

**CSFCg Part III - Series**  
***Mercantile Occupancies***



Presented by  
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**Seminar Objective**

Provide a systematic approach to the proper application of requirements governing occupancy classification, means of egress, and fire protection features to mercantile occupancies.

**CFSCg**

**Part I – Administrative**  
**Part II – General**  
**Part III – New Construction, Renovations, or Change of Use**  
**Part IV – Existing Buildings/Occupancies**  
**Part V – Maintenance & Operations**

**Part I - Administrative**

**29-292-10e (b) – Application**

**Part III**

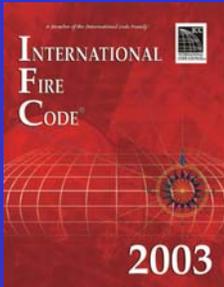
- **New buildings**
- **Repairs, alterations, & additions**
- **Change of occupancy**
- **Abatements – MEP & fire protection**

**Part I - Administrative**

**29-292-11e – Changes of Occupancy or Use**

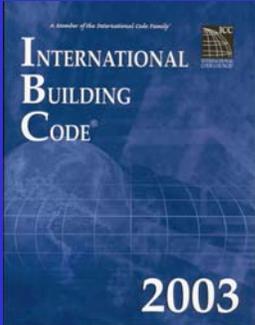
- **Even if no work is performed**

**Part III – New Construction, Renovations, & Change of Use**



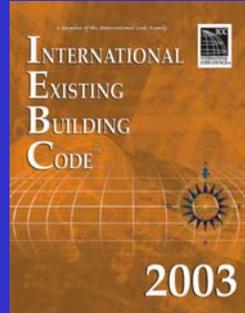
**As Amended**

**Article 34 - Alternative Compliance**



As Amended

**Alternative Compliance**



As Amended

**Mercantile - Group M**

- display and sale of merchandise,
- stocks of goods,
- wares or merchandise incidental to such purposes
- include, but not be limited to, the following:
  - Department stores
  - Drug stores
  - Markets
    - Motor fuel-dispensing facilities
    - Retail or wholesale stores
    - Sales rooms

**Special Detailed Requirements based on Use and Occupancy**

- Section 402 – Covered Mall Buildings
- Section 404 – Atriums
- Section 406 – MV Related Occupancies
- Section 411 – Special Amusement Buildings
- Section 414 – Hazardous Materials
- Section 415 – H-1 through H-5

**Low-hazard storage, Group S-2.**

- noncombustible materials such as products on wood pallets or in paper cartons with or without single thickness divisions; or in paper wrappings.
- Products are permitted to have a negligible amount of plastic trim, such as knobs, handles or film wrapping.
- include, but not be limited to, the following:
  - beverages up to and including 12-percent alcohol in metal, glass or ceramic containers
  - dairy products in non-waxed coated paper containers
  - food Products
  - parking garages, open or enclosed

**Moderate-hazard storage, Group S-1**

- storage not classified as Group S-2
- including, but not limited to, storage of the following:
  - Baskets
  - Boots and shoes
  - Furniture, upholstery, & mattresses
  - Lumber

## High-Hazard Group H

- manufacturing, processing, generation or storage of materials that constitute a physical or health hazard in quantities in excess of those found in Tables 307.7(1) and 307.7(2)

H-1: Detonation hazard  
 H-2: Deflagration or accelerated burning hazards  
 H-3: Readily support combustion or physical hazard  
 H-4: Health hazards  
 H-5: Semiconductor fabrication or HPM areas

## Group H - Exceptions

- Wholesale and retail sales and storage of flammable and combustible liquids in mercantile occupancies
- Liquor stores and distributors without bulk storage
- Corrosives shall not include personal or household products in their original packaging used in retail display
- Display and storage of nonflammable solid and nonflammable or noncombustible liquid hazardous materials in quantities  $\leq$  MAQ per control area in Group M or S

