

OEDM Fall 2017 Career Development Series

Inspecting Existing Assembly Occupancies



State of Connecticut
Department of Administrative Services
Division of Construction Services
Office of Education and Data Management

Office of Education and Data Management
Fall 2017 Career Development Series

Inspecting Existing Assembly Occupancies

Presented by
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Overview

This presentation will focus on requirements governing existing assembly occupancies.

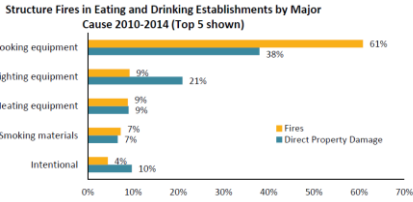
Topics include egress, seating arrangements, fire protection systems, fire drills, and crowd managers.



Inspecting Existing Assembly Occupancies

Stats

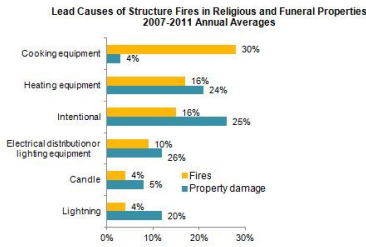
Report: NFPA's "[U.S. Structure Fires in Eating and Drinking Establishments](#)"
 Author: Richard Campbell
 Issued: February 2017



Inspecting Existing Assembly Occupancies

Stats

Report: NFPA's "[U.S. Structure Fires in Religious and Funeral Properties](#)"
 Author: Richard Campbell
 Issued: June 2013



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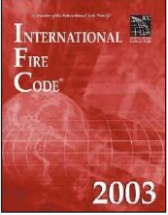

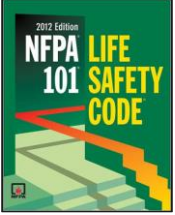
10 Deadliest Fires

Iroquois Theater, Chicago, IL December 30, 1903. Deaths: 602	Ringling Brothers circus, Hartford, CT July 6, 1944 Deaths: 168
Coconut Grove nightclub, Boston, MA November 28, 1942 Deaths: 492	Beverly Hills Supper Club, Southgate, KY May 28, 1977 Deaths: 165
Conway's Theater, Brooklyn, NY December 5, 1876 Deaths: 285	The Station nightclub, W. Warwick, RI February 20, 2003 Deaths: 100
Rhythm Club dance hall, Natchez, MS April 23, 1940 Deaths: 207	Happy Land Social Club, Bronx, NY March 25, 1990 Deaths: 87
Rhoads Opera House, Boyertown, PA January 13, 1908 Deaths: 170	Richmond Theater, Richmond, VA December 26, 1811 Deaths: 72



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Regulatory Documents




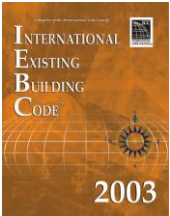
Prior to
December 31, 2005

December 31, 2005
to
September 30, 2016

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Regulatory Documents

Why conditions may differ from the Code.



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Regulatory Documents



Applies to All
General Safety Requirements
Occupancy Requirements
Commercial Cooking Equipment
ITM

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Definition



Existing

Buildings, facilities, or conditions already in existence, constructed, or officially authorized prior to the adoption of this Code,



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Occupancy Classification



Building or portion thereof used for a gathering of 50 or more persons for:

- deliberation,
- civic, social or religious functions,
- recreation,
- food or drink consumption
- worship, entertainment, amusement,
- awaiting transportation, or
- similar uses



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Occupancy Classification



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Occupancy Classification



Special Amusement Buildings



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Occupancy Classification



Exceptions to the rule:

Where incidental to another occupancy, areas used as follows shall be permitted to be considered part of the predominant occupancy and shall be subject to the provisions of the *Code* that apply to the predominant occupancy:

- (2) Nonresidential use with an occupant load fewer than that established by Section 6.1 for the occupancy threshold.



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Occupancy Classification



Exceptions to the rule:

A room or space used for assembly purposes by less than 50 persons and accessory to another occupancy shall be included as a part of that occupancy.




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Occupancy Classification



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Occupancy Classification



Exceptions to the rule:

Assembly areas with less than 750 square feet and which are accessory to another occupancy according to Section 302.2.1 of the *Building Code* are not assembly occupancies.

