MEANS OF EGRESS IN ACCORDANCE WITH THE 2003 INTERNATIONAL BUILDING CODE

As amended by the 2005 Connecticut Supplement

Presented by

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Disclaimer: To keep this program a reasonable length, it does not cover all aspects of Means of Egress that the code user needs to be aware of. This program includes changes made to the model document by the Connecticut Amendments.
Frequent, careful reading of the code is essential to understand its many intricacies.
The handout does not take the place of owning or reading the code.
Regardless of what I may say or how I may act ***– I do not know it all!***

ORGANIZATION

Chapter 10 of the 2003 IBC is loosely organized into 5 main categories. The layout is entirely different from BOCA/96 and the 2000 IBC.

1. General Information (Sec. 1001 - 1012)
2. Exit access (Sec. 1013 – 1016)
3. Exits (Sec. 1017 – 1022)
4. Exit discharge (Sec. 1023)
5. Additional info. specific to Group A (1024) and emergency escape & rescue (1025)

GENERAL

1001:

- MOE must be provided per Chapter 10
- Cannot alter MOE to reduce number or capacity of exits
- Maintain MOE per State Fire Safety Code

1002: provides definitions specific to MOE

"**Means of egress.** A continuous and unobstructed path of vertical and horizontal egress travel from any occupied portion of a building or structure to a public way. A means of egress consists of three separate and distinct parts: the exit access, the exit and the exit discharge."

"**Exit access.** That portion of a means of egress system that leads from any occupied portion of a building or structure to an exit."

"**Exit.** That portion of a means of egress system which is separated from other interior spaces of a building or structure by fire-resistance-rated construction and opening protectives as required to provide a protected path of egress travel between the exit access and the exit discharge. Exits include exterior exit doors at ground level, exit enclosures, exit passageways, exterior exit stairs, exterior exit ramps and horizontal exits."

"**Exit discharge.** That portion of a means of egress system between the termination of an exit and the public way."

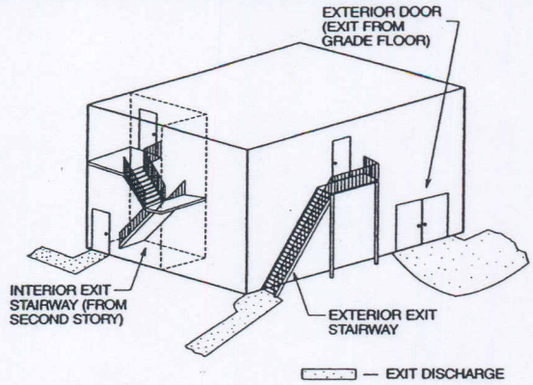


Figure 1002.1(2)
EXITS

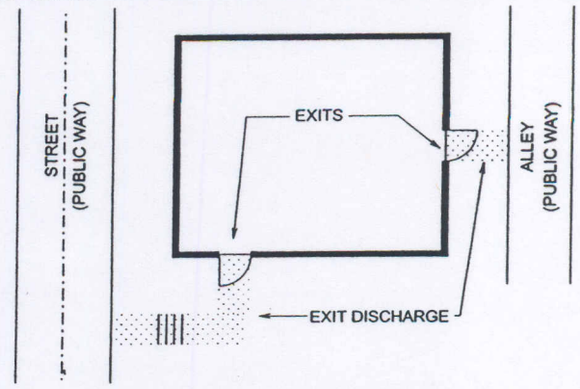


Figure 1002.1(4)
EXIT DISCHARGE

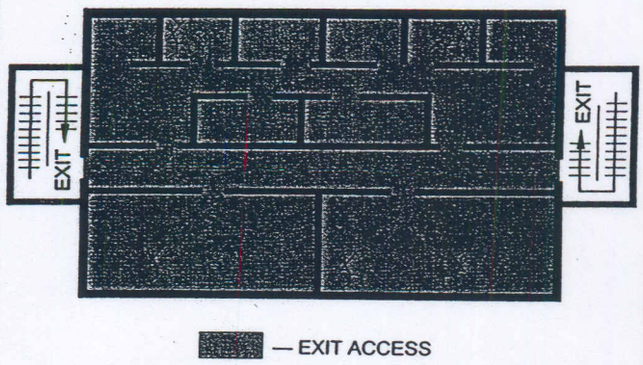


Figure 1002.1(3)
EXIT ACCESS

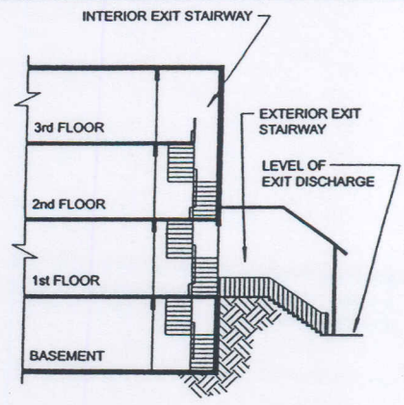


Figure 1002.1(5)
LEVEL OF EXIT DISCHARGE

1003: the general info in 1003 – 1012 applies to all 3 elements of MOE <u>in addition to</u> specific info on exit access, exits and exit discharge.

- MOE ceiling height – generally 7' with exceptions.
- Protruding objects – min. headroom 80" except 78" @ doors & closers. Where less than 80" need 27" cane barrier
- Code restricts location of freestanding objects & horizontal projections into MOE
- Code regulates elevation changes in MOE. Sometimes requires ramps instead of steps
- Continuity – cannot interrupt path of egress travel with anything other than a MOE component (door, stair, ramp, etc.). *<u>Required</u>* capacity of MOE shall not be diminished along path of travel.
- Escalators & moving walks cannot be used as MOE
- Elevator can only be used as accessible MOE in accordance with 1007.4:

  Comply with emergency operation & signaling device requirements of ASME A17.1

  Standby power required

  Elevator must be accessed from Area of Refuge or Horizontal Exit except in open parking garages and fully sprinklered (13 or 13R) buildings

1004 – Occupant load: the **minimum** # of occupants for which exits must be provided is determined by the **<u>largest</u>** of:

- Actual number of occupants
- Number by T. 1004.1.2 (this is the absolute minimum number of occupants for which exits and toilet facilities must be provided) *<u>Watch out for gross area vs. net area</u>*
- Number by combination: must add occupants of accessory space to occupants of primary space if the accessory occupants exit through the primary space

1004.2: Code allows for increased occupant loads above T. 1004.1.2 (provided you have enough exits, toilets, HVAC, etc.) but in no case can occupancy of a building or space exceed 1 occupant per 5 s.f. of occupiable space.

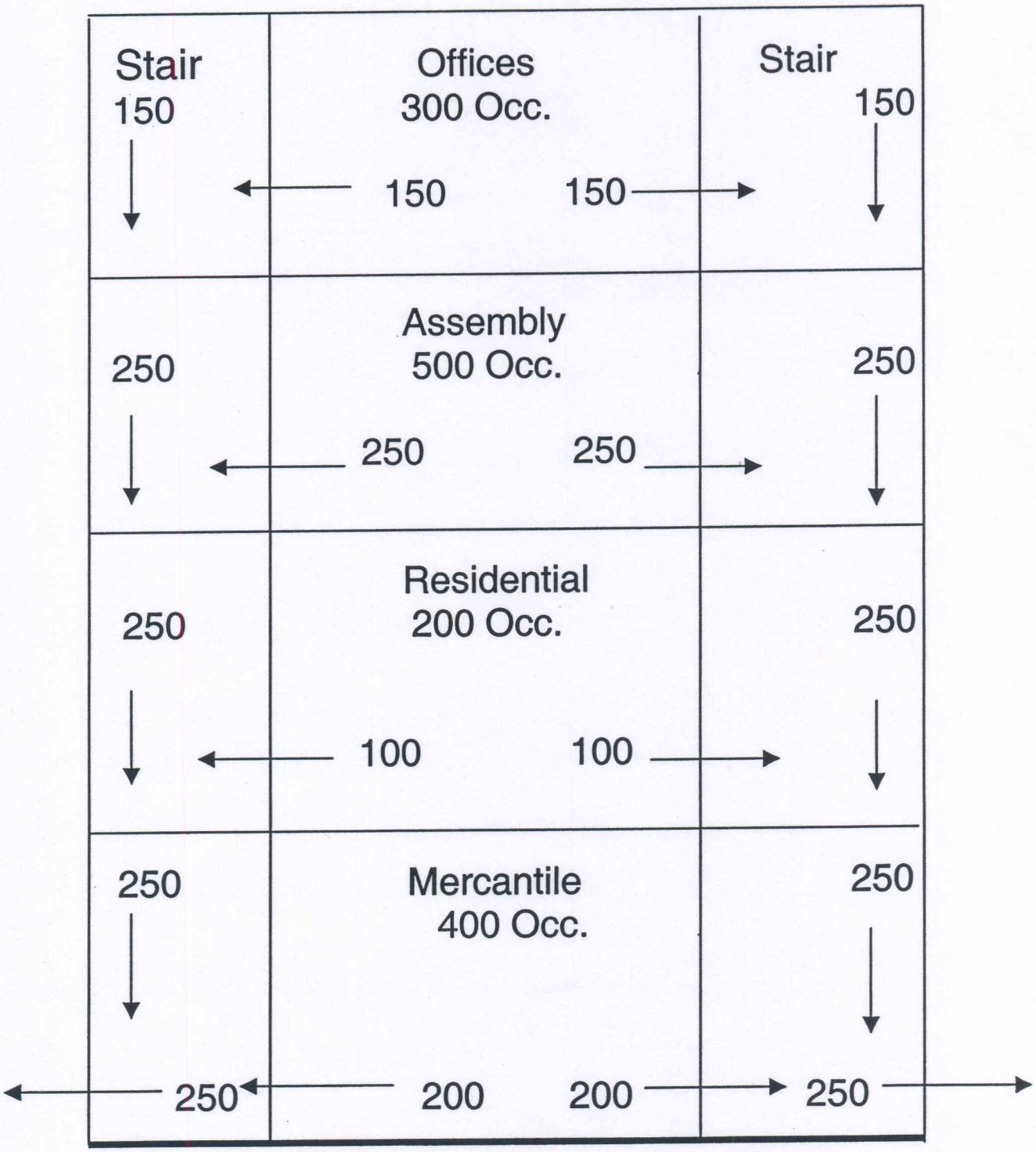
TABLE 1004.1.2
MAXIMUM FLOOR AREA ALLOWANCES PER OCCUPANT

OCCUPANCY	FLOOR AREA IN SQ. FT. PER OCCUPANT
Agricultural building	300 gross
Aircraft hangars	500 gross
Airport terminal Baggage claim Baggage handling Concourse Waiting areas	 20 gross 300 gross 100 gross 15 gross
Assembly Gaming floors (keno, slots, etc.)	11 gross
Assembly with fixed seats	See Section 1004.7
Assembly without fixed seats Concentrated (chairs only—not fixed) Standing space Unconcentrated (tables and chairs)	 7 net 5 net 15 net
Bowling centers, allow 5 persons for each lane including 15 feet of runway, and for additional areas	7 net
Business areas	100 gross
Courtrooms—other than fixed seating areas	40 net
Dormitories	50 gross
Educational Classroom area Shops and other vocational room areas	 20 net 50 net
Exercise rooms	50 gross
H-5 Fabrication and manufacturing areas	200 gross
Industrial areas	100 gross
Institutional areas Inpatient treatment areas Outpatient areas Sleeping areas	 240 gross 100 gross 120 gross
Kitchens, commercial	200 gross
Library Reading rooms Stack area	 50 net 100 gross
Locker rooms	50 gross
Mercantile Areas on other floors Basement and grade floor areas Storage, stock, shipping areas	 60 gross 30 gross 300 gross
Parking garages	200 gross
Residential	200 gross
Skating rinks, swimming pools Rink and pool Decks	 50 gross 15 gross
Stages and platforms	15 net
Accessory storage areas, mechanical equipment room	300 gross
Warehouses	500 gross

For SI: 1 square foot = 0.0929 m^2.

1004.3 Posting: Group A rooms or spaces must be posted with the occupant load. Note that you cannot use posting of the occupant load as a means to reduce the calculated number of occupants.

