Periodic Inspections

FOLLOWING THE CODE

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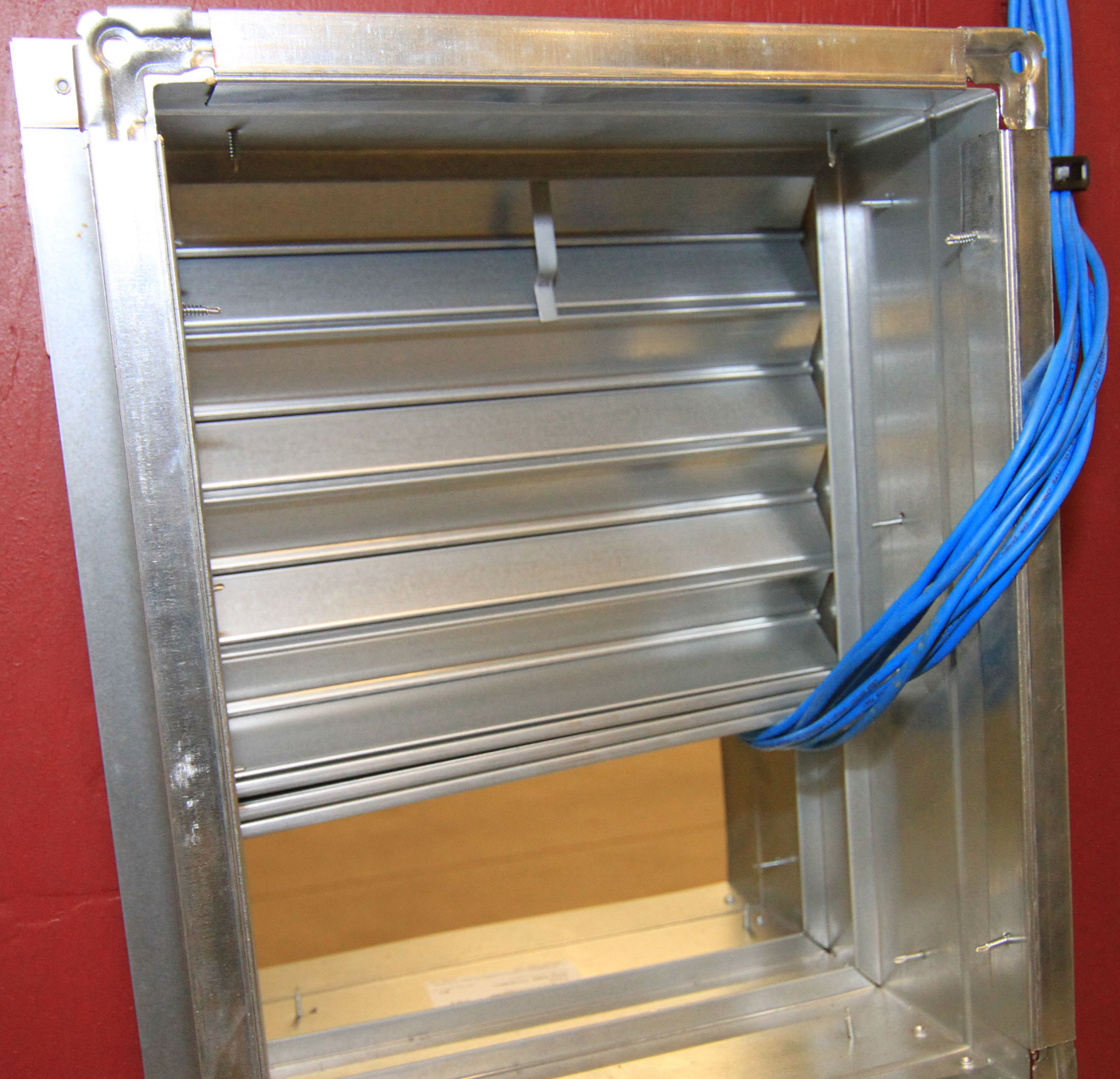
WHAT IS THE FIRE & LIFE SAFETY ECOSYSTEM?

