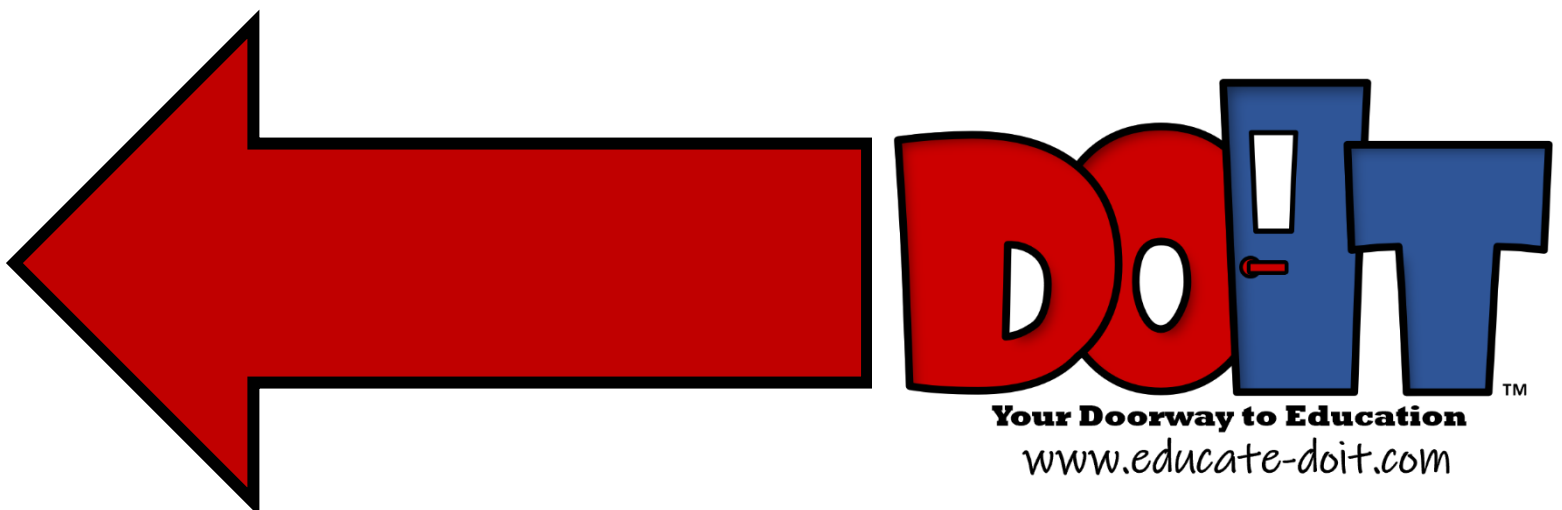
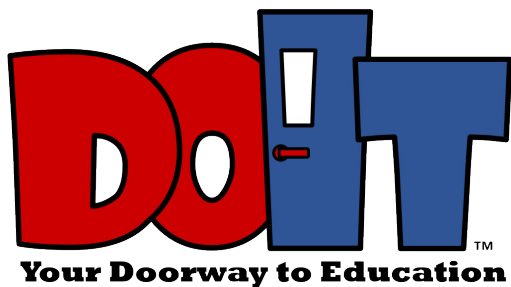




# **Fire Door Inspection Basics and NFPA 80 OR-01**





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# Fire Door Inspection Basics and NFPA 80

Course OR-01

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# Course OR-01 - Fire Door Inspection Basics and NFPA 80\*

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## Course Description

- This outreach program is designed to equip fire marshals, building officials, facility managers, and other key stakeholders with the knowledge necessary to understand and enforce NFPA 80 requirements for fire-rated door assemblies.
- Participants will gain foundational insights into the inspection, maintenance, and proper use of swinging fire doors with builders hardware, ensuring compliance and enhancing fire safety in the built environment.



## Learning Objectives

After attending this presentation course, attendees will be able to:

1. Better understand the NFPA 80 requirements for inspecting and maintaining swinging fire doors with Builders Hardware.
2. Recognize what is allowable in the field for repairs and modifications to fire doors.
3. Identify common types of unsanctioned field modifications to fire doors and their potential impact on fire safety.
4. Explore real-world installations and cautionary tales illustrating the consequences of unauthorized fire door modifications.

Notes:

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## The Role of the AHJ

- Enforcement authority
- Approval authority
- Interpretation responsibility
- Coordination with facility owners



## What NFPA 80 DOES and DOES NOT Require

- |                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                 |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>➤ NFPA 80 DOES <ul style="list-style-type: none"> <li>○ Require annual inspections</li> <li>○ Require functioning assemblies</li> <li>○ Require listed components</li> </ul> </li> </ul> | <ul style="list-style-type: none"> <li>➤ NFPA 80 DOES NOT <ul style="list-style-type: none"> <li>○ Require every deficiency to shut down occupancy</li> <li>○ Override adopted building/ and fire code</li> <li>○ Eliminate AHJ judgment</li> </ul> </li> </ul> |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

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## Deficiency vs Immediate Hazard

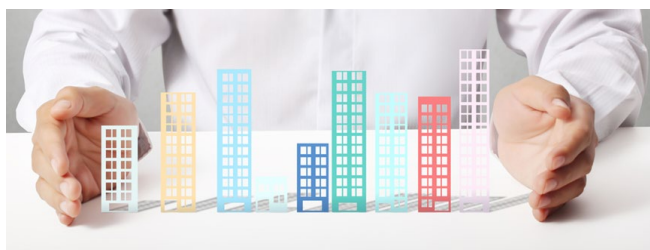
- Missing closer cover → maintenance issue
- Door won't latch → immediate concern
- Painted but legible label → monitor
- Wedged door → immediate correction

## Fire Doors - Two Main Purposes

PROTECT PEOPLE



PROTECT PROPERTY



Notes:

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## Why Fire Doors Matter

- Smoke kills more occupants than flames in most building fires
- Fire doors protect exit access and stair enclosures
- Failed doors allow rapid smoke spread
- Small deficiencies can become life safety failures during a fire event

## Fire Rated Door Assembly

- Fire-rated door assemblies play an important role in saving lives and minimizing property damage by providing safe egress and compartmentalizing smoke, flames and when required, dangerous radiant heat.



### Notes:

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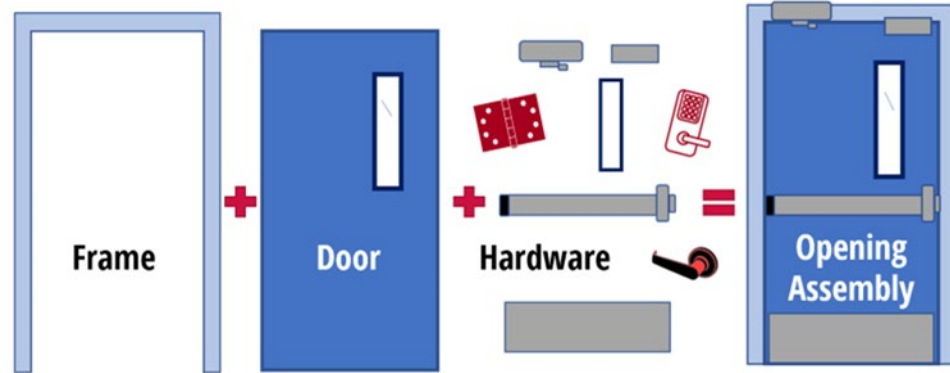
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## Fire Doors Function as a System

- Door
- Frame
- Hardware
- Glazing
- Gasketing



## Code Requirements Door Assemblies

- International Building Code
- International Fire Code
- NFPA 101, Life Safety Code
- NFPA 1, Fire Code
- State and Local Codes

**FIRE DOORS MUST  
COMPLY WITH NFPA 80**



Notes:

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# NFPA 80 - Standard for Fire Doors and Other Opening Protective

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



## What are Opening Protectives?

- Assemblies or devices designed to cover an opening in a wall, floor, or ceiling to protect against the spread of fire and smoke.
  - Fire Doors
  - Fire Shutters
  - Fire Windows
- Fire-rated door assemblies, include the door, frame, hardware, and glazing.



Notes:

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## Standards and Testing

- Fire rated doors are tested in accordance with the following standards:
  - UL 10B, Fire Tests of Door Assemblies (neutral or negative pressure)
  - UL 10C, Positive Fire Pressure Tests of Door Assemblies
  - NFPA 252, Standard Methods of Fire Tests of Door Assemblies

## Fire Ratings

- Tests must be performed by an independent, internationally accredited testing laboratory.
  - Intertek/Warnock Hersey
  - Underwriters Laboratories (UL)
  - QAI Laboratories
  - FM Approvals
- Two parts to the test:
  - Fire Test
  - Hose Stream Test

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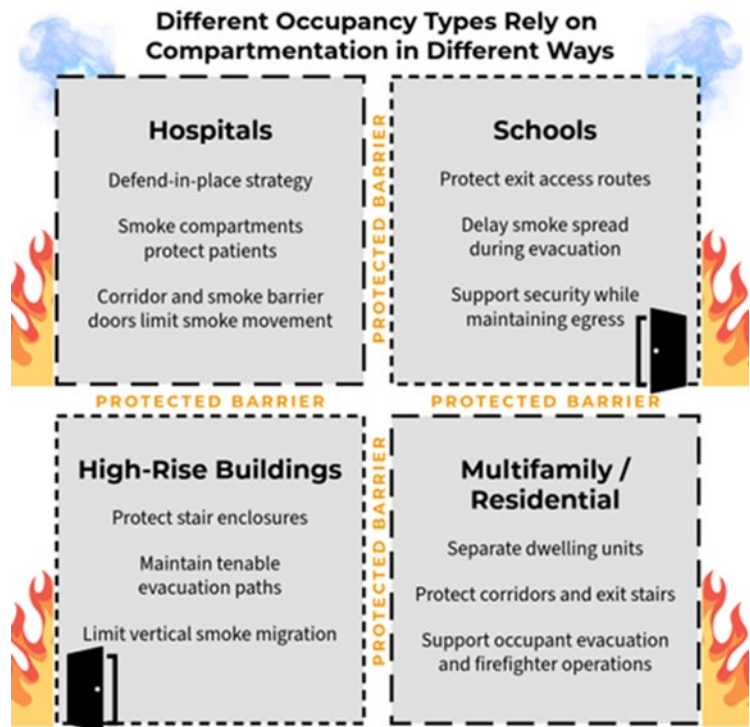
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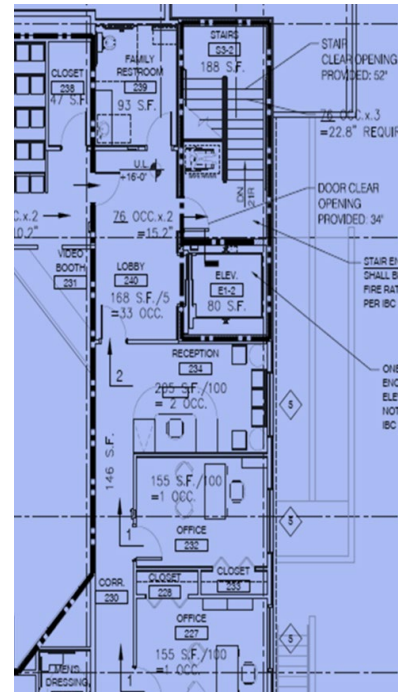
# Compartmentation in Real Buildings

- Fire Doors Support the Building's Life Safety Strategy
- Fire doors help maintain the integrity of compartment barriers during a fire event.



## Why Opening Protectives Matter

- Openings are the weakest part of a rated barrier
- Fire doors restore protection at openings
- Smoke spread often occurs at failed openings
- Inspection verifies assemblies still perform as intended



Notes:

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# Fire Door Inspection

- When is Inspection and testing required?
  - After Installation **5.2.3 Acceptance Testing**
  - After Maintenance **5.5.9**
  - Recurring Annually **5.2.4 Periodic Inspection and Testing**
- Building owners are responsible for ensuring that the fire door assemblies in their facilities are maintained properly and are part of an annual inspection program.

## South Carolina Fire Code 2021



### 705.2 Inspection and Maintenance

*Opening protectives in fire-resistance-rated assemblies* shall be inspected and maintained in accordance with NFPA 80. *Opening protectives in smoke barriers* shall be inspected and maintained in accordance with NFPA 80 and NFPA 105. Openings in smoke partitions shall be inspected and maintained in accordance with NFPA 105. Fire doors and smoke and draft control doors shall not be blocked, obstructed, or otherwise made inoperable. Fusible links shall be replaced promptly whenever fused or damaged. *Opening protectives* and smoke and draft control doors shall not be modified.

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# NFPA 80 – Inspection Requirements

- **5.2.3.5** Swinging Doors with Builders Hardware or Fire Door Hardware.
- **5.2.3.5.1** Fire door assemblies shall be visually inspected from both sides to assess the overall condition of door assembly.
- **5.2.3.5.2** As a minimum, thirteen (13) inspection points must be verified.



## NFPA 80 2010 vs. 2019 Inspection Points

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

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

**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.

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## Inspection Point 1

1. Labels are clearly visible and legible.



## Labels Are the AHJ's Starting Point

- Labels help verify listing compliance
- Labels identify fire protection ratings
- Labels identify special limitations
- Labels assist in determining compatibility
- Labels support inspection and enforcement decisions

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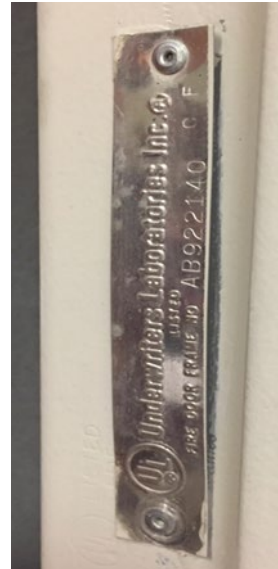
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MADE IN U.S.A.  
**WARNOCK HERSEY**  
 LISTED 25 MINUTE FIRE DOOR  
 MEET LATCH THROW - 157 INCH  
 APPROVED HANDRAIL REQUIRED  
**C US**  
 DO NOT FINISH  
 OR COVER THIS  
 LABEL  
**WHI**  
 FOR INSTALLATION SINGLE OR IN  
 PAIRS INCLUDING DOUBLE EGRESS  
**INDUSTRIES**  
**HOLSTEIN, IA**



Warwick Hersey LISTED F.D.F.  


VHM - 16141



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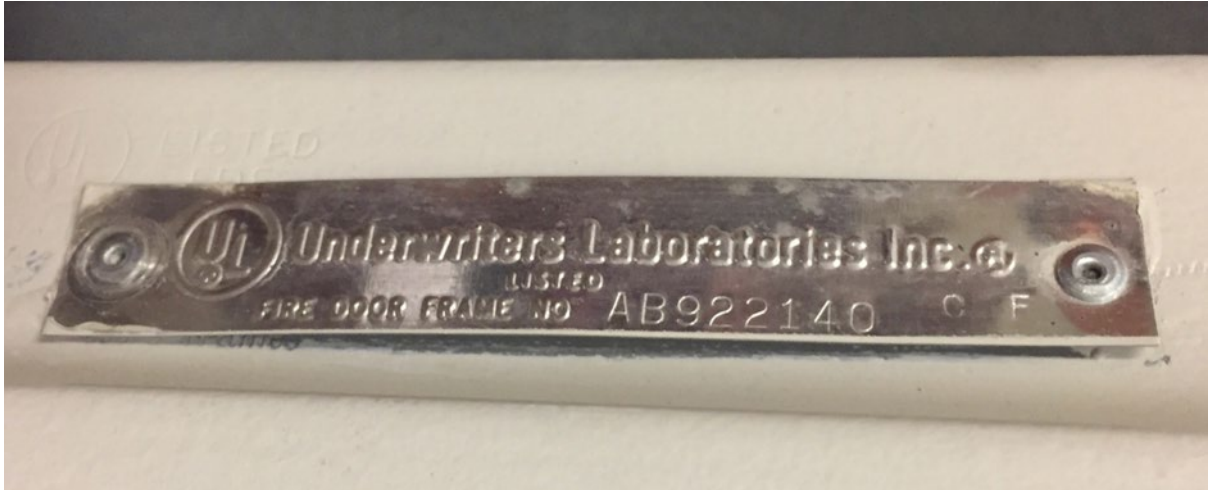
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## Painting Embossed Labels



## Painted Labels (How Much is Too Much)



Notes:

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## Fire Window Labels



## Supplemental Labels



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## Relocated Labels



## “S” Rated Smoke Door Rated and Non-Rated

- “S” label does not specify a certain rating.
- “S” label indicates that the fire door assembly MAY comply with the UL 1784 requirements.
- “S” rated assemblies must have Category H gasketing to meet smoke and draft control requirements.