1004.4 Exiting from multiple floors: Exits that serve a floor in multi-story buildings are sized for the occupancy of that floor, not the cumulative total, but, the required exit capacity cannot diminish in the direction of exit travel:


Stair
150
Offices
300 Occ.
Stair
150
150
150
Assembly
500 Occ.
250
250
250
250
Residential
200 Occ.
250
250
100
100
Mercantile
400 Occ.
250
250
250
200
200
250

1004.5 Egress convergence:

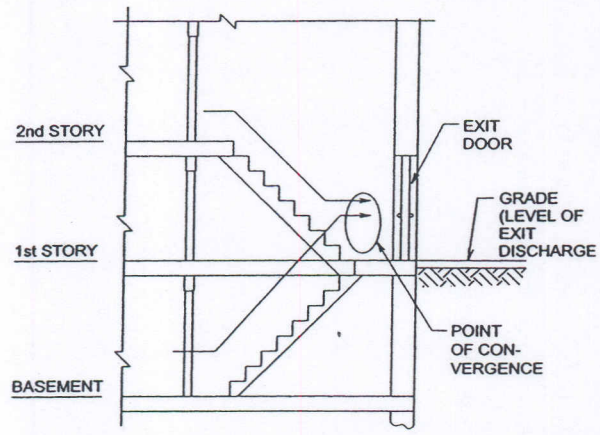


Figure 1004.5(1)
EGRESS CONVERGENCE AT 1st STORY

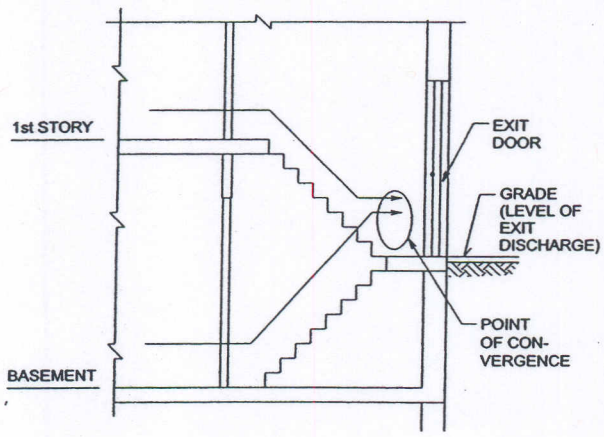


Figure 1004.5(2)
EGRESS CONVERGENCE AT INTERMEDIATE LEVEL

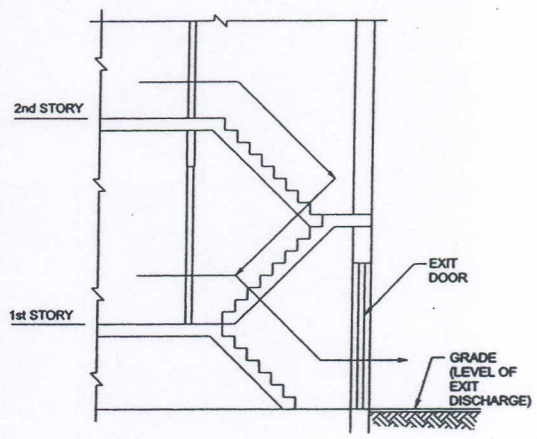
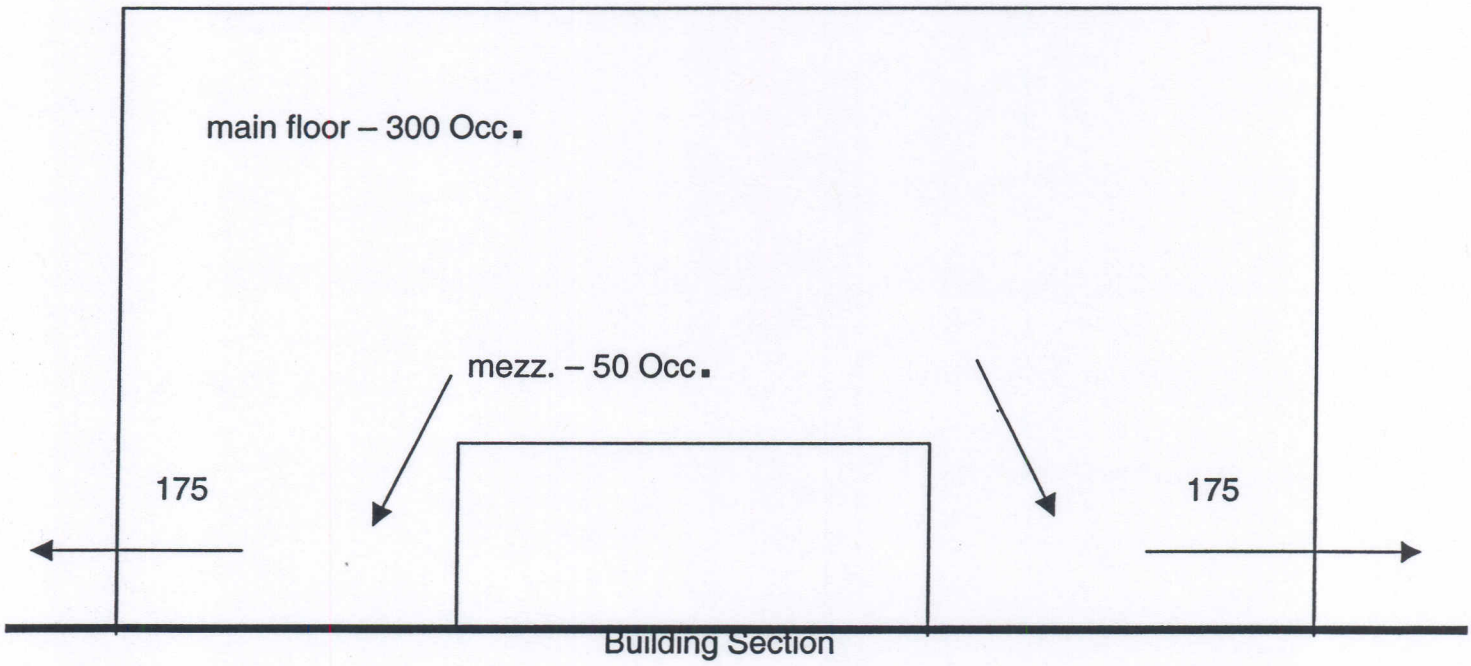


Figure 1004.5(3)
NO EGRESS CONVERGENCE

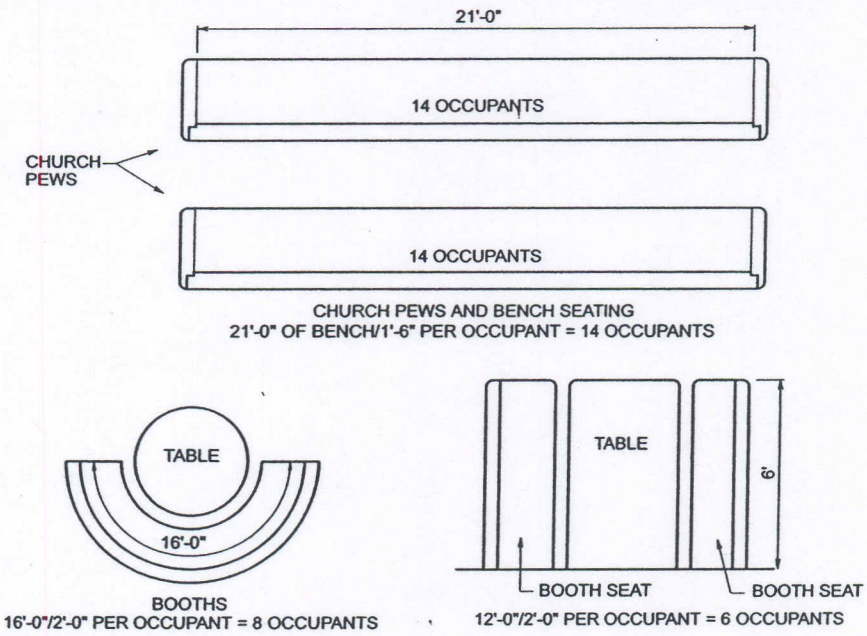
1004.6 Mezzanines: Add mezzanine occupants to the occupants of the floor they travel to:



Must provide exit capacity for 350 total Occ.

1004.7 Fixed Seating:

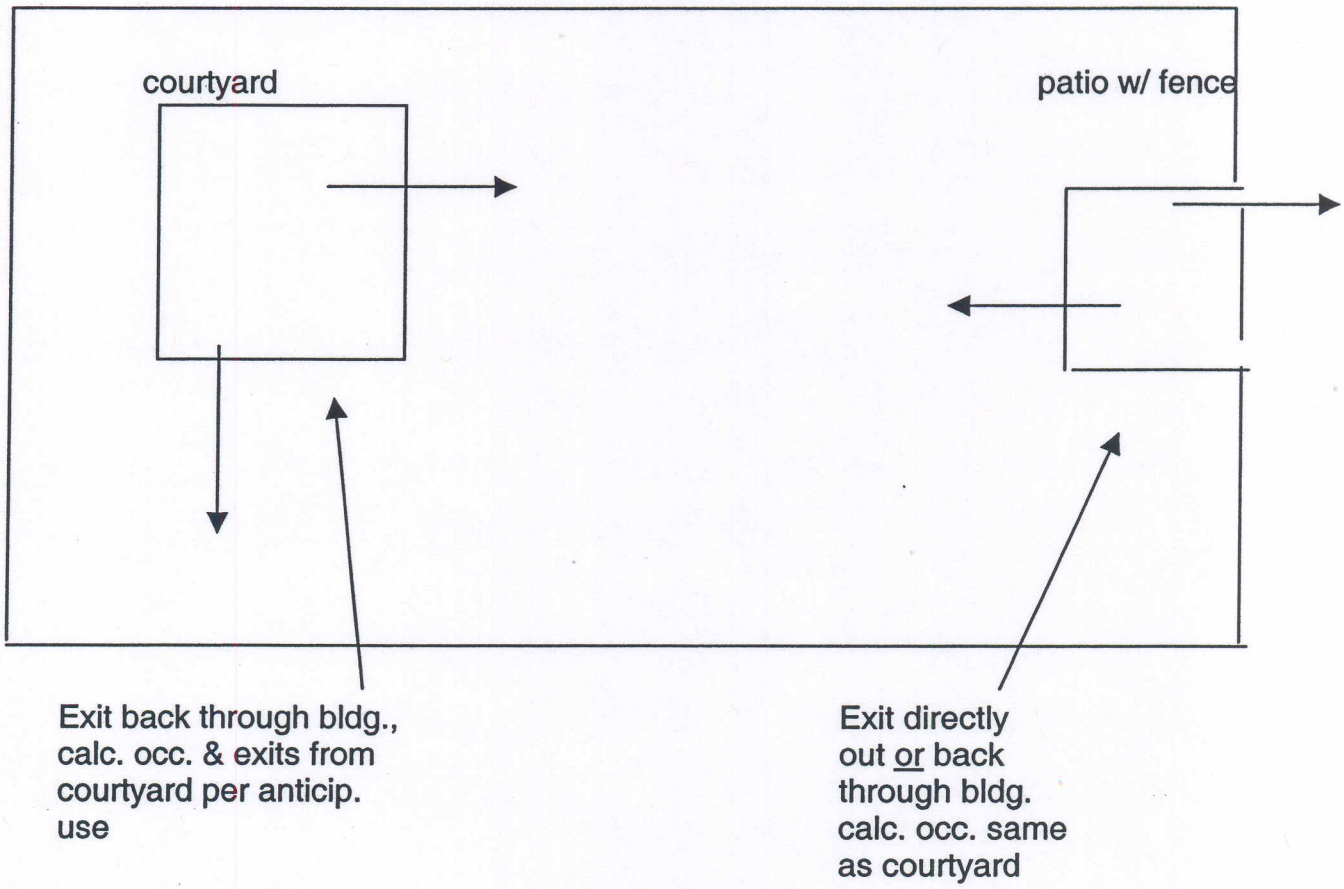
- Count individual fixed chairs, or
- Count 1 occ. per 18" length in undivided seating, or
- Count 1 occ. per 24" of booth seat backrest



For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm.

Figure 1004.7
TYPICAL FIXED SEATING

1004.8 Outdoor areas:



Note: If courtyard or patio is used by occ. in addition to bldg. occ. and MOE goes through bldg., must add outdoor occ. to bldg. occ. when calc. MOE

1004.9 Multiple occupancies: calculate the MOE based on each occupancy – when 2 different occupancies utilize portions of the same MOE, egress components must meet the most stringent requirements of all occupancies served (ie: width, illumination, travel distance, etc.)

