

REGION OF PEEL ACCESSIBILITY STANDARDS FOR AFFORDABLE RESIDENTIAL PROPERTIES

A. Region of Peel Terminology

1. Universally Accessible Units

Contain features that are considered the minimum. These features also cater to people who may have accessibility issues due to their physical condition rather than a disability. For example, young children (height), seniors, and adults who have temporarily become incapacitated due to an accident.

eg. 3ft entrance, lever handles for doors and faucets, lower light switches, higher plugs.

2. Modifiable Units

Contain all the features in item #1 above with the addition of mostly extra floor space such as for a turning radius. Universally Accessible Units cannot be retrofitted to be Modifiable Units as the former does not have the extra space requirements. However, Modifiable Units can be retrofitted to be Fully Barrier-Free Units.

eg. Turning radius' in kitchens & bathroom, grab bars.

3. Fully Barrier-Free Units

Contain all the features in item #1 and #2 above plus additional features for a wheelchair user.

eg. Lower kitchen countertops, automatic door opener for entrances.

B. Region of Peel Accessible Standards & Features for Affordable Residential Properties

1. REGION OF PEEL BUILDS - ACCESSIBILITY FEATURES:

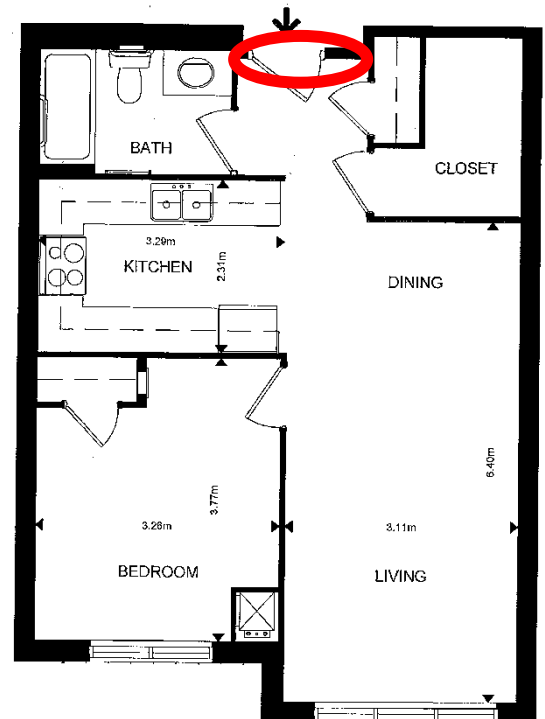
Accessibility Features in common areas:

- Barrier free access to the main building entrance and around the building
- Building lobby entrances with sliding doors and automatic door opener
- Handrail on one side of the main corridors (*seniors buildings only*)
- Fully barrier free public washrooms (1,500mm turning radius, B/F toilet and sink, grab bars, automatic door opener)
- Automatic door openers and key FOB system for the laundry rooms, function rooms, bicycle rooms, amenity space, and garbage rooms
- Elevators with Braille controls and voice annunciation

Universally Accessible Unit Features:

(applicable to 100% of units)

- 900mm (3 ft) wide entry door to all units
- Lever handles for all doors
- Bathroom and kitchen faucets with lever handles
- Light switches installed at 1,200mm (4ft) above the floor
- Receptacles installed at 450mm (1.6 ft) above the floor level

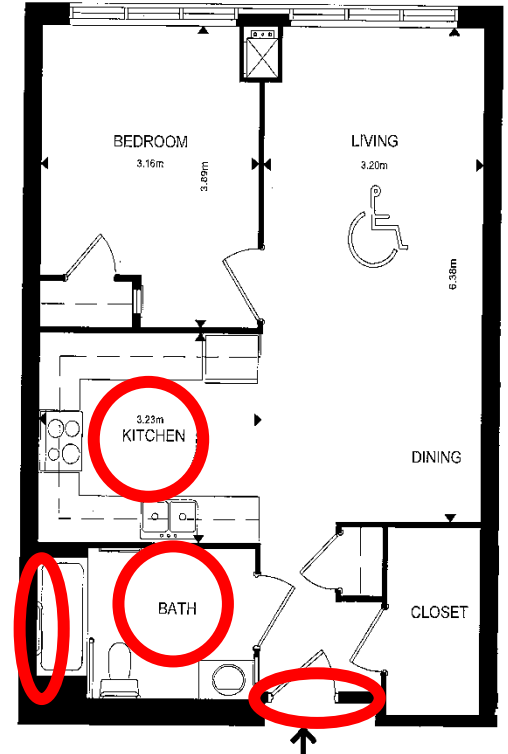


*** Modifiable Unit Features** (All features above plus):

(applicable to at least 15% of units – refer to section 1.3)

- Larger kitchen with 1,500 mm (5 ft) turning radius for wheelchair access
- Larger bathroom with 1,500 mm (5 ft) turning radius for wheelchair access
- Metal grab bars present in 1 bathroom (seniors buildings only)
- Backing in wall for future installation of grab bars (where grab bars are not currently present)
- 1,100mm (3.6 ft) wide corridors within the unit

* Wheelchair Accessible

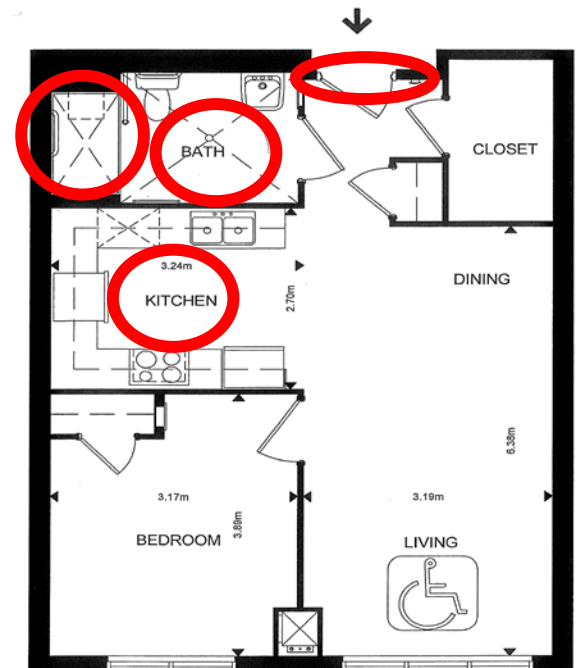


*** Fully Barrier-Free Unit Features** (All features above plus):

(the number of units is to be determined at the design stage)

- Automatic door operator interfaced with key FOB system for the unit entry door
- Kitchen with barrier free cabinets and appliances
- One bathroom with roll-in shower and B/F toilet and sink

* Wheelchair Accessible



1.0 Access and Circulation

1.1 Space Requirements

- 1.1.1 Suite layouts to be more open concept by having as few walls as possible.
- 1.1.2 As illustrated in Figure 1, the wheelchair turning radius is to be 1,500 mm (5 ft.) to 2,440 mm (8 ft.) with 2,440 mm provided in building common areas such as lobbies and recreation areas.
- 1.1.3 As illustrated in Figure 2, clear floor space to accommodate a wheelchair is to be 760 mm x 1,220 mm (2.5 ft. x 4 ft.). Where design permits, use 900 mm x 1,300 mm (3 ft. x 4.25 ft.).
- 1.1.4 Wheelchair clear space heights must be at least:
- Toe = 230 mm to 450 mm (0.75 to 1.5 ft.)
 - Seat = 480 mm (1.6 ft.)
 - Lap = 675 mm to 685 mm (2.2 ft. to 2.25 ft.)
 - Arm rest = 760 mm (2.5 ft.)
- 1.1.5 Avoid any instances of protruding objects within a path of travel, where possible. Where a protrusion cannot be avoided, as see in Figure 3, it shall not protrude more than 100 mm (4 in.) from the wall. If an object protrudes more than 100 mm (4 in.), it shall be marked with a cane-detectable guide-rail if the leading edge of the object is between 685 mm to 2.03 m (27 in. to 6 ft. 8 in.) above grade.



Figure 1

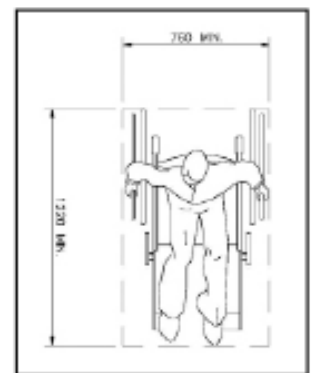


Figure 2



Figure 3

1.2 Ground and Floor Surfaces

- 1.2.1 Ground and floor surfaces shall:
- be stable, firm, slip-resistant, glare-free and not heavily patterned.
 - have no opening that will permit the passage of a sphere more than 13 mm in diameter (3.8.1.3.2(a)),
 - have any elongated openings oriented approximately perpendicular to the direction of travel (3.8.1.3.2(b)).
- 1.2.2 Carpets or carpet tile shall:
- Be securely fixed (i.e. commercial carpet without padding adhered to the floor),
 - Have a level loop, textured loop, level cut pile, or level cut/uncut pile texture with a maximum pad and pile height of 13 mm; and
 - Have exposed edges fastened to floor surfaces

- The smell of new carpets can adversely affect people with environmental sensitivity. The use of carpets that have been off gassed prior to installation is required.

1.2.3 Residential in-suite corridors shall be a minimum of 1,100 mm wide (3.6 ft.)

1.2.4 Common area corridors require a suitable and colour-contrasted handrail on both sides of the corridor.

1.3 Accessibility Routes

1.3.1 (1) A barrier-free path of travel from the entrances shall be provided (3.8.2.1),

(a) throughout the entrance storey,

(b) to and throughout all normally occupied floor areas and rooftop amenity spaces except for

(i) is three or fewer storeys in building height, and

(ii) has a building area not exceeding 600 m²,

and

(c) throughout all normally occupied floor areas and rooftop amenity spaces that,

(i) are exempt from the application of Clause (b), and

(ii) are served by a passenger elevator, escalator, inclined moving walk, or other platform equipped passenger elevating device.

(2) A barrier-free path of travel described above is not required to extend,

(a) into service rooms,

(b) into elevator machine rooms,

(c) into janitors' rooms,

(d) into service spaces,

(e) into crawl spaces,

(f) into attic or roof spaces,

(g) to suites of residential occupancy that are in storeys other than the entrance storey and that have all entrance doors at floor levels that are not required to have a barrier-free path of travel,

(h) except as required by Sentence (3) below, on the inside of a suite of residential occupancy, or

(i) to portions of a floor area that are not at the same level as the entry level, provided amenities and uses provided on any raised or sunken level are accessible on the entry level by means of a barrier-free path of travel.

(3) Not less than 15% of all suites of residential occupancy shall be provided with a barrier-free path of travel from the suite entrance door into the following rooms and spaces that shall be located at the same level as the barrier-free path of travel:

(a) at least one bedroom,

(b) at least one bathroom with

- a lavatory,
- a water closet,
- a bathtub or a shower,
- wall reinforcement to permit future installation of grab bars and
- designed to permit a wheelchair to turn in an open space not less than 1,500 mm in diameter.

