

Section 3.4. Exits

3.4.1. General

3.4.1.1. Scope

1) *Exit* facilities complying with this Section shall be provided from every *floor area* that is intended for *occupancy*. (See Note A-3.4.1.1.(1).)

3.4.1.2. Separation of Exits

1) Except as permitted by Sentence (2), if more than one *exit* is required from a *floor area*, each *exit* shall be separate from every other *exit* leading from that *floor area*.

2) If more than 2 *exits* are provided from a *floor area*, *exits* are permitted to converge in conformance with Sentence 3.4.3.1.(2), provided the cumulative capacity of the converging *exits* does not contribute more than 50% of the total required *exit* width for the *floor area*.

3) Contiguous *exit* stairs (scissors stairs) are not permitted in a 5 or 6 storey wood frame *building*.

3.4.1.3. Access to Exits

1) *Access to exits* shall conform to Section 3.3.

3.4.1.4. Types of Exit

1) Subject to the requirements of this Section, an *exit* from any *floor area* shall be one of the following, used singly or in combination:

- a) an exterior doorway,
- b) an exterior passageway,
- c) an exterior ramp,
- d) an exterior stairway,
- e) a fire escape (conforming to Subsection 3.4.7.),
- f) a *horizontal exit*,
- g) an interior passageway,
- h) an interior ramp, or
- i) an interior stairway.

3.4.1.5. Exterior Exit Passageways

1) Access to an exterior *exit* passageway from a *floor area* shall be through *exit* doors at the floor level.

3.4.1.6. Restricted Use of Horizontal Exits

1) Except as permitted by Sentence (2), *horizontal exits* shall not comprise more than one half of the required number of *exits* from any *floor area*.

2) In a hospital or nursing home with *treatment*, *horizontal exits* serving patients' sleeping rooms shall comprise not more than two thirds of the required number of *exits* from any *floor area*. (See Note A-3.4.1.6.(2).)

3.4.1.7. Slide Escapes

1) A slide escape shall not be erected on any *building* as a required *exit*, but is permitted to be provided as an additional egress facility if unusual hazards are foreseen.

3.4.1.8. Transparent Doors and Panels

1) Glass and transparent panels in an *exit* shall conform to the appropriate requirements of Article 3.3.1.19. for glass and transparent panels in an *access to exit*.

3.4.1.9. Mirrors near Exits

1) No mirror shall be placed in or adjacent to any *exit* in a manner that would confuse the direction of *exit*.

3.4.1.10. Combustible Glazing in Exits

1) *Combustible* glazing is not permitted in wall or ceiling assemblies or in *closures* used to construct an *exit* enclosure.

3.4.2. Number and Location of Exits from Floor Areas**3.4.2.1. Minimum Number of Exits**

1) Except as permitted by Sentences (2) to (4), every *floor area* intended for *occupancy* shall be served by at least 2 *exits*.

2) A *floor area* in a *building* not more than 2 *storeys* in *building height*, is permitted to be served by one *exit* provided the total *occupant load* served by the *exit* is not more than 60, and

- a) in a *floor area* that is not *sprinklered* throughout, the *floor area* and the travel distance are not more than the values in Table 3.4.2.1.-A, or
- b) in a *floor area* that is *sprinklered* throughout
 - i) the travel distance is not more than 25 m, and
 - ii) the *floor area* is not more than the value in Table 3.4.2.1.-B.

Table 3.4.2.1.-A
Criteria for One Exit (Floor Area Not Sprinklered Throughout)
 Forming Part of Sentence 3.4.2.1.(2)

Occupancy of Floor Area	Maximum Floor Area, m ²	Maximum Travel Distance, m
Group A	150	15
Group B	75	10
Group C	100	15
Group D	200	25
Group E	150	15
Group F, Division 2	150	10
Group F, Division 3	200	15

Table 3.4.2.1.-B
Criteria for One Exit (Floor Area Sprinklered Throughout)
 Forming Part of Sentence 3.4.2.1.(2)

Occupancy of Floor Area	Maximum Floor Area, m ²
Group A	200
Group B	100
Group C	150
Group D	300
Group E	200
Group F, Division 2	200
Group F, Division 3	300

3) Except as permitted by Sentence (4), if Sentence (2) permits a single *exit* from a *floor area* classified as Group B or Group C *occupancy*, the *exit* shall be an exterior doorway not more than 1.5 m above adjacent ground level.

4) The requirements of Sentences (1) and (2) are permitted to be waived for *dwelling units* that have an *access to exit* conforming to Sentences 3.3.4.4.(1) to (4) and 3.3.4.4.(7).

5) *Exits* are not required directly from roof-top enclosures that **comply** with Sentences 3.3.1.3.(8) and (9) **or** where they are served by a *means of egress* in conformance with Sentences 3.3.1.3.(4) to (5).

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3.4.2.2. Means of Egress from Mezzanines

- 1) Except as permitted by Sentences (2) and (3), the space above a *mezzanine* shall be served by *means of egress* leading to *exits* accessible at the *mezzanine* level on the same basis as *floor areas*.
- 2) The *means of egress* from a *mezzanine* need not conform to Sentence (1), provided
 - a) the *mezzanine* is not required to terminate at a vertical *fire separation*, as permitted in Sentence 3.2.8.2.(1),
 - b) the *occupant load* of the *mezzanine* is not more than 60,
 - c) the area of the *mezzanine* does not exceed the area limits stated in Table 3.4.2.2., and
 - d) the distance limits stated in Table 3.4.2.2. measured along the path of travel are not exceeded from any point on the *mezzanine* to
 - i) an egress door serving the space that the *mezzanine* overlooks, if the space is served by a single egress door, or
 - ii) the egress stairway leading to an *access to exit* in the space below if that space is required to be served by 2 or more egress doorways in conformance with Sentence 3.3.1.5.(1).
- 3) At least half of the required *means of egress* from a *mezzanine* shall comply with Sentence (1) if the *mezzanine* is not required to terminate at a *fire separation* as permitted by Sentence 3.2.8.2.(1).

Table 3.4.2.2.
Criteria for Egress from Mezzanine Space
 Forming Part of Sentence 3.4.2.2.(2)

Occupancy of Space	Maximum Area, m ²	Distance Limits, m
Assembly occupancy	150	15
Residential occupancy	100	15
Business and personal services occupancy	200	25
Mercantile occupancy	150	15
Medium-hazard industrial occupancy	150	10
Low-hazard industrial occupancy	200	15

3.4.2.3. Distance between Exits

- 1) Except as provided in Sentence (2), the least distance between 2 *exits* from a *floor area* shall be
 - a) one half the maximum diagonal dimension of the *floor area*, but need not be more than 9 m for a *floor area* having a *public corridor*, or
 - b) one half the maximum diagonal dimension of the *floor area*, but not less than 9 m for all other *floor areas*.
 (See Note A-3.4.2.3.(1).)
- 2) *Exits* need not comply with Sentence (1) where
 - a) the *floor area* is divided so that not less than one third of the *floor area* is on each side of a *fire separation*, and
 - b) it is necessary to pass through the *fire separation* to travel from one *exit* to another *exit*.
- 3) The minimum distance between *exits* referred to in Sentence (1) shall be the shortest distance that smoke would have to travel between the *exits*, assuming that the smoke will not penetrate an intervening *fire separation*.
- 4) The distance between 2 exterior discharges of *exit* stairs serving the same *floor area* shall be
 - a) not less than 9 m, or
 - b) not less than 6 m, where
 - i) the *building* is *sprinklered* throughout, and
 - ii) the 2 exterior discharges are located within 15 m of a *street*.

