DeCoded

Egress and Life Safety

Lori Greene, AHC/CDC, CCPR, FDAI, FDHI

Welcome!

Notes about today's webinar…

- 3rd in DHI Webinar series
  - Recording of *Accessibility Requirements* & Fire Door Assemblies webinars available
  - On DHInteractiv in Members Only
  - Handout for today's webinar available now

- 1 hr. 15 min. presentation
- 15 min. Q & A at the end
  - Submit questions via Chat/Question box

- All attendees muted

Welcome!

Notes about today's webinar…

- 5 DHI CEP pts. are available for each 1 ½ hr. webinar.
- A recording of today's webinar will be available on DHInteractiv for members
  - Handouts and additional information available
  - Notified via email when recording is available
  - Go to ***DHInteractive***
  - Click on ***Membership*** on top left
  - Click on ***Members Only***

If you *hate* hardware, we can help!
(If you *dig* hardware, there's hope for you too! ;-)

Answers to your door, hardware, and code questions from Allegion.

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Decoded-DHI

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Thank you for participating in the Decoded course, which I am presenting on behalf of The Door and Hardware Institute. Below, you will find links to information used during the course. If you need to register for a class, click here.

dhi Door and Hardware Institute

Independent Study: The information on these pages may be helpful if you are interested in learning more about code development and general code requirements.

- History and Code Development – history of codes and the tragedies that prompted code changes, a summary of the code development process and the codes and standards used for this course
- General (but Important) Information – links to information on codes vs. standards, Authorities Having Jurisdiction, means of egress, egress width, and travel distance

Class Information:

The pages linked below include additional materials and links to more information, practice exercises, and the presentation in PDF format *(each link will become live as the class is held)*.

- Class 1 – Intro and Accessibility Requirements (11/19/14)
- Class 2 – Fire Door Assemblies (12/17/14)
- Class 3 – Life Safety and Egress (1/21/15)
- Class 4 – Codes for Electrified Hardware (2/18/15)

Decoded – Life Safety and Egress (01/2015)

[Back to main Decoded page.]

The third class in this series covers the requirements for life safety and egress, excluding code requirements for electrified hardware (taught in Class 4).

Evaluation: Click here if you have a few minutes to evaluate this class.

Presentation: Click here to download the presentation for the life safety and egress session in PDF format.

Exercise: Click here for a 10-question quiz that covers some of the topics in this class.

Practice: If you'd like some extra practice, you can download an additional exercise here.

Classification of Occupancy: It is critical that you are able to identify the occupancy classification (NFPA 101) or use group (IBC) for your project when trying to determine the code requirements. In some cases, there may be more than one occupancy type or use group in the same building. The occupancy classifications are listed and defined in Chapter 6 of NFPA 101, and examples of the most common buildings in each occupancy classification are listed in Annex A of NFPA 101. The use groups are listed and defined in Chapter 3 of the IBC, with some of the use groups further subdivided into subgroups. (Remember, the exam is based on NFPA 101-2009.) An article that includes basic information about occupancy classifications and use groups can be found here, and there is an exercise on classification of occupancy here.

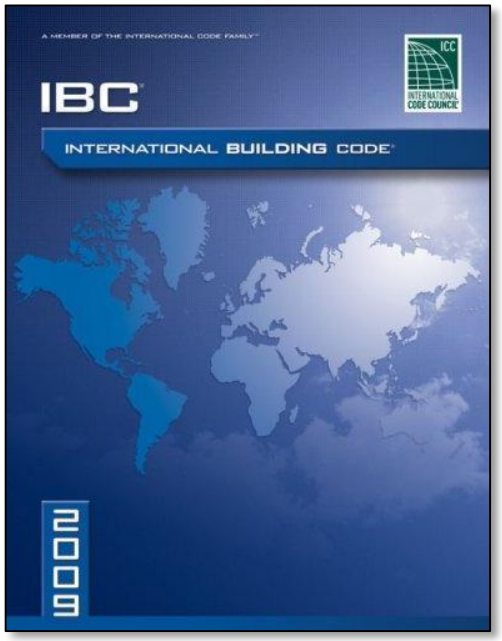
Links to Life Safety and Egress Articles on iDigHardware:

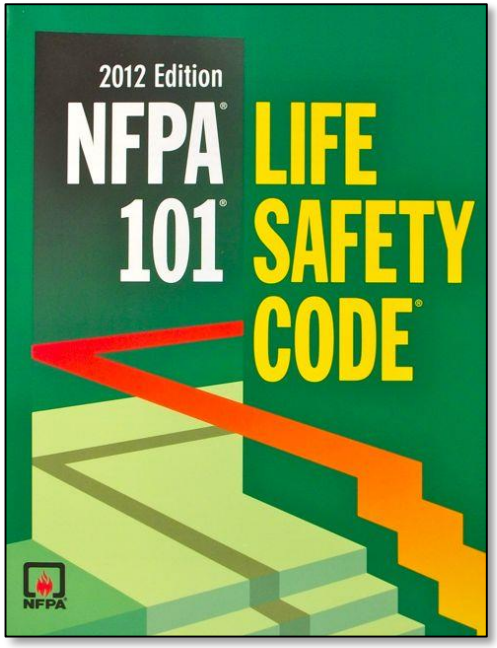
- Decoded: Egress Terminology
- Decoded: Calculating the Egress Width of Door Openings

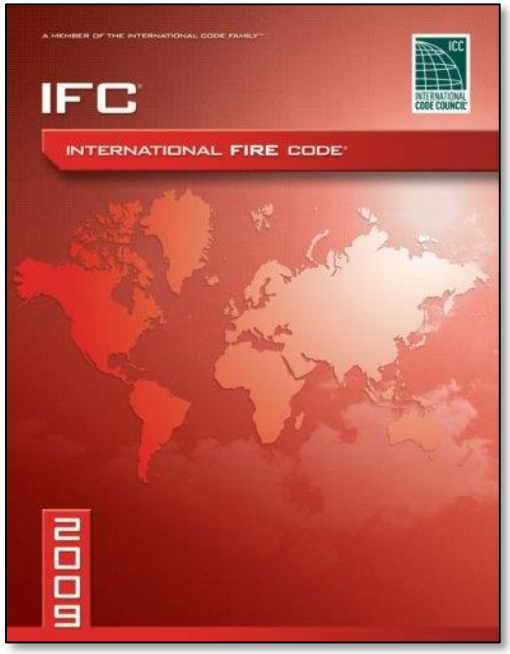
Session 3 – Life Safety

- IBC – NFPA 101 – IFC
- Occupancy Types – Use Groups
- Occupied vs. Unoccupied
- Opening Protectives
- Means of Egress
  - travel distance, common path of travel, dead end corridors
  - clear width, projections, and door swing
  - opening force and auto operators
  - unlatching, bolts, hardware operation and height
  - panic hardware

Building Code vs. Life Safety Code or Fire Code







A building code is typically used only during design/construction. After completion, the applicable fire code is enforced.

Approved

3.2.1* Approved. Acceptable to the authority having jurisdiction.

Authority Having Jurisdiction

4.6.1 Authority Having Jurisdiction.

4.6.1.1 The authority having jurisdiction shall determine whether the provisions of this *Code* are met.

4.6.1.2 Any requirements that are essential for the safety of building occupants and that are not specifically provided for by this *Code* shall be determined by the authority having jurisdiction.

4.6.1.3 Where it is evident that a reasonable degree of safety is provided, any requirement shall be permitted to be modified if, in the judgment of the authority having jurisdiction, its application would be hazardous under normal occupancy conditions.

Occupancy Classifications (NFPA 101 – Chapter 6)

- Assembly
- Educational
- Day Care
- Health Care
- Ambulatory Health Care
- Detention and Correctional
- Residential
- Residential Board and Care
- Business
- Mercantile
- Industrial
- Storage

Use Groups (IBC – Chapter 3)

- Assembly
- Business
- Educational
- Factory and Industrial
- High Hazard
- Institutional
- Mercantile
- Residential
- Storage
- Utility & Maintenance

- Most are divided into sub-groups

Occupancy Classifications and Use Groups
Some are a little tricky…

- A college classroom building is a Business occupancy, but if a college classroom holds 50 or more, it is an Assembly occupancy.
- NFPA 101's Ambulatory Health Care occupancy is usually considered Group B (Business) for the IBC.
- Child day care centers are considered Day Care occupancies per NFPA 101, but may be I (Institutional) or E (Educational) use groups per the IBC.
- A training room within an office building is not considered an Assembly use group by the IBC unless it has an occupant load of 50 or more, or is over 750 sq. ft. in area.

Multiple Occupancies (NFPA 101)

- **6.1.14.2.1 Multiple Occupancy.** A building or structure in which two or more classes of occupancy exist.
  - **6.1.14.2.2 Mixed Occupancy.** A multiple occupancy where the occupancies are intermingled. (follow most stringent requirements throughout)
  - **6.1.14.2.3 Separated Occupancy.** A multiple occupancy where the occupancies are separated by fire resistance–rated assemblies. (follow separate requirements for each area)

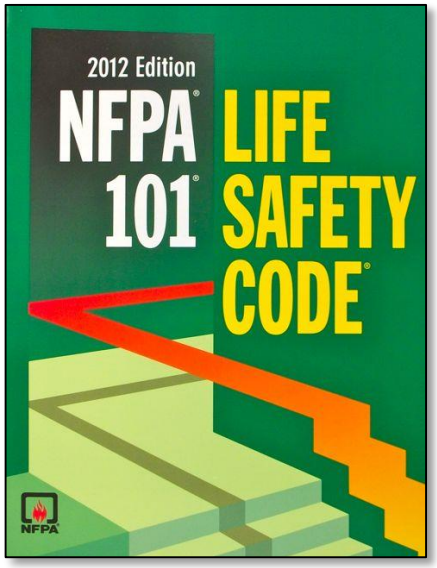
Hazard of Contents (NFPA 101)

- **6.2.2.2* Low Hazard Contents.** Low hazard contents shall be classified as those of such low combustibility that no self propagating fire therein can occur.
- **6.2.2.3* Ordinary Hazard Contents.** Ordinary hazard contents shall be classified as those that are likely to burn with moderate rapidity or to give off a considerable volume of smoke. (most buildings are ordinary hazard)
- **6.2.2.4* High Hazard Contents.** High hazard contents shall be classified as those that are likely to burn with extreme rapidity or from which explosions are likely.

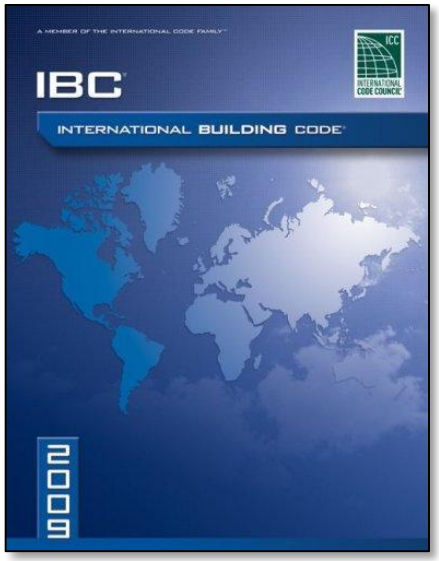
Occupied vs. Unoccupied (NFPA 101)

- Open for general occupancy, or
- Open to the public, or
- Occupied by more than 10 persons.

- NFPA 101 and IFC may have differing requirements for when building is occupied vs. unoccupied.



- Chapter 7
  Means of Egress
- Chapter 8
  Features of Fire Protection
- Chapters 12-42 Occupancy Chapters



- Chapter 7
  Fire and Smoke Protection Features
- Chapter 10
  Means of Egress

Opening Protectives (IBC)

TABLE 716.5
OPENING FIRE PROTECTION ASSEMBLIES, RATINGS AND MARKINGS

TYPE OF ASSEMBLY	REQUIRED WALL ASSEMBLY RATING (hours)	MINIMUM FIRE DOOR AND FIRE SHUTTER ASSEMBLY RATING (hours)	DOOR VISION PANEL SIZE	FIRE RATED GLAZING MARKING DOOR VISION PANEL[a]	MINIMUM SIDELIGHT/ TRANSOM ASSEMBLY RATING (hours)		FIRE-RATED GLAZING MARKING SIDELITE/TRANSOM PANEL	
					Fire protection	Fire resistance	Fire protection	Fire resistance
Fire walls and fire barriers having a required fire-resistance rating greater than 1 hour	4	3	Not Permitted	Not Permitted	Not Permitted	4	Not Permitted	W-240
	3	3[a]	Not Permitted	Not Permitted	Not Permitted	3	Not Permitted	W-180
	2	1 1/2	100 sq. in.[c]	≤100 sq.in. = D-H-90 >100 sq.in.= D-H-W-90	Not Permitted	2	Not Permitted	W-120
	1 1/2	1 1/2	100 sq. in.[c]	≤100 sq.in. = D-H-90 >100 sq.in.= D-H-W-90	Not Permitted	1 1/2	Not Permitted	W-90
Shaft, exit enclosures and exit passageway walls	2	1 1/2	100 sq. in.[c, d]	≤100 sq.in. = D-H-90 > 100 sq.in.= D-H-T-or D-H-T-W-90	Not Permitted	2	Not Permitted	W-120
Fire barriers having a required fire-resistance rating of 1 hour: Enclosures for shafts, exit access stairways, exit access ramps, interior exit stairways, interior exit ramps and exit passageway walls	1	1	100 sq. in.[c, d]	≤100 sq.in. = D-H-60 >100 sq.in.= D-H-T-60 or D-H-T-W-60	Not Permitted	1	Not Permitted	W-60

Opening Protectives (NFPA 101)

Table 8.3.4.2 Minimum Fire Protection Ratings for Opening Protectives in Fire Resistance–Rated Assemblies

Component	Walls and Partitions (hr)	Fire Door Assemblies (hr)	Fire Window Assemblies (hr)
Elevator hoistways	2	1½	NP
	1	1	NP
Vertical shafts (including stairways, exits, and refuse chutes)	2	1½	NP
	1	1	NP
	½	⅓	NP
Fire barriers	3	3	NP
	2	1½	NP
	1	¾	¾
	½	⅓*	⅓
Horizontal exits	2	1½	NP
Horizontal exits served by bridges between buildings	2	¾	¾
Exit access corridors†	1	⅓	¾
	½	⅓	⅓
Smoke barriers†	1	⅓	¾
Smoke partitions†, ‡	½	⅓	⅓

Means of Egress

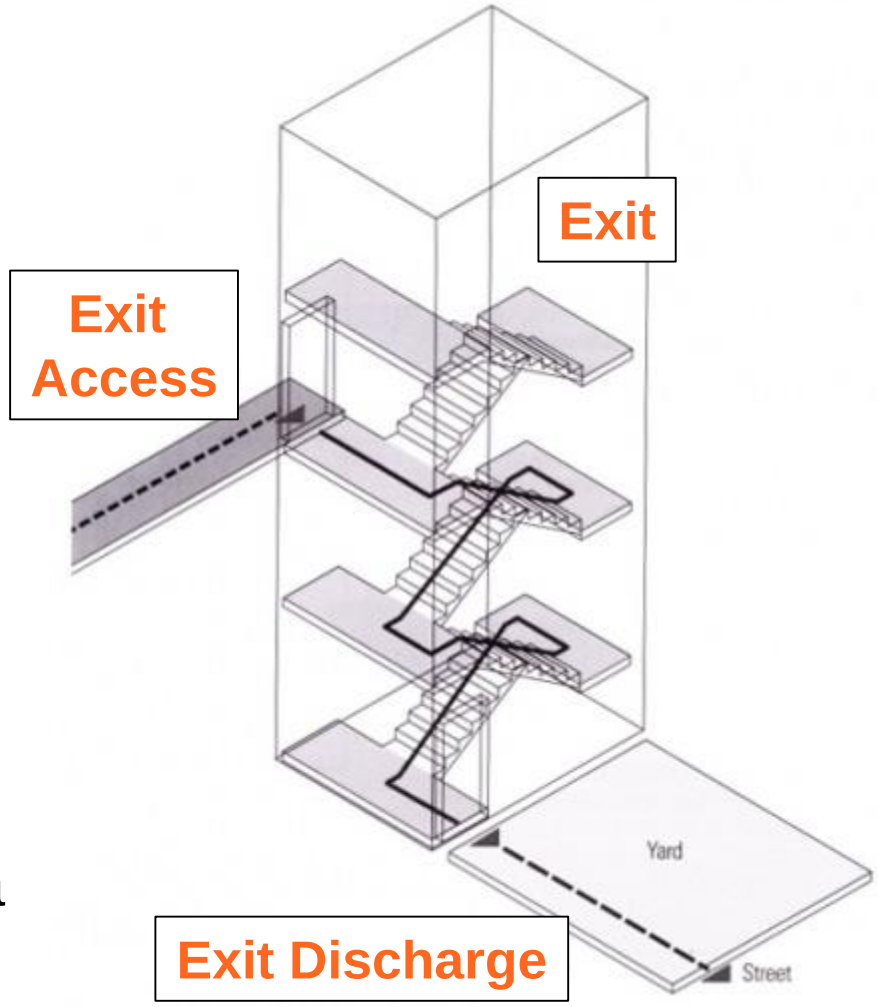
- A continuous and unobstructed way of travel from any point in a building or structure to a public way
- Not every door is an egress door.
- Not every egress door has an exit sign.


