Queen’s University Facilities Accessibility Design Standards (QFADS)

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Acknowledgements

Queen's is committed to an inclusive campus community with accessible goods, services, and facilities that respect the dignity and independence of persons with disabilities.

The **Queen's University Facility Accessibility Design Standards (QFADS)** apply to all newly-constructed and/or renovated Queen's University owned, leased or operated facilities. Designing and constructing to this standard is a **mandatory** requirement in all Queen's University request for proposals, tender documents and construction contracts.

We would like to thank and recognize the contributions of:

- The City of London for its permission to adapt the City of London 2006 Facility Accessibility Design Standards (FADS 2006)
- DesignABLE Environments Inc. for their work on the initial draft document in 2016
- Brock University and Ryerson University for sharing their FADS, and
- Members of the Queen's University Built Environment Advisory Group for their review and endorsement of the document

For questions or comments regarding the QFADS document, please contact the **Physical Plant Services, Design and Construction Planner, Maridee Osolinsky**, in one of the following ways:
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QFADS is available in an accessible format or with appropriate communication supports upon request.

Please contact the **Accessibility Coordinator, Andrew Ashby,** in one of the following ways:
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Section 1.0
Introduction

Section 1.0 Introduction

The Queen's University Facility Accessibility Design Standards (QFADS) is a **mandatory** standard that addresses the accessibility requirements for the design and construction of new facilities, and for the retrofit, alteration or addition to existing facilities that are owned, leased or operated by Queen's University.

In particular, this Standard:

- Addresses the needs of persons with disabilities including, but is not limited to: mobility impairment, hearing impairment, visual impairment, environmental sensitivities, neurological/ psychological impairment, and perceptual impairment, persons who are deaf-blind, persons with limited stamina and/or dexterity, and other non-visible disabilities.

- Is intended to encompass the intent of the Ontario Human Rights Code, in terms of respecting the dignity of persons with disabilities. "The phrase 'respects their dignity' means to act in a manner which recognizes the privacy, confidentiality, comfort, autonomy and self-esteem of persons with disabilities, which maximizes their integration and which promotes full participation in society." (Ontario Human Rights Commission).

- Incorporates the belief in universal design that recognizes the broad diversity of people who use facilities. Universal design is 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." The universal design philosophy is structured around the seven design principles listed in section **"1.2 The Principles of Universal Design."**

- Reflects minimum dimensional criteria required for adult persons. Prior to the design stage of a project, special consideration should be given to the function of the facility and the patrons who use it. A review and upgrade of this standard may be required in some instances, particularly if a facility is designed primarily for the use of a particular type of user, such as children or older persons.

- Displays all dimensions in metric units, in either millimetres 'mm' or metres 'm'.

Where conflicts arise between QFADS and legislation enacted by the federal, provincial or municipal governments, the requirement(s) that will result in the most accommodating environment will be used, but never less than the minimum requirements of the current Ontario Building Code and the Accessibility for Ontarians with Disabilities Act (ADOA) Design of Public Spaces Standard.

1.1 How to Use this Document

QFADS has been developed as a technical guide for the implementation of appropriate universal design features into all new-build and renovation university projects.

QFADS will be cited as a **mandatory** design standard and requirement when Queen's University is procuring design services or building-related fixtures, furniture and equipment.

Architects, landscape architects, designers, engineers, other consultants, and suppliers and installers of fixtures, furniture and equipment must use the technical requirements within these Standards to inform their design and specification decisions.

In renovation situations, the Standard allows for some flexibility in the application of the requirements where it is 'technically infeasible' to meet a specific requirement. In such situations, the architect, designer, consultant or supplier must provide a sound rationale as to why the requirements cannot be met and identify any proposed compliance alternatives.

The Standard recognizes the concept of 'equivalent facilitation' as a means to encourage new and innovative design ideas and solutions. Departures from particular technical and scoping requirements of this standard by the use of other designs and technologies are encouraged when the alternatives will provide substantially equivalent or greater access to the usability of the element and/or facility.

Capital Projects over $2.5 million and any projects that have received grant funding must be reviewed with the Queen's Built Environment Advisory Group for comments and endorsement. This will be arranged through the Queen's Project Manager.

For Additional Information, refer to section:

- **"1.3 Scope, Application and Enforcement"**
- **"10.0 Glossary, Definitions and Abbreviations"**
- **"Appendix G – Revision History"** for updates to the QFADS document
- **Adapt or Adopt QFADS**

Queen's University – Physical Plant Services will be updating this standard for legislative changes, for new additions and for document maintenance and improvements. Please refer to **"Appendix G - Revision History"** for updates to this Standard.

1.2 The 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**

   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 abilities.

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 with a minimum of fatigue.

7. **Size and Space for Approach and Use**

   Appropriate size and space are provided for approach, reach, manipulation and use, regardless of user's body position, size, posture, or mobility.

Refer to **“Appendix B - Universal Design Principles and Guidelines”** for more detailed information.

1.3 Scope, Application and Enforcement

1.3.1 General

The requirements of this standard applies to all newly constructed and retrofitted facilities owned, leased or operated by Queen's University.

Exceptions: This standard does not apply to:

- Buildings of Group F Division1 occupancy, as defined by the Ontario Building Code (latest edition, with all amendments), and
- Buildings which are not intended to be occupied on a daily or full-time basis, including, but not limited to, automatic telephone exchanges, pump houses and substations.

1.3.2 General Application

All areas of newly designed or newly constructed facilities and altered portions of existing facilities will comply with all sections of this standard. Section 7.0 Facility-Specific Requirements will be determined, based on the specific project.

Exceptions: The requirements do not apply to:

- Service rooms,
- Elevator machine rooms,
- Janitor rooms,
- Service spaces,
- Crawl spaces, and
- Attic or roof spaces unless accessible to community.
- **Note:** All electrical, mechanical, audio visual, IT rooms, communications rooms, elevator machine rooms and custodial rooms shall have doors that swing out of the room, in the direction of emergency egress, and that the door hardware shall have panic-bar hardware within the room.

1.3.3 Application Based on Facility Use

Where a facility contains more than one use covered by a special application section, each portion must comply with the requirements for that section in addition to all other general provisions.

1.3.4 Work Areas and Employee-Designated Areas

All facilities must be accessible for employees, as well as patrons/ users. All areas intended for use by employees must be designed and constructed to comply with this standard.

1.3.5 Temporary Facilities

This standard applies to temporary facilities, and permanent facilities.

1.3.6 Retrofitting, Alterations and Additions

Each addition to an existing facility will be regarded as an alteration.

Each space or element added to the existing facility must comply with the applicable provision(s) of this standard.

Except where the provision of accessible features is technically infeasible, no alteration will decrease or have the effect of decreasing accessibility or usability of an existing facility to below the requirements for new construction at the time of alteration.

If existing elements, spaces or common areas are altered, then each such altered element/ space/feature/area will comply with all applicable provisions. If the applicable provision for new construction requires that an element/space/feature/area be on an accessible route and the altered element/space/feature/ area is not on an accessible route, this route will be altered to become accessible.

If alterations of single elements, when considered together, amount to an alteration of a room or space in a facility, the entire space must be made accessible.

Where project alterations affect more than 50% of the total floor area of a facility, the accessibility related systems and elements of the entire facility must be upgraded to meet the requirements of these standards.

No alteration of an existing element, space or area of a facility will impose a requirement for greater accessibility than that which would be required for new construction.

If an escalator or stairs are proposed as a means of access where none existed previously, and major structural modifications are necessary for such installations, then a means of accessible access must also be provided.

If a planned alteration entails alterations to an entrance, and the facility has an accessible entrance, the entrance being altered is required to be accessible.

If the alteration work is limited solely to the electrical, mechanical or plumbing system, or to hazardous material abatement, or to automatic sprinkler retrofitting, and does not involve the alteration of any elements or spaces required to be accessible under these guidelines, then this standard does not apply (except for life safety systems, public telephones and assistive listening systems).

An alteration that affects the usability of, or access to, an area containing a primary function must be made to ensure that, to the maximum extent feasible, the path of travel to the altered area, the restrooms, telephones and drinking fountains serving the altered area are readily accessible to, and usable by, individuals with disabilities.

Where the provision of accessible features is technically infeasible, and the standard allows a reduction of maneuvering space from the requirements for new construction, the reduced dimensions are minimums. Where possible, larger maneuvering spaces must be provided.

1.3.7 Exceptions

Exceptions to the requirements are permitted where one or more of the following conditions can be demonstrated:

- It is technically infeasible to comply with the requirements, or some of them, because existing physical or site constraints prohibit modification or addition of elements, spaces or features;
- The requirements, or some of them, would likely affect the cultural heritage value or interest of a property identified, designated or otherwise protected under the Ontario Heritage Act as being of cultural heritage value or interest. Refer to the City of Kingston Heritage Committee review process for more information;
- The requirements, or some of them, would affect the preservation of places set apart as National Historic Sites of Canada by the Minister of the Environment for Canada under the Canada National Parks Act (Canada);
- The requirements, or some of them, would affect the national historic interest or significance of heritage properties marked or commemorated under the Historic Sites and Monuments Act (Canada);
- The requirements, or some of them, might damage, directly or indirectly, the cultural heritage or natural heritage on a property included in the United Nations Educational, Scientific and Cultural Organization's World Heritage List of sites under the Convention Concerning the Protection of the World Cultural and Natural Heritage; or
- There is a significant risk that the requirements, or some of them, would adversely affect water, fish, wildlife, plants, invertebrates, species at risk, ecological integrity or natural heritage values, whether the adverse effects are direct or indirect.

Where an exception is permitted to a requirement for an exterior path of travel, the exception applies solely to:

- The particular requirement for which the exception is allowed and not to any other requirement that applies to the exterior path; and
- The portion of the exterior path for which it is claimed and not to the exterior path in its entirety.

1.3.8 Equivalent Facilitation

In a retrofit situation where the requirements of a section of this standard are technically infeasible to implement, equivalent facilitation may be proposed.

Equivalent facilitation proposals must be referred to the Facilities – Physical Plant Services – Design and Construction department for review and approval on an individual basis.

1.3.9 Implementation

The Physical Plant Services department of Queen's University, other departments, and contracted consulting firms are responsible for the application of the Queen's University Facilities Accessibility Design Standards when designing and administering all construction and renovation projects associated with new facilities, as well as the retrofit, alteration or addition to existing facilities, owned, leased or operated by Queen's University.

Designing and constructing to this standard is a mandatory requirement in all Queen's University request for proposals, space requests and cost estimates, tender documents, construction contracts and construction site conditions.

Refer to **Appendix C - Technical Infeasibility Form**, **Appendix D - Equivalent Facilitation Proposal Form**, and Appendix E - Project Compliance Tracking Form.

Note: **Appendix E - Project Compliance Tracking Form** shall be used to track the various form submissions received for a particular project and the review and approval by various departments/groups that need to be included in the decision making process as part of the project. (e.g. the Built Environment Advisory Group).

1.3.10 Enforcement

Queen’s Facilities – Physical Plant Services – Design and Construction department will monitor compliance throughout the planning, design, and construction phases of the project with the PPS Project Manager responsible to track, alert and review the QFADS compliance of the project with the Design and Construction Planner and the Built Environment Advisory Group, as required.

This includes approval during all stages of the project that impacts accessibility, including:

- Technical infeasibility issues,
- Equivalent facilitation proposals,
- Issues that arise due to the schedule,
- Alternate finishes/materials or product selections,
- Site conditions, and
- Budget issues of the project.

Refer to **Appendix E - Project Compliance Tracking Form**.

1.4 Construction Site - Pedestrian Control Plan

Under Development

1.5 Request to Adopt or Adapt QFADS for Other Organizations

Under Development

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Section 2.0

Access and Circulation

(Exterior & Interior Elements)

2.1 Space and Reach Requirements

Rationale

The dimensions and maneuvering characteristics of wheelchairs, scooters and other mobility devices are as varied as the people who use them. This standard incorporates more generous space requirements, particularly related to the dynamic movement of people using wheelchairs, scooters or other assistive devices.

Application

Space and reach range provisions for persons who use wheelchairs, scooters and other mobility devices must comply with this section, unless noted otherwise in the design standards.

Design Requirements

2.1.1 360-Degree Turning Space

- For new building constructions, the space required for a wheelchair or scooter to make a 360-degree turn shall be a clear floor space of 2500 mm in diameter, as shown in Figure 2.1.1.
    - This dimension shall be used in accessible entrances, primary corridors through the building, dead-end corridors, universal toilet rooms, and on ramps.
- In a retrofit situation where it is technically infeasible to provide 2500 mm in diameter of clear turning space, a 360-degree turn of clear floor space with a minimum of 1700 mm in diameter shall be provided, unless noted otherwise; and
- For private offices, the 360-degree turn of clear floor space shall be a minimum of 1525 mm in diameter.

2.1.2 180-Degree Turning Space

- The space required for a 180-degree turn, is shown in Figure 2.1.2.

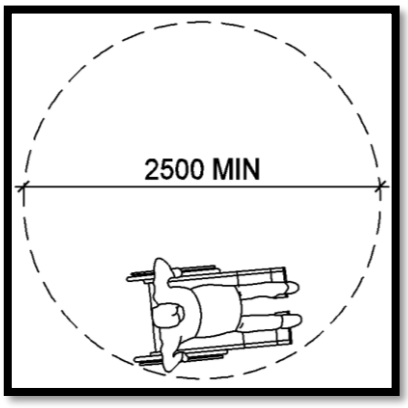


Figure 2.1.1 360 Degree Turning Space

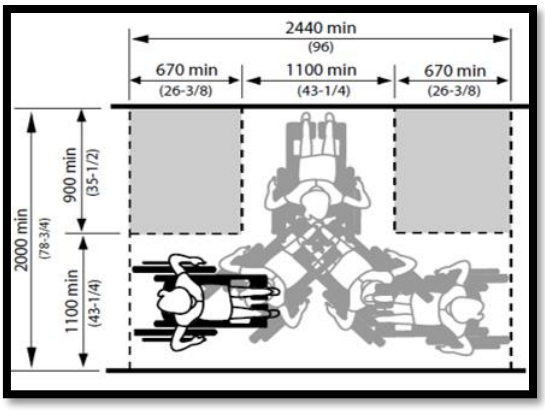


Figure 2.1.2 180 Degree Turning Space

2.1.3 Clear Floor Space

- The minimum clear floor space or ground space necessary to accommodate the largest dimensional requirement of a single, stationary wheelchair or scooter and its' occupant shall be 860 mm x 1480 mm, as shown in Figure 2.1.3.
- The minimum clear floor space or ground space for wheelchairs or scooters shall be positioned for forward and parallel approach to an object.
- One full, unobstructed side of the clear floor space or ground space for a wheelchair or scooter shall adjoin or overlap an accessible route or adjoin another wheelchair or scooter clear floor space.

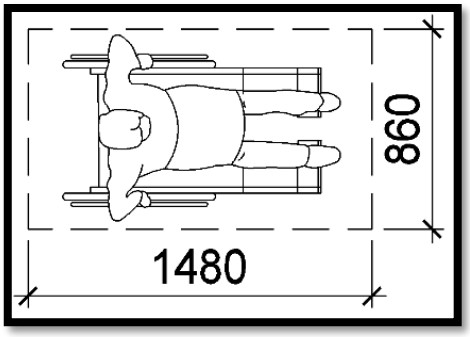


Figure 2.1.3 Clear Floor Space

2.1.4 Forward Approach Reach

- If the clear floor space only allows forward approach to an object, the maximum high forward reach allowed shall be 1200 mm and the minimum low forward reach shall be 400 mm above the floor. Refer to Figure 2.1.4.a.
- If the high forward reach is an obstruction to a maximum 865 mm above the floor, the maximum high forward reach allowed shall be 1200 mm and the minimum low forward reach shall be 500 mm deep. Refer to Figure 2.1.4.b.
    - Note: if “X’ is less than or equal to 635 mm then ‘Z’ shall be greater than or equal to ‘X’. When ‘X’ is less than 510 mm, then ‘Y’ shall be 1220 mm maximum. When ‘X’ is 510 mm to 635 mm, then ‘Y’ shall be 1120 mm maximum.

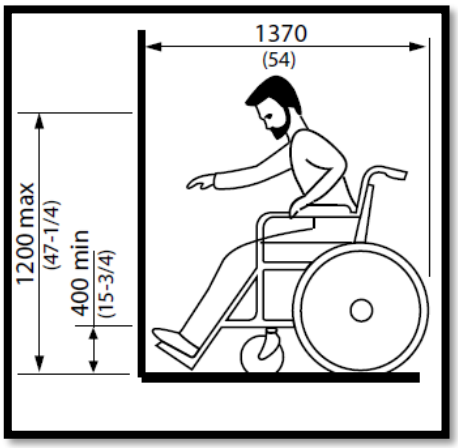


Figure 2.1.4.a Forward Reach

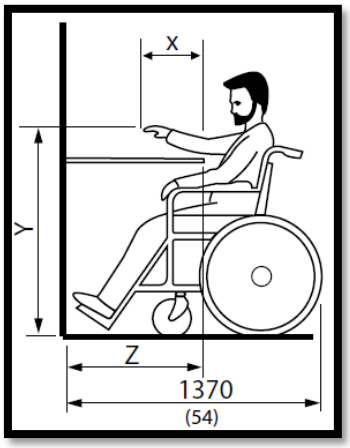


Figure 2.1.4.b Forward Reach Over an Obstruction

2.1.5 Side Approach Reach

- If the clear floor space allows parallel approach to an object, the maximum high side reach allowed shall be 1370 mm and the low side reach no less than 230 mm above the floor. Refer to Figure 2.1.5.a.
- If the side reach is over an obstruction with a maximum 865 mm above the floor and maximum 610 mm width, the maximum high side reach allowed shall be 1170 mm and the minimum low side reach is 865 mm deep. Refer to Figure 2.1.5.b.

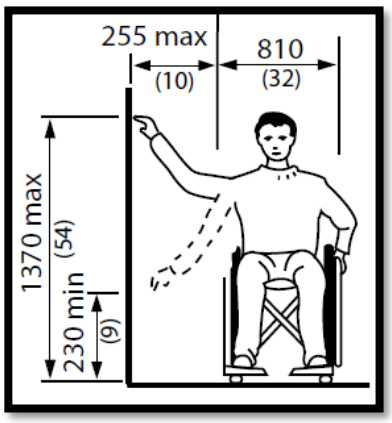


Figure 2.1.5.a Side Reach

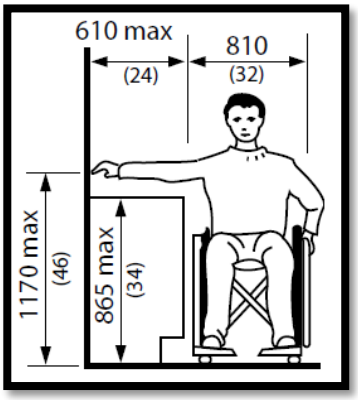


Figure 2.1.5.b Side Reach over an Obstruction

2.1.6 Clearances at Alcoves

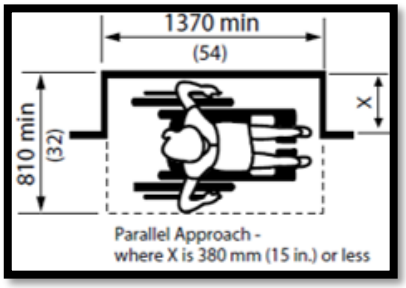


Figure 2.1.6.a Clearances at Alcoves

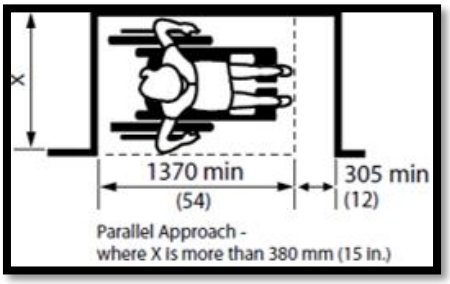


Figure 2.1.6.b Clearances at Alcoves

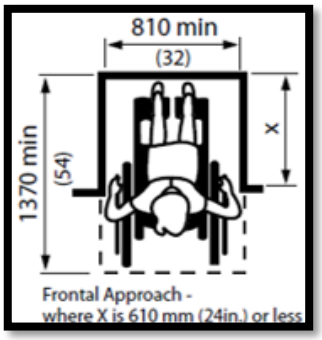


Figure 2.1.6.c Clearances at Alcoves

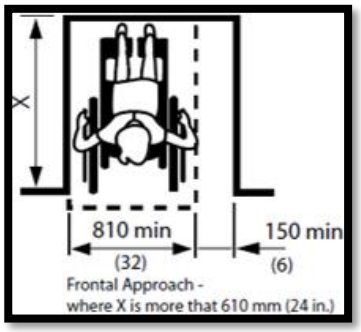


Figure 2.1.6.d Clearances at Alcoves

2.2 Ground and Floor Surfaces

Rationale

Design decisions related to ground and floor surfaces will influence every person in both interior and exterior environments.

Application

Ground and floor surfaces along all routes and within all areas generally used by staff and public must comply with this section.

Design Requirements

2.2.1 Surfaces

Ground and floor surfaces shall

- be firm, slip-resistant and stable,
- have a surface finish to minimize glare, and
- drain well.

Changes in level including at thresholds and changes in floor finish materials, except for elevators and other elevating devices, shall conform to Figure 2.2.1.a and Table 2.2.1.b. Gradual transitions are preferred.

Note: Where possible in exterior applications, include heating cables on ground surfaces where ice may accumulate at main or service entrances.

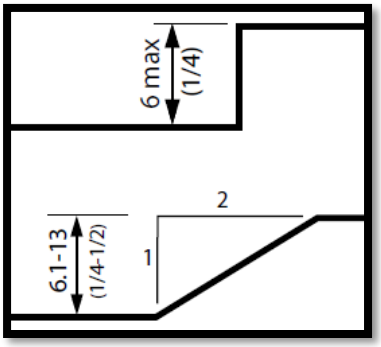


Figure 2.2.1.a Changes in Level

Vertical Rise	Edge Treatment
0 to 6 mm	May be vertical
6.1 mm to 13 mm	Bevel, maximum slope 1:2
Over 13 mm	Treat as sloped floor, ramp, or curb ramp

Table 2.2.1.b Changes in Level

2.2.2 Carpet and Carpet Tile

Carpet and carpet tile shall

- be securely fixed to the floor,
- have a firm/dense cushion underlay, under pad or other backing,
- have a low level loop, textured loop, or level cut/uncut pile texture,
- have a maximum pad and pile height of 13 mm, and
- have any exposed edges fastened to floor surfaces with trim conforming to Table 2.2.1.b.

Note: Thick pile carpeting makes pushing a wheelchair very difficult.

2.2.3 Floor Mats

Floor mats shall

- have a maximum height of 13 mm,
- have a bevelled edge,
- be non-slip between the underside of the mat and the floor surface,
- be securely fixed or placed in a depression that is level with the surrounding floor, and
- provide high tonal contrast between floor mat and surrounding surfaces.

2.2.4 Gratings or Grilles

Openings in any ground or floor surface such as grates or grilles can catch canes or wheelchair wheels.

Gratings located in walking surfaces shall

- have spaces not greater than 13 mm wide in one direction, shown in Figure 2.2.4, and
- be placed so that the long dimension is across the dominant direction of travel.

Best Practice: avoid placement of gratings and grilles in high traffic, accessible routes.

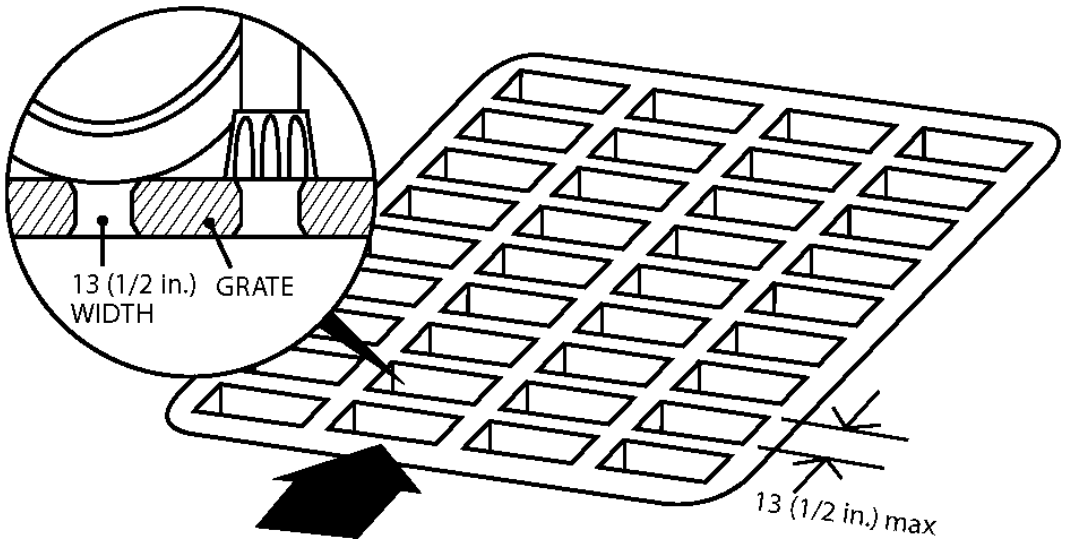


Figure 2.2.4 Gratings and Grilles

2.2.5 Ground and Floor Materials and Finishes

- Glare from polished floor surfaces can be uncomfortable for all users and can be a particular obstacle to persons with a visual impairment by obscuring important orientation and safety features. Using a matte or honed finish on floor products reduces this issue.

- Interior hard surface floor surfaces such as marble and terrazzo allow each foot step to be heard by persons who are visually impaired, but will amplify the footsteps and add another level of noise and confusion for person who are Deaf, deafened or hard of hearing. See 6.8 Acoustics.

- Pronounced colour contrast between walls and floor finishes are required for persons with a visual impairment, as are changes in colour/texture where a change in level or function occurs.

- Highly disruptive patterned floors and large scale designs are to be avoided to reduce visual confusion.

- Small and uneven changes in floor level represent a further barrier to using a wheelchair but also present a tripping hazard to ambulatory persons.

- Irregular surfaces, such as cobblestones or pea-gravel finished concrete, are difficult for both walking and pushing a wheelchair and are to be avoided.

- Slippery surfaces are hazardous to all individuals and especially hazardous for seniors and others who may not be sure-footed.

2.3 Tactile Walking Surface Indicators (TWSI)

Rationale

Tactile Walking Surface Indicators (TWSI) are a detectable warning surface that provide important navigational cues for persons with a visual impairment and alert all pedestrians to potential hazards.

Application

There are two types of TWSI:

- 'Attention' indicators, are a warning surface signaling a need for caution. These indicators have a flat-top dome or truncated dome or cone surface design, and shall be used consistently throughout a facility.
    - Attention indicators at walkways, curb ramps, depressed curbs, interior stairs, exit stairs, exterior stairs, elevated platforms, escalators and potential hazards must comply with this section.
    - Note: Attention indicators shall also be used at decision-making points when used in conjunction with direction or guidance indicators.
    - Note: Edges of reflecting pools and fountains that are unprotected at ground level must also include 'attention' indicators around the full width of the hazard.
- 'Direction' indicators help facilitate wayfinding through the primary accessible route to key building features, such as to elevators, stairs, and main customer service points. These directional indicators have a linear bar surface design, and are to be used on a project by project basis, when deemed appropriate by the Facilities Design and Construction team.

Best Practice: include direction indicators to main accessible entrance route to the elevator, stairs main customer service points, and to a minimum of one single-user (gender neutral), accessible washroom or universal toilet room on the primary route.

Design Requirements

2.3.1 Surface Design Features

Tactile Walking Surface Indicators shall meet the requirements in the most current ISO 23599 Assistive products for blind and vision-impaired persons – Tactile walking surface indicators (latest edition)

All TWSIs shall

- be slip-resistant,
- be a low glare, matte finish,
- be used in a logical and sequential manner

- be clearly detectable by walking upon as being different or by a long white cane,
- include a change in texture and high colour / tonal contrast from adjoining surfaces, and
- have edges level or beveled with adjoining finishes so that it does not create a tripping hazard.

2.3.2 Attention Indicators

Attention indicators shall

- be composed of flat-topped or truncated domes or cones,
- be 4-5 mm high,
- be arranged in a regular square grid pattern with spacing as shown in Table 2.3.2.a, and
- have top and bottom dimensions as shown in Figure 2.3.2.b.

Attention indicators at stairs and escalators shall

- be provided at the top of all stairs and at landings with entry points
- extend the full width of the stair for a depth of at least 920 mm commencing one tread
- depth back from the edge of the top stair, as in Figure 2.3.2.c., and
- be no more than 3 mm above or below adjacent surfaces at interior stairs.

Note: CNIB's "Clearing Our Path" indicates that TWSIs should not be added to the top and bottom locations at an escalator, as they can run in reverse and can cause bottlenecks. Consider instead a direction indicator away from, or around the escalator, to the elevator or alternate stairs.

Attention indicators at elevated platforms shall

- be installed at unprotected drop-off edges (such as a transit platform) with an elevation change of more than 250 mm, or where the slope is steeper than a ratio of 1:3 (33%), and
- extend the full width of the hazard for a depth of at least 920 mm, flush with the open edge.

Note: If a walk crosses or joins a vehicular way and the walking surfaces are not separated by curbs, railings or other elements between the pedestrian areas and vehicular areas, the boundary between the areas shall be defined by a continuous detectable warning surfaces, flat-topped domes or cones which is minimum 920 mm wide.

Top Diameter of Flat-Topped Domes or Cones (mm)	Spacing (mm)
12	42 – 61
15	45 – 63
18	48 – 65
20	50 – 68
25	55 – 70
Bottom diameter of flat-topped domes or cones 10 ± 1 greater than the top diameter.	

Table 2.3.2.a Size and Spacing of Flat-topped Domes or Cones

Best Practice: CNIB's 'Clearing Our Path' indicates that "A top diameter of 12 mm is the optimal size of domes or cones for people with vision loss to detect and distinguish through the soles of their footwear."

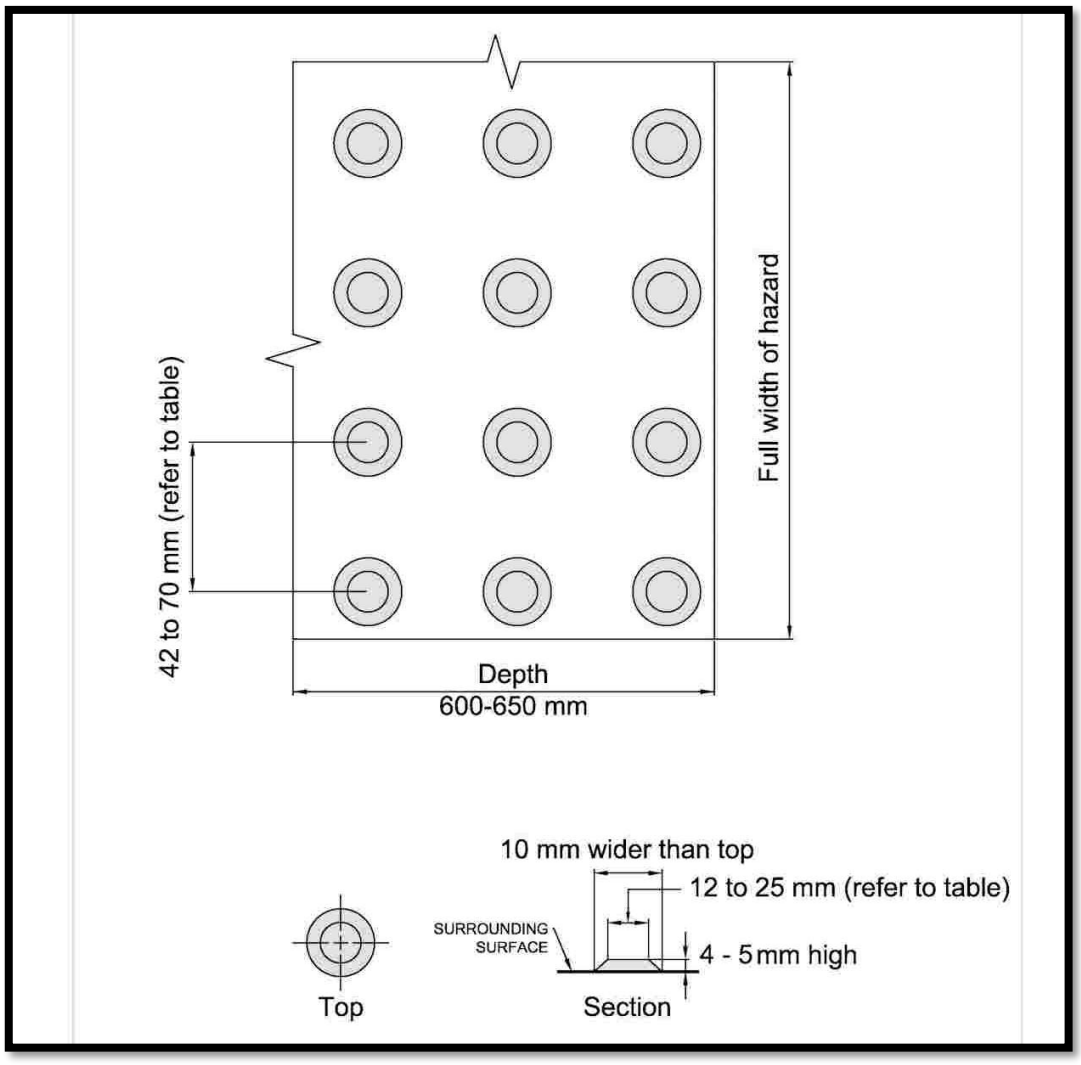


Figure 2.3.2.b Flat-topped Domes or Cones "Attention" Tactile Walking Surface Indicator (Source: CNIB: Clearing Our Path)

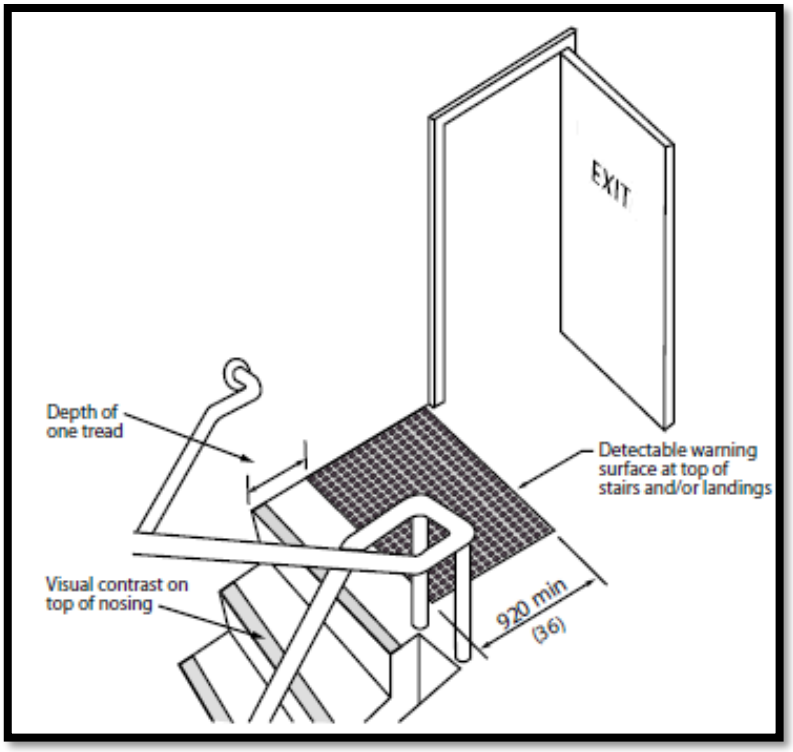


Figure 2.3.2.c "Attention" Tactile Walking Surface Indicators at Stairs

2.3.3 Direction or Guidance Indicators

Direction or guidance indicators shall

- be arranged in a regular linear bar pattern with spacing as shown in Table 2.3.3.a,
- be composed of parallel, flat-topped, elongated linear bar surfaces, as per Figure 2.3.3.b,
- have a bar height of 4-5 mm high,
- have the top width of the flat-topped elongated bars between 17 – 30 mm,
- have the base width of the bars 10 mm (+/- 1 mm) wider than the top,
- have a minimum top length of the bars of 270 mm with a 10 – 30 mm space at the ends of the bar if drainage is required,
- be 250 – 300 mm wide, where installed to define a route,
- be 600 – 650 mm wide, where installed across a route as an indicator of an amenity or diverging route, and
- have a minimum continuous clearance of 600 mm on both sides of the route.

Top Width of Flat-Topped Bars (mm)	Spacing Between the Centre of Adjacent Bars (mm)
17	57 to 78
20	60 to 80
25	65 to 83
30	70 to 85

Table 2.3.3.a Spacing of Flat-topped Bars (Source: CNIB: Clearing Our Path)

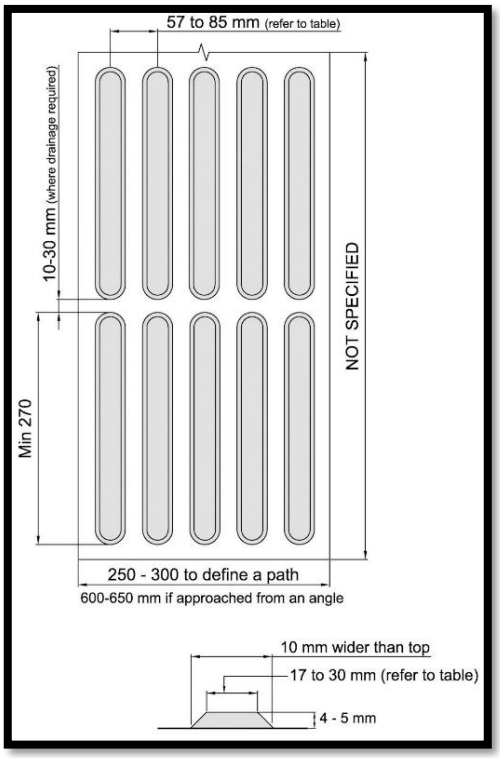


Figure 2.3.3.b "Direction" or "Guidance" Tactile Walking Surface Indicator (Source: CNIB: Clearing Our Path)

2.3.4 Combined Use of Attention and Direction Indicators

When attention and direction or guidance indicators are used together they shall

- have attention indicators located at the top of stairs, across elevated platforms, at changes in direction along the guidance path and at decision-making points, as shown in Figure 2.3.4, and
- have direction or guidance indicators in a linear path to assist with the location of elevators, stairs, major service counters or receptions, accessible washrooms and other points in the building as shown in Figure 2.3.4,

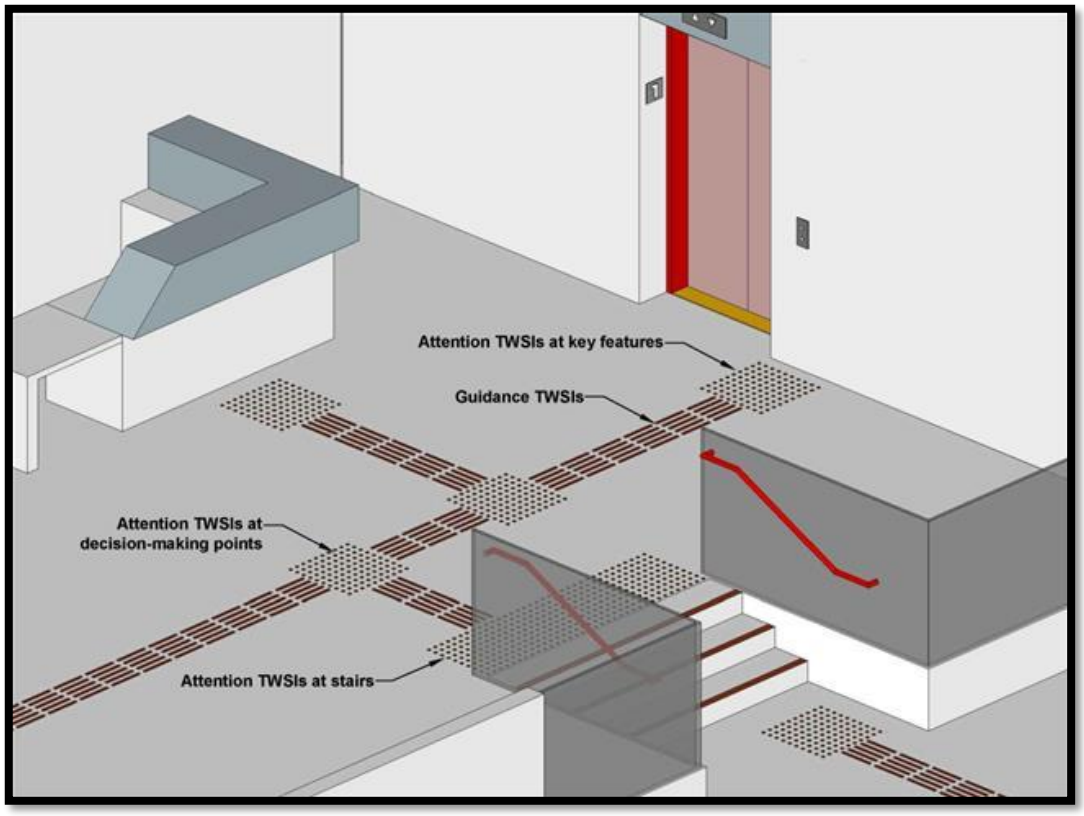


Figure 2.3.4 Installation Incorporating both Attention and Direction or Guidance TWSIs. (Source: CNIB: Clearing Our Path)

2.4 Protruding and Overhead Objects

Rationale

The creation of pathways free from protruding objects or freestanding obstacles is important to all facility users, including individuals with a visual impairment, or a pedestrian distracted by a conversation.

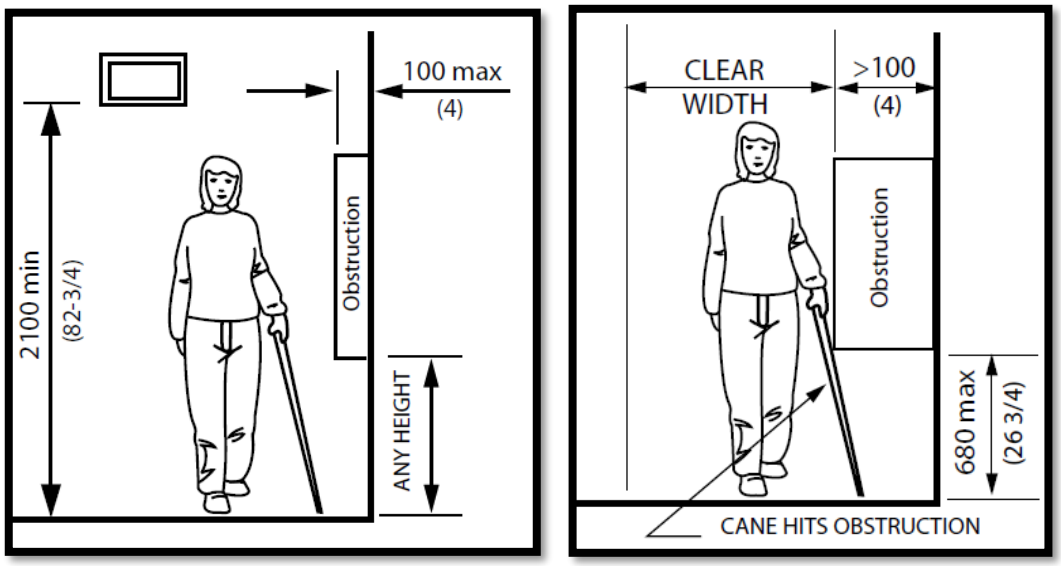
Application

Protruding objects from a wall, ceiling or other location shall comply with this section.

Design Requirements

2.4.1 Protruding Objects

- Protruding objects shall not reduce the clear width required for an accessible route or maneuvering space.
- Objects protruding 100 mm or less from the wall, can be of any height, as per Figure 2.4.1.a.
- Objects protruding 100 mm or more into accessible routes shall be cane detectable at or below 680 mm above finished floor, as per Figure 2.4.1.b.
- Structural or decorative columns that angle out from the bottom of the column shall be cane detectable at or below 680 mm above finished floor, with best practice using a railing as a detectable barrier, as shown in Figure 2.4.1.c.



Figures 2.4.1.a and 2.4.1.b Limits of Protruding Objects

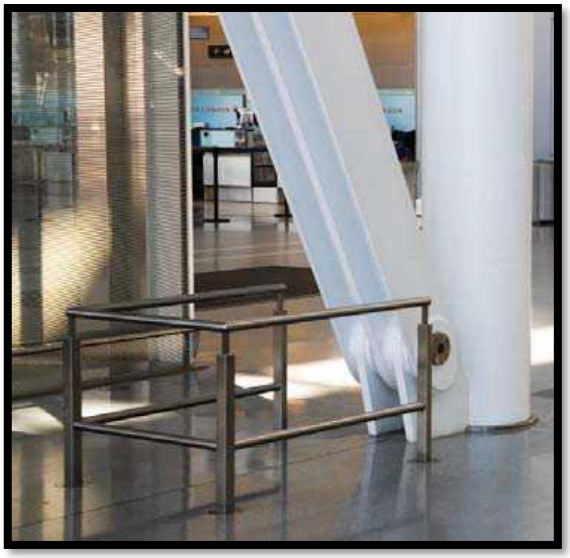


Figure 2.4.1.c Railing Added as Detectable Barrier to Overhead Obstruction (Source: CNIB: Clearing Our Path)

2.4.2 Freestanding Objects

- Freestanding objects shall not reduce the clear width required for an accessible route or maneuvering space.
- Freestanding objects shall not have any overhang of more than 300 mm between 680 mm and 2100 mm from the ground or floor.
- The maximum height of the bottom edge of freestanding objects with a space of more than 300 mm between supports shall be 680 mm from the ground or floor.

2.4.3 Headroom Clearance

- The minimum clear headroom shall be 2100 mm above finished floor as per Figure 2.4.1.a.
- Where the headroom of an area adjoining an accessible route is reduced to less than 2100 mm (e.g. underside of a stair case), a detectable guard, guardrail or other barrier having its leading edge at or below 680 mm from the floor shall be provided, as per Figure 2.4.3.

Note: Recessing an object (such as a display cabinet, water fountain, telephone, or a door swinging out into a corridor) avoids creating a protrusion hazard.

Note: Detectable warning surfaces around freestanding obstacles, such as light standards, are advantageous to anyone using a pathway.

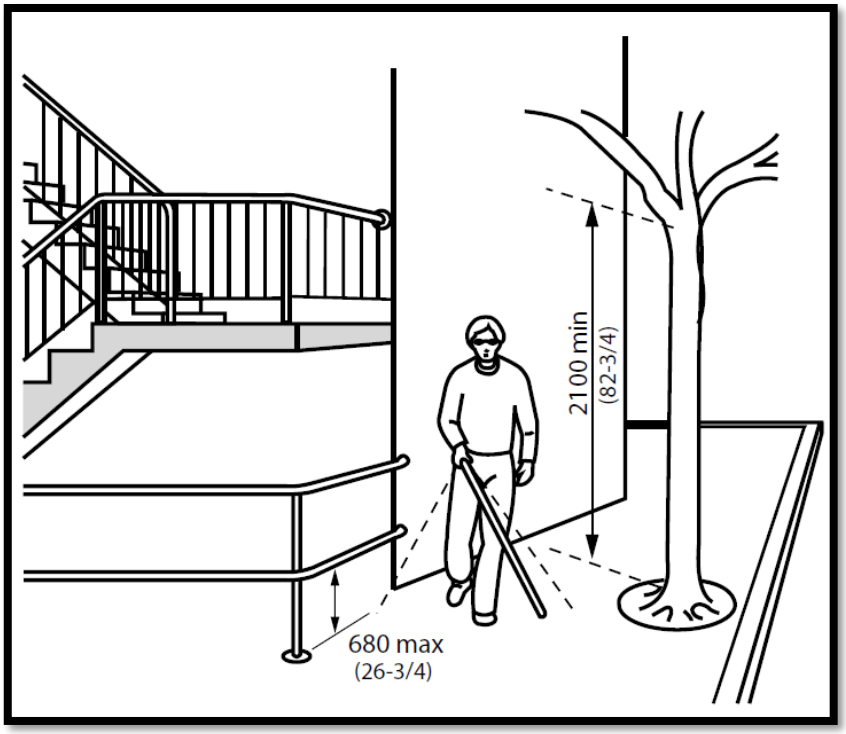


Figure 2.4.3 Overhead Obstructions

2.5 Accessible Routes, Paths and Corridors

Rationale

Accessible routes of travel through a facility should address the full range of individuals that may use them. They must provide the clear width necessary for persons using wheelchairs or scooters, those pushing strollers or those travelling in pairs. Consideration should be given not just to the width of items, such as wheelchairs and scooters, but also to their maneuverability.

Application

All accessible routes, paths or corridors shall comply with this section.

At least one accessible route complying with this section shall be provided within the boundary of the site from accessible parking spaces, passenger-loading zones (if provided), and public streets or sidewalks to the accessible facility entrance they serve. The accessible route shall, to the maximum extent feasible, coincide with the route for the general public.

At least one accessible route shall connect accessible buildings, facilities, elements and spaces that are on the same site. It is preferable to have all routes accessible.

Walkways or pedestrian bridges that connect accessible floors in different buildings shall be accessible.

Except where essential obstructions in a work area would make an accessible route hazardous, an accessible route shall connect accessible entrances with all accessible spaces and elements within the facility. An accessible route complying with this section shall be provided within all normally occupiable floor areas.

Exceptions: The provision of an accessible route does not apply

- to service rooms
- to elevator machine rooms
- to janitor rooms
- to service spaces
- to crawl spaces
- to attic or roof spaces unless accessible to community
- to high-hazard industrial occupancies
- within portions of a floor area with fixed seats in an assembly occupancy where these portions are not part of an accessible route to spaces designated for wheelchair use; or
- within a suite of residential occupancy.

Accessible routes are permitted to include ramps, curb ramps, stairs, elevators or other elevating devices, such as platform lifts, where a difference in elevation exists.

Design Requirements

2.5.1 Accessible Route Widths

- **Primary** accessible routes shall have a minimum width of 1830 mm clear floor space and be used for exterior routes and in high traffic areas in main accessible routes throughout the building interior (e.g. from accessible entrance, to elevator, stairs and washrooms, etc.), as per Figure 2.5.1.a. Note: required for new building construction (this may be technically infeasible in interior renovations)

- **Secondary** accessible routes shall have a minimum width of 1250 mm clear floor space and be used in lower traffic areas on accessible routes throughout the building interior, as per Figure 2.5.1.b. Note: required for new building construction (this may be technically infeasible in interior renovations)

- Accessible routes for open office furniture areas, as per Figure 2.5.1.c, should (Under Development)
  - have a minimum width of 1250 mm clear floor space for main aisles,
  - have a minimum width of 1100 mm clear floor space for secondary aisles, and
  - have a minimum width of 920 mm clear floor space for entrance into a workstation cubicle or office desk in a private office.
  - Note: required for new building construction (this may be technically infeasible in interior renovations)

The minimum clear width of an accessible route exceptions include

- at doors - refer to 2.7,
- where additional manoeuvring space is required at doorways (See 2.7),
- at U-turns around obstacles less than 1200 mm wide, it shall be 1250 mm,
- for exterior routes, it shall be minimum 1830 mm, but can be reduced to 1250 mm to serve as a turning space where path connects to a curb ramp,
- where space is required for two wheelchairs to pass, it shall be a minimum of 1830 mm, and
- at secondary circulation routes within open office areas, where systems furniture work station clusters are used, it shall be at least 920 mm wide.

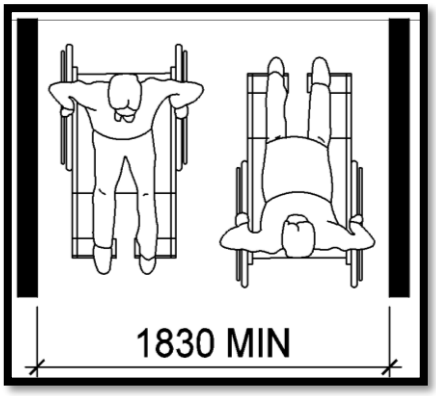


Figure 2.5.1.a Primary Accessible Route Route

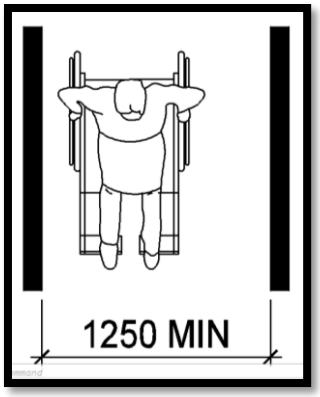


Figure 2.5.1.b Secondary Accessible

Figure 2.5.1.c Accessible Routes in Open Office Furniture Areas (Under Development)

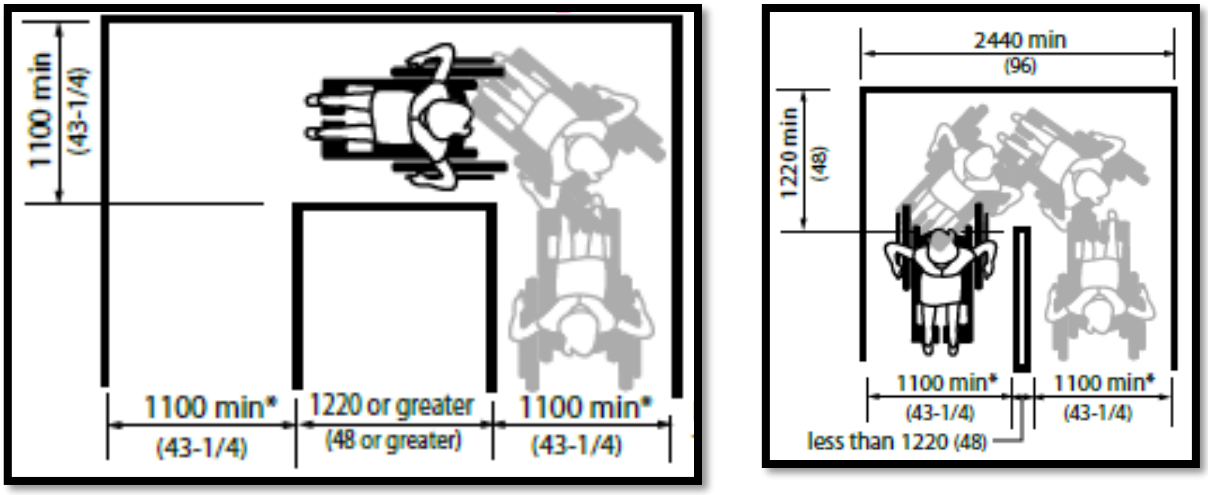
2.5.2 Accessible Route Slopes

Accessible routes shall

- where they are sloped steeper than 1:20, be designed as ramps complying with 2.10;
- have a cross slope not steeper than 1:50 (2%); and
- where the accessible route incorporates a curb ramp, the curb ramp portion of the accessible route shall comply with 5.8.

2.5.3 Passing and Turning Areas

- Where accessible routes less than 2000 mm wide terminate at a dead end, a turn space in compliance with 2.1 shall be provided at the dead end.
- Every accessible route less than 1830 mm wide shall incorporate unobstructed passing spaces, not less than 1830 mm in width and 1830 mm in length, located not more than 30 meters apart.
- Turning around an obstacle shall have a minimum width of 1250 mm as per Figures 2.5.3.a and 2.5.3.b.
- Where there is a change in direction along an accessible route and the intended destination of the route is not evident, directional signage shall be provided.



