by side and there is no room for actuator on the side of damper.



FSD60XP HAZARDOUS LOCATIONS



Fire/Smoke
Damper
equipped with
Explosion Proof
Housing for Actuator

Marine Fire Dampers

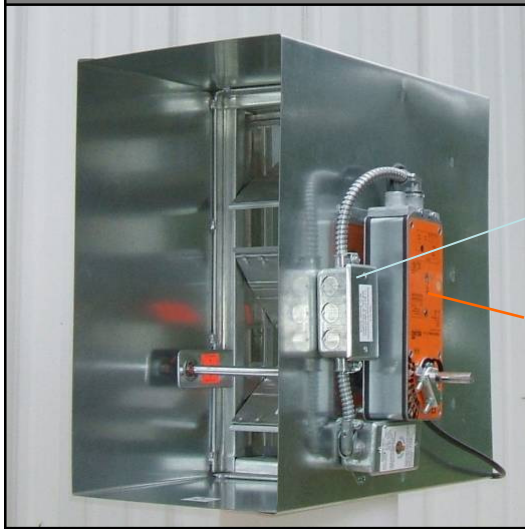


Model A60

- USCG approved
- SS or Galv. Steel construction
- Electric or Pneumatic actuators

FSD60M

MODULATING Fire/Smoke Damper



Proportional Modulating Actuator

Responds from control signal 2 to 10 VDC or 4 to 20mA with 500Ω resistor

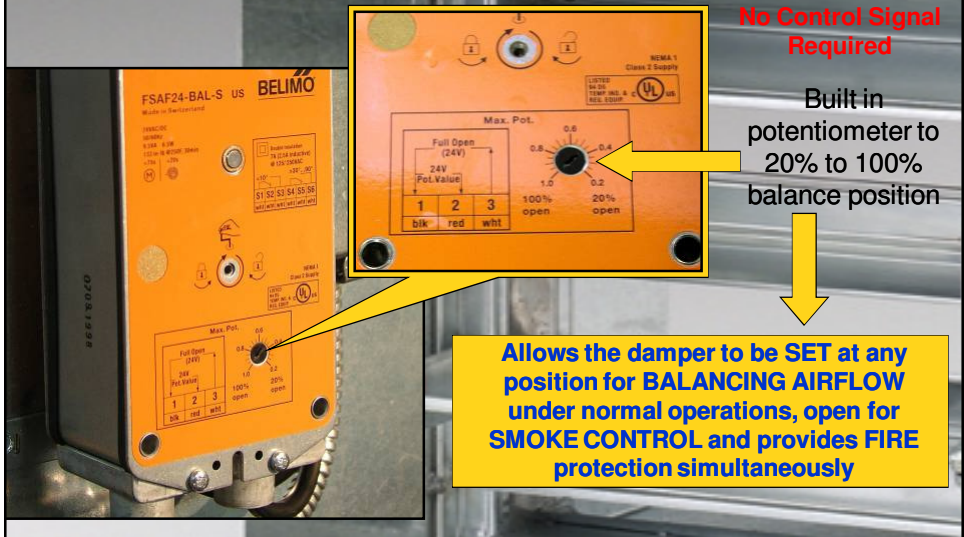
Control, Fire & Smoke Damper in ONE

NEW!

FSD60-BAL

3-Position "Balancing"

Fire/Smoke Damper



No Control Signal Required

Built in potentiometer to 20% to 100% balance position

Allows the damper to be SET at any position for BALANCING AIRFLOW under normal operations, open for SMOKE CONTROL and provides FIRE protection simultaneously

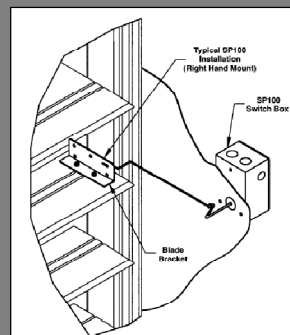
DAMPER ACCESSORIES

For Fire & Smoke Dampers

TS150 – Firestat

(Used on Combination fire/smoke dampers)

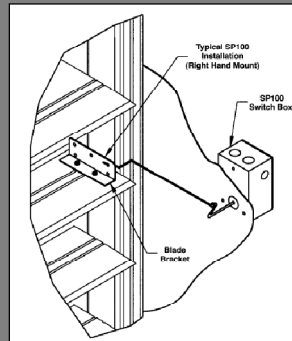
- Allows the damper to be reopened after the initial closure for dynamic smoke control.
- Equipped with blade position indicator



