



# **Inspecting Swinging Fire Doors with Builders Hardware**

A Practical Guide for  
AHJs and Facility Management Personnel

About

Door  
Security & Safety  
FOUNDATION

# Today's Agenda

- Introduction to Swinging Fire Doors with Builders Hardware
- NFPA 80's Inspection, Testing, and Maintenance Requirements
- Applying NFPA 80's Inspection Requirements to Swinging Fire Doors
- Maintaining Swinging Fire Doors



# History of NFPA 80's Requirements



# Former Requirements

- 1999 edition (and earlier editions) of NFPA 80
- Chapter 15, Care and Maintenance
  - Paragraph 15-2.1.1
    - "Hardware shall be examined frequently and any parts found to be inoperative shall be replaced immediately."*

# Keep These Points in Mind...

- ✓ *Fire doors are mechanical equipment that is subject to wear and tear*
- ✓ *Failure to properly maintain fire door assemblies in good operating condition is the action that violates code*

# Keep These Points in Mind...

- ✓ *Only the AHJ has the authority to enforce building and fire code compliance*
- ✓ *Presumption of correct applications*
- ✓ *Inspectors need to be aware of the building codes that were applicable at the time of installation*





**Play the SDI  
Fire Door Test  
Video**

# **Introduction to Swinging Fire Doors with Builders Hardware**

# Swinging Doors with Builders Hardware

- Average lifespan of doors, frames, and hardware
  - Door assemblies subject to high frequency usage:
    - 400 to 5,000 cycles per day (118,000 to 1,500,000/yr)
    - 3 to 7 years, depending on the hardware
  - Door assemblies subject to ordinary usage:
    - 50 to 200 cycles per day (18,000 to 75,000/yr)
    - 7 to 15 years, depending on the hardware
  - Door assemblies subject to low frequency usage:
    - 1 to 20 cycles per day (300 to 7,000/yr)
    - Up to the lifetime of the building, depending on the hardware

# Swinging Fire Doors

- Swinging fire door assemblies with builders hardware
  - Covered in Chapter 6 in NFPA 80
  - Component-based systems

# Swinging Fire Doors

- Swinging fire door assemblies with builders hardware are comprised of:
  - Labeled door frame
  - Labeled door(s)
  - Labeled or listed door hardware products
    - Hinges
    - Door bolts
    - Locks and latches
    - Door closers
    - Etc.

# Swinging Fire Doors

## ➤ Labeled door frames

- Embossed labels
- Physical labels
  - Mylar
  - Metal

## ➤ Labels might state the maximum duration of the fire-protection rating of the door frame (e.g., 3 hours)

- Many labels on 3-sided door frames simply identify the frame as being fire-rated
- Labels on sidelight and transom frames usually have the maximum duration of fire-protection rating

# Swinging Fire Doors

## ➤ Labeled doors

- Physical labels
  - Mylar
  - Metal
- States hardware requirements
  - Latch throw
  - Fire exit hardware
  - S-label for smoke door assemblies

✓ *States fire-protection rating in hours or minutes*

- Labeled and listed hardware components
  - Marked with emblems and symbols
    - F, f, ff
    - UL
    - ETL
  - Embossed, stamped, or applied



# Swinging Fire Doors

- Glass and glazing
  - 1/4-inch clear wire glass
  - Fire resistance rated glazing
  - Fire protection rated glazing

# Swinging Fire Doors

- Door frame and door labels
  - Applied at factory or authorized shop BEFORE door hardware is installed
  
- Door hardware labels
  - Marked during manufacturing
  
  - Some products (e.g., hinges) are only listed



**UNDERWRITERS LABORATORIES INC.®**

CLASSIFIED

SWINGING TYPE FIRE DOOR

NO. \_\_\_\_\_

FIRE RATING: \_\_\_\_\_

HR.

MIN LATCH THROW: \_\_\_\_\_



**UNDERWRITERS LABORATORIES INC.®**

CLASSIFIED

SWINGING TYPE FIRE DOOR

FIRE RATING: \_\_\_\_\_

HR.

NO. \_\_\_\_\_

FIRE DOOR TO BE EQUIPPED WITH FIRE EXIT HARDWARE



**UNDERWRITERS LABORATORIES INC.®**

CLASSIFIED

SWINGING TYPE FIRE DOOR

NO. \_\_\_\_\_

FIRE RATING: \_\_\_\_\_

HR.

MIN LATCH THROW: \_\_\_\_\_

TEMP. RISE 30 MIN. \_\_\_\_\_ °F MAXIMUM



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CLASSIFIED

SWINGING TYPE FIRE DOOR

FIRE RATING: \_\_\_\_\_

HR.

NO. \_\_\_\_\_

TEMP. RISE 30 MIN. \_\_\_\_\_ °F MAXIMUM

FIRE DOOR TO BE EQUIPPED WITH FIRE EXIT HARDWARE



**UNDERWRITERS LABORATORIES INC.®**

LISTED

FIRE DOOR FRAME

NO.



**UNDERWRITERS LABORATORIES INC.®**

LISTED

FIRE DOOR FRAME  
WITH PANELS

NO.



**UNDERWRITERS LABORATORIES INC.®**

LISTED

FIRE DOOR FRAME  
FOR LIGHTS

NO.



**UNDERWRITERS LABORATORIES INC.®**

LISTED

FIRE WINDOW FRAME

NO.

# Swinging Fire Doors

## ➤ NFPA 80 allows:

- Door frames, doors, and hardware to be products of different manufacturers
- door frames, doors, and hardware to be labeled and listed by different testing labs

✓ *All of these combinations of products can be confusing to AHJs, owners, and maintenance personnel*

# Swinging Fire Doors

## ➤ Fire door ratings

- 1/3-hour (20 minutes)
- 1/2-hour (30 minutes)
- 3/4-hour (45 minutes)
- 1-hour (60 minutes)
- 1-1/2 hour (90 minutes)
- 3 hour (180 minutes)

# Swinging Fire Doors

- Swinging fire doors are rated less than walls
  - 4-hour walls requires 3-hour door assemblies
  - 2-hour walls requires 1-1/2 hour door assemblies
  - 1-hour walls requires 3/4-hour door assemblies
    - Exception: 1/3-hour door assemblies in some occupancies

# Swinging Fire Doors...

## ➤ Component-based systems

- Frame, door, and hardware components
- Virtually infinite combinations of components
- Each component is required to be labeled or listed

✓ *Typically, the label on the door establishes the duration of fire protection rating for the assembly*

# Swinging Fire Doors

- Assemblies commonly consist of:
  - Hollow metal doors and frames
  - Hollow metal frames and wood doors\*
  - Pressed steel frames and wood doors\*
  - Aluminum frames and wood doors\*
  - Aluminum frames and flush aluminum doors
  - Wood composite frames and wood doors\*
  - Fiberglass reinforced polymer (FRP) frames and doors

\*Fire rated wood doors can be flush or stile and rail designs  
– high pressure decorative laminate (e.g., Plastic laminate)  
fire doors are a type of flush wood fire door.

# Other Types of Fire Door Assemblies

- Swinging fire doors with fire door hardware
- Horizontally sliding fire doors
- Vertically sliding fire doors
- Rolling steel fire doors
- Access fire doors
- More...