Figures 2.5.3.a and 2.5.3.b Turning Around an Obstacle (Under Development)

2.5.4 Changes in Level

Except at stairs and at elevated platforms such as performance areas or loading docks, where the edge(s) of an accessible route, path or corridor is not level with the adjacent surface, the edge(s) shall be protected by curb which contrasts in colour to adjacent ground surfaces, at least 75 mm high where the change in level is between 200 mm and 600 mm; and by a guard which meets the requirements of the Ontario Building Code where the change in level is greater than 600 mm.

2.5.5 Rest Areas

Consultation with the public and persons with disabilities regarding the design and location of rest areas along exterior paths of travel must be undertaken as required by the AODA Accessibility Standard for the Design of Public Spaces.

Accessible routes shall incorporate level rest areas spaced no more than 30 metres apart.

The minimum clear width of an accessible route shall be 1250 mm except

- at doors - refer to 2.7;
- where additional manoeuvring space is required at doorways (See 2.7);
- at U-turns around obstacles less than 1250 mm wide, it shall be 1250 mm;
- for exterior routes, it shall be minimum 1830 mm, but can be reduced to 1250 mm to serve as a turning space where path connects to a curb ramp;
- where space is required for two wheelchairs to pass, it shall be a minimum of 1830 mm; and
- at secondary circulation routes within open office areas, where systems-furniture work station clusters are used, it shall be at least 920 mm wide.

2.5.6 Safety Mirrors

Consideration should be given to install interior security/safety mirrors near the ceiling of hallway intersections to reduce collisions and improve safety viewing. Where mirrors are installed, they shall have a minimum headroom clearance of 2100 mm from the floor, and shall be a break resistant material. Products such as convex, full dome, half dome, and quarter dome panorama-type mirrors may be utilized.

2.5.7 Other Requirements

All portions of an accessible route shall be equipped to provide a minimum level of illumination of 50 lux (4.6 ft-candles). Exception: In outdoor park settings where routes are not normally illuminated, additional illumination is not required.
Designated areas for snow piling to be provided at exterior accessible routes, located away from pedestrian routes.

Strong colour contrasts and/or tactile pathways set into floors may be used to assist individuals with a visual impairment to negotiate an environment. Edge protection that guards a change in level is an important safety feature for all users, as per Figure 2.5.5.

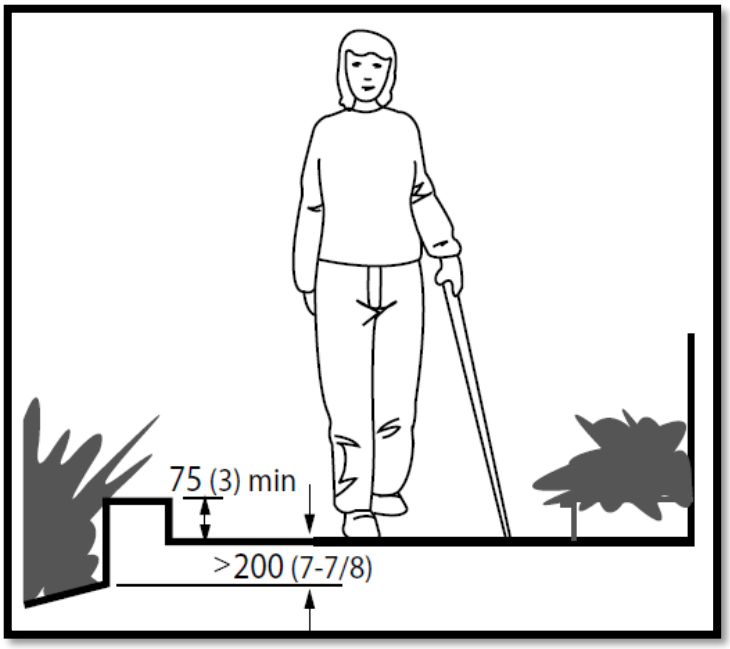


Figure 2.5.5 Edge Protection

2.6 Entrances

Rationale

Entrances that address the full range of individuals using the facility promote a spirit of inclusion that separate accessible entrances do not. Accessible entrances shall be designed to ensure the dignity and independence of everyone entering a facility.

Application

All entrances used by staff and/ or the public shall be accessible and comply with this section. In a retrofit situation where it is technically infeasible to make all staff and public entrances accessible, at least 50% of all staff and public entrances shall be accessible and comply with this section. In a retrofit situation where it is technically infeasible to make all public entrances accessible, the primary entrances used by staff and the public shall be accessible.

Design Requirements

2.6.1 Number of Accessible Entrances

Accessible public entrances shall

- be provided in a number at least equivalent to the number of exits required by the Ontario Building Code (This paragraph does not require an increase in the total number of public entrances required for a facility), and
- be provided to each tenancy in a facility.

- If direct access is provided for pedestrians from an enclosed parking garage to a facility, have at least one direct entrance from the parking garage to the facility shall be accessible.
- If access is provided for pedestrians from a pedestrian tunnel or elevated walkway, at least one entrance to the facility from each tunnel or walkway must be accessible.
- If the only entrance to a facility or tenancy is a service entrance, that entrance shall be accessible.

2.6.2 Entrance Requirements

Accessible entrances shall

- be served by an accessible route in compliance with 2.5,
- have ground and floor surfaces in compliance with 2.2,
- have doors and door frames in compliance with 2.7,

- have a power-assisted door actuator on at least one entrance and vestibule door in a sequence, and
- have a vestibule minimum depth of 2500 mm clear turning circle, plus the width of the door swing, as per Figure 2.6.2.
- Where vestibules have power door actuators that are freestanding on posts mounted between the entrance doors and interior vestibule doors, the location shall ensure that the doors upon opening will not swing into and hit the person pushing the power door actuator button, as per Figure 2.6.2.
- Exterior canopies shall be added to limit exposure to weather conditions and make an entrance more obvious to a person with a cognitive disability or someone unfamiliar with the facility.
- Exterior entrances shall allow space for an outdoor bench and accessible space, located within close proximity to the entrance doors, in compliance with 5.5.

2.6.3 Signage

- All signage shall comply with applicable provisions of 6.11.
- Entrances which are not accessible shall have directional signage which indicates the nearest accessible entrance.
- Accessible entrances shall be identified with signage.
- Signage that includes building plans for accessible routes, locations of accessible public elevators and washrooms shall be posted near building directory signage.

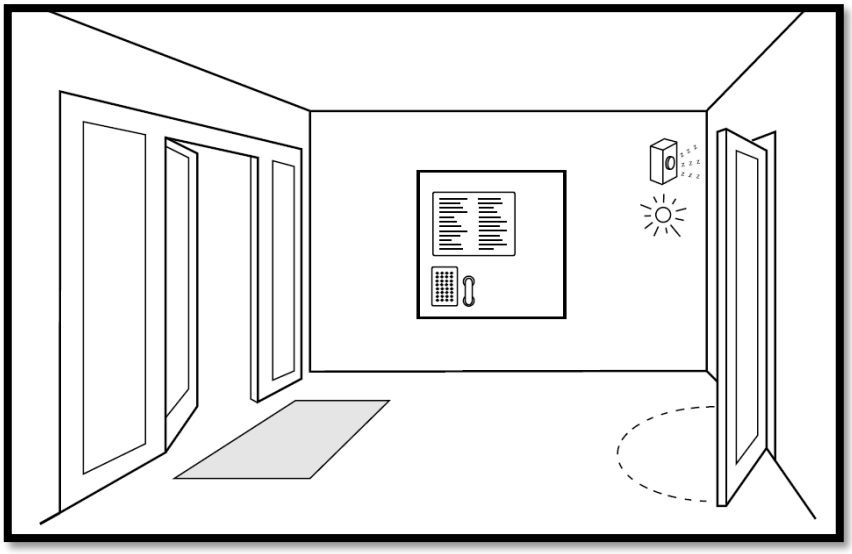


Figure 2.6.2 Accessible Entrance Vestibule (Under Development)

2.7 Doors and Doorways

Rationale

Sufficiently wide doorways are advantageous to individuals using wheelchairs or scooters, pushing strollers, or making a delivery. However, a raised threshold at the base of the door could impede any one of these same individuals. This same group, with the addition of children, seniors or even someone carrying packages, would have difficulty opening a heavy door and would benefit from some form of automatic door opener. Where permitted and where feasible, entrances without doors are preferred.

Independent use of doors is desirable. Reliance on assistance from others to open doors is not an accessible or dignified solution.

Application

All doors used by staff or the public shall comply with this section. In a retrofit situation where it is technically infeasible to make all doors accessible, at least one door at each accessible space shall comply with this section.

Exception: Doors not requiring full user passage, such as shallow closets, may have the clear opening reduced to 510 mm minimum.

Each door used for an Emergency Exits, Fire Evacuation and/or Area of Rescue Assistance shall comply with this section.

Where a door system incorporates multiple door leafs at a single location, at least one of the door leafs shall comply with this section.

Power actuators shall be provided at the following door locations:

- entrances required by 2.6 including both inner and outer vestibule doors (where provided)
- common use washrooms that include an accessible toilet stall;
- universal washrooms;
- locker/dressing/change rooms that contain accessible toilet or shower facilities, as well as a private accessible change room;
- intermediate doorways across primary circulation routes within a facility.
  Exception: Doors that are held-open using electromagnetic hold-open devices;
- where doors are equipped with closing devices;
- departmental office areas; and
- rooms with occupancies that are more than 60 people

Design Requirements

2.7.1 Doors

Where permitted, rooms without doors are preferred.

To reduce protrusion hazards in corridors, doors for classrooms, theatres, etc. should be recessed.

Accessible doors shall be on an accessible route that complies with 2.5.

The minimum clear opening of doorways in public use areas shall be 950 mm, measured between the face of the door and the opposite door stop with the door open 90 degrees. The minimum clear opening of doorways to faculty offices and other non-public areas shall be 860 mm, measured between the face of the door and the opposite door stop with the door open 90 degrees.

In a retrofit situation where it is technically infeasible to provide the clear opening for public use areas, the minimum clear opening of doorways may be reduced to 860 mm.

Unless equipped with a power door actuator, doors shall have level manoeuvring space on both sides of the door for wheelchairs and other mobility devices, and clear space beside the latch, as described in Table 2.7.1.

Exception: The clear space is not required on the inactive side of a door, where access is provided from one side only - such as to a closet.

The required clear space beside the latch is to be unobstructed for the full height of the door.
The minimum space between two hinged or pivoted doors in series shall be 1525 mm, plus the width of any door swinging into the space.

Revolving doors or turnstiles shall not be the only means of passage at an accessible entrance or along an accessible route. An accessible gate or door shall be provided adjacent to the turnstile or revolving door and shall be designed to facilitate the same use pattern.

The required clear space beside the latch is to be unobstructed for the full height of the door.

The minimum space between two hinged or pivoted doors in series shall be 1525 mm, plus the width of any door swinging into the space.

Where doors in series do not align, a turn circle of at least 1700 mm shall be provided within the vestibule area, clear of any door swing.

Context	Floor space Required (in mm)		
	Depth	**Width**	**Space Beside Latch**
Side-hinged door – Front approach (figure 4.1.6.3)			
Pull Side	1525 (60 in.)	1600 (63 in.) (*1525 (60 in.))	600 (23 ⅝ in.)
Push Side	1370 (54 in.)	1250 49 ¼ in.) (*1220 (48 in.))	300 (11 ¾ in.)
Side-hinged door – Latch-side approach (Figure 4.1.6.2)			
Pull Side	1370 (54 in.) (*1220 (48 in.))	1600 (63 in.) (*1525 (60 in.))	600 (23 ⅝ in.)
Push Side	1370 (54 in.) (*1220 (48 in.))	1525 (60 in.)	600 (23 ⅝ in.)
Side-hinged door – Hinge-side approach (Figure 4.1.6.1))			
Pull Side	2440 (96 in.) (*1525 (60 in.))	2440 (96 in.) (*1525 (60 in.))	600 (23 ⅝ in.)
Push Side	1370 (54 in.) (*1100 (43 1/4 in.))	1830 (72 in.)	450 (17 ¾ in.)
Sliding Door (Figure 4.1.6.4)			
Front Approach	1370 (54 in.)	1100 (43 ¼ in.) (*920 (36 in.))	300 (11 ¾ in.)
Side Approach	1370 (54 in.) (*1100 (43 1/4 in.))	1550 (61 in.) (*1370 (54 in.))	600 (23 ⅝ in.)
In retrofit situations where it is technically infeasible to provide the required clearances at doors, the clearances may be reduced as shown by the asterix (*)			

Table 2.7.1 Maneuvering Space at Doors

2.7.2 Thresholds

Thresholds shall

- be not more than 13 mm high; and
- where over 6 mm high, be bevelled at a maximum slope of 1:2.

2.7.3 Hardware

Door hardware (operating devices such as handles, pulls, latches, and locks) shall

- be operable by using a closed fist;
- not require fine finger control, tight grasping, pinching, or twisting of the wrist to operate; and
- be mounted between 900 mm and 1000 mm from the floor.

Operating hardware on sliding doors shall be exposed and usable from both sides when sliding doors are fully open.

Door hardware on all doors throughout a facility (not only those deemed accessible), shall comply with the door hardware requirements of this section.

2.7.4 Opening Force

The maximum door opening force for pushing or pulling open a door shall be

- 38 N (8.5 lb.) for exterior hinged doors;
- 22 N (4.6 lb.) for interior hinged doors; and
- 22 N (4.6 lb.) for sliding or folding doors.

2.7.5 Closers

Door closers shall be adjusted to the least pressure possible, but never more than the opening forces noted in this section.

The sweep period of door closers shall be adjusted so that, from an open position of 90 degrees, the door will take not less than 3 seconds to move to a semi-closed position of approximately 12 degrees.

2.7.6 Power-Assisted Swinging Doors

Power-assisted swinging doors shall

- take not less than 3 seconds to move from the closed to the fully open position; and
- require a force of not more than 66 N (13.8 lb.) to stop door movement.

2.7.7 Power Door Actuators

Where power door actuators are provided they shall

- be clearly visible;
- be located to allow a person using a wheelchair or scooter to stop immediately adjacent to the control (refer to 2.1);
- be located at least 600 mm from any inside corner;
- be located on the latch side of the door;
- where the door opens towards the user, the control shall be located not less than 600 mm and not more than 1500 mm beyond the door swing;
- incorporate controls that are;
    - minimum 150 mm in diameter located with its centre 1000 - 1100 mm above the finished ground/floor surface;
    - configured as a vertical bar that is at least 50 mm wide which can be activated between 200 mm and 900 mm above the finished ground/ floor surface.

- incorporate the International Symbol of Access for Persons with Disabilities;
- where pressure-sensitive mats, overhead beams or proximity scanners are used to detect traffic, incorporate systems that will detect individuals using wheelchairs or scooters; and
- where exterior doors swing open into a pedestrian area, incorporate safety guards that comply with 2.4, projecting a minimum of 300 mm beyond both sides of the open door, as per Figure 2.7.8.

Where the exterior door actuator buttons or vertical access bars cannot be mounted on the face of the building the actuator shall be installed on a post located to meet all stated power door actuator requirements.

Where power actuators and controls are required for after hours or secure access, they shall comply with 6.4.

2.7.8 Other Requirements

Doors and/or door frames shall incorporate pronounced colour contrast, to differentiate them from the surrounding environment. Door handles and other operating mechanisms shall incorporate pronounced colour contrast, to differentiate them from the door itself.

Double doors with the use of a centre post shall be avoided.

Where there are multiple leaf doors in a bank of doors and not all of them are accessible, the accessible doors shall be identified with the International Symbol for Access.

Permanent mats, metal gratings at entrances and in vestibules, and occasional mats (e.g. runners used in bad weather) shall comply with Section 2.2.

Where a door incorporates glazing or is fully glazed, it shall comply with Section 2.9. Glazed doors can present a hazard to all individuals and especially those with a visual impairment. The inclusion of colour-contrast strips across the glass, mounted at eye level, as well as colour-contrasting door frames and door hardware, will increase the safety and visibility of a glazed door for a person with a visual impairment.

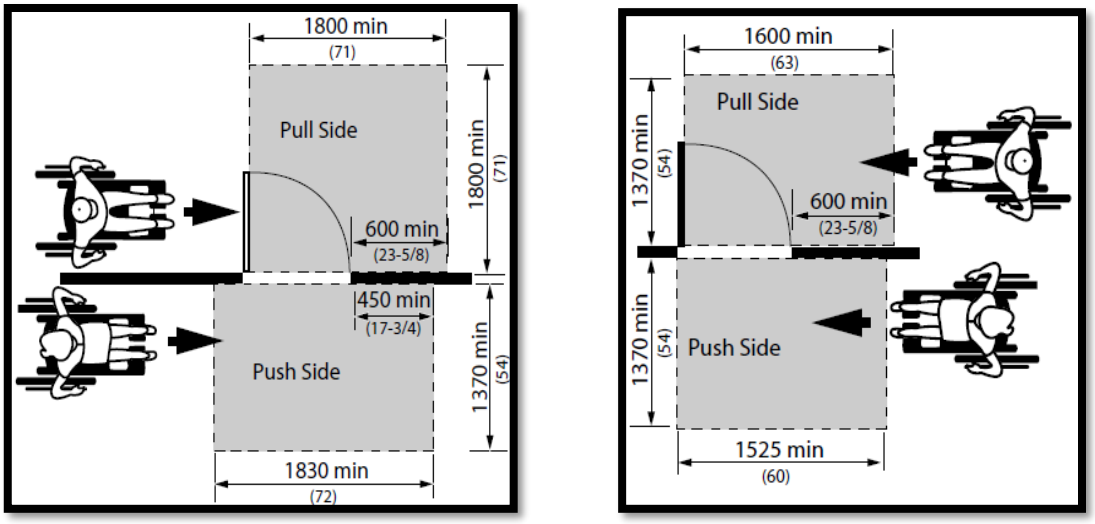


Figure 2.7.2 Hinge Side Approach at Hinged Doors; and
Figure 2.7.3 Latch Side Approach at Hinged Doors

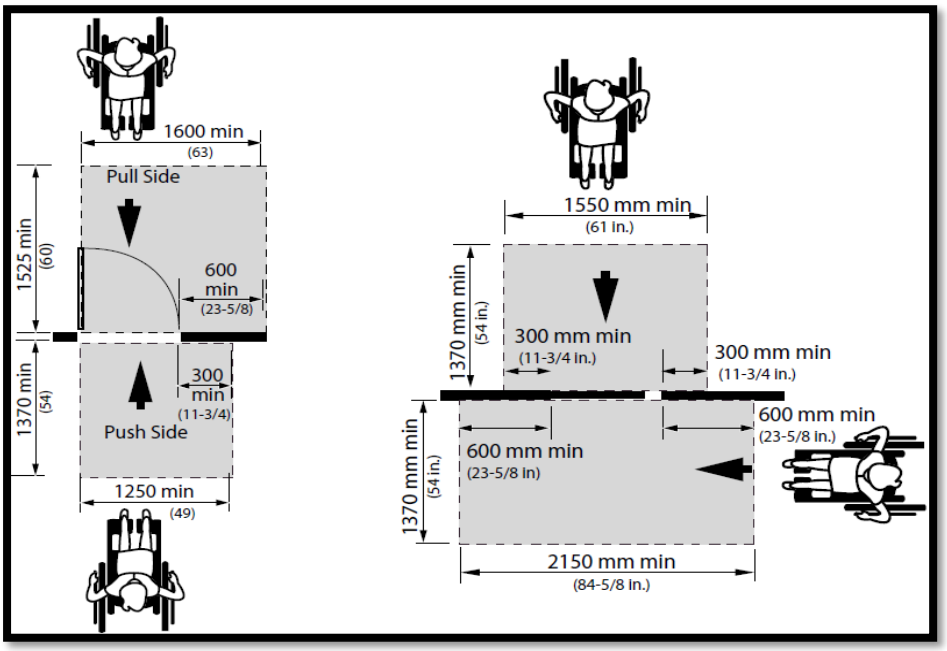
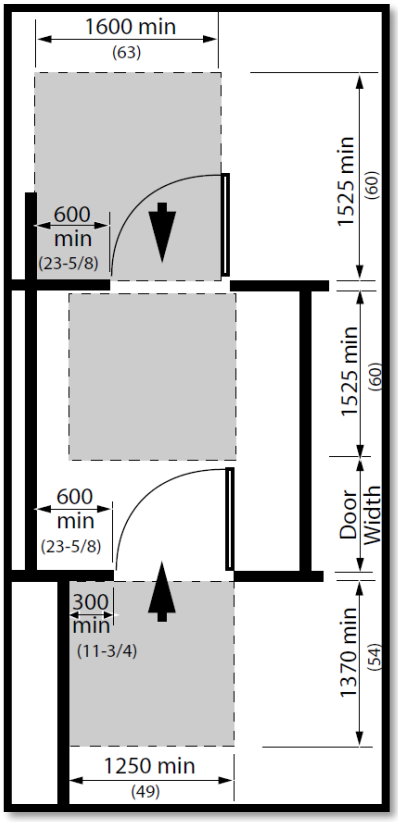


Figure 2.7.4 Front Approach at Hinged Doors; and
Figure 2.7.5 Front and Side Approach at Sliding Doors



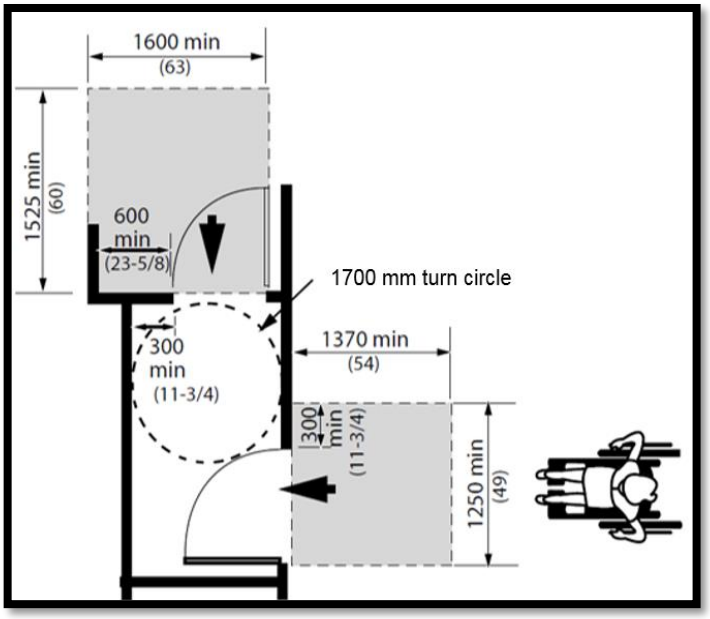


Figure 2.7.6 Manoeuvering Space at Doors in Series; and
Figure 2.7.7 Manoeuvering Space at Doors in Series

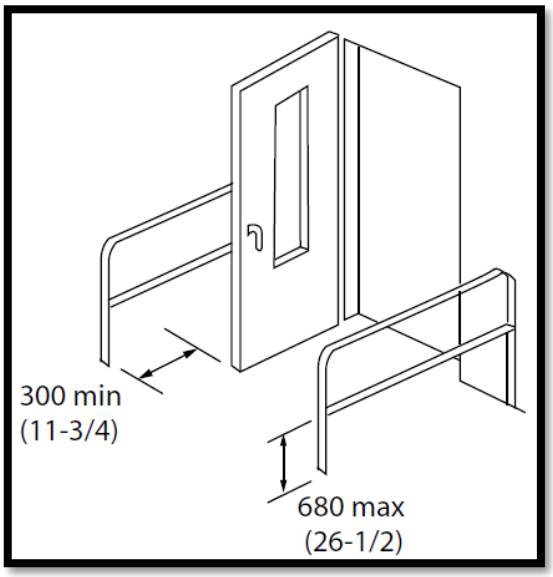
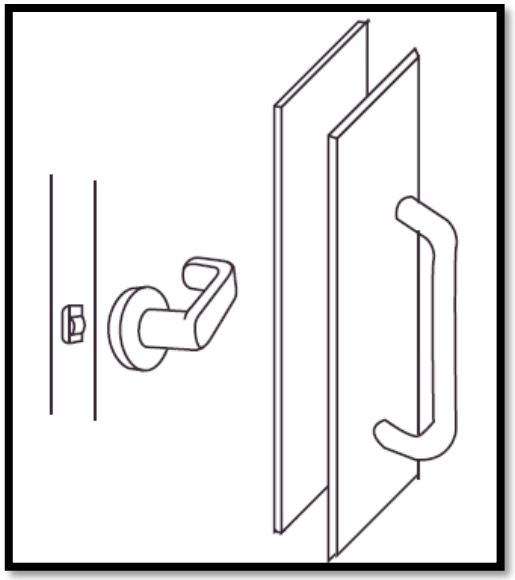


Figure 2.7.8 Detectable Safety Guards



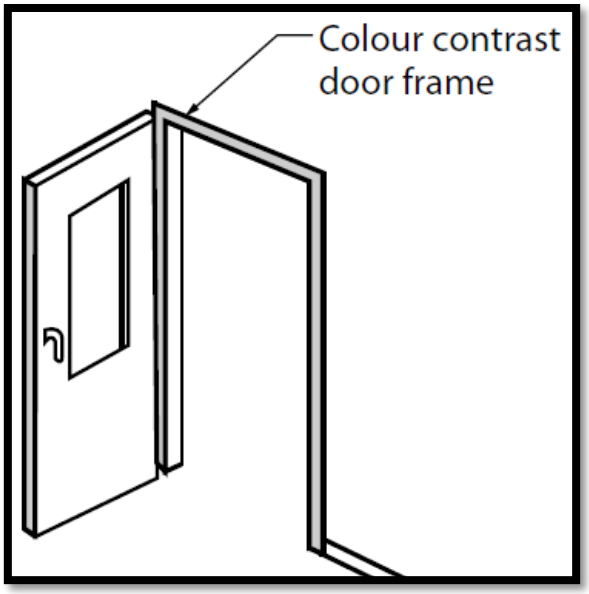


Figure 2.7.9 Examples of Accessible Hardware; and

Figure 2.7.10 Colour Contrast at Doors

2.8 Gates, Turnstiles and Openings

Rationale

Gates and turnstiles should address the full range of users that may pass through them. Single-bar gates designed to be at a convenient waist height for ambulatory persons are at neck and face height for children and chest height for persons who use wheelchairs or scooters.

Revolving turnstiles are a physical impossibility for a person in a wheelchair to negotiate. They are also difficult for persons using canes or crutches, or persons with poor balance. An adjacent opening of an accessible width is essential for wheelchair access, as well as access for those using other mobility devices, strollers, walkers or delivery carts.

Application

Gates, turnstiles and openings shall comply with this section.

Design Requirements

2.8.1 Gates and Openings

Where gates or openings are provided through fences or screens to public use areas, such openings shall be accessible (i.e., a minimum of 950 mm wide, to allow free passage for persons who use a wheelchair or scooter. (Note: Hardware should be suitable for autonomous use, and any closing device should not be spring-loaded).

Where gates are incorporated into a chain-link fencing system, the poles at either side of the gate shall incorporate a pronounced colour contrast from the fence and the surrounding environment.

Where gates are activated with a card reader for access, the card reader shall conform to 6.4.

2.8.2 Turnstiles

Turnstiles shall incorporate a pronounced colour contrast to differentiate them from the surrounding environment.

Where turnstiles or other ticketing control devices are utilized which are not accessible, a gate or opening which is accessible shall be provided in the same location and shall incorporate the International Symbol of Access for Persons with Disabilities. See Figures 2.8.2.a and 2.8.2.b.

Where turnstiles are activated with a card reader for access, the card reader shall conform to 6.4.

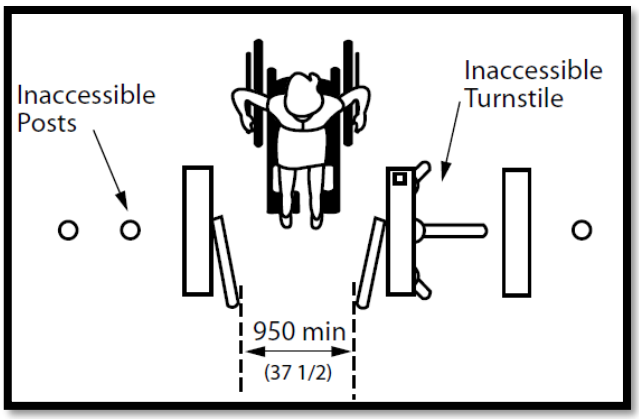


Figure 2.8.2.a Access at Turnstile

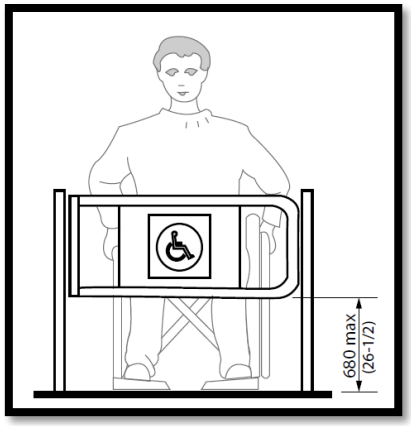


Figure 2.8.2.b Access at Turnstile

2.9 Windows, Glazed Screens and Sidelights

Rationale

Broad expanses of glazing in screens, sidelights and doors can be difficult to detect. While this may be a particular concern to persons with a visual impairment, it is possible for anyone to walk into a clear sheet of glazing especially if they are distracted or in a hurry.

Persons who use wheelchairs or scooters experience the facility from a seated position thereby lowering their eye level and reach range. This necessitates the need for lower sill heights and easily reached operating mechanisms. Window controls and operating devices should also respect the limitations of hand strength or dexterity encountered with different types of disabilities, including arthritis.

Application

Windows, glazed screens, fully-glazed sidelights, fully-glazed doors and vision panels in doors shall comply with this section.

Design Requirements

2.9.1 Fully-Glazed Doors and Sidelights

Fully-glazed doors and sidelights at exterior entrances or vestibules, as well as fully-glazed interior doors, screens and sidelights shall

- be clearly identified with a horizontal row of decals, or a continuous stripe that is colour and brightness contrasted to the background of the door;
- extend the full width of the glazed area;
- be minimum 50 mm wide, and
- be mounted with its centre line between 1350 mm and 1500 mm from the floor or ground, as per Figure 2.9.1.

Where decals are used, they shall

- be located at a maximum of 150 mm from centre to centre; and
- be 50 mm square or round, and/or of a special design (e.g., a logo) provided the solid portion of the decals provides a high colour contrast and is easy to identify by persons with a visual impairment.

Where etched or patterned glass is used, decals or stripes of a highly contrasting colour shall still be provided.

Frameless glass doors and sidelights shall require the addition of decals or stripes of a highly contrasting colour.

2.9.2 Viewing Windows and Vision Panels

Where viewing windows and/or vision panels are provided,

- the sill height shall be no more than 760 mm from the floor, as per Figure 2.9.2;
- where horizontal mullions are incorporated, the mullions shall not be located between 900 mm and 1300 mm above the finished floor.

2.9.3 Operable Windows

In facilities with operable windows, window opening hardware shall

- be mounted between 400 mm and 1200 mm from the floor;
- be operable using one hand; and
- not require fine finger control, tight grasping, pinching, or twisting of the wrist to operate.

2.9.4 Window Coverings

Where required, window blinds shall provide 1%, 3% fabric shade opening and/or blackout blind combinations. For individual residence rooms they shall have a blackout drapery (accessible rooms may require motorized drapery hardware).

Larger expanses of glass may require an electronic control from teacher podium or atrium space, as required. Blinds shall be in the mid-colour palette beige to grey range (no white as this has “snow blindness” effect with full sun on the shade and, and no black as this can cause heat build-up and impact temperature/HVAC performance).

Window coverings shall be operated with controls that comply with 6.1.

2.9.5 One-way Glazing

Where one-way glazing is used, it shall comply with this section for the transparent side of the glazing. If counters or work surfaces are located in front of the one-way glazing, they shall comply with 4.3. If the reflective side of one-way glazing is full height, it shall not be installed where it would reflect the route of travel.

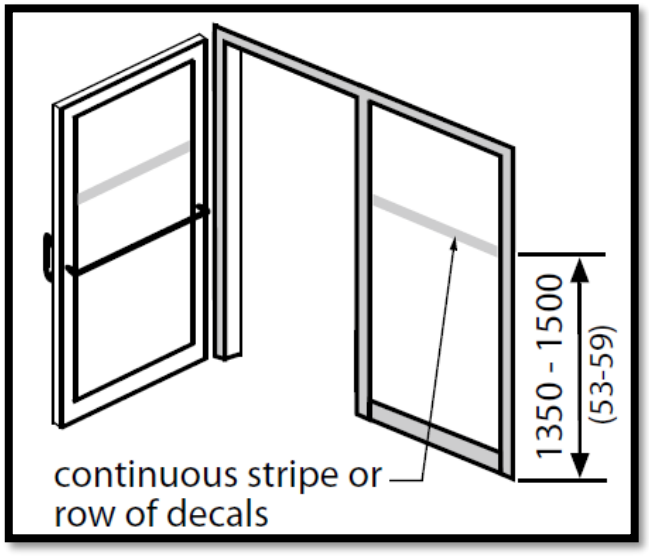


Figure 2.9.1 Fully Glazed Doors, Sidelights and Vision Panel Markings

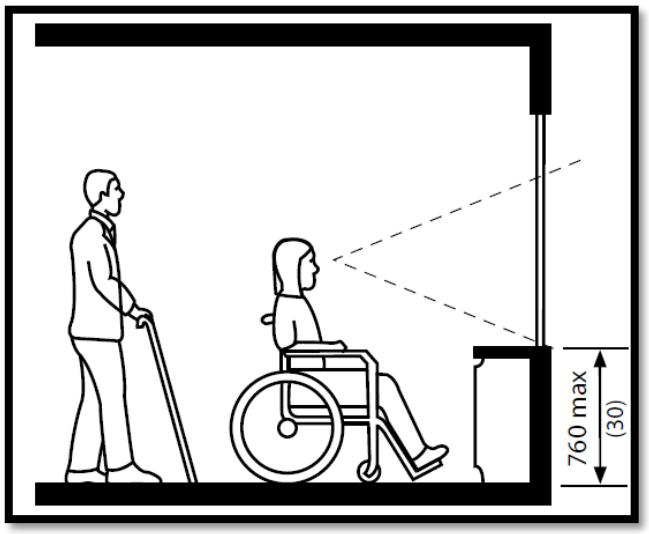


Figure 2.9.2 Window Sill Height

2.10 Ramps

Rationale

Traditionally, ramps have been synonymous with wheelchair accessibility. However, ramps can be problematic in providing accessibility. Ramps can be difficult and dangerous to negotiate. Also, the physical space required for ramps makes them cumbersome to integrate into a facility. However, where a change in level already exists or cannot be avoided, a properly designed ramp can provide access for those using wheelchairs or scooters, pushing strollers or moving packages on a trolley.

The design of the ramp is critical to its usefulness and safety. A steeply inclined ramp is difficult to ascend when using a wheelchair, and can increase the risk of the wheelchair tipping backwards. Descending a steep ramp can also be hazardous. Any cross slope will further increase the effort required to negotiate the ramp. Manoeuvring space at the top and bottom are also important factors in a ramps usability. Level areas at points along a long ramp enable an individual to rest.

Textured surfaces, edge protection and handrails all provide important safety features. Heated surfaces are recommended to address the safety concerns associated with snow and ice.

Application

Any part of an accessible route with a slope steeper than 1:20 shall be considered a ramp and shall comply with this section.

Design Requirements

2.10.1 General Requirements

Accessible ramps shall be on an accessible route complying with 2.5.

The running slope of ramps shall be between 1:15 and 1:20. In a retrofit situation where it is technically infeasible to provide a ramp with a running slope between 1:15 and 1:20, a running slope not steeper than 1:12 may be used. Shallower slopes are preferred.

The maximum cross slope of ramp surfaces shall be 1:50.

Ramps shall have level landings at the top and bottom of each run and also where the ramp changes direction.

A colour contrasting strip 50 mm in width shall be located at the top and bottom of the running slope of any ramp.

The maximum horizontal length between landings shall not exceed 9 m.

Ramp and landing surfaces shall be firm, stable, and slip-resistant.

Outdoor ramps and their approaches shall be designed so that water will not accumulate on walking surfaces.

Designated areas for snow piling to be provided at exterior ramps, located away from pedestrian routes.

2.10.2 Landings

Landings shall

- be at least as wide as the widest ramp run leading to it;
- have a minimum size not less than 2500 x 2500 mm if located at the top or bottom of a ramp or if served by a doorway. (In a retrofit situation where creating a suitably sized landing is technically infeasible, the required landing size may be reduced to 1670 x 1670 mm);
- where an intermediate landing at the switchback of a U-shaped ramp, (Refer to Figure 2.10.5), have a length not less than 1670 mm and a width not less than 2500 mm. In a retrofit situation where creating a suitably sized landing is technically infeasible, the required landing width may be reduced to 2120 mm;
- where there is a change of 90 degrees or more in the direction of the ramp, have a length not less than 1670 mm and a width no less than the width of the ramp;
- where an intermediate landing at a straight ramp (Refer to Figure 2.10.5), have a length not less than 1670 mm.

2.10.3 Edges

Edge protection shall be provided at ramps and consist of

- a curb at least 75 mm high on any side of the ramp where no solid enclosure or guard is provided; and
- railings or other barriers that extend to within 50 mm of the finished ramp, or have a curb not less than 75 mm high.

Edges of ramps and landings shall be protected with a wall or guard on all sides.

Where a guard is provided, it shall comply with the requirements of the Ontario Building Code.

2.10.4 Handrails

A ramp shall have handrails which:

- are on both sides;
- comply with 2.12;
- are continuous on the inside of switchback (U-shaped) or L-shaped ramps;

- extend horizontally at least 300 mm beyond the top and bottom of the ramp and return to the wall, floor, or post;
- measure between 865 mm and 920 mm from the ramp surface to the top of the handrail;
- have a width between at least one set of handrails of 950 - 1100 mm;
- where ramps are greater than 2200 mm wide, one or more intermediate handrails which are continuous between landings must be provided, and located so that there is 900 mm between at least one (1) set of handrails.

Exception: Where a ramp serves as an aisle way for fixed seating, the requirement for ramp handrails does not apply.

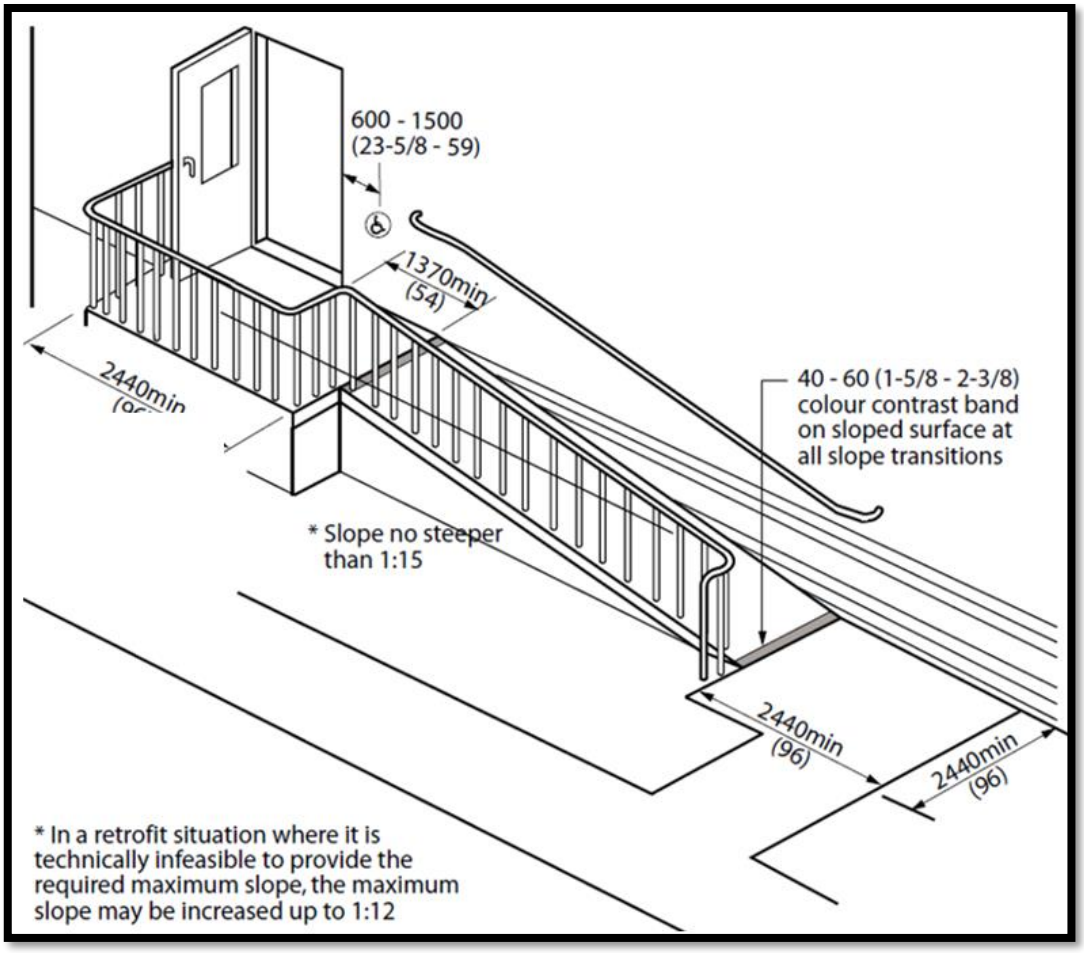


Figure 2.10.2 Ramp Criteria (Under Development)

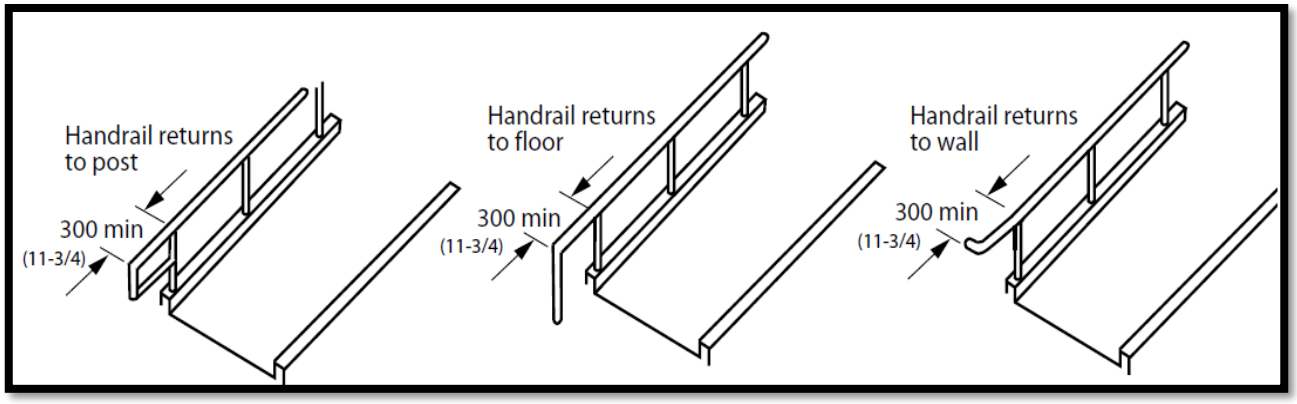


Figure 2.10.3 Horizontal Handrail Extensions

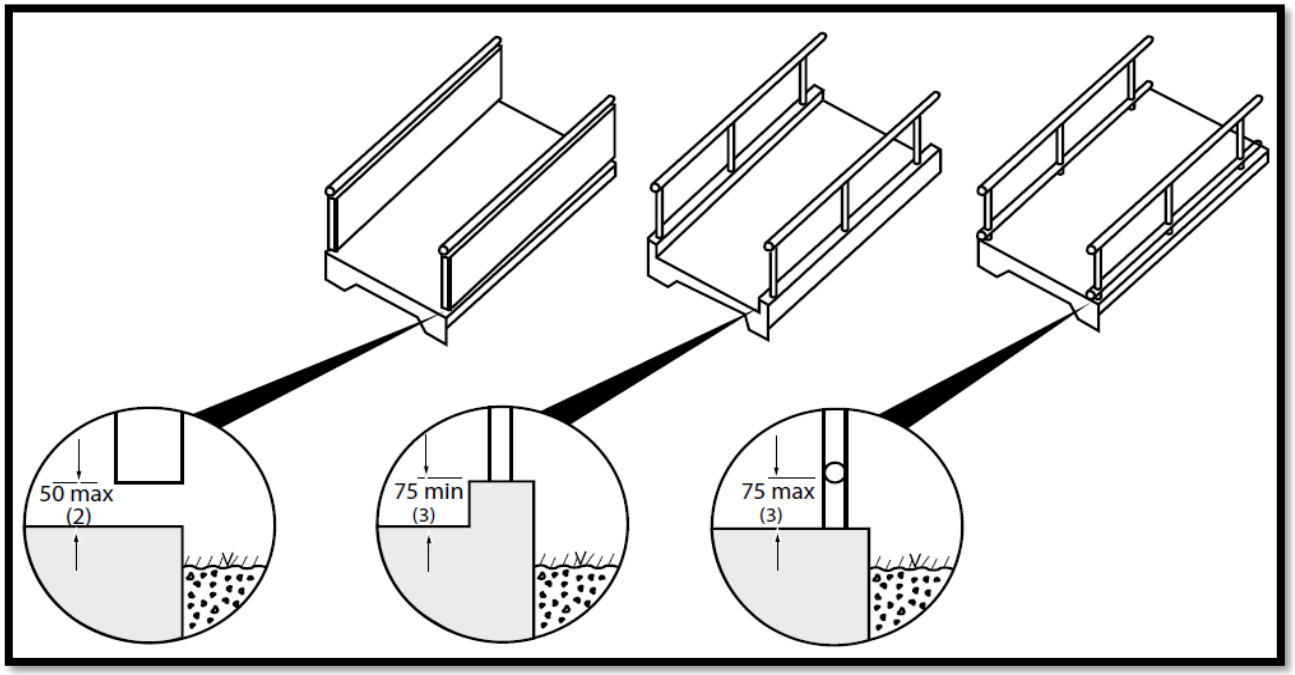


Figure 2.10.4 Edge Protection at Ramps

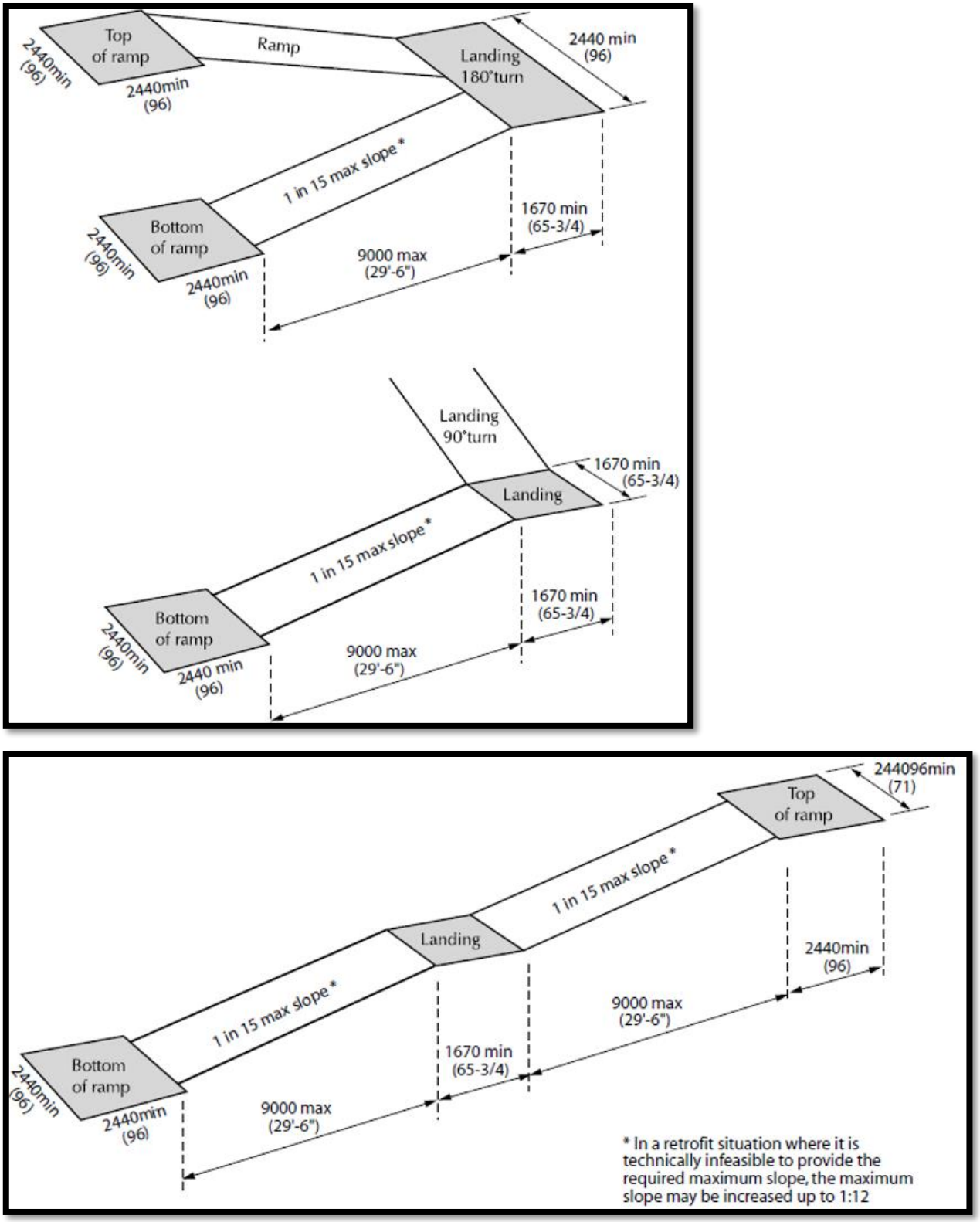


Figure 2.10.5 Minimum Ramp Landing Dimensions (Under Development)

2.11 Stairs

Rationale

Stairs that are comfortable for many adults may be challenging for children, seniors or persons of short stature. Poorly designed nosings can present tripping hazards, particularly to persons with prosthetic devices or those using canes. Cues to warn a person with a visual impairment of an upcoming set of stairs are vitally important.

The appropriate application of handrails will aid all users navigating stairways.

Application

Interior and exterior stairs shall comply with this section. In a retrofit situation:

- stairs need not comply if they connect levels that are accessible by an elevator, ramp or other accessible means of vertical access;
- dimensional changes to steps and landings are not required however all other design requirements must be met.

Design Requirements

2.11.1 Flight of Stairs

A flight of stairs shall:

- have uniform riser heights (rise) and uniform tread depths (run);
- have a rise not more than 180 mm and not less than 125 mm high, as per Figure 2.11.1.a;
- have a run not more than 355 mm and not less than 280 mm deep, measured from riser to riser;
- have slip resistant tread surfaces; and
- have no open risers.
- Where internal stairwells (including fire-rated stairwells) are used as part of the internal circulation of the building, the minimum width shall be 1525 mm to reduce congestion, as per Figure 2.11.1.b.

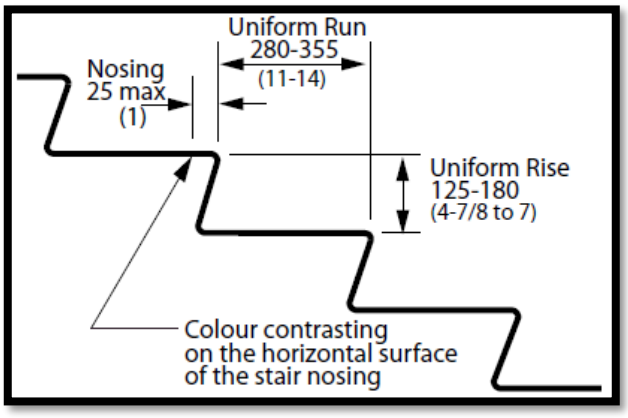


Figure 2.11.1.a Stair Tread Criteria

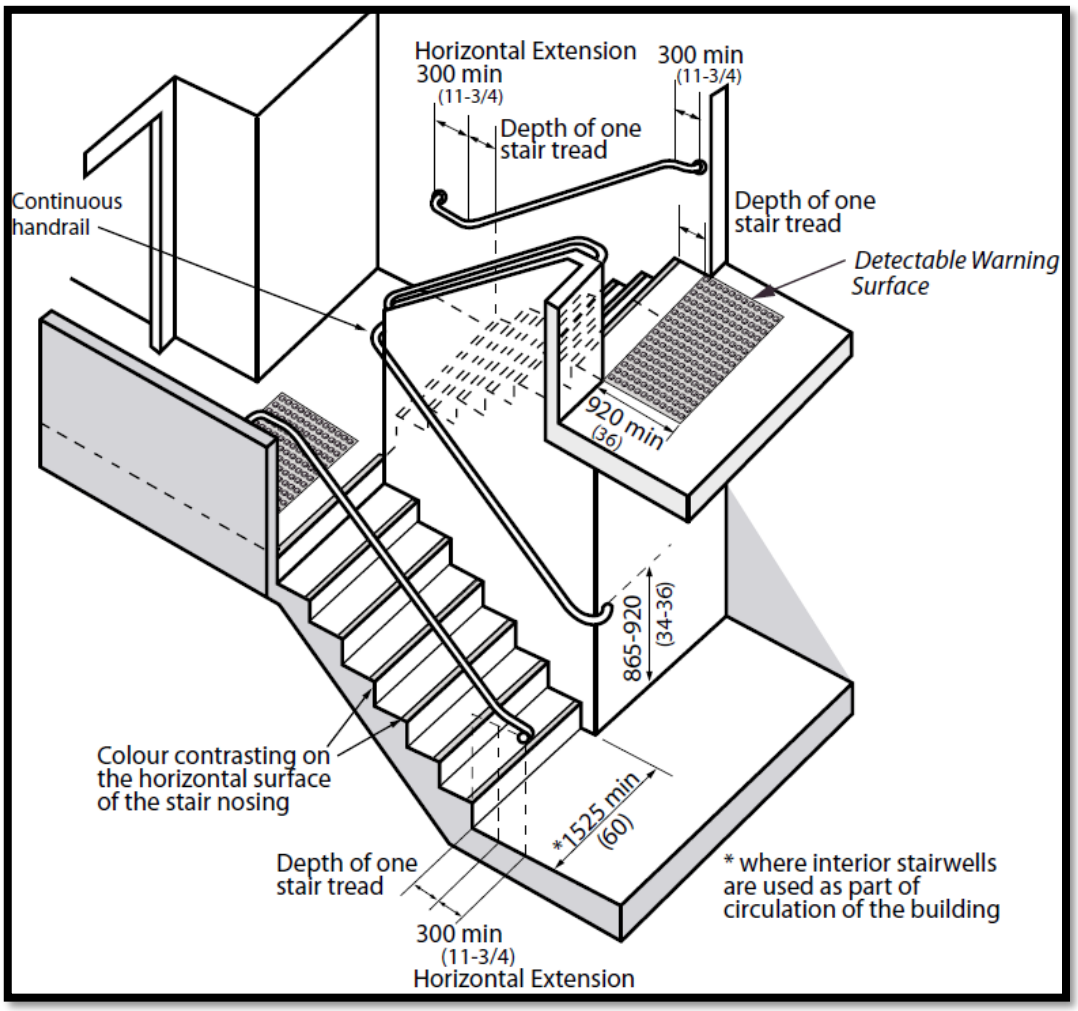


Figure 2.11.1.b Stair Design Criteria

2.11.2 Nosings

Nosings shall

- project not more than 25 mm as per Figure 2.11.1.a;
- have no abrupt undersides;
- have a curved or bevelled leading tread edge of between 6 mm and 10 mm;
- where projecting, be sloped to the riser at an angle not less than 60 degrees to the horizontal, as per Figure 2.11.2;
- be illuminated to a level of at least 100 lux (9.2 ft-candles) at interior stairs and at least 50 lux at exterior stairs;
- be slip-resistant; and
- have the horizontal surface of the stair nosing in high tonal / colour contrast that extend the full tread-width of each step. Better practice: use a difference of at least 70% between the light reflectance value of the nosing surface and the adjacent tread surface.