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## Fire Exit Hardware Label

- **6.4.4.2** Fire exit hardware shall be installed only on fire doors bearing a label stating "Fire Door to Be Equipped with Fire Exit Hardware."



## Fire Exit Hardware Labels



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## Reinforcement for Fire Exit Hardware



## Temperature Rise Label



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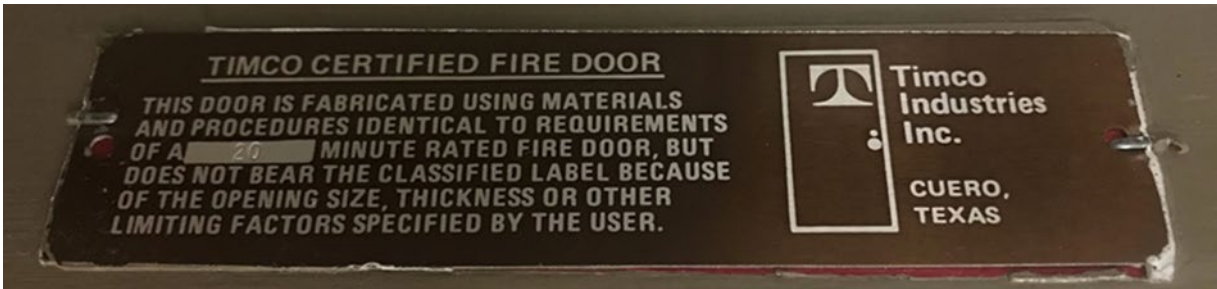
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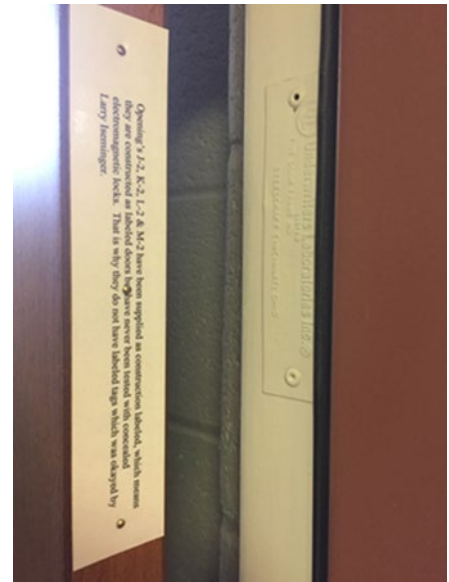
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## What are Construction Labels?



## Special Informational Labels



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## Hardware Labels



## Latchbolt Labels – Cylindrical Locks



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## Faceplate Labels – Mortise Locks



## Fire Exit Hardware Labels



Notes:

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## Do Fire Door Assembly Labels Have to Match?

- NO — not always.
- The fire protection rating of individual components may differ depending on:
  - The wall rating
  - Opening requirements
  - The listing requirements of the assembly
- Typically, the lowest rated component in an assembly determines the rating of the assembly.



## Some Labels NOT INTENDED for Fire Doors

- Door Position Switches
  - UL Listed for Security
- Fail Safe Electric Strikes
  - UL Listed for Security



Both can be fire-rated but would carry another label for fire rating.

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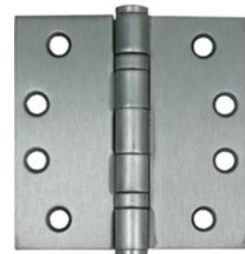
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## Panic Device Labels NOT FOR FIRE-RATED DOORS



## Not Labeled? Every Good Rules Has an Exception

- **4.2.6** Specification of items of a generic nature, such as hinges, that are not labeled shall comply with the specifications contained in this standard.
- Some acceptable fire-rated products that may not bear a label:
  - Conventional Butt Hinges
  - Protection Plates that do not extend above 16-inches from the bottom of the door
  - Adhesive Gasketing



Anti-friction Bearing  
Ball Bearing



Notes:

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## Label Removal

- **4.2.4** Where a swinging fire door assembly is installed in a location not requiring a rated opening protective, the label shall be permitted to be removed and the provisions of Chapter 5 shall not apply.



## 5.1.6 Removal of Door or Window.

- If a fire door or window no longer functions as an opening or the door or window is removed and not replaced, the opening must be filled to maintain the required rating of the wall assembly.



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## NFPA 80 - 5.1.4 Field Labeling

- Field labeling shall be performed...
  - The listing agency that maintains periodic inspections of production of the labeled equipment or materials under review and by whose labeling the manufacturer indicates compliance with appropriate standards or performance in a specified manner.



**Underwriters  
Laboratories Inc.**



**Intertek**



## South Carolina Fire Code

### 705.2.1 Labeling Requirements

- Where approved by the fire code official, the application of field-applied labels associated with the maintenance of opening protectives shall follow the requirements of the approved third-party certification organization accredited for listing the opening protective.

1. The words "field inspected" or "field labeled".
2. The words "fire door" or "fire door frame".
3. The marking of a third-party certification agency.
4. The fire protection rating of the frame.
5. A unique serial number (if provided by the listing agency).
6. The fire test standard designation to which the assembly was tested.



#### Notes:

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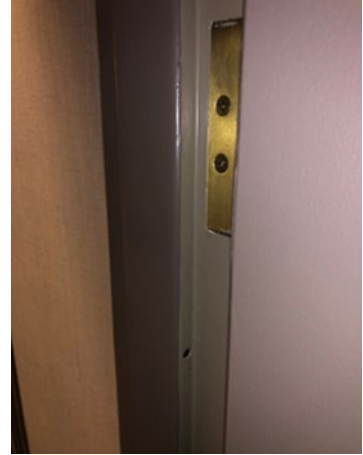
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## Inspection Point 2

2. No open holes or breaks exist in the surfaces of either the door or frame.
- Unused fastener holes.
  - Missing silencer holes.



## Maintenance – 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:
- Install steel fasteners that completely fill the holes
  - Fill the screw or bolt holes with the same material as the door or frame
  - Fill holes with material listed for this use and installed in accordance with manufacturer's procedures



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# Other Holes

- **5.5.8** Holes, other than those described in 5.5.7 shall be treated as a field modification in accordance with 5.1.5.1.\*



# Inspection Point 3

- 3. Glazing, vision light frames, and glazing beads are intact and securely fastened in place, if so equipped.
  - No Missing Fasteners
  - No Gaps or Spaces



**Notes:**

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## Glazing Materials in Fire Doors

- Glazing material that can be used in fire door assemblies:
  - Fire-Protection Rated – Tested to NFPA 252, UL 10B, or UL 10C
  - Fire-Resistance Rated - Tested to ASTM E119 or ANSI/UL 263
- Must meet all applicable impact safety standards.

## Glass Markings

- D indicates that glazing meets the door assembly criteria
- H or NH indicates if glazing meets the hose stream test or not
- T or NT indicates if glazing meets 450°F temperature rise for 30 minutes or not
- XXX indicates fire-protection rating in minutes



| DESCRIPTION OF LOCATION |                                                                                                                                     | HOSE STREAM TEST |                                                                                                             |
|-------------------------|-------------------------------------------------------------------------------------------------------------------------------------|------------------|-------------------------------------------------------------------------------------------------------------|
| <b>D</b>                | Indicates <b>D</b> oors                                                                                                             | <b>H</b>         | Indicates glazing meets the fire door assembly <b>H</b> ose stream test (required for 45 minutes and above) |
| <b>OH</b>               | Indicates fire-rated glass meets fire window assembly criteria, including the Hose stream test (windows, sidelites, transoms, etc.) |                  |                                                                                                             |
| <b>W</b>                | Indicates <b>W</b> alls (glass meets ASTM E119; providing a barrier to radiant heat transfer)                                       |                  |                                                                                                             |
| TEMPERATURE RISE        |                                                                                                                                     | MINUTES          |                                                                                                             |
| <b>T</b>                | Indicates glazing meets <b>T</b> emperature rise criteria                                                                           | <b>XXX</b>       | Symbolizes fire protection rating period in minutes                                                         |

### Notes:

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## Glass and Glazing



## Existing Wired Glass

- Undamaged and unmarked wire glass in existing labeled fire door assemblies are permitted to remain in accordance with codes applicable at the time of installation as long as it does not pose a risk.
- Since 2012, IBC has not been allowed in "hazardous locations" and "areas subject to human impact load".
- AHJ may require replacement.



Notes:

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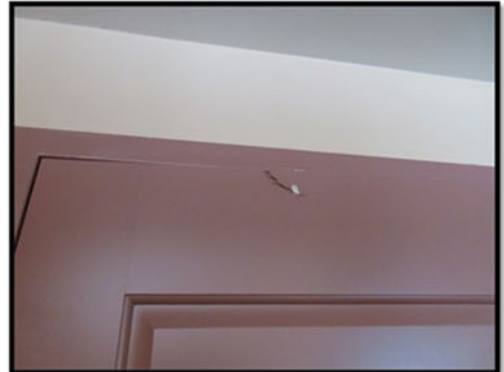
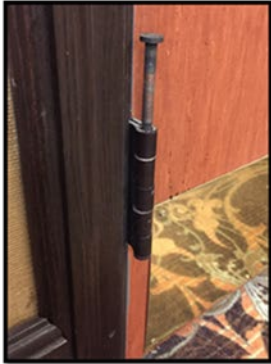
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## Inspection Point 4

4. The door, frame, hinges, hardware, and noncombustible threshold are secured, aligned, and in working order with no visible signs of damage.



## Excessive Damage on Door(s)



Notes:

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## 5.1.2 Operability

- Doors must be:
  - Operable at all times
  - Kept closed or arranged for automatic closing
- Fire doors must be able to close and latch from any degree of opening in order to provide the appropriate level of protection.

### SCFC 705.2.4 Door Operation

Swinging fire doors shall close from the full-open position and latch automatically.

### SCFC 705.2.3 Hold-Open Devices and Closers

Hold-open devices and automatic door closers, where provided, shall be maintained. During the period that such device is out of service for repairs, the door it operates shall remain in the closed position.

## 6.5 Application, Installation, and Adjustment

- **6.5.1 General.** The installation of all components of a fire door assembly shall be in accordance with the listing of each component.
- **6.5.2 Manufacturers' Instructions.** All components shall be installed in accordance with the manufacturer's installation instructions and shall be adjusted to function as described in the listing.
- **6.5.3 Attachment.** All components of a fire door assembly shall be attached firmly to walls, doors and frames in a manner acceptable to the AHJ.

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## 6.5.4 Mounting

- All mounting screws, bolts, or shields shall be steel except where otherwise permitted by this standard.
- Install with manufacturer-provided fasteners, as tested and listed.



## Improper Fasteners



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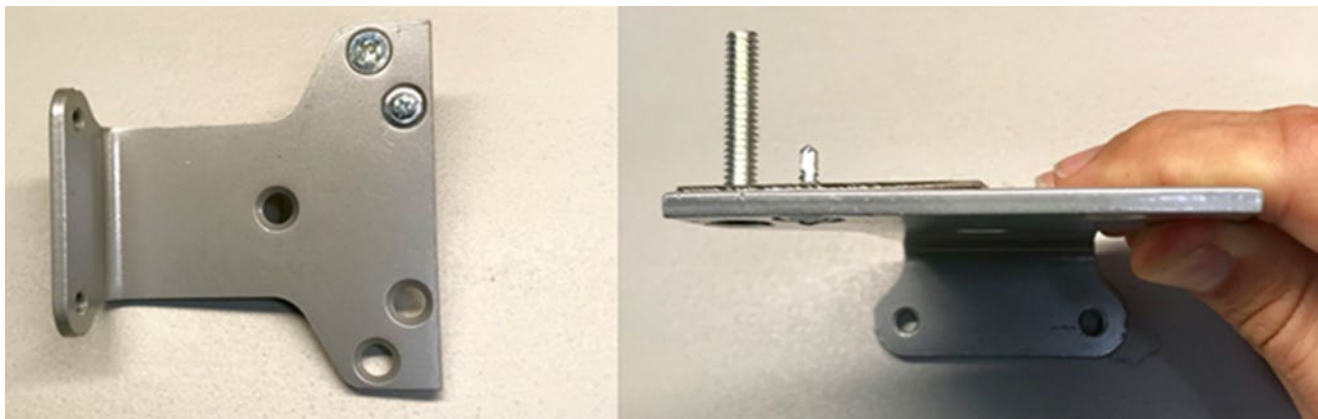


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## Mfg. Furnished Fastener vs. TEK Screw



## Inspection Point 5

5. No parts are missing or broken.



Notes:

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## NO Missing or Broken Parts



## Missing Closer Cover



Notes:

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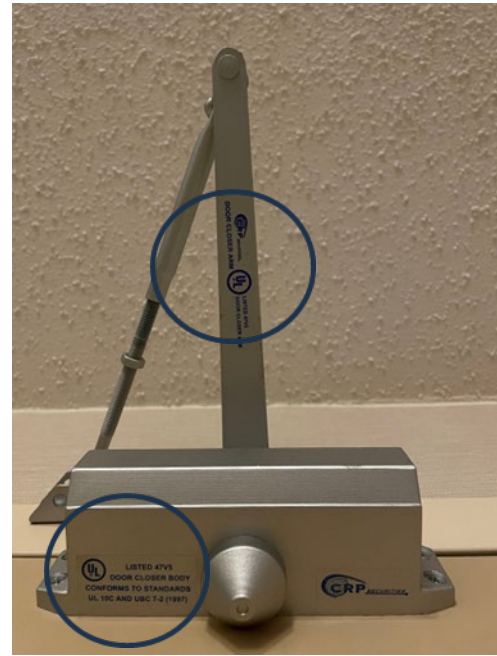
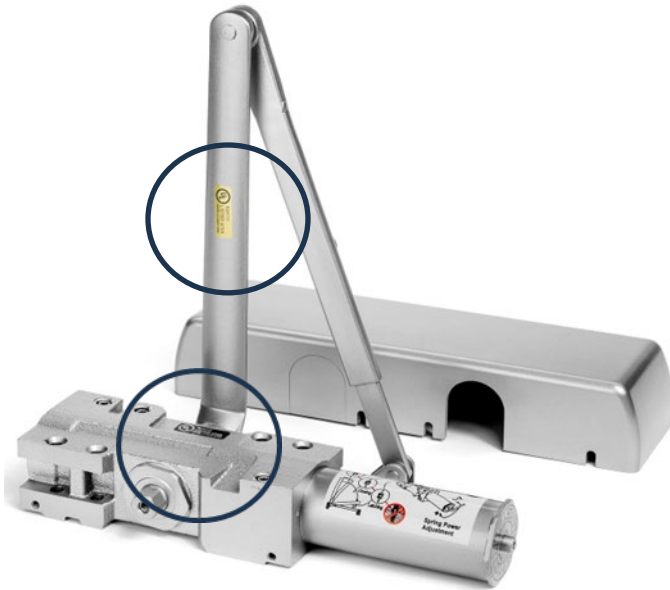
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## Labeled Door Closer



## Inspection Point 6

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

**Improper Clearances are consistently among the top 10 fire door deficiencies.**



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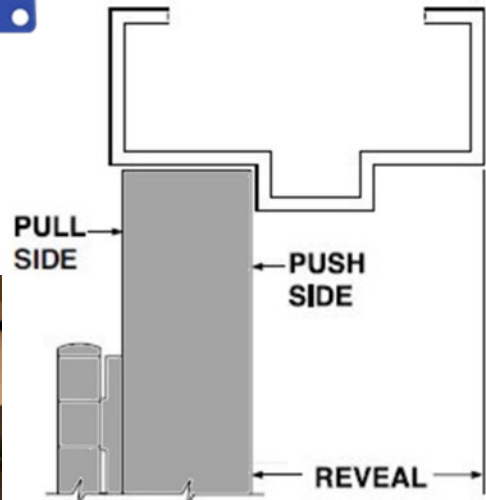
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## Measuring Clearances

### ➤ 6.3.1.7\* Clearances

- 6.3.1.7.1\* Clearance dimensions between doors and frames and meeting stiles of paired doors shall be measured on the pull side of the assemblies.



