AIA Rochester

A001

Course Title

ROC2017-Inspecting and Maintaining Swinging Egress and Fire Doors

Speakers

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CONTINUING EDUCATION AIA

Course Description

NFPA 101, Life Safety Code (2012 edition) requires certain swinging doors to be annually inspected and tested to ensure they function as intended by the Code. NFPA 101 also requires swinging fire doors to be annually inspected and tested in accordance with NFPA 80, *Standard for Fire Doors and Other Opening Protectives* (2010 edition), and NFPA 105, *Standard for Smoke Door Assemblies and Other Protectives* (2010 edition). Facilities management personnel can be trained to perform these safety inspections in-house, as well as the routine and preventative maintenance work needed to keep doors in working condition. This education session explains the safety inspection and testing requirements of NFPA 101 and NFPA 80, in conjunction with door usage types and door maintenance priority levels.

Learning Objectives

At the end of the this course, participants will be able to:

1. Explain NFPA 80's safety inspection and testing requirements for swinging doors.

2. Describe the types of work that can or cannot be performed on fire-rated swinging doors.

3. Identify common types of deficiencies found on swinging fire door assemblies.

4. Look-up door inspection and testing requirements in NFPA 101 and NFPA 80

Current State

- Tuesday May, 3, 2016 CMS issued the final rule adopting the 2012 Life Safety Code®. The rule is effective July 5, 2016.
- This rule also adopts most of NFPA 99, 2012 edition
- Chapters 7,8,12,13 are excluded from the adoption by CMS
- Joint Commission EC.02.03.05 EP 25 :
- NFPA 80-2010: Section 5.2-Requires to be inspected and tested not less than annually. As a minimum there are 11 items shall be verified
- “FIRE DOOR INSPECTION HYSTERIA”

CMS Memorandum

July 28, 2017

- Fire door assemblies, in healthcare occupancies, are required to annually inspected and tested in accordance with NFPA 80, *Standard for Fire Doors and Other Opening Protectives,* 2010 edition.
  - Non-rated doors are NOT subject to annual inspection and testing of NFPA 80 and NFPA 105.
    - However, these doors SHOULD be routinely inspected as part of the facility's maintenance program.

CMS Memorandum

July 28, 2017

- Full compliance with NFPA 80’s annual inspection and testing by January 1, 2018.

- Where NFPA 101 annual inspections are required, deficiencies should be cited under K211—Means if Egress—General.

Joint Commission's Changes…

- Doors that are no longer required to be fire rated.
  - Ignore the labels on the door frames and doors.
  - Remove "fire door hardware" from door leaves.
    - Converts doors to non-fire rated assemblies.
    - Labels are only valid when assemblies are complete.
  - These doors are not subject to CMS/JC annual inspection.

CAUTION: The phrase "…fire door hardware" means latching hardware. Many doors are required to latch for security reasons; removing the latching devices might not be feasible. It MIGHT mean that these doors ARE subject to inspection when they latch, even though they are no longer REQUIRED to be fire rated. More clarification from CMS/JC is needed to sort this out. Until then, your best option might be to REMOVE the label on the door and mark your LSPs accordingly.

ASHE’s Resources

- www.ASHE.org/firedoors

DOOR INSPECTION RESOURCES

ASHE is developing resources to help members comply with new Conditions of Participation from the Centers for Medicare & Medicaid Services (CMS), which requires routine inspections of fire doors performed by "qualified persons." You don't need to have a special certification or third party training to be qualified, but ASHE is working to provide members with the information they need to create and implement door inspection and maintenance programs.

