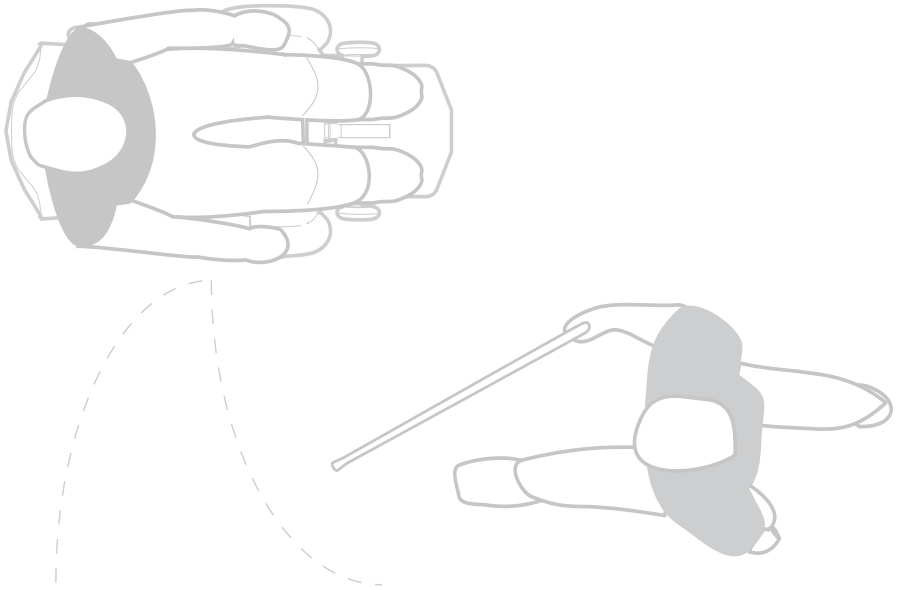

Accessibility Design Guidelines

Version 2022

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Accessibility Design Guidelines

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Revision History

Version	Date	Notes
1	June 2011	First release of the Accessibility Design Guidelines.
2	March 2022	Guidelines updated to incorporate AODA's Integrated Accessibility Standards Regulations (IASR), amendments to the Ontario Building Code and CSA Accessible Design for the Built Environment, and other best practices.

Table of Contents

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Introduction

1.0

Table of Contents

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Introduction

1.0

1.1 Mandate

The City of Markham intends to be a leader in developing accessible environments for all, embracing the principles of "universal design", defined as 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."*
>
> Source: North Carolina State University, Center for Universal Design, 1997

These Guidelines were developed with recognition of the following:

- **Diversity**: Encourages the inclusion and integration of diverse communities, appreciating differences, while promoting a common goal to make Markham a harmonious place to work and live for everyone;
- **Barrier Removal**: Preventing and removing barriers that create separation and special treatment;
- **Provincial Directions**: Accessibility standards in the areas of customer service, information and communication, employment, transportation and the built environment, developed under the Accessibility for Ontarians with Disabilities Act (AODA) initiative; and
- **Changing Demographics**: People with varying types of disabilities comprise a significant proportion of the population, whether considered locally, provincially or nationally. The proportion of seniors within the Canadian population is also increasing rapidly and for some seniors, acquiring a disability may also increase with age.

With accessibility requirements and related best practices continually evolving, especially in light of recent changes to Provincial legislation, the development and update of the City's Guidelines is intended to be an ongoing process.

1.0 Introduction

These Guidelines are a “living document”, evolving over time to meet best practices, future changes that may be related to the Ontario Building Code (OBC) and requirements for the design of the Built Environment stemming from the *Accessibility for Ontarians with Disabilities Act (AODA)*. The latest version of the following list of standards, guidelines and best practices were used in the development of these guidelines:

- Accessibility for Ontarians with Disabilities Act (AODA) Standards (including the Integrated Accessibility Standards Regulation: Design of Public Spaces Standards);
- Canadian Standards Association Accessible Design for the Built Environment;
- Ontario Building Code; and
- Local and International Best Practices.

During the design, planning and construction of accessible spaces and buildings, a wide range of opportunities exist not only to optimize independent access for persons with disabilities but also to improve accessibility for all users. The purpose of the City’s Guidelines is to provide practical examples of solutions that optimize accessibility for new construction or for the renovation of existing facilities, owned or leased by the City of Markham.

Finally, the City of Markham is committed to identifying, removing and preventing barriers, but also intends to demonstrate leadership that will encourage the private sector to follow as well, for designs related to both existing and new facilities.

1.1.1 Information Graphic

Principles of Universal Design

1	**Equitable Use**	The design is useful and marketable to people with diverse abilities.
2	**Flexibility in Use**	The design accommodates a wide range of individual preferences and abilities.
3	**Simple and Intuitive**	Use of the design is easy to understand, regardless of the user's experience, knowledge, language skills or current concentration level.
4	**Perceptible Information**	The design communicates necessary information effectively to the user, regardless of ambient conditions or the user's sensory ability.
5	**Tolerance for Error**	The design minimizes hazards and the adverse consequences of accidental or unintended actions.
6	**Low Physical Effort**	The design can be used efficiently and comfortably and with a minimum of fatigue.
7	**Size and Space for Approach and Use**	Appropriate size and space is provided for approach, reach, manipulation and use regardless of user's body size, posture or mobility.

Source: North Carolina State University, Centre for Universal Design, 1997.

1.1.2 Understanding Disability

Using a Cross-Disability Perspective

Knowledge of the basic characteristics of different disabilities and the resulting barriers is critical towards understanding individual needs and how to address them when designing the built environment. Common "types" of disabilities are identified within these Guidelines to assist with understanding how users with disabilities interact with elements of the built environment. A summary of key "types" of disabilities include:

Best Practice

Consideration of "Universal Abilities"

The intent is to recognize and understand that everyone will experience variations in abilities throughout their lifespan, or 'universal' abilities.

This approach considers no distinction between people with or without disabilities, focusing on identifying what is usable and safe for everyone in the community. The focus is also on extending the ideals of accessible design to routinely under-serviced populations, like people of short stature, seniors, pregnant women, parents with children in strollers, people who speak different languages and others.

Auditory Disabilities

Involve having partial or no hearing (e.g., persons who are deaf, deafened or hard of hearing). For some individuals, the loudness of the sound will determine whether it is heard, for others, it depends on the type of sound (e.g., consonants versus vowels, or the intonation). In other situations, individuals may also become confused by certain sounds due to excessive background noises.

Emotional Disabilities

May be hidden or apparent (e.g., depression). In many cases, they have little or no effect on learning. They may appear in actions of indifference or other types of mood swings. The causes of emotional disabilities are wide ranging but common forms are evident in individuals experiencing depression, anxiety or stress.

Intellectual, Developmental and Learning Disabilities

The type of cognitive impairment can vary widely, from severe intellectual disabilities, to the inability to remember, to the absence or impairment of specific cognitive functions (e.g., language). As an example, autism, which is a common disability, is a complex developmental disability as a result of a neurological disorder that affects the functioning of the brain. Children and adults with autism typically have difficulties in verbal and non-verbal communication, social interactions, and leisure or play activities. Individuals with autism may also experience sensitivities in sight, hearing, touch, smell and taste.

Mental Health Disabilities

Can take many forms and 'overlap' with other types of disabilities, including emotional disabilities. Stigma and stereotypes about mental health are unfortunately still prevalent, including common fears and misunderstandings by society at large. Some examples of common mental health disabilities include bipolar disorder, psychosis, schizophrenia, anxiety, attention deficit, mood and eating disorders. Overall, mental health is affected by many factors including where people live, the state of individual environments, genetics, income and education levels, and people's relationships with friends and family.

Physical Disabilities

Involve limited mobility (e.g., limited ability to walk, move, stand for long periods or to carry objects) or stamina, or restricted agility (e.g., limited ability to bend, dress, feed oneself, or to manipulate objects).

Visual Disabilities

Involve complete blindness, limited or residual sight. It may involve a loss of visual clarity /acuity or a decrease in the size of the visual field.

1.2 Regulatory Framework

The application of these guidelines is driven by the regulatory environment and important Provincial accessibility legislation and related requirements, which also supports the City's position and initiative to be proactive and a leader in developing inclusive communities. The regulatory framework is summarized as follows.

1.2.1 The Accessibility for Ontarians with Disabilities Act (AODA, 2005, S.O. 2005, Chapter 11)

The Accessibility for Ontarians with Disabilities Act (AODA) is legislation that aims to identify, remove, and prevent barriers for people with disabilities. The AODA became law on June 13, 2005 and applies to all levels of government, non-profits, and private sector businesses in Ontario that have one or more employees (full-time, part-time, seasonal, or contract). The AODA sets out a process for developing and enforcing accessibility standards and it is made up of five (5) parts, or Standards, with deadlines for compliance identified.

The intent is that people with varying types of disabilities and industry representatives will work in collaboration with the Government of Ontario to develop the standards with the aim of making Ontario accessible by 2025 through the implementation and enforcement of the standards.

1.2.2 Summary of AODA Accessibility Standards

Accessibility standards are laws that government, businesses, non-profits and public sector organizations must follow to become more accessible, with the intention that organizations identify and remove barriers to improve accessibility for people with disabilities in key areas of daily life. These areas are organized as five (5) standards, as part of the **Integrated Accessibility Standards Regulation (IASR, Ontario Regulation 191/11)**, which also identifies some general requirements (under Part I).

The five (5) standards under the IASR include:

- **Information and Communications Standards (Part II)**: To help organizations make their information accessible to people with disabilities;
- **Employment Standards (Part III)**: To help make hiring and employee support practices more accessible;
- **Transportation Standard (Part IV):** To make it easier for everyone to travel in the province;
- **Design of Public Spaces (Part IV.1)**: To help organizations make new and redeveloped outdoor public areas accessible; and
- **Customer Service Standards (Part IV.2)**: To help remove barriers for people with disabilities so they can access goods, services or facilities.

Part V of the IASR addresses compliance requirements. The IASR also includes the following general requirements, under Part I:

· Overview of the purpose, application and definitions;

· Establishment of accessibility policies;

- Development of multi-year accessibility plans (e.g., including updating every five years);
- Consideration of accessibility needs as part of the procurement process and when designing or purchasing self-service kiosks; and
- Provision of training (e.g., staff and volunteers).

1.2.3 Summary of Consultation Requirements

The **Design of Public Spaces Standards (Part IV.1)** also requires obligated organizations to consult with people with disabilities, accessibility advisory committee members and the public, for the following areas: (Note: This information is also identified in the applicable sections of this document.)

- **Recreational trails** (e.g., slope, need for & location or ramps, need for & location of rest / passing / viewing areas and amenities / other pertinent features on the trail);
- **Outdoor play spaces** (e.g., needs of children and caregivers with various disabilities, when constructing new or redeveloping existing);
- **Exterior paths of travel – rest areas** (e.g., design and placement of rest areas, when constructing new or redeveloping existing paths of travel, intended to be maintained); and
- **On-street parking spaces** (e.g., need, location and design of accessible on-street parking, when constructing new or redeveloping existing on-street parking spaces).

1.2.4 The Ontario Human Rights Code (OHRC)

The Ontario Human Rights Code (referred to as 'the Code') protects all Ontario residents from discrimination and harassment in specific areas including services, housing, contracts and employment. Under the Code, every person has a right to equal treatment with respect to services, goods and facilities, without discrimination because of disability, race, ancestry, place of origin, colour, ethnic origin, citizenship, creed, sex, sexual orientation, age, marital status, same-sex partnership status, and family status. Further, the Code recognizes that people with disabilities have the right to be able to access services, jobs and housing, with the right to assume the same responsibilities and duties as everyone else.

Employers, landlords, service providers and others have a duty to consider the needs of people with disabilities. This can include ways to apply the principles of inclusive or universal design for the construction or renovation of buildings and facilities, as well as their application to related processes, programs and services.

If systems, facilities or other elements of the built environment or people's attitudes create discriminatory barriers, then they must be removed or changed. Where it is impossible to remove these barriers without undue hardship, then accommodations must be made so that people with disabilities can participate fully.

In summary, there are two important considerations related to the Ontario Human Rights Code that are critical to recognize as the City's Accessibility Guidelines are implemented:

1. It has primacy over all other provincial legislation including the Ontario Building Code, the Ontarians with Disabilities Act, 2001 and the Accessibility for Ontarians with Disabilities Act, 2005; and
2. Its intent is to remedy the situation for the person or group that has been discriminated against and to prevent further discrimination. The Ontario Human Rights Code provides for civil remedies, not criminal penalties.

1.2.5 The Ontario Building Code (OBC)

Since the previous version of these guidelines were originally developed, accessibility amendments to Ontario's Building Code (OBC) came into force on January 1, 2015 and January 1, 2020. These amendments have been reflected in this version of the guidelines, where applicable.

The accessibility requirements, or "barrier-free design" requirements as they are referred to in the OBC (Section 3.8), are generally recognized as representing a minimum standard for accessibility. Compliance with the OBC is always mandatory.

The requirements of the OBC specifically related to accessibility can be summarized as follows:

- Applies to most new construction and extensive renovation; and
- Amended requirements cover a range of areas, such as parking, entrances, elevators, washrooms, barrier-free access, ramps, stairs, signs and exits.

Most importantly, compliance with the Ontario Building Code does not constitute compliance with the Ontario Human Rights Code. This is a key reason why additional accessibility standards for the built environment are required to address the needs of users with varying disabilities.

1.2.6 Canadian Standards Association "Accessible Design for the Built Environment" (CSA B651)

The Canadian Standards Association's "Accessible Design for the Built Environment" (CSA B651 - current edition) is recognized as a voluntary national built environment standard for Canada and is updated on an ongoing basis. The CSA requirements were most recently updated in 2018 at the time this document was developed, which is reflected in this document where applicable. Generally, these CSA standards are considered more comprehensive than OBC requirements.

Overall, the Markham Accessibility Design Guidelines go above and beyond the requirements of the OBC and the CSA B651 (current edition), representing a "best practice" approach to providing accessible design. The OBC will be followed as required by law, however, there is no reason that the City's enhanced design guidelines for accessibility cannot be implemented where the intent and formal requirements of the OBC are also achieved.

Reference

A Site Plan Checklist for Accessibility has been developed within these guidelines. Refer to **Secton 3.7**.

1.2.7 Scope and Application

The accessible design criteria provided in these Guidelines aims to make all City-owned or leased buildings, infrastructure and elements accessible to residents and visitors, as part of any new construction or renovation activities. The intent is for Markham to demonstrate proactive steps towards making all facilities and sites accessible, under the Provincial accessibility standards for the built environment (e.g., AODA standards). These AODA standards for the built environment are applicable to both the public and private sector. Markham recognizes that addressing accessibility issues as early as possible in the planning and design phases of new construction and redevelopment projects is the most practical and cost effective way to ensure accessible and inclusive environments.

Markham Staff will collaborate with all stakeholders throughout the development approvals process to ensure public spaces are designed to meet the requirements of these guidelines.

These accessibility design guidelines are:

- **Mandatory for all new construction and renovations (e.g., retrofit, alteration or addition) to existing facilities, owned, leased or operated by the City of Markham;**
- **Encouraged to be implemented by other sectors and organizations within the City of Markham; and**
- **Recognized as addressing the needs of diverse users, with or without disabilities, to ensure inclusive environments for all.**

These accessibility design guidelines are not applicable to the following spaces and areas:

- equipment service rooms or spaces;
- elevator machine rooms;
- janitor rooms;
- crawl spaces; and
- other areas identified in the Building Code.

Although the design criteria within these guidelines may differ from the requirements of the Ontario Building Code (OBC, Section 3.8, 2012 or current edition), the intent is that OBC requirements are used as the baseline and minimum requirements that are to be applied are mandatory. These guidelines

are intended to reflect an optimum level of accessibility for the design of the built environment, whether meeting or going beyond the requirements of the OBC.

By making these Accessibility Design Guidelines available to all planning, design and development sectors, Markham demonstrates its commitment to proactive measures to eliminate and prevent barriers faced by persons with disabilities.

1.2.8 Existing Barriers and Conditions

Barrier removal for existing sites, infrastructure, facilities and elements is conducted annually through a list of priorities established in the City of Markham's annual Accessibility Plan. Markham intends to implement these accessibility guidelines to the greatest extent possible, for all renovations and alterations to facilities, sites and elements of the built environment.

1.2.9 Implementation Alternatives

Consistent with the policies of national and international accessibility standards, the information within these Guidelines is not intended to prevent the use of other designs, products or technologies as alternatives to those identified. This assumes that the implementation of these alternatives will result in an equivalent or an increased level of accessibility, meeting the principles of universal accessibility.

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

1.2.10 Other References

Several other key references were consulted in the creation and revision of these Accessibility Design Standards, including:

- Canadian National Institute for the Blind (CNIB). (2009). ***Clearing Our Path - Universal design recommendations for people with vision loss.***
- Global Alliance on Accessible Technologies and Environments (GAATES). (2014). ***Illustrated Technical Guide to the Accessibility Standard for the Design of Public Spaces***.
- Parks and Recreation Ontario. (2014). ***Pathways to Recreation: Learning about Ontario's Accessibility Standard for the Design of Public Spaces - Guidebook***.
- AccessON. (April 2014). ***A Guide to the Integrated Accessibility Standards Regulation***.
- International Organization for Standardization (ISO). (2011). ***ISO 21542:2011 Accessibility and Usability of the Built Environment***.
- Metrolinx. (2011). ***Mobility Hub Guidelines***.
- City of Markham. (2017). ***Markham Older Adult Strategy - Final Report.***
- City of Markham. (2018). ***Markham Accessibility and Age Friendly Design Master Plan.***

1.3 Guideline Organization

These Guidelines were organized to provide accessibility criteria in the following sections, in order to group and identify issues that are related. These sections are identified and colour-coded as follows:

These Sections are further divided into additional subsections that refer to specific site or facility elements. At the start of each of section, the “Application” of the guidelines is identified to assist with implementation and how each section relates or applies to the built environment, element or feature.

1.0 Introduction

2.0 Common Elements: Exterior and Interior

3.0 Exterior Environments

4.0 Interior Environments

5.0 Systems, Controls and Communications

6.0 Special Facilities and Spaces

7.0 Appendices

1.3.1 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.

1.3.2 Dimensions

The dimensions for specific accessibility criteria are stated in metric, either millimeters (mm) or metres (m) throughout this document, rounded up to the nearest multiple of five. 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.

1.3.3 Definitions

Throughout this document, terminology may be used that may not be familiar or understood. Definitions for key words are provided in the **Appendix, Section 7.1, Glossary**.

1.3.4 Feedback Form

Markham recognizes that accessibility best practices continue to evolve and change over time, with the expectation that these Guidelines are recognized as a “living document” and will be updated on a regular basis. A feedback form is provided in **Section 7.4**, for any recommendations on how to improve this document or to provide new information.

Common Elements: Exterior and Interior

2.0

Table of Contents

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Ground and Floor Surfaces

2.1

Application

This section applies to ground and floor surfaces throughout interior and exterior environments. The type of materials and finishes used for ground and floor surfaces are essential in determining accessibility.

Reference

Sec. 5.4 Acoustics

Sec. 5.7 Lighting

Note

Irregular surfaces, such as cobblestones or pea-gravel finished concrete are difficult for both walking and pushing a wheeled mobility device.

Uneven surfaces can create unpleasant and damaging vibration for wheeled mobility aids users.

Sand and gravel surfaces are extremely difficult surfaces for users of mobility aids to maneuver.

Hard floor surfaces, such as marble or terrazzo may amplify footsteps and add another level of noise for persons who are Deaf, deafened or hard of hearing.

Best Practice

To achieve a smooth transition between sections of concrete sidewalks when they are poured in place, finishing and texturing the surface after any scoring is completed (e.g., scoring is typically made for incorporating expansion joints between the sidewalk sections) will ensure no uneven surfaces, ridges or bumps are accidentally put in place between sidewalk sections.

Note

A firm surface does not change under vertical force / pressure.

A stable surface does not change or erode under angular forces.

2.1.1 Surfaces

Ensure all ground and floor surfaces in interior and exterior environments:

a. are firm, stable and slip-resistant;
b. have a matte finish to minimize glare;
c. are not heavily patterned;
d. are well-drained;
e. have a vertical change in level less than 6 mm;
f. have joints between surfaces no wider than 13 mm (maximum) or 6 mm (preferred) **(Figure 1)**;
g. where ground and floor surfaces have a change in level:
    i. no bevel is required (e.g., vertical change permitted), where the change in level is less than 6 mm;
    ii. provide a beveled slope of 1:2 (maximum - the ratio rise to run), where the change in level is between 6 and 13 mm;
    iii. provide a slope, ramp or curb ramp, where the change in level is greater than 13 mm; and
    iv. for exterior ground surfaces, refer to Section 3.3 Exterior Paths of Travel for additional details;
h. do not amplify occasional noise; and
i. provide colour contrast or a change in texture with surrounding surfaces:
    i. at curb ramps and depressed curbs;
    ii. adjacent wall surfaces or their baseboards;
    iii. at changes in level (e.g., stairs and ramps);
    iv. at obstacles; and
    v. for tactile walking surface indicators (TWSI).

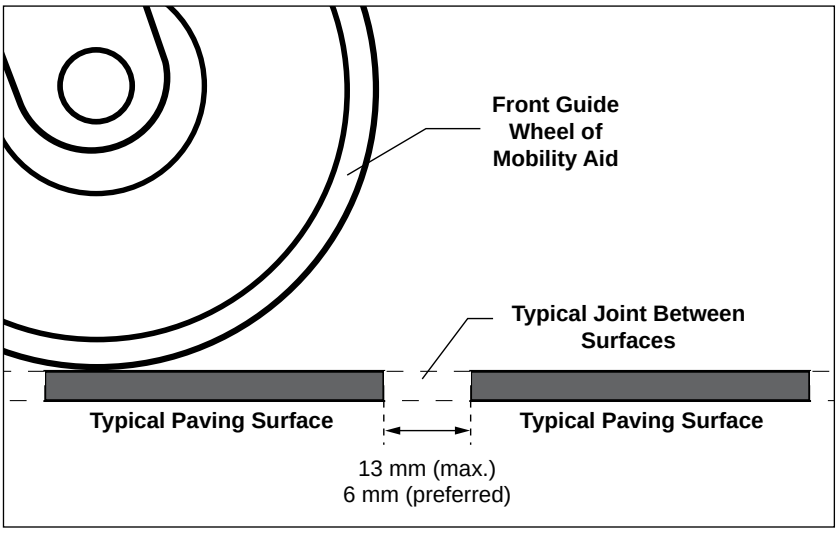


Figure 1: Joints Between Surfaces - Section View

Ensure a smooth transition is provided between sidewalk segments.

2.1.2 Carpets

Where carpeting is used:

a. ensure it is securely fastened;
b. ensure combined carpet and pad height does not exceed 13 mm;
c. ensure any cushion, under padding or backing is firm to reduce rolling resistance for wheeled mobility aids; and
d. ensure it is a low level loop or level cut / uncut pile.

Best Practice

Carpets without underpadding are preferred.

Note

Heavily patterned carpet designs are not accessible as they can be disruptive, confusing and misinterpreted as level changes by people with vision loss.

2.1.3 Floor Mats

Where floor mats are used:

a. ensure they are securely fixed or placed in a depression that is level with surrounding floor area;
b. ensure mats height are no more than 13 mm high with beveled edges; and
c. provide colour contrast of 70% (minimum) between floor mats or grilles and surrounding surfaces.

Note

Colour contrasted floor mats can provide textural and visual cues for people with vision loss. They can also be used to indicate doorways or circulation intersection.

Example of a recessed floor mat system which is preferred.

Best Practice

Avoid the use of any grate, opening or cover along accessible routes, especially high traffic areas, in order to prevent any potential tripping hazards for all users, including people with vision loss.

Note

Openings larger than 13 mm may potentially catch wheels of mobility aids, canes or crutches.

2.1.4 Gratings and Covers

Openings can include sewer catch basin covers or drainage grates, utility covers and tree grates. Where there are any openings along the path of travel, or where gratings or other covers are required in both interior and exterior environments:

a. ensure openings do not allow passage of an object that has a diameter greater than 13 mm **(Figures 2a & b)**; and
b. ensure that elongated openings are oriented perpendicular to the pedestrian path of travel.

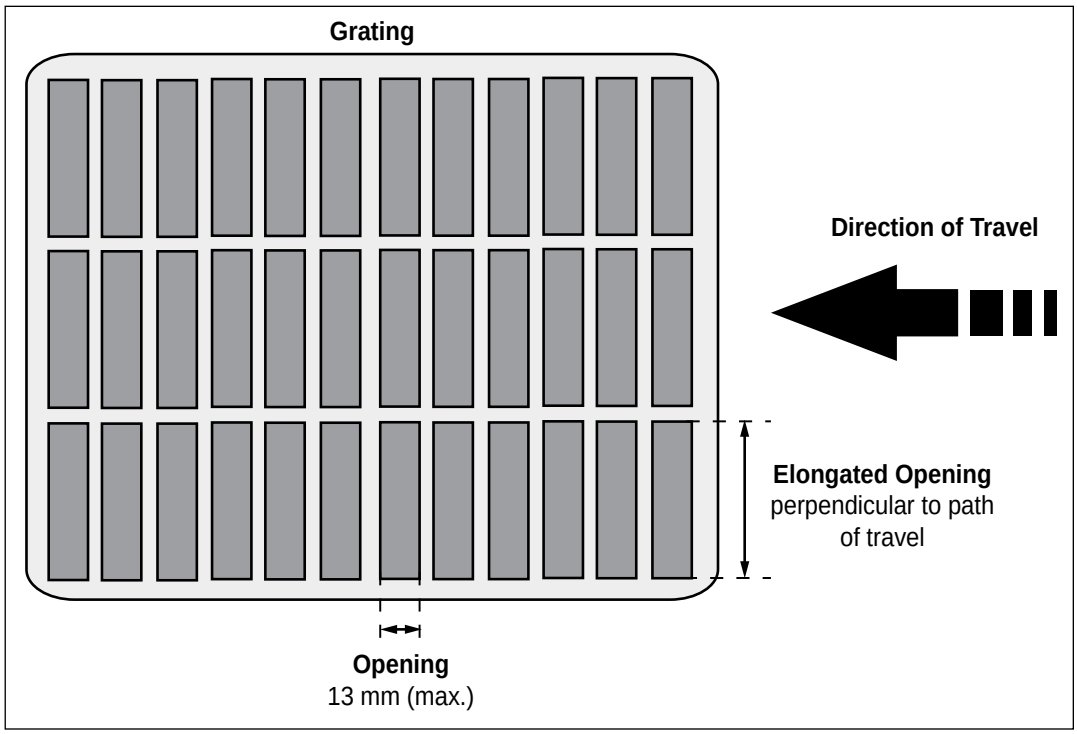


Figure 2a: Grating Opening - Plan View

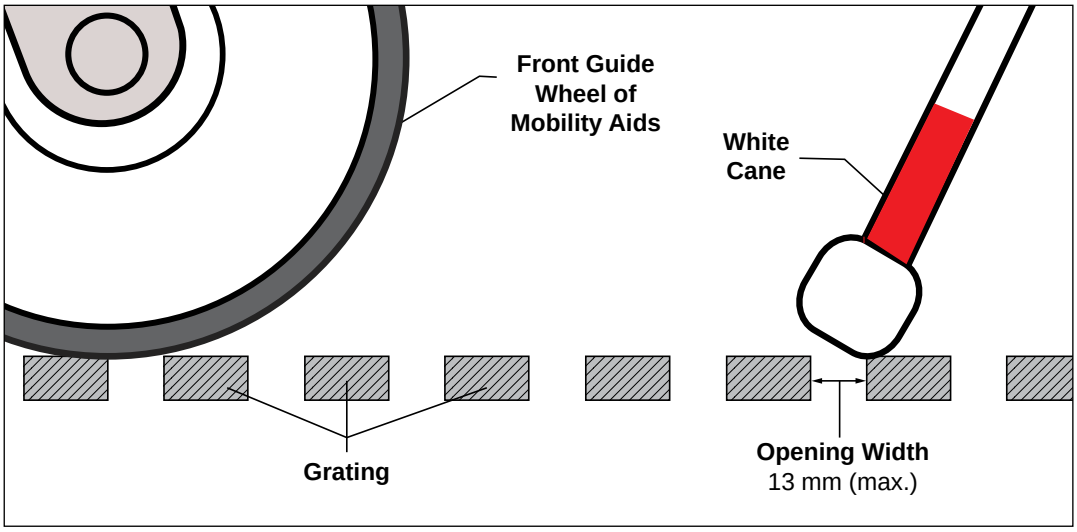


Figure 2b: Gratings - Section View

Ramps

2.2

Application

This section applies to ramps provided as part of an accessible route within exterior or interior environments, where the slope of a path of travel exceeds a gradient of 1:20 (5%).

Additionally, refer to Ontario Building Code (OBC) and Integrated Accessibility Standards Regulation (IASR), Part IV.1 Design of Public Spaces Standards for requirements for ramps.

Reference

Sec. 2.1 Ground and Floor Surfaces

Sec. 2.4 Guards and Handrails

Sec. 5.7 Lighting

Note

For new construction and where alternate universal design solutions are possible, it is preferred that ramps are integrated as part of the overall building design.

Best Practice

Where ramps are specifically designed for use by persons with vision loss, a ramp surface of up to 1500 mm wide is preferred, in order to allow space for a companion or guide dog.

2.2.1 Design Features

a. provide a clear width of 1100 mm (minimum) between handrails;
b. ensure individual ramp section is no longer than 9000 mm **(Figure 3)**;
c. provide landings:
    i. at top and bottom of ramp;
    ii. where there is any directional change; and
    iii. between each ramp section where overall length of ramp exceeds 9000 mm **(Figure 5)**;
d. ensure lighting level of 50 lux (5 foot-candles) (minimum), measured at floor level;
e. provide handrails on both sides of the ramp **(Figure 8)**; and
f. provide a wall or guard on both sides of ramp **(Figure 9)**.

2.2.1.1 Running Slope

a. ensure maximum gradient of 1:15 (6.67%) **(Figure 3)**.

2.2.1.2 Cross Slope

a. ensure maximum gradient of 1:50 (2%).

2.2.1.3 Edge Protection

Provide edge protection along ramps and landings:

a. with a curb 75 mm (minimum) high, where no solid enclosure or solid guard is provided **(Figure 4a)**; and
b. with railings or other barriers that extend to within 50 mm (maximum) of the finished ground or floor surfaces **(Figure 4b & 4c)**.

2.2.1.4 Colour Contrasting Strip

a. provide a colour contrasted and slip-resistant strip at the beginning and end of ramp, and where landings meet a slope change **(Figure 3)**; and
b. ensure strips are 50 ± 10 mm wide, extending along the width of the ramp.

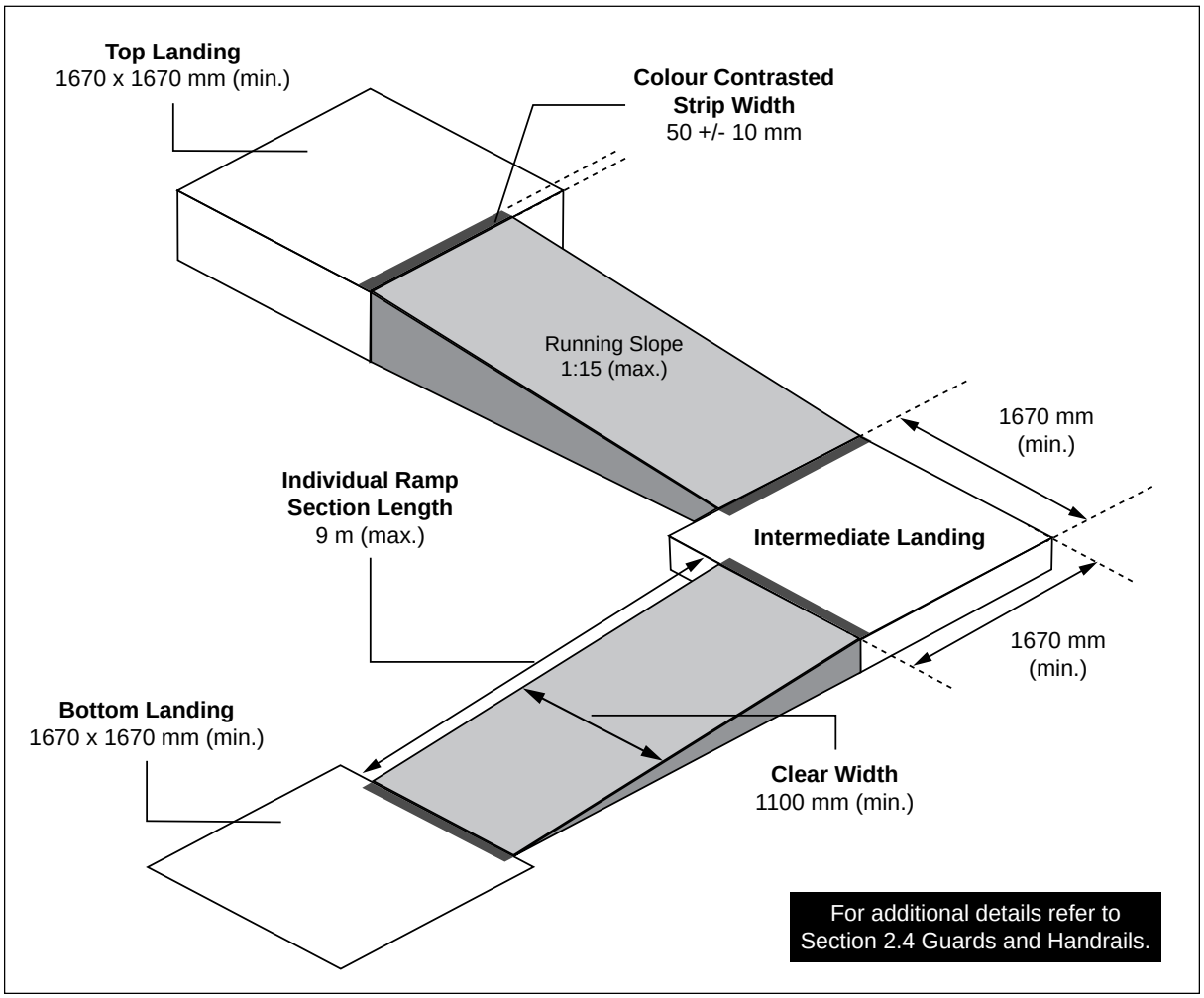


Figure 3: Ramp Design Features

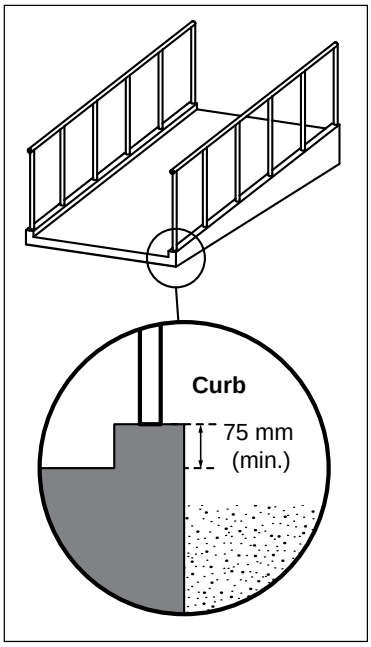


Figure 4a: Curb Protection

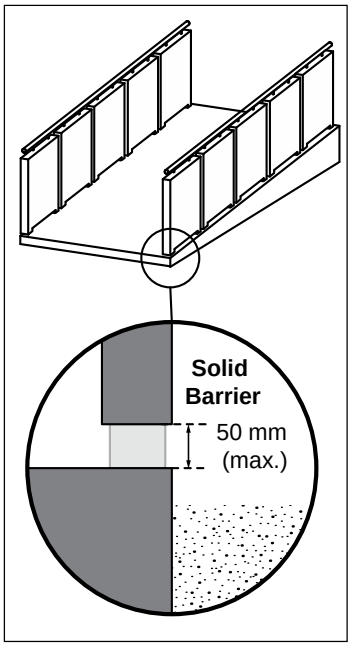


Figure 4b: Solid Barrier Protection

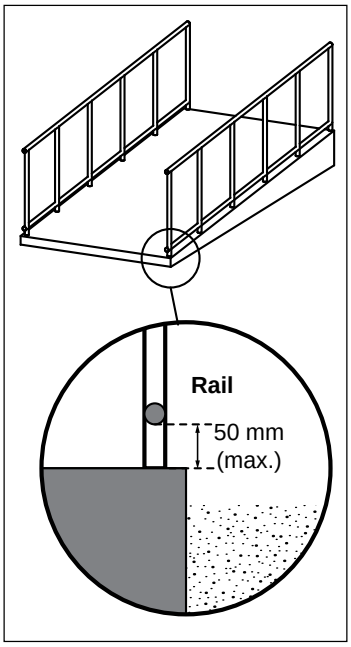


Figure 4c: Rail Protection

Best Practice

Exterior ramp and landing surfaces should be heated to prevent snow and ice accumulation during winter conditions.

Where space is available, a landing dimension of 2500 mm by 2500 mm is preferred in order to accommodate larger, wheeled mobility aids, including scooters and powered wheelchairs.

2.2.2 Landings

a. ensure all landings are level and have a cross slope that is not steeper than 1:50 (2%);
b. provide a clear space of 1670 mm by 1670 mm (minimum) at top and bottom landings and where there is an abrupt change in direction **(Figure 5)**;
c. for an in-line ramp, ensure landing is 1670 mm (minimum) long and at least the same width as the ramp **(Figure 5)**;
d. where the overall length of ramp exceeds 9000 mm, provide intermediate landings; and
e. where a door swings into a ramp landing, ensure the length of landing is extended:
    i. 600 mm beyond the latch side of the door opening, when the door swings towards the ramp landing **(Figure 6a)**; and
    ii. 300 mm beyond the latch side of door opening, when door swings away from the ramp landing **(Figure 6b)**.

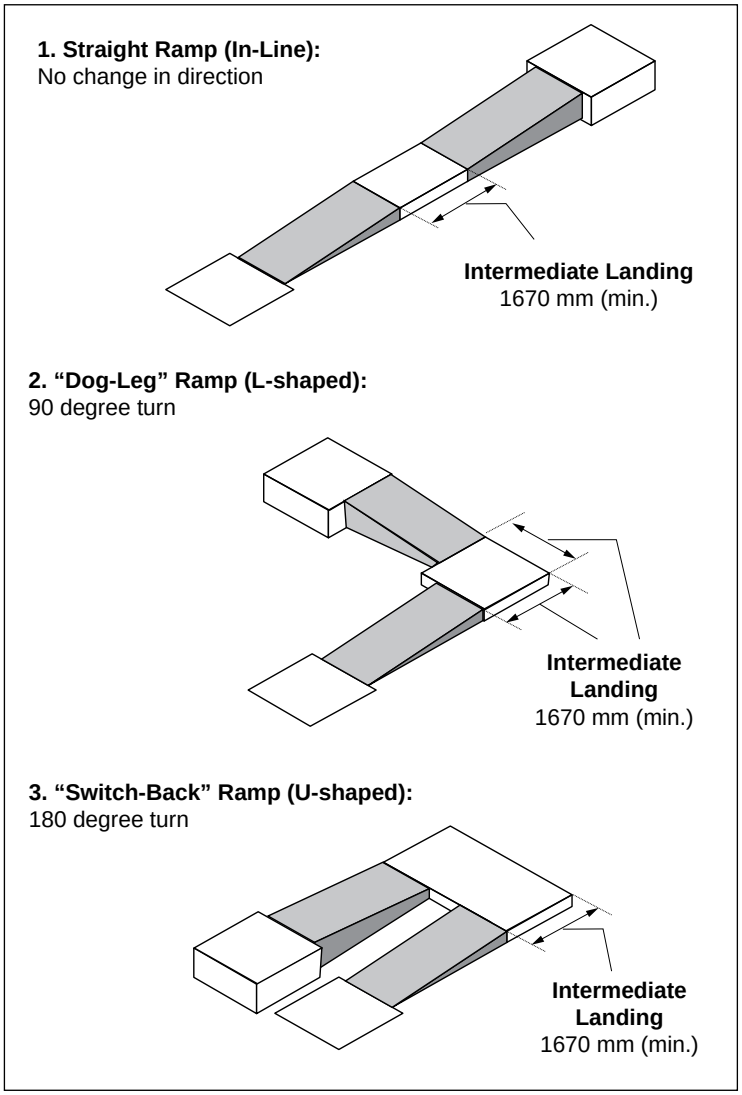


Figure 5: Typical Ramp Configurations

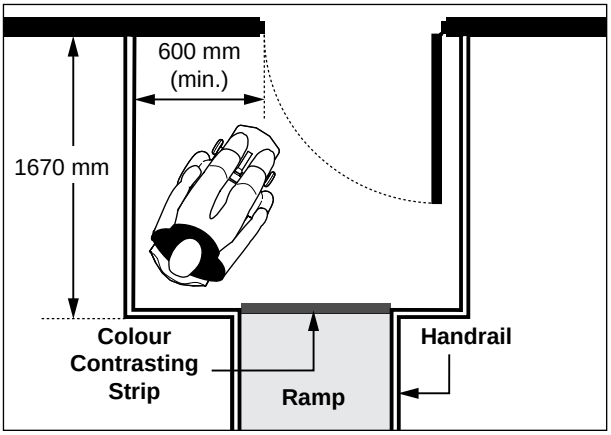


Figure 6a: Door Swings into Ramp Landing - Plan View

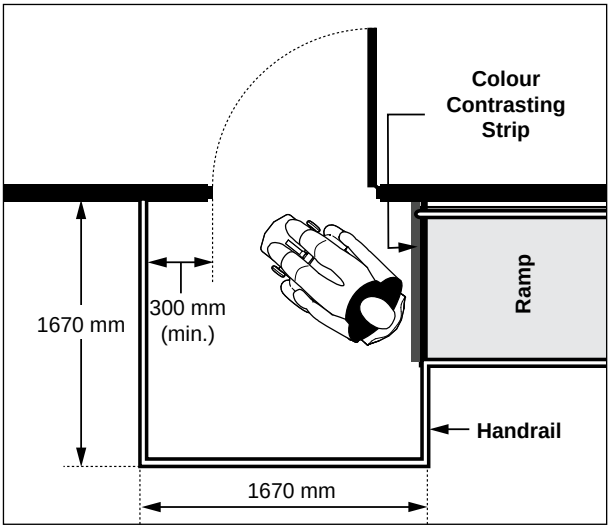


Figure 6b: Door Swings Away From Ramp Landing - Plan View

2.2.3 Handrails and Guards

2.2.3.1 Handrails

a. mount on both sides of ramp, continuous along landings, at consistent height between 865 mm and 965 mm from top of ramp surface **(Figure 8)**;
b. provide clear width of 1100 mm (minimum) between handrails or any projections into the ramp;
c. provide intermediate handrails where ramps are more than 2200 mm wide, with a maximum of 1650 mm between handrails;
d. ensure colour contrasted finish of 70% (minimum) between handrails and mounting surfaces; and
e. provide extensions based on the following criteria **(Figure 7a, b & c)**:
    i. extend horizontally 300 mm (minimum) at top and bottom landings;
    ii. design to return to the guard / rail, wall or floor; and
    iii. ensure handrails are terminated in a manner that will not obstruct pedestrian path of travel or create potential bumping hazards.

Exception

Where a ramp serves as an aisleway for fixed seating, the requirements for handrails and for walls or guards need not apply.

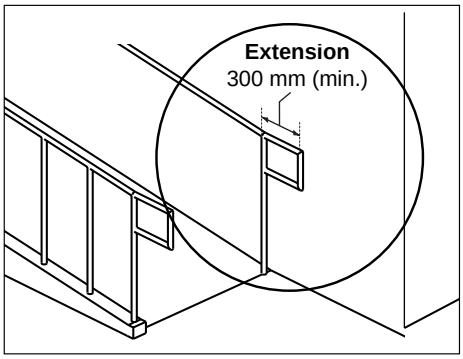


Figure 7a: Handrail Returns to Guard or Rail

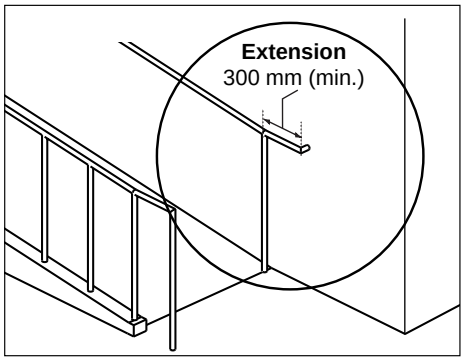


Figure 7b: Handrail Returns to Wall

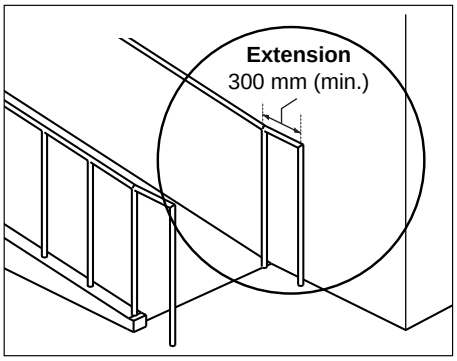


Figure 7c: Handrail Returns to Floor

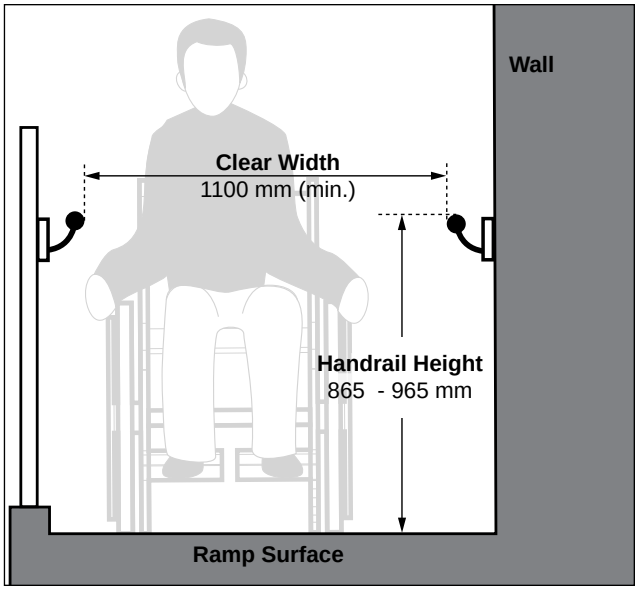


Figure 8: Handrail Design and Features - Section View

Ensure handrail extensions do not obstruct path of travel or create hazards.

Note

Ramps under the jurisdiction of the IASR, must have a wall or guard on both sides.

OBC Clause 3.8.3.4 requires a wall or guard on both sides of the ramp, while Clause 9.8.8.1 only requires a guard if the difference in elevation is more than 600 mm or the adjacent surface within 1200 mm has a slope steeper than 1:2.

2.2.3.2 Guards

Where walls or guards are required:

a. mount at 1070 mm (minimum) high, measured vertically to the top of the guard from the ramp surface **(Figure 9)**; and
b. ensure that no member, attachment or opening located between 140 mm and 900 mm high above the ramp surface will facilitate climbing.

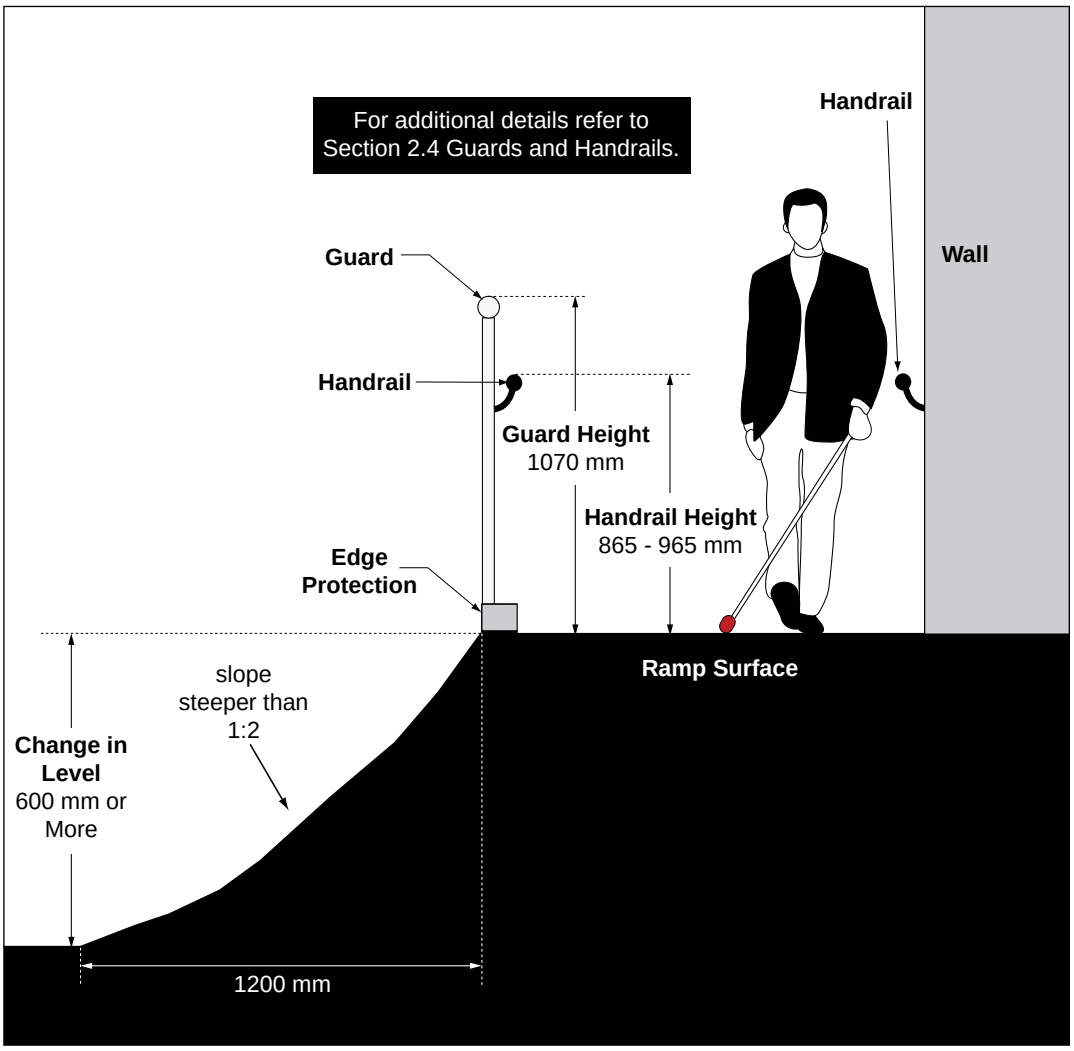


Figure 9: Guard Provision at Ramp - Section View

Stairs

2.3

Application

This section applies to stair systems, where provided for exterior or interior environments.

Additionally, refer to Ontario Building Code (OBC) and Integrated Accessibility Standards Regulation (IASR), Part IV.1 Design of Public Spaces Standards for all applied requirements for stairs.

Reference

Sec. 2.1 Ground and Floor Surfaces

Sec. 2.4 Guards and Handrails

Sec. 2.7 Tactile Walking Surface Indicators

Sec. 5.7 Lighting

Exception

Riser height and tread depth guidelines do not apply to fire escape stairs.

Note

Marking strips can also be fully integrated within the design of the nosing or finish used on the tread. For exterior stairs, exposed to the elements, and/or stair systems that have a high level of pedestrian traffic, durable marking strips are recommended (e.g., carborundum).

2.3.1 Design Features

a. ensure surface is stable, firm, slip-resistant and non-glare; and
b. provide lighting level of 50 lux (5 foot-candles) (average), measured at the tread.

2.3.1.1 Treads and Risers

a. riser height of 125 mm (minimum) to 180 mm (maximum) **(Figure 10)**;
b. tread depth of 280 mm (minimum) to 355 mm (maximum) **(Figure 10)**;
c. no open risers are permitted; and
d. ensure uniform riser height and tread depth throughout any stair system.

2.3.1.2 Nosings

a. ensure no abrupt undersides;
b. ensure they do not project more than 38 mm over the tread below and are sloped to the riser at an angle greater than 60 degrees to the horizontal;
c. ensure leading edge is rounded or has a beveled profile, with a radius of curvature of 13 mm or less **(Figure 10)**; and
d. provide horizontal marking strips:
    i. 50 mm (+/- 10 mm) deep;
    ii. at the leading edge of the tread;
    iii. ensure strong colour contrast compared with tread and riser finishes with slip-resistant surface; and
    iv. extend the full width of the tread.

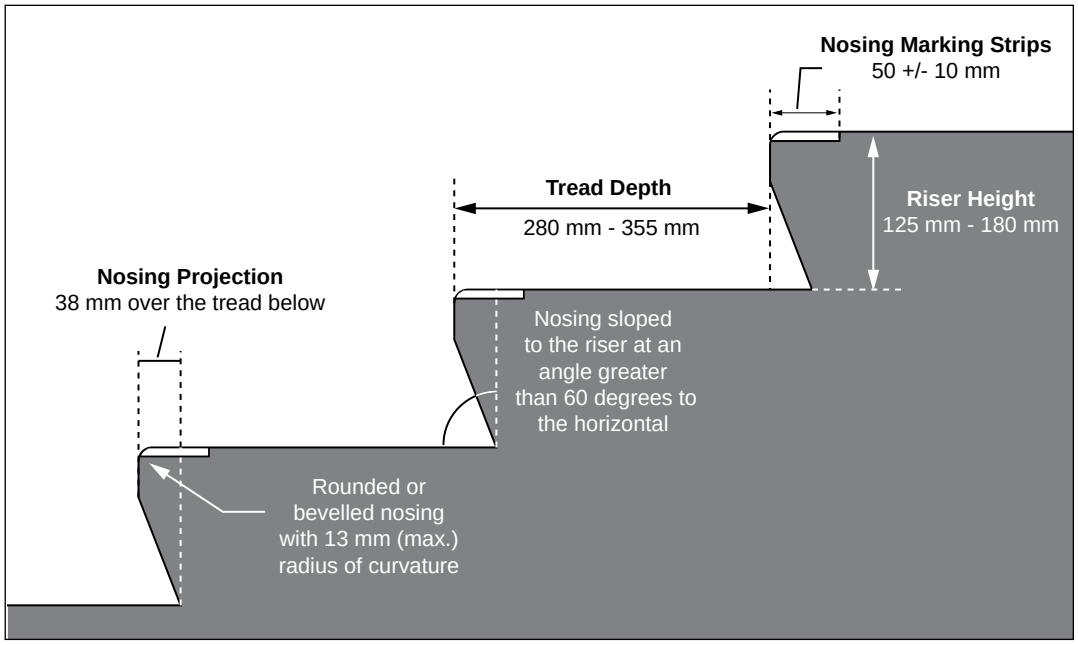


Figure 10: Stair Design Features - Section View

2.3.1.3 Tactile Walking Surface Indicators (TWSIs)

Provide tactile attention surface indicators:

a. at the following locations:
   i. at each landing incorporating an entrance into a stair system;
   ii. where the regular pattern of a stairway is broken; and
   iii. where the run of a landing not having a continuous handrail is greater than 2100 mm;
b. at the top of all flights of stairs, starting one tread depth back from the leading edge of the top step; and
c. with surface depth of 610 mm (minimum), extending the full width of the stairs **(Figure 11)**.

Note

Tactile attention surface indicators provided at the head of stair systems act as a warning, and colour contrasted nosings increase the visibility of each step when descending, especially for users with vision loss.

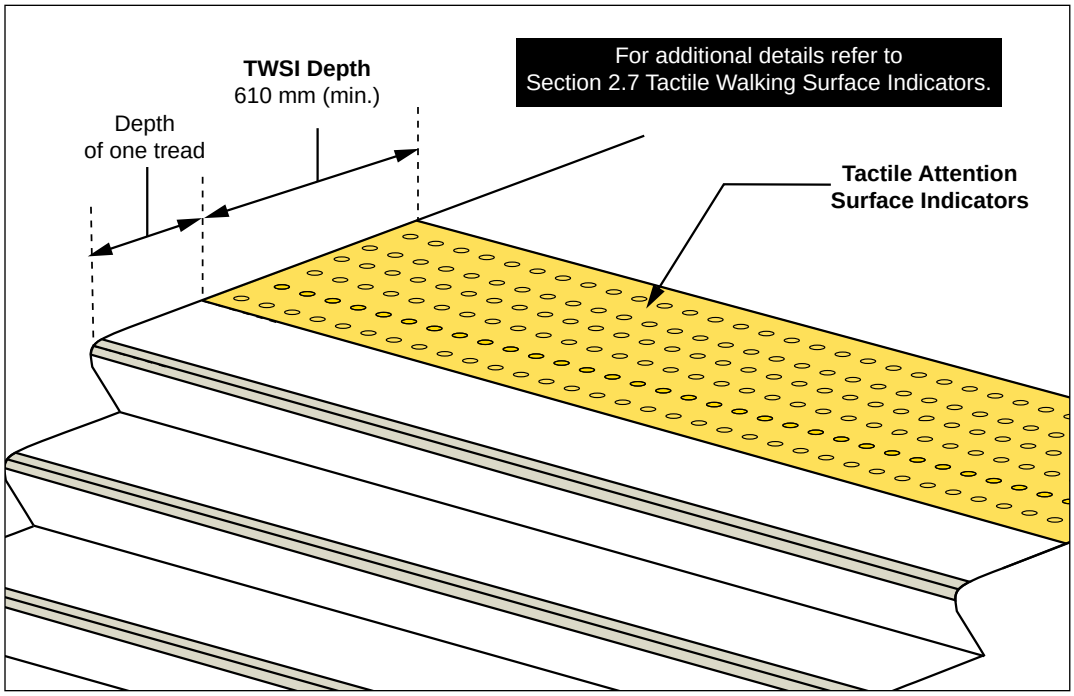


Figure 11: Tactile Attention Surface Indicators at Top of Stairs

2.3.2 Guards and Handrails

2.3.2.1 Guards

Where there is a change in level 600 mm or more in floor level adjacent to stairs, provide guards as follows:

a. mount 1070 mm (minimum) high, measured vertically to the top of the guard from the stair surface;
b. provide edge protection; and
c. ensure that no member, attachment or opening located between 140 mm and 900 mm high above the ramp surface will facilitate climbing.

Best Practice

Where stairs are wider than 1800 mm, provide intermediate handrails and ensure clear width between handrails is between 900 mm and 1000 mm.

Note

Handrails ensure a safe descent and climbing of stairs for all users. They are also an additional wayfinding guide for users with vision loss when continuous and if a strong colour contrast is provided.

2.3.2.2 Handrails

a. provide where stair system contains three or more steps;
b. mount on both sides of stairs, at a consistent height between 865 mm and 965 mm, measured from leading edge of stair tread **(Figure 12)**;
c. ensure colour contrast is provided between handrails and mounting surfaces for improved visibility;
d. be continuous around landing less than 2100 mm in length, except where the landing:
    i. is intersected by an alternative accessible route; or
    ii. has an entry door leading into it;
e. be continuous on the inside edge of stairs;
f. where stairs are more than 2200 mm wide, provide one or more intermediate handrails that are continuous between landings and with a maximum of 1650 mm between handrails; and
g. provide extensions based on the following criteria:
    i. extend horizontally 300 mm (minimum) at top of flight of stairs, starting immediately above tread nosing;
    ii. extend diagonally at the slope of the stair flight, for a horizontal distance equal to one tread depth beyond the bottom tread nosing, at bottom of flight of stairs then extend 300 mm parallel to the floor surface;
    iii. design to return to the wall, guard or floor; and
    iv. ensure handrails are terminated in a manner that will not obstruct pedestrian travel or create hazards.

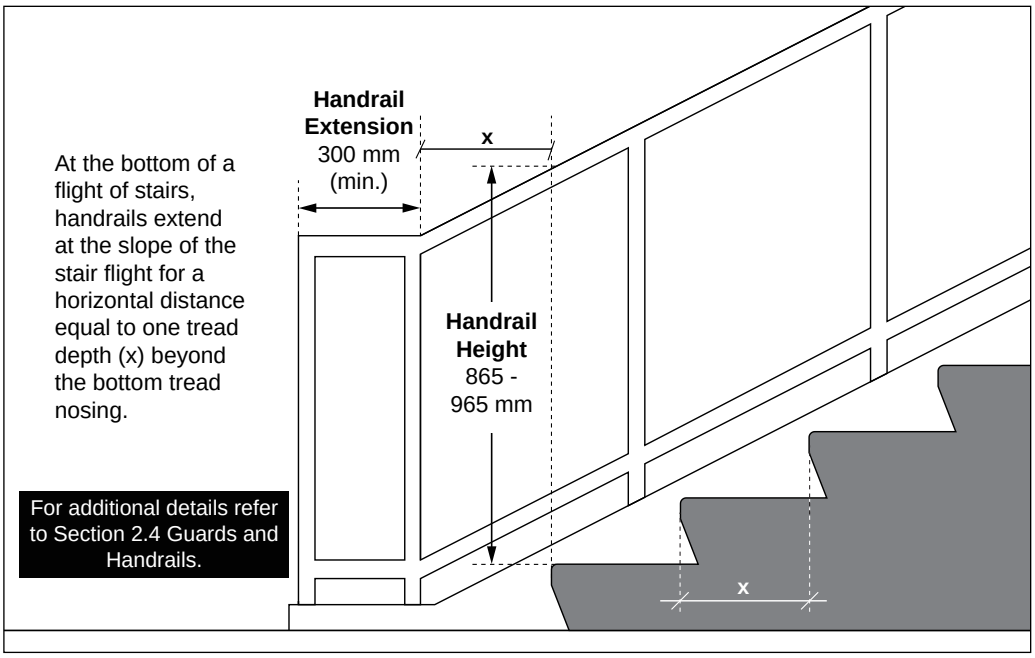


Figure 12: Handrail Extensions at Stairs - Section View

Guards and Handrails

2.4

Application

This section applies to guards and handrails provided at stairs, ramps and other areas in the interior and exterior environments.

Reference

Sec. 2.2 Ramps

Sec. 2.3 Stairs

Sec. 3.3 Exterior Paths of Travel

Sec. 4.1 Entrances

Sec. 4.2 Doors and Doorways

Sec. 4.3 Interior Accessible Routes

Note

Guards are typically provided at ramps, stairs, terraces and elevated viewing platforms in both interior and exterior environments.

Best Practice

In environments used frequently by children, lowered handrails are permitted, provided they are in addition to the required handrails.

2.4.1 Guards

a. ensure they comply with the OBC or IASR requirements, as applicable;
b. mount at 1070 mm (minimum) high, measured vertically to the top of the guard from the ground / floor surface;
c. design to prevent the passage of a sphere with a diameter greater than 100 mm; and
d. ensure no member, attachment or opening located between 140 mm and 900 mm high above the level protected by the guard will facilitate climbing.

2.4.2 Handrails

a. ensure handrails are continuous with grasping surface, uninterrupted by mounting brackets, newel posts or any other construction elements;
b. provide rounded edges, free of abrasive elements;
c. provide outside diameter between 30 and 40 mm for circular cross-section, which is preferred **(Figure 13a & 13b)**;
d. where non-circular cross sections are provided, ensure perimeter dimension of 100 mm (minimum) and 155 mm (maximum), with cross section dimension of 57 mm (maximum);
e. provide clearance of 50 mm (minimum) between grasping surface and any adjacent surface **(Figure 13a)**;
f. where handrails are in a recessed area, ensure clearance of 50 mm (minimum) between handrail surface and adjacent surface with clearance of 450 mm (minimum) above the handrail **(Figure 13b)**; and
g. be designed and constructed such that handrails and their supports withstand:
    i. the loading values obtained from the non-concurrent application of a concentrated load not less than 0.9 kN applied at any point and in any direction; and
    ii. a uniform load not less than 0.7 kN/m, applied in any direction.

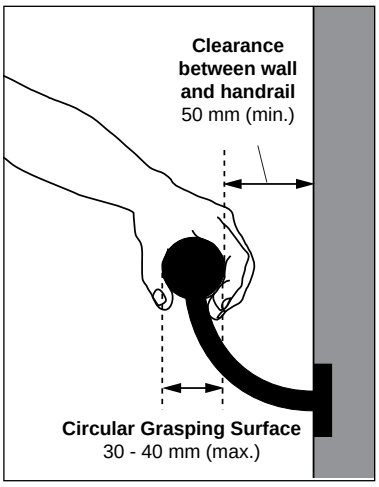


Figure 13a: Handrails on Wall - Section View

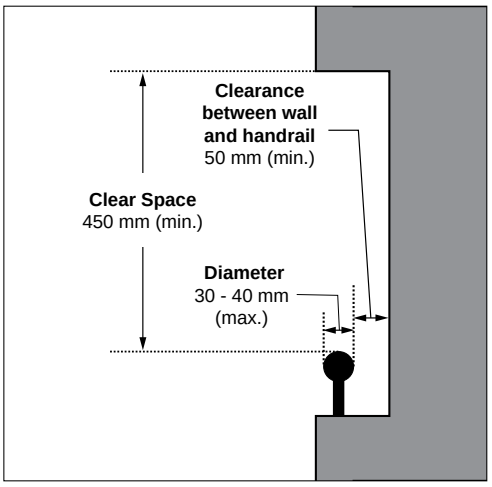
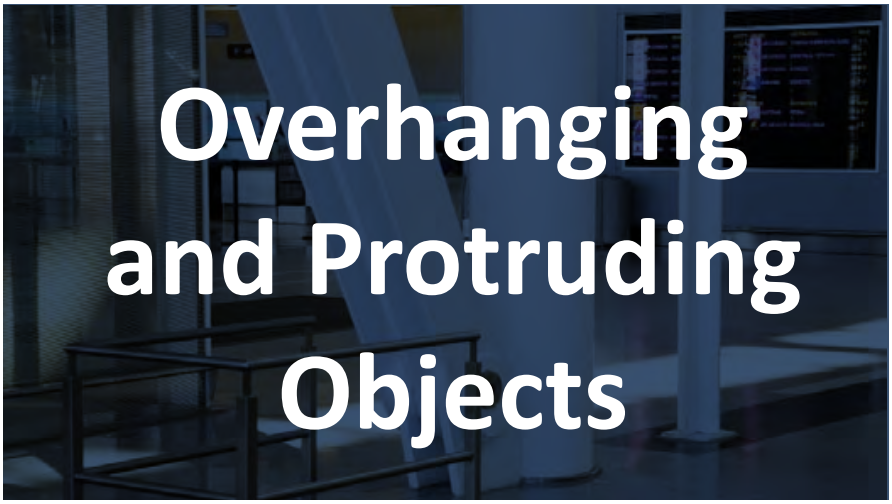


Figure 13b: Handrails in Recessed Area - Section View



Overhanging and Protruding Objects

2.5

Application

This section applies to overhanging and protruding objects throughout and around facilities (interior and exterior environments) to prevent any hazard or obstruction for all users. Protruding objects are typically mounted on walls, ceilings or other locations adjacent to interior and exterior paths of travel.

Reference

Sec. 2.3 Stairs

Sec. 2.4 Guards and Handrails

Sec. 3.3 Exterior Paths of Travel

Sec. 4.3 Interior Accessible Routes

Best Practice

Where possible, enclosure at the underside of the stairs for protection is recommended (Option (a)).

Note

Fixed planters or seating are options for providing protection under stairs as long as they are placed within cane detection limits.

2.5.1 Headroom Clearance

a. provide 2100 mm (minimum) floor-to-ceiling clearance along accessible paths of travel / routes **(Figure 14)**; and

b. where headroom clearance is less than 2100 mm from floor level (e.g., underside of stairs, escalators or ramp landings), install cane detectable guards with leading edge of 680 mm (maximum) above the floor.

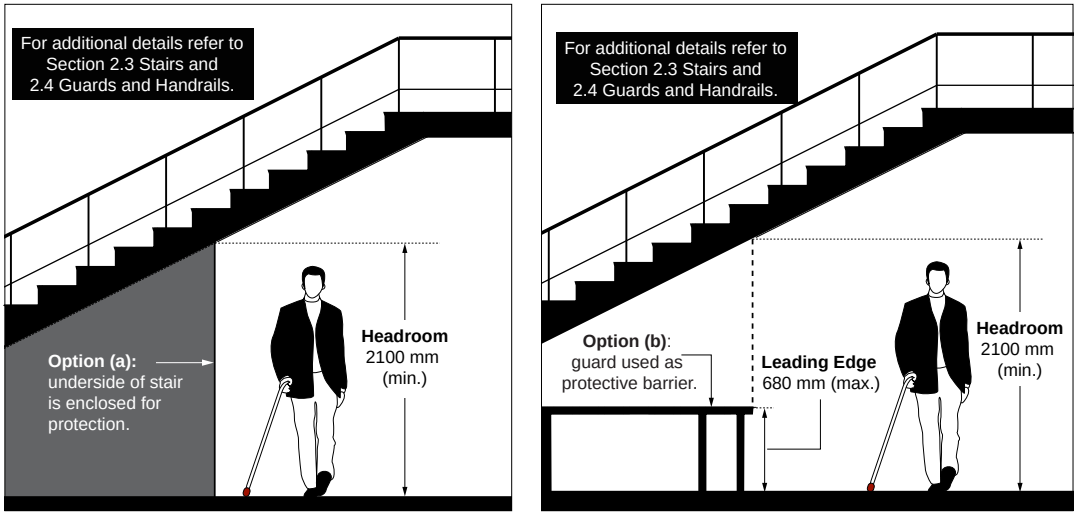


Figure 14: Protection Options Underneath Stairs

Best Practice

Wing walls, extending from protruding edge to floor / ground surface, provide cane detection, where protrusion is greater than 100 mm.