### 6.3.1.7 Clearances.

**Hollow Metal x Hollow Metal  $1/8'' \pm 1/16''$**

- 6.3.1.7.2 The clearances between the top and vertical edges of hollow metal doors and the frame, and the meeting stiles of doors swinging in pairs, shall be  $1/8'' \pm 1/16''$ .



Notes:

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## 6.3.1.7 Clearances.

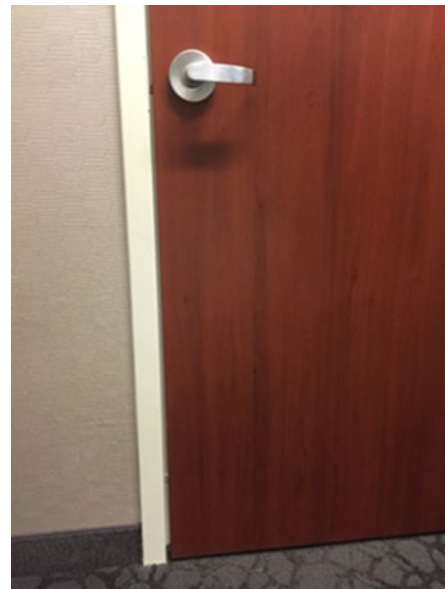
- **6.3.1.7.3** High-pressure decorative laminate (HPDL)- faced doors, 1/3-hour rated flush wood doors, and stile and rail wood doors installed in hollow metal frames shall not have clearances greater than  $1/8'' + 1/16''$  between the door and frame and the meeting stiles of paired doors.

**20M HPDL, flush wood, stile and rail X HM frame =  $1/8'' + 1/16''$**

## 6.3.1.7 Clearances.

- **6.3.1.7.4** HPDL- faced doors, flush wood doors, and stile and rail wood doors with fire ratings greater than 1/3 hour shall not have clearances greater than  $1/8''$  between the door and frame, regardless of the door frame construction, and the meeting stiles of paired doors.

**$1/8''$  on doors rated 45M – 90M**



Notes:

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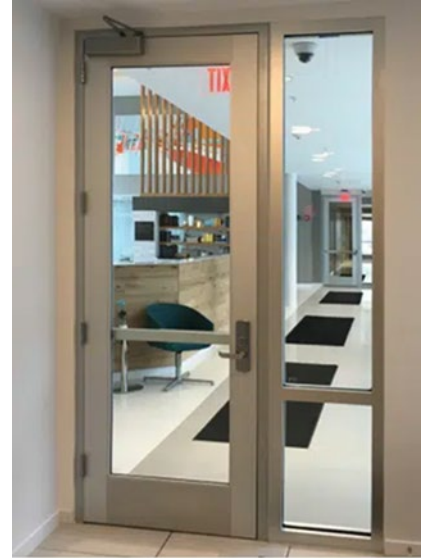
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### 6.3.1.7 Clearances.

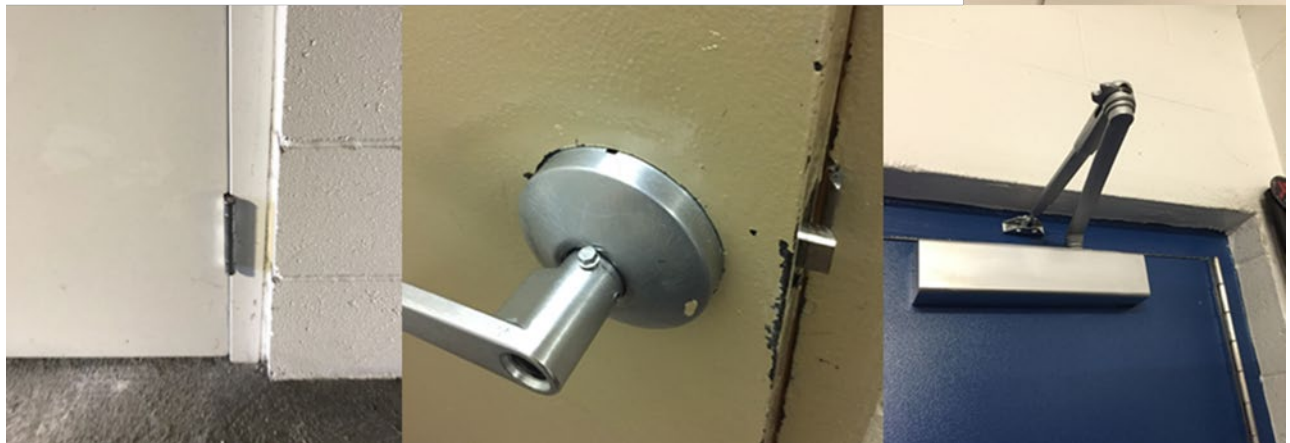
- **6.3.1.7.5** Door leaves constructed of other materials shall not have clearances greater than 1/8 in. between the top and vertical edges of doors and meeting stiles of paired doors unless otherwise permitted in the door frame, door, and latching hardware manufacturers' published listing.
  - Fiberglass Reinforced Polyester (FRP)
  - Aluminum

**1/8" on other types of doors.**



### Clearances Issues (Too Tight)

- $1/8" + 1/16" = \text{No less than } 1/16"$



Notes:

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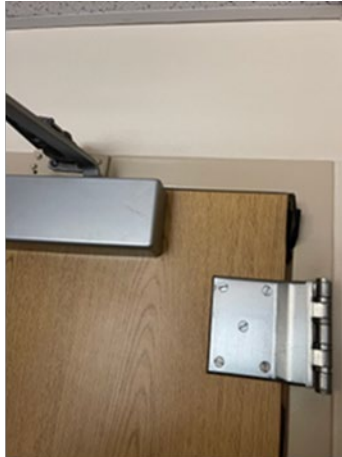
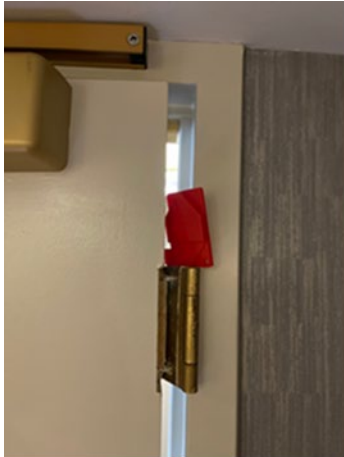
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## Clearance Issues (Excessive Gaps)



### ➤ #5 Non-Compliance Issue



## Clearance Issues Pairs (Excessive Gap)



Notes:

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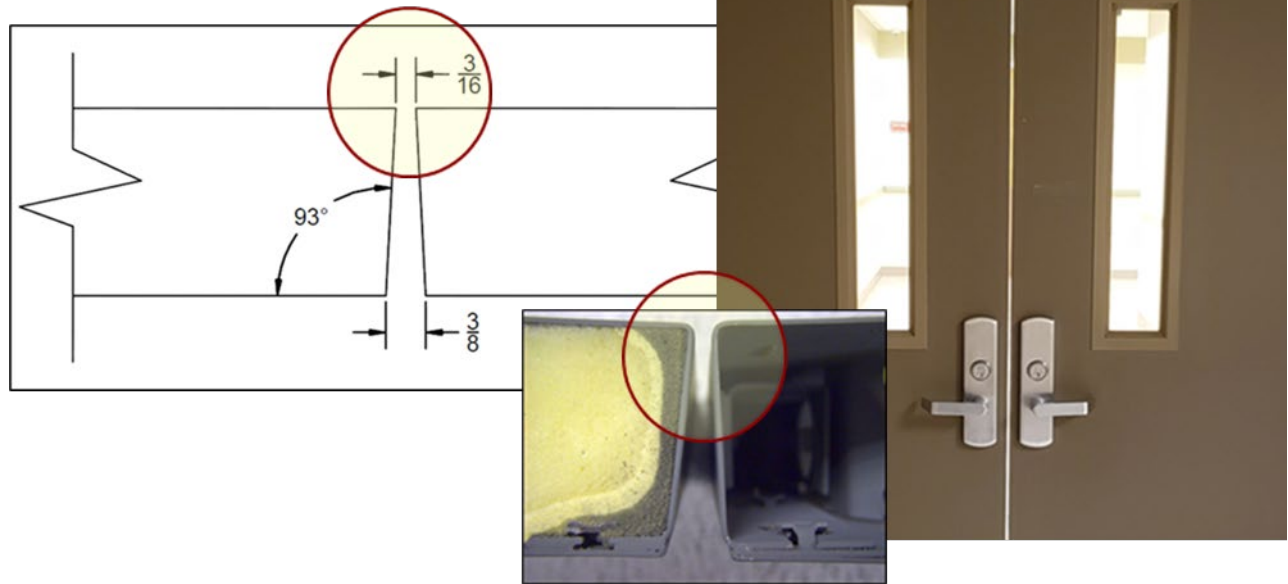
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## Meeting Stiles of Pairs



## 4.8.4 Clearances – Bottom of Door

- **4.8.4.1\*** Clearance under the bottom of a door shall be a maximum of  $\frac{3}{4}$  in. (19 mm).



Notes:

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## Mitigation for Clearance at Door Bottom

- **4.8.4.3\*** Products evaluated for fire doors with a bottom clearance in excess of 3/4 in. and listed for use at or under the bottom of the fire door shall be permitted where installed in accordance with their listings.



## Clearance – Latching Hardware

- **4.8.4.2.1** Where latching hardware projects from the bottom of the door, the maximum clearance shall be in accordance with the hardware manufacturer's installation instructions (not to exceed 3/4-inch).
  - Vertical Rod Fire Exit Hardware
  - Door Bolts
- **4.8.4.2.2** Where thresholds are installed, the clearance shall be in accordance with the manufacturer's installation instructions and listing.



Notes:

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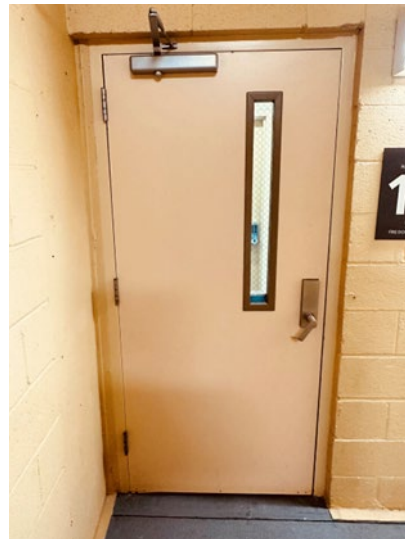
## Clearances Under Elevated Door

- **4.8.4.4** Where the bottom of the door is more than 38 in. above the finished floor, the maximum clearance shall not exceed  $\frac{3}{8}$  in. (9.5 mm) or as specified by the manufacturer's label service procedure.



## Most Fire Door Failures Come Down To

- Door won't latch
- Excessive gaps
- Disabled closers
- Unauthorized modifications
- Missing gasketing
- Blocked openings



Notes:

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## Inspection Point 7



7. The self-closing device is operational; that is, the active door completely closes when operated from the full open position.

### Self-Closing Door =

**Doors that, when opened and released, return to the closed position.**

### 6.1.4.2 Self-Closing Doors

- Must swing easily and freely and be equipped with a closing device to close the door each time it is opened.



Notes:

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## NO Mechanical Hold Open Features



### 6.4.3.1.2.2 Spring Hinges

- Must be Labeled.
- Meet requirements of ANSI/BHMA A156.17, Standard for Self Closing Hinges & Pivots, Grade 1.
- At least two must be provided (6.4.3.1.1.4)
- Only used on doors up to 7 feet unless otherwise tested and listed.



Notes:

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### 6.1.3.3 Automatic Closing Doors

- Close automatically by means of a closing device and:
  - A separate holder/release
  - An integral hold-open

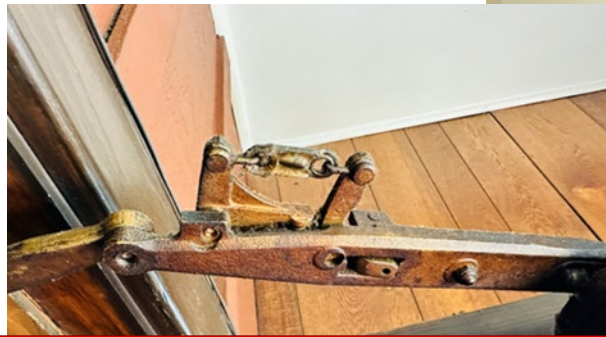


#### **SCFC 705.2.5 Smoke- And Heat-Activated Doors**

Smoke-activated doors shall be maintained to self-close or automatically close upon detection of smoke. Existing fusible-link-type automatic door-closing devices are permitted if the fusible link rating does not exceed 135°F (57°C).

### Fusible Links – Door Closers

- Not prohibited by NFPA 80.
- Not allowed by:
  - IBC
  - NFPA 101



Existing fusible-link-type automatic door-closing devices are permitted if the fusible link rating does not exceed 135°F (57°C).

Notes:

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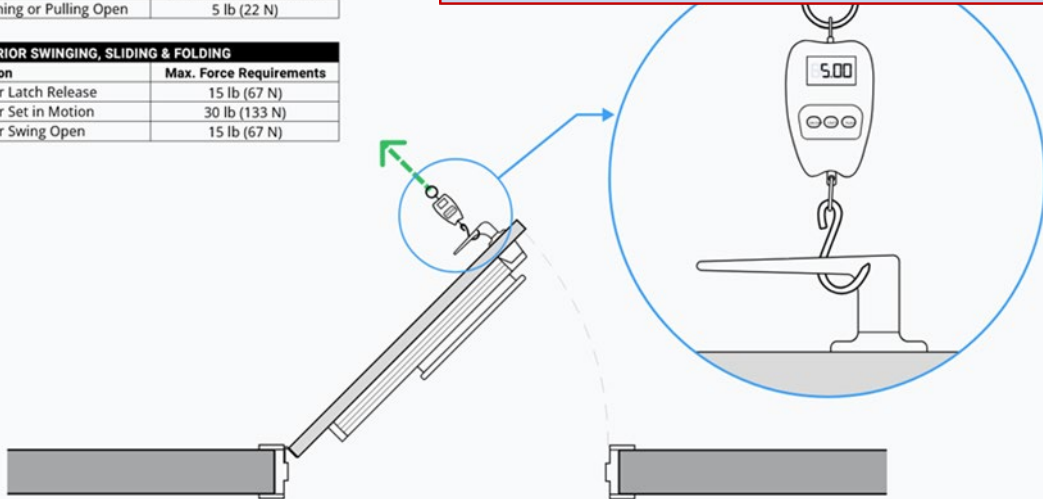
# Door Opening Forces Fire Doors

| INTERIOR NON FIRE SWINGING DOORS |                         |
|----------------------------------|-------------------------|
| Action                           | Max. Force Requirements |
| Pushing or Pulling Open          | 5 lb (22 N)             |

| INTERIOR SWINGING, SLIDING & FOLDING |                         |
|--------------------------------------|-------------------------|
| Action                               | Max. Force Requirements |
| Door Latch Release                   | 15 lb (67 N)            |
| Door Set in Motion                   | 30 lb (133 N)           |
| Door Swing Open                      | 15 lb (67 N)            |

## SCBC 1010.1.3...

For interior swinging egress doors that are manually operated, other than doors required to be fire rated, the force for pushing or pulling open the door shall not exceed 5 pounds (22 N).