## Incidental Use Areas

- Separated or protected per Table 704; or
- Mixed occupancy per CSBC 302.3

Table 704.1 Incidental Use Areas

ROOM OR AREA	SEPARATION
Furnace room where any piece of equipment is over 400,000 Btu per hour input	1-hour or AFES
Incinerator rooms	2-hour and AS
Storage rooms >100 sq. ft.	1-hour or AFES
I-2 waste linen collection room	1-hour

## Incidental Use Areas

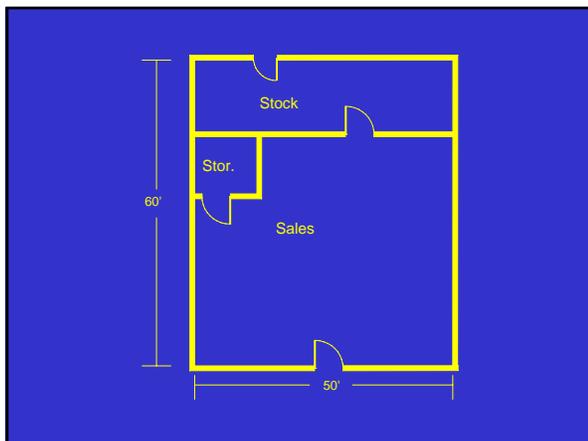
- Mixed occupancy per CSBC 302.3

### Nonseparated uses - CSBC 302.3.1

- Most restrictive Table 503 & Ch-9
- All other - individually

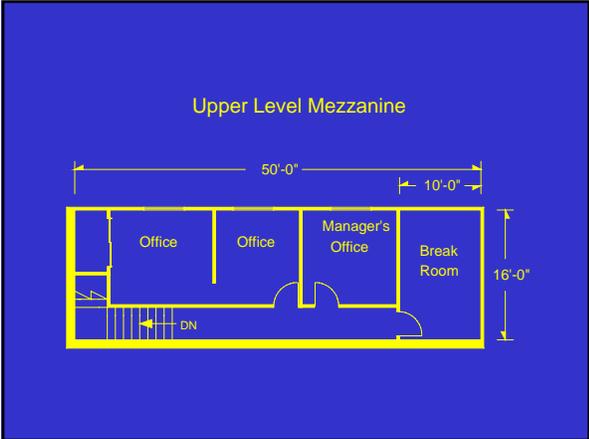
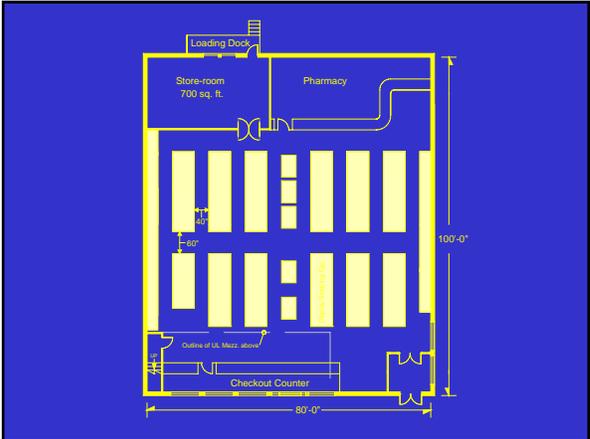
### Accessory Use Areas - CSBC 302.2

- 10% limit



## Participant Activities

# Navigating the 2005 CT Fire Safety Code



### Activity 1

#### Occupancy Classification

Utilizing the floor plan schematics and building data provided:

1. Determine the occupancy classification(s).
2. Identify incidental use areas & evaluate protection.
3. Identify any accessory use areas.