✓ *The label on these types of fire door assemblies cover the entire assembly*

# Clearances

- NFPA 80 requires swinging doors with builders hardware to be installed within the following clearances:
  - Hollow metal doors: 1/8-inch (plus or minus 1/16-inch) at vertical edges and top edges of doors
    - Maximum clearance: 3/16-inch
    - Minimum clearance: 1/16-inch
  - Wood doors: 1/8-inch maximum (no over- or under-tolerance) at vertical edges and top edges of doors
    - Maximum clearance: 1/8-inch
    - Minimum clearance: None
- ✓ **Doors of other materials are treated the same as wood doors**

# Clearances

- Fire door tests allow 1/8-inch clearance between the door and door frame with no over- or under-tolerance
  - NFPA 252, Standard Methods of Fire Tests of Door Assemblies
  - UL 10B, Standard for Safety Fire Tests of Door Assemblies
  - UL 10C, Standard for Positive Pressure Fire Tests of Door Assemblies
  - Other fire door test standards

# Installation

## ➤ Clearance under the doors

- Maximum of 3/4-inch where bottom of door is less than 38-inches above the floor
- Maximum of 3/8-inch where bottom of door is 38-inches or higher above the floor
  - Access doors

# Installation of Fire Door Assemblies

## ➤ Common Misconceptions

- Label on door(s) indicates the assembly is **“OK”**
- Fire doors are **“OK”** as long as they close and latch
- All fire doors are inspected by the AHJ

# Installation of Fire Door Assemblies

- Label on door establishes requirements for hardware components
  - Dimension of latch bolt throw (projection)
  - Application of fire exit hardware
  - Temperature rise (e.g., 650, 450, and 250 degrees)
- ✓ *Some labeled hardware items have restricted applications*

# Typical Installation of Swinging Fire Door Assemblies

- Frames set by masons or rough carpenters/drywall installers
  - Frames in masonry walls are often installed months before the door and hardware are installed
- Doors and hardware installed by finish carpenters or skilled mechanics
  - Sometimes by lesser skilled personnel

# Top 10 Deficiencies Swinging Fire Doors

- Painted or missing fire door labels
- Poor clearance dimensions around the perimeter of the door in the closed position
- Kick down door holders
- Auxiliary hardware items that interfere with the intended function of the door
- Fire door blocked to stay in the open position
- Area surrounding the fire door assembly blocked by furniture, equipment, and/or boxes
- Broken, defective, or missing hardware items (e.g., latch bolts, strike plates, closer arms, cover plates, etc.)
- Fire exit hardware installed on doors that are not labeled for use with fire exit hardware
- Missing or incorrect fasteners
- Bottom flush bolts that do not project 1/2-inch into the strikes

**Questions?**

# **NFPA 80, Standard for Fire Doors and Other Opening Protectives**

Safety Inspections  
of Fire Door Assemblies

# Care and Maintenance

## ➤ NFPA 80, Chapter 5

- Applies to new and existing installations (NFPA 80, 5.1.1.2)
- Repairs
- Field Modifications
- Replacement
- Acceptance testing

# Care and Maintenance

- Replacing door frames, doors, and builders hardware
  - Meets the requirements for fire protection
  - Meets the requirements for new installations
  
- Replacing glass and glazing products
  - New glass and glazing products are required to be labeled
  - Existing glass and glazing products are permitted to be replaced with same (e.g., 1/4-inch wire glass can be replaced with same)

# Field Modifications

## ➤ What are field modifications?

- Drilling holes larger than 1-inch in diameter
  - 1-1/4 inch diameter for cylinders is permitted
- Cutouts formed by any means other than by drilling
  - Square, rectangular, or other irregular shape
- Welding of any type
  - Spot welding
  - Seam welding
- Undercutting doors in height or width
  - Wood and composite fire doors are permitted to be trimmed 3/4-inch in height at the bottom of the door

# Field Modifications

- What are field modifications?
  - Mortising doors and frames for hardware items
    - Hinges, lock fronts, flush bolts, etc.
  - Boring holes through width of doors for remote controlled (electrified) hardware
    - Exception: Intertek licensed Perfect Raceway field modification

# Field Modifications

- NFPA 80, Chapter 5 contains provisions for field modifications
  - Contact the testing laboratory whose label is on the product being modified
  - Verify the proposed work does not compromise the integrity of the door assembly
  - Might not require field inspection by testing laboratory



# Safety Inspections of Fire Door Assemblies

- After installation
- During annual inspection cycles
  - Performance-based program
- After maintenance

# Safety Inspections of Fire Door Assemblies

- Inspections are required to be performed by a qualified person
- Qualified Person:
  - “A person who, by possession of a recognized degree, certificate, 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.”
- ✓ *AHJs need to have confidence in the expertise of the persons performing NFPA 80's safety inspections*

# Safety Inspections of Fire Door Assemblies

## ➤ NFPA 80, 5.2.4

*“Fire door assemblies shall be inspected and tested not less than annually.”*

## ➤ NFPA 80, 5.2.2

*“A record of all inspections and testing shall be signed by the inspector and kept for inspection by the AHJ.”*

# NFPA 80's Inspection Requirements

- ✓ Labels are clearly visible and legible
- ✓ No open holes or breaks exist in surfaces of either the door or frame
- ✓ Glazing, vision light frames, and glazing beads are intact and securely fastened in place, if so equipped
- ✓ The door, frame, hinges, hardware, and non-combustible threshold are secured, aligned, and in working order with no visible signs of damage
- ✓ No parts are missing or broken

# NFPA 80's Inspection Requirements

- ✓ Door clearances do not exceed clearances listed in 4.8.4 or 6.3.1.7
- ✓ The self-closing device is operational; that is, the active door completely closes when operated from the full open position
- ✓ If a coordinator is installed, the inactive leaf closes before the active leaf
- ✓ Latching hardware operates and secures the door when it is in the closed position

# NFPA 80's Inspection Requirements

- ✓ Auxiliary hardware items that interfere or prohibit operation are not installed on the door or frame
- ✓ No field modifications to the door assembly have been made that void the label
- ✓ Meeting edge protection, gasketing, and edge seals, where required, are inspected to verify their presence and integrity
- ✓ Signage affixed to the door meets the requirements listed in 4.1.4

# Overview

## Performance-Based Option

- Designed for large buildings, facilities, and campuses that have on-going door maintenance programs
  - Formal inspection cycle extended up to 3 years
    - Incremental extensions granted based on maintaining an acceptable level of compliance
  - Inspection and maintenance programs fully documented
  - Trained personnel
  - Sustained high level of compliance (e.g., 95 to 100 percent)
  - Requires constant documentation of door maintenance program
  - Subject to revocation for cause by AHJ

✓ *Requires AHJ's approval in writing*

# Overview

## Performance-Based Option

- Door maintenance program
  - Door usage frequencies
  - History of door repairs
  - Building condition
  - Consequence of failure
  
- Transitioning to performance-base option requires consideration of:
  - Past door reliability
  - Resource expenditures
  - Administrative burden

**Questions?**

# **Roles and Responsibilities**

# Building Owner's Role and Responsibilities

- Maintaining fire door assemblies in working condition in accordance with NFPA 80
  - NFPA 80 limits the type of work that can be performed on fire door assemblies
  - Owner's personnel need to be aware of limitations
- Performing and documenting NFPA 80's safety inspections of fire door assemblies
  - Annually

# Authority Having Jurisdiction's (AHJ) Role and Responsibilities

- Enforce NFPA 80's requirements for fire door assemblies
  - Installation and maintenance
  - Annual inspections (including performance based option)
  
- Establish acceptable inspection parameters
  - Clearances around perimeter of doors
  - Painted or missing fire door labels
  - Grace period(s) for making corrective actions
  - More...

# **Fire Door Assembly Inspector's (FDAI) Role and Responsibilities**

- Witness, document, and report condition of fire door assemblies to building owners
  - As of date and time of inspection
  - Research and document special conditions
- Recommend corrective actions
- Educate
  - Building owners and maintenance personnel
  - AHJs

# Swinging Fire Doors with Builders Hardware

- Simple to complex functions
  - Fire safety
  - Life safety
  - Accessibility
  - Security
  - Access controlled

*✓ Generally, fire rating requirements take precedence over other code requirements*

**Questions?**

# **Inspecting Swinging Fire Door Assemblies**

# Where are the Fire Doors?

- Original blueprints and specifications
- Approved door and hardware submittal schedules
- Walk the building and find the fire doors
  - Locate swinging fire doors
    - Stair towers
    - Along corridors
    - Other areas...

