MARKHAM

Accessibility Guidelines
Overcoming Barriers

Town of Markham

Accessibility Guidelines

February 2007

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Guideline Application and Implementation

Purpose

The Town of Markham's objective is to be a leader in developing accessible environments for all through embracing the principles of "universal design" or the "design of products and environments to be usable by all people, to the greatest extent possible, without the need for adaptation or specialized design".

In collaboration with Town Staff and members of the Markham Advisory Committee on Accessibility, these Accessibility Guidelines were developed by Associated Planning Consultants Incorporated and SPH Planning and Consulting Limited. The names of collaborators involved in the development of these Guidelines are provided in **Appendix A.**

The Consultants were retained to provide the Town of Markham with an update of the existing "Joint Municipal Guidelines For Accessibility", published in 1998. From the beginning, these original guidelines were recognized as a leading resource for subsequent Accessibility Guidelines and Standards developed and implemented by other municipalities in Ontario, including the Cities of London and Toronto. Although much of the accessible design criteria within the Joint Guidelines are still valid and current, there were many areas that required updating to meet current best practices, code changes and expectations, part of the purpose behind the development of these new Accessibility Guidelines.

Scope and Application

The accessible design criteria provided in these Guidelines aims to make Town owned or leased sites, infrastructure, facilities and elements accessible to Markham residents and visitors. The accessibility criteria provided in Sections A through to E reflect a combination of technical code requirements, national and international standards and "best practice" guidelines for accessibility, intended to apply to both new construction and existing facilities.

Implementation

Implementation of accessibility criteria in these Guidelines is the primary responsibility of the Town of Markham Staff, in collaboration with all relevant stakeholders including the Markham Advisory Committee on Accessibility. Consultation will be determined on a project-by-project basis and implementation will be based on the appropriate review and approval processes that are necessary to ensure all accessibility criteria is implemented correctly.

New Construction

At the time of publication (2006), the implementation of these Accessibility Guidelines is intended to be mandatory for the Town of Markham, as they apply to the development, construction or renovation of public facilities and related sites, infrastructure, facilities and elements. This also recognizes that the Province of Ontario is about to develop formal accessibility standards for the built environment, as mandated by the "Accessibility for Ontarians with Disabilities Act" (AODA, 2005).

The Town of Markham intends to affirm their continuous commitment towards identifying, removing and preventing barriers, but also to demonstrate leadership that will encourage the private sector to follow in their footsteps as well, for both existing and new facilities. With this goal in mind, the Town of Markham hopes to work in partnership with the Province in the development of consistent and mandatory standards for accessibility.

Existing Barriers and Conditions

Barrier removal at existing sites, infrastructure, facilities and elements is conducted annually through priorities established in the Town's annual Accessibility Plan. The Town intends to implement the accessibility criteria within these Guidelines to the greatest extent possible, for both owned and leased facilities.

Implementation Alternatives

Consistent with the policies of national and international accessibility standards and guidelines, there is nothing within these Guidelines intended to prevent the use of designs, products or technologies as alternatives to those identified within these Guidelines. This assumes that the implementation of these alternatives will result in an **equivalent** or an **increased level of accessibility**, in meeting the principles of **Universal Access**.

Implementation alternatives will be evaluated on a project-by-project basis by Town of Markham Staff, in collaboration and consultation with all relevant stakeholders, including the Markham Advisory Committee on Accessibility, as required.

Guideline Organization

This document was organized to provide accessibility criteria under five (5) broad categories to be user-friendly, as well as consistent with the organization of Accessibility Audit Checklists that have also been developed for the Town of Markham. The five categories are:

Section A: Exterior Environments
Section B: Interior Environments
Section C: Building Systems, Controls and Communications
Section D: Special Facilities, Spaces and Environments
Section E: Interior Design Issues, Facility Management and Maintenance Practices

Each of these categories is divided into various subsections that relate to specific site or facility elements or features. At the start of each of subsection, a "Rationale" is provided for users to gain an understanding of the broader accessibility issues that relate to each element or feature.

Dimensions

The dimensions for specific accessibility criteria are stated in millimeters (mm), under the metric system of units, rounded up to the nearest multiple of five. Within the Guideline text, dimensions have also been converted to equivalent imperial units (feet & inches), rounded to the nearest half-inch (½").

Dimensions that are not marked as "maximum" or "minimum" are absolute, unless otherwise indicated. All dimensions for construction purposes are subject to conventional industry tolerances.

Tables, Figures and Graphics

Throughout these Guidelines, several tables, figures and graphics are provided to assist the user with understanding the application of the accessibility criteria and design issues under consideration. Such tables, figures and diagrams are provided for information purposes only. Where there is a difference between the accessibility criteria stated for a table, figure or diagram, when compared with the text of the Guidelines, the text criteria applies.

Many base illustrations and graphics provided by the Alberta Safety Codes Council have been adapted within these Guidelines and the Town of Markham extends gratitude to the Alberta Safety Codes Council, for permission to use these illustrations, as noted in **Appendix A**.

Note: Where differences have been identified, the Town of Markham requests your feedback, which can be completed and submitted using the form in **Appendix E.**

Definitions

Throughout this document, a variety of accessibility terminology is used that may not be understood by all users. Definitions for key words that are used throughout the Guidelines are provided in **Appendix B.**

Reservations

While this document was being prepared, other related guidelines and standards were under development relevant to municipalities in Ontario. As a result, certain sections of these Guidelines have been “reserved”, for updating as soon as new information is obtained and during future revisions to these Guidelines.

Appendices

Additionally, appendices include the following information: **(Note: To be Finalized Phase 2)**

- **Appendix A: Acknowledgements**
- **Appendix B: Definitions**
- **Appendix C: Anthropometrics**
- **Appendix D: Resources and References**
- **Appendix E: Feedback Form**
- **Appendix: Index**

Anthropometric Provisions

Key dimensions related to anthropometry, including space and reach criteria for adult users of mobility aids, are provided in **Appendix C.** Understanding key aspects of anthropometry may provide additional insights during implementation of these Guidelines, especially when considering how unique each circumstance may be. Space and reach requirements for children are typically not included in these Guidelines, with some indirect references only, and they are reserved for future updates of this document.

Referenced Standards, Guidelines and Best Practices

(Note: To be finalized Phase 2)

- Canadian Standards Association's Accessible Design For the Built Environment (2004)
- City of Toronto Accessibility Design Guidelines (2004)
- City of London Facility Accessibility Design Standards (2006)
- Americans with Disabilities Act Guidelines (ADA, 2004)
- Town of Markham, Town of Richmond Hill and the City of Vaughan Joint Accessibility Guidelines For Accessibility (1998)
- American National Standard - Accessible and Usable Buildings and Facilities (2003).

Section A:

Exterior Environments

Arrival and Departure Areas

Public Transportation - Transit Stops and Shelters

Rationale

The accessible design and suitable placement of transit shelters is critical to promoting public transit use for everyone. Transit Shelters serve as pick-up and drop-off points throughout a transit system, providing protection from weather conditions, serving as rest stations and with new technology being implemented, serving as "smart stations" (e.g., ticket vending machines and electronic displays of schedules).

Accessible Design Criteria

Transit Shelters

- Locate on firm and level boarding area (e.g., concrete pad), approximately 4265 mm (14'-0") long by 1800 mm (6'-0") wide, at the same elevation as the sidewalk or walkway.

- Ensure an accessible route of at least 1525 mm (5'-0") wide is provided outside of shelter (parallel to curb or street), to accommodate mobility aids when boarding transit vehicles or entering/exiting shelter. With shelter set back from the curb and street, suitable circulation space is provided for pedestrians, along with protection from snowdrifts and spraying water from passing vehicles, for example.

- Locate entrance to shelter facing traffic, to allow people with vision loss to be aware of transit arrival.

- Provide a minimum clear floor or ground space of 1220 mm (4'-0") long by 760 mm (2'-6") depth, entirely within the shelter. Interior floor/ ground space dimension of 2185 mm (7'-2") long is preferred to accommodate multiple users and persons using larger mobility devices (e.g., scooters and power wheelchairs).

- Provide a clear view of oncoming traffic inside, from both a standing or seated position.

- All glazed panels forming part of a bus shelter shall have 50 mm (2") diameter decals or a continuous coloured strip, mounted at eye-level or1500 mm (5'-0") high from surface. Decals shall be positioned at no more than 150 mm (6") on centre, to ensure easy identification by persons with low vision.

Transit Stops

- Provide boarding areas made of level and firm materials (e.g., concrete or pavement), at least 4265 mm long by 1525 mm wide (14’-0” by 5’-0”) in order to accommodate multiple users waiting.

- Ensure boarding areas are well maintained and kept clear of all street furniture, which should be located in a designated amenity strip where provided (e.g., paper vending machines, garbage disposal, planters, posts, signs. **(See Section X “Street Furniture”)**

Seating

- Provide at least one seat, mounted at preferred height of 460 mm (18”) high from ground, to accommodate the widest range of users, where provided at bus stops and shelters. Seating is required for resting by all users, especially seniors and other persons with limited stamina. For persons who are very tall, or who have difficulty sitting, a resting ledge, or substantial handrail, mounted at 760 mm to 840 mm (2’-6” to 2’-9”) high is also recommended.

Parking

Rationale

People with disabilities require designated accessible parking spaces, including those provided in exterior surface parking lots or parking structures (e.g., above or below ground). Accessible parking spaces shall be located on the shortest accessible route to an accessible entrance that is available and within 30 metres (100'-0") to the nearest accessible entrance(s). Where multiple accessible entrances are provided close to parking areas, the designated accessible parking spaces provided for these facilities shall provide a range of options for visitors. Clear separation between pedestrian and vehicular routes is an important safety consideration for all users to minimize any potential conflicts or potential accidents.

Facilities used by a higher proportion of people with disabilities (e.g., Health, Long Term Care, and Seniors facilities) can be expected to have a greater need for designated accessible spaces and such spaces shall be calculated based on the anticipated demand and a detailed review of occupancy.

Accessible Design Criteria

Provision

- Ensure a minimum of four (4) accessible parking spaces are provided for the first hundred (100) public parking spaces that are available (e.g., a 1:25 ratio of accessible spaces to regular spaces). **(See Table 1)**
- Provide at least two (2) accessible spaces for each additional hundred (100) parking spaces provided (e.g., 1:50 ratio).
- Ensure at least one (1) accessible parking space is provided where the number of parking spaces in total is less than 25. **(See Table 1)**
- Provide at least one level of parking in multi-storey or underground parking garages, with easy to locate accessible parking spaces, beside accessible pedestrian routes that lead to an elevator.

Table 1: Accessible Parking Space Provisions	
Total Number of Parking Space Provided	**Minimum Number of Designated Accessible Parking Spaces**
1-25	1
26-50	2
51-75	3
76-100	4
101-150	5
151-200	6
201-300	7
301-400	8
401-500	9
501-1000	2% of total
1001 and over	20 - add 1 space for every 100 spaces over 1000

Parking Space Dimensions

- Provide a **minimum length of 5600 mm (18'-4")** and minimum width of 2745 mm (9'-0"), for each accessible car parking space.

- Include a clearly marked access aisle directly adjacent (e.g., car can park forward or backwards in space to use access aisle).

- Provide at least one (1) accessible parking space for vans, for every one hundred (100) parking spaces in total, with minimum width of 3350 mm (11'-0") by 5500 mm (18'-0") long. Note: Minimum width can be reduced to 2440 mm (8'-0") when an adjacent access aisle of 2440 mm wide (8'-0") minimum is provided. Dimensions accommodate the use of platform lifts or ramps that are typical for vans. Access aisles shall be designed and located based on site conditions and location of parking space (e.g., rear aisles are required for parallel van parking, to accommodate use of van ramp typical at rear).

- Ensure a vertical clearance for van parking spaces of at least 2745 mm (9'-0") is provided (e.g., overhead).

Access Aisle Dimensions

- Provide width of 1525 mm minimum (5'-0"). Width can be reduced where accessible parking space dimensions are larger than minimum requirements and based on site conditions.

- Locate access aisles on the same level as the parking spaces they serve. This allows safe and easy routes of travel for users of mobility aids, away from vehicular traffic and in view of drivers.

- Include colour contrasted pavement markings (e.g., diagonal yellow lines across surface), or similar design to assist with identification.

- Mark with “No Parking” pavement signage to prevent parking on them, or through use of other strategies (e.g., permanent bollards). If bollards are used, ensure at least 915 mm clear width (3’-0”) is provided between for users of mobility aids to pass through, as required.

- Incorporate pedestrian access aisles at all accessible parking space locations, at both sides and rear of spaces for safe path of travel. Where two accessible parking spaces are located adjacent to one another, a clearly marked access aisle can be shared and located between the two spaces.

Accessible Pedestrian Routes

An accessible pedestrian route is required leading from designated accessible parking spaces to nearest accessible entrance, based on the following criteria:

- Provide overhead protection (e.g., canopies) along accessible pedestrian routes as a best practice.

- Ensure the design of accessible parking spaces, adjacent accessible routes, curb ramps and related access aisles does not hinder the use and clear path of travel required by pedestrians, when cars or vans are parked.

- Ensure that all walking surfaces, including access aisles, are firm, level (e.g., maximum cross fall or cross slope ratio of 1:48 or 2%), clear of obstructions (e.g., bollards, posts, signage etc.) and well drained to allow safe travel and prevent accumulation of snow, ice or water.

- Provide suitable curb ramps from the accessible car parking area to any adjacent sidewalk or pedestrian route where difference in elevation is greater than 13 mm (½”). [Detailed specifications for curb ramps are provided in Section X “Curb Ramps”.

- Mark all accessible pedestrian routes from parking areas (e.g., using painted yellow lines and/or distinctive paving surfaces) and/or ensure accessible pedestrian routes are separated from adjacent vehicular traffic by raised curbs or well-defined access aisles.

- Provide clear headroom of 2285 mm (7’-6”) below ceiling, beams, pipes, or sprinkler heads throughout all access and exit routes (including ramps), within covered or underground parking structures.

- Ensure any “bollards” that are located within accessible pedestrian routes (e.g., permanent, vertical posts that are often used as protective barrier in parking areas), are colour contrasted with surroundings, for easy identification. Provide clear space of at least 915 mm (3’-0”) wide in between, or 1525 mm (5’-0”) preferred.

- Provide curb barriers in front of parking spaces to protect users from any vehicles overhanging into adjacent accessible routes, which can result in a potential bumping hazard for users with a vision loss as well as reduce clear width of the path of travel for users of mobility aids.

Signage

- Provide directional signage leading to accessible parking spaces, where the location of these spaces is not obvious or near the entrance to parking area. Signage shall include the “International Symbol of Accessibility”, directional arrows and other text information that may be useful. Additionally, for accessible van spaces, signage provided at entrances shall indicate height clearances provided throughout drive aisles.

- Mark all accessible parking spaces with the “International Symbol of Accessibility”, on both the pavement and wall or post-mounted signage, located at the front of the space.

- Ensure wall or post-mounted (vertical) signage is at least 305 mm wide by 455 mm high (12” wide by 16” high). Signage height shall be 1525 mm (5’-0”) from ground and visible upon approach to space from vehicle. Locate signage at front of parking space but also clear of any accessible pedestrian route, ensuring it does not present a bumping hazard. Signage design shall meet municipal and provincial requirements (e.g., Transportation Association of Canada standards).

- Centre pavement signage within the parking space, measuring at least 1015 by 1015 mm (3’-4” by 3’-4”), using strong colour contrast compared with ground surface (e.g., blue, white or yellow signage markings on black pavement). Ensure pavement markings are non-slip, especially when wet.

- As best practice, wall or post-mounted signage for accessible parking spaces shall include printed information about enforcement and any applicable fines for non-display of valid parking permit or related infractions.

- Post-mounted signage identifying accessible van parking spaces shall include the statement “van accessible”, in large print that is colour contrasted with background.

Fig: Designated Accessible Parking Spaces with Shared Access Aisle (A5)

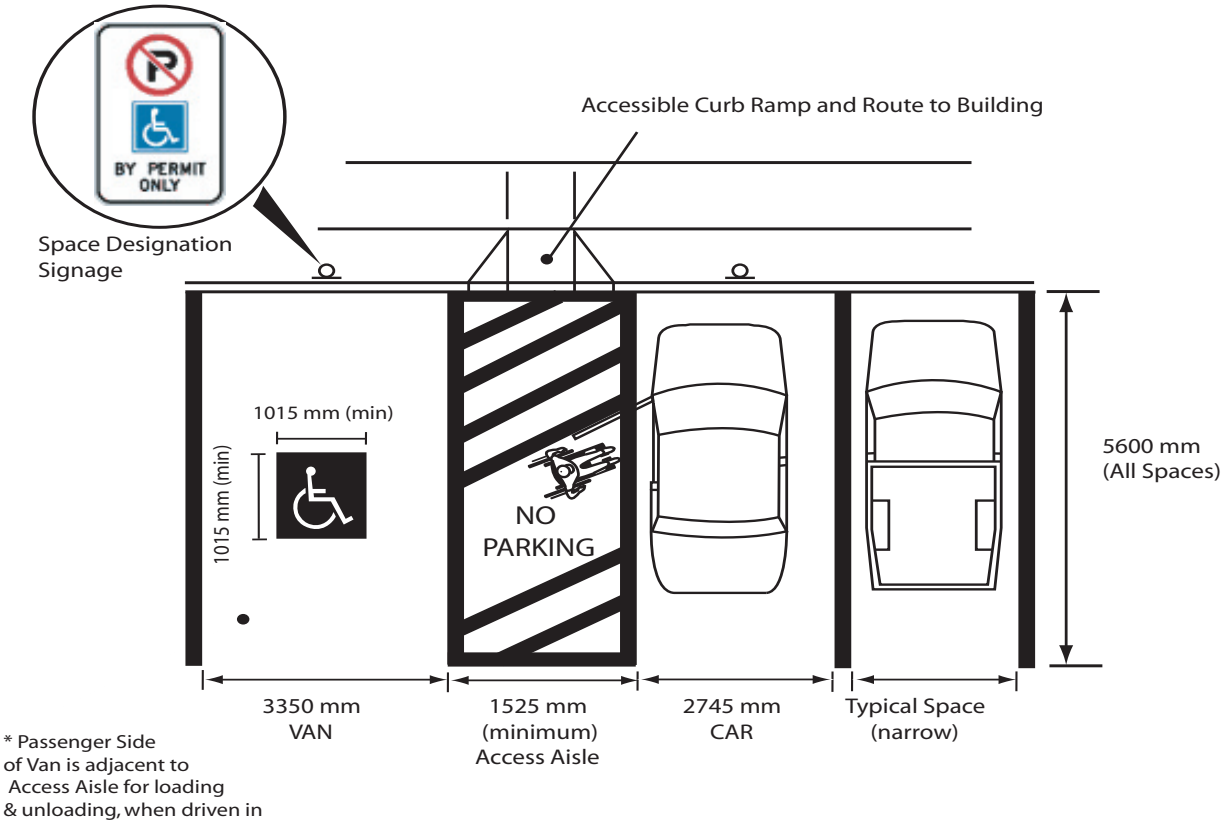
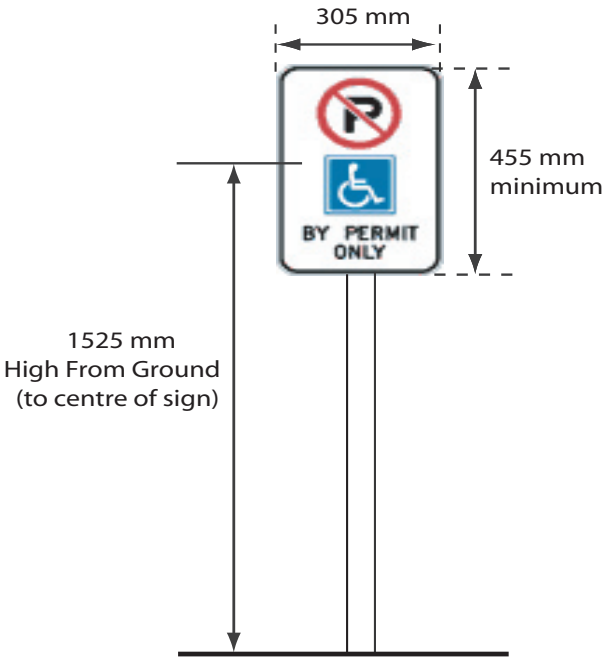


Fig: Parking Signage Dimensions (A7)



Passenger Loading Zones and Emergency Routes

Rationale

Designated passenger-loading zones (including "lay-by" spaces) adjacent to accessible entrances are ideal for a variety of users, allowing passengers to get in and out of vehicles safely and conveniently. This is a direct benefit for most users (e.g., users of mobility aids, seniors, expectant mothers, parents with children in strollers, people with limited stamina or others who may have difficulty breathing). Although passenger-loading zones can also be shared as a stop for Para-transit vehicles (e.g., York Region Mobility-Plus), a designated lay-by area for Para-transit vehicles is preferred, free of other waiting vehicles.

Accessible Design Criteria

Provision and Space Dimensions

- Locate passenger loading zones and lay-by spaces that are provided on individual sites within 30 metres (100'-0") of the nearest accessible entrance.

- Ensure vehicular space used for a passenger-loading zone or lay-by is a minimum of 2440 mm wide (8'-0") and a minimum of 6100 mm (20'-0") long. Provide suitable curb ramps and access aisles as detailed in this section. Dimensions of 3050 mm (10'-0") wide by 7925 mm (26'-0") long are preferred, recognizing a wider range of vehicles can be accommodated including typical vans, para-transit vehicles and larger buses.

- Ensure space is at least 3050 mm (10'-0") wide by 7925 mm (26'-0") long, where a parking space is provided adjacent to a passenger-loading zone to accommodate para-transit vehicles.

- Provide vertical clearance (e.g., overhead) of 2895 mm (9'-6") minimum, for passenger loading spaces, access aisles serving them and throughout related vehicular entrance/ exit routes. For special transit vehicles, such as York Region Transit Mobility Plus, the headroom clearance shall be increased to 3555 mm (11'-8") to accommodate larger vehicles.

Access Aisles

- Provide an access aisle immediately adjacent to vehicle pull up space, a minimum of 1525 mm wide, extending the full length of the space they serve. Access aisle shall be at the same level as the vehicle space.

- Provide an access aisle at rear of space, a minimum of 1525 mm wide (5’-0”) leading to a level route or adjacent curb ramp, where loading zone is designed as a “lay-by” (e.g., the vehicle pulls into a designated space that is offset from the main vehicular route). This accommodates vehicles that have a lift provided at the rear. Typically, if a lift or ramp is provided at the side of the vehicle, it can be lowered directly onto the adjacent accessible route (e.g., sidewalk).

- Suitable curb ramps shall be provided at all passenger-loading zones, where differences in roadway and sidewalk levels are greater than 19 mm (¾”). **See Section X.**

- Mark access aisles with diagonal pavement markings (e.g., hatched, yellow lines) to prevent and discourage others from parking on them.

Signage

- Mark all designated passenger loading zones with suitable signage, using large print text that is visible from a distance indicating information, directions and height clearances that are required (e.g., “No Standing”).

- Include the “International Symbol of Accessibility”, the transit provider logo (if required) and any other relevant information, as per municipal by-law requirements, where such loading zones are shared with designated para-transit stops.

Emergency Routes

- Designate and clearly identify all routes used by emergency vehicles (e.g., fire trucks and ambulances) with municipal by-law and related regulatory signage. These vehicular routes shall avoid crossing any pedestrian routes leading to entrances, wherever possible.

- Ensure the location of emergency routes and related stopping spaces for emergency vehicles does not obstruct use of any curb ramps or other accessible pedestrian routes during emergency conditions (e.g., to ensure safe exiting from building and site by users of mobility aids).

Fig: Passenger Loading Zone (A9)

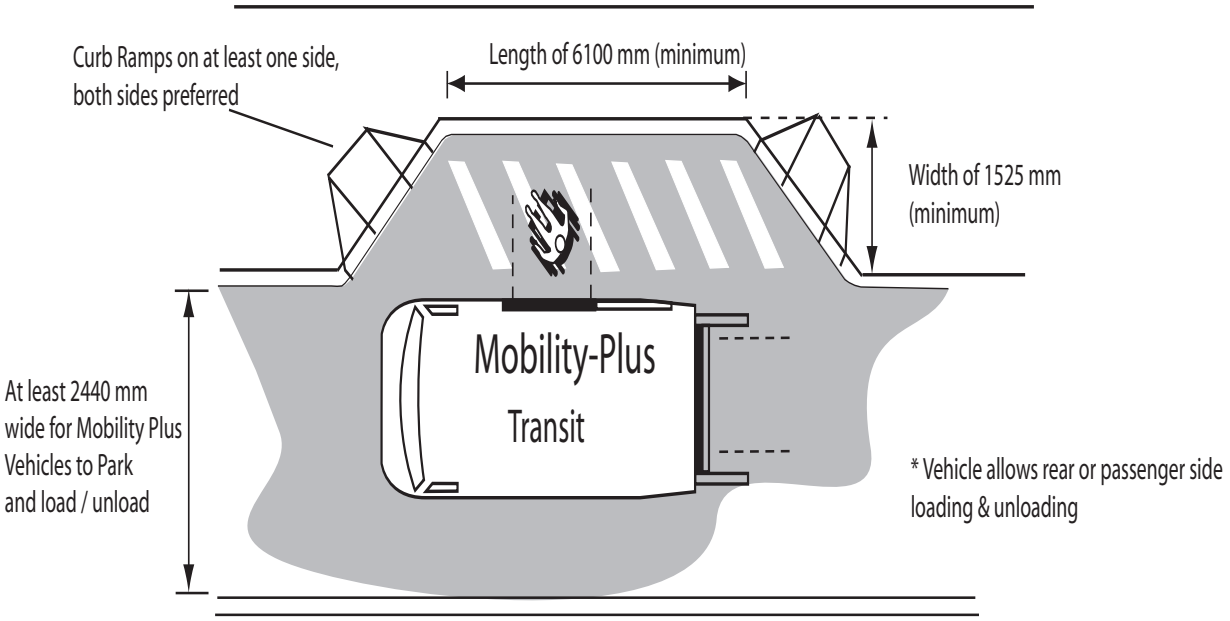
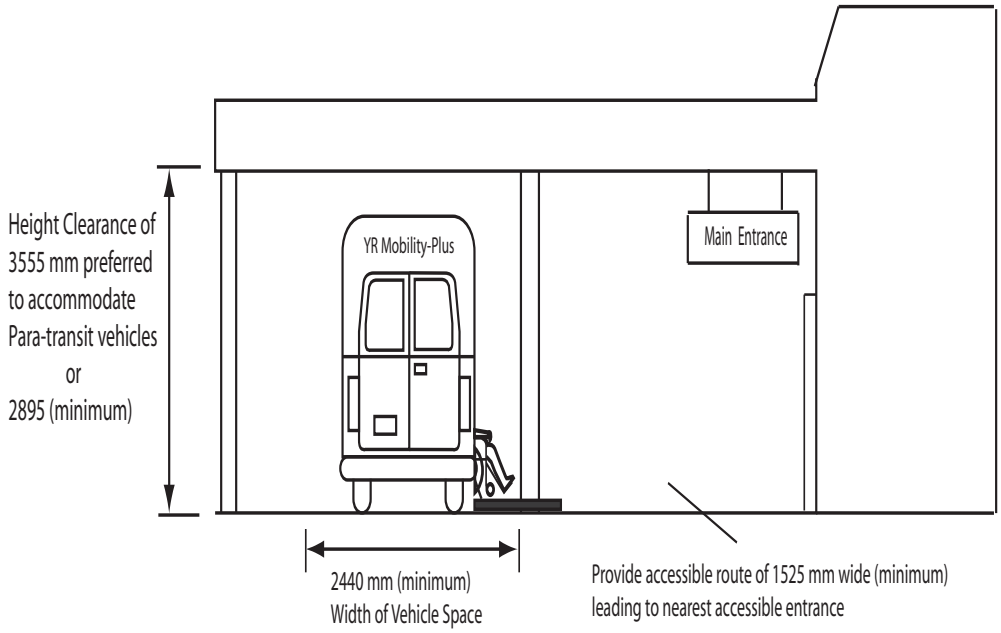


Fig: Height Clearance Passenger Loading Zones (A9)



Accessible Routes and Approaches

Pedestrian Sidewalks and Walkways

Rationale

Everyone wants to be able to travel throughout public spaces, independently, safely, comfortably and conveniently, without encountering any hazards or obstacles that makes movement difficult or impossible. People with varying disabilities need assurance and support in using exterior routes and facilities. Persons with vision or hearing loss use a variety of wayfinding cues or other information in the environment to assist them with finding their way safely from one location to another. Similarly, persons with limited mobility, who use canes, walkers, wheelchairs or scooters need a level and safe route to reach their destination. Overall, accessible pedestrian routes shall be easily identifiable, clearly separated from vehicular routes and kept free of obstacles at all times of the year. Continuous and level pedestrian routes that lead from the site boundary of a facility to its nearest accessible entrance or other amenities must also be a priority.

Accessible pedestrian routes can take many forms, whether a typical public sidewalk leading to a building entrance or intersection, a walkway or any other type of public right-of-way (e.g., boulevards, sidewalks across bridges). Pedestrian needs shall be recognized as the main priority when there is the potential for conflict between vehicular and pedestrian traffic along accessible routes. All accessible routes and public right of ways designed for pedestrians and users of mobility aids must have walking surfaces that are firm, level, and constructed of non-slip and glare-free materials. As an example, a high polish finish (e.g., smooth concrete) used on exterior routes may reflect glare from natural and artificial lighting sources, which is a problem for people with vision loss. Polished surfaces also are slippery when wet and tend to retain moisture longer on the surface, resulting in a potential slipping hazard for all users.

Accessible Design Criteria

Gradients and Dimensions

- Provide a maximum slope gradient of 1:20 (5%) or less, except where abnormal site conditions prevent this (e.g., sidewalk follows existing topography). Cross-slopes shall not be steeper than 1:48 (2%). Any slope gradient steeper than 1:20 (5%) shall be designed as a ramp **(See Section X)**

- For typical pedestrian routes (e.g., sidewalks located adjacent to street curbs with no landscaped boulevard in between), minimum width shall be 1600 mm (5’-3”), to provide a clear “travel zone” and to accommodate users of mobility aids (scooters, canes, crutches) and people with guide dogs**. (See Table 1)**

- For long routes, integrate wider areas, at frequent intervals of 30 metres or less, to allow passing, measuring a minimum of 1830 mm wide by 1830 mm long (6'-0" by 6'-0"). This will allow users of mobility aids to turn around easily, as well as groups of people to pass each other along busy routes.

- For busy pedestrian routes, such as those provided in core urban areas, along mainstreets and in Town Centres, preferred width is between 1830 and 3050 mm (6'-0" to 10'-0"). This allows two larger mobility devices (e.g., wheelchair or scooter) to pass one another at the same time, or for an adult and child to walk together. Before compromising larger dimension, consider reduction of non-pedestrian use areas. **(See Table 1)**

- No sidewalk on a bridge shall be less than 1220 mm wide (4'-0") where low pedestrian traffic is expected, and a minimum of 1680 mm (5'-6") wide where frequent pedestrian is anticipated (e.g., two-way pedestrian traffic).

Table 1: Pedestrian Routes Dimensions

User Description	Minimum Clear Width	
	Metric (MM)	Imperial (ft)
1 mobility aid user	1065	3'-6"
1 ambulatory pedestrian and 1 mobility aid user	1600	5'-3"
2 users of mobility aids	1830	6'-0"

Walking Surfaces

- All sidewalk and route surfaces shall be clean, stable, level, non-slip and well drained (e.g., maximum cross slope ratio of 1:48 or 2%). Materials that are not suitable include exposed earth, coarse gravel, sand and bark chips.

- Pedestrian circulation through parking lots and from the sidewalk to building entrances should be clearly defined with special paving, lighting and landscape treatment.

- Ensure polished surfaces are not used which can result in potential slipping hazards or also reflect glare, which is a problem for users with a vision loss.

- Brick pavers or interlocking stone used in sidewalks, paths and walkways shall be firm and level, with joints no greater than 6 mm (¼") wide. An even surface prevents tripping. Brick pavers shall also be installed on a firm base that is not susceptible to heaving (e.g., concrete base). It should also be installed to allow proper drainage of water, to prevent puddles from forming.

- For long and busy routes, brick pavers are not generally recommended since they are unlikely to have a perfectly level surface.

- Some specialty surface materials are not suitable for sidewalks, although they may have applications along walkways, or portions of walkways not required to be accessible (e.g., amenity strips). Split-face stone units, cobblestones and similar irregular surfaces are not easily traversed by pedestrians who have limited mobility, use canes, walkers, crutches or wheeled mobility devices (e.g., may catch a dragging foot or trigger a painful spasm in response to repeated jarring for some wheelchair/ scooter users).

Level Change

- Provide curb or other barrier protection, minimum height of 75 mm (3”), where there is a level change greater than 200 mm (8”).

Gratings and Covers

- Where there is any break in a walking surface, or where gratings or other covers are located in sidewalks for drainage, ensure that no opening is wider than 13 mm (½”) and that openings are perpendicular to the pedestrian path of travel, to prevent walking sticks and wheels from getting caught in the gaps.

- Wherever possible, provide clearly marked continuous amenity strips at the edge of the sidewalk to accommodate all street furniture (e.g., posts, mail boxes, trees, planters, bicycle racks and vending machines. See Section X). Amenity strips shall be at least 600 mm (2’-0”) wide and separated from the accessible pedestrian route by a colour-contrasted border that is a minimum of 300 mm (1’-0”) wide.

Headroom and Protruding Objects

- Ensure all accessible pedestrian routes are free of protruding obstacles from walls, overhanging signs and branches that project into the walking area, to prevent any potential bumping hazard for persons with a vision loss. The maximum allowable protrusion of objects into any accessible pedestrian route is 100 mm (4”), measured from surface level to a height of 2030 mm (6’-8”).

Resting Areas

- Where the length of accessible pedestrian routes leading to accessible entrances or site amenities exceeds 30 metres (100’-0”), level and firm resting areas shall be provided at intervals of 30 metres (100’-0”) or less. Surface of resting area shall be colour contrasted compared to accessible pedestrian route for identification by users with a vision loss.

- Position resting areas away from the path of travel, measuring a minimum of 1675 by 1675 mm (5’-6” by 5’-6”) to accommodate users of larger mobility aids (e.g., scooters), people with a guide dog or placement of a stroller, for example.

- For long routes, resting areas shall provide a minimum of one (1) accessible bench or seat, for people who have trouble breathing or with limited stamina. Seating to be mounted at 460 mm from floor (18”), with arm and back supports where there is only one seat/bench provided. A height range between 450 to 500 mm from ground (1’-5 ¾” to 1’-7 ¾”) is acceptable.

Pedestrian Intersections

Crosswalks

- Crosswalks at roadway intersections shall be located so that the sidewalk and the crosswalk are at right angles to one another. All such pedestrian routes shall be free of obstacles, such as light standards, traffic light supports, posts or catch basins as well as any temporary objects such as garbage containers.

- Intersection crosswalks shall have suitable curb ramps at each end of the walkway where sidewalks are provided, or wherever level differences of more than 19 mm (e.g., ¾") occur. See Section X for detailed curb ramp specifications.

- Avoid the use of traffic islands or safe-waiting areas in the middle of intersections, as increasing the time allowed for crossing long intersections is safer and preferred for all users. If traffic islands are provided, detailed guidance and considerations are also necessary for review.

- Cross walks shall be at least 1980 mm (6'-6") wide and clearly marked by 100 mm (4") painted white or yellow lines, or by using distinctive, highly contrasting paving materials.

- Pedestrian crosswalks located between intersections shall include appropriate curb ramps at each end, and be located so that there is a clear view of traffic, in each direction, and sufficient distance from the intersection to permit a safe crossing.

- Wherever traffic lights are provided, a clearly identifiable pedestrian push button shall be located adjacent to the crosswalk and mounted on a nearby post at a height of 1065 mm (3'-6"). Paving shall be level at posts, providing at least 915mm X 1220mm (3'-0" X 4'-0") clear approach area for pedestrians.

- For unique roadway and traffic conditions, additional safety and design considerations are required beyond the scope of accessibility criteria, including use of traffic islands and roundabouts.

Pedestrian Traffic Signals

General Considerations

- Many seniors and people with different types of disabilities require additional time to make a safe crossing at long intersections. Additionally, people with a vision or hearing loss require Accessible Pedestrian Signals (APS) at intersections for safe crossing (e.g., assurance that they are crossing at the right time and in the right direction). As a result, both the timing of pedestrian traffic signals (e.g., especially at long intersections or crosswalks), as well as the provision of Accessible Pedestrian Signals is an important consideration (e.g., Use of "Count Down Signals"), including establishing priorities for installation at existing intersections. (Note: Elderly persons using walkers or canes may require as long as one minute to navigate 15 to 35 m (50'-0" to 115'-0").

RESERVED - Accessible Pedestrian Signals (APS)

- Formerly referred to as “audible pedestrian signals”, accessible pedestrian signals are an important design feature at signalized intersections, for users with a vision loss, as well as people who have both a vision and hearing loss (deafblind). Refer to the Canadian National Institute for the Blind’s (CNIB) “Position Statement on Accessible Pedestrian Signals”.

- At the time these Guidelines were developed, the Transportation Association of Canada was developing standards for Accessible Pedestrian Signals (APS). These Accessibility Guidelines will be updated with new research and information when it is published.

Fig: Walking Surfaces, Headroom and Projections (A12, 14)

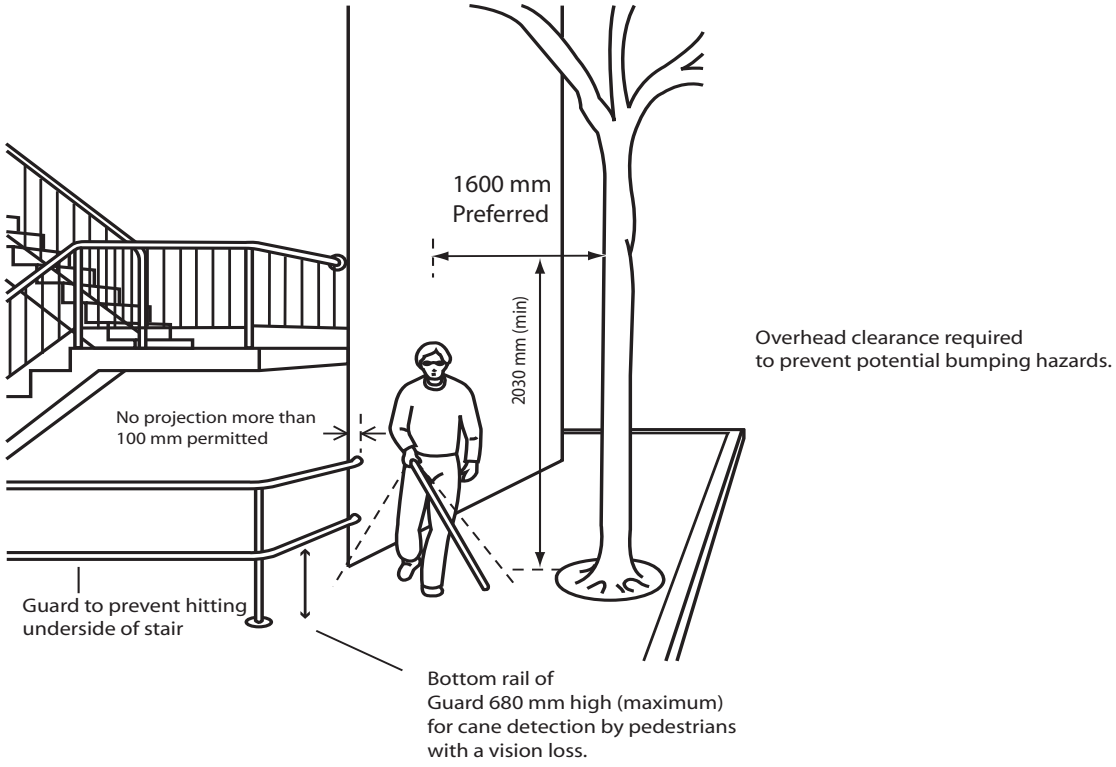
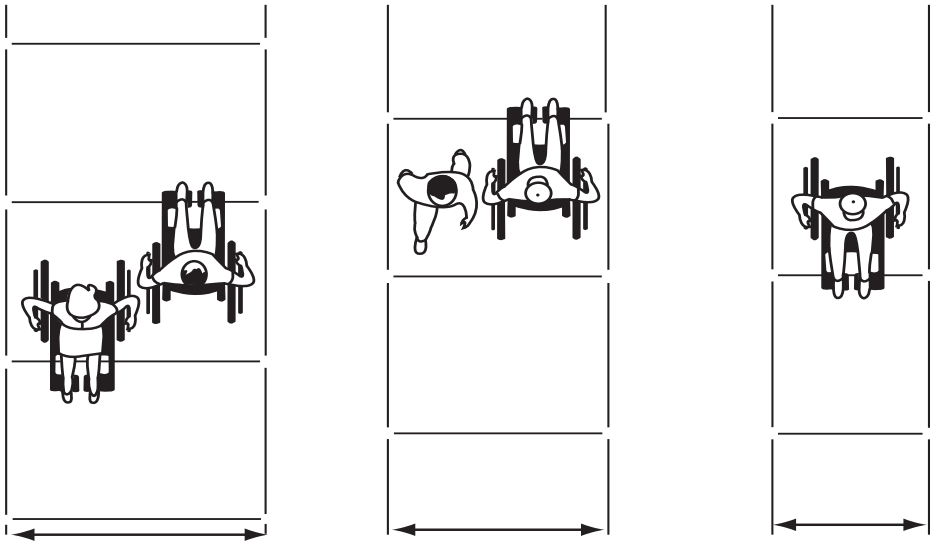


Fig: Pedestrian Route Dimensions (A13)



1830 mm (minimum)
2 Users of Mobility
Aids

1525 mm (minimum)
One Ambulatory
Pedestrian and
One Mobility Aid User

1065 mm (minimum)
One Mobility
Aid User

Fig: Gratings and Covers (A14)

Note: Openings Larger than 13 mm will potentially catch wheelchair wheels or canes.

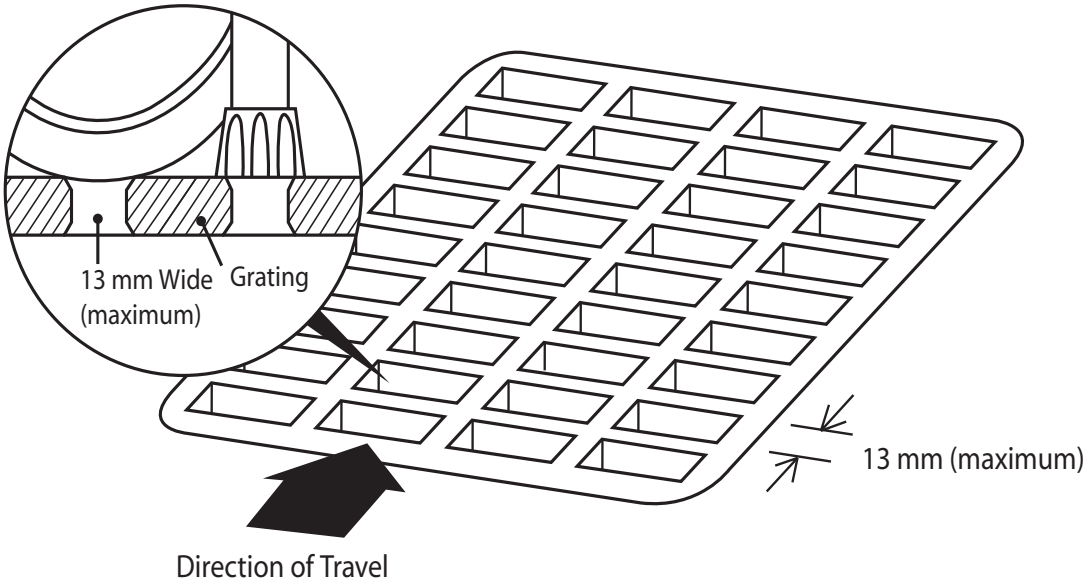
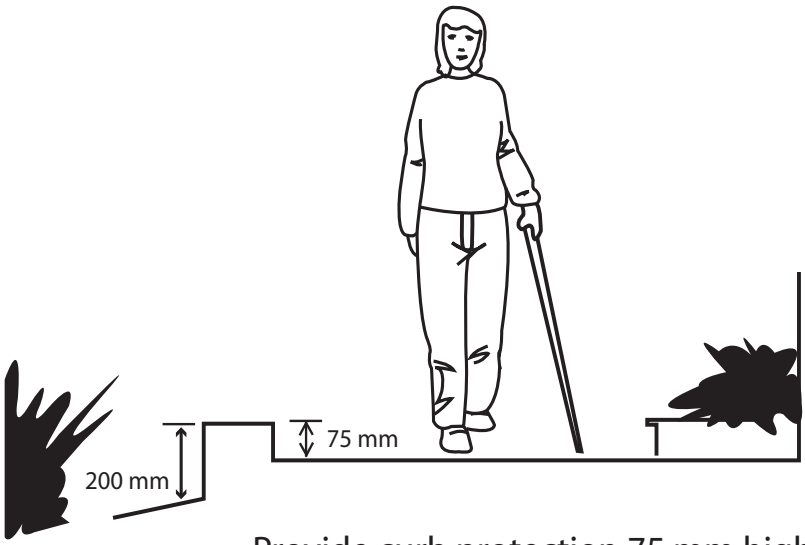
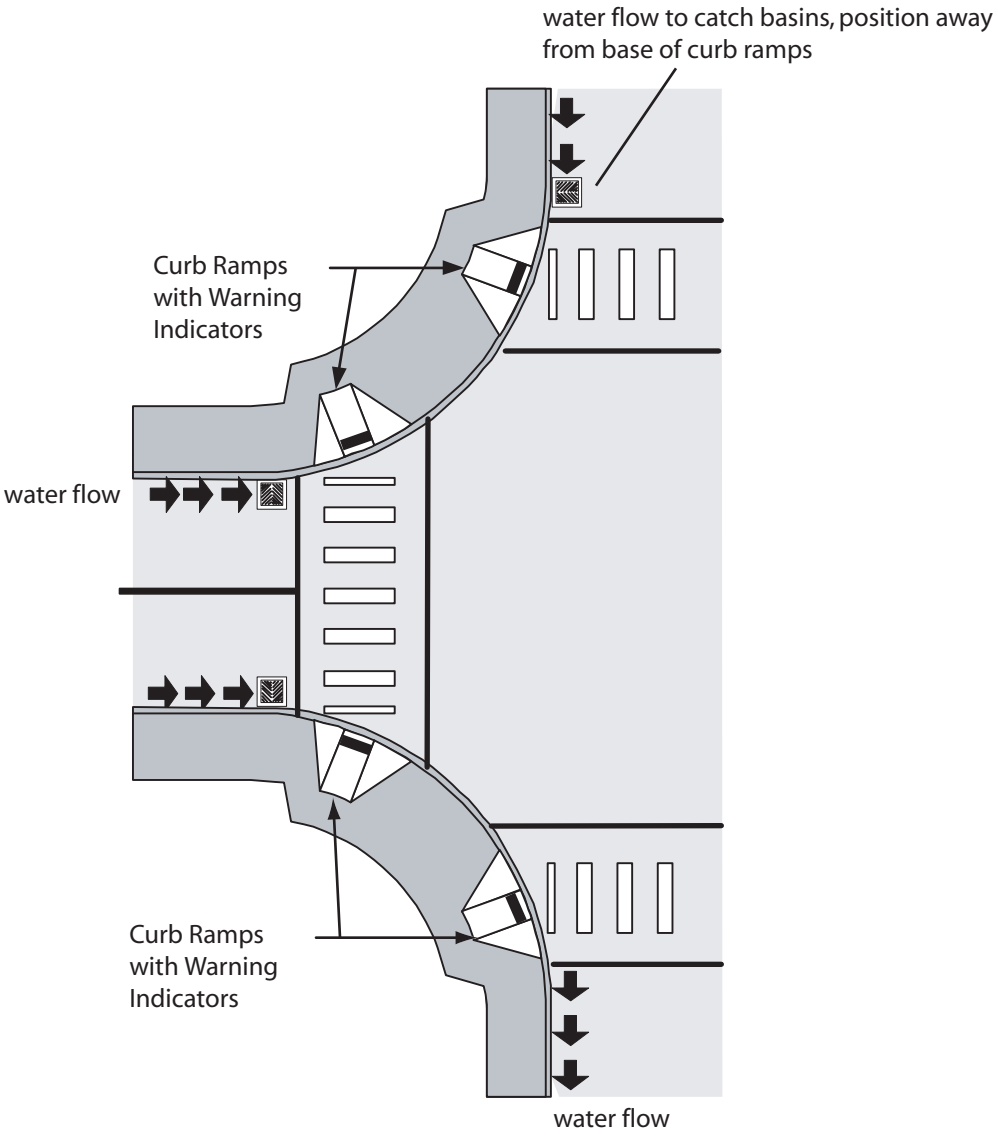


Fig: Level Change (A14)



Provide curb protection 75 mm high (minimum) when change in level is greater than 200 mm from walking surface.

Fig: Pedestrian Intersections - Cross-walks and Curb Ramp Orientation (A13)



Level Changes

Curb Ramps

Rationale

Wherever there are changes in level between a street and pedestrian route, sidewalk or other similar path of travel, an accessible curb ramp is required. Accessible curb ramps provide a safe path of travel for all pedestrians including users of mobility aids (e.g., scooters, wheelchairs), parents with strollers and people with a vision loss. Curb ramps are also recognized as the best indicator for people with vision loss to detect the edges of a path of travel. Wherever possible, accessible paths of travel shall have a minimum number of curb cuts to keep sidewalk as level as possible.

Cross-slopes on sidewalks and ground or floor surfaces can cause considerable difficulty in propelling a wheelchair in a straight line. Because the cross slope of a sidewalk is typically aimed toward the roadway, the pedestrian who loses traction or balance will be directed toward the street. In wet or freezing weather, travel across a slope always carries the threat of sliding into the roadway.

Pedestrians who use crutches are particularly susceptible to cross slope when they are traveling downhill. Children, including children with disabilities and those using bicycles and other wheeled toys, are primary users of sidewalks in residential areas and are significantly less able to compensate for cross slope than adults.

Driveways, where narrow sidewalks are immediately adjacent to the curb are the most frequently encountered example of excessive cross slope along a pedestrian route. A level area with minimal cross slope is necessary for accessible passage across a driveway. Driveway aprons that are constructed like ramps, with steep, short side flares, can render a section of sidewalk impassable, especially when encountered in series (e.g., residential neighborhoods). Compound cross slopes, such as those that occur at the flares of a driveway apron or curb ramp, may cause tipping and falling if one wheel of a chair loses contact with the ground or the tip of a walker or crutch cannot rest on a level area. A walker must have a flat plane to rest on if it is to provide adequate support.