EXIT


EXIT
Delicious Pizza

Means of Egress

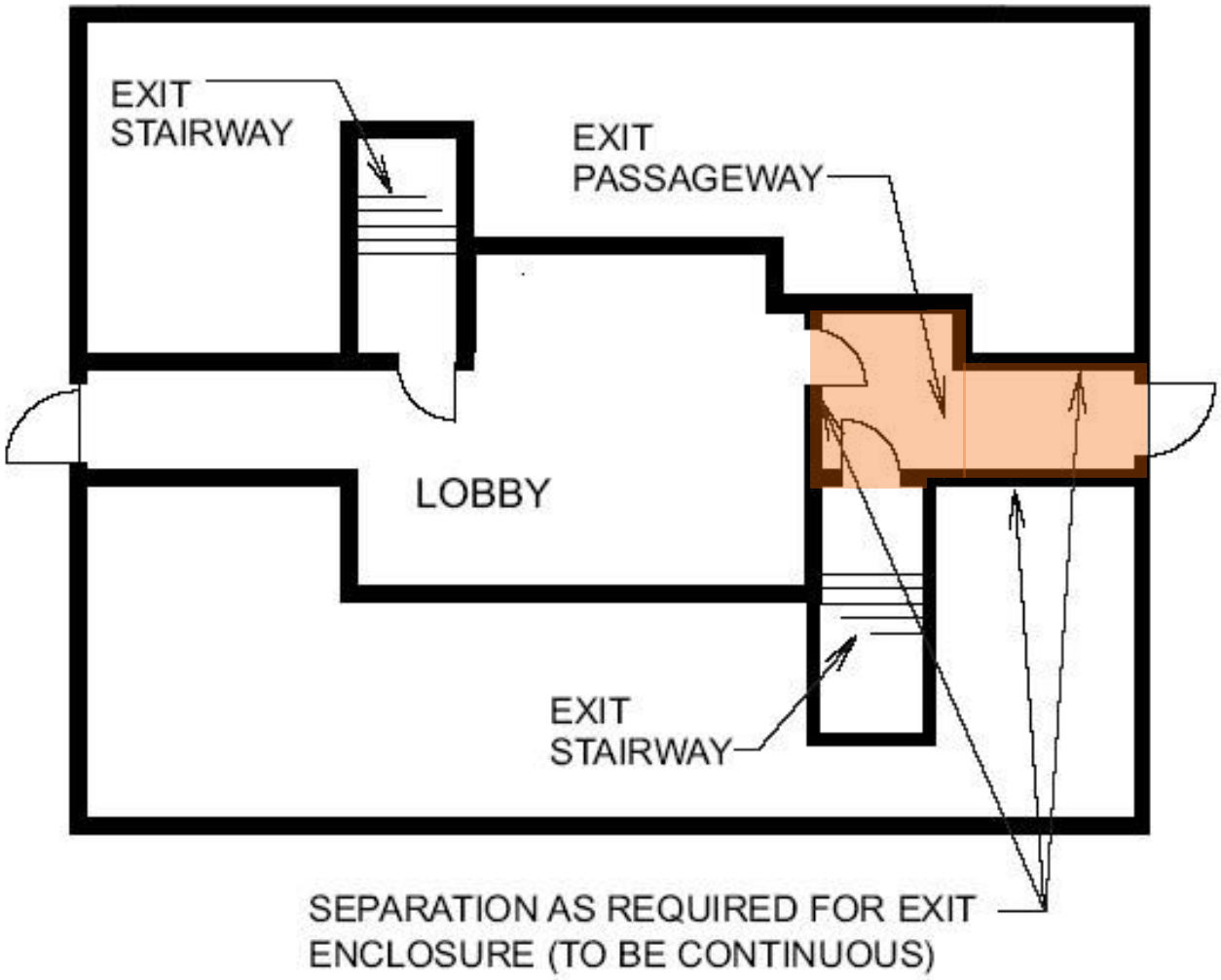
- Exit Access – leads from occupied portion to an exit
- Exit – separated by fire-resistance-rated construction and opening protectives to provide a protected path of egress travel
- Exit Discharge – between termination of an exit and a public way



Exit Passageway

EXIT PASSAGEWAY. An *exit* component that is separated from other interior spaces of a building or structure by fire-resistance-rated construction and opening protectives, and provides for a protected path of egress travel in a horizontal direction to an *exit* or to the *exit discharge*.

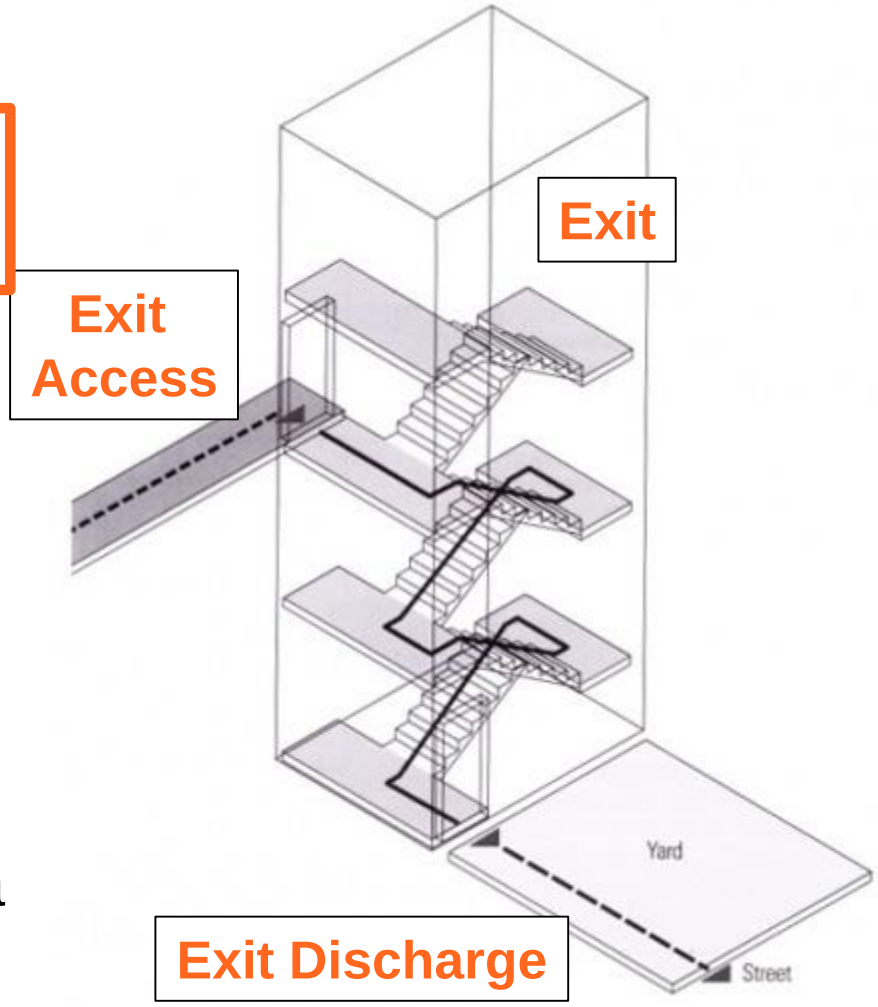
Exit Passageway



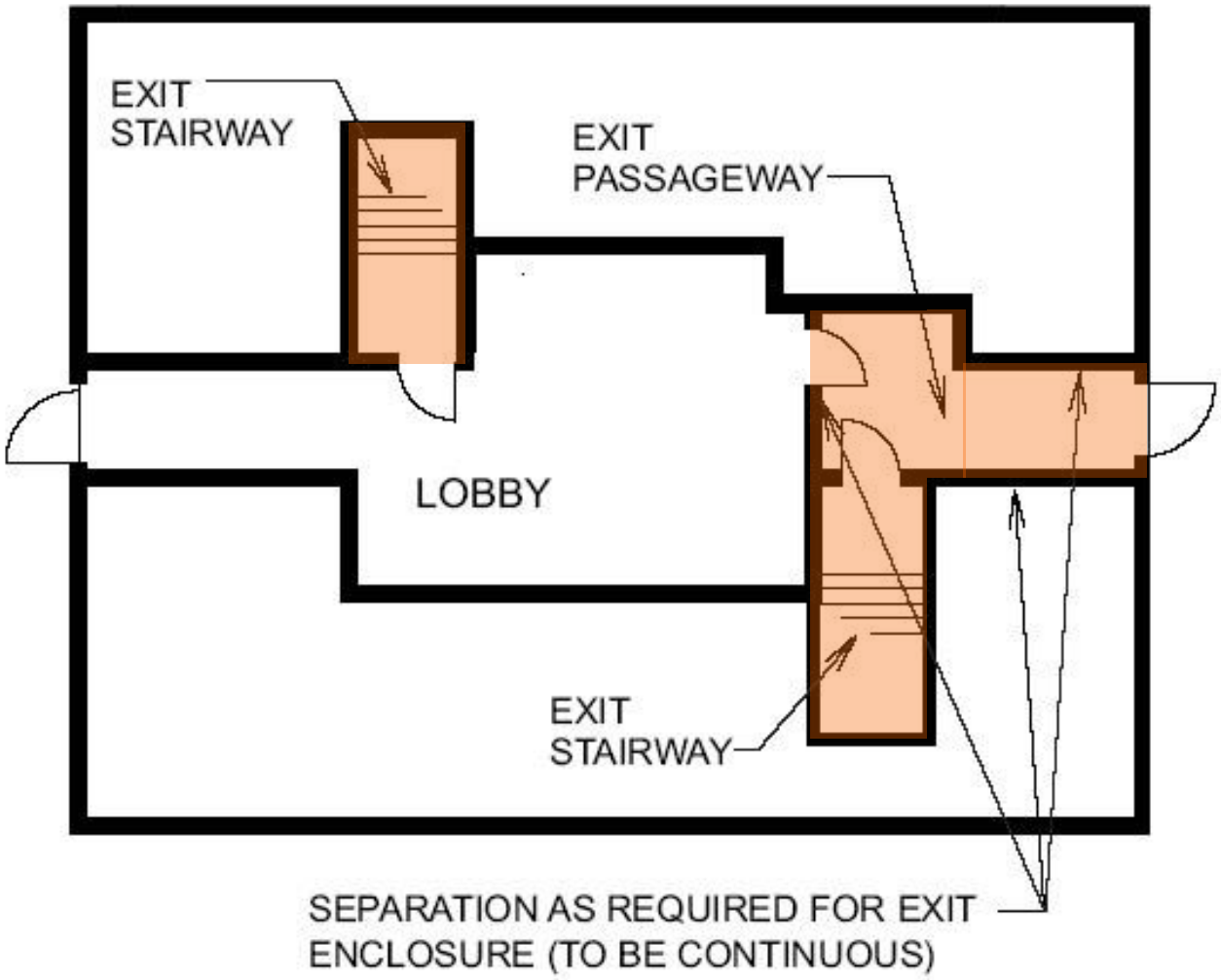
This is not an exit passageway. It is an exit access.

Means of Egress

- Exit Access – leads from occupied portion to an exit
- Exit – separated by fire-resistance-rated construction and opening protectives to provide a protected path of egress travel
- Exit Discharge – between termination of an exit and a public way



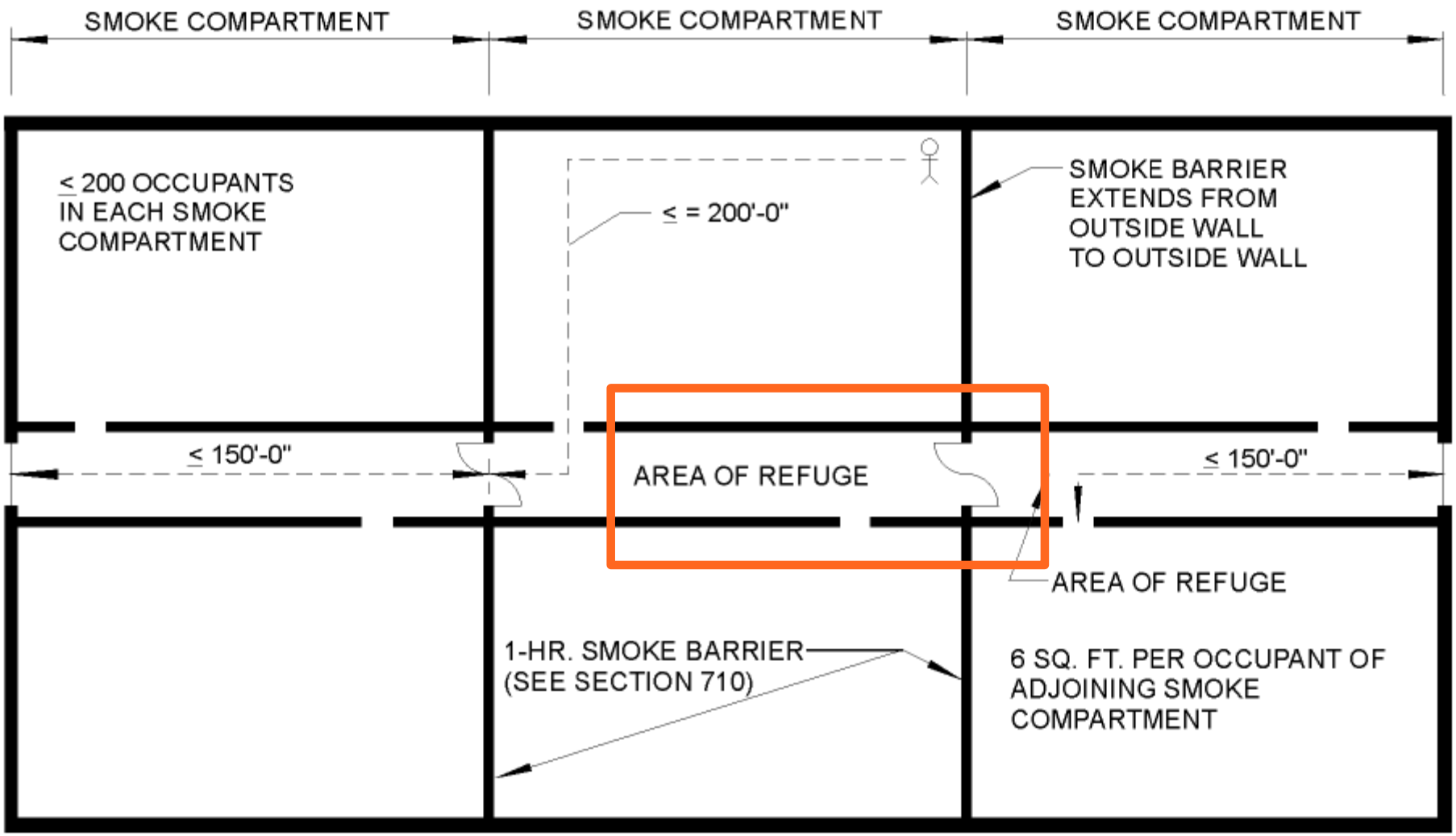
Exit / Exit Enclosure



Horizontal Exit

3.3.75.1* ***Horizontal Exit.*** A way of passage from one building to an area of refuge in another building on approximately the same level, or a way of passage through or around a fire barrier to an area of refuge on approximately the same level in the same building that affords safety from fire and smoke originating from the area of incidence and areas communicating therewith.