## South Carolina Accessibility Code

### 404.2.8 Door and Gate Opening Force

- Fire doors and doors or gates required to be equipped with panic hardware, break away features or other factors requiring higher opening force for safety reasons shall have the minimum opening force allowable in scoping provisions adopted by the appropriate administrative authority. For other doors or gates, the force for pushing or pulling open doors or gates shall be as follows:
  1. Interior hinged door: 5.0 pounds (22.2 N) maximum.
  2. Sliding or folding door: 5.0 pounds (22.2 N) maximum.
- Exception: The force required to retract latch bolts or disengage other devices that hold the door or gate in a closed position shall not apply to panic hardware, delayed egress devices or fire-rated hardware.



Notes:

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### 5.1.2.3 Prevention of Door Blockage

- Door openings must be:
  - Kept clear of anything that can obstruct or interfere with operation.
  - Cannot be blocked or wedged open.



### Door Blockage



Notes:

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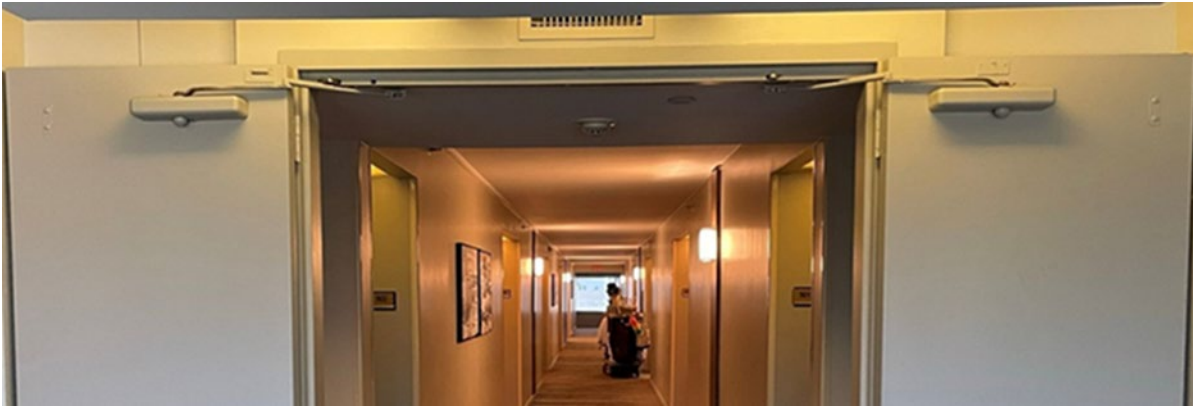
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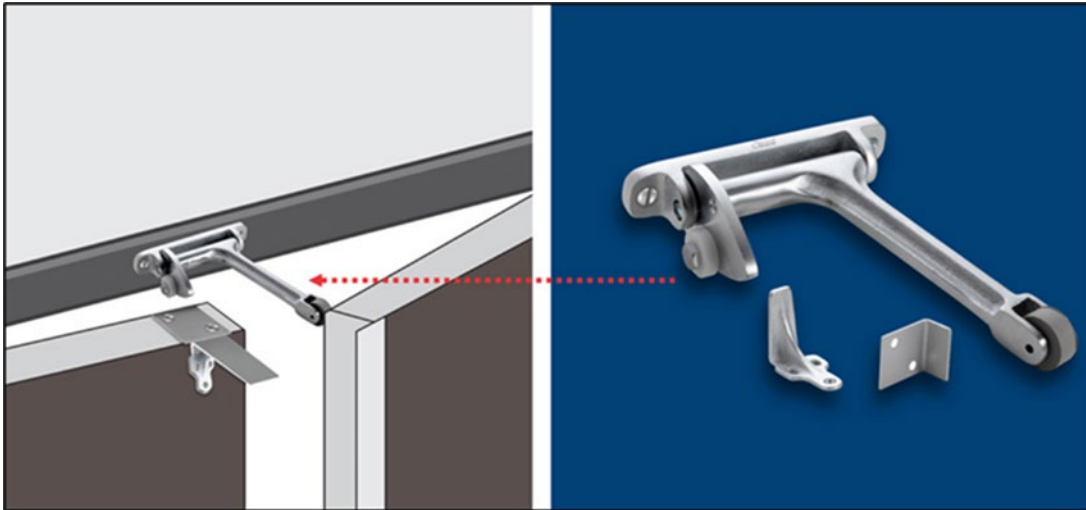
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## Inspection Point 8

8. If a coordinator is installed, the inactive leaf closes before the active leaf.



## Coordinators - Gravity



Notes:

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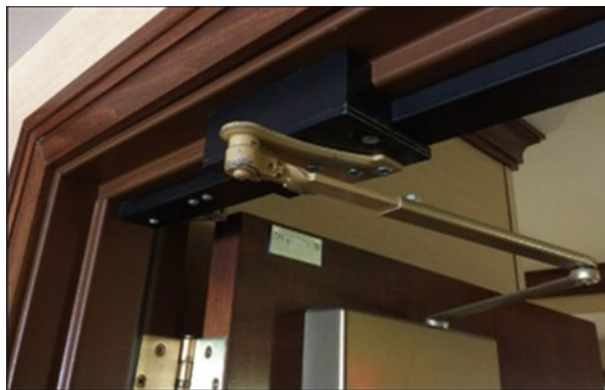
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## Coordinators

- Universal
- Soffit Mounted Bar



## Inspection Point 9

9. Latching hardware operates and secures the door when it is in the closed position.

### Self-Latching Bolt =

**An automatic-latching device that engages in a keeper to hold a door leaf in a closed position and that can only be released manually.**



Notes:

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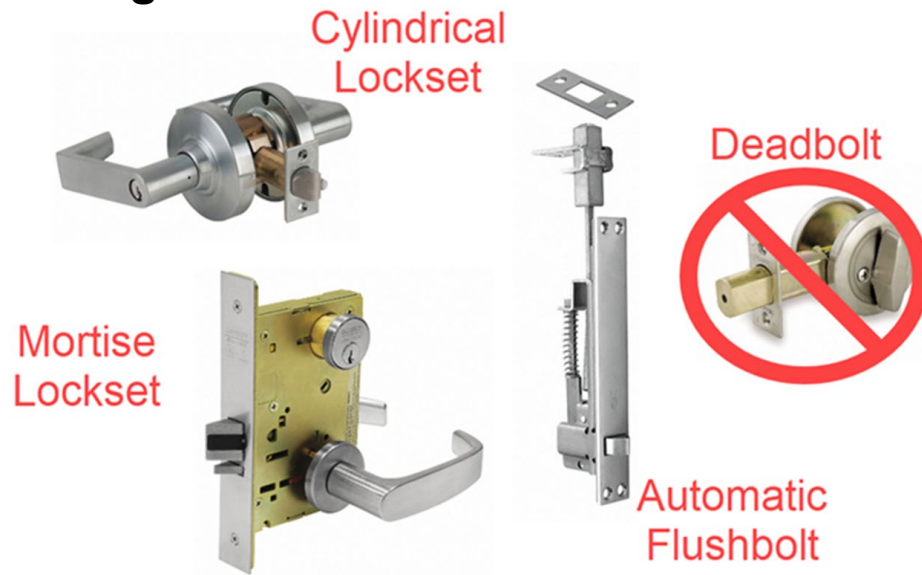
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## Self Latching Bolt



## Preventing Latching

- Cannot prevent latchbolt from engaging strike.
  - Strike Magnets
  - Tape
  - Gum



### Notes:

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### 6.4.4.6 Throw



- Single point latchbolts:
  - Throw not be less than the minimum shown on the fire door label.
  - Minimum throw as specified in the manufacturer's installation instructions.
- Applies to all latching hardware:
  - Locks and Latches
  - Fire Exit Hardware
  - Flushbolts



### 1/2-inch Latchbolt vs. 3/4-inch Latchbolt



Notes:

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## Inspection Point 10

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



## Interference with Operation



Notes:

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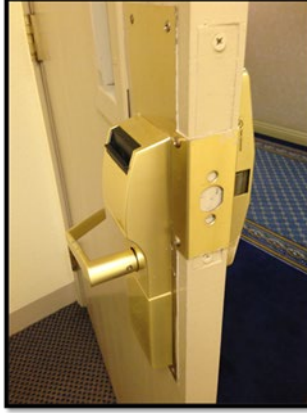
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## Inspection Point 11

11. \* No field modifications to the door assembly have been performed that void the label.



## Inspection Point 12

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

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

**A.6.4.8** Where fire door assemblies are used for smoke and draft control, gasketing listed for smoke and draft control might be necessary. (See NFPA 105)

Notes:

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## Gasketing Required by IBC?

- Fire door assemblies in corridors and smoke barriers.
  - IBC 716.2.2.1.1 (2018/2021)
- Doors in Smoke Barriers – Elevator Lobbies for Fire Service Access Elevators and Occupant Evacuation Elevators
  - IBC 716.2.2.1.1 (2018/2021)
- Doors in Smoke Barriers – Underground Buildings, I-3 Occupancies, and Areas of Refuge
  - 716.2.2.1.1 (2018/2021)

## Gasketing Requirements NFPA 101 - References to 8.2.2.4 or NFPA 105

- **7.2.3.4 Vestibule.** - Installed in accordance with NFPA 105
  - New door assemblies opening into a vestibule (if provided) that are part of a smokeproof enclosure
- **7.2.4.3.9** - Installed in accordance with NFPA 105
  - New door assemblies in horizontal exits
- **7.2.12.3.4.1** – Installed in accordance with 8.2.2.4
  - New fire door assemblies serving an area of refuge
- **7.15.9.7** - Installed in accordance with NFPA 105
  - Elevator lobby doors in occupant evacuation elevator shaft systems

### Notes:

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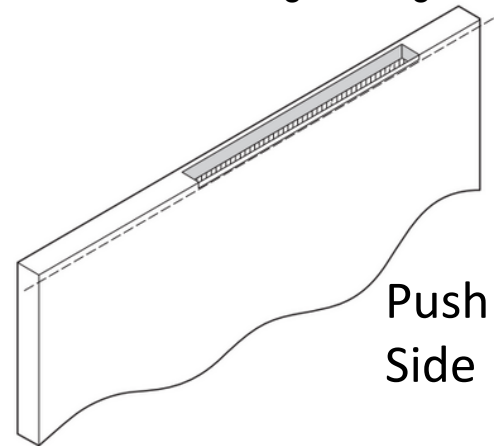
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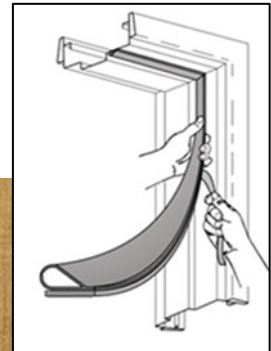
## NFPA 105 Gasketing and Astragals

- **6.7.1.2\*** Where mortising of doors to receive hardware items creates a void along the vertical or top edges of doors, soffit-mounted gasketing shall be required.

**ANNEX FIGURE A.6.7.1.2** Mortise Cutout in Top of Door Leaf for Overhead Door Stop. The dotted line represents the height of the door stop on the door frame. Gasketing should be installed on the soffit of the door frame so that it contacts the surface of the door below the cutout.



## Gasketing Intact and Un-Broken



Notes:

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## Must Have Interrupted Gasketing



## What is Categories H Gasketing?

- Critical Component for 'S'-Rated Door Assemblies
  - UL Classified under the Positive-pressure Tested Gasketing and Edge-sealing Materials for Fire Doors (GVYI) product category
  - Enables a door assembly to pass the air leakage test in accordance with UL 1784
  - Used to Validate 'S' Mark on Smoke Door Label
  - Not a substitute for Category G intumescent required on Category B doors



Notes:

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## Sealing System Listing and Ratings

- Not all sealing systems are for use on fire doors.
- Listings and Ratings include:
  - Fire Rated (UL10B and/or 10C)
  - Smoke & Draft
  - Acoustical
  - Air Infiltration
  - ANSI/BHMA Certified
  - ADA Compliance



## Inspection Point 13

13. Signage affixed to a door meets the requirements listed in 4.1.4.
- Permitted to be installed in accordance with 4.1.4.1 through 4.1.4.4 or 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 door to which they are attached.

Notes:

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## Signage



### 4.1.4.2 Means of Attachment

- Attach Signage with Adhesive.
- Mechanical fasteners not permitted.
- **Shall not be installed on fire protection-rated glazing.**
- Cannot impair or interfere with operation.



Notes:

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## South Carolina Fire Code - 705.2.2 Signs

- Where required by the fire code official, a sign shall be permanently displayed on or near each fire door in letters not less than 1 inch (25 mm) high to read as follows:

For doors designed to be kept normally open:

"FIRE DOOR—DO NOT BLOCK."

For doors designed to be kept normally closed:

"FIRE DOOR—KEEP CLOSED."



## No Decorations



Notes:

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## Top 10 Fire Door Deficiencies

➤ Based on over 250,000 doors inspected:

1. Incorrect clearance top of door(s)
2. Incorrect clearance lock edge
3. Missing or illegible label on frame
4. Missing or damaged gasketing
5. Incorrect clearance hinge edge
6. Missing or illegible label on door
7. Door does not securely latch
8. Unused fastener holes in frame
9. Door does not close completely
10. Excessive damage on door(s)

**Would You Pass  
This Opening?**



Notes:

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**Would You Pass  
This Opening?**



**Would You Pass  
This Opening?**



**Notes:**

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**Would You Pass  
This Opening?**



## **5.2 Inspection and Testing**

➤ **When is it Required?**

- Upon completion of installation (5.2.1)
- Upon completion of maintenance work (5.5.9)
- Not less than annually (5.2.4.1)



**Notes:**

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## 5.2.3 Acceptance Testing.

- Includes door closing by all means of activation (5.2.2.3).
- Performed by a Qualified Person (5.2.3.1\*).

**Qualified Person.** *A person who, by possession of a recognized degree, certification, professional standing, or skill, and who, by knowledge, training, and experience, has demonstrated the ability to deal with the subject matter, the work, or the project.*

## Fire Door Inspection Training

| Organization                                                   | In Person | On Line | Duration            | Certificate or Certification | Cont. Ed. | Third Party Accreditation                                               |
|----------------------------------------------------------------|-----------|---------|---------------------|------------------------------|-----------|-------------------------------------------------------------------------|
| American Society of Healthcare Engineers (ASHE)                | X         | X       | 1 Day               | Certificate of Completion    |           |                                                                         |
| Associated Locksmiths of America (ALOA)                        |           | X       | 6 Hours             | Certification                | X         |                                                                         |
| Door & Hardware Institute                                      | X         |         | 4 Days              | Certification                | X         |                                                                         |
| Door Opening Industry Training Group (DOIT)                    | X         |         | 4 Days              | Certification                | X         | International Accreditors for Continuing Education and Training (IACET) |
| Door Safety LLC                                                | X         | X       | 4 Days              | Certification                | X         |                                                                         |
| Fire Door Institute                                            |           | X       | Self Paced          | Certification                |           |                                                                         |
| International Association of Certified Home Inspectors (NACHI) | X         |         | 1 Day               |                              |           |                                                                         |
| International Fire Door Inspectors Association (IFDIA)         |           | X       | 25 Hours Self Paced | Certificate of Completion    | X         | International Accreditation Services (IAS)                              |
| NFPA                                                           |           | X       | 1 hour              | Certificate of Completion    |           |                                                                         |
| Safenetix                                                      |           | X       | 3 Hours             |                              |           |                                                                         |



### Notes:

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## Record Requirements

- Must be signed by the inspector and kept for inspection by the AHJ.
  - Acceptance test records retained for the life of the assembly (5.2.2.1).
  - Inspection reports retained for at least 3 years (5.2.2.2\*).
- Kept on a medium that will survive the required retention period.

