# Inspection Challenge !

**100 Questions**

**How good is your eye?**

*presented by*

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# WHEA Annual Conference

**Friday Sept 25, 2015**

Rocketing into the next 50 years!


**Presented by:**
**Bill Lauzon, PE**

**2006-2011**
**DHS-DQA**

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Rocketing into the next 50 years!

**Co-Owner**
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## Heather Lauzon Werner
***Director of the Environment of Care***


**Lakeview Specialty Hospital**

LAKEVIEW

**Waterford, Wi**

# Inspection Challenge !

**100 Photo Questions**

**You have about 10 seconds to come up with an answer**

**Talk with those in your room!**

**1. What is the violation in this corridor door?**

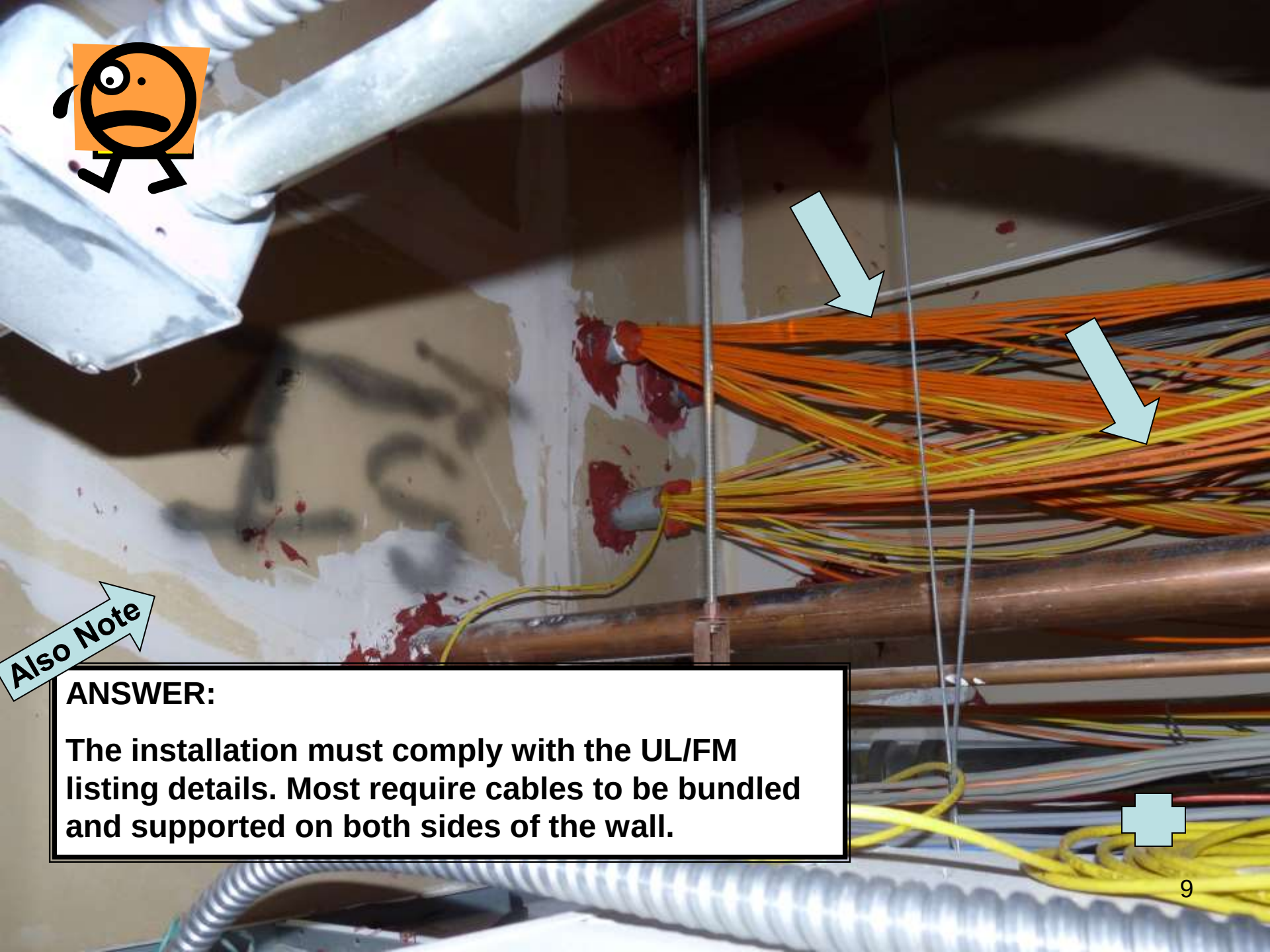
↓

**ANSWER:**

**The aluminum door frame does not have a stop to ensure the opening resists the passage of smoke.**

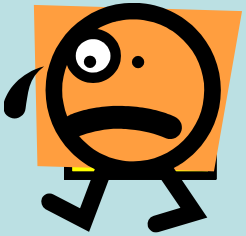
## 2. What is non-compliant with these cable penetrations?

↓




**ANSWER:**

**The installation must comply with the UL/FM listing details. Most require cables to be bundled and supported on both sides of the wall.**



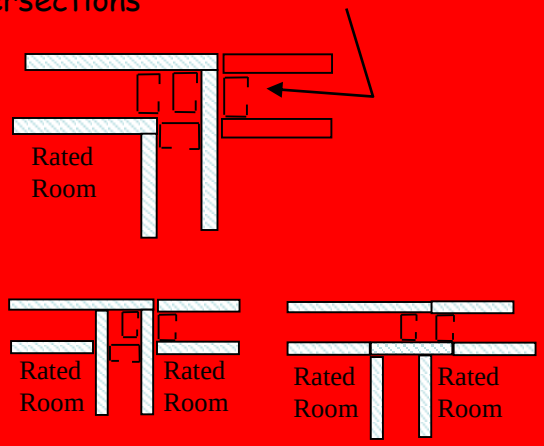
**3. How <u>thick</u> does the drywall typically need to be in a 2-hr rated wall?**

**x**

# RATED WALL CONSTRUCTION

## RATED GWB WALL FRAMING

Drywall on rated walls must be continuous, even around corners & Intersections




**WIRED GLASS WINDOWS:** [LSC 8.2.3.2.2; IBC 715.5.3]

| | |
|---|---|
| <45 min: | No Limit |
| 45 min: | Max 1296 sq.in. |
| 60/90 min: | Max 100 sq.in. in metal frame |
| 3 hr: | Not Permitted |

**WALL/FLOOR THICKNESS**

| | |
|---|---|
| ½ hr | One 5/8" Type X on one side |
| 1hr | One 5/8" Type X each side of stud; 4" CMU: |
| | 2-3/4" concrete; 3" Clay Tile +5/8"GWB both sides |
| 2 hr | Two 5/8" Type X each side of stud; 8" CMU; |
| | 4" concrete; 6" Clay Tile w/5/8"GWB both sides |

Furred "cosmetic" walls & chaises in front of rated walls should only extend to 6" above ceiling so the rated wall is visible to inspect and fire stop.

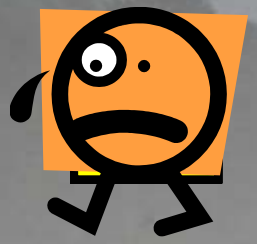
All joints & screws must have 2 layers of tape/cement; wall at deck must be fire sealed

**No wood framing is permitted**

See IBC 720 for equilivant thickness calculations

**4. Why is the condition shown in this photo a problem in an occupancy separation wall?**

↓

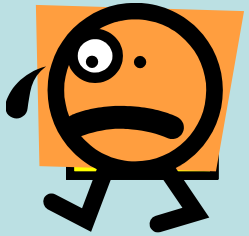


## Occupancy Separation Wall

Also Note

**ANSWER:**

**Occupancy separation walls must be constructed with a 2-hour fire rating resistance. There can be no holes. All penetrations must be fire stopped. Walls must have 2 layers of 5/8” Type X drywall on both sides.**



**5. Walls must separate all spaces from the corridor.**
**BUT, there are exceptions.**

**What are the exception requirements ?**

x

# CORRIDORS ('Exit Access') [LSC 7.2.1; 18.2.3; 18.3.6]

**SMOKE-TIGHT**: Corridor walls, doors & windows must be smoke-tight from adjacent spaces. If the smoke zone is fully sprinkled ceiling can form top of barrier. See Page 29 for ceilings. [LSC 18/19.3.6.2]

**RATING**: $^{N}$**H**=None; **H**$^{E}$=30 min, unless zone sprkled; $^{N}$**A**, $^{N}$**B**= 1 hr rating, unless an open ofc, 1 tenant, or fully sprkled [20/38.3.6.1]; **A**$^{E}$, **B**$^{E}$: No Requirements [20/21/39.3.6]

**2 EXITS**: Must have 2 exits from all points, without passing through a room.

**OPEN SPACES**: Spaces (except or pt sleep, treatment or haz mtls) can be open to corridor if corridor in smoke zone has smoke detection & space has smoke detector or is adjacent to 24 hour occupied nurse station [LSC 18/19.3.6]

**WIDTH**: $^{N}$**H**= 8' at patient sleeping/treatment areas; 6' in Mental Health areas; 4' in other areas; max 4" projections [LSC 18.2.3.3]
$^{E}$**H**= per new requirements when built, min 4' [LSC 19.2.3.3]
$^{N}$**A**=44" [LSC 20.2.3.2] $^{N}$**B**$^{E}$=44" if Occup >50 [LSC 38/39.2.3.2]

**HEIGHT**: Ceilings min 7'-6" w/7' projections (6'-8" in existing)

**WINDOWS**: Fixed glass in approved frames. If bldg fully sprkled no requirements [18/19.3.6]

**DOORS**: See Pages 16-18;

LIGHTING: See Page 43

**FIRE EXTINGUISHERS**: Max 150' apart

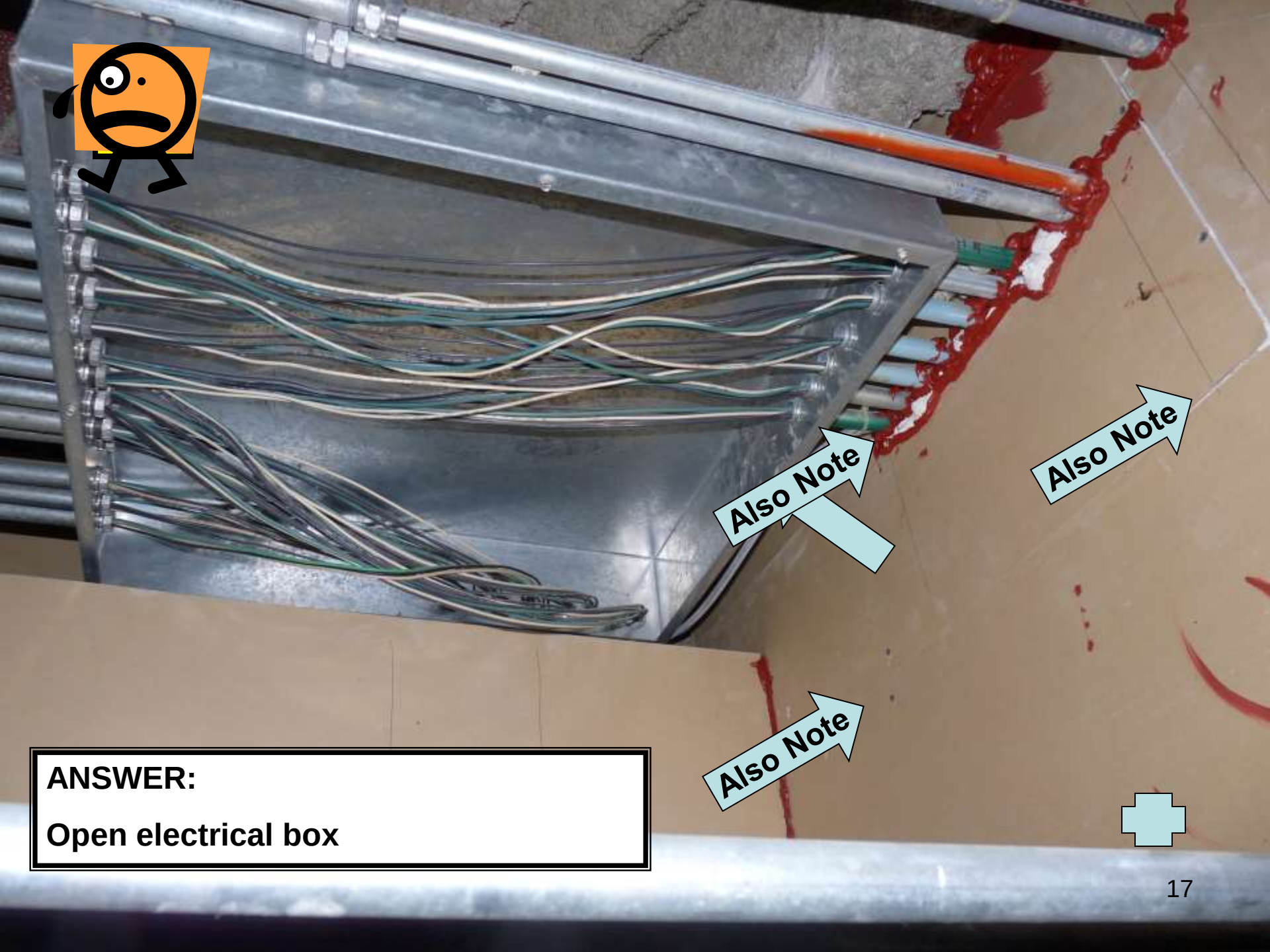
| DEADEND | LIMITS |
|---|---|
| Healthcare [1004.3.2.3] | NH: <20'<br>EH: Min Possible |
| Business & Amb Care [1004.3.2.3, LSC 38.2.5.2] | NA,NB: <20', but can be 50' if fully spkled;<br>EB=<50' [39.2.5.2] |
| | |

**Alchol Based Hand Rubs (ABHR)**
Corridor min 6' wide; Max 1.2L size in corridors/2L in rms; Max 10 Gal in Smk Zone; No outlet/switch within 6"; Bldg Fully Sprinkled if over carpet [18/19.3.2.7, CFR 416.44]

**Sliding Windows**
Must be smoke-tight via rated seal or room comply as if open to corridor

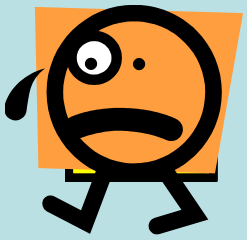
# 6. What is the violation?

↓




**ANSWER:**

**Open electrical box**



**7. What are some of the key requirements of a corridor door?**

x

# KEY INSPECTION POINTS of DOORS

[LSC 18.2.2.2; 18.3.6.3; 18.3.7.5]

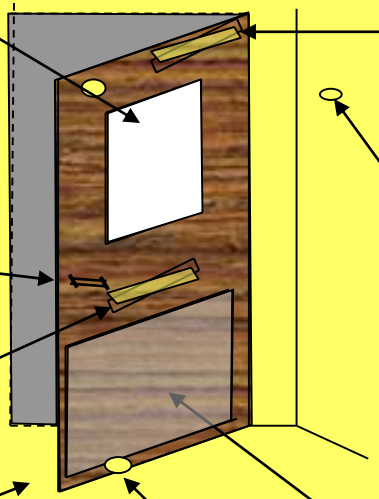
WINDOW: See Page 8

STOPS – Frame must have stops at jamb & header

LATCH- Single-motion release; self-latch; cannot lock from exit side unless using 'delayed egress' latch;max 15lb force to open

MAIL SLOT – Max 20 sq.in in lower half of door (none in rated doors) [LSC 18.3.6.5]

UNDERCUT – Max ¾" on fire doors; 1" in corridor



CLOSER – Needed if rated door- No hold-open arm; Optional on all other doors (provide hold-open arm)

MAG-HOLD-OPEN – Needed only if rated & door left open; must have at least one smoke detector within 5' of door; any headers >=2' needs a detector [72:3-9.6]

KICK-PLATE –Max 16" hi if rated; 48" if smoke or corridor

DOOR STOP (or wedge)– Never acceptable

**Inspect door self-closing & latching** several times to make sure they operate repeatedly.

**8. You are walking down a corridor and see this situation. What code issue does it illustrate?**

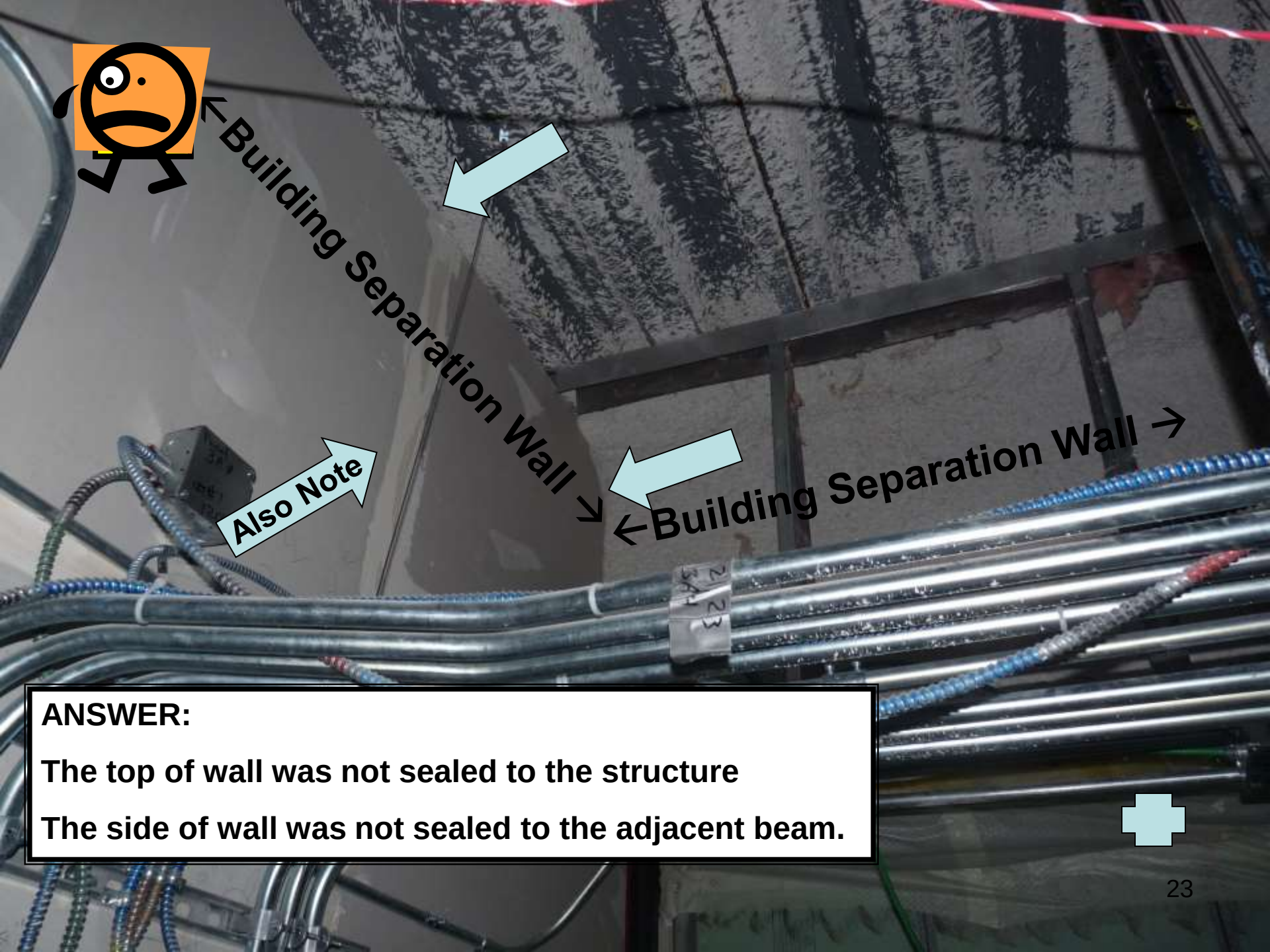
↓


**ANSWER:**

**Door obstruction reduces required width below 50%.**

**9. Identify the code issue with this building separation wall.**

↓



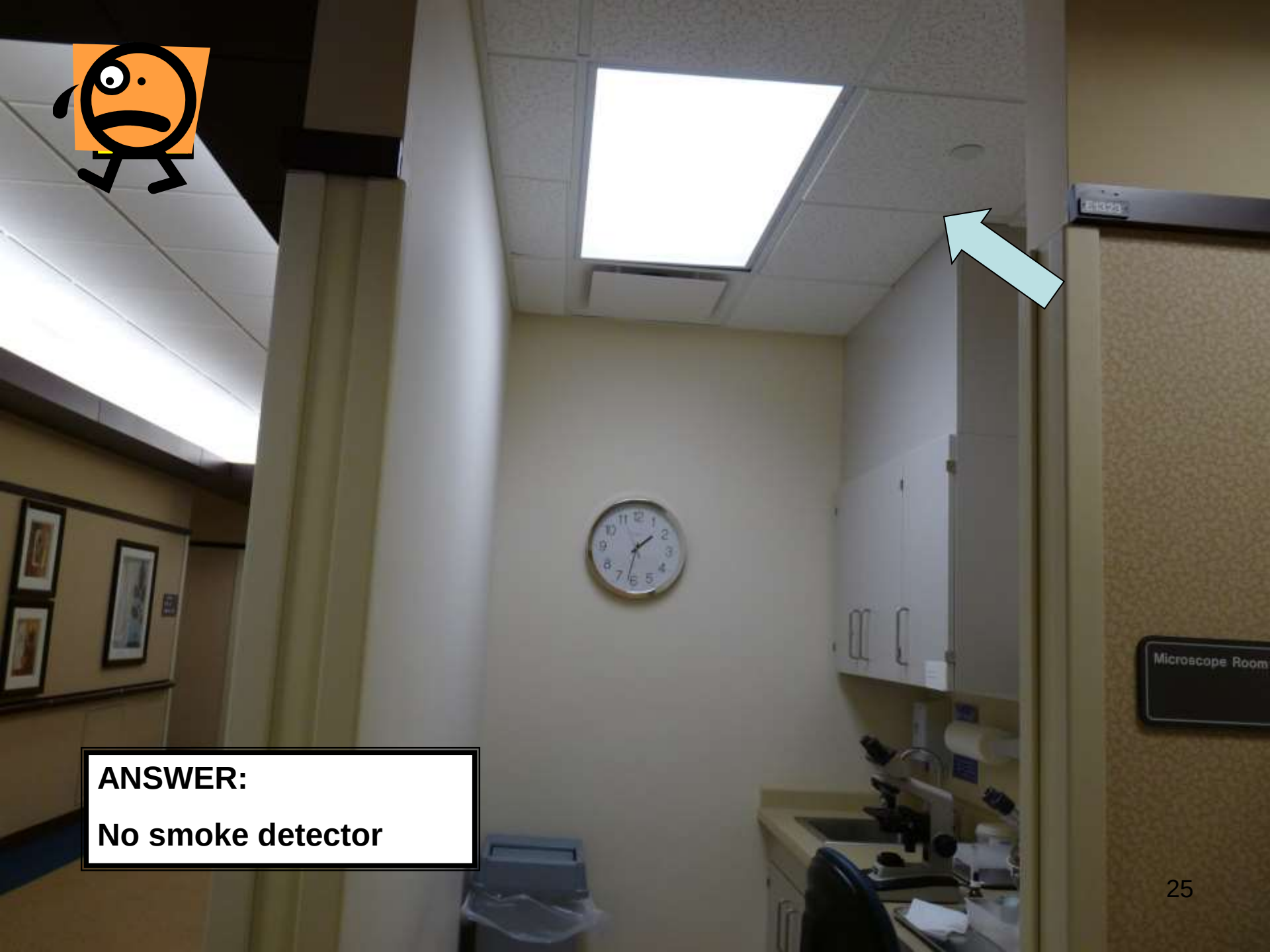

**ANSWER:**

**The top of wall was not sealed to the structure**

**The side of wall was not sealed to the adjacent beam.**

**10. What is the violation at the corridor alcove?**

↓

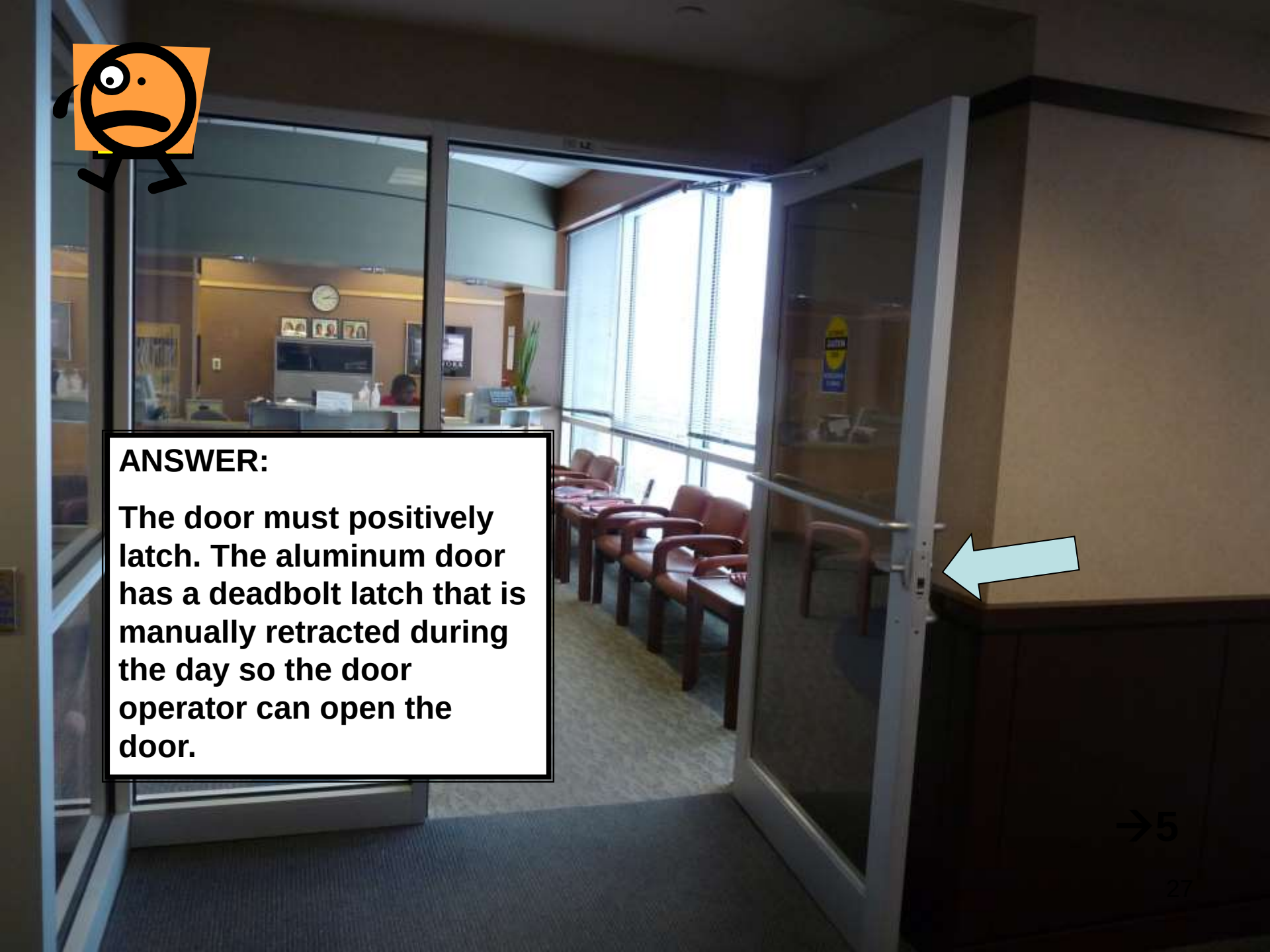



**ANSWER:**

**No smoke detector**

**11. This is the entrance into a suite. It is also a smoke barrier wall. What is the violation?**

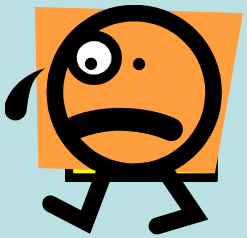
↓



**ANSWER:**

**The door must positively latch. The aluminum door has a deadbolt latch that is manually retracted during the day so the door operator can open the door.**

→5



**12. What edition of NFPA 101 has been adopted in Wis?**

**x**

# LIFE SAFETY CODE

(Applies to New & Existing facilities that receive federal CMS funding or are healthcare licensed)

The NFPA 101, Life Safety Code (LSC) is published by the National Fire Protection Association (NFPA) every 3 years. The LSC govern the construction of buildings and exits so people have the best chance to survive fires. The 2000 edition of the LSC has been adopted by the 2 primary authorities having jurisdiction that regulate healthcare facilities (Wis. Dept of Health Svcs and federal Center for Medicare Svcs).