Note

This is not applicable to continuous protrusion (handrail, guards, door latches or panic bars) where the clear path of travel will be maintained.

2.5.2 Protruding Objects

Where objects protrude along accessible paths of travel / routes:

a. ensure the required clear width for an accessible path of travel / route or manoeuvering space is not reduced **(Figure 15)**; and

b. for objects protruding more than 100 mm from wall, ensure the bottom edge of objects are cane detectable and mounted at or below 680 mm.

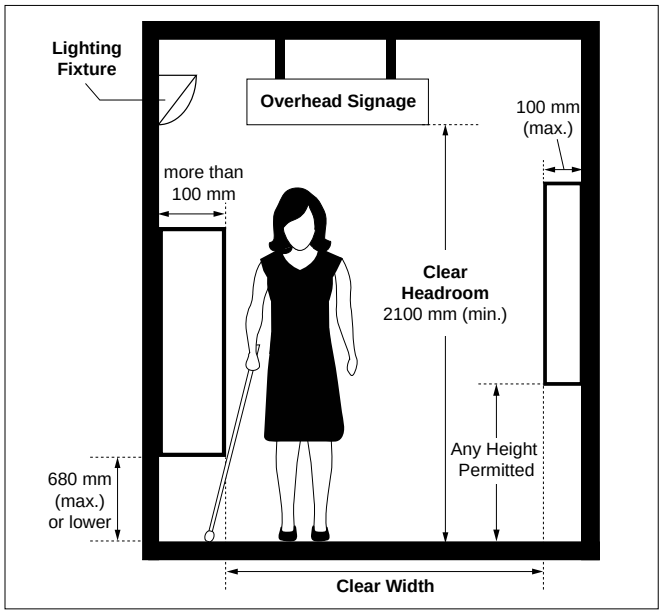


Figure 15: Protruding Objects

Rest Areas

2.6

Application

This section applies to rest areas provided along accessible paths of travel within a facility or throughout exterior environments.

Benches and seating are provided at rest areas and waiting areas for people who may have difficulty with standing or walking for extended periods, limited stamina or for users of mobility aids to transfer onto.

Reference

Sec. 2.1	Ground and Floor Surfaces
Sec. 2.10	Seating, Tables and Work Surfaces
Sec. 3.3	Exterior Paths of Travel
Sec. 3.6	Street Furniture
Sec. 4.3	Interior Accessible Routes
Sec. 5.7	Lighting

Best Practice

Ensure rest areas are directly connected to the accessible route.

Consider providing rest areas at viewing points of interest. Consider providing a solar powered electrical outlet adjacent to a rest area to charge mobility aids, in recreation areas where users may be expected to stay for extended periods.

Note

Where rest areas are located in exterior environments, ensure surface has a slope no greater than 1:50 (2%) to allow suitable drainage, as well as maneuverability for users of mobility aids.

2.6.1 Consultation Requirements

When constructing new or redeveloping existing exterior paths of travel that will be maintained by the City, consultation on the design and placement of rest areas must occur with:

a. the public and persons with disabilities; and
b. the Markham Advisory Committee on Accessibility.

2.6.2 Design and Layout

To determine the provision and placement of rest areas, consider the input received through the consultation process and other factors such as available space, property requirements, and volume of pedestrian traffic, applicable to either exterior or interior environments.

Where rest areas are provided:

a. ensure ground and floor surfaces are firm, stable and slip-resistant;
b. provide high colour / tonal contrast for seating compared to surroundings and through floor / ground finish and texture, to distinguish the rest area from the accessible path of travel;
c. provide clear ground / floor space of 915 mm wide by 1370 mm long (minimum) to accommodate service animals, mobility aids or strollers **(Figure 16)**;

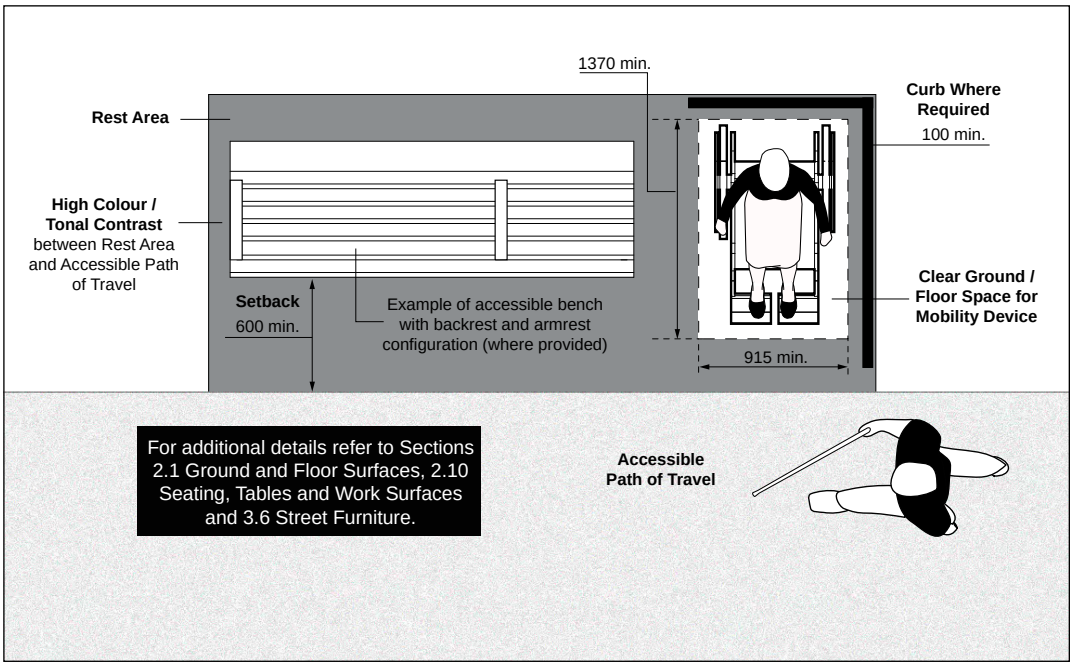
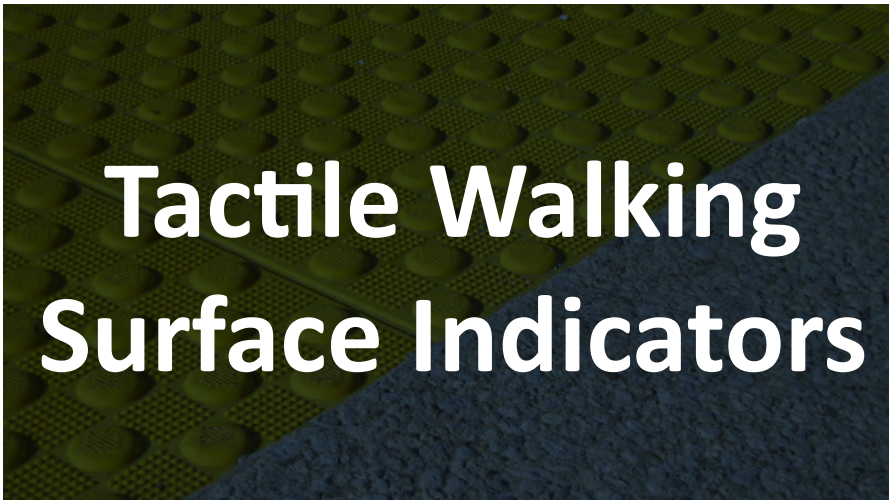


Figure 16: Rest Area - Plan View

d. where seating is provided, ensure seating is:
    i. stable or firmly mounted, set back 600 mm (minimum) from adjacent accessible path of travel;
    ii. designed with both backrests and armrests, with no arm rest required adjacent to the clear floor / ground space at transfer side;
    iii. between 450 mm and 500 mm high from the ground / floor surface;
    iv. designed based on other detailed requirements for benches **(Refer to Section 2.11, Seating, Tables and Work Surfaces)**;
e. ensure they are located adjacent to an accessible route; and
f. provide a curb, 100 mm high (minimum) or other protective barrier at rear and at side of clear ground / floor space, where there is a change in elevation (e.g., a drop-off or downward slope).



Tactile Walking Surface Indicators

2.7

Application

There are typically two (2) types of tactile walking surface indicators (TWSI) used in both interior and exterior environments:

- Tactile attention surface indicators call for caution at potential hazards (e.g., change in elevation, vehicular routes). They are composed of truncated domes.
- Tactile direction surface indicators provide information about the direction of travel through large open spaces (e.g., wayfinding). They are composed of parallel elongated bars.

Typical locations where TWSIs are required include:

- at curb ramps and depressed curbs;
- where walking surfaces between pedestrian and vehicular areas are not separated by curbs;
- at top of all stairs;
- at unprotected edges with a major change in elevation (e.g., at the edge of a platform); and
- in large open spaces.

Reference

Sec. 2.3	Stairs
Sec. 3.3	Exterior Paths of Travel
Sec. 3.4	Curb Ramps and Depressed Curbs
Sec. 4.3	Interior Accessible Routes
Sec. 6.13	Elevated Platforms or Stages

Note

TWSIs can also be referred to as detectable warning surfaces.

Both cast in place (e.g.,embedded within concrete) and surface applied TWSI systems are available for new construction and retrofits and depends on the mounting surface and application. Surface applied systems require beveled edges to prevent potential tripping hazards.

2.7.1 Design Features

a. ensure surface is slip-resistant and non-glare;
b. ensure colour contrast of 70% (minimum) between the TWSI and adjacent surfaces;
c. provide TWSI with raised tactile profiles (e.g., truncated domes or elongated bars) to be detectable when walked upon and / or by a long cane; and
d. ensure edges are beveled or level with surrounding surface (e.g., height of 3 mm or less).

2.7.2 Tactile Attention Surface Indicators

2.7.2.1 Truncated Dome Specifications

a. ensure flat-topped domes are 5 mm (+/- 1 mm) high **(Figure 17)**;
b. ensure the top of flat-topped domes are between 12 and 25 mm diameter;
c. ensure diameter of the lower base of the flat-topped domes are 10 mm (+/- 1 mm) more than the diameter of the top (e.g., a base diameter of 21 to 36 mm is typical);
d. ensure domes are arranged in a square grid; and
e. ensure spacing between adjacent flat-topped domes is adjusted depending on the size of the domes, as identified in **Table 1**.

Table 1: Truncated Dome Spacing Requirements

Top Diameter of Flat Topped Domes (mm)	Spacing Between the Centres of Adjacent Domes (mm)
12	42 to 61
15	45 to 63
18	48 to 65
20	50 to 68
25	55 to 70

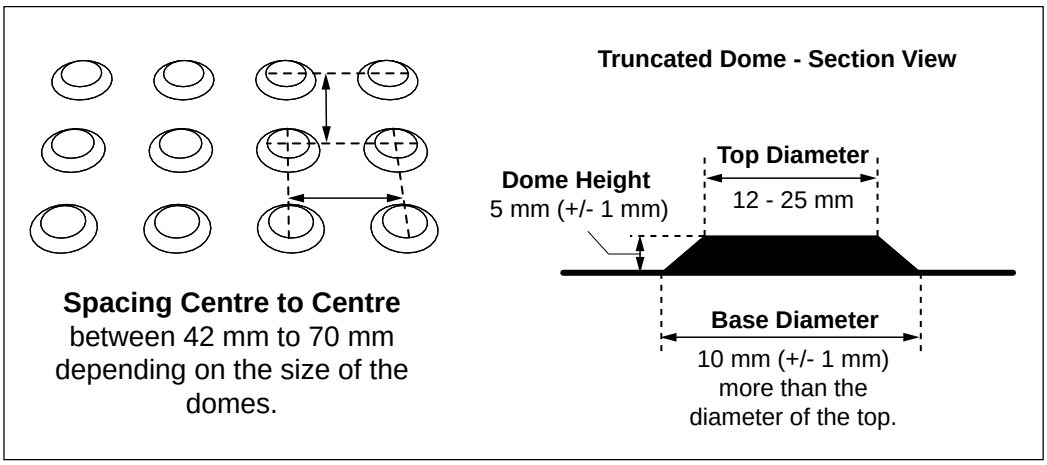


Figure 17: Truncated Domes Specification

Note

Applying colour contrasted finish to a concrete surface does not provide appropriate detection by foot or cane.

Although it is recognized that an industrial yellow colour provides a preferred colour contrast, a light colour contrasted TWSI, on a dark colour contrasted ground surface is suitable. Alternatively, a dark on light contrast is also suitable.

For more information on requirements for truncated domes, refer to: ISO 23599:2012 "Assistive products for blind and vision-impaired persons -- Tactile walking surface indicators."

Note
Tactile direction surface indicator layout that is as continuous as possible is easiest to follow.

2.7.3 Tactile Direction Surface Indicators

2.7.3.1 Elongated Bar Specifications

a. ensure flat-topped elongated bars are 5 mm (+/- 1 mm) high;
b. ensure the width of the top of flat-topped bars are between 17 mm and 30 mm **(Figure 18)**;
c. ensure width of the lower base of the flat-topped domes are 10 mm (+/- 1 mm) more than the diameter of the top;
d. ensure the top length of the bars is 270 mm (maximum) and the base length 10 mm (+/- 1 mm) greater than the top length;
e. ensure elongated bars have a space not more than 30 mm between the ends of the parallel bars; and
f. ensure spacing between adjacent flat-topped domes is adjusted depending on the size of the domes, as identified in **Table 2**.

Table 2: Elongated Bar Spacing Requirements

Width of Flat Topped Elongated Bars (mm)	Spacing Between the Centres of Adjacent Bars (mm)
17	72 to 78
20	73 to 80
25	75 to 83
30	80 to 85

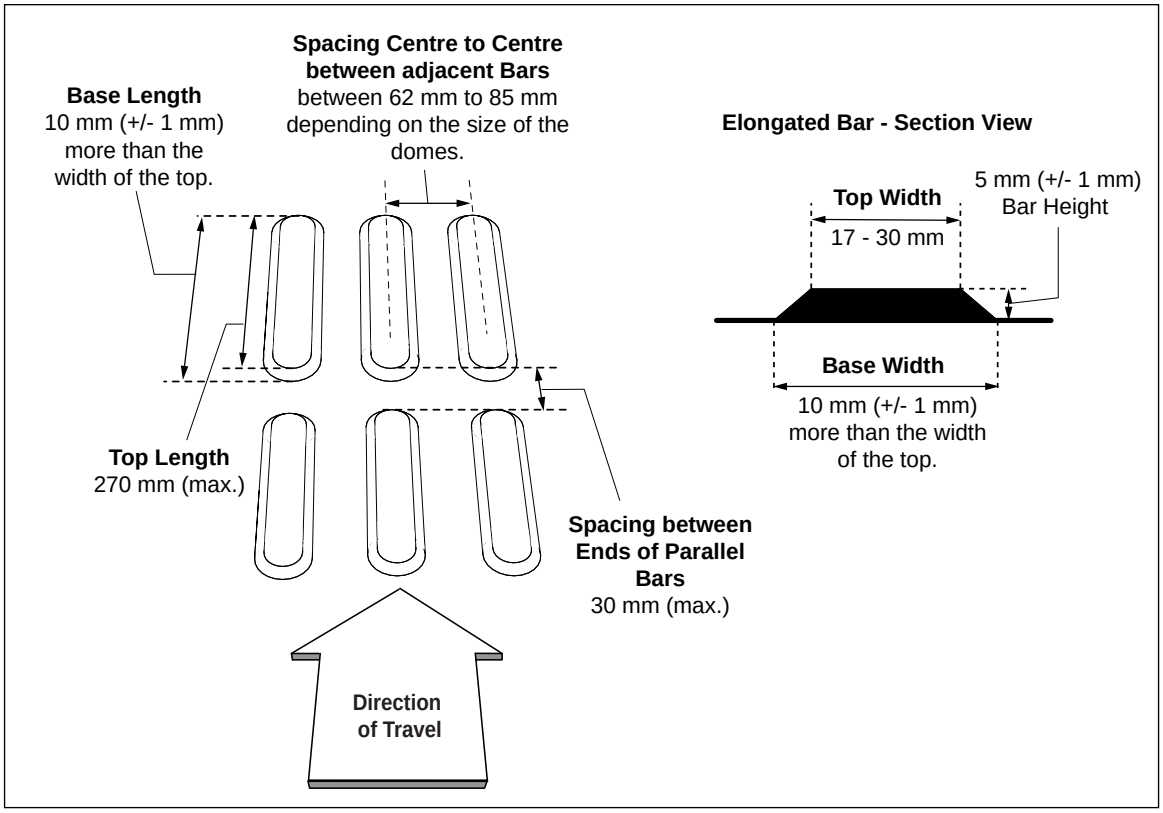


Figure 18: Elongated Bars Specification

Drinking Fountains and Bottle Filling Stations

2.8

Application

This section applies to drinking fountains and bottle filling stations where provided throughout interior and exterior environments.

Reference

Sec. 3.3 Exterior Paths of Travel

Sec. 4.3 Interior Accessible Routes

Best Practice

The provision of two drinking fountains / bottle filling stations, one at lowered, accessible height and the other at standing height meets the needs of diverse users.

Locating drinking fountains / bottle filling stations adjacent to the accessible route or recessing it in an alcove is preferred as it prevents potential bumping hazards.

Note

For standing use, spouts are located between 965 mm and 1090 mm above floor.

The space beneath the drinking fountain / bottle filling station may be included as part of the clear floor area or turning space, provided that appropriate toe and knee clearances are available for a forward or parallel approach to an unrecessed or partially recessed drinking fountain / bottle filling station.

2.8.1 Design and Layout

Where drinking fountain and bottle filling station fixtures are provided, ensure:

a. at least 50% are accessible on each floor level to all users, including lowered units for people using mobility aids, people of short stature, children, others who may have trouble bending and persons who have limited manual strength or dexterity, where there is more than one;
b. provision of an accessible, lowered unit, where only one is provided on a floor level;
c. they are located adjacent to an accessible route, recessed or with a leading edge that is cane detectable at 680 mm (maximum) high, if they protrude into an accessible route; and
d. provision of high colour / tonal contrast, compared with background / surroundings for easy identification.

2.8.2 Clear Floor Space Requirements and Approach

a. provide clear floor space of 915 mm wide by 1370 mm deep (minimum) for forward approach **(Figure 19)**;
b. provide clear floor space of 1525 mm wide by 915 mm deep (minimum) for side approach **(Figure 19)**;
c. ensure one fully unobstructed side adjoins an accessible route or adjoins another clear floor area; and
d. ensure clear floor space does not overlap the minimum space of the accessible route used to access the drinking fountain.

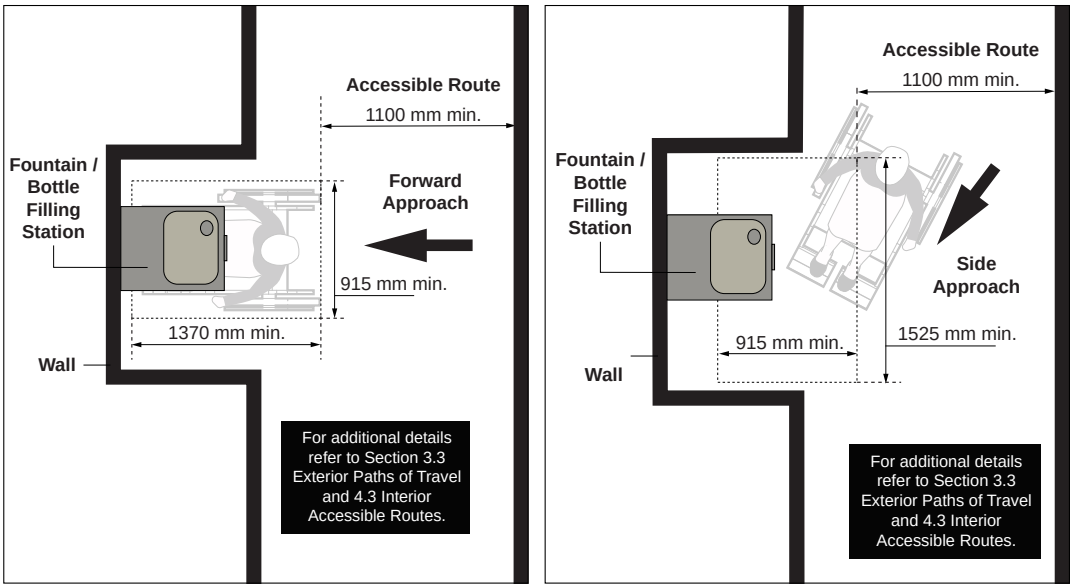


Figure 19: Clear Floor Space Requirements and Approach at Recessed Drinking Fountain / Bottle Filling Station - Plan View

2.8.3 Knee and Toe Clearances

Where accessible, lowered drinking fountains and bottle filling stations are provided:

a. ensure clear knee space under the fountain is 760 mm wide by 450 mm deep at 735 mm high (minimum) above the floor **(Figure 20)**;
b. ensure clear toe space under the fountain is 350 mm (minimum) high above finished floor to a depth of 300 mm (minimum) measured from clear knee space; and
c. ensure the depth at the base of the fountain is 700 mm (minimum).

Best Practice

Automatic or hands free operating controls are preferred.

2.8.4 Operating Controls

Ensure operating controls are:

a. not foot-operated;
b. located at the front or on both sides of the drinking fountain **(Figure 20)**; and
c. automatic or operable with one hand, requiring a force of no more than 22 Newtons (5.0 pounds) to operate without turning / twisting of the wrist or pinching of the fingers.

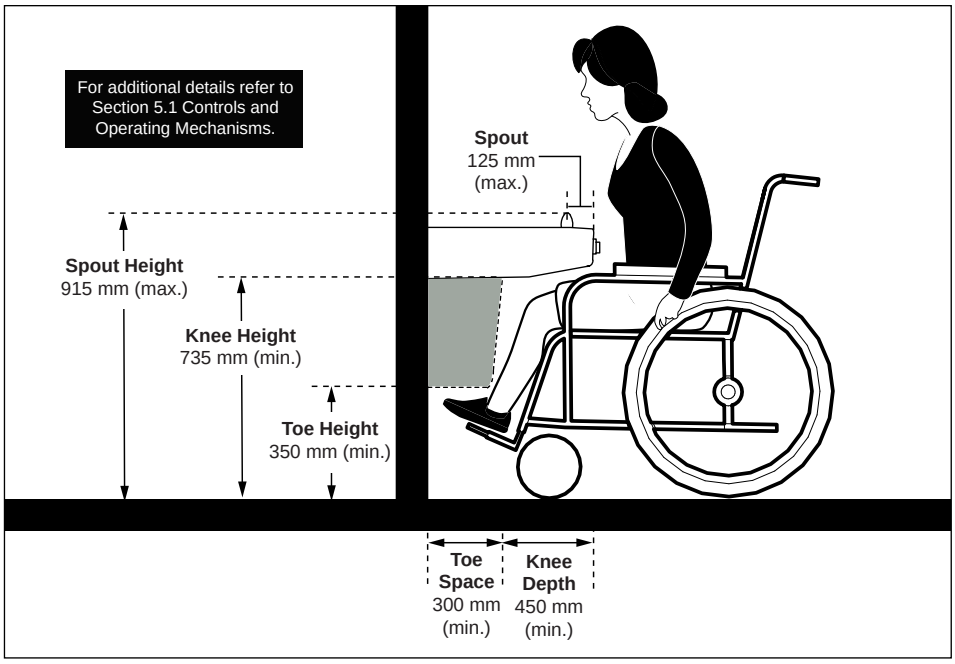


Figure 20: Drinking Fountain Design and Layout - Elevation View

Note

The purpose of requiring the drinking fountain to have a flow / projection of water at 100 mm high (minimum) is so that a cup can be inserted under the flow of water for users who cannot use the drinking fountain.

2.8.5 Water Spout

a. mount 915 mm (maximum) above the finished ground / floor for accessible units **(Figure 20)**;
b. mount 125 mm (maximum) from the front edge of the drinking fountain, including bumpers, and 380 mm (minimum) from the vertical support;
c. ensure water flows / projects 100 mm high (minimum); and
d. ensure water flows / projects at a vertical angle of:
    i. 30 degrees maximum, where spouts are located less than 75 mm from the front of the unit; or
    ii. 15 degrees maximum, where water spouts are located between 75 mm and 125 mm from the front of the unit.

Public Telephones

2.9

Application

This section applies to public telephones, which include coin operated, coin-less, and courtesy phones, located in both exterior and interior environments.

Reference

Sec. 2.5	Overhanging and Protruding Objects
Sec. 2.10	Seating, Tables and Work Surfaces
Sec. 5.1	Controls and Operating Mechanisms
Sec. 5.7	Lighting
Sec. 5.8	Signage and Wayfinding

Note

Public telephones can vary in design and style. Overall configuration of public telephones is beyond the scope of these Guidelines and is typically the responsibility of the service provider.

Best Practice

Where more than four public telephones are provided on an accessible floor level, equip one phone with a fixed TTY device, mounted below the phone without minimizing required knee space height for users of mobility aids.

2.9.1 Provision

Where public telephones are provided:

a. provide at least one accessible telephone unit on each accessible floor level as identified in **Table 3**; and
b. if only one is provided, ensure it is accessible and provide a built-in shelf or counter.

Table 3: Minimum Number of Accessible Telephones Required

Total Number of Telephone Units Located on Floor	Number of Telephone Units Required to be Accessible
1 or more single units	1 per floor
1 bank	1 per floor
2 or more banks	1 per bank

2.9.2 Design and Layout

a. provide directional signage to accessible public telephone location, if phone is hidden from view or mounted in a recessed area;
b. mark with International Symbols of Accessibility and Hearing Loss, for accessibility features provided;
c. provide clear floor space centered in front of accessible telephone unit (e.g., can be wall-mounted or hung in an enclosure) of **(Figure 21)**:
    i. 915 mm wide by 1370 mm depth (minimum) for a forward approach; and
    ii. 1525 mm wide x 915 mm depth (minimum) for a side approach;
d. ensure overhead clearance of 2100 mm (minimum);
e. ensure public telephones are located adjacent to an accessible route, recessed or with a cane detectable feature with a leading edge at 680 mm (maximum) high, if they protrude into an accessible route;
f. where seating is provided in floor space, ensure it is flexible (e.g., can be moved) to accommodate users of mobility aids and people who prefer to stand;
g. where stall or booth is provided for privacy and acoustics, provide sound-absorbing surfaces and ensure all required clearances are provided (e.g., floor space); and
h. ensure lighting level is 200 lux (20 foot-candles) (average) over all controls and related features / signage.

2.9.3 Telephone Operating Controls

a. provide push button controls with large size numbers;
b. ensure colour contrast is provided between button and background, as well as numbering;
c. ensure controls have a matte finish;
d. mount operating controls, including coin and card slots, push buttons and dispensers, at 1200 mm (maximum) from floor level **(Figure 22)**;
e. ensure maximum reach to all operating controls is 485 mm from the front edge of phone cabinet or shelf;
f. provide cord for telephone handset with length of 735 mm (minimum); and
g. equip with adjustable volume controls for users with hearing loss.

Best Practice

All accessible public telephones and a minimum of 25% of the total number of telephones provided should be equipped with adjustable volume control.

The number five '5' key of a 12-key telephone key pad to be tactilely distinct from the other keys.

Note

It is the responsibility of the phone service provider to ensure all telephone features comply with CAN / CSA-T515 standard.

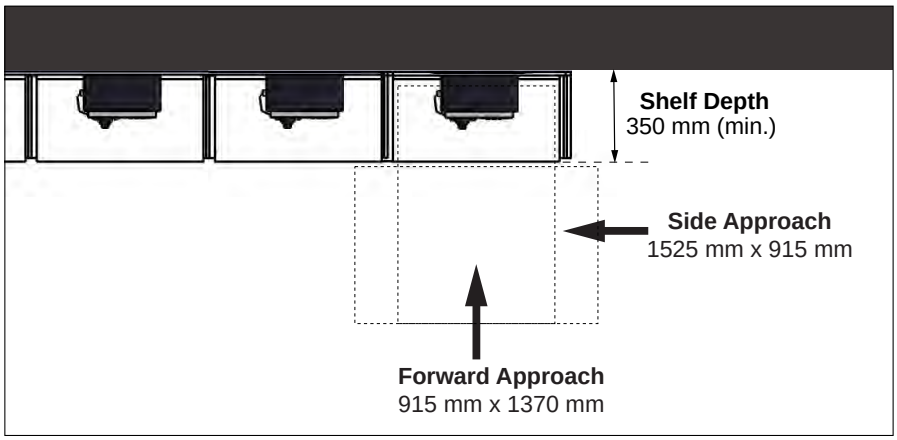


Figure 21: Clear Floor Space Requirements at Accessible Public Telephone

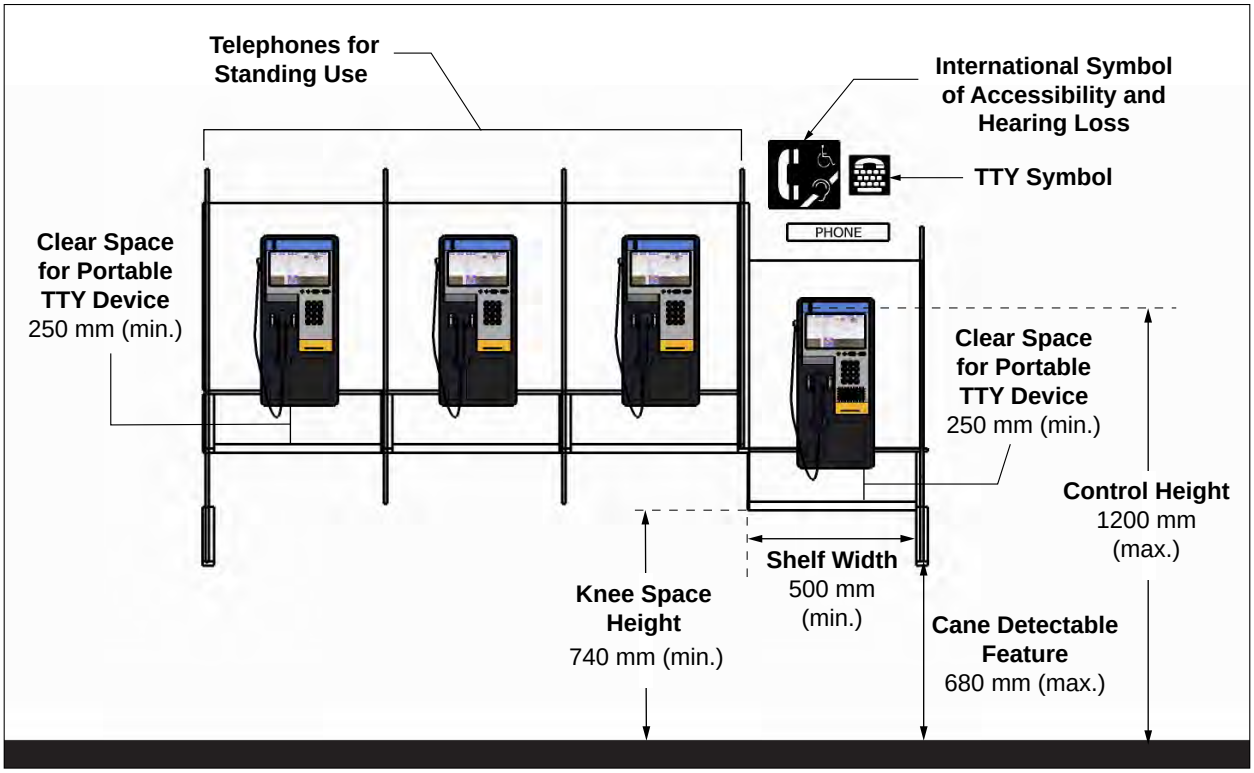


Figure 22: Public Telephone Provision and Layout

2.9.4 Shelves and Counters

Where more than one telephone is provided for public use, provide a built-in shelf or counter underneath at least one telephone **(Figure 22)**:

a. ensure shelf or counter is level;
b. 500 mm wide by 350 mm deep (minimum);
c. mount top surface between 775 mm and 875 mm high above the floor;
d. ensure knee clearance is 740 mm high (minimum); and
e. ensure a clear space of 250 mm (minimum) high between the top of the shelf and the lower edge of the phone.

2.9.5 Text Telephones (TTYs)

Where fixed or portable teletypewriter (TTY) devices or connections are available:

a. provide fixed signage with the International Symbols of Accessibility and Hearing Loss and symbol for TTY, to identify its location;
b. provide adaptable controls to allow portable TTY connections, including adjacent electrical outlet where telephones are provided specifically to address the needs of users with hearing loss; and
c. provide long cord on telephone handset to allow connection to text telephone (TTY), if acoustic coupler is used.

Examples of both Fixed and Portable Teletypewriters (TTYs).

Seating, Tables and Work Surfaces

2.10

Application

This section applies to site and facility furniture, provided in both exterior and interior environments which typically includes, but is not limited to, seating (e.g., benches), tables and work surfaces. Some common locations, where site and facility furniture can be found are:

- rest areas and accessible routes;
- dining facilities;
- waiting areas;
- lobbies; and
- office environments.

Provision of benches and seats are typically recommended for people who may have difficulty with standing or walking for extended periods, limited stamina, or for users of mobility aids.

Note

Furniture provisions should be reviewed on a case by case basis, specific to facility type and occupancy. Some locations may require more exterior site furnishings if high level of public traffic and use is expected.

Best Practice

Where multiple benches are provided in a rest area, consider option of some benches oriented to face each other where possible. This arrangement allows people to see each other, which is beneficial for people with hearing and communication disabilities to facilitate interaction.

Additionally, consider different configurations for arm rests and back support.

Note

Where only one bench is provided, ensure it is accessible, with at least one arm rest (not on transfer side that is adjacent to clear ground / floor space).

Where there is more than one, provide a mix of seating options, i.e., some with back supports, some with arm rests, and some with both.

2.10.1 Benches and Seats

For accessible benches and seating provided in both interior and exterior environments:

a. ensure the seat height is between 450 mm to 500 mm above the finished floor / ground;
b. ensure seat depth between 450 mm and 500 mm;
c. provide a back support that extends 455 mm (minimum) above the seat surface or be affixed to a wall **(Figure 23)**;
d. provide at least one (1) arm rest at a height between 220 and 300 mm from the seat for additional support, with no arm rest required adjacent to the clear floor / ground space at transfer side;
e. ensure bench is stable at all times; and
f. ensure seating surfaces are colour contrasted with surroundings to enhance visibility.

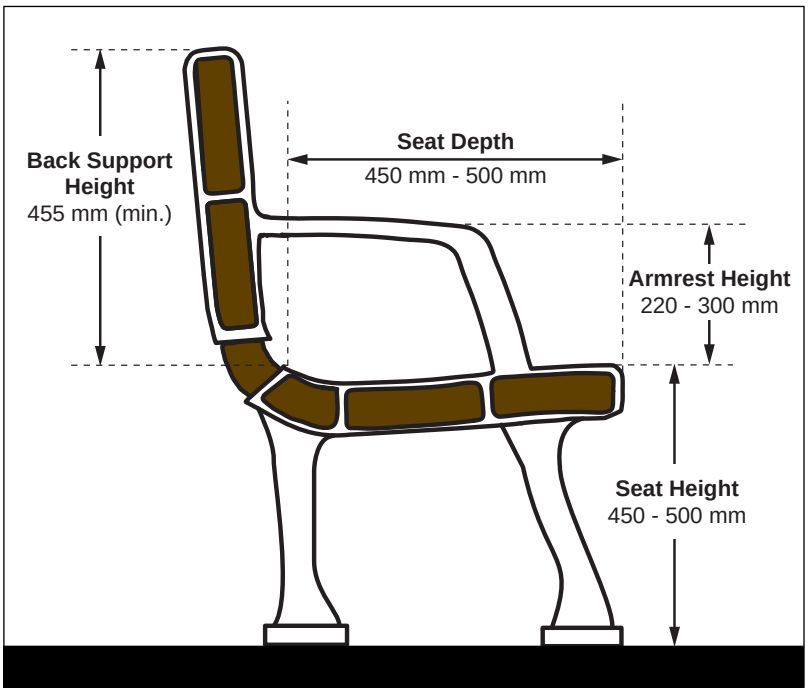


Figure 23: Typical Accessible Bench Dimensions - Section View

2.10.2 Tables and Work Surfaces

a. ensure top surface is between 730 mm and 865 mm high **(Figure 24a)**;
b. provide a minimum clear knee space of 915 mm wide by 685 mm high by 480 mm deep **(Figure 24a)**;
c. where toe clearance is required based on table design, ensure the minimum toe space is 350 mm high by 230 mm deep;
d. ensure top surface and edges are colour contrasted with adjacent surroundings to enhance visibility; and
e. ensure clear floor space in front of table and work surfaces for users of mobility aids is **(Figure 24b)**:
    i. 915 mm wide by 1370 mm deep (minimum), of which 480 mm (maximum) may be under the table for forward approach; and
    ii. 1525 mm wide by 915 mm deep (minimum) for a side approach.

Best Practice

Tables with adjustable surface heights can accommodate diverse users.

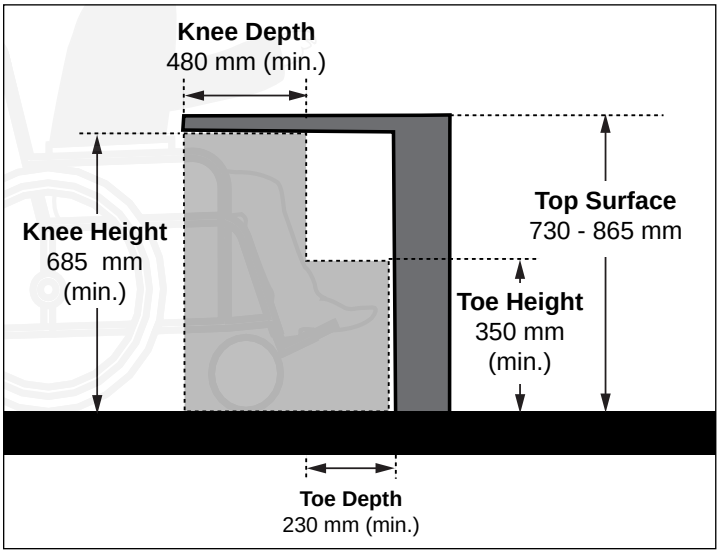


Figure 24a: Knee and Toe Clearances at Tables or Work Surfaces- Elevation View

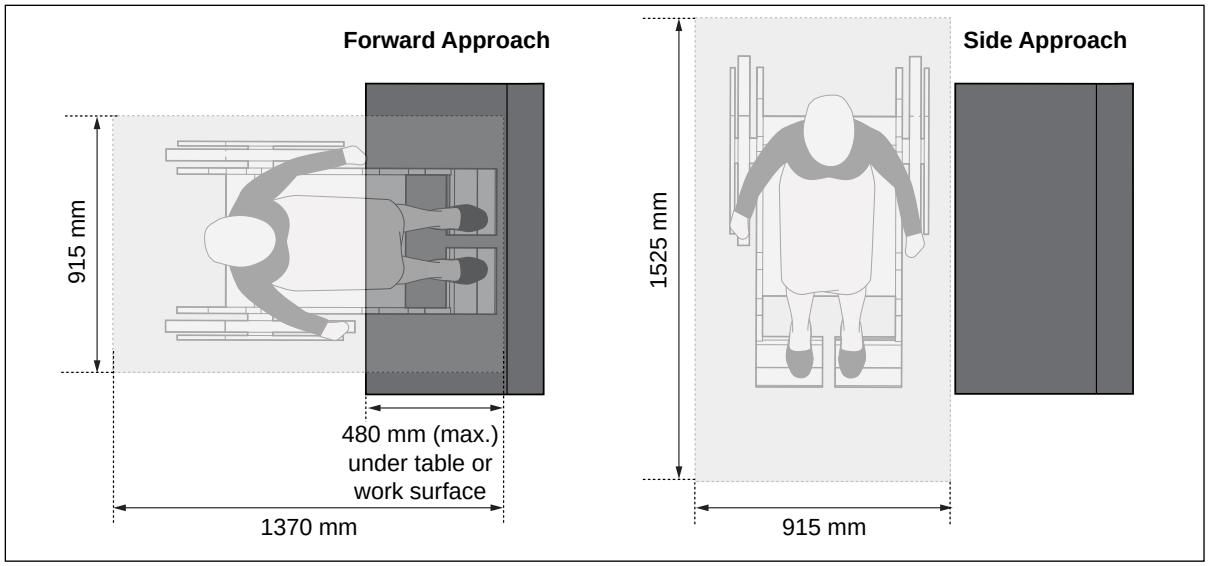


Figure 24b: Clear Floor Space Requirements and Approach at Tables and Work Surfaces - Plan View

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Exterior Environments

3.0

Table of Contents

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Parking

3.1

Application

This section applies to accessible parking spaces provided for the following types of exterior or interior parking facilities:

- parking garages or related structures (e.g., above or below grade);
- surface parking; and
- on-street parking.

Reference

Sec. 3.3	Exterior Paths of Travel
Sec. 3.4	Curb Ramps and Depressed Curbs
Sec. 5.7	Lighting
Sec. 5.8	Signage and Wayfinding
Sec. 5.9	Self-Service Kiosks

Exception

Off-street parking facilities that are used exclusively to park the following types of vehicles:

- buses;
- delivery vehicles;
- law enforcement vehicles;
- medical transportation vehicles, such as ambulances; and
- impounded vehicles.

The requirements in respect of off-street parking facilities do not apply to off-street parking facilities if:

- the off-street parking facilities are not located on a barrier-free path of travel, regulated under Ontario's Building Code;
- the facility is one of multiple off-street parking facilities on a single site that serve a building or facility, where appropriate accessible parking facilities are provided elsewhere on the same site.

Best Practice

Four percent (4%) of the total number of parking spaces to be accessible (minimum).

Where facilities may expect a higher proportion of people with disabilities using their services (e.g., Healthcare, Long Term Care and Senior's facilities), the provision of additional accessible parking spaces is determined on a case by case basis. The appropriate number of spaces may be calculated based on the anticipated demand and a detailed review of the facility's occupancy levels.

Note

The values in Table 3 are derived from formulas contained in the Regulation. The Regulation uses percentages to determine the number of spaces that are to be accessible and ratios to divide them between Type A or Type B.

Where an uneven number of accessible parking spaces are required, the extra Type B space may be changed to a Type A space.

3.1.1 Types of Parking

Two (2) types of accessible parking spaces are required where parking is provided:

a. **Type A** spaces consist of wider parking spaces which accommodate larger vehicles such as vans that are equipped with transfer ramps for users of wheeled mobility aids; and

b. **Type B** spaces are smaller in width than Type A and accommodate users who are ambulatory but have limited mobility and cannot travel lengthy distances, or use other mobility aids, such as canes, crutches and walkers.

3.1.2 Provision

a. provide Type A and Type B spaces in accordance to **Table 4**:

Table 4: Accessible Parking Provision Requirements

Total Number of Parking Spaces	Total Number of Accessible Spaces Required	Number of Type A	Number of Type B
1- 12	1	1	0
13- 25	1	0	1
26 - 50	2	1	1
51 - 75	3	1	2
76 - 100	4	2	2
101 - 133	5	2	3
134 - 166	6	3	3
167 - 250	7	3	4
251 - 300	8	4	4
301 - 350	9	4	5
351 - 400	10	5	5
401 - 450	11	5	6
451 - 500	12	6	6
501 - 550	13	6	7
551 - 600	14	7	7
601 - 650	15	7	8
651 - 700	16	8	8
701 - 750	17	8	9
751 - 800	18	9	9
801 - 850	19	9	10
851 - 900	20	10	10
901 - 950	21	10	11
951 - 1000	22	11	11
1001 and over	11 +1 % of total	(1) Where an even number is required, provide equal number of Type A and B (2) Where an odd number is required, provide equal number of Type A and B plus an additional Type B.	

b. where a parking facility serves multiple buildings or accessible entrances, disperse accessible parking spaces to enable users to park near as many accessible entrances as possible;
c. where more than one parking facility is provided at a site:
    i. ensure the number and type of accessible parking spaces provided is determined based on the total number of parking spaces separately for each individual parking facilities; and
    ii. locate and distribute accessible parking spaces among the off-street parking facilities in a manner that provides substantially equivalent or greater accessibility in terms of distance from an accessible entrance or user convenience (e.g., protection from weather, lighting, security and comparative maintenance).
d. where the parking facility is a multi-level parking facility, ensure the accessible parking spaces are easy to identify and have at least one accessible route leading to an entrance, exit or elevator lobby.

3.1.3 Design and Layout

a. locate as close as possible to the nearest accessible entrance / exit, or within 30 metres (maximum);
b. ensure ground surface is firm, stable and slip-resistant;
c. maximum running slope of surface at 1:50 (2%);
d. maximum cross-slope of surface at 1:50 (2%);
e. length of 5800 mm **(Figure 25)**;
f. ensure the width of the accessible parking space is **(Figure 25)**:
    i. 3400 mm (minimum) for “Type A” wide van accessible spaces; and
    ii. 2400 mm (minimum) for “Type B” standard parking spaces;
g. provide an access aisle adjacent and parallel to each accessible parking spaces **(Figure 25)**:
    i. 1500 mm wide (minimum);
    ii. extend the full length of the space;
    iii. clearly indicated by high colour contrast diagonal pavement markings;
    iv. where two accessible parking spaces are provided adjacent to each other, they may share an access aisle; and
    v. connect with adjacent accessible path of travel and or curb ramp;
h. ensure the vertical height clearance at the designated parking spaces, and along the vehicular egress and egress routes is:
    i. 2100 mm high (minimum); and
    ii. 2750 mm (minimum) for areas leading to van accessible spaces; and
i. ensure lighting level is 10 lux (1 foot-candle) (minimum).

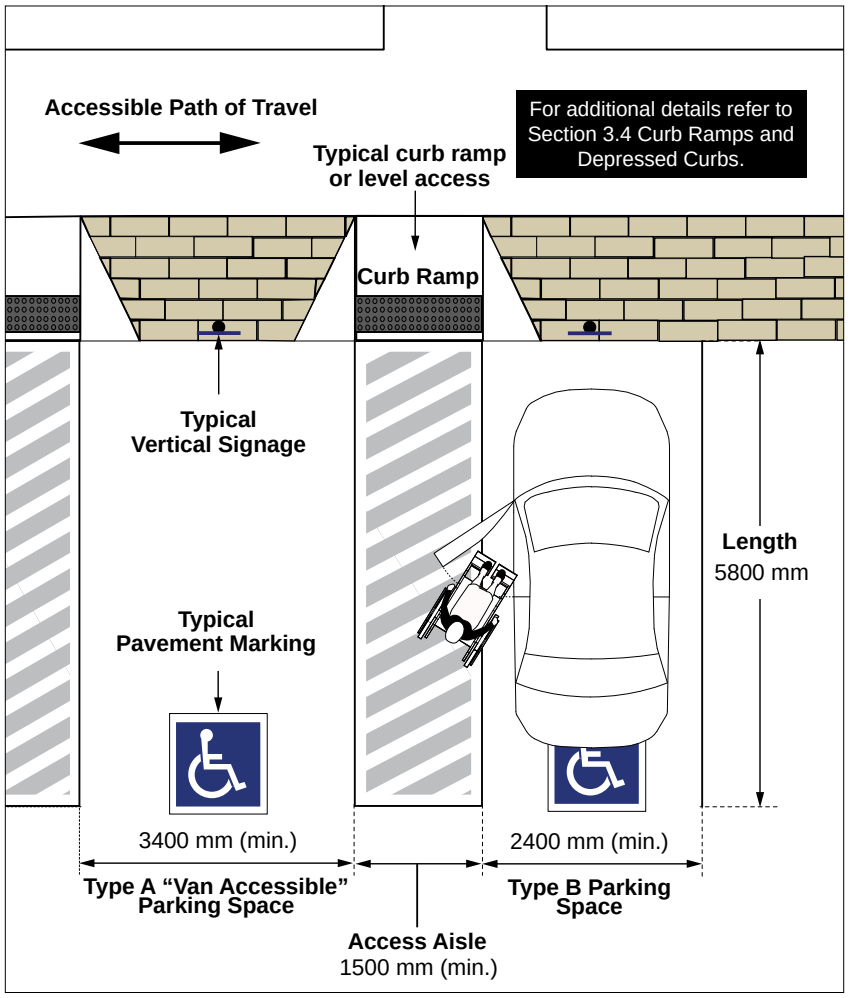
Best Practice

Accessible parking spaces and adjacent access aisles should be regularly maintained, kept clear of debris and snow, and where possible, have overhead protection for users from the elements (e.g., such as direct sun, rain or snow).

Avoid having the accessible route cross through a drive aisle. Pedestrians should not have to travel behind parked vehicles or move along roadways. Ensure any pedestrian crossing or travel area is clearly marked so it is visible to drivers and pedestrians.

Where spaces are configured such that the front or rear of parked vehicles is immediately adjacent to a pedestrian walkway, consider a design that prevents vehicle overhangs which could reduce the width of the walkway.

Alternatively, provide enhanced clear width of the walkway with protective barriers for pedestrians, to prevent potential bumping or tripping hazards.



Accessible parking spaces and access aisle.

Figure 25: Accessible Parking Space Dimensions - Plan View

3.1.4 Signage and Pavement Markings

a. ensure spaces are clearly designated with pavement and vertical signage, containing the International Symbol of Accessibility **(Figures 26 & 27)**; and
b. provide directional signage, marked with the International Symbol of Accessibility, where the location of designated accessible parking spaces, and /or the location of the nearest accessible entrance is not obvious along the path of travel or is distant from the accessible parking space.

3.1.4.1 Vertical Signage

a. mark with International Symbol of Accessibility;
b. ensure size of 300 mm wide by 450 mm high (minimum);
c. mount at height of 1500 mm to 2000 mm (centre) (e.g., wall or post-mounted), from ground / floor **(Figure 26)**;
d. ensure suitable colour contrast between sign and background environment;
e. provide information text, compliant with City By-law requirements; and
f. provide additional signage that identifies Type A spaces as "van accessible".

3.1.4.2 Pavement Markings

a. mark with International Symbol of Accessibility;
b. ensure 1525 mm wide by 1525 mm depth (minimum) **(Figure 27)**;
c. provide a white or yellow border with a blue background field colour;
d. locate near the back of the space for 90 degree or angled parking spaces, and centered for parallel parking spaces; and
e. ensure all surface markings are slip-resistant.

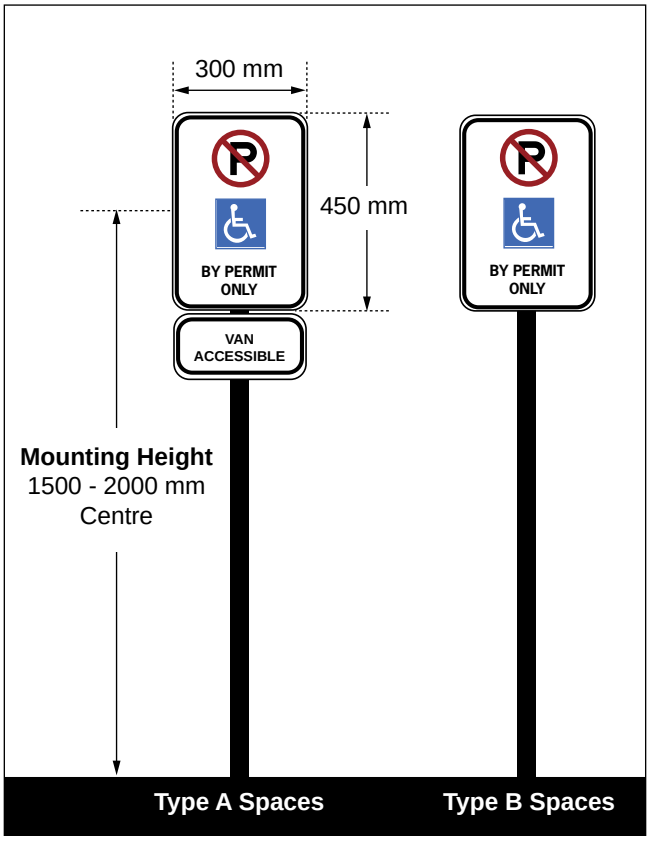


Figure 26: Accessible Parking Vertical Signage

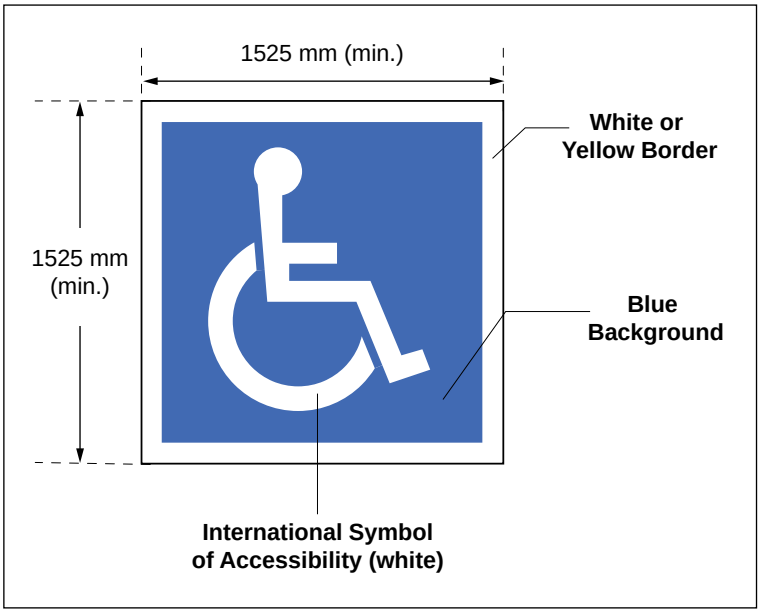


Figure 27: Accessible Parking Pavement Marking

3.1.5 On-Street Parking

When constructing new or redeveloping existing on-street parking spaces, consultation on the need, location and design of accessible on-street parking spaces must occur with:

a. the public and persons with disabilities; and
b. the Markham Advisory Committee on Accessibility.

Best Practice

Where on-street parking is provided, consider providing a minimum number of accessible spaces based on 10% of the total number of spaces per block, but never less than one of two or more spaces.

Passenger Loading Zones

3.2

Application

This section applies to exterior passenger loading and drop-off zones where passengers transfer from vehicles to a pedestrian area which provides an accessible route to a facility.

Passenger loading and drop-off zones are important features for:

- people who have difficulty walking long distances or have limited stamina;
- users of mobility aids; and
- people who travel with companions or caregivers (e.g., person with vision loss or cognitive disability, the very young, and seniors).

Reference

Sec. 2.7	Tactile Walking Surface Indicators
Sec. 3.3	Exterior Paths of Travel
Sec. 3.4	Curb Ramps and Depressed Curbs
Sec. 5.7	Lighting
Sec. 5.8	Signage and Wayfinding

Note

Transit stops, shelters and related amenities are not classified as part of passenger loading zones and are not covered within the scope of these Guidelines.

3.2.1 Design and Layout

a. locate the Passenger Loading Zone (PLZ) as close as possible to the nearest accessible entrance or within 30 metres (maximum);
b. locate the PLZ away from any traffic flow and design so that users avoid entering any adjacent vehicular routes and drive aisles;
c. where practical, provide overhead protection (e.g., a canopy to protect users from weather conditions) with vertical height clearance of 3600 mm (minimum) throughout the vehicular pull-up space and passenger loading zone;
d. include a side access aisle that **(Figure 28)**:
    i. is adjacent, parallel and at the same level as the vehicular pull-up space;
    ii. is 2440 mm wide by 7400 mm long (minimum);
    iii. provides a clearance height of 3600 mm (minimum) at the vehicle pull-up space and along the vehicle access and egress routes; and
    iv. provides diagonal pavement markings (e.g., yellow or white colour and are clearly visible through use of high colour contrast compared to surface), extending the full length of the space;
e. provide at least one curb ramp, for users of mobility aids, where there is a change in level;
f. where the accessible route and the access aisle are not separated by a curb, consider installing tactile walking surface indicators (TWSIs) or other warning features (e.g., bollards). If using TWSIs, ensure that they:
    i. are detectable by foot or cane;
    ii. are clearly visible through the use of high tonal contrast compared to adjacent mounting surface; and
    iii. extend across the full length of the space;
g. provide a vertical signage at PLZ:
    i. mark with the International Symbol of Accessibility to formally designate passenger loading and drop-off zones;
    ii. ensure size of 300 mm wide by 450 mm high (minimum) **(Figure 29)**;
    iii. mount at height of 1500 mm to 2000 mm (centre) (e.g., wall or post-mounted), from ground / floor **(Figure 29)**; and
    iv. provide information text, compliant with City By-law requirements (e.g., “Designated Passenger Loading Zone”).

Best Practice

Consider providing access aisle 3050 mm wide by 7925 mm long, to accommodate a wider range of vehicles (e.g., vans, para-transit vehicles and larger buses).

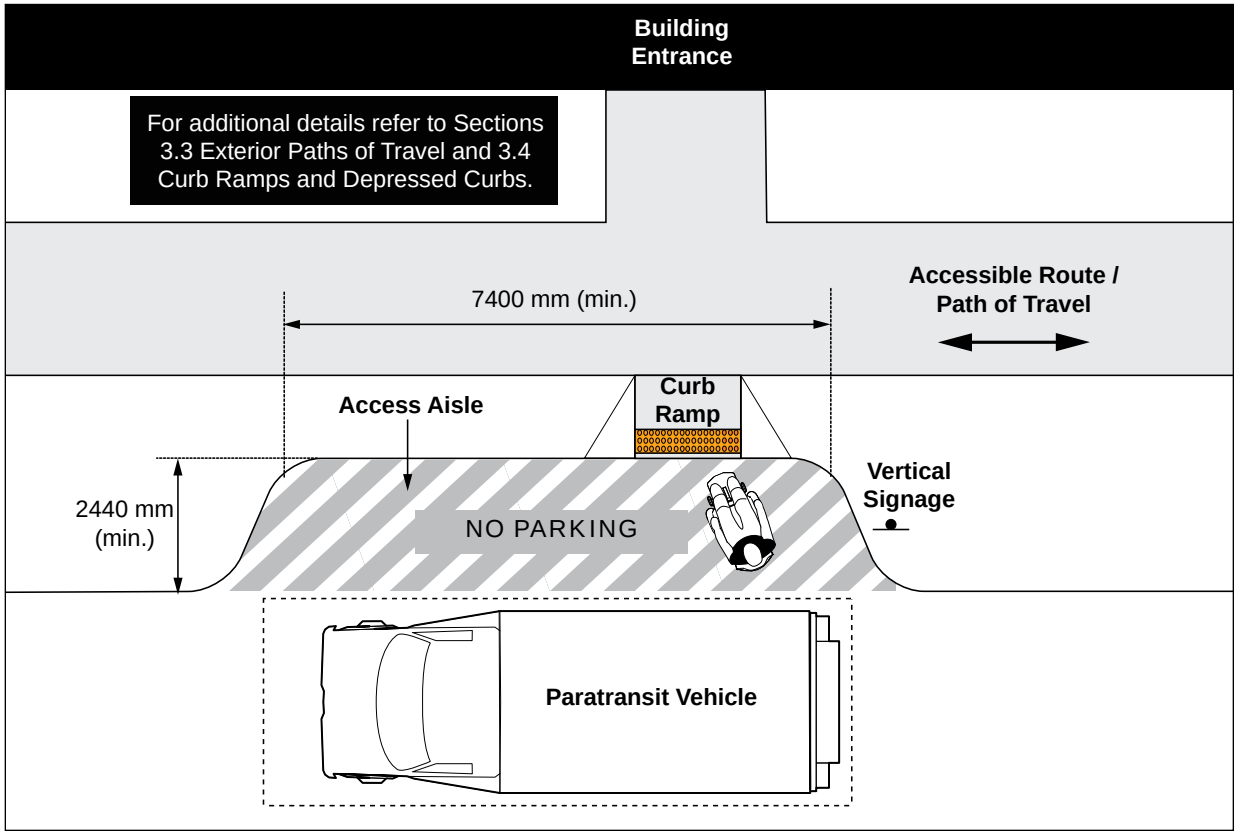


Figure 28: Passenger Loading Zone - Plan View

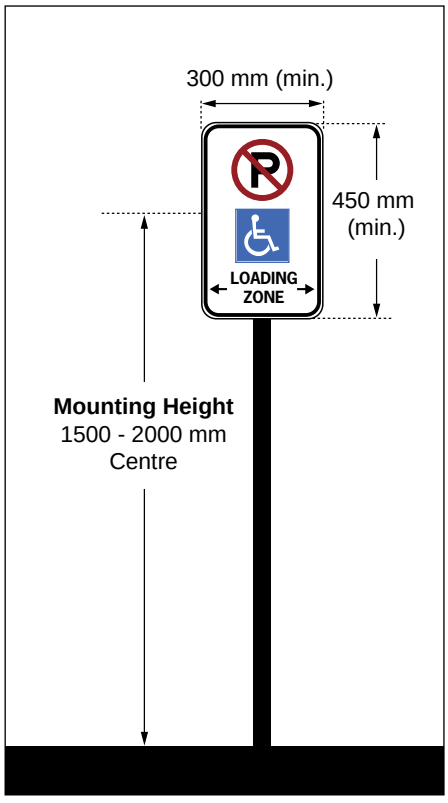


Figure 29: Passenger Loading Zone Vertical Signage

Example of designated passenger loading zone and signage.

Exterior Paths of Travel

3.3

Application

This section applies to exterior paths of travel, which typically include, but are not limited to:

- pedestrian circulation routes that serve facility entrances, exits, elements or amenities;
- pedestrian circulation routes that serve as connections between a site boundary and access into or from a facility;
- public right-of-ways (e.g., sidewalks and footpaths);
- ramps; and
- curb ramps and depressed curbs.

Where stairs are located on accessible exterior routes or walkways, an alternative accessible route is to be provided immediately adjacent to the stairs and may include a ramp or another accessible means of negotiating elevation change.

This section applies to sidewalks used for pedestrian travel and does not include recreational trails or other paths of travel related to parks and the natural environment or private residential areas.

Reference

Sec. 2.1	Ground and Floor Surfaces
Sec. 2.2	Ramps
Sec. 2.4	Guards and Handrails
Sec. 2.5	Overhanging and Protruding Objects
Sec. 2.6	Rest Areas
Sec. 3.4	Curb Ramps and Depressed Curbs
Sec. 3.6	Street Furniture
Sec. 5.7	Lighting
Sec. 6.16	Recreational Trails, Beach Access Routes and Boardwalks
Sec. 6.18	Inclusive Play Spaces

Exception

Compliance is not required where it would:

- cause substantial harm to cultural, historic, religious, or significant natural features/characteristics;
- substantially change the intended experience provided by the facility;
- be impractical due to physical terrain; and
- require construction methods or materials that are prohibited by federal, provincial or local laws.

Best Practice

Provide clear width of 2000 mm (minimum) for exterior paths of travel, where possible.

Cross slope gradient of 1:50 (2%) or less is recommended.

Note

It is important that the cross slope be minimal to allow for adequate drainage. The greater the cross slope, the more likely it will affect the balance of an individual while walking or using a mobility aid.

3.3.1 Design Features

a. ensure ground surfaces are firm, stable and slip-resistant;
b. provide adequate drainage to prevent water accumulation;
c. ensure headroom clearance is not less than 2100 mm;
d. ensure components along a pedestrian route (e.g., stairs, ramps and rest areas) provide lighting level of 50 lux (5 foot-candles) (minimum);
e. provide a colour contrast of 70% (minimum) to distinguish the edges of exterior paths of travel and assist with wayfinding; and
f. where a pedestrian route crosses or joins a vehicular route and the walking surfaces are not separated by curbs, railings or other elements between the pedestrian and vehicular areas, provide tactile walking surface indicators (TWSI), continuous along the full length of the crossing boundary.

3.3.2 Clear Width

a. provide clear width of 1500 mm (minimum) **(Figure 30a)**;
b. where the clear width of exterior paths of travel is less than 1500 mm (minimum), provide a passing area, 1800 mm wide by 1800 mm long (minimum) at intervals of 30 metres or less **(Figure 30b)**;
c. where passing areas are provided, ensure they are not considered to be part of any rest area that may also be provided; and
d. ensure the entrance to exterior paths of travel provide a clear opening of 850 mm (minimum), whether the entrance includes a gate, bollard or other entrance design feature that is used (e.g., decorative boulders used for landscaping).

3.3.3 Running and Cross Slopes

3.3.3.1 Running Slope

a. ensure a running slope gradient of 1:20 (5%) (maximum) **(Figure 31a)**;
b. where the exterior path of travel is a sidewalk, a running slope greater than 1:20 (5%) is allowed but it cannot be steeper than the slope of the adjacent roadway; and
c. where slope gradient exceeds 1:20 (5%), path of travel is considered a ramp.

3.3.3.2 Cross Slope

a. provide a maximum cross slope of:
    i. 1:20 (5%), where the surface is asphalt, concrete or some other hard surface **(Figure 31b)**; or
b. 1:10 (10%) in all other cases.

3.3.4 Rest Areas

When constructing new or redeveloping existing exterior paths of travel intended to be maintained by the City:

a. ensure the City consults with the Markham Advisory Committee on Accessibility, the public, and persons with disabilities on the design and placement of rest areas along the path of travel.

Best Practice

Where feasible and based on overall design context, provide rest areas at intervals of 30 m along an exterior accessible route for users who have difficulty walking long distances or with limited stamina.

Ensure rest areas are directly connected to the accessible path of travel.

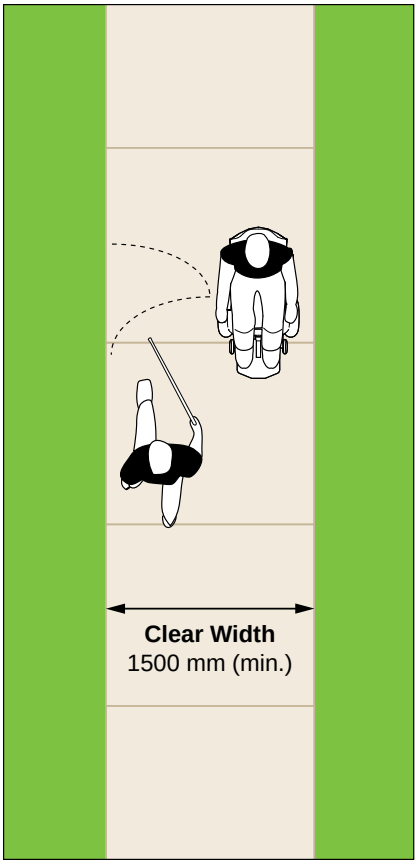


Figure 30a: Minimum Clear Width of Exterior Path of Travel

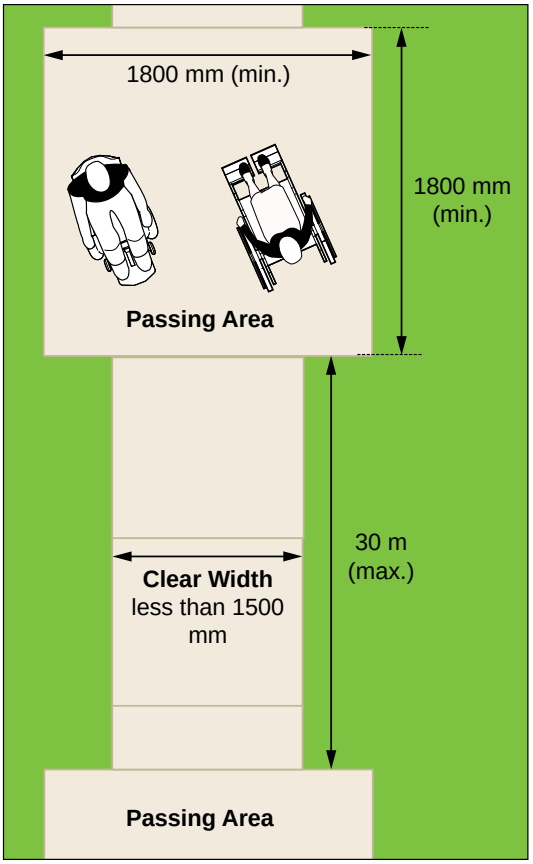


Figure 30b: Reduced Clear Width and Required Passing Area

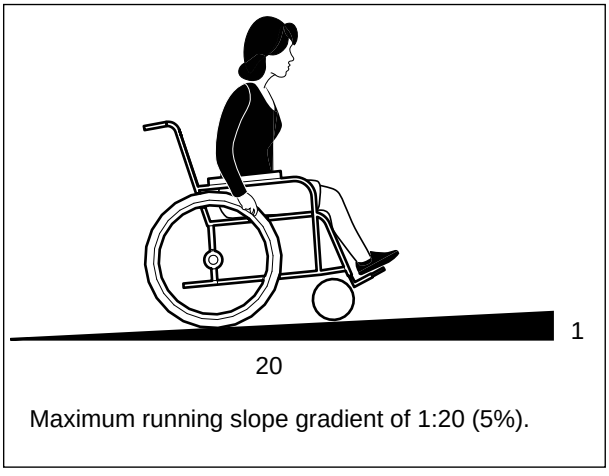


Figure 31a: Running Slope

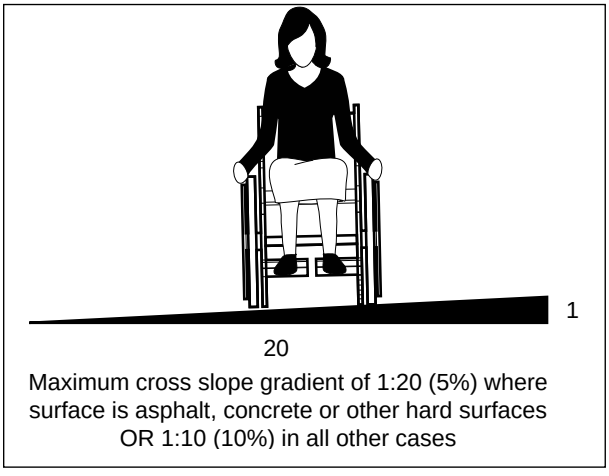


Figure 31b: Cross Slope

Note

Ensure curb or other barrier protection is designed to allow surface drainage.

