Fire-Rated Doors and Hardware

A Guide to Field Inspection

Door Security & Safety FOUNDATION

Foundation's Mission

To promote secure and safe openings that enhance life safety

Awareness

To be a source of information through awareness campaign that targets:

- Code Officials
- Fire Officials
- AHJs
- Architects and Building Owners
- School Officials/Administrators (K-12, college campuses)

- Not Familiar with Code Requirements
- Belief that frequency of use ensures proper operation

Fire-Door AHJ Training Program

- **“This is an important step in helping local officials understand what to look for when they are approving the installation and on-going maintenance of fire-rated doors.”**

  -- ***Bert Polk, retired South Carolina State Fire Marshal.***

Annual Inspection of Fire Door Assemblies…

- **Who Is Going To Do These Inspections and When?**
  - Paragraph 5-2.3, Functional Testing
    - Individuals who are KNOWLEDGEABLE about the openings being inspected
  - Paragraph 5-2.1, '…not less than annually, and a written record of the inspection shall be kept for inspection by the AHJ.'

Class Objective

- **Learn about the requirements pertaining to the 2007 edition of *NFPA 80 Standard for Fire Doors and Other Opening Protectives.* This includes: operation, features, basic criteria and maintenance of fire-rated doors.**

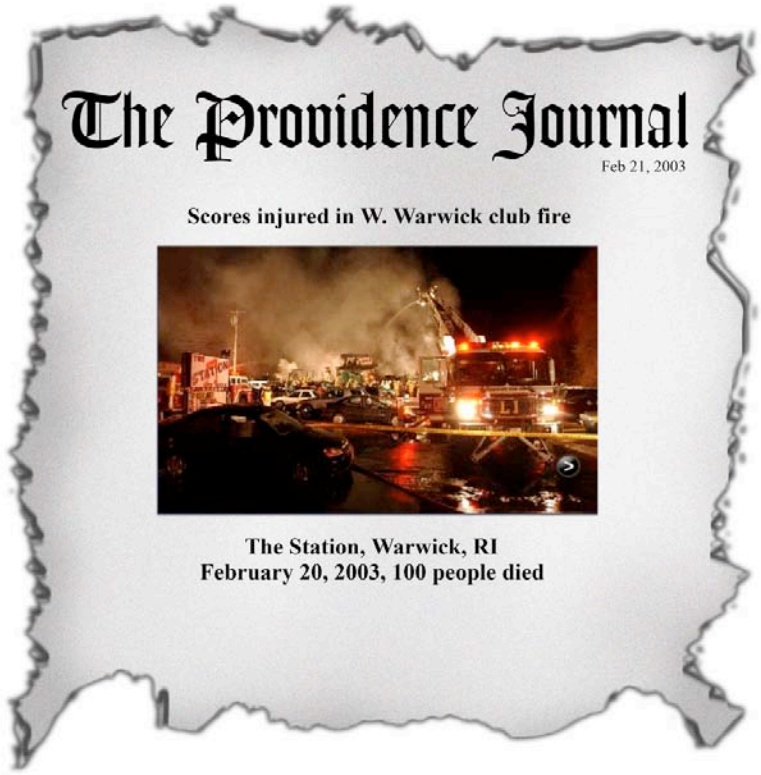
Agenda

- NFPA 80 Chapters 1, 2, 3, 4 & 6 – Background information
- Overview of Fire-Rated Door Hardware
- Fire Door Testing and Certification Video
- Fire-Rated Doors and Labels
- Fire-Rated Glass and Glazing
- Annual Inspection Requirements of NFPA 80 Chapter 5 – Care and Maintenance

Tragic Fires

- **Station Night Club -- 2003**
  - Warwick, RI -100 died
- **MGM Grand -- 1980**
  - Las Vegas – 85 killed, 700 injured
- **Cook County - 2003**
  - Chicago – 6 killed

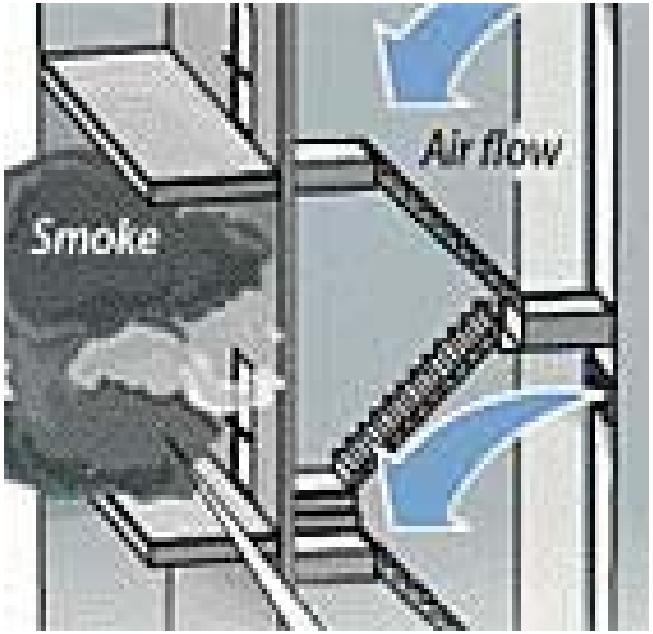
Station Night Club -- 2003



MGM Grand – Nov. 11th, 1980

Cook County Building – October, 2003

- **Inability to contain smoke**



Codes vs. Standards

- **Codes are Intended to be Adopted as Legal Documents**
  - Enforceable as Laws

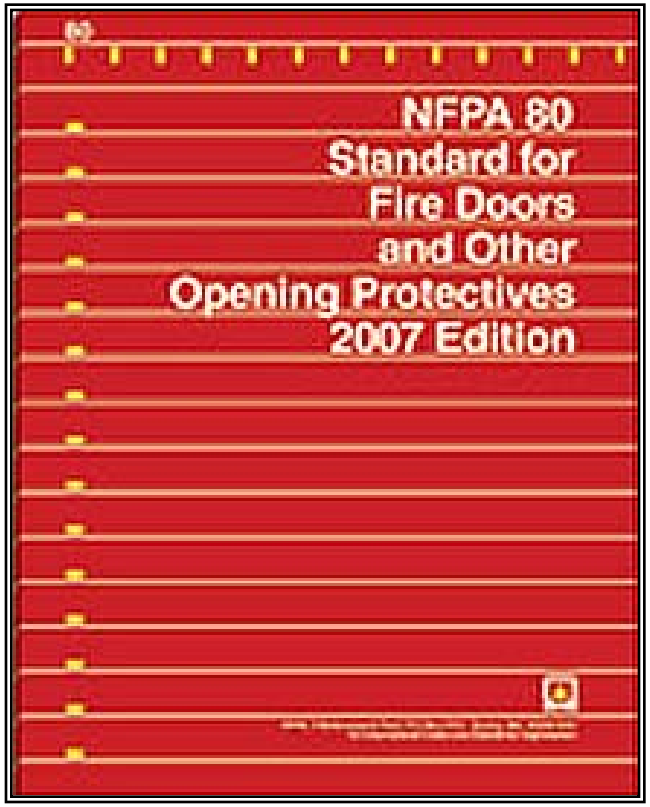
- **Standards are Intended to be Used to Meet the Requirements of Codes**
  - Unenforceable until REFERENCED by a CODE.

Other Codes and Standards

- **ANSI/ICC A117.1 Accessible and Usable Buildings and Facilities (2003 edition)**
- **Americans with Disabilities Act Accessibility Guidelines (ADAAG) (2005 edition)**
- **Many states and local jurisdictions have their own standards**

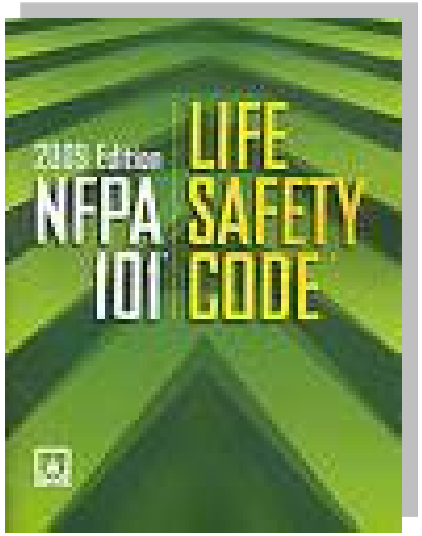
NFPA 80 – 2007 Edition

- **Most Common Denominator**
- **Establishes Basic Requirements for New Fire-Rated Door Assemblies**
- **Establishes Care and Maintenance Requirements**



Fire Door Inspection - Background

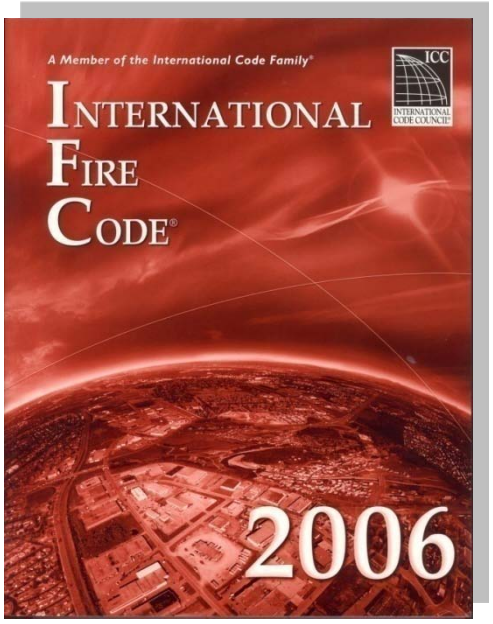
- **Fire Doors are governed by the building code and NFPA throughout design, specification, installation and occupancy permitting.**



Fire Door Inspection - Background

- **Once a Certificate of Occupancy has been issued, the building code is closed. The International Fire Code or Life Safety Code is now in effect for the operation and maintenance of the facility.**

- **Formerly, the IFC did not contain language for post-occupancy inspection of fire-rated doors**



IFC 2009 -- 703.1.3

– Fire walls, fire barriers and fire partitions. Required fire walls, fire barriers and fire partitions shall be maintained to prevent the passage of fire. All openings protected with approved doors and fire dampers shall be maintained in accordance with NFPA 80.