In hospitals, the concept is to avoid evacuation because it is extremely difficult and time consuming.

The **"DEFEND IN PLACE"** concept is used.

1). Limits the type of construction mtls (non-combustible),
2). Requires compartmentalization to retard the spread of fire and smoke (floors, fire & smoke barriers),
3). Provides safe paths of exit (corridors & stairwells),
4). Requires quick extinguishment (sprinklers),
5). Requires quick detection & notification of fires (alarms),
6). Requires quick response to fires (trained staff).

**FSES**: The Fire Safety Evaluation System is accepted by CMS and Wis DHS to document alterative compliance methods to satisfy the LSC. It is contained in NFPA 101A (2001 ed). CMS has developed form CMS-2786T to document the evaluation. Contact the DHS Engineer for more information.

**WAIVERS**: CMS generally does not approve waivers to code compliance because the FSES provides a structured evaluation that can show equivalency to the LSC. Waivers are NOT permanent. [CMS S&C Ltr 07-20]

The 2000 LSC references some NFPA Standards in chapter 2, including: 10'98 (Fire Exting), 13'99 (Sprinkler), 25'98 (Sprklr Test), 70'99 (Electrical), 72'99 (Fire Alarm), 80'99 (Fire Doors), 96'98 (Kitchen Hoods), 99'99 (Med Gas & Electrical), 110'99 (Generators), 220'99 (Constr Type), 221'00 (Fire Walls/Barriers), 241'96 (Construction);

**What is missing in this exterior exit path?**

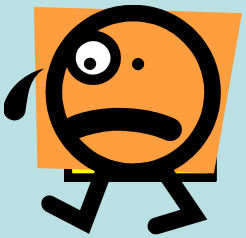
↓

Exit Door →

Exit Path →

**ANSWER:**

**There is no lighting to the public way.**



**What is the minimum fire rating for a smoke barrier door?**

**x**

# DOORS - RATED

**RATED DOORS** [LSC 8.2.3.2.3]

**Fire Barriers:** Rated doors required;
- 45 min labeled doors in 1 hr rated walls (except below)
- 60 min labeled doors in 1 hr vertical openings or exits
- 90 min labeled doors in 2 hr rated walls

Door rating is typically less than the wall rating because it's assumed that no combustible items will be placed next to the door in its swing, so not as much FRR is needed

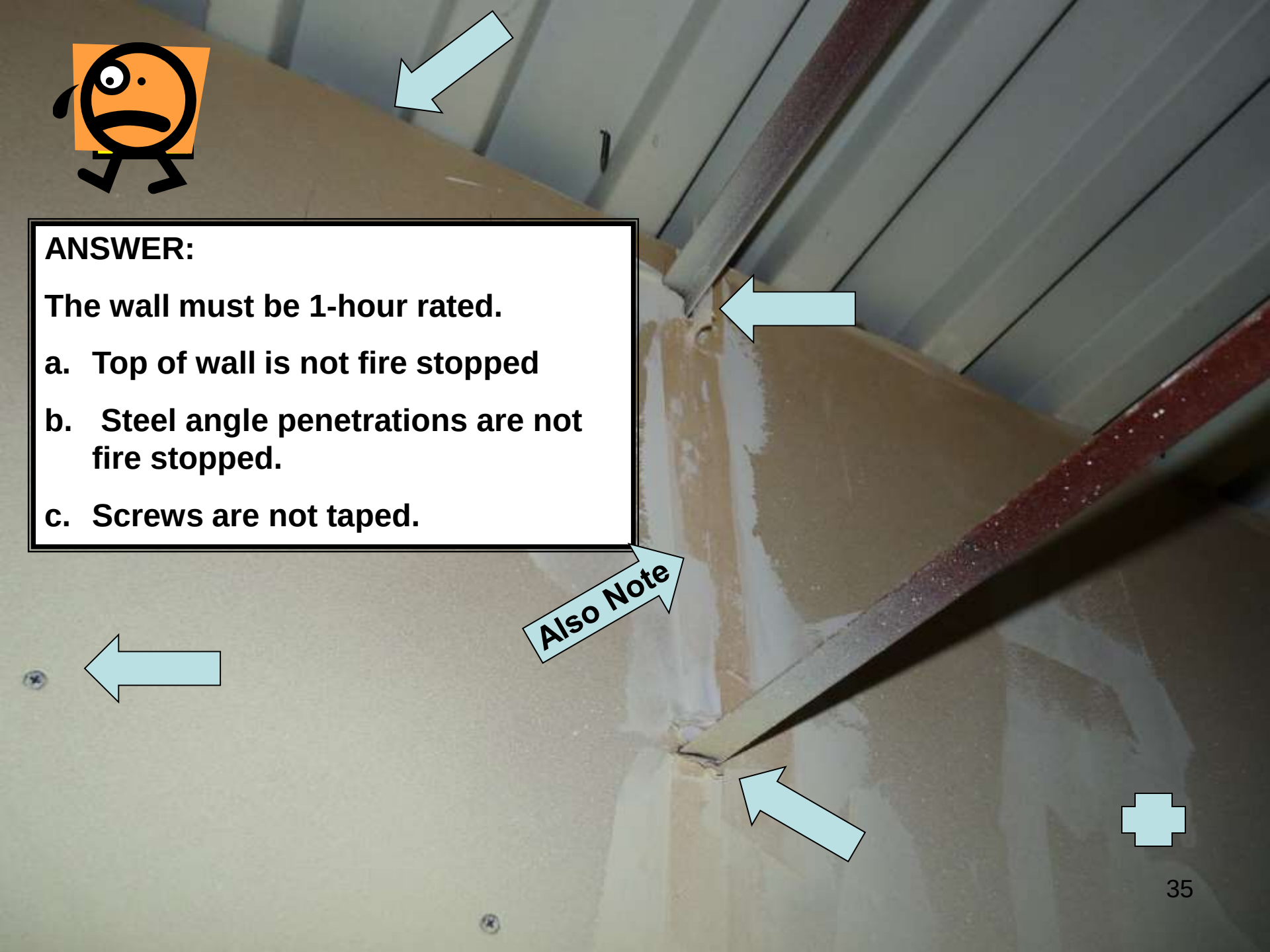
**Smoke Barrier Walls (Healthcare):** Doors need a 20 min label or 1-3/4" thick solid. In new occup must be dual-egress when across corridors & must have windows.

**Corridor doors (Healthcare):** If sprinkled-no rating required, but must be smoke-tight. If non-sprkled in Existing must be 1-3/4" solid wood or 20 min labeled.

**AUTO-OPERATORS & SECURITY LOCKS** – Rated doors require electric latch release; must remain in latched position if power is lost; Operator must de-activate lock & latch prior to door operation. [LSC 7.2.1.9]

**13. What is wrong with this wall that encloses a soiled hold?**

↓


ANSWER:
The wall must be 1-hour rated.
a. Top of wall is not fire stopped
b. Steel angle penetrations are not fire stopped.
c. Screws are not taped.
Also Note

**14. What is the violation at this corridor door?**

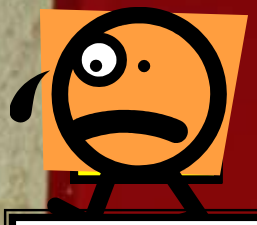
↓

**ANSWER:**

**No astragal**

**15. What is not proper about this spare sprinkler cabinet?**

↓



**ANSWER:**

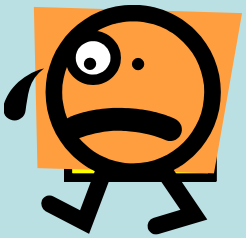
**Several of the sprinklers are not stored in a receptor hole to keep them from falling out. Some surveyors have cited this situation.**

**16. Is this drywall patch code compliant?**

↓

**ANSWER:**

**Drywall in a rated wall must be installed per the listing specifications. These instructions typically do NOT specify patches. Upon request a drywall mfgr may give their educated opinion of what is required, such as the patch must span at least 2 studs and joints/screws sealed with tape compound.**



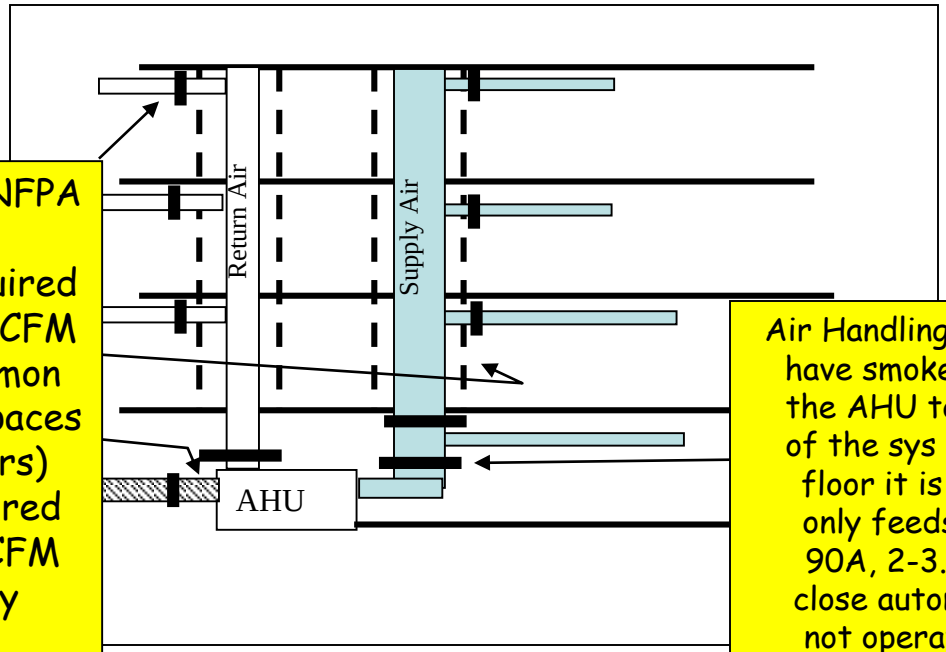
**17. Where are Smoke Detectors <u>needed</u> for ductwork?**

**x**

# DUCT SMOKE DAMPERS & DETECTORS

Duct Smoke Detectors must be within 5' of damper & before any grill opening [IBC715.3.2.1]

Smoke Dampers must be installed within 2' of the smoke barrier it protects. [NFPA 90A, 3-3.5.1]



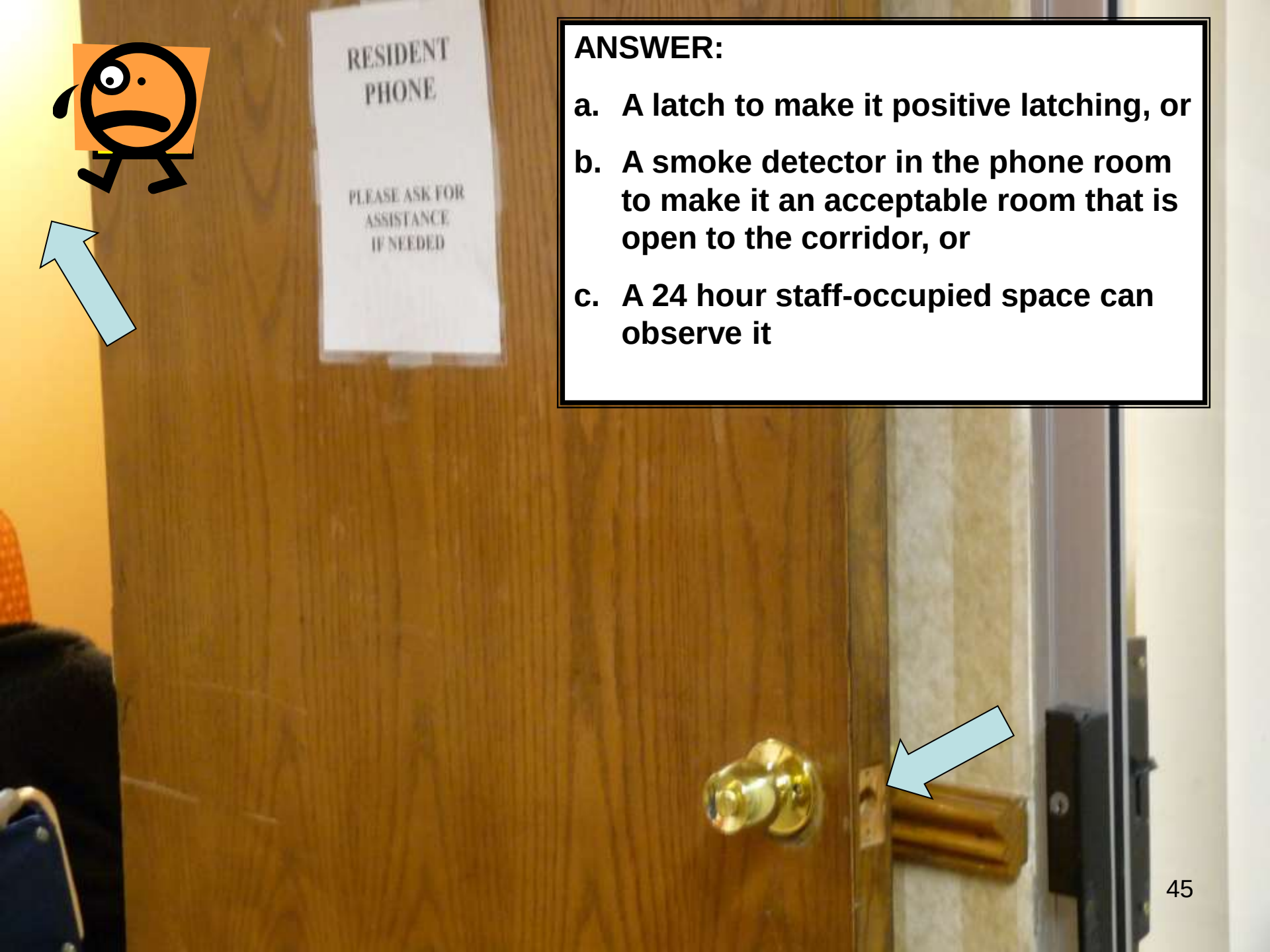

**Detectors Required at**: [NFPA 90A, 4-4.2]

- RETURN: Detectors required in systems with > 15,000 CFM at each story with a common return riser (unless all spaces have area smoke detectors)
- SUPPLY: Detectors required in systems with > 2,000 CFM after filters & before any branch
- FRESH AIR: Detectors required in systems with > 15,000 CFM at fresh air intake prior to mixed air

Air Handling Unit > 15,000 CFM must have smoke dampers & detectors at the AHU to isolate it from the rest of the sys (unless it serves only the floor it is located on, or on roof & only feeds the floor below [NFPA 90A, 2-3.9.2]. The dampers must close automatically when the sys is not operating. [NFPA 90A, 4-3.2]

**18. This corridor door is missing a latch. It will be cited, unless what is provided?**

↓

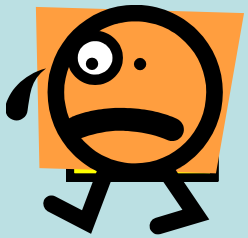



**ANSWER:**

a. **A latch to make it positive latching, or**

b. **A smoke detector in the phone room to make it an acceptable room that is open to the corridor, or**

c. **A 24 hour staff-occupied space can observe it**



**19. When & where are fire & smoke <u>dampers</u> needed in shafts?**

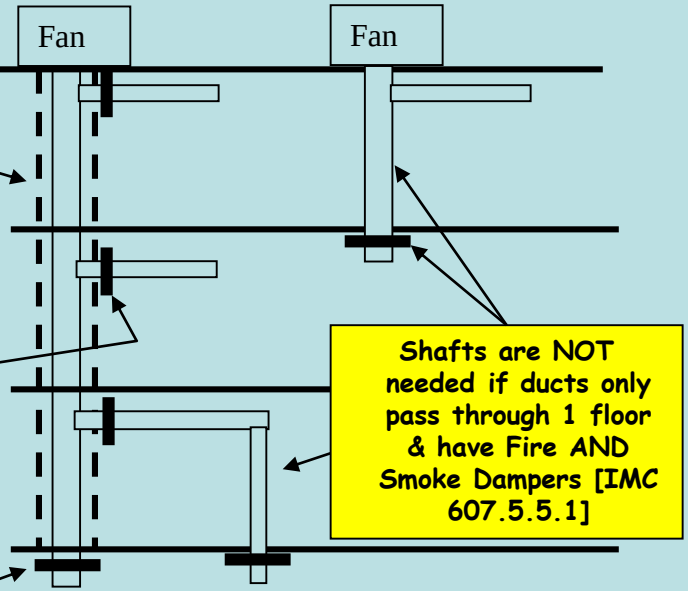
**x**

# SHAFTS (NFPA 90A, IBC 702, 704, 707, 715, 1020 & IMC 607)

**Any duct that passes through a hospital floor must be within a rated shaft (1-hr if 3 or less flr; 2-hr for bldgs 4 or more floors high). See exception at right** [IBC 704.14; NFPA 90A, 3-3.4.1]

**There must be a fire AND smoke damper at all locations that ducts enter or leave the shaft (unless in smoke control sys or roof).** [IBC 702, 715.5.3 & IMC 607.5.5.1]

Shafts may be open to the top or bottom of an air handling room (not mech or elec rm) if the room is surrounded by the same wall rating as a shaft [NPFA 90A, 3-1.3]




**Shafts are NOT needed if ducts only pass through 1 floor & have Fire AND Smoke Dampers [IMC 607.5.5.1]**

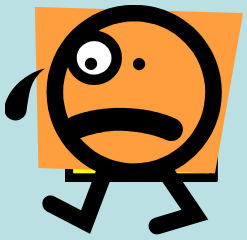
Air handling rooms open to a shaft cannot be used for storage [NFPA 90A, 2-3.10.5.2]

**20. What is the violation in this penthouse?**

↓

**ANSWER:**

**No fire damper on duct as it penetrates through the floor.**



**21. What are some of the key <u>spacing</u> dimensions for sprinklers?**

**x**

# SPRINKLERS

[EH, all A & B: Not Required] [NFPA 13; LSC 18.3.5]

37

1. All rooms in NEW healthcare construction MUST be sprinkled as a light hazard (only exception: Main Elec Switchgear rooms with 2-hr walls all around); Patient areas must be Quick Response type.
2. HEAD [illegible] wall (Light [illegible] 5' Apart
1. POTE[illegible] ts, etc) b). An[illegible] protru[illegible]

## 2. HEAD SPACING:

- Max 7-1/2' from walls (9' if small rm, 10' if extended)
- Min 4" from wall (Light Haz, Std Spklr)
- Min 6' Apart (8' if extended head)
- Max 15' Apart (20' if extended)

**KEY AREAS TO INSPECT**

See Charts Below

- **Shelving in center of room**
- **Irregular-shaped rooms with alcoves, columns, etc**
- **Window wells without sprinklers can be max 360 CF**
- **Rooms without ceilings must have full-height walls**
- **Small closets or rooms**
- **Open ceilings with exposed beams & soffits**
- **Hanging pipes, surface or hanging light fixtures, signs, headers, soffits**
- **Tall Built-In Cabinets must be sprinkled if large enough to contain a hazardous amount of combustible materials (d>18"x h>72",or can walk-in) that can't be controlled by sprinklers in the room. [CMS Ltr 05-38]**

Submit Hydraulic Design for new piping if over 20 heads.