3.4.2.4. Travel Distance

- 1) Except as permitted by Sentence (2), for the purposes of this Subsection, travel distance means the distance from any point in the *floor area* to an *exit* measured along the path of travel to the *exit*.
- 2) The travel distance from a *suite* or a room not within a *suite* is permitted to be measured from an egress door of the *suite* or room to the nearest *exit*, provided
 - a) the *suite* or room is separated from the remainder of the *floor area* by a *fire separation*
 - i) having a *fire-resistance rating* not less than 45 min in a *floor area* that is not *sprinklered* throughout, or
 - ii) which is not required to have a *fire-resistance rating*, in a *floor area* that is *sprinklered* throughout, and
 - b) the egress door opens onto
 - i) an exterior passageway,
 - ii) a corridor used by the public that is separated from the remainder of the *floor area* in conformance with the requirements in Article 3.3.1.4. for the separation of *public corridors*, or
 - iii) a *public corridor* that is separated from the remainder of the *floor area* in conformance with Article 3.3.1.4. (See Note A-3.1.8.1.(1)(b).)
- 3) Travel distance to an *exit* shall be not more than 50 m from any point in a *service space* referred to in Sentence 3.2.1.1.(8).

3.4.2.5. Location of Exits

- 1) Except as permitted by Sentences (2) and 3.3.2.5.(6), if more than one *exit* is required from a *floor area*, the *exits* shall be located so that the travel distance to at least one *exit* shall be not more than
 - a) 25 m in a *high-hazard industrial occupancy*,
 - b) 40 m in a *business and personal services occupancy*,
 - c) 45 m in a *floor area* that contains an *occupancy* other than a *high-hazard industrial occupancy*, provided it is *sprinklered* throughout,
 - d) 105 m in any *floor area*, served by a *public corridor*, in which rooms and *suites* are not separated from the remainder of the *floor area* by a *fire separation*, provided
 - i) the *public corridor* is not less than 9 m wide,
 - ii) the ceiling height in the *public corridor* is not less than 4 m above all floor surfaces,
 - iii) the *building* is *sprinklered* throughout, and
 - iv) not more than one half of the required egress doorways from a room or *suite* open into the *public corridor* if the room or *suite* is required to have more than one egress doorway,
 - e) 60 m in any *storage garage* that conforms to the requirements of Article 3.2.2.90., and
 - f) 30 m in any *floor area* other than those referred to in Clauses (a) to (e).
- 2) Except for a *high-hazard industrial occupancy*, Sentence (1) need not apply if *exits* are placed along the perimeter of the *floor area* and are not more than 60 m apart, measured along the perimeter, provided each main aisle in the *floor area* leads directly to an *exit*.
- 3) *Exits* shall be located and arranged so that they are clearly visible or their locations are clearly indicated and they are accessible at all times.

3.4.2.6. Principal Entrances

- 1) For the purposes of this Section, at least one door at every principal entrance to a *building* providing access from the exterior at ground level shall be designed in accordance with the requirements for *exits*.
- 2) In a *building* that is not *sprinklered* throughout in accordance with Sentence 3.2.5.12.(1), the principal entrance serving a dance hall or a licensed beverage establishment with an *occupant load* more than 250 shall provide at least one half of the required *exit* width.

3.4.3. Width and Height of Exits

3.4.3.1. Exit Width Based on Occupant Load

- 1) For the purpose of determining the aggregate width of *exits*, the *occupant load* of every room or *floor area* shall be determined in conformance with Subsection 3.1.17.
- 2) Except as permitted by Sentence 3.4.3.2.(4), the required *exit* width shall be cumulative if 2 or more *exits* converge.

3.4.3.2. Exit Width

- 1) Except as permitted by Sentence (3), the minimum aggregate required width of *exits* serving *floor areas* intended for *assembly occupancies*, *residential occupancies*, *business and personal services occupancies*, *mercantile occupancies*, and *industrial occupancies* shall be determined by multiplying the *occupant load* of the area served by
 - a) 6.1 mm per person for ramps with a slope of not more than 1 in 8, doorways, corridors and passageways,
 - b) 8 mm per person for a stair consisting of steps whose rise is not more than 180 mm and whose *run* is not less than 280 mm, or
 - c) 9.2 mm per person for
 - i) ramps with a slope of more than 1 in 8, or
 - ii) stairs, other than stairs conforming to Clause (b).
 - 2) The minimum aggregate width of *exits* serving *floor areas* intended for a *care, treatment or detention occupancy* shall be determined by multiplying the *occupant load* of the area served by 18.4 mm per person.
 - 3) The minimum aggregate width of *means of egress* serving a Group A, Division 4 *occupancy* shall be determined by multiplying the *occupant load* of the area served by
 - a) 1.8 mm per person for
 - i) aisles,
 - ii) stairs other than *exit* stairs, and
 - iii) ramps and passageways in vomitories and *exits*, and
 - b) 2.4 mm per person for *exit* stairs.
 - 4) Except as required by Sentences 3.4.3.2.(5) and (6), the required *exit* width need not be cumulative in an *exit* serving 2 or more *floor areas* located one above the other.
 - 5) The required *exit* width for an *exit* stair in an assembly hall or *theatre* serving more than one balcony level shall conform to Sentence (6).
 - 6) The required *exit* width for *exit* stairs that serve *interconnected floor space* designed in accordance with Articles 3.2.8.3. to 3.2.8.8. shall be cumulative, unless
 - a) the stairs provide not less than 0.3 m² of area of treads and landings for each occupant of the *interconnected floor space* (See Note A-3.4.3.2.(6).), or
 - b) *protected floor spaces* conforming to Article 3.2.8.5. are provided at each floor level and the *protected floor space* on a floor level has not less than 0.5 m² of space for each occupant of that floor level of the *interconnected floor space*.
- (See Note A-3.4.3.2.(6)(a).)
- 7) If more than one *exit* is required, every *exit* shall be considered as contributing not more than one half of the required *exit* width.
 - 8) The minimum widths of *exits* shall conform to Tables 3.4.3.2.-A and 3.4.3.2.-B.

