



WISCONSIN HEALTHCARE ENGINEERING ASSOCIATION
Dedicated to Excellence in Healthcare Engineering

“Lunch & Learn” 2014 Webinar Series

Hosted by Bill Lauzon, PE

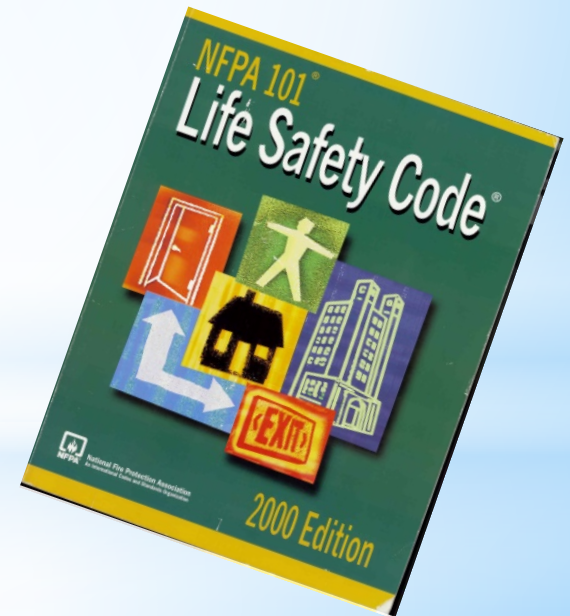
March, 2014
OCCUPANCIES
Part 2-Other



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262-945-4567
Lauzon.LSC@gmail.com

“Other Occupancies” Agenda

1. Review Prior Occupancy Concepts
2. Ambulatory (Chap 20-21)
Business (Chap 38-39)
3. Industrial (Chap 40)
4. Storage (Chap 42)
5. Assembly (Chap 12-13)
6. Education (Chap 14-15)
7. Residential (Chap 24-33)
8. Mercantile (Chap 36-37)



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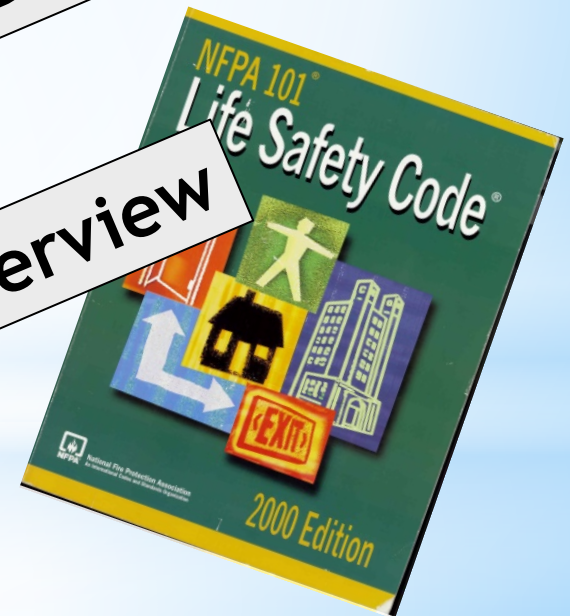
6. Education (Chap 14-15)

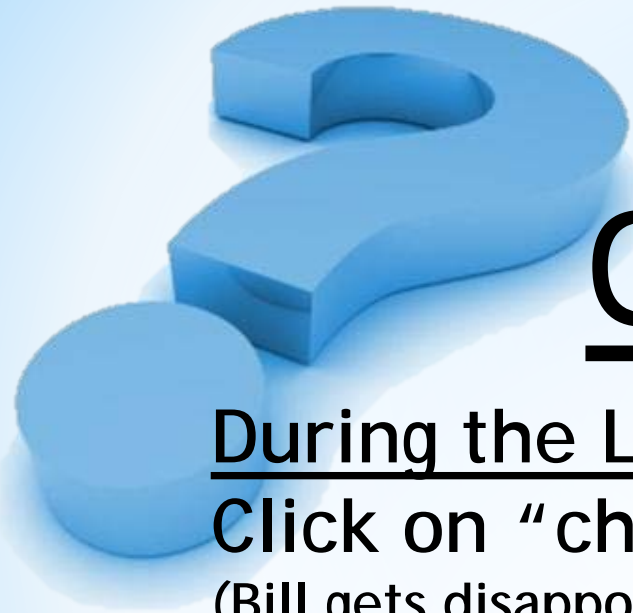
7. Residential (Chap 24-33)

8. Mercantile (Chap 36-37)

In Detail

Overview





Have Questions?

During the Live Webinar:

Click on “chat” in the Lower RH corner
(Bill gets disappointed if people don’t ask questions)

If viewing the posted
Webinar:

Call Bill Lauzon
(262-945-4567) or
E-Mail at
Lauzon.LSC@gmail.com





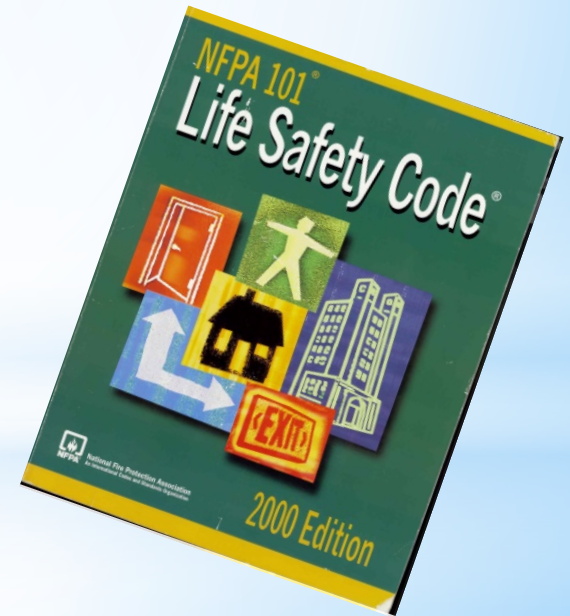
You DON'T need
to memorize the
Codes ...

You just need to
know where to look

“Other Occupancies” Agenda

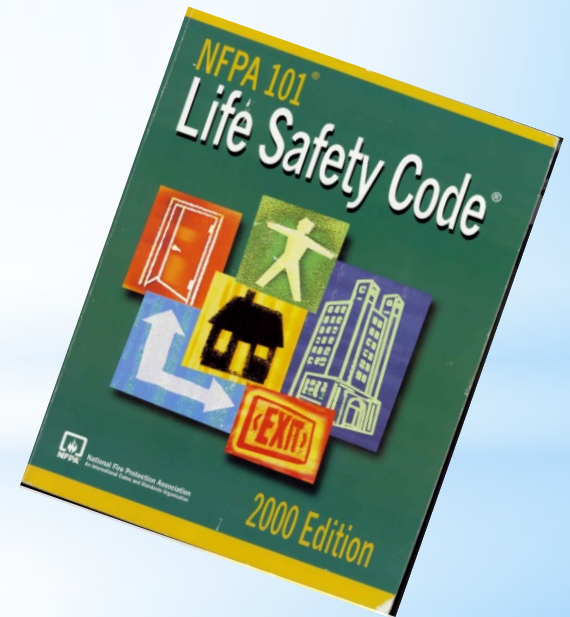
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LSC OCCUPANCIES

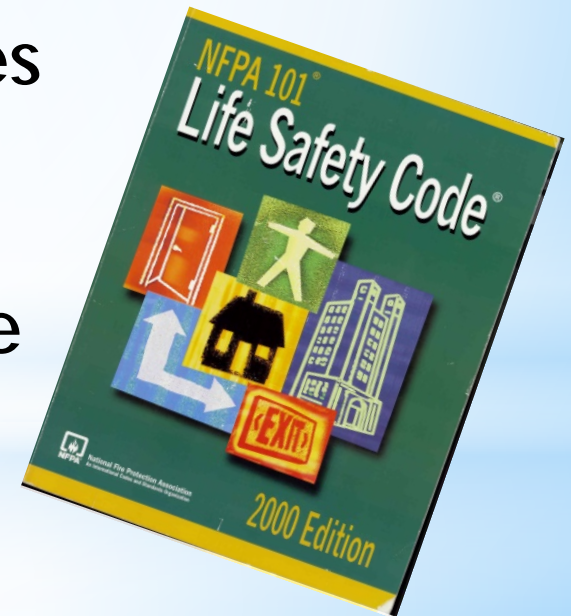
HOW IS A SPACE BEING USED?



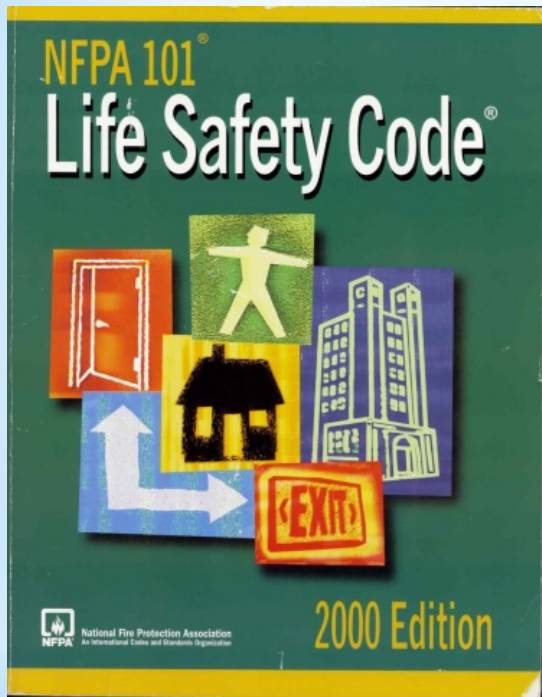
- 12/13 • Assembly
- 14/15 • Educational
- 16/17 • Day-Care
- 18/19 • Health Care
- 20/21 • Ambulatory
- 22/23 • Detention & Correctional
- 24 • One & Two Family
- 26 • Lodging & Rooming Houses
- 28/29 • Hotels & Dormitories
- 30/31 • Apartment Buildings
- 32/33 • Residential Board & P Care
- 36/37 • Mercantile
- 38/39 • Business
- 40 • Industrial
- 42 • Storage

LSC OCCUPANCIES

Chapter Numbers



New & Existing



“Existing”
Odd # ⇐
Chapters

CMS
Adoption
Mar 11,
2003



“New”
⇒ Even #
Chapters

1967-70-73-76-79-82-85-88-91-94-97-00-03-06-09-12

← Years that NFPA published an updated LSC →

- Non-Separated

MIXED OCCUPANCIES



Follow Most Restrictive Requirement of Each

- Separated

MIXED OCCUPANCIES



Follow Requirements of A

RATED SEPARATION WALL



Follow Requirements of B

CHAPTER ORGANIZATION

- x.1 General Requirements
- x.2 Means of Egress
- x.3 Fire Protection
- x.4 Special Provisions
- x.5 Building Services
- x.6 Reserved
- x.7 Operating Features



CHAPTER ORGANIZATION

Base Chapters

- x.1 General Requirements (→ chap 6)
- x.2 Means of Egress (→ chap 7)
- x.3 Fire Protection (→ chap 8)
- x.4 Special Provisions (→ chap 11)
- x.5 Building Services (→ chap 9)
- x.6 Reserved
- x.7 Operating Features (→ chap 4)



Fire Resistance Ratings (hours of protection)

	Type I		Type II			Type III		Type IV	Type V	
	443	332	222	111	000	211	200	2HH	111	000
Exterior Bearing Walls										
Supporting more than one floor, columns, or other bearing walls	4	3	2	1	0 ¹	2	2	2	1	0 ¹
Supporting one floor only	4	3	2	1	0 ¹	2	2	2	1	0 ¹
Supporting a roof only	4	3	1	1	0 ¹	2	2	2	1	0 ¹
Interior Bearing Walls										
Supporting more than one floor, columns, or other bearing walls	2	3	2	1	0	1	0	2	1	0
Supporting one floor only	3	2	2	1	0	1	0	1	1	0
Supporting roofs only	3	2	1	1	0	1	0	1	1	0
Columns										
Supporting more than one floor, columns, or other bearing walls	4	3	2	1	0	1	0	H ²	1	0
Supporting one floor only	3	2	2	1	0	1	0	H ²	1	0
Supporting roofs only	3	2	1	1	0	1	0	H ²	1	0
Beams, Girders, Trusses, and Arches										
Supporting more than one floor, columns, or other bearing walls	4	3	2	1	0	1	0	H ²	1	0
Supporting one floor only	3	2	2	1	0	1	0	H ²	1	0
Supporting roofs only	3	2	1	1	0	1	0	H ²	1	0
Floor Construction	3	2	2 [†]	1	0	1	0	H ²	1	0
Roof Construction	2	1½	1	1	0	1	0	H ²	1	0
Exterior Nonbearing Walls³	0 ¹	0 ¹	0 ¹	0 ¹	0 ¹	0 ¹	0 ¹	0 ¹	0 ¹	0 ¹

Those members that shall be permitted to be of approved combustible material.

Relative Quantity of Regulations for New Occupancies (# inches of regs in LSC)

Occupancy Chapter	.1 General	.2 Means of Egress	.3 Protection	.4 Special Provisions	.5 Building Services	.7 Operating Features	Total # Inches
Health Care (Chap 18)	37.75"	43.25"	58.75"	1.00"	10.00"	21.00"	171.75"
Ambulatory (Chap 20)	26.75"	12.00"	18.50"	.25"	5.00"	20.75"	83.25"
Business (Chap 38)	10.75"	25.00"	15.50"	.75"	2.00"	1.50"	55.50"
Industrial (Chap 40)	8.25"	29.50"	11.50"	1.25"	1.75"	0	52.25"
Storage (Chap 42)	5.00"	21.75"	9.00"	1.00"	2.00"	0	38.75"
Assembly (Chap 12)	24.25"	86.50"	28.50"	106.50"	2.00"	53.25"	301.00"
Education (Chap 14)	13.00"	22.75"	26.00"	3.50"	2.50"	7.00"	74.75"
Mercantile (Chap 36)	18.25"	29.25"	18.50"	31.25"	2.00"	1.00"	100.25"
Total # Inches	144.00"	270.00"	186.25"	145.50"	27.25"	104.50"	877.50"

Quantity of Regulations

Health

Care

14'



Ambulatory

7'



Business

4'



Industrial

4'



Storage

3'



It “pays” to have
occupancy separations !

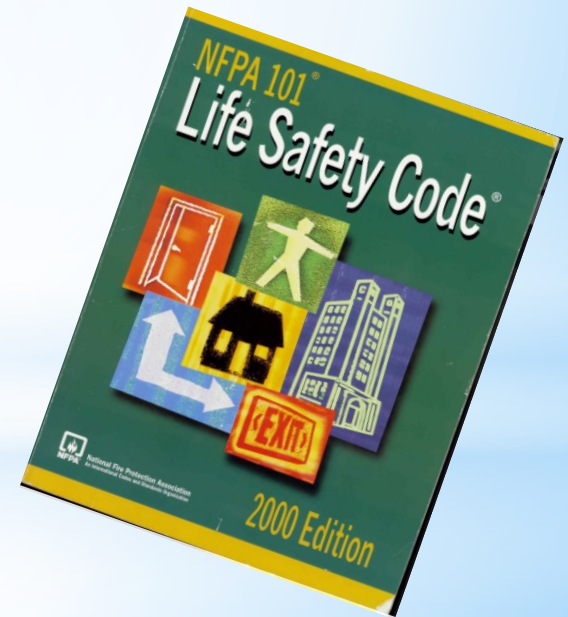
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AMBULATORY OCCUPANCY

	<u>Amt of Regs</u>	
• 20/21.1 General Requirements	27"	#2
• 20/21.2 Means of Egress	12"	#8
• 20/21.3 Protection	18"	#4
• 20/21.4 Special Provisions	0"	#8
• 20/21.5 Building Services	5"	#2
• 20/21.6 Reserved	--	--
• 20/21.7 Operating Features	21"	#2

12 Pages in LSC (Health Care = 21 pages)

What is an Ambulatory Care Occupancy?

- *Incapable of Self-Preservation*
- *NO Overnight Sleeping*

CMS relies on ...

Chapter 18/19 Mixed Occupancies

As a working definition

1. No Treatment of Inpatients
2. No Customary Access by Inpatients

CMS Says: It only takes ONE inpatient to be Health Care

18/19.1.2.2: “Ambulatory care facilities, medical clinics, and similar facilities that are continuous to health care occupancies but are primarily intended to provide outpatient services shall be permitted to be classified as business occupancies or ambulatory health care facilities provided that the facilities are separated from the health care occupancy by not less than 2-hour fire resistance-rated construction and the facility is not intended to provide services simultaneously for ONE or more health care patients who are litter borne.”



Symbol used to show the
Requirement is Similar to
HEALTH CARE

Ambulatory Codes



Built around the concept of

DEFEND IN PLACE



Defend in Place



“constructed, maintained & operated to **minimize** the possibility of a fire emergency requiring the **evacuation** of occupants.”

1. Design, construction & compartmentation
2. Detection, alarm & extinguishment
3. Training & drilling programs

Ambulatory Surgical Center

1. Follow LSC Chapter 20/21
2. Follow Added requirements of CMS (if you use an ASC provider #)

A. Must have 1-hr separation of all ASC spaces from rest of building

B. Cannot Share Waiting, Recovery or other care spaces

Ambulatory Surgical Center

State Operations Manual Appendix L - Guidance for Surveyors: Ambulatory Surgical Centers

(Rev. 99, 01-31-14)

Transmittals for Appendix L

Part I - Ambulatory Surgical Center Survey Protocol

Introduction

Regulatory and Policy References

Tasks in the Survey Protocol

Task 1 – Off-Site Survey Preparation

Task 2 – Entrance Activities

Task 3 – Information Gathering/Investigation

Task 4 – Preliminary Decision Making and Analysis of Findings

Task 5 – Exit Conference

Task 6 – Post-Survey Activities

Part II - General Provisions and Definitions; General Conditions and Requirements

§416.2 - Definitions

§416.25 Basic Requirements

Specific Conditions for Coverage

§416.40 Condition for Coverage: Compliance With State Licensure Law

§416.41 Condition for Coverage: Governing Body and Management

§416.41(a) Standard: Contract Services

§416.41(b) Standard: Hospitalization

§416.41(c) Standard: Disaster Preparedness Plan

§416.42 Condition for Coverage: Surgical Services

§416.42(a) Standard: Anesthetic Risk and Evaluation

§416.42(b) Standard: Administration of Anesthesia

§416.42(c) Standard: State Exemption

Google: CMS SOM Appendix L

Note: other Appendixes

- I - K tags (LSC)
- PP - F Tags (LTC)
- A - A Tags (Hosp)
- M - (Hospice)

Ambulatory Care

Follow Ambulatory Codes (Ch 20/21)
+
the listed sections of the
Business Codes (Ch 38/39)

In the 1985 LSC, Ambulatory Care was a
sub-part of Health Care (12/13-6)

BUSINESS OCCUPANCY

	<u>Amt of Regs</u>	
• 38/39.1 General Requirements	11"	#6
• 38/39.2 Means of Egress	25"	#6
• 38/39.3 Protection	16"	#6
• 38/39.4 Special Provisions	1"	#7
• 38/39.5 Building Services	2"	#4
• 38/39.6 Reserved	--	--
• 38/39.7 Operating Features	2"	#5

8 Pages in LSC (Health Care = 21 pages)

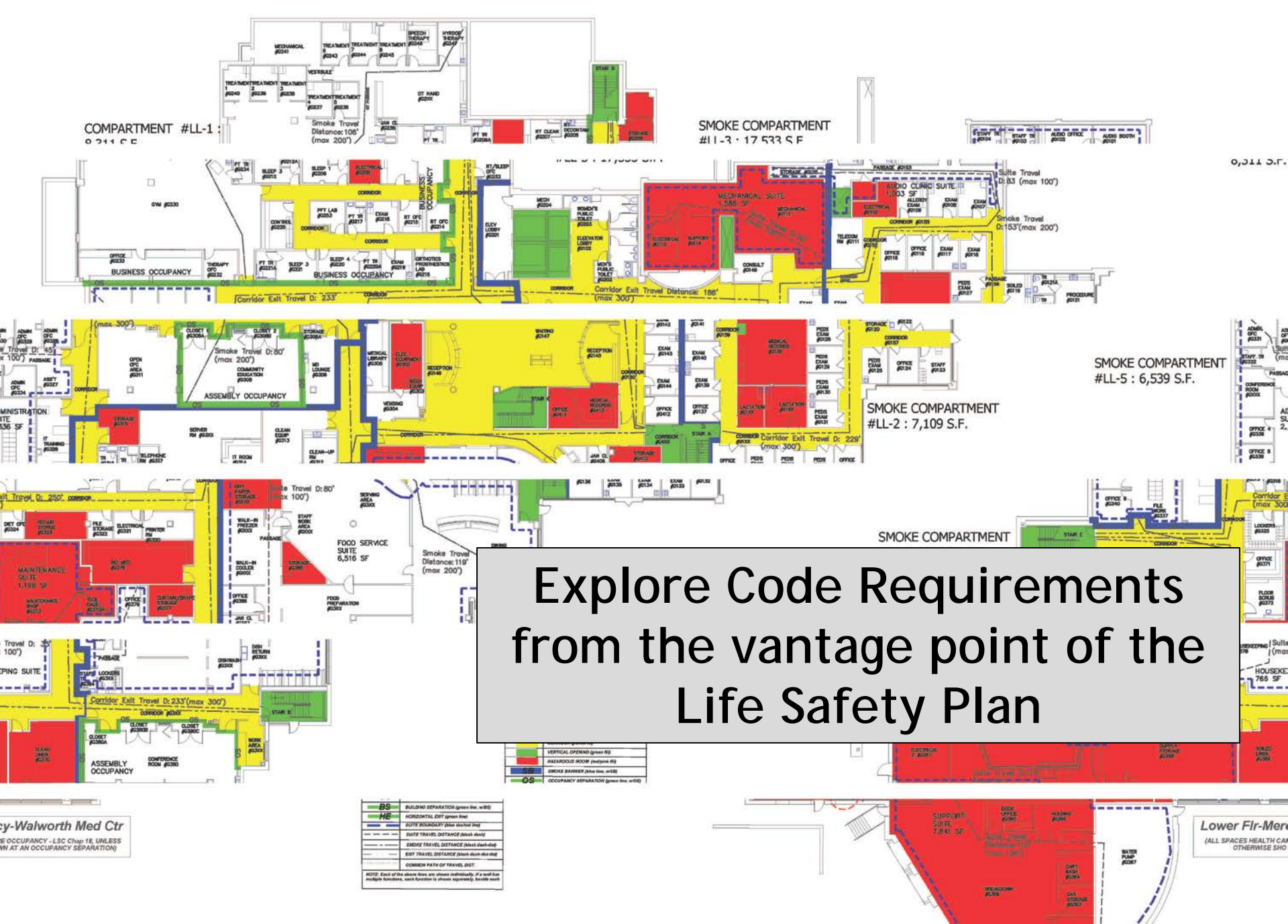
What is a Business Occupancy?

