UNIVERSITY OF TORONTO | Facilities & Services

Facility Accessibility Design Standard

Last Updated – June 9, 2023

University of Toronto Facility Accessibility Design Standard

Acknowledgements

June 2023

University of Toronto Facility Accessibility Design Standard (FADS)

This standard shall apply to all newly constructed and retrofitted facilities owned and occupied by the University of Toronto. Where the University of Toronto leases space in a building that is owned and operated by the University of Toronto, the intent of the standard still applies. Designing and constructing to this standard shall be included as a mandatory requirement in all University of Toronto request for proposals, tender documents and construction contracts. All bids are required to follow this standard.

We would like to thank and recognize the contributions of:

- The City of London for its permission to use the City of London 2006 Facility Accessibility Design Standards (FADS 2006) as the basis for this standard.
- OCAD University Facility Accessibility Design Standards (FADS).
- Members of the University of Toronto Facility Accessibility Design Standard Technical Committee/Working Group who provided input for this design standard.
- Bob Topping, Thea Kurdi, Mark Harris, and other staff of DesignABLE Environments Inc. (www.designable.ca), who have been instrumental in creating the University of Toronto Facility Accessibility Design Standard (FADS) and previous standards it adopts.
- Mies Hora of Universal Symbol (www.ultimatesymbol.com), for his permission to use the updated International Symbol of Access.
- University of Toronto Facilities and Services Locksmith Shop, Fire Prevention, Caretaking Services, and Campus Safety.
- University of Toronto Environmental Health & Safety (EHS) and Learning Space Management (LSM).
- Those with lived experience of disability who over the years have shared their stories, experiences, and recommendations.
- Guidance found in CNIB Foundation's "Clearing Our Path" graphics and documentation.

Should you require an alternate format version of the University of Toronto FADS document, please contact the Facilities & Services Department at communications.fs@utoronto.ca.

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1.0 Introduction

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

This standard 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).

This standard 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 at the end of this section. Refer to Appendix A for further information on the universal design principles and their guidelines.

This standard 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 will 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.

Where conflicts exist between scoping and/or dimensional requirements of this standard and legislation enacted by the federal or provincial governments', the most accommodating requirements shall apply (i.e., the requirement(s) that will result in the most accommodating environment but never less than the minimum requirement(s) of the current Ontario Building Code). Where conditions permit, limits, dimensions, and an approach to layout in general shall be as generous as possible.

The University of Toronto's (the "university") Building Design Standards apply to new construction, renovation, renewal, and maintenance projects on all University of Toronto campuses.

The Building Design Standards are intended to be a reference and a minimum baseline upon which bid and construction documents are to be prepared by the Design Team within the constraints of the university's construction budget. These Standards are not contract technical specifications and shall not be used as such.

The Building Design Standards do not relieve the Design Team of its professional responsibility, due diligence, duty of care or legal liability for any bid and construction documents that are created from these Standards.

The university makes no guarantee, warranty, or representation in any way (express or implied) with respect to the accuracy, suitability, reliability, usability, legality, or completeness of the Building Design Standards for a specific project or contract.

The university constructs a wide range of **facilities** and recognizes that specific projects may require an approach or have requirements that are not adequately addressed by the Building Design Standards. In addition, technology, products, and regulatory requirements may change over time. In these instances, the university expects the Design Team to propose alternatives or deviations from the Building Design Standards. The Design Team must submit a written request to propose an alternative or deviation to the university for review. All proposed alternatives require sufficient explanation and supporting material. In the absence of any proposed alternatives or deviations from the Building Design Standards, bid and construction documents will be reviewed strictly for conformance with the Building Design Standards.

The Building Design Standards will continue to evolve to incorporate innovation, new concepts, feedback, and practical applications without any prior notice. At the start of each project, the Design Team will acknowledge the current version of the university's standards intended to be implemented.

University of Toronto Facilities and Services is responsible for the FADS and will seek advisement from the Accessibility for Ontarians with Disabilities Act (AODA) Office. The FADS will be reviewed and/or updated every three years to reflect technological advancement and new construction practices, as well as changes to the barrier-free design requirements of various codes and standards, such as the Ontario Building Code (OBC), Accessibility for Ontarians with Disabilities Act (AODA), and CSA B651 "Accessible design for the built environment".

This 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**. Design departures from information provided and referenced in this standard should be carefully assessed to determine the validity of the application and may require review by Facilities & Services (St. George campus).

This document is to be read in conjunction with the University of Toronto Procurement Policy section titled "The Accessibility for Ontarians with Disabilities Act (AODA)".

Dimensions used in this standard are in metric units.

For the purposes of this standard, words and terms in bold type have their meanings defined in Section 2.0.

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.

2.0 Glossary and Definitions

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

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, adult change table, **automatic door**, 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.

Adaptable: The ability of a certain **building space** or **element**, such as kitchen counters, sinks, and grab bars, to be added or altered 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 partitions. Normal maintenance, painting or wallpapering, or changes to mechanical or electrical systems are not **alterations**, unless they affect the usability of the **building**.

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 entertainment purposes, or for the consumption of food and drink.

Attic or Roof space: The **space** between the roof and the ceiling of the top **storey** or between a low wall and a sloping roof.

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, or manual switch (refer to **Power-assisted door**).

Board room or Conference room or Meeting room: A room used for meetings, which accommodates six or more people.

Boardwalk: An exterior walkway typically constructed of wooden planks, and located adjacent to a beach or waterway, or other natural environment.

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.

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.

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**.

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, teaching **spaces**, or the occupants of an administration office building, or the guests of such occupants).

Cross slope: The slope that is perpendicular to the direction of travel (refer to **running slope**).

Curb ramp: A short **ramp** cutting through a curb or built up to a curb.

Depressed curb: A continuous area where a curb is lowered to the same level as 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**.

Disability: The interaction between barriers and **impairment(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.

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).

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).

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**.

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** or portions thereof designated under the Ontario Heritage Act or identified by the City of Toronto in the inventory of heritage resources for the University of Toronto.

Impairment: Refer to **Disability**

Marked crossing: A crosswalk or other identified path intended for **pedestrian** use in crossing a **vehicular way**.

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.

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.

Pedestrian: Any person who is using a means of conveyance propelled by human power, other than a bicycle. Users of powered or unpowered mobility assistive devices such as scooters or wheelchairs are also considered to be **pedestrians**.

Power-assisted door: A door used for human passage that has a mechanism that helps 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.

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 use: Describes interior or exterior rooms or **spaces** that are made available to the general public, such as 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 1:20 (5%).

Residence Room: Sleeping rooms and common-use areas within a residence unit.

Retrofit: Refer to **Alteration**.

Running slope: The slope that is parallel to the direction of travel (refer to **Cross slope**).

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.

Signage: Displayed verbal, symbolic, **tactile** and pictorial information.

Site: A parcel of land bound by a property line or a designated portion of a public right-of-way.

Site improvement: Landscaping, paving for **pedestrian** and **vehicular ways**, outdoor lighting, recreational **facilities** added to a **site**.

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.

TDD (Telecommunication Device for the Deaf): Refer to **Text telephone**.

TTY (Teletypewriter): Refer to **Text telephone**.

Tactile: Describes an object that can be perceived using the sense of touch.

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, the following: reviewing stands, bleacher areas, temporary kiosks, 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: 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, shared street, driveway or parking lot, within the boundary of the **site**.

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 by allowing a person 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**.

3.0 Scope, Application & Enforcement

General

The requirements of this standard shall apply to all newly constructed and **retrofitted facilities** owned and occupied by the University of Toronto. Where the University of Toronto leases **space** in a **building** that is owned and operated by the University of Toronto, the intent of the standard still applies.

Exceptions: This standard does not apply to

- **buildings** of Group F Division 1 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.

General Application

All areas of newly designed or newly constructed **facilities** and altered portions of existing **facilities** shall comply with Sections 4.1 to 4.4 of this standard, unless otherwise provided in this section or as modified in Section 4.5, Facility-Specific Requirements.

Exceptions: The requirements of Sections 4.1 to 4.4 do not apply to

- **service rooms**;
- elevator machine rooms;
- janitor rooms/caretaking closets;
- **service spaces**;
- crawl **spaces**; and/or
- **attic or roof spaces**.

Application Based on Facility Use

The specific **facility** types listed in Section 4.5 shall, in addition to all of the provisions specified in Section 4.1 to 4.4, comply with the additional design requirements specified in Section 4.5.

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

Work Areas and Employee-Designated Areas

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

Temporary Facilities

This standard applies to temporary **facilities**, as well as permanent **facilities**.

Retrofitting, Alterations and Additions

Each **addition** to an existing **facility** shall be regarded as an **alteration**.

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

Except where the provision of **accessible** features is **technically infeasible**, no **alteration** shall 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 shall 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 shall 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** shall be made **accessible**.

Where project **alterations** require a building permit, the accessibility-related systems and **elements** of the **area of the facility** being altered shall be upgraded to meet the requirements of these standards.

No **alteration** of an existing **element**, **space** or area of a **facility** shall 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 shall 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 this standard, 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 shall be made to ensure that, to the maximum extent feasible, the path of travel to the altered area, the washrooms, 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 manoeuvring space from the requirements for new construction, the reduced dimensions are minimums. Where possible, larger manoeuvring spaces must be provided.

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;
- 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 historic places 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 National Educational, Scientific and Cultural Organisation's (UNESCO) 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
- to the portion of the exterior path for which it is claimed and not to the exterior path in its entirety.

Heritage Facilities

This standard will apply to **alterations** to a **Heritage Facility**, however, under the Ontario Human Rights Code, there are allowances for modification to the defining features of a **Heritage Facility** which are deemed to alter the essential nature or substantially affect the viability of the enterprise.

Heritage Facilities should be assessed for compliance to accessibility standards on an individual basis, to determine the most effective and least disruptive means of **retrofit**, where required. Consider the following general guidelines:

- **Facilities** and/or areas that are generally used independently by the public and have undergone extensive modernization should be permanently and fully accessible. This includes parking areas, reception areas, teaching **spaces**, libraries, washrooms, food service areas, retail **spaces**, and other significant public **spaces**. It can also include walkways and outdoor **spaces**. If accessibility is limited by non-heritage **elements**, those **elements** should be modified;

- **Facilities** and/or areas which are used only by guided tour groups, through which assistance could easily be provided to open doors or to place a temporary **ramp**, could remain as existing or with minor temporary modifications;
- It is desirable to provide a complete experience of a **Heritage Facility**. If an **accessible** area or areas can be provided to fully experience a given **site** or **facility** context, access to the entire **site** or **facility** is not necessary; and
- Access to above-grade and below-grade areas is not necessary if the context of those areas can be adequately provided on the **accessible** floor level.

If **retrofit** for accessibility of a main public **entrance** in a **Heritage Facility** would substantially threaten or destroy the historic significance of the **facility**, access shall be provided at an alternative **entrance** with directional signs at the main public **entrance**. The **accessible entrance** should have a notification system (if not generally used by the public) and remote monitoring (if security is an issue).

Safe **egress** from a **Heritage Facility** is required.

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 shall be referred to Facilities & Services for review and approval on an individual basis.

Implementation

Facilities & Services (F&S) and University Planning, Design & Construction (UPDC) at University of Toronto St. George Campus (UTSG) and the facilities and capital projects departments of University of Toronto Scarborough Campus (UTSC) and University of Toronto Mississauga (UTM), as well as contracted consulting firms shall be responsible for the application of the latest Facility Accessibility Design Standard 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 the University of Toronto.

Designing and constructing to this standard shall be included as a mandatory requirement in all University of Toronto request for proposals, tender documents and construction contracts.

Enforcement

Facilities & Services, UPDC, as well as other departments of the University of Toronto, through the project management function, shall monitor compliance throughout the design, and construction phases of the project.

4.0 Design Standard

All areas of newly designed or constructed **facilities** and altered portions of existing **facilities** shall comply with this section, unless otherwise provided in Section 3.0.

Exceptions: This standard does not apply to

- **buildings** of Group F Division 1 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.

The requirements of this section apply to all areas of a **facility** except

- **service rooms**;
- elevator machine rooms;
- janitor rooms/caretaking closets;
- **service spaces**;
- crawl **spaces**; and/or
- **attic or roof spaces**.

4.1 Access and Circulation

4.1.1 Space and Reach Requirements

Rationale

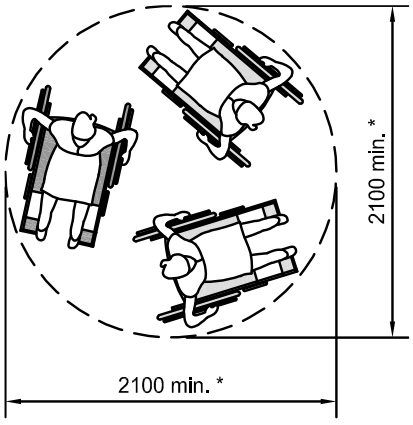
The dimensions and manoeuvring characteristics of wheelchairs, scooters and other mobility devices are as varied as the people who use them. Traditionally, accessibility standards have taken a conservative approach to wheelchair manoeuvrability, reflecting the needs of a physically strong individual using a manual wheelchair. Such an approach excludes the many users without such a degree of strength or those using a larger mobility device. This standard more accurately reflects the vast array of equipment that is used by persons to access and use **facilities**, as well as the diverse range of user ability. This standard incorporates more generous space requirements, particularly related to the dynamic movement of people using wheelchairs, scooters or other assistive devices. Persons of large stature also benefit from larger spatial areas particularly if they also use a wheelchair.

Application

Space and reach range provisions for persons who use wheelchairs, scooters and other mobility devices shall comply with this section.

Design Requirements

The space required for a wheelchair to make a 360-degree turn is a **clear floor space** of 2100 mm in diameter (Figure 4.1.1.1). Where possible, the ideal is for the diameter to be 2500 mm. The space required for a 180-degree turn is shown in Figure 4.1.1.2. If providing the required diameter is **technically infeasible** in a **retrofit** situation, a minimum 1700 mm diameter can be used.



* Where possible, the ideal is for the diameter to be 2500mm

Figure 4.1.1.1:
360 Degree Turning Circle

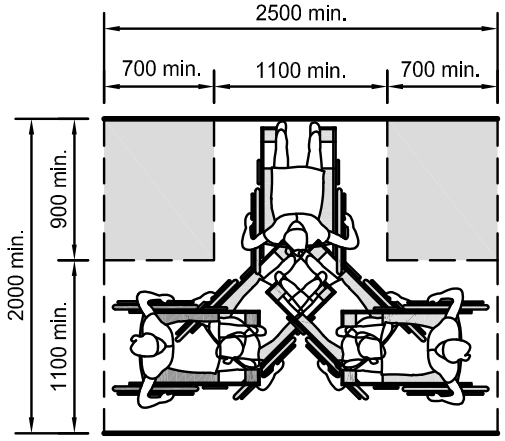


Figure 4.1.1.2:
180 Degree Turning Space

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 810 by 1370 mm. Refer to Figure 4.1.1.3.

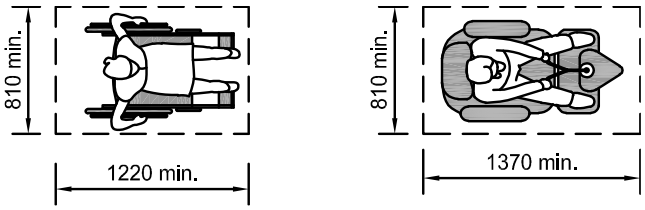


Figure 4.1.1.3:
Clear Floor Space for a Wheelchair or Scooter

The minimum **clear floor space** or ground space for wheelchairs or scooters may be positioned for forward or parallel approach to an object.

Clear floor space or ground space for mobility devices may be part of the knee space required under some objects, at locations where the mobility devices are intended to be stationary.

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 **clear floor space**. If a **clear floor space** is located in an alcove or otherwise confined on all or part of three sides, additional manoeuvring clearances shall be provided as shown in Figures 4.1.1.4, 4.1.1.5, 4.1.1.6, and 4.1.1.7.

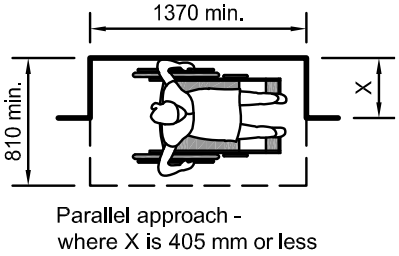


Figure 4.1.1.4:
Clearances at Shallow Alcove – Parallel Approach

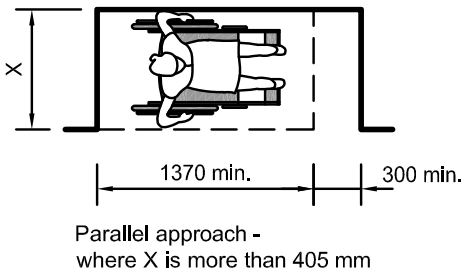


Figure 4.1.1.5:
Clearances at Deep Alcove – Parallel Approach

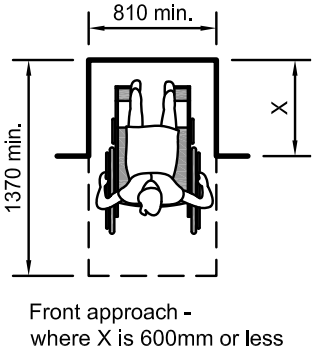


Figure 4.1.1.6:
Clearances at Shallow Alcove – Front Approach

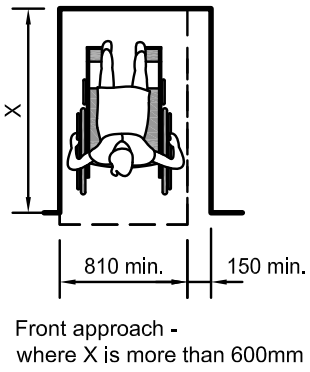


Figure 4.1.1.7:
Clearances at Deep Alcove – Front Approach

The surface of **clear floor space** or ground space for wheelchairs and scooters shall comply with Section 4.1.2.

If the **clear floor space** only allows forward approach to an object, the maximum high forward reach allowed shall be 1200 mm. The minimum low forward reach is 400 mm. Refer to Figure 4.1.1.8. If the high forward reach is over an obstruction, reach and clearances shall be as shown in Figures 4.1.1.9 and 4.1.1.10.

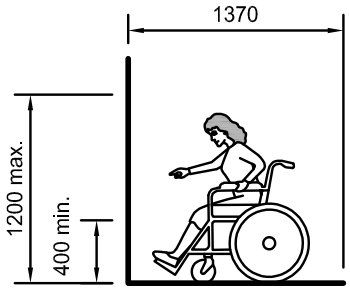
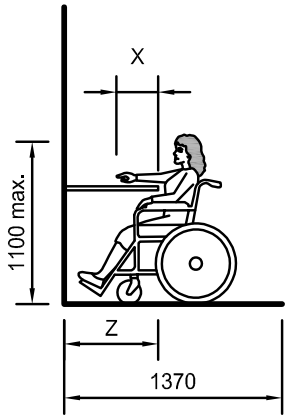
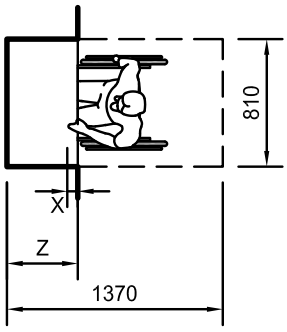


Figure 4.1.1.8:
Forward Reach



'X' to be less than or equal to 600mm
'X' to be less than or equal to 500mm where grasping required.
'Z' to be greater than or equal to 'X'

Figure 4.1.1.9
Forward Reach Over an Obstruction



'X' to be less than or equal to 600mm.
'X' to be less than or equal to 500mm where grasping required.
'Z' to be greater than or equal to 'X'

Figure 4.1.1.10
Forward Reach Over an Obstruction

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 4.1.1.11. If the side reach is over an obstruction, the reach and clearances shall be as shown in Figure 4.1.1.12 for touch reach. Where grasping is required for parallel approach over an object, the maximum reach distance shall be reduced to 500 mm. Notwithstanding these requirements, the Ontario Building Code requires all controls for the operation of **facility** services or safety devices to be no more than 1200 mm above the floor for thermostats or manual pull stations and between 900 and 1100 mm for all other controls.

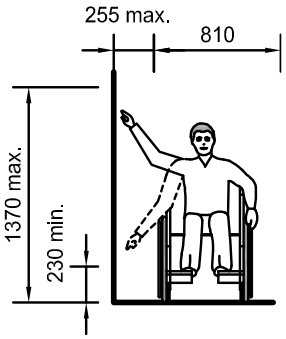
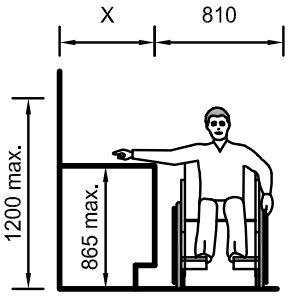


Figure 4.1.1.11
Side Reach



'X' to be less than or equal to 600mm.
'X' to be less than or equal to 500mm where grasping required.

Figure 4.1.1.12
Side Reach Over an Obstruction

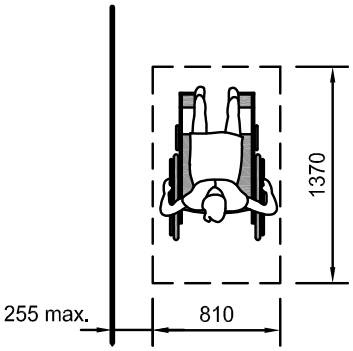


Figure 4.1.1.13
Side Reach Maximum Distance to Wheelchair

4.1.2 Ground and Floor Surfaces

Rationale

Design decisions related to ground and floor surfaces will influence every person who enters the **building**. Irregular surfaces, such as cobblestones or pea-gravel finished concrete, are difficult for both walking and pushing a wheelchair. Slippery surfaces are hazardous to all individuals and especially hazardous for seniors and others who may not be sure-footed.

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

Patterned floors should be avoided, as they can create visual confusion.

Thick pile carpeting makes pushing a wheelchair very difficult. Small and uneven changes in floor level represent a further barrier to using a wheelchair but also present a tripping hazard to ambulatory persons.

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

Application

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

Table 4.1.2 Changes in level

Vertical Rise	Edge Treatment
0 to 6 mm	May be vertical
7 - 13 mm	Bevel, maximum slope 1:2
Over 13 mm	Treat as sloped floor, ramp, or curb ramp

Design Requirements

Ground and floor surfaces shall be stable, firm, slip-resistant and glare-free. Matte finish should be used for sealed concrete or cementitious floors.

Changes in level, except for elevators and other elevating devices, shall conform to Table 4.1.2.

Carpets or carpet tile shall

- be securely fixed;
- where used, have a dense cushion underlay, under pad or other backing;
- have a level loop, textured loop, level cut pile, or level cut/uncut pile texture with a maximum pad and pile height of 13 mm;
- have exposed edges fastened to floor surfaces with trim conforming to Table 4.1.2; and
- comply with the University of Toronto Carpet Design Standard

Gratings located in walking surfaces shall

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

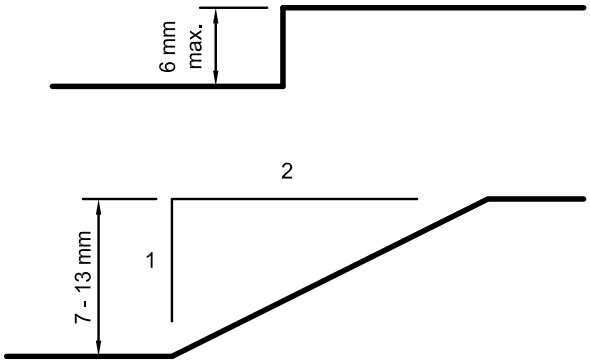


Figure 4.1.2.1:
Changes in Level

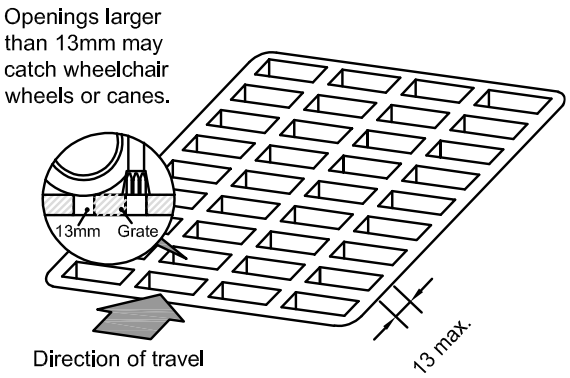


Figure 4.1.2.2
Grills and Gratings

Legislation References

AODA IASR 80.23
OBC 3.8.1.3.(2)

Related Sections

4.1.4 Accessible Routes, Paths and Corridors
4.4.7 Detectable Warning Surfaces
4.4.13 Materials and Finishes
4.4.14 Texture and Colour

4.1.3 Protruding and Overhead Objects

Rationale

The creation of pathways free from protruding objects or freestanding obstacles is important to all **facility** users. An object protruding from a wall above the detection range of a cane is dangerous for persons with a visual **impairment** or a **pedestrian** distracted by a conversation. The underside of stairways is a common overhead hazard. Temporary construction barriers can also be hazardous if their lower edge is too high to be detected by a person using a long white cane for mobility. Detectable **guards** or warning surfaces around freestanding obstacles, such as light standards, are advantageous to anyone using a pathway.

Application

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

Design Requirements

Objects protruding from walls with their leading edges between 680 and 2100 mm from the floor shall protrude not more than 100 mm into **pedestrian** areas, such as walkways, halls, corridors, passageways or aisles.

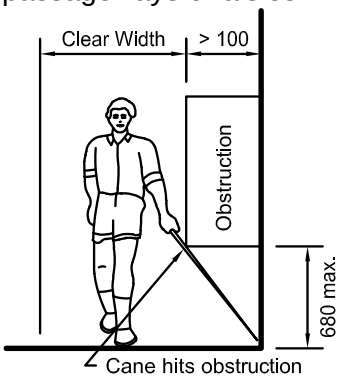


Figure 4.1.3.1:
Limits of Protruding Objects

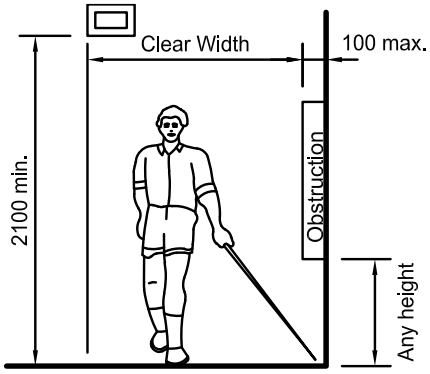


Figure 4.1.3.2:
Limits of Protruding Objects

Objects attached to a wall with their leading edges at or below 680 mm from the floor may protrude any amount.

Freestanding objects shall not have any overhang of more than 300 mm between 680 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.

Protruding objects shall not reduce the **clear** width required for an **accessible route** or manoeuvring space.

The minimum **clear** headroom in **pedestrian** areas, such as walkways, halls, corridors, passageways, or aisles, shall be 2100 mm.

The minimum **clear** headroom in exterior **pedestrian** areas shall be 2400 mm.

A detectable **guard**, guardrail or other barrier having its leading edge at or below 680 mm from the floor shall be provided where the headroom of an area adjoining an **accessible route** is reduced to less than 2100 mm.

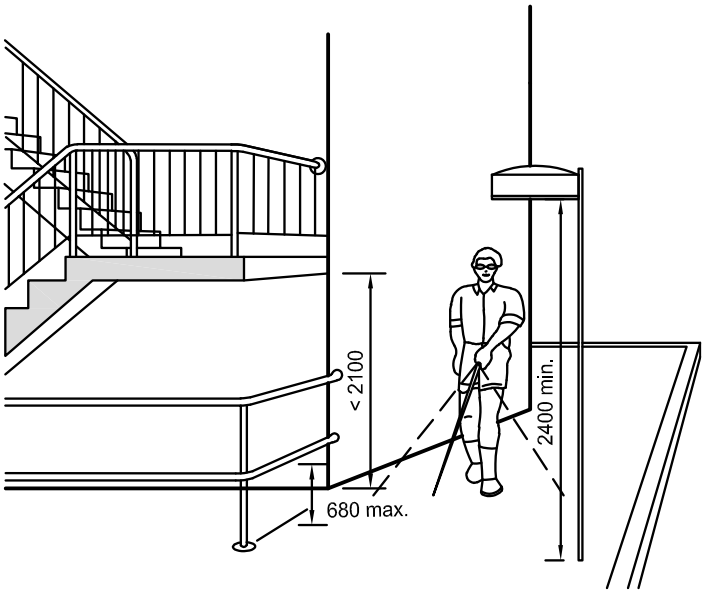


Figure 4.1.3.3:
Detectable Guard and Exterior Overhead Obstructions

Legislation References

OBC 3.15.5.2.(1)
OBC 3.8.1.3.(5) & (6)
OBC 9.9.5.3.

Related Sections

4.1.4 Accessible Routes, Paths and Corridors
4.4.7 Detectable Warning Surfaces
4.4.13 Materials and Finishes
4.4.14 Texture and Colour

4.1.4 Accessible Routes, Paths & Corridors

Rationale

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 manoeuvrability. While a corridor may be wide enough for a person to drive a scooter in a straight line, it may not be possible to turn around a corner. The preferred minimum width for **accessible routes** is 1800 mm.

Persons of large stature also benefit from wider spatial areas particularly if they also use a wheelchair.

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.

Application

Wherever possible, all 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/caretaking closets;
- to **service spaces**;
- to crawl **spaces**;
- to **attic or roof spaces**;
- 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 (as permitted in Section 4.1.15) where a difference in elevation exists.

Design Requirements

The minimum **clear** width of an interior **accessible route** shall be 1100 mm except

- at doors (refer to Section 4.1.6);
- where additional manoeuvring space is required at doorways (refer to Section 4.1.6);
- at U-turns around obstacles less than 1200 mm wide, it shall be 1200 mm;
- for exterior routes, it shall be minimum 1800 mm, but can be reduced to 1200 mm to serve as a turning space where path connects to a **curb ramp**; and
- where space is required for two wheelchairs to pass, it shall be 1800 mm.

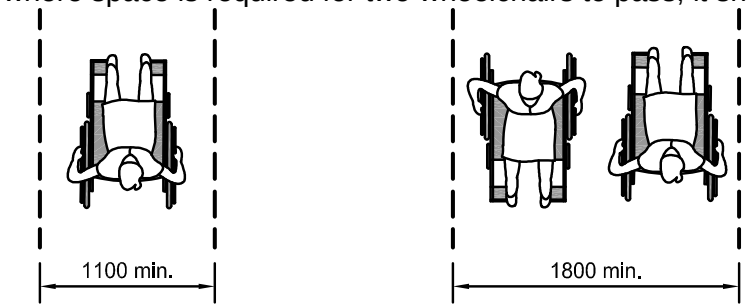


Figure 4.1.4.1:
Access Widths

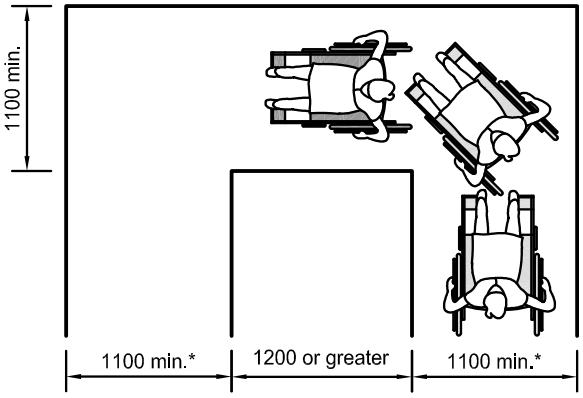


Figure 4.1.4.2:
Turn Around a Wide Obstacle

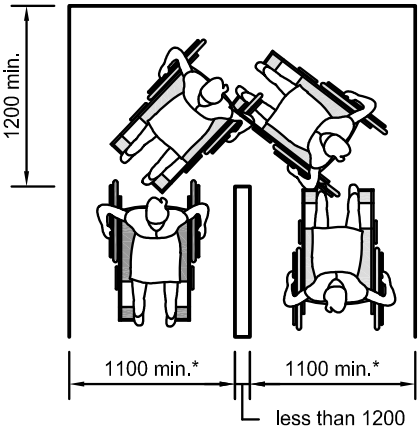


Figure 4.1.4.3:
Turn Around a Narrow Obstacle

Note: Figures 4.1.4.2 and 4.1.4.3 illustrate interior routes. Dimensions marked with an asterix (*) to be increased to 1800 mm at exterior routes.

Accessible routes shall

- have a **running slope** not steeper than 1:25 (4%) or be designed as a **ramp** in compliance with Section 4.1.9;
- 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 Section 4.1.10.

Where **accessible routes** less than 2100 mm wide terminate at a dead end, a turn space in compliance with Section 4.1.1 shall be provided at the dead end.

In situations where it is **technically infeasible** to provide a **clear** width of 1600 mm, unobstructed passing spaces not less than 1800 mm by 1800 mm shall be located no more than 30 meters apart.

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 100 mm high where the change in level is between 75 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.

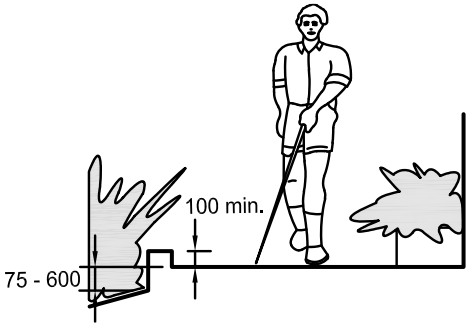


Figure 4.1.4.4:
Edge Protection

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.

All portions of an **accessible route** shall be equipped to provide a minimum level of illumination of 30 lux along paths of travel. Exception: In outdoor **park** settings where routes are not normally illuminated, additional illumination is not required.

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

Tactile direction indicators (TDIs) are required from main **entrances** to reception desks and elevators. TDIs should also be located to communicate an exterior or interior **accessible** path of travel to provide wayfinding through **open spaces** between major destinations or amenities.

TDIs should be colour contrasted to their surroundings. TDIs should be designed to meet the criteria outlined in the latest editions of the ISO 23599 and CSA B651 standards, in addition to the design guidelines found in the CNIB Foundation's "Clearing Our Path" documentation (www.clearingourpath.ca).

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

Snow melt system to be provided on all exterior paths, steps, **ramps**, and landings, forming barrier-free path of travel. Linear drains to be provided at base of exterior **ramps**.

Legislation References

AODA IASR 80.21 to 80.31
OBC 3.8.1.2.& 3.8.1.3.
OBC 3.8.2.1.

Related Sections

4.1.2 Ground and Floor Surfaces
4.1.5 Entrances
4.1.9 Ramps
4.1.10 Curb Ramps
4.3.3 Elevated Platforms
4.4.6 Signage
4.4.7 Detectable Warning Surfaces
4.4.11 Glare and Light Sources
4.4.12 Lighting
4.4.13 Materials and Finishes
4.4.14 Texture and Colour

4.1.5 Entrances

Rationale

Design decisions concerning **entrances** will have an immediate impact on the independence and dignity of everyone entering a **facility**. **Entrances** that address the full range of individuals using the **facility** promote a spirit of inclusion that separate **accessible entrances** do not. Features such as canopies can limit the influence of weather conditions on this already busy area and also make an **entrance** more obvious to a person with a cognitive **disability** or someone unfamiliar with the **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. The principal **entrances** used by staff and the public shall be **accessible**.

An **accessible** public **entrance** must be provided to each tenancy in a **facility**.

