Solving Means of Egress Challenges in Specific Occupancies

February 2013

Office of Education and Data Management

Office of Education and Data Management

Solving Means of Egress Challenges in Specific Occupancies

This facilitated workshop will review:

- Core building and fire code requirements for means of egress within a structure
- Present means of egress scenarios within specific occupancies.
- Identify key code sections that effect each scenario.
- Discuss 2003 IBC and/or CT Fire Safety Code and the 2012 IBC.

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Fundamental

- ***Objective***
  - **Better understanding of the**
    - ***IBC Chapter 10***
    - ***Principles and issues of***
      - **Egress in a commercial building**

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Means of Egress Basics

State Building Code: 2003 IBC Chapter 10

- ***Administration and Definitions***
  - **1001,1002**
- ***General Means of Egress***
  - **1003-1012**
- ***Components of Means of Egress***
  - **Exit Access 1013-1016**
  - **Exits 1017-1022**
  - **Exit discharge 1023**
- ***Miscellaneous***
  - **Assembly 1024**
  - **Emergency Escape and Rescue 1025**
  - **Floor Proximity Egress Path Marking 1026**

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Means of Egress Basics

Looking Forward to the 2012 IBC Chapter 10

- ***Administration and Definitions***
  - **1001,1002**
- ***General Means of Egress***
  - ***1003-1013***
- ***Components of Means of Egress***
  - **Exit Access *1014-1019***
  - **Exits *1020-1026***
  - **Exit discharge 1027**
- ***Miscellaneous***
  - **Assembly 1028**
  - **Emergency Escape and Rescue 1029**
  - **Floor Proximity Egress Path Marking 1030 (Added by CT)**

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Means of Egress Basics

State Fire Safety Code – 2003 Edition NFPA 101 - Chapter 7

- 7.1 General
- 7.2 Components
- 7.3 Capacity
- 7.4 Number of Exits
- 7.5 Arrangement
- 7.6 Travel Distance
- 7.7 Discharge
- 7.8 Illumination
- 7.9 Emergency Lighting
- 7.10 Exit Markings
- 7.11 High Hazard Provisions
- 7.12 Mechanical Equip. Rooms

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Components of Means of Egress – NFPA 101

- 7.2 Components
- 7.2.1 Doors
- 7.2.2 Stairs
- 7.2.3 Smokeproof Enclosure
- 7.2.4 Horizontal Exits
- 7.2.5 Ramps
- 7.2.6 Exit Passageways
- 7.2.7 Escalators
- 7.2.8 Fire Escapes
- 7.2.9 Ladders
- 7.2.10 Slide Escapes
- 7.2.11 Alternating Tread
- 7.2.12 Areas of Refuge
- 7.2.13 Elevators

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Components of Means of Egress – 2003 IBC

- Exit Access 1013-1016
- Exits 1017-1022
- Exit discharge 1023

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Administrative & Definitions

- *Administrative – Section 1001*
  - General 1001.1
  - Minimum Requirements 1001.2
  - Maintenance 1001.3
- *Definitions - Section 1002*

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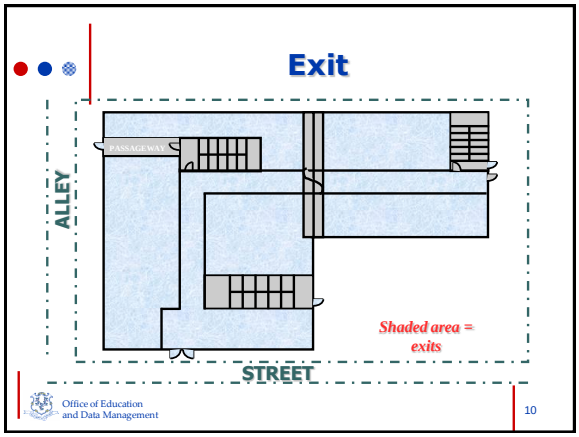
Exit
ALLEY
PASSAGEWAY
Shaded area = exits
STREET
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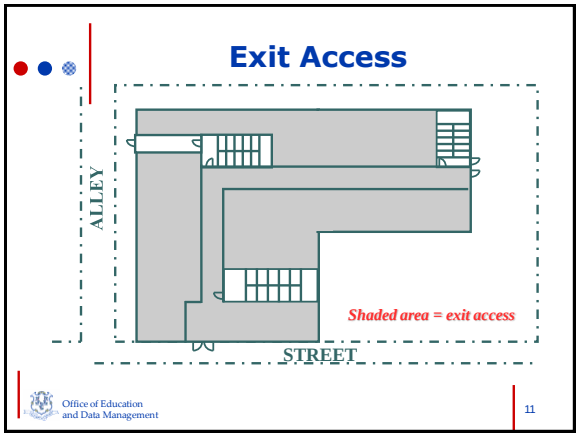
Exit Access
ALLEY
Shaded area = exit access
STREET
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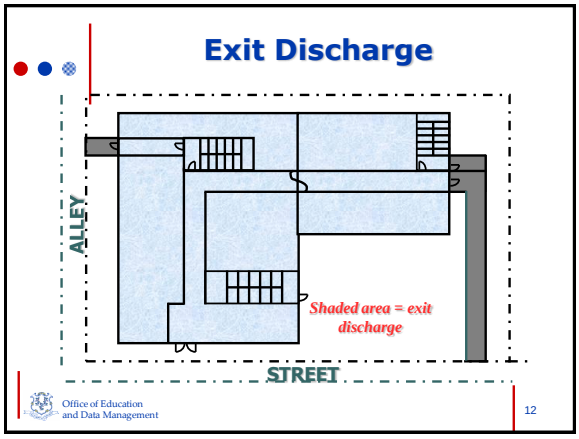
Exit Discharge
ALLEY
Shaded area = exit discharge
STREET
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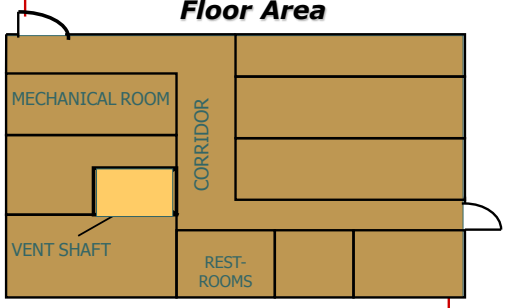
Definition - Section 1002

Floor Area



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2009 Amendments

- 1003.2 Ceiling Height (as amended)
  - **The means of egress shall have a ceiling height of not less than 7 feet 6 inches**
  - **Exceptions**
    1. **Sloped ceilings in accordance with Section 1208.2**
    2. **Ceilings of dwelling units and sleeping units within residential occupancies in accordance with Section 1208.2**
    3. **Allowable projections in accordance with Section 1003.3**
    4. **Stair headroom in accordance with Section 1009.2**
    5. **Door height in accordance with Section 1008.1.1**

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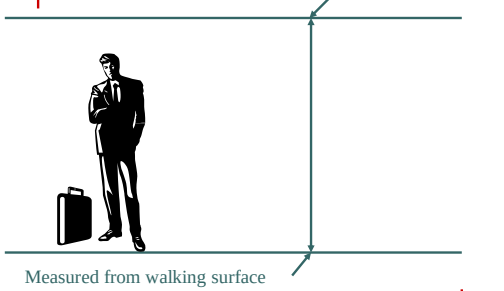
Ceiling Height

Section 1003.2



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2009 Amendments

- **1003.3.2 Free-Standing Objects**
  - A free-standing object mounted on a post or pylon shall not overhang that post or pylon more than 4 inches where the lowest point of the leading edge is more than 27 inches and less than 80 inches above the walking surface. Where a sign or other obstruction is mounted between posts or pylons and the clear distance between the posts or pylons is greater than 12 inches, the lowest edge of such sign or obstruction shall be 27 inches maximum or 80 inches minimum above the finish floor or ground

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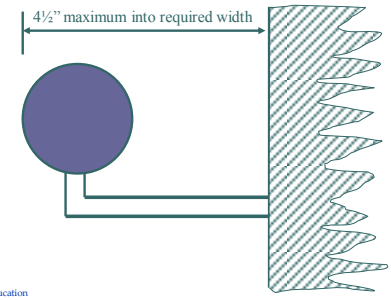
Horizontal Projections

Section 1003.3.3



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Elevation Change

Section 1003.5

Change required to be made by "sloped surface," including:

- **Ramp complying with Section 1010.1 if slope >1:20 (5 percent)**

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2009 Amendments

- 1003.8 Security Device (added)
  - Any security device or system that emits any medium that could obscure a means of egress in any building, structure or premises shall be prohibited
- 1003.9 Mirrors (added)
  - Mirrors shall not be placed on exit doors. Mirrors shall not be placed in or adjacent to any exit in such a manner as to confuse the direction of egress travel