Horizontal Exit



Area of Refuge

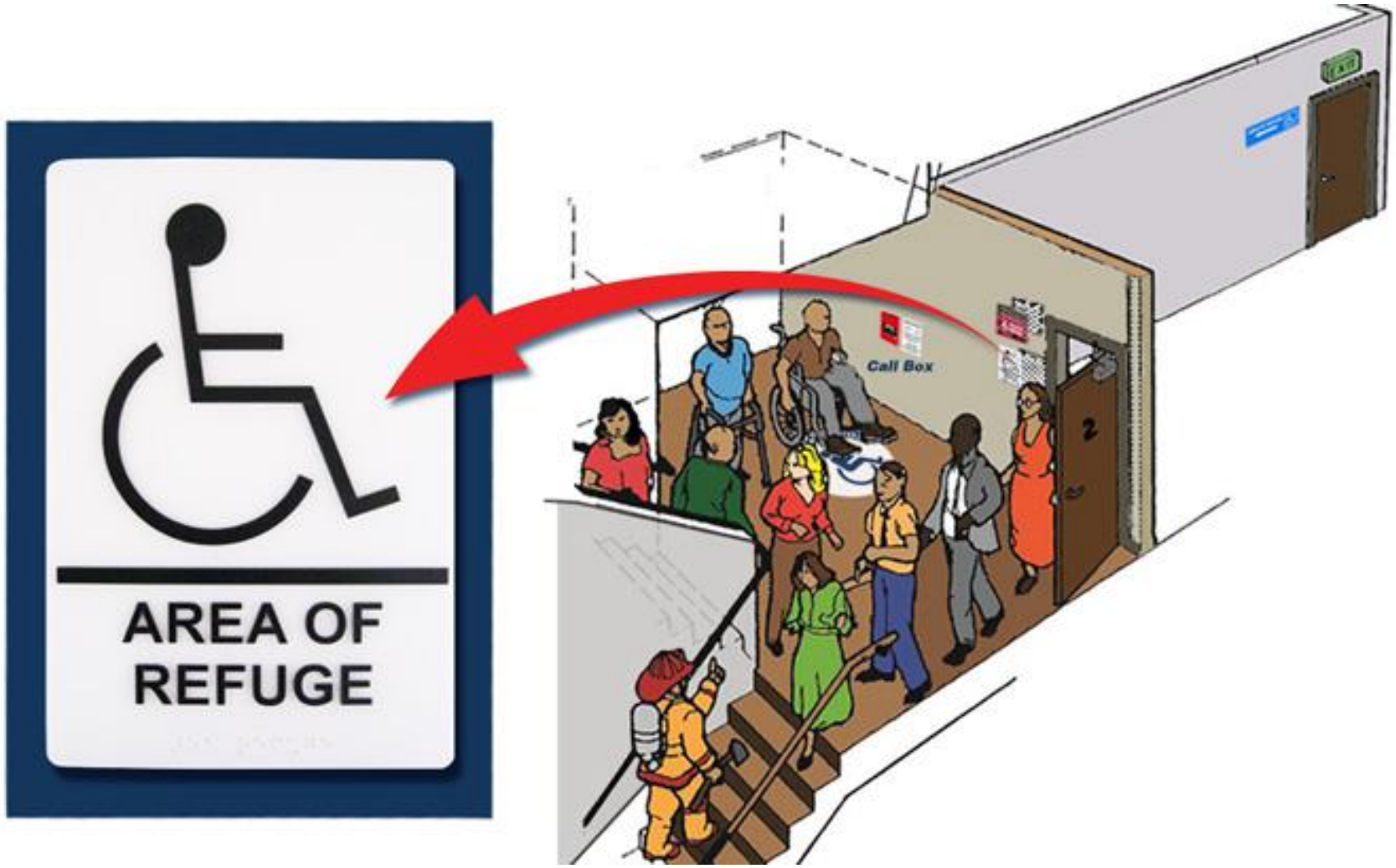
NFPA 101

3.3.20* Area of Refuge. An area that is either (1) a story in a building where the building is protected throughout by an approved, supervised automatic sprinkler system and has not less than two accessible rooms or spaces separated from each other by smoke-resisting partitions; or (2) a space located in a path of travel leading to a public way that is protected from the effects of fire, either by means of separation from other spaces in the same building or by virtue of location, thereby permitting a delay in egress travel from any level.

IBC

AREA OF REFUGE. An area where persons unable to use *stairways* can remain temporarily to await instructions or assistance during emergency evacuation.

Area of Refuge



Travel Distance

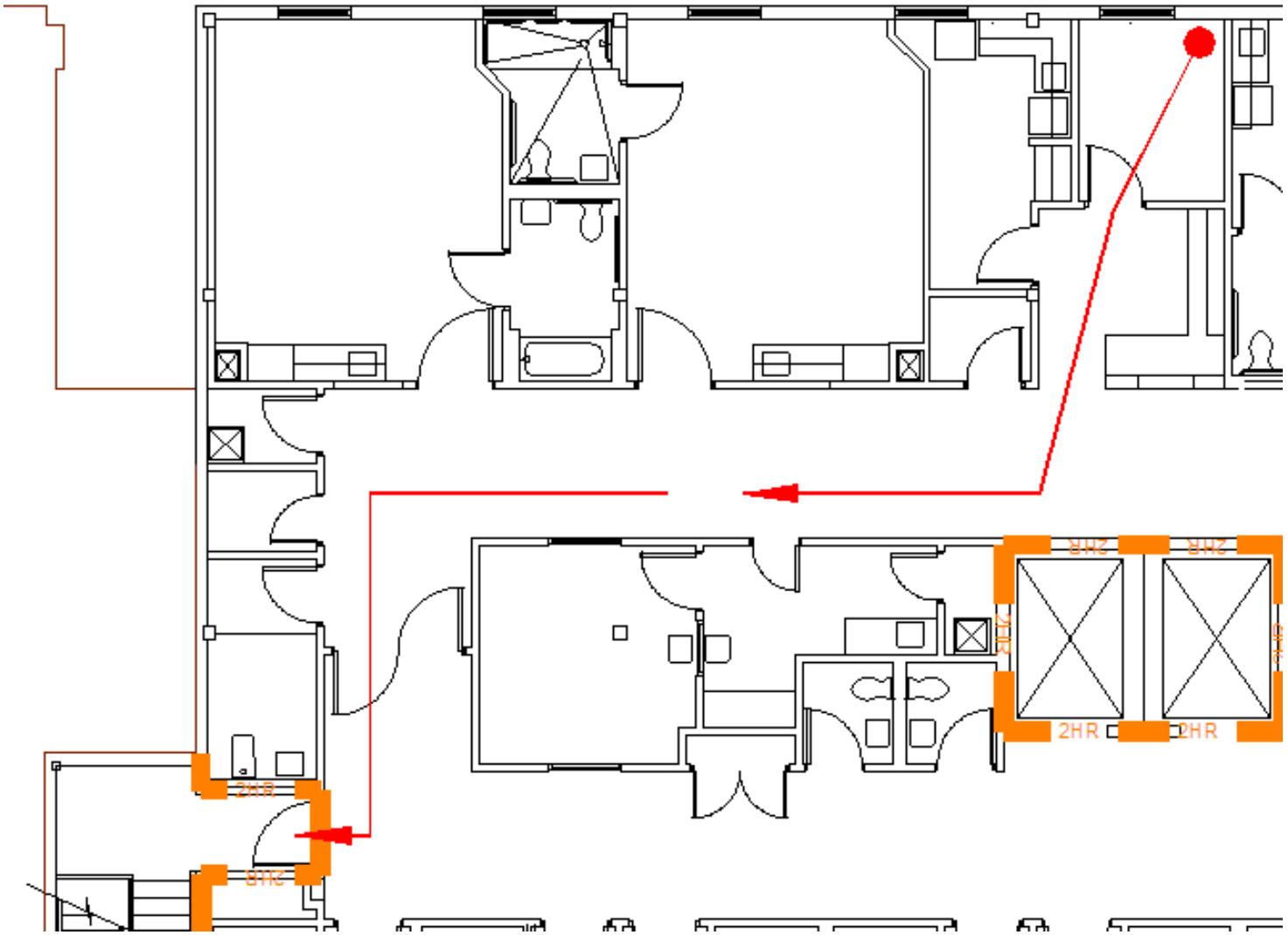
7.6* Measurement of Travel Distance to Exits.

7.6.1* The travel distance to an exit shall be measured on the floor or other walking surface as follows:

(1) Along the centerline of the natural path of travel, starting from the most remote point subject to occupancy
(2) Curving around any corners or obstructions, with a 12 in. (305 mm) clearance therefrom
(3) Terminating at one of the following:
    (a) Center of the doorway
    (b) Other point at which the exit begins
    (c) Smoke barrier in an existing detention and correctional occupancy as provided in Chapter 23

Travel distance may end at the beginning of an exit, at an exit discharge, or at a horizontal exit.

Travel Distance



Example from New Educational Chapter

14.2.6 Travel Distance to Exits. Travel distance shall comply with 14.2.6.1 through 14.2.6.3.

14.2.6.1 Travel distance shall be measured in accordance with Section 7.6.

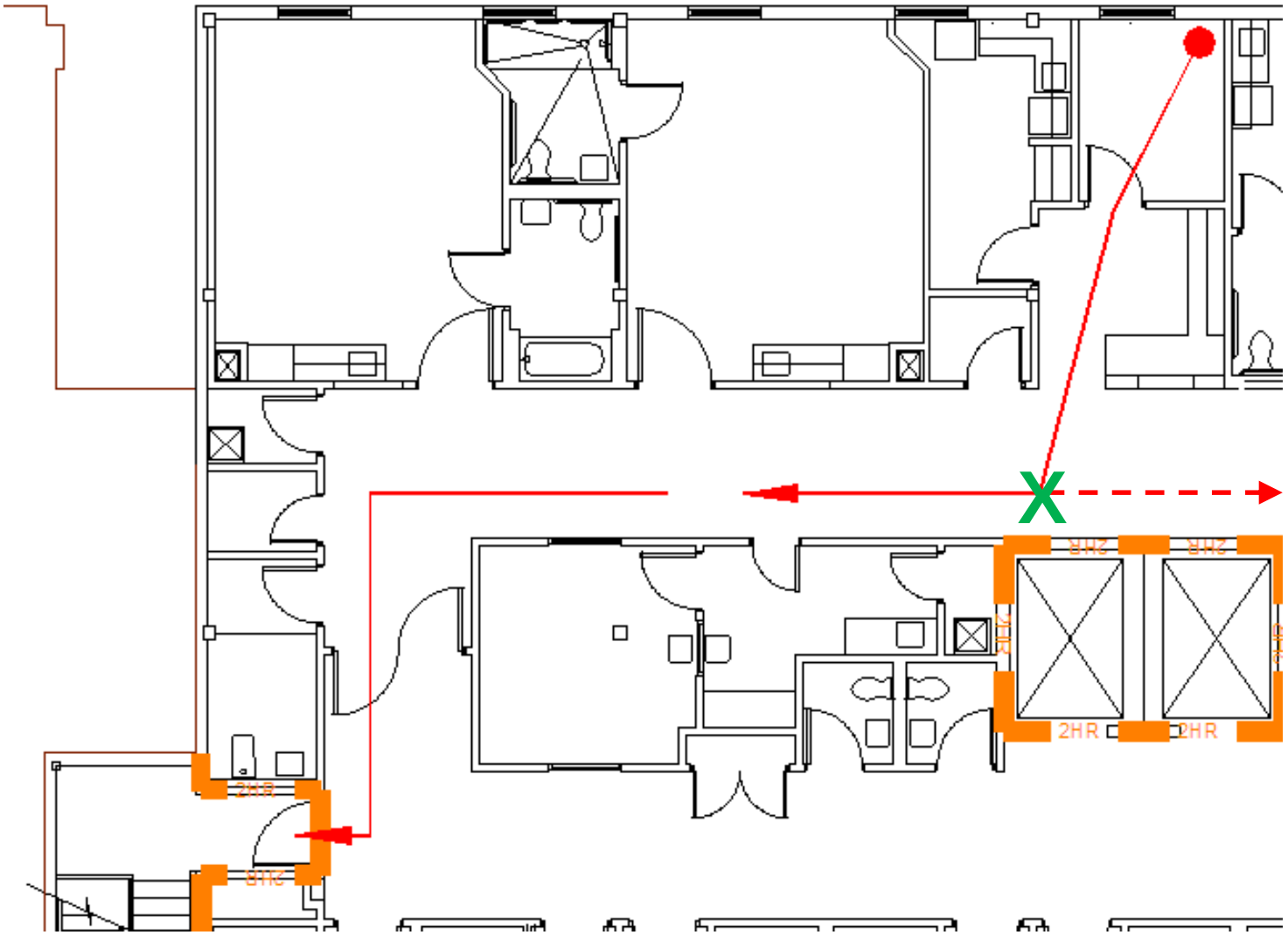
14.2.6.2 Travel distance to an exit shall not exceed 150 ft (46 m) from any point in a building, unless otherwise provided in 14.2.6.3. *(See also Section 7.6.)*

14.2.6.3 Travel distance shall not exceed 200 ft (61 m) in educational occupancies protected throughout by an approved, supervised automatic sprinkler system in accordance with Section 9.7.

