

WHEA

Fire / Smoke
Doors

Hi! I'm Joe



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Fire / Smoke Doors

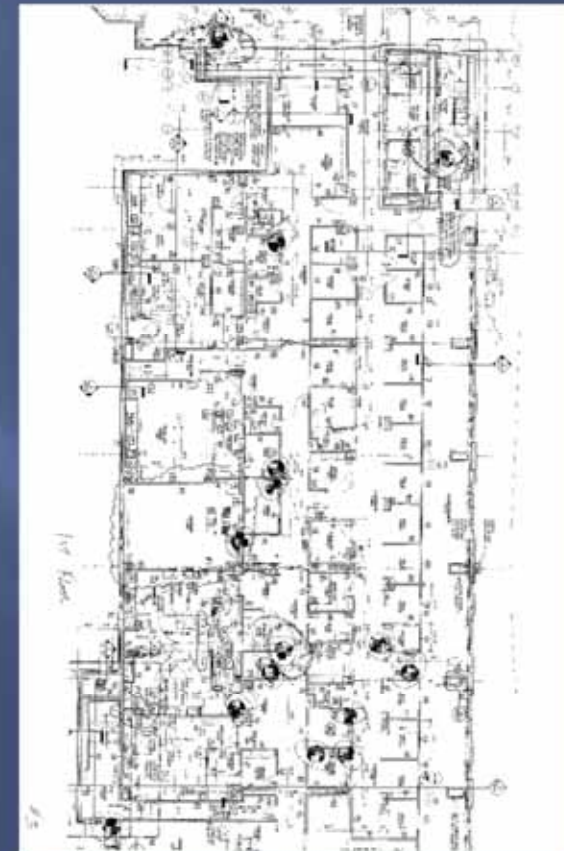
What are Fire / Smoke Doors?

Where to find Fire / Smoke Doors?

What are Fire / Smoke Doors?



Where to find Fire / Smoke Doors?



Where to find Fire / Smoke Doors?



Fire Door Assemblies What Code Applies?

NFPA 80 2007 Edition

**New Editions in
2010 & 2012**

**NFP80 - Fire Doors and Other
Opening Protectives**

Smoke Door Assemblies What Code Applies

NFPA 105 2007 Edition

**New Editions in
2010 & 2012**

**NFPA 105 - Standard for the Installation
of Smoke Door Assemblies and Other
Opening Protectiives**

Other Codes

**NFPA 101 Life Safety Code 2000
Edition?**

**New Editions in 2003 & 2006 &
2009 & 2012**

NFPA 101 Life Safety Code

Important Chapters

Chapter 7 Means of Egress

Chapter 8 Features of Fire Protection

Chapters 18 & 19 Health Care

Chapters 20 & 21 Ambulatory Care

The DO's of Fire & Smoke Door Assemblies

- Observe
- Ask
- Recommend
- Maintain & Repair
- Observe

The DO's of Fire & Smoke Door Assemblies

Observe:

- **Observe how the doors are being used.**
- **Observe the wear & tear on the openings.**
- **Observe what has been done to the openings by others!**

The DO's of Fire & Smoke Door Assemblies

- **ASK:**
- **Why?**
- **How often?**
- **What is the real Issue?**

The DO's of Fire & Smoke Door Assemblies

- **Recommend:**
- **The correct use of the opening**
- **Possible Alternatives on use of the opening.**

The DO's of Fire & Smoke Door Assemblies

- **Maintain & Repair:**
- **Check for loose or Missing Parts.**
- **Adjust & Lubricate as needed.**
 - **Hinges**
 - **Locks & Exits**
 - **Closers**
 - **Seals**
 - **Auxiliary Hardware**

The DO's of Fire & Smoke Door Assemblies

- Observe:
- Observe how the doors are being used.
- Has anything Changed?
- Is the opening functioning as desired?

The DON'Ts of Fire & Smoke Door Assemblies !

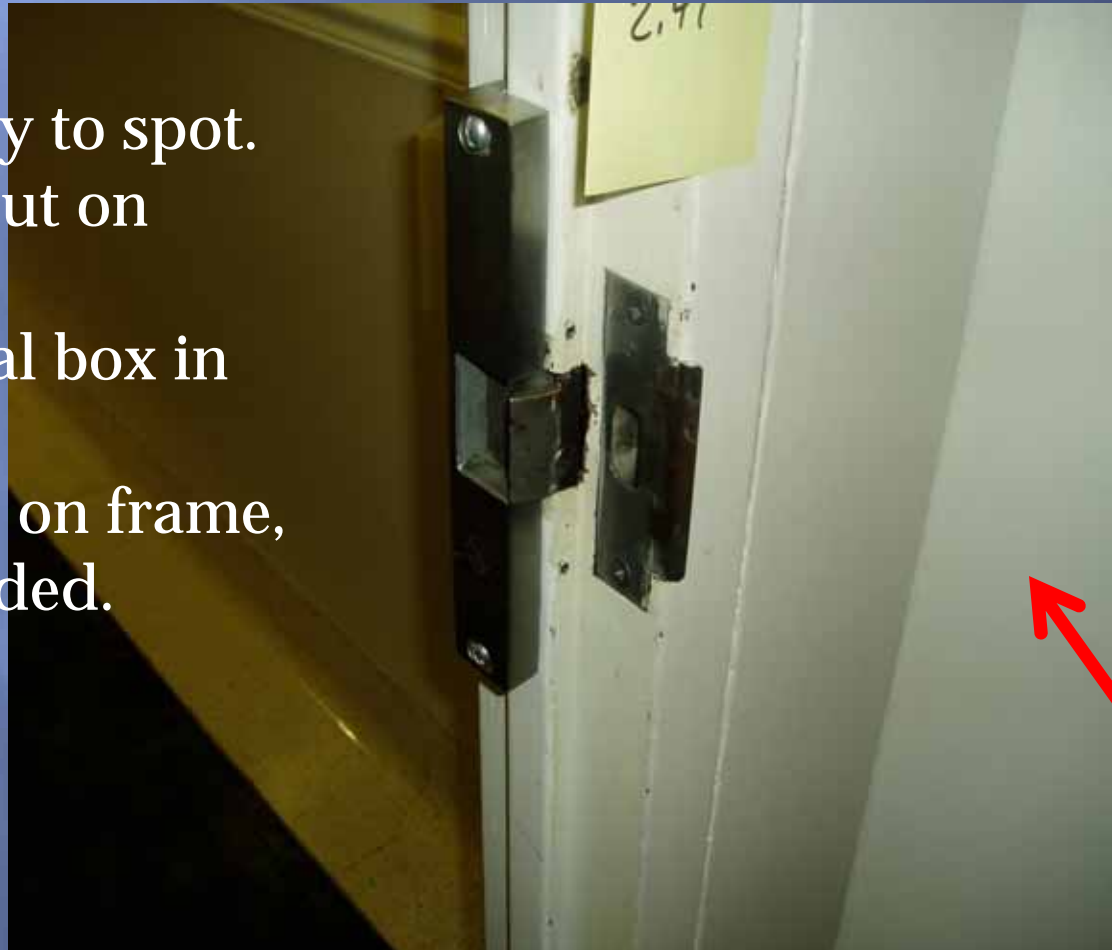
- **DO NOT Modify Frames**
- **DO NOT Modify Doors**
- **DO NOT Modify Hardware**
- **DO NOT use Non-Listed Items**
- **DO NOT move doors.**
- **Do NOT Get Creative!!!**