## Recommended AHJ Responses

- |                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                     |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>➤ Deficiency               <ul style="list-style-type: none"> <li>○ Missing Label</li> <li>○ Excessive Clearance</li> <li>○ Door Blocked Open</li> <li>○ Door Not Latching</li> <li>○ Missing Coordinator</li> </ul> </li> </ul> | <ul style="list-style-type: none"> <li>➤ Suggested Response               <ul style="list-style-type: none"> <li>○ Verify Listing/Relabel</li> <li>○ Repair/Replacement</li> <li>○ Immediate Correction</li> <li>○ Repair/Replacement</li> <li>○ Replacement</li> </ul> </li> </ul> |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

**Notes:**

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## NFPA 80 Requirements

- What is allowed to be done at the jobsite?
- What must be done under labeled services?
- What is considered a field modification that requires additional approval?



## Allowable Jobsite Preparations

- Holes for surface applied hardware.
- Function Holes for mortise locks.
- Holes for labeled viewers.
- Maximum 3/4-inch undercut for wood and composite core doors.
- Installation of protection plates.

Notes:

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## Holes for Surface Mtd. Hardware

- Surface Vertical Rod and Rim Fire Exit Hardware
- Surface Trim for Locks and Latches
- Surface Door Closers
- Surface Automatic Operators
- Door Coordinators
- Surface Applied Gasketing



## Holes for Surface Mtd. Hardware

- Must only drill ROUND HOLES.
- Should be no greater than 1" in diameter (other than cylinder holes).
- To accommodate:
  - Cylinders
  - Spindles
  - Similar Operational Elements (thumbturns, indicators, emergency release)
  - Electrified Hardware (for thru wires)
  - Through-bolts in Doors



### Notes:

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## Holes Exceeding 1" Diameter



➤ Permitted when installed in accordance with BOTH:

- Door and/or Frame Manufacturers Listing
- Hardware Manufacturers Listing

Added in 2016



## Function Holes for Mortise Locks

➤ Different lock functions require different hole configurations.

| Holes by Function                                                             | Functions           |     |                                     |     |                 |     |                                  |     |                 |     |                 |     |                 |     |                 |     |                 |     |
|-------------------------------------------------------------------------------|---------------------|-----|-------------------------------------|-----|-----------------|-----|----------------------------------|-----|-----------------|-----|-----------------|-----|-----------------|-----|-----------------|-----|-----------------|-----|
|                                                                               | A, D, R,<br>RHB, BS |     | AB, AT, B, BA,<br>BW, HJ, T, TA, TD |     | AD              |     | C, CHB, G, IND,<br>INL, S, W, B7 |     | H               |     | L, LB, LT       |     | N, NX           |     | RD, WD          |     | YD              |     |
|                                                                               | I/S                 | O/S | I/S                                 | O/S | I/S             | O/S | I/S                              | O/S | I/S             | O/S | I/S             | O/S | I/S             | O/S | I/S             | O/S | I/S             | O/S |
| <b>Holes to drill</b>                                                         |                     |     |                                     |     |                 |     |                                  |     |                 |     |                 |     |                 |     |                 |     |                 |     |
| <b>A</b> M & N forged trim<br>(2 holes) <sup>†</sup>                          | Through<br>door     |     | Through<br>door                     |     | Through<br>door |     | Through<br>door                  |     | Through<br>door |     | Through<br>door |     | Through<br>door |     | Through<br>door |     | Through<br>door |     |
| <b>B</b> J trim <sup>†</sup>                                                  | Through<br>door     |     | Through<br>door                     |     |                 |     | Through<br>door                  |     | Through<br>door |     | Through<br>door |     | Through<br>door |     |                 |     |                 |     |
| <b>C</b> Standard cylinder or<br>D High security cylinder <sup>‡</sup>        |                     | ■   |                                     | ■   |                 | ■   |                                  | ■   |                 | ■   |                 |     |                 |     | ■               | ■   |                 | ■   |
| <b>E</b> H, R & S trim thumb turn<br>mounting screw (2 holes) <sup>†</sup>    |                     |     | ■                                   |     | ■               |     |                                  | ■   |                 | ■   |                 |     |                 |     |                 |     |                 |     |
| <b>F</b> Emergency key /<br>thumb turn access                                 |                     |     | ■                                   |     | ■               |     |                                  |     |                 | ■   |                 | ■   |                 | ■   |                 |     |                 |     |
| <b>G</b> Trim mounting<br>(2 holes) <sup>††</sup>                             |                     | ■   | ■                                   | ■   |                 |     |                                  |     |                 |     |                 |     | ■               | ■   |                 |     |                 |     |
| <b>H</b> Lever <sup>††</sup>                                                  |                     | ■   | ■                                   | ■   | ■               |     |                                  | ■   | ■               | ■   | ■               | ■   | ■               | ■   |                 |     |                 |     |
| <b>J</b> H & R trim visual indicator<br>mounting screw (2 holes) <sup>‡</sup> |                     |     |                                     |     |                 |     |                                  |     |                 |     | ■               |     |                 |     |                 |     |                 |     |

† Determine trim holes based on trim type.

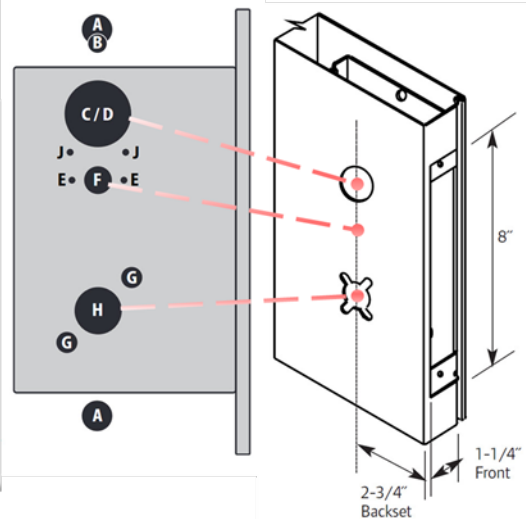
‡ To qualify for the UL 437 high security listing, use the M escutcheon and the 1E7J4 cylinder. The 1E7K4 cylinder is available for use with either M trim or sectional trim, but does not qualify for the UL 437 high security listing. This option is not available for H and J function locks.

†† Because these holes pass through the mortise pocket, it is recommended that each hole be drilled separately rather than straight through.

<sup>†</sup> Determine trim holes based on trim type.

<sup>†</sup> To qualify for the UL 437 high security listing, use the M escutcheon and the 1E7J4 cylinder. The 1E7K4 cylinder is available for use with either M trim or sectional trim, but does not qualify for the UL437 high security listing. This option is not available for H and HJ function locks.

<sup>††</sup> Because these holes pass through the mortise pocket, it is recommended that each hole be drilled separately rather than straight through.



### Notes:



## Holes for Labeled Viewers

- Not all viewers are labeled.

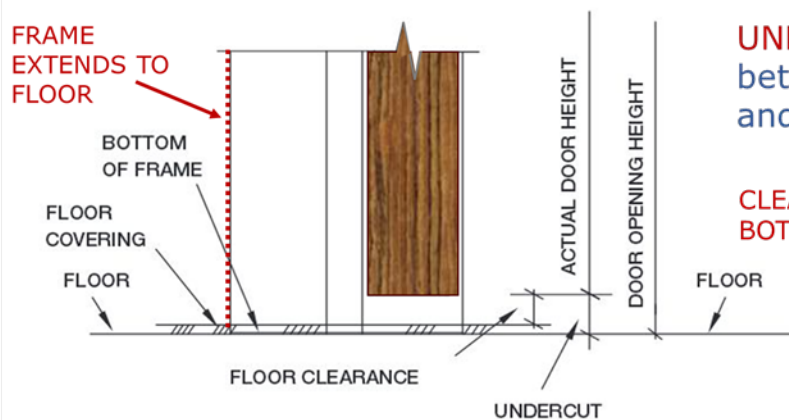


Beware of non-rated  
Knocker/Viewer Combinations



## Maximum 3/4" Undercut

- Wood and Composite Doors



**CLEARANCE** = The distance  
between the bottom of the door  
and the top of the material  
directly below the door.

**UNDERCUT** = The distance  
between the bottom of the door  
and the bottom of the frame.

**CLEARANCE ALLOWED UNDER THE  
BOTTOM OF A FIRE DOOR = 3/4 IN. MAX.**

Image extracted from HMMA-810 TN01-03 Document Defining Undercuts

Notes:

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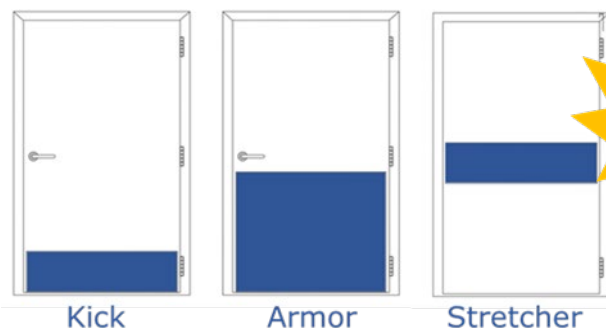
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## Installation of Protection Plates

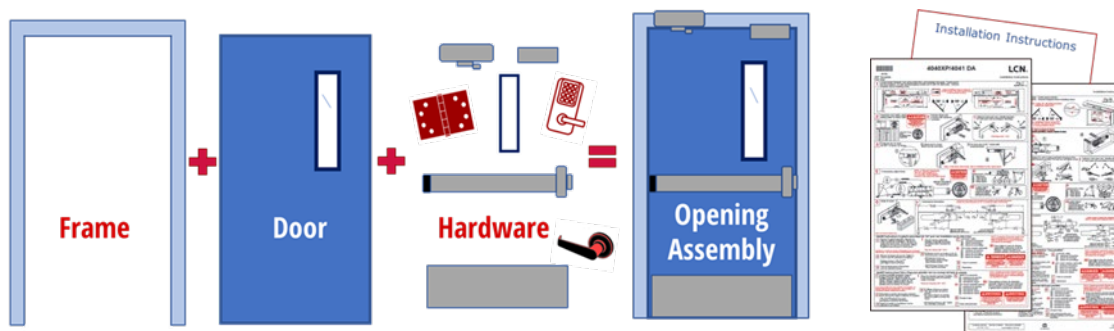
- Field-installed protection plates must be labeled and installed according to the listing of BOTH the protection plate manufacturer and the door manufacturer.
- No label is required when mounted not more than 16" above the bottom of the door.



DOOR MFG. MAY  
REQUIRE PLATES  
TO BE APPLIED  
WITH ADHESIVE.

## Chapter 6 Swinging Doors with Builders Hardware - Component Installation

- **MUST BE INSTALLED:**
  - In accordance with the manufacturer's instructions.
  - To function as indicated in the individual manufacturer listing.
  - With the manufacturer's provided fasteners as tested and listed.



Notes:



## Not Allowed at the Jobsite

- Preparation of Fire Doors for:
  - Hinges
  - Locks and Latches
  - Remotely Operated or Remotely Monitored Hardware
  - Concealed Closers
  - Glass Lights and Vision Panels
  - Louvers
  - Astragals and Split Astragals
  - Application of Plant-Ons and Laminate Overlays

**MUST BE DONE** in accordance with the manufacturer's inspection service procedure and under label service.

## Label Service

- A program administered by a listing agency (like UL, Intertek/Warnock Hersey, QAI, FM) that enables a business entity under license to manufacture or further process and label products.
- *The contractual agreement between the listing agency and business entity prescribes the parameters under which label service can be performed. The business entity's facility and process are subject to periodic audits by the listing agency.*



### Notes:

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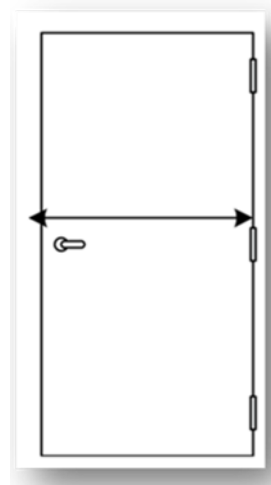
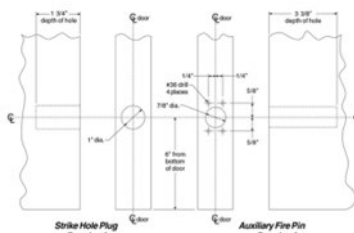
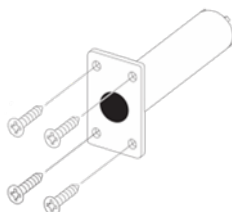
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## Drilling Raceways (May be Allowed)

- For Wires or Fire Pins:
  - 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".



Added in 2016

## Common Modifications

- Rogue or Otherwise

Notes:

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## NO Filing Strikes



## NO Cutting In – Electric Strikes



Notes:

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## Electric Strikes

- Fail Safe - unlocked when power is removed. Power is applied to lock the door.
- Fail Secure - locked when power is removed. Power is applied to unlock the door. **REQUIRED ON FIRE RATED DOORS.**
- Field Selectable – Can be selected on-site.



## NO Removal of Strikes and Other Components



Notes:

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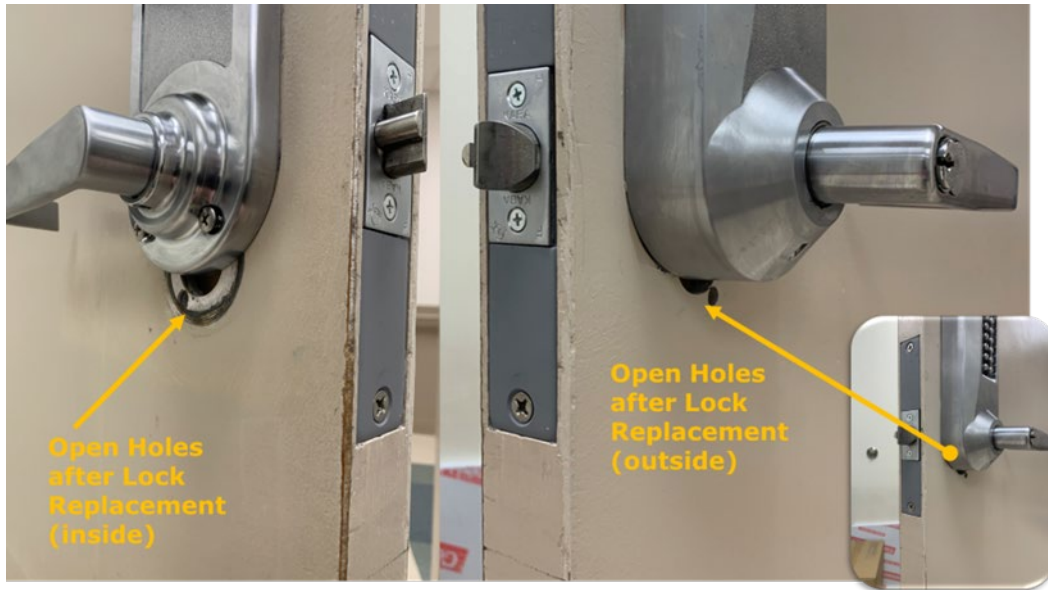
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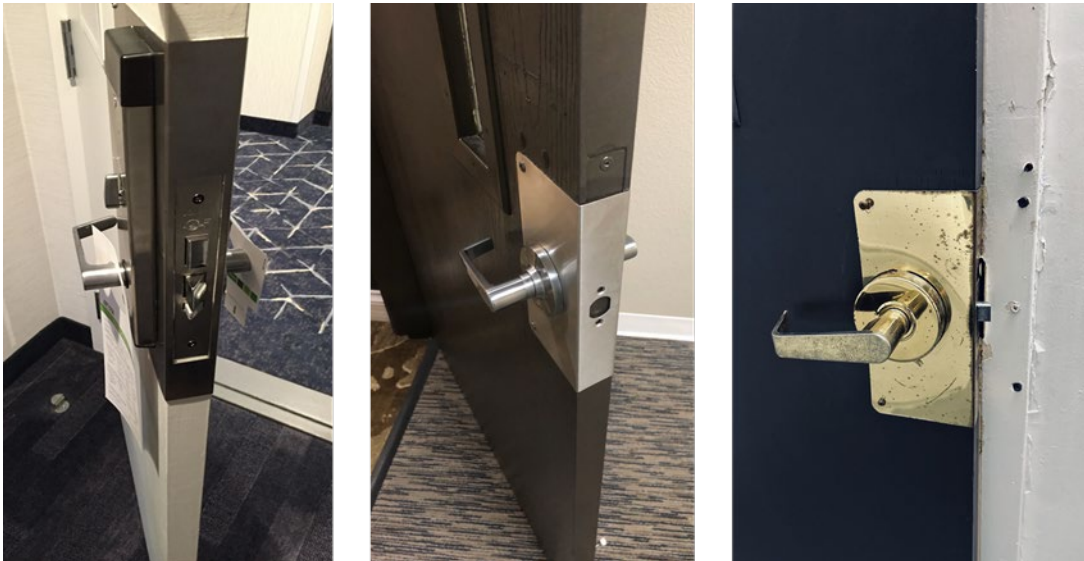
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## NO Open Holes After Replacement