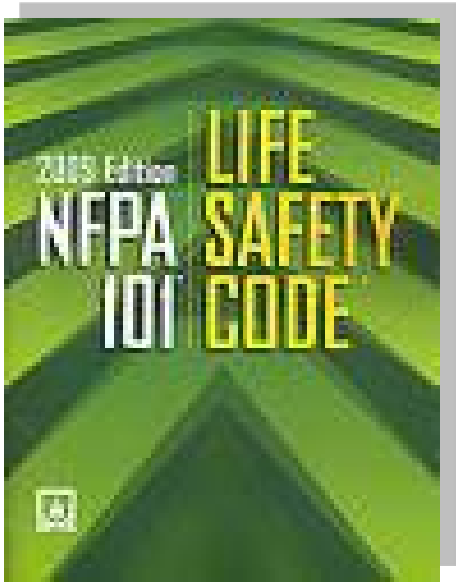
Fire Door Inspection -- IBC

- **The International Building Code is used until the certificate of occupancy is issued.**

- **715.4 Fire door and shutter assemblies. Fire door assemblies and shutters shall be installed in accordance with the provisions of this section and NFPA 80.**

Fire Door Inspection – NFPA 101

- **7.2.1.15.2 – Fire-rated door assemblies shall be inspected and tested in accordance with NFPA 80, *Standard for Fire Doors and Other Opening Protectives.***



Chapter 4

General Requirements

NFPA 80 – Chapter 4

- **What Modifications Can Be Done in the Field?**
  - Function Holes for Mortise Locks/Latches
  - Holes for Labeled Door Viewers
  - Round Holes for Surface Applied Hardware (up to 1” in Diameter)
    - Throughbolts
  - Wood/Composite Doors Trimmed Maximum 3/4” Undercutting

    [4.1.3.2, 4.1.3.3 and 4.1.3.4]

NFPA 80 – Chapter 4

- **Signage**
  - Up to 5% of Door Face
  - Attached with Adhesives not Screws/Nails
  - Installed on Door Skin, NOT on Glass
  - Cannot Impair or Interfere with Operation [4.1.4]

NFPA 80 – Chapter 4

- **Clearances Under Doors**
  - Swinging Doors with Builders Hardware
    - Maximum Clearance of 3/4” Under Door Bottom

    [4.8.4.1]

Field Modifications

- **Doors**
  - No Vision Panel Cut Outs
  - No Louver Cut Outs
  - No Mortise Lock Pockets
  - No Face or Edge Bores for Bored Locks
  - No Mortise Hinge Preparations
- **Frames**
  - No Mortise Hinge Preparations
  - No Cut Outs

Hardware for Fire-Rated Door Assemblies

Swinging Doors with Builders Hardware

Door Security & Safety Foundation

Understanding Hardware

- **Important to understand the role hardware applications play in fire and life safety.**

Three Main Operational Requirements

- **Swinging Fire-Doors with Builders Hardware Must:**
  - Swing Freely
  - Be self or automatic closing or power operated
  - Positively latch when in the closed position.

Electrified Locks and Latches

- **Fail Safe Locks**
  - Unlocks upon loss of power
  - Maintains Latch
- **Fail Secure Locks**
  - Locks upon loss of power
  - Maintains Latch

Electric Strikes

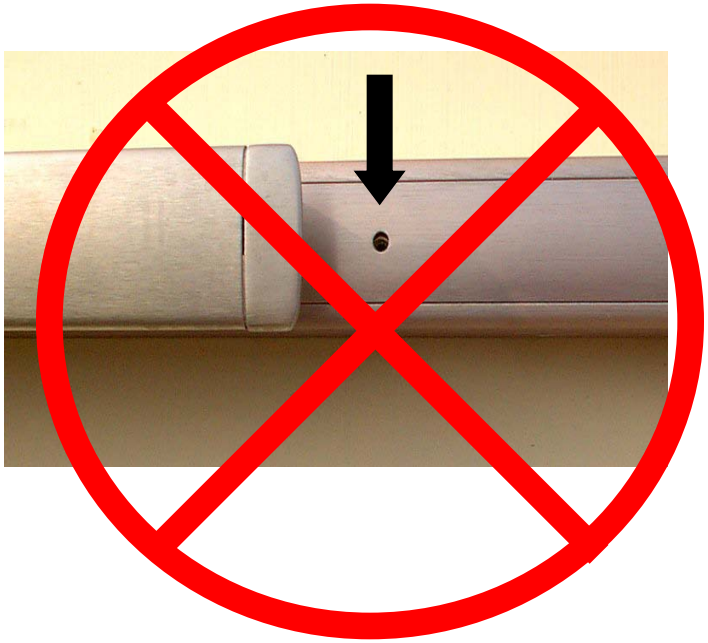
- **Fail Safe Electric Strikes**
  - Unlocks upon loss of power
  - Gate is released
  - NOT permitted on fire-rated openings

- **Fail Secure Electric Strikes**
  - Locks upon loss of power
  - Gate is secured
  - Permitted on fire-rated openings

Fire Exit Hardware vs. Exit Hardware

- **Aesthetically the Same**
- **Internally Different**
- **Physical Label**

Fire Exit Hardware vs. Exit Hardware

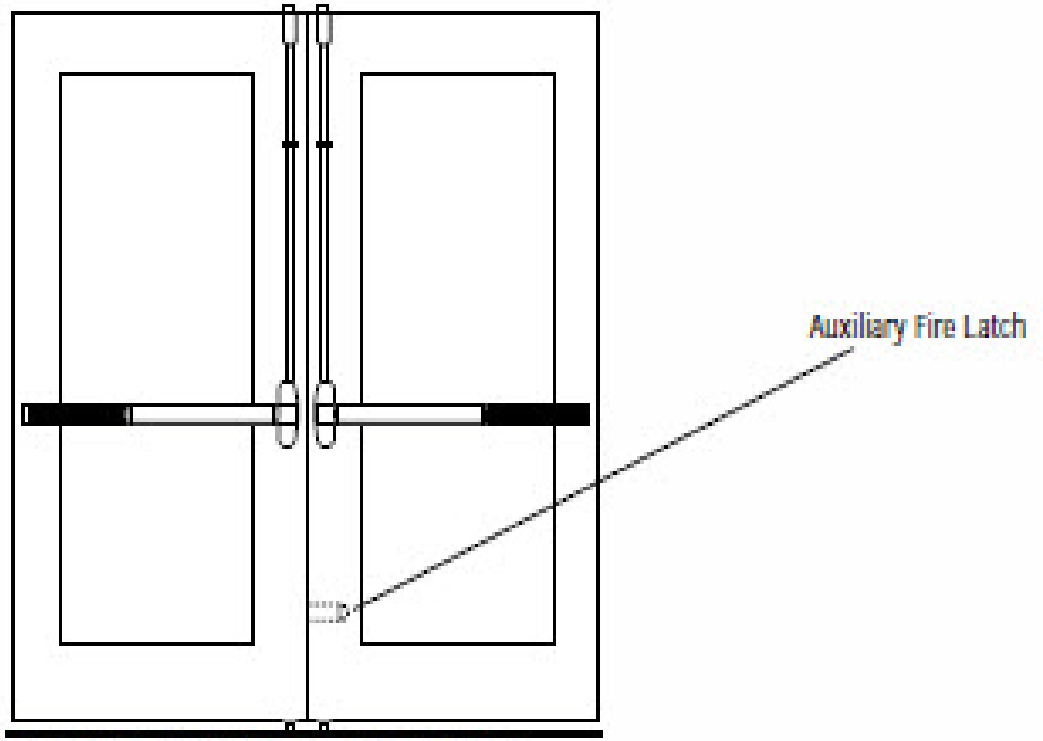


No <u>Mechanical</u> Dogging

- Hex Key
- Keyed Cylinder

Fire Pin

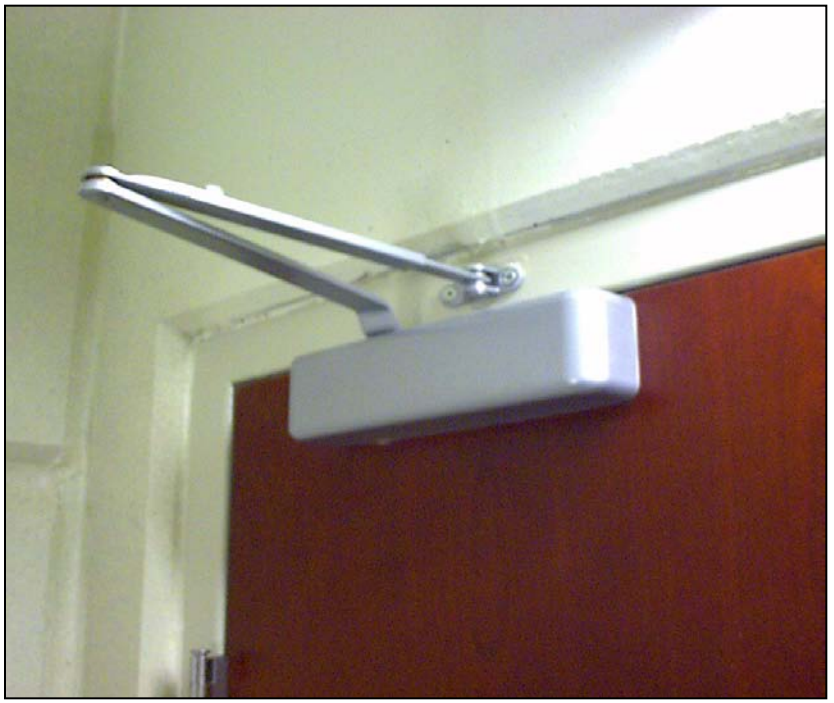
Auxiliary fire pin mounts 6 to 12 inches above sill. Required to insure that door passes fire test since door is not secured to sill. [6.4.4.3.3]



Two FEH vertical rods with auxiliary fire latch—LBR option

Self-Closing Devices

Surface Mounted



Self-Closing Devices

Hotel / Motel Unit Openings
One Closing Speed
UL Listed
- One Speed
- Self-Closing Devices.
- Two Per Leaf – Minimum
- One Ball Bearing Hinge

3’0” x 7’0” maximum door size

Automatic-Closing Devices

- **Magnetic Door Releases**
  - Doors Held Open Electronically
  - Released Upon Signal from Fire Alarm System
  - Relies on Mechanical Door Closer for Closing Energy

Labels

- **Once Removed, Cannot be Re-Applied**
- **Can Only be Re-Applied Under Manufacturer's Procedures in a Licensed Shop**
- **Field Inspection of Testing Agency**

Questions?