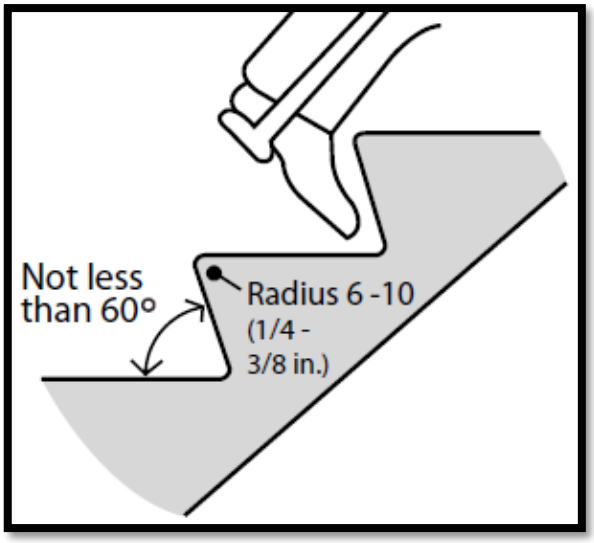


Figure 2.11.2 Raked Riser

2.11.3 Surfaces

Stairs shall incorporate Tactile Walking Surface Indicators in compliance with 2.3.

Strong patterned carpet shall not be used on stairs as they can cause perceptual problems and obscure the definition of the treads.

For interior stairwells, consider the use of photo-luminescent products for stair nosing, wall base and handrail covers which will be charged while lights are on, and then will glow in the dark during a power failure to assist with evacuation.

2.11.4 Handrails

Handrails for stairs shall

- comply with 2.12;
- be installed on both sides;
- be of uniform height, ranging between 865 mm and 920 mm above the stair nosing;
- have a continuous inside handrail on switchback stairs;
- be continuously graspable along the entire length;
- extend at the bottom of the stairs for a distance of one tread depth beyond the first riser, then horizontally not less than 300 mm, at a height ranging between 865 mm and 920 mm above the floor;
- extend horizontally at the top of the stairs not less than 300 mm, at a height ranging between 865 mm and 920 mm above the floor;
- return to the wall, or post in a manner that will not obstruct pedestrian travel or create a hazard.

Where exterior stairs are greater than 2200 mm wide, one or more intermediate handrails which are continuous between landings must be provided, and located so that there is no more than 1650 mm between of handrails.

Designated areas for snow piling to be provided at exterior stairs, located away from pedestrian routes.

2.11.5 Guards

Guards shall

- be provided on each side of a stairway where the difference in elevation between ground level and the top of the stair is more than 600 mm;
    - Exception: guards are not required where there is an adjacent wall or other barrier on that side.
- be a minimum of 920 mm high, measured vertically to the top of the guard from a line drawn through the outside edges of the stair nosings; and
- be a minimum of 1070 mm high around landings.

2.12 Handrails

Rationale

In the design of handrails, consideration must be given to the range of hands that will grasp them. A handrail profile should be graspable for an adult hand as well as a child or a person with arthritis. The same is true for the heights of handrails.

Extensions of the handrails at the top and bottom of stairs, along with the use of a contrasting colour, provide important cues for a person with a visual impairment, and provide a support to ensure a safe and stable gait before ascending or descending the stairs. A continuous handrail with no interruptions ensures that a handhold will not be broken.

The clear space between the wall and handrail is also essential, as it must provide a clear area for the hand and knuckles but must not offer enough space into which an arm may slip during a fall or a stumble on the stairs.

Application

Handrails shall comply with this section.

Design Requirements

2.12.1 Handrail Criteria

Handrails shall

- be mounted 865 - 920 mm high, measured vertically from a line drawn through the outer edges of the stair nosings or from the surface of a ramp, as per Figure 2.12.1.a;
- have a circular section 30-40 mm in diameter or any non-circular shape that is not square or rectangular, with a graspable portion that has a perimeter not less than 100 mm and not more than 125 mm whose largest cross-sectional dimension is not more than 45 mm;
- be free of any sharp or abrasive elements;
- be terminated in a manner that will not obstruct pedestrian travel or create a hazard;
- have continuous gripping surfaces, without interruption by newel posts, other construction elements, or obstructions that can break a handhold; and
- have a clear space between the handrail and the wall or guard of
- at least 50 mm; or
- at least 60 mm where the wall has a rough surface, as per Figure 2.12.1.b.

A recess containing a handrail shall extend at least 450 mm above the top of the rail, as per Figure 2.12.c.

Handrails and their supports shall be designed and constructed to withstand the loading values obtained from the non-concurrent application of

- a concentrated load of not less than 0.9 kN (200 lb.) applied at any point and in any direction;
- a uniform load of not less than 0.7 kN/m (47 lb./ft.) applied in any direction to the handrail.

Handrails shall incorporate a pronounced colour contrast, to differentiate them from the surrounding environment.

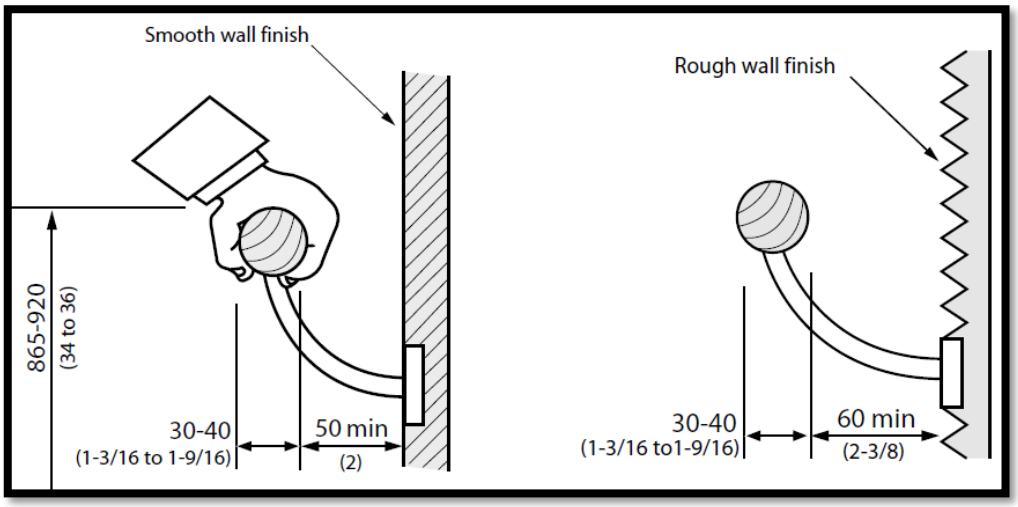


Figure 2.12.1.a Handrail

Figure 2.12.1.b Handrail at Rough Wall

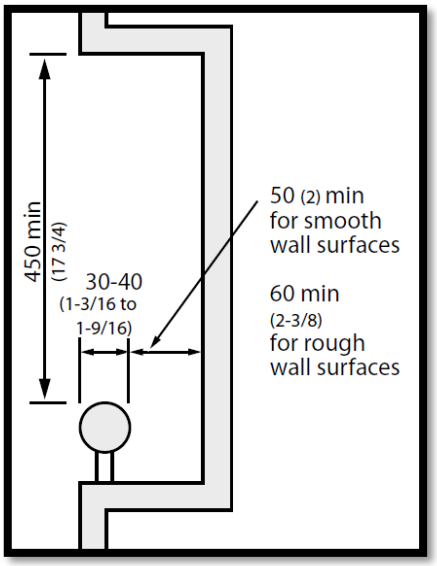


Figure 2.12.1.c Handrail in Recess

2.13 Escalators

Note: As escalators are not mobility-aid accessible, the university preference is to use a combination of stairs with an elevator. Should an escalator receive consideration to be included, refer to the requirements listed below.

Rationale

Boarding and stepping off of an escalator can be challenging for many persons who could have difficulty with the timing or agility. In addition, any lack of contrast on the edge of steps makes it difficult to determine the position of the steps or judge their speed. Detectable warning surfaces extending in front of the escalator provide warning to any pedestrian, especially someone with a visual impairment. Contrasting colour strips on stair edges are also necessary.

Application

Escalators shall comply with this section.

Where escalators are provided, an alternate accessible route shall also be provided in the same vicinity as the escalator.

Design Requirements

2.13.1 Escalator Criteria

Escalators shall comply with ASME A17.1/CSA B44 Safety Code for Elevators and Escalators (Latest Edition)

Note; CNIB's "Clearing Our Path" indicates that TWSIs should not be added to the top and bottom locations at an escalator, as they can run in reverse and can cause bottlenecks. Consider instead a direction indicator away from, or around the escalator, to the elevator or alternate stairs.

The surface of escalator treads shall be non-slip, in a matte finish, to minimize reflected glare.

The surface comb plate (the surface closest to the escalator as you step on or off) shall be marked with a bright colour contrasting strip that runs the width of the step and is a maximum depth of 50 mm.

Lighting over escalators shall be a minimum of 200 lux (18.4 ft-candles), evenly distributed, from a low-glare light source.

Directional signage shall be provided to the alternative accessible route where the location of the route is not obvious.

2.14 Elevators

Rationale

The buttons used on elevators need to address a range of functional issues, including reach, dexterity and visual impairments, as discussed in in 6.1 and 9.2. More specific to elevators is the need to provide audible cues for individuals with a visual impairment to identify different floor levels, as well as the direction of travel. These are, in fact, of benefit to anyone who uses the elevator. Adequate door-closing delays provide individuals using mobility devices additional time to reach, enter or exit the elevator car. The installation of a mirror can assist individuals using mobility devices to back out of an elevator where there is not sufficient space to turn around.

Application

Two identical in size passenger elevators complying with this section shall be included in each new building and major renovation of a building, and each elevator shall serve each level, including mezzanines, in all multi-storey facilities, unless exempted below. If more than one elevator is provided, each passenger elevator shall comply with this section.

Note: Retrofit in existing buildings may not allow for the increased cab size in the existing elevator shaft, so the largest accessible passenger elevator shall be provided (refer to Appendix C – Technical Infeasibility Form).

Freight elevators shall not be required to meet the requirements of this section, unless the only elevators provided are used as combination passenger and freight elevators for use by the public and employees.

Elevator access is not required:

- in elevator pits, elevator penthouses, mechanical rooms, piping or equipment catwalks;
- when accessible ramps in compliance with 2.10 are used in lieu of an elevator;
- to levels of fire halls and ambulance stations not served by grade-level entry, which do not contain public use facilities; and
- when platform lifts (wheelchair lifts) in compliance with 6.9 Assistive Listening Systems and applicable Provincial Codes are used in lieu of an elevator, only under the following conditions:
    - to provide an accessible route to a performing area in an assembly occupancy;
    - to comply with wheelchair viewing position line-of-sight and dispersion requirements of 4.9;
    - to provide access to incidental occupied spaces and rooms that are not open to the general public and which house no more than five persons, including, but not limited to, equipment control rooms and projection booths; and

- to provide access to raised judges' benches, clerks' stations, speakers' platforms, jury boxes and witness stands or to depressed areas, such as the well of a court.

Design Requirements

2.14.1 General Requirements

Elevators shall comply with ASME A17.1/CSA B44 Safety Code for Elevators and Escalators (Latest Edition). Refer also to Appendix E in this Safety Code.

Accessible elevators shall be on an accessible route in compliance with 2.5.

Elevators shall be automatic and be provided with a two-way automatic-levelling device to maintain the floor level to ± 13 mm.

Where an elevator serves only two floors, it shall be programmed to move automatically, without the need to activate in-car control buttons.

2.14.2 Doors

Power-operated horizontally sliding car and landing doors opened and closed by automatic means shall be provided.

The clear width for elevator doors shall be minimum 1065 mm. In a retrofit situation where it is technically infeasible to provide a clear width of 1065 mm, the clear elevator door width may be reduced to 900 mm.

Doors shall be provided with a door re-opening device that will function to stop and reopen the car door and an adjacent hoist way door to minimum 1065 mm, in the event the car door is obstructed while closing. This re-opening device shall also be capable of sensing an object or person in the path of a closing door at a nominal 125 ± 25 mm and 735 ± 25 mm above the floor without requiring contact for activation.

Elevator doors should remain fully open for minimum 8 seconds. This time may be reduced by operation of the door-close button.

2.14.3 Car Dimensions

The minimum distance between the walls or between wall and door, excluding return panels, shall not be less than 2030 mm deep x 1525 mm wide. Exception: In a retrofit situation where it is technically infeasible to install an appropriately sized elevator, a LU/LA (Limited Use/ Limited Application) elevating device with a platform length of at least 1525 mm, may be used.

Handrails shall be provided on all non-access walls at a height of 800 to 920 mm with a space of 40 to 45 mm between the rails and wall.

2.14.4 Controls and Buttons

Car controls shall be readily accessible from a wheelchair upon entering an elevator. Floor register buttons in elevator cabs shall

- be a minimum 19 mm in size and may be raised, flush or recessed. The depth of flush or recessed buttons when they are being operated shall not exceed 10 mm; and
- be provided with visual and momentary audible indicators to show when each call is registered. The visual indicators shall be extinguished when each call is answered.

Button collars to be raised no less than 1.5 mm above the surface of the control button.

All car control buttons shall be designated by uncontracted braille characters and by raised standard alphabet characters for letters, Arabic characters for numbers, and standard symbols. Markings shall be a minimum of 16 mm high and raised a minimum of 0.75 mm, placed immediately to the left of the buttons to which they apply.

Exception: Where the call buttons are mechanical, the raised markings may be on the buttons.

Emergency car controls and door-operating buttons shall be grouped together at the bottom of the control panel. The centre line of the alarm button and the emergency stop switch shall be not less than 890 mm above the floor. The centre line of the highest floor button shall be no higher than 1200 mm above the floor. Other controls may be located where it is convenient.

The centre line of hall call buttons shall be 920 ± 25 mm above the floor. Buttons shall be a minimum of 20 mm in size, mounted one above the other.

An indicator shall be provided in the car to show the position of the car in the hoist way, by illuminating the indicator corresponding to the landing at which the car is stopped or passing. Indication characters shall be on a contrasting colour background and a minimum of 16 mm high.

Hall visual indication shall be provided to show each call that is registered and that is extinguished when the call is answered.

As the car stops at a floor, the floor and direction of travel shall be announced using voice-annunciation technology.

Hall or in-car lanterns shall be provided. The centre line of the fixture shall be a minimum of 1830 mm above the floor. An audible signal shall be provided when the elevator stops at the landing. Visual elements shall be a minimum of 60 mm in the smallest direction.

2.14.5 Signage

- Accessible elevators shall be identified by signage in compliance with applicable provisions of 6.11.

All elevator hoist way entrances shall have raised Arabic numerals and braille floor designations provided on both jambs. The characters shall be a minimum of 50 mm high and at least 0.75 mm shall be placed on both sides of the door jambs, with the centreline at 1500 ± 25 mm from the floor.

2.14.6 Emergency Call System

Elevators shall be linked by an emergency call system to a monitored location within the facility with two-way communication ability. The highest operable portion of the 2-way communication system shall be a maximum of 1200 mm above the floor of the car. It shall be identified by a raised symbol and lettering located adjacent to the device. The symbol shall be a minimum of 38 mm high and raised a minimum of 0.75 mm. (Permanently attached plates are acceptable). If the system uses a handset, then the length of the cord from the panel to the handset shall be minimum 735 mm.

Additionally, the handset shall be equipped with a receiver that generates a magnetic field in the area of the receiver cap, and the handset shall have a volume control and shall comply with **CSA Standard T515 -Telecommunications - Telephone Terminal Equipment - Acoustic and Magnetic Field Requirements for Handset Telephones for Use by the Hard of Hearing (Latest Edition).**

If the system is located in a closed compartment, the compartment door and hardware shall conform to 6.1. The emergency intercommunication system shall not require voice communication.

2.14.7 Lighting

Lighting in elevator cabs shall be minimum 100 lux (9.2 ft-candles), measured at the floor level and at the same lighting level as the adjacent lobby space.

The illumination at the car controls and landing sill shall be not less than 100 lux (10 ft-candles).

2.14.8 Mirrors

Mirrors shall not be used below a height of 2000 mm within elevator cabs as a finish material on the wall opposite the door.

Where the dimension of elevator cabs is less than 1500 mm in any direction, an angled mirror shall be provided above a height of 2000 mm on the wall opposite the door, to assist persons who use wheelchairs to back out.

2.14.9 Finishes

Floor finishes within elevator cabs shall comply with 2.2, 9.1 and 9.2.

Floors of elevator cabs shall have a firm and slip-resistant surface that permits easy movement of wheelchairs or scooters.

Elevator doors shall incorporate pronounced colour contrast, to differentiate them from the surrounding environment.

There shall be a pronounced colour contrast between the car sill and the facility floor.

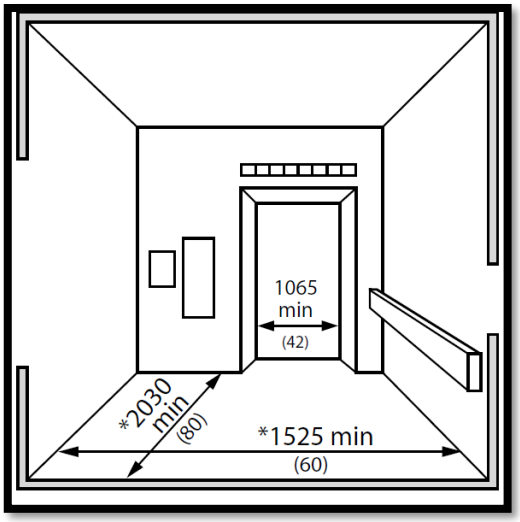


Figure 2.14.1 Elevator Cab

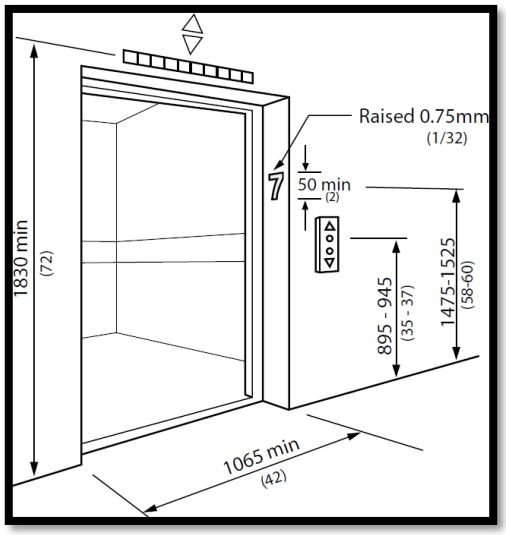


Figure 2.14.2 Elevator Entry

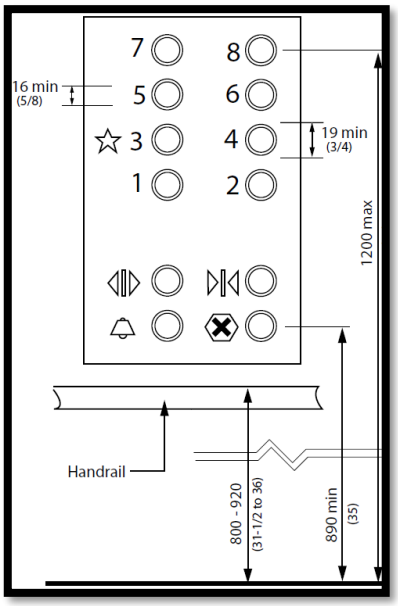


Figure 2.14.3 Control Panel

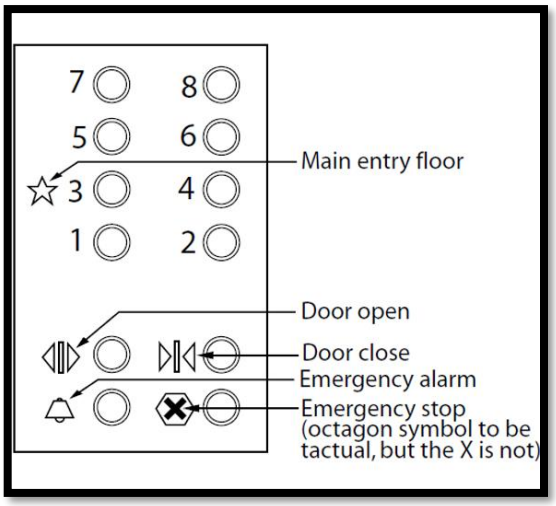


Figure 2.14.4 Tactile Symbols

2.15 Platform Lifts

Rationale

Platform lifts are typical in retrofit applications. Elevators that are used by all facility users are preferred to platform lifts which tend to segregate persons with disabilities and limit space at entrance and stair locations. Furthermore, independent access is often compromised, as platform lifts are often controlled by key operation. Whenever possible, grading or integrated elevator access should be incorporated to avoid the use of lifts.

If there are no suitable alternatives, lifts must be selected to permit the spatial requirement of larger mobility devices such as scooters.

Application

Accessible platform lifts shall comply with this section.

Platform lifts may only be used in lieu of an elevator or ramp where allowable under 2.14.

Exception: Where it is technically infeasible to install an elevator, LU/LA (Limited Use/Limited Application) elevating device, or other accessible means of change of level.

Design Requirements

2.15.1 Platform Lifts

Platform Lifts shall comply with CAN/CSA B355 Lifts for Persons with Physical Disabilities (Latest Edition)

Accessible platform lifts shall

- be on an accessible route complying with 2.5;
- be identified with signage complying with applicable provisions of 6.11;
- facilitate unassisted entry, operation, and exit from the lift;
- Push button power-assisted doors at each end;
- Hands-free emergency call button within the cab to call for assistance; and
- Large push buttons with braille.

Signage complying with 6.11 shall be affixed to the lift stating “For Mobility Aids Only. No cargo or freight allowed.”

The platform size shall be no less than 890 mm x 1525 mm.

The platform shall incorporate safety wheel-guards along all exposed edges.

The doors to the platform lift shall comply with 2.7.

Controls and operating mechanisms shall comply with 6.1.

Platform lifts shall be linked by an emergency call system to a monitored location within the facility or to the Queen's Emergency Response Centre, with two-way communication ability.

Two-way communication systems shall be located on the lift itself, as well as at the top and bottom landing of the lift. The highest operable portion of the two-way communication system shall be a maximum of 1200 mm from the floor of the platform. If the system uses a handset, then the length of the cord from the panel to the handset shall be at least 735 mm. If the system is located in a closed compartment, the compartment door and hardware shall conform to 6.1.

Floor finishes within platform lifts shall comply with 2.2, 9.1 and 9.2.

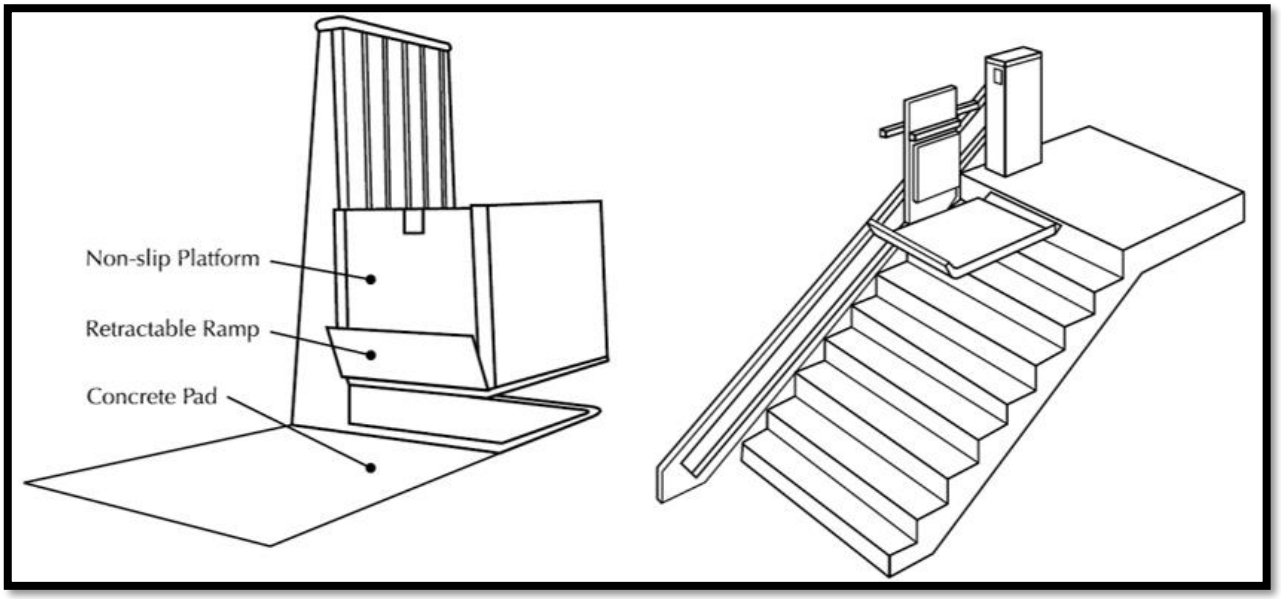


Figure 2.15.1 Vertical Platform Lift

Figure 2.15.2 Inclined Platform Lift

2.16 Elevated Platforms

Rationale

Elevated platforms, such as stage areas, speaker podiums, etc., should be accessible to all. A marked accessible route should be provided, along with safety features to assist persons who are visually impaired.

Application

Elevated platforms provided for use by the general public, clients, customers or employees shall comply with this section.

Design Requirements

2.16.1 Elevated Platform Criteria

Elevated platforms shall

- be located on an accessible route that complies with 2.5;
- be capable of being illuminated to at least 100 lux (9.3 ft-candles) at floor level at the darkest point;
- be sized to safely accommodate wheelchairs and other mobility equipment in compliance with 2.1; and
- where more than 250 mm above the ground or floor surface and not protected by a guard, have a flat-topped domes or cones detectable warning surface, as per Figure 2.16.1.

Exception: Front edges of stages.

The Tactile Walking Surface Indicators on elevated platforms shall

- have consist of flat-topped domes or cones in compliance with 2.3;
- be positioned parallel to the open platform edge, extending the full length of the platform; and
- extend 610 - 920 mm from the open edge of the platform.

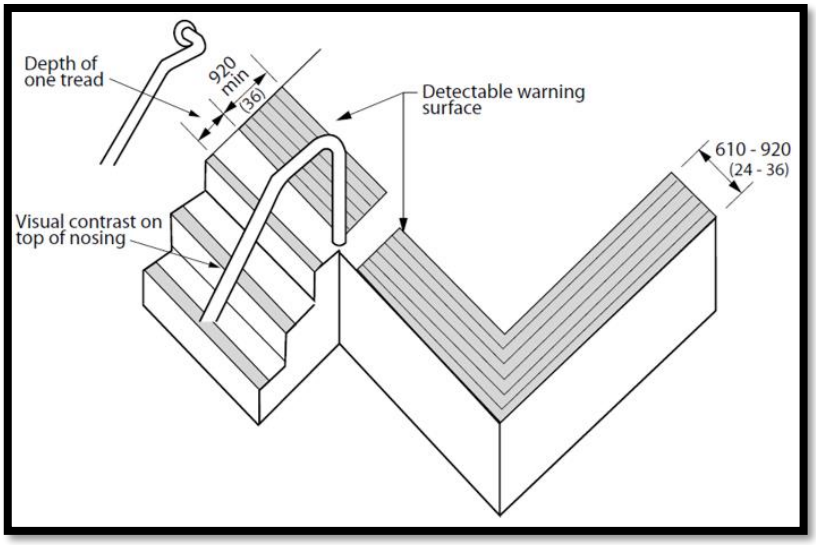


Figure 2.16.1 Tactile Warning Surface Indicators at Elevated Platform

2.17 Emergency Exits, Fire Evacuation and Areas of Refuge / Rescue Assistance

Rationale

In order to be accessible to all individuals, emergency exits must include the same accessibility features as other doors specified in 2.7. The doors and routes must also be marked in a way that is accessible to all individuals, including those who may have difficulty with literacy, such as children or persons speaking a different language. Persons with a visual impairment will need a means of quickly locating exits audio or talking signs could assist. In the event of fire when elevators cannot be used, areas of rescue assistance are an asset to anyone who would have difficulty traversing sets of stairs.

Application

In facilities, or portions of facilities, required to be accessible, accessible means of egress shall be provided in the same number as required for exits by the Ontario Building Code.

Where required exits from a floor level are not accessible, areas of rescue assistance shall be provided on the floor level in a number equal to that of the required exits.

Every occupiable level in non-residential occupancies above or below the first storey (as defined by the Ontario Building Code) that is accessible, shall

- be served by an elevator that has protection features, as specified in the Ontario Building Code; or
- be divided into at least two zones by fire separations, as specified in the Ontario Building Code.

In occupiable levels above or below the first storey in residential occupancies, the requirements for a protected elevator or two fire zones may be waived, if an appropriate balcony (as specified in the Ontario Building Code) is provided for each suite.
Areas of rescue assistance shall comply with this section.

A horizontal exit meeting the requirements of the Ontario Building Code shall satisfy the requirements for an area of rescue assistance.

Design Requirements

2.17.1 General Requirements

Where emergency warning systems are provided, they shall include both audible alarms and visible alarms. Visual alarms shall comply with 6.2.

Accessible means of egress shall comply with 2.5.

Accessible means of egress shall be identified with signage in compliance with the applicable provisions of 6.11.

Areas of rescue assistance shall

- be located on an accessible route complying with 2.5;
- incorporate the number of rescue spaces in accordance with Table 2.17.1.a per exit stair;
- be of a size that allows a minimum floor space of 850 mm X 1370 mm per non-ambulatory occupant, as per Figure 2.17.1.b;
- be separated from the floor area by a fire separation having a fire-resistance rating at least equal to that required for an exit;
- be served by an exit or firefighters' elevator;
- be designated as an area of rescue assistance for persons with disabilities on the facility plans and in the facility;
- be smoke protected in facilities of more than three storeys;
- incorporate a 2-way voice communication system for use between each area of rescue assistance and the central alarm and control facility; and
- be identified with signage in compliance with the applicable provisions of 6.11, stating "Area of Rescue Assistance" and incorporating the international symbol for accessibility for disabled persons.

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

Table 2.17.1.a Number of rescue spaces

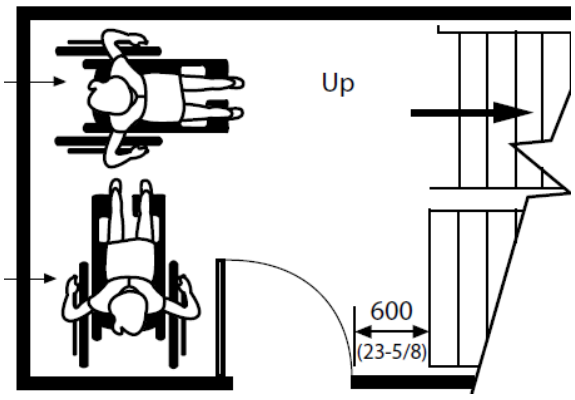


Figure 2.17.1.b Area of Rescue Assistance (Under Development)

2.18 Benches and Rest Areas

Rationale

Benches provide convenient resting places for all individuals and are especially important for those who may have difficulty with standing or walking for extended periods. Benches should be placed adjacent to pedestrian walkways to provide convenient rest places without becoming potential obstructions. The provision of a clear and level space beside benches will allow a person in a stroller or wheelchair to 'park' next to the bench, out with the path of travel.
Appropriate seat heights can facilitate sitting and rising for individuals such as senior citizens. Armrests may also provide assistance in sitting and rising. Backrests provide support; a necessary requirements for some users and a comfort element for everyone.

A person with a visual impairment may find it easier to locate benches if they are located adjacent to a landmark, such as a large tree, a bend in a pathway, or a sound source.
Consider higher loading capacity for benches to accommodate persons of large stature.

Application

All interior benches, shall be accessible to persons using wheelchairs or other mobility devices.

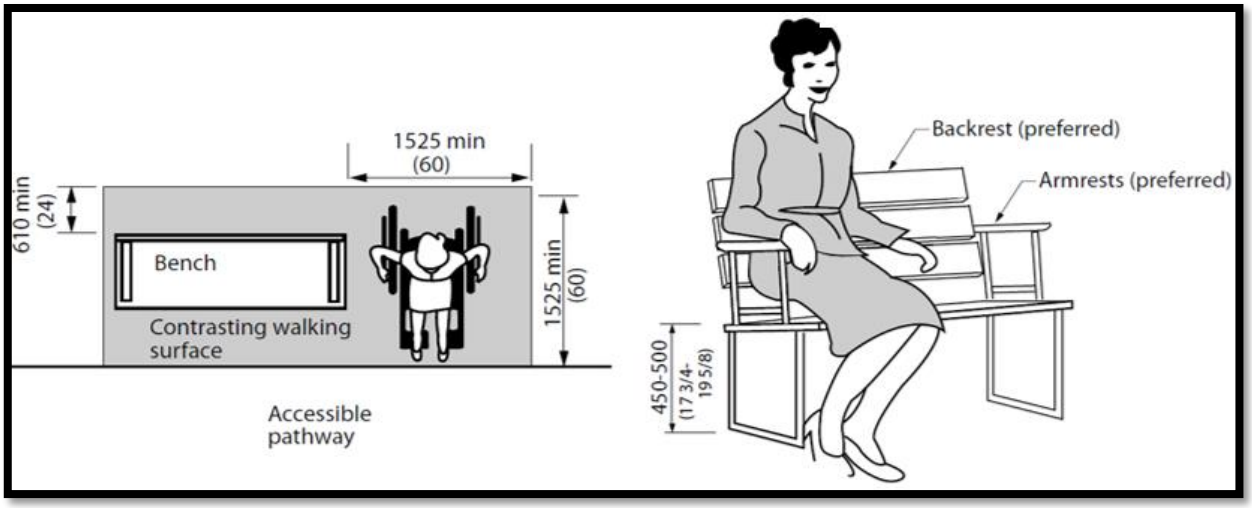
Design Requirements

2.18.1 Benches

Benches shall

- be adjacent to an accessible route complying with 2.5;
- be stable;
- have a seat height between 450 mm and 500 mm from the ground;
- have arm rests;
- be of contrasting colour to their background; and
    - have an adjacent level, firm ground surface at least 1525 mm x 1525 mm
    - positioned so the back of the clear space is 610 mm behind the back of the bench to aid in aligning a person in a mobility device with someone on the bench.

Where the clear space around the bench is not level with the adjacent surfaces, edge protection that complies with 2.5 shall be added.



2.18.1 Exterior Rest Area
(Under Development)

2.18.2 Bench Seating

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Section 3.0

Washrooms, Showers and Change Room Facilities

3.1 Toilet Facilities

Rationale

As an integral feature of a facility, washroom facilities should accommodate the range of people that will use the space. Although many persons with disabilities use toilet facilities independently, some may require assistance. Where the individual providing assistance is of the opposite gender than typical gender-specific washrooms are inappropriate and a universal washroom should be provided immediately adjacent to common-use/stalled/gendered washrooms, or directional signage to the closest universal washroom should be provided.

Parents and caregivers with small children and strollers may also benefit from a large, universal washroom with toilet and change facilities contained within the same space.

Circumstances such as wet surfaces and the act of transferring between toilet and wheelchair or scooter can make toilet facilities accident-prone areas. An individual falling in a washroom with a door that swings inward could prevent his or her own rescuers from opening the door. Due to the risk of accidents, design decisions such as door swings and material finishes have safety implications and therefore make toilet facilities a prime location for emergency call switches. The appropriate design of all features will increase the usability and safety of all toilet facilities.

The identification of washrooms involves design issues that must be considered. For children or someone who cannot read text, a symbol or pictogram is preferred. A person with a visual impairment would also benefit from accessible signage. Features such as colour-contrasting door frames and door hardware will also increase accessibility.

Application

Where toilet facilities are provided, each public or common use toilet facility shall comply with this section. Other toilet rooms provided for the use of occupants of specific spaces (i.e. a private toilet room for the occupant of a private office) shall be adaptable.

In a retrofit situation where it is technically infeasible to make existing public or common use toilet facilities accessible, the installation of at least one universal washroom per floor and in compliance with 3.11, located in the same area as existing toilet facilities, will be permitted in lieu of modifying existing toilet facilities to be accessible.

At least one universal washroom shall be provided on every floor which has washrooms. If universal washrooms are not visible from the common or public use washrooms, directional signage in compliance with 6.11 shall be provided.

Where bathing facilities are provided on a site, in conjunction with or in addition to toilet facilities, each such public or common use bathing facility shall comply with this section in addition to 3.10, and other applicable sections of this standard.

For single-user portable toilet units clustered at a single location, a minimum of 5% but no less than one toilet unit in compliance with this section shall be provided at clusters wherever typical inaccessible units are provided. (Exception: Portable toilet units at

construction sites used exclusively by construction personnel are not required to comply with this section.)

Where a universal washroom is provided primarily for the use of persons of both genders with physical disabilities, in lieu of facilities for persons with physical disabilities in washrooms used by the general public, the universal washroom shall be provided on the same floor level within 45 m of the washrooms used by the general public.

Design Requirements

3.1.1 Toilet Facilities

Accessible toilet facilities shall

- be on an accessible route complying with 2.5;
- be identified with signage complying with applicable provisions of 6.11;
- incorporate a clear floor space to allow a person in a wheelchair to make a 180-degree turn; and
- incorporate even illumination throughout of at least 100 lux (10 ft-candles).

3.1.2 Doors

All entrance doors to accessible toilet rooms shall

- comply with 2.7;
- not swing into the clear floor space required for any fixture;
- have a minimum 1700 mm clearance between the inside face of an in-swinging entrance door and the outside face

It is preferred for larger multi-stall washrooms to have no entry doors where possible.

3.1.3 Fixtures and Controls

Accessible fixtures and controls within toilet and bathing rooms shall

- be on an accessible route complying with 2.5.
- have a minimum clearance of 1400 mm between the outside face of the accessible stall and any wall-mounted fixture or obstruction

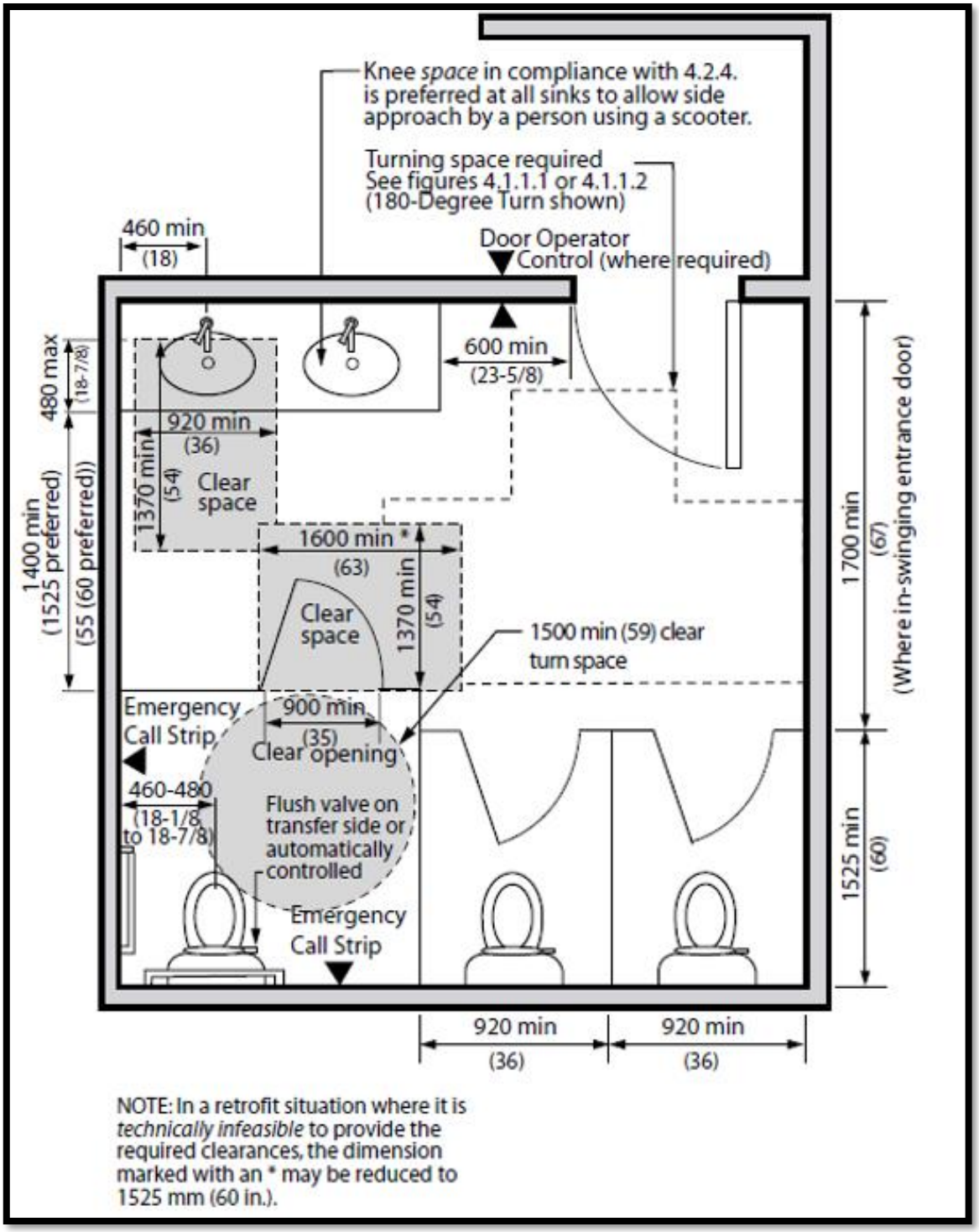


Figure 3.1.1 Washroom Dimensions (Under Development)

3.2 Toilet Stalls

Rationale

Manoeuvrability of a wheelchair or scooter is the principal consideration in the design of an accessible stall. The increased size of the stall is required to ensure there is sufficient space to facilitate proper placement of a wheelchair or scooter to accommodate transfer onto the toilet fixture. Not only is space required for mobility equipment, there may also be instances where an individual requires assistance and the stall will have to accommodate a second person.

Door swings are normally outward for safety reasons and space considerations, but this makes it difficult to close the door once inside. A handle mounted part way along the door makes it easier for someone to close the door behind them.
Consider the inclusion of larger toilet stalls to accommodate persons of large stature. Features include; increased space between the centre line of toilet fixture and adjacent wall, floor mounted toilets and wider doors.

Application

Accessible toilet stalls shall comply with this section.

All other toilet stalls within a facility (e.g. those considered to be non-accessible) shall be a minimum 920 mm wide by 1525 mm long.

In a retrofit situation where an existing floor is not accessible and making it accessible is technically infeasible, public or common use washrooms shall have at least one ambulatory water closet stall.

Design Requirements

3.2.1 Number of Toilet Stalls

Where toilet stalls are provided in a toilet or bathing facility, then the number of accessible toilet stalls designated to accommodate persons with disabilities shall comply with Table 3.2.1.

Number of Toilet Stalls Within the Washroom	Required Number of Accessible Toilet Stalls
1 - 6	1
7 - 16	2
17 - 20	3
21 - 30	4
Over 30	5 plus 1 for each additional 10 water closets

Figure 3.2.1 Number of Accessible Toilet Stalls

3.2.2 Accessible Stalls

Accessible toilet stalls shall

- be on an accessible route in compliance with 2.5;
- have internal dimensions that accommodate a turning space at least 1700 mm, clear of all fixtures or other obstructions;
- have a toilet fixture and grab bars in compliance with 3.3;
- be equipped with a collapsible coat hook mounted not more than 1200 mm above the floor on a side wall and projecting not more than 50 mm from the wall;
- have a minimum 920 mm wide and 1500 mm deep clear transfer space on one side of the toilet fixture; and
- have no napkin dispensers installed in clear transfer space.

Where more than one accessible toilet stall is provided within a toilet or bathing facility, the stalls shall be configured with the clear transfer space (i.e., the open space beside the toilet) on opposite sides of the toilet fixtures.

Accessible toilet stalls shall incorporate an emergency call system linked to a central monitoring location (e.g., office or switchboard). The emergency call system shall also:

- be activated by emergency call strips that are at least 900 mm long mounted horizontally 380 mm above the floor starting 600 mm from the corner behind the toilet fixture;
- be equipped with audible and visual signals both inside and outside washroom;
- have a sign that reads IN THE EVENT OF 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.

3.2.3 Ambulatory Stalls

Ambulatory toilet stalls shall

- be at least 1500 mm deep and 890 - 940 mm wide;
- have the toilet fixture centred between the partition walls;
- have a door that provides a clear opening width of at least 810 mm, which swings out unless the minimum stall dimensions are not located within the door swing;
- be equipped with gravity hinges;
- have latch-side pulls in compliance with this section; and
- be equipped with L-shaped grab bars on both sides of the toilet in compliance with 3.3 and 3.6.

3.2.4 All Stall Doors

All toilet stall doors shall be capable of being locked from the inside by a device that is;

- operable with a closed fist;
- does not require fine finger control, tight grasping, pinching, or twisting of the wrist;
- requires a force of not more than 22 N (4.9 lb.) to activate (e.g., sliding bolt or lever); and
- capable of opening the latch from the outside in case of emergency.

3.2.5 Accessible Stall Doors

Accessible toilet stall doors shall

- provide a clear opening of at least 900 mm with the door in the open position. In a retrofit situation where it's technically infeasible to provide the required clear opening, the clear opening may be reduced to 860 mm;
- swing outward, unless additional clear floor space of at least 820 mm x 1440 mm is provided within the stall and does not interfere with the arc of the door swing;
- be aligned with the clear transfer space adjacent to the toilet fixture;
- be equipped with gravity hinges so that the door closes automatically;
- be equipped with contrasting coloured "D"-type door pulls on both sides, near the latch side of the door and located 900 - 1000 mm above the finished floor;
- where the door swings out, be equipped with a contrasting coloured "D"-type door pull on the inside of the door, located 200 - 300 mm from the hinged side of the door and 900 - 1000 mm above the floor; and
- have a sticker or sign that incorporates the International Symbol for Access affixed to the outside of the stall door, and shall comply with 6.11.

3.2.6 Hardware

Door hardware (operating devices such as handles, pulls, latches, and locks) shall be

- operable by one hand;
- operable with a closed fist;
- capable of being unlocked from the outside in case of an emergency; and
- mounted between 900 mm and 1000 mm above the floor.

Whenever collapsible coat hooks are supplied in accessible washroom stalls, they are to be accompanied by the installation of a vinyl sign to indicate this condition.

Toilet stall partitions and doors shall be colour-contrasted with the surrounding environment.

Toilets, flush controls and other elements shall be designed to meet the requirements of 3.3.

The international symbol of access shall be incorporated on the outside of all accessible toilet stalls. This signage shall comply with Section 6.11.

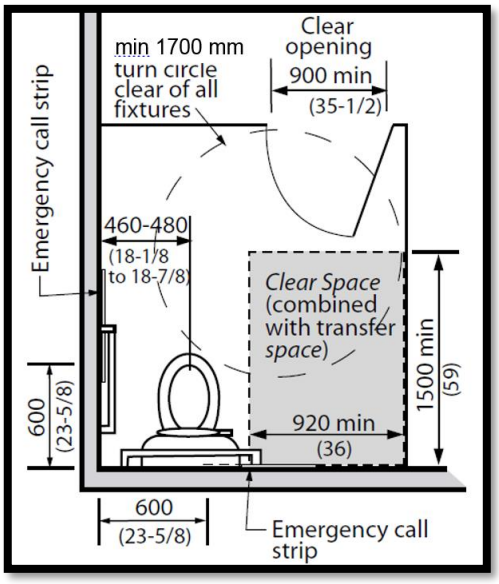


Figure 3.2.2 Accessible Toilet Stall with In-Swinging Door

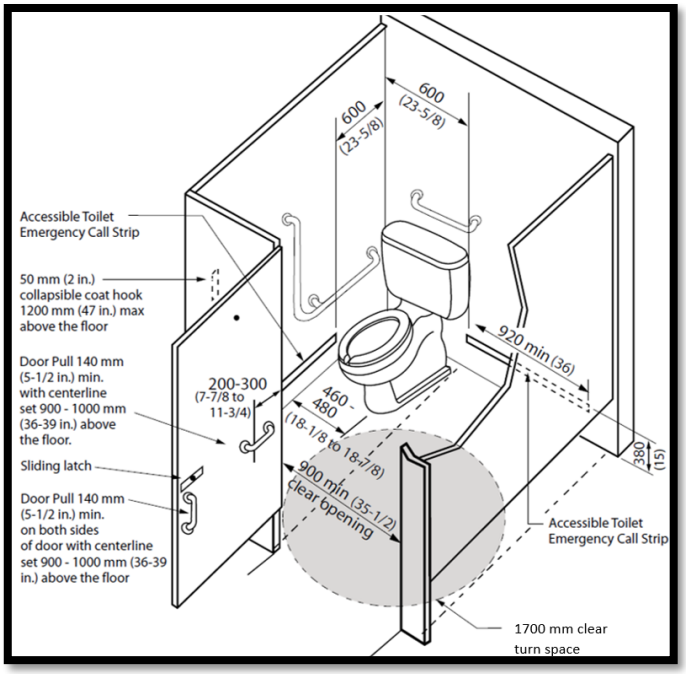


Figure 3.2.3 Number of Accessible Toilet Stalls

3.3 Toilets

Rationale

Automatic flush controls are preferred. If flushing mechanisms are not automated, then consideration must be given to the ability to reach a switch and the hand strength or dexterity required to operate it. Lever style handles on the transfer side of the toilet facilitate these considerations.

Appropriate placement of grab bars makes sitting and standing or transfers between the toilet and a mobility device safer.

Consider the use of floor mounted toilets to accommodate persons of large stature.

Application

Accessible toilets shall comply with this section. Wall-mounted toilets are preferred except where weight requirements dictate otherwise.

Design Requirements

3.3.1 Fixtures

Accessible toilet fixtures shall have

- the top of the seat between 430 and 485 mm above the floor;
- no spring-activated seat;
- a back support where there is no seat lid or tank; and
- the tank top securely attached.

3.3.2 Toilets

Accessible toilets shall be

- located between 460 and 480 mm away from an adjacent wall measured from the centre line of the toilet to the surface of the wall; or
- have a clear transfer space of at least 920 x 1500 mm provided on each side of the toilet.

3.3.3 Clear Transfer Space

A clear transfer space, minimum 920 mm wide and 1500 mm deep designed to permit a wheelchair or scooter to back into a clear space beside a toilet fixture, shall be provided on one side of the toilet fixture in all accessible toilet stalls (see 3.2.) and in universal washrooms (see 3.11).

The clear transfer space shall be clear of obstructions (such as garbage bins or baby change tables). EXCEPTION: Sanitary napkin disposal units may be installed within the transfer space provided they are recessed or protrude not more than 100 mm into this space.

3.3.4 Flush Controls

Toilet flush controls shall be

- operable by a closed fist from the transfer side of the toilet; or
- be electronically automatically controlled.

Hand-operated flush controls shall comply with 6.1.

3.3.5 Grab Bars

Where an accessible toilet is located adjacent to a wall it shall be equipped with grab bars that

- comply with 3.6;
- are L-shaped with 760 mm long horizontal and vertical components mounted with the horizontal component 750 mm above the floor and the vertical component 150 mm in front of the toilet bowl; and
- be at least 600 mm in length, mounted horizontally on the wall behind the toilet, from 840 mm to 920 mm above the floor, and, where the water closet has a water tank, be mounted minimum 150 mm above the tank.

Note: An optional drop-down grab bar in compliance with this section may be provided on the transfer side of the toilet.

Where an accessible toilet stall is not located adjacent to a wall it shall be equipped with drop-down grab bars on each side that

- comply with 3.6;
- are at least 760 mm long;
- are mounted on the wall behind the toilet with the horizontal component 750 mm above the finished floor and 390 - 410 mm from the centre line of the toilet; and
- one grab bar will have the toilet paper dispenser attached.

Toilet fixtures within ambulatory toilet stalls shall have grab bars on both sides in compliance with this section.

3.3.6 Paper Dispensers

Toilet-paper dispensers shall be

- single large roll dispensers, as conventional double roll dispensers put the outside toilet paper roll out of reach of the user;
- wall mounted;
- located a minimum of 60 mm from the side of the horizontal grab bar, as per Figure 3.3.1;
- in line with or not more than 300 mm in front of the toilet seat;
- not less than 600 mm above the floor; and contrasting in colour to the wall.

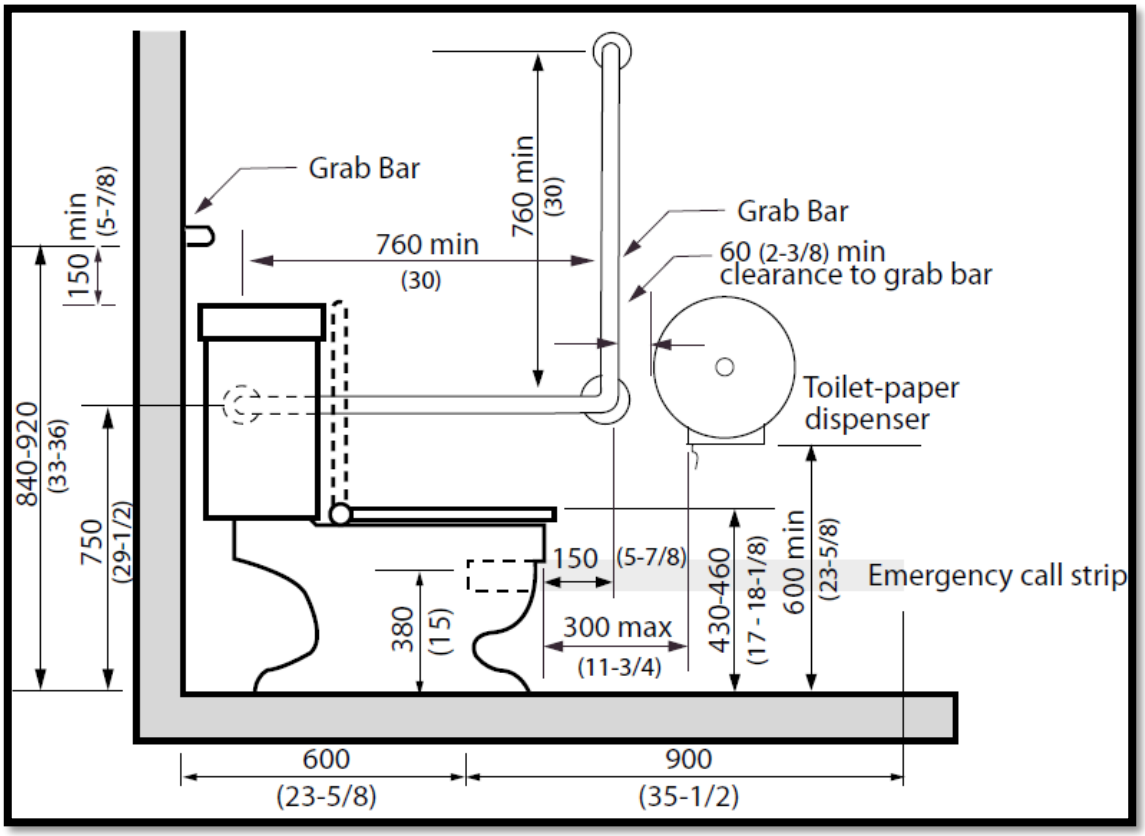


Figure 3.3.1 Toilet Paper Dispenser Location

3.4 Lavatories

Rationale

The accessibility of lavatories will be greatly influenced by their operating mechanisms. While faucets with remote-eye technology may initially confuse some individuals, their ease of use is notable. Individuals with hand strength or dexterity difficulties can use lever-style handles. For an individual in a wheelchair, a lower counter height and clearance for knees under the counter would be required. This lower counter may also serve children. The insulating of hot water pipes protects the legs of an individual using a wheelchair. This is particularly important when a disability impairs sensation such that the individual would not sense that their legs were being burned. The combination of shallow sinks and higher water pressures can cause unacceptable splashing at lavatories.