Exception

Guards are not required if the slope of the surface adjacent to the accessible route is not steeper than 1:2 within 1200 mm from the accessible route.

3.3.5 Changes in Level

a. where there is a change in level along the exterior path of travel, ensure slope requirements are provided in accordance to **Table 5**:

Table 5: Change in Level - Slope Requirements

Change in Level (height)	Slope Requirements
1 - 5 mm	No bevel required
6 - 13 mm	1:2 bevel
14 - 74 mm	maximum running slope 1:8 (12.5%) or provide a curb ramp
75 - 200 mm	maximum running slope 1:10 (10%) or provide a curb ramp
more than 200 mm	provide a ramp

b. where there is a change in level or drop-off immediately adjacent to the accessible path of travel,

i. provide colour contrasted curb or other barrier protection, 75 mm (minimum) high above path of travel, where change in level is between 200 and 600 mm **(Figure 32)**; and

ii. provide guards mounted at 1070 mm (minimum), measured vertically to the top of the guard from the ground surface, where change in level is more than 600 mm or where the adjacent surface within 1200 mm from the accessible route has a slope of more than 1:2 **(Figure 32)**.

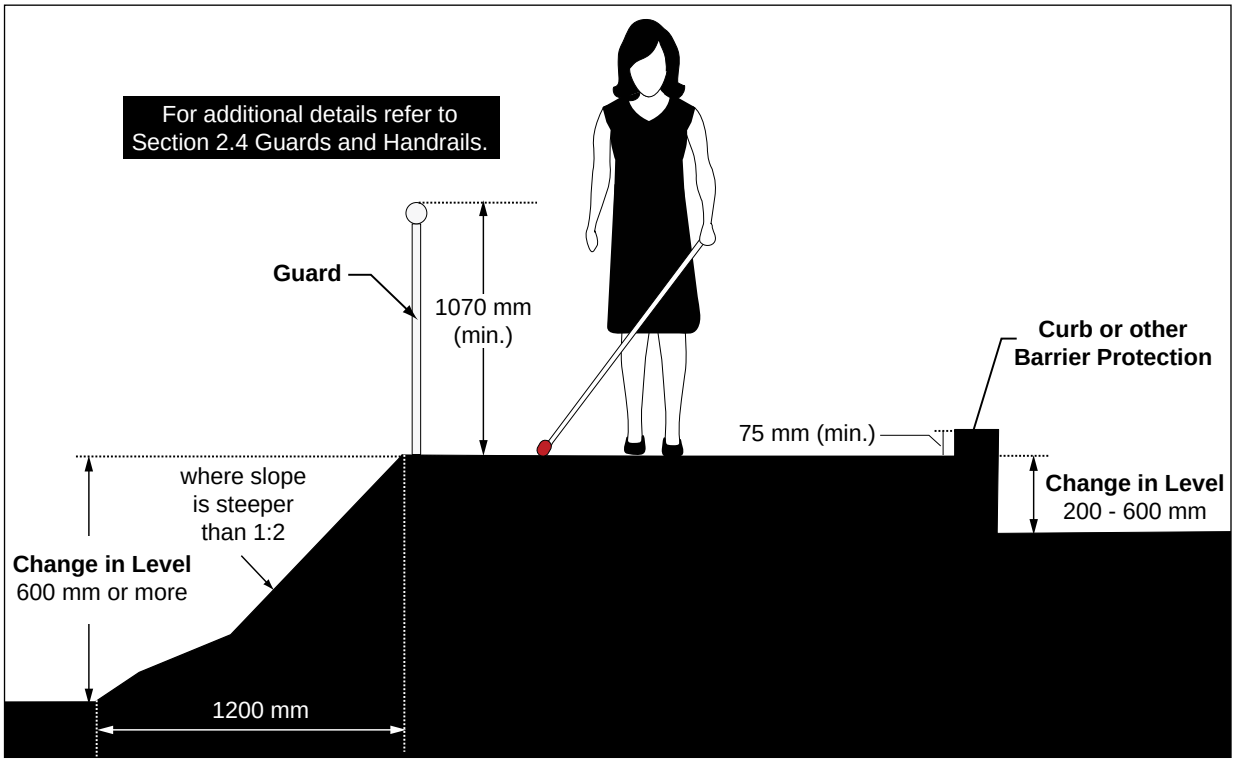


Figure 32: Changes in Level - Edge Protection and Guard Requirements - Section View

Curb Ramps and Depressed Curbs

3.4

Application

Curb ramps and depressed curbs help people with disabilities safely and independently negotiate level changes on public sidewalks and other pedestrian routes. They are required when there is a change in level between exterior path of travel and adjacent vehicular route.

The provision of curb ramps and depressed curbs ensures a continuous accessible path of travel between vehicular and pedestrian routes, for the following typical locations:

- pedestrian crossings at intersections;
- parking spaces, passenger loading zones and related access aisles; and
- any other exterior route where there are elevation changes.

Reference

Sec. 2.1	Ground and Floor Surfaces
Sec. 2.7	Tactile Walking Surface Indicators
Sec. 3.1	Parking
Sec. 3.2	Passenger Loading Zones
Sec. 3.3	Exterior Paths of Travel

Best Practice

A transition area of 1700 mm (or more) in diameter at top and bottom of the curb ramp or depressed curb is recommended, where possible, to accommodate larger wheeled mobility aids.

Provide curb ramps with running slope of 1:20 (5%).

Cross slope of zero is recommended.

Provide counter slope of 11% (maximum).

Note

For retrofit conditions, running slope of 10% maximum permitted.

3.4.1 Design and Layout

a. provide stable, firm, slip-resistant and non-glare surface;
b. ensure curb ramp or depressed curb is aligned with the direction of travel (e.g., crosswalks) and curb ramp or depressed curb on the opposite side of the roadway to help users orient themselves and to allow someone to maintain a straight line of travel;
c. design to provide suitable drainage, to prevent water, snow and ice accumulation within the accessible path of travel; and
d. ensure gratings and other openings are not placed on curb ramps, depressed curbs or within pedestrian crossings.

3.4.2 Width

a. provide clear width of 1500 mm (minimum), exclusive of flared sides **(Figure 35)**.

3.4.3 Running and Cross Slopes

a. ensure the running slope is:
   i. 1:12 (8.33%) (maximum) for curb ramps **(Figure 35)**;
   ii. 1:20 (5%) (maximum) for depressed curbs **(Figure 36)**;
b. ensure cross slope is 1:50 (2%) (maximum) at curb ramps and depressed curbs; and
c. where the counter slope at a curb ramp or depressed curb is greater than 11%, provide a transition area that **(Figure 33)**:
   i. extends the full width of the curb ramp;
   ii. begins at the base of the curb ramp and extends to a length of at least 600 mm on the street; and
   iii. has a cross slope gradient of 1:50 (2%) maximum.

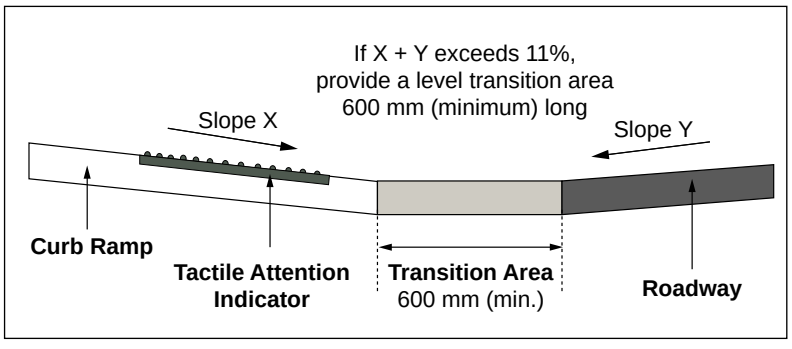


Figure 33: Transition Area - Counter Slope

3.4.4 Landing

a. ensure a level landing 1200 mm by 1200 mm (minimum) is provided at the top of the curb ramp **(Figure 35)**; and
b. ensure running and cross slopes are 2% (1:50) (maximum).

3.4.5 Curb Ramp Design

3.4.5.1 Return Curb

Where curb ramps are designed with return curbs **(Figure 34b)**:

a. extend over the full length of the curb ramp; and
b. ensure the outer surface of the curb is colour contrasted or has a texture change to assist with identification and differentiation between pedestrian and vehicular routes.

3.4.5.2 Flared Sides

Where curb ramps are designed with flared sides **(Figure 34a)**:

a. ensure surface is stable, firm, slip-resistant and non-glare;
b. ensure the sides are clearly demarcated and grooved;
c. provide width of 1000 mm (minimum) **(Figure 35)**; and
d. provide a slope gradient between 6.66% and 10% (1:15 and 1:10), measured parallel to the curb line.

3.4.6 Tactile Walking Surface Indicators (TWSI)

Where curb ramps or depressed curbs are provided on an exterior path of travel, provide tactile attention surface indicators in accordance with Section 2.7 “Tactile Walking Surface Indicators” and also the following:

a. install at the bottom portion of the curb ramp or depressed curb, set back 150 or 200 mm from the back edge of the curb, and following any curvature in the curb **(Figure 35)**;
b. ensure depth of the tactile attention surface indicator is 610 mm (minimum);
c. ensure the tactile attention surface indicator extend along the full width of the curb ramp or depressed curb; and
d. ensure a strong colour contrast is provided between the tactile attention surface indicator and the curb ramp or depressed curb.

Note

Landings shall be permitted to overlap other landings and clear space.

Return curbs provide defined, detectable edges on both sides of the curb ramp to prevent people from moving unintentionally off of the curb ramp surface. They also provide directional guidance for people with vision loss. Return curbs may be used where pedestrians are not expected to walk across the curb ramp.

Flared sides are not considered part of the accessible path of travel.

Use depressed curbs only in locations of traffic calming, since the shallow slope can be difficult to detect for persons with vision loss.

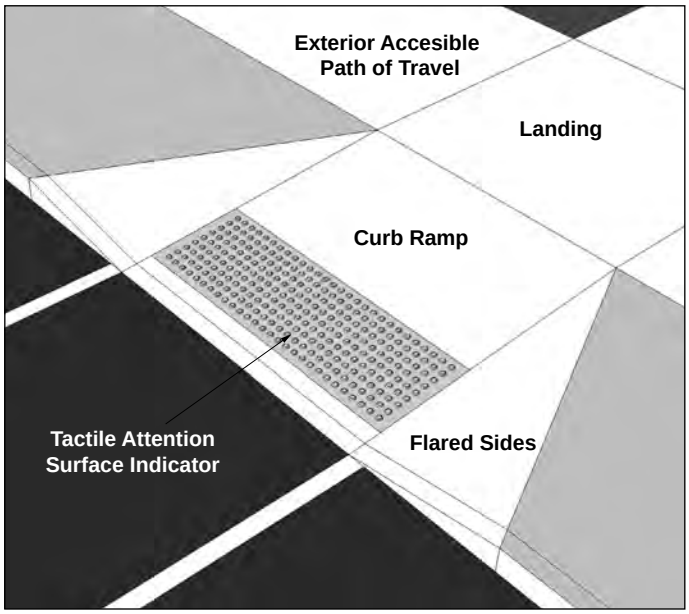


Figure 34a: Curb Ramp with Flared Sides

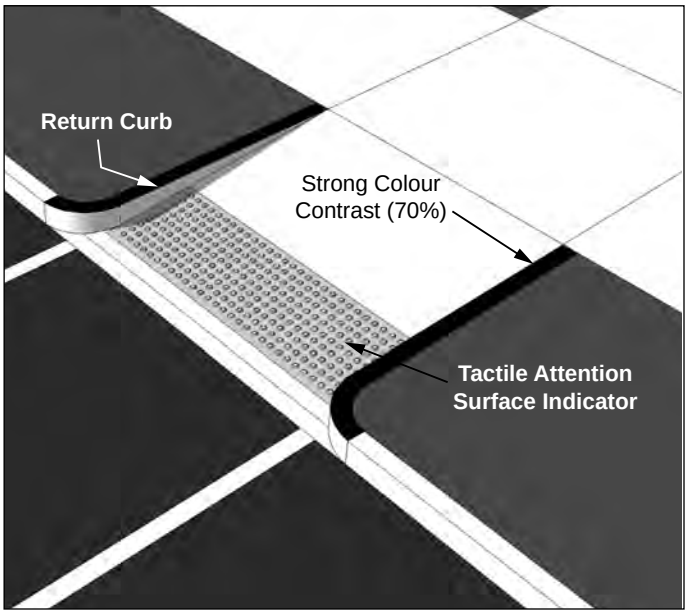


Figure 34b: Curb Ramp with Return Curb

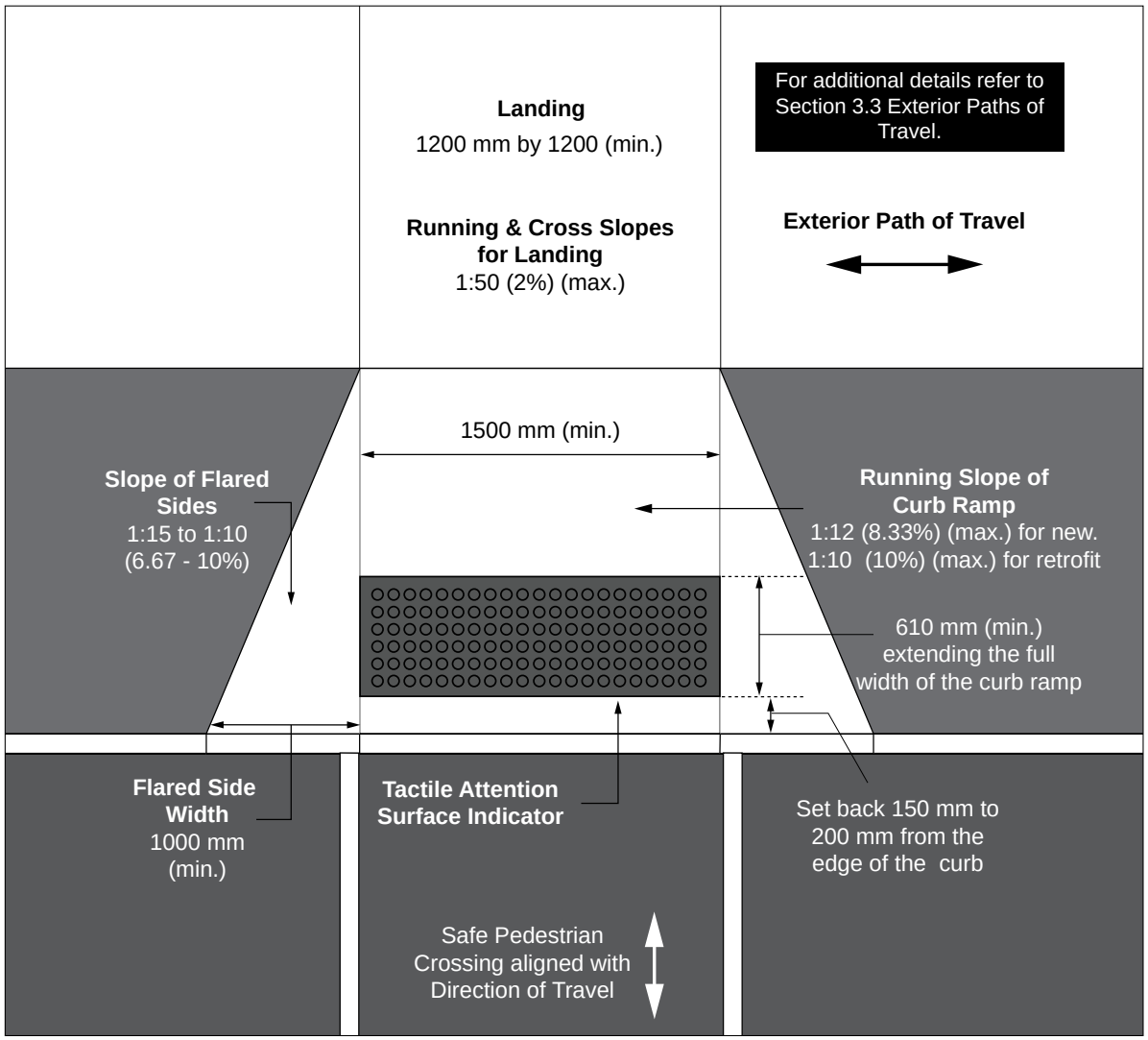


Figure 35: Typical Curb Ramp with Flared Sides Design - Plan View

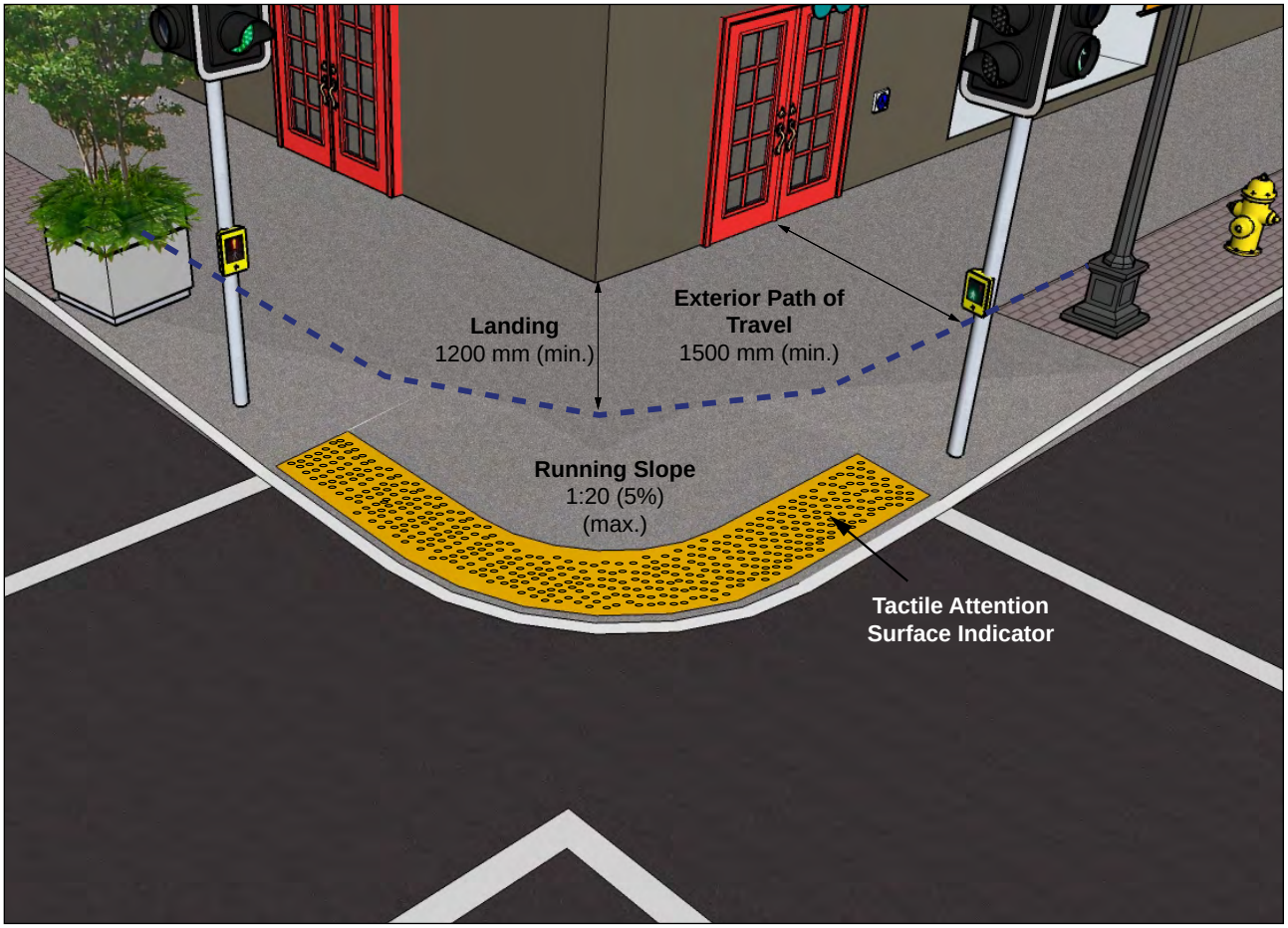


Figure 36a: Typical Depressed Curb

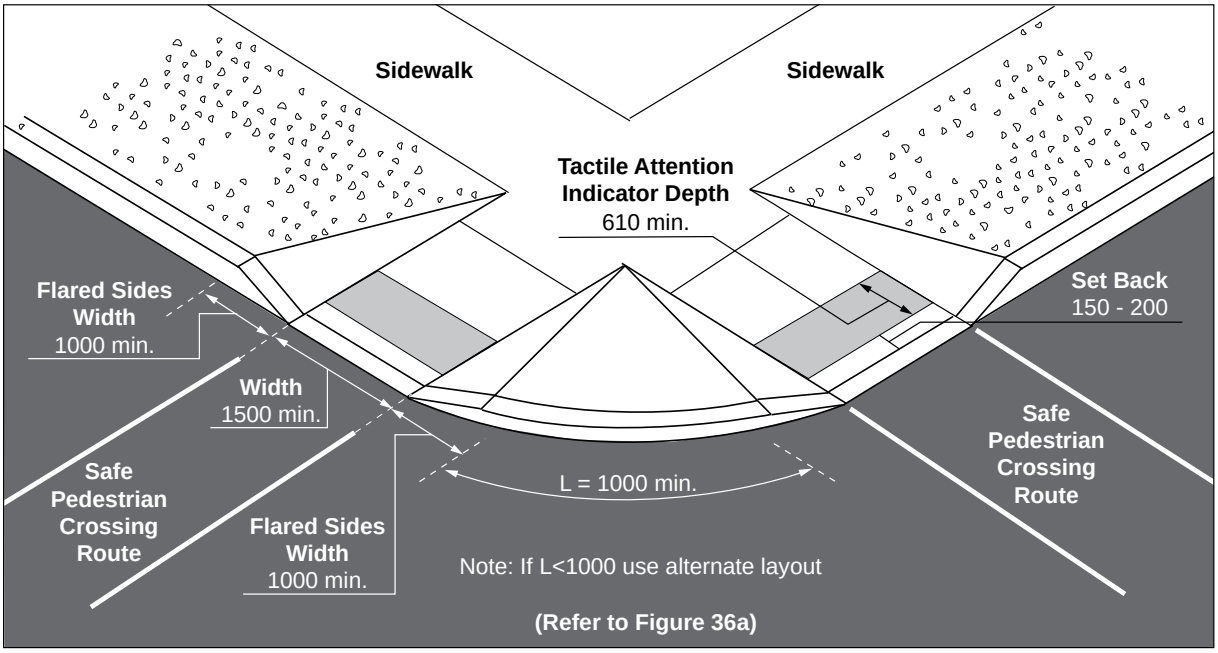


Figure 36b: Typical Curb Ramp (Two Crossing Points at Intersection)

Accessible Pedestrian Signals

3.5

Application

This section addresses accessible pedestrian signals (APS), required for public safety at pedestrian crossings at vehicular roadways, including but not limited to, designated crosswalks and signalized intersections.

Best Practice

The City conducts ongoing reviews of signalized intersections to determine the required crossing times for diverse users, including users of mobility aids and people with vision loss, based on industry best practices.

A pedestrian crossing time of 1.0 meters per second is currently applied by the City, with consideration of extended crossing times using a 0.9 or 0.8 meters per second walking speed, where identified by user groups and following a detailed review and evaluation.

Note

Detailed information is provided in “Appendix A” of the Transportation Association of Canada’s “TAC Guidelines for Understanding, Use and Implementation of Accessible Pedestrian Signals” - May 2008 (or current version) and the CNIB’s “Clearing Our Path (2nd Edition, 2016).

3.5.1 Provision

a. provide accessible pedestrian signals (APS) where new pedestrian signals are being installed or existing pedestrian signals are being replaced at pedestrian cross overs.

3.5.2 Design & Layout

Accessible pedestrian signals must meet the following requirements:

a. a locator tone that is distinct from a walk indicator tone;
b. be installed within 1500 mm (maximum) of the edge of the curb;
c. operable parts be mounted at 1100 mm (maximum) high above ground level;
d. have tactile arrows that align with the direction of crossing;
e. include both manual and automatic activation features;
f. include both audible and vibro-tactile walk indicators;
g. where two APS assemblies are installed on the same corner, ensure they are installed a minimum of 3000 mm apart **(Figure 35a)**; and
h. where two APS assemblies cannot be installed 3000 mm (minimum) apart because of site constraints or existing infrastructure:
    i. install on a single post;
    ii. include a verbal announcement clearly stating which crossing is active;
    iii. ensure each push button is on the side of the post facing the pedestrian waiting area; and
    iv. align the face of each unit to be parallel to the associated crosswalk.

Best Practice

Avoid installing two APS push buttons on the same post, where possible.

Use of different tones for North-South and East-West crossings is recommended.

Typical APS actuation.

Street Furniture

3.6

Application

This section addresses street furniture, which includes but is not limited to amenities for outdoor spaces, right-of-ways, and accessible routes / paths of travel. Examples of typical street furniture includes:

- drinking fountains;
- public telephones;
- mailboxes;
- vending machines;
- benches;
- lighting elements; and
- waste receptacles.

Reference

Sec. 2.5	Overhanging and Protruding Objects
Sec. 2.8	Drinking Fountains
Sec. 2.9	Public Telephones
Sec. 2.10	Seating, Tables and Work Surfaces
Sec. 5.1	Controls and Operating Mechanisms

3.6.1 Design and Layout

Where street furniture is provided, the following requirements apply:

a. ensure street furniture does not reduce the required width of the accessible path of travel / route;
b. ensure street furniture is cane detectable with its leading edge at 680 mm (maximum) high;
c. ensure movement or temporary removal of street furniture is not required to allow its access and use;
d. where controls or operating mechanisms are provided, ensure they are mounted 1100 mm (maximum) high; and
e. locate street furniture consistently to one side of the accessible path of travel / route within an amenity strip:
    i. 600 mm (minimum) wide **(Figure 37)**; and
    ii. with a colour contrast of 70% (minimum) compared with the adjacent surface.

Exception

As part of routine winter maintenance, street furniture is permitted to be removed temporarily in some locations (e.g., heritage areas) to allow for snow plowing and snow storage.

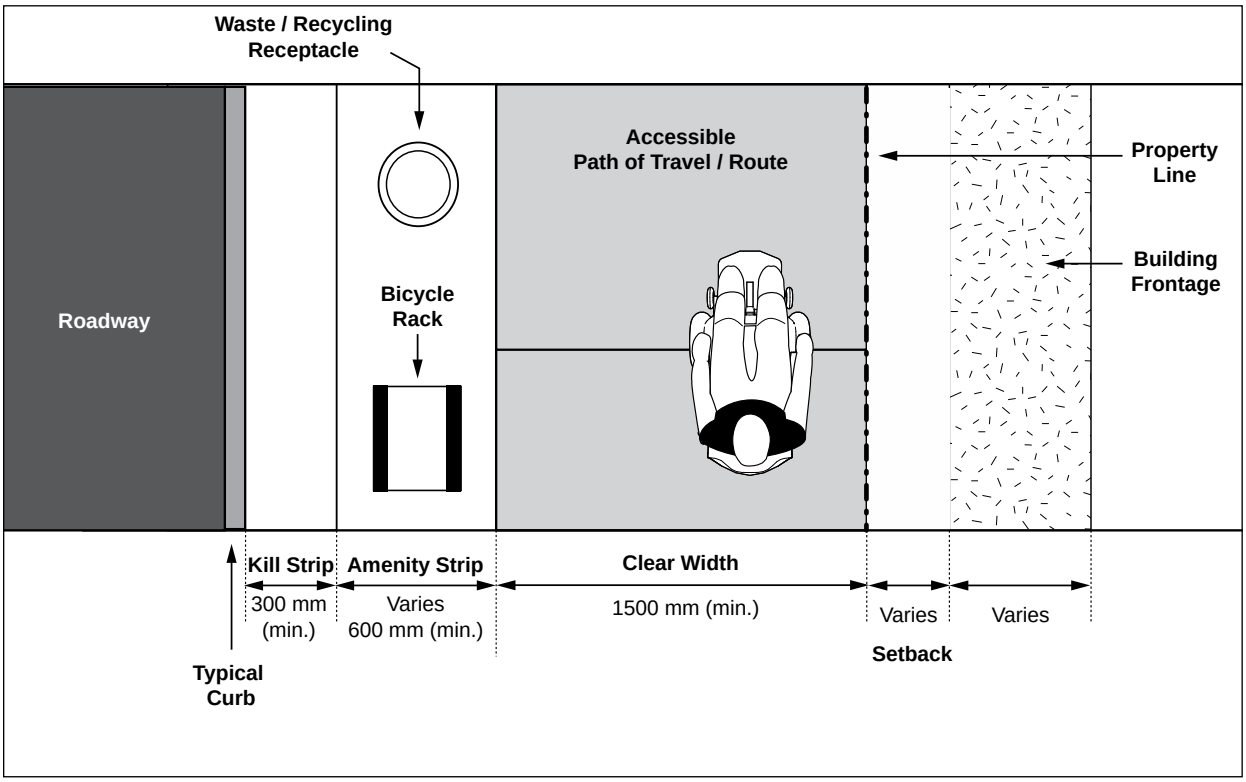


Figure 37: Typical Amenity Strip for Street Furniture Placement

Site Plan Checklist 3.7

Application

The following checklist is designed for use by City of Markham Staff when reviewing accessibility issues related to Site Plan applications.

Site Plan Checklist

Project Information

Project name / reference no.: _____

Address: _____

Application number: _____

Type of application: New construction ☐

Renovation ☐

Submission date : ___/___/___ Date reviewed: ___/___/___

Notes : _____

Applicant Contact Information

Name: _____

Phone number: _____

Address: _____

_____

_____

Reviewed By

Staff name: _____

Title / Position: _____

Department: _____

Phone Number: _____

Approval verification:

[Stamp]

Reviewed by Markham Advisory Committee on Accessibility (MACA)? Y ☐ N ☐

Date of MACA review ___/___/___

MACA feedback received and addressed? Y ☐ N ☐

Staff signature _____

Date ___/___/___

1. Accessible Parking Spaces *(Ref. Section 3.1 Parking)*

This section does not apply ☐

Guideline Ref.	Requirements	Compliance	Comments
3.1.2	**PROVISION**: Minimum number and ration of accessible parking spaces provided as required in sub-section ***3.1.2 Provision Table 4***.	Y N N/A	
	PATH OF TRAVEL: 1500 mm (min.) wide to accessible entrance.	Y N N/A	
3.1.3	**LOCATION**: within 30 m of accessible entrance.	Y N N/A	
	SURFACE: firm, stable and slip-resistant.	Y N N/A	
	RUNNING SLOPE: 1:50 (max.).	Y N N/A	
	CROSS-SLOPE: 1:50 (max.).	Y N N/A	
	OVERHEAD CLEARANCE: 2100 mm or 2750 mm for van accessible spaces.	Y N N/A	
	TYPE A SPACE: 3400 mm (min.) wide x 5800 mm (min.) long	Y N N/A	
	TYPE B SPACE: 2400 mm (min.) wide x 5800 mm (min.) long	Y N N/A	
	ACCESS AISLE: 1500 mm (min.) wide, clearly marked, adjacent to accessible parking space. *Note: Two adjacent accessible parking spaces may share an access aisle.*	Y N N/A	
	DIRECTIONAL SIGNAGE: provided to guide users to nearest accessible entrance.	Y N N/A	
3.1.4.1	**VERTICAL SIGNAGE**	Y N N/A	
	Width 300 mm (min.) x Height 450 mm (min.).	Y N N/A	
	Mounted 1500 to 2000 mm high at centre.	Y N N/A	
	Marked with International Symbol of Accessibility.	Y N N/A	
3.1.4.2	**PAVEMENT SIGNAGE**	Y N N/A	
	Marked with International Symbol of Accessibility.	Y N N/A	
	Length 1525 mm (min.) x Width 1525 mm (min).	Y N N/A	

2. Passenger Loading Zone *(Ref. Section 3.2 Passenger Loading Zones)*

This section does not apply ☐

Guideline Ref.	Requirements	Compliance	Comments
3.2.1	**LOCATION**: within 30 m of accessible entrance.	Y N N/A	
	LENGTH 7400 mm (min.) x **WIDTH** 2440 mm (min.), clearly marked.	Y N N/A	
	VERTICAL CLEARANCE: 3600 mm (min.) throughout vehicular pull-up space and passenger loading zone.	Y N N/A	
	PATH OF TRAVEL: 1500 mm (min.) wide to accessible entrance.	Y N N/A	
	DIRECTIONAL SIGNAGE: provided to guide users to nearest accessible entrance.	Y N N/A	
	VERTICAL SIGNAGE:	Y N N/A	
	Width 300 mm (min.) x Height 450 mm (min.).	Y N N/A	
	Mounted 1500 to 2000 mm high at centre.	Y N N/A	

3. Exterior Paths of Travel *(Ref. Section 3.3 Exterior Paths of Travel)*

This section does not apply ☐

Guideline Ref.	Requirements	Compliance	Comments
3.3.1	**SURFACE**: firm, stable and slip-resistant.	Y N N/A	
	LIGHTING: 50 lux (5 foot-candles) (min.) at components (e.g., stairs, ramps and rest areas).	Y N N/A	
3.3.2	**CLEAR WIDTH**: 1500 mm.	Y N N/A	
3.3.3	**RUNNING SLOPE**: 1:20 (5%) (max.). *Note: If walkways exceed 5%, a ramp is required.*	Y N N/A	
3.3.3	**CROSS-SLOPE**: 1:50 (2%) (max.).	Y N N/A	
3.3.4	**REST AREA**: provided where required.	Y N N/A	
3.3.5	**EDGE PROTECTION OR GUARDS**: provided at changes in level.	Y N N/A	
2.1.5	**GRATINGS AND OPENINGS**: 13 mm (max.) wide in direction of travel.	Y N N/A	

4. Curb Ramps *(Ref. Section 3.4 Curb Ramps and Depressed Curbs)*

This section does not apply ☐

Guideline Ref.	Requirements	Compliance	Comments
3.4	**SURFACE**: firm, stable and slip-resistant.	Y N N/A	
	CLEAR WIDTH: 1500 mm (min.), exclusive of flared sides.	Y N N/A	
	TRANSITION AREA: 1200 mm (min.) at top of curb ramp	Y N N/A	
	RUNNING SLOPE: 1:12 (8.33%) (max.) for curb ramps; 1:20 (5%) (max.) for depressed curbs.	Y N N/A	
	CROSS-SLOPE: 1:50 (2%) (max.).	Y N N/A	
	TACTILE WALKING SURFACE INDICATORS (TWSI): 610 mm (min.) deep, back at 150 mm to 200 mm from edge of curb.	Y N N/A	
	FLARED SIDE (where provided): 1000 mm wide; slope 1:15 to 1:10 (6.66% to 10%).	Y N N/A	

5. Ramps *(Ref. Section 2.2 Ramps)*

This section does not apply ☐

Guideline Ref.	Requirements	Compliance	Comments
App.	Provided where **ELEVATION** is greater than 1:20 (5%).	Y N N/A	
2.2.1	**RUNNING SLOPE**: 1:15 (6.67%) (max.).	Y N N/A	
	CROSS-SLOPE: 1:50 (2%) (max.).	Y N N/A	
	SURFACE: firm, stable and slip-resistant.	Y N N/A	
	CLEAR WIDTH: 1100 mm (min.) between handrails.	Y N N/A	
	EDGE PROTECTION: provided, where ramps and landings are not level or where there is no solid enclosure or guard.	Y N N/A	
	COLOUR CONTRASTING STRIP: provided at slope changes, 50 ± 10 mm wide colour-contrasted and slip-resistant strips equal to the width of the ramp.	Y N N/A	
	LIGHTING: 50 lux (5 foot-candles) (min.).	Y N N/A	

5. Ramps Continued *(Ref. Section 2.2 Ramps)*

This section does not apply ☐

2.2.2	**LENGTH**: 9000 mm (max.) or provide landing.	Y N N/A	
	LANDING:	Y N N/A	
	Provided at top, bottom, intermediate level or where there is any directional change.	Y N N/A	
	1670 mm x 1670 mm (min.) at top and bottom landing.	Y N N/A	
	1670 mm (min.) in length and same width as ramp.	Y N N/A	
2.2.3	**HANDRAIL**: 865 to 965 mm high on both sides. *Note: Refer to Section 2.4, Guards and Handrails for detailed requirements.*	Y N N/A	

6. Stairs *(Ref. Section 2.3 Stairs)*

This section does not apply ☐

Guideline Ref.	Requirements	Compliance	Comments
2.3.1	**SURFACE**: slip-resistant and non-glare.	Y N N/A	
	TREAD: 280 to 355 mm deep, uniform.	Y N N/A	
	RISER: 125 to 180 mm high, uniform.	Y N N/A	
	OPEN RISER: not permitted.	Y N N/A	
	NOSING PROJECTION: 38 mm (max.).	Y N N/A	
	NOSING STRIP: 50 mm deep; colour contrasted, at leading edge of tread, extending full width of tread.	Y N N/A	
	TACTILE WALKING SURFACE INDICATOR (TWSI): 610 mm (min.) deep, at top of stairs, one tread back. *Note: Refer to Section 2.7, Tactile Walking Surface Indicators for detailed requirements.*	Y N N/A	
	LIGHTING: 50 lux (5 foot-candles) (min.).	Y N N/A	
2.3.2	**HANDRAIL**: 865 to 965 mm high on both sides. *Note: Refer to Section 2.4, Guards and Handrails for detailed requirements.*	Y N N/A	

7. Building Entrance *(Ref. Section 4.1 Entrances)*

This section does not apply ☐

Guideline Ref.	Requirements	Compliance	Comments
4.1.1	**PROVISION**: At least one (1) accessible entrance or 50% of the total number of building entrances (Main or primary entrance to be accessible, with level access (preferred)). *Note: Refer to Section 4.7, Interior Maintenance Checklist.*	Y N N/A	

Exterior Maintenance Checklist

3.8

Application

The following checklist is designed for use by City of Markham Staff for conducting regular reviews of maintenance issues that may impact on accessibility.

Exterior Maintenance Checklist

A regular maintenance schedule should be identified by the City (e.g., daily, weekly, monthly etc.), based on departmental responsibilities.

1. Signage *(Ref. Section 5.8 Signage and Wayfinding)*				*This section does not apply* ☐
Item	**Requirements**	**Compliance**	**Accessibility Issues**	**Location Reference**
1	Are site and facility signage (e.g., facility name and street address) clearly visible from the street and sidewalk and kept free of obstructions?	Y N N/A		
2	Where provided, is signage (e.g., directional, identification signage) throughout exterior maintained and clearly visible?	Y N N/A		
3	Is signage properly illuminated to ensure legibility?	Y N N/A		
4	Is signage provided to identify amenities (e.g., public telephone) and is it clearly visible?	Y N N/A		

2. Accessible Parking Spaces and Passenger Loading Zones *(Ref. Section 3.1 Parking and 3.2 Passenger Loading Zones)*				*This section does not apply* ☐
Item	**Requirements**	**Compliance**	**Accessibility Issues**	**Location Reference**
5	Is the proper use of designated accessible parking spaces by drivers with disabilities (e.g., with valid permits displayed) enforced?	Y N N/A		
6	Are parking spaces, including access aisles, kept clear of obstacles and other obstructions (e.g., garbage, gravel / grit, snow and ice). **NOTE**: Ensure the entire area of the parking space is maintained during winter when snow and ice is on the ground.	Y N N/A		
7	Is the parking surface in good condition (e.g., free of disrepair such as cracks, heaving, uneven surfaces, potholes)?	Y N N/A		
8	Are pavement markings provided at parking spaces legible?	Y N N/A		

2. Accessible Parking Spaces and Passenger Loading Zones *continued* *(Ref. Section 3.1 Parking and 3.2 Passenger Loading Zones)*			*This section does not apply* ☐	
Item	**Requirements**	**Compliance**	**Accessibility Issues**	**Location Reference**
9	Is vertical signage provided at designated accessible parking spaces clearly visible and in good condition?	Y N N/A		
10	Where provided, are curb ramps kept free of obstructions (e.g., gravel / grit, snow and ice)?	Y N N/A		
11	Are accessible routes from parking spaces leading to facility entrance clearly marked and free of obstructions?	Y N N/A		
12	Is vertical signage provided at designated passenger loading zones clearly visible and in good condition?	Y N N/A		

3. Exterior Paths of Travel *(Ref. Section 3.3 Exterior Paths of Travel)*			*This section does not apply* ☐	
Item	**Requirements**	**Compliance**	**Accessibility Issues**	**Location Reference**
13	Are accessible routes kept free of obstructions (e.g., garbage, street furniture, snow / ice)? **NOTE**: Ensure the width of exterior accessible routes is maintained during winter when snow is on the ground.	Y N N/A		
14	Are accessible routes in good condition (e.g., free of disrepair such as cracks, heaving, settling, which cause uneven surfaces and potential tripping hazards)?	Y N N/A		
15	Where provided, are curb ramps kept free of obstructions (e.g., gravel / grit, snow and ice)?	Y N N/A		
16	Are trees and other vegetation maintained (e.g., trimmed) to ensure that an overhead projection of 2100 mm (min.) is provided throughout exterior?	Y N N/A		

4. Lighting *(Ref. Section 5.7 Lighting)*			*This section does not apply* ☐	
Item	**Requirements**	**Compliance**	**Accessibility Issues**	**Location Reference**
17	Are all accessible routes, designated accessible parking spaces and passenger loading zones properly illuminated?	Y N N/A		

Notes:

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Interior Environments

4.0

Table of Contents

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Entrances

4.1

Application

This section applies to pedestrian entrances into facilities. Entrances include all access and entry points into a facility. An entrance typically consists of several elements and includes the approach and route leading to a facility, the components of the entrance itself and transition area between exterior and interior environments (e.g., vestibule). It may also include an interior lobby or waiting area, where applicable.

Reference

Sec. 2.2	Ramps
Sec. 2.3	Stairs
Sec. 2.4	Guards and Handrails
Sec. 2.6	Rest Areas
Sec. 2.7	Tactile Walking Surface Indicators
Sec. 2.10	Seating, Tables and Work Surfaces
Sec. 4.2	Doors and Doorways
Sec. 5.7	Lighting
Sec. 5.8	Signage and Wayfinding
Sec. 6.11	Service Counters
Sec. 6.12	Waiting and Queuing Areas

Note

Where several doors are provided adjacent to each other (e.g., a bank of doors), these doors are considered a single entrance.

Best Practice

Where an entrance is not accessible, provide directional and informational signage to identify location of the closest accessible entrance.

Consider providing automatic sliding doors at highly used entrances.

Note

Ensure power door operators are provided on both doors, where vestibule is provided.

4.1.1 Provision

a. at least 1 in 2 (50%) of the total number of building entrances are required to be accessible, rounding up to the nearest whole number;
b. for new buildings, ensure all public entrances are accessible;
c. ensure the main or primary entrance into a facility is accessible (e.g., via level, sloped or ramped accessible paths of travel / routes);
d. if direct access is provided for pedestrians from an enclosed parking garage to a facility, ensure at least one accessible entrance is provided from the parking garage to the facility; and
e. if the only entrance to a facility is a service entrance, ensure entrance is accessible.

4.1.2 Accessible Entrances Design and Layout

a. where an entrance is designated as a main or primary accessible entrance into a facility, locate as close as possible or 30 metres (maximum) from designated accessible parking or passenger loading or drop-off zones;
b. ensure accessible entrances are served by an accessible path of travel, including an exterior landing area with 1700 mm (minimum) turning diameter **(Figure 38)**;
c. ensure accessible entrances connect an exterior path of travel with an interior accessible route;
d. provide directional signage at strategic points to guide users from accessible parking areas, drop-off and loading zones, and site access points to the accessible entrance;
e. ensure the clear width of the door is 860 mm (minimum);
f. where the entrance includes more than one door, only one of the doors is required to be accessible;
g. where an entrance vestibule is provided, ensure:
    i. the distance between the two doors in series is 1500 mm (minimum), plus the width of the door swinging into the space; or
    ii. a turning space of 1500 mm diameter is provided where doors do not align;
h. install power door operator and mark door with International Symbol of Accessibility; and
i. provide overhead protection (e.g., canopy) at pedestrian entrance and passenger loading or drop-off zones adjacent to the entrance, with height clearance of 2750 mm (minimum) or 3600 mm (preferred).

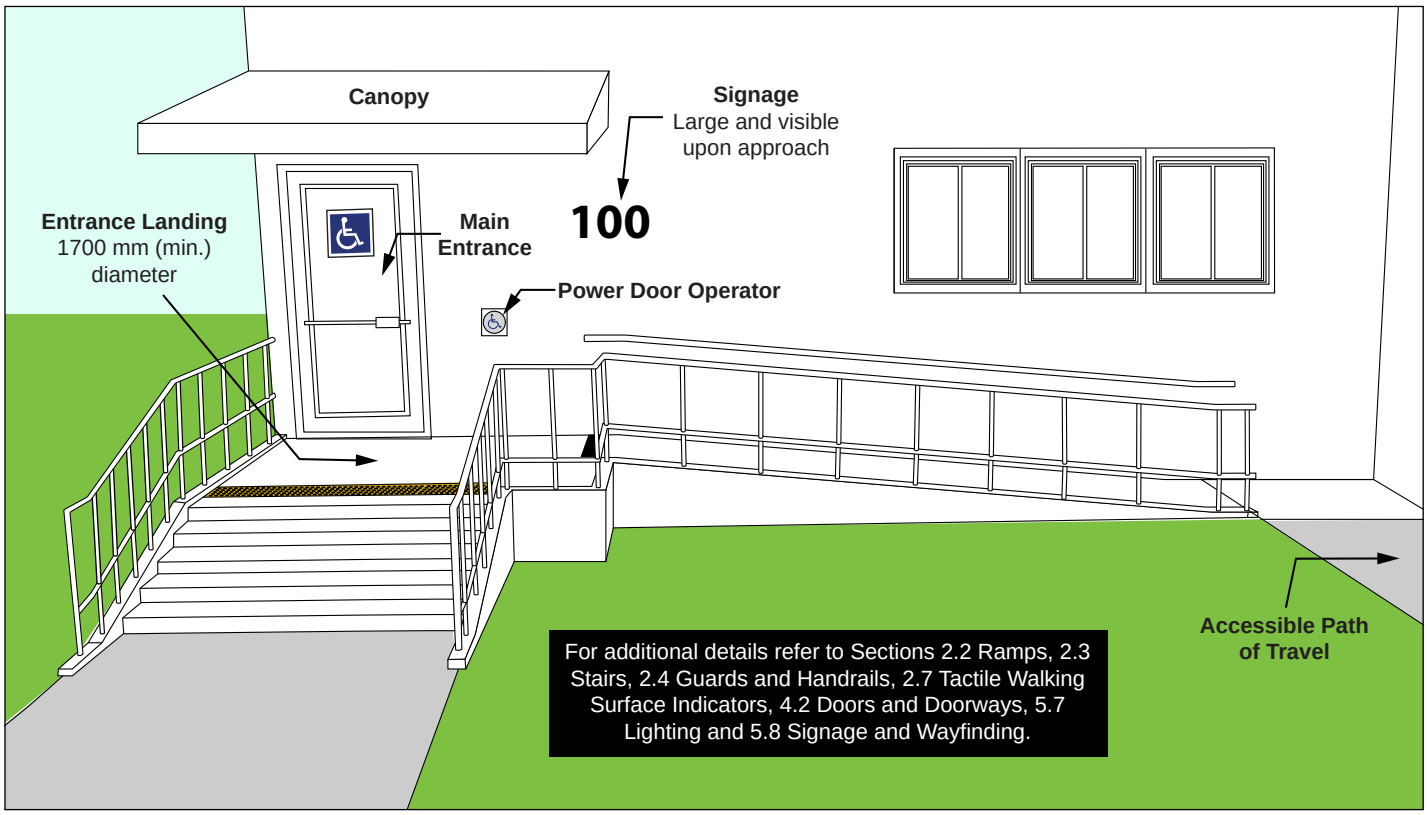


Figure 38: Main or Primary Entrance Features

Doors and Doorways

4.2

Application

This section applies to all interior and exterior doors intended for staff and public use, which lead into, out of and through a facility. The provision of accessible doors as part of an accessible route is an important consideration for all users of a facility.

Where doors have more than one independently operated leaf (e.g., at a bank of doors), at least one of the door leafs is required to be accessible, meeting the criteria identified in this Section.

Reference

Sec. 2.4	Guards and Handrails
Sec. 5.1	Controls and Operating Mechanisms
Sec. 5.8	Signage and Wayfinding
Sec. 5.9	Windows and Glazing

Note

Additional considerations are required to address issues related to doors used for fire and life safety (e.g., use of electro-magnetic 'hold-open' devices and door closer adjustments).

4.2.1 Clear Width

For all interior and exterior doors and doorways:

a. provide a clear width of 860 mm (minimum), measured when door is open 90 degrees from the face of door (and / or exit door hardware that projects into the path of travel) and the opposite door stop **(Figure 39a)**; and

b. where there is a projection into the clear door width between 860 mm and 2030 mm above the floor, ensure it is 100 mm (maximum) **(Figure 39b)**.

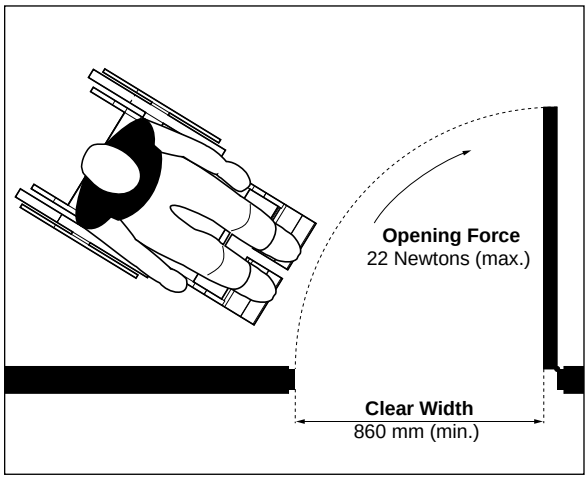


Figure 39a: Clear Width of Door - Plan View

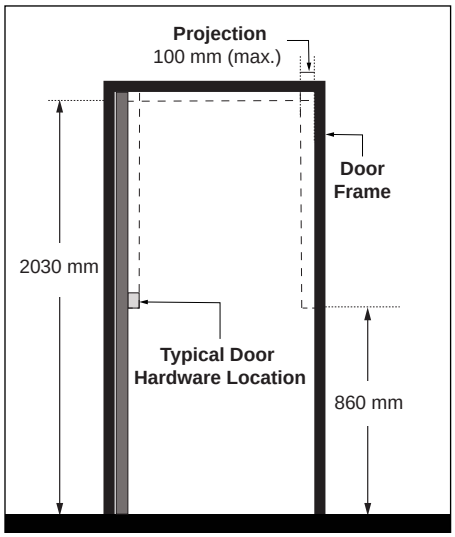


Figure 39b: Clear Width of Door - Section View

Best Practice

Where permitted and where visual or acoustic privacy is not a design requirement, entrances without doors are preferred (e.g., public washrooms in large, assembly type facilities).

Provide clear width of 915 mm (minimum) at all doorways, where feasible.

Note

For existing doors with panic hardware for exiting, hardware often projects more than 100 mm and reduces required clear width.

4.2.2 Opening Force and Closers

4.2.2.1 Opening Force

The maximum opening force required for push / pull is:

a. 38 Newtons (8.5 pounds) for exterior hinged doors;

b. 22 Newtons (5 pounds) for interior hinged doors; and

c. 22 Newtons (5 pounds) for sliding or folding doors.

4.2.2.2 Closers

a. adjust closers to provide a minimum sweep / closing period of 3 seconds, measured from when the door is in an open position of 70 degrees to the doorway, to when the door reaches a point 75 mm from the closed position, measured from the leading edge of the latch side of the door.

4.2.3 Thresholds

a. provide bevel at maximum slope of 1:2 (50%), where transition is between 6 mm and 13 mm high; and

b. ensure threshold at door is not more than 13 mm high.

Note

Knob hardware and thumb-latch handles are not appropriate because they require tight grasping and fine finger control.

Where sliding doors are provided, ensure operating hardware is usable on both sides when the door is in the open position (e.g., large D-pull handles).

Typical revolving door systems are not considered accessible entrances, recognizing the floor space within a system is limited and the speed of use is typically fast. Some specialized revolving door systems are accessible and can accommodate larger mobility aids.

4.2.4 Door Hardware

Door hardware includes, but is not limited to, handles, pulls, latches and locks, with the following features:

a. mount between 900 mm (minimum) and 1100 mm (maximum) high from finished floor or ground surface;
b. usable with closed fist and operable with one hand, with a maximum force of 22 Newtons (5 pounds);
c. ensure tight grasping of hands, pinching of fingers or twisting of wrists are not required to operate hardware;
d. ensure colour contrasted hardware finishes are provided when compared to mounting surface; and
e. install door kick plates 300 mm high, measured from bottom edge of door, covering the entire width of the door (e.g., especially for high traffic areas).

4.2.5 Colour Contrast of Doors and Frames

a. provide colour contrast of 70% (minimum) to differentiate doors and / or door frames from the surrounding environment.

4.2.6 Automatic Doors

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

a. ensure sensors are suitably placed to detect users approaching; and
b. ensure timing allows safe passage through doors.

4.2.7 Revolving Doors and Turnstiles

Where revolving doors or turnstiles are used:

a. provide an accessible gate or door adjacent to turnstiles and / or revolving door, with clear width of 860 mm (minimum) **(Figure 40)**; and
b. ensure accessible gate or door is clearly marked with International Symbol of Accessibility.

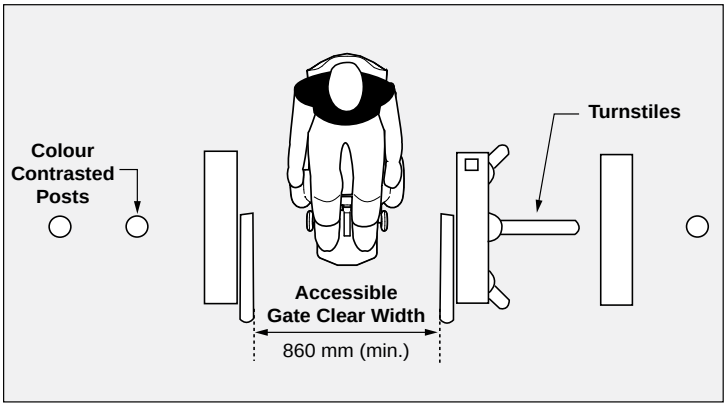


Figure 40: Accessible Controlled Gate

4.2.8 Power-Assisted Doors

Power-assisted doors are typically activated by a control and are predominantly required at the following locations:

- building entrances (e.g., all accessible public and main entrances);
- interior doors along accessible routes and / or connecting accessible routes;
- all accessible washrooms (e.g., both multiple occupancy and universal washrooms);
- doors leading to reception / information areas and service counters;
- doors entering into primary functional spaces (e.g., large or highly-use multi-purpose rooms and meeting rooms); and
- doors leading to “Areas of Refuge”.

Figure 41: Example of Power Operator Control Promoting Universal Use

Where power-assisted doors are provided:

a. mark accessible doors with International Symbol of Accessibility decal and other signage (e.g., “Caution” decals to warn of door swing);
b. ensure a force of no more than 66 Newtons is required to stop door movement;
c. in case of power failure, ensure power-assisted doors can be opened manually;
d. ensure door remains fully open for 5 seconds (minimum);
e. ensure doors take 3 seconds (minimum) to move from a closed to fully open position, when activated; and
f. provide power door operator controls on both sides of doors, for use when entering or leaving, located to allow actvaton of the door from either directon of travel and without obstructng the path of travel, as follows:
    i. mount in clearly visible location for easy identification upon approach on the latch side;
    ii. ensure the face dimension of the power door operator control is 150 mm (minimum) in diameter where it is circular or 150 mm wide by 915 mm long (minimum) where it is a vertical extended power door operator;
    iii. ensure colour contrast is provided between activation device and mounting surface;

Best Practice

Provide power door operators for high frequency doors (e.g. large meeting / multipurpose rooms) in new construction. Consider providing roughed in power for future power door operators at other locations.

Where more than one power door operator controls are mounted on the same wall, provide directional signage to indicate which push button activates which door.

Long extended power door operator controls allow activation from any approach and height level **(Figures 41 and 42b)**.

Note

Where power-assisted doors are activated by proximity card reader devices, ensure timing of door opening is synchronized with operation of proximity device.

Rectangular shaped power door operator control with dimensions of 50 mm by 100 mm, may only be used for retrofit situation, where standard control sizes will not fit.

iv. ensure they project less than 100 mm from mounting surfaces;
v. mark with International Symbol of Accessibility;
vi. ensure controls are operable with a closed fist;
vii. mount at height of 900 mm to 1100 mm centre from ground or floor surface **(Figure 42a)**;
viii. where long extended power door operator controls are provided, mount so that they extend from not more than 200 mm and not less than 900 mm high above the floor **(Figure 42b)**;
ix. mount beyond the arc of the door swing away between 600 mm and 1500 mm, on a level wall surface or separate post, where door opens towards the control **(Figure 42c)**; and
x. provide a minimum clear floor space of 1700 mm by 1700 mm in front of activation devices.

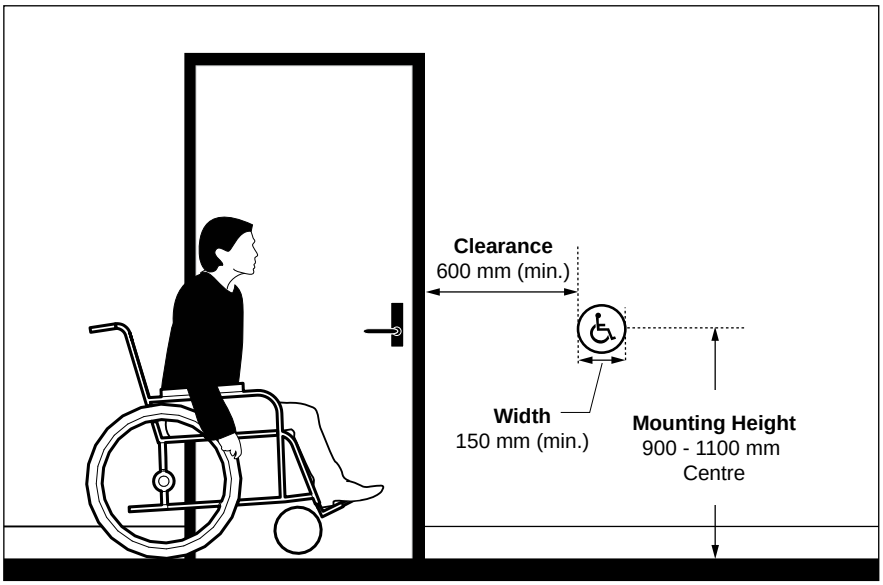


Figure 42a: Circular Push Button - Elevation View

Large circular power door operator control, clearly marked with International Symbol of Accessibility.

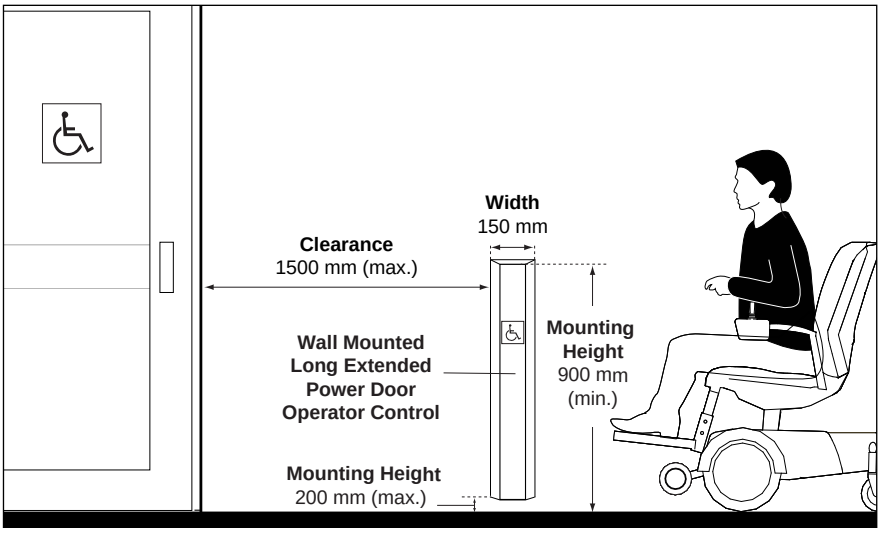


Figure 42b: Long Extended Power Door Operator - Elevation View

Long extended power door operator control can accommodate a wider range of users (e.g., can be operated by foot or foot rest).

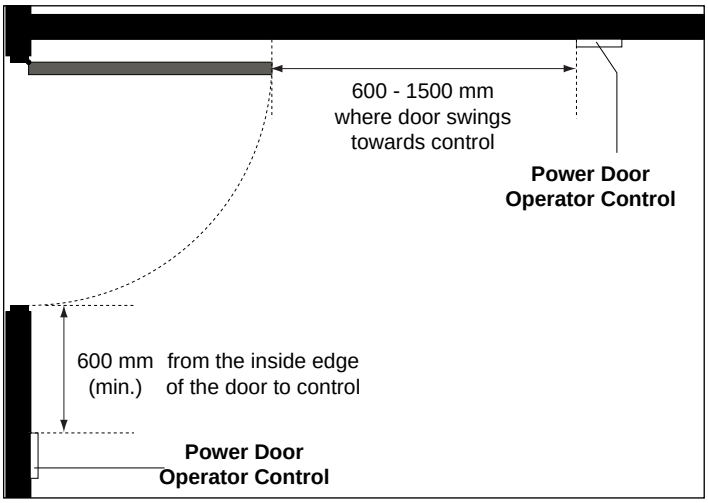


Figure 42c: Power Door Operator Control Mounting Location - Plan View

Example of rectangular shaped power door operator control used in retrofit situations only.

Best Practice

Swinging doors equipped with power operators which are activated automatically and open into passing pedestrian traffic should also have a device (mat or other sensor) on the swing side to prevent the door from opening if someone is standing in the swing area.

4.2.9 Doors Swinging into Accessible Routes

Where automatic doors or power-assisted doors, whether activated by a control manually or automatically by a motion sensor or a floor-pad sensor that someone steps on (e.g., typically used at higher traffic doors), swing into an accessible path of travel:

a. provision of recessed doors is preferred **(Figure 43a)**; or
b. provide cane detectable guards or other devices at right angles to the wall containing the door, with the lower rail surface mounted no more than 680 mm high (maximum) from ground or floor surface, extending 300 mm (minimum) beyond the door swing, on both sides of doors **(Figure 43b)**.

Note

Provision of guards is typically required for exterior out-swinging power-assisted doors, where the door is automatically activated by a motion sensor and where the door may swing into high traffic areas.

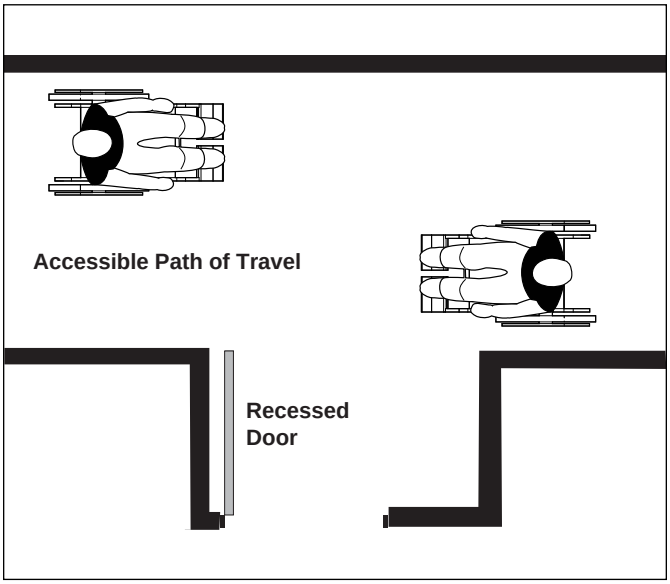


Figure 43a: Recessed Door - Plan View

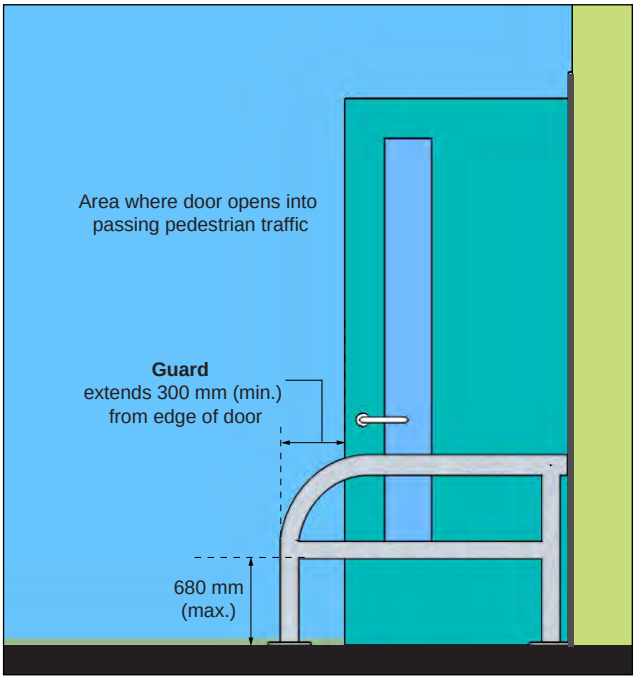


Figure 43b: Guard at Door - Elevation View

4.2.10 Approach Clearances at Doors

The floor space requirements at swinging doors are dependent on how doors are approached (e.g., side or front) and on which side an individual approaches a door (push or pull sides). Where power door operators are not provided, the required clear floor space beside the latch for approach at different types of doors are summarized in **Table 6** with corresponding diagrams referenced.