(c) a kitchen or kitchen space, and

(d) a living room or space.

(4) The number of suites described in Sentence (3) above having 1, 2 or 3 or more bedrooms shall be in proportion to the number of suites of residential occupancy having 1, 2 or 3 or more bedrooms in the remainder of the building.

(5) The suites described in Sentence (3) above shall be distributed among storeys that are required to have a barrier-free path of travel, having regard to the height of the suite above grade.

1.3.2 Provide a clear width of 1,500 mm (5 ft.). Every barrier-free path of travel less than 1,600 mm in width shall be provided with an unobstructed space not less than 1,800 mm in width and 1,800 mm in length located not more than 30 m apart (3.8.1.3.4).

1.3.3 Provide a clear width of 860 mm (also applies to non-barrier free public corridor doorways 3.8.3.3.(1 & 19)) to 950 mm (2.8 ft. to 3 ft.) when the door is In the open position. To facilitate access in a hallway, doors are to be aligned so that they are across from each other.

1.3.4 The slope of accessible routes must be less than or equal to 1:20. The maximum slope of 1:20 will prevent the necessity of ramps where slopes are still fairly low.

1.3.5 The cross slope is not to be steeper than 1:50.

1.3.6 Where the headroom of an area in a barrier-free path of travel is reduced to less than 1,980 mm, a guardrail or other barrier with its leading edge at or below 680 mm from the finished floor shall be provided (3.8.1.3.5).

1.3.7 Exterior walks that form part of a barrier-free path of travel shall have a tactile attention indicator that is located to identify an entry into a vehicular route or area where no curbs or any other element separate the vehicular route or area from a pedestrian route (3.8.3.2.1(g)).

1.3.8 Where a difference in elevation between levels in a walkway is not more than 200 mm, a curb ramp may be provided (3.8.3.2.2):

The curb ramp shall,

- (a) have a running slope conforming to Table 3.8.3.2.,
- (b) have a width of not less than 1,500 mm exclusive of flared sides,
- (c) have a surface including flared sides that shall,
 - (i) be slip-resistant,

- (ii) have a detectable warning surface that is colour- and texture-contrasted with the adjacent surfaces, and
- (iii) have a smooth transition from the ramp and adjacent surfaces, and
- (d) have flared sides with a slope of not more than 1:10 where pedestrians are likely to walk across them.

Table 3.8.3.2.
Ramp Rise and Slope

Item	Column 1	Column 2
	Vertical Rise Between Surfaces, mm	Slope
1.	75 to 200	1:10 to 1:12
2.	less than 75	1:8 to 1:10

- (e) do not require handrails or guards.

1.4 Accessible Doors

1.4.1 All principal building entrances, not designated as exits, are to be accessible and have two sets of sliding doors. Other accessible doors are to have auto door openers.

1.4.2 The control for a power door operator shall (3.8.3.3.17) - including doors in a non-barrier free path of travel in a normally occupied floor area (3.8.3.3.19 (e)),

- (a) have a face dimension of not less than,
 - (i) 150 mm in diameter where the control is circular, or
 - (ii) 50 mm by 100 mm where the control is rectangular,
- (b) be operable using a closed fist,
- (c) be located so that,
 - (i) its centre is located not less than 900 mm and not more than 1,100 mm from the finished floor or ground, or
 - (ii) it extends from not more than 200 mm to not less than 900 mm above the finished floor or ground,
- (d) be located not less than 600 mm and not more than 1,500 mm beyond the door swing where the door opens towards the control,
- (e) be located in a clearly visible position, and
- (f) contain a sign incorporating the International Symbol of Access.

The controls for button-operated out-swinging doors shall be mounted outside and in front of the door swing, to avoid the situation where an individual using a mobility aid is required to back-up to allow the door to open. This may be achieved in several ways, including wall-mounting or post-mounting the controls.

1.4.3 Where there are two sets of sliding doors, the layout of light beam coverage shall ensure that persons using mobility aids (e.g. wheelchairs/scooters), seniors or persons with visual limitations have time to clear the opening safely, before the door closes again. A security card swipe shall be installed at the inner set of sliding doors.

- 1.4.4 Notwithstanding sliding doors, hardware on interior building doors shall include levers (for suite doors) or D-shaped pulls (on exterior doors). Levers shall be 75 mm to 100 mm long. See Figure 4 for illustrated example.

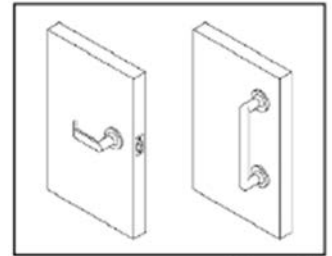


Figure 4

Door opening devices that are the only means of operation shall (3.8.3.3.3),

- (a) be designed to be operable using a closed fist (also applies to public corridor doors in non-barrier free path 3.8.3.3.19), and
- (b) be mounted not less than 900 mm and not more than 1,100 mm above the finished floor.

- 1.4.5 Thresholds are to be no more than 13 mm high and shall be gently bevelled.

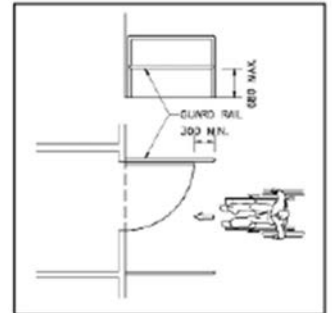


Figure 5

- 1.4.6 Sweep period of door closers must be at least 3 seconds to move from an open 90 degree position to a semi-closed position of approximately 12 degrees. Closers shall be adjusted to the least pressure possible, but never more than the opening forces.

- 1.4.7 Where exterior doors swing open into a pedestrian area, they shall incorporate safety guards and project beyond both sides of the open door by a minimum of 300 mm to 305 mm. See Figure 5 for illustrated example.

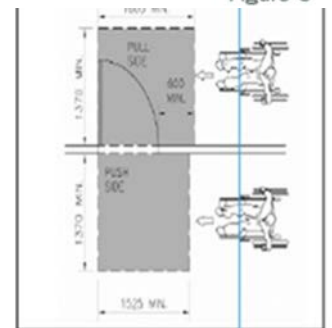


Figure 6

- 1.4.8 For hinged side approach at hinged doors without automatic operators – wheelchair users are to go passed the door and re-approach at latch side. See item 1.4.9.

- 1.4.9 Latch-side approach at hinged doors without automatic operators – required dimensions are illustrated in Figure 6.

- 1.4.10 For front-side approach at hinged doors without automatic operators – dimensions are illustrated in Figure 7.

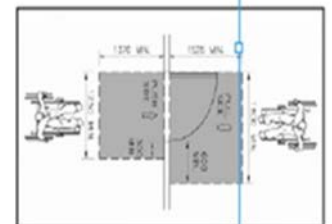


Figure 7

- 1.4.11 For front and side approach at sliding doors – dimensions are illustrated in Figure 8.

- 1.4.12 Vestibules located in a barrier-free path of travel (3.8.3.3.11),

(a) shall be arranged to allow the movement of wheelchairs between doors, and

(b) shall provide,

(i) where the doors into the vestibule are in series, a distance between the doors of at least 1,500 mm plus the width of any door that swings into the space in the path of travel from one door to another, and

(ii) where the doors into the vestibule are not aligned, a turning diameter of 1,500 mm within the vestibule clear of any door swing.

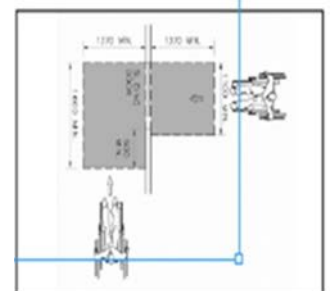


Figure 8

1.5 Windows, Glazed Screens, and Sidelights

- 1.5.1 Maximum allowable sill height is 760 mm (2.5 ft.).
- 1.5.2 Transoms are not to be located between 1,060 mm and 1,220 mm (3.5 ft. to 4 ft.).
- 1.5.3 Window controls must be mounted between 400 mm and 1,200 mm (1.3 ft. to 3.9 ft.).
- 1.5.4 Fully glazed sidelights at entrances and vestibules, as well as fully glazed interior screens, shall be clearly marked with a continuous opaque strip that (3.8.3.3.15),
 - (a) shall be colour and brightness contrasted to the background of the door,
 - (b) shall be at least 50 mm wide,
 - (c) shall be located across the width of the door at a height of 1,350 mm to 1,500 mm above the finished floor, and
 - (d) may incorporate a logo or symbol provided such logo or symbol does not diminish,
 - (i) the opacity of the strip,
 - (ii) the width of the strip,
 - (iii) the colour and brightness contrast of the strip to the background of the door, and
 - (iv) the continuity of the strip across the width of the door.
- 1.5.5 Frameless glass doors and/or sidelights shall not be used.
- 1.5.6 Partially glazed doors, including doors in a non-barrier free path of travel in a normally occupied floor area (3.8.3.3.19 (d)), shall have glazed panels that extend low enough (900 mm or 3 ft. max. to bottom edge) to allow persons with mobility aids to see what is on the far side of the door. The edge of the panel closest to the latch is not more than 250 mm from the latch side of the door (3.8.1.2.4(a)).

1.6 Ramps

- 1.6.1 Every effort shall be made to have level floors rather than incorporate interior ramps. However, where it is not possible, interior ramps would be better than having stairs.
- 1.6.2 Slope of ramp to be between 1:12 to 1:25.
- 1.6.3 Maximum allowable cross slope is 1:50.
- 1.6.4 Required ramp width is between 1,100 mm and 1,525 mm (3.6 ft. to 5 ft.).
- 1.6.5 Have landings at the top and bottom of each run and where there is a change of 90 degrees or more in direction of the ramp (3.8.3.4.1.(d.ii)) and at every 9 m (29.5 ft.) as illustrated in Figure 11.
- 1.6.6 Minimum required floor clearance at top or bottom of ramp is 2,440 mm x 2,440 mm (8 ft. x 8 ft.).
- 1.6.7 No door shall open onto ramp.
- 1.6.8 Handrails are required on both sides of ramps and shall extend beyond the head and foot of the ramp by 300 mm (1 ft.).
- 1.6.9 Handrails are to be continuous on the inside of switchback (U-shaped) or dogleg (L-shaped) ramps.

- 1.6.10 Where the ramp is wider than 2,200 mm, have an intermediate handrail with a clear width of 900 mm between the intermediate handrail and the main handrail (3.8.3.4.1(h)).
- 1.6.11 Required height of the upper handrail from ramp surface is 865 mm to 965 mm (2.8 ft. to 3.2 ft.).
- 1.6.12 Required height of the lower handrail is 600 mm to 700 mm (2 ft. to 2.3 ft.).