The Fire & Life Safety Ecosystem has 8 components; each plays a critical role in protecting people and property.

 |


Open


Closed



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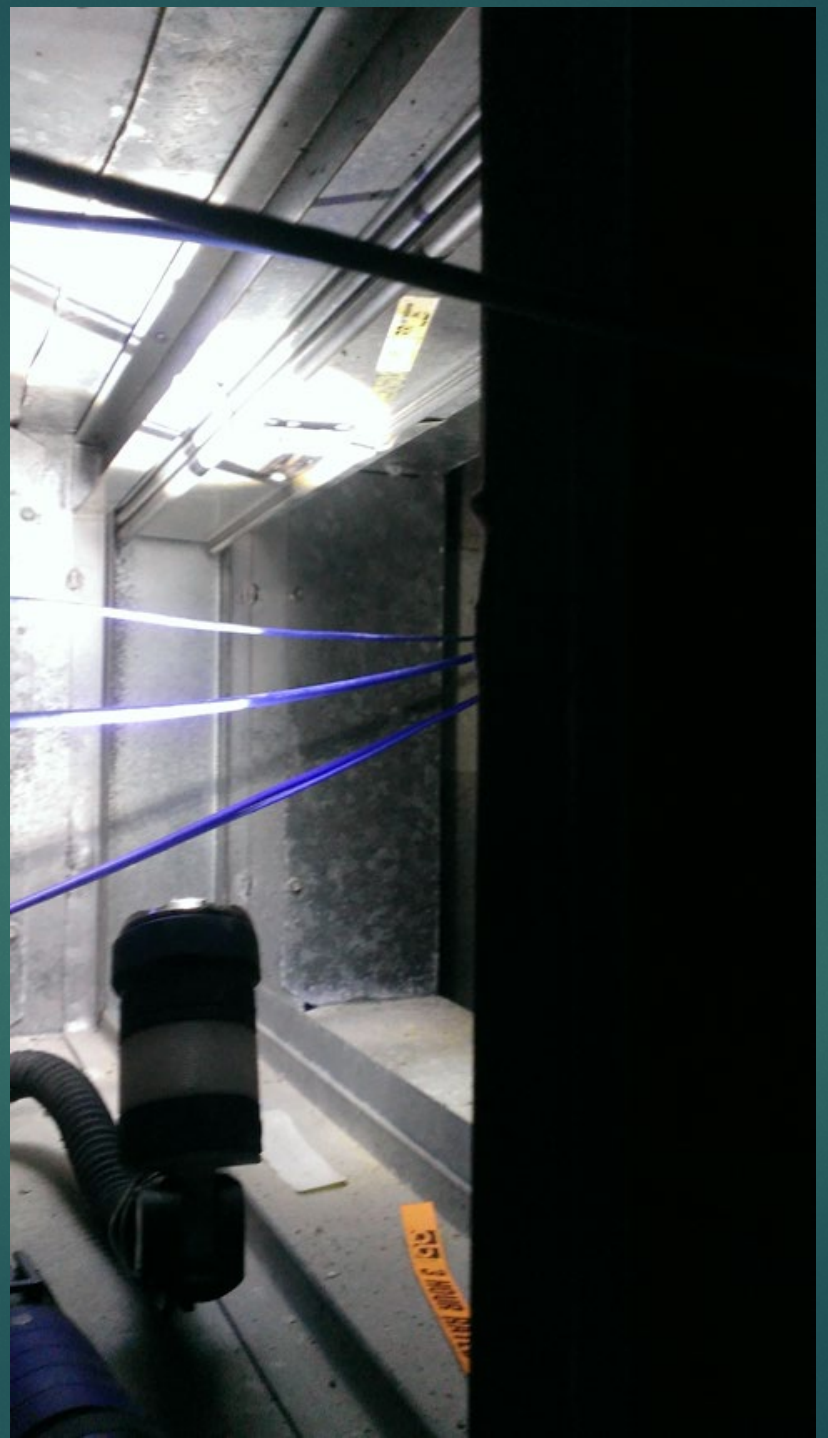