#### Mercantile - Group M

- display and sale of merchandise,
- stocks of goods,
- wares or merchandise incidental to such purposes
- include, but not be limited to, the following:
  - Department stores
  - Drug stores
  - Markets
  - Motor fuel-dispensing facilities
  - Retail or wholesale stores
  - Sales rooms

#### Moderate-hazard storage, Group S-1

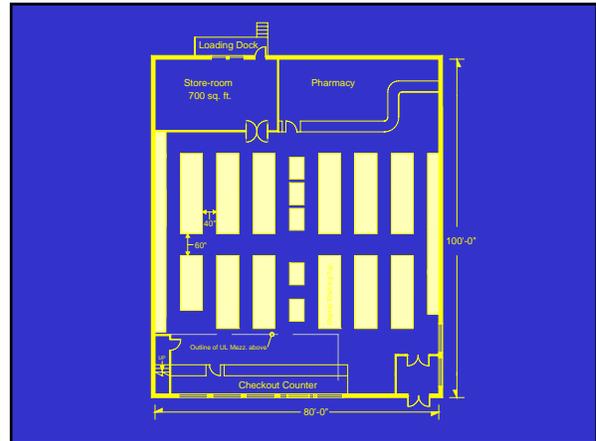
- storage not classified as Group S-2
- including, but not limited to, storage of the following:
  - Baskets
  - Boots and shoes
  - Furniture, upholstery, & mattresses
  - Lumber

## Activity 2

### Occupant Load

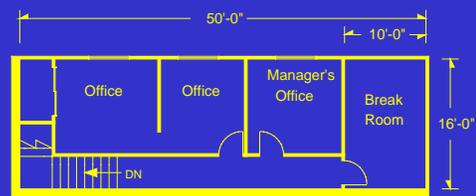
Utilizing the floor plan schematics provided and photographs:

1. Determine the occupant load of the grade floor.
2. Determine the occupant load of the mezzanine.
3. Is the egress capacity for the mezzanine sufficient?
4. Is the egress capacity for the grade floor sufficient?



Occupancy	Floor Area in Sq. Ft. per Occupant
Assembly without fixed seats	
Concentrated (chairs only)	7 net
Standing space	3 net
Unconcentrated (tables & chairs)	15 net
Business	100 gross
Mercantile	60 gross
Areas on other floors	30 gross
Basement and grade floor areas	300 gross
Storage, stock, shipping areas	300 gross

### Upper Level Mezzanine

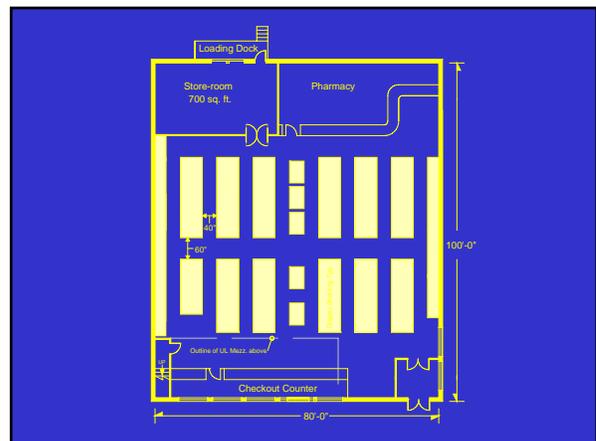


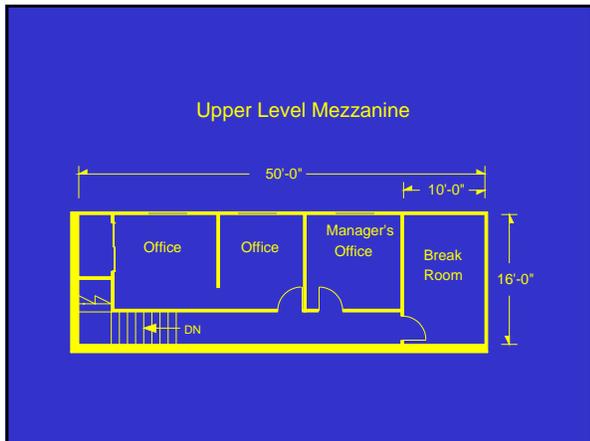
## Activity 3

### Number of Means of Egress

Utilizing the floor plan schematics and building data provided:

1. Evaluate the number of means of egress provided.
2. Evaluate compliance of the stairways.
3. Evaluate egress through intervening rooms.
4. Evaluate aisle widths.
5. Are exit signs required?
6. Is emergency lighting required?





