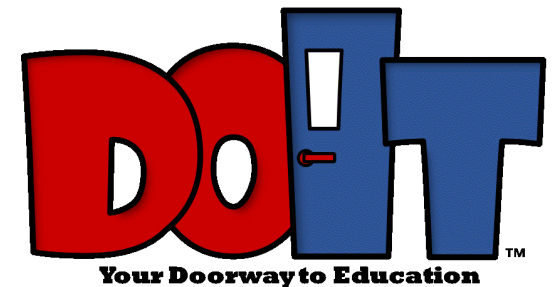


# The Dos and Don'ts of Maintaining Fire Doors



# About Me



➤ Laura Frye Weaver, DAHC, CDC, DHT, DHC, CSI, CDT, CCS, CFDAI, QFDI, QDOC



- ✓ Owner/President of the Door Opening Industry Training Group (DOIT).
- ✓ Over 35 years experience in the door and hardware industry.
- ✓ Became a Certified Fire Door Inspector in 2011.
- ✓ Active in building code development.
- ✓ Advocates for the industry promoting secure and safe openings.
- ✓ Focus on life safety, bringing awareness and education to the opening industry as well as the building design, code authority, and facility management communities.

# After participating in this program, attendees will be able to:

1. Locate the requirements in NFPA 80 related to the installation, inspection, testing and maintenance of swinging doors with builders hardware.
2. Identify what job site preparations are allowable according to NFPA 80.
3. Recognize what procedures and preparations are required to be performed on fire door assemblies under labeled services.
4. Determine what fire door repairs would be considered a field modification, requiring additional approval.
5. Distinguish the difference between allowable jobsite preparations and field modifications.

# Two Main Purposes

PROTECT PEOPLE



PROTECT PROPERTY



# Ready at All Times

Unlike most components of a passive fire protection system:

- Swinging fire doors are in continual use.
- Subject to wear and tear.
- Must be ready to perform at all times.

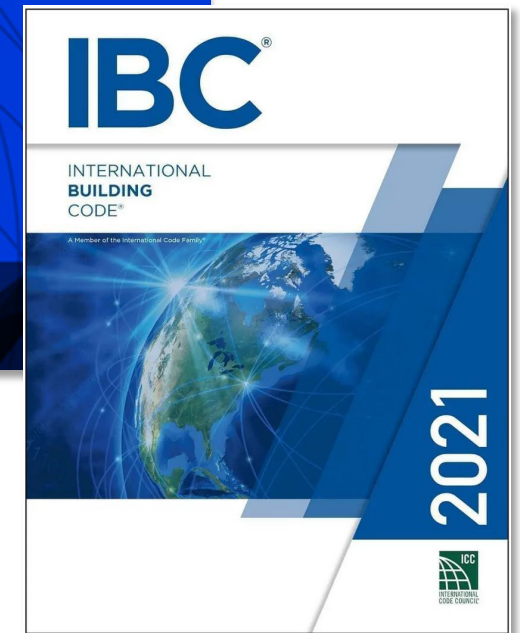


# International Building Code (IBC)

2018, 2021

## ➤ Require Fire Doors to Comply with NFPA 80:

- **716.1 General.** Opening protectives required by other sections of this code shall comply with the provisions of this section and shall be installed **in accordance with NFPA 80.**



# International Fire Code (IFC)

2018, 2021

## ➤ Require Fire Doors to Comply with NFPA 80:

- **705.2** Inspection and maintenance. Opening protectives in fire-resistance-rated assemblies shall be inspected and maintained **in accordance with NFPA 80.**



# Code vs. Standard

## A CODE IS...

- A set of rules recommended for people to follow.
- Must be adopted into law to be enforceable.

A model stating “what to do”.

## A STANDARD IS...

- A set of technical definitions, specifications and guidelines.
- A standard that is referenced in an adopted and enforceable code becomes law.

Clarifies “how something should be done”.