# Index of Fire Door Assemblies

- Assign each fire door a unique identifier
  - Door number
  - Bar code

# Documentation

## ➤ Acceptance Testing

- Initial installation
- After maintenance work

## ➤ Safety Inspections

- Annual safety inspections
- Performance-based inspections

# Documentation

## ➤ Acceptance Testing records

- Retained for life of installation
  - Before Certificate of Occupancy is issued
  - After maintenance work is performed
- Format that survives the retention period
  - Digital (secured – can't be edited)
  - Paper
- Signed by inspector(s) and kept for AHJ's review

# Documentation

## ➤ Safety Inspections

- Format that survives the retention period
- Minimum retention period of 3 years
- Signed by inspector and kept for the AHJ's review.

# Corrective Actions

## ➤ Inspection reports

- Inspector's recommendations for repairing fire doors

## ➤ Minor corrective actions

- Replacing and/or tightening fasteners
- Adjusting doors and hardware
  - Shimming doors to correct excessive clearance gaps
  - Adjusting door closers
  - Aligning latching hardware with strike plates
- Filling unused fastener holes

# Finding a Fire Door Assembly Inspector (FDAI)

- Door Security & Safety Foundation
  - Locate and FDAI
  - [www.doorsecuritysafety.org](http://www.doorsecuritysafety.org)
- Door and Hardware Institute (DHI)
  - Find a Certified/Professional
  - [www.dhi.org](http://www.dhi.org)
- Intertek
  - <http://www.intertek.com/building/door-inspector-program>

# Door and Hardware Institute

- Fire Door Assembly Inspection training program:
  - Comprehensive 4-day face-to-face class
  - Inspection requirements
    - NFPA 80, Standard for Fire Doors and Other Opening Protectives
    - NFPA 101, Life Safety Code
  - Students perform inspections of fire door assemblies
  - Standardized inspection report forms
  - Includes prerequisite courses
  - **Proctored 4-hour exam**
    - Minimum passing score is 80%
- ✓ *Fire Door Assembly Inspector (FDAI)*
  - *DHI professional credential*

# Certification for Inspectors of Fire Door Assemblies

- Intertek
  - Warnock Hersey Mark
- Certified Fire Door Inspector (CFDI)
- Company and inspector(s)
  - Signed agreements
- 3-year certification cycle for inspectors
- Photo badge credentials



# Preliminary Safety Inspections

- Corrective actions made before safety inspections:
  - Increase the number of compliant door assemblies
  - Reduce follow up work
  - Makes buildings safer

# Routine Maintenance

- Routine maintenance work does not need to be documented in acceptance testing
  - Tightening fasteners
  - Replacing fasteners
- Replacing hardware items like hinges, locks and latches, fire exit hardware, and closing devices is required to be documented
  - Acceptance testing

# **Inspection Items**

# Steel Door Frames 5.2.3.5.2(1)

## ➤ Labels

- Fire rated labels properly attached and readable



# Steel Door Frames 5.2.3.5.2(1)

- Frame Condition
  - No-rust through on frames



# Steel Door Frames 5.2.3.5.2(1)



- Frame Condition
  - No open holes or breaks in the frame faces.

# Steel Door Frames

## 5.2.3.5.2(1)

### ➤ Frame Condition

- No unused fastener holes.
- Frame jamb extends to floor. No space between bottom of frame and floor.
- Fasteners installed in miters of knock down frames.



# Steel Door Frames

## 6.3.1.7.1

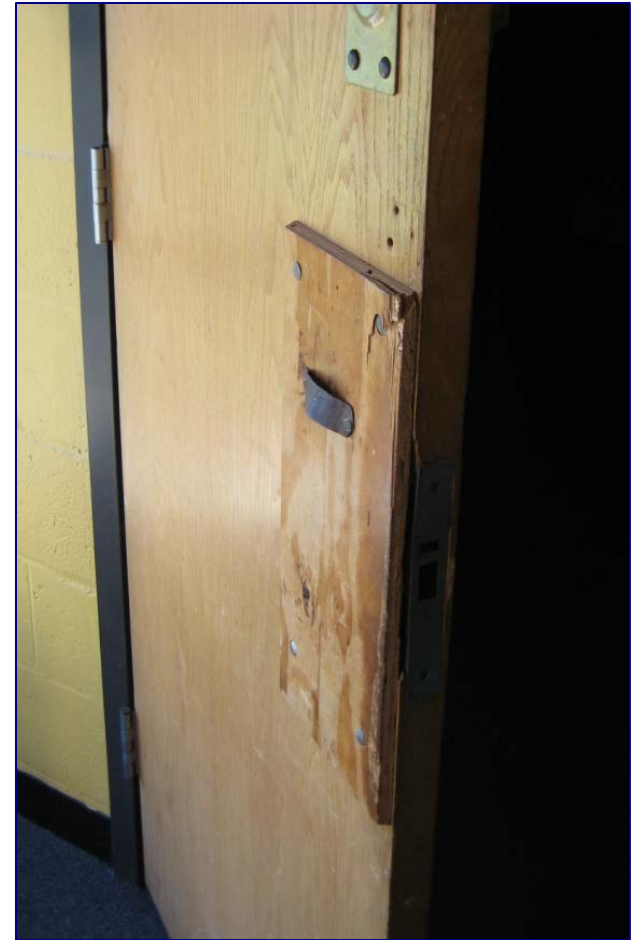
➤ Clearances at jambs, head, & meeting stiles



- Hollow Metal Doors: 1/8-inch (+/- 1/16-inch)
- Wood Doors: 1/8-inch
- Silencers/mutes installed

## Steel and Wood Doors 5.2.3.5.2(2)

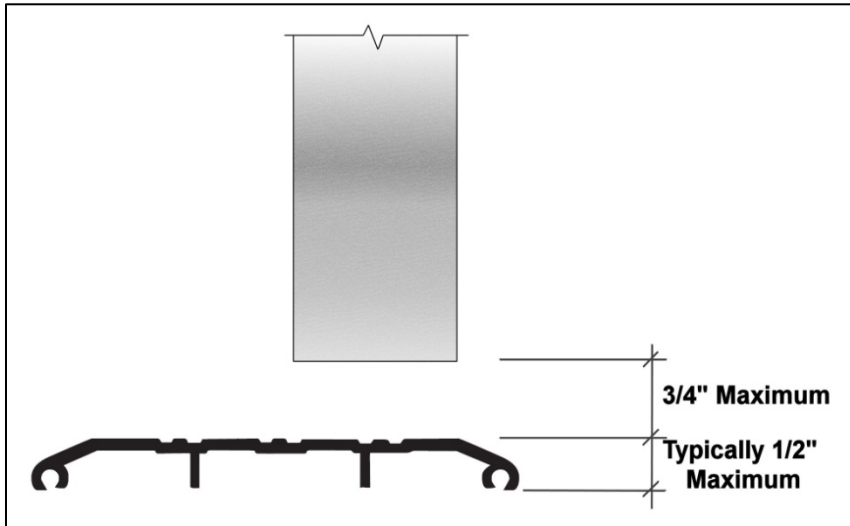
- Fire rated labels properly attached and readable
- No delaminating of door face to core of doors
- No holes, cracks, or splits in faces, stiles, and rails of doors