Light Haz: typ hosp/nrsg home (.1gpm/sf)
Ord 1 Haz: kitchen, laundry, mech (.15gpm/sf)
Ord 2 Haz: lab, storage>8'hi (.2gpm/sf)

**22. What is the violation in this penthouse mechanical room?**

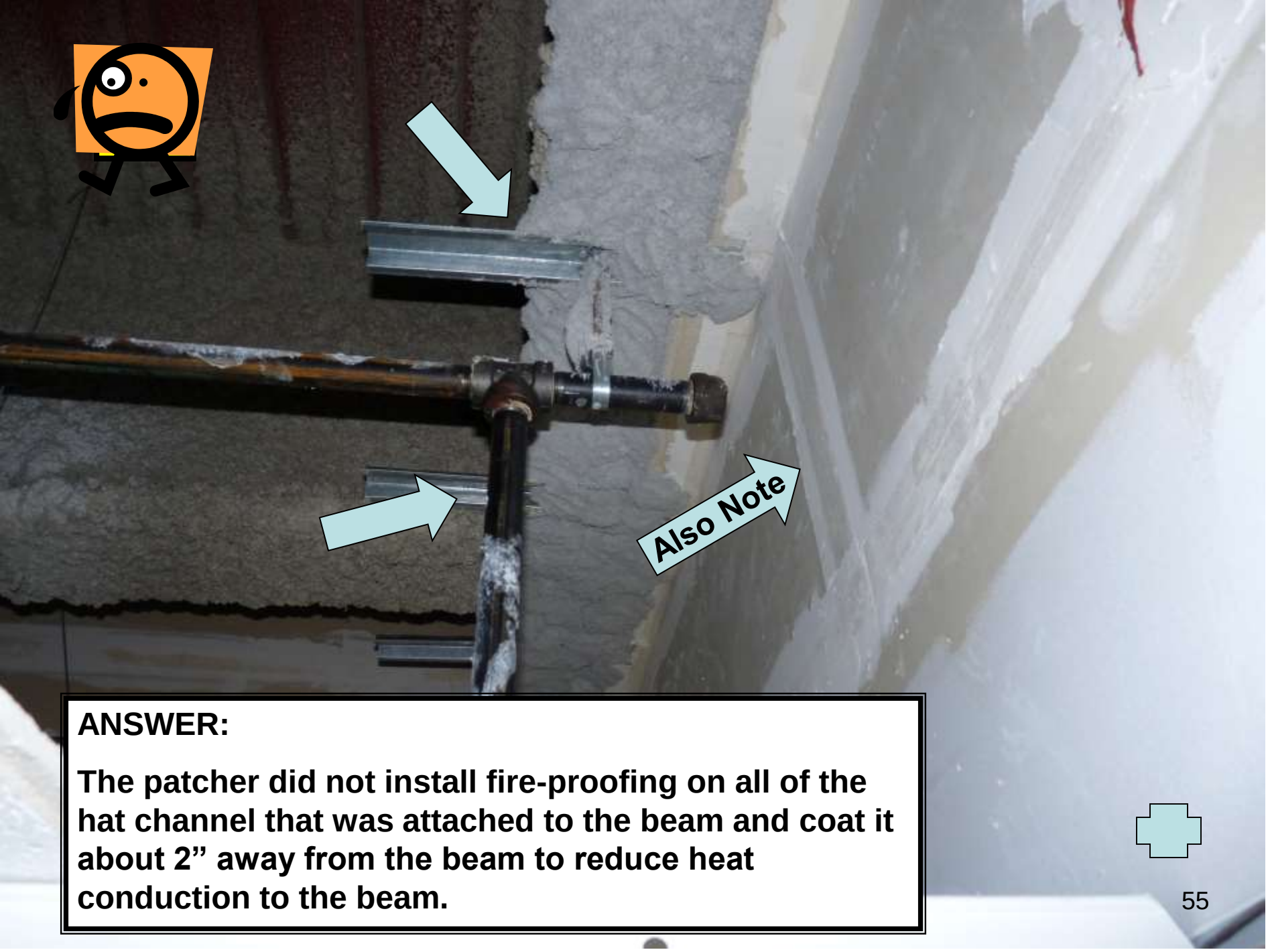
↓

**ANSWER:**

**No fire dampers where ducts penetrate the floor**

**23. During construction what did the fire proofing patcher fail to do?**

↓

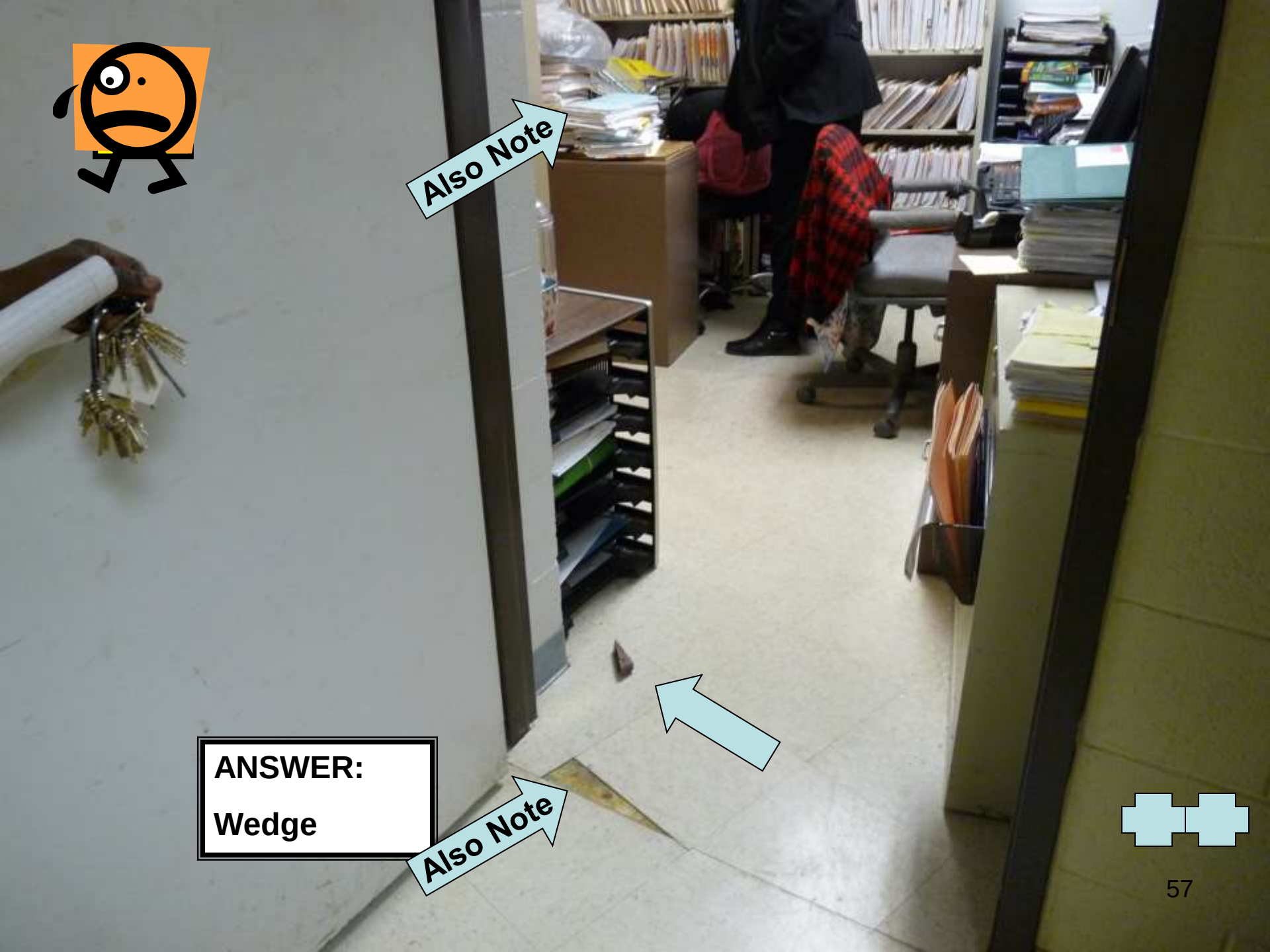



**ANSWER:**

**The patcher did not install fire-proofing on all of the hat channel that was attached to the beam and coat it about 2” away from the beam to reduce heat conduction to the beam.**

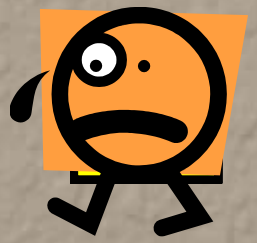
**24. Where is the violation at this corridor door?**

↓


Also Note
ANSWER:
Wedge
Also Note

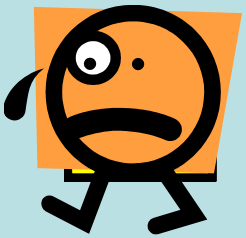
**25. Is this a violation of the LSC, IBC, NEC, or IMC?**

↓



**ANSWER:**

**The NEC (National Electrical Code-NFPA 70) requires all electrical equipment to be maintained in good working order.**



**26. What are the 4 basic things specified in a UL Design for fire stopping?**

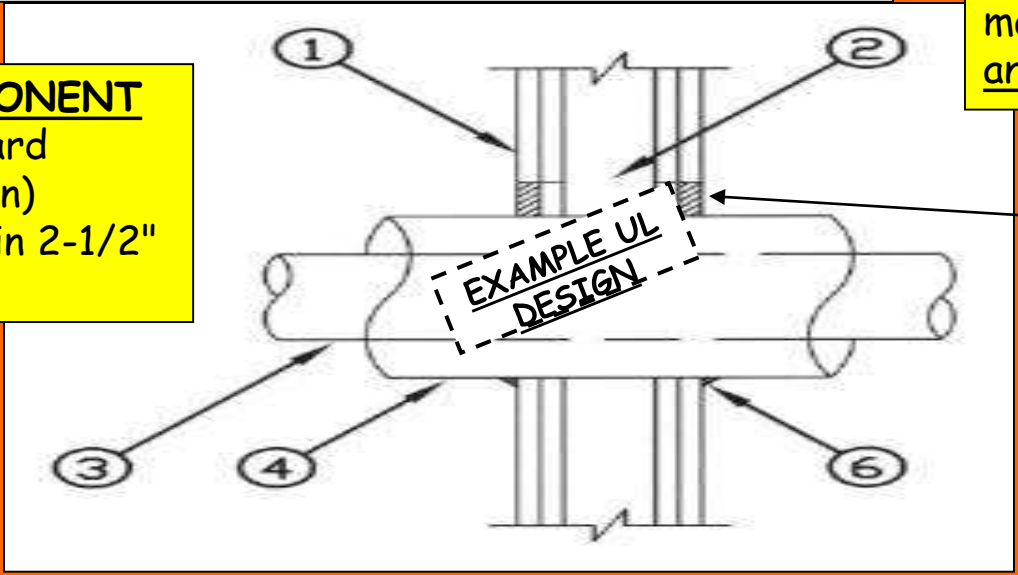
x

# FIRE STOPPING [LSC 8.2.3.2.4; 8.3.6]

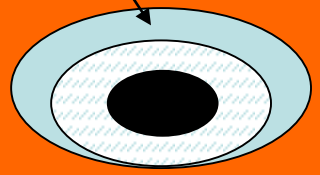
**All penetrations through rated walls and floors must be sealed according to a UL tested design. Typically both sides of walls and the top side of floors must be stopped.**

**Always use the UL Design from your product vender for the precise method for each seal! (Example Below)**

**A-RATED COMPONENT**
1. Gypsum wall board (2 hr shown)
2. Metal studs, min 2-1/2"




**C-RESTRICTIONS**
max 18"hole;
annular: 0" to 1-7/8"



**B-PENETRANTS**
3. Metal pipe, max: (NO sleeve) 12"steel (sch20); 6"cu, 4"emt

4. Max 2" fiberglass insul

**D-REQUIRED SEALANT**
5.Min FS-1: 5/8" for 1 or 2 hr
6. Min ½" crown of FS-1

**27. Where is the violation in this existing exit stairwell?**

↓

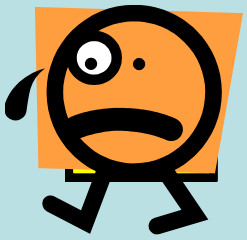
**ANSWER:**

**Cable tray was not fire stopped per UL design standard. Cannot install any new utilities in an exit stairwell.**

**28. Flamespread documentation must be available for which items in this picture?**

↓


ANSWER:
Christmas Tree
Drapery
Carpet
Valance
(Not the chair in a sprinkled room)



**29. What are the key installation points when fire stopping <u>plastic or insulated</u> pipe ?**

x

# FIRE STOP-Plastic/Insulated Pipe

HARDEST TO FIRESTOP

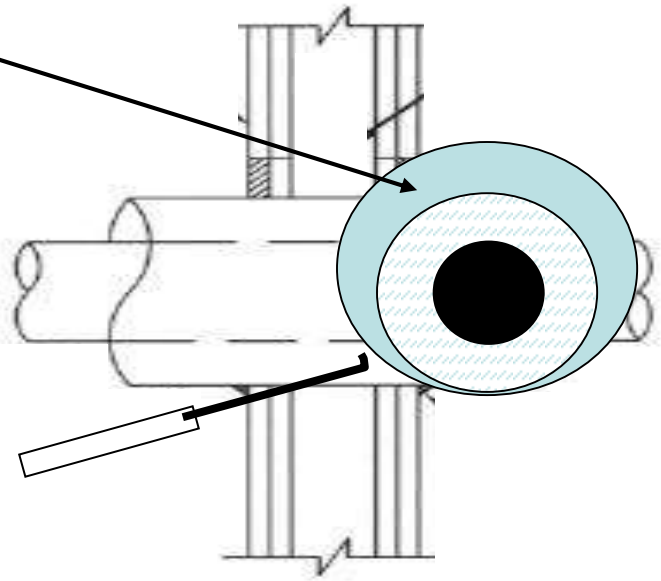
## KEY CHECKS FOR PLASTIC or INSULATED PIPE

**Firestop material must**

- Completely encircle the pipe (top is hardest)
- Must be IN wall between wall & penetrate
- Must Have an annular space on all sides of the pipe (the size depends on UL Design)
- Fill the annular space the thickness required by the UL Design (typically thickness of the GWB

**INTUMESCENT SEALANT**

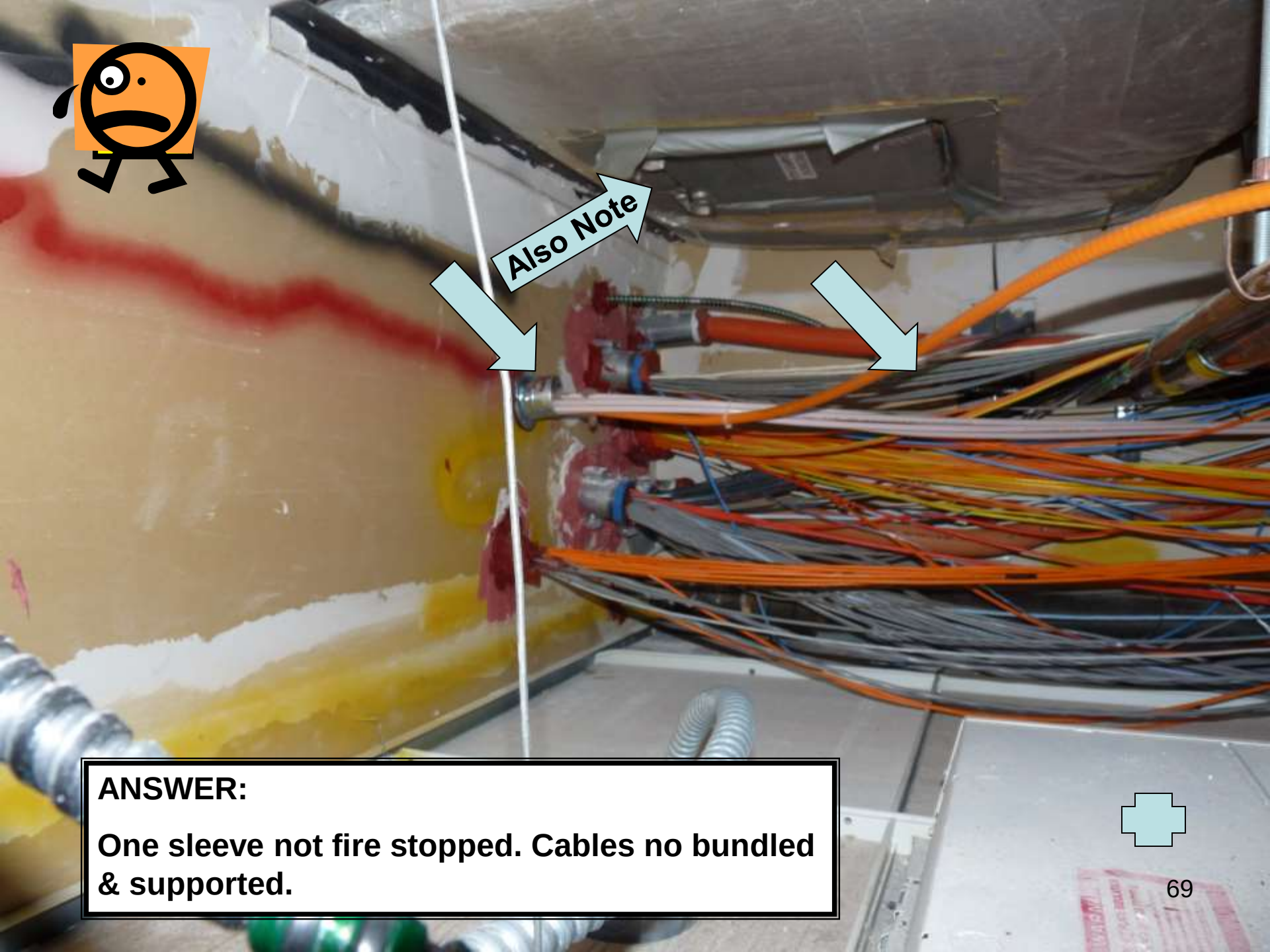
A fire stop sealant that will expand about 10 times when heated to seal materials that could have deformed & caused a hole when heated



Inspector may use a "PICK" tool to test for the size & location of the annular ring and the thickness of the firestop sealant. Test a significant quantity of seals by each vender until they have proven the ability to install acceptable seals.

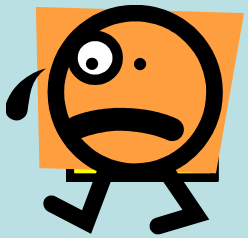
**30. Where is the violation at this smoke barrier wall?**

↓




**ANSWER:**

**One sleeve not fire stopped. Cables no bundled & supported.**



**31. How much Fire Proofing must be installed on structural steel?**

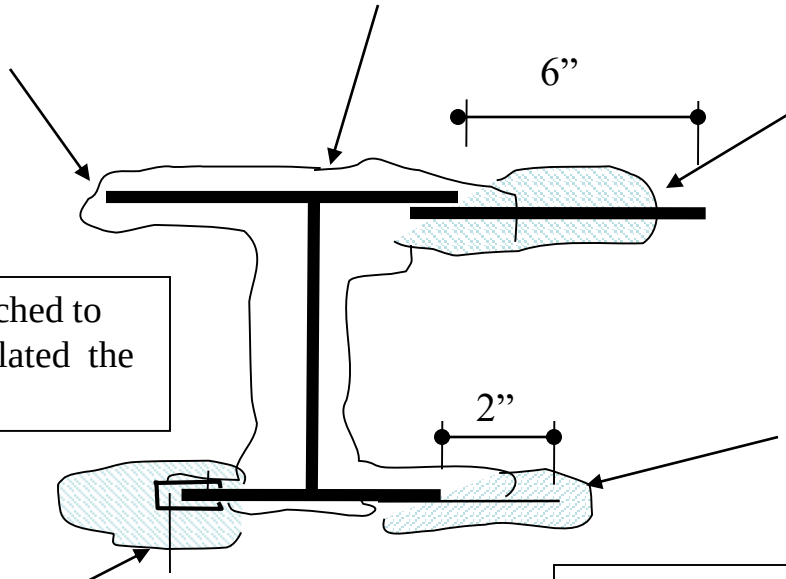
**x**

# FIREPROOFING [LSC 18.1.6.2]

**All beams & columns must be covered by fire proofing thick enough for the specified rating, typically >= 1-1/2"**

**Fire proofing @ end of flange can be ¼" thick**

Thick/heavy attachments must be insulated for 6" away from the framing



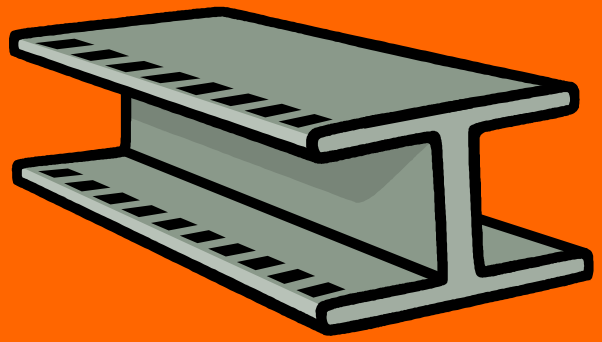

All items that are directly attached to the steel framing must be insulated the same thickness as the steel

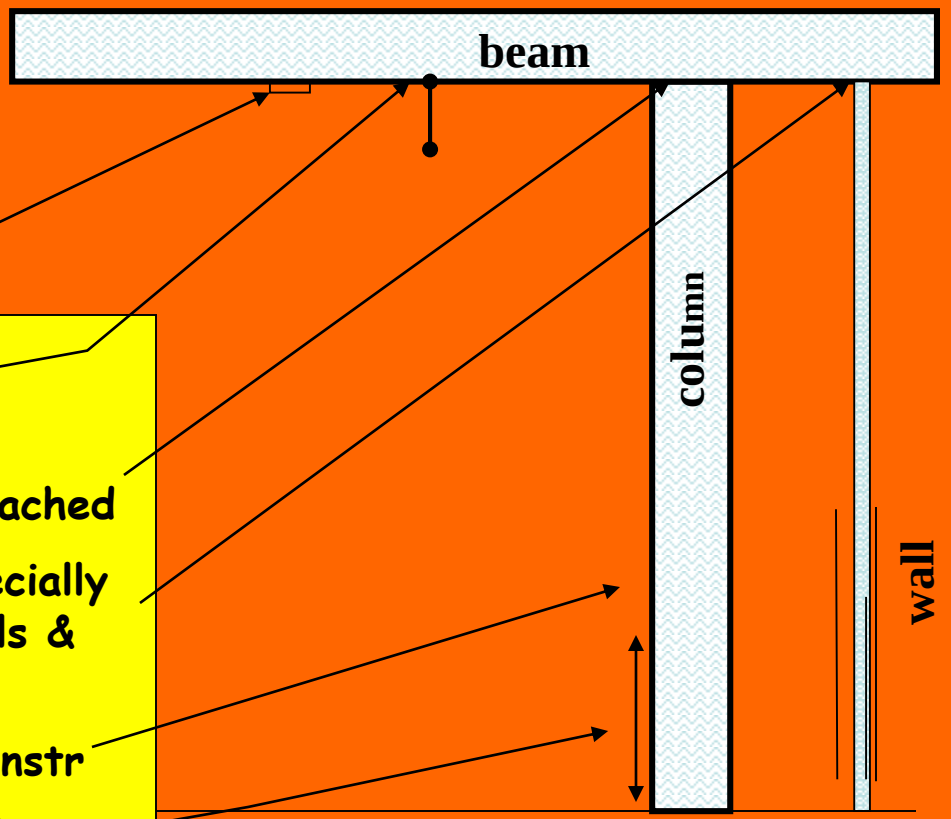
Light attachments, such as top track or hat channel, must be fully covered for 2" away from the framing

All parts of beam clamps must be covered on all sides with 1-1/2" fire proofing

**Never remove fire insulation to make room for any plastic pipe or insulation…NO amount of fire proofing will make up for it !**

# KEY FIRE PROOFING SPOTS TO CHECK



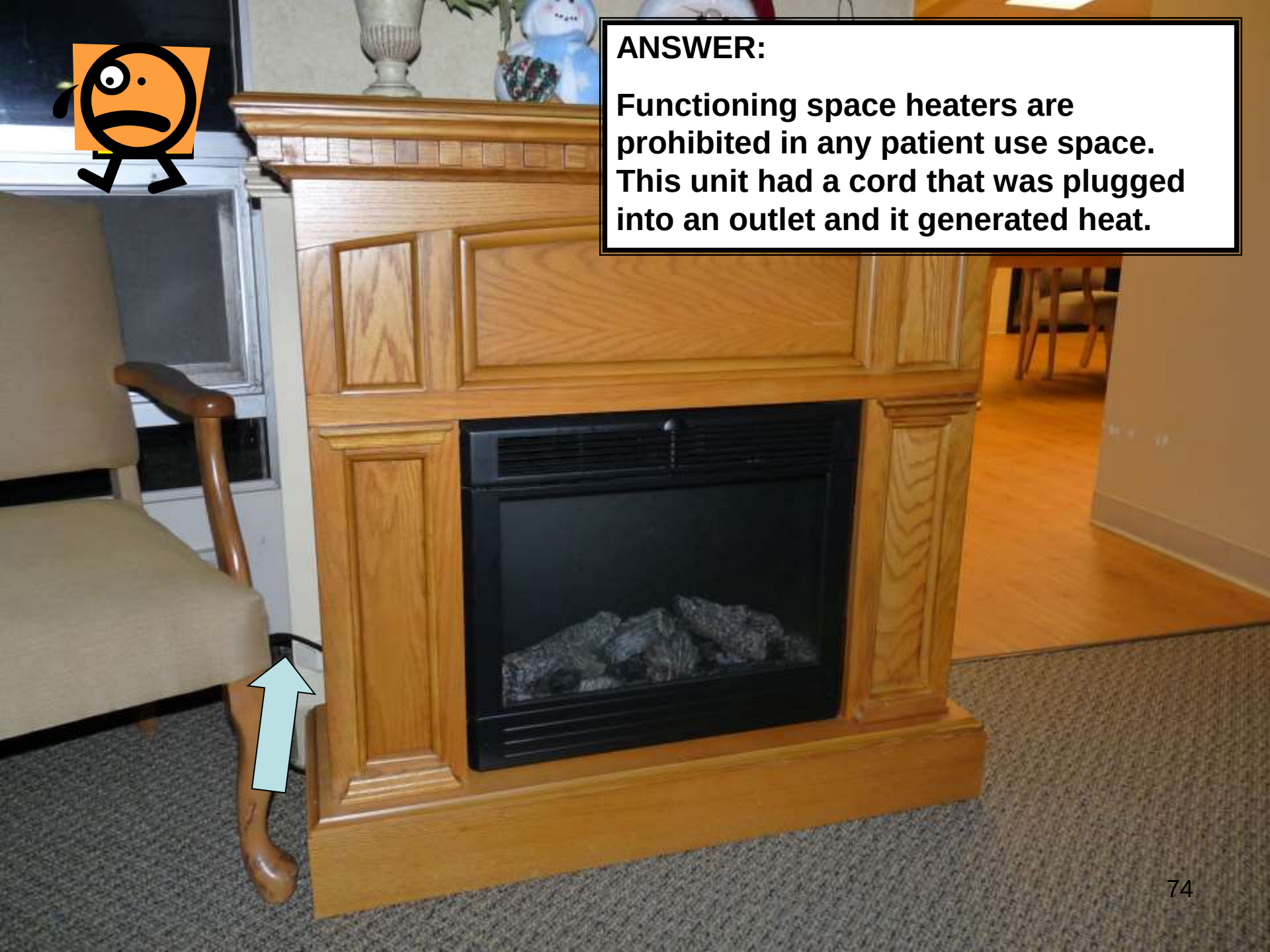



- Any welded attachment
- Beam clamps
- Top of columns where beams are attached
- Top of framed walls at beams, especially if parallel to beam (check hat channels & top track)
- Safety Cable attachments during constr
- Bottom of columns (typically abused)

**32. What is wrong with this functioning space heater ?**

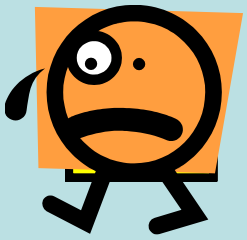
**(located in a patient lounge)**

↓



**ANSWER:**

**Functioning space heaters are prohibited in any patient use space. This unit had a cord that was plugged into an outlet and it generated heat.**



**33. What are 2 situations that require local <u>smoke detection</u> in healthcare?**

x

# FIRE ALARM [NFPA 72 (1999 ed) for CMS,DHFS; (2002 ed) for IBC]

**Alarm sys must be fed with 2 independent power services on dedicated red circuit breaker with restricted access [72:1-5.2.5.2]**

**NOT Retroactive!**

$^{N}H^{E}$, $^{N}A^{E}$ = Manual + detection sys [LSC 18/19/20/21.3.4]
**Nrsg Homes**: Corridor smoke detection required in pt sleeping smoke compartments, unless pt sleep rms have detector sys [LSC 18.3.4.5.3]
$^{N}B$=Manual pull or detectors or spklr sys if >1 story, >50 occup on non-exit level, or >300 occup [LSC 38.3.4.1]
$^{E}B$=Manual pull or detectors or spklr sys if >1 story, >100 occup on non-exit level, or >1000 occup [LSC 39.3.4.1]