# NFPA 80 – Standard for Fire Doors and Other Opening Protectives

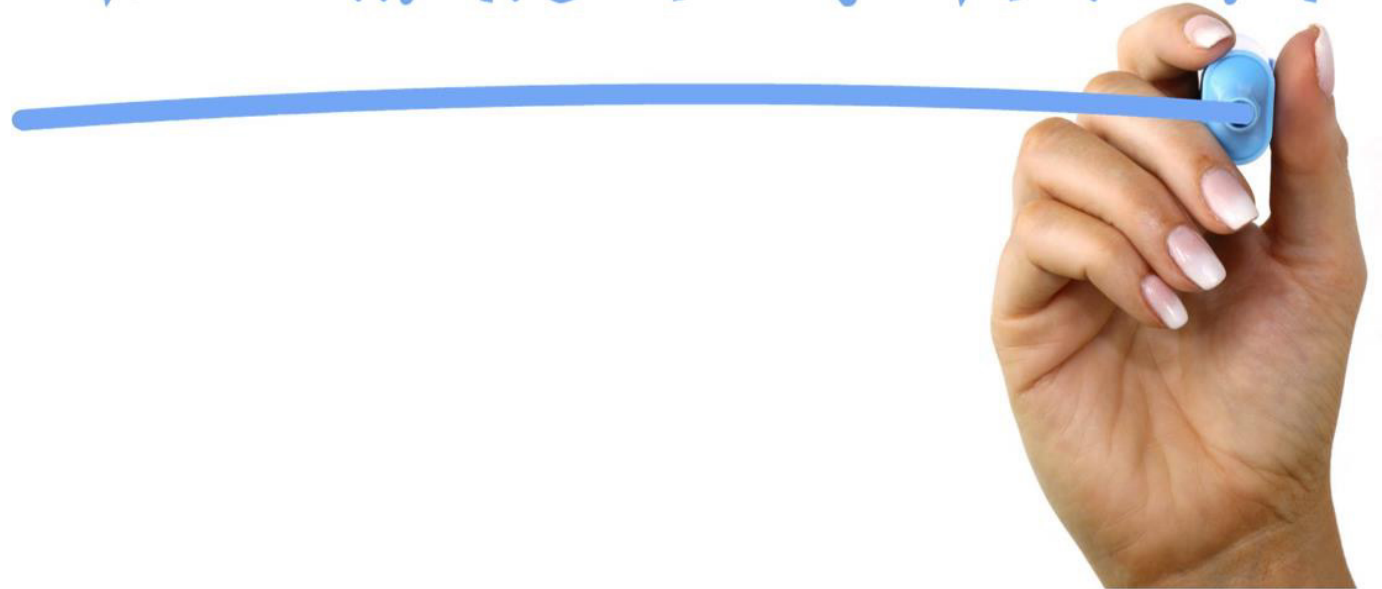
- Covers Installation, Testing and Maintenance (modifications).
  - New Construction
  - Renovation
  - Repairs and Replacement of Existing Doors and Components
- Provides guidance to AHJs.



# Chapter 1

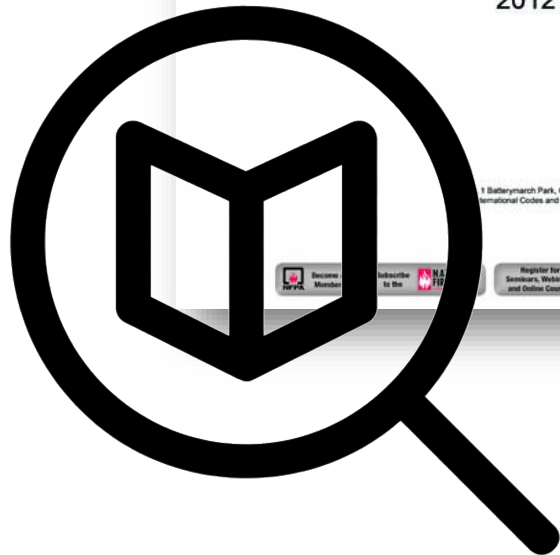
- Scope
- Purpose
- Retroactivity
- Equivalency

ADMINISTRATION



# Chapter 2 – Referenced Publications

- NFPA
- ASTM
- BHMA
- UL



NFPA® 252  
Standard Methods  
of Fire Tests of  
Door Assemblies

2012 Edition



ANSI/BHMA A156.1-2013  
Revision of ANSI/BHMA A156.1-2006



AMERICAN NATIONAL STANDARD

FOR

BUTTS AND HINGES



SPONSOR  
BUILDERS HARDWARE MANUFACTURERS ASSOCIATION, INC.

AMERICAN NATIONAL STANDARDS INSTITUTE, INC.  
Approved March 7, 2013



UL 9

STANDARD FOR SAFETY  
Fire Tests of Window Assemblies

# Chapter 3

# Definitions



- NFPA Official Definitions
- General Definitions

**3.3.46\* Field Modifications.** Changes, not otherwise permitted by this standard, made to a listed assembly or component after it has been manufactured.

**3.3.50 Fire Door Assembly.** Any combination of a fire door, a frame, hardware, and other accessories that together provide a specific degree of fire protection to the opening.

**3.3.102 Self-Closing Doors.** Doors that, when opened and released, return to the closed position.

# Chapter 4 – General Requirements

- Classifications
- Appurtenances (Jobsite Preparations)
- Signage
- Listed and Labeled Products
- Components
- Classifications and Types of Doors
- Oversized Doors
- Glazing Materials in Fire Doors
- Classifications of Hardware for Fire Doors
- Clearance (Bottom of Door)

# Chapter 5 – Inspection, Testing and Maintenance

- Operability
- Prevention of Door Blockage
- Replacement
- Field Labeling
- Field Modifications
- Removal
- Inspection and Testing
- Maintenance



Applies to  
New and Existing  
Installations

# Chapter 6 – Swinging Doors with Builders Hardware



## CHAPTER 7 – Fire Door Hardware



# Builders vs. Fire Door Hardware

## BUILDERS HARDWARE

- Applied only to Swinging Doors.
- NOT required to ship from the factory with the fire doors.
- Fire Exit Hardware falls under Builders Hardware.