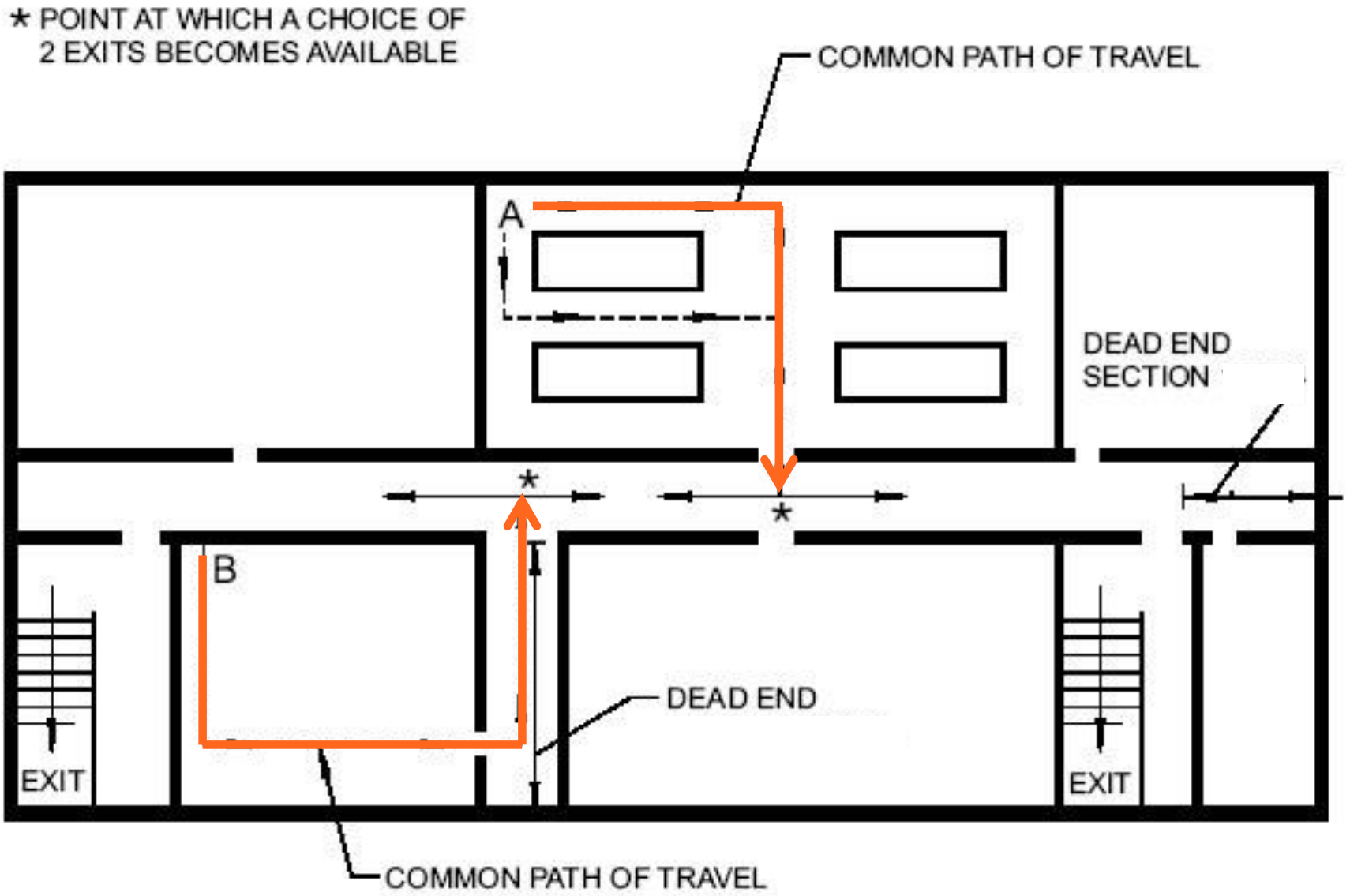
Common Path of Travel

3.3.42* Common Path of Travel. The portion of exit access that must be traversed before two separate and distinct paths of travel to two exits are available.

Travel Distance



Common Path of (Egress) Travel



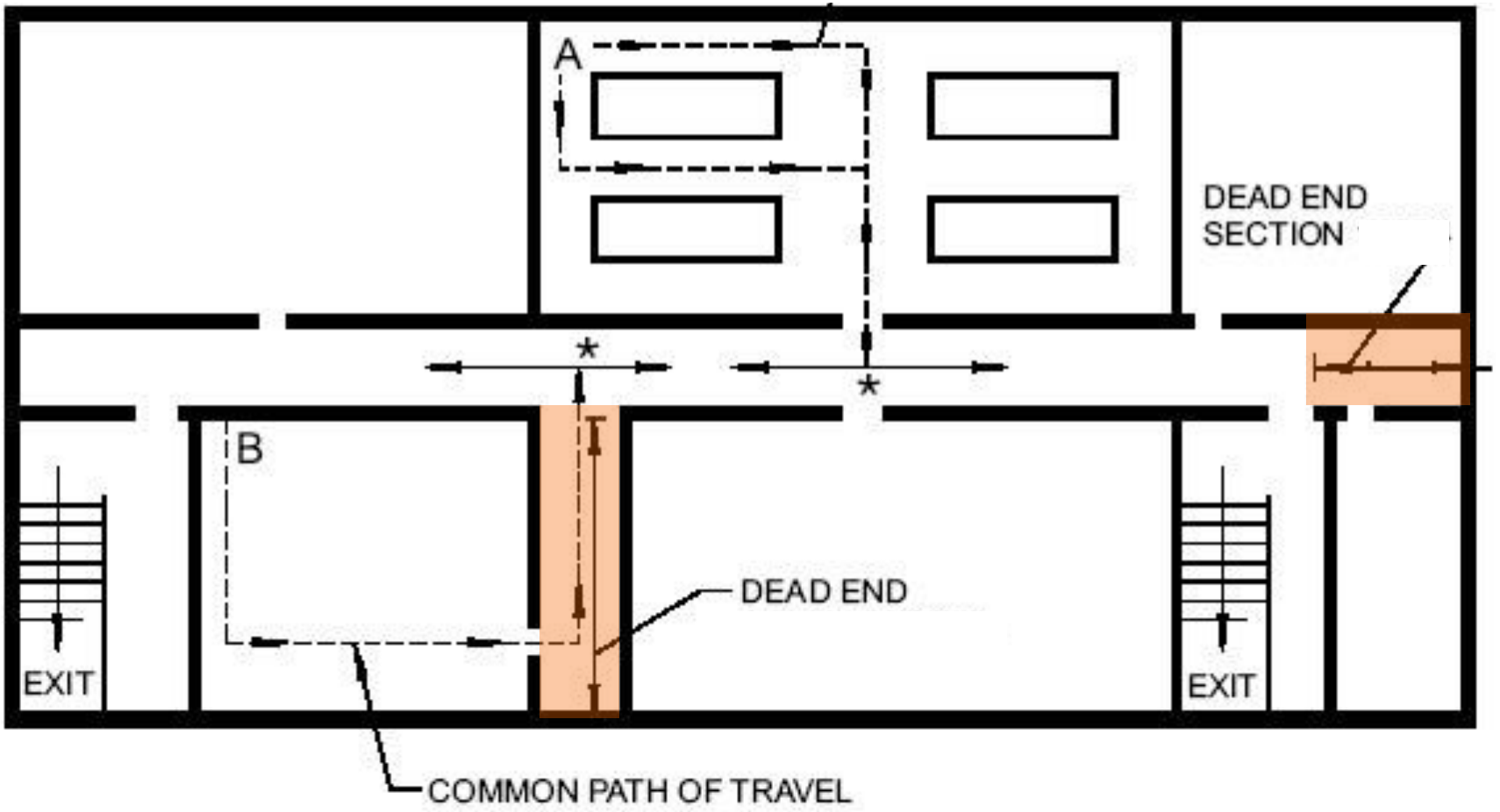
Common Path of Travel
Example from Existing Educational Chapter

15.2.5.3.1 Common path of travel shall not exceed 100 ft (30 m) in a building protected throughout by an approved, supervised automatic sprinkler system in accordance with Section 9.7.

15.2.5.3.2 Common path of travel shall not exceed 75 ft (23 m) in a building not protected throughout by an approved, supervised automatic sprinkler system in accordance with Section 9.7.

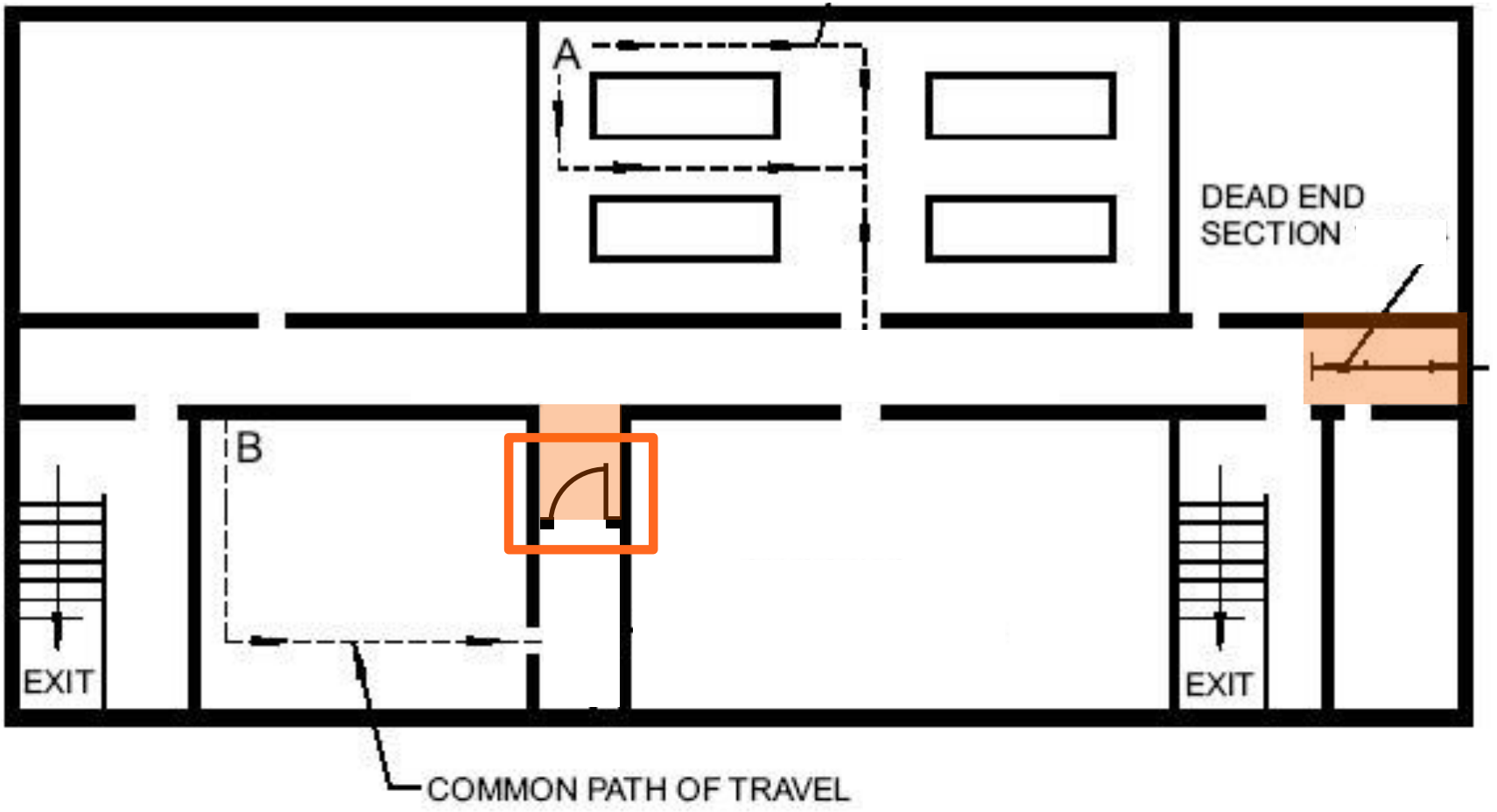
Dead End Corridors

Ex: **12.2.5.1.3** Dead-end corridors shall not exceed 20 ft (6100 mm).