1.6.13 Required clearance of the handrail from the wall is 50 mm to 60 mm, taking into account winter gloves.

1.6.14 Provide a wall or a guard on both sides and where a guard is provided the guard shall (3.8.3.4.1(f)),

- (i) be not less than 1,070 mm measured vertically to the top of the guard from the ramp surface, and
- (ii) be designed so that no member, attachment or opening located between 140 mm and 900 mm above the ramp surface being protected by the guard will facilitate climbing, and

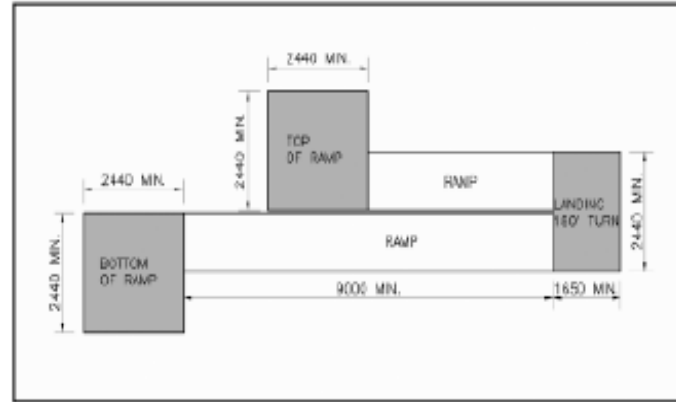


Figure 11

be provided (3.8.3.4.1(g)),

- (i) with a curb at least 50 mm high on any side of the ramp where no solid enclosure or solid guard is provided, and
- (ii) with railings or other barriers that extend to within 50 mm of the finished ramp surface or have a curb not less than 50 mm high.

1.7 Stairs

1.7.1 A flight of stairs shall have uniform riser heights and tread depths. Width must be 1 m (3.3 ft.) wide and unobstructed.

1.7.2 There shall be a minimum of 1,200 mm of flight between landings (4 ft.).

1.7.3 Riser height shall be between 180 mm and 200 mm (7 in. to 8 in.) as illustrated in Figure 12.

1.7.4 Run is to be no less than 280 mm and no more than 355 mm deep, measured from riser to riser (11 in. to 14 in.) for new construction and preferred application for reconstruction as illustrated in Figure 12.

1.7.5 An open riser with nosing presents a tripping hazard and shall be avoided. Stairs

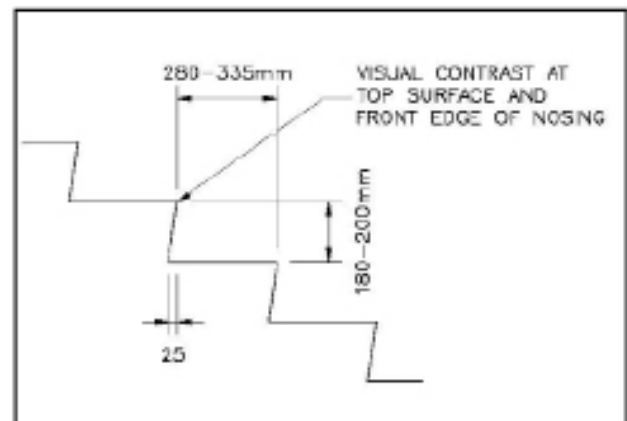


Figure 12

- with open risers are hazardous to individuals who need a solid riser to guide the foot up or who place crutches or canes against the riser of the next step.
- 1.7.6 Nosings shall not project more than 25 mm, have no abrupt undersides and have a curved or bevelled leading edge of the tread between 6 mm to 13 mm.
 - 1.7.7 Handrails are to be installed on both sides of the stairs if there are 3 or more steps. Also steps or stairs that are 2.2 m (7 ft. 2 in.) or greater in width shall include an intermediate (middle) handrail to assist individuals with limited mobility or low vision.
 - 1.7.8 Handrails are to be uniform in height between 800 mm to 920 mm (2.6 ft. to 3 ft.) from stair nosing.
 - 1.7.9 Handrails are to extend horizontally at the top and bottom of the stairs not less than 300 mm, at a height ranging between 865 mm and 920 mm above the floor; and for the bottom, extend 300 mm plus one tread depth.
 - 1.8.0 Treads and landings of exterior exit stairs shall be designed to be free of ice and snow accumulations if the stairs are more than 10 m high (3.4.6.1.3 (a)).

1.8 Handrails

- 1.8.1 Must have a circular section 30 mm to 45 mm in diameter or any non-circular shape, with a graspable portion that has a perimeter no less than 100 mm and no more than 155 mm whose largest cross-sectional dimension is not more than 57 mm. Refer to Figure 13.
- 1.8.2 Must be free of sharp elements.
- 1.8.3 Have continuous gripping surfaces without interruption by newel posts, other construction elements, or obstructions that can break a handhold.
- 1.8.4 Have a clear space between the handrail and the wall or guard (3.8.3.4.1(e)(v)) between 50 mm to 60 mm. Refer to Figure 13.
- 1.8.5 Be terminated in a manner that will not obstruct pedestrian travel or create a hazard.

1.9 Elevators

- 1.9.1 Elevators shall comply with the most recent CSA Standards CAN/CSA-B44 “Safety Code for Elevators” and CAN/CSA-B355 “Lifts for Persons with Physical Disabilities”.
- 1.9.2 Shall be automatic and be provided with a 2-way automatic maintaining levelling device to maintain the floor level to +/- 13 mm when the doors open.
- 1.9.3 Power-operated horizontal sliding car and landing doors to be opened and closed by automatic means.
- 1.9.4 Doors shall be provided with a door re-opening device that will function to stop and re-open a car door and an adjacent hoist way door to at least 950 mm, in case the car door is obstructed while closing. This re-opening device shall also be capable of sensing an object or person in the path of a closing door at a nominal 125 ± 25 mm and 735 ± 25 mm above the floor without requiring contact for activation.
- 1.9.5 Required clear width of elevator doors is 915 mm to 950 mm (~3 ft.). Refer to Figure 14.
- 1.9.6 The elevator shaft shall be designed to accommodate two sets of doors (front and back), notwithstanding space limitations, so that users can exit without having to turn around.
- 1.9.7 The minimum distance between the walls or between wall and door, excluding return panels, shall be no less than 1,725 mm x 1,525 mm. At least one elevator shall be 1,525 mm x 2,285 mm to accommodate a stretcher in the prone position.
- 1.9.8 Floor register buttons in elevator cabs shall be a minimum 19 mm and may be raised, flush or recessed. The depth of flush or recessed buttons when they are being operated shall not exceed 10 mm; and be provided with visual and momentary audible indicators to show when each call is registered. The visual indicators shall be extinguished when each call is answered. Refer to Figure 17.
- 1.9.9 All car control buttons shall be designated by Grade 2 Braille characters and by raised standard alphabet characters for letters, Arabic characters for numbers, and standard symbols. Markings shall be a minimum of 16 mm high and raised a minimum of 0.75 mm, placed immediately to the left of the buttons to which they apply. Exception: Where the call buttons are mechanical, the raised markings may be on the buttons. Refer to Figure 17.
- 1.9.10 Emergency car controls and door operating buttons shall be grouped together at the bottom of the control panel. The centre line of the alarm button and the emergency stop

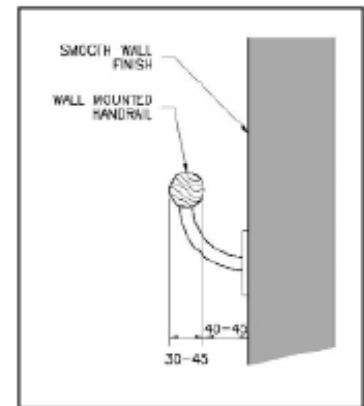


Figure 13

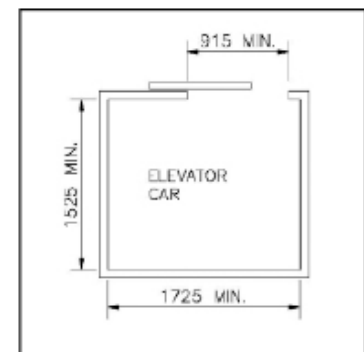


Figure 14

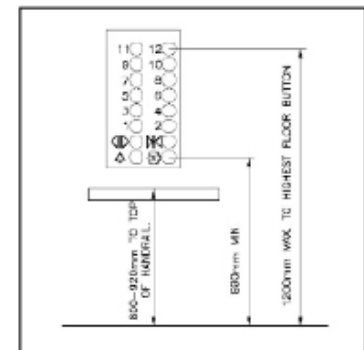


Figure 15

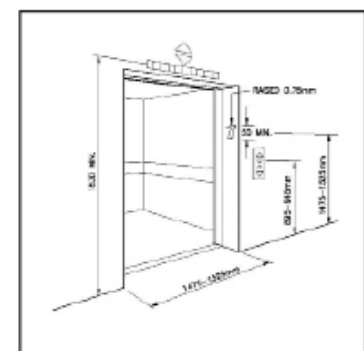


Figure 16

switch shall be not less than 890 mm to 920 mm high (~3 ft.). Refer to Figures 15 and 17.

- 1.9.11 The centre line of the highest floor button shall be no higher than 1,200 mm (~4 ft.). Refer to Figure 15.
- 1.9.12 The centre line of hall call buttons above the floor shall be 895 mm to 945 mm (~3 ft.). Refer to Figure 16.
- 1.9.13 All elevator hoist way entrances shall have raised Arabic numerals and Braille floor designations provided on both jambs. The characters shall be raised at least 0.75 mm and be a minimum height of 50 mm. Refer to Figure 16.

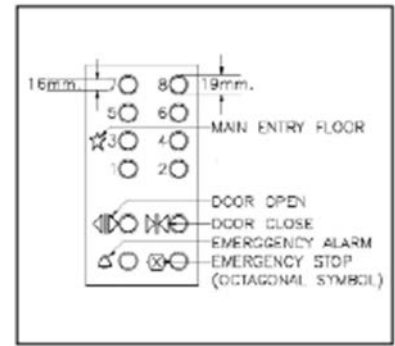


Figure 17

2.0 Washroom Facilities

2.1 Toilets

- 2.1.1 Spring-activated seats are not allowed; must provide back support if there is no seat lid or tank; tank top must be securely attached. Refer to Figure 18. The grab bar must
 - (a) be at least 600 mm in length, and
 - (b) be wall mounted horizontally from 840 mm to 920 mm above the finished floor and, where the water closet has a water tank, be wall mounted 150 mm above the tank.
- 2.1.2 A minimum width of 900 mm to 920 mm clear transfer space shall be provided on one side of the toilet fixture measured from the edge of the toilet bowl (may be reduced to 760 mm if technically infeasible in a retrofit). Sanitary napkin disposal units may be installed if they are recessed or protrude no more than 100 mm into this space.
- 2.1.3 Toilet controls shall be electronically automatically controlled (for public toilets) or be hand-operated by a lever, on the transfer side of the toilet, using a closed fist and with a force of not more than 22.2 N (3.8.3.9.2). Refer to Figure 18.
- 2.1.4 Grab bars: one L-shaped, and one 600 mm to 760 mm long at the back mounted horizontally on the wall behind the toilet, from 840 mm to 920 mm above the floor, and, where the water closet has a water tank, be mounted 150 mm above the tank. Refer to Figure 19.
- 2.1.5 Toilet paper dispenser is to be reachable from a seated position and capable of being operated with one hand without binding.