Accessible Design Criteria

Provision and Dimensions

- Provide curb ramps wherever there is a level change between the accessible pedestrian route (e.g., sidewalk) and the road surface, typically at all intersections and crosswalk locations.

- Ensure the maximum slope of curb ramps is 1:8 (12%), for level changes up to 150 mm (6”) high maximum. For greater level changes between 150 mm (6”) and 200 mm (8”), the maximum slope of curb ramps shall be 1:10 (10%). Vertical changes that exceed 1/4 inch (6 mm) in elevation at adjoining surfaces can cause front casters to swivel and “refuse” at a curb ramp or entrance threshold. Like vehicles, wheelchairs risk “bottoming out” or “getting hung up”, where opposing slopes are not connected by a level area (e.g., when coming down a curb ramp onto roadway). Additionally, too sudden of a drop while descending (steep slope} can propel a pedestrian from their wheelchair or scooter.

- Width of curb ramp (e.g., path of travel) shall be a minimum of 1525 mm (5’-0”) wide. If provided, flared sides shall be non-slip, with a slope no steeper than 1:10, in order to prevent potential slipping / tripping hazards when approaching from side.

- Level landings shall be provided at the top of all curb ramps. The landing clear depth shall be a minimum of 1220 mm (4’-0”), with a clear width at least the same as the curb ramp, at 1525 mm (5’-0”) minimum. This does not include the flared sides leading to the landing. A clear landing measuring 1675 by 1675 mm (5’-6” by 5-’6”) is preferred at the top of curb ramps wherever possible, to accommodate users of mobility aids and larger groups of pedestrians.

Location and Surfaces

- Position curb ramps and **detectable warning indicators** to guide pedestrians within the safe crossing zone of the street (e.g., in between pavement markings, such as white or yellow lines).

- Position curb ramps and flared sides where they do not project into vehicular traffic lanes. Locate curb ramps at marked intersections within the markings, excluding flared sides.

- Ensure surfaces of curb ramps are non-slip and colour contrasted with road surface. Provide **detectable warning indicators** (e.g., truncated domes), 610 mm (2’-0”) depth, on curb ramp surface for users with a vision loss. Detectable warning indicators shall extend the full width of the curb ramp, set back from curb edge between 150 to 205 mm (6” to 8”).

- Provide truncated dome size and spacing, as per Figure X. Truncated dome base diametre shall be 23 to 36 mm (1” to 1 ½”), spaced 16.5 mm (3/4”) base to base, with dome height of 5.1 mm for cane or foot detection.

- Ensure curb ramps are designed and located to prevent accumulation of water, silt or melting snow, with manhole covers, catch basins and related gratings located away from the accessible pedestrian route (e.g., upstream side). Counter slopes of adjoining gutters and road surfaces immediately adjacent to the curb ramp shall not be steeper than 1:20.

Additional Comments

- Where steeply sloping landscaped areas are located adjacent to pedestrian routes, a clear boundary edge, such as a curb or retaining wall, 150 mm (6”) high minimum, is desirable as a locational aid for persons who have a vision loss. **(See Section X)**

- Where the grade drop-off adjacent to the sidewalk is between **200 to 610 mm** (8” to 2’-0”) provide a colour contrasted curb 75 mm high (3”) minimum. Where the drop-off exceeds **610 mm (2’-0”)**, a handrail or guard is required. **(See Section X)**

- Wheelchair users whose upper body mobility is limited can be thrown from their seats by differentials in cross slope occurring over a small distance. Manual chairs, although more maneuverable than battery-heavy power chairs, are much more likely to tip on compound slopes. When this happens, it is difficult to recover control, direction, and traction, resulting in a potential hazard.

Fig: Typical Curb Ramp Elevation (A20, 21)

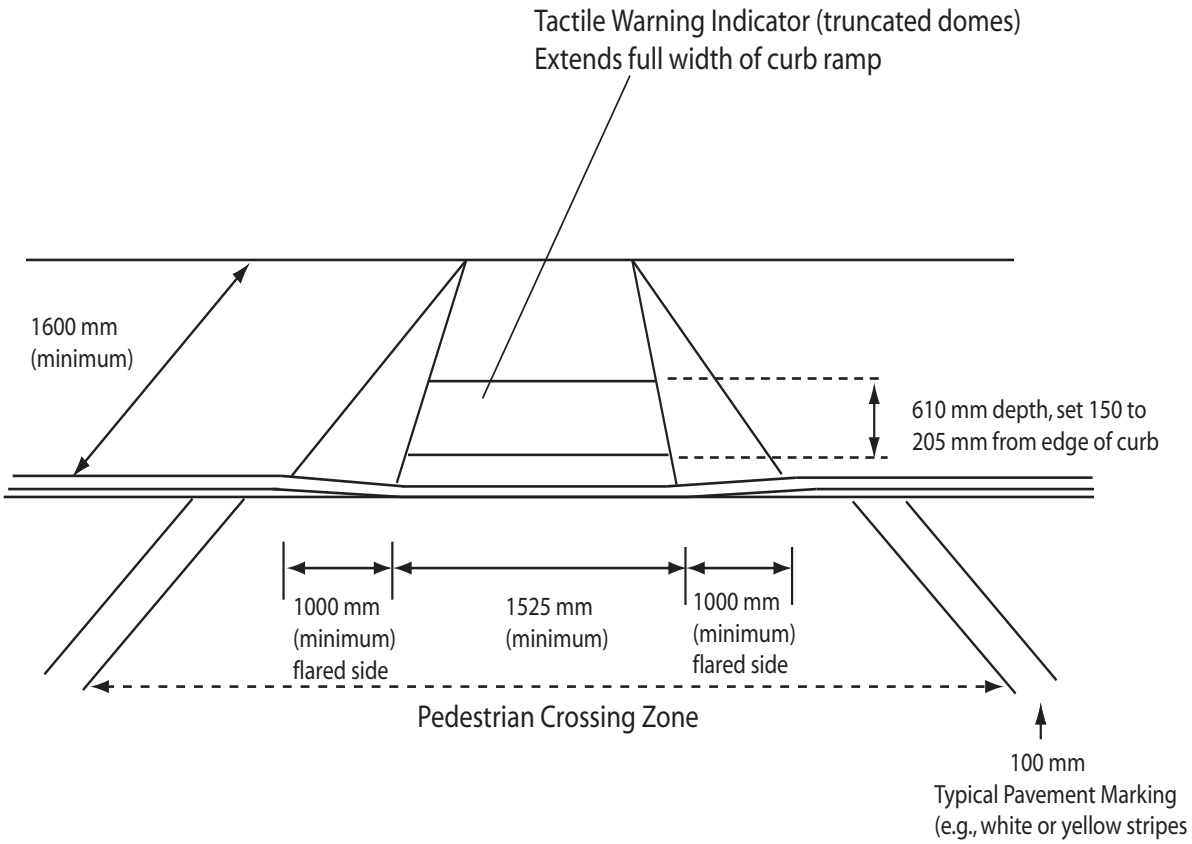


Fig: Truncated Dome Size and Spacing

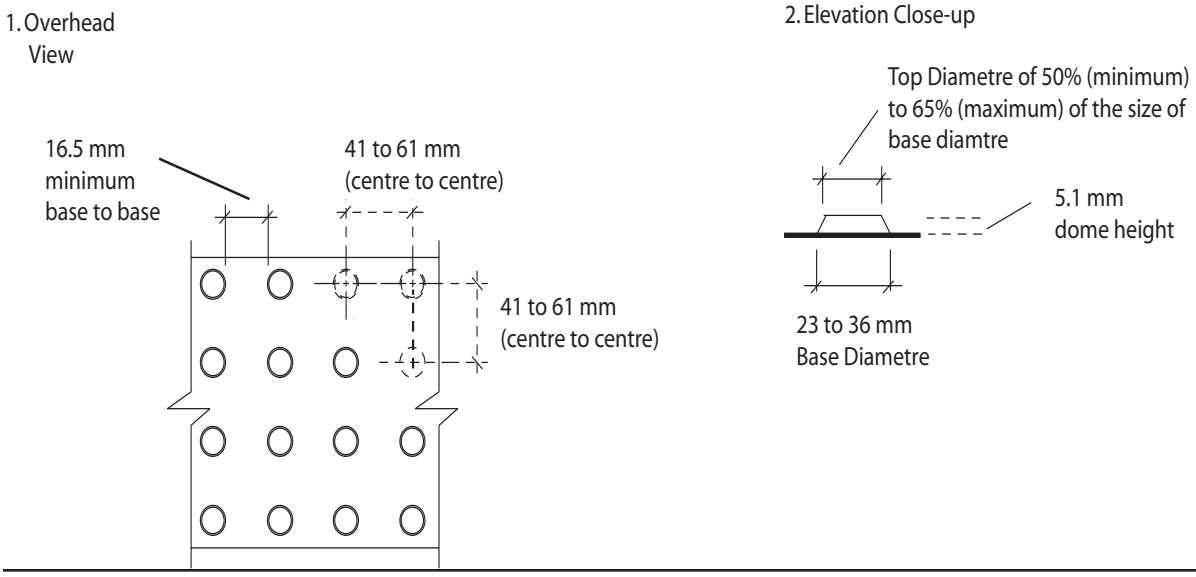
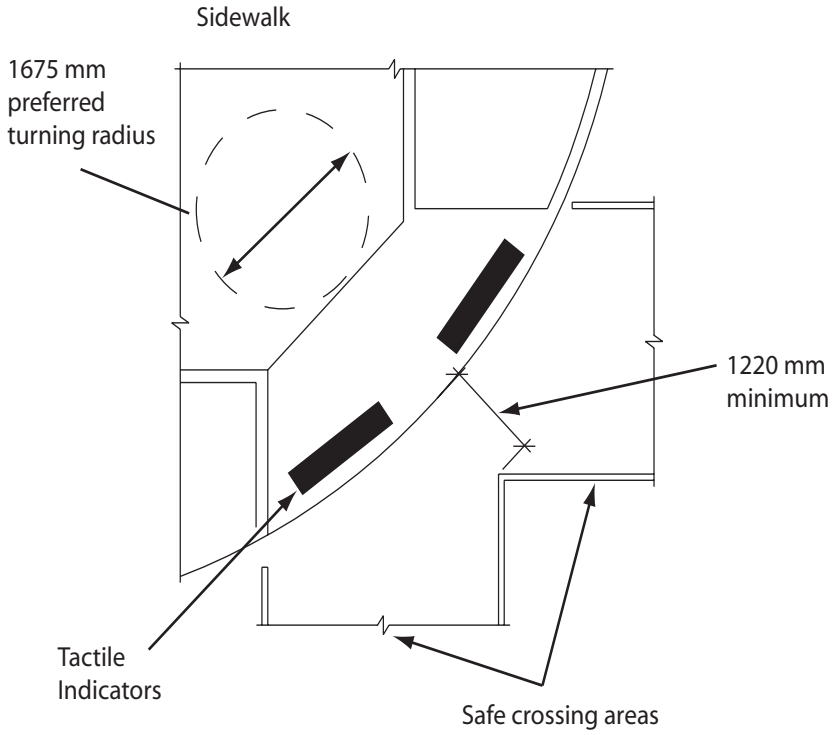
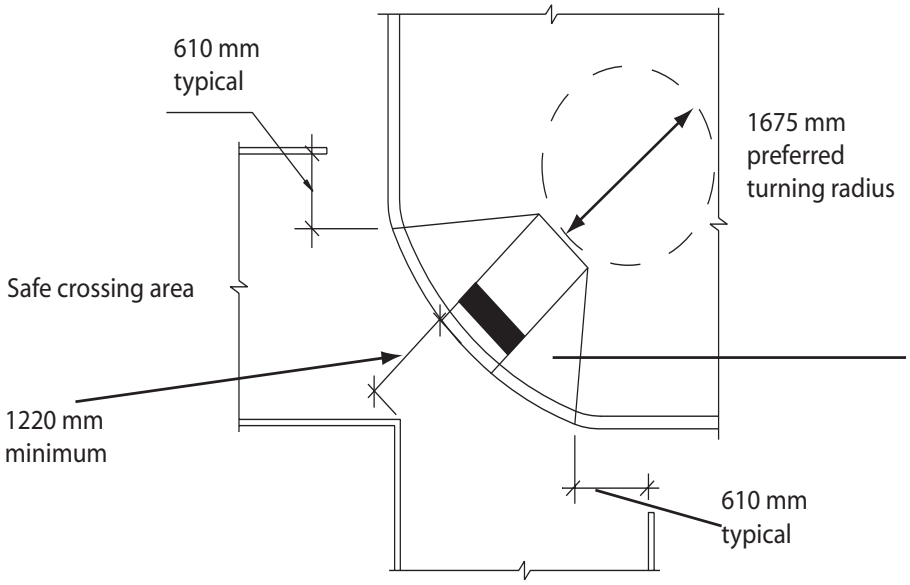


Fig: Curb Ramps (A21)

1. Blended Curb Ramp at Intersection





Ramps

Rationale

Major level changes throughout a site frequently pose challenges to designers, especially when adapting an existing site, where it is more appropriate to look at the broader context rather than a piecemeal approach. For example, it may be possible to change ground levels and landscaping in greater detail to eliminate the need for steps or a ramp altogether, which tend to be more "obtrusive" and separate the needs of different building users. Approaches and entrances to buildings can often be made more prominent with well-designed landscaping, quality walking surfaces or use of other features (e.g., canopies), rather than introducing a level change.

For some users, stairs are preferred over ramps as they are easier to ascend and descend. Therefore, providing a combination of both stairs and ramps is the preferred design solution and when there is not enough space for both and when a level change is absolutely necessary, a ramp or series of longer, more gradual slopes must be provided. When integrated into the design from the very beginning of a project, a well-designed ramp can facilitate the movement of users of mobility aids, parents with strollers, groups of people and others simply completing common tasks such as delivering goods and services.

Whenever a level change is being considered and the gradient is steeper than 1:20, it shall be designed as a ramp based on the following criteria.

Accessible Design Criteria

Slope and Dimensions

- Provide a running slope no steeper than 1:12 (8.33%), with individual ramp sections no longer than 9 metres (29'-6"). Where space is available, more gradual slopes between 1:15 (6.7%) to 1:20 (5%) are preferred by users of mobility aids and people with limited mobility. Where a slope of 1:20 is used, pedestrian route is recognized as a sloped walkway and not a ramp and does not require ramp design features.

- Ensure cross-slope is a maximum ratio of 1:50, to ensure safe movement throughout the accessible pedestrian route.

- Provide clear width of 1220 mm (4'-0") preferred for ramp surface, or 915 mm (3'-0") minimum. Where ramps are specifically designed for use by persons with a vision loss, ramp surfaces up to 1525 mm (5'-0") wide are preferred, in order to allow space for a companion or a guide dog.

- Ensure no door opens directly onto a sloping section of a ramp. Doors can open onto ramp landings, allowing users to approach door safely and use door hardware. Landings also ensure users of mobility aids are not forced down ramp when exiting facility and allow users to proceed down ramp safely, at their own pace.

Landings

- Provide minimum landing dimensions of 1675 by 1675 mm (5’-6” by 5’-6”) at top, bottom and intermediate landings, including where doors open onto a ramp landing (e.g., typical where ramps return upon themselves (e.g., switchback) or doors open onto a ramp landing).

- Intermediate landings are required for long ramps to provide resting areas for users. Ensure resting areas are offset from the pedestrian accessible route (path of travel). Intermediate landings are typical for “switchback” type ramps that return upon themselves (e.g., sloping sections, side by side).

- Ideally, and if space is available at the start of a new project, larger landings measuring 2440 by 2440 mm (8’-0” by 8’-0”) or more are preferred to accommodate a wider range of mobility aids.

Additional Design Criteria

Surfaces

- All ramp surfaces shall be firm, level and non-slip, with a matte finish to prevent glare and ensure they are located and designed to allow suitable drainage. Covered ramps protect users from poor weather conditions and are preferred, as well as consideration of heated surfaces, to prevent snow and ice accumulation during winter conditions.

- Install colour-contrasted, textured warning indicator strips or markings at the leading edge of all ramp or landing surfaces, for users with a vision loss. Indicators shall be a minimum of 50 mm (2”) thick, extending the full width of the ramp or landings.

Edge Protection

- Where ramps or landings have no sidewalls, provide edge protection along bottom of ramp surface using a curb at least 75 mm (3”) high. This curb acts as a safety stop for the front wheels of mobility aids, or ends of walking aids such as crutches and canes. If ramp does not have overhead protection or heated surfaces, provide raised curbs or guards for ramp edge protection, no higher than 75 mm (3”) from surface, to allow for the removal of water, dirt, snow and ice.

- A solid barrier or guard shall be provided wherever the grade differential on the open side of the ramp or landing is greater than 600 mm (2’-0”). Solid guards with no openings are preferred to prevent climbing by children. Guard height, measured from the top of the ramp surface to the top of the guard, shall be a minimum height of 1070 mm (3’-6”).

Handrail Provision

- Ramps with slopes between 1:12 and 1:20 require handrails on both sides for all users. All handrails shall provide a smooth, continuous gripping surface throughout ramp length and around landings. **(See Section X for accessible design criteria for Handrails and Guards).**

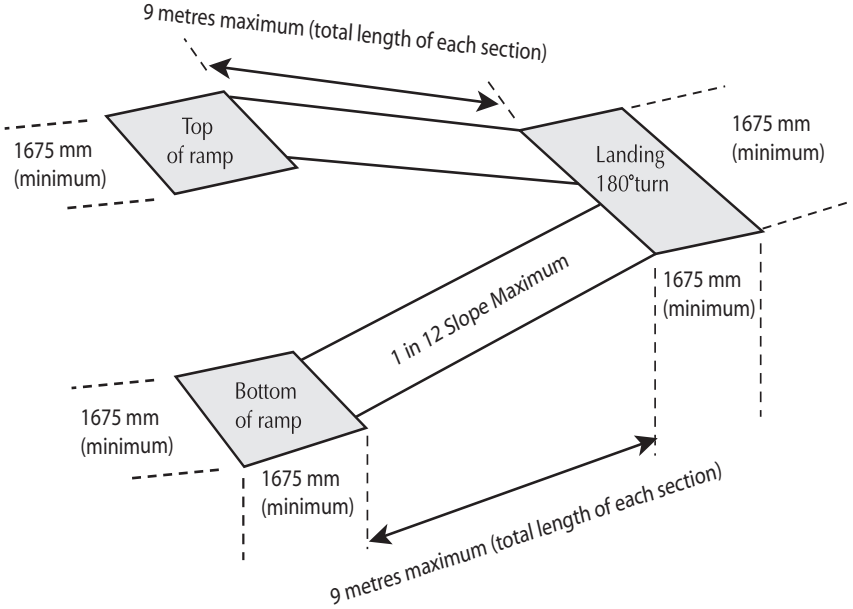
- Width of ramp surface between at least one set of handrails shall be a maximum of 1100 mm (3’-8”) preferred, or a minimum of 865 mm (2’-10”), to allow persons using mobility aids to move easily and to grasp the handrails if they prefer to pull/push themselves while ascending or descending.

- Handrails on ramps shall be mounted between 865 mm and 965 mm (2’-10” to 3’-2”) high from surface. Handrails to provide a smooth, continuous surface from the top to bottom of the ramp and around landings, without breaking user’s handhold.

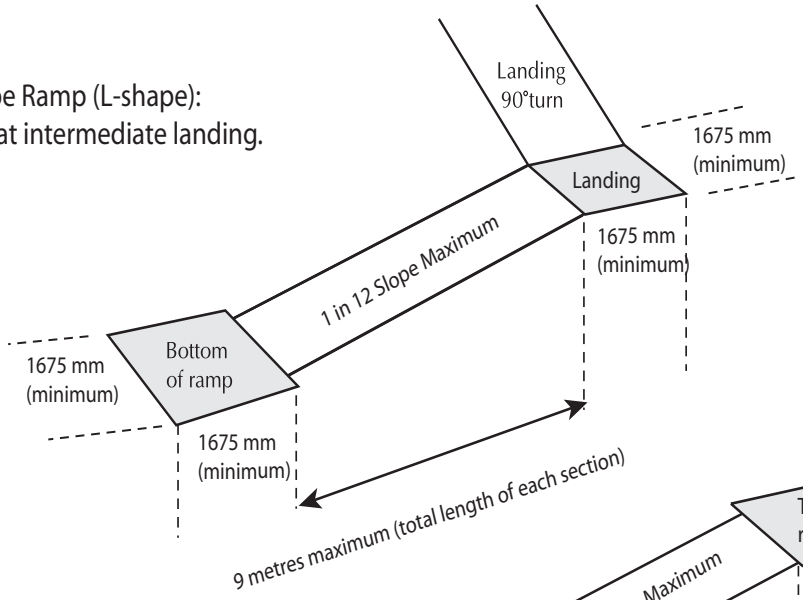
- No handrail is required for a ramp serving as an aisle for fixed seating (e.g., assembly areas).

Fig: Ramp Dimensions and Configuration (A25)

1. "Switch-back" Type Ramp (U-shape): 180 degree turn at intermediate landing.



2. "Dog-leg" Type Ramp (L-shape): 90 degree turn at intermediate landing.



3. Long Straight Ramp: Sloping sections at 9 metres length (maximum permitted)

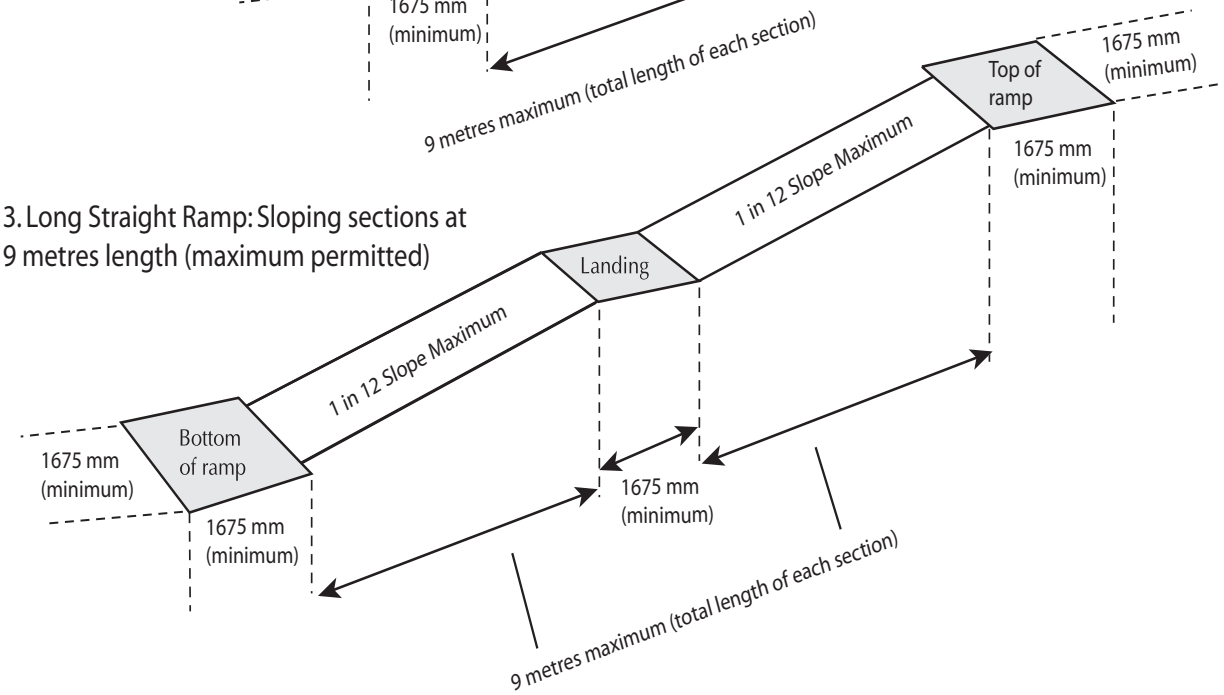


Fig: Ramp Edge Protection (A27)

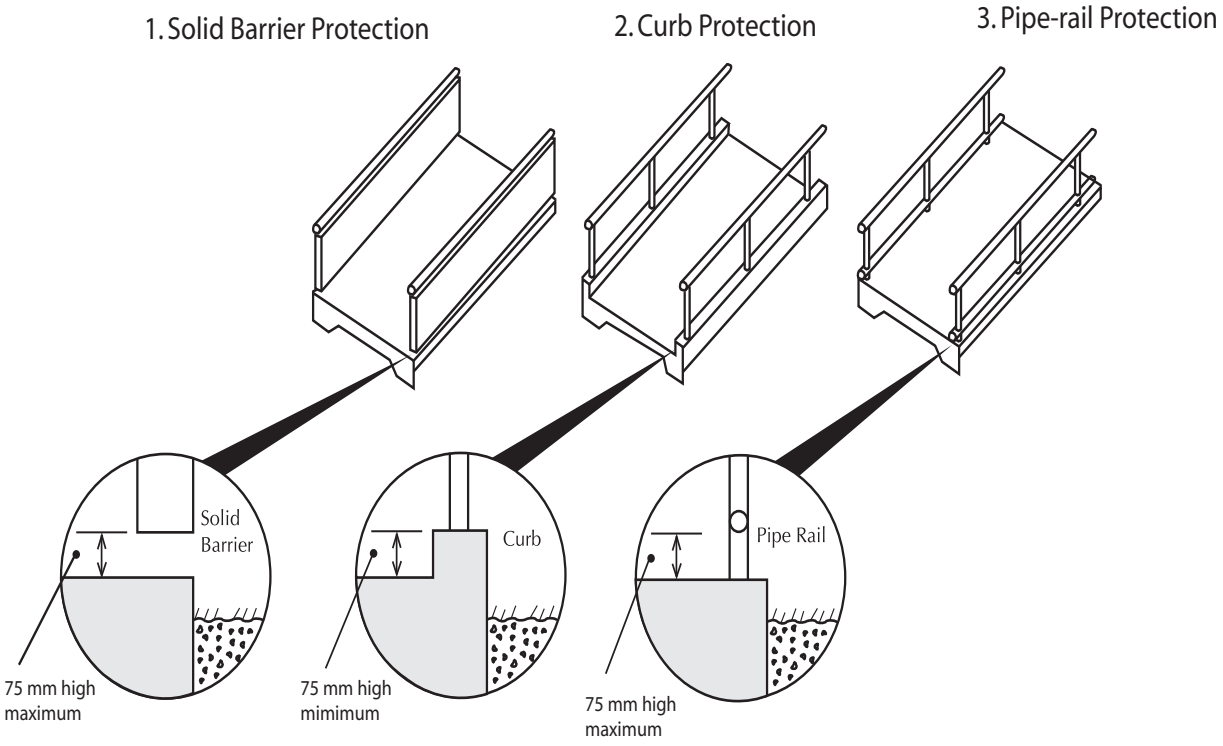


Fig: Level Changes - Distance Between Handrails on Ramp (A27)

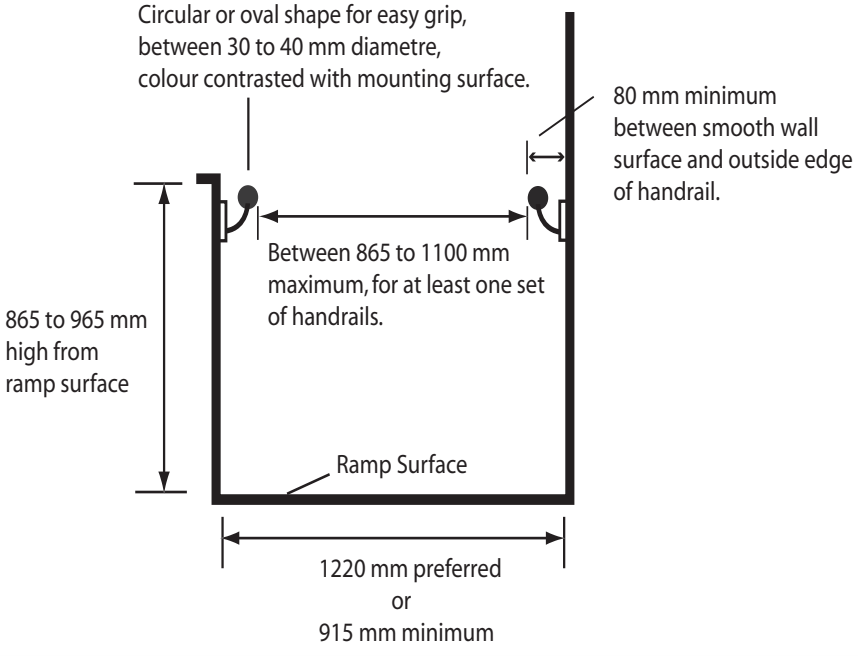
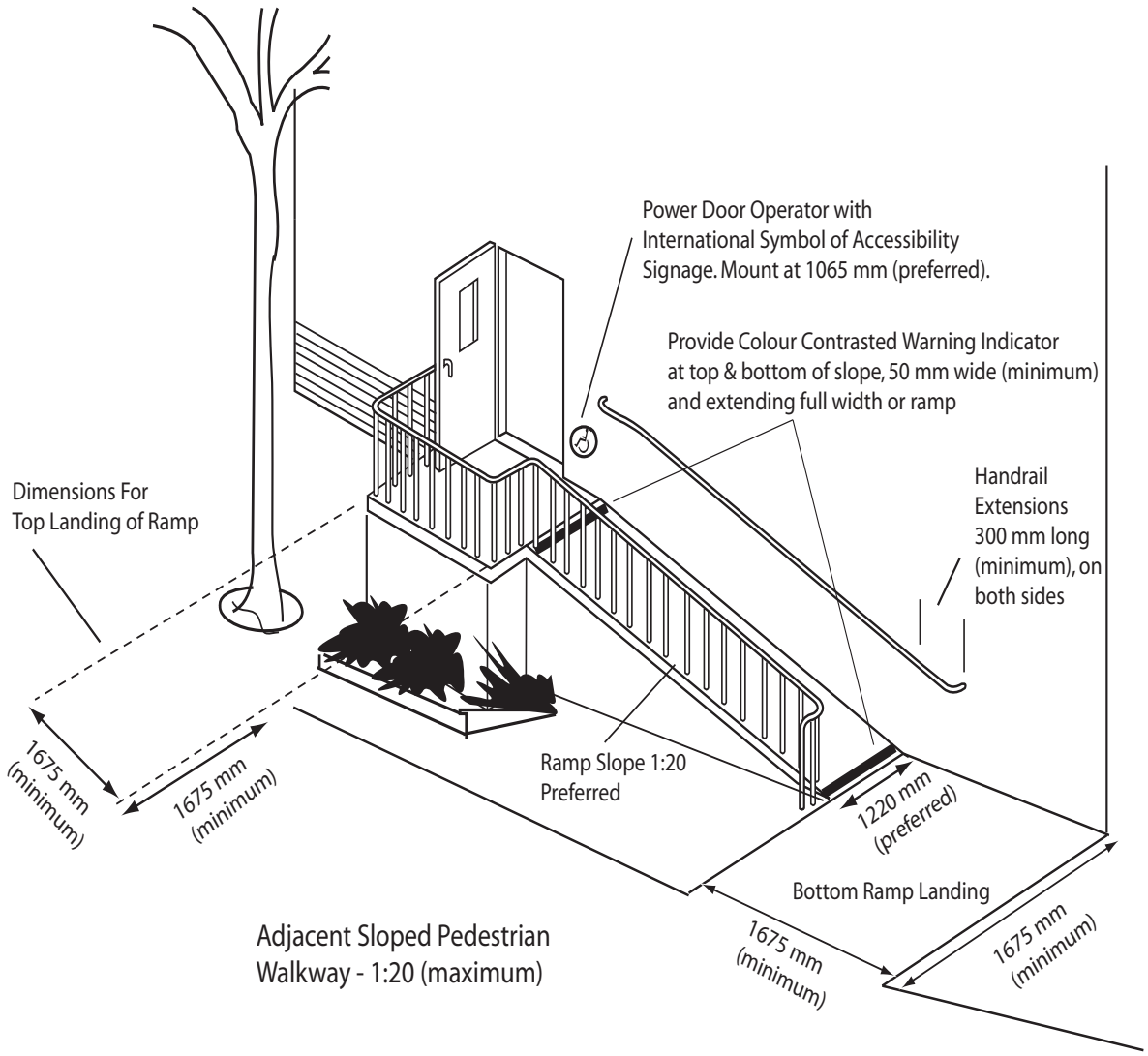


Fig: Level Changes - Typical Ramp Features



Stairs and Steps

Rationale

Some ambulatory people with a vision loss, limited stamina or difficulties balancing consider stairs easier to use than ramps. Where there is a significant level change and level access is not possible, it is preferable to provide both stairs and a ramp. It is essential that stairs are designed with all users' needs in mind and that they do not create a hazard (e.g., uniform tread depths and riser heights are important) or do not require too much effort to use (e.g., long flights of stairs without any intermediate landings).

Handrails ensure safe descent and climbing of stairs for all users and can be an additional wayfinding guide for users with a vision loss if a strong colour contrast is integrated within their design.

Colour contrasted stair nosings and tactile surface indicators at the head of stairs act as a warning and increase the visibility of each step when descending, preventing any potential tripping hazard. This is especially important for users with a vision loss, but also beneficial to other users who may be in a hurry.

Accessible Design Criteria

Dimensions

- Provide clear stair width between handrails of 1220 mm (4'-0") minimum.

Treads and Risers

- No open risers are permitted, recognizing they present a potential tripping hazard for many users, especially young children or people with a vision loss. Solid risers are used as guides to lift feet up to the next step, for people with limited mobility using walkers, crutches and canes.

- Provide risers and treads with uniform dimensions (e.g., height and depth) to ensure safety of all users and prevent slipping/tripping. Risers shall be between 100 mm (4") and 180 mm (7") high. Treads shall be a minimum depth of 280 mm (11").

Surfaces and Nosings

- Ensure all stair/step surfaces are designed with a glare-free finish, are level, non-slip and are well maintained at all times (e.g., kept clear of dirt and debris).

- Nosings shall project a maximum of 38 mm (1 ½") over the tread below, with no abrupt undersides that could present a tripping hazard. Leading edge of nosing shall be a rounded or bevelled profile of 13 mm or less (1/2"). Where projecting, nosings shall be sloped to the riser at an angle greater than 60 degrees to the horizontal.

- Provide marking strips 50 mm wide (e.g., thickness) on nosings. Strips shall have a strong colour contrast, compared with the riser/tread and they shall be highly durable for exterior weather conditions. Marking strips shall be non-slip (e.g., carburundum) and extend the full width of each stair/step. Marking strips can also be fully integrated within the design of the nosing or finish used on the tread.

- Provide cane detectable and textured warning indicator at the top and bottom of all flights of stairs or steps. Warning indicators shall be a minimum of 915 mm (3'-0") deep, extending the full width of the stair/step. To provide sufficient warning of upcoming descent for users with a vision loss, warning indicator shall be set back from the stair at least 280 mm (11"), or equal to the depth of one tread.

Handrail Provision

- Provide continuous handrails on both sides of all exterior flights of stairs or steps, which include three (3) or more risers, including extensions at top and bottom. **See Section X** for accessible design criteria for Handrails and Guards.

- Include an intermediate (middle) handrail for all flights of stairs or steps that are 1980 mm (6'-6") wide or greater, which is preferred, as an aid to persons with limited mobility or vision loss.

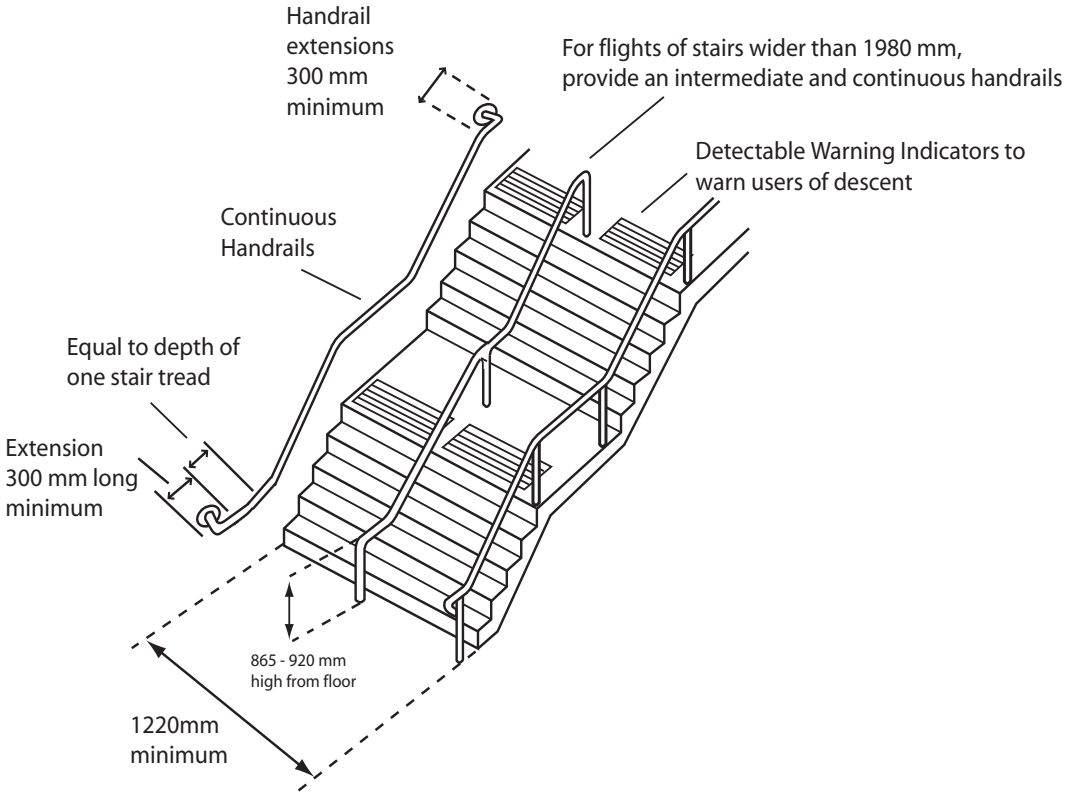
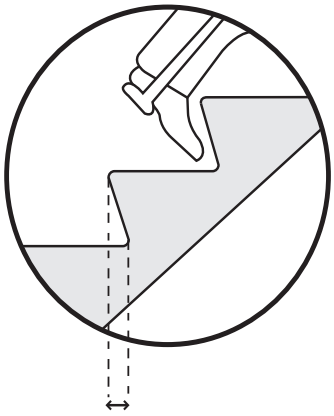
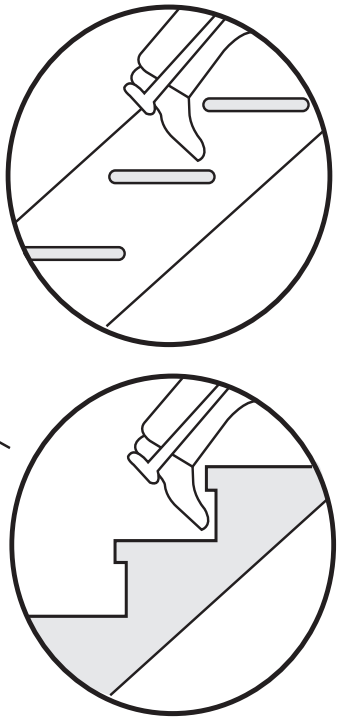


Fig: Stair Treads and Risers (A31)

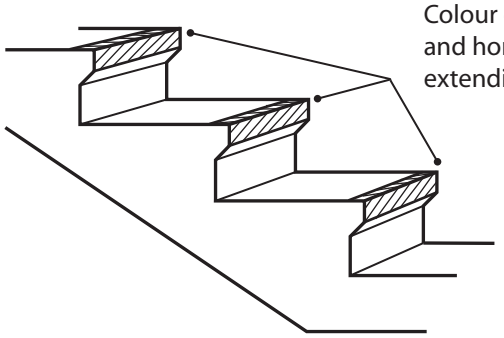


Bevelled or rounded nosing
38 mm (maximum)



Open risers and
projecting or abrubt
nosings are a tripping
hazard

Fig: Stair Nosing Colour Contrast (A32)



Colour contrasted nosings on both vertical and horizontal risers, 50 mm depth (minimum), extending full width of the stair tread

Guards and Handrails

Rationale

Both guards and handrails are important safety features for all users when there are significant level changes, including where ramps or stairs are provided for accessibility. Handrails and guards help people to maintain balance, prevent falls, offer support and orientation and they can also serve as a wayfinding cue for users with a vision loss.

Accessible Design Criteria

Guards

- Provide guards on both ramps and stairs wherever level change exceeds 610 mm (2'-0").
- Design and install guards that ensures a clear sight line for seated persons, including users of mobility aids, where provided on terraces or viewing platforms.

Handrails

- Provide on both sides of all ramps or stairs, where there are three or more steps, or where the rise exceeds 610 mm (2'-0"), with non-abrasive and continuous gripping surfaces that are not interrupted by mounting brackets.
- Mount to resist a force of 1.3 kN applied in any direction.
- Ensure gripping surface is smooth and rounded (preferred), with a diameter between 30 to 40 mm (1 ½" to 1 ¾") maximum.
- Mount all handrails at consistent height, between 865 and 920 mm (2'-10" and 3'-0") high from mounting surface (or measured from leading edge of stair tread).
- Extend horizontal sections of handrails 305 mm (1'-0") minimum, beyond the top and bottom risers of all flights of stairs or ramps. At the bottom of stairs, handrail shall extend the same distance as one tread depth, measured from the first riser, then horizontally for 300 mm (1'-0"). Handrails on the inside curve of stairs or ramps are not required to extend more than 100 mm (4").
- Terminate ends by turning down or mounting sideways (e.g., handrails return to wall) to prevent potential bumping hazards if handrails project into accessible pedestrian routes. This also serves as a visual and tactile guide for persons with a vision loss.
- Provide a strong colour contrast on all handrails as compared to their mounting surfaces, to ensure they are highly visible for all users, including people with a vision loss.

Fig: Handrail Extensions for Ramps and Stairs (A35)

Fig: Top and Bottom Handrail Extensions For Ramps

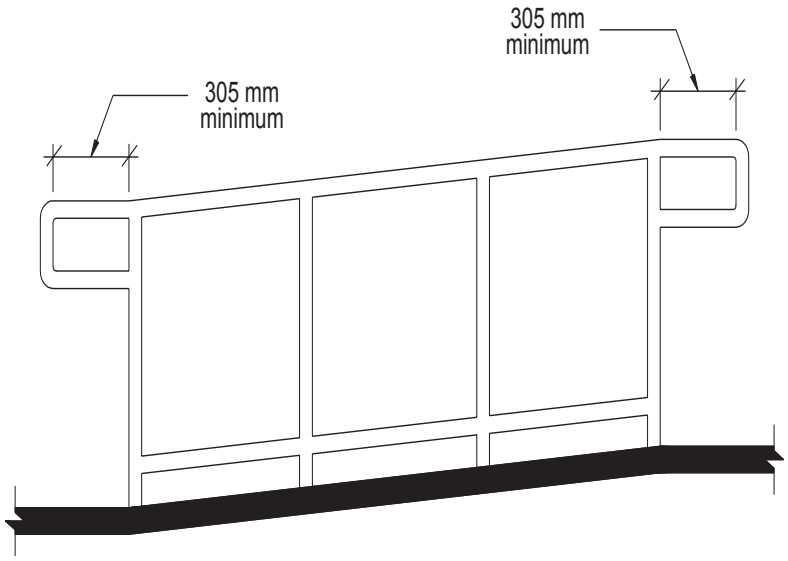


Fig: Top Handrail Extension at Stairs

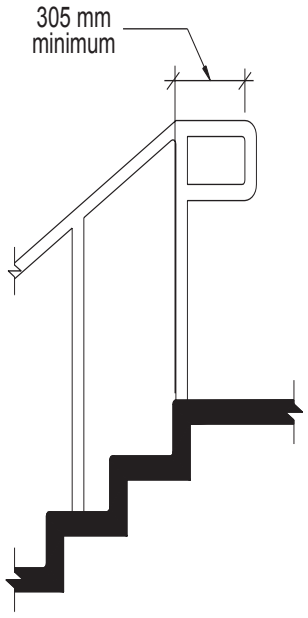
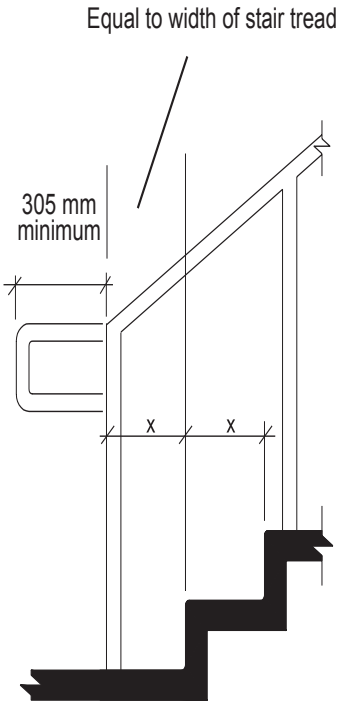
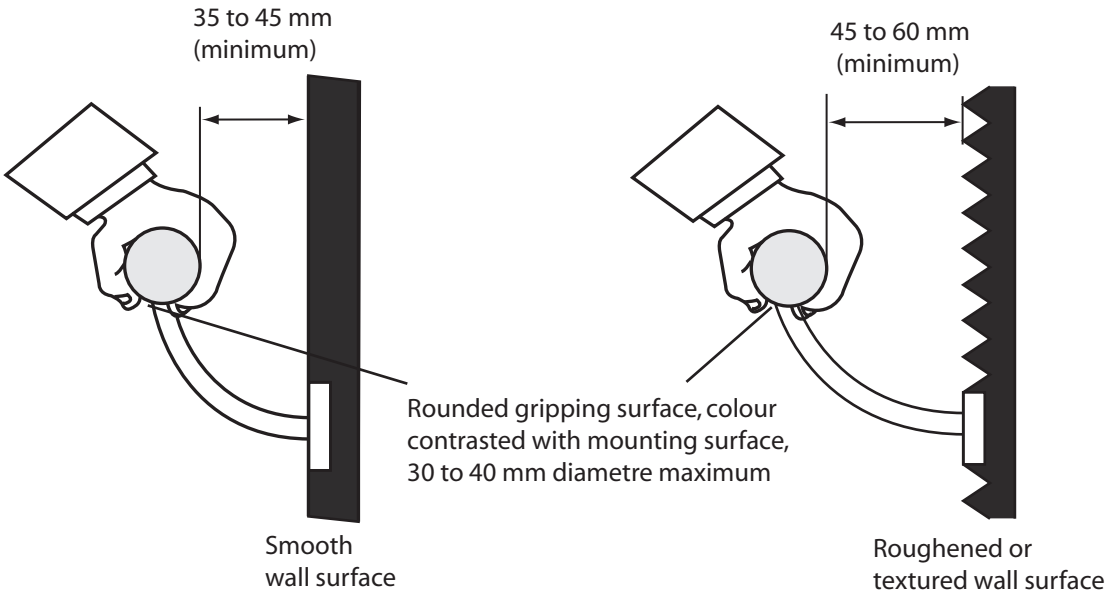


Fig: Bottom Handrail Extension at Stairs




35 to 45 mm
(minimum)
45 to 60 mm
(minimum)
Rounded gripping surface, colour
contrasted with mounting surface,
30 to 40 mm diametre maximum
Smooth
wall surface
Roughened or
textured wall surface

Public Amenities

Street Furniture

Rationale

Streetscapes in both urban and rural environments are diverse, with respect to the people that use them as well as elements that make up the built environment. Pedestrian comfort is typically enhanced by street trees, signage that does not dominate the landscape, the scale and location of adjacent buildings, lighting and the collection of street furnishings that establish the character of a street. Accessible and connected streetscapes will lead to a healthy public and private realm. A key feature to an enhanced public realm is the implementation of consistent principles such as the provision, design, placement and scale of street furniture.

Street furniture consists of diverse amenities and elements installed in the public right-of-way for the convenience and use of the general public, such as benches, transit shelters, signage and news paper boxes, for example (See Table 1). Overall, a successful streetscape will help promote local businesses and retailers, as well as access to government services, if developed with consistency and managed properly over time to accommodate change. The provision of street furniture should be coordinated to enhance the usability and appearance of streetscapes for all users and prevent clutter and potential obstructions that result when street furniture is provided and arranged in an "ad hoc" manner. Some design principles to consider that address a range of issues and enhances pedestrian circulation and safety include:

- **Provide a dedicated "amenity strip", set to one side of main pedestrian route and that is distinguishable through a colour contrasted surface, unique pavement texture or a combination of design features (e.g., decorative lighting standards, signage).**
- **Ensure consistent and accessible design, placement, scale and use of product materials, based on technical information in these Guidelines (e.g., sidewalk width and slope, use of textured pavement materials, seat heights, potential obstructions etc.).**
- **Allow for future upgrades and ongoing maintenance of amenities and streetscapes (e.g., free of litter / clutter and obstructions such as temporary bumping and tripping hazards, overhanging vegetation etcetera).**

Table 1: Example of Street Furniture	
Common Furniture	**Other Features/ Elements**
Transit Shelters	Community Mailboxes
Bicycle Racks	Flower Baskets
Litter/ Recycling Bins	Pay Parking Units
Public Toilets	Billboard Advertising
Benches	Fire Hydrants
Light Standards	Street Signs
News Vending Boxes	Wayfinding Signage & Marrkers/ Gateways to Neighbourhoods
Vendor Kiosks	Cloting Drop Boxes
Banners	Manhole Covers
News stands	Tree Guards & Grates
Telephone Booth	Bollards
Kiosks	

Accessible Design Criteria

General Considerations

- Ensure all street furniture and related amenities are colour contrasted with their surrounding environment.

- Provide a raised border or curb around objects for cane detection or a grooved/tactile surface. Tactile warnings should take the form of grooves or indentations in the sidewalk surface, as opposed to raised markings, which cause discomfort for users of mobility aids. Where provided, the edge of planting beds shall be colour contrasted and raised for cane detection by people with a vision loss. This also helps to reduce damage caused by snow clearing equipment.

- Design amenity strips 610 mm (2’-0”) wide minimum, using contrasting surface materials as compared to the main pedestrian path of travel.

- Encourage the use of street furniture that benefits the overall walking experience, such as the quality of lighting and clear, large print signage (e.g., for streets, businesses and retailers).

- Minimize the use of A-frame signage, which is a potential tripping hazard for users with a vision loss, unless it is provided in a designated amenity strip and is secured at all times (e.g., cannot be moved). **(See Section X “Maintenance”)**

Seating

- Locate exterior benches or seats to one side of public walkways or paths of travel and ensure they are mounted on a firm and level base, such as a concrete pad.