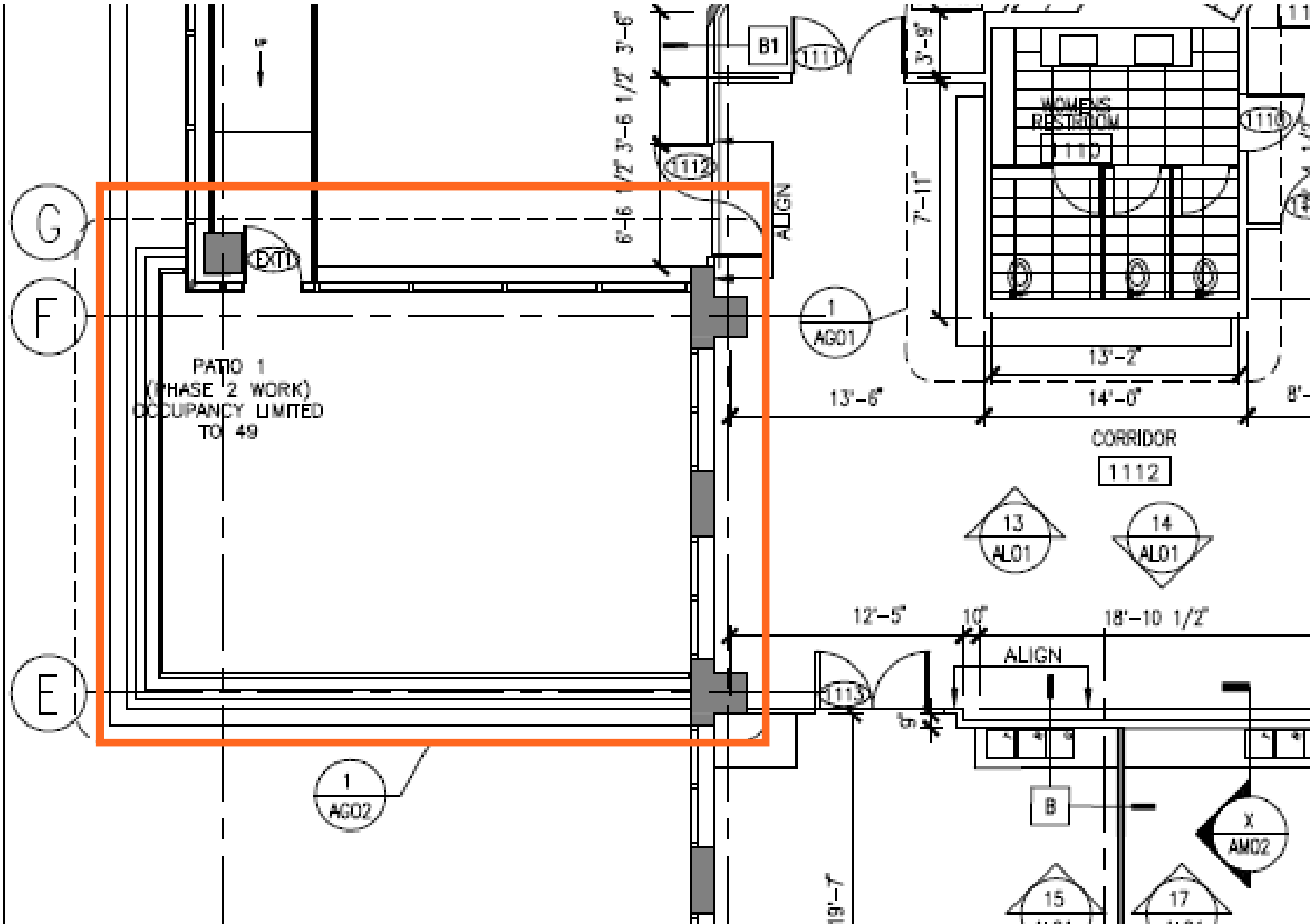


Dead End Corridors

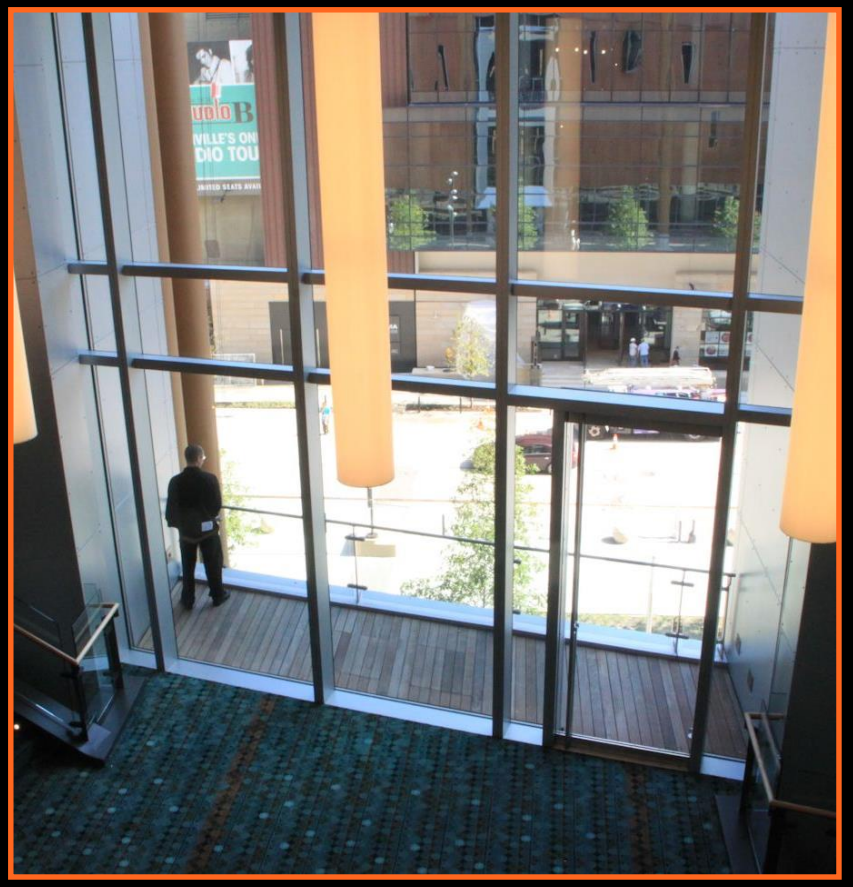
Ex: **12.2.5.1.3** Dead-end corridors shall not exceed 20 ft (6100 mm).



Courtyards, Terraces, and Roofs



Courtyards, Terraces, and Roofs



Courtyards, Terraces, and Roofs

Readily Distinguishable

- Means of egress doors must be visible.
  - No mirrors
  - No drapes
  - No decorations
- No invisible doors!


EXIT
Lindt


EXIT

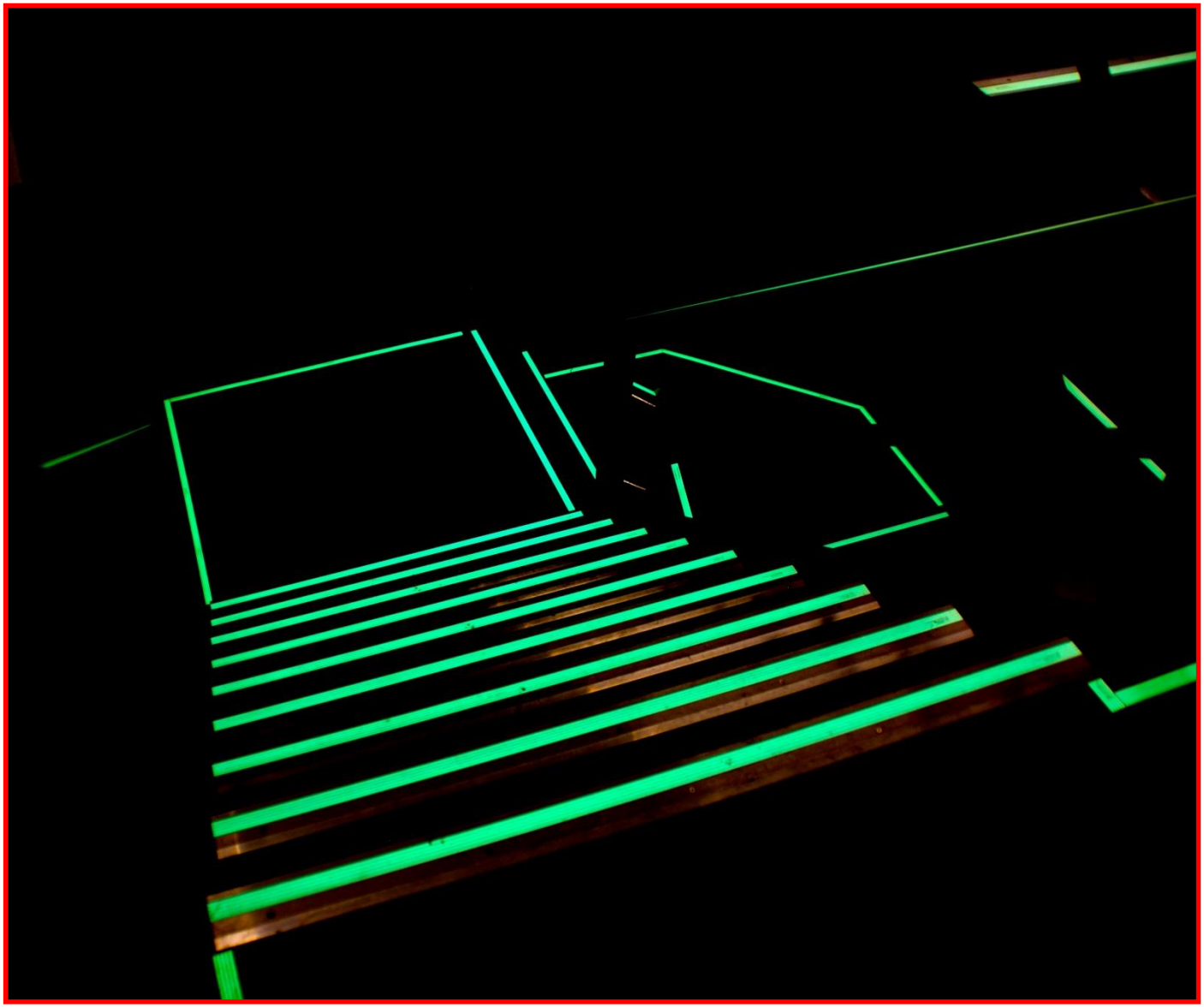

ENGINE No. 7
EXIT
PEABODY FIRE DEPT.


PEABODY FIRE DEPT.


This was approved by the AHJ.
LG
EXIT
2


Also approved by the AHJ.

Luminous Egress Path Markings

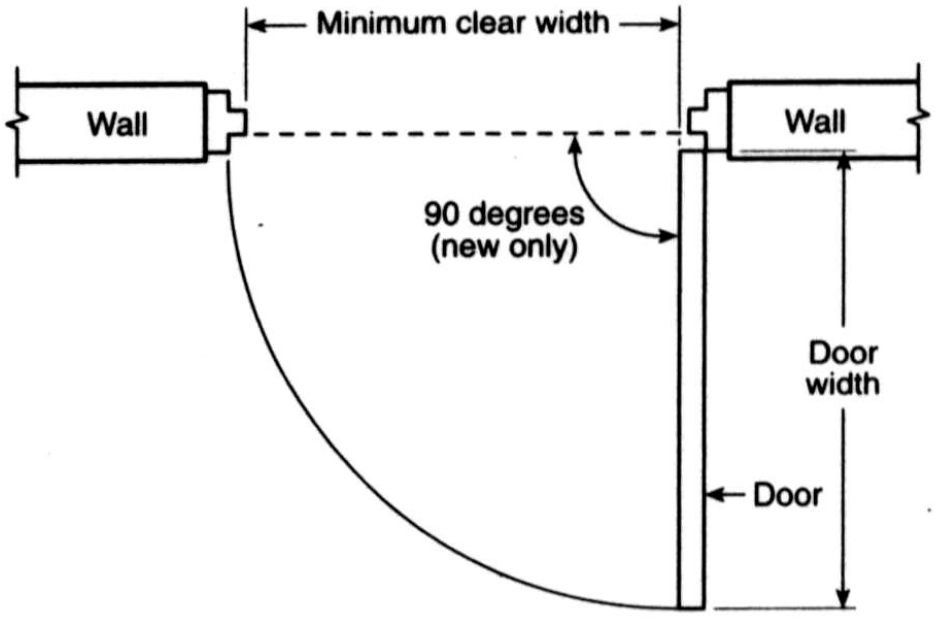


Luminous Egress Path Markings

- Not currently required by NFPA 101 occupancy chapters
- Required by IBC in high-rise buildings in Group A – Assembly, B – Business, E – Educational, I – Institutional, M – Mercantile, and R-1 – Residential
- Typically required on exit discharge doors – not on doors leading to the exit.
- 1” stripe around frame
- Marking on or behind hardware
- “Exit” in bottom 18” of door
- Additional marking on stairs, walls, etc.

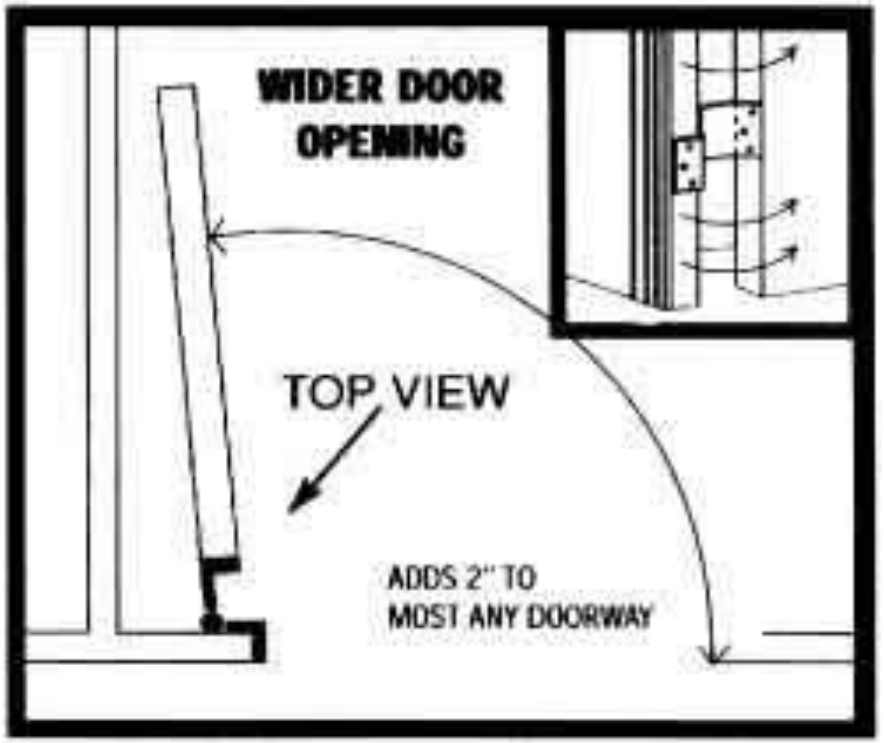
Size of Doors

- 32” clear width minimum
  - Measured with door open to 90 degrees
  - Between the face of the door and the stop
  - At least one leaf of a pair must comply
- 48” wide nominal max. (IBC/IFC only – not NFPA 101)
- 80” high nominal min.
- 78” to the closer arm



Swing Clear Hinges

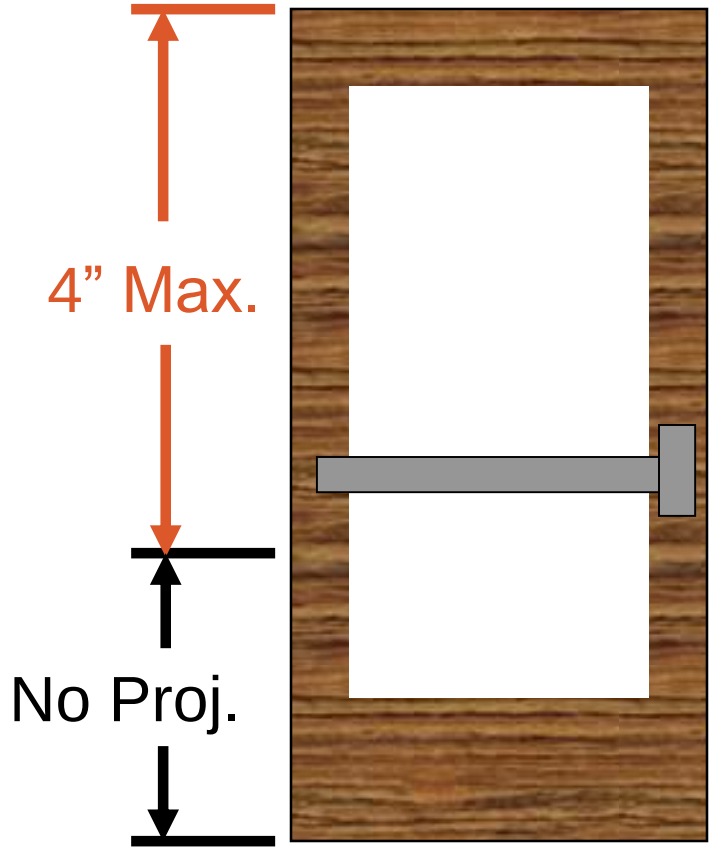
- May be used to gain more clearance on existing openings.




EXIT

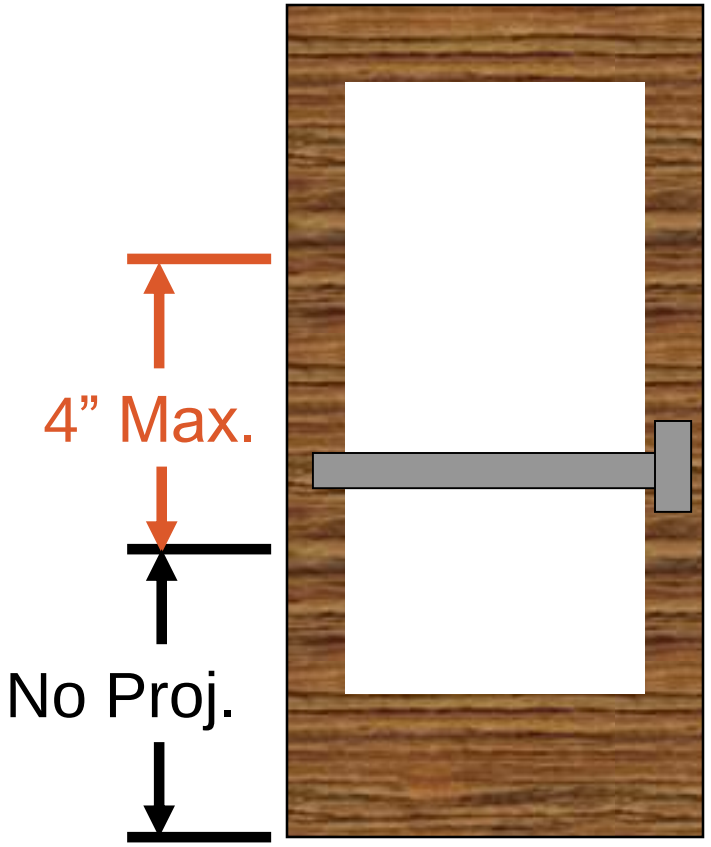
Projections Into Clear Width (IBC)

- No projections into the required clear opening width lower than 34” above the floor.
- Projections into the required clear opening width between 34” and 80” above the floor shall not exceed 4”.