The DON'Ts of Fire & Smoke Door Assemblies !

- **DO NOT Modify Frames**

Frame Modification

Usually easy to spot.
Rough cutout on
frame.
No Electrical box in
frame.
Two strikes on frame,
one was added.



Frame & Door



Fire Doors require Automatic Flush bolts.
Magnetic Locks with no Positive Latching hardware.





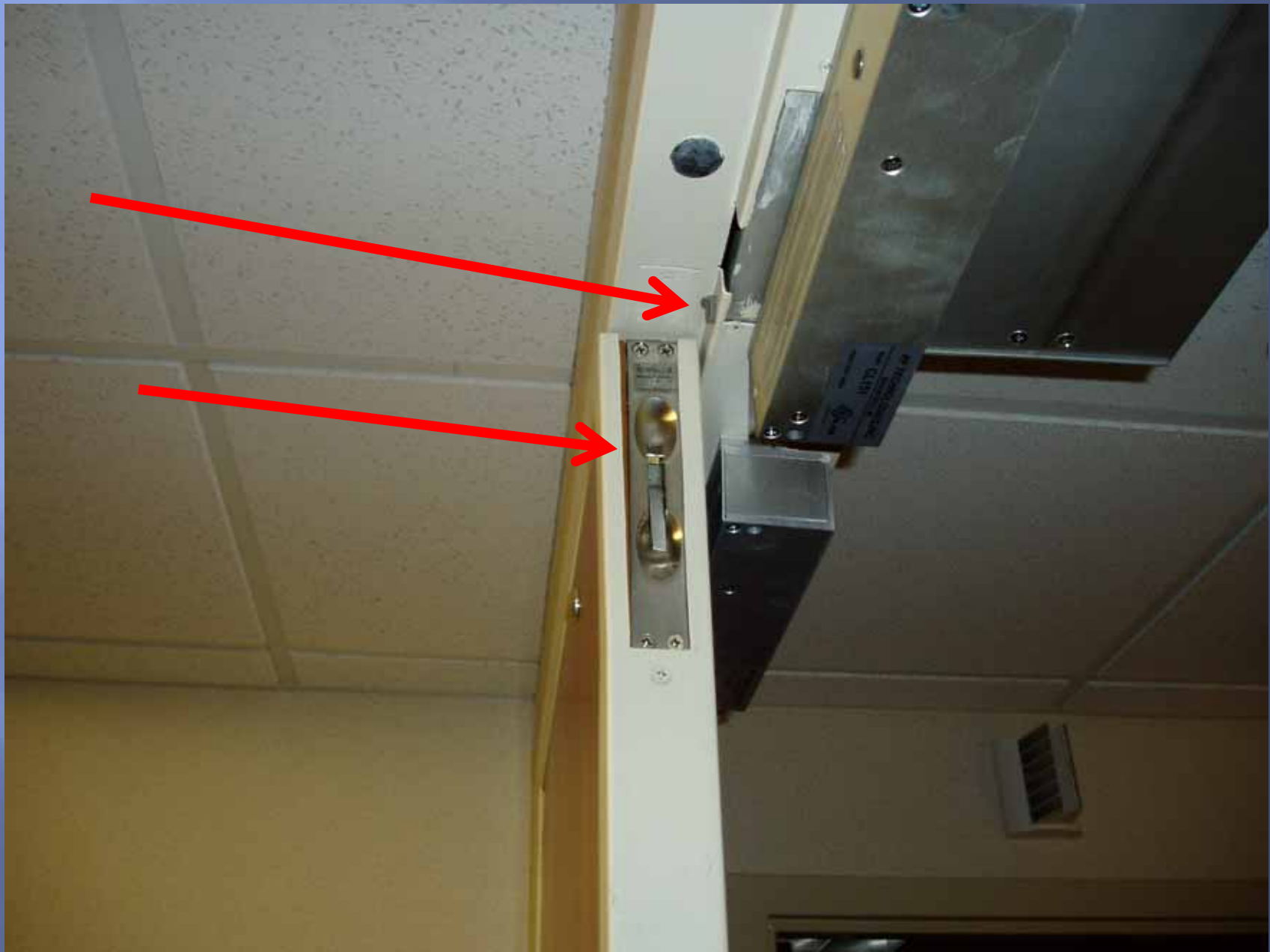


















The DON'Ts of Fire & Smoke Door Assemblies !

- **DO NOT Modify Doors**

Door Modification

Plate behind Lock.
Edge filler on door.
Open Holes behind plate?
Addition holes for new
lock?



Frame & Door



Fire Doors require
Automatic Flush
bolts.
Magnetic Locks
with no Positive
Latching hardware.