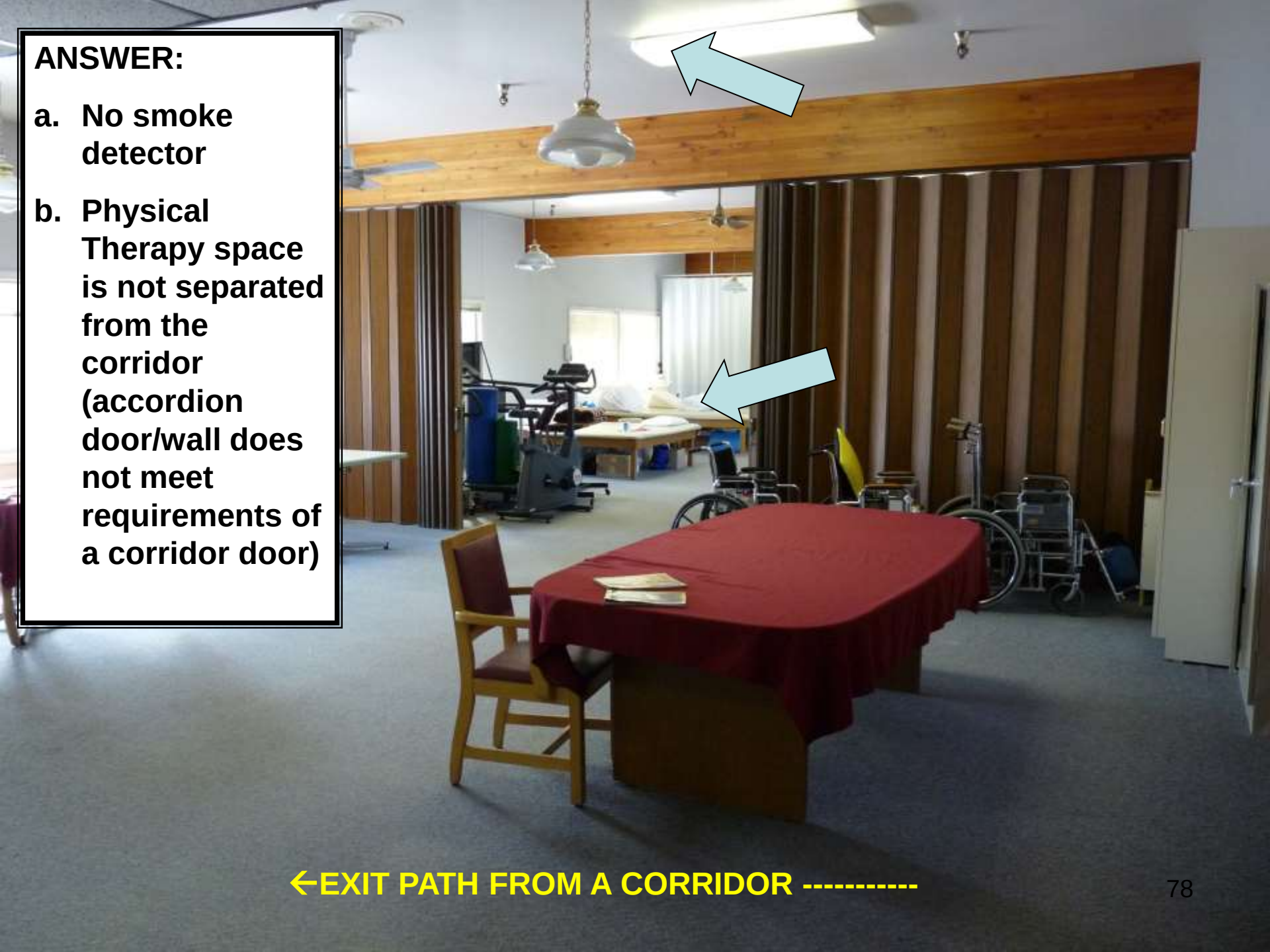
**2. <u>Smoke Detector</u> – required at**

- **A hold-open on rated doors,**
- **If a space open to corridor,**
- **Above Fire Alarm panels**

**Not required in hosp corridors, but in installed must be max 15' from wall & 30' apart; locate in each pocket if headers >12" hi; locate at least 3' from HVAC grills [72:2-3]**

**34. What is wrong in this room that is open to a corridor?**

↓

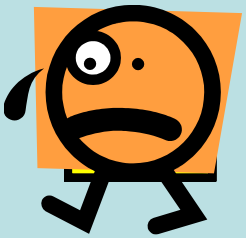


**ANSWER:**

a. **No smoke detector**

b. **Physical Therapy space is not separated from the corridor (accordion door/wall does not meet requirements of a corridor door)**

**←EXIT PATH FROM A CORRIDOR ----------**

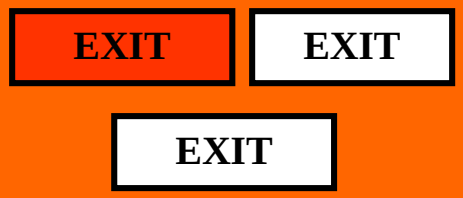


**35. When are <u>exit signs</u> required?**

**x**

# EXIT SIGNS

**If way to an exit is <u>not readily apparent</u>, exit signs must point to two remote paths of egress at every point in a corridor, even with corridor doors closed; max 200' apart [LSC 7.10.1.4; IBC 1003.2.10.0]**

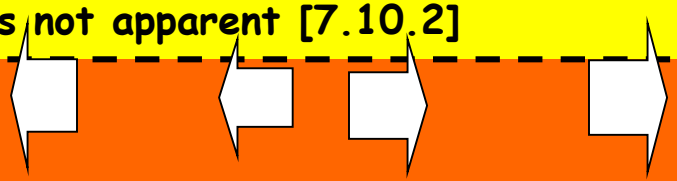



**Exit signs should be of similar appearance within the same smoke compartment**

Exit signs must be provided to direct exit path in confr rooms and those used by > 50 persons

Exit signs must be internally or externally illuminated with emergency power or batteries

**Arrows must point to all changes of direction in the exit path if direction of travel is not apparent [7.10.2]**



Any door or passage that is likely to be mistaken as an exit shall be signed "NO EXIT" [7.10.8.1]

**36.What is the violation in this smoke barrier wall?**

↓

**ANSWER:**

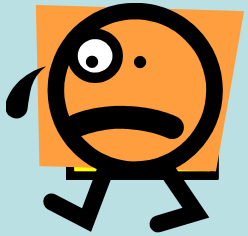
**Fire stop putty wasn't pushed into sleeve.**

**37. What is the violation in the alcove?**

↓

**ANSWER:**

**The alcohol based hand rub dispenser is located above a source of ignition (electrical outlet)**



**38. What pressure should be maintained between the corridor and most rooms?**

- ❑ **Positive**
- ❑ **Neutral**
- ❑ **Negative**

x

# DUCTS & AIRFLOW [LSC 8.2.5; 9.2.1; 9.5]

## AIR FLOW RULES

- Each occupied room must have a supply air and return/exhaust air
- All occupancies must satisfy ventilation requirements of Com table 64.0403
- $^{N}H$, $^{N}A$: Must also satisfy AIA guides & cfm's found in tables

## CORRIDORS

Corridors must have **neutral** pressure with respect to all rooms (no grills or flow in/out of rooms), except bathing/toilet & jan cl [LSC 18/19.3.6.4; IBC 1004.3.2.4; IMC 601.2]

## ACCESS OPENINGS

- Required at dampers & detectors, large enough to permit maintenance & resetting [NFPA 90A, 2-3.4.1]
- Service Openings (or removable grills) required in horizontal ducts for removal of dust, every 20' & at base of risers (unless supply is filtered or duct velocity > 1000 fpm & inlets >7' aff or screened) [NFPA 90A, 2-3.4.3]

## RA Plenum Above Corridor Ceiling

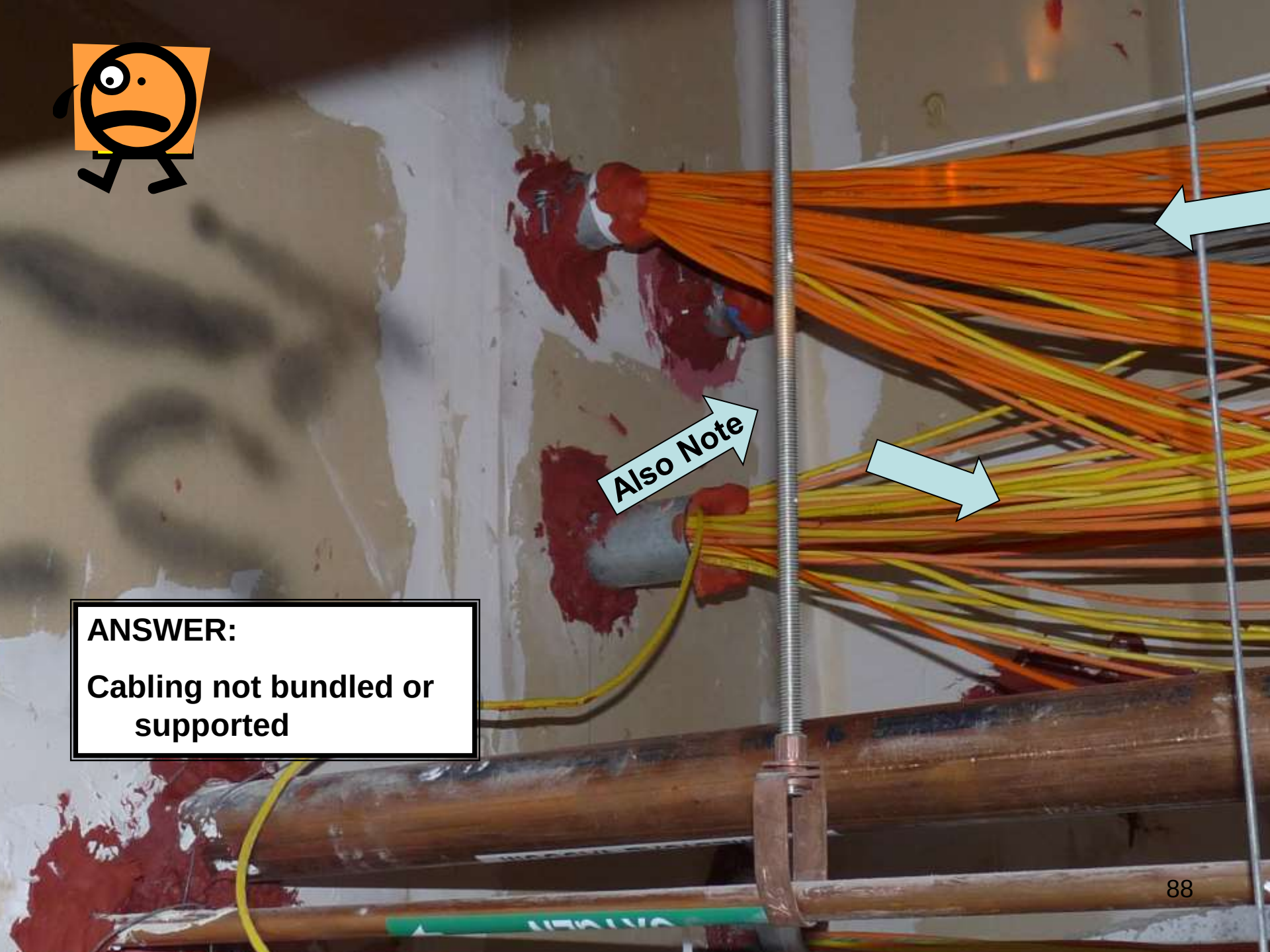
Can use for RA plenum if a) corridor walls are not rated, b) space is separated from corridor by FRR constr, c) AHU shuts down w/duct detector or sprinkler [IBC 1004.3.2.4; IMC 601.2]

## FLEXIBLE DUCT

- Cannot pass through fire rated walls or floors [IBC 715.7] [NFPA 90A, 2-3.2.1.4]
- Maximum 14' length [NFPA 90A, 2-3.2.1.3; IMC 603.5]

**39. What is the violation at this smoke barrier wall?**

↓




**ANSWER:**

**Cabling not bundled or supported**

**40. Aluminum doors in corridors are red flags of potential issues. What are the violations with this entry into a suite?**

↓

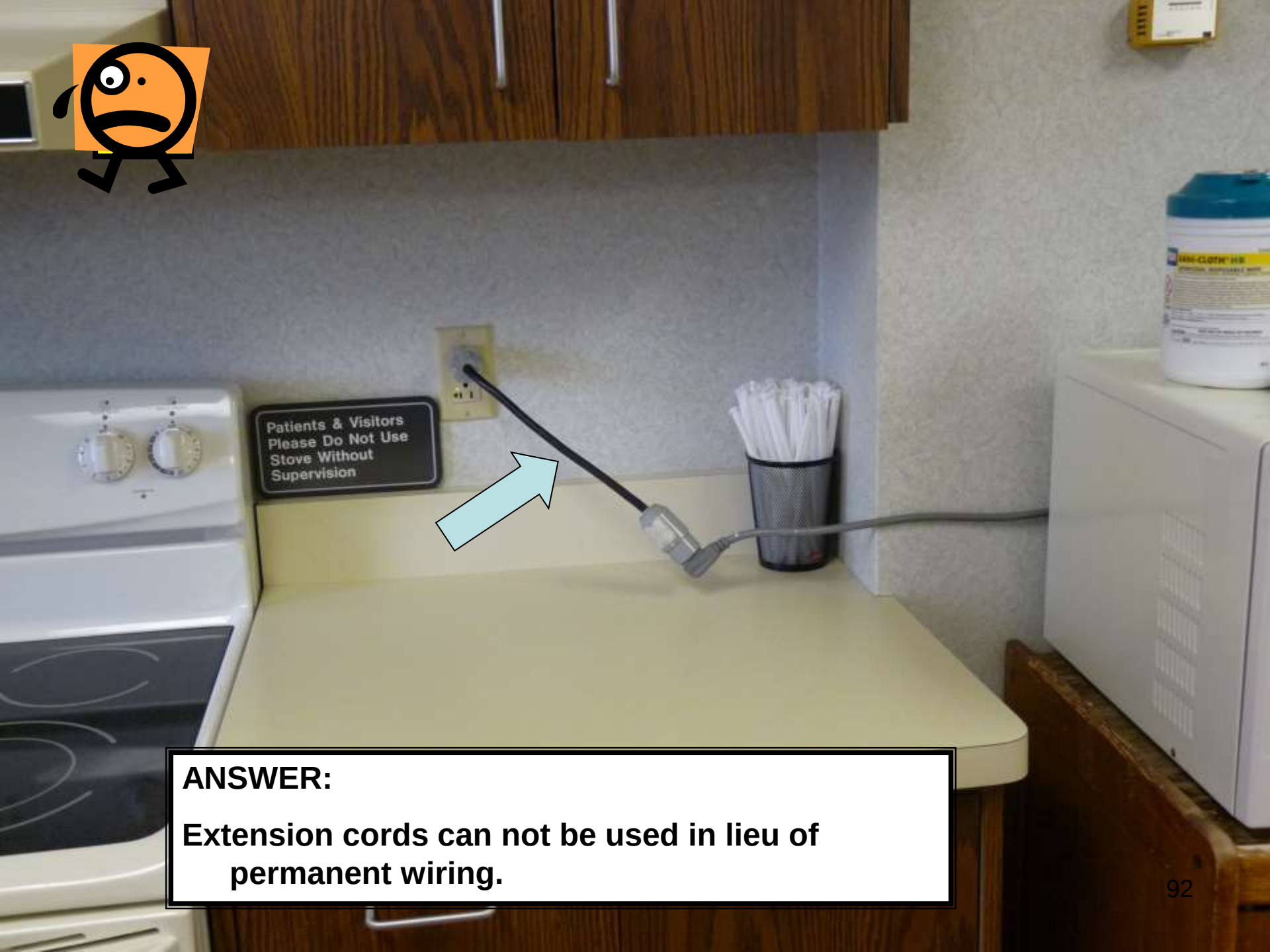
**ANSWER:**

a. **No positive latching hardware**

b. **No astragal**

# 41. What is the violation ?

↓




**ANSWER:**

**Extension cords can not be used in lieu of permanent wiring.**

**42. What is the violation at this smoke barrier wall?**

↓

**ANSWER:**

a. **Ducts are not sealed**

b. **Lathe/plaster is okay for 30 minute rating at existing wall, but not during new construction.**

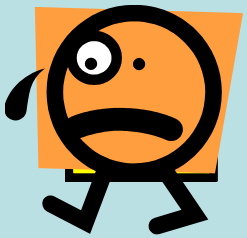
c. **The black iron lathe support is not fire proofed for a 30 min rating.**

**43. What is the violation in this corridor?**

↓


**ANSWER:**

**The recycling bins are larger than 32 gallons and are considered a combustible hazard that must be stored in 1-hr rated room.**



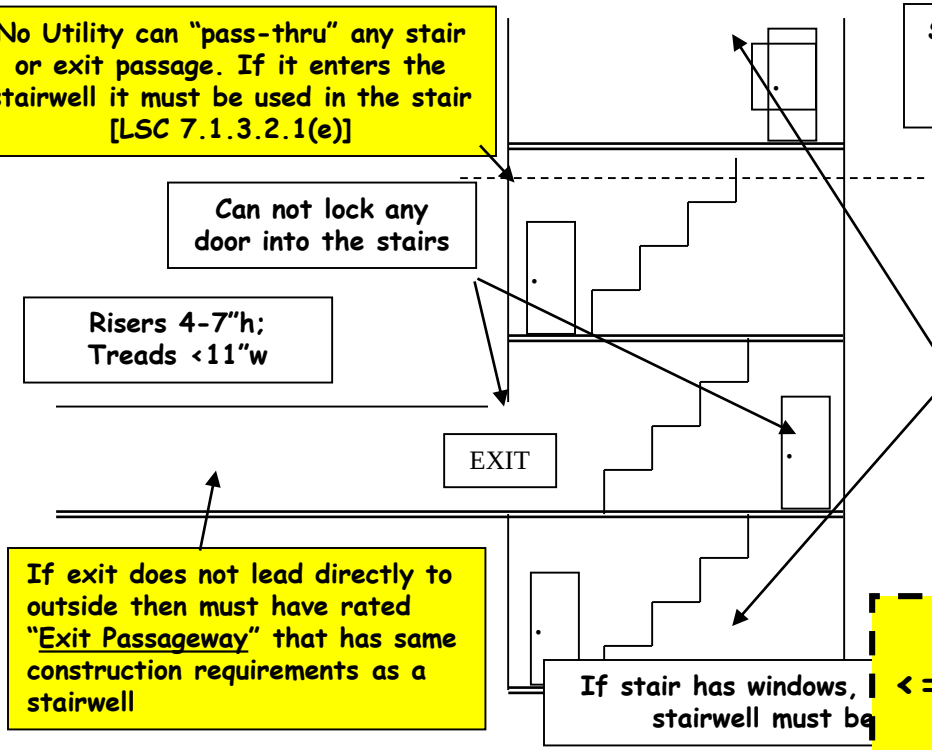
# 44. What fire rating is required around stairs in a 5 story building?

**Suggested Survey Tool Page**

**7,37**

**x**

# STAIRS & EXIT PASSAGE [LSC 7.1.3.2; 7.2.2; 8.2.5]




**Walls must be rated 1hr if <=3 floors or 2 hr if 4 or more flrs** [LSC 7.1.3.2.1(a,b)]

# 45. What is the violation ?

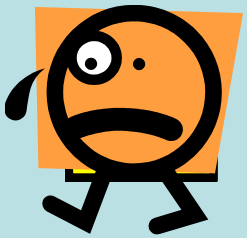
**Suggested Survey Tool Page**

**4**

↓

**ANSWER:**

**Fire proofing was scraped away from the bottom of the beam and not replaced.**



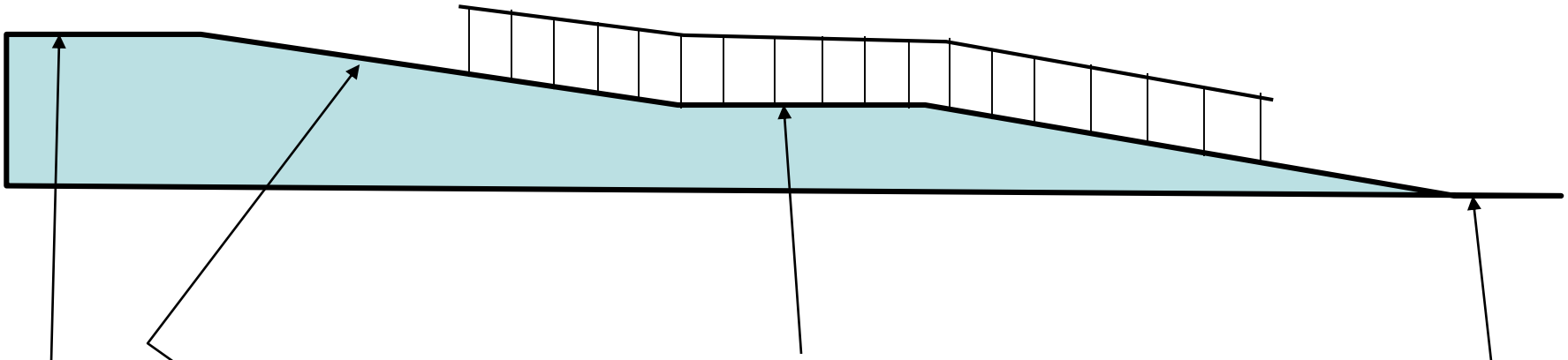
# 46. How long can a ramp be before there is a landing?

**Suggested Survey Tool Page**

**35**

**X**

# RAMPS [LSC 7.2.5]



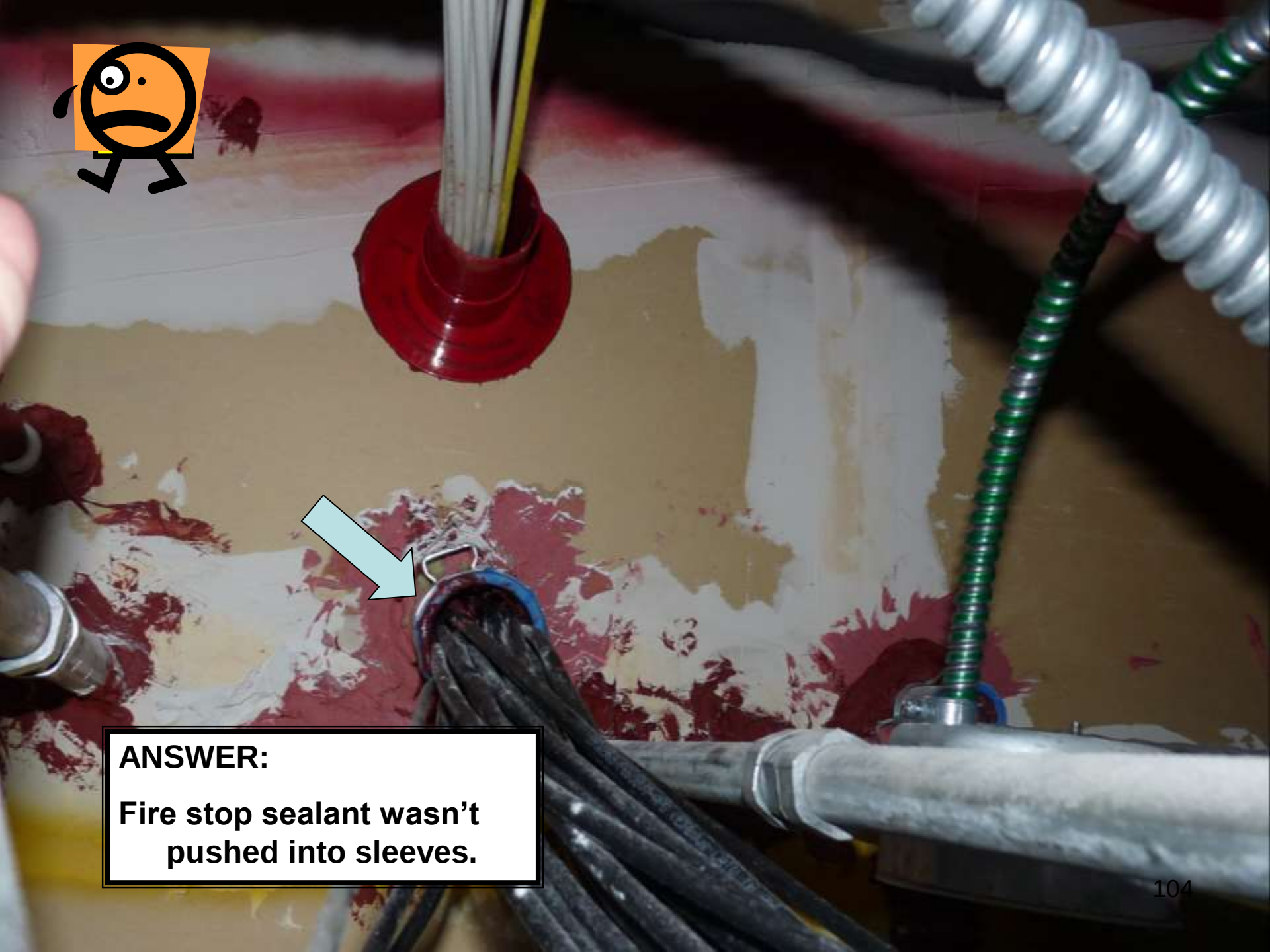
- **Min Intermediate Landing 5' long if multiple slopes**
- **Max 12% slope (1" rise per foot of run); Max 30' long with intermediate landing; Max 1:48 cross-slope**
- **5' level space at top & bottom**
- **Min 44" wide or as required for location**
- **Handrails on both sides if rise >6"**
- **Exterior ramps <180$^0$ from bldg must be protected by walls for 10' with same rating as stairwells [LSC 7.2.5.5 & 7.2.2.5.2]**