## NO Non Rated Wrap Plate Installation



Notes:

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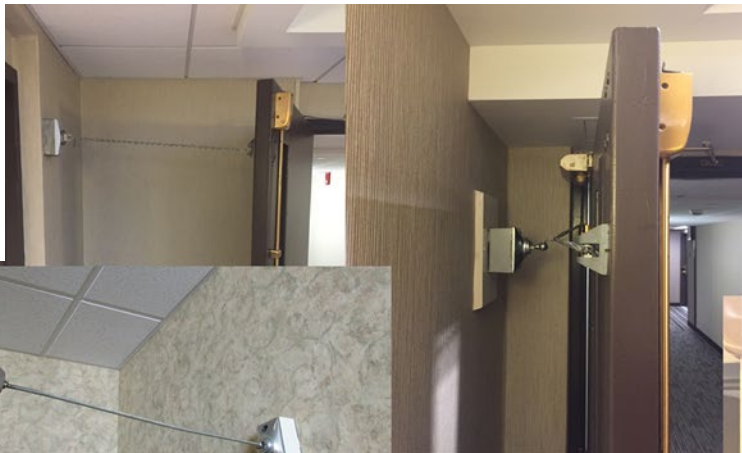
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## NO Installing Kickdown Stops



## NO Modified Magnetic Wall Holder Extensions



Notes:

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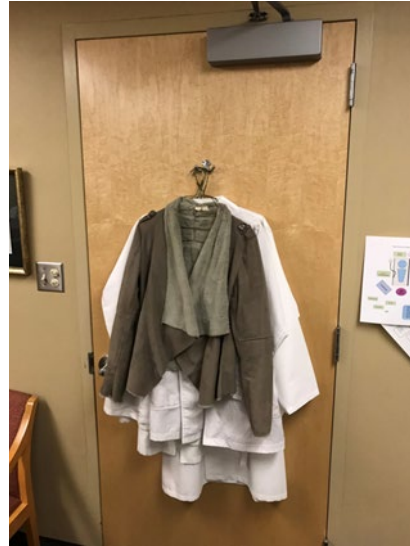
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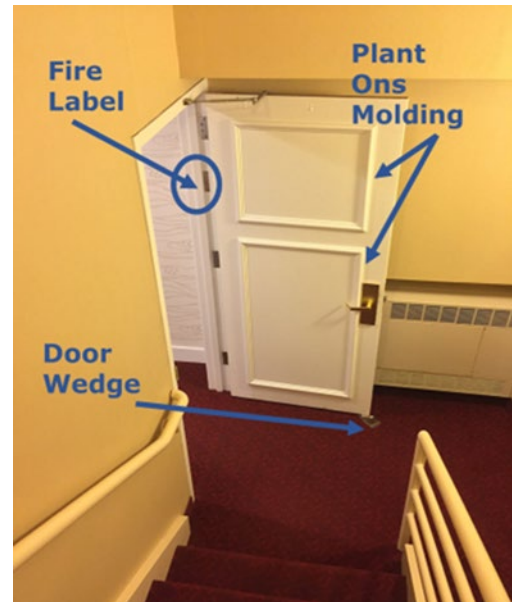
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## NO Installation of Coat Hooks



## Addition of Plant-Ons (and Overlays)

- Plant-On = A decorative trim applied to the surface of a door.
  - Project from the door surface.
  - Flat or contoured.
  - Made of metal, wood, plastic, etc.
  - Attached by adhesive, screws, nails.
- Must be attached per manufacturer's listing instructions.



Notes:

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## Bottom Rod Removal



➤ Less Bottom Rod



Notes:

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## Field Modifications

- When a field modification to a fire door or fire door assembly in the field is needed:
  - Contact the manufacturer of the component being modified.
  - The manufacturer will provide a written or graphic description of the modification to the listing laboratory for approval.
  - The laboratory can approve or disallow the modification.
  - If the manufacturer is no longer in business, contact the laboratory directly for an engineering evaluation.
- MUST BE APPROVED IN ADVANCE.
- MAY BE ABLE TO BE DONE WITHOUT RELABELING.

## When Fire Doors Fail

- Smoke spread is responsible for many fire fatalities
- Fire doors protect egress paths and compartmentation
- Failed doors can allow rapid smoke migration
- Many major fires involved compromised opening protectives
- Inspection and maintenance directly affect life safety

Notes:

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Many of the deficiencies we've discussed are not theoretical problems.

History has repeatedly shown that failed compartmentation and non-functioning fire doors contribute to smoke spread and loss of life.

## Bronx High-Rise Fire (2022)

- 17 fatalities
- Investigators found:
  - Apartment door remained open
  - Smoke spread rapidly
  - Stairwells became contaminated
  - Self-closing doors failed to perform as intended.



### Notes:

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## Grenfell Tower Fire (2017)

- 72 fatalities
- Investigations identified issues involving:
  - Doors failing to self-close
  - Damaged or poorly maintained fire doors
  - Smoke migration into escape routes
  - Residents exposed during evacuation.



## MGM Grand Fire (1980)

- 85 fatalities - Over 650 injuries
- One of the deadliest hotel fires in U.S. history
- Smoke Spread Pathways Included
  - Stairwells
  - elevator shafts
  - seismic joints
  - utility penetrations
- Many victims were overcome by smoke in corridors and upper floors.



Notes:

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In many major fires, smoke spread — not flames — caused the majority of fatalities.

## Field Modifications Gone Rogue



Door  
Core  
Material



Notes:

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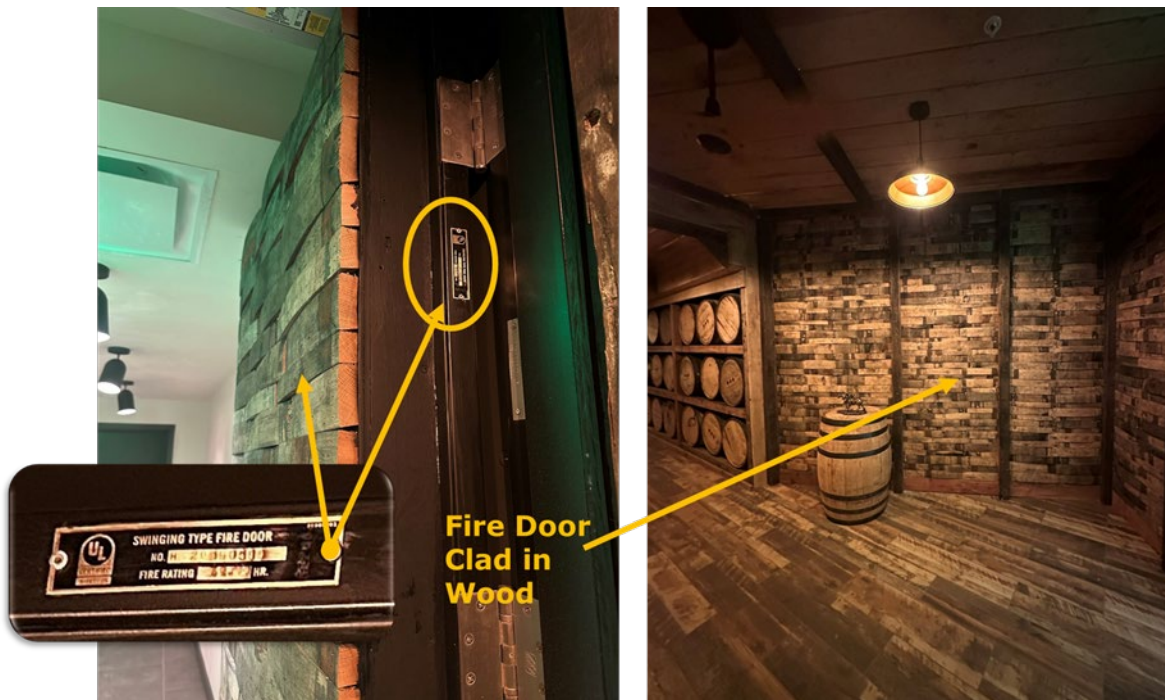
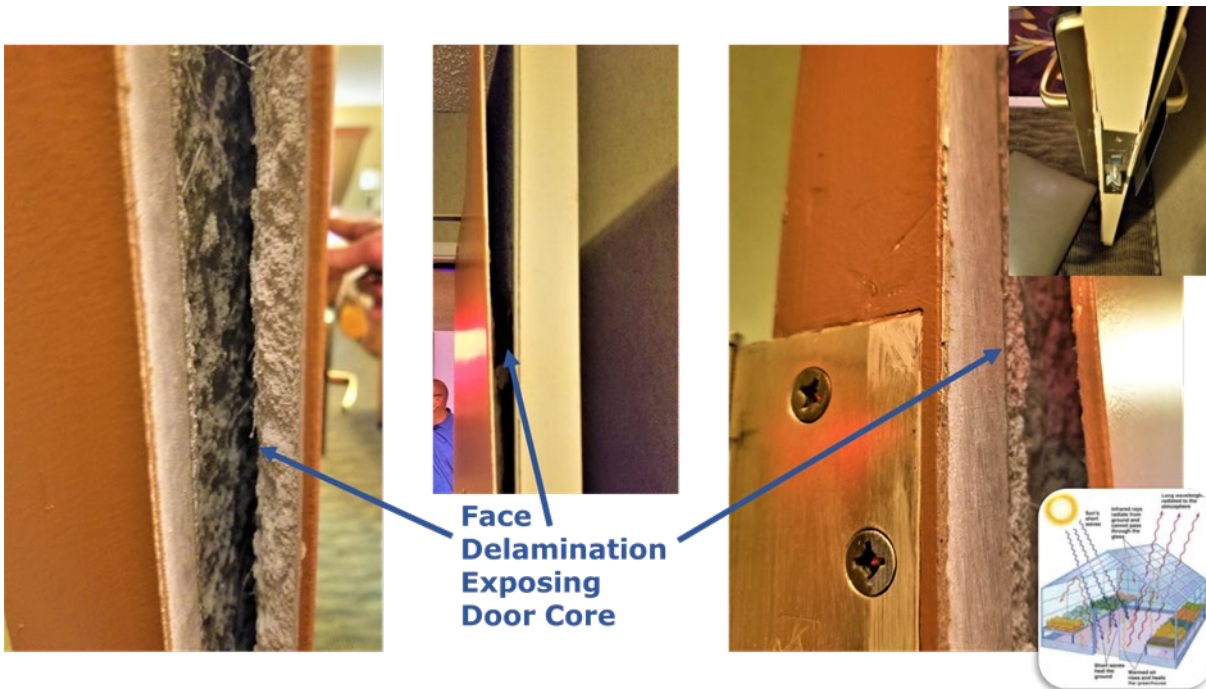
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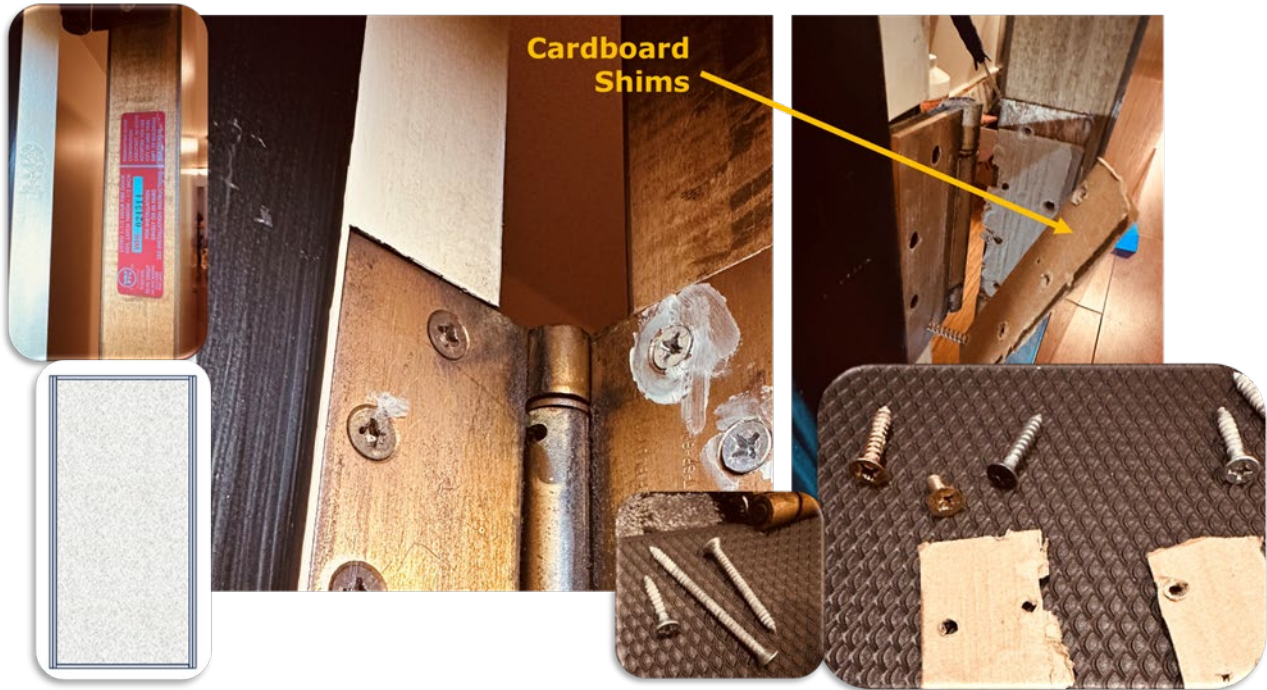
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**6.4.3.4 Shimming.** When required to meet the clearances stated in 6.3.1.7, the shimming of hinges using steel shims shall be permitted.