1005 Egress Width: Total width of each component of MOE = total occ. load served x factors in T. 1005.1. Multiple MOE shall be sized such that loss of any one MOE shall not reduce available capacity to less than 50% of the *required* capacity. Maximum capacity required from any story shall be maintained to the termination of the MOE (public way).

(Amd) TABLE 1005.1 EGRESS WIDTH PER OCCUPANT SERVED

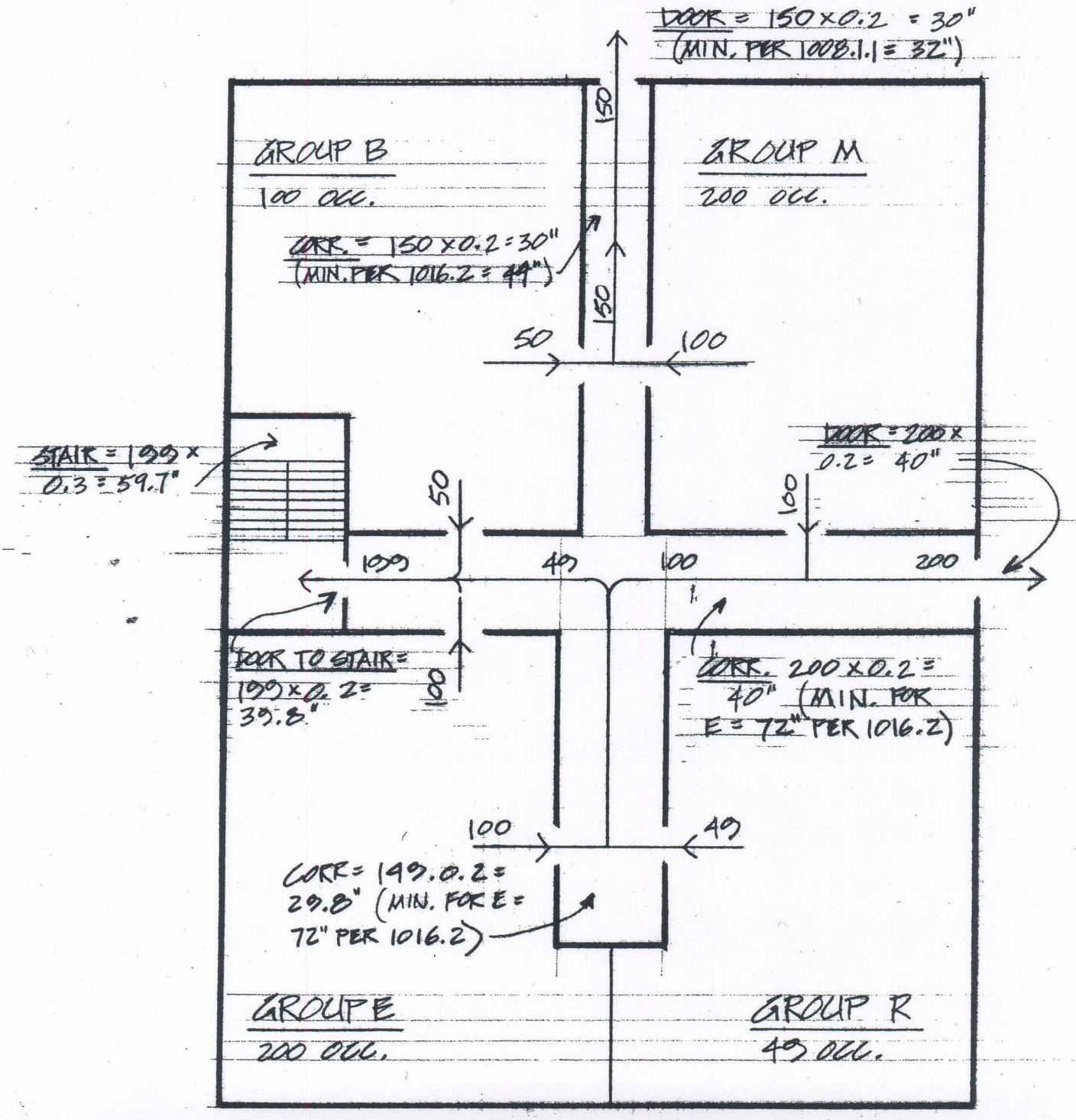
OCCUPANCY	WITHOUT SPRINKLER SYSTEM		WITH SPRINKLER SYSTEM[a]	
	Stairways (inches per occupant)	Other egress components (inches per occupant)	Stairways (inches per occupant)	Other egress components (inches per occupant)
Occupancies other than those listed below	0.3	0.2	0.3	0.2
R-4	NA	NA	0.4	0.2
I-2, R-1[b], R-2, R-3	NA	NA	0.3	0.2
Group H	NA	NA	0.7	0.4

a. Buildings equipped throughout with an automatic sprinkler system in accordance with Sections 903.3.1.1 or 903.3.1.2.

b. Except Group R-1 bed and breakfast establishments

MOE calculation example:

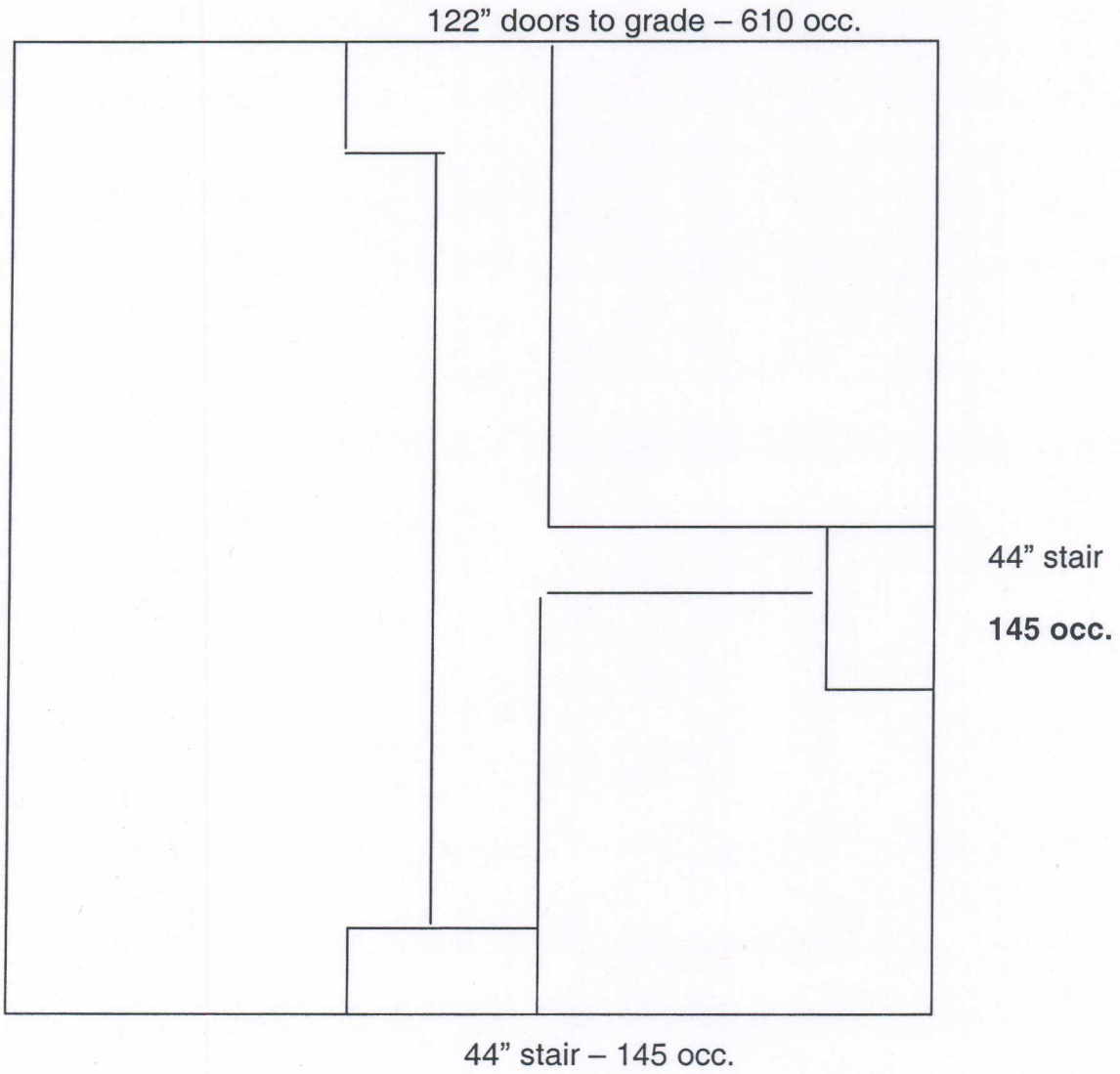
TOTAL OCC. LOAD = 549 ∴ 3 EXITS REQ'D (T. 1018.1)



WIDTH OF EACH ELEMENT = OCC. SERVED x T. 1005.1 FACTORS

MIXED USES, SEPARATED ⇒ FULLY SPRINKLERED BLDG

Code violation: 900 Occ. total - if doors to grade are blocked, MOE capacity is reduced to 290, less than required 50%.

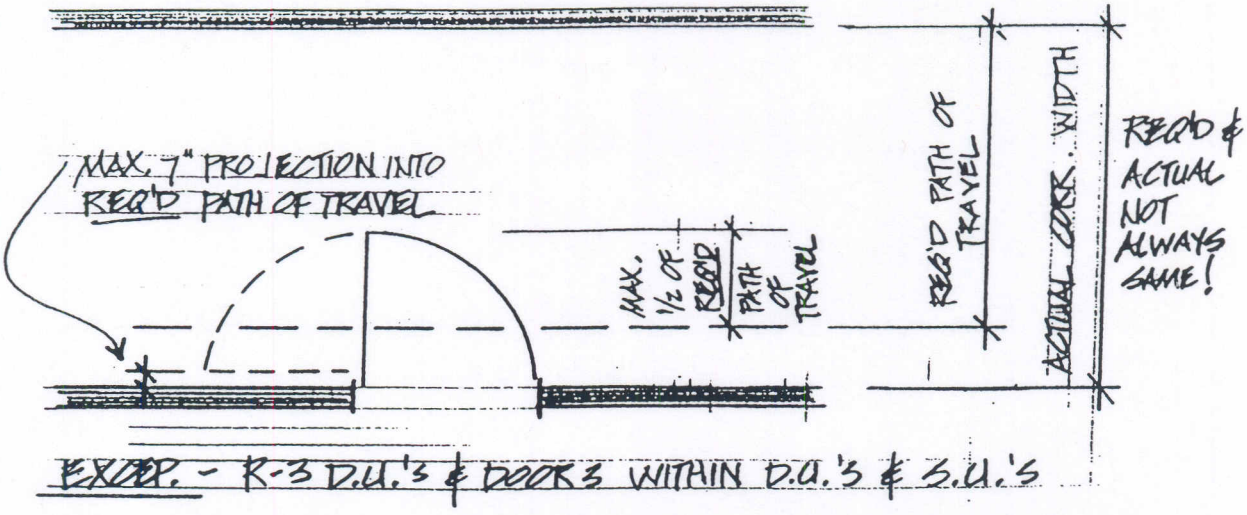


New to Connecticut:

(Add) **1005.1.1 Balanced egress capacity.** The total required egress capacity from any story, balcony, tier or other occupied space shall be balanced among the total number of required means of egress. The minimum capacity of any required means of egress shall be the greatest capacity as determined by all of the following:

1. Minimum width as determined by Sections 1008.1, 1009.1 and 1010.5.
2. Minimum width as determined by the total required exit capacity divided by the number of required exits.
3. Minimum width as required by use and occupancy classification.

1005.2 – door encroachment:



Exception: Group R-3 D.U.'s and doors within individual D.U.'s/sleeping units in R-2

1006 – MOE illumination: required in exit access, exits and exit discharge at all times the space served by the MOE is occupied.

Exceptions

- Group U occupancies
- Aisle accessways in Group A (space between seats)
- D.U.'s & sleeping units in Groups R-1, R-2 & R-3
- Sleeping units in Group I
- In B&B's when MOE illumination is initiated upon alarm

1006.2: Illumination level = 1 footcandle at floor with exceptions for auditoriums, etc.

