Door Security & Safety Foundation

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Director of Education and Certification, DHI

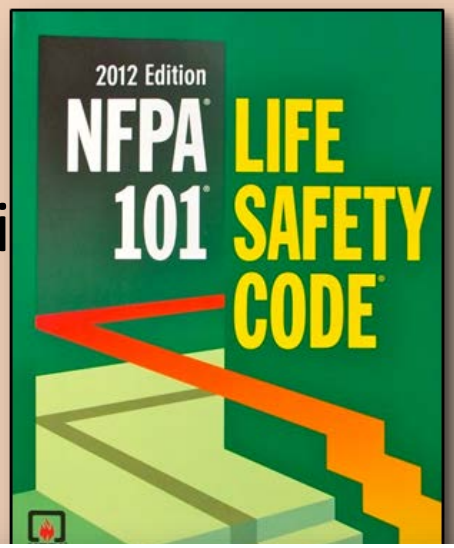
AWARENESS | EDUCATION | RESEARCH

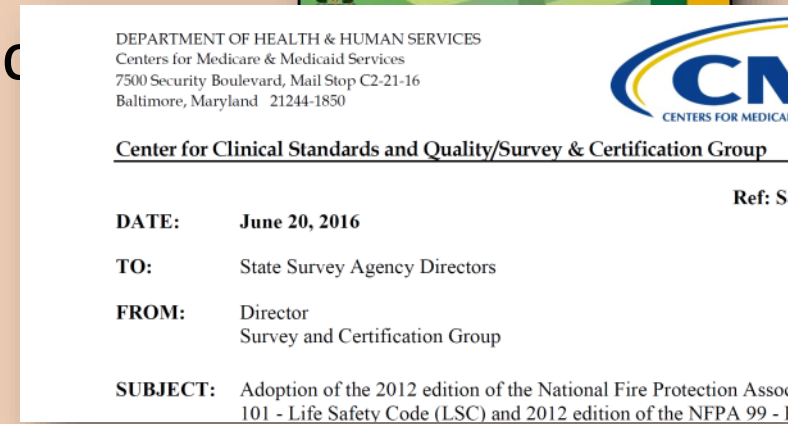
Our Mission

Our mission is to promote secure and safe openings that enhance life safety, through outreach efforts that include awareness and education within the building design, code authority, and facility management communities.

CMS Updated Fire Safety Regulations

- Adopted 2012 Edition of NFPA 101 - *Life Safety Code* (LSC)
  - Annual Inspection and Testing of Fire Door Assemblies in accordance wi NFPA 80
  - Written Record of the Inspection
  - Make Repairs or Replac "Without Delay"





DEPARTMENT OF HEALTH & HUMAN SERVICES
Centers for Medicare & Medicaid Services
7500 Security Boulevard, Mail Stop C2-21-16
Baltimore, Maryland 21244-1850

CENTERS FOR MEDICA

Center for Clinical Standards and Quality/Survey & Certification Group

Ref: S

DATE: June 20, 2016

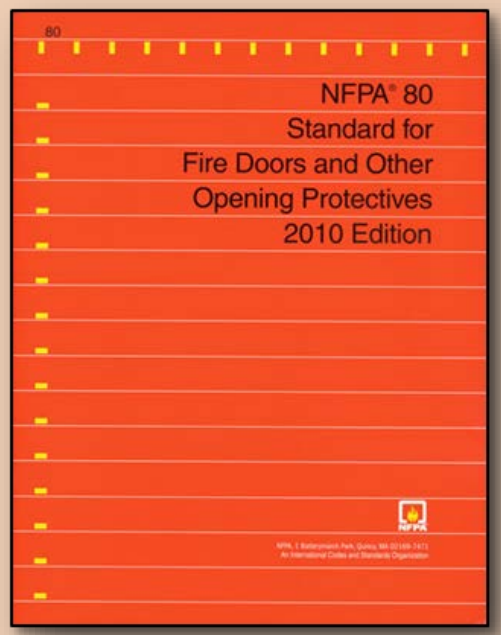
TO: State Survey Agency Directors

FROM: Director
Survey and Certification Group

SUBJECT: Adoption of the 2012 edition of the National Fire Protection Asso
101 - Life Safety Code (LSC) and 2012 edition of the NFPA 99 -

Today's Agenda

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



Safety Inspections of Fire Door Assemblies

- NFPA 80, 5.2.1 (2010)

  "Fire door assemblies shall be inspected and tested not less than annually."

  - Functional Testing
  - Visual Inspection

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

- **Protect People**
- **Protect Property**

The door shown in these photos protected a nature center and management offices from a fire that began in the maintenance shop.

Introduction to Swinging Fire Doors with Builders Hardware

NFPA®

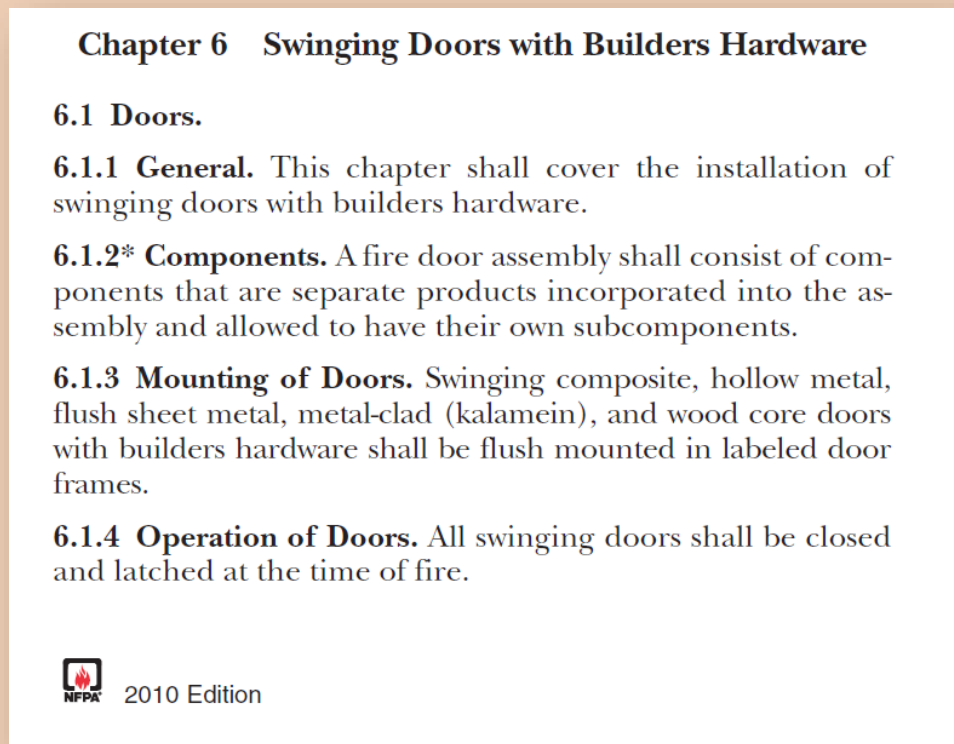
Types of Fire Door Assemblies

- **Swinging Doors with Builders Hardware**
- 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***