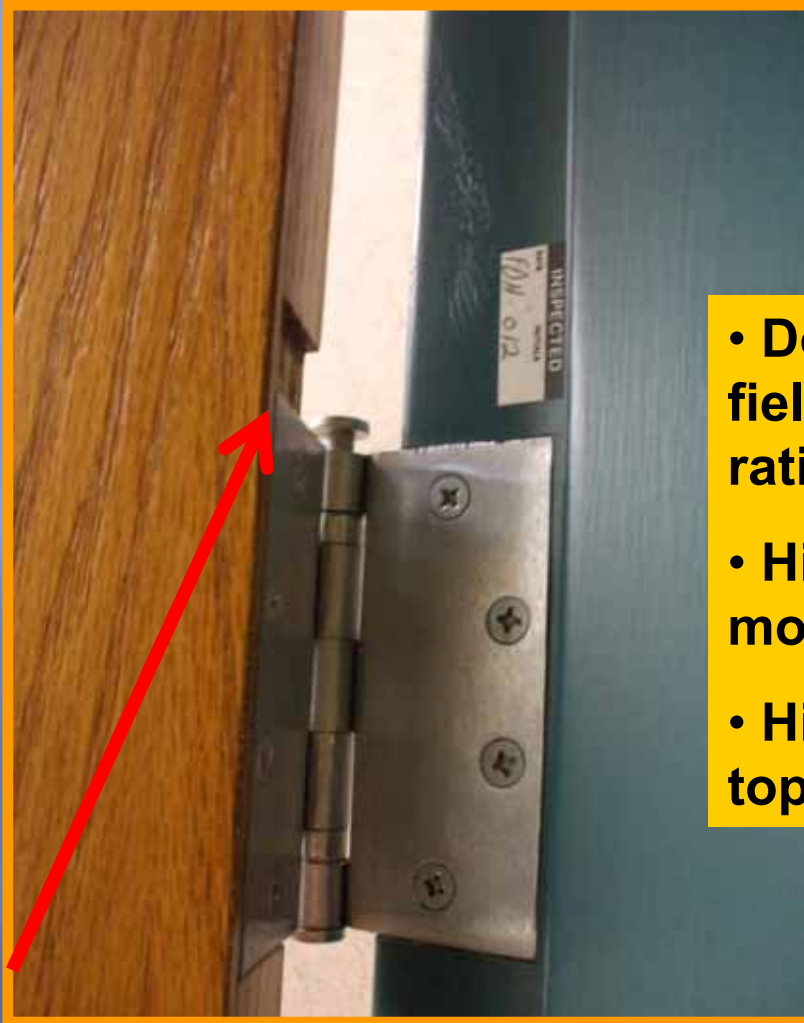
Door Modification



What is right or Wrong on this pair?



What's Wrong With This Opening?



- Door has been modified in the field, thereby voiding the fire rating.
- Hinge pockets have been moved.
- Hinge pin is not set flush to top of hinge.

What's Wrong With This Opening?



- Lite kit is too close to the edge of the door.
- Lock was changed, creating open holes in the door face.
- Door was modified in the field, thus voiding any fire label.































The DON'Ts of Fire & Smoke Door Assemblies !

- **DO NOT Modify Hardware**

Altered Hardware



What's Wrong With This Opening?



- Fire rated door has unapproved hardware.

What's Wrong With This Opening?

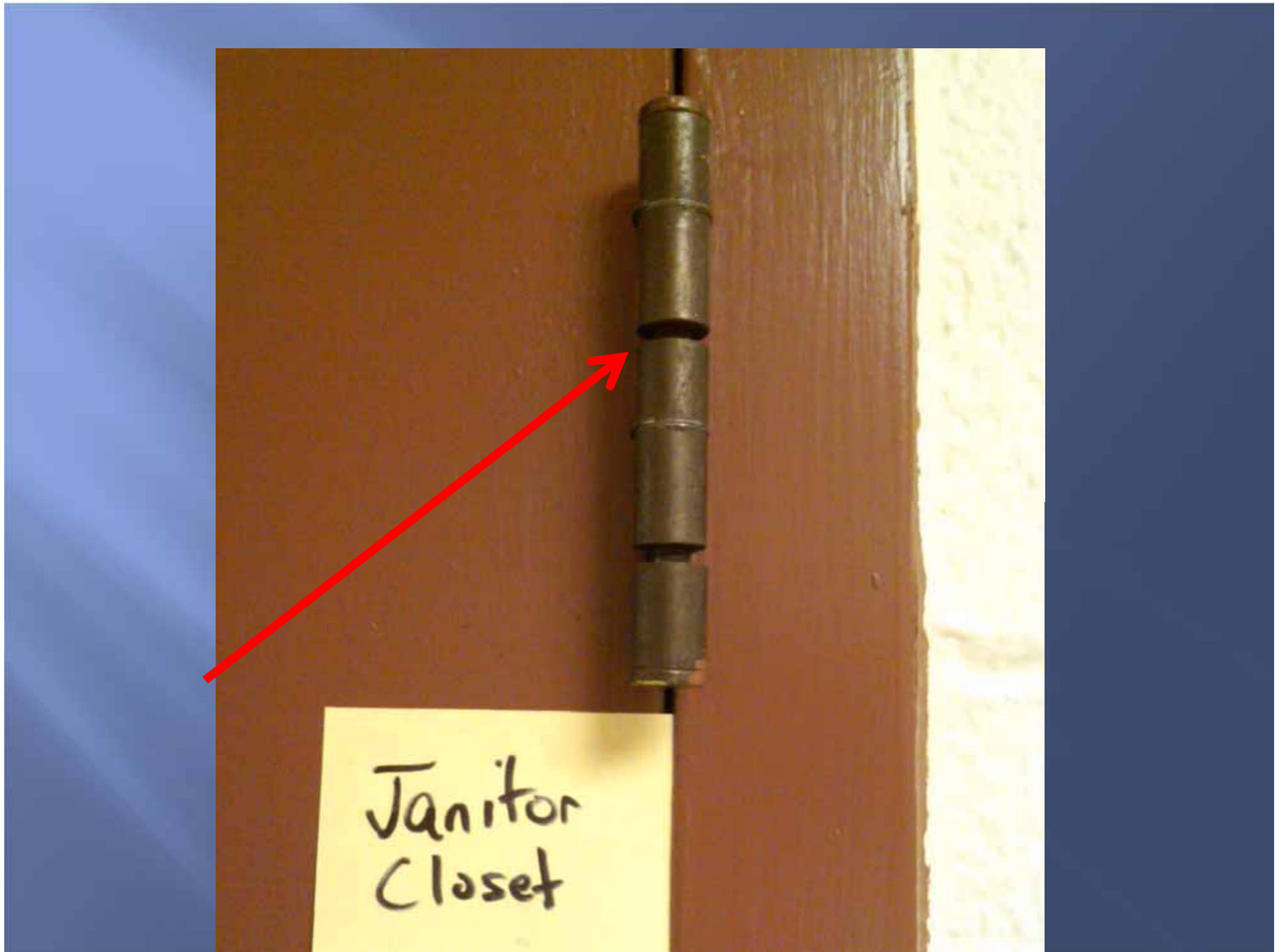


- Fire rated door, the lock is missing its cylinder and should be adjusted to its proper function.









