

9.4.4.5. Reserved

9.4.4.6. Walls Supporting Drained Earth (See Appendix A.)

- (1) Except where constructed in accordance with Section 9.15., walls supporting drained earth shall be designed,
 - (a) for a pressure equivalent to that exerted by a fluid with a density of not less than 480 kg/m^3 and a depth equal to that of the retained earth, or
 - (b) in accordance with Section 4.2. so as to be able to resist the loads and effects described in Article 4.1.2.1.
- (2) Walls supporting other than drained earth shall be designed,
 - (a) for the pressure described in Clause (1)(a) plus the fluid pressure of the surcharge, or
 - (b) in accordance with Section 4.2. so as to be able to resist the loads and effects described in Article 4.1.2.1.

Section 9.5. Design of Areas, Spaces and Doorways

9.5.1. General

9.5.1.1. Application

- (1) Except as otherwise specified in this Part, this Section applies only to *dwelling units* that are intended for use on a continuing or year-round basis as the principal residence of the occupant.

9.5.1.2. Method of Measurement

- (1) Except as otherwise specified in this Part, the areas, dimensions and heights of rooms or spaces shall be measured between finished wall surfaces and between finished floor and ceiling surfaces.

9.5.1.3. Floor Areas

- (1) Minimum floor areas specified in this Section do not include closets or built-in bedroom cabinets unless otherwise indicated.

9.5.1.4. Combination Rooms (See Appendix A.)

- (1) Two or more areas may be considered as a combination room if the opening between the areas occupies the larger of 3 m^2 or 40% or more of the wall measured on the side of the dependent area.
- (2) Where the dependent area is a bedroom, direct passage shall be provided between the two areas.
- (3) The opening required in Sentence (1) shall not contain doors or windows.

9.5.1.5. Lesser Areas and Dimensions

- (1) Areas of rooms and spaces are permitted to be less than required in this Section provided it can be shown that the rooms and spaces are adequate for their intended use, such as by the provision of built-in furniture to compensate for reduced sizes.

9.5.2. Barrier-Free Design

9.5.2.1. General

- (1) Except as provided in Sentence (2) and Article 3.8.1.1., every *building* shall be designed in conformance with Section 3.8.
- (2) The requirements of Section 3.8. need not be provided for houses, including semi-detached houses, duplexes, triplexes, town houses, row houses and boarding or rooming houses with fewer than eight boarders or roomers.

9.5.2.2. Protection on Floor Areas With a Barrier-Free Path of Travel

- (1) Where a *barrier-free* path of travel required in Article 9.5.2.1. is provided to any *storey* above the *first storey*, the requirements in Article 3.3.1.7. shall apply.

9.5.2.3. Stud Wall Reinforcement

- (1) If wood wall studs or sheet steel wall studs enclose the main bathroom in a *dwelling unit*, reinforcement shall be installed to permit the future installation of the following:
 - (a) for a water closet, a grab bar described in Clauses 3.8.3.8.(3)(a) and a grab bar described in Clause 3.8.3.8.(3)(c),
 - (b) for a shower, a grab bar described in Clause 3.8.3.13.(2)(f), and
 - (c) for a bathtub, a grab bar described in Clause 3.8.3.13.(4)(c).(See Appendix A.)

9.5.3. Ceiling Heights

9.5.3.1. Ceiling Heights of Rooms or Spaces

- (1) The ceiling heights of rooms or spaces in *residential occupancies* and *live/work units* shall conform to Table 9.5.3.1.
- (2) Areas in rooms or spaces over which ceiling height is not less than the minimum specified in Table 9.5.3.1. shall be contiguous with the entry or entries to those rooms or spaces.

Table 9.5.3.1.

