Presented By...
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Today’s Program...
- Review NFPA 80’s safety inspection and testing requirements for swinging doors.
- Discuss work that is or is not permitted on fire-rated swinging doors.
- Look at some common types of deficiencies found on swinging fire door assemblies.
Principles of Door Safety Inspections

1. Swinging door assemblies, regardless of fire-rating, were installed in accordance with the codes that were in effect at the time of construction.

2. Fire-rated door assemblies provide the appropriate level of fire protection ratings for the openings in which they serve.

3. Door assemblies are required to be maintained in working condition throughout the life of their installation.

4. Capabilities and limitations of today’s door assembly components should not be ascribed to older existing components.

5. AHJs and code officials determine when something is acceptable under the codes.

Who Can Perform These Inspections?

- Inspecting swinging fire doors with builders hardware requires a great deal of knowledge.
  - Many variations of door assemblies and their components.
  - Must understand how to apply code requirements to door assemblies.
  - Must understand complex door functions:
    - Delayed egress
    - Access-controlled egress doors
    - Electrically controlled egress doors

✓ Installation experience helps, but it is NOT sufficient for door safety inspectors.

NFPA’s "Qualified Person" Standard

- AHJs need to have confidence in the expertise and experience of the person(s) performing door safety inspections:
  - Professional certification:
    - Door Safety Inspector (DSI)
    - Fire Door Assembly Inspector (FDAI)
    - Certified Fire Door Assembly Inspector (CFDI)
    - Others?
NFPA 80, Chapter 6

- **Swinging Doors with Builders Hardware**
  - Most common type of swinging fire door assemblies
  - Subject to annual door safety inspections of Chapter 5, Inspection, Testing, and Maintenance.

  When looking up door requirements in NFPA 80, start with Chapter 6 and Chapter 4 General Requirements; Refer to Chapter 5 for Maintenance, Inspection, and Testing.

How Swinging Doors are Made

- Fire-rated and egress doors are component-based systems.
- Comprised of components from multiple manufacturers.
- On fire-rated doors, the components can be labeled by different testing laboratories:
  - Underwriters Laboratories (UL)
  - Intertek/Warnock Hersey (WHI)
  - FM Global (FM)

How Swinging Doors are Made

- Installers assemble the components on site.
- Frame installation is the single most important step in the process:
  - Affects operational clearances
  - Can affect opening and closing of doors
**How Swinging Doors are Made**

- Simple door applications
  - Mechanical hardware operation

- Complex door applications
  - Mechanical hardware operation
  - Electrified hardware functions (e.g., delayed egress, electrified locking, and automated door operation)

**Codes require specific door operation and functions, under certain conditions, for egress and fire-rated doors.**

**How Swinging Doors are Made**

- Door and frame shop drawings
- Detailed door hardware schedules
- Catalog cut sheets
- Installation and preparation templates
- Product warranties

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**How Swinging Doors are Made**

- Unit-based swinging door assemblies
  - Integrated swinging door systems (e.g., Total Door Systems, Inc.)
    - Label on the door covers the door leaf and most (if not all) of the door hardware components
    - Proprietary components must be replaced with parts from the manufacturer

**How Long Should Door Assemblies Last?**

- Door assemblies are comprised of mechanical components that are subject to the rigors of wear and tear.

- Factors that shorten service lives of swinging doors:
  - Poor installation techniques and practices
  - Improper use of individual components
  - Excessive usage and abusive use
  - Accidental damage
  - Incidental acts of vandalism
  - Poor maintenance practices
Door Maintenance Priority Levels

- Assigning priority levels to each type of service and repair work helps you decide how to budget your resources.
- Deficiencies on fire-rated and non-fire rated door assemblies should be treated with the same level of urgency and concern.
- To the extent possible, all problems that affect the operation of doors should be corrected immediately when discovered.

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Door Maintenance Priority Levels

- Replacing major components on swinging doors is permitted.
- Reusing existing door assembly components is permitted, provided they are in working condition and used in accordance with their published listings.
Door Assembly Components

- Rule #1 — Selecting door assembly components that are appropriate to the type, usage, and function of a door is essential for the service life of the assembly.
  - Form
  - Function
  - Features

Which Components Have Longer Service Lives?

- Estimating the service life of any door assembly is, at best, subjective due to specific conditions surrounding a particular door.
- Improper component selection shortens service life of door assemblies.
- Even well made components fail when used in the wrong applications.
- Follow Rule #1.

What Does the Label Mean?

- Labels provide visible proof that the components are the same as those that were tested by independent laboratories for use on fire-rated doors.
- Labels are applied at the factories and/or in licensed-authorized shops, before the door assembly components are shipped.

Fire-rating of door assemblies are only valid when all required components are installed and the assemblies function correctly.

What Does the Label Mean?

- Whenever you see a label on a door, STOP! Read the information on the label.
  - Evaluate the condition and operation of the assembly according to the label.
NFPA 80’s Inspection Points

Section 5.2.4.2

1. No open holes or breaks exist in the surfaces of either the door or frame.

Note: The codes do not require thresholds for any fire rated door assembly. When thresholds are used, they must be aligned with the door and frame and anchored securely.

NFPA 80’s Inspection Points

2. Glazing, vision light frames, and glazing beads are intact and securely in place, if so equipped.

NFPA 80’s Inspection Points

3. The door, frame, hinges, hardware, and non-combustible threshold are secured, aligned, and in working condition with no visible signs of damage.

Note: The codes do not require thresholds for any fire rated door assembly. When thresholds are used, they must be aligned with the door and frame and anchored securely.

NFPA 80’s Inspection Points

4. No parts are broken or missing.

No Missing Fasteners!

Top strike for Fire Exit Hardware

Missing Cover on Door Closer

Damaged Strike Plate for Self-Latching Flush Bolt
NFPA 80's Inspection Points

5. Door clearances do not exceed clearances listed on 4.8.4 and 6.3.1.7.

NFPA 80, 6.3.1.7 Clearances—6.3.1.7.1
• Vertical edges of doors
• Meeting edges of paired doors
• Top edge of doors

NFPA 80, 4.8.4 Clearances
4.8.4.1 "Clearance under the bottom of a door shall be a maximum of 3/4-in."
4.8.4.3 "...shall not exceed 3/8-in. where the door bottom is more than 38 inches above finished floor.

Where are Bottoms of Swinging Doors Higher than 38 inches?

- Interior walls where swinging doors are used to access mechanical/utility spaces.
  - Doors might be less than full height or width.
- Clearance under swinging fire doors is limited to 3/8-inch, where the bottom of the door is more than 38 inches above the finished floor.

Sill: A structural component of the building that forms the bottom part of an opening over which a door closes. (3.3.113, NFPA 80 2016)
NFPA 80’s Inspection Points

6. The self-closing device is operational, that is, the active door completely closes when operated from the full 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.

Additional inspection points:
- Labels must be present and legible.
- Signage cannot exceed 5% of the surface of the door leaf.

Unauthorized field modification to the door frame that invalidates the fire rating of the entire assembly.
There’s More to Talk About…

- We’re almost out of time, and there is a lot more to talk about regarding inspecting swinging fire doors.

Got Questions?

For more information, contact:

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