SP100

Available on Smoke & Fire/Smoke Dampers

- Indicates the position of the damper blades
- Allows for other equipment to be turned off or on



SP200

Available on Curtain Style Dampers

- Indicates the position of the damper blades
- Allows for other equipment to be turned off or on



SPH2

Honeywell “add-on” Auxiliary Switch

For models: ML4202, H2000 & MS4209

Mounts directly on
actuator hub



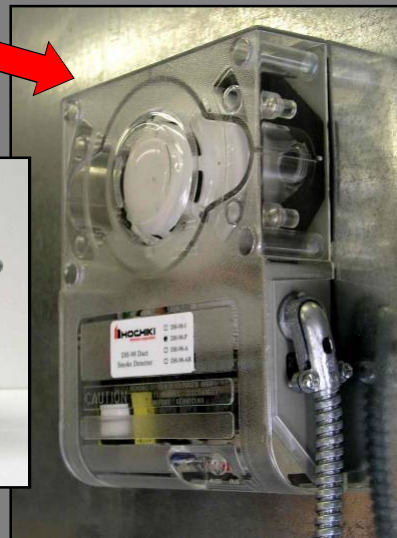
DSDF (Flow)

Detector Duct Smoke

**Factory Mounted
on damper**



Operates in duct velocity range
of 300 – 4000fpm



DSDN (No-Flow) Duct Smoke Detector

**Factory Mounted
inside damper**

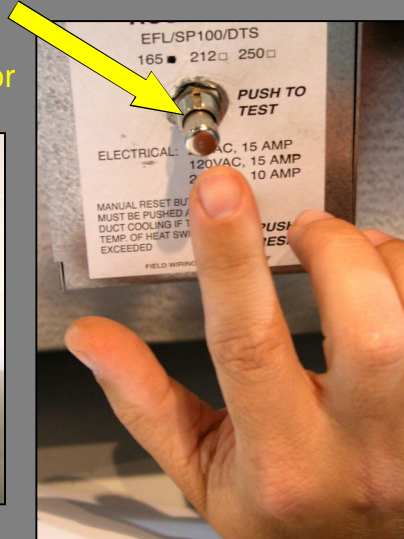
Operates in
duct velocity of
0 – 3000fpm