ARTICLES AND GUIDANCE

- 4 steps for creating a fire door maintenance program
- Focus on Compliance: Fire door maintenance resources
- What does qualified person mean?
- CMS Survey and Certification memo clarifying door requirements

ASHE PUBLICATION

Inspecting and Maintaining Swinging Doors: A How-To Guide to Egress and Fire Door Safety

This new book covers the ins and outs of creating a door inspection and maintenance program. The book covers door types, inspection and testing requirements, how to inspect doors, and recommended preventative maintenance practices. COMING SOON

ASHE EDUCATION PROGRAM

ASHE's newest hosted program brings training on site so that your team can understand door inspection and maintenance. Your health care organization or local ASHE-affiliated chapter can host this program in a hospital so that attendees get real-world experience inspecting doors and creating a program to help keep the facility in compliance. COMING SOON

Be notified when these resources are available!

NOTIFY ME WHEN NEW DOOR RESOURCES ARE AVAILABLE

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.

Principles of Door Safety Inspections

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?

- Formal certification is NOT required by NFPA 80, NFPA 101, or NFPA 105.
  - NFPA 80 (2010)
    - 5.2.3.1 Functional testing of fire door and window assemblies shall be performed by individuals with knowledge and understanding of the operating components of the type of door being subject to testing.
  - NFPA 80 (2013)
    - 5.2.3.1 Acceptance testing of fire door and window assemblies shall be performed by a ***qualified person*** with knowledge and understanding of the operating components of the type of door being subject to testing.

Who Can Perform These Inspections?

- Qualified Person
  - AHJs need to have confidence in the expertise and experience of the person(s) performing door safety inspections:
    - Certificate of Completion for door inspection training (for in-house personnel).
    - Professional certification (for third-party inspectors):
      - Door Safety Inspector (DSI)
      - Fire Door Assembly Inspector (FDAI)
      - Certified Fire Door Assembly Inspector (CFDI)
      - Others?
    - On-The-Job-Training

Who Can Perform These Inspections?

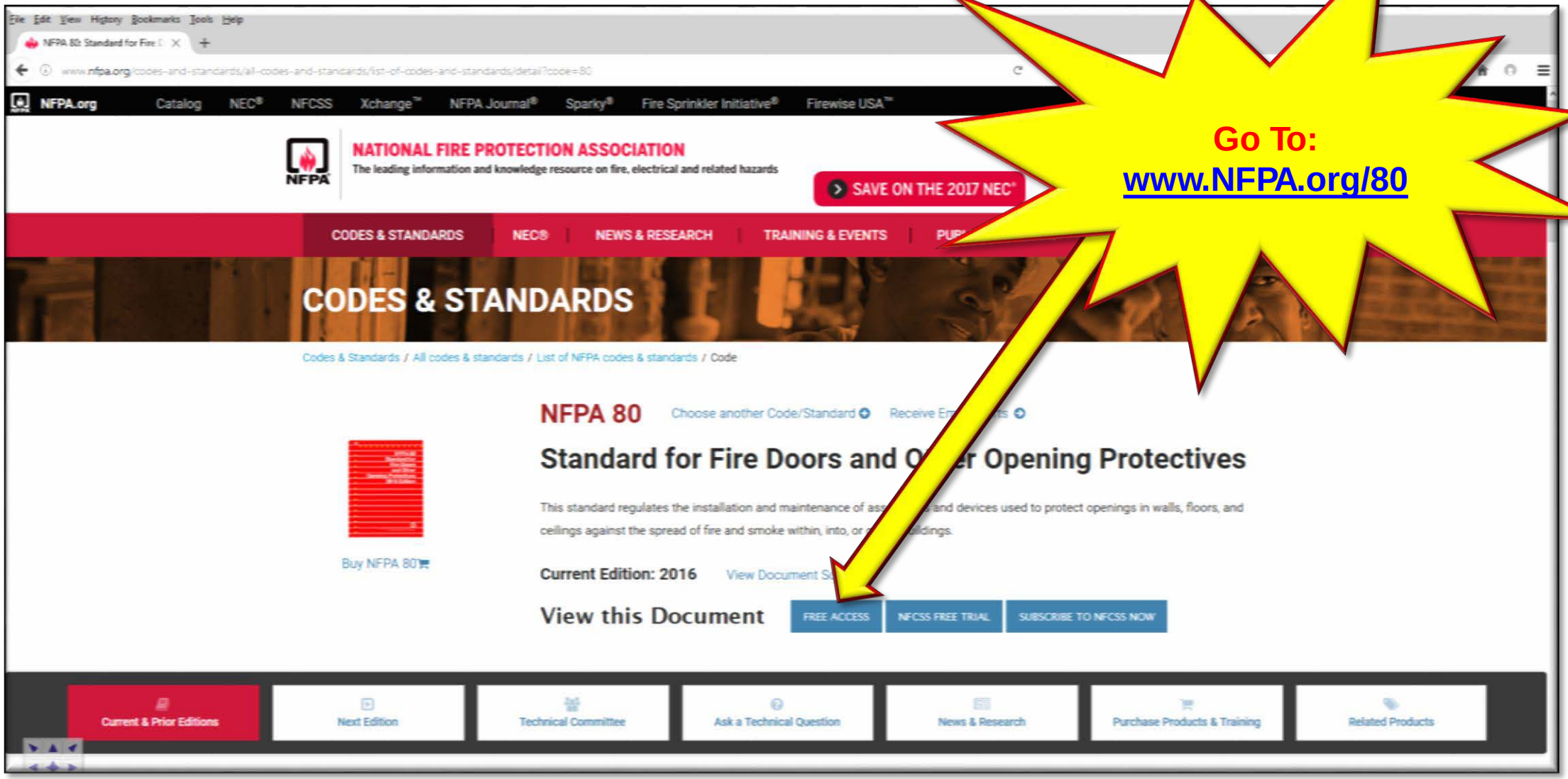
- Inspecting swinging fire doors with builders hardware requires a great deal of knowledge.
  - Many variations of door assemblies and their components.
  - Must understand know how to apply code requirements to door assemblies.
  - Must understand complicated door functions:
    - Delayed egress
    - Access-controlled egress doors
    - Electrically controlled egress doors
- Installation experience helps, but is NOT sufficient for door safety inspectors.