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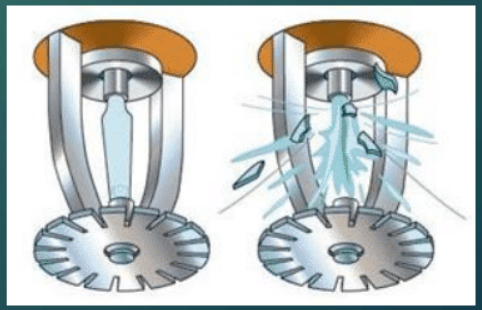
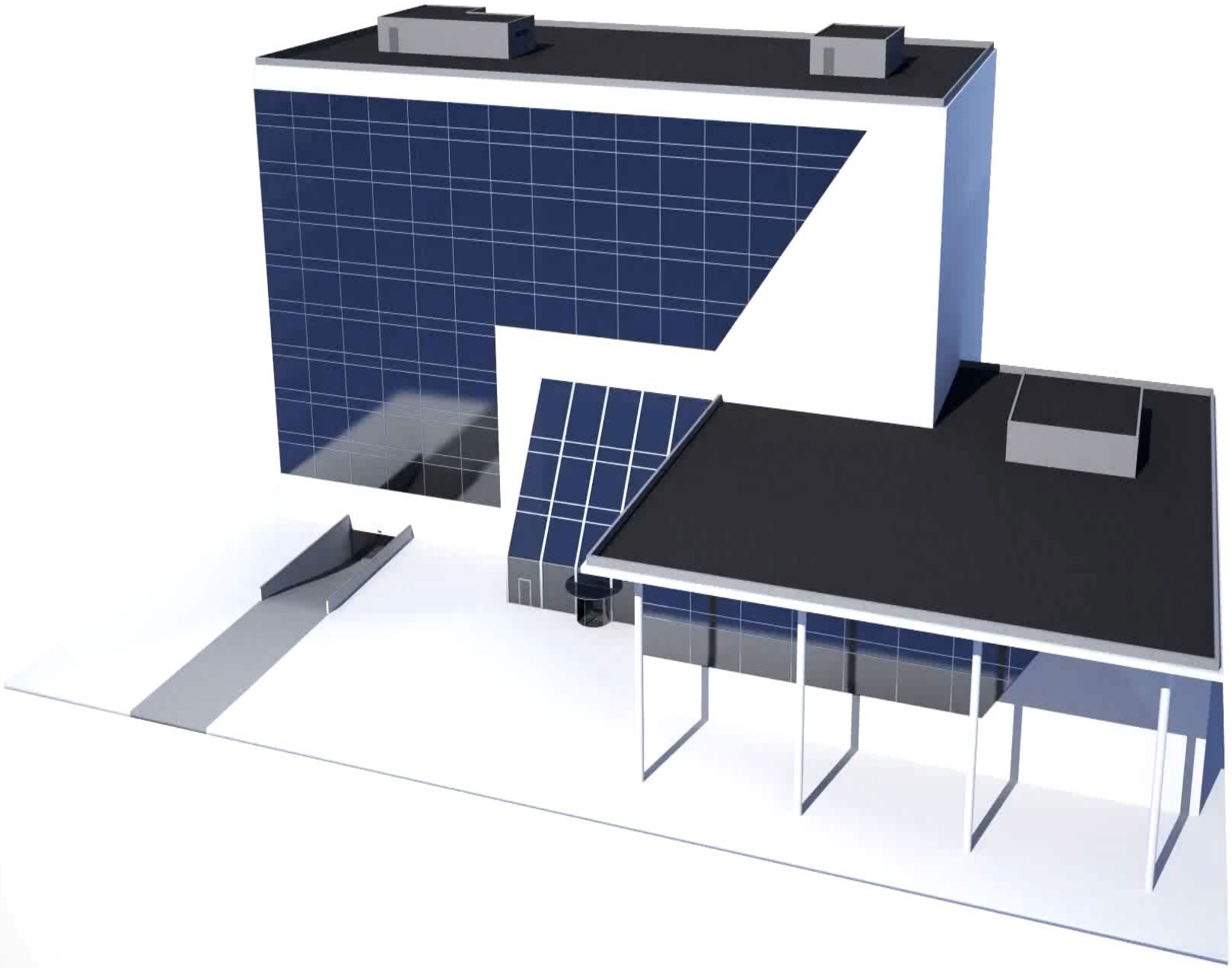
But we have Sprinklers…