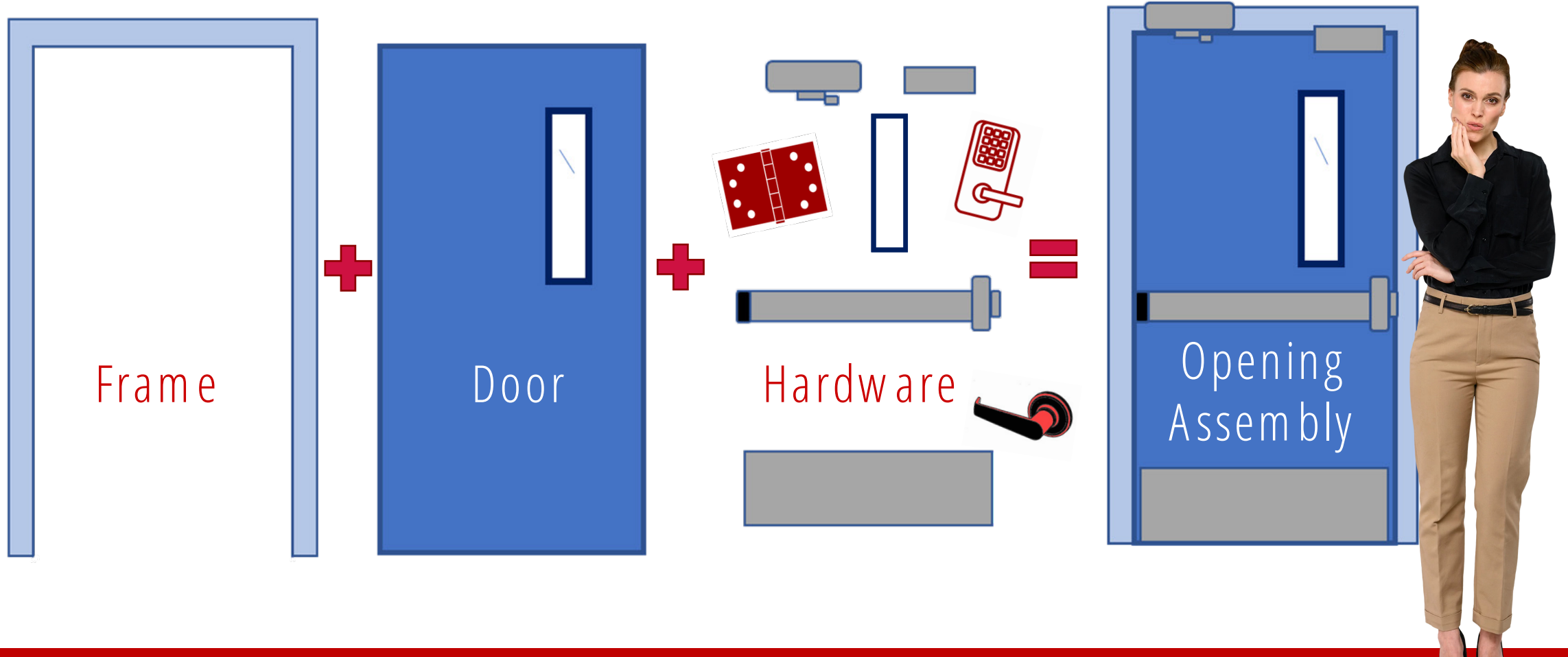
## FIRE DOOR HARDWARE

- Applied to Both Swinging and Sliding.
- Required to ship from the factory with the fire door.
- All hardware for sliding doors falls under Fire Door Hardware.





# Chapter 6 – Component Oriented System



# Do's and Don'ts of Maintaining Fire Doors

## FIRE DOORS ARE AN IMPORTANT PART OF YOUR BUILDINGS SAFETY AND SECURITY FEATURES.



Maintaining them correctly may just be a matter of life and death one day.

- DO** keep your fire doors in working order. Fire doors are required to be operational at all times in order to provide the protection they are designed for
- DO** test your fire doors on a regular basis. Testing your fire doors regularly helps to make sure that the door and door hardware is functioning properly and can be counted on when needed to slow the spread of fire and smoke, and to provide the time and protection for occupants to escape.
- DO** make sure your fire doors stay closed, or can close without manual assistance. Fire doors are one of your buildings main defenses against fire spread. They must be closed, or should close quickly when the fire alarm signals if they are held open by electronic means, like a wall magnet.
- DO** keep your fire doors latched. Make sure your fire doors are positively latching or that they will close and latch if they are being held open electronically.
- DO** confirm that your fire doors equipped with gasketing have a continuous seal around the top and edges of the door and at the meeting edges of doors hung in pairs. Gasketing that is installed properly helps protect building occupants from smoke and toxic fumes that occur during a fire.
- DO** repair or replace a damaged or defective fire door, door frame or hardware component installed on a fire door immediately. Fire doors need to be reliable and any repairs or corrections must be completed without delay.
- DO** keep your fire doors free of obstructions. The space in front of and behind a fire door should be kept clear of any items that would prevent the door from closing and that might keep occupants from passing through the door.
- DO** inspect your doors on an annual basis. Inspecting your doors annually will help to ensure that they will be able to perform their two main functions in the event of a fire, protecting people and protecting property.