Table 3.4.3.2.-A
Minimum Widths of Exit Corridors, Passageways, Ramps, Stairs and Doorways
in Group A, Group B, Division 1, and Groups C, D, E and F Occupancies
 Forming Part of Sentence 3.4.3.2.(8)

Occupancy Classification	Exit Corridors and Passageways, mm	Ramps, mm	Stairs, mm	Doorways, mm
Group A, Group B, Division 1, Group C, Group D, Group E, Group F	1 100	1 100	900 ⁽¹⁾ 1 100 ⁽²⁾	800

Notes to Table 3.4.3.2.-A:

- (1) Serving not more than 2 storeys above the lowest *exit level* or not more than 1 storey below the lowest *exit level*.
 (2) Serving more than 2 storeys above the lowest *exit level* or more than 1 storey below the lowest *exit level*.

Table 3.4.3.2.-B
Minimum Widths of Exit Corridors, Passageways, Ramps, Stairs and Doorways
in Group B, Division 2 and Division 3 Occupancies
 Forming Part of Sentence 3.4.3.2.(8)

Occupancy Classification	Exit Corridors and Passageways, mm	Ramps, mm		Stairs, mm		Doorways, mm	
		Not serving patients' or residents' sleeping rooms ⁽¹⁾	Serving patients' or residents' sleeping rooms ⁽¹⁾	Not serving patients' or residents' sleeping rooms ⁽¹⁾	Serving patients' or residents' sleeping rooms ⁽¹⁾	Not serving patients' or residents' sleeping rooms ⁽¹⁾	Serving patients' or residents' sleeping rooms ⁽¹⁾
Group B, Division 2	1 100	1 100	1 650	900 ⁽²⁾ 1 100 ⁽³⁾	1 650	850	1 050
Group B, Division 3							
with more than 10 residents	1 100	1 100	1 100	900 ⁽²⁾ 1 100 ⁽³⁾	1 100 ⁽²⁾ 1 650 ⁽³⁾	850	850
with not more than 10 residents	1 100	1 100	1 100	900 ⁽²⁾ 1 100 ⁽³⁾	900 ⁽²⁾ 1 100 ⁽³⁾	850	850

Notes to Table 3.4.3.2.-B:

- (1) Minimum widths of ramps, stairs and doorways do not apply within individual *suites of care occupancy*.
 (2) Serving not more than 2 storeys above the lowest *exit level* or not more than 1 storey below the lowest *exit level*.
 (3) Serving more than 2 storeys above the lowest *exit level* or more than 1 storey below the lowest *exit level*.

3.4.3.3. Exit Width Reduction

- 1) Except as permitted by Sentences (2) and (4), no fixture, turnstile or construction shall project into or be fixed within the required width of an *exit*.
- 2) Swinging doors in their swing shall not reduce the required width of *exit* stairs or landings to less than 750 mm or reduce the width of an *exit* passageway to less than the minimum required width.
- 3) Doors shall be installed so that, when open, they do not diminish nor obstruct the required width of the *exit*.
- 4) Handrails and construction below handrails, including handrail supports and stair stringers, shall not project more than 100 mm into the required width of a *means of egress*.

3.4.3.4. Headroom Clearance

(See Note A-3.4.3.4.)

- 1) Except as permitted by Sentences (4) and (5), every *exit* shall have a clear height over the clear width of the *exit* of not less than 2 050 mm.
- 2) The clear height of stairways shall be measured vertically over the clear width of the stairway, from the straight line tangent to the tread and landing nosings to the lowest element above. (See Note A-9.8.7.4.)

- 3) The clear height of landings shall be measured within the clear width of the landing vertically to the lowest element above.
- 4) Except as permitted by Sentence (5), the headroom clearance for doorways shall be not less than 2 030 mm.
- 5) No door closer or other device shall be installed so as to reduce the headroom clearance of a doorway to less than 1 980 mm.

3.4.4. Fire Separation of Exits

3.4.4.1. Fire-Resistance Rating of Exit Separations

- 1) Except as permitted by Sentences (2), 3.3.5.4.(3), 3.4.4.2.(2) and 3.4.4.3.(1), every *exit* shall be separated from the remainder of the *building* by a *fire separation* having a *fire-resistance rating* not less than that required by Subsection 3.2.2., but not less than 45 min, for
 - a) the floor assembly above the *storey*, or
 - b) the floor assembly below the *storey*, if there is no floor assembly above.
- 2) The *fire-resistance rating* of the *fire separation* referred to in Sentence (1) need not be more than 2 h.
- 3) If an *exit* stair in an assembly hall or *theatre* serves more than one balcony level, the *exit* stair shall be separated from the remainder of the *building* in conformance with Sentence (1).

3.4.4.2. Exits through Lobbies

- 1) Except as permitted by Sentence (2), no *exit* from a *floor area* above or below the *first storey* shall lead through a lobby.
- 2) Not more than one *exit* from a *floor area* is permitted to lead through a lobby, provided
 - a) the lobby floor is not more than 4.5 m above *grade*,
 - b) the path of travel through the lobby to the outdoors is not more than 15 m,
 - c) the adjacent rooms or premises having direct access to the lobby do not contain a *care, residential* or *industrial occupancy*,
 - d) the lobby is not located within an *interconnected floor space* other than as described in Sentence 3.2.8.2.(6),
 - e) the lobby conforms to the requirements for *exits*, except that
 - i) rooms other than *service rooms* and storage rooms are permitted to open onto the lobby,
 - ii) the *fire separation* between the lobby and a room used for the sole purpose of control and supervision of the *building* need not have a *fire-resistance rating*,
 - iii) the *fire separation* between the lobby and adjacent *occupancies* that are permitted to open onto the lobby need not have a *fire-resistance rating* provided the lobby and adjacent *occupancies* are *sprinklered*, and
 - iv) passenger elevators are permitted to open onto the lobby, provided the elevator doors are designed to remain closed except while loading and unloading passengers, and(See Note A-3.4.4.2.(2)(e).)
- f) a *fire separation*, constructed in accordance with Sentence 3.4.4.1.(1), is maintained between the lobby and any *exit* permitted by this Sentence to lead through the lobby.

3.4.4.3. Exterior Passageway Exceptions

- 1) The requirements of Sentences 3.4.4.1.(1) and 3.2.3.13.(1) and (3) do not apply to an exterior *exit* passageway provided
 - a) not less than 50% of the exterior side is open to the outdoors, and
 - b) an *exit* stair is provided at each end of the passageway.

3.4.4.4. Integrity of Exits

- 1) A *fire separation* that separates an *exit* from the remainder of the *building* shall have no openings except for
 - a) standpipe and sprinkler piping,
 - b) electrical wires and cables, totally enclosed *noncombustible* raceways and *noncombustible* piping that serve only the *exit*,

- c) openings required by the provisions of Subsection 3.2.6.,
- d) *exit* doorways,
- e) wired glass and glass block permitted by Article 3.1.8.16., and
- f) wires, cables, totally enclosed *noncombustible* raceways, and distributed antenna for a radio antenna system conforming to Sentence 3.2.5.20.(1).

2) *Exits* within scissors stairs and other contiguous *exit* stairways shall be separated from each other by a smoke-tight *fire separation* having a *fire-resistance rating* not less than that required for the floor assembly through which they pass.