- According to the National Fire Protection Association (NFPA), smoke travels at 120-420 feet per minute (fpm) during an active fire.
- Statistics show that approximately 70 percent of all building-related deaths are associated with smoke inhalation.
- Most victims are not located in the same room as the fire's origin.

What does HVAC have to do with Fire Life Safety?

- HVAC systems penetrate every occupied space in a building
- Potentially could convey fire, lethal smoke, toxic gasses through out structure
- Operation of dampers within HVAC system to control flow and movement of these items is critical to the safety of occupants within any structure.
- Can water put out smoke?
- Fire sprinklers save property.





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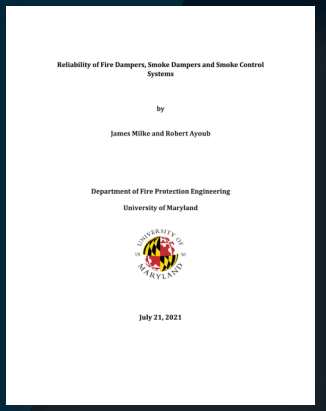
Extent of the Problem

Extent of the Problem?



Reliability of Fire Dampers, Smoke Dampers and Smoke Control Systems

by

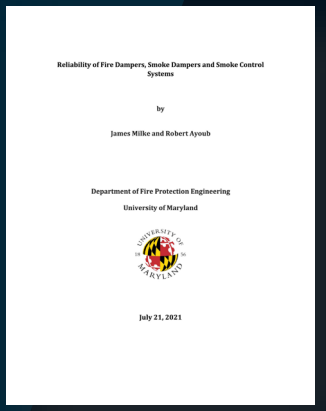
James Milke and Robert Ayoub

Department of Fire Protection Engineering

University of Maryland

July 21, 2021

Extent of the Problem?



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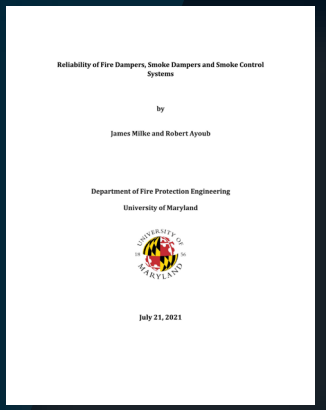