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.

FREE Online Access to NFPA 80



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

- 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 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, 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 2010 Edition

Section 5.2.4.2

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

NFPA 80's Inspection Points 2010 Edition

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

NFPA 80's Inspection Points 2010 Edition

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

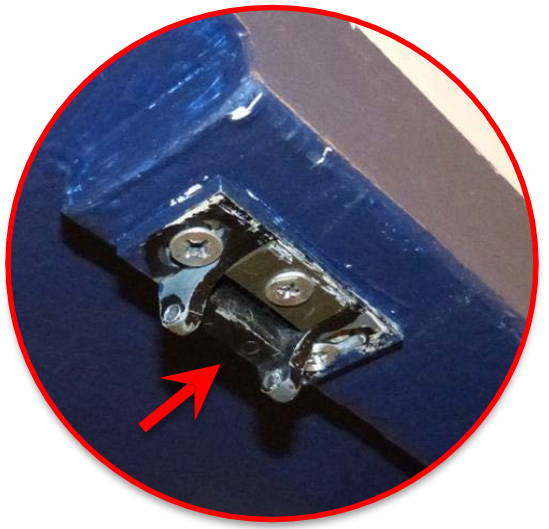
Note: The codes do not require thresholds for any fire rated door assembly. When thresholds are used, they must be aligned with the door and frame and anchored securely.

NFPA 80's Inspection Points 2010 Edition

4. No parts are broken or missing.

No Missing Fasteners!