1006.2.1: Arrange so failure of any single lamp does not result in less than 0.2 fc @ floor

1006.3: Emergency power required for 90 minutes in:

1. Exit access in rooms or spaces requiring more than one MOE

2. In buildings required to have two MOE at:
   - Corridors and stairs
   - Exterior egress components (incl. exit discharge) at other than LED
   - Interior exit discharge elements permitted by 1023.1
   - Exterior exit discharge immediately adjacent to exit discharge doorways

3. In B&B MOE

4. Egress side of doors with access controlled or delayed egress locks

1006.4: gives emergency lighting performance criteria (allows for averaging and dimming over 90 min. time)

1007 – Accessible Means of Egress:

1007.1: each accessible space requires a minimum of 1 accessible MOE. When more than 1 MOE is required from any accessible space, a minimum of 2 accessible MOE must be provided.
Exceptions:

- Alterations do not require addition of accessible MOE
- Accessible mezzanines require 1 accessible MOE (enclosed exit stair or compliant elevator)
- Group A w/sloped floors – only 1 accessible MOE required when common path of travel requirements are met

1007.2: Required accessible MOE must be continuous to the public way. Acceptable components:

- Accessible routes complying with 1104
- Enclosed stairs complying with 1007.3 and 1019.1
- Elevators complying with 1007.4
- Platform lifts complying with 1007.5
- Horizontal exits
- Smoke barriers

Exceptions:

1. Exterior areas for rescue assistance when exit discharge is not accessible
2. For exterior exit stairs, include either area of refuge or exterior area for rescue assistance

1007.2.1: Where a ***required*** accessible level is 4 or more stories above or below the LED, a minimum of 1 accessible MOE must be by elevator. Exceptions for buildings with 13 or 13R sprinklers:

- Floors with a horizontal exit at or below LED
- Floors provided with a ramp per 1010

1007.3: For enclosed exit stairs to be part of accessible MOE, must have 48" clear between handrails and be accessed from an area of refuge or a horizontal exit.
Exceptions:

- Area of refuge not required with 13 system or in open parking garages
- 48" clear width not required with 13 or 13R system or for stairs accessed from horizontal exit

1007.5: Lifts allowed as part of accessible MOE in limited locations (see 1109.7). Require standby power systems.

1007.6: Gives specific requirements for area of refuge including travel distance, size, separation, communication & identification.

1007.7: Signage indicating the location of accessible MOE must be provided at all exits & elevators that serve a ***required*** accessible space but are not accessible MOE

1007.8: Exterior area for assisted rescue (like an area of refuge but outside the building): must be min. 50% open to outside air; sized for 1 space (30" x 48") for each 200 occupants or portion thereof; separation req'd. per 704 & 1007.8; stairs need 48" clear; need identification

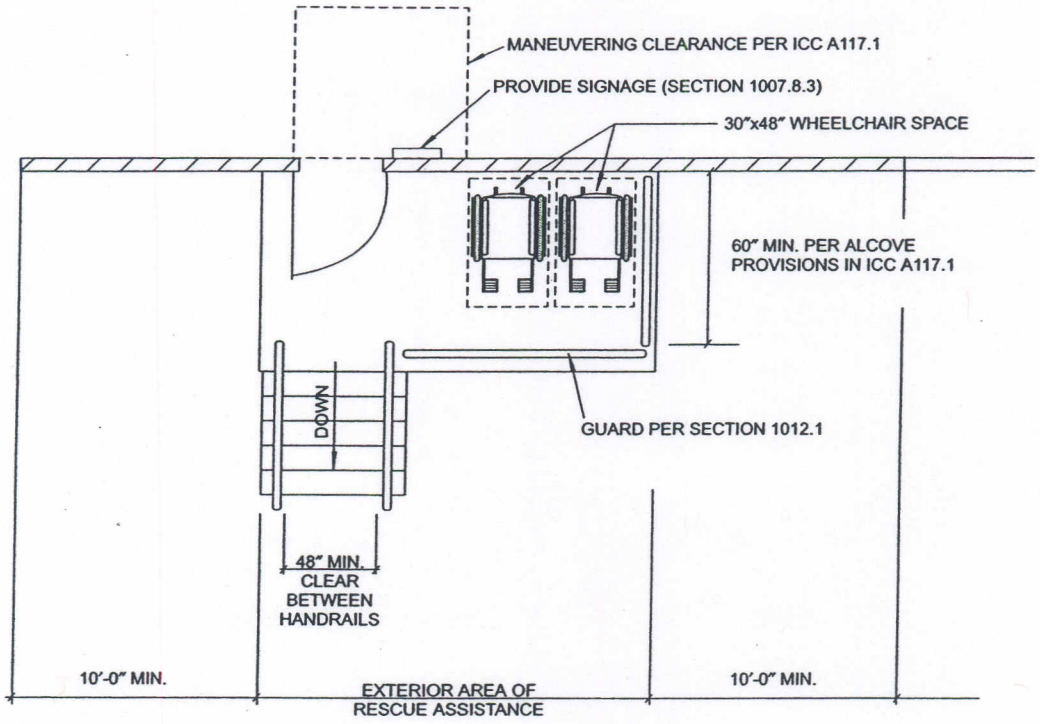
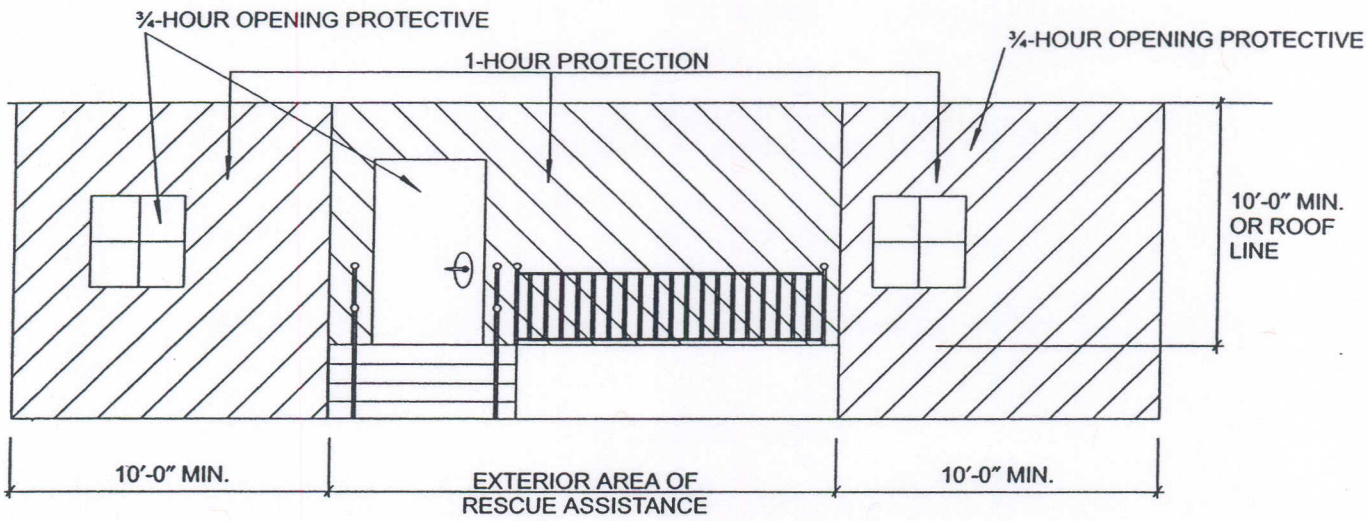


Figure 1007.8(1)
EXTERIOR AREA OF RESCUE ASSISTANCE



For SI: 1 foot = 304.8 mm.

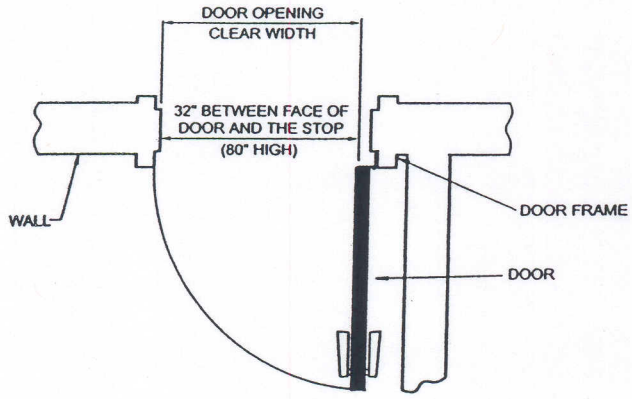
Figure 1007.8(2)
EXTERIOR AREA OF RESCUE ASSISTANCE

1008 – MOE doors, gates & turnstiles

1008.1: All doors in egress path of travel (even those that exceed minimum # req'd.) must comply w/1008. Must be easily distinguished as doors, cannot be concealed. Cannot use mirrors or reflecting materials.

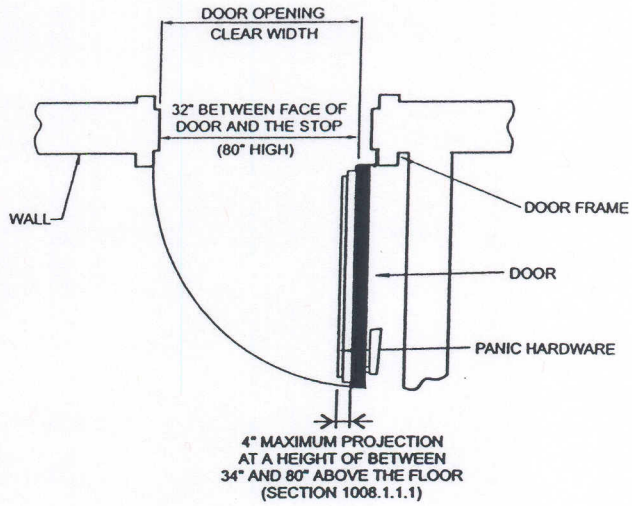
1008.1.1: Doors must be sized for occupant load (see 1005.1) but min. width generally 32" (I-2 to move beds = 41 ½") and min. height 80, **but,** lots of exceptions!

1008.1.1.1: Projections into clear width:



For SI: 1 inch = 25.4 mm.

Figure 1008.1.1(1)
TYPICAL DOOR OPENING CLEARANCE



For SI: 1 inch = 25.4 mm.

Figure 1008.1.1(2)
TYPICAL DOOR OPENING CLEARANCE

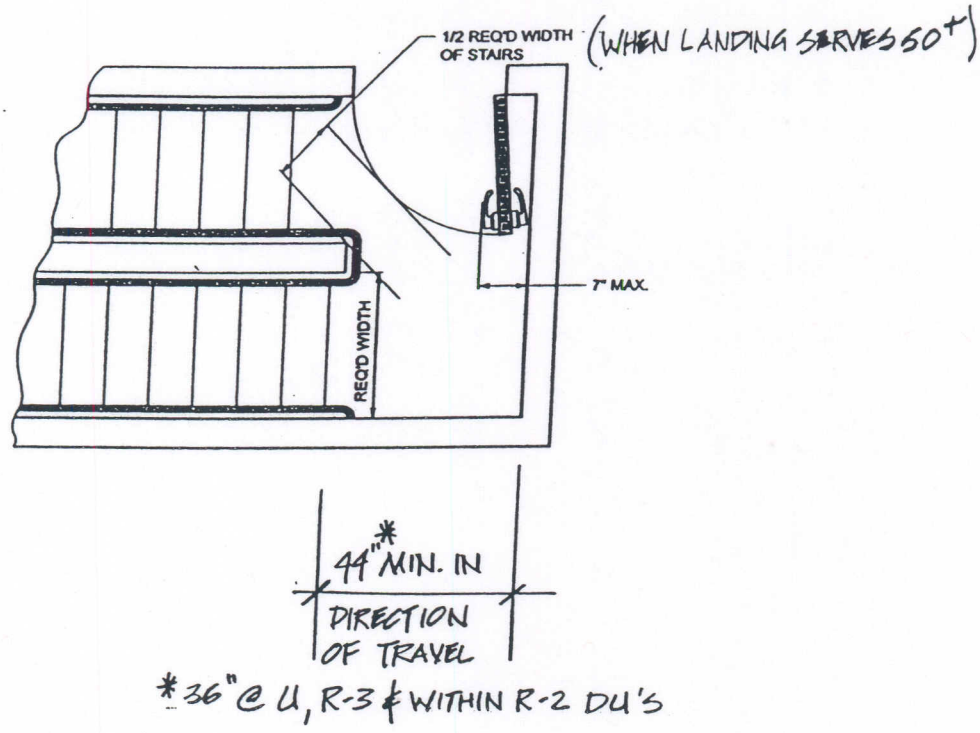
1008.1.2: In general, egress doors shall be side-hinged swinging doors, **but,** see exceptions for certain spaces w/occ. load less than 10, I-3 occ., D.U.'s, revolving, horizontal sliding & power operated doors.