Table 6: Minimum Clearance at Doors

Context	Floor Space Required in mm		
	Depth (min.)	Width (min.)	Space Beside Latch
Recessed Door - Front Approach **(Figure 44a and b)**			
Pull side	1525	n/a	450
Push side	1220	n/a	300
Side-Hinged Door - Front Approach **(Figure 44c)**			
Pull side	1525	1600	600
Push side	1370	1250	300
Sliding Door **(Figure 44d)**			
Front approach	1370	1100	300
Side approach	1370	1550	600
Side-Hinged Door - Hinge Side Approach **(Figure 44e)**			
Pull side	2440	2440	600
Push side	1370	1830	450
Side-Hinged Door - Latch Side Approach **(Figure 44f)**			
Pull side	1370	1600	600
Push side	1370	1525	600
Folding Door			
Front approach	1220	n/a	n/a
Side approach	1220	n/a	n/a
Doorways Without Doors			
Front approach	1220	n/a	n/a
Side approach	n/a	1065	n/a

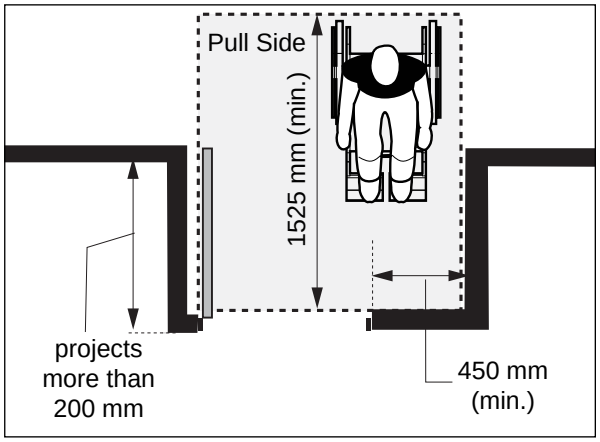


Figure 44a: Pull Side Approach at Recessed Side-Hinged Door - Plan View

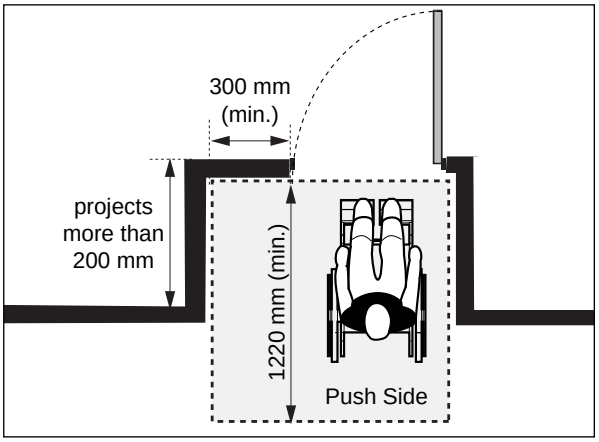


Figure 44b: Push Side Approach at Recessed Side-Hinged Door - Plan View

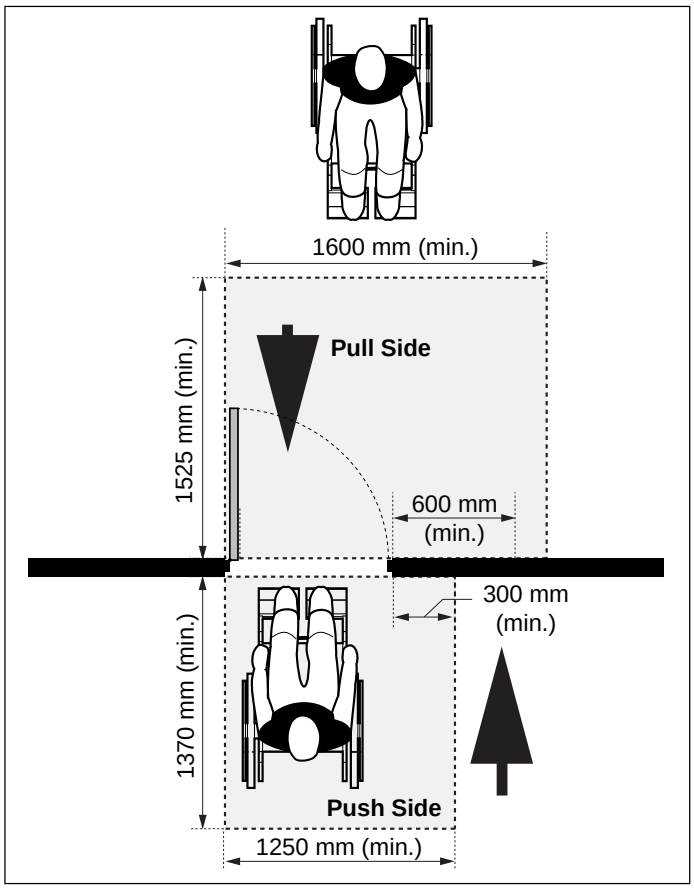


Figure 44c: Front Approach at Side-Hinged Door - Plan View

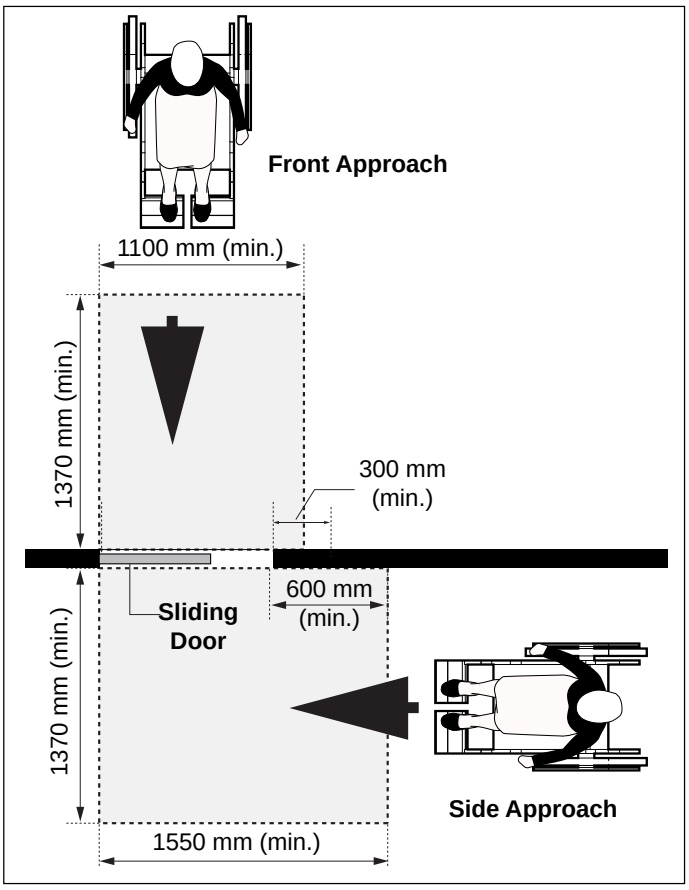


Figure 44d: Front and Side Approach at Sliding Door - Plan View

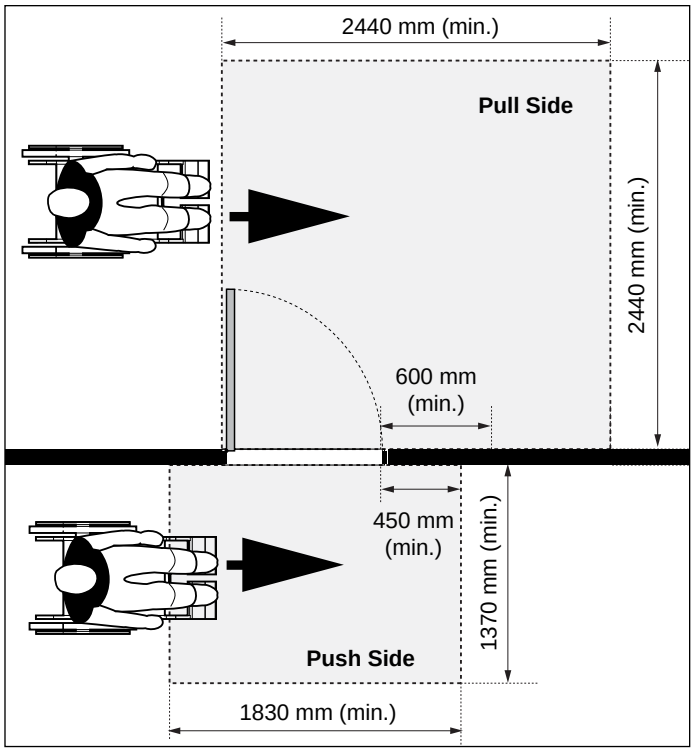


Figure 44e: Hinge Side Approach at Side-Hinged Door - Plan View

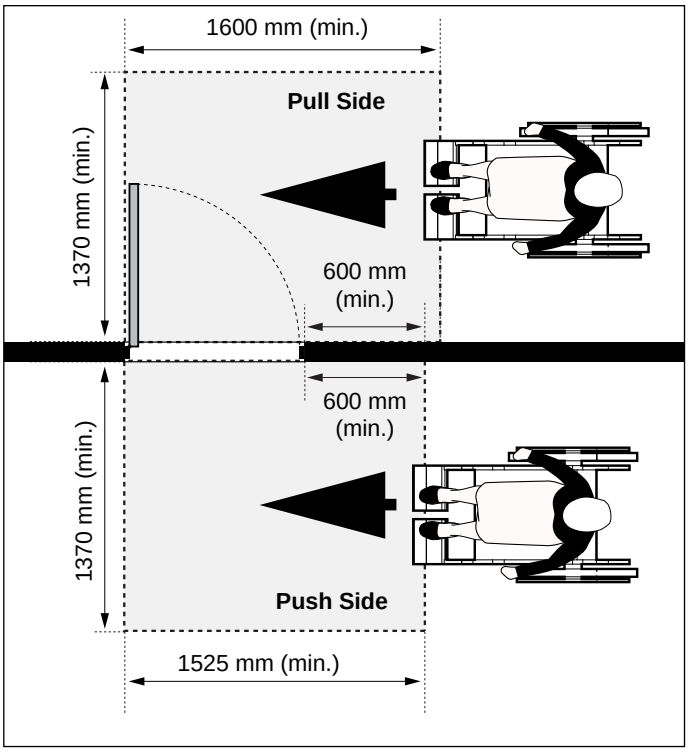


Figure 44f: Latch Side Approach at Side-Hinged Door - Plan View

Best Practice

Provide additional space for doors in series with doors operable independently (e.g., in order to avoid a “wind tunnel effect”).

Note

Users of mobility aids must be able to move forward through a vestibule without the risk of being stuck between the two doors. Ensure power door operators are provided on both sides of both doors.

4.2.11 Doors in Series

Where doors in series form a vestibule:

a. provide a distance of 1500 mm (minimum) between the two doors in series plus the width of the door swinging into the space **(Figure 45)**;

b. where the doors into the vestibule are not aligned, ensure a clear turning diameter of 1500 mm (minimum) is provided within the vestibule clear of any door swing; and

c. arrange to allow the movement of users of mobility aids.

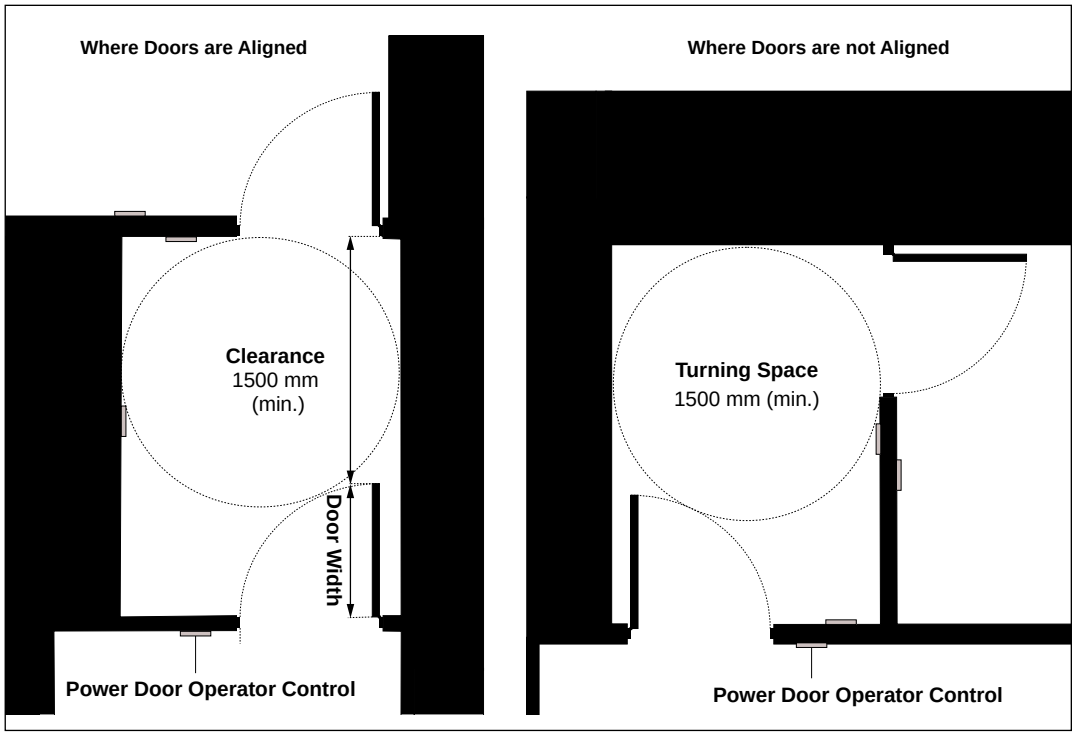


Figure 45: Doors in Series - Plan View

Best Practice

Frameless and fully glazed doors are not recommended.

Where there is extensive glazing, consider providing a strip at a lower level, between 850 to 1000 mm high above finished floor level.

4.2.12 Glazed Doors or Doors with Sidelights

a. provide high colour contrast between door frame and mounting surface or wall to ensure that when door is in the open position, persons with vision loss can identify edges upon approach;

b. mark the edges of fully glazed doors (e.g., tempered glass without frame) with strong colour contrast; and

c. provide a continuous opaque colour contrasted strip, decal or logo on fully glazed doors **(Figure 46)**:

   i. 50 mm (minimum) wide; and

   ii. mount at eye level between 1350 mm and 1500 mm high from floor level.

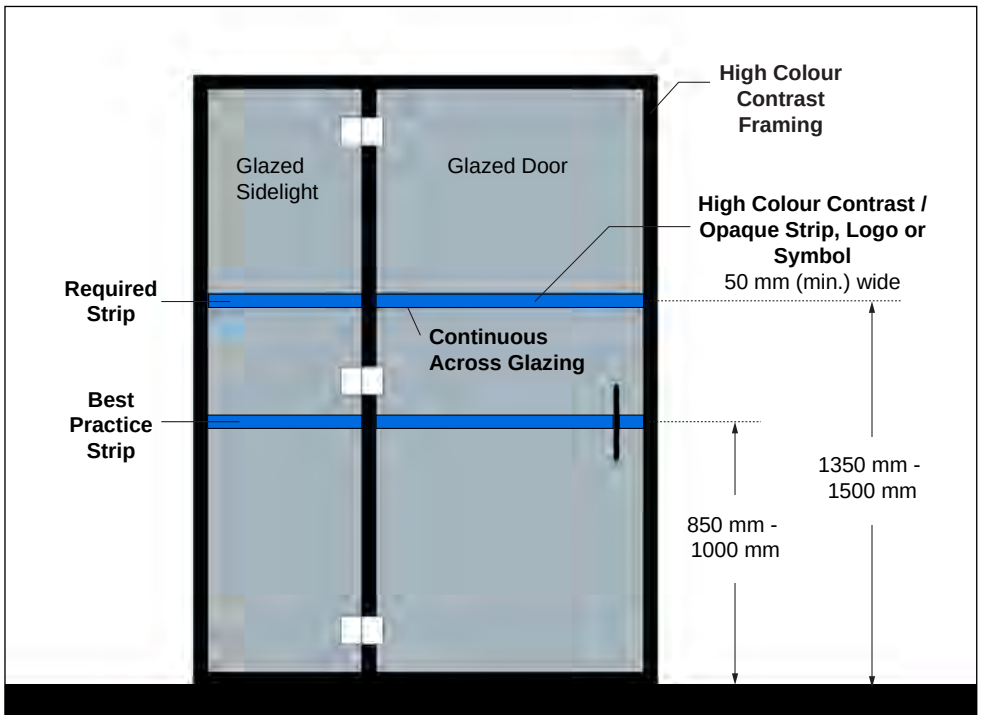


Figure 46: Glazed Doors - Elevation View

Note

Special designs can be used (e.g., logo or symbol) as long as they do not reduce the opacity, width and colour contrast of the strip when compared with the background.

4.2.13 Vision Panels

a. provide width of 75 mm (minimum); and
b. mount bottom edge at a height of 900 mm (maximum) with side edge no more than 250 mm from latch side of the door **(Figure 47)**.

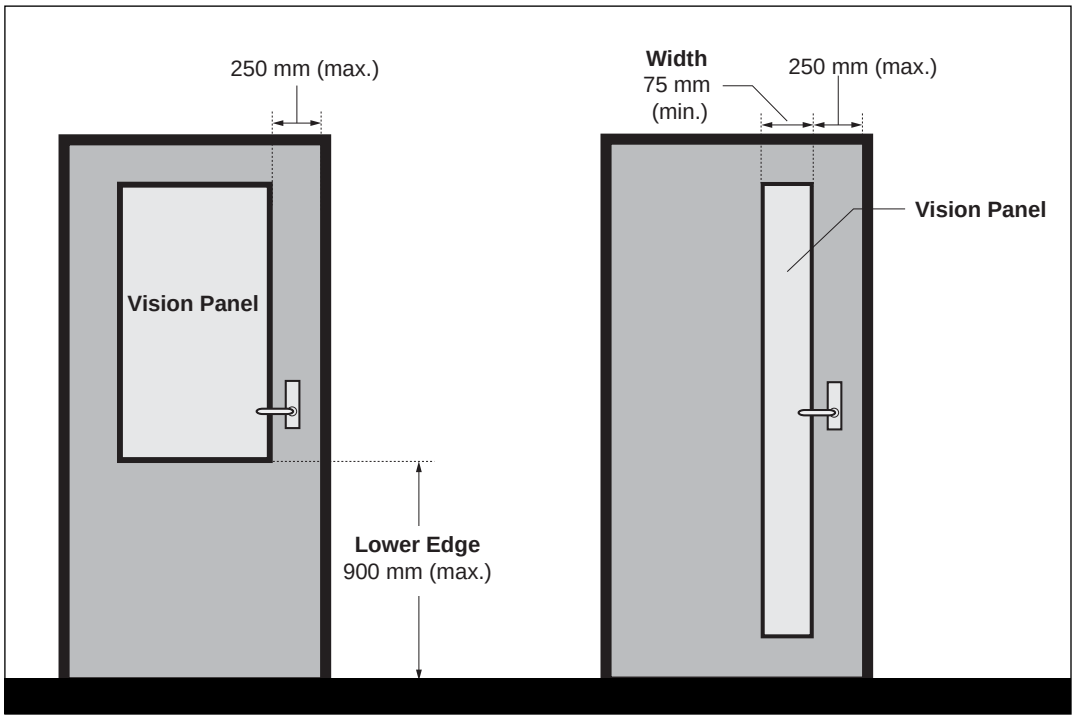
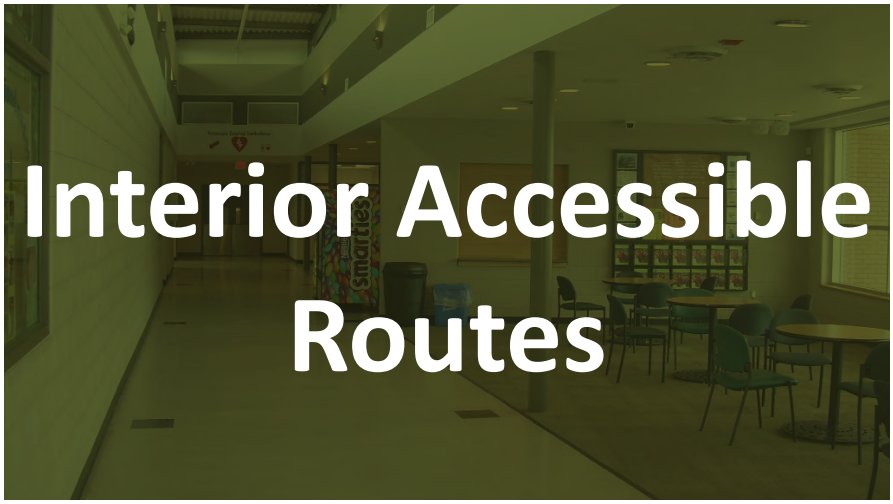


Figure 47: Vision Panels - Elevation View



Interior Accessible Routes

4.3

Application

This section applies to accessible routes or paths of travel for pedestrians within a facility to provide access to elements, rooms or other occupiable spaces. Typical accessible routes are identified as corridors, hallways and other pedestrian circulation paths. These include connections between buildings, unless identified as exceptions.

All access to occupiable spaces to be accessible and conform to this section.

Where there is an elevation change within a path of travel, accessible routes may include ramps, sloped walkways and independently operated elevating devices as permitted (e.g., passenger elevators or lifts).

Reference

Sec. 2.1	Ground and Floor Surfaces
Sec. 2.2	Ramps
Sec. 2.4	Guards and Handrails
Sec. 2.5	Overhanging and Protruding Objects
Sec. 2.6	Rest Areas
Sec. 5.4	Acoustics
Sec. 5.7	Lighting
Sec. 5.8	Signage and Wayfinding

Exception

An accessible route or path of travel is not required in the following areas:

- Service rooms.
- Elevator machine rooms or other equipment, including service corridors to these rooms.
- Service spaces.
- Janitors' rooms.
- Crawl spaces and attics or roof spaces.
- Within portions of a floor area with fixed seats in an assembly occupancy, where these portions are not designated for users of mobility aids (e.g., spaces designated for wheelchair use, seats designated for adaptable seating, or spaces for the storage of wheelchairs and mobility assistive devices).
- Suites in residential occupancy that are in storeys other than the entrance storey and that have all entrance doors at floor levels that are not required to have an accessible path of travel.
- As required by jurisdictions having authority within a suite of residential occupancy.
- Portions of a floor area that are not at the same level as the entry level, provided amenities and uses provided on any raised or sunken level are accessible on the entry level by means of an accessible path of travel.

4.3.1 General Features

a. ensure floor surfaces are stable, firm and slip-resistant;
b. provide signage and wayfinding cues along interior accessible routes, including entrances and exits, to provide information and guidance for all users based on the type of facility;
c. where headroom clearance along accessible routes is less than 2100 mm, provide guards to protect users from potential hazards;
d. design public corridor to facilitate wayfinding by using acoustic treatments to differentiate main corridors from secondary corridors;
e. ensure lighting level is 50 lux (5 foot-candles) (minimum), measured at ground level; and
f. where accessible routes are more than 30 metres long, provide rest areas.

Best Practice

Consider using texture and acoustical cues to enhance wayfinding.

Install convex mirrors at hallway intersections along an accessible route where the line of sight is obstructed.

Tactile floor surface to guide users with vision loss.

Where structural column / support is within accessible route, colour contrasted floor surface at base is beneficial for all users.

4.3.2 Clear Width

a. provide clear width of 1100 mm (minimum) **(Figure 48a)**;
b. in high traffic areas, provide a clear width of 1500 mm (minimum);
c. where clear width is less than 1600 mm along a route that exceeds 30 metres in length, provide a passing area of 1800 mm wide by 1800 mm (minimum) length at interval of no more than 30 metres; **(Figure 48b);**
d. where clear width is reduced to 915 mm (minimum width permitted), extending to a length of 610 mm (maximum), a clear floor space of 1100 mm wide by 1500 mm long (minimum) is required before and after the reduced width segment **(Figure 48c)**; and
e. where an accessible route makes a 180 degree turn around an obstacle that is less than 1200 mm in width:
    i. ensure clear width of 1100 mm (minimum) is provided, when approaching and leaving the turn, and 1200 mm (minimum) at the turn **(Figure 49a)**.

Exception

Minimum clear width of accessible route is not required at:

- doors / doorways;
- stairs; and
- elevating devices.

Note

Where an obstacle is greater than 1200 mm wide, cutting the corners of the obstacle will provide additional manoeuvring space **(Figure 49b)**.

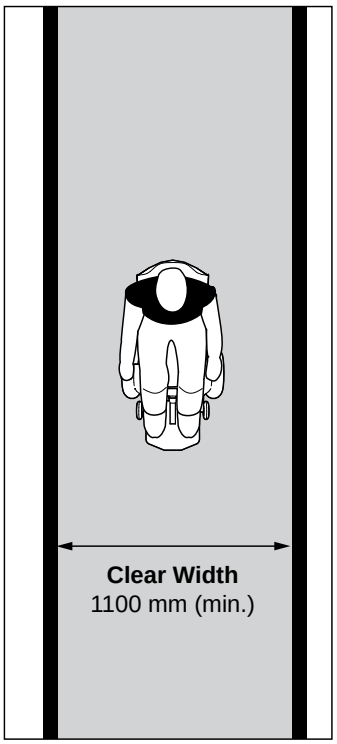


Figure 48a: Clear Width (Typical)

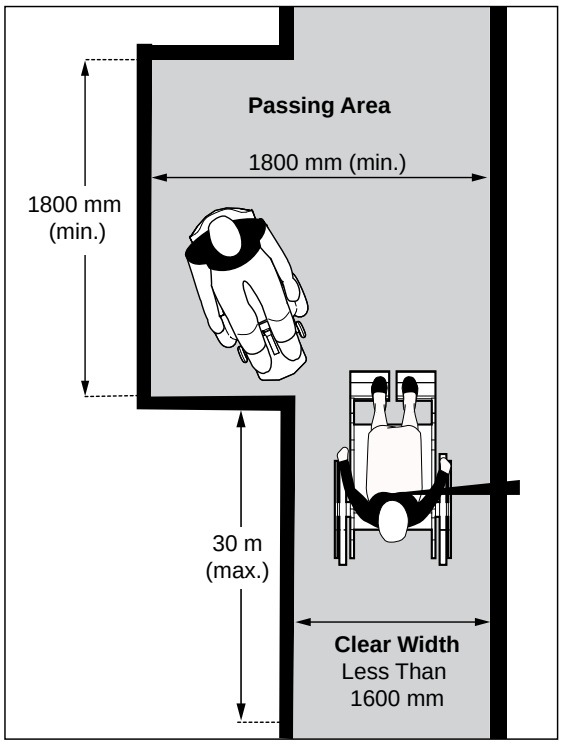


Figure 48b: Required Passing Area for Routes Greater than 30 metres if Width is less than 1600 mm

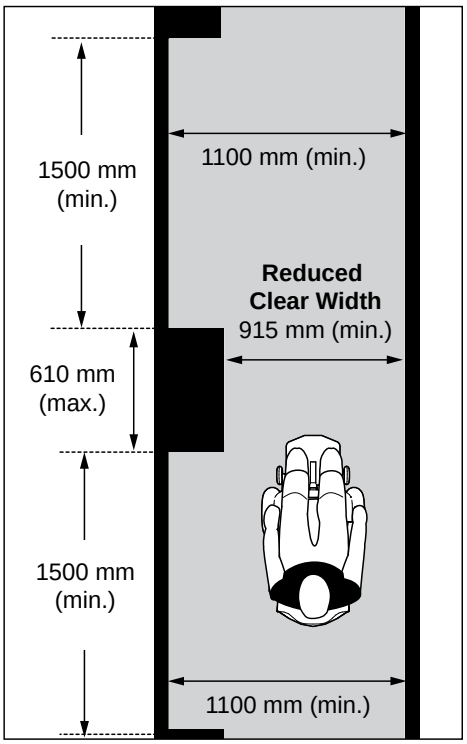


Figure 48c: Permitted Reduced Clear Width

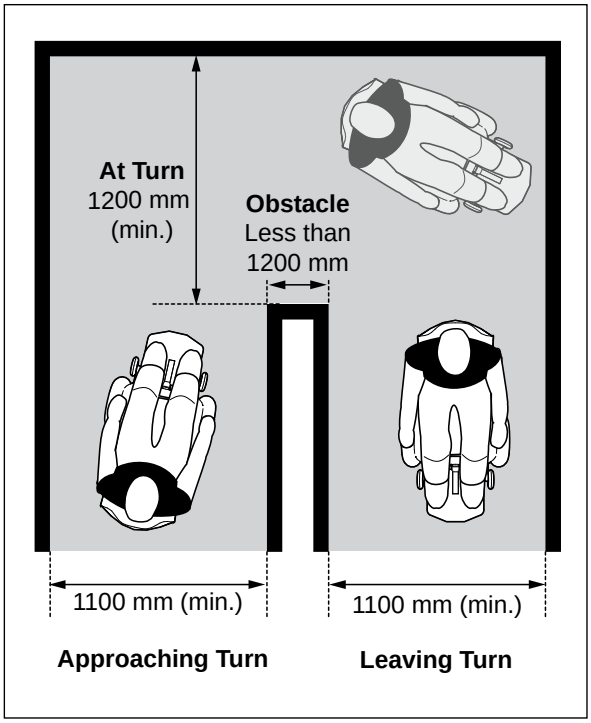


Figure 49a: 180 Degree Turn Around Obstacle less than 1200 mm

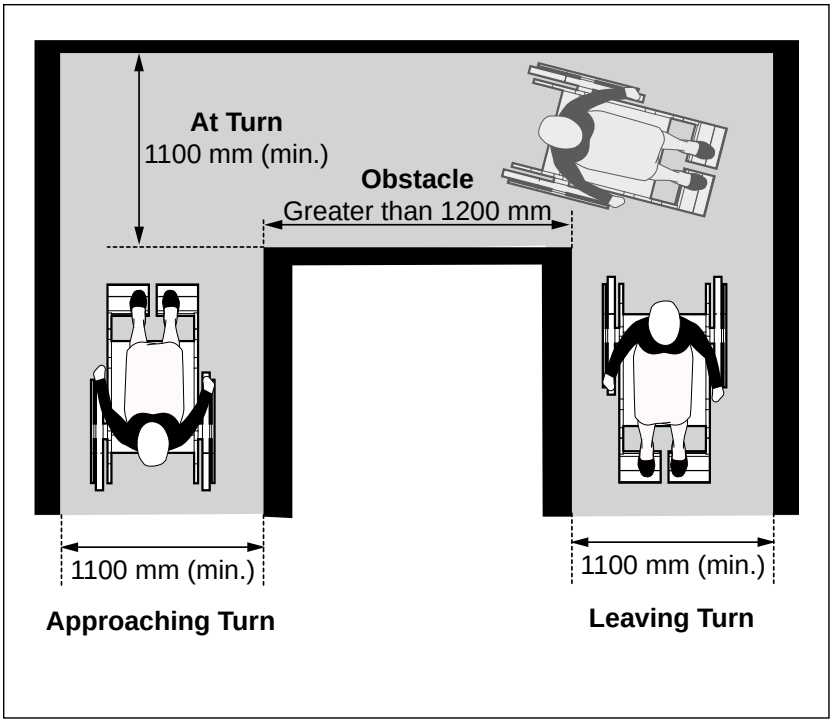


Figure 49b: 180 Degree Turn Around Obstacle greater than 1200 mm

4.3.3 Running and Cross-Slopes

4.3.3.1 Running Slope

a. provide gradient of 1:20 (5%) (maximum) **(Figure 50)**; and
b. where gradient exceeds 1:20 (5%), ensure route is designed as a ramp.

4.3.3.2 Cross Slope

a. provide a gradient of 1:50 (2%) (maximum) **(Figure 51)**.

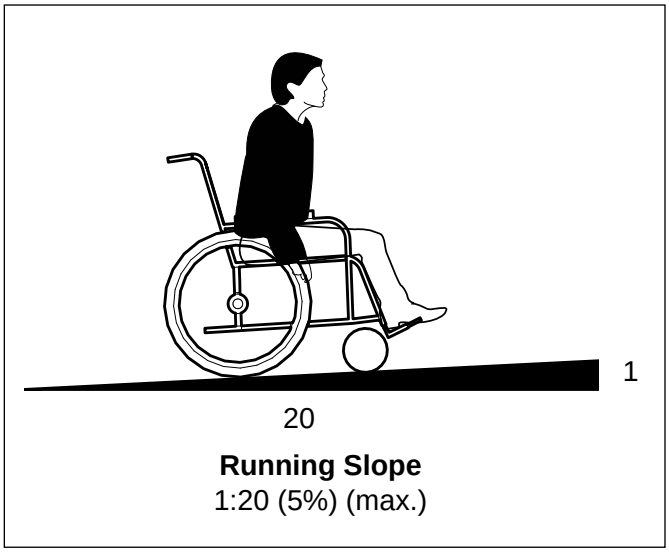


Figure 50: Running Slope

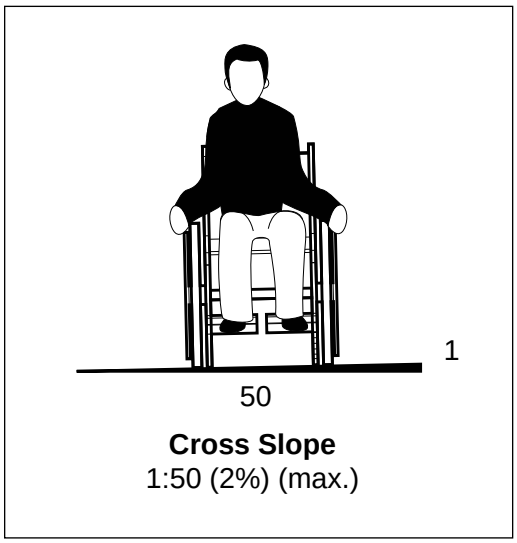


Figure 51: Cross Slope

4.3.4 Changes in Level

Where edges of an accessible route are not level with adjacent surface:

a. provide colour contrasted marking on the edge where the change in level is less than 200 mm;
b. where the change in level is between 200 mm and 600 mm , provide a colour contrasted curb or other barrier protection, 75 mm (minimum) high; and
c. where the change in level is greater than 600 mm, provide guards.

Best Practice

Avoid level changes between an accessible route and adjacent surface, wherever possible.

Elevating Devices

4.4

Application

This section applies to elevating devices used to provide access between levels within a facility. Elevating devices include, but are not limited to:

- elevators;
- platform lifts;
- inclined lifts;
- moving walkways; and
- escalators.

All passenger elevators, lifts, moving walkways and escalators provided in multi-storey facilities must comply with the current Ontario Building Code and other applicable requirements identified in the most up-to-date versions of:

- CAN / CSA B44: Safety Code for Elevators and Escalators (Appendix E);
- CAN / CSA B355: Lifts for Persons with Physical Disabilities; and
- CAN / CSA B651: Accessible Design for the Built Environment.

Best Practice

Platform lifts are not recommended in new construction due to limited size of platforms and weight restrictions which typically does not accommodate larger mobility aids.

Limited use / limited application (LU/LA) elevators are also not recommended for new construction due to the limited size of interior platform and other operating features. For existing facilities where LU/LA elevators are being upgraded, refer to applicable CSA standards.

Note

Detailed accessibility criteria for elevating devices are not included in these Guidelines, including signage requirements. The City recommends direct referencing of other applicable and governing standards.

When retrofitting elevating devices at existing facilities, the City will review options in detail, on a case by case basis, recognizing there may be other factors to consider, including physical or structural constraints.

Exception

Freight elevators are not required to comply with this section, unless the only elevators provided are used as combination passenger and freight elevators for use by the public and employees.

4.4.1 Passenger Elevators

Key design features for passenger elevators are summarized as follows: (Note: refer to CSA standards for detailed criteria)

a. ensure minimum elevator cab dimension and clear opening width of door are as identified in **Table 7** below:

Table 7: Minimum Dimensions for Elevator Car and Door Clear Width

All dimensions are in millimeters (mm).

Door Location	Door Clear Width	Inside Car (Side to Side)	Inside Car (Back Wall to Front Return)	Inside Car (Back Wall to Inside Face of Door)
Centred	1065	2030	1295	1370
Side (Off-Centre)	915*	1725	1295	1370
Any	915*	1370	2030	2030
Any	915*	1525	1525	1525
Minimum Dimension of LU / LA (limited use / limited application) elevators				
Any	815	1065	1370	Not Specified

*Note: ***** A tolerance of minus 16 mm shall be permitted.*

Source: Information in this Table was adapted from Annex E of CSA-B651-12, "Elevator Requirements for Persons with Physical Disabilities". As identified in this document, information is based on Table 407.2.8 in ICC /ANSI A117.1 (metric values only).

b. Provide hall call buttons, with visual indicators to identify when car call has been registered and answered, mounted between 890 to 1200 mm from floor, measured to centreline of button;
c. Ensure clear floor space in front of hall call buttons of 760 mm wide by 1220 mm depth (minimum);
d. Visual and audible signals at each hoistway entrance to indicate which car is answering a call and its direction of travel. Audible signals to sound once for the "up" direction and twice for the "down" direction, or alternatively, provide verbal annunciators;
e. Entrance doors with door re-opening device that senses objects or person in path of travel of closing door (e.g., automatic sensors). Provide a tactile (e.g., both raised and braille, colour contrasted surface) elevator car identification sign, with characters 50 mm high, immediately below the hoistway entrance floor designation;
f. Interior car operating controls to be mounted 1220 mm high (maximum, to centerline of control preferred), or 1370 mm high is permitted, for cars with more than 16 openings, where parallel approach to controls is also provided for users of mobility aids;
g. Provide continuous handrails, mounted with top gripping surfaces at 800 to 920 mm high above floor and with a clearance of 35 to 45 mm between handrails and wall, on all non-access walls;

Note

Platform lifts are only allowed where alternatives are not considered feasible (e.g., primarily retrofit scenarios). Lifts that require key access and / or an attendant to operate are not recommended.

h. Audible and visual car floor location indicators. Audible signal to be a verbal announcement that identifies floor at which car has stopped; and

i. Emergency two-way communication system (e.g., a hands-free speaker phone is preferred), with operating controls mounted at 1220 mm high (maximum) from floor, with accessible features (e.g., push button operation) and visual indicator identifying when the system has been activated and the emergency call has been received (e.g., to identify “help is on the way” for users with hearing loss).

Tactile elevator car identification sign.

Elevator sensor door and floor registration buttons.

Washrooms

4.5

Application

This section applies to washroom facilities and elements within a site and facility including, but not limited to:

- multiple-occupancy washrooms;
- universal washrooms; and
- change rooms with washroom features.

Reference

Sec. 2.1	Ground and Floor Surfaces
Sec. 2.5	Overhanging and Protruding Objects
Sec. 4.2	Doors and Doorways
Sec. 4.3	Interior Accessible Routes
Sec. 5.1	Controls and Operating Mechanisms
Sec. 5.6	Fire and Life Safety Systems
Sec. 5.7	Lighting
Sec. 5.8	Signage and Wayfinding

Best Practice

Universal washrooms allow the greatest flexibility, including larger floor space for people who require assistance and may be accompanied by a caregiver or companion, as well as to accommodate larger mobility aids such as power wheelchairs and scooters.

Note

If retrofitting multiple occupancy washrooms with accessible water closet stalls is not possible, identifying additional space for providing a universal washroom is recommended.

Best Practice

Provide at least one universal washroom on every occupied floor of a facility.

Note

Where one water closet is required for males and one water closet is required for females, the following may be provided:

(1) one universal washroom; and

(2) one washroom containing one water closet to be used by both sexes provided the door to the room can be locked from the inside.

4.5.1 Provision and Location

a. provide universal washrooms in accordance to **Table 8**;
b. provide minimum number of accessible water closet stalls per washroom in accordance to **Table 9**;
c. locate centrally within a facility, along an accessible route, within 45 metres (maximum) of regular washrooms; and
d. where washrooms are not accessible, provide directional signage to indicate location of nearest accessible washroom on the same floor.

Table 8: Minimum Number of Universal Washrooms per Building

Number of Storeys in Building	Minimum number of Universal Washrooms per Building
1-3	1
4 - 6	2
Over 6	3, plus 1 for each additional increment of 3 storeys in excess of 6 storeys

Table 9: Minimum Number of Water Closet Stalls Required to be Accessible

Number of Water Closets per Washroom	Minimum Number of Accessible Water Closet Stalls per Washroom
1-3	0, where a universal washroom is provided on the same floor level within 45 m of the washroom, or 1, where a universal washroom is not provided on the same floor level within 45 m of the washroom
4 - 9	1
10 - 16	2
17 - 20	3
21 -30	4
Over 30	5, plus 1 for each additional increment of 10 water closets per washroom in excess of 30 water closets per washroom

Best Practice

Wherever possible, consider use of privacy walls or specialized configuration of entrance vestibules to avoid the need for doors and power door operators. Entrances without doors are easier for anyone to use.

4.5.2 Multiple Occupancy Washrooms

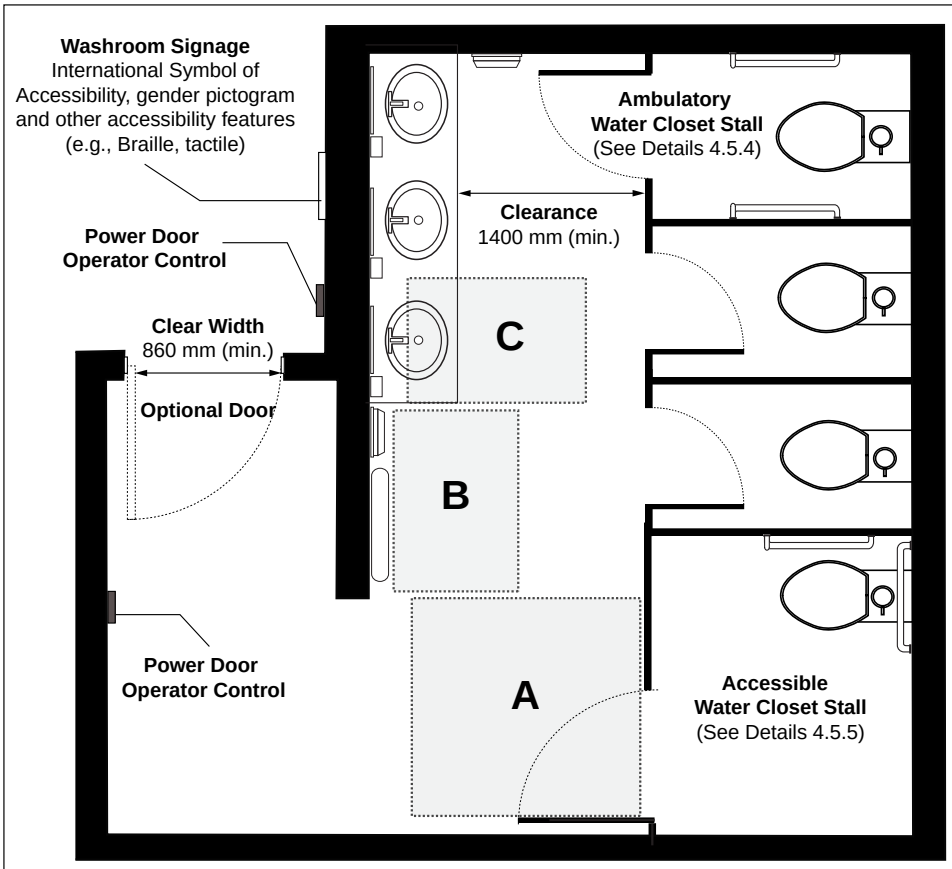
For multiple occupancy washrooms with accessible water closet stalls:

a. identify clearly with signage, indicating male or female where applicable, with other accessibility features (e.g., braille, tactile, International Symbol of Accessibility);
b. where doors are provided at washroom entrance, provide a clear width of 860 mm (minimum), when the door is in the open position and equip with power door operators;
c. ensure lighting is evenly distributed and lighting level is 200 lux (20 foot-candles) (minimum);

d. ensure minimum clearance of 1700 mm between the inside face of an in-swinging entrance door and the outside face of an adjacent water closet stall **(Figure 52b)**;
e. ensure minimum clearance of 1400 mm between outside wall of stall and any wall-mounted fixtures or other obstructions **(Figure 52a);**
f. provide a clear floor space of 1500 mm by 1500 mm (minimum) in front of the accessible water closet stall;
g. ensure a clear turning diameter of 1700 mm (minimum) is provided inside washroom circulation area, 500 mm (maximum) of which may be under the lavatory to allow users of mobility aids to make a 180° turn;
h. ensure floor surfaces are slip-resistant, with a maximum slope of 1:50 (2%);
i. provide accessible lavatories with washroom amenities, as identified in this section;
j. provide accessible water closet stalls with suitable clear floor space, as identified in this section;
k. install audible and visual fire alarm system; and
l. install any drains out of the path of travel.

Note

In a storey that is not required to have an accessible path of travel, ensure at least one ambulatory water closet is provided.



Clear Floor Spaces Requirements

#	Location	Dimension (min.)
A	in front of accessible water closet stall	1500 x 1500 mm
B	in front of washroom accessories	920 x 1525 mm (side approach)
C	in front of accessible lavatory	920 x 1370 mm, 500 mm may be under lavatory

Figure 52a: Example of Multiple Occupancy Washroom Layout - Floor Clearances

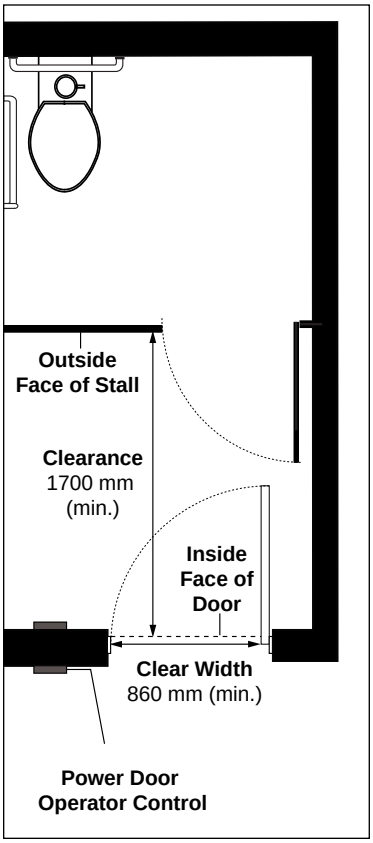


Figure 52b: Clearance between inside face of in-swinging entrance door and outside face of adjacent water closet stall

Best Practice

Provide both a hand dryer and a paper towel dispenser, where space is available.

Provide a fold-down grab bar mounted on the transfer side of the water closet for additional support.

4.5.3 Universal Washrooms

Where universal washrooms are provided:

a. locate in the same vicinity as other washrooms (e.g., Men's & Women's multiple occupancy washrooms) along the shortest accessible route;
b. identify clearly with signage, including unisex pictogram (e.g., Male and Female) and the International Symbol of Accessibility;
c. provide accessible entrance door:
    i. with clear width of 860 mm (minimum) when the door is in an open position;
    ii. equip with power door operator and "push to lock" controls, mounted between 900 mm and 1100 mm high and between 600 mm and 1500 mm beyond the door swing if the door opens towards the control;
    iii. provide locking mechanism that can be locked from the inside and released from the outside, in case of emergency; and
    iv. mount graspable operating and locking mechanisms 900 to 1000 mm above floor, usable with a closed fist and without tight grasping, pinching of fingers or twisting of wrist, with a maximum force of 22.2 Newtons (5 pounds).
d. ensure floor surface is firm, stable and slip-resistant;
e. ensure internal dimension between walls is no less than 1700 mm;
f. provide a clear turning diameter of 1700 mm (minimum) **(Figure 53)**;
g. provide one accessible lavatory with other washroom amenities including but not limited to mirror, soap dispenser, paper towel dispenser, automatic hand dryer (preferred), coat hook, and toilet paper dispenser as identified in this section;
h. provide one accessible water closet with suitable rear and side grab bars (e.g., horizontal, L-shaped and fold-down grab bars) as identified in this section;
i. provide motion sensor for automatic illumination of interior;
j. provide lighting in accordance with Section 5.7 Lighting requirements, as applicable;
k. install audible and visual fire alarm systems;
l. provide a clear floor space 810 mm wide by 1830 mm long in each universal washroom for an adult-size change table **(Figure 53)**;
m. where the clear floor space provided for an adult-size change table is adjacent to a wall, ensure reinforcement is installed in the wall to permit the future installation of the change table;
n. where an adult-size change table is installed, ensure a clear floor space of 760 mm wide by 1500 mm long, parallel to the long side of the adult-size change table;

o. where installed, ensure baby changing stations and / or adult-size change tables adhere to the requirements identified in sub-section 4.5.9.2;
p. provide shelf as identified in sub-section 4.5.8.1;
q. ensure drains are installed out of the path of travel; and
r. provide an emergency call system with the following features:
    i. consists of visual and audible signal devices both inside and outside of the washroom that are activated by a push control device inside the washroom;
    ii. includes a sign that contains the words “IN THE EVENT OF AN EMERGENCY PUSH EMERGENCY BUTTON AND AUDIBLE AND VISUAL SIGNAL WILL ACTIVATE” in letters at least 25 mm high with a 5 mm stroke and that is posted above the emergency button; and
    iii. ensure emergency alarms and call systems are linked to a centrally monitored switchboard for facilities that have the capacity.

Note

Emergency call systems with a cancellation feature to turn off the alarm when it is accidentally activated is preferred.

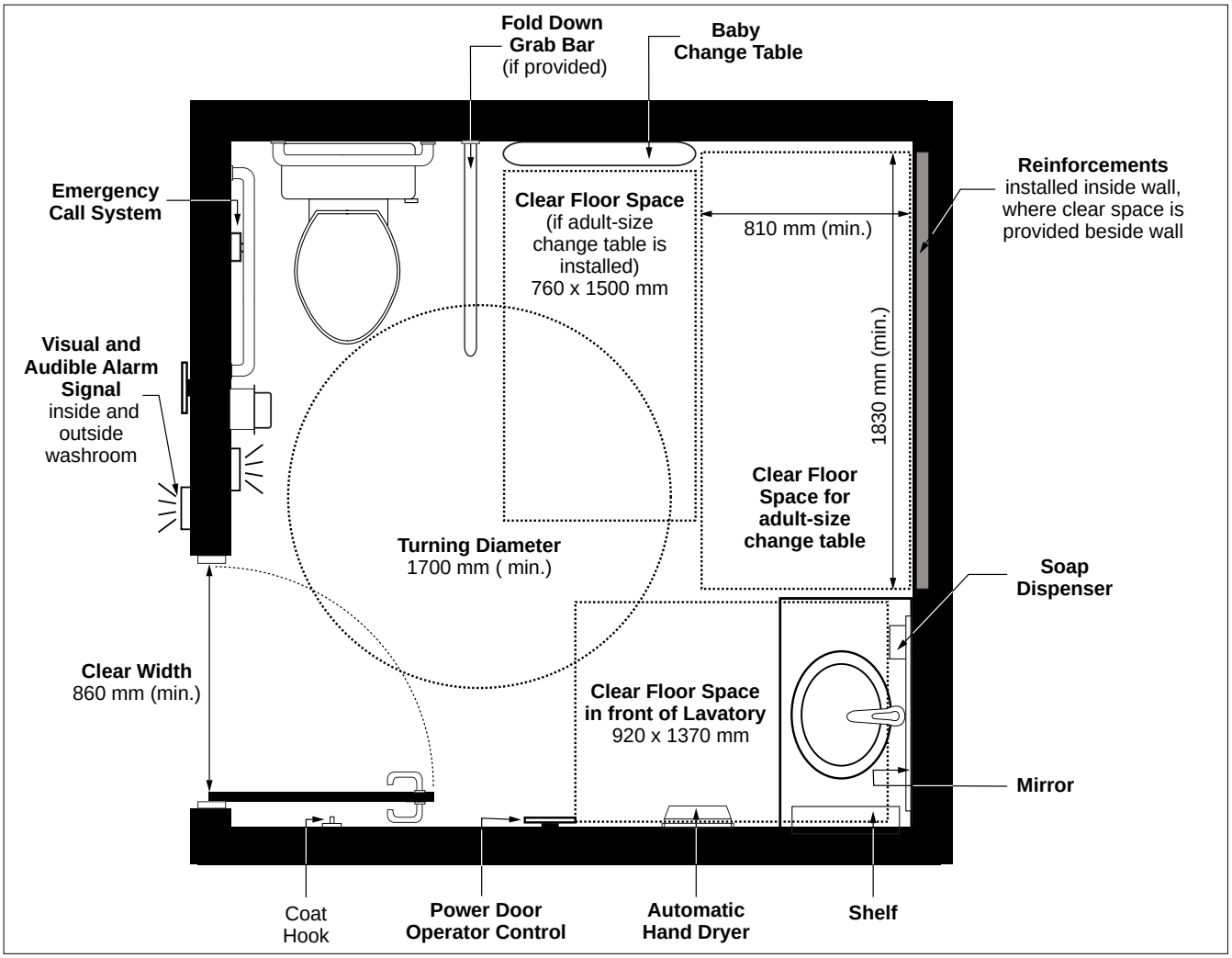


Figure 53: Universal Washroom

Note

Ambulatory water closet stalls can be identified with a sign that includes a pictogram or symbol of a person with a cane.

4.5.4 Ambulatory Water Closet Stalls

Where ambulatory water closet stalls are provided for users with limited mobility who do not use wheeled mobility aids (e.g., canes or crutches):

a. ensure they are at least 1500 mm deep and be not less than 890 mm and not more than 940 mm in width **(Figure 54)**;
b. provide a stall door:
    i. with clear width of 810 mm (minimum);
    ii. that swing outward, unless the minimum dimensions of the stall identified above are not located within the door swing;
    iii. with spring-type or gravity hinges so that the door closes automatically;
    iv. capable of being latched from the inside and released from the outside in case of an emergency;
    v. with a door pull on both sides of the door, near the latch side of the door, located at a height not less than 900 mm and not more than 1100 mm above the finished floor; and
    vi. ensure door pulls are operable with a closed fist and without tight grasping, pinching of fingers or twisting of wrist, with a maximum force of 22.2 Newtons (5 pounds);
c. equip with a water closet located so that its centre line is centred between the partition walls **(Figure 54)**;
d. install L-shaped grab bars, as identified in this section, on each side of the water closet;
e. provide a sign on the door that indicates that the stall is suitable for users who may require grab bar assistance; and
f. install a coat hook as identified in this section.

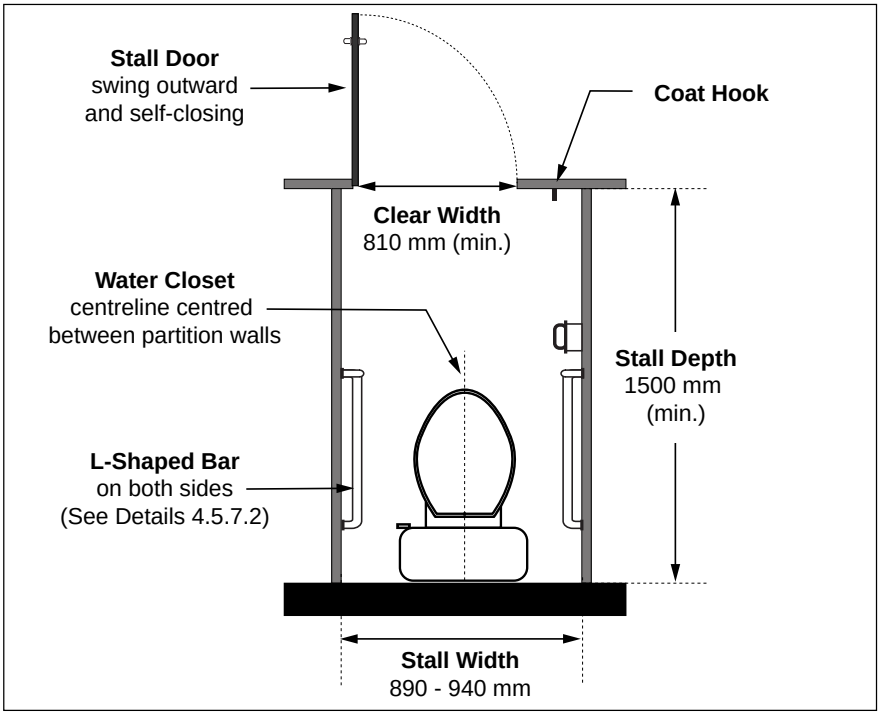


Figure 54: Ambulatory Water Closet Stall

4.5.5 Accessible Water Closet Stalls

Where accessible water closet stalls are provided in multiple occupancy washrooms:

a. mark accessible water closet stall with International Symbol of Accessibility;
b. provide a clear turning space of 1500 mm diameter (minimum) **(Figure 55a)**; and
c. install at least one coat hook mounted at 1200 mm (maximum) high from floor, with a maximum projection of 50 mm from mounting surface.

4.5.5.1 Stall Doors

a. provide clear width of 860 mm (minimum) **(Figure 55a)**;
b. ensure the door is aligned with water closet transfer space (e.g., door is positioned on opposite side of water closet);
c. ensure door swings outward, unless a clear floor area of 820 mm wide by 1440 mm long (minimum) is provided within the stall or enclosure to permit the door to be closed inside without interfering with the mobility device;
d. ensure door is self-closing with spring-type or gravity hinges, so that when at rest, the door will be ajar not more than 50 mm beyond the jamb;
e. provide accessible locking mechanisms, with stall capable of being locked from the inside by a control that is operable with a closed fist;
f. ensure door can be released from the outside in case of emergency; and
g. provide D-pull door hardware on inside and outside of the door **(Figure 55a)**:
    i. colour contrasted with mounting surface;
    ii. with a length of 140 mm (minimum);
    iii. mounted horizontally on both sides 800 to 1000 mm high from floor, centered 120 to 220 mm from latch side of the door; and
    iv. mounted horizontally on the inside of an out-swinging door, 800 to 1000 mm high from floor, centered 200 to 300 mm from the hinge edge.

4.5.6 Water Closets

a. mount seat between 430 mm and 485 mm high from floor;
b. install water closet so that:
    i. the centerline of water closet from any adjacent side wall is between 460 mm and 480 mm and an unobstructed transfer space of 900 mm wide by 1500 mm deep (minimum) is provided on the other side of the water closet **(Figures 55a and b)**; or
    ii. a clear transfer space of at least 900 mm wide and 1500 mm deep is provided on each side of the water closet;
c. provide a back support where there is no seat cover / lid or tank, and where there is a tank, ensure tank lid is securely attached;

Best Practice

Automatic flush controls are recommended for accessible water closets (e.g., sensor activated).

Space of 50 mm is recommended between grab bar and toilet paper dispenser.

Where large toilet paper dispensers are used, ensure they are suitably mounted and do not obstruct the use of the adjacent grab bar.

Note

The clear transfer space is measured from side surface of water closet to stall partition / wall, or side of adjacent vanity, if applicable, in universal washrooms.

d. ensure seat is not spring activated;
e. provide internal extension guards that will not allow the seat to slide;
f. provide automatic, lever or other type of flushing control (e.g., push button control) that:
    i. is located between 500 and 900 mm above the finished floor;
    ii. is located on and operable from the transfer side; and
    iii. is operable using a closed fist and does not require fine finger control, tight grasping, pinching or twisting of the wrist, with a maximum force of 22.2 Newtons (5 pounds);
g. mount toilet paper dispenser:
    i. on the side wall closest to the water closet, below the grab bar;
    ii. with bottom edge at 600 to 800 mm high from floor; and
    iii. with the closest edge of the dispenser in line with front edge or a maximum of 300 mm from the front edge of the water closet seat **(Figure 55b)**;
h. install at least one coat hook mounted at 1200 mm (maximum) high from floor, with a maximum projection of 50 mm from mounting surface.

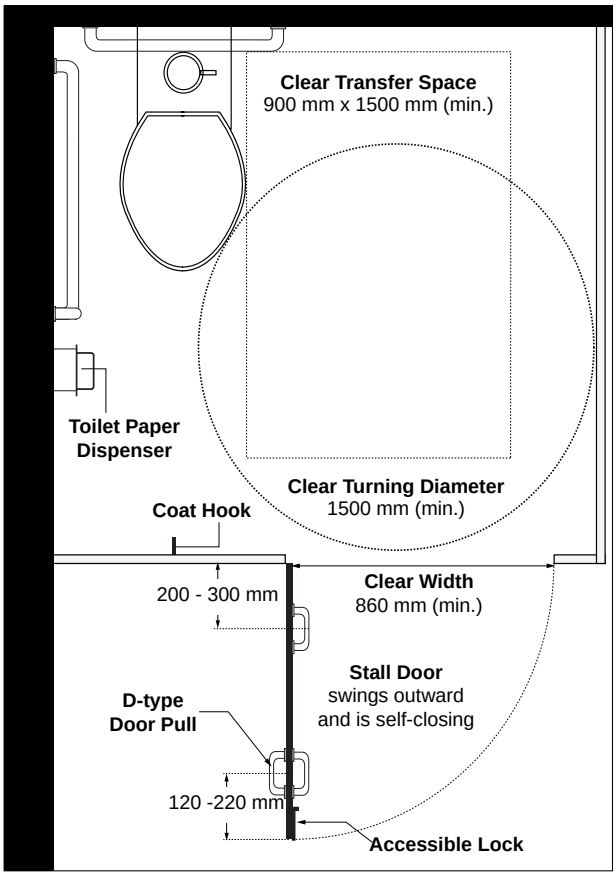


Figure 55a: Water Closet Stall - Space Requirements

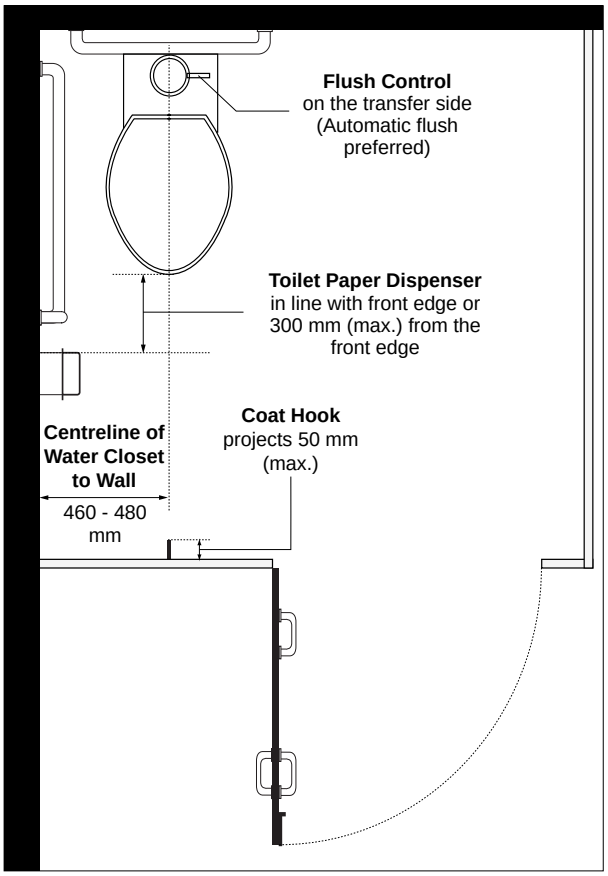


Figure 55b: Water Closet Stall Features

4.5.7 Grab Bars

Where grab bars are provided:

a. ensure surface is non-abrasive and slip-resistant;
b. provide grasping surface that is circular in shape, with diameter between 30 mm and 40 mm;
c. ensure clear space of 38 mm (minimum) and 50 mm (maximum) between mounting surface and the inside surface of the grab bar, as well as between ends of grab bar and any adjacent wall;
d. ensure colour contrasted finish between grab bar and mounting surfaces;
e. mount securely to withstand a force of 1.3 Kilonewtons applied in all directions; and
f. ensure grab bar does not rotate within its fittings.

4.5.7.1 Horizontal Grab Bars

a. ensure length of 600 mm (minimum) **(Figure 56)**;
b. mount between 840 mm and 920 mm high from floor level, centered behind water closet; and
c. where water closet has a water tank, mount grab bar 150 mm above the tank **(Figure 56)**.

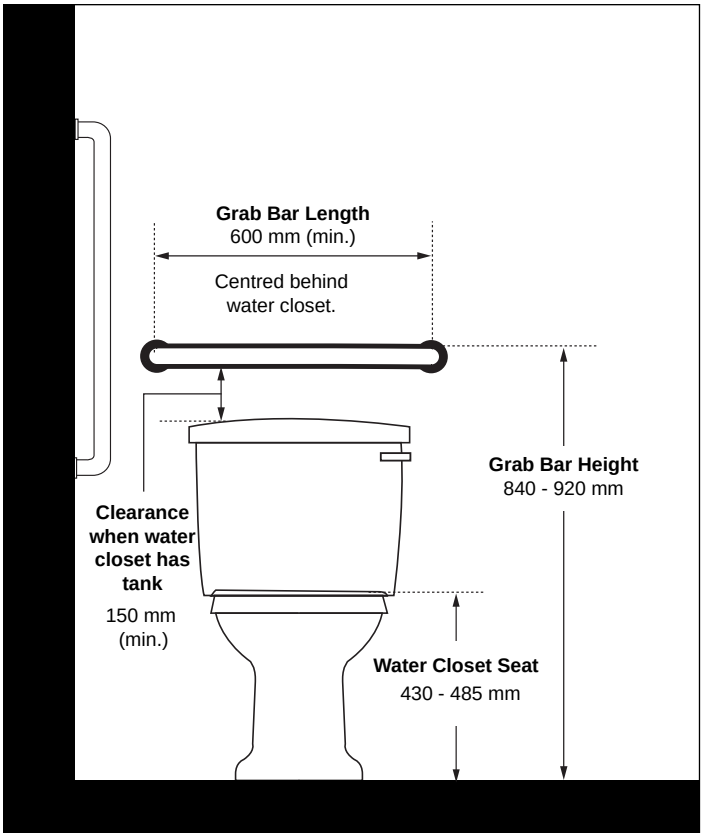


Figure 56: Horizontal Grab Bar Requirements

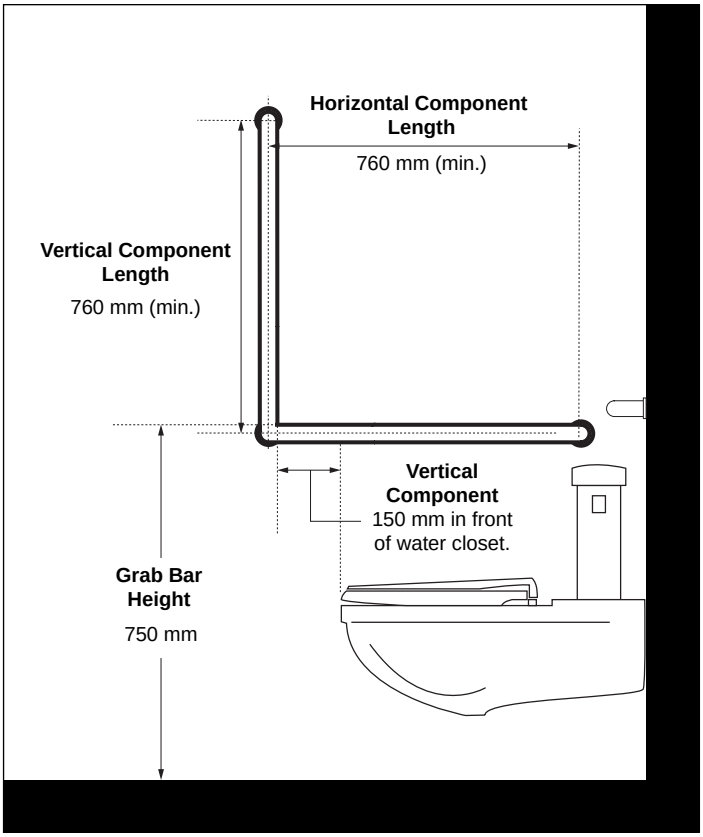


Figure 57: L-shaped Grab Bar Requirements

Note

Fold down grab bar is permitted to encroach into the turning space or a clear transfer space.

4.5.7.2 L-Shaped Grab Bars

a. ensure length of 760 mm (minimum) for both vertical and horizontal components **(Figure 57)**;
b. mount vertical component 150 mm (maximum) from the front of water closet; and
c. mount horizontal component 750 mm high above floor.

4.5.7.3 Fold Down Grab Bars

Where fold down grab bars are provided:

a. mount on the wall behind the water closet;
b. locate on transfer space side(s) (e.g, both sides where a clear transfer space is provided on each side of the water closet);
c. ensure length of 760 mm (minimum);
d. mount with centerline between 390 mm and 410 mm from centerline of water closet **(Figure 58a)**;
e. mount with the horizontal component at 750 mm high from floor level **(Figure 58b)**; and
f. ensure force required to pull down grab bar is no more than 22 Newtons.

4.5.8 Lavatories

Provision of at least one accessible lavatory is required in each accessible washroom facility:

a. ensure centerline of lavatory is 460 mm (minimum) from adjacent side wall **(Figure 59b)**;

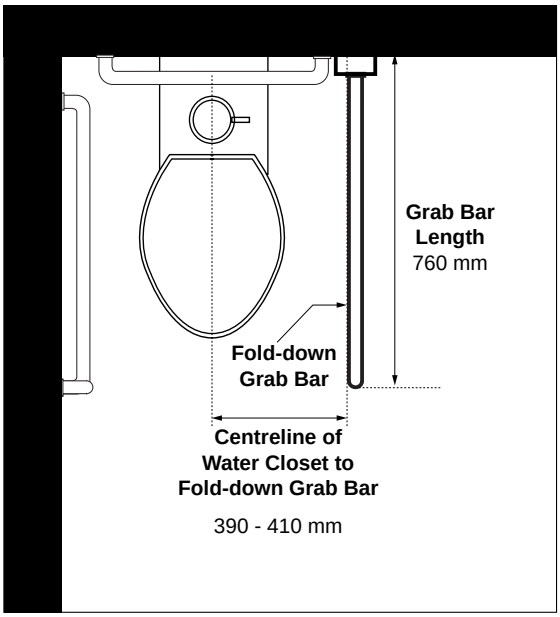


Figure 58a: Fold Down Grab Bar Requirements - Plan View

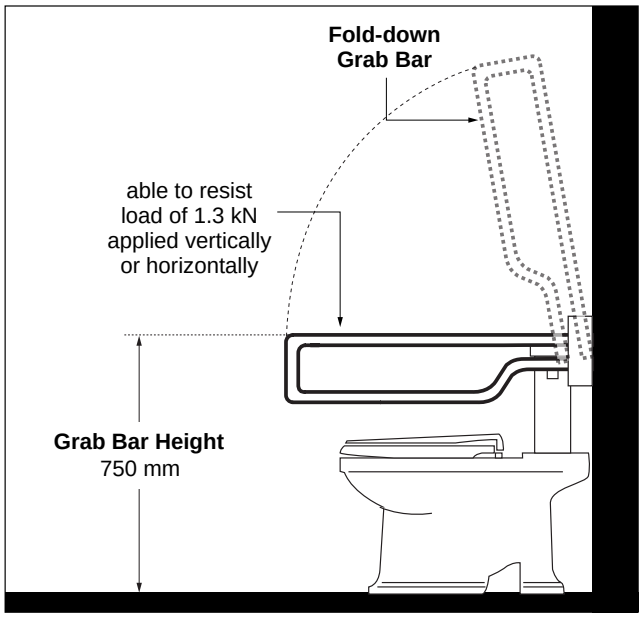


Figure 58b: Fold Down Grab Bar Requirements - Elevation View

b. ensure top surface is continuous and colour contrasted with adjacent wall surfaces;
c. mount top surface of lavatory 820 to 840 mm high above floor **(Figure 59a)**;
d. provide clearances underneath lavatory no less than **(Figure 59a)**:
   i. 920 mm wide;
   ii. 735 mm high at front edge;
   iii. 685 mm high at 200 mm back from front edge; and
   iv. 350 mm high, over the distance from a point 280 mm to a point 430 mm back from the front edge, for toe space clearance;
e. provide automatic control or lever-type faucet without spring loading, located no more than 485 mm depth from edge of basin;
f. mount soap dispenser a maximum of 1100 mm high above the finished floor, within 500 mm from the front edge of the lavatory, with an automatic control (preferred) or with a manual control, operable using a closed fist and with a maximum force of 22.2 Newtons (5.0 pounds);
g. provide an automatic hand dryer (preferred) or manually operated towel dispenser, located at a maximum of 610 mm, measured horizontally, from the edge of the lavatory;
h. provide minimum clear floor space of 920 mm wide by 1370 mm deep (minimum), of which 500 mm depth is allowed under the lavatory **(Figure 59b)**;
i. ensure water pipes are covered or insulated below lavatories **(Figure 59a)**; and
j. ensure water temperature is controlled to a maximum of 43°C.

Best Practice

Automatic faucet control is preferred or single lever faucet handles, 75 mm long (minimum).