Missing Cover on Door Closer



Top strike for
Fire Exit Hardware

Damaged Strike Plate
for Self-Latching Flush Bolt

NFPA 80's Inspection Points 2010 Edition

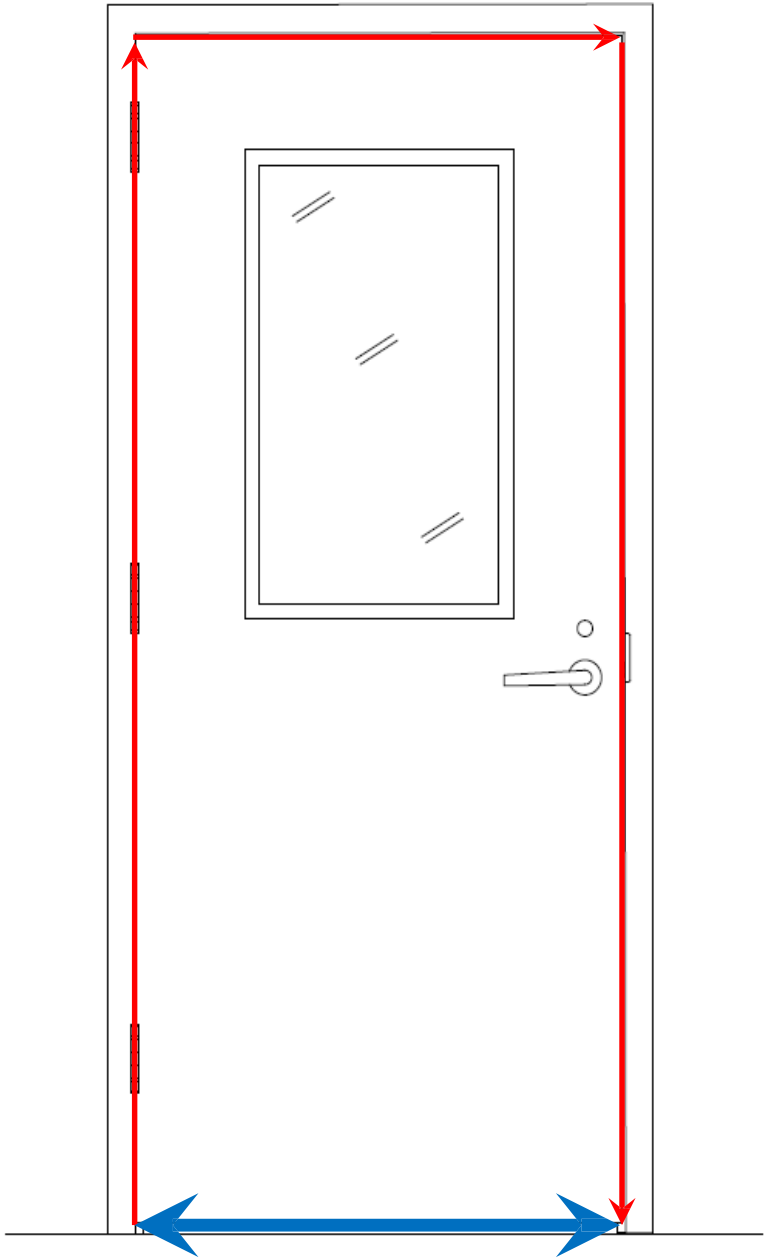
5. Door clearances do not exceed clearances listed on 4.8.4 and 6.3.1.7.

NFPA 80, 6.3.1.7 Clearances—6.3.1.7.1
"…measured on the PULL side of the assemblies."

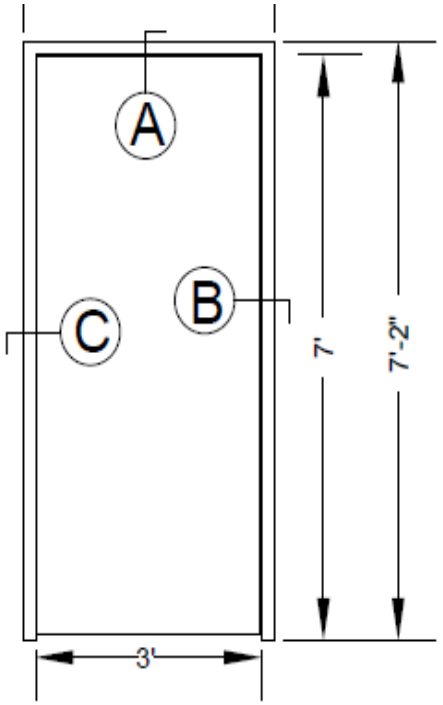
- Vertical edges of doors
- Meeting edges of paired doors
- Top edge of doors

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.