Egress doors must swing in direction of egress travel in: all Group H occ.; where serving an exit enclosure; and where serving an occ. load of 50 or more.

1008.1.3: Gives specific requirements for special doors such as revolving, power-operated, horizontal sliding and access-controlled doors as well as security grilles.

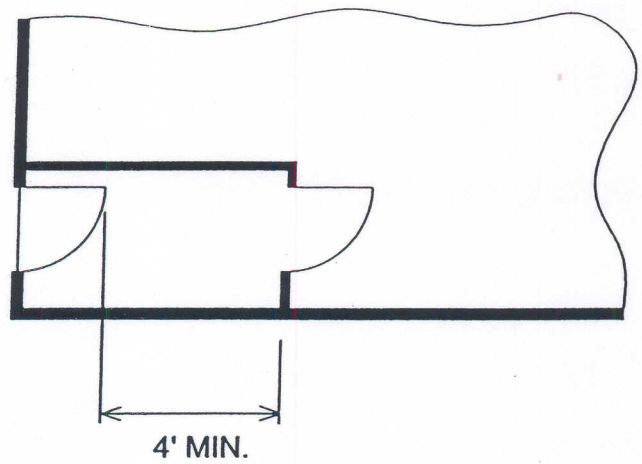
1008.1.4: Requires floor or landing @ same elevation on each side of door. Exceptions for indiv. D.U.'s (R-2, R-3) and ext. doors not on accessible route

1008.1.5: Landings at doors:



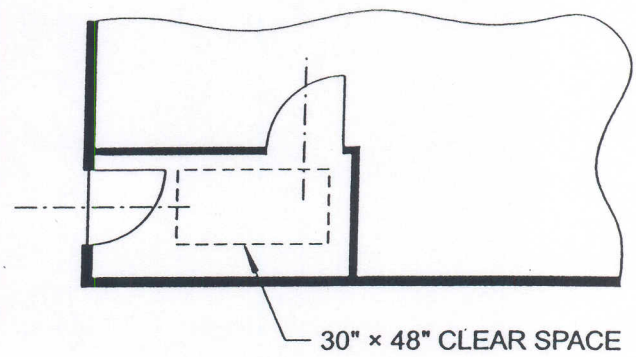
*36" @ U, R-3 & WITHIN R-2 DU'S

1008.1.7: Door arrangement:



For SI: 1 foot = 304.8 mm.

Figure 1008.1.7(1)
SPACING OF DOORS IN SERIES



For SI: 1 inch = 25.4 mm.

Figure 1008.1.7(2)
SPACING OF DOORS IN SERIES

Exceptions:

- Storm & screen doors @ R-2 & R-3 D.U.'s
- Doors within R-2 & R-3 D.U.'s other than Type A D.U.'s

1008.1.8: Egress doors must be readily operable from egress side without key or special knowledge. Subsections deal with special requirements for accessibility, locks & latches, bolt locks (generally not permitted), delayed egress locks & stairway doors (must be operable from both sides, with exceptions)

1008.1.8.8: I-2, I-4 & R-4 bathroom doors must allow unlocking from outside bathroom in emergency

1008.1.9: Panic hardware required on doors that lock or latch in Group A & E with occupant loads of 100 or more (exceptions for stadiums @ 1008.2.1) and in Group H-1, H-2, H-3 or H-5 of any occupant load

1008.2: Gates in MOE must meet applicable req. for doors. Exceptions for stadiums.

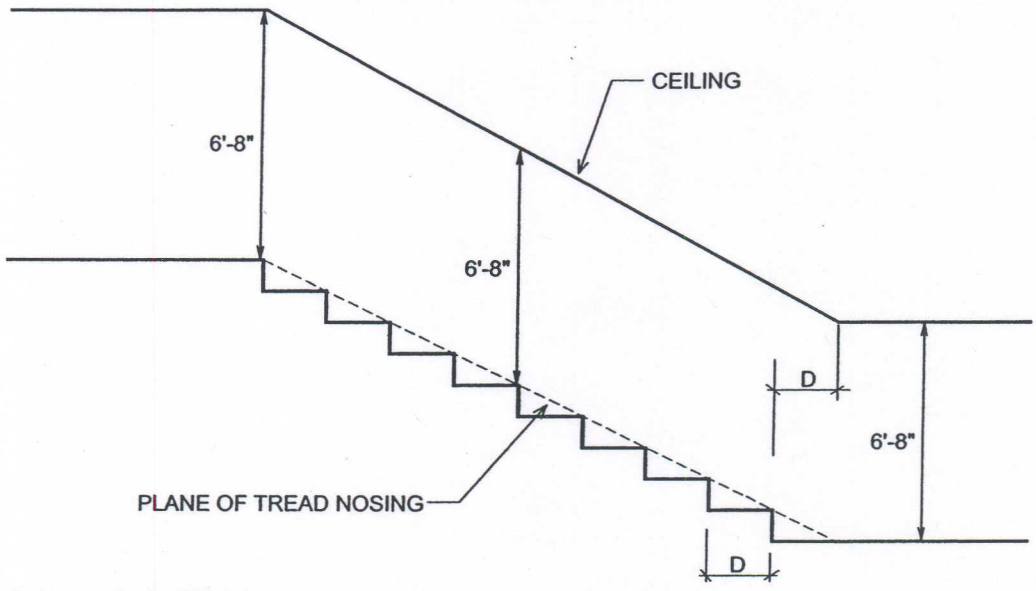
1008.3: Turnstiles that restrict travel to one direction cannot be placed to obstruct MOE. Exception for certain turnstiles that shall be credited w/ 50 person capacity when specific provisions are met.

1009 – Stairways and handrails

1009.1: Stairway minimum width = 44". Exceptions:

- Serving occ. load 50 or less = 36"
- Spiral stairs min. = 26"
- Aisle stairs see 1024
- Min. 20" clear passage req. in R-3 and within R-2 D.U.'s with stairway lifts (measured from folded position)

1009.2: Stairway headroom:

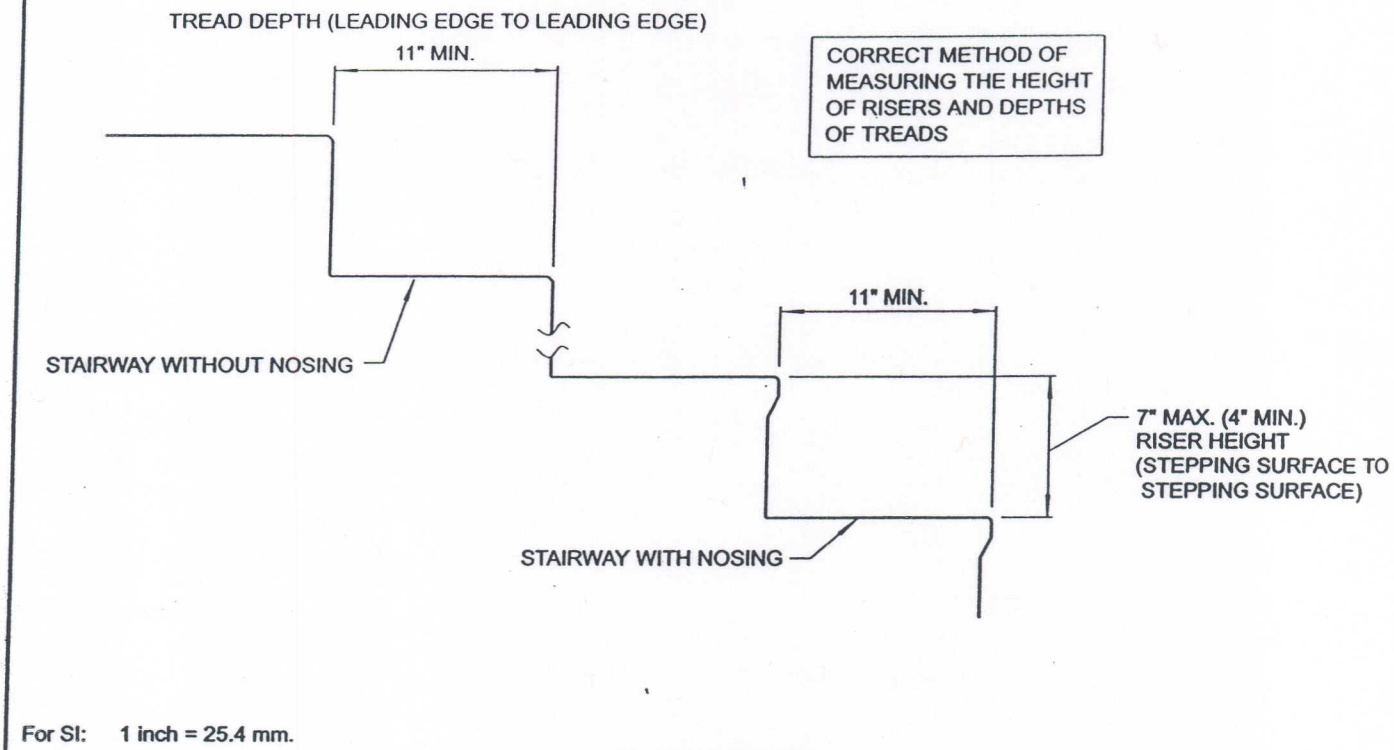


For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm.

Figure 1009.2
STAIRWAY HEADROOM REQUIREMENTS

Exception: 78" req'd @ spiral stairs

1009.3: Stair treads & risers:



For SI: 1 inch = 25.4 mm.

Figure 1009.3(1)
TREAD/RISER DIMENSIONS

Exceptions for circular stairs, spiral stairs. R-3, B&B aisle stairs in Group A-3 and existing stairs

1009.3.1: Dimensional uniformity (in my opinion, the most important aspect of stair geometry): tolerance between the smallest & largest riser or tread shall not exceed 3/8" in any flight of stairs (except for nonuniform risers of aisle stairs and consistently shaped winders).

Where stairs adjoin **established** sloping public way, walkway or driveway, the top or bottom riser may:

- Be less than 4" along the slope (must not exceed maximum height)
- Have variation in height not to exceed 1:12 (8% slope)

These stairs must provide a distinctive marking stripe at nonuniform riser heights.

1009.4: Stairway landings are required at the top & bottom of each stair. Landing width & length (in direction of travel) = stairway width, except length in direction of travel need not exceed 48" in straight run stairs. Exceptions:

- Group A aisle stairs
- Doors opening on a landing shall not reduce landing to less than ½ req'd. width or when fully open shall not project more than 7" onto landing.

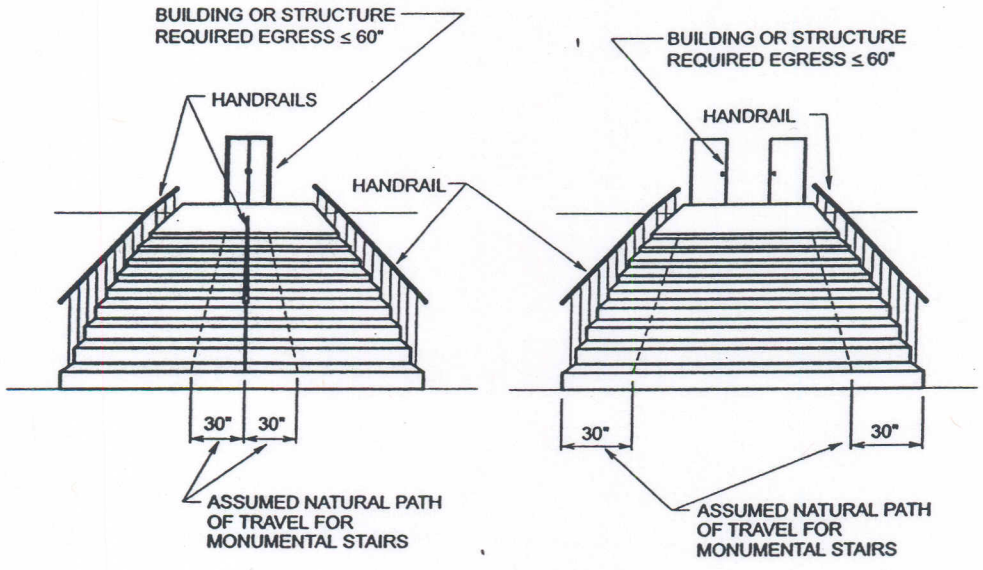
Note: 1009.6 requires a landing every 12' of vertical rise (except Group A aisle stairs)

1009.5: Materials used to construct stairs must be consistent w/ material allowed for type of construction (except wood handrails always allowed). Subsections deal with walking surfaces & accumulation of snow & ice.