Notes:

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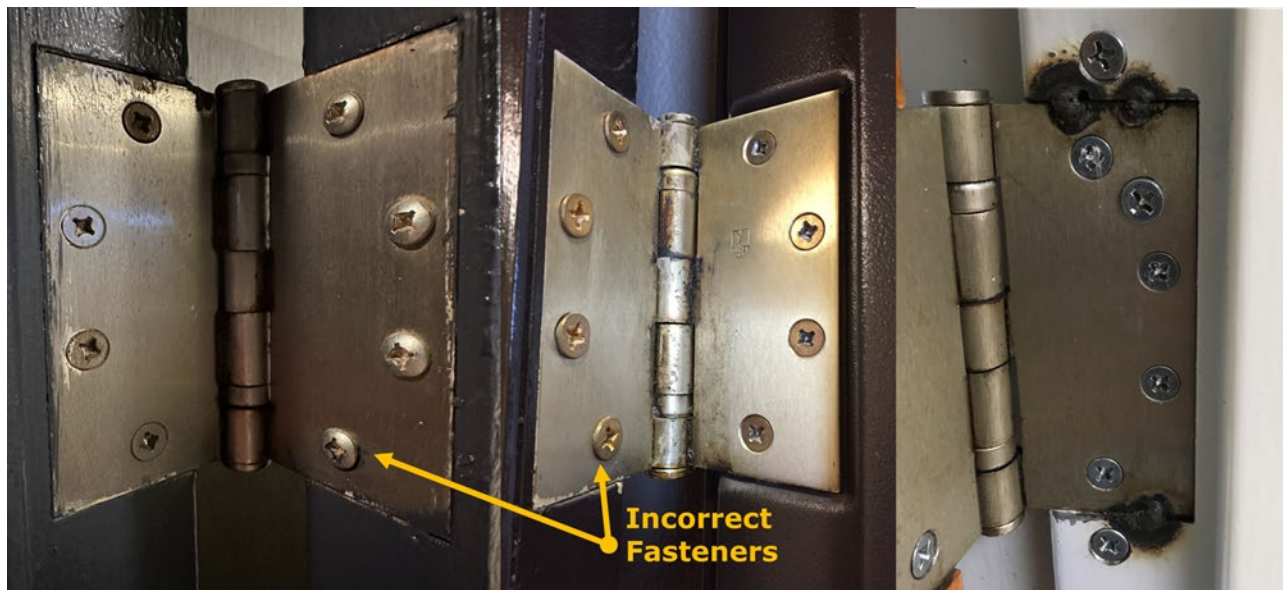
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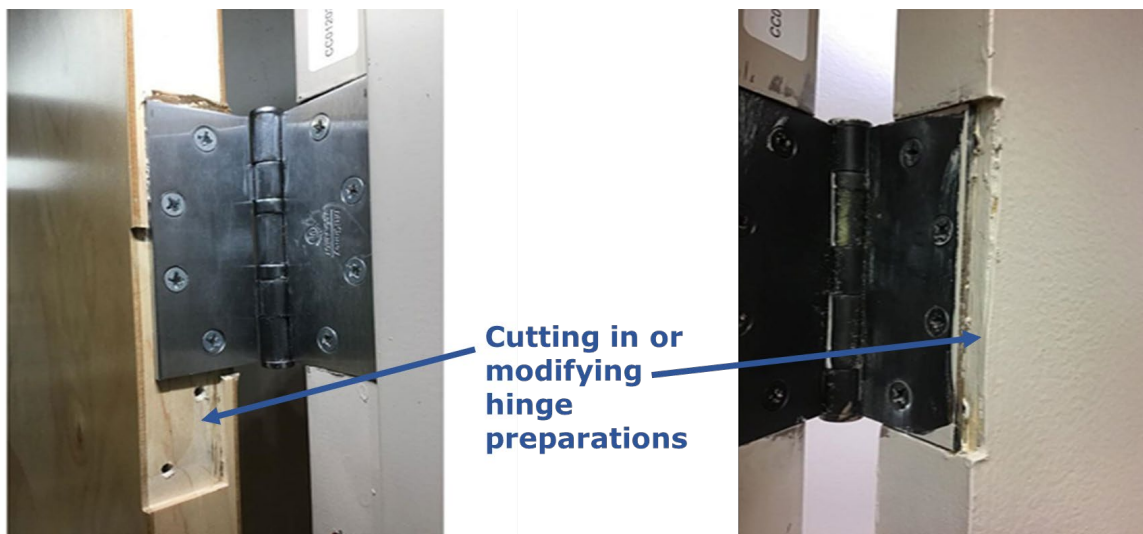
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## Prepping for Hinges Not Allowed



Notes:

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## Modifying Hinges Not Allowed



Cutting  
Hinge to  
Reveal  
Fire Label



## Prepping for Locks or Latches Not Allowed



Deadlocks  
Added to  
Fire Doors



Notes:

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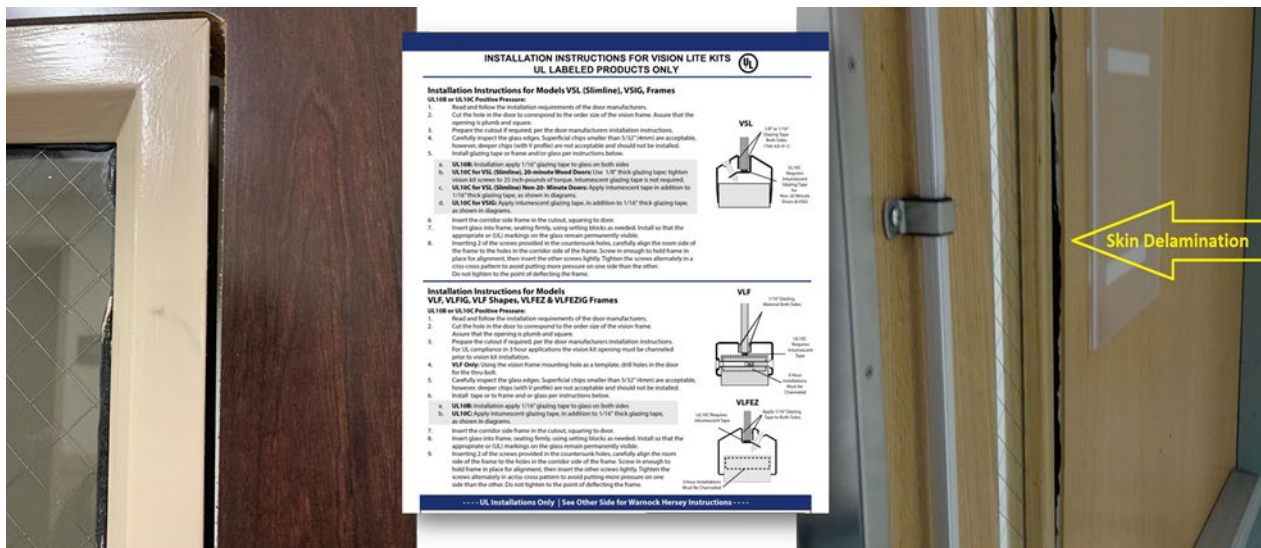
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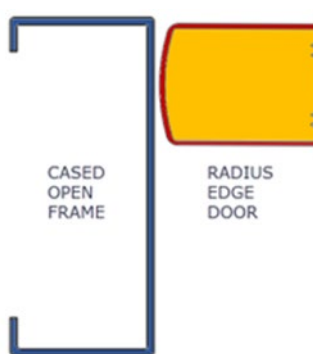
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## Cutting In - Lite Kits – Not Allowed



## Rogue Field Labeling

- Field modifications to a non-fire-rated door assembly to make it fire-rated are NOT PERMITTED unless the field modification is completed under label services.



### Notes:

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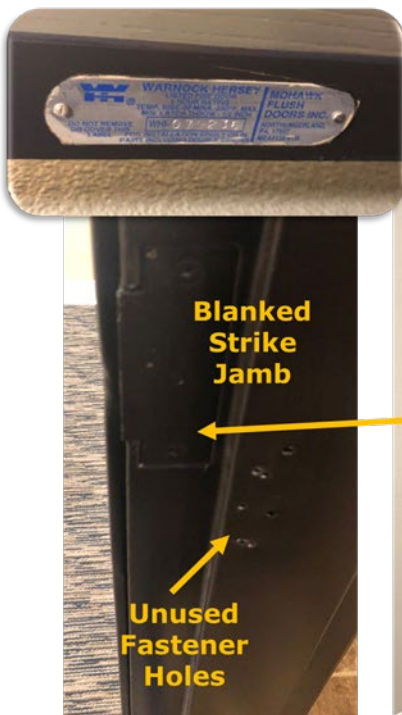
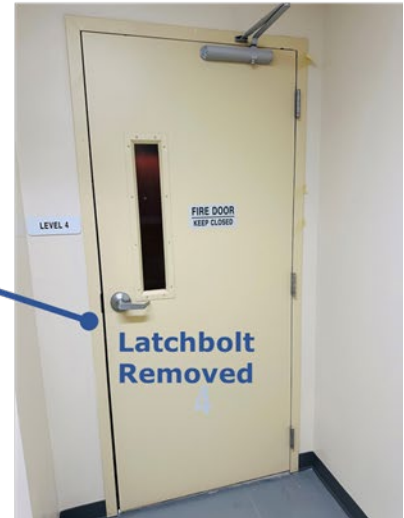
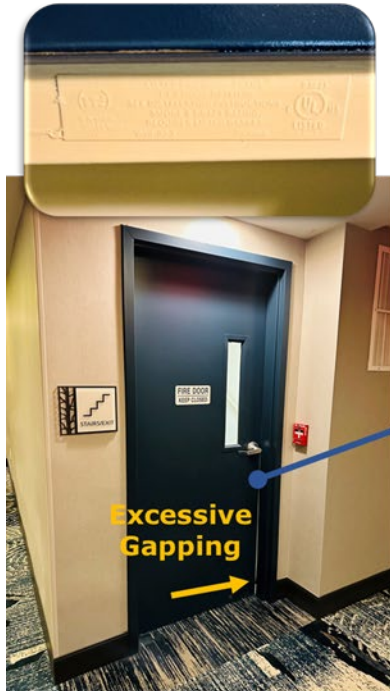
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## Stairwells



Fire doors  
shall close  
and latch



Notes:



## Back to Compliance Solutions

- NFPA 80 allows for the development of new, modified, or improved devices that meet the standard's intent.
- Manufacturers are responsible for supplying the information needed to update the requirements for these improved devices.
- For devices not covered in the standard, the AHJ should request info from manufacturers provided by a testing lab about acceptable methods for field installation based on fire tests and engineering studies for operation and maintenance considerations, where applicable.

### Notes:

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# Gap Fillers – Top, Bottom, Vertical Edge



# Gap Fillers - Top of Door



Notes:

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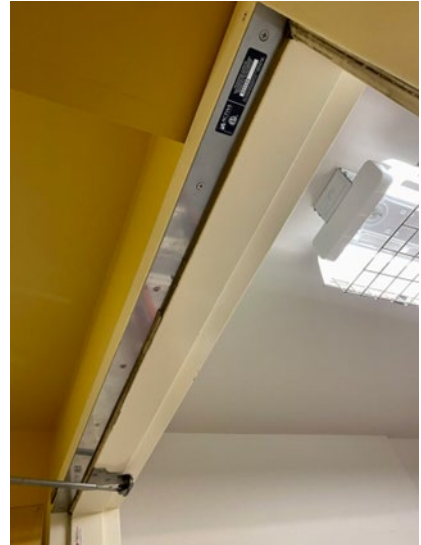
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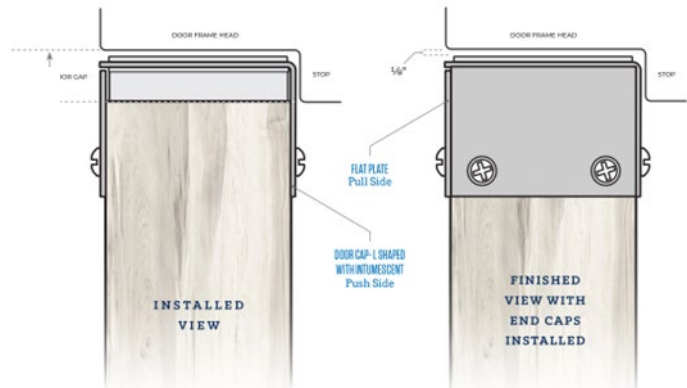
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## Gap Fillers - Top of Door



## Gap Fillers - Top of Door



**NGP**

Notes:

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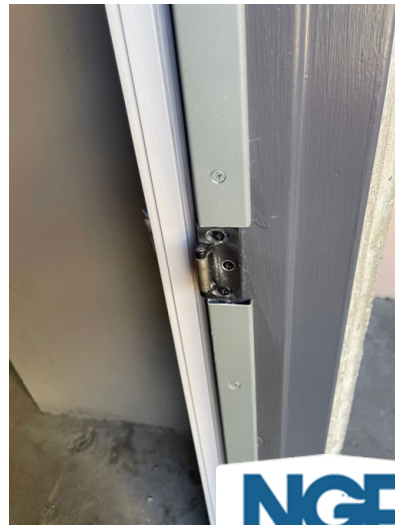
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# Gap Fillers – Top of Door



# Gap Fillers - Vertical Edge



Notes:

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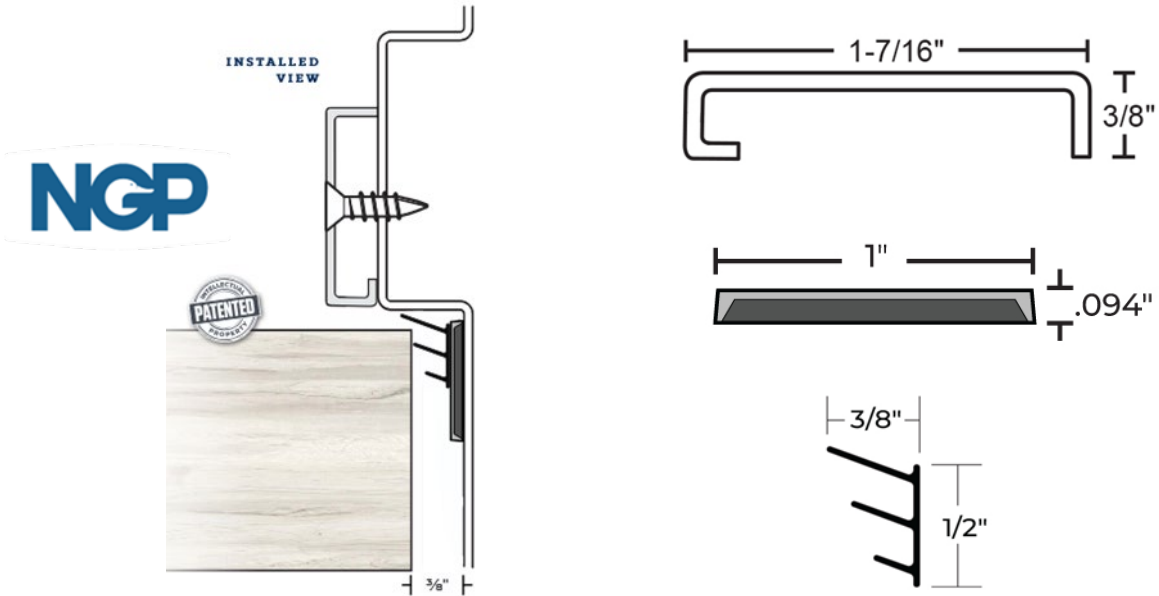
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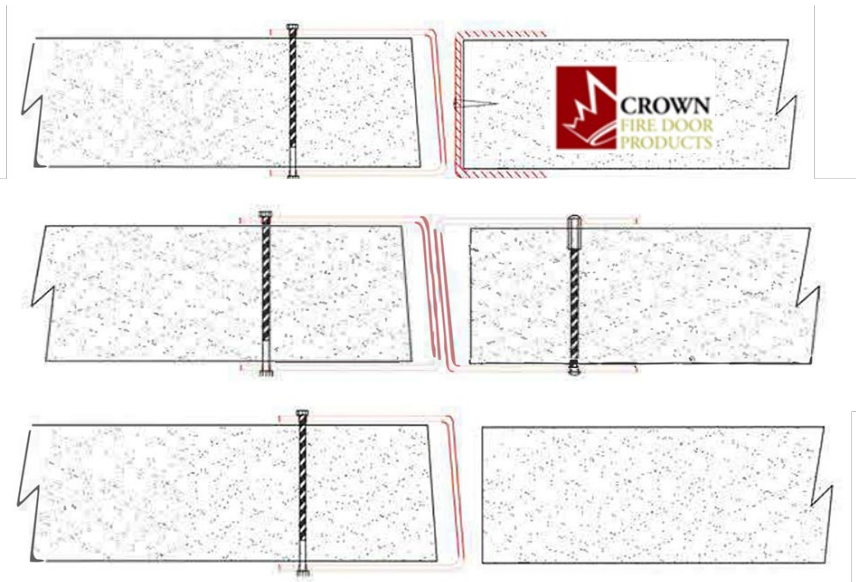
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## Gap Fillers – Top and Vertical Edges