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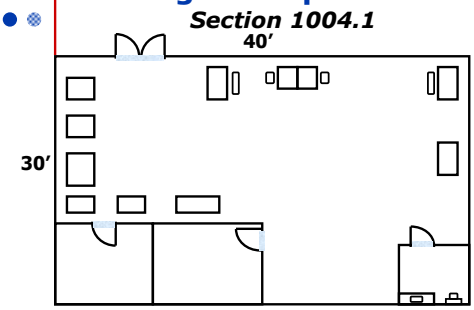
Design Occupant Load

Section 1004.1



Minimum occupant load = 1200 ÷ 100 = 12

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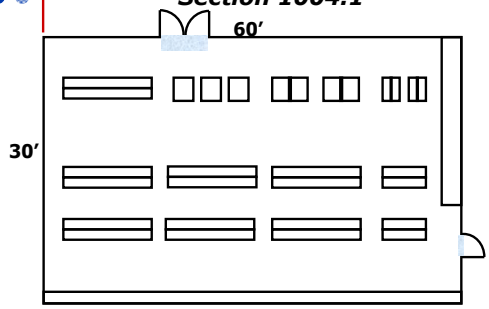
Design Occupant Load

Section 1004.1



Minimum occupant load = 1800 ÷ 30 = 60

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2009 Amendments

- **1004.1.2 Number by Table 1004.1.2 (as amended)**
  - The number of occupants computed at a rate of one occupant per unit of area as prescribed in Table 1004.1.2
  - **Exception**

    Day care occupancies shall be calculated at a rate of one occupant per 35 square feet of net area

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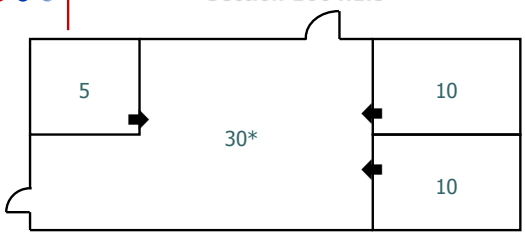
Number by Combination

Section 1004.1.3



**Number by combination will establish the occupant of this space as 30 + (10 + 10 + 5) = 55 for determining egress requirements*

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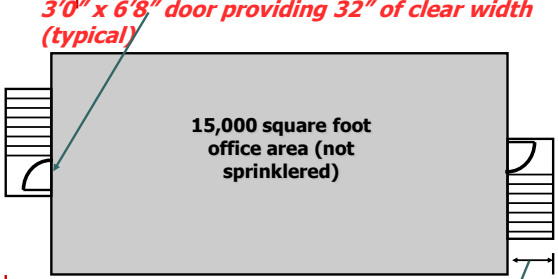
Increased Occupant Load

Section 1004.2



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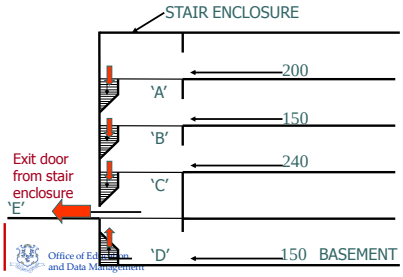
Exiting From Multiple Levels
Section 1004.4
Egress Convergence
Section 1004.5



GIVEN:

- A nonsprinklered four-story office building with basement
- Occupant load exiting into stair enclosure at each level as indicated
- First floor occupants exit to exterior without entering the stair enclosure

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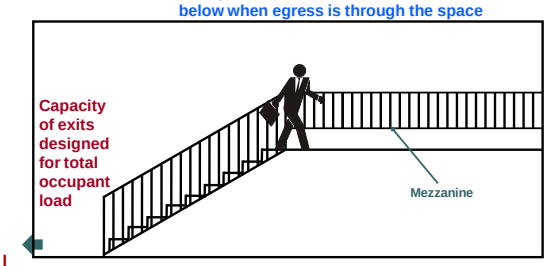
Mezzanine Levels
Section 1004.6

Occupant load of mezzanine added to room below when egress is through the space



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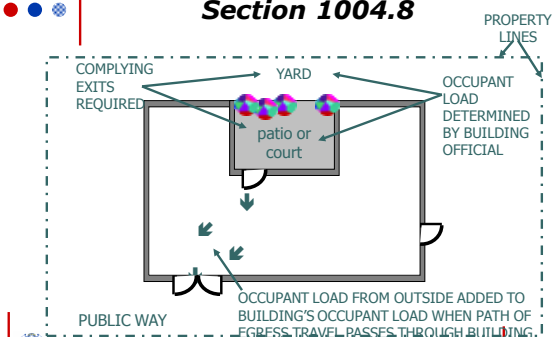
Outdoor Areas
Section 1004.8



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2009 Amendments

- **1005.1 Minimum Required Egress Width (as amended)**
  - The means of egress width shall not be less than required by this section. The total width of means of egress in inches shall not be less than the total occupant load served by the means of egress multiplied by the factors in Table 1005.1 and not less than specified elsewhere in this code. The maximum capacity required from any story of a building shall be maintained to the termination of the means of egress
  - **Exception**
    - Means of egress complying with Section 1024

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2009 Amendments

- **1005.1.1 Balanced Egress Capacity**
  - Delete section in its entirety and replace with
- **1005.1.1 Multiple Means Of Egress (add)**
  - Multiple means of egress in buildings requiring more than one exit and in rooms or spaces requiring more than one means of egress shall be sized so that the loss of any one means of egress shall not reduce the required capacity of the remaining means of egress to a fraction less than that determined as:

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Formula & Meaning

- **R-1/R = C**
  - **Where**

    R = the number of required means of egress from a room, space or story as determined by Section 1014 or 1018

    C = the minimum fraction of required egress capacity remaining after the loss of any one means of egress

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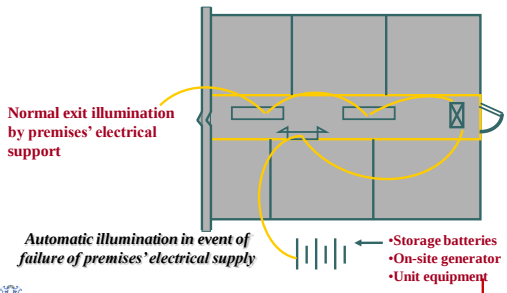
Illumination Emergency Power
Section 1006.3



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2009 Amendments
1006.3.1 When Required (added)

- The emergency means of egress illumination system shall be arranged to provide the required illumination automatically in the event of any interruption of normal lighting due to any of the following:
  1. Failure of a public utility or other outside electrical power supply
  2. Opening of a circuit breaker or fuse
  3. Manual acts including accidental opening of a switch controlling normal lighting facilities

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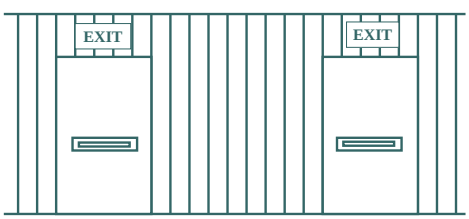
Doors
Section 1008.1



•Where additional doors are installed for egress purposes, they shall conform to all provisions of Section 1008.1.

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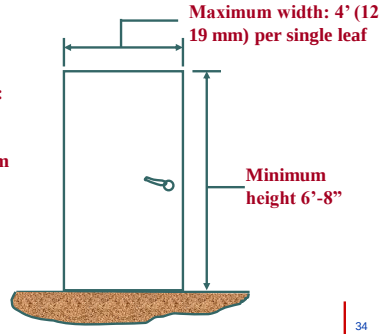
Size of Doors
Section 1008.1.1



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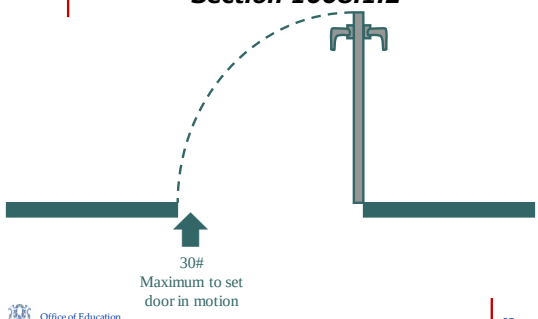
Door Swing
Section 1008.1.2



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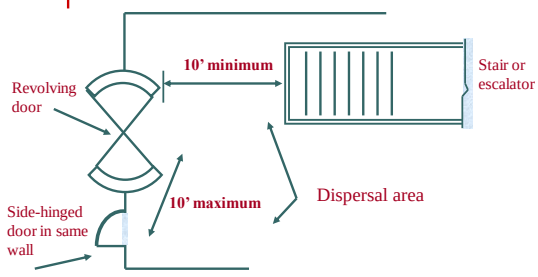
Revolving Doors
Section 1008.1.3.1



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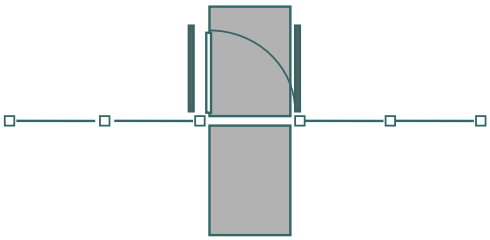
Special Doors
Section 1008.1.3.2