3) *Fire separations* separating contiguous stairs described in Sentence (2) shall not be pierced by doorways, ductwork, piping or any other openings that affect the continuity of the separation.

4) A fuel-fired *appliance* shall not be installed in an *exit*.

5) An *exit* shall not be used as a *plenum* for a heating, ventilating or air-conditioning system.

6) An *exit* shall be designed for no purpose other than for exiting, except that an *exit* is permitted also to be designed to serve as an access to a *floor area*.

7) A *service room* shall not open directly into an *exit*.

8) Storage rooms, washrooms, toilet rooms, laundry rooms and similar ancillary rooms shall not open directly into an *exit*.

9) *Service spaces* referred to in Sentence 3.2.1.1.(8) shall not open directly into an *exit*.

3.4.5. Exit Signs

3.4.5.1. Exit Signs

1) Every *exit* door shall have an *exit* sign placed over or adjacent to it if the *exit* serves

- a) a *building* more than 2 *storeys* in *building height*,
- b) a *building* having an *occupant load* of more than 150, or
- c) a room or *floor area* that has a fire escape as part of a required *means of egress*.

2) Every *exit* sign shall

- a) be visible on approach to the *exit*,
- b) consist of a green and white or lightly tinted graphical symbol meeting the colour specifications referred to in ISO 3864-1, "Graphical symbols – Safety colours and safety signs – Part 1: Design principles for safety signs and safety markings," and
- c) conform to ISO 7010, "Graphical symbols – Safety colours and safety signs – Registered safety signs," for one or more of the following symbols (See Note A-3.4.5.1.(2)(c).):
 - i) E001 emergency exit (left hand),
 - ii) E002 emergency exit (right hand),
 - iii) E005 Direction, arrow (90° increments), safe condition, and
 - iv) E006 Direction, 45° arrow (90° increments), safe condition.

3) Internally illuminated *exit* signs shall be continuously illuminated and

- a) where illumination of the sign is powered by an electrical circuit, conform to CSA C22.2 No. 141, "Emergency Lighting Equipment," or
- b) where illumination of the sign is not powered by an electrical circuit, conform to CAN/ULC-S572, "Photoluminescent and Self-Luminous Exit Signs and Path Marking Systems."

4) Externally illuminated *exit* signs shall be continuously illuminated and conform to CAN/ULC-S572, "Photoluminescent and Self-Luminous Exit Signs and Path Marking Systems." (See Note A-3.4.5.1.(4).)

5) The circuitry serving lighting for externally and internally illuminated *exit* signs shall

- a) serve no equipment other than emergency equipment, and
- b) be connected to an emergency power supply as described in Article 3.2.7.4.

6) Where no *exit* is visible from a *public corridor*, from a corridor used by the public in a Group A or B *major occupancy*, or from principal routes serving an open *floor area* having an *occupant load* of more than 150, an *exit* sign conforming to Clauses (2)(b) and (c) with an arrow or pointer indicating the direction of egress shall be provided.

7) Except for egress doorways described in Sentence 3.3.2.4.(4), an *exit* sign conforming to Sentences (2) to (5) shall be placed over or adjacent to every egress doorway from rooms with an *occupant load* of more than 60 in Group A, Division 1 *occupancies*, dance halls, licensed beverage establishments, and other similar *occupancies* that, when occupied, have lighting levels below that which would provide easy identification of the egress doorway.

3.4.5.2. Signs for Stairs and Ramps at Exit Level

1) In a *building* more than 2 *storeys* in *building height*, any part of an *exit* ramp or stairway that continues up or down past the lowest *exit level* shall have a posted sign clearly indicating that it does not lead to an *exit*.

3.4.6. Types of Exit Facilities

(See Note A-3.4.6.)

3.4.6.1. Slip Resistance of Ramps and Stairs

- 1) The surfaces of ramps, and landings and treads
 - a) shall have a finish that is slip resistant, and
 - b) if accessible to the public, shall have either a colour contrast or a distinctive pattern, readily visible from both directions of travel, to demarcate the leading edge of the tread and the leading edge of the landing, as well as the beginning and end of a ramp.
- 2) Treads and landings of exterior *exit* stairs more than 10 m high shall be designed to be free of ice and snow accumulations.

3.4.6.2. Minimum Number of Risers

- 1) Except as permitted by Sentence 3.3.2.15.(1), every *flight* of interior stairs shall have not less than 3 risers.

3.4.6.3. Maximum Vertical Rise of Stair Flights and Required Landings

- 1) No *flight* of stairs shall have a vertical rise of more than 3.7 m between floors or landings, except that a *flight* of stairs serving as an *exit* in a Group B, Division 2 *occupancy* shall have a vertical rise not more than 2.4 m between floors or landings.
- 2) Except as provided in Sentence (3), a landing shall be provided
 - a) at the top and bottom of each *flight* of interior and exterior stairs,
 - b) at the top and bottom of every section of ramp,
 - c) where a doorway opens onto a stair or ramp,
 - d) where a ramp opens onto a stair, and
 - e) where a stair opens onto a ramp.
- 3) A landing may be omitted at the bottom of an exterior stair or ramp, provided there is no gate, door or fixed obstruction within the lesser of
 - a) the width of the stair or ramp, or
 - b) 1 100 mm.
- 4) Landings required at the top of a *flight* of stairs shall be provided with tactile walking surface indicators conforming to Subsection 3.8.3. unless the stairs are
 - a) stairs within *dwelling units* or serving not more than two *dwelling units*,
 - b) *exit* stairs not normally used for access purposes, or
 - c) fire escape stairs.

3.4.6.4. Dimensions of Landings

(See Note A-3.4.6.4.)

- 1) Except as provided in Sentence (2), a landing shall be at least as wide and as long as the width of the stairway in which it occurs.
- 2) In a straight stairway and in a stairway that turns less than 90°, the length of the landing need not be more than the lesser of

- a) the required width of stair, or
 - b) 1 100 mm.
- 3)** The length of a landing shall be measured perpendicular to the nosing of adjacent steps, at a distance equal to half the length required in Sentence (2), from the narrow edge of the landing.
- 4)** Where a doorway or stairway empties onto a ramp through a side wall, there shall be a level area extending across the full width of the ramp, and for a distance of 300 mm on either side of the wall opening, except one side if it abuts on an end wall.
- 5)** Where a doorway or stairway empties onto a ramp through an end wall, there shall be a level area extending across the full width of the ramp and along its length for not less than 900 mm.