- Include back supports and armrests on fixed benches to facilitate transfers from a sitting or standing position, with a seat height of 460 mm (18”) from ground preferred, to accommodate the widest range of users.

- Provide clear floor space beside benches for at least one person using a wheelchair or scooter, people with a guide dog, or parents with a stroller, ensuring a minimum clearance area of 1065 mm by 1220 mm (3’-6” by 4’-0”).

- Consider the use of colour contrast or tactile indicators surrounding the bench for people with a vision loss.

Bicycle Racks

- Locate fixed bicycle racks to one side of walks, paths, or entrances, to prevent potential bumping hazards along the pedestrian path of travel and facilitate snow-clearing activities, for example.

Drinking Fountains

- Where exterior public drinking fountains are provided, refer to **Section X** for detailed accessible design criteria for Drinking Fountains.

Public Telephones

- Where exterior public telephones are provided, refer to **Section X** for detailed accessible design criteria for Public Telephones.

Waste and Recycling Receptacles

- Ensure receptacle openings are mounted no higher than 1200 mm (3’-11”) from surface. Where lids are provided, ensure they are easy to operate with one hand.

- Locate to one side of any path or walkway on a firm and level surface. In busy locations, waste receptacles, containers, or boxes, (including recycling boxes), shall be large enough to contain the anticipated amount of waste so that overflows do not cause a tripping hazard.

- Ensure waste receptacles or holders containing waste bins are clearly identified by suitable signs and/or colour contrasted with surroundings. Consistent design allows for easy identification by all users.

- Minimize or prevent vehicular access routes from crossing normal pedestrian routes (e.g., intended for garbage container maintenance). Additionally, Locate temporary construction waste removal bins or large mobile industrial containers away from normal pedestrian routes.

Gates and Openings

- Ensure gates or openings provided through fences/screens intended for public use are accessible 915 mm (3’-0”) wide minimum, to allow free-passage of persons using mobility aids.

- Provide easy to use hardware that does not require tight grasping or twisting of the wrist, with closing devices/latches that are not spring-loaded.

Freestanding Objects

- Locate freestanding, permanent or temporary objects within a designated amenity strip, or to one side of pedestrian route without limiting the width of the route or causing a hazard to persons with a vision loss. Recessed locations are preferred, if possible.

- Provide colour contrast on permanent objects, such as bollards, bicycle racks, benches, bus shelters, newspaper vending boxes, community mail boxes, fire hydrants, light standards, for example, to ensure easy identification.

- Locate temporary objects such as queuing lines, sales booths, loose garbage receptacles, for example, to one side of the pedestrian route.

- Mount community mailboxes on level, stable, and free-draining surfaces, providing A minimum clear approach 1370 by 1525 mm (4’-6” by 5’-0”) minimum and operating controls no higher than 1200 mm (3’-11) high from ground.

- Mark guy wires and other braces or supports for trees, posts etcetera clearly using strong colour contrast and ensure these elements are located so they do not result in a tripping or bumping hazard for all users, especially people with a vision loss.

Tree Grates

- Provide consistent design throughout pedestrian routes (e.g., predictable locations).

- Mount flush with the sidewalk and ensure top surface is level.

- Ensure grate holes are no wider than 13 mm (1/2”) to prevent canes and wheels of mobility aids from catching.

- Fill spaces between grates and trees with plants, sand or other material to prevent any potential tripping hazards.

Parking Vending Machines

Rationale

Paid street parking is often implemented to help manage traffic and related parking. Ticket vending machines (e.g., "Pay and Display" equipment) are often used in public surface parking lots or parking structures (above/below ground). All operating controls, dispensing devices, displays and signage related to this equipment must be usable by people with varying disabilities.

Accessibility issues related to using ticket vending machines for both parking payment include the following:

- **Difficulty with equipment location and the ability to identify it.**
- **Operating controls mounted too high for reach from a seated position or by people of short stature.**
- **Lack of large print, raised or tactile signage for people with low vision (e.g., signage is not accessible).**
- **Non-intuitive use of coin and dispensing slots, operating controls and difficulty validating tickets / payment.**

Accessible Design Criteria

Equipment Provisions

- Provide a kiosk, shelter or canopy around ticket vending equipment to protect all users from poor weather conditions in exterior open parking lots.

- For interior and exterior equipment, all controls and dispensing slots shall be mounted at 1200 mm (3'-11") and no lower than 915 mm (3'-0") from ground/floor surface. Large buttons and controls that are colour contrasted and easy to use by people with limited manual dexterity and low vision shall be integrated within the equipment design.

- Provide clear ground or floor space of 1675 by 1675 mm (5'-6" by 5'-6") in front of equipment for approach by users of mobility aids, including larger power wheelchairs and scooters.

- Include accessible instructions and signage (e.g., large print text, tactile/braille), mounted no higher than 1525 mm (5'-0") centre, from ground or floor level for legibility. **(See Section X for accessible design criteria related to Signage).**

Section B:

Interior Environments

Building Entrances and Reception

Rationale

It is essential that all main building entrances are accessible for diverse users, providing level, sloped or ramped approaches, with clear entry width and accessible door hardware. For all building entrances used by staff and the general public, at least fifty percent (50%) of the total shall be accessible. All interior routes from accessible entrances to accessible exits shall be safe and easy to use by persons with varying disabilities, including persons requiring mobility aids, and persons with a vision loss or cognitive limitations. Such routes shall be clearly identified and logical in layout. Accessible entrances provide direct access to persons using wheelchairs or scooters and are also frequently used as waiting areas for persons requiring assistance (e.g., waiting for a ride from special transit, taxis, family members, attendants or others).

Entrances to buildings should be placed in a logical relationship within the routes that serve them and be easily distinguishable from the façade. A prominent entrance, with distinct architectural features or use of colour contrasted materials that allow it to stand out is an important accessibility consideration recognizing users with disabilities have to make many decisions prior to their approach to an entrance. Additionally, clear and large signs indicating the building's name, address and identifying main entrance location shall be provided, visible from all approaches to the building. Signs hanging perpendicular to the building façade with large print text are beneficial to both pedestrians and drivers passing by and typically can are visible from a distance. See Section X for accessible design criteria related to signage.

The design and layout of reception / lobby areas at main entrances is critical, recognizing it is often the first point of contact for visitors who need information or assistance. Suitable lighting and acoustic environment, combined with floor surfaces that can be negotiated safely and without difficulty and a decoration scheme that addresses colour and luminance contrast issues, are key considerations for reception/lobby area design. For safe, universal and independent use of main building entrances and reception/lobby areas, the following design requirements shall be addressed, recognizing the high level of accessibility and benefit offered to all users.

Accessible Design Criteria

Canopies and Weather Protection

- All accessible entrances shall be designed with a suitable canopy or overhang, which should also be provided at other entrances to protect users from the elements.
- Where canopies project over passenger boarding zones, a minimum vertical (overhead) clearance of 3555 mm (11'-8") is recommended to accommodate paratransit vehicles (e.g., York Region's Mobility Plus), or 2895 mm (9'-6") preferred to accommodate a wider range of vehicles, including adapted vans used by persons with disabilities.

Entrance Doors and Doorways

- Accessible entrance, vestibule and exit doors shall be a minimum of 915 mm (3’-0”) wide to allow safe passage of persons using mobility aids as well as independent use.

- Where pairs of doors are utilized, at least one active door leaf shall provide a clear opening of 915 mm wide (3’-0”), or 815 mm (2’-8”) wide minimum, when door is open at 90 degrees. Acceptable clear width is measured between the edge of the door and/or any hardware that projects into path of travel, to the door stop on the opposite side.

- Where only one accessible door is provided in a series of doors, it shall be marked with the “International Symbol of Accessibility” decal and other signage as required (e.g., “Caution” decals to warn of door swing).

- Accessible entrance doors and related vestibule doors shall be automatic (e.g., sensor activated) or have power door operators. If only one door is provided at a main entrance to a public facility, it shall be equipped with a power door operator (See Section X). Consider the use of automatic sliding glass doors (e.g., sensor activated), which are preferred, especially at busy entrances.

- Revolving door systems are not recommended, recognizing floorspace within system is typically very limited and the speed of use is also very fast which can be stressful or even unsafe for many people, including seniors and children. If provided as the main entrance, a separate accessible swing door with power door operator shall be provided adjacent to revolving doors.

- Where automatic doors open towards people approaching, the swing pattern of such doors shall be defined by a colour contrasted, textured warning indicator at grade, extending 305 mm (1’-0”) minimum beyond the door swing. Alternatively, provide suitable guards, which extend a minimum of 305 mm (1’-0”) beyond the door swing, on both sides of the opening, for cane detection and as a warning to persons with a vision loss.

- Doors in a series (e.g., in a vestibule) shall be a minimum of 2135 mm (7’-0”) apart. Vestibule shall provide floor space of 1220 mm (4’-0”) minimum, clear of door swings, for suitable positioning of mobility aids.

- Where no power door operators are provided and interior doors swing towards the user approaching, at least 600 mm (2’-0”) clear wall space shall be available adjacent to the door jamb, on the opening edge of the door, to allow persons using mobility aids to approach the door and use door hardware.

- Where no power door operators are provided and doors swing away from the user approaching, at least 300 mm (1’-0”) clear wall space shall be available adjacent to the door jamb, on the opening edge of the door, to allow persons using mobility aids to approach the door and use door hardware.

- Refer to **Section X** for additional design criteria for doors, doorways and power door operators.

Thresholds

- Thresholds at entrance doorways shall be beveled and not exceed 13 mm (½") in height.

- Where thresholds are higher than 6 mm, slope of bevel shall not exceed a ratio of 1:2 (50%).

- Thresholds required to accommodate floor level or finish changes to exterior areas (e.g., terraces and balconies), including those used at exterior sliding doors, shall be gently beveled and not exceed 19 mm (¾") height

Door Hardware

- Exterior doors, which include panic hardware, shall be capable of being opened with a force no higher than 38 Newtons (8.5 pounds). The opening force required for interior vestibule doors, using closers or other automatic latching devices shall not exceed 22 Newtons (5 pounds).

- All door opening hardware on entrance, vestibule, and related doors shall be colour contrasted with mounting surface, easy to grasp and use, and shall not require tight pinching of the fingers or any fine finger control to operate. Lever or U-shaped handles that return to the door surface, large D-pulls and push/pull type hardware are usable by the widest variety of users. For detailed specifications, See Section X "Interior Circulation: Doors and Doorways".

- Where accessible entrances are locked to the public or require security card access, provide a nearby call bell (or information telephone), for persons requiring information or assistance. All related operating controls and devices shall be marked with suitable signage and instructions and mounted no higher than 1200 mm (3'-11") from floor or ground

Glass Doors, Sidelights and Window Walls

- In buildings where there is a significant amount of glazing at grade (e.g., window walls), it is recommended that door frames be clearly colour contrasted to aid in locating the entrance and making it more prominent from a distance.

- If fully glazed doors are provided at entrances, ensure door edges are clearly marked to warn users with a vision loss when doors are in the open position

- Fully glazed sidelights at exterior entrances or in interior vestibules, shall be clearly identifiable, with colour contrasted framing or use of colour-contrasted decals/striping (e.g., compared to background in which it is viewed under natural and artificial lighting conditions). This prevents any potential bumping hazards for persons with a vision loss. See **Section X** for accessible design criteria related to "Circulation: Doors and Doorways".

Reception and Lobby Areas

- Reception, lobbies and related waiting areas shall be designed to ensure a clear view of receptionist or other staff by users entering building from main accessible entrance or from any adjacent seating areas. Additionally, clear views to the outside are beneficial for people waiting to be picked up (e.g., taxis, buses or private vehicles).

- Ensure area is well lit, with all pedestrian routes and approaches to services and amenities (e.g., washrooms, elevators) highly visible, well defined at floor level (e.g., colour contrasted borders) and free of obstructions for all users.

- Provide an accessible building directory for large buildings, especially where no reception staff are available. This includes a tactile floor plan / map for complex buildings, to establish effective wayfinding strategies for all users (See Section X Signage & Wayfinding).

Furniture

- Provide flexible furniture (e.g., can be moved or adjusted), large enough to accommodate at least two persons using wheelchairs or scooters, who may either transfer from their mobility aid or prefer to position themselves adjacent to other seating and furniture. Clear floor space allowing a turning radius of 1680 mm (5’-6”) can accommodate users of mobility aids and shall be provided to offer a range of seating locations. A choice of seating with back and arm supports is preferred. A seat height of 460 mm (18”) from floor can accommodate diverse users.

- Coffee and telephone tables, located in waiting areas and lounges, shall be no lower than 510 mm (1’-8") from floor with clear floor space adjacent for approach.

Reception, Information or Customer Service Counters

- Accessible reception and information counters shall be provided to serve any main entrance or Department (e.g., located on other floor levels that provide an accessible path of travel).

- Locate reception counter and any visitor seating areas away from main entrance to minimize potential exterior noise and weather conditions.

- Provide a dual-height reception counter or desk, usable from both a standing and seated position. A lowered counter or shelf is important for users of mobility aids, especially where forms need to be signed or paperwork shared between staff and visitors.

- Mount lowered section between 735 to 860 mm high (2’-5” to 2’-10”) from floor, with top surface at least 915 mm wide (3’-0”).

- Provide a minimum clear floor space of 760 by 1220 mm (2’-6” by 4’-0”) in front, to allow side or forward approach by users of mobility aids. A forward approach is preferred and where provided, a minimum knee clearance of 760 wide by 480 deep by 685 mm high is required (2’-6” wide by 1’-7” deep by 2’-3” high). This knee clearance space may overlap with adjacent clear floor space, a maximum of 480 mm (1’-7”).

Communications

- Where speaking ports are provided at enquiry counters (e.g., for secured Departments or confidential areas), a minimum of one speaking port shall be mounted no higher than 1065 mm (3’-6”) from floor level, for persons using mobility aids or people of short stature.

- For any enclosed counters where staff / receptionist communicate from behind a glass or plexi-glass screen, ensure screen does not reflect glare and sliding windows shall be installed that open fully to allow audible communication. Install a permanent inductive loop or similar assistive listening system for high use buildings and areas, especially where the surrounding environment may be noisy. Ensure systems are in working order and checked frequently, and provide staff training to ensure proper use. If portable assistive listening systems are provided, identification signage with the International Symbol of Hearing Loss shall be mounted in a prominent location.

- Where no staff person is available, provide an information phone or a call bell with clear, large print instructions and accessible signage.

- Provide a well-lit counter area to benefit staff and visitors with hearing loss who may communicate by lip reading.

- Consider providing a TTY device for visitors who are deaf, deafened or hard of hearing, that may also serve as a central TTY for the building and related Departments.

Additional Considerations

- If line-up guides are used in waiting areas to control pedestrian traffic, guides shall be stable (e.g., do not tip over easily), colour contrasted and designed with tapping rails/ ropes for cane detection, mounted at a maximum height of 685 mm (2’-3”) from floor. Spacing of line-up guides shall also provide a clear path of travel, a minimum of 1100 mm (3’-7”) wide, for users of mobility aids. Major direction changes shall be avoided unless ample floorspace is available to provide a minimum turning radius of 1680 mm (5’-6”) for larger wheeled mobility devices (e.g., scooters).

- Provide all information available to visitors in alternative formats (e.g., large print brochures, audio tape, CD Rom) or provide suitable contact information to facilitate production.

- As an overlapping issue that enhances any design issues related to reception areas and lobbies, provide disability issue awareness and training for all building staff responsible for ensuring a high level of customer services for all users (e.g., assist with wayfinding and communications).

- In large buildings, an accessible pay-telephone is beneficial and shall be available in a private area (e.g., alcove) that is designed to accommodate users of mobility aids, with operable controls and features accessible to users with varying disabilities. A private area also helps to minimize any adjacent noises and shall be marked with overhead signage to indicate its location and accessible features (e.g., for hearing enhancement). Telephones also allow users to call for a taxi or accessible transit, for example. [See Section X “Public Telephones”]

- Any wall fixtures, including telephones, displays and drinking fountains shall not project into pedestrian routes more than 100 mm (4”) and preferably, should be located in recessed areas to ensure they are not a bumping hazard.

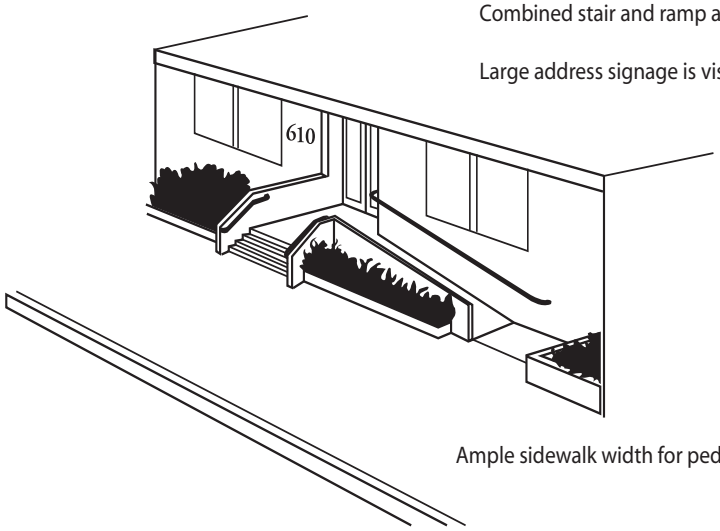
Mats and Mat Sinkages

- Mats at entrances and in vestibules shall be level with the floor and/or located in mat “sinkages” (e.g., recessed into the floor), so as not to create a tripping hazard for persons who have a vision loss or a hindrance to persons using mobility aids.

- Where occasional mats (e.g., runners provided during bad weather) are used, they shall be level with the floor surface and/or have gently beveled edges so as not to create a tripping hazard and allow easy maneuverability for users of mobility aids.

- Where runners are used to define preferred walking routes to information counters, elevators etc., such as in main entrance and reception/lobby areas, they shall lead directly to the desired objective with no furniture or obstacles intruding into the required route. Runners shall be as continuous as possible and colour/tone differentiated from the adjacent floor colour. In large open areas or lobbies, long runners (e.g., 25’-0” +/-) may be required to minimize potential slipping hazards, especially during winter or wet conditions.

Fig: Entrance Features (B2)

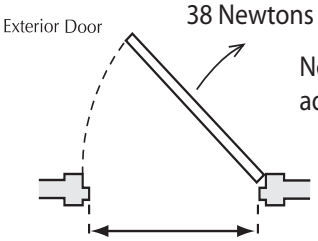


Prominent entrance with overhang at door for weather protection.
Combined stair and ramp access is provided.

Large address signage is visible upon approach.

Ample sidewalk width for pedestrians and approach

Fig: Entrance Door - Width and Opening Force (B3, B4)



Note: Wind Pressure may affect adjustment requirements

915 mm clear width minimum

Fig: Entrance Lobby Features

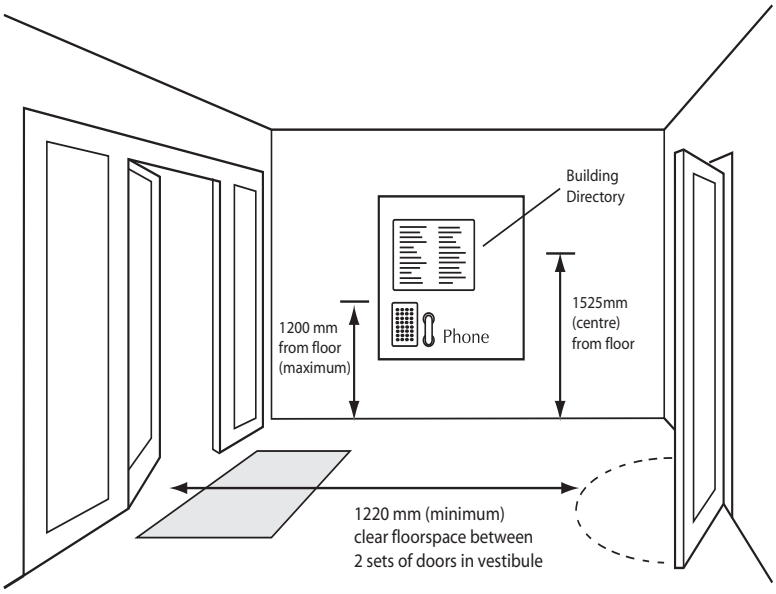
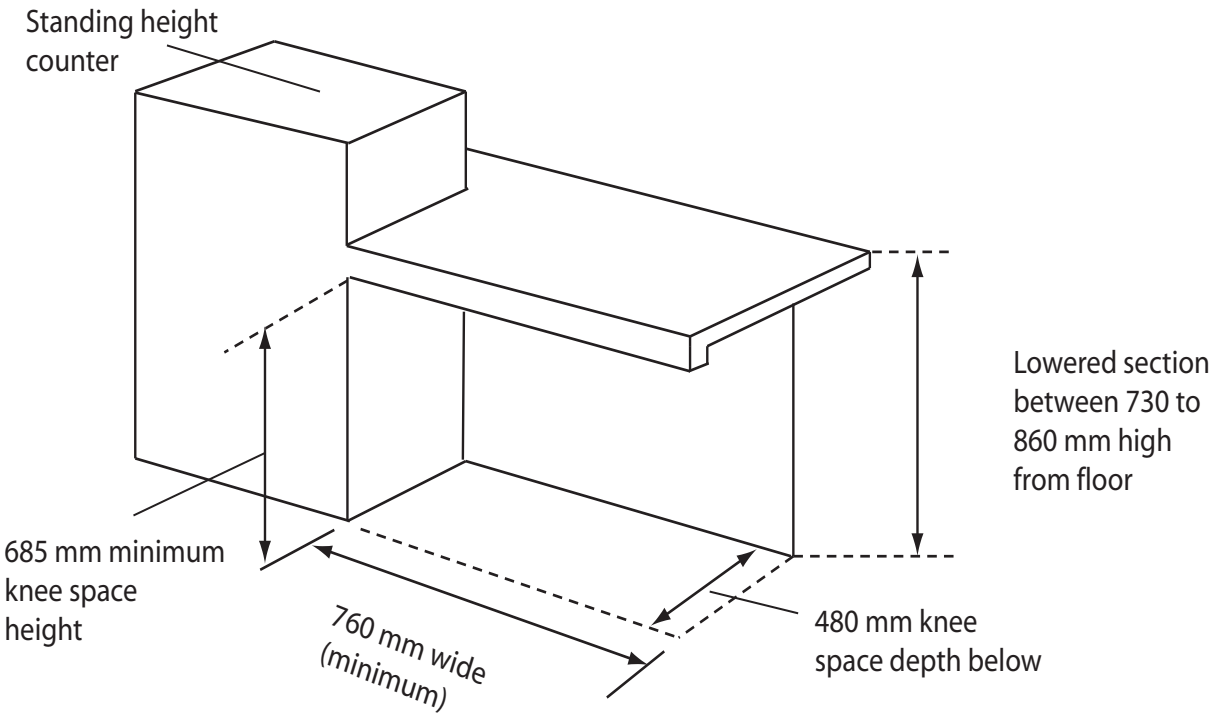


Fig: Reception, Information or Service Counter (B5)



Circulation

Accessible Routes and Corridors

Rationale

People with physical or mobility limitations require interior circulation routes, whether horizontal or vertical, to be wide enough to accommodate various mobility aids, such as wheelchairs, scooters, canes, or crutches. Persons who have a vision loss need safe routes throughout buildings, with no unexpected level changes or projecting objects (e.g., from wall surfaces) that are potentially hazardous to them. Seniors and others with limited strength and endurance may require handrail support and/or resting places in long corridors or paths of travel. People with hearing loss benefit from clear directional/ informational signage and access to communications systems for information and wayfinding.

Accessible Design Criteria

Corridors and Hallways

Dimensions

- Accessible public corridors and paths of travel shall be a minimum of 1100 mm (3'-7") wide, with turning spaces at least 1675 mm (5'-6") in diameter, every 9000 mm (30'-0"), to permit the free movement of persons using mobility aids, in both directions.

- Corridors serving residential suites shall be a minimum of 1100 mm (3'-7"), (1200 mm [4'-0"] or larger is preferred) with turning locations provided at suite entrances and at the ends of corridors. Turning locations shall not be greater than 30 m (100'-0") apart.

- Hallways within accessible residential or overnight suites, as well as aisles in public areas and workspaces etc., shall be a minimum of 1100 mm (3'-7") wide.

- Additional space shall be made available where persons using mobility aids must maneuver around permanent obstacles located in corridors or hallways.

- Whenever extended length corridors are provided in public facilities (e.g., over 30 metres or 100"-0"), consideration shall be given to the inclusion of a suitable, colour contrasted handrail, on at least one side of the corridor, as an aid to seniors and persons with limited mobility or stamina.

- In extended length corridors of 40 m (130'-0") or more, consideration shall be given to the provision of a bench or other seating, located at intermediate points along the corridor for seniors and others with limited mobility or stamina.

Headroom Clearance

- Provide a minimum headroom clearance of 2030 mm high from floor (6’-8”) throughout all interior routes, corridors and hallways.

- Install guards, barriers or other protective features where headroom clearance is less than 2030 mm (6’-8”) from floor level (e.g., underside of stairs, escalators or ramp landings), with a cane detectable edge mounted no higher than 685 mm from floor (2’-3”). Note: This prevents any potential bumping hazard for all users, including people with a vision loss.

Projecting Objects

- Ensure interior elements or features, such as display or telephone cabinets, drinking fountains, heating cabinets, lighting fixtures or similar building controls do not project more than 100 mm (4”) from wall or mounting surfaces, between the height of 685 to 2030 mm from floor (2’-3 to 6’-8”).

- Mount lower edge of any interior feature that projects more than 100 mm from mounting surface (4”) at maximum height of 685 mm (2’-3”) maximum, for cane detection. For existing elements, install wing walls that extend from floor to full height of feature to prevent any potential bumping hazard, especially for users with a vision loss.

Aisles and Passages

- In high use public areas, aisles and passageways, a minimum of 1675 mm (5’-6”) wide are recommended to allow two persons using wheelchairs or scooters to pass each other easily. 1200 mm (4’-0”) wide is required to allow one person using a mobility device and one ambulatory person to pass.

- In low use areas and offices, for example, clear aisle space and passageways between walls, glazed screens, furniture and/or other major obstacles shall be a minimum of 1100 mm (3’-7”) to accommodate users of mobility aids.

- Wherever aisles that are 1100 mm (3’-7”) wide are long or terminate in a dead end, a turning space of at least 1675 mm by 1675 mm (5’-6” by 5’-6”) shall be available at 30 m (100’-0”) intervals and at any dead end locations.

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Fig: Corridors and Hallways (B10)

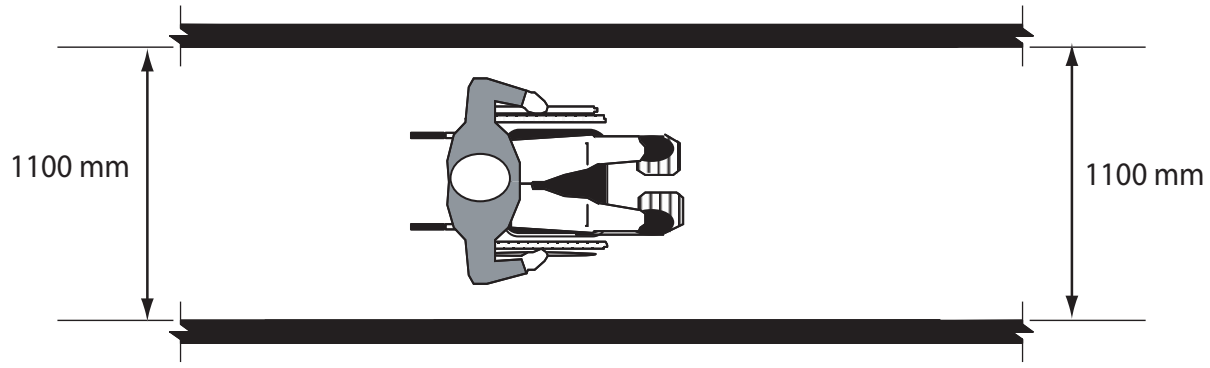


Fig: Accessible Routes - 180 degree turn

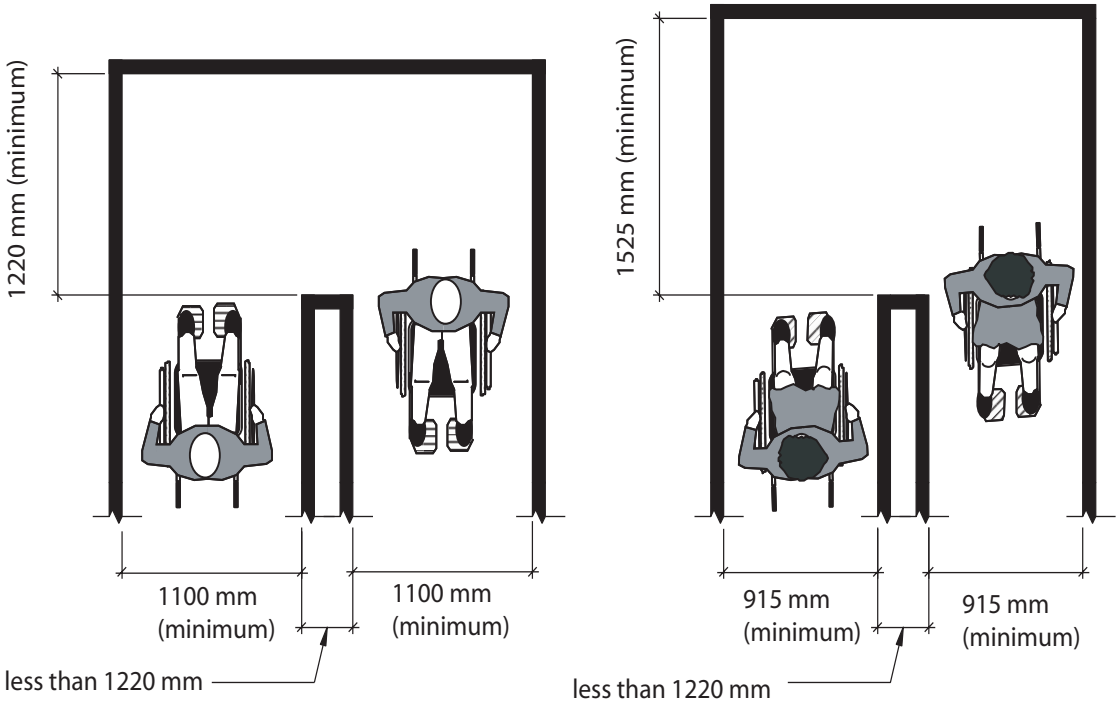
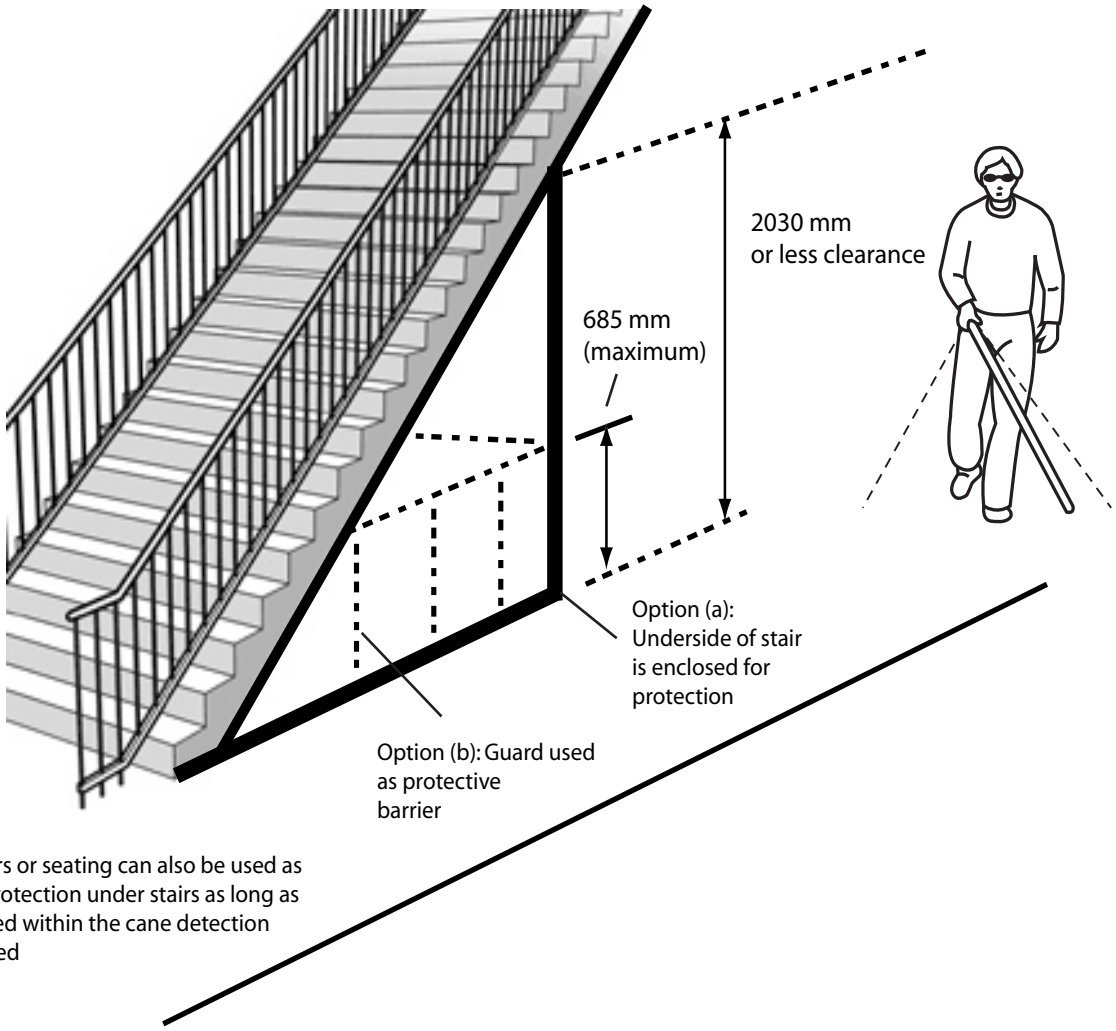
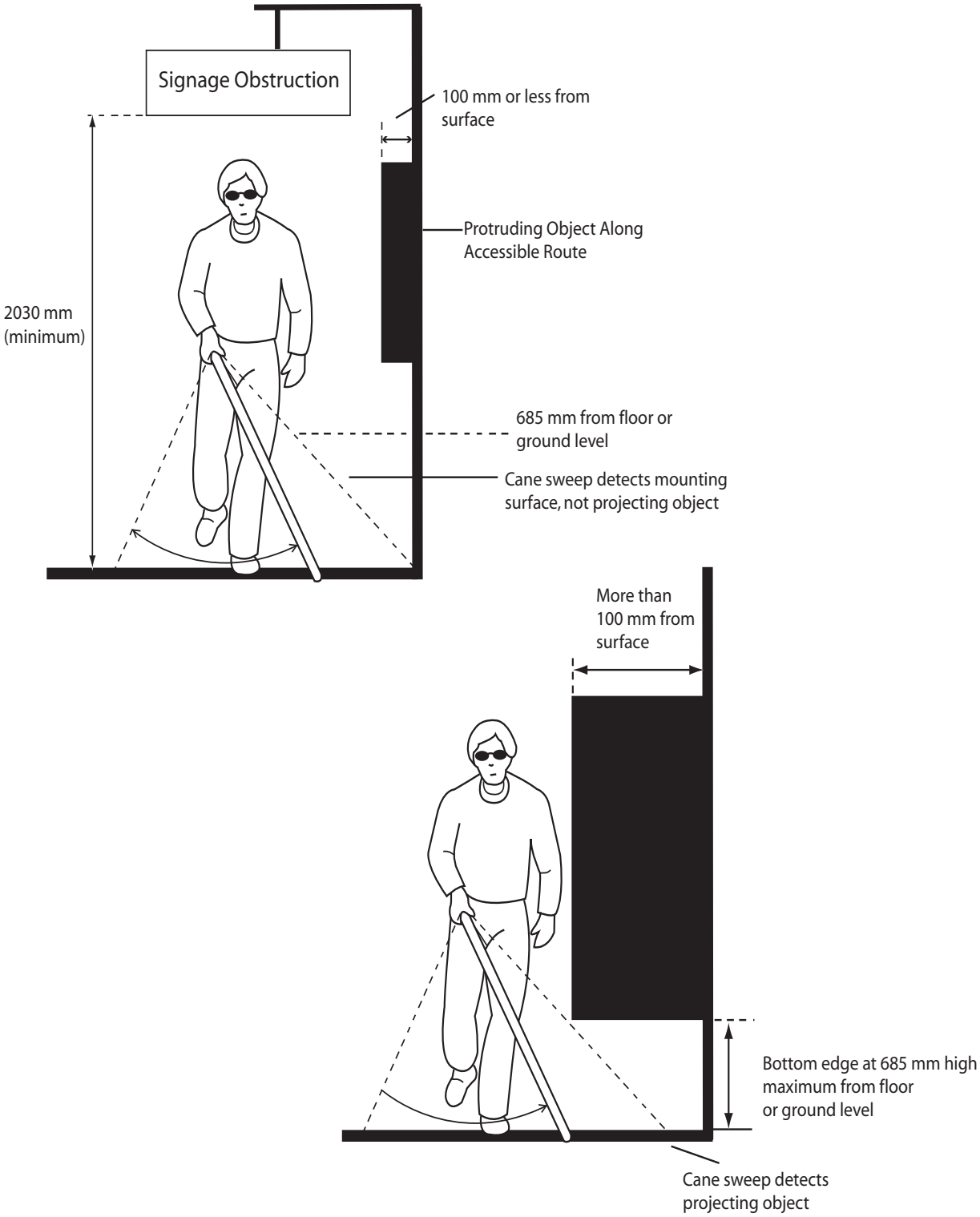


Fig: Clear Headroom and Protection Under Stairs (B11)



*Note: Planters or seating can also be used as options for protection under stairs as long as they are placed within the cane detection limits identified

Fig: Overhead Clearance and Projecting Objects (B11)
(Note: Can be used for both Exterior or Interior Route)



Doors and Doorways

Rationale

Accessible and well-maintained doors and doorways ensure safe and independent circulation throughout a building for everyone. For users of mobility aids, clear floorspace beside doorways is required for positioning themselves to use the door hardware and then pass through the opening safely. Accessible door hardware accommodates the widest range of user needs, including children and people with limited manual dexterity. People with a vision loss also use colour contrasted door hardware to assist with identifying the location of doorways when approaching.

Although this section identifies important accessibility requirements for all doors and doorways provided throughout interior accessible routes, additional considerations are often required to address issues related to doors used for fire and life safety. Detailed guidance is further recommended (e.g., the use of electro-magnetic devices and door closer adjustments).

Accessible Design Criteria

Clear Width

- Provide 915 mm (3'-0") minimum, with no opening less than 865 mm (2'-10") wide, measured between doorstops, and all door surfaces smooth and non-abrasive.

Opening Force

- Ensure opening all interior doors, including doors with closers or other automatic latching devices, requires a maximum force of 22 Newtons (5 pounds).

Closing Speed

- Adjust door closers to provide a minimum of five (5) seconds closing speed, the time required for door to close from open position (90 degrees) to a position approximately 12 degrees from latch.

Hardware

- Use beveled thresholds, a maximum height of 13 mm (1/2") above the floor, where required.

- Provide accessible hardware (e.g., handles, pulls, latches, locks, security code push buttons and other operable parts) with a shape that is easy to grasp and use with one hand and does not require tight grasping, pinching or twisting of the wrist to operate. Lever or U-shaped handles that return to the door surface, large D-pulls and push/pull type hardware are accessible for the widest variety of users.

- Mount operable features of hardware between 865 mm (2’-10”) minimum and 1200 mm (3’-11”) maximum above the floor. A mounting height of 915 mm (3’-0”) is considered common for door handle. For sliding doors, ensure operating hardware is exposed and usable from both sides when the door is in the open position.

- Ensure hardware mounting and placement does not reduce the clear door width below 815 mm (2’-8”), including where push-bar or panic-bar style hardware is used on exit doors.

- Install door kick plates, typically 305 mm +/- (1’-0”) high from bottom edge of door, for busy doorways.

Automatic or Power-assisted Doors

Automatic Doors

Where automatic door opening systems are provided, typically sliding or swinging doors activated by infrared sensors:

- Ensure sensors are suitable placed to detect users approaching and allow enough time for safe passing through by users with limited mobility.

Power-assisted Doors

Where power-assisted door opening systems are provided, typically swing doors activated by a push button control:

- Mount controls beyond the arc of the door swing, with clear floor space in front of 1675 by 1675 mm (5’-6” by 5’-6”) preferred for approach by users of mobility aids, or minimum positioning clearances as identified in Section X below.

- Mount controls between 1000 to 1100 mm (39 3/8” to 43 1/4”) centre, from ground or floor surface.

- Ensure controls are mounted away from door frame, at least 610 mm (2’-0”), on level wall surface or separate posts. Ensure control does not project more than 100 mm (4”) into accessible pedestrian routes.

- Provide large push plate controls (e.g., diameter of 150 by 150 mm or 6” by 6”), marked with the International Symbol of Accessibility for easy identification upon approach. Small push buttons that are typically mounted in doorframe, are difficult to see from a distance and also require greater manual dexterity to activate and are not recommended.

Guardrail or Detectable Warning Indicator Provision

Where any swing door opens directly into the path of travel of users:

- Include protective guardrails on both sides of door swing or a colour contrasted detectable warning indicator at floor/ground level.
- Extend guard rails a minimum of 305 mm (1'-0") from edge of door where provided, with a cane detectable surface mounted no higher than 685 mm (2'-3") from floor or ground surface.
- Locate detectable warning systems 610 mm clear of door edge when in the open position, extending the full width of the door. See **Section X** for accessible design criteria related to detectable warning indicators.

Note: Guard rails or detectable warning indicators are not required where pedestrian traffic is one way only and doors swing away from users approaching (e.g., controlled entrances and exits).

Door Positioning Clearances

Doors In Series

- Provide 1220 mm (4'-0") minimum clear floorspace, plus the width of the door swinging into the space, between two hinged or pivoted doors in series (e.g., vestibule).
- Ensure a minimum turning radius of 1675 by 1675 mm (5'-6" by 5'-6") is provided between any two doors in series. Increased floorspace will accommodate a wider range of larger mobility aids.

Manual Swinging Doors

Level floorspace on both sides of the door, adjacent to door handle and clearances for positioning are different when approaching doors from the side or the front, as well as based on the direction of the door swing (e.g., push or pull side). These requirements are summarized in **Table 1** and demonstrated in **Figures X**. Ensure building management procedures includes the maintenance of floorspace adjacent to doorways to prevent placement of objects (e.g., stored items and/or planters). See **Section X** "Facility Management and Maintenance".

Table 1: Minimum Positioning Clearances at Swinging Doors					
Type of Use		**Minimum Clearances For Positioning**			
Direction of Approach	**Location at Door**	**Perpendicular to Doorway**		**Parallel to Doorway (beyond latch side unless noted)**	
		Millimeters	**Inches**	**Millimeters**	**Inches**
From front	Pull side	1525	60	455	18
From front	Push side	1220	48	0	0
From hinge side	Pull side	1525	60	915	36
From hinge side	Pull side	1370	54	1065	42
From hinge side	Push side	1065	42	560	22
From latch side	Pull side	1220	48	610	24
From latch side	Push side	1065	42	610	24

For each type of door, provide the following minimum positioning clearances:

(A) Sliding and Folding Doors

- 1220 mm (4’-0”) depth by 610 mm (2’-0”) width of clear floorspace, beyond both sides of door when opened or closed, to accommodate users from all approaches (e.g., front and sides).

(B) Doorways Without Doors

- 1220 mm (4’-0”) depth, when approaching open doorway from front.
- 1065 mm (3’-6”) width, when approaching open doorway from side.

(C) Recessed Doors

- 1675 mm (5’-6”) depth, by 445 mm (1’-6”) width on both push and pull sides of door, to accommodate all users when approaching from front.

Additional Considerations

Glazing and Sidelights

- Define and mark edges of fully glazed doors (e.g., tempered glass with no frame) when they are in the open position, to allow persons with a vision loss to identify edges upon approach and to prevent any potential bumping hazard.
- Provide colour contrasted door framing and use colour-contrasted decals/striping on any fully glazed sidelights at doorways to prevent any potential bumping hazard for persons with a vision loss.
- Ensure decals or continuous striping is a minimum of 50 mm (2”) wide, with strong colour contrast compared to mounting surface under normal lighting conditions.

- Mount decals or striping at eye level, between 1350 mm (4’-5”) and 1500 mm (4’-11”) high from the finished floor level.

- Space decals at a maximum of 150 mm (6”) on center, where required. Decals can be either 50 mm (2”) square or round, or a special design can be used (e.g., logo), providing the solid portion is colour contrasted with mounting surface for easy identification by persons with a vision loss. Where etched or patterned glass is used, colour contrasted decals or striping are still recommended.

- Mount bottom edge of partially glazed doors, sidelights or “vision panels” at a maximum height of 900 mm (3’-0”) to allow persons of short stature, children or users of mobility aids to see through to other side of the door.

Turnstiles and Security Gates

- Use a “breakaway” design to facilitate passing through and independent use or provide a separate access gate nearby, with a minimum passing clearance of 915 mm (3’-0”) wide for users of wheelchairs, scooters and other mobility aids.

- Integrate strong colour contrast between flooring surfaces and any posts or related features of turnstiles or gates that are used and ensure surfaces do not reflect glare from adjacent lighting sources (e.g., highly polished chrome is not recommended, with matte finishes preferred).

Note: Wherever revolving turnstiles or security gates are used to manage the movement of people, control crowds or secure areas, staff management practices and procedures are also important to ensure users of mobility aids (e.g., canes, crutches, wheelchairs, scooters) and people with guide dogs can enter or exit independently, at the same time as other building users. However, if security personnel are responsible for granting access to all users, with or without a disability, then independent operation of and travel through access gates is not required for users of mobility aids.