Provisions cover swinging doors & sliding doors

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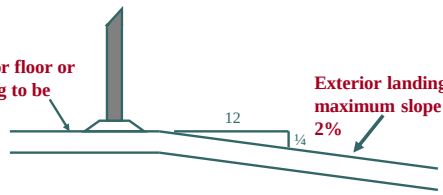
Floor Elevation at Doors
Section 1008.1.4



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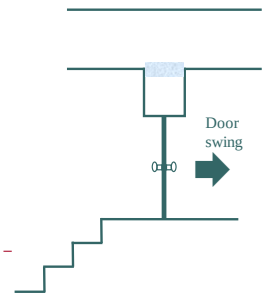
Exception:



Interior flight of stairs (door must not swing over first step when swinging towards stairs – except screen doors)

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EXCEPTION 1.1 (for R-2 and R-3 only)

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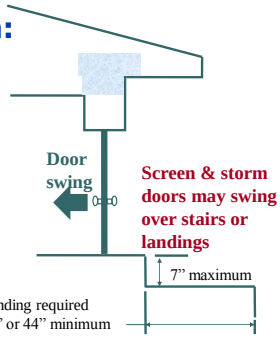
Exception:



EXCEPTION 2

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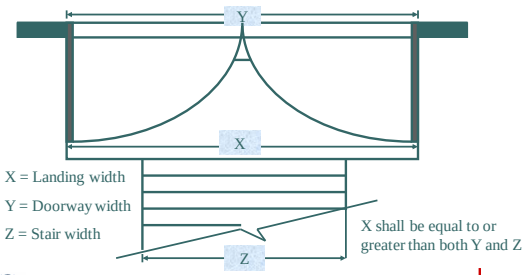
Landings at Doors
Section 1008.1.5



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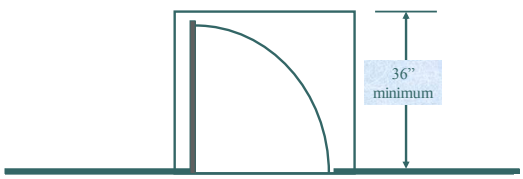
Landings at Doors
Section 1008.1.5



R-3, U and within individual dwelling units of R-2

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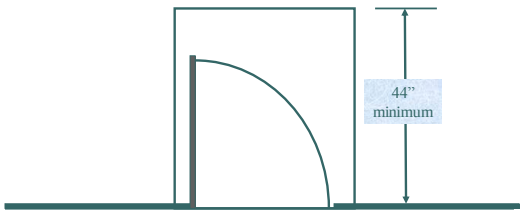
Landings at Doors
Section 1008.1.5



All other occupancies

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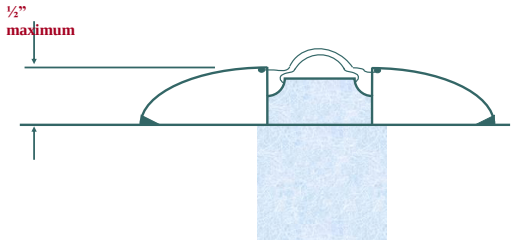
Thresholds
Section 1008.1.6



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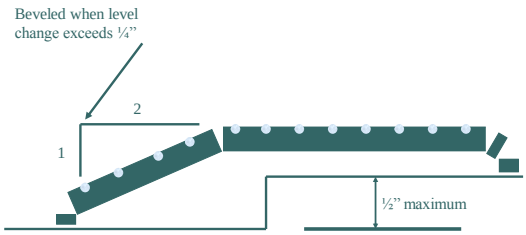
Exception:



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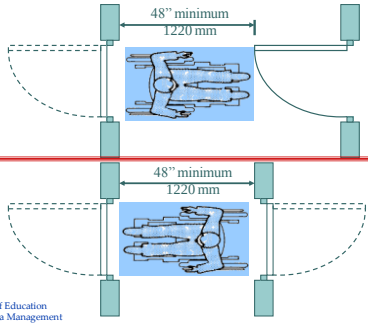
Door Arrangement
Section 1008.1.7



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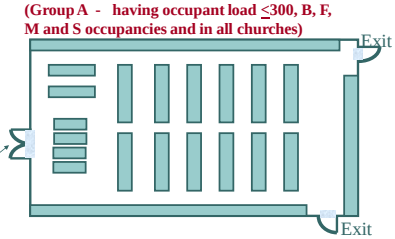
Door Operations
Section 1008.1.8.3

(Group A - having occupant load ≤300, B, F, M and S occupancies and in all churches)



Exception 2: Key-locking hardware permitted on main exit only*

***Door must swing free without any latching devices when unlocked**

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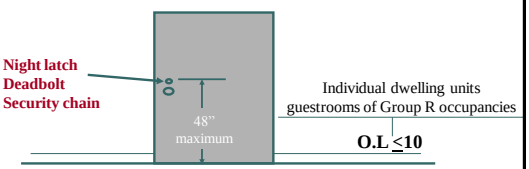
Locks and Latches
Section 1008.1.8.3



Individual dwelling units guestrooms of Group R occupancies

O.L ≤10

Such devices must be openable from the inside without the use of a key or tool and mounted at a height a minimum of 34" and a maximum of 48" above the finished floor

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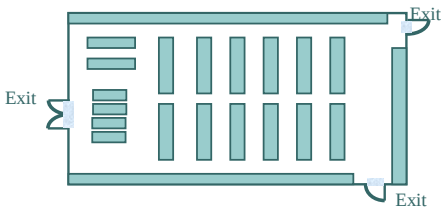
Delayed Egress Locks
Section 1008.1.8.6



Automatic sprinkler system or automatic smoke or heat detection system is required throughout the building

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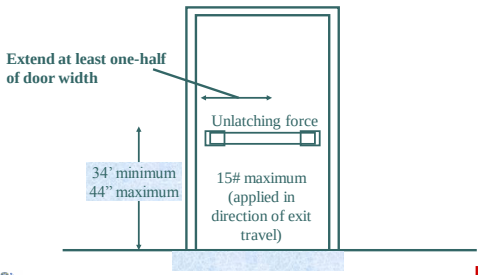
Panic and Fire Exit Hardware
Section 1008.1.9



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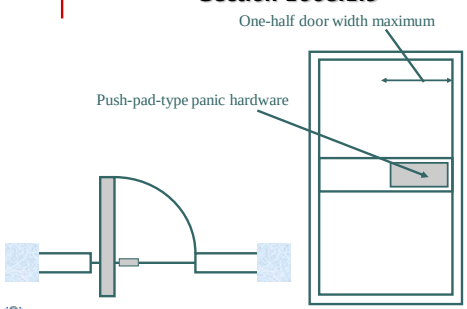
Panic and Fire Exit Hardware
Section 1008.1.9



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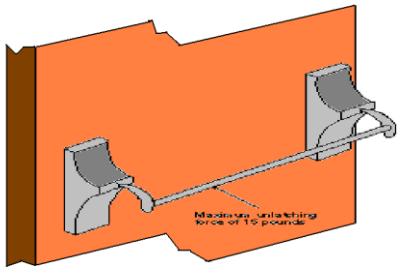
Panic and Fire Exit Hardware
Section 1008.1.9



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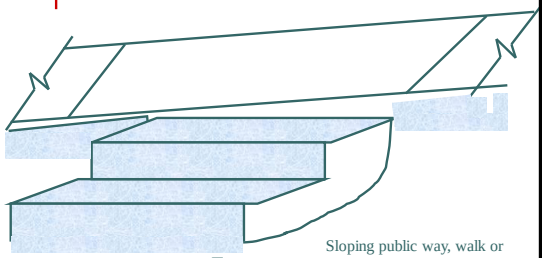
Stair Treads and Risers
Section 1009



Top

Sloping public way, walk or driveway having an established grade (other than natural earth)

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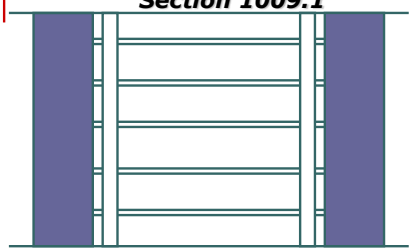
Stairway Width
Section 1009.1