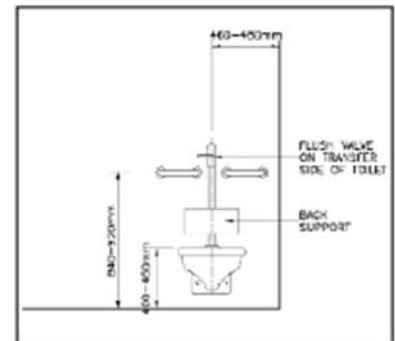


Figure 18



Figure 19

2.2 Lavatories/Hand Basins

2.2.4 Lavatories shall (3.8.3.11.1)

- (a) be located so that the distance between the centre line of the lavatory and the side wall is not less than 460 mm,
- (b) be mounted so that the top of the lavatory is not more than 840 mm above the finished floor,
- (c) have a clearance beneath the lavatory not less than,
 - (i) 920 mm wide,
 - (ii) 735 mm high at the front edge,
 - (iii) 685 mm high at a point 205 mm back from the front edge, and
 - (iv) 350 mm high from a point 300 mm back from the front edge to the wall.
- (d) have a minimum 1,370 mm deep floor space to allow for a forward approach, of which a maximum of 500 mm can be located under the lavatory,

2.2.5 Insulate hot water and drain pipes if they abut the clearances noted above, or have the water temperature limited to a max. of 43 degrees Celsius (109.4 degrees Fahrenheit).

2.2.6 Have the hot water and drain pipes offset to the rear where possible.

2.2.7 Soap and towel dispensers shall have buttons/controls that are:

- (a) easy to operate with one hand.
- (b) located to be accessible to persons in wheelchairs,
- (c) located so that the dispensing height is not more than 1,200 mm above the floor (3.8.3.11.1(g&h))

2.2.8 Faucets and other controls shall have handles of the lever style (not self-closing or spring loaded), be angled to the front when in the off-position and be operable with a clenched fist. The length from the centre of rotation to the handle tip shall be at least 140 mm to 190 mm and rotate up to a maximum of 90 degrees. Controls are to be equipped with a pressure-equalizing or thermostatic-mixing valve. Faucets are to be single-handled lever. Automatic faucets are to be used for common area washrooms.

Any shelf or projection above a lavatory shall be located so that it will not be a hazard (3.7.4.2.10) and (3.8.3.11.4):

- (a) be located not more than 200 mm above the top of the lavatory and not more than 1,100 mm above the finished floor, and
- (b) project not more than 100 mm from the wall.

2.3 Washroom Accessories in Common Area Washrooms

2.3.1 Each type of washroom accessory provided, except those located in toilet stalls as specified in the Lavatory Section, shall have operable portions and controls mounted between 900 mm and 1,200 mm (3 ft. to 4 ft.) from the floor. Accessories such as towel dispensers and waste receptacles shall be placed close to the lavatory and not protrude into the path of travel. Also, hand dryers, paper towel dispensers and soap dispensers shall be installed directly adjacent to an accessible sink, but not encroach upon the required clear space. A minimum 1,370 mm deep floor space is

provided in front of the controls or operating mechanisms to allow for a front approach (3.8.3.11.3(c)).

2.3.2 Provide one mirror that is 350 mm wide and mounted over wash basins with the bottom edge flush to the counter or sink.

2.3.3 Mirrors are to be mounted with the bottom edge no more than 915 mm to 1,000 mm (3 ft. to 3.3 ft.) from the floor. If a second mirror is to be provided, the bottom edge must be 780 mm from the floor and its top at 1,850 mm above the floor.

2.4 Universal Washrooms

(Washrooms within suites of residential occupancy need not conform to this section; however, please refer to universally accessible, modifiable, and full barrier free unit requirements at the beginning of this document)

(Table 3.8.2.3.A. - Forming Part of Sentence 3.8.2.3.(2))
Minimum Number of Universal Washrooms per Building

Item	Column 1 Number of Storeys in Building	Column 2 Minimum Number of Universal Washrooms per Building
1.	1 to 3	1
2.	4 to 6	2
3.	Over 6	3, plus 1 for each additional increment of 3 storeys in excess of 6 storeys

2.4.1 Be designed to permit a wheelchair to turn in an open space that has a diameter of no less than 1,700mm (5ft 7in) (3.8.3.12.1(h)).

2.4.2 Must be equipped with an accessible door

capable of being locked from the inside and released from the outside in case of emergency and that has (3.8.3.12.1(b)),

(i) a graspable latch-operating mechanism located not less than 900 mm and not more than 1,000 mm above the floor,

(ii) if it is an outward swinging door, a door pull not less than 140 mm long located on the inside so that its midpoint is not less than 200 mm and not more than 300 mm from the hinged side of the door and not less than 900 mm and not more than 1,000 mm above the floor, and

- (iii) if it is an outward swinging door, a door closer, spring hinges or gravity hinges, so that the door closes automatically.
- (iv) be provided with a door equipped with a power door operator if the door is equipped with a self-closing device (3.8.3.12.1(j)).

2.4.3 Be equipped with a toilet conforming to Section 2.1 and

(a) located so that (3.8.3.8.2),

(i) the centre line of the water closet is not less than 460 mm and not more than 480 mm from one side wall, and

(ii) a clear transfer space at least 900 mm wide and 1,500 mm deep is provided on the other side of the water closet, or

(b) located so that a clear transfer space at least 900 mm wide and 1,500 mm deep is provided on each side of the water closet.

2.4.4 Must be equipped with grab bars conforming to Section 2.7.

2.4.5 Optional: be equipped with a fold-down grab bar

(a) be mounted on the wall behind the water closet (3.8.3.8.8),

(i) with the horizontal component 750 mm above the finished floor, and

(ii) not less than 390 mm and not more than 410 mm from the centre line of the water closet,

(b) not require a force of more than 22.2 N to pull it down,

(c) be at least 760 mm in length,

(d) be installed to resist a load of at least 1.3 kN applied vertically or horizontally,

(e) be not less than 35 mm and not more than 40 mm in diameter, and

(f) have a slip-resistant surface.

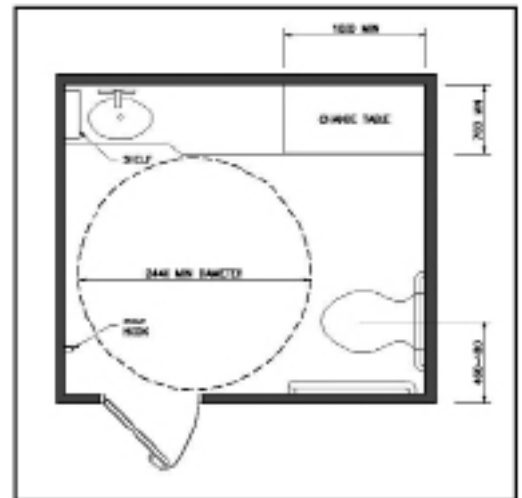


Figure 21

For 2.4.3 (b), the fold-down grab bar shall be provided on each side of the water closet (3.8.3.12.1(e.ii))

2.4.6 Have no internal dimension between walls that is less than 1,700 mm (3.8.3.12.1(f)).

2.4.7 Provide a collapsible coat hook mounted no more than 1,200 mm (4 ft.) from the floor on a side wall and projecting from the wall no more than 50 mm.

2.4.8 Have a shelf located no more than 1,000 mm above the floor in a location accessible to a person in a wheelchair. The shelf shall be colour-contrasting to the surrounding environment.

2.4.9 Comply with Section 2.2 Lavatories/Hand Basins.

2.4.10 Have a mirror and washroom accessories complying

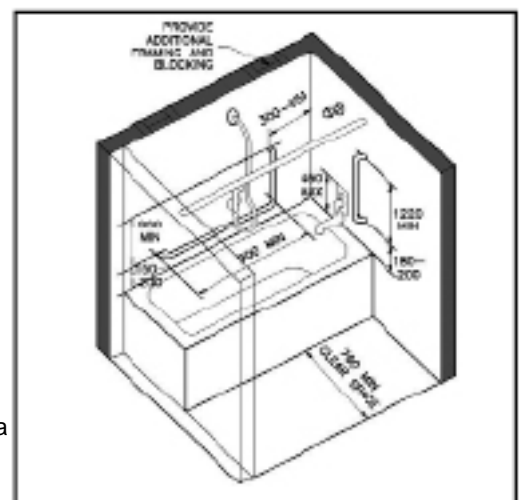


Figure 22

with the previous section.

2.4.11 Among all universal washrooms provided on the same floor level within 45m with each other, only one shall incorporate a change table (3.8.3.12.(3 to 6)):

(3) A clear space not less than 810 mm wide and 1 830 mm long shall be provided in each universal washroom for an adult-size change table.

(4) Where the clear space provided for an adult-size change table is adjacent to a wall, reinforcement shall be installed in the wall to permit the future installation of the change table.

(5) Where an adult-size change table is installed, it shall,
(a) when fully loaded, have a surface height above the finished floor that can be adjusted from between 450 mm and 500 mm at the low range to between 850 mm and 900 mm at the high range,
(b) be designed to carry a minimum load of 1.33 kN,
(c) have a clear floor space parallel to the long side of the table not less than 760 mm wide and 1,500 mm long, and
(d) in the case of a fold-down table,
(i) be installed so that it does not encroach into a clear transfer space described in Clause 3.8.3.8.(2)(a) or (b), and
(ii) have no operating mechanisms higher than 1,200 mm.

2.4.12 Have lighting controlled by a motion sensor installed with a switch controller equipped for fail-safe operation and an illumination timer set for a minimum 15-minute duration (3.8.3.12.1(k)).

2.4.13 A universal washroom shall have (3.8.3.12.2)

(a) an emergency call system that consists of audible and visual signal devices inside and outside of the washroom that are activated by a control device inside the washroom, and

(b) an emergency sign that contains the words IN THE EVENT OF AN EMERGENCY PUSH EMERGENCY BUTTON AND AUDIBLE AND VISUAL SIGNAL WILL ACTIVATE in letters at least 25 mm high with a 5 mm stroke and that is posted above the emergency button.

2.5 Bathtubs in Suites

2.5.1 Have a clear floor space at least 760 mm wide along the length of the bathtub (the lavatory can encroach a maximum of 300 mm into this space, provided there is clear knee space and toe space under the lavatory). Refer to Figure 22.

2.5.2 Have faucet handles that are automatically operable or of the lever type that are not spring-loaded and located so as to be usable by a person seated in the bathtub.

2.5.3 Faucets and other controls to be mounted above the bathtub rim not more than 450 mm to 460 mm. Refer to Figure 22.

2.5.4 Controls to be equipped with a pressure-equalizing or thermostatic-mixing valve, operable from the seated position and in compliance with Section 4.2.