Fig: Doorway Clear Width (B15)

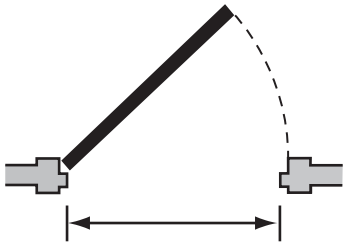


Fig: Interior Door Opening Pressure (B15)

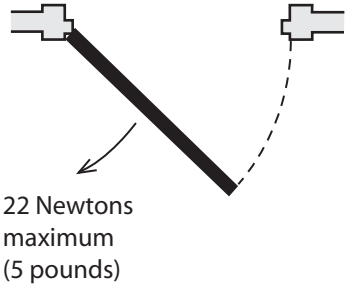
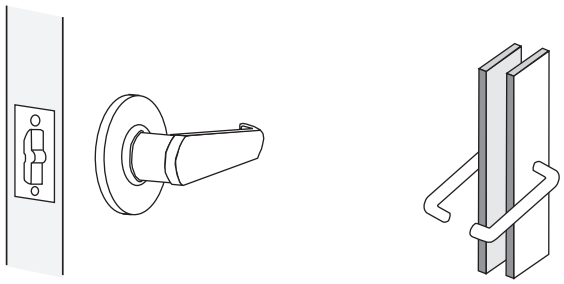
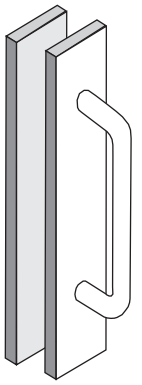


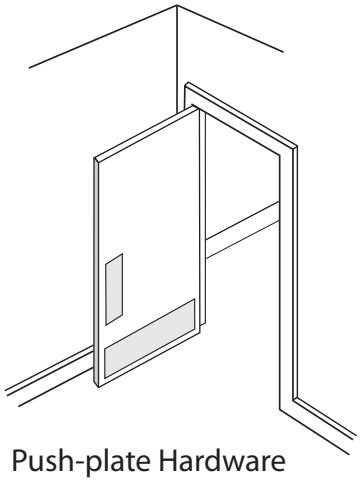
Fig: Examples of Accessible Door Hardware (B15)



Lever Handles



D-type Pull Handle



Push-plate Hardware

Fig: Automatic or Power-assisted Doors (B16)

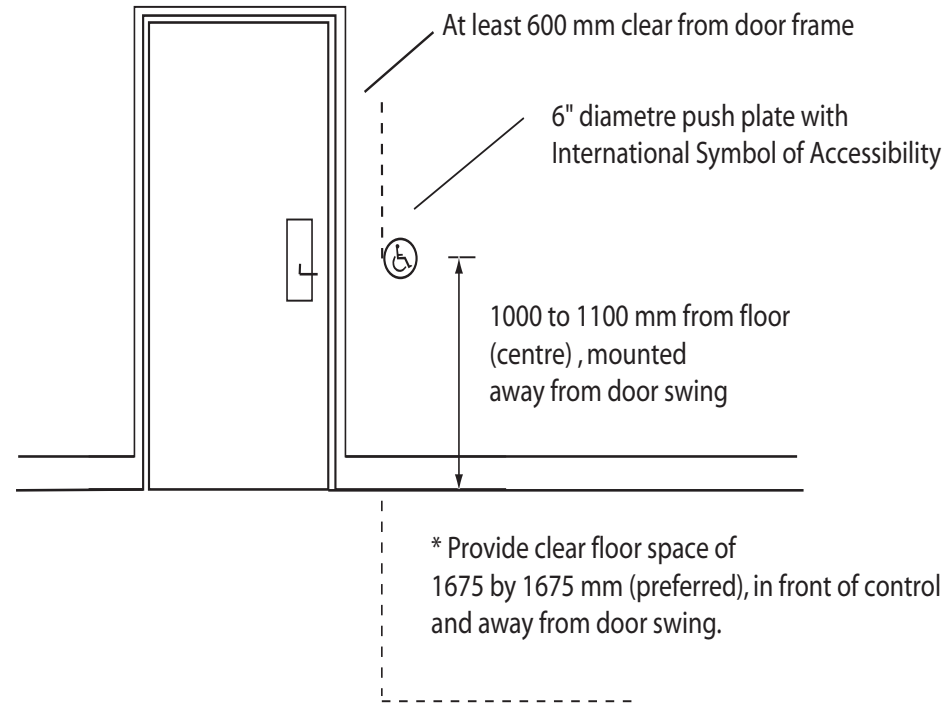


Fig: Approach Clearances at Doorways

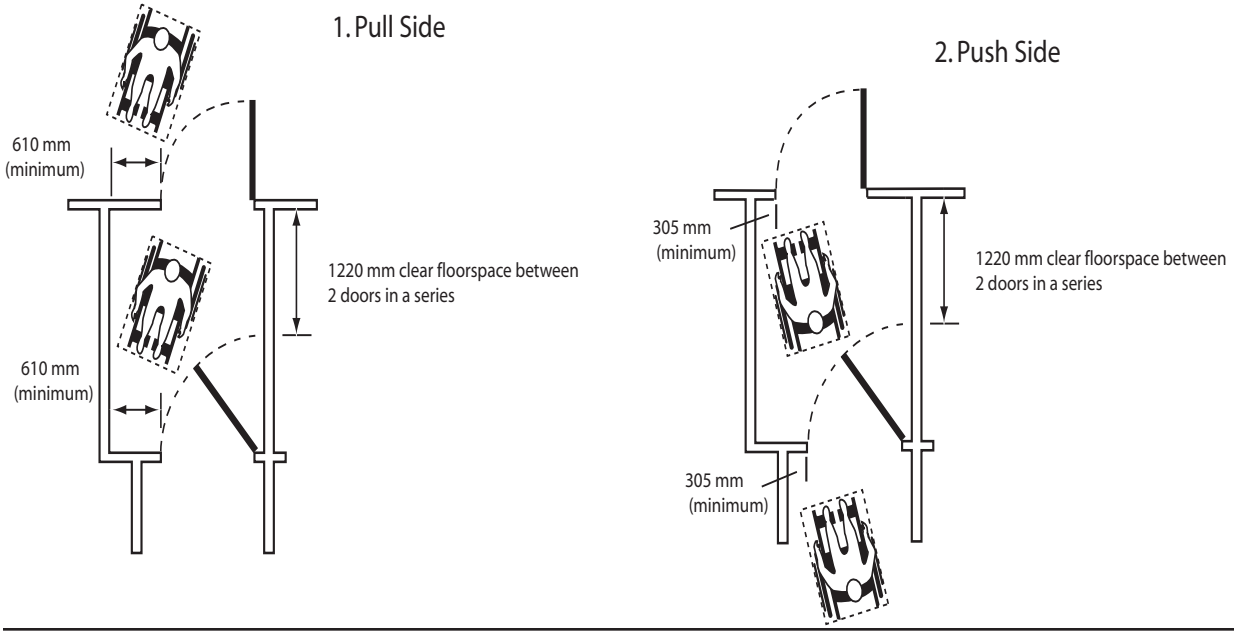


Fig: Doors in Series (B17)

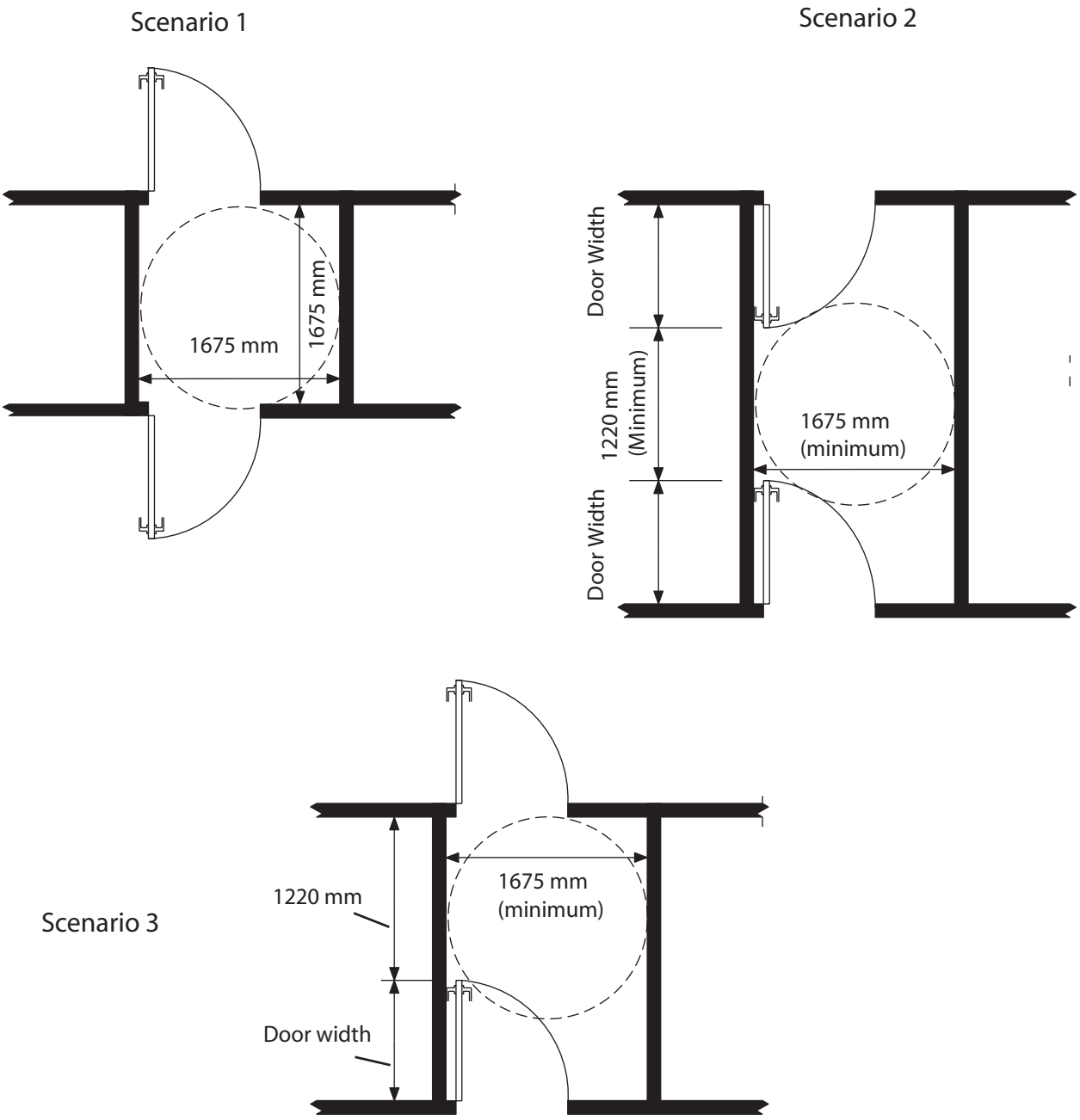
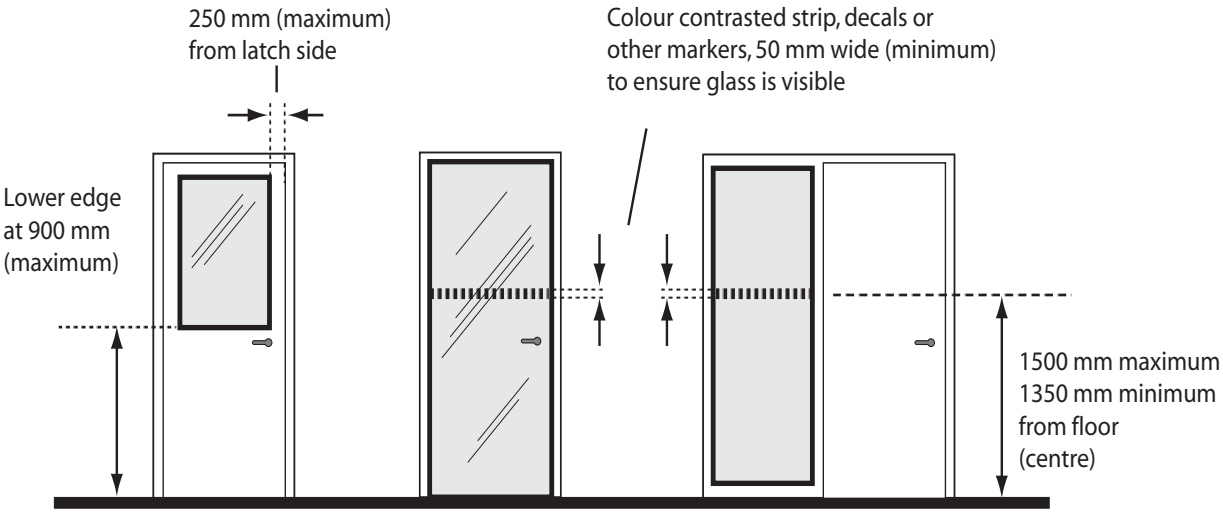
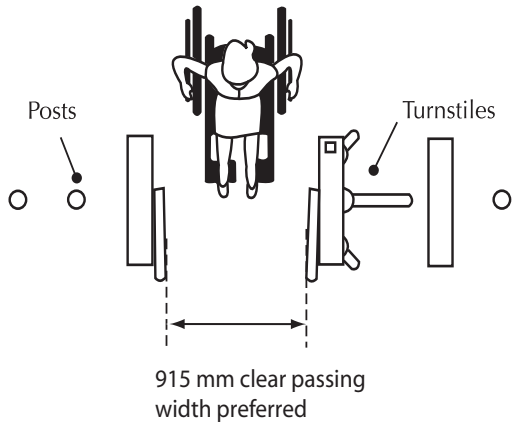


Fig: Glass Doors and Sidelights (B18)



Note: Provide colour contrast on edges of full glass doors for high visibility when door is in the open position. Framed glass is preferred.

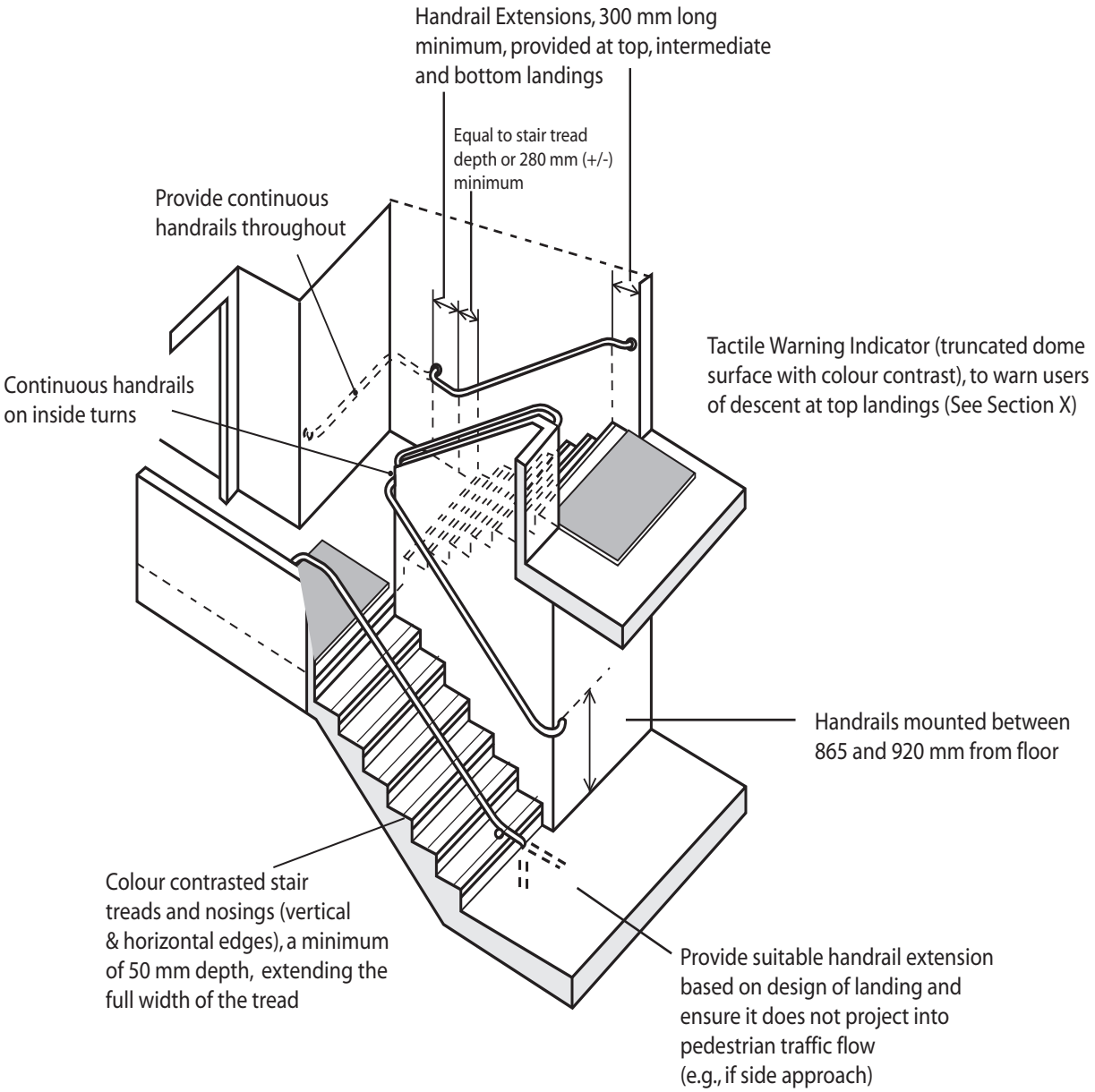
Fig: Turnstiles & Control Gates (B19)

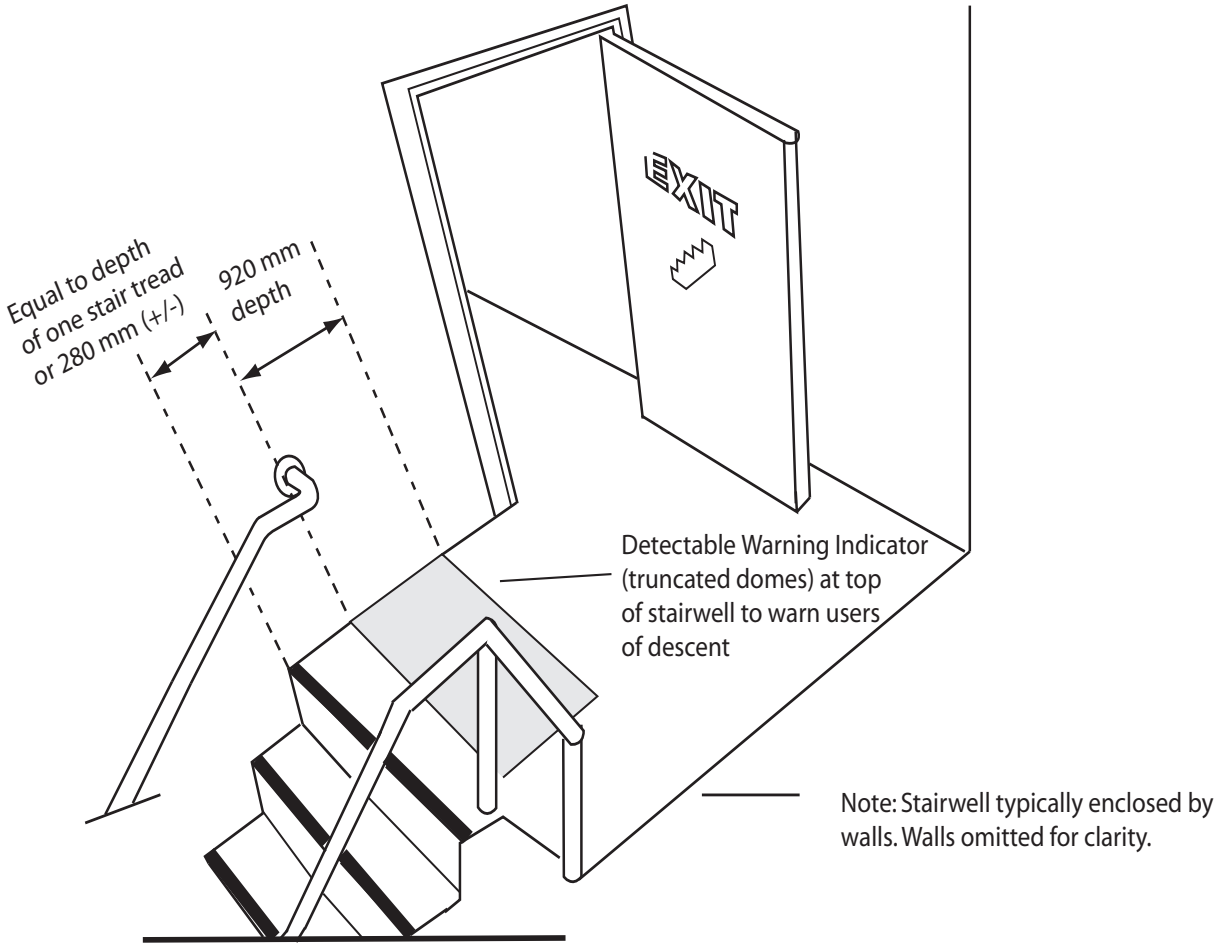


Stairs and Ramps

For Phase 2, this section may be eliminated or developed based on final organization of the document and further discussion with Staff related to ensuring document is as user-friendly as possible without unnecessary duplication. Criteria/dimensions are provided in Section A “Exterior Areas”. Additional diagrams specific to Interior Areas have been included within this Section, which will also be incorporated in the final re-organization and layout of this document.

(Placement to be determined)




Equal to depth of one stair tread or 280 mm (+/-)
920 mm depth
EXIT
Detectable Warning Indicator (truncated domes) at top of stairwell to warn users of descent
Note: Stairwell typically enclosed by walls. Walls omitted for clarity.

Elevators, Lifts and Escalators

Rationale

Typically, traveling vertically within an environment presents the hardest challenges for users of mobility aids within buildings, especially in existing buildings where accessibility issues often were not considered in the original design. All floors of a building shall be accessible to all users, excluding floors, rooms and spaces designated solely for maintenance and machinery used to operate the building. Passenger elevators with ample floorspace are preferred by the widest range of building users, recognizing they provide the greatest level of independence to reach different floor levels and can be easily equipped with modern, accessible controls and features that meet the needs of people with varying disabilities.

All equipment used to provide vertical circulation within a building shall be safe and easy to use and operate, for people of all ages and abilities. The location of elevators, lifts and escalators shall be marked with directional and informational signage, with clear instructions for operation also available in alternate formats as required. Additionally, lifts, platform lifts, stair-lifts and escalators shall be regularly maintained by the appropriate manufacture/installer.

Where provided, passenger elevators and platform lifts shall be designed to be useable independently by and accessible to persons using wheelchairs and scooters, in all public facilities. The provision of ramps is strongly preferred over platform lifts.

Accessible Design Criteria

Elevator Provision

- All public buildings where there is a change in floor level and no other accessible routes for vertical circulation are provided. Elevator access is not required where accessible ramps or platforms lifts are provided in lieu of an elevator (e.g., access to stage, assembly areas or raised platforms in court rooms, for example).
- Location of elevators shall be on an accessible pedestrian route (See Section X).
- Passenger elevators shall comply with the most recent CAN/CSA-B44 Standard “Safety Code for Elevators ” (e.g., 2004 current edition).
- All elevators must also comply with the detailed requirements of other responsible authorities/jurisdictions, including national and provincial building and safety codes.
- Freight elevators are not required to meet the requirements of this section recognizing they typically are not designed for passenger use.

Hall Call Buttons (Lobbies and Corridors)

- Provide a minimum clear floor space of 760 by 1220 mm (2’-6” by 4’-0”) in front of lobby and corridor elevator call buttons (e.g., for up and down control).

- Call buttons shall be located between 815 and 1200 mm above floor (2’-8” to 3’-11”), measured to the centerline, and designed as raised, flush or recessed push buttons. Buttons to be a minimum of 19 mm diameter and shall not be heat-sensor type. Buttons shall be mounted on surface that is raised a minimum of 1.5 mm from wall (1/2”).

- Objects located beneath hall buttons shall protrude 25 mm or less from wall (e.g., built-in ash trays of receptacles).

Lobby and Corridor Signals

- A visible and audible signal shall be provided at each hoistway entrance (e.g., each floor level) to indicate which elevator is responding and its direction of travel. Visual signals should be consistently mounted (e.g., on the top of the elevator door or on the top of the door jamb).

- Audible signals shall sound once for the “up” direction and twice for the “down” direction or have verbal announcements. Audible signals shall be a minimum of 10 dBA above ambient noise levels, or 80 dBA maximum.

- Signal fixtures shall be a minimum of 1830 mm (6’-0”) above floor level, with a minimum diameter of 60 mm (e.g., up or down arrow) and be highly visible upon approach. Lighting typically indicates activation and direction of travel.

Floor Designation Signage

- On both elevator door jambs, provide raised and braille floor designation signage (e.g., floor number), centred at 1525 mm from the floor and colour contrasted with mounting surface.

- Provide a raised star symbol (left side of floor number) on both door jambs of the elevator on the main entry level. Characters shall be 50 mm high (2”), raised .75 mm (1/32”) from surface, colour contrasted with background. Door jamb signage shall be colour contrasted with adjacent mounting surface. See Section X for accessible design criteria related to tactile and Braille signage.

Elevator Cab – General Features

- All relevant elevator systems and features shall be automatic (e.g., cab, platform, doors, controls) to allow independent use. Interior cab controls shall be accessible for all users. See Section X for accessible design criteria related to Elevator Cab Interior Controls.

- Cab shall be equipped with a self-leveling feature to automatically bring and maintain the cab level at floor landings, no higher or lower than 13 mm from floor level.

- Provide a minimum clear door width of 915 mm (3’-0”) for entering / exiting.

- Doors shall be provided with a door-reopening device that will stop and reopen cab door to at least 910 mm, in case cab door is obstructed while closing. Reopening device shall be sensor activated and not require contact for activation (e.g., infra-red). Door reopening device shall remain effective for a minimum of 20 seconds.

- From the time the doors start to open, a minimum period of five (5) seconds shall elapse before doors start to close if it is activated from an elevator lobby, or three (3) seconds if it is activated from the cab control panel.

- A minimum interior cab floorspace of 1525 by 1525 mm (5’-0” by 5’-0”), measured between walls or from wall to door, shall be provided, with 1725 by 1525 mm preferred (5’-8” by 5’-0”). The Elevator industry has standardized floor spaces with minimum dimensions, including dimensions for “Limited Use Limited Application” LU/LA elevators. This requires detailed study of any elevator installation project based on a building’s size, occupancy and level of use.

- In existing buildings with elevators that have floorspace less than 1525 mm (5’-0”) in any direction, an angled mirror shall be installed on wall opposite of door to aid users of mobility aids who need to back out and look for any potential incoming passengers.

- Both audible and visual cab position indicators shall be provided to indicate the location of the cab, including an audible signal when cab stops at floor level, for users with a vision loss. Visual indicators shall be located above the cab control panel or above the door, with numbers a minimum 16 mm high. The audible signal shall be 10 dBA minimum above ambient, maximum of 80 dBA.

Elevator Cab – Interior Controls

- Minimum clear floor space of 760 by 1220 mm (2’-6” by 4’-0”) shall be provided at cab controls (e.g., interior panel).

- Cab control buttons shall be raised, recessed or flush with wall surface. Buttons shall be arranged with numbers in ascending order and shall be a minimum of 19 mm diameter (3/4”). Buttons shall be mounted no higher than 1200 mm (3’-11”) from cab surface (centerline), except when elevator serves more than 16 floors, a maximum height of 1370 mm (4’-6”) is allowed for side approach by users of mobility aids.

- Buttons shall be marked with accessible signage, including standard text for letters, Arabic characters for numbers and the use of tactile/braille symbols. Tactile and braille symbols (Grade 2 Braille only) shall be mounted to the left side of the buttons they apply to. The first floor designation button shall be marked with a tactile/braille “star” symbol, mounted to the left side of the button.

Emergency Communication System

- Provide a two-way emergency call system, linked to a central and monitored location in the building. Ensure system control buttons are mounted a maximum of 1200 mm (3’-11”) and no lower than 890 mm (2’-11”) from floor level. Typically, emergency controls and communication systems are mounted at bottom of control panel.

- If the system uses a handset, the cord from the panel to the handset shall have a minimum length of 900 mm (3’-0”).

- System shall be marked with colour contrasted and raised symbol / text signage (e.g., raised .75 mm from surface).

- Symbol / text shall be at least 38 mm (1 ½”) high with braille provided adjacent and mounted beside system. Often a raised “phone” symbol is used.

- System shall include both a visual and audible notification to let users know help is on the way (e.g., for people with hearing loss or others who cannot communicate verbally).

- Hands-free systems accommodate a wide range of users (e.g., speaker systems). If system is provided within a recessed cabinet, ensure door handle is graspable (e.g., lever of D-pull) and cabinet should be marked with appropriate signage.

Elevator Cab – Interior Surfaces and Finishes

- All finishes shall be matte, non-reflective surfaces. Stainless Steel / Chrome finishes to be brushed, matte finish without and high polish used.

- Provide a continuous, easy to grasp handrail (e.g., rounded shape), mounted on side walls at 810 to 915 mm from floor (2’-8 to 3’-0”), including rear wall (preferred). Provide a space of 35 to 45 mm (1 ½”) between the handrails and walls.

- If mirrors are used as part of interior elevator finishes, they shall be located on side walls of the cab only, to minimize any potential confusion faced by persons with a vision loss, or cognitive disability when entering and faced with a mirror directly in front. If provided on the wall opposite of the door, bottom edge of mirror shall be mounted at 2000 mm or higher.

- Cab flooring shall be firm, level and non-slip. If mats are provided, ensure they are secured at all times with beveled edges no higher than 13 mm from floor.

Lighting

- Ensure lighting in elevator cabs and at platform lifts is at least 200 lux (20 foot candles), measured at floor level. Provide equal illumination in all adjacent lobby spaces to prevent potential tripping hazards at door openings.

Platform Lifts

- Inclined or vertical platform lifts shall comply with the most recent CAN/CSA-B355Standard as well as other detailed requirements of responsible authorities / jurisdictions, including building and safety codes.

- Ensure lift controls can be independently operated by users with varying disabilities, unless restricted access to floorspace and controls served by lift applies to all occupants (e.g., attendant or key operated).

- Provide platform and adjacent landing floorspace of 1675 by 1675 mm (5’-6” by 5’-6”) preferred, to accommodate larger mobility devices such as scooters, or a minimum of 915 mm (3’-0”) wide by 1220 mm (4’-0”) depth (e.g., retrofit scenario).

Escalators

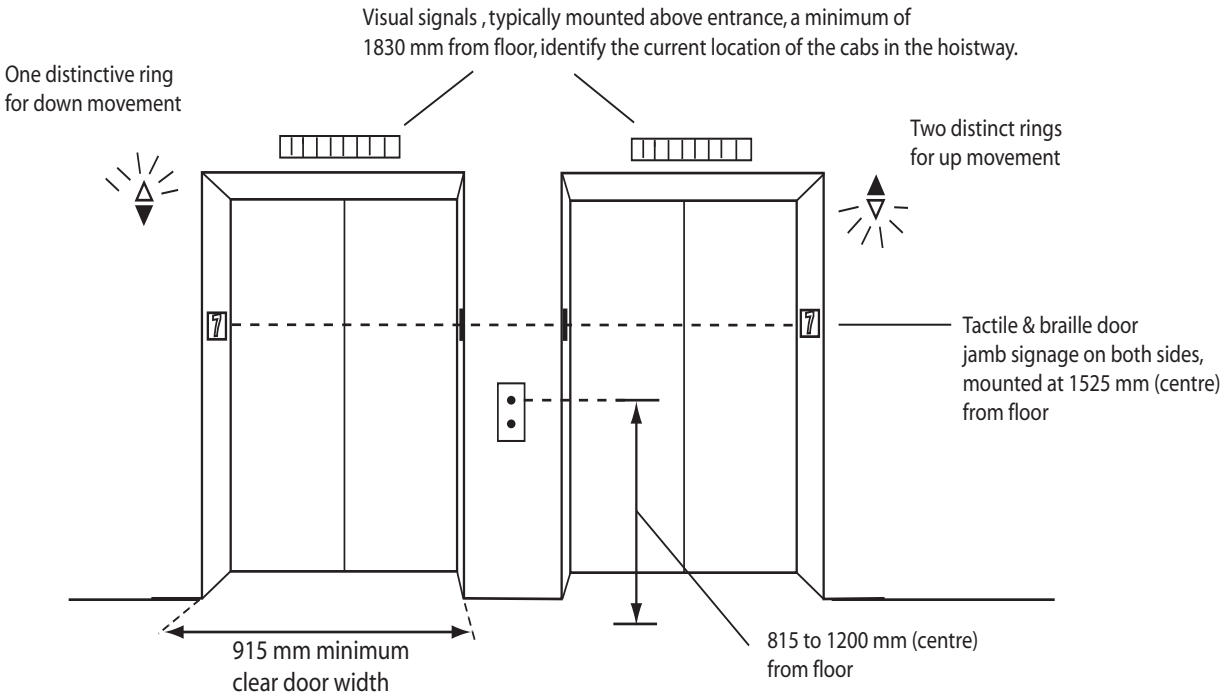
Escalators are not considered a part of an accessible route of travel, however, some design requirements are included in this section to ensure safe use by people with or without disabilities.

- Provide strong colour contrast (e.g., 70%) on handrails and on the edges of treads and nosings of escalator steps. Install cane detectable warning indicators at the top and bottom landings [See Section X]. Note: Industrial yellow is highly visible and suitable for users with a vision loss.

- Prevent reflected glare from overhead lighting sources through the use of matte surface finishes.

- Provide 200 lux (20 foot candles) illumination at escalators to ensure safety and full visibility of features for all users.

Fig: Elevator and Lobby Features (B28)



Note: Both audible and visual signals indicate the arrival and direction of each cab's movement.

Fig: Typical Elevator Cab Features (B29)

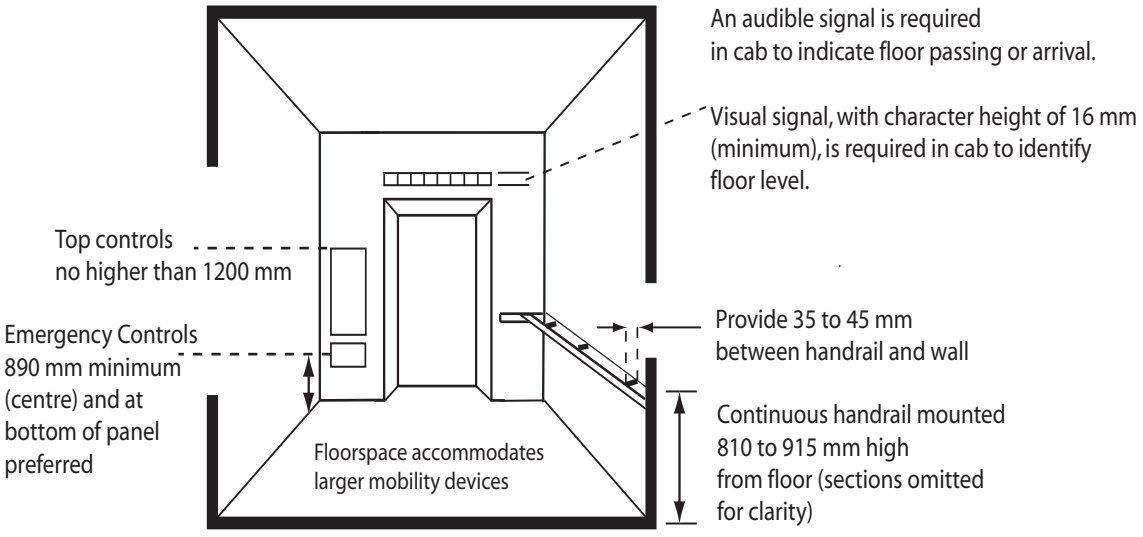


Fig: Minimum Interior Dimensions For Accessible Elevator Cabs (B29)

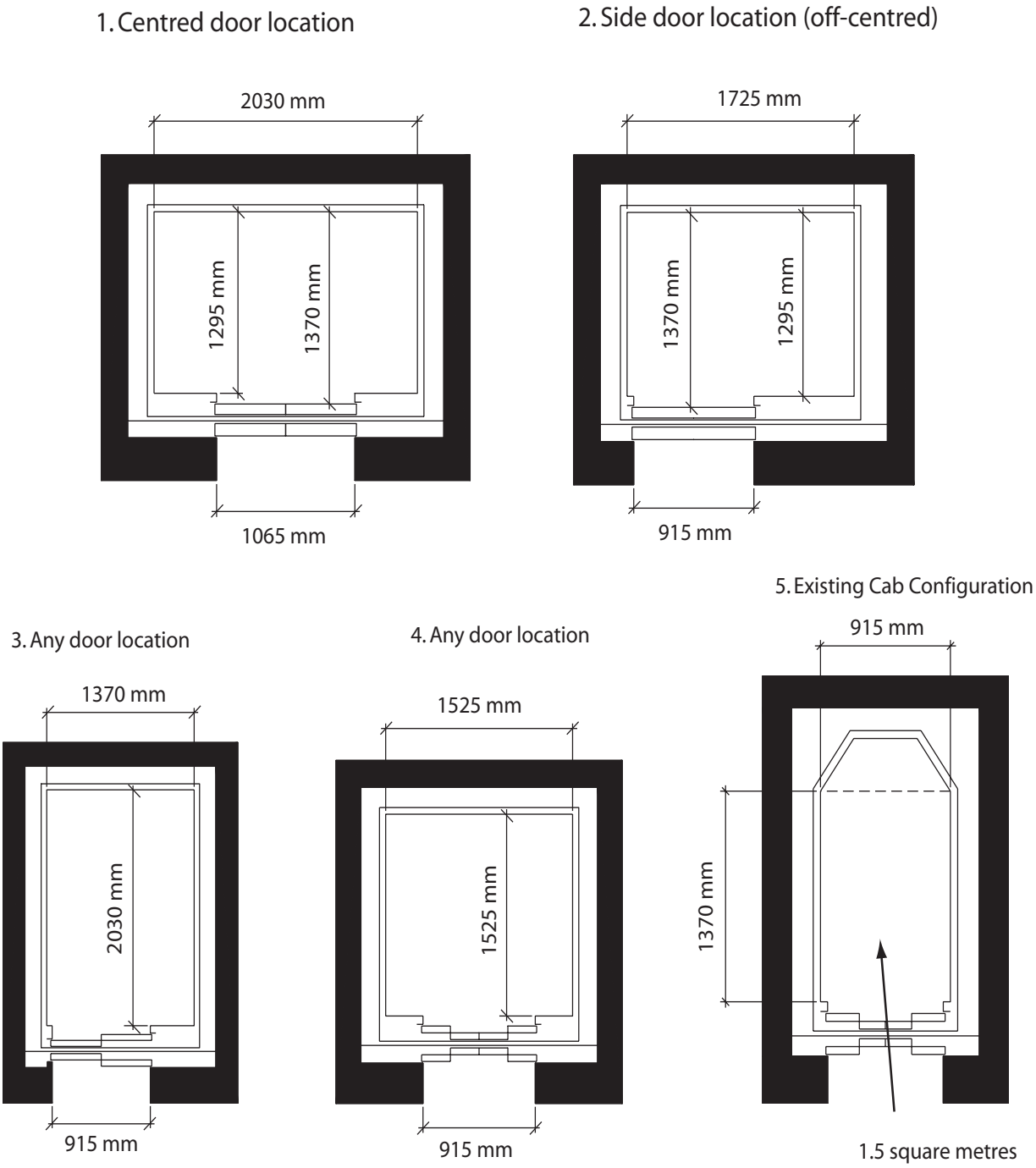
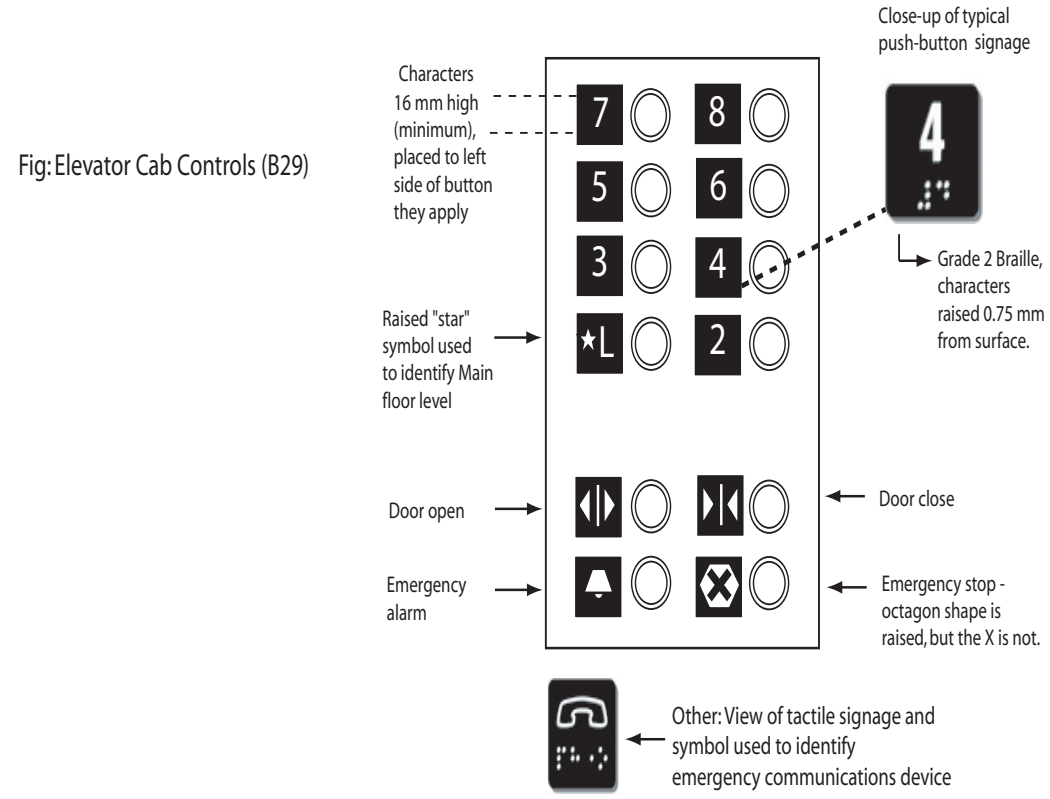


Fig: Elevator Cab Controls (B29)



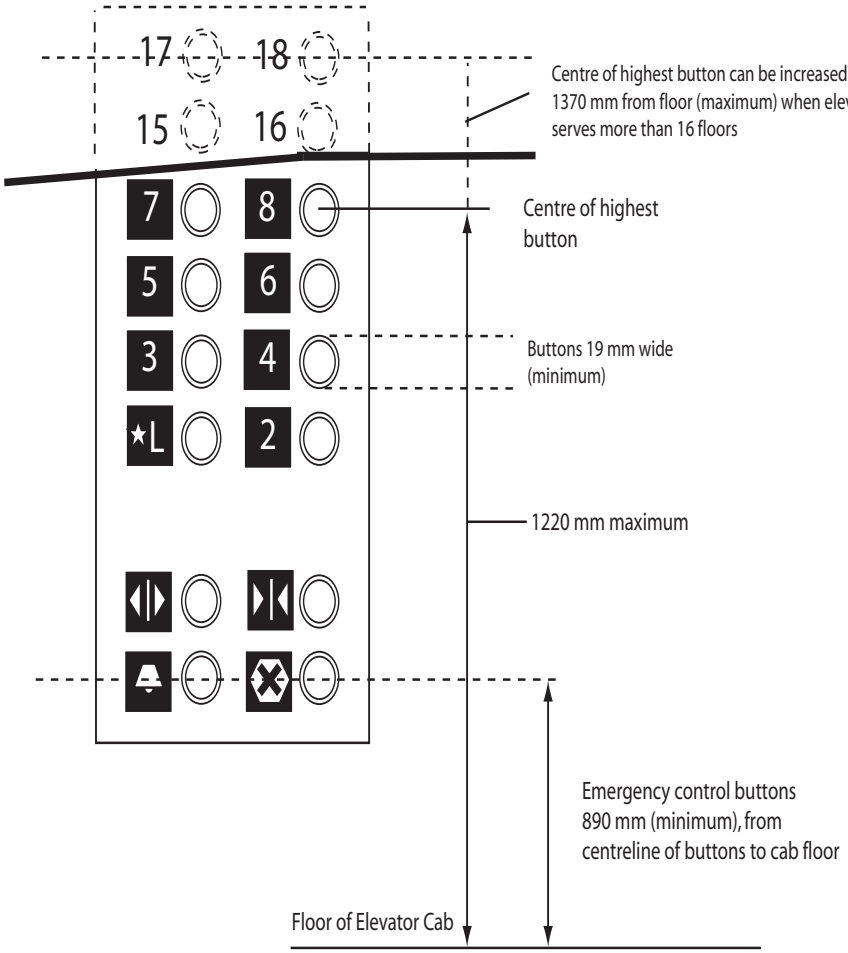
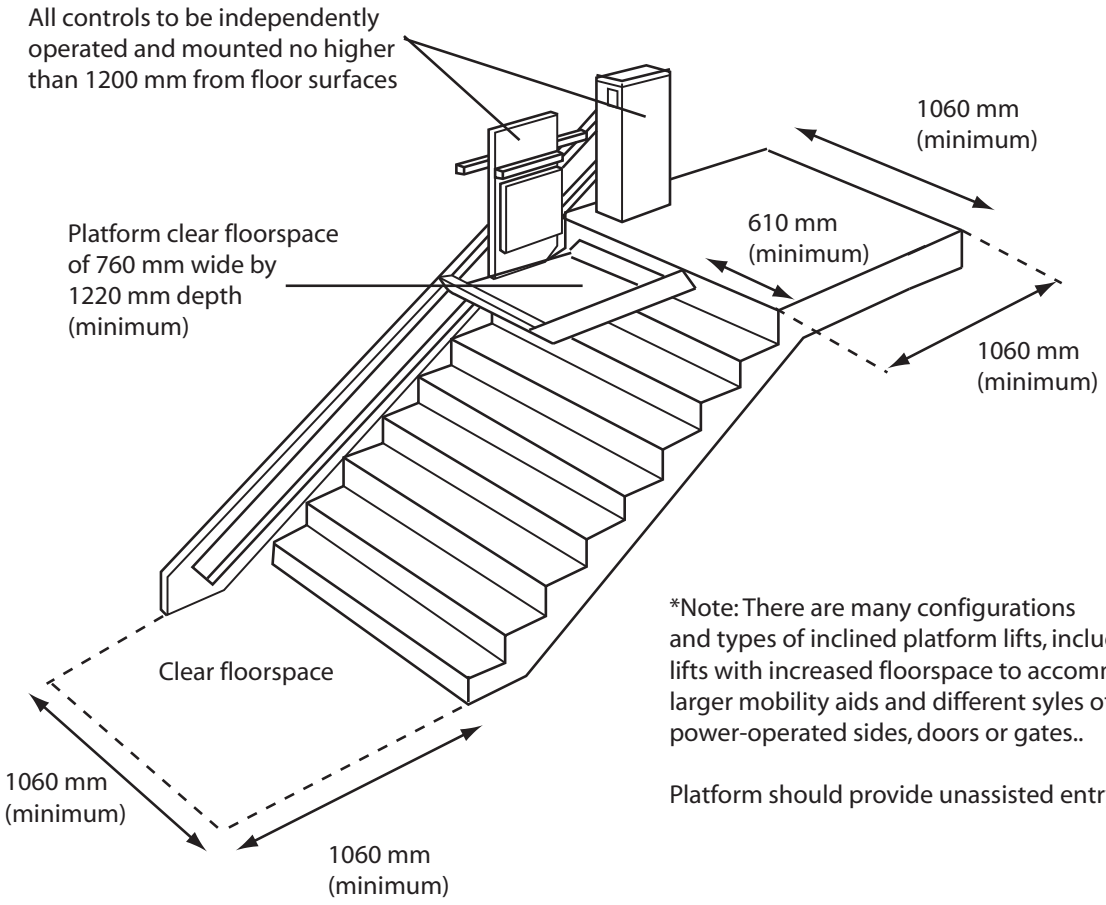


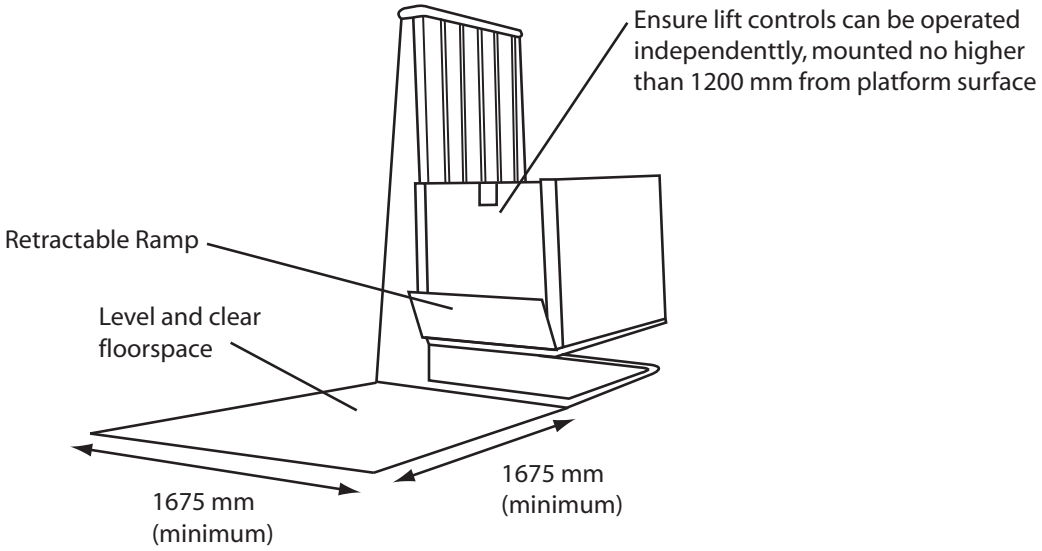
Fig: Inclined Platform Lift (B31)



*Note: There are many configurations and types of inclined platform lifts, including lifts with increased floorspace to accommodate larger mobility aids and different syles of power-operated sides, doors or gates..

Platform should provide unassisted entry and exit.

Fig: Vertical Platform Lift (B31)



Public Amenities

Rationale

Generally, public facilities are designed to provide diverse interior amenities for staff and visitors, ranging from furniture, planters, drinking fountains, vending machines and other equipment, to essential communication systems such as telephones. Overall, it is the visibility, mounting locations and design of controls for these amenities that have the greatest impact on accessibility for users of all ages and abilities.

Accessible Design Criteria

Public Telephones

Provision

- Where a single public telephone (e.g., coin operated, coin less, closed circuit, courtesy phone etc) is provided on an accessible floor level, it shall have accessible features as detailed in this section (e.g., clear floor and knee-space). If a bank of telephones is provided on a floor level (e.g., more than one telephone), at least one shall be accessible.

- Where there are more than four (4) public telephones provided, at least one phone shall be equipped with a fixed TTY device, preferably mounted below phone, without minimizing required knee-space height for users of mobility aids.

- Where telephones are provided specifically to address the needs of users with hearing loss, they shall be equipped with adaptable controls to allow portable TTY hook-up, including an adjacent electrical outlet. All features shall comply with CAN/CSA-T515 standard (e.g., responsibility of phone service provider).

Clear Floor Space

- Where telephones are wall-mounted and/or hung in an enclosure, floorspace for frontal or side approach (without knee-space below telephone) shall be a minimum of 760 mm deep by 1680 mm long (2’-6” by 5’-6”), or 1680 by 1680 mm (5’-6” by 5’-6”), preferred to accommodate larger wheeled mobility devices (e.g., scooters).

- Knee space below telephone is preferred, at a minimum of 685 mm high from floor, to a maximum depth of 485 mm (19”). Typically, telephone enclosure has a lowered surface that also acts as a shelf, which is preferred. Ensure shelf is level and at least 450 mm wide by 300 mm deep, mounted 685 to 735 mm from floor level (2’-3” to 2’-5”). The height between the top of shelf and lower edge of phone equipment shall be a minimum of 150 mm (6”) to accommodate portable TTY hook-up.

- If seating is provided in floorspace, it shall be flexible to accommodate users of mobility aids and people who prefer to stand.

Controls

- Provide push button controls on all telephones. Buttons shall be colour contrasted with background and have a matte Button numbering shall also be colour contrasted with button surface.
- All operating controls, including coin or card slots, push buttons and dispensers shall be mounted no higher than 1220 mm (3’-11”) high from floor level.
- The maximum reach to all operating controls shall be 485 mm (19”) from front edge (e.g., of cabinet or shelf).
- The minimum cord length for the telephone handset shall be 735 mm (2’-5”).
- Equip public telephones with adjustable volume controls for users with a hearing loss.

Lighting

- Provide illumination of at least 200 lux (20 foot candles) over all telephone features and controls to aid all users.

Signage

- Accessible phones to be marked with the International Symbols of Accessibility and Hearing Loss, based on the features provided. Directional signage to public telephone location is also beneficial where phone may be hidden from view or mounted in a recessed area, for example. See **Section X** for accessible design criteria related to Signage.

Drinking Fountains

- Where provided, at least one drinking fountain shall be accessible to all users on each floor, including lowered units for people using mobility aids, people of short stature, children or others who may have trouble bending. Where multiple drinking fountains are provided on a floor, 50% shall be accessible for diverse users.
- Drinking fountains shall be set to one side of the accessible pedestrian route, with a minimum clear floor space of 760 by 1370 mm (2’-6” by 4’-6”) for front or side approach by persons using mobility aids. If unit projects more than 4” from wall, sidewalls are required for cane detection.
- Ensure drinking fountain fixtures are colour contrasted with surroundings for easy identification.
- Where the drinking fountain is recessed and/or wall mounted, clear knee space of 760 mm (2’-6”) wide by 700 mm (2’-3½”) high to the underside of the unit is required.

- The controls for the drinking fountain shall be mounted to one side of the bowl, no higher than 915 mm (3’-0”) from finish floor and controls shall be operable with one hand, requiring no turning/twisting of the wrist or pinching of the fingers. Large push buttons or lever handles are preferred. A maximum force of 22.2 Newtons (5 pounds) shall be required for using controls and wherever possible, automatic controls shall be considered.

- The spout for water projection shall be no higher than 915 mm (3’-0”), with a trajectory across the bowl a minimum height of 100 mm (4”), to allow positioning of a cup by people who have difficulties using drinking fountains.

- The spout shall be located a minimum of 380 mm (1’-3”) from the back of the unit and 125 mm (5”) maximum from the front edge of the unit.

Vending Machines

- Where vending machines are provided for visitors or staff, care shall be taken to ensure that such machines are accessible to and useable by persons with mobility aids and low vision.

- Vending machine controls, dispensing areas, or other working parts shall be located no higher than 1200 mm (3’-11”) and no lower than 455 mm (1’-6”) from the floor.

- Signage on vending machines shall be in high colour contrasted print, with text at least 13 mm (½”) high, to ensure legibility by persons with a vision loss.

- Floor space in front of vending machines shall be at least 1370 mm (4’-6”) deep by 1525 mm (5’-0”) long, to allow lateral access by persons with mobility aids, including wheelchair/scooter users. Clear floor space of 1680 by 1680 mm (5’-6” by 5’-6”) is preferred for larger wheeled mobility devices.

Coat Closets and Related Storage

- In each major area or on each floor, provide at least one section of coat hanging space that is reachable and useable by persons using mobility aids such as wheelchairs/ scooters. Note: approximately 10% of all coat space storage shall be accessible and free of obstacles.