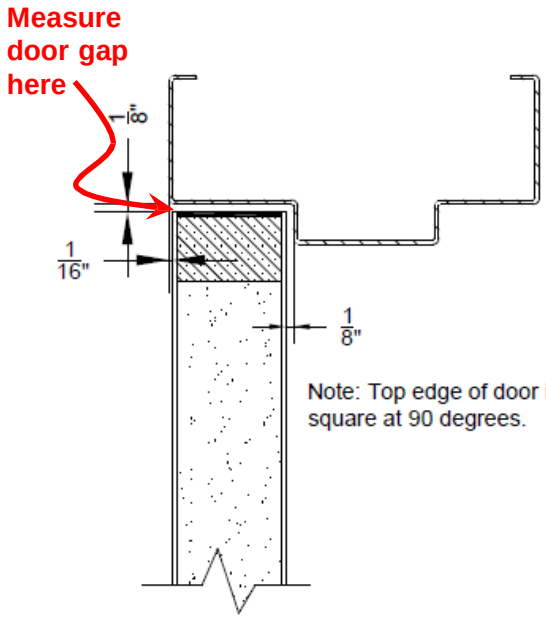


NFPA 80's Clearance Dimensions for Swinging Doors



Single Door

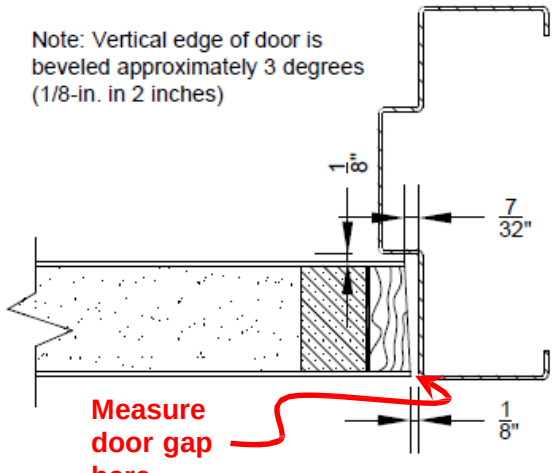
Scale 3/4" = 1 Foot



A Door to Frame Relationship at Top of Door

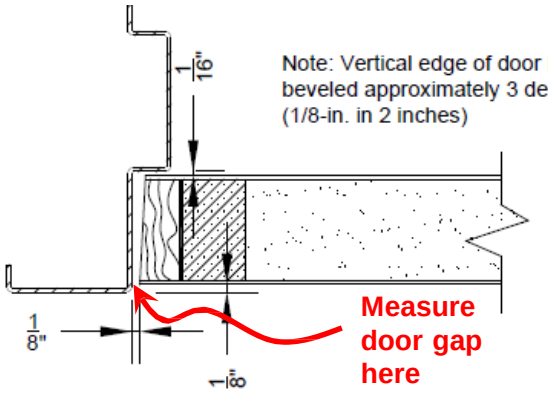
Scale 6" = 1 Foot

Note: Door leaves are inset into the door rabbet of the frames. Rubber silencers/mutes hold doors off door stops approximately 1/8-in, which results in about a 1/16-in. inset at the latch side. Typical full mortise hinges hold doors off door stop by about 1/16-inch, which results in an inset of about 1/8-in. on the hinge side. In other words, door leaves do not rest directly against any portion of the door frames.