Application

All lavatories shall comply with this section. In a retrofit situation where it is technically infeasible to have all lavatories comply with this section, at least one lavatory in each accessible washroom shall comply.

Design Requirements

3.4.1 Lavatories

Lavatories shall

- be on an accessible route complying with 2.5;
- be mounted so that the minimum distance between the centre line of the fixture and the side wall is 460 mm;
- have the top located between 820 mm and 840 mm above the floor, as per Figure 3.4.1;
- have a knee space of at least
  - 920 mm wide;
  - 735 mm high at the front edge;
  - 685 mm high at a point 300 mm back from the front edge; and
  - 350 mm high over the distance from a point 300 mm to a point 430 mm back from the front edge;
- have a minimum clear floor space 860 mm wide and 1480 mm deep, of which a maximum of 480 mm in depth may be under the lavatory;
- have a minimum clearance of 810 mm wide by 735 mm high at the front apron of the vanity;
- have hot water and drain pipes insulated if they about the clearances noted above, or limit the water temperature to a maximum of 43 degrees Celsius (100 degrees F); and
- have soap and paper towel dispensers.

3.4.2 Faucets and Controls

Faucets and other controls shall

- be in compliance with 6.1;
- have lever-style handles (not self-closing) operable with a clenched fist, or be electronically controlled; and
- be located so that the distance from the centre line of the faucet to the edge of the basin, or where the basin is mounted in a vanity, to the front edge of the vanity is not more than 485 mm.

3.4.3 Shelves

Shelves or other projections shall;

- be located not more than 200 mm above the surface of the lavatory;
- be not more than 1100 mm above the finished floor; and
- project no more than 100 mm from the wall.

3.4.4 Soap and Paper Towel Dispensers

Soap and towel dispensers shall

- be located to be accessible to persons who use wheelchairs or scooters
- be located so that the dispensing height is not more than 1200 mm above the floor;
- located not more than 610 mm measured horizontally from the accessible lavatory;
- be operable with one hand;
- be colour-contrasted from the surrounding environment; and
- be in compliance with 6.1.

3.4.5 Mirrors

Where mirrors are provided at lavatories or vanity units, they shall comply with 3.7.

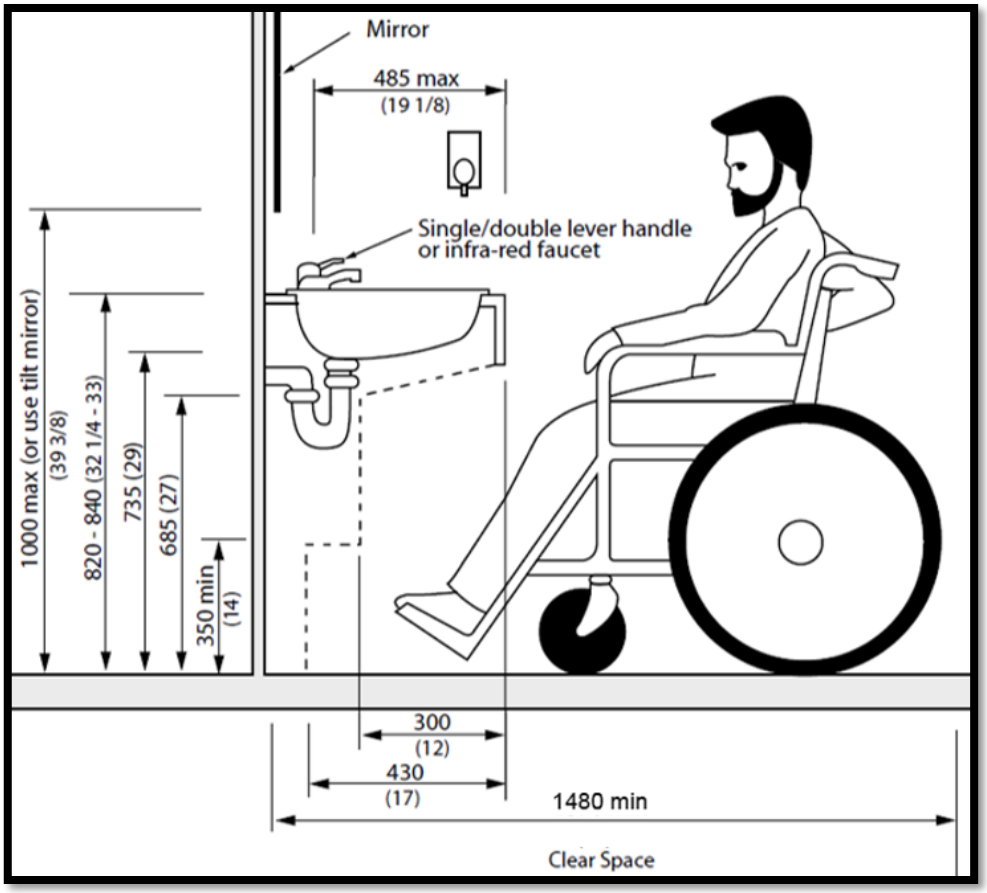


Figure 3.4.1 Lavatory Criteria

3.5 Urinals

Rationale

A clear floor space is required in front of urinals to manoeuvre a mobility device. The provision of grab bars may assist an individual in rising from a seated position and to steady themselves. Floor-mounted urinals accommodate children and persons of short stature as well as enable easier access to drain personal care devices. Flush controls should be lever-style or automatic (preferred).

Strong colour contrasts between the urinal, the wall and the floor will assist persons with a visual impairment.

Application

Where more than one urinal is provided in an accessible toilet or bathing facility, at least one shall comply with this section.

Design Requirements

3.5.1 Urinals

Urinals shall be

- wall-mounted with an elongated rim located no higher than 430 mm above the finished floor; or
- floor-mounted with the rim at the finished floor level.

Urinals shall be at least 345 mm deep, measured from the outer face of the urinal rim to the back of the fixture.

A clear floor space of 860 mm x 1480 mm shall be provided in front of the urinal to allow for a forward approach. This clear space shall adjoin or overlap an accessible route and shall comply with 2.1, and not include a step or change in level, as per Figure 3.5.1.a.

All urinals shall have a centerline indicator provided by a vertical element that is centred on the urinal, extends to a height of at least 1300 mm from the floor, but not less than 150 mm above the upper urinal trim, and be at least 50 mm wide, raised at least 3 mm from wall surface and is colour contrasted with the back wall to facilitate use by persons with visual impairment. See Figure 3.5.1.b.

Flush controls shall be operable with a closed fist or automatic, mounted at no more than 1120 mm above the finished floor, and shall comply with 6.1.

3.5.2 Privacy Screens

Where privacy screens are provided

- there shall be at least 920 mm of clearance between them; and
- they shall incorporate a pronounced colour contrast, to differentiate them from the surrounding environment, with a vertical outer edge that contrasts with the screen and the surrounding environment. See Figure 3.5.1.a.

3.5.3 Grab Bars

Urinals shall have grab bars installed on each side that

- comply with 3.6;
- are not less than 600 mm long;
  - are mounted vertically 380 mm from the centre line of the urinal; and
  - with the lowest end located between 600 - 650 mm above the floor, as per Figure 3.5.1.b.

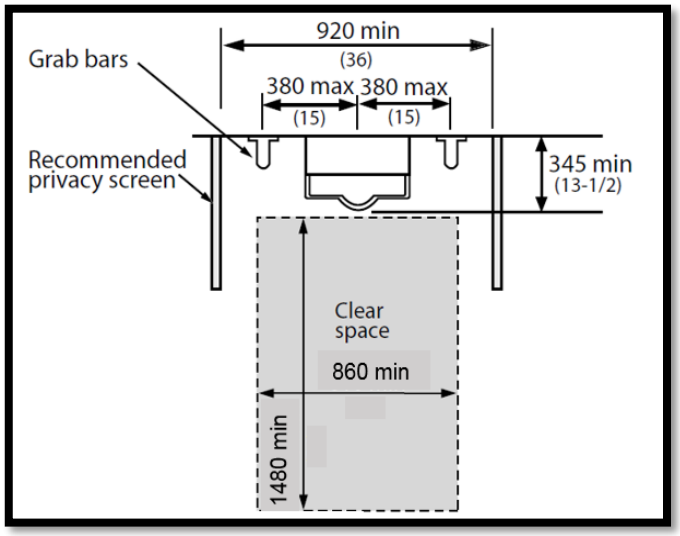


Figure 3.5.1.a Urinal – Plan View View

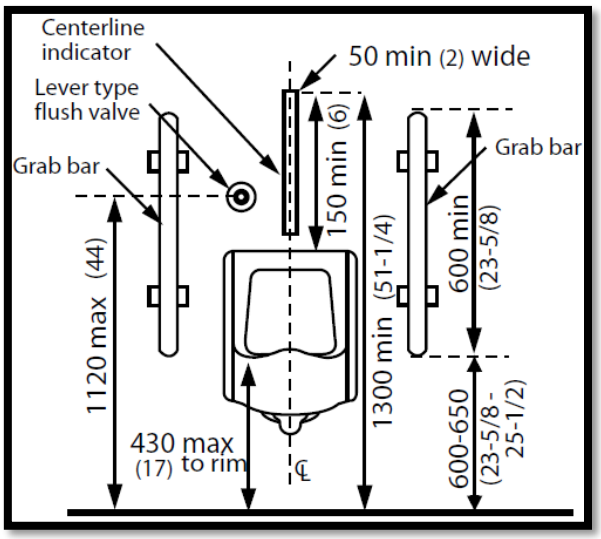


Figure 3.5.2.b Urinal – Elevation

3.6 Grab Bars

Rationale

Grab bars are an important feature to those who require assistance in standing up, sitting down or stability while standing. Transferring between toilet and wheelchair or scooter may be another scenario where grab bars are utilized.

Consider higher loading capacity for grab bars to accommodate persons of large stature.

Application

Grab bars shall comply with this section.

Design Requirements

3.6.1 General Requirements

Grab bars shall

- be installed to resist a load of at least 1.3 kN (300 lb.), applied vertically or horizontally;
- be not less than 35 mm and not more than 40 mm in diameter, as per Figure 3.6.1;
- have a clearance of 50 mm to the wall;
- not rotate within its fittings;
- be free of any sharp or abrasive elements;
- be colour-contrasted with the surrounding environment; and
- have a slip-resistant surface.

Adjacent surfaces shall be free of any sharp or abrasive elements.

Grab bars shall be provided for

- accessible toilet stalls;
- ambulatory toilet stalls;
- accessible urinals;
- accessible showers;
- accessible change rooms;
- accessible change stalls;
- universal toilet rooms; and
- accessible, single-user washrooms.

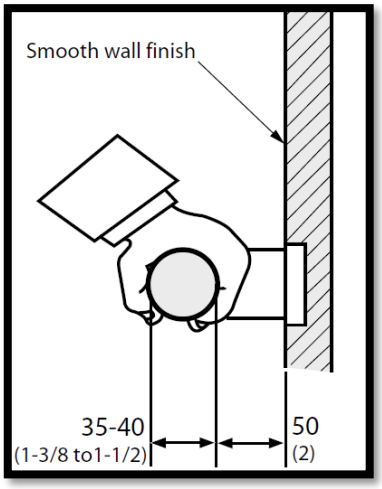


Figure 3.6.1 Grab Bar Section

3.6.2 Horizontal Grab Bar (Under Development)

Figure 3.6.2 Horizontal Grab Bar (Under Development)

3.6.3 L-Shape Grab Bar (Under Development)

Figure 3.6.3 L-Shape Grab Bar (Under Development)

3.6.4 Pull Down Grab Bar (Under Development)

Drop-down or fold-down grab bars shall comply with 3.3 and 3.6.

Figure 3.6.4 Pull Down Grab Bar (Under Development)

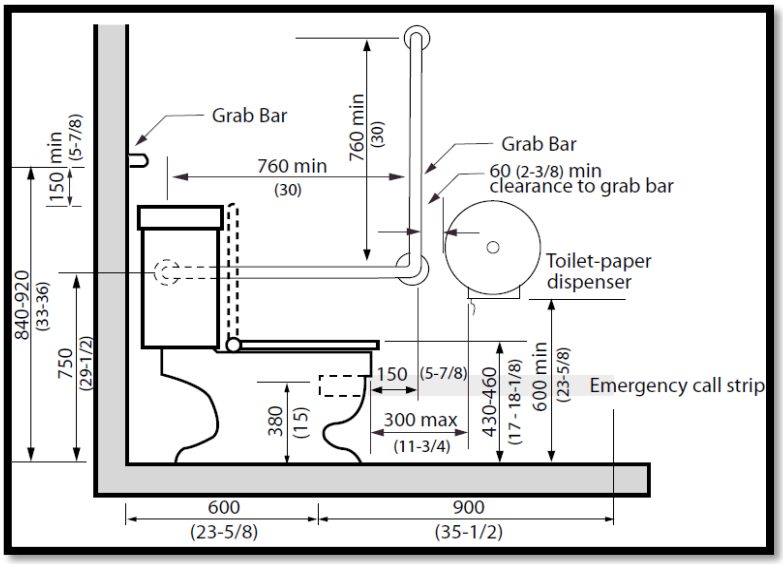


Figure 3.6.3 L-Shape Grab Bar (Under Development)

3.7 Washroom Accessories

Rationale

Design issues related to washroom accessories include the hand strength and dexterity required to operate mechanisms. Reaching the accessories is another concern. Accessories that require the use of two hands to operate can present difficulties for a range of persons with disabilities when the ability to reach or balance is impaired. Section 6.1 addresses operating mechanisms in greater detail.

Application

Where washroom accessories are provided in a toilet or bathing facility, they shall comply with this section. In a retrofit situation where it is technically infeasible to make all washroom accessories comply with this section, at least one of each type of washroom accessory shall comply in all accessible toilet or bathing facilities.

Design Requirements

3.7.1 General Requirements

Each type of washroom accessory provided, unless otherwise specified in 3.2 and 3.4, shall have operable portions and controls mounted between 900 mm and 1200 mm above the floor.
The operable controls and mechanisms of washroom accessories shall comply with 6.1.

Wall-mounted paper towel dispensers and freestanding waste receptacles shall be provided and be placed close to the lavatory and shall not protrude into the accessible clearance or route of travel. (Provided by Client)

There will be no napkin dispensers installed in clear transfer space.

3.7.2 Mirrors

Where mirrors are provided, at least one shall be

- mounted with its bottom edge not more than 1000 mm from the floor, and
- have a minimum mirror height of 1000 mm

Tilt mirrors shall not be used.

A full length mirror shall not be installed where it would reflect the route of travel.

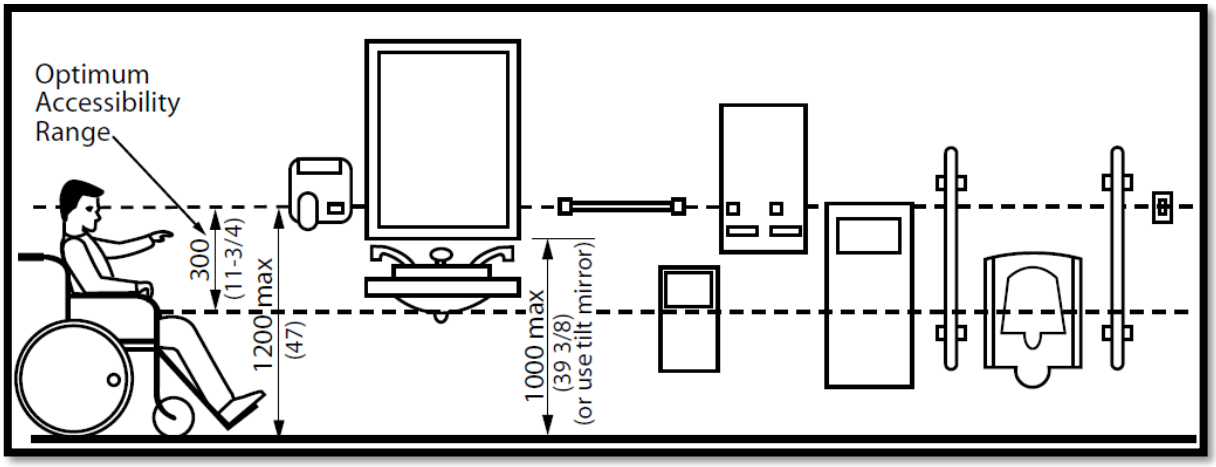


Figure 3.7.1 Washroom Accessories

3.8 Adult-Size Change Table

Under Development

3.9 Baby Change Station

Under Development

3.10 Shower Stalls

Rationale

Roll-in or curbless shower stalls eliminate the hazard of stepping over a threshold and are essential for persons with disabilities who use wheelchairs or other mobility devices in the shower. Grab bars and non-slip materials are safety measures which will support any individual. Additional equipment such as a hand-held shower head or a folding bench, may be an asset to someone with a disability but also convenient for others. Equipment that contrasts in colour from the shower stall itself will assist individuals with a visual impairment.

Application

Accessible showers shall comply with this section.

Design Requirements

3.10.1 Numbers of Shower Stalls

Where shower stalls are provided, the number of accessible showers shall comply with Table 3.10.1.

3.10.2 Shower Stalls

Accessible shower stalls shall

- be on an accessible route complying with 2.5;
- be at least 1525 mm in width and 920 mm in depth;
- have a clear floor space at the entrance to the shower of at least 920 mm in depth and the same width as the shower, except that fixtures are permitted to project into that space, provided access to the shower is not restricted;
- have a slip-resistant floor surface;
- have a stall base that is minimally sloped to provide positive drainage;
- have no threshold, or a bevelled threshold not exceeding 13 mm above the finished floor;
    - be equipped with a wall-mounted folding seat that is not spring-loaded 450 mm wide and 400 mm deep;
    - mounted approximately 450 mm above the floor; and
    - designed to carry a minimum load of 1.33 kN (300 lbs.);

- be equipped with an L-shaped grab bar that
  - conforms to 3.6;
  - is mounted horizontally approximately 850 mm above the floor;
  - is located between the shower head and the controls;
  - has a horizontal component at least 920 mm long and a vertical component at least 760 mm long; and
  - is mounted so that the horizontal component overlaps the seat by at least 300 mm.
- be equipped with a vertical grab bar on the bench wall that
  - is at least 760 mm in length;
  - is mounted 80 - 120 mm from the front edge, starting between 700 and 800 mm from the floor; and
  - conforms to section 3.6;
- be equipped with a horizontal grab bar on the wall opposite the bench that
  - is between 600 and 900 mm long; and
  - is mounted approximately 850 mm above the floor;
- be equipped with a pressure-equalizing or thermostatic-mixing valve in compliance with 4.4.1, located above the grab bar but no higher than 1000 mm, maximum 685 mm from the seat wall;
- have soap holder(s) which can be reached from the seated position, fully recessed; and
- be equipped with a shower head with at least 1525 mm of flexible hose that can be used both as a fixed position shower head and as a hand held shower head. The shower spray unit shall be reachable from the seated positions and have an on/off control.

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 spray unit in facilities that may be subject to vandalism. The height of the higher shower head to be 1825 mm. The height of the lower shower head to be 1400 mm. A valve to direct water between the shower heads, in compliance with 6.1, to be located adjacent to the shower control/mixing valve.

Where the showerhead is mounted on a vertical bar, the bar shall be installed so as not to obstruct the use of the grab bar.

Enclosures for shower stalls shall not obstruct controls or obstruct transfer from a mobility device onto the shower seat.

Measures shall be taken to contain water within the shower area.

# of showers	# of showers required to be accessible
1	1
2 - 7	1
more than 7	1 plus 1 for each increment of 7 showers
Note: where only 1 shower is provided it will comply with this section	

Figure 3.10.1 Number of Accessible Showers

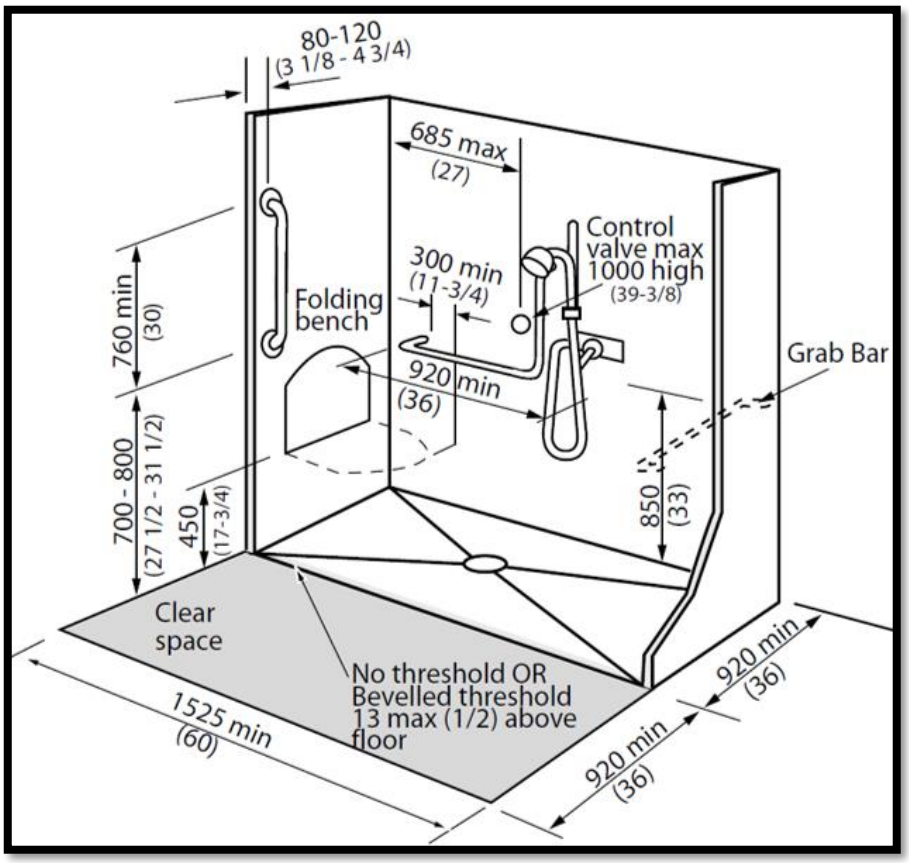


Figure 3.10.2 Shower Stall

3.11 Universal Washrooms

Rationale

The provision of a separate universal washroom is advantageous in a number of instances. For an individual using a wheelchair or scooter, the extra space provided with a separate washroom is preferred to an accessible stall. Should an individual require an attendant of a different gender to assist them in the washroom, the universal washroom removes the complication of a woman entering a men's washroom or vice versa. This same scenario would apply to a parent with a young child of a different gender. It also serves as a gender-neutral washroom.

Application

Accessible universal washrooms shall comply with this section.

Where buildings have more than one universal washroom, the layout should be reversed from floor to floor or room to room so there is an option for right-hand or left-hand transfer to the toilet.

Design Requirements

3.11.1 Number of Universal Washrooms

At least one universal washroom, shall be provided on every floor of a new building or major renovation which has washrooms.

Note: In a retrofit situation where it is technically infeasible to provide an accessible universal washroom on every floor, an accessible, single-user washroom shall be provided instead and shall comply with 3.12.

3.11.2 General Requirements

Accessible universal washrooms shall

- be on an accessible route in compliance with 2.5;
- be identified with signage in compliance with applicable provisions of 6.11;
- be designed to permit a wheelchair to turn within an open clear space that has a diameter of not less than 2500 mm;
- be provided with a lavatory conforming to 3.4;
- be equipped with a toilet fixture conforming to 3.3
- be equipped with flush controls and other elements conforming to 3.3;
- be equipped with grab bars conforming to 3.3 and 3.6;
- have fixture clearances conforming to 3.3 and 3.4;

- provided with a clear transfer space adjacent to the toilet fixture, as required by 3.3;
- be equipped with
    - a collapsible coat hook mounted not more than 1200 mm from the floor on a side wall and projecting not more than 50 mm from the wall;
    - a mirror and washroom accessories complying with 3.7 floor; and
    - have lighting controlled by a motion sensor.
- be equipped with a door that
- complies with 2.7;
- is equipped with a power actuator;
- can be released from the outside or other means provided for door to be opened from the outside in case of emergency;
- can be locked from the inside with a closed fist;
    - without tight grasping, pinching or twisting of the wrist; and
    - with a force less than 22 N (5 lbf)
- has latch operating and locking mechanisms located not less than 900 mm and not more than 1000 mm above the floor; and
- where equipped with a power locking mechanism, have: a push-to-lock button on the inside;
    - a push-to-unlock button on the inside that also activates the power door actuator;
    - signage indicating the door locking/unlocking procedures installed next to the locking/ unlocking buttons;
    - a sign on the inside that is illuminated with the word "LOCKED" when the door is locked;
    - a sign on the outside that is illuminated with the words "IN USE" when the door is locked

3.11.3 Emergency Call System

Accessible universal washrooms shall incorporate an emergency call system linked to Queen's Campus Security Emergency Responses Centre, and shall comply with 6.1.

The emergency call shall also

- be activated by emergency call strips that are at least 900 mm long mounted horizontally 380 mm above the floor and 600 mm from the corner behind the toilet fixture;
- be equipped with audible and visual signals both inside and outside washroom; and
- have a sign that reads "In the event of 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.

3.11.4 Adult Change Table

All universal washrooms shall comply with 3.8 and provide clear space for an adult-sized change table that:

- is minimum 1830 mm long and 810 mm wide;
- has an adjacent clear floor space not less than 900 mm along the entire length of the change table; and
- has reinforcement in the adjacent wall for future installation of the change table.

See Figure 3.11.1 for typical layout.

Exception: Where another universal washroom with space for an adult-sized change table is on the same floor level within 45 m.

3.11.5 Baby Change Table **(Under Development)**

3.11.6 Signage

Accessible universal washrooms shall be identified with the word "Washroom" in raised tactile letters and in braille, accompanied by male and female pictograms and the universal symbol for accessibility.

Signage shall comply with Section 6.11.

Refer to Figure 3.11.2 for a sample sign with dimensions.

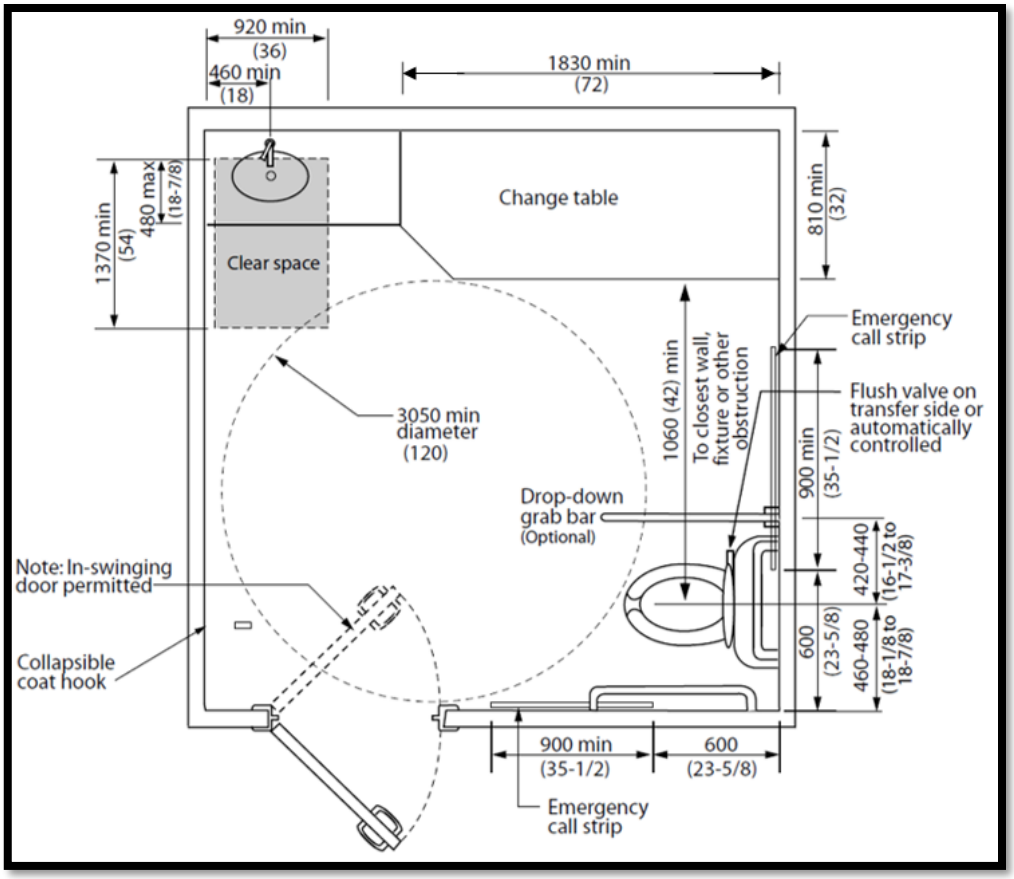


Figure 3.11.1 Universal Washroom (Under Development)

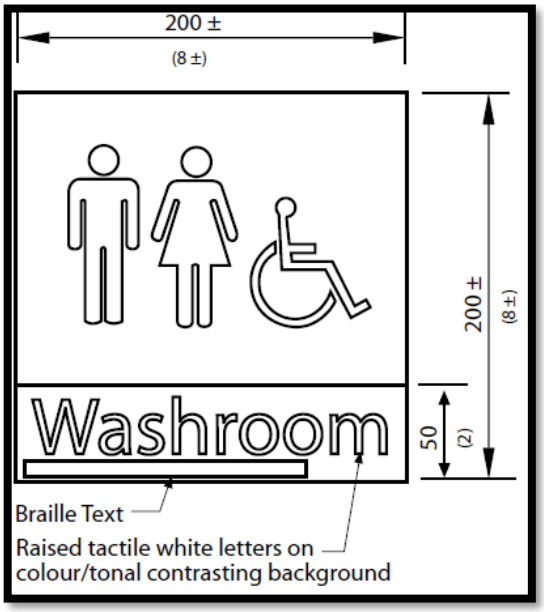


Figure 3.11.2 Universal Washroom Signage

3.12 Accessible, Single-User Washrooms

Under Development

3.13 Universal Change Room (Universal Washroom with Shower)

Under Development

3.14 Shower Room (Shower, Change Area and Locker Storage)

Under Development

3.15 Change Area (Accessible Changing Stall and Locker Storage)

Rationale

In addition to accessible common use dressing/change rooms, a separate unisex dressing/change room is useful. This is valuable in a scenario where an attendant of the opposite gender or a parent is assisting a child. Sufficient space should be allowed for two people and a wheelchair, along with benches and accessories.

The provision of handrails along circulation routes from dressing/ change rooms to pool, gymnasium and other activity areas, will be of benefit to many facility users.

Consider higher loading capacity for change benches to accommodate persons of large stature.

Application

Where dressing/change rooms are provided for use by the general public, patients, customers or employees, they shall comply with this section. In a retrofit situation where it is technically infeasible to have all dressing/change rooms comply with this section, 10% of dressing/change rooms, but never less than one, for each type of use in each cluster of dressing rooms shall be accessible and comply with this section.

At least one private accessible dressing/change room shall be provided within accessible dressing/change rooms at pools and gymnasiums.

Design Requirements

3.15.1 General Requirements

Accessible dressing/change rooms, and accessible elements within accessible dressing/change rooms, shall be located on an accessible route complying with 2.5.

Private accessible dressing/change rooms shall incorporate a clear floor space allowing a person using a wheelchair or scooter to make a 180-degree turn, accessed through either a hinged or sliding door. No door shall swing into any part of the required turning space within the private accessible dressing/ change room. Turning space is not required within a private accessible dressing/change room accessed through a curtained opening of at least 950 mm wide, if clear floor space complying with section 2.1 renders the dressing/ change room usable by a person in a wheelchair or scooter.

All doors to accessible dressing/ change rooms shall be in compliance with 2.7. Outward swinging doors shall not constitute a hazard to persons using adjacent circulation routes.

Every accessible dressing/change room shall have an 810 mm x 1830 mm bench fixed to the wall along the longer dimension.

3.15.2 Bench

The bench shall

- be mounted 450 to 500 mm above the finished floor;
- have clear floor space at least 810 mm wide provided along the bench to allow a person using a wheelchair or scooter to make a parallel transfer onto the bench;
- be designed to carry a minimum load of 1.33 kN (300 lb.); and

3.15.3 Materials and Finishes

Where dressing/change rooms are provided in conjunction with showers, swimming pools, or other wet locations, they shall

- be designed with a slip-resistant floor surface that prevents the accumulation of standing water; and
- have a bench with a slip-resistant seat surface installed to prevent the accumulation of water.

3.15.4 Mirrors

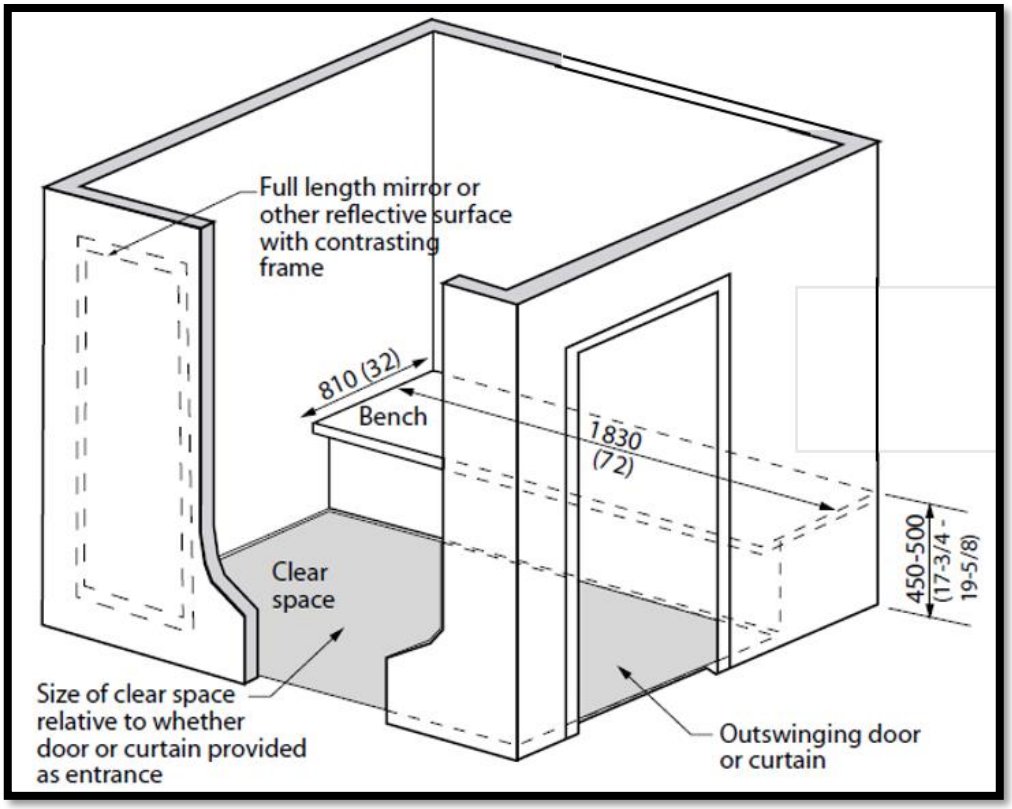
Where mirrors, or other reflective surfaces, are provided in dressing/ change rooms of the same use, accessible dressing/change rooms shall incorporate a full-length mirror or other reflective surface measuring at least 460 mm wide by 1370 mm high and shall be mounted in a position affording a view to a person on the bench, as well as to a person in a standing position.

3.15.5 Lighting

Dressing/change rooms shall incorporate even illumination throughout of at least 100 lux (10 ft-candles).

3.15.6 Coat Hooks

Where coat hooks are provided, at least two collapsible coat hooks shall be provided, mounted no higher than 1200 mm (47 in.) above the floor, and immediately adjacent to the accessible bench. (Note: Coat hooks should NOT be located over the accessible bench)



3.15.1 Private Accessible Dressing / Change Room

3.16 Residence Washrooms and Showers

Under Development

3.17 Ablution Facilities

Rationale

Ablution is a state that is prerequisite to praying. Ablution facilities should be available to everyone, including persons with disabilities. Persons who use wheelchairs or other mobility devices require an accessible washbasin to perform ablution routines. Washbasins will also be of benefit to persons who have limited flexibility in their upper body. Persons who have limited strength and/or flexibility in their lower limbs will benefit from ablution facilities that incorporate seating. Floor finish materials that remain slip-resistant when wet are a critical safety feature in ablution spaces. Faucets and accessories, such as soap and towel dispensers, should be usable by everyone: mounting height and the configuration of operating mechanisms require careful consideration.

Application

Ablution spaces should comply with this section.

Design Requirements

3.17.1 General Requirements

A minimum of 5% (but never less than one for males and one for females) of ablution units should be accessible to persons with disabilities (i.e. Accessible Ablution Units).
A minimum of 5% (but never less than one for males and one for females) of ablution units should be designated to accommodate persons with limited mobility (i.e. Limited Mobility Ablution Units).
Ablution spaces should be located on an accessible route complying with Section 2.5 and the requirements of this section.

Doors into and within ablution spaces should comply with Section 2.7.

Circulation routes within ablution spaces should comply with Section 2.5.

Floor finishes within ablution spaces should be slip-resistant when wet, and be anti-fungal and anti-bacterial. Grilles and gratings should have spaces no greater than 13 mm in one direction, placed so that the long dimension is across the dominant direction of travel.
Built-in elements within ablution spaces (such as benches or seats) should be located at the same level as the circulation routes. Built-in elements should have no sharp edges and incorporate pronounced colour-contrast to differentiate them from the surrounding environment.

Ablution faucets should be hand operated or electronically controlled. Hand-operated faucets should be operable using one hand without pinching grasping or twisting of the wrist, with a force less than 22 N (5 lbf.). Faucets should incorporate pronounced colour-contrast to differentiate them from the surrounding environment.

Hot water temperature for wash basins to be limited to a maximum of 43 degrees Celsius (100 F).

Accessible and limited mobility ablution units should be located on an accessible route complying with Section 2.5 and the requirements of this section.

Accessible ablution units should have a lavatory complying with Section 3.4, and washroom accessories complying with Section 3.7. A soap dispenser and a paper towel unit to be placed close to ablution unit so that water is not tracked throughout the area and keeps feet dry.

Limited mobility ablution units should have a seat 400 – 450 mm high, which is located with one side located no closer than 900 mm to any adjacent seat, wall or other obstacle. The ablution faucet should be located no more than 740 mm height, with the spout located no more than 410 mm from the front edge of the seat. Washroom accessories should comply with Section 3.7.

Provide a full height, permanent partition or separate rooms between men and women sections.

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Section 4.0
Interior Elements and Amenities

4.1 Information, Reception and Service Counters

Rationale

Information, reception and service counters should be accessible to the full range of visitors. A choice of counter heights is recommended to provide a range of options for a variety of persons. Lowered sections will serve children, persons of short stature and persons using mobility devices such as a wheelchair or scooter. The choice of heights should also extend to speaking ports and writing surfaces.

The provision of knee space under the counter facilitates use by a person using a wheelchair or a scooter.

The use of colour contrast, tactile difference or audio landmarks (e.g., receptionist voice or music source) can assist individuals with a visual impairment to more precisely locate service counters or speaking ports.

Application

Counters for information or service shall have at least one section accessible to persons who use a wheelchair or scooter.

Design Requirements

4.1.1 Accessible Counters

Information, reception and service counters shall be located on an accessible route complying with 2.5.

There must be a minimum of one service counter for each type of service provided, and clearly identified by signage where there are multiple queuing lines and service counters.

Each information, reception, or service counter must accommodate a mobility aid where a single queuing line serves a single or multiple counters.

Accessible sections of counters for information, reception or service shall incorporate the following size and space requirements;

- an electric height-adjustable work surface with push button activation on the customer side;
    - that does not create pinch points for gingers between adjacent fixed work surfaces;
    - with low height range located between 710 mm and 865 mm above the finished floor or ground;
- a counter surface width of at least 920 mm; and

- knee space on both sides of the counter, below the counter surface, of at least 685 mm high by 480 mm deep by 810 mm wide.

Where speaking ports or other openings intended for verbal communication are provided at information, reception or service counters, at least one such position shall have a speaking port no higher than 1060 mm above the finished floor or ground.

Where emergency alarm buttons are required, they shall comply with 6.1.

4.1.2 Wheelchair Seating Spaces

Wheelchair seating spaces at accessible sections of information, reception and service counters shall incorporate a clear floor space not less than 810 mm by 1370 mm. Up to 480 mm of the length of the clear floor space may extend under the counter, where a forward approach is used.

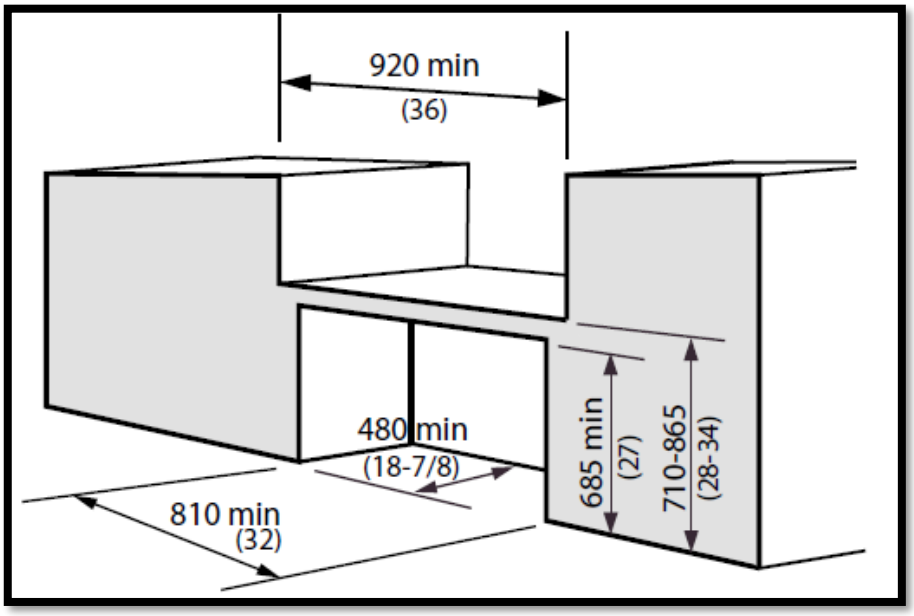


Figure 4.1.1.a Service Counter

4.2 Waiting and Queuing Areas

Rationale

Queuing areas for information, tickets or services should permit persons who use wheelchairs, scooters and other mobility devices as well as persons with a varying range of user ability to move through the line safely and conveniently.

Waiting and queuing areas need to provide space for mobility devices, such as wheelchairs and scooters. Queuing lines that turn corners or double back on themselves will need to provide adequate space to manoeuvre mobility devices. Providing handrails in queuing lines may be useful support for individuals and guidance for those with a visual impairment. The provision of benches in waiting areas is important for individuals who may have difficulty with standing for extended periods.

Application

Waiting and queuing areas shall comply with this section.

Design Requirements

4.2.1 General Requirements

Barriers at queuing areas shall be laid out in parallel, logical lines, spaced a minimum of 1100 mm apart.

Provide sufficiently clear floor area to permit mobility aids to turn where queuing lines change direction. Suggested size would be in line with minimum ramp landing size of 2440 x 2440 mm.

Barriers at queuing areas, provided to streamline pedestrian movement, shall be firmly mounted to the floor, and should have rigid rails to provide support for waiting persons.

Fixed queuing guides and/or barriers at queuing areas must be cane detectable.

Where floor slots or pockets are included to receive temporary or occasional supports, such slots or pockets shall be level with the floor finish and have an integral cover, so as not to cause a tripping hazard.

Permanent queuing areas shall incorporate clearly defined floor patterns/colours/textures in compliance with 9.2, as an aid to guide persons with a visual impairment.

There shall be a pronounced colour contrast between ropes, bars or solid barriers used to define queuing areas and the surrounding environment.

When constructing a new waiting area or redeveloping an existing waiting area, where the seating is fixed to the floor, a minimum of three percent of the new seating must be accessible, but in no case shall there be fewer than one accessible seating space.

For the purposes of this section, accessible seating is a space in the seating area where an individual using a mobility aid can wait.

4.3 Tables, Counters and Work Surfaces

Rationale

Tables, counters and work surfaces should accommodate the needs of a range of users. Consideration should be given to standing-use as well as seated use. For individuals using wheelchairs, tables need to be high enough to provide knee space and provide enough clear space for the wheelchair to pull into. The furniture placement at tables and manoeuvring space at counters should provide sufficient turning space for a person using a wheelchair or scooter.

The selection of seating should reflect a diversity of body types. Some individuals may require seats with an increased width and weight capacity. Booth-style or other fixed seating may not be appropriate for individuals wishing to remain in their wheelchair or individuals requiring more depth between the seat and table.

Application

If fixed or built-in tables, counters and work surfaces (including, but not limited to, dining tables and study carrels) are provided in accessible public or common use areas, at least 10%, but not less than one, of the fixed or built-in tables, counters and work surfaces shall comply with this section.

Where fixed seating or booth seating is used in conjunction with tables, counters and work surfaces, at least 10%, but not less than one seat must not be fixed seating or booth seating.

Design Requirements

4.3.1 General Requirements

Accessible tables, counters and work surfaces shall be located on an accessible route complying with 2.5.

An accessible route shall lead to and around such fixed or built-in tables, counters and work surfaces.

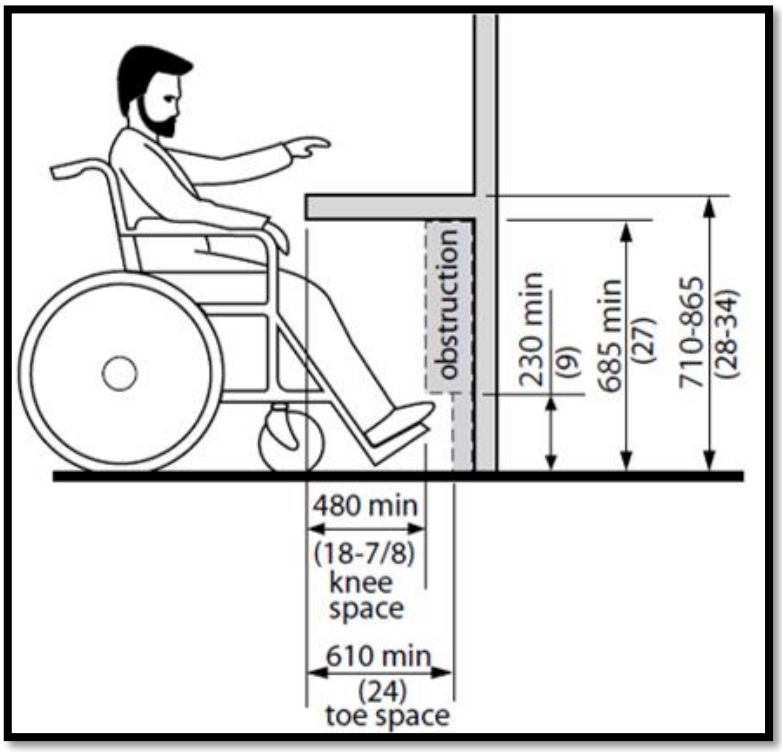
The top of accessible tables, counters and work surfaces shall be located between 710 mm to 865 mm above the finished floor or ground surface.

Wheelchair seating spaces at accessible tables, counters and work surfaces shall incorporate a clear floor space of not less than 810 mm by 1370 mm. Up to 480 mm of the length of the clear floor space may extend under the table, counter, or work surface where a forward approach is used.

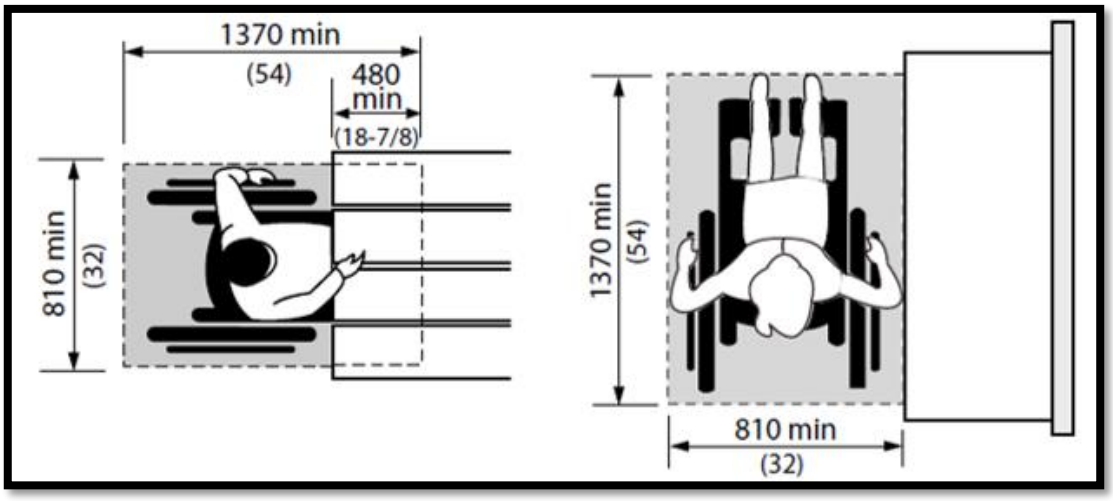
Where a forward approach is used to access a wheelchair seating space,

- a clear knee space of at least 810 mm wide, 480 mm deep and 685 mm high shall be provided; and

- a clear toe space at least 810 mm wide and 230 mm high shall be provided beyond the knee space, extending to a depth of at least 610 mm from the front edge of the work surface.



4.3.1 Clearances



4.3.2 Frontal Approach **4.3.3 Parallel Approach**

4.4 Storage, Shelving and Display Units

Rationale

The heights of storage, shelving and display units should address a full range of vantage points including the lower sightlines of children or a person using a wheelchair or scooter. The lower heights also serve the lower reach of these individuals. Displays that are too low can be problematic for individuals that have difficulty bending down. Appropriate lighting and colour contrast is particularly important for persons with a visual impairment.

Application

If fixed or built-in storage facilities, such as cabinets, closets, shelves and drawers, are provided in accessible spaces, at least one of each type provided shall contain storage space in compliance with this section.

Shelves or display units allowing self-service by customers in mercantile occupancies shall be located on an accessible route complying with 2.5.

Design Requirements

4.4.1 General Requirements

A clear floor space at least 810 mm by 1370 mm complying with 2.1 that allows either forward or parallel approach by a person using a wheelchair or a scooter shall be provided at accessible storage facilities.

Accessible storage spaces shall be within at least one of the reach ranges specified in 2.1. Clothes rods or shelves shall be a maximum of 1370 mm above the finished floor for a side approach. Where the distance from the wheelchair to the clothes rod or shelf is 255 – 535 mm (as in closets without accessible doors) the height of the rod or shelf shall be no more than 1200 mm.

Where coat hooks are provided, they shall all be collapsible coat hooks, mounted no higher than 1200 mm above the floor. (Note: Coat hooks should NOT be located over benches)

Hardware for accessible storage facilities shall comply with 6.1. Touch latches and U-shaped pulls are acceptable.

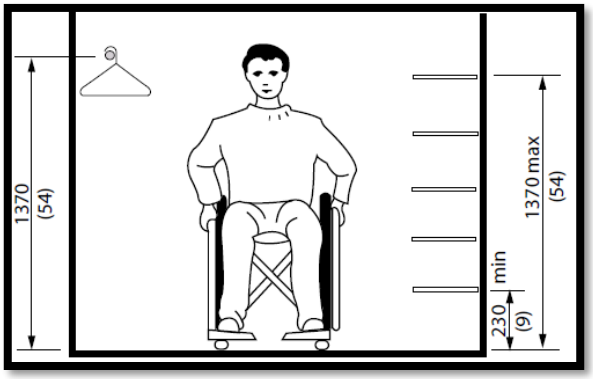


Figure 4.4.1 Reach Limits for Storage

4.5 Lockers and Baggage Storage

Rationale

In schools, recreational facilities, transit facilities, etc., or wherever public or private storage lockers are provided, at least some of the storage units should be accessible by a person using a wheelchair or scooter.

The provision of lockers at lower heights serves the reach restrictions of children or a person using a wheelchair or scooter. The operating mechanisms should also be at an appropriate height and operable by individuals with restrictions in hand dexterity.

Application

If lockers or baggage storage units are provided in accessible public or common use areas, at least 10%, but not less than one, of the lockers or baggage storage units shall comply with this section.

Design Requirements

4.5.1 General Requirements

Accessible lockers and baggage storage units shall be located on an accessible route complying with 2.5.

Lockers and baggage storage units shall have their bottom shelf mounted between 380 and 460 mm and their top shelf no higher than 1200 mm above the floor or ground.

Locks for accessible lockers and baggage storage units shall be mounted no higher than 1060 mm from the floor or ground and shall comply with 6.1.

Unless all lockers are accessible, accessible lockers shall be identified with an International Symbol of Access or equivalent.

Lockers should be available in a variety of height sizes (full, half, quarter). Numbers or names on lockers and baggage storage units should be in clearly legible lettering, raised or recessed and of a highly contrasting colour or tone (in compliance with the relevant parts of 6.11).

Baggage racks or carousels for suitcases, etc. shall have the platform surface no higher than 460 mm from the floor and shall incorporate a continuous colour-contrasting strip at the edge of the platform surface.

Aisle spaces in front of lockers, baggage compartments and carousels should be a minimum of 1370 mm deep, to permit forward and lateral approach by a person using a wheelchair or scooter.

Where an accessible bench is installed near accessible lockers, grab bars shall be installed where practicable.