# Steel & Wood Doors

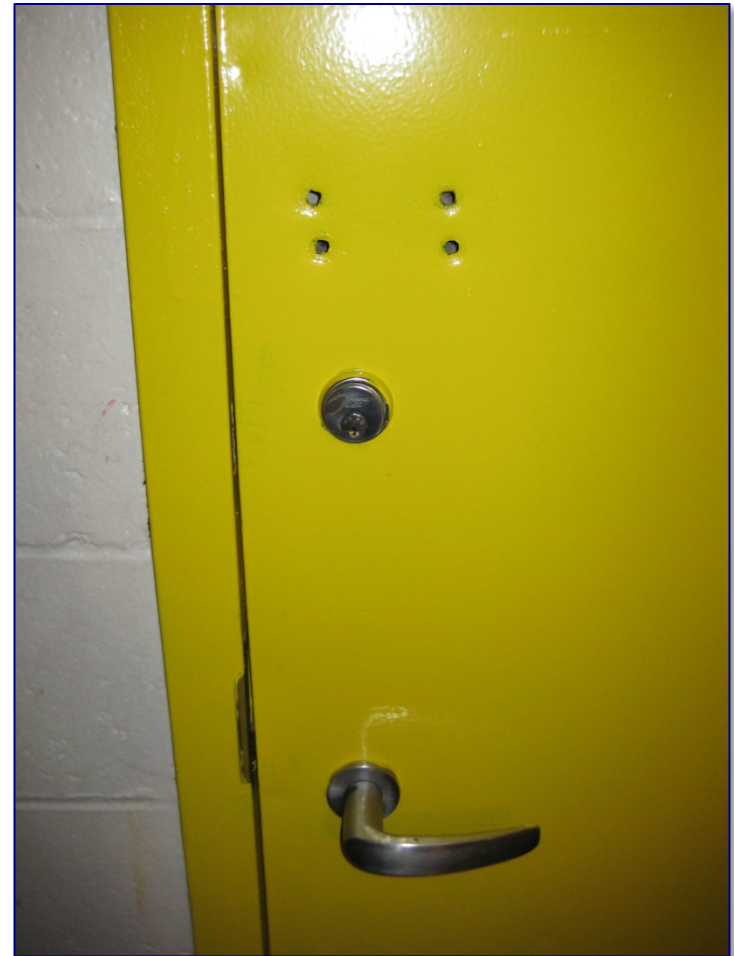
## 4.8.4.1

- No unused fastener holes
- Proper clearances
  - 3/4-inch maximum clearance between bottom of door and finished floor or threshold



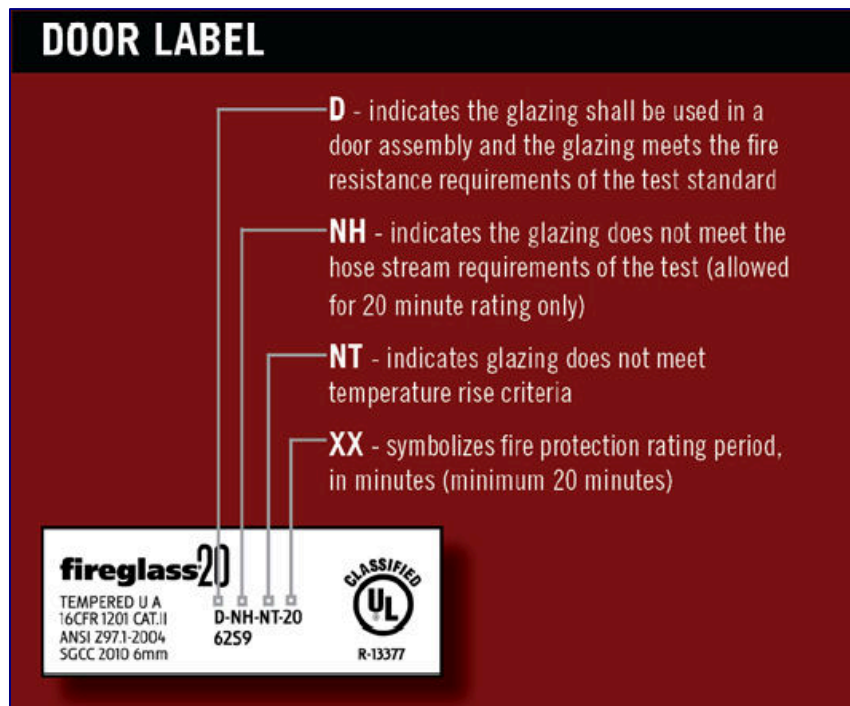
# Steel and Wood Doors 5.2.3.5.2(2)

- No broken welds on rails or stiles of steel doors.
- No holes in faces and edges of steel doors.
- Verify face of door for delaminating of face skins from core of door.



# Glazing

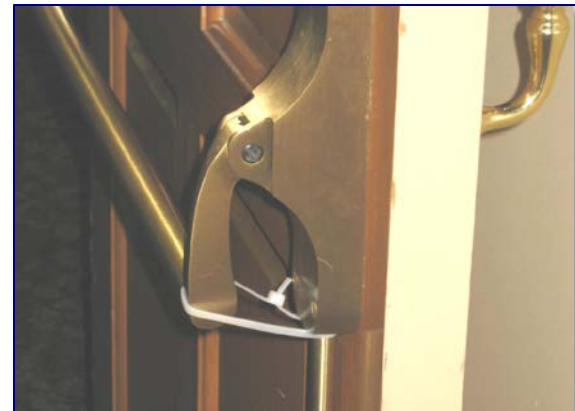
## 4.4.1



- Glazing beads securely fastened/no missing fasteners.
- Labeled light kits secured fastened - no missing fasteners.
- Correctly sized fire rated glazing installed.

# Hardware 5.2.3.5.2(4)

- Incorrect hardware  
i.e.; deadbolt, hold  
open closers.
- Correct operation of  
doors
  - Swing freely
  - Self-Closing
  - Self-Latching



# Hinges, Continuous Hinges, Pivots

## 6.4.3.1



- Labeled or listed.
- Steel hinges and pivots.
- Ball Bearing hinges.
- Spring Hinges (must be labeled on fire doors)
- Door must fully close from an open position of 30 degrees with spring hinges.

# Hinges, Continuous Hinges, Pivots

## 6.4.3.2

- Hinge reinforcements secured to frame
- No rust on hinges/screws, reinforcements
- Steel shims
- No missing/loose screws
- Use of steel hinge fillers (at hardware retrofits)



# Locksets / Latchsets 6.4.4



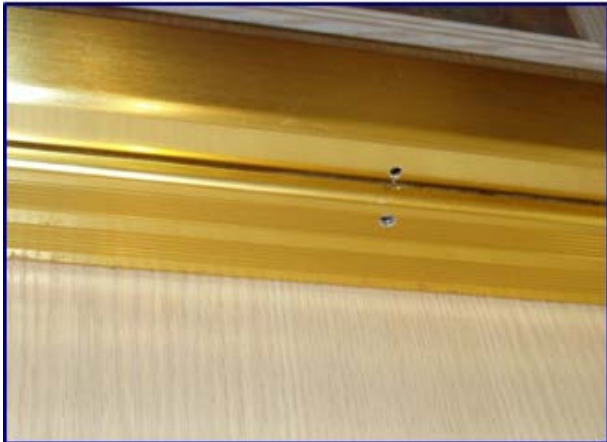
- Listed or labeled
- Correctly secured with no broken parts or missing fasteners
- Latch bolt projects the required distance into the strike – 1/2-inch minimum or as required by the manufacturer

# Fire Exit Hardware 6.4.4.2.1

- Must bear fire exit hardware label
- Latch bolt projects the required distance into the strike
  - 1/2-inch minimum or as required by the manufacturer
- No missing parts
  - lever, knob
  - end caps
  - Strikes
  - bottom rods
  - fire pin



