






2016 | City of Burlington

Accessibility Design Standards

CITY OF Burlington

Preface

The City of Burlington is committed to ensuring that people of all ages and abilities enjoy the same opportunities as they live, work, play, visit and invest in our City.

People with *disabilities* represent a significant and growing part of our population and as our population ages the instance of *disability* will increase. Our city recognizes that enhanced accessibility provides increased opportunities for everyone both now and in the future.

The City of Burlington Accessibility Design Standards has been developed for use by people responsible for the built environment including architects, designers, builders, contractors, professional consultants and City of Burlington staff. The standards herein will ensure that new construction and renovations to existing *facilities* are *accessible* to everyone, including people with *disabilities*.

The standards incorporate the principles of Universal Design so that the built environment can be usable by all people, to the greatest extent possible, without the need for adaptation or specialized design. It is our intent that the standards will guide the design and implementation process and provide a clearer understanding about the characteristics of more usable environments for all.

Designers, developers and others involved in the development of private-sector projects also have a responsibility to incorporate appropriate access for persons with *disabilities* within their projects. In addition to the mandatory accessibility requirements specified within the Ontario *Building* Code and *AODA* Accessibility Standard for the Design of Public *Spaces*, we encourage others to use the City of Burlington Accessibility Design Standards to achieve design solutions that are truly *accessible* for everyone. Working together, we can make an *accessible* city.

Acknowledgements

The City of Burlington Accessibility Design Standards are a result of a collaborative effort among the City of Burlington Accessibility Design Standards Working Group, the Accessibility Coordinator and the Burlington Accessibility Advisory Committee.

The standards are a revision of the 2011 City of Burlington Accessibility Design Standards. The leading practices of the 2011 edition have been maintained and additional legislated requirements have been introduced through the Ontario Building Code (O.Reg 332/12) and the Accessibility for Ontarians with Disabilities Act's (AODA) Accessibility Standards for the Design of Public Spaces (O.Reg 413/12).

It is important to note that the organization with the authority or permission to construct or redevelop a site is responsible for compliance with the Accessibility Standards for the Design of Public Spaces. For more information, please refer to e-laws Ontario Regulation 191/11 (https://www.ontario.ca/laws/regulation/110191).

We would like to recognize the contributions of the Corporation of the City of London for their generous permission to utilize their Facility Accessibility Design Standards (FADS) document as the basis for this standard. We would also like to thank Bob Topping and DesignABLE Environments for their assistance with this project.

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1.0 Introduction

This standard addresses accessibility requirements for the design and construction of new *facilities*, as well as the retrofit, *alteration* or *addition* to existing *facilities*, owned, leased or operated by the City of Burlington. This standard particularly addresses the needs of persons with *disabilities*, including, but not limited to, persons with a physical *disability*, deafness or hearing loss, blindness or vision loss, intellectual *disability*, persons who are deaf-blind and persons with limited stamina and/or dexterity.

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 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 occupants 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.

Dimensions used in this standard are in metric units. Nearest imperial equivalent dimensions are in parentheses.

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

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 requirements of the current Ontario Building Code).

The City of Burlington shall review and/or update this standard every 3-5 years, to reflect technological advancement and new design practices, as well as changes to the *barrier*-free design requirements of various codes and standards such as the Ontario Building Code, the CSA Standard B651 - Accessible Design for the Built Environment, and the *Accessibility for Ontarians with Disabilities Act* and it's regulations.

The City of Burlington encourages all users of this standard to provide feedback, as well as to make proposals for changes, additions and/or deletions. A proposed Change Order Form is included in Appendix B of this standard.

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 to the right. (Refer to https://www.ncsu.edu/ncsu/design/cud/about_ud/udprinciples.htm for further information on the *universal design principles* and their guidelines).

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 a committee appointed for this purpose by the City of Burlington.

The Principles of UNIVERSAL DESIGN

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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.

https://www.ncsu.edu/ncsu/design/cud/about_ud/udprinciples.htm

The Principles of Universal Design were conceived and developed by The Center for Universal Design at North Carolina State University. Use or application of the Principles in any form by an individual or organization is separate and distinct from the Principles and does not constitute or imply acceptance or endorsement by The Center for Universal Design of the use or application.

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*.

Accessibility for Ontarians with Disabilities Act (AODA): Provincial legislation that specifies mandatory accessibility standards with the goal of identifying, removing, and preventing *barriers* for people with *disabilities* in key areas of daily living. Public *spaces* are regulated by Part IV.1, Design of Public Spaces Standards, of the *AODA*'s Integrated Accessibility Standards (Ontario Regulation 191/11).

Accessible: Describes a *site*, *building*, *facility* or portion thereof that complies with this standard.

Accessible element: An *element* specified by this standard (for example, telephone, controls etc.).

Accessible route: A continuous unobstructed *path* connecting *accessible elements* and *spaces* of a *facility*. Interior *accessible routes* may include corridors, floors, *ramps*, elevators, platform lifts and *clear floor spaces* at fixtures. Exterior *accessible routes* may include parking *access aisles*, *curb ramps*, *crosswalks* at *vehicular ways*, *walks*, *ramps* and platform lifts.

Accessible space: *Space* that complies with this standard.

Adaptable: The ability of a certain *building space* or *element*, such as a kitchen counter, sink, and grab bar, to be added or altered so as to accommodate the needs of individuals with or without *disabilities* or to accommodate the needs of persons with different types or degrees of *disabilities*.

Addition: An expansion, extension, or increase in the gross floor area of a *facility*.

Administrative authority: A governmental agency that adopts or enforces regulations and guidelines for the design, construction, or *alteration* of *buildings* and *facilities*.

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, *retrofit*ting, rehabilitation, reconstruction, historic restoration, resurfacing of *circulation paths* or *vehicular ways*, changes or rearrangement of the structural parts or *elements*, and changes or rearrangement in the plan configuration of walls and full-height partitions. Normal maintenance, painting or wallpapering, or changes to mechanical or electrical systems are not *alterations*, unless they affect the usability of the *building*.

Ambulatory toilet stall: A toilet stall which incorporates features to accommodated persons who may have reduced mobility but who do not use a wheelchair or scooter (2012 Ontario *Building* Code Requirement).

Area of rescue assistance: An area which has direct access to an exit, where people who are unable to use stairs may remain temporarily in safety to await further instructions or assistance during emergency evacuation.

Assembly area: A room or *space* accommodating a group of individuals for recreational, educational, political, social, civic or amusement purposes, or for the consumption of food and drink.

Assistive device: See *Mobility Assistive Device*.

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

Automatic door: A door equipped with a power-operated mechanism and controls that open and close the door automatically upon receipt of a momentary actuating signal. The switch that begins the automatic cycle may be a photoelectric device, floor mat, or manual switch (See *Power-assisted door*).