- 2.5.5 Unless the bathtub is freestanding, it shall have an “L”-shaped grab bar, conforming to the Grab Bars Section mounted on the wall that is at least 1,220 mm long. Another grab bar shall be mounted vertically at the foot end of the tub adjacent to the clear floor space, with the lower end 180 mm to 280 mm above the bathtub rim. Refer to Figure 22.
- 2.5.6 Have soap holder(s), ideally to be fully recessed, which can be reached from the seated position.

2.6 Shower Stalls in Barrier-Free Suites (Refer to Figure 23)

- 2.6.1 Have a dimension of 1,500 mm x 900 to 1,500 mm (5 ft. x 3-5 ft.) for a roll-in shower or 1,100 mm x 1,160 mm if equipped with a seat.
- 2.6.2 Locate the drain off to one side of the seat. Trench drains shall be avoided.
- 2.6.3 Where it is not technically feasible to remove the curb of the shower stall, a seat shall be provided on the long wall. It shall be at least 400 mm to 450 mm wide with its top between 430 mm and 480 mm from the floor.
- 2.6.4 Have an L-shaped grab bar with the horizontal portion at least 900 mm in length and mounted at 800 mm to 915 mm high.
- 2.6.5 Have a vertical grab bar that shall be 750 mm to 1,450 mm in length, mounted between 80 mm and 120 mm from the front edge, starting between 600 mm and 650 mm from the floor; and equipped with a pressure equalizing or thermostatic mixing valve, operable from the seated position and in compliance with Section 4.2.
- 2.6.6 Have a hand-held shower head with at least 1,525 mm of flexible hose, located so that it can be reached from the seated position, and equipped with a support so that it can be operated as a fixed shower head.
- 2.6.7 Have soap holder(s) that can be reached from the seated position, ideally fully recessed.
- 2.6.8 Controls for showers with a curb shall be mounted within reach of the seat; be no more than 1,200 mm from the floor (or 965 mm to 1,220 mm high for controls on a short wall beside the grab bar); and where the showerhead is mounted on a vertical bar, the bar shall be installed so as not to obstruct the use of the grab bar. A shower head shall be mounted to be adjustable between 1,200 mm from the floor and upward. Controls are to be equipped with a pressure-equalizing or thermostatic-mixing valve.

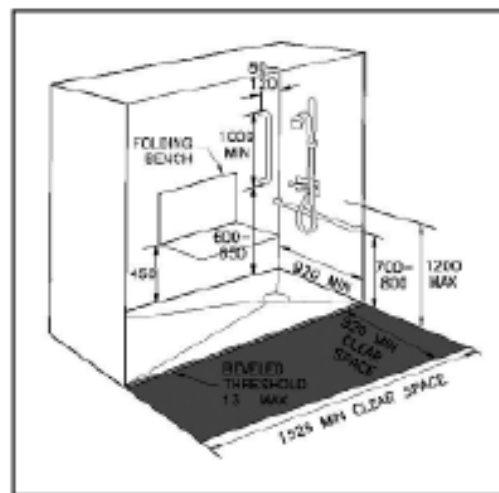


Figure 23

2.7 Grab Bars

- 2.7.1 To be no less than 30 mm and no more than 40 mm in diameter.
- 2.7.2 Have a clearance of 50 mm from the wall with edges (3.8.3.8.7(c)).
- 2.7.3 Have a slip-resistant surface and not rotate within their fittings.

- 2.7.4 All suite units are to have grab bars.
- 2.7.5 Be installed to resist a load of at least 1.3 kN applied vertically or horizontally (3.8.3.8.7(a)).

3.0 Other Amenities

3.1 Tables, Counters and Work Surfaces (Refer to Figure 24)

- 3.1.1 Laundry rooms and other common areas shall meet the requirements under this section.
- 3.1.2 Laundry room counters shall be multi-levelled.
- 3.1.3 Wheelchair seating spaces at accessible tables, counters and work surfaces shall incorporate a clear floor space of no less than 760 mm to 900 mm x 1,370 to 1,500 mm (2.5 - 3 ft. x 4.5 - 5 ft.).
- 3.1.4 A forward approach for seating at tables and work surfaces is preferred with a clear knee space of at least 760 mm to 900 mm wide, 480 mm to 600 mm deep and 685 to 700 mm high. It may overlap the clear floor space by a maximum of 480 mm. Refer to Figure 25.
- 3.1.5 As depicted in Figure 24, the top of accessible tables, counters and work surfaces shall be located above the finished floor or ground by 710 mm to 865 mm (2.3 ft. to 2.8 ft.).

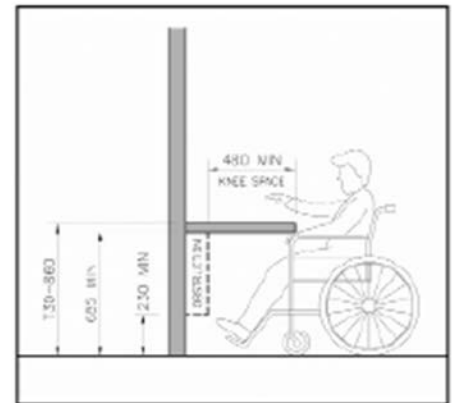


Figure 24

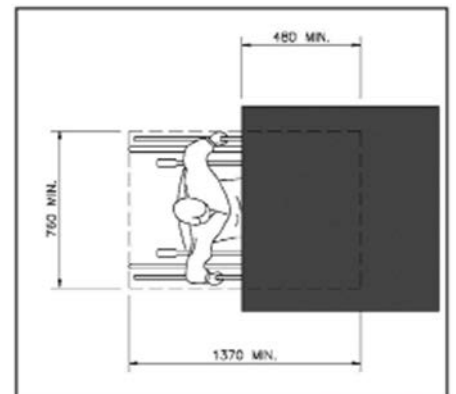


Figure 25

3.2 Information, Reception, Service Counters and Mailboxes

- 3.2.1 Counters for information or service shall incorporate at least one accessible section that is located above the finished floor or ground by 710 mm to 865 mm.
- 3.2.2 Required width is 915 mm to 920 mm
- 3.2.3 Accessible sections of information, reception, sales and service counters shall have, on both sides of the counter, knee space of at least 685 mm high x 480 mm. Refer to Figure 26.
- 3.2.4 Wheelchair seating spaces at accessible sections of information, reception, sales and service counters shall incorporate a clear floor space not less than 760 mm x 1,370 mm. Refer to Figure 26.
- 3.2.5 Where a forward approach is used to access a wheelchair seating space, a clear knee space of at least

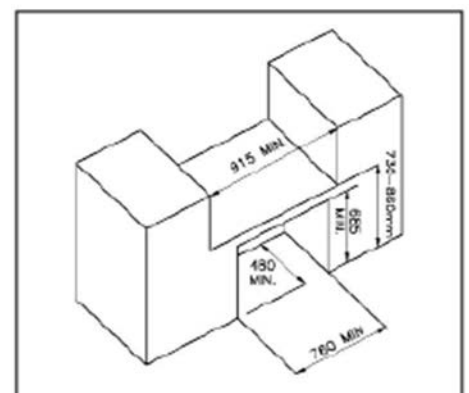


Figure 26

760 mm wide, 480 mm deep and 685 mm high shall be provided. It may overlap the clear floor space by a maximum of 480 mm. See Figure 26.

- 3.2.6 Mailboxes or mail slots in apartment buildings, which are mounted between 610 mm and 1,065 mm from the floor, shall have the bottom two rows allocated for accessible use. A “D” type handle shall be provided for easy finger grip by persons with limited manual dexterity. A shelf shall be provided below the bottom of the mailbox for ease of sorting mail.

3.3 Storage and Shelving

- 3.3.1 A clear floor space of at least 760 mm x 1,370 mm that allows either forward or parallel approach by a person using a wheelchair shall be provided at accessible storage facilities.
- 3.3.2 Where the distance from the wheelchair to the clothes rod or shelf is between 255 mm and 535 mm (as in closets without accessible doors) the height of the rod or shelf shall be no more than 1,200 mm.
- 3.3.3 Where shelves are provided, there shall be at least three levels between 400 mm and 1,200 mm from the floor.
- 3.3.4 Where coat hooks are provided, they shall all be collapsible, mounted no higher than 1,200 mm from the floor and shall not be located over benches.

3.4 Parking

- 3.4.1 The required total number of parking spaces (visitor parking included) to the number of parking spaces designated to accommodate persons with disabilities shall be: 1-25 = 2; 26-50 = 3; 51-75 = 4; 76-100 = 5; 101-150 = 5%; 151-200 = 5%; 201-300 = 5%; 301-400 = 5%; 401-500 = 5%; 501 to over 2,000 = 5% of total.
- 3.4.2 Note that not all accessible spaces have to be wider. For example, some users do not require wheelchairs; however, they cannot walk very far. Allocation of such parking spaces shall be close to the building and would be an operational issue.
- 3.4.3 In facilities with multiple accessible entrances with adjacent parking, accessible parking spaces shall be dispersed and located closest to the accessible entrances; to be within 30 m of the main accessible entrance and/or any

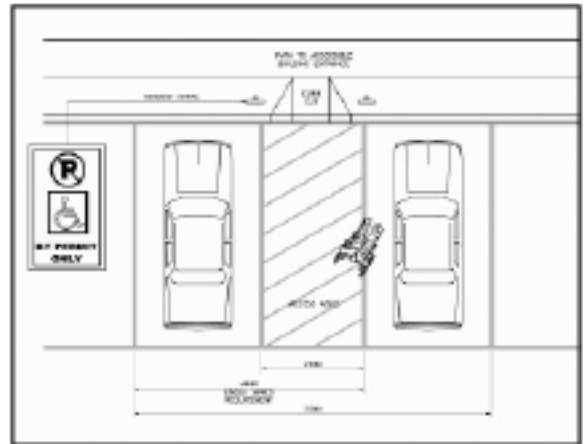


Figure 27

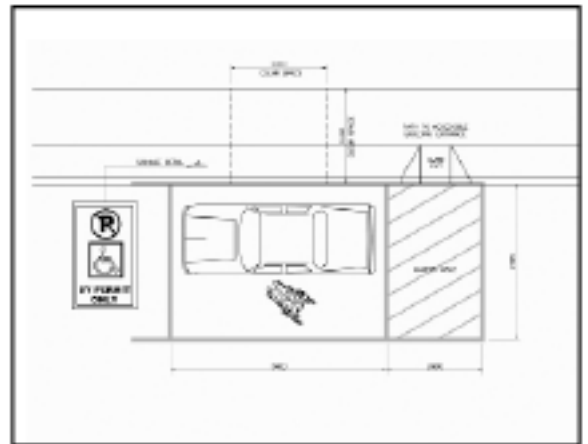


Figure 28

other accessible entrances.