# Fire Exit Hardware 6.4.4.2.3



- Strikes properly attached
  - No missing fasteners
- Confirm that the fire exit hardware devices are attached to door with through bolts
- No type of mechanical dogging of devices exists

# Door Closers

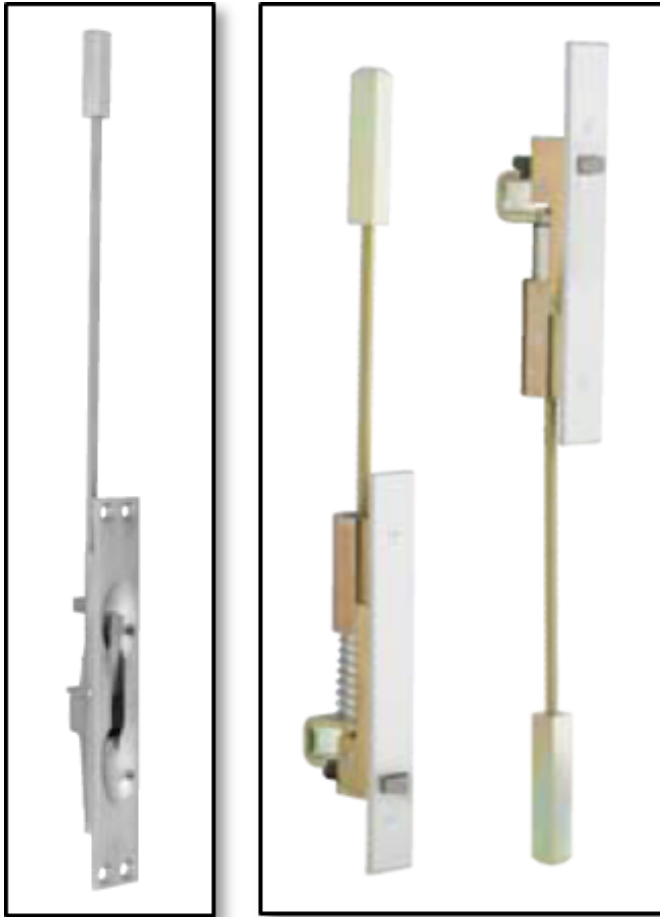
## 6.4.1

- Fire labeled or listed
- Closer arms intact
- Securely attached
- Non hold-open type
- No missing screws
- Functions as intended
- Brackets provided where required
- Door closes from the full open position



# Flush Bolts

## 6.4.4.5.1 \*



- Manual flush bolts – limited application on fire doors
- Automatic flush bolts – require door coordinator
- Be aware of egress requirements

## Door Coordinators 5.2.3.5.2(8)

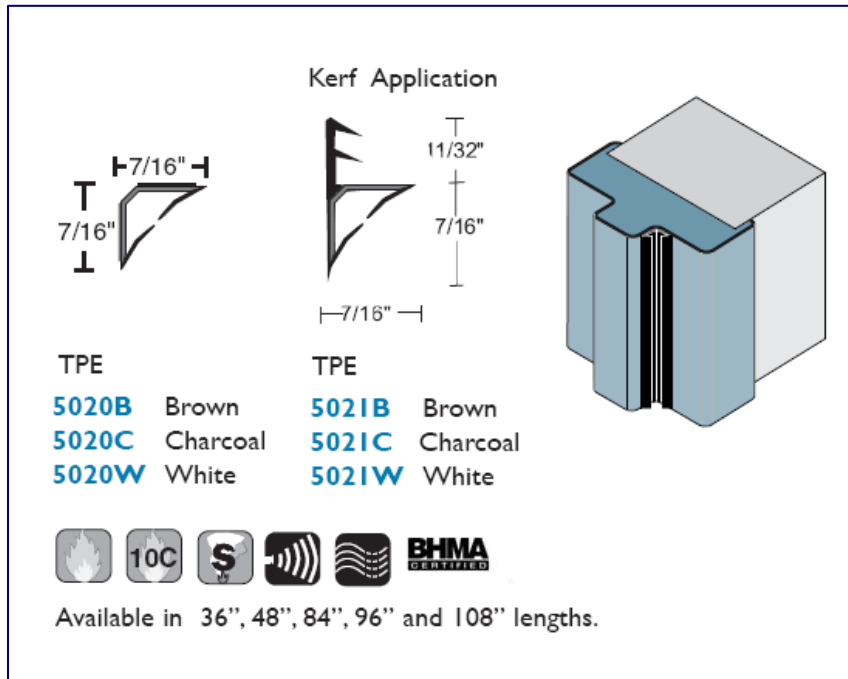
- Used for pairs with an active and inactive leaf
  - Ensures the inactive leaf closes first



# Gasketing

## 6.4.8

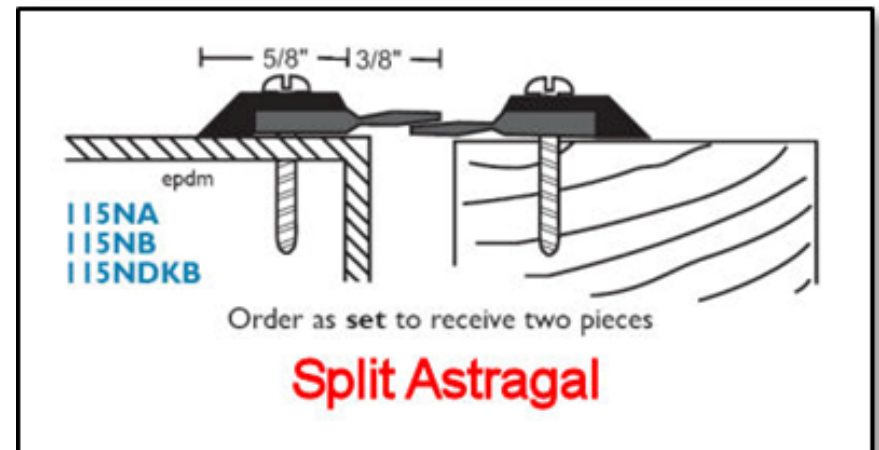
- Fire rated or listed
- Continuous around perimeter of door; no breaks are allowed
- Gasket material must be in “full contact” with door frame



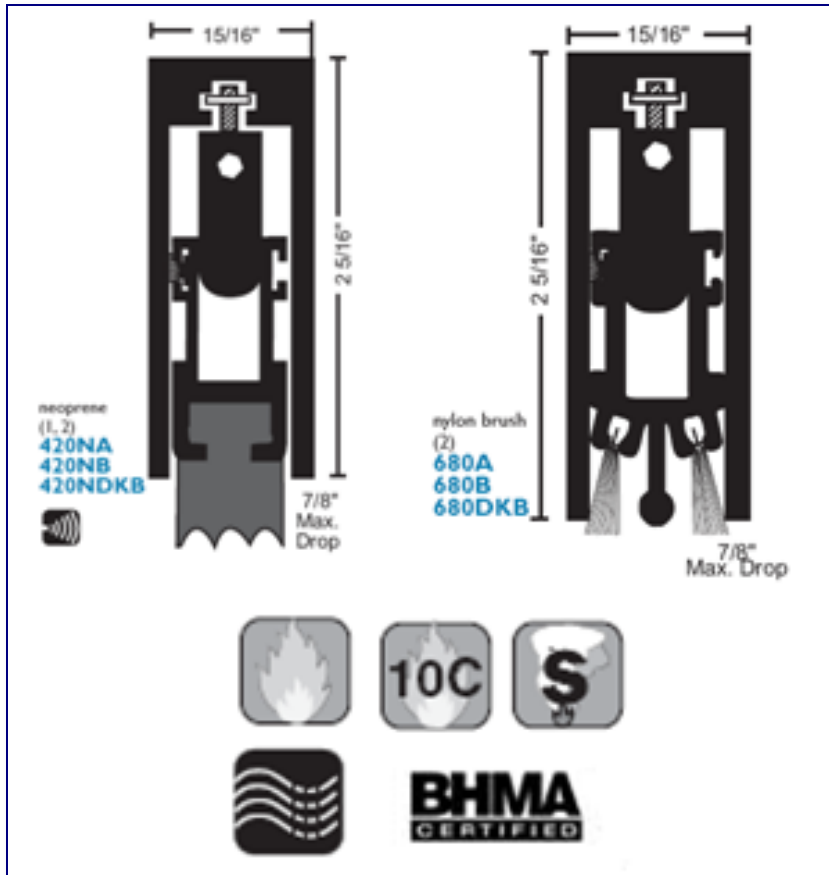
# Astragals

## 6.4.7\*

- Must extend 3/4-inch over door edge
- Astragals shall be full height of doors and securely fastened to door