Barrier: Anything that keeps a person with a *disability* from participating fully in society because of his or her *disability*, including a physical *barrier*, an architectural *barrier*, an information or communication *barrier*, an attitudinal *barrier*, a technological *barrier*, a policy or a practice.

Board room or conference room or meeting room: A room used for meetings, which accommodates six or more people.

Boarding pier: A portion of a pier where a boat is temporarily secured for the purpose of embarking or disembarking.

Boardwalk: Structure built close to the ground in areas where water or wet soil can be found, to provide a dry *path* for users.

Boat launch ramp: A sloped surface designed for launching and retrieving trailered boats and other water craft to and from a body of water.

Boat slip: That portion of a pier, main pier, finger pier, or float where a boat is moored for the purpose of berthing, embarking, or disembarking.

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 assistive device*, including the user.

Closed-circuit telephone: A telephone with dedicated line(s), such as a house phone, courtesy phone or phone that must be used to gain *entrance* to a *facility*.

Colour/tonal contrast: A significant contrast in colour/brightness between the foreground and background of an *element*, or between two adjacent *elements*. *Colour/tonal contrast* is measured as the difference in luminance (Light Reflectance Value (LRV)) between two adjacent surfaces, expressed as a percentage. *Colour/tonal contrast* of at least 50% is required to enhance the visibility of architectural *elements*, and at least 70% to enhance the visibility of *signage* text, characters and pictograms.

Common-use: Refers to those interior and exterior rooms, *spaces* or *elements* that are made available for the use of a restricted group of people (for example, occupants of a homeless shelter, the occupants of an office *building*, or the guests of such occupants).

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

Crosswalk: a) That part of a highway at an intersection that is included within the connections of the lateral lines of the sidewalk on opposite sides of the highway measured from the curbs or, in the absence of curbs, from the edges of the roadway; or b) Any portion of a roadway at an intersection or elsewhere distinctly indicated for pedestrian crossing by signs or by lines or other markings on the surface (from the Traffic By-law 555-2000).

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

Detectable warning surfaces: A standardized surface feature built into or applied to *walk*ing surfaces or other *elements* to warn persons with vision loss/no vision of hazards on a *circulation path*. These are also known as: "*Tactile* Ground Indicators (TGI)" or "*Tactile* Warning Surface Indicators (TWSI)".

Disability: Any restriction or lack of ability to perform an activity in the manner or within the range considered normal for a human being.

Drop-off: Where a trail is located beside a cliff edge, or other sudden, significant change in level.

Dwelling unit: A single unit which provides a kitchen or food preparation area, in addition to rooms and *spaces* for living, bathing, sleeping, and the like. *Dwelling units* include a single family home or a townhouse used as a transient group home; an apartment *building* used as a shelter; guestrooms in a hotel that provide *sleeping accommodations* and food preparation areas; and other similar *facilities* used on a transient basis. For the purposes of this standard, use of the term "*Dwelling Unit*" does not imply the unit is used as a residence.

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).

Exterior path of travel: Sidewalks and *walk*ways intended to provide a functional route from Point A to Point B.

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 in the inventory of heritage resources for the City of Burlington (See *Public heritage facility*).

Impairment: Any loss or abnormality of psychological, physiological or anatomical structure or function.

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.

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

Mobility assistive device: A *mobility assistive device* as defined in section 2 of Ontario Regulation 191/11 (Integrated Accessibility standards) made under the *Accessibility for Ontarians with Disabilities Act*, 2005. Examples include a cane, *walk*er or similar aid. For the purposes of these Standards, this definition includes wheelchairs and power-operated devices such as scooters.

Mobility device: See *Mobility assistive device*

Multifamily dwelling: Any *building* containing more than two *dwelling units*.

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.

Parking space for persons with disabilities: An unobstructed rectangular area exclusive of any aisle or driveway for the temporary parking of a motor vehicle, for persons with *disabilities*.

Path: See *Path of travel*.

Pathway: See *Path of travel*.

Path of travel: A continuous, unobstructed way of pedestrian passage, including but not limited to *walk*ways and sidewalks, *curb ramps* and other interior or exterior pedestrian *ramps*, *clear* floor *paths* through lobbies, corridors, rooms, parking *access aisles*, elevators and lifts, or a combination of these *elements*.

Play component: A structure that is designed and used for play and recreation. An *element* intended to generate specific opportunities for play, socialization, or learning. *Play components* may be manufactured or natural, and may be stand alone or part of a composite play structure.

Play space: Area that includes *play equipment*, such as play structures and swings, or features such as logs, rocks, sand or water, where the equipment or features are designed and placed to provide play opportunities and experiences for children and caregivers.

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.

Principal entrance: An *entrance* in a *building* which is intended for general use by the public or employees or both the public and employees, and there may be more than one *principal entrance*.

Private open space: Privately owned land areas within a subdivision, generally smaller in scale than *open space*, which have been left free from structures, parking lots and roads. These types of areas generally benefit only the residents or employees of the particular subdivision and usually remain in private ownership.

Public heritage facility: A *facility* or portions thereof designated under the Ontario Heritage Act, or identified in the inventory of heritage resources for the City of Burlington and that is open and *accessible* to the public (See *Heritage facility*).

Public spa: A hydro-massage pool that contains an artificial body of water, that is intended primarily for therapeutic or recreational use, that is not drained, cleaned or refilled before use by each individual and that utilizes hydrojet circulation, air induction bubbles, current flow or a combination of them over the majority of the pool area, but does not include a) wading pools, or b) spas operated in conjunction with suites for the use of occupants or residents and their visitors.

Public-use: Describes interior or exterior rooms or *spaces* that are made available to the general public. *Public use* may be provided at a *facility* that is privately or publicly owned.

Ramp: A *walk*ing surface which has a *running slope* greater than 1:25. Provides an *accessible* connection between changes in ground elevation.

Recreational trail: A public pedestrian trail intended for recreational or leisure purposes. In Burlington, this type of trail is more often referred to as a *pathway*, where a trail means a hiking trail, also called a *wilderness trail*.

Retrofit: See *Alteration*.

Running slope: The slope that is parallel to the direction of travel (See *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, such as an elevator room, or an electrical equipment room.

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*.

Sleeping accommodations: Rooms in which people sleep, for example, a dormitory.

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 *mezzanine*s.

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): See *Text telephone*.

TTY (Teletypewriter): See *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, 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 (TTY): Machinery or equipment that employs interactive text-based communication through the transmission of coded signals across the standard telephone network. *Text telephones* can include, for example, devices known as *TDD*s (telecommunication display devices or telecommunication devices for deaf persons) or computers with special modems. *Text telephones* are also called *TTY*s, an abbreviation for teletypewriter.

Trail head: A main point of access to a *recreational trail*, commonly located close to a sidewalk or parking area.

Universal washroom: A washroom with fixtures and accessories designed to accommodate all individuals, including but not limited to those using *mobility assistive devices*.