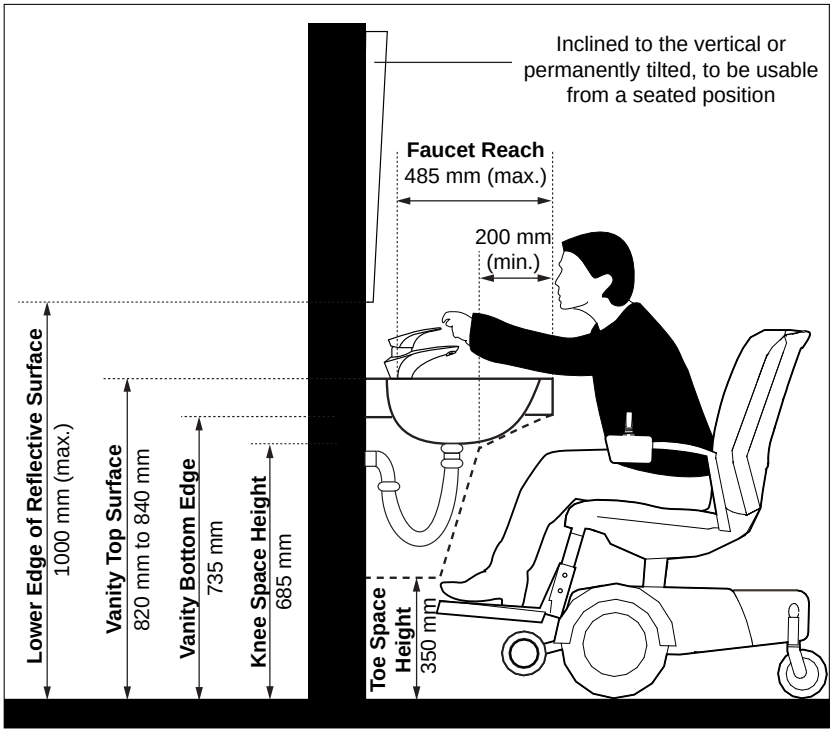


Figure 59a: Lavatories - Section View

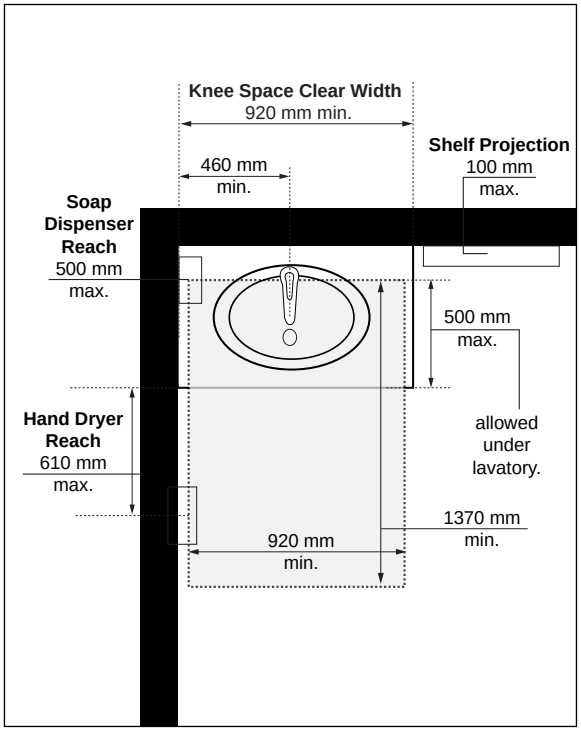


Figure 59b: Lavatories - Plan View

Best Practice

Automatic controls are preferred as they are easy to use by a wider range of users.

A single full length mirror can accommodate a greater number of people, including children. In order for mirrors to be usable by people who are ambulatory and people who use wheeled mobility devices, ensure the top edge of mirrors is 1880 mm (minimum) from the floor or ground.

Where tilted mirrors are provided, ensure they are permanently tilted for use at all times from a seated position, by children or users of shorter stature.

4.5.8.1 Shelves

a. mount 1100 mm (maximum) high above floor;
b. ensure shelves do not project more than 100 mm from mounting surface along an accessible path of travel **(Figure 59b)**; and
c. where provided at lavatory, mount 200 mm (maximum) above top surface of lavatory.

4.5.9 Washroom Amenities

Washroom amenities include, but are not limited to, hand dryers, paper towel dispensers, soap dispensers, waste bins, mirrors and changing stations and tables. Where provided **(Figure 60)**:

a. ensure wall mounted amenities do not project more than 100 mm from wall along an accessible path of travel;
b. provide colour contrasted finishes between amenities and mounting surfaces;
c. ensure any operating controls are mounted between 900 and 1100 mm high above floor, are automatic / push button type or are operable with a closed fist / one hand, without requiring tight grasping, pinching or twisting of the wrist and with a maximum force of 22.2 Newtons (5 pounds);
d. where amenities are mounted at lavatories (e.g., hand dryers, paper towel dispensers, soap dispensers), install at a maximum of 1100 mm high, between 500 to 610 mm measured horizontally from the edge of the lavatory;
e. ensure the dispensing height of washroom amenities is between 900 mm and 1100 mm; and
f. provide minimum clear floor space of :
    i. 920 mm wide by 1370 mm deep to allow front approach; and
    ii. 1525 mm wide by 920 mm deep to allow side approach.

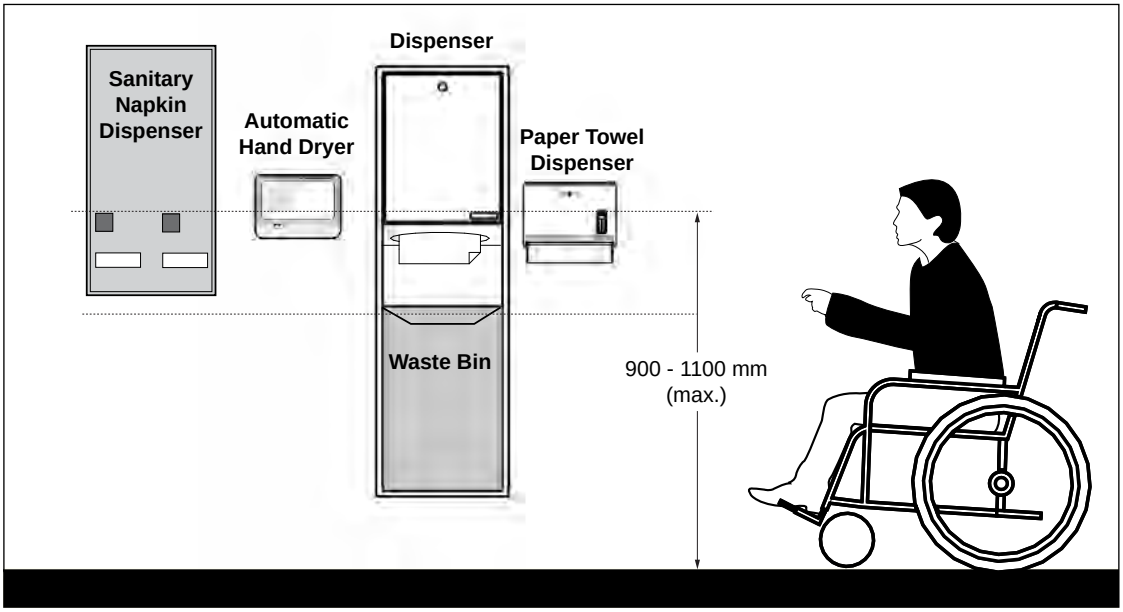


Figure 60: Typical Washroom Amenities

4.5.9.1 Mirrors

a. mount above lavatory with the bottom edge 1000 mm (maximum) high above floor **(Figure 59a)** or inclined to the vertical to be usable from a seated position;

b. ensure lighting level over mirrors does not create reflected glare; and

c. where full length mirrors are provided, ensure they are not installed where they will reflect path of travel and cause confusion for users.

4.5.9.2 Changing Stations and Tables

4.5.9.2.1 Baby Changing Stations

a. where provided, ensure at least one is accessible for users with disabilities, with unit placed in a location that does not obstruct adjacent paths of travel when in use and positioned in close proximity to a lavatory and waste receptacle;

b. ensure the required floor clearance for changing station does not overlap with floor clearances of other fixtures, when the changing station is folded up;

c. mount with the highest edge or component of the station between 730 and 865 mm **(Figure 61a)**;

d. ensure knee clearance of 685 mm high and 480 mm depth is provided;

e. where a folding changing station is provided, ensure projection from wall is no more than 100 mm when in folded position and located along accessible path of travel; and

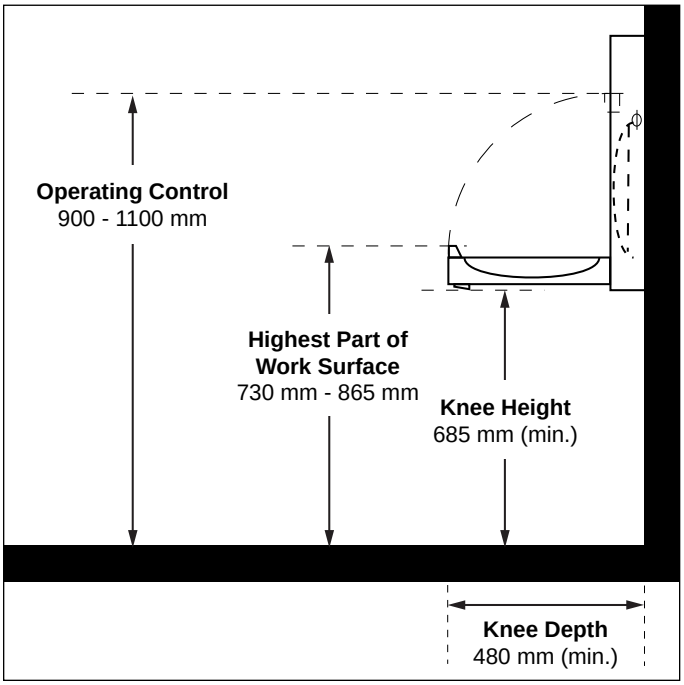


Figure 61a: Folding-Type Baby Changing Station - Section View

Best Practice

Ensure baby changing stations are not located in accessible water closet stalls, especially in high use washrooms.

Universal washrooms designed with larger floor space are more suitable to accommodate changing stations, tables and other attendant care amenities (e.g., shelving).

Note

Baby changing stations can be fixed or the folding type.

Best Practice

Public facilities such as community and recreation centres, should provide an adult-size change table in each universal washroom.

Note

Adult-size change tables located in universal washrooms are of benefit to many individuals, and may be used as changing stations or tables. They allow persons with balance or strength problems to sit and allow persons with disabilities to lie down and be changed with the assistance of an attendant, as might be required.

Adult-size change tables are also useful in change rooms, where people are expected to change clothing.

f. where a folding-type changing station is provided, ensure operating controls are:
   i. mounted between 900 to 1100 mm high **(Figure 61a)**; and
   ii. operable with a closed fist and without tight grasping, pinching of fingers or twisting of wrist, with a maximum force of 22.2 Newtons (5 pounds).

4.5.9.3 Adult-Size Change Tables

Where an adult-size change table is installed in a universal washroom:

a. provide a clear floor space of 760 mm wide by 1500 mm long (minimum), parallel to the long side of the table;
b. when fully loaded, ensure the surface height above the floor is adjustable from between 450 mm and 500 mm at the low range to between 850 mm and 900 mm at the high range **(Figure 61b)**;
c. where a fold-down change table is provided:
   i. install so that it does not encroach into the clear transfer space adjacent to the water closet;
   ii. ensure operating mechanisms (e.g., latches, handles and pulls) are mounted between 900 to 1100 mm high; and
   iii. ensure operating mechanisms are operable with a closed fist and without tight grasping, pinching of fingers or twisting of wrist;
d. ensure changing tables can support a minimum load of 1.33 Kilonewtons;
e. provide a high colour contrast between change table surface and adjacent mounting surface; and
f. ensure change table surfaces are free of sharp edges or abrasive materials, and are easy to clean.

4.5.10 Urinals

Where more than one urinal is provided in men's multiple occupancy washrooms, provide at least one accessible urinal:

a. locate within accessible path of travel with no step in front of the urinal;
b. mount urinal on wall with the rim located 430 mm (maximum) above floor; OR provide a floor mounted urinal with the rim level with the floor level **(Figure 62a);**
c. ensure the upper rim is no lower than 860 mm high above floor;
d. ensure depth of 345 mm (minimum), measured from the outer face of the urinal rim to the back of the fixture **(Figure 62a)**;

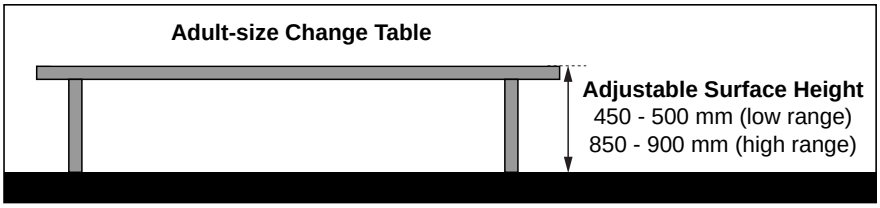


Figure 61b: Adult-Size Change Table

e. ensure colour contrast is provided between urinal and mounting surface;
f. provide a lever, automatic, or other flush control operable with a closed fist, without tight grasping, pinching or twisting of the wrist (e.g., push button control) and with a maximum force of 22.2 Newtons (5.0 pounds), mounted between 900 to 1100 mm high above floor **(Figure 62a)**;
g. provide a minimum clear floor space of 915 mm wide by 1370 mm depth that is perpendicular to, and centered on the urinal and is unobstructed by privacy screens for front approach;
h. provide grab bars, on each side of urinal **(Figure 62b)**:
    i. mount vertically, with centreline at 1000 mm high above floor;
    ii. mount 380 mm (maximum) from centreline of urinal; and
    iii. with length of 600 mm (minimum); and
    iv. with high colour contrast compared to back wall;
i. install centreline indicator for all urinals **(Figure 62b)**:
    i. centred above the urinal 50 mm wide (maximum);
    ii. extending 1300 mm (minimum) above floor but never less than 150 mm above the upper urinal rim;
    iii. ensure indicator has high colour contrast compared with back wall and raised 3 mm (minimum); and
    iv. where more than one urinal is provided in a washroom, provide a centreline indicator at each urinal;
j. where privacy screens are provided **(Figure 62b)**:
    i. provide clearance of 920 mm (minimum) between screens;
    ii. ensure a clearance of 50 mm (minimum) from the grab bars;
    iii. ensure colour contrast between screens and surrounding surfaces; and
    iv. ensure the vertical outer edge provides a high colour contrast.

Note

Placement of privacy screens is dependent on where grab bars are installed.

Vertical markers are used to identify centreline of urinal for users with vision loss.

Various elements may be used as a centreline indicator, such as exposed piping, architectural features (e.g., raised ceramic tiles), etc.

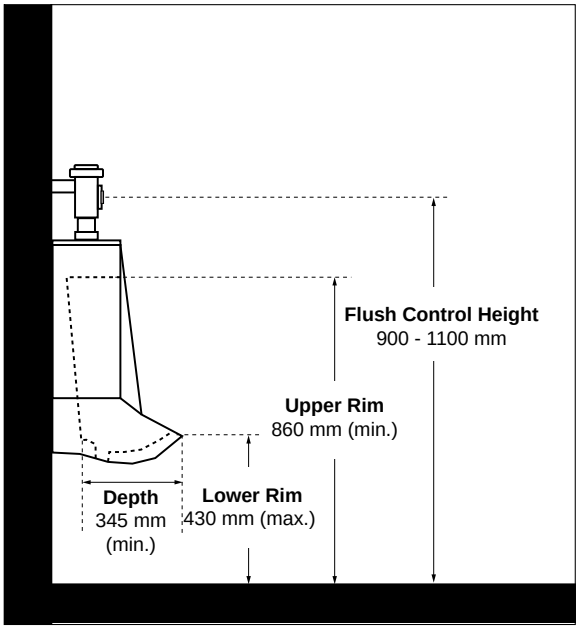


Figure 62a: Urinal - Side Elevation View

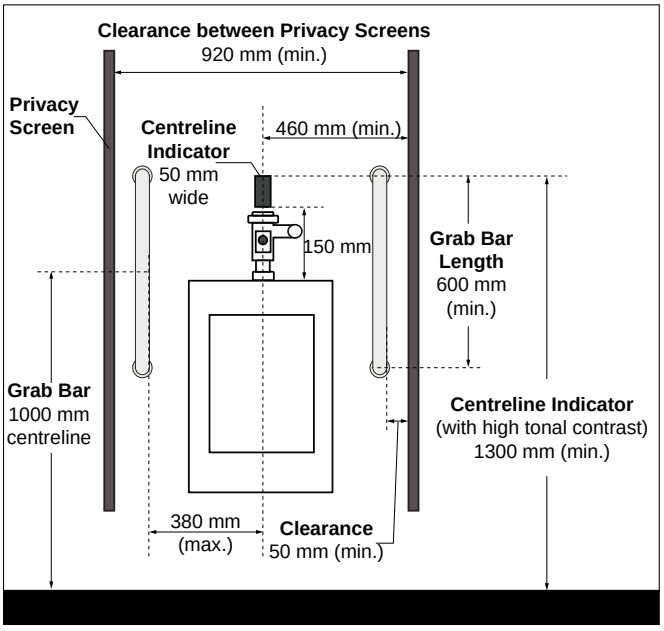


Figure 62b: Urinal - Front Elevation View

Showers

4.6

Application

This section applies to accessible showers provided in all facilities, typically referred to as roll-in shower stalls.

Reference

Sec. 5.1 Controls and Operating Mechanisms

Sec. 5.7 Lighting

4.6.1 Provision

a. provide at least one accessible shower stall where a group of showers are provided in a facility, as identified in **Table 10** below:

Table 10: Minimum Number of Accessible Showers

Number of Showers provided in a Group	Minimum number of Accessible Showers required
1-7	1
Over 7	1, plus 1 for each additional increment of 7 showers in a group

4.6.2 Design and Layout

For accessible shower stalls, provide: **(Figure 63)**

a. interior floor space a minimum of 1500 mm wide by 900 mm depth;
b. additional clear floor space a minimum of 1500 mm wide by 900 mm depth at shower entrance;
c. a covered trench drain that is suitably located, based on the overall design of the stall and drainage requirements (e.g., preference is for water to drain away from user as much as possible, including consideration for additional drain(s) in drying area during detailed design);
d. level entry or a beveled threshold of 1:2 (50% max.), 13 mm high (maximum);
e. a floor surface that is slip-resistant; and
f. a lighting level that is evenly distributed for all areas, at a minimum of 100 lux (10 ft. candles).

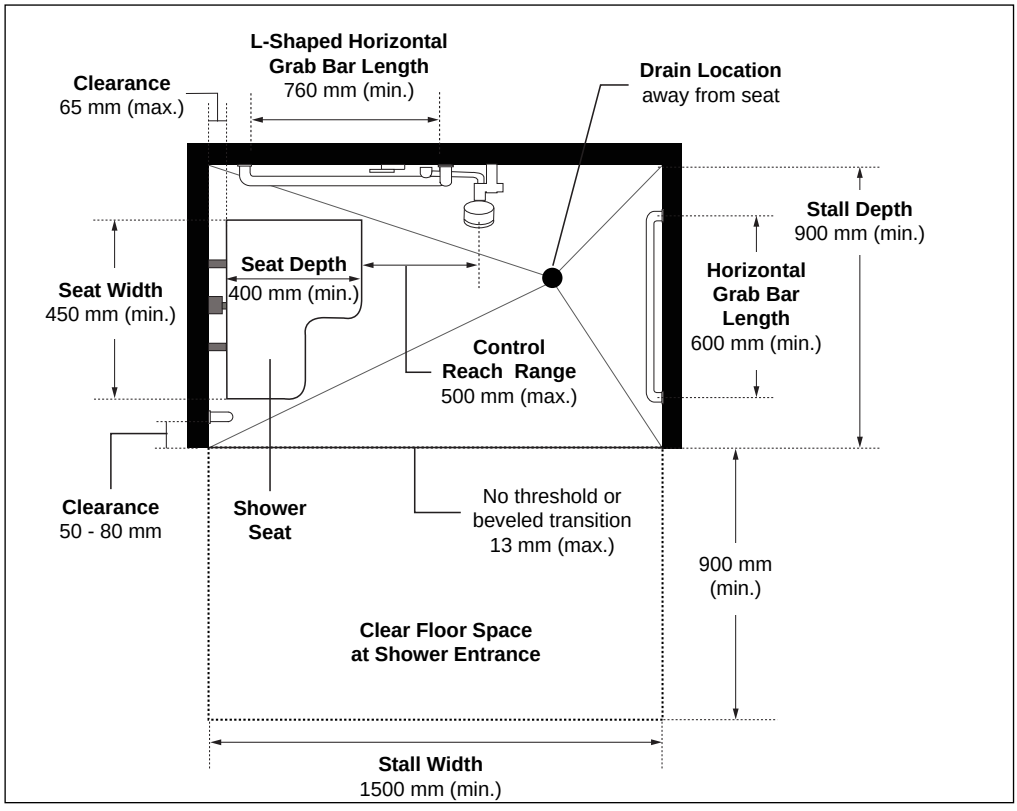


Figure 63: Accessible Shower Stall Design and Layout - Plan View

Best Practice

Where additional space is available, provide an accessible drying area, adjacent to the shower area with bench and grab bars.

Note

Where enclosure screens or curtains are provided, ensure mounting provisions do not obstruct the shower controls, required clear floor space at entry and the transfer from mobility aids to the shower seat.

Best Practice

Water-resistant and padded seat surfaces are recommended.

Note

EXCEPTION: The use of two fixed-height shower heads with the capability of adjusting the direction of water flow is permitted instead of a hand-held shower head with flexible hose in facilities that may be subject to vandalism.

The higher shower head to be mounted at 1825 mm high.

The lower shower head to be mounted at 1400 mm high.

A valve to direct water between the two shower heads, to be mounted / located adjacent to the shower control / mixing valve, as identified in this section.

4.6.3 Controls and Accessories

4.6.3.1 General

For general features related to shower controls and accessories, provide: **(Figure 63)**

a. lever type or automatic controls that can be operated with a closed fist and with a force of not more than 22.2 Newtons (5 pounds), mounted at 1000 mm high above floor;
b. locate all shower controls, including shower head, a maximum of 500 mm from the front edge of the seat;
c. a pressure equalizing or thermostatic mixing valve to control water pressure and avoid scalding, mounted at a maximum of 1100 mm high above finished floor; and
d. fully recessed soap holders, mounted between 900 mm and 1100 mm, reachable from a seated position.

4.6.3.2 Shower Head

For shower heads, provide: **(Figure 64)**

a. a hand-held shower head with a flexible hose at a minimum length of 1800 mm;
b. vertical support used to mount hand-held shower head that allows operation as a fixed shower head, adjustable between 1200 mm to 2030 mm above finished floor and reachable from a seated position; and
c. a vertical support and shower head placement that does not obstruct the use of grab bars.

4.6.3.3 Shower Seat

Provide a fixed shower seat or where a hinged seat is provided, ensure it is not spring-loaded, with seat mounted as follows: **(Figures 63 & 64)**

a. securely, capable of holding a minimum load of 1.3 Kilonewtons (300 pounds) and located on the same side wall as the vertical grab bar;
b. between 460 mm and 480 mm high above the finished floor, with the front edge of the seat located within 500 mm from the shower head and controls; and
c. with a smooth and slip-resistant surface, with no rough edges, a minimum of 450 mm wide by 400 mm depth with rear edge 65 mm from wall and with high colour / tonal contrast compared to surroundings.

4.6.4 Grab Bars

a. ensure grasping surface is non-abrasive, slip-resistant and provide a high colour / tonal contrast compared with mounting surface;
b. provide circular profile, with diameter between 30 mm and 40 mm;
c. ensure a minimum clear space of 50 mm between mounting surface and grab bar, as well as between ends of grab bars and any adjacent wall;
d. mount securely to withstand a force of 1.3 Kilonewtons (300 pounds) applied in all directions; and
e. ensure grab bars do not obstruct the use of the shower controls.

4.6.4.1 Vertical Grab Bar

a. provide a vertical grab bar, with a minimum length of 1000 mm and mounted as follows: **(Figures 63 & 64)**
    i. on the side wall adjacent to shower seat, with a clearance between 50 mm and 80 mm from the adjacent clear floor space; and
    ii. with bottom edge between 600 mm and 650 mm high above floor to provide additional support when entering / exiting or when transferring to the seat.

4.6.4.2 L-Shaped Grab Bar

a. mount on wall opposite to shower entrance between the shower head and shower controls, with: **(Figures 63 & 64)**
    i. horizontal component a minimum length of 1000 mm, mounted between 750 and 870 mm above the finished floor; and
    ii. vertical component a minimum length of 760 mm, mounted between 400 mm and 500 mm from the side wall on which the vertical grab bar is mounted.

4.6.4.3 Horizontal Grab Bar

a. mount on the side wall opposite from the shower seat, with: **(Figures 63 & 64)**
    i. a minimum length of 600 mm; and
    ii. mounting height at 850 mm above finished floor.

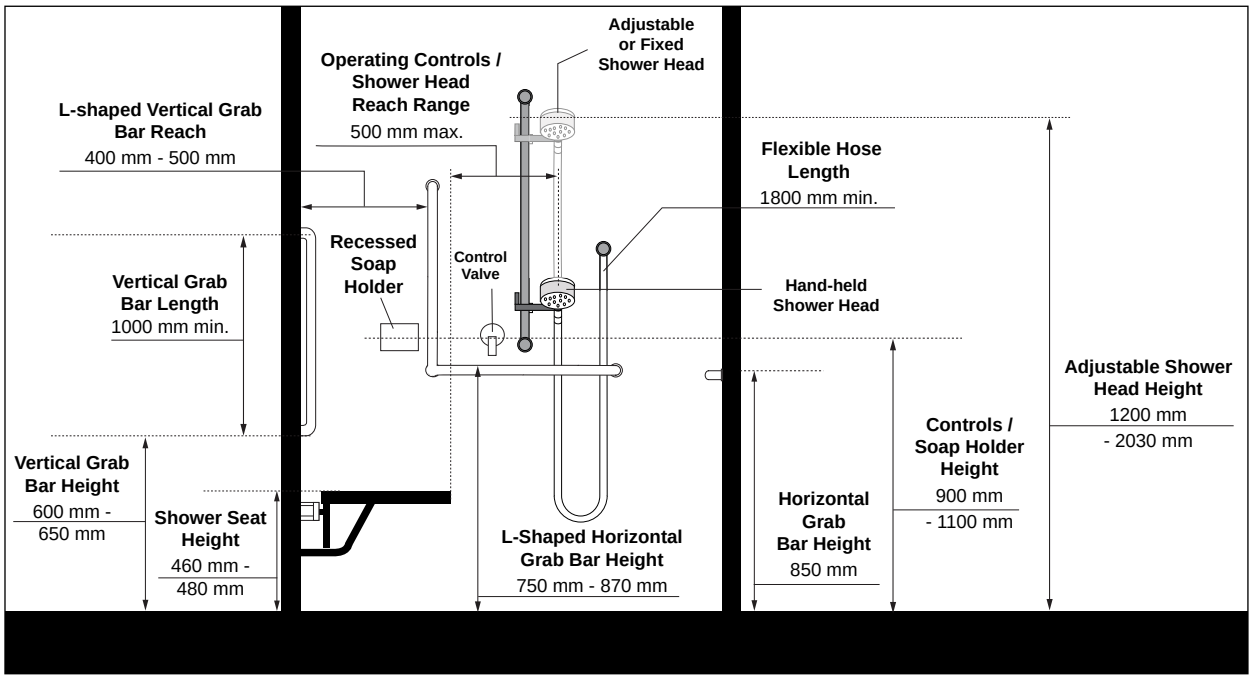


Figure 64: Accessible Shower Stall Design and Layout (Typical) - Section View

Interior Maintenance Checklist

4.7

Application

The following checklist is recommended as a starting point for Staff when conducting maintenance audits of interior environments.

Interior Maintenance Checklist

A regular maintenance schedule should be identified by the City to address the requirements identified within this checklist (e.g., daily, weekly, monthly etc.).

1. Facility Entrance *(Ref. Section 4.1 Entrances)*				*This section does not apply* ☐
Item	**Requirements**	**Compliance**	**Accessibility Issues**	**Location Reference**
1.1	Are power door operators in good working condition?	Y N N/A		
1.2	Is building directory signage (including maps / floor plans) kept up to date?	Y N N/A		

2. Accessible Parking Spaces (where provided in parking garage, underground parking) *(Ref. Section 3.1 Parking)*				*This section does not apply* ☐
Item	**Requirements**	**Compliance**	**Accessibility Issues**	**Location Reference**
2.1	Is the proper use of designated accessible parking spaces by drivers with disabilities (e.g., with valid permits displayed) enforced at all times?	Y N N/A		
2.2	Are parking spaces, including access aisles, kept clear of obstacles and other obstructions (e.g., garbage)?	Y N N/A		
2.3	Is the parking surface, including access aisles, in good condition (e.g., free of disrepair such as cracks, heaving, uneven surfaces, potholes)?	Y N N/A		
2.4	Are pavement markings provided in good condition?	Y N N/A		
2.5	Is vertical signage provided at designated accessible parking spaces clearly visible and in good condition?	Y N N/A		
2.6	Where provided, are curb ramps kept free of obstructions?	Y N N/A		
2.7	Are accessible routes from parking spaces leading to facility entrance clearly marked and free of obstructions?	Y N N/A		

3. Interior Accessible Routes *(Ref. Section 4.3 Interior Accessible Routes)*				This section does not apply ☐
Item	**Requirements**	**Compliance**	**Accessibility Issues**	**Location Reference**
3.1	Is the width of accessible routes maintained to ensure easy maneuverability for users of mobility aids?	Y N N/A		
3.2	Are routine inspections undertaken to ensure junctions between different flooring materials do not become worn or uneven and present potential tripping hazards?	Y N N/A		
3.3	Are floor surfaces routinely inspected to ensure glare issues are reduced?	Y N N/A		
3.4	Are suitable cleaning products used to ensure polished floors are not slippery when wet and / or cause glare?	Y N N/A		
3.5	Where applicable, are overhead projections no lower than 2100 mm (83 in)?	Y N N/A		
3.6	Where provided, are power door operators in good working condition?	Y N N/A		
3.7	Are all elevators regularly serviced by qualified personnel (e..g, based on a regular maintenance schedule)?	Y N N/A		
3.8	Are considerations made prior to redecoration to maintain a careful colour scheme with suitable colour contrasts?	Y N N/A		

4. Accessible Washrooms *(Ref. Section 4.5 Washrooms)*				This section does not apply ☐
Item	**Requirements**	**Compliance**	**Accessibility Issues**	**Location Reference**
4.1	Are accessible washrooms and stalls kept clear at all times?	Y N N/A		
4.2	Is lighting level maintained and suitable in accessible washrooms?	Y N N/A		
4.3	Are all washroom accessories in good working condition?	Y N N/A		
4.4	Are grab bars securely fixed with no obstructions along grasping surface?	Y N N/A		
4.5	Where applicable, are emergency alarms and controls routinely checked by qualified personnel?	Y N N/A		

5. Systems and Controls *(Ref. Section 5.0 Systems, Controls and Communications)*				This section does not apply ☐
Item	**Requirements**	**Compliance**	**Accessibility Issues**	**Location Reference**
5.1	Are mechanical systems / units maintained to reduce background noise that is problematic for people with hearing loss?	Y N N/A		
5.2	Are Assistive Listening Systems (e.g., induction loops and infra red systems) identifiable with appropriate signage and checked regularly, where provided in assembly rooms, multi-purpose rooms, etc.?	Y N N/A		
5.3	If applicable, is the central TTY monitored routinely and is there someone designated to monitor it?	Y N N/A		
5.4	Is staff awareness training re: disability issues implemented to ensure they can provide assistance if required?	Y N N/A		

6. Fire and Life Safety Systems *(Ref. Section 5.6 Fire and Life Safety Systems)*				This section does not apply ☐
Item	**Requirements**	**Compliance**	**Accessibility Issues**	**Location Reference**
6.1	Are emergency exit routes regularly checked for potential barriers and obstructions?	Y N N/A		
6.2	Are maps of the facility's evacuation routes and related safety plan information kept up to date (e.g., when offices or other spaces are reconfigured)?	Y N N/A		

6. Fire and Life Safety Systems *continued* *(Ref. Section 5.6 Fire and Life Safety Systems)*			*This section does not apply* ☐	
Item	**Requirements**	**Compliance**	**Accessibility Issues**	**Location Reference**
6.3	Are alarm systems regularly checked by qualified inspectors? **NOTE**: If visual alarms are provided, ensure a flash rate within frequency range of 1 - 3 Hz is provided to minimize the risk of triggering epileptic seizure.	Y N N/A		
6.4	Is there an emergency exiting strategy in place for staff and visitors with disabilities, who may require assistance?	Y N N/A		
6.5	Are emergency exiting strategies checked regularly to ensure effectiveness and efficiency?	Y N N/A		

7. Signage *(Ref. Section 5.8 Signage and Wayfinding)*			*This section does not apply* ☐	
Item	**Requirements**	**Compliance**	**Accessibility Issues**	**Location Reference**
7.1	Where new signage is provided, is it integrated effectively with existing accessible signage?	Y N N/A		
7.2	Is temporary signage removed immediately after use? **NOTE**: Temporary signage is not recommended and can be confusing for users new to the facility. Use of temporary signage should be minimized and monitored to ensure it is used short term only.	Y N N/A		
7.3	Is there a service disruption notification protocol in place to keep visitors and users informed of temporary service disruptions? **NOTE**: This is required as part of AODA Accessibility Standards for Customer Service.	Y N N/A		

Notes:

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Systems, Controls and Communications

5.0

Table of Contents

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Controls and Operating Mechanisms

5.1

Application

This section applies to typical interior and exterior controls and operating mechanisms provided for public and staff use, throughout accessible routes and spaces.

Examples of typical controls and operating mechanisms related to interior and exterior environments include, but are not limited to:

- entrance call buttons or intercoms;
- emergency call systems related to parking areas;
- light switches;
- wall outlets / duplexes;
- fire or other alarm system controls (e.g., washroom emergency alarms);
- thermostats;
- door hardware; and
- plumbing fixture hardware (e.g., faucets and water closet flush controls).

Controls related to product and dispensing machines, such as food and beverage vending equipment, payment stations for parking and ticketing devices, touch screen devices for information and self-service kiosks and other activation devices are also required to be accessible.

Best Practice

Multiple forms of audible, visual and tactile cues to indicate operating controls, benefits the widest range of users with varying disabilities (e.g., sensory / visual / cognitive).

Depending on the type of control, Braille can also be provided.

Align controls at the same height, where possible.

5.1.1 Design Features

Ensure accessible controls and operating mechanisms address the following:

a. are usable with closed fist and operable with one hand;
b. do not require tight grasping, pinching of the fingers, or twisting of the wrist;
c. can be used with force of 22 Newtons (maximum);
d. where push-button type controls are provided, button surface has a minimum diameter of 13 mm and is not recessed;
e. ensure controls are visible from a distance, based on use of colour / tonal contrast between operable parts and adjacent mounting surface **(Figure 65)**;
f. mount controls and operating mechanisms **(Figure 66)**:
    i. no lower than 400 mm high for all controls;
    ii. at 1200 mm high for thermostat and manual fire alarm pull;
    iii. between 900 and 1100 mm high for all other controls and operating mechanisms;
    iv. so that they extend not more than 200 mm and not less than 900 mm high above the floor for vertical extended power door operators; and
g. locate in prominent and obvious locations, for easy identification.

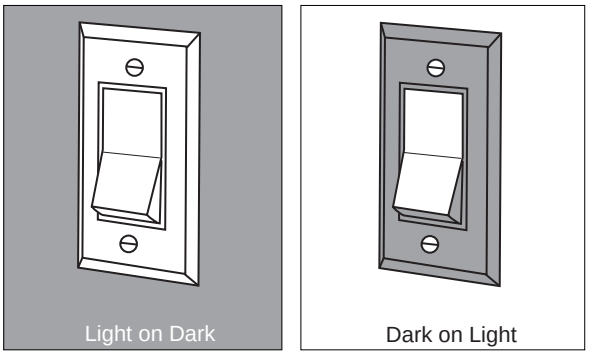


Figure 65: Colour Contrast Between Background and Control

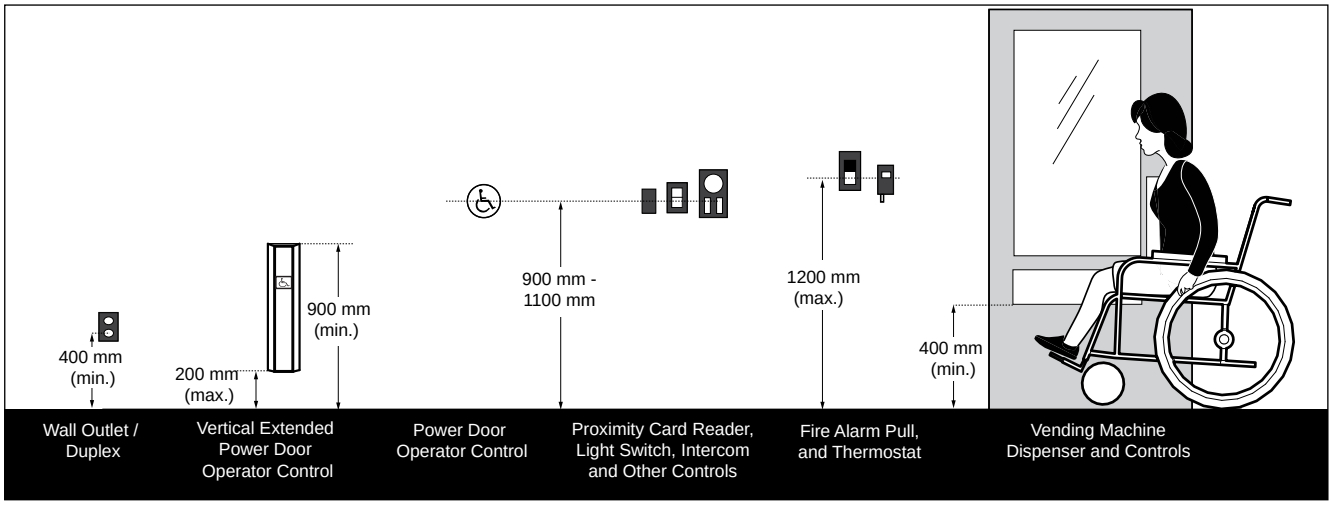


Figure 66: Control Mounting Heights - Elevation View

5.1.2 Floor Space and Reach Requirements

5.1.2.1 Floor Space Requirements

a. provide a clear floor space at controls and operating mechanisms of:
   i. 915 mm wide by 1370 mm depth for a forward approach; and
   ii. 1525 mm wide by 915 mm depth for a side approach.

5.1.2.2 Reach Requirements:

For both a forward and side approach, ensure the following mounting heights of controls and operating mechanisms for suitable reach are provided:

a. where there is no obstruction in front of controls and operating mechanisms:
   i. no lower than 400 mm;
   ii. at 1200 mm for thermostat and fire alarm pull controls; and
   iii. no higher than 1100 mm for other controls and operating mechanisms; and
b. where there is an obstruction of no more than 860 mm high:
   i. no higher than 1100 mm, which allows for a touch reach over a 600 mm deep obstruction or a grasp reach over a 500 mm deep obstruction **(Figure 67 a and b)**.

Best Practice

Provide clear floor space or ground surface with turning diameter of 1700 mm, to allow both side and frontal approach for larger wheeled mobility aids such as powered scooters and wheelchairs.

Note

The clear floor space in front of controls and operating mechanisms may overlap the adjacent interior accessible route.

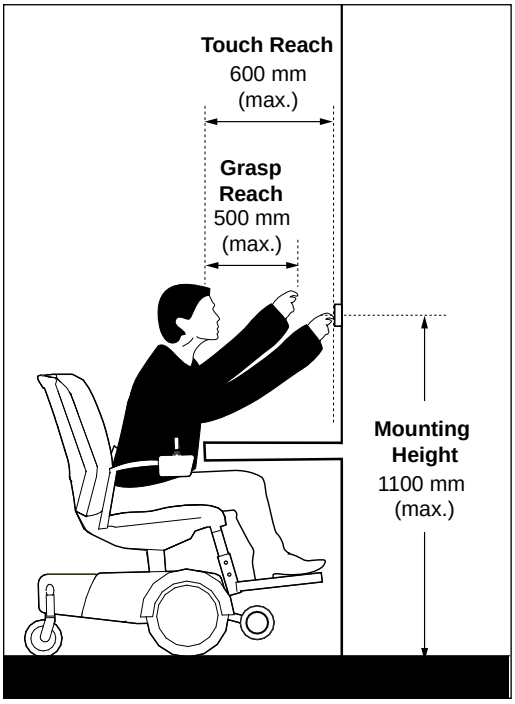


Figure 67a: Maximum Mounting Height for an Obstructed Forward Approach and Reach

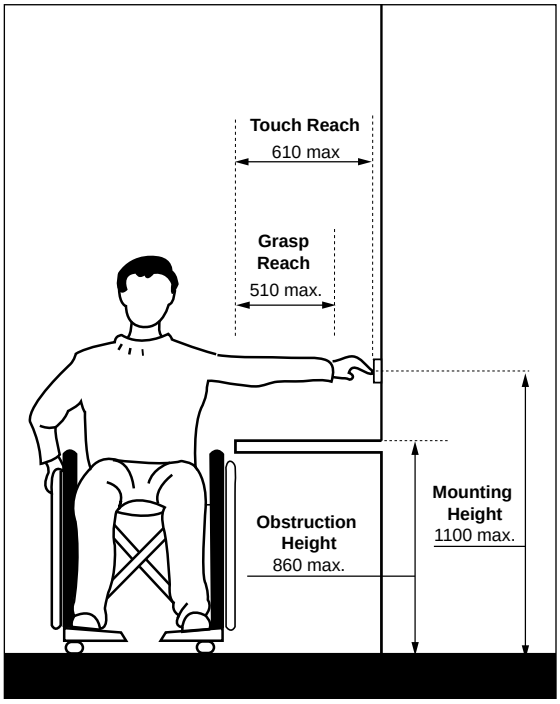


Figure 67b: Maximum Mounting Height over an Obstruction of 860 mm (maximum) for Side Approach and Reach

Assistive Listening Systems

5.2

Application

This section applies to assistive listening systems, required in assembly areas, including but not limited to classrooms, auditoria, meeting rooms and theatres:

- with an area of 100 square metres or occupancy of seventy-five (75) or more fixed seats;
- where audible communication is integral to the use of the space; and
- where audio amplification devices are used.

Assistive listening systems allow users to sit anywhere in an assembly area and can range in type (e.g., infrared, FM, inductive loop and direct wire systems). Captioning and descriptive video systems enable people who are Deaf, deafened and hard of hearing or people with vision loss to participate.

Reference

Sec. 5.8 Signage and Wayfinding

Sec. 6.1 Assembly Areas

Note

Some facilities such as courtrooms may have unique requirements and specifications, and require a detailed review prior to implementation.

5.2.1 Design Features

For assistive listening systems, whether permanent or portable, ensure:

a. system usability encompasses the entire floor area;
b. system provides personal amplification control;
c. system performs with or without the use of hearing aids; and
d. signage is provided with the International Symbol For Hearing Loss pictogram to identify the availability of the assistive listening system and it is also marked with a 'T', where T-coil usage is available.

Best Practice

Provide options to allow users with hearing loss to select their own devices.

Note

Where infrared assistive listening devices are used, ensure that no overhead incandescent lights cancel out the infrared signal at the receiver.

Receiver Hearing Aid Compatibility: Receivers should be hearing-aid compatible and should interface with telecoils in hearing aids through the provision of neck loops.

5.2.2 Assistive Listening Systems

5.2.2.1 Permanent Assistive Listening Systems

Where permanent systems are provided:

a. the minimum number of required receivers is equal to 4% of the total number of seats, but never less than two; and
b. the minimum number of required receivers to be hearing aid compatible is 25% of the total number of receivers that are provided, but never less than one.

5.2.2.2 Portable Assistive Listening Systems

a. provide at least one portable assistive listening system, with a minimum of two receivers included for facilities with assembly spaces on multiple floor levels (e.g., this provides enhanced flexibility for the systems to be available and used at different locations); and
b. ensure portable assistive listening systems include hearing aid compatibility.

Public Address Systems

5.3

Application

This section applies to public address systems that provide information to the public and staff throughout areas within a facility, as well as exterior environments.

Reference

Sec. 2.5 Overhanging and Protruding Objects

Sec. 5.4 Acoustics

5.3.1 Design Features

a. ensure sound level is above ambient background noise without distortion or feedback;
b. 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; and
c. mount speakers without projecting into or obstructing accessible routes and above head-level to provide effective sound coverage in required areas such as:
    i. corridors;
    ii. assembly and meeting rooms;
    iii. recreational facilities;
    iv. entertainment and educational facilities; and
    v. common use areas located in institutional settings.

Note

To prevent confusion, ensure paging systems for use by staff or other key personnel are discreet and low in volume, sounding at devices or locations where people are expected to be located.

Acoustics

5.4

Application

This section applies to the acoustic environment within a facility, which can either enhance or hinder a users' experience. Auditory cues along circulation routes in large open spaces and dedicated areas can serve as wayfinding cues, especially for people with vision loss.

Reference

Sec. 5.3 Public Address Systems

5.4.1 Design Features

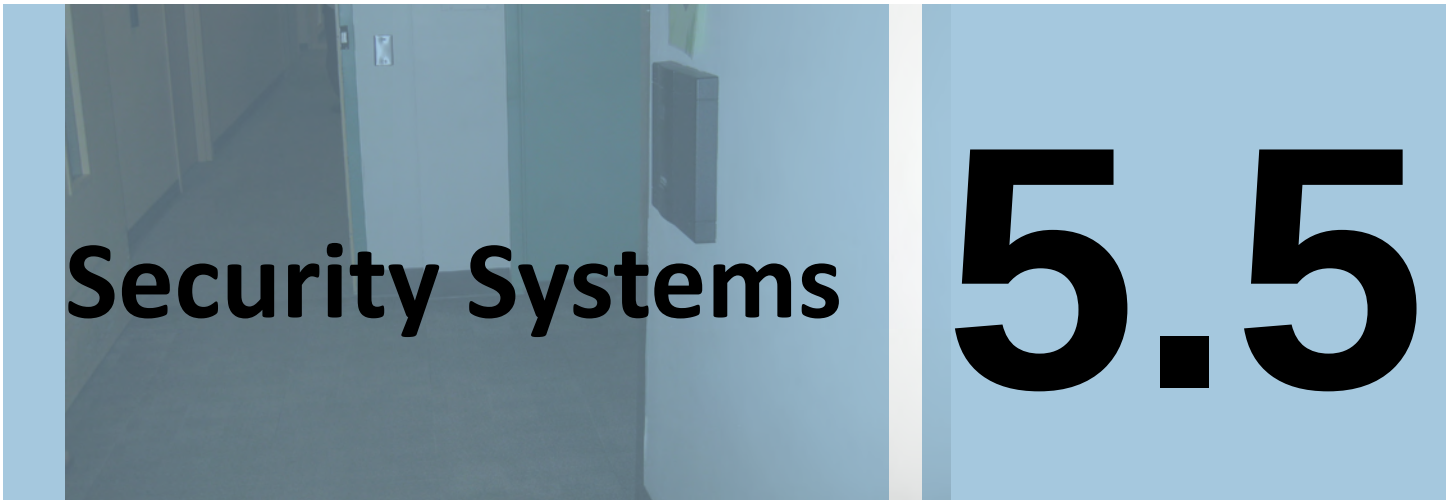
For achieving a suitable acoustical environment, which can serve as an additional wayfinding cue for persons with vision and / or hearing loss:

a. integrate the use of sound-reflective or sound absorbent materials to differentiate essential sounds from general background sounds;
b. select floor, wall and ceiling finishes to ensure that occasional noise is not unintentionally amplified (e.g., provision of hard floor surfaces such as marble and terrazzo);
c. design ceiling shapes so that echoes do not occur;
d. minimize all background noise (e.g., fans, mechanical systems, air conditioners and diffusers) in meeting rooms and assembly areas where spoken word is key to understanding proceedings;
e. integrate and include adequate sound insulation in room and space design; and
f. install a permanent inductive loop or similar assistive listening system for high use buildings and areas, especially where the surrounding environment may be noisy.

Note

Hard floor surfaces allow footsteps to be heard by persons with a vision loss, but too much additional noise may add confusion for persons with a hearing loss.

In general, domed shaped ceilings may distort sound.



Security Systems 5.5

Application

This section addresses the accessibility of typical security systems, which are used to provide and limit access to areas of a facility.

Reference

Sec. 4.2 Doors and Doorways

Sec. 5.1 Controls and Operating Mechanisms

5.5.1 Design Features

Where users control independent entry or exiting to secured areas of facilities:

a. locate controls at a height of 900 mm to 1100 mm from the floor;
b. mount controls at least 600 mm clear of the arc of any door swing, where required **(Figure 68)**;
c. where electronic keypads or push button systems are provided, ensure buttons are raised from surface, mounted on surface with high colour contrast and have raised numerals or letters to assist users with vision loss;
d. ensure both audible and visual indicators are provided to alert users when access has been granted or denied;
e. where proximity card readers (e.g., swipe cards) are used at doors equipped with power operators, ensure both systems are synchronized; and
f. provide colour contrast on system controls, compared to mounting surface.

Best Practice

Proximity card readers / activation devices are preferred at controlled entry and exit areas.

Note

A case by case review of accessible security systems is recommended, based on facility types and recognizing the variety of options that are available.

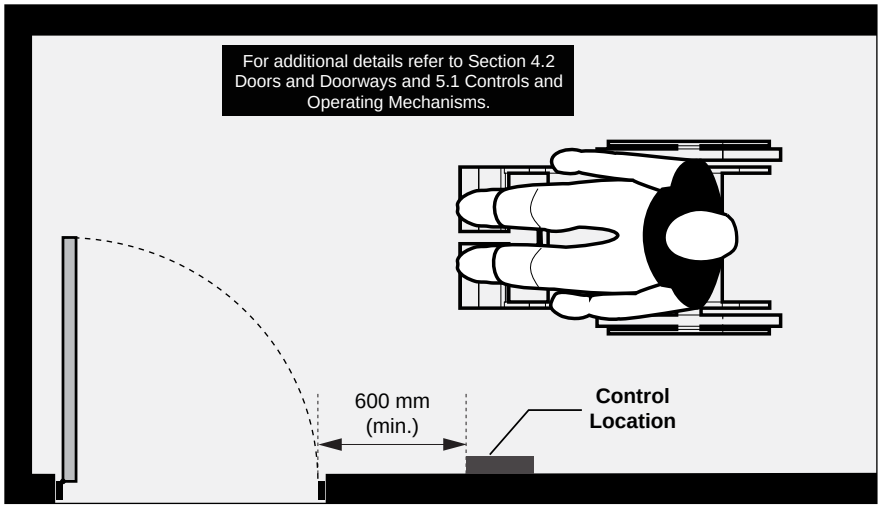


Figure 68: Proximity Card Reader Location - Plan View

Example of large and colour contrasted proximity card reader that accommodates diverse users.

Fire and Life Safety Systems

5.6

Application

This section applies to fire and life safety systems, addressing the needs of people with varying disabilities, in emergency situations. Key components of typical fire and life safety systems include, but are not limited to:

- evacuation plans;
- alarm signals (both audible and visual);
- 'Areas of Refuge'; and
- emergency exits.

Reference

Sec. 4.2	Doors and Doorways
Sec. 5.1	Controls and Operating Mechanisms
Sec. 5.8	Signage and Wayfinding

Note

Fire and life safety systems are essential in facilities providing specialized services or programs to seniors and persons with disabilities. Seniors and people with disabilities are groups at greater risk and may require additional assistance or accommodation to evacuate a facility.

The information in this section is provided as an additional resource to support other code and fire / life safety requirements that may be mandatory.

5.6.1 Fire Safety and Evacuation Plans

a. provide a fire and life safety evacuation plan that addresses the needs of users with varying disabilities **(Figure 69)**:
   i. for facilities with floors above or below grade, develop a fire safety and evacuation plan, indicating in detail the preferred evacuation strategies for persons with disabilities (e.g., "Buddy System" where staff can help co-workers with disabilities evacuate);
   ii. ensure the base of evacuation plans, or related emergency information / directional signage (e.g., "in case of fire" decals), are posted a maximum of 1200 mm from the floor;
   iii. ensure evacuation plans incorporate a font size of 14 point (minimum);
   iv. ensure evacuation plans are available in alternate formats; and
   v. provide signage to identify evacuation plans;

b. mount controls and operating mechanisms **(Figure 69)**:
   i. between 900 mm and 1100 mm from floor for emergency and life safety controls and operating mechanisms such as fire extinguishers, first aid kits and defibrillators;
   ii. at a maximum of 1200 mm high from floor for manual fire alarm pull station; and

Best Practice

Where appropriate, consider installation of a fire fighter's elevator that can be operated by fire department personnel during emergencies.

Consider providing photoluminescent signage (i.e., 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 with evacuation. Coordinate with Building and Fire Code requirements.

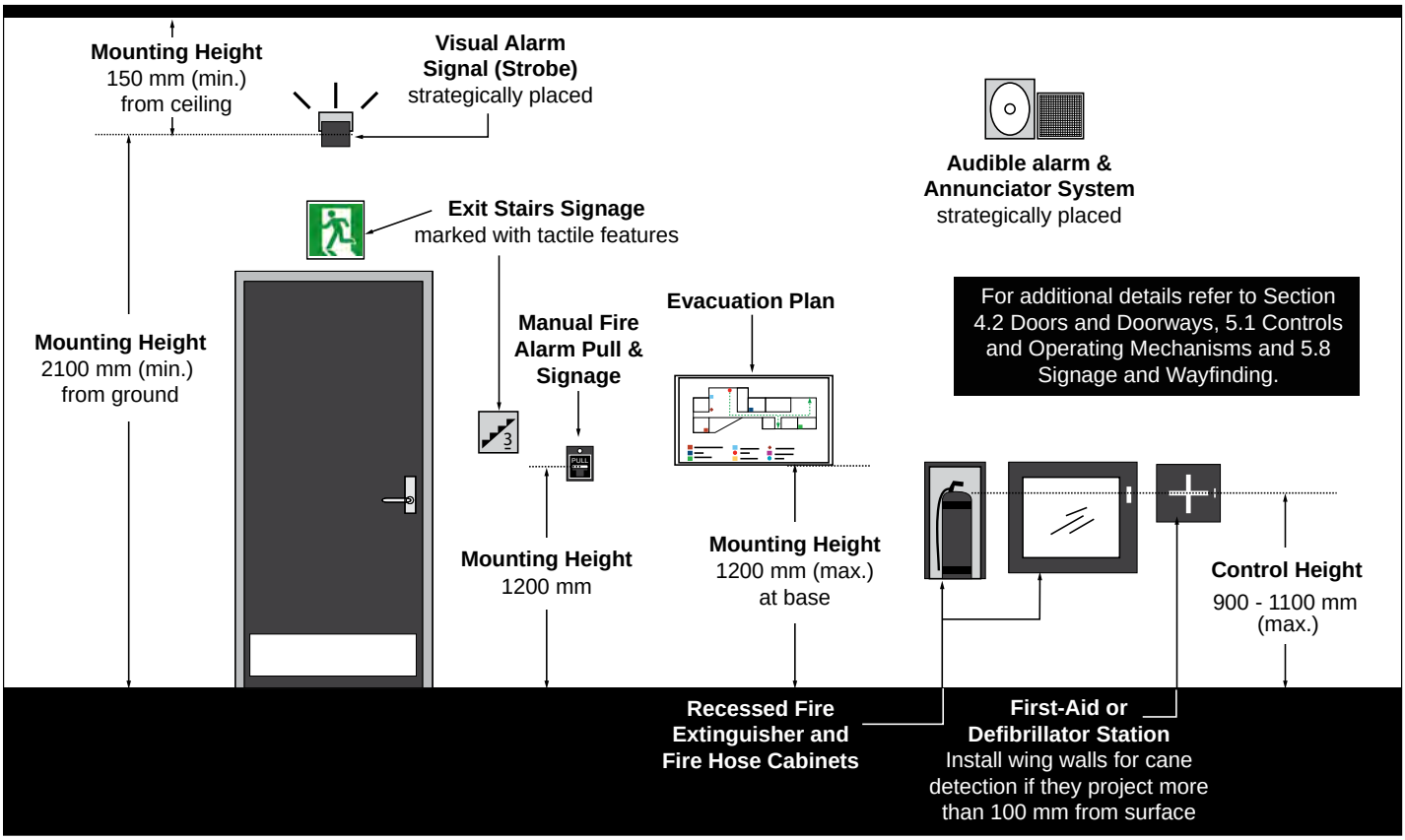


Figure 69: Fire Safety and Evacuation Features - Elevation View

c. ensure any manual fire alarm pull station is:
   i. located so as to be adjacent to and centered on either the length or the width of a clear floor space of 915 mm by 1525 mm, and
   ii. operable using one hand, without requiring tight grasping, pinching with fingers or twisting of the wrist, and with a maximum force of 22.2 Newtons (5 pounds).

5.6.2 Visual Alarm Signals

a. provide visual alarm signals at the following locations:
   i. common use areas, including public corridors and lobbies; and
   ii. universal washrooms;
b. integrate visual alarm signals with required audible fire alarm system, including during retrofit projects where feasible;
c. ensure smoke alarms include a visual component;
d. mount visual alarm signals in close proximity to audible alarm signals at 2100 mm (minimum) above the highest floor level within a space, or 150 mm below the ceiling **(Figure 69)**;
e. where visual alarms are provided in any common / public corridor, hallway, lobby or room, ensure they are placed no more than 15 metres apart, on the horizontal plane;
f. provide visual alarm signals around the perimeter of large rooms and spaced at a maximum of 30 metre intervals; and
g. ensure light and flashing features are based on the following criteria:
   i. use a xenon strobe type or equivalent for light or lamp fixture;
   ii. ensure clear or nominal white colour (e.g., unfiltered or clear filtered white light);
   iii. provide maximum pulse duration of 0.2 seconds, with a maximum duty cycle of 40 percent;

Best Practice

For existing facilities where fire alarm systems cannot be upgraded, consider the provision of portable, vibrating pager systems for users with vision and hearing loss.

For public facilities, install visual alarm signals in main assembly areas (e.g., auditoriums, conference rooms and cafeterias) and places where a person may be alone (e.g., universal washrooms).

To reduce the likelihood of triggering an epileptic seizure or other photosensitive reaction from multiple unsynchronized visual strobe lights, ensure the flash rate is less than 2 Hertz.

Note

Optimal visual alarm signal placement requires formal study for unique environments, including multi-purpose facilities, libraries, convention / meeting rooms and other facility types to ensure signals are visible from all required areas.

Example of combined visual and audible alarm signals. Public facilities should have both visual and audible fire alarm systems strategically located.

iv. ensure the intensity of the visual alarm signal raises the overall light level sharply, but not so intense as to be unsafe for direct viewing;
v. ensure a flash intensity of 75 candela (minimum) with a flash rate between 1 Hertz (minimum) and 3 Hertz (maximum); and
vi. synchronize visual alarms that are located in the same vicinity to flash at the same time.

5.6.3 Areas of Refuge

Where required exits from a floor area are not accessible, areas of refuge are required. Areas of refuge are a temporary and safe waiting space for evacuation in a fire situation and provide a known place for firefighters to help persons unable to use the stairs.

The requirements of this section are intended to reflect a combination of best practices for providing temporary refuge for persons with disabilities. The Ontario Building Code (OBC) acknowledges that measures identified in the OBC cannot provide absolute safety for all occupants in the fire area and that it may be necessary to develop special arrangements in the fire safety plan to evacuate persons with disabilities from these areas. Refer to the Ontario Building Code for detailed requirements related to "Protection on Floor Areas with a Barrier Free Path of Travel" [OBC, Section 3.3.1.7 and Appendix A-3.3.1.7.(1)].

Table 11: Provision of Area of Refuge Spaces

Occupant load of the floor area served by the area of refuge	Minimum number of area of refuge spaces
1 to 400	2
Over 400	3 plus 1 for each additional increment of 200 persons in excess of 400 persons

5.6.3.1 Provision

a. provide a minimum of two (2) designated spaces, and / or incorporate the number of spaces as identified in **Table 11**;
b. provide a clear floor space of at least 915 by 1370 mm for each area of refuge space required **(Figure 70)**; and
c. locate spaces clear of any adjacent door swing and away from pedestrian exit routes.

5.6.3.2 Design and Layout

Where areas of refuge are provided:

a. locate on an accessible route;
b. ensure they are served directly by an exit or a fire fighter's elevator;

Best Practice

Provide power door operators at doors leading to a designated area of refuge.

Provide emergency electrical power to ensure adequate emergency lighting levels for the use of elevators and key operating components or other systems during a power outage. Provide in all major areas of the facility, along all paths of travel to exits and in all designated 'Areas of Refuge'.

Note

Stairwells and elevator lobbies are typically used for 'Areas of Refuge', if properly designed with all required features and floorspace to accommodate mobility aids. Detailed review and design is required for provisions in any type of facility, existing or new.

The provision of additional spaces for accommodating mobility aids in an 'Area of Refuge' is determined by facility occupancy and level of use.

Note

Refer to Ontario Building Code (OBC) and applicable Fire Code requirements for fire and smoke protection, including fire separations / zones and travel distances between zones.

Example of portable elevating device, with platform designed to accommodate mobility aid during evacuation.

c. ensure any door leading to an area of refuge complies with Section 4.2 “Doors and Doorways”;
d. ensure they are located in an area that is separated from the floor area by a fire separation with a fire-resistance rating that is equal to that required for an exit; and
e. ensure they are smoke-protected in buildings of more than three stories.

5.6.3.3 Signage

a. provide signage in accordance with Section 5.8 “Signage and Wayfinding”;
b. identify accessible routes to areas of refuge with directional signage throughout the floor area;
c. provide identification and directional signage to indicate location of an area of refuge and area of refuge spaces **(Figure 70)**;
d. identify the location of areas of refuge on all publicly displayed evacuation plans; and
e. ensure all areas of refuge are designated in the facility’s evacuation plan and procedure documents.

5.6.3.4 Communication and Emergency Features

a. provide a two-way hands-free communication system with controls mounted between 900 and 1100 mm, connected to an emergency response system **(Figure 70)**; and
b. ensure the communication system includes both audible and visual notification devices to indicate “help is on the way”.

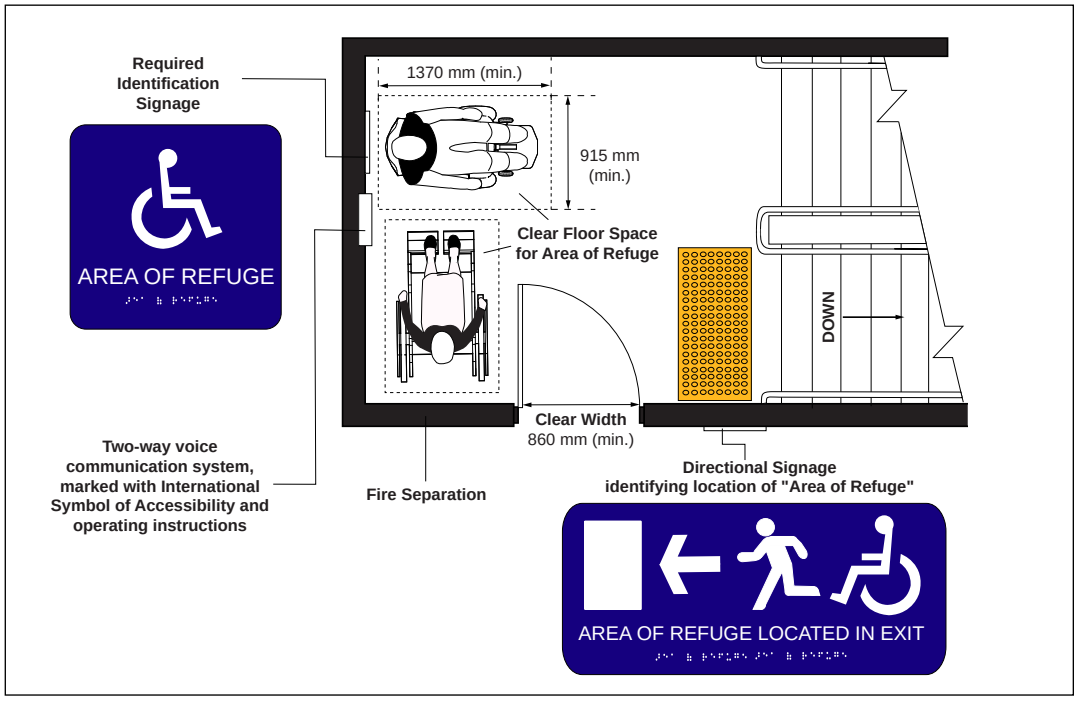


Figure 70: Example of Area of Refuge at Exit Stair

Lighting

5.7

Application

This section addresses lighting requirements for both interior and exterior environments.

Note

For additional information on lighting requirements refer to the Illuminating Engineering Society's "The Lighting Handbook 10th Edition", (or current edition).

Best Practice

Recommended lighting levels are requirements identified in best practice resources referenced in this section.

The Canadian National Institute for the Blind (CNIB) recommends increasing I.E.S.N.A suggested lighting levels by a range of 25 to 50 percent to address the accessibility needs of people with vision loss.

For emergency lighting preferred lighting level of 10 lux (1 foot-candle) minimum is required at exits, exit stairs or other paths of travel, measured at the walking surface.

Note

Sources include:

- IESNA: Illuminating Engineering Society of North America, 2011.
- CNIB: Canadian National Institute for the Blind, Clearing Our Path, 2009.
- CSA: Canadian Standards Association B641 Accessible Design for the Built Environment, 2012.
- OBC: Ontario Building Code, 2012.

5.7.1 Lighting Level Requirements

For lighting level requirements for interior and exterior environments:

a. ensure most stringent lighting level is provided at typical elements, features and locations, as summarized in **Table 12**.

Table 12: Lighting Requirements for Exterior and Interior Environments

Typical Elements, Features and Locations	Lighting Level (lux)			
	IESNA (2011)	CNIB (2009)	CSA (2012)	OBC (2012)
	Min. / Avg.	Enhanced (+ 25 - 50%)	Min.	Min.
Common Elements (both Exterior & Interior)				
Ramps	50 (avg.)	62.5 - 75	50	50
Stairs	50 (avg.)	62.5 - 75	50	50
Rest Areas	50 (avg.)	62.5 - 75	50	-
Signage	-	200	200	-
Parking Areas				
Exterior	10 (min.)	12.5 - 15	-	-
Parking Garage	10 (min.)	12.5 - 15	-	-
Exterior Circulation				
Routes (e.g., sidewalks)	10 (avg.)	12.5 - 15	50	-
Interior Circulation				
Public Corridors	50 (avg.)	62.5 - 75	-	50
Elevator Lobby	100 (avg.)	125 - 150	-	-
Elevator Cabs	50 (avg.)	62.5 - 75	100	-
Building Amenities				
Reception	150 (avg.)	187.5 - 225	-	-
Lobbies/ Waiting Areas	100 (min.)	125 - 150	-	-
Service Counters	150 (avg.)	187.5 - 225	-	-
Public Telephones / ATM	200 (avg.)	250 - 300	200	-
Operating Controls and Mechanisms	-	-	100 or 200 where reading is necessary	-
Plumbing Facilities				
Washrooms General	50 (avg.)	62.5 - 75	-	200
Washroom Fixtures	150 (avg.)	187.5 - 225	-	200
Showers	100 (avg.)	125 - 150	-	200
Special Rooms & Facilities				
General Assembly / Courtrooms	100 (avg.)	125 - 150	-	-
Multi-Purpose Rooms	300 (avg.)	375 - 450	-	-
Offices - Workstation	300 (avg.)	375 - 450	-	-
Food Court - Cashier / Food Displays	200 (avg.)	250 - 300	-	-
Food Court - Seating and Circulation	150 (avg.)	187.5 - 225	-	-
Change Room	-	-	-	300

5.7.2 Exterior Lighting

a. ensure the average to minimum illuminance ratio is 5:1 for exterior lighting;
b. ensure lighting sources are located at or beside all ramps, steps and stairs, to illuminate and identify surfaces, treads, risers, nosings and handrails;
c. ensure all lighting over pedestrian routes is evenly distributed and provides a reasonable colour spectrum while minimizing any shadows casted;
d. provide supplementary lighting to highlight all wayfinding signage, as required;
e. ensure lighting fixtures or posts are mounted away from accessible routes / paths of travel;
f. ensure low-level lighting standards are mounted high enough to clear normal snow accumulation heights; and
g. ensure overhead light fixtures are mounted with clear headroom of 2100 mm (minimum).

Best Practice

When entering buildings, eyes may require a few moments to adjust from a brighter exterior environment to a darker interior or vice versa. For people with vision loss, the adjustment time may be longer. Transitional lighting options (higher artificial lighting levels near the entrance in daylight and lower levels after dark) should be considered.

5.7.3 Interior Lighting

a. ensure the average to minimum illuminance ratio is 3:1 for interior lighting;
b. use natural light wherever possible to illuminate entrances, corridors and key workspaces; however, avoid designs that results in direct glare reflected from flooring or work surfaces;
c. integrate sources of both artificial and natural lighting to provide comfortable, evenly distributed light at working surfaces and throughout circulation routes;
d. 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 used as wayfinding cues (this ensures the warm end of the spectrum provides appropriate colour definition);
e. provide motion sensing controls in all intermittent occupancy areas;
f. ensure any leading edge of stairs, steps, ramps or escalators are evenly lit; and
g. ensure sources of light (natural or artificial) are not positioned at the ends of corridors or behind people at reception areas or counters.