- *Capable of Self-Preservation*
- *Transaction of Business*
(other than mercantile)

CMS relies on ...

18/19.1.2.1 Mixed Occupancies

As a working definition
(NO inpatient has “customary access”)



Explore Code Requirements from the vantage point of the Life Safety Plan

BS	BUILDING SEPARATION (green line, w/BS)
HE	HORIZONTAL EXIT (green line, w/HE)
VS	VERTICAL SEPARATION (green line, w/VS)
OS	OCCUPANCY SEPARATION (green line, w/OS)
BS	BUILDING SEPARATION (green line, w/BS)
HE	HORIZONTAL EXIT (green line, w/HE)
VS	VERTICAL SEPARATION (green line, w/VS)
OS	OCCUPANCY SEPARATION (green line, w/OS)
BS	BUILDING SEPARATION (green line, w/BS)
HE	HORIZONTAL EXIT (green line, w/HE)
VS	VERTICAL SEPARATION (green line, w/VS)
OS	OCCUPANCY SEPARATION (green line, w/OS)

cy-Walworth Med Ctr

THE OCCUPANCY - LSC Chap 18, UNLESS

WH AN OCCUPANCY SEPARATION





Lower Fir-Mer

(ALL SPACES HEALTH CAR

OTHERWISE SHO

OCCUPANCIES

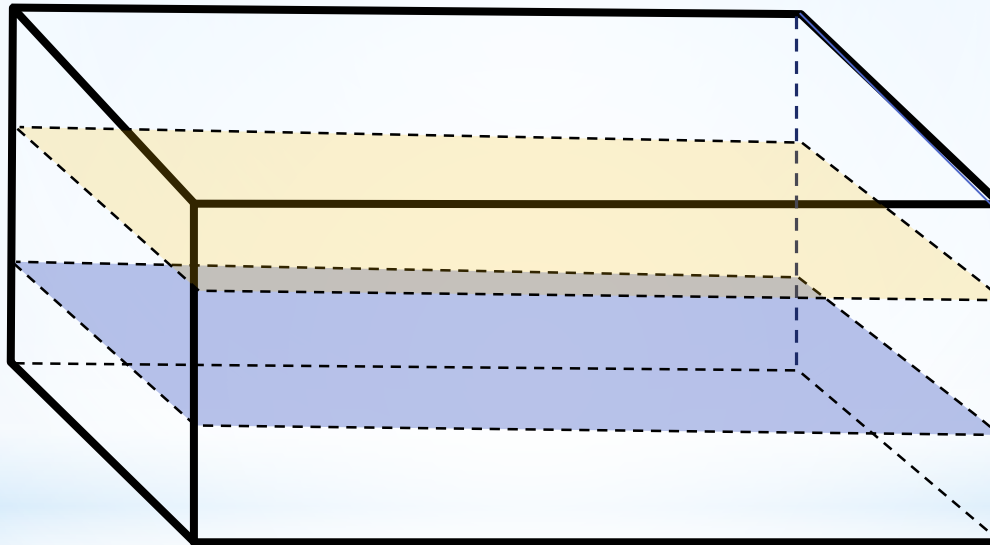
Explore from the vantage point of the Life Safety Plan

LIFE SAFETY LEGEND	
	CORRIDOR (yellow fill)
	VERTICAL OPENING (green fill)
	HAZARDOUS ROOM (red/pink fill)
	SMOKE BARRIER (blue line, w/SB)
	OCCUPANCY SEPARATION (green line, w/OS)

- Construction Type
- Vertical Openings
- Smoke Compartments
- Corridors & Suites
- Hazardous Spaces
- Exit Paths
- Suppression System
- Fire Alarm System
- Electrical System
- HVAC
- Operating Features

AMBULATORY/BUSINESS OCCUPANCIES

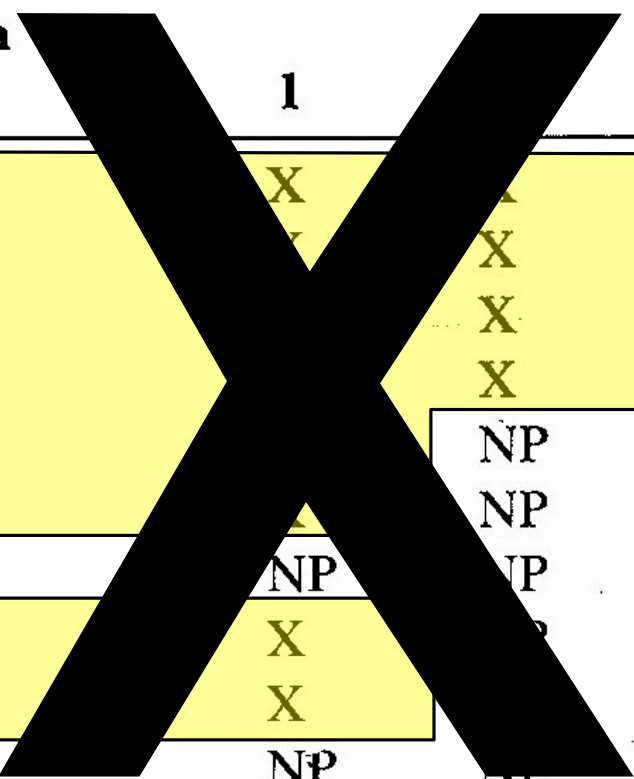
CONSTRUCTION TYPE



How strong is the **STRUCTURE**
to withstand fires?

HEALTH CARE CONSTRUCTION TYPE

Table 18.1.6.2 Construction Type Limitations



NEW

Construction Type	Stories		
	1	3	4 or More
I(443)	X	X	X
I(332)	X	X	X
II(222)	X	X	X
II(111)	X	X	NP
II(000)	NP	NP	NP
III(211)	NP	NP	NP
III(200)	NP	NP	NP
IV(2HH)	X	NP	NP
V(111)	X	NP	NP
V(000)	NP	NP	NP

X: Permitted type of construction.

NP: Not permitted.

CONSTRUCTION TYPE

AMBULATORY OCCUPANCY

20/21.1.6.2 - One story

- Any Type construction

20/21.1.6.3 - > One story

- Any Protected Type
- Unprotected Type
(if fully sprinkled)

20/21.1.6.3 - Basements

- Any 1 hr Protected Type

20/21.1.6.6 - Non-Combustible
interior partitions ... shall be of
noncombustible or **limited**
combustible materials"

BUSINESS OCCUPANCY

NO
Requirements

N & E
Same



CONSTRUCTION TYPE

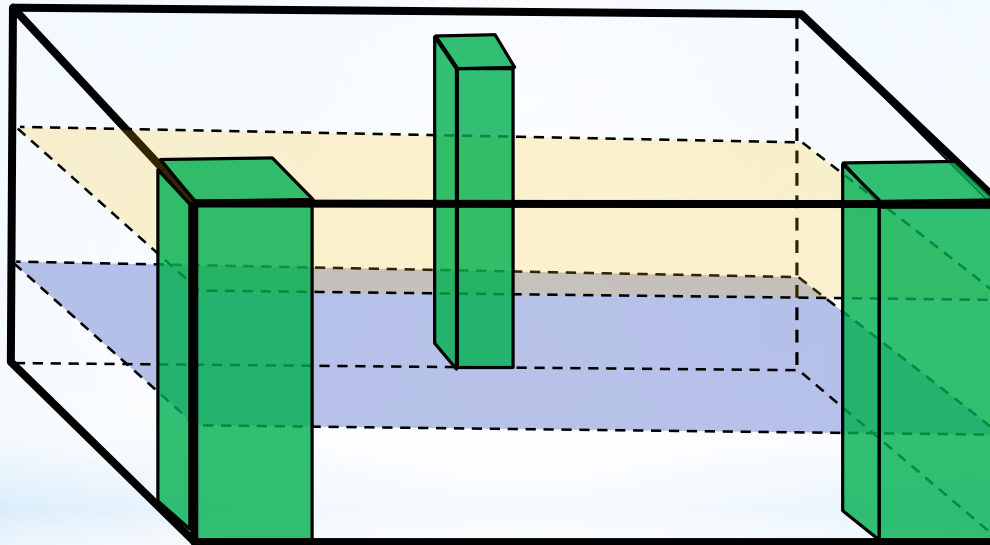
3.3.118* Limited Combustible

“Building construction material... has a potential heat value not exceeding 3,500 Btu/lb, when tested in accordance with NFPA 259.”

<u>Material</u>	<u>Potential Heat (Btu/lb)</u>	
Douglas Fir:	8,400	
Fire Treated Douglas Fir:	7,050	
Fiber Glass Insulation:	3,040	Limited Combustible
Concrete:	3,080	
Gypsum Board:	760	

AMBULATORY OCCUPANCY

VERTICAL OPENINGS



Stairs
Elevators
Escalators
Duct Shafts
Pipe Shafts
Etc.

20/21.3.1 - Follow Business requirements

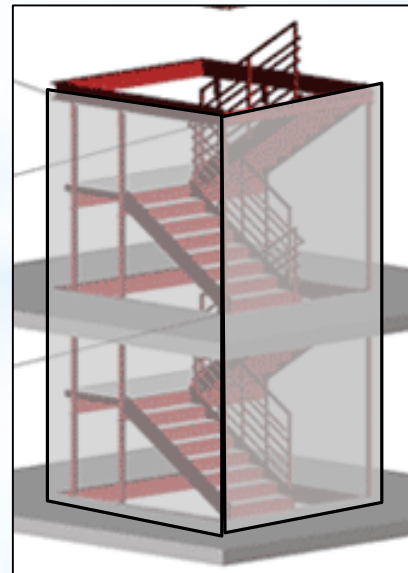
AMBULATORY/BUSINESS OCCUPANCIES

VERTICAL OPENINGS

N & E
Same

38/39.3.1.1 Any vertical opening shall be enclosed or protected in accordance with 8.2.5

New: 2 Exceptions
Existing: 3 Exceptions



AMBULATORY/BUSINESS OCCUPANCIES

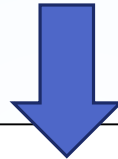
2 Exceptions



N & E
Same

38/39.3.1.1

EXCEPTION 1. *“Unprotected vertical openings in accordance with 8.2.5.8 shall be permitted”*



8.2.5.8 {Non-Concealed Space}

1. *Max. 1 floor pierced*
2. *1hr/2hr separation from other non-enclosed openings*
3. *Separated from corridors*
4. *Not served as a required egress*

AMBULATORY/BUSINESS OCCUPANCIES

N & E
Same

38/39.3.1.1

EXCEPTION 2. *Exit access stairs shall be permitted to be unenclosed in 2-story single tenant spaces that are provided with a single exit in accordance with exception #4 to 38.2.4.2*



38.2.4.2 Exception 4: single egress okay from mezzanine if the common path of travel does not exceed 75' (100' if fully sprinkled)

AMBULATORY/BUSINESS OCCUPANCY

EXISTING

39.3.1.1

EXCEPTION 3. *Fully sprinkled building can have unprotected openings, if:*

- *No unprotected opening serve as a required means of egress*
- *All required exits consist of outside stairs, smokeproof enclosures or horizontal exits*

AMBULATORY/BUSINESS OCCUPANCIES

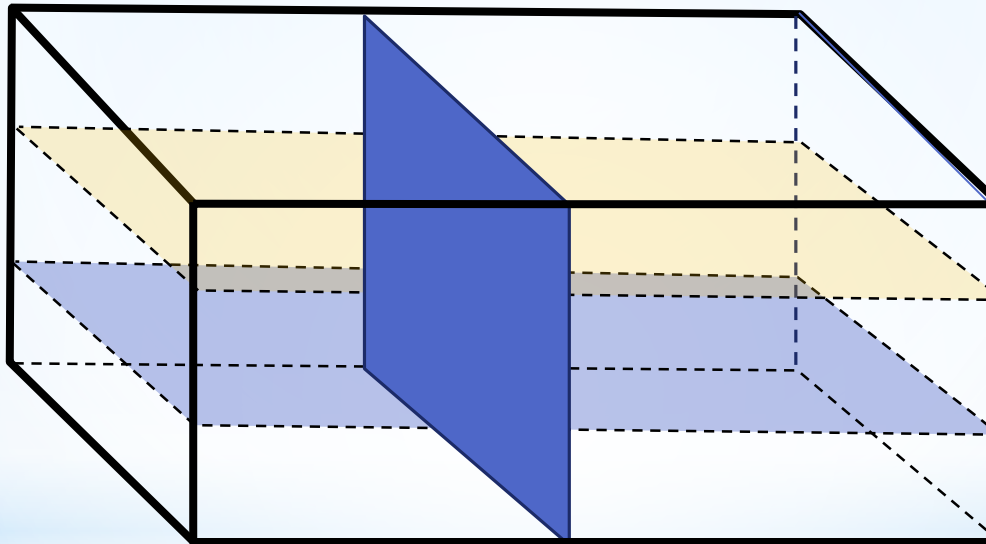
N & E
Same

38/39.3.1.2

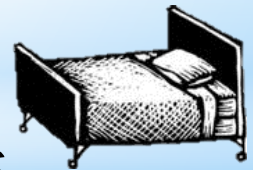
Floors below street level used for storage or other than business occupancy shall have no unprotected openings to business occupancy floors

AMBULATORY/BUSINESS OCCUPANCIES

SMOKE COMPARTMENTS



Defend In
Place Areas
of Refuge
during a
fire



20/21.3.7.2 "shall be divided into not less than two smoke compartments" [3 exceptions]

38/39.3.7 "no requirements"

AMBULATORY SMOKE COMPARTMENTS

N & E
Same

20/21.3.7.2 Exceptions:

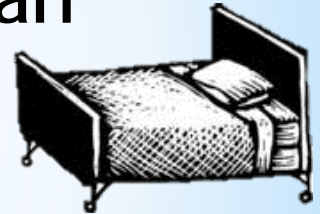
1. *If <5,000 SF & fully smoke detected*
2. *If <10,000 SF & fully sprinkled*
3. *An area in an adjoining occupancy can serve as a smoke compartment if*
 - *Meet requirements of 20.3.7*
 - *Ambulatory area <22,500 SF*
 - *Unrestricted access between occupancies*

AMBULATORY SMOKE COMPARTMENTS

NEW
only

20.3.7.5 - Size & Travel Distance

- (1) Max compartment size of 22,500 sf
- (2) Max 200' travel distance to a door in an adjacent smoke barrier



Exception:

Area of an atrium separated in accordance with 8.2.5.6 shall not be limited in size

AMBULATORY SMOKE COMPARTMENTS

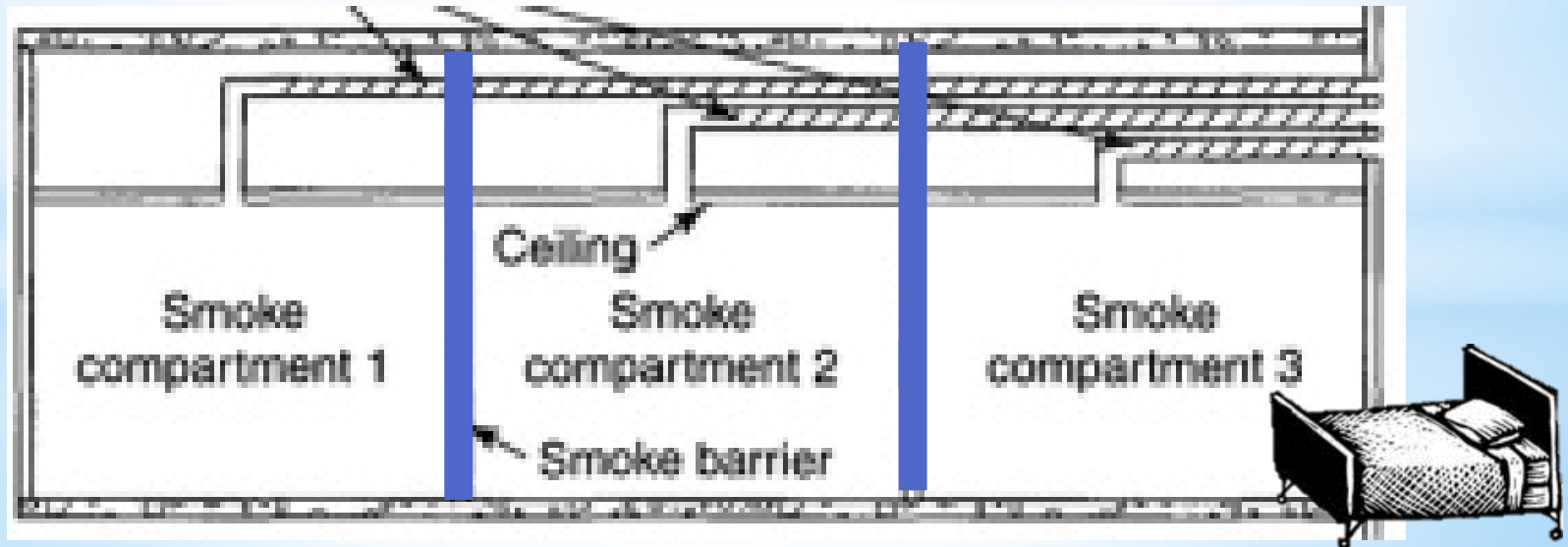
N & E
Same

20/21.3.7.3 Smoke Barrier Walls

“fire resistance rating of not less than 1 hour”

Exception:

- 1. Smoke dampers not required if fully ducted sys & building is fully sprinkled*



AMBULATORY SMOKE COMPARTMENTS

20.3.7.6 Smoke Barrier Doors

- 1-3/4" solid wood core or equivalent
- Self-closing
- Must have a vision panel

N & E
Same



20.3.7.7 Smoke Barrier Doors

- Kept closed
- Held open only with automatic device that will release upon activation of the fire alarm system and either a local smoke detector or a complete fire extinguishing system or fire detection system



AMBULATORY SMOKE COMPARTMENTS

20.3.7.5 Area of Refuge

Min 15 sf/patient space provided on each side of smoke barrier wall in low-hazard areas



**NEW
only**

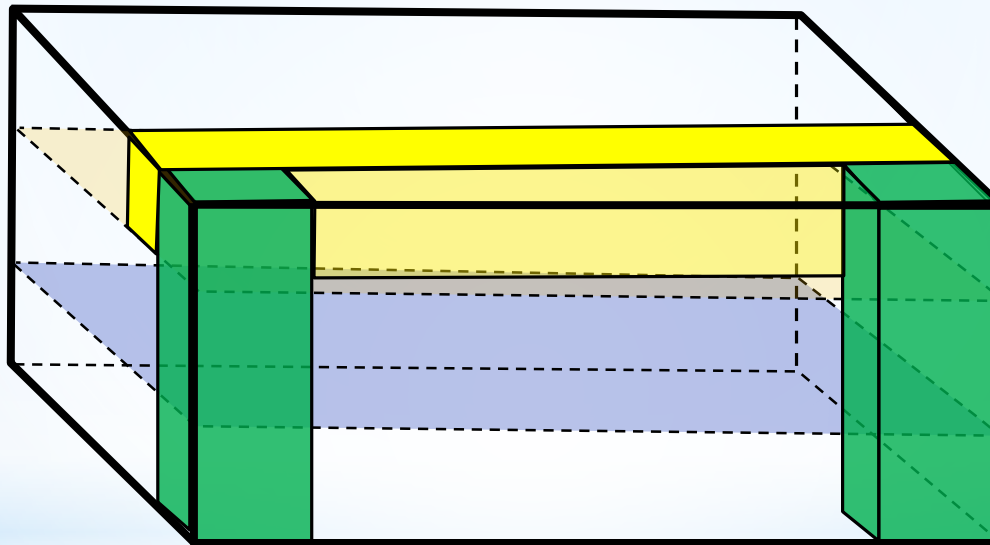


Do NOT confuse with:



AMBULATORY OCCUPANCY

CORRIDORS



“Exit-Access”
Connect
rooms to
exits

NEW

20 & 38.3.6- Follow Business requirements

21 & 39.3.6 - No Requirements

EXISTING

AMBULATORY/BUSINESS OCCUPANCIES

NEW

38.3.6.1 Corridor Separation “Where access to exist are provided by corridors, such corridors shall be separated from use areas by walls having a fire resistance rating of not less than **1 hour** in accordance with 8.2.3”

(3 exceptions)

AMBULATORY/BUSINESS OCCUPANCIES

38.3.6.1 Corridor Separation

NEW

Exception 1: Exits are available from an open floor area

Exception 2: Within a space occupied by a single tenant

‘Single tenant’ per annex ... single mgmt, same hours, all staff familiar with entire space (same owner doesn’t count)

Exception 3: Within a fully sprinkled building

AMBULATORY/BUSINESS OCCUPANCIES

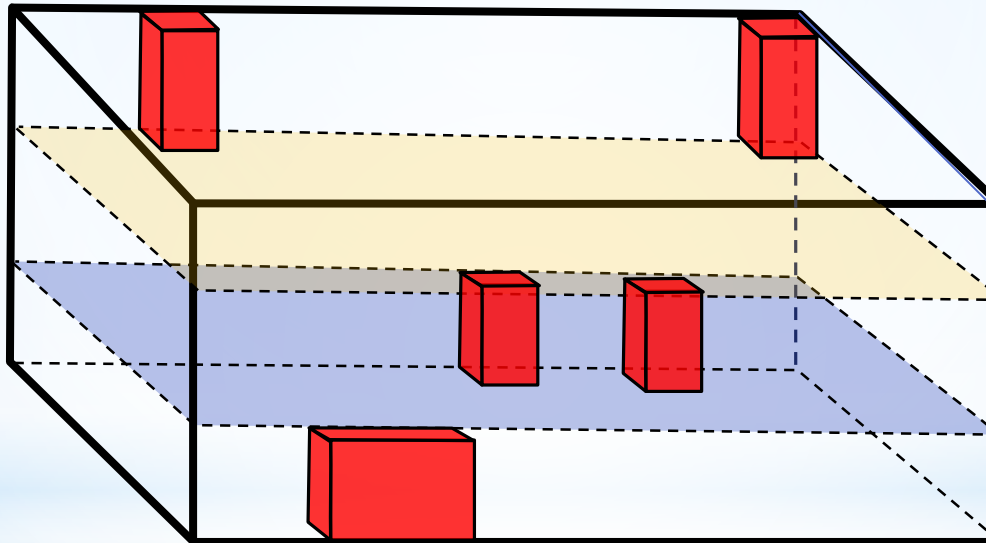
NEW

38.3.6.2 Corridor Doors

... shall have a fire resistance rating in accordance with 8.2.3

AMBULATORY/BUSINESS OCCUPANCIES

HAZARDOUS SPACES



Hazardous if contains more combustibles than a typical room in the occupancy

20/21.3.2 - See Business Occupancy

AMBULATORY/BUSINESS OCCUPANCIES

38/39.3.2.1 Haz areas

- include, but not limited to, areas used for general storage, boiler or furnace rooms, and maintenance shops that include woodworking and painting areas;
- shall be protected in accordance with section 8.4



BEWARE: DHS inspectors tend to use health care definitions of hazardous spaces



HEALTH CARE HAZARDOUS AREAS

HAZARDOUS STORAGE AREAS

Caution: There is NO agreed on QUANTITY of combustible materials that an inspector will deem as hazardous. It is best to consider almost any amount of stored combustibles as hazardous and protect the room according to its size.

	<u>0-50 SF</u>	<u>51-99 SF</u>	<u>100 SF & over</u>
NEW	No Requirements	Smoke Fight	1-Hr Rated Enclosure
EXISTING	No Requirements	Fire Sprinkler & Smoke-Tight <u>1</u> -Hr Rated Enclosure	

AMBULATORY/BUSINESS OCCUPANCIES

8.4 - spaces containing combustible hazards greater than that normally contained in the occupancy shall be:

- Enclosed with 1-hr rated construction (including labeled door & frame)



OR

- Sprinkled & enclosed with walls/doors that resist the passage of smoke (including a door closer)



Life Safety Plan



Haz-1 hr



Haz-Smk
Tight

AMBULATORY HAZARDOUS AREAS

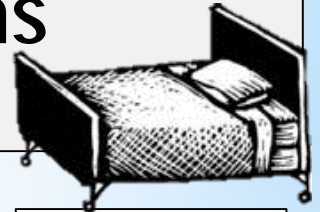
20/21.3.2.2 -- Laboratories

Labs "employing quantities of flammable, combustible or hazardous materials that are considered as a severe hazard shall be protected in accordance with NFPA 99"



20/21.3.2.3 -- Anesthetizing Locations

"shall be protected in accordance with NFPA 99"



All:
N & E
Same

HEALTH CARE HAZARDOUS AREAS

N & E
Same

18/19.3.2.6 -- Cooking Facilities

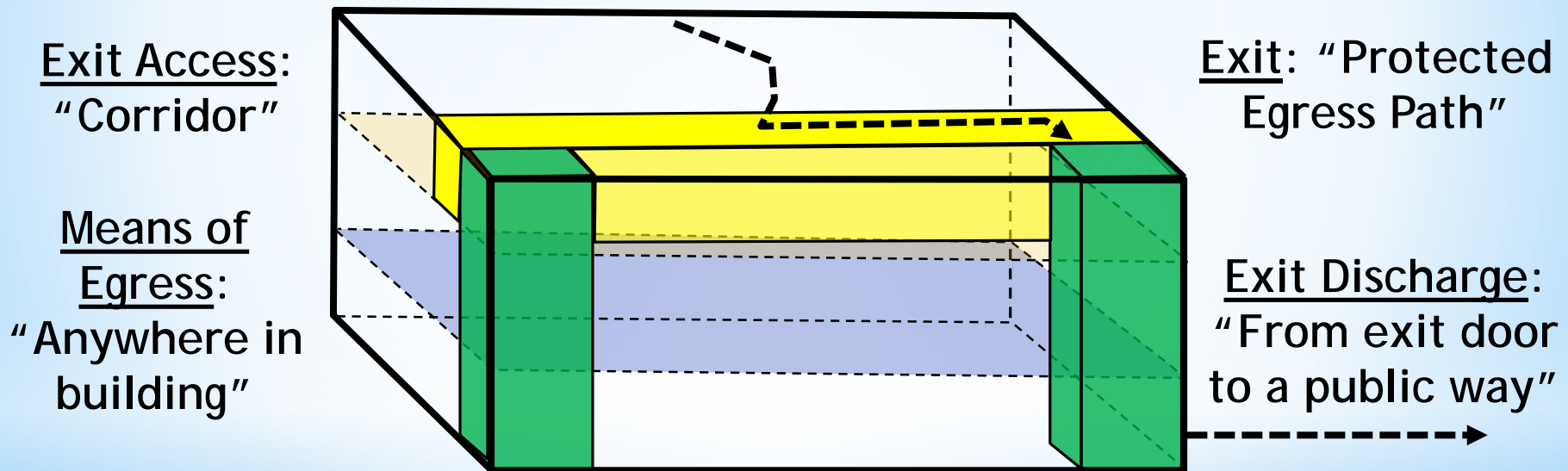
"shall be protected in accordance with 9.2.3"
(which directs compliance with NEPA 96)



*Exception:
"Where
domestic
cooking
equipment is
used for food
warming or
limited cooking,
protection or
segregation of
food
preparation
facilities shall
not be
required"*

AMBULATORY/BUSINESS OCCUPANCIES

EXIT PATHS



AMBULATORY EXIT PATHS

N & E
Same

20/21.2.2.1 - Components shall follow
Business requirements, plus ...

20/21.2.2.2 - Special Locking complying with 7.2.1.6
shall be permitted on exterior doors
(Delayed Egress, Access Control)



20/21.2.2.3 - Rated doors may be held open with an
automatic release device per 7.2.1.8.2

20/21.2.2.4 - Stair doors may be held open if all doors
are closed automatically

AMBULATORY/BUSINESS EXIT PATHS

38/39.2 MEANS OF EGRESS REQUIREMENTS

1. Components

- Doors
- Stairs
- Horizontal Exits
- Ramps
- Exit Passageways

2. Capacity (widths)

3. Number of Exits

4. Arrangements of Exits

5. Travel Distances

6. Exit Discharge

7. Exit Illumination

8. Exit Marking

AMBULATORY/BUSINESS EXIT PATHS

38/39.2.2.2.1 "Doors complying with 7.2.1 shall be permitted.

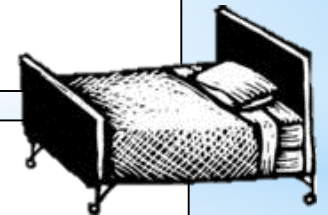
N & E
Same

x.2.2.2.2: Locks complying with exception 2 to 7.2.1.5.1 permitted (only on Principal entry/exit doors)

Exception 2 to 7.2.1.5.1: Key operated from egress side, if adjacent warning sign, unlocked during occupancy, distinguishable as locked, key available to any occupant

x.2.2.2.4: Delayed egress lock permitted

x2.2.2.5: Access-controlled locks permitted



x2.2.2.8: Revolving doors permitted

AMBULATORY/BUSINESS EXIT PATHS

x.2.2.2.6: Security grilles complying with exception 2 to 7.2.1.4.1 permitted from tenant spaces



Exception 2 to 7.2.1.4.1:

- *secured open when used by public;*
- *adjacent warning sign;*
- *operable without special knowledge or effort;*
- *only half of egress paths have grills*

N & E
Same



AMBULATORY/BUSINESS EXIT PATHS

EXISTING

39.2.2.2.3: Stairwell re-entry provisions of exc 2 to 7.2.1.5.2 do not apply
(removes prohibition in existing bldgs)



39.2.2.2.7: Rolling fire doors permitted if:

- Held open with fusible links rated at $<165^{\circ}\text{F}$
- Link located $< 10'$ from door opening & not above ceiling
- Door not used for any protective enclosure

AMBULATORY/BUSINESS EXIT PATHS-Doors

20/21.2.2.3 Doors that are required to be rated can be “held-open only by an automatic release device that complies with 7.2.1.8.2.”

{HOLD-OPEN RULE}

NOT required at corridors or non-rated doors.



N & E
Same

7.2.1.8.2: Self-Closing Devices - Hold-Opens

- (1) Door self-closes upon release of hold-open
- (2) Must also release manually
- (3) Activated by smoke detector per NFPA 72
- (4) Doors release on loss of power
- (5) In stairs, smoke detector will release all doors in stairs

AMBULATORY/BUSINESS EXITS

N & E
Same



38/39.2.2.3 **Stairs** complying with 7.2.2 shall be permitted

38/39.2.2.5 **Horizontal exits** complying with 7.2.4 shall be permitted, as modified by this section

38/39.2.2.6 **Ramps** complying with 7.2.5 shall be permitted

38/39.2.2.7 **Exit Passageways** complying with 7.2.6 shall be permitted

AMBULATORY/BUSINESS EXIT PATHS - Capacity

N & E
Same

20/21.2.3.1 - Follow Business Requirements

38/39.2.3.1 Capacity of any required means of egress shall be based on its width, as defined in Section 7.3

Exit Access Width: min 44" clear width

Ambulatory: Pt Door Width: min 32" clear width

AMBULATORY EXIT PATHS - # Exits

20/21.2.4.1 “Not less than two exits ... remotely located from each other, shall be provided for each floor or fire section of the building”

{ “2-Exit Rule” }

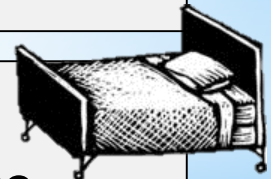
N & E
Same



20/21.2.4.2 - Suite > 2,500 SF shall have not less than 2 remotely located exit access doors

20/21.2.4.3 “Not less than two exits ... shall be accessible from each smoke compartment. Egress shall be permitted through an adjacent compartment(s) but shall not require return through the compartment of the fire origin”

{ “Non-Return Rule” }



BUSINESS EXIT PATHS - # Exits

N & E
Same

38/39.2.4.2 - Not less than two separate exits ...
~~remotely located from each other,~~ shall be provided for each
floor ~~or fire section~~ of the building , and shall be accessible
from every part of every story {"2-Exit Rule"}

Business slightly different
than Ambulatory

Exceptions

1. *Can have common travel per 38/39.2.5.3*
2. *One exit okay with <100 occup & exit directly outside, max 100' travel to outside, stairs max 15' hi & enclosed & not open to other stories*
3. *One exit okay if <4 stories & <30 occup/floor if 100' travel to outside & enclosed & not open to other stories*
4. *One exit okay from mezz if common path <75' (100' sprk)*
5. *One exit okay if <3 stories if spkl & <100' travel to outside*

AMBULATORY/BUSINESS EXIT PATHS - Arrangement

N & E
Same

20/21.2.5 - Follow Business Requirements

38/39.2.5 - Arrange in accordance with
section 7.5

38.2.5.2 - Dead end corridors shall not
exceed 20'

Exception: If fully sprinkled, max 50'

39.2.5.2 - Dead end corridors shall not
exceed 50'

EXISTING

AMBULATORY/BUSINESS EXIT PATHS - Arrangement

N & E
Same

38/39.2.5.3 - Common paths of travel shall not exceed 75'

Exception 1: If fully sprinkled, max 100'

Exception 2: If single tenant & occup load not exceeding 30, permitted for first 100'

Exception 2: If single tenant & occup load not exceeding 30, permitted to have a single exit access if it does not have a dead end exceeding 50'

EXISTING

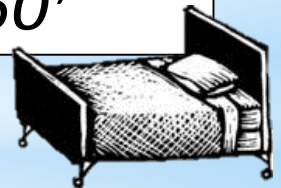
AMBULATORY EXIT PATHS - Arrangement

N & E
Same

20/21.2.6 -- Travel Distances

1. Measure travel distances per Section 7.6
2. Max 100' between any door required as an exit access and an exit
3. Max 150' between any point in a room and an exit

Exception: If fully sprinkled, increase each by 50'



BUSINESS EXIT PATHS - Arrangement

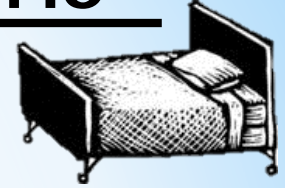
N & E
Same

38/39.2.6 -- Travel Distances

1. Measure travel distances per Section 7.6
2. Max 200' between any point in a room and an exit

Exception: If fully sprinkled, max 300'

AMBULATORY/BUSINESS EXIT PATHS - Arrangement



20/21/38/39.2.7 - Exit Discharge

"Comply with section 7.7"

20/21/38/39.2.8 - Illumination of Egress

"Comply with section 7.8"

20/21/38/39.2.9 - Emergency Lighting

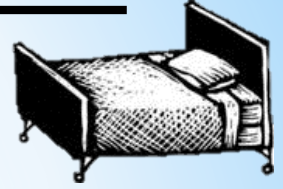
"Comply with section 7.9"

20/21.2.9.2 - If gen anesthesia or life-support equip
is used, provide essential elec system per NFPA 99

Exception 1: If use battery-powered lighting

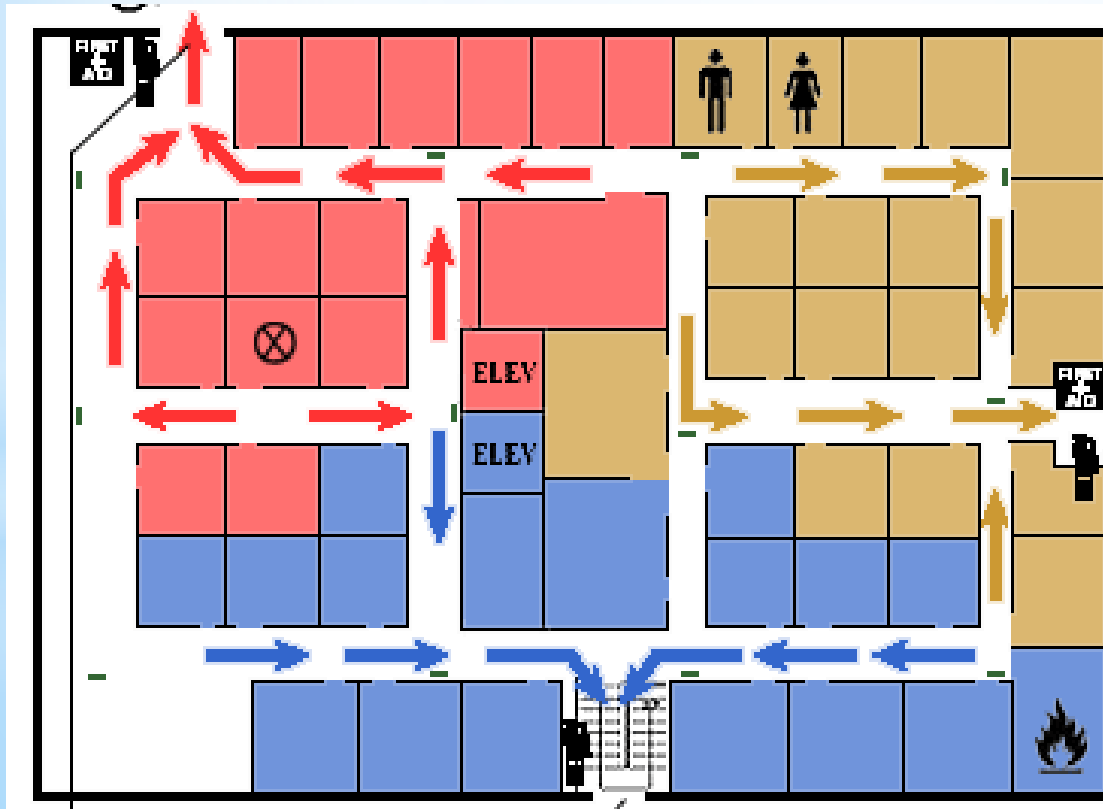
Exception 2: Not needed if emergency-use only

AMBULATORY/BUSINESS EXIT PATHS - Arrangement



20/21/38/39.2.10 - Marking Egress Path

“shall be in accordance with section 7.10”

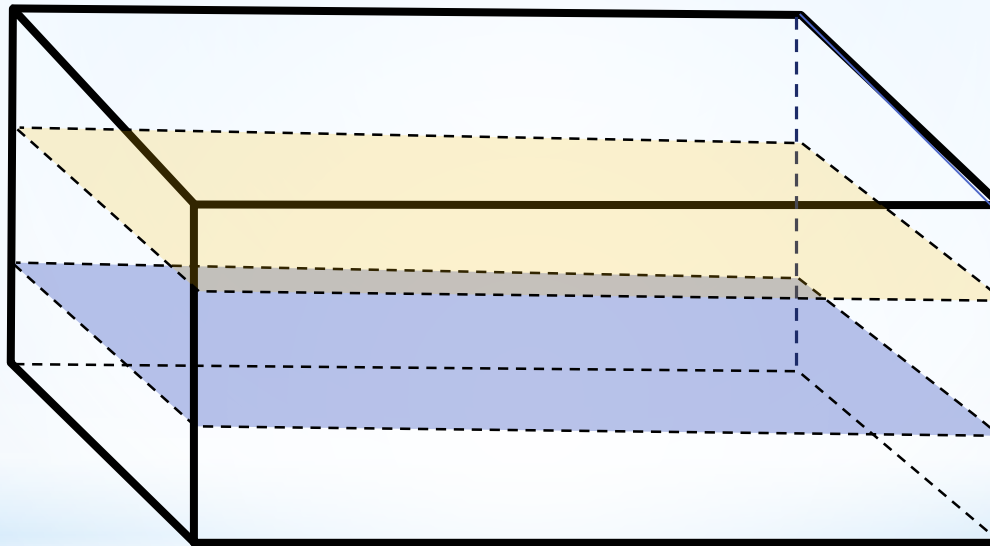


N & E
Same



AMBULATORY/BUSINESS OCCUPANCIES

SUPPRESSION SYSTEM

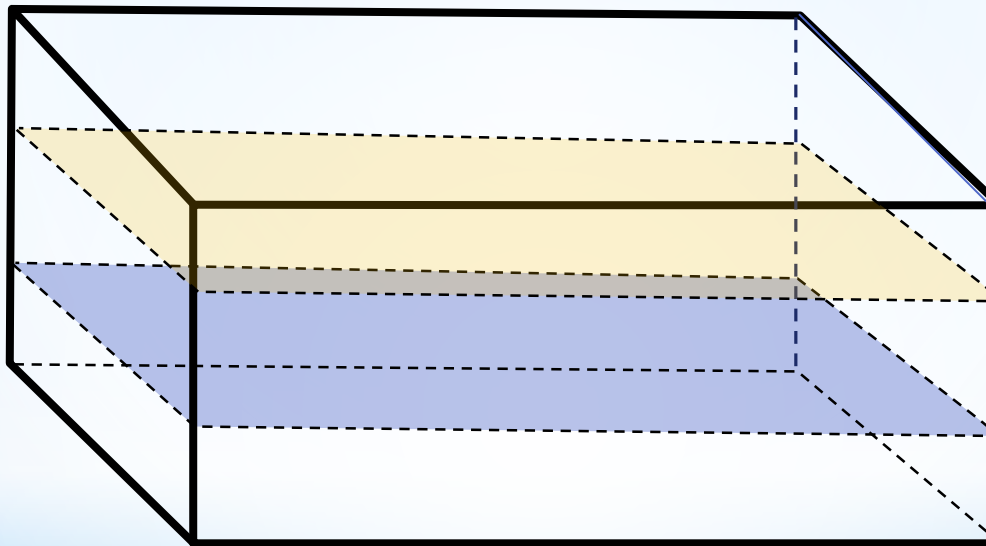


N & E
Same

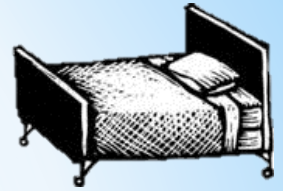
20/21/38/39.3.5.2 - PORTABLE FIRE EXTINGUISHERS:
"shall be provided in accordance with Section
9.7.4.1"

AMBULATORY/BUSINESS OCCUPANCIES

ALARM SYSTEM



AMBULATORY ALARM SYSTEM



20/21.3.4.1 - "shall have a fire alarm system"

20/21.3.4.2 - INITIATION. "shall be by manual means in accordance with 9.6.2 and by means of any detection devices or detection systems."