If direct access is provided for **pedestrians** from an enclosed parking garage to a **facility**, at least one direct **entrance** from the parking garage to the **facility** must 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**.

Lighting levels at **entrances** shall be evenly distributed and no less than 100 lux.

Entrances which are not **accessible** shall have directional **signage** complying with Section 4.4.7 which indicates the nearest **accessible entrance**.

Accessible entrances shall be identified with **signage** complying with applicable provisions of Section 4.4.6.

Accessible entrances shall be served by an **accessible route** in compliance with Section 4.1.4.

Snow melt system to be provided on all **entrances**, forming barrier-free path of travel.

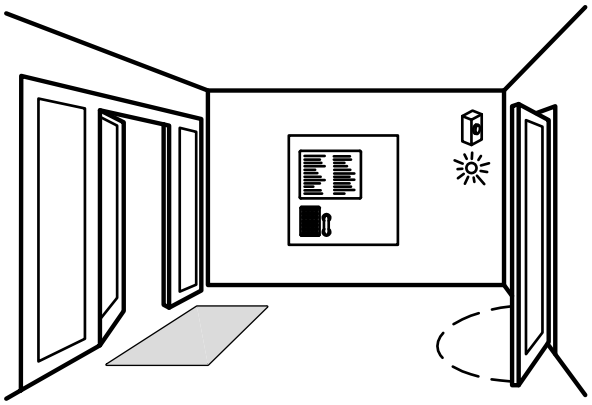


Figure 4.1.5.1:
Entrance Vestibule

Legislation References

OBC 3.8.1.2.

Related Sections

4.1.1 Space and Reach Requirements
4.1.4 Accessible Routes, Paths, & Corridors
4.1.6 Doors
4.1.7 Gates, Turnstiles and Openings
4.1.8 Windows, Glazed Screens and Sidelights
4.4.2 Controls and Operating Mechanisms
4.4.6 Signage
4.4.9 Self-Service Kiosks and Information Systems
4.4.10 Card Access, Safety and Security Systems
4.4.12 Lighting

4.1.6 Doors

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.

Careful thought to the direction of the door swing can enhance the usability and limit the hazard to other **pedestrians**. Sliding doors can be easier for some individuals to operate and can also require less wheelchair manoeuvring space. Automatic sliding doors should be employed at interior vestibule **entrances** and other high-traffic doorways. Doors that require two hands to operate are not considered to be **accessible**. Revolving doors are not **accessible** for persons using wheelchairs and strollers. Also, the coordination required to use such doors may be difficult for children or a person with a cognitive **disability**.

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 (refer to Section 4.1.8), 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**.

Table 4.1.6 Manoeuvring space at doors

Context	**Required Floor Space – Depth** (in mm)	**Required Floor Space – Width** (in mm)	**Clear Space beside latch** (in mm)
Side-hinged door - Front approach (Figure 4.1.6.1)			
Pull Side	1500	1600 (*1460)	600
Push Side	1370	1250 (*1160)	300
Side-hinged door - Latch-side approach (Figure 4.1.6.2)			
Pull Side	1370 (*1200)	1600 (*1460)	600
Push Side	1370 (*1100)	1550 (*1460)	600
Side-hinged door - Hinge-side approach (Figure 4.1.6.3)			
Pull Side	2400 (*1700)	2400 (*1500)	600
Push Side	1370 (*1100)	1800 (*1500)	450
Sliding door - Front approach (Figure 4.1.6.4)			
Front approach	1370	1250 (*1200)	300
Side approach	1370 (*1100)	1600 (*1500)	600
In retrofit situations where it is technically infeasible to provide the required clearances at doors, the clearances may be reduced as shown by the asterisk (*).			

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 550 mm minimum.

Each door that is an **element** of an **accessible route** shall comply with this section.

Each door required by Section 4.4.1 shall comply with this section.

Where a door system incorporates multiple door leaves at a single location, at least one of the door leaves shall comply with this section. Unless required for operational reasons, only one door leaf should be activated by an **automatic door** opener.

Power operators shall be provided at the following door locations:

- **entrances** required by Section 4.1.5, including both inner and outer vestibule doors (where provided);
- **common use** washrooms that include an **accessible** toilet stall;
- universal washrooms;
- 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;
- **common use spaces**, e.g., **meeting rooms**, kitchenettes, study **spaces**, etc.; and
- significant public occupancies, e.g., classrooms, performance **spaces**, sport venues, etc.

Mats and recessed floor grilles at doors shall comply with this section.

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 designated to facilitate the same use pattern.

Frameless glass doors and/or sidelights shall not be used.

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

Design Requirements

Where permitted, rooms without doors are preferred.

Accessible doors shall be on an **accessible route** that complies with Section 4.1.4.

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 operator, doors shall have level wheelchair-manoeuvring space on both sides of the door, and **clear space** beside the latch, as described in Table 4.1.6.

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.

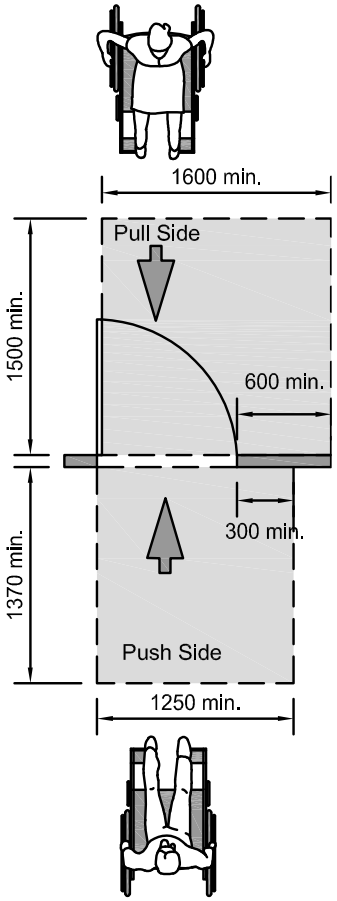


Figure 4.1.6.1:
Front Approach at Hinged Doors

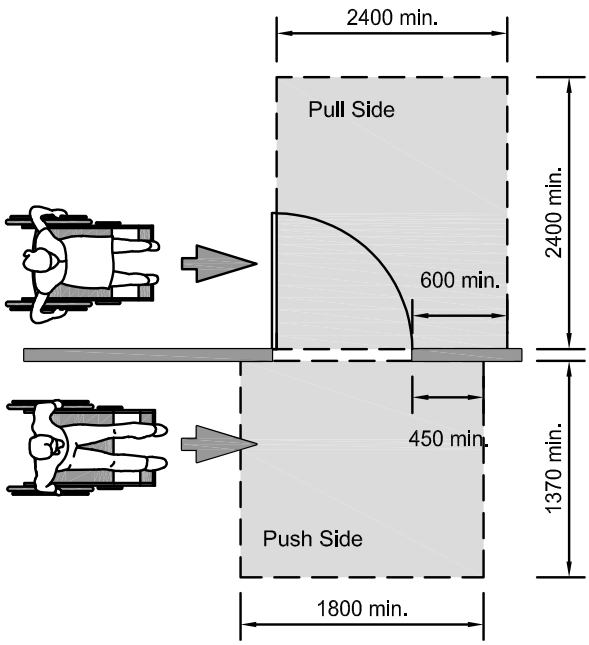


Figure 4.1.6.2:
Hinge Side Approach at Hinged Doors

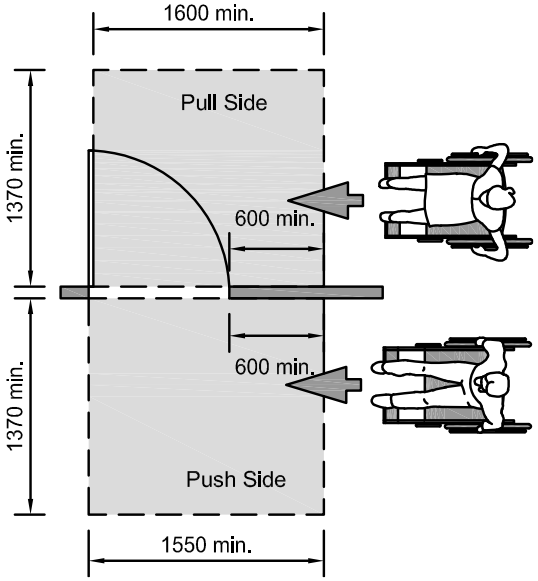


Figure 4.1.6.3:
Latch Side Approach at Hinged Doors

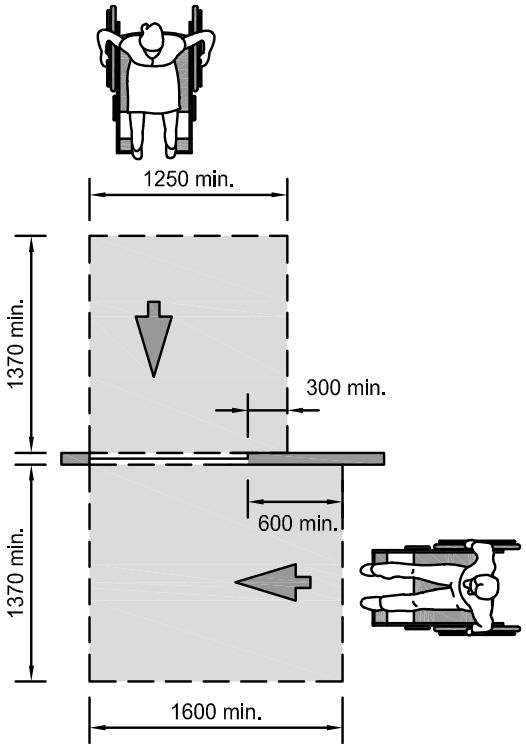


Figure 4.1.6.4:
Front and Side Approach at Sliding Doors

The minimum space between two hinged or pivoted doors in series shall be 1700 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.

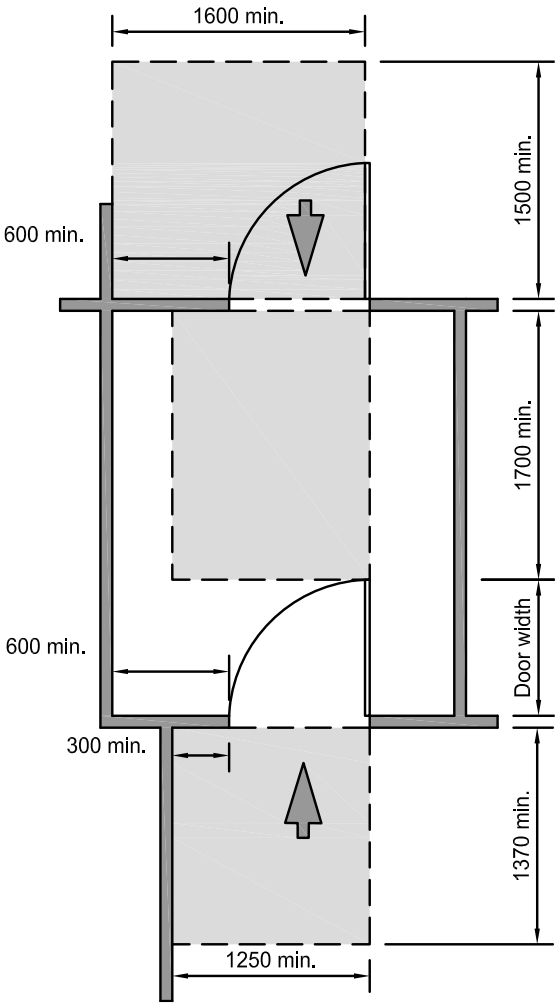


Figure 4.1.6.5:
Manoeuvring Space at Doors in Series

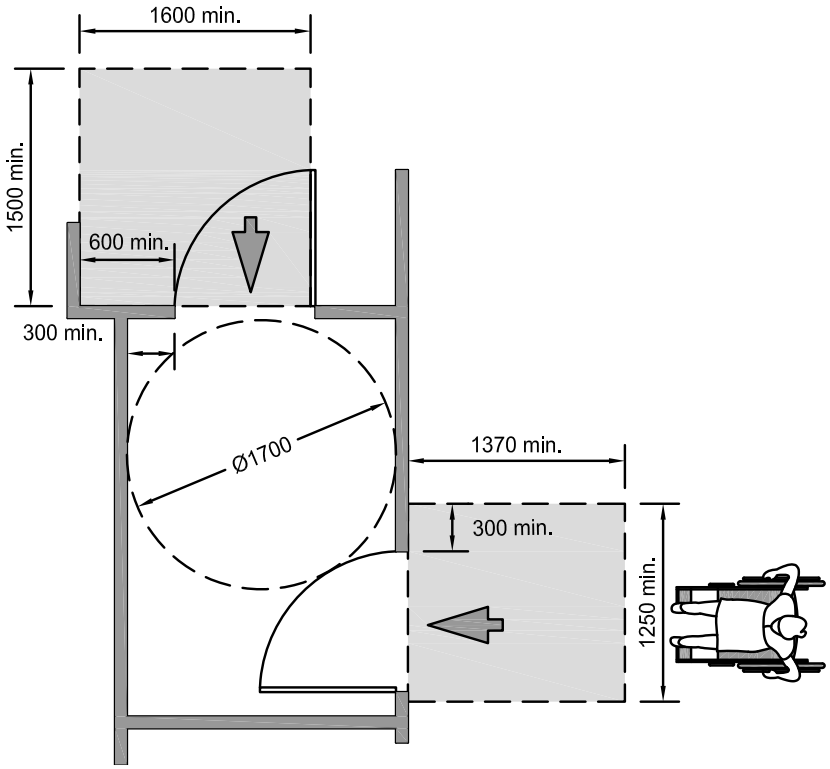


Figure 4.1.6.6:
Manoeuvring Space at Doors in Series

Thresholds shall

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

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

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

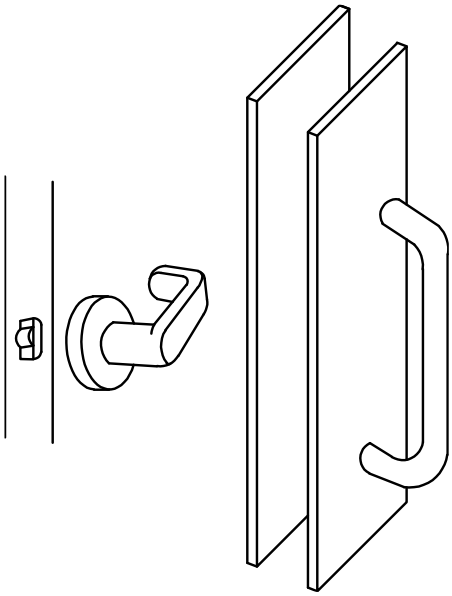


Figure 4.1.6.7:
Examples of Accessible Hardware

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

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

- 38 N for exterior hinged doors;
- 22 N for interior hinged doors; and
- 22 N for sliding or folding doors.

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 measured from when the door is in an open position of 70 degrees to the doorway, to when the door reaches a point 75 mm from the closed position, measured from the leading edge of the latch side of the door..

Power-assisted swinging doors shall

- take not less than 3 seconds to move from the closed to the fully open position; and
- remain open for not less than 5 seconds; and
- require a force of not more than 66 N to stop door movement.

Permanent mats and metal grills/gratings at **entrances** and in vestibules shall be secured following carpet requirements (refer to Section 4.1.2) or installed level with the floor, so as not to create a tripping hazard.

Recessed grates/grilles should have drainage provided to prevent buildup of water and dirt.

Occasional mats (e.g. runners used in bad weather) should be level with the floor surface and/or have a gently bevelled edge, so as not to create a tripping hazard.

Where power door operators are provided to ensure autonomy for access to **spaces**, 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 Section 4.1.1);
- 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 (or have a minimum dimension of 150 mm) located with their centre between 900 and 1100 mm above the finished ground/floor surface; or
    - configured as a vertical bar that is at least 50 mm wide which can be activated between 200 and 900 mm above the finished ground/floor surface;
    - incorporate an approved, preferably **tactile**, symbol of access for persons with **disabilities**.

Vertical bar power door operators are beneficial as they can be operated either by hand or foot of the user, by the lower portion of a mobility device, or by a service animal at a lower level.

Except where a proximity scanning device is installed, the control for a power door operator shall,

- be located to allow persons to activate the opening of the door from either direction of travel;
- be located so that the path of travel is not obstructed;
- be located in a clearly visible position; and
- incorporate an approved, preferably **tactile**, symbol of access for persons with **disabilities**;

Where overhead beams or proximity scanners are used to detect traffic, incorporate systems that will detect individuals using wheelchairs or scooters.

Where exterior doors swing open into a path of travel, incorporate safety **guards** that comply with Section 4.1.3, projecting a minimum of 300 mm beyond both sides of the open door (refer to Figure 4.1.6.16). Interior doors should be recessed away from paths of travel, such as corridors, or, if permitted, open into rooms.

Sample power door operator placements can be found in Figures 4.1.6.8 to 4.1.6.15. Review with Facilities & Services for alternate door configurations.

Provide **accessible signage** conforming to Section 4.4.6 where operator is adjacent to multiple rooms, for clarity.

Placement of devices, accessories, equipment, and furniture should be coordinated with **clear floor space** requirements for barrier-free controls such as power door operators.

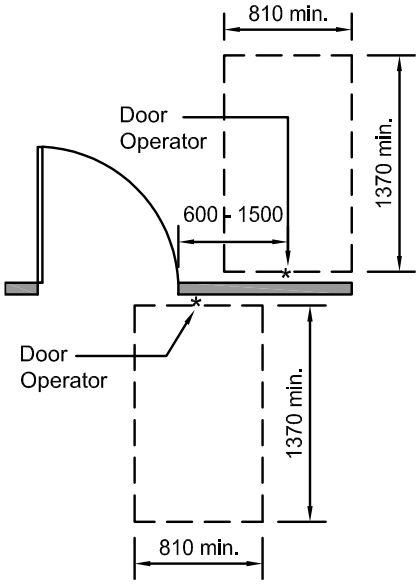


Figure 4.1.6.8:
Power Door Operator Locations for Single Door

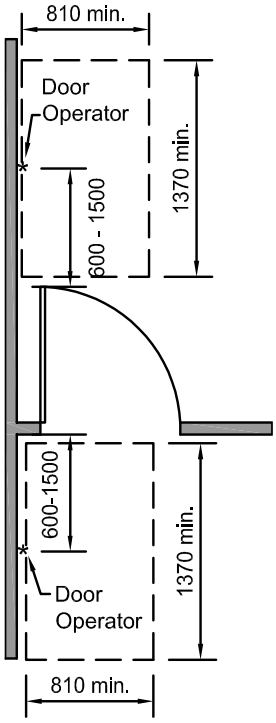


Figure 4.1.6.9:
Power Door Operator Locations for Single Door Adjacent to Wall

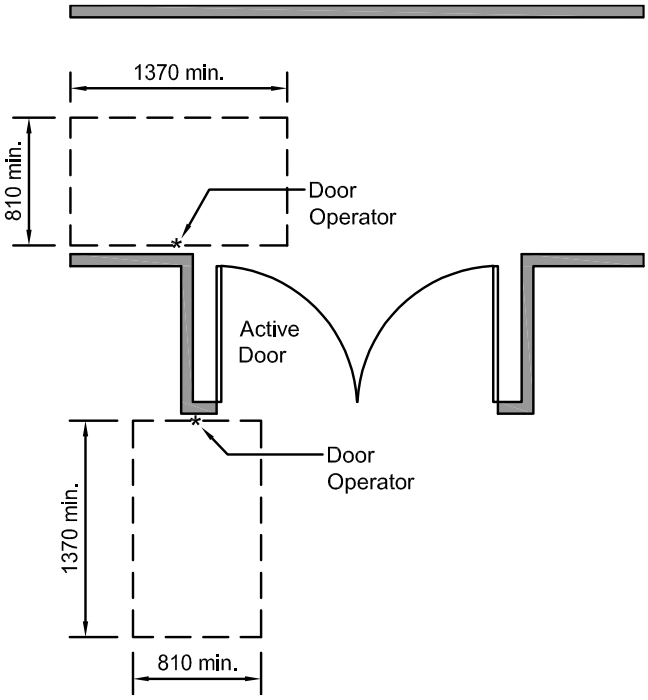


Figure 4.1.6.10:
Power Door Operator Locations for Recessed Double Doors

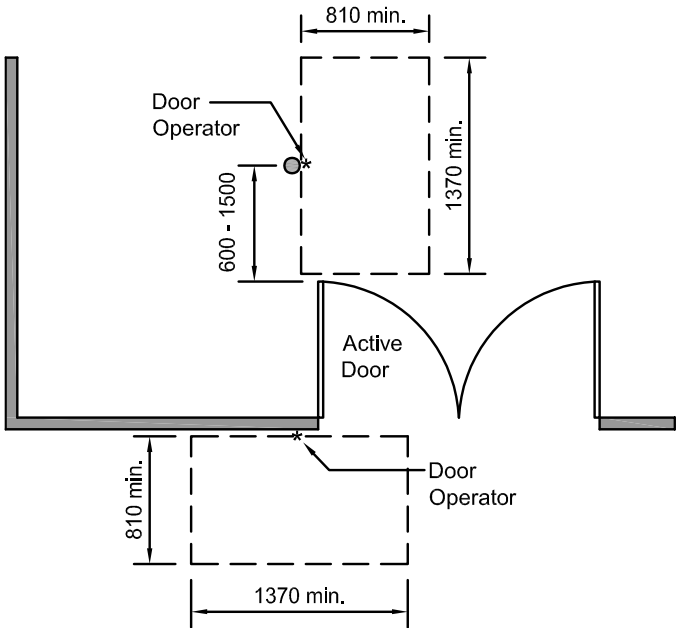


Figure 4.1.6.11:
Power Door Operator Locations for Double Doors Not Adjacent to Walls

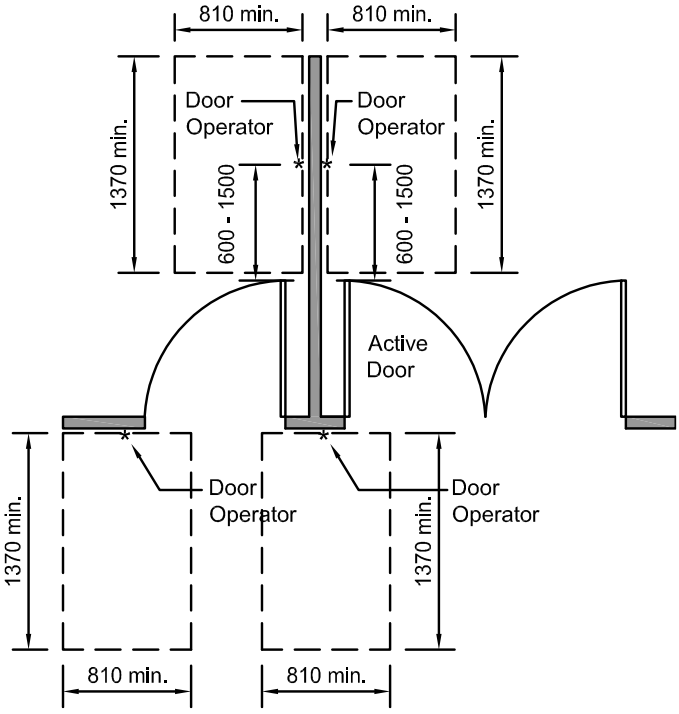


Figure 4.1.6.12:
Power Door Operator Locations for Single Door Next to Double Doors Leading to Separate Spaces

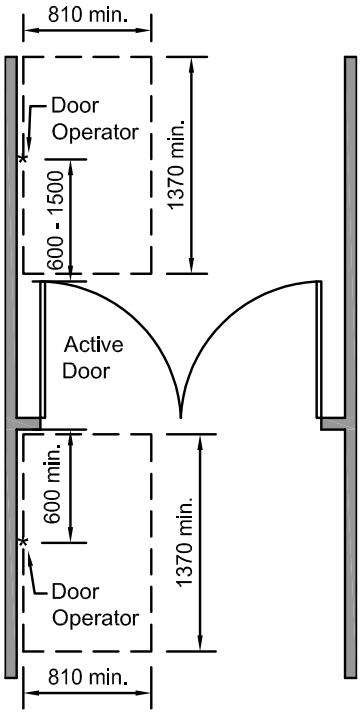


Figure 4.1.6.13:
Power Door Operator Locations for Double Doors in a Corridor

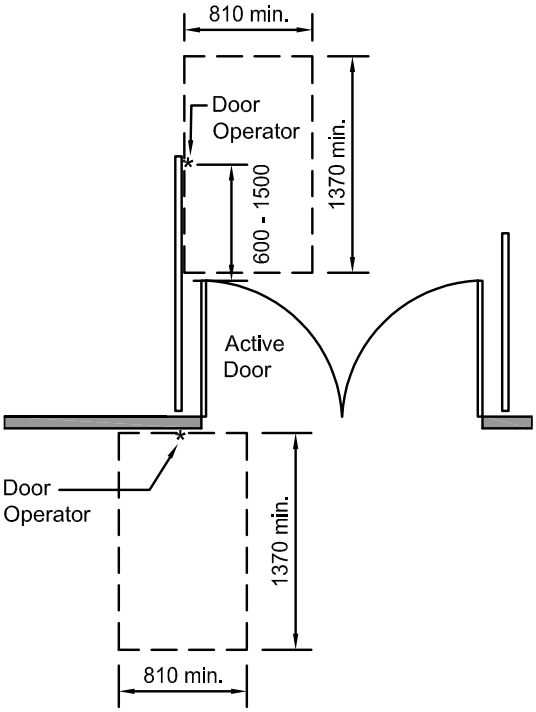


Figure 4.1.6.14:
Power Door Operator Locations for Double Doors with Guardrails Opening into Path of Travel

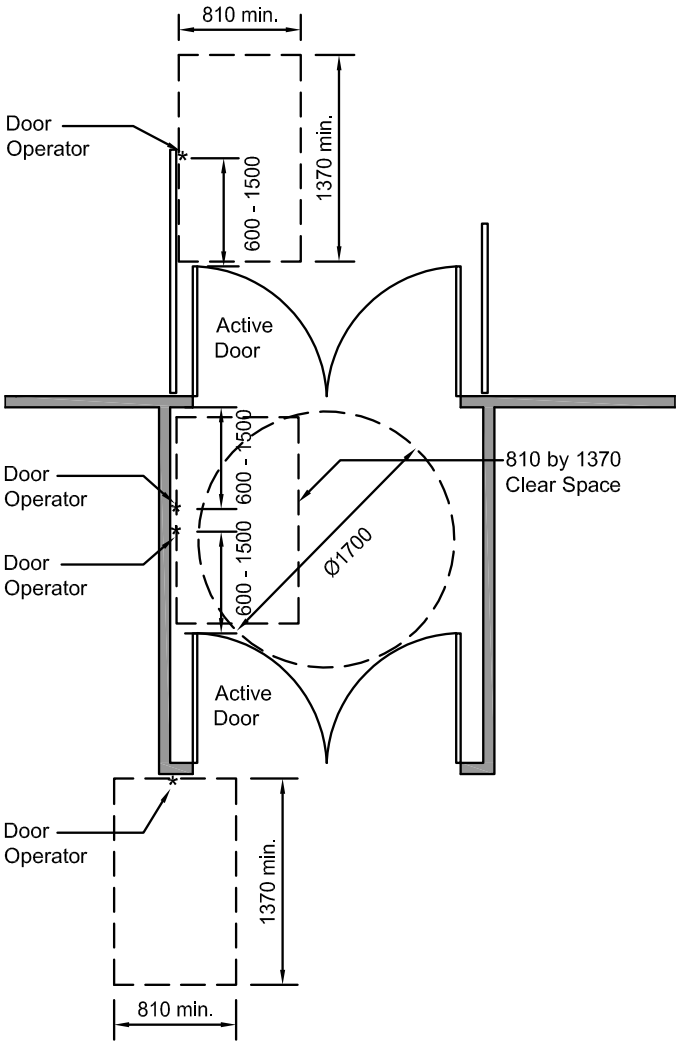


Figure 4.1.6.15:
Power Door Operator Locations for Double Doors in Series

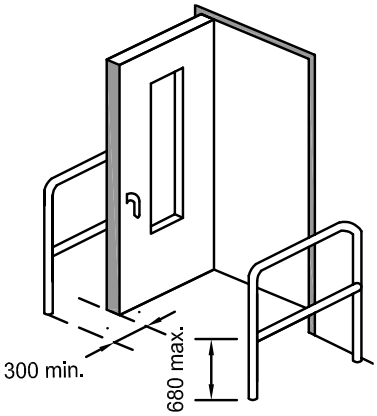


Figure 4.1.6.16:
Detectable Safety Guards

The edge of the door shall be colour contrasted to the face of the door, to provide greater visibility when the door is in an open position (refer to Figure 4.1.6.9).

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.

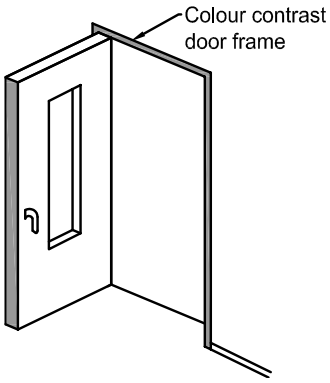


Figure 4.1.6.17:
Colour Contrast at Doors

Where a door incorporates glazing or is fully glazed, it shall comply with Section 4.1.8.

Legislation References

OBC 3.8.3.3.

Related Sections

4.1.1 Space and Reach Requirements
4.1.7 Gates, Turnstiles and Openings
4.1.8 Windows, Glazed Screens and Sidelights
4.4.2 Controls and Operating Mechanisms
4.4.6 Signage
4.4.9 Self-Service Kiosks and Information Systems
4.4.10 Card Access, Safety and Security Systems

4.1.7 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 to pass through 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.

The use of gates or turnstiles should be avoided where possible, but when necessary, gates should be used.

Application

Gates, turnstiles and openings shall comply with this section.

Design Requirements

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 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 an approved symbol of access for persons with **disabilities**.

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

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.

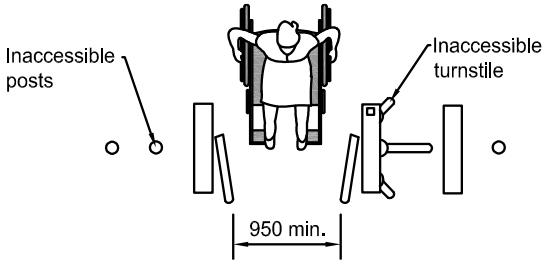


Figure 4.1.7.1:
Access at Gate

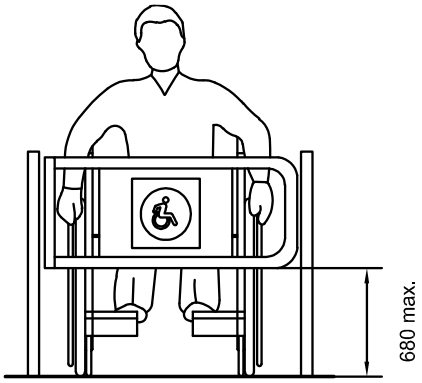


Figure 4.1.7.2:
Access at Gate

Related Sections

4.1.1 Space and Reach Requirements
4.1.6 Doors
4.1.8 Windows, Glazed Screens and Sidelights
4.4.2 Controls and Operating Mechanisms
4.4.6 Signage
4.4.9 Self-Service Kiosks and Information Systems
4.4.10 Card Access, Safety and Security Systems

4.1.8 Windows, Glazed Screens & 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, sidelights, fully-glazed doors and vision panels in doors shall comply with this section.

Frameless glass doors and/or sidelights shall not be used.

Design Requirements

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 opaque strip, minimum 50 mm wide and of highly contrasting colour to the background (as seen through the glazed panel), mounted with its centreline between 1350 and 1500 mm from the floor or ground. Additionally, a second row of decals, or a continuous strip, minimum 50 mm wide and of highly contrasting colour, shall be provided, mounted with its centreline between 850 and 1000 mm above the floor or ground.

Where decals are used, they shall be located at a maximum distance of 50 mm from edge to edge. The decals can either be a minimum of 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.

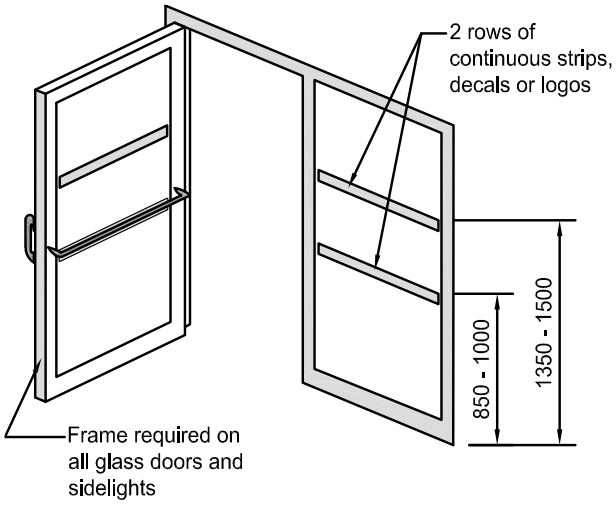


Figure 4.1.8.1:
Fully Glazed Doors, Sidelights and Vision Panel Markings

Where viewing windows or vision panels are provided,

- the sill height shall be no more than 760 mm from the floor; and
- where horizontal mullions are incorporated, the mullions shall not be located between 1050 mm and 1300 mm from the floor.

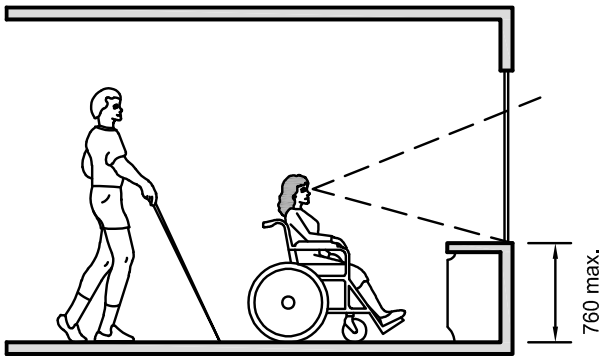


Figure 4.1.8.2:
Window Sill Height

Where a vision panel is provided in a door, such a panel shall

- be at least 75 mm wide;
- be mounted such that the bottom of the panel is not more than 750 mm from the floor; and
- the edge of the panel closest to the latch is not more than 250 mm from the latch side of the door.

In **facilities** with operable windows, window opening hardware shall

- be mounted between 400 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.

Legislation References

OBC 3.8.3.3.(14) & (15)

Related Sections

4.1.1 Space and Reach Requirements
4.4.2 Controls and Operating Mechanisms

4.1.9 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 the usability of a **ramp**. 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

Accessible ramps shall be on an **accessible route** complying with Section 4.1.4.

The **running slope** shall be a maximum of 1:20 for both an interior **ramp** and exterior **ramp**. In a **retrofit situation** where it is **technically infeasible** to provide a ramp meeting the specified maximum slope, a gradient of 1:15 may be used. Facilities & Services will consider exceptions under restrictive circumstances.