Swinging Fire Doors

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



Chapter 6 Swinging Doors with Builders Hardware

6.1 Doors.

6.1.1 General. This chapter shall cover the installation of swinging doors with builders hardware.

6.1.2* Components. A fire door assembly shall consist of components that are separate products incorporated into the assembly and allowed to have their own subcomponents.

6.1.3 Mounting of Doors. Swinging composite, hollow metal, flush sheet metal, metal-clad (kalamein), and wood core doors with builders hardware shall be flush mounted in labeled door frames.

6.1.4 Operation of Doors. All swinging doors shall be closed and latched at the time of fire.

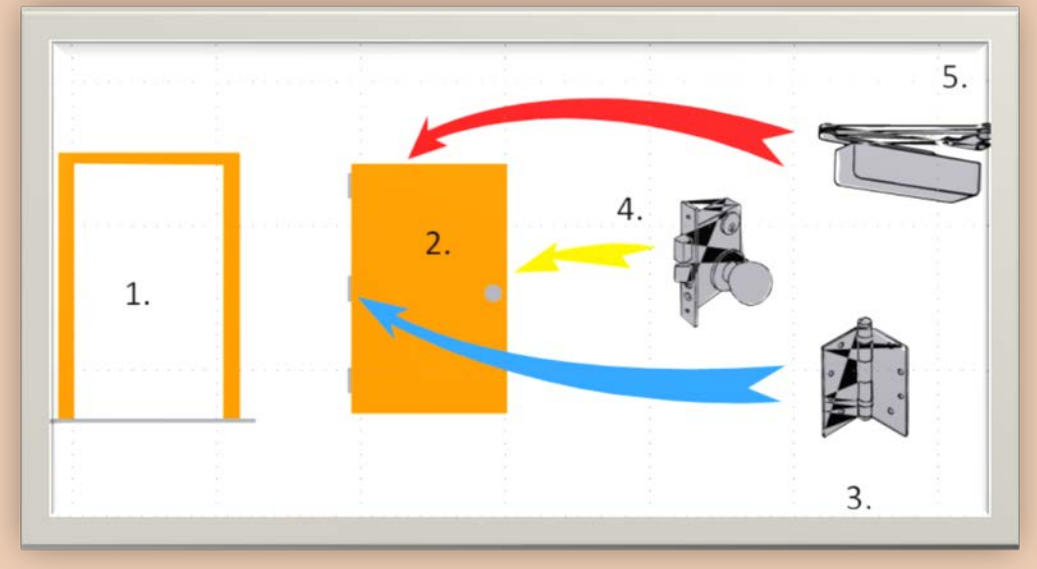
Swinging Fire Doors…

- 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

- 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

- 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*

FM APPROVED

INTERTEK Warnock Hersey

Underwriters Laboratories Inc.®


Steelcraft
Warnock Hersey
WARNOCK HERSEY
LISTED
FIRE DOOR FRAME
WHI-B- 604507
FOR SINGLE SWING AND PAIRS
DO NOT REMOVE OR COVER THIS LABEL


Listed F


CAUTION: DO NOT OVERTIGHTEN.
CORBIN RUSSWIN


WARNOCK HERSEY
MOHAWK FLUSH DOORS INC.
DO NOT REMOVE OR COVER THIS LABEL


UNDERWRITERS LABORATORIES
FIRE EXIT HARDWARE
ISSUE NO. N-92


MacPro
LISTED

What door require inspection?

- Fire and Smoke Door Assemblies per NFPA 80
  - Door leaves equipped with panic hardware or fire exit hardware in accordance with 7.2.1.7
  - Door assemblies in exit enclosures
  - Electrically controlled egress doors
  - Door assemblies with special locking subject to 7.2.1.6
    - Delayed-Egress Locking Systems
    - Access-Controlled Egress Door Assemblies
    - Elevator Lobby Exit Access Door Assemblies

What doors don't require inspection?

- Patient rooms that exempt closer – 18/19.3.6.3.11

18.3.6.3.11 Door-closing devices shall not be required on doors in corridor wall openings other than those serving required exits, smoke barriers, or enclosures of vertical openings and hazardous areas.

- Smoke doors without latching (Smoke Barrier) 18/19.3.7.8

18.3.7.8* Doors in smoke barriers shall comply with 8.5.4 and all of the following:

(1) The doors shall be self-closing or automatic-closing in accordance with 18.2.2.2.7.
(2) Latching hardware shall not be required.
(3) Stops shall be required at the head and sides of door frames.
(4) Rabbets, bevels, or astragals shall be required at the meeting edges of pairs of doors.
(5) Center mullions shall be prohibited.

Inspection

- Visual inspection
  - Identify missing or damaged parts
- Functional testing of fire door assemblies
  - Ensure door leaves will be closed and latched under fire conditions
- Requires inspections and testing to be *"performed by individuals with knowledge and understanding of the operating components of the type of door being subject to testing"* (5.2.3.1)

Visual Inspection

5.2.4 Swinging Doors with Builders Hardware or Fire Door Hardware.

5.2.4.1 Fire door assemblies shall be visually inspected from both sides to assess the overall condition of door assembly.

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.

Visual Inspection

- 2010 – 11 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.
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(8) Latching hardware operates and secures the door when it is in the closed position.
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(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.

- 2013 – 13 Points

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.
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(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.