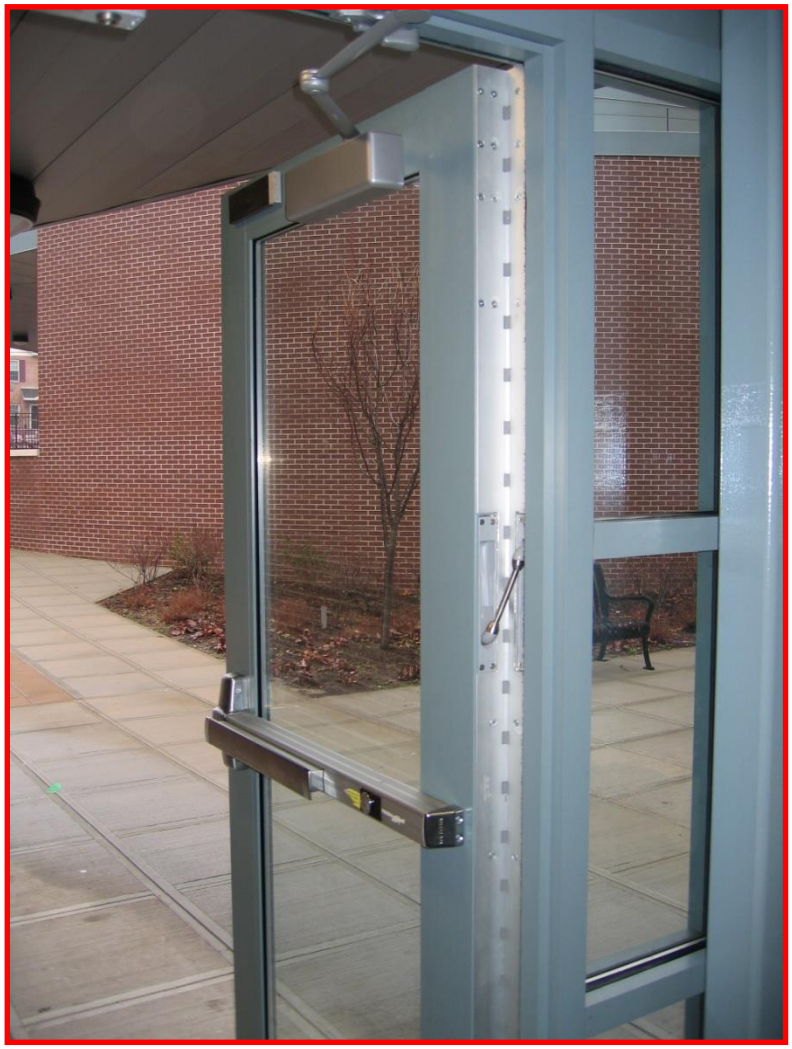
Projections Into Clear Width (NFPA 101)

- NFPA 101 limits the 4” projections to 34”-48” above the floor, hinge side only, specifically to address panic hardware.



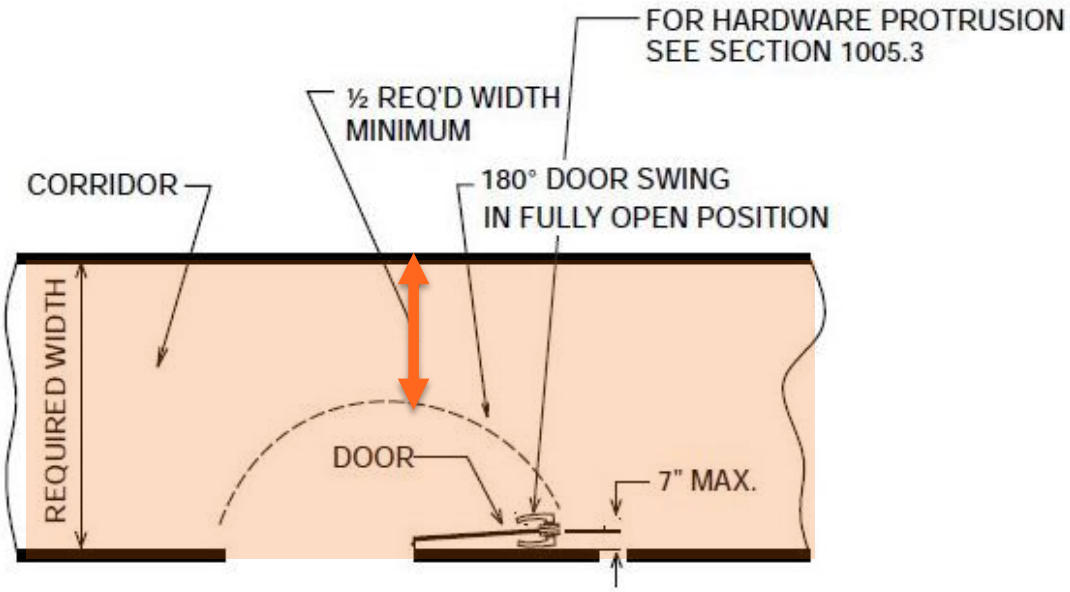
Door Swing

- Egress doors shall be side-hinged swinging
- Exceptions – consult codes
- Swing in the direction of egress:
  - When serving an occupant load of 50 or more
  - Group H occupancy
  - When swinging into an exit enclosure (NFPA 101)



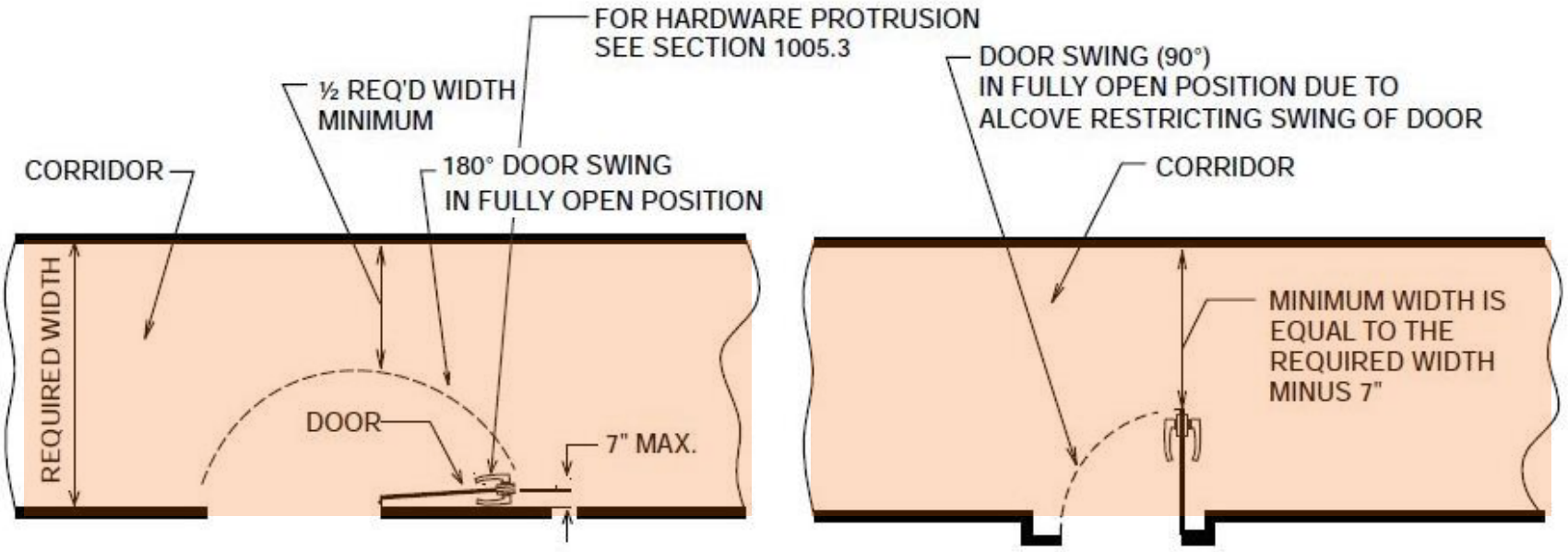
Encroachment

- Required (corridor) width is calculated based on occupant load.
- Measurement Point 1: Must encroach no more than ½ of the required (corridor) width at any point in door swing.



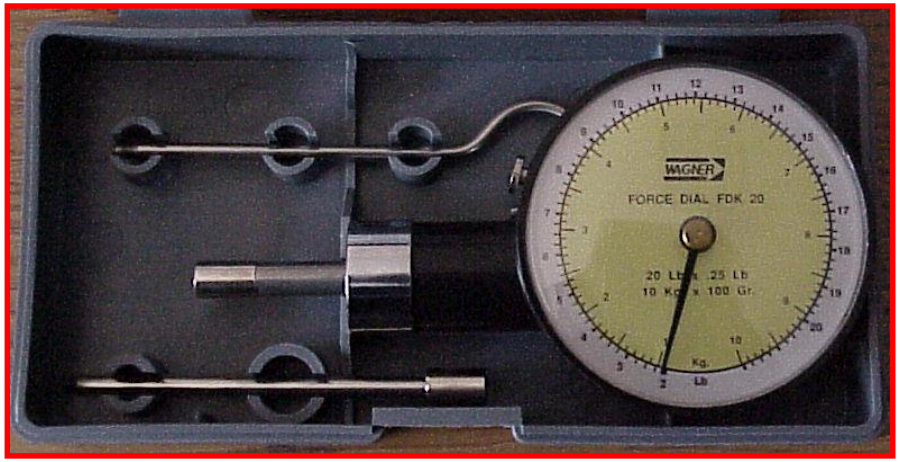
Encroachment

- Measurement Point 2: 7” maximum encroachment on required minimum (corridor) width when door is fully open.
- Be careful of cush closers and overhead stops.



Door Opening Force

- Interior swinging egress doors (non-fire-rated) – 5 lbs
- Other swinging doors + sliding and folding
  - 15 pounds to release latch
  - 30 pounds to set the door in motion
  - 15 pounds to swing door to fully-open position



Power-Operated Doors

- In the event of a power failure:
  - 15 pounds to release latch
  - 50 pounds to set door in motion
  - 15 pounds to open to fully-open position
- Full-Power Operated - A156.10
- Power-Assist and Low Energy - A156.19

Hardware

- Easy to grasp
- Operable with one hand
- No tight grasping
- No tight pinching
- No twisting of the wrist

YES!

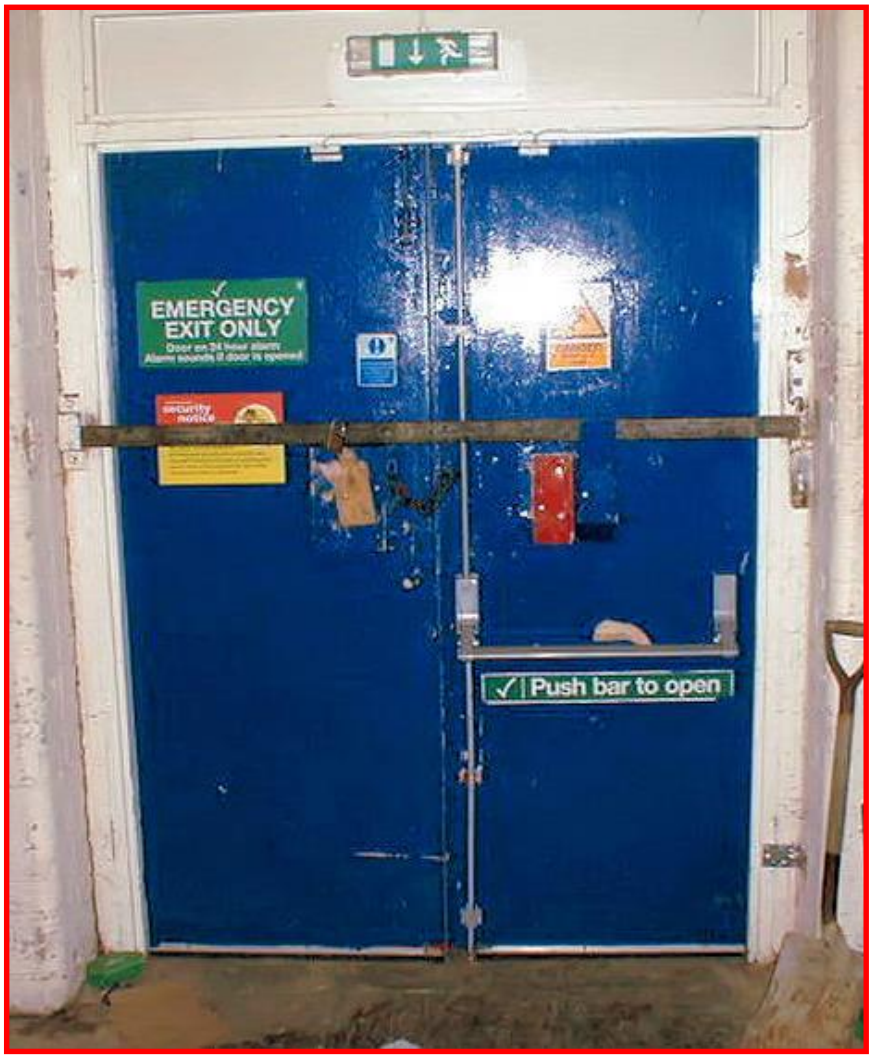
NO!