Universal Design Principles: The principles by which the environment can be designed in order to accommodate the abilities of all.

Vehicular way: A route intended for vehicular traffic, such as a street, driveway or parking lot, within the boundary of the *site*.

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*.

Wilderness trail: Hiking trail that is difficult to access because of its location, and is built in a way that reduces the impact on the natural environment. *AODA* requirements do not apply to *wilderness trails*.

General

The requirements of this standard shall be
- mandatory for all newly constructed and *retrofit*ted *facilities* owned, leased or operated by the City of Burlington; and
- encouraged for all other *facilities*, whether new or *retrofit*ted.

Exceptions: This standard does not apply to
- residential occupancies;
- *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.

New Leases

The City of Burlington will also have regard for this standard in determining whether to enter into a 'new lease' with a third party landlord for *space* to be occupied or used by its employees.

A 'new lease' is defined to include
- all new leases, sub-leases and assignments of lease with a third party landlord for *space* to be occupied by government employees; and
- Any additional *space* added to an existing lease, by renewal or amendment, whether or not the *space* is contiguous or on the same floor.

Further, a 'new lease' does not include:
- A service provider's leased *space* being reverted back to the Government due to a service provider's termination;
- The renewal of a lease;
- Sub-letting of *space* by government tenants to third party tenants; or
- License arrangements.

General Application

All areas of newly designed or newly constructed *facilities* and altered portions (repair and renewal) 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;
- *service spaces*;
- crawl *spaces*; and
- *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*.

Significant Renovation

This standard will apply to renovations or changes to contiguous city owned or occupied *space* of at least 10,000 square feet where 50% of the floor *space* is affected. Significant renovations do not include projects limited only to repair or restoration to wall finishes, flooring or ceilings.

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* or common 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*.

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 *retrofit*ting, 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 alarms, 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 route 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.

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 the Accessibility Coordinator, Capital Works Department of the City of Burlington for review and approval on an individual basis.

Implementation

The Planning and Building, Engineering and Capital Works Departments of the City of Burlington, other City departments, as well as contracted consulting firms shall be responsible for the application of the 2016 Accessibility Design Standards when designing and administering all construction and renovation projects associated with new *facilities*, as well as the *retrofit*, *alteration* or *addition* to existing *facilities*, owned, leased or operated by the City of Burlington.

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

Enforcement

The Planning and Building, Engineering and Capital Works Departments of the City of Burlington and other City departments, through the project management function, shall ensure compliance to this standard during all phases of the preplanning, budget, design, construction document preparation and contract administrative phase.

Exceptional Circumstances

Exceptional circumstances may be identified on a case-by-case evaluation, the impact of which will be considered when determining whether these standards will be applied in their entirety to a *facility* or specific *space* based on the following considerations:

- Whether a particular *site* offers services to the general public that warrant regular access;
- Whether the requirements of other applicable legislation will impede the application of these standards;
- Whether the use of these standards would obstruct the structural integrity of the *facility*, or the quality and/or function of a *facility*, program or service; or
- Whether health and/or safety requirements will render the application of these standards unreasonable.

Heritage Facilities

Contemplated renovations to heritage assets shall be assessed for compliance with these standards on an individual basis, to determine the most effective and least disruptive means of *retrofit*. Appropriate Government and external stakeholders should be engaged to ensure an appropriate *building* transition plan is achieved. Refer also to Section 4.5.7 - *Heritage Facilities*.

Security Considerations

In some cases, the *accessible* design requirements outlined in these standards may conflict with a requirement that is based on the specific security features of a *facility* (e.g. detention centre or courthouse). Where such conflict arises, the contemplated construction or renovations shall be assessed for compliance with these standards on an individual basis to determine if the intent of the standards can still be achieved without compromising the security and safety of the *facility*'s users.

Intent

That accessibility be considered at the earliest stage of the design process for all City *buildings* and environments.

Application

All areas of newly designed or newly 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

- residential occupancies;
- *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, sewage treatment and water treatment *facilities*, and substations.

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

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

The design *elements* in these standards are organized by:

4.1 Access and Circulation

4.2 Washroom Facilities

4.3 Other Amenities

4.4 Systems and Controls

4.5 Facility-Specific Requirements

4.6 Outdoor Public Spaces

4.7 Maintenance and Operations

Dimensions used in this standard are in metric units. The nearest imperial equivalent dimensions are in parentheses.

4.1.1 Space and Reach Requirements

Rationale

The dimensions and manoeuvring characteristics of wheelchairs, scooters and other *mobility assistive 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 assistive device*. This standard more accurately reflects the vast array of *assistive devices* that are 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*.

Application

Space and reach range provisions for persons who use wheelchairs, scooters and other *mobility assistive 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 2440 mm (96 in.) in diameter (Figure 4.1.1.1) or for a 180-degree turn (Figure 4.1.1.2).

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 760 x 1370 mm (30 x 54 in.) (Figures 4.1.1.5 and 4.1.1.6).

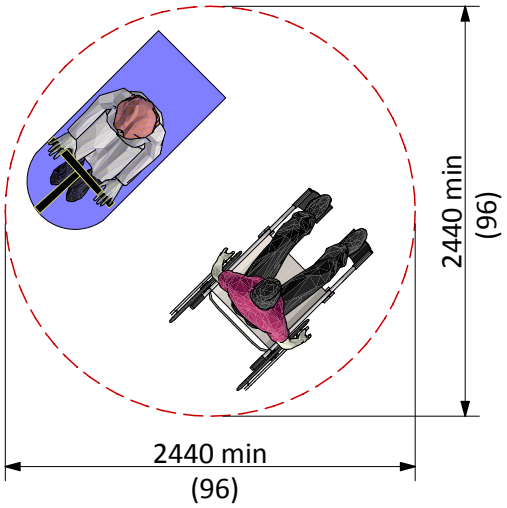


Figure 4.1.1.1:
360 degree Turning *Space*

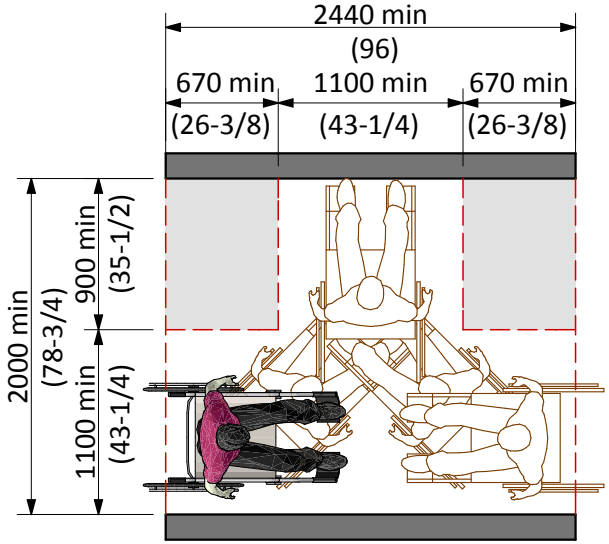


Figure 4.1.1.2:
180 degree Turning *Space*

Design Requirements (continued)

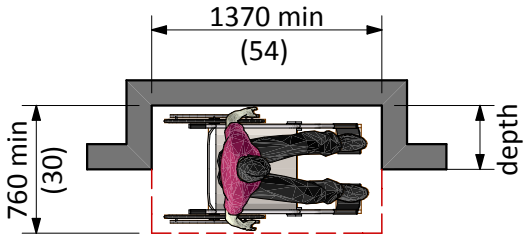
The minimum *clear floor space* or ground *space* for wheelchairs or scooters may be positioned for forward or parallel approach to an object.