**Table 1018.2  
Buildings with One Exit**

Occupancy	Max Height of Building Above Grade Plane	Max Occupants per Floor and Travel Distance
A, B, E, F, M, U	1 Story	OL – 50 & 75 ft
H-2, H-3	1 Story	OL – 3 & 25 ft
S	1 Story	OL – 30 & 100 ft
B, F, M, S	2 Story	OL – 3 & 75 ft

**Table 1015.1  
Exit Access Travel Distance**

Occupancy	w/o AS	w/ AS
A, E, F-1, I-1, M, R, S-1	200	250
B	200	300
F-2, S-2, U	300	400

H-3	NP	150
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**Table 1014.1  
Spaces with One Means of Egress**

Occupancy	Max Occupant Load
A, B, E, F, M, U	50
H-1, H-2, H-3	3
H-4, H-5, I-1, I-3, I-4, R	10
S	30

1013.3 Common Path of Travel.

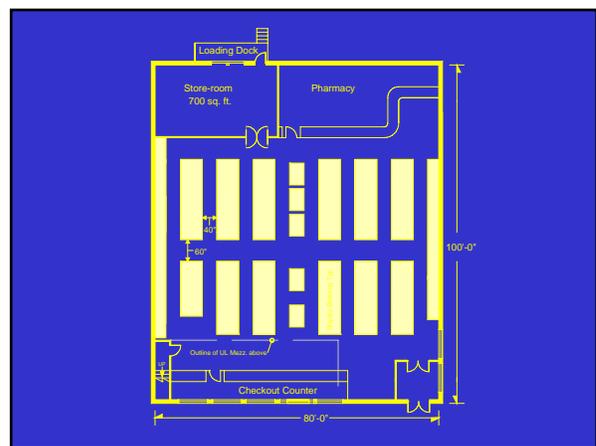
- 75' other than H
- 100' B, F, S w/ AS
- 100' B, S, U if OL ≤ 30

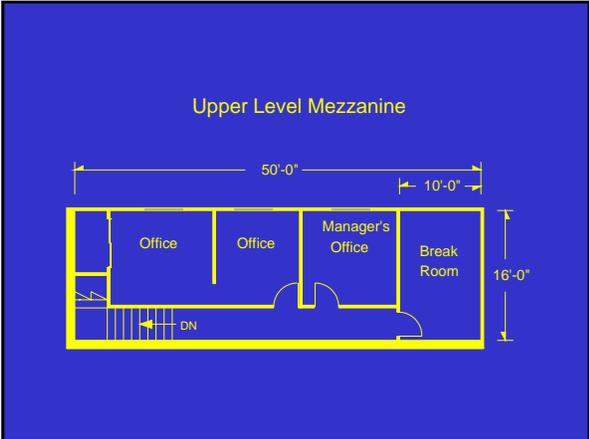
**Activity 3**

**Number of Means of Egress**

Utilizing the floor plan schematics and building data provided:

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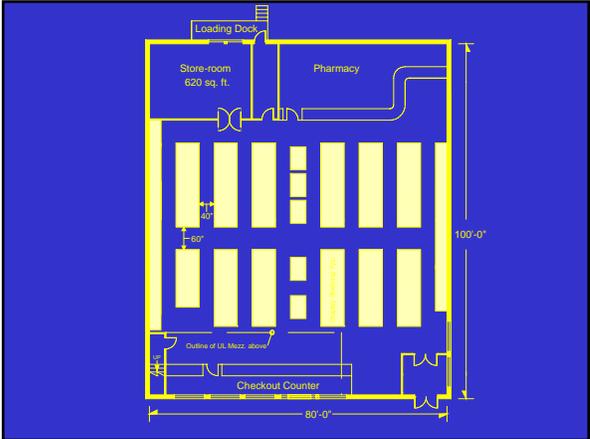
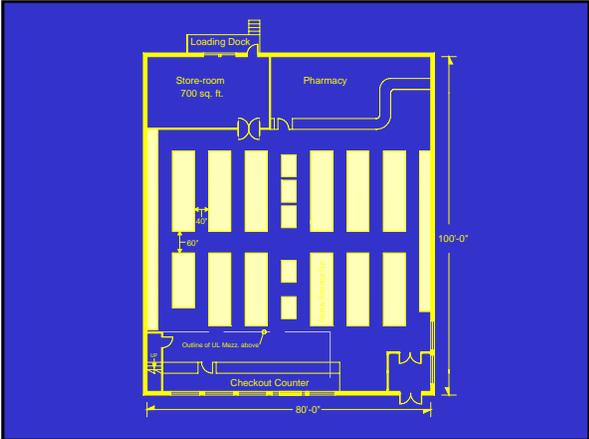