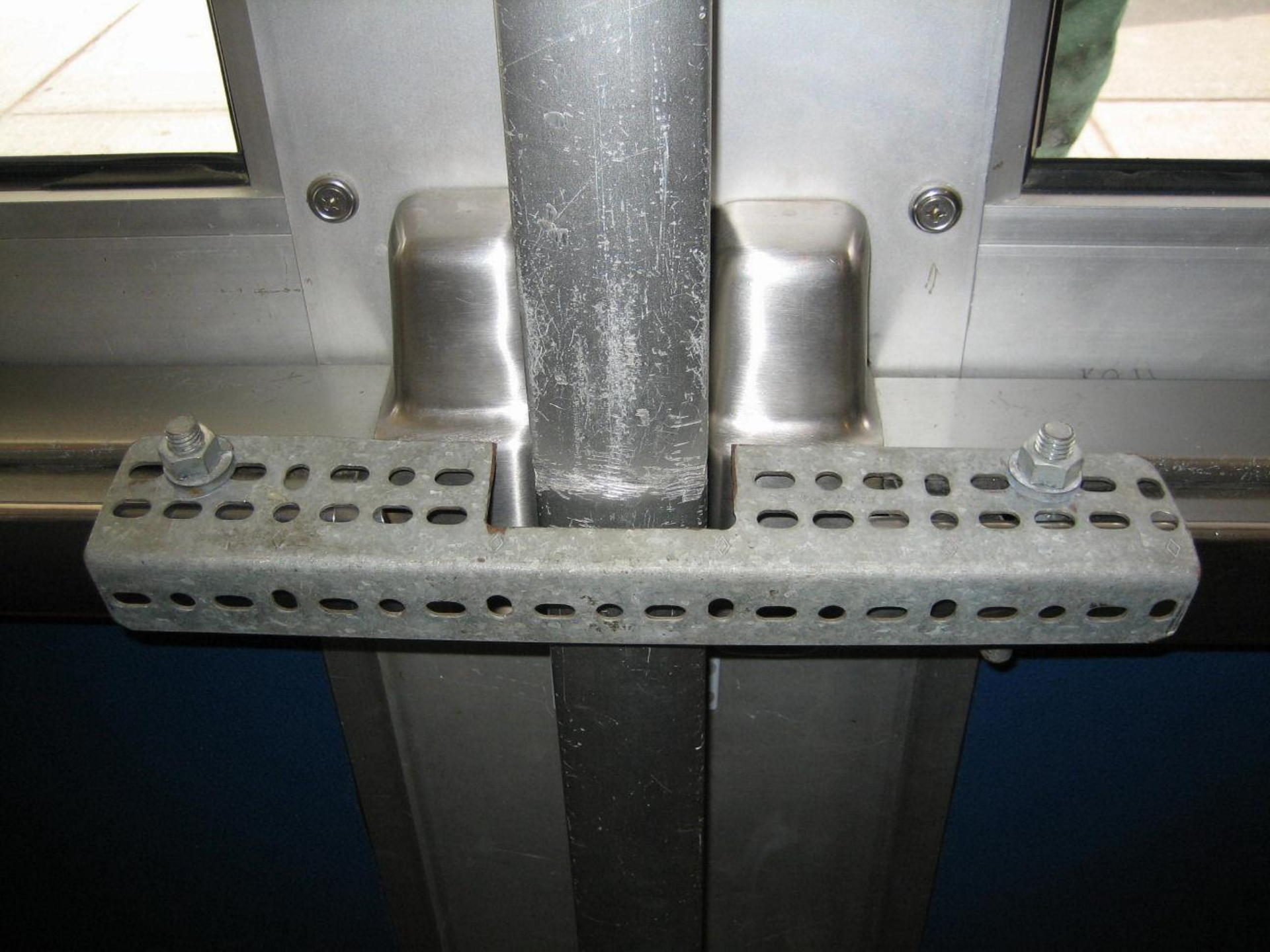
Hardware Height

- Operating Devices
  - 34” minimum AFF
  - 48” maximum AFF
  - Locks used only for security purposes – any height

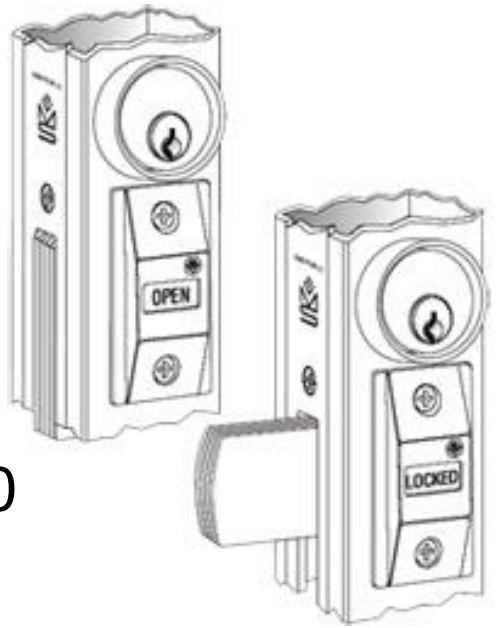
Door Operation

- Readily openable
- No key or special knowledge or effort (with exceptions)





Locks & Latches



- Permitted to prevent operation of doors where any of the following exists:
  - Places of detention or restraint
  - Use Group A with an occupant load of 300 or less, Groups B, F, M, and S, and in churches
    - Main ~~exterior~~ door(s)
    - Key-operated locking from egress side
    - Locking device readily distinguishable as locked
    - Signage on or adjacent to door
    - Revocable by the building official for cause

Unlatching

- Unlatching any leaf shall not require more than 1 operation


EMERGENCY EXIT
NO RE-ENTRY UPON EXIT
ALARM IS ON
EMERGENCY EXIT ONLY
PUSH HERE
ALARM WILL SOUND
DETEX


EXIT
EMERGENCY
EXIT
SECURED AREA
AUTHORIZED
PERSONNEL
ONLY
WATCH YOUR STEP
EMERGENCY EXIT
DO NOT ENTER


Open doors
SLOWLY!

Unlatching

- Unlatching any leaf shall not require more than 1 operation
- Exceptions:
  - Places of detention or restraint
  - Locations where manual flush bolts are allowed
  - Automatic flush bolts – no dummy trim
  - Individual dwelling units and guestrooms of Group R occupancies

Bolt Locks (IBC)

- Manual flush bolts or surface bolts not permitted
- Exceptions:
  - Doors not required for egress in dwelling units.
  - Storage or equipment rooms.
  - Group B, F, or S occupancy with an occupant load of less than 50.
  - Group B, F, or S occupancy where inactive leaf is not needed to meet egress width requirements and building is fully sprinklered.
  - Pairs at hospital patient rooms may have constant latching bolts.
  - No dummy hardware on inactive leaf.

Dwelling Units

- Individual dwelling or sleeping units of Group R occupancies with an occupant load of 10 or less, **one** additional releasing operation (may vary by local code)
  - Nightlatch
  - Deadbolt
  - Security chain
  - No key or tool needed on egress side

Classroom Security

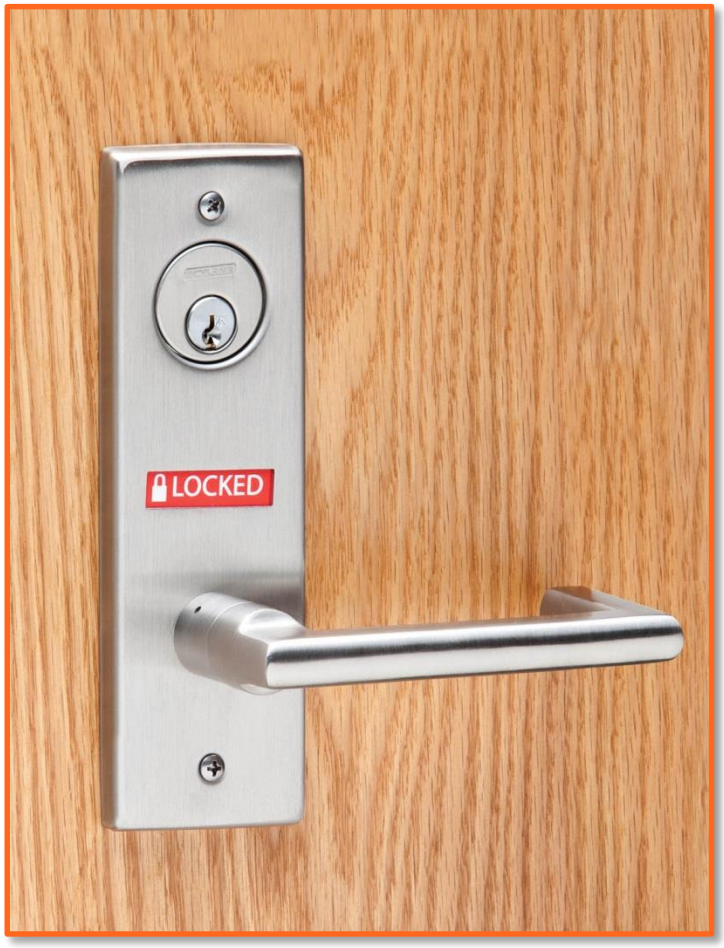
- There are dozens of classroom security “inventions” that are being used to secure doors.
- Most of these devices are not code-compliant, and the codes do not currently reduce life-safety requirements in an intruder situation.

Classroom Security

- Unauthorized lockdown is an even more imminent risk.
  - Office function locks, thumbturn deadbolts, surface bolts, accessories
- There are ***HUNDREDS OF THOUSANDS*** of crimes committed in schools each year – assaults, vandalism, theft, sexual assault.
- Facilities could be held liable.

Classroom Security

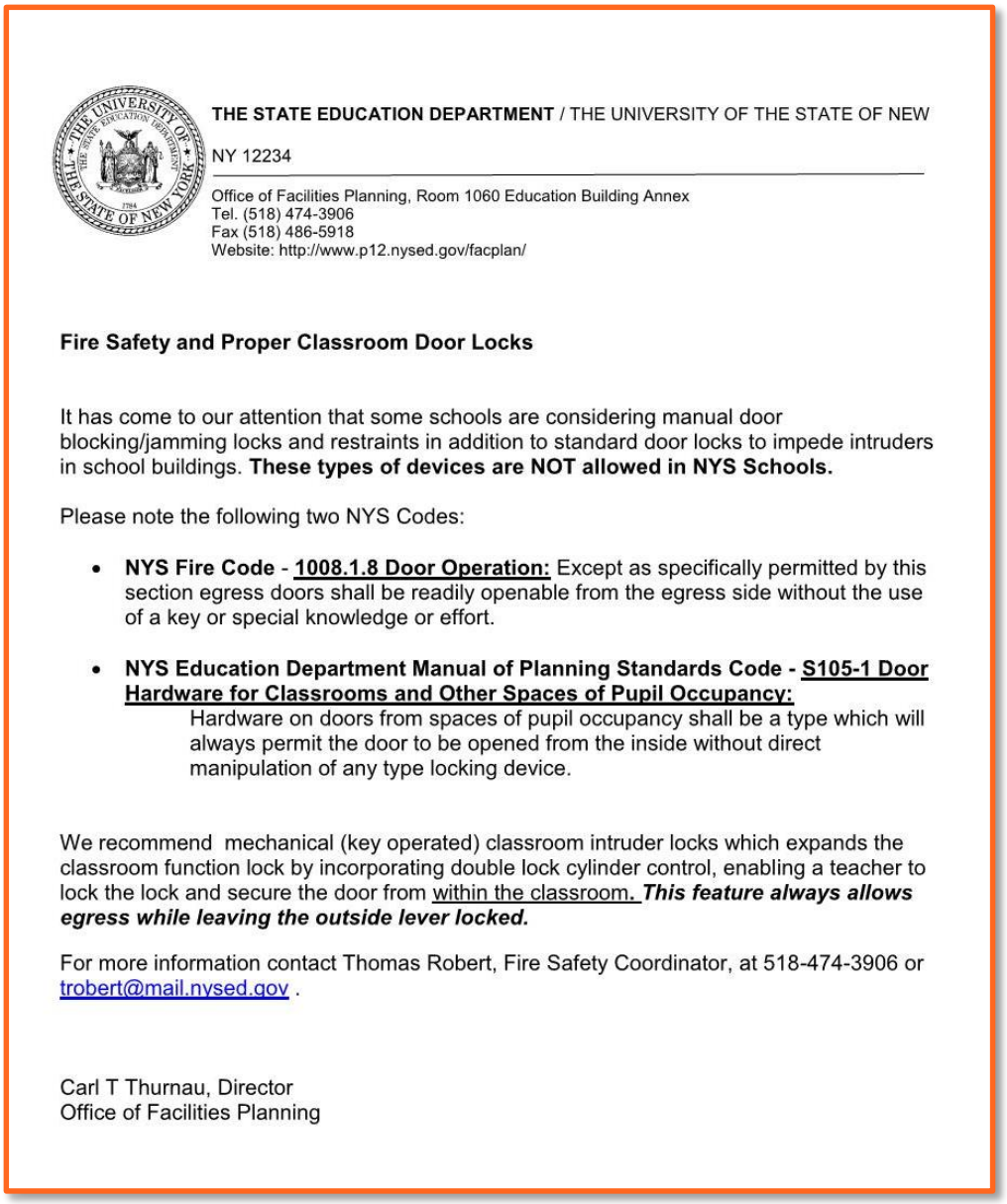
- **My** criteria for evaluating a classroom security device:
  - It must not violate code requirements for free egress - one operation to unlatch.
  - It must not inhibit latching if the door is a fire door.
  - It must not allow unauthorized locking which could encourage mischief and/or criminal behavior.
  - It must be readily available and easy to install if needed.



- It must allow staff / first responder access from the ingress side.

Classroom Security

- Some AHJs will not allow the use of accessory locking products.
- Some jurisdictions are considering code changes that would allow special locking methods to be used in an intruder situation.



THE STATE EDUCATION DEPARTMENT / THE UNIVERSITY OF THE STATE OF NEW

NY 12234

Office of Facilities Planning, Room 1060 Education Building Annex
Tel. (518) 474-3906
Fax (518) 486-5918
Website: http://www.p12.nysed.gov/facplan/

Fire Safety and Proper Classroom Door Locks

It has come to our attention that some schools are considering manual door blocking/jamming locks and restraints in addition to standard door locks to impede intruders in school buildings. **These types of devices are NOT allowed in NYS Schools.**

Please note the following two NYS Codes:

- **NYS Fire Code** - **1008.1.8 Door Operation:** Except as specifically permitted by this section egress doors shall be readily openable from the egress side without the use of a key or special knowledge or effort.
- **NYS Education Department Manual of Planning Standards Code - S105-1 Door Hardware for Classrooms and Other Spaces of Pupil Occupancy:** Hardware on doors from spaces of pupil occupancy shall be a type which will always permit the door to be opened from the inside without direct manipulation of any type locking device.

We recommend mechanical (key operated) classroom intruder locks which expands the classroom function lock by incorporating double lock cylinder control, enabling a teacher to lock the lock and secure the door from within the classroom. ***This feature always allows egress while leaving the outside lever locked.***

For more information contact Thomas Robert, Fire Safety Coordinator, at 518-474-3906 or trobert@mail.nysed.gov .

Carl T Thurnau, Director
Office of Facilities Planning

IBC 2018 Code Change Proposal
Builders Hardware Manufacturers Association (BHMA)

1010.1.4.4 Occupancy Group E classrooms. In Occupancy Group E, classroom doors shall be lockable from within the classroom without opening the classroom door. All the following conditions shall apply:

- The classroom door shall be unlockable and openable from within the classroom and shall comply with Section 1010.1.9.
- The classroom door shall be unlockable and openable from outside the classroom by the use of a key or other credential.