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Occupancy Classification



Exceptions to the rule:



≤ 750 SF and
Accessory to another
occupancy

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Occupancy Classification



Exceptions to the rule:

Assembly occupancies which are accessory to Group E in accordance with Section 302.2 of the *International Building Code* are not considered assembly occupancies.



Inspecting Existing Assembly Occupancies

Occupancy Classification



Exceptions to the rule:



Assembly occupancies *SOLEY* accessory to an Group E occupancy



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Occupancy Classification



Exceptions to the rule:

Religious educational rooms and religious auditoriums which are accessory to churches in accordance with Section 302.2 of the *International Building Code* and which have occupant loads of less than 100 shall be classified as A-3.



Inspecting Existing Assembly Occupancies

Occupancy Classification



Exceptions to the rule:



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Occupancy Classification



Exceptions to the rule:



- Assembly use
- OL <50

Classification?



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Occupant Load

Use	ft ² /person
Concentrated use, w/o fixed seating	7 net
Standing Space	5 net
Less concentrated use, w/o fixed seating	15 net
Bench-type seating	1 person/18"
Kitchens	200
Library stack areas/reading rooms	100/50 net
Swimming pools – water/deck	50/30
Exercise rooms	50
Skating rinks	50



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Occupant Load

Floor Area, *gross*

Office
Toilet
Toilet
General Office Area
L
W
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Occupant Load

Floor Area, *net*

Office
Toilet
Toilet
Assembly Space
L
W
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Occupant Load

1 person per 18 linear inches

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Egress

Number of



Number Required	Occupant Load	
	< 600	< 500
2	< 600	< 500
3	601 – 1,000	501 – 1,000
4	>1,000	> 1,000



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Egress

Balconies



Inspecting Existing Assembly Occupancies

Egress

Catwalks



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Egress

Rooftops



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Egress

Outdoor Dining



Inspecting Existing Assembly Occupancies

Exits & Egress Capacity



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Exits & Egress Capacity

Remotes $\frac{1}{2}$ OL

OL > 600

OL > 300

Main $\frac{1}{2}$ OL

$\frac{1}{3}$ OL

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Exits & Egress Capacity

200

OL 400

OL 400

200

267

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Exits & Egress Capacity

200

250 ?

OL 800

150 ?

200

400

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Egress Capacity



$$(R-1) \div R = C$$
$$(3-1) \div 3 = 2/3$$



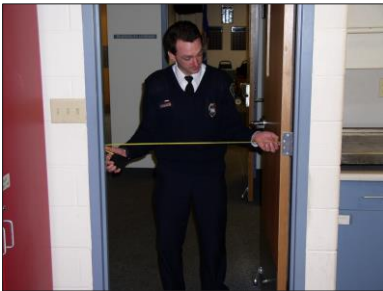
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Main Entrance exception



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Egress Capacity

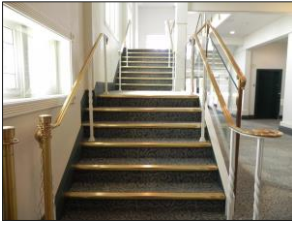


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Egress Capacity



0.2"



0.3"



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Egress Capacity

Sloped Aisles



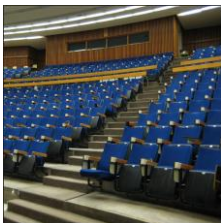
- 0.22"
- 0.22C - Steeper than 1:10 used in accent
- C = 1.10



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Egress Capacity

Stepped Aisles



- 0.3"AB
- $A = 1 + \left[\frac{\text{riser height} - 7}{5} \right]$
- B = 1.25



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Catchment Area



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Egress Capacity

Seating in Rows



- $\geq 12''$ – 1st 14 seats
- 0.3'' – ea. Seat > 14
- Never more than 22''



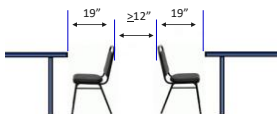
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Egress Capacity