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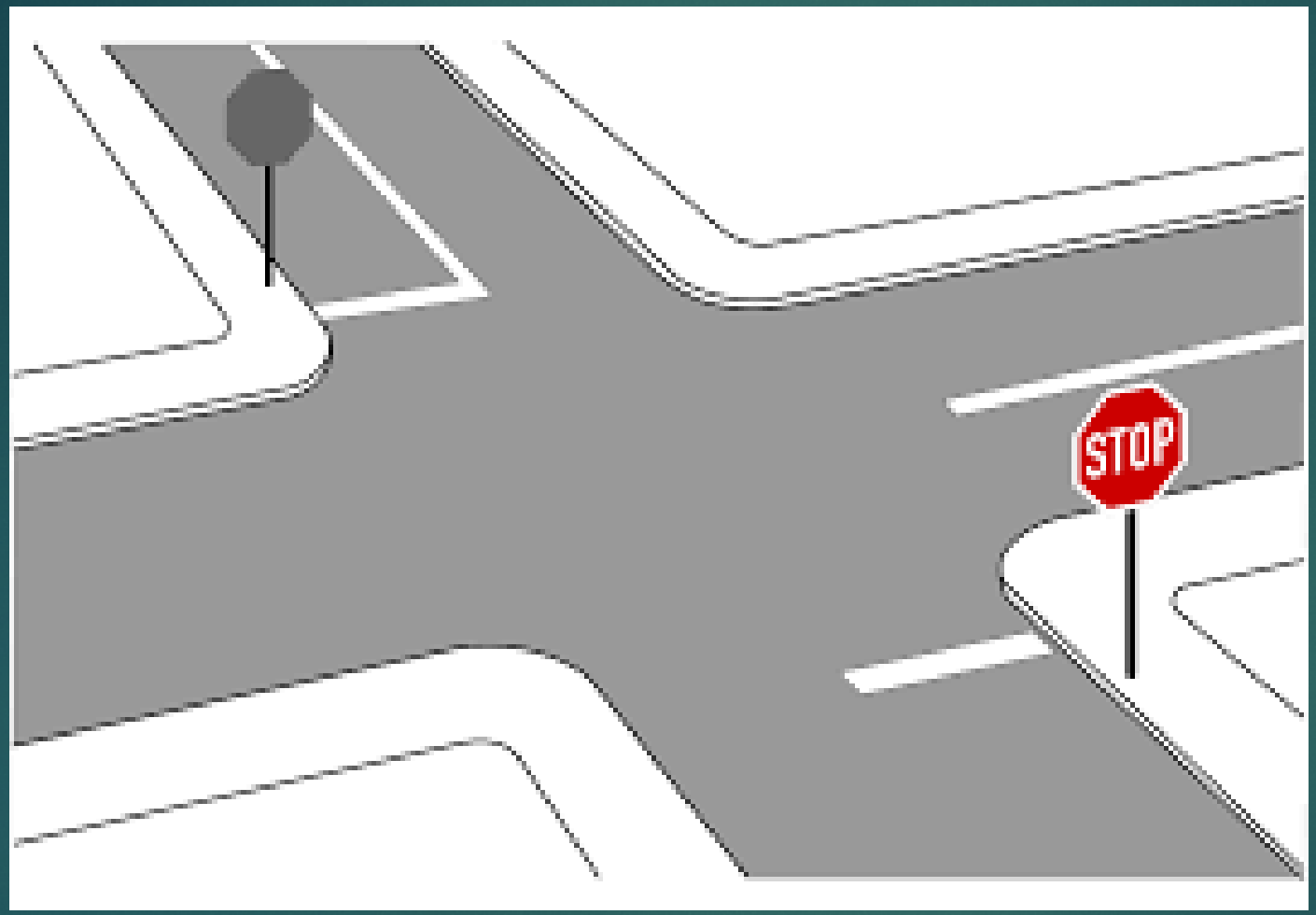
Extent of the Problem?

Local Code

CURRENTLY REQUIRED WITHIN LOCAL CODE


STOP

Juneau, AK

Adopts the 2012 International Fire Code

- **Chapter 19.10 - FIRE CODE**
  - **19.10.010 - International Fire Code (IFC) adopted.**
  - For the purpose of regulating the storage, handling and use of hazardous substances, materials and devices and other conditions hazardous to life or property in the use or occupancy of buildings or premises or portions thereof in the City and Borough, there is adopted by reference as the fire code of the City and Borough that certain compilation of rules and regulations jointly prepared and published by the International Code Council, a nationally recognized professional and trade organization, which compilation is entitled "**International Fire Code, 2012 Edition," (IFC**) and once copy which has been filed in the office of the municipal clerk of the City and Borough or such other places as designated by the municipal clerk for public use, inspection and examination and which compilation is made a part of this chapter as if fully set forth in this section, subject only to the enumerated additions, deletions and changes in this chapter.