# Door Bottoms 5.2.3.5.2(12)



- Fire rated or listed
- Must retract fully and may not rub on floor during opening cycle
- Cannot be used to close a gap greater than 3/4-inch
- Securely attached to door with no missing fasteners

# Protection Plates 6.4.5

- Size of plates shall not exceed the sizes in the manufacturers' listings
  - The listing of the door
  - The listing of the protection plate
- Plates installed higher than 16 inches from the bottom of the door are required to be labeled



# Protection Plates 6.4.5.1



- Confirm that no plates are mounted on doors more than 48 inches above finished floor
- All screws that are drilled for fastening of protection plate must be inserted and properly set
  - No broken screw heads

# Signage 4.1.4.1

- Signage attached to doors with adhesive only
  - No screws or nails allowed
- Signage must not exceed 5% of door surface area
- Signage is not permitted to be attached to glass or glazing



# Blockage 5.2.3.5.2(10)



- Area around door must remain clear of any materials

# Door Wedges 5.2.3.5.2(10)

- Manual blocking open of doors is not permitted
  - Kick-down door holders
  - Friction door holders
  - Overhead door holders
  - Hold open arms on door closers
  - Furniture, trash cans, fire extinguishers, etc...



# Mechanical Hold-Opens 5.2.3.5.2(10)



- Not allowed
  - Kick-down stops
  - Stops with hooks
  - Closers with hold-open arms

# Decorations 5.2.3.5.2(13)

- Decorations can cause premature door failure due to additional fuel added to fire loading of door



# Mail Bins or Boxes on Doors

## 5.2.3.5.2(13)



- Fasteners penetrate door skin and product adds fuel to fire door assembly.

# Strikes 6.4.4.8

- Strike pocket in frame filled with miscellaneous materials preventing latch bolt projection



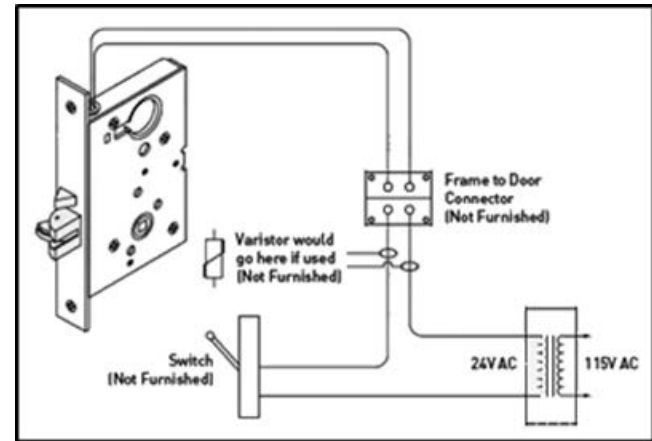
# Electrified Hardware 6.4.4.11



- Must activate, as required, upon activation of the following devices:
  - Card Readers
  - Key Switches
  - Push Buttons
  - Fire Alarm Activation

# Electrified Locks 6.4.4.11

- Locks or unlocks upon request of activation
- Verify whether fail safe or fail secure is required/installed
  - Fail safe operation requires power to remain locked condition
  - Fail secure operation requires power to remain unlocked condition



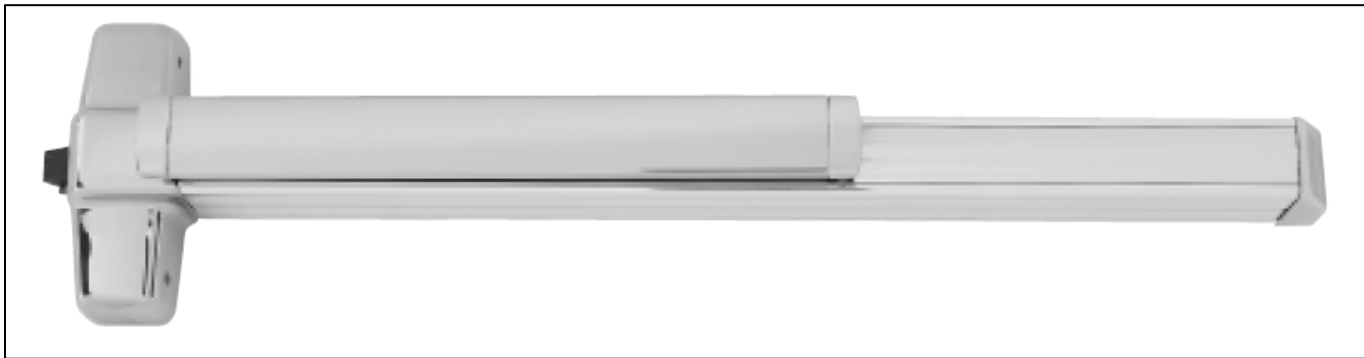
# Electric Strikes 6.4.4.11



- Placement in frame
- Verify gap between electric strike and frame is tight and that screws holding strike, in place are tight
- Verify strike is fail secure on fire doors

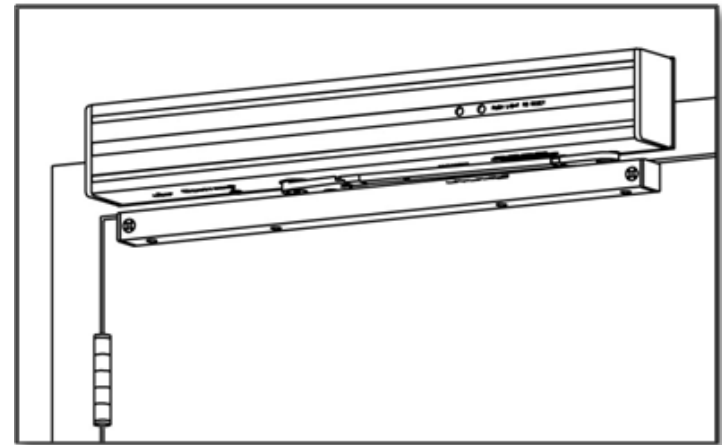
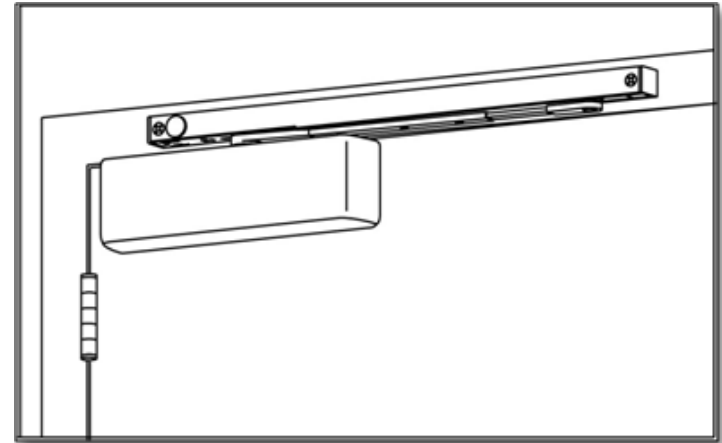
# Electrified Fire Exit Hardware 6.4.4.3.3