Door Security & Safety FOUNDATION

Annual Inspection Requirements – NFPA 80

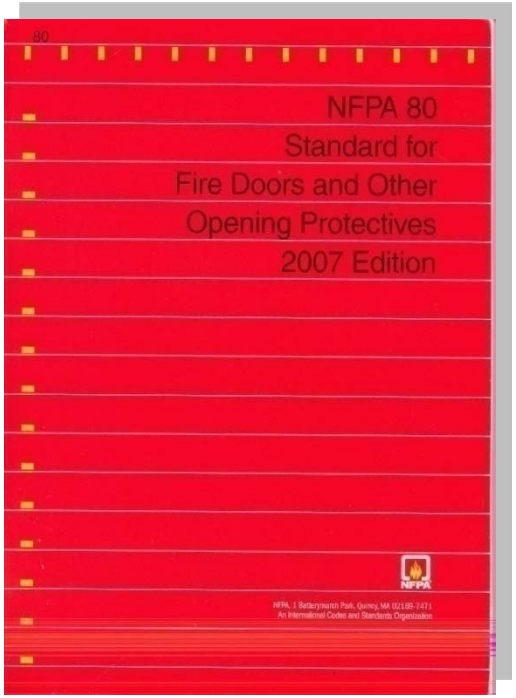
Swinging Doors with Builders Hardware

Door Security & Safety FOUNDATION

NFPA 80 2007 – Standard for Fire Doors

Chapter 5 Care & Maintenance

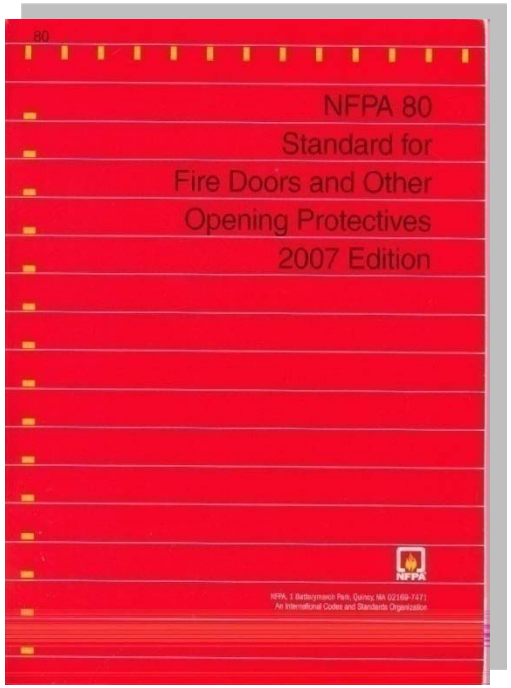
5.2.1* Fire door assemblies shall be inspected and tested not less than annually, and a written record of the inspection shall be signed and kept for inspection by the AHJ.



NFPA 80 2007 – Standard for Fire Doors

Chapter 5 Care & Maintenance

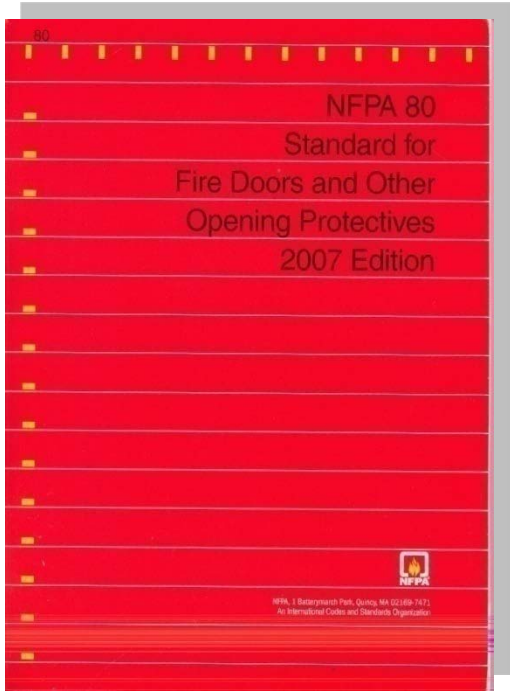
5.2.3.1 Functional testing of fire door and window assemblies shall be <u>performed by individuals with knowledge and understanding</u> of the operating components of the type of door being subject to testing.



NFPA 80 2007 – Standard for Fire Doors

Chapter 5 Care & Maintenance

5.1.1.2 The requirements of this chapter shall apply to <u>new and existing</u> installations.



Annual Inspection of Fire Door Assemblies

- **How Are Inspections Going to be Performed?**
  - Paragraph 5-2.1, “…not less than annually, and a written record of the inspection shall be kept for inspection by the AHJ.”

Annual Inspection of Fire Door Assemblies

- **What Do Inspectors Need to Know?**
  - Immense product application and installation knowledge
    - Hollow metal doors and frames
    - Wood fire doors
    - Builders Hardware Application
  - Thorough understanding of NFPA 80 requirements
  - AHC's and CDC's or approx. 5 years of industry experience

Annual Inspection of Fire Door Assemblies

- **Inspector's Responsibilities**
  - Status of door openings on date of inspection
  - Recommend necessary corrections
  - Providing written inspection reports

Annual Inspection of Fire Door Assemblies

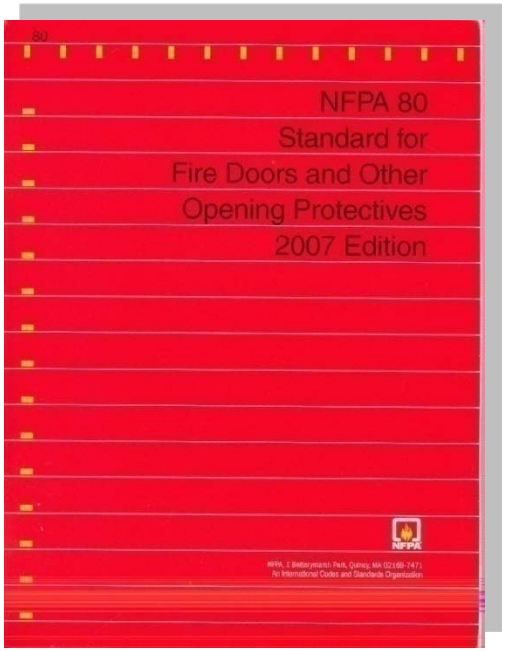
- **Inspectors Are Not Responsible For:**
  - Making sure openings are repaired
  - Determining the correct fire-rating of door openings
  - Alert AHJ of problems

NFPA 80 2007 – Standard for Fire Doors

Chapter 5 Care & Maintenance

5.2.2 Performance-Based Option

5.2.2.1 As an alternate means of compliance with 5.2.1, subject to the AHJ, fire door assemblies shall be permitted to be inspected, tested, and maintained under a written performance-based program.



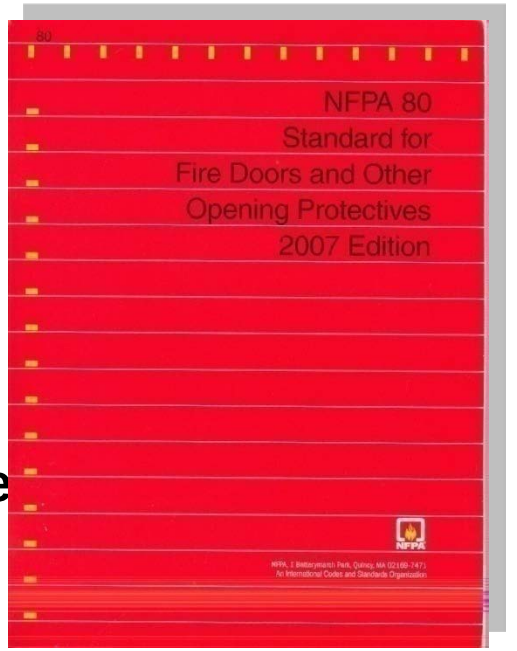
NFPA 80 2007 – Standard for Fire Doors

Chapter 5 Care & Maintenance

5.2.2 Performance-Based Option.

5.2.2.2 Goals established under a performance-based program shall provide assurance that the fire door assembly will perform its intended function when exposed to fire conditions.

5.2.2.3 Technical justification for inspection, testing, and maintenance intervals shall be documented.

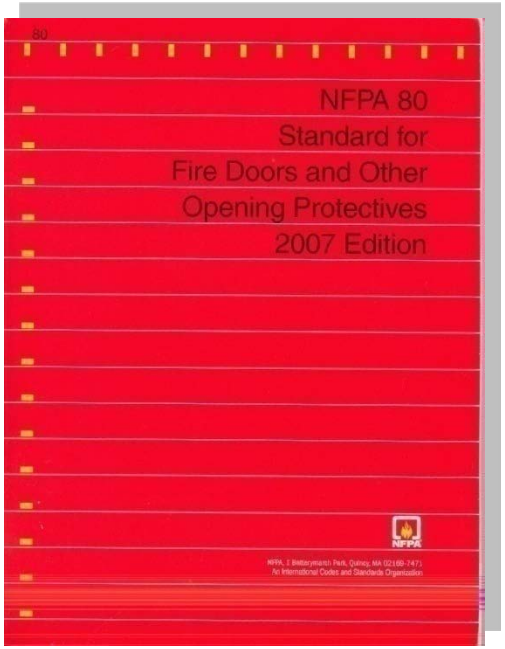


NFPA 80 2007 – Standard for Fire Doors

Chapter 5 Care & Maintenance

5.2.2 Performance-Based Option.

5.2.2.4 The performance-based option shall include historical data acceptable to the AHJ.



MGM Grand Hotel
Fire Door Inspection

Example. Without Performance-Based Option

- January 1st -- 2 inspectors start inspecting doors.
- Each inspector works 40 hours a week for a full year.
- December 31st, all doors have been inspected.
- January 1st – Start all over again.

NFPA 80 2007 – Standard for Fire Doors

- **Equation to determine acceptable level of performance:**
- **FDFR(t) = NF / (NC x t)**
  - FDFR represents the Fire Door Failure Rate over a particular period of time (t)
  - NF represents documented failures
  - NC represents total number of inspected fire doors

NFPA 80 2007 – Standard for Fire Doors

Example.

- .020 = 5 / (50 x 5)
- Over a 5-year period, 250 fire doors inspected (50 x5), 5 determined to be failures, the building has a failure rate of 2% per year. Acceptable level performance rating of 98%.