Anchorage, AK

Adopts the 2018 International Fire Code

- 23.05.010 - Adoption of codes
  - **23.45 International Fire Code, 2018 Edition**

There are three required tests for the Installation, Testing, and Maintenance of Fire, Smoke, and Combination Dampers.

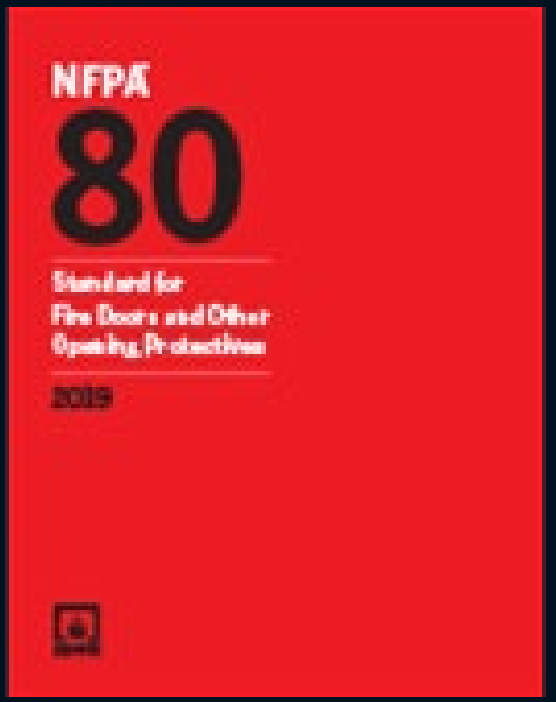
- **Operational Test** – Completed pre-occupancy after the damper is installed. This test is focused on the damper.
  - NFPA 80 – 19.3
  - NFPA 105 – 7.4

- **Acceptance Test** – Completed pre-occupancy after the damper is installed and the associated system, both HVAC and FLS Controls, are operational.
  - NFPA 80 – 19.4
  - NFPA 105 – 7.5

2019 NFPA 80

Standard for Fire Doors and Other Opening Protectives

Fire Dampers SHALL be tested (1) year after acceptance testing, every (4) years after that except for buildings containing a hospital which is every (6) years.



- 19.5 Periodic Testing
  - 19.5.1. Testing Frequency
    - 19.5.1.1 Each damper shall be tested and inspected 1 year after acceptance testing
    - 19.5.1.2 The test and inspection frequency shall than be every 4 years, except in buildings containing a hospital, where the frequency shall be every 6 years

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2019 NFPA 80

- Testing Procedure includes a visual confirmation of proper operation *(2019 allows for remote inspection if damper is capable and after initial visual inspection)*