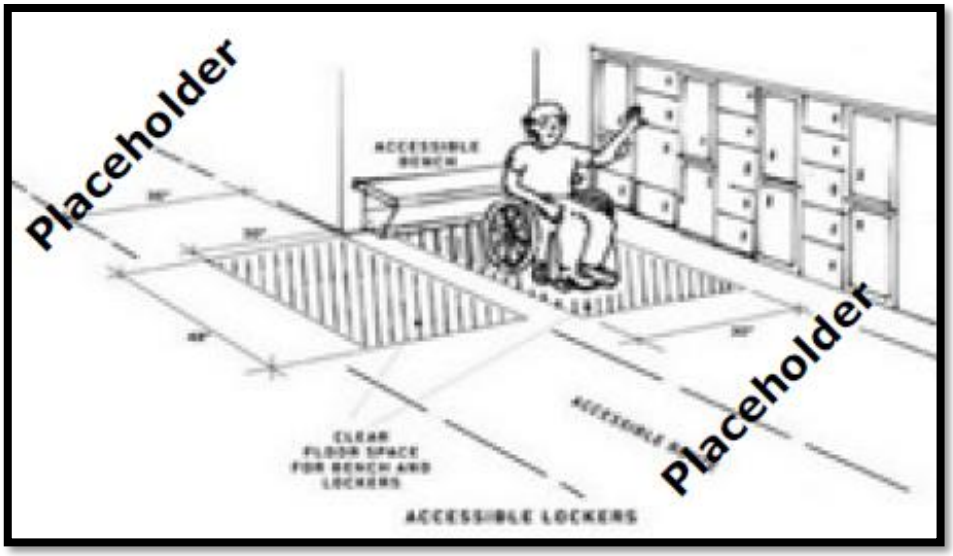


Figure 4.5.1 Lockers (Under Development)

4.6 Offices, Work Areas and Meeting Rooms

Rationale

Offices providing services or programs to the public should be accessible to all, regardless of mobility or functional profile. Furthermore, office and related support areas should be accessible to staff and visitors with varying levels of ability.

All persons, but particularly persons that are deaf, deafened or hard of hearing, would benefit from having a quiet acoustic environment - background noise from mechanical equipment such as fans, should be minimal. Telephone equipment for persons that are deaf, deafened or hard of hearing may also be required.

Tables and workstations should address the knee space requirements of an individual in a wheelchair. Circulation areas also need to consider the spatial needs of mobility equipment as large as scooters.

Natural coloured task lighting is a design feature that will facilitate use by all, especially persons with vision impairments. In locations where reflective glare may be problematic, such as large expanses of glass with reflective flooring, consideration should be given to providing blinds that can be louvred upwards.

Application

Wherever offices, work areas or meeting rooms are provided for use by the general public, employees, clients or customers, they shall comply with this section.

Design Requirements

4.6.1 General Requirements

Where offices, work areas and meeting rooms are provided for use by the general public, clients or customers, they shall

- be located on an accessible route complying with 2.5;
- where equipped with a door, the door shall comply with 2.7;
- incorporate a clear floor space allowing a person using a wheelchair or scooter to make a 180-degree turn;
- incorporate an accessible route throughout the space that does not require a person using a wheelchair or scooter to travel backwards to enter/leave the space;
- incorporate an accessible route that connects the primary activity elements within the office, work area or meeting room;
- incorporate knee clearances below work surfaces that comply with 4.3;

- incorporate access to storage, shelving or display units in compliance with 4.4 for use by the general public, clients or customers;
- provide a clear floor space that complies with 2.1 in front of all equipment such as photocopiers where such equipment is provided for use by the general public, clients or customers; and
- be equipped with an assistive listening system that complies with 6.3, where an assistive listening system is required.
- coat hooks on the back of typical office doors are to be at 1625 mm on centre height. FADS compliant hooks will be installed as an accommodation.

4.7 Kitchens and Kitchenettes

Rationale

Kitchens, kitchenettes and coffee stations require an appropriate level of access to be useable by persons with disabilities. Adequate manoeuvring space is required for users of mobility equipment to approach and use work surfaces, storage elements and appliances. A frontal approach to work surfaces and appliances is generally preferred, except at refrigerators where a side approach is preferred. Where a frontal approach is used, knee space and toe space are required.

The use of colour contrast between kitchen elements will assist persons with low vision locate surfaces, appliances and controls and should be considered.

Application

Kitchens and kitchenettes intended for use by staff or the public; or contained within an accessible suite shall comply with this section. Exception: Commercial kitchens.
At least 10% of shelf space in storage facilities shall comply with this section.

Design Requirements

4.7.1 Pass-through Kitchens

Pass-through kitchens shall have

- where counters, appliances or cabinets are on two opposing sides, or when counters, appliances or cabinets are opposite a parallel wall, clearance between all opposing base cabinets, counter tops, appliances, or walls within a kitchen work area of 1525 mm minimum; and
- two entries.

4.7.2 U-shaped Kitchens

U-shaped kitchens enclosed on three continuous sides shall have a minimum clearance of 2440 mm (96 in.) between all opposing base cabinets, counter tops, appliances, or walls within kitchen work areas. In a retrofit situation where providing a 2440 mm space is technically infeasible, this space may be reduced to 1800 mm.

4.7.3 Storage

Storage elements shall

- be located on an accessible route with adjacent clear floor space in compliance with 2.1;
- comply with at least one of the reach ranges specified in 2.1; and
- incorporate operable portions in compliance with 6.1.

Lower cabinets shall have pull out drawers with ‘D’ pull hardware.

4.7.4 Sinks

Kitchen sinks shall

- be located on an accessible route with adjacent clear floor space for a forward approach. Exceptions: A parallel approach is permitted to a kitchen sink where a cook top or conventional range is not provided, to wet bars, and to sinks within learning spaces and commercial kitchens;
- where a forward approach is provided, incorporate knee space below at least 810 mm wide, 480 mm deep, and 685 mm high;
- have the height of the rim or the counter top (whichever is higher) 710–856 mm;
- incorporate faucets and other controls in compliance with 6.1;
- have water supply and drain pipes under the sink insulated or otherwise configured to protect against contact; and
- incorporate no sharp or abrasive surfaces under the sink.

4.7.5 Appliances

Kitchen appliances shall

- be located on an accessible route with adjacent clear floor space in compliance with 2.1;
- incorporate controls and operable portions in compliance with 6.1. Exceptions: Appliance doors and door latching devices.

Dishwashers shall incorporate clear floor space adjacent to the dishwasher door. The dishwasher door, in the open position, shall not obstruct the clear floor space for the dishwasher or the sink.

Ranges and cooktops shall

- incorporate controls that are located to avoid reaching across the burners; and
    - where a forward approach is provided incorporate knee space below at least 810 mm wide, 480 mm deep, and 685 mm high; and
    - insulate or otherwise configure the appliance to prevent burns, abrasions, or electrical shock.

Ovens shall

- have controls located on the front panels, mounted no higher than 1400 mm;
- be self-cleaning;
- use side-hinged doors only;

- have heat resistant surfaces to the side and below the oven;
- be located with an adjacent work surface positioned adjacent to the latch side of the door; and
    - incorporate a pull-out shelf below the oven that extends the full width of the oven; and
    - pulls out a minimum of 250 mm.

Microwaves shall

- where mounted on shelves have controls no higher than 1400 mm; and
- incorporate knee space below at least 810 mm wide, 480 mm deep, and 685 mm high.

In facilities with children's programs, ranges, cooktops and ovens shall be equipped with a safety switch to de-activate appliance controls.

Refrigerators/freezers shall

- have at least 50% of the freezer space maximum 1370 mm above the floor; and
- incorporate clear floor space in front, positioned for a parallel approach immediately adjacent to the refrigerator/freezer, with the centre-line of the clear floor space offset 610 mm maximum from the front face of the refrigerator/freezer.

4.7.6 Fire Extinguisher

Kitchens and kitchenette areas shall have a visibly installed fire extinguisher within these spaces that is on an accessible path and mounted at an accessible height.

4.7.7 Visual Contrast

Kitchen elements shall incorporate colour contrast to visually differentiate the cabinets and appliances from adjacent wall and floor surfaces, the countertop from the cabinets and adjacent walls, and operable hardware on cabinets.

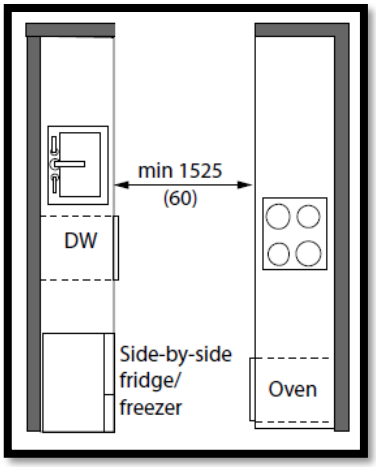


Figure 4.7.1 Pass-Through Kitchen

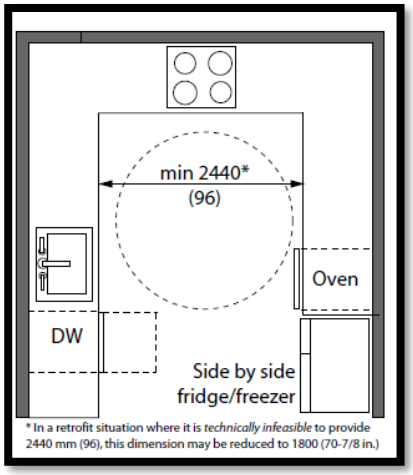


Figure 4.7.2 U-Shaped Kitchen

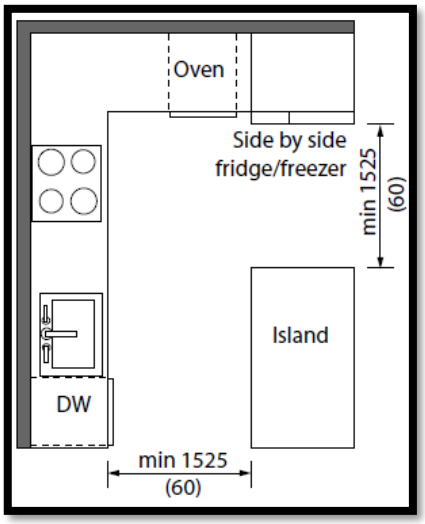


Figure 4.7.3 L-Shaped Kitchen with Island

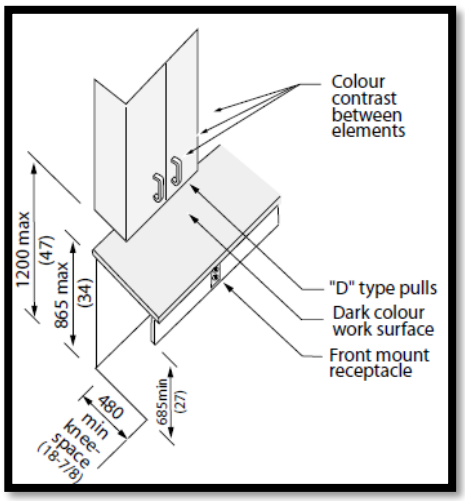


Figure 4.7.4 Storage Elements

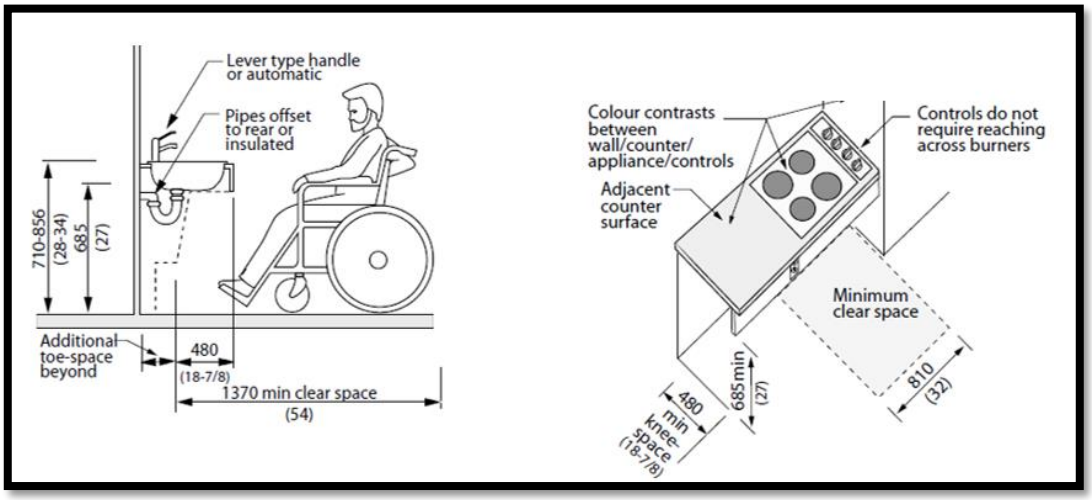


Figure 4.7.5 Kitchen Sink **Figure 4.7.6 Cook Top**

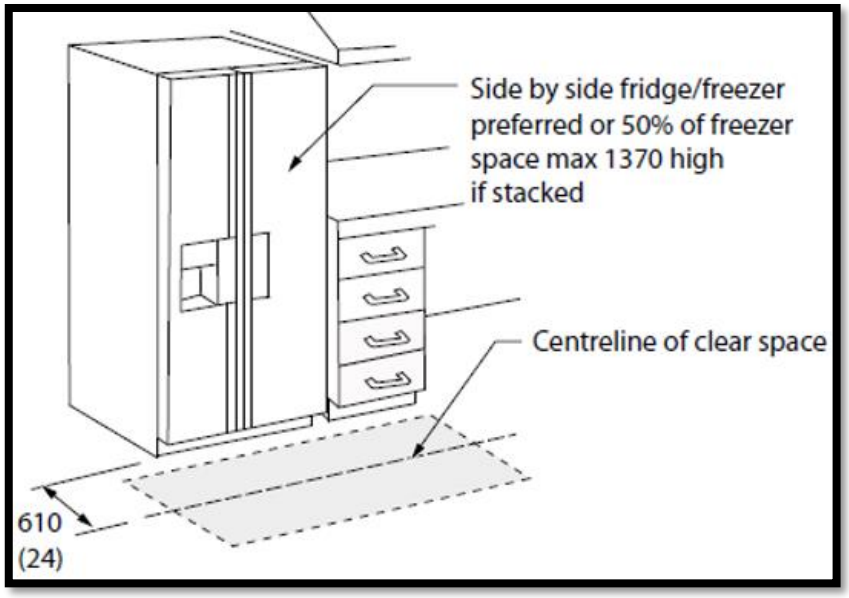


Figure 4.7.7 Fridge/Freezer

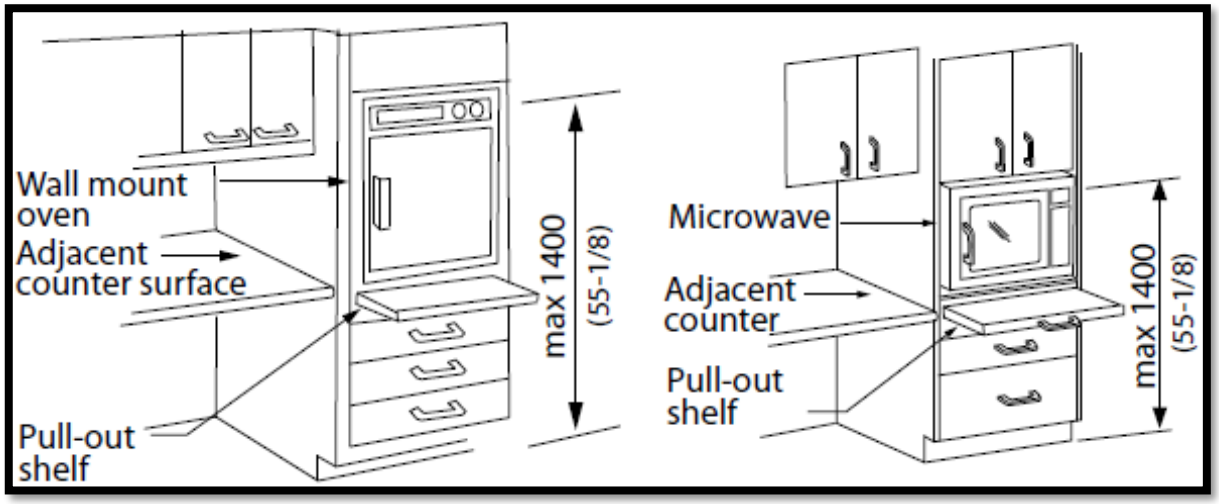


Figure 4.7.8 Wall-Mounted Oven

Figure 4.7.9 Microwave Oven

4.8 Drinking Fountains and Bottle Fill Stations

Rationale

When planning the design of drinking fountains and water bottle fill stations, the limited height of children and that of a person using a wheelchair or scooter must be considered, along with individuals who have difficulty bending who would require a higher station.

Application

Where hydration stations are provided on a floor level, at least one shall be accessible and shall comply with this section. Where more than one is provided on a floor level, at least 50% shall be accessible and shall comply with this section.

Where only one is provided on a floor level, it shall incorporate components that are accessible to individuals who use mobility devices and to those who have difficulty stooping or bending.

Design Requirements

4.8.1 General Requirements

Accessible drinking fountains and bottle fill stations shall

- be located on an accessible route complying with 2.5;
- have a spout located near the front of the unit between 760 mm and 900 mm above the floor or ground surface;
- provide the water stream at a vertical angle of up to,
    - 30 degrees, where the spout is located less than 75 mm from the front of the fountain; or
    - 15 degrees, where the spout is located not less than 75 mm and not more than 125 mm from the front of the fountain;
- have a spout that provides a water flow at least 100 mm high;
- be equipped with controls that are located on the front and on both sides of the unit that control the timing and water delivery height, and are easily operated from a wheelchair or scooter using one hand with a force of not more than 22 N (4.9 lb.), or be automatically operable; and
- be detectable by a cane at a level at or below 680 mm from the finished floor.

Drinking fountains and bottle fill stations should

- be recessed, to avoid protruding into the path of travel, especially if they are wall mounted above the detectable height of a person using a cane;

- consider using an angled recessed alcove design, as they allow more flexibility and less precision required by a person using a wheelchair or scooter.

Cantilevered water fountains and bottle fill stations shall

- have a clear floor space of at least 810 mm by 1370 mm;
- have a knee space between the bottom of the unit and the floor of at least 810 mm wide, 500 mm deep and 735 mm high;
- be recessed or otherwise located out of the circulation route; and
- be mounted with the spout not more than 915 mm above the finished floor.

Freestanding or built-in fountains not having a knee space shall have a clear floor space at least 1370 mm wide by 810 mm deep in front of the unit to accommodate a parallel approach.

Bottle fill stations shall have touchless activation with automatic shut off.

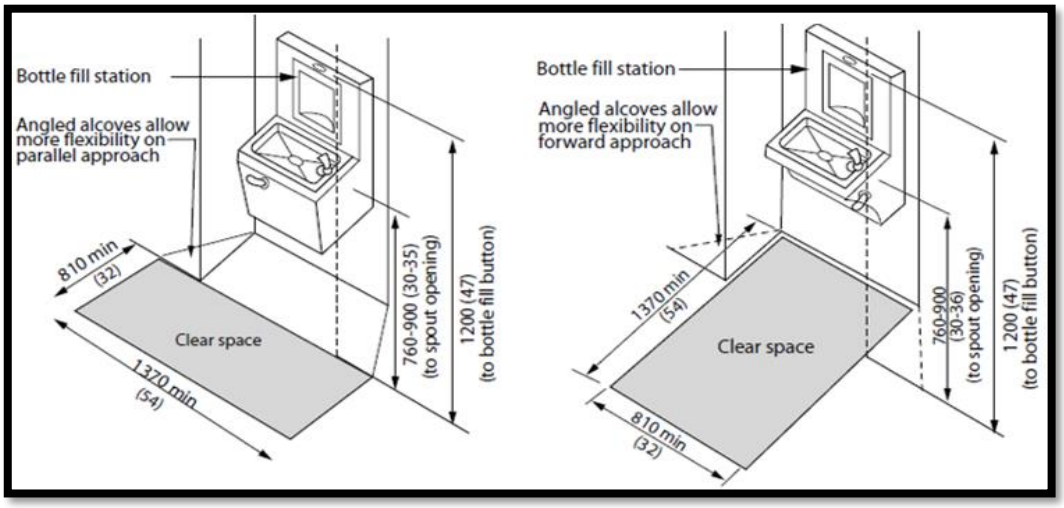


Figure 4.8.1 Parallel Approach **Figure 4.8.1 Forward Approach**

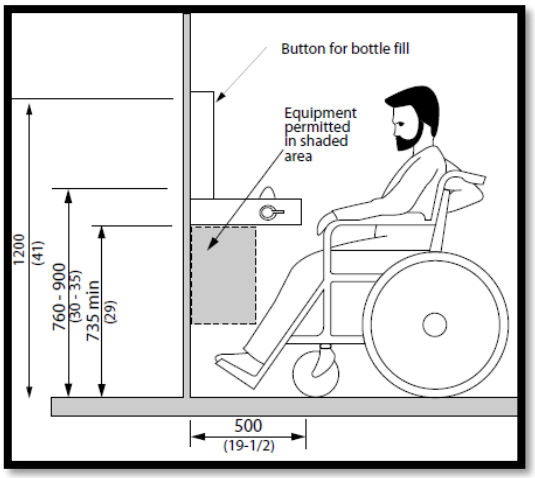


Figure 4.8.3 Clearances

4.9 Viewing Positions

Rationale

Designated viewing areas are required for individuals unable to use typical seating. Viewing areas need to provide adequate space to manoeuvre a mobility device as large as a scooter and should not be limited to one location. Designated companion seating should also be provided. Guards placed around a viewing area should not interfere with the line of sight of someone sitting in a wheelchair or scooter. A choice of seating locations should be available.

Providing only one size of seating does not reflect the diversity of body types of our society. Offering seats with an increased width and weight capacity is helpful for persons of large stature. Seating with increased legroom will better suit individuals that are taller. Seats with removable armrests (adaptable seating) are helpful for persons of larger stature as well as individuals using wheelchairs that prefer to transfer to the seat.

Application

Spaces for the storage of wheelchairs and other mobility assistive devices shall be provided to accommodate the minimum number of adaptable seats.

Assembly areas include, but are not limited to, auditoriums, theatres, cinemas, arenas and stadiums that have seating.

Design Requirements

4.9.1 General Requirements

In assembly occupancies with fixed seating, spaces designated for wheelchair/scooter use and seats designated as adaptable seating shall be provided as per Table 4.9.1, and shall comply with this section.

Accessible wheelchair/scooter and adaptable seating locations shall adjoin an accessible route complying with 2.5, without infringing on egress from any row of seating or any aisle requirement.

4.9.2 Wheelchair and Scooter Locations

Each accessible wheelchair/scooter location shall be

- an integral part of any seating plan. Seats shall be distributed in a manner that provides people with physical disabilities a choice of location and lines of sight comparable to those for members of the general public, as per Figure 4.9.2;
- located in spaces with prime viewing areas to the projection screens, writing surfaces and speaker;
- clear and level, or level with removable seats;

- if the wheelchair/scooter enters from a side approach, not less than 920 mm wide and 1525 mm long;
- if the wheelchair/scooter enters from a front or rear approach, not less than 920 mm wide and 1370 mm long;
- arranged so that at least two of the individually designated wheelchair/scooter locations are side by side;
- arranged so that at least one companion fixed seat is provided next to each wheelchair seating area (Note: Companion seating to be calculated in addition to the required accessible seating spaces identified in Table 4.9.1);
- arranges so that at least one open space next to a wheelchair seating area and a fixed seat is provided to allow for a guide dog and/or service animal; and,
- where the seating capacity exceeds 100, provided in more than one location

Accessible wheelchair/scooter locations shall be designed such that the viewing area shall not be reduced or obstructed by standing members of the audience.

Persons using wheelchairs or scooters may sit higher than persons in standard seating and care should be taken that wheelchair viewing positions be located, that when occupied, persons who are seated behind them will not have their view obstructed.

Number of Fixed Seats in Seating Areas	**Minimum Number of Spaces Required for Wheelchairs**	**Minimum Number of Adaptable Seats**
Up to 20	2	1
21 – 40	2	2
41 – 60	2	3
61 – 80	2	4
81 – 100	3	5
101 – 200	6	5% of all aisle seating
201 – 300	9	
301 – 400	12	
401 – 600	15	
Over 600	Not less than 3% of the seating capacity	

Table 4.9.1 Distribution of Wheelchair Locations

4.9.3 Storage Locations

Storage facilities for wheelchairs and other assistive devices shall

- be provided in assembly occupancies with fixed seating;
  - a minimum of one storage area for under 200 fixed seats.
  - A minimum of two storage areas for 200 fixed seats and over.
- be located on the same level close to the adaptable seating locations; and
- provide a space of at least 860 mm wide and 1480 mm long for each device.

Accent lighting shall be provided along the edges of the aisle steps and ramp areas.

Note: Photoluminescent edging for ramps and aisle steps should also be employed. (Under Development)

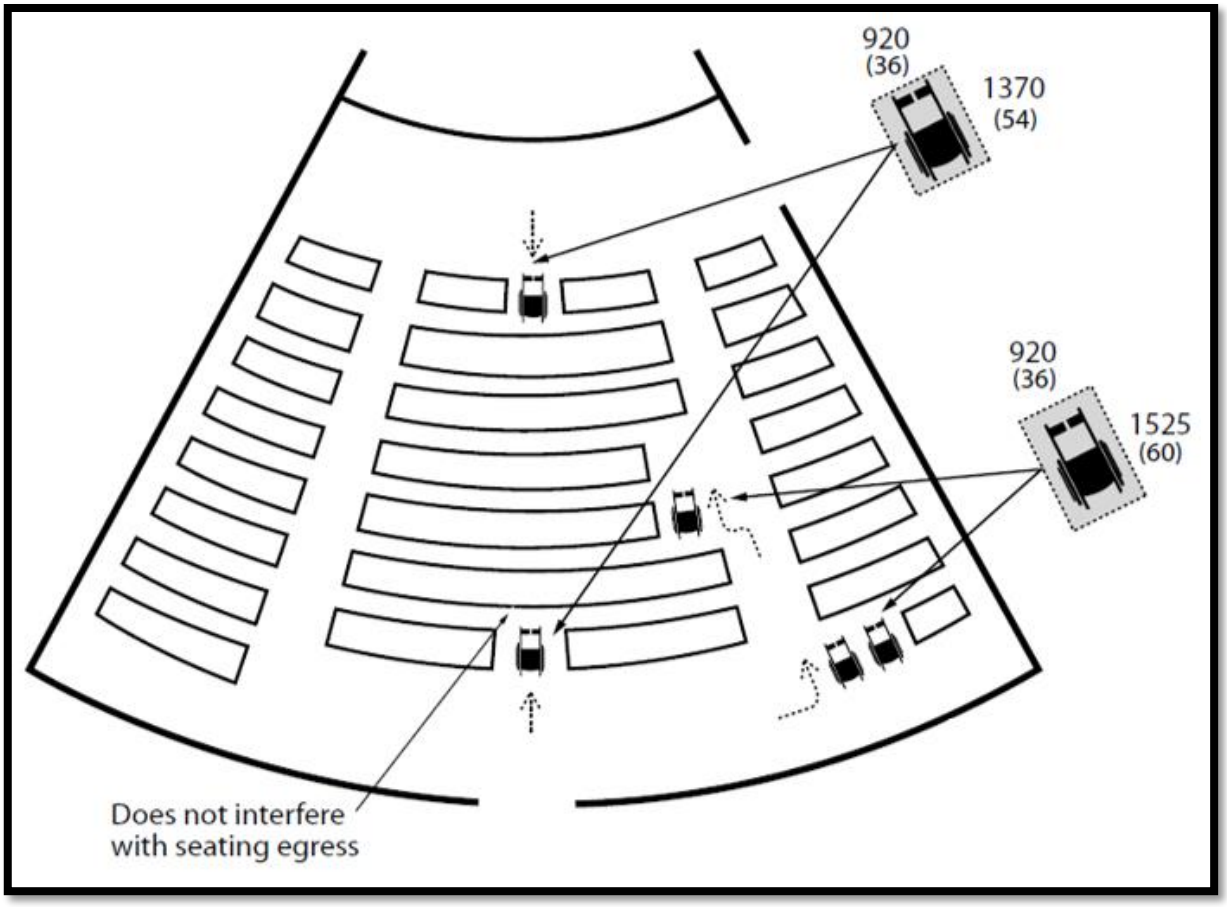


Figure 4.9.2 Distribution of Wheelchair Locations (Under Development)

4.10 Nursing / Pumping Room

Under Development

4.11 Wellness Room

Under Development

4.12 Service Animal Relief Areas

Under Development

Section 5.0

Exterior Elements and Amenities

5.1 Parking

Rationale

The provision of parking spaces near the entrance to a facility is important to accommodate persons with a varying range of abilities as well as persons with limited mobility and those caring for small children. Medical conditions, such as arthritis or heart conditions, using crutches, pregnancy or the physical act of pushing a wheelchair, all make it difficult to travel long distances. Minimizing travel distances is particularly important outdoors, where weather conditions and ground surfaces can make travel both difficult and hazardous.

Application

This standard is applicable to all new parking structures and surface parking lots. For existing structures and surface parking lots undergoing renovations/alterations, standards should be employed to the greatest extent possible.

Design Requirements

5.1.1 Types of Parking

Three types of accessible parking spaces are required.

- Type “A” spaces are large enough to also accommodate people who use vans with a mechanical lift on the side, which is used to get in and out of the vehicle.
- Type “B” spaces are configured to accommodate people who transfer in and out of their vehicles manually.
- Type “C” Limited Mobility/Caregivers spaces are designed for people who do not require a designated access aisle adjacent to a designated parking space but would still benefit from a wider space that is near an entrance. These spaces better accommodate persons with limited mobility, expectant mothers, caregivers and persons who use walkers, canes, crutches and strollers.

Parking facilities serving buildings of assembly occupancy shall have Type A, Type B, and Type C parking spaces in accordance with Table 5.1.1.

Parking facilities serving buildings other than assembly occupancies shall have Type A and Type B parking spaces in accordance with Table 5.1.1.

5.1.2 Designated Parking Spaces

Designated parking spaces shall

- be located on an accessible route complying with 2.5;
- have a firm, level surface with a maximum of 1.5% running slope for drainage;
- have a maximum cross slope of 1%;

- have a height clearance of at least 2750 mm at the parking space and along the vehicle access and egress routes;
- incorporate signage as outlined in this section;
- be located as close as possible to an accessible entrance to the facility that is served by the parking; and
- not require persons with mobility impairments to travel along vehicle roadways to get to accessible entrances.

An accessible route shall be provided from each designated parking space to an accessible entrance into the facility.

In facilities with multiple accessible entrances where parking is provided adjacent to the accessible entrances, designated parking spaces shall be located close to each accessible entrance.

5.1.3 Accessible Parking Spaces

Accessible parking spaces shall

- if Type A, be at least 3400 mm wide; located adjacent to a designated access aisle;
- if Type B, be at least 2700 mm wide; located adjacent to a designated access aisle;
- incorporate pavement markings containing the International Symbol of Access in accordance with Figure 4.4.4.4. Markings to include a 1525 x 1525 mm white border and symbol with a blue background field colour;
- have an adjacent access aisle at least 2000 mm wide, extending the full length of the parking space, which is clearly indicated by markings (Refer to Figures 5.1.2 and 5.1.3). In a retrofit situation where it is technically infeasible to provide a 2000 mm access aisle, the access aisle may be reduced to 1500 mm; and
- have a height clearance at the parking space and along the vehicle access and egress routes,
    - at outdoor parking, of at least 2750 mm; and
    - at indoor parking, of at least 2590 mm, including vehicular entrances.

Note: The number of accessible parking spaces required by this section may not be sufficient in some facilities (such as seniors' centres) where increased numbers of persons with disabilities may be expected.

Number of Parking Spaces	Type A Accessible Space (Van)	Type B Accessible Space	Type C Limited Mobility/Caregivers
1 - 25	1	0	1
26 - 50	1	1	1
51 - 75	1	2*	2
76 -100	2	2	2
101 - 133	2	3*	2
134 - 166	3	3	2
167 - 200	3	4*	2
201 - 250	3	4*	3
251 - 300	4	4	3
301 - 350	4	5*	4
351 - 400	5	5	4
401 - 450	5	6*	4
451 - 500	6	6	4
501 - 550	6	7*	4 + 1 Limited Mobility spaces for each 100 standard spaces over 500.
551 - 600	7	7	
601 - 650	7	8*	
651 - 700	8	8	
701 - 750	8	9*	
751 - 800	9	9	
801 - 850	9	10*	
851 - 900	10	10	
901 - 950	10	11*	
951 - 1000	11	11	
1001 and Over	11 + 1% of the total number of spaces (rounded up to the next whole number), divided equally between Types A and B. If an odd number of spaces is required, the extra space may be Type A.		
Where an uneven number of accessible parking spaces are required, the extra space may be a Type A or a Type B space.			

Table 5.1.1 Designated Parking Spaces Requirements

5.1.4 Off-Street Parking

If more than one off-street parking facility is provided, parking requirements shall be calculated individually for each parking facility.

If more than one off-street parking facility is provided, the parking spaces for the use of persons with disabilities may be distributed among the multiple lots to provide equivalent or greater accessibility in terms of distance from an accessible entrance or user convenience (protection from weather, security, lighting, comparative maintenance).

Exceptions: Requirements for off-street parking do not apply to facilities that are used exclusively for parking for busses, delivery vehicles, law enforcement vehicles, medical transportation vehicles, or impounded vehicles.

The requirements for off-street parking also do not apply to off-street parking facilities if;

- the off-street parking facilities are not served by an accessible route; and
- there are multiple off-street parking facilities on a single site that serve a building or facility.

5.1.5 Underground Parking

Underground parking facilities shall incorporate the use of safety/ security mirrors throughout ceiling areas to improve safety measures and reduce collision issues. Safety/ security mirrors shall also be located near accessible parking spaces and along the route to the accessible elevator area. Mirrors shall have a minimum headroom clearance of 2100 mm from the floor, and should be a break resistant material. Products such as convex, full dome, half dome, and quarter dome panorama-type mirrors may be utilized.

Underground parking facilities shall have walls and ceilings painted white with a high reflectance value of over 80% to improve light levels and reduce shadowed-feeling areas. Safety warning markers may be added to the walls as necessary.

Accessible emergency blue lights shall be provided on each level of the facility, and comply with 5.10.

5.1.6 Parking Signage

Accessible parking signage to be in accordance with section 11 of Regulation 581 of the Revised Regulations of Ontario, 1990 (Accessible Parking for Persons with Disabilities) made under the Highway Traffic Act. O. Reg. 413/12, s.6.

- Type A parking spaces are to have signage specifying "Van Accessible" parking.
- Indoor parking facilities shall incorporate a sign at the vehicle entrance indicating the minimum ove rhead clearance at the parking space and along the vehicle access and egress routes.
- Type C Limited Mobility & Caregivers Only parking spaces shall be a minimum 3200 mm wide and incorporate signage in accordance with Figure 5.1.2.

Each accessible parking space shall be designated with signage that is

- mounted vertically on a post that is colour contrasted with the background environment;
- at least 300 mm wide x 450 mm high;
- installed at a height of 1500 mm to 2500 mm from the ground/floor surface to the centre line of the sign;
- for perpendicular parking, centred on the parking space; and
- for parallel parking, located toward the end of the parking space, on the opposite side from the access aisle.

Signs shall not be mounted on fences or building faces.

Where the location of designated parking spaces is not obvious or is distant from the approach viewpoints, directional signage shall be placed along the route leading to the designated parking spaces. Such directional signage shall incorporate the symbol of access and the appropriate directional arrows.

Where the location of the nearest accessible entrance is not obvious or is distant from the approach viewpoints, directional signs shall be placed along the route leading to the nearest accessible entrance to the facility. Such directional signage will incorporate the symbol of access and the appropriate directional arrows.

Students, staff and faculty who have an accessible parking permit can adopt an accessible parking space closest to the entry point where their class is scheduled for the duration of the course. Parking signage will be by permit only.

Wherever possible locate parking signs away from pedestrian routes, as they may constitute an overhead and/or protruding hazard.

5.1.7 Ticketing Machines

Any pedestrian accessible ticketing machines shall

- comply the requirements of 6.12; and
- be located on an accessible route complying with 2.5.

5.1.8 Electric Vehicle Charging Stations

Where electric vehicle charging stations are provided, they shall

- be accessible parking spaces, offering both Type A and Type B spaces; and
- be located on an accessible route complying with 2.5.
- (Under Development)

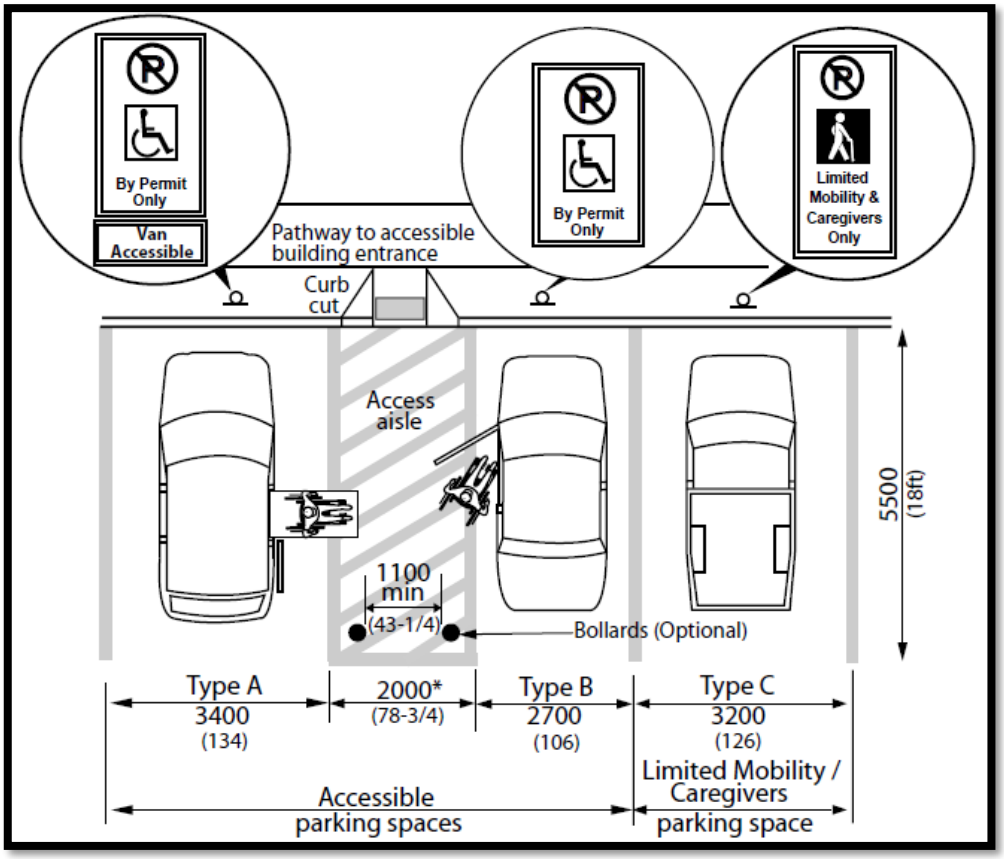


Figure 5.1.2 Side-by-side Parking Space

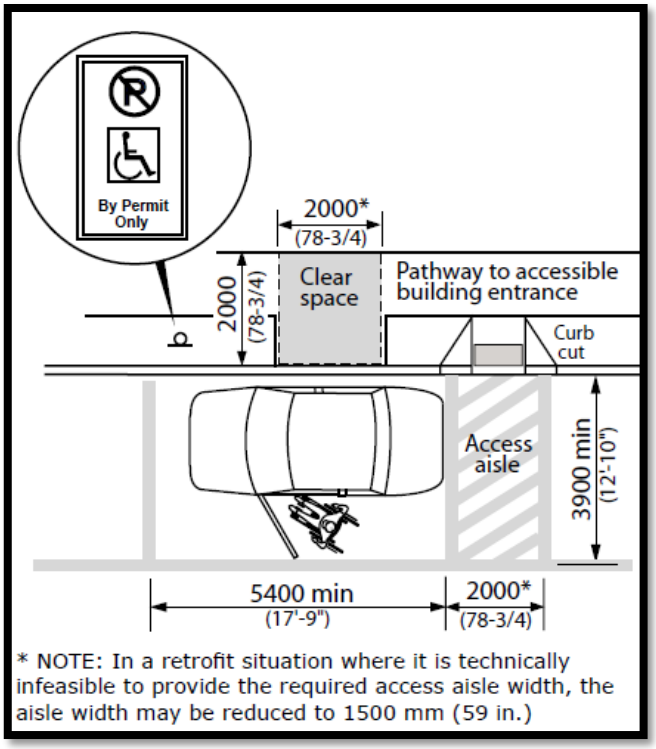


Figure 5.1.3 Parallel Parking Space

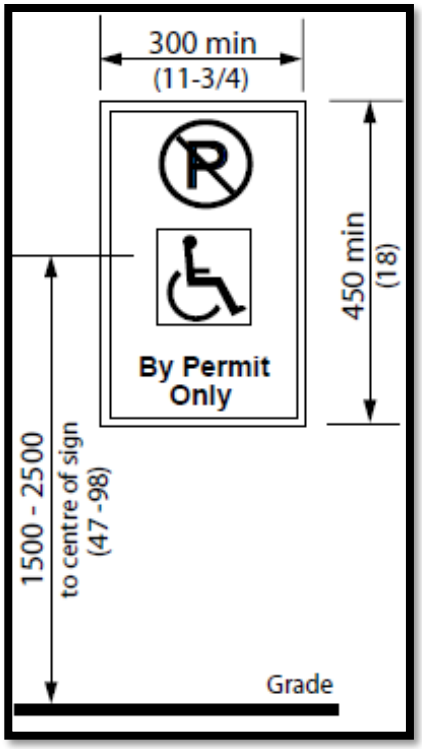


Figure 5.1.4 Designated Parking Space

5.2 Passenger Loading Zones

Rationale

Passenger-loading zones are important features for individuals who may have difficulty in walking distances or those who use parallel transit systems. Accessible transit vehicles typically require space for the deployment of lifts or ramps and overhead clearances. Protection from the elements will be beneficial to all users and particularly those that may have difficulty with mobility.

Application

Where passenger-loading zones are provided, at least one shall comply with this section.

Accessible passenger-loading zones shall be identified with signage complying with applicable provisions of 6.11.

If the passenger-loading zone is a designated mobility transit stop zone, it shall comply with all relevant municipal bylaws.

Design Requirements

5.2.1 Passenger Loading Zones

Passenger loading zones shall

- be on an accessible route complying with 2.5;
- provide an access aisle at least 2440 mm wide and 7400 mm long, adjacent and parallel to the vehicle pull-up space. (In a retrofit situation where providing a 2440 mm wide access aisle is technically infeasible, the access aisle width may be reduced to 2000 mm;
- have a curb ramp complying with 5.8 where there are curbs between the access aisle and the vehicle pull-up space; and
- have a minimum vertical clearance of 3600 mm at the loading zone and along the vehicle access route to such areas to and from the site entrances.

Note: In a retrofit situation where it is technically infeasible to provide the required access aisle width, the aisle width may be reduced to 2000 mm.

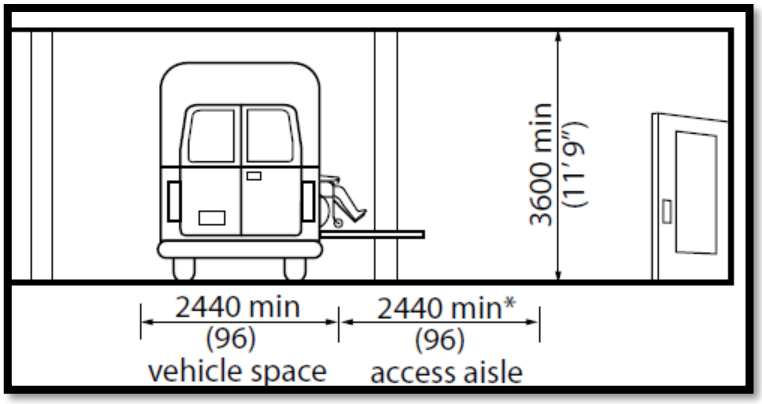


Figure 5.2.1 Clearances at Passenger Loading Zone

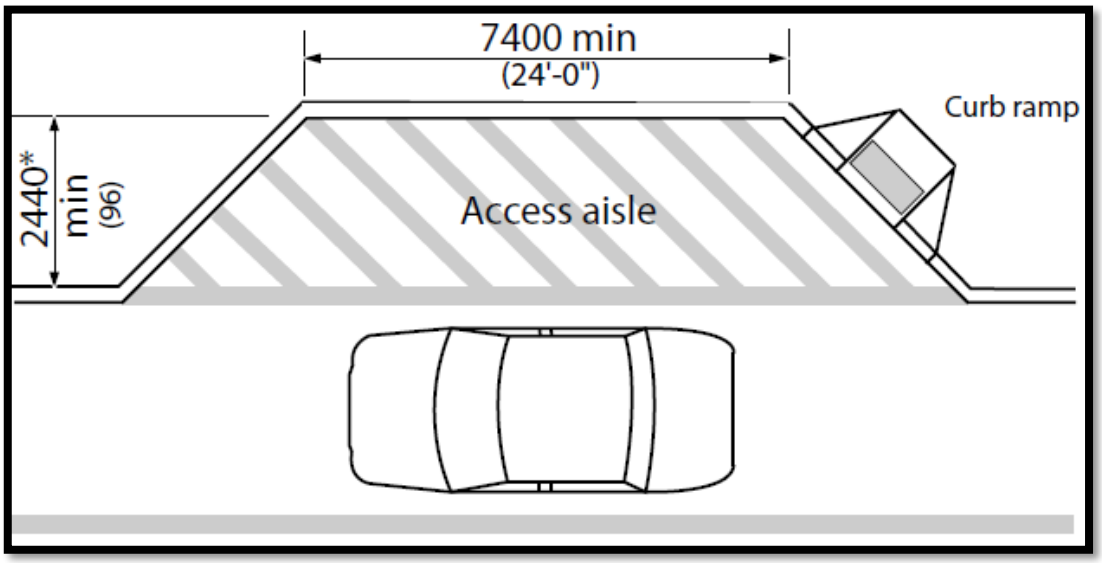


Figure 5.2.2 Passenger Loading Zone

5.3 Landscaping Materials and Plantings

Rationale

Landscape materials, trees, shrubs and plants should be selected and located with a wide variety of users in mind. For instance, plants and shrubs with a variety of fragrances can provide an interesting orientation cue for persons with a visual impairment.

Application

Landscaping materials and plantings contained within the site shall comply with this section.

Where plant beds are provided for gardening use of the general public, clients, customers or employees, 10% of the area of the plant beds, but not less than one, shall comply with this section. It is preferable to have all plant beds comply with this section.

Design Requirements

5.3.1 Planting Beds

Accessible plant beds shall

- be raised 460 mm above the adjacent floor or ground surface; and
- be located on an accessible route complying with 2.5.

The edges of planting beds located immediately adjacent to pedestrian walks, shall incorporate clearly defined, cane-detectable curbs at least 75 mm high. Curbs shall have texture and colour contrast from the surrounding area, and be designed to prevent ground cover or drainage from entering the pedestrian route.

Using contrasting flowers near walkways can also be helpful as a guide.
Raised beds can better accommodate persons who use a mobility device or those that have difficulty in bending, to enjoy or tend to plantings however may create loitering problems with skateboarders.

5.3.2 Paths of Travel and Grading

Paths of travel shall be level, stable, firm, slip resistant and free of obstructions, complying with 2.5.

Where variations in grading immediately adjacent to pedestrian walks are potentially hazardous (particularly to persons who are visually impaired), the hazardous edges of the walk shall incorporate clearly defined, cane-detectable curbs at least 75 mm high.

5.3.3 Materials and Plantings

Shrubs with thorns and sharp edges shall be planted at least 920 mm away from accessible pathways and seating areas.

Plants that drop large seed pods shall not overhang or be positioned near accessible paths or walkways.

Plants that are located near the accessible route shall not be poisonous.

Permanent guy wires shall not be used in any area which is intended for use by the general public, clients, customers or employees. Temporary guy wires, such as those used when planting new trees, shall be clearly identified using strong colour contrast.

Grates around trees, where provided, shall be slip resistant and have openings no greater than 13 mm wide in one direction, and be places to the long dimension of the opening is perpendicular to the primary direction of travel.

Tree guards shall conform to 2.4 and 2.2.

Overhanging branches of trees or shrubs over walkways or paths shall not reduce the available headroom at any part of the walkway or path to less than 2100 mm.

5.4 Community Gardens (and Sensory Gardens?)

Under Development

5.5 Benches and Rest Areas

Rationale

Benches provide convenient resting places for all individuals and are especially important for those who may have difficulty with standing or walking for extended periods. Benches should be placed adjacent to pedestrian walkways to provide convenient rest places without becoming potential obstructions. The provision of a clear and level space beside benches will allow a person in a stroller or wheelchair to 'park' next to the bench, out with the path of travel.

Appropriate seat heights can facilitate sitting and rising for individuals such as senior citizens. Armrests may also provide assistance in sitting and rising. Backrests provide support; a necessary requirements for some users and a comfort element for everyone.

A person with a visual impairment may find it easier to locate benches if they are located adjacent to a landmark, such as a large tree, a bend in a pathway, or a sound source.

Consider higher loading capacity for benches to accommodate persons of large stature.

Application

All benches, except those located in unpaved areas of parks, wilderness, beach or unpaved picnic areas, shall be accessible to persons using wheelchairs or other mobility devices.

Design Requirements

5.5.1 Benches

The design of benches and rest areas shall comply with AODA Regulation 80.29.

Note: Obligated organizations are required to consult with the public and people with disabilities. These consultations must address not only where rest areas are to be provided along paths of travel, but also how the rest areas will be designed.

Benches shall

- be adjacent to an accessible route complying with 2.5;
- be stable;
- have a seat height between 450 mm and 500 mm from the ground;
- be of contrasting colour to their background; and
    - have an adjacent level, firm ground surface at least 1525 mm x 1525 mm
    - positioned so the back of the clear space is 610 mm behind the back of the bench to aid in aligning a person in a mobility device with someone on the bench.

Where the clear space around the bench is not level with the adjacent surfaces, edge protection that complies with 2.5 shall be added.

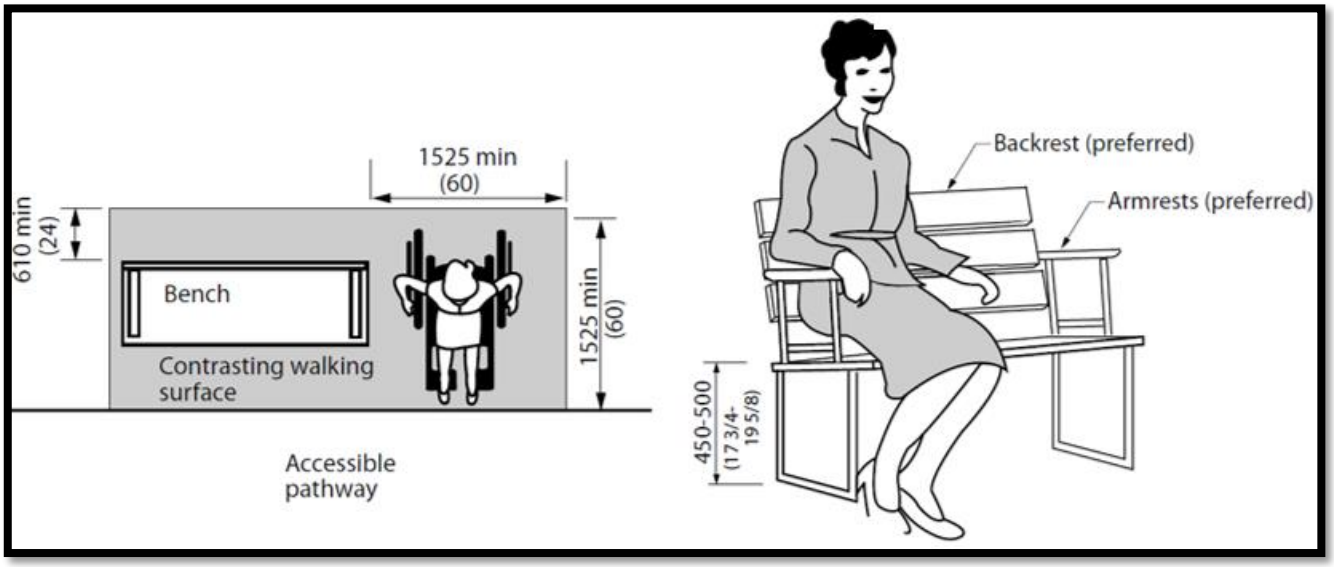


Figure 5.5.1 Exterior Rest Areas

Figure 5.5.2 Bench Seating

5.6 Public Use Eating Areas

Rationale

Fixed multi-use tables that provide some clear knee space make them accessible to a person using a wheelchair. A firm, level surface around the table, with an accessible path leading to the table, is required for wheelchair accessibility. A change in texture from a pathway to the picnic table area is an important cue for a person with vision loss.

Standard tables may not be appropriate for persons of larger stature. Providing alternative seating options will help to make outdoor dining enjoyable to a greater range of individuals.

Application

Where tables are provided in a public use eating area, at least 20%, but not less than one, for each cluster of tables shall comply with this section. It is preferable to have all tables comply with this section.

Design Requirements

5.6.1 Tables

Tables shall

- be adjacent to an accessible route complying with 2.5;
- be on a poured concrete base and permanently affixed to the pad;
- have knee space under the table at least 810 mm wide by 480 mm deep and 685 mm high as per Figure 5.6.1;
- Provide different table and seat configurations to suit 4 persons and also larger groups of 6 persons using table and benches;
- have its top surface located between 710 mm to 865 mm above the finished floor or ground surface; and
- be of contrasting colour to their background.

5.6.2 Clearance Space

Clearance around tables shall

- have a level, firm, stable ground surface extending minimum 2000 mm where accessible space is provided at a fixed multi use table for persons who use wheelchairs or scooters and min. 1220 mm on all the other sides. In a retrofit situation where it is technically infeasible to provide the required level surface, the dimensions may be reduced to minimum 1220 mm on all sides. See Figure 5.6.2.

5.6.3 Additional Features

Waste and recycling bins shall be provided on or adjacent to an accessible path near the eating area.

Accessible outdoor drinking fountain and bottle fill stations provided near these area on an accessible path, shall comply with 5.14.