### Activity 3

#### Number of Means of Egress

Utilizing the floor plan schematics and building data provided:

1. Evaluate the number of means of egress provided.
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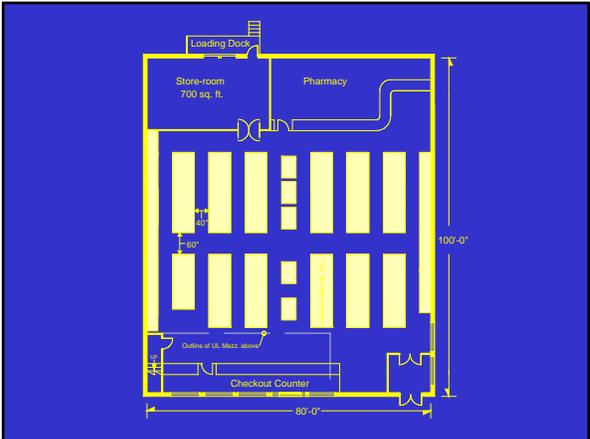


### Activity 3

#### Number of Means of Egress

Utilizing the floor plan schematics and building data provided:

1. Evaluate the number of means of egress provided.
2. Evaluate compliance of the stairways.
3. Evaluate egress through intervening rooms.
4. Evaluate aisle widths.
5. Are exit signs required?
6. Is emergency lighting required?



**1013.4 Aisles.** Aisles serving as a portion of the exit access in the means of egress system shall comply with the requirements of this section.

**1013.4.1 Groups B and M.** In Group B and M occupancies, the minimum clear aisle width shall be determined by Section 1005.1 for the occupant load served, but shall not be less than 36 inches.

**Exception:** Nonpublic aisles serving less than 50 people, and not required to be accessible by Chapter 11 of the *Connecticut Building Code*, need not exceed 28 inches in width.

## Activity 3 Number of Means of Egress

Utilizing the floor plan schematics and building data provided:

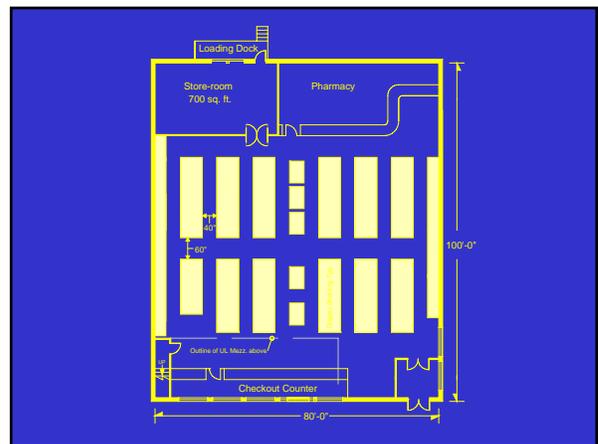
1. Evaluate the number of means of egress provided.
2. Evaluate compliance of the stairways.
3. Evaluate egress through intervening rooms.
4. Evaluate aisle widths.
5. Are exit signs required?
6. Is emergency lighting required?



## Activity 4 Fire Protection

Utilizing the floor plan schematics and building data provided:

1. Is a fire alarm system required?
2. Is a fire sprinkler system required?
3. Are standpipes required?
4. Are hand portable fire extinguishers required?
5. Evaluate interior finishes.