DTS

Damper Test Switch

Push to test interrupts
power momentarily for
cycle testing of actuator



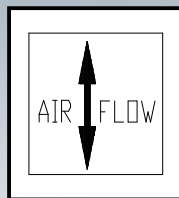
ACCESS DOOR

Factory Mounted in Damper Sleeve



Eliminates labor in the field

SMOKE DAMPERS



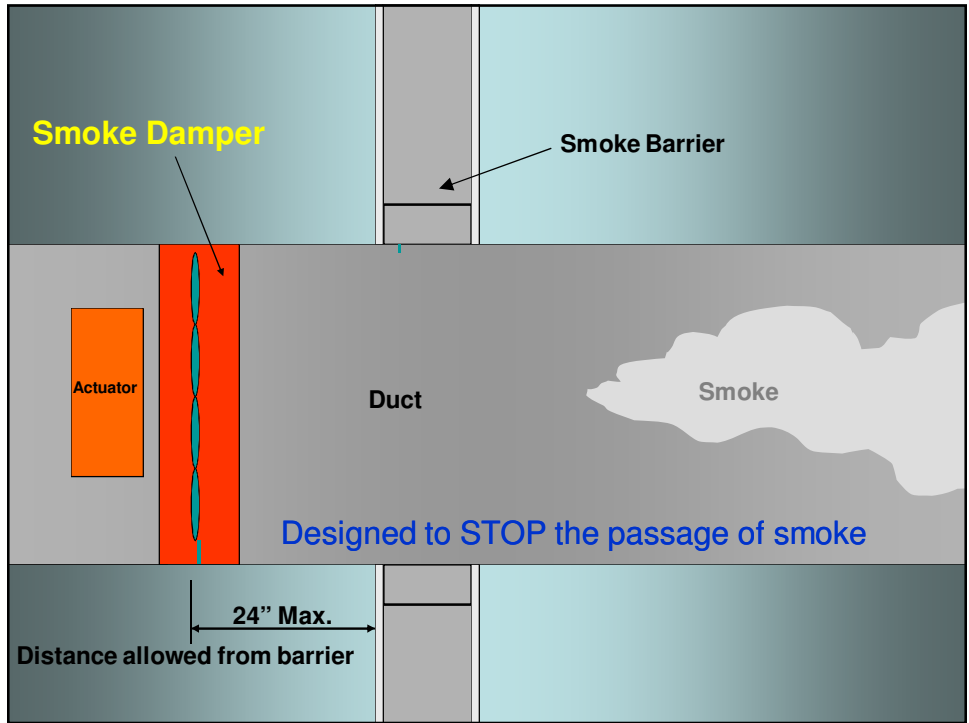
Leakage Ratings
Class I, II, III



Operation:

Designed to close upon detector of smoke

Two-position Spring Return Actuator



SD102 Smoke Damper



1. Industrial Type Smoke Damper
2. Mounts directly to fan, or attaches to duct
3. No 24" distance requirement when used as air handling equipment isolation damper

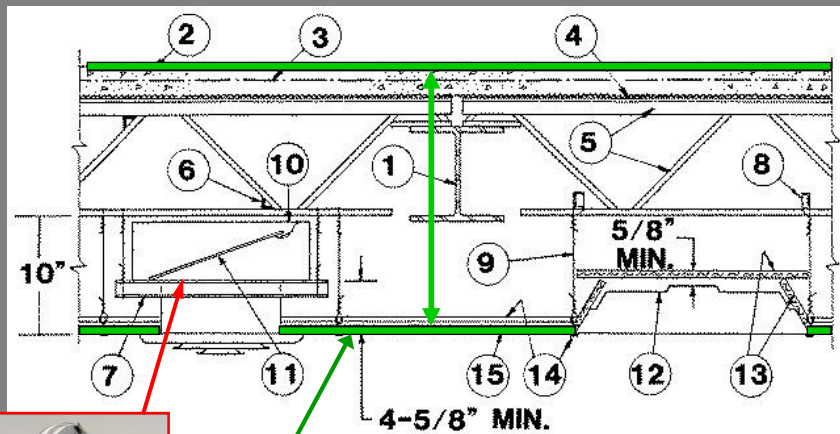



CEILING DAMPERS

A Ceiling Fire Damper is designed to limit the transfer of **heat** and **flame** to protect the structure above



Floor/Ceiling or Roof/Ceiling Assembly



Ceiling membrane

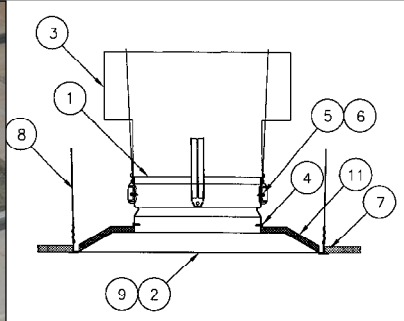
CFD's are evaluated in one of two ways for use in ANSI/UL 263 assemblies

- Investigated for use in lieu of the hinge door type damper
- Investigated for use only in one or more specific UL designs

CFD (Ceiling Fire Damper)

Also known as radiation damper

Lay-In

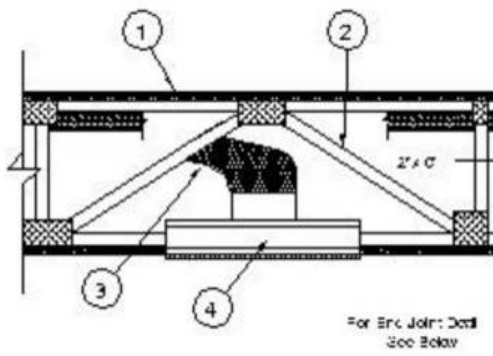


Ruskin CFD7 (R)T

Design L-586



Wood Truss



Square or Round Available

CFD7-T



UNDUCTED



STEEL PLENUM BOX

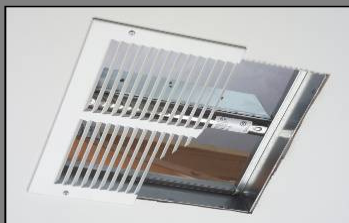


DUCTBOARD
PLENUM BOX



STEEL BOOT

CFD7-T



Surface Mount Grille



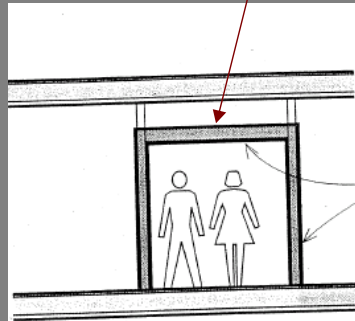
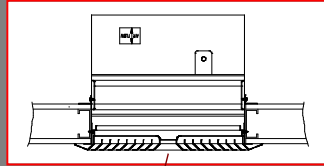
Grille with 2 1/2" OBD



Through Penetration

Tunnel Corridor Construction

Fire Smoke Damper – 1 Hr Rated



3. When the walls and ceiling form a tunnel, the wall fire rating need not extend above the top of the rated ceiling assembly.