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

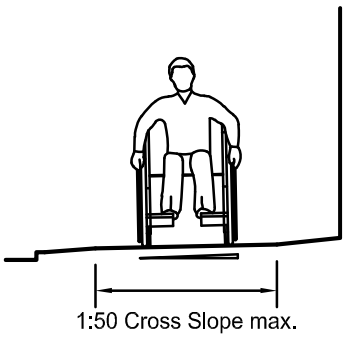


Figure 4.1.9.1:
Ramp Cross Slope

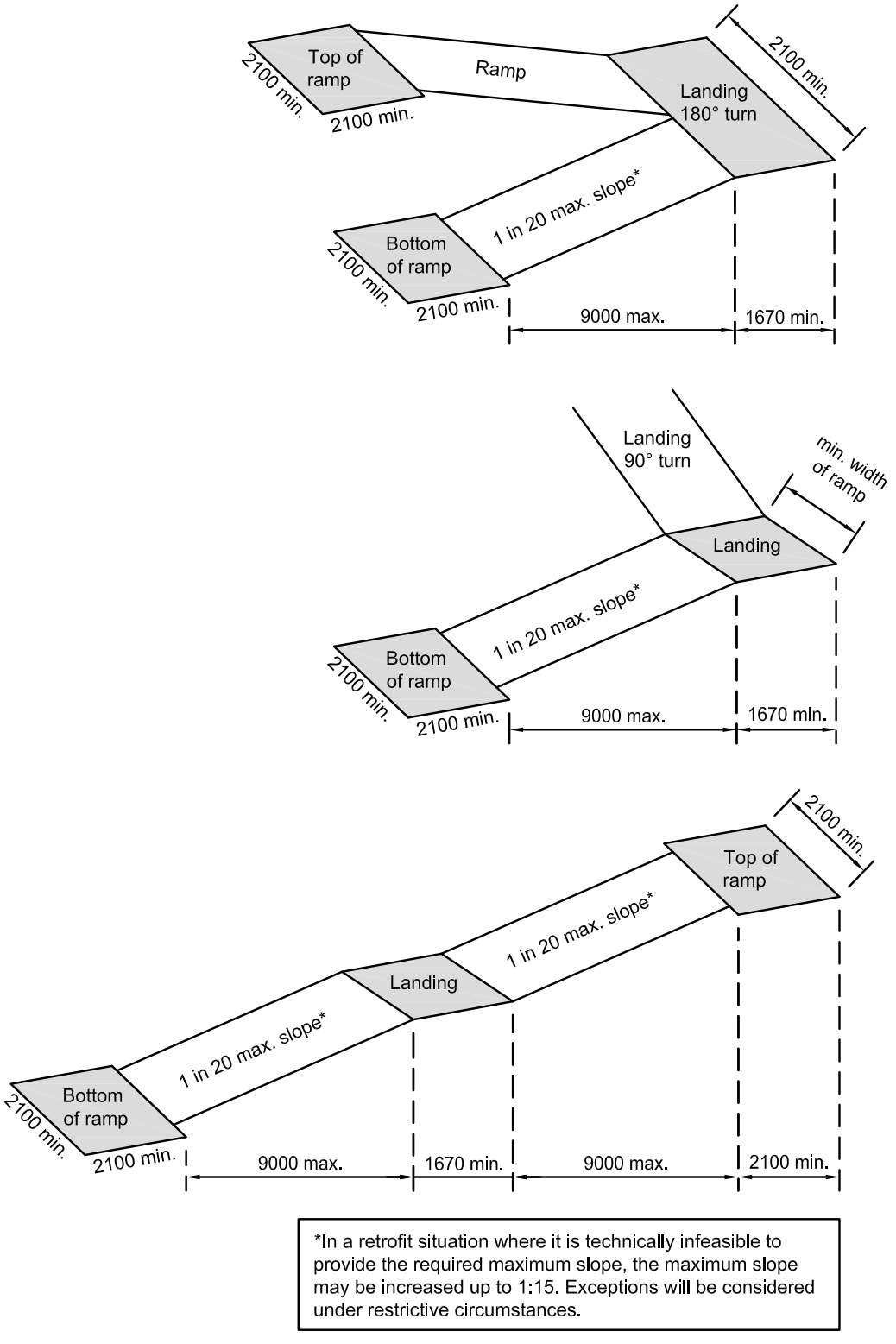
Ramps shall have level landings at the top and bottom of each run and also where the **ramp** changes direction.

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

Landings shall

- be at least as wide as the widest **ramp** run leading to it;
- have a minimum size not less than 2100 by 2100 mm if located at the top or bottom of a **ramp** or if served by a doorway. Where possible, the ideal is for the dimensions to be 2500 mm. In a **retrofit** situation where creating a suitably sized landing is **technically infeasible**, the required landing size may be reduced to 1670 by 1670 mm;
- have a length not less than 1670 mm and a width not less than 2100 mm, at an intermediate landing at the switchback of a U-shaped **ramp** (refer to Figure 4.1.9.2);
- have a length not less than 1670 mm and a width not less than the width of the **ramp**, where there is a change of 90 degrees or more in the direction of the **ramp**; and
- have a length not less than 1670 mm, at an intermediate landing in a straight **ramp** (refer to Figure 4.1.9.2).

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



*In a retrofit situation where it is technically infeasible to provide the required maximum slope, the maximum slope may be increased up to 1:15. Exceptions will be considered under restrictive circumstances.

Figure 4.1.9.2:
Minimum Ramp Landing Dimensions

At all slope transitions, **ramps** shall have a 40 to 60 mm wide colour/tonal contrasted strip across the width of the **ramp**, located on the landing surface.

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

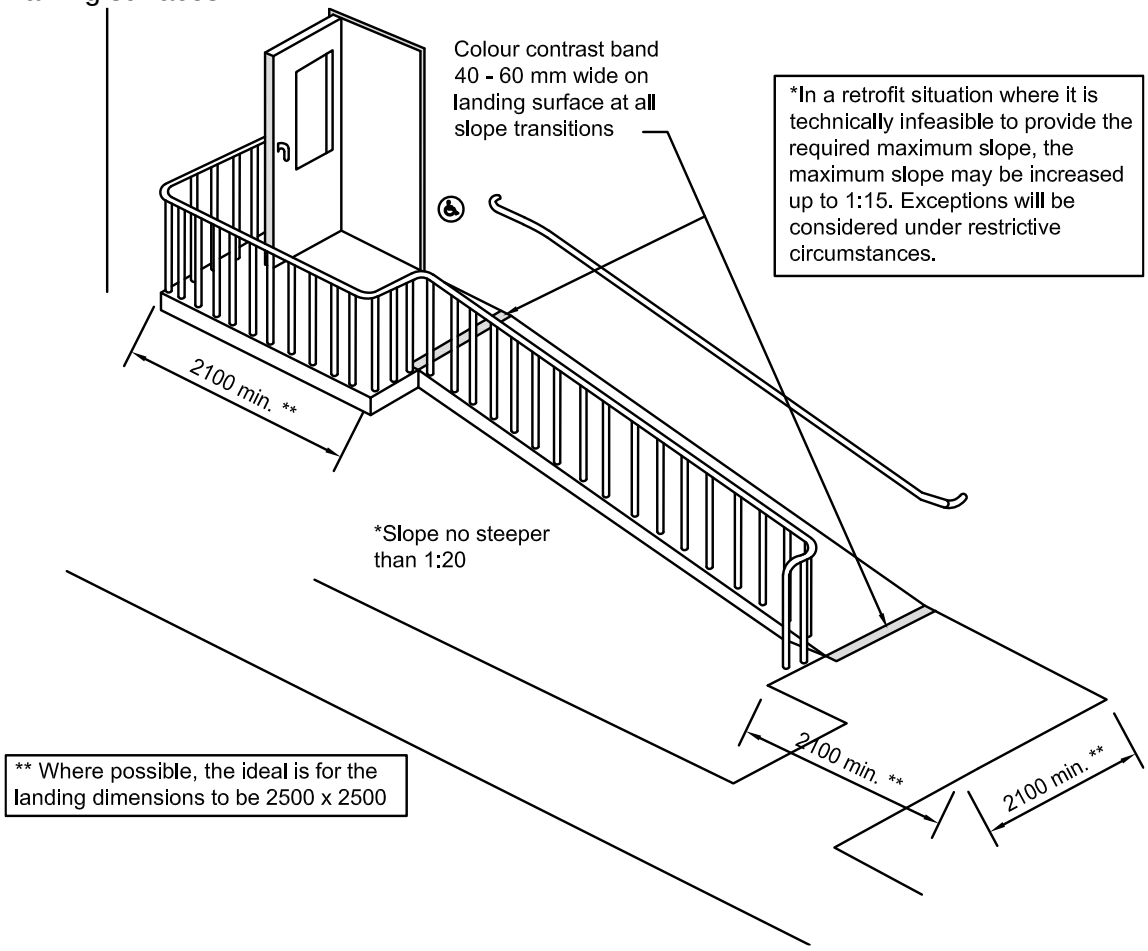


Figure 4.1.9.3:
Exterior Ramp Requirements

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. The side(s) of the **ramp** should be as transparent as possible for maximum visibility along the entire length.

Edge protection shall be provided at **ramps** and consist of

- a curb at least 100 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**.

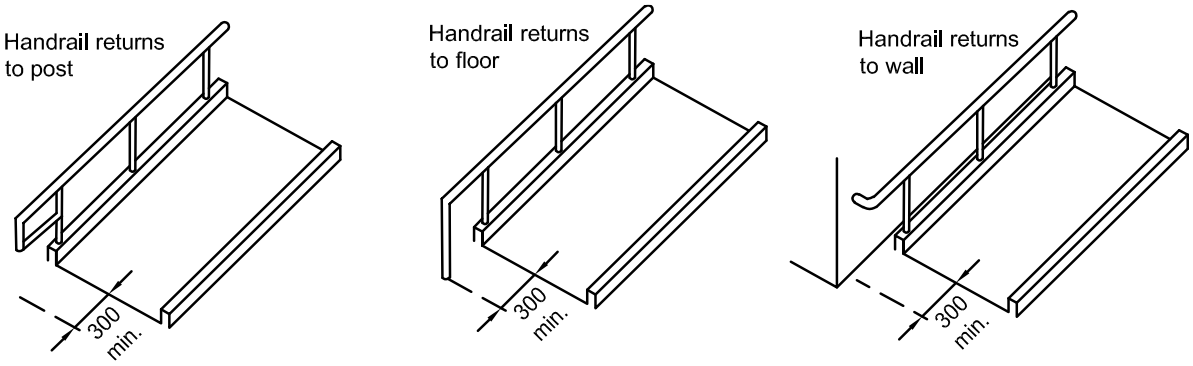


Figure 4.1.9.4:
Horizontal Handrail Extensions

A **ramp** run with a rise greater than 150 mm shall have **handrails** which

- are on both sides;
- comply with Section 4.1.12;
- have a minimum width of 900 mm between **handrails**, although 1100 mm is preferred where possible;
- 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** in the same direction as the **ramp,** and return to the wall, floor, or post;
- measure between 865 and 965 mm from the **ramp** surface to the top of the **handrail**; and
- provide intermediate **handrails** so that a **handrail** is reachable within 825 mm of all portions of the required exit width, and at least one portion of the **ramp** between the two **handrails** is the required exit width.

A **ramp** located within a barrier free path of travel that is greater than 2200 mm in width shall have an intermediate **handrail** with a **clear** width of 900 mm between the intermediate **handrail** and one of the side **handrails**.

Exception: Where a **ramp** serves as an aisleway for fixed seating, the above requirements for **ramp handrails** do not apply along the side(s) providing access to the fixed seating.

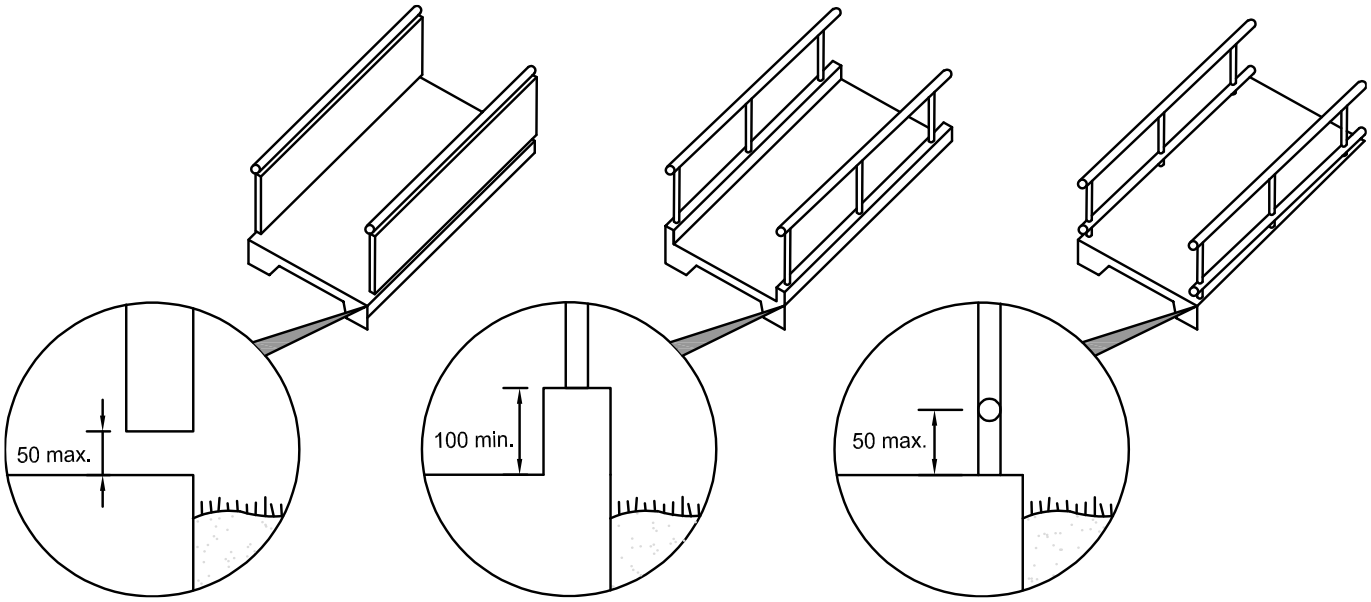


Figure 4.1.9.5:
Edge Protection at Ramps

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

Snow melt system to be provided on all exterior paths, steps, **ramps**, and landings, forming barrier-free path of travel. Linear drains to be provided at base of exterior **ramps**.

Legislation References

AODA IASR 80.24
OBC 3.8.3.4.

Related Sections

4.1.1 Space and Reach Requirements
4.1.2 Ground and Floor Surfaces
4.1.6 Doors
4.1.10 Curb Ramps
4.1.12 Handrails
4.4.6 Signage
4.4.7 Detectable Warning Surfaces
4.4.11 Glare and Light Sources
4.4.12 Lighting
4.4.13 Materials and Finishes
4.4.14 Texture and Colour

4.1.10 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**. A well-designed **curb ramp** can be spoiled by an uneven or gapped transition between the road surface and **curb ramp**. Flared sides on the **curb ramp** eliminate the hazard of **pedestrians** stepping off an edge. While a smooth transition and minimal slope are ideal for someone in a wheelchair, they are a potential visual **impairment** for those who may not notice the transition from sidewalk to street. Textured surfaces become an important safety feature in this scenario.

Snow accumulation at **curb ramps** should be removed completely after each snow fall.

Application

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

Design Requirements

Accessible curb ramps shall be on an **accessible route** complying with Section 4.1.4.

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

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 1800 mm.

Curb ramp configuration shall be as illustrated in Figures 4.1.10.1 to 4.1.10.7.

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.

Surfaces of **curb ramps** shall

- be slip-resistant;
- have a smooth transition from **ramp** to adjacent surfaces; and
- incorporate a flat-topped domes or cones **detectable warning surface** that is
    - in compliance with Section 4.4.7;
    - 610 mm in depth, starting 150 to 200 mm back from the edge of the curb; and
    - extending the entire width of the **curb ramp**.

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

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 1800 mm;
- be aligned with the direction of travel; and
- where provided at a **pedestrian** crossing, it shall incorporate a flat-topped domes or cones **detectable warning surface** that,
    - complies with Section 4.4.7;
    - is located at the bottom portion of the **depressed curb** that is flush with the roadway;
    - is set back 150 to 200 mm from the curb edge; and
    - is a minimum of 610 mm in depth.

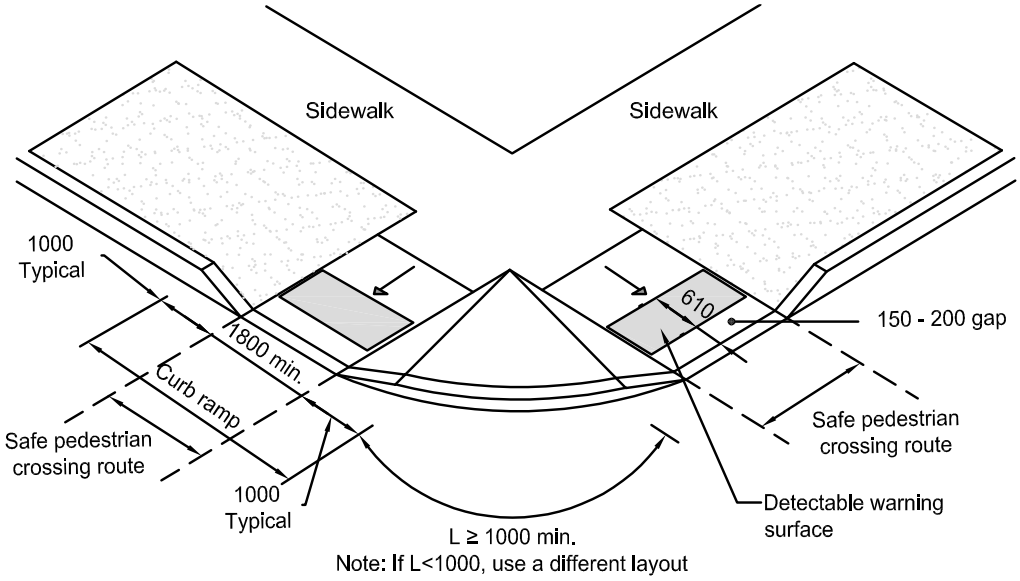


Figure 4.1.10.1:
Standard Curb Ramp

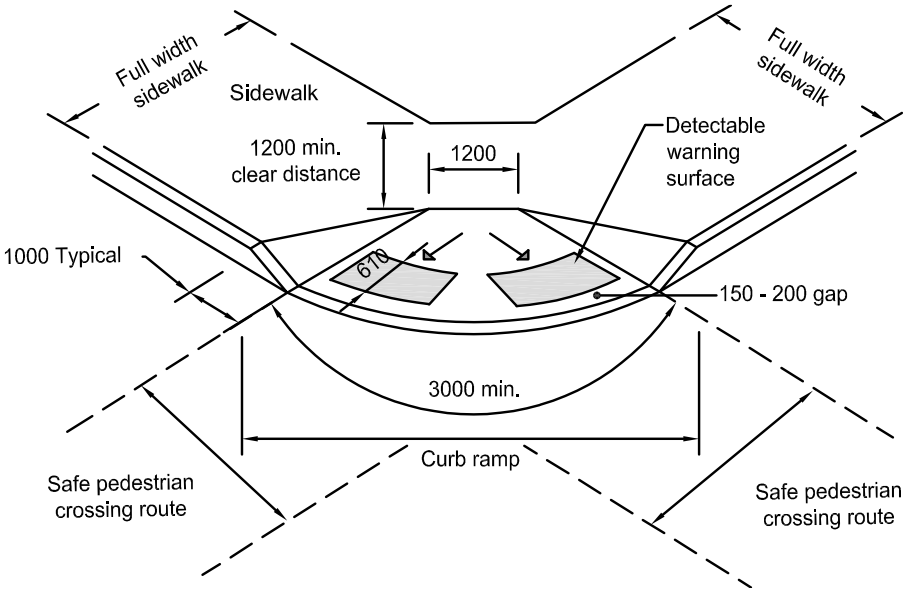


Figure 4.1.10.2:
Alternate Curb Ramp

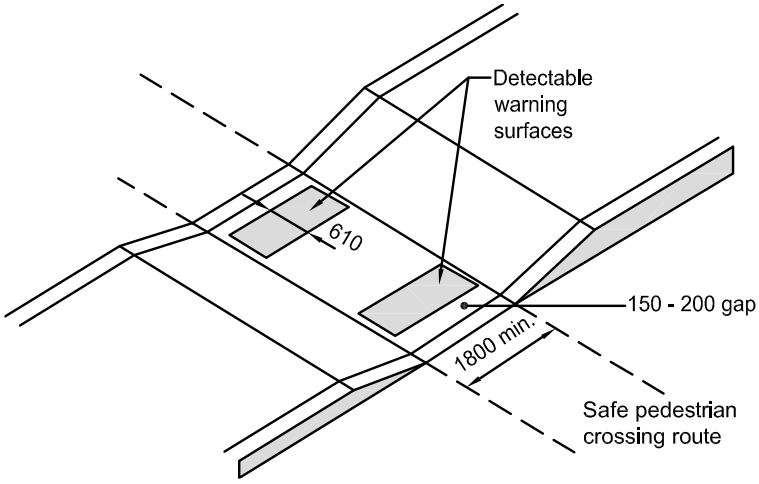


Figure 4.1.10.3:
Curb Ramp at Narrow Median Sidewalk Crossing

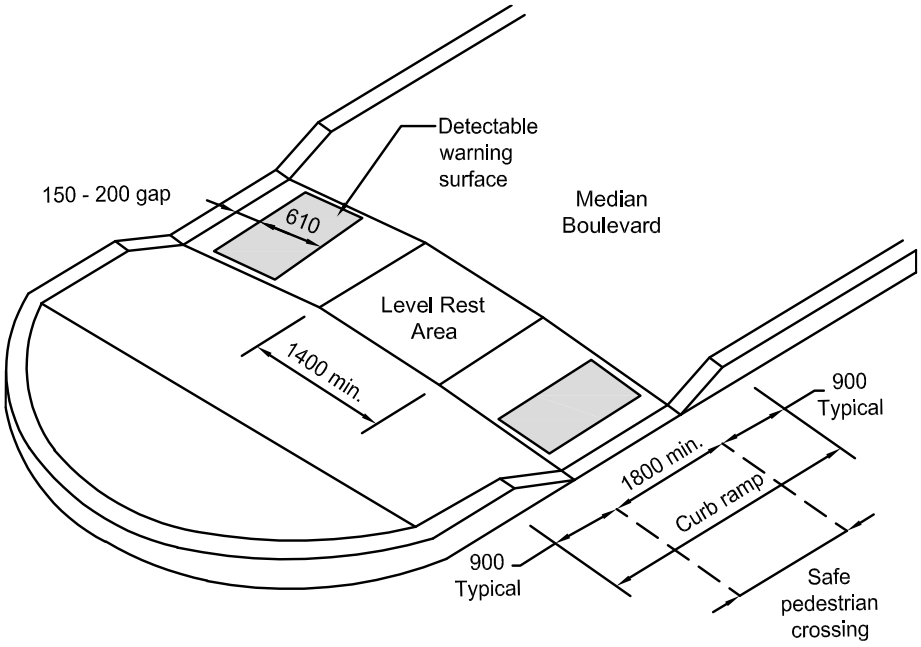


Figure 4.1.10.4:
Curb Ramp at Wide Median Sidewalk Crossing

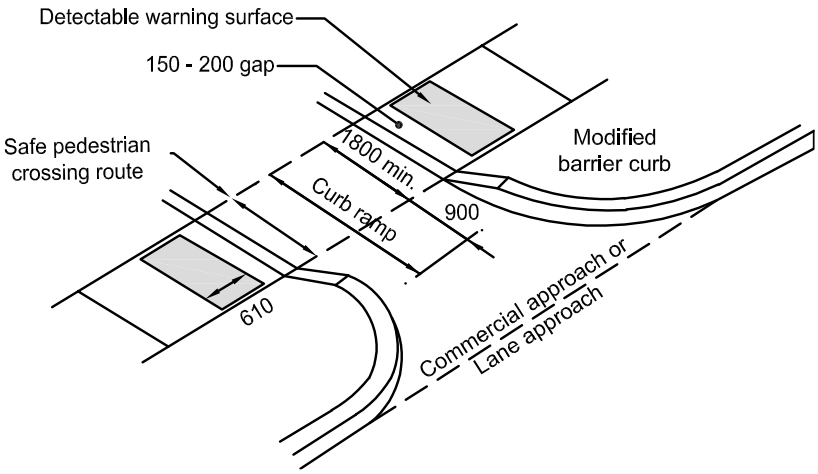


Figure 4.1.10.5:
Curb Ramp at Commercial or Lane Approach (Refer also to Ontario Provincial Standards for Roads and Public Works)

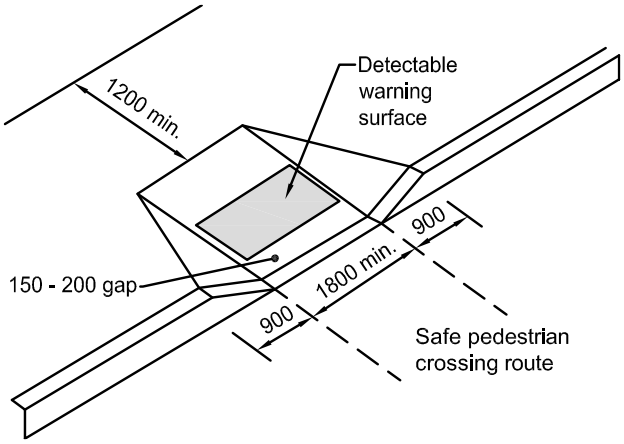


Figure 4.1.10.6:
Curb Ramp at Mid-Block Crossing (Refer also to Ontario Provincial Standards for Roads and Public Works)

Legislation References

AODA IASR 80.26 & 80.27
OBC 3.8.3.2.

Related Sections

4.1.1 Space and Reach Requirements
4.1.2 Ground and Floor Surfaces
4.4.7 Detectable Warning Surfaces
4.4.11 Glare and Light Sources
4.4.13 Materials and Finishes
4.4.14 Texture and Colour

4.1.11 Stairs

Rationale

Stairs that are comfortable for many adults may be challenging for children, seniors or persons of short stature. Poorly designed nosing 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; and
- dimensional changes to steps and landings are not required, however, all other design requirements must be met.

Design Requirements

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;
- have a run not more than 355 mm and not less than 280 mm deep, measured from riser to riser;
- have treads and risers that do not differ significantly in run and rise in successive flights in any stair system;
- have a slope on treads and landings that does not exceed 1 in 50;
- have slip resistant tread surfaces; and
- have no open risers.

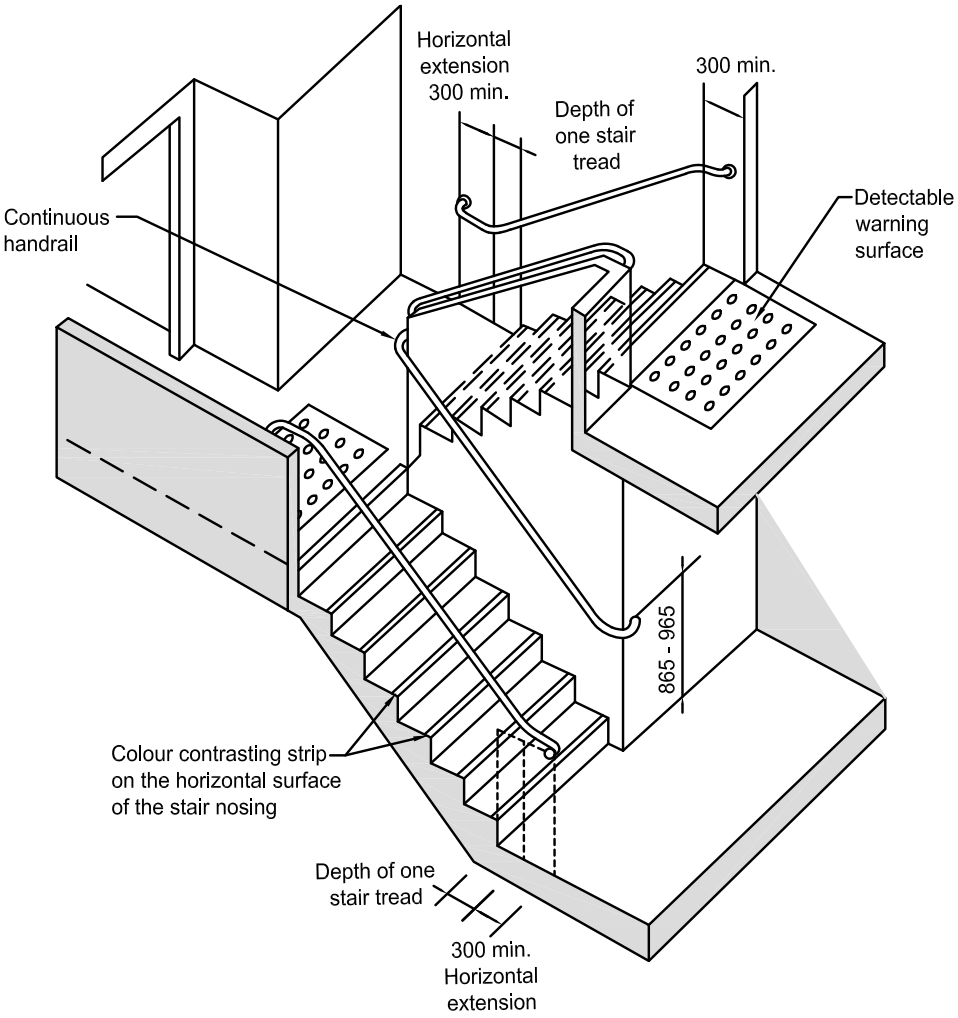


Figure 4.1.11.1:
Stair Design Criteria

Nosing shall

- project not more than 25 mm;
- have no abrupt undersides;
- have a curved or bevelled leading tread edge of between 6 and 13 mm;
- where projecting, be sloped to the riser at an angle not less than 60 degrees to the horizontal;
- be illuminated to a level of at least 100 lux;
- be slip-resistant; and
- have a 50 ± 10 mm deep horizontal stair nosing strip in colour contrast with the remainder of the riser and the tread.

Stairs shall incorporate **detectable warning surfaces** in compliance with Section 4.4.7.

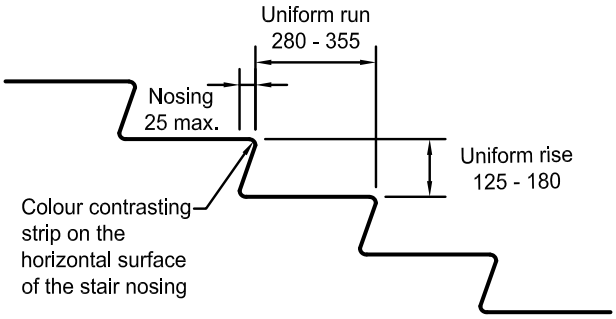


Figure 4.1.11.2:
Stair Tread Criteria

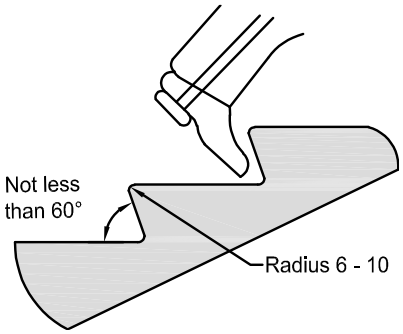


Figure 4.1.11.3:
Raked Riser

Handrails for stairs shall

- comply with Section 4.1.12;
- be installed on both sides;
- be of uniform height, ranging between 865 mm and 965 mm above the stair nosing, landing, or floor;
- have a continuous inside **handrail** on switchback stairs; and
- 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, in the same direction as the stair flight;
- extend horizontally at the top of the stairs not less than 300 mm, in the same direction as the stair flight; and
- return to the wall, floor, or post in a manner that will not obstruct **pedestrian** travel or create a hazard.

Intermediate **handrails** are to be provided such that

- a **handrail** is reachable within 825 mm of all portions of the required exit width, and
- at least one portion of the stair between the two **handrails** is the required exit width.

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

Seating and study **spaces** shall not be combined with staircases. This includes the design of hangout steps and study **spaces** that are only reachable via a staircase.

Legislation References

AODA IASR 80.25
OBC 3.4.6.1.
OBC 3.4.6.8.

Related Sections

4.1.1 Space and Reach Requirements
4.1.2 Ground and Floor Surfaces
4.1.6 Doors
4.1.12 Handrails
4.4.6 Signage
4.4.7 Detectable Warning Surfaces
4.4.11 Glare and Light Sources
4.4.12 Lighting
4.4.13 Materials and Finishes
4.4.14 Texture and Colour

4.1.12 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 stumble on the stairs.

Application

Handrails shall comply with this section.

Design Requirements

Handrails shall

- be mounted between 865 to 965 mm high, measured vertically from a line drawn through the outer edges of the stair nosing, or from the surface of a **ramp**, landing, or finished floor;
- have a circular section between 30 to 40 mm in diameter (an elliptical or other non-circular shape, with a graspable portion that has a perimeter not less than 100 mm and not more than 125 mm and whose largest cross-sectional dimension is not more than 45 mm, may be permitted, provided their benefit can be empirically demonstrated);
- be free of any sharp or abrasive **elements**;
- have continuous gripping surfaces, without interruption by newel posts, other construction **elements**, or obstructions that can break a handhold;
- 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; and
- be terminated in a manner that will not obstruct **pedestrian** travel or create a hazard.

All **handrails** must incorporate braille at the top and bottom to indicate the floor number a user has reached. This is essential for exit staircases in an emergency. When incorporating braille on a **handrail**, only include the floor number to prevent users from pausing on the stairs to read this information.

Where **handrails** return to a wall or floor, they must do so in a smooth curve.

Where **handrail** extensions project as freestanding objects with a space of more than 300 mm between supports, they shall be provided with a cane-detectable **element** no more than 680 mm from the ground or floor.

Anti-skateboarding **handrail guards**/devices are not permitted.

A recess containing a **handrail** shall extend at least 450 mm above the top of the rail.

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 applied at any point and in any direction; and
- a uniform load of not less than 0.7 kN/m applied in any direction to the **handrail**.

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

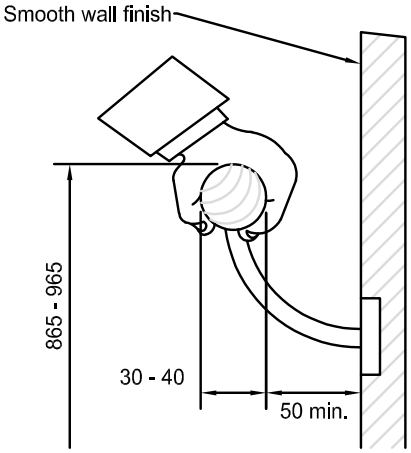


Figure 4.1.12.1:
Handrail

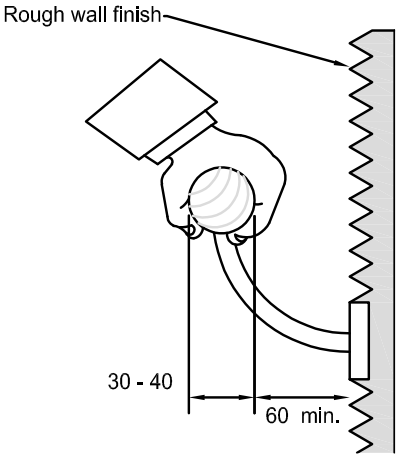


Figure 4.1.12.2:
Handrail at Rough Wall

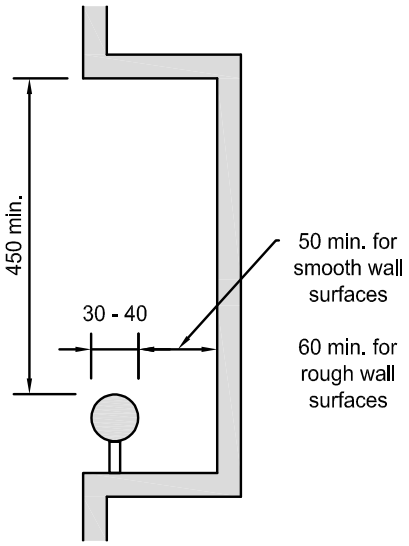


Figure 4.1.12.3:
Handrail in Recess

Legislation References

AODA IASR 80.24
OBC 3.4.6.5.