Care and Maintenance

- NFPA 80, Chapter 5
  - Applies to new and existing installations (5.1.1.2)
  - Repairs
  - Field Modifications
  - Replacement

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 should have same fire protection/resistance rating as the old

Appurtenances

- Job site preparations
  - Function holes for mortise locks
  - Holes for labeled viewers
  - 3/4-inch undercutting on wood and composite doors
  - Surface applied hardware
    - Drilling round holes up to 1-inch maximum diameter
    - Fasteners
    - Cylinders

Appurtenances

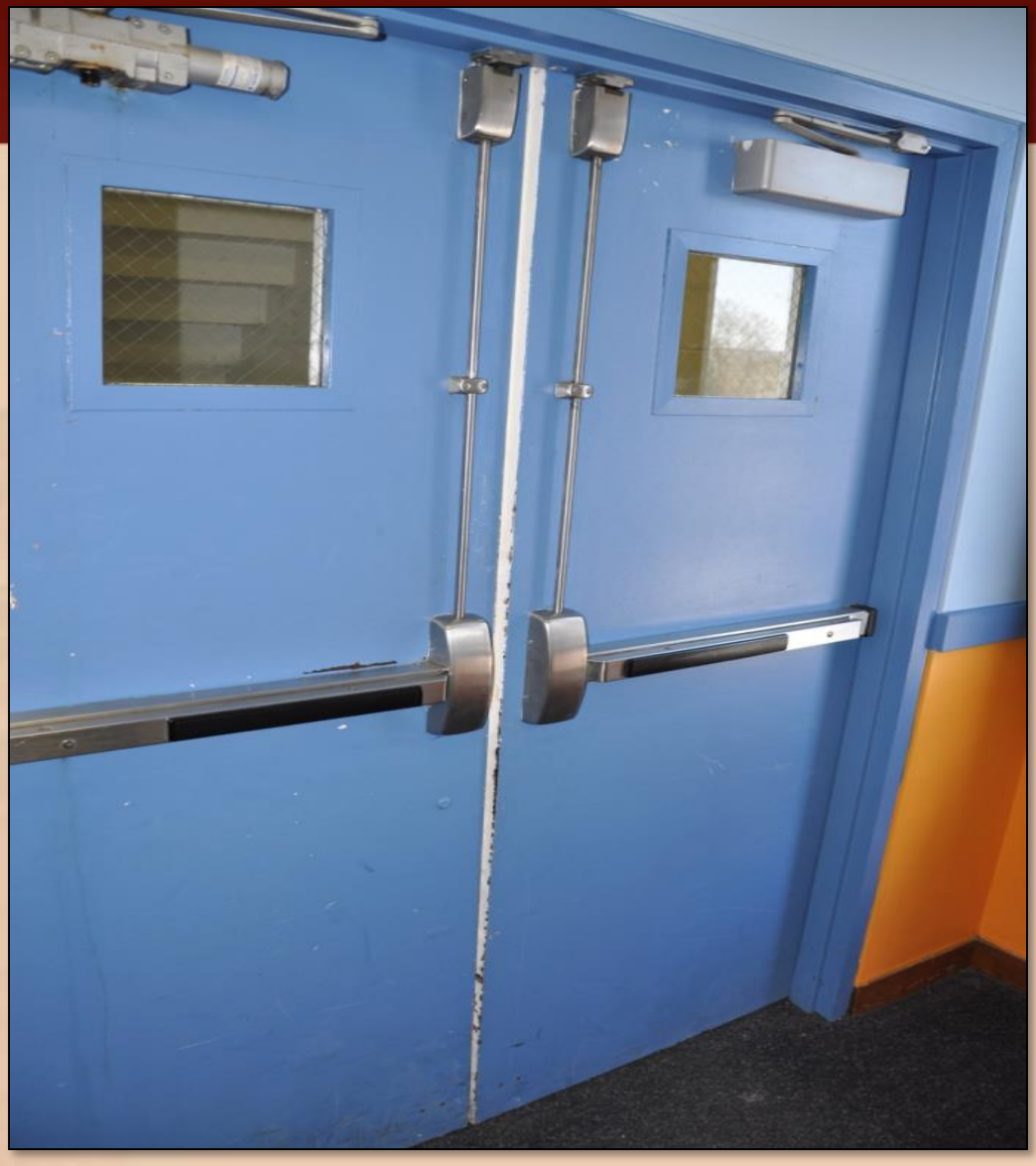
- Factory or “under label service”
  - Hinges
  - Locks
  - Remotely operated/monitored hardware
  - Concealed door closers
  - Glass lights and vision panels
  - Louvers
  - Astragals
  - Plant-ons and overlays