Room Ceiling Heights

Forming Part of Sentences 9.5.3.1.(1) and (2)

Room or Space	Minimum Heights ⁽¹⁾
Living room or space, dining room or space, kitchen or kitchen space	2 300 mm over at least 75% of the required floor area with a clear height of 2 100 mm at any point over the required area
Bedroom or bedroom space	2 300 mm over at least 50% of the required area or 2 100 mm over all of the required floor area. Any part of the floor having a clear height of less than 1 400 mm shall not be considered in computing the required floor area
Basement space	2 100 mm over at least 75% of the <i>basement</i> area except that under beams and ducts the clearance is permitted to be reduced to 1 950 mm
Bathroom, water closet room or laundry area above grade	2 100 mm in any area where a person would normally be in a standing position
Passage, hall or main entrance vestibule and finished rooms not specifically mentioned above	2 100 mm
Column 1	2

Notes to Table 9.5.3.1.:

(1) Area of the space shall be measured at floor level.

9.5.3.2. Mezzanines

 (1) The ceiling height above and below a *mezzanine* floor assembly in all *occupancies* shall be not less than 2 100 mm.

9.5.3.3. Storage Garages

 (1) The clear height in a *storage garage* shall be not less than 2 000 mm.

9.5.4. Living Rooms or Spaces Within Dwelling Units
9.5.4.1. Areas of Living Rooms and Spaces

 (1) Living areas within *dwelling units*, either as separate rooms or in combination with other spaces, shall have an area not less than 13.5 m². 145.3 sq. ft.

 (2) Where the area of a living space is combined with a kitchen and dining area, the living area alone in a *dwelling unit* that contains sleeping accommodation for not more than two persons shall be not less than 11 m². 118 sq. ft.

9.5.5. Dining Rooms or Spaces Within Dwelling Units
9.5.5.1. Area of Dining Rooms or Spaces

 (1) A dining space in combination with other space shall have an area of not less than 3.25 m². 35 sq. ft.

 (2) Dining rooms not combined with other space shall have a minimum area of 7 m². 75.3 sq. ft.

9.5.6. Kitchens Within Dwelling Units

9.5.6.1. Kitchen Areas

45.2 sq. ft.

(1) Kitchen areas within *dwelling units* either separate from or in combination with other spaces, shall have an area of not less than 4.2 m² including the area occupied by the base cabinets, except that in *dwelling units* containing sleeping accommodation for not more than two persons, the minimum area shall be 3.7 m².

40 sq. ft.

9.5.7. Bedrooms or Spaces in Dwelling Units and Dormitories

9.5.7.1. Areas of Bedrooms

(1) Except as provided in Articles 9.5.7.2. and 9.5.7.3., bedrooms in *dwelling units* shall have an area not less than 7 m² where built-in cabinets are not provided and not less than 6 m² where built-in cabinets are provided.

75.3 sq. ft.

64.5 sq. ft.

9.5.7.2. Areas of Master Bedrooms

(1) Except as provided in Article 9.5.7.3., at least one bedroom in every *dwelling unit* shall have an area of not less than 9.8 m² where built-in cabinets are not provided and not less than 8.8 m² where built-in cabinets are provided.

105.4 sq. ft.

94.7 sq. ft.

9.5.7.3. Areas of Combination Bedrooms

(1) Bedroom spaces in combination with other spaces in *dwelling units* shall have an area not less than 4.2 m².

9.5.7.4. Areas of Other Sleeping Rooms

(1) Sleeping rooms other than in *dwelling units* shall have an area not less than 7 m² per person for single *occupancy* and 4.6 m² per person for multiple *occupancy*.

9.5.7.5. Recreational Camps

(1) *Recreational camps* shall have an area in the sleeping quarters of at least 3.72 m² per camper or, if double or triple tier bunk units are used, 2.79 m² per camper.

9.5.7.6. Camps for Housing Workers

(1) A *camp for housing of workers* shall have a minimum area of 3.72 m² per employee in every room used for sleeping purposes.