3.4.6.5. Handrails

- 1)** One handrail shall be provided on stairs that are less than 1 100 mm in width.
- 2)** One handrail shall be provided on each side of
 - a) stairs that are 1 100 mm or more in width,
 - b) curved *flights* of any width, and
 - c) ramps.
- 3)** In addition to Sentence (2), intermediate handrails shall be provided so that
 - a) a handrail is reachable within 750 mm of all portions of the required *exit* width,
 - b) at least one portion of the stair or ramp between two handrails is the minimum width required for stairways or ramps (See Sentences 3.4.3.2.(8) and 3.4.3.3.(4).), and
 - c) all other portions of the stair or ramp between two handrails have a clear width of 510 mm or more.
- 4)** Where a stair or ramp is wider than its required *exit* width, handrails shall be located along the most direct path of travel. (See Note A-3.4.6.5.(4).)
- 5)** Handrails shall be continuously graspable along their entire length, be free of any sharp or abrasive elements, and have
 - a) a circular cross-section with an outside diameter not less than 30 mm and not more than 43 mm, or
 - b) a non-circular cross-section with a perimeter not less than 100 mm and not more than 125 mm and whose largest cross-sectional dimension is not more than 45 mm.
- 6)** The height of handrails on stairs, on aisles with steps and on ramps shall be measured vertically from the top of the handrail to
 - a) a straight line drawn tangent to the tread nosings of the stair or aisle step served by the handrail (See Note A-9.8.7.4.), or
 - b) the surface of the ramp, floor or landing served by the handrail.
- 7)** Except as provided in Sentence (8) and Clause 3.8.3.5.(1)(e), the height of handrails on stairs, on aisles with steps and on ramps shall be
 - a) not less than 865 mm, and
 - b) not more than 1 070 mm.
- 8)** Handrails installed in addition to required handrails need not comply with Sentence (7).
- 9)** Required handrails shall be continuously graspable throughout the length of
 - a) a ramp, and
 - b) a *flight* of stairs, from the bottom riser to the top riser.(See Note A-9.8.7.2.)
- 10)** Except where interrupted by doorways, at least one handrail shall be continuous throughout the length of a stairway or ramp, including at landings. (See Note A-3.4.6.5.(10).)
- 11)** Handrails shall be terminated in a manner that will not obstruct pedestrian travel or create a hazard. (See Note A-3.4.6.5.(10).)
- 12)** At least one handrail at the side of a stairway or ramp shall extend horizontally not less than 300 mm beyond the top and bottom of the stairway or ramp. (See Note A-3.4.6.5.(10).)

13) The clearance between a handrail and any surface behind it shall be not less than

- a) 50 mm, or
- b) 60 mm if the surface behind the handrail is rough or abrasive.

14) Handrails and their supports shall be designed and constructed to withstand the loading values specified in Sentence 4.1.5.14.(7).

15) A ramp shall have handrails on both sides.

3.4.6.6. Guards

1) Every *exit* shall have a wall or a well-secured *guard* on each side, where

- a) there is a difference in elevation of more than 600 mm between the walking surface and the adjacent surface, or
- b) the adjacent surface within 1.2 m of the walking surface has a slope of more than 1 in 2.

(See Note A-9.8.8.1.)

2) Except as required by Sentence (4), the height of *guards* for *exit* stairs and *exit* ramps as well as their landings shall be not less than 1 070 mm.

3) The height of *guards* shall be measured vertically to the top of the *guard* from

- a) a line drawn through the outside edges of the stair nosings, or
- b) the surface of the ramp or landing.

4) The height of *guards* for exterior stairs and landings more than 10 m above adjacent ground level shall be not less than 1 500 mm measured vertically to the top of the *guard* from the surface of the landing or from a line drawn through the outside edges of the stair nosings.

5) Except as provided in Sentence 3.3.1.18.(3) and Articles 3.3.4.7. and 3.3.5.10., *guards* in *exits* shall not have any openings that permit the passage of a spherical object whose diameter is more than 100 mm.

6) In a stairway, a window for which the distance measured vertically between the bottom of the window and a line drawn through the outside edges of the stair nosings is less than 900 mm, or a window that extends to less than 1 070 mm above the landing, shall

- a) be protected by a *guard* that is
 - i) located approximately 900 mm above a line drawn through the outside edges of the stair nosings, or
 - ii) not less than 1 070 mm high measured to the top of the *guard* from the surface of the landing, or
- b) be fixed in position and designed to resist the lateral design loads specified for *guards* and walls in Articles 4.1.5.14. and 4.1.5.16.

7) Except for *guards* conforming to Article 3.3.5.10., *guards* shall be designed so that no member, attachment or opening located between 140 mm and 900 mm above the level being protected by the *guard* facilitates climbing. (See Note A-9.8.8.6.(1).)

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3.4.6.7. Ramp Slope

(See also Article 3.8.3.5.)

1) Except as required for aisles by Article 3.3.2.5., the maximum slope of a ramp shall be

- a) 1 in 10 in any *assembly, care, treatment, detention* or *residential occupancy*,
- b) 1 in 6 in an *industrial occupancy*,
- c) 1 in 8 in all other *occupancies*, and
- d) 1 in 10 for an exterior ramp.

3.4.6.8. Treads and Risers

(See Note A-9.8.4.)

1) Except as permitted for *dwelling units* and by Sentence 3.4.7.5.(1) for fire escapes, steps for stairs shall have a *run* of not less than 280 mm between successive steps.

- 2) Steps for stairs referred to in Sentence (1) shall
 - a) have a rise between successive treads not less than 125 mm and not more than 180 mm,
 - b) have a closed riser, and
 - c) have
 - i) a riser with either no rakeback or a rakeback of not more than 38 mm, or
 - ii) if a nosing is provided, the underside of the nosing with an angle of not less than 60° from the horizontal.
- 3) Except as provided in Article 3.3.4.7. and except for fire escape stairs, stairs that are principally used for maintenance and service, and stairs that serve *industrial occupancies* other than *storage garages*, steps for stairs shall have no open risers.
- 4) Except in fire escape stairs and where an exterior stair adjoins a *walkway* as permitted in Sentence 3.4.6.3.(3), risers, measured as the vertical nosing-to-nosing distance, shall be of uniform height in any one *flight*, with a maximum tolerance of
 - a) 5 mm between adjacent treads or landings, and
 - b) 10 mm between the tallest and shortest risers in a *flight*.
- 5) Except in fire escape stairs, treads shall have a uniform *run* with a maximum tolerance of
 - a) 5 mm between adjacent treads, and
 - b) 10 mm between the deepest and shallowest treads in a *flight*.
- 6) Treads and risers shall not differ significantly in *run* and rise in successive *flights* in any stair system.
- 7) The slope of treads or landings shall not exceed 1 in 50.
- 8) The top of the nosing of stair treads shall
 - a) except as permitted in Sentence (10), have either a radius or a bevel between 6 mm and 10 mm in horizontal dimension,
 - b) have no abrupt angles on the underside, and
 - c) not project more than 38 mm.
- 9) The front edge of stair treads in *exits* and public *access to exits* shall be at right angles to the direction of *exit* travel.
- 10) If resilient material is used to cover the nosing of a stair tread, the minimum rounded or beveled edge required by Sentence (8) is permitted to be reduced to 3 mm.