Clear floor space or ground *space* for wheelchairs may be part of the knee *space* required under some objects.

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 (Figures 4.1.1.3, 4.1.1.4, 4.1.1.7 and 4.1.1.8).

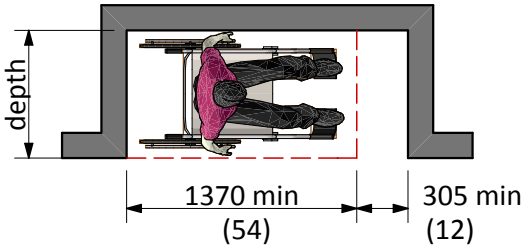
The surface of *clear* floor or ground *spaces* for wheelchairs and scooters shall comply with Section 4.1.2.

If the *clear floor space* only allows forward approach to an object, the maximum high forward reach allowed shall be 1200 mm (47-1/4 in.). The minimum low forward reach is 400 mm (15-3/4 in.) (Figure 4.1.1.11). If the high forward reach is over an obstruction, reach and clearances shall be as shown in Figures 4.1.1.12 and 4.1.1.14.



Parallel Approach -
where depth is 380 (15) or less

Figure 4.1.1.3:
Clearances at Alcove



Parallel Approach -
where depth is more than 380 (15)

Figure 4.1.1.4:
Clearances at Alcove

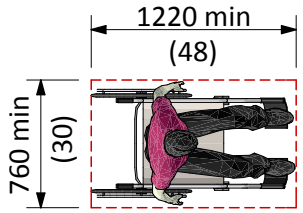


Figure 4.1.1.5:
Clear Floor Space for Wheelchair

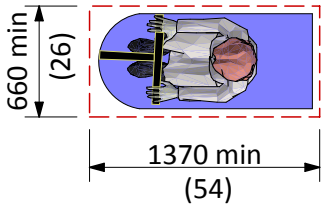


Figure 4.1.1.6:
Clear Floor Space for Scooter

Design Requirements (continued)

If the *clear floor space* allows parallel approach to an object, the maximum high side reach allowed shall be 1370 mm (54 in.) and the low side reach no less than 230 mm (9 in.) above the floor (Figure 4.1.1.9). If the side reach is over an obstruction, the reach and clearances shall be as shown in Figures 4.1.1.10 and 4.1.1.13.

Despite these requirements, the Ontario *Building* Code requires all controls for the operation of *facility* services to be no more than 1200 mm (47-1/4 in.) above the floor for thermostats or manual pull station and 900 -1100 mm (35-1/2 - 43-1/4 in.) for all other controls including typical light switches.