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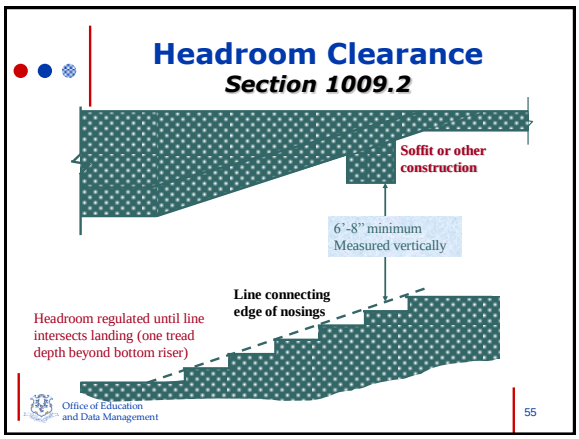
Headroom Clearance
Section 1009.2
Soffit or other construction
6'-8" minimum
Measured vertically
Line connecting edge of nosings
Headroom regulated until line intersects landing (one tread depth beyond bottom riser)
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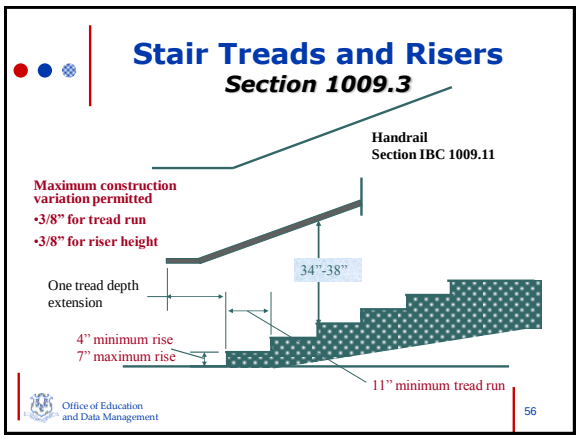
Stair Treads and Risers
Section 1009.3
Handrail
Section IBC 1009.11
Maximum construction variation permitted
•3/8" for tread run
•3/8" for riser height
34"-38"
One tread depth extension
4" minimum rise
7" maximum rise
11" minimum tread run
Office of Education and Data Management
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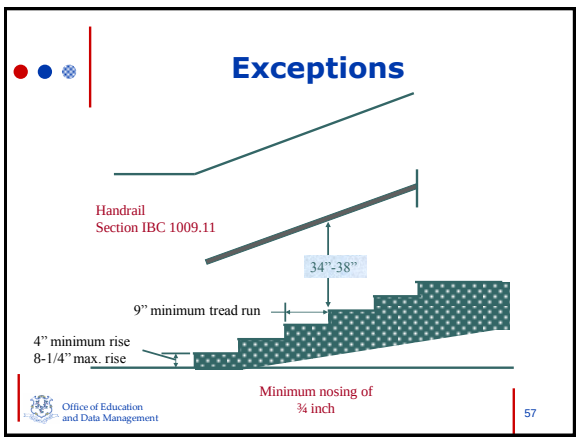
Exceptions
Handrail
Section IBC 1009.11
34"-38"
9" minimum tread run
4" minimum rise
8-1/4" max. rise
Minimum nosing of ¾ inch
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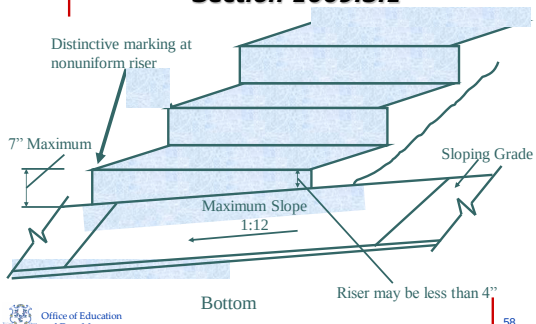
Stair Treads and Risers
Section 1009.3.1



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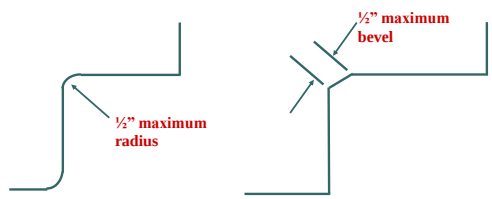
Stair Profile
Section 1009.3.2



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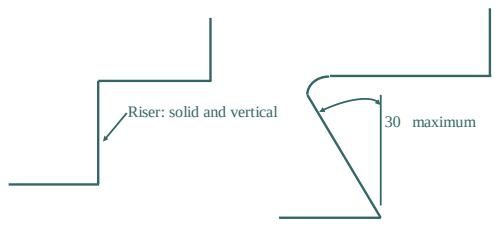
Stair Profile
Section 1009.3.2



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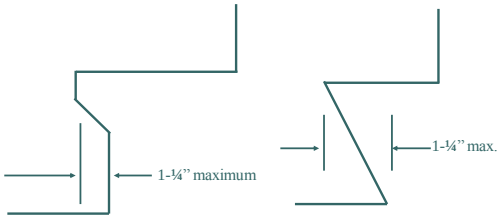
Stair Profile
Section 1009.3.2



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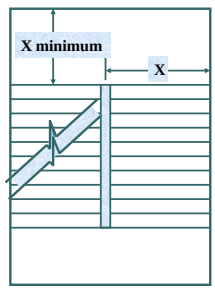
Stairway Landings
Section 1009.4



There shall be a floor or landing at the top and bottom of each stairway or stair run

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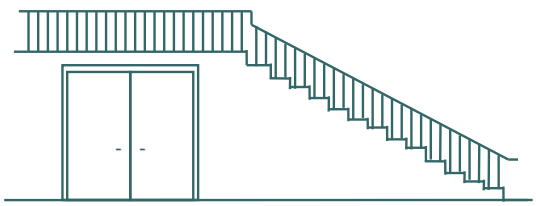
Stairway Construction
Section 1009.5



Access to enclosed usable space must not be from within a stair enclosure (1019.1.1)

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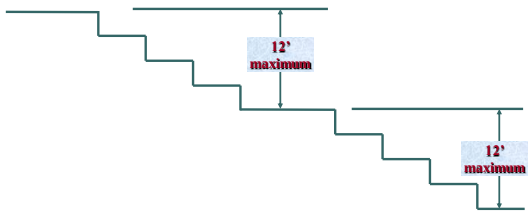
Vertical Rise
Section 1009.6



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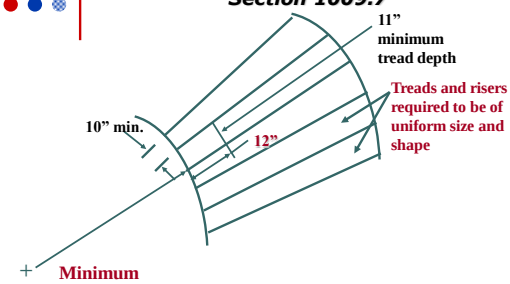
Circular Stairways
Section 1009.7



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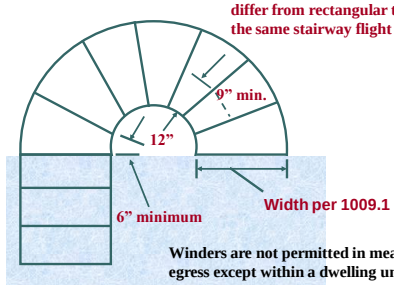
Winders
Section 1009.8

Consistently shaped winders may differ from rectangular treads in the same stairway flight



Winders are not permitted in means of egress except within a dwelling unit

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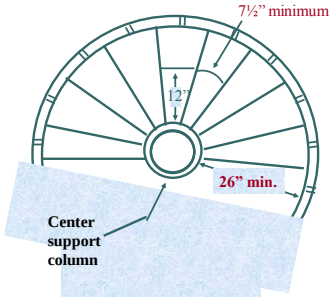
Spiral Stairways
Section 1009.9



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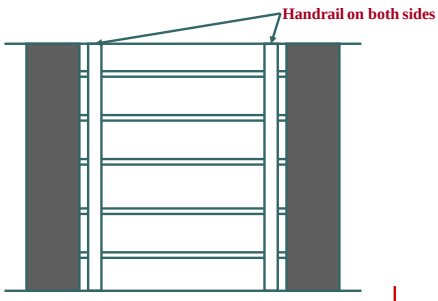
Handrails
Section 1009.11



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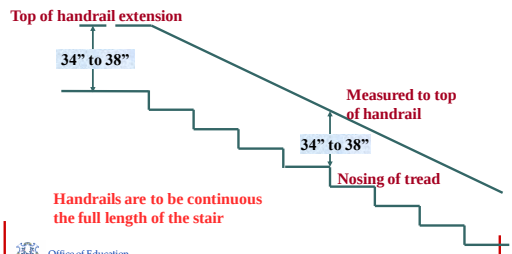
Handrails
Section 1009.11.1 - Height



Handrails are to be continuous the full length of the stair

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2009 Amendments

- **1009.11.2 Intermediate Handrails (amended)**
  - Intermediate handrails are required for stairs with a required width exceeding 75 inches so that all portions of the stairway width required for egress capacity are within 30 inches of a handrail. On monumental stairs, handrails shall be located along the most direct path of egress travel.