- Accessible closets and coat racks shall have coat rods and/or coat hooks fixed securely and mounted between 1200 mm (3’-11”) and 1370 mm (4’-6”) high.

- At least one fixed shelf shall be provided in accessible sections of coat closets mounted no higher than 1370 mm (4’-6”). No base or lower shelf shall be installed in accessible closets.

- Clear door openings for closets or coat racks shall be at least 810 mm (2’-8”) wide to allow a frontal approach by persons using mobility aids.

- Public check-in counters for coat storage located in entertainment facilities or other settings, shall include at least one section of lowered counter, approximately 760 mm (2’-6”) wide and 865 mm (2’-10”) high to allow easy access by persons using mobility aids.

Lockers and Baggage Storage

- Storage or baggage lockers for people with disabilities shall have the bottom shelf of the compartment no higher than 1200 mm (4’-0”) and no lower than 455 mm (1’-6”) from the floor (e.g., between 5% and 10% of available spaces).

- Locks for accessible storage lockers shall be mounted at 915 mm (3’-0”), but no higher than 1065 mm (3’-6”). Locks shall be easy to operate by persons with limited manual dexterity.

- Numbers or names on lockers shall: be in distinct and legible lettering; be mounted no higher than 1500 mm (5’-0”); and be of either raised or recessed lettering. Lettering colour shall be highly contrasted from the background.

- Lettering or number size shall be between 13 mm (½”) and 19 mm (¾”) high, for easy legibility by persons who have visual disabilities.

- Baggage racks or carousels for suitcases etc. shall have the platform surface no higher than 455 mm (1’-6”) from the floor.

- Aisle spaces in front of lockers, baggage compartments and carousels shall be a minimum of 1370 mm (4’-6”) deep to permit a forward or lateral approach by users with mobility aids.

Door and Cupboard Hardware

For storage cabinets, closets and cupboards provided for staff or public use:

- Door pulls or latches shall be of the lever handled or ‘D’ type for easy use by persons with disabilities.

- Door hardware shall be mounted no higher than 1065 mm (3’-6”).

- Wherever possible, locks shall be part of the handset.

- Sliding cupboard or door hardware shall be selected and mounted so that the *clear* door opening that remains is at least 810 mm (2’-8”) wide.

- Pocket door hardware shall include a ‘D’ type pull on the leading edge.

Windows and Window Hardware

- Provide clear floorspace of 1675 mm wide by 1675 mm depth (5’-6” by 5’-6”) in front of window operating controls to accommodate turning radius of larger mobility aids, or a minimum of 760 mm (2’-6”) wide by 1220 mm (4’-0”) depth.

- In buildings with operable windows for use by staff or the general public, the opening sections shall be easy to reach and operate by persons using mobility aids or of short stature.

- Window opening hardware shall be mounted no higher than 1065 mm (3’-6”).

- Where required, window hardware shall be of the lever handle type (e.g., cranking, turning or twisting handles are not accessible).

- Sill heights shall be no higher than 760 mm (2’-6”) from the floor to allow vision out by persons using mobility aids or by persons who are confined to their beds.

- Horizontal transoms in windows shall be designed so that they do not interrupt the eye level of seated persons (e.g., below or above height range between 1065 mm (3’-6”) and 1220 mm (4’-0”).

- Deep window sills located in residential and institutional residential environments, used for plants and photographs, shall be reachable by persons using mobility aids, with surface between 760 to 865 mm from floor (2’-6” and 2’-10”).

- Window blinds, drapes or louvers shall have operators, controls, and pull cords etc., that are accessible to persons using mobility aids, (i.e., with controls in an open approachable space), mounted no higher than 1200 mm (3’-11”).

Stages and Elevated Platforms

- Ensure stage, elevated platforms and accessible routes can be illuminated to 200 lux (20 foot candles) preferred, or 100 lux (10 foot candles) minimum, including provision of secondary task lighting sources that can be used as required.

- Provide at least one accessible route to each stage or elevated platform for public or staff use, via a sloped walkway (preferred), ramp or lift, for users of mobility aids.

- Include detectable warning indicators and colour contrasted flooring surface to define edge of stage or platforms and to warn users with a vision loss of change in level. See Section X for accessible design criteria related to detectable warning indicators.

- Where stairs or steps are included in the design, ensure accessible handrails and colour contrasted nosings are provided for additional safety.

Fig: Public Amenities - Telephone (B36)

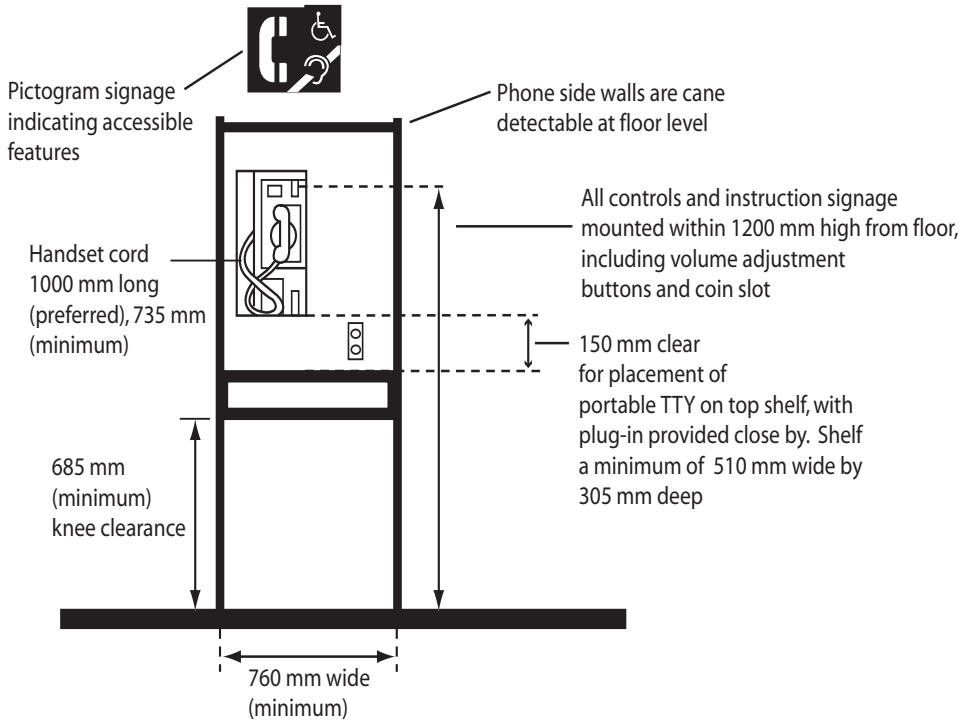


Fig: Forward Approach to Telephone

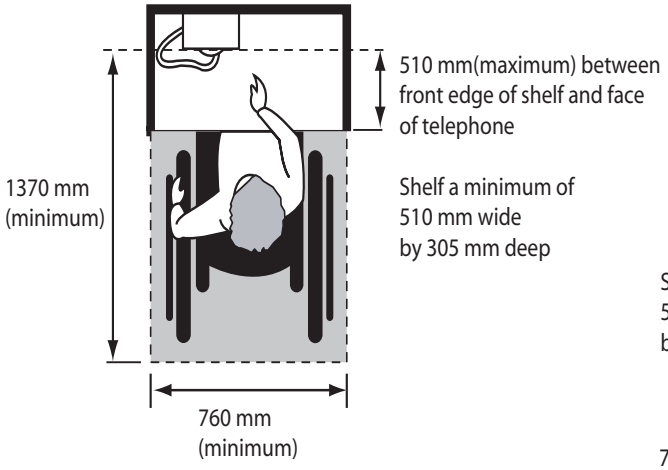


Fig: Parallel Approach to Telephone

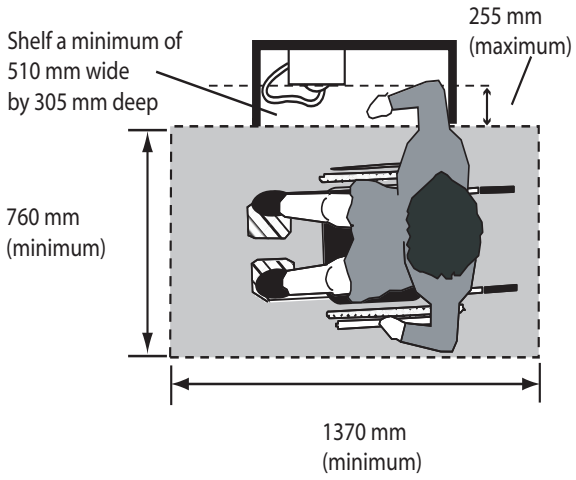


Fig: Public Amenities - Recessed Drinking Fountain (B37)

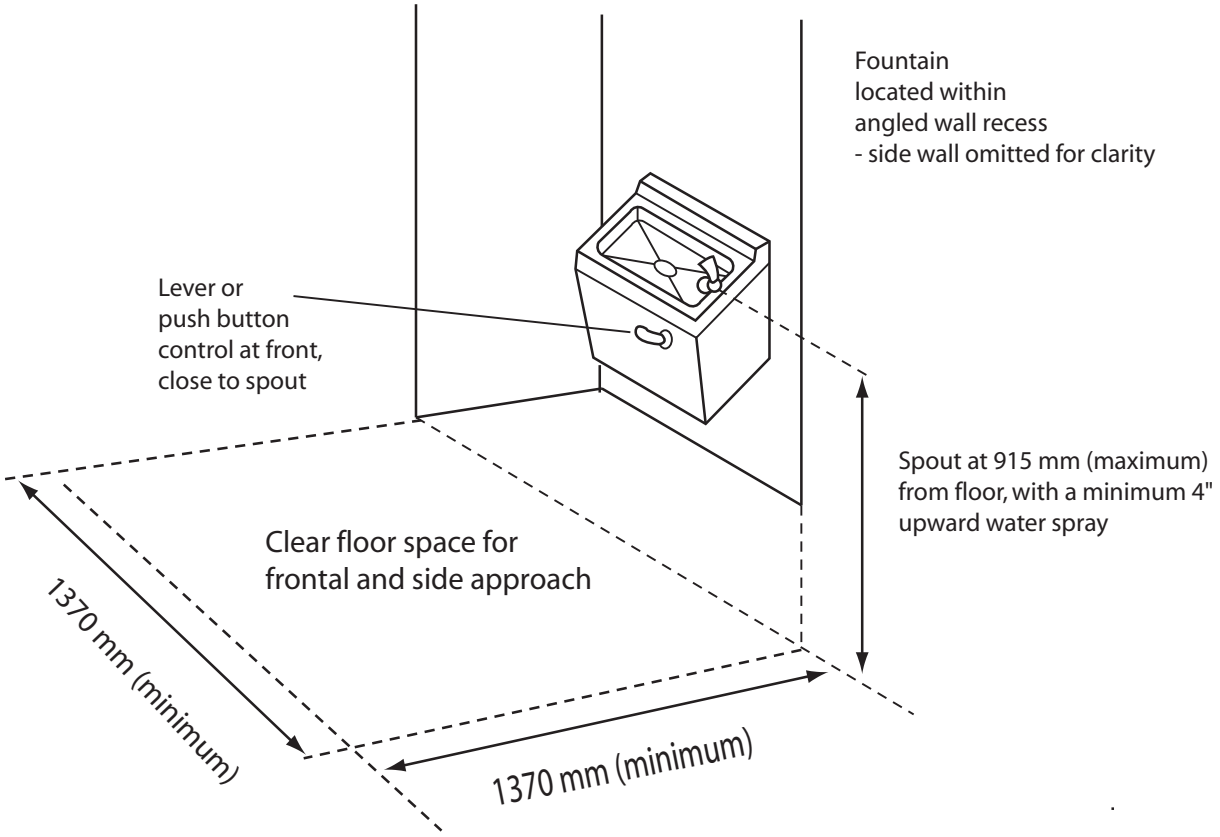
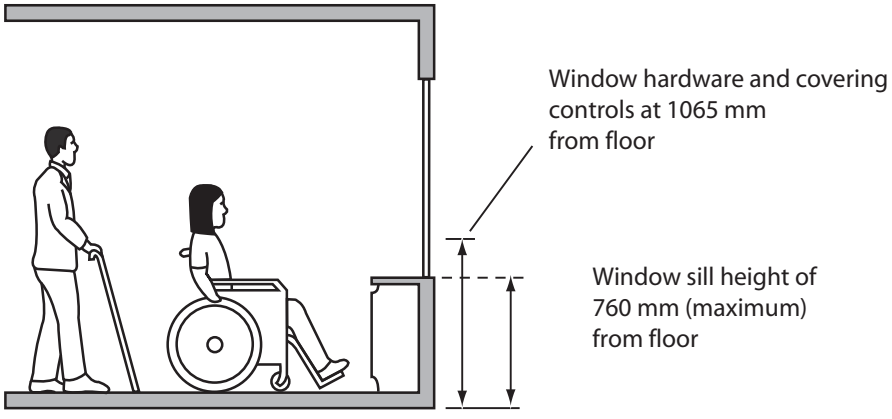


Fig: Windows and WIndow Hardware (B40)



Provide clear floorspace of 760 mm wide by 1220 mm depth (minimum) for frontal or side approach by users of mobility aids. Increased floorspace with turning radius of 1675 by 1675 mm is preferred to accommodate larger mobility aids.

Public Washrooms

Rationale

Public washrooms require the most attention during the design phase compared to other building elements recognizing their importance for all users. Often, washrooms are given minimum space so as to maximize the size of other spaces used in a building. There is also a lack of awareness of detailed design criteria that is required to ensure washroom features and amenities are accessible to diverse users. This includes considerations that take into account people's varying levels of ability for moving around that are affected by many factors including body weight, overall health, use of mobility aids (wheelchair, cane, crutches, scooter), vision loss, limited reach, arm strength and whether people are taking care of young, adult or elderly family members. Overall, washroom provision, design and layout needs to be flexible to accommodate diverse needs and uses. For example, the minimum requirements for public washrooms and accessible features identified in the Ontario Building Code should be considered a starting point only.

Accessible Design Criteria

General Considerations

Overall, public washroom requirements and provisions are determined based on the size and use of the building. More than one accessible stall is preferred for each washroom, however, a minimum of one accessible stall for every 25 stalls is required in multiple occupancy accessible public washrooms. Locating accessible stalls at the furthest end from the entrance may discourage the use of these stalls by people without disabilities.

- Mark accessible stall doors with the International Symbol of Accessibility decal for easy identification upon approach.
- Provide at least one unisex family washroom wherever possible, for users with disabilities and their caregivers, who may be the opposite gender.
- Ensure all public washrooms are designed with accessible amenities, located along an accessible pedestrian route and provided in centralized and convenient locations of the building. Consider the use of privacy walls or specialized configuration of entrance lobbies to avoid the need for entrance doors wherever possible.
- The travel distance to any public washroom shall be 45 metres or less, from any point in the building for all users, with or without a disability. Equal provision of accessible and non-accessible washroom facilities is important for all public buildings.
- All washrooms shall be designed with non-slip flooring with a matte finish to prevent glare from overhead lighting sources. Ensure hand-drying amenities are located adjacent to vanities and sinks to prevent wetting of the floor which can lead to potential slipping hazards.

- Lighting in all washrooms shall be a minimum of 100 lux (10 foot candles) and evenly distributed throughout.

- Exterior identification signage shall indicate the use/gender of the washroom and mark accessible washrooms using the International Symbol of Accessibility. See Section X for accessible design criteria related to signage and wayfinding.

- Provide both audible and visual alarms in public washrooms. See Section X for accessible design criteria related to fire and life safety.

Unisex and Family Washrooms: Universal Access

- If accessible washrooms are provided separately from other washrooms, including accessible unisex/family washrooms, they shall be provided in the same vicinity as other washrooms, along the shortest accessible pedestrian route possible and clearly identifiable (e.g., prominent/obvious location and well signed).

- Entrance door clearance shall be 915 mm (3'-0") wide minimum, recognizing increased widths are preferred wherever possible to benefit users of larger wheeled mobility aids (e.g., power wheelchairs and scooters). Consider designing entrances without the need for doors wherever possible.

- For high use washrooms, entrances shall be equipped with a power-door operator. Ensure floor space clearances for approach to door and power-door operator push button is provided (See Section X). Controls shall be large diameter (6" by 6" push button), marked with the International Symbol of Accessibility and mounted away from door swing.

- Lever, D-pull or push/pull type hardware shall be provided for entrances that are not power-assisted. Door closers shall not be used on individual washrooms, recognizing resistance often poses problems for users with limited manual dexterity and upper body strength. They also make positioning difficult for users of mobility aids.

- Provide a minimum clear floorspace of 1700 by 1700 mm (5'-7" by 5'-7"), or minimum floor area of 3.5 square metres. Clear floorspace of 2300 by 2300 minimum (8'-0" by 8'-0") is preferred to accommodate larger wheeled mobility aids.

- Provide at least one toilet and one lavatory, as detailed in Section X. All user amenities shall also meet requirements identified for accessible public washrooms (e.g., door clearance and hardware, transfer space, grab bars, user controls and amenities, for example).

- For individual unisex/family washrooms that are provided in high use facilities toilet shall be equipped with an emergency alarm device, with operable controls mounted no higher than 1200 mm (3'-11") from floor. Alarm device to be clearly signed with large print text and instructions on use and clearly colour contrasted with mounting surface. Alarm shall be linked to a central switchboard that is monitored at all times.

- Door hardware shall include a special locking device that can be opened from the exterior during emergency conditions by facility staff and when interior alarm is activated.

Accessible Toilet Stalls

Entrance and Door Hardware

- Align entrance door with toilet transfer space (e.g., opposite side of toilet) and provide clearance of 915 mm (3’-0”) wide for entry.
- Door shall swing outward against a wall (preferred). Door can swing inward if stall dimension is larger than minimum required and if user can easily close the door when maneuvering wheelchair when in the stall.
- Door shall be self-closing with two (2) large, colour contrasted D-pull handles (minimum 140 mm long or 5 ½”), with one handle mounted on each side of the door.
- Outside of door, mount D-pull handle between 900 to 1000 mm (2’-11 ½” to 3’-3 ½”) high from floor level, centred no more than 230 mm (9”) from door latch.
- Inside of door, mount D-pull handle 900 to 1000 mm high from floor level (2’-11 ½” to 3’-3 ½”), centred 205 to 300 mm (8 to 12”) from hinge side of door.
- Provide an accessible lock that does not require fine finger control, twisting of the wrist or tight grasping to use (e.g., a large sliding bolt latch is preferred recognizing it can be used with a closed fist).

Floorspace Dimensions

- Provide clear floorspace of 1700 by 1700 mm (5’-7” by 5’-7”), or minimum of 1600 mm wide by 1500 mm (5’-3” by 4’-11”) depth.
- Minimum toilet transfer space of 915 mm (3’-0”) wide by 1500 mm (4’-11”) depth is required beside toilet (measured from side of toilet across to stall partition/wall or side of adjacent vanity, if applicable).
- Layout shall be arranged for a left-hand or right-hand approach.
- If baby-changing tables are provided in accessible stalls, additional floorspace must be provided (e.g., exceed minimum), to allow suitable wheelchair maneuverability for parents/carers using mobility aids. (See Section X)

Toilets

- Centre toilet between 460 to 480 mm (18” to 19”) from any adjacent sidewall. Wall-hung toilets are preferred since additional toe-space is provided at floor level to accommodate users of wheelchairs.
- Mount toilet seat at 455 mm (18”) high from floor. Do not install spring-activated seats, which are difficult to use by people with limited manual dexterity. Provide a lever flush control, mounted on transfer side of toilet. Automatic flush controls are preferred (e.g., sensor activated).

- Mount toilet paper dispenser between 600 to 700 mm high from floor, aligned with front edge of toilet, or mounted between 180 to 230 mm in front (7” to 9”). Dispenser shall be mounted away from and below grab bar gripping surface, providing space of at least 40 mm (1 ½”) between grab bar and dispenser.

- Toilet paper dispensers must not control delivery, allowing continuous paper flow. Recessed dispensers are preferred. Do not use large, double roll dispensers if they block user’s ability to grasp adjacent grab bar (e.g., they are also cumbersome to reach and use).

- Provide a toilet seat or back support if there is no tank, as an aid for balancing.

Urinals

- Where more than one urinal is provided in accessible wahrooms, at least one urinal shall be accessible. Stall-type urinals (e.g., extend to floor level without a raised platform in front), are accessible to a wider range of users, including users of mobility aids, people of short stature and children.

- Urinal fixtures shall be colour contrasted with mounting surface / background for full visibility. Vertical markers, 50 mm wide, centred above urinal no higher than 150 mm (6”) and colour contrasted with wall surface (e.g., 70% contrast) shall be used to aid people with a vision loss to locate urinals.

- Where provided, urinals shall be stall or wall-hung types, with the rim mounted a maximum of 430 mm (1’-5”) from finished floor. Urinal depth shall be a minimum of 345 mm (1’-1 ½”), measured from the outer face of the urinal rim to the back of the fixture.

- Ensure clear floor space in front of accessible urinal s a minimum 760 by 1370 mm (2’-6” by 4’-6”), for front approach by users of mobility aids. This clear floor space can overlap with adjoining floor space and accessible routes.

- Provide grab bars on each side of accessible urinal, mounted vertically at 380 mm (1’-3”) from the centre of the urinal to the sides, with the lower end between 610 to 650 mm (2’-0” to 2’-1½”) from floor level. Both grab bars shall be at least 610 mm long.

- Provide lever or automatic flush controls no higher than 1200 mm (3’-11” from floor level.

Grab Bars

- All grab bars shall be rounded/circular in shape, non-abrasive, non-slip and colour contrasted with mounting surfaces.

- Grab bars shall not rotate within their fittings and be able to withstand a force of 250 pounds (1112 Newtons) applied to the grab bar, fasteners, mounting brackets or any other supports.

- Grab bar diameter shall be between 32 and 51 mm (1¼” to 2”). If non-circular grab bars are used, cross-section dimension shall be 51 mm (2”) maximum and a perimeter dimension between 100 to 120 mm (4” to 4.8”).

- Provide 38 mm (1 ½”) clear space between mounting surfaces and grab bar, as well as between ends of grab bar and any adjacent wall. Provide a minimum of 305 mm (12”) clear space above grab bar for easy use.

- For each accessible stall, two grab bars are required, mounted horizontally at rear (behind) and at side of toilet, between 750 to 850 mm high from finished floor level (2’-5 ½” to 2’-9 ½”).

- Rear grab bar shall be centred behind toilet and a minimum length of 610 mm (2’-0”). Longer grab bars can be used (e.g., 915 mm or 3’-0”), extending into transfer space area.

- Side wall grab bar shall be mounted 305 mm maximum (1’-0”) from rear wall, extending at least 450 mm (1’-5 ¾”) in front of toilet seat.

- An L-shaped grab bar is highly recommended as a best practice for side grab bar provision. If provided, vertical component of L-shaped grab bar shall be a minimum of 600 mm long (2’-0”), mounted no more than 255 mm (10”) in front of toilet seat, between 900 to 1500 mm from floor level (2’-11 ½” to 4’-11”).

- Consider the use of folding or swing grab-bars at side of toilet, a minimum of 710 mm (2’-4”) long, to provide additional support and transfer assistance. Mount centerline of grab bar 400 mm (16”) from centerline of toilet.

Additional Criteria

- Provide at least one shelf 310 mm long by 150 mm depth for toiletries, in accessible toilet stalls.

- Ensure all fixtures and user amenities are colour contrasted with mounting surfaces or adjacent walls for full visibility.

- Install at least one coat hook in stall, away from path of travel (e.g., side wall or partition) and mounted no higher than 1200 mm (3’-11”) from floor. Hook shall not project from mounting surface more than 50 mm.

- Consideration should be given to providing additional accessible stalls for persons with ambulatory disabilities.

- Detailed specifications are required for facilities designed to meet the needs of children of different ages (e.g., Day-care centres), seniors (e.g., long term care environments) and other washroom amenities (e.g., bath tubs).

Washroom Amenities

Vanities and Counters

- Ensure vanity sink/basin is not too shallow and water pressure is controlled to prevent splashing of users. Sink/basin shall be mounted as far forward as possible for easy reach and use of controls, without encroaching on the recommended knee space clearances below. (See **Section X** for accessible design criteria related to faucets)

- Provide clear floor space in front of vanity a minimum of 760 mm (2'-6") wide by 1370 mm (4'-6") deep, allowing a maximum of 480 mm in depth to be under vanity. The provision of additional clear floor space is beneficial to users of larger mobility aids and for high use washrooms.

- Top surface shall be continuous (e.g., can slide items across without interruption) and colour contrasted with adjacent wall surface, mounted no higher than 840 mm (2'-9") from floor level. Vanity shall be centred at least 460 mm (18") clear from any side wall.

- Knee space clearance below front edge of vanity counter or apron shall be at least 760 mm (2'-6") wide by 280 mm deep (11") by 735 mm (2'-5") high. Knee space clearance can be reduced to a minimum of 685 mm (2'-3") high from floor, measured 205 mm (8") back from the front edge.

- Insulate and cover all water pipes below vanities to protect users (e.g. from abrasive materials or potentially hot water pipes that may injure people with limited sensation in their legs). Ensure water temperature is controlled to a maximum of 43 degrees Celsius (or 100 degrees Fahrenheit).

- Do not use folding/adjustable aprons that are very stiff, as some users of mobility aids may not have lower body strength. Ensure edges of any aprons that are provided are smooth and non-abrasive and monitored regularly.

General Accessories

- Ensure all accessories are colour or tone contrasted with mounting surfaces or adjacent backgrounds for easy identification, especially for people with a vision loss.

- Ensure operating controls of all accessories, including towel dispensers, soap dispensers, and waste bins, for example, are mounted no higher than 1200 mm (3'-11") from the finished floor surface.

- Automatic controls, used for vanity faucets, flushing devices or hand dryers are preferred recognizing they are easy to use by a wide range of people.

- For manually operated accessories, provide lever handles as a best practice, including any towel dispensers (e.g., controls that require pinching of fingers or twisting of the wrist are not accessible). Long lever, single action faucet handles are easy to use by people with limited manual dexterity. Where push button controls are provided, ensure they are large diameter and colour contrasted for easy use and identification.

- The distance from the edge of the vanity or basin to the faucet or any related accessory (e.g., surface mounted soap dispenser) shall not exceed 485 mm (1'-7"). Automatic soap dispensers mounted close to the front edge or side of the basin are preferred so users do not have reach over.

- Ensure any wall mounted accessories (e.g., hand dryers) or shelves are colour contrasted for people with a vision loss and that they are located away from path of travel, projecting 100 mm (4") or less from mounting surface.

Changing Tables For Children and Adults

- Provide changing tables in the common use areas of washrooms for all users. Do not locate changing tables strictly in accessible toilet stalls, especially for high use washrooms.

- If changing tables are provided in accessible toilet stalls, stall dimensions must exceed minimum to allow easy use and maneuverability for parents/carers using mobility aids. Typically, Unisex or Family type washrooms designed with larger floorspace are more suitable to accommodate changing tables and other attendant care amenities (e.g., shelving, emergency alarms).

- Changing tables that accommodate people of all ages are preferred and shall be designed to support the weight of an adult (minimum of 250 pounds).
- Minimum clear floor space of 760 mm wide by 1370 mm depth (2'-6" by 4'-6") shall be provided in front for approach and transfer. Clear floor space of 1680 by 1680 mm (5'-6" by 5'-6") is preferred to accommodate larger wheeled mobility devices.

- Changing tables shall be colour contrasted from surroundings for easy identification and mounted no higher than 865 mm (2'-10") from floor level.

- If located along an accessible path of travel, changing tables shall not project more than 100 mm (4") from wall when not in use (e.g., folded closed) if lower edge is higher than 685 mm (2'-3") from floor. If projection is greater than 100 mm (4"), install colour-contrasted and cane detectable wing walls that extend to floor level.

- Latches, handles, pulls or other controls used for opening changing tables shall be reachable from a seated position and mounted no higher than 1200 mm (3'-11").

Mirrors

- Mount lower edge of mirrors over vanities no higher than 1000 mm (3'-3 ¼") from floor level. A tilted mirror is accessible if it remains tilted permanently or if it can be reached and tilted from a seated position (e.g., adjustable from lower edge).

- Single full-length mirrors are beneficial for the widest range of users of mobility aids, children and people of short stature.

- Where mirrors are not provided over basins, a single full-length mirror is recommended. The lower edge of the mirror shall be mounted approximately 600 mm (2’-0”) from the floor and extend a minimum of 1880 mm (6’-2”) high. Such mirrors shall be located where there is a frontal or side approach, with a minimum clear floor space of 915 mm (3’-0”) wide by 1370 mm (4’-6”) deep, to ensure access by persons using mobility aids.

- Do not mount mirrors directly opposite to doors, entrances or openings into washrooms, as the reflective surface can cause confusion for persons who have cognitive disabilities or vision loss.

- Do not use tinted mirrors or patterned mirror surfaces as they present distorted images for persons with a vision loss and others with cognitive disabilities.

- Ensure lighting level over mirrors is even and does not result in direct or reflected glare for all users.

Fig: Small Washroom Layout and Features

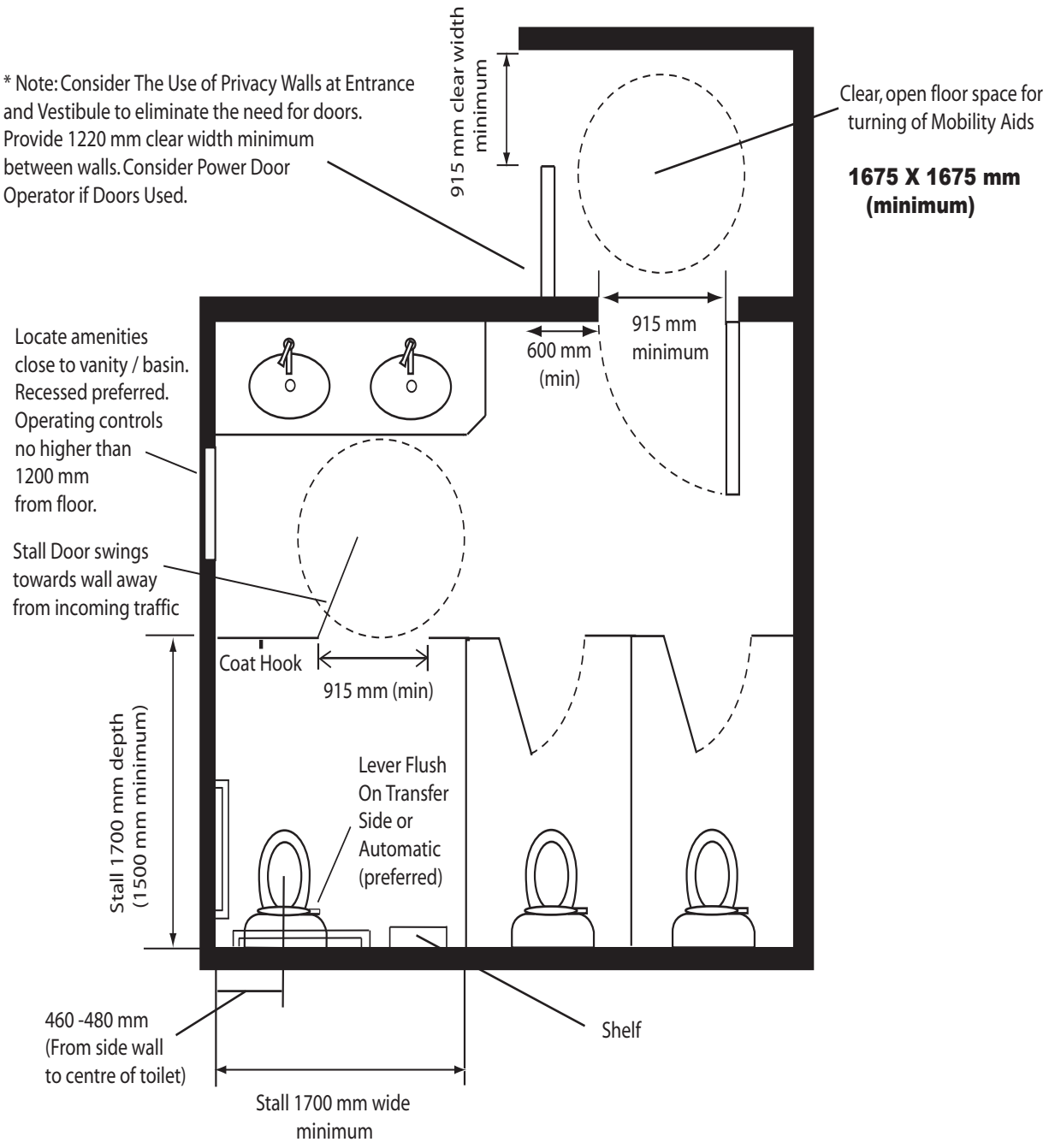


Fig: Universal Washroom (B44)

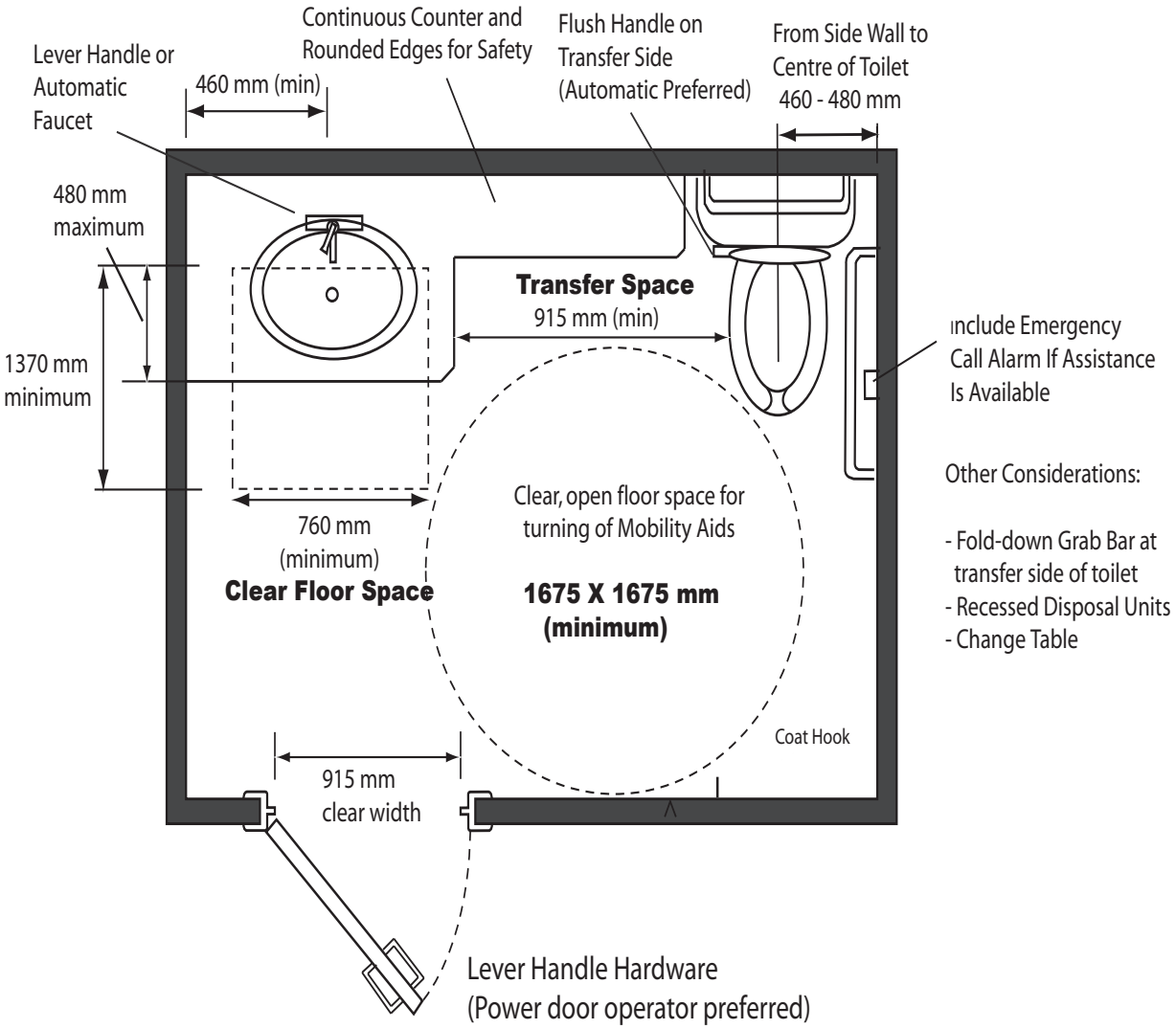


Fig: View of Accessible Toilet Stall (B45)

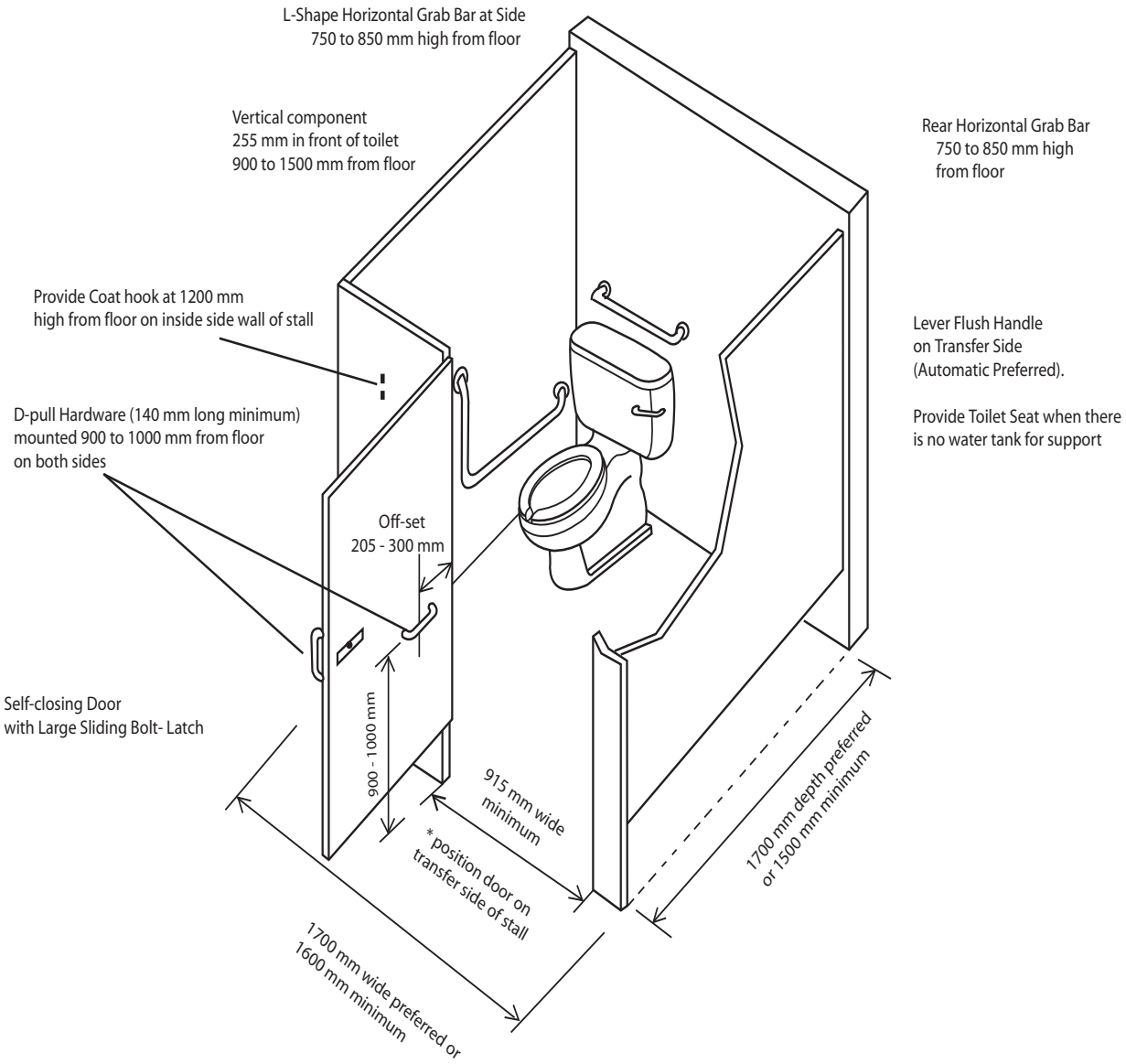
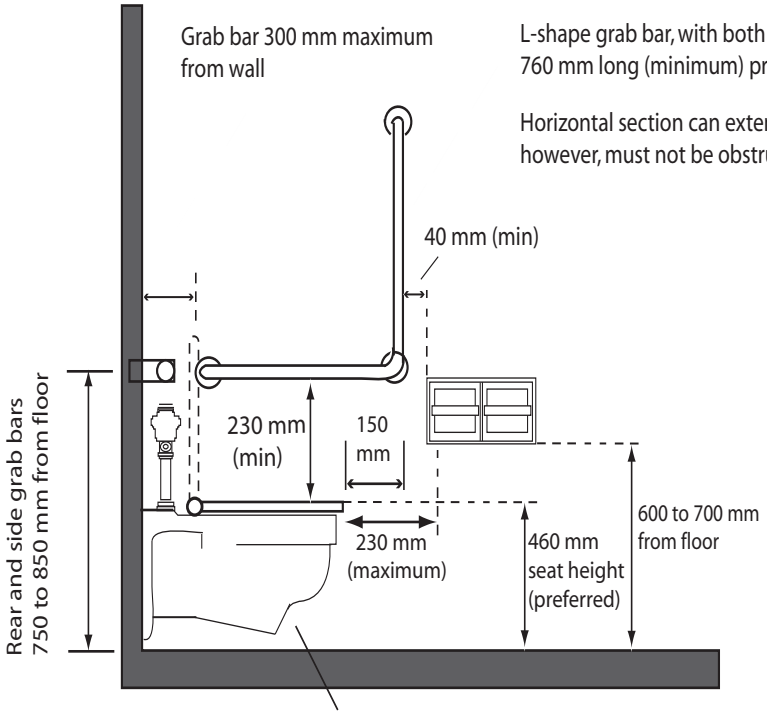


Fig: Toilet and Amenities



Wall-hung (undercut) toilets are preferred (provides toe space at floor). Provide lever flush handle on transfer side of toilet, or automatic flush control / sensor is preferred.

Provide toilet seat for support. Do not use spring-activated seats.

Fig: Public Washroom - Urinal (B46)

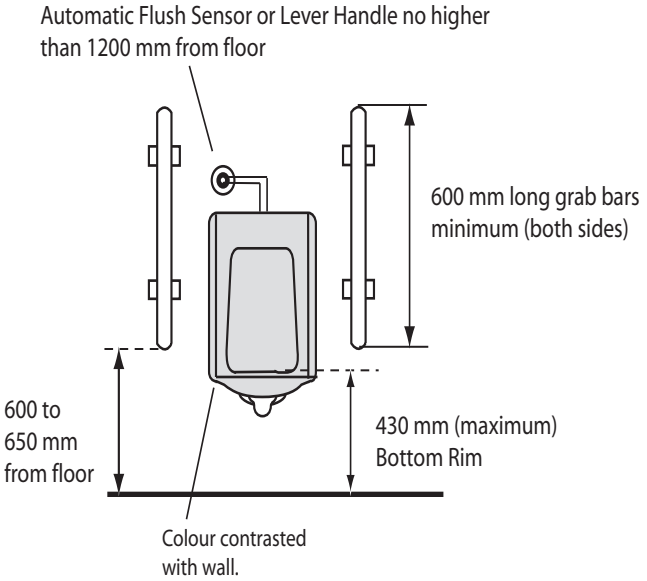


Fig: Public Washroom - Overhead View of Urinal (B46)

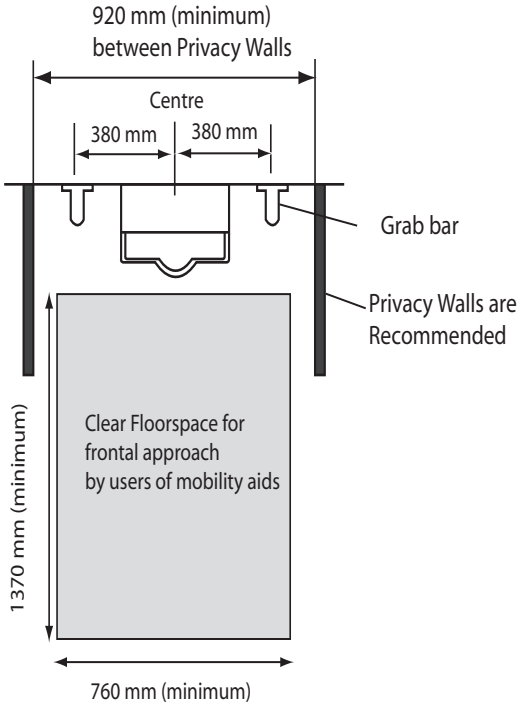


Fig: Washroom Vanity Dimensions (B48)

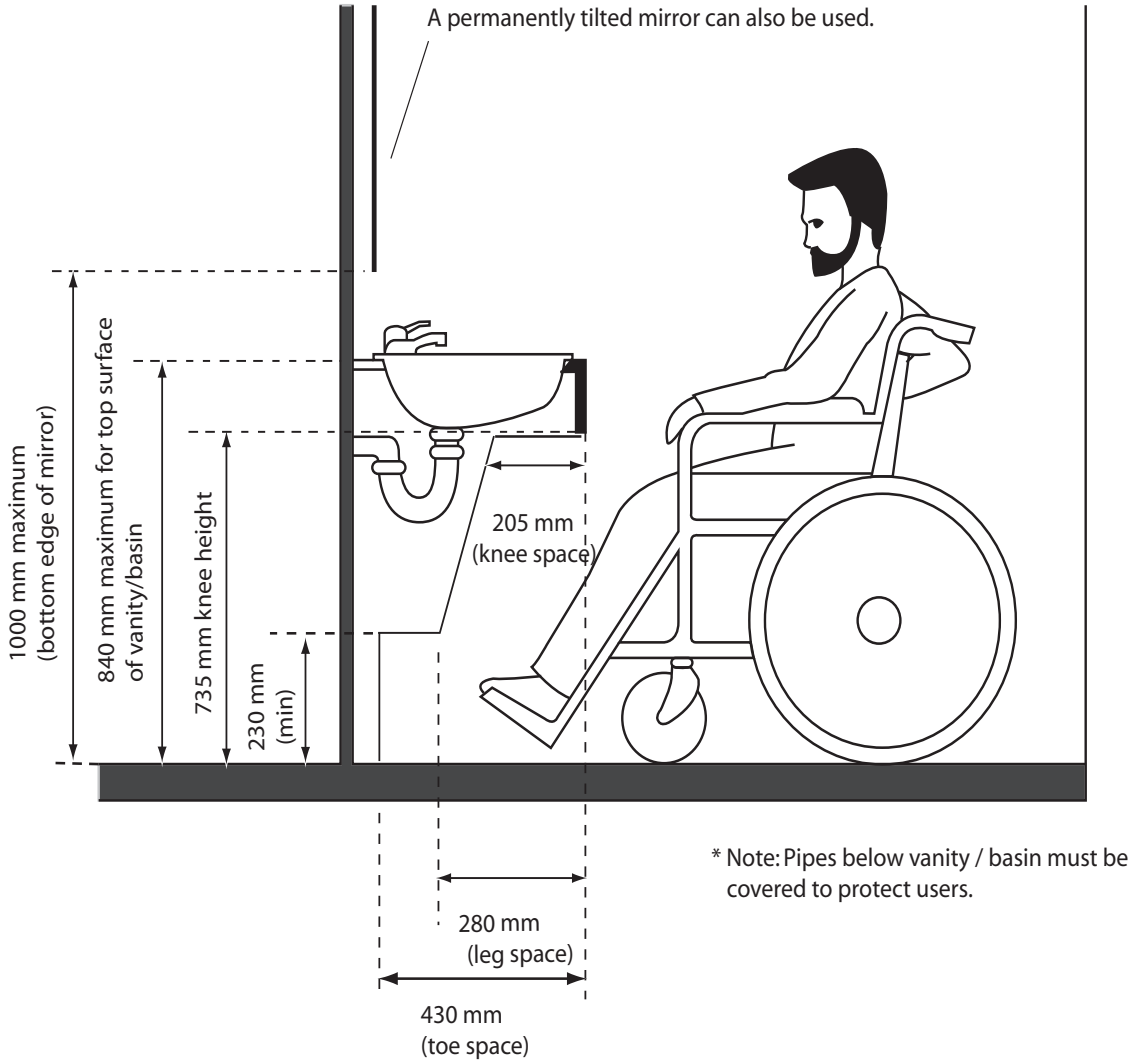
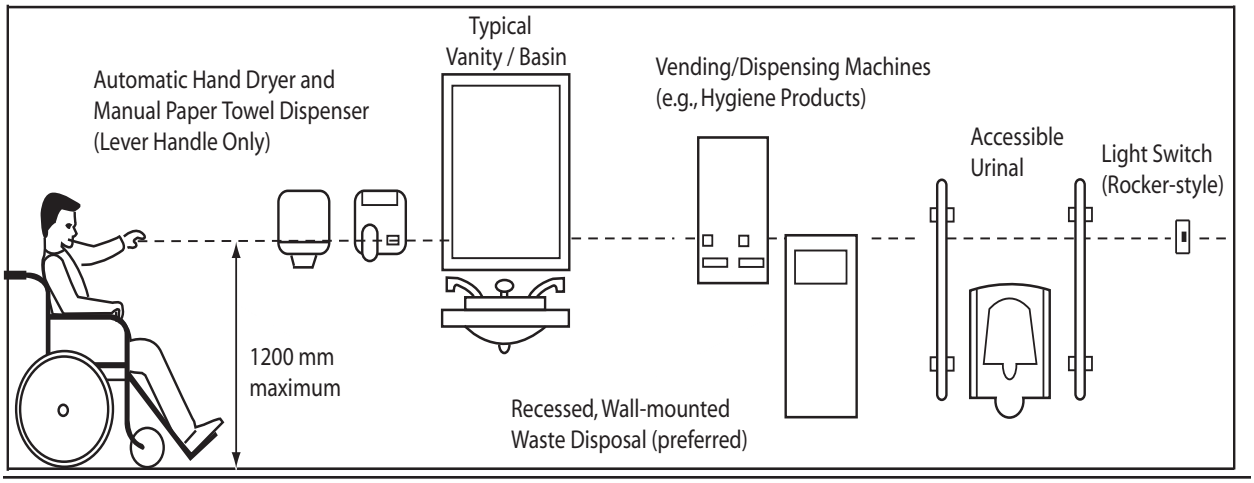


Fig: Public Washroom Amenity Mounting Height (B48)



Public Showers and Changing Rooms

Rationale

Changing rooms and shower facilities are considered a common public amenity for most recreational and multi-purpose facilities, including swimming pools and arenas. At these locations and other facilities where these amenities are provided, accessible features are required, including consideration for unisex or "family" type change rooms that accommodate and respect the privacy of users with different types of disabilities, as well as their companions and children.