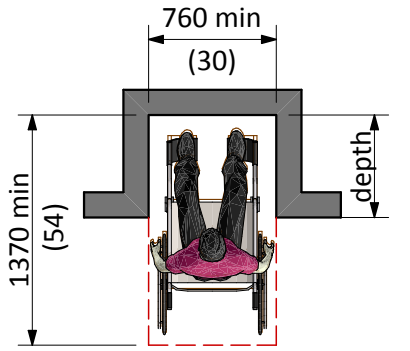


Figure 4.1.1.7:
Clearances at Alcove

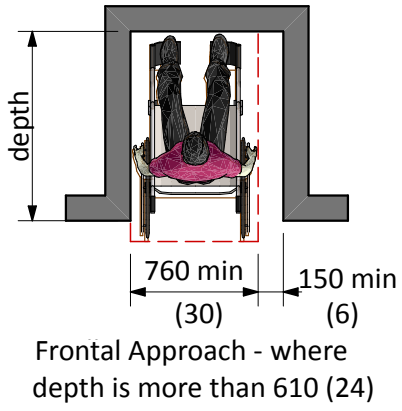


Figure 4.1.1.8:
Clearances at Alcove

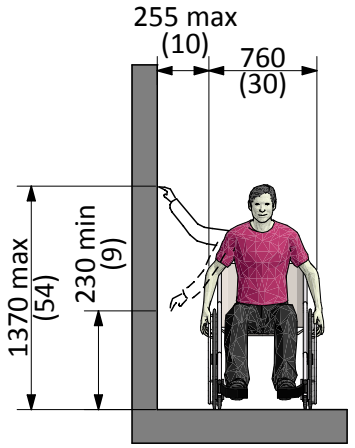


Figure 4.1.1.9:
Side Reach

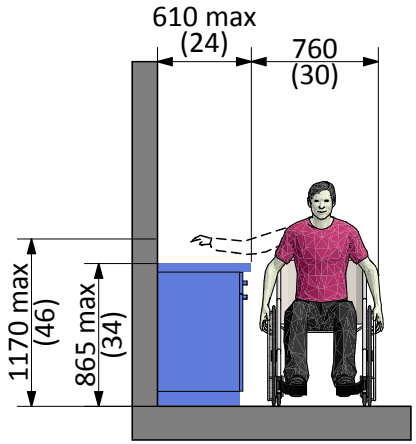


Figure 4.1.1.10:
Side Reach over an Obstruction

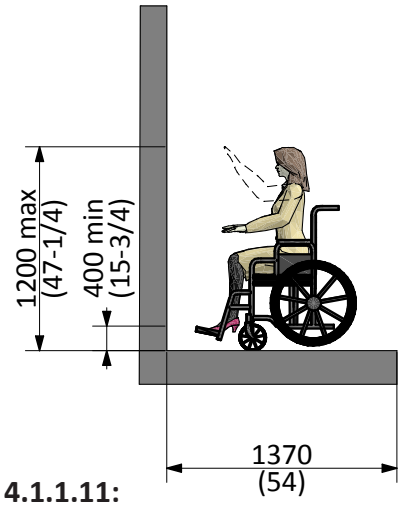


Figure 4.1.1.11:
Forward Reach

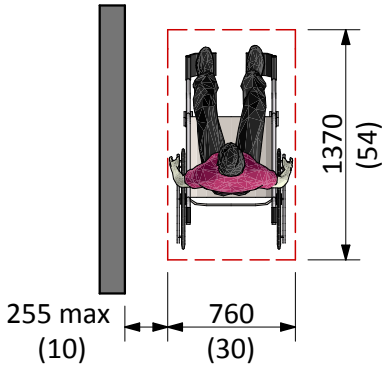


Figure 4.1.1.13:
Side Reach - Maximum Distance to Wheelchair

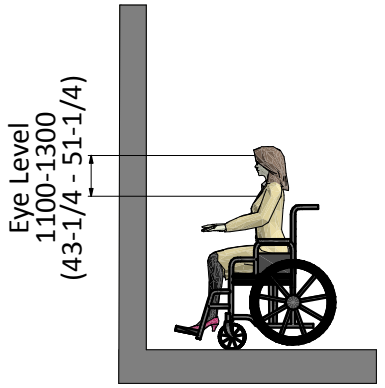


Figure 4.1.1.15:
Eye Level Range

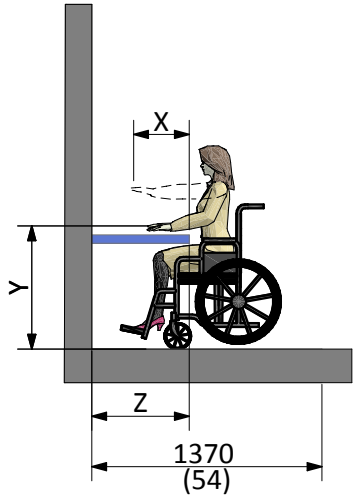


Figure 4.1.1.12:
Forward Reach over an Obstruction

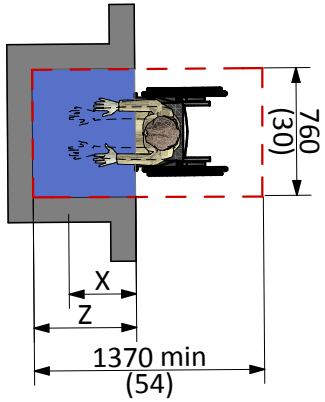


Figure 4.1.1.14:
Forward Reach over an Obstruction

X = Reach from front of work surface
Y = Height of work surface
Z = Depth of work surface

NOTE:

In diagrams 4.1.1.12 and 4.1.1.14, X shall be less than or equal to 635 mm (25 in.); Z shall be greater than or equal to X.

When X is less than 510 mm (20 in.), then Y shall be 1220 mm (48 in.) maximum.

When X is 510 to 635 (20 to 25 in.), then Y shall be 1120 mm (44 in.) maximum.

4.1.2 Ground and Floor Surfaces

Rationale

The type of ground and floor surfaces used will influence every person who enters the *building*. Irregular surfaces, such as cobblestones or exposed aggregate finished concrete, are difficult for both *walk*ing 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 vision loss by obscuring important orientation and safety features. Pronounced *colour/ tonal contrast* between walls and floor finishes should be incorporated to facilitate orientation for persons with vision loss. Changes in colour/ texture is recommended where a change in level or function occurs.

Patterned floors and ground surfaces 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.

Vertical Rise	Edge Treatment
0 to 6 mm (0 - 1/4 in.)	May be vertical
6.1 to 13 mm (9/32 - 1/2 in.)	Bevel, maximum slope 1:2
Over 13 mm (over 1/2 in.)	Treat as a sloped floor, *ramp*, or *curb ramp*.

Table 4.1.2:
Changes in Level

Design Requirements

Ground and floor surfaces shall be stable, firm, slip-resistant and glare-free. 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;
- have a firm cushion, pad or backing, where used;
- 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 (1/2 in.); and
- have exposed edges fastened to floor surfaces with trim conforming to Table 4.1.2.

It is preferable to avoid locating grills and gratings in an *accessible path of travel*. Where grills and gratings are located in *walk*ing surfaces they shall

- have *spaces* not greater than 13 mm (1/2 in.) wide in one direction; and
- be placed so that the long dimension is perpendicular to the dominant direction of travel (Figure 4.1.2.2).

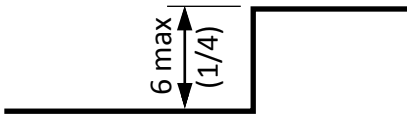


Figure 4.1.2.1a:
Changes in Level 0 to 6mm (0 - 1/4 in.)

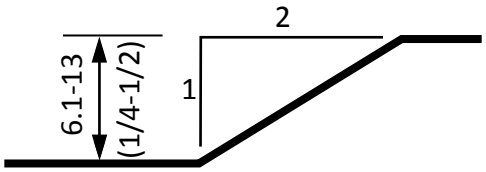


Figure 4.1.2.1b:
Changes in Level 6.1 to 13mm (1/4 - 1/2 in.)

Related Sections

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

Openings larger than 13mm (1/2 in.) may catch wheelchair wheels or canes.

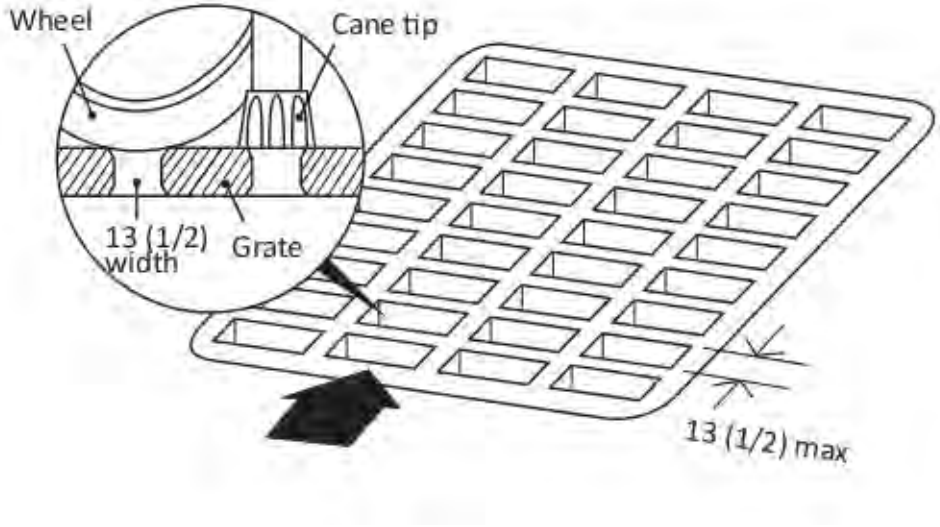


Figure 4.1.2.2:
Grills and Gratings

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 individuals with vision loss 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 warning surfaces* around freestanding obstacles, such as light standards, are advantageous to anyone using a *pathway*.

Consider recessing protruding objects into an alcove to avoid creating a hazard.