# Navigating the 2005 CT Fire Safety Code

**907.2.7 Group M.** A manual fire alarm system shall be installed in Group M occupancies, ... having an occupant load of 500 or more persons or more than 100 persons above or below the lowest level of exit discharge.

**903.4 Sprinkler system monitoring and alarms.** All valves controlling the water supply for automatic sprinkler systems, pumps, tanks, water levels and temperatures, critical air pressures, And water-flows witches on all sprinkler systems shall be electrically supervised.

**903.4.1 Signals.** Alarm, supervisory and trouble signals shall be distinctly different and shall be automatically transmitted to ...

**903.4.2 Alarms.** Alarm devices shall be provided on the exterior of the building in an approved location. Where a fire alarm system is installed, actuation of the automatic sprinkler system shall actuate the building fire alarm system.

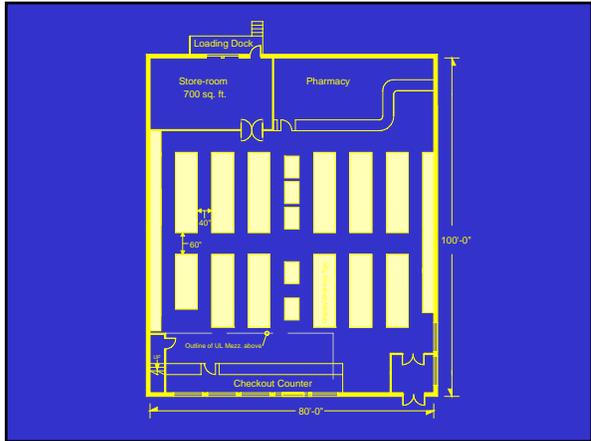
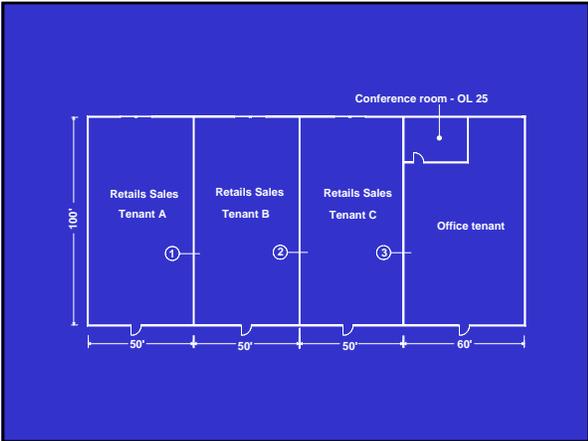
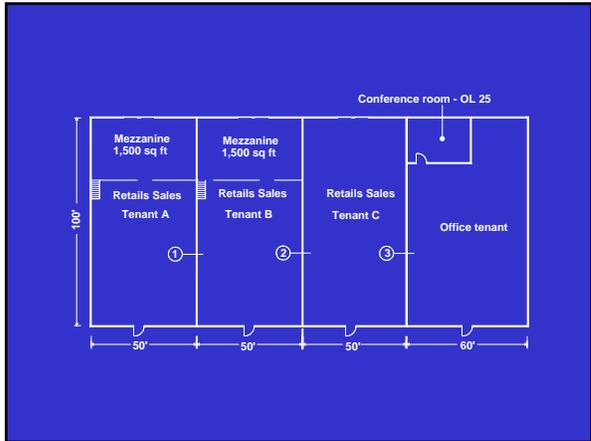