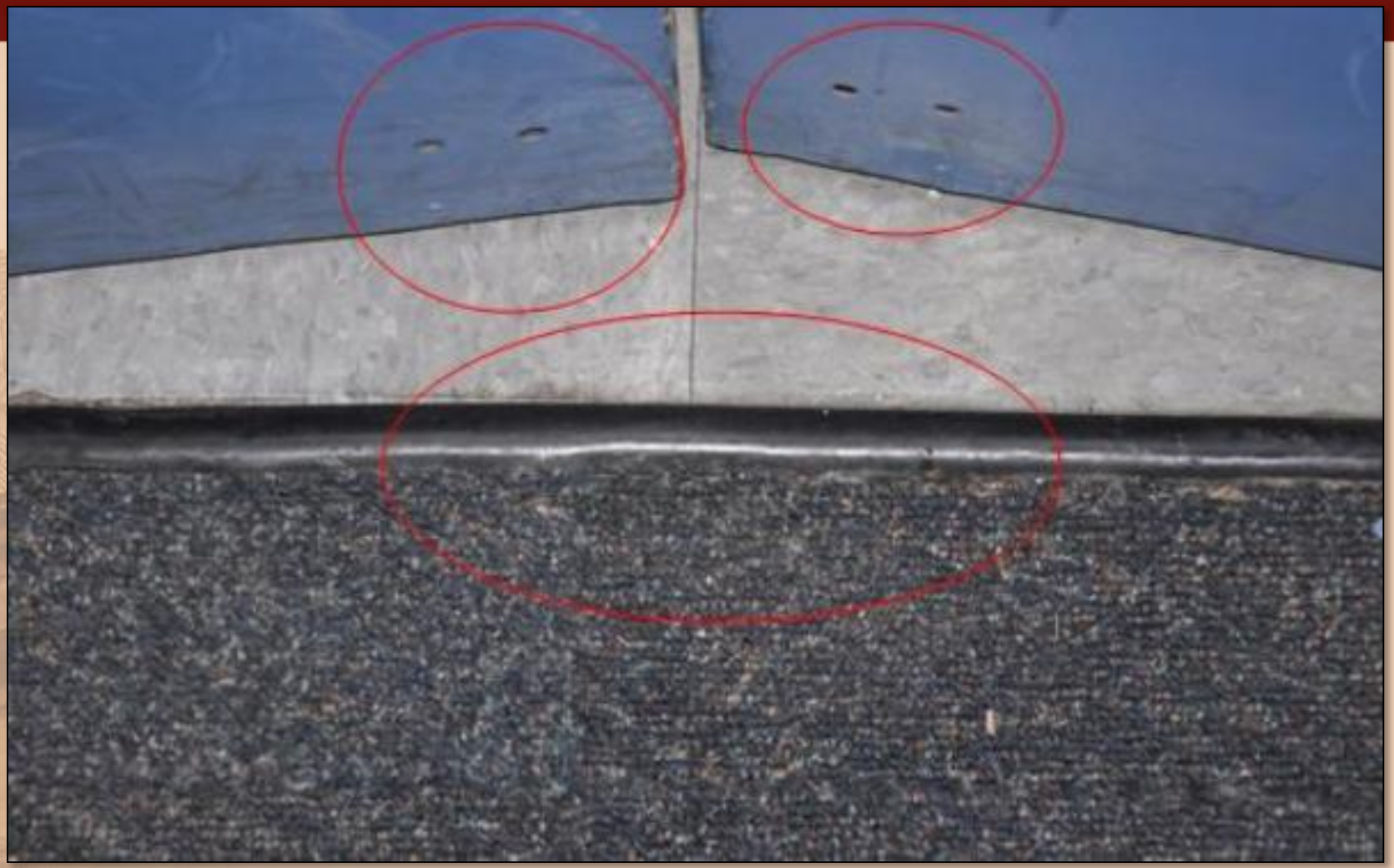
Field Modifications

- 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
  - Boring holes through width of doors for remote controlled (electrified) hardware
    - Exception: Intertek licensed Perfect Raceway field modification
  - 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

- NFPA 80, Chapter 5 contains <u>provisions</u> 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





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***

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*

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

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…

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

TOP DEFICIENCIES
SWINGING FIRE DOORS

Inspection

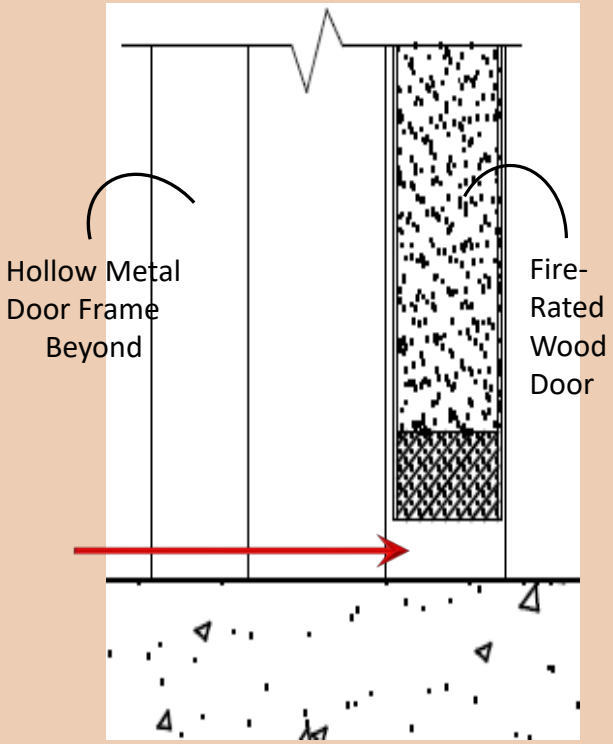
- Painted or missing labels

Inspection

- Poor clearance dimensions around the perimeter of the door in the closed position
  - Hollow metal doors
    - 1/8-inch (+/- 1/16-inch) between the vertical edges and the top of the door and frame
    - 1/8-inch (+/- 1/16-inch) between the meeting stiles of pairs of doors
  - Wood and plastic-laminate faced doors
    - 1/8-inch (maximum) between the vertical edges and the top of the door and frame
    - 1/8-inch (maximum) between the meeting stiles of pairs of doors