20/21.3.4.3 - OCCUPANT NOTIFICATION. shall be accomplished automatically, without delay, upon operation of any activating device by means of an internal audible alarm in accordance with 9.6.3

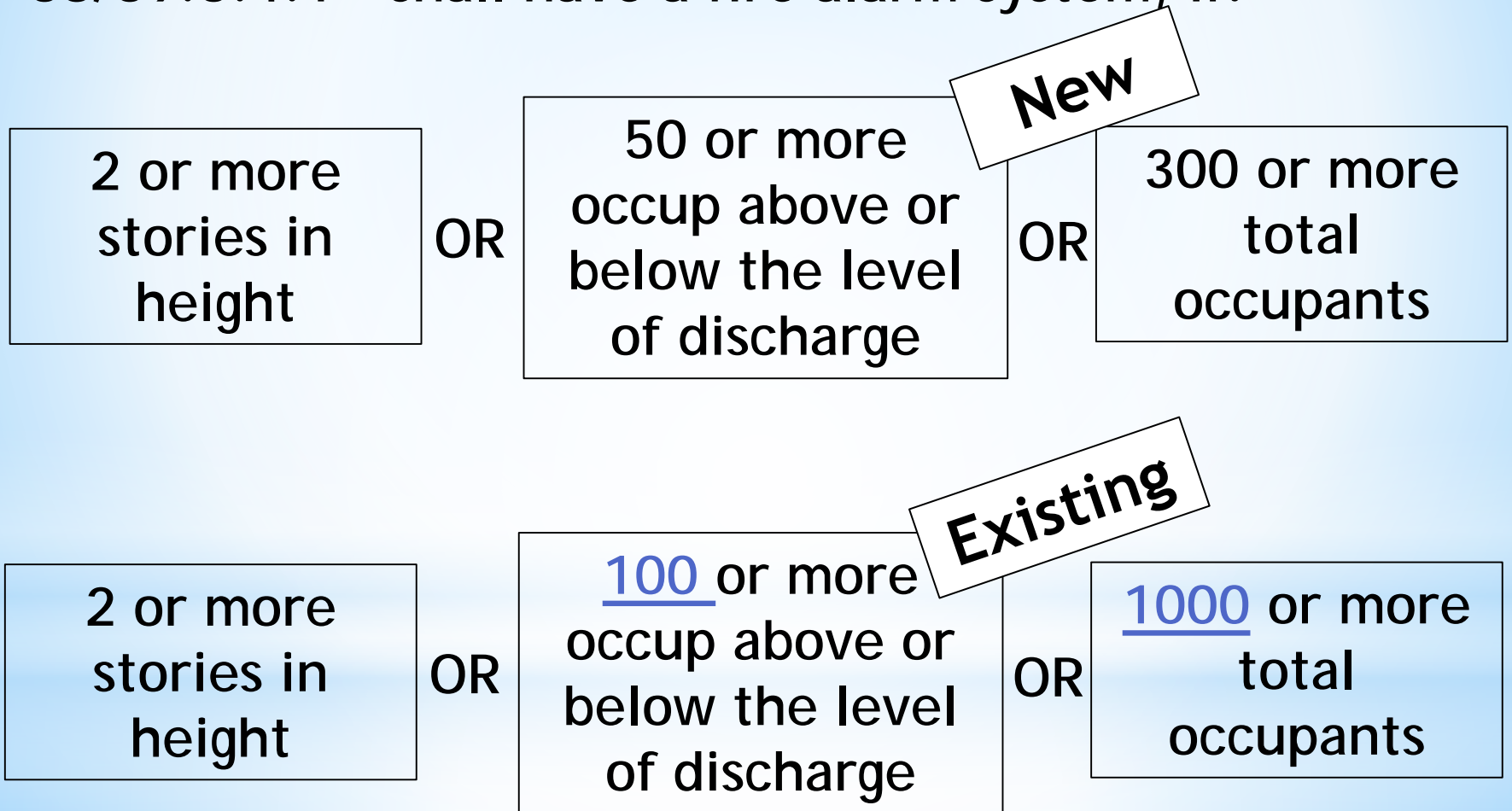


20/21.3.4.4 - EMERGENCY FORCES NOTIFICATION. "shall be accomplished in accordance with 9.6.4"

Exception: "Smoke detection devices ... or systems equipped with reconfirmation features shall not be required to automatically notify the fire department unless the alarm condition is reconfirmed after a period not exceeding 120 seconds."

BUSINESS ALARM SYSTEM

38/39.3.4.1 - shall have a fire alarm system, if:



BUSINESS ALARM SYSTEM

N & E
Same

38/39.3.4.2 - INITIATION. “shall be by manual means in accordance with 9.6.2.1(1)”



Exception 1: Can be via a full automatic detection system per 9.6.2.1(2)



Exception 2: Can be via a full sprinkler system per 9.6.2.1(3)



BUSINESS ALARM SYSTEM

N & E
Same

38/39.3.4.3 - OCCUPANT NOTIFICATION. When building is occupied, the required fire alarm system, once initiated, shall perform one of the following:

(a) Activate a general alarm throughout the building, per 9.6.3

OR

(b) Activate an audible alarm from a continuously attended emergency location; with notification via PA system originating from the attended location (fire announcements take priority)

Exception 1: Positive alarm sequence per 9.6.3.4

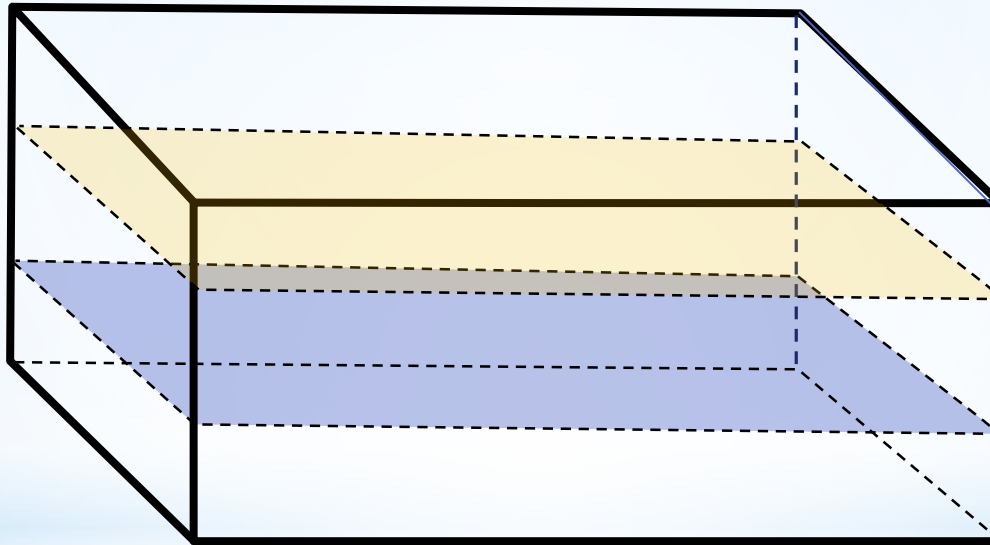
Exception 2: Presignal system per 9.6.3.3

Existing

Exception: Any other occupant notification method permitted by 9.6.3

AMBULATORY/BUSINESS OCCUPANCIES

ELECTRICAL



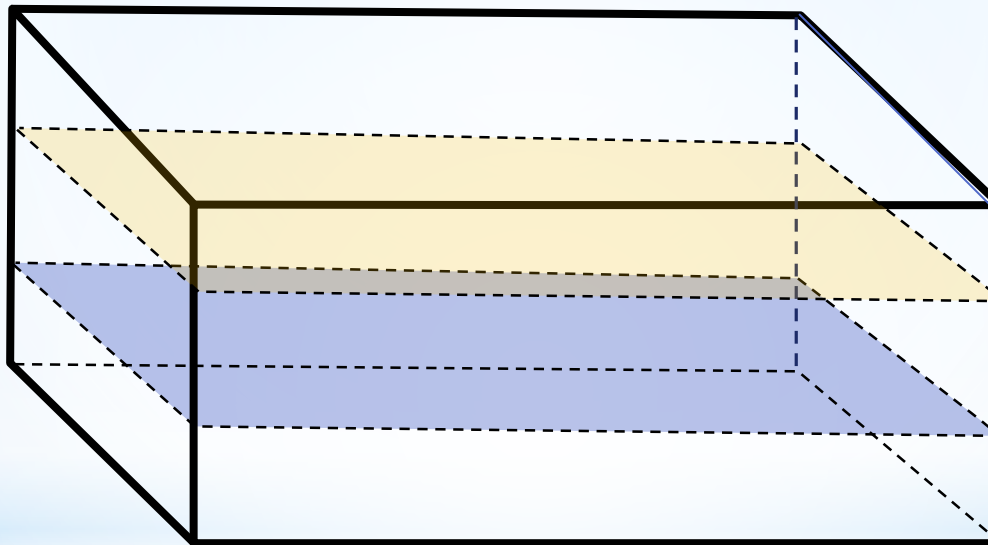
N & E
Same

20/21/38/39.5.1 "Utilities shall comply with the provisions of Section 9.1"



AMBULATORY/BUSINESS OCCUPANCIES

HVAC



N & E
Same

20/21/38/39.5.2 HVAC shall comply with the provisions of Section 9.2 [comply with NFPA 90A] and shall be installed in accordance with the manufacturer's specifications"

AMBULATORY HVAC SYSTEM



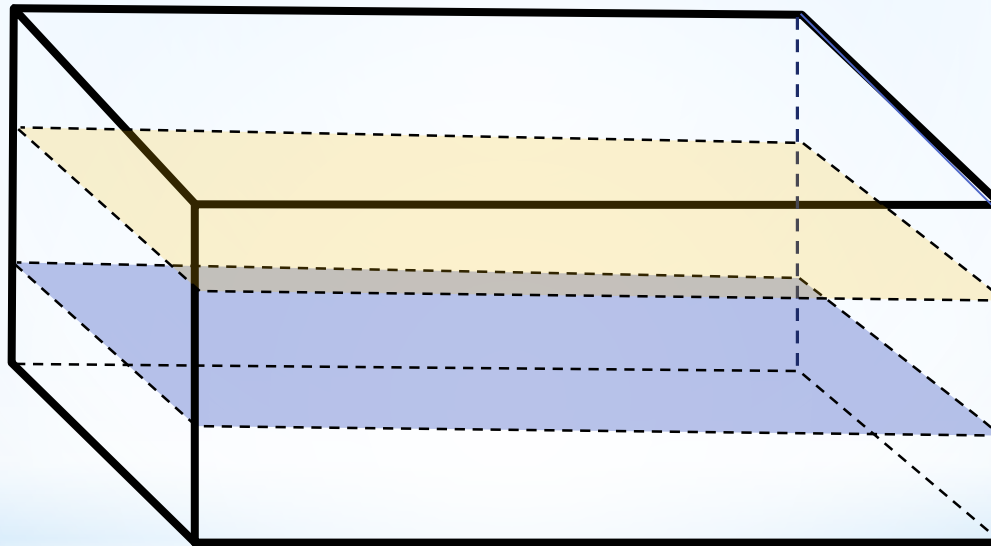
20/21.5.2.2

- Other than central plant, heating devices shall be installed so combustible materials will not be ignited
- Fuel-fired devices shall
 - be chimney or vent connected
 - take air for combustion directly from outside
 - Combustion system completely separated from occupied spaces
 - Have safety features to immediately stop the flow of fuel & shut down in case of excessive temperatures or ignition failure

Exception: Approved suspended unit heaters not located in means of egress & patient treatment areas, provided they are out of reach of occupants

AMBULATORY/BUSINESS OCCUPANCIES

OPERATING FEATURES



BUSINESS : Fire Drills (only)

AMBULATORY: same as Health Care

BUSINESS OPERATING FEATURES

**N & E
Same**

38/39.7.1 - FIRE DRILLS.

Staff shall be periodically instructed and hold drills periodically, where practical, if:

Building occupied
by more than 500
persons

OR

There are more than
100 persons above or
below the street level

38/39.7.2 - EXTINGUISHER TRAINING

Designated staff shall be periodically instructed in the use of portable fire extinguishers

AMBULATORY OPERATING FEATURES



20/21.7.1.1 - EVACUATION & RELOCATION PLAN

Shall have in effect a plan:

1. For the protection of all persons in a fire
2. For their evacuation to areas of refuge
3. For their evacuation from the building if necessary

- Available to all supervisory staff:
- Written
- Employees periodically instructed & kept informed to their duties
- Readily available at all times in the telephone operator's position or the security center

AMBULATORY OPERATING FEATURES



20/21.7.1.2 - FIRE DRILLS. Shall include:

1. Transmission of signal
 2. Simulation of emergency fire condition
 3. Conducted quarterly on each shift
 4. Conducted under varied conditions to familiarize staff with signals and emergency actions
- If conducted between 9 pm and 6 am, a coded announcement shall be permitted instead of audible alarms
 - Infirm or bedridden patients shall not be required to be moved during drills to safe areas or to the exterior of the building

FIRE DRILL Guides (K-50)

Extracted from
Lauzon Life Safety Consulting's

**CODE
TOOL BOX**



FIRE DRILL LOG FOR YEAR _____

1st SHIFT

2nd SHIFT

3rd SHIFT

Date Time Loc

Date Time Loc

Date Time Loc

Jan

Feb

Mar

Apr

May

Jun

Jul

Aug

Sep

Oct

Nov

Dec



FIRE DRILL DOCUMENTATION MUST INCLUDE:

NFPA 101-2000 §18/19.7.1.2

- 1).Quarterly per Shift,
- 2).Staff Activate Alarms;
- 3). Verify Transmission;
- 4).Vary Locations & Times;
- 5) Qualified Leader;
- 6).Staff Participation;
- 7).Evaluation Report

AMBULATORY OPERATING FEATURES

20/21.7.2.1 - PROCEDURES IN CASE OF FIRE

Shall include:

1. Removal of all occupants directly by fire
2. Transmission of alarm signal to warn occupants and summon staff
3. Confinement of fire by closing doors to isolate the fire area
4. Relocation of patients



RACE

AMBULATORY OPERATING FEATURES



20/21.7.2.2 -FIRE SAFETY PLAN

Shall include:

1. Use of alarms
 2. Transmission of alarm to fire department
 3. Response to alarms
 4. Isolation of fire
 5. Evacuation of immediate area
 6. Evacuation of smoke compartment
 7. Preparation of floors & building for evacuation
 8. Extinguishment of fire
-
9. Staff instructed in the use of & response to fire alarms
 10. Staff instructed in the use of a code phrase

AMBULATORY OPERATING FEATURES



20/21.7.2.3 - STAFF INSTRUCTION

Cover the use of & response to fire alarms

Cover use of a code phrase when

- The person who discovers a fire must go to aid of an endangered person
- If fire alarm system malfunctions

When hearing the code phrase, staff must

1. Activate the nearest manual fire alarm pull
2. Immediately execute their fire response duties

AMBULATORY OPERATING FEATURES



20/21.7.4 - SMOKING

Smoking regulations shall be adopted and shall include not less than the following provisions:

1. Smoking shall be prohibited in any room where combustible liquids/gases or oxygen is used or stored and any hazardous location and shall have signs that read NO SMOKING

Exception: Do not need room signs if NO SMOKING signs are posted at major building entrances if all smoking is prohibited

2. Smoking by patients classified as not responsible shall be prohibited (unless under direct supervision)

AMBULATORY OPERATING FEATURES



20/21.7.4 - SMOKING

3. Ashtrays of noncombustible material and safe design shall be provided in all areas where smoking is permitted.
4. Metal containers with self-closing cover devices into which ashtrays can be emptied shall be readily available to all areas where smoking is permitted.

AMBULATORY OPERATING FEATURES



20/21.7.5.1 - FURNISHINGS & DECORATIONS

1. Drapery, curtains & other loose hanging fabrics ... shall be in accordance with 10.3.1 (NFPA 701)
2. Newly introduced upholstered furniture shall meet the criteria when tested per 10.3.2(2) & 10.3.3
3. Newly introduced mattresses shall meet the criteria when tested per 10.3.2(3) & 10.3.4

New

AMBULATORY OPERATING FEATURES

20.7.5.4 - FURNISHINGS & DECORATIONS



4. Combustible decorations shall be prohibited unless they are flame-retardant

Exception: Combustible decorations such as photographs & paintings, in such limited quantities that a hazard of fire development is not present

N & E
Same

AMBULATORY OPERATING FEATURES

20/21.7.5 - FURNISHINGS & DECORATIONS



5. Soiled Linen & trash collection receptacles shall not exceed 32 gal;
- avg density of container capacity shall not exceed .5 gal/SF;
 - capacity of 32 gal shall not be exceeded in any 64 SF.
 - Mobile receptacles with capacities greater than 32 gal shall be located in a room protected as a haz area

Exception: container size & density shall not be limited in hazardous areas

N & E
Same

AMBULATORY OPERATING FEATURES

20/21.7.8 - PORTABLE SPACE HEATERS



Portable space-heating devices shall be prohibited in all health care occupancies.

Exception: Portable space-heating devices shall be permitted to be used in non-sleeping staff and employee areas where the heating elements of such devices do not exceed 212°F

N & E
Same



AMBULATORY OPERATING FEATURES

20/21.7.9 - CONSTRUCTION



Construction operations shall comply with 4.6.10

The means of egress of any area undergoing construction shall be inspected daily for compliance with 7.1.10.1 and shall also comply with NFPA 241

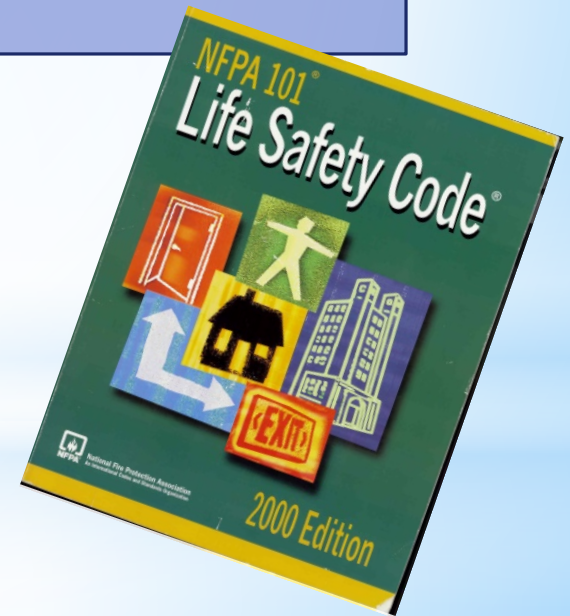
N & E
Same



“Other Occupancies” Agenda

3

1. Review Prior Occupancy Concepts
2. Ambulatory (Chap 20-21)
Business (Chap 38-39)
3. Industrial (Chap 40)
4. Storage (Chap 42)
5. Assembly (Chap 12-13)
6. Education (Chap 14-15)
7. Residential (Chap 24-33)
8. Mercantile (Chap 36-37)



What is an Industrial Occupancy?