- 3.4.4 The walkway from designated parking to the accessible entry to the building shall be no less than 1,100 mm in width and must be firm, level, non-slip material with a texture contrasted with the adjacent surfaces.
- 3.4.5 Where covered or underground parking spaces for cars are provided, all access and exit routes, including ramps serving such spaces, shall have clear headroom of 2,100 mm below beams, pipes or sprinkler heads; however, 2,285 mm is recommended. If vans are to be used, 2,900 mm is recommended.
- 3.4.6 Width and adjacent aisle width are to be as per Figure 27; however, the exterior passenger loading zone shall have (3.8.2.2.3(a)),
 - (a) an access aisle not less than 2440 mm wide and 7400 mm long adjacent and parallel to the vehicle pull-up space,
 - (b) a curb ramp, where there are curbs between the access aisle and the vehicle pull-up space, and
 - (c) a clearance height of not less than 3600 mm at the vehicle pull-up space and along the vehicle access and egress routes.
- 3.4.7 Where surfaces are paved, access aisles must be clearly indicated by markings of a contrasting colour, preferably yellow.
- 3.4.8 Parallel parking spaces: Dimensions to be as per Figure 28.
- 3.4.9 Where two accessible parking spaces are located together, the parking spaces may share a common access aisle. Colour contrasted bollards or curbs shall be used to prevent parked vehicles from protruding into the accessible circulation route. The distance between the bollards or curbs shall allow the passage of a wheelchair.
- 3.4.10 Accessible parking spaces shall be designated as being reserved for use by persons with disabilities.
- 3.4.11 Signage of parking spaces is to include an official designated disabled parking space sign in compliance with the City Traffic By-law mounted vertically; and an international symbol of access on the pavement of the stall.

3.5 Passenger Loading Zones

- 3.5.1 As illustrated in Figure 29, passenger loading zones must provide an access aisle of at least 2,440 mm (8 ft.) wide and 7,000 mm (23 ft.) long, adjacent and parallel to the vehicle pull-up space. Width may be 2,000 mm if technically infeasible in a retrofit.
- 3.5.2 Have a minimum vertical clearance of 900 mm (3 ft.) at the loading zone and along the vehicle access route to such areas to and from the site entrances (for TransHelp buses, the headroom

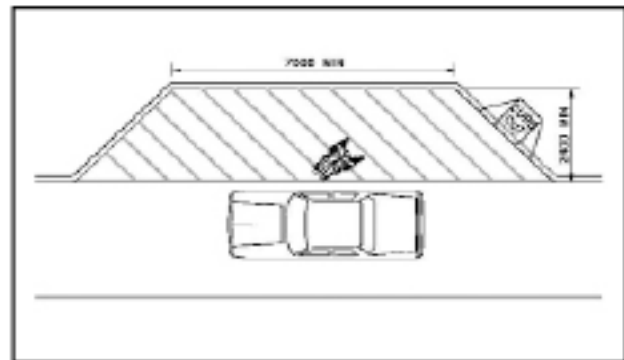


Figure 29

clearance is recommended to be increased to 3,555 mm - 11.7 ft.).

- 3.5.3 Where it is feasible, covered passenger pick-up areas are recommended.
- 3.5.4 All designated passenger loading zones shall have a sidewalk or safe pedestrian zone, be located behind the vehicle and at the passenger boarding side of the vehicle, and be a minimum of 2,000 mm wide by the length or width of the boarding space, to ensure safe loading and unloading (2,400 mm wide x 1,800 mm long sidewalk for bus side lift).

4.0 Systems and Controls

4.1 Areas of Rescue

- 4.1.1 Emergency evacuation chairs (compact and foldable mobile chairs) shall be available to firefighters. A designated holding area with back-up power for those who use portable ventilators is required. Extra receptacles are required at grade level.
- 4.1.2 Where emergency warning systems are provided, they shall include both audible alarms and visible alarms. Visual alarms shall comply with the standard stated in Section 4.3.
- 4.1.3 A horizontal exit meeting the requirements of the Ontario Building Code shall satisfy the requirements for an area of rescue assistance.
- 4.1.4 Occupant load of the floor area served by the area of rescue assistance/minimum number of rescue spaces: 1 to 400/2, over 400/3 plus 1 for each additional increment of 200 persons in excess of 400 persons.
- 4.1.5 The size of the area of rescue must allow a minimum floor space of 850 to 900 mm x 1,370 mm to 1,500 mm (1.5 m² per wheelchair) per non-ambulatory occupant, with no fewer than two such spaces; separated from the floor area by a fire separation having a fire resistance rating at least equal to that required for an exit; served by an exit or firefighters' elevator; have separate emergency lighting and ventilation systems. A two-way voice communication system linked to a monitoring company shall also be provided.

4.2 Controls and Operating Mechanics

- 4.2.1 A clear, level floor area of at least 760 mm x 1,370 mm (2.5 x 4.5 ft.) shall be provided with controls and operating mechanisms, such as dispensers and receptacles.
- 4.2.2 The operable portions of controls and operating mechanisms, such as dispensers shall be located.
 - (i) 1,200 mm above the finished floor, in the case of a thermostat or a manual pull station, and
 - (ii) not less than 900 mm and not more than 1,100 mm above the finished floor, in the case of all other controls.

- (iii) be accessible to a person in a wheelchair using a side approach (3.8.1.5.1).

Figure 30 shall only be used to reference receptacle height location from the finished floor.

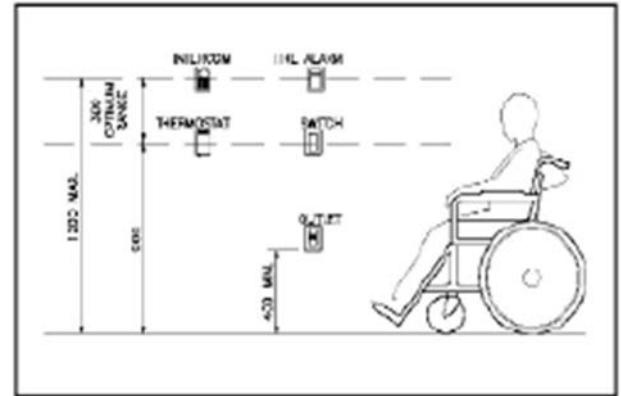


Figure 30

- 4.2.3 Hand-operated controls and operating mechanisms shall be operable with one hand, without tight grasping, pinching or twisting of the wrist, and with a force of less than 22N.
- 4.2.4 Flush mounted buttons or touch pads and screens without Braille present difficulty for individuals with low or no vision and shall be avoided or accompanied by an accessible alternative.
- 4.2.5 All duplex receptacles as well as cable or telephone outlets shall be mounted no lower than 400 mm (1.5 ft.) from the floor and no higher than 1,065 mm (3.5 ft.). See Figure 30 (e.g. above counters or work surfaces). Exception: where outlets are provided as components of systems furniture, these devices need not comply with this section provided they are installed in addition to electrical outlets required by the AHJ.
- 4.2.6 Optional: Keep thermostat at standard height and use remote controlled thermostats. Thermostats are not to interfere with Corporate Energy initiatives.

4.3 Visual alarms

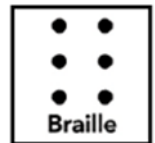
- 4.3.1 Minimum of four alarms per suite is required: bedroom, bathroom, living room and kitchen. Note that combination horns/strobes are to be used in the living room and kitchen. Strobes only are to be used in the bedroom and bathroom. Visual signal devices shall be installed in addition to audible signal devices in public corridors and in a washroom for public use (3.2.4.19 (4)).
- 4.3.2 Shall have the following photometric and location features:
- the lamp shall be a Xenon strobe type or equivalent;
 - the colour shall be clear or nominal white (i.e. unfiltered or clear filtered white light);
 - the maximum pulse duration shall be two-tenths of one second (0.2 sec) with a maximum duty cycle of 40 percent. The pulse duration is defined as the time interval between initial and final points of 10 percent of maximum signal;
 - the intensity shall be a minimum of 75 candelas;
 - the flash rate shall be a minimum of 1 Hz and a maximum of 3 Hz;
 - the appliance shall be placed 2,030 to 2,100 mm (~ 7 ft.) above the floor level

within the space or 152 mm (~6 in.) below the ceiling, whichever is lower.

- Smoke alarms shall have a visual signaling component conforming to the requirements in 18.5.3. (Light, Color and Pulse Characteristics) of NFPA 72, “National Fire Alarm and Signaling Code” (3.2.4.22(13)).

4.4 Signage

- 4.4.1 Signs that designate permanent rooms or spaces shall be wall mounted and include tactile characters and numbers.
- 4.4.2 Where a wall mounted tactile sign is provided in a building, characters, symbols or pictographs on the sign shall be located not less than 1,200 mm and not more than 1,500 mm above the finished floor (3.8.3.1.5).
- 4.4.3 Elements and spaces of accessible facilities that shall be identified by the International Symbol of Accessibility are:
- a. parking spaces, designated as reserved for individuals with disabilities
 - b. accessible passenger loading zones;
 - c. accessible ramps located in a barrier-free path of travel serving a building entrance;
 - d. accessible entrances when not all are accessible (inaccessible entrances shall have directional signage to indicate the route to the nearest accessible entrance);
 - e. accessible toilet and bathing facilities, including single-use portable units, when not all are accessible;
 - f. accessible telephones;
 - g. accessible elevators and other elevating devices;
 - h. accessible means of egress; and
 - i. areas of rescue assistance.
- 4.4.4 Where a washroom, elevator, telephone or parking area is required to accommodate persons with disabilities, it shall be identified by a sign consisting of the International Symbol of Access and such other graphic, tactile or written directions as are needed to indicate clearly the type of facility available (3.8.3.1.2).
- 4.4.5 Where a washroom is not designed to accommodate persons with disabilities in a storey that is required to have a barrier-free path of travel, signs shall be provided to indicate the location of a washroom required to be barrier-free (3.8.3.1.3).
- 4.4.6 Install service animal signs as part of the AODA customer service regulations.
- 4.4.7 Letters and numbers on signs shall
- have a width-to-height ratio between 3:5 and 1:1;
 - have a stroke-width-to-height ratio between 1:5 and 1:10;



- be sans serif;*
- have Arabic numbers.

4.4.8 Character height dimensions for viewing distance shall comply with the following:

- minimum character height/max viewing distance = 25/750, 50/1500, 75/2300, 100/2500, 150/4600, 200/6000;
- have a glare-free surface;
- when used to give the same type of information within the same facility, be consistently shaped, coloured and positioned;
- characters, symbols and backgrounds of signs shall have an eggshell, matte or other glare-free finish;
- characters and symbols shall contrast with their background: either light characters on a dark background or dark characters on a light background;
- use upper and lower case letters. Avoid using all capital letters as they provide less visual information to differentiate letters and give words shape; and
- clear path of travel shall be provided in front of all Braille and tactile signage.

4.4.9 Where signs are required to be tactile, letters and numerals shall be:

- raised 0.8 – 1.5 mm, not sharply edged;
- between 16 mm and 50 mm high;
- sans serif*, accompanied by Grade 2 Braille near the bottom edge of the sign; and
- colour contrasted with their background by at least 70%. Avoid using the colour combinations yellow/gray, yellow/white, blue/green, red/green, black/violet and red/black.