To understand your facilities doors better, including your fire doors, check out our Door Opening Industry Training Group programs at [www.Educate-doit.com](http://www.Educate-doit.com)

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## FIRE DOORS HAVE TWO MAIN FUNCTIONS, PROTECTING PEOPLE, AND PROTECTING PROPERTY!

Know the **DO'S** and **DON'TS** of maintaining your fire doors.

- DON'T** prop open fire doors with wedges, kickdown stops or other mechanical hold open devices. Fire doors must be closed, or be able to close on their own, in the event of a fire.
- DON'T** hold back latches or cover strike plates with things like magnets or tape to keep fire doors from latching. Fire doors must be able to securely latch into the strike plate in the frame or adjacent door, to allow the door to act as a barrier to fire, smoke, and dangerous gases during a fire.
- DON'T** decorate your fire doors. Signs that are hung on fire doors are limited to just 5-percent of the face of the door, and must be attached without mechanical fasteners. Adding signs, wreaths, decorations or even coat hooks, adds fuel to a fire door which can cause flaming, fire spread and failure of your fire doors so that they cannot provide the fire protection they were designed for.
- DON'T** hang signs, paper, curtains or blinds directly on or over fire protection rated glass in fire doors. Fire protection rated glass does not protect from the transfer of dangerous radiant heat. During a fire, items attached to glass and glazing could ignite, allowing fire to spread to other parts of the building.
- DON'T** cut in to or otherwise modify a fire door, door frame or the hardware attached to a fire door without consulting a professional. Cutouts in fire doors are limited in size to 1-inch diameter round holes. Changes made, or modifications done, to a fire door at your facility, are likely to void your fire door rating and make the door unable to provide the necessary protection.
- DON'T** shim hinges or other hardware installed on fire doors with wooden, plastic or nylon materials. Fire doors can only be shimmed with steel shims so that doors and hardware stay aligned when exposed to heat and fire conditions.
- DON'T** paint over, conceal, remove or damage fire labels on fire doors, door frames or door hardware while doing maintenance work or cleaning. Labels must be readily visible at all times for the Authority Having Jurisdiction (AHJ) to identify and inspect your fire doors.
- DON'T** install barricade devices, that prevent escape or access, on fire doors. A fire doors main function is to protect people. Free and immediate egress must be allowed for all building occupants to be able to escape from the heat, flames and deadly gases that result from a fire, and first responders need to be able to access building occupants who may need assistance.

To understand your facilities doors better, including your fire doors, check out our Door Opening Industry Training Group programs at [www.Educate-doit.com](http://www.Educate-doit.com)

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# DON'T Prop Open Fire Doors

- **DON'T** prop open fire doors with wedges, kickdown stops or other mechanical hold open devices.

**6.1.3** Operation of Doors. All swinging doors shall be closed and latched at the time of fire.

**6.1.3.1** For the purpose of 6.1.3, the operation of doors shall be divided into the following categories:

- 1) Self-closing doors
- 2) Automatic-closing doors
- 3) Power-operated fire doors



**5.1.2.3.3** Blocking or wedging doors in the open position shall be prohibited.

**(7) The self-closing device is operational and the door completely closes.**

# DON'T Prevent Positive Latching

- **DON'T** hold back latches or cover strike plates with things like magnets or tape to keep fire doors from latching.

**6.1.3** Operation of Doors. All swinging doors shall be closed and latched at the time of fire.

**6.1.3.3.1** The fire door shall latch upon closure.

**6.4.4.3** All single doors and active leaves of pairs of doors shall be provided with an active latch bolt that cannot be held in a retracted position as specified in the individual manufacturer's published listings.

**(9)** Latching hardware operates and secures the door.



**5.1.2.2** Doors, shutters, and windows shall be kept closed and latched or arranged for automatic closing.

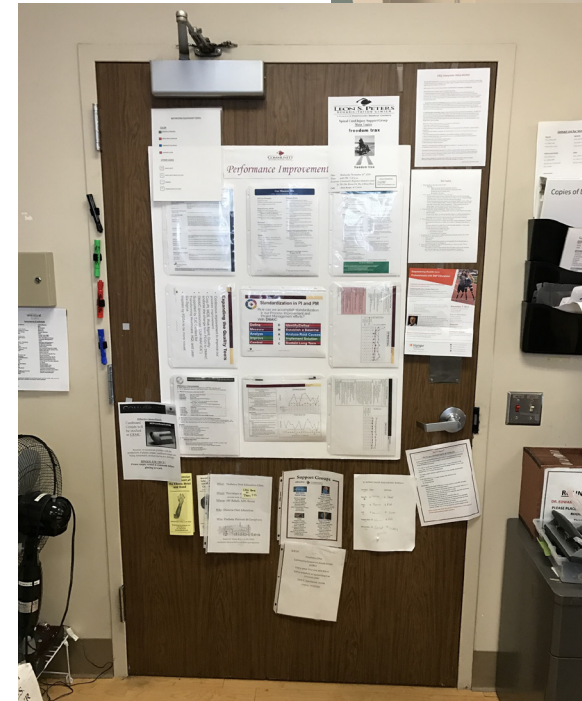
# DON'T Decorate Fire Doors

- **DON'T** decorate fire doors with signs, wreaths, or other decorations.
- Signs that are hung on fire doors are limited to just 5-percent of the face of the door, and must be attached without mechanical fasteners.

