Victory Fire Door Inspections

Tame the Flame
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- Over 30 years in door and hardware industry
- DHI instructor and Education Advocate
- Certified Fire Door Inspector
Fire Doors

Purpose

- To compartmentalize a building
- Deter the spread of smoke and flames
- Fire door assemblies are of no value unless they are properly maintained and are closed and latched in the event of a fire
PHOTOS

![Burnt door and surrounding walls after a fire incident.](image)
Most state fire codes currently require fire door assemblies to be maintained in accordance with NFPA 80.

Since 2007, NFPA 80 has required fire door assembly inspections as part of Chapter 5 – Care and Maintenance.

IFC 703.2 Requires maintenance in accordance with NFPA 80.

NFPA 101 – 8.3.3.13 Requires inspection and testing in accordance with NFPA 80.
Fire Doors
Code Requirements

- 5.2.3.1 states testing shall be performed by a qualified person with knowledge and understanding.
- 5.2.3.2 Requires a visual and operational test.
- 5.2.3.3 Acceptance test shall include closing the door by all means of activation.
- 5.2.3.4 A record of the inspection and testing is required.
All fire door assemblies shall consist of:

- Labeled Door Frames
- Labeled Fire Doors
- Labeled / Listed Hardware & Glazing
Fire Doors
Basic Rules

Rule # 2

- Any field modification to a labeled product must be approved by the testing laboratory that listed/ labeled the product.
Fire Doors Basics

- Swing Freely
- Self-Closing
- Self-Latching

✓ 6.1.3 All swinging fire doors shall be closed and latched at the time of fire
Frame and Door Labels

Labels
- Fire rated labels properly attached and legible
Frame and Door Labels Tips

- Ensure label rating is sufficient for wall rating
- Door Label can be $\frac{3}{4}$ rating of wall rating
- Cover label when painting frame and door
- Labels are door specific and shall not be removed and placed on another door
Frame and Door Conditions

- Frame jamb extends to floor
- Fasteners installed in mitres of knock down frames.
- Free from rust thru area
- No open holes or breaks in the frame face or door
- No unused fastener holes
Frame and Door Conditions
Frame and Door Conditions

- No holes, cracks, or splits in faces, stiles, and rails of doors
- 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
Frame and Door Conditions
Frame and Door Tips

- Fill holes with like material or better, \( \frac{3}{4} \) " maximum
- Pre-drill new holes in wood doors
- Maximum 1” hole can be drilled in doors, except for cylinder
- Mitre tabs or screws are often missed during construction
Frame and Door Tips
Glazing and Lite Kits

- Glazing beads securely fastened
- Labeled light kits are securely fastened
- No cracks or chips in glass
- No missing fasteners
- No signage, decals, tape, etc attached to glass
Glazing and Lite Kits

- Correct rating for assembly
- Correct sized glass
  - 100 square inches for 60 minute and greater doors
  - 1296 square inches for 45 minute and less doors

![Door Label Diagram]

- D - indicates the glazing shall be used in a door assembly and the glazing meets the fire resistance requirements of the test standard
- NH - indicates the glazing does not meet the hose stream requirements of the test (allowed for 20 minute rating only)
- NT - indicates glazing does not meet temperature rise criteria
- XX - symbolizes fire protection rating period, in minutes (minimum 20 minutes)
Glazing and Lite Kits
Tips

- Cover label on Lite Kit prior to painting
- Wire glass is acceptable for rated glass
- Safety fire rated glass required in locations below 48” on the door.
- Where the glass is less than 48” above the finished floor on a side lite panel, safety fire rated glass is required
Door Clearances

- **At Jambs, Head, & Meeting Stiles**
  - Hollow Metal Doors: 1/8” +/- 1/16”
  - Wood Doors: 1/8”

- **Bottom of Door to top of Finished Floor**
  - 3/4”
Door Clearances
Correct operation of doors

- Swing freely
- Self-Closing
- Self-Latching
Hardware
Hinges, Continuous Hinges, Pivots

- Steel ball-bearing hinges
- Hinge reinforcements secured to frame.
- No rust on hinge, screws or reinforcements.
- No missing, loose or broken screws
- Ensure continuous hinges are UL rated
- Hinge pins properly seated
Hardware
Hinges, Continuous Hinges, Pivots
Hardware
Hinges, Continuous Hinges, Pivots

TIPS

• Magnet used to determine hinge material
• Correct screw size is very important
• Screw hole too big – options to correct
• Add continuous hinge to replace butt hinge
• Replace hinges can often correct gap issues
Hardware
Door Closers

- Fire labeled or listed
- Securely attached – thru bolted on wood doors
- No manual hold open
- Door closes from the full open position (90 degree)
Hardware
Door Closers

- Arms properly attached
- No missing screws
- Closer not leaking fluid

Tips
- Replace closers with same model or same footprint
- Adjust closer speed periodically
Hardware
Door Closers
Hardware