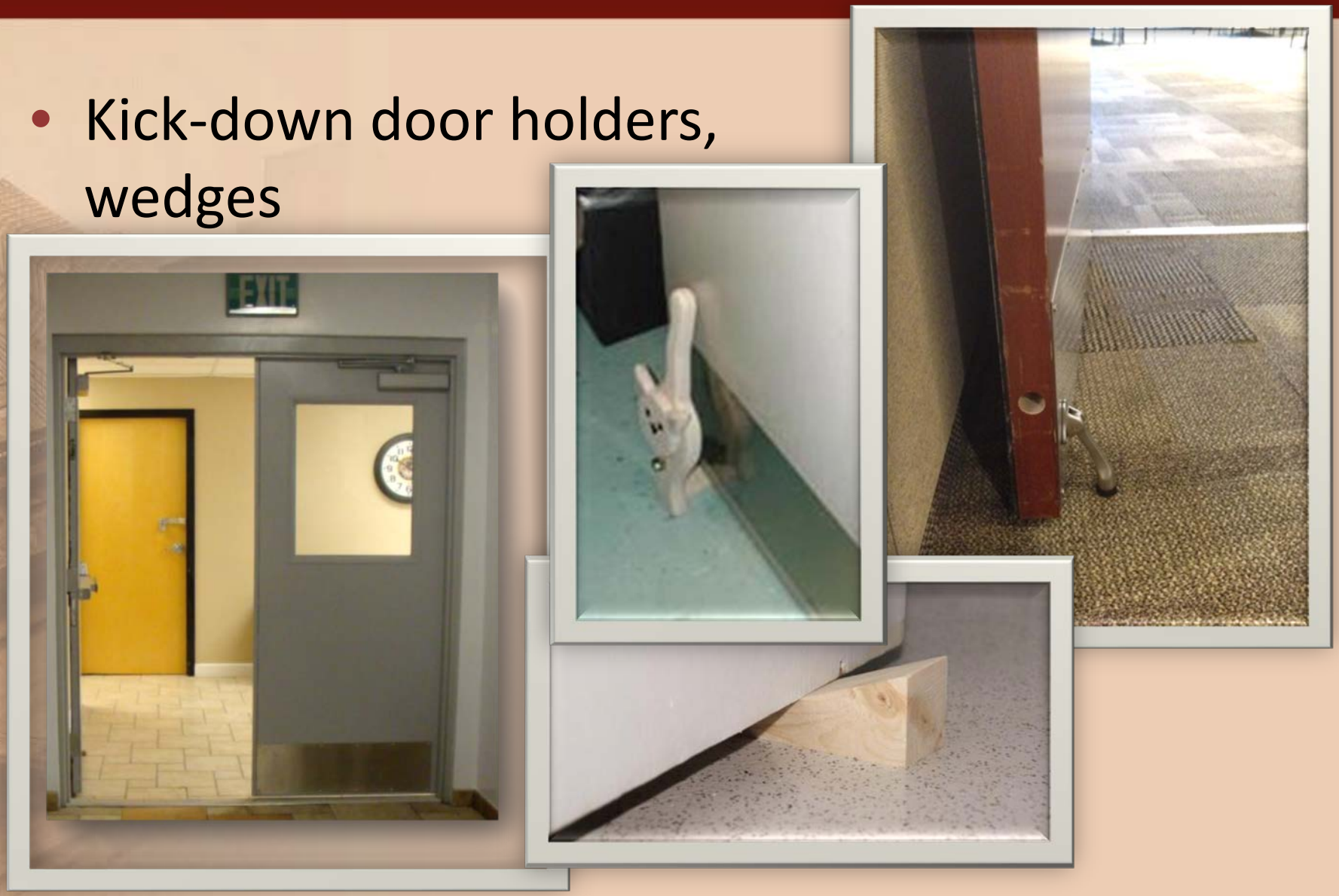
Inspection

- 3/4-inch maximum clearance between the bottom of the door and the finished floor or raised sill
- Undercut:
  - The dimension measured from the bottom of the door frame to the bottom of the door.
- Clearance:
  - The dimension measured from the bottom of the door to the surface of the sill, floor covering, or threshold under the door.



Inspection

- Kick-down door holders, wedges



Inspection

- Auxiliary hardware items that interfere with the intended function of the door

Inspection

- Fire door blocked to stay in the open position

Inspection

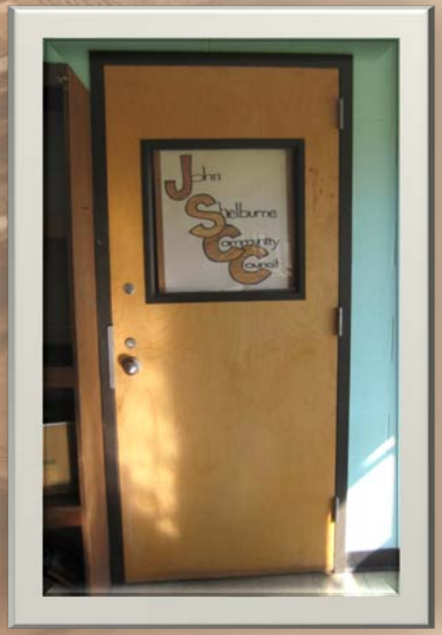
- Broken, defective, or missing hardware items

Inspection

- Missing or incorrect fasteners

Inspection

- Signage, decorations, attachments



Signage must not exceed 5% of door surface area

Inspection

- Holes from removed/replaced hardware items

Inspection

- Protection Plates exceed height requirements

6.4.5.3 Labeling shall not be required where the top of the protection plate is not more than 16 in. (406 mm) above the bottom of the door.

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*

Common Corrective Actions

- Shimming hinges to adjust door clearances
  - Steel shim material
- Replacing small parts
  - Strike plates, end caps, covers, etc.
- Replacing worn out hardware
  - Hinges, locks/latches, door closers, gasketing, etc.
- Replacing broken glazing materials

Some Solutions…

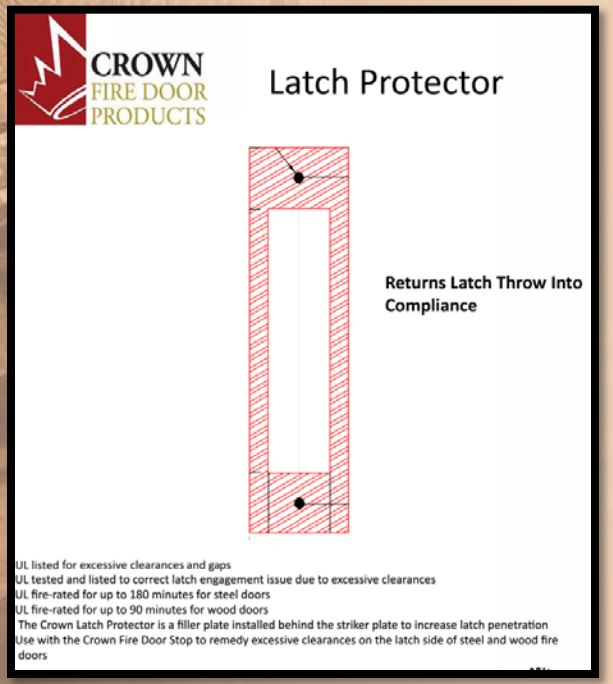
- Fire-Rated Caulking
  - Fire Door Solutions
  - LCI 300
  - Metacaulk 1000
- Door & Frame repairs
  - ~~NO Bondo~~
  - Dry Pack
  - Shimming Hinges (steel)
  - Screws & Bolts
  - Spats & Plinths
  - Painted Labels
    - GooGone?