- *Things made, processed, repaired*

Includes Factories

Chapter 40: New+Existing

Sub-classifications

1. General (conventional design bldg that can have multiple uses; low/ordinary hazards)
2. High Hazard (high hazard materials & processes)
3. Special Purpose (specialized bldg, low/ordinary hazards, few people)

Industrial Occupancies within Health Care

- *2-hr Separation = Different Occupancy*

Sub-classifications

1. General (Workshop or Maintenance Shop)
2. High Hazard (rare, potential large labs)
3. Special Purpose (Central Utility Plant)

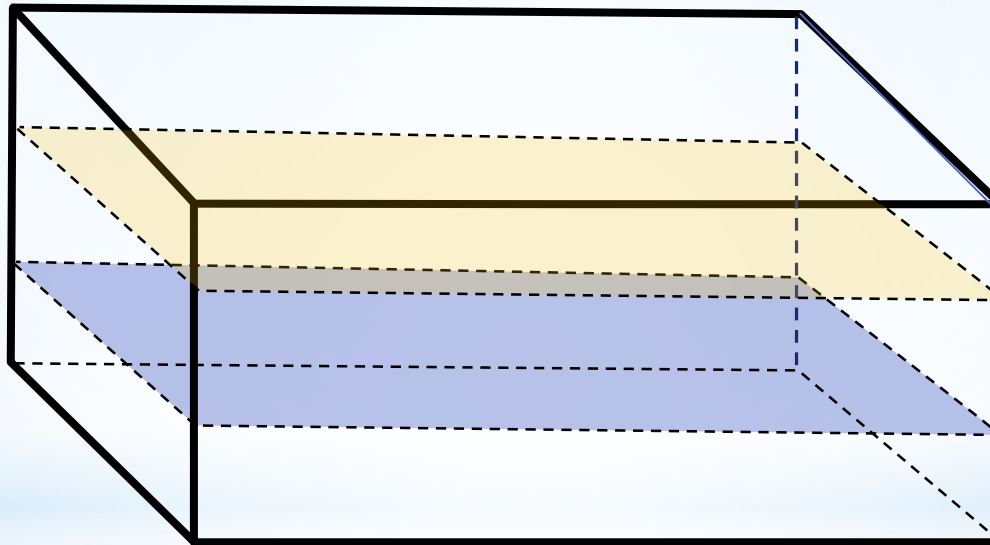
INDUSTIAL OCCUPANCY

	<u>Amt of Regs</u>	
• 40.1 General Requirements	8"	#7
• 40.2 Means of Egress	29"	#3
• 40.3 Protection	12"	#7
• 40.4 Special Provisions	1"	#4
• 40.5 Building Services	2"	#8
• 40.6 Reserved	--	--
• 40.7 Operating Features	0"	#8

4 Pages in LSC (Health Care = 21 pages)

INDUSTRIAL OCCUPANCIES

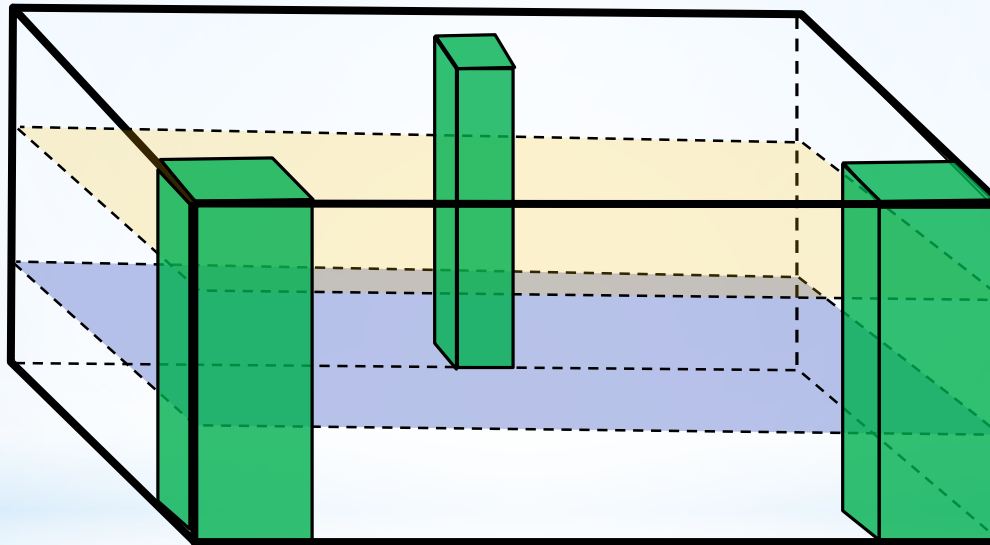
CONSTRUCTION TYPE



40.1.6 - NO requirements

INDUSTRIAL OCCUPANCIES

VERTICAL OPENINGS



Stairs
Elevators
Escalators
Duct Shafts
Pipe Shafts
Etc.

40.3.1 - Enclosed or protected in
accordance with 8.2.5
(4 exceptions)

INDUSTRIAL Vertical Openings

4 Exceptions

40.3.1 EXCEPTION 1:

Unprotected openings okay in Special Purpose & High Hazard when necessary for the production process

IF: every floor has access to an enclosed egress stairs

INDUSTRIAL Vertical Openings

4 Exceptions

EXCEPTION 2:

Existing open stairs that connect only 2 floors

EXCEPTION 3:

Existing openings in general & special purpose occupancies that are fully sprinkled, IF not the required exit

INDUSTRIAL Vertical Openings

4 Exceptions

EXCEPTION 4:

Openings permitted per 8.2.5.8

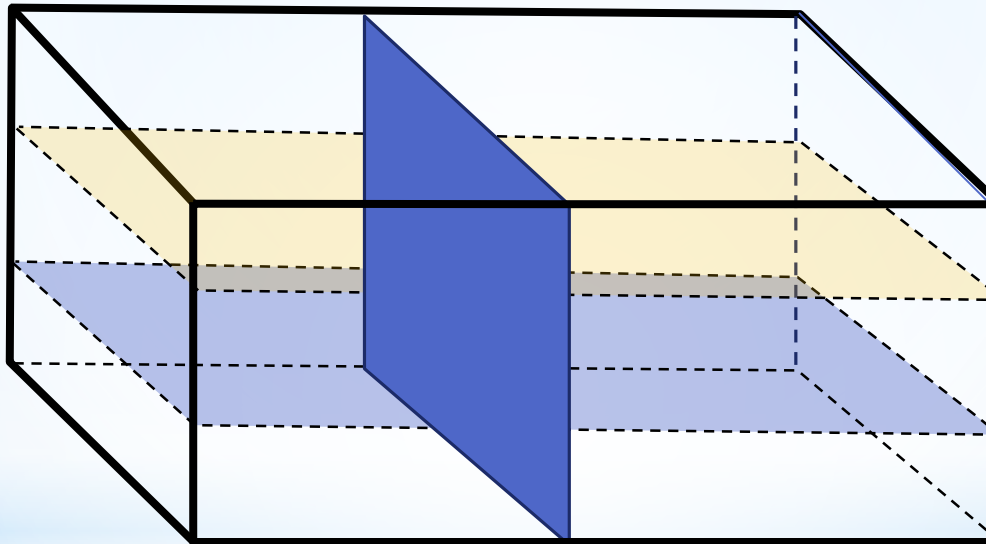


8.2.5.8 {Non-Concealed Space}

1. *Max. 1 floor pierced*
2. *1hr/2hr separation from other non-enclosed openings*
3. *Separated from corridors*
4. *Not served as a required egress*

INDUSTRIAL OCCUPANCIES

SMOKE COMPARTMENTS

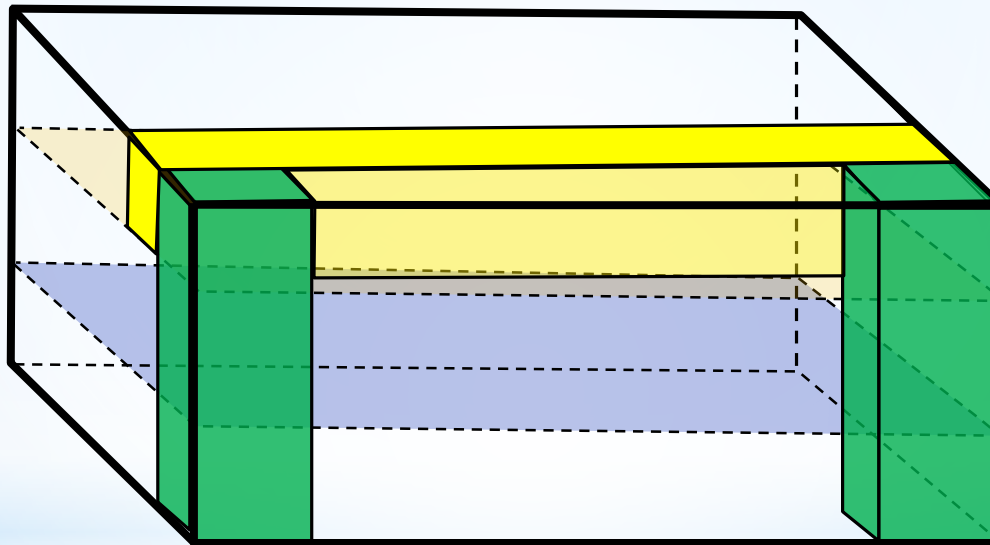


Defend In
Place Areas
of Refuge
during a
fire

NO requirements

INDUSTRIAL OCCUPANCIES

CORRIDORS

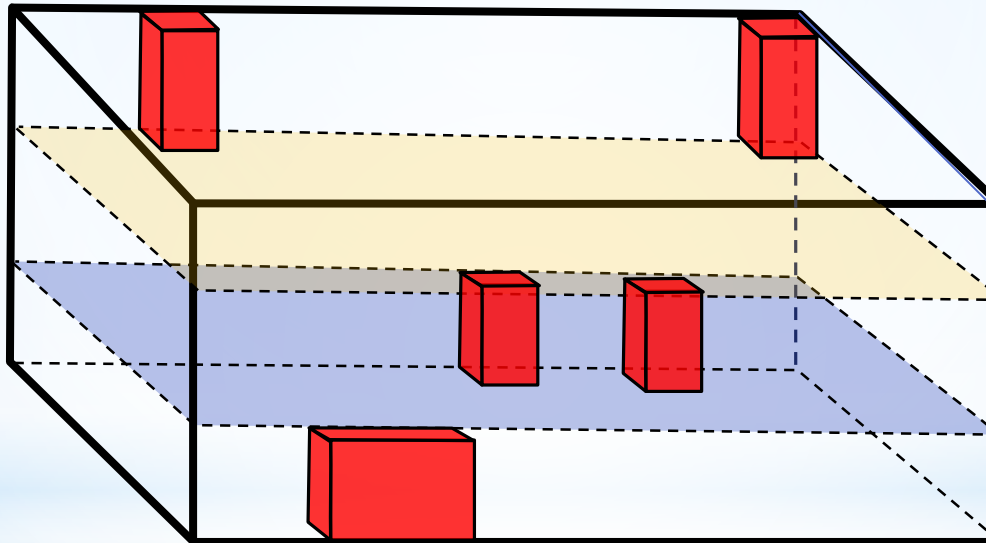


“Exit-Access”
Connect
rooms to
exits

40.3.6 - NO requirements

INDUSTRIAL OCCUPANCIES

HAZARDOUS SPACES



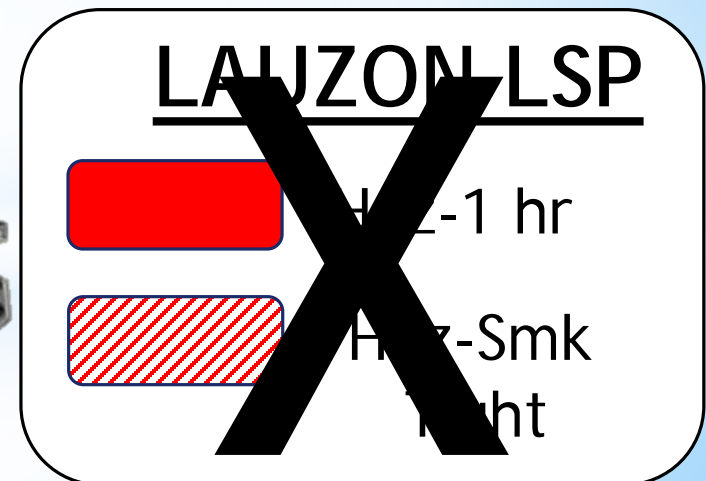
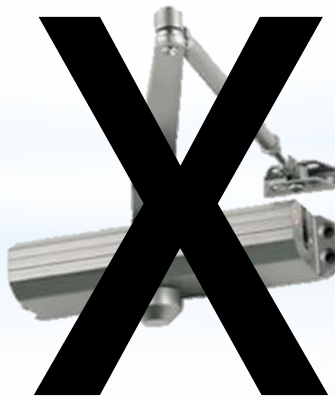
Hazardous if contains more combustibles than a typical room in the occupancy

40.3.2 - Two Rules involving Sprinkling

INDUSTRIAL OCCUPANCIES

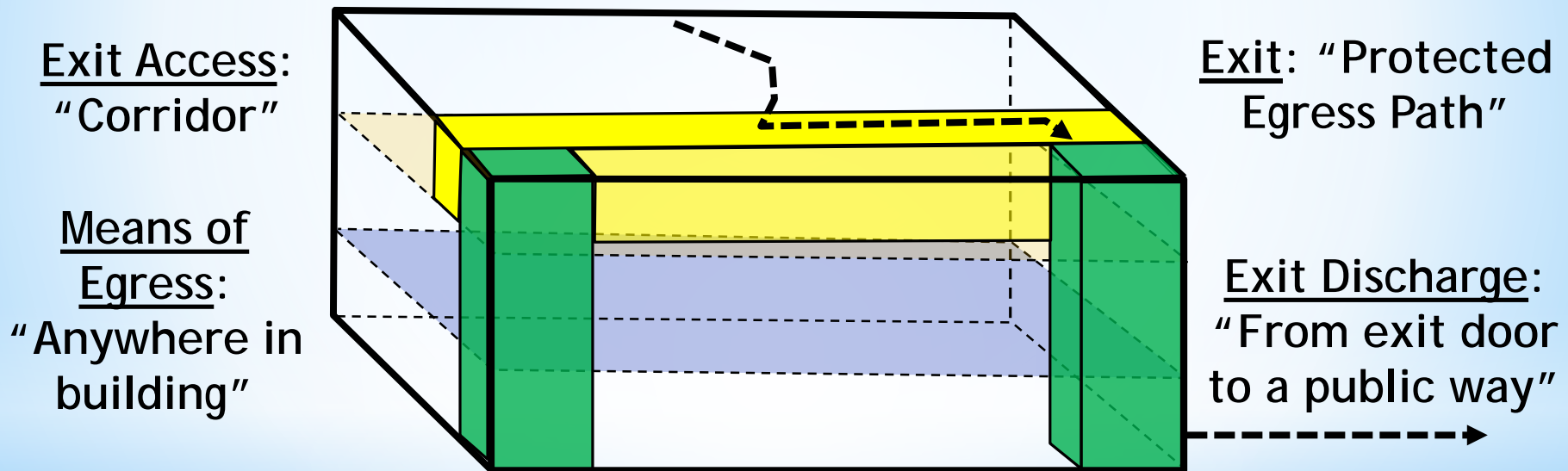
40.3.2

1. High Haz Classification must be sprinkled per 9.7
2. Spaces containing combustible hazards greater than that normally contained in the occupancy shall be sprinkled & are exempt from the smoke resisting enclosure requirements of 8.4.1.2



INDUSTRIAL OCCUPANCIES

EXIT PATHS



INDUSTRIAL EXIT PATHS

40.2 MEANS OF EGRESS REQUIREMENTS

1. Components

- Doors
- Stairs
- Horizontal Exits
- Ramps
- Exit Passageways

2. Capacity (widths)

3. Number of Exits

4. Arrangements of Exits

5. Travel Distances

6. Exit Discharge

7. Exit Illumination

8. Exit Marking

INDUSTRIAL EXIT PATHS

40.2.2.2.1 "Doors complying with 7.2.1 shall be permitted.



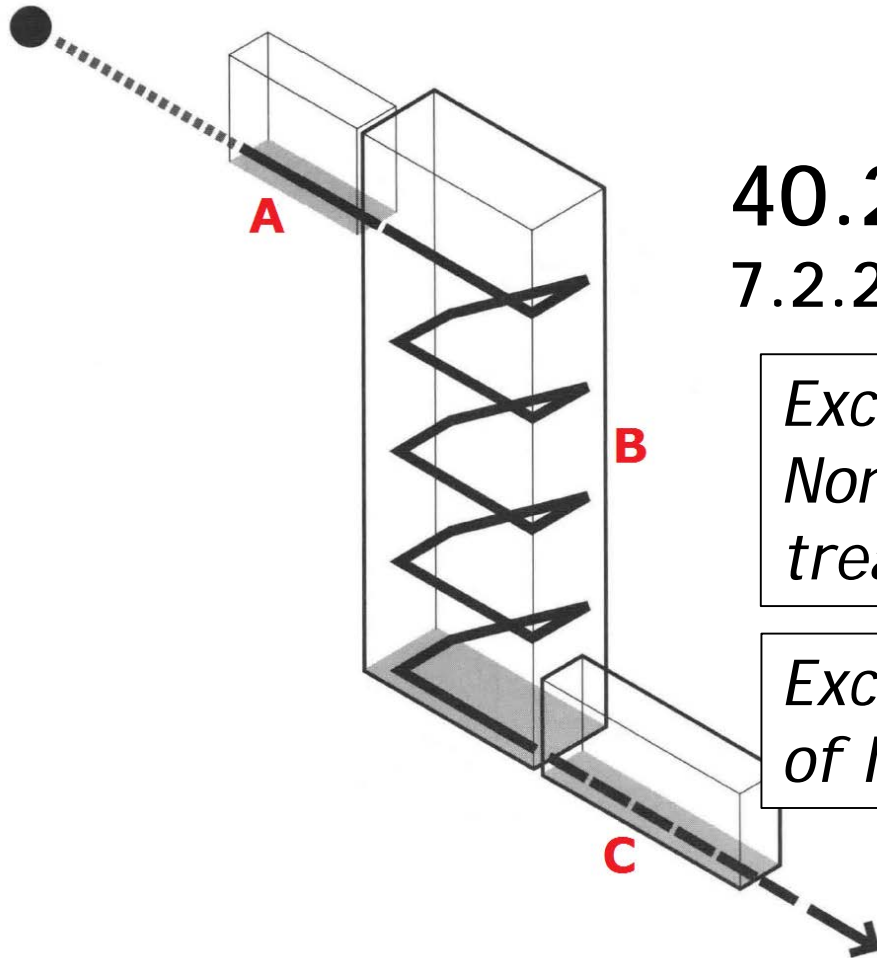
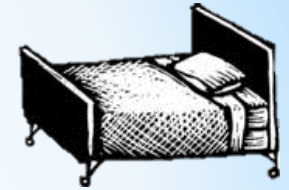
N & E
Same

40.2.2.2.2: Delayed egress lock permitted

40.2.2.2.3: Access-controlled locks permitted

40.2.2.2.4: Existing Horizontal Sliding Fire Doors permitted (with 6 conditions)

INDUSTRIAL EXIT PATHS



40.2.2.3 Stairs complying with 7.2.2 shall be permitted

Exception 1: Can have Noncombustible grated stair treads & floors

Exception 2: Not apply to access of Industrial equipment

INDUSTRIAL EXIT PATHS



40.2.2.5 **Horizontal exits** complying with 7.2.4 shall be permitted

40.2.2.6 **Ramps** complying with 7.2.5 shall be permitted

40.2.2.7 **Exit Passageways** complying with 7.2.6 shall be permitted

INDUSTRIAL EXIT PATHS - Capacity

40.2.3 Capacity of any required means of egress shall be based on its width, as defined in Section 7.3

Exit Access Width: No Requirements

Exception: In Special Purpose Classes, egress path shall be sized according to the table in 7.3.1.2

(Excludes spaces not subject to human occupancy)

INDUSTRIAL EXIT PATHS - # Exits

40.2.5.1 “Not less than two exits shall be provided for each floor or fire section ...”

{“2-Exit Rule”}



“... and not less than one exit shall be reached without traversing another story”

Exception: In General & Special Purpose Classes a single means of egress shall be permitted from any story or section, provided that the exit can be reached within the distance permitted as common path of travel (see 40.2.5.3)

INDUSTRIAL EXIT PATHS - # Exits

40.2.4.2 – Floors or portions thereof with an occupant load of more than 500 shall have the minimum number of separate and remote means of egress specified by 7.4.1.2

Exceptions: Existing buildings



INDUSTRIAL EXIT PATHS - Arrangement

40.2.5.1 - Arrange in accordance with section 7.5

40.2.5.2 - Dead end corridors shall not exceed 50'



INDUSTRIAL EXIT PATHS - Arrangement

40.2.5.3 - In General & Special Purpose Classes the common paths of travel shall not exceed 50'

Exception: If fully sprinkled, max 100'

40.2.5.4 - In High Hazard Class common paths of travel are prohibited

Exception: as permitted by 7.11.3



7.11.3 - Okay if max 200 SF room, 3 occupants & 75' travel to the room door

INDUSTRIAL EXIT PATHS - Arrangement

40.2.5.5.1 - Ancillary Facilities

Includes offices, labs, controls, staff support & other areas that are incidental to the predominant industrial function and are small enough that separate classification is not warranted. (per Annex)

Shall be arranged to allow travel in independent directions after leaving the area so both means of egress are not compromised by the same fire.