**4.1.4 Signage.** Informational signage shall be permitted to be installed on the surfaces of fire doors in accordance with 4.1.4.1 through 4.1.4.4 or in accordance with the manufacturer's published listing.

**4.1.4.1** The total area of all attached signs shall not exceed 5 percent of the area of the face of the fire door to which they are attached.

(13) Signage meets the requirement listed in 4.1.4.



# DON'T Attach Items to Glass

- **DON'T** hang signs, paper, curtains or blinds directly on or over fire protection rated glass in fire doors.
- Fire protection rated glass does NOT protect from the transfer of dangerous radiant heat.

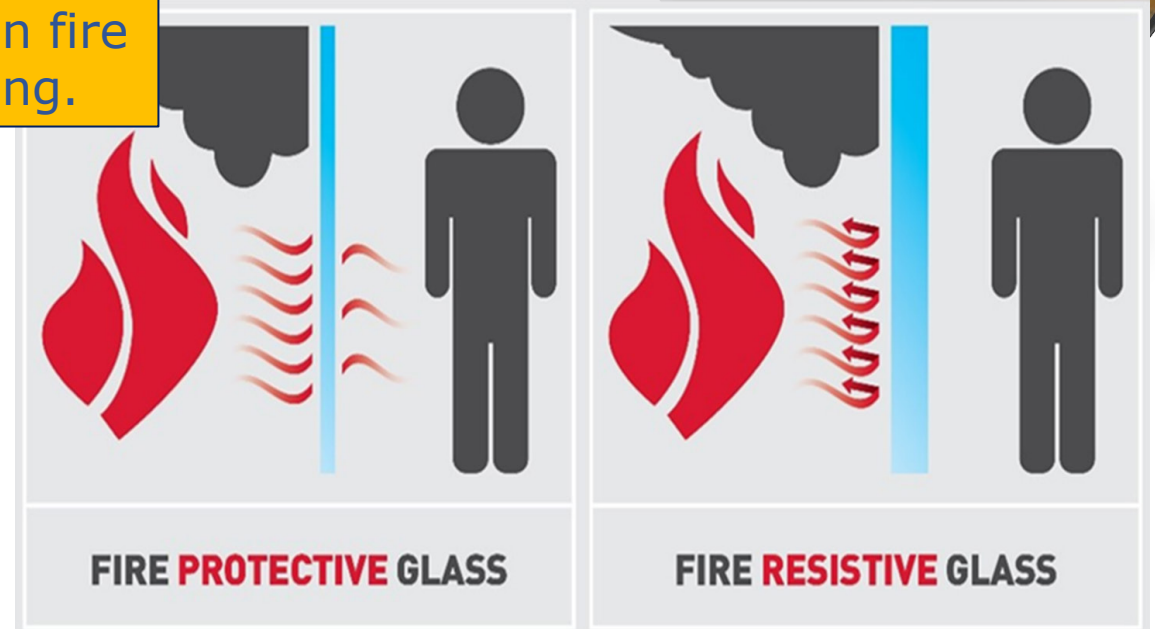
**4.1.4.3\*** Signs shall not be installed on fire protection-rated glass.



# Glazing Materials in Fire Doors

- Glazing material that can be used in fire door assemblies:
  - Fire-Resistance Rated
  - Fire-protection Rated

**4.4.1\*** Only labeled fire resistance-rated or fire protection-rated glazing materials shall be used in fire door assemblies when permitted by the door listing.



# DON'T Modify a Fire Door

- DON'T cut in to or otherwise modify a fire door, door frame or the hardware attached to a fire door.
- Cutouts in fire doors are limited in size to 1-inch diameter round holes.
- Changes made, or modifications done, to a fire door are likely to void the fire door rating and make the door unlikely to provide the necessary protection.

(11) No field modifications have been made that void the label.





# Chapter 4 General Requirements

## ➤ 4.1.3 Appurtenances

What Must be Done Under Labeled Services

### **“NOT Allowed as Jobsite Preparations”**

- Lock and latch preps
- Prepping for remotely operated or monitored hardware
- Cutting in hinges
- Concealed closer preps
- Cutting out doors for glass lites, vision panels and louvers
- Application of plant-ons and overlays

# Chapter 4 General Requirements

## ➤ 4.1.3 Appurtenances

### What Jobsite Preparations are Allowed

- Holes for surface-applied hardware
- Function holes for mortise locks
- Holes for labeled viewers
- A maximum 3/4-inch undercutting of wood and composite doors (CAUTION)
- Installation of protection plates

# Installation of Surface Applied Hardware is Allowed

➤ Applied to door or frame without removing material other than drilling round holes not exceeding 1-inch diameter for:

- Cylinders \*
- Spindles
- Operational Elements
- Electrified Hardware
- Through-bolts

\* Cylinder holes may be larger than 1"

➤ Holes, other than cylinder holes, larger than 1-inch are permitted in accordance with the door manufacturer and hardware manufacturer's listing.