Note

Variations in lighting levels can be confusing to many older adults, people with cognitive disabilities and people with vision loss.

Colour temperature of 3500 K and at least 85 Colour Rendering Index is recommended.

Best Practice

Avoid the use of light fixtures with multiple pinpoints of high intensity illumination. They may add an unnecessary source of glare and leave an after image on the retina of people with vision loss.

Do not use high gloss finishes at any time.

Note

Monolithic floor surfaces, such as stone, granite, marble or terrazzo in a matte or honed finish, minimize any potential for reflected glare.

High intensity light sources such as quartz, halogen or other pinpoint sources (e.g., chandeliers) can produce reflected points of glare on shiny surfaces and are not recommended.

5.7.4 Additional Considerations: Issues Related to Glare

a. select lighting sources, materials and finishes that do not reflect glare, including implementing strategies to control natural lighting sources wherever possible;
b. ensure floor surface finishes such as vinyl, terrazzo and ceramic tile, mosaics or other materials have a matte or satin finish;
c. provide matte or satin wall finishes (e.g., paint, vinyl coverings, stone, marble, wood, plastic or laminate) to prevent and minimize glare;
d. provide curtains, blinds, screens or other strategies to shield bright, natural lighting sources, especially where direct sunlight may cause glare;
e. select light fixtures that prevent or minimize any potential for direct glare (e.g., with diffusers, lenses, or recessed light sources; and
f. 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.

Examples of floor surface and elevator door finishes that minimize glare.

Signage and Wayfinding

5.8

Application

This section applies to signage and wayfinding strategies, where provided in exterior and interior environments.

Recognizing signage programs and wayfinding strategies are customized based on facility types and use of space, the information and criteria in this section is provided as a starting point.

There are different types of signage for various purposes:

- regulatory signs, which include prohibition signs denoting an order forbidding an action, and mandatory signs which denote an order requiring an action;
- warning signs such as caution and danger signs denote a potential hazard and a definite hazard, respectively; and
- identification signs, which include rooms, titles, names or numbers are provided for general orientation or specific information, such as washrooms, routes of egress, stairwells, doorways or offices.

Best Practice

Avoid using vertical wording and electronic scrolling signage. Where scrolling signage has to be used, ensure characters and symbols move slowly across the screen.

Keep information on signage short and simple.

Using a combination of lower case and upper case lettering is easier to read than using all upper case lettering. The "shape" of the text or message is more legible and creates its own image for familiarity.

Avoid very fine type and very thick type font.

Note

Consistent locations include height considerations for overhead or wall-mounted signs, as well as uniform placement of identification signs for facilities and services.

Nearsighted persons might have to approach much closer to read a sign than persons with average visual acuity. Signs at eye level allow persons to get closer to the sign.

5.8.1 Signage

5.8.1.1 Design Features

a. ensure signage surfaces have matte, eggshell or non-glare finish;
b. ensure signage is of uniform design;
c. provide colour contrast between signage and mounting surfaces;
d. where used to give the same type of information within the same facility, ensure signage is consistently shaped, coloured and positioned;
e. where facilities or elements, including but not limited to washrooms, elevators, telephones, information kiosks, routes, 'Areas of Refuge', and parking facilities are accessible, provide signage with the International Symbol of Accessibility to designate as accessible **(Figure 71)**; and
f. ensure lighting level is 200 lux (20 foot-candles) (minimum) at signs.

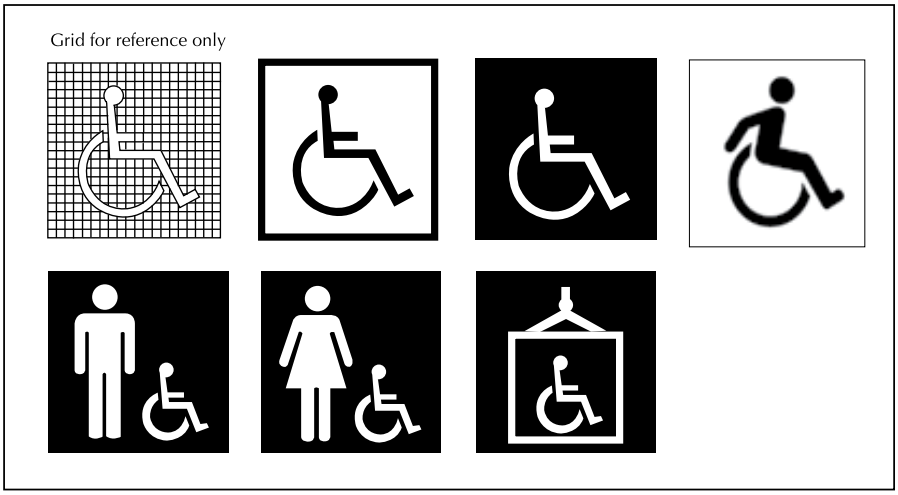


Figure 71: Wayfinding Principles - International Symbols of Accessibility

5.8.1.2 Character Features and Sizes

a. ensure text characters (e.g., letter or number) are sans serif font type and have Arabic numerals;
b. provide width to height ratio between 3:5 and 1:1 **(Figure 72)**;
c. provide stroke width to height ratio between 1:5 and 1:10;
d. ensure characters are not italic, oblique, script, highly decorative or of other unusual forms;
e. provide colour contrast of 70% (minimum) between text characters and background surface;
f. ensure the minimum character height is provided as per viewing distance as identified in **Table 13**; and
g. use an uppercase "X" for character measurement.

Table 13: Character Height at Maximum Viewing Distance

Minimum Character Height (mm)	Maximum Viewing Distance (mm)
200	6,000
150	4,600
100	2,500
75	2,300
50	1,500
25	750

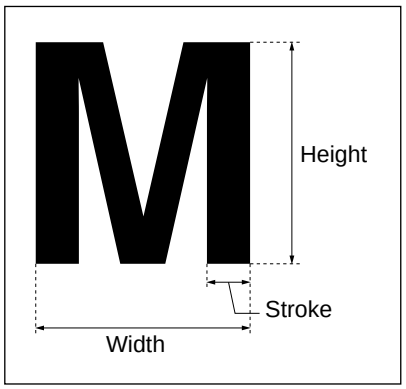


Figure 72: Character Features and Sizes

Note

Some factors affecting ease with which text can be distinguished from its background include shadows cast by lighting sources, surface glare, and the uniformity of the text and background colours and textures.

Where illuminated signage is provided, avoid using red, blue or green LEDs on a black background as they are unreadable for most people with vision loss.

5.8.1.3 Pictograms and Symbols

Pictograms and symbols are used to complement text information and identify important facility features, elements or services, including information desks, public washrooms, and elevators. Where pictograms are used:

a. ensure pictogram has a field height of 150 mm (minimum);
b. provide text descriptors and braille directly below the pictogram field and not in the pictogram field;
c. provide colour contrast of 70% (minimum) between pictogram the field;
d. use the International Symbol of Accessibility to identify accessible facility features, spaces, elements and amenities **(Figure 71)**; and
e. use recognized and standardized symbols for accessibility features or other key building elements (e.g., washrooms, telephones and elevators) to facilitate wayfinding for all users **(Figure 73)**.

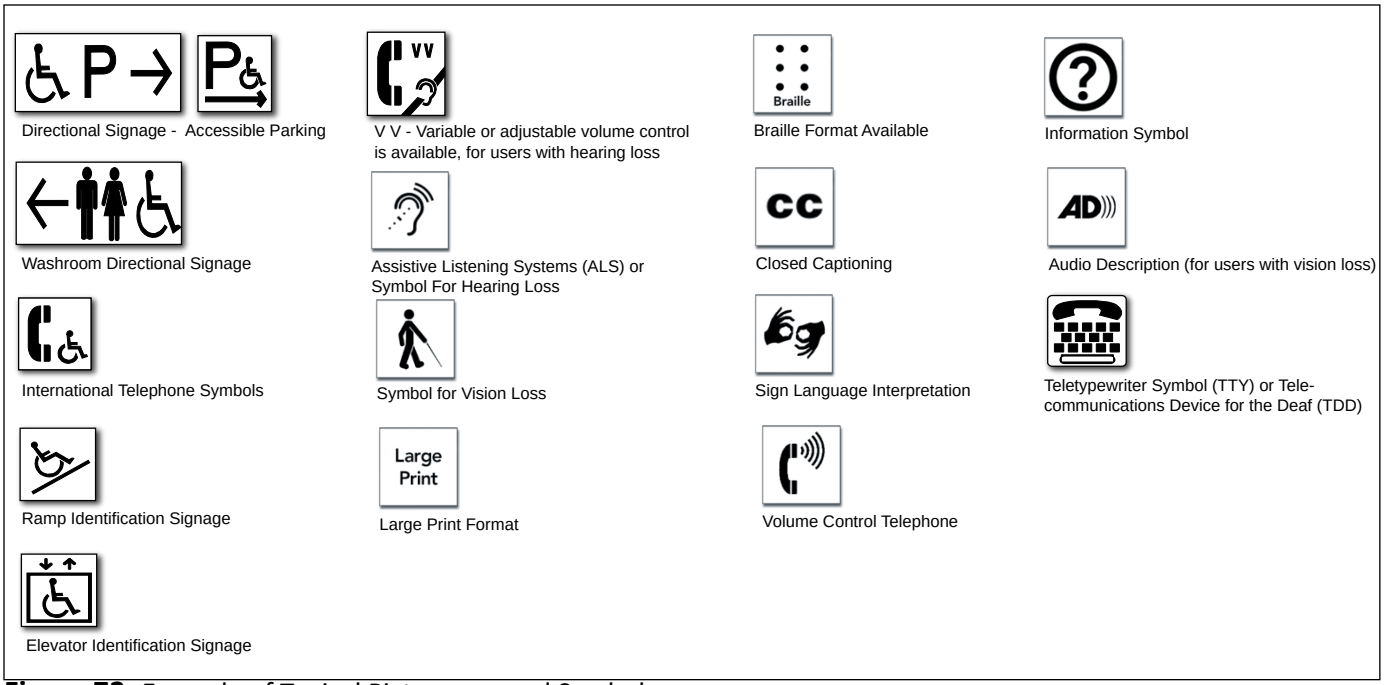


Figure 73: Example of Typical Pictograms and Symbols

5.8.1.4 Braille

Where braille is provided on signage:

a. ensure it is uncontracted braille (Grade 1);
b. ensure braille dots have a domed or rounded shape;
c. locate immediately below the corresponding text (e.g., room numbers, names) and / or pictogram; and
d. where text is multi-lined, place braille below the entire text.

5.8.2 Tactile Signage

Signage with tactile features (e.g., braille, raised characters / text, symbols or pictograms) are designed to be read by touch.

5.8.2.1 Design Features

Where tactile characters are provided:

a. ensure text characters (e.g., letter or number) and pictograms (where provided) are raised between 0.8 to 1.5 mm above the surface **(Figure 75)**;
b. ensure the edges of the text characters are gently rounded;
c. provide high tonal contrast between the tactile characters and the background surface;
d. ensure all raised text characters, pictograms or symbols are accompanied by equivalent description in braille;
e. where pictogram is provided, ensure they are 150 mm (minimum) high; and
f. for text characters (e.g. letter or number):
    i. ensure they are sans serif font and Arabic numerals;
    ii. ensure height of characters are between 16 and 50 mm; and
    iii. ensure text is entirely in upper case lettering as it is easier to read by touch, compared to a combination of upper and lower case letters.

5.8.2.2 Mounting Locations

Where signage with tactile features is provided:

a. mount at 1220 mm (minimum) high, measured from the baseline of the lowest tactile character and 1525 mm (maximum) high, measured from the baseline of the highest tactile character **(Figure 74)**;
b. where provided at a door, install consistently on the wall beside the latch edge of door, 150 mm +/- 10 mm from the door frame;
c. where provided at double doors with one active leaf, mount signage to the right of the right hand door;
d. where there is no wall space at the latch side of a single door or on the right side of the double door, install signage on nearest adjacent wall;

Note

Braille or tactile features are only required for signs that can be reached and touched to identify permanent rooms and spaces. These features are not required for overhead or suspended signage (e.g., directional information).

Avoid mounting signage directly on external glazing where possible as it may reduce visibility and legibility of text.

e. install to allow users to approach within 100 mm of sign location, clear of any door swing or protruding objects;
f. mount so that a clear floor space of 455 mm by 455 mm (minimum), centred on the tactile characters is provided beyond the arc of any door swing between the closed position and the 45 degree open position; and
g. ensure a clear wall area of 75 mm wide (minimum) around the sign is provided.

Best Practice

In larger and complex buildings, such as recreation centres, provide tactile maps on each floor, close to the major point of arrival to the floor (e.g., elevator lobby) to assist with wayfinding for users with vision loss **(Figure 76)**.

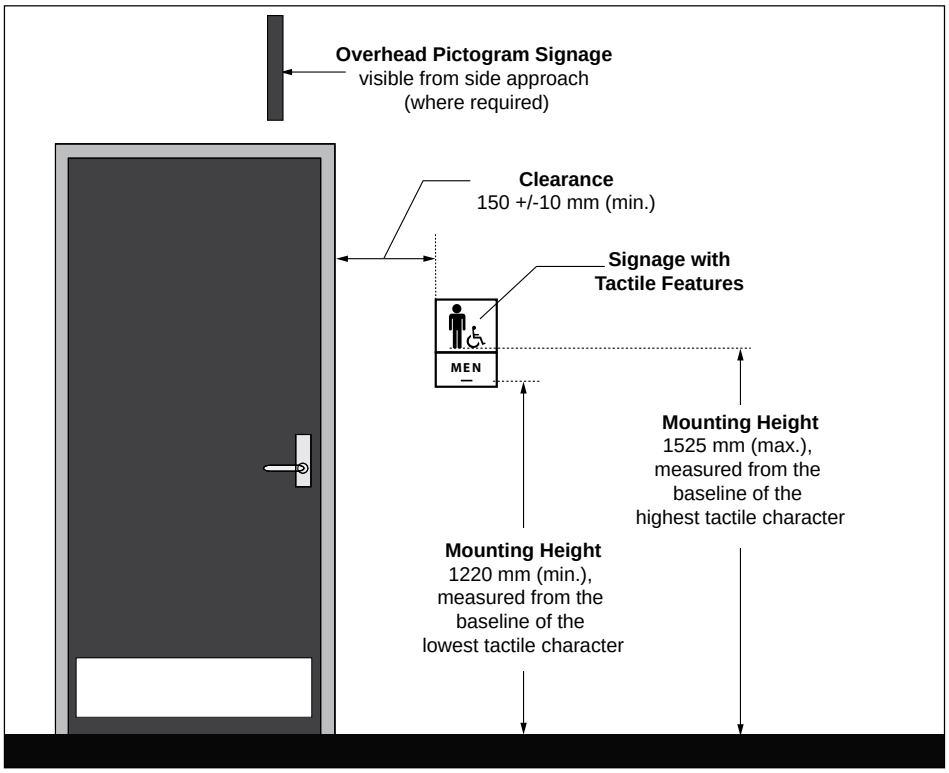
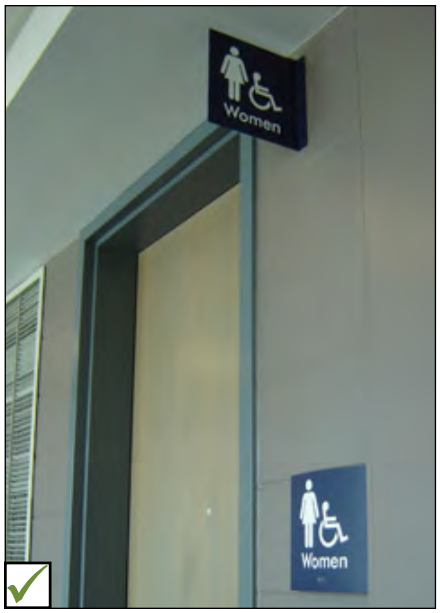


Figure 74: Mounting Location of Signage with Tactile Features - Elevation View



Example of accessible signage to identify accessible washroom.

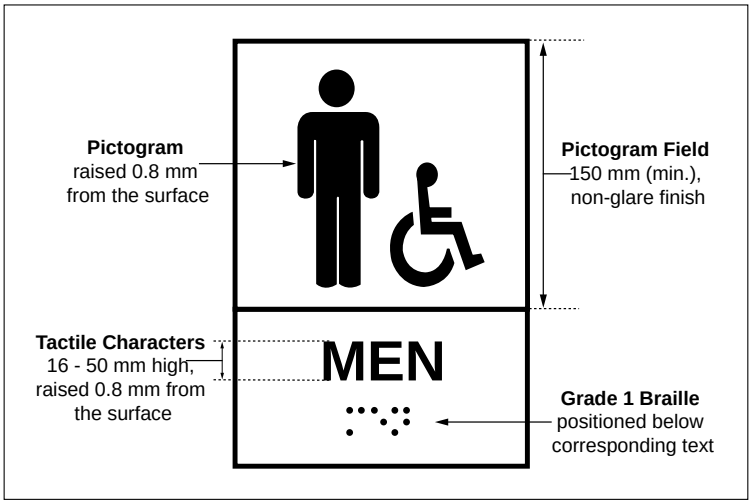


Figure 75: Signage with Tactile Features

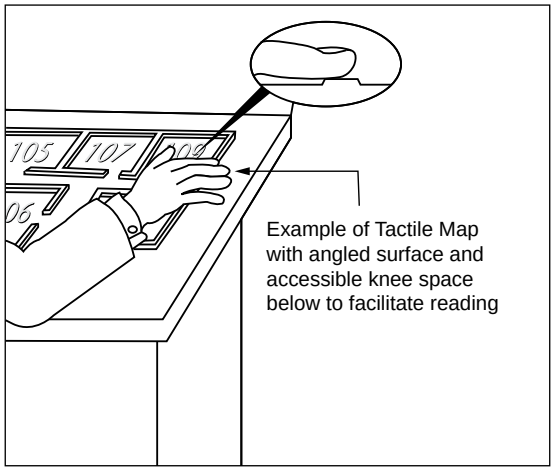


Figure 76: Tactile Map (Best Practice)

Best Practice

Control the use of temporary signage, which can render other relevant and accessible signage ineffective, through management procedures / protocols. Temporary signage typically uses improper language, materials and text sizes.

Mount signs so that they face the direction of travel as they are easiest to notice and read for people who might have limitation moving their head or have reduced peripheral vision.

5.8.3 Wayfinding Principles

a. ensure consistent design, strategic placement and ideal mounting heights at key decision-making points along accessible routes for all signage;
b. provide colour contrast of at least 70% between signage and mounting surfaces for full visibility;
c. ensure there is no information overload or cluttering of signage to avoid confusion; and
d. avoid placing suspended signs against a light source to ensure full visibility (e.g., at the end of corridors which have windows, glass doors or window walls).

Self-service Kiosks

5.9

Application

This section applies to self-service kiosks, which are interactive electronic terminals, such as point-of-sale devices that the public may use to access one or more services independently.

Examples where self-service kiosks are used include but are not limited to the following:

- paying parking fees;
- validating tickets;
- providing information (e.g., such as interactive building directory and maps);
- checking in / registering for appointments; and
- buying groceries.

When procuring or acquiring self-service kiosks, they must comply with the most up-to-date version of:

- CAN / CSA B651.2: Accessible Design for Self-Service Interactive Devices.

Reference

Sec. 5.1	Controls and Operating Mechanisms
Sec. 5.8	Signage and Wayfinding

Best Practice

Refer to the most current versions of:

1. CNIB's "Clear Print Accessibility Guidelines"; and

2. The Association of Registered Graphic Designers of Ontario (RGD Ontario) "AccessAbility: A Practical Handbook on Accessible Graphic Design."

Best Practice

Provide a clear floor space or ground surface with turning diameter of 1700 mm, to allow both side and front approach by users of larger wheeled mobility aids, such as powered scooters and wheelchairs.

5.1.1 Design and Layout

Where self-service kiosks are provided:

a. ensure they are located adjacent to an accessible route, recessed or with a leading edge that is cane detectable at 680 mm (maximum) high, if they protrude into an accessible route;
b. if only one self-service kiosk is provided, ensure it accommodates both seated and standing users;
c. identify accessible kiosks with International Symbol of Accessibility;
d. ensure they do not have sharp edges; and
e. ensure they are secured firmly and stable, when free-standing.

5.1.2 Clear Floor Space Requirements and Knee and Toe Clearances

a. provide a clear floor space in front of self-service kiosks of:
    i. 915 mm wide by 1370 mm deep (minimum) for forward approach; and
    ii. 1525 mm wide by 915 mm deep (minimum) for side approach;
b. where self-service kiosks are designed with knee space clearance, ensure the knee space clearance is 760 mm wide (minimum) by 480 mm (minimum) deep by 685 mm high (minimum); and
c. where toe clearances are provided, ensure the minimum toe height is 350 mm above the finished floor.

5.1.3 Display Panels and Screens

a. locate display panels / screens free from obstructions above or around panels;
b. position display panels / screens to minimize glare and reflections;
c. where display panels or screens are inclined and cannot be read from 750 mm away:
    i. ensure suitable knee and toe clearances are provided underneath self-service kiosks to allow users of mobility aids to approach screens; and
    ii. ensure the top of the panel is 1380 mm (maximum) high above the floor **(Figure 77)**;
d. where self-service kiosks with vertical display panels or screens are provided, ensure the text or information provided on the panels or screens are located between 750 mm and 1750 mm **(Figure 77)**.

5.1.4 Operating Controls

a. mount operating controls or input and output components between 400 mm and 1100 mm high above floor level; and

b. ensure controls are operable with one hand, without using tight grasp, pinching, or twisting of the wrist.

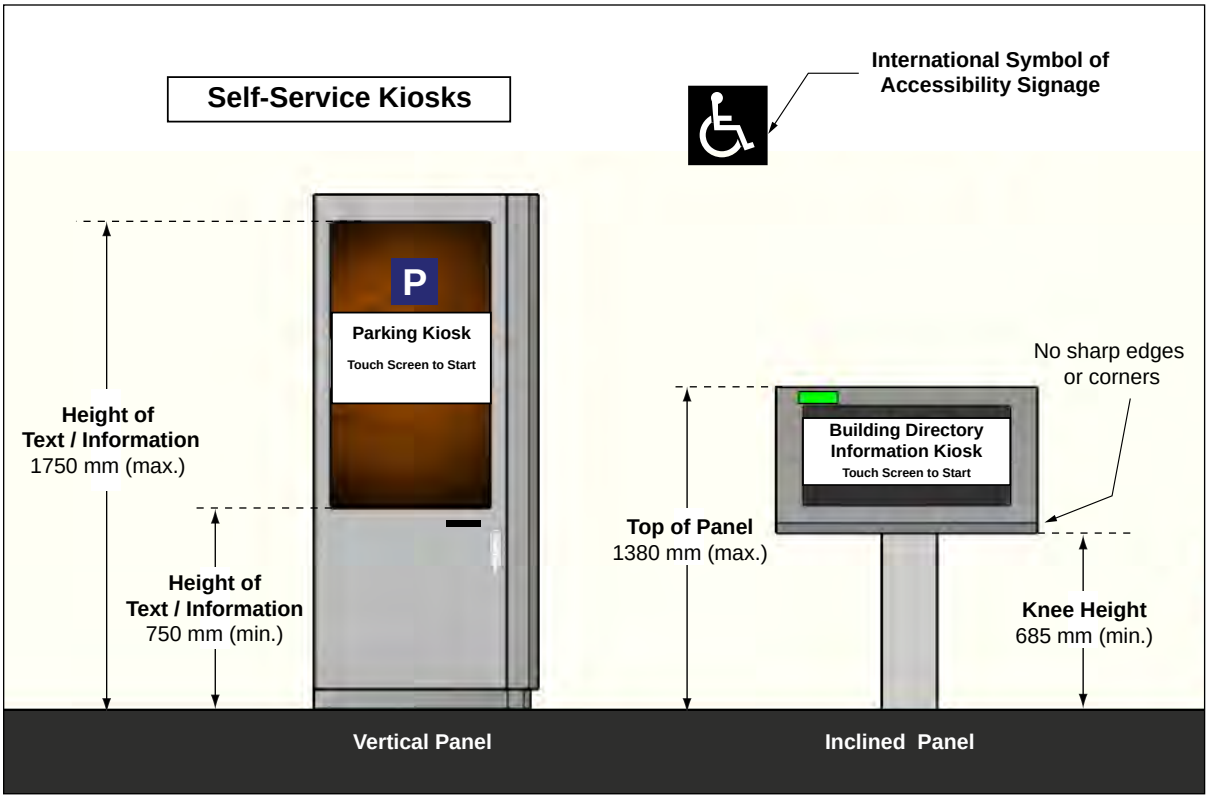


Figure 77: Self-Service Kiosks - Elevation View

Examples of self-service kiosks with different accessibility features.

5.1.5 Other Accessibility Features

Accessibility features for self-service kiosks vary based on the type of services provided. Key accessibility features to consider when procuring or acquiring self-service kiosks include the following:

a. ensure strong tonal contrast is provided between characters and background on display screens;
b. ensure display panels are positioned to provide sufficient brightness to overcome ambient conditions;
c. where insertion slots for notes, coins, or other media are provided as part of self-service kiosks, ensure a strong tonal contrast is provided with adjacent surface or a lead-through indicator light for slot location assistance;
d. where visual information is integral to the use of self-service kiosks, provide an alternative mode of operation and information retrieval (e.g., audio output with information displayed on screen conveyed in spoken form);
e. where audio information and instructions are provided:
    i. equip with headset jacks with adjustable volume controls for users with hearing loss; and
    ii. ensure headset jack receptacles are identified with a tactile symbol;
f. where touch screen displays are provided:
    i. ensure they are usable with items such as prosthetic limb or stylus; and
    ii. provide audible and visible feedback to indicate that the screen has been touched;
g. where users are required to complete task, ensure the time allowed for completion is adjustable;
h. provide specialized keypads or keyboards (e.g., tactile keyboards); and
i. where biometric component is incorporated as part of the self-service kiosks, provide an alternative identification method (e.g., non-biometric).

Windows and Glazing

5.10

Application

This section applies to windows, glazed screens, vision panels in doors, and fully glazed sidelights, intended for viewing or that are required for ventilation.

Reference

Sec. 4.2 Doors and Doorways

Sec. 5.1 Controls and Operating Mechanisms

Note

Accessibility requirements are applicable to windows that are intended for use by facility occupants, staff or public.

Best Practice

Floor space with turning diameter of 1700 mm is preferred to accommodate larger mobility aids.

Where there is extensive glazing, consider providing a strip at a lower level, between 850 to 1000 mm high above finished floor level.

5.10.1 Design Features

For windows, glazed screens and vision panels, designed for the purpose of viewing:

a. provide clear floor space of 915 mm wide by 1370 mm deep (minimum) for forward and 1525 mm wide by 915 mm deep (minimum) for side approach by users of mobility aids;

b. locate bottom sill height no more than 1100 mm above the finished floor;

c. where ventilation controls are provided, mount between 400 mm and 1100 mm above the finished floor to be reachable from a seated position **(Figure 78)**;

d. do not locate horizontal structure (e.g., window transom) between 900 mm (35 in) and 1300 mm above the floor; and

e. where wall systems include extensive use of glazing, provide horizontal markings:

   i. between 100 mm and 125 mm in height, extending full width of glazed area, mounted 1350 to 1500 mm above finished floor; and

   ii. ensure strong colour contrast is provided for users with vision loss.

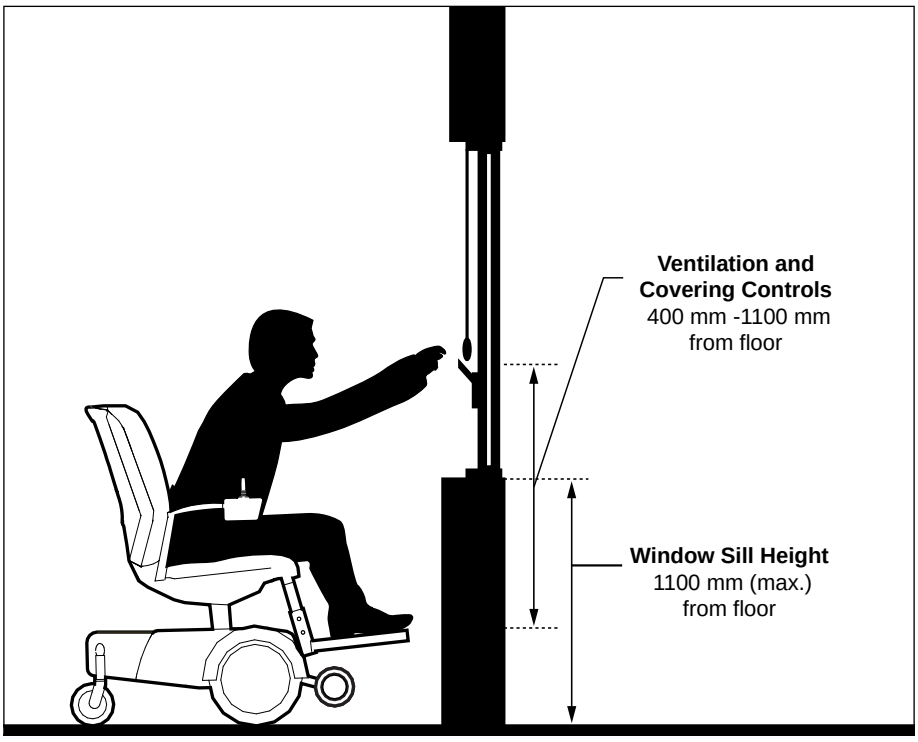


Figure 78: Window Design Features - Elevation View

Special Facilities and Spaces

6.0

Table of Contents

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Assembly Areas

6.1

Application

This section applies to assembly areas in both interior and exterior environments. Common assembly areas, where accessible seating spaces are required are identified in **Table 14**.

Table 14: Common Assembly Areas

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

Reference

Sec. 2.4 Guards and Handrails

Sec. 5.1 Controls and Operating Mechanisms

Sec. 5.2 Assistive Listening Systems

Sec. 5.3 Public Address Systems

Sec. 5.7 Lighting

Sec. 5.8 Signage and Wayfinding

Sec. 6.13 Elevated Platforms or Stages

Best Practice

In assembly areas, where lighting is dimmed (e.g., theatres or performing arts centre), ensure steps and accessible routes are illuminated (e.g., marked with lighting strips) to assist with identification.

An increased riser height for accessible seating spaces ensures suitable sightlines and comparable views when users in front are in standing position.

Note

Persons using mobility aids usually sit higher than persons in standard seating and accessible seating spaces should be located to ensure that when they are occupied, the views of others that may be seated behind them are not obstructed.

6.1.1 Design and Layout

a. ensure lighting level is evenly distributed throughout all accessible routes and accessible seating spaces;
b. ensure a consistent accessible path of travel of 1100 mm (minimum) throughout space for circulation;
c. provide accessible seating options for users of mobility aids;
d. provide assistive listening systems, designed for the type of venue and audience; and
e. ensure all audio-visual equipment, features, controls and related technology are usable by all participants and staff, where provided, including the provision of instructions and guidance in alternative formats.

6.1.2 Accessible and Adaptable Seating

6.1.2.1 Provision

Where fixed seating is available in assembly occupancies:

a. provide accessible seating spaces for users of mobility aids and adaptable seating based on total number of fixed seats, as identified in **Table 15**.

Table 15: Accessible and Adaptable Seating Requirements in Assembly Areas

Total Number of Fixed Seats	Minimum Number of Accessible Seats	Minimum Number of Adaptable Seating
Up to 20	2	1
21 to 40	2	2
41 to 60	2	3
61 to 80	2	4
81 to 100	3	5
Over 100	3% of seating capacity	the greater of 5 seats or 5% of the aisle seating capacity

6.1.2.2 Accessible Seating Spaces

a. install directional signage in prominent locations to identify location of accessible seating spaces;
b. locate spaces adjoining an accessible path of travel, without infringing on egress from any row of seating;
c. provide at least one fixed companion seat adjacent to accessible seating spaces and within the same row (Note: ensure shoulder alignment for users sitting beside each other) **(Figure 79)**;
d. when entering from side, ensure clear floor space at accessible seating spaces is 1525 mm wide by 915 mm deep (minimum) **(Figure 81)**;
e. when entering from rear or front, ensure clear floor space at accessible seating space is at least 915 mm wide by 1370 mm deep (minimum);

f. ensure at least two accessible seating spaces are provided side by side;
g. where more than one accessible seating space is provided, ensure they are dispersed at a variety of locations on all levels **(Figure 81)**;
h. where accessible seating spaces are provided on an elevated platform **(Figure 80)**, ensure the lines of sight are:
   i. comparable to those for all viewing positions;
   ii. not reduced or obstructed by standing members of the audience; and
   iii. free of any obstructions (e.g., any barriers, handrails, guardrails or columns); and
i. ensure accessible seating spaces are positioned so that they do not obstruct sightlines of other users either sitting or standing.

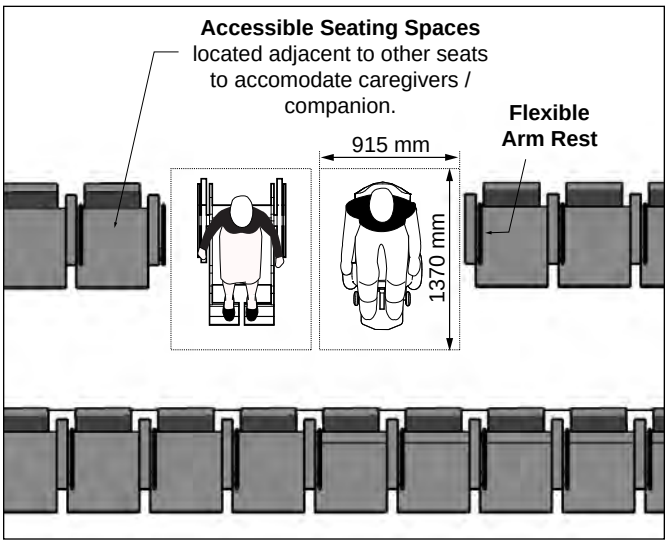


Figure 79: Accessible Seating Space Dimensions

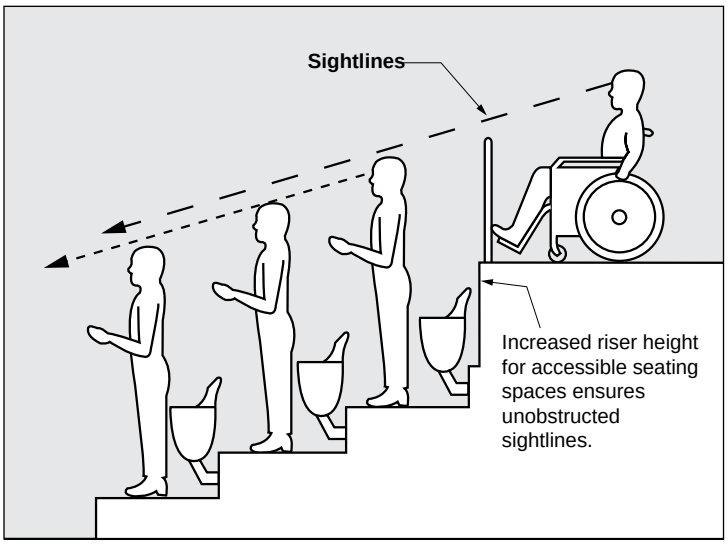


Figure 80: Lines of Sight

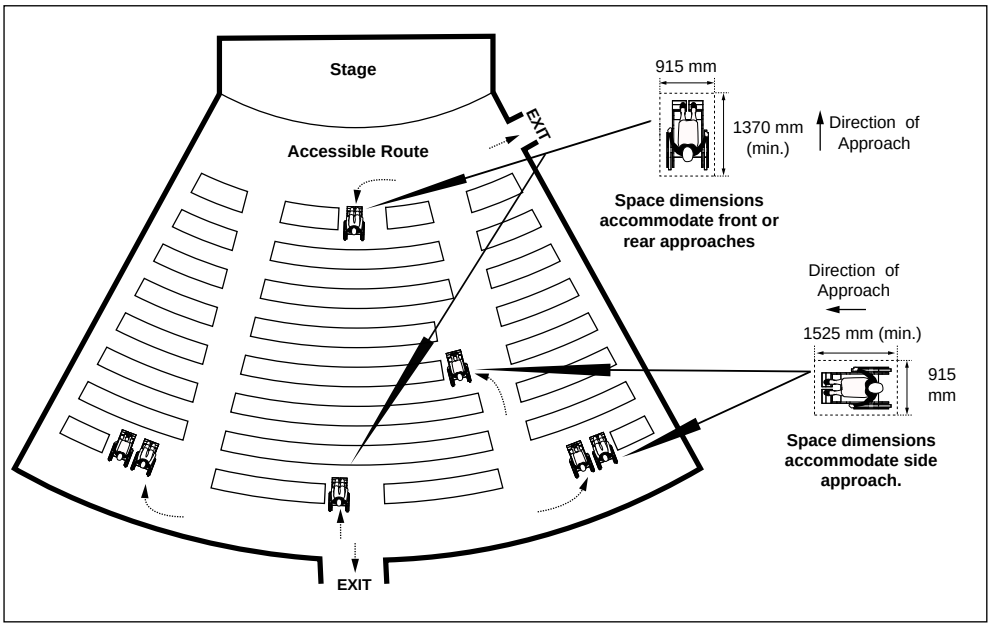


Figure 81: Accessible Seating Plan - Example of Viewing Positions

Designated accessible seating area at stadium.

Best Practice

Adaptable seating, with armrests that flip up and down at the end of aisle seats, provides assistance to persons transferring from mobility aids.

6.1.2.3 Adaptable Seating

a. locate adjacent to an accessible route without infringing on egress from any row of seating or any aisle requirements;
b. equip with a movable or removable armrest on the side of the seat adjoining the accessible route, and
c. locate, as part of the designated seating plan, to provide a choice of viewing location and a clear view of the event taking place.

6.1.2.4 Storage for Mobility Aids

a. ensure at least one (1) storage space where not more than 200 fixed seats is provided and a minimum of two (2) storage spaces, where more than 200 fixed seats are provided;
b. provide a clear floor space of 915 mm wide by 1370 mm deep (minimum) for each space; and
c. locate storage space on the same level and in proximity to the accessible seating spaces and seats designated as adaptable seating.

Meeting and Multi-purpose Rooms

6.2

Application

This section applies to highly-use and large public meeting rooms used by public and staff within a facility.

Reference

Sec. 2.10	Seating, Tables and Work Surfaces
Sec. 4.3	Interior Accessible Routes
Sec. 5.1	Controls and Operating Mechanisms
Sec. 5.2	Assistive Listening Systems
Sec. 5.7	Lighting
Sec. 5.8	Signage and Wayfinding

Best Practice

Entrances to large and highly used meeting or multi-purpose rooms to be equipped with power door operators.

Movable tables and chairs are recommended as they allow flexibility and accommodations to be made.

Note

Where furniture in meeting room is fixed, ensure the clear width of the accessible path of travel maintained at 1100 mm (minimum) and not obstructed.

For larger multi-purpose meeting rooms, consider ways to allow easy and logical subdivision of the room (e.g., partitioning using automatic movable walls, that provide acoustic and visual barriers.

6.2.1 Design and Layout

a. locate on an accessible path of travel;
b. identify meeting room location with appropriate signage;
c. ensure a consistent accessible path of travel of 1100 mm clear width (minimum) is provided throughout space for circulation **(Figure 82)**;
d. provide a turning diameter of at least 1700 mm within high-use public meeting room;
e. provide accessible tables and work surfaces with suitable knee clearances and seating, as identified in related sections;
f. provide assistive listening systems, identified with signage and International Symbol for Hearing Loss;
g. where servery or millwork are provided, ensure clear floor space is:
    i. 915 mm wide by 1370 mm deep (minimum) for forward approach; and
    ii. 1525 mm wide by 915 mm deep (minimum) for side approach;
h. 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; and
i. provide lighting in accordance with Section 5.7 Lighting requirements, as applicable, at work surfaces.

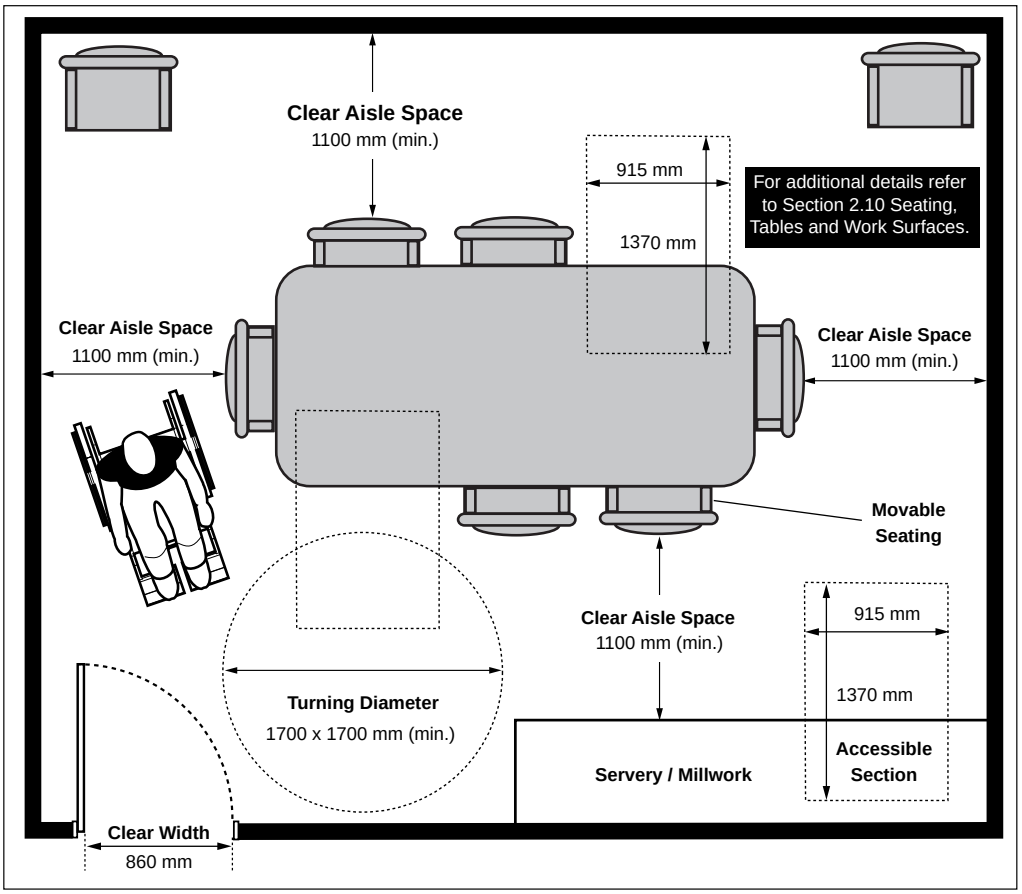


Figure 82: Typical High-Use Meeting Room Design and Layout

Cultural and Art Facilities

6.3

Application

This section applies to cultural and art facilities, which include, but are not limited to, art galleries, concert halls, theatres, museums and heritage sites.

Recognizing there are unique circumstances and challenges related to improving accessibility of heritage sites and facilities, additional considerations beyond architectural and physical design are often required. These can include staff training and awareness, additional use of technology and implementation of facility specific management policies and practices.

Reference

Sec. 2.5	Overhanging and Protruding Objects
Sec. 2.10	Seating, Tables and Work Surfaces
Sec. 4.1	Entrances
Sec. 4.2	Doors and Doorways
Sec. 4.3	Interior Accessible Routes
Sec. 5.1	Controls and Operating Mechanisms
Sec. 5.2	Assistive Listening Systems
Sec. 5.7	Lighting
Sec. 5.8	Signage and Wayfinding
Sec. 5.9	Self-Service Kiosks

Best Practice

Provide line drawings and photographs that complement any labels or text provided, to aid in comprehension for those with reading difficulties.

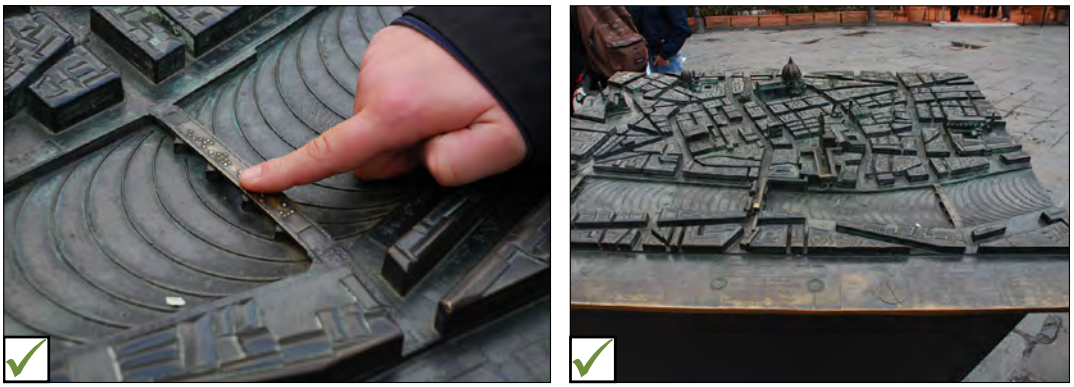
Provide exhibits and display labels in alternative formats (e.g., Braille or audio).

Refer to the Ontario Historical Society's "Accessible Heritage: An Accessible Toolkit for Ontario's Heritage Organizations and Institutions."

www.ontariohistoricalsociety.ca

6.3.1 Design and Layout

a. ensure accessible path of travel is 1100 mm (minimum) wide throughout circulation space;
b. where exhibits or displays follow a specific order, ensure circulation route is intuitive;
c. provide floor plan or map, identifying accessible paths of travel, features and amenities, throughout the building to facilitate wayfinding;
d. provide assistive listening systems in large assembly, meeting or performance areas; and
e. where exhibits and displays are provided:
    i. mount top surface of display cases at 915 mm high (maximum) from floor;
    ii. provide clear floor space of 915 mm wide by 1370 mm deep (minimum) for forward approach and 1525 mm wide by 915 mm deep (minimum) for side approach in front of exhibits;
    iii. ensure colour contrast is provided between the items exhibited and adjacent background;
    iv. eliminate or minimize glare that may be reflected from display surfaces or covers;
    v. provide exhibits and display labels in alternative formats (e.g., Braille or audio);
    vi. ensure lighting level between 100 to 300 lux (10 to 30 foot-candles) is provided at display labels for reading; and
    vii. where interactive displays are provided, ensure controls and operating mechanisms are mounted at 1100 mm high (maximum) from floor.



Interactive displays provide an alternative format to experience a space / exhibit.

Cafeteria and Dining Facilities

6.4

Application

This section applies to elements unique to cafeterias and dining facilities. Typical considerations include:

- serving line and seating areas with lower sightlines, reachable surfaces and displays for users of mobility aids;
- clear aisle and floor space for overall circulation; and
- independent access.

Reference

Sec. 2.10	Seating, Tables and Work Surfaces
Sec. 4.3	Interior Accessible Routes
Sec. 5.1	Controls and Operating Mechanisms
Sec. 6.11	Service Counters
Sec. 6.12	Waiting and Queuing Areas

Note

Providing accessible customer service is especially important for this type of environment.

Best Practice

Provide clear floor space with turning diameter of 1700 mm, to allow both side and frontal approach of larger wheeled mobility aids such as powered scooters and wheelchairs.

6.4.1 Design and Layout

a. provide a consistent accessible path of travel of least 1100 mm wide throughout spaces for circulation; and
b. where layout of cafeteria amenities are dispersed, ensure clear floor space in front of food displays and dispensing equipment of:
   i. 915 mm wide and 1370 deep (minimum) for forward approach; and
   ii. 1525 mm wide and 915 mm deep (minimum) for side approach.

6.4.2 Food Displays and Service Lanes

Where self-service food displays are provided:

a. ensure clear aisle width between tray slide and separating rail is 1100 mm (minimum) **(Figure 83b)**;
b. provide tray slides mounted between 730 mm and 865 mm above floor;
c. ensure at least 50% of shelves are mounted 400 mm to 1370 mm for unobstructed side approach **(Figure 83a)**; and
d. ensure maximum side reach of 500 mm deep.

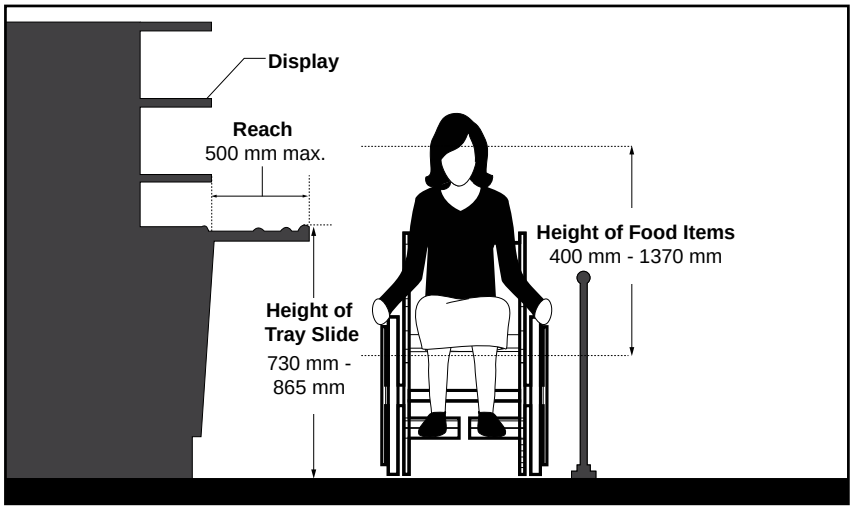


Figure 83a: Food Displays and Tray Slides - Section View

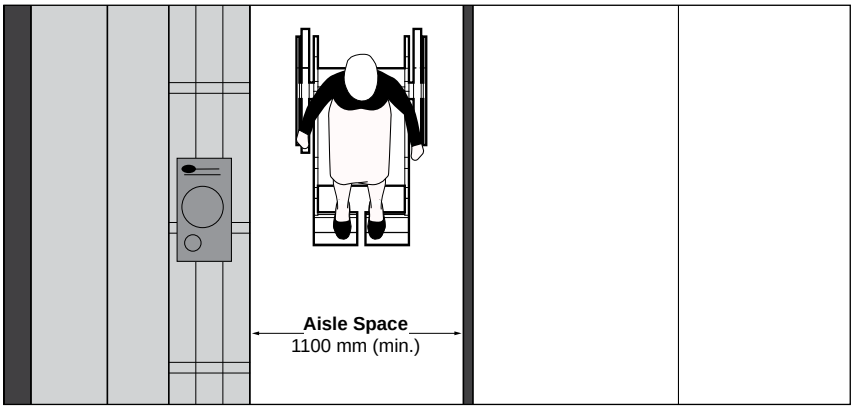


Figure 83b: Aisle Width - Plan View

6.4.3 Service and Payment Counters

a. where provided, ensure at least one accessible service counter;
b. provide a clear floor space for:
    i. forward approach of 915 mm wide by 1370 mm deep; and
    ii. side approach of 1525 mm wide by 915 mm deep;
c. ensure at least one payment machine is usable from a seated position with accessible operating features; and
d. ensure staff are visible from a seated position, to assist users if required.

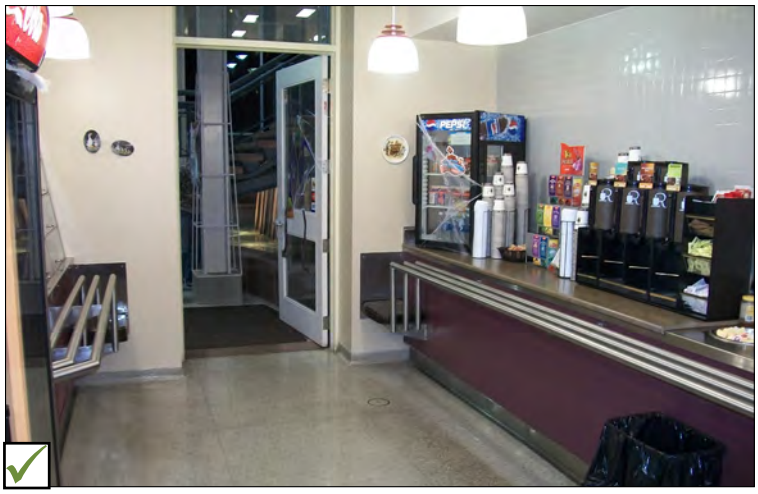
Best Practice

Refer to the AODA Accessibility Standards for Customer Service, Ontario Regulation 429 / 07.

Flexible seating and tables allow easier accommodations for all users.

6.4.4 Dining Areas

a. ensure accessible seating spaces are provided for users of mobility aids;
b. provide dining tables with clear knee space underneath table, as identified in relevant sections;
c. provide a clear floor space of 1700 mm wide by 1700 mm deep (minimum) in front of dining areas; and
d. provide informational and directional signage identifying accessible amenities, with International Symbol of Accessibility.



Clear aisle space and knee clearances provided at food displays and tray slides.

Accessible cafeteria seating area designated with International Symbol of Accessibility.

Kitchens and Kitchenettes

6.5

Application

This section applies to common-use kitchens and kitchenettes for public and staff, typically available as amenities in public facilities, such as office environments and community centres, where multi-purpose activity rooms are provided.

Reference

Sec. 2.1	Ground and Floor Surfaces
Sec. 2.10	Seating, Tables and Work Surfaces
Sec. 4.3	Interior Accessible Routes
Sec. 5.1	Controls and Operating Mechanisms
Sec. 5.7	Lighting

Exception

This section does not address commercial kitchens or kitchens within private residences.

6.5.1 Design and Layout

a. ensure floor surface is slip-resistant and has a non-glare finish; and
b. ensure the following minimum clear floor space is provided directly in front of kitchen amenities and appliances, and to the one side where drawers or door open:
   i. 915 mm wide by 1370 mm deep for forward approach;
   ii. 1525 mm wide by 915 mm deep for side approach;
c. ensure all controls and operating mechanisms are mounted no higher than 1100 mm from floor; and
d. ensure lighting level is at least 100 lux (10 foot-candles), with task lighting option also available (e.g., under counter).

6.5.1.1 Pass-Through or Galley Kitchens

For kitchens, where counters, appliances or cabinets are on two opposing sides or opposite a parallel wall **(Figure 84)**:

a. provide a clearance of at least 1500 mm between all opposing base cabinets, countertops or walls within kitchen work areas; and
b. ensure two doorways or openings are provided, with one at each end and with 860 mm clear width.

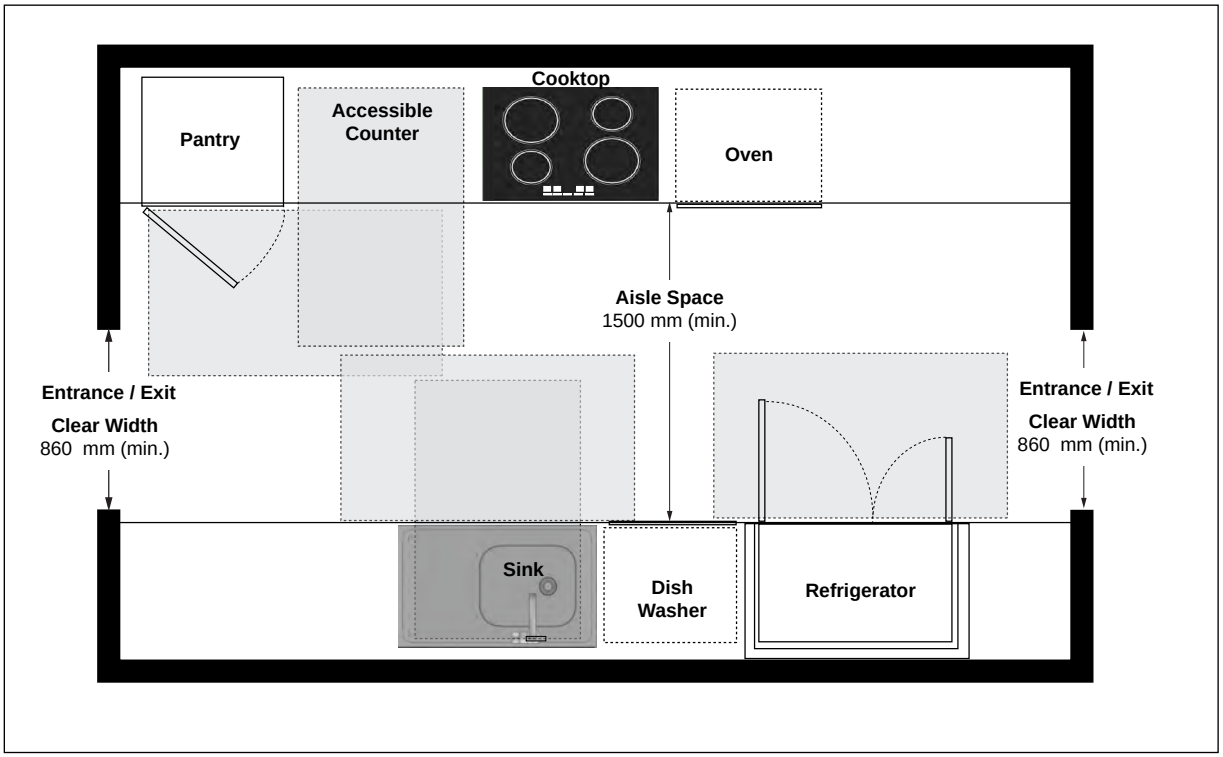


Figure 84: Pass-Through or Galley Kitchen - Plan View

6.5.1.2 U-Shaped Kitchens

Where kitchens are enclosed on three continuous sides **(Figure 85)**:

a. provide a clearance of at least 1500 mm between all opposing base cabinets, countertops or walls within kitchen work areas; and
b. ensure entrance / exit clear width is at least 860 mm.

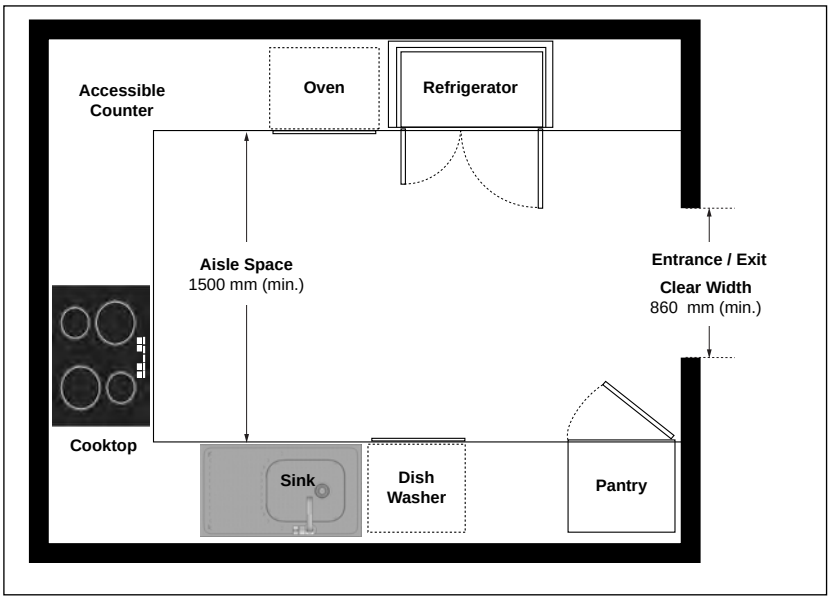


Figure 85: U-Shaped Kitchen - Plan View

6.5.1.3 L-Shaped Kitchens

Where kitchens are L-shaped **(Figure 86)**:

a. provide a clearance of at least 1500 mm between all opposing base cabinets, countertops or walls within kitchen work areas.

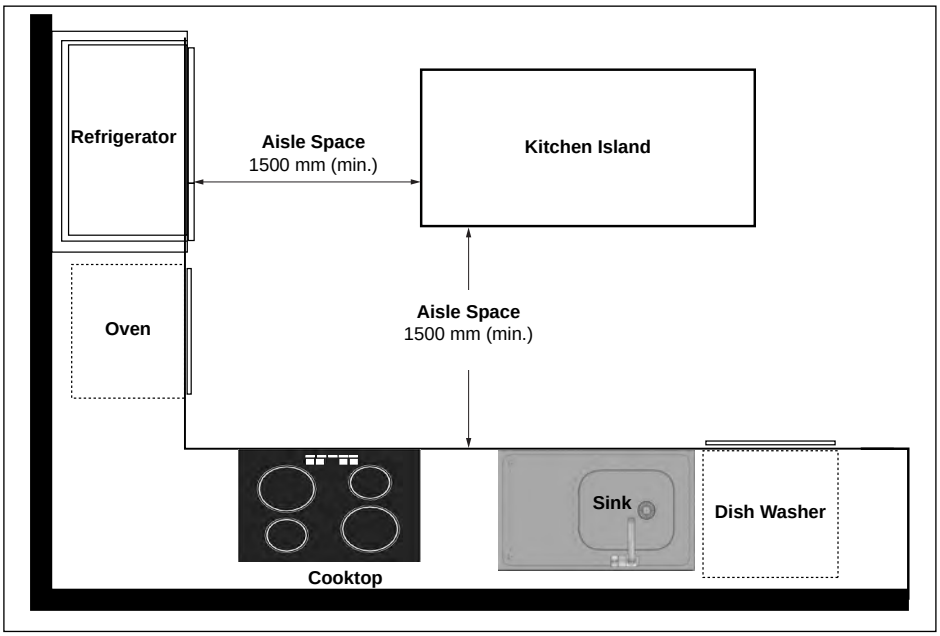


Figure 86: L-Shaped Kitchen - Plan View

6.5.2 Counters and Work Surfaces

For accessible food preparation counters and work surfaces:

a. provide a high colour contrast between all cabinets, countertops, appliances and adjacent wall surfaces;
b. ensure there are no sharp or abrasive surfaces underneath counter and work surfaces;
c. ensure at least one (1) counter / work surface is accessible with:
    i. dimension of 760 mm wide by 600 mm deep (minimum);
    ii. top surface between 730 mm and 865 mm high **(Figure 87)**;
    iii. a centred knee clearance at least 480 mm deep, 760 mm wide and 685 mm high;
    iv. a clear floor space of at least 915 mm wide by 1370 mm, which may extend up to 480 mm underneath the counter / work surface; and
    v. electrical outlets installed at the side or front of it.

6.5.3 Kitchen Storage

Kitchen storage includes but is not limited to shelves, storage cabinets and drawers. Where provided:

a. ensure at least one (1) storage unit is 1100 mm (maximum) high from floor where it is mounted above a counter / work surface;
b. provide accessible cabinet door hardware (e.g., D-type door pull):
    i. mount no higher than 1100 mm from floor **(Figure 87)**;
    ii. mount close to the bottom for upper cabinets and close to the top for base cabinets; and
c. ensure toe space of 150 mm deep by 230 mm high (minimum) is provided at base cabinets, where provided **(Figure 87)**.

Best Practice

Colour contrasted front edges on the counters help define the user space.

Provide a portable, accessible side counter unit for frequently used appliances and related amenities. This can also be an option for existing facilities.

An additional pull-out workboard below the standard counter surface is recommended.

Continuous countertops are recommended.

Full-height storage cabinets provide a good range of accessible storage.

"Lazy Susan" trays also provide accessible storage.

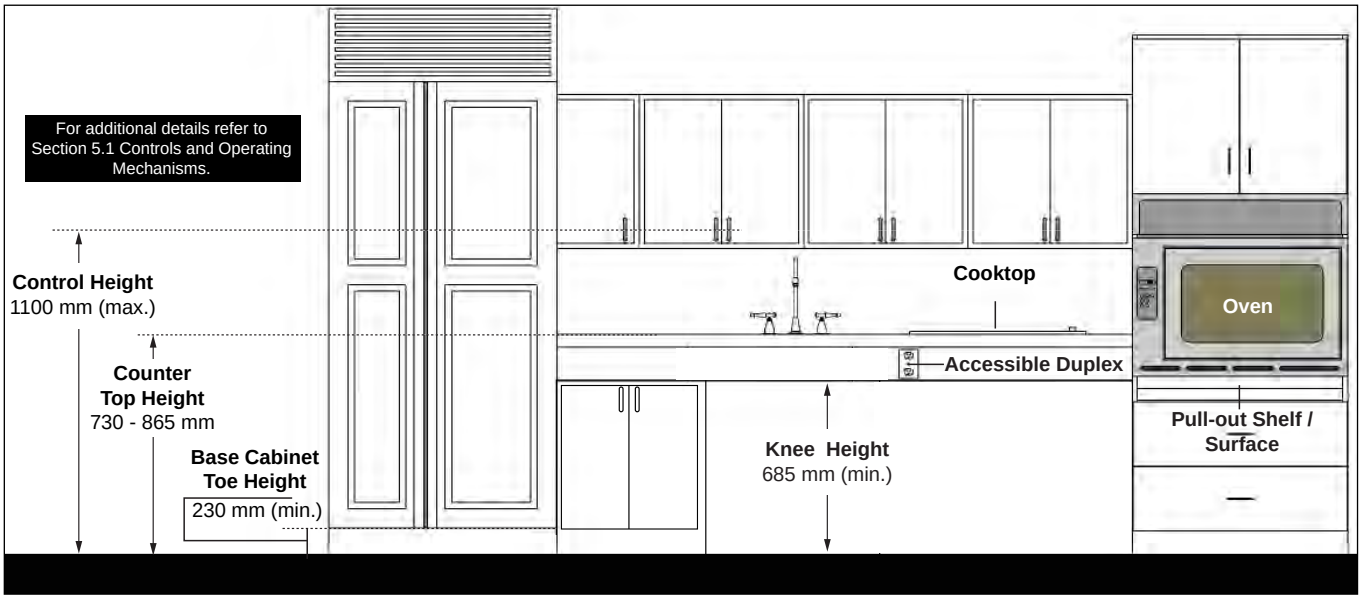


Figure 87: Kitchen Amenities

Best Practice

Faucets with a flexible hose attachment benefit a wider range of users.

Note

Cooktops with flat ceramic surfaces should not be used for people with low vision.

6.5.4 Sinks and Wet Bars

a. install sink with its centreline at 460 mm (minimum) from a side wall;
b. ensure the rim height of sink is located between 810 to 860 mm high above floor;
c. provide knee clearance centred on the sink no less than 920 mm wide by 685 mm high by 200 mm deep;
d. where toe clearance is provided, ensure it is 230 mm high by 230 mm deep (minimum);
e. provide automatic faucet or lever-type controls that can be operated with one closed fist;
f. ensure no sharp or abrasive surfaces under it;
g. ensure hot water and drain pipes underneath sink are offset to the rear and do not obstruct the knee clearance; and
h. where hot water and drain pipes abut the knee clearance, ensure pipes are insulated or covered to protect users.

6.5.5 Kitchen Appliances

Kitchen appliances include but are not limited to cooktops, microwaves, ovens, refrigerators and freezers **(Figures 87).**

6.5.5.1 Cooktops

Where provided:

a. use appliance models where controls are located away from the burners (e.g., do not require reaching across heating surface to operate);
b. ensure a clear floor space of 915 mm wide by 1370 mm deep (minimum), which may extend up to 480 mm underneath the cooktop, is provided;
c. ensure top surface height is located between 810 and 860 mm from the floor;
d. provide a knee clearance centred on the cooktop of at least 760 mm wide by 685 mm high by 200 mm deep, with additional toe clearance of 230 mm deep by 230 mm high (minimum);
e. provide insulation or other protection on the underside where knee clearance is provided; and
f. provide a work surface on each side and at the same height as the cooktop:
    i. width of 400 mm (minimum); and
    ii. ensure surface is heat resistant.

6.5.5.2 Ovens

Where provided **(Figure 87)**:

a. ensure oven controls are located on the front panels of oven;
b. where microwave ovens are provided, mount at counter height;
c. where ovens with side-hinged doors are provided:
    i. provide heat resistant work surfaces with knee space below, adjacent to the latch side of oven door; or
    ii. incorporate a heat resistant pull-out shelf that pulls out 250 mm (minimum) below the oven; and
d. where ovens with bottom-hinged doors are provided, provide work surface on one side of the door.

6.5.5.3 Refrigerators and Freezers

Where provided:

a. provide a self-defrosting freezer;
b. provide a vertical side-by-side type refrigerator / freezer as they are more accessible;
c. where an over- and-under type refrigerator is used, ensure the freezer shelf space is not more than 1100 mm high from the floor; and
d. provide clear floor space in front of refrigerators / freezers, positioned for parallel approach immediately adjacent to refrigerator / freezer, with the centreline of the clear floor space offset 610 mm (maximum) from the front face **(Figure 88)**.