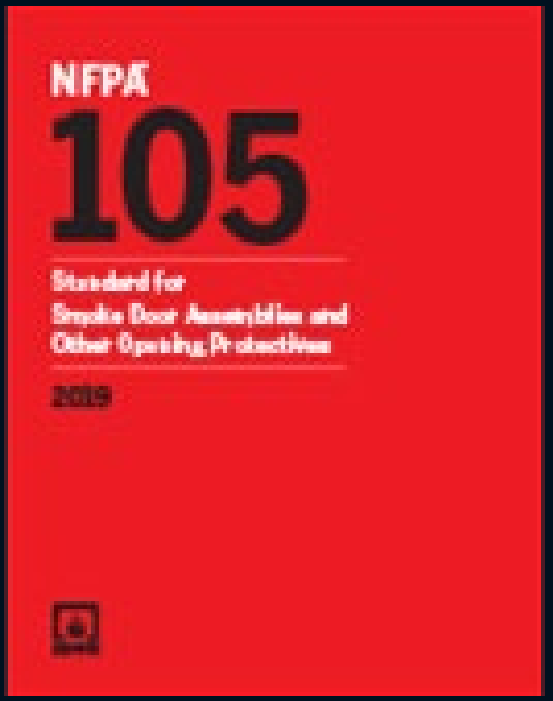
19.5.2 Test Method

- Maintenance

19.6.3 If the damper is not operable, repairs shall begin without delay.

2019 NFPA 105

Standard for Smoke Door Assemblies and Other Opening Protectives



Smoke Dampers SHALL be tested (1) year after acceptance testing, every (4) years after that except for buildings containing a hospital which is every (6) years.

- 7.6.2 Testing Frequency
  - 7.6.2.1 Each Damper shall be tested and inspected 1 year after installation
  - 7.6.2.2 The test inspection shall then be every 4 years, except in buildings containing a hospital, where the frequency shall be every 6 years.

- 7.6.1 General
- 7.6.1.1 Smoke Dampers for dedicated and nondedicated smoke control systems shall be inspected and tested in accordance with NFPA 92
- 7.67.6.1.2 Combination fire/smoke dampers shall be inspected and tested in accordance with NFPA 80.

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2019 NFPA 105

- Testing Procedure includes a visual confirmation of proper operation *(2019 allows for remote inspection if damper is capable and after initial visual inspection)*

  7.6.3 Test Method

- Maintenance

  7.7.3 If the damper is not operable, repairs shall begin as soon as possible.

2018 NFPA 90A

Standard for the Installation of Air-Conditioning and Ventilating Systems

- Refers to NFPA 80 for Fire Damper Maintenance
- Refers to NFPA 105 for Smoke Damper maintenance
- Refers NFPA 92 for Fire/Smoke Combination Dampers

- **Chapter 5 – Integration of a Ventilation and Air Conditioning System(s) with Building Construction.**
  - 5.4.8 Maintenance
  - 5.4.8.1 Fire dampers **shall** be maintained in accordance with NFPA 80.
  - 5.4.8.2 Smoke Dampers **shall** be maintained in accordance with NFPA 105.

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Access


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Access Requirements

NFPA 90A 2018

- 7.2.1 – Dampers equipped with fusible links, internal operators, or both **shall** be provided with an access door that is not less than 12 in. square or provided with a removable duct section.
- 7.2.2 Access **shall** not be obstructed

NFPA 105 2018

- 7.3.2 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 a removable duct section.
- 7.3.2.3 Unobstructed access **shall** be provided through a ceiling or wall for inspection and service of the damper's working parts.

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Labeling

Labeling Requirements

NFPA 105 2018

- 7.3.2.2 A smoke damper access panel **shall** be labeled with the words "Smoke Damper" in letters not less than ½ in. in height. External insulation shall not conceal any access panel unless there is a label attached to the insulation clearly indicating the exact location of the access panel and the insulation is installed for ease of removal or ease of removal with an access panel.

Quality Control

- For inspection and testing of fire and Smoke Dampers, employ only persons who are certified to inspect and test fire and Smoke Dampers and hold certification from the International Certification Board as a HVAC Fire Life Safety Technician through a program accredited by ANSI under the ISO/IEC 17024 standard.