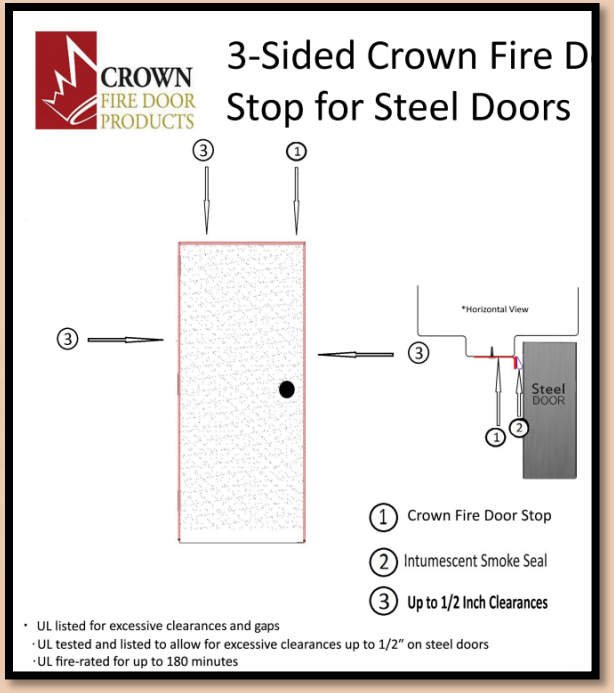
Solution Providers

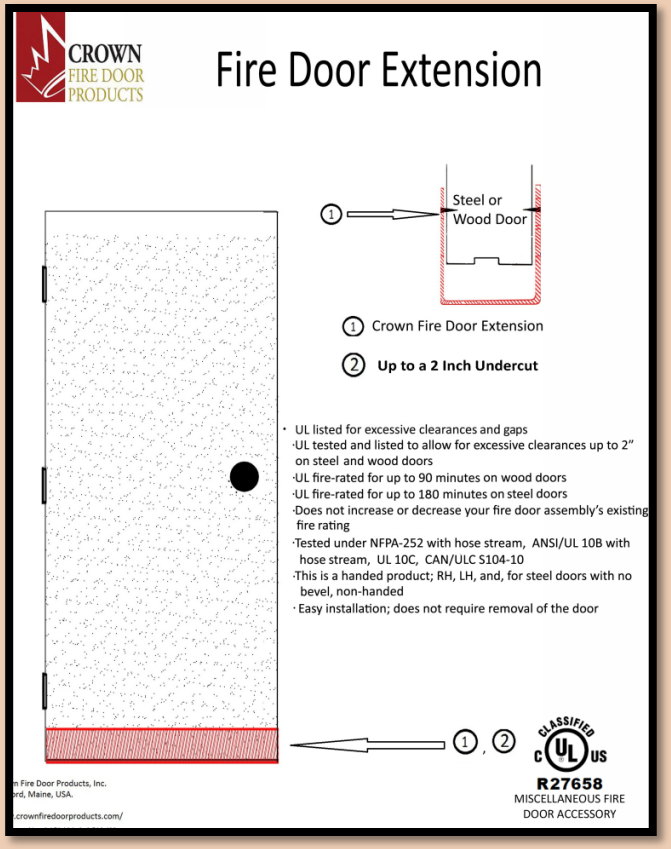
- Crown Fire Door
- Fire Door Solutions
- Just Door Toolz
- Lorient
- National Guard Products
- Zero Manufacturing
- Others to Share?
  - Blade Strike