Inspection, Testing & Maintenance

NFPA 80 - Damper to be tested and inspected 1 year after installation

NFPA 80 – Test & inspection frequency shall be every 4 years, except in hospitals where frequency is every 6 years

NFPA 80 – Operational test after installation for dynamic fire dampers and combination fire smoke dampers

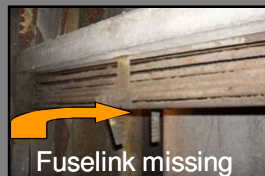
NFPA 80 – All inspections/ testing shall be fully documented

NFPA 90A - Once every 4 years (relates to curtain fire dampers)
Appendix B -“Visual” Inspection every 2 years

NFPA 92A - Dedicated System (Semi-Annual) and Non-Dedicated System (Annual)

NFPA 105 - Operational test shall be conducted for smoke / fire smoke dampers after installation/ balancing of HVAC system

NFPA 105 – Test & inspection frequency same as NFPA80



RUSKIN® Inspection, Testing & Maintenance

MAINTENANCE INSTRUCTIONS

All FSD and SD Dampers

ing's smoke-control system will perform as intended u
 c testing of all equipment associated with the smoke
 n records
 ons and

MAINTENANCE

ary.
 s with a
 (see note)
 and re-o

TESTING FIRE/S

the thermal disc found

of electricity, to the act
 button on the outside o

operated under normal s

All (D)IBD and FD TYPE FIRE DAMPERS

are that a building's life-safety system will perform as intended un
 tude parts — testing of all equipment associated with the life-sa
 ntenance. NFPA 90A recommends testing of all fire dampers ev
 r factors.

Dampers MUST be maintained to ensure operation

MAINTENANCE
 (refer to...)

ar or replace
 sible link and allowing the blades to drop or close.
 t of the blade package travel path.)
 sion.

Ruskin ValidatOr

Are Your Fire/Smoke Dampers Smart?

Customized graphics available

Live DEMO at www.ruskin.com

IECC International Energy Conservation Code

- **502.4.5 Outdoor air intakes and exhaust openings**

Stair and elevator shaft vents and other outdoor intakes and exhaust openings integral to the building envelope shall be equipped with not less than a Class I motorized, leakage-rated damper with a maximum leakage rate of 4cfm sq./ft at 1.0 inch water gauge (w.g.) when tested in accordance with AMCA 500D.



The screenshot shows the Ruskin website homepage. At the top, there is a navigation bar with links for Home, Online Product Catalog, Quick Delivery, and Contact Us. A search bar is also present. The main content area is divided into several sections:

- Our Products:** A vertical list of product categories including Fire & Smoke Dampers, Louvers, Industrial Dampers, Control Dampers, Sound Control, Air Measuring Products, and EXIT Air Doors.
- 50 Years of Excellence:** A central graphic celebrating Ruskin's 50th anniversary, featuring the text "50 YEARS OF EXCELLENCE" and "RUSKIN" in large letters, surrounded by circular images of various products and company activities.
- Features:** A list of key features including About Ruskin, Quick Delivery? Ruskin Express, President's Desk, Join our Mailing List, and Ruskin Product Training.
- Find Your Local Rep:** A section for finding local representatives, including a dropdown menu for "Choose Int'l Reps?" and a "Sign Up" button.
- News:** A list of recent news items, such as "Tomkins Purchases India Duct Manufacturer", "Damper Leakage Rates - More Important than Ever!", "Wind-Driven Rain Louvers are the Best Defense Against Water", "Ruskin Air Measuring Products Ensure Proper Ventilation Control", "Ruskin Forms Joint Venture in India", and "Ruskin AMS Transducer with LCD Display".

QUESTIONS?



**THANK YOU
FOR ATTENDING !**