Identifying Fire Door Assemblies

- **Maintenance personnel–access to the ‘as built’ floor plans.**
- **AHJ’s office archived copies of floor plans**
- **No plans available–should physically check each door opening looking for labels.**

Locating Fire Doors in Buildings

- **Interior doors opening into and out of stairwells and corridors.**
- **Door openings placed at building separations.**
- **Look for labels on hinge side of door**

Performing the Inspections

- **Presumption of Correct Application**
- **Original Building, Fire and Life Safety Code Requirements**
- **Practical Application of Inspection Criteria**

Original Building, Fire and Life Safety Requirements

- **Inspectors should be cognizant of the building, fire and life safety codes that were applicable at the time of installation.**
- **Should not apply the capabilities, limitations and requirements for modern products to assemblies installed years ago.**
- **NFPA 80 standard is applicable to all existing fire door assemblies, regardless of when they where installed.**

Cataloging Fire Doors

- Door Number (Code or Symbol)
- Location of Assembly in Building
- Type of Door Assembly
- Fire-Protection Rating
- Comments/Remarks

Inspection Summary Report Form

INSPECTION SUMMARY
REPORT **2008**

FDAI℠
A Program of the Door and Hardware Institute

BUILDING NAME _____

ADDRESS _____

Date of Inspection _____, 2008

Inspector Information

Name: _____

ID Number: _____ Exp. Date: _____

Inspecting Company Information

Name: _____

Address: _____

SUMMARY _____

dhi

The undersigned acknowledge and agree that Inspector only is inspecting the Building's fire door assemblies existing on the date of the inspection and identified on this Inspection Form for compliance with the requirements of NFPA 80 2007 Edition, Section 5.2 as of the time of the inspection, and that Inspector is not inspecting any other openings in the Building or performing an architectural evaluation of the Building. The undersigned hereby agree that, to the fullest extent permitted by law, the total liability of Inspector, Inspecting Company and any other person or entity for any and all injuries, claims, losses, expenses or damages whatsoever arising out of or in any way related to the inspection from any cause or causes including but not limited to negligence, errors, omissions, strict liability, breach of contract or breach of warranty shall not exceed the total amount of the inspection fee. The Door and Hardware Institute ("DHI") assumes no liability for the conduct of the Inspector, Inspecting Company or others or the inspection, and the undersigned hereby release DHI from all liability related thereto or arising therefrom.

OFFICIAL USE ONLY

SIGNATURES

Signature of Inspector

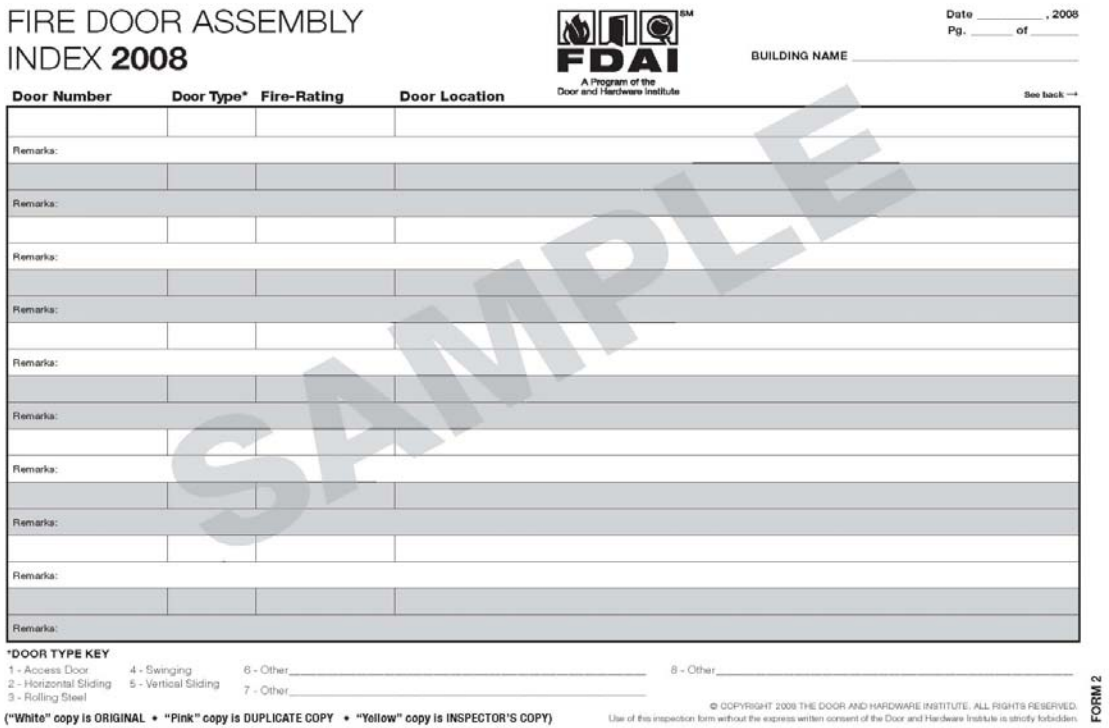
Signature of Building Manager

*Please retain for your records.

("White" copy is ORIGINAL • "Pink" copy is DUPLICATE COPY • "Yellow" copy is INSPECTOR'S COPY)

FORM 1

Fire Door Assembly Index Form



FIRE DOOR ASSEMBLY
INDEX **2008**

FDAI℠
A Program of the Door and Hardware Institute

Date _____, 2008
Pg. _____ of _____

BUILDING NAME _____

See back →

Door Number	Door Type*	Fire-Rating	Door Location
Remarks:			
Remarks:			
Remarks:			
Remarks:			
Remarks:			
Remarks:			
Remarks:			
Remarks:			
Remarks:			
Remarks:			

SAMPLE

*DOOR TYPE KEY

1 - Access Door
2 - Horizontal Sliding
3 - Rolling Steel
4 - Swinging
5 - Vertical Sliding
6 - Other_____
7 - Other_____
8 - Other_____

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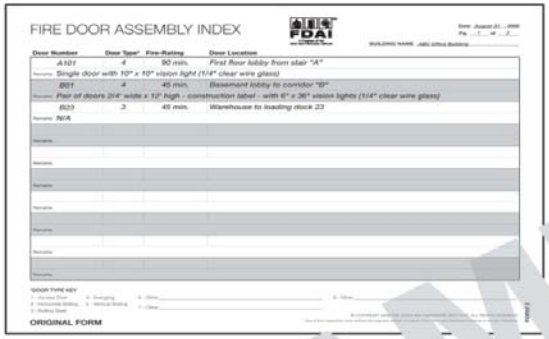
FORM 2

Fire Door Assembly Index Guide



FIRE DOOR ASSEMBLY INDEX

FDAI

Door Number	Door Type*	Fire-Rating	Door Location
A101	4	90 min.	First floor lobby from stair "A"
Remarks: Single door with 10" x 10" vision light (1/4" clear wire glass)			
B01	4	45 min.	Basement lobby to corridor "B"
Remarks: Pair of doors 2'4" wide x 12' high - construction label - with 6" x 36" vision lights (1/4" clear wire glass)			
B23	3	45 min.	Warehouse to loading dock 23
Remarks: N/A			

ORIGINAL FORM

FIRE DOOR ASSEMBLY INDEX GUIDE

Purpose:
This form is intended to be used to catalog the location and details of each fire door assembly in a building and should be retained with the inspection records on the premises. Owners should provide inspectors with copies of the completed form(s) to ensure each fire door assembly is inspected and tested in accordance with the requirements of the 2007 edition of NFPA 80, *Standard for Fire Doors and Other Opening Protectives*.

General Information:
Use this form to list details of each fire door assembly in the building. Use the "remarks" line to make notes regarding special conditions (e.g., construction labels, certificate of construction) of fire door assemblies to facilitate the inspection process. Documentation of extraordinary fire door assemblies should be attached to the file copies of the completed forms.

Door Number:
Each door assembly must be assigned a unique number or code, which will be used to track its performance through subsequent inspection and maintenance records.

Door Type:
Use the door type codes at the bottom of the form to identify the type of fire door assembly.

Fire-Rating:
Fire-ratings of the assemblies should be listed in minutes (e.g., 20, 30, 45, 60, 90, and 180 minutes) or in hours (e.g., 1/3, 1/2, 3/4, 1, 1-1/2, and 3 hours). Letter designations (e.g., A, B, C, D, and E) should be accompanied by the fire-protection rating expressed in minutes or hours.

Location:
Describe the location of the door assemblies within the building.

Remarks:
Note special conditions or applications of fire door assemblies.

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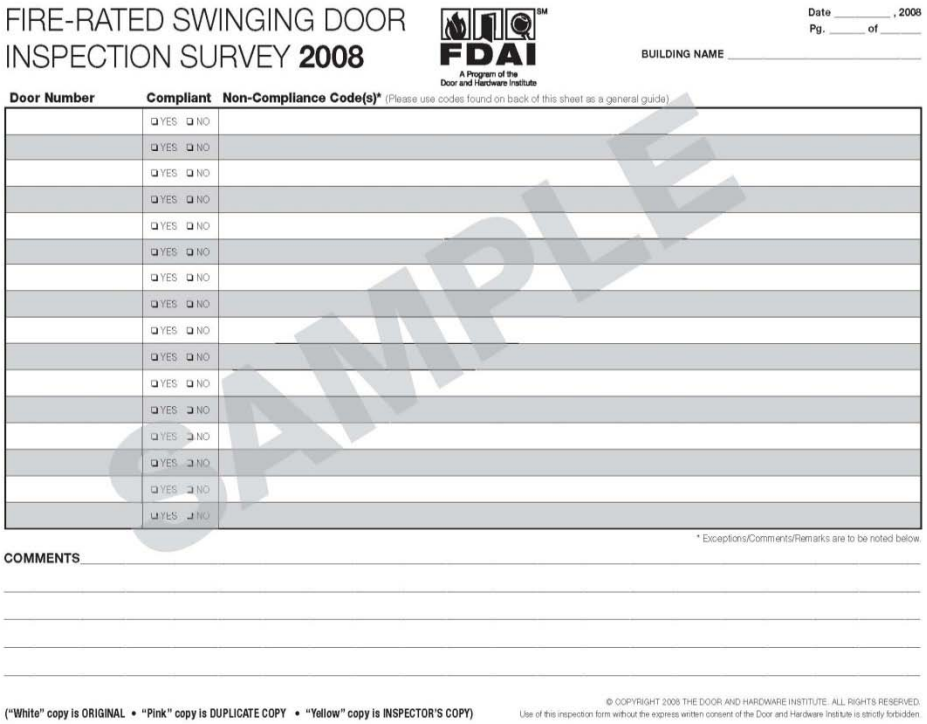
Fire-Rated Swinging Door Inspection Survey Form



FIRE-RATED SWINGING DOOR INSPECTION SURVEY **2008**

FDAI℠ A Program of the Door and Hardware Institute

Date _____, 2008
Pg. _____ of _____

BUILDING NAME _____

Door Number	Compliant	Non-Compliance Code(s)* (Please use codes found on back of this sheet as a general guide)
	❑ YES ❑ NO	
	❑ YES ❑ NO	
	❑ YES ❑ NO	
	❑ YES ❑ NO	
	❑ YES ❑ NO	
	❑ YES ❑ NO	
	❑ YES ❑ NO	
	❑ YES ❑ NO	
	❑ YES ❑ NO	
	❑ YES ❑ NO	
	❑ YES ❑ NO	
	❑ YES ❑ NO	
	❑ YES ❑ NO	
	❑ YES ❑ NO	
	❑ YES ❑ NO	

SAMPLE

* Exceptions/Comments/Remarks are to be noted below.