Application

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

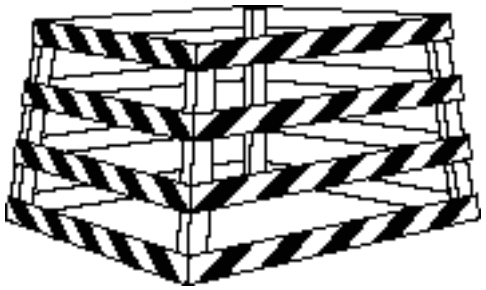


Figure 4.1.3.1:
Cane Detectable Temporary *Barrier*

Design Requirements

Objects protruding from walls with their leading edges between 680 mm (26-3/4 in.) and 2100 mm (82- 3/4 in.) from the floor shall protrude not more than 100 mm (4 in.) into pedestrian areas, such as *walk*ways, halls, corridors, passageways or aisles. Objects attached to a wall with their leading edges at or below 680 mm (26-3/4 in.) from the floor may protrude any amount (Figures 4.1.3.3 and 4.1.3.4).

Freestanding objects shall not have any overhang of more than 300 mm (11-3/4 in.) between 680 mm (26- 3/4 in.) and 2100 mm (82-3/4 in.) from the ground or floor.

The maximum height of the bottom edge of freestanding objects with a *space* of more than 300 mm (11- 3/4 in.) between supports shall be 680 mm (26-3/4 in.) 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 *walk*ways, halls, corridors, passageways, or aisles, shall be 2100 mm (82-3/4 in.) (Figures 4.1.3.2 and 4.1.3.4).

4.1.3 Protruding and Overhead Objects

Design Requirements (continued)

A detectable *guard*, *guard*rail or other *barrier* having its leading edge at or below 680 mm (26-3/4 in.) from the floor shall be provided where the headroom of an area adjoining an *accessible route* is reduced to less than 2100 mm (82- 3/4 in.) (Figure 4.1.3.2).

Construction *sites* should have suitable boundary protection to minimize hazards to persons with vision loss and to maintain easy access for persons using various mobility aids.

Cane detectable temporary *barriers* should be provided around all short term repair *sites* (e.g. sidewalk repairs, manhole access covers etc.), as an aid to persons who have vision loss (Figure 4.1.3.1).

At all construction *sites* and /or maintenance locations, wherever a *clear* pedestrian route of 1100 mm (43-1/4 in.) is not achievable via the normal route, alternative safe and level pedestrian routes should be provided with suitable protection from vehicular traffic.

Related Sections

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

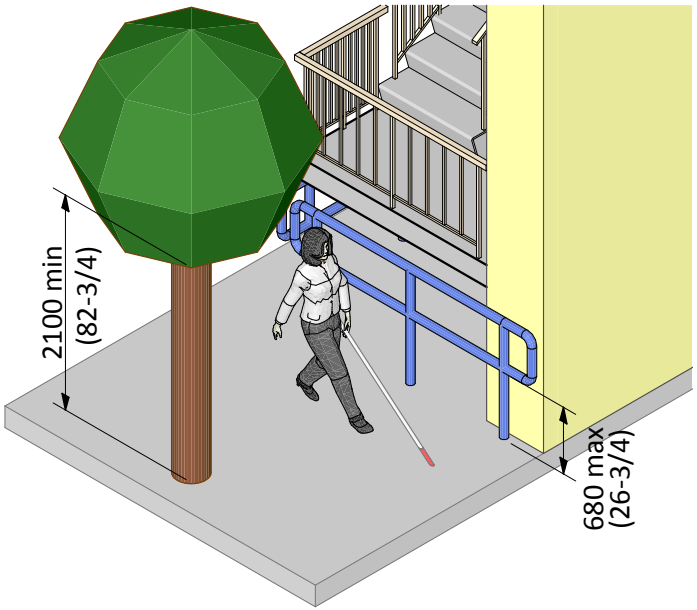


Figure 4.1.3.2:
Overhead Obstructions

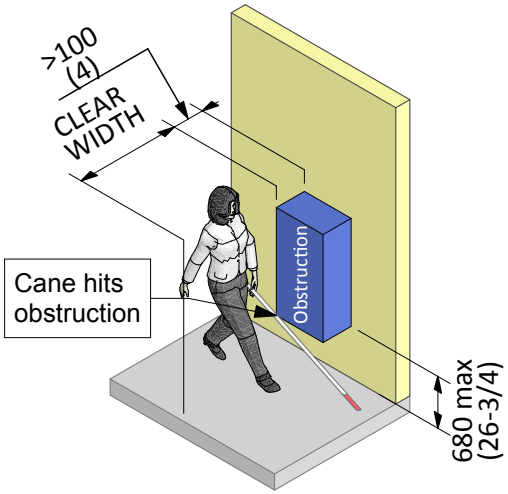


Figure 4.1.3.3:
Limits of Protruding Objects

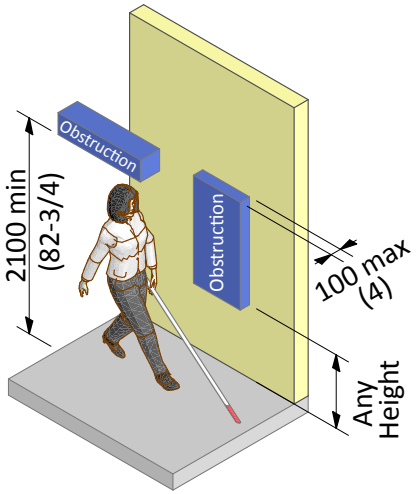


Figure 4.1.3.4:
Limits of Protruding Objects

4.1.4 Accessible Routes, Paths and 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 make a turn around a corner. The preferred minimum width for *accessible routes* is 1830 mm (72 in.).

Strong *colour/tonal contrasts* and/or *tactile pathways* set into floor or ground surfaces may be used as a wayfinding tool to assist individuals with vision loss.

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*.

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

Exceptions: The provision of an *accessible route* does not apply

- to *service rooms*
- to elevator machine rooms
- to janitor rooms
- to *service spaces*
- to crawl *spaces*
- to *attic or roof spaces*
- 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 *accessible route* shall be 1100 mm (43-1/4 in.) except

- at doors (Section 4.1.6);
- where additional manoeuvring *space* is required at doorways (Section 4.1.6);
- at U-turns around obstacles less than 1220 mm (48 in.) wide, it shall be 1220 mm (48 in.) wide for the extent of the turn;
- for exterior routes, it shall be 1500 mm (59 in.). This can be reduced to 1220 (48 in.) where the route connects to a *curb ramp* to serve as a turning *space* at the top of the *ramp*;
- where *space* is required for two wheelchairs to pass, it shall be 1830 mm (72 in.); and
- at secondary circulation routes within open office areas, where systems-furniture work station clusters are used, it shall be 920 mm (36 in.).