4.4.10 Where a tactile sign is provided, it shall:

- allow a person to approach the sign to within 100 mm without encountering protruding objects or standing within a door swing;
- have a clear wall area around the sign at least 75 mm wide;
- tactile signage shall be included in public areas, particularly at key access points, restroom entrances (to include vertical signage) and along emergency routes. They shall supplement the text of regulatory signs, such as prohibition and mandatory signs; warning signs, such as caution and danger signs; identification signs, such as rooms, titles, names or numbers; required at top and bottom of stairs;
- shall be mounted between 1.2 m (4 ft.) and 1.5 m (5 ft.) above the finished floor/ground;
- tactile signage at public entranceways and doorways shall be placed on the latch side of the door, no more than 150 mm (6 in.) from the door jamb. For restroom doors, tactile signage shall be placed on the door itself;
- the edges of tactile characters shall be gently rounded. Half-rounded characters

shall not be used; and

- tactile characters shall measure between 16 mm (5/8 in.) and 50 mm (2 in.) in height. A minimum height of 25 mm (1 in.) is recommended for raised characters on identification signs.

4.4.11 Pictograms shall be accompanied by the equivalent verbal description, placed directly below the pictogram. The border dimension of the pictogram shall be minimum 150 mm in height.

4.4.12 Pictograms and symbols shall be:

- raised between 0.8 - 1.5 mm;
- placed on a sign at least 150 mm in height;
- accompanied by the equivalent description in Grade 2 Braille placed directly below the pictograph or symbol;
- colour contrasted with their background by at least 70%;
- lettering for room numbers or names shall be no smaller than 25 mm high in sans serif type print and be in a highly contrasting colour (70% or greater), compared with the background colour. Raised lettering is preferred for easy identification by persons with visual disabilities;
- for Braille users, Braille information shall be located immediately below all room numbers and names, as well as below any major directional signs;
- Grade 1 Braille shall be used on signage with 10 words or less, but be accompanied by un-contracted Braille (Grade 1) in signs with limited amounts of text (up to 10 words), and on all signs related to safety;
- Grade 2 Braille, which uses contractions of words and phrases, shall be used on signage with more than 10 words and be accompanied by contracted Braille (Grade 2) in all other applications;
- Braille type shall be in the same place as other type on all signs, e.g. below or to the left of the corresponding tactile sign;
- signs with Braille shall be positioned so that the reader does not have to bend over to touch the Braille type;
- Braille shall be separated from other raised characters or symbols; and
- where Braille is provided, the immediate surrounding surface shall be void of sharp edges or points.

4.5 Detectable Warning Surfaces

4.5.1 All textured surfaces used as detectable warning surfaces shall be cane-detectable and clearly differentiated from the surrounding ground or floor surfaces. (See also Section 4.10, Texture and Colour).

4.5.2 Detectable warning surfaces shall contrast visually with adjoining surfaces, being either light on dark or dark on light.

- 4.5.3 Interior detectable warning surfaces shall differ from adjoining surfaces in resiliency or sound upon cane contact, and shall be slip-resistant.
- 4.5.4 Detectable warning surfaces shall be at least 900 to 920 mm (35 to 36 in.) in width
- 4.5.5 Grooves, channels, thresholds or other changes in level found within a detectable warning surface shall have a maximum depth or height of 13 mm (1/2 in.).
- 4.5.6 A tactile attention indicator conforming to Article 3.8.3.18. (Clauses 4.1.1. and 4.1.2. of ISO 23599, “Assistive Products for Blind and Vision-Impaired Persons – Tactile Walking Surface Indicators”) shall be installed (3.4.6.1 (2)).
- 4.5.7 Line-type blocks shall be used to indicate the correct direction of travel. Exterior line-type blocks shall consist of parallel grooves or incisions with centre-to-centre spacing of 75 mm (3 in.) to 100 mm (4 in.) and a maximum depth of 13 mm (1/2 in.). Example: across entire ramp width and length at a curb cut.

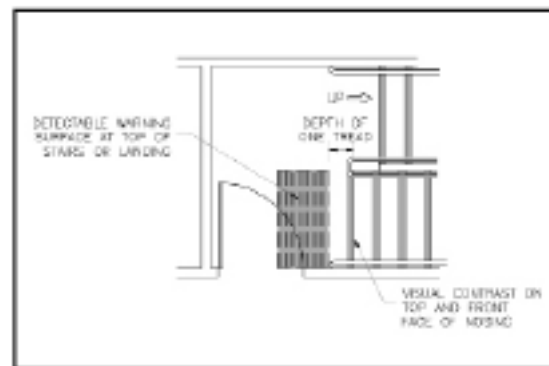


Figure 32

- 4.5.8 Detectable warning surfaces at stairs shall:
 - be provided at the top of the stairs, at landings, and at the leading edge of landings where a doorway opens onto stairs (3.4.6.1.1 (ii));
 - extend the full width of the stair commencing one tread depth back from the stair 920 to 1,200 mm (3 to 4 ft.) in depth. Refer to Figure 32; and
 - not be more than 3 mm above or below the surrounding surface.
- 4.5.9 Detectable warning surfaces shall be located at:
 - an unprotected drop-off edge (e.g. transit platform) where the change of elevation is greater than 250 mm, and the slope is steeper than in the ratio of 1:3 (33.3%);
 - curb ramps (Curb Ramps Section);
 - an entry into a vehicular route or area where no curbs or other elements separate it from the pedestrian route of travel such as traffic islands and pedestrian crosswalks; and
 - If a walk crosses or joins a vehicular way and the walking surfaces are not separated by curbs, railings or other elements between the pedestrian areas and vehicular areas, the boundary between the areas shall be defined by a continuous detectable warning surface that is 920 mm (3 ft.) wide.

4.6 Card Access

- 4.6.1 Provide card access that is wall-mounted, adjacent to the door and free of the door swing. The centre of the control shall be located no higher than 1,000 to 1,200 mm (3 to 4 ft.) above the ground.
- 4.6.2 Provide an audible alarm and a light indicator to inform the user that the card has been accepted and allow the door lock to be disarmed.
- 4.6.3 A card slot shall be incorporated that is colour-contrasted from the mounting plate.

- 4.6.4 Use cards that incorporate a distinctive colour, texture or raised graphic/lettering on one side; include Braille as well.

4.7 Glare and Light Sources

- 4.7.1 Finishes such as vinyl, other composition materials, quarry tile, glazed tile or mosaics, used on horizontal surfaces, such as floors and work surfaces, shall be in matte or satin finishes. Extensive high-gloss floor finishes are not acceptable, but high-gloss materials may be incorporated into floor finish details, as long as they do not result in large reflective surfaces.
- 4.7.2 For common areas, curtains, blinds or other sun screening systems shall be provided at windows and other places where direct sunlight can adversely affect the level of lighting and/or reflected glare.
- 4.7.3 Light fixtures shall be selected with diffusers, lenses or recessed light sources, so that no glare is created.
- 4.7.3 Light fixtures shall be selected with diffusers, lenses or recessed light sources, so that no glare is created.
- 4.7.4 High intensity light sources such as quartz, halogen or other pin-point sources (e.g., chandeliers) shall be used with extreme caution. Such lighting sources are generally not recommended in circulation routes, dining or assembly areas because they are problematic for persons with low vision and produce reflected points of glare on shiny surfaces.
- 4.7.5 Changes in lighting level shall not exceed a range of 100 lux to 300 lux (10-30 ft. candles) from one space to the next.

4.8 Lighting

- 4.8.1 Artificial lighting and natural light sources shall provide comfortable, evenly distributed light at all working areas, in all circulation routes and in all areas of potential hazard. Outdoor lighting shall be provided at entrances, along frequently used access routes and at frequently used outdoor amenities. Adequate and controllable lighting is required for persons who lip-read, or those who require increased task lighting, due to visual impairment. Ample lighting shall be installed throughout a site, particularly at entrances, in work and meeting areas and areas of potential hazard, such as stairs or doorways.
- 4.8.2 Shall be evenly distributed to minimize cast shadows. Shields, recesses or other features shall be used to focus light and minimize reflective glare; and provide a good colour spectrum.
- 4.8.3 Supplementary lighting shall be provided to highlight key signage and orientation landmarks.
- 4.8.4 Exterior lighting shall be in compliance with the Illuminating Engineering Society of North America (IESNA). Standards in all public thoroughfares and at all pedestrian routes to provide safe access for persons with disabilities from sidewalks, bus stops and parking areas to nearby facilities and amenities.

- 4.8.5 Lighting levels at passenger drop-off areas shall be a min. 30 lux consistently over the drop-off area, measured at the ground.
- 4.8.6 Interior lighting shall comply with the following:
- light sources and fixtures shall be selected to minimize direct glare or indirect glare on nearby reflective surfaces (e.g. use valence lighting versus sconces at suite door entrances);
 - light sources shall provide as full a spectrum of light as possible, as an aid to edge and colour definition. Where fluorescent or quartz light sources with a high blue content are used, the light quality shall be enhanced with incandescent lights to ensure the warm end of the spectrum is adequately present;
 - the leading edge of stairs, steps, ramps and escalators shall be evenly lighted to minimize tripping hazards;
 - lighting levels for interior accessible routes shall be at least 100 lux (10 ft. candles);
 - lighting levels in elevator lobbies shall be similar to the lighting levels in elevator cabs to minimize tripping hazards and measure 200 lux; and
 - lighting levels in washrooms and dressing rooms shall be evenly distributed and no less than 200 lux.
- 4.8.7 Lighting levels in office areas shall be evenly distributed and no less than 300 lux.
- 4.8.8 Emergency lighting over stairs and ramps, in an exit or path of travel, shall be less than 50 lux, but shall be at least 100 lux, generally at the walking surface.
- 4.8.9 Lighting over directional or informational signage, or highlighting other orientation features, such as: at public telephones, information or service counters, card or keypad security systems, and at the working surface shall be no less than 200 to 250 lux.
- 4.8.10 Light fixtures with multiple pinpoints of high-intensity light shall be avoided, as they add an unnecessary source of glare and leave an after image on the retina for persons with low vision.
- 4.8.11 Wherever possible, natural light shall be utilized to assist in lighting entrances and corridors. However, care shall be taken to minimize direct glare that is problematic for persons with visual disabilities (e.g. reflected from floor or work surfaces).