1009.7 through 1009.10: give specific information for circular stairs, spiral stairs, winders and alternating tread devices

1009.11: provides handrail requirements including: where required; height, graspability; continuity; extensions; clearance from wall and projection into stairway.

1009.11.2: Key issue on intermediate handrails is that *all portions of the stairway width* ***required*** *for egress capacity* must be within 30 inches of a handrail. This section also requires that on monumental stairs, handrails be located along most direct path of egress travel.



For SI: 1 inch = 25.4 mm.

Figure 1009.11.2
HANDRAILS FOR MONUMENTAL STAIRS

1009.12: For roofs of 4 in 12 slope or less on buildings 4 or more stories in height: access to occupied roofs shall be by one stair through a penthouse. Unoccupied roofs can be accessed from top floor by alternating tread device through roof hatch or trap door.

1010 – Ramps

Ramp basics (watch for exceptions):

- 1:12 running slope
- 1:48 cross slope
- 30" max. vertical rise
- width same as corridors, 36" clear min.
- 80" min. headroom
- landings = width of ramp x 60"
  (60 x 60 at change of direction)
- material consistent w/ construction type
- slip resistant & solid without perforations
- handrails both sides for 6"+ rise
- edge protection & guard requirements

1011 – Exit signs

1011.1: Generally required when 2 or more exits req. (see exceptions). Mark exits & exit access doors as well as path of exit travel when not obvious. No point in exit access corridor can be more than 100' or listed viewing distance from sign

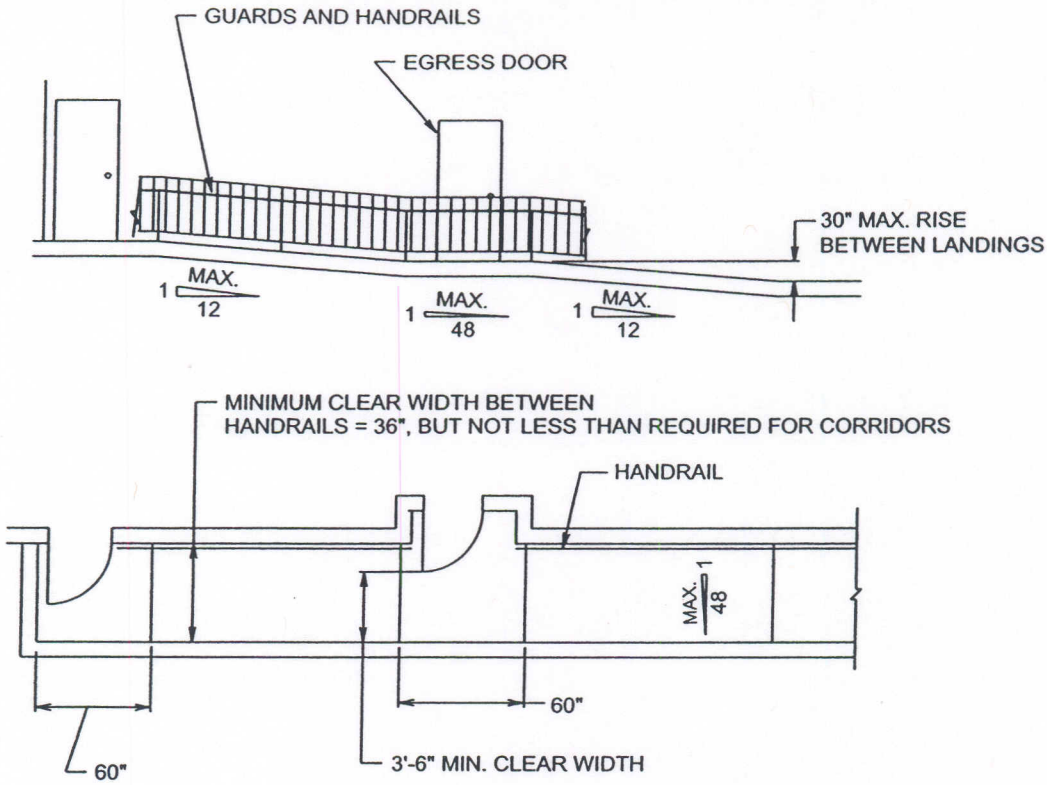
1011.1.1: New requirement for floor proximity exit signs

1011.1.2: New requirement for symbol of accessibility @ grade level accessible exits

1011.2: External or internal illumination (req. for both)

1011.3: Tactile EXIT sign @ each egress stair, exit passageway and exit discharge

1011.5.3: Illuminate at all times – 90 minute emergency illumination required if power failure



For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm.

Figure 1010.2
TYPICAL MEANS OF EGRESS RAMP

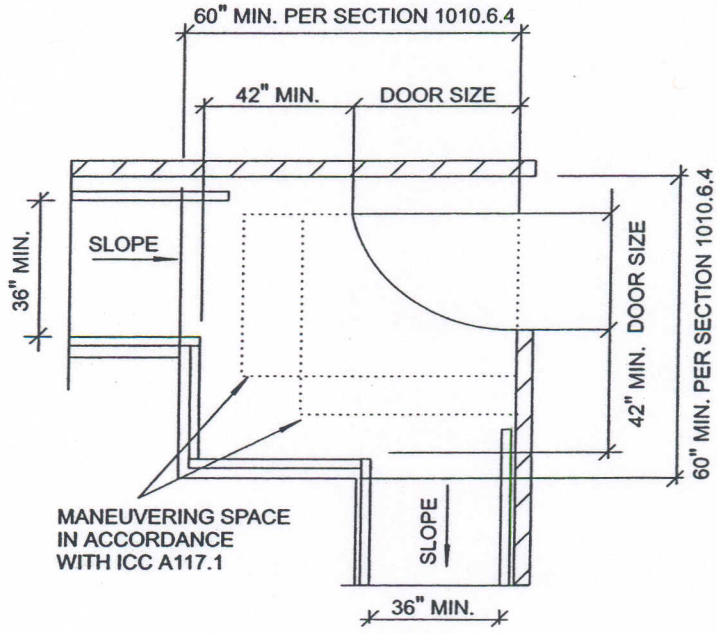


Figure 1010.5.3
DOORWAY OPENING ONTO LANDING

1012 – Guards

1012.1: Required @ walking surfaces more than 30" above floor or grade below (lots of exceptions)

1012.2: 42" min. height (exceptions for R-2, R-3 & A)

1012.3: Opening limits: 4" sphere up to 34" high, 8" sphere from 34" to 42" (see excep.)

1012.4: Requires guards @ screen porches more than 30" above grade

1012.5: Guards req. @ mechanical equip. within 10' of roof edge when roof more than 30" above grade – 21" sphere opening limit

EXIT ACCESS

Exit access must comply w/ 1013 through 1016 as well as 1003 through 1012.

1013.2: places limits on egress from room or space passing through adjoining spaces

1013.3: common path of travel limited for all occupancies: H-1, H-2, H-3 = 25'; all others = 75' (see exceptions that allow certain B, F, S, U, I-3 to be 100')

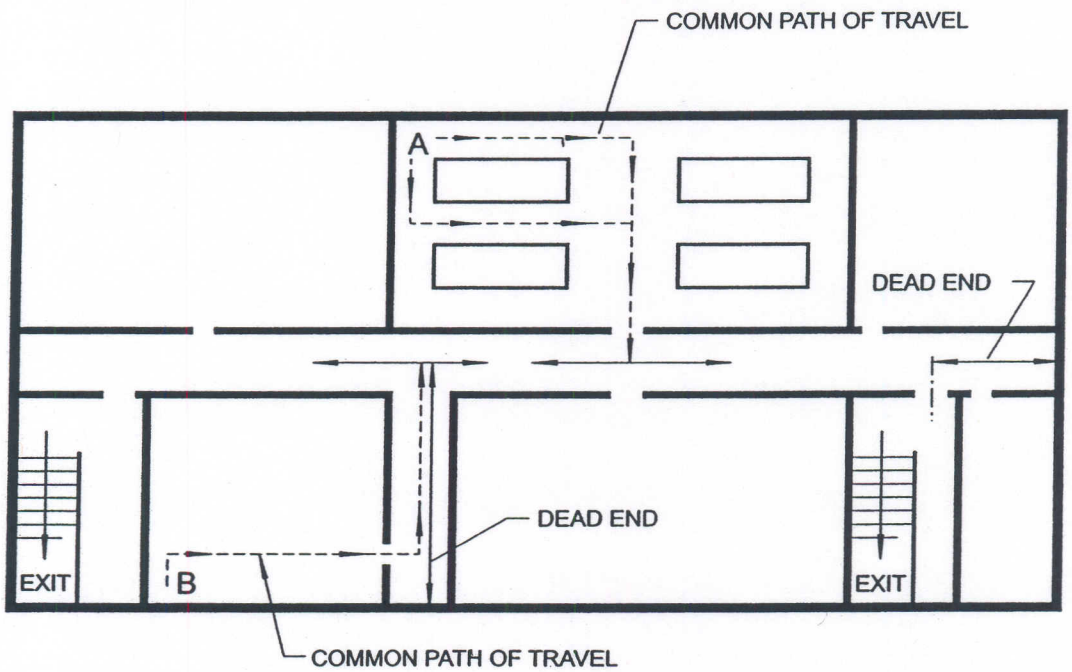


Figure 1013.3
EXAMPLE OF COMMON PATH OF TRAVEL

1013.4: exit access aisles must be provided from all occupied areas. Subsections give min. req'd. width based on occupancy

1013.5: gives req. for egress balconies

1014 – Exit & exit access doorways

1014.1: 2 exits or exit access doors required from any space when: req'd by T. 1014.1; or when common path limits exceeded; or in certain boiler, incinerator, furnace, refrigeration machinery or refrigerated rooms. (this is a different issue from # exits from a *building*.)

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

1014.2: remoteness applies to at least 2 exits or exit access doors.