COMMENTS _____

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FORM 3

Fire-Rated Swinging Door Inspection Survey Form

Please use the following codes to identify problems on the door openings listed on other side of page.

FRAME

- F1 Loose Frame
- F2 Damaged Frame
- F3 Rust-through on Frame
- F4 Missing Label
- F5 Frame is Out of Alignment
- F6 Incorrect Glass in Sidelight or Transom-light
- F7 Broken Glass in Sidelight or Transom-light
- F8 Missing Glazing Bead at Light(s)
- F9 Missing Glazing Bead Screw(s)
- F10 Improper Field Modification (Explain Modification)
- F11 Incorrect Hardware Preparation (Explain)
- F12 Unused Fastener Hole(s) in Frame
- F13 Other _____

DOOR

- D1 Missing Door(s)
- D2 Missing Label
- D3 Damaged Door(s) (e.g., Dented, Bent)
- D4 Rust-through on Door(s)
- D5 Delamination of Door Skin or Face
- D6 Incorrect Glass in Light(s)
- D7 Broken Glass in Light(s)
- D8 Light(s) is/are Too Large
- D9 Loose Light Kits
- D10 Missing Light Kit Screw(s)
- D11 Improper Field Modification (Explain Modification)
- D12 Incorrect Hardware Preparation (Explain)

DOOR (cont.)

- D13 Unused Fastener Hole(s) in Door(s)
- D14 Improper Plant-ons
- D15 Replace Door
- D16 Other _____

OPERATIONAL TEST

- T1 Door Does NOT Swing Freely
- T2 Door Does NOT Close Completely
- T3 Door Does NOT Securely Latch
- T4 Electric Door Release Does NOT Allow Door to Close
- T5 Door Bottom Drags Against Floor Material
- T6 Door Rubs Against Frame
- T7 Edges of Paired Doors Overlap
- T8 Coordinator Does NOT Function Properly
- T9 Other _____

HINGES/PIVOTS

- H1 Missing Hinge(s)
- H2 Incorrect Hinge(s)
- H3 Loose Hinge(s)
- H4 Missing Screw(s)
- H5 Replace Hinge(s)
- H6 Other _____

DOOR BOLTS

- B1 Missing Top Flush Bolt
- B2 Missing Bottom Flush Bolt
- B3 Missing Strike (Top Bolt)
- B4 Missing Strike (Bottom Bolt)
- B5 Bottom Bolt does NOT Engage Strike
- B6 Missing Bolt Head (Top)
- B7 Missing Bolt Head (Bottom)
- B8 Missing Rub Plate(s)
- B9 Incorrect Type of Flush Bolt(s)
- B10 Other _____

LOCKS

- L1 Missing Lock
- L2 Incorrect Latch Bolt Throw
- L3 Non-fire Rated Latch Bolt
- L4 Latch Bolt Binds
- L5 Latch Bolt Missing
- L6 Loose Lever(s) or Knob(s)
- L7 Latch Bolt Does NOT Engage Strike
- L8 Missing Strike Plate
- L9 Missing Screw(s)
- L10 Missing Flush Bolt
- L11 Missing Flush Bolt Strike
- L12 Other _____

FIRE EXIT HARDWARE

- E1 Missing Fire Exit Device
- E2 Missing Latch Bolt Assembly (Top)
- E3 Missing Latch Bolt Assembly (Bottom)
- E4 Missing Strike(s)
- E5 Missing Vertical Rod (Top)
- E6 Missing Vertical Rod (Bottom)
- E7 Push Bar Does NOT Extend Halfway Across Door Width
- E8 Non-fire Rated Panic Hardware (Dogging)
- E9 Missing Lever or Knob
- E10 Missing Screw(s)
- E11 Missing Sex Nuts and Bolts
- E12 Mullion
- E13 Other _____

DOOR CLOSERS

- C1 Missing Door Closer(s)
- C2 Leaking Door Closer(s)
- C3 Missing Arm(s)
- C4 Broken Arm(s)
- C5 Missing Closer(s)
- C6 Does NOT Close Door Completely
- C7 Missing Screw(s)
- C8 Missing Drop and/or Adapter Plate(s)
- C9 Hold-open Arm(s)
- C10 Missing Coordinator
- C11 Missing Carry Bar
- C12 Broken Coordinator
- C13 Broken Carry Bar
- C14 Overhead Hold-open (Surface or Concealed)
- C15 Other _____

MISCELLANEOUS

- M1 Missing Threshold/ Saddle
- M2 Incorrect Clearance (Top of Door to Frame)
- M3 Incorrect Clearance (Hinge Edge to Frame)
- M4 Incorrect Clearance (Lock Edge to Frame)
- M5 Incorrect Clearance (Door Bottom to Floor)
- M6 Incorrect Clearance (Between Doors)
- M7 Missing Astragal
- M8 Missing or Damaged Gasketing/Smoke Seal
- M9 Kick-down Door Holder
- M10 Door Wedge
- M11 Door Stop with Hold Open (Manual)
- M12 Protection Plate(s) too Large
- M13 Protection Plate(s) Missing screw(s)
- M14 Signage Too Large
- M15 Signage, Screwed/ Nailed to Door
- M16 Other _____

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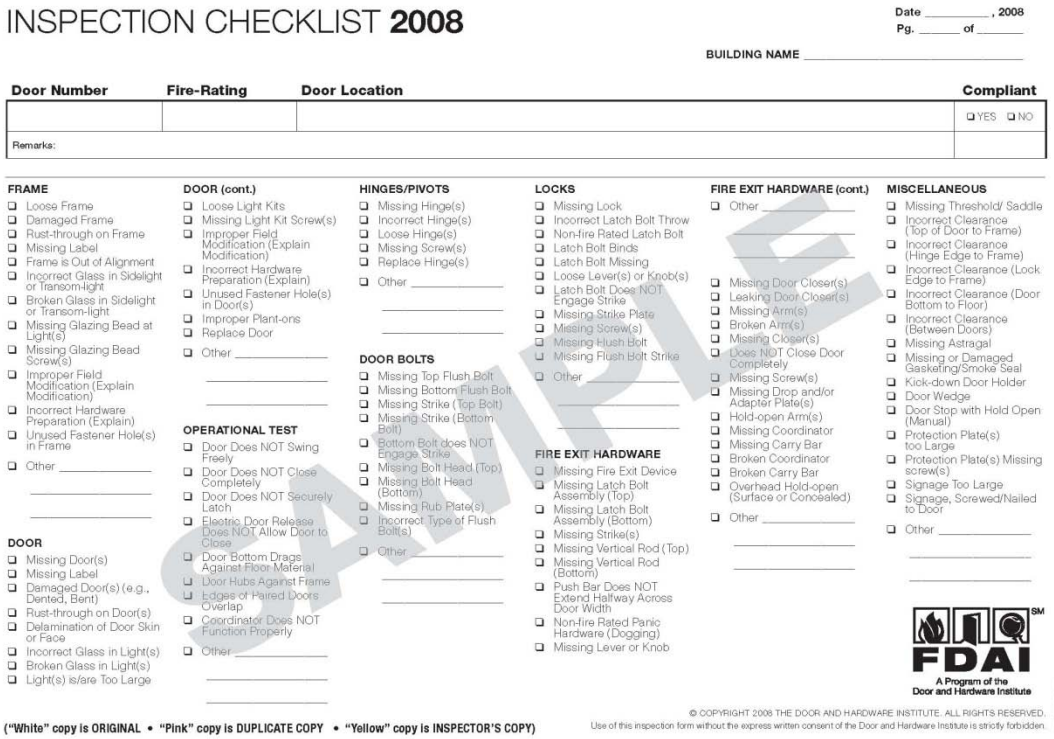
Inspection Checklist Form



INSPECTION CHECKLIST **2008**

Date _____, 2008
Pg. _____ of _____

BUILDING NAME _____

Door Number	Fire-Rating	Door Location	Compliant
			❑ YES ❑ NO
Remarks:			

FRAME
- ❑ Loose Frame
- ❑ Damaged Frame
- ❑ Rust-through on Frame
- ❑ Missing Label
- ❑ Frame is Out of Alignment
- ❑ Incorrect Glass in Sidelight or Transom-light
- ❑ Broken Glass in Sidelight or Transom-light
- ❑ Missing Glazing Bead at Light(s)
- ❑ Missing Glazing Bead Screw(s)
- ❑ Improper Field Modification (Explain Modification)
- ❑ Incorrect Hardware Preparation (Explain)
- ❑ Unused Fastener Hole(s) in Frame
- ❑ Other _____

DOOR
- ❑ Missing Door(s)
- ❑ Missing Label
- ❑ Damaged Door(s) (e.g., Dented, Bent)
- ❑ Rust-through on Door(s)
- ❑ Delamination of Door Skin or Face
- ❑ Incorrect Glass in Light(s)
- ❑ Broken Glass in Light(s)
- ❑ Light(s) is/are Too Large

DOOR (cont.)
- ❑ Loose Light Kits
- ❑ Missing Light Kit Screw(s)
- ❑ Improper Field Modification (Explain Modification)
- ❑ Incorrect Hardware Preparation (Explain)
- ❑ Unused Fastener Hole(s) in Door(s)
- ❑ Improper Plant-ons
- ❑ Replace Door
- ❑ Other _____