9.5.8. Combined Spaces

9.5.8.1. Combined Living, Dining, Bedroom and Kitchen Spaces

(1) Despite Subsections 9.5.4. to 9.5.7., where living, dining, bedroom and kitchen spaces are combined in a *dwelling unit* that contains sleeping accommodation for not more than two persons, the area of the combined spaces shall be not less than 13.5 m².

145.3 sq. ft.

9.5.9. Bathrooms and Water Closet Rooms

9.5.9.1. Space to Accommodate Fixtures

(1) In every *dwelling unit* an enclosed space of sufficient size shall be provided to accommodate a water closet, lavatory and bathtub or shower stall.

9.5.9.2. Doors to Rooms Containing Water Closets

(1) A door shall be provided to each room containing a water closet within a *dwelling unit*.

9.5.10. Hallways

9.5.10.1. Hallway Width

(1) The unobstructed width of a hallway within a *dwelling unit* shall be not less than 860 mm, except that the hallway width is permitted to be 710 mm, where,

- (a) there are only bedrooms and bathrooms at the end of the hallway furthest from the living area, and
- (b) a second *exit* is provided,
 - (i) in the hallway near the end furthest from the living area, or
 - (ii) in each bedroom served by the hallway.

9.5.11. Doorway Sizes

9.5.11.1. Doorway Opening Sizes

(1) Except as provided in Articles 9.5.11.3., 9.9.6.2. and 9.9.6.3., doorway openings within *dwelling units* shall be designed to accommodate at least the door sizes in Table 9.5.11.1. for swing-type doors or folding doors.

Table 9.5.11.1.
Minimum Door Sizes
Forming Part of Sentence 9.5.11.1.(1)

At Entrance to:	Minimum Width, mm	Minimum Height, mm
<i>Dwelling unit</i> (required entrance) Vestibule or entrance hall	810	1 980
Stairs to a floor level that contains a finished space All doors in at least one line of passage from the exterior to the <i>basement</i> Utility rooms	810	1 980
Walk-in closet	610	1 980
Bathroom, water closet room, shower room ⁽¹⁾	610	1 980
Rooms located off hallways that are permitted to be 710 mm wide	610	1 980
Rooms not mentioned above, exterior balconies	760	1 980
Column 1	2	3

Notes to Table 9.5.11.1.:

(1) See Article 9.5.11.3.

9.5.11.2. Doors to Public Water Closet Rooms

- (1) Doors to public water closet rooms shall be not less than 810 mm wide and 2 030 mm high.

9.5.11.3. Doors to Bathrooms

(1) Where a **barrier-free path of travel** conforming to Section 3.8. is provided into a *suite of residential occupancy* and where a bathroom within the *suite* is at the level of the *suite* entrance door, the doorway to such bathroom and to each bedroom at the same level as such bathroom shall have, when the door is in the open position, a clear width of not less than,

- (a) **760 mm** where the door is served by a corridor or space **not less than 1 060 mm wide**, and
(b) **810 mm** where the door is served by a corridor or space **less than 1 060 mm wide**.

Section 9.6. Glass

9.6.1. General

9.6.1.1. Application

- (1) This Section applies to,
- (a) glass in,
- (i) interior windows and interior doors and their sidelights,
 - (ii) clothes closets,
 - (iii) site-built exterior windows, doors and skylights,
 - (iv) shower or bathtub enclosures,
 - (v) glazed panels and *partitions*, and
- (b) the protection of glass.

9.6.1.2. Material Standards for Glass

- (1) Glass shall conform to,
- (a) CAN/CGSB-12.1-M, “Tempered or Laminated Safety Glass,”
 - (b) CAN/CGSB-12.2-M, “Flat, Clear Sheet Glass,”
 - (c) CAN/CGSB-12.3-M, “Flat, Clear Float Glass,”
 - (d) CAN/CGSB-12.4-M, “Heat-Absorbing Glass,”
 - (e) CAN/CGSB-12.8, “Insulating Glass Units,”
 - (f) CAN/CGSB-12.10-M, “Glass, Light and Heat Reflecting,”
 - (g) CAN/CGSB-12.11-M, “Wired Safety Glass”, or
 - (h) ASTM E2190, “Insulating Glass Unit Performance and Evaluation”.
- (2) Mirrored glass doors are permitted to be used only at the entrance to clothes closets and shall conform to the requirements of CAN/CGSB-82.6-M, “Doors, Mirrored Glass, Sliding or Folding, Wardrobe”. (See Appendix A.)
- (3) Mirrored glass doors reinforced with a film backing shall meet the impact resistance requirements specified in CAN/CGSB-12.5-M, “Mirrors, Silvered”.