In a Special Purpose Occup, Ancillary facility & exit must be 2-hr separated if Industrial occupancy may have delayed evacuation

INDUSTRIAL EXIT PATHS - Arrangement

40.2.5.6 - Egress Dimensions

Follow Chapter 7 requirements, plus Table:

Walkway, landing	min 22" clear
Stair, Ramp	min 22" between rails
Treat Width	min 22" clear
Treat Depth	min 10"
Riser	max 9"
Landing Height	max 12'
Min Headroom	min 6'-8"

INDUSTRIAL EXIT PATHS - Arrangement

40.2.6.1 -- Travel Distances

1. Measure travel distances per Section 7.6
2. Max 200' between to an exit



Exception 1 : If fully sprinkled, max 250'

Exception 2: As permitted by 40.2.6.2

Exception 3: As permitted by 40.2.6.3

Exception 4: In High Haz Class, max 75'

INDUSTRIAL EXIT PATHS - Arrangement

40.2.6.2 -- Travel Distances - General Class

Max 400' to exit in low or ordinary hazards if:

- One-story building
- Smoke & Heat venting provided so occupants aren't overcome from smoke within 6' of the floor before they have time to reach exits
- Bldg has full sprinkler or other extinguishing system

INDUSTRIAL EXIT PATHS - Arrangement

40.2.6.3 -- Travel Distances

- Special Purpose Class

Max 300' to exit in low or ordinary hazards

Max 400' if fully sprinkled

INDUSTRIAL EXIT PATHS - Arrangement

40.2.7 - Exit Discharge

"Comply with section 7.7"



40.2.8 - Illumination of Egress

"Comply with section 7.8"



*Exception: if occup only during daylight hours,
with skylights or windows to provided required
illumination level to all means of egress*

INDUSTRIAL EXIT PATHS - Arrangement

40.2.9 - Emergency Lighting

"Comply with section 7.9"

Exception 1: If no human occupants

*Exception 2: if occupy only during daylight hours,
with skylights or windows to provided required
illumination level to all means of egress*



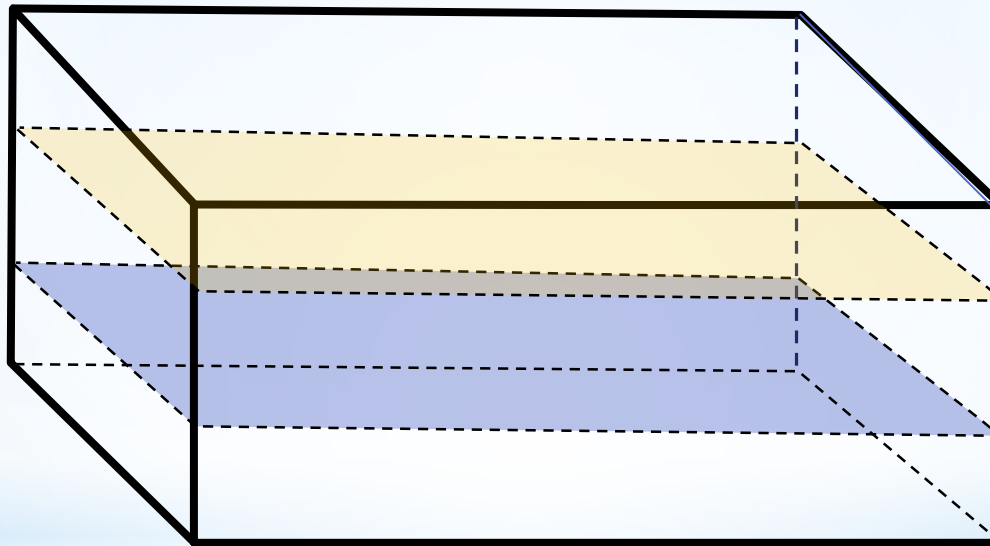
40.2.10 - Marking Egress Path

"shall be in accordance with section 7.10"



INDUSTRIAL OCCUPANCIES

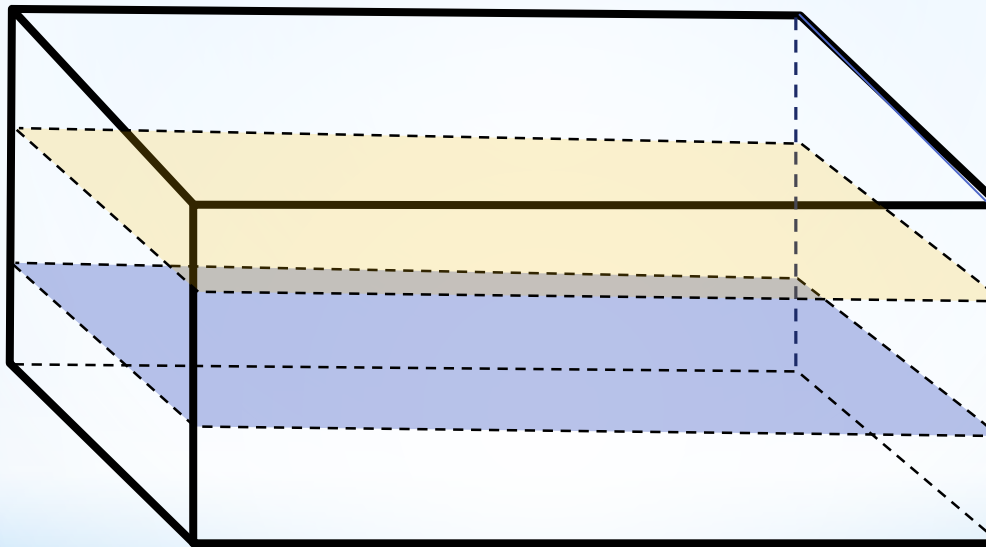
SUPPRESSION SYSTEM



40.3.5 - NO requirements

INDUSTRIAL OCCUPANCIES

ALARM SYSTEM



40.3.4.1 - "shall have a fire alarm system"

Exception: None needed if total capacity of the building is under 100 persons, or fewer than 25 above or below the level of exit discharge

INDUSTRIAL ALARM SYSTEM

40.3.4.2 - INITIATION. “shall be by manual means in accordance with 9.6.2.1(1)”



Exception 1: Can be via a full automatic detection system per 9.6.2.1(2)



Exception 2: Can be via a full sprinkler system per 9.6.2.1(3)



INDUSTRIAL ALARM SYSTEM

40.3.4.3.1 - OCCUPANT NOTIFICATION - shall meet one of the following:

(a) Activate a general alarm throughout the building, per 9.6.3

OR

(b) Activate an alarm in a continuously attended emergency location to initiate emergency action

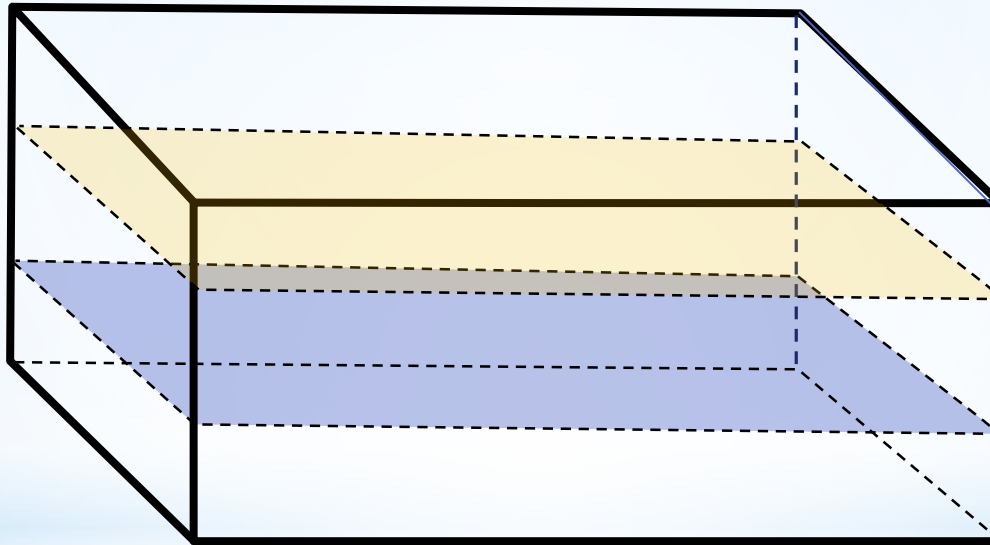
40.3.4.3.2 - Positive-alarm sequence per 9.6.3.4 okay

40.3.4.3.3 - Existing pre-signal sys per 9.6.3.3 okay

40.3.4.3.4 - High Haz class shall have automatic evacuation alarm, per 9.6.3

INDUSTRIAL OCCUPANCIES

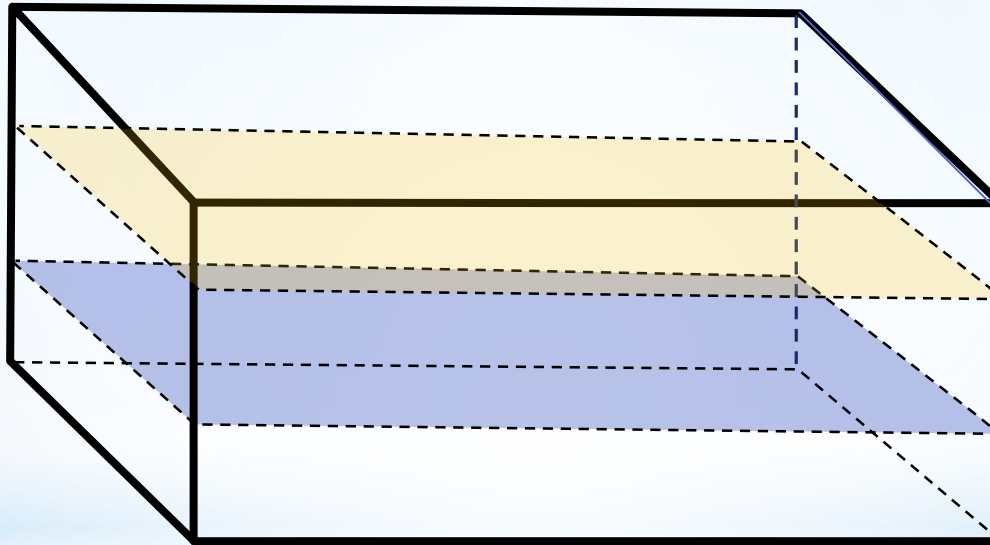
ELECTRICAL



40.5.1 "Utilities shall comply with the provisions of Section 9.1"

INDUSTRIAL OCCUPANCIES

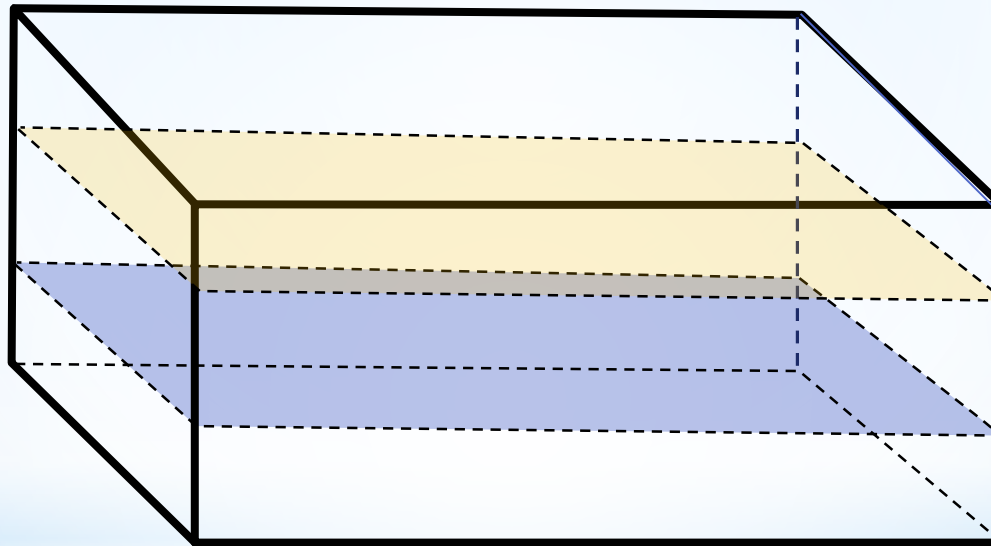
HVAC



40.5.2 HVAC shall comply with the provisions of
Section 9.2 [comply with NFPA 90A]

INDUSTRIAL OCCUPANCIES

OPERATING FEATURES

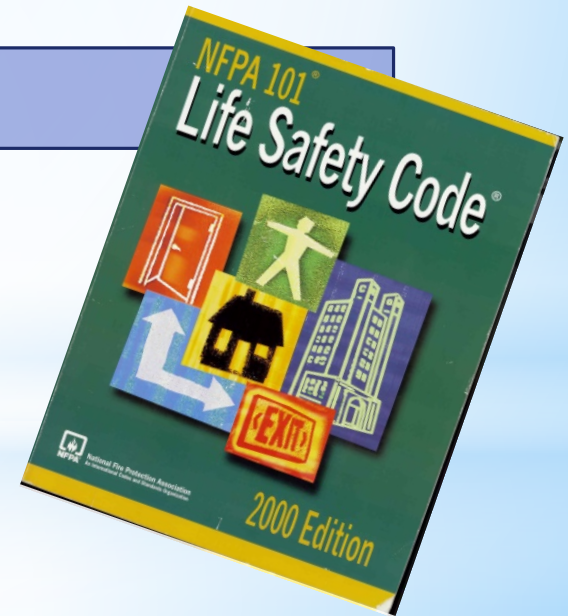


NO requirements

“Other Occupancies” Agenda

4

1. Review Prior Occupancy Concepts
2. Ambulatory (Chap 20-21)
Business (Chap 38-39)
3. Industrial (Chap 40)
4. Storage (Chap 42)
5. Assembly (Chap 12-13)
6. Education (Chap 14-15)
7. Residential (Chap 24-33)
8. Mercantile (Chap 36-37)



What is a Storage Occupancy?

- *Used primarily for storage of goods*

Chapter 42: New+Existing

Incidental storage in another occupancy
shall not be the basis for overall
occupancy classification

42.1.4.2 - Storage functions with an
occupant load greater than normal for storage
shall be classified as Industrial Occupancies

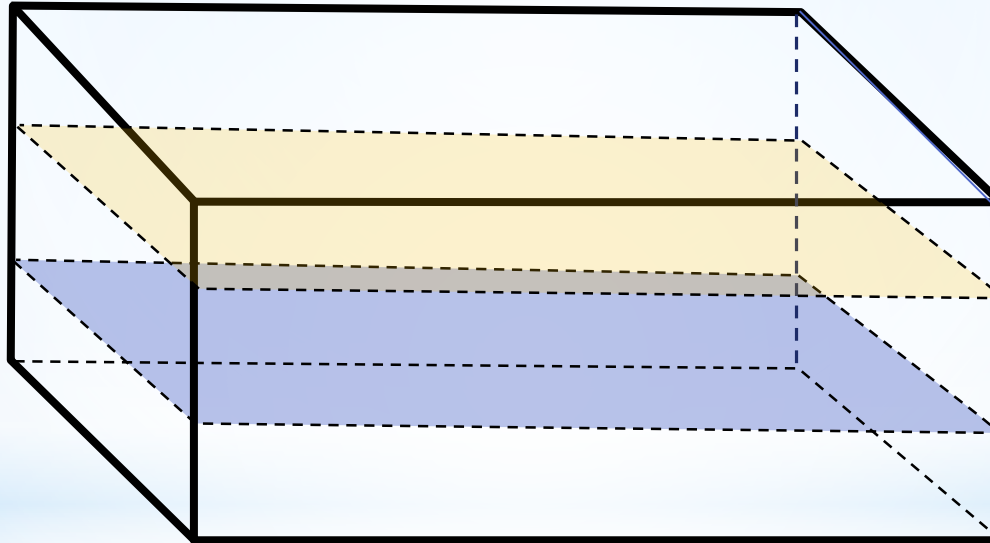
STORAGE OCCUPANCY

	<u>Amt of Regs</u>	
• 42.1 General Requirements	5"	#8
• 42.2 Means of Egress	22"	#7
• 42.3 Protection	9"	#8
• 42.4 Special Provisions	1"	#6
• 42.5 Building Services	2"	#5
• 42.6 Reserved	--	--
• 42.7 Operating Features	0"	#8

5 Pages in LSC (Health Care = 21 pages)

STORAGE OCCUPANCIES

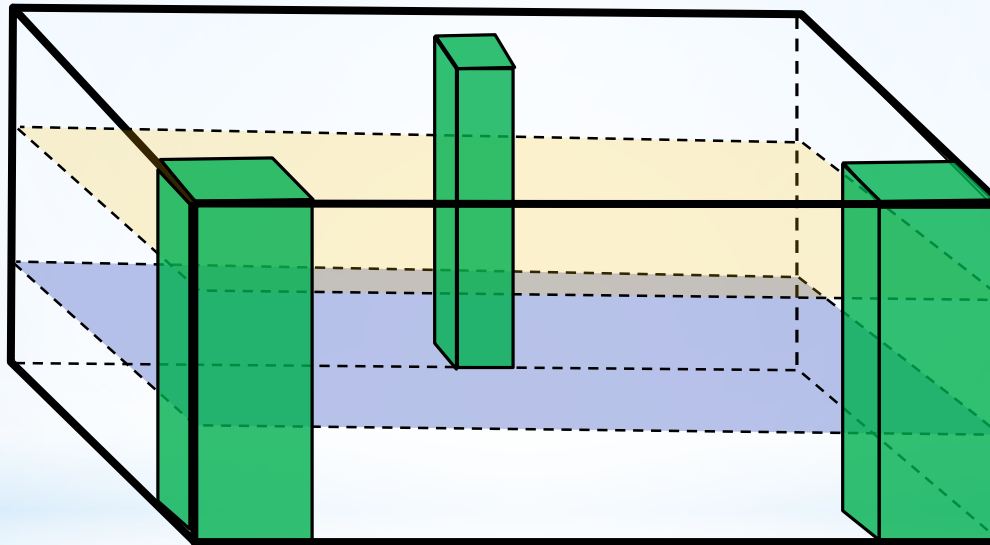
CONSTRUCTION TYPE



42.1.6 - NO requirements

STORAGE OCCUPANCIES

VERTICAL OPENINGS



Stairs
Elevators
Escalators
Duct Shafts
Pipe Shafts
Etc.