CROWN FIRE DOOR

- 3-Sided for Steel Doors
- Fire Door Extension
- Strike

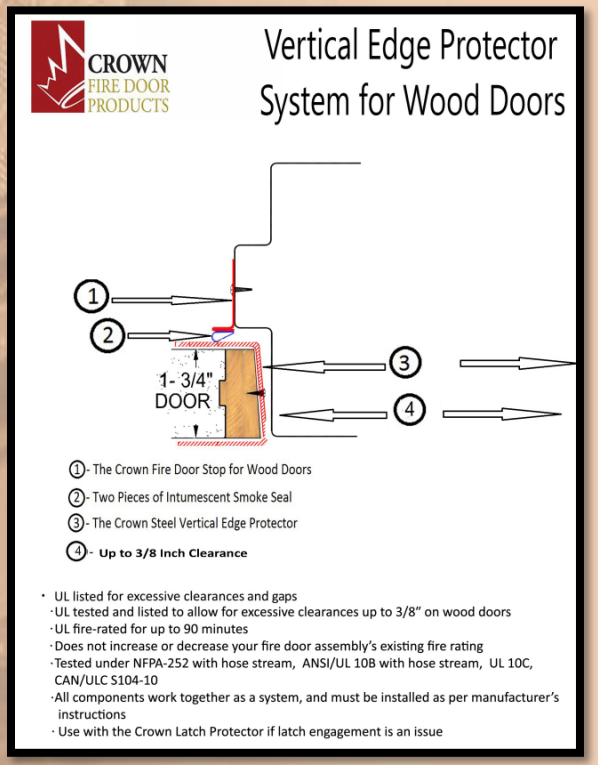


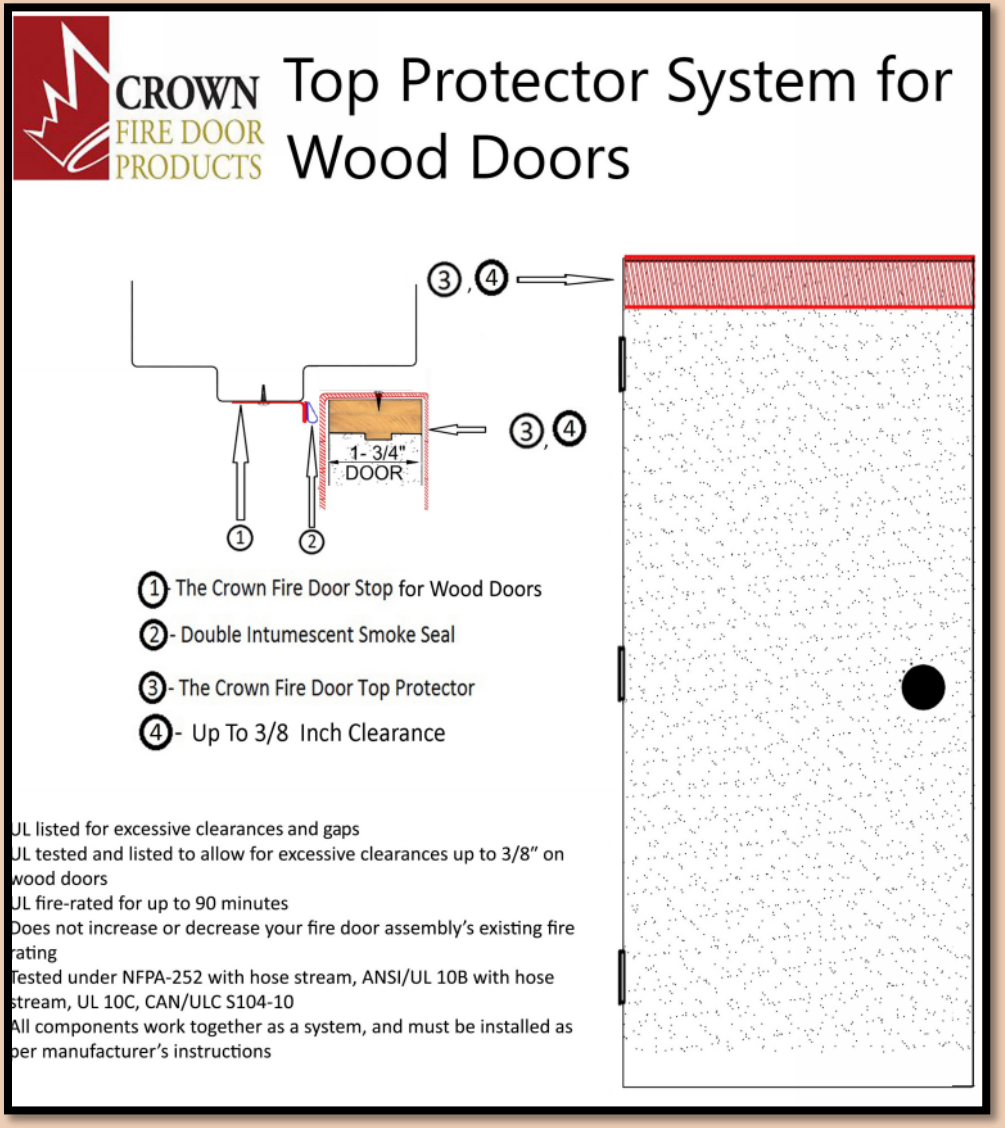




CROWN FIRE DOOR

- Wood Door Products





FIRE DOOR SOLUTIONS

- Fire Door Caulk

PRODUCT DESCRIPTION

Fire Door Solutions Fire Door Caulk
Intumescent Fire and Draft Sealant

- Up to 3/4" diameter holes through penetration in body of fire door core.
- Up to 1/2" diameter holes through penetration in top rail of fire door.
- Up to 1/4" diameter holes through penetration in top rail/core transition of fire door.
- Up to 1/4" diameter through penetration in stile of fire door.
- Up to 1/2" diameter through penetration in stile/core transition of fire door.

For use as a component in Mineral Core 45-90 Minute Flush Door NP, Mineral Core 45-90 Minute Flush Door Positive Pressure & 20 Minute Mineral, Engineered, Particleboard, Wood Block and Agrifiber Cores NP/PP doors. Doors must be listed for intended fire rated application.

LIMITATIONS

Wood Putty Fillers:

Up to a 1/16" layer of Wood Putty Filler may be used over the Fire Door Caulk product to conceal the caulk.

FIRE DOOR SOLUTIONS

- Metal Shims
- Metal Thru-Bolts

JUST DOOR TOOLZ

- Door Maintenance Repair Kit
  - Fasteners
- Metal Shims

LORIENT

- Technofire (20M)

Tecnofire® 2006

Specifically designed for use with conventional edge banding machinery, this flexible intumescent material is supplied in coils for easy and efficient application during the door manufacturing process.

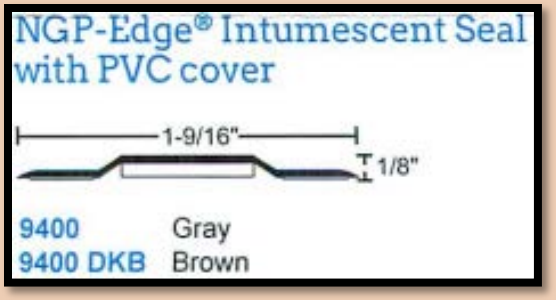
Tecnofire® 2006 consists of a graphite compound, in a matrix of epoxy resin, reinforced with mineral fibers. The material is resistant to all but the most aggressive of chemicals: it is unaffected by common acids, alkalis, salts and organic solvents.

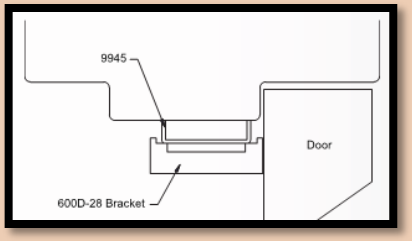
Available in a standard thickness of 0.65mm, Tecnofire® 2006 offers an expansion ratio of approximately 22:1, dependent on conditions, from a temperature of 392°F.

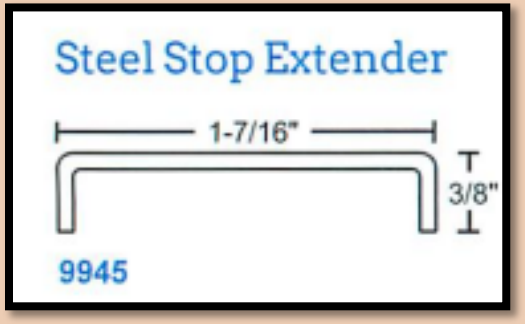
Different roll widths can be provided, suitable for specific customer applications - please contact us to discuss your requirements.

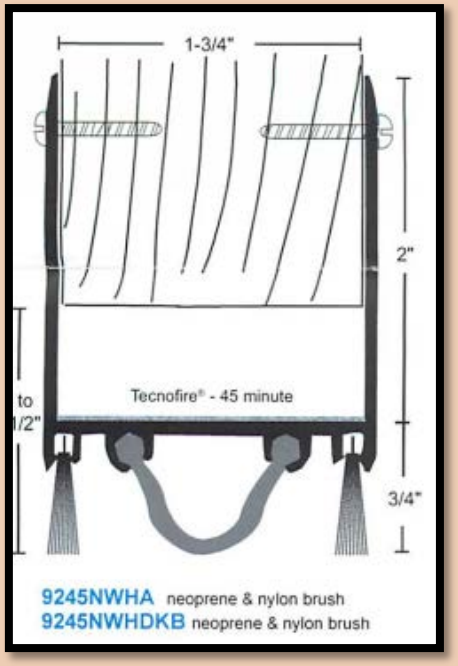
NATIONAL GUARD PRODUCTS

- 9245 Intumescent Door Bottom
- 9225/9275 Strike Shims
- 9400 Intumescent Seal
- 9945 Steel Stop Extender
  - 600D-28 Inline Mounting Bracket