# 47. What is the violation in this smoke barrier wall?

**Suggested Survey Tool Page**

**8**

↓



**ANSWER:**

**Fire stop sealant wasn't pushed into sleeves.**

# 48. What is the violation ?

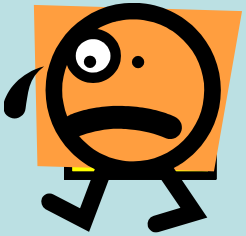
**Suggested Survey Tool Page**

**4**

↓

**ANSWER:**

**No fire stop through the rated concrete floor.**



# 49. How can you tell if 2 exits are <u>far enough</u> apart?

**Suggested Survey Tool Page**

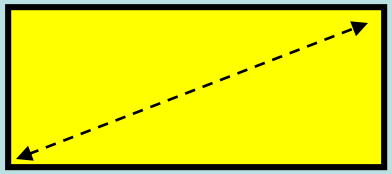
**26**

**x**

# EXIT REQUIREMENTS [LSC 7.2.4; 18.2.2.5]

**QTY:** 2 exits are required from every floor & fire area [LSC 18/19.2.4; 20/21.1.6.3]

**DISCHARGE:** Each exit must discharge directly to the outside via a hard surface (usable in all weather conditions) to a public way (min 10'w x10' hi) that is a safe distance away (CMS=40'), or through an exit passage (see p.9), or a horizontal exit



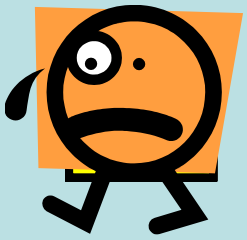
**REMOTENESS: Exits must be farther apart than 1/3** (1/2 if unsprinkled) **the length of the diagonal of the space** [LSC 7.5.1.4]

**EXIT TRAVEL DISTANCE:** NHE <
corridor to an exit, 200' from inside r
[18/19.2.6.2];
NAE <100' in corridor (150' if full sprkler) [20/21.2.6.2];
NBE <200' TD to exit (300' if bldg sprkled) [38/39.2.6]

**Projections down to 6'8" okay if in less than 33% of area** [LSC 18/19.2.5.10]

**HORIZONTAL EXITS are used as a "substitute" for an actual exit to the exterior when actual exits are too far apart. Max ½ of exits can be Horiz. Exit** [LSC 7.2.4]; NHE=2/3 [18.2.2.5.2] **Horizontal Exits must:**

- **Rated Walls Extend from outside wall to outside wall & deck to deck**
- **Have 2-hr rated wall construction and 90 minute rated doors;**
- **Doors must be dual egress, 41.5" cw opening in 8' corr; slider 83" cw opening**
- **Can only be used to satisfy only 50% of the required exit capacity**
- **May also serve as a Smoke Barrier Wall (if compartment satisfies requirements)**



**50. What is the maximum travel distance in a suite if you must pass through 3 doors?**

**Suggested Survey Tool Page**

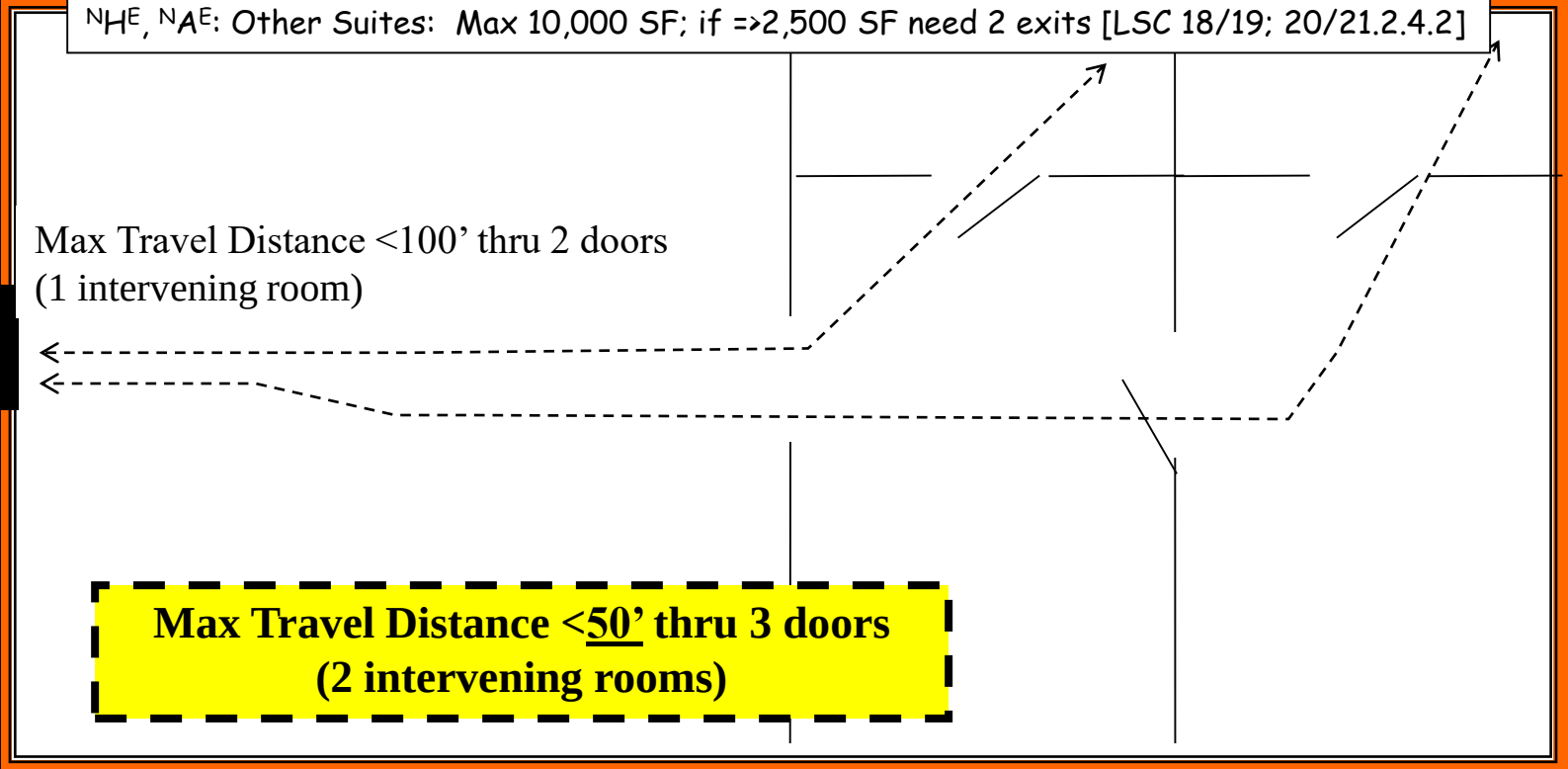
**37**

**x**

# SUITES [LSC 18.2.5]

$^{N}H^{E}$: Patient Sleeping Suites: Max 5,000 SF; if =>1,000 SF need 2 exits

$^{N}H^{E}$, $^{N}A^{E}$: Other Suites: Max 10,000 SF; if =>2,500 SF need 2 exits [LSC 18/19; 20/21.2.4.2]




**Inside of suites there are no corridors**

**No min widths or door latching requirements; Doors can slide without breaking away, latching or single motion release**

12

# 51. What is the violation ?

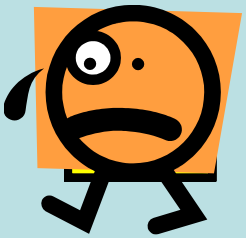
**Suggested Survey Tool Page**

**4**

↓

**ANSWER:**

**No fire damper thru a floor**



# 52. What are the code benefits of having a suite?

**Suggested Survey Tool Page**

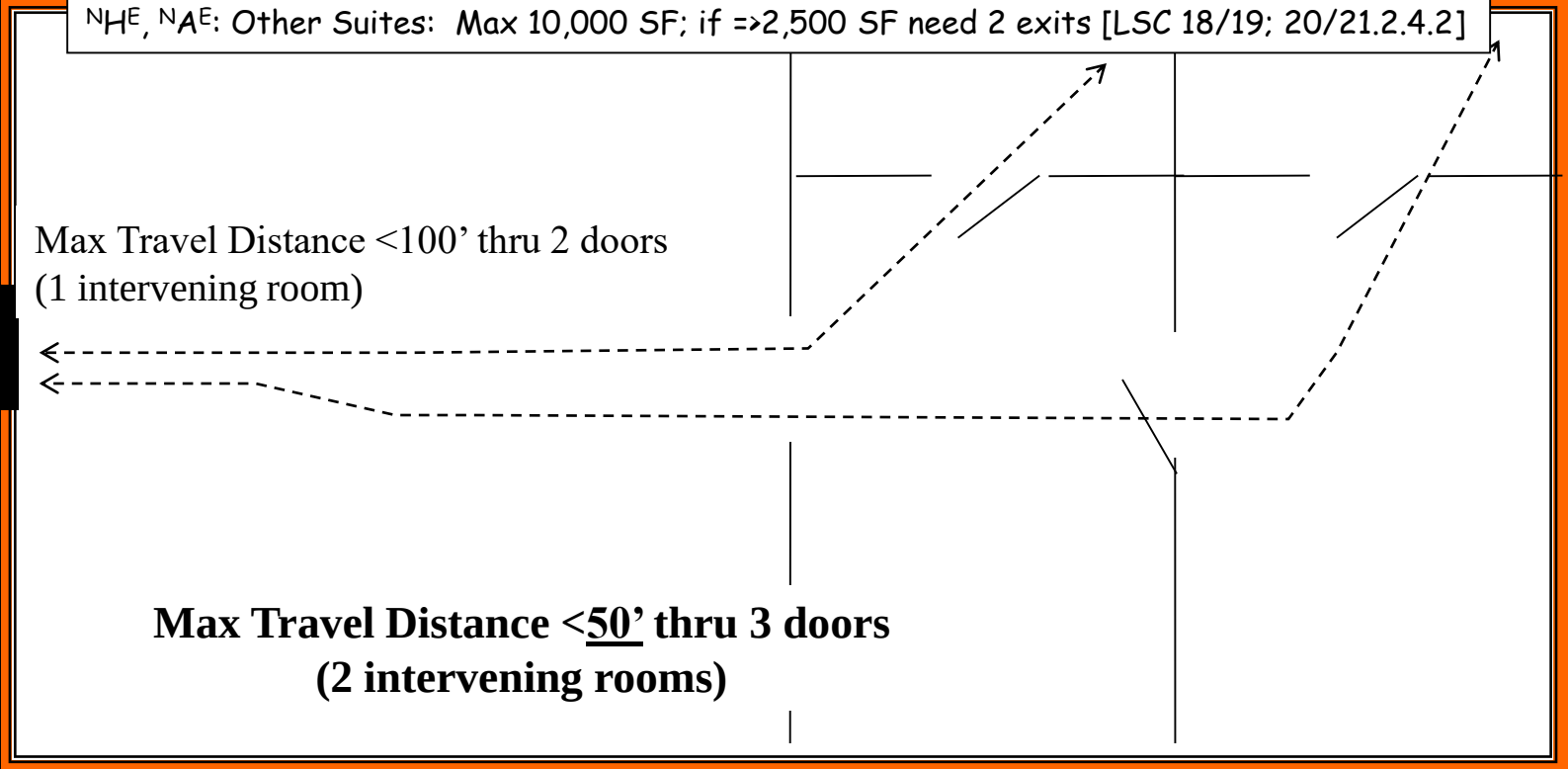
**37**

**x**

# SUITES [LSC 18.2.5]

$^{N}H^{E}$: Patient Sleeping Suites: Max 5,000 SF; if =>1,000 SF need 2 exits

$^{N}H^{E}$, $^{N}A^{E}$: Other Suites: Max 10,000 SF; if =>2,500 SF need 2 exits [LSC 18/19; 20/21.2.4.2]




**Inside of suites there are no corridors**

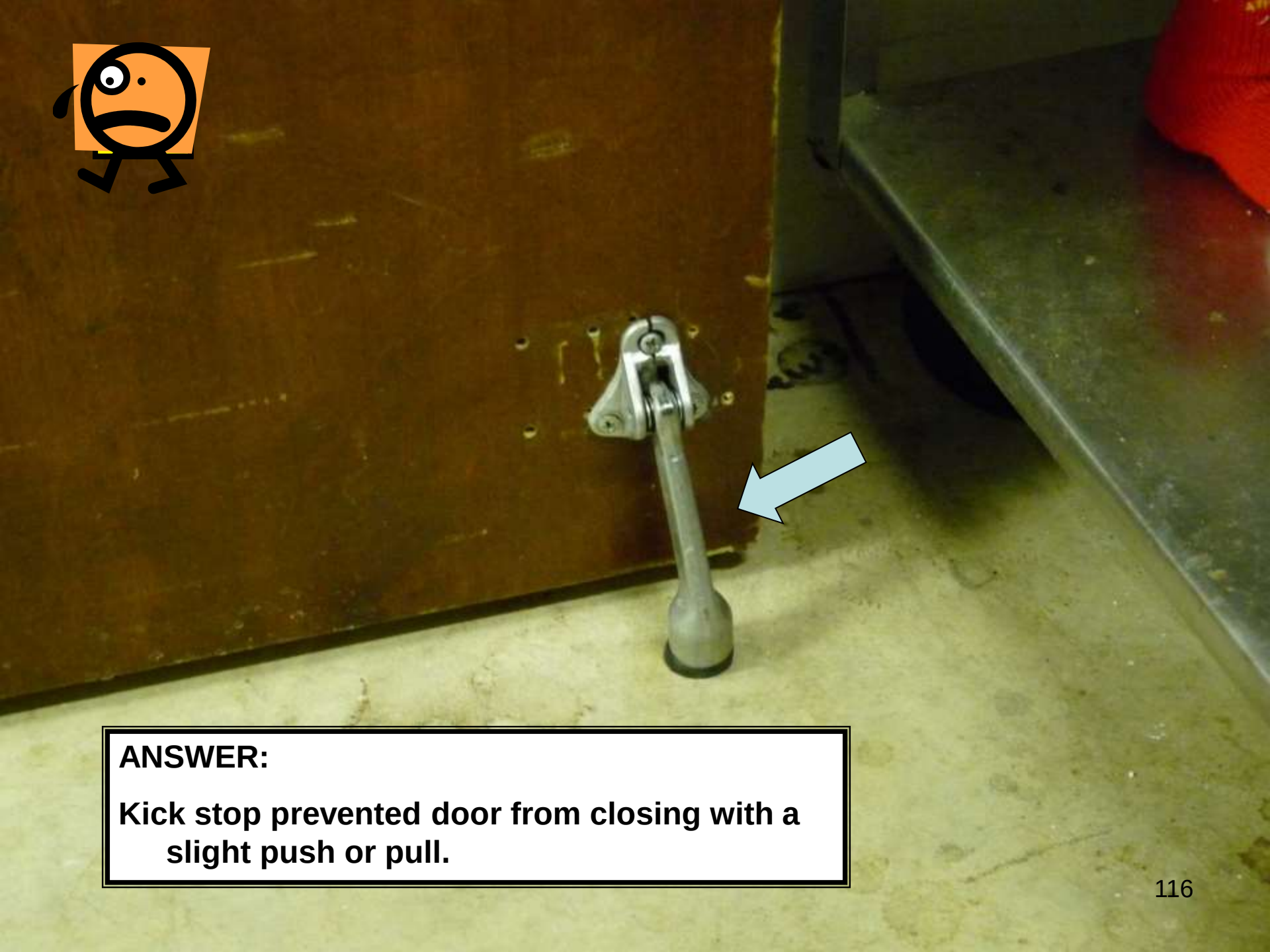
**No min widths or door latching requirements; Doors can slide without breaking away, latching or single motion release**

# 53. What is the violation in this corridor door?

**Suggested Survey Tool Page**

6

↓



**ANSWER:**

**Kick stop prevented door from closing with a slight push or pull.**

**54.What is the violation on this closet located in a corridor ?**

**Suggested Survey Tool Page**

**6**

↓

**ANSWER:**

**No astragal; manual flush bolt**

# 55. What is the violation?

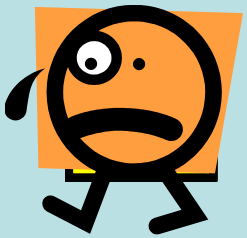
**Suggested Survey Tool Page**

**18**

↓

**ANSWER:**

**Items were stored in corridor for greater than 30 minutes or without staff in the immediate vicinity.**



# 56. When must an exit door swing in the direction of egress?

**Suggested Survey Tool Page**

12,24

X

# DOORS – IN MEANS OF EGRESS

**DOOR WIDTHS:** [LSC 18/19.2.3.5]
- $^{N}$H: 41.5" clear at In/outpatient use areas; 32" clear at Psych and non-patient areas
- $^{E}$H, $^{N}$A$^{E}$: 32" clear at Pt areas [LSC 20/21.2.3.3]

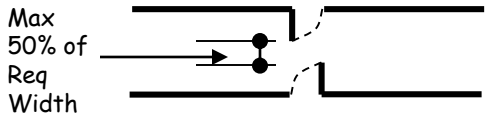
**SLIDER DOORS (Manual)** in corridors: must have a breakaway swing, latch, be smoke tight, can't rebound open if slammed

**OUTSWINGING DOORS** - If swung out into the corridor doors can not obstruct ½ the needed corridor width &must open fully so <7" sticks into the needed width [LSC 7.2.1.4.4; IBC 1003.2.3.1]

**SWING** – Must be side-hinged (6 exceptions in LSC 18.2.3.5]
**Must swing with egress if >50 persons or hi-hazard**

**LOUVER:** Only permitted in small toilets & sink closets

**FLOOR LEVELNESS**: Floor through doorway must have less than ½" elevation change, even at threshold; If >1/4" must be beveled [LSC7.2.1.3]




**FORCES TO OPEN:** [LSC 7.2.1.4.5]
- Latch release <15lbs
- Start motion <30 lbs
- Full open <15lbs
- Power Op <50lbs if loose power
- w/o Closer <5lbs

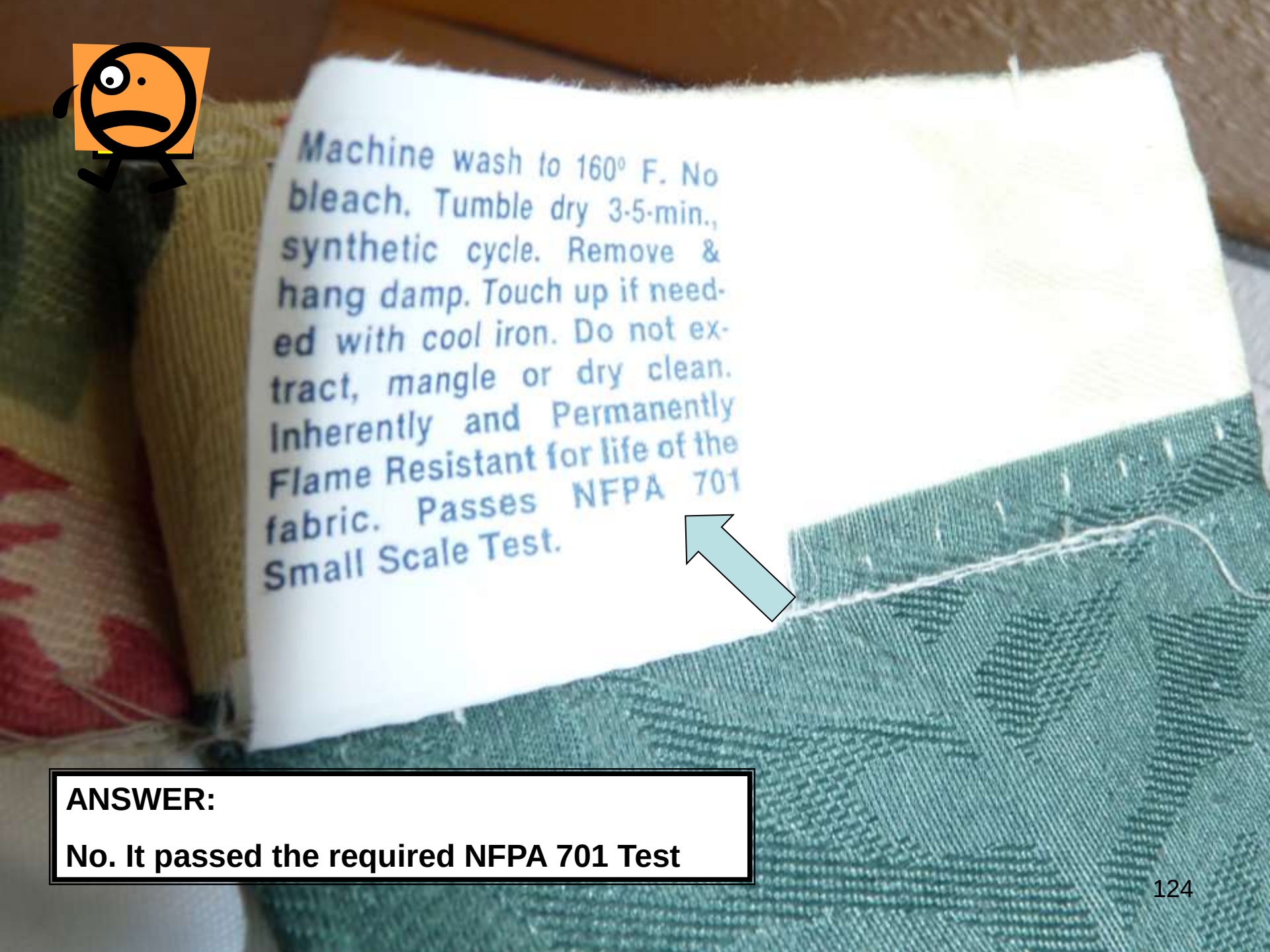
**HORIZONTAL SLIDING/VERTICAL ROLL-DOWN:** [LSC 7.2.1.4.1]
1. Must be secured open if area occupied by the public & signed as such
2. Must be operable from egress side without any special effort
3. Must be less than ½ of required exits

# 57. Is there a violation at this drapery label ?

**Suggested Survey Tool Page**

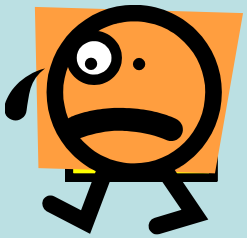
**18**

↓




**ANSWER:**

**No. It passed the required NFPA 701 Test**



## 58. How much of a corridor can be obstructed by an <u>outward</u> swinging door?

**Suggested Survey Tool Page**

**12**

**x**

# DOORS – IN MEANS OF EGRESS

**DOOR WIDTHS:** [LSC 18/19.2.3.5]
- $^{N}$H: 41.5" clear at In/outpatient use areas; 32" clear at Psych and non-patient areas
- $^{E}$H, $^{N}$A$^{E}$: 32" clear at Pt areas [LSC 20/21.2.3.3]

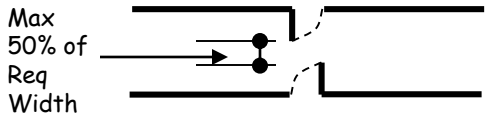
**SWING** – Must be side-hinged (6 exceptions in LSC 18.2.3.5]
Must swing with egress if >50 persons or hi-hazard

**LOUVER:** Only permitted in small toilets & sink closets

**FLOOR LEVELNESS**: Floor through doorway must have less than ½" elevation change, even at threshold; If >1/4" must be beveled [LSC7.2.1.3]

**SLIDER DOORS (Manual)** in corridors: must have a breakaway swing, latch, be smoke tight, can't rebound open if slammed

**OUTSWINGING DOORS** - If swung out into the corridor doors can not obstruct ½ the needed corridor width &must open fully so <7" sticks into the needed width [LSC 7.2.1.4.4; IBC 1003.2.3.1]




**LIDING/VERTICAL ROLL-DOWN:**

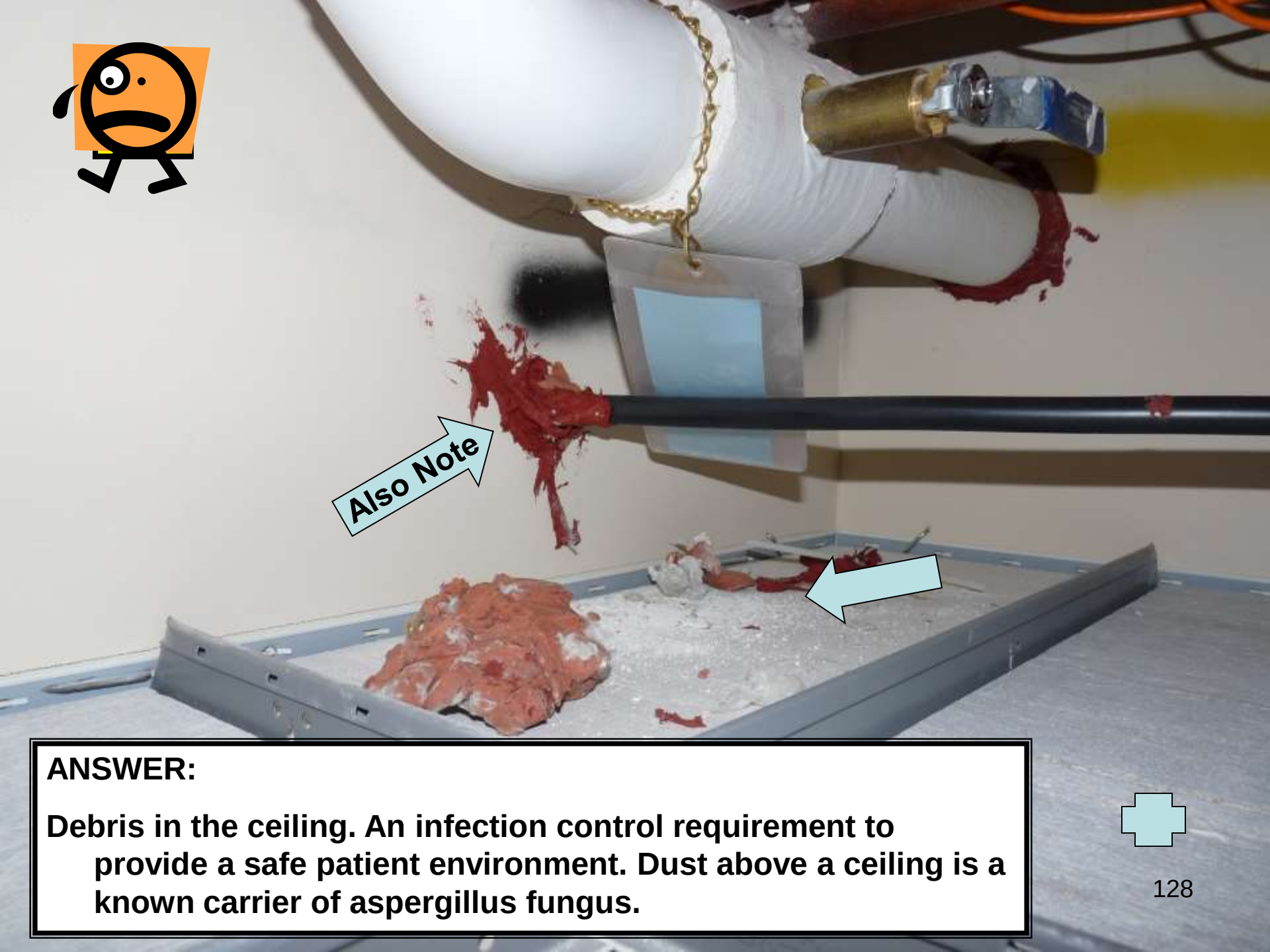
pen if area occupied by the public & signed as such