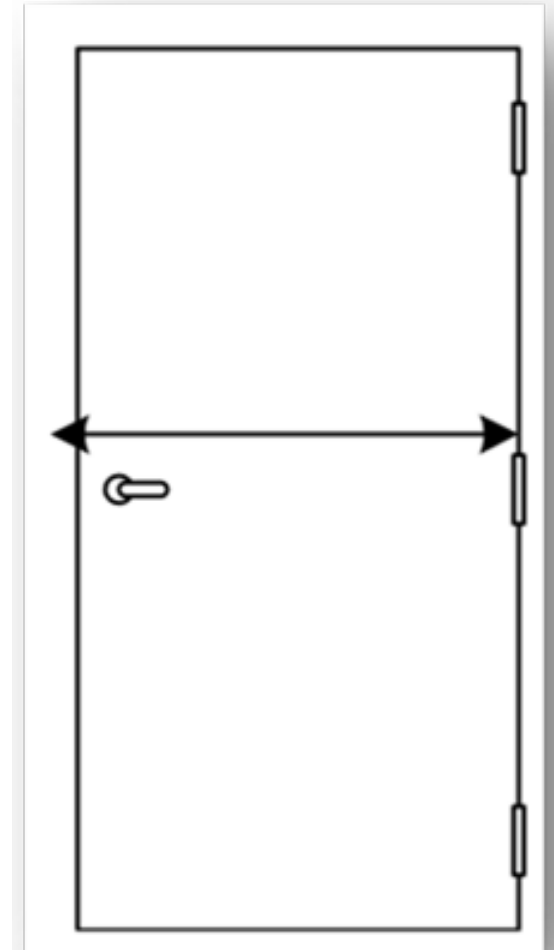


## 4.1.3.2.4 Raceways (May be Allowed)

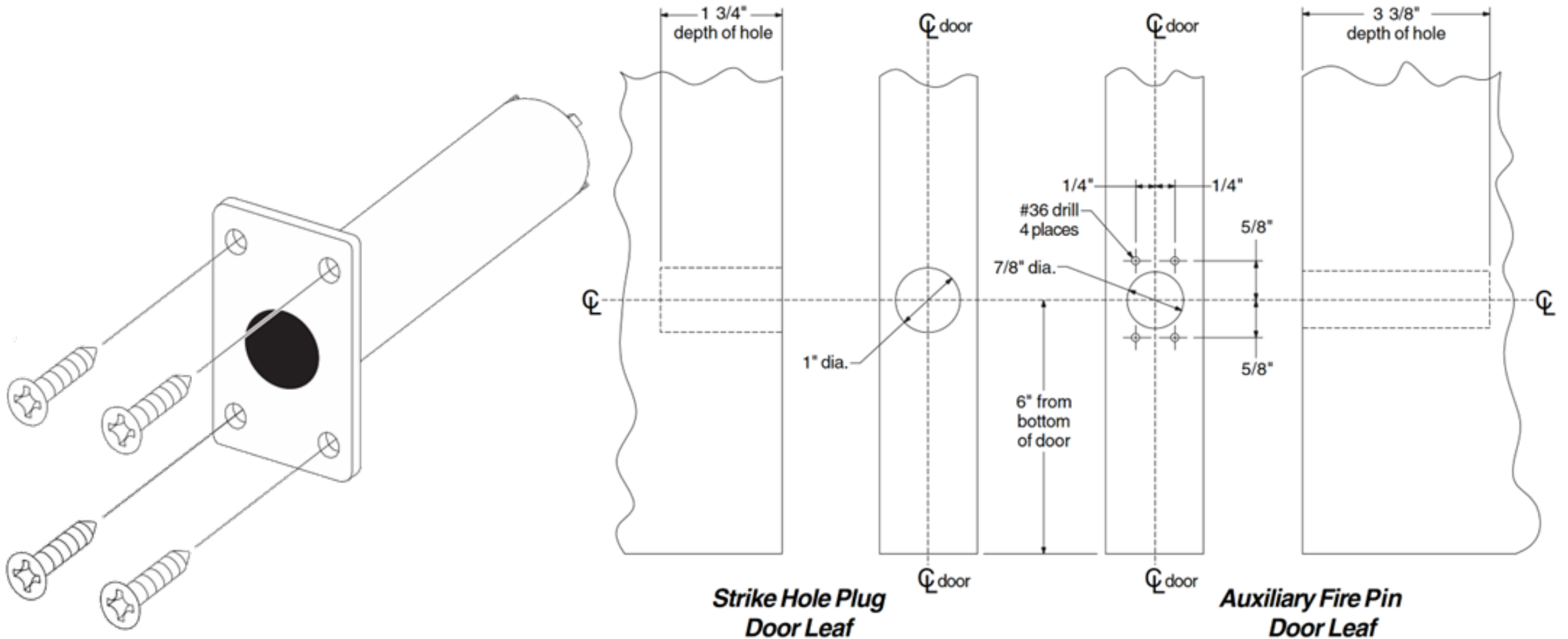
- Allowed in accordance with door manufacturer's listing and when permitted by the laboratory with which the door is listed.
- If there are no provisions for jobsite drilling, then raceways are considered a "field modification".