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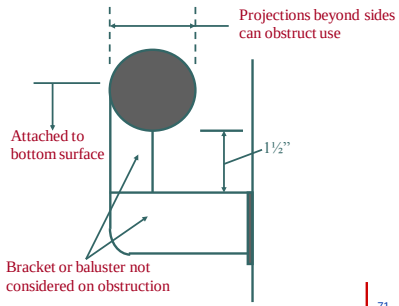
Handrail Graspability

Section 1009.11.3



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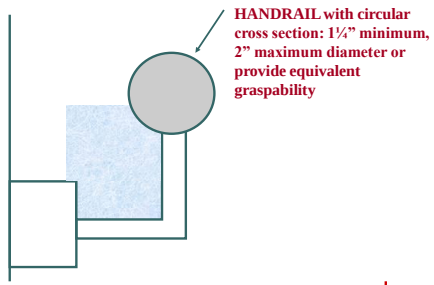
Handrail Graspability

Section 1009.11.3



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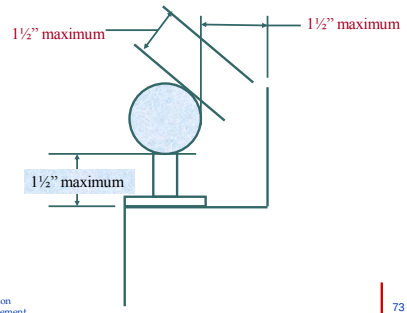
Handrail Graspability
Section 1009.11.3



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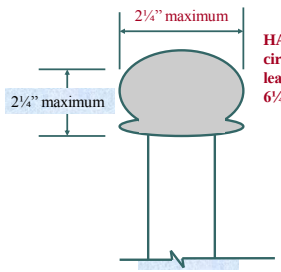
Handrail Graspability
Section 1009.11.3



HANDRAIL that is not circular: perimeter of at least 4" but not greater than 6¼"

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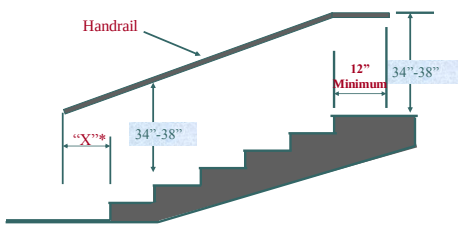
Handrails Extensions
Section 1009.11.5



***Extension "X" Continues to slope for the depth of one trend beyond bottom riser**

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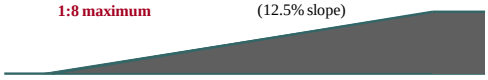
Slope
Section 1010.2

1:12 maximum (8.3% slope)

Ramps used as a part of a means of egress

1:8 maximum (12.5% slope)



For all other ramps and aisle ramps in Group A Occupancies

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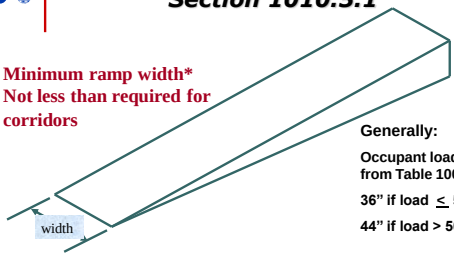
Width
Section 1010.5.1

Minimum ramp width*
Not less than required for corridors



Generally:

Occupant load xs factor from Table 1003.2.3.1

36" if load ≤ 50

44" if load > 50

***permitted projections may reduce clear width. Handrails may project 4½" per side; a minimum clear width of 36" is required between handrails**

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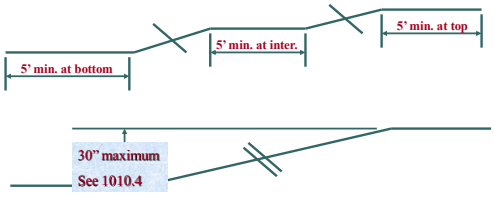
Landings
Section 1010.6

Applies to ramps having slopes steeper than 1 vertical to 20 horizontal



The maximum rise for any ramp shall be 30 inches

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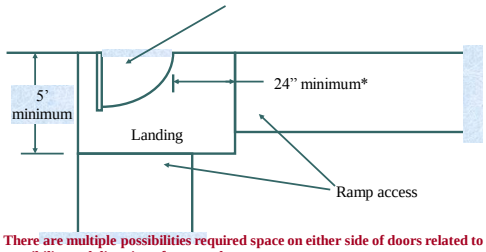
Doorways *Section 1010.6.5*

Where doorways are located adjacent to a ramp landing, maneuvering clearances required by ICC ANSI are permitted to overlap the required landing



* There are multiple possibilities required space on either side of doors related to accessibility and direction of approach

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2009 Amendments

- **1010.7.1 Ramp Surface (amended)**
  - The surface of ramps shall be of slip-resistant materials that are securely attached and in compliance with the provisions of Section 302.3 of the ICC/ANSI A117.1-2003 standard.

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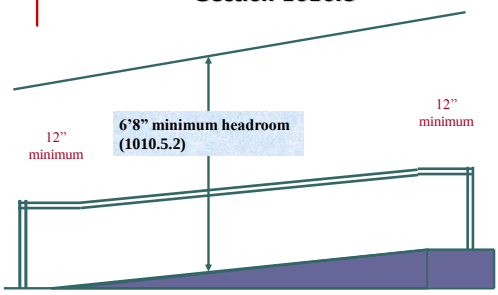
Handrails Required On Ramps

Section 1010.8



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2009 Amendments

- **1010.9 Edge Protection (deleted)**
  - Delete section and subsections in their entirety and substitute with:
- **1010.9 Edge Protection (add)**
  - Edge protection for ramps shall be in accordance with Section 405.9 of the ICC/ANSI A117.1-2003 standard

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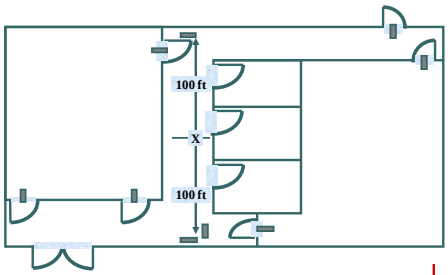
Exit Signs
Section 1011



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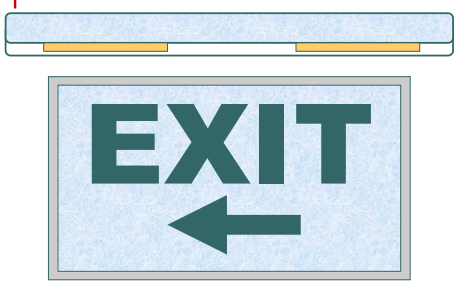
Where Required
Section 1011.1



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2009 Amendments

- **1011.1.1 Floor Proximity Exit Signs (amd)**
  - Where exit signs are required by Section 1011.1 of this code, exit access doors and exit doors shall additionally be marked by floor proximity exit signs in Group A occupancies with an occupant load of more than 300, Group B medical occupancies, Group I-1 occupancies, Group I-2 occupancies, Group R-1 hotels and motels and Group R-2 dormitories.

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2009 Amendments

- **1011.1.1.2 Approval (add)**
  - Floor proximity exit signs shall be listed and labeled in accordance with UL 924, Emergency Lighting and Power Equipment, Edition 9, dated February 24, 2006

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2009 Amendments

- **1011.1.2 Accessible Exits (amd)**
  - Where exit signs are required by Section 1011.1 of this code, accessible exit doors at the level of exit discharge that lead directly to accessible paths of exit discharge shall additionally be marked by the International Symbol of Accessibility. Such symbol shall be not less than 6 inches high and shall be incorporated into the required exit sign or shall be located directly adjacent to it. Such symbol shall meet the requirements of Section 1011.

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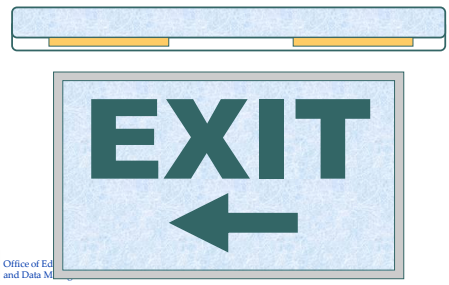
Illuminated Exit Signs

Section 1011.4
&
Section 1011.5



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and Data M

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2009 Amendments

- **1012.2 Height (amended)**
  - Guards shall form a protective barrier not less than 42 inches high, measured vertically above the leading edge of the tread or the adjacent walking surface.
  - **Exception**
    1. For occupancies in Group R-1 bed and breakfast establishments and in Group R-3, and within individual dwelling units in occupancies in Group R-2, guards whose top rail also serves as a handrail shall have a height not less than 34 inches and not more than 38 inches measured vertically from the leading edge of the stair tread nosing.

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- **Exceptions Continued**
  - 2. For occupancies in Group R-1 bed and breakfast establishments, level guards shall be not less than 36 inches high, measured vertically above the adjacent walking surface.
  - 3. The height in assembly seating areas shall be in accordance with Section 1024.14.