Provision

- Provide at least one (1) curb-less shower for each cluster of shower facilities that are available to users.

Approach

- Provide clear floorspace in front of 1675 by 1675 mm (5'-6" by 5'-6") preferred, or a minimum of 1525 by 1525 mm (5'-0" by 5'-0").
- Ensure level entry into shower which is preferred, or provide beveled threshold 13 mm (½") high maximum, from floor.

Interior Floorspace

- Provide interior floorspace of 1675 by 1675 mm (5'-6" by 5'-6") preferred, or a minimum of 1525 by 1525 mm (5'-0" by 5'-0").
- Ensure shower floors are firm, gently sloped (e.g., for drainage), with textured surface to prevent slipping (e.g., either standing or when transferring from mobility aid to shower seat).
- Locate floor drain on opposite side of shower controls, seat and/or standing position.

Grab Bars

- Mount all grab bars at consistent height range between 750 to 860 mm (2'-6" to 2'-10") high from floor.
- Mount one (1) grab bar vertically on side wall adjacent to shower seat to provide additional support when entering/exiting or when transferring to the seat.
- Mount one (1) grab bar horizontally on main wall, centred on long wall of the shower where controls are located, and within reach of shower seat.

Operating Controls

- Provide hand-held showerheads, mounted on adjustable rod with a flexible hose extending 1525 mm (5’-0”) in length, allowing varying showerhead positions

- Ensure shower water pressure is comfortable, with automatic mixing that controls hot water at maximum temperature of 44ºC (110º F), to prevent any potential scalding.

Seating

- Provide a drop down seat at one side of shower, mounted at a height of 455 mm (18”) from the floor.

- Ensure seating in shower and drying areas is comfortable (e.g., padding that is also water resistant). Seat should also be designed to allow water to run off.

Changing Rooms

- Provide at least one (1) accessible unisex or family change room facility for each cluster of changing room facilities that are available to users.

- Ensure aisles leading to seating, clothes lockers and other amenities are a minimum of 1065 mm (3’-6”) wide.

- Provide accessible lockers for persons using mobility aids, with accessible door hardware, locks and shelving mounted between 455 mm (1’-6”) and 1200 mm (3’-11”) high.

- Refer to **Section X** for additional design considerations for change room and shower facilities provided in Multipurpose facilities.

Fig: Public Shower (B56)

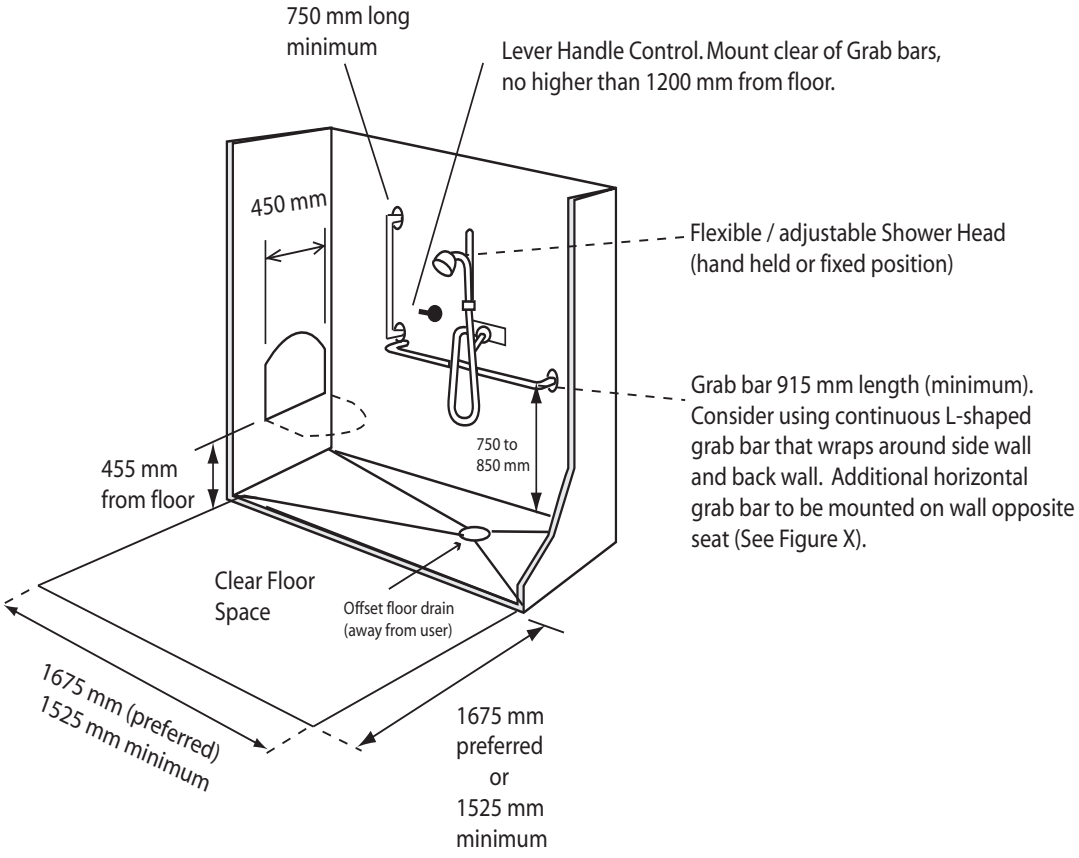
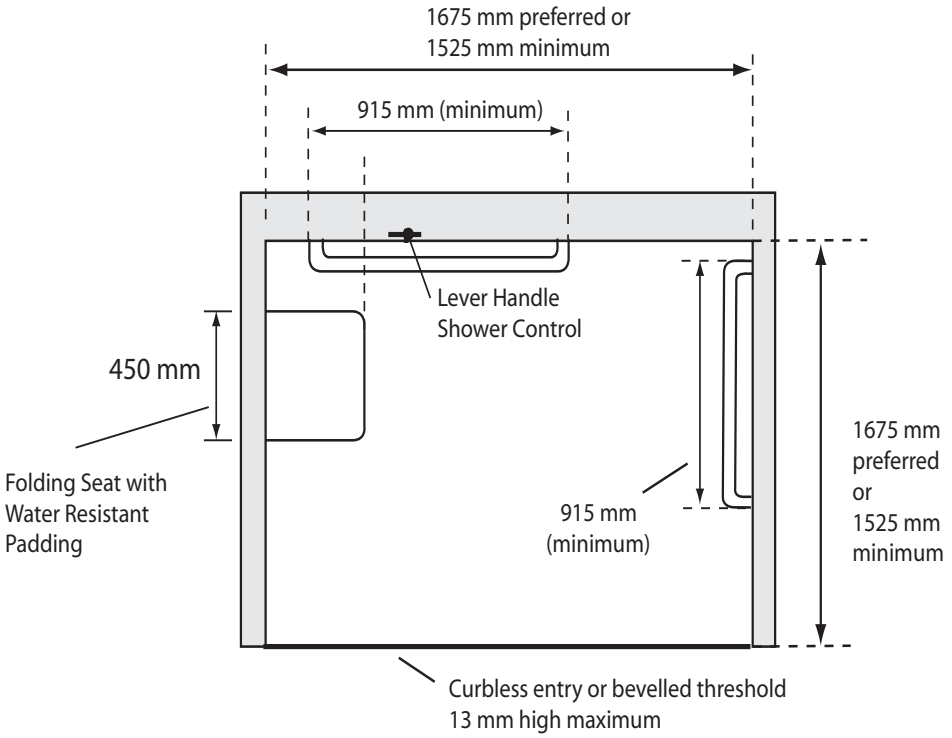


Fig: Overhead View of Curbless Shower



Section C:

Building Systems, Controls & Communications

Building Systems and Controls

Rationale

All Building Systems shall be designed to accommodate the needs of people with varying disabilities. The needs of persons with vision or hearing loss shall be particularly considered, with respect to lighting and acoustic design. The needs of seniors and others, respecting personal comfort and safety, also require special consideration.

Accessible Design Criteria

Acoustics

The acoustical environment of public buildings and spaces shall accommodate the unique needs of persons who have visual or auditory limitations and who may need to differentiate essential sounds from general background noise.

- Select floor finishes, wall surfaces and ceilings so that occasional noise is not unintentionally amplified (e.g., hard floor surfaces such as marble and terrazzo). Although hard floor surfaces allow footsteps to be heard by persons with a vision loss, they may add confusion for persons with a hearing loss.

- Locating accessible paths of travel in large buildings may be problematic for persons with a vision loss and some design changes may be desirable to ensure that impact sounds from secondary corridors are different in quality from sounds in major routes (e.g., through changes in floor finishes).

- Design ceiling shapes so that echoes do not occur. In general, domed shaped ceilings are likely to distort sound.

- Zone public address and call systems shall be capable for specific areas, rather than blanketing all areas of a building at all times.

- Minimize all background noise (e.g., from fans, mechanical systems, air conditioners & diffusers, for example), in meeting rooms and assembly areas, where the spoken word is key to understanding the proceedings. Integrate and include adequate sound insulation within room and space design.

Security Systems

- Ensure accessible security system devices are provided where users control independent entry or exiting to secured areas.

- Provide both audible and visual indicators on security system controls to alert users when access as been granted or denied.

- Ensure controls are colour contrasted with mounting surface for easy identification, especially for users with a vision loss.

- Include tactile features where electronic keypads or push button systems are provided, for users with a vision loss.

Control Mounting Height

- Locate controls beyond the arc of the door swing, with clear floor space in front of 1675 by 1675 mm (5’-6” by 5’-6”) preferred for approach by users of mobility aids. Minimum positioning clearances are identified in Section X.

- Mount controls at 915 mm centre (3’-0”) preferred, from ground or floor surface, or 1200 mm (3’-11”) maximum.

Note: Detailed review of accessible security systems is recommended recognizing the variety of options that are available.

Communication Systems

- Provide a TTY telephone at major information counters, enquiry and booking locations (e.g., text telephone with a digital display).

- Include a digital display for persons with auditory or voice limitations for all essential two-way communication systems, utilizing voice input or output. Consideration of use by people who communicate with Braille is also desirable.

- Communication systems (such as telephones and intercoms) shall include at least one unit in each array with volume enhancement for persons who have hearing limitations. Systems shall also include a coupling device for persons using hearing aids.

- Where visual input or output displays are utilized, some consideration shall be given to the needs of persons who have a vision loss by providing an alternate or supplementary system, with an audio output.

- Where visual public communication systems or displays are utilized for public information purposes, (e.g., at video type terminals), an audio output, (such as voice or tape) shall be considered, as well as alternate forms of essential information (e.g., large print and braille text, for persons who have a vision loss).

Controls and Operating Mechanisms

- Mount all controls, operating components or dispensing slots between 455 and 1200 mm (1’-6” to 3’-11”) preferred from the floor, or a minimum height of 405 mm (16”), for reach by persons using mobility aids or people of short stature.

- Ensure controls and operating mechanisms are clearly visible and identifiable by a distinct colour or tone compared to the background colour of their mounting surface. The colour brightness or contrast shall be 70% or greater for best visibility for persons with a vision loss.

- Instructions or related information signage, detailing the use of key operating controls or mechanical devices (e.g., air control systems) that are available for staff or public use, shall be clearly visible in large print text, mounted on strong colour contrasted background. Instructions shall be mounted close to key controls or operating mechanisms for easy identification by all users.

- Use lever and “rocker” type controls wherever possible, or raised push buttons that are a minimum of 13 mm (½”) diameter to accommodate the widest range of users including people with limited manual dexterity.

- Mount light switches, thermostats and fire alarm pull stations etcetera no higher than 1200 mm (3’-11”) from finished floor level.

- Mount duplex receptacles between 405 mm (1’-4”) minimum and 1065 mm (3’-6”) maximum from the floor (e.g., above counters or work surfaces).

Automated Bank Machines

- Mount automated banking machines (ABM’s), including display units, keyboards and signage securely and ensure all related equipment is designed for use by persons with varying disabilities.

- Provide a minimum clear floor space of 760 mm wide by 1370 mm depth (2’-6” wide by 4’-6” depth) in front, with 685 mm (2’-3”) clear knee space provided below automated banking machines, for approach by users of mobility aids.

- Mount all ABM controls, switches, panels, card and cash handling devices no higher than 1200 mm (3’-11”) from the ground/floor level and ensure equipment is usable by persons with limited hand or eye coordination.

- Include strong colour contrasts, compared with background surfaces, on all ABM controls, switches, depositories and display terminals for easy identification and for use by persons with a vision loss or limited hand dexterity.

- Integrate Braille instructions and large print text for persons with a vision loss.

- Provide audible cues where specific sequences or instructions are to be followed.

- Ensure volume adjustment controls are available for persons with a hearing loss, wherever voice instructions are provided as an option.

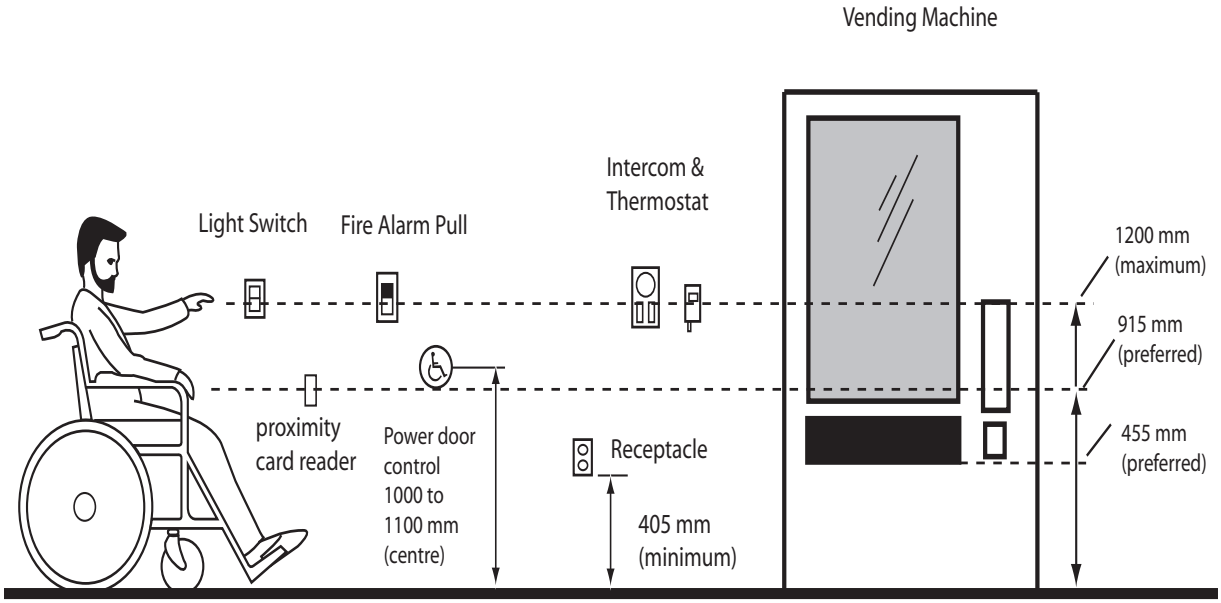
Heating, Cooling, and Ventilation Systems

- Design heating, cooling and ventilation systems to accommodate users with environmental sensitivities. For example, 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.

- Ensure equipment used to adjust ambient air temperature in facilities serving a larger proportion of seniors or persons with disabilities can operate between 21º C and 26º C (70º F and 79º F) at all times of the year.

- Minimize noise from air handling systems in meeting, work and study areas using suitable insulation (e.g., on related ductwork) to benefit users with a hearing loss.

Fig: Building System Controls (C3)



Accessible route with clear floor space of 1100 mm wide by 1525 mm length (minimum) in front of all operating controls.

Fire and Life Safety Issues

Rationale

Fire and life safety issues are critical, recognizing all users of a building must receive warnings of an emergency situation at the same time, with a variety of issues overlapping with accessibility needs. The design of a building alone cannot ensure safety for the occupants in the case of a fire or other type of emergency. Evacuation strategies must be developed by the building's management in order to ensure safe, quick and orderly evacuation. Escape strategies for building users with disabilities will differ from those for others who do not have a sensory or mobility-related disability and will need to be developed according to the amount of assistance required in order to leave the building.

The safe and competent evacuation of staff with disabilities depends to a large part upon the creation of custom personal emergency evacuation plans that take into account the difficulties the building presents, the requirements for assistance for users with disabilities and the abilities of colleagues in giving assistance. General emergency evacuation plans can be established to meet the needs of visitors. These will be fundamentally suited for the safe evacuation of users of mobility aids or ambulant people with disabilities (e.g., cognitive) or people with vision loss and will facilitate the safe evacuation of visitors with disabilities whose needs cannot be identified in advance. Overall, diverse strategies and the inclusion of fire and life safety experts in the development of fire safety plans is essential to address the needs of a wide range of users with varying disabilities.

Accessible Design Criteria

Fire Safety and Evacuation Plans

- In buildings used by seniors or people with disabilities (e.g., visitors, residents or employees) it is important to ensure that a comprehensive evacuation plan and operational strategies are in place in case of a fire or other emergency, since it is generally considered that such persons may be at greater risk and may be less able to autonomously evacuate than the general public buildings.

- In buildings where persons with disabilities are employed or are frequent visitors, a fire and life safety plan that will address the needs of specific building users is recommended (e.g., custom strategies for different types of disabilities; "Buddy System" for staff helping co-workers with disabilities to evacuate, for example).

- All public buildings with floors above or below grade shall develop a fire-safety and emergency plan, indicating in detail the preferred 'evacuation' or 'holding' area strategies for persons with disabilities - whether as employees or visitors.

- Such strategies may include separating certain areas of the building, to allow for 'horizontal exiting' to a safe area on the same floor, or the creation of 'safe holding areas' in the same general area.

- Since evacuation of persons using mobility aids (e.g., wheelchairs/scooters) from floors above or below grade is extremely difficult in large buildings, consideration shall be given to the inclusion of a fire fighter's elevator that can be operated by fire department personnel during a fire or other emergency.

Exit Routes and Doors

- Provide accessible exit routes as required by the Ontario Building Code. Where there is no direct accessible route to grade level, "Safe Holding Areas" or "Areas of Refuge" shall be provided where horizontal exits are located (e.g., typically stairwells).

- Mark all exit routes and exit doors with overhead, illuminated "exit" signage, as required by the Ontario Building Code.

- Provide photoluminescent signage (e.g., visible in dark or smoke-filled environments), in addition to regulatory exit signage, throughout exit stairs and at strategic locations along exit routes, to assist all users with evacuation.

- Mark exit door hardware for easy identification (e.g., strong colour contrast with surface, use of a tactile strip or knurled hardware finish) to assist people with a vision loss and others with identifying exit locations during emergency conditions.

Visual and Audible Fire Alarm Systems

Audible Alarms

- Ensure fire-alarm signals are loud enough to be heard above normal 'ambient' sounds by all users, including people with various types of hearing loss. Audible alarm signals shall have a sound level that does not exceed 10 decibels (dB), measured at the minimum hearing distance from the audible alarm signal mounting location.
- Any verbal announcements related to fire-exiting procedures shall be loud enough to carry above ambient noise levels and be preceded by a distinctive sound, in order to alert building occupants.

- Audible alarm signals shall be intermittent to allow verbal communication.

- In all public buildings providing specialized services or programs to seniors and persons with disabilities, a two-stage emergency alarm system is recommended, with distinctive (i.e., pulses or intermittent) audible signals for each stage. Fire alarm signals shall alert seniors and persons with sensory disabilities, that (1) there is a problem, and (2) when to evacuate the building. System shall be inked directly to the fire hall (wherever possible) to ensure timely fire department response. Alternatively, direct connection to a commercial security company shall be provided.

Visual Alarm Signals

Provision

- Provide both audible and visual alarm signals together, as an aid to persons who are deaf, deafened or hard of hearing. Visual alarm signals shall be integrated into the building's alarm system and if single station audible alarm systems are provided, then provide single station visual alarm signals in addition.

- Add visual alarms when a new fire alarm system is being installed or when existing fire alarm system is being upgraded (e.g., installation locations can be prioritized and implemented based on an upgrade schedule), for existing facilities.

- Locate visual alarm signals in close proximity to audible alarm signals. However, they require strategic placement to ensure full visibility and coverage (e.g., unlike audible alarms, a visual alarm signal can only be observed from the space in which it is installed).

- Install visual alarm signals in every common use area, central lobbies or corridors, main assembly areas (e.g., auditoriums, large meeting /conference rooms, cafeterias) and places where a person may be alone (e.g., washrooms).

Mounting Location Features

- Mount visual alarm signals at 2030 mm (6'-8") minimum above the highest floor level within the space or 152 mm (6") below the ceiling, whichever is lower. Mounting location below ceiling height prevents blocking of the signal by smoke in the event of a fire.

- In general, no place in any common public corridor, hallway, lobby, room or space in which a visual signal is provided shall be more than 15 metres (50 feet) from the signal (in the horizontal plane).

- Place visual alarm signals around the perimeter of large rooms and spaces exceeding 30 metres (100 feet) across, ensuring there are no obstructions located 1830 mm (6'-0") above the floor (e.g., auditoriums). Space visual alarm signals a maximum of 30 metres (100 feet) apart, in lieu of suspending appliances from the ceiling.

- Optimal visual alarm signal placement requires formal study for unique environments (e.g., in multi-purpose facilities where bleacher seating, athletic equipment, backdrops or other moveable elements may be used, or in libraries, convention/meeting rooms and other building types where signals would not be visible when installed at specified height).

Light and Flashing Features

For visual alarm signals:

- Light or lamp fixture shall be a xenon strobe type or equivalent.

- Colour shall be clear or nominal white (e.g., unfiltered or clear filtered white light). Coloured lamps (e.g., red) are not effective even at extreme intensities.

- Maximum pulse duration shall be two-tenths of one second (0.2 seconds) with a maximum duty cycle of 40 percent. The pulse duration is defined as the time between initial and final points of 10 percent of maximum signal.

- To be effective, a visual alarm signal (or its reflection from adjacent walls and ceiling) shall be of an intensity that will raise the overall light level sharply, but not so intense as to be unsafe for direct viewing.

- Flash intensity shall be a minimum of 75 candela with a flash rate a minimum of 1 Hertz (Hz) and a maximum of 3 Hz.

- Synchronize visual alarms that are located in the same vicinity (e.g., flash at the same time). Multiple, unsyncronized visual signals within a single space may produce a composite flash rate that would trigger an epileptic seizure and special attention is required in environments with children or young adults (e.g., schools) recognizing they are more susceptible to photosensitivity than adults.

- To reduce the likelihood of visual strobe lights triggering an epileptic seizure or other photosensitive reaction, it is preferred to keep the flash rate under 2 Hertz. Generally, flashing lights most likely to trigger seizures are between the frequency of 5 to 30 flashes per second (Hertz). [Source: American Epilepsy Foundation's Professional Advisory Board, revised 2005]

- For persons who have both visual and auditory limitations, portable-vibrating alarms shall be considered. Portable, vibrating alarms can also be provided for use visitor's with a hearing loss, with suitable signage, instructions and information provided at main reception / lobby.

Manual Fire Alarm Pull Stations

- Mount fire alarm pull stations at 1200 mm (3'-11") high maximum, from finished floor level, for reach by people using mobility aids, where they are located along accessible pedestrian routes and exits.

- Ensure clear floor space is provided below pull stations at all times (e.g., no temporary or permanent storage of furniture, plants, fixtures, equipment or supplies), with a turning radius of 1675 by 1675 mm (5'-6" by 5'-6") preferred. Clear floor space of 760 by 1220 mm (2'-6" by 4'-0") minimum is required for approach.

Safe Holding Areas / Areas of Refuge

Where a Safe Holding Area is included as part of the design of a new building or as a component of a facility's fire safety and evacuation plan for persons with disabilities, a variety of important design features are required. Safe Holding Areas shall:

- Be served by an exit or fire fighter's elevator and located on an accessible pedestrian route. Locations on each floor, above or below grade, shall be easy to identify (e.g., intuitive/logical location) and be designated with accessible signage (e.g., large print, tactile features stating "Area of Rescue Assistance" and marked with the International Symbol of Accessibility).

- Provide a minimum of one-hour protective enclosure.

- Include minimum floor space of 865 by 1370 mm (2'-10" by 4'-6") to accommodate one wheelchair/scooter user, clear of any adjacent door swing and situated away from pedestrian exit route (e.g., ensure exiting is not obstructed in any way). Provision of additional spaces shall be determined based on building occupancy.

- Be equipped with a two-way communication system, supported by building's back up generator and linked to the designated fire control centre/panel. Communication system shall include both audible and visual notification devices to indicate help is on the way and marked with accessible signage with clear instructions on use.

- Have separate emergency lighting and ventilation systems. Emergency lighting system shall be supported by a back-up generator. Ventilation system shall be designed to provide fresh air to occupants during emergency conditions when building systems are shut down and during the rescue-waiting period.

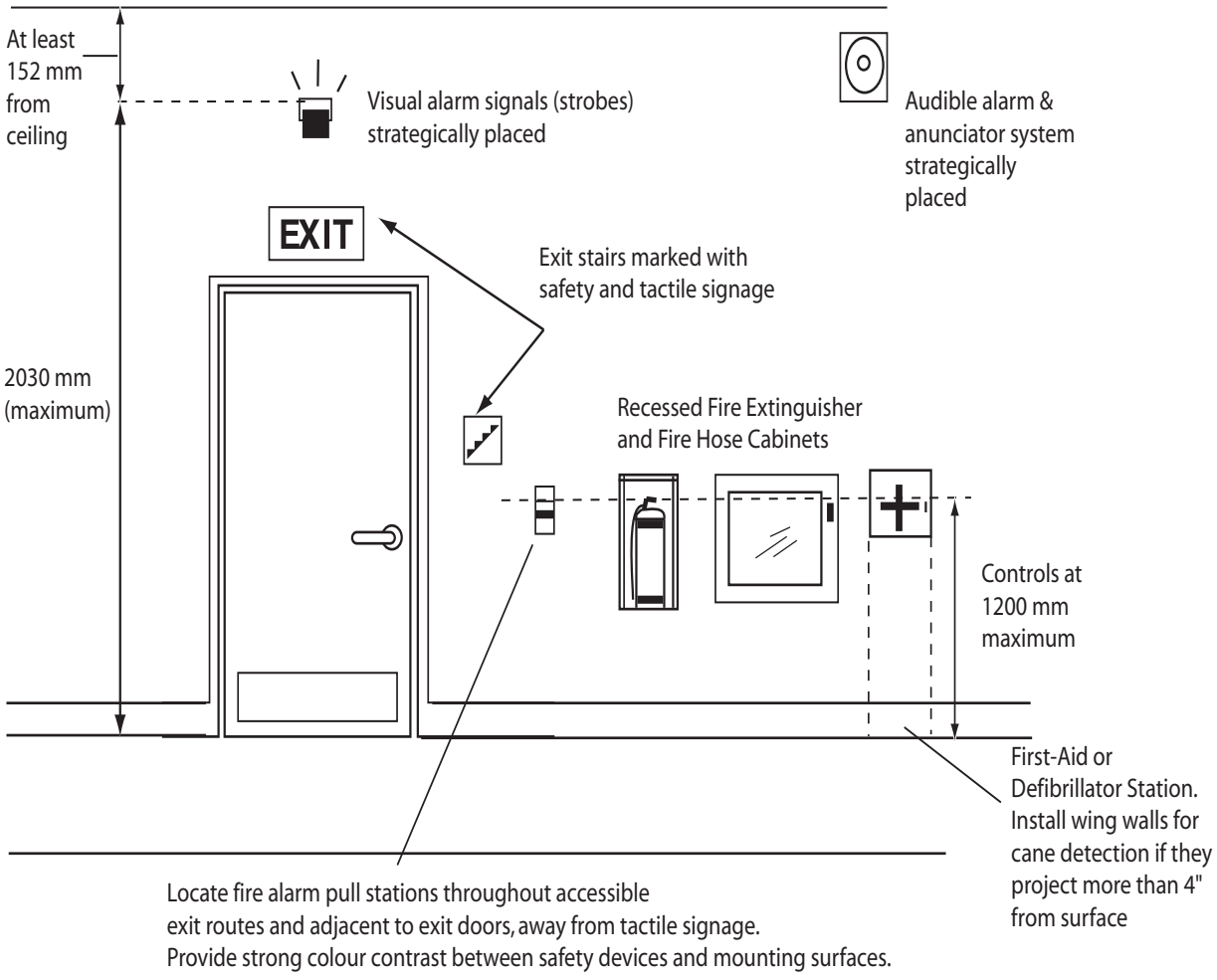
Electrical Power

- Electrical power shall be sufficient to allow supplementary lighting and communication devices to be added wherever needed, to benefit various persons with disabilities who use the facility or site.

- Emergency electrical power shall be sufficient to ensure adequate emergency lighting levels, the use of elevators and other key operating components and/or systems during a power outage, in all major areas of the facility, along all paths of travel to exits and in all designated safe holding areas.

- An emergency powered duplex shall be provided in all rooms to be occupied overnight (e.g., institutional or commercial accommodations), designated for use by persons with disabilities.

Fig: Fire & Life Safety Systems (C7)



Lighting

Rationale

Light is essential for the perception of space and colour. Everyone using a building requires suitable illumination to perform necessary tasks and participate in activities safely and effectively. In general, people with a vision loss and many seniors need more light to distinguish shape, colour and texture. Suitable lighting facilitates lip-reading for users who are deaf, deafened or hard of hearing and contributes significantly to providing independence for people with a vision loss. Colour contrast between surfaces can be enhanced or totally negated by light. In the wrong place, light can cause glare, washing the colour from surfaces, while inadequate light makes visual differentiation impossible. Positioning sources of light (natural or artificial) at the ends of corridors or behind people at reception areas or counters shall be prevented, recognizing these sources of light place people in silhouettes, a problem for people who lip read and people with a vision loss who cannot identify the proximity of oncoming people or objects.

When entering buildings, most people require a few moments to adjust from a brighter exterior environment to a darker interior. For people with a vision loss, the adjustment time may be longer. Transitional lighting (higher artificial lighting levels near the entrance in daylight and lower levels after dark) is beneficial for all users who need to adjust. Display lighting that is often used in entrance vestibules or adjacent lobbies (e.g., spotlights), must be carefully positioned to prevent glare from adjacent surfaces (e.g., walls and flooring), which can confuse and disorientate users arriving or leaving the building.

Accessible Design Criteria

Exterior Lighting Issues

- Design exterior lighting in accordance with I.E.S.N.A. standards (Illuminating Engineering Society of North America), throughout public thoroughfares and pedestrian routes. This will ensure safe access for persons with disabilities at sidewalks, bus stops, or parking areas leading to public facilities and amenities.

- Provide lighting levels of 200 lux (20 foot candles) preferred, or 100 lux. (10 foot candles) minimum, measured at ground level, at accessible pedestrian entrances and frequently used routes (e.g., paths, stairs, and ramps), for all users, including people with a vision loss.

- Provide lighting levels of 100 lux (10 foot. candles) preferred, or 50 lux (5 foot candles) minimum, at accessible parking spaces and along accessible routes leading from areas of parking to accessible entrances.

- Ensure lighting sources are located at or beside all ramps, steps and stairs, to ensure clear definition of surfaces, treads, risers, nosings and handrails.

- Ensure all lighting over pedestrian routes is evenly distributed and that they provide a reasonable colour spectrum, minimizing any cast shadows, which are a problem for persons with a vision loss.

- Provide supplementary lighting to highlight all way-finding signage.

- Mount lighting standards or posts to one side of pedestrian walkways to ensure that they allow free movement of persons using mobility aids.

- Ensure low-level lighting standards are still tall enough to clear normal snow accumulation heights.

- Mount overhead light fixtures on standards that provide clear headroom of 2030 mm (6’-8”) minimum, to prevent any potential bumping hazards, especially for persons with a vision loss.

- Design and install light fixtures used for landscaping or special site features to prevent and minimize direct glare.

Interior Lighting Issues

- Use natural light wherever possible to illuminate entrances, corridors and key workspaces. However, care shall be taken to minimize the potential for direct glare (e.g., reflected from floor or work surfaces) that is a problem for all users, especially for people with a vision loss.

- Integrate sources of both artificial and natural lighting to provide comfortable, evenly distributed light at working surfaces and throughout circulation routes, including areas of potential hazard, to aid people with a vision loss.

- Select light sources and fixtures to minimize direct or indirect glare from nearby reflective surfaces and to ensure that persons with a vision loss can navigate safely.

- Ensure lighting design allows an illumination quality that is as close to a full spectrum as possible, to aid in identifying edges and colour contrasts, which are wayfinding cues used by people with a vision loss. Where fluorescent or quartz light sources with a high blue content are used, they shall be offset with incandescent lights. This ensures the warm end of the spectrum provides appropriate colour definition.

- Avoid the use of light fixtures with multiple pinpoints of high intensity illumination, as they add an unnecessary source of glare and leave an after image on the retina of people with a vision loss.

- Ensure lighting sources and installations create even distribution of light at floor level, while also minimizing any potential “pools” of light or areas of shadow. Such variations in lighting levels are confusing to many seniors, people with cognitive disabilities and people with a vision loss.

- Ensure any leading edges of stairs, steps, ramps or escalators are evenly lit to minimize potential tripping hazards. Such low-level lighting is also desirable in special locations, (e.g., theatres) and is beneficial to all users.

- Adjust lighting levels in elevator lobbies to be equal or close to the same lighting level as elevator cabs in order to prevent potential tripping hazards when entering/exiting elevators. In no case shall lighting levels in elevator lobbies be less than 200 lux (20 foot candles), measured at the threshold of the elevator.

- Provide 100 lux (10 foot candles) preferred illumination, 50 lux (5 foot candles) minimum, for emergency lighting over interior stairs and ramps, in exits, or other paths of travel, measured at the walking surface.

- Ensure lighting level over directional or informational signage at public telephones, informational/service counters, automatic teller machines, or other keypad operations, is 200 lux (20 foot candles) minimum.

- Lighting over lecterns, podiums, platforms or other speaker locations shall be capable of being enhanced, even when other lighting is dimmed, to permit lip-reading and a view of any of the hand actions of Sign Language Interpreters communicating with persons who have a hearing loss.

Issues Related to Glare

General Considerations

- Direct or reflected glare off of floor, wall or worktop surfaces is a major problem for persons with a vision loss. As a result select lighting sources, materials and finishes that do not reflect glare, including implementing strategies to control natural lighting sources.

- Select “monolithic” floor surfaces such as stone, granite, marble or terrazzo in a matte or honed finish to minimize any potential for reflected glare.

- Avoid the use of any high gloss finishes at all times. Ensure floor surface finishes such as vinyl, quarry and ceramic tile, mosaics or other composition materials are a matte or satin finish.

- Provide matte or satin wall finishes (e.g., paint, vinyl coverings, stone, marble, wood, plastic or laminate) only.

- Use curtains, blinds, screens or other strategies to shield bright, natural lighting sources, especially where direct sunlight may cause glare.

- Select light fixtures that prevent or minimize any potential for direct glare (e.g., with diffusers, lenses, or recessed light sources).

Additional Considerations

- Where surface mounted fluorescent ceiling lights are used (e.g., in corridors), it is generally recommended that they have darkened sides (e.g., wrap-around lenses are not recommended) and that they are positioned at right angles to the path of travel. Alternatively, they can be used in coves or valance type lighting at the sides of the corridor. This ensures that the light source is not visible from normal walking paths.

- Consider the use of supplementary lighting sources to enhance special features at key locations (e.g., with upward and downward light components only).

- High intensity light sources such as quartz, halogen or other pinpoint sources (e.g., chandeliers) should be used with extreme caution. Such lighting sources are generally not recommended in circulation routes, dining or assembly areas because they can produce reflected points of glare on shiny surfaces, a significant problem for users with low vision.

Communication Systems

Rationale

Technology for a variety of communication systems continues to evolve, offering a range of options, each with advantages and disadvantages for consideration based on user needs and the type of facility where they are provided.

For assistive listening systems, there are both hard-wired and wireless systems. Hard-wired systems are typically easier to integrate during the design of new buildings. For wireless systems, there are three common types: (1) induction loop; (2) FM Systems (radio transmission) and Infrared (See Definitions, Appendix B).

Overall, selecting or specifying an effective listening system requires study and careful consideration to ensure resources are used effectively. This is especially important for large or complex facilities, however, integrating accessibility considerations at the start typically does not result in added costs when it is acknowledged that all users needs are important for any venue.

Accessible Design Criteria

General Considerations

- Provide illumination of 200 lux (20 foot candles) at speaker or presentation podiums, lecterns or stages, as well as positions of sign language interpreters, to ensure high visibility for people who may read lips or require sign-language interpretation. Where infrared assistive listening devices are used, ensure that no overhead incandescent lights cancel out the infrared signal at the receiver.

- Integrate supplementary electrical wiring and outlets to accommodate portable assistive listening systems if required when upgrading areas or designing new facilities.

- Design assembly areas and position furniture to ensure a clear view of the speaker(s) and/or sign language interpreter at all times.

Assistive Listening Systems

Permanent Systems

For assembly areas with fixed seating that accommodates fifty (50) or more occupants, and where audible communications is integral to the use of the space (e.g., meeting rooms, performance venues, lecture halls etcetera):

- Provide at least one permanent Assistive Listening System (ALS) for users who are Deaf, deafened or hard of hearing.

- Install signage with the International Symbol For Hearing Loss pictogram to identify availability of assistive listening system. Refer to **Section X** for accessible design criteria related Signage.

Portable Systems

For assembly areas with flexible seating that accommodate less than fifty occupants and are "multi-purpose" in nature:

- Provide at least one portable assistive listening system, with a minimum of two receivers included. The total number of receivers provided is based on four (4) percent of the total occupancy of assembly areas within the facility.

- Install signage with the International Symbol For Hearing Loss pictogram to identify availability of assistive listening system. Refer to **Section X** for accessible design criteria related Signage.

Public Address Systems

Interior Considerations

- Ensure public address system sound level is easy to hear above ambient background noise, without distortion or feedback, as an aid people with hearing or vision loss.

- Mount public address speakers above head-level and provide effective sound coverage in required areas such as corridors, assembly and meeting rooms, recreational, entertainment and educational facilities, as well as in common use areas located in institutional settings.

- Consider zoning public address systems so that information can be directed to key locations only, to minimize background noise in other areas of the building. Where public address systems are used to broadcast background music, care shall be taken to ensure that it is only in selected (zoned) areas of the facility, and that the system can be switched off in localized areas, when required.

- Utilize all-point call systems for fire, security and emergency information purposes only (e.g., not for paging staff). Personal alarm, staff or other call systems (e.g., emergency nurse call systems), shall be selected with care and according to the requirements of the particular setting or user. Call systems shall always be used with discretion.

- Paging systems for use by staff or other key personnel shall be selected to be discreet and low in volume. Systems shall only sound at devices or locations where such persons might reasonably be expected to be located.

Exterior Considerations

- Where public address systems are provided (e.g., at exterior recreation and/or entertainment facilities) every attempt shall be made to select and install systems that minimize distortion and provide a full spectrum of sound. Loudspeakers shall be located so as to cover the desired area adequately without feedback and they shall be mounted on posts to ensure that the output close to speakers is at acceptable levels for nearby audience members.

- Where significant information (e.g. emergency information) is to be announced, a clear warning signal shall be provided before the announcement, to alert persons who are hard of hearing.

- Where large outdoor concerts are regularly performed (e.g. in the summer months), every attempt shall be made to include an FM loop (or other suitable systems), for persons who are hearing impaired.

Two-Way Communication Systems

- Speaker devices are preferred over handset devices, recognizing they are easier to use by people who have limited reach or upper body movement. If handsets are provided, cords shall be a minimum of 735 mm (2’-5”) long.

- Provide systems with both audible and visual signals, to accommodate the needs of a wide range of users with vision or hearing loss. A light with large print information signage (e.g., describing its meaning and related instructions) can be used to indicate that assistance is on the way (e.g., elevator and safe holding area communication systems).

Signage and Wayfinding

Rationale

All users want to be able to find their way to and through a site or building easily and safely, regardless of ability or disability. This is especially important for users with a vision loss, cognitive disabilities, seniors and people who speak languages other than English, who rely on a comprehensive signage system for orientation and wayfinding throughout environments where public services or programs are provided. Such signage and complementary way-finding strategies must be logical, consistent in design and distribution throughout the site and building. This includes lettering, numbers, pictograms or symbols that are legible, tactile and easy to comprehend. Additionally, people with a vision loss or who are legally blind benefit from tactile and visual cues used throughout interior/exterior environments, both to find their way in complex settings, but also to be forewarned about potential hazards.

Accessible Design Criteria

Wayfinding Principles

- Prevent information overload and cluttering of signage and related information, which results in confusion.
- Ensure consistent design and strategic placement and mounting heights at key decision-making points along accessible routes of travel, including entrances/exits, reception and elevator lobbies, at offices, assembly spaces and public facilities and amenities, for example.
- Use matte, eggshell, non-glare finishes on all signage surfaces.
- Colour contrast signage with mounting surfaces for full visibility. Way-finding strategies (e.g., signage systems) shall use at least 70% colour contrast (or greater). Note: One exception is the use of bright yellow, which is acceptable at 40% contrast.

Character Features and Sizes

- Characters used on signs (e.g., letters and numbers) shall be sans serif or Arabic, have a width to height ratio between 3:5 and 1:1, have stroke width to height ratio between 1:5 and 1:10 and be colour contrasted by at least 70% with its background surface.
- Lettering or signs providing general directions shall be in large size print that is legible from normal viewing distance(s), as identified in **Table 1.**

- Lettering for room numbers or names shall be no smaller than 25 mm (1”) high in sans serif type print and be in a highly contrasting colour (70% or greater), compared to 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.

- Lower case lettering is easier to read than using all capital letters, as the “shape” of the text or message is more legible and creates its own image for familiarity. A mixture of both capital and lower case letters is considered suitable for easy reading by both users with and without a vision loss.

Table 1: Character Height on Signs

Minimum Character Height		**Maximum Viewing Distance**	
Millimeters	Inches	Millimeters	Feet/Inches
25	1	750	2’-5”
50	2	1500	4’-11”
75	3	2250	7’-3”
100	4	3000	9’-10”
150	6	4500	15’-0”
200	8	6000	19’-8”
250	10	7500	24’-7”
300	12	9000	29’-6”

Mounting Locations

- All interior directional signage and locational signage shall be mounted consistently at eye-level, between 1370 mm (4’-6”) and 1500 mm (5’-0”) high, for quick and easy identification by persons who have a vision loss. Signs mounted at eye level allow users to approach the sign, including people who are nearsighted.

- Room numbers or names shall be mounted on the wall close to the opening side of the door, within 300 mm (1’-0”) of the doorframe as a constant reference location.

- Do not place suspended signs against a light source (e.g., at the end of corridors, which have windows, glass doors, window walls, or against overhead light fixtures).

- Do not mount any signage directly on external glazing, as user’s eyes have difficulty adjusting.

Pictograms and Symbols

Pictograms and symbols are used to complement text information to identify important building features, elements pr services including information desks, public washrooms, and elevators, for example. When pictograms are used, the equivalent text message must also be provided. When used on tactile signs, ensure pictograms and symbols are:

- Raised 0.8 to 1.5 mm above the surface;
- Placed on a sign surface at least 150 mm in height (6”);
- Accompanied by the equivalent description in Grade 2 Braille placed below the pictogram/symbol; and
- Colour contrasted with their background by at least 70%.

Use the International Symbol of Accessibility to identify accessible building features, spaces, elements, and amenities. Recognized and standardized symbols for accessibility features or other key building elements (e.g., washrooms, telephones and elevators) are identified in **Figures X**, and are required to be integrated within building signage systems to facilitate wayfinding for all users, with or without a disability.

Tactile and Braille Signage

Braille or tactile features are only required for signs that can be reached and touched up close (e.g., it is not required for overhead or suspended signage, typically used for directional signage). For comprehensive signage systems:

- Provide tactile and braille signage to supplement the text of regulatory signs (e.g., prohibition and mandatory information or directions), warning signs (e.g., caution and danger) and identification signs for any permanent rooms or spaces (e.g., washrooms, exit signs, stairwells, room numbers for offices, names for permanent and large assembly rooms or auditoriums etc that likely will not change in use).

- Mount braille and tactile signage on walls adjacent to the latch side of doors, at 1525 mm (5’-0”) centre, measured from finished floor surface. Ensure clear floorspace is provided adjacent to mounting locations, allowing people to approach within 100 mm (4”) of sign without encountering any hazard.

- Provide a clear wall area around any tactile or braille signage at least 75 mm wide (3”), to ensure easy reading by touch and full visibility from a distance by other users.

- Where provided, tactile characters shall be sans serif, raised 0.8 to 1.5 mm above the surface, 16 to 50 mm in height (1/2” to 2”), accompanied by Grade 2 Braille near the bottom edge of the sign and colour contrasted with their background by at least 70%.

- For elevator signage that requires tactile and braille features, See **Section X** “Elevators”.

Lighting

- Mount and position signage to avoid glare and shadows resulting from both artificial and natural lighting sources.

- Provide a minimum of 100 lux (10 foot candles) lighting level at all signage locations, 200 lux or more is preferred and shall be implemented as required based on exterior and interior conditions.

Additional Comments

- Temporary signage on display can be very confusing and its use should be actively controlled through management procedures / protocols (e.g., often signage is out of date and improper language, materials and text sizes are used). The unsuitable use of temporary signage can render other relevant and accessible signage ineffective.

- In larger public facilities, a tactile map of the facility showing the distribution and location of key areas/spaces shall be provided in the main entrance lobby. In large complex buildings such as hospitals, tactile maps may be required on each floor and shall be located close to the major point of arrival to the floor (e.g., elevator lobby).

- Directional, instructional information, or maps showing exiting details for emergency situations shall be located on every floor of large buildings providing services or programs to the public.

- Where special exiting instructions are provided for persons with disabilities, (e.g., directions to safe holding areas), this information shall be in large print on a highly contrasting background for easy identification and legibility by persons with low vision. Braille shall also be provided on special exiting signage used at stairwell locations and for information provided related to fire exiting and evacuation strategies and plans.

- For exiting and fire alarm signage, See Ontario Building Code requirements.

- For signage relating to elevators, See CAN/CSA B.651-04 Appendix E, “Signs”.

Information Systems and Directories

- Information systems providing direct information to the public need to be comprehensible to a wide variety of users, including persons with sensory disabilities.

- Where essential auditory information is available, (e.g., on audiotape, by telephone or other means), it shall be complemented by suitable printed material and a variety of alternate formats shall be made available.

- Essential print information shall generally be printed in large text (e.g., 12-14 pt bold) on a highly contrasting background colour. Print information shall also be available in alternate formats, including braille or audiotape, for use by persons who have a vision loss.

- Information typically available on visual display screens shall also be available in other formats, including audiotape or large print.

- On display monitors, consideration shall be given to include an enlarging function for persons with low vision.

- Information systems designed for direct access by the general public, (e.g., video display terminals with keyboard or keypad access) shall be easy to operate, require little physical effort and mounted at a suitable height for use by persons with mobility aids, at 1200 mm (3’-11”).

- Push-buttons (or other controls) accessing public information systems shall be clearly identifiable by colour and/or tone from the background colour, with a contrast of 70% or greater. Push buttons or other controls shall include raised numbers, numerals or symbols for easy identification by persons who have visual disabilities.

- Lighting levels at keyboards or other controls shall be evenly distributed at no less than 200 lux (20 foot candles).

Video Signage

Where video devices such as televisions, computer monitors, and flat panel displays are used as signage:

- Locate any video display or information signage away from potential sources of glare that can be reflected from the display screen (e.g., from artificial or natural lighting sources).

- Provide clear floor space of 1675 by 1675 mm (5’-6” by 5’-6”) preferred in front of displays, with knee-space below 760 mm (2’-6”) wide by 685 mm (2’-3”) high and 250 mm (10”) deep minimum, for users of mobility aids.

- Ensure operating controls are accessible and mounted no higher than 3’-11” from floor level for interactive displays.

Exterior Signage and Wayfinding

General Requirements

- A comprehensive exterior signage and way-finding system is required at every major site or facility, to assist visitors with varying disabilities to locate parking, entrances and any accessible amenities (e.g., washrooms). The “International Symbol of Accessibility” shall be used to identify accessible exterior building elements, features and amenities.

- The building address and name signage shall be clearly visible from accessible approaches from the street, adjacent parking areas and pedestrian sidewalks or routes. Signage design requirements used for interior areas typically apply for exterior areas, as identified previously in the section (e.g., visibility, use of colour contrast). See Table X for character and text sizes required for signage.

- Building addresses or identifying signage at street level, whether it is mounted in landscaped areas or on posts, shall be high enough to be clearly visible even with snow piled nearby.

- Ensure all pedestrian, vehicular and emergency routes are clearly identified with suitable signage, including any directions that may be required.