3.4.6.9. Curved Flights in Exits

- 1) Exit stair *flights* shall consist solely of
 - a) straight *flights*, or
 - b) curved *flights* complying with Sentence (2).
- 2) A curved *flight* used as an *exit* shall have
 - a) a handrail on each side,
 - b) a minimum *run* of 240 mm,
 - c) a *run* that conforms to Article 3.4.6.8. when measured at a point 300 mm from the centre line of the handrail at the narrow end of the tread, and
 - d) an inside radius that is not less than twice the stair width.
- 3) *Tapered treads* shall have a consistent angle and uniform *run* and rise dimensions in accordance with the construction tolerances stipulated in Article 3.4.6.8. when measured at a point 300 mm from the centre line of the handrail at the narrow end of the tread.
- 4) All *tapered treads* within a *flight* shall turn in the same direction.

3.4.6.10. Horizontal Exits

- 1) The *floor area* on each side of a *horizontal exit* shall be sufficient to accommodate the occupants of both *floor areas*, allowing not less than 0.5 m² of clear floor space per person, except that 1.5 m² shall be provided for each person in a wheelchair and 2.5 m² for each bedridden patient.

- 2) If vestibules, enclosed balconies or bridges are used as parts of a *horizontal exit*, their clear width shall be not less than that of the *exit* doorways opening into them, except that handrails are not permitted to project into this clear width more than 100 mm.
 - 3) In a *horizontal exit* where there is a difference in level between the connected *floor areas*, slopes not more than those specified for ramps in Article 3.4.6.7. are permitted to be used.
 - 4) No stairs or steps shall be used in a *horizontal exit*.
 - 5) If 2 doors are provided in a *horizontal exit* that comprises a part of the required number of *exits* from the *floor areas* on both sides of the *exit*
 - a) the doors shall be mounted adjacent to each other with the door on the right side in the direction of travel through the *horizontal exit* swinging in the direction of travel through the *horizontal exit*, and
 - b) signs shall be provided on each side of the *horizontal exit* to indicate the door that swings in the direction of travel from that side.
- (See Note A-3.4.6.10.(5).)
- 6) If a *horizontal exit* utilizes bridges between *buildings* or outside balconies, the bridges or balconies shall conform to Article 3.2.3.19.

3.4.6.11. Doors

- 1) The distance between a stair riser and the leading edge of a door during its swing shall be not less than 300 mm.
- 2) Except as provided in Sentence (3) and where doorways are used to confine the spillage of *flammable liquids* within a *service room* or within a room in an *industrial occupancy*, a threshold for a doorway in an *exit* shall be not more than 13 mm higher than the surrounding finished floor surface.
- 3) Except for doors providing *access* to ground level as required by Clause 11.3.7.1.(1)(d) and (e), an *exit* door is permitted to open onto not more than one step which shall be not more than 150 mm high where there is a risk of blockage by ice or snow.
- 4) *Exit* doors shall be clearly identifiable. (See Note A-3.4.6.11.(4).)
- 5) No door leaf in an *exit* doorway with more than one leaf shall be less than 610 mm wide.
- 6) Where an *exit* door leading directly to the outside is subject to being obstructed by parked vehicles or storage because of its location, a visible sign or a physical barrier prohibiting such obstructions shall be installed on the exterior side of the door.

3.4.6.12. Direction of Door Swing

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- 1) Except for doors serving a single *dwelling unit* and except as permitted by Sentence (2), (3), and Article 3.4.5.14., and 3.4.6.20, every *exit* door shall
 - a) open in the direction of *exit* travel, and
 - b) swing on its vertical axis.
- 2) *Exit* doors need not conform to Sentence (1), where
 - a) they serve *storage garages* serving not more than one *dwelling unit*,
 - b) they serve accessory *buildings* serving not more than one *dwelling unit*,
 - c) **reserved**, or
 - d) **reserved**.
- 3) Despite the provisions of Sentence (1), principal entrance doors opening to an *acceptable* open space at ground level are not required to swing in the direction of *exit* travel if
 - a) the *suite* is located at ground level,
 - b) the *suite* does not serve a Group F, Division 1 *occupancy*, and
 - c) the *occupant load* is not more than 60 persons.

3.4.6.13. Self-closing Devices

- 1) An *exit* door that is normally required to be kept closed
 - a) shall be provided with a self-closing mechanism, and
 - b) shall never be secured in an open position except as permitted by Sentence 3.1.8.14.(1).

3.4.6.14. Sliding Doors

- 1) Except as permitted by Sentences (2) and 3.4.6.12.(2), an *exit* door leading directly to outdoors at ground level is permitted to be a sliding door provided it conforms to Sentence 3.3.1.12.(1).
- 2) An *exit* door serving a Group B, Division 1 *occupancy*, or an *impeded egress zone* in other *occupancies*, is permitted to be a sliding door that does not conform to Sentence 3.3.1.12.(1) provided it is designed to be released in conformance with Article 3.3.1.13.

3.4.6.15. Revolving Doors

- 1) Except as permitted by Sentence (3), a revolving door, if used, shall
 - a) be collapsible,
 - b) have hinged doors providing equivalent exiting capacity located adjacent to it,
 - c) be used as an *exit* from the ground floor level only,
 - d) not be used at the foot of any stairway, and
 - e) have all glass in door leaves and enclosure panels conforming to
 - i) CAN/CGSB-12.1-M, “Tempered or Laminated Safety Glass,” or
 - ii) CAN/CGSB-12.11-M, “Wired Safety Glass.”
- 2) Except as permitted by Sentence (3), a revolving door shall not be considered to have an exiting capacity for more than 45 persons.
- 3) An electrically powered revolving door is not required to conform to Sentences (1) and (2) provided
 - a) the door leaves will collapse and stop automatic rotation of the door system and not obstruct the doorway if a force not more than that specified in Sentence 3.4.6.16.(2) is applied at the centre of a door leaf,
 - b) the door leaves are capable of being opened from inside the *building* without requiring keys, special devices, or specialized knowledge of the door opening mechanism,
 - c) the allowable exiting capacity is based on the clear width of passage through the door enclosure when the doors are fully collapsed,
 - d) a permanent sign, whose centre line is between 1 000 mm and 1 500 mm above the floor, is placed on each face of each door leaf indicating the method for collapsing the door leaf in an emergency, and
 - e) glass used for door leaves and enclosure panels is safety glass conforming to
 - i) CAN/CGSB-12.1-M, “Tempered or Laminated Safety Glass,” or
 - ii) CAN/CGSB-12.11-M, “Wired Safety Glass.”

3.4.6.16. Door Release Hardware

- 1) Except for devices on doors serving a *contained use area* or an *impeded egress zone* designed to be remotely released in conformance with Article 3.3.1.13., and except as permitted by Sentences (4) and (5), and Article 3.4.6.17., and 3.4.6.20. locking, latching and other fastening devices on a principal entrance door to a *building* as well as those on every *exit* door shall include release hardware complying with Clause 3.8.3.8.(1)(c) to permit the door to be readily opened from the inside with not more than one releasing operation and without requiring keys, special devices or specialized knowledge of the door-opening mechanism. (See Note A-3.4.6.16.(1).)
- 2) If a door is equipped with a latching mechanism, a device that will release the latch and allow the door to swing wide open when a force of not more than 90 N is applied to the device in the direction of travel to the *exit* shall be installed on
 - a) every *exit* door from a *floor area* containing an *assembly occupancy* having an *occupant load* more than 100,
 - b) every door leading to an *exit* lobby from an *exit* stair shaft, and every exterior door leading from an *exit* stair shaft in a *building* having an *occupant load* more than 100, and
 - c) every *exit* door from a *floor area* containing a *high-hazard industrial occupancy*.