- Electric Latch Retraction
  - Latch bolt must project and engage strike(s) under alarm conditions
- Electrified Trim
  - Electric lock (fail safe) and electric unlock (fail secure)
- Delayed Egress
  - Sound local alarm and allows door to open after 15 seconds
  - Allows immediate free egress under alarm conditions



# Automatic Closing Doors 6.1.3.3

- Doors close and latch up on fire alarm
- Single point combination units
- Multi-point hold-opens
- Magnetic holders



# Magnetic Hold Open Devices 6.1.3.3



- Properly thru-bolted to doors
- Correct armature installed
- Chains and other "homemade" armatures not permitted on fire doors

# Automatic Operators 6.1.3.3

- Auto opening and closing function, operates properly under request
- Auto operators deactivated upon actuation of fire alarm



## **Repairs 5.5.5(1)**

- (1) The fire door, frame, or any part of its appurtenances shall be repaired with parts obtained from the door's manufacturer.
- (2) The door shall be tested to ensure emergency operation and closing upon completion of the repairs.

# Common Corrective Actions 5.5.7

- Tightening fasteners
- Replacing fasteners
  - Builders hardware requires special fasteners
- Filling unused fastener holes in doors and frames
  - Steel/stainless steel screws, joint compound, wooden dowels
  - New caulking-type products (designed for fire doors)
- Shimming hinges to adjust door clearances
  - Steel shim material
- Replacing small parts
  - Strike plates, end caps, covers, etc.

# Common Corrective Actions

## 5.5.2, 5.5.5

- Replacing worn out hardware
  - Hinges, locks/latches, door closers, gasketing, etc.
  
- Replacing broken glazing materials
  - Clear wired glass, etc.