B Door to Frame Relationship at Latch Side of Door

Scale 6" = 1 Foot

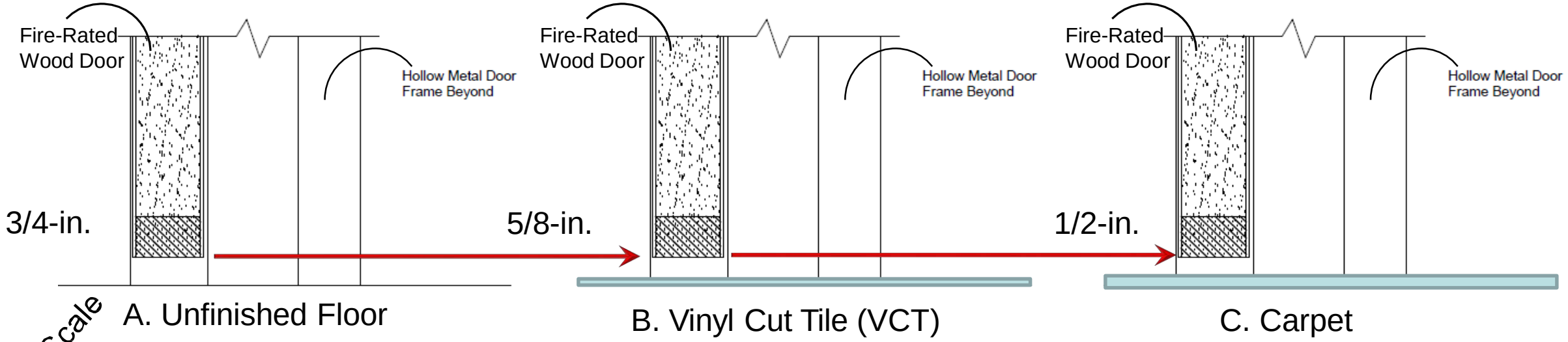


C Door to Frame Relationship at Hinge Side of Door

Scale 6" = 1 Foot

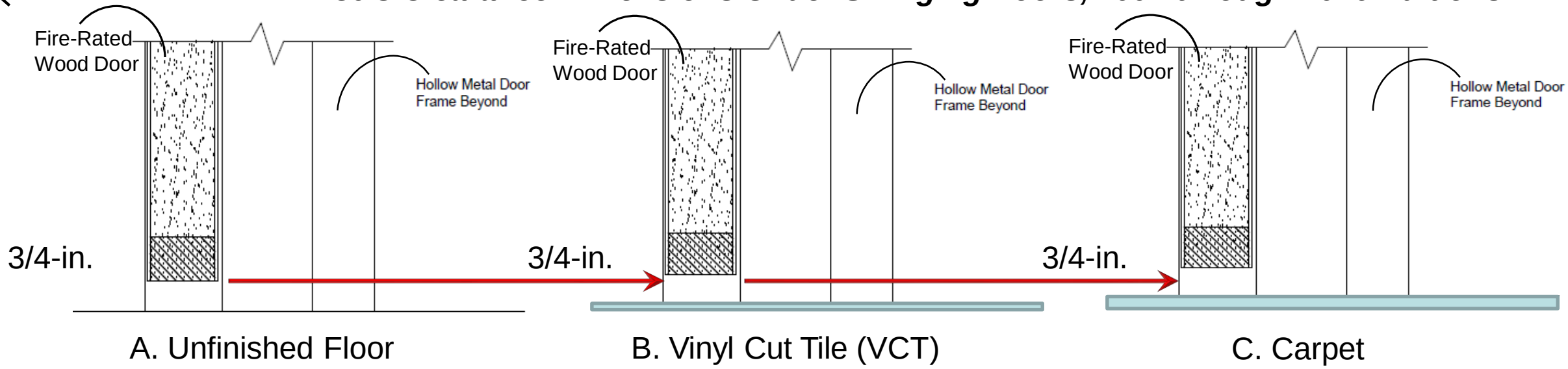
Not to Scale

NFPA 80's Clearance Dimensions Under Swinging Doors, Immediately Prior to 2007 Edition