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2009 Amendments

1012.3 Opening Limitations (amd)

- Open guards shall have balusters or ornamental patterns such that a 4 inch diameter sphere cannot pass through any opening up to a height of 34 inches. From a height of 34 inches to 42 inches above the adjacent walking surfaces, a sphere 8 inches in diameter shall not pass

Exceptions:

- 1. The triangular openings formed by the riser, tread and bottom rail at the open side of a stairway shall be of a maximum size such that a sphere 6 inches in diameter cannot pass through the opening

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Exceptions Continued

- 2. At elevated walking surfaces for access to and use of electrical, mechanical or plumbing systems or equipment, guards shall have horizontal rails, balusters or be of solid material such that a sphere with a diameter of 21 inches cannot pass through any opening.
- 3. In areas that are not open to the public, within occupancies in Group I-3, F, H or S, balusters, horizontal intermediate rails or other construction shall not permit a sphere with a diameter of 21 inches to pass through any opening

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- 4. In assembly seating areas, guards at the end of aisles where they terminate at a fascia of boxes, balconies and galleries shall have balusters or ornamental patterns such that a 4 inch diameter sphere cannot pass through any opening up to a height of 26 inches. From a height of 26 inches to 42 inches above the adjacent walking surfaces, a sphere 8 inches in diameter shall not pass.
- 5. In Group R-1 bed and breakfast establishments, guards shall have balusters or ornamental patterns such that a 6 inch diameter sphere cannot pass through any opening

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2009 Amendments

1013.2 Egress Through Adjoining Spaces (amended)

- Egress from a room or space shall not pass through adjoining or intervening rooms or areas, except where such adjoining rooms or areas are accessory to the area served; are not a high hazard occupancy and provide a discernable path of egress travel to an exit. Egress shall not pass through kitchens, storage rooms, closets or spaces used for similar purposes. An exit access shall not pass through a room that can be locked to prevent egress. Means of egress from dwelling units or sleeping areas shall not lead through other dwelling units, sleeping areas, toilet rooms or bathrooms.

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Exceptions

- 1. Means of egress are not prohibited through a kitchen area serving adjoining rooms constituting part of the same dwelling unit or sleeping unit.
- 2. Means of egress are not prohibited through adjoining or intervening rooms or spaces in a Group H occupancy when the adjoining or intervening rooms or spaces are of the same or a lesser hazard occupancy group

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- 3. Not more than 50% of the required exit access may travel through stockrooms in Group M occupancies when the stock is of the same hazard classification as that found in the main retail area; when the stockroom is not subject to locking from the egress side; and when there is a 44 inch wide aisle defined by full or partial height fixed walls or similar fixed construction that will maintain the required width and lead directly from the retail area to the exit without obstructions.

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Exit or Exit Access Doorways Required

Section 1014.1

TABLE 1014.1

SPACES WITH ONE MEANS OF EGRESS

OCCUPANCY	MAXIMUM 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

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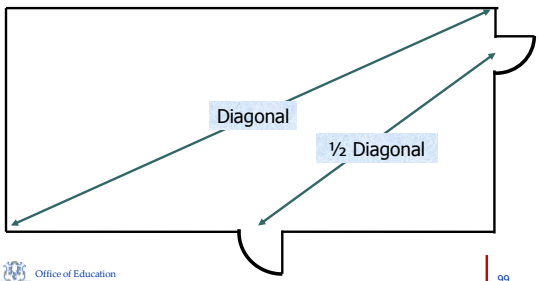
Exit or Exit Access Doorway Arrangement

Section 1014.2



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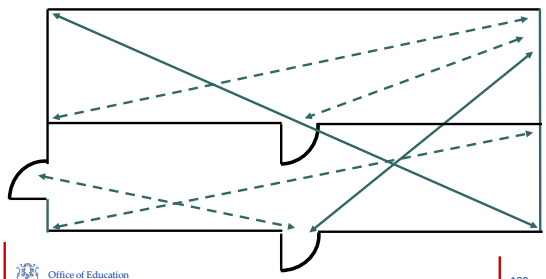
Exit or Exit Access Doorway Arrangement



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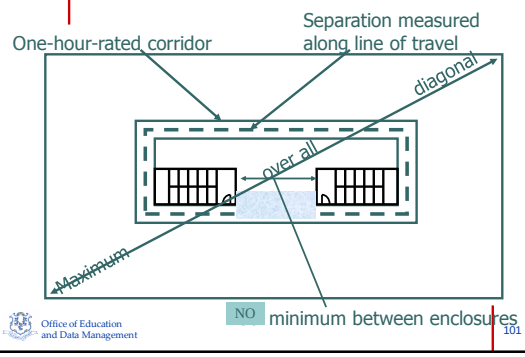
Exception 1:



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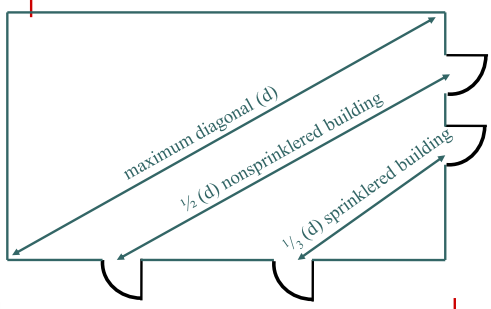
Exception 2:



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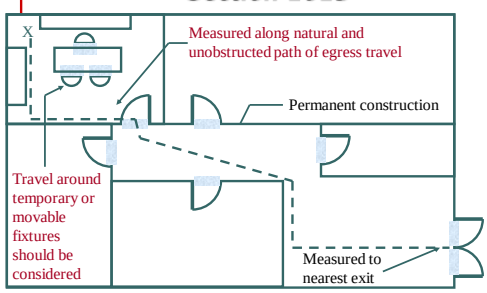
Exception 2:

Exit Access Travel Distance

Section 1015



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Exit Access Travel Distance
Section 1015

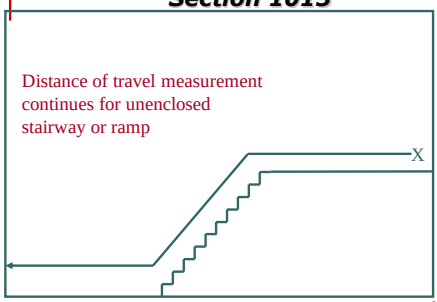

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TABLE 1015.1
A, E, F-1, I-1, M, R or S-1

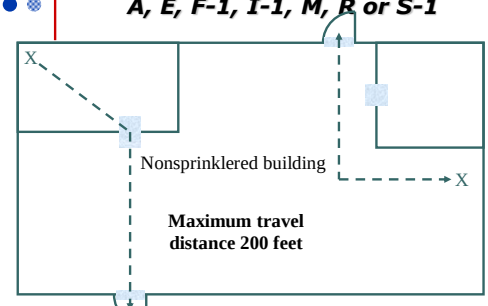

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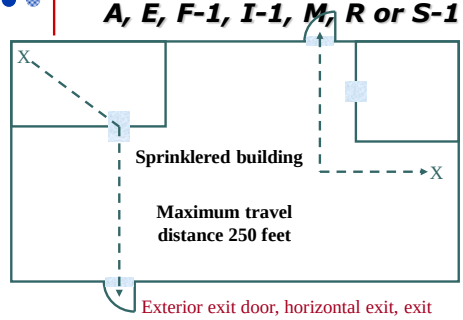
Table 1015.1
A, E, F-1, I-1, M, R or S-1



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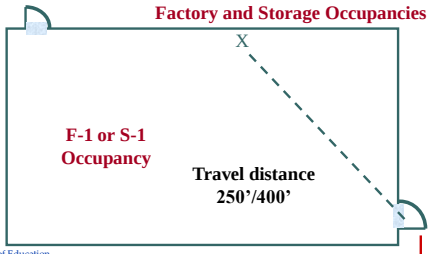
Roof Vent Increase
Section 1015.2



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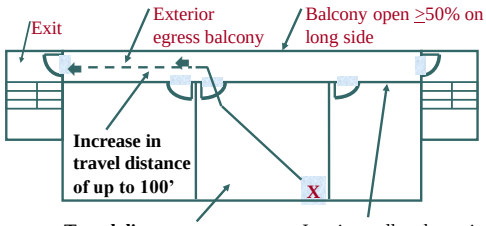
Exterior Egress Balcony Increase
Section 1015.3



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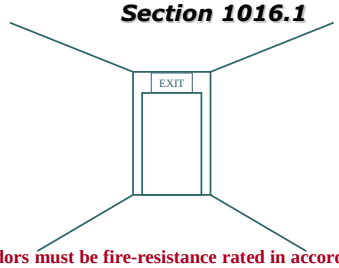
Corridor Construction
Section 1016.1



Corridors must be fire-resistance rated in accordance with IBC Table 1016.1. The corridor walls must comply with the provisions of IBC 708.

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Table
1016.1

TABLE 1016.1
CORRIDOR FIRE-RESISTANCE RATING

OCCUPANCY	OCCUPANT LOAD SERVED BY CORRIDOR	REQUIRED FIRE-RESISTANCE RATING (hours)	
		Without sprinkler system	With sprinkler system[c]
H-1, H-2, H-3	All	Not Permitted	1
H-4, H-5	Greater than 30	Not Permitted	1
A, B, E, F, M, S, U	Greater than 30	1	0
R	Greater than 10	1	0.5
I-2[a], I-4	All	Not Permitted	0
I-1, I-3	All	Not Permitted	1[b]

a. For requirements for occupancies in Group I-2, see Section 407.3.
b. For a reduction in the fire-resistance rating for occupancies in Group I-3, see Section 408.7.
c. Buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2 where allowed.