## Gap Fillers – Meeting Edge



Notes:

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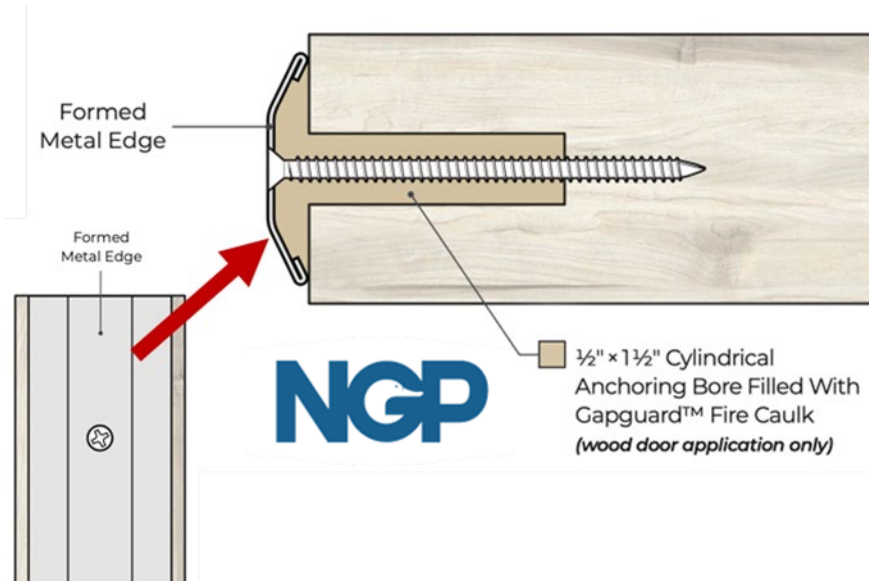
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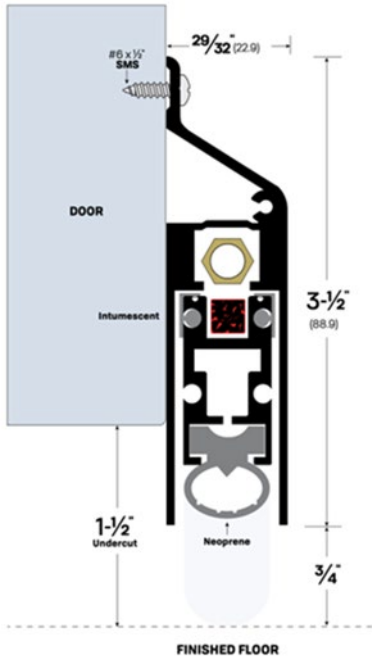
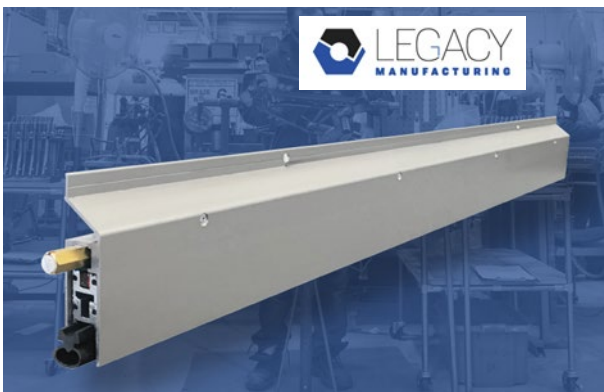
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# Gap Fillers – Meeting Edge



# Gap Fillers – Bottom of Door



Notes:

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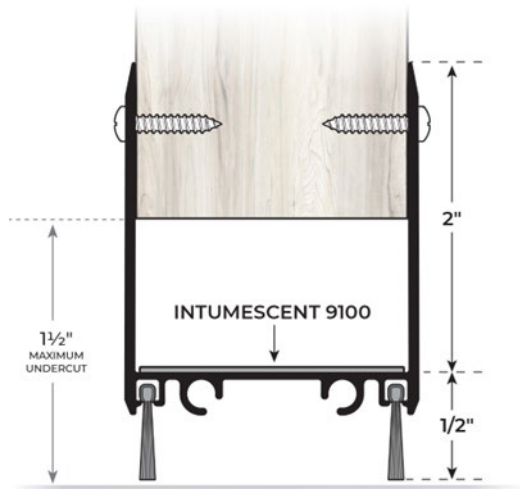
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## Gap Fillers – Bottom of Door



## Gap Fillers – Bottom of Door



Notes:

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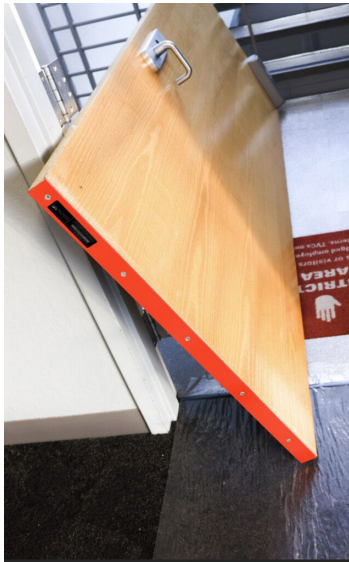
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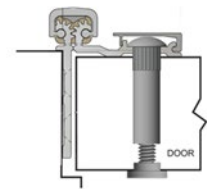
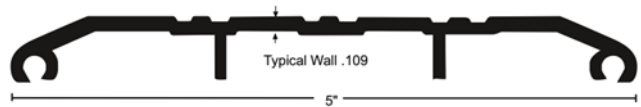
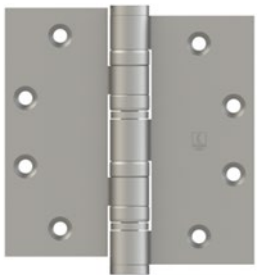
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## Gap Fillers – Bottom of Door



**ACTIVE**  
FIRE DOOR PRODUCTS

## Old School Gap Options



Notes:

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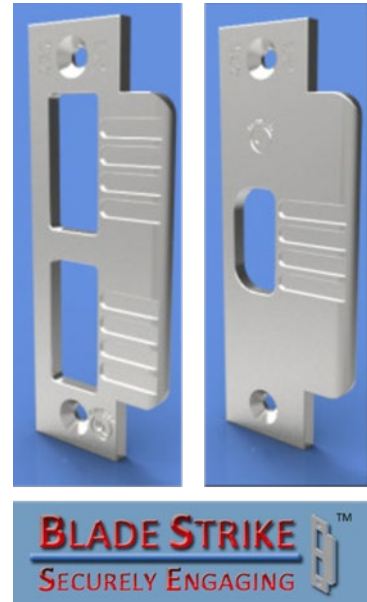
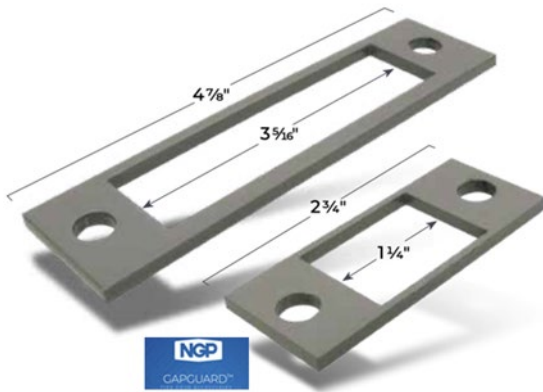
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## Strike Engagement Solutions



## Other Solutions



Notes:

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# Repairing Open Holes in Doors and Frames



## Not All Fire Caulk is the Same

- Must be listed for use on fire doors and frames to seal thru holes.
- Be sure that hole size, fire rating and door/frame material complies with the manufacturers listing.



Notes:

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## Open Holes



## Other Hole Fillers



### Notes:

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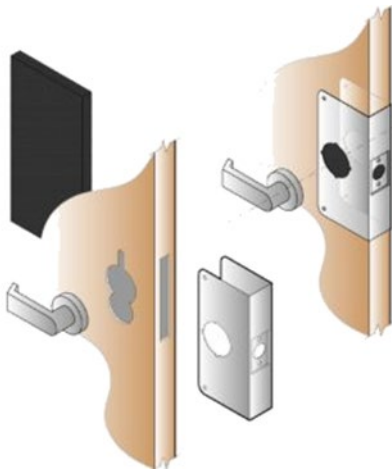
# Mortise Prep Filler



Most wrap plates are not rated for use on fire doors.



# Fire Rated Wrap Arounds and Fillers



Notes:

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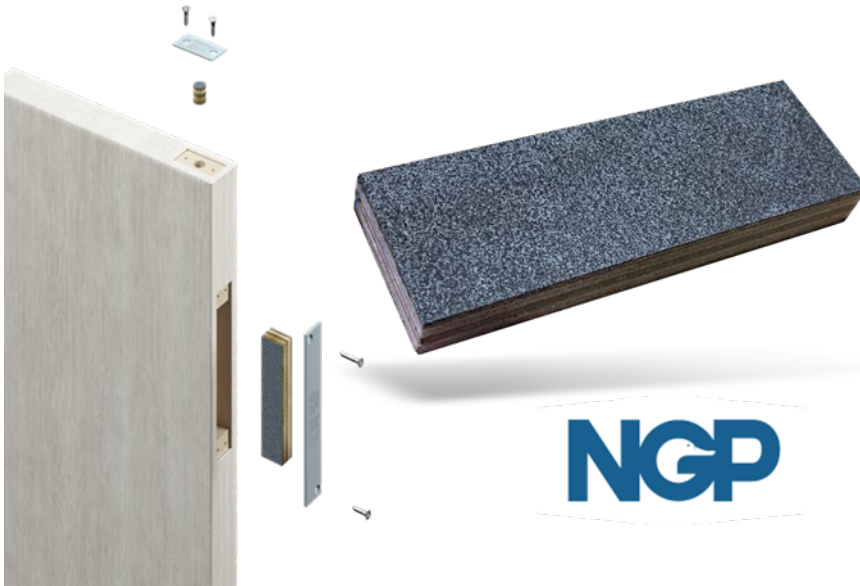
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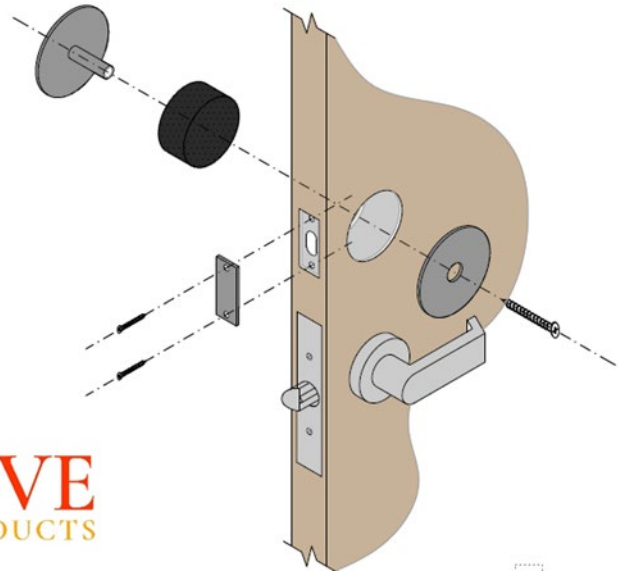
## Flush Bolt Hardware Filler



## Deadbolt Prep Filler



**ACTIVE**  
FIRE DOOR PRODUCTS



Notes:

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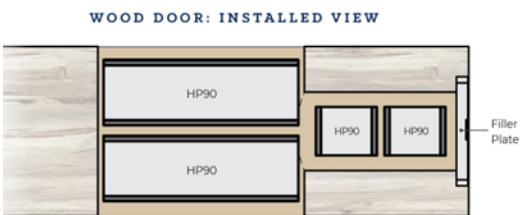
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## Cylindrical Hardware Prep Filler



## 5 Things Every AHJ Should Always Check

1. Does it close?
2. Does it latch?
3. Are labels present?
4. Are clearances acceptable?
5. Are there modifications?

What are you missing?

Notes:

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## Fire Doors Only Work If They Work Today

- Inspected
- Maintained
- Closing
- Latching
- Unmodified

Compartmentation is only as strong as the opening.

## Must be Always Ready and Able to Perform

- Swinging fire doors are always in operation.
- Deteriorate from use and age.
- Must be ready to perform their two main functions:
  - PROTECTING PEOPLE
  - PROTECTING PROPERTY



### Notes:

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# Resources and Leave Behinds



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

Know the DO's and DONT's of maintaining your fire doors.

**DONT** 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.

**DONT** 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.

**DONT** decorate your fire doors. Signs that are hung on fire doors are limited to just the spread 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.

**DONT** 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 glowing could ignite, allowing fire to spread to other parts of the building.

**DONT** cut in to or otherwise modify a fire door, door frame or the hardware attached to a fire door without consulting a professional. Cuts 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.

**DONT** skin hinges or other hardware installed on fire doors with wooden, plastic or nylon materials. Fire doors can only be skinned with steel doors so that doors and hardware stay aligned when exposed to heat and fire conditions.

**DONT** 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.

**DONT** install barricade devices, that prevent escape or access, on fire doors. A fire door's 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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are required to be operational and functional.

your fire doors regularly helps to functioning properly and can be fire and smoke, and to provide the

close without manual assistance, against fire spread. They must be alarm signals if they are held

re doors are positively latching or did open electronically.

latching have a continuous seal the meeting edges of doors hung in protected building occupants from

r door, door frame or hardware Fire doors need to be reliable and without delay.

space in front of and behind a fire did prevent the door from closing rough the door.

ing your doors annually will help two main functions in the event of a

**DO IT**

including your fire doors, 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!**

NFPA 80 requires swinging doors with builders hardware to be inspected not less than annually.

**Top Ten Fire Door Assembly Deficiencies**

Based on over 250,000 doors inspected in North America and the Middle East

1. **Non-Compliant Clearance at the Top of Door(s) and Frame**  
Clearances at the top of the door and frame must comply with the clearances listed in NFPA 80.
2. **Non-Compliant Clearance on Lock Edge**  
Clearances at the lock edge of the door and frame must comply with the clearances listed in NFPA 80.
3. **Missing or Illegible Label on Door Frame**  
Labels are required to be clearly visible and legible.
4. **Missing or Damaged Gasketing**  
When gasketing is required, it must be present, continuous, and intact.
5. **Non-Compliant Clearance on Hinge Edge**  
Clearances at the hinge edge of the door and frame must comply with the clearances listed in NFPA 80.
6. **Missing or Illegible Label on Door**  
Labels are required to be clearly visible and legible.
7. **The Door Does Not Securely Latch**  
Latching hardware must operate and secure the door when it is in the closed position. Any auxiliary hardware items that interfere with the operation of the door is not allowed.
8. **Unused Fastener Holes**  
No open holes are allowed on the surface of fire doors or frames.
9. **The Door Does Not Completely Close**  
Closing devices must be operational.
10. **Excessive Damage on Door(s)**

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)



re required to be operational and for

is periodically helps to ensure freely and can be counted on re and provide the time and

about manual assistance. Fire but fire spread. They must be ignors if they are held open by

vely latching or will close and

ing have a continuous seal edging edges of doors hung in siding occupants from smoke

er, door frame, or hardware re doors must be reliable, and

is in front of and behind a fire prevent the door from closing, it.

ensure that they can perform ing people and property.

**DO IT**

ing your fire doors, ans at [www.Educate-doit.com](http://www.Educate-doit.com)

[www.Educate-doit.com](http://www.Educate-doit.com)

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