42.3.1 - Enclosed or protected in
accordance with 8.2.5
(2 exceptions)

STORAGE Vertical Openings

42.3.1 EXCEPTION 1:

Un-protected openings okay if:

- *Existing building*
- *Low or ordinary hazard contents*
- *Fully sprinkled*
- *Not serve as a path of egress*
- *Required exits must be an outside stair, smokeproof enclosure or horizontal exit*

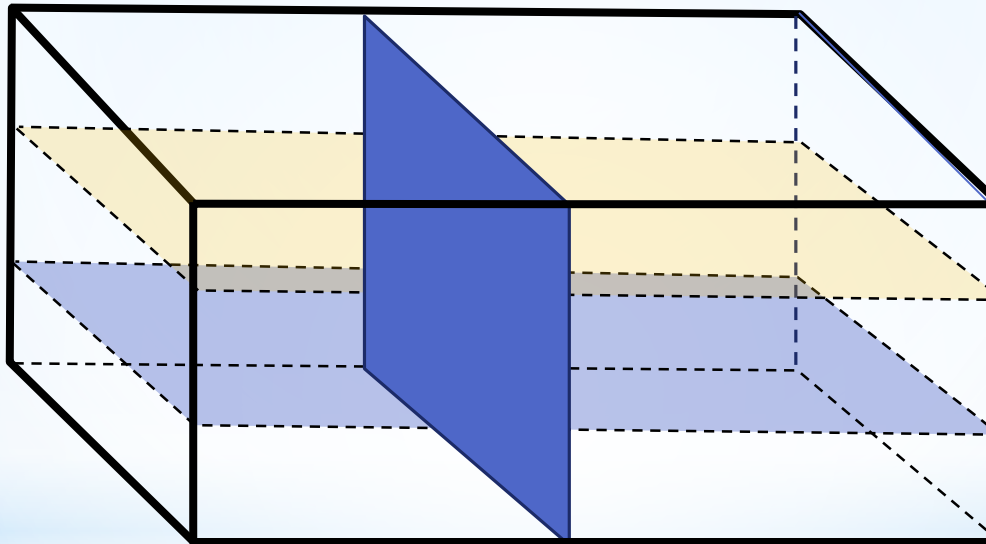
42.3.1 EXCEPTION 2:

Openings permitted per 8.2.5.8



STORAGE OCCUPANCIES

SMOKE COMPARTMENTS

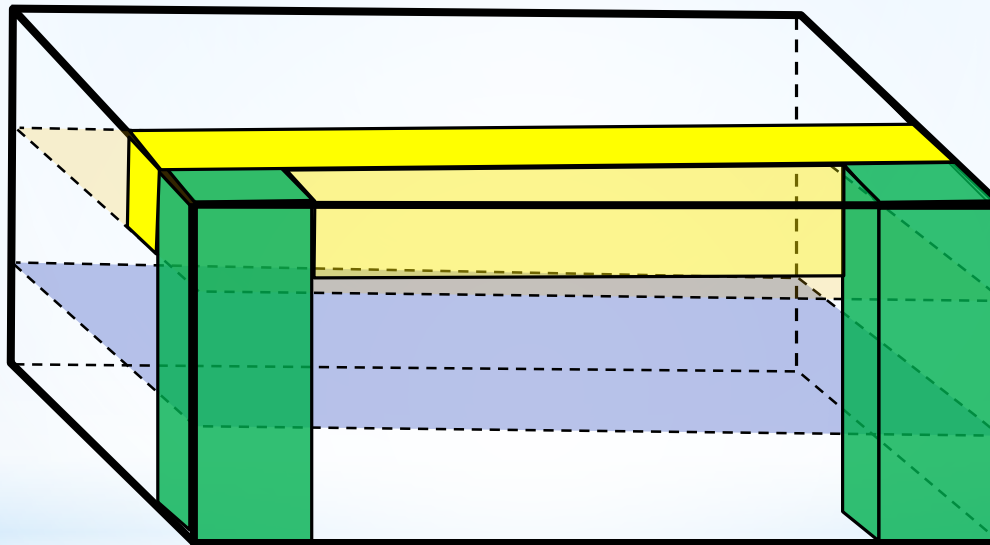


Defend In
Place Areas
of Refuge
during a
fire

NO requirements

STORAGE OCCUPANCIES

CORRIDORS

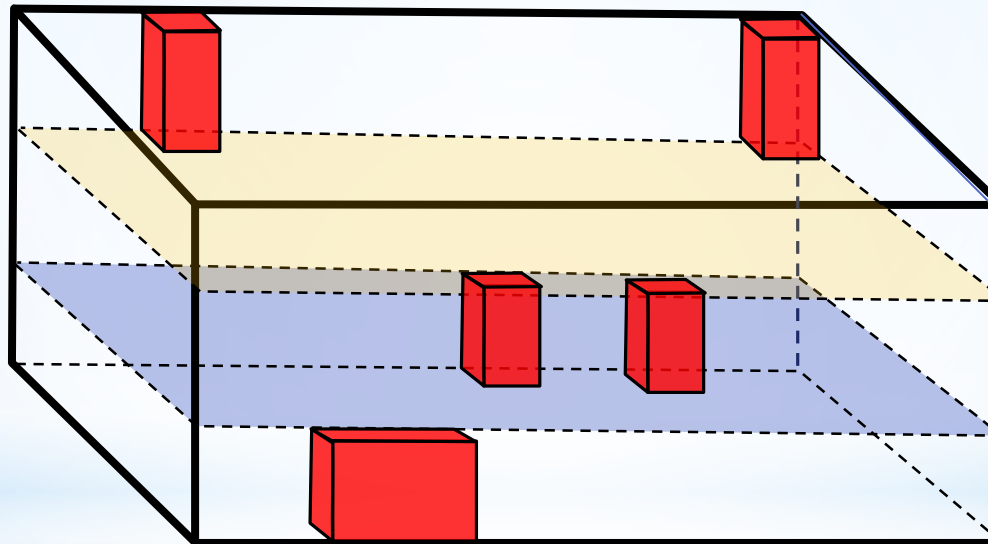


“Exit-Access”
Connect
rooms to
exits

42.3.6 - NO requirements

STORAGE OCCUPANCIES

HAZARDOUS SPACES

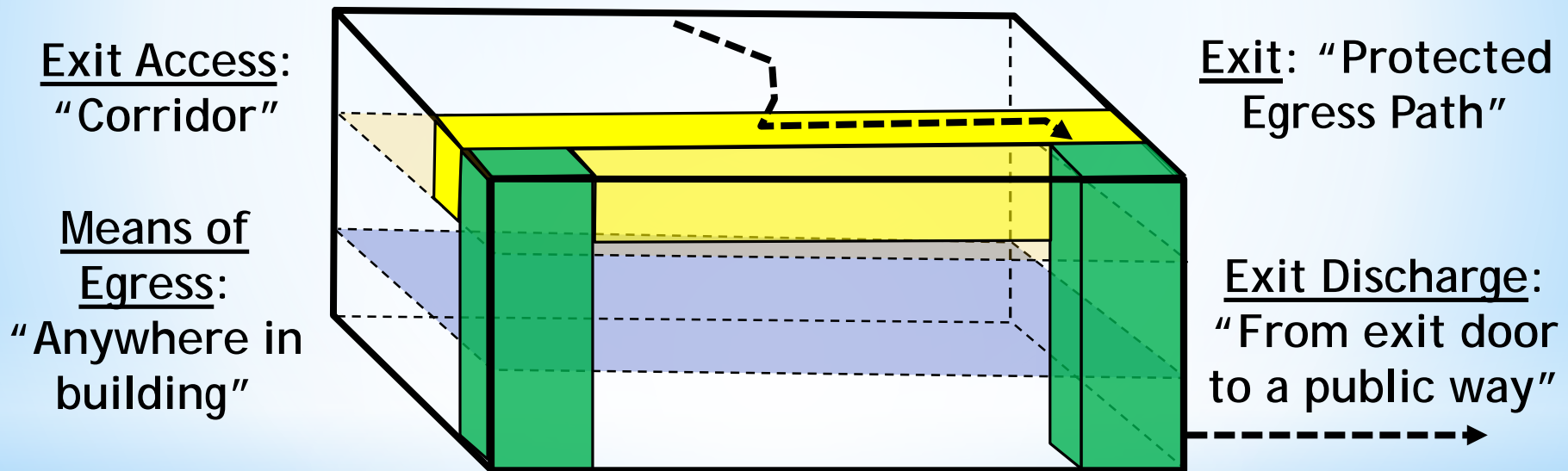


Hazardous if contains more combustibles than a typical room in the occupancy

42.3.2 - NO requirements
(follow 8.4)

STORAGE OCCUPANCIES

EXIT PATHS



STORAGE EXIT PATHS

42.2 MEANS OF EGRESS REQUIREMENTS

1. Components

- Doors
- Stairs
- Horizontal Exits
- Ramps
- Exit Passageways

2. Capacity (widths)

3. Number of Exits

4. Arrangements of Exits

5. Travel Distances

6. Exit Discharge

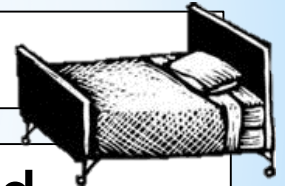
7. Exit Illumination

8. Exit Marking

STORAGE EXIT PATHS

42.2.2.2.1 "Doors complying with 7.2.1 shall be permitted.

42.2.2.2.2: Delayed egress lock permitted



42.2.2.2.3: Access-controlled locks permitted

42.2.2.2.4: Existing Horizontal Sliding Fire Doors permitted (with 6 conditions)

STORAGE EXIT PATHS

42.2.2.3 **Stairs** complying with 7.2.2 shall be permitted

42.2.2.5 **Horizontal exits** complying with 7.2.4 shall be permitted

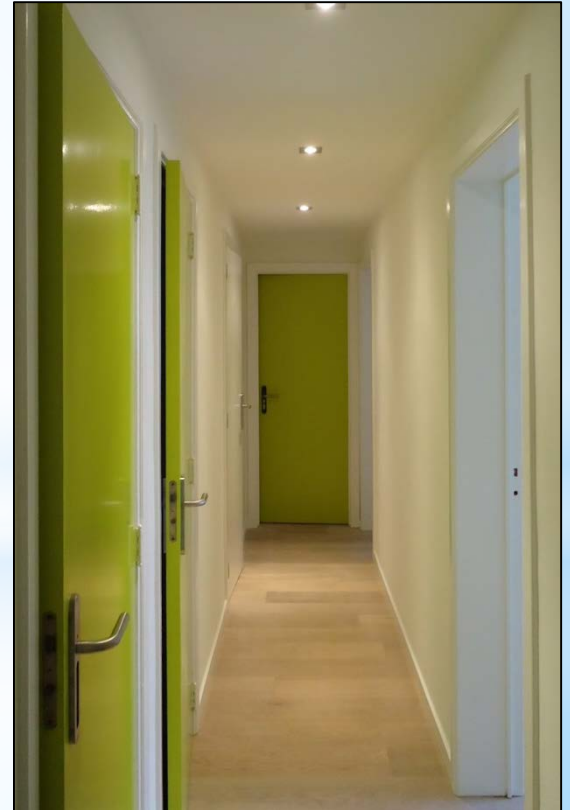
42.2.2.6 **Ramps** complying with 7.2.5 shall be permitted

42.2.2.7 **Exit Passageways** complying with 7.2.6 shall be permitted

STORAGE EXIT PATHS - Capacity

42.2.3 Capacity of any required means of egress shall be based on its width, as defined in Section 7.3

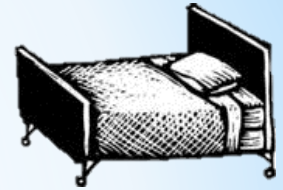
Exit Access Width: No Requirement



STORAGE EXIT PATHS - # Exits

42.2.4.1 “Not less than two exits shall be provided for each floor or fire section ...”

“2-Exit Rule”



Exception 1: In low hazard occupancies a single exit is okay from any story or section

Exception 2: In ordinary hazard occupancies a single exit is okay from any story or section if the common path of travel is less than 50' (100' if fully sprinkled)

STORAGE EXIT PATHS - # Exits

42.2.4.2 – Floors or portions thereof with an occupant load of more than 500 shall have the minimum number of separate and remote means of egress specified by 7.4.1.2

Exception: Existing buildings



STORAGE EXIT PATHS - Arrangement

42.2.5.1 - Arrange in accordance with section 7.5

42.2.5.2 - If low hazard storage contents there is no limits on:

- dead-end corridors and
- common paths of travel

STORAGE EXIT PATHS - Arrangement

42.2.5.3 - In ordinary hazard storage occupancies dead-end corridors max 50'

Exception: If fully sprinkled, max 100'

42.2.5.4 - In ordinary hazard storage common paths of travel max 50'

Exception: If fully sprinkled, max 100'

42.2.5.5 - In high hazard storage occupancies dead-end corridors prohibited

Exception: per 7.11.3

STORAGE EXIT PATHS - Arrangement

42.2.6 -- Travel Distances

1. In low haz storage there are no travel distance limit

2. In ordinary haz storage max 200' travel distance

Exception: If fully sprinkled, max 400'

3. In high haz storage max 75' travel distance

Two Exceptions

STORAGE EXIT PATHS - Arrangement

42.2.7 - Exit Discharge



"Comply with section 7.7"

42.2.8 - Illumination of Egress



"Comply with section 7.8"

*Exception: if occup only during daylight hours,
with windows that provide required illumination
level to all means of egress*

STORAGE EXIT PATHS - Arrangement

42.2.9 - Emergency Lighting

"Comply with section 7.9"

Exception 1: If not normally occupied

Exception 2: if occup only during daylight hours, with skylights or windows to provided required illumination level to all means of egress

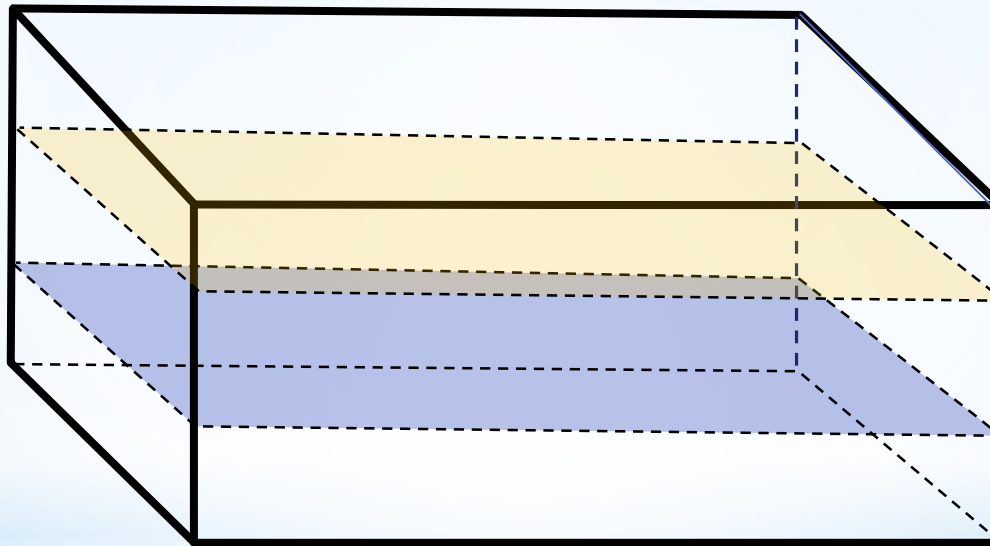
42.2.10 - Marking Egress Path

"shall be in accordance with section 7.10"



STORAGE OCCUPANCIES

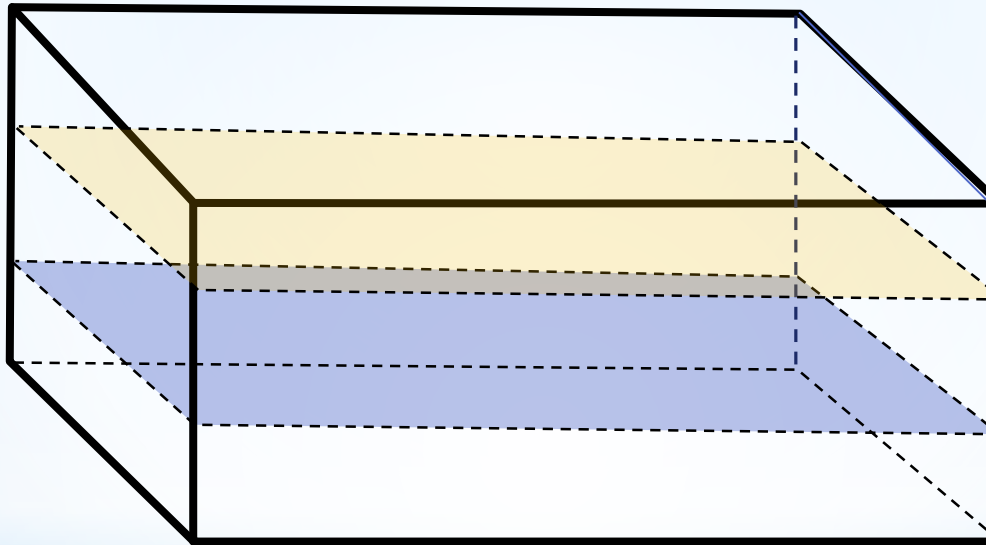
SUPPRESSION SYSTEM



42.3.5 - NO requirements

STORAGE OCCUPANCIES

ALARM SYSTEM



42.3.4.1 - "shall have a fire alarm system"

Exception 1: None needed if low hazard contents

*Exception 2: None needed if ordinary or high contents
& not more than 100,000 SF*

Exception 3: None needed if fully sprinkled

STORAGE ALARM SYSTEM

42.3.4.2 - INITIATION. “shall be by manual means in accordance with 9.6.2.1(1)”



Exception 1: Can be via a full automatic detection system per 9.6.2.1(2)



STORAGE ALARM SYSTEM

42.3.4.3.1 - OCCUPANT NOTIFICATION - shall meet one of the following:

(a) Activate a general alarm throughout the building, per 9.6.3

OR

(b) Activate an alarm in a continuously attended emergency location to initiate emergency action

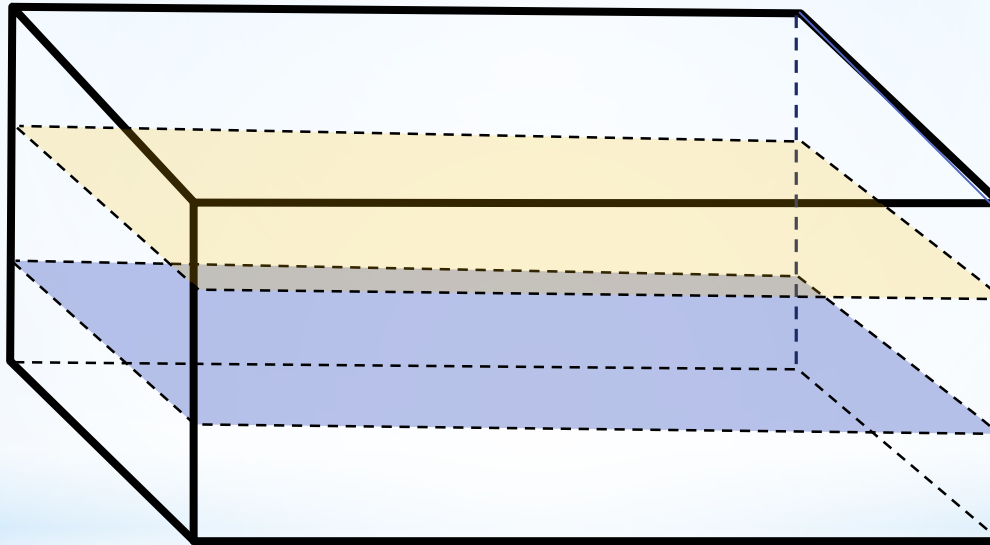
42.3.4.3.2 - Positive-alarm sequence per 9.6.3.4 okay

42.3.4.3.3 - Existing pre-signal sys per 9.6.3.3 okay

42.3.4.3.4 - High Haz class shall have automatic evacuation alarm, per 9.6.3

STORAGE OCCUPANCIES

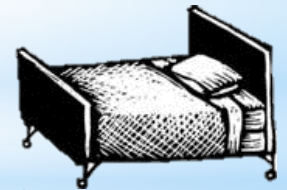
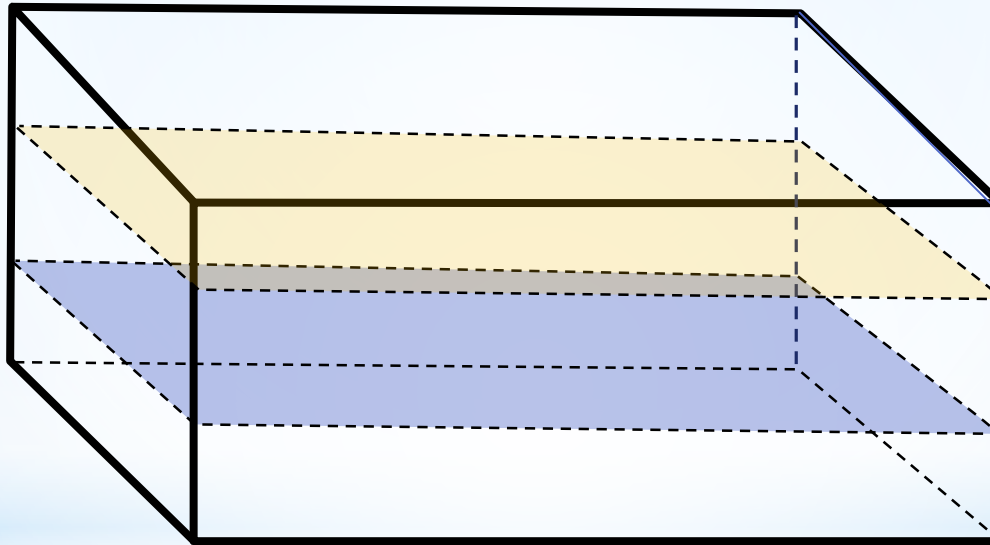
ELECTRICAL



42.5.1 "Utilities shall comply with the provisions of Section 9.1"