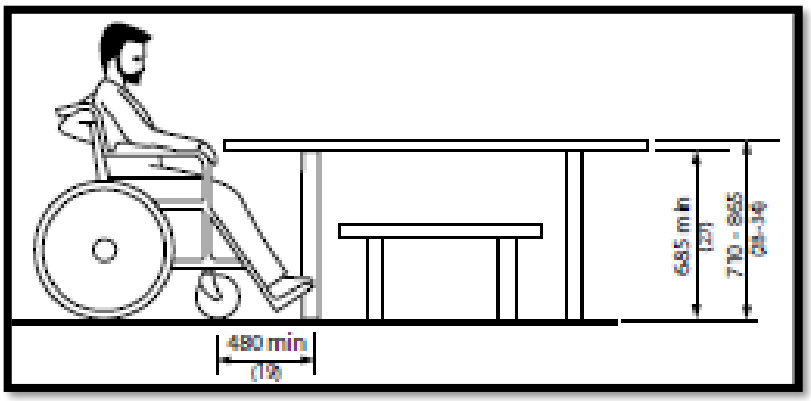


Figure 5.6.1 Height of Fixed Multi-Use Table

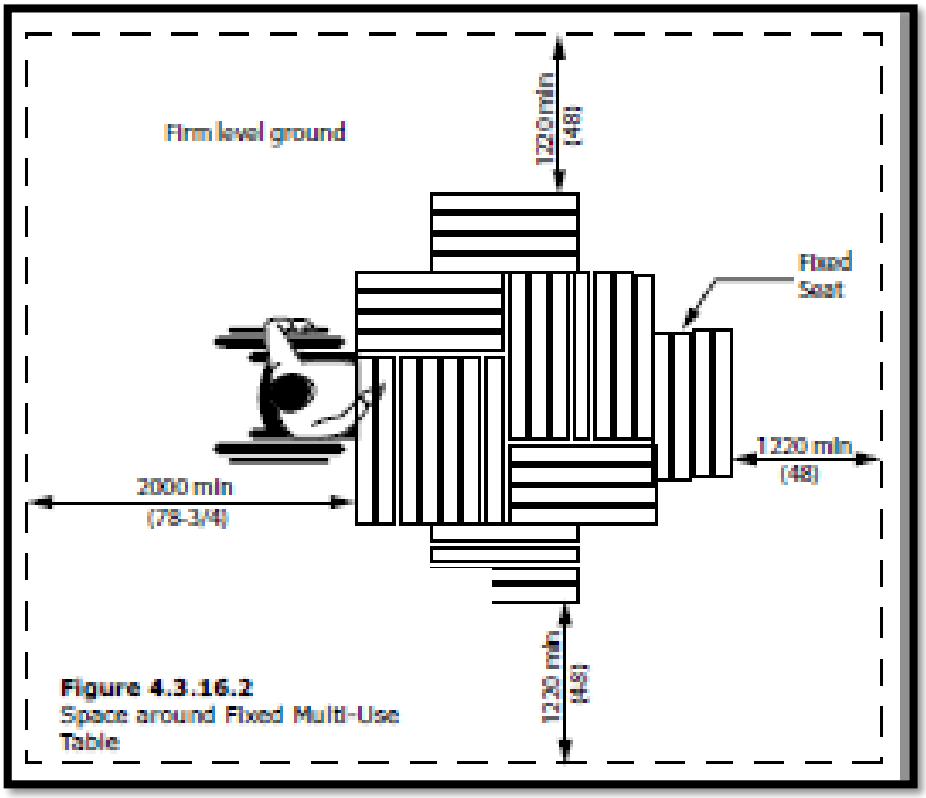


Figure 5.6.2 Space around Fixed Multi-Use Table

5.7 Streetscapes

Rationale

Clear paths of travel are important to all individuals using pathways. Streetscape elements such as newspaper boxes, trash bins, outdoor patios and bus shelters present a barrier to all pedestrians, especially those that require additional space for use of wheelchairs, scooters, strollers or delivery carts. For persons with a visual impairment, unidentified obstructions within pathways can present a hazard.

Application

Street elements, including but not limited to, waste receptacles, light standards, signs, planters, mail boxes, vending machines, benches, traffic signals and utility boxes contained within a sidewalk or other walking area, shall comply with this section, including street elements that are located inside or outside of facilities.

Design Requirements

5.7.1 Accessible Routes

At primary pedestrian routes, an accessible route at least 2100 mm wide shall be maintained along the sidewalk. Refer to Figures 5.7.1 through 5.7.3.

At non-primary pedestrian routes, an accessible route at least 1500 mm wide shall be maintained along the sidewalk.

The accessible routes along primary pedestrian routes must be identified using a minimum 300 mm wide continuous indicator surface along each side of the accessible route.
Clearances along pedestrian routes shall comply with 2.4.

Outdoor patios are increasingly encroaching on pedestrian pathways and ideally should incorporate features such as railings, indicator and pavement markings, that are easily distinguished both visually and by cane.

Accessible routes shall be designed for efficient and thorough removal of snow and ice.

Benches provided for resting places for individuals with difficulties in walking distances, shall comply with 5.5. Such furniture should incorporate strong colour contrasts and be located off pathways, to minimize its potential as an obstruction to pedestrians.

5.7.2 Street Elements

Street elements shall

- not reduce the required width of the accessible route;
- be cane-detectable, in compliance with 2.4;
- be consistently located to one side of the accessible route, entirely within an amenity strip that is hard-surfaced, at least 600 mm wide, and is identified using an indicator surface; and
- be securely mounted within an amenity strip, minimum 600 mm wide, located adjoining walkways, paths, sidewalks

Street elements shall incorporate pronounced colour contrast to differentiate it from the surrounding environment.

Street signage using the International Symbol for Accessibility should provide directional signs to accessible entrance points for the building and to accessible parking spaces.

5.7.3 Waste Receptacles and Recycling Bins

All waste receptacles, except those located in unpaved areas of parks, wilderness, beach or unpaved picnic areas or large industrial containers, shall be accessible to persons using wheelchairs or other mobility devices.

Provide waste receptacles at sidewalks and other walking areas for guide dog users, as well as for other pet owners.

Waste receptacles and recycling bins shall be large enough to contain the anticipated amount of waste, so that overflows do not cause a tripping hazard.

Waste receptacles and recycling bins in accessible open areas, such as parks, wilderness areas, beaches or picnic areas, shall be mounted on firm, level pads adjacent to the path or sidewalk (but not directly beside seating areas).

Waste receptacles and recycling bins shall be clearly identified by suitable lettering, in compliance with the relevant parts of 6.11.

Where lids or openings are provided on waste receptacles and recycling bins, they shall be mounted no higher than 1060 mm above the adjacent floor or ground surface. Opening mechanisms shall comply with 6.1.

5.7.4 Mailboxes

On-street mailboxes and community mailboxes shall

- be located immediately adjacent to an accessible route;
- incorporate a clear area at least 810 mm wide x 1370 mm long in front of usable parts;
- where provided, have slots for posting mail located to be reachable from a seated position;
- where provided, have at least 10%, but no less than one, mailbox for collecting mail, located to be reachable from a seated position;
- have operating mechanisms in compliance with 6.1; and
- be kept clear of snow.

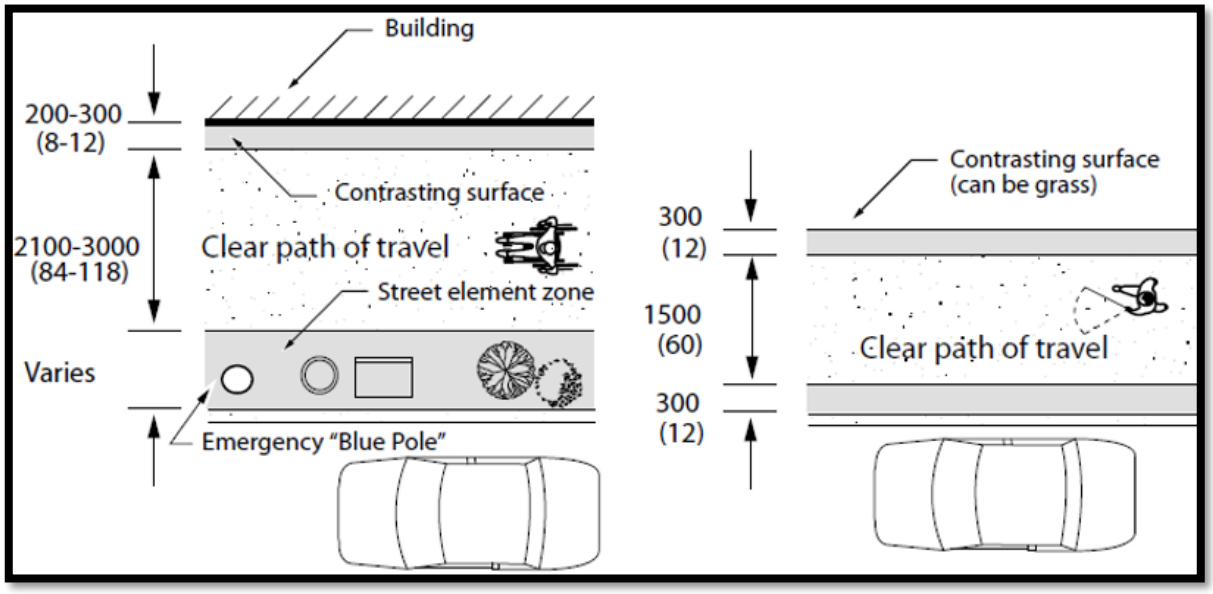


Figure 5.7.1 Typical Streetscape Configurations

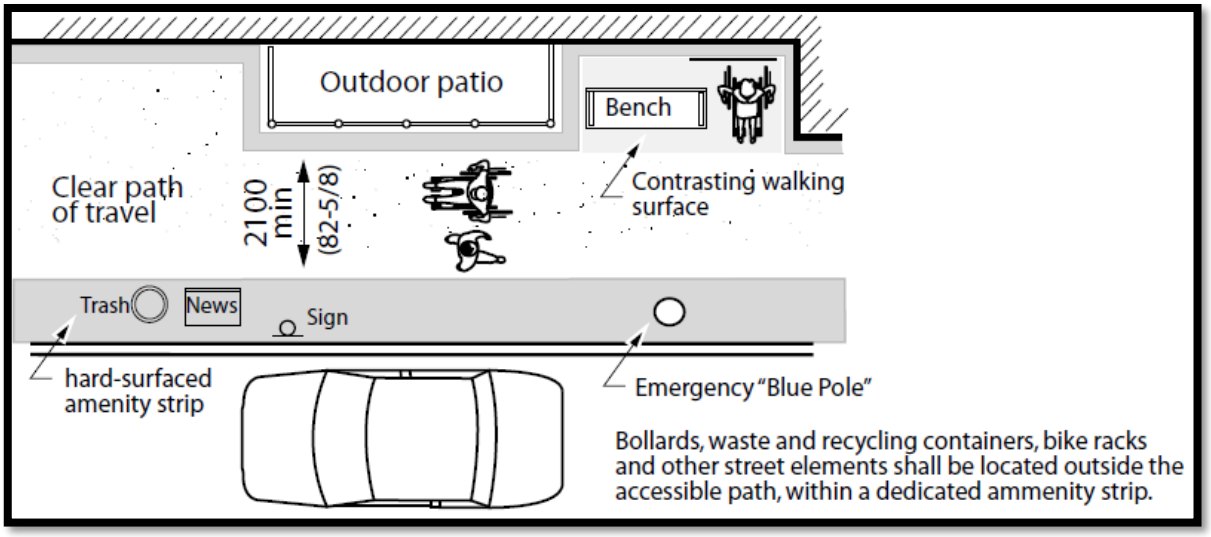


Figure 5.7.2 Streetscape

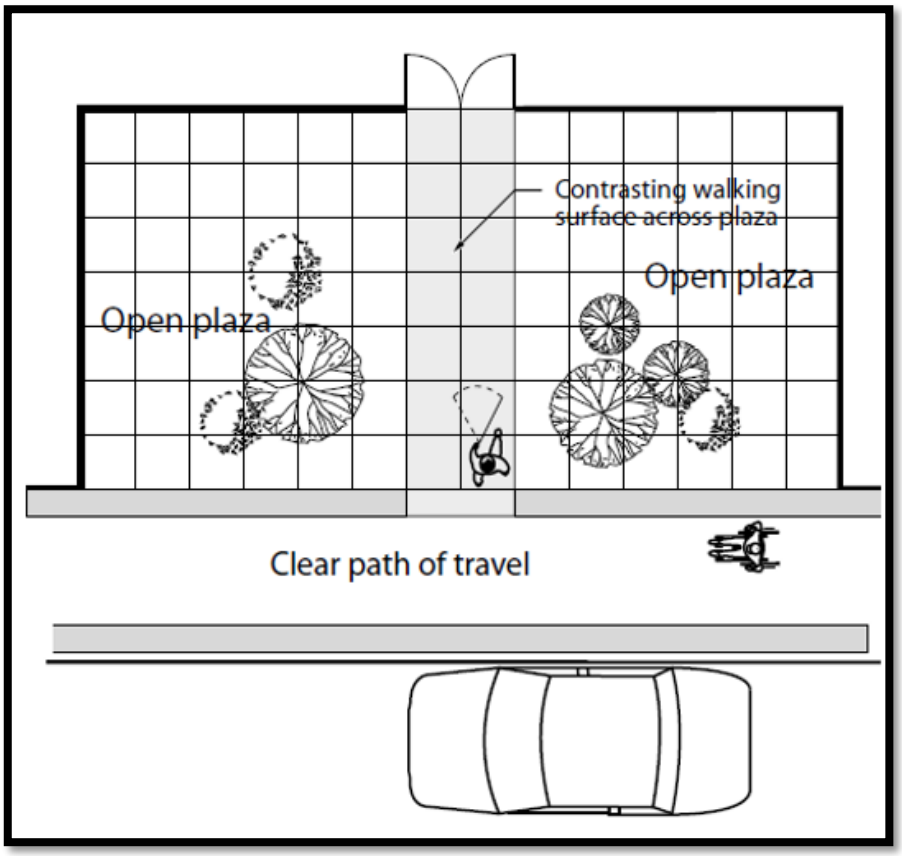


Figure 5.7.3 Pathway across Open Plaza

5.8 Curb Ramps

Rationale

In the interest of moving people safely and efficiently off a roadway, the design of curb ramps is very important. The same issues related to the slopes of ramps apply equally to slopes of curb ramps.

Application

Curb ramps complying with this section shall be provided wherever any path of travel crosses a curb.

Design Requirements

5.8.1 General Requirements

Accessible curb ramps shall be on an accessible route complying with 2.5.

Where an accessible curb ramp is on an accessible route it must be aligned with the direction of travel.

Flared sides shall be provided on a curb ramp or blended transition where pedestrians are likely to walk across and shall have a slope measured parallel to the curb like with ratio between 1:15 - 1:10 (6.67% - 10%), be slip resistant and be texture and colour contrasted with the adjacent surfaces.

A curb ramp, depressed curb or blended transition shall provide for appropriate drainage so that water does not accumulate on the pedestrian route, and have no catch basin gratings within the pedestrian crossing.

The running slope shall be between 1:50 and 1:20 (2%-5%). In a retrofit situation where it is technically infeasible to achieve these slopes, a running slope no steeper than 1:12 (8.3%) may be used.

The maximum cross slope shall be no more than 1:50.

The maximum slope on a flared side shall be no more than 1:10.

The minimum width of curb ramps, exclusive of flared sides, shall be 1830 mm.

Curb ramp configuration shall be as illustrated in Figures 5.8.1 to 5.8.7.

The maximum cross fall of gutters and road surfaces immediately adjacent to curb ramps shall be 1:20.

Curb ramps at pedestrian crosswalks shall be wholly contained within the area designated for pedestrian use.

Where pedestrian crossing signals are provided, they shall comply with 5.9.

Provide dedicated area for snow piling from all curb ramps, away from pedestrian routes.

5.8.2 Surfaces

Surfaces of curb ramps shall

- be slip-resistant;
- have a smooth transition from ramp to adjacent surfaces; and
    - incorporate a Tactile Walking Surface Indicator flat-topped domes or cones in compliance with 2.3;
    - 600 mm long, starting 150-200 mm back from the edge of the curb; and
    - extending the entire width of the curb ramp.

5.8.3 Depressed Curbs

Where a depressed curb is provided on an exterior path of travel, the depressed curb shall:

- have a maximum running slope of 1:20 (5%) even in retrofit applications;
- have a minimum width of 1830 mm;
- be aligned with the direction of travel; and
    - where provided at a pedestrian crossing, it shall incorporate a Tactile Walking Surface indicator flat-topped domes or cones that complies with section 2.3;
    - is located at the bottom portion of the depressed curb that is flush with the roadway;
    - is set back 150 - 200 mm from the curb edge; and
    - is a minimum of 610 mm in depth.

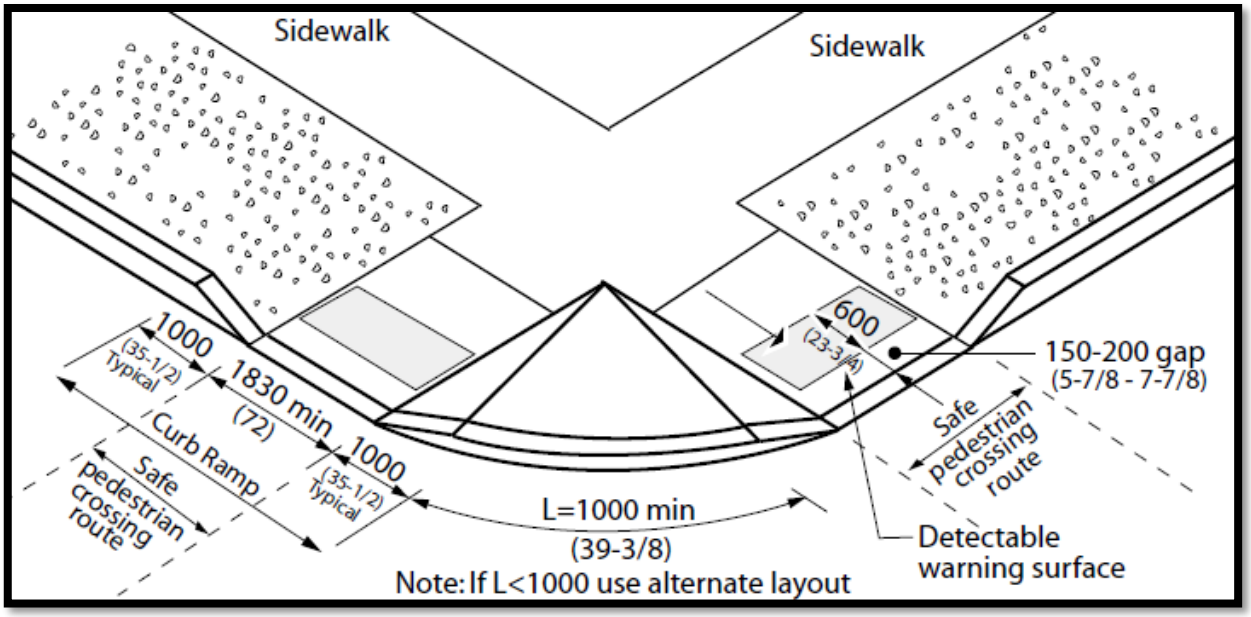


Figure 5.8.1 Standard Curb Ramp

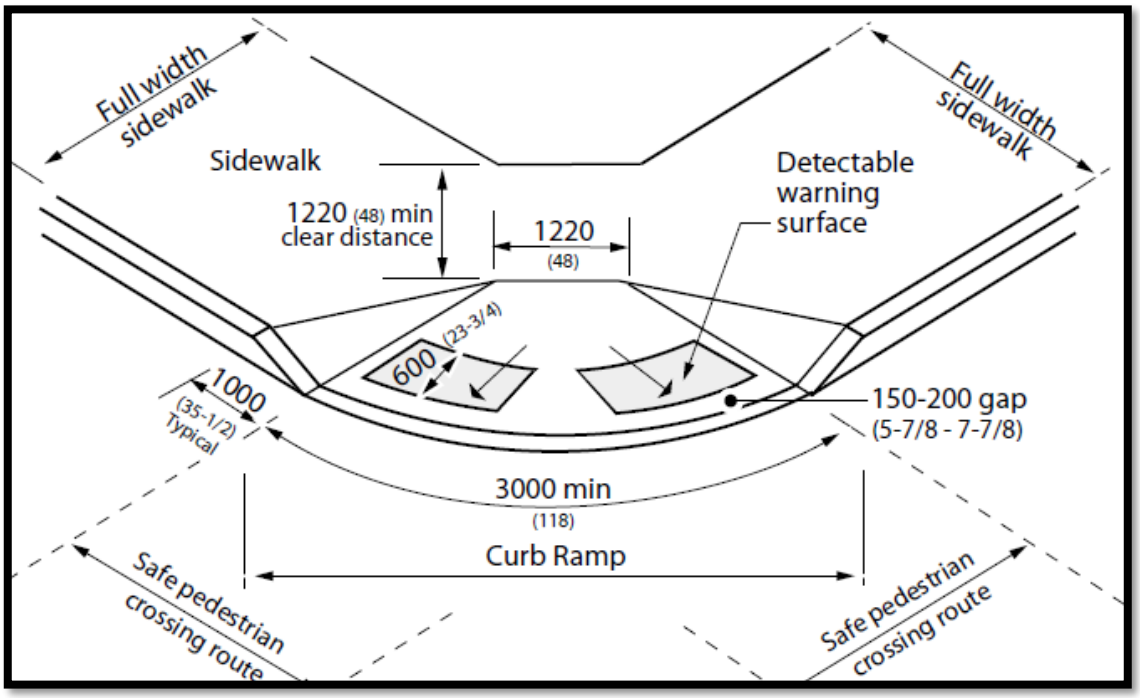


Figure 5.8.2 Alternate Curb Ramp

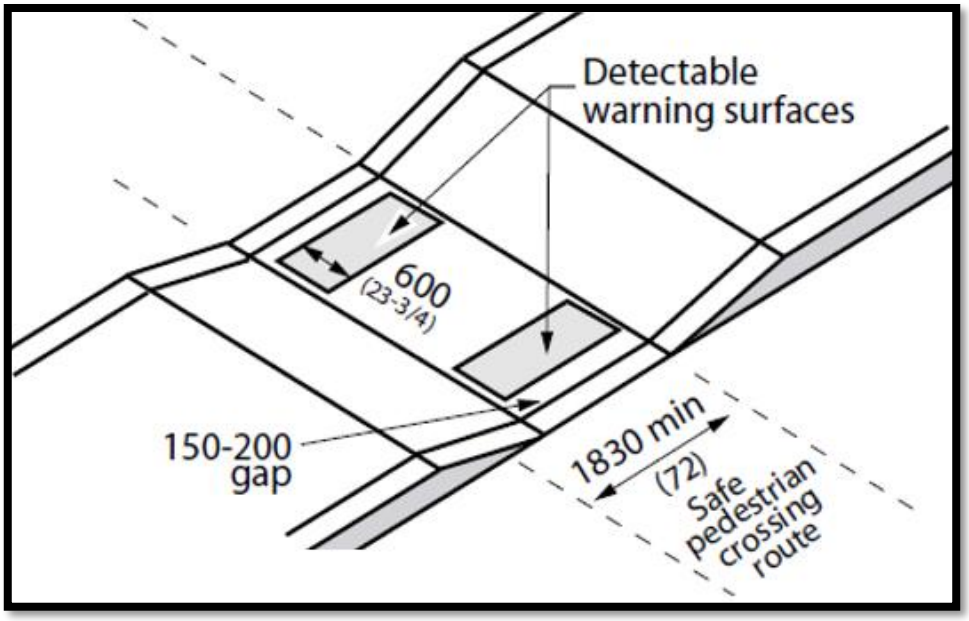


Figure 5.8.3 Curb Ramp at Narrow Median Sidewalk Crossing

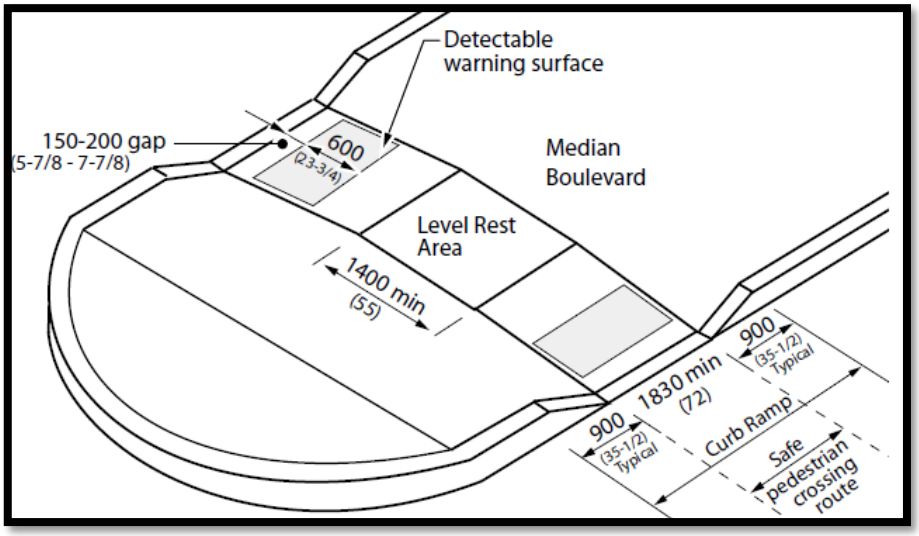


Figure 5.8.4 Curb Ramp at Wide Median Sidewalk Crossing

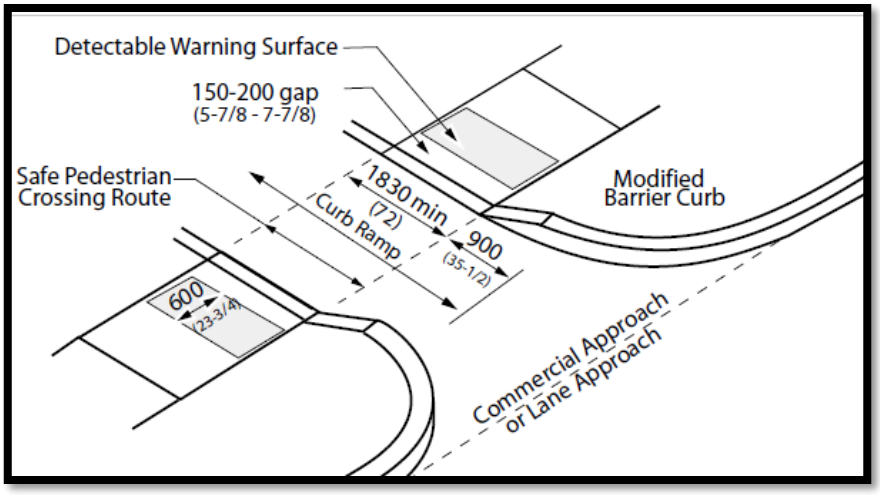


Figure 5.8.5 Curb Ramp at Commercial or Lane Approach

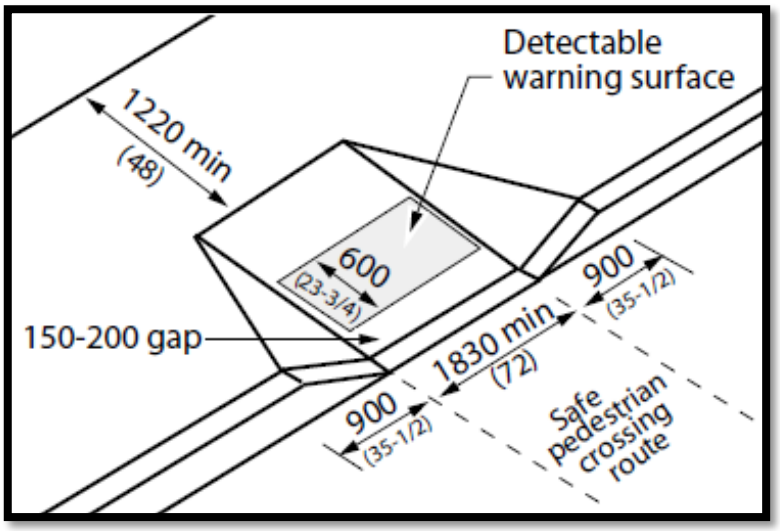


Figure 5.8.6 Curb Ramp at Mid-Block Crossing

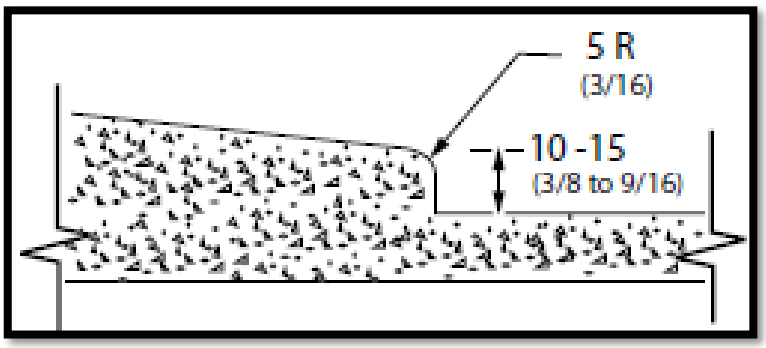


Figure 5.8.7 Curb Ramp Transition at Pavement

5.9 Pedestrian Signals

Rationale

Pedestrian crossovers should be designed to accommodate all users equally. The physical location of the controls can help identify specific directional paths, and auditory signals will enable user with low vision to locate the controls quickly.

Application

Where new pedestrian signals are being installed or existing pedestrian signals are being replaced at a pedestrian crossover, they must be accessible pedestrian signals.

Design Requirements

5.9.1 General Requirements

Accessible pedestrian signals shall

- have a locator tone that is distinct from a walk indicator tone;
- be installed within 1500 mm of the edge of the curb;
- be mounted at a maximum of 1100 mm above ground level;
- have tactile arrows that align with the direction of crossing;
- include both manual and automatic activation features; and
- include both audible and vibro-tactile walk indicators.

Where two accessible pedestrian signal assemblies are installed on the same corner, they must be a minimum of 3000 mm apart.

Where the accessible pedestrian signal cannot meet the 3000 mm minimum requirement due to site constraints or existing infrastructure, two accessible pedestrian signal assemblies can be installed on a single post, and when this occurs, a verbal announcement must clearly state which crossing is active.

In this section, "pedestrian crossover' means a pedestrian crossover as defined in subsection 1 (1) of the Highway Traffic Act.

5.10 Emergency Blue Lights

Under Development

5.11 Transit Facilities

Rationale

Links to usable transportation should be accessible to all members of a community.

Alternatives to audio- and/or visual- only presentation of scheduling information should be available, such as website, e-file on request, braille, large print format, and other similar formats.

A large bus stop platform is required where accessible buses are used. The large platform will accommodate the deploying (lowering) of a wheelchair ramp from a bus and to allow for wheelchair movement on and off the ramp, as well as alighting from the rear door.

If not properly placed and maintained, street furniture such as trees, newspaper boxes, waste and recycling receptacles can restrict access to bus stops.

Application

In addition to the all related accessibility design requirements specified, transportation facilities located within a site shall comply with this section.

Design Requirements

5.11.1 Bus Stop Platforms

Bus stop platforms shall

- be located on an accessible route in compliance with 2.5;
- be a minimum of 8500 mm long and 2100 mm wide;
- be clear of all obstacles (including trees, newspaper boxes, waste and recycling receptacles); and
- maintain clearances as specified in 2.4.

Where a bus stop platform does not meet the sidewalk, two paved connections from the sidewalk to the platform shall be provided which

- are at least 1500 mm wide;
- incorporate ground surfaces that comply with 2.2;
- are clear of all obstacles (including trees, newspaper boxes, waste and recycling receptacles); and
- maintain clearances as specified in 2.4.

5.11.2 Bus Passenger Shelters

Bus passenger shelters shall

- be located on an accessible route in compliance with 2.5;
- provide a clear view of oncoming traffic;
- be located on firm, level pads approximately at the same elevation as the sidewalk or walkway;
- incorporate access openings at least 950 mm wide;
- incorporate clear floor space in compliance with 2.1 to accommodate a person using a wheelchair or scooter;
- where glazed, incorporate a continuous horizontal safety strip decal which
    - is minimum 75 mm wide;
    - blue-coloured; and
    - located 1400 - 1600 mm above ground level
- where frameless glass is used adjacent to an access opening, incorporate a vertical colour- contrasting safety stripe, applied to cap the end of the glass panel; and
- feature at least one seat with armrests and a seat height between 400 mm and 450 mm.

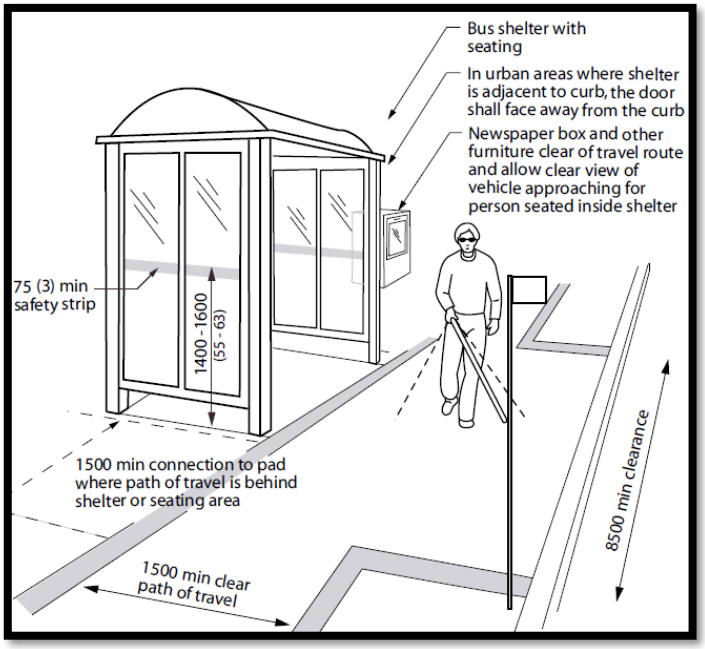


Figure 5.11.1 Bus Stop Platform with Shelter

5.12 Recreation Trails, Beach Access Routes and Boardwalks

Under Development

5.13 Balconies, Patios, Porches and Terraces

Rationale

Where a number of balconies, porches, patios or terraces are provided, it is desirable to consider options for different levels of sun and wind protection. This is of benefit to individuals with varying tolerances for sun or heat. Doors to these spaces typically incorporate large expanses of glazing. These should be appropriately marked to increase their visibility.

Thresholds at balcony doors should be avoided.

Application

Balconies, porches, terraces and patios provided for use by the general public, clients, customers or employees shall comply with this section.

Design Requirements

5.13.1 General Requirements

Balconies, porches, terraces and patios shall

- be located on an accessible route complying with 2.5; and
- have a minimum depth of 2440 mm. In retrofit situations where providing a depth of 2440 mm is technically infeasible, the minimum depth may be reduced to 1525 mm.

Exterior balconies, porches, terraces and patios, where directly accessible from the interior spaces, shall incorporate a threshold in compliance with 2.2.

5.13.2 Surfaces

Balcony, porch, terrace and patio surfaces shall

- comply with 2.2;
- be sloped to ensure removal of water; and
- be sloped no more than 2%.

5.13.3 Railings and Guards

Railings and guards at balconies, porches, terraces and patios shall

- comply with the requirements of the Ontario Building Code; and
- be designed to allow clear vision below the rail for persons seated in a wheelchair or scooter; and
- incorporate pronounced colour contrast between the railings, guards and the surrounding environment.

5.13.4 Doors

Doors opening out onto balconies shall be located to open against a side wall or rail.

5.14 Outdoor Drinking Fountains and Bottle Fill Stations

Under Development

5.15 Service Animal Relief Areas

Under Development

Section 6.0
Systems, Controls and Communications

6.1 Controls and Operating Mechanisms

Rationale

Operating mechanisms that require a high degree of dexterity or strength will be difficult for many people to use. They can also be obstacles for children, individuals with arthritis or even someone wearing gloves. Controls that require two hands to operate can also be difficult for some people, particularly those with reach or balance limitations, or those who must use their hands to hold canes or crutches.

Application

Controls and operating mechanisms generally used by staff or public (e.g., light switches and dispenser controls) shall comply with this section. Exception: restricted-access controls.

Design Requirements

6.1.1 Controls and Operating Mechanisms

A clear, level floor area at least 860 mm x 1480 mm shall be provided at controls and operating mechanisms, such as dispensers and receptacles.

The operable portions of controls and operating mechanisms such as electrical switches and intercom switches, shall be located between 900 mm and 1100 mm from the floor, and for thermostats and manual pull stations be located no more than 1200 mm from the floor.

Exception: Elevators and power door actuator controls - Refer to 2.7 and 2.14. Refer to Figure 6.1.1.

Electrical outlets and other types of devices shall be located no lower than 400 mm. Exception: Where electrical outlets are provided as components of systems furniture, these devices need not comply with this section provided they are installed in addition to electrical outlets required by the Authority having Jurisdiction. All power outlets above counters in kitchens and washrooms in Residence Rooms and Athletics Washrooms that provide power for hair dryers shall be GFI/GFCI.

Faucets and other controls shall be hand-operated or electronically controlled.

Hand-operated controls and mechanisms shall be operable

- with a closed fist;
- without tight grasping, pinching, or twisting of the wrist; and
- with a force of less than 22 N (5 lbf.).

Controls and operating mechanisms shall be capable of being illuminated to a level of at least 100 lux (9.2 ft-candles).

Controls and operating mechanisms shall incorporate a pronounced colour contrast, to differentiate them from the surrounding environment.

Individuals with a visual impairment may have difficulty with flush-mounted buttons, touch screens or controls without tactile markings. Controls that contrast in colour from their background, including colour-contrasted raised letters, may be easier to find by an individual with a visual impairment. Persons with cognitive challenges may find counterintuitive controls or graphics difficult.

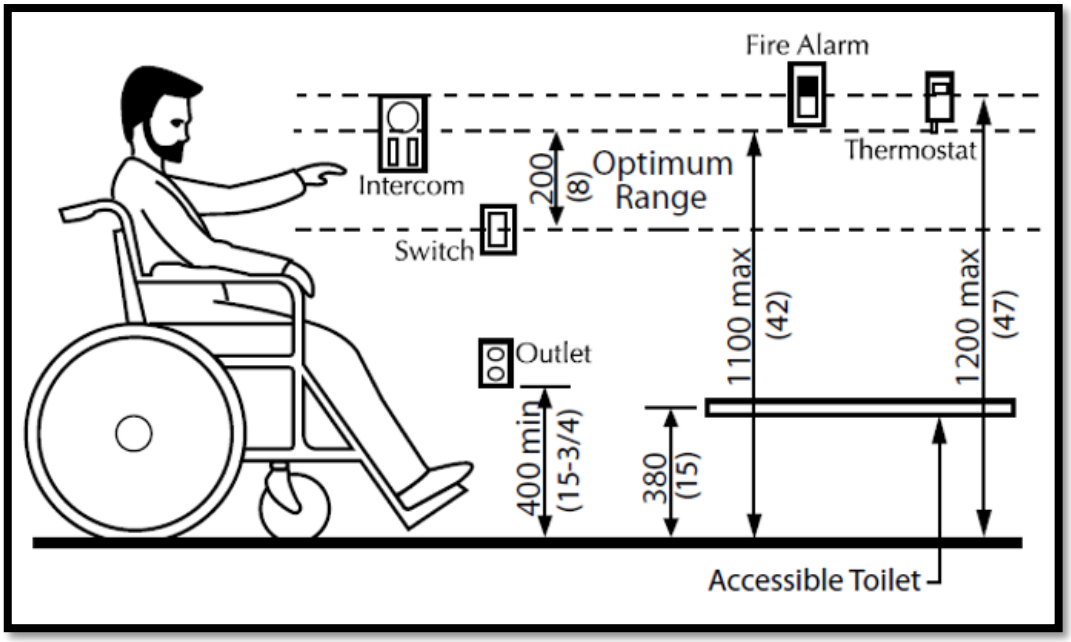


Figure 6.1.1 Reach Range for Accessible Controls

6.2 Visual Alarms

Rationale

Visual alarms are essential safety features for individuals who are deaf, Deaf, deafened or hard of hearing such that they would not hear an audible alarm.

Application

Visual alarms shall comply with this section.

At a minimum, visual alarm appliances shall be provided in facilities in each of the following areas: restrooms and any other general usage areas (e.g., meeting rooms), hallways, lobbies, a percentage of residence rooms including all accessible residence rooms and any other areas for common use.

Visual alarm signal appliances shall be integrated into the facility alarm system. If single-station audible alarms are provide, then single-station visual alarms shall be provided.

Design Requirements

6.2.1 Visual Alarm Signals

Visual alarm signals shall comply with CAN/ULC-S524 Standard for Installation of Fire Alarm Systems (latest edition).

Visual alarm signals shall have the following minimum photometric and location features:

- the lamp shall be a Xenon strobe type or equivalent;
- the colour shall be clear or nominal white (i.e. unfiltered or clear filtered white light);
- the maximum pulse duration shall be two-tenths of one second (0.2 seconds) with a maximum duty cycle of 40 percent. The pulse duration is defined as the time interval between initial and final points of 10% of maximum signal;
- the intensity shall be a minimum of 75 candela;
- the flash rate shall be a minimum of 1Hertz (Hz) and a maximum of 2 Hertz.
- the appliance shall be placed 2100 mm above the floor level within the space or 150 mm below the ceiling, whichever is lower;
- in general, no place in any room or space required to have a visual signal appliance, shall be more than 15 meters from the signal (in the horizontal plane). In large rooms and spaces exceeding 30 meters across, without obstructions 2000 mm above the finished floor, such as auditoriums, devices may be placed around the perimeter, spaced a maximum of 30 meters apart, in lieu of suspending appliances from the ceiling; and

- no place in common corridors or hallways in which visual alarm signaling appliances are required shall be more than 15 m from the signal.

Visual alarms shall be synchronized to flash in unison (especially in areas where multiple visual alarms are seen down a corridor) together or in an open area to reduce risk of epileptic seizures. To reduce this likelihood, ensure the flash-rate is less than 2 Hertz.

Visual alarms shall flash in conjunction with the audible emergency alarm.

6.3 Public Address Systems

Rationale

Public address systems should be designed to best accommodate all users, especially those that may be hard of hearing and persons who are blind. They should be easy to hear above the ambient background noise of the environment and there should be no distortion or feedback. Background noise should be minimized.

Application

Public address systems shall comply with this section.

Design Requirements

6.3.1 General Requirements

Public address speakers shall be mounted above head level include minimum height, and provide effective sound coverage in required areas, such as corridors, assembly and meeting room areas, recreational and entertainment facilities, educational facilities, and common use areas in institutional settings.

Public address systems shall be zoned so that information can be directed to key locations only, minimizing background noise in other areas.

Where public address systems are used to broadcast background music, the music shall not be broadcast continuously or throughout the entire facility.

All-point call systems shall only be utilized for fire and emergency information.

Paging systems for staff and other key persons shall be discreet and low volume, and sound only at those devices or locations where such persons might expect to be located.

Visual equivalents should be made available for persons that are deaf, Deaf, deafened or hard of hearing who may not hear an audible public address system.

6.4 Card Access, Safety and Security Systems

Rationale

In many cases, persons such as seniors and persons with disabilities may be considered to have a higher degree of vulnerability and therefore seek more reassurance and inherent security. Items such as adequate lighting and accessible signaling devices promote this security.

Emergency signaling devices are important in universal washrooms where the potential for a fall is increased and an individual may be alone.

Where card-access systems are selected as a means of entry to particular facilities or spaces, the systems and components selected should be suitable for use by persons with varying abilities, including persons with reduced manual dexterity, poor vision or difficulty with reaching. The use of heat-sensing activation buttons should be avoided, as they are indiscernible to a person who is blind.

Application

Card-access, safety and security systems shall comply with this section.

Design Requirements

6.4.1 General Requirements

Adequate lighting shall be provided continuously along public walkways, steps and ramps that are actively used at all times of year and/or where staff and public parking is provided.

Where public telephones are installed, an accessible public telephone shall be located at, or close to an accessible entrance, for the use of persons requiring assistance.

Accessible universal washrooms and accessible toilet stalls shall incorporate an emergency call system linked to a central location (e.g., office or switchboard).

6.4.2 Card Entry Systems

Card entry systems shall

- be wall mounted, or where not feasible, be post mounted, no higher than 1060 mm above the floor or ground, adjacent to the door and free of the door swing;
- be colour-contrasted from the surface on which they are mounted;
- incorporate a card slot that is illuminated or colour contrasted from the mounting plate;
- use cards that incorporate a distinctive colour, texture or raised graphic / lettering on one side; and
- have both an audible (beep) and visual (light) signal to indicate that access has been granted.

6.4.3 Encoded Entry / Exit Systems

Encoded entry / exit systems, such as keypads, shall

- be wall mounted, no higher than 1060 mm above the floor or ground, adjacent to the door and free of the door swing;
- be angled to be usable both from a standing or seated position; and
- incorporate buttons that are raised;
- are mounted on a clearly differentiated coloured background; and
- include raised numerals or letters in a constant array.

Where card readers provide secure entry through doors with power actuators, upon secure entry being granted, the door shall open automatically.

6.4.4 Emergency Call Systems

Emergency call systems in accessible toilet stalls shall comply with 3.2, and in universal washrooms comply with 3.11. Other emergency call systems shall be linked to a central monitoring location (e.g., office or switchboard), and shall

- be equipped with audible and visual signals;
- be activated by a control device no higher than 1060 mm above the floor or ground;
- incorporate buttons that are raised;
- are mounted on a clearly differentiated coloured background; and
- include raised numerals or letters on a constant array
- have a sign that reads “In the event of 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
- provide exterior call systems with a clear, level floor area at least 810 mm x 1370 mm that is connected to an accessible path of travel.

6.5 Fire and Life Safety Systems

Under Development

6.6 Self-Service Kiosks and Information Systems

Rationale

Information should be accessible to all facility users. Where universally accessible formats are technically not feasible alternate formats should be available. Video display terminals may present particular difficulties for persons with vision impairments. Alternate technology or audio interfaces are required. To ensure that a person using a wheelchair can access an information terminal, consideration should be given to the lower vantage point and reach ranges.

Application

Information systems, such as display kiosks, video display terminals, and interpretive/ informational panels shall comply with this section.

Design Requirements

6.6.1 Self-Service Kiosks and Information Systems

Automated banking machines shall comply with Canadian Standards Association B651.1 Barrier-Free Design for Automated Banking Machines (latest edition)

Self-service interactive devices shall comply with Canadian Standards Association B651.2 Accessible Design for Self-Service Interactive Devices (latest edition)

Where information is provided by video display terminals to the general public, clients or customers, the same information shall be provided in an alternative format, such as audio, braille and large-text print. The minimum font size for large-text print shall be 16 point. Refer to the Canadian National Institute of the Blind "Clear Print Guidelines" for further detail.

Information systems designed for direct access by the public, such as touch-screen video display, keyboard or keypad access, shall be mounted at a height suitable for use by a person using a wheelchair or scooter (Refer to 6.1).

Essential print information shall be printed in large text on a highly contrasting background colour, and should also be available in other formats, such as audiotape and large-text print.

Push buttons or other controls for accessing public information systems should be clearly identifiable by colour and/or tone from the background colour, and should include raised numbers, numerals or symbols for easy identification by persons with a visual impairment.
Tactile identification shall comply with 9.2.

Exhibits that include important artefacts, labels and graphics, shall be placed 1000 - 1200 mm from the floor.

Labels and descriptive signage shall be inclined from horizontal for easier reading.

Inclined informational/interpretive panels that can't be read from 750 mm away shall have at least 660 mm of knee clearance and at least 470 mm depth. If displays are intended for viewing from 750 mm or further, less clearance is permitted to a minimum height of 220 mm for toe kick clearance. The top of the panel shall be not more than 1220 mm - 1380 mm high.

Vertical informational/interpretive panels shall have text located no higher than 1750 mm. Text shall not be lower than 750 mm above the floor.

No part of the sign shall encroach on the path of travel. If encroachment is unavoidable, cane-detection through colour and texture change shall be provided on the ground.

A minimum 1500 mm x 1500 mm clear space directly in front of the sign is required for its approach and use. The clear space must be of a hard surface material.

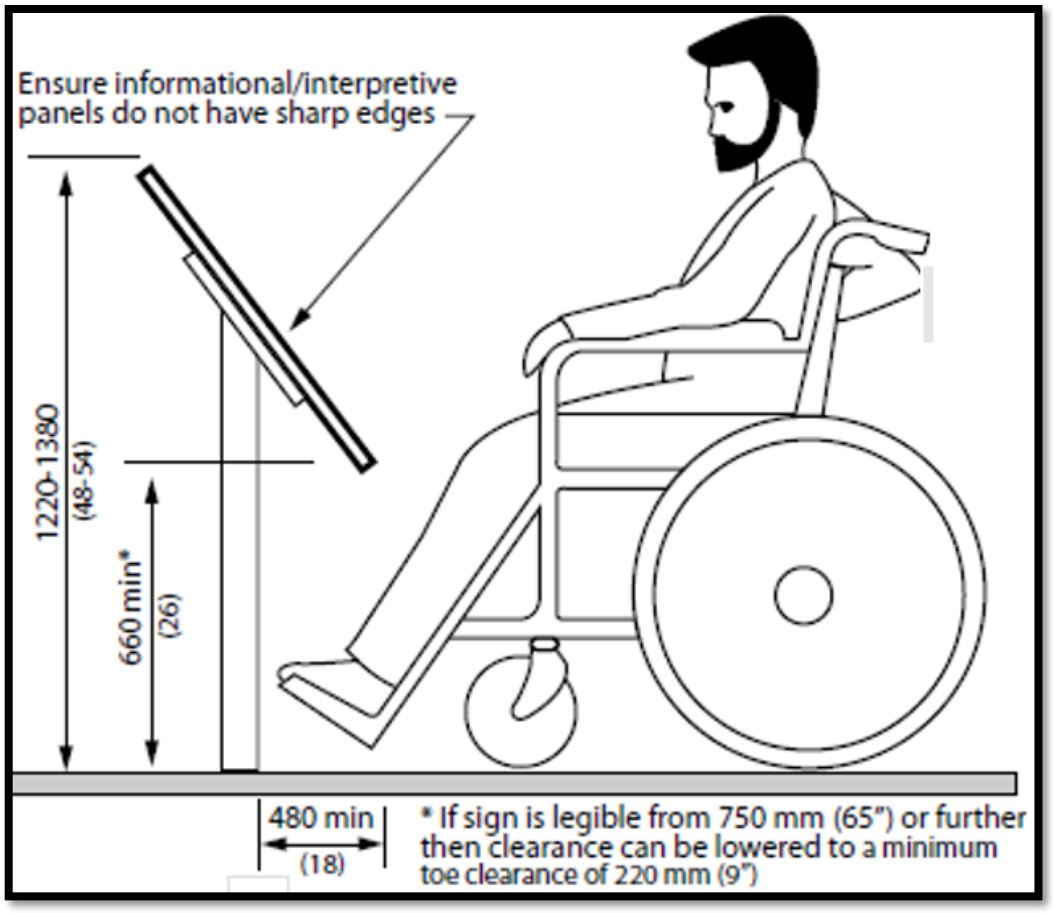


Figure 6.6.1 Critical Dimensions for Information Systems and Displays

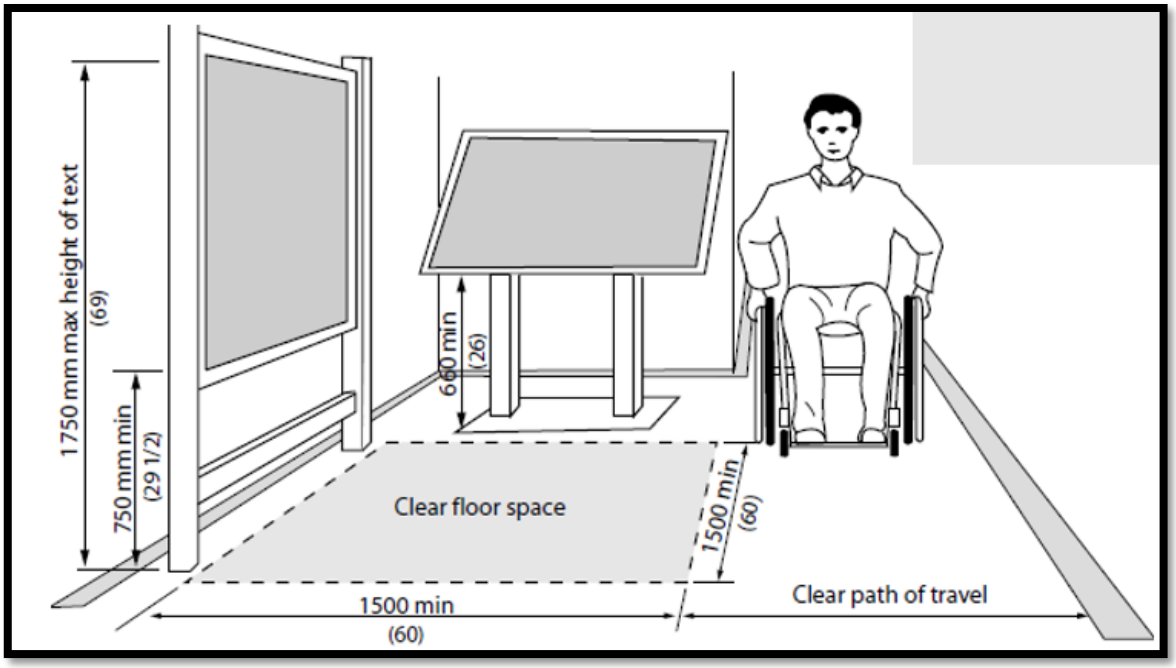


Figure 6.6.2 Clear Space and Dimensions around Information Systems

6.7 Lighting, Light Sources and Glare

Rationale

Direct or reflected glare from floors, walls or work surfaces is uncomfortable for all users and a barrier to persons with reduced vision. Therefore, every attempt should be made to select light sources, materials and finishes which do not add to the problem, and to ensure that natural daylight is controllable.

The strategic use of lighting is valuable to all individuals, and especially important for individuals with some form of visual impairment. In addition, offering a variety of task lighting at work areas is beneficial to all.

Application

Systems used to control glare and excessive reflected light shall comply with this section.

Design Requirements

6.7.1 Glare

Extensive high gloss floor and wall finishes are not acceptable, but high-gloss materials may be incorporated into floor and wall finish details, as long as they do not result in large reflective surfaces.

Monolithic floor surfaces, such as stone, granite, marble or terrazzo, shall have a matte or honed finish, to minimize reflected glare.

Finishes such as vinyl, other composition materials, quarry tile, glazed tile or mosaics, used on horizontal surfaces, such as floors and work surfaces, shall be in matte or satin finishes.

Finishes such as vinyl wall coverings, stone, marble, wood, metals, plastic laminate, etc., used on vertical surfaces, such as walls and columns, shall have matte or satin finishes. Paint finishes are permitted to have a semi-gloss finish, for cleaning and durability purposes.

6.7.2 Lighting Sources - Window Coverings

Curtains, blinds or other sun screening systems shall be provided at windows and other places where direct sunlight can adversely affect the level of lighting and / or reflected glare.

Where required, window blinds shall provide 1%, 3% fabric shade opening and/or blackout blind combinations. Larger expanses of glass may require an electronic control from teacher podium or atrium space, as required. Blinds shall be in the mid-colour palette beige to grey range (no white as this has "snow blindness" effect with full sun on the shade and, and no black as this can cause heat build-up and impact temperature/HVAC performance).

Window coverings shall be operated with controls that comply with 6.1.

6.7.3 Lighting

Light fixtures shall be selected with diffusers, lenses or recessed light sources, so that no glare is created.

Where surface-mounted fluorescent ceiling fixtures are mounted below 2440 mm, they shall have darkened sides (i.e., not wrap- around lenses) and be positioned perpendicular to the dominant direction of travel, or used in valance-type lighting along the perimeter of a space, resulting in indirect lighting.

The location of special features and key orientation elements shall be enhanced through the use of supplementary lighting. Such lighting shall have upward or downward components only.

Circadian LED light fixtures should be considered in spaces that do not have access to natural daylight through windows and/or skylights.