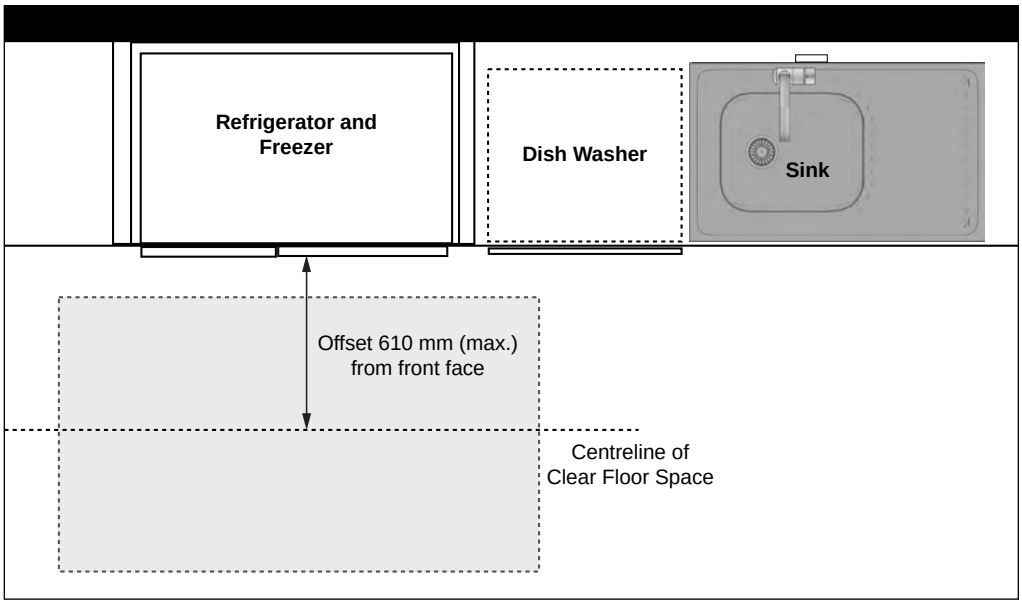


Figure 88: Clear Floor Space at Refrigerators and Freezers

Best Practice

Wall ovens with side-opening door are not recommended.

Roll-out shelves or drawers improve access to the refrigerator contents.

Note

Models with freezers at the bottom are recommended, if an over-and-under refrigerator type is provided.

Additionally, floor space should be provided to pull up to the refrigerator / freezer in a mobility aid. This allows opening and closing of the door and ensures space to open the door.

Libraries

6.6

Application

This section applies to libraries or a designated room in a facility that is used for the same purpose.

It is recognized that libraries have unique space requirements in order to accommodate book stacks and reference materials at both high and low shelving heights. Shelving heights in collection areas with book stacks is unrestricted where City Staff are available to assist users when requested. Ensure Staff availability is coordinated as part of a formal Accessible Customer Service policy, practice or procedure that is in place for all Library facilities as required.

Reference

Sec. 2.10 Seating, Tables and Work Surfaces

Sec. 4.3 Interior Accessible Routes

Sec. 5.1 Controls and Operating Mechanisms

Sec. 5.7 Lighting

Sec. 5.8 Signage and Wayfinding

Sec. 5.9 Self-Service Kiosks

Sec. 6.11 Service Counters

Sec. 6.12 Waiting and Queuing Areas

AODA Customer Service Standard, Ontario Regulation 429 / 07

6.6.1 Design and Layout

a. provide a consistent accessible path of travel of at least 1100 mm wide throughout spaces for circulation;
b. provide turning diameter of 1700 mm in order to allow users of mobility aids to make a 180° turn **(Figure 89)**;
c. where provided, ensure security gates have a clear width of 915 mm **(Figure 90)**;
d. provide at least one accessible service counter at circulation, information or self-service checkout areas;
e. where online catalogues or other workstations are provided, ensure at least 50% are accessible;
f. provide at least one assistive listening device to access all multi-media resources;
g. ensure lighting level is at least 200 lux (20 foot-candles), measured at floor level;
h. ensure acoustic quality is free of unnecessary background noise;
i. provide informational and directional signage where any services or amenities for users with disabilities are available on different floor levels (e.g., Information or Customer Service Desks); and
j. ensure library staff are provided with disability awareness / sensitivity training.

Best Practice

Clear width of 1800 mm is preferred at main circulation routes in order to accommodate higher volumes of traffic.

Where space is available, a clear floor space of 2500 mm is recommended to allow users of mobility aids to make a 180° turn within the aisle configuration.

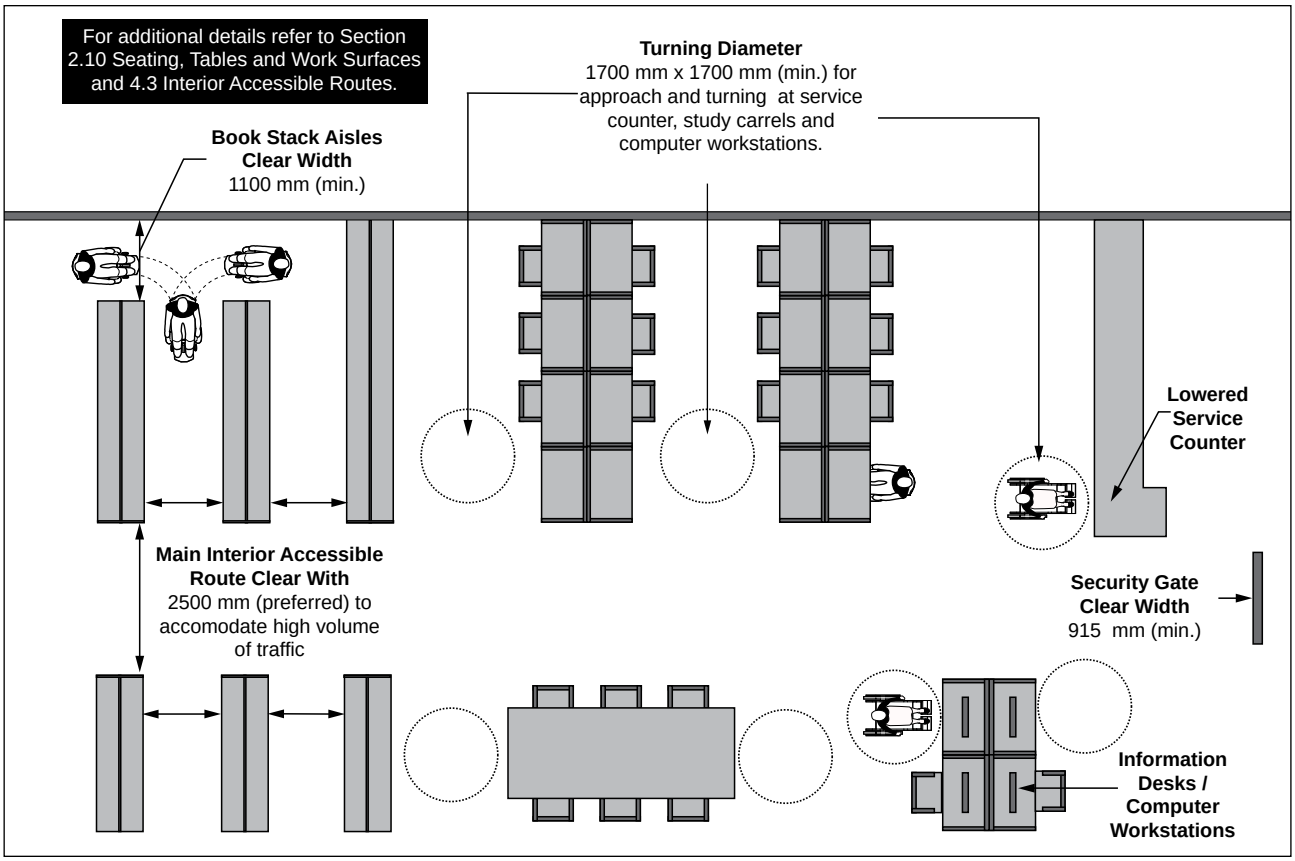


Figure 89: Library Design and Layout - Plan View

Best Practice

Where more frequently used or referenced materials are provided, such as newspapers, periodicals, pamphlets and community brochures for example, a mounting height between 400 mm and 1100 mm high is required to accommodate the reach ranges of diverse users, including small children, seniors and users of mobility aids.

Provide alternative formats for key resources based on user requests and through development of partnerships with other organizations (e.g., CNIB, Canadian Hearing Society). This includes 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 with hearing loss.

Ensure accessible workstations have height adjustable surface and are equipped with assistive technology.

6.6.2 Book Drop Slots

a. locate on an accessible path of travel;
b. provide clear floor space in front of drop slot:
    i. 915 mm wide by 1370 mm deep for a forward approach; and
    ii. 1525 mm wide by 915 mm deep for a side approach;
c. ensure drop slot is colour contrasted with mounting surface;
d. locate slot between 860 and 900 mm above the floor **(Figure 90)**; and
e. ensure slot controls are usable with closed fist and operable with one hand.

6.6.3 Book Stacks or Carousels

a. ensure accessible path of travel of at least 1100 mm between aisles **(Figure 91)**;
b. ensure library policy is in place to provide assistance for users to access items that are too high or too low; and
c. ensure large print collection and heavier materials are placed on lower shelves for easy access.

6.6.4 Reading Lounges and Study Areas

a. provide a variety of seating options (e.g., flexible) for all users;
b. ensure furniture provided is colour contrasted with surroundings;
c. where study tables / carrels are provided, ensure at least 10% are accessible;
d. ensure all study carrels and work surfaces provide suitable knee and toe clearances; and
e. incorporate an electric outlet.

6.6.5 Assistive Technology

Provide assistive technology for library users with varying disabilities including but not limited to:

a. accessible touch screens at an accessible height and within an accessible reach range, where provided;
b. adaptive technology such as options for flexible mouse controls, scrolling features, and on-screen keyboards;
c. specialized equipment for users with vision loss, including screen reading software (e.g., JAWS), scanner, and CCTV magnifiers;
d. headphones or a standard audio jack within an accessible reach range;
e. voice recognition software; and
f. wireless internet connections (“Wi-Fi”) and download centres that are accessible.

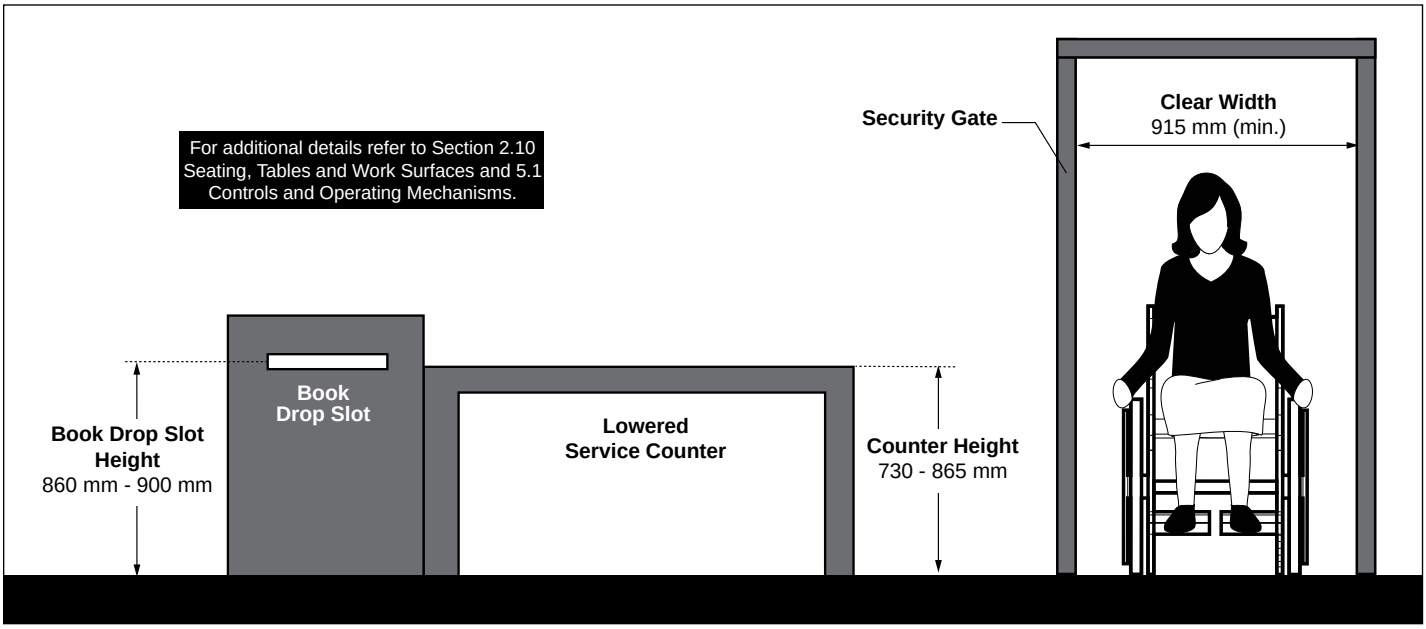


Figure 90: Library Security Gate, Service Counter and Book Drop Slot - Elevation View

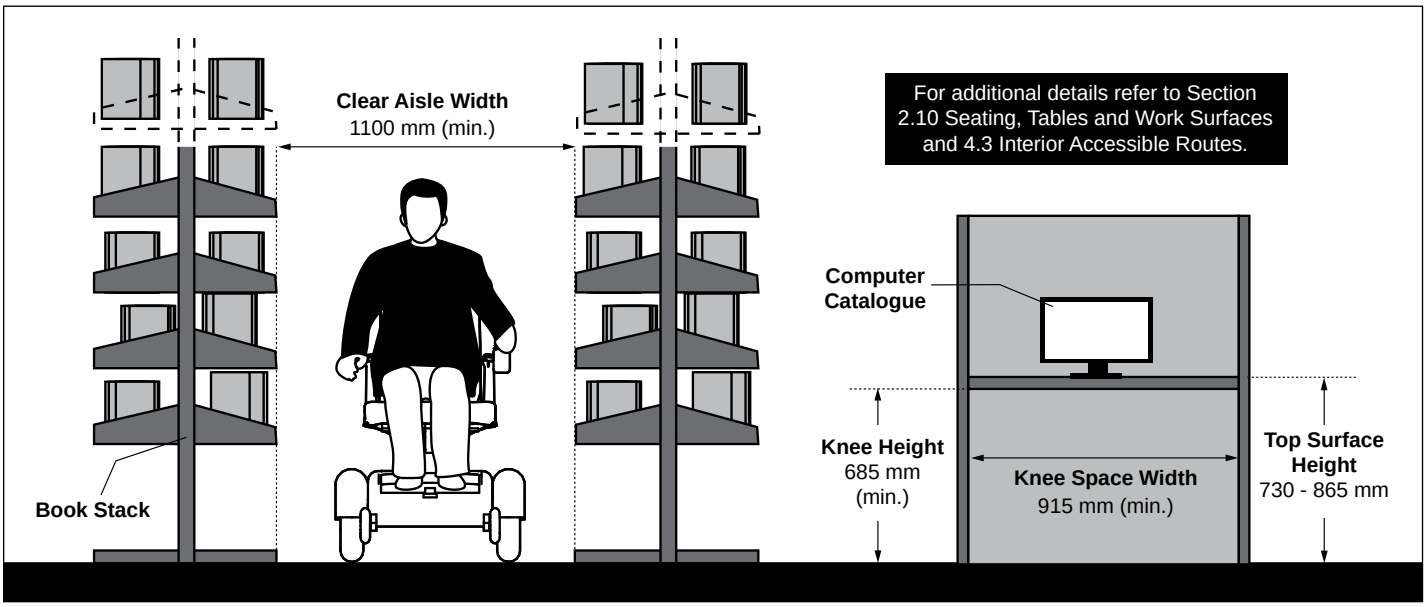


Figure 91: Book Stacks and Accessible Workstation - Elevation View

Office Environments

6.7

Application

This section applies to offices and related accessible work areas / workstations provided for public and / or staff use. Work areas typically include, but are not limited to:

- office systems furniture (e.g., modular partitions that separate work areas);
- private offices;
- print equipment and supply rooms; and
- storage rooms.

Reference

Sec. 2.10	Seating, Tables and Work Surfaces
Sec. 4.2	Doors and Doorways
Sec. 4.3	Interior Accessible Routes
Sec. 5.1	Controls and Operating Mechanisms
Sec. 5.7	Lighting

6.7.1 Design and Layout

a. ensure aisle space throughout circulation areas is 1100 mm (minimum) wide;
b. ensure all doors within offices and common-use work areas have a clear width of 860 mm (34 in) (minimum);
c. provide minimum clear floor space of 1700 mm wide by 1700 mm depth in front of accessible office equipment (e.g., photocopier); and
d. ensure acoustic quality is free of background noise.

Note

Suitable aisle spaces are to be maintained along routes leading to accessible workstations and work areas.

6.7.1.1 Common-Use Work Areas

For accessible workstations in public areas **(Figure 92)**:

a. ensure the clear width of the entry to workstations is 860 mm (minimum);
b. provide an accessible work surface with knee space clearance;
c. provide interior clear floor space of 1700 mm wide by 1700 mm;
d. ensure cabinet and storage unit controls are mounted no more than 1100 mm high from floor; and
e. provide clear floor space of 915 mm wide by 1370 mm deep in front of office systems furniture (e.g., modular partitions that separate work areas) and storage for forward approach and 1525 mm wide by 915 mm deep for side approach.

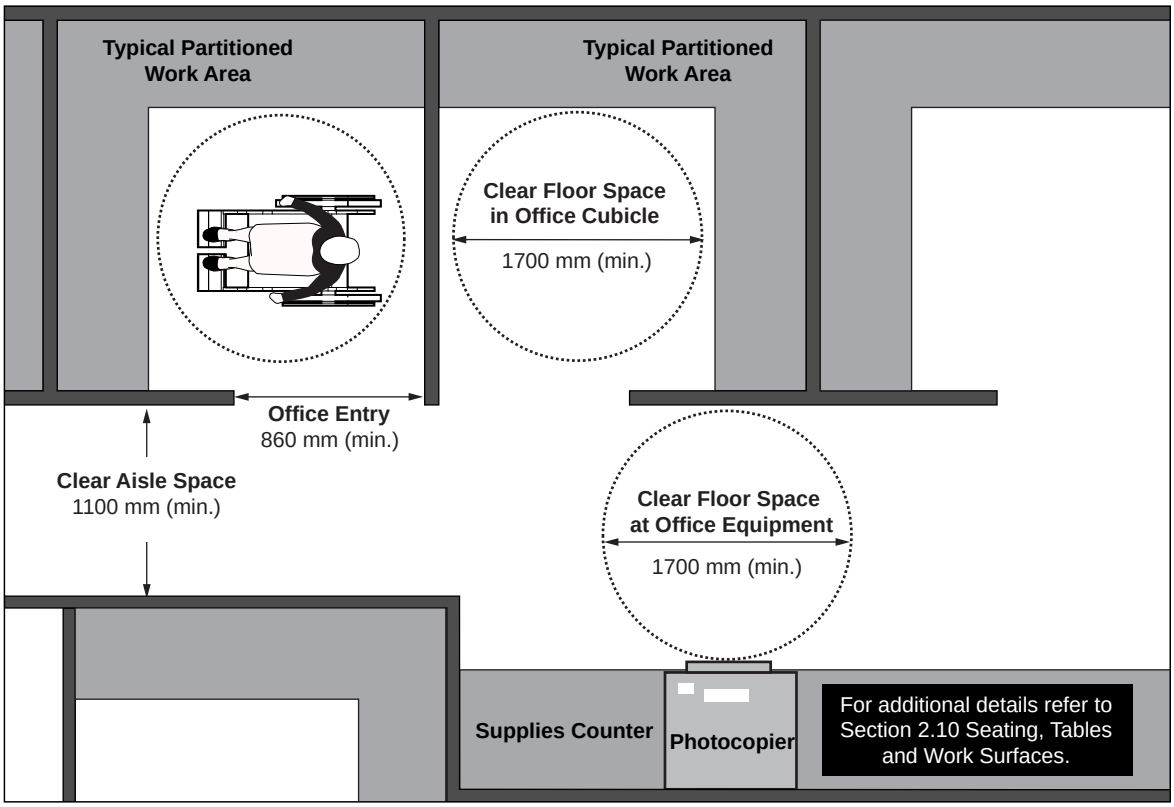


Figure 92: Common-Use Work Areas - Plan View

Recreational and Community Facilities

6.8

Application

This section applies to recreational and community facilities, whether indoor or outdoor, used by spectators, participants, volunteers, coaching staff and facility employees. Recreational and community facilities include, but are not limited to:

- courts (e.g., basketball, volleyball, tennis);
- fields (e.g., baseball, soccer, football);
- arenas (e.g., ice pad, skating rinks);
- aquatic facilities (e.g., swimming pools, spas, wading pools, splash pads, saunas);
- gymnasiums; and
- exercise and fitness facilities.

Criteria in this section requires detailed review and application based on the type of facility, level of use and number of features or elements provided (e.g., total number of change rooms).

Reference

Sec. 2.1	Ground and Floor Surfaces
Sec. 2.2	Ramps
Sec. 2.3	Stairs
Sec. 2.4	Guards and Handrails
Sec. 2.7	Tactile Walking Surface Indicators
Sec. 2.10	Seating, Tables and Work Surfaces
Sec. 5.2	Assistive Listening Systems
Sec. 5.8	Signage and Wayfinding
Sec. 5.8	Self-Service Kiosks
Sec. 6.1	Assembly Areas
Sec. 6.9	Change Rooms
Sec. 6.11	Service Counters
Sec. 6.12	Waiting and Queuing Areas

6.8.1 Arenas

For access to ice pads and skating rinks in arenas:

a. locate on an accessible path of travel;
b. ensure a consistent accessible path of travel of 1100 mm clear width (minimum) is provided throughout space for circulation;
c. provide at least one accessible entrance / gate to ice surface with clear width of 860 mm (minimum); and
d. provide level access or beveled slope of 1:2 (maximum) between the ice pads or skating rinks and the arena.

6.8.2 Exercise and Fitness Facilities

a. ensure accessibility features are provided, if available, for at least one of each type of equipment or machine;
b. ensure a consistent accessible path of travel of 1100 mm clear width (minimum) is provided throughout space for circulation; and
c. provide a clear floor space of 915 mm by 1370 mm (minimum) for a front approach or 915 mm by 1525 mm for a side approach on one side of exercise equipment to allow transfer.

6.8.3 Aquatic Facilities

6.8.3.1 Design and Layout

a. ensure pool deck surfaces are firm, stable, slip-resistant and have a matte finish;
b. ensure deck surface has running or cross slope gradient no steeper than 1:50 (2%) for drainage of water;
c. provide recessed drainage tiles with openings no greater than 13 mm wide;
d. provide an accessible path of travel around the perimeter of pool deck at 1100 mm (minimum) wide;
e. provide tactile walking surface indicators (TWSI) 610 mm wide to clearly delineate the perimeter of the pool deck and locate where any area contiguous to the pool deck may be confused with the deck;
f. provide high tonal contrast 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); and
g. provide at least one accessible entry and exit point located away from any designated swimming lanes.

Best Practice

Design arenas for sledge hockey with accessible players boxes, where the boards can be removed. Refer to Sledge Hockey Accessibility Design Guidelines for Arenas.

Where space is available, provide a clear floor space of 1700 mm by 1700 mm for transfer to exercise equipment.

Provide an area for mobility aids or assistive devices to be stored so they do not obstruct circulation around pool deck.

For new construction, ensure sloped entry or ramp is provided. Transfer lifts are permitted as an option for existing facilities that cannot be retrofitted to provide a sloped entry or ramp.

Where possible, provide sloped entry or ramp with running slope of no more than 1:20 (5%).

Note

Extensions are not required on bottom landing as they can be a bumping hazard for swimmers.

6.8.3.2 Sloped Entry or Ramp

Where a sloped entry or ramp is provided to access pool:

a. ensure the clear width of ramp is 1100 mm (minimum);
b. ensure running slope is no more than 1:12 (8.33%);
c. provide handrails on both sides:
    i. ensure handrails run parallel to the slope of the ramp;
    ii. mount between 865 mm and 965 mm high from surface, extending at top landing only **(Figure 93)**;
d. provide top and bottom landing of at least 1670 mm by 1670 mm;
e. provide edge protection, with a curb 75 mm (minimum) high or railings or other barriers that extend to within 50 mm (maximum) of the floor surfaces;
f. where a ramp that is not submerged is adjacent to the pool wall and is used for access to the water:
    i. ensure the landing at the bottom of the ramp is 450 mm (minimum) but not more than 550 mm below the top of the wall separating the ramp from the pool;
    ii. install a floor drain at the landing's lowest point;
    iii. ensure the pool deck is capable of accommodating a movable barrier separating the deck from the ramp; and
    iv. ensure the water depth at the landing is accurately and clearly marked at the landing in figures 100 mm (minimum) high on the top of the wall separating the pool from the ramp;
g. where a ramp that is submerged is adjacent to the pool wall and is used for access to the water:
    i. ensure water depth at the bottom of the ramp is at least 600 mm and not greater than 900 mm **(Figure 93)**;
    ii. provide a hard-surfaced area capable of accommodating a movable barrier separating the area from the deck, and is 750 mm (minimum) wide that is contiguous to the entire length of the part of the submerged ramp that pierces any part of the deck; and
    iii. ensure the finishes in the submerged portions of the ramps and curbs are different in colour or shade from each other and from that of the pool walls and bottom.

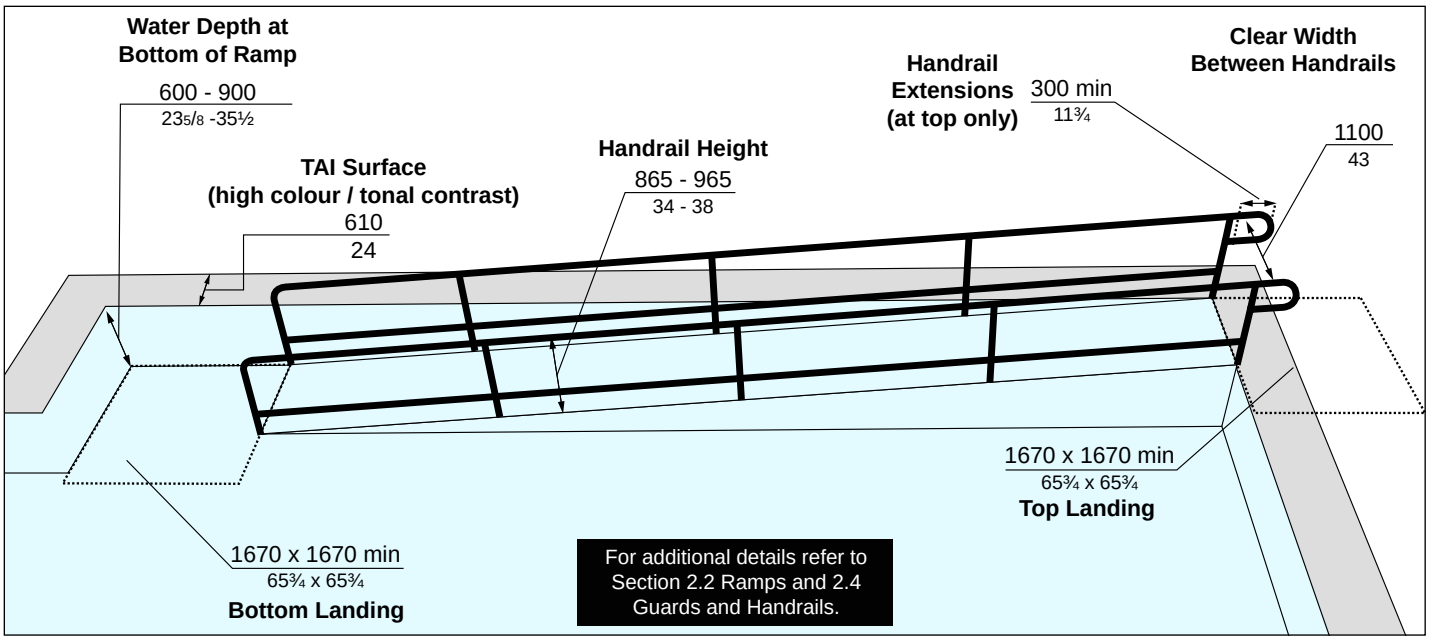


Figure 93: Sloped Entry or Ramp to Swimming Pool

6.8.3.3 Transfer Lifts

Existing facilities without ramps are encouraged to secure a fixed transfer lift to support client needs. Where transfer lift is provided:

a. locate on an accessible path of travel and in shallow end, where water level does not exceed 1200 mm high;
b. ensure the centreline of the seat for the transfer lift is located over the deck and at 400 mm (minimum) from the edge of the pool when in the raised position;
c. ensure seat is firm with suitable padding, with a minimum width of 400 mm;
d. provide a clear deck space of 1700 mm by 1700 mm on the transfer side of the lift;
e. ensure lift is designed to be operable without assistance from both the deck and water and when in use, its controls and operating mechanisms are unobstructed and mounted no higher than 1100 mm from pool deck or water surface; and
f. ensure single user lifts have a minimum weight capacity of 135 kg and capable of sustaining a static load of at least 1.5 times the rated load.

Transfer lifts can be used as a means of assisted entry and exit point where an accessible entry / exit point can not be provided.

6.8.4 Additional Requirements

Generally, the following spaces and facilities are also typically provided in recreational and community facilities:

6.8.4.1 Change Rooms

Where change rooms are provided:

a. provide at least one universal change room to accommodate parents with children, companions or care givers of the opposite sex;
b. where multiple occupancy change rooms provide changing stalls, ensure at least 10% but never less than one (1) changing stall is accessible for each type of change rooms provided (e.g., team change room, family change room, and referee change room); and
c. ensure change rooms adhere to Section 6.9, Change Rooms.

6.8.4.2 Spectators' / Viewing Areas

Where spectators' /viewing areas are provided:

a. provide level accessible seating spaces to accommodate users of mobility aids as per Section 6.1, Assembly Areas; and
b. integrate assistive listening systems or visual equipment, depending on the type of venue.

6.8.4.3 Concessions

Where concessions are provided:

a. ensure an accessible lowered counter section is provided with suitable knee clearances as per Section 6.11 Service Counters.

Change Rooms

6.9

Application

This section applies to change rooms, which may also be referred to as dressing / locker rooms or fitting areas, used by the public or staff. These spaces share common elements and design features. Typically, change rooms are provided in arenas, pools, fitness centres and related recreation / community centres.

Reference

Sec. 2.1	Ground and Floor Surfaces
Sec. 2.10	Seating, Tables and Work Surfaces
Sec. 4.2	Doors and Doorways
Sec. 4.3	Interior Accessible Routes
Sec. 4.5	Washrooms
Sec. 4.6	Showers
Sec. 5.1	Controls and Operating Mechanisms
Sec. 5.7	Lighting
Sec. 5.8	Signage and Wayfinding

Note

The provision of Universal Change Rooms and / or Accessible Changing Stalls as part of Change Rooms and related areas is dependant upon the type of facility. For a Pool facility, often a combination of shared and private spaces are provided for change areas, which often also integrate washroom and shower facilities as part of the overall design. The total number of universal change rooms and / or accessible changing stalls should be identified based on the size and occupancy of each facility and the required fixture counts for washrooms and showers.

Best Practice

Clear width of 1800 mm is preferred at main circulation routes in change room in order to accommodate higher volumes of traffic.

6.9.1 Provision and Location

a. provide at least one (1) universal change room where team or gender specific change rooms are provided;
b. where multiple occupancy change rooms provide changing stalls, ensure at least 10% but never less than one (1) changing stall is accessible;
c. locate universal change rooms and change rooms with accessible changing stalls centrally within a facility, along an accessible route; and
d. where change rooms are not accessible, provide directional signage to indicate location of nearest accessible change room on the same floor.

6.9.2 Multiple Occupancy Change Rooms

a. ensure entrance to change room provides a clear width of 860 mm (minimum);
b. where doors are provided at entrance, equip with power door operators;
c. provide a consistent accessible path of travel 1100 mm (minimum) wide throughout spaces for circulation in the change room;
d. ensure a clear turning diameter of 1700 mm (minimum) is provided inside change room circulation area to allow users of mobility aids to make a 1800 turn;
e. ensure the floor surface is slip-resistant and allows suitable drainage;
f. where washroom facilities are provided as part of a change room, provide accessibility design requirements, in accordance with Section 4.5 Washrooms requirements, as applicable;
g. where shower facilities are provided as part of a change room, provide accessibility design requirements, in accordance with Section 4.6 Showers requirements, as applicable;
h. where changing stalls are provided, ensure accessible changing stall is provided in accordance with sub-section 6.9.4;
i. provide lighting in accordance with Section 5.7 Lighting requirements, as applicable; and
j. provide an emergency call system with the following features:
    i. includes an emergency sign containing the words “IN THE EVENT OF AN EMERGENCY PUSH EMERGENCY BUTTON AND AUDIBLE AND VISUAL SIGNAL WILL ACTIVATE” in letters at least 25 mm high with a 5 mm stroke, that is posted above the emergency button;
    ii. consists of visual and audible signal devices both inside and outside of the change room that are activated by a control device inside the change room; and
    iii. where facilities have the capacity and where staff is available, ensure the call system is linked to a display panel at a reception / information counter or to a centrally monitored station (e.g., security desk).

6.9.3 Universal Change Rooms

Universal change rooms are typically equipped with a universal washroom and an accessible shower. Where universal change rooms are provided:

a. locate in the same vicinity as other change rooms (e.g., Men's, Women's & Family multiple occupancy washrooms) along the shortest accessible route;
b. identify clearly with signage, including unisex pictogram (e.g., Male and Female) and the International Symbol of Accessibility;
c. ensure floor surface is firm, stable and slip-resistant;
d. provide a clear turning diameter of 1700 mm (minimum) **(Figure 94)**;
e. ensure the accessibility design requirements of a universal washroom in accordance with Section 4.5.3 Universal Washroom are provided;
f. where a shower stall is provided, ensure an accessible shower is provided in accordance with Section 4.6 Showers requirements;
g. provide motion sensor for automatic illumination of the interior, and lighting in accordance with Section 5.7 Lighting requirements, as applicable; and
h. include a full length mirror.

Best Practice

A 2500 mm turning diameter inside universal change rooms or accessible changing stalls is recommended, where space is available.

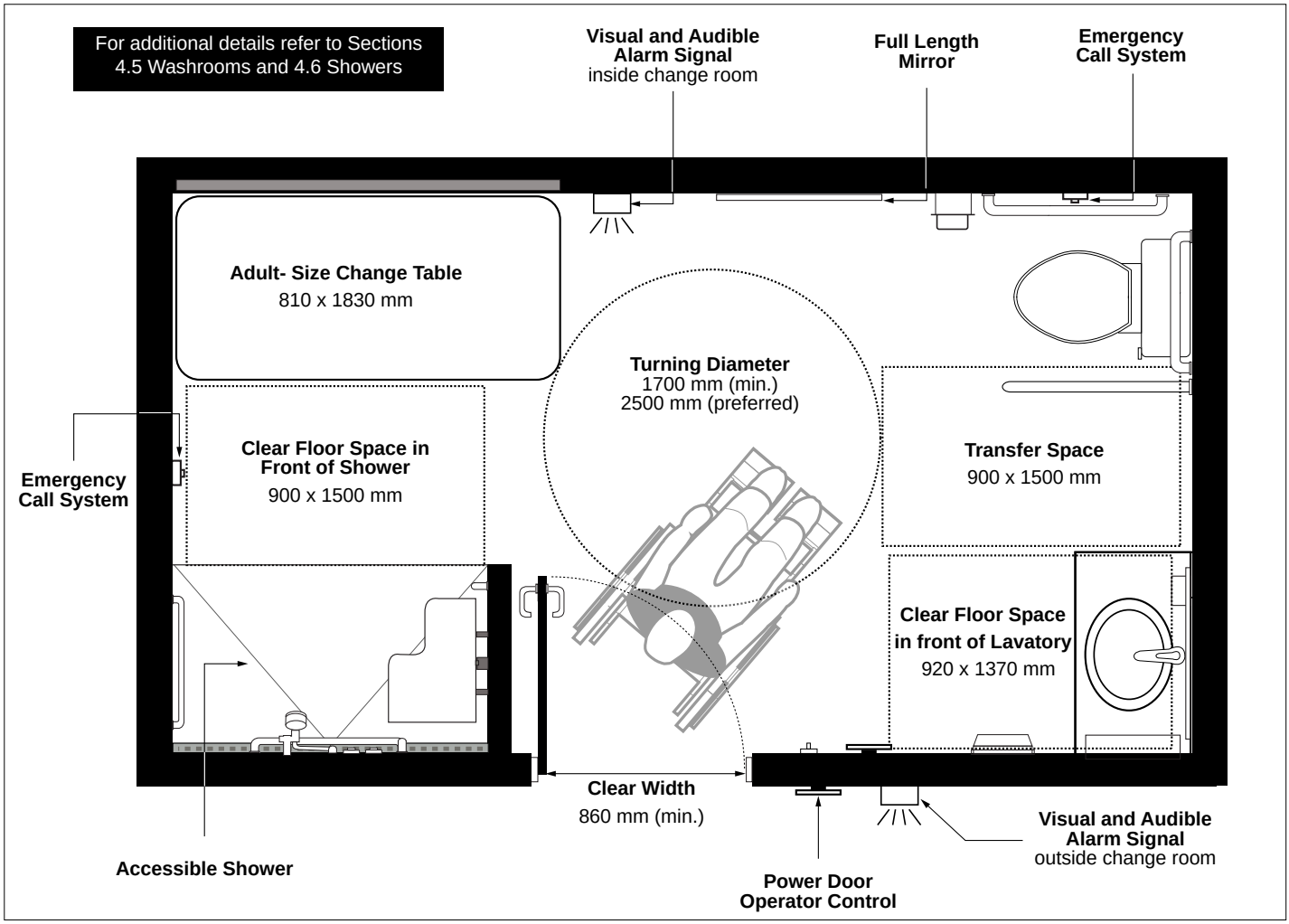


Figure 94: Universal Change Room

6.9.4 Accessible Changing Stalls

a. identify clearly with signage (e.g., International Symbol of Accessibility);
b. provide a clear turning diameter of 1700 mm (minimum) inside of the stall **(Figure 95a)**;
c. ensure floor surface is firm, level and slip-resistant;
d. provide an entrance door or stall door with:
    i. a clear width of 860 mm (minimum), when door is in an open position;
    ii. a locking mechanism that can be locked from the inside and released from the outside, in case of emergency; and
    iii. spring hinges or gravity hinges in the case of a stall door, so that door closes automatically, where the door swings outwards;
e. provide a change bench 1830 mm long by 760 mm wide, mounted with top surface between 450 and 500 mm high;
f. provide grab bars with specifications identified in Section 4.5.7 Grab Bars:
    i. install one L-shaped grab bar at the end of the bench, with the vertical component, 150 mm (minimum) from front edge of seat and clearance of 150 mm (minimum) above the bench seat **(Figure 95a & b)**.
g. provide motion sensor for automatic illumination of the interior, and lighting in accordance with Section 5.7 Lighting requirements, as applicable; and
h. include a full length mirror.

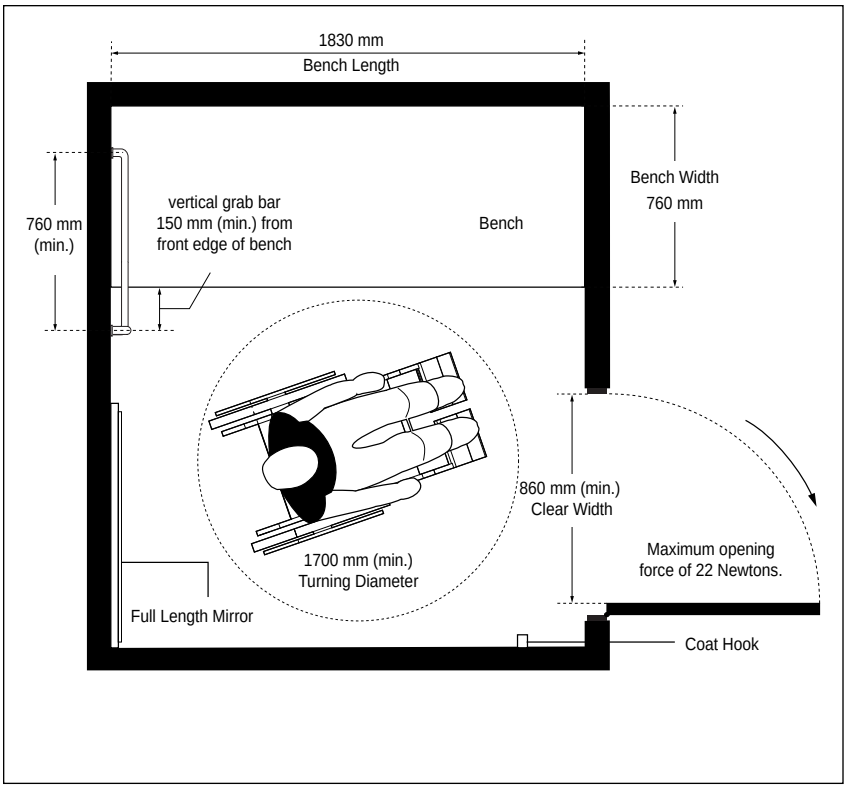


Figure 95a: Accessible Changing Stall - Plan View

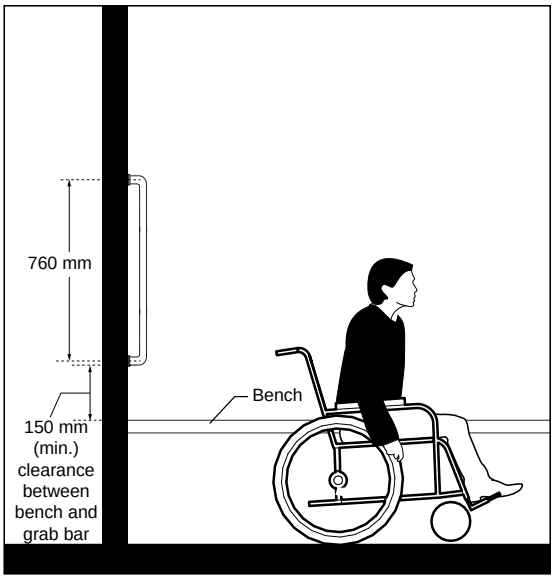


Figure 95b: Accessible Changing Stall - Elevation View

6.9.5 Change Room Amenities

Change room amenities typically include, but are not limited to, benches, lockers, showers and washrooms.

6.9.5.1 Permanent Benches

Where permanent benches are provided:

a. provide seat height of 450 to 500 mm above finished floor to allow users of mobility aids to transfer;
b. ensure seat depth between 510 mm to 610 mm, with back support, unless seat surface is permanently positioned against a wall; and
c. provide high colour contrast finishes to assist with distinguishing bench surfaces from surroundings.

6.9.5.2 Lockers

Where lockers are provided inside change rooms:

a. ensure at least 10% of the total number of lockers but never less than one (both full and half height) is designated as accessible;
b. ensure accessible lockers are evenly dispersed throughout the change room;
c. identify accessible lockers clearly with signage (e.g., International Symbol of Accessibility);
d. provide a clear floor space in front of accessible lockers of:
    i. 915 mm wide at 1370 mm deep (minimum) to allow for a forward approach; and
    ii. 1525 mm wide by 915 mm deep (minimum) to allow a side approach;
e. mount bottom shelf between 400 mm and 1200 mm high from the floor in each accessible locker;
f. ensure locking mechanism is mounted between 900 mm and 1100 mm high above floor; and
g. ensure identification / number signage for all lockers:
    i. is mounted no higher than 1500 mm (centre);
    ii. provides lettering or number print size between 13 mm and 19 mm high, with either raised or recessed lettering; and
    iii. provides a high colour contrast with the background.

6.9.5.3 Coat Hooks

Where coat hooks are provided:

a. ensure at least 10% of coat hooks are mounted 1100 mm (maximum) high.

Balconies and Terraces

6.10

Application

This section addresses spaces that may be used as exits and areas of refuge from public facilities, such as common-use balconies and terraces.

Reference

Sec. 2.1 Ground and Floor Surfaces

Sec. 2.4 Guards and Handrails

Sec. 3.3 Exterior Paths of Travel

Sec. 4.2 Doors and Doorways

Exception

This section does not address balconies and terraces within private residences.

6.10.1 Design and Layout

a. locate on an accessible path of travel;
b. ensure ground or floor surfaces are firm, slip-resistant with maximum gradient of 1:50 (2%) to permit drainage;
c. provide depth of 2000 mm (minimum) **(Figure 96)**;
d. ensure threshold is beveled at slope of 1:2 (50%) (maximum), where transition is between 6 to 13 mm;
e. ensure door stops and door sweeps do not prevent maneuverability;
f. where doors open directly into a path of travel, provide cane detectable guards or other protective barriers located perpendicular to the door; and
g. where guards are provided, design to facilitate visibility from seated position.

Note

Where spacers for drainage are provided, on ground surface, ensure maximum width of 6 mm between each.

Guards at balconies and terraces may consist of vertical pickets or glass.

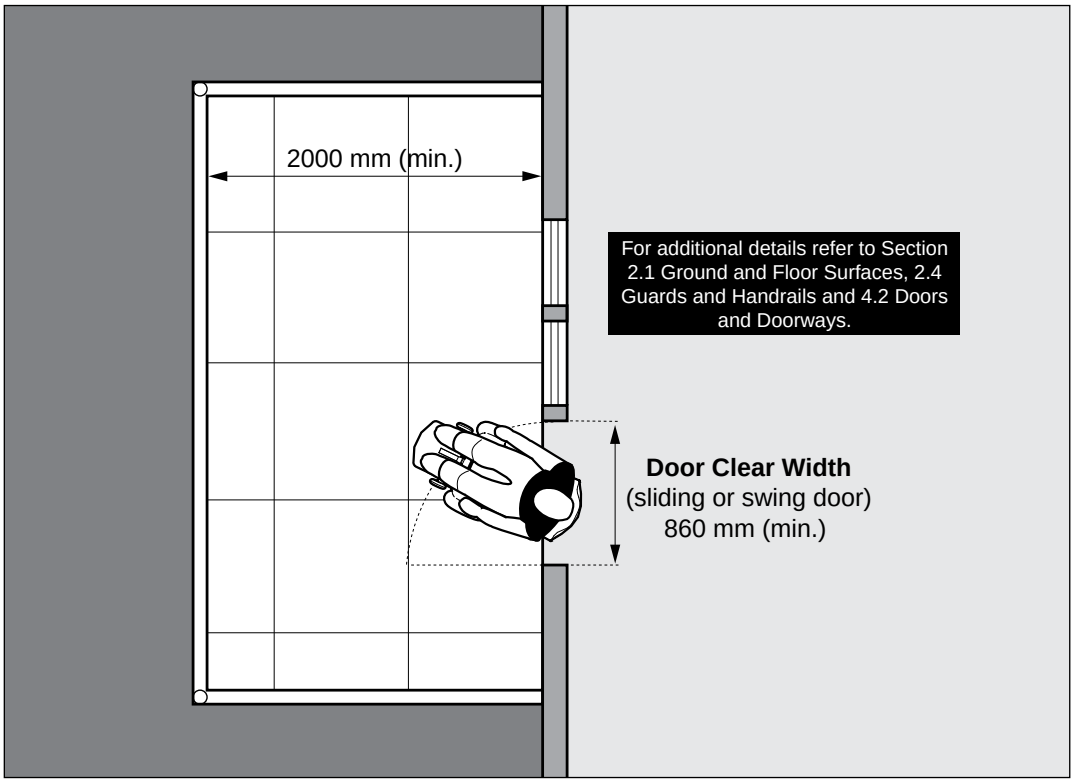
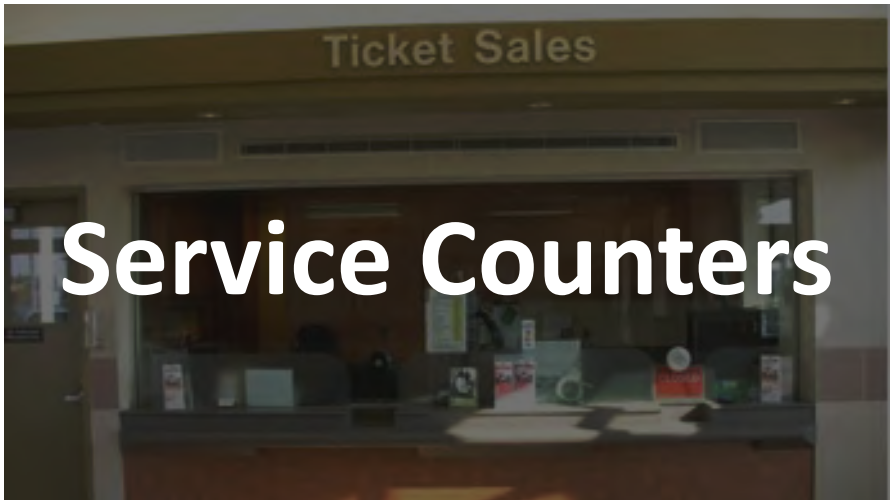


Figure 96: Balcony / Terrace - Plan View



Service Counters

6.11

Application

This section applies to service counters used by both the public and staff. Service counters may include, but are not limited to:

- reception desks;
- check-out counters;
- teller counters;
- security counters;
- information desks or kiosks; and
- food service counters.

Reference

Sec. 2.9	Public Telephones
Sec. 2.10	Seating, Tables and Work Surfaces
Sec. 4.3	Interior Accessible Routes
Sec. 5.8	Signage and Wayfinding

Note

A variety of service counter applications are provided in the built environment, with numerous options for accessible design.

6.11.1 Provision

a. where a single queuing line serves a single or multiple counters, ensure each service counter is accessible; and
b. where there are multiple queuing lines and service counters, ensure at least one (1) service counter is accessible for each type of service provided.

6.11.2 Design and Layout

a. locate on an accessible path of travel;
b. where there are multiple queuing lines and service counters, provide signage (e.g., International Symbol of Accessibility) to identify the accessible service counter(s),
c. provide clear floor space in front of service counters of **(Figure 97a)**:
   i. 915 mm wide by 1370 mm deep to allow forward approach;
   ii. 1525 mm wide by 915 mm deep to allow side approach;
d. ensure service counter surface is colour contrasted compared with adjacent surfaces to identify counter when approaching;
e. ensure lighting level is 150 lux (15 foot-candles) (average), measured at floor level; and
f. provide a lowered counter usable from seated position:
   i. with top surface mounted between 730 mm and 865 mm high above floor for seated use (e.g., writing);
   ii. ensure a clear knee space under the counter of at least 480 mm deep by 915 mm wide by 685 mm high **(Figure 97b)**;and
   iii. ensure maximum forward reach of 635 mm deep across top.

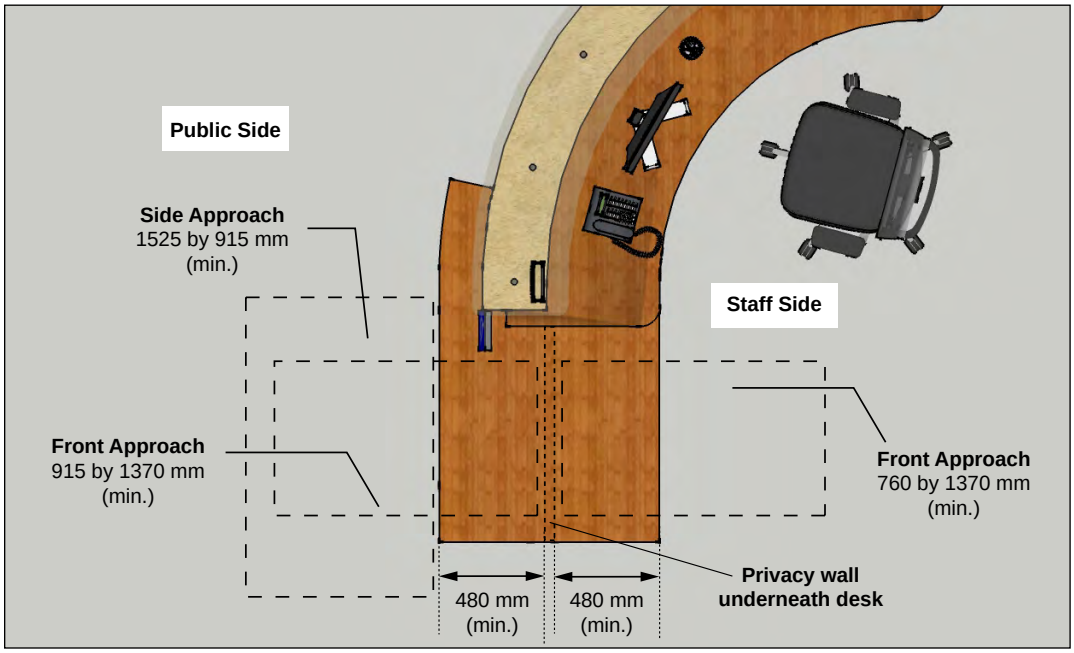


Figure 97a: Clear Floor Space Requirement at Accessible Service Counter - Plan View

Best Practice

Provide clear floor space or ground surface with turning diameter of 1700 mm, to allow both side and front approaches by users of mobility aids, including larger wheeled mobility aids, such as powered scooters and wheelchairs.

Ensure sources of light (natural or artificial) are not positioned directly behind service counters as they place people in silhouettes, which is a problem for people who lip read and people with vision loss.

Ensure clear floor space, knee space and toe space is provided on each side of service counters for both public and staff use.

Ensure accessible service counters / desks are not used as storage space.

Note

For transaction counters where no writing is required, height of transaction counter of 1200 mm is acceptable. Where space is available, lowered counter is required.

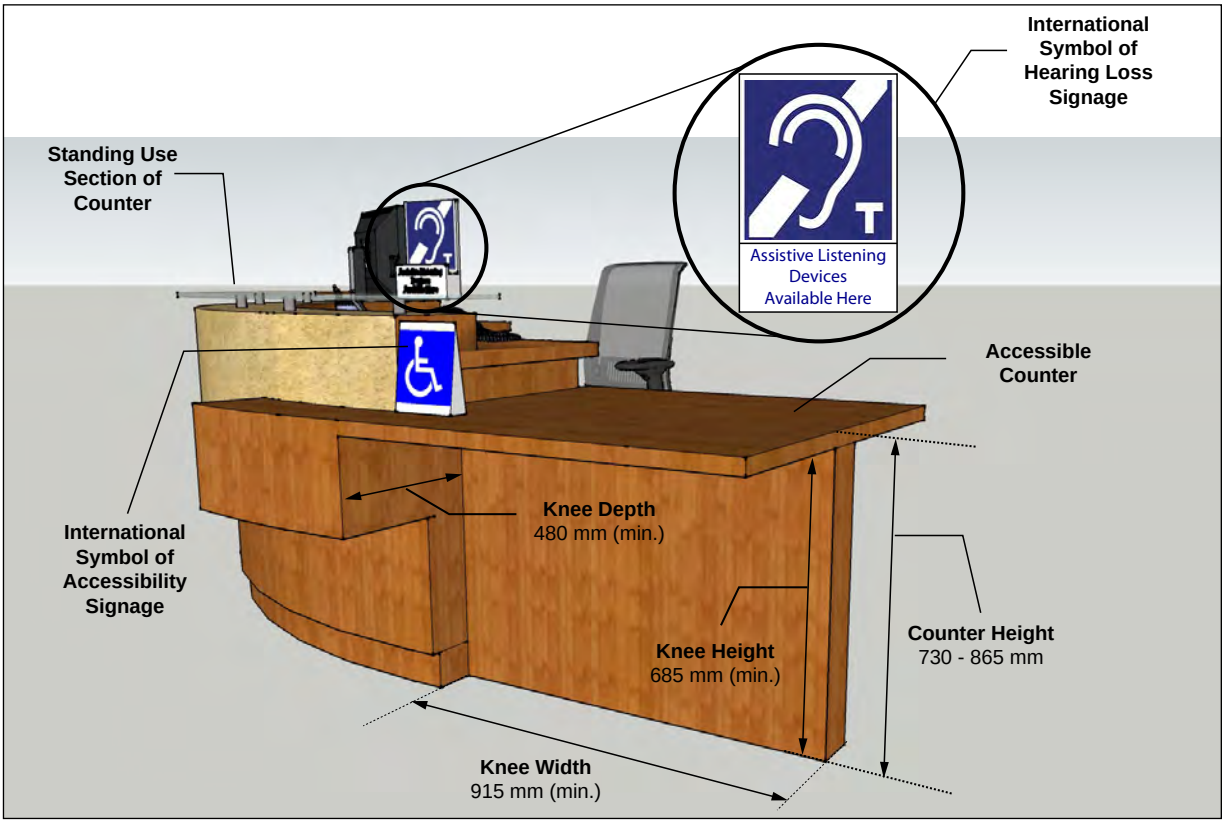


Figure 97b: Accessible Service Counter with Knee Clearances

Best Practice

Provide disability awareness / sensitivity training for staff where communication systems are provided to ensure proper use and interaction with customers with disabilities.

6.11.3 Communication Systems

Where communication systems are provided at service counters:

a. ensure counter areas are well-lit to assist staff and visitors with hearing loss who may communicate by lip reading;

b. where speaking ports are provided, provide at least one speaking port at 1000 mm high (maximum) from floor level;

c. where no staff person is available, provide an information phone or call bell with information signage, with controls mounted at 1100 mm (maximum);

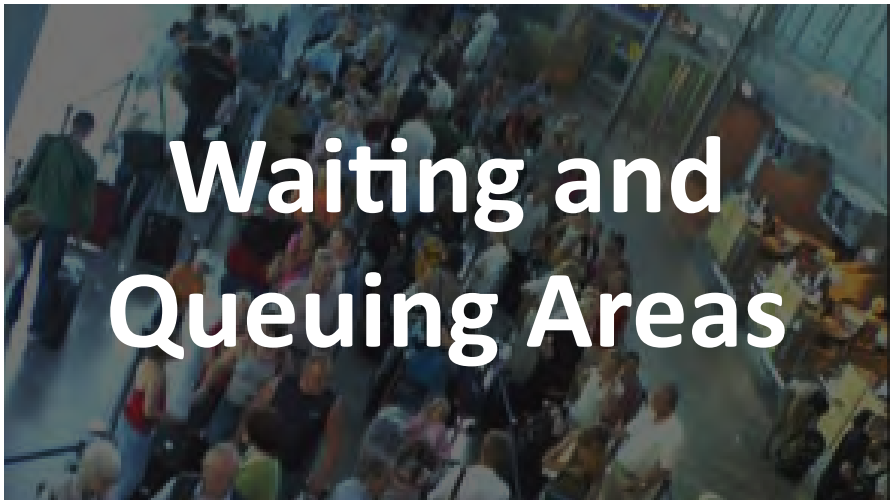
d. integrate TTY service or alternate devices for visitors who are Deaf, deafened or hard of hearing;

e. where assistive listening systems are available, ensure signage with International Symbol for Hearing Loss is provided to indicate devices are available for use; and

f. where staff communicate from an enclosed counter behind glass, ensure the glazing does not reflect glare. Where appropriate install sliding windows that open fully to allow communication, whether verbal, through lip reading or use of sign language.

6.11.4 Additional Resources

- Ministry of Community and Social Services: Accessibility Standards for Customer Service: www.mcss.gov.on.ca/en/mcss/programs/accessibility/customerservice/
- Toronto Association of Business Improvement Areas “Missed Business”: www.toronto-bia.com/resources/accessibility/Missed_Business.pdf



Waiting and Queuing Areas

6.12

Application

This section applies to all interior and exterior waiting, line-up and queuing areas, whether permanent or temporary.

Reference

Sec. 2.4	Guards and Handrails
Sec. 2.10	Seating, Tables and Work Surfaces
Sec. 4.1	Entrances
Sec. 4.3	Interior Accessible Routes
Sec. 5.2	Assistive Listening Systems
Sec. 5.3	Public Address Systems
Sec. 5.4	Acoustics
Sec. 5.8	Signage and Wayfinding
Sec. 5.9	Self-Service Kiosks

6.12.1 Waiting Areas

Where waiting areas are provided:

a. position the waiting area so that it is clearly visible when entering the facility;
b. provide directional and informational signage to identify and guide users to waiting areas, where they may not be clearly visible when entering a facility;
c. ensure a lowered counter with suitable knee clearance for users of mobility aids is provided, where there is a counter;
d. where fixed seating is provided, ensure at least 3% of the seating is accessible but in no case fewer than one accessible seating space:
e. where accessible seating is provided:
    i. is located adjacent to and connected to an accessible path of travel;
    ii. is integrated with the overall layout of other seating that is provided in waiting areas; and
    iii. provides a minimum clear floor space of 915 mm wide and 1370 mm depth, adjacent to fixed seating / waiting area and away from the main path of travel, for users of mobility aids to position themselves, their equipment, a service animal, or maneuver throughout the space **(Figure 98)**;
f. ensure other seating provides variety of options, including back and arm supports for various users, and aligns with Section 2.10, Seating, Tables and Work Surfaces;
g. provide a building directory for large facilities, especially where no rooms are assigned; and
h. where lower coffee or telephone tables are provided adjacent to seating / waiting areas, ensure the top surface is 510 mm high (minimum), for reach from a seated position.

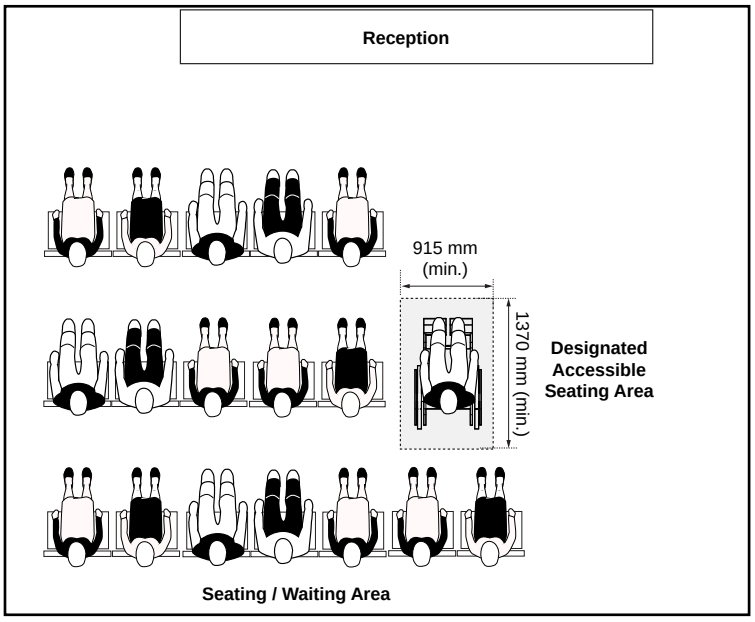


Figure 98: Waiting Area - Plan View

Best Practice

Provide companion seating immediately adjacent to the accessible seating.

Provide tactile floor plan / directional map to assist users with vision loss with wayfinding throughout complex facilities.

Provide a range of seating options such as wider seats.

Note

Clear floor space for designated accessible seating must be positioned to allow shoulder alignment for user of mobility aid and person in adjacent seat.

Best Practice

Where line-up guides are permanent and where there is a change in direction, directional indicators at floor level are recommended for users with vision loss.

Consider including rest areas with accessible seating along the queuing system, where queues are longer than 10 metres. Additionally, provide a rest area at the end of the queuing system for people to wait for companions who are queuing.

Note

Rope or flexible banding is not recommended for permanent queuing systems because they are more difficult to detect with a long cane and are unstable. When temporary queuing guides are provided, ensure they are cane detectable and stable.

6.12.2 Queuing Areas

Where queuing areas are provided:

a. locate on an accessible path of travel; and
b. provide directional and informational signage to identify location of queuing area entry.

6.12.2.1 Fixed Queuing Guides

When providing fixed queuing guides:

a. ensure clear width of 1100 mm (minimum) between guides **(Figure 99)**;
b. provide clear floor space of 1700 mm wide by 1700 mm deep (minimum), where queuing guides change direction and where they begin and end;
c. ensure lower edge or base guides are cane-detectable, mounted at or below 680 mm from floor, with supports;
d. provide a high colour contrast between guide surfaces and adjacent surroundings (e.g., for enhanced visibility); and
e. ensure guides have a glare-free finish.

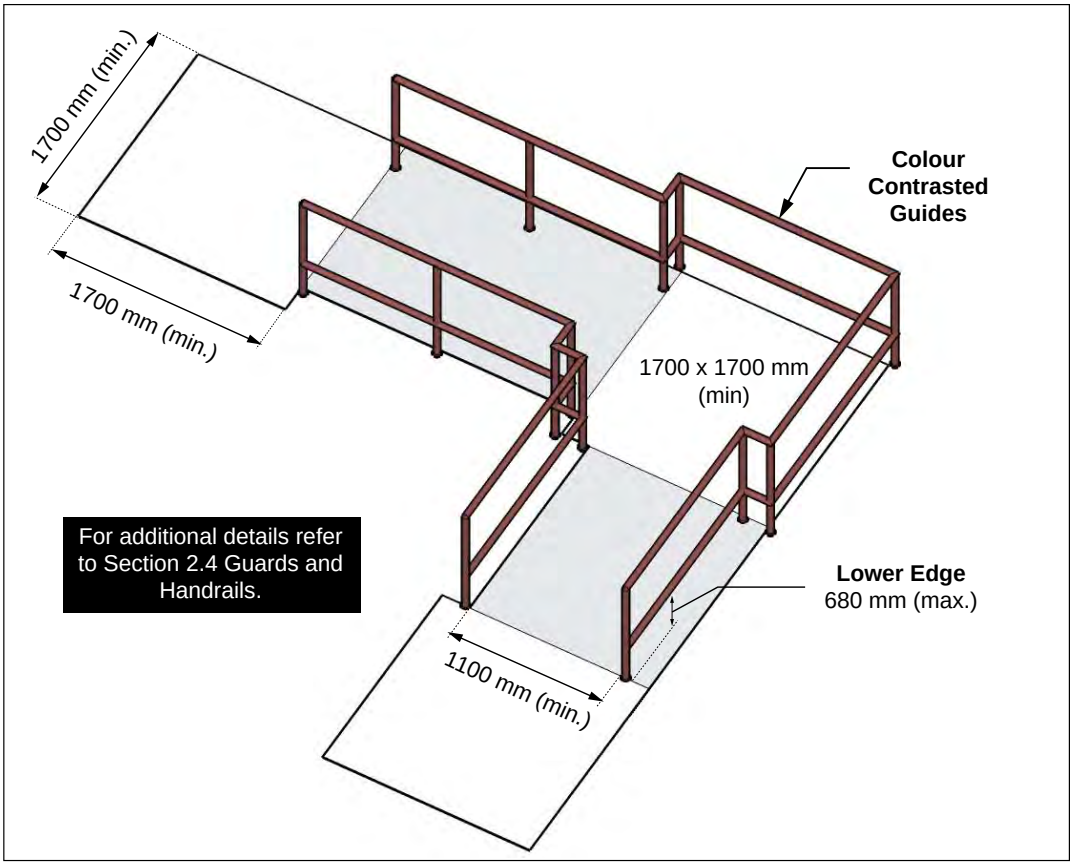


Figure 99: Fixed Queuing Guides

Elevated Platforms or Stages

6.13

Application

This section applies to elevated platforms or stages for both interior and exterior environments. Stages are typically provided in auditoriums, theatres and lecture halls used for performances and presentations.

Reference

Sec. 2.2	Ramps
Sec. 2.3	Stairs
Sec. 2.4	Guards and Handrails
Sec. 2.7	Tactile Walking Surface Indicators
Sec. 5.2	Assistive Listening Systems
Sec. 5.4	Acoustics

Best Practice

Providing both stair and ramp access increases the flexibility for the use of stages by people with varying disabilities.

Note

Other considerations may include accessibility features for podiums and electronic equipment (e.g., microphone systems), that are provided.

Best Practice

Lighting level of 200 lux (20 foot-candles) is recommended. This is beneficial for users who lip read or use Sign Language Interpretation.

Provide space for sign language interpreters and captioning on stages near speakers.

6.13.1 Design and Layout

a. locate on an accessible path of travel;
b. ensure at least one accessible route is provided to both audience seating and backstage areas for public or staff use via a sloped walkway (preferred), ramp or lift;
c. where stairs and steps are included in the design, ensure handrails and edge protection are provided as required;
d. ensure lighting level is 100 lux (10 foot-candles) maximum, including provision of secondary task lighting sources that can be used as required; and
e. provide tactile walking surface indicators (TWSI):
    i. 610 mm from edge of elevated platform or stage, extending full length platform or stage **(Figure 100)**; and
    ii. depth of 610 mm (minimum).

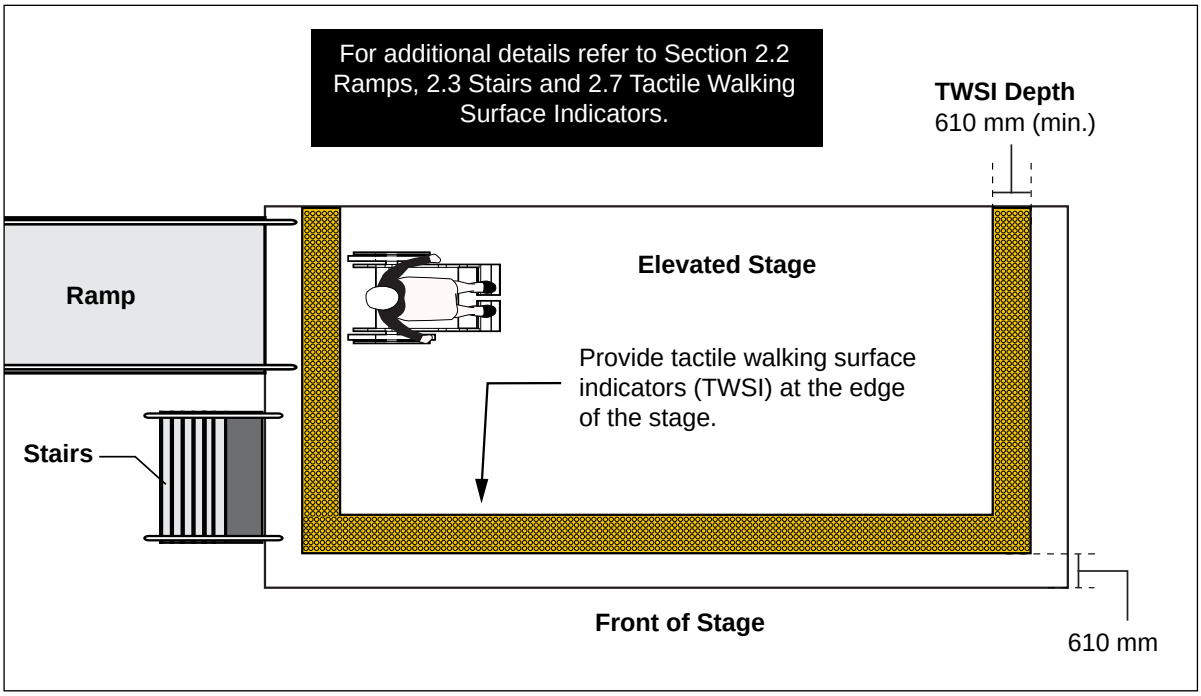


Figure 100: Elevated Platform or Stage - Plan View

Visitability Housing

6.14

What is Visitability?