Related Sections

4.1.1 Space and Reach Requirements
4.1.9 Ramps
4.1.11 Stairs
4.4.14 Texture and Colour

4.1.13 Escalators

Rationale

Boarding and stepping off an escalator can be challenging for many persons who could have difficulty with the timing or lack agility. In addition, the absence 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

Escalator installations shall include high definition (colour contrast) of tread edges and nosing.

Detectable warning surfaces in compliance with Section 4.4.8 shall be provided at the head and foot of the escalator.

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

Lighting over escalators shall be a minimum of 200 lux, 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.

Legislation References

OBC 3.8.1.4.

Related Sections

4.1.1 Space and Reach Requirements
4.1.2 Ground and Floor Surfaces
4.4.6 Signage
4.4.7 Detectable Warning Surfaces
4.4.11 Glare and Light Sources
4.4.12 Lighting
4.4.13 Materials and Finishes
4.4.14 Texture and Colour

4.1.14 Elevators

Rationale

The buttons used on elevators need to address a range of functional issues, including reach, dexterity and visual **impairments**, as discussed in Sections 4.4.2 and 4.4.15. 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 insufficient space to turn around.

Application

One passenger elevator complying with this section 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.

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 staff.

Elevator access is not required:

- in elevator pits, elevator penthouses, mechanical rooms, piping or equipment catwalks;
- when **accessible ramps** in compliance with Section 4.1.9 are used in lieu of an elevator; and
- to levels of fire halls and ambulance stations not served by grade-level entry, which do not contain **public use facilities**.

Design Requirements

Accessible elevators shall be on an **accessible route** in compliance with Section 4.1.4.

Accessible elevators shall be identified by **signage** in compliance with applicable provisions of Section 4.4.6.

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

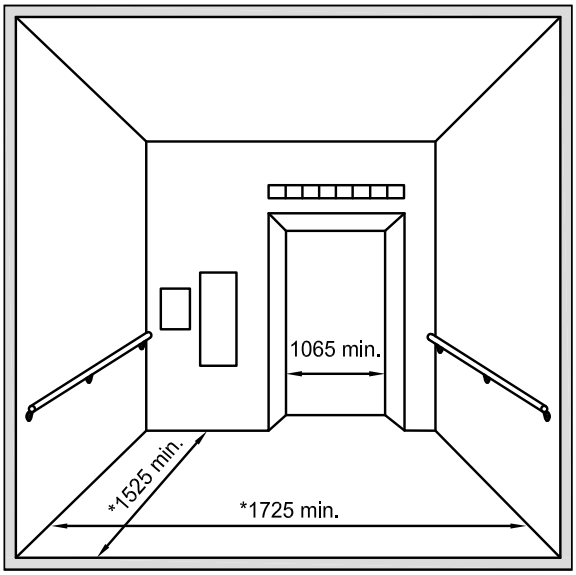
Power-operated horizontally sliding car and landing doors opened and closed by automatic means shall be provided.

The **clear** width for all 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 915 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 width, 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.

The minimum distance between the walls or between wall and door, excluding return panels, shall not be less than 1725 by 1525 mm. In **facilities** with high **public use**, such as arenas, libraries or entertainment complexes, the distance between walls or between wall and door shall be 2030 by 1525 mm. 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 permitted by Facilities & Services in conditions where demonstrable physical, **site**, or heritage constraints prevent installation of **ramps** or elevators.



*In high-use public facilities, increase maximum dimensions to 2030 x 1525mm with a clear door width of at least 1065mm

Figure 4.1.14.1:
Elevator car

Car controls shall be readily **accessible** from a wheelchair upon entering an elevator.

Floor register buttons in elevator cars 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.

Preference is for **ground floor** to be 0, with levels above and below to be sequentially numbered in ascending order, so that the ones above **ground floor** are 1, 2, 3, and ascending as necessary, and those below **ground floor** are -1, -2, -3, descending as necessary.

All car control buttons shall be designated by contracted (Grade 2) braille characters and by raised standard alphabet characters for letters, Arabic characters for numbers, and standard symbols. Markings shall be a minimum of 16 mm high and raised a minimum of 0.75 mm, placed immediately to the left of the buttons to which they apply.

Exception: In existing conditions 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 centreline of the alarm button and the emergency stop switch shall be not less than 890 mm above the floor. The centreline of the highest floor button shall be no higher than 1200 mm above the floor. Other controls may be located where it is convenient.

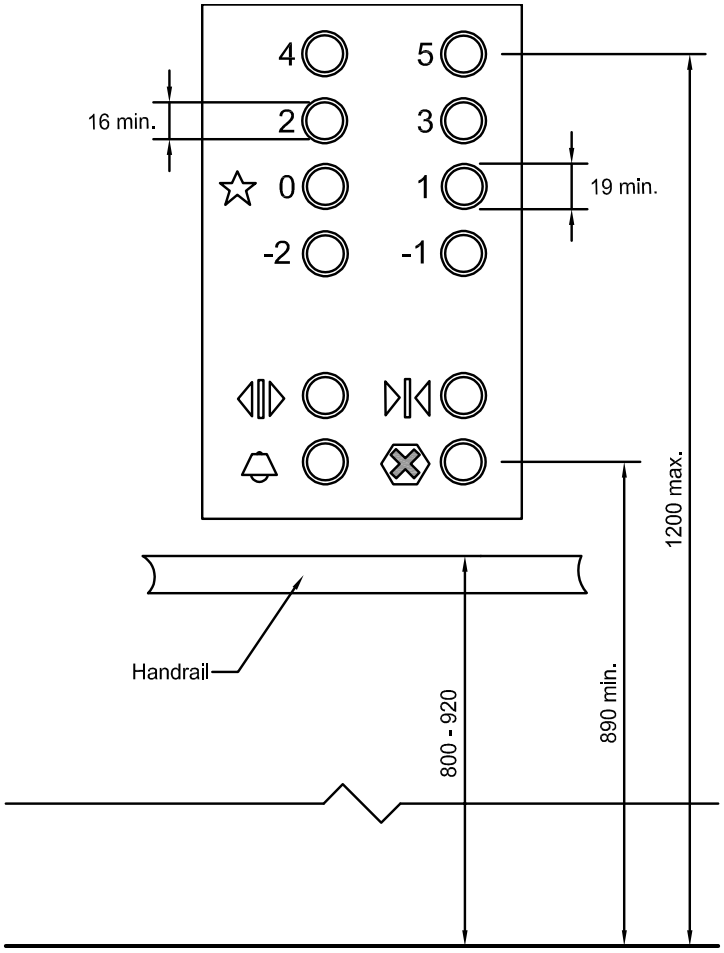


Figure 4.1.14.2:
Control Panel

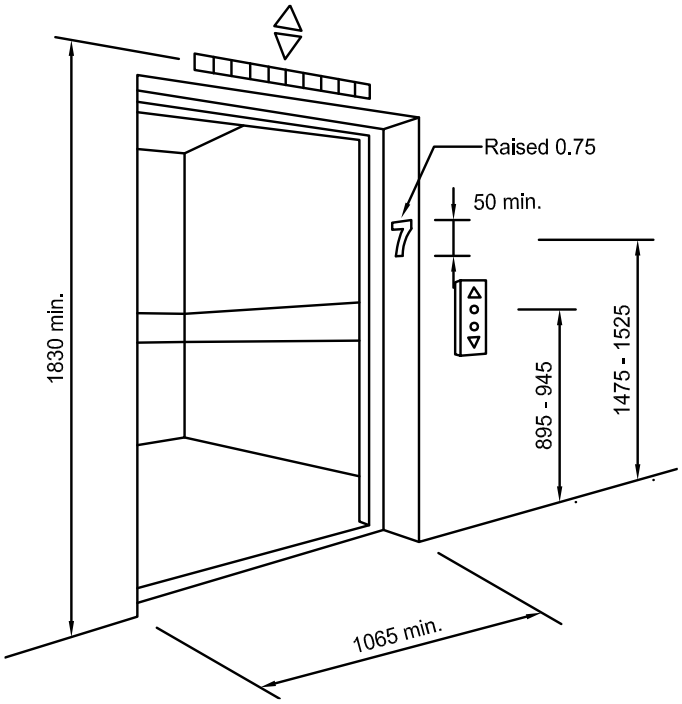


Figure 4.1.14.3:
Elevator Entry

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.

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

Handrails shall be provided on all non-access walls, at a height of 865 to 965 mm, with a space of 50 mm between the rails and wall.

The illumination at the car controls and landing sill shall be not less than 100 lux.

The centreline 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.

Hall buttons shall have visual signals to indicate when each call is registered and when each call is answered. Call buttons shall also provide an audible signal or mechanical motion of the button to indicate when each call is registered.

A visual and audible signal shall be provided at each hoistway **entrance** to indicate which car is answering a call and its direction of travel. Visual signal **elements** shall be a minimum height of 60 mm measured vertically. The centreline 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, indicating direction of travel. Audible signals shall sound once for the up direction, and twice for the down direction, or shall have verbal annunciators that state the word “up” or “down”.

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 raised at least 0.75 mm, placed on both sides of the door jambs, with the centreline at 1500 ± 25 mm from the floor.

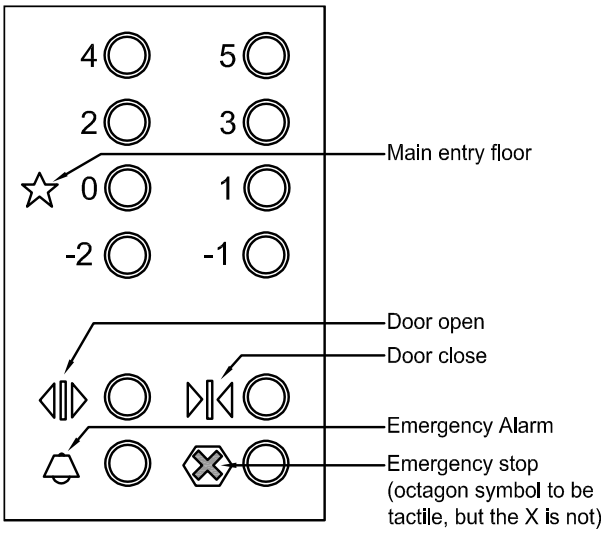


Figure 4.1.14.4:
Tactile Elevator Button Symbols

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

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 T515. If the system is located in a closed compartment, the compartment door and hardware shall conform to Section 4.4.2. The emergency intercommunication system shall not require voice communication.

Lighting in elevator cars shall be minimum 100 lux, measured at the floor level and at the same lighting level as the adjacent lobby **space**.

Mirrors shall not be used below a height of 2000 mm within elevator cars as a finish material on the wall opposite the door. Where the dimension of elevator cars 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. Curved or convex mirrors are not permitted.

Floor finishes within elevator cars shall comply with Section 4.1.2.

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

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.

Destination-oriented elevator systems shall conform with requirements outlined in Appendix E of CSA B44 “Safety Code for Elevators”.

Legislation References

OBC 3.8.3.5.
OBC 3.13.8.4.

Related Sections

4.1.1 Space and Reach Requirements
4.1.2 Ground and Floor Surfaces
4.1.6 Doors
4.1.12 Handrails
4.1.15 Platform Lifts
4.4.2 Controls and Operating Mechanisms
4.4.6 Signage
4.4.8 Public Address Systems
4.4.10 Card Access, Safety and Security Systems
4.4.11 Glare and Light Sources
4.4.12 Lighting
4.4.13 Materials and Finishes
4.4.14 Texture and Colour

4.1.15 Platform Lifts

Application

Platform lifts are not permitted. Approval for the utilization of platform lifts to provide barrier-free access in alternations of existing **facilities** may be granted by Facilities & Services in conditions where demonstrable physical, **site**, or heritage constraints prevent installation of **ramps** or elevators.

Legislation References

OBC 3.8.3.5.

Related Sections

4.1.1 Space and Reach Requirements
4.1.2 Ground and Floor Surfaces
4.1.6 Doors
4.1.12 Handrails
4.1.14 Elevators
4.4.2 Controls and Operating Mechanisms
4.4.6 Signage
4.4.8 Public Address Systems
4.4.10 Card Access, Safety and Security Systems
4.4.11 Glare and Light Sources
4.4.12 Lighting
4.4.13 Materials and Finishes
4.4.14 Texture and Colour

4.2 Washroom Facilities

4.2.1 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 then typical gender-specific washrooms are awkward and a universal all-gender washroom is preferred.

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 Section 4.2.7, 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 Section 4.4.7 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 Sections 4.2.8 and 4.2.9, and other applicable sections of this standard.

For single-user portable toilet units clustered at a single location, a minimum of 5%, but not less than one, of the toilet units 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 by 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

Accessible toilet **facilities** shall

- be on an **accessible route** complying with Section 4.1.4;
- be identified with **signage** complying with applicable provisions of Section 4.4.6;
- 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.

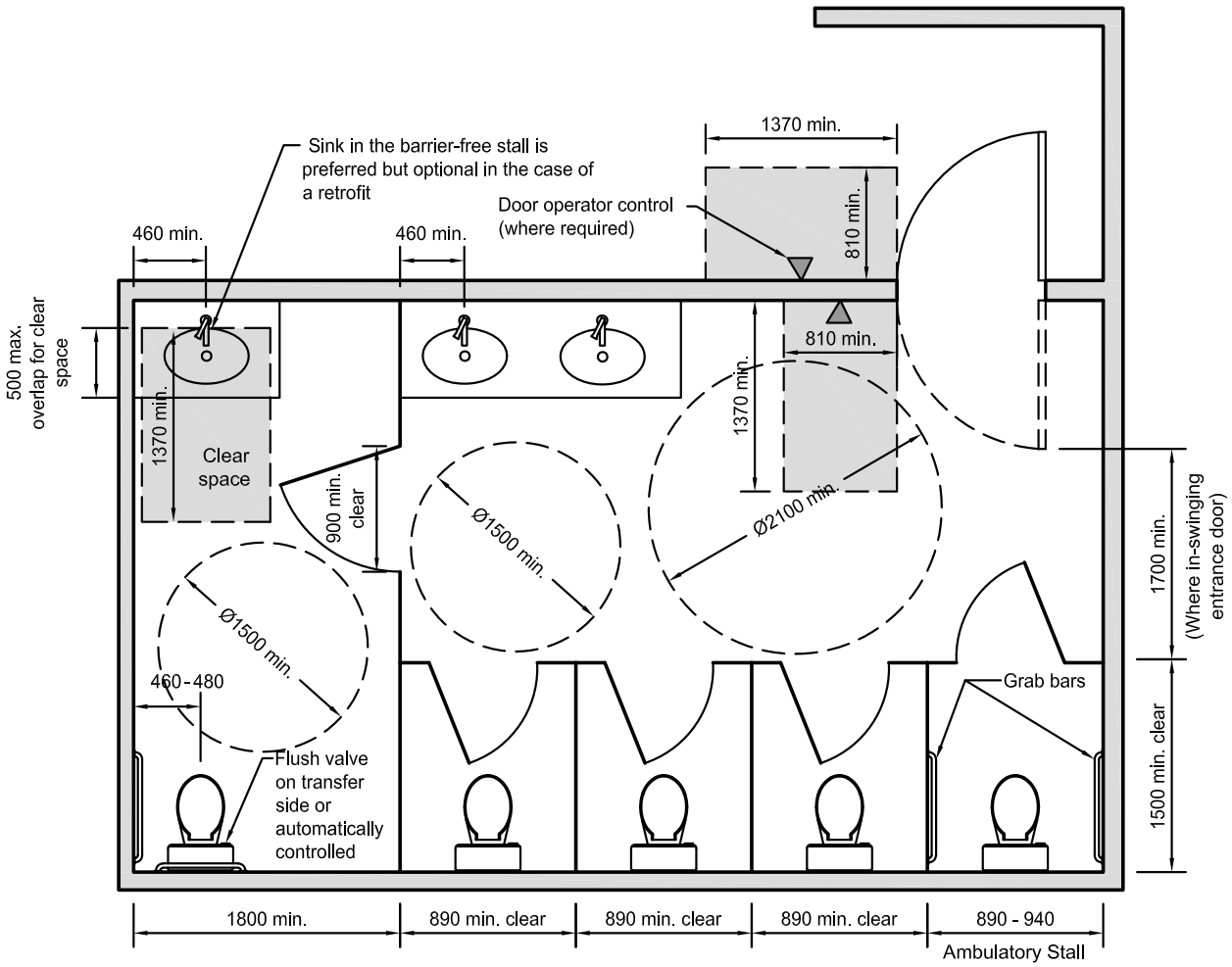


Figure 4.2.1.1:
Preferred Washroom Layout Dimensions

All **entrance** doors to **accessible** toilet rooms shall

- comply with Section 4.1.6;
- 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 of an adjacent toilet stall.

Accessible fixtures and controls within toilet and bathing rooms shall

- be on an **accessible route** complying with Section 4.1.4;
- have a minimum clearance of 1400 mm between the outside face of the **accessible** stall and any wall-mounted fixture or obstruction.
- refer to Figures 4.2.1.1 and 4.2.1.2 for sample washroom layouts.

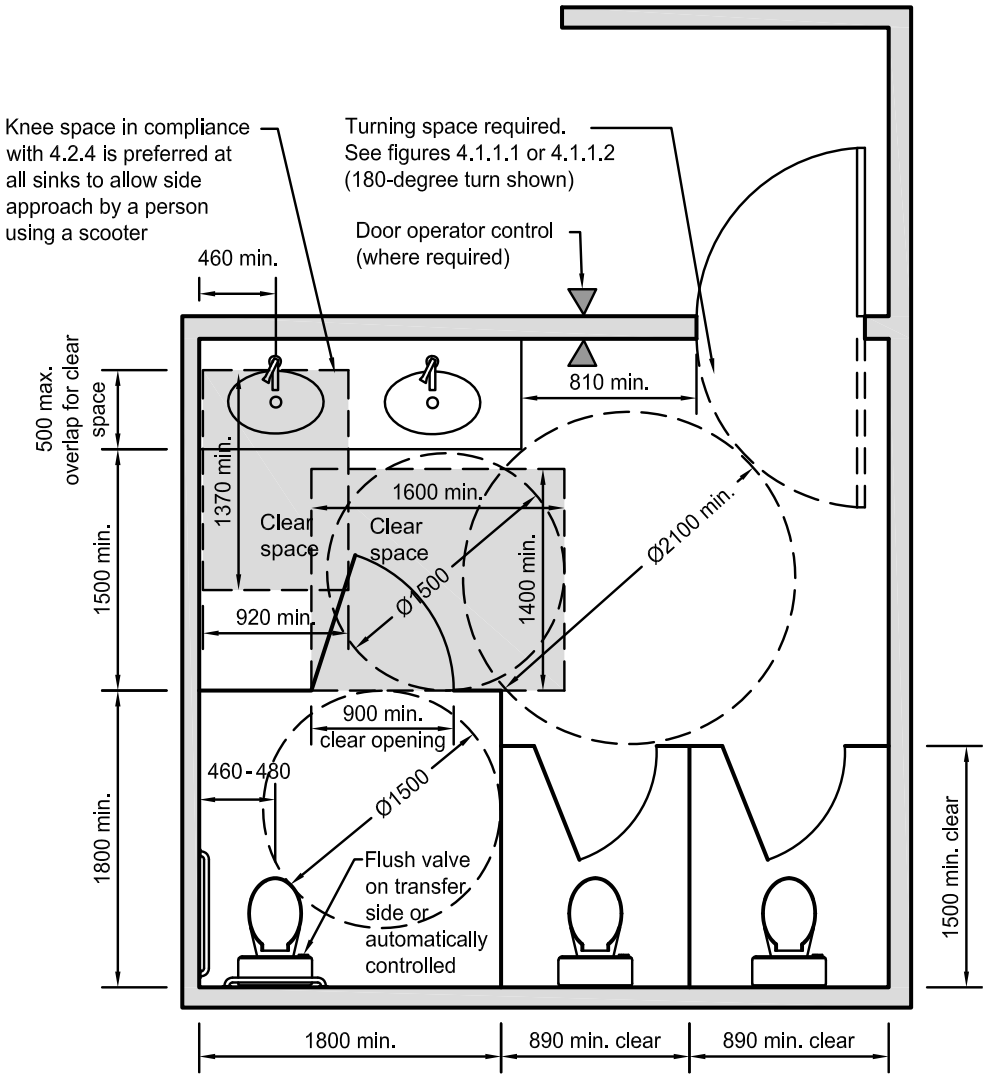


Figure 4.2.1.2:
Alternate Washroom Layout Dimensions

Legislation References

OBC 3.8.2.3.

Related Sections

4.1.1 Space and Reach Requirements
4.1.2 Ground and Floor Surfaces
4.1.3 Protruding and Overhead Objects
4.1.6 Doors
4.2.2 Toilet Stalls
4.2.3 Toilets
4.2.4 Lavatories
4.2.5 Urinals
4.2.6 Washroom Accessories
4.2.7 Universal washrooms
4.2.8 Shower Stalls
4.2.9 Grab Bars
4.4.2 Controls and Operating Mechanisms
4.4.6 Signage
4.4.11 Glare and Light Sources
4.4.12 Lighting
4.4.13 Materials and Finishes
4.4.14 Texture and Colour

4.2.2 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, but 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.

Minimum requirements for non-accessible toilet stalls are included to ensure that persons who do not use wheelchairs or scooter can be adequately accommodated within any toilet stall. Universal features include **accessible** hardware and a minimum stall width.

Consider the inclusion of larger toilet stalls to accommodate persons of large stature. Features include increased space between centreline of toilet fixture and adjacent wall, floor-mounted toilets and wider doors.

Application

Accessible toilet stalls shall comply with this section.

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 4.2.2.

All other toilet stalls within a **facility** (i.e., those considered to be non-accessible) shall be minimum 890 mm wide by 1500 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.

Table 4.2.2 Number of accessible toilet stalls

# of toilet stalls within the washroom	**Required # 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

Design Requirements

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 to activate (e.g., sliding bolt or lever); and
- capable of opening the latch from the outside in case of emergency.

Accessible toilet stalls shall

- be on an **accessible route** in compliance with Section 4.1.4;
- have internal dimensions that accommodate a turning space at least 1500 mm, **clear** of all fixtures or other obstructions;
- have a toilet fixture in compliance with Section 4.2.3;
- 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; and
- have a minimum 900 mm wide and 1500 mm deep **clear** transfer space on one side of the toilet fixture: and
- accommodate a turning space at least 1500 mm, **clear** of all fixtures or other obstructions on the exterior of the stall

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. This allows an individual to transfer from the left side in one toilet stall, and from the right side in another.

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 is **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 by 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; and
- be equipped with colour contrasting “D”-type door pull at least 140 mm long on both sides, mounted on the vertical centreline of the door and located between 800 and 1000 mm above the finished floor.

Ambulatory toilet stalls shall

- be minimum 1500 mm deep and between 890 and 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 Sections 4.2.3 and 4.2.9.

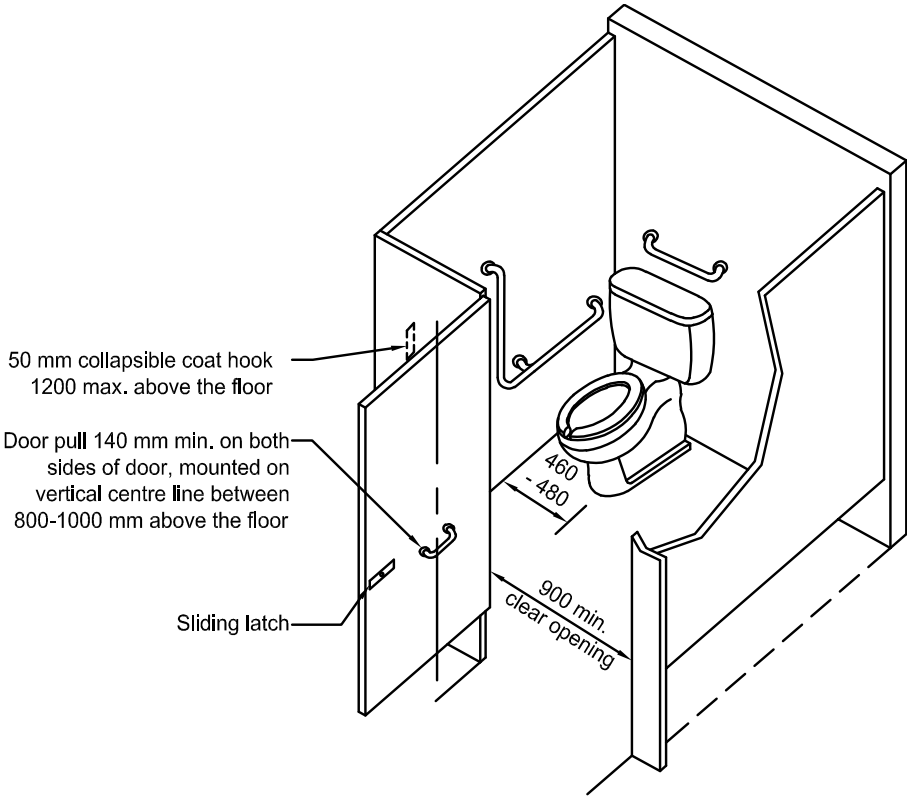
Ambulatory toilet stall door hardware (operating devices such as handles, pulls, latches, and locks) shall be

- operable by one hand;
- operable with a closed fist; and
- mounted between 900 mm and 1100 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 Section 4.2.3.



Note: Allow for a turn circle clear of all fixtures of at least 1500 mm

Figure 4.2.2.1:
Accessible Toilet Stall

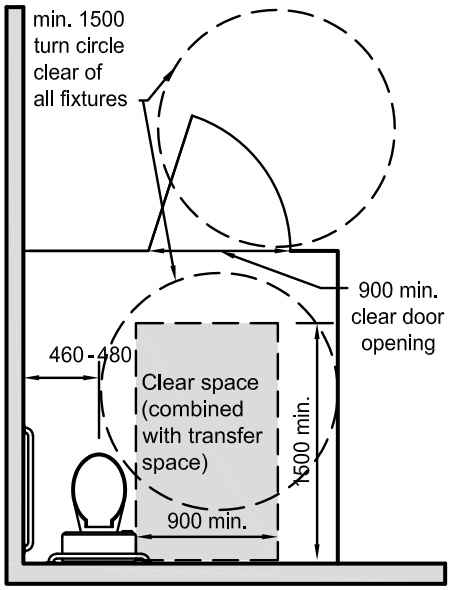


Figure 4.2.2.2:
Accessible Toilet Stall with Out-Swinging Door

Legislation References

OBC 3.8.3.8.

Related Sections

4.1.1 Space and Reach Requirements
4.1.3 Protruding and Overhead Objects
4.1.6 Doors
4.2.3 Toilets
4.2.6 Washroom Accessories
4.2.9 Grab Bars
4.4.2 Controls and Operating Mechanisms
4.4.12 Lighting
4.4.14 Texture and Colour

4.2.3 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

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 if there is no seat lid or tank; and
- the tank top securely attached.

Accessible toilets shall be

- located between 460 and 480 mm away from an adjacent wall measured from the centreline of the toilet to the surface of the wall; or
- have a **clear** transfer space of at least 900 by 1500 mm provided on each side of the toilet.

A **clear** transfer space, minimum 900 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 (refer to Section 4.2.2) and in universal washrooms (refer to Section 4.2.7).

The **clear** transfer space shall be **clear** of obstructions (such as garbage bins or 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.

Where a toilet seat lid is not used as a back rest, provide a backrest that is

- between 100 and 250 mm high;
- between 250 and 400 mm wide;
- mounted with its underside between 150 and 250 mm above the top of the toilet seat; and
- located to allow the toilet seat to be lifted.

Toilet flush controls shall be

- operable by a closed fist from the transfer side of the toilet; or
- automatically controlled with an electronic sensor.

Hand-operated flush controls shall comply with Section 4.4.2.

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

- comply with Section 4.2.9;
- are continuous L-shaped with 750 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.

A fold-down grab bar in compliance with the requirements listed below shall also be provided on the transfer side of the toilet.

- complies with Section 4.2.9;
- is at least 750 mm long; and
- is mounted on the wall behind the toilet with the horizontal component 750 mm above the finished floor and between 390 and 410 mm from the centreline of the toilet.

Where an **accessible** toilet stall is not located adjacent to a wall it shall be equipped with a fold-down grab bar on each side, with a toilet paper dispenser attached to one of the grab bars.

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

Toilet-paper dispensers shall be

- double roll dispensers, although single, large roll dispensers offer easier reach;
- wall-mounted;
- located below the grab bar;
- in line with or not more than 300 mm in front of the toilet seat;
- not less than 600 mm and no more than 800 mm above the floor; and
- contrasting in colour to the wall.

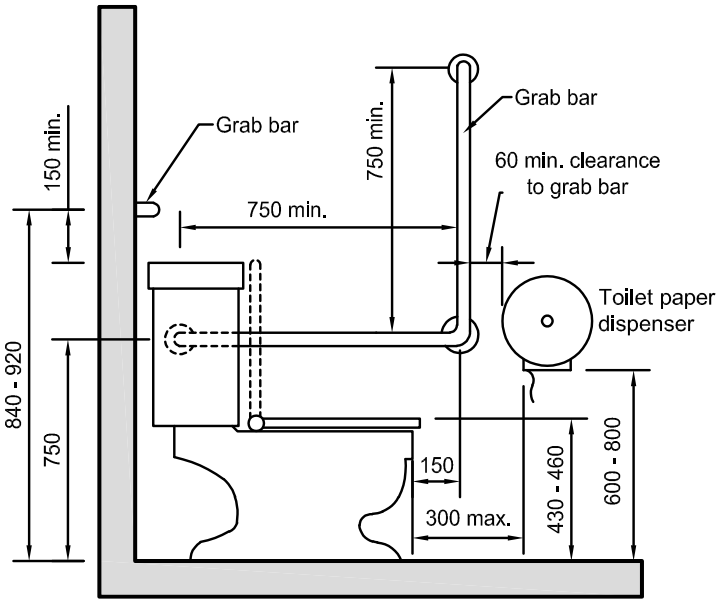


Figure 4.2.3.1:
Accessible Toilet and Grab Bar Configuration

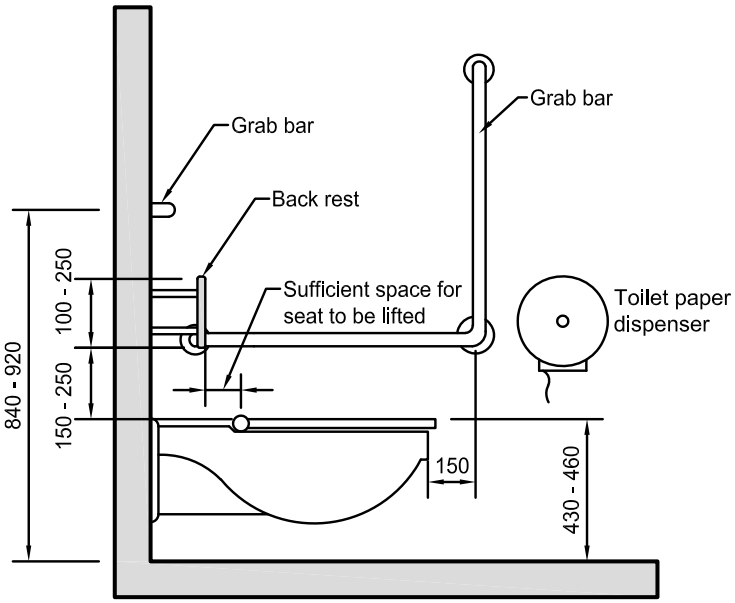


Figure 4.2.3.2:
Accessible Wall Hung Toilet with back Rest

Legislation References

OBC 3.8.3.8. & 3.8.3.9.

Related Sections

4.1.1 Space and Reach Requirements
4.2.2 Toilet Stalls
4.2.9 Grab Bars
4.4.2 Controls and Operating Mechanisms
4.4.12 Lighting
4.4.14 Texture and Colour

4.2.4 Lavatories

Rationale

The accessibility of lavatories will be greatly influenced by their operating mechanisms. 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

Lavatories shall

- be on an **accessible route** complying with Section 4.1.4;
- be mounted so that the minimum distance between the centreline of the fixture and the side wall is 460 mm;
- have the top located between 820 mm and 865 mm above the floor;
- have a knee space of at least
    - 920 mm wide;
    - 735 mm high at the front edge;
    - 685 mm high at a point 200 mm back from the front edge; and
    - 350 mm high over the distance from a point 280 mm to a point 430 mm back from the front edge;
- have a minimum **clear floor space** 810 mm wide and 1370 mm deep, of which a maximum of 500 mm in depth may be under the lavatory;
- have hot water and drainpipes insulated if they abut the clearances noted above, or limit the water temperature to a maximum of 43 degrees Celsius; and
- have soap and towel dispensers that are
    - located to be **accessible** to persons who use wheelchairs or scooters (i.e., not having to reach over deep counters to access the devices);
    - located so that the dispensing height is not more than 1100 mm above the floor;
    - located not more than 500 mm measured horizontally from the **accessible** lavatory;
    - operable with one hand;
    - colour-contrasted with the surrounding environment; and
    - in compliance with Section 4.4.2.

Faucets and other controls shall

- be in compliance with Section 4.4.2;
- have lever-style handle, operable with a closed fist, or be electronically controlled; and
- be located so that the distance from the centreline 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.

The front apron of a vanity shall have a minimum clearance of 920 mm wide by 735 mm high.

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.

Where mirrors are provided at lavatories or vanity units, they shall comply with Section 4.2.6.

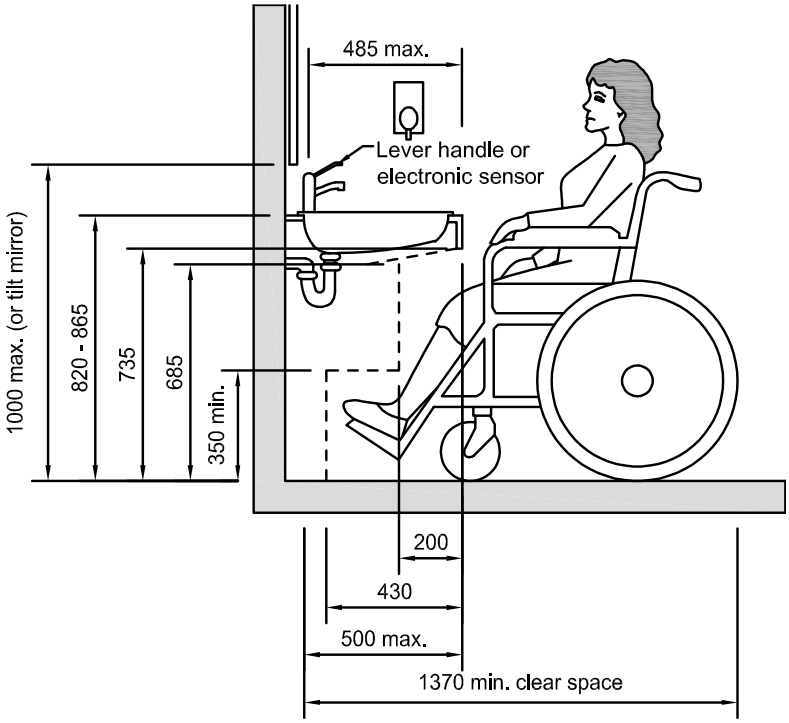


Figure 4.2.4.1:
Lavatory Criteria

Legislation References

OBC 3.8.3.11.