4.9 Materials and Finishes

- 4.9.1 Proper flooring materials must be selected to ensure the safe and easy movement of persons using all kinds of mobility aids, as well as persons with low vision.
- 4.9.2 Stable, firm, slip-resistant materials and finishes shall be used wherever possible (refer to CAN/CSA B651 Annex D, "Potential for Slip of Floor and Tread Finishes").
- 4.9.3 Suitable paving surfaces for walkways include asphalt, concrete, compacted gravel screenings, interlocking brick and patio stones. Such materials used as walkways shall:
- have joints that are no greater than 6 mm wide, with variations in level of no more than 3 mm;

- be laid to drain;
- where possible, gratings and grills shall be located to one side of pedestrian walkways, so as not to impede the accessible route. Where this is not possible, the bars of the grating or grill shall be located perpendicular to the dominant path of travel, with openings of no greater than 13 mm;
- steps shall be finished with a slip-resistant material and incorporate highly contrasted nosings;
- ramp surfaces shall be firm and non-slip;
- handrails and guards shall be continuous, smooth and well maintained;
- the finish of walls adjacent to ramps and stairs shall be non-abrasive; and
- exterior surface materials shall be well-drained and installed to minimize water and ice accumulation.

4.9.4 Interior materials: Where hard, monolithic materials are selected, they shall be non-slip and non-glare, complying with Section 4.7.1.

4.10 Texture and Colour

- 4.10.1 Exterior colour schemes shall incorporate a pronounced colour contrast to differentiate boundaries of objects, distinguish objects from their background and to generally enhance spatial orientation. Generally, for seniors and persons with low vision, colours in the warm end of the spectrum (yellow, orange, bright red, etc.) are easier to recognize than those at the cool end of the spectrum.
- 4.10.2 Signs shall incorporate pronounced glare-free colour contrast. A minimum contrast of 70% light reflectance is required. For signs, the most visible colours are white or yellow on a black, charcoal or other dark background, such as brown, dark blue, dark green or purple. Black lettering on white is also acceptable, although less readable than the reverse. Unacceptable background colours are light gray and pastel colours. Red lettering on a black background is also unacceptable. For bright yellow, a 40% contrast is acceptable.
- 4.10.3 Colour contrast shall be used as a safety measure to define edges or boundaries of objects (e.g. stair nosings, doors, handrails, etc.). Colour or tone shall be used to visually define the boundaries of a room (i.e. where the wall meets the floor). Baseboards in monochromatic environments shall be highly contrasting with the wall and floor colours, to provide boundary definition. Doors and/or door frames shall incorporate pronounced colour contrast to differentiate them from the surrounding environment. Door handles and other operating mechanisms shall incorporate pronounced colour contrast to differentiate them from the door itself.
- 4.10.4 Suitable interior textures include raised domes, dots or squares, deeply grooved concrete, terrazzo or other stone-like materials, with closely centred grooves at right angles to the path of travel, or applied carborundum or other non-slip strips.
- 4.10.5 Supplementary textural cues shall also be provided (e.g. by using different floor textures or materials in major and minor routes).
- 4.10.6 Clearly-defined boundaries of materials like carpeting or floor tiles shall enhance

way-finding by defining, for example, the junction between walls and floors, doorway recesses and corridor intersections.

- 4.10.7 Caution is recommended in the selection of heavy or distinct patterns on walls or floors since these can add visual confusion for persons with low vision or for persons with psychiatric disorders, if over-used. Simple, repetitive and non-directional patterns with low contrast are preferred (e.g. for carpeting, floor tiles, wall papers) in order to produce the least amount of visual confusion.

4.11 Heating, Cooling and Ventilation Systems (HVAC)

- 4.11.1 Heating, cooling and ventilation systems shall be designed to accommodate persons whose circulatory systems are inadequate. For instance, many seniors and persons using mobility devices have difficulty sensing temperature differences because of poor circulation or body tone. When the ambient temperature is too high or too low, they may become dehydrated or suffer from hypothermia.
- 4.11.2 Ambient air temperature in facilities serving persons who are either: frail, seniors or persons with disabilities shall be designed to operate between 21°C and 26°C (70°F and 79°F) at all times of the year to co-ordinate with energy and LEED standards.
- 4.11.3 The humidity in the air of residential facilities serving seniors or persons with disabilities shall be designed to operate between 30% - 40% (especially during the winter months), to aid proper skin care.
- 4.11.4 Mechanical, ventilation and air-cooling systems shall be designed so that the air flow from diffusers/grills is not directed towards persons lying in bed or toward permanent seating.

4.12 Acoustics

- 4.12.1 Floor finishes, wall surfaces and ceilings shall be selected so that occasional noise is not unduly amplified. (e.g. hard surfaces such as marble or terrazzo will allow each footstep to be heard by persons who are visually impaired, but add another level of confusion for persons who are hearing impaired.)
- 4.12.2 The Region of Peel Affordable Housing guidelines require the following sound transmission classes (STC):
- STC 52 between residential units;
 - STC 55 between residential units and other (no-residential) spaces; and
 - STC 60 between residential units and mechanical or electrical rooms, emergency generator room elevator room and/or elevator shaft (hoistway), service room and refuse chute.

5.0 Kitchens

5.1 Kitchen requirements

5.1.1 The clear floor space between counters and all opposing base cabinets, countertops, appliances, or walls in kitchens shall be at least 1,800 mm (6 ft.) regardless of U-shaped, L-shaped or other shaped kitchens (refer to Figure 33). Counters not situated against walls shall NOT be fixed to the floor so that they may be moved.

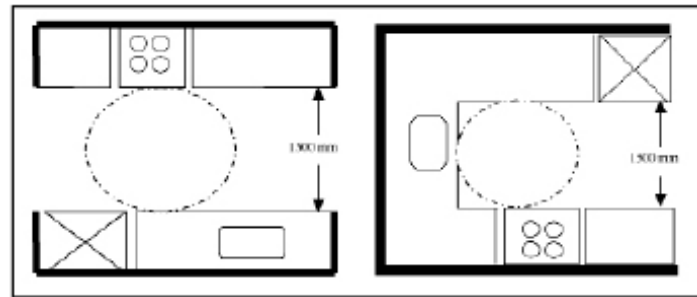


Figure 33

5.1.2 Additional lighting shall be provided over the sink, cooking and work surfaces to ensure safe use of facilities by persons with low vision or limited dexterity.

5.1.3 Refrigerators and freezers shall be vertical side by side, self defrosting with storage space and controls not more than 1.1 m (3 ft. 8 in.) from the floor.

5.1.4 At least one work surface shall:

- be 760 mm (2.5 ft.) wide x 610 mm (2 ft.) deep and a maximum height of 860 mm (2.8 ft.) measured from the floor;
- have a clear floor area of at least 760 mm x 1,370 mm (2.5 ft. x 4.5 ft.), which may extend up to 480 mm (1.6 ft.) underneath the work surface;
- have a centred knee clearance of at least 760 mm wide x 480 mm deep x 685 mm high;
- with a toe space of a minimum 205 mm deep x 230 mm high; and
- have electrical outlets at the side or the front of it.

5.1.5 A sink shall:

- with a maximum of 480 mm height underneath the sink, have a clear floor area of at least 760 mm x 1,200 mm to 1,370 mm;
- be mounted so that the minimum distance between the centre line of the fixture and the side wall is 460 mm; with the top located from the floor by 710 mm to 860 mm to rim or countertop, whichever is higher;
- have a knee clearance of at least 760 mm wide x 200 mm deep x 685 mm high;
- with a toe space of 205 mm deep x 760 mm wide x 230 mm high;
- have hot water and drain pipes offset to the rear and insulated if they abut the above noted clearances; and
- have temperature control faucets.

- 5.1.6 A range and cook-top shall have:
- controls located where they do not require reaching across the burners to operate;
 - a surface height of between 820 mm to 860 mm (2.6 ft. to 2.8 ft.) from the floor;
 - adjacent work surface of at least 300 mm wide on both sides of the stove at the same height as the cook-top;
 - a knee clearance centred on the cook-top at least 760 mm wide x 685 mm high; with a toe space 230 mm deep x 230 mm high;
 - insulation or other protection on the underside where the knee clearance is provided, or the appliance is otherwise configured to prevent burns, abrasions or electrical shock; and
 - a clear floor area of at least 760 mm x 1,370 mm, which may extend up to 480 mm underneath the cook-top.
 - automatic off-switches to control unattended/unused burners. This also applies to ovens (e.g. Safe-T-elements).
- 5.1.7 An oven shall have controls located on the front panel and, for an oven equipped with a side-opening door, a horizontal surface shall be provided:
- controls to be mounted no higher than 1,400 mm (4.6 ft.);
 - beside the latch-edge of the doors, a pullout shelf under the door that extends the width of the oven; pull-out at least 250 mm (10 in.);
 - a work surface positioned adjacent to the latch side of the door; and
 - where bottom-hinged doors are used, a work surface positioned adjacent to one side of the door.
- 5.1.8 Microwave ovens shall be mounted at counter height with the operating panel not more than 1,200 mm (4 ft.) from the floor.
- 5.1.9 Cabinets, drawers and shelf storage areas shall have:
- at least one shelf from the floor (where it is above a work surface) no more than 1,100 mm high (3.6 ft.);
 - “D” type door pulls mounted close to the bottom of upper cabinet doors and top of base cabinet doors; and
 - duplex receptacles (e.g. power outlets), where mounted above counter height, shall generally be no higher than 1,065 mm (3.5 ft.) from floor level. Duplex receptacles shall be located so that loose electrical cords do not cause a potential tripping hazard, especially for persons with visual limitations.

6.0 Maintenance

6.1 Housekeeping Considerations

- 6.1.1 Despite all good intentions during the design stage of creating fully accessible environments, the success of the eventual project is largely dependent on decisions made by facility managers regarding space utilization, security and maintenance issues. Training for maintenance staff shall address potential barriers.
- 6.1.2 Maintenance staff shall be educated to keep paths of travel free of added objects, including waste containers, recycling bins, planters, vending machines, dispensers, staff equipment and furniture, as these items may result in tripping hazards and limit movement for persons who have visual limitations. Aisle and corridor widths should also not be obstructed, as added items limit the maneuverability of persons using mobility aids (e.g. wheelchairs and scooters). Placement of waste receptacles in washrooms stalls, under a sink or hand dryer, and the storing of maintenance materials in accessible parking spaces shall not be allowed. Staff shall ensure that the pressure of opening mechanism of doors be reduced.
- 6.1.3 Temporary signs on stands or mounted on walls and doors can add confusion for persons with low vision. Proper planning and co-ordination is required.
- 6.1.4 Decisions on energy conservation often result in reduced lighting levels, potentially inhibiting safe movement through buildings for all users. Proper design is required and shall comply with Section 4.8.
- 6.1.5 Maintenance staff shall not wax or seal a typically non-glare floor surface (e.g. matte ceramic tile finish) to create a high-gloss polish/finish. A high-gloss finish can create glare problems for persons with visual limitations from overhead or adjacent natural lighting sources. High-gloss finishes on some floor surfaces also results in potential slipping hazards for all users, especially persons with low vision.
- 6.1.6 Maintenance staff shall not add runners or mats on floors in entrances, hallways and corridors during winter conditions in an attempt to minimize tracking. Adding such items may be disorienting for persons with low vision and it may also inhibit movement by persons using mobility aids (e.g. where mats become rolled or bunched up accidentally).
- 6.1.7 Snow removal: stockpiling of snow at or near accessible parking spaces defeats their purpose and shall not be allowed.