Seating at Tables



- $\geq 12''$ – 1st 12' of table
- 0.6'' – ea. 1' of table



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Key-Operated



OL < 600



OL < 300
&
churches



Inspecting Existing Assembly Occupancies

Panic/Fire Exit Hardware



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Delayed Egress



YES



NO



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Alarmed Egress



Inspecting Existing Assembly Occupancies

Access Controlled



Entrance doors only



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Reliability



Inspecting Existing Assembly Occupancies

Impediments



Inspecting Existing Assembly Occupancies

Impediments



Inspecting Existing Assembly Occupancies

Impediments



Inspecting Existing Assembly Occupancies

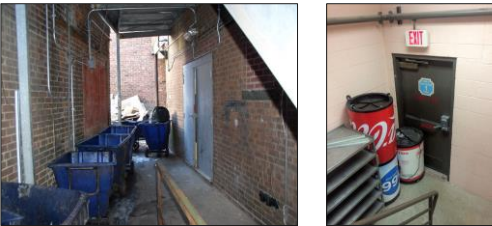
Impediments



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Impediments

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Fire Protection



Sprinklers [13.3.5.1]

Buildings with occupant loads greater than 300 for which a building permit for new occupancy was issued on or after April 15, 1987, shall be protected by an approved supervised automatic sprinkler system in accordance with Section 9.7.1 as follows:



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Fire Protection



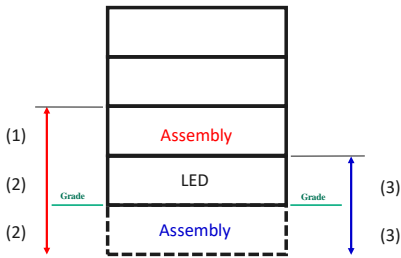
Sprinklers [13.3.5.1]

- (1) Throughout the story containing the assembly occupancy.
- (2) Throughout any story below the story containing the assembly occupancy.
- (3) In the case of an assembly occupancy located below the level of exit discharge, throughout any story intervening between this story and the level of exit discharge, including the level of exit discharge.



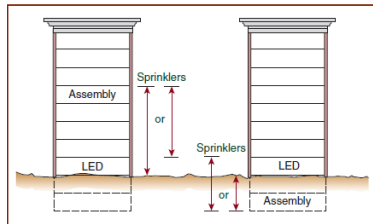
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Fire Protection



Inspecting Existing Assembly Occupancies

Fire Protection



Source: NFPA 101-2012 Handbook Exhibit 12/13.15



Inspecting Existing Assembly Occupancies

Fire Protection



Sprinklers [13.3.5.2]

Any assembly occupancy used or capable of being used for exhibition or display purposes shall be protected throughout by an approved automatic sprinkler system in accordance with Section 9.7 where the exhibition or display area exceeds 15,000 ft².



Inspecting Existing Assembly Occupancies

Fire Protection



Inspecting Existing Assembly Occupancies

Fire Protection



Inspecting Existing Assembly Occupancies

Fire Protection



Exceptions to the rule:



- Unenclosed stadia/arenas
- Press boxes < 1,000 ft²
- Storage facilities < 1,000 ft² & 1-hr FRR
- Enclosed areas under grandstands if free of combustibles



Inspecting Existing Assembly Occupancies

Fire Protection



Exceptions to the rule:



Assembly occupancies used primarily for worship with fixed seating.



Inspecting Existing Assembly Occupancies

Fire Protection



Exceptions to the rule:



Single multi-purpose room less than 12,000 SF and not used for exhibition or display.



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Fire Protection



Exceptions to the rule:



Gymnasiums, skating rinks, swimming pools used exclusively for participant sport with no audience facilities for more than 300.



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Fire Protection



Sprinklers

13.3.5.6 Automatic sprinkler protection shall also be provided as required by Section 9.7.1.5.

An automatic fire sprinkler system shall be installed per the **high-rise provisions** of section 29-315 of the CGS in effect on October 1, 1973. For the purpose of this section, building height shall be measured from the lowest level of fire department vehicle access to the floor of the highest occupiable story. The provisions of Section 9.7.3.1 shall not apply to these systems.

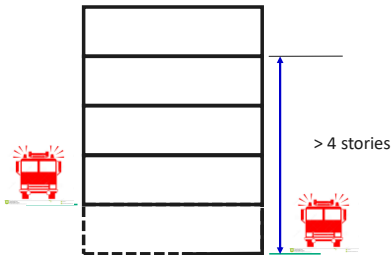


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Fire Protection




29-315 C.G.S.