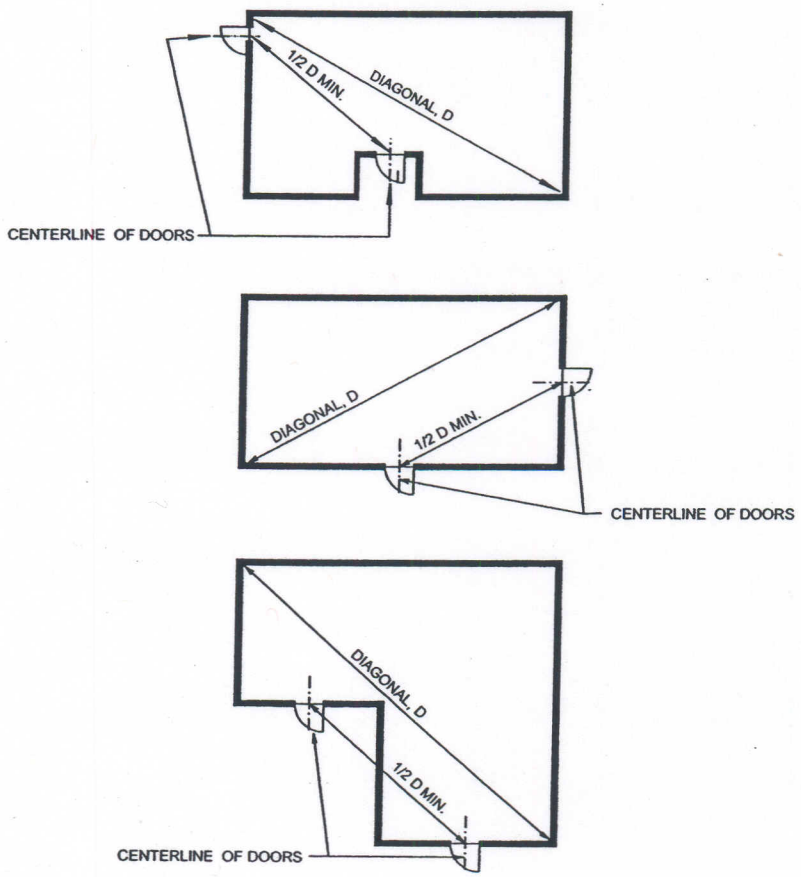
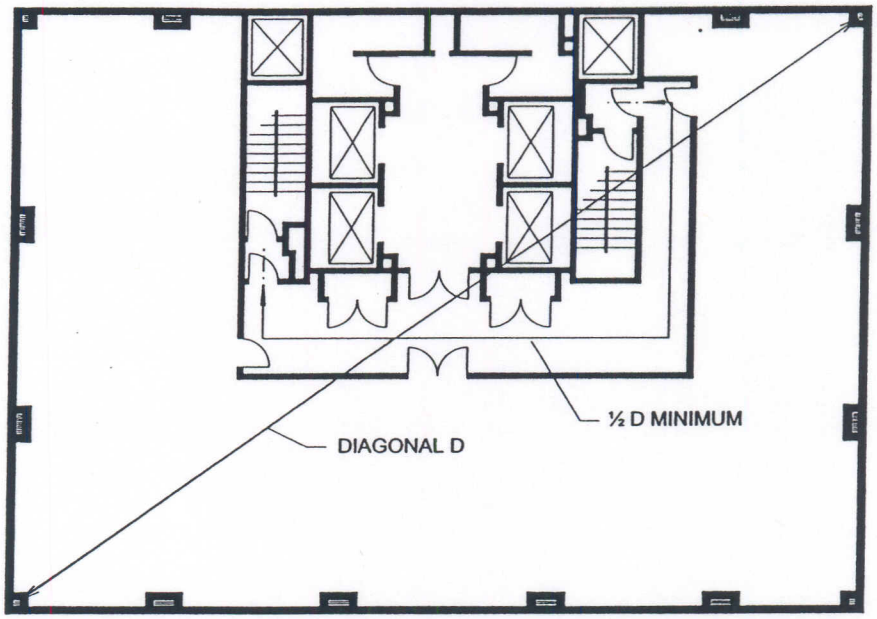


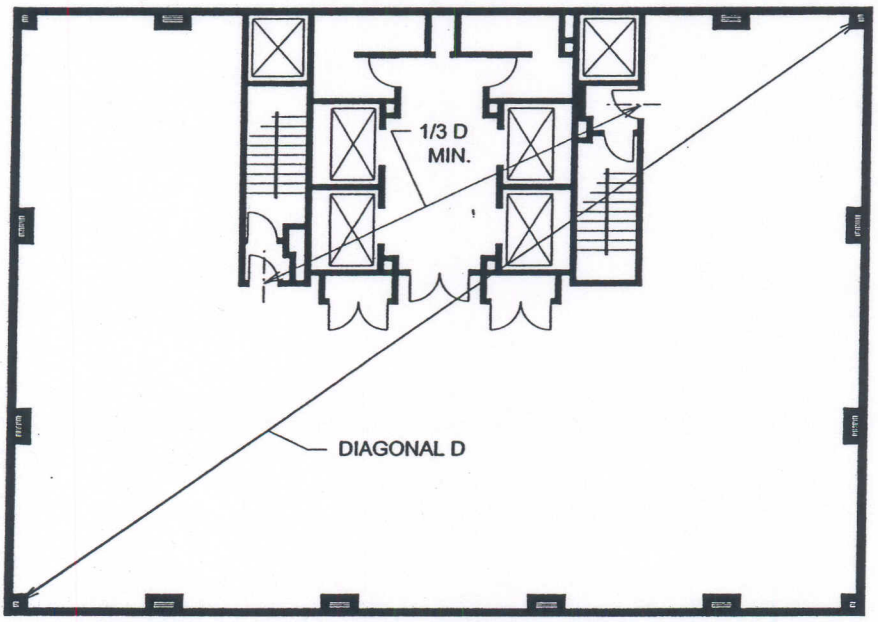
Figure 1014.2.1(1)
EXAMPLES OF REMOTENESS BETWEEN EXITS OR EXIT ACCESS DOORS FROM A ROOM OR BUILDING



EXAMPLE:
DIAGONAL DIMENSION = 134'-0"
MIN. SEPARATION OF EXITS = 134/2 = 67'-0"

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm.

Figure 1014.2.1(2)
REMOTENESS OF EXITS INTERCONNECTED BY A 1-HOUR FIRE-RESISTANT-RATED CORRIDOR

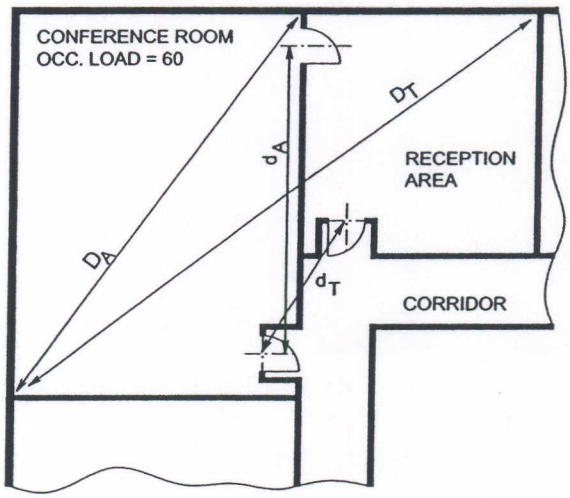


EXAMPLE:
DIAGONAL DIMENSION = 134'-0"
MIN. SEPARATION OF EXITS = 134/3 = 44'-8"

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm.

Figure 1014.2.1(3)
REMOTENESS OF EXITS IN A BUILDING WITH AN AUTOMATIC SPRINKLER SYSTEM

DOES NOT COMPLY!



D_A = 42'-0"	ALTHOUGH d_A EQUALS 1/2 D_A
d_A = 21'-0"	THE OVERALL DESIGN FOR THE SPACE
D_T = 58'-0"	IS NOT ACCEPTABLE BECAUSE d_T IS
d_T = 7'-0"	LESS THAN 1/2 D_T.

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm.

Figure 1014.2.1(4)
REMOTE LOCATION OF EXIT ACCESS DOORS
(ADJOINING ROOMS)

1015 – Exit access travel distance

1015.1: exit access travel from most remote point within a story to *one* exit is limited by T. 1015.1. Include travel on unenclosed stairs & ramps.

TABLE 1015.1
EXIT ACCESS TRAVEL DISTANCE[a]

OCCUPANCY	WITHOUT SPRINKLER SYSTEM (feet)	WITH SPRINKLER SYSTEM (feet)
A, E, F-1, I-1, M, R, S-1	200	250[b]
B	200	300[c]
F-2, S-2, U	300	400[b]
H-1	Not Permitted	75[c]
H-2	Not Permitted	100[c]
H-3	Not Permitted	150[c]
H-4	Not Permitted	175[c]
H-5	Not Permitted	200[c]
I-2, I-3, I-4	150	200[c]

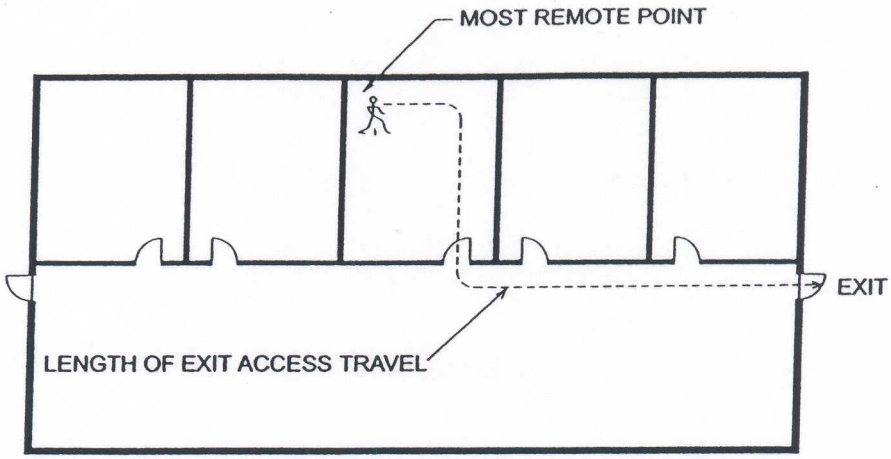
For SI: 1 foot = 304.8 mm.

a. See the following sections for modifications to exit access travel distance requirements:
Section 402: For the distance limitation in malls.
Section 404: For the distance limitation through an atrium space.
Section 1015.2: For increased limitation in Groups F-1 and S-1.
Section 1024.7: For increased limitation in assembly seating.
Section 1024.7: For increased limitation for assembly open-air seating.
Section 1018.2: For buildings with one exit.
Chapter 31: For the limitation in temporary structures.

b. Buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2. See Section 903 for occupancies where sprinkler systems according to Section 903.3.1.2 are permitted.

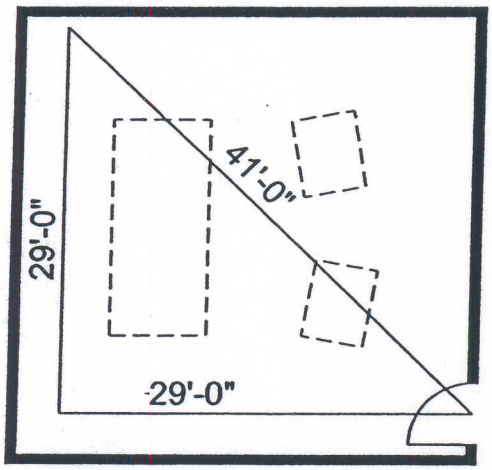
c. Buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1.

Allowable increases in travel distance for roof vents in F-1 or S and for exterior balconies



EXIT ACCESS TRAVEL IS MEASURED FROM THE MOST REMOTE POINT IN A BUILDING ALONG THE NATURAL UNOBSTRUCTED PATH OF TRAVEL TO AN EXIT.

Figure 1015.1(1)
LENGTH OF EXIT ACCESS TRAVEL



TRAVEL DISTANCE = 29' + 29' = 58'0"

- INDICATES POTENTIAL FURNITURE LOCATION

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm.

Figure 1015.1(2)
MEASURING TRAVEL DISTANCE USING RECTILINEAR APPROACH

1016 – Corridors

1016.1: Ratings as req'd. by T. 1016.1. Exceptions for certain E, R, B & for open parking structure

1016.1.1: B&B corridor doors can be non-rated but must be self-closing

1016.2: Min. width = 44" with 6 exceptions based on occupancy and number of occupants

1016.3: Dead ends limited to 20 feet length.
Exceptions:

- Group I-3, occupancy conditions 2, 3 or 4 = 50'
- Sprinklered B & F = 50'
- Unlimited length where length is less than 2.5 x least width

1016.4: Exit access corridors shall not serve as supply, return, exhaust, relief or ventilation air ducts or plenums. (see exceptions & 1016.4.1 for use of corridor ceilings)

1016.5: Rated corridors must be continuous from the point where you enter the corridor until you reach the exit. There are exceptions for lobbies, foyers & reception rooms constructed as corridors.

EXITS

1017.3: There are special requirements for Group M where customer entrance is through one exterior wall of building (exits in such wall must accommodate not less than 2/3 of occupant load). Exception for bulk merch. (Costco, Sam's Club, B.J.'s. etc.)

1018 – Number of exits & continuity

1018.1: Minimum number of exits from each story based on number of occupants:
1 to 500 = 2
501 to 1000 = 3
more than 1000 = 4

Occupied roofs require exits same as stories

Number of exits shall be maintained until arrival at grade or public way

Special rules apply to open parking structures & helistops

1018.2: *Buildings* with one exit permitted by T. 1018.2; in R-3; in B&B; and in single-level buildings occupied at LED that comply with 1014.1 as space with one means of egress.

TABLE 1018.2
BUILDINGS WITH ONE EXIT

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

For SI: 1 foot = 304.8 mm.

a. For the required number of exits for open parking structures, see Section 1018.1.1.

b. For the required number of exits for air traffic control towers, see Section 412.1.

c. Buildings classified as Group R-2 equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2 and provided with emergency escape and rescue openings in accordance with Section 1025 shall have a maximum height of three stories above grade.

d. Buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 with an occupancy in Group B shall have a maximum travel distance of 100 feet.