2. Must be operable from egress side without any special effort
3. Must be less than ½ of required exits

- Power Op <50lbs if loose power
- w/o Closer <5lbs

**59. What is the violation?**

↓




**ANSWER:**

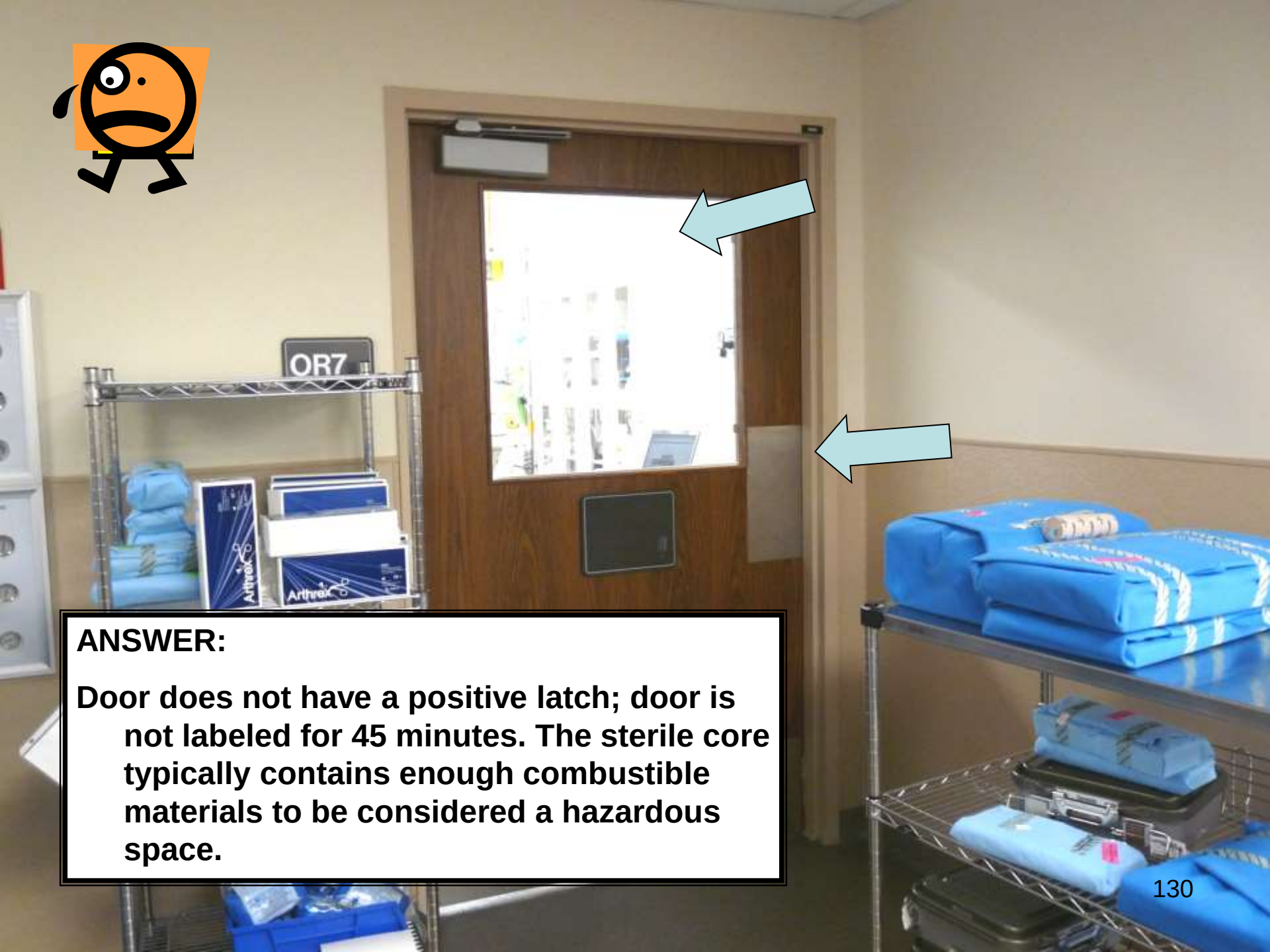
**Debris in the ceiling. An infection control requirement to provide a safe patient environment. Dust above a ceiling is a known carrier of aspergillus fungus.**

# 60. What is the violation in a surgery sterile core hall ?

**Suggested Survey Tool Page**

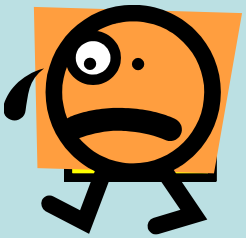
**9,33**

↓




**ANSWER:**

**Door does not have a positive latch; door is not labeled for 45 minutes. The sterile core typically contains enough combustible materials to be considered a hazardous space.**



# 61. Are mesh filters acceptable on a Kitchen Hood ?

**Suggested Survey Tool Page**

**17,34**

**X**

# KITCHEN HOODS [NFPA 96, IMC 506.3, 507, 509, IBC 904.11]

**Exhaust** systems are required at kitchen cooking equipment that produce smoke or grease-laden vapors

**Auto Extinguishing** system & compatible portable required at kitchen equipment that produce grease-laden vapors (not ovens); must comply with UL300; manual activation also; on emerg power; auto shutdown gas/elect; manual reset [7-1, 7-2]

Run duct as direct as possible to exterior; do NOT pass thru fire walls; no dampers; no dips [4-1]

Min 18" clearance to combust mtl, including GWB [IMC 506, 507]

Min ¼"/ft slope toward hood if <75', 1"/ft if >75' [IMC 506.3]

Discharge min 40" above roof; directed upward [4-8; IMC 506.3.1.3.1]

If wall mtd fan must be min 10' from ground [IMC 506.3.11, IBC 707.4]

Make-up air in kitchen so neg pressure max .02" wc; all fuel & elec source must auto shut-off if exting sys goes off [5-3,7-4]

Rated enclosure around duct to roof (1hr if <4; 2hr if >3 stories) [4-7]

Liquid-tight seams on hood (welded on exterior) [2-1.2]

Openings (20"x20") for cleaning @ changes of direction, exh fan, horiz runs every 12'if smaller [4-3]; max 20'apart [IMC 506.3]

Manual exting. activation by mech means needed near hood on path of egress; activates fire alarm [7-5, 7-6]

**Listed Grease filters (not mesh); easily accessible; min 45$^0$; drip tray [3-1]**

**ANSWER:**

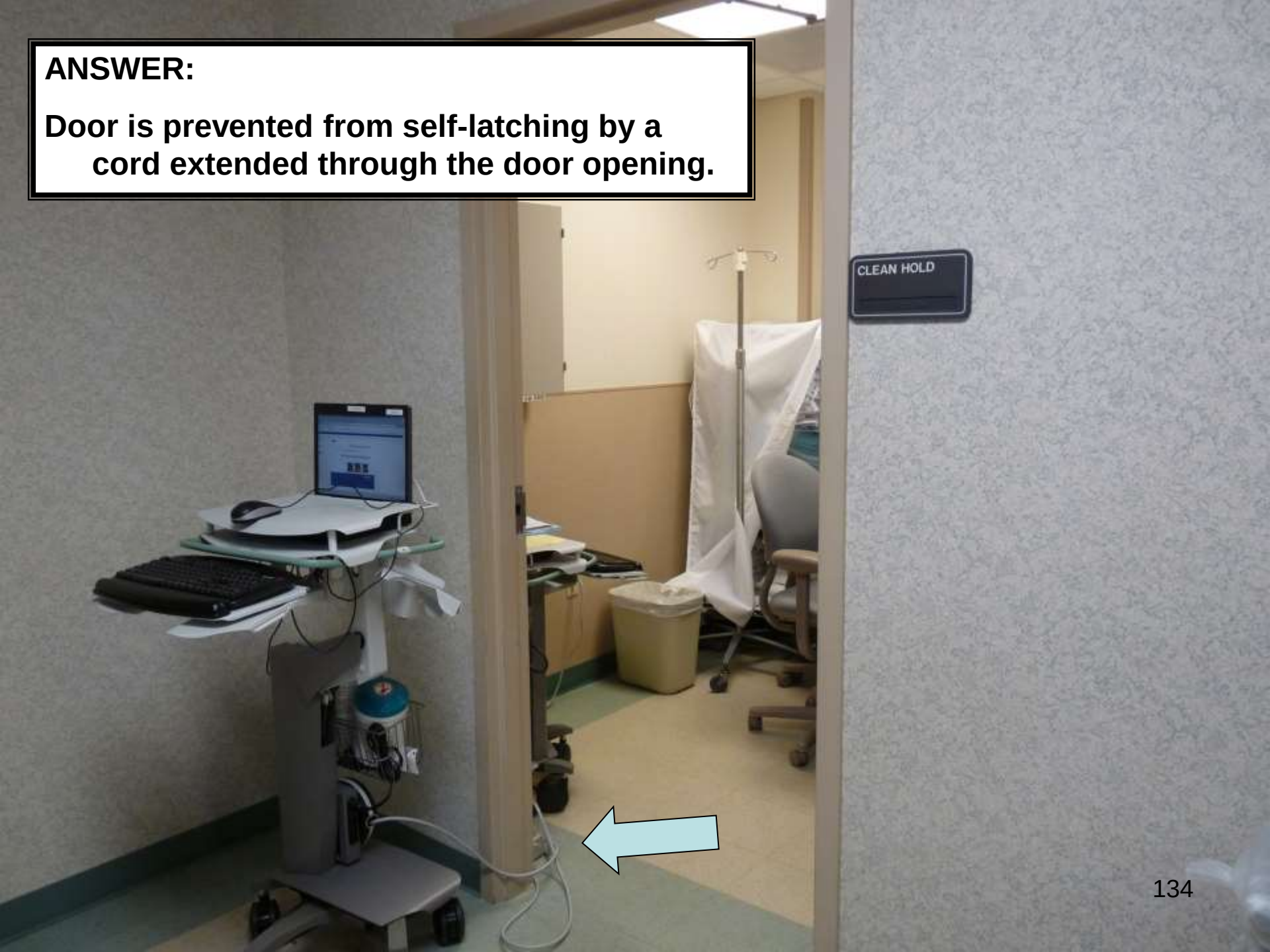
**No**

# 62. What is the violation at this Clean Supply Room ?

**Suggested Survey Tool Page**

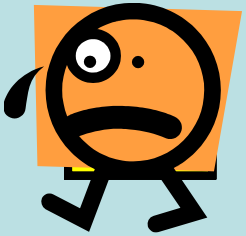
9

↓




**ANSWER:**

**Door is prevented from self-latching by a cord extended through the door opening.**



# 63. What is the most important test document for an owner to receive for a new smoke detector ?

**Suggested Survey Tool Page**

**14**

**x**

# J. FIRE ALARM INSTALL & TESTING (K-52,53,54,60,155)
## Inspection Guides

(More Info: P34)

| | | |
|---|---|---|
| System | 1. Listed Devices (n52u)<br>2. Manual Pull (n60m)<br>3. Digital Communicator | 1. All devices must be UL or otherwise listed for use as a fire alarm device that is compatible with the installed system [NFPA 72 (1999 edition), 2-9.1 and 1-5.1.2]<br>2. Must have manual pull stations at exits or within 200' of nurse sta. [NFPA 101 (2000 edition), 18.3.4.2 and 9.6.2.1]<br>3. Okay to substitute for auto transmission if it both transmits & receives signals, not stop signaling until it receives a response (SOM Append I) |
| **Tests** | 1. Missing Tests (n52t)<br>2. Sensitivity Tests (n54s) | 1. All types and frequency of tests shown in NFPA 72 and the manufacturer's manual must be performed and documented [NFPA 101 (2000 edition), 9.6.1.4 and NFPA 72, 7-3, 7-4, 7-5]<br>2. Smoke Detector sensitivity must be tested at install, one yr after & every 2 yrs after [NFPA 72, 7-3.2.1] |
| **Outage** | 1. Outage Policy (n155n) | 1. Alarm outage for 4 hr in any 24 hr period must notify fire dept & Wis DQA; and either evacuate or have documented fire watch by dedicated trained staff in portions w/o an alarm; staff notified & instructed what to do incase of a fire. [NFPA 101 (2000 edition), 9.6.1.8] |
| **Annunciator** | 1. Remote | 1. Remote panel required at a central station. |

**ANSWER:**

**Sensitivity Test Documents…showing detector ID, its sensitivity reading, a 'pass' notation**

14

# 64. What is the violation at this smoke barrier wall ?

**Suggested Survey Tool Page**

**8**

↓


ANSWER:
Top of wall is not fire stopped.
Also Note

# 65. What is the violation at this hazardous storeroom ?

**Suggested Survey Tool Page**

**9**

↓

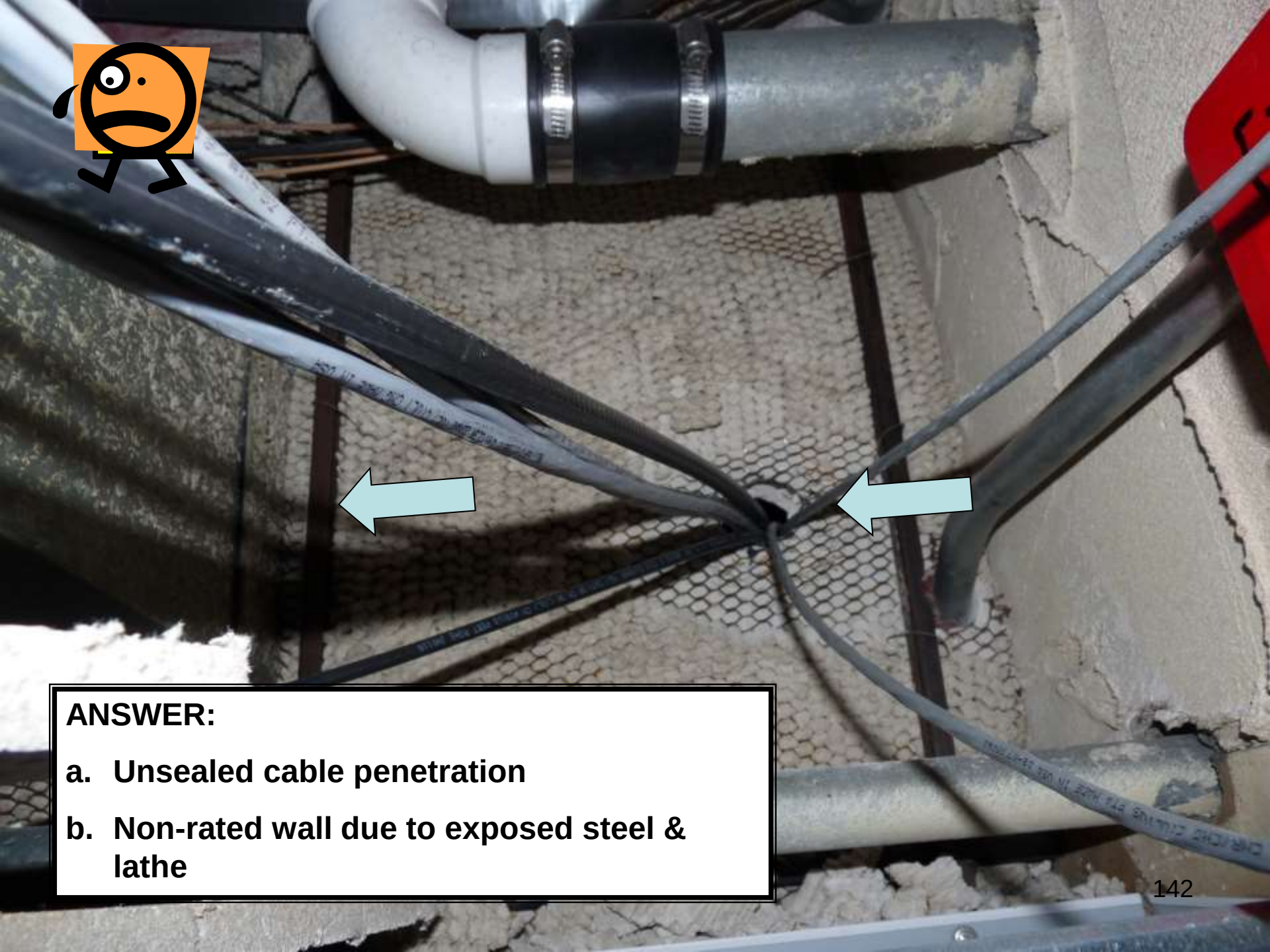

ANSWER:
Door has a kick stop to hold-open (despite a sign to keep door closed)
Also Note

# 66. What is the violation at this smoke barrier wall ?

**Suggested Survey Tool Page**

**8**

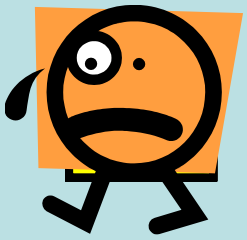
↓



**ANSWER:**

a. **Unsealed cable penetration**

b. **Non-rated wall due to exposed steel & lathe**



**67. A Gift Shop with non-rated walls stores its stock in the Shop. Is this acceptable?**

**Suggested Survey Tool Page**

**10**

**x**

# F. GIFT SHOP (K-30) Inspection Guides

| Item | What to Check/Tag | Requirement |
|---|---|---|
| Layout | 1. Exit Thru Haz Rm | 1. Egress not permitted from a less hazardous space thru a more hazardous space |
| **Doors**<br><br>(More Info: p24-5) | 1. Door Rating (n30d)<br>2. Closer (n29c)<br>3. Hold-Open<br><br>4. Self-Latching (n30l)<br><br>5. Grills<br>6. Window<br>8. Undercut<br>10. Opening Force<br>11. Astragal, If Double Door (n29a)<br>12 Frame | 1. Min 45 min label [NFPA 101, 18.3.2.5]<br>2. Closer required; Door must fully close [NFPA 101, 18.3.2.1 ]<br>3. Only with Electro- magnet, with Smk Detector < 5' away, connected to alarm sys<br>4. Hardware must positively latch by itself; No Deadbolt [NFPA 101, 8.3.2.5<br>5. Grills/louvers not permitted<br>6. Rated Glass; max 100 Sq In unless listing approved |
| **Wall**<br><br>(More Info: p40) | 1. Rating (n30w)<br><br>2. Windows<br>3. Grills | 101, 18.3.2.5]<br>2. Rated Glass; max 100 Sq In unless listing approved<br>3 . No grills/louvers permitted w/o fire damper |
| **Above ceiling** | 1. Penetrations (n30p)<br><br>2. Ducts | 1. Rated fire stop material installed per listing; Intermiscent at PVC/cable/insulated pipes [NFPA 101, 18.3.2.5]<br>2. Fire Dampers required if duct terminates at wall |

**ANSWER:**

**No. The room is considered hazardous and must be enclosed with 1-hr rated walls.**

Gift Shop Storage: Room must be enclosed with required rated walls if combustible materials in display or storage are considered hazardous. Shops that are not considered hazardous may be open to the corridor if max 500 sq. ft & are sprinkled.

10

# 68. What is the violation at this smoke barrier door ?

**Suggested Survey Tool Page**

**8**

↓

Also Note

**ANSWER:**

**Astragal does not provide a seal that resists the passage of smoke.**

# 69. What is the violation ?

**Suggested Survey Tool Page**

**18**

↓

**ANSWER:**

**Beds obstruct egress corridor**

**70. What is the violation at this window fire shutter in a smoke barrier wall ?**

**Suggested Survey Tool Page**

**8**

↓


**ANSWER:**

**Materials prevent fire door from completely closing.**

# 71. What is the violation in this smoke barrier wall?

**Suggested Survey Tool Page**

**8**

↓

**ANSWER:**

**Hole with an unsealed cable penetration.**

**72. How many cylinders of oxygen can be stored in one location before the room must be rated ?**

**Suggested Survey Tool Page**

**19**

**x**

# O. OXYGEN STORAGE (K-76,141) Inspection Guides

| Item | What to Check | Requirements |
|---|---|---|
| **Door** | 1. Rating (n76d) | 1. Must have ¾ hr rated door if storing >3000 CuFt of Oxygen (120 'E' tanks) [NFPA 101, 18.3.2.4 and NFPA 99, 8-3.1.11] |
| **Wall** | 1. Rating (n76w)<br>2. Penetrations (n76p) | 1. If >3000 CuFt of O2 (120 E-size tanks), walls must be 1-hr rated.<br>2. If wall is rated, all penetrations must be fire stopped with an approved listed product & design [NFPA 99, 8-3.1.11] |
| **Contents** | 1. Combustible Mtls (n76m)<br>2. Exhaust (n76e)<br>3. No Smoking Signs (n141-) | 1. Combustible materials cannot be stored within 5' of cylinders of oxygen, unless the tanks are in a rated metal cabinet. [NFPA 99 (1999 edition), 4.3.1.1.2]<br>2. Rm must have exhaust system that is always operating [NFPA 99 (1999 edition) 4-3.1.1.( c)]<br>3. No Smoking sign required if O2 used/stored, unless facility is signed as fully non-smoking. NFPA 101, 18.3.2.4 and NFPA 99, 8.6.4.2] |

19

**ANSWER:**

**120 'E' Tanks or 12 'H' tanks = 3,000 cu ft**

# 73. What is the violation ?

**Suggested Survey Tool Page**

**9**

↓


**ANSWER:**

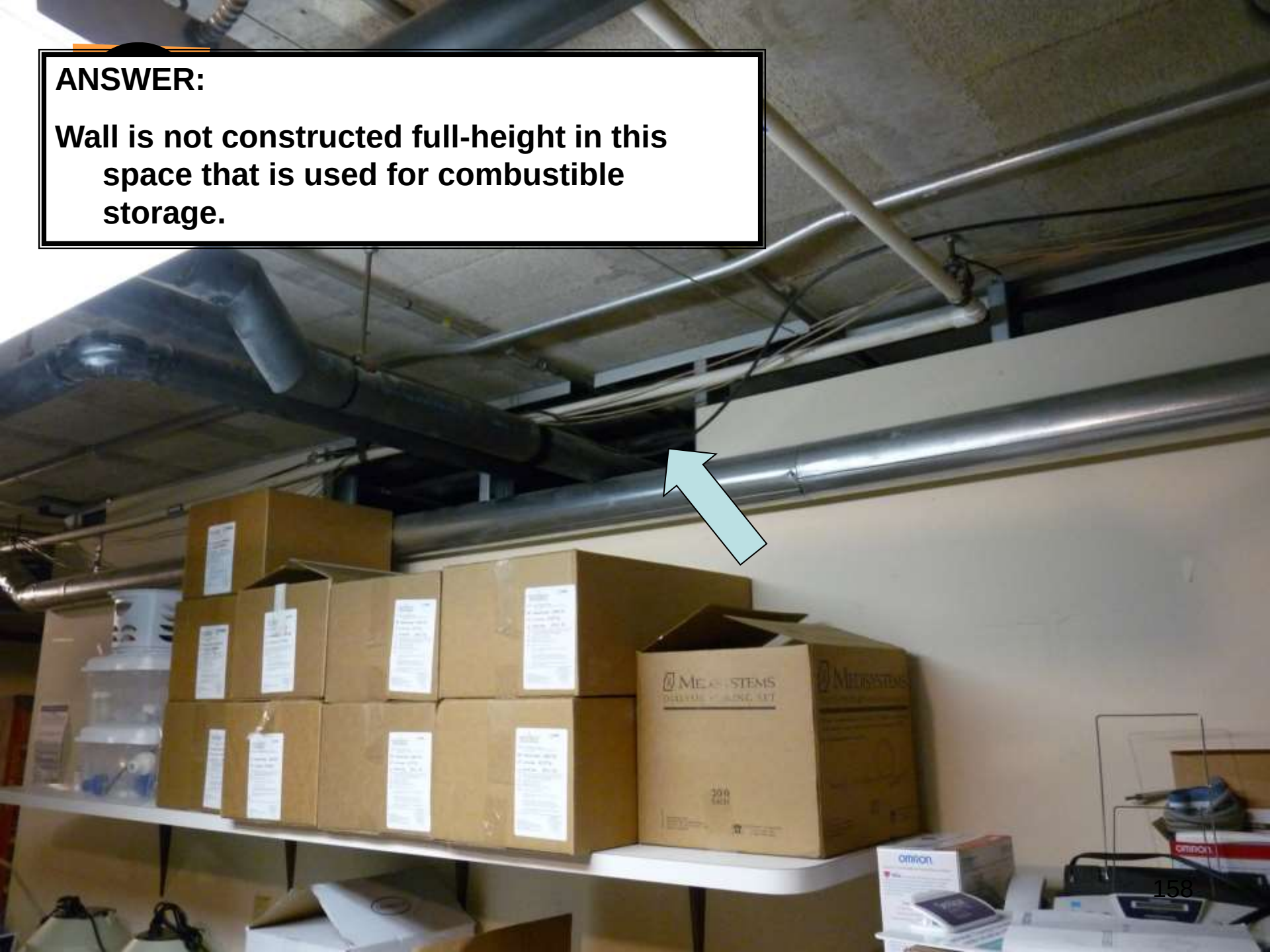
**Door does not have a closer. Room contains enough combustible storage to be considered a hazardous space.**