Related Sections

4.1.11Space and Reach Requirements
4.4.2 Controls and Operating Mechanisms
4.4.12 Lighting
4.4.14 Texture and Colour

4.2.5 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

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 810 by 1370 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 Section 4.1.1, and not include a step or change in level.

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.

Urinals shall have grab bars installed on each side that

- comply with Section 4.2.9;
- are not less than 600 mm long;
- are mounted vertically
    - not more than 380 mm from the centreline of the urinal; and
    - with their centerline 1000 mm above the floor.

Flush controls shall be operable with a closed fist or automatic, mounted between 900 to 1100 mm above the finished floor, and shall comply with Section 4.4.2.

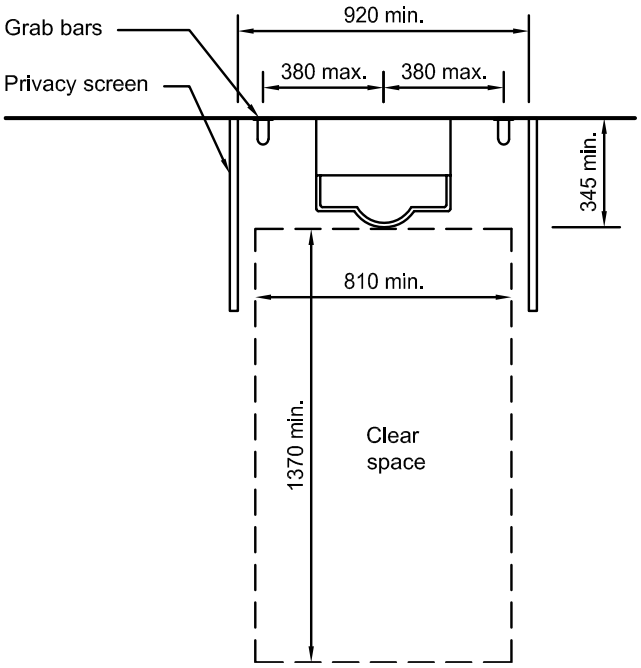


Figure 4.2.5.1:
Urinal Plan View

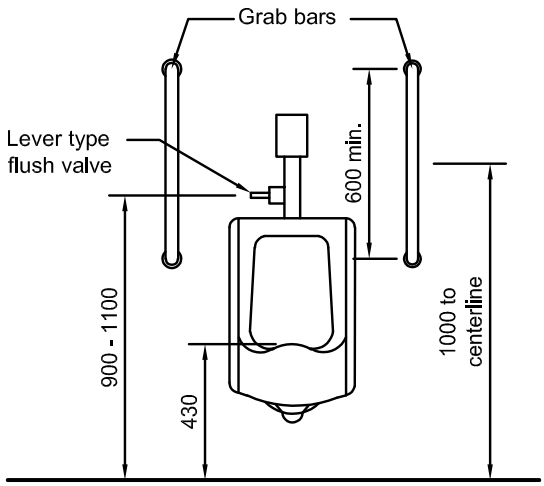


Figure 4.2.5.2:
Urinal Front View

Legislation References

OBC 3.8.3.10.

Related Sections

4.1.1 Space and Reach Requirements
4.2.9 Grab Bars
4.4.2 Controls and Operating Mechanisms
4.4.12 Lighting
4.4.14 Texture and Colour

4.2.6 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 4.4.2 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

Each type of washroom accessory provided, unless otherwise specified in Sections 4.2.2 and 4.2.4, shall have **operable portions** and controls mounted between 900 and 1100 mm above the finished floor.

The operable controls and mechanisms of washroom accessories shall comply with Section 4.4.2.

Where mirrors are provided, at least one shall be

- mounted with its bottom edge not more than 1000 mm from the floor; or
- inclined from vertical to be usable by a person using a wheelchair.

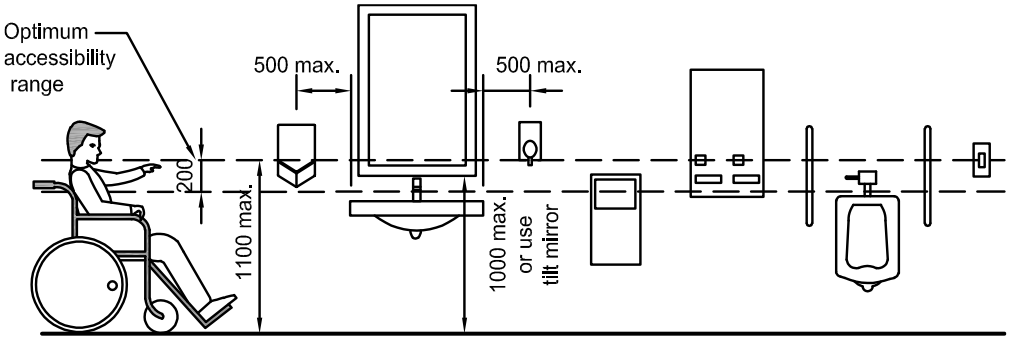


Figure 4.2.6.1:
Washroom Accessories

Legislation References

OBC 3.8.3.11.(2) to (4)

Related Sections

4.1.1 Space and Reach Requirements
4.1.3 Protruding and Overhead Objects
4.4.2 Controls and Operating Mechanisms
4.4.12 Lighting
4.4.14 Texture and Colour

4.2.7 Universal Washrooms

Rationale

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

In the event of an accident or fall by a single individual in this form of washroom, an emergency call switch and a means of unlocking the door from the outside are important safety features.

Application

Accessible universal washrooms shall comply with this section.

At least one all-gender universal washroom, shall be provided on every floor which has washrooms.

If universal washrooms are not visible from the **public use** or **common use** toilets, directional **signage** complying with Section 4.4.7 shall be provided.

Design Requirements

Accessible universal washrooms shall

- be on an **accessible route** in compliance with Section 4.1.4;
- be identified with **signage** in compliance with applicable provisions of Section 4.4.6;
- be designed to permit a wheelchair to turn within an open space that has a diameter of not less than 2100 mm. Where possible, the ideal is for the diameter to be 2500 mm
- be equipped with a door
    - that complies with Section 4.1.6;
    - is equipped with a power operator;
    - 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;
    - has latch operating and locking mechanisms located not less than 900 mm and not more than 1000 mm above the floor;
    - where equipped with a power locking mechanism, has
        - a push-to-lock button on the inside;
        - a push-to-unlock button on the inside that also activates the power door operator;
        - a door reset button that returns the system to normal mode;
        - **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; and
        - a sign on the outside that is illuminated with the words "In use" when the door is locked; and

        - can be released from the outside or other means provided for door to be opened from the outside in case of emergency;
- be provided with a lavatory conforming to Section 4.2.4;
- be equipped with a toilet fixture conforming to Section 4.2.3
- equipped with flush controls and other **elements** conforming to Section 4.2.3;
- be equipped with grab bars conforming to Sections 4.2.3 and 4.2.9;
- have fixture clearances conforming to Sections 4.2.3 and 4.2.4;
- provided with a **clear** transfer space adjacent to the toilet fixture, as required by Section 4.2.3;
- 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 Section 4.2.6; and
    - a shelf mounted not more than 1100 mm above finished floor that projects not more than 100 mm from the wall; and
- have lighting controlled by a motion sensor.

The provision of a curtain around the water closet could be included to increase privacy where attendants are assisting.

Accessible universal washrooms shall incorporate an emergency call system. The emergency call shall

- be equipped with audible and visual signals both inside and outside washroom;
- be activated by control devices inside the washroom typically within reach of the toilet, including emergency call strips located 200 to 400 mm above the floor. Refer to the University of Toronto Door Hardware Design Standard for additional information; 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.

All universal washrooms shall be equipped with an adult-sized change table that:

- is minimum 1830 mm long and 810 mm wide
- is height adjustable from between 450 and 500 mm at the low range to between 850 and 900 mm at the high range
- designed to carry a minimum load of 1.33 kN
- has a horizontal grab bar centred on the long side of the bench that is at least 1200 mm long
- has an adjacent **clear floor space** not less than 900 mm along the entire length of the change table
- has reinforcement in the adjacent wall for future installation of the change table.

Exception: An adult-sized change table is not required in a universal washroom if another universal washroom, that is equipped with an adult-sized change table, is available on the same floor level within 45 m.

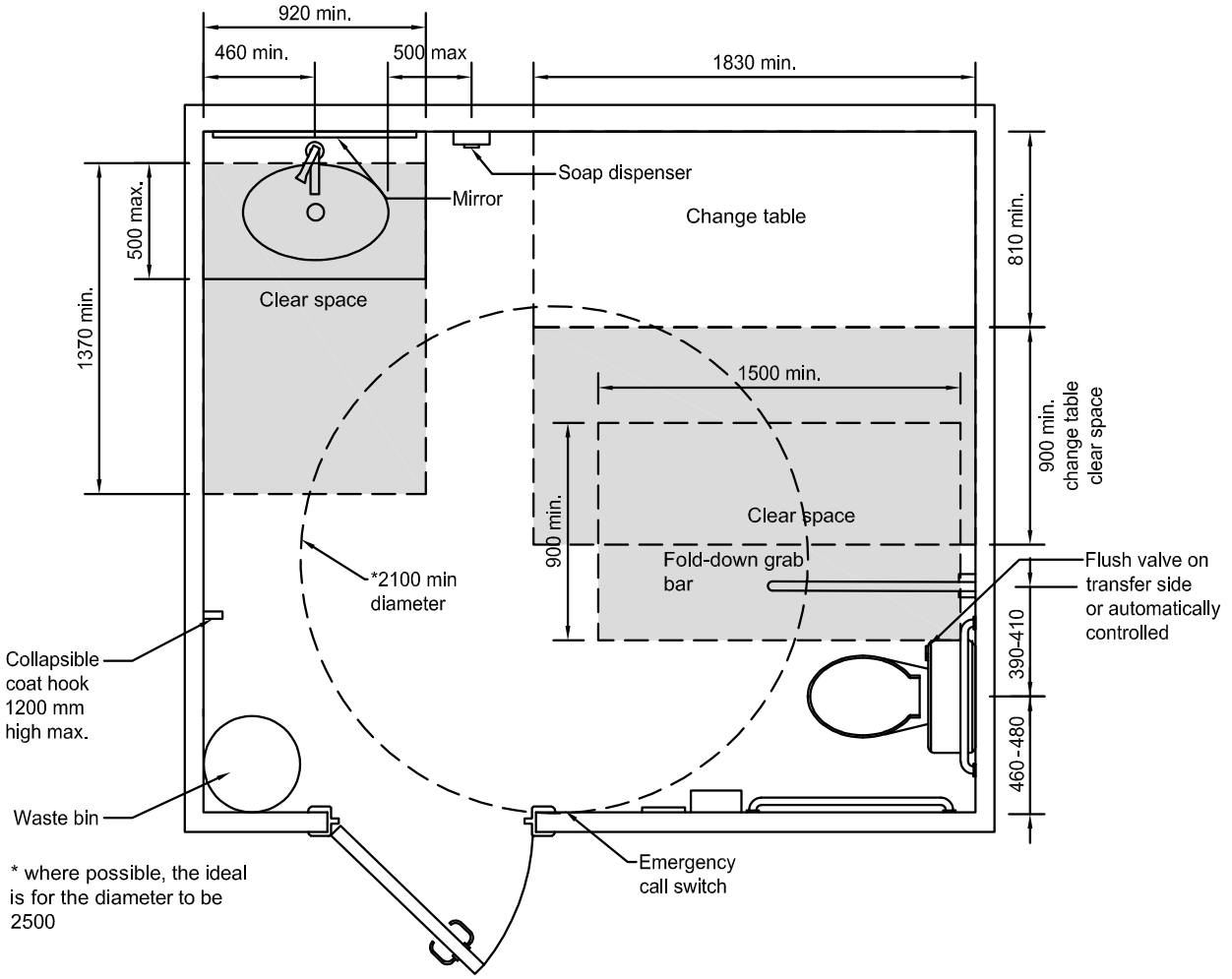


Figure 4.2.7.1:
Universal Washroom

Signage:

Universal washrooms shall be identified with **tactile** signs featuring raised lettering, an approved symbol of access for persons with **disabilities**, additional pictograms that identify the function of the **space**, and braille. It is useful to graphically depict all **accessible** features and fixtures found within the washroom, such as an adult-sized change table, ceiling lift, or handheld sprayer. **Signage** shall comply with Section 4.4.6. Refer to Figure 4.2.7.2 for a sample sign with dimensions.

Figure 4.2.7.2:
Washroom Tactile Signage

Legislation References

OBC 3.8.3.12.

Related Sections

4.1.1 Space and Reach Requirements
4.1.2 Ground and Floor Surfaces
4.1.3 Protruding and Overhead Objects
4.1.6 Doors
4.2.3 Toilets
4.2.4 Lavatories
4.2.5 Urinals
4.2.6 Washroom Accessories
4.2.9 Grab Bars
4.4.2 Controls and Operating Mechanisms
4.4.6 Signage
4.4.10 Card Access, Safety and Security Systems
4.4.11 Glare and Light Sources
4.4.12 Lighting
4.4.13 Materials and Finishes
4.4.14 Texture and Colour

4.2.8 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

Where shower stalls are provided, the number of **accessible** showers shall comply with Table 4.2.8.

Accessible showers shall comply with this section.

Table 4.2.8 Number of accessible showers

# 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
where only 1 shower is provided, it will comply with this section	

Design Requirements

Accessible shower stalls shall

- be on an **accessible route** complying with Section 4.1.4;
- be at least 1500 mm in width and 900 mm in depth;
- have a **clear floor space** at the **entrance** to the shower of at least 900 mm in depth and the same width as the shower, except fixtures are permitted to project into that space, provided access to the shower is not restricted;
- have a slip-resistant floor surface;
- 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, or make provisions for a portable seat that is
    - 450 mm wide and 400 mm deep;
    - mounted between 460 and 480 mm above the floor; and
    - designed to carry a minimum load of 1.3 kN;
- be equipped with an L-shaped grab bar that
    - conforms to Section 4.2.9;
    - is mounted horizontally between 750 and 870 mm above the floor;
    - is located on the wall opposite the **entrance** to the shower;

    - has a horizontal component at least 1000 mm long and a vertical component at least 750 mm long;
    - is mounted with the vertical component between 400 and 500 mm from the side wall on which the vertical grab bar (indicated below) is mounted
- be equipped with a vertical grab bar on the bench wall that
    - is at least 1000 mm in length;
    - is mounted between 50 and 80 mm from the front edge, starting between 600 and 650 mm from the floor; and
    - conforms to Section 4.2.9;
- be equipped with a pressure-equalizing or thermostatic-mixing valve in compliance with Section 4.4.2, located above the grab bar but no higher than 1200 mm, that is within reach of the seat wall;
- have fully recessed soap holder(s) which can be reached from the seated position and
- be equipped with a shower head with at least 1800 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. The height of the shower head is adjustable and can be fixed in a position between 1200 and 2030 mm above the finished floor.

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, such as compressible curbs, shall be taken to contain water within the shower area.

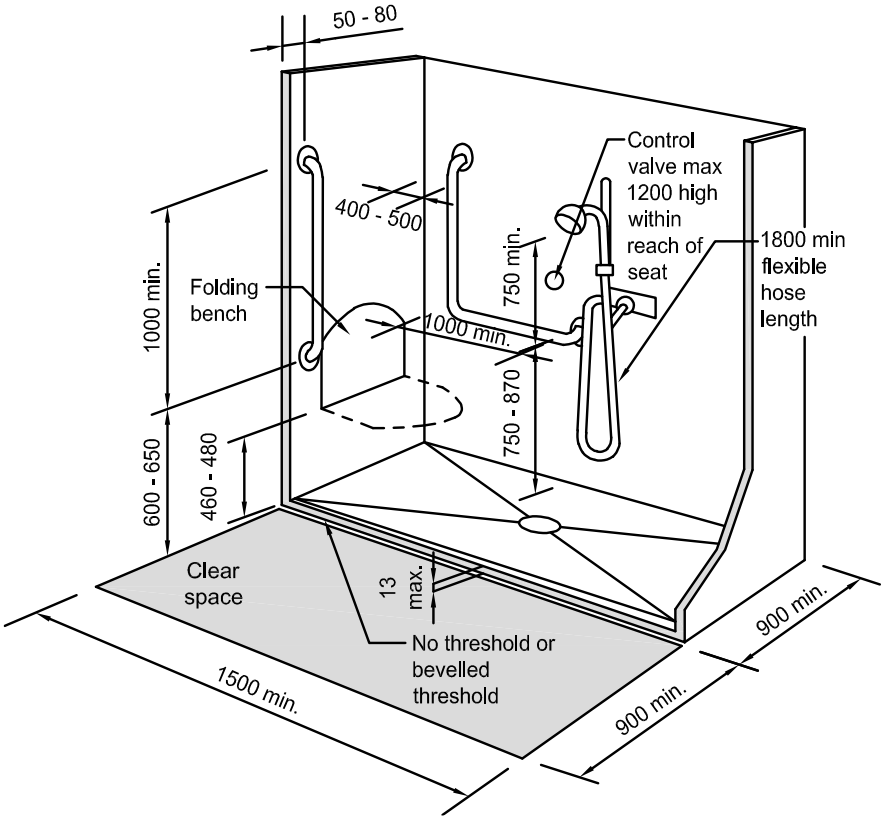


Figure 4.2.8.1:
Shower Stall

Legislation References

OBC 3.8.3.13.

Related Sections

4.1.1 Space and Reach Requirements
4.2.6 Washroom Accessories
4.2.9 Grab Bars
4.4.2 Controls and Operating Mechanisms
4.4.12 Lighting
4.4.14 Texture and Colour

4.2.9 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

Grab bars shall

- be installed to resist a load of at least 1.3 kN , applied vertically or horizontally;
- be not less than 30 mm and not more than 40 mm in diameter;
- have a clearance of 38 to 50 mm from the wall;
- be free of any sharp or abrasive **elements**;
- be colour-contrasted with the surrounding environment; and
- have a slip-resistant surface.

Where grab bars return to a wall or floor, they must do so in a smooth curve.

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

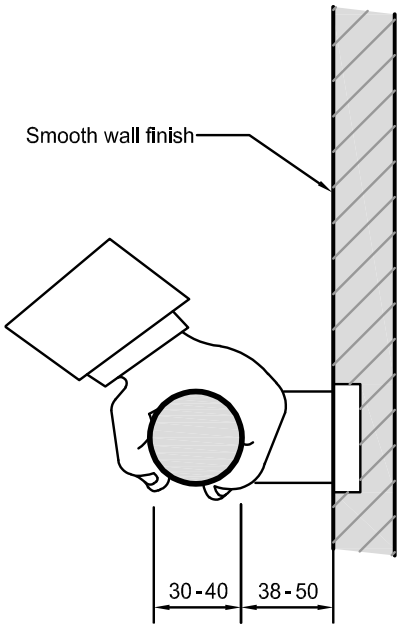


Figure 4.2.9.1:
Grab Bar

Legislation References

OBC 3.8.3.8.(7)

Related Sections

4.1.1 Space and Reach Requirements
4.2.3 Toilets
4.2.5 Urinals
4.2.7 Universal washrooms
4.2.8 Shower Stalls
4.4.12 Lighting
4.4.14 Texture and Colour

4.3 Other Amenities

4.3.1 Drinking Fountains/Bottle Fillers

Rationale

When planning the design of drinking fountains, one should consider the limited height of children and that of a person using a wheelchair or scooter. In the same respect, there may be individuals who have difficulty bending who would require a higher fountain. The operating system should account for limited hand strength or dexterity. The placement of the fountain is also important. Fountains 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. Recessed alcove designs with angled side walls allow more flexibility and less precision required by a person using a wheelchair or scooter.

Application

Where drinking fountains are provided on a floor level, at least one shall be **accessible** and shall comply with this section. Where more than one drinking fountain or water cooler is provided on a floor level, at least 50% shall be **accessible** and shall comply with this section.

Where only one drinking fountain 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

Accessible drinking fountains shall

- be located on an **accessible route** complying with Section 4.1.4;
- have a spout located near the front of the unit between 760 and 915 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 of the unit, or on both sides of the unit, easily operated from a wheelchair or scooter using one hand with a force of not more than 22 N, or be automatically operable; and
    - be detectable by a cane at a level at or below 680 mm from the finished floor.

Cantilevered drinking fountains 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, 450 mm deep and 735 mm high;
- have a toe clearance height under the fountain of at least 350 mm above the finished floor from a point 300 mm back from the front edge to the wall
- be recessed or otherwise located outside of the path of travel; 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.

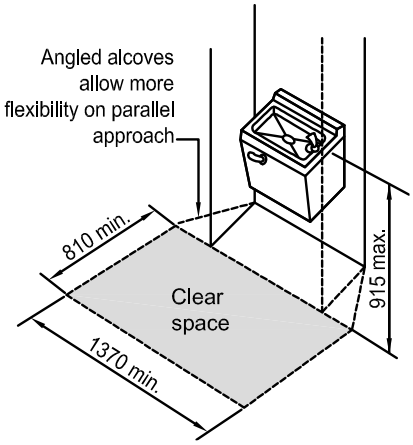


Figure 4.3.1.1:
Parallel Approach

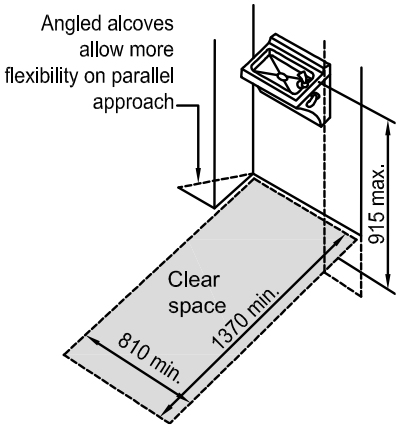


Figure 4.3.1.2:
Front Approach

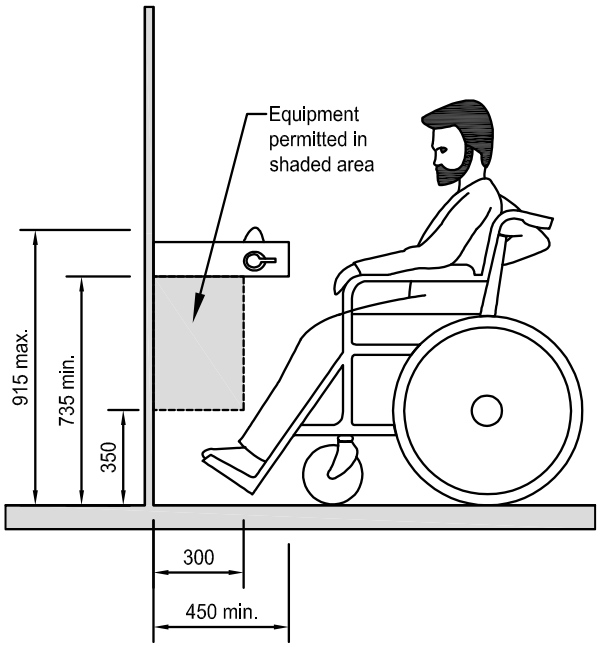


Figure 4.3.1.3:
Clearances

Where bottle fillers are provided in addition to or in place of drinking fountains

- all clearances under the bottle filler shall meet the requirements for drinking fountains found in this section; and
- all controls shall meet the requirements for drinking fountains found in this section, and shall meet the reach requirements found in Section 4.1.1.1.

Legislation References

OBC 3.8.3.16.

Related Sections

4.1.1 Space and Reach Requirements
4.1.2 Ground and Floor Surfaces
4.1.3 Protruding and Overhead Objects
4.1.4 Accessible Routes, Paths and Corridors
4.4.12 Lighting
4.4.13 Materials and Finishes
4.4.14 Texture and Colour

4.3.2 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

In assembly occupancies with fixed seating, spaces designated for wheelchair/scooter use and seats designated as **adaptable** seating shall be provided as per Table 4.3.2, and shall comply with this section.

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

Table 4.3.2 Wheelchair Viewing Locations

Number of fixed seats in seating area	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	5% of all aisle seating
301 - 400	12	5% of all aisle seating
401 - 600	18	5% of all aisle seating
Over 600	Not less than 3% of the seating capacity	5% of all aisle seating

Design Requirements

Accessible wheelchair/scooter and **adaptable** seating locations shall adjoin an **accessible route** complying with Section 4.1.4, without infringing on **egress** from any row of seating or any aisle requirement.

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;
- **clear** and level, or level with removable seats;
- if the wheelchair/scooter enters from a side approach, not less than 900 mm wide and 1525 mm long;
- if the wheelchair/scooter enters from a front or rear approach, not less than 900 mm wide and 1370 long;
- arranged so that at least two designated wheelchair/scooter locations are side by side; and
- 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 4.3.2).

Storage **facilities** for wheelchairs and other assistive devices shall

- be provided in assembly occupancies with fixed seating;
- be located on the same level close to the **adaptable** seating locations; and
- provide a space of at least 810 mm wide and 1370 mm long for an assembly occupancy with up to 200 fixed seats, or two storage spaces when there are more than 200 fixed seats.

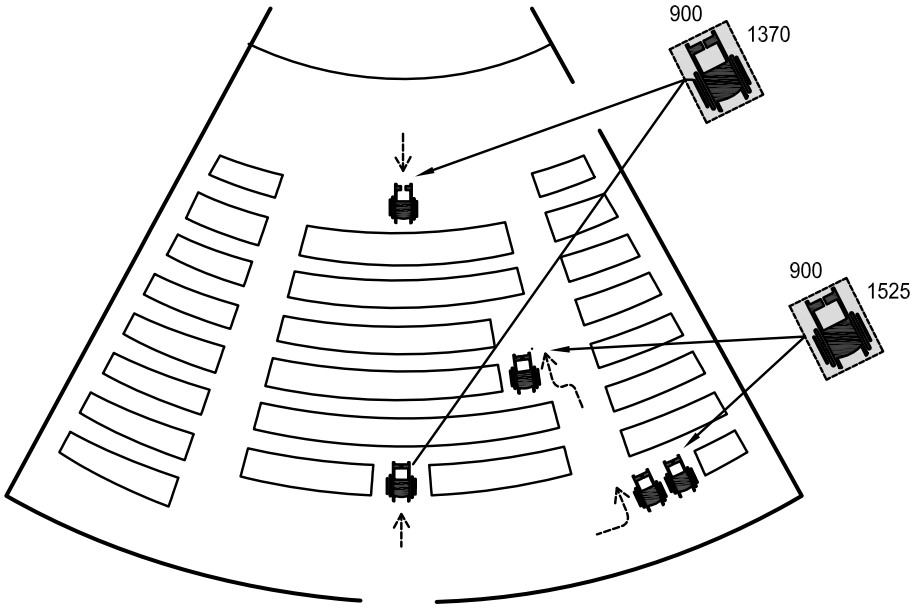


Figure 4.3.2.1:
Distribution of Wheelchair Locations

Legislation References

OBC 3.8.3.6.

Related Sections

4.1.1 Space and Reach Requirements
4.1.2 Ground and Floor Surfaces
4.1.3 Protruding and Overhead Objects
4.1.4 Accessible Routes, Paths and Corridors
4.4.5 Assistive Listening Systems
4.4.6 Signage
4.4.8 Public Address System
4.4.13 Materials and Finishes
4.4.14 Texture and Colour
4.4.15 Acoustics

4.3.3 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, students, faculty or staff shall comply with this section. This does not apply to the front edges of stages.

Design Requirements

Elevated platforms shall

- be located on an **accessible route** that complies with Section 4.1.4;
- be capable of being illuminated to at least 100 lux at floor level at the darkest point;
- be sized to safely accommodate wheelchairs and other mobility equipment in compliance with Section 4.1.1; 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**.

Exception: Front edges of stages designed primarily for theatrical performances.

The **detectable warning surface** on elevated platforms shall

- consist of flat-topped domes or cones in compliance with Section 4.4.7;
- be positioned parallel to the open platform edge, extending the full length of the platform; and
- extend 610 mm from the open edge of the platform.

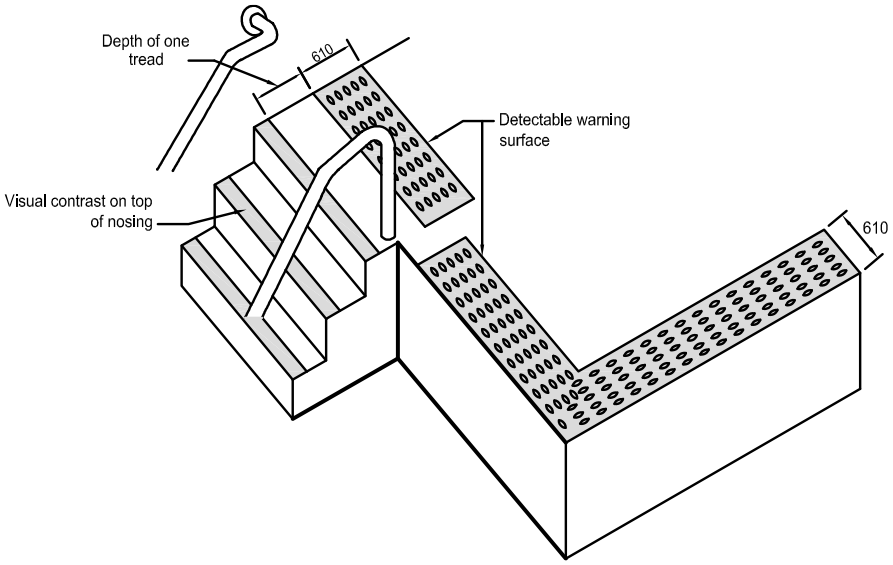


Figure 4.3.3.1:
Detectable Warning Surfaces at Elevated Platform

Legislation References

OBC 3.8.3.17.

Related Sections

4.1.1 Space and Reach Requirements
4.1.2 Ground and Floor Surfaces
4.1.3 Protruding and Overhead Objects
4.1.4 Accessible Routes, Paths and Corridors
4.4.7 Detectable Warning Surfaces
4.4.12 Lighting
4.4.13 Materials and Finishes
4.4.14 Texture and Colour

4.3.4 Dressing/Change Rooms

Rationale

In addition to **accessible common use** dressing/change rooms, a separate all-gender 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 a 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, students, faculty, staff, 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

Accessible dressing/change rooms, and **accessible elements** within **accessible** dressing/change rooms, shall be located on an **accessible route** complying with Section 4.1.4.

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.

All doors to **accessible** dressing/change rooms shall be in compliance with Section 4.1.6. Outward swinging doors shall not constitute a hazard to persons using adjacent circulation routes.

Every **accessible** dressing/change room shall have an 810 mm deep by 1830 mm wide bench fixed to the wall along the longer dimension. The bench shall

- be mounted between 480 and 520 mm above the finished floor;
- have **clear floor space** at least 900 mm wide provided along the entire length of 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 250 kg;
- include a pole or grab bar at the end of the bench to provide support and stability; and
- have a horizontal grab bar centred on the long side of the bench that is at least 1200 mm long and mounted between 750 and 850 above the floor.

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

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.

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.

Dressing/change rooms shall incorporate even illumination throughout of at least 100 lux.

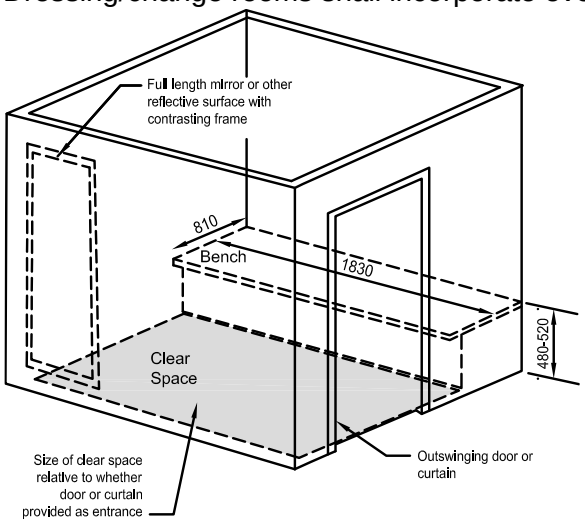


Figure 4.3.4.1:
Private Accessible Dressing Room

Related Sections

4.1.1 Space and Reach Requirements
4.1.2 Ground and Floor Surfaces
4.1.3 Protruding and Overhead Objects
4.1.4 Accessible Routes, Paths and Corridors
4.4.12 Lighting
4.4.13 Materials and Finishes
4.4.14 Texture and Colour

4.3.5 Offices, Work Areas & 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, with only minimal background noise generated from mechanical equipment such as fans. 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.

Full spectrum task lighting, mimicking natural sunlight, is a design feature that will facilitate use by all, especially persons with vision **impairments**. At locations where glare may be problematic, such as large expanses of glass adjacent to reflective flooring, consideration should be given to providing blinds that can be angled upwards.

Application

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

Design Requirements

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

- be located on an **accessible route** complying with Section 4.1.4;
- where equipped with a door, the door shall comply with Section 4.1.6;
- 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 Section 4.3.7;
- incorporate access to storage, shelving or display units in compliance with Section 4.3.9 for use by the public, students, faculty, staff or customers; provide a **clear floor space** that complies with Section 4.1.1 in front of all equipment such as photocopiers where such equipment is provided for use by the general public, students, faculty, staff or customers;
- be equipped with an assistive listening system that complies with Section 4.4.5, 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.

Legislation References

OBC 3.8.2.1.
OBC 3.8.3.6.
OBC 3.8.3.7.

Related Sections

4.1.1 Space and Reach Requirements
4.1.2 Ground and Floor Surfaces
4.1.4 Accessible Routes, Paths and Corridors
4.1.8 Windows, Glazed Screens and Sidelights
4.3.7 Tables, Counters and Work Surfaces
4.3.9 Storage, Shelving and Display Units
4.4.2 Controls and Operating Mechanisms
4.4.4 Visual Alarms
4.4.5 Assistive Listening Systems
4.4.11 Glare and Light Sources
4.4.12 Lighting
4.4.13 Materials and Finishes
4.4.14 Texture and Colour
4.4.15 Acoustics

4.3.6 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

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

Provide sufficient **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 2100 by 2100 mm. Where possible, the ideal is for the dimensions to be 2500 by 2500 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 retractable belt 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 Section 4.4.15, 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.

Legislation References

AODA IASR 80.42 & 80.43

Related Sections

4.1.1 Space and Reach Requirements
4.1.2 Ground and Floor Surfaces
4.1.4 Accessible Routes, Paths and Corridors
4.4.5 Assistive Listening Systems
4.4.6 Signage
4.4.8 Public Address Systems
4.4.9 Self-Service Kiosks and Information Systems
4.4.11 Glare and Light Sources
4.4.12 Lighting
4.4.13 Materials and Finishes
4.4.14 Texture and Colour
4.4.15 Acoustics

4.3.7 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, of the seats must not be fixed seating or booth seating.

Design Requirements

Accessible tables, counters and work surfaces shall be located on an **accessible route** complying with Section 4.1.4.