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3) Except as required by Sentence 3.8.3.6.(8), every *exit* door shall be designed and installed so that, when the latch is released, the door will open under a force of not more than 90 N, applied at the knob or other latch releasing device.

4) Except as permitted in Sentence (7), electromagnetic locks that do not incorporate latches, pins or other similar devices to keep the door in the closed position are permitted to be installed on doors, other than those leading directly from a *high-hazard industrial occupancy*, provided

- a) the *building* is equipped with a fire alarm system,
- b) the locking device releases upon actuation of the *alarm signal* from the *building's* fire alarm system,
- c) the locking device releases immediately upon loss of power controlling the electromagnetic locking mechanism and its associated auxiliary controls,
- d) except for locking devices installed in conformance with Sentence (5), the locking device releases immediately upon actuation of a manually operated switch readily accessible only to authorized personnel,
- e) except as provided in Clause (k), a force of not more than 90 N applied to the door opening hardware initiates an irreversible process that will release the locking device within 15 s and not re-lock until the door has been opened,
- f) upon release, the locking device must be reset manually by the actuation of the switch referred to in Clause (d),
- g) a legible sign is permanently mounted on the door to indicate that the locking device will release within 15 s of applying pressure to the door-opening hardware,
- h) the total time delay for all electromagnetic locks in any path of egress to release is not more than 15 s (See note A-3.4.6.16.(4)(h).),
- i) where a bypass switch is installed to allow testing of the fire alarm system, actuation of the switch
 - i) can prevent the release of the locking device by the fire alarm system, as stated in Clause (b), during the test, and
 - ii) causes an audible and visual signal to be indicated at the fire alarm annunciator panel required by Article 3.2.4.9. and at the monitoring station specified in Sentence 3.2.4.8.(4),
- j) emergency lighting is provided at each door, and
- k) where they are installed on doors providing emergency crossover access to *floor areas* from *exit* stairs directly into a *public corridor*, or *publicly accessed floor area acceptable to the Chief Building Official*, in accordance with Sentence 3.4.6.18.(2),
 - i) the locking device releases immediately upon the operation of a manual station for the fire alarm system located on the wall on the *exit* stair side not more than 600 mm from the door, and
 - ii) a legible sign with the words “re-entry door unlocked by fire alarm” written in letters at least 25 mm high with a stroke of at least 5 mm is permanently mounted on the door on the *exit* stair side.

(See Notes A-3.4.6.16.(4). and A-3.3.1.13.(7).)

5) Electromagnetic locks that do not incorporate latches, pins or other similar devices to keep the door in the closed position are permitted to be installed on doors in Group B, Division 2 and Division 3 *occupancies*, provided

- a) the *building* is
 - i) equipped with a fire alarm system, and
 - ii) *sprinklered*,
- b) the electromagnetic lock releases upon
 - i) actuation of the *alarm signal* from the *building's* fire alarm system,
 - ii) loss of its power supply and of power to its auxiliary controls,
 - iii) actuation of a manually operated switch that is readily accessible at a constantly attended location within the locked space, and
 - iv) actuation of the manual station installed within 0.5 m of each door and equipped with an auxiliary contact, which directly releases the electromagnetic lock,
- c) upon release, the electromagnetic lock requires manual resetting by actuation of the switch referred to in Subclause (b)(iii),
- d) a legible sign with the words “EMERGENCY EXIT UNLOCKED BY FIRE ALARM” written in letters at

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- least 25 mm high with a stroke at least 5 mm wide is permanently mounted on the door,
- e) the operation of any by-pass switch, where provided for testing of the fire alarm system, sets off an audible signal and a visual signal at the fire alarm annunciator panel and at the monitoring station referred to in Sentence 3.2.4.7.(4), and
- f) emergency lighting is provided at the doors.

(See Note A-3.4.6.16.(5).)

6) Except as provided in Sentence 3.4.6.17.(9), door release hardware for the operation of the doors referred to in this Section shall be installed at a height between 900 mm and 1 100 mm above the finished floor.

(See also Subclause 3.8.3.6.(6)(a)(v).)

7) As an alternative to the requirements of Clauses (e), (f) and (g) in Sentence 3.4.6.16.(4), acceptable door release hardware for an electromagnetic lock shall be located in close proximity to the *exit* door and shall be equipped with

- a) a push button together with a motion sensor or a pressure sensitive pad that will immediately release the locking device,
- b) a push button that is
 - i) directly connected to the electrical circuit that provides power to the locking device, without any intervening mechanism,
 - ii) embossed with the word “EXIT” on the activation surface in text with dimensions of no less than 25 mm,
 - iii) internally illuminated by a permanent LED type light source, and
 - iv) labeled “DOOR RELEASE” in plain and legible characters, **and**
- c) an electromagnetic lock that
 - i) will reset automatically, except as provided in (c)(ii),
 - ii) has an automatic reset feature that is not activated for at least 15 seconds, and
 - iii) can only be reset by manual means after the activation of the fire alarm system.

(See Note A-3.4.6.16.(7).)

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3.4.6.17. Security for Banks and Mercantile Floor Areas

1) If a *building* is *sprinklered* throughout, the requirements of Sentence 3.4.6.16.(1) are permitted to be waived for *exit* and egress doors complying with Sentences (2) to (9) that serve a *floor area* or part of a *floor area* used exclusively for

- a) a bank, or
- b) the sale of retail merchandise.

(See Note A-3.4.6.17.(1).)

2) *Exit* and egress doors referred to in Sentence (1) shall be designed to prevent locking at any time that the part of the *floor area* that they serve is open to the public.

3) A sign with the words “This door shall not be locked at any time that the public is present” in letters not less than 50 mm high shall be permanently affixed to both sides of doors referred to in Sentence (1).

4) *Exit* and egress facilities complying with Sentences (5) to (9) shall be incorporated for egress by persons other than the public from a *floor area* or a part of a *floor area* referred to in Sentence (1) during times when the public is neither present nor being admitted to the area that they serve.

5) In *exit* and egress facilities referred to in Sentence (4), at least one door at each *exit* and egress location shall

- a) be operable in conformance with Sentence 3.4.6.16.(1), or
- b) be equipped with locks conforming to Sentence 3.4.6.16.(4) that release immediately
 - i) if an *alert signal* or *alarm signal* is initiated in the fire alarm system, or
 - ii) the *sprinkler system* is actuated.

6) A door referred to in Sentence (5) shall be permanently and distinctly marked to indicate that it is an emergency *exit*.