Not to Scale

NFPA 80's Clearance Dimensions Under Swinging Doors, 2007 through 2016 Editions

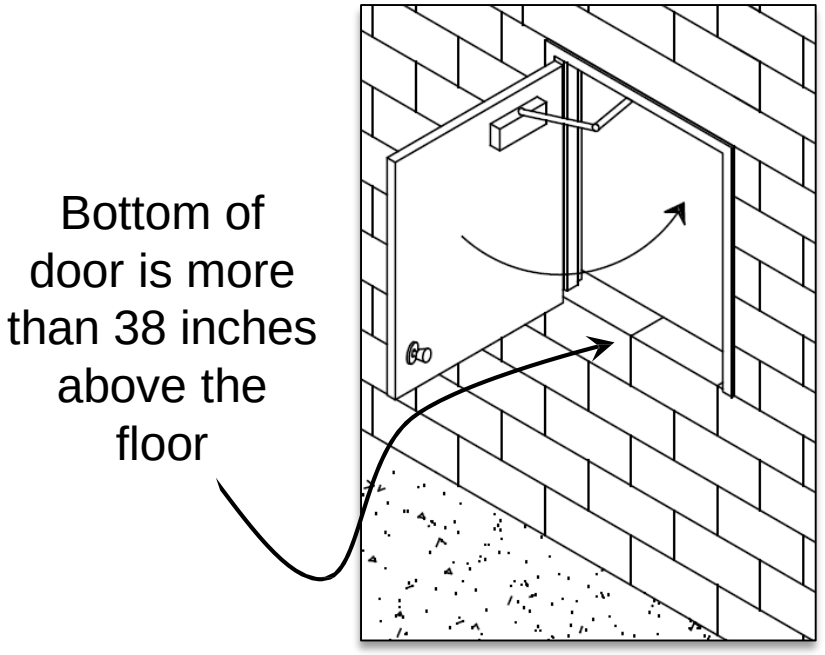


Where are Bottoms of Swinging Doors Higher than 38 inches?

- 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 2010 Edition

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

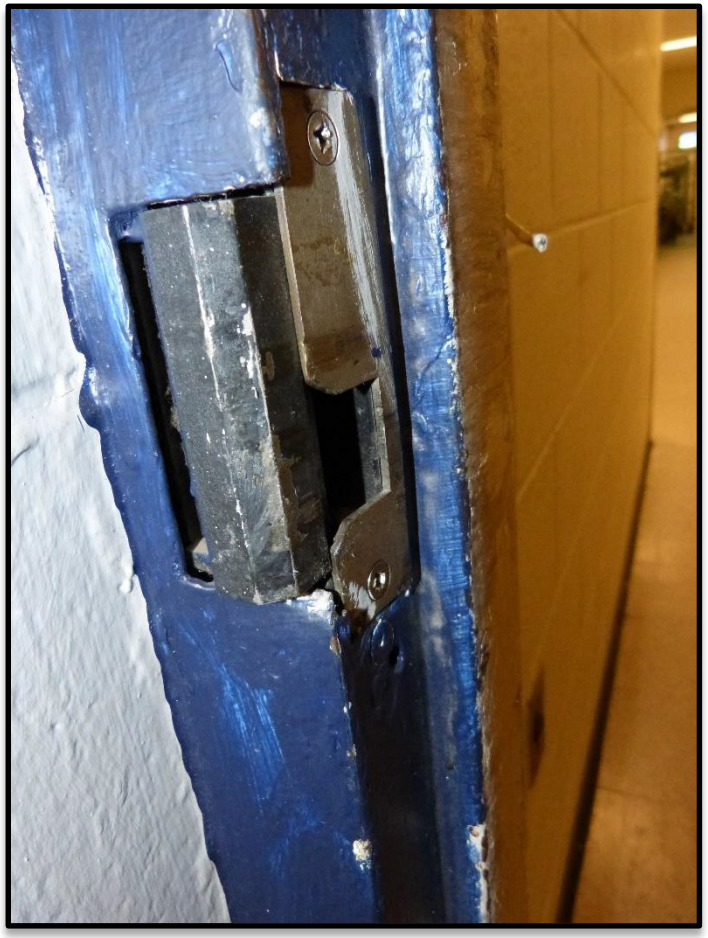
7. If a coordinator is installed, the INACTIVE leaf closes before the ACTIVE leaf.