An **accessible route** complying with Section 4.1.4 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 730 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 wide by 1370 mm long. Up to 500 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, 500 mm deep and 685 mm high shall be provided.

Tables, counters and work surfaces shall incorporate a pronounced colour contrast to differentiate them from the floor and surrounding environment.

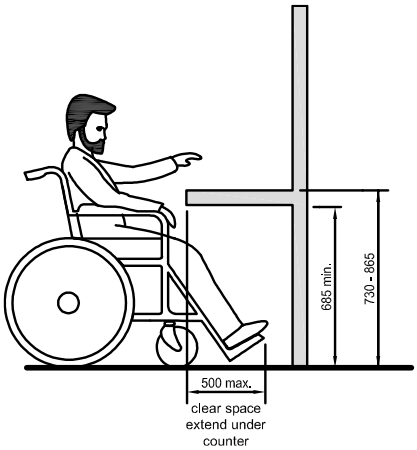


Figure 4.3.7.1:
Clearances

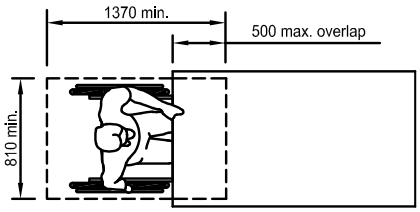


Figure 4.3.7.2:
Front Approach

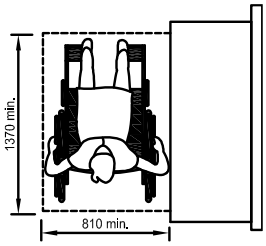


Figure 4.3.7.3:
Parallel Approach

Related Sections

4.1.1 Space and Reach Requirements
4.1.4 Accessible Routes, Paths and Corridors

4.3.8 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 seated in 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

Information, reception, and service counters shall be located on an **accessible route** complying with Section 4.1.4.

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;

- a counter height located between 730 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 500 mm deep by 810 mm wide.

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 500 mm. of the length of the **clear floor space** may extend under the counter, where a forward approach is used.

Where speaking ports 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. Speaking ports should be electrically amplified to facilitate communication within a comfortable voice range.

Service counters and kiosks shall

- provide colour and brightness contrast to their immediate surroundings;
- be lit at the same level as their surroundings or have brighter lighting when necessary, such as when a person may have to sign a form or pay at the counter; and
- be **clear** of unexpected objects, such as plants and pamphlet racks. If pens are included in a holder for the visitor's use, they should not have pointy or sharp ends.

Provide **tactile** direction indicators (TDIs) from main **entrances** or elevators to reception desks, in accordance with Section 4.1.4.

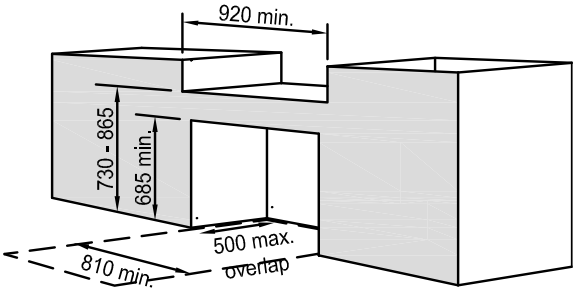


Figure 4.3.8.1:
Service Counter

Legislation References

AODA IASR 80.41

Related Sections

4.1.1 Space and Reach Requirements
4.1.4 Accessible Routes, Paths and Corridors
4.4.5 Assistive Listening Systems
4.4.6 Signage
4.4.9 Self-Service Kiosks and Information Systems
4.4.11 Glare and Light Sources
4.4.12 Lighting
4.4.13 Materials and Finishes
4.4.14 Texture and Colour
4.4.15 Acoustics

4.3.9 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 Section 4.1.4.

Design Requirements

A **clear floor space** at least 810 mm by 1370 mm, complying with Section 4.1.1, 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 Section 4.1.1. Clothes rods or shelves shall be a maximum of 1200 to 1400 mm above the finished floor for a side approach. Where the distance from the wheelchair to the clothes rod or shelf is 255 to 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.

Hardware for **accessible** storage **facilities** shall comply with Section 4.4.2. Touch latches and D-shaped pulls are acceptable.

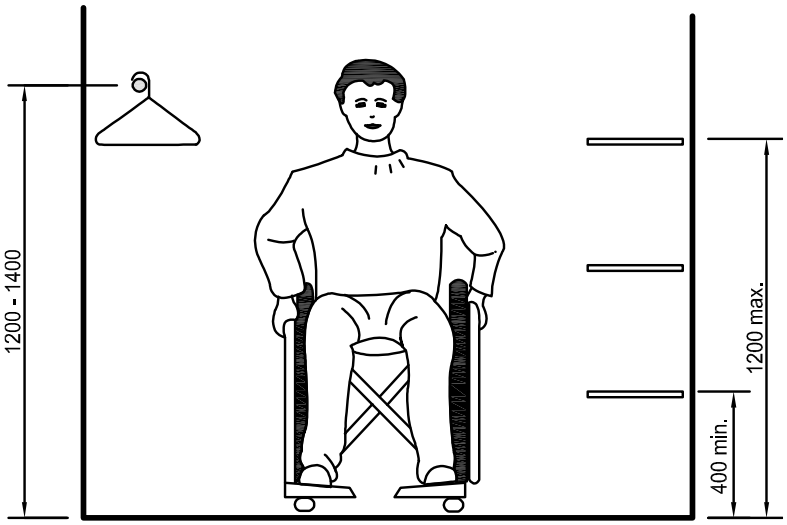


Figure 4.3.9.1:
Reach Limits for Storage

Related Sections

4.1.1 Space and Reach Requirements
4.1.4 Accessible Routes, Paths and Corridors
4.4.2 Controls and Operating Mechanisms

4.3.10 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

Accessible lockers and baggage storage units shall be located on an **accessible route** complying with Section 4.1.4.

Lockers and baggage storage units shall have their bottom shelf no lower than 400 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 between 900 and 1100 mm from the floor or ground and shall comply with Section 4.4.2.

Numbers or names on lockers and baggage storage units should be in clearly legible lettering, raised and of a highly contrasting colour or tone, in compliance with the relevant parts of Section 4.4.6.

Baggage racks or carousels for suitcases, luggage, 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 1500 mm deep, to permit forward and lateral approach by a person using a wheelchair or scooter.

Related Sections

4.1.1 Space and Reach Requirements
4.1.4 Accessible Routes, Paths and Corridors
4.4.2 Controls and Operating Mechanisms
4.4.6 Signage
4.4.12 Lighting
4.4.14 Texture and Colour

4.3.11 Balconies, Porches, Terraces and Patios

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 sunlight 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, students, faculty, staff, customers or employees shall comply with this section.

Design Requirements

Balconies, porches, terraces and patios shall

- be located on an **accessible route** complying with Section 4.1.4; and
- have a minimum depth and width of 2100 mm. Where possible, the ideal is for the depth to be 2500 mm. In **retrofit** situations where providing a depth of 2100 mm is **technically infeasible**, the minimum depth may be reduced to 1500 mm.

Exterior balconies, porches, terraces and patios, where directly **accessible** from the interior **spaces**, shall incorporate a threshold in compliance with Section 4.1.2.

Balcony, porch, terrace and patio surfaces shall

- comply with Section 4.1.2;
- be sloped to ensure removal of water; and
- be sloped no more than 2%.

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.

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

Related Sections

4.1.1 Space and Reach Requirements
4.1.2 Ground and Floor Surfaces
4.1.4 Accessible Routes, Paths and Corridors
4.4.13 Materials and Finishes
4.4.14 Texture and Colour

4.3.12 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**. Using contrasting flowers near walkways can also be helpful as a guide. Plants with thorns may constitute a walking hazard. Plants that drop large seed pods can present slipping hazards, as well as difficulties for pushing a wheelchair. Plantings and tree limbs that overhang pathways can impede all users and be a particular hazard to an individual with a visual **impairment**.

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 they may also create loitering problems with skateboarders.

The use of unit pavers as a walking/wheeling surface is not recommended, unless they are laid in a location that is not subject to the effects of settlement and frost heave, such as over a structural slab or indoors.

Application

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

Where plant beds are provided for gardening use by the general public, students, faculty, staff, customers or employees, 5% of the area of the plant beds, but not less than one, shall comply with this section. It is preferable to have 10 to 20%, if not all plant beds to comply with this section.

Design Requirements

Accessible plant beds shall be

- raised 460 mm above the adjacent floor or ground surface; and
- located on an **accessible route** complying with Section 4.1.4. (including access to watering hose)

The edges of planting beds located immediately adjacent to **pedestrian walks**, shall incorporate clearly defined, cane-detectable curbs at least 100 mm high.

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 100 mm high.

Benches shall be provided along the **accessible route** and conform to Section 4.3.13.

Shrubs with thorns and sharp edges shall be planted at least 900 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.

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

Tree **guards** shall conform to Section 4.1.3.

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.

Related Sections

4.1.1 Space and Reach Requirements
4.1.2 Ground and Floor Surfaces
4.1.3 Protruding and Overhead Objects
4.1.4 Accessible Routes, Paths and Corridors
4.4.8 Detectable Warning Surfaces
4.4.14 Materials and Finishes
4.4.15 Texture and Colour

4.3.13 Benches

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, away from 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 requirement 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

Benches shall

- be adjacent to an **accessible route** complying with Section 4.1.4;
- be stable;
- have a seat height between 430 and 485 mm from the ground;
- have a seat depth between 510 and 610mm;
- have a seat length no less than 1065 mm;
- be affixed to a wall, or have a backrest that is
    - a minimum of 1065 mm long;
    - extending from a point no more than 50 mm to a point no less than 455 mm above the seat surface; and
    - no more than 65 mm from the rear edge of the seat measured horizontally; and
- be of contrasting colour to their background.

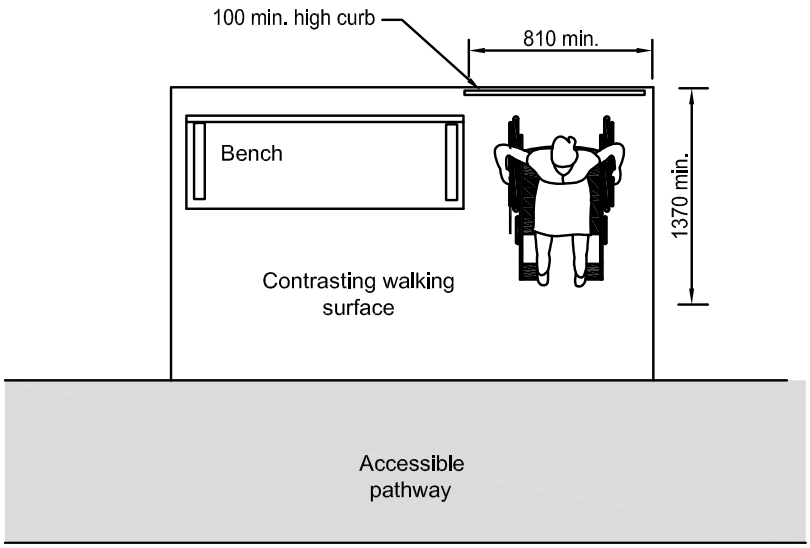


Figure 4.3.13.1:
Rest Area

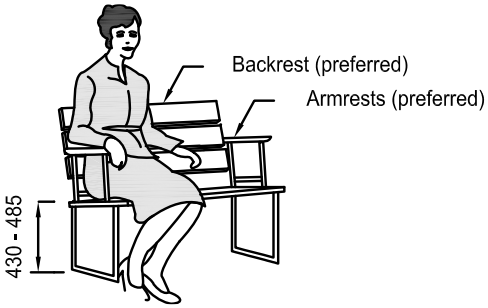


Figure 4.3.13.2:
Bench Seating

Legislation References

AODA IASR 80.29

Related Sections

4.1.1 Space and Reach Requirements
4.1.2 Ground and Floor Surfaces
4.1.3 Protruding and Overhead Objects
4.1.4 Accessible Routes, Paths and Corridors
4.4.7 Detectable Warning Surfaces
4.4.13 Materials and Finishes
4.4.14 Texture and Colour

4.3.14 Public Use Eating Areas

Rationale

Tables with an extension of the table surface 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 a visual **impairment**.

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 s **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

Tables shall

- be adjacent to an **accessible route** complying with Section 4.1.4;
- have knee space under the table at least 810 mm wide by 500 mm deep and 685 mm high;
- have its top surface located between 730 mm to 865 mm above the finished floor or ground surface;
- be of contrasting colour to their background; and
- have a level, firm, stable ground surface extending a minimum of 2000 mm from the table edges, where **accessible space** is provided at a picnic table for persons who use wheelchairs or scooters. In a **retrofit** situation where it is **technically infeasible** to provide the required level surface, the dimensions may be reduced to a minimum of 1200 mm on all sides.

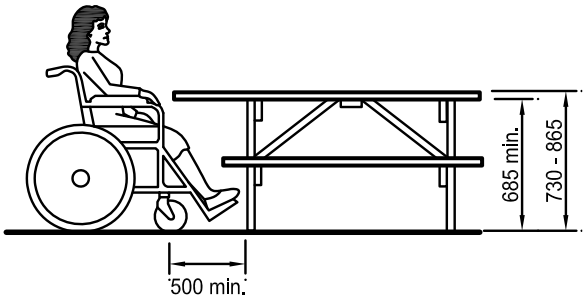


Figure 4.3.14.1:
Height and Knee Space at Accessible Tables

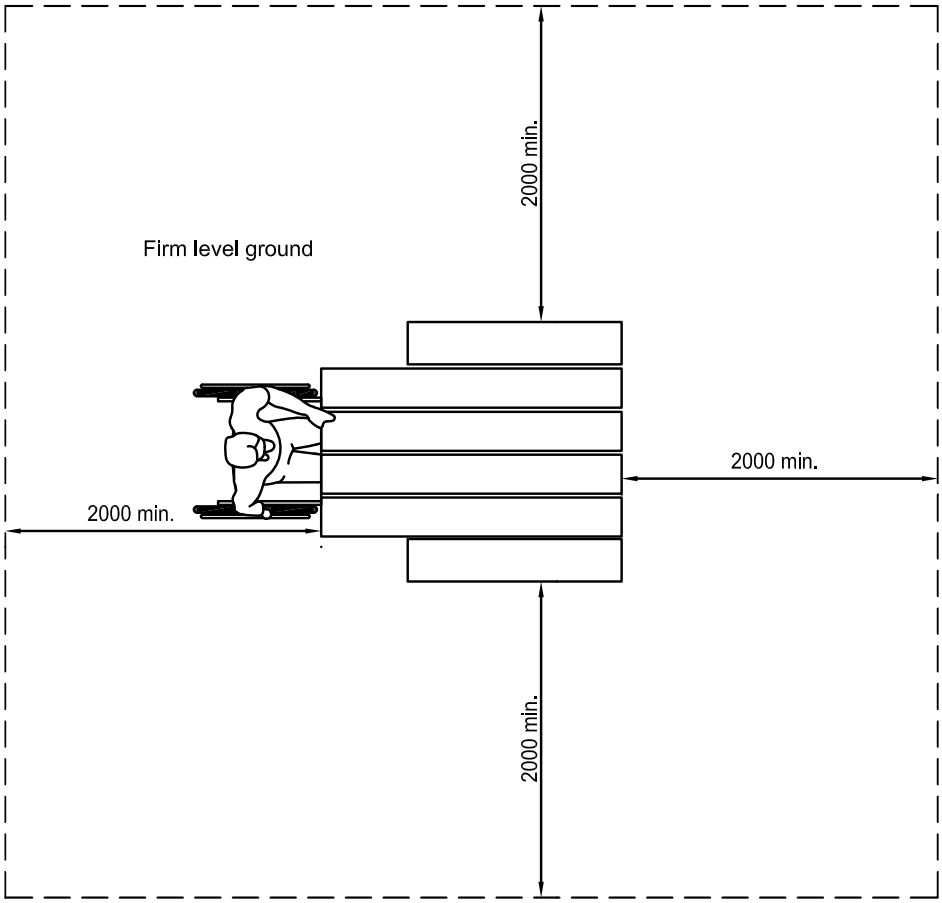


Figure 4.3.14.2:
Accessible Tables

Legislation References

AODA IASR 80.16 & 80.17

Related Sections

4.1.1 Space and Reach Requirements
4.1.2 Ground and Floor Surfaces
4.1.3 Protruding and Overhead Objects
4.1.4 Accessible Routes, Paths and Corridors
4.4.7 Detectable Warning Surfaces
4.4.13 Materials and Finishes
4.4.14 Texture and Colour

4.3.15 Streetscape

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.

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

The efficient and thorough removal of snow and ice is also essential to keeping outdoor pathways accessible. Negotiating a wheelchair or stroller through a snow covered path is exceptionally difficult. Icy surfaces are hazardous to all **pedestrians**, especially individuals such as senior citizens that may not be sure-footed.

Benches can provide a resting place for an individual with difficulty in walking long distances. Such furniture should incorporate strong colour contrasts and be located off pathways, to minimize its potential as an obstruction to **pedestrians**.

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**.

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.

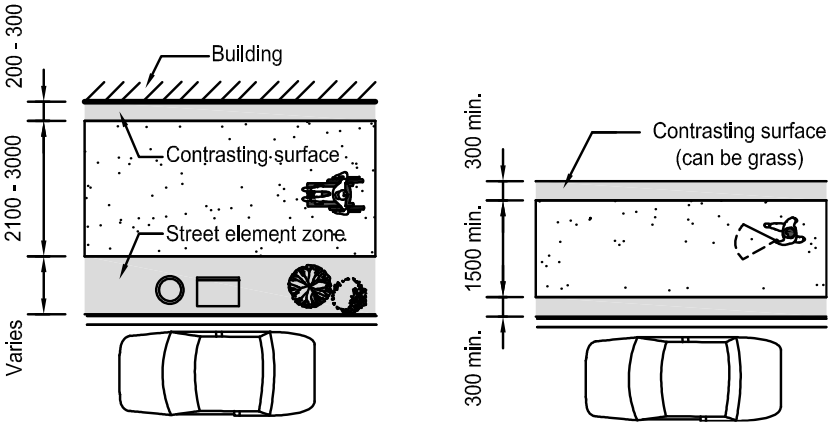


Figure 4.3.15.1:
Typical Streetscape Configurations

Design Requirements

At primary **pedestrian** routes, an **accessible route** at least 2100 mm wide shall be maintained along the sidewalk.

At non-primary **pedestrian** routes, an **accessible route** at least 1800 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 colour and texture contrasted indicator surface along each side of the **accessible route**.

Clearances along **pedestrian** routes must comply with Section 4.1.3.

Street **elements** shall

- not reduce the required width of the **accessible route**;
- be cane-detectable, in compliance with Section 4.1.3;
- 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 a indicator surface; and
- be securely mounted within an amenity strip, minimum 600 mm wide, located adjoining walkways, paths, sidewalks and other **accessible routes**.

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

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 Section 4.4.7.

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 Section 4.4.2.

Snow melt system to be provided on all exterior paths, steps, **ramps**, and landings, forming barrier-free path of travel. Linear drains to be provided at base of exterior **ramps**.

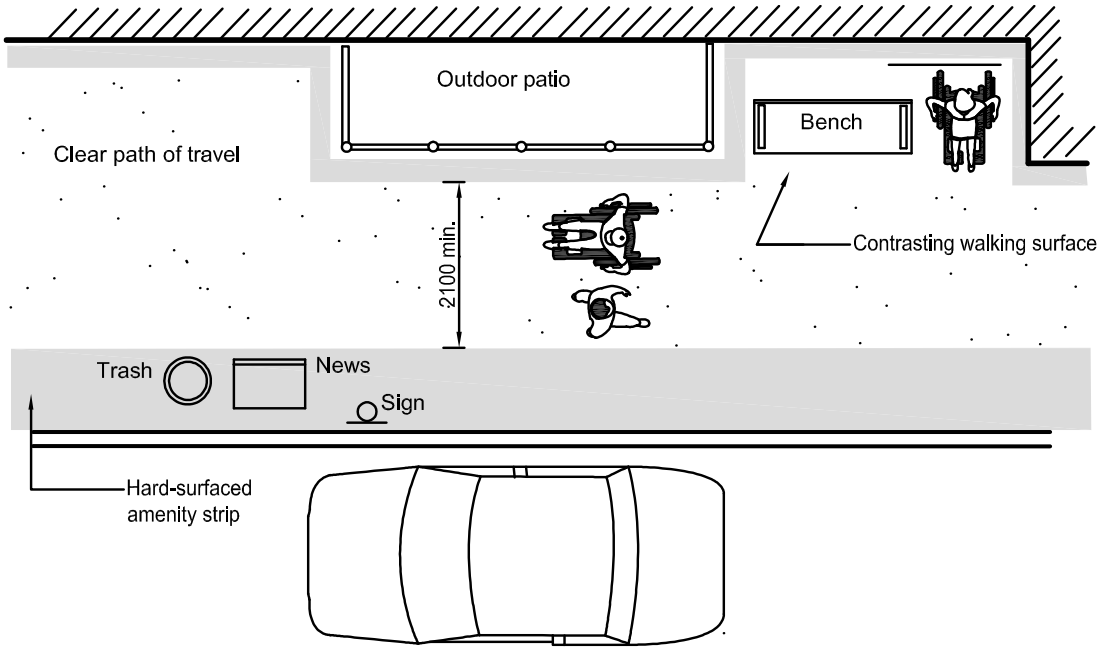


Figure 4.3.15.2:
Streetscape

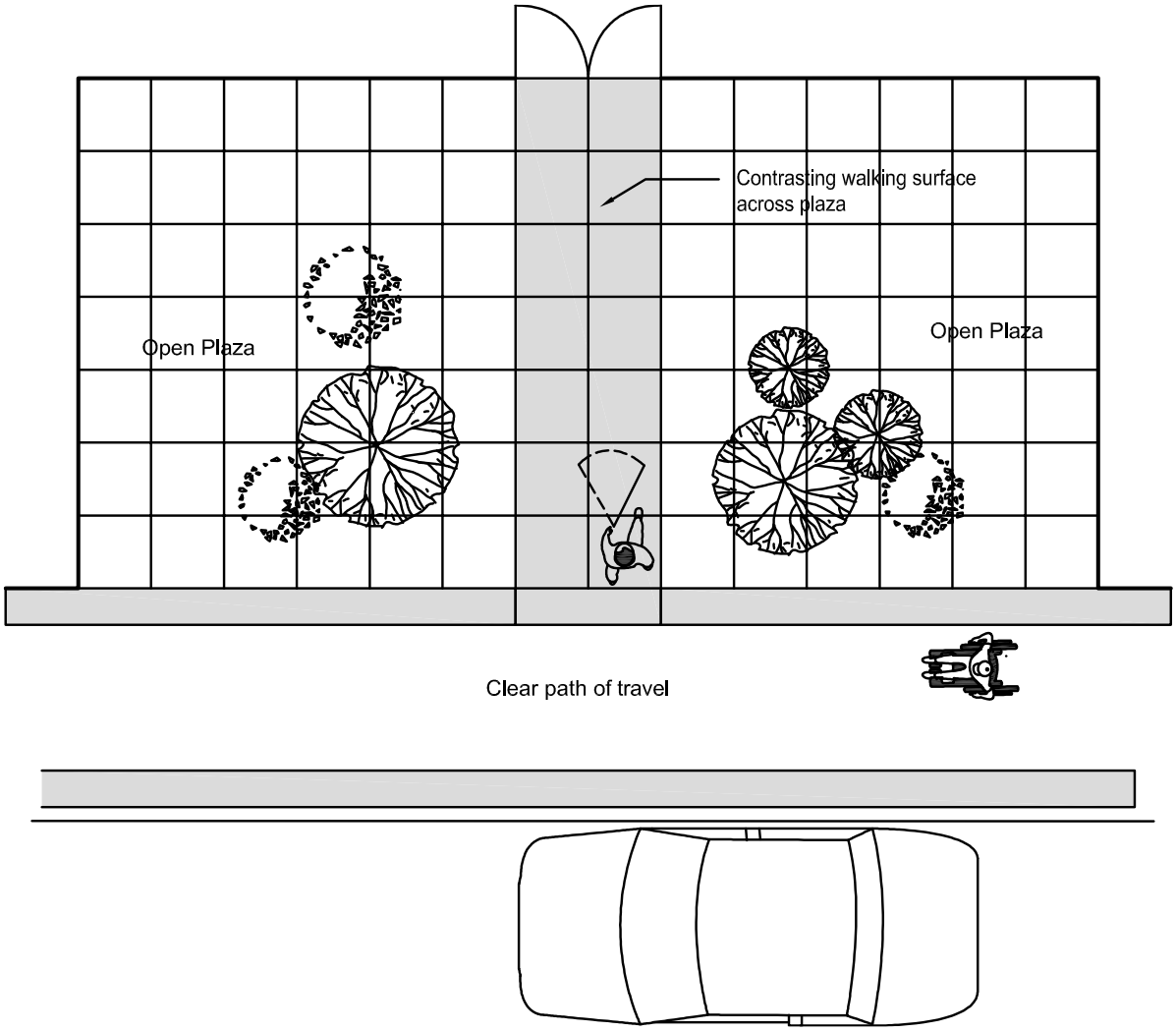


Figure 4.3.15.3:
Pathway Across Open Plaza

Legislation References

AODA IASR 80.8
OBC 3.8.3.2

Related Sections

4.1.1 Space and Reach Requirements
4.1.2 Ground and Floor Surfaces
4.1.3 Protruding and Overhead Objects
4.1.4 Accessible Routes, Paths and Corridors
4.1.6 Doors
4.1.10 Curb Ramps
4.3.1 Drinking Fountains
4.3.11 Balconies, Porches, Terraces and Patios
4.3.13 Benches
4.3.14 Public Use Eating Areas
4.3.16 Service Animal Relief Areas
4.4.3 Vending and Ticketing Machines
4.4.6 Signage
4.4.7 Detectable Warning Surfaces
4.4.12 Lighting
4.4.13 Materials and Finishes
4.4.14 Texture and Colour

4.3.16 Service Animal Relief Areas

Rationale

Persons who are visually impaired and use a service animal, such as a dog, to assist with mobility, as well as other persons with working companion animals, require access to an area for their animals to relieve themselves. Such animal relief areas need to be in an **accessible** location, feature good drainage and a garbage can for waste disposal.

Application

Animal relief areas shall be provided in **buildings** of assembly occupancy which incorporate a meeting **space** for 50 or more people.

Where provided, tethering hooks at service animal areas should be designed in such a manner that service animals can safely wait and rest in a designated **clear** space or stall. **Clear** sight lines should be provided from the tethering hooks to the intended amenity **spaces** being used by the owners to decrease potential separation anxiety. Tethering areas should provide a shaded environment where possible.

Animal relief areas shall comply with this section.

Design Requirements

Animal relief areas shall

- be adjacent to an **accessible route** complying with Section 4.1.4;
- be located within 30 metres of an **accessible entrance**;
- be an unobstructed, dedicated **space** at least 2100 by 2100 mm in size;
- incorporate a ground surface with drainage (Note: grass is preferable to gravel);
- where gratings and grills are provided, the openings should be outside of the accessible path of travel;
- incorporate a ground surface that is easy to clean and permeable;
- have **accessible signage** provided to identify the area and available amenities;
- incorporate an **accessible** garbage can; and
- be located away from busy traffic areas such as access routes and loading docks.

Tethering hooks, where provided, shall be

- mounted 460 to 600 mm above the floor or ground;
- incorporate colour/tonal contrast to mounting surface;
- have a minimum of two designated **clear floor spaces** that
    - are at least 1630 mm wide by 1270 mm deep;
    - have 900 mm headroom clearance; and
    - are located near a drain or permeable surface.

Related Sections

4.1.4 Accessible Routes, Paths and Corridors
4.3.15 Streetscape

4.3.17 Kitchens and Kitchenettes

Rationale

Kitchens, kitchenettes and coffee stations require an appropriate level of access to be usable 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 and toe space are required.

The use of colour contrast between kitchen **elements** will assist persons with low vision to locate surfaces, appliances and controls. Darker coloured work surfaces are preferable as they make it easier to identify objects located on them.

Application

Kitchens and kitchenettes intended for use by staff or the public shall comply with this section. Exception: Commercial kitchens.

At least 50% of shelf space in kitchen **facilities** shall comply with this section.

Design Requirements

Pass-through and L-shaped kitchens shall have

- 1500 mm clearance between all opposing base cabinets, countertops, appliances, or walls within a kitchen work area; and
- two entries.

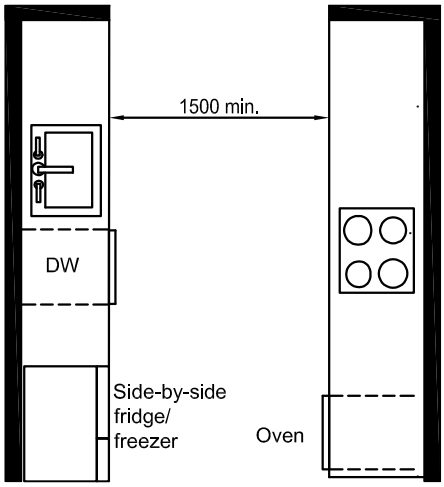


Figure 4.3.17.1:
Pass-Through Kitchen

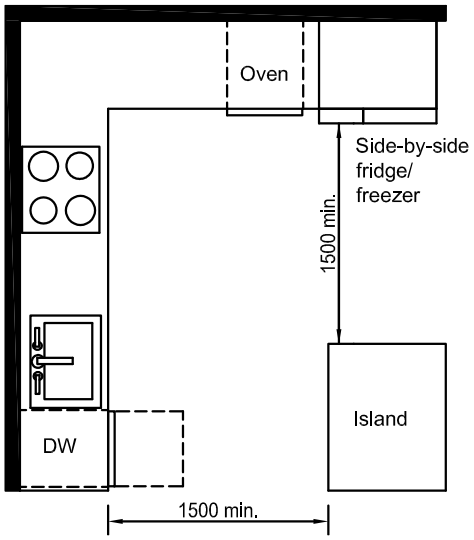
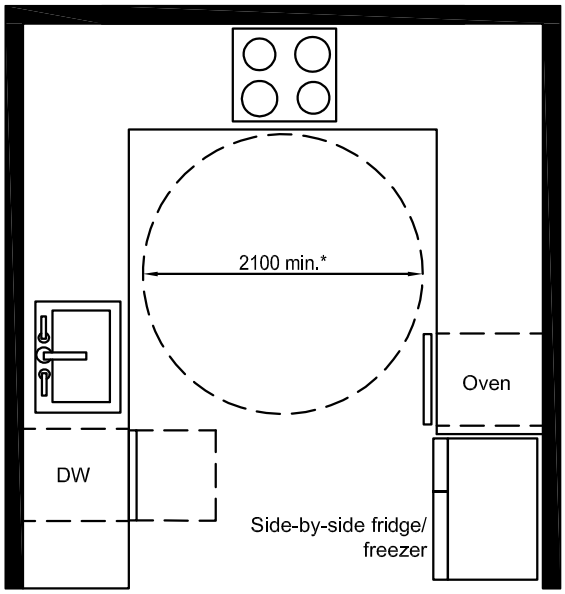


Figure 4.3.17.2:
L-Shaped Kitchen

U-shaped kitchens enclosed on three continuous sides shall have a minimum clearance of 2100 mm between all opposing base cabinets, countertops, appliances, or walls. Where possible, the ideal is for the diameter to be 2500 mm.



* Where possible, the ideal is for the diameter to be 2500

Figure 4.3.17.3:
U-Shaped Kitchen

Storage **elements** shall

- be located on an **accessible route** with adjacent **clear floor space** in compliance with Section 4.1.1;
- comply with at least one of the reach ranges specified in Section 4.1.1; and
- incorporate **operable portions** in compliance with Section 4.4.2.

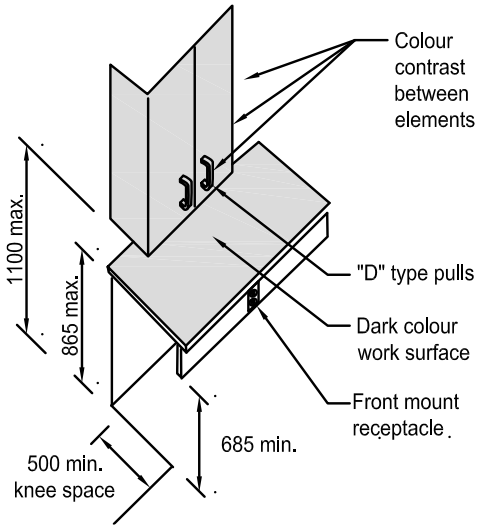


Figure 4.3.17.4:
Storage Elements

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, and to wet bars;
- have the height of the rim or countertop (whichever is higher) located between 820 and 865 mm above the floor;
    - have a knee space at least 920 mm wide;
    - 735 mm high at the front edge;
    - 685 mm high at a point 200 mm back from the front edge; and
    - 350 mm high over the distance from a point 280 mm to a point 430 mm back from the front edge;
    - have a minimum **clear floor space** 810 mm wide and 1370 mm deep, of which a maximum of 500 mm in depth may be under the sink;
- incorporate faucets and other controls in compliance with Section 4.4.2;
- 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.

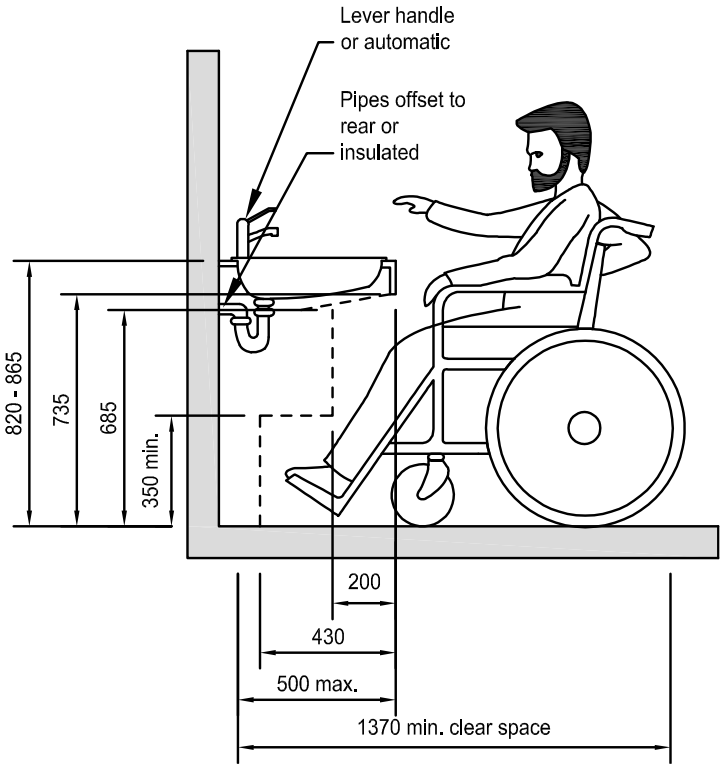


Figure 4.3.17.5:
Kitchen Sink

Kitchen appliances shall

- be located on an **accessible route** with adjacent **clear floor space** in compliance with Section 4.1.1; and
- incorporate controls and **operable portions** in compliance with Section 4.4.2.

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 sink.

Ranges and cooktops shall

- incorporate controls that are located to avoid reaching across the burners; and
- where a forward approach is provided
    - have a knee space of at least 810 mm wide;
    - 735 mm high at the front edge;
    - 685 mm high at a point 200 mm back from the front edge; and
    - 350 mm high over the distance from a point 280 mm to a point 430 mm back from the front edge;
    - have a minimum **clear floor space** 810 mm wide and 1370 mm deep, of which a maximum of 500 mm in depth may be under the sink;
- insulate or otherwise configure the appliance to prevent burns, abrasions, or electrical shock.