9.6.1.3. Structural Sufficiency of Glass

- (1) Glass shall be designed in conformance with CAN/CGSB-12.20-M, “Structural Design of Glass for Buildings”. (See Appendix A.)

- (5) Swinton, M.C., Brown, W.C., and Chown, G.A. Controlling the Transfer of Heat, Air and Moisture through the Building Envelope. Small Buildings - Technology in Transition, Building Science Insight '90, Institute for Research in Construction, National Research Council Canada, Ottawa, 1990.

A-9.4.4.6. and A-9.15.1.1. Loads on Foundations.

The prescriptive solutions provided in Part 9 relating to footings and foundation walls only account for the loads imposed by drained earth. Drained earth is assumed to exert a load equivalent to the load that would be exerted by a fluid with a density of 480 kg/m³. The prescriptive solutions do not account for surcharges from saturated soil or additional loads from heavy objects located adjacent to the building. Where such surcharges are expected, the footings and foundation walls must be designed and constructed according to Part 4.

A-9.5.1.4. Combination Rooms.

If a room draws natural light and natural ventilation from another area, the opening between the two areas must be large enough to effectively provide sufficient light and air. This is why a minimum opening of 3 m² is required, or the equivalent of the area of a set of double doors. The effectiveness of the transfer of light and air also depends on the size of the transfer opening in relation to the size of the dependent room; in measuring the area of the wall separating the two areas, the whole wall on the side of the dependent room should be considered, not taking into account offsets that may be in the surface of the wall.

The opening does not necessarily have to be in the form of a doorway; it may be an opening at eye level. However, if the dependent area is a bedroom, provision must be made for the escape window required by Article 9.7.1.3. to fulfill its safety function. This is why a direct passage is required between the bedroom and the other area; the equivalent of at least a doorway is therefore required for direct passage between the two areas.

e_{2.1} A-9.5.2.3.(1) Stud Wall Reinforcement.

This provision for future attachment of grab bars in the main bathroom of a residential occupancy including houses requires the installation of suitable blocking in the stud wall. Sentence 9.31.2.3.(1) specifies the required load resistance. Also, see Appendix Note A-3.3.4.9.(1).

A-9.6.1.2.(2) Mirrored Glass Doors.

Standard CAN/CGSB-82.6 covers mirrored glass doors for use on reach-in closets. It specifies that such doors are not to be used for walk-in closets.

A-9.6.1.3.(1) Maximum Glass Area.

Tables A-9.6.1.3.(1)A. to A-9.6.1.3.(1)F. may be used to select glass thickness for windows subject to the following conditions:

- The building has an essentially uniform distribution of paths for air leakage, including operable openings, but no large openings that would permit wind gusts to rapidly enter the building, e.g., loading or garage doors.
- The building has a height from grade to the uppermost roof of 12 m or less, and is located in a built-up area, no less than 120 m away from the boundary between this area and open terrain. (Where this criterion is not met, see Tables A-9.6.1.3.(1)D, to A-9.6.1.3.(1)F., which apply to buildings located on open terrain.)
- The building is not in an exceptionally exposed location such as a hilltop.

These six Tables are based on CAN/CGSB-12.20-M and the wind load provisions in Article 4.1.7.1. The maximum glass area values given in these Tables are intended to be equal to or smaller than those that would be determined using the standard and wind load provisions directly to design for each individual case.