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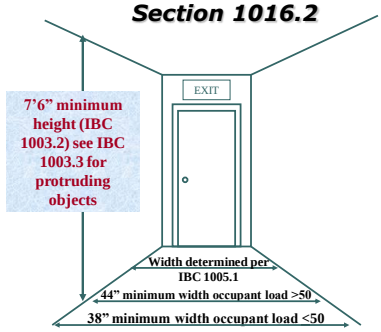
Corridor Width
Section 1016.2



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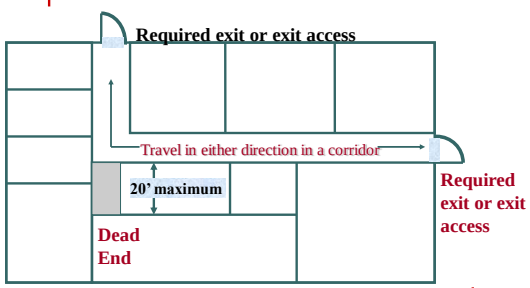
Dead End
Section 1016.3



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Exits
Section 1017

- **General - 1017.1**
  - ***Exits are not to be used for any purpose***
    - **To interfere with means of egress**
- **Exterior Exit Doors - 1017.2**
  - ***When structure is used for human occupancy***
    - **Minimum of one exterior door**

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Minimum Number of Exits
Section 1018.1

TABLE 1018.1
MINIMUM NUMBER OF EXITS FOR OCCUPANT LOAD

OCCUPANT LOAD	MINIMUM NUMBER OF EXITS
1-500	2
501-1,000	3
More than 1,000	4

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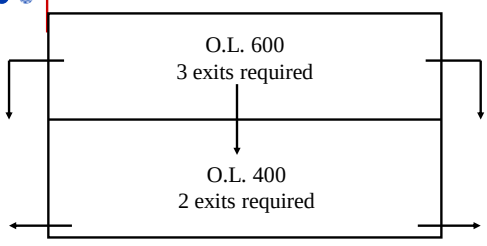
Minimum Number of Exits
Section 1018.1



The required number of exits from any story, basement or individual space must be maintained until arrival at grade or the public way.

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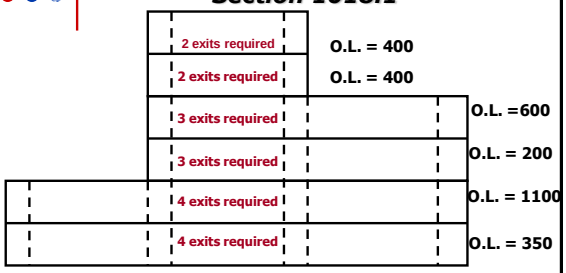
Minimum Number of Exits
Section 1018.1



No cumulative or contributing load from adjacent levels needs to be considered.

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Minimum Number of Exits
Section 1018.1

Occupant load of 501 to 1,000

Access to at least three exits when occupant load served is 501 to 1,000

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Building With One Exit
Section 1018.2

TABLE 1018.2
BUILDINGS WITH ONE EXIT

OCCUPANCY	MINIMUM HEIGHT OF BUILDING ABOVE GRADE PLANE	MAXIMUM OCCUPANTS (OR DWELLING UNITS) PER FLOOR AND TRAVEL DISTANCE
A, B, E, F, M, U	1 Story	50 occupants 75′
H-2, H-3	1 Story	3 occupants and 25′
H-4, H-5, I, R	1 Story	10 occupants and 75′
S	1 Story	30 occupants and 100′
B, F, M, S	2 Stories	30 occupants and 75′
R-2	2 Stories	4 dwelling units and 50′

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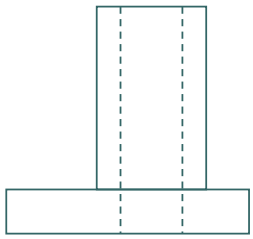
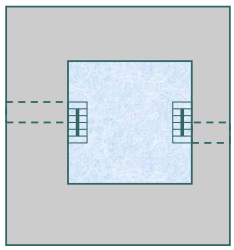
Exit Continuity
Section 1018.3



Elevation



Plan

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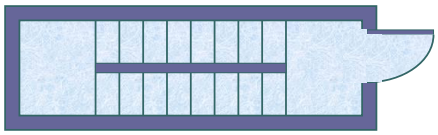
Exit Enclosures Required
Section 1019.1

Interior exit stairways shall be enclosed as specified in IBC 1019



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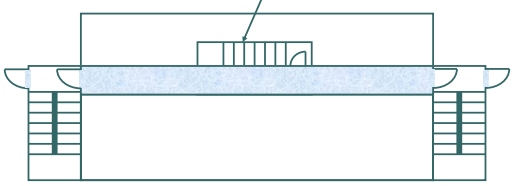
Exception 4:

Stair in Shaft



Exit Enclosure

Exit Enclosure

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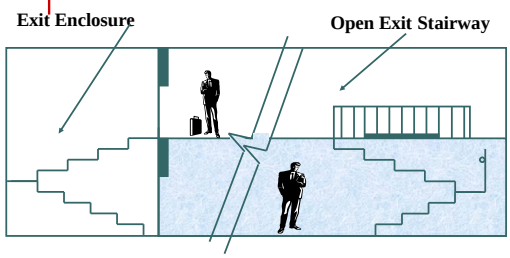
Exception 8:



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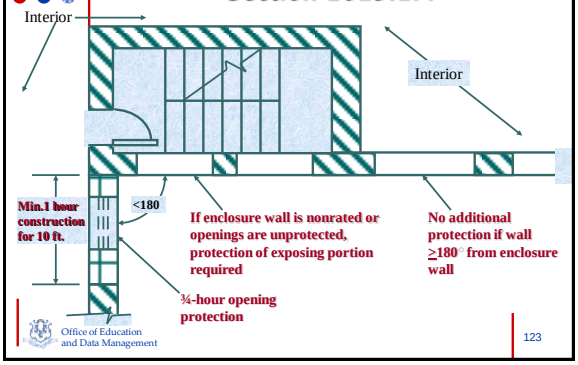
Vertical Enclosure Exterior Walls

Section 1019.1.4



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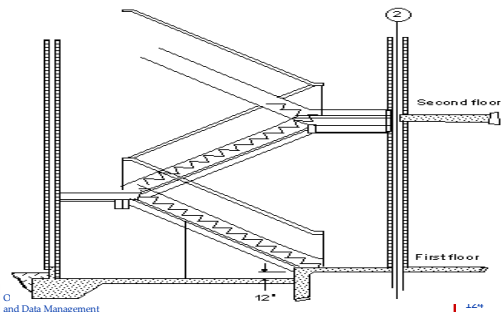
Enclosure Under Stairways

Section 1019.1.5



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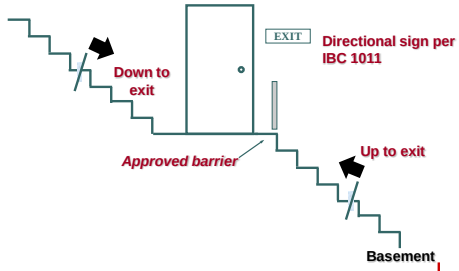
Discharge Identification
Section 1019.1.6



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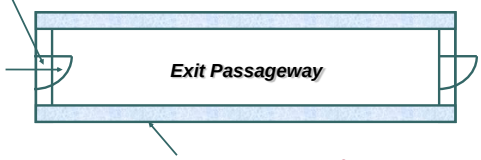
Exit Passageway
Section 1020.1

Door with 1-hour protection rating in 1-hour passageway; 1½-hour protected opening in 2-hour construction



Minimum 1-hour fire-barrier; 2 hours where extending a 2-hour exit enclosure

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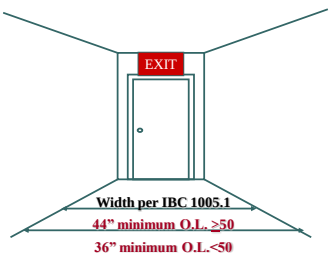
Exit Passageway
Section 1020.1



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Horizontal Exit
Section 1021.1

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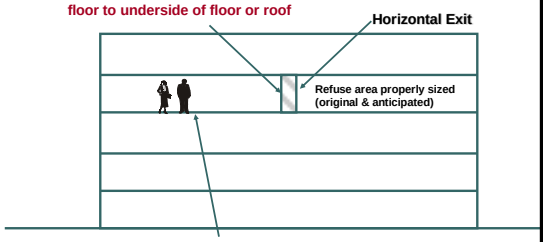
Separation
Section 1021.2