1010.1.4.4.1 Remote operation of locks. Remote operation of locks complying with 1010.1.4.4 shall be permitted.

Panic and Fire Exit Hardware

touchpad style

crossbar style

Panic and Fire Exit Hardware

IBC 2006, 2009, 2012

- Educational and Assembly Occupancies with an occupant load of **50 or more**
- All High Hazard Occupancies

IBC 2000, 2003

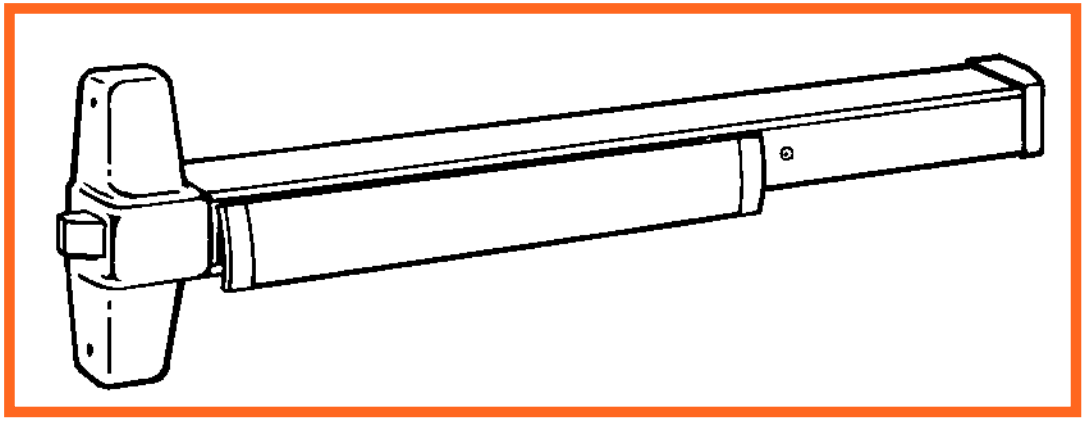
- Educational and Assembly Occupancies with an occupant load of **100 or more**
- Some High Hazard Occupancies

NFPA 101 (all)

- Educational, Assembly, and Day Care Occupancies with an occupant load of **100 or more**
- Some High Hazard Occupancies

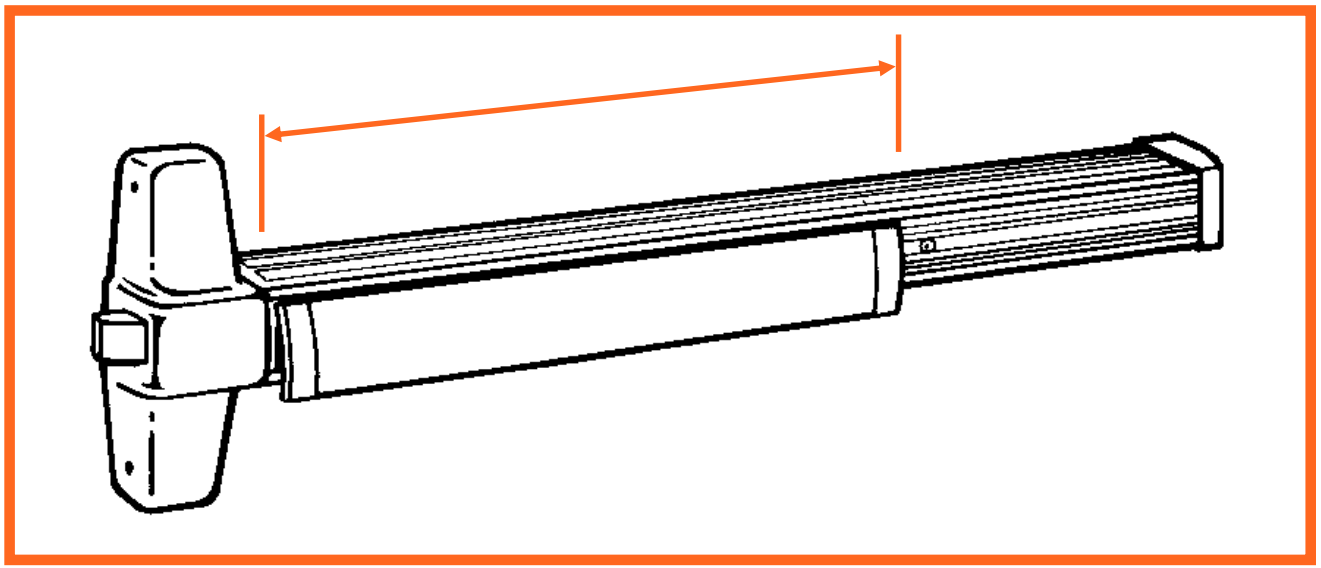
Panic and Fire Exit Hardware

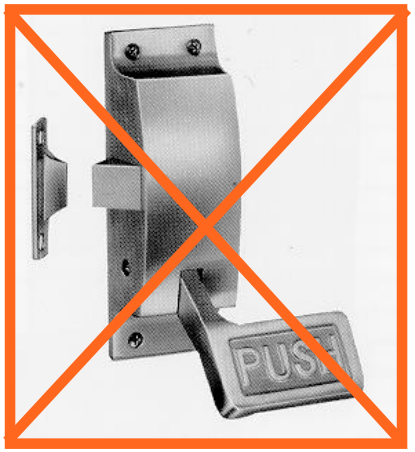
- Requirement for panic hardware applies to means of egress doors in these occupancy types which latch or lock.



Panic and Fire Exit Hardware

- Where panic hardware is required, actuating portion of device (touch-pad or cross-bar) must be at least half the width of the door.



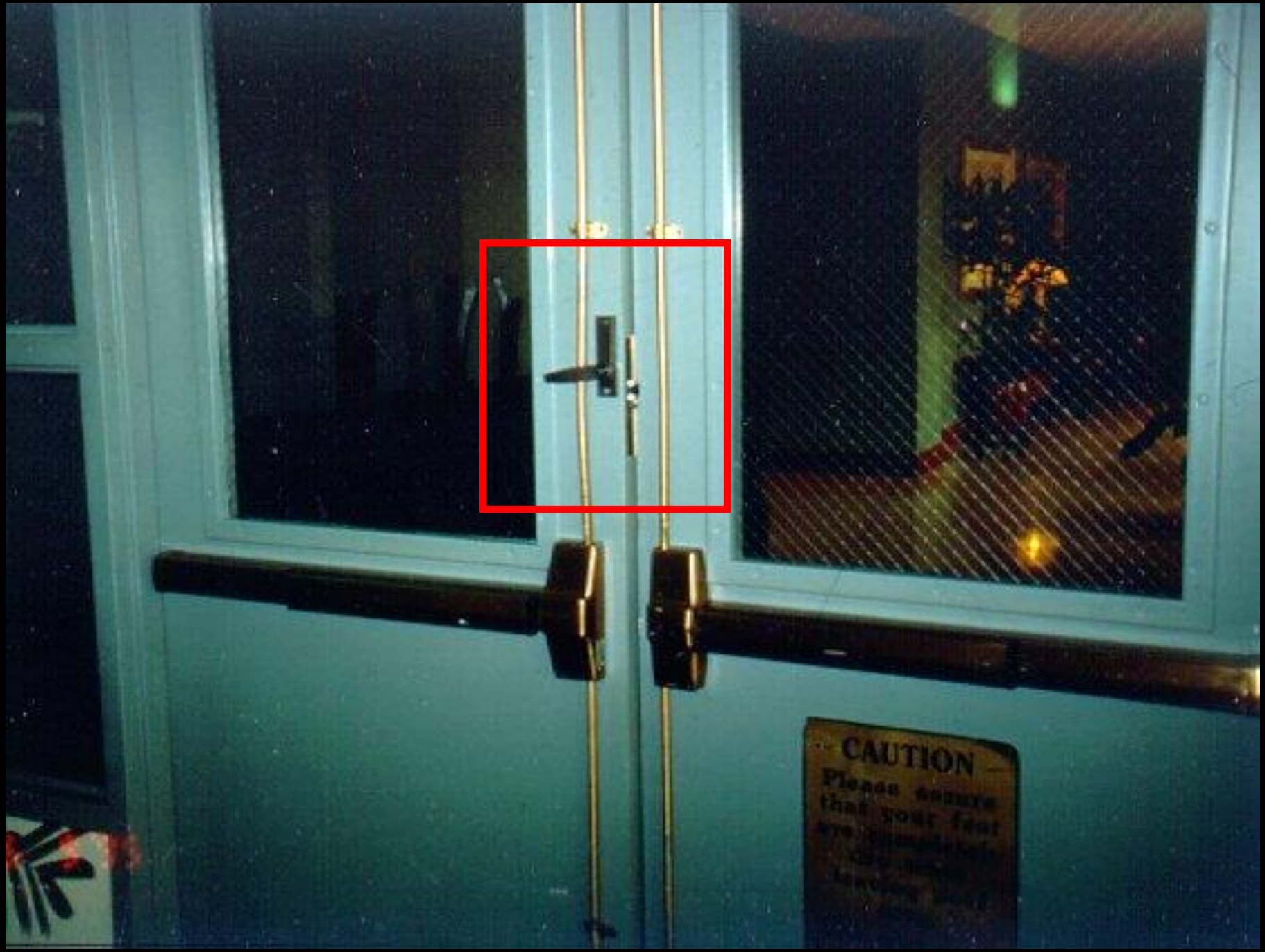



RAW BAR
FRIDAYS
REDBONES

The actuating portion is not half the width of the door.

Panic and Fire Exit Hardware

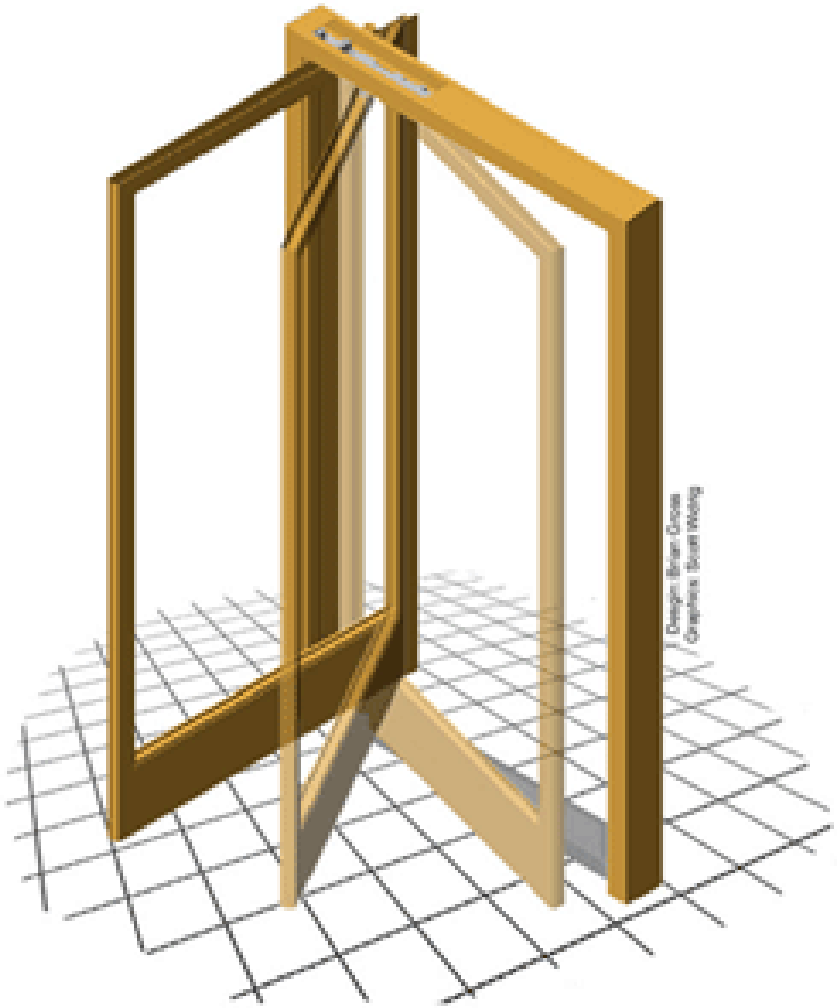
- 15 pounds of force maximum to actuate
- One operation to unlatch - no other locking/latching hardware


CAUTION


EXIT
EXIT

Panic and Fire Exit Hardware

- Panic hardware used on balanced doors must be touchpad style (not crossbar) and touchpad must **not** extend more than half the width of the door.



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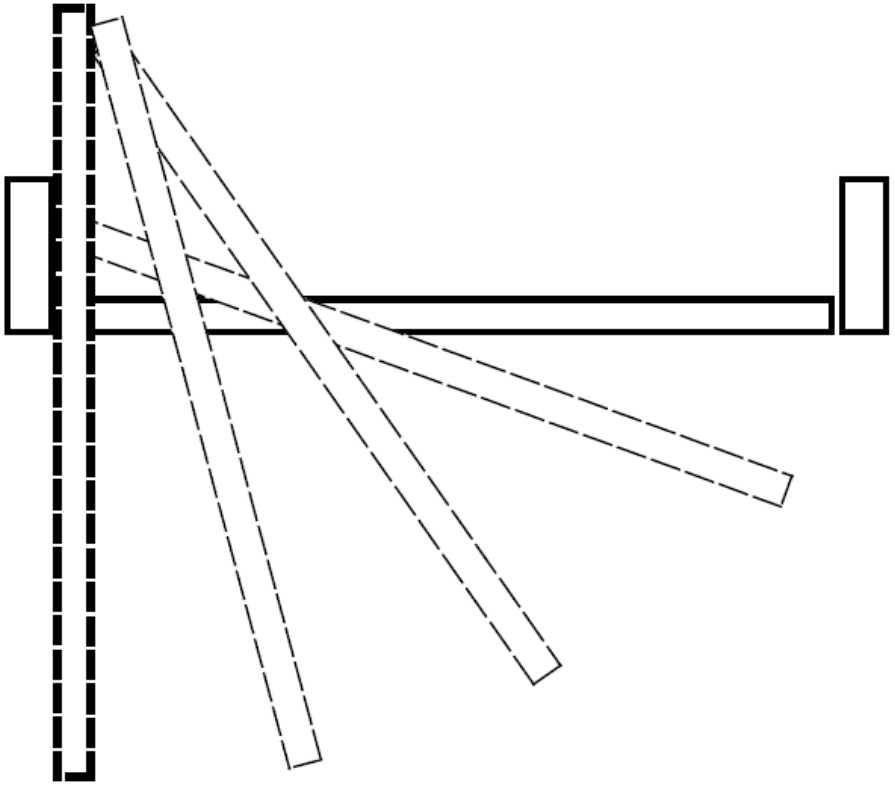

NFPA 70
National Electric Code

- Rooms housing conductors and equipment used on circuits of over 600 Volts, nominal.
- Rooms housing large equipment - 600 Volts, nominal or less, 800 amperes or more (1200 amps prior to 2014)
- Battery Rooms (Transformer Vaults prior to 2014)
- Where the entrance has a personnel door(s), the door(s) shall open in the direction of egress and be equipped with **listed panic hardware** (prior to 2014: "panic bars, pressure plates, or other devices that are normally latched but open under simple pressure")

Glass and Glazing

- Glass in fire doors was once exempt from impact-resistant requirements.
- Glass in fire doors is no longer exempt per the IBC.
- Traditional wired glass is extremely hazardous.

- There is A LOT more information about glass on iDigHardware (click the Glass tab)

Session 3 – Life Safety

- IBC – NFPA 101 – IFC
- Occupancy Types – Use Groups
- Occupied vs. Unoccupied
- Opening Protectives
- Means of Egress
  - travel distance, common path of travel, dead end corridors
  - clear width, projections, and door swing
  - opening force and auto operators
  - unlatching, bolts, hardware operation and height
  - panic hardware

Questions?

www.iDigHardware.com/decoded-dhi

THANKS FOR ATTENDING!

- Recording will be available by the end of the week at DHInteractive
- Handouts are available now at DHInteractive

- Final Webinar by Lori!
- **Codes for Electrified Hardware** (2/18/15) 11:00 am ET
- You must sign-up for each session individually

dhi industry Education

Your Career, Our Commitment

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