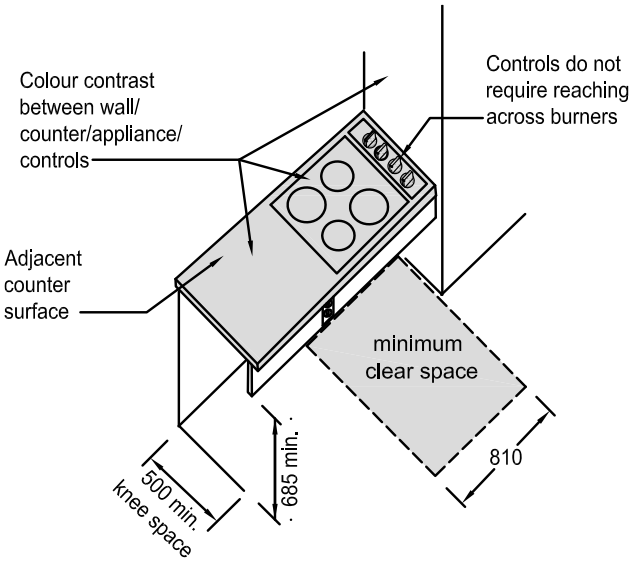


Figure 4.3.17.6:
Cook Top

Ovens shall

- have controls located on the front panels, mounted no higher than 1400 mm;
- where side-hinged doors are used, 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; and
- where bottom-hinged doors are used, be located with an adjacent work surface positioned adjacent to one side of the door.

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

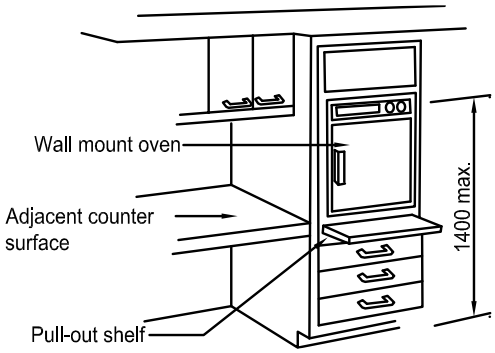


Figure 4.3.17.7:
Wall Mounted Oven

Refrigerators/freezers shall

- be configured with the freezer shelf space not more than 1100 mm above the floor; or a vertical side-by-side type, and;
- incorporate **clear floor space** in the front, positioned for a parallel approach immediately adjacent to the refrigerator/freezer, with the centreline of the **clear floor space** offset 600 mm maximum from the front face of the refrigerator/freezer.

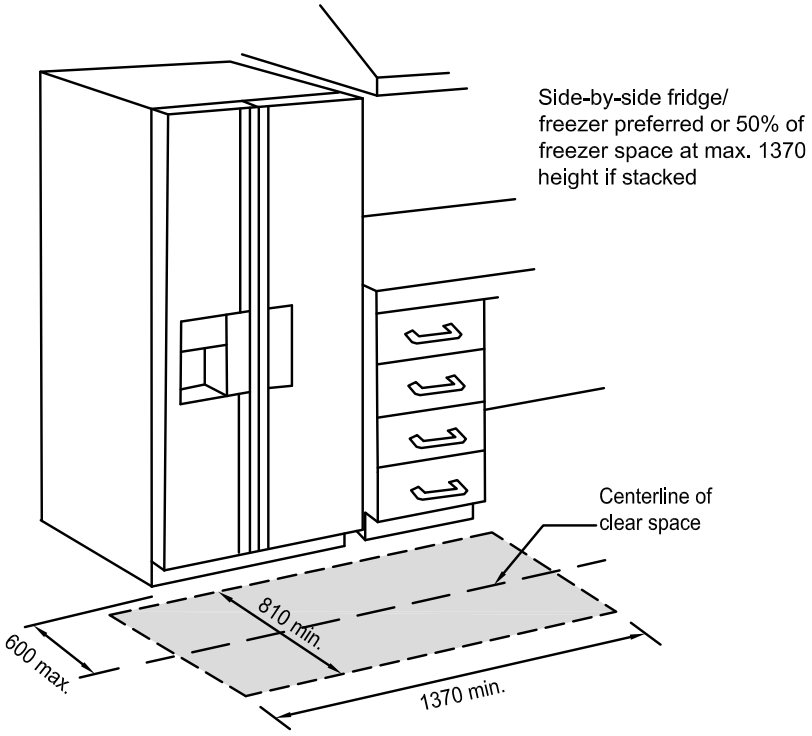


Figure 4.3.17.8:
Fridge/Freezer

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

Related Sections

4.1.1 Space and Reach Requirements
4.1.2 Ground and Floor Surfaces
4.1.3 Protruding and Overhead Objects
4.1.4 Accessible Routes, Paths and Corridors
4.4.11 Glare and Light Sources
4.4.12 Lighting
4.4.13 Materials and Finishes
4.4.14 Texture and Colour

4.4 Systems and Controls

4.4.1 Emergency Exits, Fire Evacuation and Areas of Rescue Assistance

Rationale

In order to be **accessible** to all individuals, emergency exits must include the same accessibility features as other doors specified in Section 4.1.6. 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 foreign language. Audio or talking signs could assist persons with a visual **impairment** who need a means of quickly locating exits. In the event of fire when elevators may not 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-sprinklered, 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 non-sprinklered 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, where required by the Ontario Building Code, 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**.

Table 4.4.1 Number of rescue spaces

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.

Design Requirements

Where emergency warning systems are provided, they shall include both audible alarms and visible alarms. Visual alarms shall comply with Section 4.4.4.

Accessible means of egress shall comply with Section 4.1.4.

Accessible means of egress shall be identified with **signage** in compliance with the applicable provisions of Section 4.4.7.

Areas of rescue assistance shall

- be located on an **accessible route** complying with Section 4.1.4;
- incorporate the number of rescue **spaces** in accordance with Table 4.4.1;
- be of a size that allows a minimum floor space of 810 by 1370 mm per non-ambulatory occupant;
- 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;
- 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 Section 4.4.7, stating "Area of Rescue Assistance" and incorporating an approved symbol of access for persons with **disabilities**.

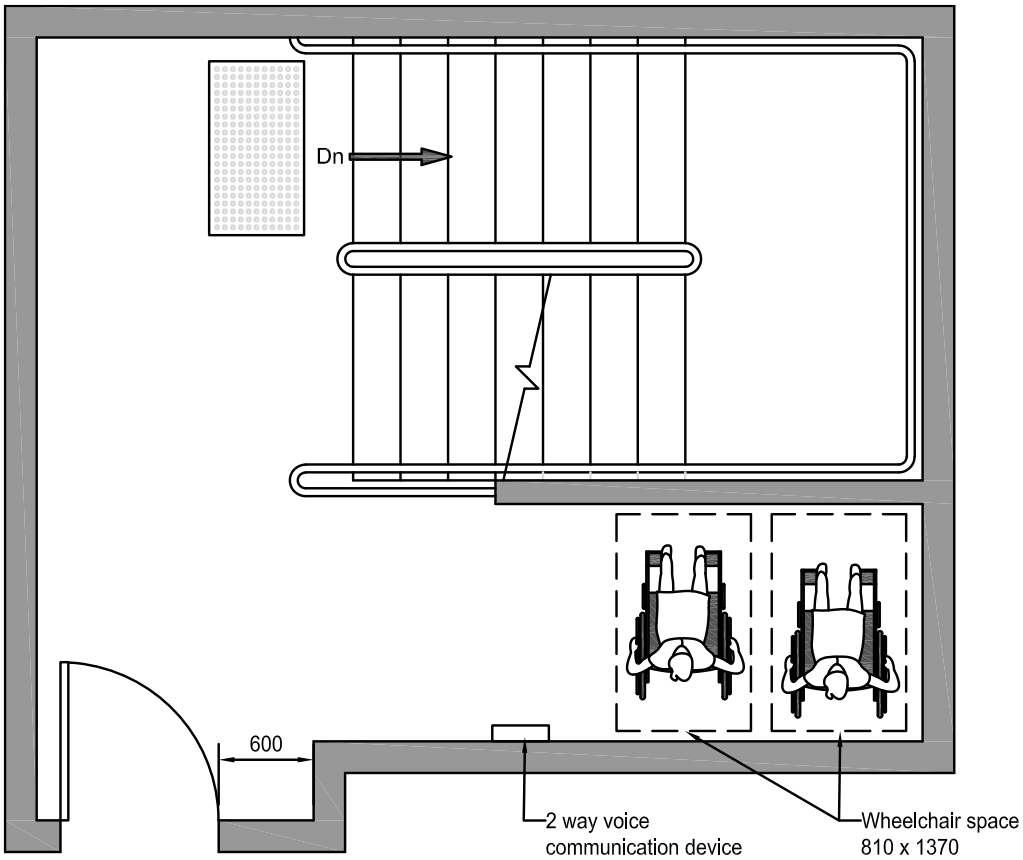


Figure 4.4.1.1:
Area of Rescue Assistance

Legislation References

OBC 3.3.1.7.

Related Sections

4.1.1 Space and Reach Requirements
4.1.2 Ground and Floor Surfaces
4.1.3 Protruding and Overhead Objects
4.1.4 Accessible Routes, Paths and Corridors
4.1.6 Doors
4.4.2 Controls and Operating Mechanisms
4.4.4 Visual Alarms
4.4.6 Signage
4.4.7 Detectable Warning Surfaces
4.4.8 Public Address Systems
4.4.13 Materials and Finishes
4.4.14 Texture and Colour

4.4.2 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 challenging for some people, particularly those with reach or balance limitations, or those who must use their hands to hold canes or crutches.

The placement of controls is integral to their accessibility. For the individual using a wheelchair, the height of the controls and the space to position the wheelchair in front of the controls are important. Controls placed high on a wall may not be reachable by children or persons of short stature.

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 counter-intuitive controls or graphics difficult.

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

A **clear**, level floor area at least 810 mm by 1370 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 and 1100 mm from the floor, and for thermostats and manual pull stations shall be located at 1200 mm from the floor. Exception: Power door operator and elevator controls; refer to Sections 4.1.6 and 4.1.14.

Electrical outlets and other types of devices shall be located at 400 mm from the finished floor to the centre of the electrical box. Exception: Where electrical outlets are provided as components of systems furniture, or above work surfaces, these devices should be reachable by individuals using mobility devices, even though they may not need to comply with this section, since they are installed in addition to electrical outlets required by the Authority Having Jurisdiction..

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 22N.

Controls and operating mechanisms shall be capable of being illuminated to at least a level of 100 lux.

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

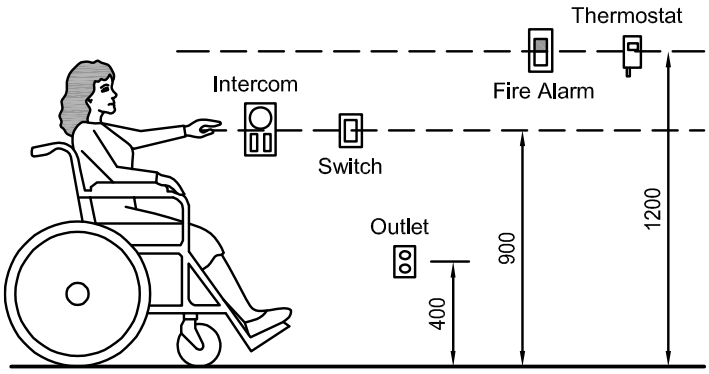


Figure 4.4.2.1:
Reach Range for Accessible Controls

Legislation References

OBC 3.8.1.5.

Related Sections

4.1.1 Space and Reach Requirements
4.1.3 Protruding Objects and Overhead
4.1.4 Accessible Routes, Paths and Corridors
4.1.6 Doors
4.1.7 Gates, Turnstiles and Openings
4.1.8 Windows, Glazed Screens and Sidelights
4.1.14 Elevators
4.2.2 Toilet Stalls
4.2.3 Toilets
4.2.4 Lavatories
4.2.5 Urinals
4.2.6 Washroom Accessories
4.2.7 Universal washrooms
4.2.8 Shower Stalls
4.3.1 Drinking Fountains
4.3.4 Dressing/Change Rooms
4.3.5 Offices, Work Areas and Meeting Rooms
4.3.9 Storage, Shelving and Display Units
4.3.10 Lockers and Baggage Storage
4.3.15 Streetscape
4.4.3 Vending and Ticketing Machines
4.4.9 Self-Service Kiosks and Information Systems
4.4.10 Card Access, Safety and Security Systems
4.4.12 Lighting
4.4.14 Texture and Colour

4.4.3 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. The selection of the machines should include several factors. Operating mechanisms should be within reach of children and individuals in wheelchairs. 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 machine more **accessible** to those with a visual **impairment**.

Application

Vending and ticketing machines shall comply with this section.

Design Requirements

Vending and ticketing machines shall be located on an **accessible route** in compliance with Section 4.1.4.

Clear floor space in front of vending and ticketing machines shall conform to Section 4.1.1.

The controls and operating mechanisms on vending and ticketing machines shall comply with Section 4.4.2.

Signage on vending and ticketing machines shall be in highly contrasting lettering, at least 16 mm high. Ideally, lettering and **signage** shall comply with relevant parts of Section 4.4.6.

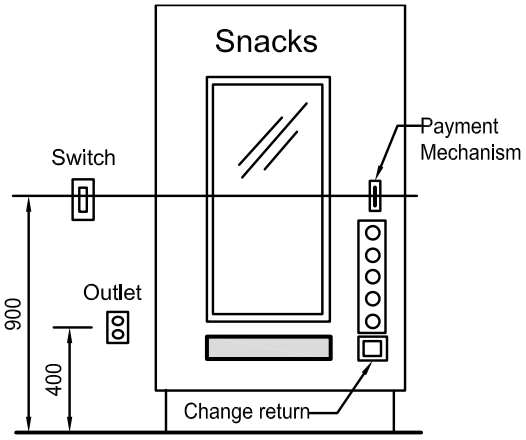


Figure 4.4.3.1:
Vending Machine

Legislation References

OBC 3.8.1.5.

Related Sections

4.1.1 Space and Reach Requirements
4.1.4 Accessible Routes, Paths and Corridors
4.4.2 Controls and Operating Mechanisms
4.4.14 Texture and Colour

4.4.4 Visual Alarms

Rationale

Visual alarms are essential safety features for individuals who are 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 within **facilities** in each of the following areas: washrooms, hallways, lobbies, and any other general/**common use** areas (e.g., **meeting rooms**).

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

Design Requirements

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 sec) with a maximum duty cycle of 40 percent. The pulse duration is defined as the time interval between initial and final points of 10% of maximum signal;
- the intensity shall be a minimum of 75 candela;
- the flash rate shall be a minimum of 1 Hz and a maximum of 3 Hz;
- visual alarm signal devices shall be synchronized to flash in unison;
- 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 signalling appliances are required shall be more than 15 m from the signal.

Legislation References

OBC 3.2.4.19.. 3.2.4.21., & 3.2.4.22

Related Sections

4.4.1 Emergency Exits, Fire Evacuation and Areas of Rescue Assistance

4.4.5 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 square metres 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

Signage complying with applicable provisions of Section 4.4.7 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, any existing overhead incandescent lights shall be located so as not to cancel out the infrared signal at the receiver, or replaced with non-incandescent lighting fixtures.

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, the entire 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.

Related Sections

4.4.6 Signage
4.4.12 Lighting
4.4.15 Acoustics

4.4.6 Signage

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 foreign 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 counter-intuitive. 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: **Staff** 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 an approved symbol of access for persons with **disabilities** 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 entrance**);
- **accessible** toilet and bathing **facilities**, including single-user portable units, when not all are **accessible**;
- **accessible** telephones;
- **accessible** elevators and other elevating devices;
- **accessible means of egress**; and
- **areas of rescue assistance**.

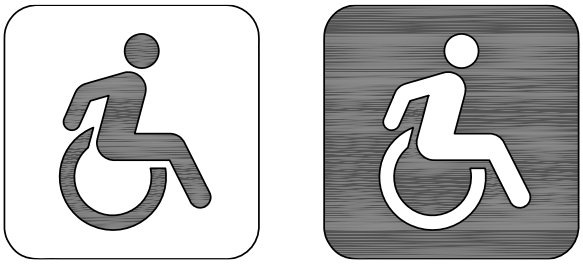


Figure 4.4.6.1:
Colour Contrast on Signs

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.

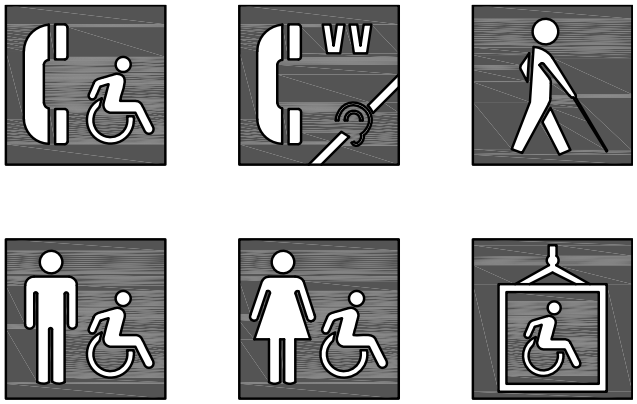
Table 4.4.6 Character height on signs

Minimum character height (mm)	Maximum viewing distance (mm)
200	6000
150	4500
100	3000
75	2250
50	1500
25	750

Design Requirements

Letters and numbers on signs shall

- be sans serif;
- have Arabic numbers;
- have a width-to-height ratio between 3:5 and 1:1; and
- have a stroke-width-to-height ratio between 1:5 and 1:10.



Pictograms must incorporate equivalent verbal description

Figure 4.4.6.2:
Pictograms

Character height dimensions for viewing distance shall comply with Table 4.4.6.

Characters, symbols, and backgrounds of signs shall have an eggshell, matte or other glare-free finish.

Characters and symbols shall contrast by 70% with their background; either light characters on a dark background or dark characters on a light background.

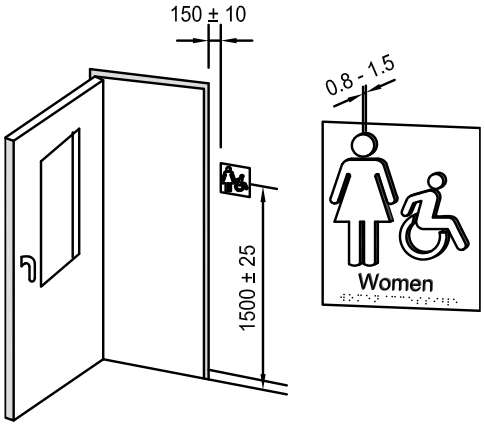


Figure 4.4.6.3:
Tactile Signage

Where signs are required to be **tactile**, letters and numbers shall be

- raised at least 0.8 to 1.5 mm, not sharply edged;
- be between 16 and 50 mm high; and
- be sans serif, accompanied by uncontracted (Grade 1) braille, but consider using contracted (Grade 2) braille for signs with more than 10 words.

Braille translation of signs should be verified at the design stage by an independent braille specialist.

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.

Figure 4.4.6.4:
An Approved Symbol of Access for Persons with Disabilities

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 centreline at a height between 1200 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.

Legislation References

OBC 3.8.3.1.

Related Sections

4.1.3 Protruding and Overhead Objects
4.1.4 Accessible, Routes, Paths and Corridors
4.1.5 Entrances
4.1.6 Doors
4.1.7 Gates, Turnstiles and Openings
4.1.9 Ramps
4.1.14 Elevators
4.2.1 Toilet and Bathing Facilities
4.2.7 Universal washrooms
4.3.2 Viewing Positions
4.3.4 Dressing/Change Rooms
4.4.1 Emergency Exits, Fire Evacuation and Areas of Rescue Assistance
4.4.12 Lighting
4.4.14 Texture and Colour

4.4.7 Detectable Warning Surfaces

Rationale

Detectable warning surfaces provide important navigational cues for persons with a visual **impairment**. These surfaces alert all **pedestrians** to potential hazards, such as crosswalks or stairs. Suitable surfaces include a change in texture and high colour contrast but should not present a tripping hazard.

Detectable warning surfaces should be used consistently throughout a **facility**.

Application

Detectable warning surfaces at walkways, **curb ramps**, stairs and elevated platforms, escalators and potential hazards shall comply with this section.

Table 4.4.7 Size and spacing of flat-topped domes or cones

Top diameter of flat-topped domes or cones (mm)	Base surface diameter (mm) ±1	Spacing (mm)
12	22	42 - 61
15	25	45 - 63
18	28	48 - 65
20	30	50 - 68
25	35	55 - 70

Design Requirements

All textured surfaces used as **detectable warning surfaces** shall be clearly detectable by walking upon as being different from the surrounding surface. (Refer also to 4.4.14). Note: Applying a paint finish to a concrete surface does not provide appropriate detectability.

Detectable warning surfaces shall contrast visually with adjoining surfaces, being either light on dark or dark on light. Refer also to Section 4.3.3.

Detectable warning surfaces shall be slip-resistant.

Detectable warning surfaces at stairs shall

- be provided at the top of the stairs and at landings with entry points; and
- extend the full width of the stair for a depth of at least 610 mm commencing one tread depth back from the stair.

Refer also to Section 4.1.11.

Where **detectable warning surfaces** are installed as pre-manufactured panels or surface-mounted onto an existing ground or floor surface, the panels should have bevelled edges. The base surface of the panels should be no more than 3 mm above the existing surface. Surface-mounted installations are not ideal and should only be considered when cast-in-place or recessed installations cannot be achieved.

Detectable warning surfaces at **curb ramps**, **depressed curbs**, exit stairs, exterior stairs and elevated platforms shall be composed of flat-topped domes or cones that

- are 4 to 5 mm high;
- have top and bottom dimensions as shown in Table 4.4.7; and
- are arranged in a regular pattern with spacing as shown in Table 4.4.7.

If a **walk** crosses or joins a **vehicular way** and the walking surfaces are not separated by curbs, railings or other **elements** between the **pedestrian** areas and vehicular areas, the boundary between the areas shall be defined by a continuous **detectable warning surface** that extends across the full width, and which is a minimum 610 mm deep. Refer also to Section 4.1.10.

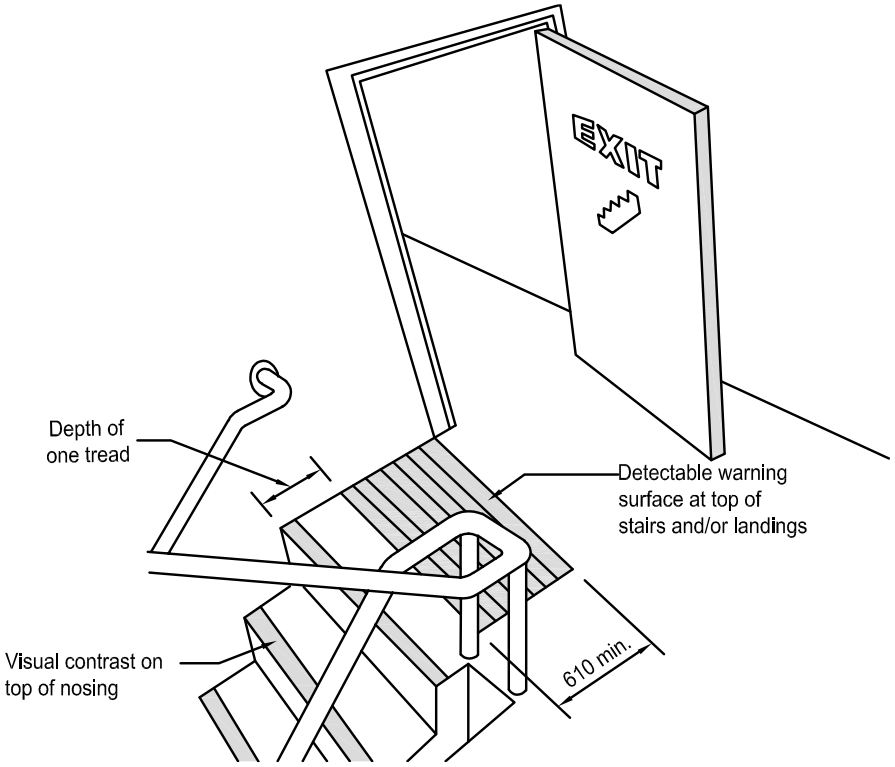


Figure 4.4.7.1:
Detectable Warning Surfaces at Stairs

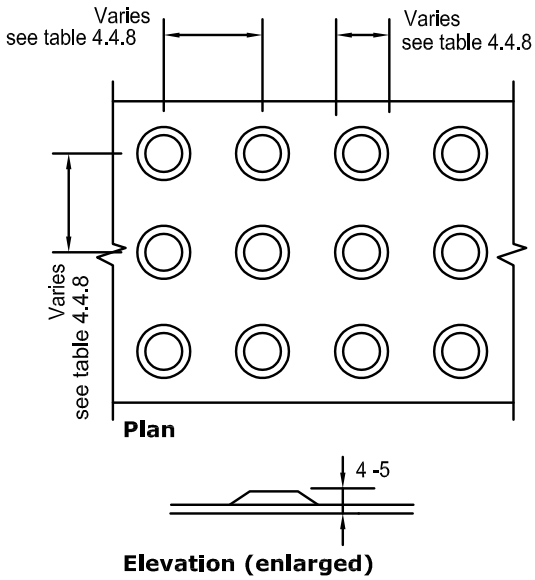


Figure 4.4.7.2:
Truncated Dome Detectable Warning Surface

Legislation References

OBC 3.8.3.18.

Related Sections

4.1.3 Protruding and Overhead Objects
4.1.4 Accessible Routes, Paths and Corridors
4.1.9 Ramps
4.1.10 Curb Ramps
4.1.11 Stairs
4.1.12 Escalators
4.3.1 Drinking Fountains
4.3.3 Elevated Platforms
4.4.14 Texture and Colour

4.4.8 Public Address Systems

Rationale

Public address systems should be designed to best accommodate all users, especially those that may be hard of hearing. 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.

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

Application

Public address systems shall comply with this section.

Design Requirements

Public address speakers shall be mounted above head level, 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.

Related Sections

4.4.1 Emergency Exits, Fire Evacuation and Areas of Rescue Assistance
4.4.15 Acoustics

4.4.9 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

Where information is provided by video display terminals to the general public, students, faculty, staff 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 points. Refer to the CNIB Foundation's "Clear Print Accessibility Guidelines" and RGD's "Accessibility 2: A Practical Handbook on Accessible Graphic Design" for further detail.

Information systems designed for direct access by the public, such as touch-screen displays, keyboards or keypads, shall be mounted at a height suitable for use by a person using a wheelchair or scooter (refer to Section 4.4.2).

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 audio and large text print.

Push buttons or other controls for accessing public information systems should be clearly identifiable by colour and/or luminance from their background, and should include raised numbers, numerals or symbols for easy identification by persons with a visual **impairment**.

Tactile identification shall comply with Section 4.4.14.

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

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

Inclined informational/interpretive panels that can not be read from 750 mm away shall have knee clearance at least 685 mm high and 500 mm deep. If displays are intended for viewing from 750 mm or further, toe clearance at least 230 mm high and deep is required. The top of the panel shall be not more than 1200 to 1400 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 by 1500 mm **clear space** directly in front of the sign is required for its approach and use. The **clear** space must conform with the requirements found in Section 4.1.2.

Automated banking machines and self-service interactive devices shall comply with the latest edition of CSA B651.2 "Accessible design for automated banking machines and self-service interactive devices".

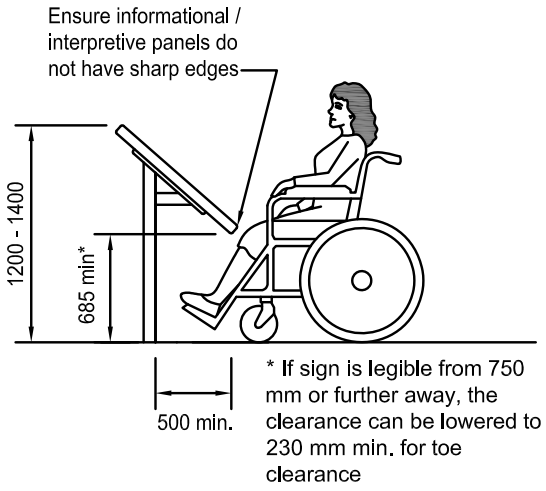


Figure 4.4.9.1:
Critical Dimensions for Information Systems and Displays

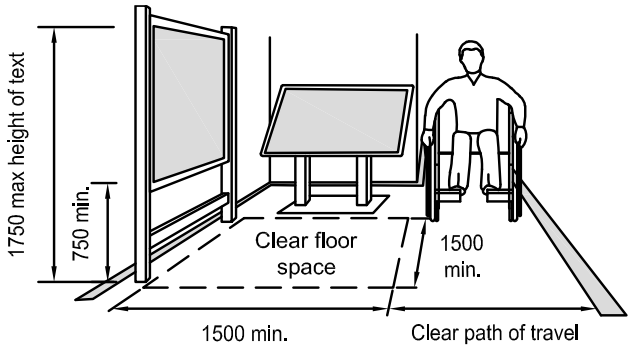


Figure 4.4.9.2:
Clear Space and Dimensions around Information Systems1

Legislation References

AODA IASR Part I Section 6

Related Sections

4.4.2 Controls and Operating Mechanisms
4.4.14 Texture and Colour

4.4.10 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** signalling devices promote this security.

Emergency signalling 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 touchscreens and 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

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 complying with Section 4.4.5 shall be located at, or close to an **accessible entrance**, for the use of persons requiring assistance.

Where **accessible** universal washrooms in compliance with Section 4.2.7 are provided in larger public **facilities**, such as recreation **facilities**, the washroom should incorporate an emergency call system linked to a central location (e.g., office or switchboard).

Key fob or card-entry systems shall

- be wall-mounted, no higher than 900 to 1100 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; and
- use cards that incorporate a distinctive colour, texture or raised graphic/lettering on one side.

Encoded-entry/exit systems, such as keypads, shall

- be wall-mounted, no higher than 900 to 1100 mm above the floor or ground, adjacent to the door and free of the door swing; and
- incorporate buttons that
    - are raised;
    - are mounted on a clearly differentiated, coloured background; and
    - include raised numbers, letters and symbols in a standard telephone keypad arrangement.

Legislation References

OBC 3.8.1.5.

Related Sections

4.1.1 Space and Reach Requirements
4.1.4 Accessible Routes Paths and Corridors
4.1.5 Entrances
4.1.6 Doors
4.1.14 Elevators
4.1.15 Platform Lifts
4.2.7 Universal washrooms
4.3.5 Offices, Work Areas and Meeting Rooms
4.4.2 Controls and Operating Mechanisms
4.4.12 Lighting
4.4.14 Texture and Colour

4.4.11 Glare and Light Sources

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

Extensive high-gloss floor and wall finishes are not acceptable, but high-gloss materials may be incorporated into floor and wall finish details, if 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.

Resilient flooring, composite materials, quarry tile, glazed tile or mosaics, etc., used on horizontal surfaces, such as floors and work surfaces, shall have matte or satin finishes.

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.

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.

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

Where surface-mounted linear ceiling fixtures are mounted below 2400 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.

Artificial light sources with a high rate of flicker, such as fluorescent bulbs, should be avoided, due to problems they pose for individuals with neurological and vision **impairments**/**disabilities**.

Legislation References

OBC 3.8.1.6.

Related Sections

4.1.2 Ground and Floor Surfaces
4.1.4 Accessible Routes, Paths and Corridors
4.1.5 Entrances
4.1.8 Windows, Glazed Screens and Sidelights
4.1.9 Ramps
4.1.10 Curb Ramps
4.1.11 Stairs
4.1.13 Escalators
4.1.14 Elevators
4.1.15 Platform Lifts
4.2.1 Toilet and Bathing Facilities
4.3.8 Information, Reception and Service Counters
4.4.12 Lighting

4.4.12 Lighting

Rationale

Artificial lighting and natural light sources should provide comfortable, evenly distributed light at all working areas, in all circulation routes and in all areas of potential hazard. Also, outdoor lighting should be provided at **entrances**, along frequently used access routes and at frequently used outdoor amenities.

Application

Exterior and interior lighting systems shall comply with this section.

Design Requirements

Exterior Lighting

Exterior lighting shall be in compliance with Illuminating Engineering Society of North America Standards in all public thoroughfares, and at all **pedestrian** routes, to provide safe access for persons with **disabilities** from sidewalks, bus stops and parking areas to nearby **facilities** and **site** amenities.

At **pedestrian entrances**, frequently used **pedestrian** routes (including walkways, paths, stairs and **ramps**), designated parking spaces (including **accessible spaces** and limited mobility/caregiver spaces), and at passenger drop-off areas, lighting levels should be consistent over the route, area or **space**, measured at the ground.

At frequently used steps and stairs, lighting shall be located at or beside the steps or stairs, to clearly define the treads, risers and nosing.

All lighting shall

- provide a full colour spectrum; and
- be evenly distributed to minimize cast shadows.

Supplementary lighting shall be provided to highlight key **signage** and orientation landmarks.

Low-level lighting shall be high enough to clear normal snow accumulation.

Lighting fixtures shall comply with the relevant parts of Sections 4.1.3 and 4.3.15.

Interior Lighting

Light sources and fixtures shall be selected to minimize direct glare or indirect glare on nearby reflective surfaces.

Light sources shall provide as full a spectrum of light as possible, as an aid to edge and colour definition.

Lighting shall be configured to create an even distribution at floor level and to minimize pools of light and areas of shadow.

The leading edge of stairs, steps, **ramps** or escalators shall be evenly lit to minimize tripping hazards.

Lighting levels in elevator lobbies shall be similar to the lighting levels in elevator cabs, to minimize tripping hazards, and in no case shall be less than 200 lux.

Lighting levels in washrooms and dressing rooms shall be evenly distributed and no less than 200 lux.

Lighting levels in office areas shall be evenly distributed and no less than 300 lux.

Emergency lighting over stairs and **ramps**, in an exit or path of travel, shall be at least 100 lux, generally at the walking surface, and in no place less than 50 lux.

Lighting over directional or informational **signage**, or highlighting other orientation features, at public telephones, information or service counters, and key fob/card or keypad security systems, shall be no less than 200 lux, measured at the working surface.

Lighting in **meeting rooms** and **assembly areas** shall be evenly distributed, and shall be capable of being adjusted with dimmers.

Lighting at lecterns, podiums/platforms or other speaker locations shall be capable of being enhanced, even when other lighting is dimmed, to permit ease of lip-reading and/or viewing of the hand actions of a nearby signer for persons who are deaf.

Related Sections

4.1.4 Accessible Routes, Paths and Corridors
4.1.5 Entrances
4.1.9 Ramps
4.1.10 Curb Ramps
4.1.11 Stairs
4.1.12 Escalators
4.1.14 Elevators
4.1.15 Platform Lifts
4.2.1 Toilet and Bathing Facilities
4.3.1 Drinking Fountains
4.3.3 Elevated Platforms
4.3.4 Dressing/Change Rooms
4.3.5 Office, Work Areas and Meeting Rooms
4.3.8 Information, Reception and Service Counters
4.4.2 Controls and Operating Mechanisms
4.4.6 Signage
4.4.11 Glare and Light Sources

4.4.13 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.