Janitor
Closet

**Velcro added to wall plate
and back of door.
How is this connected to
the Fire Alarm System?**











The DON'Ts of Fire & Smoke Door Assemblies !

- **DO NOT use Non-Listed Items**

















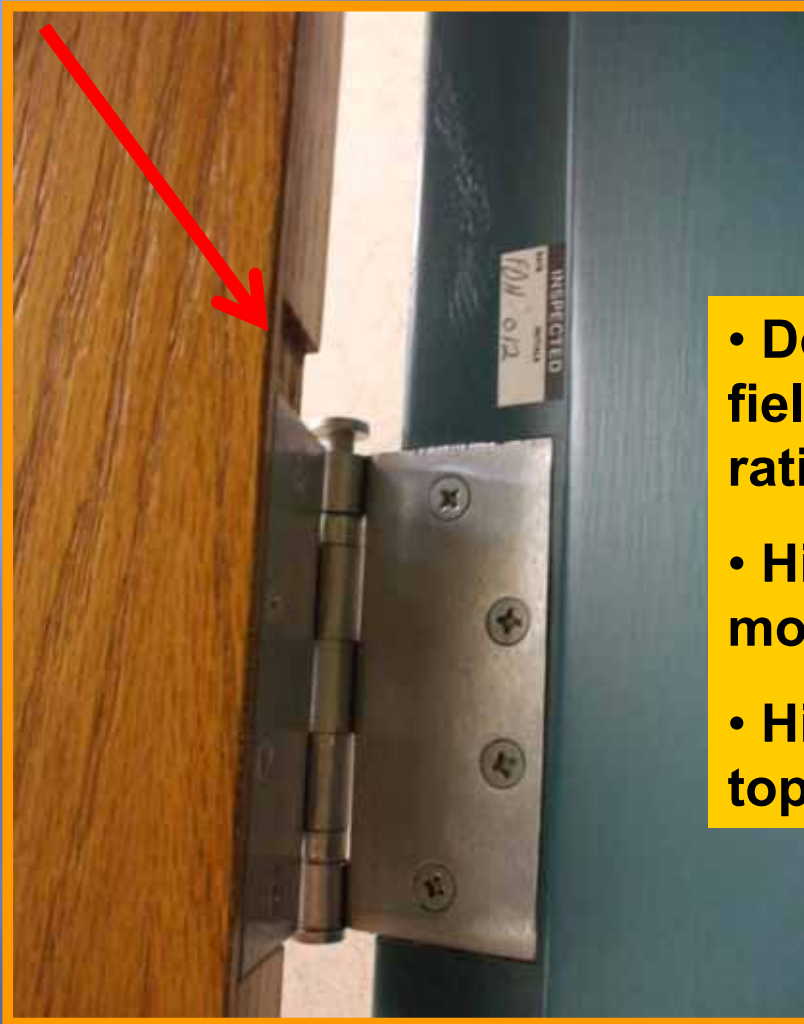
Fire Rated Door Holder?



The DON'Ts of Fire & Smoke Door Assemblies !

- **DO NOT move doors.**

What's Wrong With This Opening?



- Door has been modified in the field, thereby voiding the fire rating.
- Hinge pockets have been moved.
- Hinge pin is not set flush to top of hinge.



The DON'Ts of Fire & Smoke Door Assemblies !

- **Do NOT Get Creative!!!**

Creative Door Holders

Creative Door Holder.
Not part of Fire alarm
system.
UL or WHI Label?



ADA Approved Lever!



How would this effect egress in an Emergency?





Free Egress?

As an official how would you view this opening?

What would you look for on an opening?

Would this opening meet the requirements of free Egress?



Solve the Problem!!
Or
Solve the Problem??