6.8 Acoustics

Rationale

The acoustic environment of public buildings and spaces should accommodate the unique needs of persons who are hard of hearing and who need to differentiate essential sounds from general background noise. The sound transmissions of different areas can be used as an orientation cue and heIp to navigate a space. A well designed acoustical environment is to everyone's advantage.

Application

The acoustical environment of facilities used by the general public, clients, customers and employees shall comply with this section.

Design Requirements

6.8.1 Acoustics

Floor finishes, wall surfaces and ceilings shall be selected so that occasional noise is not unduly amplified. Hard surfaces such as marble or terrazzo will allow each foot step to be heard by persons who are visually impaired, but add another level of confusion for persons who are hearing impaired.

At accessible routes in large facilities where wayfinding is problematic, the sound transmission/reflection characteristics of finish materials shall aurally differentiate major and secondary paths of travel.

Ceiling shapes shall be designed so that echoes do not occur, unless an alternate acoustical treatment is incorporated. (Note: domed shapes tend to distort sound.)

Public address and call systems shall be capable of being zoned to key areas, rather than blanketing all areas of a facility at all times. (Refer to 4.4.6.)

The use of sound masking and/or white noise generation can be successful in enhancing the quality of the acoustic environment for everyone, but in particular those with hearing loss. In office environments, open areas with workstations can incorporate sound masking or white noise generation to reduce concentration interruption for occupants. Review on a project-specific basis at the outset of the project.

In meeting rooms, learning spaces and assembly areas where the spoken word is key to comprehending the proceedings, all unnecessary background noise (e.g., from fans or other mechanical equipment, air diffusers, etc.) shall be dampened and/or the room shall include adequate sound insulation.

6.9 Assistive Listening Systems

Rationale

The provision of assistive listening devices is important for the range of individuals who may have difficulty hearing.

Adequate and controllable lighting is required for persons who lip-read, or those who require increased task lighting, due to a visual impairment.

Application

Assistive listening systems shall comply with this section.

This section applies to assembly areas where audible communication is integral to the use of the space (e.g. concert theatres, meeting rooms, classrooms, auditoria, etc.).

Such assembly areas shall have a permanently installed listening system in compliance with this section where

- they accommodate at least 50 persons or where they have audio amplification systems or where greater than 100 sq.m. in floor area; and
- they have fixed seating.

For other assembly areas, a permanently installed listening system or an adequate number of electrical outlets or other supplementary wiring necessary to support a portable assistive listening system shall be provided. The minimum number of receivers to be provided shall be equal to 4% of the total number of seats, but no less than two.

Design Requirements

6.9.1 Assistive Listening Systems

Signage complying with applicable provisions of 6.11 shall be installed to notify patrons of the availability of a listening system.

Induction loops, infrared systems and FM radio frequency systems shall be considered acceptable types of assistive listening systems for persons who are hard of hearing.

Where an induction loop system is installed, dimmer switches and other controls that incorporate transformer coils shall be located so as not to interfere with the audio induction loop.

Where infrared assistive listening devices are used, overhead incandescent lights shall be located so as not to cancel out the infrared signal at the receiver.

Where an FM loop system or other assistive listening devices are available in public facilities or meeting areas, portable headsets that are compatible with personal hearing aids shall be made available.

Where an induction loop system is utilized, at least half the seating area shall be encompassed.

Where the listening system provided serves individual fixed seats, such seats shall be located within a 15 m viewing distance of the stage or playing area and shall have a complete view of the stage or playing area.

6.10 Public Telephones

Rationale

The placement of telephones should address the limited reach of children or persons in a seated position. Longer cords facilitate the use of the phone for someone unable to get close to the phone due to a mobility device. Adjustable volume controls are important for persons who are hard of hearing, as are shelves that could support a TTY change wording device. A fold-down seat is an asset to someone having difficulty standing for extended periods. Telephones projecting from a wall may present a hazard, particularly to persons with a visual impairment, if the sides are not configured to be cane-detectable.

Application

Where public pay phones, public closed-circuit phones, or other public telephones are provided, the phones shall be equipped with a volume control and shall be dispersed among all types of public telephones, including closed-circuit telephones, throughout the facility.

Signage complying with applicable provisions of 6.11 shall be provided.

Where an interior public pay telephone is provided, then at least one interior public text telephone (TTY) shall be provided in the facility in a public use area.

Design Requirements

6.10.1 Telephones

Public telephones shall comply with CAN/CSA-T515 - Telecommunications - Telephone Terminal Equipment - Acoustic and Magnetic Field Requirements for Handset Telephones for Use by the Hard of Hearing (latest edition)

Accessible telephones shall be on an accessible route complying with 2.5.

Telephones, enclosures and related equipment shall comply with 2.4.

Telephones shall have push button controls where service for such equipment is available. The characters on the push buttons shall contrast with their background, which should be non-glare (matte finish), and the buttons themselves should contrast with their background.

The minimum handset cord length of accessible telephones shall be 1000 mm.

The minimum illumination level at operating mechanisms, the director, and shelf of accessible telephones shall be 200 lux 918.4 ft. candles).

Accessible telephones shall

- have operable portions within the reach ranges specified in 2.1 and the coin slot, located maximum 1100 mm above the floor;
- have a shelf of at least 350 mm deep by 500 mm wide with a minimum 250 mm clear space above the shelf, to accommodate the use of a portable text telephone;
- have a separate telephone directory shelf (TTY only);
- be equipped with an electrical outlet, within or adjacent to the telephone enclosure (TTY only);
- be equipped with a handset capable of being placed flush on the surface of the shelf (TTY only);
- have a clear floor space of not less than 810 mm wide centred on phone by 1370 mm deep in front of the telephone. NOTE: This space may extend maximum 480 mm beneath the telephone shelf where knee space clearance of minimum 810 mm wide, 480 mm deep, and 740 mm is provided; and
- have the top surface of a section of shelf or counter serving at least 1 telephone shall be 775 mm to 865 mm.

Text telephones (TTY's) used with a pay telephone shall be permanently affixed within, or adjacent to, the telephone enclosure. If an acoustic coupler is used, the telephone cord shall be sufficiently long to allow connection of the text telephone (TTY) and the telephone receiver.

As a new phone technology is developed for persons who are deaf or hard of hearing, installation of these devices should be strongly considered.

Accessible telephones shall be identified by the appropriate symbol of accessibility for mobility impaired persons and / or persons who are deaf or hard of hearing.

Direction signs for installed telephones shall include the appropriate access symbols.

Number of each type of telephone provided on each floor	Number of accessible telephones required for persons who use wheelchairs or scooters	Number of accessible telephones required for persons who are deaf, deafened or hard of hearing
1 or more single units	1 per floor	1 per floor
1 bank	1 per floor	1 per floor
2 or more banks	1 per bank (accessible phones may be installed as single units in proximity to (i.e. either visible or with signage) the bank. At least one public telephone per floor shall meet the requirements for a forward reach telephone.	1 per bank accessible phones may be installed as single units in proximity to (i.e. either visible or with signage) the bank. At least one public telephone per floor shall meet the requirements for a forward reach telephone.

Table 6.10.1 Number of Accessible Telephones Required

Note: A bank consists of two or more adjacent public telephones, often installed as a unit.

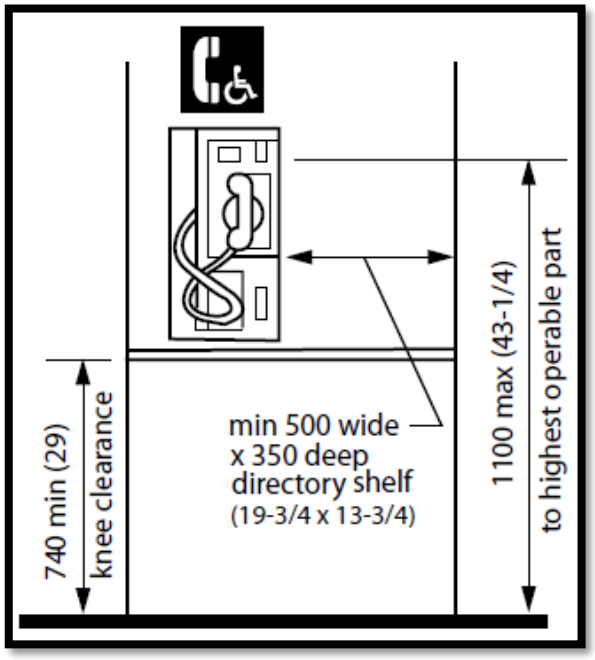


Figure 6.10.2 Accessible Telephone for Persons who use Wheelchairs and Scooters

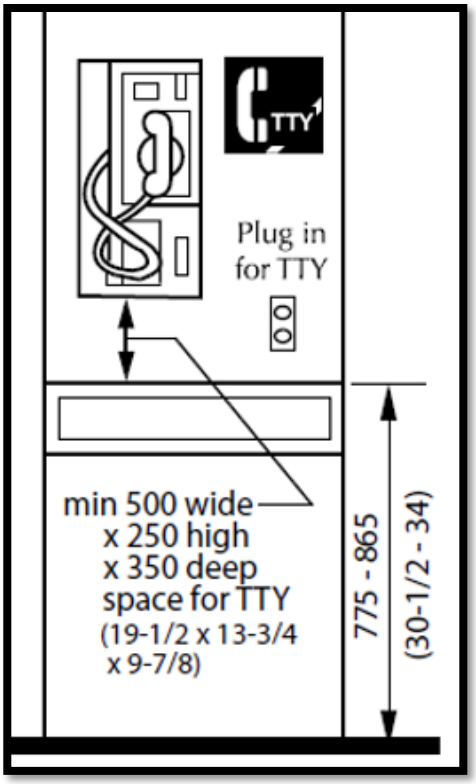


Figure 6.10.3 Accessible Telephone for Persons who are deaf, Deaf, Deafened, Hard of Hearing or Speech Impaired

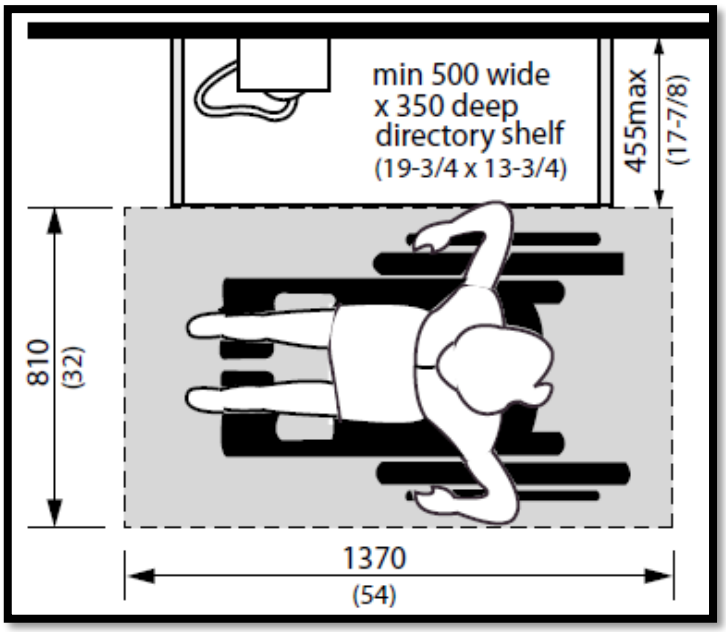
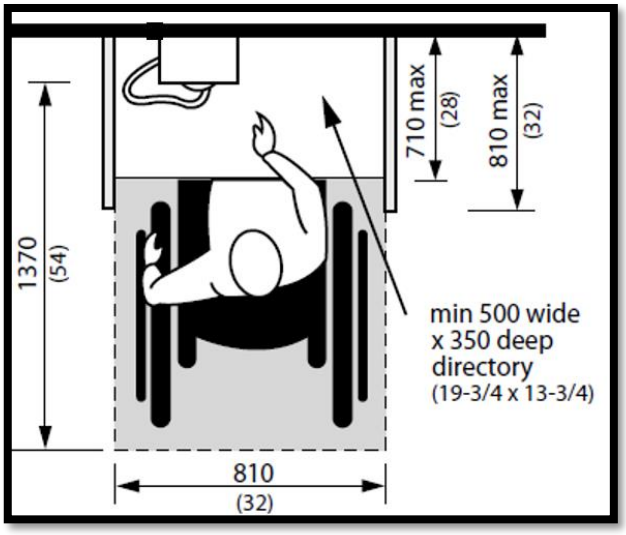
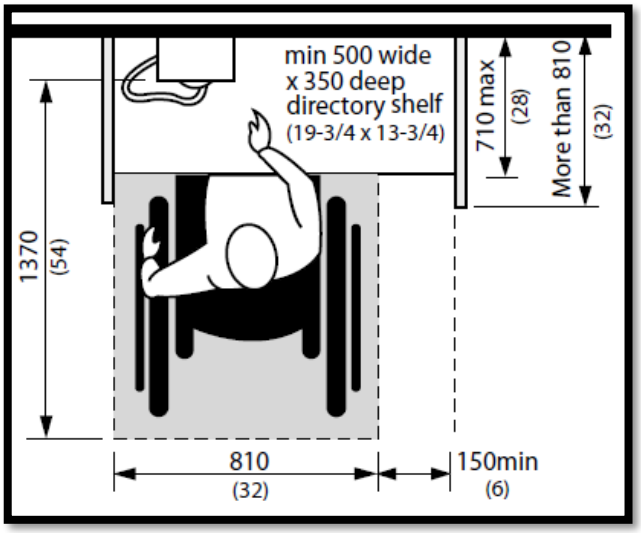


Figure 6.10.4 Parallel Approach to a Telephone





Figures 6.10.5 and 6.10.6 Frontal Approach to a Telephone

6.11 Signage and Wayfinding

Rationale

Signage should be simple, uncluttered and incorporate plain language. The use of graphic symbols is helpful for individuals such as children; those with a limited literacy level; or those who speak a different language.

Sharp contrasts in colour make signage easier for anyone to read, particularly someone with a visual impairment. The intent of the symbol must be evident, culturally universal and not counterintuitive. To enhance readability, raised tactile lettering should incorporate edges that are slightly smoothed.

Application

Signage shall comply with this section.

Signs that designate permanent rooms or spaces shall be wall mounted and include tactile characters and numbers.

Signs that provide direction to, or information about, functional spaces, shall comply with this section. Exception: Facility directories, menus and all other signs that are temporary are not required to comply.

Elements and spaces of accessible facilities that shall be identified by the International Symbol of Accessibility are

- parking spaces, designated as reserved for individuals with disabilities;
- accessible passenger loading zones;
- accessible entrances when not all are accessible (inaccessible entrances shall have directional signage to indicate the route to the nearest accessible doors in a series of doors in a row if only one is accessible;
- accessible doors in a series of doors in a row if only one is accessible;
- ramps serving an accessible entrance;
- accessible toilet and bathing facilities, including single-use portable units, when not all are accessible;
- individual accessible washroom stalls;
- accessible ablution facilities;
- accessible lockers;
- accessible counter tops for classroom tables;
- accessible telephones;

- accessible elevators and other elevating devices;
- accessible platform lifts;
- accessible means of egress;
- areas of rescue assistance; and
- any directional signage highlighting these areas

Audible signs (infrared and digital) that are readable by persons with a visual impairment using a receiving device may be the sole orientation aid across open spaces. Consideration should be given to including wire drops for future installation.

Design Requirements

6.11.1 Signage

Letters and numbers on signs shall

- be sans serif, as per Figure 6.11.1.a;
- have Arabic numbers;
- have a width-to-height ratio between 1:5 and 1:10;
- use a mix of upper and lower case;
- avoid use of italics; and
- use a monospaced font rather than proportionally spaced

Character height dimensions for viewing distance shall comply with Table 6.11.1.b.

Spacing between lines of text shall be at least 25 to 30 percent of the point size.

Characters, symbols and backgrounds of signs shall have an eggshell, matte or other glare-free finish.

Characters and symbols shall be colour contrasted by at least 70% with their background, as per Figure 6.11.1.c; either light characters on a light background or dark characters on a light background. Watermarks or complicated backgrounds shall be avoided.

- Where signs are required to be tactile, letters and numerals shall be
- raised at least 08 mm, not sharply edged;
- between 16mm and 50 mm high;
- be sans serif; and
- be repeated with uncontracted braille (Grade 1), directly below tactile letters and numbers.

This is a **serif** font face

* This is a **sans serif** font face

Figure 6.11.1.a Serif and Sans Serif Font Face

Minimum Character Height in mm	Maximum Viewing Distance in mm
200 (7 ⅞ in.)	6000 (19 ft. 8 in.)
150 (5 ⅞ in.)	4600 (15 ft. 0 in.)
100 (4 in.)	2500 (8ft. 2 ½ in.)
75 (3 in.)	2300 (7ft. 6 ½ in.)
50 (2 in.)	1500 (4 ft. 11 in.)
25 (1 in.)	750 (2 ft. 5 ½ in.)

Table 6.11.1.b Character Height on Signs

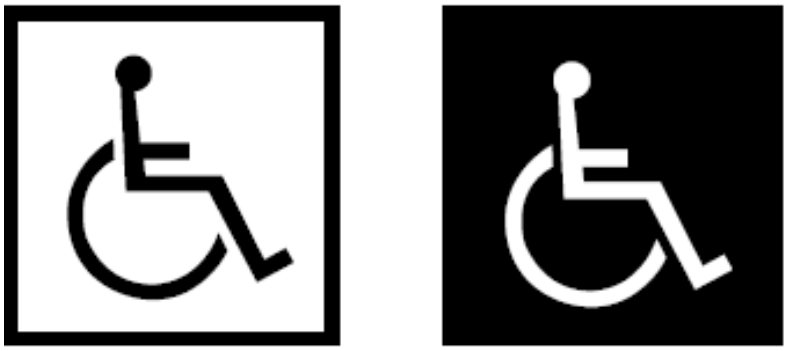


Figure 6.11.1.c Colour Contrast on Signs

Tactile signs shall be located such that characters, symbols and pictographs are not less than 1200 mm and not more than 1500 mm above the floor.

Braille dots shall have a domed or rounded top and be located below corresponding text.

Pictograms shall be accompanied by an equivalent visual and tactile verbal description, placed directly below the pictogram. The border dimension of the pictogram shall be 150 mm minimum in height, as per Figure 6.11.1.d.

Note: Must incorporate equivalent verbal description in raised tactile lettering and braille.

Figure 6.11.1.d Pictograms

Where permanent identification is provided for rooms and spaces, signs shall be installed on the wall adjacent to the latch side of the door, located with their centre line at a height between 1200 mm and 1500 mm. Where there is no wall space to the latch side of the door, including at double leaf doors, signs shall be placed on the nearest adjacent wall.

The minimum level of illumination on signs shall be 200 lux (18.4 ft. candles)

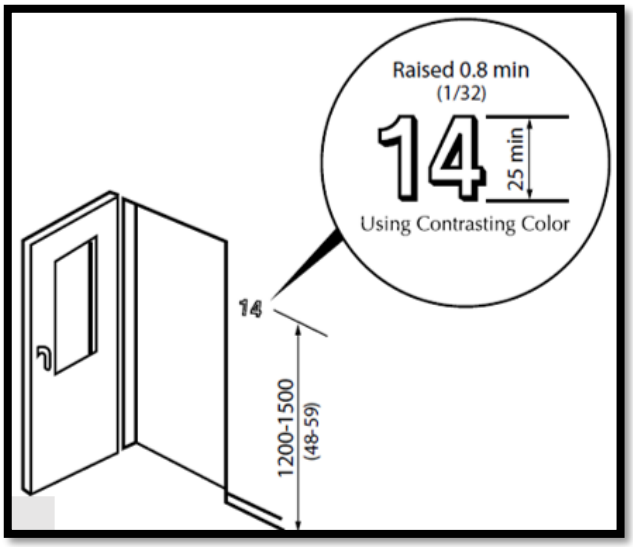


Figure 6.11.1.e Tactile Lettering

Note: Grid for reference only

Figure 6.11.1.f International Symbol for Access; and

Figure 6.11.1.g Pictogram for Limited Mobility and Caregiver Parking Space

6.11.2 Wayfinding

"Wayfinding" is a term that describes the spatial problem- solving process that a person uses to reach a destination. A mental "map" is formed of the overall setting and the desired destination. This map is based on information obtained from "orientation cues" that are available from the setting's environment. These cues include not only signage, but also the overall spatial forms, structures, sounds, surface textures, colours, illumination levels, architectural features, etc. Tactile maps and/or recorded instructions can augment these orientation cues and enable people to find their way independently, even in complex settings. A well-designed setting can thus be spatially gratifying and simple enough for persons to "wayfind" if there are adequate, varied, and non-conflicting wayfinding cues available to the individual user.

Appropriate wayfinding ensures building users can answer the following questions:

- Where am I?
- Which way am I facing?
- Is this the route to my destination?
- Is it easy for me to find my way back and to all main public facilities?

Wayfinding shall:

- Assume all building users are first time visitors;
- Provide journey based information - Providing information at appropriate points in a journey that allow users to know where they are, where their destination is, what route they should take, how to recognize the destination and how to find their way back;

- Keep messages and strategies simple - Uncluttered, ground and floor surfaces free of confusing or apparent directional patterns, comprehensible to people with a broad range of abilities and language skills;

- One message at a time - Allow users to travel from one decision point to the next with a step by step approach to reach destination;

- Employ Universal Design Strategies - Consistency of message and terminology, Consistency in typography and colour, Consistency in placement of messages, Placement of signs is critical and takes into account anthropometries, age of reader, use of assistive devices;

- Provide Wayfinding Maps - You are here locations on each map, located at floor directories, tactile maps, simple and schematic (e.g. Principal entrance, parking areas and pay books, information/ reception desk(s), public zones and common-use destinations, exits, and kiosks or self-help areas);

- Signage zones - Placed consistently on each floor such as near public elevators and along public circulation routes, Clear floor space minimum 1500 deep at signage and maps placed outside of the main path of travel;

- Information content – Will be organized in a logical order, use plain language and identify information such as accessible services/facilities on the premises, as well as other content appropriate to the building use and major occupancy;

- Signage locations shall indicate the accessible route from vehicular and pedestrian entry to the site to the parking and main entrance, accessible site facilities, passenger loading zones, directional signage to vertical circulation elements, information desk and washrooms; Elevator lobbies with floor directories, map of floor, directional signage to common destinations; Coordinate signage requirements with security needs;

- Acoustics - Sound transmission/reflection characteristics of finish materials shall aurally differentiate major and secondary paths of travel;

- Landmarks - Shall create an identity at specific decision making locations that helps to differentiate them from all other locations on the site; Shall be memorable visible and/or audible and/or scented; Include appropriate auditory cues along circulation routes and at destination points serve as useful wayfinding clues, especially for persons who rely upon hearing to orient themselves;

- Tactile direction indicators - Shall be provided in large open floor areas, such as building entry lobbies, shopping malls or transportation terminals, to facilitate wayfinding by indicating the primary routes of travel. The TDIs shall lead from the entrance points to major destinations, such as an information or registration desk and elevator;

- Clearly defined boundaries - High colour and tonal contrast in materials in flooring shall enhance defining such as the junction between walls and floors, doorway recesses and corridor intersections;
- Handrails - Provide along major corridors, all stairs and ramps to serve as a visual and tactile wayfinding guides as well as to help maintain balance, and prevent falls. Braille in-sets shall be provided on the surface of handrails where they end at landings or open spaces that identify the users locations; and
- Lighting -Provided to delineate the pedestrian route, as well as to emphasize building features, such as entrances, stairs, ramps, or signage.

6.12 Vending and Ticketing Machines

Rationale

Space in front of vending machines allows for manoeuvrability of mobility aids. Seating areas and tables adjacent to vending machines offer convenience and should accommodate the spatial requirements of a wheelchair or scooter.

Application

Vending and ticketing machines shall comply with this section.

Design Requirements

6.12.1 Vending and Ticketing Machines

Vending and ticketing machines shall be located on an accessible route in compliance with 2.5.

A clear floor space of 1480 x 1480 mm shall be provided in front of vending and ticketing machines (in addition to accessible aisle space, providing for both a forward and side approach).

Signage on vending and ticketing machines shall be in highly contrasting lettering, at least 13 mm high. Ideally, lettering and signage shall comply with relevant parts of 6.11.

The controls and operating mechanisms on vending and ticketing machines shall comply with 6.1.

Operating mechanisms should be within reach of children and individuals in wheelchairs and shall

- have a maximum height range of 1200 mm for vending machines; and
- have a maximum height of 1100 mm to the highest operable part on ticketing machines, as per Figures 6.12.1 and 6.12.2.

The mechanisms should be operable with one hand and minimal strength, to accommodate a host of disabilities including arthritis, or the need to stabilize oneself with a cane or a handful of bags.

Lighting levels and colour contrasts make the machines more accessible to those with a visual impairment and shall be included.

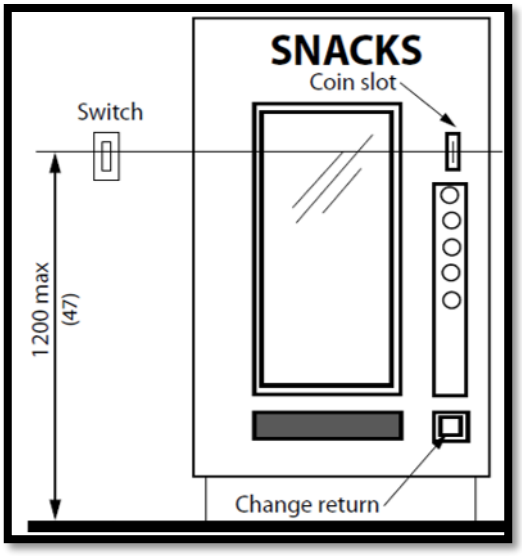


Figure 6.12.1 Vending Machine

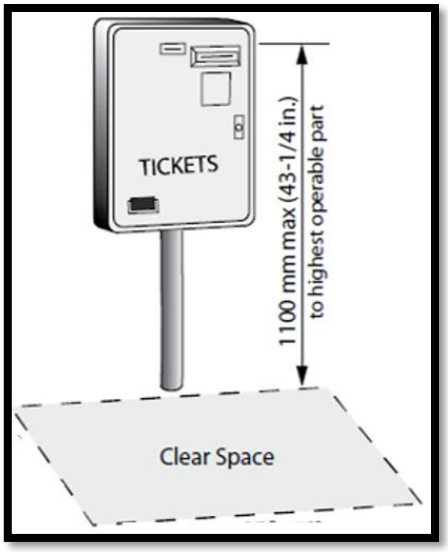


Figure 6.12.2 Ticketing Machine

Section 7.0

Facility-Specific Requirements

7.1 Arenas, Halls and Other Indoor Recreational Facilities

Rationale

Opportunities for recreation, leisure and active sport participation should be available to all members of the community. Access should be provided to halls, arenas, and other sports facilities, including access to the site, all activity spaces, gymnasia, fitness facilities, lockers, dressing/change rooms and showers. Persons with a disability may be active participants, as well as spectators, volunteers and members of staff.

Application

In addition to the general design requirements, arenas, halls and other indoor recreation facilities shall comply with this section.

Where dressing facilities are provided for use by the general public, clients, customers, performers or staff, at least 50%, but never less than one, for each type of use in each cluster of dressing facilities shall be accessible and in compliance with 3.14 and 3.15. If gender-specific change rooms are provided, there must also be gender-neutral change rooms provided. It is preferable to have all dressing facilities accessible.

Design Requirements

7.1 Arenas, Halls and Indoor Recreation Facilities

Arenas, halls and other indoor recreation facilities shall

- where visitor, spectator and/or participant seating is provided,
    - have accessible seating options in compliance with 4.9; and
    - incorporate detectable warning surfaces in compliance with 2.3 where seating is accessed by stairs.
- provide an accessible route in compliance with 2.5 to the arena/facility floor and/or ice surface, including access panels or gates providing at least 950 mm clear width;
- where facilities are provided for performances and other events, have a direct accessible route in compliance with 2.5 from the lobby/ entrances and viewing locations to all performing areas, including stages dressing rooms, washrooms and all other spaces used by performers;
- where stairs are provided, have stairs that comply with 2.11, including appropriate tactile and colour-contrasting features;
- where dressing facilities are provided, have dressing facilities that comply with 3.15;
- where lockers or shelving is provided, have lockers and shelving that comply with 4.4 and 4.5;

- where coat hooks are provided, have at least 10%, but never less than one, within the reach ranges specified in 2.1;
- where toilets and bathing facilities are provided, have toilets and bathing facilities that comply with 3.1;
- provide gender-neutral signage for all single-user, accessible washrooms, change rooms, dressing rooms, locker rooms and shower areas include the male pictogram, female pictogram and the International Symbol of Access included on the signage;
- where concessions or other service counters are provided, comply with 2.4 and 4.1;
- where swimming pool, hot pools or therapy pools are provided, comply with 7.3; and
- where staff accommodation and related support areas, offices or meeting rooms are provided, comply with all relevant sections.

7.2 Outdoor Athletic and Recreational Facilities

Rationale

Opportunities for recreation, leisure and active sport participation should be available to all members of the university community. Access should be provided throughout the campus including to playing fields and other sports facilities, all activity areas, outdoor trails, swimming areas, play spaces, lockers, dressing/change rooms and showers. Persons with a disability may be active participants, as well as spectators, volunteers, faculty and members of staff.

Application

In addition to the design requirements specified in other sections, the outdoor recreation facilities listed below shall comply with this section.

Where change facilities are provided to support the use of outdoor recreational facilities by the general public, clients, customers, performers or staff, at least 50%, but never less than one, for each type of use in each cluster of dressing facilities shall be accessible and in compliance with 3.13 to 3.15. It is preferable to have all change facilities accessible. Where gender specific change facilities, washrooms, locker rooms, and shower facilities are provided to support the use of outdoor recreational facilities, gender neutral spaces that are accessible also need to be available.

Design Requirements

7.2.1 General

Parks accessibility shall encompass the development of routes, auxiliary services, planting and an overall environment which is accessible and provides a fulfilling recreational experience for all persons with a varying level of ability.

7.2.2 Boardwalks

Where boardwalks are provided, they shall

- have a minimum width of 2000 mm;
- incorporate surfaces constructed of firm, stable, non-slip materials. (Where wooden planks are used, they shall be laid perpendicular to the path of travel and have joints no greater than 6 mm wide;
- incorporate a continuous curbed edge where the grade drop-off on any side of the boardwalk is greater than 200 mm. The curbed edge shall be at least 75 mm high and of a contrasting colour to the surrounding terrain;
- handrails, guards or other suitable barriers on both sides where the grade drop-off is greater than 450 mm;
- access points to boardwalks that allow easy wheelchair access; and
- benches, garbage cans, drinking fountains, etc., where provided, shall be located adjacent to the boardwalk on firm, level surfaces at the same elevation as the boardwalk. (Refer also to 5.7)

7.2.3 Outdoor Pools

Outdoor swimming pools shall comply with 7.3.

7.2.4 Trails and Footbridges

When designing trails, refer to Ontario Regulation 413/12 made under the Accessibility for Ontarians with Disabilities Act, Part IV.1- Design of Public Spaces Standards (Accessibility Standards for the Built Environment)

Where significant changes in grade occur, trail routes shall ideally be sloped at no greater than 1:20, or have adjacent steps and ramps.

Where steps, footbridges or ramps are used, the surfacing shall be of non-slip materials and include suitable colour-contrasting handrails and/or guards.

The slope on bridges shall not exceed 1:20.

7.2.5 Pathways

Accessible routes and walkways shall conform with 2.5.

Garbage cans, light standards, benches and other potential obstructions shall be located adjacent to pathways. (Refer also to 5.7)

A different ground colour and/or texture shall be used to indicate the following (Refer also to 9.2):

- risk areas, such as intersections, ramps or steps; and
- functional changes, such as seating areas, viewpoints or outlooks.

7.2.6 Planting and Trees

Planting and trees along accessible pathways shall comply with 5.3.

7.2.7 Rest Areas

Rest areas shall

- be provided on trails, pathways and walkways;
- be positioned adjacent to the trail, pathway or walkway;
- have accessible ground surfaces in compliance with 2.2;
- use a contrasting ground finish material to identify functional change; and
- incorporate at least one bench, in compliance with 5.5.

7.2.8 Parks, Parkettes and Playgrounds- General

Entrance gates, paths and walkways throughout the campus shall be accessible to a person using a wheelchair or scooter.

Picnic and play areas shall be provided in both sunny and shaded areas.

7.2.9 Playgrounds

Children's play areas and playground equipment, sandboxes or other amenities shall generally be designed to be accessible to and useable by children with varying levels of ability. Colour contrast is important.

Playground surfaces shall be firm, level, non-abrasive and drain rapidly. Surfaces below playground equipment, including swings, slides and climbing structures shall be level, free-draining and provide a safe, resilient landing surface.
See playground section 7.11.

7.2.10 Picnic Tables

Accessible picnic tables shall comply with 5.6.

Where public parking is provided to serve picnic facilities, accessible picnic areas shall be within 30 m of the accessible parking spaces.

7.2.11 Drinking Fountains

Accessible outdoor drinking fountains shall comply with 5.14.

7.2.12 Illumination (Where Provided)

Illumination levels shall

- be a minimum of 10 lux (1 ft-candle);
- be maintained at 5 lux (0.5 ft-candles) in areas of heavy trees and shrubbery; and
- be maintained at 5 lux (0.5ft-candles) in all other areas of park at ground level.

Light sources used shall be indirect, non-glare, non-flickering type and provide even levels of light distribution.

7.2.13 Washrooms

Where washrooms are provided to support the use of outdoor recreation facilities by students, faculty, staff, visitors and the general public, they shall comply with all applicable sections of 3.0.

7.2.14 Waterfront Areas

Where paths and/or lookout points are provided, they shall be accessible to all individuals.

Seating shall be provided along paths and at lookout points, in compliance with 5.5.

Where parking is provided, it shall be located as close as possible to waterfront area. An accessible route shall be provided from the parking area to paths and/or lookout points.

7.2.15 Natural Areas

Accessible pathways, trails and footbridges shall be provided where environmental considerations will permit.

Paths and trails shall incorporate rest areas with appropriate seating.

Where special lookout locations or wildlife viewing areas are provided, they shall be identified with clear signage.

Trails shall feature a tactile map at the start of the trail and periodically along its length.

Information and interpretive signage shall incorporate braille.

7.2.16 Grandstand and Other Viewing Areas

Where visitor, spectator and/or participant seating is provided, accessible seating options in compliance with 4.9 shall be provided.

7.2.17 Playing Fields

Controlled access points shall be designed to accommodate a person using a wheelchair or scooter. (e.g. Where turnstiles are used, an adjacent accessible gate shall be provided in compliance with 2.8)

Level seating areas shall be provided beside sports fields for spectators or participants with disabilities.

Where provided, public viewing areas shall comply with 4.9.

Where provided, public washrooms shall comply with 3.1.

Where provided, public showers and dressing/change rooms shall comply with 3.1, 3.10, 3.14 and 3.15.

7.3 Swimming Pools

Rationale

Swimming is an important recreational and therapeutic activity for many persons with disabilities. The buoyancy and freedom offered by an immersive water environment can be enabling in themselves. Primary considerations for accommodating persons who have mobility impairments include accessible change facilities and a means of access into the water. Ramped access into the water is preferred over lift access, as it promotes integration (everyone will use the ramp) and independence. Many persons who are visually impaired will benefit from colour and textural cues along primary routes of travel and at potentially dangerous locations, such as the edge of the pool, at steps into the pool and at railings.

Application

In addition to the design requirements specified in other sections, swimming pools, wading pools, hot pools, splash pads, spray pads and therapy pools shall comply with this section.

Design Requirements

7.3.1 Swimming Pools, Wading Pools, Hot Pools, and Therapy Pools

Swimming pools, wading pools, hot pools and therapy pools shall have

- where the pool is indoors, a direct accessible route in compliance with 2.5 from the lobby/entrance to the dressing/ change rooms;
- a direct accessible route in compliance with 2.5 from the dressing/change rooms to the pool deck;
- access from the pool deck into the water, provided by a ramp sloped no steeper than 1:15 (6.67%). In retrofit situations where it is technically infeasible to provide a ramp, a mechanical pool lift may be used;
- a motorized accessible chair lift that can be operated both inside the pool and on the pool deck at the deep end of the pool;
- a shower chair available at each facility for use in transferring into the water and/or shower;
- where steps are provided into the pool,
    - steps shall be marked with a colour-contrasting strip of at least 50 mm wide, at both the riser and the tread; and
    - colour-contrasting handrails on both sides of the steps. Such handrails shall extend at least 300 mm beyond the pool edge;
- where a curbed edge is provided, it shall be a minimum of 200 mm and a maximum of 400 mm in height;

- pool boundaries clearly defined by both a textural change and a colour contrast to both the water surface and surrounding pavement;
- firm, slip-resistant materials and finishes used on the pool perimeter, deck or paved areas surrounding the pool;
- non-abrasive and easy-to-clean pool perimeter finishes;
- adequate drainage on the pool deck to drain water quickly;
- where pool-depth indicator marking is provided, depth- indicator markings, as well as 'SHALLOW END' and 'DEEP END' markings, of a highly contrasting colour and sufficient size to be easily visible;
- where diving boards or platforms are provided, they shall be clearly marked and protected. Overhead clearances should be a minimum of 2100 mm or shall be protected by suitable guards;
- where lanes, and/or lane markers are provided, they shall be of a highly contrasting colour. Tie-off devices for lane markers shall be positioned such that they do not create a tripping hazard;
- where starting blocks are provided, they shall be of a highly contrasting colour and capable of being securely fixed in place;
- safety equipment and other accessories shall be stored such that they do not present a tripping hazard; and
- lifeguard chairs, slides and other pool related structures shall be in highly contrasting colours.

Wading pool access shall be safe and gradual so that a child with a disability can be assisted into the water easily and/or use a wheelchair to enter.

Swimming pools shall be of ‘level-deck’ design.

Change rooms/dressing rooms that are gender-neutral and accessible shall be provide and shall comply with 3.14 and 3.15.

7.4 Cafeterias

Rationale

Cafeteria serving lines and seating area designs need to reflect the lower sight lines, reduced reach, knee space and manoeuvring requirements of a person using a wheelchair or scooter. Patrons using mobility devices may not be able to hold a tray or food items while supporting themselves on canes or while manoeuvring a wheelchair. Tray slides should be designed to move trays with minimal effort.

Features such as colour contrasts and large print menus may assist persons with a visual impairment.

Application

In addition to the design requirements specified in other sections, cafeterias shall comply with this section.

Where fixed tables or counters are provided, at least 10%, but not less than one, shall be accessible and shall comply with 4.3. It is preferable to have all fixed tables accessible. In new construction, and where practicable in alterations, the fixed tables (or counters) shall be distributed throughout the space.

At least one lane at each cashier area shall be accessible and comply with this section. It is preferable to have all lanes at all cashier areas accessible.

Design Requirements

7.4.1 Cafeteria Areas

Where food or drink is served at counters exceeding 865 mm in height and counters are for use by customers seated on stools or standing at the counter, a minimum of 1525 mm length of the counter shall be constructed in compliance with 4.1. Service may also be made available at accessible tables within the same area.

Where the cafeteria provides accessible seating, the table surface shall provide the International Symbol for access on the surface top.

No less than two tables, each of which will accommodate 4 people shall be provided to have two wheelchair accessible spaces at one end and two fixed chairs next to those spots within the facility.

Access aisles at least 1100 mm shall be provided up to and around all accessible fixed tables. The access aisle shall be measured between parallel edges of tables or between a wall and the table edges.

Dining areas, including raised or sunken dining areas, and outdoor seating areas shall be accessible. In a retrofit situation where it is technically infeasible to provide access to all levels within a dining area, or to all parts of outdoor seating areas, at least one dining area shall be accessible. The accessible area must feature the same level of service and decor as the rest of the dining area and it must not be restricted to use by persons with disabilities.

Access to outdoor eating areas shall comply with 5.13.

Tray slides shall be mounted no higher than 865 mm, as per Figure 7.4.1.a.

Food service lines shall have a minimum clear width of 1100 mm, as per Figure 7.4.1.b.

If self-service shelves are provided, at least 50% must be within the reach ranges specified in 2.1. It is preferable to have all self-service shelves accessible.

Self-service shelves and dispensing devices for tableware, dishware, Condiments, food and beverages shall be installed to comply with 2.1.

Cashier locations should feature at least one access aisle, which is a minimum of 1100 mm wide. It is preferable to have all aisles accessible.

Cashier locations shall feature at least one accessible aisle and shall be accessible for both the cashier in a seated position and the customer in a seated position.

In banquet rooms or spaces where a head table or speaker's lectern is located on a raised platform, the platform shall be accessible in compliance with 2.10 or 2.15, as well as 2.16.

Spaces for vending machines, beverage dispensers and other equipment shall comply with 2.1 and shall be located on an accessible route in compliance with 2.5.

Barriers and/or turnstiles, where provided to control access, shall comply with 2.8.

Queuing areas shall comply with 4.2.

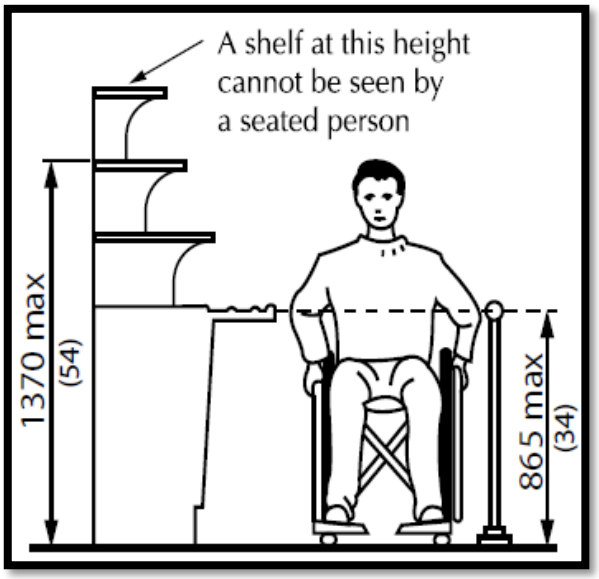


Figure 7.4.1.a Self-Serve Counter

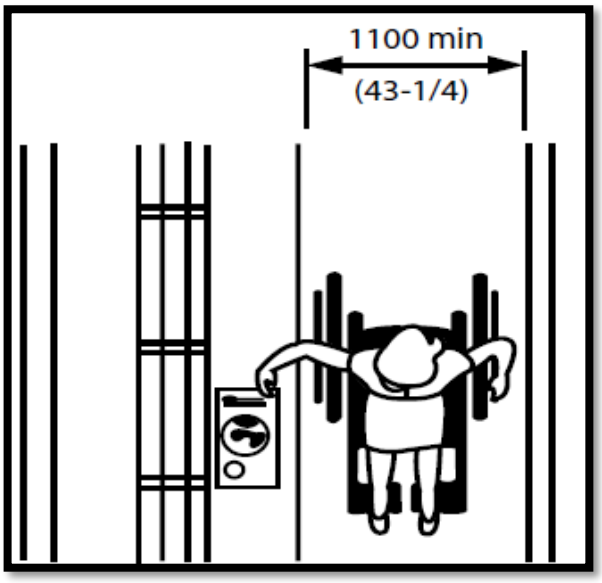


Figure 7.4.1.b Self-Serve Counter

7.5 Business and Mercantile

Rationale

The role of persons with disabilities should not be restricted or limited to that of the customer or consumer. Workspaces should be designed with a view to future adaptation or accommodation of individual equipment or assistive devices.

Application

In addition to the design requirements specified in other sections, business, mercantile and civic facilities shall comply with this section.

In areas used for transactions where counters have cash registers and are provided for sales and distribution of goods or services to the public, at least one of each type shall have a portion of the counter accessible and in compliance with this section. Such counters shall include, but not be limited to, counters in retail stores and distribution centres.

Where counters are dispersed throughout the facility, the accessible counters must also be dispersed throughout the facility.

In public facilities where counters or teller windows have solid partitions or security glazing to separate personnel from the public, at least one of each type shall provide a method to facilitate voice communication. Such methods may include, but are not limited to, grills, slats, talk-through baffles, intercoms or telephone handset devices.

Design Requirements

7.5.1 Accessible Checkouts

The number of accessible checkout aisles provided shall be in conformance with Table 7.5.1.

All accessible sales and service counters shall be on an accessible route that complies with 2.5.

In areas used for transactions where counters have cash registers and are provided for sales and distribution of goods or services to the public, the counter shall have at least one portion that is at least 920 mm in length, with a maximum surface height of 865 mm above the finished floor and shall have adjacent clear floor space of at least 1480 mm x 860 mm to allow for parallel approach by a person using a wheelchair or scooter.

In areas used for transactions that may not have a cash register but at which goods and services are sold, including, but not limited to, ticketing counters, teller stations, registration counters, information counters, box office counters and library check-out areas either a portion of the main counter shall be a minimum of 865 mm in length, with a maximum height of 865 mm or an auxiliary counter with the required minimum dimensions shall be provided in close proximity to the main counter.

In public facilities where counters or teller windows have solid partitions or security glazing to separate personnel from the public, the method of communication provided shall be accessible to both individuals who use a wheelchair or scooter and individuals who have difficulty bending.

The clear width of accessible checkout lines shall comply with 2.5, and the maximum adjoining counter height shall not exceed 965 mm above the finished floor. The top of any counter edge protection shall be no more than 50 mm above the top of the counter surface on the aisle side of the check-out counter.

Signage identifying accessible checkout aisles shall incorporate the International Symbol of Access and shall be mounted above the checkout aisle in the same location where the checkout number or type of checkout is displayed.

Any devices used to prevent the removal of shopping carts from store premises shall not prevent access or egress to persons who use a wheelchair or scooter. An alternate entrance that is equally convenient to that provided for ambulatory persons is acceptable.

Total checkout aisles of each design	**Minimum number of checkout aisles of each design**
1 – 4	1
5 – 8	2
9 - 15	3
Over 15	3 plus 20% of additional sales

Table 7.5.1 Required Number of Accessible Checkout Aisles

7.6 Libraries

Rationale

Traditional and automated systems should be available to all patrons and staff. Both the design of the facility and the provision of services should be considered. Service counters and study carrels should accommodate the knee space and armrest requirements of a person using a wheelchair. Computer catalogues, carrels and workstations should be provided at a range of heights, to accommodate persons who are standing or sitting, as well as children of many ages and sizes.

The provision of workstations equipped with assistive technology such as large displays, screen readers, etc. will increase the accessibility of a library.

The provision of book drop-off slots at different heights for standing and seated use will enhance usability.

Application

In addition to the design requirements specified in other sections, libraries shall comply with this section.

Where fixed seating, tables or study carrels are provided, at least 10% but no less than one shall be accessible and in compliance with this section. It is preferable to have all fixed seating, tables and study carrels accessible.

At least one lane at each checkout area shall be accessible and comply with this section. It is preferable to have all lanes at all checkout areas accessible.

Where computer catalogues or workstations are provided, at least 50% shall be accessible and shall comply with this section. It is preferable to have all computer catalogues and workstations accessible.

Design Requirements

7.6.1 Library Spaces

Accessible fixed seating, tables and study carrels shall be located on an accessible route in compliance with 2.5.

Clearances between fixed seating, tables and study carrels shall comply with 2.5.

Where provided, traffic control or book security gates shall comply with 2.8.

Minimum clear aisle width at card catalogues and at stacks shall be 1100 mm at primary circulation routes and never less than 900 mm elsewhere, as per Figure 7.6.1.

Aisle configurations shall incorporate a clear floor space allowing a person in a wheelchair or scooter to make a 180-degree turn in compliance with 2.1.

Dead end corridors shall not be permitted in any aisles for catalogues and book stacks.

Where shelving is provided at fixed seating, tables or study carrels, the shelving shall be no higher than 1200 mm, as per Figure 7.6.2.

Maximum reach heights at card catalogues shall comply with 2.1.

Shelf height in stack areas is unrestricted.

Circulation service counters and information service counters shall comply with 4.1.

7.6.2 Study Carrels

Accessible fixed study carrels shall incorporate

- work surfaces and knee/toe clearance in compliance with 2.1;
- an electrical outlet; and
- lighting levels of at least 100 lux (9.3 ft.-candles) at the work surface.

7.6.3 Computer Stations

Where provided, computer catalogues and computer workstations shall incorporate

- knee and toe space below the work surface in compliance with 2.1 and 4.3;
- a maximum worksurface height of 865 mm, as per Figure 7.6.3; and
- a maximum table depth of 915 mm.

Where computer workstations are provided, 10% but no fewer than one, shall have electric height adjustable work surface tops.

A minimum of one movable chair shall be provided at every information service counter, computer catalogue or computer workstation.

7.6.4 Book Drops

Book drop slots shall

- be located on an accessible route complying with 2.5;
- be located adjacent to a 2500 by 25000 mm level clear floor space. In a retrofit situation where it is technically infeasible to create a 2500 x 2500 mm clear floor space, the space may be reduced to 1700 x 1700 mm; and
- have a slot that is operable using one hand, located between 860 mm and 900 mm above the floor.

7.6.5 Acoustics and Lighting

Lighting at book stacks shall be mounted directly over the aisle space and provide a minimum of 200 lux (20ft-candles) at a nominal working height of 920 mm.

The acoustic quality shall be free of unnecessary background noise and should permit comprehension by persons with limited hearing. (Refer also to 6.8 Acoustics)

Where CDs, tapes, talking books, etc. are available as part of the library resource materials, or for loan purposes, a separate space shall be provided for auditing this material without disturbing other library users.

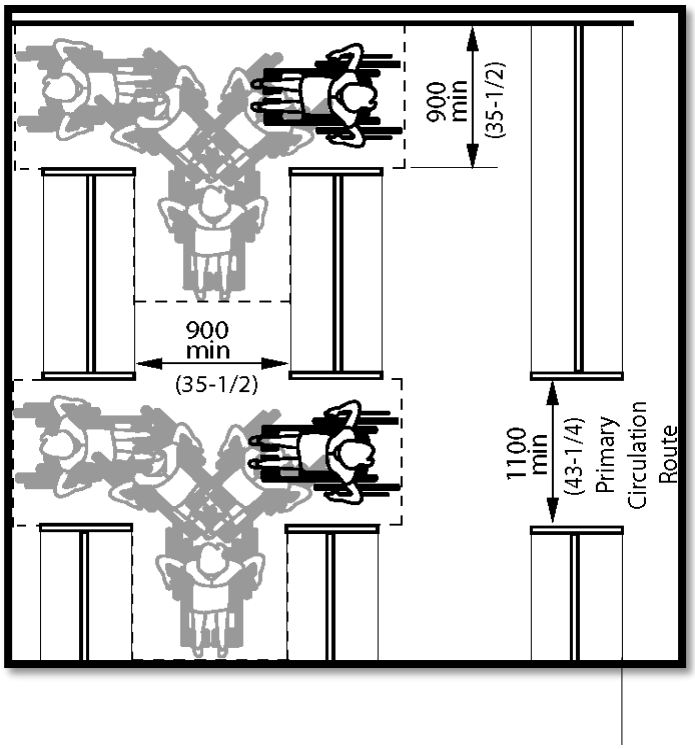


Figure 7.6.1 Aisle Width (Under Development)

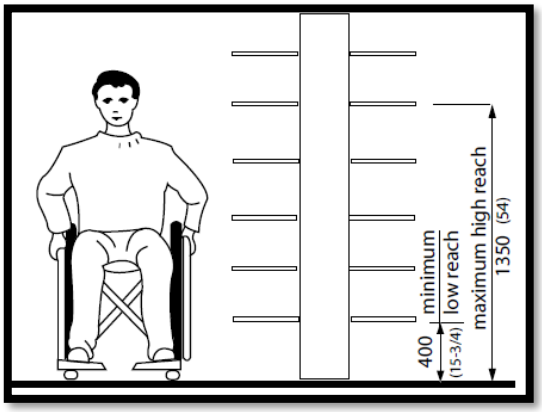


Figure 7.6.2 Reach Heights

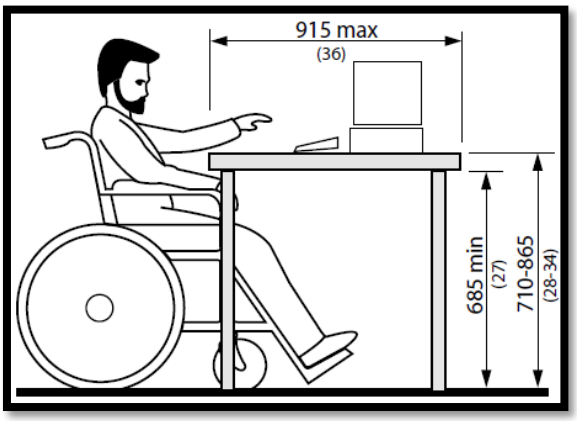


Figure 7.6.3 Work Surfaces

7.7 Learning Spaces (Under Development)

Rationale

Students, professors, teachers and staff with disabilities should have equitable access to university facilities.

Students with disabilities should be able to participate in all activities. Learning spaces should also accommodate instructors with disabilities.

This section identifies general accessibility requirements that are applicable to all learning spaces, including teaching computer labs. Additional considerations may be necessary for spaces and/or features specifically designated for the use of students with disabilities - such a special needs classroom or a washroom required to accommodate complex personal care needs.

Students, professors, teachers and staff with disabilities should be accommodated in all learning spaces throughout the university. Basic accommodation includes the ability to enter and move freely throughout the space, as well as use the various built-in elements within (i.e. blackboards, whiteboards, switches, computer stations, sinks, etc.). Individual students with a disability may require additional accommodations beyond those identified within this section.

Individuals with disabilities frequently use learning aids and other assistive devices that require a power supply. The provision of additional electrical outlets throughout learning spaces will better-accommodate the use of such equipment.

Where built-in elements are duplicated within an individual learning spaces, such as benches or pin boards, at least one of each type of element should be accessible to students, faculty, teaching assistants and staff with disabilities.

Wherever possible, fixtures, fittings, furniture and equipment should be specified for learning spaces, which is usable by students, faculty, teaching assistants and staff with disabilities. However, it is recognized that not all equipment found in learning spaces is usable by all persons with disabilities.

Providing only one size of seating does not reflect the diversity of body types of our society. Offering seats with an increased width and weight capacity is helpful for persons of large stature. Seating with increased legroom will better suit individuals that are taller. Removable armrests can be helpful for persons of larger stature as well as individuals using wheelchairs that prefer to transfer to the seat.

Seating with built-in writing surfaces should accommodate both left and right handed users.

Where various types of accessible seating is provided, Queen's University accessibility policies shall be enforced to ensure those that require the provided alternate seating have access to it.

Accessible classrooms will feature an assistive listening system and acoustic control surfaces to allow students who are deaf, deafened or hard of hearing to fully participate.

Lighting is also provided for sign language interpretation when the classroom lights are dimmed for a presentation.

Application

All Learning spaces:

All learning spaces, including teaching computer labs and open access computing labs, shall be accessible and shall comply with this section.

At least 2% of the seating shall be wider seats with a load capacity of at least 227kg (500 lbs.).

Where built-in elements such as fixed seating, tables or benches are provided within a learning space, at least 10% but no less than two, shall be accessible and in compliance with this section. Where it is technically infeasible to provide 2 accessible built-in elements, a minimum of 1 is acceptable but the minimum 10% requirement must still be met.

At least 10% of shelf space in storage facilities in learning spaces shall comply with this section.