7) *Exit* and egress facilities required for evacuation of persons other than the public from a *floor area* or a part of a *floor area* referred to in Sentence (1) shall have an aggregate width based on the maximum number of persons other

than the public and determined in accordance with Articles 3.4.3.1. to 3.4.3.3.

8) Travel distance to an *exit* referred to in Sentence (7) shall not exceed the travel distance determined in accordance with Subsection 3.4.2.

9) *Exit* and egress doors serving a *floor area* or part of a *floor area* referred to in Sentence (1) are permitted to be equipped with locks that require keys, special devices or specialized knowledge of the door opening mechanism provided

- a) the doors do not lead into *exit* stairs,
- b) the doors do not lead from *exit* stairs to the exterior of the *building*,
- c) the doors do not serve any other *occupancy*,
- d) the area served contains at least one telephone
 - i) that is accessible and in operation at all times,
 - ii) that is not coin or card operated, and
 - iii) marked to indicate that it is for emergency use,
- e) the area served is illuminated by normal power or by emergency power when the doors are locked,
- f) there are provisions that enable an announcement to be made throughout the area served before the locks are fastened, and
- g) the locks are designed for use during times that the *building* is not occupied.

3.4.6.18. Emergency Crossover Access to Floor Areas

1) Except as permitted in Sentence (2), doors providing access to *floor areas* from *exit* stairs shall not have locking devices to prevent entry into any *floor area* from which the travel distance up or down to an unlocked door is more than 2 *storeys*.

2) Doors referred to in Sentence (1) are permitted to be equipped with electromagnetic locks, provided they open directly into a *public corridor*, or *publicly accessed floor area acceptable to the Chief Building Official*, and comply with Sentences 3.4.6.16.(4) and (5).

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3) Doors referred to in Sentence (1) shall be identified by a sign on the stairway side to indicate that they are openable from that side.

- 4) Locked doors intended to prevent entry into a *floor area* from an *exit* stair shall
 - a) be identified by a sign on the stairway side to indicate the location of the nearest unlocked door in each direction of travel, and
 - b) be openable with a master key that fits all locking devices and is kept in a designated location accessible to firefighters or be provided with a wired glass panel not less than 0.0645 m² in area and located not more than 300 mm from the door opening hardware.

5) Where access to *floor areas* through unlocked doors is required by Sentence (1), it shall be possible for a person entering the *floor area* to have access through unlocked doors within the *floor area* to at least one other *exit*.

3.4.6.19. Floor Numbering

- 1) Arabic numerals indicating the assigned floor number shall
 - a) be mounted permanently on the stair side of the wall at the latch side of doors to *exit* stair shafts,
 - b) be not less than 60 mm high, raised approximately 0.7 mm above the surface,
 - c) be located 1 500 mm from the finished floor and not more than 300 mm from the door, and
 - d) be contrasting in colour with the surface to which they are applied. (See Note A-3.4.6.19.(1)(d).)

3.4.6.20. Security Gates and Doors for Non-Residential Floor Areas

1) This Article applies to *buildings* or parts of *buildings* classified as *assembly occupancy*, *business and personal services occupancy*, *mercantile occupancy*, *medium hazard industrial occupancy*, and *low hazard industrial occupancy*.

2) A security gate or security door is permitted to be installed in front of an exterior *exit* door of the *building* provided the installation and use conform to the *Fire By-law*

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3.4.7. Fire Escapes

3.4.7.1. Scope

- 1) Except as permitted by Sentence (2), fire escapes shall not be erected on a *building*.
- 2) If it is impracticable to provide one or more of the *exit* facilities listed in Article 3.4.1.4., fire escapes conforming to Articles 3.4.7.2. to 3.4.7.7. are permitted to serve *floor areas* in an existing *building* provided the *floor areas* served are not more than
 - a) 2 *storeys* above ground level in *care, treatment* or *detention occupancies*, and
 - b) 5 *storeys* above ground level in other *occupancies*.

3.4.7.2. Fire Escape Construction

- 1) Fire escapes shall be of metal or concrete, of the stair type extending to ground level, constructed throughout in a strong substantial manner and securely fixed to the *building*, except that wooden fire escapes are permitted to be used on *buildings* of *combustible construction* if all posts and brackets are not less than 89 mm in their least dimension and all other woodwork is not less than 38 mm in its least dimension.

3.4.7.3. Access to Fire Escapes

- 1) Access to fire escapes shall be from corridors through doors at floor level, except that access from a *dwelling unit* is permitted to be through a casement window having an unobstructed opening not less than 1 100 mm high by 550 mm wide with a sill height of not more than 900 mm above the inside floor.
- 2) The clear area of a fire escape balcony onto which a door opens, shall be not less than 1 m².

3.4.7.4. Protection of Fire Escapes

- 1) If a fire escape serves any *storey* above the second, openings located in a zone described in Sentence (2), including access doorways in the exterior walls of the *building* to which the fire escape is attached, shall be protected by *closures* conforming to Subsection 3.1.8.
- 2) The zone referred to in Sentence (1) extends from any balcony, platform or stairway of a fire escape to a distance
 - a) 3 m horizontally,
 - b) 10 m below, or
 - c) 1.8 m above.

3.4.7.5. Stairs

- 1) Stairs shall be inclined at an angle of not more than 45° with the horizontal, and their steps shall have risers not more than 210 mm high and treads not less than 220 mm wide exclusive of nosing.
- 2) Stairway headroom shall be not less than 1 950 mm plus the height of one riser measured vertically above the nosing of any tread or platform.
- 3) The width of a fire escape shall conform to Articles 3.4.3.1. to 3.4.3.3., except that the width is permitted to be reduced to 550 mm provided the fire escape serves
 - a) not more than 3 *storeys*, and
 - b) not more than 15 persons.
- 4) If a *flight* of stairs leading to the ground at the foot of a fire escape is not fixed in position, it shall be held in the raised position without a latch or locking device, and shall be fitted with a counterbalancing device that will permit it to be easily and quickly brought into position for use.

3.4.7.6. Guards and Railings

- 1) The open sides of every platform, balcony and stairway forming part of a fire escape shall be protected by *guards* not less than 920 mm high measured vertically above the nosing of any tread or platform.
- 2) The top rail of a *guard* is permitted to serve as a handrail if it is free from obstructions which could break a handhold.

- 3) A wall handrail shall be installed if the fire escape is more than 550 mm wide.
- 4) Unless it can be shown that the size of openings that exceed this limit does not present a hazard, there shall be no opening that permits the passage of a sphere whose diameter is more than 100 mm through a *guard* for a fire escape.
- 5) Unless it can be shown that the location and size of an opening do not present a hazard, a *guard* for a fire escape shall be designed so that no member, attachment or opening located between 140 mm and 900 mm above a platform or the nosing of any tread will facilitate climbing.

3.4.7.7. Landings

- 1) Platforms for a fire escape shall be provided in conformance with the requirements for stair landings in Articles 3.4.6.3. and 3.4.6.4.