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.

NFPA 80's Inspection Points 2010 Edition

10. No field modifications to the door assembly have been performed that void the label.



Unauthorized field modification to the door frame that invalidates the fire rating of the entire assembly.

NFPA 80's Inspection Points 2010 Edition

11. Gasketing and edge seals, where required, are inspected to verify their presence and integrity.

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

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.
- Check out the new resource page at: www.ASHE.org/firedoors
- ASHE is publishing a new handbook for inspecting and maintaining swinging egress and fire doors.

Table 3.1: Recommended Monitoring Frequency

Frequency of Use	Average Cycles/Day	Average Cycles/Year	Door Usage Category	Type A[3] Doors	Type B[4] Doors	Type CS Doors	Estimated Service Life[1]
Very Low	Less than 1	Less than 365	1	Annually	Monthly	Weekly	Over 30 years
Low	1-3	365 - 1,000	2	Semi-Annual[2]	Monthly[2]	Weekly	25 - 30 years
Ordinary	3 - 100	1,000 - 36,500	3	Bi-Monthly[2]	Monthly[2]	Weekly	20 - 25 years
High	100 - 400	36,500 - 150,000	4	Bi-Weekly[1]	Weekly[2]	Weekly	10 - 20 years
Very High	400 - 1,100	150,000 - 400,000	5	Weekly	2 - 3 days	2 - 3 days	5 - 10 years
Extremely High	Over 1,100	Over 400,000	6	2 - 3 days	2 - 3 days	2 - 3 days	Up to 5 years

1. Estimated service life assumes the door assemblies are comprised of components, appropriate to the type and area of the building served by the door, which are properly installed, adjusted, and well maintained. Over time, some components will require servicing and/or replacement. *Doors subjected to abusive conditions and usage, incidental or prolonged, have shorten service lives.*
2. Frequency of monitoring should be increased in cases where door assemblies are subjected to abusive conditions and usage.
3. Type A doors are comprised of mechanical hardware components and functions only.
4. Type B doors are comprised of electrified and mechanical hardware components that include the following functions and systems: automatic-closing doors; power-operated doors; fail-safe (electric lock) and fail-secure (electric unlock) locking functions; alarmed exit doors; delayed egress locking systems; magnetic locking systems; and, pneumatic/electric bolts.
5. Type C doors have a high consequence of failure risk that requires more frequent monitoring.

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.

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.

Table 4.1: Door Assembly Maintenance Priority Levels

Priority Level	Nature of Repair/Service Work	Comments
Level 1 Critical *{Highest Priority)*	Replacing door frames and/or entire door assemblies.	This work should be completed before all other maintenance work on the assembly.*
Level 2 Extensive *(High Priority)*	Repairs involving securely anchoring door frames, replacing large components like door leaves and glazing materials, replacing door hard re with different components (not like-for-like) and repairing non-fastener holes.	This work shoJld be completed before Level 3 work on the assembly.* Some work might be considered to be a field modification in accordance with FPA 80.
Level 3 Moderate *(Ordindary Priority)*	Routine repairs involving tightenir/ replacing fasteners, replacing (like-for-like) hardware components, and filling unused fastener holes.	This work can be performed at any time, and should be completed before Level 4 work on the assembly.•
Level 4 Minimal *(Lowest Priority)*	Cosmetic and superficial repairs. Routine mainten ance service work, such as lubricating movable hard are components.	This vork can be performed at any time. Maintenance and Acceptance Testing records are not required for fire-rated doors in this category.

•*Maintenance and Acceptance Testing records are required upon completion of the warlc an fire-rated doors.*

Pop Quiz!

How Well Have You Paid Attention?

Are You Ready?

What's Wrong with this Picture?!

Got Questions?

For more information, contact:

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This concludes The American Institute of Architects
Continuing Education Systems Course

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