Where *accessible routes* less than 2000 mm (78-3/4 in.) wide terminate at a dead end, such as at the end of a corridor where a locked door could be encountered, a turn *space* in compliance with Section 4.1.1 shall be provided at the dead end.

Entry points to an *exterior path of travel* shall provide a minimum clearance of 950 mm (37-1/2 in.) (whether *entrance* includes gate, offset gates, bollard, or other *entrance* design).

Accessible routes shall

- have a *running slope* not steeper than 1:25 (4%);
- 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.

Every *accessible route* less than 1830 mm (72 in.) wide shall be provided with an unobstructed passing *space* of not less than 1830 mm (72 in.) in width and 1830 mm (72 in.) in length, located not more than 30 meters (98 ft. 5 in.) apart.

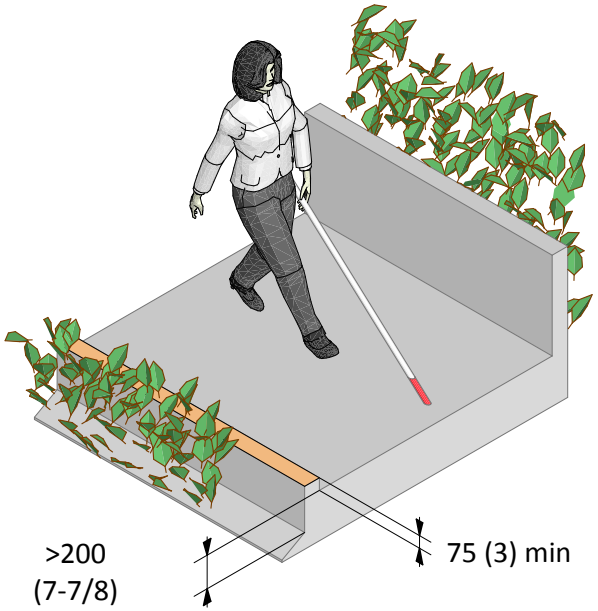


Figure 4.1.4.1:
Edge Protection

Design Requirements (continued)

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 a *colour/tonal contrasting* curb of at least 75 mm (3 in.) high where the change in level is between 200 mm (7-7/8 in.) and 600 mm (23-5/8 in.); and
- by a *guard* which meets the requirements of the Ontario Building Code where the change in level is greater than 600 mm (23-5/8 in.).

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 50 lux (4.6 ft-candles). Exception: In outdoor *park* settings where routes are not normally illuminated, additional illumination is not required.

Accessible routes, *paths* or corridors having a slope steeper than 1:25 (4%) shall be designed as *ramps*, in compliance with Section 4.1.9.

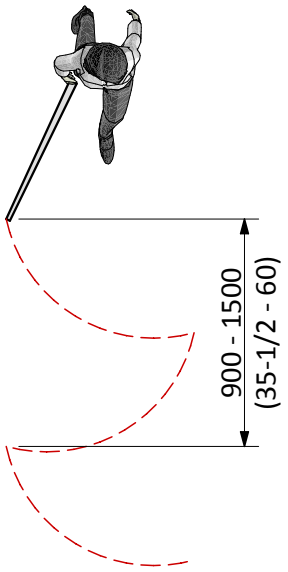


Figure 4.1.4.2:
Cane Detectable Range

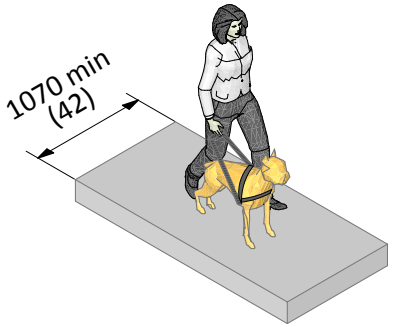


Figure 4.1.4.3:
Clear Width for Person with Service Dog

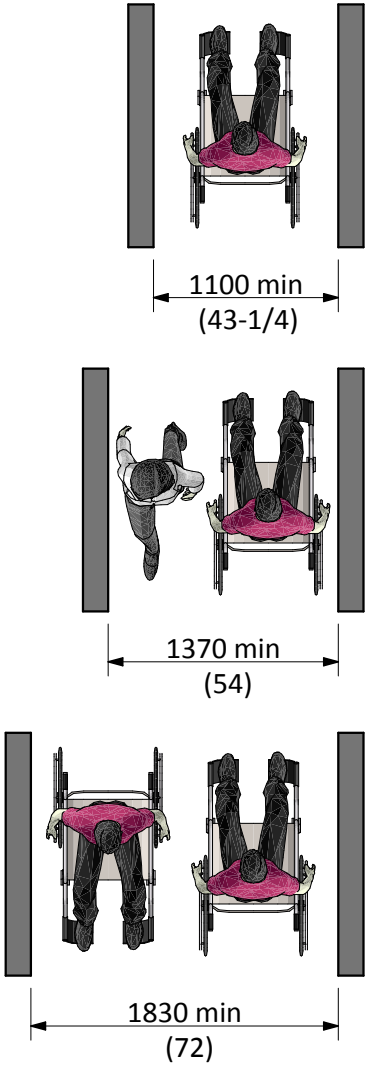


Figure 4.1.4.4:
Access Widths

Design Requirements (continued)

No storage of materials, equipment or other obstacles shall impede the *accessible route*.

Accessible routes shall incorporate level rest areas spaced no more than 30 metres (98 ft. - 5 in.) apart.

Rest areas shall

- be positioned adjacent to the *accessible route*;
- have *accessible* ground/floor surfaces in compliance with Section 4.1.2;
- have ground/floor surfaces that have a discernible difference in texture and are *colour/tonal contrasted* with surface of the adjacent *accessible route*; and
- incorporate at least one bench in compliance with Section 4.3.15.

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

Figures 4.1.4.5 and 4.1.4.6 illustrate interior routes. Dimensions marked * to be increased to 1500 mm (59 in.) at exterior routes.

Consultation Requirements

Consultation with the Burlington Accessibility Advisory Committee, 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*.