# 74. What is the violation ?

**Suggested Survey Tool Page**

**9**

↓



**ANSWER:**

**Wall is not constructed full-height in this space that is used for combustible storage.**

# 75. What is the violation in this Clean Supply Room?

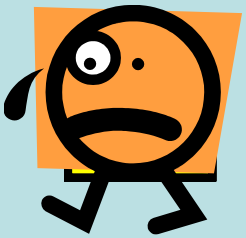
**Suggested Survey Tool Page**

9

↓


**ANSWER:**

**No door closer**



# 76. Can a grease fryer be located right next to a gas stove ?

Suggested Survey Tool Page

17

x

# M. KITCHEN (K-69) Inspection Guides

(More Info: P34)

| Item | What to Check | Requirements |
|---|---|---|
| **Equip** | 1. Flame to Close to Fryer (n69f)<br>2. Portable | 1. Min 16” space between fryer and adjacent surface flame [NFPA 101 (2000 edition), 18.3.2.6, 9.2.3 and NFPA 96.9.1.2.3]<br>2. Portable must be compatible with range extinguisher sys; locate on exit path [CMS SOM Appendix I] |
| **Hood** | 1. Hood per NFPA 96 (n69h)<br><br><br><br><br>2. Inspections<br>3. Cleaning | 1. kitchen hood and suppression system must have *liquid-tight seams, a manual means of activation located near the hood and on the path of egress, suppression sys interconnected to the fire alarm system, hood must have mesh filters rather than baffle filters, suppression automatically disconnects the fuel/electrical sources. [NFPA 101 (2000 edition), 18.3.2.6, 9.2.3 and NFPA 96]<br>2. Suppression sys must be inspected semi-annually [96:8-3.1]<br>3. Hood & exhaust sys must be cleaned semi-annually |
| **Fan** | 1. Roof Fan (n69r)<br><br>2. Wall Fan (n69w) | 1. Roof exhausts must be at least 40" above the roof and directed upward. [NFPA 101, 18.3.2.6, 9.2.3 and NFPA 96.4-8.2]<br>2. Wall exhausts must be at least 10' above grade, air inlets, operable windows or doors, electrical equipment, and combustible construction. [NFPA 101, 1983.2.6, 9.2.3 and NFPA 96.4-8.3] |

**ANSWER:**

**As long as the open grease is at least 16” from open flame.**

**17**

# 77. What is the violation ?

**Suggested Survey Tool Page**

**15**

↓

**ANSWER:**

**Foreign material on a sprinkler**

# 78.What is the violation at this large laundry room?

**Suggested Survey Tool Page**

**9**

↓

**ANSWER:**

**No door closer. Laundries are considered hazardous.**

# 79. What is the violation ?

**Suggested Survey Tool Page**

**12**

↓

**ANSWER:**

**Exit door requires 2 motions to release latching due to dead-bolt.**

# 80. What is the violation in this Patient Lounge ?

**Suggested Survey Tool Page**

**18**

↓

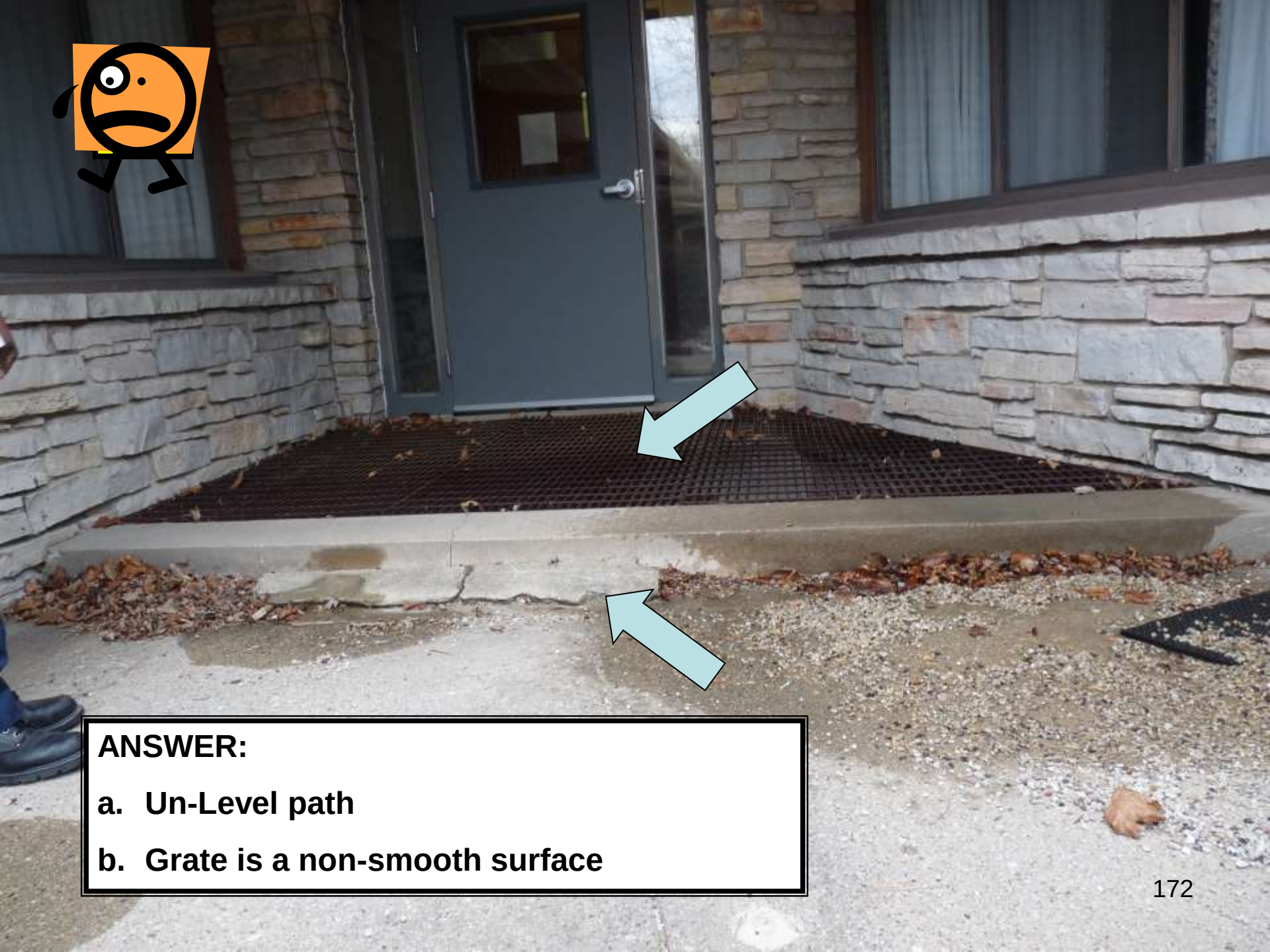

ANSWER:
Operable space heater in a patient lounge, even if observed unplugged.
OFF
ON
HIGH HEAT
ON
HEATER
ON
MAIN POWER

# 81. What is the violation at this path of egress ?

**Suggested Survey Tool Page**

**12**

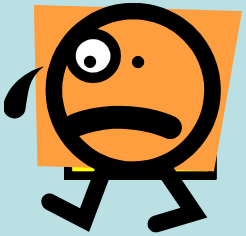
↓



**ANSWER:**

a. **Un-Level path**

b. **Grate is a non-smooth surface**



**82. What is the maximum permitted travel distance to a portable fire extinguisher in a health care facility ?**

**Suggested Survey Tool Page**

**16**

**x**

# K. PORT EXTINGUISHERS (K-64) Inspection Guides

| Item | What to Check | Requirements |
|---|---|---|
| **Layout** | 1. Location (n64l) | 1. Must be conspicuously located, with unobstructed access, securely mounted, kept fully charged and operatable, max 75' travel distance to a unit. [NFPA 101 (2000 edition), 18.3.5.6, 9.7.4.1 and NFPA 10] |
| **Install** | 1. Height (n64h) | 1. Extinguishers weighing under 40 pounds to be installed at or below [illegible] above the floor and over 40 pounds at or below 40. NFPA 10 (1998 edition), 1-6.10] |
| **Testing** | 1. Testing (n64t) | 1. Units must be inspected monthly and annually [NFPA 101 (2000 edition), 18.3.5.6, 9.7.4.1 and NFPA 10] |

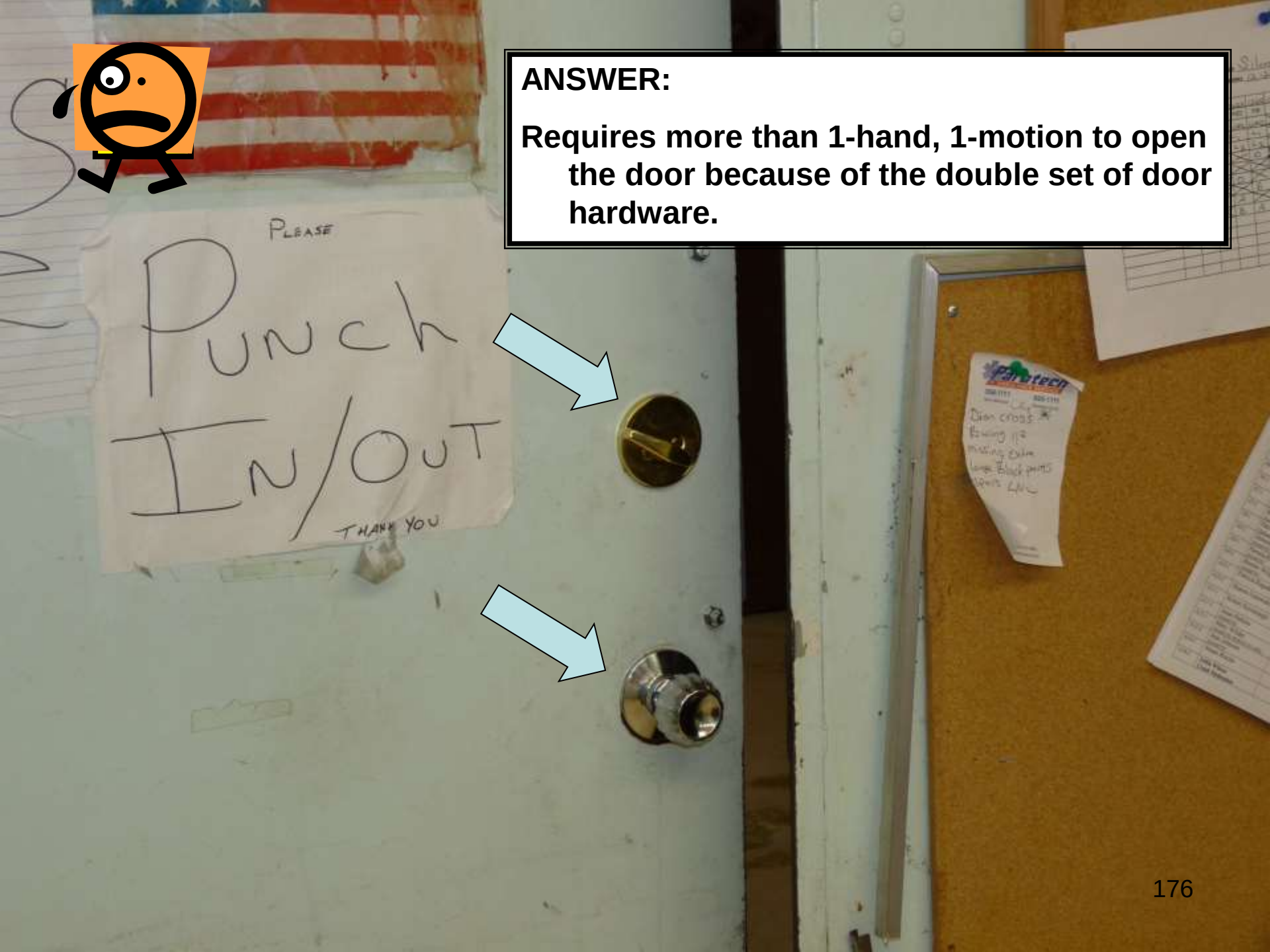
16

**83. What is the violation at this egress door from a staff lounge ?**

**Suggested Survey Tool Page**

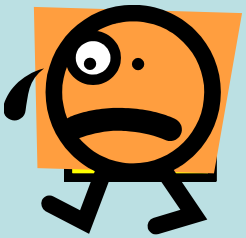
**12**

↓




**ANSWER:**

**Requires more than 1-hand, 1-motion to open the door because of the double set of door hardware.**



## 84. How many exits must be provided in a 8,000 sq ft office suite?

**Suggested Survey Tool Page**

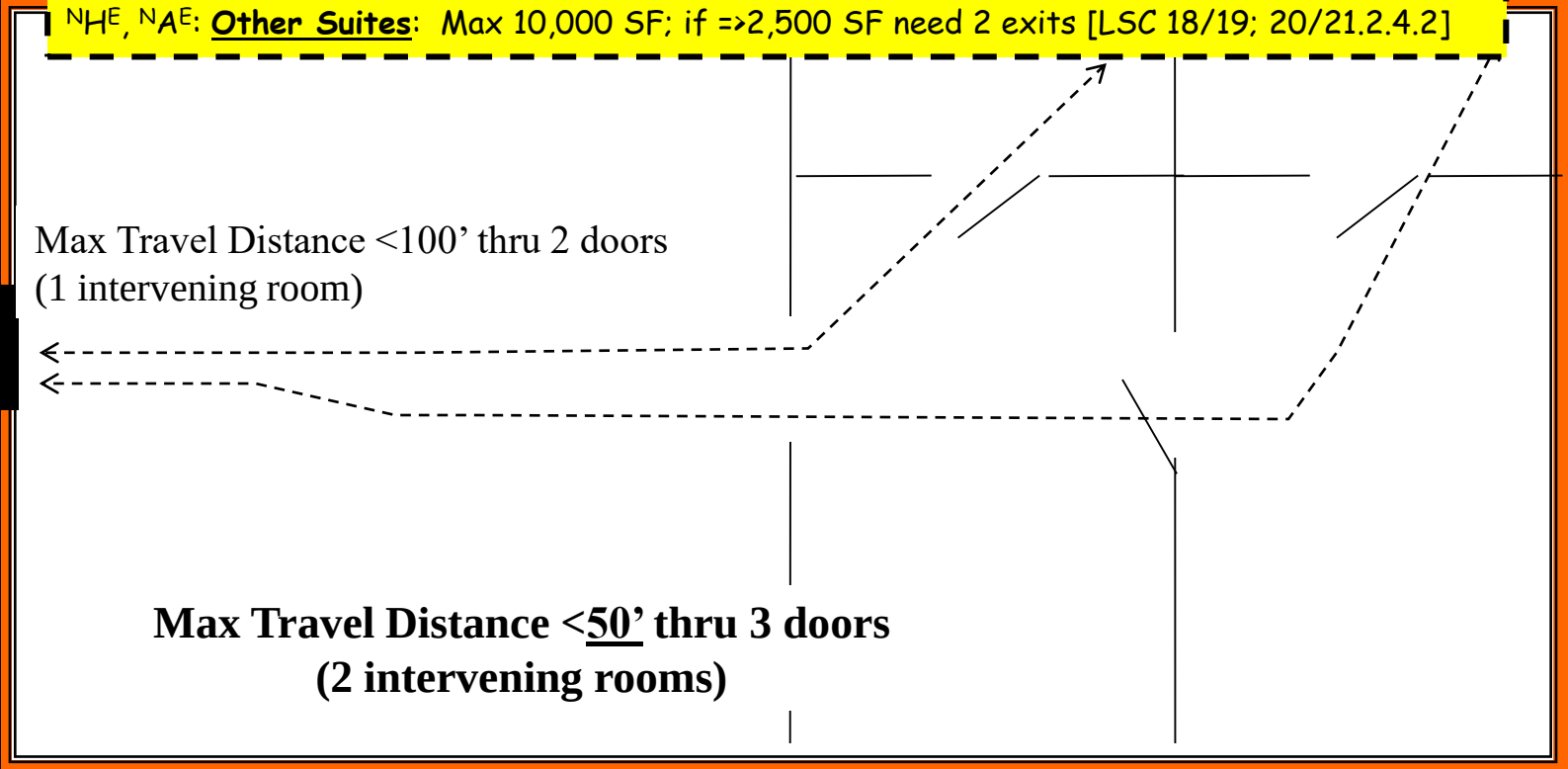
**37**

**x**

# SUITES [LSC 18.2.5]

NHE: **Patient Sleeping Suites**: Max 5,000 SF; if =>1,000 SF need 2 exits

NHE, NAE: **Other Suites**: Max 10,000 SF; if =>2,500 SF need 2 exits [LSC 18/19; 20/21.2.4.2]




**Inside of suites there are no corridors**

**No min widths or door latching requirements; Doors can slide without breaking away, latching or single motion release**

# 85. What is the violation in this stairwell?

**Suggested Survey Tool Page**

**21**

↓

**ANSWER:**

**Light in stairwell was not continuously illuminated.**

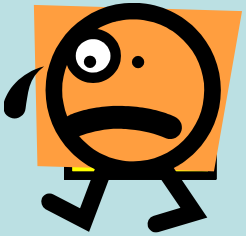
# 86. What is the violation at this inpatient corridor ?

**Suggested Survey Tool Page**

6

↓


EXIT
ANSWER:
Exit width is 6’-0”.



**87. If a natural gas electrical generator is installed what must the gas provider provide ?**

**Suggested Survey Tool Page**

20

x

# P. GENERATOR (K-46,144) Inspection Guides

(More Info: P27)

| Item | What to Check | Items Needing Correction (Examples) |
|---|---|---|
| **Testing** | 1. Weekly (n144w)<br>2. Monthly (n144m) | 1. Visual inspect fluids & gen condition [NFPA 110 (1999 edition), 6-3.6]<br>2. Monthly op for 30 min under 30% load (or Min exh gas temp or annual 2 hr load bank-if diesel) [NFPA 110 (1999 edition), 6-4.1.2] |
| **Nat Gas Gen** | 1. Letter (n146l) | 1. Need letter from Nat Gas vender to indicate it is a reasonably reliable source of gas in normal operation, with low probability of interruption, signed by person with tech expertise to make claim [NFPA 101, 7.9.2.4; NFPA 110, 3-1.1, CMS info of 10/2/09] |
| **Transfer** | 1. ATS (n144a)<br>2. Transf Time (n144t) | 1. Must exercise monthly[NFPA 99, 3-3.4.1.1, and NFPA 110, 6-4.3]<br>2. Max 10 sec for gen to start & transfer [NFPA 110 (1999 edition), 3-4.1] |
| **Battery Lights** | 1. Generator (n46g) | 1. Must have a battery operated emerg light at inside emergency gen locations (NFPA 101, 7.9.2.3, and NFPA 110, 5-3.1] |

**ANSWER:**

**A letter that satisfies the 5 key elements specified by CMS**

20

# 88. What is the violation ?

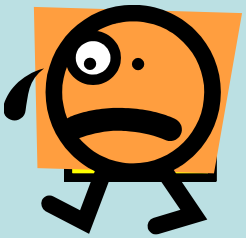
**Suggested Survey Tool Page**

**11**

↓

**ANSWER:**

**Door to courtyard may be mistaken as an exit and does not have a “No Exit” sign.**



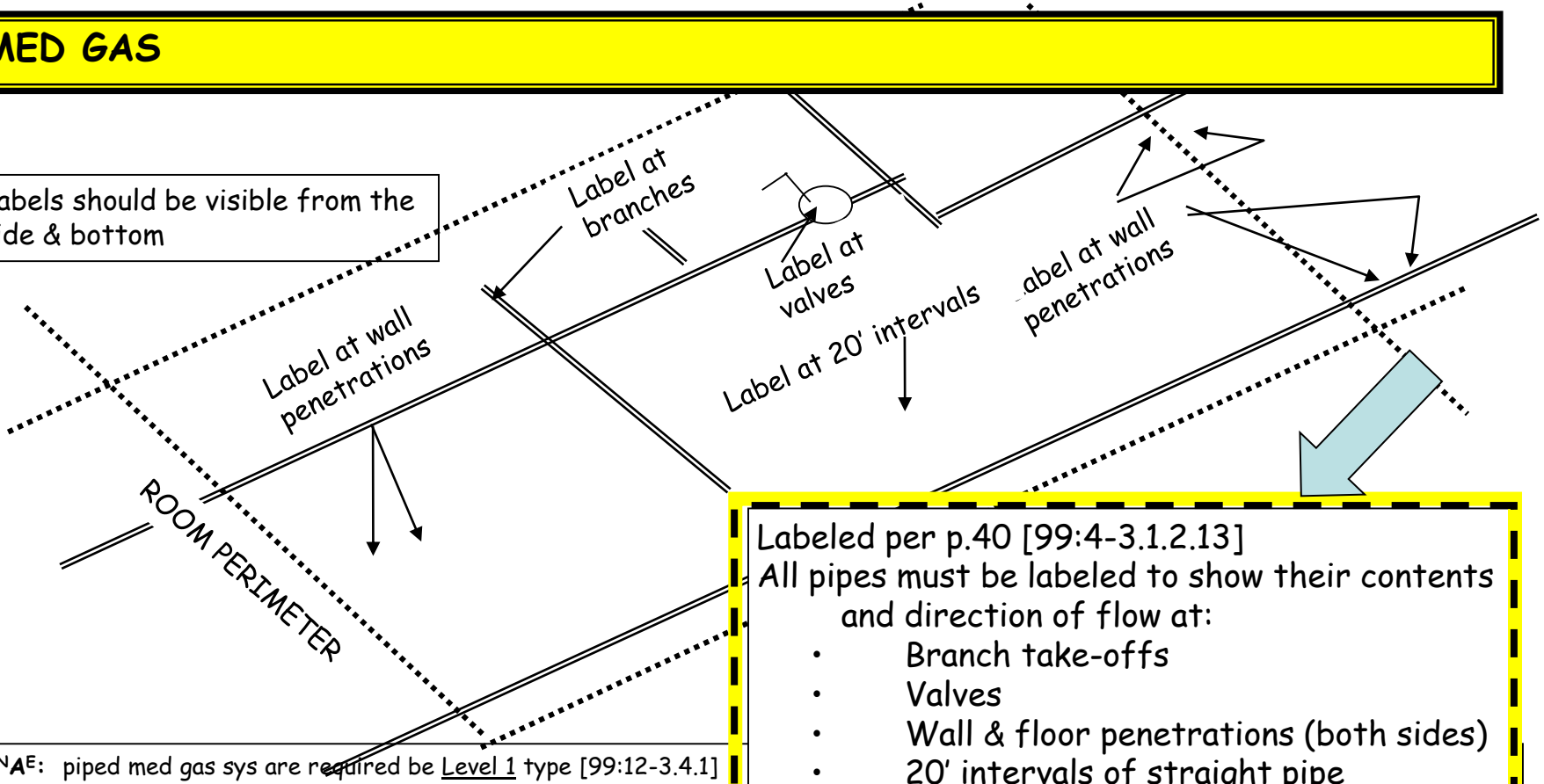
# 89. Labels on medical gas piping must be placed at what locations ?