Where writing surfaces are integrated into learning space seating, 15% but no less than one shall accommodate persons who are left-handed. The percentage of left handed surfaces are to be mostly located on aisles so they are more easily located.

An assistive listening system shall be provided.

Lecture / Studio Classrooms:

At least 3% of work stations shall be height adjustable tables with knee space below.

An accessible instructor podium shall be provided.

Examination / Critique Classrooms:

At least 3% of the seating capacity shall be accessible wheelchair seating spaces.

An accessible instructor podium shall be provided.

Design Requirements

7.7.1 General Requirements

Learning spaces shall incorporate

- at least one entry/egress door in compliance with 2.7;
- floor surfaces throughout in compliance with 2.2; primary circulation routes in compliance with 2.5, linking all functional areas and elements within the space;

- secondary circulation routes no less than 920 mm wide;
- controls and operating mechanisms in compliance with 6.1; and
- where provided, windows, glazed screens and sidelights in compliance with 2.9.

Classrooms, auditoria, assembly areas and other learning spaces that incorporate fixed seating shall

- incorporate no less than two separate accessible seating locations; and
- incorporate accessible seating locations in compliance with 4.9.

Where accessible seating is provided, Queen's University accessibility policies shall be enforced to ensure that the accessible seating is available for use by those who may need it.

Where applicable, classrooms, auditoria, assembly areas and other learning spaces shall incorporate assistive listening systems.

Tiered classrooms shall be configured to allow

- students with disabilities to access at least two separate seating areas in compliance with 4.9; and
- to allow faculty and students with disabilities to access the primary presentation area.

Where learning spaces incorporate safety equipment such as fire extinguishers, such equipment shall be accessible to and usable by persons with disabilities. Accessible work surfaces and other built-in elements within learning spaces shall

- comply with 4.3;
- where applicable, incorporate controls and operating mechanisms in compliance with 6.1; and
- be large enough to accommodate an assistant and extra equipment.

In classrooms and seminar rooms where the tables are fixed, 10% but no less than two tables shall be electric height adjustable, and the work surface top shall have the International Symbol for Access on the top. These Tables shall be on an accessible route and should be spread out within the room.

In classrooms and seminar rooms where the tables are freestanding, a minimum of two desks shall be manual-crank height adjustable and the work-surface top shall have the International Symbol of Access on the top, and be spread out within the room.
Power outlets shall be provided at fixed accessible spaces for accessibility-related devices.

Work surfaces shall incorporate non-glare finishes.

Accessible storage elements within learning spaces shall

- be located on an accessible route with adjacent clear floor space in compliance with 2.1;
- comply with at least one of the reach ranges specified in 2.1; and
- incorporate operable portions that comply with 6.1.

Where pin boards, blackboards, whiteboards or other display systems are provided within learning spaces, at least one of each type shall

- be located on an accessible route with adjacent clear floor space in compliance with 2.1; and
- have its highest edge maximum 2285 mm.

Where learning spaces incorporate demonstration areas such as benches or computer stations, provisions must be made to facilitate viewing from a variety of eye-levels. The installation of mirrors over the demonstration areas is one way to provide such access.

Where provided, sinks, shall comply with 4.7.

Signage shall comply with 6.11.

Where provided windows, glazed screens and sidelights shall comply with 2.9.

Where speaker podiums are provided they shall

- be located on an accessible route in compliance with 2.5;
- be height-adjustable for use from a seated or standing position;
- incorporate clear floor space of at least 810 mm by 1370 mm, configured for forward approach;
- incorporate turning space behind and/or next to the podium;
- incorporate clear knee space of at least 810 mm wide, 480 mm deep and 685 mm high; and
- incorporate controls and operating mechanisms in compliance with 6.1.

Spaces intended for general teaching and study shall feature a background noise level no higher than 30 dB(A).

7.8 Lab Spaces

Rationale

Students, professors, teachers and staff with disabilities should have equitable access to university facilities.

This section identifies general accessibility requirements that are applicable to all laboratory spaces, including areas such as scientific/ research labs, theatre/stage production areas, dance studios, and demonstration kitchens. Additional considerations may be necessary for spaces and/or features specifically designated for the use of students with disabilities. Individual students with a disability may require additional accommodations beyond those identified within this section.

Application

All laboratories shall be accessible and shall comply with this section.

Where built-in elements such as fixed seating, tables, benches or fume hoods are provided within a laboratory, at least 3% but no less than one, shall be accessible and in compliance with this section.

At least 10% of shelf space in storage facilities in laboratories shall comply with this section.

Design Requirements

7.8.1 Laboratory Rooms

Laboratories shall incorporate

- at least one entry/egress door in compliance with 2.7;
- floor surfaces throughout in compliance with 2.2;
- primary circulation routes in compliance with 2.5, linking all functional areas and elements within the space;
- secondary circulation routes no less than 920 mm wide;
- controls and operating mechanisms in compliance with 6.1; and
- where provided, windows, glazed screens and sidelights in compliance with 2.9.

Where built-in elements are duplicated within a laboratory, such as benches or pin boards, at least one of each type of element should be accessible to students, professors, teachers and staff with disabilities.

Wherever possible, fixtures, fittings, furniture and equipment should be specified for laboratories, which is usable by students, professors, teachers and staff with disabilities.

However, it is recognized that not all equipment found in laboratories is usable by persons with disabilities.

Areas intended for demonstration purposes, such as benches, fume cabinets or computer stations, shall facilitate viewing from a variety of eye levels. The installation of mirrors over the demonstration area is one way to provide such access.

7.8.2 Built-in Benches and Tables

Accessible built-in elements such as tables and benches shall

- have work surfaces in compliance with section 4.3.; and
- be large enough to accommodate additional assistive equipment, as well as an assistant.

Work surfaces shall incorporate non-glare finishes.

Wherever practical, controls and operating mechanism associated with built-in elements and equipment shall be mounted on the front face of the built-in element or equipment, or in an equivalent location that is reachable by a seated user. All other characteristics of controls and operating mechanisms shall comply with 6.1.

7.8.3 Lab Sinks

Where provided, at least one of each type of laboratory sink shall

- be located on an accessible route with adjacent clear floor space;
- where a forward approach is provided, incorporate knee space below at least 810 mm wide, 480 mm deep, and 685 mm high;
- have the height of the rim or the counter top (whichever is higher) 710-856 mm;
- incorporate faucets mounted at the side of the sink, and other controls in compliance with 6.1;
- where designed for forward approach, have water supply and drain pipes under the sink insulated or otherwise configured to protect against contact; and
- incorporate no sharp or abrasive surfaces under the sink.

7.8.4 Storage

Accessible storage elements shall

- be located on an accessible route with adjacent clear floor space in compliance with 2.1;
- comply with at least one of the reach ranges specified in 2.1; and
- incorporate operable portions that comply with 6.1.

7.8.5 Safety Equipment

Safety equipment such as fire extinguishers, eye baths and deluge showers shall be accessible to and useable by persons with disabilities.

7.8.6 Fume Hoods

Where provided, all fume hoods shall have base surface mounted no higher than 865 mm above the floor. At least one fume hood shall have knee space below, at least 685 mm high by 480 mm deep by 810 mm wide.

7.8.7 Room Accessories

Where pin boards, blackboards, whiteboards or other display systems are provided within laboratories, at least one of each type shall

- be located on an accessible route with adjacent clear floor space in compliance with 2.1; and
- have its lowest edge located no higher than 760 mm.

7.9 Residences (Under Development)

Rationale

Students with disabilities should have equitable access to housing choices. They should also have the opportunity to visit fellow students living in their own residences.

Application

No less than 15% of the total number of residence beds shall be located in accessible residence rooms that comply with this section.

All residence rooms in university residences shall be visitable and comply with this section.

Common-use areas of university residences shall comply with all relevant sections of this standard.

Design Requirements

7.9.1 Accessible Residence Rooms

Accessible residence rooms shall comply with the 'Accessible dwelling units' section of CAN/CSA B651: Accessible design for the built environment (most current version), and the requirement of Sentence 3.8.2.1(5) of the Ontario Building Code (most current edition).

Accessible housing provides the features required to allow a person with a disability to live as independently as possible. Consideration is given to full accessibility in all areas of the home including parking, entrances, kitchens, washrooms, living areas and storage areas.

Persons with disabilities should also have the same opportunity to utilize common use areas typical of student residences. Accessibility features need to be extended to areas such as lounges, shared kitchens and laundry facilities.

Accessible residence room configurations shall offer both right-hand and left-hand transfers from a wheelchair in bedrooms.

Doors to accessible residence rooms, and any attached washrooms shall comply with 2.7 and be equipped with power actuators.

Other locations within residence building that required power actuators include entrance and vestibule doors, corridor doors, doors to the laundry room, common lounge and kitchen areas, garbage and recycling areas, all accessible public washrooms and residence accessible washrooms in the open plan environment, and doors in stairwells that have an area of refuge added.

Laundry facilities in residence buildings shall include

- some washers and dryers that are front loading that are not stacked;
- a folding table surface that complies with 4.3;
- accessible ironing board and iron location; and
- a rinsing sink.

Laundry facilities shall have no dead end aisles within the room, and sufficient turning space.

All controls within accessible residence rooms shall comply with 6.1.

Accessible residence rooms shall incorporate an emergency call system linked to a central monitoring location (e.g., office or switchboard). The emergency call shall

- also be equipped with audible and visual signals both inside and outside the room;
- be activated by emergency call strips that are at least 900 mm long mounted horizontally 380 mm high;
- have a sign that reads "In the event of 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.

Windows in bedrooms require a black out drapery or a 1% fabric shade blind and a blackout blind. Blinds shall be in the mid-colour palette beige to grey range (no white as this has "snow- blindness" effect with full sun on the shade, and no black as this can cause heat buildup and impact temperature/HVAC performance). Black out drapery or blinds in the accessible residence rooms should be electrically-controlled.

7.9.2 Visitable Residence Rooms

Visitable residence rooms shall comply with the 'Visitable dwelling units' section of CAN/CSA B651: Accessible design for the built environment (most current version).

Visitable housing provides basic accessibility features to accommodate visitors with disabilities. The features are also advantageous to those that have temporary disabilities or are elderly. Basic access includes the ability to safely enter and manoeuvre through the main level and access a toilet. The concept of visitable housing would be important to fully integrate a person with a disability in the experience of 'residence life'.

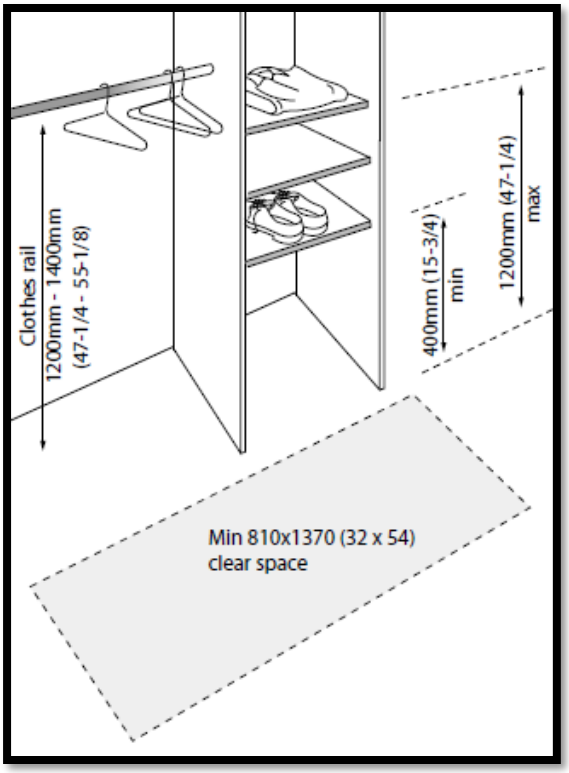


Figure 7.9.1 Residence Storage (Under Development)

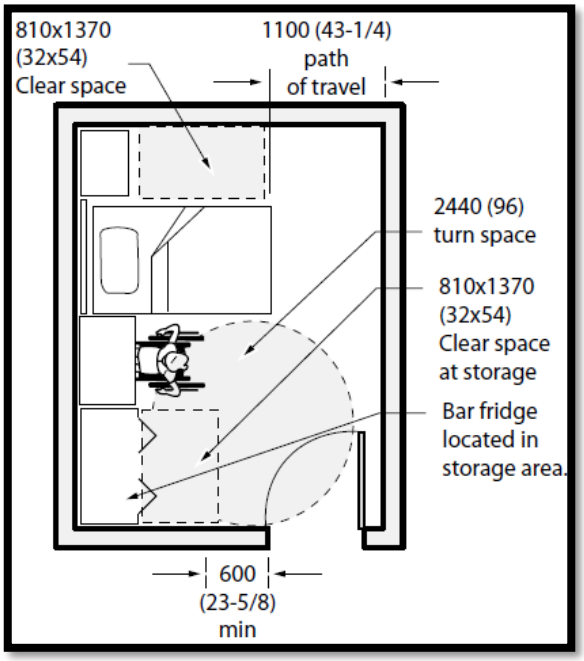


Figure 7.9.2 Sample Room Plan (Under Development)

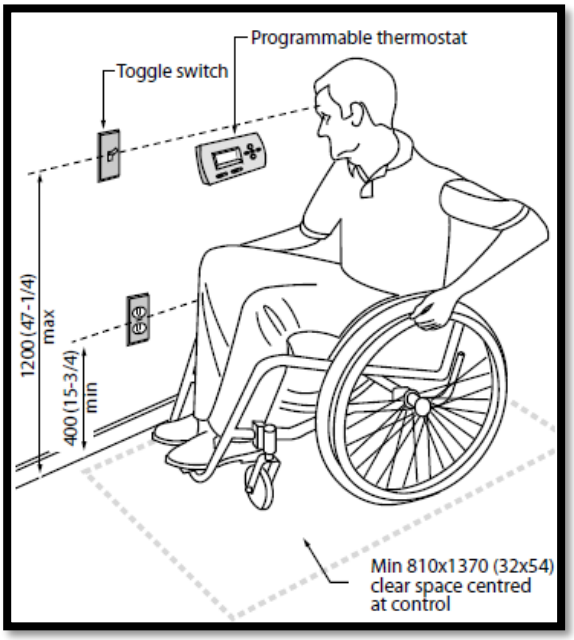


Figure 7.9.3 Residence Controls

7.10 Places of Worship

Rationale

Access to all areas of worship should be provided. Access assumes that persons with disabilities may be participants, leaders, staff or volunteers.

Application

In addition to the design requirements specified in other sections, churches, chapels and other places of worship and/or reflection shall comply with this section.

Design Requirements

7.10.1 Places of Worship

All areas in churches, chapels and other places of worship and/or reflection shall be accessible to persons with disabilities, including main areas of worship, meeting rooms, washrooms, coatrooms and offices.

Accessible seating shall be provided in compliance with 4.9.

Pulpits, altars, daises and choir areas shall comply with 2.16.

Public address systems shall comply with 6.3.

Assistive listening systems shall comply with 6.9.

7.11 Child Care and Inclusive Play Spaces

Rationale

Access to all areas within the daycare should be provided. Access assumes that persons with disabilities may be children, parents, staff or volunteers.

Application

In addition to the design requirements specified in other sections, daycare centres and daycare facilities shall comply with this section. All areas in daycare centres and daycare facilities shall be accessible to persons with disabilities.

Design Requirements

7.11.1 Child Care and Inclusive Play Spaces

Child care and inclusive play spaces shall comply with the Child Care and Early Years Act, 2014 (CCEYA) and the Ontario Ministry of Children and Youth Service Planning & Design Guidelines for Child Care Centres.

It is essential for the design to follow these in order to obtain permit to operate a child care centre.

Outdoor play spaces on site shall comply with AODA Regulations 80.18, 80.19 and 80.20. Refer also to the CAN/CSA Z614 Children's play spaces and equipment (latest edition).

Note: Before developing a new outdoor play space or redeveloping an existing one, obligated organizations are required to consult with the public and people with disabilities on the needs of children and their caregivers with a variety of disabilities. The consultation process must address requirements for accessible play elements for children and caregivers with various disabilities including, but not limited to, sensory and active play components.

The entry vestibules shall incorporate a 2500 mm turning circle to be large enough to accommodate a triple stroller and a person, in addition to the free space required for the clear swing of any door that enters the space.

All flooring surfaces shall be non-slip, even when wet.

All carpet shall be mold/mildew resistant, hypo-allergenic, and be off-gassed prior to installation off- site.

All power outlets throughout the facility shall be covered when not in use.

Accessible tables, counters, work surfaces and activity counters or built-in millwork shall be located on an accessible route complying with 2.5.

Public address systems shall comply with 6.3.

Kitchens/kitchenettes or Food preparation areas shall comply with 4.7.

Cubbies and Coat storage areas shall be sized for children and adults at accessible and standing heights, and shall comply with 4.4.

If a lockable mail box is provided it shall comply with 6.1.

If a separate dedicated child or infant sleeping room is provided it shall comply with path of travel and turn circle to all cots and transfer space for children with disabilities for at least 5% (never less than 1) of the beds/cots.

Lighting in areas where infant and/or toddler sleeping rooms are located shall have dimmer switches on lights zoned for those areas, and blackout blinds compliant for day care use. Controls for lighting and blinds to comply with 6.1.

Adjacencies for rooms shall have the entry and community lobby with access to a universal washroom, the main circulation corridor, an elevator (if on more than one level), a stroller storage area and access to the outdoor play space door.

Barrier-free power actuators should not allow children to leave the centre unsupervised. Keypad access, card reader or other type of secure access should be incorporated and operate so that the automatic door actuator only activates their use.

Any provided laundry facilities shall have non-stacked accessible front loading washer and dryer.

Where stairs and ramps are provided, handrails shall comply with 2.12 and a second child- height handrail mounted at 510 - 710 mm will be provided.

Where elevators are provided they shall be sized to accommodate a triple stroller and the appropriate staff-to-child ratio based on age group served by the daycare facility.

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Section 8.0
Heritage Properties

8.1 Heritage Properties

Rationale

Providing people of all ages, interests and capacities with road, general access to heritage properties is a highly desirable social goal. It is important to ensure that such access is accompanied by adequate comfort, equitable entry, and dignity for all.

Design solutions that best balance accessibility needs with heritage values are those that enhance the use and appreciation of a property for everyone. Work should be carefully planned and undertaken so that damage to the heritage value and character-defining elements of a historic place is minimized. The objective is to provide the highest level of access with the lowest level of impact. To determine the most appropriate solutions to access problems, it is recommended that accessibility and conservation specialists, as well as affected users, be consulted early in the planning process. The planning process should begin with an evaluation of the current strengths and weaknesses of the historic place to identify the quality of existing means of access and way finding tools.

Application

Queen's University owns and occupies a variety of heritage properties. They include but are not limited to landscape environments, residential buildings, and institutional buildings.

Design Requirements

8.1.1 Heritage Studies

Heritage projects must be developed within the context of the 1998 Queen's Heritage Study, which identifies the degree of historical significance and some of the character-defining elements of each facility.

- **Heritage Properties - Queen's Heritage Study**
  http://www.queensu.ca/camplan/reports/heritage

A 1998 study which identifies the degree of historical significance and some of the character-defining elements of each facility.

8.1.2 City of Kingston By-Law for Heritage

In recognition that the design requirements will vary greatly between facilities, the following high-level principles should be used for accessibility ups to heritage properties.

- **City of Kingston By-Law 2013-141; A Procedural By-Law for Heritage**
  https://www.cityofkingston.ca/documents/10180/3109532/Procedural+Bylaw/b60e1832-da8d-40ee-a9ec-17944656654b
- **City of Kingston Heritage Permit:**
  https://www.cityofkingston.ca/business/building-permits/heritage-permit

8.1.3 Ontario Heritage Act

- **Ontario Heritage Act R.S.O., 1990, c. O.18:** https://www.ontario.ca/laws/statute/90o18
- Refer to the entire Standards and Guidelines for the Conservation of Historic Places in Canada document for further detail (see below in 'Other Resources')

8.1.4 Other Requirements

Plan for the time/cost to conduct an archaeological investigation, for certain buildings, at significant levels of renovation;

Identify the heritage value of the historic place and character defining elements – materials, forms, location, spatial configurations, uses and cultural associations or meanings – so that required accessibility modifications will not damage or destroy them.
Protect sensitive flooring, such as tile, marble, wood inlay, etc. from the tire marks and ruts from scooters and wheelchairs.

Comply with accessibility requirements in such a way that character-defining elements are conserved and heritage value maintained.

Work with accessibility and conservation specialists and affected users to determine the most appropriate solution to access problems that will have the least impact on character defining elements and overall heritage value.

Provide accessibility that promotes independence for persons with disabilities to the highest degree practicable, while conserving the heritage value and character defining elements and within the confines of the Ontario Human Rights Code 'reasonable accommodation'.

Adapt the intervention to its anticipated lifespan, so that short-term improvements remain as reversible as possible (i.e. a temporary renovation can be removed at a later date with minimal impact on the character defining elements of the facility).

Find solutions to meet accessibility requirements that minimize the impact on the historic place and its environment.

Where aspects of a renovation are technically infeasible, consider other non-architectural options as part of a strategy to compensate, such as changes in work process, virtual tours, dioramas, and 3D models.

8.1.5 Queen's Heritage Renovations

Some examples of Queen's University Heritage Properties that have undergone major renovations that can be reviewed for how accessibility was addressed at these facilities include:

- McNeill House (Residence)
- Douglas Library (Library)
- Gordon Hall (Student Services)
- Richardson Hall (Administration)

8.1.6 Other Resources

- **Standards and Guidelines for the Conservation of Historic Places in Canada**
  http://www.historicplaces.ca/en/pages/standards-normes.aspx

  The pan-Canadian benchmark for heritage conservation practice, offering results-oriented guidance for sound decision-making when planning for, intervening on and using historic places.

- **Historic England**
  https://historicengland.org.uk/images-books/publications/easy-access-to-historic-buildings/heag010-easy-access-to-historic-buildings/

  An online pdf document that focuses primarily on incorporating accessibility to historic locations and buildings.

Section 9.0
Materials and Finishes

9.1 Materials and Finishes

Rationale

The selection of flooring materials can be critical to the safe and easy movement of persons using all kinds of mobility aids, as well as persons with low vision.

Finishes that are slip resistant and not highly reflective promote safe travel.

Application

Exterior and interior materials and finishes shall comply with this section and also to Section 2.2 Ground and Floor Surfaces.

Design Requirements

9.1.1 Exterior Finish Materials

Suitable walkway paving surfaces include macadam, concrete, compacted gravel screenings, interlocking brick and patio stones. Such materials used as walkways shall

- have joints that are no greater than 6 mm wide, with variations in level of no more than 3 mm; and
- be laid to drain.

Where possible, gratings and grills shall be located to one side of the pedestrian walkways, so as not to impede the accessible route. Where this is not possible, the bars of the grating or grill shall be located perpendicular to the dominant path of travel, with openings of no greater than 13 mm (1/2 in.).

Steps shall be finished with a non-slip material and incorporate highly contrasted nosings.

Ramp surfaces shall be firm and non-slip.

Handrails and guards shall be continuous, smooth and well maintained.

9.1.2 Interior Materials and Finishes

Floor finishes, such as carpet, should be selected and installed so that persons using wheelchairs and walkers or other mobility aids can easily travel over them without using undue energy or tripping.

Carpet shall be low pile construction, 10 or 12 gauge non-static fibre, directly glued to the subfloor. Textured or plush carpets should be avoided.

Where hard, monolithic materials are selected, they shall be non-slip and non-glare, complying with 6.7.

Where floor tiles, bricks or pavers are used, joints should be no wider than 6 mm and should be flush.

Wall Surfaces in corridors shall be non-abrasive from the floor level to a minimum of 2000 mm above the finished floor.

Steps shall be finished with a non-slip material and incorporate highly contrasted nosings.

Ramp surfaces shall be firm and non-slip.

Handrails and guards shall be continuous, smooth and well maintained.

9.2 Colour and Texture

Rationale

The ability of an individual with a visual impairment to navigate an environment can be enhanced through the strategic use of colour and texture.

Caution is recommended in the selection of heavy or distinct patterns on walls or floors, since these can add visual confusion to settings for persons with low vision. Simple, repetitive, non- directional patterns that feature monochromatic or low-colour contrast are preferred. Changes in material or texture should not necessitate a threshold.

Application

Textural and colour systems shall be used to enhance accessibility and shall comply with this section.

Design Requirements

9.2.1 Colour

Exterior colour schemes shall incorporate a pronounced colour contrast, to differentiate boundaries of objects, distinguish objects from their background, and to generally enhance spatial orientation. Generally, for seniors and persons with low vision, colours in the warm end of the spectrum (yellow, orange, bright red, etc.) are easier to recognize than those at the cool end of the spectrum. Colour contrasts shall be at least 70% with the surrounding surface, or, if yellow, contrasts at least 40% with the surrounding surface.
The colour specification for yellow should be the Munsell System: hue 5.0 chroma yellow 8.0/12; CIE 1951 system: 59.10% luminosity at the chroma coordinates of x= 0.4562 and y=0.4788; or, an equivalent.

Signs shall incorporate pronounced glare-free colour contrast. A minimum contrast of 70% light reflectance is required. For signs, the most visible colours are white or yellow on a black, charcoal or other dark background, such as brown, dark blue, dark green or purple.

Black lettering on white is also acceptable, although less readable than the reverse. Unacceptable background colours are light grey and pastel colours. Red lettering on a black background is also unacceptable.

Colour contrast shall be used as a safety measure to define edges or boundaries of objects (e.g., stair nosings, doors, handrails, etc.) Colour or tone shall be used to visually define the boundaries of a room (i.e., where the wall meets the floor). Baseboards in monochromatic environments shall be highly contrasting with the wall and floor colours, to provide boundary definition.

Colour shall be used consistently to visually identify distinctive objects (e.g., exit doors).

Bright colours and/or a highly contrasting tone shall be used to assist with wayfinding.(e.g. If used as part of a signage band located on walls at eye level, this

band is easier to follow than monolithic wall colouring, and can be the visual cue for other essential signs.)
End walls or return walls in long corridors shall be visually defined using highly contrasting colours or tone, to enhance a change of direction or the end of the space.

9.2.2 Texture

Tactile Walking Surface Indicators shall be used to define potential hazards (refer to 2,3). All textured surfaces used as detectable warning surfaces shall be shall be clearly detectable by walking upon as being different from the surrounding surface.

Supplementary textural cues shall also be provided (e.g. by using different floor textures or materials in major and minor routes).

Clearly defined boundaries of materials like carpeting or floor tiles shall enhance wayfinding by defining such as the junction between walls and floors, doorway recesses and corridor intersections.

The same texture shall be used consistently throughout any one site to identify the same type of hazard.

9.3 Slip Resistance of Materials

Material	Slip-Resistance Rating (1)		Remarks
	Dry and Unpolished	Wet	
Cast Iron	Very Good	Very Good to Good	If open treads are used, the slip resistance can be very good in wet conditions.
Clay Tile (carborundum finish)	Very Good	Very Good	May be suitable for exterior stairs
Carpet (2)	Very Good	Good	
Clay Tiles (textured)	Very Good	Good	May be suitable for exterior stairs
Cork Tiles	Very Good	Good	
Float Glass	Very Good	Poor	Various techniques can be used to modify the surface of float glass, thus improving the wet potential for slip.
PVC with non-slip granules	Very Good	Good	Sufficiently uniformly distributed aggregate is required.
PVC	Very Good	Poor to Fair	Slip-resistance when wet may be improved if PVC is textured. Edges of sheet liable to cause tripping if not firmly fixed to base.
Rubber (sheets or tiles)	Very Good	Very Poor	Not suitable near entrance doors.
Wood (finished)	Very Good	Good	Applies to sealed, varnished or polished wood.
Wood (unfinished)	Good	Fair	
Mastic Asphalt	Good	Good	
Ceramic Tiles (glazed or highly polished)	Good	Poor	

Slip-Resistance Rating of Materials

Material	Slip Resistance Rating (1)		Remarks
	Dry and Unpolished	Wet	
Ceramic Tiles (matte)	Good	Fair to Good	Slip potential is dependent on surface roughness. A value of 10 1-1m is recommended for clean-water wet areas.
Clay Tiles	Good	Fair to Good	When surface is wet and polished it would be considered poor.
Concrete Pavers (interlock)	Good	Good	
Vinyl Tiles	Good	Fair	
Linoleum	Good	Poor to Fair	Edges of sheets may cause tripping if not securely fixed to base.
Concrete (power float finish)	Good	Fair	Surface dust may cause problems especially on new floors.
Concrete	Good	Poor to Fair	If non-slip aggregate or a textured finish is used, slip resistance when wet may be considered Good.
Granolithic	Good	Poor to Fair	Slip-resistance when wet may be improved to good by incorporating a Carborundum finish. Polished granolithic should not be used for stair treads.
Clay Tiles	Good	Poor to Fair	Slip-resistance when wet and polished is very poor.
Terrazzo	Good	Poor to Fair	Non-slip nosing necessary on stairs. Slip-resistance when polished is very poor.
Marble/Granite	Good	Very Poor to Fair	Slip-resistance when wet and polished is very poor.

Notes:

(1) Ratings:

- Very good means surface suitable for areas where special care is required
- Good means suitable for normal use
- Poor to Fair means surface not suitable
- Very poor means surface not suitable

(2) Thick carpet is unsuitable for wheelchair movement.

Section 10.0

Glossary, Definitions and Abbreviations

10.1 General Terminology, Glossary, Definitions and Abbreviations

Graphic Conventions

Dimensions that are not marked maximum or minimum are absolute, unless otherwise indicated.

General Terminology

Comply with: Meet one or more specifications of this standard.

if ... then: Denotes a specification that applies only when the conditions described are present.

may: Denotes an option or alternative.

shall: Denotes a mandatory specification or requirement.

should: Denotes an advisory specification or recommendation.

Definitions

Ablution Facilities

A space with equipment for the cleansing with water or other liquid, especially as a religious ritual.

Access Aisle

An accessible pedestrian space between elements, such as parking spaces, seating and desks that provides clearances appropriate for the use of the elements.

Accessible

Describes a site, building, facility or portion thereof that complies with this standard.

Accessible Element

An element specified by this standard (for example, telephone, controls etc.).

Accessible Route

A continuous unobstructed path connecting accessible elements and spaces of a facility. Interior accessible routes may include corridors, floors, ramps, elevators, platform lifts and clear floor spaces at fixtures. Exterior accessible routes may include parking access aisles, curb ramps, crosswalks at vehicular ways, walks, ramps and platform lifts.

Accessible Space

Space that complies with this standard.

Accommodation

Adaptation to achieve a compromise.

Adaptable

The ability of a certain building space or element, such as kitchen counters, sinks, and 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.

Addition

An expansion, extension, or increase in the gross floor area of a facility.

Alteration

A change to a facility that affects or could affect the usability of the facility or part thereof.

Alterations include, but are not limited to, remodelling, renovation, retrofitting, rehabilitation, reconstruction, historic restoration, resurfacing of circulation paths or vehicular ways, changes or rearrangement of the structural parts or elements, and changes or rearrangement in the plan configuration of walls and full-height partitions.

Normal maintenance, painting or wallpapering, or changes to mechanical or electrical systems are not alterations, unless they affect the usability of the building.

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.

Area of Refugee

See area of rescue assistance

Area of Rescue Assistance

An area which has direct access to an exit, where people who are unable to use stairs may remain temporarily in safety, to await further instructions or assistance during emergency evacuation.

Assembly Area

A room or space accommodating a group of individuals for recreational, educational, political, social, civic or amusement purposes, or for the consumption of food and drink.

Assistive Listening Systems (ALS)

Assistive Listening Systems augment standard public address 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. May include magnetic inductions loops, infrared and radio frequency systems.

Attic or Roof Space

The space between the roof and the ceiling of the top storey or between a dwarf wall and a sloping roof.

Audible Signals

Signals which emit a distinctive sound, communication, or alert to provide a warning or indicate a readiness to respond (e.g. alarm bell or signal).

Automatic Door

A door equipped with a power-operated mechanism and controls that open and close the door automatically upon receipt of a momentary actuating signal. The switch that begins the automatic cycle may be a photoelectric device, floor mat, or manual switch. (See Power assisted door or Power door operator)

Barrier

Prevents a person with a disability from fully participating in any aspect of society because of their disability. Barriers can be physical, within the built environment, information or communication, attitudinal, technological or systemic.

Board Room

A room used for meetings, which accommodates four or more people. Building: A structure occupying an area greater than ten square metres, consisting of a wall, roof and floor or any of them, or a structural system serving the function thereof, including all plumbing, fixtures and service systems appurtenant thereto; or a structure occupying an area of ten square metres or less that contains plumbing, including the plumbing appurtenant thereto; or structures designated in the Ontario Building Code.

Bollard

A post to mark a pedestrian path from vehicular traffic.

Braille

A touch reading system for the blind using raised dots arranged to represent letters and numbers within a braille cell that people read with their fingers. Canada uses the code called Unified English Braille (UEB) and there are two types of braille. Uncontracted, or Grade 1 Braille, is in full spelling and consists of alphabet letters, numbers, punctuation, and composition signs special to Braille. Contracted, or Grade 2 Braille, is a short-form version of braille that saves space and allows for faster reading and writing, and is typically used for signage where space is limited.

Change Room

Self-contained room that includes a shower, change area and washroom amenities. See also Universal Change Room.

Circulation Path

An exterior or interior way of passage from one place to another for pedestrians, including, but not limited to, walks, hallways, courtyards, stairways, and stair landings.

Classroom

A room, typically in a school, in which a class of students is taught.

Clear

Unobstructed.

Clear Floor Space

The minimum unobstructed floor or ground space required to accommodate a single, stationary wheelchair, scooter or other mobility device, including the user.

Closed-Circuit Telephone

A telephone with dedicated line(s), such as a house phone, courtesy phone or phone that must be used to gain entrance to a facility.

Colour Contrast

A significant contrast in colour/brightness between the foreground and background of an element, or between two adjacent elements. Colour contrast is measured as the difference in Light Reflectance Value (LRV) between two adjacent surfaces, expressed as a percentage. Colour contrast of at least 50% is required to enhance the visibility of architectural elements, and at least 70% to enhance the visibility of signage text, characters and pictograms.

Common Use

Refers to those interior and exterior rooms, spaces or elements that are made available for the use of a restricted group of people (for example, occupants of a homeless shelter, the occupants of an office building, or the guests of such occupants).

Conference Room

see board room.

Counter Slope

A surface at the bottom of a ramp or sloped surface that slopes in the opposite direction.

Frequently used at the bottom of a curb ramp where it transitions to the road.

Cross Slope

The slope that is perpendicular to the direction of travel. (See running slope)

Curb Ramp

A short ramp cutting through a curb or built up to a curb.

Deaf:

Depressed Curb

A continuous area where a curb is lowered to the same levels the adjacent roadway, resulting in a seamless transition between a pedestrian walkway and a vehicular route.

Detectable Warning Surfaces

A standardized surface feature built into or applied to walking surfaces or other elements to warn persons with a visual impairment of hazards on a circulation path. See **TWSI**.

Disability

The interaction between barriers and impairments(s). Individual impairments may be physical, cognitive, mental, sensory, emotional, developmental, or some combination of these. Barriers may be physical, like stairs or attitudinal, like bias and may differ depending on context. Barriers may hinder a person's full and effective participation in society on an equal basis with others.

Distress Call Button/Strip

A button or pressure strip that connects to a monitoring service when pressed, that is to be used by someone who has had an accident and is in need of assistance. Distress call buttons may also be connected to the Queen's Emergency Response Centre.

Egress, Means of

A continuous and unobstructed way of exit travel from any point in a facility to a public way. A means of egress comprises vertical and horizontal travel and may include intervening room spaces, doorways, hallways, corridors, passageways, balconies, ramps, stairs, enclosures, lobbies, horizontal exits, courts and yards. An accessible means of egress is one that complies with this standard and does not include stairs, steps or escalators. Areas of rescue assistance, protected lobbies or protected elevators may be included as part of an accessible means of egress.

Element

An architectural or mechanical component of a building, facility, space or site (e.g., telephone, curb ramp, door, drinking fountain, seating or water closet).

Elevated Platform

Elevated platforms include stage areas, speaker podiums, other raised areas.

Entrance

Any access point into a building or facility used for the purposes of entering. An entrance includes the approach walk, the vertical access leading to the entrance platform, the entrance platform itself, vestibules (if provided), the entry door(s) or gate(s), and the hardware of the entry door(s) or gate(s).

Equivalent Facilitation

An alternate means of complying with the literal requirements of standards or specifications that will provide equal or greater access and usability.

Facility or Facilities

All or any portion of buildings, structures, site improvements, complexes, equipment, roads, walks, passageways, parks, parking lots or other real or personal property located on a site.

Forward Approach

Where a person must make use of an amenity, element or feature of the built environment by positioning their body and/or mobility aid directly in front of and facing the feature.

Gender-Neutral Washroom

A single-person facility is available to anyone, no matter what their gender identity or biological sex.

Grab Bar

A bar attached to a wall to provide a grip to assist people who have difficulty in standing up or for support.

Ground Floor

Any occupiable floor less than one storey above or below grade with direct access to grade. A facility always has at least one ground floor and may have more than one ground floor, as where a split-level entrance has been provided or where a facility is built into a hillside.

Guard

A safety railing used as a barrier to prevent encroachment or accidental falling from heights.

Handrail

A component which is normally grasped by hand for support at stairways and other places where needed for the safety of pedestrians.

Heritage Facility

A facility located on a property, or portions thereof designated under the Ontario Heritage Act (OHA), or identified in the inventory of heritage resources for Queen's University. (See Public Heritage Facility.)

Impairment

See Disability

Marked Crossing

A crosswalk or other identified path intended for pedestrian use in crossing a vehicular way.

Meeting Room

see board room.

Mezzanine or Mezzanine Floor

That portion of a storey which is an intermediate floor level, placed within the storey and having occupiable space above and below its floor.

Mobility Aids

Refers to a range of assistive equipment used by persons with disabilities to assist with mobility. Examples include crutches, manual or electric wheelchairs, scooters, walkers and canes.

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.

Occupiable

A room or enclosed space designed for human occupancy in which individuals congregate for amusement, educational or similar purposes, or in which occupants are engaged at labour, and which is equipped with means of egress, light and ventilation.

Open Space

Large-scale tracts of land without visible evidence of residential, commercial or industrial development. These areas may be privately or publicly owned and are generally left in a natural state and not programmed for active recreation. The benefits of open lands typically extend beyond the immediate area and usually provide community-wide benefits.

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 (for example, coin slot, push button, handle).

Park

Land that is privately or publicly held that has been developed for multiple recreational and leisure-time uses. This land benefits the entire community and balances the demands of the public for outdoor recreational facilities and other amenities, such as pathways, picnic areas, playgrounds, water features, spaces for free play and leisure.

Power-Assisted Door

A door used for human passage that has a mechanism to open the door or relieves the opening resistance of a door, upon the activation of a switch or a continued force applied to the door itself.

Power Actuator

Power assistance to open the door.

Power-Operator

Tied-in to the fire alarm system and closes the door if there is a fire alarm activation.

Primary Path

An accessible path designed to accommodate two persons in mobility devices. The path is utilized by a frequent flow of people throughout the course of a day.

Private Open Space

Privately owned land areas within a subdivision, generally smaller in scale than open space, which have been left free from structures, parking lots and roads. These types of areas generally benefit only the residents or employees of the particular subdivision and usually remain in private ownership.

Public Heritage Facility

A facility located on a property, or portions thereof designated under the Ontario Heritage Act, or identified in the inventory of heritage resources for Queen’s University and that is open and accessible to the public. (See Heritage Facility.)

Public Use

Describes interior or exterior rooms or spaces that are made available to the general public, such as learning spaces, significant public spaces and libraries. Public use may be provided at a facility that is privately or publicly owned.

Ramp

A walking surface which has a running slope greater than 1:25.

Renovation

Construction or modifications to existing buildings or site elements but that retains some parts of the existing structure or layout or finishes. The renovation may or may not impact the existing character, structural uniqueness, heritage value or aesthetic appearance of all or part of the building. Material alterations to walls, ceilings and floors are considered to be a renovation.

Residence Room

Sleeping rooms and common-use areas within a residence unit.

Retrofit

see Alteration.

Running Slope

The slope that is parallel to the direction of travel. (See Cross slope)

Secondary Path

An accessible path designed to accommodate one person using a mobility device and one ambulatory person (or service animal). The path is considered a main access path for the building, however the flow of people using the path is not constant, nor is it considered a high traffic route.

Service Entrance

An entrance intended primarily for delivery of goods or services and not intended for use by the public.

Service Room

A room provided in a building to contain equipment associated with building services.

Service Space

A space provided in a facility to facilitate or conceal the installation of facility service facilities such as chutes, ducts, pipes, shafts or wires.

Sign Language

The official language of the Deaf community.

Signage

Displayed verbal, symbolic, tactile, alphanumeric, braille, and pictorial information.

Site

A parcel of land bound by a property line or a designated portion of a public right-of-way.

Single-User Accessible Washroom

An accessible washroom designed for a single user with or without an attendant.

Site Improvement

Landscaping, paving for pedestrian and vehicular ways, outdoor lighting, recreational facilities added to a site.

Slope

A surface that is inclined from the horizontal.

Space

A definable area (e.g. room, toilet room, hall, assembly area, entrance, storage room, alcove, courtyard or lobby).

Storey

That portion of a building included between the upper surface of a floor and the upper surface of the floor next above. If such portion of a building does not include occupiable space, it is not considered a storey for the purposes of this standard. There may be more than one floor level within a storey, as in the case of a mezzanine or mezzanines.

Structural Frame

The columns and the girders, beams, trusses and spandrels having direct connection to the columns and all other members which are essential to the stability of the building as a whole.

TTY (Teletypewriter)

see Text telephone.

Tactile

Describes an object that can be perceived using the sense of touch.

Tactile Walking Surface Indicators (TWSI)

A standardized surface feature built into or applied to walking surfaces or other elements to warn persons with a visual impairment of hazards on the ground surface or floor.

Technically Infeasible

Means, with respect to an alteration of a building or a facility, that it has little likelihood of being accomplished, because: existing structural conditions would require moving or altering a load-bearing member which is an essential part of the structural frame; or

Other existing physical or site constraints prohibit modification or addition of necessary elements, spaces or features which are in full and strict compliance with the minimum requirements for new construction.

Temporary Structure

A facility that is not of permanent construction but that is extensively used, or is essential for public use for a period of time. Examples of temporary facilities covered by this standard include, but are not limited to, reviewing stands, bleacher areas, temporary kiosks, and temporary health screening services or temporary safe pedestrian passageways around a construction site. Structures and equipment directly associated with the actual processes of construction, such as scaffolding, bridging, materials hoists, or construction trailers, are not included.

Text telephone (TTY)

Machinery or equipment that employs interactive text-based communication through the transmission of coded signals across the standard telephone network. Text telephones can include, for example, devices known as TDDs (telecommunication display devices or telecommunication devices for deaf persons) or computers with special modems. Text telephones are also called TTYs, an abbreviation for teletypewriter.

Vehicular Way

A route intended for vehicular traffic, such as a street, driveway or parking lot, within the boundary of the site.

Vertical Activation Bar

A vertically oriented control that is used to activate automatic doors in place of the more traditional round or square actuators, providing a larger surface and more flexibility for users to activate the automatic door.

Visitable

The ability of a dwelling unit to offer a reasonable level of access to accommodate visitors with disabilities, elderly persons or residents who may be temporarily disabled - allowing a persons to access the dwelling safely via a level entry, manoeuvre independently throughout the entry level, and utilize a toilet.

Walk

An exterior pathway with a prepared surface intended for pedestrian use, including general pedestrian areas, such as plazas and courts, within the boundary of the site.

Wayfinding

Signs, maps and other graphic or audible methods used to convey location and directions to users of a space.

Abbreviations

AODA

Accessibility for Ontarians with Disabilities Act

CAN

Canada/Canadian

CNIB

Canadian National Institute for the Blind

CSA

Canadian Standards Association

DOPS

Design of Public Spaces Standard

ISO

International Standards Organization

OBC

Ontario Building Code

OHRC

Ontario Human Rights Commission

PPS

Physical Plant Services

QFADS

Queen's University Facility Accessibility Design Standards

ULC

Underwriter’s Laboratories of Canada

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Appendix

Appendix A – Universal Design Principles

Version 2.0 – 4/1/97

Compiled by advocates of universal design, listed in alphabetical order: Bettye Rose Connell, Mike Jones, Ron Mace, Jim Mueller, Abir Mullick, Elaine Ostroff, Jon Sanford, Ed Steinfeld, Molly Story, and Gregg Vanderheiden

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Universal Design

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.

The authors, a working group of architects, product designers, engineers and environmental design researchers, collaborated to establish the following Principles of Universal Design to guide a wide range of design disciplines, including environments, products, and communications. These seven principles may be applied to evaluate existing designs, guide the design process and educate both designers and consumers about the characteristics of more usable products and environments.

The Principles of Universal Design are presented here, in the following format: name of the principle, intended to be a concise and easily remembered statement of the key concept embodied in the principle; definition of the principle, a brief description of the principle's primary directive for design; and guidelines, a list of the key elements that should be present in a design which adheres to the principle. (Note: all guidelines may not be relevant to all designs.)

Principle One: Equitable Use

The design is useful and marketable to people with diverse abilities.

Guidelines:

1a. Provide the same means of use for all users: identical whenever possible; equivalent when not.

1b. Avoid segregating or stigmatizing any users.

1c. Provisions for privacy, security, and safety should be equally available to all users.

1d. Make the design appealing to all users.

Principle Two: Flexibility in Use

The design accommodates a wide range of individual preferences and abilities.

Guidelines:

2a. Provide choice in methods of use.

2b. Accommodate right or left handed access and use.

2c. Facilitate the user's accuracy and precision.

2d. Provide adaptability to the user's pace.

Principle Three: Simple and Intuitive Use

Use of the design is easy to understand, regardless of the user's experience, knowledge, language skills, or current concentration level.

Guidelines:

3a. Eliminate unnecessary complexity.

3b. Be consistent with user expectations and intuition.

3c. Accommodate a wide range of literacy and language skills.

3d. Arrange information consistent with its importance.

3e. Provide effective prompting and feedback during and after task completion.

Principle Four: Perceptible Information

The design communicates necessary information effectively to the user, regardless of ambient conditions or the user's sensory abilities.

Guidelines:

4a. Use different modes (pictorial, verbal, tactile) for redundant presentation of essential information.

4b. Provide adequate contrast between essential information and its surroundings.

4c. Maximize "legibility" of essential information.

4d. Differentiate elements in ways that can be described (i.e. make it easy to give instructions or directions).

4e. Provide compatibility with a variety of techniques or devices used by people with sensory limitations

Principle Five: Tolerance for Error

The design minimizes hazards and the adverse consequences of accidental or unintended actions.

Guidelines:

5a. Arrange elements to minimize hazards and errors: most used elements, most accessible; hazardous elements eliminated, isolated, or shielded.

5b. Provide warnings of hazards and errors.

5c. Provide fail-safe features.

5d. Discourage unconscious action in tasks that require vigilance.

Principle Six: Low Physical Effort

The design can be used efficiently and comfortably and with a minimum of fatigue.

Guidelines:

6a. Allow user to maintain a neutral body position.

6b. Use reasonable operating forces.

6c. Minimize repetitive actions.

6d. Minimize sustained physical effort.

Principle Seven: Size and Space for Approach and Use

Appropriate size and space are provided for approach, reach, manipulation, and use, regardless of user's body size, posture, or mobility.

Guidelines:

7a. Provide a clear line of sight to important elements for any seated or standing user.

7b. Make reach to all components comfortable for any seated or standing user.

7c. Accommodate variations in hand and grip size.

7d. Provide adequate space for the use of assistive devices or personal assistance.

Please note that the Principles of Universal Design address only universally usable design, while the practice of design involves more than consideration for usability.

Designers must also incorporate other considerations, such as economic, engineering, cultural, gender, and environmental concerns, in their design processes. These principles offer designers guidance to better integrate features that meet the needs of as many users as possible.

Appendix B – Accessibility Policies and Guidelines

Queen's University is fully committed to the integration of persons of all abilities into all aspects of life at Queen's for students, staff and visitors. This commitment is reflected in Queen's policies, guidelines and procedures, all of which fall under the Queen's Accessibility Policy (Vice-Principals' Operational Committee (VPOC), November 25, 2013) which states:

Queen's University is committed to the full inclusion and participation of persons with disabilities. In complying with the requirements of the accessibility standards under the AODA, Queen's University shall meet the needs of persons with disabilities in a timely manner through the implementation of this policy and its related procedures and guidelines.

The University endeavours to be a leader in accessibility. We are a community that works together to create an environment where everyone has a full and enriching experience at Queen's University.

In keeping with our commitment to meet the accessibility needs of persons with disabilities, the university will take steps to facilitate the identification, removal, and prevention of barriers to persons with disabilities to ensure access to Queen's University goods, services, facilities, accommodation, employment, buildings, structures, and premises. This policy does not replace or change our legal obligations towards persons with disabilities under the Ontario Human Right Code.

Related Queen's Policies, Guidelines and Procedures

Accessibility for Ontarians with Disabilities Act
https://www.queensu.ca/accessibility/across-campus/aoda

Accessibility Information for Visitors
www.queensu.ca/accessibility/visitors

A web resource providing practical information on the accessibility of the Queen's Campus for visitors, including links to accessible campus maps, as well as information for attending convocation and homecoming.

Accessibility Policies
https://www.queensu.ca/secretariat/policies/administration-and-operations/accessibility-policy

A web page with information regarding Queen's University's accessibility policies, standards and guidelines, reports and plans, and the Accessibility for Ontarians with Disabilities Act (AODA).

Accessibility Statement (Equity Office)
http://www.queensu.ca/equity/accessibility/policystatements/accessibility-statement

Accommodations Statement (Equity Office)
http://www.queensu.ca/equity/accessibility/policystatements/accommodation-statement

Customer Service to Persons who use Support Persons Guidelines (Equity Office)
https://www.queensu.ca/accessibility/sites/webpublish.queensu.ca.qahwww/files/files/Guidelines%20for%20Customer%20Service%20to%20Persons%20who%20use%20Support%20Persons%20.pdf

Customer Service to Persons who use Service Animals Guidelines (Equity Office)
https://www.queensu.ca/accessibility/sites/webpublish.queensu.ca.qahwww/files/files/Guidelines%20for%20Customer%20Service%20to%20Persons%20who%20use%20Service%20Animals.pdf

Customer Service to Persons who use Assistive Devices (Equity Office)
https://www.queensu.ca/accessibility/sites/webpublish.queensu.ca.qahwww/files/files/The%20Use%20of%20Personal%20Assistive%20Devices%20Guidelines.pdf

Managing Notifications of Temporary Disruptions (Equity Office)
https://www.queensu.ca/accessibility/sites/webpublish.queensu.ca.qahwww/files/files/Managing%20Notifications%20of%20Temporary%20Service%20Disruptions%20Procedure.pdf

Comprehensive Strategic Framework for Accessibility (Equity Office)
http://www.queensu.ca/equity/sites/webpublish.queensu.ca.eqwww/files/files/accessibility/policy/Queens-University-Comprehensive-Strategic-Framework-For-Accessibility-Oct-2011.pdf

Accessible Building Guide
http://www.queensu.ca/camplan/access/building.html

Note: This website is under redevelopment

Accessibility Hub
https://www.queensu.ca/accessibility/home

Accessible Event Planning
www.queensu.ca/accessibility/how-info/accessible-event-planning

A web page with practical guidance on developing accessible events, including a checklist and links to other campus resources.

Across Campus
www.queensu.ca/accessibility/across-campus

A web resource which overviews accessibility initiatives across the Queen's Campus, as well as links to accessibility related resources. Content includes a Campus Accessibility Guide, a Web Standards and Accessibility Development Guide, Campus and Community Services, and a Research Community of Practice.

The Adaptive Technology Centre (ATC)
http://queensu.ca/atc/

A web page with information on the range of services, computers, assistive devices, specialized software, and quiet study space provided by the ATC.

Emergency Fire Preparedness
www.queensu.ca/camplan!reports/aguide/22-0.pdf

A resource providing guidance on various elements of emergency preparedness including Egress Routes, Audio and Visual Alarms, Areas of Refuge, Fire Protection Strategies and Emergency Plans.

Emergency Procedures
www.safety.queensu .ca/emergency

A web page with links to various emergency resources including Individualized Emergency Response Plans and the Campus Security and Emergency Services Emergency Web Page.

Scent-free Policy
http://radiology.queensu. ca/education/radiology/handbook/scent

A policy from Kingston General Hospital which is applicable to Residents in Queen's University School of Medicine programs. The Queen's University Accessibility Hub states that Queen's has a scent guideline about "encouraging a scent-free environment", but there is no formal campus-wide policy.

Signs can be posted that indicate:
*For the comfort and well-being of all, we encourage a scent-free environment. Please refrain from wearing perfumes, colognes and other scented products when you visit this space."

Training
www.queensu.ca/equity/training

A web page with links to various accessibility-related training resources. Training modules include Accessible Customer Service, Human Rights 101, Access Forward and Accessible Instruction for Educators.

Universal Instruction Design
www.queensu.ca/accessibility/educators/universal-instructional-design

A web resource outlining the principles of universal instructional design and guidance on curriculum development implementation strategies.

Appendix C – Technical Infeasibility Form

Project Name:	
Applicant (Company):	
Project Architect / Designer:	
Request Number:	Date:
Equivalent Facilitation Proposal Number:	
Date:	
PPS Project Number:	PPS Project Manager:
Project Phase: □ Preliminary (Conceptual) □ Design Development □ Other (Please Specify)	**Project Type:** □ New Construction □ Renovation / Alteration □ Exterior Only □ Other (Please Specify)
Technical infeasibility means, with respect to an alteration of a building or a facility, that it has little likelihood of being accomplished due to structural conditions or other physical or site constraints.	
1. QFADS Requirement (Please provide Section / Item No.)	
2. Please describe the intent of the accessibility requirement.	
3. Please describe why achieving the accessibility requirement is technically infeasible.	
4. Is equivalent facilitation being proposed? (If so, please complete the **Equivalent Facilitation Proposal** Form found in Appendix D. If not, please explain why not.)	
PPS - Manager, Architecture and Design Approval:	
Please use additional sheets as necessary	

Appendix D – Equivalent Facilitation Proposal Form

Project Name:	
Applicant (Company):	
Project Architect / Designer:	
Request Number:	Date:
Technical Infeasibility Request Number:	
PPS Project Number:	PPS Project Manager:
Project Phase: □ Preliminary (Conceptual) □ Design Development □ Other (Please Specify)	**Project Type:** □ New Construction □ Renovation / Alteration □ Exterior Only □ Other (Please Specify)
1. Queen's University FADS Requirement (Please provide Section / Item No.)	
2. Please describe the intent of the accessibility requirement.	
3. Please describe your reasons for proposing an alternate design.	
4. Please describe how your proposed alternate design meets the intent of the accessibility requirement of the Queen's University FADS.	
PPS - Manager, Architecture and Design Approval:	
Please use additional sheets as necessary	

Appendix E – Project Compliance Tracking Form

Under Development

Appendix F – Request to Adopt or Adapt QFADS for Other Organizations

Under Development

Appendix G – Revision History

SOURCE OF REVISION:
AODA - DOPS
OBC - ONTARIO BUILDING CODE
QUEEN'S - QUEEN'S UNIVERSITY

DATE	SOURCE	SECTION	REVISION DETAILS