OPERATIONAL TEST
- ❑ Door Does NOT Swing Freely
- ❑ Door Does NOT Close Completely
- ❑ Door Does NOT Securely Latch
- ❑ Electric Door Release Does NOT Allow Door to Close
- ❑ Door Bottom Drags Against Floor Material
- ❑ Door Hubs Against Frame
- ❑ Edges of Paired Doors Overlap
- ❑ Coordinator Does NOT Function Properly
- ❑ Other _____

HINGES/PIVOTS
- ❑ Missing Hinge(s)
- ❑ Incorrect Hinge(s)
- ❑ Loose Hinge(s)
- ❑ Missing Screw(s)
- ❑ Replace Hinge(s)
- ❑ Other _____

DOOR BOLTS
- ❑ Missing Top Flush Bolt
- ❑ Missing Bottom Flush Bolt
- ❑ Missing Strike (Top Bolt)
- ❑ Missing Strike (Bottom Bolt)
- ❑ Bottom Bolt does NOT Engage Strike
- ❑ Missing Bolt Head (Top)
- ❑ Missing Bolt Head (Bottom)
- ❑ Missing Rub Plate(s)
- ❑ Incorrect Type of Flush Bolt(s)
- ❑ Other _____

LOCKS
- ❑ Missing Lock
- ❑ Incorrect Latch Bolt Throw
- ❑ Non-fire Rated Latch Bolt
- ❑ Latch Bolt Binds
- ❑ Latch Bolt Missing
- ❑ Loose Lever(s) or Knob(s)
- ❑ Latch Bolt Does NOT Engage Strike
- ❑ Missing Strike Plate
- ❑ Missing Screw(s)
- ❑ Missing Flush Bolt
- ❑ Missing Flush Bolt Strike
- ❑ Other _____

FIRE EXIT HARDWARE
- ❑ Missing Fire Exit Device
- ❑ Missing Latch Bolt Assembly (Top)
- ❑ Missing Latch Bolt Assembly (Bottom)
- ❑ Missing Strike(s)
- ❑ Missing Vertical Rod (Top)
- ❑ Missing Vertical Rod (Bottom)
- ❑ Push Bar Does NOT Extend Halfway Across Door Width
- ❑ Non-fire Rated Panic Hardware (Dogging)
- ❑ Missing Lever or Knob

FIRE EXIT HARDWARE (cont.)
- ❑ Other _____
- ❑ Missing Door Closer(s)
- ❑ Leaking Door Closer(s)
- ❑ Missing Arm(s)
- ❑ Broken Arm(s)
- ❑ Missing Closer(s)
- ❑ Does NOT Close Door Completely
- ❑ Missing Screw(s)
- ❑ Missing Drop and/or Adapter Plate(s)
- ❑ Hold-open Arm(s)
- ❑ Missing Coordinator
- ❑ Missing Carry Bar
- ❑ Broken Coordinator
- ❑ Broken Carry Bar
- ❑ Overhead Hold-open (Surface or Concealed)
- ❑ Other _____

MISCELLANEOUS
- ❑ Missing Threshold/ Saddle
- ❑ Incorrect Clearance (Top of Door to Frame)
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- ❑ Protection Plate(s) too Large
- ❑ Protection Plate(s) Missing screw(s)
- ❑ Signage Too Large
- ❑ Signage, Screwed/Nailed to Door
- ❑ Other _____

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("White" copy is ORIGINAL • "Pink" copy is DUPLICATE COPY • "Yellow" copy is INSPECTOR'S COPY)

FORM 4

Three Main Operational Requirements

- **Swinging Fire-Doors with Builders Hardware Must:**
  - Swing Freely
  - Be self or automatic closing or power operated
  - Positively latch when in the closed position.

NFPA 80 2007 – Standard for Fire Doors

5.2.4.2 As a <u>minimum</u>, the following items shall be verified:

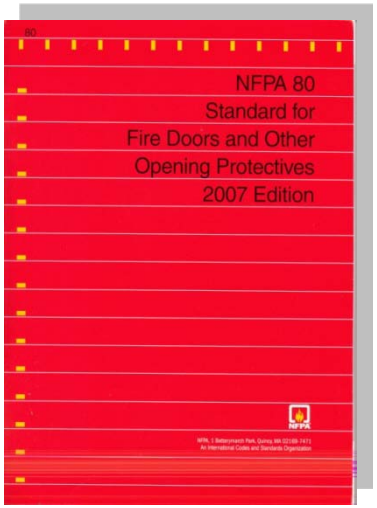
(1) No open holes or breaks exist in surfaces.

(2) Glazing, vision light frames, and glazing beads are intact.

(3) The door, frame, hinges, hardware, and noncombustible threshold are secured, aligned, and in working order.

(4) No parts are missing or broken.

(5) Door clearances do not exceed the clearances listed.



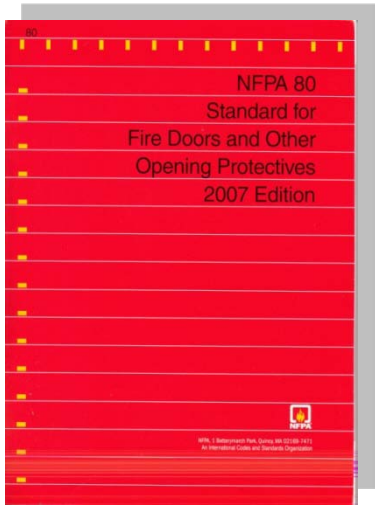
NFPA 80 2007 – Standard for Fire Doors

- **5.2.4.2 As a <u>minimum</u>, the following items shall be verified:**

  (6) The self-closing device is operational

  (7) If a coordinator is installed, the inactive leaf closes before active leaf.

  (8) Latching hardware operates and secures the door when it is in the closed position.



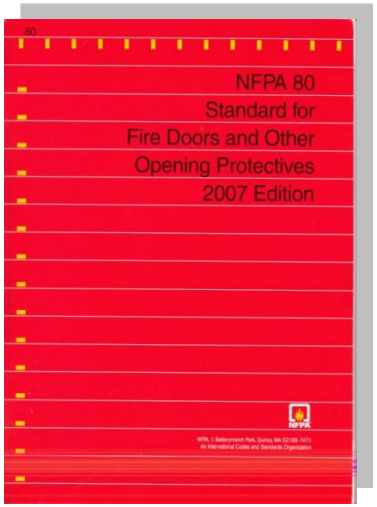
NFPA 80 2007 – Standard for Fire Doors

- **5.2.4.2 As a <u>minimum</u>, the following items shall be verified:**

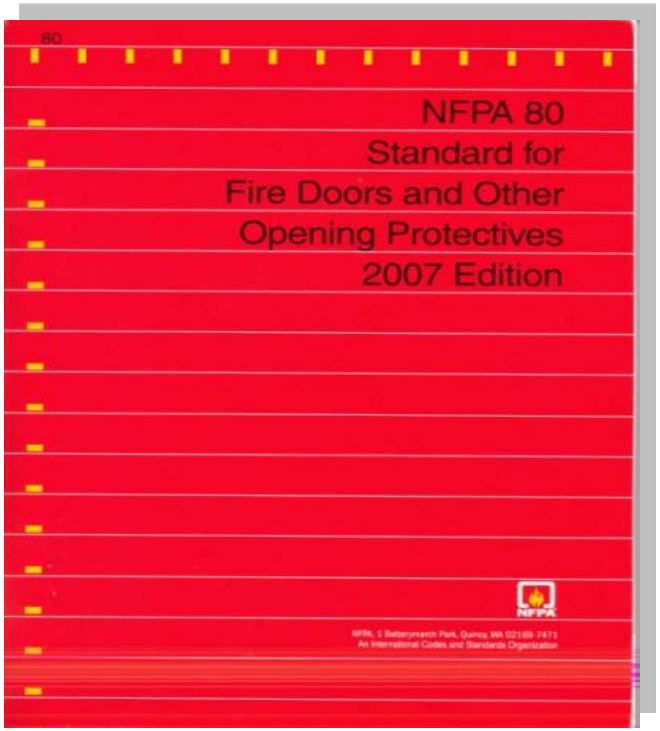
  (9) Auxiliary hardware items that interfere or prohibit operation are not installed.

  (10) No field modifications to the door have been performed.

  (11) Gasketing and edge seals are inspected.



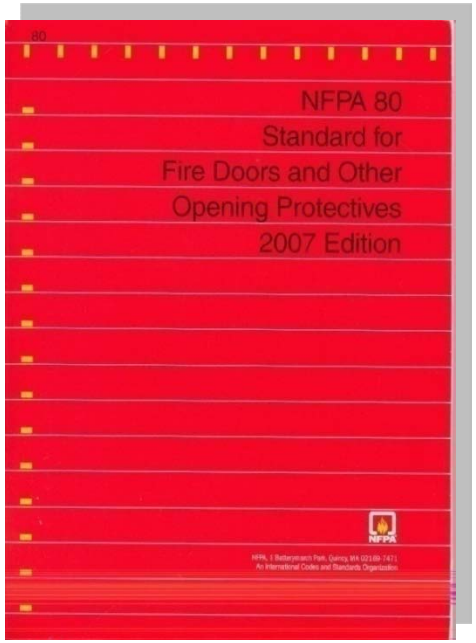
Real-Life Examples of Code Violations



NFPA 80 2007–Standard for Fire Doors - Chapter 5 - Care & Maintenance

5.2.4.2 As a <u>minimum</u>, the following items shall be verified:

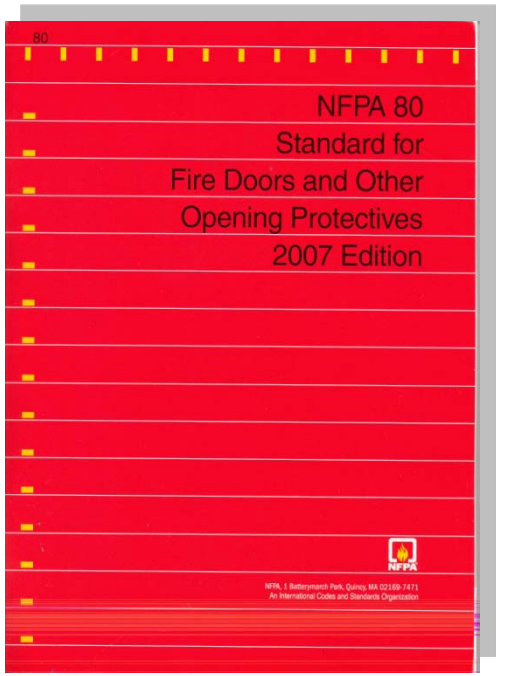
(1) No open holes or breaks exist in surfaces