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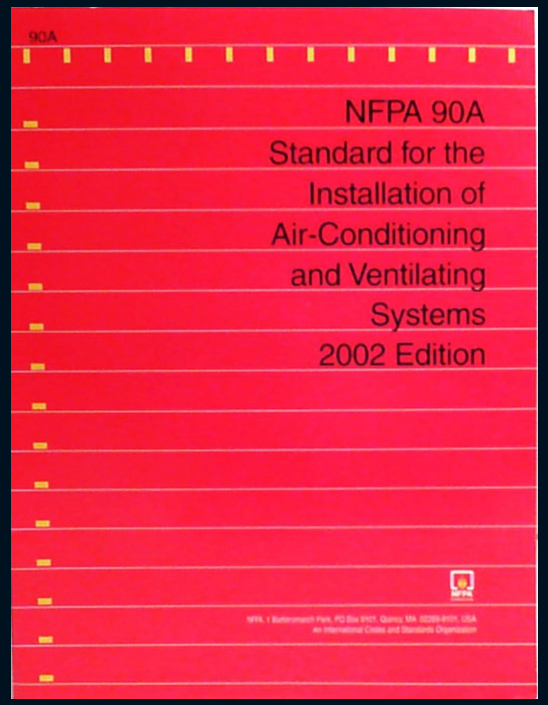
How long has this been part of the code?

2002 NFPA 90A

Installation of Air-Conditioning and Ventilating Systems

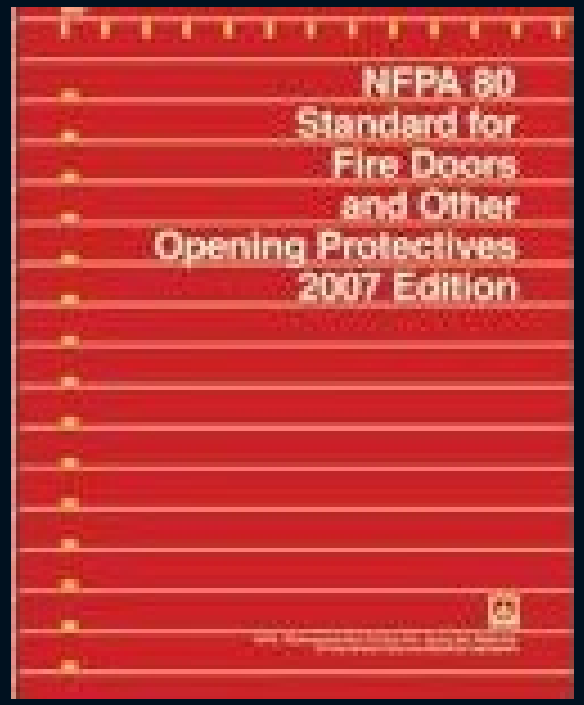


Dampers, Smoke Dampers, and Ceiling Dampers maintained every 4 years.

- **5.4 Fire Dampers, Smoke Dampers, and Ceiling Dampers**
- 5.4.7 Maintenance. At least every 4 years, the following maintenance shall be performed:
- (1) Fusible links (where applicable) shall be removed.
- (2) All dampers shall be operated to verify that they close fully.
- (3) The latch, if provided, shall be checked.
- (4) Moving parts shall be lubricated as necessary.

2007 NFPA 80

Standard for Fire Doors and Other Opening Protectives



Fire Dampers SHALL be tested (1) year after acceptance testing, every (4) years after that except for buildings containing a hospital which is every (6) years.

- 19.4 Periodic Inspection and Testing
  - 19.4.1. Testing Frequency
    - 19.5.1.1 Each damper shall be tested and inspected 1 year after acceptance testing
    - 19.5.1.2 The test and inspection frequency shall than be every 4 years, except in buildings containing a hospital, where the frequency shall be every 6 years

2007 NFPA 105

Standard for Smoke Door Assemblies and Other Opening Protectives

Smoke Dampers SHALL be tested (1) year after acceptance testing, every (4) years after that except for buildings containing a hospital which is every (6) years.

6.5 Periodic Inspection and Testing

- 6.5.2 Each Damper shall be tested and inspected 1 year after installation. The test inspection shall then be every 4 years, except in buildings containing a hospital, where the frequency shall be every 6 years.

How Long have FSD been installed?

Difficult to determine exact dates because you have various stages of introduction.

- **Dampers being used**
- **Dampers being UL Listed**

Fire Dampers

- Became commonly used in the **1930's**

Smoke Dampers

- Became commonly used in the **1950's**

Questions?
How can we assist?

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