- One-way routes shall be clearly marked, using both pavement markings and vertically mounted

Fig: Pictograms and Symbols (C20)

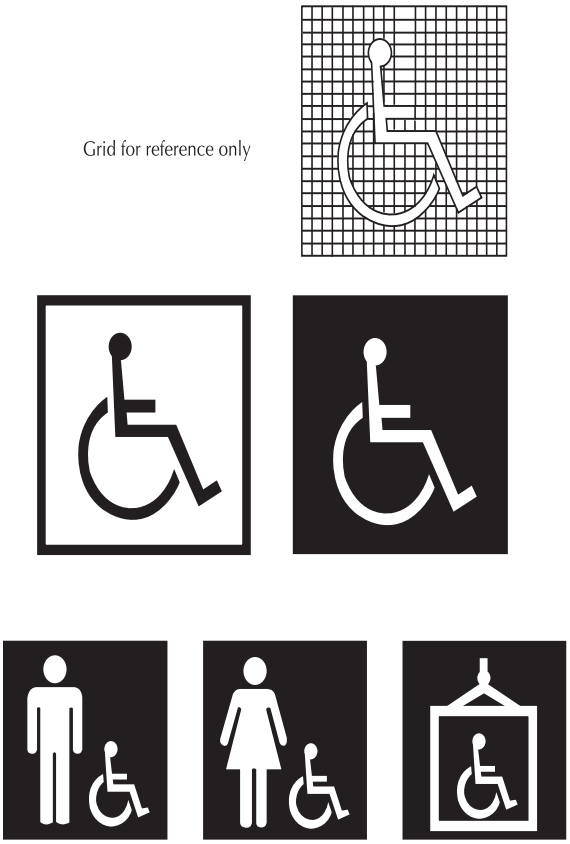


Fig: Tactile Map (C23)

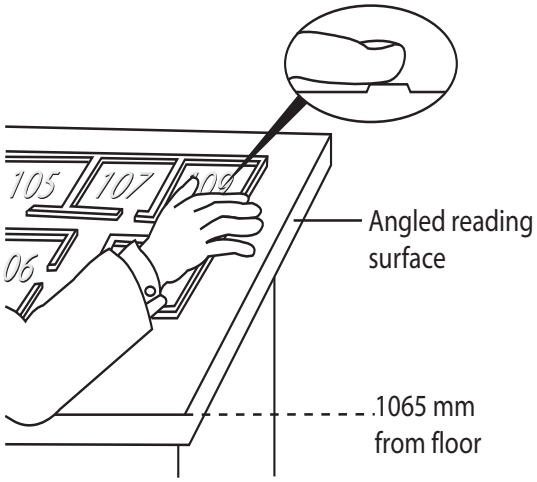


Fig: Washroom Identification Pictograms (C22)

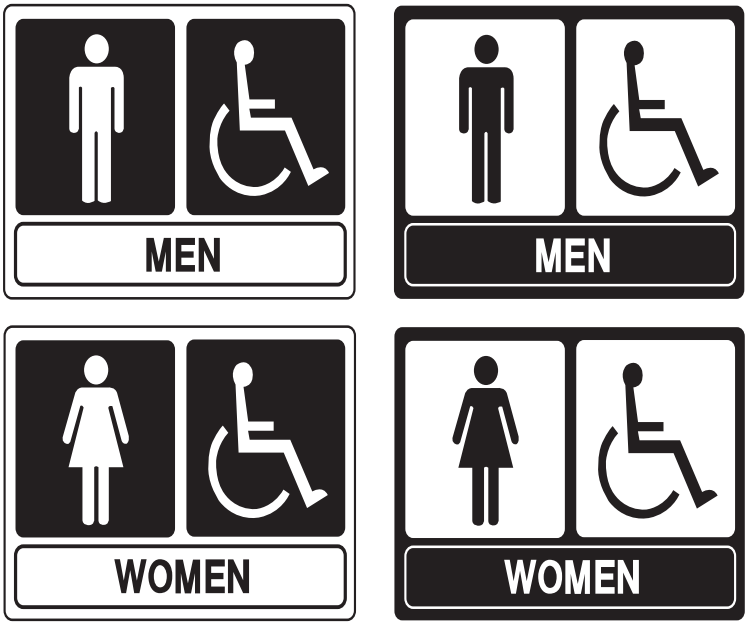


Fig: Room Identification Signage & Tactile Features (C21)

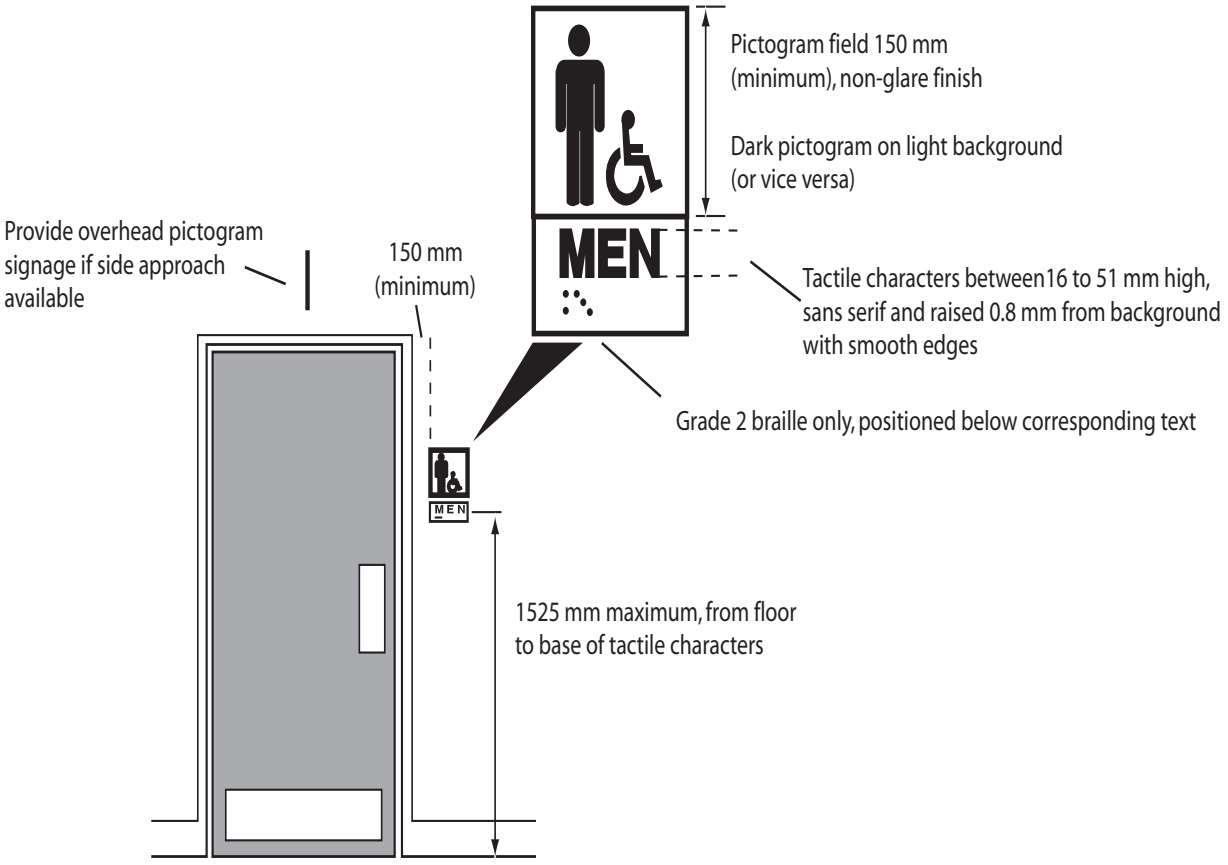
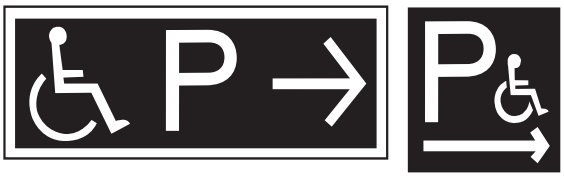


Fig: Pictogram Signage

Directional Signage - Accessible Parking



Washroom Directional Sign

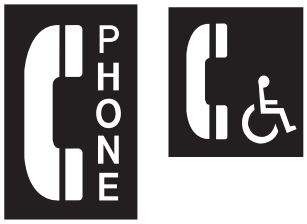
Elevator Pictogram

International Pictograms

Assistive Listening Systems (ALS) or Symbol For Hearing Loss

Access for People with a vision loss

International Telephone Symbols



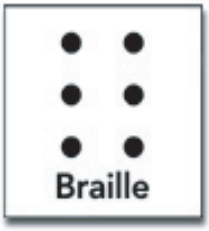
Teletypewriter Symbol (TTY) or Telecommunications Device for the Deaf (TDD)

V V - Variable or adjustable volume control is available, for users with a hearing loss

Ramp Identification and Directional Signage

Large Print Format

Volume Control Telephone



Braille Format

Closed Captioning

Sign Language Interpretation

Information Symbol

Audio Description (for users with a vision loss)

Section D:

Special Facilities, Spaces & Environments

Section D: Special Facilities, Spaces and Environments

The Town of Markham provides a wide range of Facilities, Spaces and Environments throughout the community. Often, diverse facilities that provide special services or programming to the public also have unique interior or exterior spaces, along with other important considerations that impact on design and universal access for all users. This Section is intended to identify major facility types or unique spaces and environments that are commonly found throughout Town Facilities, for staff or visitor use.

Assembly Areas

Rationale

Municipal facilities often include a diverse range of assembly areas with fixed seating for spectators and staff. Common Assembly Areas used for civic, entertainment, cultural, educational or sports events are identified in Table 1. Typically, the event space or focal point of the room is designed as the lowest point and assembly areas are raised, allowing for maximum visibility by the audience. All assembly areas providing live performances, films, music or educational programming shall be accessible to persons with varying disabilities. Where fixed seating is provided in Assembly Areas, accessible viewing spaces are required for users of wheeled mobility devices (e.g., manual and powered wheelchairs, scooters), including provision of accessible routes for approach to and exiting from these viewing spaces. Sightlines require careful attention, as some users of mobility aids cannot lean forwards or sideways in their seats, turn their heads, nor can it be forgotten that they cannot stand up when their view is blocked.

Table 1: Common Types of Assembly Areas

Civic	Entertainment/ Cultural	Educational	Sports
Council Chamber	Theatre	Lecture Hall	Arena
Public Meeting or Hearing Room	Places of Workship	Classroom	Stadium
Auditorium	Performing Arts Centre	Conference/ Symposium Room	Gymnasia
Multi-purpose Room (e.g. Community or Recreation Centres	Museum	Stage/ Podium	Grandstand
	Stage/ Podium		

Accessible Design Criteria

General Considerations

- Distribute accessible viewing spaces at diverse locations, in proportion to other seating and in similar seating categories, to provide users of wheeled mobility devices with a choice of “vantage” points. This is especially important where Assembly Area has a large seating capacity (e.g., over 100 fixed seats). Storage space for mobility devices should also be provided within reasonable distance, for those who prefer to transfer from their wheelchairs to a seat.

- Ensure accessible viewing spaces are an integral part of the seating plan and that they are not segregated from other seating areas. (Note: This may also provide ticket-pricing options for users, where applicable).

- Locate accessible viewing spaces adjacent to fixed seating locations that can be used by a companion or caregiver. Provide at least one fixed companion seat directly beside each accessible viewing space and within the same row.

- Provide accessible seating options to accommodate users of all sizes and abilities, including armrests that flip up and down at the end of aisle seats, or on fixed seating that is provided adjacent to accessible viewing spaces to assist persons transferring from mobility devices (e.g., scooter).

- Ensure Assembly Areas that provide seating for 50 persons or more are equipped with Assistive Listening Systems, customized for the type of venue and audiences, for persons who are Deaf, deafened or hard of hearing. Refer to Section X for design criteria related to Assistive Listening Systems.

- Mount safety guards or railings that are required for viewing spaces away from user's sight lines in order not to obstruct any views. Refer to Section X for design criteria related to Handrails and Guards.

- Use colour contrast on seat and amenity finishes to assist all users with a vision loss to identify and locate them.

- Incorporate evenly distributed lighting levels throughout all accessible approach and exit routes, to and from spectator seating and viewing areas. Lighting strips at floor level can be used to mark accessible routes in areas with lower lighting levels.

- Ensure all audio-visual equipment, features, controls and related technology is usable by all participants and staff, where applicable, including the provision of instructions and guidance in alternative formats.

Accessible Viewing Spaces

Space Provision

- Provide accessible viewing spaces for wheeled mobility devices at approximately 3% of the total of fixed seats provided, as identified in Table 1. (Note: The minimum number of accessible viewing spaces as required by the Ontario Building Code is approximately 1% of the total number of fixed seats provided).

Table 1: Accessible Viewing Spaces for Wheeled Mobility Devices		
Total Number of Fixed Seats in Assembly Area	**Recommended Number of Accessible Viewing**	Minimum Ontario Building Code Requirement
Percentage →	**3%**	**1%** Ratio of Accessible Viewing Spaces to Fixed Seats
4-25	1	
26-50	2	
51-150	4	
151-300	5	
301-500	6	
501-5000	6, plus 1 for each 150	
5001+	36, plus 1 for each 200	

Approach and Exiting

- Provide an accessible route and/or approach to accessible viewing spaces, including accessible routes for exiting where for users of wheeled mobility aids. Refer to Section X for design criteria related to accessible routes and approaches.
- Install informational and directional signage in prominent locations, such as main entrance and ticket office areas, to assist spectators with identifying provision and location of accessible viewing spaces for users of wheeled mobility devices. Refer to Section X for design criteria related to Signage and Wayfinding.

Floor Space Dimensions

- Provide clear and level floor space at least 915 mm wide (3’-0”) by 1525 mm (5’-0”) depth to accommodate side, front and rear approaches into space by users of larger types of power wheelchairs or scooters.
- Ensure at least two accessible viewing spaces are provided side by side, with one companion seat available directly adjacent.

Fig: Examples of Accessible Seating Locations and Distribution

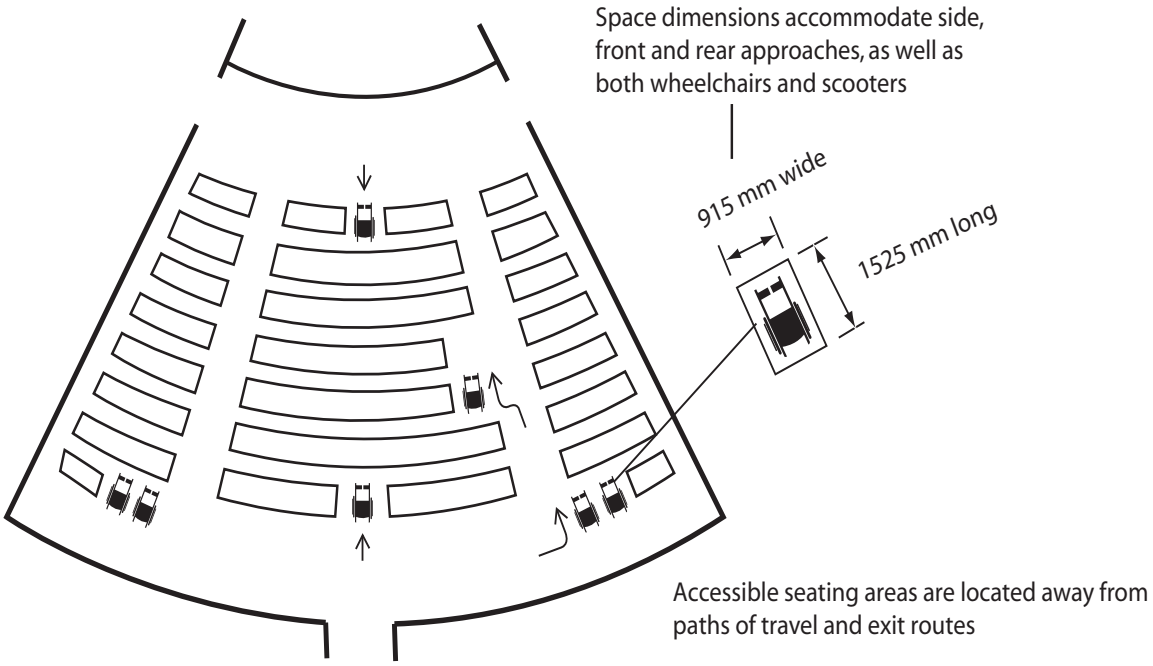
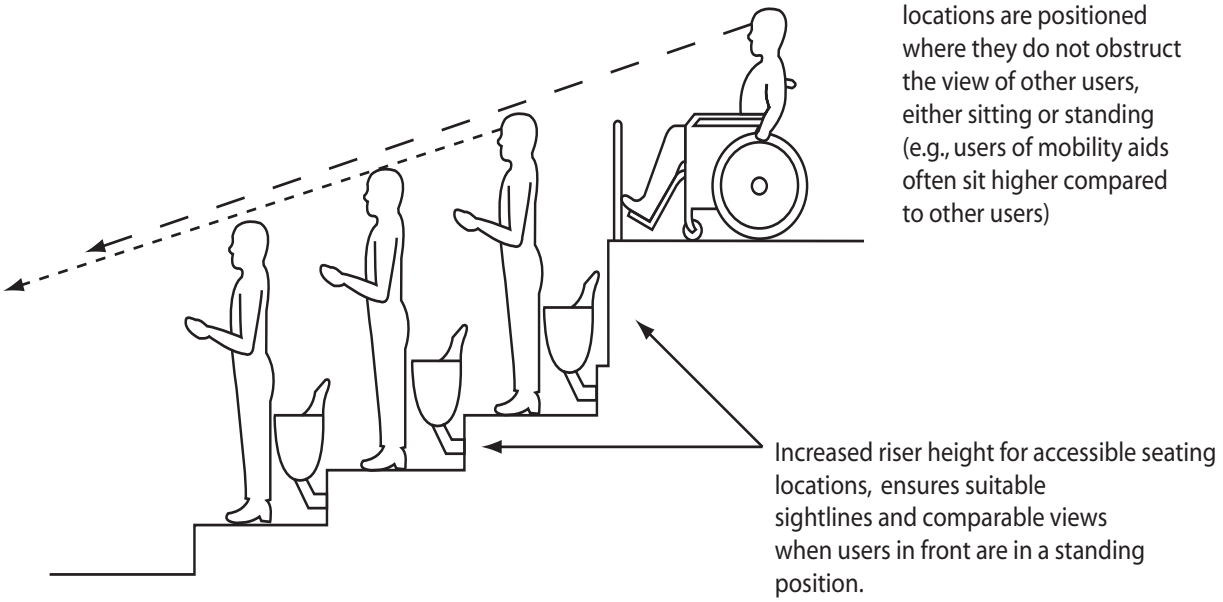


Fig: Sightlines in Assembly Areas



Cafeterias, Dining Facilities and Kitchens

Rationale

Many civic, administrative and multi-purpose facilities provide food and beverage facilities, including cafeterias, kitchens, kitchenettes, dining areas and other full or self-serve facilities for public and staff use. Typically, "open space" layouts accommodate the needs of a wide range of users, with the need for dining areas to be located in close proximity to any food display, ordering and serving areas for convenience. Staff kitchens or kitchenettes should be designed with integrated accessibility features, such as the availability of lowered cabinet and counter sections, with easy to use cabinet hardware and appliance controls (e.g., lever or D-pull type). A well-planned and organized food service area will be easy to use, especially for people with a vision loss. Additionally, menus and other printed information should be available in large print (e.g., Verdana 16 point) and other alternate formats, such as Braille.

Accessible Design Criteria

Approaches and Aisles

For approaches and aisles leading to and from all food service areas:

- Provide a preferred width of 1220 mm (4'-0"), or 1065 mm minimum (3'-6").
- Ensure at least one accessible entry point is provided (e.g., access gate), where turn-styles or related control points are used, with a minimum clear width of 915 mm (3'-0") for entry.

Shelving, Counters and Related Displays

For food selection, ordering, payment and related service amenities, provide:

- Continuous, level and colour contrasted counter surfaces, with rounded edges, for easy identification and safe use.
- Tray slides or counters mounted between 760 mm and 865 mm (2'-6" and 2'-10") maximum height from finished floor level, including buffet style food displays.
- At least 50% of all shelves, but no less than one shelf, mounted between 380 and 1370 mm (1'-3" to 4'-6") for unobstructed side reach, approach and visibility from a seated position. If direct, frontal approach is provided, include knee space below at 760 mm (2'-6") wide by 685 mm (2'-3") high and 250 mm (10") depth, for users of mobility aids.
- A lowered shelf height of 1220 mm (4'-0") accommodates the widest range of users. Ensure a range of food and beverage choices are displayed at an accessible height.

- Cutlery, condiment and related dispensers (e.g., napkins), as well as waste receptacles and tray return holders, mounted at 1065 mm (3’-6”) preferred from floor level, or 1200 mm maximum (3’-11”).

- A lowered shelf or counter section at Cashier counter, mounted between 710 mm (2’-4”) and 865 mm (2’-10”) high from floor, with clear floorspace (e.g., no temporary signage or display obstructions) and full visibility of Cashier.

Dining Areas

For all dining tables, counters or similar eating areas, or a minimum of 5% of the total number of fixed seats, provide:

- Adjacent clear floorspace of 760 mm wide (2’-6”) by 1220 mm depth (4’-0”), for approach and maneuverability by users of mobility aids. Table legs and bases should also be offset from outer edges to maximize room for approach. Flexible seating in some areas will allow accommodations to be made easier, compared to fixed seating and tables.

- A top surface mounted between 760 to 865 mm high from floor (2’-6” to 2’-10”).

- Dispersed and accessible seating options for all users, with seat surfaces mounted at 460 mm high from floor (1’-6”) is preferred, including consideration for back and adjustable arm supports or other aids for sitting and rising, important for people with ambulatory disabilities.

- Provide a lowered counter surface where bars are available, mounted between 760 to 865 mm high from floor (2’-6” to 2’-10”), with knee space below at 685 mm high (2’-3”) from floor and 480 mm depth (1’-7”) from edge of counter. Section should be at least 1525 mm in wide to accommodate both a user of a mobility aid and a seated companion.

- Refer to **Section X**, Social and Entertainment Venues, for accessibility design criteria related to Exterior Dining Areas.

Dispensing Areas

- Provide food and beverage dispensing machines with clear floor space in front, 1675 by 1675 mm preferred (5’-6” by 5’-6”) or 1525 by 1525 mm preferred.

- Mount lower dispensing part of machines a minimum of 380 mm high from floor (1’-3”), with no operating controls higher than 1200 mm (3’-11”), including coin slots and operating instructions / signage.

- Ensure all operating controls can be used with one hand and do not require tight grasping, twisting of the wrist or pinching of fingers, with strong colour contrast when compared to mounting surface.

Kitchens and Kitchenettes

General Considerations

- Flexible layout and “open space” design concept, with a minimum aisle space between counters or walls of 1065 mm (3’-6”), where applicable.
- Slip-resistant and non-glare flooring finish.
- Colour contrasted counter, cabinet and appliance surfaces or finishes, compared to adjacent surfaces for easy identification by users with a vision loss.
- Floorspace provides a preferred turning radius of at least 1680 mm (5’-6”), or 1525 mm minimum for users of mobility aids.
- A range of shelving and storage cabinet heights, with at least 50% mounted between 380 and 1200 mm high from floor (1’-3” to 3’-11”), placed no further than 480 mm depth (1’-7”) from edge of counter, for reach by all users.
- Locate dining areas as close as possible to minimize task of carrying food.
- Provide evenly distributed illumination, at least 200 lux preferred, or 100-lux minimum, with task lighting options also available.

Food Preparation Counters

Provide colour contrasted, accessible counters with:

- Rounded or chamfered edges and continuous sections provided adjacent to major appliances for use as work surfaces.
- At least one lowered section (or pull-out shelf) for food preparation, with top surface between 760 mm and 865 mm (2’-6” and 2’-10”) high from floor and knee space below at 685 mm high (2’-3”) from floor and 480 mm depth (1’-7”) from edge of counter.
- A sink, centred at least 460 mm (18”) from sidewall, with lever handle faucet or automatic control and flexible/adjustable spout is preferred. Mount top surface between 710 and 865 mm (2’-4” to 2’-10”) high from floor, with knee space below at 685 mm high (2’-3”) from floor and 480 mm depth (1’-7”) from edge of counter. Cover all pipes below to protect users and locate them as close as possible to rear wall (or offset).
- A portable, accessible side counter unit. Mount surface no higher than 865 mm from floor (2’-10”), for frequently used appliances such as coffee machines and microwave ovens and related amenities.
- Overhead cabinets with lever or D-pull hardware that is colour contrasted and mounted no higher than 1200 mm high (3’-11”) from floor and no deeper than 200 mm (8”) inside for easy reach of items.
- A lowered cabinet equipped with a carousel (e.g., corner unit) to facilitate storage of and access to regularly used items (e.g., coffee supplies).

Appliances

Provide accessible appliances with the following features:

- Ensure clear floorspace is provided adjacent.
- Colour contrasted operating controls that do not require tight grasping, pinching of the fingers or twisting of the wrist.
- Controls no higher than 1200 mm (3’-11”) from floor, and placed no further than 480 mm depth (1’-7”) from edge of counter.
- Combination refrigerator/freezer units, with doors opening outwards from the centre are preferred, since a range of shelving heights are provided in both.
- For microwave ovens, audible and push button controls can accommodate most users, with ovens placed on lowered counter section or portable side unit.
- Where required, provide separate stovetops and ovens to allow each to be placed at accessible heights. Side-swing door ovens are preferred to allow close approach by users of mobility aids. A pullout shelf below oven also allows users to transfer items easier.
- For stovetops, locate controls across front edge to minimize potential for burns since users do not have to reach over or across burners.

Fig: Cafeteria Approaches and Aisles (D7)

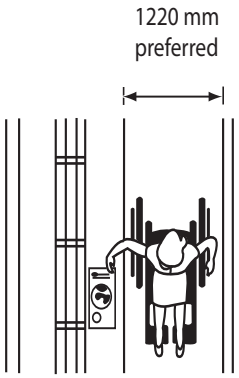


Fig: Cafeteria Displays

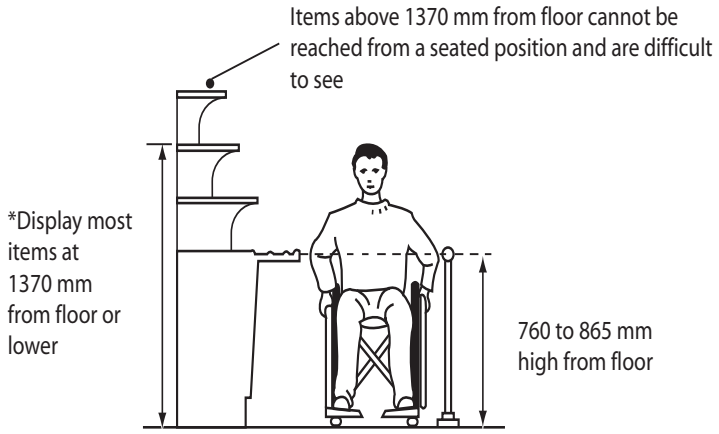
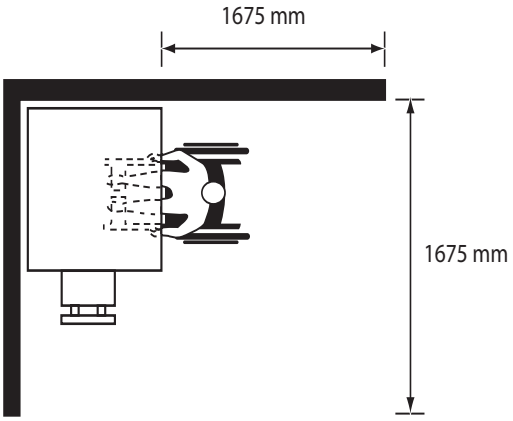
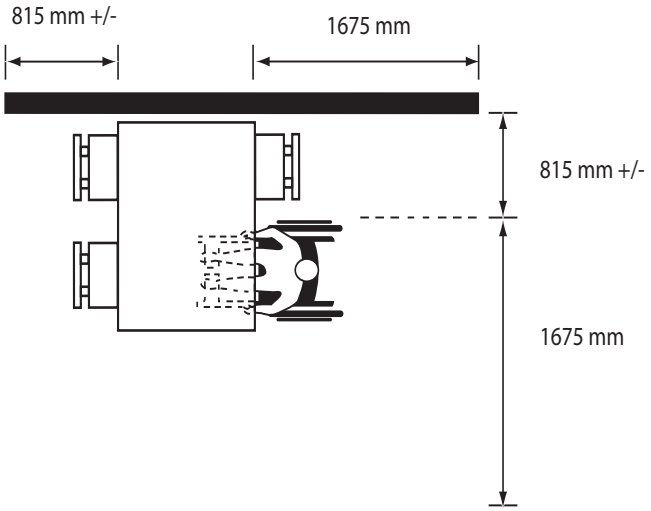


Fig: Minimum Floorspace Clearances for Mobility Aids in Dining Areas (D8)

Scenario #1



Scenario #2



Scenario #3

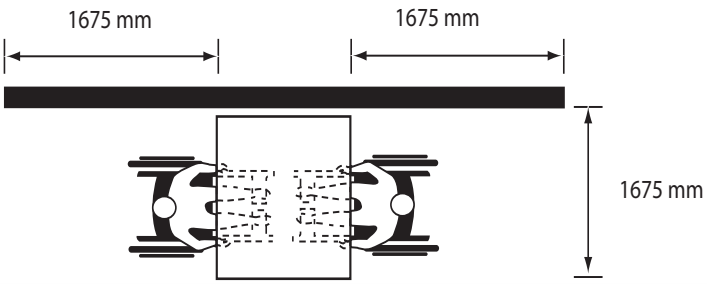
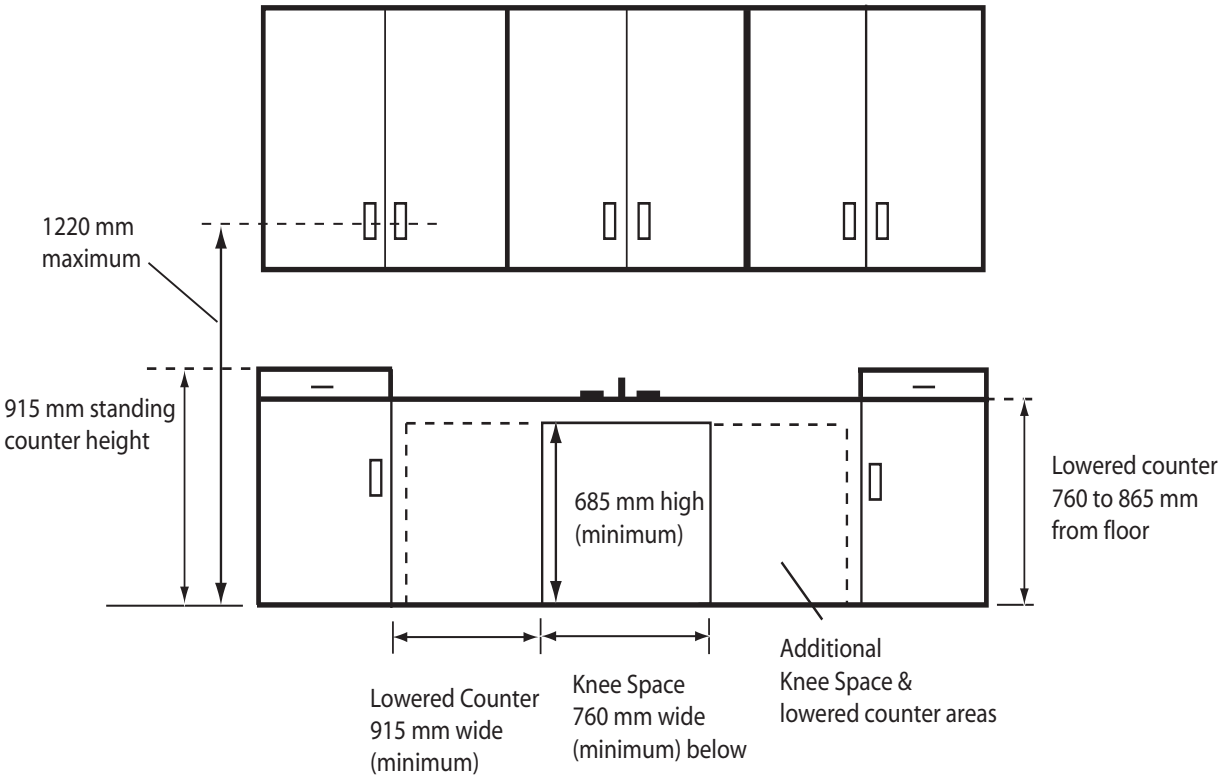


Fig: Example of Kitchenette (D9)



Cultural, Art, and Museum Facilities

Rationale

Cultural Facilities reflect a broad range of venues, including Art Galleries, Theatres, Concert Halls, Museums and Heritage sites, buildings and related amenities (Libraries are also an important type of Cultural Facility, with detailed guidelines provided in Section X). Recognizing the diversity of audiences attracted to the performances, displays, features and amenities provided at different Cultural Facilities, enhanced accessibility for users of all ages and abilities will beneficial to the community as a whole as well as potentially providing an increased customer base for these attractions. In addition to physical access to programs, cultural facilities / organizations must provide access to the content of their programs for audiences, instructors, artists, interns, participants, staff, docents, visitors, patrons and volunteers. Everything the facility / organization produces or presents needs to be accessible, including exhibitions, lectures, films, videos, interactive computer displays, plays and concerts, as well as the materials about the programs, including: catalogues, labeling, scripts, brochures, maps and publicity materials/information.

Recognizing there are often unique circumstances and challenges related to improving accessibility at Heritage Sites and Facilities, often additional considerations beyond architectural and physical design are required, including improving staff/curator training and awareness, enhancing facility management policies and practices, as well as a greater focus on wayfinding improvements and marketing through use of technology (e.g., internet and on-site equipment). Heritage Sites often present challenges related to improving accessibility, however, community consultation and input from specialists can also provide practical solutions.

Accessible Design Criteria

General Considerations

- Refer to other relevant sections of these guidelines applicable to Cultural Facilities (e.g., Washrooms), as well as the consideration of addressing broader accessibility issues related to programming, practices, services and policies.

- Ensure all displays or exhibits, whether in permanent or temporary locations, can be accessed, enjoyed and understood by persons with varying disabilities and users who speak languages other than English.

- Develop a formal communications plan that will allow Cultural facilities to provide alternate formats of public information, brochures, specialized text, based on request (e.g., Braille, large print, audio & visual description, CD ROM, Closed Captioning), including provisions for all promotional and marketing materials that may be used.

- Provide a central TTY for one-to-one communication, especially cultural facilities and organizations that conduct a high volume of business by phone or who have staff or volunteers who are deaf. This is preferred rather than relying on telephone relay services.

- Implement staff, volunteer and tour guide accessibility awareness and training to ensure the needs of all users can be accommodated tailored to the uniqueness of the cultural facilities, programs and services offered.

Exhibits and Displays

- Provide a preferred aisle width of 1220 mm (4'-0"), or 1065 mm minimum (3'-6"), where required throughout interior areas, including any Giftshops.

- Use low, angled display cases or surfaces for exhibits and related information for standing or seated users, wherever possible. Mount top surfaces no higher than 915 mm (3'-0") with clear knee space of at least 785 mm (2'-3) below, for frontal approach, or clear floorspace in front of 1680 by 1680 mm preferred (5'-6" by 5'-6"), which allows parallel approach by users of mobility aids.

- Install or mount objects on display (e.g., art, artefacts, monuments and related cultural features) on backgrounds, surfaces or within display cases with a strong colour contrast compared to the object's surface, for easy identification.

Lighting

- Use a combination of ambient, decorative, accent or task lighting to enhance or provide options for users with respect to lighting levels throughout all areas, beneficial to users with a vision loss, while also recognizing the need for museums, arts and cultural facilities to have control over lighting to protect and conserve exhibits. Lighting strips at floor level can be used to mark accessible routes in areas with lower lighting levels.

- Minimize potential glare that may be reflected from any displays, surfaces or covers by suitable positioning of adjacent lighting sources (e.g., overhead) and use of matte surface finishes, recognizing glare is a problem for all users especially people with a vision loss.

Assistive Listening Systems

- Install assistive listening systems (e.g., Audio Loop, FM or infra-red systems) in large assembly, meeting or performance rooms, or provide a portable system that can be used in different areas.

- Refer to **Section X** for detailed accessible design criteria related to Assistive Listening Devices.

Signage and Wayfinding

- Use large print labelling for all displays and exhibits, including explanatory text and guidance. Sans-serif fonts are preferred (e.g., Arial or Verdana), a minimum of 16 point type, which is considered large print. Ensure additional alternate formats are available upon request.

- Integrate the use of tactile, visual and audible displays to accommodate all users. Signage and information displays, or the provision of audio and video display screens with captioning, can be designed to convey site and facility details that may not be physically accessible for users of mobility aids, or to communicate with users who have vision or hearing loss. “Touch tours” may be developed to enhance the experience of visitors and patrons who are blind or have low vision.

- Refer **to Section X** for detailed accessible design criteria considerations related to Signage and Wayfinding.

RESERVED - Heritage Considerations

A publication focused on Accessibility Issues related to Heritage Facilities was under development at the time these Guidelines were being prepared, by The Ontario Historical Society. This section will be updated in the future to reflect accessible design criteria related to Heritage Facilities. Some general considerations include:

- Evaluate accessibility options within a preservation context, recognizing accessibility issues may have an impact on preservation issues and vice versa.

- Ensure a ‘universal access’ approach to design is implemented for architectural upgrades, preventing use of ‘segregated’ accessibility provisions where the needs of users with disabilities are addressed separately from the regular use of the facility, amenities and features.

- Consider alternate strategies to improve or address accessibility needs and how visitors with disabilities experience the environment where it is determined physical / architectural upgrades are not practical (e.g., heritage fabric may be compromised). Where upper floors of a Heritage Facility are not accessible to users of mobility aids, a video of the experience and features can be viewed by visitors collectively.

- Evaluate the use of adaptable solutions to improve accessibility for users of mobility aids (e.g., use of a portable ramp at an entrance threshold that cannot be modified.

Libraries

Rationale

All library areas, including service counters, book stacks, lounge/reading areas, study rooms and teaching spaces, shall be accessible to seniors and persons with varying disabilities. Recognizing the high degree of interaction between library staff and users, staff training and awareness related to disability issues is an important consideration to ensure services and amenities are accessible (e.g., procedures in place for book retrieval as requested, the provision of alternative print and digital/audio media etc.). Although many areas of a library are now designed to be more 'efficient' with self-service strategies in place and a greater emphasis on displays, customer service should continue to be a priority, with staff available at all times to meet the needs of all users. Special attention should also be made to the provision of signage and wayfinding features that will benefit all users of the diverse spaces and amenities provided in a public library environment. This includes using consistent, colour contrasted flooring materials or textures to demarcate routes to Information Counters or book stacks, or the use of large print information signage to identify book categories, for people with a vision loss. The use of pictograms or other graphic designs to identify book categories, library amenities and special rooms will benefit all users, including people with low literacy or who speak languages other than English.

Adaptive computer equipment is also essential to provide equal access to library resources, especially for people with a vision loss, however, this equipment can also benefit other library users (e.g., a computer scanner which has multiple functions). Recognizing the high level of use of libraries by people of all ages, additional consideration should be given to address issues related to plain language and resources for people with dyslexia and learning disabilities (e.g., coloured overlays for some print resources).

Finally, any background noise (e.g., from the building's mechanical or similar equipment) should be minimized throughout user areas to provide ambient reading, study or work spaces (e.g., use of carpeting to improve acoustics, provision of separate spaces or the use of "sound domes" to minimize noise levels adjacent to users of specialized audio and visual equipment). This also helps to avoid potential confusion experienced by people who are deaf, deafened or hard of hearing, in large open spaces and also promotes more "inclusive" and integrated use of space.

Accessible Design Criteria

Service Counters

- Provide a lowered counter or shelf for users of mobility aids, mounted between 760 and 865 mm (2'-6" and 2'-10") high from floor, with clear floor space of 760 mm wide by 1220 mm minimum depth (2'-6" by 4'-0"), for frontal or side approach. A turning radius of 1680 mm (5'-6") is preferred in front of service counters and throughout all main pedestrian circulation areas. Electronic, height adjustable work surfaces are preferred for automatic book checkout or return systems, to accommodate a wide range of users.

- Ensure passing clearance through any security gate is a minimum of 865 mm wide (2'-10") or 915 mm preferred (3'-0"), to accommodate users of mobility aids.

- Locate any book deposit slot or drop-bin opening no higher than 915 mm high from floor (3'-0"), including those provided on automated equipment. Ensure openings do not require any tight grasping of the hand, twisting of the wrist or pinching of the fingers, for users with limited manual dexterity.

- Implement strategies for staff to assist users as requested, especially where automated computer catalogues, book checkout or return systems are provided.

- Provide information signage where any services or amenities for users with disabilities are available on different floor levels (e.g., "Welcome" zones, Information or Customer Service Desks), including the use of the International Symbol of Accessibility for easy identification.

Book Stacks or Carousels

- Position book stacks to provide aisles preferably 1065 mm (3'-6") wide, or a minimum of 915 mm (3'-0") wide, to allow suitable positioning by persons using mobility aids. Open space layouts with increased aisle widths are preferred and encouraged to accommodate larger mobility aids such as scooters, for people with limited mobility.
- Provide a range of book shelf heights for all users throughout book stacks or where carousel type displays are used, with resources located on primary shelving mounted between 405 mm (16") and 1370 mm (4'-6") for reach by users of mobility aids and people of short stature.

- Mount lighting at book stacks directly over the aisle space and provide a minimum of 200 lux (20 ft. candles) at normal working height (e.g., approximately 915 mm or 3'-0" high), to benefit all users, especially people with a vision loss.

Reading Lounges, Study Areas and Rooms

- Locate lounge or any similar seating away from pedestrian routes of travel, with seating colour contrasted with environment for users with a vision loss. Mount fixed seating between 455 mm and 500 mm (1'-6" to 1'-7 ¾") mm high from floor, with options for back and arm supports. Flexible and moveable seating options are preferred and should also be available.

- Provide study tables or carrels designed for persons using mobility aids, with clear knee space below a minimum of 685 mm (2'-3") high. Working surface shall be between 760 and 865 mm (2'-6" and 2'-10") high from floor. Consider providing electronic, height adjustable tables throughout, or ensure at least 10% of all tables/ carrels are accessible for users of mobility aids.

- Mount shelving adjacent to study tables, carrels or within study rooms no higher than 1200 mm (3'-11") from floor, to allow an easy forward reach over the working surface by users of mobility aids and people of short stature.

Information Desk or Computer Workstations

- Include at least one accessible computer terminal or similar workstation (e.g., for reviewing library catalogue and resources), where provided, and ensure it is designed for persons using mobility aids, with clear knee space below a minimum of 685 mm (2'-3") high from floor. Working surface shall be between 760 and 865 mm (2'-6" and 2'-10") high, with all equipment positioned within a reach of 480 mm (19") from edge to surface. Alternatively, electronic and height adjustable "service" or "information" desks, are preferred to accommodate all users, including children. Ensure plain language and large print text instructions on how to use equipment are provided.

- Ensure each accessible workstation is equipped with adaptive technology, for users with varying disabilities. Examples of such equipment include an adjustable table, keyboard and monitor surface (e.g., automatic control button is preferred for users with limited manual dexterity or upper body movement), flexible seating (e.g., up/down adjustment, back and arm support), wrist support, flexible mouse/control and scrolling feature, and any specialized equipment for users with a vision loss (e.g., screen reader software, scanner, CCTV magnifiers).

- Provide at least one assistive listening device for personal use (e.g., handheld, portable loop system) for users with a hearing loss, which will allow them to access any multi-media resources. Portable systems can also be used in different areas, rooms, spaces and locations.

- Refer to Section X for detailed accessible design criteria related to Assistive Listening System.

Alternative Print and Media Formats

- Provide alternative formats for key resources based on user requests and through development of partnerships with other organizations (e.g., CNIB, Canadian Hearing Society), including considerations related to the availability of Audio Books on CD Rom for users with low literacy or who have a vision loss, as well as Closed Captioning options for any audio/visual media, for users who are Deaf.

- Refer to other sections of these Guidelines for detailed accessible design criteria related to building features and elements typically provided in Library Environments.

Fig: Library Book Stack - Aisles (D17)

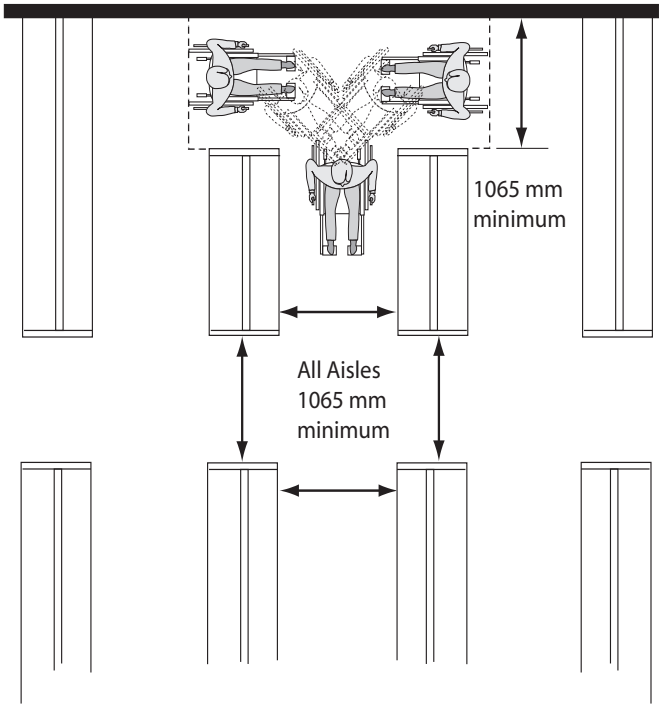
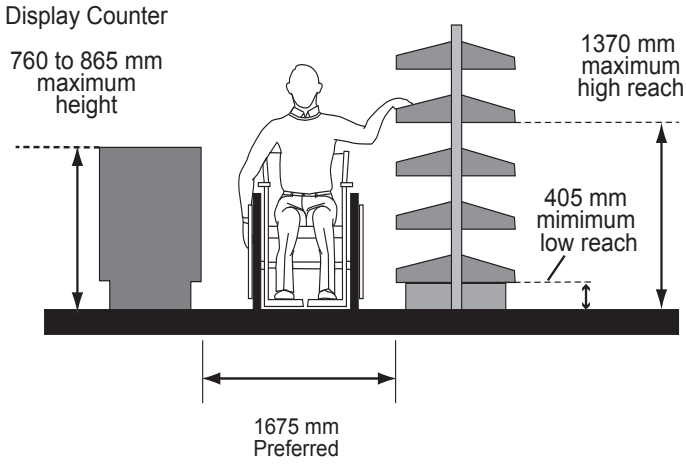


Fig: Library Stacks and Displays (D17)



Office Environments

Rationale

Staff offices providing services or programs to the public shall be designed to be accessible for both staff and visitors with disabilities. This requires the design of permanent offices (e.g., enclosed, private) and flexible office areas (e.g., cubicles set up in an open floor plan) to incorporate adaptable features that can be changed over time to meet staff needs as required, as well as provide basic accommodation for visitors.

In selecting furniture or equipment for public areas related to office environments, (e.g., reception lobbies, waiting areas), care shall be taken to ensure that selected items (and their layout) will not result in a hazard for persons who have a vision loss or prevent maneuverability of users of mobility aids.

Accessible Design Criteria

Layout and Configuration

- Ensure staff work areas (e.g., flexible cubicle arrangements or permanent enclosed offices) provide clear entry width of 1070 mm preferred (3’-6”), or 815 mm minimum (2’-8”).

- Provide clear floor space adjacent to any office furniture and equipment of at least 1675 by 1675 mm (5’-6 by 5’-6”), to accommodate turning space required for both staff and visitors using mobility aids.

Work Surfaces & Storage Cabinets

For staff desks, or board / meeting room tables:

- Mount work surfaces between 760 mm and 865 mm (2’-6” and 2’-10”) high from floor.

- Provide clear knee space below, a minimum of 760 mm (2’-6”) wide by 685 mm (2’-3”) high and 250 mm (10”) deep, for users of mobility aids.

- Ensure lever, D-pull or other accessible hardware that does not require pinching of fingers, tight grasping, or twisting of the wrist, is provided on all drawers or storage cabinets. Mount hardware for overhead storage cabinets no higher than 1200 mm (3’-11”) from floor.

Meeting Rooms

- Provide flexible seating (e.g., moveable, adjustable height, arm and back supports), furniture and equipment, including presentation platforms and display boards that accommodate users of mobility aids (e.g., adjustable surface heights, adaptable technology for audio / visual equipment).

- Locate all furniture, equipment and temporary items (e.g., display stands, information boards, easels, recycling bins), to one side of the pedestrian path of travel.

Additional Considerations

- Where planters are provided, ensure they are located away from pedestrian routes, bases are colour contrasted with surroundings and they are cane-detectable (e.g., mounted at floor level). For planters not at floor level, ensure branches or foliage does not project into pedestrian route.

- For mail slots, hangers or holders provided for staff and where they are located in a central area, provide a range of heights for users of mobility aids. Hanging holders shall be mounted at 1200 mm preferred (3’-11”), or 4’-6” maximum, if side approach for users of mobility aids is provided (e.g., in corridor or related floor space).

Fig: Layout Dimensions of Typical Office Work Area (D21)

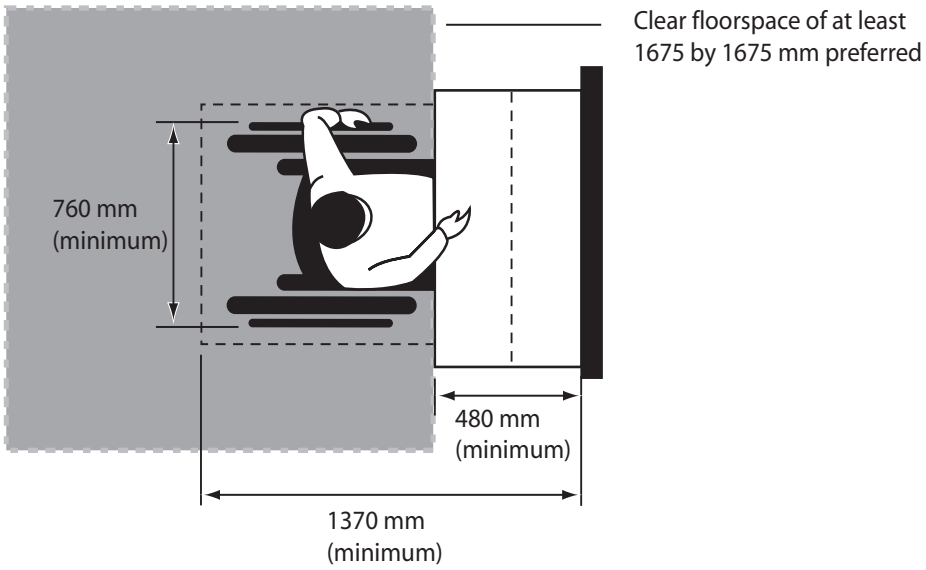
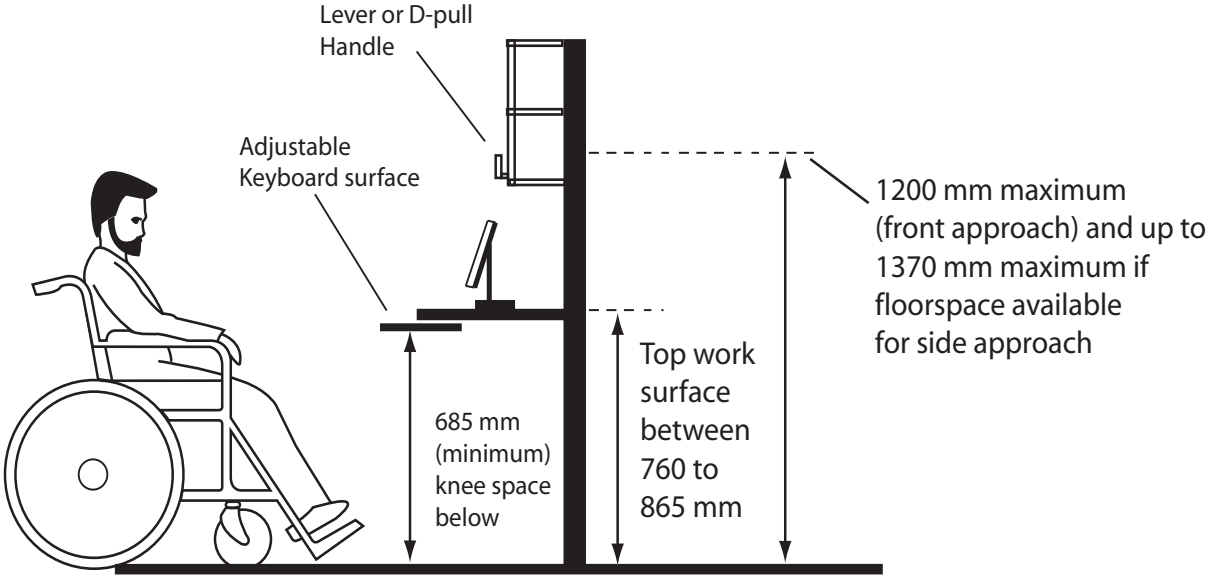


Fig: Side Profile of Typical Office Work Area



RESERVED

Parks, Playgrounds and Trails: Exterior Recreational Environments

At the time these Guidelines were prepared, important initiatives related to addressing accessibility issues throughout exterior recreational environments were under development, including:

- **The Trails for All Ontarians Collaborative:** Development of guidelines for the construction and maintenance of recreation trails that are environmentally sustainable and accessible to people of different abilities. The guidelines will provide step-by-step information for the current “best practices” for inclusive recreation trail construction and maintenance. Expected publication in Summer/Fall 2006.