NFPA 80 2007–Standard for Fire Doors - Chapter 5 - Care & Maintenance

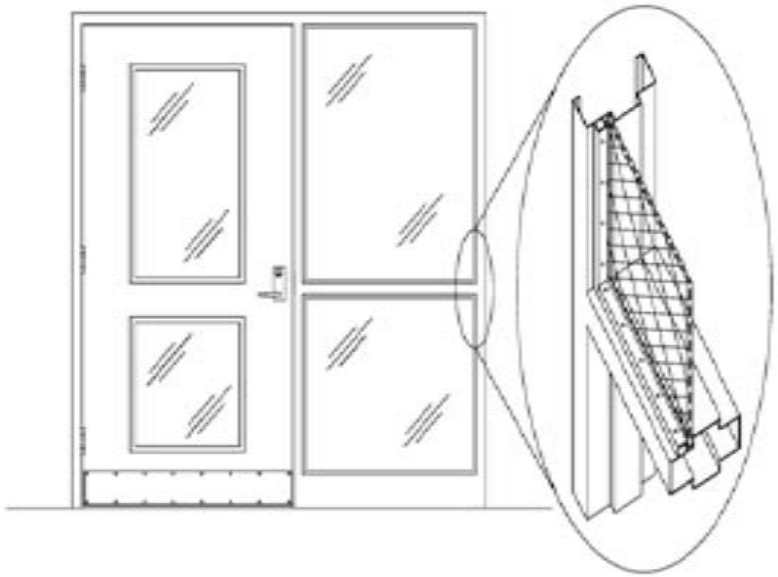
5.2.4.2 As a <u>minimum</u>, the following items shall be verified:

(2) Glazing, vision light frames, and glazing beads are intact



NFPA 80 2007 – Standard for Fire Doors

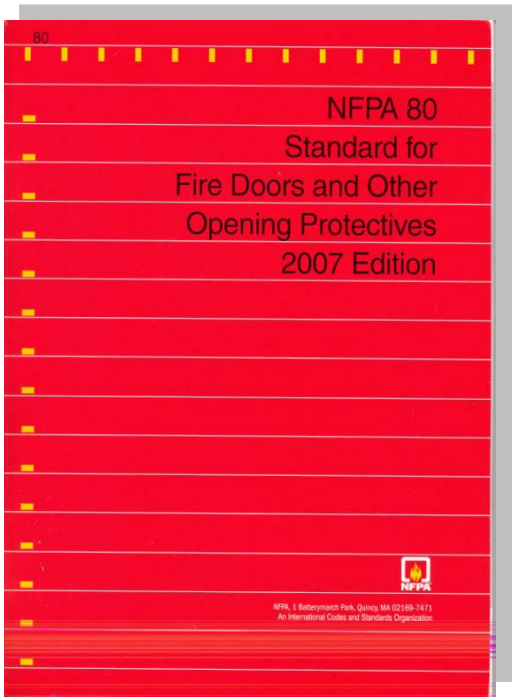
- **Inspect that glazing beads are present; fastened to frame. Verify that fasteners are tightened.**
- **Inspect glazing materials/panels. Observe any broken or damaged material.**
- **Labeled fire resistant, installed in labeled or tested frames.**



NFPA 80 2007–Standard for Fire Doors - Chapter 5 - Care & Maintenance

5.2.4.2 As a <u>minimum</u>, the following items shall be verified:

(3) The door, frame, hinges, hardware, and noncombustible threshold are secured, aligned, and in working order



NFPA 80 2007 – Standard for Fire Doors

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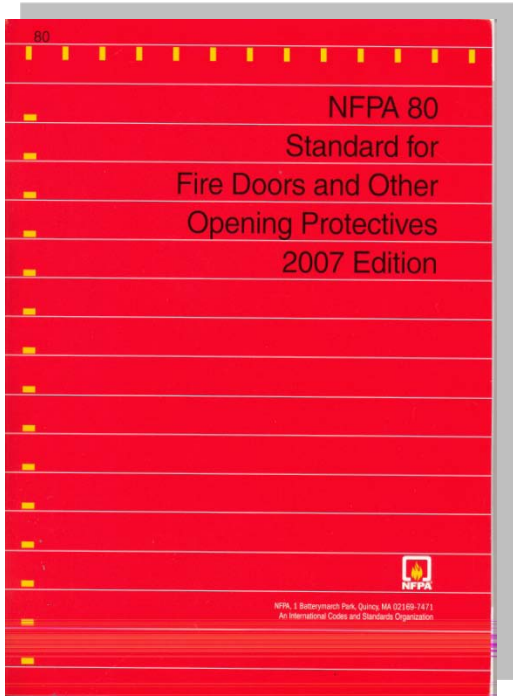
NFPA 80 2007–Standard for Fire Doors - Chapter 5 - Care & Maintenance

5.2.4.2 As a <u>minimum</u>, the following items shall be verified:

(4) No parts are missing or broken.

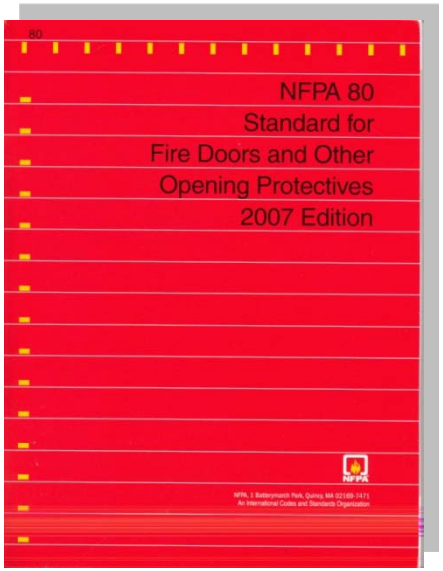


NFPA 80 2007–Standard for Fire Doors - Chapter 5 - Care & Maintenance

(4) No parts are missing or broken.

NFPA 80 2007–Standard for Fire Doors: Chapter 5. Care & Maintenance

5.2.4.2 As a <u>minimum</u>, the following items shall be verified:
(5) Door clearances do not exceed the clearances listed.

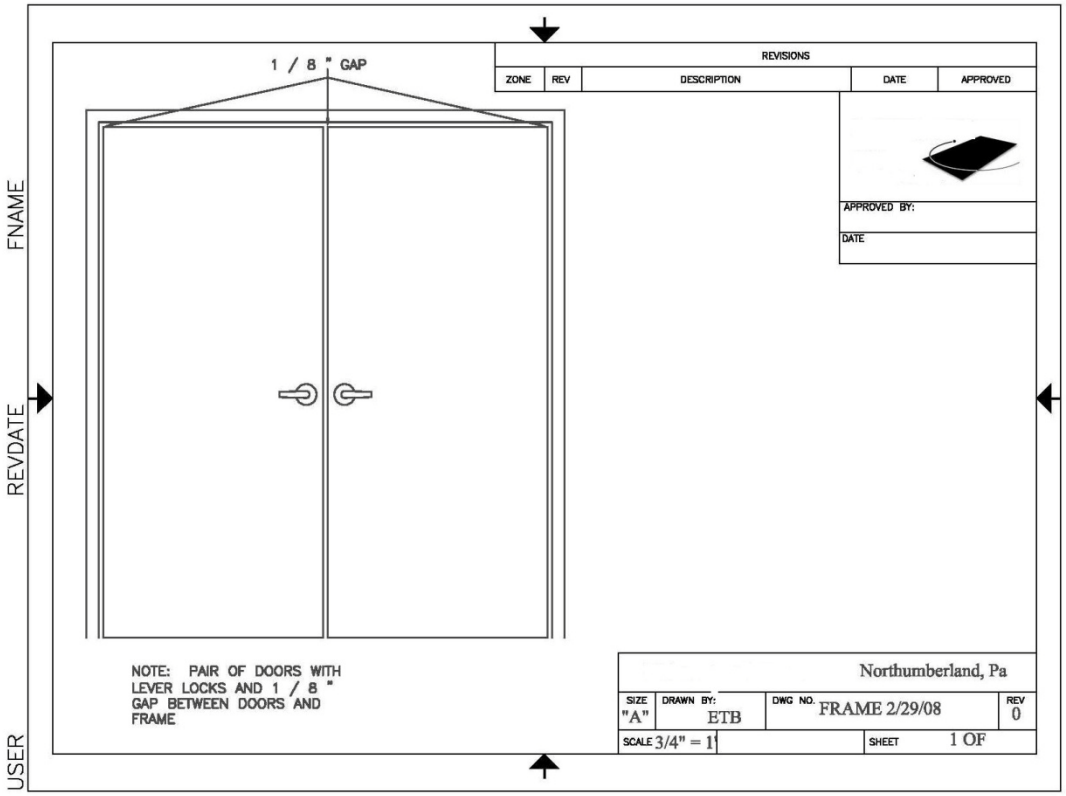


NFPA 80 2007 – Standard for Fire Doors

Door clearances at the door edge to the frame, on the pull side of the door, do not exceed clearances listed in 4.8.4.1 and 6.3.1.7

- Hollow metal door -1/8” (+/- 1/16”), door to frame and at meeting stiles of pairs – 6.3.1.7
- Wood door - 1/8” maximum, door to frame and at meeting stiles of pairs – 6.3.1.7
- 3/4” between bottom of door and floor or threshold – 4.8.4.1

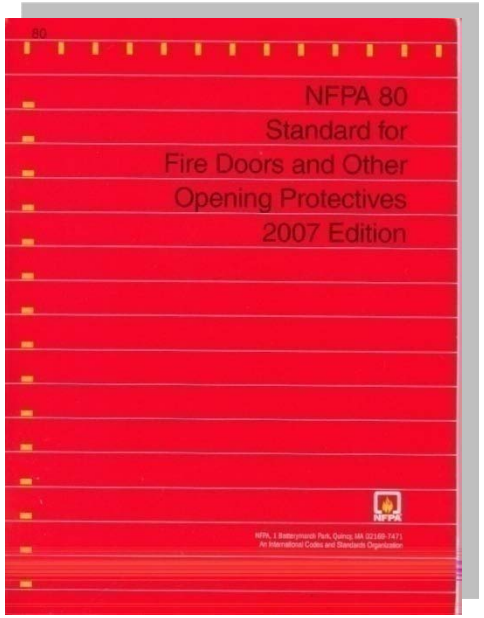
Pair of Doors 1/8” Clearance



NFPA 80 2007–Standard for Fire Doors - Chapter 5 - Care & Maintenance

5.2.4.2 As a <u>minimum</u>, the following items shall be verified:

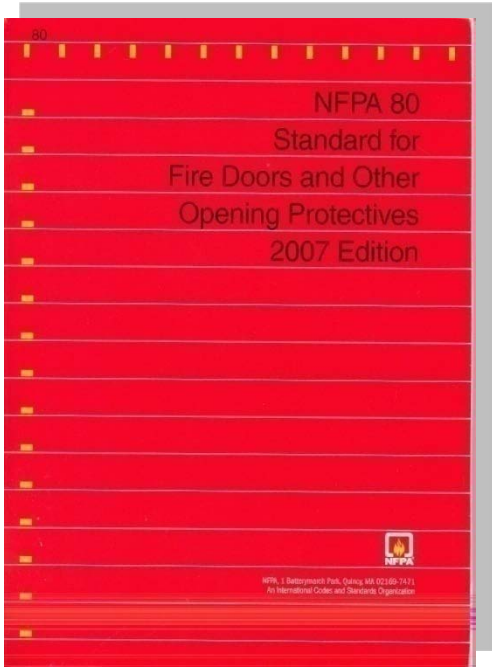
(6) The self-closing device is operational.