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Fire Protection




Supervision



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Fire Protection




Sprinklers [13.3.5.1]

For Group A-1, A-2, A-3, and A-4 occupancies, the automatic sprinkler system shall be provided throughout the floor area where the Group A-1, A-2, A-3 or A-4 occupancy is located, and in all floors between the Group A occupancy and the level of exit discharge.

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Fire Protection



Sprinklers

Group A-1. Shall be provided where one of the following conditions exists:

- The fire area exceeds 12,000 square feet;
- The fire area has an occupant load of 300 or more;
- The fire area is located on a floor other than the level of exit discharge; or
- The fire area contains a multi-theater complex.

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Fire Protection



Sprinklers

Group A-2. Shall be provided where one of the following conditions exists:

- The fire area exceeds 5,000 square feet;
- The fire area has an occupant load of 300 or more;
- The fire area is located on a floor other than the level of exit discharge.



Inspecting Existing Assembly Occupancies

Fire Protection



Sprinklers

Groups A-3 & A-4. Shall be provided where one of the following conditions exists:

- The fire area exceeds 12,000 square feet;
- The fire area has an occupant load of 300 or more;
- The fire area is located on a floor other than the level of exit discharge.

Except participant sports at the LED



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Fire Protection



Stories and basements without openings



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Fire Protection

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Fire Protection

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Fire Protection

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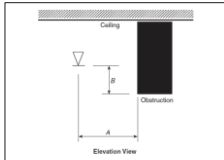


FIGURE 8.6.5.1.2(a) Positioning of Sprinklers to Avoid Obstructions to Discharge (SSU/SSP).

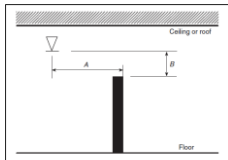


FIGURE 8.6.5.2.2 Suspended or Floor-Mounted Obstructions in Light Hazard Occupancies Only (SSU/SSP).

Source: NFPA 13 - 2010



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Fire Protection

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Fire Protection

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Fire Protection

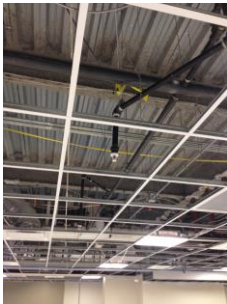
OOPS



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Fire Protection

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Fire Protection

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Fire Protection

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Fire Protection

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Fire Protection

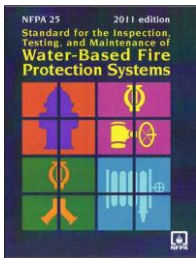
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Fire Protection

ITM



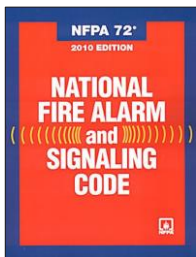
... minimum requirements for the periodic inspection, testing, and maintenance of water-based fire protection systems ...



Inspecting Existing Assembly Occupancies

Fire Protection

ITM



- Table 14.3.1.1 Visual Inspection Frequencies
- Table 4.5 Test Frequencies
- Table 4.2.2 Test Methods



Inspecting Existing Assembly Occupancies

Fire Protection

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Inspecting Existing Assembly Occupancies

Fire Protection

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Inspecting Existing Assembly Occupancies

Occupancy Requirements



Door Inspections



Building owner or agent shall inspect the means of egress to ensure it is maintained free of obstructions, and correct any deficiencies found, prior to each opening of the building to the public.



Inspecting Existing Assembly Occupancies

Occupancy Requirements

OOPS



Inspecting Existing Assembly Occupancies

Occupancy Requirements

Food Service Operations



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Occupancy Requirements

OOPS



Inspecting Existing Assembly Occupancies

Occupancy Requirements



Open Flame Devices



Permitted in the following situations, provided precautions satisfactory to the AHJ are taken to prevent ignition of any combustible material or injury to occupants:

- ceremonial or religious purposes
- stages and platforms where part of a performance
- Where candles on tables are securely supported