**Suggested Survey Tool Page**

**35**

**x**

# MED GAS




Labeled per p.40 [99:4-3.1.2.13]
All pipes must be labeled to show their contents and direction of flow at:

- Branch take-offs
- Valves
- Wall & floor penetrations (both sides)
- 20' intervals of straight pipe

$^{N}H^{E}$, $^{N}A^{E}$: piped med gas sys are required be Level 1 type [99:12-3.4.1]

1. **O2,NO2** cylinders stored in 1 hr room; switches & outlets =>60"hi [9
2. All **piping** caped until installed; brazed by certified workers [99:4-3.1.2]
3. **Valves** labeled & provided at source, main outside source, base of riser, branch off riser, zone w/gauge (outside each vital life support & anesth) [99:4-3.1]
4. **Alarm** Masters at maintenance & continuously monitored location; Area Alarm at vital support & anesth; set for +/- 20% normal pressure [99:4-3.1]
5. **Testing** by 3rd party prior to use [99:4-3.4.1.3]
6. **Med Air** compressor intake on roof, 10' from any opening, 20' above ground, turned down & screened 99:4-3.1.1.9]
7. **Med Vac** pump exhaust must be remote from any opening; min 2 pumps; able to feed full sys with largest pump off [99:4-3.2]

# 90. What is the violation ?

**Suggested Survey Tool Page**

**16**

↓

**ANSWER:**

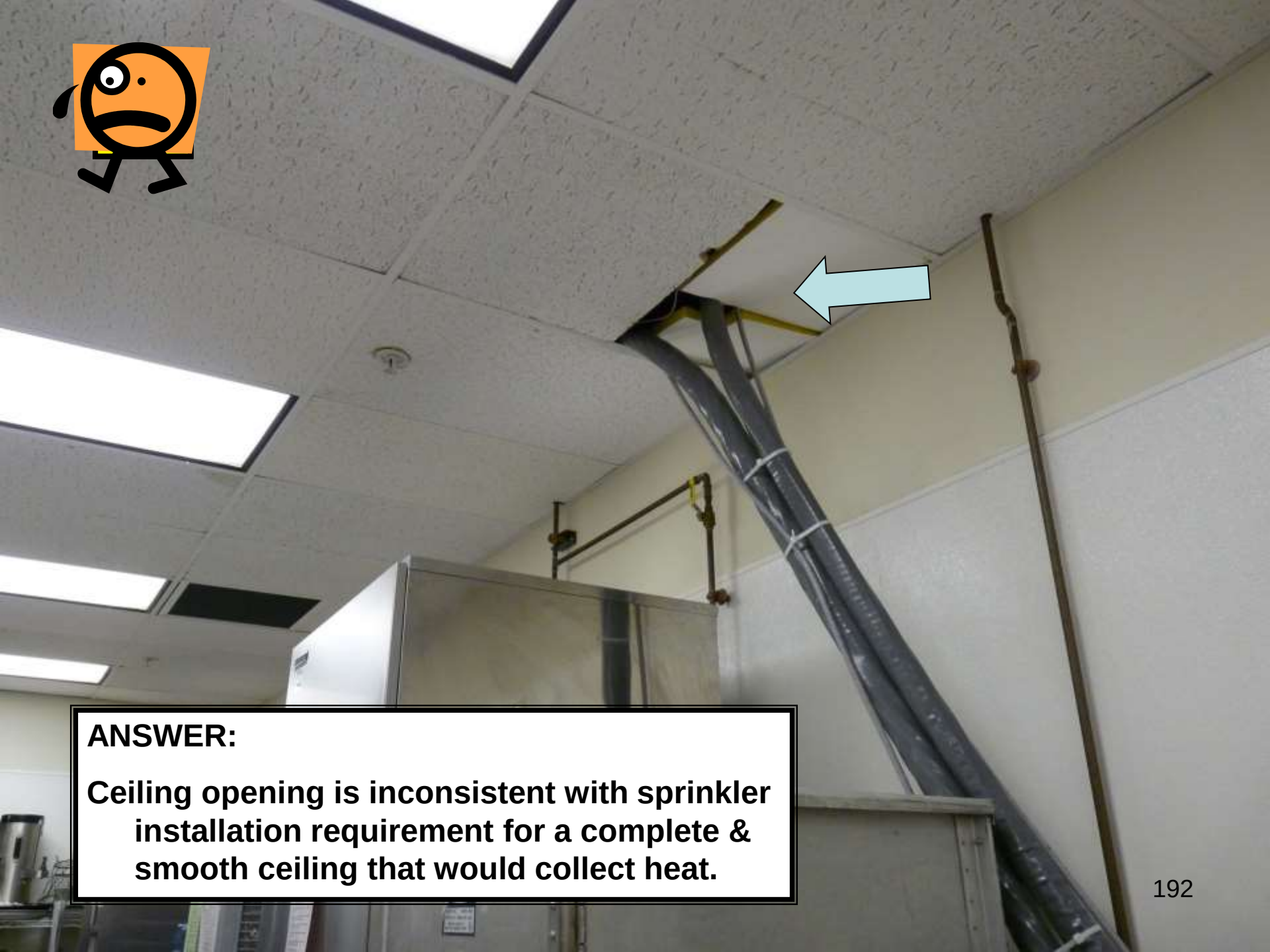
**Sprinklers are closer than 6’ apart.**

# 91. What is the violation ?

**Suggested Survey Tool Page**

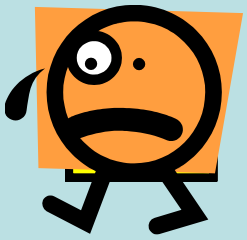
**15**

↓



**ANSWER:**

**Ceiling opening is inconsistent with sprinkler installation requirement for a complete & smooth ceiling that would collect heat.**



**92. What are some of the key things an inspector looks at when they review the electrical feed to a fire alarm panel?**

**Suggested Survey Tool Page**

**14**

**x**

# J. FIRE ALARM INSTALL & TESTING (K-52,53,54,60,155)
## Inspection Guides

(More Info: P34)

| Item | What to Check | Requirements |
|---|---|---|
| **Power Sys** | 1. Dedicated Circuit (n52d)<br>2. Circuit ID (n52i)<br>3. Power Cord (n52c)<br>4. Locked Access (n52l)<br>5. Red Marking (n52r) | 1. Must be fed by a dedicated circuit (NFPA 101 (2000 edition), 9.6.1.4 and NFPA 72 (1999 edition), 1-5.2.5.2<br>2.Circuit # must be permanently shown at the alarm panel (NFPA 101 (2000 edition), 9.6.1.4 and NFPA 72 (1999 edition), 1-5.2.5.6]<br>3. Power connection to alarm panel must be mechanically protected from being disconnected/unplugged NFPA 72, 1-5.2.5.3]<br>4. Access to the fire alarm power source must be locked so only authorized staff have access. [NFPA 72, 1-5.2.5.5]<br>5.Fire Circuit must be marked in red [NFPA 72, 1-5.2.5.4] |
| **Supervisory Circuits** | 1. Phone Line Trouble (n52p) | 1. Alarm panel must sound trouble signal if phone line is disconnected at the main panel & 24 hr attended location & the monitoring company |
| **Smoke Detectors** | 1. Location (n52s)<br>2. Corridor SD (n53s)<br>3. Ceiling Fan Proximity | 1. Install per NFPA 72, typical requirements: max 30’ apart; on wall >4” <12“>from ceiling; on smooth ceiling: max 21' from all ceiling corners; if beams >4"deep: max 20' between; if beams>18"deep: detector in each bay [NFPA 72 (1999 edition), 2-2]<br>2. Nursing Homes must have SD sys in all corridors or in each resident sleeping room & at smoke doors [NFPA 101, 18.3.4.5.3]<br>3. Must have min 2 detectors in room/corridor; when fan operating the detector must activate within 20 sec of its normal time. SOM Append I] |

**ANSWER:**

**Make sure the electrical feed is dedicated, locked, colored & labeled**

14

# 93. What is the violation ?

**Suggested Survey Tool Page**

**15**

↓

**ANSWER:**

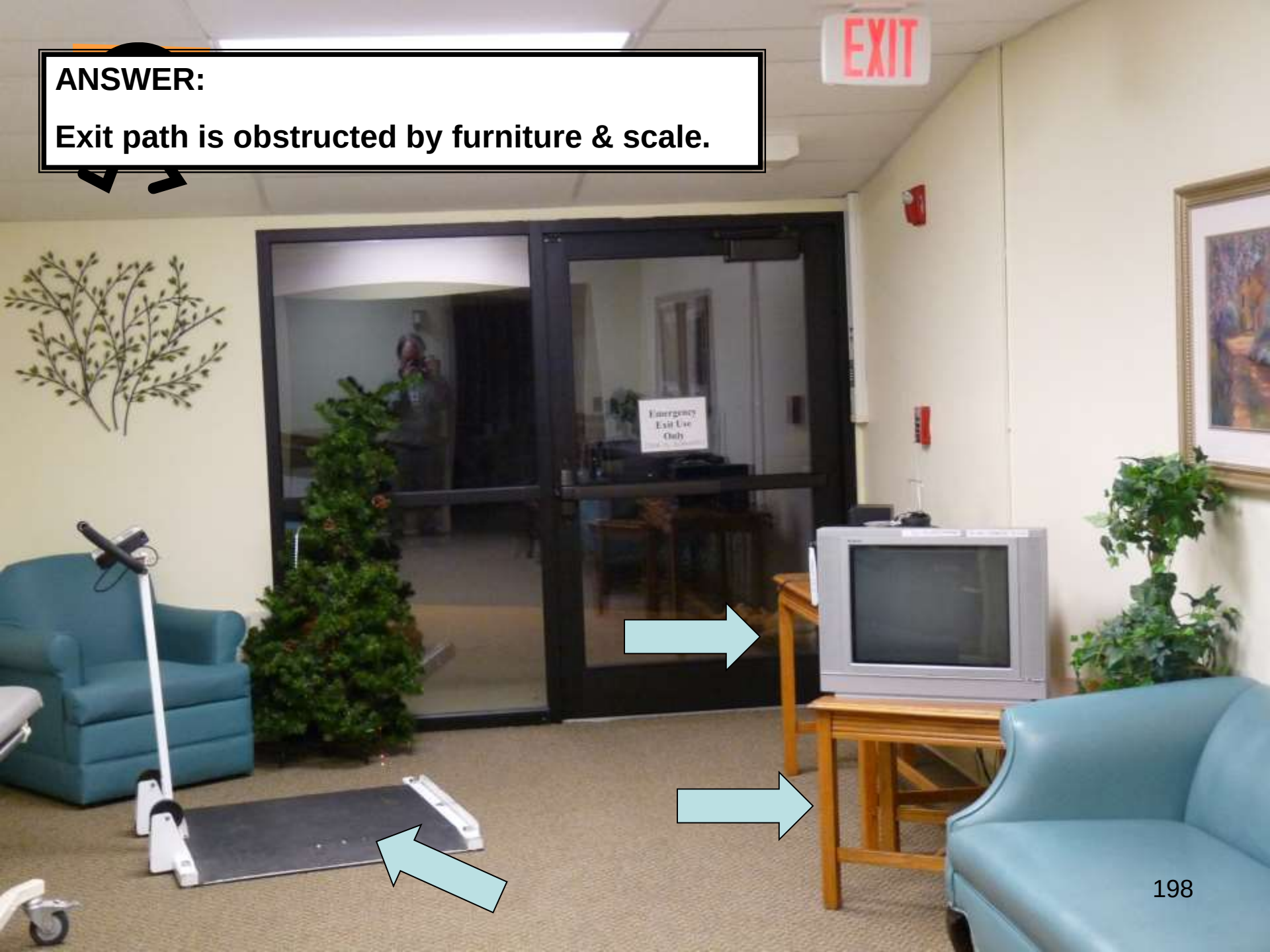
**Sprinkler is missing an escutcheon cover.**

# 94. What is the violation ?

**Suggested Survey Tool Page**

**18**

↓




**ANSWER:**

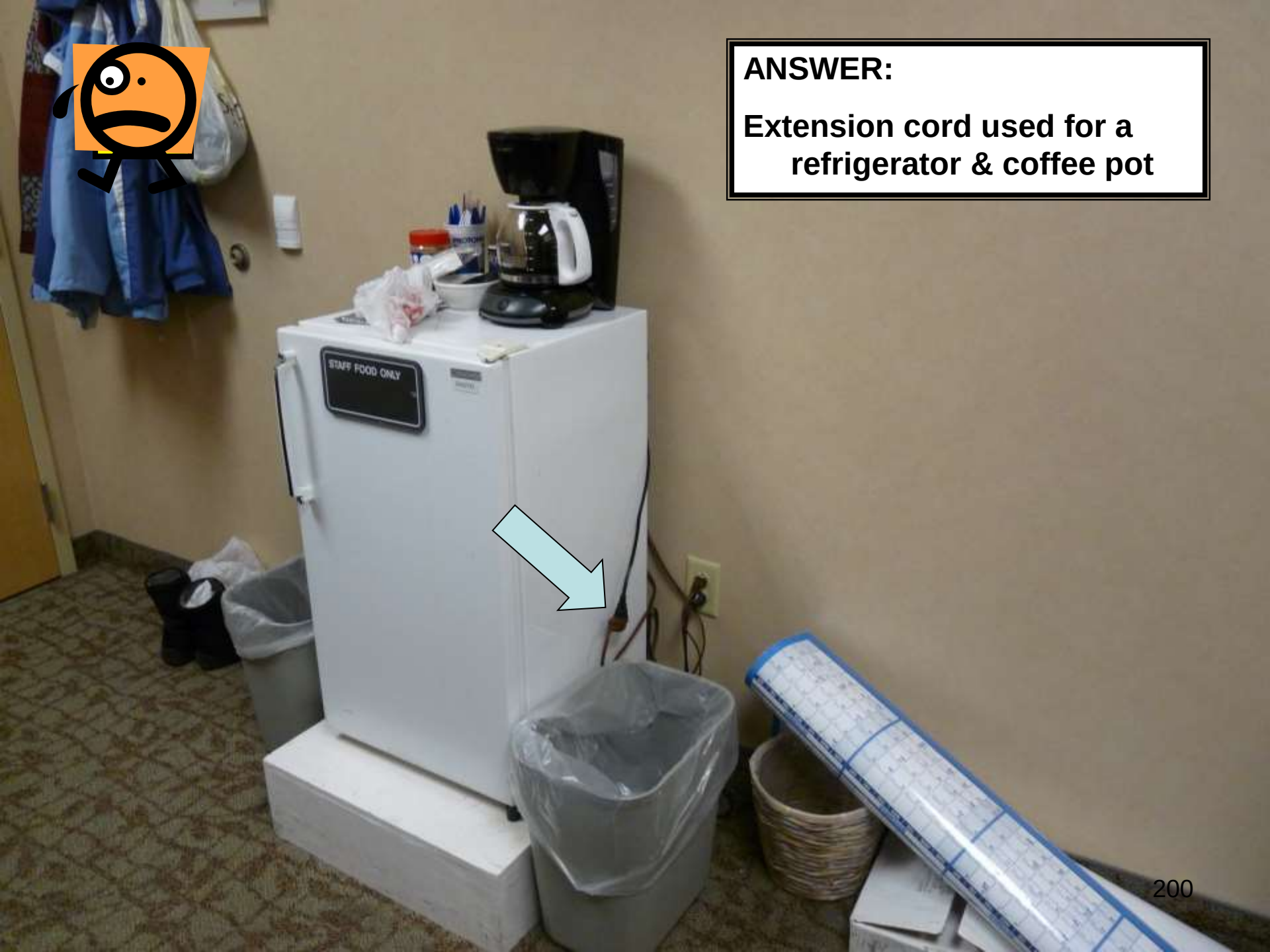
**Exit path is obstructed by furniture & scale.**

# 95. What is the violation ?

**Suggested Survey Tool Page**

**22**

↓




**ANSWER:**

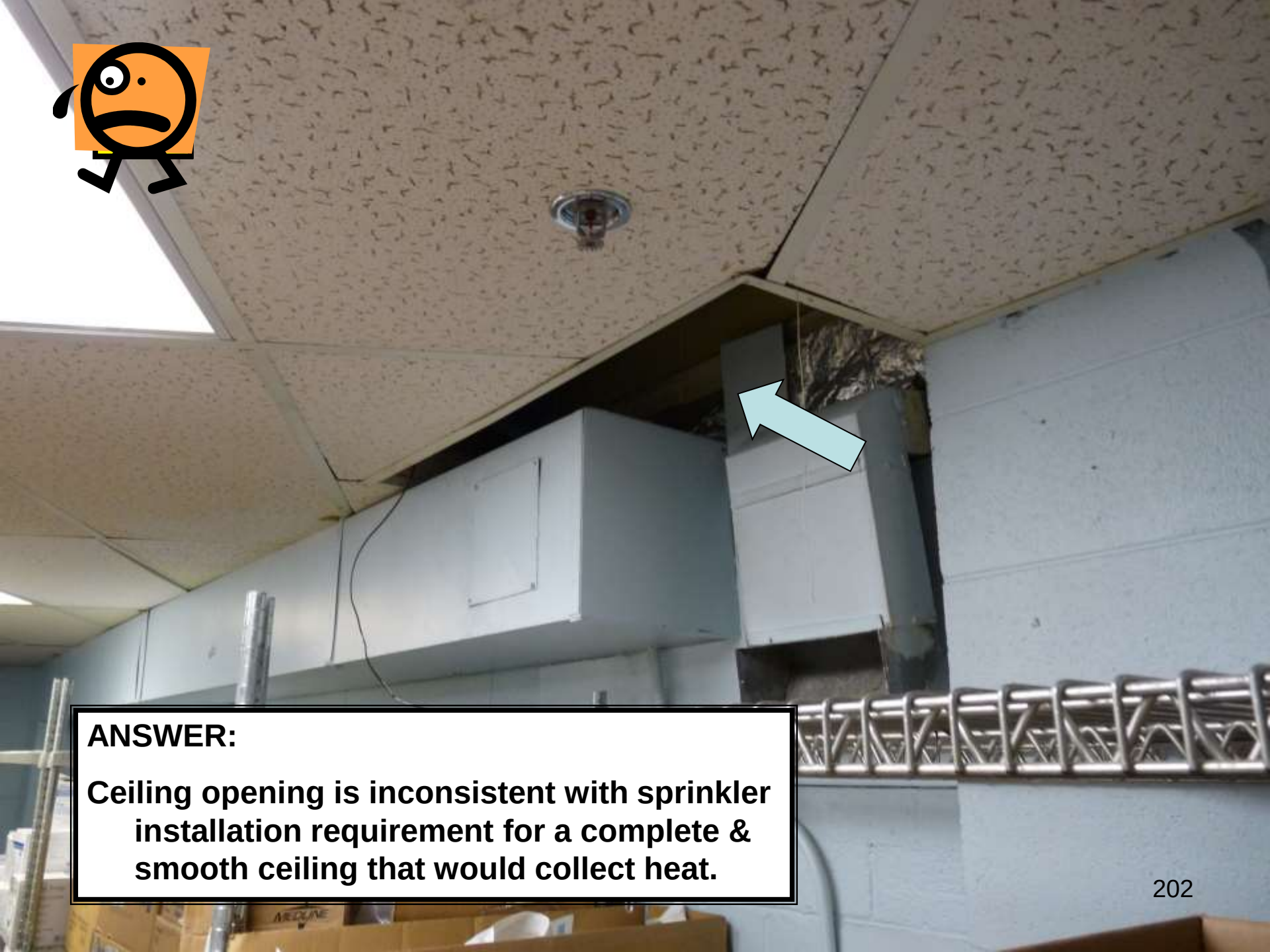
**Extension cord used for a refrigerator & coffee pot**

# 96. What is the violation ?

**Suggested Survey Tool Page**

**15**

↓



**ANSWER:**

**Ceiling opening is inconsistent with sprinkler installation requirement for a complete & smooth ceiling that would collect heat.**

# 97. What is the violation ?

**Suggested Survey Tool Page**

**18**

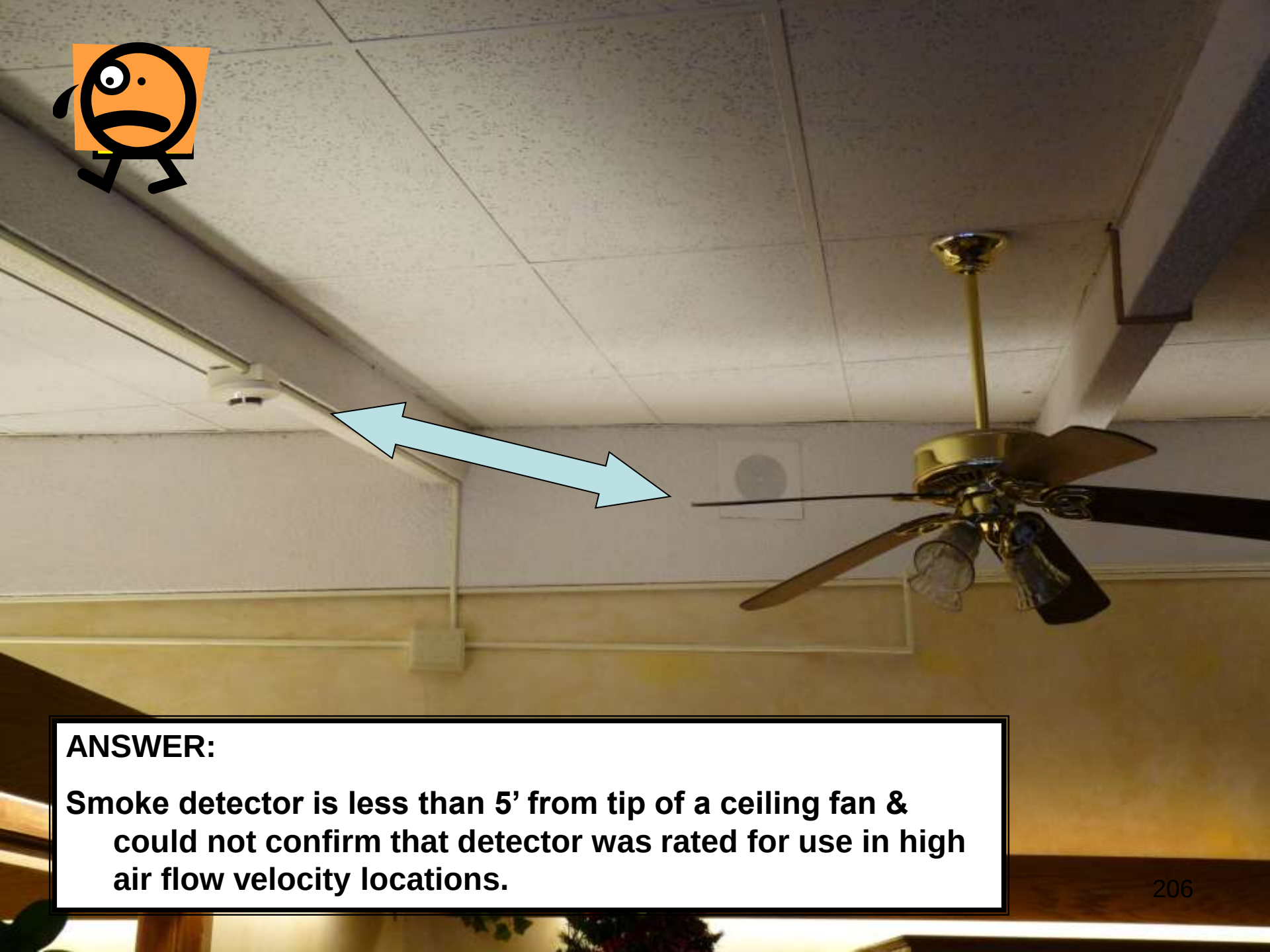
↓


**ANSWER:**

**Furniture obstructs the exit width.**

**98. What is the violation ?**

↓



**ANSWER:**

**Smoke detector is less than 5’ from tip of a ceiling fan & could not confirm that detector was rated for use in high air flow velocity locations.**

**99. Under what conditions would the shown lantern be a code violation ?**

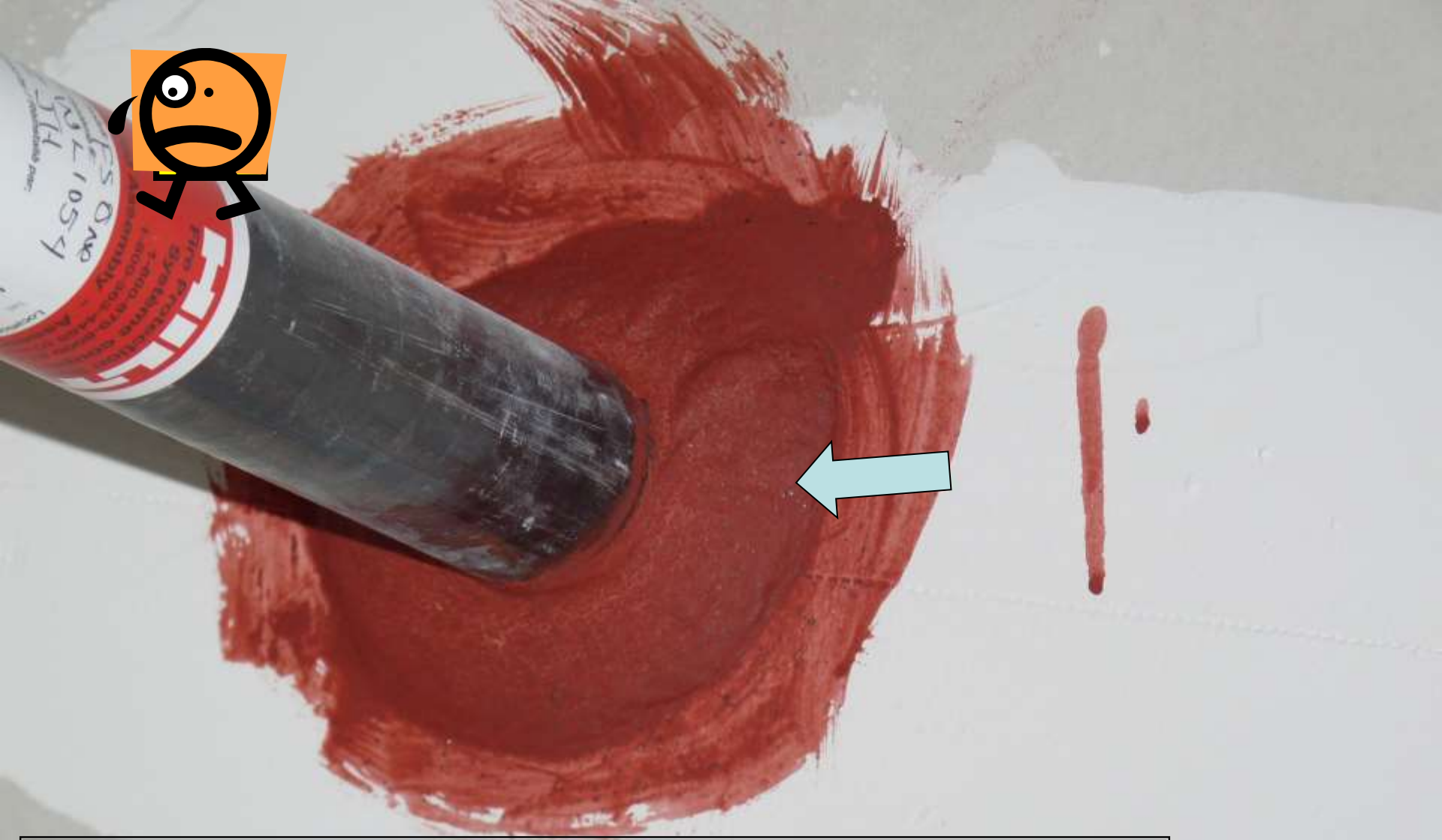
↓

**ANSWER:**

**It would be unacceptable if the lantern appeared to have been used in the past, such as containing a combustible/flammable fuel or a wick that had been burned**

**100. Is this penetration correctly fire stopped?**

↓



**ANSWER:**

**Unable to tell. Looks suspicious because of the large amount of fire stop material around the pipe. Need to check for thickness & annual gap.**