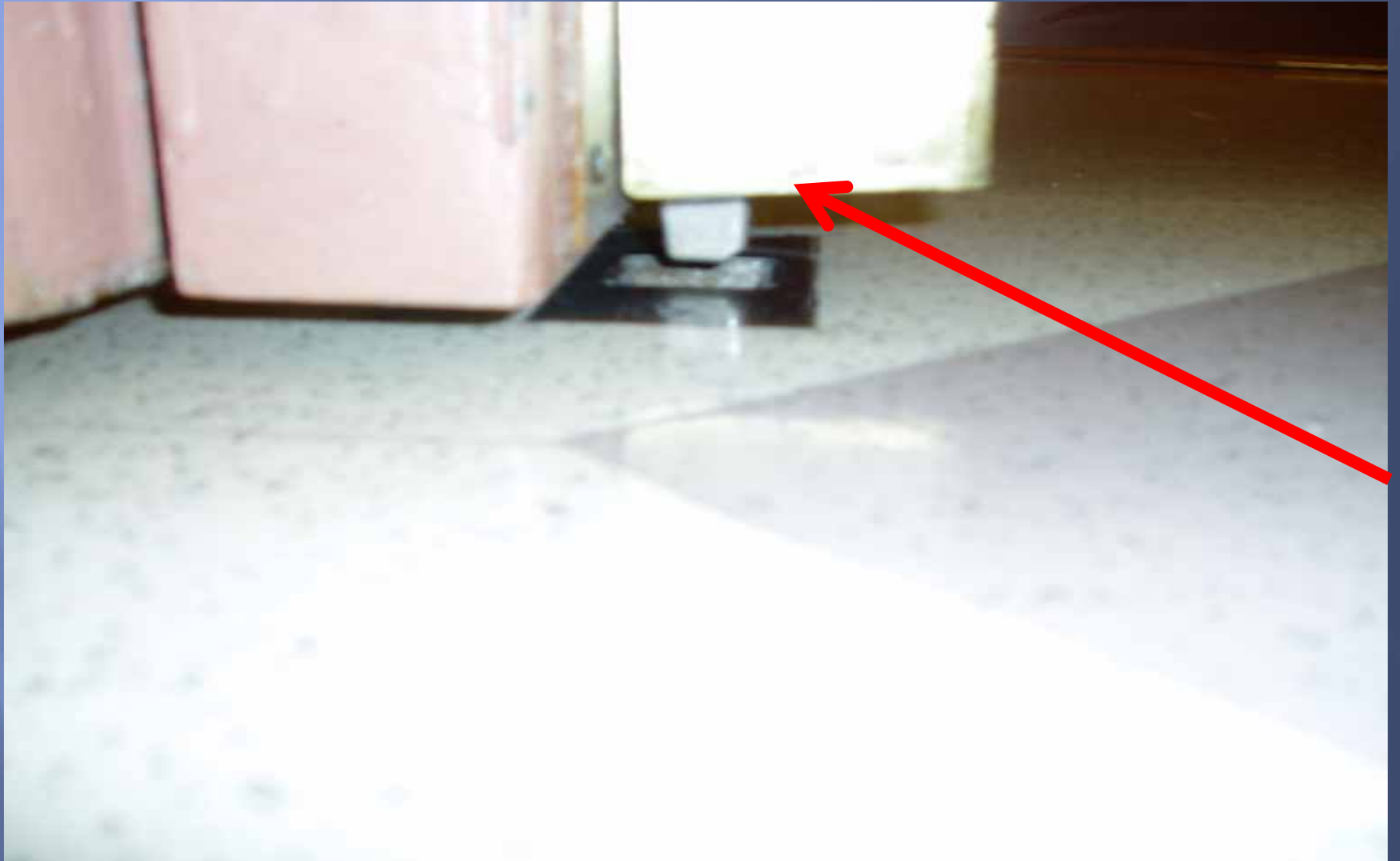


What's Wrong With This Opening?



- The molding (plant-ons) were factory applied, which does conform with NFPA-80. This door is OK.