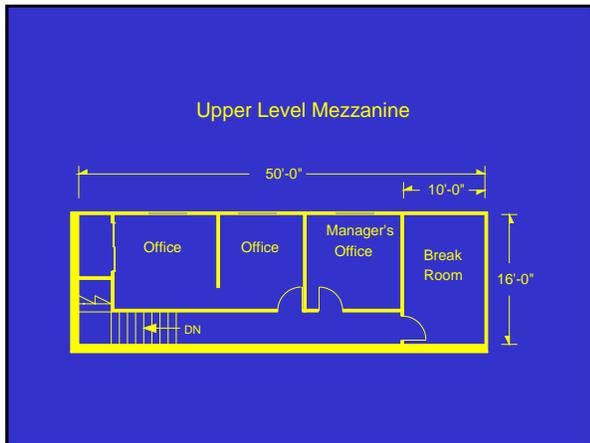
**903.2.6 Group M.** An automatic sprinkler system shall be provided throughout buildings containing a Group M occupancy where one of the following conditions exists:

1. Group M fire area exceeds 12,000 sq. ft.;
2. Group M fire area is located > 3 stories above grade;
3. Where the combined area of all Group M fire areas on all floors, including any mezzanines, > 24,000 sq. ft.

**903.2.8 Group S-1.** An automatic sprinkler system shall be provided throughout all buildings containing a Group S-1 occupancy where one of the following conditions exist:

1. Group S-1 fire area exceeds 12,000 sq. ft.;
2. Group S-1 fire area is located > 3 stories above grade; or
3. Where the combined area of all Group S-1 fire areas on all floors, including any mezzanines, > 24,000 sq. ft.





**Table 706.3.7  
Fire-Resistance Rating Requirements for Fire Barrier Assemblies Between Fire Areas**

Occupancy Group	FRR (hours)
H-1, H-2	4
F-1, H-3, S-1	3
A, B, E, F-2, H-4, H-5, I, M, R, S-2	2
U	1

**903.2.10.1 Stories and basements without openings.**  
An automatic sprinkler system shall be installed in every story ... of all buildings where the floor area exceeds 1,500 sq. ft. and where there is not provided at least one of the following types of exterior wall openings:

1. Openings below grade ...
2. Openings entirely above the adjoining ground level totaling at least 20 sq. ft. In each 50 linear feet, or fraction thereof, of exterior wall in the story on at least one side.

**903.2.10.1.1** Openings shall have a minimum dimension  $\geq 30''$ . Openings shall be accessible to the fire department from the exterior and shall not be obstructed in a manner that fire fighting or rescue cannot be accomplished from the exterior.

**903.2.10.1.2 Openings on one side only.** Where openings in a story are provided on only one side and the opposite wall of such story is more than 75 ft from such openings, the story shall be equipped throughout with an approved automatic sprinkler system or openings as specified above shall be provided on at least two sides the story.

**13.6.1.2\* Where Required.** Fire extinguishers shall be provided as follows:

1. Where required by other parts of this code.
2. As specified in 13.6.1.2.1 through 13.6.1.2.5.
3. Where required by the referenced codes and standards listed in Chapter 2 and Part II of this code.

**13.6.1.2.1** In all occupancies, except storage Use Groups S-1 and S-2, outside and immediately adjacent to the entrance to all special hazardous areas except general storage areas.

**Section 505 – Mezzanines**

- shall be considered a portion of the floor below
- shall not contribute to either the building area or number of stories
- shall be included in determining fire area(s)
- clear height above and below the mezzanine  $\geq 7$  feet
- limited to one-third of the room/space area
- shall have 2 means of egress where the common path of egress travel exceeds the limitations of Section 1013.3.
- Where a stairway provides a means of exit access from a mezzanine, the maximum travel distance includes the distance traveled on the stairway measured in the plane of the tread nosing.

**Exceptions:**

1. A single means of egress shall be permitted in accordance with Section 1014.1.

**505.4 Openness.** A mezzanine shall be open and unobstructed to the room in which such mezzanine is located except for walls not more than 42 inches high, columns and posts.

**Exceptions:**

- 1. Mezzanines or portions thereof are not required to be open to the room in which the mezzanines are located, provided that the occupant load of the aggregate area of the enclosed space does not exceed 10.
- 2. A mezzanine having two or more means of egress is not required to be open to the room in which the mezzanine is located, if at least one of the means of egress provides direct access to an exit from the mezzanine level.