1018.3: exits must be continuous from point of entry to exit discharge

1019 – Vertical exit enclosures

1019.1: interior exit stairs & ramps shall be enclosed: 1 hour for less than 4 stories; 2 hour for 4 stories and more (including basements). But.....8 different exceptions apply. Subsections deal w/ openings, penetrations, enclosures under stairs, identification and smokeproof enclosures.

1019.1.2: Penetration into and openings through an exit enclosure are prohibited except for required exit doors and equipment, etc, that *serves the exit enclosure.*

1019.1.5: enclosed usable spaces under stairs shall be protected by minimum 1-hour const. or by const. matching rating of stair

1020 – Exit passageways
Used to connect an interior exit stair to an exit door at an exterior wall. Requirements are similar to those for stair enclosures.

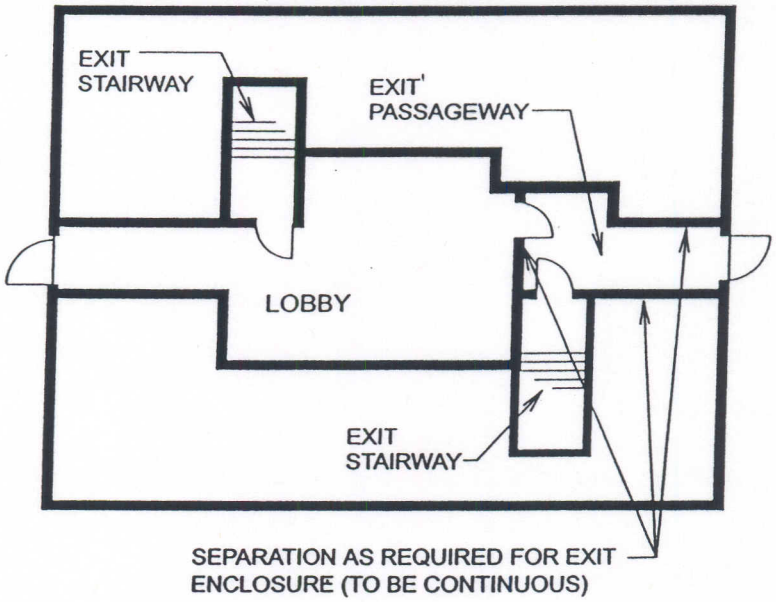


Figure 1020.1
ARRANGEMENT FOR LOBBY AND PASSAGEWAY

1021 – Horizontal exits

1021.1: horizontal exit cannot be only exit from portion of building. Where 2 or more exits are required, not more than ½ exits (number or capacity) can be horizontal exits (exceptions for I-2 & I-3).
1021.2: 2 hour rated separations w/opening protectives required between areas of refuge connected by a horizontal exit (exception for above-grade pedestrian walkways). Walls can be fire walls or fire barriers.

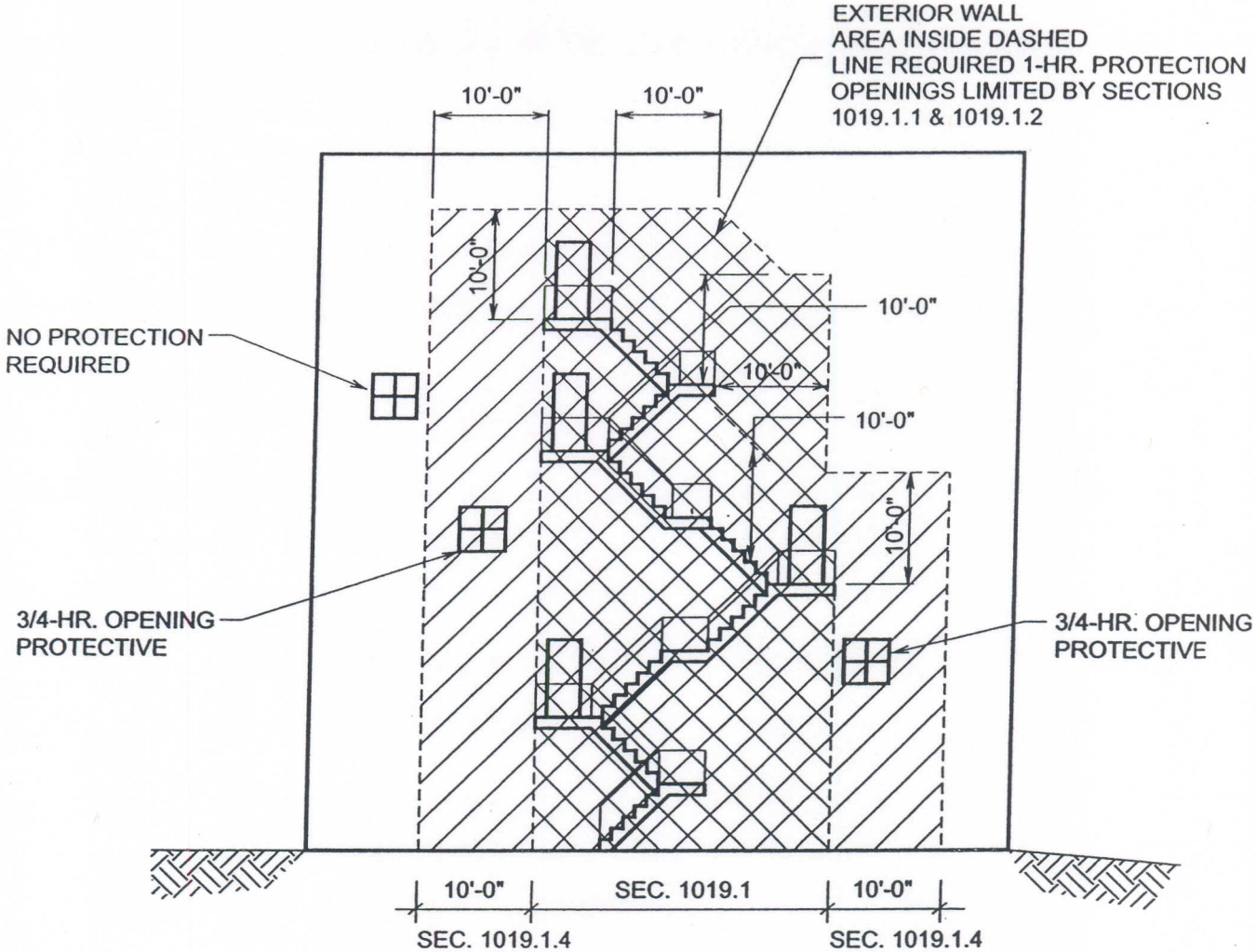
1021.4: refuge area must be same floor level & each landing, not less than 42" above floor or landing tenant or public space. Must provide 3 s.f. for each occupant of area of refuge plus each occupant from adjoining compartment based on capacity of horizontal exit doors. Exceptions to net floor area for I-3 & I-2.

1022 – Exterior exit ramps & stairways

1022.2: Cannot be used for I-2. For other occupancies, can be used as required MOE for buildings not exceeding 6 stories or 75' in height

1022.3: Shall be open on at least one side: 35 s.f. min. open area @ each

1022.6: exterior stairs & ramps must be protected per 1019.1. Exceptions for certain 2 story buildings (other than R-1 & R-2); certain exterior balconies connecting 2 exits; stairs allowed to be unenclosed if within the building; stairs & ramps attached to open ended corridors.



For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm.

Figure 1022.6(1)
PROTECTION OF EXTERIOR STAIRWAYS

EXIT DISCHARGE

1023.1: exits shall discharge directly to the exterior of the building, shall be at grade or shall provide direct access to grade and shall not reenter a building (again, see exceptions).

1023.2: exit discharge capacity shall not be less than capacity of exits served (check by # of people traveling through, not size of elements served)

1023.3: exit discharge stairs, ramps & balconies shall be 10' from property lines & other buildings, unless adjacent building walls & openings are protected per Section 704.

1023.4: exit discharge components shall be open to the exterior to minimize accumulation of smoke & gases.

1023.5: gives requirements for egress courts

1023.6: exit discharge shall provide access to public way *or* to a safe dispersal area:

- Sized for 5 s.f. per person
- On same property at least 50' from bldg.
- Permanently maintained & identified
- Safe & unobstructed path of travel from building

Public way. A street, alley or other parcel of land open to the outside air leading to a street, that has been deeded, dedicated or otherwise permanently appropriated to the public for public use and which has a clear width and height of not less than 10 feet.

ADDITIONAL SPECIFIC INFORMATION

1024 – Assembly

1024.2: Group A with over 300 occupants must provide a main entrance that is also a main exit. In other Group A that have a main entrance it shall also be the main exit. Such main exit shall accommodate not less than 2/3 total occupant load (exception for multiple main exits or no well-defined main exit). When entire building is Group A, main exit shall front on street or unoccupied space min. 10' wide that adjoins street or public way.

1024.3: additional exits shall equal ½ total occupant load

Other provisions for means of egress in Group A occupancies differ greatly from balance of Chapter 10. This includes certain calculations for width, travel distance, common path of travel walking surfaces, handrails and guards. There are also requirements for seat stability (fastening seats to floor in certain A occupancies)

1025 – Emergency escape & rescue

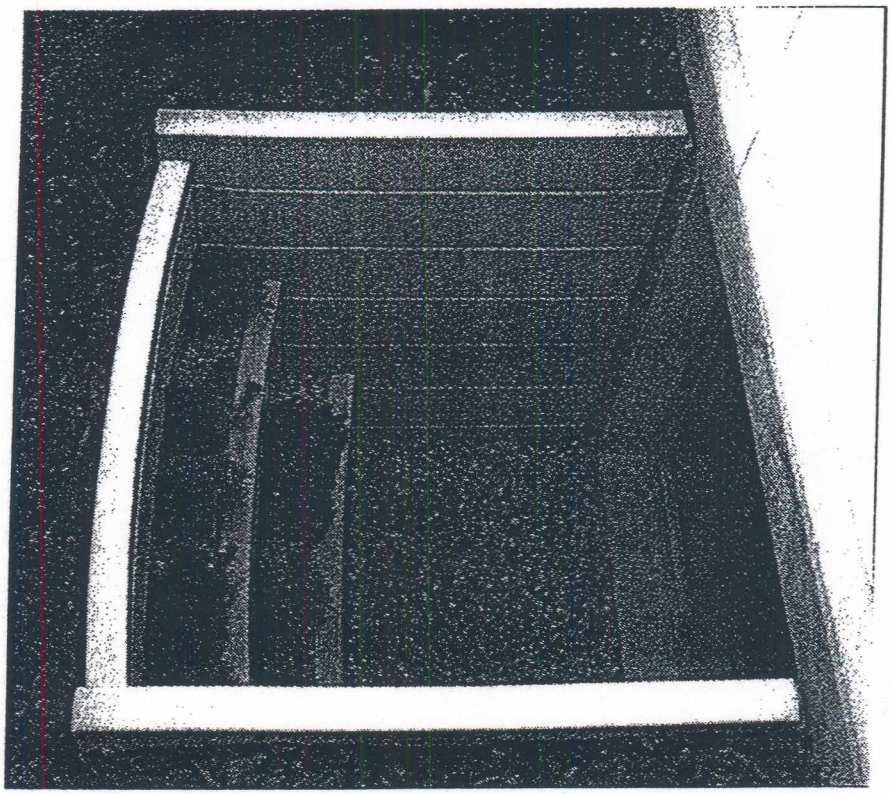
1025.1: required in basements & in sleeping rooms below 4th story (see several exceptions) In basements, rescue opening in bedroom will suffice for adjoining areas of basement, but each bedroom in basement must have its own rescue opening

1025.1.1: required in Group E rooms or spaces greater than 250 sf used for classroom or educational purposes or normally occupied by students (except. for sprinklers, rooms with doors to outside and rooms more than 3 stories above grade)

1025.1.2: required in I-4 in every room or space exceeding 250 sf normally used for client occupancy

1025.2: minimum size:

- 5.0 s.f. @ grade floor, 5.7 s.f. above grade floor
- 24" min. clear height
- 20" min. clear width
- bottom of opening 44" max. from floor
- net clear opening result of normal operation of window (exception for B&B)

1025.4: must be operational without key or tool. Bars, grilles or grates can be installed provided they don't infringe on min. net clear openings and are releasable from inside without key, tool or force greater than window operation.

1024.5: When finished sill height is below adjacent ground level, a code compliant window well must be provided at the rescue opening.