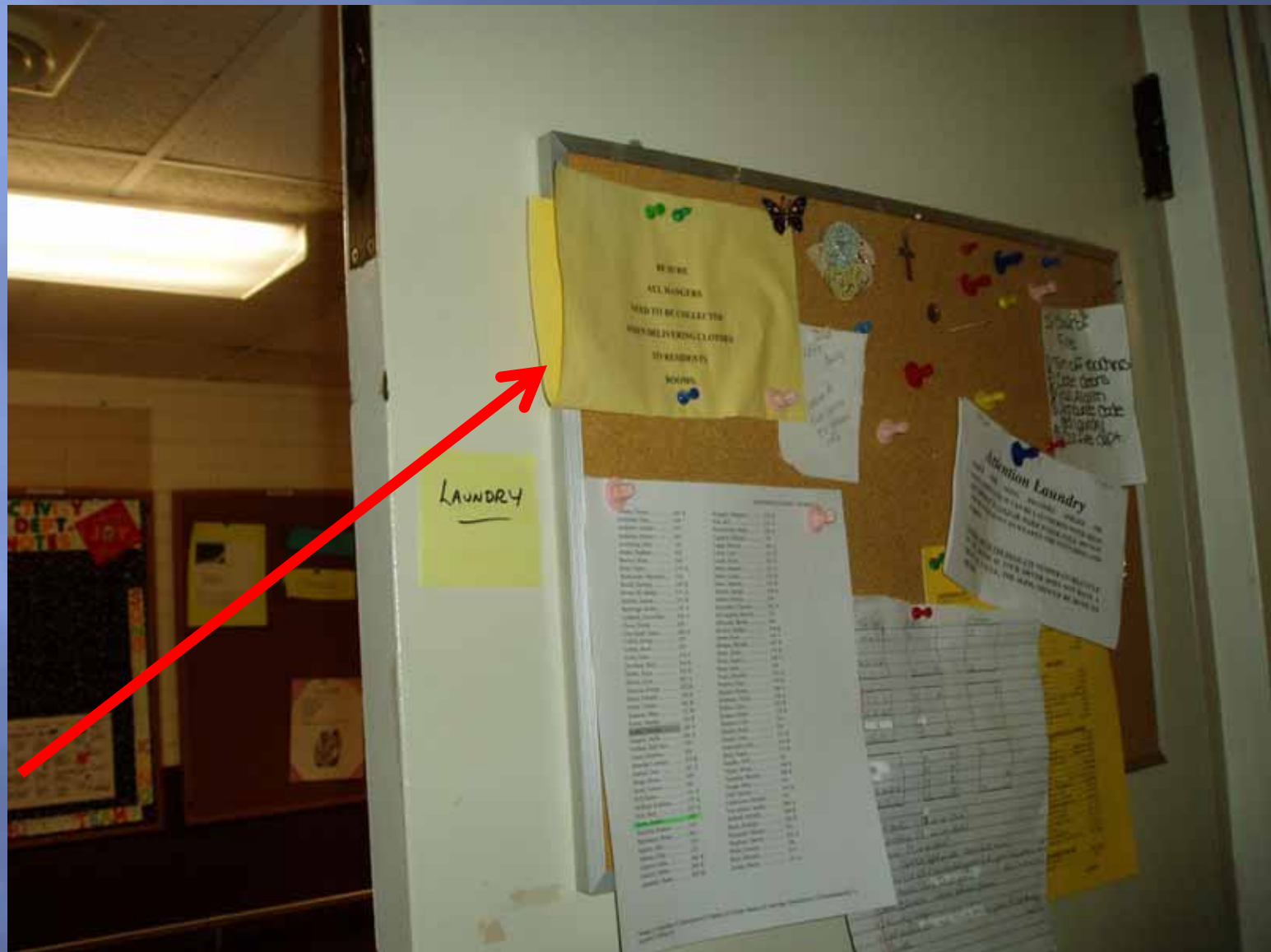




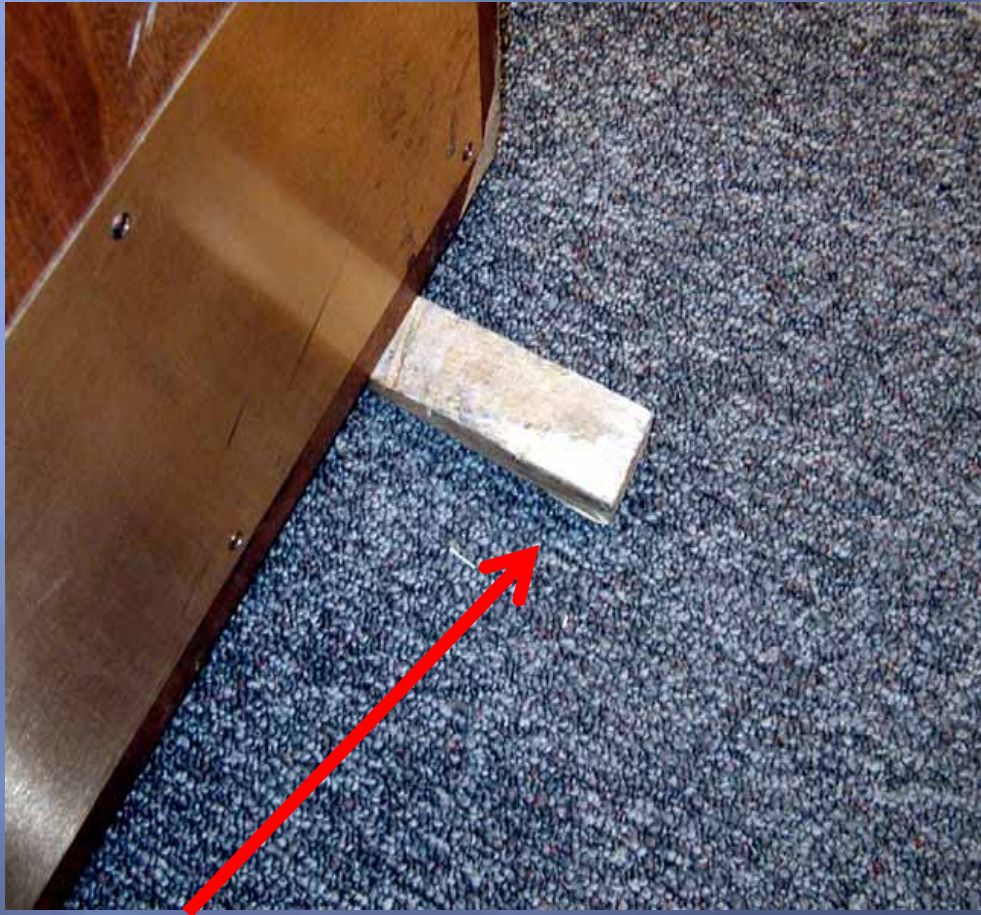
What's Wrong With This Opening?



- There is an open hole in the head of the frame.
- To fix, you could fill the hold with a steel filler; have a steel plate welded on to fill the hole; or replace the door frame.



What's Wrong With This Door?



Wedge under door prevents door from closing in a fire or emergency situation.

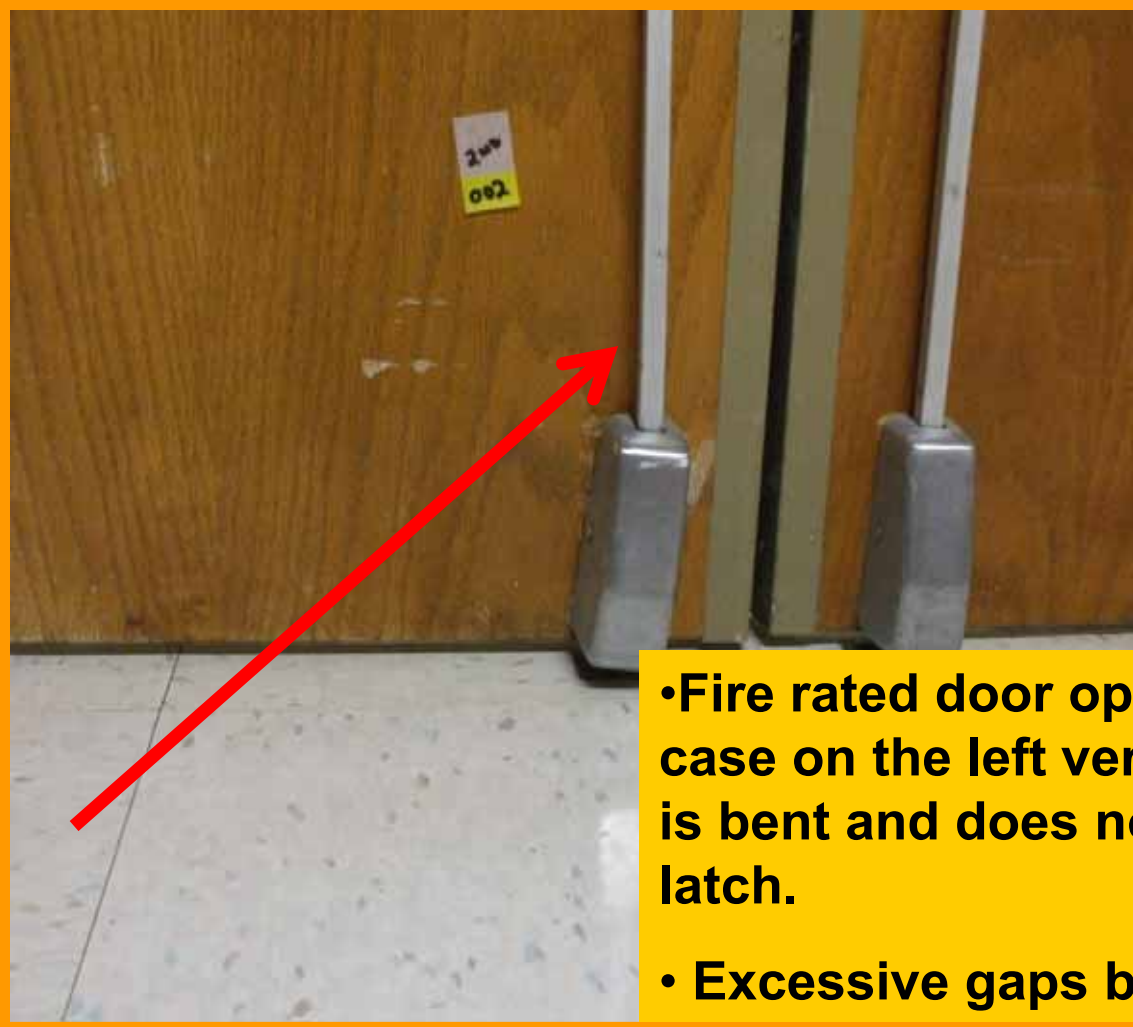
NFP80 6.1.4 Operation of Doors.
All swinging doors shall be closed and latched at time of fire.