Floor finishes, such as carpet, should be selected and installed so that persons using wheelchairs, walkers, and other mobility aids can easily travel over them without using undue energy or tripping.

Finishes that are slip-resistant and not highly reflective promote safe travel.

Application

Exterior and interior materials and finishes shall comply with this section.

Design Requirements

Exterior Finish Materials

Suitable walkway paving surfaces include asphalt, concrete, compacted gravel screenings, interlocking brick and patio stones. Such materials used as walkways shall

- have joints that are no greater than 6 mm wide, with variations in level of no more than 3 mm; 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.

Steps shall be finished with a non-slip material and incorporate highly contrasted nosing.

Ramp surfaces shall be firm and non-slip.

Handrails and **guards** shall be continuous, smooth and well maintained.

Interior Materials and Finishes

Carpet shall be of low-level loop construction, 1/10 or 1/12-gauge non-static fibre, directly glued to the subfloor. Refer to University of Toronto Carpet Design Standard for additional requirements.

Where hard, monolithic materials are selected, they shall be non-slip and glare-free, complying with Section 4.4.11.

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.

Related Sections

4.1.2 Ground and Floor Surfaces
4.1.4 Accessible Routes, Paths and Corridors
4.1.5 Entrances
4.1.9 Ramps
4.1.10 Curb Ramps
4.1.11 Stairs
4.1.13 Escalators
4.1.14 Elevators
4.1.15 Platform Lifts
4.2.1 Toilet and Bathing Facilities
4.3.4 Dressing/Change Rooms
4.3.5 Office, Work Areas and Meeting Rooms
4.4.11 Glare and Light Sources

4.4.14 Texture and Colour

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 complex 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

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.

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 nosing, doors, **handrails**, etc.). Colour or luminance 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. For example, a colour contrasting **signage** band located on walls at eye level 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 luminance, to enhance a change of direction or the end of the **space**.

Where colour contrast is required but minimum contrast values are not specified, a minimum colour and brightness contrast of 50% should be used, and a minimum of 70% should be used for **signage** and pictograms.

The colour and brightness contrast can be calculated using the following formula, where L_1 is the light reflectance value (LRV) of the lighter surface and L_2 is the LRV of the darker surface. LRV can be determined with a light meter placed 200 to 250 mm above the surface being measured.

Luminance (colour) contrast = $(L_1 – L_2) / (L_1 + L_2) \times 100$

Detectable warning surfaces shall be used to define potential hazards (refer to Section 4.4.8). All textured surfaces used as **detectable warning surfaces** shall be clearly discernible by walking upon as being different from the surrounding surfaces.

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 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.

Related Sections

4.1.2 Ground and Floor Surfaces
4.1.4 Accessible Routes, Paths and Corridors
4.1.6 Doors
4.1.7 Gates, Turnstiles and Openings
4.1.8 Windows, Glazed Screens and Sidelights
4.1.9 Ramps
4.1.10 Curb Ramps
4.1.11 Stairs
4.1.12 Handrails
4.1.13 Escalators
4.1.14 Elevators
4.2.2 Toilet Stalls
4.2.3 Toilets
4.2.4 Lavatories
4.2.5 Urinals
4.2.6 Washroom Accessories
4.2.7 Universal washrooms
4.2.8 Shower Stalls
4.2.9 Grab Bars
4.3.1 Drinking Fountains
4.3.3 Elevated Platforms
4.3.4 Dressing/Change Rooms
4.3.5 Office, Work Areas and Meeting Rooms
4.3.6 Waiting and Queuing Areas
4.3.8 Information, Reception and Service Counters
4.3.9 Storage, Shelving and Display Units
4.3.10 Lockers and Baggage Storage
4.3.11 Balconies, Porches, Terraces and Patios
4.3.12 Landscaping Materials and Plantings
4.3.13 Benches
4.3.14 Public Use Eating Areas
4.3.15 Streetscape
4.4.1 Emergency Exits, Fire Evacuation and Areas of Rescue Assistance
4.4.2 Controls and Operating Mechanisms
4.4.6 Signage
4.4.7 Detectable Warning Surfaces
4.4.10 Card Access, Safety and Security Systems

4.4.15 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 help 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, students, faculty, staff, customers and employees shall comply with this section.

Design Requirements

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

At **accessible routes** in large **facilities** where wayfinding is problematic, the sound transmission/reflection characteristics of finish materials shall acoustically 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** during announcements (refer to Section 4.4.9).

In **meeting rooms** 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.

Related Sections

4.3.5 Office, Work Areas and Meeting Rooms
4.3.8 Information, Reception and Service Counters
4.4.5 Assistive Listening Systems
4.4.8 Public Address Systems

4.5 Facility-Specific Requirements

4.5.1 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 design requirements specified in Sections 4.1 to 4.4, arenas, halls and other indoor recreation **facilities** shall comply with this section.

Where dressing **facilities** are provided for use by the general public, students, faculty, 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 Section 4.3.4. It is preferable to have all dressing **facilities accessible**.

Design Requirements

Arenas, halls and other indoor recreation **facilities** shall

- where visitor, spectator and/or participant seating is provided,
    - have **accessible** seating options in compliance with Section 4.3.2; and
    - incorporate **detectable warning surfaces** in compliance with Section 4.4.7 where seating is accessed by stairs.
- provide an **accessible route** in compliance with Section 4.1.4 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 Section 4.1.4 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 Section 4.1.11, including appropriate **tactile** and colour-contrasting features;
- where dressing **facilities** are provided, have dressing **facilities** that comply with Section 4.3.4;
- where lockers or shelves are provided, have lockers and shelving that comply with Sections 4.3.9 and 4.3.10;
- where coat hooks are provided, have at least 10%, but never less than one, within the reach ranges specified in Section 4.1.1;
- where toilets and bathing **facilities** are provided, have toilets and bathing **facilities** that comply with Section 4.2.1;
- where concessions or other service counters are provided, comply with Sections 4.1.3 and 4.3.8;

- where swimming pools, hot pools or therapy pools are provided, comply with Section 4.5.3; and
- where staff accommodation and related support areas, offices or **meeting rooms** are provided, comply with all relevant parts of Sections 4.1 to 4.4.

Related Sections

All relevant parts of Sections 4.1, 4.2, 4.3 and 4.4.

4.5.2 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, volunteer faculty and members of staff.

Application

In addition to the design requirements specified in Sections 4.1 to 4.4, 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, students, faculty, 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 4.3.4. It is preferable to have all change **facilities accessible**.

Design Requirements

General

Park 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.

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 75 mm. The curbed edge shall be at least 100 mm high and of a contrasting colour to the surrounding terrain;
- have **handrails**, **guards** or other suitable barriers on both sides where the grade drop-off is greater than 600 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 Section 4.3.15.

Outdoor Pools

Outdoor swimming pools shall comply with Section 4.5.3.

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.

Pathways

Accessible routes and walkways shall conform with Section 4.1.4.

Garbage cans, light standards, benches and other potential obstructions shall be located adjacent to pathways. Refer also to 4.3.15.

A different ground colour and/or texture shall be used to indicate the following (refer also to Section 4.4.15.):

- risk areas, such as intersections, **ramps** or steps; and
- functional changes, such as seating areas, viewpoints or lookouts.

Planting and Trees

Planting and trees along **accessible** pathways shall comply with Section 4.3.12.

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 Section 4.1.2;
- use a contrasting ground finish material to identify functional change; and
- incorporate at least one bench, in compliance with Section 4.3.13.

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.

Playgrounds

Children’s play areas and playground equipment, sandboxes or other amenities shall generally be designed to be **accessible** to and usable 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.

Picnic Tables

Accessible picnic tables shall comply with Section 4.3.14.

Where public parking is provided to serve picnic **facilities**, **accessible** picnic areas shall be within 30 m of the **accessible** parking spaces.

Drinking Fountains

Accessible drinking fountains shall comply with Section 4.3.1.

Illumination (where provided)

Illumination levels shall

- be a minimum of 10 lux;
- be maintained at 5 lux in areas of heavy trees and shrubbery; and
- be maintained at 5 lux in all other areas of **park** at ground level.

Light sources used shall be indirect, glare-free, non-flickering type and provide even levels of light distribution. Refer also to Section 4.4.13.

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 parts of Section 4.2.

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 Section 4.3.13.

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 (where provided).

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.

Grandstand and Other Viewing Areas

Where visitor, spectator and/or participant seating is provided, **accessible** seating options in compliance with Section 4.3.2 shall be provided.

Playing Fields

Controlled access points shall be designed to accommodate a person using a wheelchair or scooter. For example, where turnstiles are used, an adjacent **accessible** gate shall be provided in compliance with Section 4.1.7.

Level seating areas shall be provided beside sports fields for spectators or participants with **disabilities**.

Where provided, public viewing areas shall comply with Section 4.3.2.

Where provided, public washrooms shall comply with Section 4.2.1.

Where provided, public showers and dressing/change rooms shall comply with Sections 4.2.1, 4.2.9, and 4.3.4.

Related Sections

All relevant parts of Sections 4.1, 4.2, 4.3 and 4.4.

4.5.3 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 Sections 4.1 to 4.4, swimming pools, wading pools, hot pools, splash pads, spray pads and therapy pools shall comply with this section.

Design Requirements

Swimming pools, wading pools, hot pools and therapy pools shall have

- where the pool is indoors, a direct **accessible route** in compliance with Section 4.1.4 from the lobby/**entrance** to the dressing/change rooms;
- a direct **accessible route** in compliance with Section 4.1.4 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 1:12. In **retrofit** situations where it is **technically infeasible** to provide a **ramp**, or at competitive pool locations where **ramps** are not permitted due to wave propagation issues, a mechanical pool platform lift (e.g., Pool Pod) may be used;
- a shower chair available at each **facility** for use in transferring into the water and/or shower;
- where steps are provided into the pool,
    - they shall have a 50 ± 10 mm deep horizontal stair nosing strip in colour contrast with the remainder of 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;
- highly colour contrasting and sufficiently sized pool-depth indicator, ‘Shallow End’ and ‘Deep End’ markings;

- 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, where the slope in any direction on the deck surface does not exceed 2%.

Legislation References

OBC 3.11.1.
OBC 3.11.3.
OBC 3.11.5.
OBC 3.12.3.2.

Related Sections

All relevant parts of Sections 4.1, 4.2, 4.3 and 4.4.

4.5.4 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 Sections 4.1 to 4.4, 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 Section 4.3.7. 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

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 1500 mm length of the counter shall be constructed in compliance with Section 4.3.8. Service may also be made available at **accessible** tables within the same area.

Access aisles at least 1100 mm wide 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 décor 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 Section 4.3.11.

Food service lines shall have a minimum **clear** width of 1100 mm.

Tray slides shall be mounted no higher than 865 mm.

If self-service shelves are provided, at least 50% must be within the reach ranges specified in Section 4.1.1. It is preferable to have all self-service shelves **accessible**.

Provide **accessible** condiment dispensers in place of individual use packages.

Self-service shelves and dispensing devices for tableware, dishware, condiments, food and beverages shall be installed to comply with Section 4.1.1.

Cashier locations should feature at least one **accessible** aisle which is a minimum of 1100 mm wide. It is preferable to have all aisles **accessible**.

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 Sections 4.1.9 and 4.3.3.

Spaces for vending machines, beverage dispensers and other equipment shall comply with Section 4.1.1 and shall be located on an **accessible route** in compliance with Section 4.1.4.

Barriers and/or turnstiles, where provided to control access, shall comply with Section 4.1.7.

Queuing areas shall comply with Section 4.3.6.

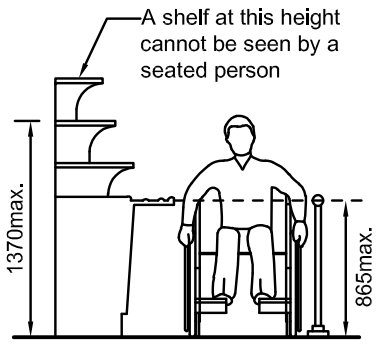


Figure 4.5.4.1:
Self Serve Counter

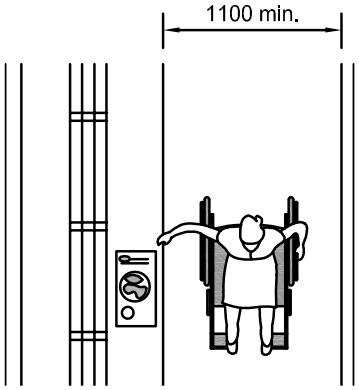


Figure 4.5.4.2:
Aisle Width

Related Sections

All relevant parts of Sections 4.1, 4.2, 4.3 and 4.4.

4.5.5 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 Sections 4.1 to 4.4, 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.

The number of **accessible** checkout aisles provided shall be in conformance with Table 4.5.6.

Table 4.5.6 Required number of accessible checkout aisles

Total checkout aisles of each design	Minimum number of accessible checkout aisles
1 – 4	1
5 – 8	2
9 – 15	3
Over 15	3 plus 20% of all additional aisles

Design Requirements

All **accessible** sales and service counters shall be on an **accessible route** that complies with Section 4.1.4.

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 900 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 1370 by 810 mm to allow for parallel or front 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 900 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.

Checkout lines shall comply with Section 4.1.4, and the maximum adjoining counter height shall not exceed 865 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 an approved symbol of access for persons with **disabilities** 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.

Legislation References

AODA IASR 80.41

Related Sections

All relevant parts of Sections 4.1, 4.2, 4.3 and 4.4.

4.5.6 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 standing and seated heights will enhance usability.

Application

In addition to the design requirements specified in Sections 4.1 to 4.4, libraries shall comply with this section.

Where fixed seating, tables or study carrels are provided, at least 10%, but not 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

Accessible fixed seating, tables and study carrels shall be located on an **accessible route** in compliance with Section 4.1.4.

Clearances between fixed seating, tables and study carrels shall comply with Section 4.1.4.

Where shelving is provided at fixed seating, tables or study carrels, the shelving shall be no higher than 1200 mm above the floor.

Accessible fixed study carrels shall incorporate

- work surfaces and knee/toe clearance in compliance with Section 4.1.1;
- an electrical outlet; and
- lighting levels of at least 100 lux at the work surface.

Where provided, traffic control or book security gates shall comply with Section 4.1.7.

Aisle configurations shall incorporate a **clear floor space** allowing a person in a wheelchair to make a 180 degree turn in compliance with Section 4.1.1. Maximum reach heights at card catalogues shall comply with Section 4.1.1.

Shelf height in stacks areas should take into account the reach requirements outlined in Section 4.1.1.

Circulation and information service counters shall comply with Section 4.3.8.

Where provided, computer catalogues and computer workstations shall incorporate

- knee and toe space below the work surface in compliance with Sections 4.1.1 and 4.3.7;
- a work surface height of 730 to 865 mm; and
- a table depth of 500 to 900 mm.

A minimum of one movable chair shall be provided at every information service counter, computer catalogue or computer workstation.

Book drop slots shall

- be located on an **accessible route** complying with Section 4.1.4;
- be located adjacent to a 2100 by 2100 mm level **clear floor space**. Where possible, the ideal is for the dimensions to be 2500 by 2500 mm. In a **retrofit** situation where it is **technically infeasible** to create a 2100 by 2100 mm **clear floor space**, the space may be reduced to 1500 by 1500 mm; and
- have a slot that is operable using one hand, located between 860 mm and 1200 mm above the floor.

Lighting at book stacks shall be mounted directly over the aisle space and provide a minimum of 200 lux at a nominal working height of 865 mm.

The acoustic quality shall be free of unnecessary background noise and should permit comprehension by persons with limited hearing. Refer also to Section 4.4.15.

Where digital media, 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.

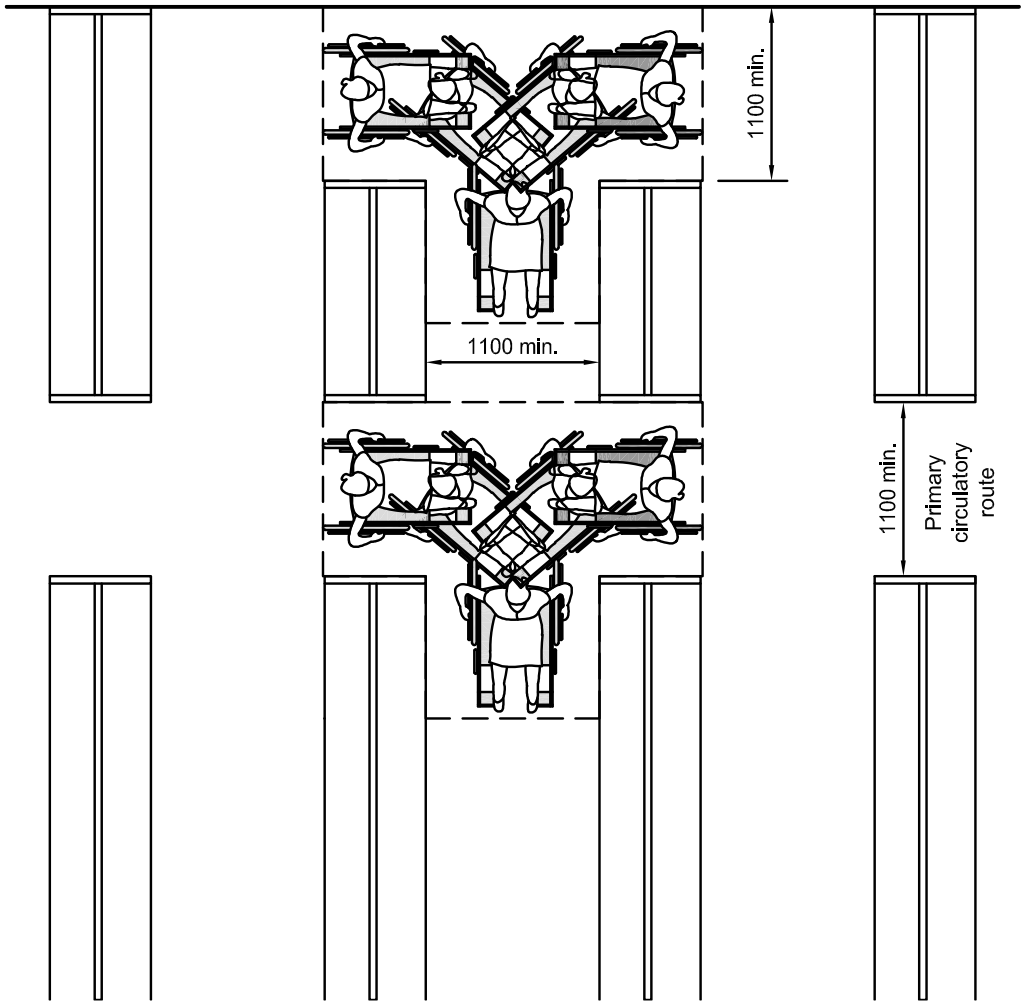


Figure 4.5.6.1:
Aisle Widths

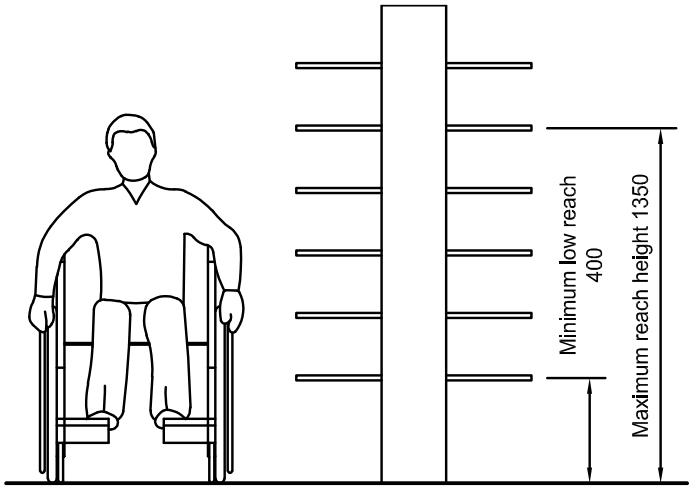


Figure 4.5.6.2:
Accessible Reach Heights

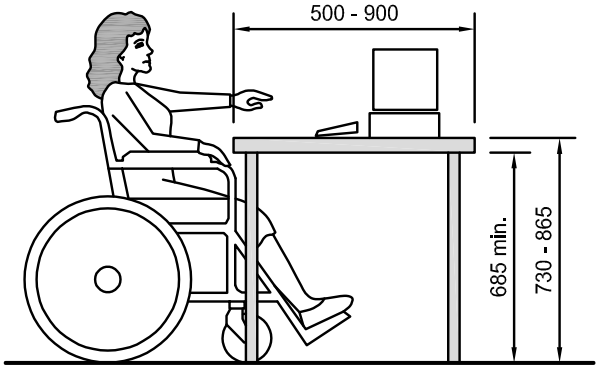


Figure 4.5.6.3:
Work Surfaces

Legislation References

AODA IASR Part II – Section 18

Related Sections

All relevant parts of Sections 4.1, 4.2, 4.3 and 4.4.

4.5.7 Teaching Spaces

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 drawing and painting activities, including persons with low vision. **Accessible** drawing and painting classrooms should also accommodate instructors with **disabilities**.

This section of the manual identifies general accessibility requirements that are applicable to all teaching **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 as 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 teaching **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, 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 teaching **spaces** will better accommodate the use of such equipment.

Where built-in **elements** are duplicated within an individual teaching **spaces**, such as benches or pinboards, 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 teaching **spaces**, which is usable by students, faculty, teaching assistants and staff with **disabilities**. However, it is recognized that not all equipment found in teaching **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.

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 Teaching Spaces

All teaching **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 227 kg.

Where built-in **elements** such as fixed seating, tables or benches are provided within a teaching **space**, at least 10%, but not less than one, shall be **accessible** and in compliance with this section.

At least 50% of shelf space in storage **facilities** in teaching **spaces** shall comply with this section.

Where writing surfaces are integrated into teaching **space** seating, 10%, but not less that one, shall accommodate persons who are left-handed.

An assistive listening system shall be provided.

Drawing/Painting Classrooms

At least 3% of work tables shall be height adjustable with knee space below.

The instructor's water table shall be height adjustable with knee space below.

Lecture/Studio Classrooms

At least 3% of drawing/painting stations shall be height adjustable tables with knee space below.

An **accessible** instructor lectern shall be provided.

Examination/Critique Classrooms

At least 3% of the seating capacity shall be **accessible** wheelchair seating spaces.

An **accessible** instructor lectern shall be provided.

Design Requirements

Teaching **spaces** shall incorporate

- at least one entry/**egress** door in compliance with Section 4.1.6;
- floor surfaces throughout in compliance with Section 4.1.2;
- primary circulation routes in compliance with Section 4.1.4, linking all functional areas and **elements** within the **space**;
- controls and operating mechanisms in compliance with Section 4.4.2; and
- where provided, windows, glazed screens and sidelights in compliance with Section 4.1.8.

Classrooms, auditoria, **assembly areas** and other teaching **spaces** that incorporate fixed seating shall

- incorporate no less that two separate **accessible** seating locations; and
- incorporate **accessible** seating locations in compliance with Section 4.3.2.

Where applicable, classrooms, auditoria, **assembly areas** and other teaching **spaces** shall incorporate assistive listening systems in compliance with Section 4.4.5.

Tiered classrooms shall be configured to allow

- students with **disabilities** to access at least two separate seating areas in compliance with Section 4.3.4; and
- to allow faculty and students with **disabilities** to access the primary presentation area.

Where teaching **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 teaching **spaces** shall

- comply with Section 4.3.7;
- where applicable, incorporate controls and operating mechanisms in compliance with Section 4.4.2; and
- be large enough to accommodate an assistant and extra equipment.

Work surfaces shall incorporate glare-free finishes.

Provide desks with a 400 mm deep work surface, not tablet/flip-up side desk surfaces.

Accessible storage **elements** within teaching **spaces** shall

- be located on an **accessible route** with adjacent **clear floor space** in compliance with Section 4.1.1;
- comply with at least one of the reach ranges specified in Section 4.1.1; and
- incorporate **operable portions** that comply with Section 4.4.2

Where pinboards, blackboards, or other display systems are provided within teaching **spaces**, at least one of each type shall

- be located on an **accessible route** with adjacent **clear floor space** in compliance with Section 4.1.1; and
- have its lowest edge minimum 760 mm above the floor and the highest edge maximum 2285 mm.

Where teaching **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 Section 4.3.17.

Signage shall comply with Section 4.4.6.

Where provided, windows, glazed screens and sidelights shall comply with Section 4.1.8.

Where speaker lecterns are provided they shall

- be located on an **accessible route** in compliance with Section 4.1.4;
- be height-adjustable for use from a seated or standing position;
- incorporate **clear floor space** of at least 810 by 1370 mm, configured for forward approach;
- incorporate **clear** knee space of at least 810 mm wide, 500 mm deep and 685 mm high; and
- incorporate controls and operating mechanisms in compliance with Section 4.4.2.

Spaces intended for general teaching and study shall feature a background noise level no higher than 30 dB(A).

Legislation References

OBC 3.8.2.1
OBC 3.8.3.6
OBC 3.8.3.7

Related Sections

All relevant parts of Sections 4.1, 4.2, 4.3 and 4.4.

4.5.8 Laboratories

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** without contraindications. Additional considerations may be necessary for **spaces** and/or features specifically designated for the use of students with **disabilities**.

Students, professors, teachers and staff with **disabilities** should be accommodated in all laboratories, unless there are contraindications. 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., safety features, blackboards, switches, benches, sinks, etc.). Individual students with a **disability** may require additional accommodations beyond those identified within this section.

Where built-in **elements** are duplicated within a laboratory, such as benches or counters, 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 which are usable by students, professors, teachers and staff with **disabilities** should be specified for laboratories. However, it is recognized that not all equipment found in laboratories is usable by persons with **disabilities**. No equipment (safety or otherwise) should be altered in any way that reduces the safety factor or effectiveness based on the manufacturer's installation and performance qualifications and does not impose any new hazards or risk to any operator of the equipment.

Application

All laboratories without contraindications 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 not less than one, shall be **accessible** and in compliance with this section.

At least 50% of shelf space in storage **facilities** in laboratories shall comply with this section.

Note: The accessibility requirements of this section do not apply to high containment laboratories.

Design Requirements

All laboratory **spaces** shall be designed to meet the requirements found within the "Checklist for Making Science Labs Accessible for Students with Disabilities" (https://www.accessiblecampus.ca/wp-content/uploads/2017/01/Checklist-for-Making-Science-Labs-Accessible-for-Students-with-Disabilities.pdf)

Laboratories shall incorporate

- at least one entry/**egress** door in compliance with Section 4.1.6;
- floor surfaces throughout in compliance with Section 4.1.2;
- primary circulation routes in compliance with Section 4.1.4, linking all functional areas and **elements** within the **space**;
- controls and operating mechanisms in compliance with Section 4.4.2; and
- where provided, windows, glazed screens and sidelights in compliance with Section 4.1.8.

Accessible built-in **elements**, such as tables and benches, shall

- have work surfaces in compliance with Section 4.3.7; and
- be large enough to accommodate additional assistive equipment, as well as an assistant.

Work surfaces shall incorporate glare-free 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 Section 4.4.2. No equipment (safety or otherwise) should be altered in any way that reduces the safety factor or effectiveness based on the manufacturer's installation and performance qualifications and does not impose any new hazards or risk to any operator of the equipment.

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.

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, 500 mm deep, and 685 mm high;
- have the height of the rim or the countertop (whichever is higher) 730 to 865 mm above the floor;
- incorporate faucet levers mounted at the side of the sink, and other controls in compliance with Section 4.4.2
- where designed for forward approach, have water supply and drainpipes under the sink insulated or otherwise configured to protect against contact; and
- incorporate no sharp or abrasive surfaces under the sink.

Accessible storage **elements** shall

- be located on an **accessible route** with adjacent **clear floor space** in compliance with Section 4.1.1;
- comply with at least one of the reach ranges specified in Section 4.1.1; and
- incorporate **operable portions** that comply with Section 4.4.2.

Safety equipment such as fire extinguishers, eyewash stations and emergency showers shall be **accessible** to and usable by persons with **disabilities**.

Where blackboards 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 Section 4.1.1; and
- have its lowest edge located no higher than 760 mm.

Where provided, all fume hoods shall have their base surface-mounted no higher than 865 mm above the floor. At least one fume hood shall have a knee-space below, at least 685 mm high by 500 mm deep by 810 mm wide.

Related Sections

All relevant parts of Sections 4.1, 4.2, 4.3 and 4.4

4.5.9 Residences

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.

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.

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'.

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**.

Application

No less than 15% of the total number of residence beds shall be located in **accessible residence rooms** that comply with this section, unless otherwise noted by Ontario Building Code.

Accessible residence suites should include all suite types. **Accessible** suites shall be considered as a single room with a private washroom, or as two bedrooms sharing a single washroom, or as four bedrooms sharing one or more washrooms. For the suites containing two or more bedrooms, one of the bedrooms and the washroom shall be made in an **accessible** configuration. It is preferable to have more single bedrooms with private washrooms, or single bedrooms sharing one washroom as opposed to double occupancy rooms.

Accessible suites should be provided on all floors, but the preference is to include a greater number on the lower floors.

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

Visitable residence rooms shall comply with the 'Visitable dwelling units' section of CSA B651 "Accessible design for the built environment" (latest edition).

Accessible residence rooms shall comply with the 'Accessible dwelling units' section of CSA B651 "Accessible design for the built environment" (latest edition), and the requirement of Sentence 3.8.2.1.(5) of the Ontario Building Code (latest edition with all amendment).

For **accessible** residence units, at least 2% shall incorporate a 2500 mm diameter turning circle, 50% shall incorporate a 1700 mm diameter turning circle, and the remainder shall incorporate a 1500 mm diameter turning circle. Provide hospital grade ceiling-mounted lift with track configuration leading directly from the bed to the washroom in at least one of the units capable of accommodating a 2500 mm diameter turning circle.

Resident Advisor units that accommodate at least one of each size of turning circle should be provided.

At least one of the Visiting Scholar suites shall be able to accommodate a 1700 mm diameter turning circle.

At least one of the Interim Emergency Housing suites shall be able to accommodate a 1700 mm diameter turning circle.

At least one of the Faculty Staff Apartments shall have at least one bedroom able to accommodate a 1700 mm diameter turning circle.

Where a door viewer is installed, provide a second one mounted between 1000 and 1200 mm above the floor.

Provide roll in showers in **accessible** suites with a curb not exceeding 13 mm. Showers to be designed and constructed with slab depressions to achieve positive drainage, and to be provided with a separate secondary floor drain outside the shower.

Provide light-up rocker-style (Decora) light switches throughout. Include light-up rocker-style (Decora) light switch directly beside bed.

Duplex receptacles and data jacks in **accessible** suites to be at desk height.

Provide space for an optional larger size single bed.

Provide closet hanging rods to be reachable from seated position. Provide pull down movable bar within closet spaces where possible to allow for use of top portion of closet.

Kitchens in **accessible** units to comply with Section 4.3.17, and to provide

- lever-type of sensor-activated faucet;
- work surfaces colour contrasted from the floor;
- base cabinet with raised toe kick space;
- pull-down shelving where possible;
- side by side refrigerator/freezer;
- cook top with induction top or staggered burners and up-front controls;
- built in microwave with pull out shelf;
- audible/**tactile** appliances; and
- nonslip flooring

Laundry **facilities** in residences to include

- power door operator;
- lowered portion of counter that complies with Section 4.3.7; and
- front loading washing machines and dryers.

Garbage chutes in residences to include

- room **accessible** by someone in mobility device or door equipped with power operator timed to allow operation of chute;
- opening mechanism no higher than 900 mm from the floor;
- lever style handle on chute which can be operated without tight grasping, pinching or twisting of the wrist and a maximum force of 22.2 N.

Service animal relief areas to be provided adjacent to residence **building entrances**.

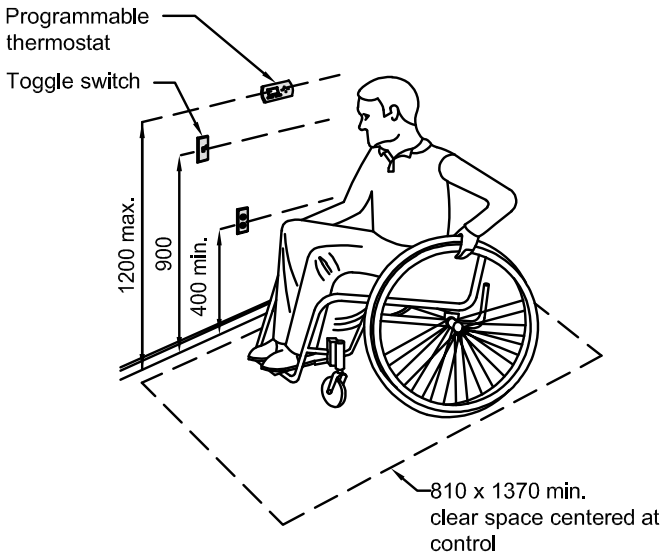


Figure 4.5.9.1:
Reach Ranges within Residence

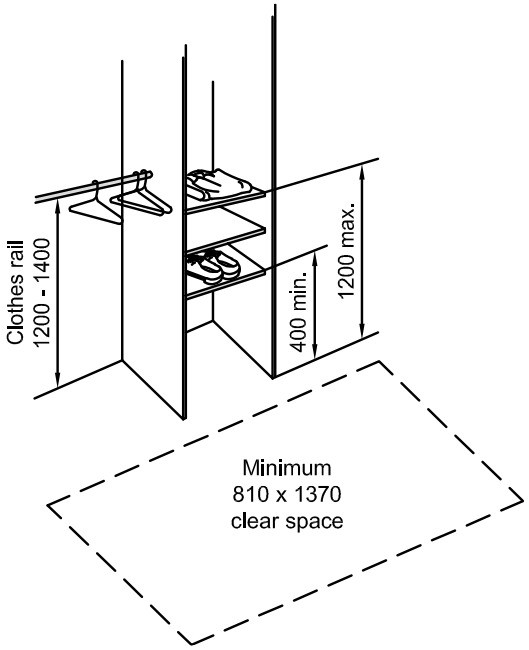


Figure 4.5.9.2:
Closet Dimensions

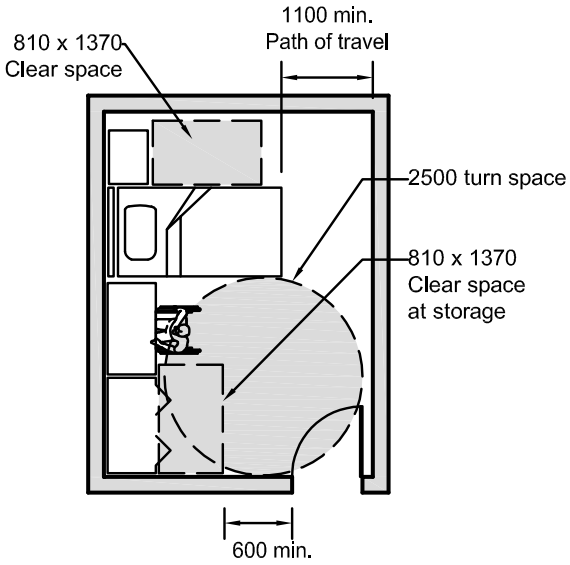


Figure 4.5.9.3:
Residence Layout and Dimensions

Related Sections

All relevant parts of Sections 4.1, 4.2, 4.3 and 4.4.

Appendix A
Universal Design Principles and Guidelines

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

Major funding provided by: The National Institute on Disability and Rehabilitation Research, U.S. Department of Education

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.