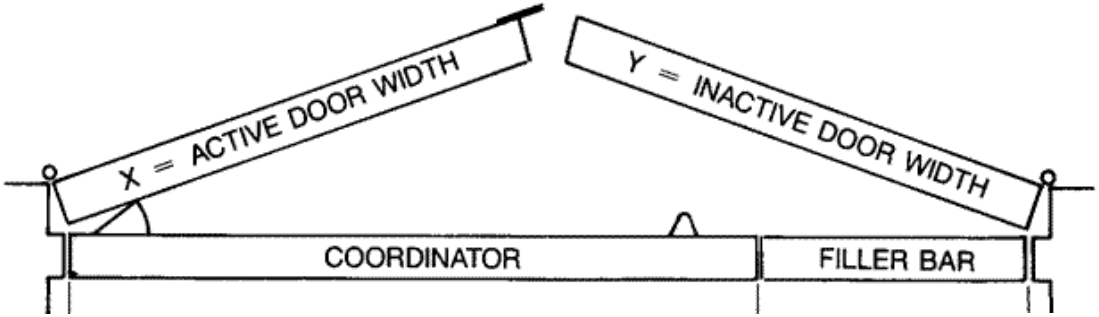
NFPA 80 2007–Standard for Fire Doors - Chapter 5 - Care & Maintenance

5.2.4.2 As a <u>minimum</u>, the following items shall be verified:

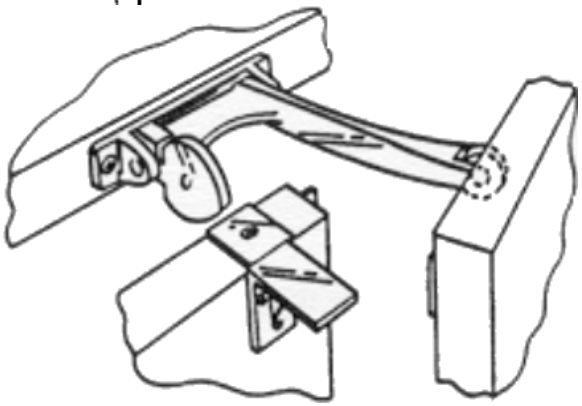
(7) If a coordinator is installed, the inactive leaf closes before active leaf**.**



Coordinators



Soffit Mounted

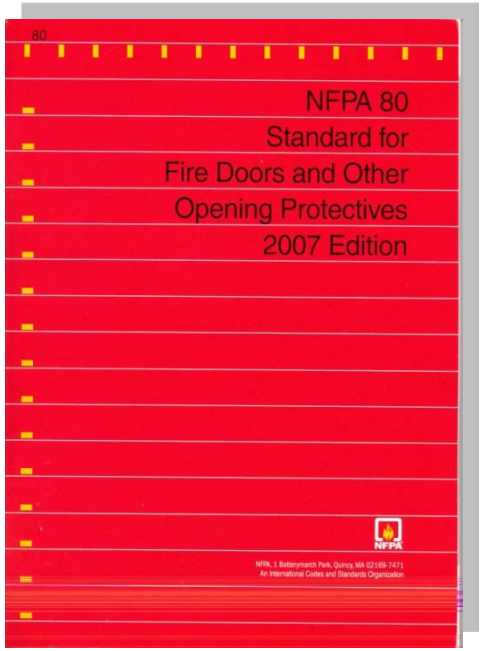


Gravity Type

NFPA 80 2007–Standard for Fire Doors - Chapter 5 - Care & Maintenance

5.2.4.2 As a <u>minimum</u>, the following items shall be verified:

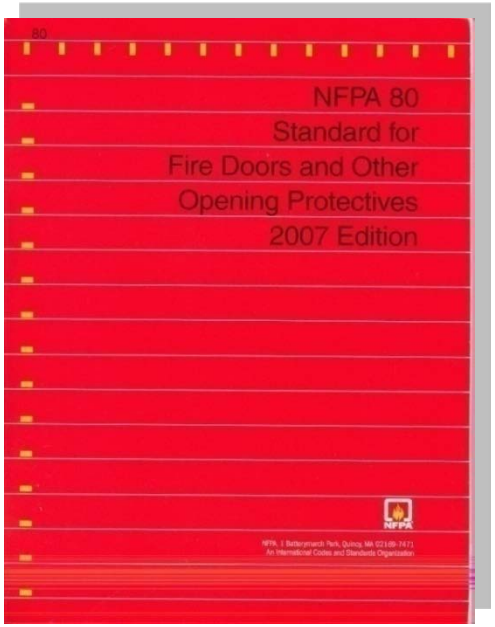
(8) Latching hardware operates and secures the door when it is in the closed position.



NFPA 80 2007–Standard for Fire Doors - Chapter 5 - Care & Maintenance

5.2.4.2 As a <u>minimum</u>, the Following items shall be verified:

(9) Auxiliary hardware items that interfere or prohibit operation are not installed.



NFPA 80 2007 – Standard for Fire Doors

(9) Auxiliary hardware items that interfere or prohibit operation are not installed

NFPA 80 2007 – Standard for Fire Doors

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NFPA 80 2007 – Standard for Fire Doors

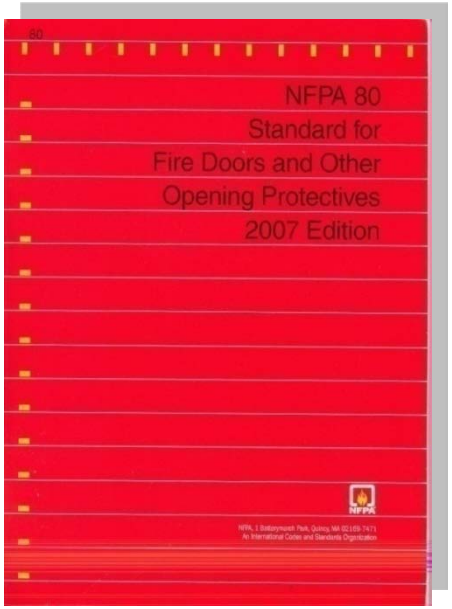
(9) Auxiliary hardware items that interfere or prohibit operation are not installed.

“This Door Does Not Work! Do Not Use It”

NFPA 80 2007–Standard for Fire Doors - Chapter 5 - Care & Maintenance

5.2.4.2 As a <u>minimum</u>, the following items shall be verified:

(10) No field modifications to the door have been performed.



NFPA 80 2007–Standard for Fire Doors: Chapter 5. Care & Maintenance

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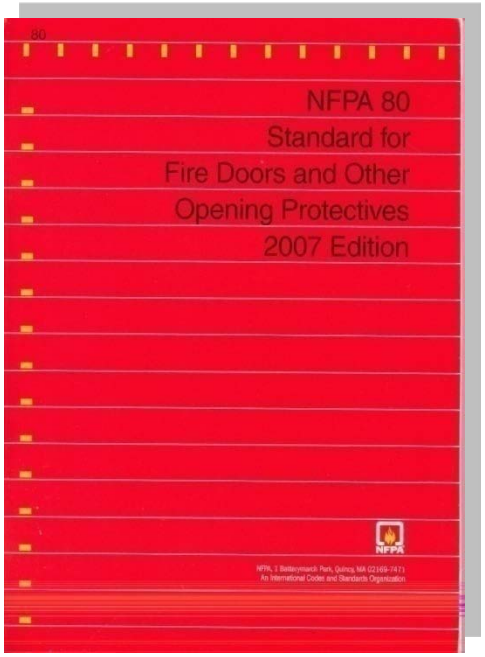
NFPA 80 2007–Standard for Fire Doors - Chapter 5 - Care & Maintenance

5.2.4.2 As a minimum, the following items shall be verified:

(11) Gasketing and edge seals are inspected.



Bonus Coverage

Heat
Release
Mechanism

Bonus Coverage

Bonus Coverage

Bonus Coverage

NFPA 80 – Annual Fire Door Inspection Foundation Published Guides

- **AHJ Guide & Owner's Guide**
- **Reference Guide for Inspecting Swinging Fire Doors with Builders Hardware**

Summary

- **Not possible to list all of the applications of doors, frames and builders hardware products for swinging fire door assemblies.**
- **Covered the most commonly used products and give you, the AHJ, GUIDELINES on how to accurately evaluate the operating condition of swinging fire door assemblies.**

Summary

- **Many swinging fire door assemblies can be:**
  - Complicated.
  - Contain sophisticated hardware products.
  - These assemblies require an immense level of expertise to coordinate their functions with their fire-protection properties.

Summary

- **New fire-rated products are:**
  - Continually being developed.
  - Requires inspectors to stay current on their knowledge and understanding of these product's applications, capabilities and limitations.

For More Information Contact:

The Foundation or
Door and Hardware Institute

•

Phone (703) 222-2010, Fax (703)222-2410

•

Online at:

www.doorsecuritysafety.org
www.dhi.org