When constructed as fire barrier, wall is continuous from exterior and extends from floor to underside of floor or roof



Where floor assemblies have a 2 hour rating with no unprotected openings, wall is not required to extend through all levels

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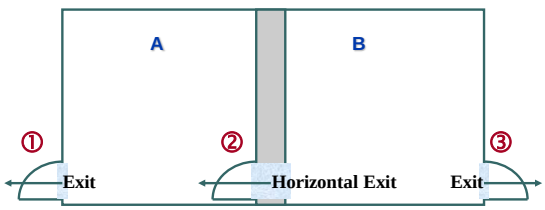
Capacity of Refuge Area
Section 1021.4

NOTE: Exit for "A" adequate to meet provisions of Chapter 10. Need not include added capacity imposed by occupants entering through horizontal exit "B"



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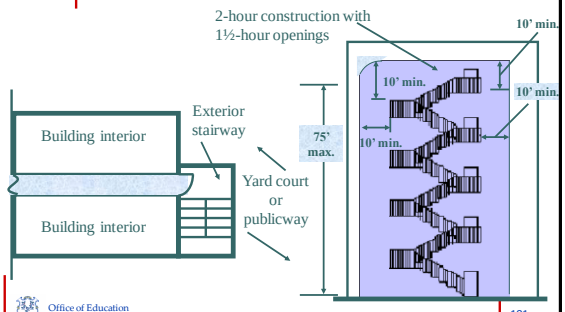
Exterior Exit Stairways
Section 1022



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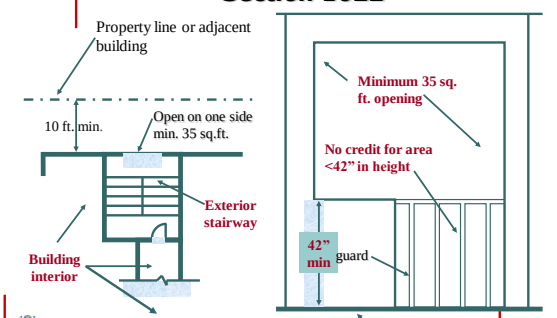
Exterior Exit Stairways
Section 1022



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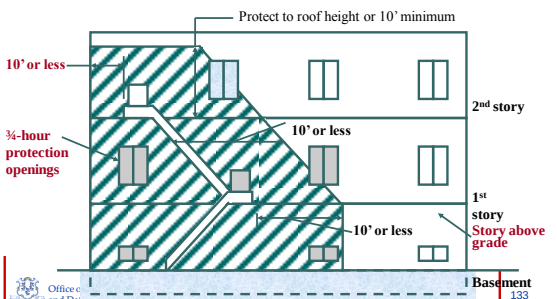
Exterior Ramps and Stairway Protection
Section 1022.6



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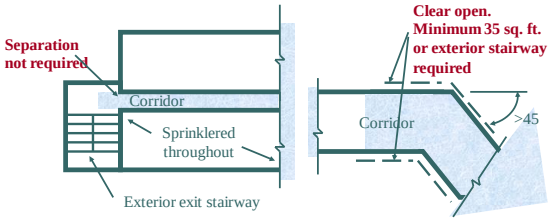
Exterior Ramps and Stairways Protection

Section 1022.6 Exceptions 1, 2 and 3



Provide minimum 35 ft.^{2} of open area (not less than 42" above floor level) IBC 1022.3

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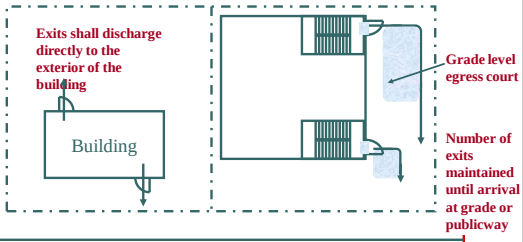
Exit Discharge

General

Section 1023.1



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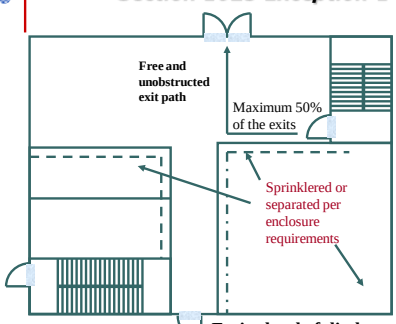
Exit Discharge

Section 1023 Exception 1



Entire level of discharge is sprinklered

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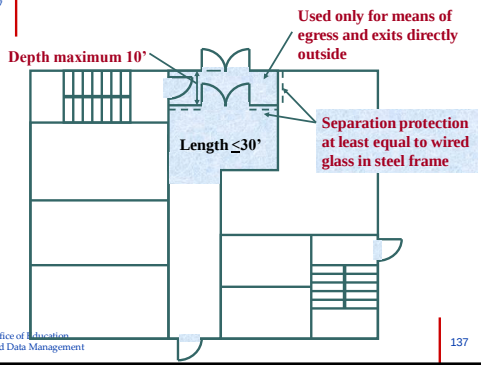
Exit Discharge

Section 1023.1 Exception 2



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2009 Amendments

- **1023.2.1 Remoteness (add)**
  - Where two or more doors leading to exit discharge are required, a minimum of two such doors shall be placed a distance apart equal to not less than one-third of the length of the maximum overall diagonal dimension of the building served measured in a straight line between doors. Additional doors leading to exit discharge shall be arranged a reasonable distance apart so that if one becomes blocked, the others will be available.

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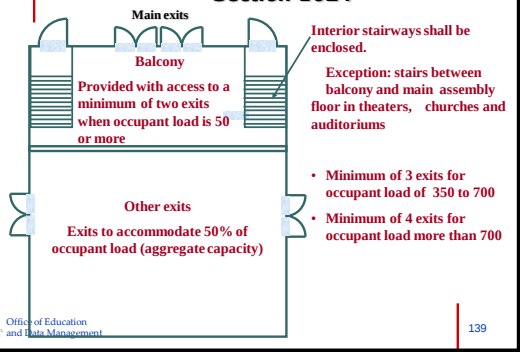
Egress from Group A Occupancies

Section 1024



Interior stairways shall be enclosed.

Exception: stairs between balcony and main assembly floor in theaters, churches and auditoriums

- Minimum of 3 exits for occupant load of 350 to 700
- Minimum of 4 exits for occupant load more than 700

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2009 Amendments

- 1024.2 Assembly Main Exit (amended)
  - In Group A occupancies that are newly constructed, have an increase in the number of occupants by addition or alteration or are created by change of occupancy and that have a single main entrance, such main entrance shall also be the main exit. The main entrance/exit shall be of sufficient width to accommodate not less than two thirds of the occupant load, but such width shall not be less than the total required width of all means of egress leading to the exit.

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Width of Means of Egress for Assembly

Section 1024.6

Smoke-Protected Seating

Section 1024.6.2

TOTAL NUMBER OF SEATS IN THE SMOKE-PROTECTED ASSEMBLY OCCUPANCY	INCHES OF CLEAR WIDTH PER SEAT SERVED			
	Stairs and aisle steps with handrails within 30 inches	Stairs and aisle steps without handrails within 30 inches	Passageways, doorways and ramps not steeper than 1 in 10 in slope	Ramps steeper than 1 to 10 in slope
Equal to or less than 5,000	0.200	0.250	0.150	0.165
10,000	0.130	0.163	0.100	0.110
15,000	0.096	0.120	0.070	0.077
20,000	0.076	0.095	0.056	0.062
Equal to or greater than 25,000	0.60	0.075	0.044	0.048

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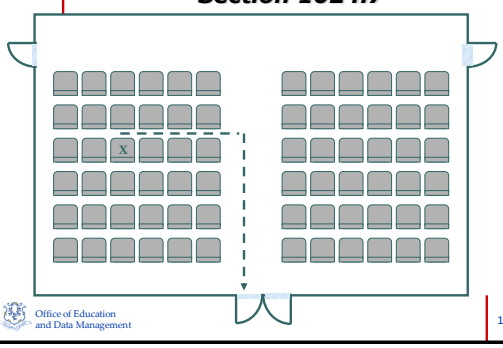
Travel Distance

Section 1024.7



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2009 Amendments

- 1025.3 Maximum Height From Floor (amendments)
  - Emergency escape and rescue openings shall have the bottom of the clear opening not greater than 44 inches measured from the floor.
  - Exception:

    The 44 inch maximum height shall be permitted to be measured vertically above a fixed, permanent platform, step or steps whose minimum width shall equal or exceed the operable width of the opening and shall be centered on such opening and which shall comply with Section 1009.3

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2009 Amendments

- **Section 1026 Floor Proximity Egress Path Marking (added new section)**
  - 1026.1 Where Required
  - 1026.2 Size and Location
  - 1026.3 Device or System Requirements
  - 1026.4 Materials
  - 1026.5 Illumination
  - 1026.5.1 Photoluminescent Systems Or Devices

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Thank-You!

State of Connecticut
Department of Construction Services

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- Office of the State Fire Marshal
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