**Questions?**



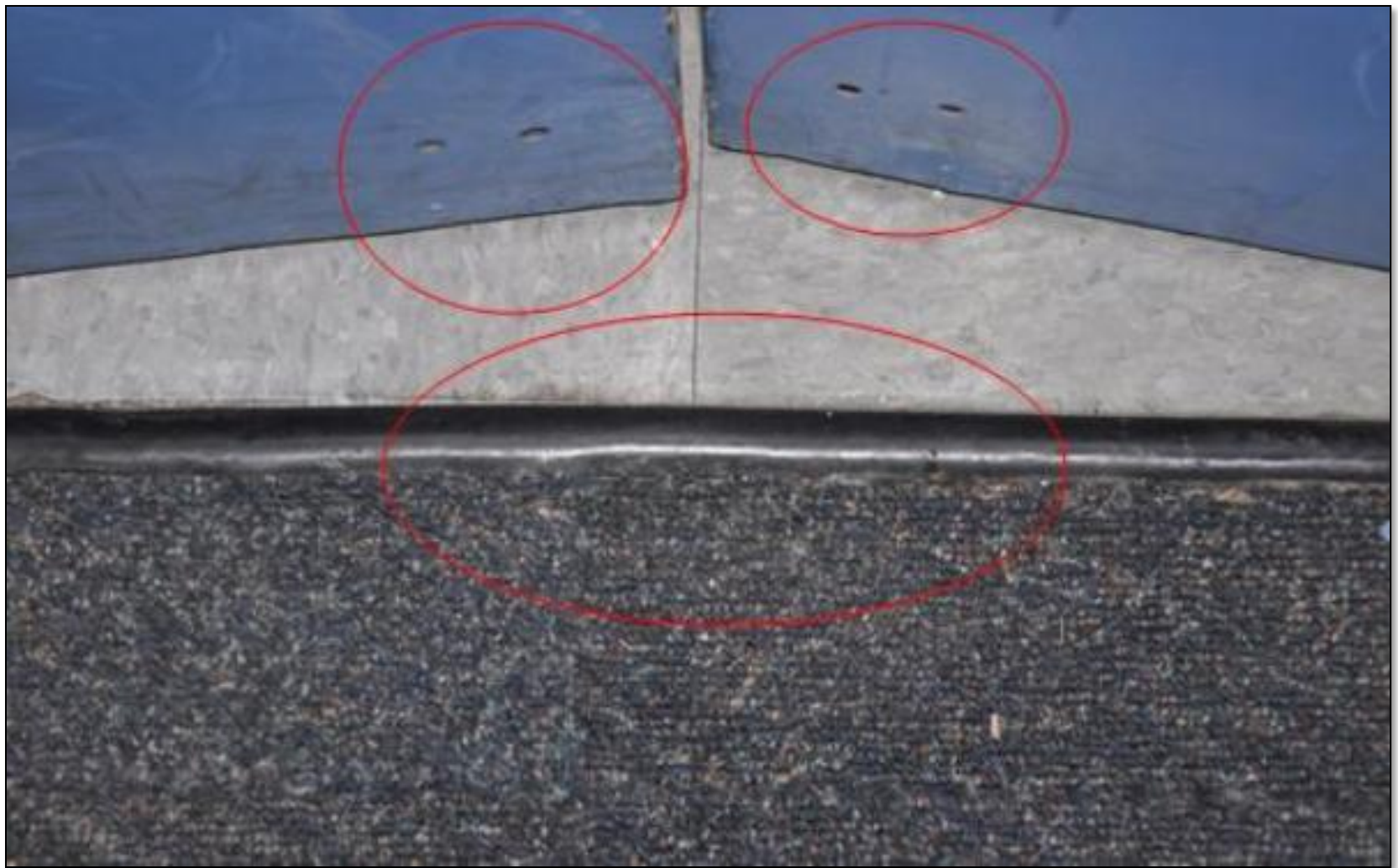


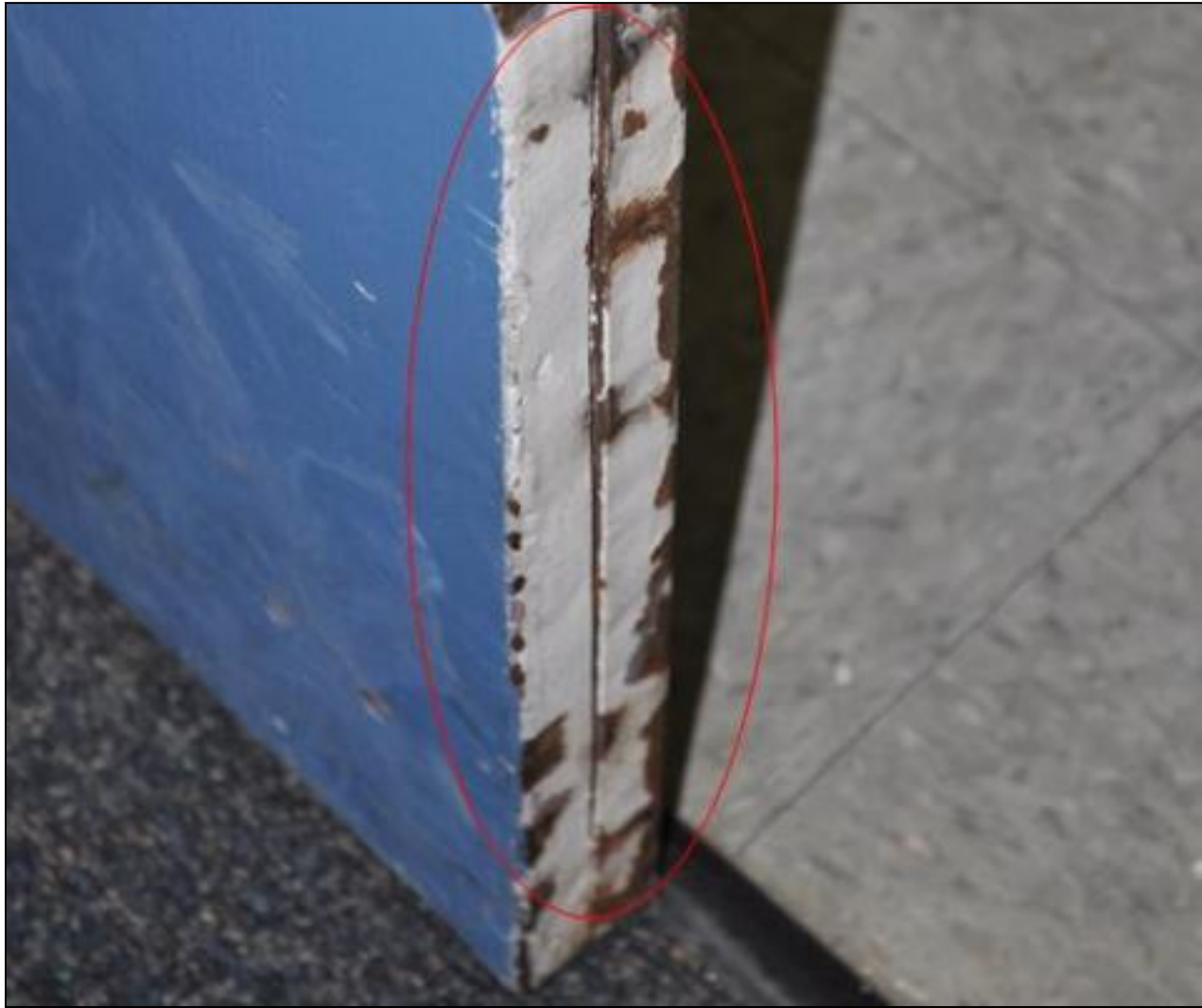






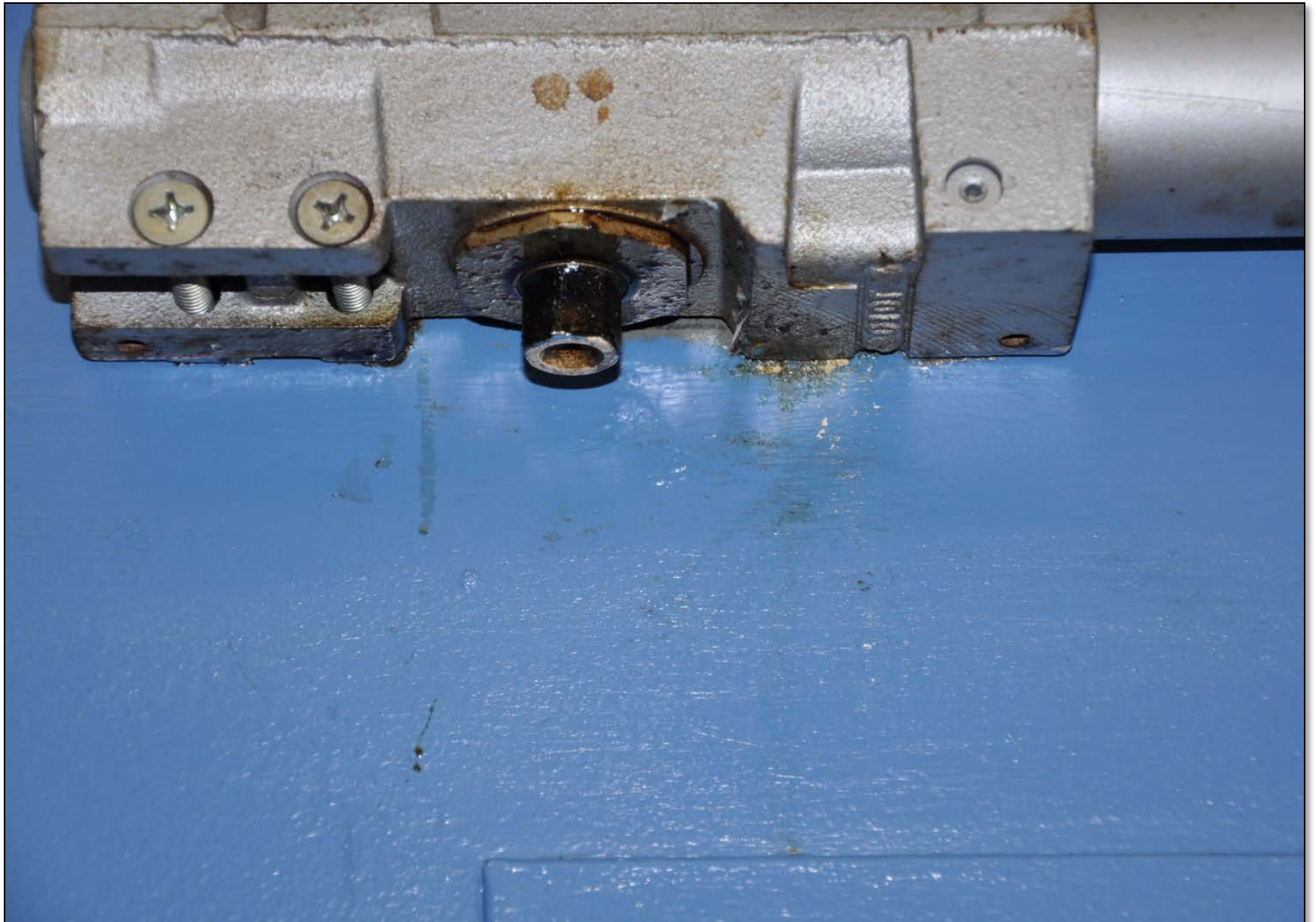












**Questions?**

# Review...

## ➤ Part 1

- Introduced you to Swinging Fire Doors with Builders Hardware
- Discussed installation practices that affect swinging fire door assemblies

## ➤ Part 2

- Reviewed NFPA 80's inspection requirements for fire door assemblies
- Discussed the roles and responsibilities of Owners, AHJs, and FDAIs
- Identified common deficiencies found on swinging fire door assemblies

# Review...

## ➤ Part 3

- Discussed how to locate, identify, and catalog swinging fire door assemblies in your buildings and facilities
- Explained to find a credentialed Fire Door Assembly Inspector (FDAI)
- Determined when corrective actions are needed to maintain swinging fire door assemblies

## ➤ Part 4

- Outlined how to perform preliminary safety inspections of fire door assemblies
- Identified common corrective actions needed for swinging fire door assemblies
- Discussed how to perform routine maintenance on fire door assemblies

# Facility's Relationships

## ➤ With AHJ

- What is allowed for modifications?
- What type of fire labels are allowed?
- What condition of label is acceptable?

## ➤ With FDAI

- 3<sup>rd</sup>-party inspections
- FDAI-credentialed personnel (self-inspections)

## ➤ With Distributor/Vendor

- Confirm factory authorization of field modification(s) to doors and frames to accept new hardware applications.

# Swinging Fire Door Assemblies

## 2 Basic Rules

### ➤ Rule #1

- All fire door assemblies shall consist of:
  - Labeled door frames
  - Labeled fire doors
  - Labeled or listed hardware & glazing

### ➤ Rule #2

- Any field modification to a labeled product must be approved by the testing laboratory that labeled or listed the product or component

# For More Information...

- Contact your local Fire Door Assembly Inspector (FDAI)
- Study NFPA 80's inspection requirements
- Study the Door Security & Safety Foundation's publications:
  - Owner's Guide
  - AHJ's Guide
  - Reference Guide
- Join the online discussion group on LinkedIn:
  - The Door and Hardware Institute's Fire Door Assembly Inspection Group

**Thank You  
for Your Attention!**