- **Canadian Standards Association (CSA):** Integrating accessible design criteria for Children's Playspaces and Equipment within existing **CSA 614 Children's Playspaces and Equipment** standard. Expected publication in January 2007.

These Accessibility Guidelines will be updated to incorporate published information and accessibility criteria when it is made available in the future.

Recreation and Community Facilities

Rationale

Recreation and Community Facilities often integrate a wide range of activity, performance, sport and multi-purpose spaces (both indoor and outdoor) and their design must address the leisure needs of users of all ages and abilities, including children, youth, adults and seniors. Recreation connects all users to the community, offering activities and environments that are fun, educational and beneficial to our health. Recreation and leisure is important to everyone and assumptions should not be made. As one example, many people with a vision loss or who are blind may wish to attend events to enjoy the noise, smells and camaraderie of the game, where they can do so independently or with their family and benefit from a variety of experiences available at Recreation and Community Facilities.

Recreation and Community facilities, spaces, "areas of sport activity" and related building amenities must be accessible and welcoming to all users with varying disabilities, including spectators, participants, volunteers, coaching staff and facility employees, by providing activities, programs and services that address diverse user needs. Examples of indoor and outdoor "areas of sport activity", which describes a wide range of sports and related spaces, are provided in Table 1.

Table 1: Typical Areas of Sport Activity (Indoor & Outdoor) and Multi-use Spaces

Areas of Sport Activity	Multi-use Spaces
Courts (Baseball, Volleyball, Tennis)	Exercise and Fitness Facilities
Fields (Baseball, Soccer, Football)	Dressing and Locker Rooms
Running Tracks	Assembly and Performance Areas
Arena (Ice Pad, Skating Rink)	Washrooms and Showers
Aquatic Facilities (Swimming Pool)	Snack Bar and Vending Areas
Gymnasium	Club House
Arena	Spa/ Sauna
	Aerobics, Dance and Gymnastics
	Play Areas
	Multi-purpose Rooms (children, youth and senior programs)

Accessible Design Criteria

General Considerations

- Provide continuous, unobstructed accessible routes to all accessible elements, amenities, spaces and “areas of sport activity” (See Table 1), at least 1070 mm wide (3’-6”). Refer to Section X “Accessible Routes” for detailed guidelines that apply.

- Specify floor finishes with slip-resistant materials or specialized surfaces (e.g., deck and circulation areas of aquatic facilities, dressing rooms adjacent to showers etc.), in all areas susceptible to wetting.

- Use strong colour contrast on floor finishes where different floorspace may need to be separated or defined, as a safety feature for all users and to minimize any potential tripping hazards.

- Include accessible or adaptive sports equipment for users with varying disabilities participating in diverse sports and recreational programs and services. Ensure facility staff are provided with ongoing training and awareness of accessibility issues, including part time and volunteer staff.

- Provide Activity Rooms, Halls or Leisure spaces that are flexible in nature, where floorspace and amenities (e.g., collapsible seating and tables) accommodate diverse users and different uses (e.g., adaptable for different sports or performances that may take place).

- Integrate adaptive sound systems or visual display equipment for users with sensory disabilities, specific to the type of venue (e.g., Descriptive Audio and Closed Captioning is an option for multi-media presentations at a Community Centre).

- Refer to other relevant sections of these Guidelines to address accessibility issues related to common public, visitor and staff spaces, including Washrooms, Changing Rooms, Assembly Areas, Public Amenities and Signage and Wayfinding, for example.

Assembly and Viewing Areas

- Provide level areas and accessible seating (e.g., benches) to accommodate users of mobility aids beside indoor courts (e.g., basketball or volleyball) and exterior sports fields (e.g., sidelines for football and soccer fields) for coaching and training staff, participants, spectators and other users with disabilities.

- Include back supports and arm rests within accessible seating design to accommodate seniors or others with limited stability and to assist users transferring from a mobility device (e.g., wheelchair or scooter).

- Refer to **Section X** for detailed accessible design criteria related to Assembly Areas (e.g., provision, sightlines, seating options etcetera), including those provided in typical Multipurpose and Sports facilities.

Arenas - Ice Pads and Skating Rinks

- Accommodate the needs of all users within the design of all staff or visitor support areas, offices or meeting rooms, as well as all public amenities including viewing areas, ticket purchase counters and concession stands. Refer to relevant Sections of these Guidelines as required.

- Provide access panels or doors, with clear width of 915 mm preferred (3'-0") or a minimum of 865 mm (2'-10"), on an accessible route with level access or bevelled threshold no higher than 13 mm, to allow users to gain entry onto ice surfaces (e.g., both interior or exterior pads / rinks).

- For Dressing and Locker Room design considerations, **See Section X**.

- For Public Washroom and Shower design considerations, **See Section X**.

Dressing and Locker Rooms

Provision

For Arenas, Swimming Pools and other Recreational of Community Facilities:

- Provide a minimum of one (1) accessible Dressing or Locker Room for each gender, with at least one (1) accessible Unisex Dressing Room, to accommodate parents with children and users with disabilities and their companions or care givers of the opposite sex. Consider the provision of "Family" Dressing Rooms as an additional option, based on occupancy and level of facility use.

- Where multiple Dressing or Locker Rooms are provided, ensure at least five percent (5%) are accessible.

Lockers

- Ensure at least one of each type (e.g., full, half or quarter size units) and a minimum of ten percent (10%) of all lockers in total are accessible.

- Mount all accessible operating controls and shelving between 380 mm (1'-3") and 1200 mm (3'-11") from floor, for forward and side approaches by users of mobility aids.

- Provide clear floorspace, a minimum of 765 mm deep (2'-6") by 1220 mm long (4'-0"), in front of lockers and accessible seating/benches for parallel approach by users of mobility aids. Clear floorspace of 1680 by 1680 mm (5'-6" by 5'-6") is preferred to accommodate larger mobility aids.

- Include accessible benches or other seating options adjacent to lockers, sitting surface between 510 to 610 mm wide (1'-8" to 2'-0"), mounted 430 to 480 mm high (1'-5" to 1'-7") from floor and a minimum of 1065 mm long (3'-6"). Benches should have back support or be placed adjacent to a wall and ensure floor surfaces are non-slip in potentially wet areas.

Washrooms

- Ensure all or at least fifty percent (50%) of washrooms and change rooms provide universal access (e.g., including accessible shower facilities) for users with varying disabilities, including users of mobility aids (e.g., scooters, wheelchairs, canes and crutches). Facilities can be designed as Individual (e.g., separate Men's & Women's), Unisex or Family type, based on type, occupancy and level of use of facility. At least one (1) Family or Unisex washroom and change room is preferred to accommodate users with disabilities and their companions of the opposite gender.

- Refer to **Sections X**, for detailed accessible design criteria related to Public Washrooms Change Rooms and Showers.

Aquatic Facilities

General Considerations

- The design and provision of new swimming pools (indoor or outdoor) should support a range of program opportunities (recreational swim, instructional, therapeutic, and competitive activities), from introductory to advanced levels.

- In existing pools where there is no independent access into and out of pools for users of mobility aids, sloped entry or transfer systems are required. Wherever possible, sloped entry or permanent ramps are preferred to transfer lifts.

- Provide aquatic wheelchairs and other mobility aids (e.g., made with non-corrosive materials) that are designed for use in the water or related play elements (e.g., splash pad) to protect aquatic facilities from contamination, while also avoiding potential damage to user's personal mobility aids.

- Consider the use of accessible transfer systems (e.g., smooth surfaces, low step and platform heights, grab bars on one side and other features), to provide alternate access into and out of existing pools, whirlpools or spas. These systems can provide suitable accommodation for users that can transfer from a mobility device to the transfer system platform and by moving from step to step (e.g., bumping their way up or down).

- Where pools are to be used for special programs (e.g., seniors, infant learn-to-swim programs, etcetera), the ambient temperature of the water should be adjustable between 6º C (10º F) to 27°C (82°F), to provide increased comfort for less active users.

- Generally, ambient air temperature throughout pool areas should be no lower than 25º C and no higher than 32º C (78º F and 90º F).

- Acoustic quality in the pool area shall minimize echoes and unnecessary background noise (e.g., from equipment), to benefit users with vision or hearing loss.

- Lighting over pool and deck areas, as well as in showers and changing areas, shall be a minimum of 200 lux (20 ft. candles), measured at deck or floor surfaces. Position fixtures over pool areas strategically to minimize reflected glare off of pool water surface, which is a problem for users with a vision loss. Where required, include additional strategies to control natural daylight from window walls and glazing (e.g., adjustable blinds) to prevent or minimize glare.

- Ensure all pool staff and volunteers are trained to use accessible equipment (e.g., transfer lifts) and that they are aware of and sensitive to the diverse needs of all users.

Swimming Pools

Approaches and Deck Surfaces

- Provide an accessible route, with slope no greater than 1:48 ratio, leading to all swimming pool areas and amenities, excluding raised diving boards, platforms or water slides. Refer to Section X for detailed design requirements for Accessible Routes.

- Ensure a minimum clearance of 2030 mm (6’-8”) overhead, where diving boards or platforms are provided, with undersides clearly marked and protected with guards to protect all users, especially people with a vision loss.

- Define pool boundaries with a textural change, using strong colour contrast (e.g., 70% light reflectance value or LRV) between the pool area and the surrounding approaches and routes, as a warning for persons with a vision loss.

- Use easy to clean, firm, non-abrasive, anti-slip and matte finishes on all pool deck surfaces, for easy maintenance, safety and to prevent reflected glare from overhead lighting sources, beneficial to all users. Incorporate rounded or chamfered edges at all pool boundary locations to ensure comfortable and safe access into and out of pool.

- Incorporate recessed drainage tile, scuppers or trenches where used, to prevent accidental tripping, with no openings greater than 13 mm (½”) wide. Ensure surface drainage system on the pool decks removes water quickly at all times to prevent potential slipping hazards.

- Consider “level-deck” design for swimming pools, to allow easy entry into and exit from the pool. Where a stand up edge is provided around the perimeter of the pool, it shall be a minimum of 205 mm (8”) high, and no higher than 485 mm (1’-7”), if designed for use as a transfer wall. (Refer to **Section X** Transfer Walls).

Access Points - General

- A primary means of access into or out of all pools (regardless of size) is required for users of mobility aids, using either a sloped entry or an independently operated transfer lift.

- For large pools with over 300 linear feet of pool wall, a minimum of two accessible means of entry/exit are required, with suitable secondary means of entry including one of the following: sloped entry, stairs/steps, pool lift, transfer wall, or stepped transfer system.

- Stepped transfer systems or transfer walls can be used as alternate access points to provide users with a wide range of options or to adapt existing inaccessible pools.

- Access points need to be positioned away from any designated or marked swimming lanes (e.g., competition pools) to avoid potential bumping hazards.

Sloped Entry or Ramp

For sloped pool entry and exiting:

- Provide preferred running slope of 1:20 or 5% (or 1:12 maximum). Consider a sidewall to enhance safety for all users along poolside.

- Mount handrails on both sides, 865 to 965 mm high (2'-10" to 3'-2") from surface. Provide clear width between handrails of 840 to 965 mm (2'-9" to 3'-2"). Include handrail extensions 305 mm long (1'-0") at top landing only. Extensions are not required on bottom landing, as they may be a bumping hazard for swimmers.

- Include landings at top and bottom, 1525 by 1525 mm preferred (5'-0" by 5'-0"), where running slope is greater than 1:20 (5%). This allows independent access by users of aquatic mobility aids.

- Extend sloped entry to a maximum depth of 760 mm (30") below stationary water level, to allow users to become buoyant when entering.

- Refer to **Sections X** for detailed accessible design criteria related to Ramps, Handrails and Landings.

Stairs or Steps

For stair or stepped pool entry and exiting, provide:

- Uniform treads, at minimum 280 mm depth (11") and risers a maximum of 180 mm high (7"). Open risers are not permitted.

- Colour-contrasted handrails on both sides of access stairs or steps, extending at least 300 mm (1'-0") across the pool deck on top landing only. Extensions are not required on bottom landing, as they may be a bumping hazard for swimmers.

- Refer **Sections X** for detailed design criteria for Stairs, Steps and Handrails.

Transfer Lifts

Where transfer lifts are used for existing or new facilities:

- Ensure single-user lifts have a minimum weight capacity of 136 kg (300 pounds) and be capable of sustaining a static load at least one and one-half times the rated load. (Note: Lifts with greater weight capacity are preferred to meet the needs of all potential users).

- Provide independently operated lifts only, with unobstructed controls mounted no higher than 1200 mm (3’-11”) from pool deck or water surface. This allows users who may be swimming alone to access lift and not be stranded for an extended period of time.

- Locate pool lift in shallow end, where water level does not exceed 1220 mm (4’-0”), for pools that have no ramped or sloped access and the lift is the only accessible point of entry. This allows staff or companions to provide assistance from a standing position in the water if requested.

- Position lift seat on deck a minimum of 405 mm (16”) from edge of pool, measured from edge of pool to centreline of seat when lift is in the raised position.

- Provide deck surface on both sides of lift seat with a slope ratio no steeper than 1:48 (2%) which is suitable for safe use of equipment by pool users as well as suitable drainage of water away from deck.

- Provide clear deck space on transfer side of lift (opposite side of water’s edge) of 1680 by 1680 mm (5’-6” by 5’-6”) preferred, or a minimum of 915 mm wide (3’-0”) by 1220 mm (4’-0”) long. Clear floor space length to extend parallel to seat and is measured starting at 305 mm (1’-0”) from rear of lift seat.

- Design height of the lift seat to allow a stop at 405 mm (16”) minimum to 485 mm (19”) maximum, measured from the top of the pool deck to the top of the seat surface when it is in the raised position (e.g., for loading). Lifts can provide additional stops at various heights to accommodate diverse users.

- Ensure pool lift seat surface is firm and comfortable (e.g., suitable padding) to aid with transfer, measuring a minimum of 405 mm wide (16”). Ensure all seat components are corrosion resistant, and provide a variety of options such as flexible armrests (e.g., can be removed on transfer side), headrests, seat belts, back supports to accommodate a wider range of user needs. Footrests must move together with the seat with padding large enough to support the whole foot, which also reduces the chance of injury.

Transfer Walls

For transfer walls (e.g., allows people to leave mobility device, transfer onto wall and then climb into a pool or spa), provided along accessible route:

- Design walls between 405 and 485 mm high (16” to 19”), measured from finished pool deck surface. Top surface of transfer wall shall be between 305 to 405 mm wide (12” to 16”), to provide comfortable seating and allow user to pivot into water. Ensure wall is a minimum length of 1525 mm (5’-0”), with longer walls preferred to provide increased space and options for transferring.

- Ensure wall surfaces and materials are non-abrasive to the skin, with all edges rounded or chamfered for safe and comfortable transfer by all users.

- Provide clear deck space beside transfer walls at least 1680 by 1680 mm (5’-6” by 5’-6”), with slope ratio no more than 1:48, allowing users of mobility aids to approach wall and turn around to preferred transfer side. Ensure clear deck space is centred on grab bar location(s).

- Install at least one grab bar on each transfer wall provided. Grab bars shall be mounted perpendicular to wall, extending the full width of the wall to aid users. Diametre of grab bar shall be between 32 and 51 mm (1¼” to 2”), with non-abrasive and rounded gripping surface that does not rotate within their fittings. Grab bars to withstand a force of 250 pounds (1112 Newtons), applied to the grab bar, fasteners, mounting brackets or any other supports.

- Provide 100 to 150 mm clearance (4” to 6”) between top of wall and gripping surface of grab bars, for leverage when using the bars.

- Ensure at least 610 mm (2’-0”) clearance on either side of a single grab bar, or between two grab bars, where provided.

Additional Considerations

- Provide storage space for personal mobility devices, including aquatic wheelchairs, safety gear or other pool equipment when not in use, especially where deck space is limited. Wall mounted items should be protected by wing walls to ensure they are not a bumping hazard for all users.

- Provide strong colour contrasts on pool lane markers, related tie-off devices, starter blocks and any other permanent or temporary equipment (e.g., Life-guard chairs, diving boards or platforms, safety equipment), to ensure full visibility by users with a vision loss compared to mounting surfaces.

- Mount pool equipment brackets or supports securely and away from pedestrian routes to prevent any potential tripping hazards for users with a vision loss.

- Ensure additional public amenity spaces and areas (e.g., patios and landscaped areas) are accessible to all users.

Signage

- Provide strong colour contrast on all pool and deck surface signage, compared to background surface colour (e.g., pool depth markings, as well as ‘SHALLOW END’ and ‘DEEP END’ text). Ensure print/text size is visible from a distance, especially for people with a vision loss.

- Refer to **Section X** for detailed accessible design criteria for Signage and Wayfinding.

Other Amenities and Features

Wading Pools and Splash Pads

- Provide at least one sloped entry, with no handrails required recognizing wading pools and splash pads are designed for shallow depth.

- Ensure wading pool access is safe and gradual so that children with disabilities can be assisted into the water easily and/or use a mobility device to enter and exit.

Whirlpool, Spa and Sauna Amenities

- Provide at least one accessible whirlpool, spa or sauna room where more than one of each is available to users.

- Ensure at least five percent (5%) of the total number of these amenities are accessible to users of mobility aids, when provided in a cluster. Accessible means of entry/exit may include the use of a lift, transfer wall or a transfer system for whirlpools and spas.

- Provide accessible routes and level or ramped entry into any Sauna Room, with clear entry width of 815 mm minimum (2’-8”) or 915 mm (3’-0”) preferred. Include accessible benches and clear floor space of 1525 by 1525 mm minimum (5’-0” by 5’-0”), ensuring door swing does not obstruct clear floor space.

Exercise Equipment and Machines

- Ensure at least one of each type of equipment or machine is accessible to users with varying disabilities and where specialized or adaptive equipment is provided, integrate their location and placement with similar equipment for full inclusion.

- Locate exercise equipment to allow manoeuvrability by users of mobility aids around equipment or with 1525 by 1525 mm (5’-0” by 5’-0”) of clear floorspace in front or on one side, to facilitate transfer or use of equipment while in a wheelchair. Clear floorspace can be shared with different types of equipment or machinery (e.g., side by side).

Social and Entertainment Spaces

There are a variety of outdoor spaces used by the general public, staff and customers for formal or informal gathering places and social or entertainment purposes, including balconies, patios and terraces, which are often provided at Cafés, coffee shops, bakeries and related retail establishments. The design and layout of such spaces is important to ensure access for users with varying disabilities, from both interior and exterior approaches. Where balconies, patios or terraces are provided, some consideration of both wind and sun protection is desirable for seniors or other persons who prefer to sit in a protected location, due to environmental sensitivities (e.g., heat and glare).

Accessible Design Criteria

Balconies, Terraces and Patios

- Locate balconies, terraces, patios and related gathering spaces along an accessible route with:
- Clear entrance and exit door width of 915 mm preferred (3’-0”), or 815 mm minimum (2’-8”).

- Floorspace of 2500 mm (8’-0”) depth preferred, or 1830 mm (6’-0”) minimum. This allows maneuverability for users of mobility aids, including larger power wheelchairs and scooters.

- Firm, level and non-slip flooring surfaces and transitional thresholds (e.g., from exterior to interior areas) that are bevelled at 13 mm high maximum (1/2”).

- Sloped surfaces at a ratio of 1:50 (2%) for suitable drainage, with joints in surface materials 6 mm (¼”) wide maximum.

- Strong colour contrasts provided on any guards, handrails or furniture, compared to surroundings, for easier identification by users with a vision loss.

Additional Considerations

- Where grade differences of 150 mm (6”) or less occur, short ramps of 1:8 may be used. For grade differences more than 150 mm (6”), ramps with slope ratio of 1:12 are required, ratio of 1:20 preferred. Ensure suitable guards, curbs and handrails are provided for safety of all users. Refer to **Section X** for accessible design criteria for Ramps.

- Balcony, patio or terrace handrails and guards shall comply with OBC requirements and shall also be designed to allow clear vision below the rails for persons seated in wheelchairs or scooters. Note: The top surface of the rail shall also be designed to be graspable, to assist persons with limited mobility and stamina.

- Consider the use of low height planter boxes or accessible furniture (e.g., benches) to define edges of terraces or patios, for cane users.

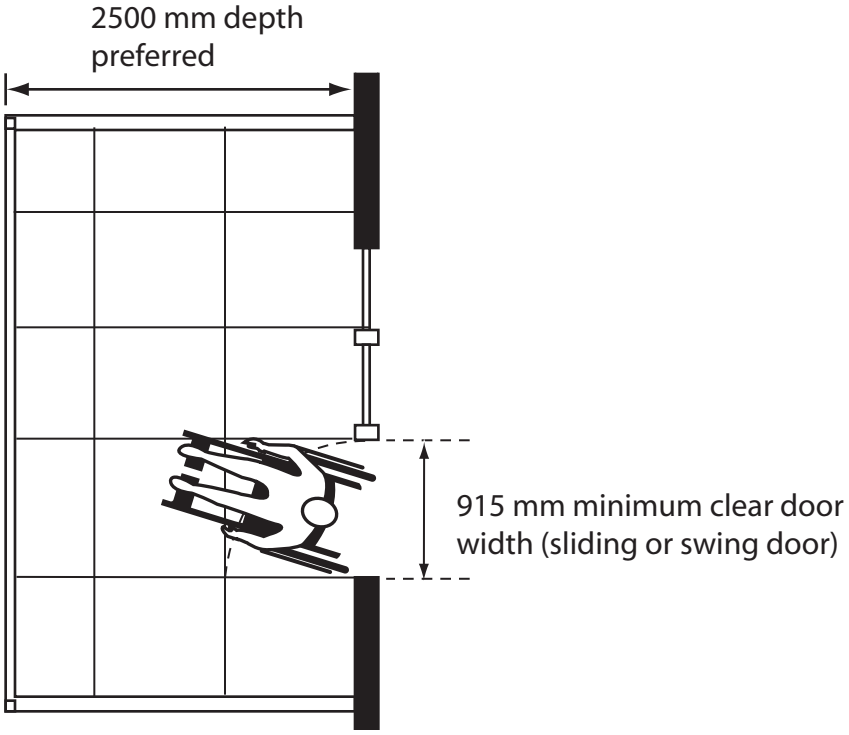
- Locate A-frame or other temporary signage, which may be a potential tripping hazard for users with a vision loss, away from pedestrian paths of travel and consider use of other signage types wherever possible.

- Where glazed doors are provided, ensure door edges are colour contrasted when in the open position to prevent any potential bumping hazards and mark all large areas of continuous glass with decals and striping mounted at eye level. Refer to **Section X** for accessible design criteria related to Glazed Doors and Entrances.

- Doors opening out, onto balconies or terraces, shall be located where they open against a sidewall, handrail or guard. This ensures doors are not a hazard to persons who have a vision loss when in an open position and when users are approaching from sides (e.g., prevents potential bumping).

- Sliding doors that are easy to open with accessible hardware are preferred. Where provided, ensure thresholds are bevelled and are no higher than 13 mm (1/2”) from floor level.
- Refer to **Section X** for accessible design criteria related to Door Hardware.

Fig: Balcony or Terrace Layout (D34)



Section E:

Interior Design Issues, Facility Management & Maintenance Practices

Note: This Section To Be Revised and/or Developed as Checklist (Phase 2), including potential use of photos to convey information and examples

Interior Design Issues

Colours, Textures and Finishes

Exterior Considerations

- For persons who are dependent on visual and tactile cues (e.g. colour and texture), such information shall be included in the design of exterior areas of the built environment for safe navigation.

Colour and Texture

- In developing exterior colour schemes, every attempt shall be made to ensure that both colour intensity and contrast with adjacent colours are utilized (e.g., to define boundaries of objects or to distinguish lettering from their background colour). Generally, for seniors and persons with low vision, colours in the warm end of the spectrum (e.g., yellow, orange, and bright red), are more easily recognizable than those in the cool end of the spectrum.

- Signage shall generally be designed using highly visible and contrasting colours (e.g., white or yellow on a black, charcoal, or other dark background such as brown, dark blue, dark green, or purple). Black lettering on white or yellow matte surfaces is also acceptable. Unacceptable background colours are: light grey or pastels. **[Develop Graphic]**

- Colour contrast shall also be used to define edges or boundaries of objects (e.g., stair nosings, the head and foot of an escalator or ramps, or colour differentiated handrails). In high use spaces, colour or tone contrast shall also be used to define the boundaries of a room (e.g., at the junction between walls and floors), as an aid to orientation.

- Colour may also be used to provide constant information (e.g., the location of exit doors, for example, by painting all exit doors in the same distinctive colour).

- Applied colour may also be an added advantage (e.g., to indicate the termination of handrails in large open areas).

- Textured surfaces are recommended to provide an indication to persons with a vision loss that a potential hazard is nearby. Typical hazards include level changes at ramps and stairs. In such cases, a detectable warning indicator, at least one pace deep, pr 915mm (3’-0”), is recommended at the head of stairs or ramps, or wherever walking hazards may exist, to warn users of descent.

- All textured surfaces used as warning devices shall be cane-detectable and clearly differentiated from surrounding paving surfaces. Throughout any one site, the same texture shall be used to denote hazards. Suitable textures include truncated domes, with colour contrast compared to adjacent surfaces (See Section X).

Interior Considerations

Texture and Pattern

- Persons who are blind and use a cane or a guide dog to assist them are particularly dependent on texture at the walking surface, the acoustic quality of the space, and the availability of Braille or other tactile information to convey information. However, persons with a vision loss are more dependent on contrast and colour and the amount of light to determine where they are and whether hazards are present.

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

- Wall surfaces in corridors, adjacent to stairs, ramps or any part of the normal path of travel shall be of non-abrasive finish, especially important for people with a vision loss who may be using wall as a guide.

- Modern textures can also be used on wall surfaces as part of the overall way-finding strategy.

Floor Surfaces and Textures

- Floor surfaces shall be of a non-slip and low-glare material.

- All level changes, whether at stairs, steps, escalators or ramps shall be marked by both distinct colours/tones and textural changes at the walking surface. Changes in texture shall occur, at least 915 mm (3’-0”), or one pace, before the actual level change. Bright (‘industrial’) yellow or other saturated colours from the warm end of the spectrum are most visible to persons with a vision loss.

- Suitable warning textures for interior use include: truncated domes, dots or squares (e.g., as found in some vinyl floor coverings); deeply grooved concrete, terrazzo or other stone like materials (e.g., with closely centred grooves, at right angles to the path of travel); and applied non-slip strips (e.g., carborundum strips).

- Supplementary textural cues can also be provided (e.g., by using different floor textures or materials in major and minor interior routes) as an aid to persons who are blind or who have a vision loss.

- Where floor tiles, bricks or pavers are used internally, joints shall be no wider than 6mm (¼”) and placed level to prevent potential tripping hazards, especially for persons with a vision loss.

- Clearly defined boundaries of carpeting or floor tile can enhance wayfinding by defining the junction between walls and floors and by indicating doorway recesses, corridor intersections or projecting hazards, for example.

- Where carpet is used in areas accommodating wheelchair traffic a level loop pile of non-static nylon (or better) is recommended with a pile height no greater than ¼" (6mm). A glue-down installation is preferred.

- Ceramic tile used in washrooms, changing areas or on pool decks shall have non-slip and non-glare finishes.

Colour and Tone

- For signage, the use of bright colour or highly contrasting tones is an essential part of a suitable way-finding strategy for persons with a vision loss, including a minimum 70% colour contrast (except where 'industrial yellow is used). Colour contrasted surfaces can be used as a background for signage, mounted on walls at eye level, or 1525 mm (5'-0") centre. A consistent background colour for signage is easier to identify and assists with identifying spaces, compared to monolithic wall colours. This also ensures consistency for signage identification.

- End walls or return walls in long corridors can also be defined by the use of highly contrasting colours or tones, to denote a change of direction or the end of the space.

- Baseboards in monochromatic environments shall be highly contrasting (70% or higher) with wall and floor colours to provide needed boundary definition for persons with a vision loss.

- For seniors with a vision loss, colours in the warm end of the spectrum are easier to distinguish. Colours such as pastel blue or grey shall be avoided.

Facility Management and Maintenance Practices

Rationale

Despite all good intentions during the design stage of creating accessible environments, the success of the eventual project is largely dependent on decisions made during the operation of buildings by facility managers, with respect to ongoing renovations, new equipment upgrades and space utilization, security and maintenance issues.

Interior Maintenance Issues

Often, temporary or “accidental” barriers are created due to a lack of awareness and understanding of accessibility issues in general. Training for maintenance staff shall address the following potential barriers:

- Objects added to the environment, including waste containers, recycling bins, planters, vending machines, dispensers, staff equipment and furniture, for example. These can result in tripping hazards and limited movement for persons who have a vision loss along paths of travel. Aisle and corridor widths can also be obstructed limiting the manoeuvrability of persons using mobility aids (e.g., wheelchairs, canes, crutches and scooters).

- Temporary signs on stands or mounted on walls and doors can result in potential tripping hazards, as well as add confusion for persons with low vision.

Potential Barriers

For persons who are blind, have low vision or use a mobility aid, unexpected obstacles in their normal path of travel throughout a building can constitute a major hazard. Facility Management and Maintenance practices should ensure:

- Items of furniture, equipment and displays are stable and will not move or tip over when touched by someone requiring support.

- Temporary or permanent waste and recycling containers are located in constant locations to one side of the path of travel.

- Equipment (e.g., telephones, computers, video display terminals, printers and fax machines) is located to one side of the normal path of travel and is cane detectable.

- Signage, signage supports, or other information strategies do not intrude into normal walking areas (e.g., A-frame signage).

- Permanent or temporary barriers that control people’s movement (e.g., queuing lanes) are firmly mounted to the floor, and are stable for seniors or other persons who might need them for support.

- Maintenance or repair equipment (e.g., ladders and carts) is located away from normal paths of travel.

- For exterior areas, ensure that all temporary barriers and hoardings, used to protect work sites or maintenance activities, are substantial, securely mounted, continue to floor level and are cane detectable.

- Loose wires, rugs or any potential tripping hazards at floor level are removed or made secure.

- Essential and occasional furniture, equipment, planters, drinking fountains, counters and vending machines do not intrude into normal paths of travel.

Accessibility Considerations

- Decisions on energy conservation often result in reduced lighting levels, potentially inhibiting the safe movement through buildings for all users.

- Maintenance staff may decide to wax or seal a typically non-glare floor surface (e.g., matte ceramic tile finish) using a high gloss polish/finish. This unintentionally results in potential glare problems for persons with a vision loss in cases where surface reflects glare 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.

- Maintenance staff may add runners or mats on floors in entrances, hallways and corridors during winter conditions, in an attempt to minimize tracking. However, the layout 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).

- Consider developing facility maintenance manuals tailored to building types and that include information regarding the specific needs of and barriers faced by people with disabilities. This will ensure that desired accessibility criteria are maintained at satisfactory levels, throughout the life of the building.

Exterior Maintenance Issues

All key pedestrian routes to accessible entrances and/or exits shall be kept free of ice and snow in winter months. Where accessible routes, entrances, ramps, or steps are exposed to prevailing winds and/or snow-accumulation, icing, for example, every attempt shall be made to ensure that the snow, ice or water is quickly removed. Where maintenance services are contracted out, consideration should be given in the procurement policy for contractors to be responsible for suitable maintenance and paying attention to accessibility issues identified in this section. Special attention should be paid to the following issues:

- Snow clearing strategies shall be developed so that accumulated snow poses no hazard to persons with a vision loss or who use various mobility aids.
- Ensure strategies are in place to prevent snow-piling in designated accessible parking spaces).
- Where paths are not cleared regularly, suitable signage shall be utilized.
- At accessible entrances, consider the use of radiant heating to automatically clear ice and snow, where timely maintenance and snow clearing may be problematic.
- All garbage containers shall be emptied regularly to avoid the accumulation of extraneous garbage around the containers.
- All light bulbs along pedestrian routes shall be replaced on a regular schedule, with lamps (of the same wattage) for which they were designed.
- All gates, closers, automatic door operators, porch lifts, automatic ticket machines or other essential equipments shall be inspected and well maintained on a regular schedule.
- Regular and systematic checks shall be undertaken to ensure that no obstacles have been located in pedestrian routes (e.g., newspaper vending machines, bicycle racks or garbage containers).

Exterior Landscaping

Surface Materials and Planting

- Landscape materials, trees, shrubs, and plants shall be selected and located with a wide variety of users with disabilities in mind. For instance, plants and shrubs with a variety of fragrances can provide an interesting diversion for persons with a vision loss, whereas plants with thorns or heavy berries may constitute a walking hazard and shall therefore be avoided in active pedestrian locations.
- Consider providing some planter beds at 455 mm (1’-6”) high above grade to allow easy reach and access by seniors and persons using mobility aids.
- Provide defined planting bed edges adjacent to *busy* pedestrian walks, a minimum of 100 mm (4”) high, as an aid to persons with a vision loss.

- Provide defined edges at trail boundaries wherever the adjacent grade is variable.

- Trim overhanging branches of trees or shrubs, located over walkways or paths, to ensure that the headroom over the walking space is a minimum of 2030 mm (6'-8") and the normal walking area is clear of branches and thorns, for example.

- Suitable paving surfaces for walkways include macadam, concrete, interlocking brick or patio stones that have a stable base (e.g., concrete) and with joints no greater than 6 mm (¼") wide. Ensure variations in level do not exceed 6 mm (¼") high. This will minimize tripping hazards and uncomfortable conditions for users of mobility aids.

- All paving shall be laid to drain easily.

- Gratings or grills shall generally be located to one side of pedestrian walkways, however, where they are inevitable, then the bars of the grating or grill shall be located at right angles to the normal path of travel, with openings no greater than 13 mm (½") wide.

- All steps shall be of non-slip materials with highly colour-contrasted nosings.

- All ramp surfaces shall be firm and non-slip (e.g.: broom finish on concrete or wood decking laid perpendicular to path of travel).

- Handrails and guardrails shall be continuous, end safely, and have smooth gripping surface. Ensure handrails and guardrails are well maintained for safety (e.g., secured).

- Walls adjacent to ramps or stairs shall be in non-abrasive finishes.

- Smooth walking surfaces are preferred. Where interlocking pavers are used, they shall be laid on a firm, well-compacted backing (e.g., concrete base). Avoid the use of cobblestones or uneven pavement or surface textures on primary paths of travel.

Construction Site Protection

- Construction sites shall have suitable boundary protection to minimize hazards to persons with a vision loss and to maintain easy access for persons using various mobility aids.

- Construction hoardings shall be firmly constructed with supports and bracing which permits free movement by pedestrians or persons using various mobility aids.

- Overhead framing or bracing shall ensure clear headroom of at least 2030 mm (6'-8") above the sidewalk.

- Cane detectable temporary barriers shall be provided around all short-term repair sites (e.g. sidewalk repairs, manhole access covers etc.), as an aid to persons who have a vision loss.

- At all construction sites and/or maintenance locations, wherever a clear pedestrian route of 1065 mm (3'-6") is not achievable via the normal route, alternative safe and level pedestrian routes shall be provided with suitable protection from vehicular traffic.

- Where hoardings with public viewing ports are provided, at least one viewing port shall be mounted at no more than 1200 mm (4’-0”) on center, for use by persons using mobility aids.

Safety and Security

- Ensure that adequate lighting is provided over public walkways, steps and ramps as well as where public parking is provided.

- Pedestrian walkways shall be designed to provide clear lines of sight to ensure personal safety wherever possible.

- Provide a call bell or a two-way communication device at the main accessible entrance.

- Provide a call bell or two-way communication device in enclosed public parking areas where accessible parking is provided.

- Provide an accessible public telephone at or in close proximity to the main accessible entrance for persons waiting for a ride or for persons requiring emergency assistance.

- Consider the use of personal alarm devices for those who need assistance, or provide a clearly visible and accessible two-way voice communication system (e.g., in locations where a number of persons with disabilities or seniors are likely to be congregated permanently or for special events). A central monitoring location to receive such calls will also be required.

- Consider the inclusion of a two-way call system or other suitable emergency call system linked to a central location (e.g., office or switchboard) from any accessible unisex washrooms in larger public buildings such as hospitals, schools or recreation facilities, for persons who may require assistance.

- Develop a comprehensive ‘Emergency Plan,’ which addresses the needs of persons with varying disabilities, as well as frail seniors, for exiting large outdoor recreational facilities or other places where crowd-control is likely to be an issue.

Section F:

Appendices

Definitions

Access Aisle

Refers to an accessible and safe pedestrian space or route used for loading and unloading from vehicle, as well as safe travel to and from designated accessible parking spaces to nearest accessible route/ entrance. Access aisles include pavemnt markings for easy identification and are often shared between two accessible parking spaces.

Accessible

Refers to any space, feature, element, site, environment or facility that can be used by people with varying disabilities (e.g., located, approached, entered, exited or operated), with or without the use of mobility aids or assistive devices. Can also refer to services, practices and programs.

Accessible Route

A continuous, unobstructed path (interior or exterior) connecting users to accessible elements, features, amenities and spaces. Typically, accessible routes include parking access aisles, pedestrian sidewalks and curb ramps and interior corridors, floors, elevators and ramps.

Accommodation

A term used to reflect how an individual’s needs are met for unique circumstances where a solution may not be “technically” feasible or practical to implement. Where barriers continue to exist because it is impossible to remove those barriers at a given point in time, then accommodation should be provided to the extent possible, short of “undue hardship”. There is no set formula for accommodating people with disabilities. Each person's needs are unique and must be considered afresh when an accommodation request is made. A solution may meet one person's requirements but not another's, although it is also the case that many accommodations will benefit large numbers of persons with disabilities. Accommodating an individual’s needs through differential treatment must be achieved in a manner that maximizes integration and dignity.

Ambient Light

The total amount of light in a space, including daylight or artificial light, whether from direct sources or reflected from surfaces in that space.

Amenities

Features that typically increase physical comfort throughout the built environment (e.g., washrooms, resting areas, telephones, drinking fountains, food vending machines).

Amenity Strip

A section of a path or sidewalk that is set aside for placement of street furniture (e.g., benches, hydro poles, vending machines and post boxes), to ensure it is located away from pedestrian path of travel.

Anthropometrics

Refers to the study of human physical measurement, movement and proportions of the human body, with respect to reach ranges, sight lines, for example.

Area of Refuge (or Rescue Assistance)

A safe holding area which has been designated in a Fire Safety Plan, with direct access to an exit and it is equipped with separate ventilation and communication equipment. It as a place where people can wait temporarily until they can exit safely or await for further instructions or assistance during an emergency evacuation.

Arena

Refers to an enclosed, indoor venue, often circular or oval-shaped and designed to showcase a variety of performance or sporting events (e.g., hockey, basketball, football or soccer) in a large open space, typically surrounded on most or all sides by tiered seating for spectators. Often, the key feature of an arena is that the event space is the lowest point, allowing for maximum visibility.

Assembly Area

A room or space accommodating a group of individuals for educational, recreational, political, social, civic or amusement purposes, or for the consumption of food and drink.

Assistive Listening Systems

Assistive listening systems (ALS) augment standard public address and audio systems by providing signals which can be received directly by persons with special receivers or their own hearing aids and which eliminate or filter background noise. The type of assistive listening system appropriate for a particular application depends on the characteristics of the setting, the nature of the program, and the intended audience. Magnetic induction loops, infra-red and radio frequency systems are types of listening systems which are appropriate for various applications. See **Induction Loop**, **FM** and I**nfrared Assistive Listening Systems.**

Audible Signals

Signals which emit a distinctive sound, communication or alert to provide a warning or indicate a readiness to respond (e.g., alarm bell or signal).

Automatic Door

A door equipped with electronic sensors allowing it to be opened and triggered when pedestrians approach (e.g., typically sliding doors or swing doors equipped with guardrails for safety). See Power-assisted door.

Barrier

Refers to anything that prevents a person with a disability from fully participating in any aspect of society because of their disability. This can include a physical barrier, an architectural barrier, an information or communication barrier, an attitudinal barrier, or a technological barrier for example. It can also include policies and practices that result in an obstacle or hardship (e.g., systemic barrier).

Braille

Braille is a system of touch reading for the blind which employs embossed dots evenly arranged to represent numbers and letters. Literary Braille, as officially approved, comprises of two grades. Grade 1 Braille is in full spelling and consists of the letters of the alphabet, punctuation, numbers, and a number of composition signs which are special to braille. Grade 2 Braille consists of Grade 1 and 189 contractions and short-form words, typically used for signage where space is limited.

Circulation Route or Path

An exterior or interior pedestrian way used for traveling from one place to another.

Clear Floor Space

The amount of unobstructed floor or ground space required to accommodate a single stationary user, or a mobility device/aid, such as wheelchairs, scooters, canes and crutches.

Colour Contrast

Colour contrast is calculated in percent between foreground and background (e.g. light color on dark background). Light reflectance value (LRV) is a relative term used to describe how well a surface reflects light. A LRV of at least 70% is considered to provide a suitable level of colour contrast and it is determined using a scientific formula.

Communication Devices and Systems

Devices that enable or enhance the ability of people to receive or transmit information, usually electronically.

Cross Slope

The slope that is perpendicular to the direction of travel.

Crosswalk

That part of a roadway at an intersection that is marked for safe pedestrian crossing (e.g., by lines or other markings on the surface).

Curb Ramp

A sloped ramp surface cutting through a curb or built up to it (e.g., between the sidewalk and the road surface).

Deaf

A term to describe people with a severe to profound hearing loss (90 decibels or greater), with little or no residual hearing. Lowercase deaf is used when referring to the medical / audiological condition of having little or no hearing, while uppercase Deaf refers to individuals who identify themselves as Deaf and share a culture and community, not just a medical condition.

Deafened

A term used to describe individuals who grow up hearing or hard of hearing and suddenly, or gradually, experience a profound loss of hearing. Late-deafened adults usually cannot understand speech without visual clues such as print interpretation (e.g., computerized notetaking), speechreading or Sign Language.

Detectable Warning Indicators

A surface feature built in or applied to walking surfaces or other elements to warn users with a vision loss of hazards on a circulation route.

Disability

Describes a functional limitation or activity restriction caused by an impairment. Common types include: sensory (e.g., vision or hearing), mobility, physical, cognitive, learning or mental health disabilities. Refer to the Ontario Human Rights Code for a detailed definition of disability.

Door Closer

A device or assembly used to open or close a door automatically.

Door Jamb

The vertical component of a door frame.

Egress *(Means of)*

Means of egress refers to a continuous path of travel provided for the escape of persons from any point in a building leading to a point of safety (e.g., a separate building or an exterior open space protected from fire exposure), including exits and exit routes.

Entrance

An access point to a building or portion of a building or facility used for the purpose of entering. An entrance includes the approach walk, the vertical access leading to the entrance platform, the entrance platform itself, vestibules (if provided), the entry door or gate, and the hardware of the entry door or gate. The principal or main entrance of a building or facility is the door through which most people typically enter.

Exit

The part of a means of egress, including doorways, that leads from the floor area it serves to a separate building, an open public thoroughfare, or an exterior open space protected from fire exposure from the building and having access to an open public thoroughfare.

Facility

All or any portion of buildings, structures, elements, improvements, equipment and pedestrian or vehicular routes located on a site or in a public right-of-way, where specific programs or services are provided or activities performed.

Fire Safety

A general term typically relating to the ability of a building or site to resist, suppress or control the onset and spread of fire and the protection of building occupants.

Fire Safety Plan

An operational plan that provides information, directions, strategies and recommendations for the safe evacuation of users during fire emergencies.

FM Assistive Listening System

FM assistive listening systems are variations on the commercial FM radio. Radio signals are broadcast by an FM transmitter that is piggybacked on the sound system used in the facility. These signals are received by individual “radios”, which are small pocket-size receivers tuned to the specific frequency used in the transmission.

Footcandle (FC) and lux

Refer to measurements of the visible light intensity on a surface, a distance from the light source. One footcandle is equivalent to the illumination produced by one candle (an optical standard reference) at a distance of 305 mm (one foot). One footcandle equals approximately ten lux. Footcandle is the imperial measure, while lux is the metric measurement for light intensity.

Glare

Often refers to uncomfortably bright light reflected from a surface, floor, window or screen. Glare occurs when one part of the environment is much brighter than the general surrounding area, causing annoyance, discomfort or loss in visual performance.

Hard of Hearing

A term used to describe people with a hearing loss who rely on residual hearing to communicate through speaking and speech-reading, as well as to hold conversations on the telephone. The degree of hearing loss can range from mild to profound. People who are hard of hearing can understand some speech sounds, with or without a hearing aid, and communicate primarily by speech. Persons who are hard of hearing often use hearing aids, lip reading and other assistive technologies**.**

Illumination

The combined amount and intensity of lighting provided, measured in **footcandles** or **lux**.

Induction Loop Assistive Listening System

Induction loop assistive listening systems use a wire around the room to transmit an electromagnetic signal that is picked up by a small telecoil in the hearing aid. Users simply switch on this telecoil (the “T” setting) and adjust the volume of the hearing aid, if necessary. Loop systems are generally used by fewer people with hearing loss due to advances in hearing aid technology.

Infrared Assistive Listening System

Infrared assistive listening systems operate on infrared light that is beamed from one or several infrared transmitters to small, specialized receivers. There are several types of infrared receivers: stethoscope-style that dangle from the ears, a headset type that fits over the ears, and a small pocket-size type similar to the FM receiver. Where confidential transmission is essential (e.g., a court room setting), an infrared system generally is more effective recognizing transmission will be restricted within a given space.

Lux

The metric measurement for light intensity or illumination. See **Footcandle.**

Maneuvering Space

The minimum area needed for users of mobility aids to move into or out of a place, space or along an accessible pathway or route.

Mobility Aids (or Devices)

A term used to encompass the variety of aids or devices that assist people with mobility/physical types of disabilities, including manual and power wheelchairs, scooters, canes and crutches.

Operable Control

The part of equipment or appliances that is used to insert or withdraw objects, to activate or deactivate, or to adjust the equipment or appliance (e.g., a coin slot, pushbutton or handle).

Passenger Loading Zone

Designated and signed area used for loading and unloading of passengers into or out of a waiting vehicle.

Pedestrian Access Route

An accessible route or corridor for pedestrian use within the public right-of-way.

Pictogram

A pictorial symbol or image that represents activities, facilities, spaces or concepts.

Power-assisted Door

A door with a mechanism that opens the door automatically, upon the activation of a switch, button or a control. The door also remains in the “open” position for a set period of time to allow safe passage. See Automatic Door.

Platform Lift

An elevating device which is used to transport a person (with or without assistive equipment) between levels on a platform. A vertical platform lift is a self-contained unit, with or without an enclosure. An inclined platform lift is used for staircases.

Public Entrance

An entrance that is not a service entrance or a restricted entrance.

Public Use

Buildings, facilities and Interior or exterior rooms, spaces, sites or elements that are made available to the public and that are typically owned, operated or leased by the Town of Markham.

Ramp

A walking surface with a **running slope** steeper than 1:20.

Running Slope

The slope that is parallel to the direction of travel expressed as a ratio of rise to run.

Service Entrance

An entrance not intended for use by the public and used primarily for delivery of good and services.

Sidewalk

A public right-of-way designated for pedestrian use and typically located between the curb or roadway and the adjacent property line.

Sightline

The line of view between a person in an audience and a performance, speaker, or displayed item.

Sign or Signage

A sign is a means of conveying information about direction, location, safety or form of action and in general should be designed to be clear, concise and consistent. Signage displays text, symbols, tactile or pictorial information.

Site

A parcel of land bounded by a property line or a designated portion of a public right-of-way.

Sprinklered

Refers to a building or any part of a building equipped with an automatic sprinkler system.

Stage

Refers to a space designed primarily for performances and is typically elevated from the audience seating area.

Street Furniture

Elements in the public right-of-way that are intended for use by pedestrians, including benches, lighting fixtures, waste dispensers and paper vending machines, for example.

Tactile

Describes objects, lettering or graphics that can be perceived using the sense of touch and that are raised above the surface.

Touch Tour

Typically refers to tours provided by museums or other cultural/arts facilities that allow users with a vision loss to touch and feel objects, displays and features, for example to gain a sensory understanding of objects and allow individual exploration. Tactile experiences may include: replicas, models, props, and handling objects which convey one aspect of the work.

Transfer Space

An unobstructed area adjacent to a fixture or furniture, allowing the positioning of a mobility aid to assist users with transferring to the fixture or furniture.

TTY, Teletypewriter or Text Telephone

TTY is the abbreviation for “teletypewriter” and refers to a means of electronic communication between deaf people or deaf and hearing people using interactive, text-based communication. Used in conjunction with a telephone, this device transmits and receives typewritten messages using coded signals across the standard telephone network. The term TTY also refers to devices known as “text telephones” and TDD’s.

Universal Access

A broad term to reflect the intended goal of inclusion for all, based on the principles of universal design or the “design of products and environments to be usable by all people, to the greatest extent possible, without the need for adaptation or specialized design” (Ron Mace).

Video Signage

Video signage refers to video devices such as televisions, computer monitors/screens, and flat panel displays that may be used to provide information (e.g., directories). Advantages of video signs include the use of motion to attract attention, and the ability to rapidly update the content of the signs.

Vision Loss

This term usually refers to a progressive decrease in visual acuity. However, it can refer to the sudden onset of substantial acuity decrease or total blindness.

Wayfinding

A term used to describe a variety of means for spatial orientation and finding your way to a destination. Wayfinding design describes a variety of means for helping people find their way, through touch, print, signs, architecture and landscaping, for example.