STORAGE OCCUPANCIES

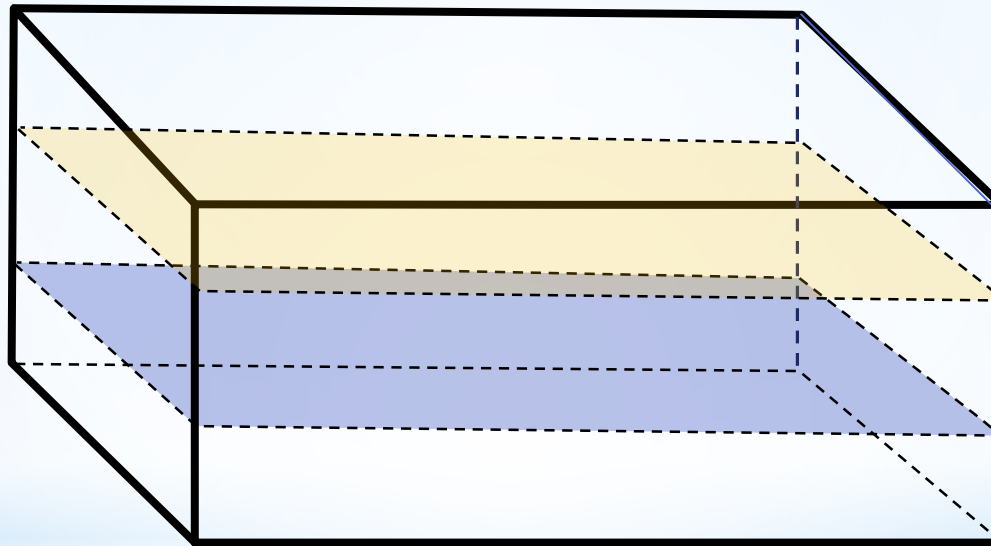
HVAC



42.5.2 HVAC shall comply with the provisions of
Section 9.2 [comply with NFPA 90A]

STORAGE OCCUPANCIES

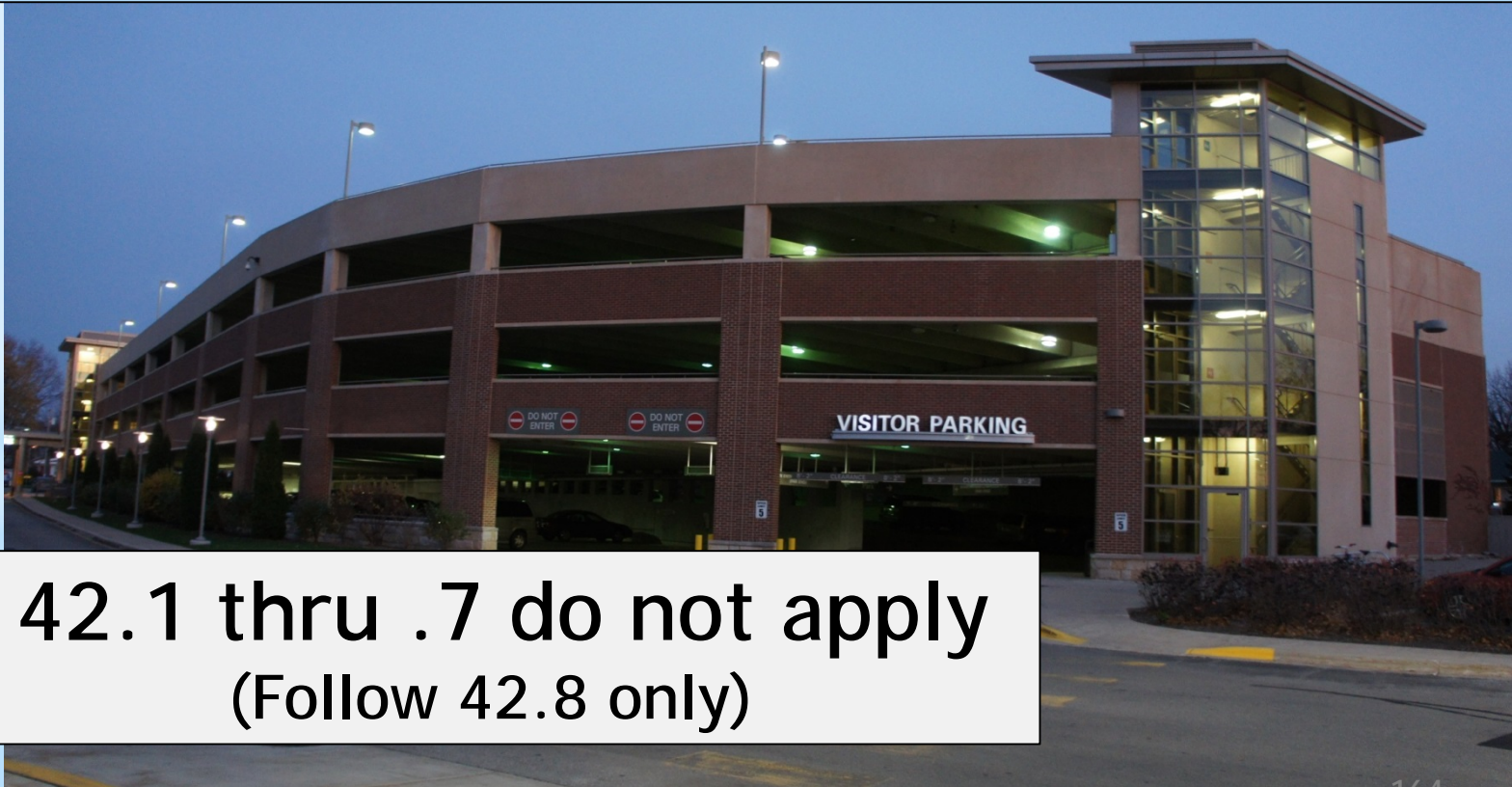
OPERATING FEATURES



NO requirements

STORAGE OCCUPANCIES

SPECIAL PROVISIONS For Parking Structures



42.1 thru .7 do not apply
(Follow 42.8 only)

PARKING STRUCTURES

42.8.1.2 - MIXED OCCUPANCIES. Follow Industrial Occup requirements if parking & repair operations are conducted in the same building (unless separated by 1-hr constr)

42.8.1.5 - HAZARD. Classified as ordinary hazard

42.8.1.5 - CONSTRUCTION. No Requirements

42.8.2.4 - NUMBER OF EXITS. Min 2 per floor

42.8.2.5 - EXIT ARRANGEMENT. Max Common Path of Travel 50'; Dead Ends Max 50'

PARKING STRUCTURES

42.8.2.6 - TRAVEL DISTANCE. Max 150' to nearest exit

Exception 1: Max 300' if open-air (400' if sprinkled)

Exception 2: Max 200' if enclosed & sprinkled

Exception 3: Max 400' if open not less than 50% on all sides

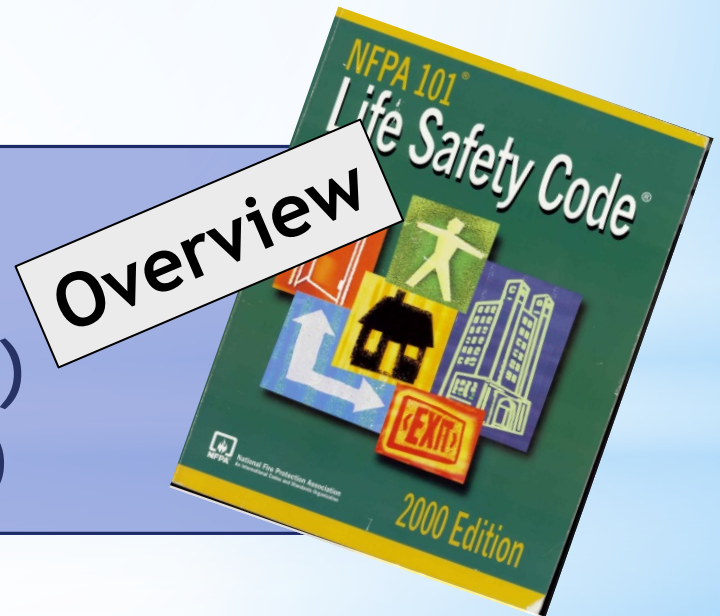
42.8.3.4 - FIRE ALARM. Needed if >100,000 SF unless open-air or fully sprinkled

42.8.3.5 - EXTINGUISHING. No Requirements

42.8.3.6 - CORRIDORS. No Requirements

“Other Occupancies” Agenda

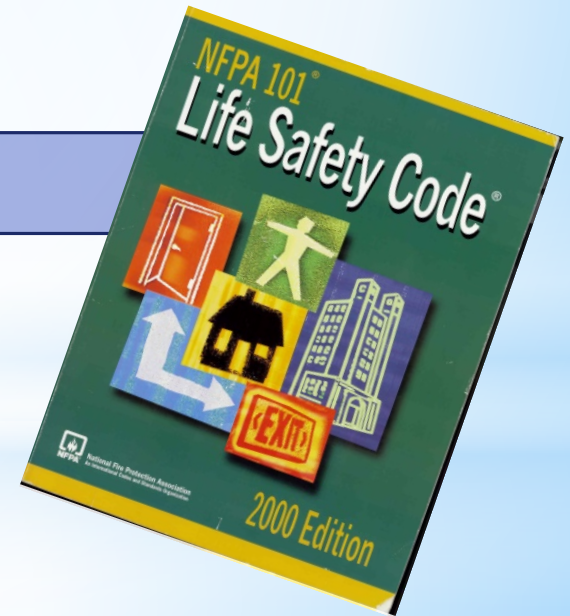
1. Review Prior Occupancy Concepts
2. Ambulatory (Chap 20-21)
Business (Chap 38-39)
3. Industrial (Chap 40)
4. Storage (Chap 42)
5. Assembly (Chap 12-13)
6. Education (Chap 14-15)
7. Residential (Chap 24-33)
8. Mercantile (Chap 36-37)



“Other Occupancies” Agenda

5

1. Review Prior Occupancy Concepts
2. Ambulatory (Chap 20-21)
Business (Chap 38-39)
3. Industrial (Chap 40)
4. Storage (Chap 42)
5. Assembly (Chap 12-13)
6. Education (Chap 14-15)
7. Residential (Chap 24-33)
8. Mercantile (Chap 36-37)



What is an Assembly Occupancy?

- *Gathering space for 50 or more persons*
- *Special Amusement space, regardless of # of occupants*

Typical Health Care applications:

- Conference Room
- Chapel
- Cafeteria
- Dining Room
- Auditoriums
- Training Room
- Waiting Areas
- Fitness Areas

ASSEMBLY OCCUPANCY

- 12/13.1 General Requirements
- 12/13.2 Means of Egress
- 12/13.3 Protection
- 12/13.4 Special Provisions
- 12/13.5 Building Services
- 12/13.6 Reserved
- 12/13.7 Operating Features

Amt of Regs

24" #3

86" #1

28" #2

106" #1

2" #4

-- --

53" #1

35 Pages in LSC (Health Care = 21 pages)

Assembly Occupancy

Means of Egress



- Panic Hardware on latching egress doors if 100 or more occupants
- Special requirements number of exits for fenced-in areas & balconies
- Special requirements for aisles for seating

Assembly Occupancy

Special Provisions

- Added requirements for
 - Smoke-Protected Seating
 - Underground Buildings
 - Stages
 - Projection Booths
 - Amusement Bldgs
 - Grandstands
 - Telescopic Seating



Assembly Occupancy

Operating Features

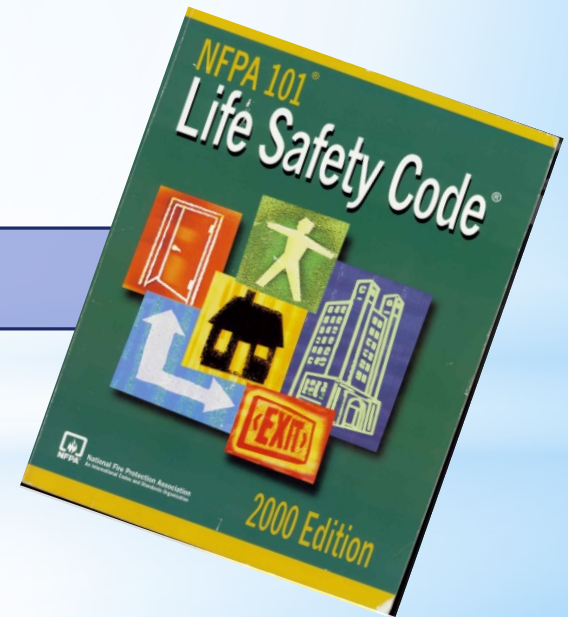
- Added requirements for
 - Food Service Operations
 - Open Flames & Pyrotechnics
 - Exposition Facilities
 - Vehicle Displays
 - Crowd Managers
 - Drills
 - Seating
 - Maintenance of Telescopic Seating



“Other Occupancies” Agenda

6

1. Review Prior Occupancy Concepts
2. Ambulatory (Chap 20-21)
Business (Chap 38-39)
3. Industrial (Chap 40)
4. Storage (Chap 42)
5. Assembly (Chap 12-13)
6. Education (Chap 14-15)
7. Residential (Chap 24-33)
8. Mercantile (Chap 36-37)



What is an Educational Occupancy?

- *Used for Education*
- *thru the 12th grade*
- *by 6 or more persons*
- *for 4 or more hours per day*
- *or more than 12 hrs per week*

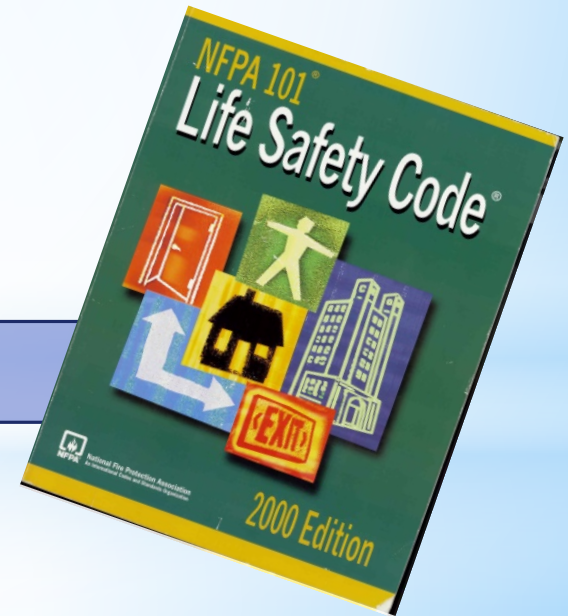
Typical Health Care applications:

- (rare)
- Adolescent Behavioral Care

“Other Occupancies” Agenda

7

1. Review Prior Occupancy Concepts
2. Ambulatory (Chap 20-21)
Business (Chap 38-39)
3. Industrial (Chap 40)
4. Storage (Chap 42)
5. Assembly (Chap 12-13)
6. Education (Chap 14-15)
7. Residential (Chap 24-33)
8. Mercantile (Chap 36-37)



What is an Residential Occupancy?

- *Spaces for sleeping for purposes other than health care, detection, or correction*

Residential Sub-Classifications:

1. Chap 24 - One & Two family dwellings
2. Chap 26 - Lodging & Rooming Houses
3. Chap 28/29 - Hotels & Dormitories
4. Chap 30/31 - Apartment Buildings
5. Chap 32/33 - Board & Care

What is an Residential Occupancy?

- *Lodging or Rooming House—
Sleeping for 16 or fewer
persons on a transient or
permanent basis, with or
without meals (no cooking in
occup rooms)* (Chap 26)

Typical Health Care applications:

- On Call
- Guest Sleeping

Lodging/Room House

- On Call
- Guest Sleeping

26.3.3.5 →



26.3.4 →



What is an Residential Occupancy?

- *Hotels & Dormitories– Sleeping for more than 16 persons on a transient basis, with or without meals* (Chap 28/29)

Typical Health Care applications:

- (rare)
- Formerly Nursing Schools

What is an Residential Occupancy?

- *Apartments – space with 3 or more dwelling units with independent cooking and bathroom facilities* (Chap 30/31)

Typical Health Care applications:

- (rare)
- Formerly Nursing Schools
- RCAC

What is an Residential Occupancy?

- *Board & Care – Lodging for 4 or more unrelated persons for the purpose of providing personal care* (Chap 32/33)

Typical Health Care applications:

- Hospice
- Sleep Lab
- Developmentally Disabled
- CBRF (Class A)

Board & Care

1. 32/33.2 - Small (16 & under) - Hospice/Sleep Lab
 2. 32/33.3 - Large (over 16) - Del Disabled/Class A CBRF
-

32.2.2.3 → Secondary Means of Escape

32/33.2.3.4.3.2 →



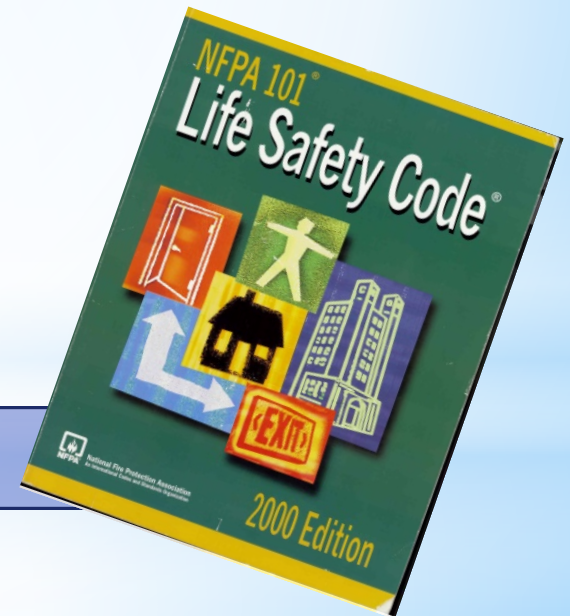
32/33.2.3.6.4 →



“Other Occupancies” Agenda

8

1. Review Prior Occupancy Concepts
2. Ambulatory (Chap 20-21)
Business (Chap 38-39)
3. Industrial (Chap 40)
4. Storage (Chap 42)
5. Assembly (Chap 12-13)
6. Education (Chap 14-15)
7. Residential (Chap 24-33)
8. Mercantile (Chap 36-37)



What is an Mercantile Occupancy?

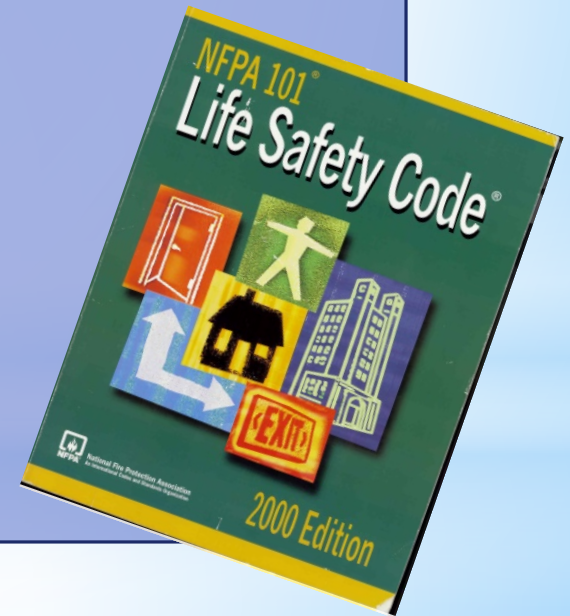
- *Space used for display and sale of merchandise*

Typical Health Care applications:

- Gift Shops
- Fitness Shops
- Resale Shops

“Other Occupancies”

1. Review Prior Occupancy Concepts
2. Ambulatory (Chap 20-21)
Business (Chap 38-39)
3. Industrial (Chap 40)
4. Storage (Chap 42)
5. Assembly (Chap 12-13)
6. Education (Chap 14-15)
7. Residential (Chap 24-33)
8. Mercantile (Chap 36-37)

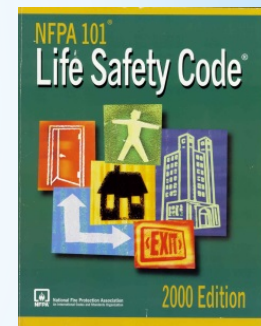


Relative Quantity of Regulations for New Occupancies (# inches of regs in LSC)

Occupancy Chapter	.1 General	.2 Means of Egress	.3 Protection	.4 Special Provisions	.5 Building Services	.7 Operating Features	Total # Inches
Health Care (Chap 18)	37.75"	43.25"	58.75"	1.00"	10.00"	21.00"	171.75"
Ambulatory (Chap 20)	26.75"	12.00"	18.50"	.25"	5.00"	20.75"	83.25"
Business (Chap 38)	10.75"	25.00"	15.50"	.75"	2.00"	1.50"	55.50"
Industrial (Chap 40)	8.25"	29.50"	11.50"	1.25"	1.75"	0	52.25"
Storage (Chap 42)	5.00"	21.75"	9.00"	1.00"	2.00"	0	38.75"
Assembly (Chap 12)	24.25"	86.50"	28.50"	106.50"	2.00"	53.25"	301.00"
Education (Chap 14)	13.00"	22.75"	26.00"	3.50"	2.50"	7.00"	74.75"
Mercantile (Chap 36)	18.25"	29.25"	18.50"	31.25"	2.00"	1.00"	100.25"
Total # Inches	144.00"	270.00"	186.25"	145.50"	27.25"	104.50"	877.50"



Have Questions?



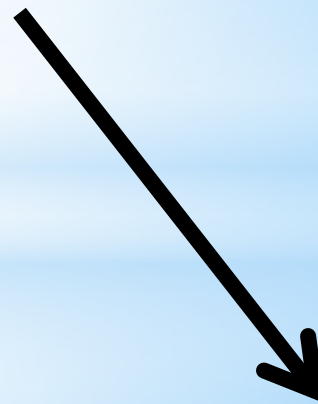
During the Live Webinar:

Click on “chat” in the Lower RH corner

(Bill gets disappointed if people don't ask questions)

During viewing the posted Webinar:

Call Bill Lauzon (262-945-4567) or
E-Mail at Lauzon.LSC@gmail.com





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OCCUPANCIES
Part 2-Other