**4.1.3.2.4** When performed at the job site, drilling raceways for wires or preparation for fire pins shall be in accordance with the door manufacturer's listing and when permitted by the laboratory with which the door is listed.

**4.1.3.2.5** Where the door manufacturer's listing does not contain provisions for drilling raceways, the raceways shall be considered field modifications in accordance with 5.1.5.1.



# Drilling for Fire Pin



# DON'T Shim Hinges with Cardboard

- **DON'T** shim hinges or other hardware installed on fire doors with cardboard, wood, plastic or nylon materials.
- Fire doors can only be shimmed with steel shims so that doors and hardware stay aligned when exposed to heat and fire conditions.

**6.4.3.4 Shimming.** When required to meet the clearances stated in 6.3.1.7, the shimming of hinges using steel shims shall be permitted.

(6) Door clearances do not exceed clearances listed in 4.8.4 and 6.3.1.7.



# DON'T Paint Fire Labels

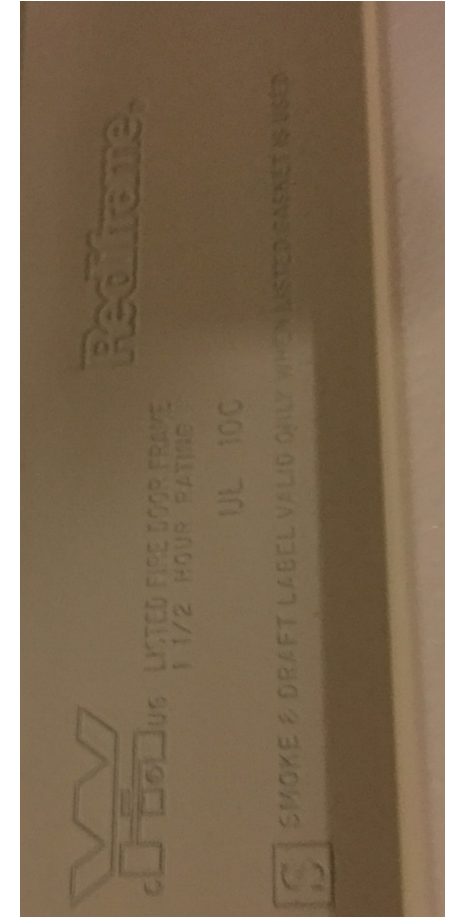
- **DON'T** paint over, conceal, remove or damage fire labels on fire doors, door frames or door hardware while doing maintenance work or cleaning.
- Labels must be readily visible at all times.

**4.2.3** Labels shall be applied in locations that are readily visible and convenient for identification by the AHJ after installation of the assembly.

(1) Labels are clearly visible and legible.



Should not be painted.



Can be painted.





# DON'T Install Barricade Devices

- **DON'T** install devices, that prevent escape or access, on fire doors.
- Free and immediate egress must be allowed for all building occupants to be able to escape from the heat, flames and deadly gases that result from a fire, and first responders need to be able to access building occupants who may need assistance.

(10) Auxiliary hardware items that interfere or prohibit operation are not installed on the door or frame.



# DO Maintain Your Fire Doors

- Keep your fire doors in working order.
- Fire doors are required to be operational at all times in order to provide the protection they are designed for.

# 5.5 Maintenance - Repairs

- **5.5.1\*** Repairs shall be made, and defects that could interfere with operation shall be corrected **WITHOUT DELAY.**
- **5.5.4\*** Any breaks in the face coverings of doors shall be repaired without delay.



- (4) The door, frame, hinges, hardware, and noncombustible threshold are secured, aligned, and in working order with no visible signs of damage.
- (5) No parts are missing or broken.

# 5.5 Maintenance – Glass

- **5.5.2** Damaged glazing material shall be replaced with labeled glazing.
- **5.5.3** Replacement glazing materials shall be installed in accordance with their individual listings.



(3) Glazing, vision light frames, and glazing beads are intact and securely fastened in place, if so equipped.

# 5.5 Maintenance

- **5.5.5** Where a fire door assembly or any part thereof is damaged to the extent that it could impair the doors proper emergency function, the following actions shall be performed:
  - The fire door assembly or any part thereof shall be repaired with listed or labeled parts or parts obtained from the original manufacturer.
  - The fire door assembly shall be tested to ensure emergency operation and closing upon completion of the repairs.
  
- **5.5.6** If repairs cannot be made with parts that are listed or labeled or that are obtained from the original manufacturer or retrofitted in accordance with Section 5.3, the fire door assembly or any part thereof shall be replaced.