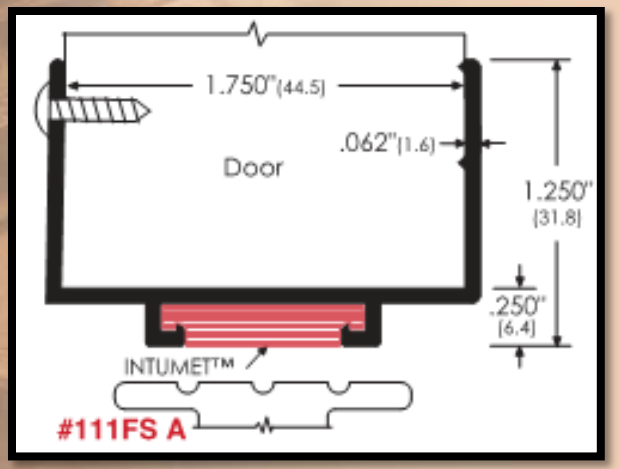


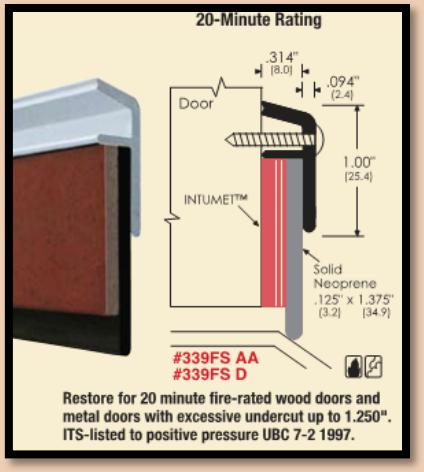


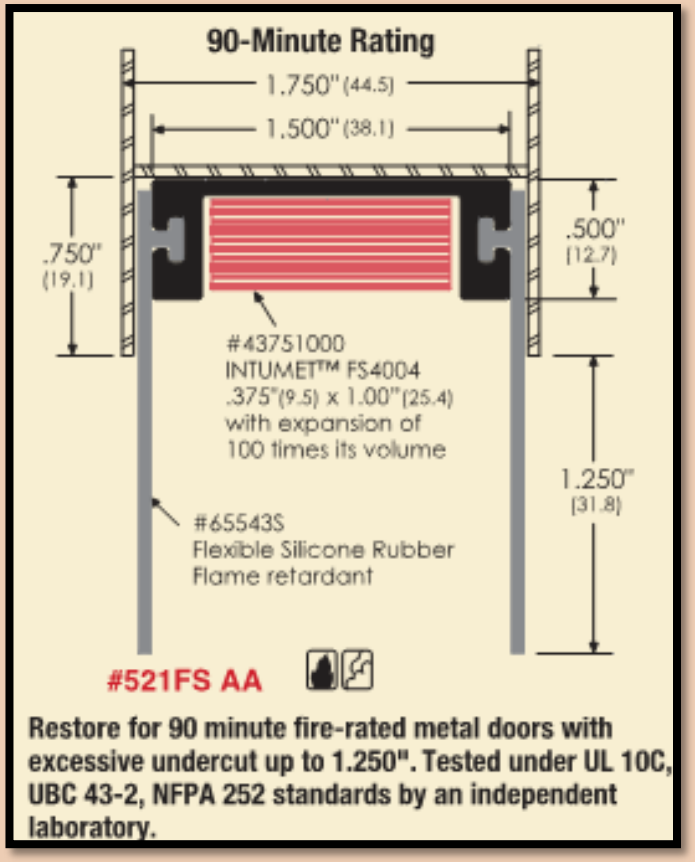


ZERO MANUFACTURING

- 111FS A Door bottom
- 339FS Door bottom
- 521FS Door bottom

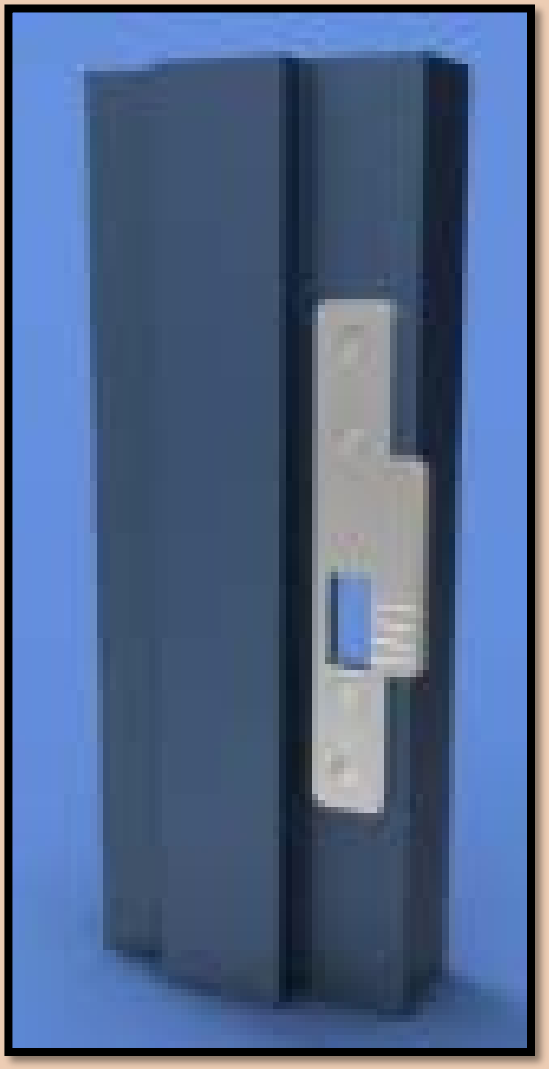






BLADE STRIKE

- **WWW.BLADESTRIKE.COM**
  - Excessive Clearances
  - Reduced Friction
  - Restore Security
  - Increased Security



Finding a Fire Door Assembly Inspector (FDAI)

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

Door and Hardware Institute

- Fire Door Assembly Inspection training program:
  - Comprehensive 3-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
  - **4-hour exam at Testing Center**
    - **Minimum passing score is 80%**

✓ ***Fire Door Assembly Inspector (FDAI)***
- ***DHI professional credential***

Thank You
for Your Attention!

Door
Security & Safety
FOUNDATION

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