Visitability refers to an affordable and sustainable design strategy aimed at increasing the number of basic-access family homes and neighbourhoods. It focuses on providing basic access through a rethinking of three key elements of residential design:

- bathrooms;
- accessible routes; and
- entrances.

This section is provided as introductory information only, to encourage improving levels of accessibility within private residential developments.

Note

The principles of visitability provide the fundamentals for basic access only and are only appropriate for private homes. They should not be considered as full replacement of accessibility and universal design guidelines.

Note

Criteria is adapted from the proposed visitability guidelines under consideration by the Ontario Home Builders Association's "Accessible Housing Council" and their research conducted in 2008-2009.

Best Practice

The District of Saanich, British Columbia has developed voluntary requirements for adaptable housing: www.saanich.ca.

6.14.1 Design Principles

Visitable homes require:

a. at least one zero step access point (e.g., grade level or sloped route entrance);
b. an entrance door with 865 mm clear width (minimum);
c. wide hallways on the same level as the entry at 1100 mm wide;
d. accessible routes into rooms on the same level as the entrance; and
e. at least one half-bath or powder room (e.g., one toilet and one sink), located on the same level as the accessible entrance into the home, with the following features:
    i. entrance door with 865 mm clear width; and
    ii. clear floor space of 760 mm wide by 1220 mm depth, clear of door swing.

Example of residence with gradually sloped accessible route to main entrance.

6.14.2 Additional Resources

For more information regarding the principles of visitability, visit:

- Canadian Centre on Disability Studies: www.visitablehousingcanada.com
- Concrete Change: www.concretechange.org
- Centre for Inclusive Design and Environmental Access: www.udeworld.com/visitability.html
- Ontario Home Builders' Association: www.ohba.ca
- District of Saanich, British Columbia: www.saanich.ca

Outdoor Public Use Eating Areas

6.15

Application

This section applies to newly constructed and redeveloped outdoor public use eating areas at public facilities, which typically provide tables (e.g., picnic tables) intended for public use as a place to consume food.

Reference

Sec. 2.1	Ground and Floor Surfaces
Sec. 2.6	Rest Areas
Sec. 2.10	Seating, Tables and Work Surfaces
Sec. 3.3	Exterior Paths of Travel
Sec. 4.5	Washrooms

Best Practice

Disperse the locations of accessible tables in outdoor public use eating areas to provide a choice for users with disabilities.

Consider fixing accessible tables and seating so that they cannot be moved to an inaccessible location.

6.15.1 Design and Layout

a. ensure minimum of 20% of tables and no fewer than one (1) are accessible;
b. locate adjacent to an accessible path of travel or trail;
c. ensure ground surface leading to and under tables is firm, stable and no steeper than 1:50 (2%);
d. provide directional signage at strategic locations to identify accessible tables and public use eating areas;
e. ensure accessible tables provide suitable knee and toe clearances;
f. provide a clear space of 2000 mm (minimum) on all sides of the table **(Figure 101a)**;
g. where washrooms are provided, ensure accessible features (e.g., at least one universal toilet room, per cluster of regular washrooms); and
h. where barbecues are provided in outdoor public use eating areas, ensure they are placed away from the accessible path of travel and on a surface with high colour and textural contrast with the adjacent surfaces.

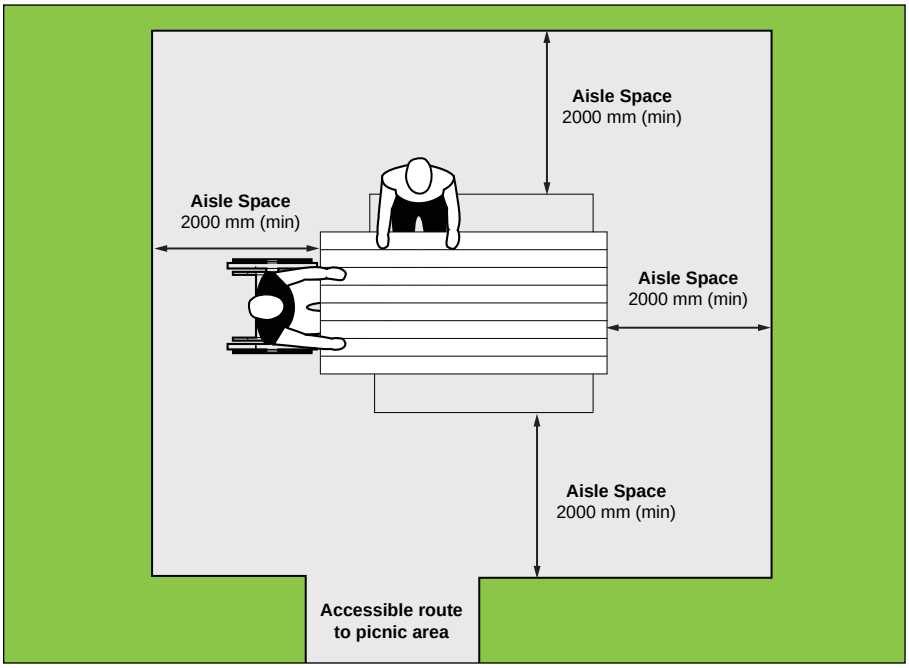


Figure 101a: Picnic Table Design and Features - Plan View

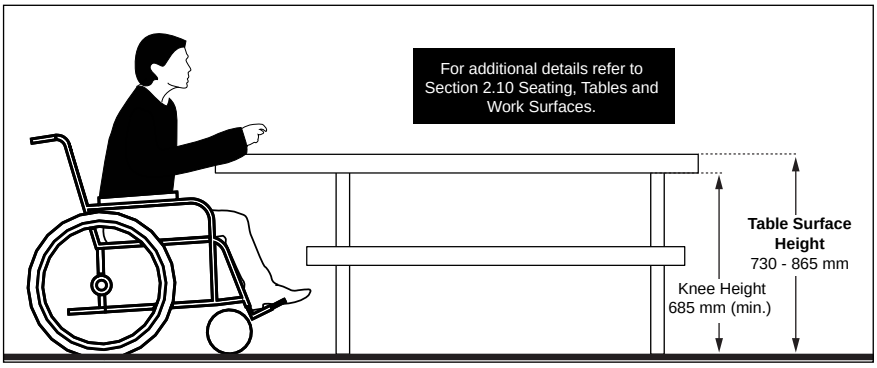
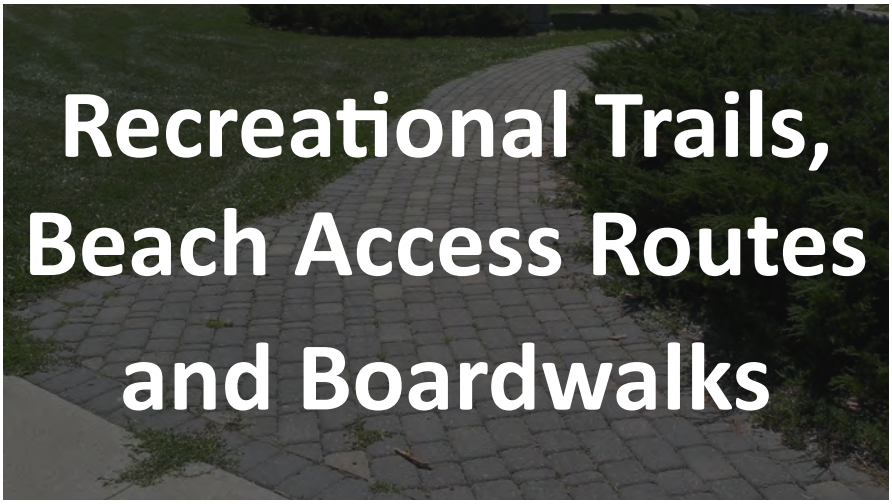


Figure 101b: Picnic Table Design and Features - Elevation View



Recreational Trails, Beach Access Routes and Boardwalks

6.16

Application

This section applies to:

- newly constructed and redeveloped recreational trails that the City intends to maintain, but it does not apply to trails solely intended for cross-country skiing, mountain biking or the use of motorized snow vehicles or off-road vehicles, wilderness trails, backcountry trails and portage routes;
- newly constructed and redeveloped beach access routes that the City intends to maintain, including permanent and temporary routes that are established through the use of manufactured goods, which can be removed for the winter months; and
- boardwalks that are part of newly constructed or redeveloped recreational trails and beach access routes that the City intends to maintain.

Reference

Sec. 2.1	Ground and Floor Surfaces
Sec. 2.2	Ramps
Sec. 2.4	Guards and Handrails
Sec. 2.5	Overhanging and Protruding Objects
Sec. 2.6	Rest Areas
Sec. 2.10	Seating, Tables and Work Surfaces
Sec. 3.3	Exterior Paths of Travel
Sec. 5.8	Signage and Wayfinding
Sec. 6.15	Outdoor Public Use Eating Areas

6.16.1 Recreational Trails

Note
Trails are not considered the same as exterior routes, paths and walkways. Trails do not include pathways such as public sidewalks or pathways between buildings.

6.16.1.1 Consultation Requirements

Before constructing new or redeveloping existing recreational trails, the City will consult with the Markham Advisory Committee on Accessibility, the public, and persons with disabilities on:

a. the slope of the trail and;
b. the need for, and location of, ramps on the trail; and
c. the need for, location and design of,
    i. rest areas;
    ii. passing areas;
    iii. viewing areas;
    iv. amenities on the trail; and
    v. any other pertinent feature.

Best Practice
Trails with options for entry and exit at multiple trailheads typically can enhance accessibility when requirements of this section are integrated.

6.16.1.2 Designated Trailheads

a. ensure designated trailheads with information signage are integrated as part of the trail design, at key entrance and exit points along the trail, intermediate areas on lengthy trails or decision points (e.g., changes in elevation or where there is option to go in multiple directions) where required. Typically, a case by case review and analysis is required, based on trail type, location and other conditions **(Figure 102)**.

Note
A trailhead is a designated point of access that may contain a parking area, information kiosks, information signage, rest areas, washrooms, water fountains or other user amenities, which are typically reached by vehicular or pedestrian access.

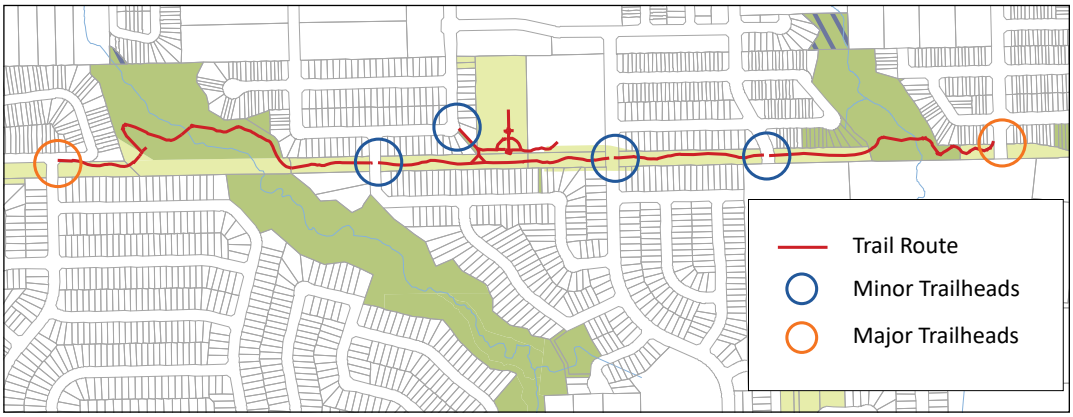


Figure 102: Example of Trail with Multiple Trailhead Options

6.16.1.3 Trail Entrance / Exit Points

a. provide 850 mm to 1000 mm clear opening whether entrance includes a gate, bollard or other entrance design; and
b. ensure entrances are maintained and clear of obstructions that can reduce the clear width of the entrance.

6.16.1.4 Trail Clear Width

a. provide clear width of 1000 mm (minimum) to 1800 mm (preferred);
b. where the clear width is less than 1800 mm, provide a passing space of 1800 mm wide by 1800 mm (minimum) long, at intervals no more than 30 m **(Figure 103)**;
c. ensure headroom clearance is 2100 mm (minimum) above the trail; and
d. ensure no obstructions or projections along trail.

Note
Where trail width is minimal, ensure this occurs for the shortest distance possible.

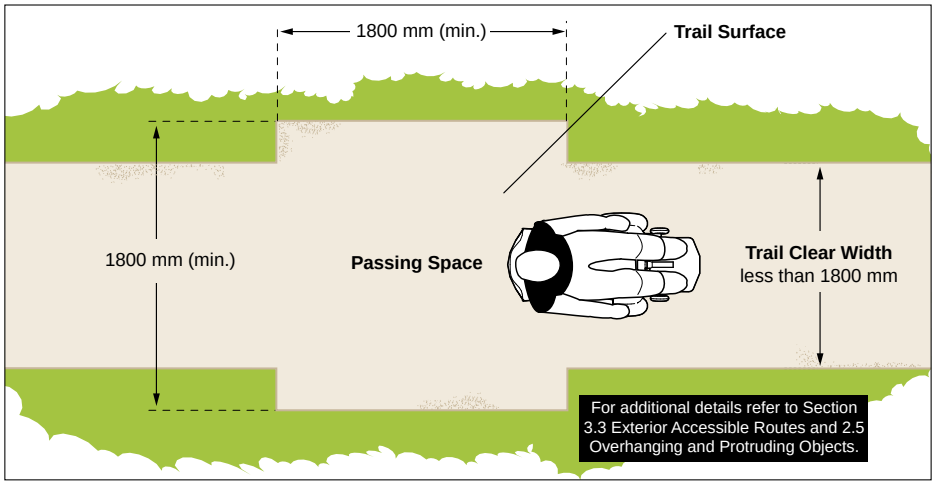


Figure 103: Trail Clear Width

6.16.1.5 Trail Surfaces

a. ensure surface is firm and stable;
b. ensure that openings do not allow passage of an object that has a diameter of more than 20 mm (13 mm diameter preferred), and that any elongated openings are oriented approximately perpendicular to the direction of travel;
c. ensure resistance to damage by normal weather conditions, with ability to sustain typical wear and tear between planned maintenance cycles; and
d. ensure type of surface used and expected conditions that may change over time are identified in information signage provided at trailhead.

Best Practice
Where running or cross slopes exceed 1:20 (5%), provide level rest areas, 1800 mm by 1800 mm (minimum), every 30 m.

Note
For detailed guidance on trail surface design and slope requirements for unique conditions, refer to “Ontario’s Best Trails Guidelines and Best Practices for the Design Construction and Maintenance of Sustainable Trails for All Ontarians” resource document.

6.16.1.6 Trail Running and Cross Slopes

a. provide a running slope that is as gentle as possible, as permitted by the terrain, to minimize amount of strength and stamina required to use the trail; and
b. ensure cross slopes are as gentle as possible, as permitted by the terrain, to provide an even surface for diverse users, including people using mobility aids or have difficulty with balance.

Note

Colour, texture and tonal contrast can be integrated to assist users with identification of edge protection.

Exception

Where there is a protective barrier that runs along the edge of a recreational trail that is adjacent to water or a drop-off, edge protection does not have to be provided.

Best Practice

Existing trails for which information has not been developed should be marked (e.g., temporary site signage) to indicate that the information is not yet available and the expected date it will be available.

Use multiple communication strategies to provide trail information, including on site (e.g., maps, trailhead kiosk or vertical signage), in alternate formats at key City locations, and online (e.g., City website or trail related websites, such as "Trail Explorer", www.trailexplorer.org).

6.16.1.7 Ramps

Where ramps are provided on trails:

a. provide running slope no greater than 1:10 (10%); and
b. with the exception of running slope, ensure compliance with ramp requirements from Section 2.2 and elsewhere in this document.

6.16.1.8 Edge Protection

Where recreational trails are constructed adjacent to water or a drop-off, provide edge protection with the following requirements:

a. constitute of an elevated barrier that runs along the edge the recreational trail to prevent users from slipping over the edge;
b. have the top of the edge protection at 50 mm (minimum) high above the trail surface; and
c. be designed so as not to impede the drainage of the trail surface.

Example of protective barrier where there is a large elevation change or trail is adjacent to water feature.

6.16.1.9 Trailhead Signage

a. For each trailhead along recreational trails, provide signage with the following information **(Figure 104)**:
    i. the length of the trail
    ii. the type of surface of which the trail is constructed;
    iii. average and minimum trail width;
    iv. average and maximum running and cross-slopes;
    v. the location of features and amenities, where provided;
    vi. extreme or unique conditions (e.g., steep slopes, obstacles or narrow widths); and
b. ensure signage text has high tonal contrast with its background in order to assist with visual recognition, with text that includes characters that use a sans serif font.

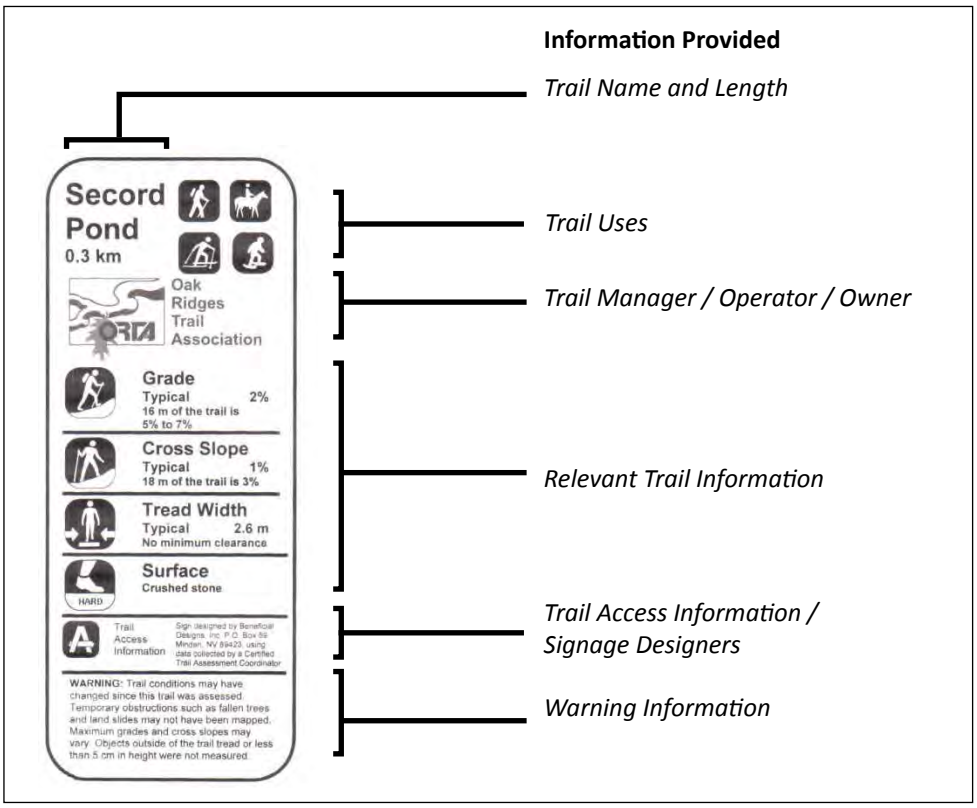


Figure 104: Example of Typical Universal Trail Assessment Process (UTAP) Signage

6.16.1.10 Other Media

a. where other media such as park websites or brochures are used to provide information about the recreational trail, beyond advertising, notice or promotion, provide the same information identified on the trailhead signage.

6.16.1.11 Understanding the Universal Trail Assessment Process (UTAP)

The UTAP was developed by Beneficial Designs Inc. and is considered an objective method of documenting trail conditions and evaluating trails accessibility levels.

The UTAP method relies on systematically evaluating trail measurements and data collected by auditors. Auditors begin at a station point (e.g., trailhead) and mark subsequent station points along the trail, which define trail segments. Typically, station points occur where there is a change in the trail characteristics, such as at the beginning / end of a slope, at an intersection, or at a major feature. For each trail segment, key measurements (e.g., running slope, cross slope, surface, width and length of trail) are gathered using the “Segment Data Collection Sheet”.

After collection, the data is entered into the “Trailware” software, which formally evaluates the data based on the UTAP methodology and generates a Trail Access Information (TAI) report. This report can then be used to provide trail accessibility information to all users.

Best Practice

Provide contact information at trailheads where the public can report any damages, safety hazards or vandalism on the trail.

Note

The information provided must be objective to allow users with or without disabilities to make an informed decision before using a trail. This recognizes varied conditions in trail environments but it also encourages the maximum use of trails.

Best Practice

Trail accessibility features should be assessed using the Universal Trail Assessment Process (UTAP).

6.16.1.12 Additional Resources

- Ontario's Best Trails: www.ontariotrails.on.ca
- Trail Explorer: www.trailexplorer.org
- Universal Trail Assessment Process (UTAP): http://www.beneficialdesigns.com/services/trails-shared-use-path-assessments/the-universal-trail-assessment-process-utap

6.16.2 Beach Access Routes

6.16.2.1 Entrances

a. provide 1000 mm clear opening whether entrance includes a gate, bollard or other entrance design.

6.16.2.2 Clear Width

a. provide clear width of 1000 mm (minimum); and
b. provide headroom clearance of 2100 mm (minimum) above beach access route.

6.16.2.3 Surfaces

a. ensure surface is firm and stable;
b. ensure that openings must not allow passage of an object that has a diameter greater than 13 mm and that any elongated openings are oriented approximately perpendicular to the direction of travel; and
c. where the surface of the route is constructed (e.g., not natural):
    i. ensure surface has 1:2 bevel at changes in level between 6 mm and 13 mm;
    ii. provide a maximum running slope of 1:10 (10%) at changes in level between 14 mm and 200 mm; and
    iii. provide a ramp where changes in level are greater than 200 mm.

6.16.2.4 Running and Cross Slopes

a. ensure the running slope is 1:10 (10%) (maximum);
b. ensure the cross slope is 1:50 (2%) (maximum), where the surface area of the beach access route is constructed (e.g., not natural); and
c. where surface area is not constructed, ensure the maximum cross slope is the minimum slope required for drainage.

6.16.2.5 Ramps

Where ramps are provided on beach access routes:

a. provide running slope no greater than 1:10 (10%); and
b. with the exception of running slope, ensure compliance with ramp requirements from Section 2.2 and elsewhere in this document.

6.16.3 Boardwalks

Where a recreational trail or beach access route is equipped with a boardwalk, apply the following requirements:

6.16.3.1 Clear Width

a. provide clear width of 1000 mm (minimum);
b. where the clear width is less than 1800 mm, provide a passing space of 1800 mm wide by 1800 mm (minimum) long, at intervals no more than 30 m; and
c. ensure headroom clearance is 2100 mm (minimum) above the boardwalk.

6.16.3.2 Surfaces

a. ensure surface is firm and stable; and
b. ensure that openings must not allow passage of an object that has a diameter of more than 20 mm (13 mm diameter preferred), in any direction and that any elongated openings are oriented approximately perpendicular to the direction of travel.

6.16.3.3 Running and Cross Slopes

a. ensure the running slope is 1:20 (5%) (maximum);
b. where the running slope is steeper than 1:20 (5%), the running slope must meet the requirements for ramps identified in this section; and
c. ensure the gradient of the cross slope is the minimum required for drainage.

6.16.3.4 Edge Protection

a. provide edge protection that is 50 mm (minimum) high; and
b. ensure the design allows suitable drainage of boardwalk surface.

Recreational Trail Design Checklist

6.17

Application

The information in this Checklist is intended to assist City Staff when reviewing key design options for providing accessible recreational trails for users of all ages and abilities.

A formal accessibility assessment of recreational trails, using the Universal Trail Assessment Process (UTAP), is recommended for existing recreational trails. The UTAP is considered an objective method of documenting trail conditions and evaluating accessibility levels for diverse users and is recognized as a current best practice.

Best Practice

The most significant barrier to trail accessibility is a lack of information about the recreational trail conditions. Providing such information will encourage participation and increase independence in trail use. Information on conditions affecting accessibility (e.g., grade, surface and obstacles) will also allow enhanced planning for assistance if required.

Note

Refer to Section 6.16 Recreational Trails, Beach Access Routes and Boardwalks, for detailed information on accessibility criteria for recreational trails and the UTAP.

Recreational Trail Design Checklist

The following checklist is intended for use by City Staff when reviewing key accessibility design options for new trails. Additional considerations are required for reviewing existing trails (e.g., applying the UTAP), recognizing the variety of trail types and environments that are available.

General Information

Reference (I.D # / Park Name): _____

Reviewed By

Name: _____

Title / Position: _____

Department: _____

1. Key Trail Features			
1.1 Trailhead			
1.1.1	Are there multiple **TRAILHEADS** to allow accessible entry and exit points along the trail? Identify number and location of trailheads.	Y N	Comments:
1.1.2(a)	Are **EXTERIOR AMENITIES** provided at trailheads (e.g., parking, accessible routes, public washrooms, etc.)? If yes, identify provisions and location of amenities	Y N	Comments:
1.1.2(b)	If provided, have the City's amenities been reviewed for compliance with relevant sections of the City of Markham Accessibility Design Guidelines?	Y N N/A	Comments:
1.2 Trail Clear Width			
1.2.1	Is the **CLEAR WIDTH** of the trail at least 1000 mm (1800 mm preferred)? Note: Ensure placement of vegetation and permanent design features (e.g., bollards and decorative boulders) does not create obstruction or projection along accessible route.	Y N	Comments:
1.2.2	Where there are changes in level along the trail, are **EDGE PROTECTION** at least 50 mm high provided and edges clearly marked (e.g., colour and texture contrast) to assist identification?	Y N N/A	Comments:
1.2.3	Is the **HEADROOM CLEARANCE** above the trail at least 2100 mm?	Y N N/A	Comments:
1.3 Trail Slopes			
1.3.1	Is the **RUNNING SLOPE** as gentle as possible, as permitted by the terrain?	Y N	Comments:
1.3.2	Is the **CROSS SLOPE** as gentle as possible, as permitted by the terrain?	Y N	Comments:

1.4 Trail Surface			
1.4.1	Is the **TRAIL SURFACE** firm and stable? Identify type of surface and material used to meet accessibility requirements.	Y N	Comments:

2. Signage

2.1(a)	Is there suitable **TRAIL NAME / IDENTIFICATION SIGNAGE** at trailheads and key access points, with accessibility features (e.g., large print, use of strong tonal contrast and pictograms) identifying amenities that may be available?	Y N	Comments:
2.1(b)	If yes, does the signage include the following information: Trail Name Trail Map Trail Length Trail Surface Type Trail Running Slope (Grade) Trail Cross Slope Trail Manager / Operator <u>Note</u>: Identifying this information in accessible format allows users of all ages and abilities to make an informed decision about using the trail. Refer to Section 6.16 Recreational Trails, Beach Access Routes and Boardwalks for more information on the UTAP.	Y N Y N Y N Y N Y N Y N Y N	Comments:
2.2	Have any barriers to accessibility (e.g., steep slopes or difficult topography) along the trail been identified on signage at strategic locations? If yes, describe information to provide on signage.	Y N	Comments:

3. Additional Considerations

3.1	Does the trail reflect the varied needs of users, the varied natural landscape and the shared desire for varied trail experience? <u>Note</u>: Design should incorporate both sustainable and universal design features to ensure the widest range of users can benefit.	Y N	Comments:
3.2	Does the trail offer areas for rest and options for shorter or longer on-trail adventures so that trail users can choose the experience that most suit them?	Y N	Comments:
3.3	Is there a policy in place to address maintenance issues for trails designed for year-round use (e.g., removal of debris and obstructions on trail surfaces etc)?	Y N	Comments:
3.4	If reviewing the design of an existing trail and related environments, has the UTAP been implemented to address the needs of diverse trail users of all ages and abilities?	Y N	Comments:

Inclusive Play Spaces

6.18

Application

This section applies to play spaces designed for children with varying disabilities. Play spaces can be located in a variety of public settings (e.g., parks, schools, childcare facilities or community / recreation centres). Play spaces typically require consideration for accessibility features related to:

- the number and types of play structures, equipment, elements and features provided;
- designated play areas surrounding the play structures; and
- site amenities and features surrounding the play space.

Criteria provided in this section is intended to summarize key features for inclusive play spaces and reference to applicable standards. Detailed planning and design is required for provision of inclusive play spaces.

For additional information, refer to Section 6.21, City of Markham Parks and Open Space Development Department Drawings.

Reference

Sec. 2.1	Ground and Floor Surfaces
Sec. 2.2	Ramps
Sec. 2.3	Stairs
Sec. 2.4	Guards and Handrails
Sec. 2.6	Rest Areas
Sec. 2.8	Drinking Fountains
Sec. 3.1	Parking
Sec. 3.3	Exterior Paths of Travel
Sec. 4.5	Washrooms

Note

Inclusive play spaces ensure that children with disabilities have equal opportunities for peer interaction and development of socialization skills. They also provide an opportunity for parents with disabilities to interact with their children.

The scope of this Section does not address requirements related to the area surrounding or beyond the play space, including, but not limited to, parking lots, washrooms, drinking fountains, and recreation facilities.

Note

Consultation should include diverse users or representatives of people of all ages and abilities, including:

- Typically developing children;
- Children with neurological disabilities such as autism;
- Children who have intellectual disabilities such as Down syndrome, fetal alcohol syndrome;
- Children who require wheelchairs or other medical equipment;
- Children with physical disabilities;
- Children with social and / or emotional difficulties;
- Family, siblings, parents, grand-parents etc.;
- The community: friends, caregivers, teachers, etc.; and
- Adults with disabilities.

6.18.1 Consultation Requirements

When constructing new or redeveloping existing outdoor play spaces, consultation on the needs of children and caregivers with various disabilities must occur with:

a. the public and persons with disabilities; and
b. the Markham Advisory Committee on Accessibility.

6.18.2 Design Requirements

When constructing new or redeveloping existing play spaces:

a. incorporate accessibility features, such as sensory and active play components, for children and caregivers with various disabilities into the design of outdoor play spaces; and
b. ensure that outdoor play spaces have ground surface that is firm, stable and has impact attenuating properties for injury prevention and sufficient clearance to provide children and caregivers with various disabilities the ability to move through, in and around the outdoor play space.

Ensure the design of inclusive play spaces and features meet the requirements of CAN / CSA Z614 (current edition), Annex H, including:

i. H.1 Scope;
ii. H.2 Reference Publications;
iii. H.3 Reference Definitions;
iv. H.4 Play spaces (e.g., ground-level and elevated play components, accessible routes, transfer systems, play components and ground surfaces); and
v. other applicable sections of these Standards, as required.

Play spaces are typically designed for different age groups as they provide age-specific play components.

6.18.3 Summary of Key Design Considerations

The information in the following sub-sections is intended to highlight key considerations only, not detailed specifications. Refer to requirements of the Canadian Standards Association (CAN / CSA Z614 (current edition), Annex H). This information is not intended to duplicate existing standards, but is focused on presenting best practices for accessibility.

Note

A level approach, gradually sloped route or ramps are examples of types of accessible entry / exit points to a play space.

6.18.4 Entry and Exit Points

Provide a minimum of two accessible ingress / egress points:

a. locate as part of an adjacent accessible route;
b. ensure accessible connections provided to play space surfaces are firm, stable and slip-resistant, as well as providing direct connections to individual play components; and
c. provide clear width of 1500 mm.

An example of accessible entry / exit point and accessible route leading to elevated play components.

6.18.5 Accessible Routes

a. provide at least one accessible route within the boundary of the play space, connecting ground-level play components and elevated play components, including entry and exit points of the play components;
b. ensure clear width of accessible route is 1500 mm; and
c. ensure the maximum slope gradient for an accessible route connecting ground-level play components within the boundary of a play space is 1:16 (6.25%).

6.18.6 Play Space Ground Surface

a. provide accessible surface materials for play spaces include accessible turf, rubber mats and tiles, bonded and engineered wood fibers and shredded rubber, as example.

Examples of inclusive play space ground surfaces. From left to right: rubber tile, engineered wood fiber and shredded rubber.

6.18.7 Play Components

a. provide colour / tonal contrast of at least 70%, between a play component and its surroundings.

6.18.8 Elevated Play Components

An elevated play component is a play component reached from above or below grade, and is part of a composite play structure.

a. ensure at least 50% of elevated play components are on an accessible route and are connected to a ramp or transfer system, as identified in **Table 16**.

Table 16: Percentage of Elevated Play Components Required to be Connected

Total Number of Elevated Play Components	Total Percentage of Elevated Play Components Connected By Ramp or Transfer System
20 or more	50% minimum (25% ramp, and other 25% ramp or transfer system)
Less than 20	50% minimum (transfer system instead of ramp permitted)

Examples of elevated play components.

6.18.9 Transfer Systems

a. provide transfer systems to connect elevated or ground-level play components (e.g., transfer steps or platforms);
b. ensure transfer steps are used where movement is intended from a transfer platform to a level that provides elevated play components on an accessible route; and
c. provide a minimum clear floor space of 915 mm wide by 1370 mm long adjacent to all transfer locations onto play components **(Figure 105)**.

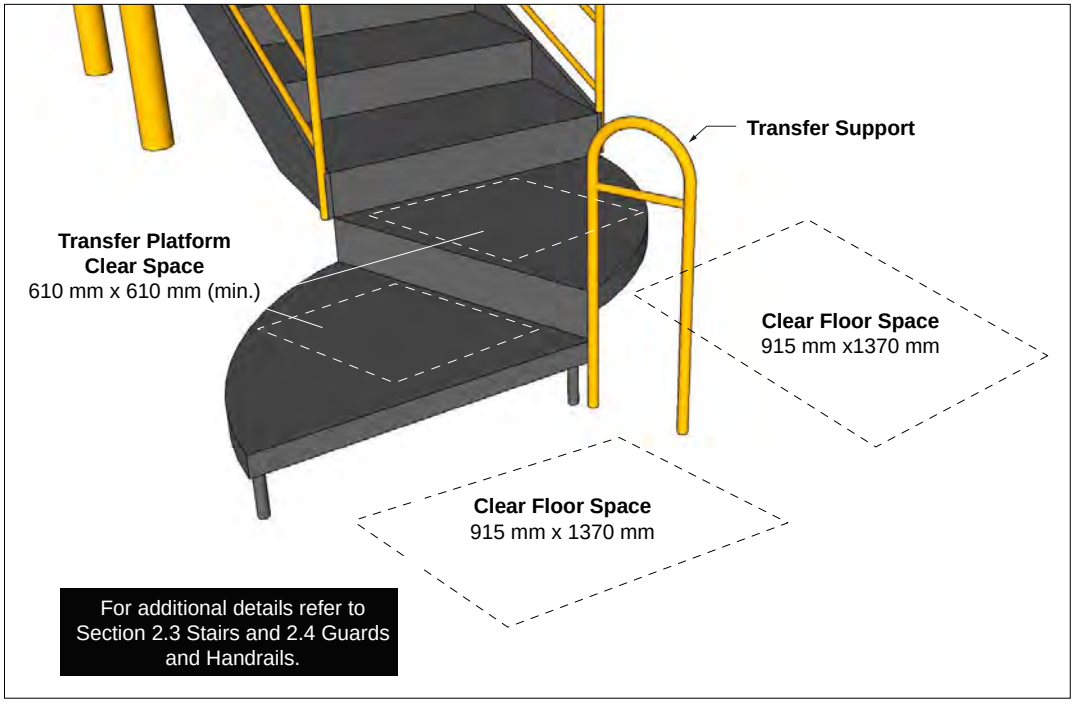


Figure 105: Transfer Systems

6.18.10 Turning Space

a. provide a clear turning space of 1500 mm (minimum) or 1675 mm (preferred) in diameter for mobility aids, on the same level as play components **(Figure 106)**.

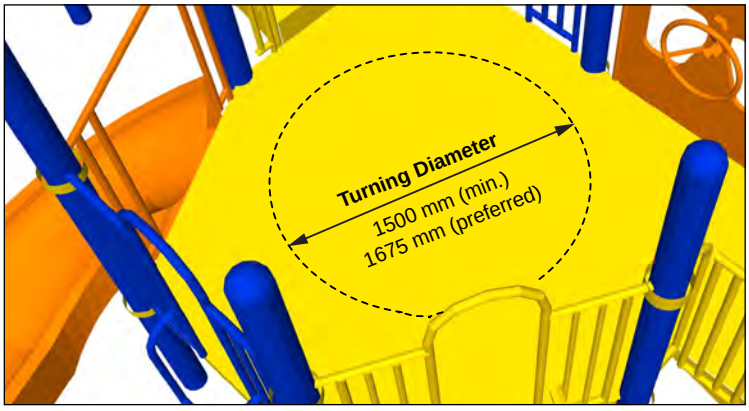


Figure 106: Turning Space - Plan View

Best Practice

The distance covered by the transfer steps should be the shortest possible.

Note

A transfer platform is used where transfer is intended from a wheelchair or other mobility aid. Refer to detailed requirements, including means of support and, surface sizes for example, identified in CSA, Annex H.

Examples of supports include a rope loop, a loop-type handle, a slot in the edge of a flat horizontal or vertical member, poles or bars, or solid D-shaped rings affixed to corner posts.

6.18.11 Ground-Level Play Components

A ground level play component is a play component provided on an accessible route that is approached and exited at the ground level.

a. provide the ratio of ground-level play components and alternatives, compared to elevated play components, as identified in **Table 17**.

Table 17: Ground-Level Play Component Requirements Based On Elevated Play Components

Number of Elevated Play Components provided	Minimum number of ground-level play components required to be on an accessible route	Minimum number of different types of ground-level play components required to be on accessible route
1	n/a	n/a
2 to 4	1	1
5 to 7	2	2
8 to 10	3	3
11 to 13	4	3
14 to 16	5	3
17 to 19	6	3
20 to 22	7	4
23 to 25	8	4
More than 25	8 plus 1 for each additional 3 over 25, or fraction thereof	5

Source: Canadian Standards Association (CAN / CSA Z614-14, Annex H)

Examples of ground-level play components.

Inclusive Play Space Design Guide

6.19

Application

This design guide is provided for use by City of Markham Staff when designing new inclusive play spaces.

How to Use the Guide

The **Inclusive Play Space Design Guide** identifies key design features for planning and designing an inclusive play space, with a focus on the main accessibility features that are required to meet the diverse needs of users of all ages and abilities, including children using the play space as well as caregivers and companions. Additional design considerations may also be required related to the broader play space context and environment, including requirements for the site and park where the play space is located (e.g., seating and viewing areas for parents or caregivers). Overall, this Guide is intended to welcome and address the needs of children, caregivers and users of all age and abilities, emphasizing opportunities for inclusive and shared play.

Reference

Sec. 2.2	Ramps
Sec. 2.3	Stairs
Sec. 2.4	Guards and Handrails
Sec. 2.8	Drinking Fountains
Sec. 2.10	Seating, Tables and Work Surfaces
Sec. 3.1	Parking
Sec. 3.2	Passenger Loading Zones
Sec. 3.3	Exterior Paths of Travel
Sec. 4.5	Washrooms
Sec. 5.7	Lighting
Sec. 6.18	Inclusive Play Spaces

Note

This guide does not provide all requirements for designing an inclusive play space; only key requirements are provided. Refer to Section 6.18, Inclusive Play Spaces of these Guidelines and CAN / CSA Z614 (current edition) (Annex H), for further details.

Designing an Inclusive Play Space

Key Features of an Inclusive Play Space

Play spaces that offer children of all abilities the opportunity to interact and play with each other are essential to promoting diversity and inclusion.

The following diagram identifies important best practices when designing an inclusive play space.

Key features are numbered on the diagram and described in this guide.

1. Accessible Routes
2. Entry / Exit Points
3. Ground Surfaces
4. Elevated Play Components
5. Ground-Level Play Components

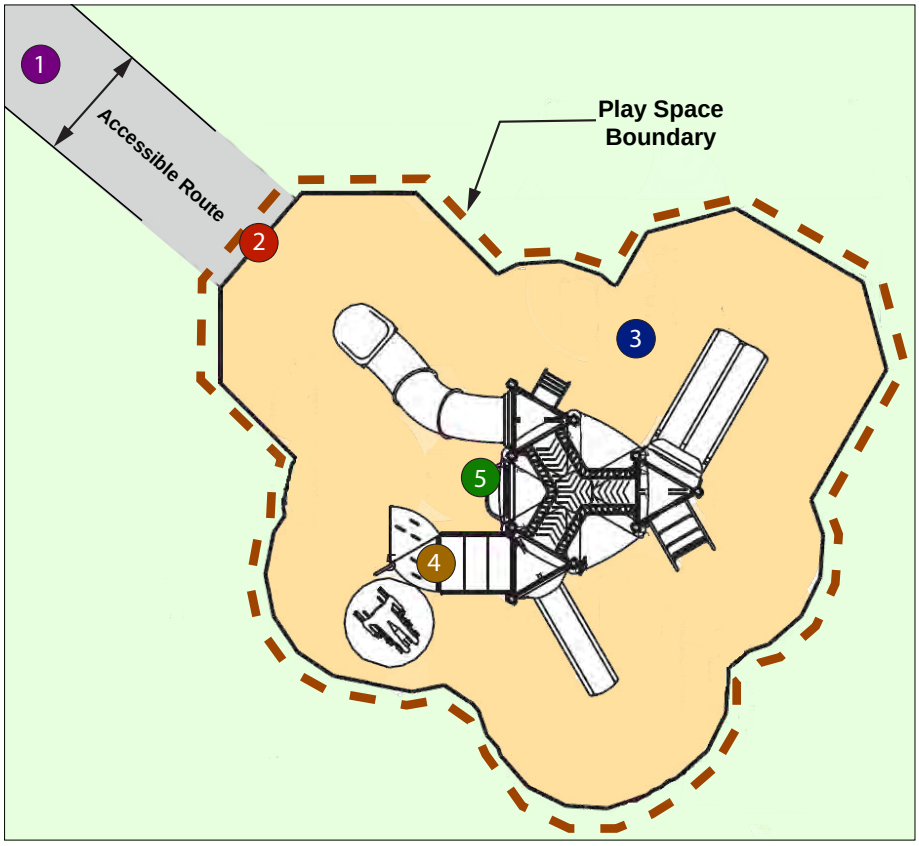


Diagram of Typical Play Space Features

Note: Play spaces come in different shapes and sizes. This diagram is provided for guidance and reference only.

Summary of 5 Key Features

The following provides a summary of the 5 key design features when designing an inclusive play space.

1 Accessible Routes

Accessible route(s) connecting to the play space boundary from the parking lot, sidewalk and other adjacent routes and buildings are essential for easy access to the play space.

Key Consideration:
Is there at least one accessible route leading to the play space?

Accessible route connecting to play space.

Accessible route connecting to play space.

2 Entry / Exit Points

Entry / exit points from an accessible route along the boundary of the play space for users of mobility aids to access play components, where there is a change in level.

Key Consideration:
Is there at least one entry / exit point (2 or more preferred) into the play space?

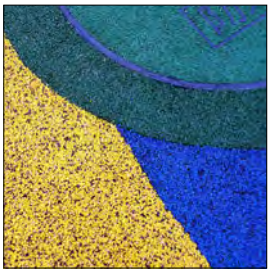

Play space is at-grade with accessible route.


Curb ramp into play space where there is a level change between accessible route and play space.

3 Ground Surfaces

Surfacing is a key component in designing safe and accessible play spaces. **Accessible surfaces** include rubber tile, shredded rubber and engineered wood fiber.

Key Consideration:
Is the play space ground surface accessible?


Shredded Rubber.


Engineered Wood Fiber.


Rubber Tile

4 Elevated Play Components

An **elevated play component** is a play component reached from above or below grade, and is part of a composite play structure.

Note: Ramps, transfer systems, steps, stand alone slides, decks and roofs are not considered elevated play components.

Two common methods for providing access to elevated play components are **ramps** and **transfer systems.**

Key Consideration:
Are at least 50% of elevated play components located on an accessible route and connected by a ramp or transfer system?


Example of play structure with elevated play components.


Example of play structure with elevated play components.


Ramp connected to elevated play components.


Transfer system to connect elevated play components.

5 Ground-Level Play Components

A **ground-level play component** is a play component that is approached and exited at ground level.

When designing an inclusive play space, one of the design features is the provision of play components along the accessible routes for users who may not be able to access components located on elevated platforms.

The number and variety of ground-level play components required to be an accessible route is determined by the number of elevated play components provided in the play space.

Key Consideration:
Are the minimum number and variety of ground-level play components required to be along an accessible route provided?

Note: A calculator to determine the required number and variety of ground-level and elevated play components required in an inclusive play space is provided courtesy of the Canadian Playground Safety Institute (cpsionline.ca). The calculator is based on CAN/CSA Z614 (current edition) (Annex H) and can be adapted.

Example of a ground-level play component.

Example of an accessible swing.

STEP-BY-STEP GUIDE ON APPLYING ANNEX H

Step-by-Step Guide

The following step-by-step guide has been provided to assist in evaluating a playspace for meeting the minimum requirements of Annex H. The guide has been arranged in two steps and provides spaces to fill in numeric values of play components for evaluating a specific playspace design.

Step 1) Total # Of Elevated Play Components =

Assess Present Situation	
Total # Of Components Along Accessible Route (answer = item "A")	Variety Of Play Types Along Accessible Route (answer = item "X")
Assess What Is Needed (from Table H.1)	
Min. # Of Ground Level Components Required Along Accessible Route (answer = item "B")	Variety Of Different Play Types Required Along Accessible Route (answer = item "Y")
How To Get There	
Total # Of Components To Be Added (item "B" minus item "A")	Total Variety Of Play Types To Be Added (item "Y" minus item "X")

*A negative number in the either bottom box means that there is more than the minimum number already on site

Step 2) Assess Access to Elevated Components

Total # of Elevated Components =

- If 20 or more components then ramps to 25% and ramp or transfer to an additional 25%
- If 19 or fewer components than transfer system or ramp to 50% of components

Courtesy of the Canadian Playground Safety Institute (cpsionline.ca) from the Online Accessibility Course.

Additional Considerations

Directions to be provided to play equipment supplier when selecting play equipment:

1. Provide age range and number of children using play space;
2. Describe the vision for the proposed play space. Provide a Design Program which outlines the goals and objectives for the play space;
3. Describe the site context - what is around the play area and how it will be used;
4. Provide a budget for the equipment, keeping in mind costs for landscaping and natural features;
5. Follow CAN / CSA Z614 (current edition), Annex H accessibility standards and Section 6.18 Inclusive Play Spaces; and
6. Emphasize equipment should fit into site plan, not vice versa.

Source: Adapted from "*Let's Play: Creating Accessible Play spaces: A Tool Kit for School-Based Groups", Rick Hansen Foundation.*

Inclusive Play Space Checklist

6.20

Application

The information in this Checklist is intended to assist with reviewing key design options for providing inclusive play spaces. Information in this checklist may be updated based on new design standards identified during implementation.

Use this Checklist when reviewing individual areas of each play space, depending on the overall layout, features and type of equipment that is provided.

Note

Refer to Sections 6.18 Inclusive Play Spaces and 6.19 Inclusive Play Space Design Guide of the Markham Accessibility Design Guidelines and CAN / CSA Z614 (current edition) (Annex H) for detailed information and accessibility criteria when designing a new inclusive play space.

Inclusive Play Space Checklist

The following checklist is intended for use by City of Markham Staff when reviewing key design options for inclusive play spaces. The items in this Checklist are colour coded to match the information in Section 6.19 Inclusive Play Space Design Guide.

General Information

Reference (Identification # / Park Name):_____

Play space Type: Junior | Senior | Adventure | Combination | Water Features

Identify Total Number of Play Areas or Zones:_____

Reviewed By

Name: _____

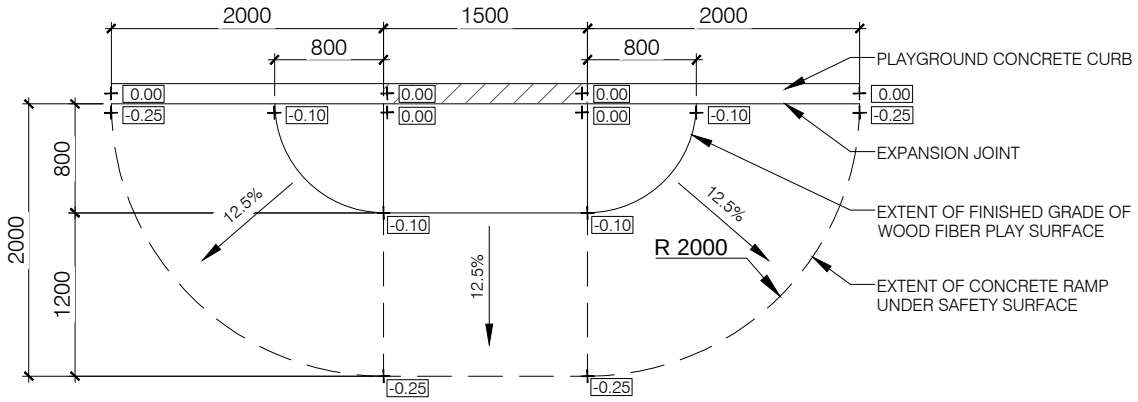
Title / Position: _____

Department: _____

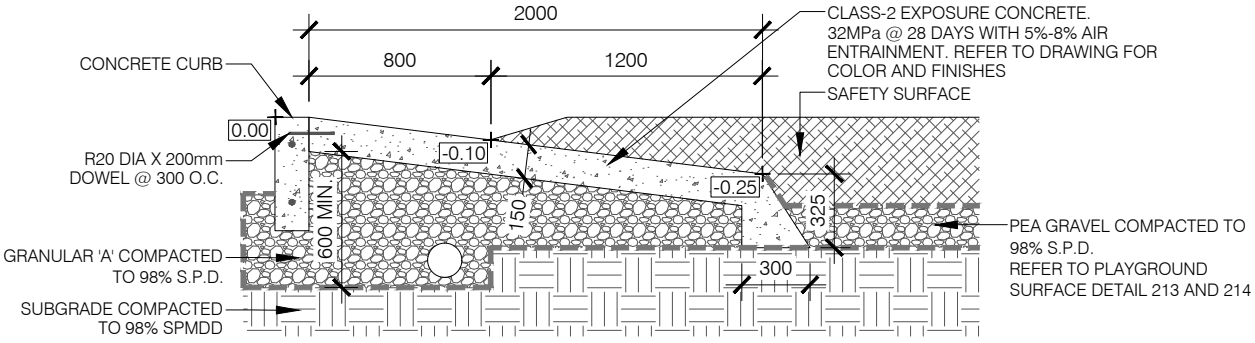
1. Key Design Consideration			
1.1 Accessible Routes			
1.1.1	Is there at least one (1) **ACCESSIBLE ROUTE** within the boundary of the play space?	Y N	Comments:
1.2 Entry / Exit Points			
1.2.1	Is there at least one (1) **ENTRY / EXIT POINT** to the play space (2 or more preferred) connected to an accessible route?	Y N	Comments:
1.3 Ground Surfaces			
1.3.1	Is the play space **GROUND SURFACE** accessible (specify surface type)? If yes, does ground surface material meet CSA standards for equipment and layout?	Y N	Comments:
1.4 Elevated Play Components			
1.4.1	Are at least 50% of **ELEVATED PLAY COMPONENTS** located on an accessible route and connected by a **RAMP** or **TRANSFER SYSTEM**?	Y N	Comments:
1.5 Ground-Level Play Components			
1.5.1	Are the minimum number and variety of **GROUND-LEVEL PLAY COMPONENTS** required to be along an accessible route provided? Note: Use the Canadian Playground Safety Institute's accessibility component calculator to determine the required number of play components.	Y N	Comments:
2. Additional Considerations			
2.1	Are **CREATIVE FEATURES** that stimulate the senses provided (Examples include: water and sand features, scent gardens, wind chimes and winding pathways)? If yes, provide a description, including site context and amenities provided adjacent to play space or in the park.	Y N	Comments:
2.2	Does play equipment foster inclusive play and allow children of all ages and abilities to be part of the action / activities? If yes, describe.	Y N	Comments:
2.3	Does **PLAY SPACE EQUIPMENT** meet accessibility requirements of CAN / CSA Z614 (current edition) (Annex H)? Note: A detailed assessment may be required.	Y N	Comments:

City of Markham Parks and Open Space Development Department Drawings

6.21



PLAN VIEW



SECTION

NOTES:

1. REFER TO GRADING PLAN FOR DESIGN ELEVATIONS. MODIFY CURB AS REQUIRED TO MATCH DESIGN GRADES.
2. REFER TO CONCRETE PAVING DETAIL
3. CONSULTANT TO REVIEW & APPROVE LAYOUT PRIOR TO PLACEMENT OF CONCRETE
4. CONCRETE EDGE TO BE FORMED UNIFORMLY, SMOOTH WITH CLEAN EDGES, WITHOUT LATERAL DEVIATIONS
5. ALL MEASUREMENTS ARE IN MILLIMETRES UNLESS STATED OTHERWISE

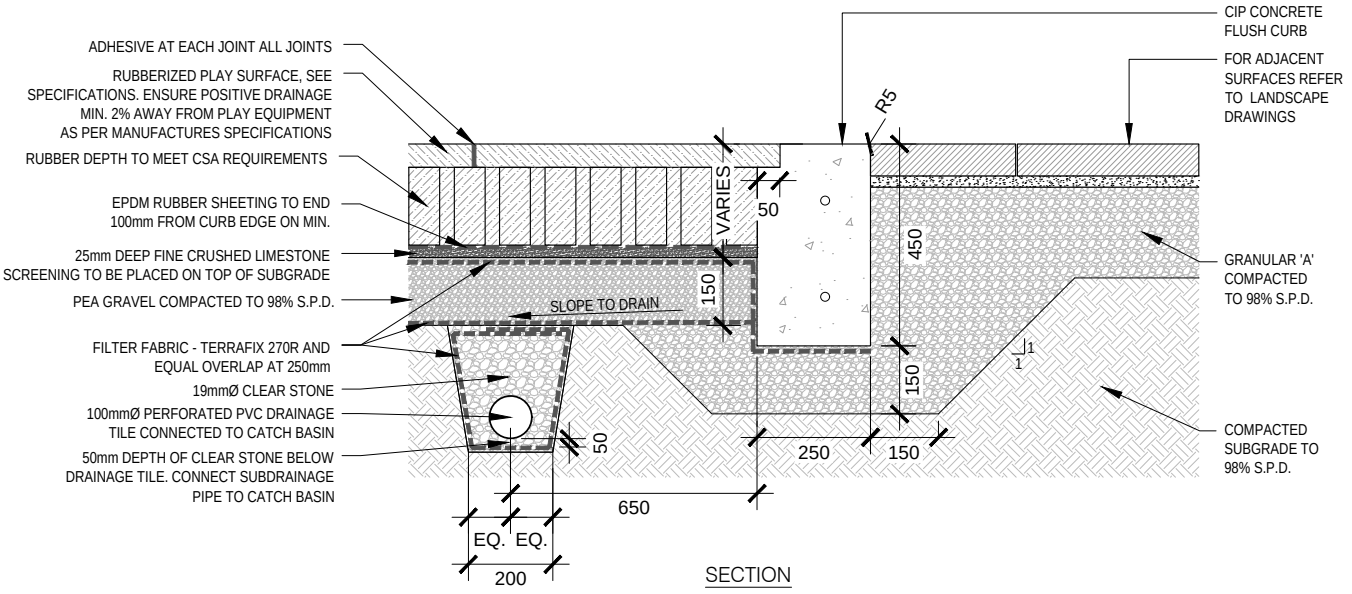
MARKHAM

Parks and Open Space Development Department

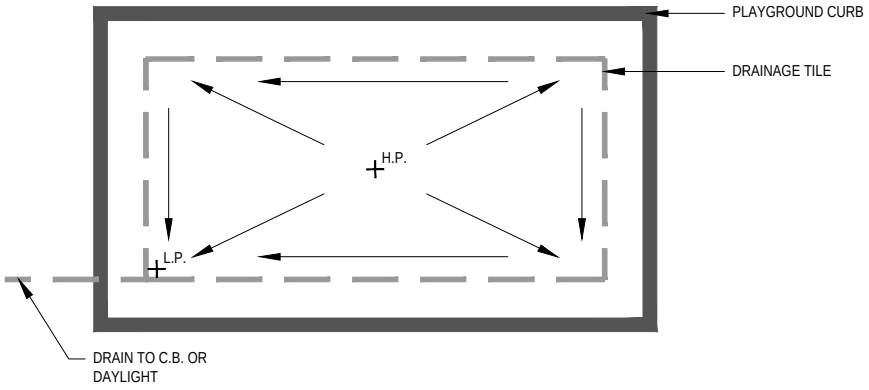
TITLE: PLAYGROUND RAMP

DRAWING #: PD212

DATE:	08/12/20
SCALE:	N.T.S.
REVISION DATE:	



SECTION



PLAN VIEW

NOTES:

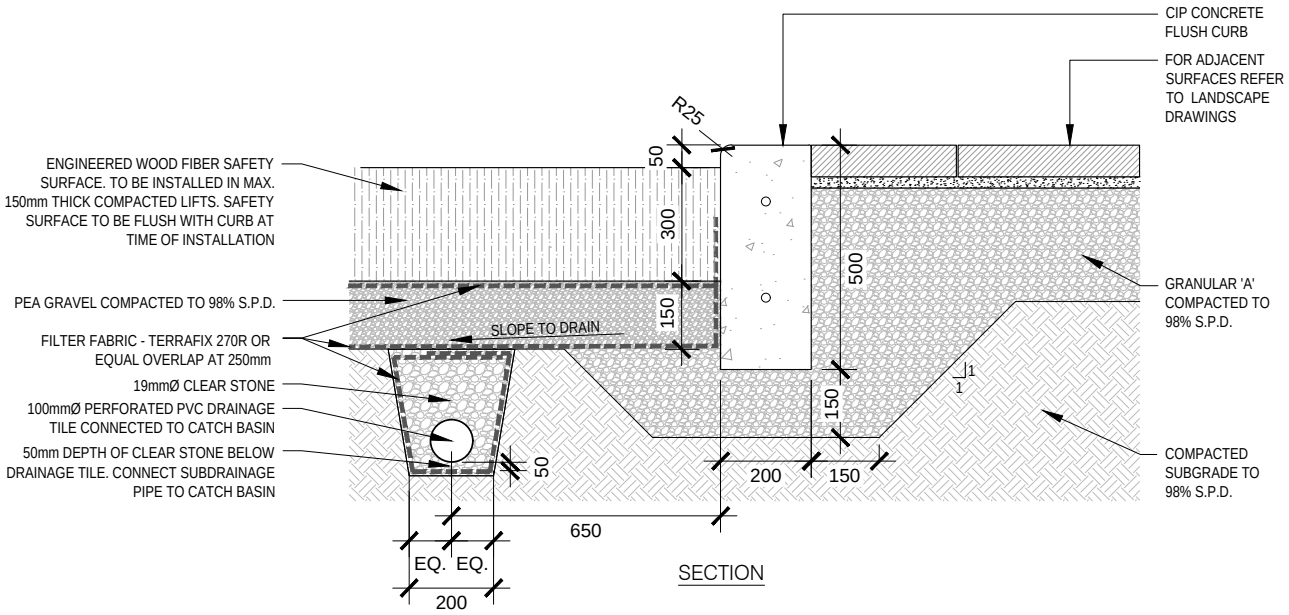
1. ALL DIMENSIONS SHOWN IN MILLIMETRES
2. INSTALL RUBBER PLAY SURFACING AS PER MANUFACTURER'S SPECIFICATIONS. REFER TO LAYOUT PLAN FOR COLOUR AND PATTERN
3. REFER TO GRADING AND DRAINAGE PLANS. SLOPE SUBGRADE TO DRAINAGE TILE.

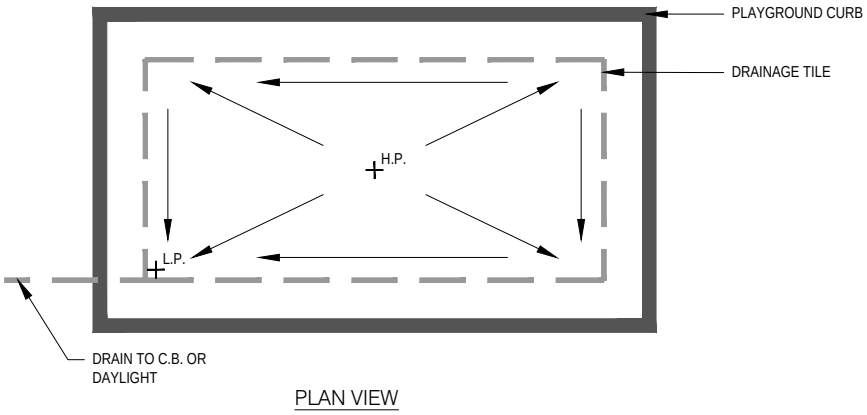
MARKHAM

Parks and Open Space Development Department

TITLE: PLAYGROUND RUBBER TILE SURFACE

DRAWING #: PD213	DATE: 08/12/20
	SCALE: N.T.S.
	REVISION DATE:





NOTES:

1. ALL DIMENSIONS SHOWN IN MILLIMETRES
2. INSTALL FIBER MULCH PLAY SURFACING AS PER MANUFACTURER'S SPECIFICATIONS.
3. REFER TO GRADING AND DRAINAGE PLANS. SLOPE SUBGRADE TO DRAINAGE TILE.

MARKHAM

Parks and Open Space Development Department

TITLE: PLAYGROUND FIBER MULCH SURFACE

DRAWING #: PD214

DATE:	08/12/20
SCALE:	N.T.S.
REVISION DATE:	

Appendices

7.0

Table of Contents

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Glossary

7.1

Term	Definition
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 pavement markings for easy identification and are often shared between accessible parking spaces.
Accessible	Refers to any space, feature, element, site, environment or facility that can be used (e.g., located, approached, entered, exited or operated) by people with varying disabilities, 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.
Adaptable	The ability of a certain building space or element, such as kitchen counters, sinks, seats or grab bars, to be added or altered so as to accommodate the needs of individuals with or without disabilities or to accommodate the needs of persons with different types or degrees of disabilities.
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 or services that are usable by the public that typically increase physical comfort throughout the built environment (e.g., washrooms, resting areas, telephones, drinking fountains or 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, etc.
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 is equipped with separate ventilation and communication equipment. It is a place where people can wait temporarily until they can exit safely or await 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 (ALS)	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, infrared and radio frequency systems are types of listening systems which are appropriate for various applications. Refer to Induction Loop or Infrared 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).

Term	Definition
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).
Bollard	Typically a 900 mm high (minimum) post to mark a pedestrian path from vehicular traffic.
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.
Closed Circuit	A telephone with dedicated line(s), such as a house phone, courtesy phone or phone that must be used to gain entrance to a building or part thereof.
Closer	See Door Closer.
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.
Common Use	Refers to those interior and exterior rooms, spaces or elements that are made available for regular and daily for use by the occupants or visitors of a facility. (e.g., common use areas of an office may include kitchens, reception areas, washrooms, etc.).
Communication Devices and Systems	Devices that enable or enhance the ability of people to receive or transmit information, usually electronically, for communication.
Cross Slope	The slope that is perpendicular to the direction of travel. Opposite of running slope.
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 ramp that is cut through a curb at a roadway and slopes up to a sidewalk. Types are usually categorized by their structural design and how they are positioned relative to the sidewalk and roadway. Permitted curb ramp types include: - perpendicular - one that is aligned so that the ramp is generally perpendicular to the centreline of the roadway, and users will generally be travelling perpendicular to traffic when they enter the street at the bottom; - parallel - one that has two ramps leading towards a centre level landing at the bottom; and - combination of perpendicular and parallel.
Dais	Refer to Stage.
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 / audio logical 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 note taking), speech reading or Sign Language.
Depressed Curb	A seamless gradual slope at transitions between sidewalks and walkways and highways, and is usually found at intersections.
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 disabilities.
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.
Elevator Lobby	The waiting area in front of an elevator.
Entrance	An access point into a building or portion of a building or facility used for the purpose of entering. An entrance includes the approach, the vertical access leading to the entrance platform, the entrance door, landing area, 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 (e.g., highest level of use).

Term	Definition
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.
Firm Surface	Refers to a surface that does not deform under the vertical forces exerted by permitted users. Reference ASTM F 1951 Standard.
Flared Sides	A sloped surface that flanks a curb ramp and provides a graded transition between the ramp and the sidewalk. Flares bridge differences in elevation and are intended to prevent ambulatory pedestrians from tripping. Flares are not considered part of the accessible route.
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.
Foot-Candle (FC)	Refer to measurements of the visible light intensity on a surface, a distance from the light source. One foot-candle is equivalent to the illumination produced by one candle (an optical standard reference) at a distance of 305 mm (one foot). One foot-candle equals approximately ten lux. Foot-candle is the imperial measure. Refer to Lux.
Forward Approach	Where a person will make use of a service counter, drinking fountain, or any other usable element of the built environment, by positioning their body or mobility aid directly in front of and facing the element.
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.
Grade	The slope parallel to the direction of travel that is calculated by dividing the vertical change in elevation by the horizontal distance covered.
Guard	Protective barrier to prevent accidental falls at openings in floors and at the open sides of stairs, landings, balconies, mezzanines and ramps. Handrail supports often act as guards.
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 foot-candles or lux.
Kilonewton (kN)	Equals 1000 Newtons.
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.
Lavatory	A washbasin or sink used for personal hygiene.
Lux	The metric measurement for light intensity or illumination. See Foot-Candle.
Maneuvering Space	The minimum floor or ground 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 assistive devices used by people with mobility / physical types of disabilities, including manual and power wheelchairs, scooters, canes and crutches.
Newtons (N)	The amount of force needed to move 1 kilogram of an object 1 meter per second squared.
New Construction	Site preparation for, and construction of, entirely new structures or buildings and including adjacent and surrounding site area whether or not the site was previously occupied.
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).
Operable Portion	A part of a piece of equipment or appliance, used to insert or withdraw objects or to activate, deactivate or adjust the equipment or appliance, such as a coin slot, push button or handle.
Passenger Loading Zone	Designated and signed area used for loading and unloading of passengers into or out of a waiting vehicle.

Term	Definition
Pedestrian Access Route	An accessible route or corridor for pedestrian use within the public right-of-way.
Pedestrian Crossover	As defined in the Highway Traffic Act: "any portion of a roadway, designated by by-law of a municipality at an intersection or elsewhere, distinctly indicated for pedestrian crossing by signs on the highway and lines or other markings on the surface of the roadway as prescribed by the regulations."
Pictogram	A pictorial symbol or image that represents activities, facilities, spaces or concepts.
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.
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.
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 City 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. Opposite of cross slope.
Service Counter	A raised surface on which business is transacted. Service counters can be compromised of either built-in (e.g., kiosks) or loose furniture (e.g., podiums). Other examples of service counters include: ATMs, checkout counters, self service kiosks, food vendor, and information counters.
Service Entrance	An entrance not intended for use by the public and used primarily for delivery of goods and services.
Side Approach	Where a person will make use of a service counter, drinking fountain, or any other usable element of the built environment, by positioning their body or mobility aid perpendicular to the element.
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.
Slip-Resistant	A surface that provides sufficient frictional counterforce to the forces exerted in walking to permit safe ambulation.
Sprinklered	Refers to a building or any part of a building equipped with an automatic sprinkler system.
Stable Surface	Refers to a surface that does not deform or erode under the angular forces of permitted users travelling in a straight line or turning.
Stage	Refers to a space designed primarily for performances and is typically elevated from the audience seating area.
Stair System	Refers to combined elements that make up a typical stair, including steps, landings, and handrails, for example.
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 an object that can be perceived using the sense of touch, and typically provided for users with vision loss.
Tactile Walking Surface Indicator (TWSI)	A surface detectable underfoot or by a long white cane, to assist persons with low vision or blindness by alerting or guiding them.
Touch Tour	Typically refers to tours provided by museums or other cultural / arts facilities that allow users with 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 received 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).

Term	Definition
Universal Trail Assessment Process or UTAP	An objective method of documenting trail conditions for universal access. The UTAP: - documents actual trail conditions; - enhances user safety through accurate information about trail conditions; - increases access for people of all abilities; - identifies maintenance needs; - creates accessibility information; - enhances environmental protection; - facilitates trail planning and budgeting; - enables informed choice of trails based on interests and abilities; - inventories trails and facilities; and - documents patterns of trail use.
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.
Vision Panel	A glazed opening in a door leaf which allows people to see through to the other side without opening the door.
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, signage, architecture and landscaping, for example.

List of Figures

7.2

7.2 List of Figures

List of Tables

7.3

Feedback Form

7.4

The City of Markham would like to receive comments and information related to any proposed changes to these Accessibility Design Guidelines.

Please include section referencing, revised wording and reasons for proposed changes.

Submit to:

City of Markham
Development Services Commission
101 Town Centre Blvd.
Markham, ON, L3R 9W3
Phone: 905-475-4861
Fax: 905-479-7768
Email: DevelopmentServices@markham.ca

Submitted by:

Name: _____

Company / Organization: _____

Phone Number: _____

Address: _____

_____

Email: _____

Proposed Changes and Rationale: _____