What's Wrong With This Opening?



•Fire rated door has damage to the face of the door. As long as the mineral core is not exposed door can be repaired. Wood Filler.

What's Wrong With This Opening?



- Fire rated door opening, the latch case on the left vertical rod exit device is bent and does not allow the door to latch.
- Excessive gaps between doors.

What's Wrong With This Opening?



- Wood filler under the armature for the wall magnet is not a fire rated application.

What's Wrong With This Opening?



- Lock has been changed, and the new lock does not cover the original holes on this fire rated opening.
- Install the correct lock or fill the open holes with steel fillers, or replace the door.
- Cover plates are not an acceptable solution for this problem.

What's Wrong With This Opening?



- Fire rated door has a loose latchbolt and screws on face plate of latchbolt.
- Replace latchbolt if necessary and tighten screws.

What's Wrong With This Opening?



- Open holes in the face of a fire rated door.
- Fill all holes with the proper fasteners for the missing hardware or fill all holes with steel screws.

What's Wrong With This Opening?



- Sign is attached to glass. This is a violation of NFPA80, no signs shall be attached to the glass on fire rated assemblies.

What's Wrong With This Opening?



- Kick plates are over 16 inches high and require a Fire Rated label.

What's Wrong With This Opening?



- Signage is too large (cannot exceed more than 5% of door area) and is attached to glass.
- Exit device is missing its bottom rod and latch and is not fire rated.
- Protection plate is not labeled.
- Lite kit and glass are not fire rated.

What's Wrong With This Opening?



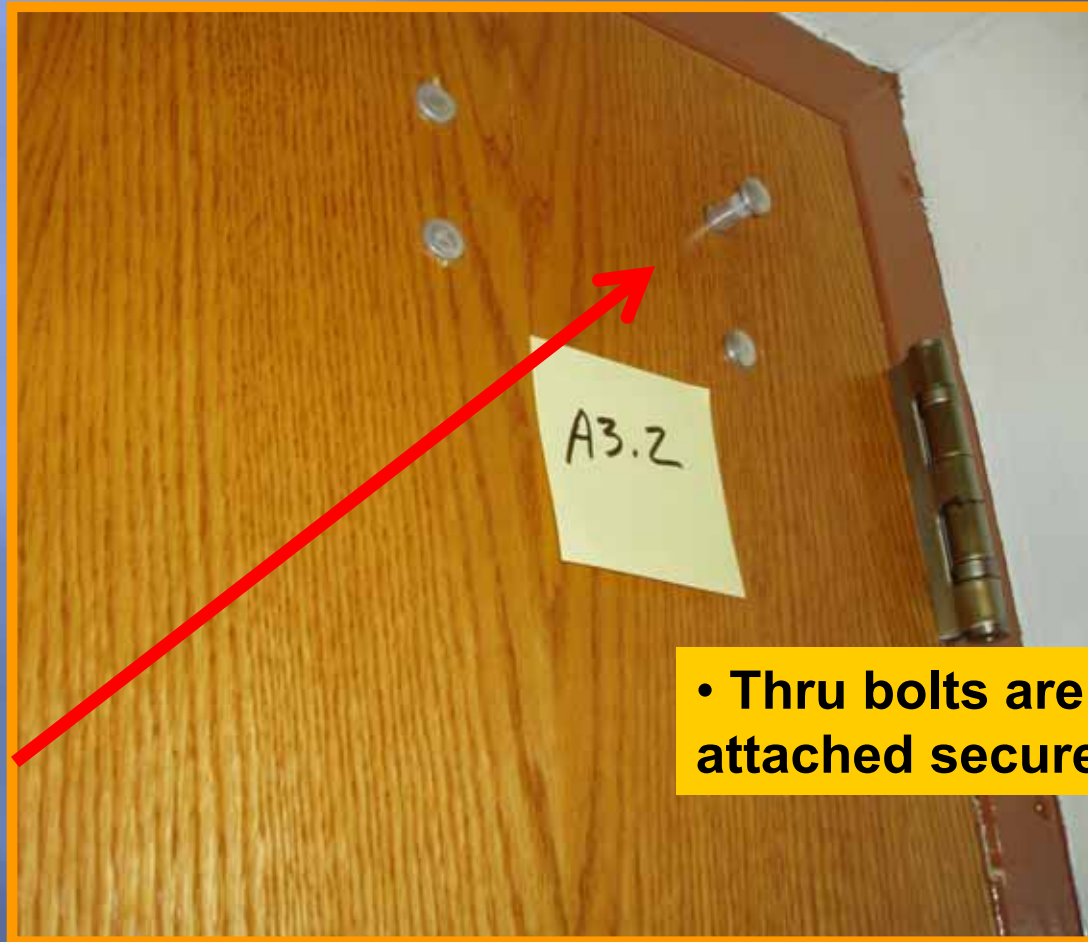
- Exit devices are missing bottom rods and strikes.
- Cover plates under exit devices may be covering old hardware preparations. Cover plates alone are not code compliant.
- Glass and wood lite kits are not fire rated.

What's Wrong With This Opening?



- Fire rated door has un-approved attachments (hooks used to hang a back board).

What's Wrong With This Opening?



- Thru bolts are loose and must be attached securely to the door.

CORRECT APPLICATIONS

**Closer's with Hold Open
Wall Magnets
Fire Label Locations
Electric Strikes
Glass & Glazing
Coordinators
Delayed Egress - Singage**

Tracked Closer That Is Connected to Fire Alarm



Wall Magnets Connected To Fire Alarm



Closer with a Fuseable Link Arm



Can this be used in new construction or as a replacement, or both?

Location of Fire Label



On doors with mortise hinges, the fire label should be approximately 6" below the top hinge.