Lockset

- Listed or labeled
- Correctly secured with no broken parts or missing fasteners.
- Latch projects the required distance into the strike, ½” minimum or as required by the manufacturer
Hardware

Lockset

- Replace hardware with same model or like footprint
- Latch is usually only indication of UL rating
- Order doors prepped for hardware
Hardware
Lockset
Hardware
Lockset
Hardware
Fire Exit Hardware

- Fire exit hardware label
- Latch projects the required distance into the strike, ½” minimum or as required by the manufacturer
- All parts must be installed including lever, knob, end caps, strikes, bottom rods, fire pin
- Panic hardware is not the same as Fire exit hardware
Hardware
Fire Exit Hardware

- Strikes properly attached, no missing fasteners
- Confirm that the exit devices are attached to door with thru bolts
- No dogging of devices exists
- Less Bottom Rod (LBR) requires fire pin
Hardware
Fire Exit Hardware
Hardware

Fire Exit Hardware
Hardware
Flush Bolts

- Manual flush bolts have limited application on fire doors
- Automatic flush bolts require coordinator and are limited in application as well
- Be aware of egress requirements (NFPA 101)
Hardware

Coordinators

- Used for pairs with an active and inactive leaf
- To ensure that the inactive leaf closes first
- Required when automatic flush bolts are used
- UL labeled or listed
Hardware Coordinators
Hardware
Astragals

- Must extend $\frac{3}{4}$" over door edge
- Astragals shall be full height of doors and securely fastened to door.
- Cannot be used to close excessive gaps
Hardware
Door Bottoms

- Fire rated or listed
- Must retract fully and may not rub on floor during opening cycle.
- Cannot be used to close a gap > $\frac{3}{4}$”
- Securely attached to door with no missing fasteners.
Hardware
Protection Plates

- Plates over 16” in height on fire doors, must be labeled unless allowed by published listings
- 16” height limit does not apply in Healthcare
- Maximum mounting height is 48” above finished floor
Hardware Protection Plates

- Screws that are drilled for fastening of protection plate must be inserted and properly set
- Sheet metal fasteners must be used to attach plates
- No broken screw heads
- Adhesive application allowed if approved by manufacturer
Hardware Protection Plates
Hardware
Gasket

- Fire rated or listed
- Continuous around perimeter of door
- No breaks are allowed
- Gasket material must be in “full contact” with door frame
- All fasteners must be installed
Hardware

Gasket

- NFPA 80 does not specifically address gasket
- Gasket cannot be used to close excessive gaps
- Gasket only required under this condition
  - Door label is “S” endorsed and
  - Wall rating is “Smoke” or “Fire & Smoke” rated
Signage

- Attached with adhesive only
- No nails, screws, tacks, push pins, etc can penetrate door
- Signage must not exceed 5% of door surface area.
  - 3’0’-7’0 = 3024”
  - 5% = 151.2”
  - 10”x15” sign
- Glazing diminishes surface area
- Each side can have 5%
Signage

- Consulting Room 1
- Dr. Chahal

- Due to the rising cost of ammunition, do not expect a warning shot!

- Doorbell is non-existent. Please yell "Ding Dong" loudly and we will answer.
Blockage

- Area around door must remain clear of any materials
- What to do if door is no longer needed
- Stairwells cannot be used for storage
Blockage
Blockage
Mechanical Hold Open and Wedges

- **PROHIBITED**
  - Door wedges
  - Kick Down Stops
  - Stops with Hooks
  - Closers with Hold-Open Arms
Mechanical Hold Open and Wedges
Mechanical Hold Open and Wedges
Decorations can cause premature door failure due to additional fuel added to fire loading of door.
Mail Bins or Boxes on Doors

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

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

- UL Labeled for Fire
- Electric Strikes must be fail secure
- Magnetic Locks do not provide positive latching
- Best options are electrified mortise or cylindrical levers or electric latch retraction fire exit hardware
  - Not a good option for retrofit
Electrified Hardware

- Verify gap between electric strike and frame is tight and that screws holding strike, in place are tight.
Magnetic Hold Open Devices

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

- 5.5.1 Necessary repairs must be corrected without delay
- 5.1.5 Removal of Door requires opening to be filled to maintain wall rating
- 5.2.2.5 Upon completion of maintenance work, fire door assemblies shall be inspected and tested
- 5.5.7 Repair of holes in doors and frames – use like material
- 6.4.3.4 Steel shims for shimming to close excessive gaps
Repairs

- Damages to Doors and Frames
- Holes in Doors and Frames
- Hinges
- Door Closers
- Fire Exit Hardware
- Locksets
- Electrified Hardware
PHOTOS

[Image of a door with the text "FIRE DOOR KEEP CLOSED" and a "FAIL" sticker.

[Image of a door with the text "CAUTION DOOR OPENS".

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QUESTIONS?
For your attendance and attention