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Occupancy Requirements



Furnishings & Decorations



Combustible scenery of cloth, film, vegetation (dry), and similar materials

- NFPA 701
- NFPA 289

Foamed plastics

- NFPA 289
- AHJ approval



Inspecting Existing Assembly Occupancies

Occupancy Requirements



Exposition Facilities



- Materials not on display
- Exhibit booth construction
- Heat release rate limitations
- Sprinklers w/in roofed exhibits
- Cooking/food warming
- Vehicles
- Prohibited materials



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Occupancy Requirements



Exposition Facilities



Inspecting Existing Assembly Occupancies

Occupancy Requirements



Crowd Managers



At least 1 required
1 per 250 occupants*

NA churches OL <2,000

* Lower ratios if AS and event
conditions warrant

"approved training
in crowd management
techniques"



Inspecting Existing Assembly Occupancies

Occupancy Requirements



Drills



employees or attendants
trained & drilled in the duties
they are to perform in case of
fire, panic, or other emergency
to effect orderly exiting.

Fire extinguishers & manual fire
suppression equipment



Inspecting Existing Assembly Occupancies

Occupancy Requirements



Announcement of Exits



Audible announcement or a projected image prior to the start of each program that notifies occupants of the location of the exits

- Theaters
- Motion picture theaters
- Auditoriums
- Non-continuous programs OL > 100



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Occupancy Requirements



Stages

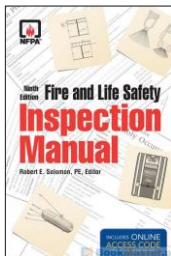


Building owner or agent shall inspect the means of egress to ensure it is maintained free of obstructions, and correct any deficiencies found, prior to each opening of the building to the public.



Inspecting Existing Assembly Occupancies

Resource



Inspection Checklist Assembly Occupancies	
Address	Date
Inspector	Building Official
Date of last inspection	2 of 10
General	
1. Egress routes are clearly marked	Y/N
2. Egress routes are unobstructed	Y/N
3. Egress routes are clearly marked	Y/N
4. Egress routes are unobstructed	Y/N
5. Egress routes are clearly marked	Y/N
6. Egress routes are unobstructed	Y/N
7. Egress routes are clearly marked	Y/N
8. Egress routes are unobstructed	Y/N
9. Egress routes are clearly marked	Y/N
10. Egress routes are unobstructed	Y/N
11. Egress routes are clearly marked	Y/N
12. Egress routes are unobstructed	Y/N
13. Egress routes are clearly marked	Y/N
14. Egress routes are unobstructed	Y/N
15. Egress routes are clearly marked	Y/N
16. Egress routes are unobstructed	Y/N
17. Egress routes are clearly marked	Y/N
18. Egress routes are unobstructed	Y/N
19. Egress routes are clearly marked	Y/N
20. Egress routes are unobstructed	Y/N
21. Egress routes are clearly marked	Y/N
22. Egress routes are unobstructed	Y/N
23. Egress routes are clearly marked	Y/N
24. Egress routes are unobstructed	Y/N
25. Egress routes are clearly marked	Y/N
26. Egress routes are unobstructed	Y/N
27. Egress routes are clearly marked	Y/N
28. Egress routes are unobstructed	Y/N
29. Egress routes are clearly marked	Y/N
30. Egress routes are unobstructed	Y/N
31. Egress routes are clearly marked	Y/N
32. Egress routes are unobstructed	Y/N
33. Egress routes are clearly marked	Y/N
34. Egress routes are unobstructed	Y/N
35. Egress routes are clearly marked	Y/N
36. Egress routes are unobstructed	Y/N
37. Egress routes are clearly marked	Y/N
38. Egress routes are unobstructed	Y/N
39. Egress routes are clearly marked	Y/N
40. Egress routes are unobstructed	Y/N
41. Egress routes are clearly marked	Y/N
42. Egress routes are unobstructed	Y/N
43. Egress routes are clearly marked	Y/N
44. Egress routes are unobstructed	Y/N
45. Egress routes are clearly marked	Y/N
46. Egress routes are unobstructed	Y/N
47. Egress routes are clearly marked	Y/N
48. Egress routes are unobstructed	Y/N
49. Egress routes are clearly marked	Y/N
50. Egress routes are unobstructed	Y/N



Inspecting Existing Assembly Occupancies

Questions or Comments

Thank You & Goodbye



VQ

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