# Fastener Holes

- **5.5.7** When fastener holes are left in a door or frame due to changes or removal of hardware or plant-ons, the holes shall be filled by the following methods:
  1. Install steel fasteners that completely fill the holes
  2. Fill the screw or bolt holes with the same material as the door or frame
  3. Fill holes with material listed for this use and installed in accordance with manufacturer's procedures
  
- **5.5.8** Holes, other than those as described by 5.5.7, shall be treated as a field modification in accordance with 5.1.5.



(2) No open holes or breaks exist in surfaces of either the door or frame.

# Maintenance of Older Fire Doors

- Asbestos was once commonly used in the manufacture of fire doors.
- Do not drill into a door that you suspect may contain asbestos.
- Mfg. 1960's and 1970's = high chance of containing asbestos.
- Mfg. 1980's = lesser chance but some manufacturers were still using asbestos as late as 1989.
- Mfg. 1990+ = no asbestos.



Bellwood Millwork 1976 Catalog

20-MINUTE	WOOD FIRE DOORS	1-HOUR "B" LABEL
<p>BELLWOOD CO. INC. DRAKE, CALIFORNIA UNDERWRITERS LABORATORIES INC.® CLASSIFIED WOOD CORE FIRE DOOR NO. [REDACTED] FIRE RATING: 20 MINUTES MINIMUM LATCH THROW 1/2 INCH SEE U.L. CLASSIFIED BUILDING MATERIALS INDEX</p>	<p>BELLWOOD CO. INC. DRAKE, CALIFORNIA UNDERWRITERS LABORATORIES, INC.® CLASSIFIED COMPOSITE FIRE DOOR NO. [REDACTED] FIRE RATING: 1 HR. (B) - MINIMUM LATCH THROW 1/2 INCH TEMP. RISE: 30 MIN. 250 °F. MAXIMUM SEE U.L. CLASSIFIED BUILDING MATERIALS INDEX</p>	<p>BELLWOOD 1½-HOUR DOOR PENDING TEST APPROVAL (Doors supplied by outside manufacturer)</p>
<ul style="list-style-type: none"><li>• Faces — Wood species, hard-board and plastic laminates.</li><li>• Core — Particleboard or Staved wood.</li><li>• Sizes — Up to 4/0 x 7/2.</li><li>• Finishes — All available.</li><li>• Detail — Machining for all U.L. approved hardware.</li></ul>	<ul style="list-style-type: none"><li>• Faces — Wood species and plastic laminate.</li><li>• Core — Asbestos-mineral or gypsum.</li><li>• Lites — Up to 100 sq. in.</li><li>• Louvers — Up to 24" x 24" (Fusible link).</li><li>• Detail — Machining for all U.L. approved hardware.</li></ul>	<ul style="list-style-type: none"><li>• Faces — Wood species and plastic laminates.</li><li>• Core — Non-combustible.</li><li>• Size — Up to 4/0 x 8/0.</li><li>• Lites — Up to 100 sq. in.</li><li>• Louvers — Up to 24" x 24".</li><li>• Detail — Machining for all U.L. approved hardware.</li></ul>

# Gasketing is Intact

- **6.4.8\* Gasketing.** Gasketing on fire doors or frames shall be in accordance with the published listings of the door, frame or gasketing manufacturer.



(12) Meeting edge protection, gasketing and edge seals, where required, are inspected to verify their presence and integrity.



# DO Test Fire Doors Regularly

- DO test your fire doors on a regular basis.
- Testing your fire doors regularly helps to make sure that the door and door hardware is functioning properly and can be counted on when needed to slow the spread of fire and smoke, and to provide the time and protection for occupants to escape.

# DO Inspect Doors Annually

- DO inspect your doors on an annual basis.
- Inspecting your doors annually will help to ensure that they will be able to perform their two main functions in the event of a fire, protecting people and protecting property.

# NFPA 80 Inspection Points



## 5.2.3.5.2 As a minimum, the following items shall be verified:

- (1) Labels are clearly visible and legible.
- (2) No open holes or breaks exist in surfaces of either the door or frame.
- (3) Glazing, vision light frames, and glazing beads are intact and securely fastened in place, if so equipped.
- (4) The door, frame, hinges, hardware, and noncombustible threshold are secured, aligned, and in working order with no visible signs of damage.
- (5) No parts are missing or broken.
- (6) Door clearances do not exceed clearances listed in 4.8.4 and 6.3.1.7
- (7) The self-closing device is operational; that is, the active door completely closes when operated from the full open position.
- (8) If a coordinator is installed, the inactive leaf closes before the active leaf.
- (9) Latching hardware operates and secures the door when it is in the closed position.
- (10) Auxiliary hardware items that interfere or prohibit operation are not installed on the door or frame.
- (11) \* No field modifications to the door assembly have been performed that void the label.
- (12) Meeting edge protection, gasketing and edge seals, where required, are inspected to verify their presence and integrity.
- (13) Signage affixed to a door meets the requirements listed in 4.1.4.

# Questions?

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