On doors with a continuous hinge, the fire label should be on top of the door and frame header.



Electric Strike



Good Application.
Meets NFPA 80 Requirements.
No Modifications to Frame.

Delayed Egress



Door Must have Signage on Delayed Egress

Fire Rated Glass



Fire Rated glass can be either wire or clear.
Clear glass will always have date and Classification stamp.
All Fire rated Glass installed after 1991 is be Permanently Marked.
Clear Fire rated glass was developed after 1995 and will always be marked.
Glass after 2006 must now meet fire and safety standards for impact resistance.
New wire glass with safety film meets impact ratings.

Life Safety

- ▣ Free Egress at All Times
- ▣ No Prior Knowledge to Open a Door
- ▣ One door does not Inhibit the other door.





NFPA 101



Life Safety Issue, Astragal prevents one door from opening.

Inspections

- ▣ NFPA 80 Chapter 5 Care & Maintenance
- ▣ Not only are the Fire Rated Doors to be inspected, they are also to be tested.
- ▣ Chapter 5 Care and Maintenance
 - It is in section 5.2.3 Functional Testing

Functional Testing

- ▣ NFPA1 12.4.6.8.1
- ▣ NFPA80 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.

Responsible for ongoing care and maintenance of their facility

- ▣ Chapter 5 of NFPA 80, titled Care and Maintenance is where you will find the requirements for inspecting fire door assemblies. In addition to the inspection requirements Chapter 5 includes instructions and requirements for the removal, replacement and repair of fire door assemblies.

Insure that all components (Fire Door Assemblies) are functioning as designed

- ▣ Chapter 5 of NFPA 80, section 5.2.4 “Swinging Doors with Builders Hardware or Fire Door Hardware”, paragraph 5.2.4.2 lists eleven items that are to be verified as the minimum requirements for swinging fire door assemblies.

Take immediate steps to remedy broken or malfunctioning components

- ▣ Chapter 5 of NFPA80, section 5.1.5 titled “Repairs and Field Modifications”, paragraph 51..5.1 “Repairs shall be made and defects that could interfere with the operation shall be corrected without delay”. The intent of this section is to require maintenance personnel to take immediate steps to correct problems.

Insuring that formal safety inspections take place on an annual basis

- ▣ Chapter 5 of NFPA 80, Care and Maintenance
 - 5.2 Inspections
 - 5.2.1 Fire door assemblies shall be inspected and tested not less than annually, and a written record of the inspection shall be signed and kept for inspection by the AHJ (Authority Having Jurisdiction)

- ▣ **Inspection of Swinging Doors w/ Builder's Hardware:**

- ▣ 2007 Edition of NFPA 80

- ▣ Chapter 5, Care & Maintenance

- ▣ Section 5-2, Inspections

- ▣ Paragraph 5-2.4, Swinging Doors
w/ Builders Hardware

- ▣

- ▣

- ▣ **Things to look for:**

▣ **No Open Holes or Breaks in the Surfaces of the Door or Frame:**

- No Unfilled fastener holes
- Rust through HM doors and frames
- Delaminating faces on wood and HM doors
- Holes filled with steel Fasteners (NO Bondo)

▣ **Glazing, Side Light Frames, and Glazing Beads are In Tact and Securely Fastened in Place:**

- Wire glass and other glazing materials - intact & secure.
- All Fire rated Glazing is labeled.
- Light-kit frames, secure & no missing screws.
- Glazing beads on sidelight and transom frames are secure, no missing screws.

▣ **Door, Frame, Hinges, Hardware and Noncombustible Threshold are Secured, Aligned and in Working Order with No Visible Signs of Damage:**

- Frame securely anchored to wall
- Hardware securely fastened – no missing fasteners
- No obvious signs of damage. Dents that exceed $\frac{1}{2}$ the thickness of the door. Dents on the edges of the door that expose more than $\frac{3}{8}$ " gap between door and frame. (Normal wear and tear is to be expected)

▣

▣ **No Parts Are Missing or Broken & all attachment screws are present & secure (Only manufacturer supplied screws are acceptable):**

- Hinges
- Strike plates
- Locks & Exits
- Closers & arms
- Coordinator (at paired openings)
- Protection plates and door Edges.

▣ **Door Clearances at the Door Edge to the Frame, on the Pull Side of the Door, Do Not Exceed:**

- ▣ For HM Door 1/8" (+/- 1/16"), door to frame and at meeting stiles of pairs
- ▣ For Wood Door = 1/8" maximum, door to frame and at meeting stiles of pairs
- ▣ 3/4" between bottom of door and floor or threshold

▣ (Common sense does have a bearing during inspections. 1/32" and 1/16" variations are not typically considered a deficiency.)

▣

▣ **The Self-Closing Device is Operating by Verifying That The Active Door Will Completely Close When Operated From the Full Open Position:**

- ▣ Electric-release devices release and door closes
- ▣ Mechanical closers operate properly (ADA 5# force is not a requirement on Fire Rated doors, but should be as close as possible and still close and latch the door at all times).
- ▣ If 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 (No binding of locks, latches, exit devices, or flush bolts):**
 - Mortise, bored and pre-assembled locks
 - Auto Flush bolts
 - Fire exit hardware
- ▣
- ▣ **Auxiliary Hardware Items Which Interfere or Prohibit Operation are NOT Installed on the Door and Frame:**
 - NO Kick-down door holders
 - NO Hold open closer arms
 - Wall holders – Only when part of an approved Fire Alarm System.
 - Surface bolts – Only when approved by the AHJ
 -
- ▣ **No Field Modifications to the Door Assembly Have Been Performed That Void the Label:**
 - NO Cutting of Frame or Door (Electric Strikes, lite kits, Hardware modifications).
 - Drilling – Round holes greater than 1". Holes must be part of surface hardware installation instructions.
- ▣
- ▣ **Gasketing and Edge Seals, Where Required:**
 - Verify presence and integrity
- ▣

- ▣ **Inspector's Responsibilities:**



- ▣ Status of door openings on date of inspection.

- ▣ Recommend necessary corrections.

- ▣ Provide written inspection reports.



- ▣ *Inspector's are NOT Responsible for:*



- ▣ Making sure openings are repaired.

- ▣ Determining the correct fire-rating of door openings

- ▣ Alerting AHJ's of problems.



Questions