Related Sections

4.1.2 Ground and Floor Surfaces
4.1.9 Ramps
4.1.10 Curb Ramps
4.2.3 Elevated Platforms
4.4.7 Signage
4.4.8 Detectable Warning Surfaces
4.4.12 Glare and Light Sources
4.4.13 Lighting
4.4.14 Materials and Finishes
4.4.15 Texture and Colour

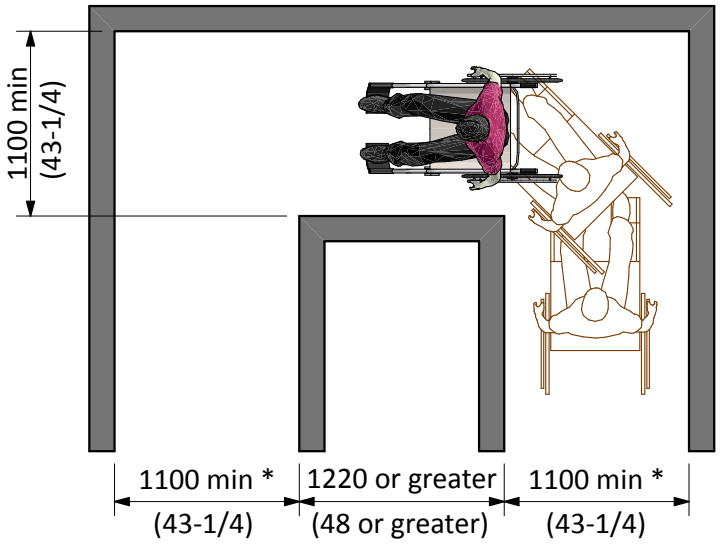


Figure 4.1.4.5:
Turn around an Obstacle

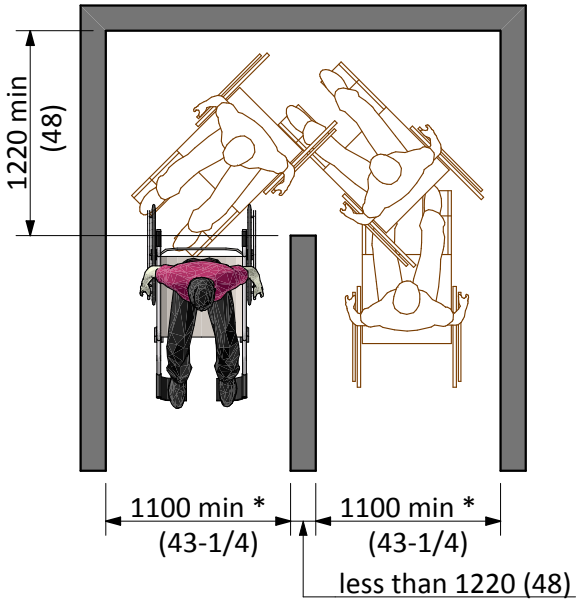


Figure 4.1.4.6:
Turn around an Obstacle

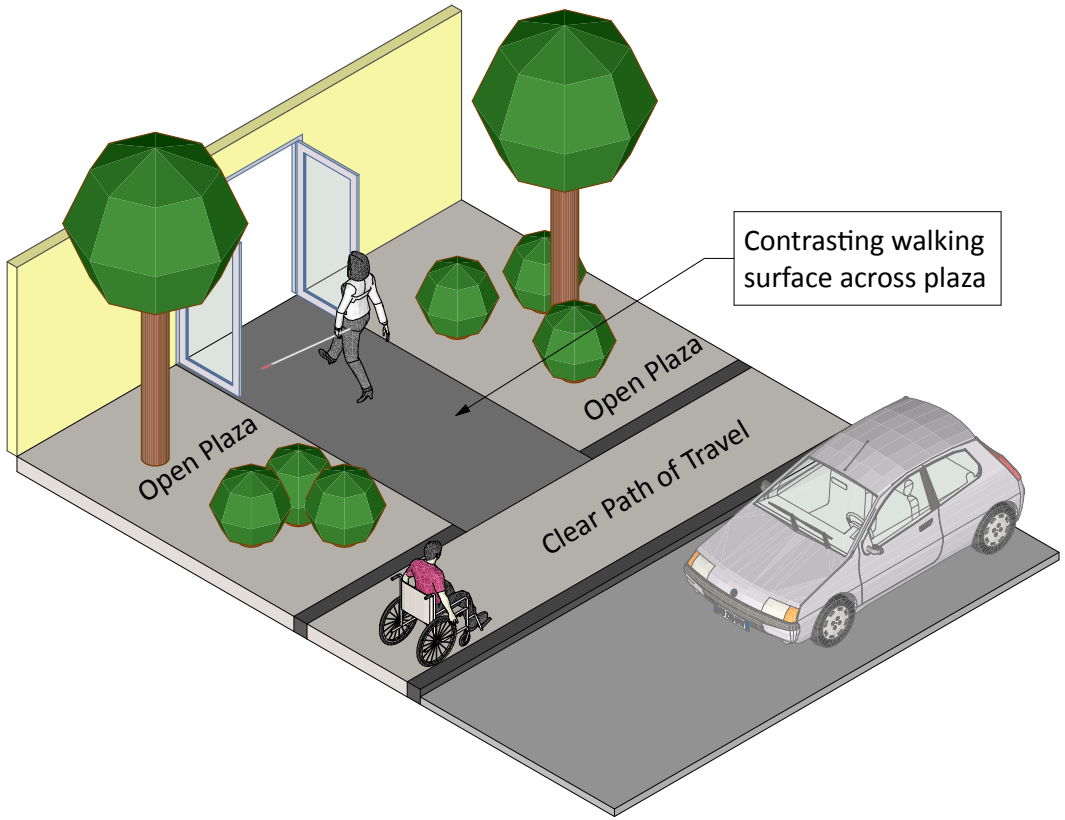


Figure 4.1.4.7:
Accessible Path across an Open Plaza

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 an intellectual *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. In a *retrofit* situation where it is *technically infeasible* to make all public *entrances accessible*, the *principal entrances* used by staff and the public shall be *accessible*.

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

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 *walk*way, at least one *entrance* to the *facility* from each tunnel or *walk*way must be *accessible*.

If the only *entrance* to a *facility* or tenancy is a *service entrance*, that *entrance* shall be *accessible*.

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

Accessible entrances shall be identified with *signage* complying with applicable provisions of 4.4.7.

Related Sections

4.1.1 Space and Reach Requirements
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
4.4.7 Signage
4.4.10 Information Systems
4.4.11 Card Access, Safety and Security Systems
4.4.13 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*.

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 an intellectual *disability*.

Glazed doors can present a hazard to all individuals and especially those with vision loss. The inclusion of *colour/tonal contrast* strips across the glass, mounted at eye level, as well as *colour/tonal contrasting* door frames and door hardware, will increase the safety and visibility of a glazed door for a person with vision loss.

Application

Doors should be designed to ensure a perpendicular approach.

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

Exception: Doors not requiring full user passage, such as shallow closets, may have the *clear* opening reduced to 510 mm (20 in.) minimum.

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

Each door required by Section 4.4.1 (Emergency Exits, Fire Evacuation and *Areas of Rescue Assistance*) shall comply with this section.

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

Application (continued)

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);
- washrooms that include an *accessible* toilet stall;
- *universal washrooms*;
- change/dressing rooms that contain *accessible* toilet and shower *facilities*, as well as a private *accessible* change room; and
- intermediate doorways across primary circulation routes within a *facility*. Exception: Doors that are held-open using electromagnetic hold-open devices.

Mats and mat sinkages 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.

Where doors are provided, power door operators are preferred.

Where power door operators are provided, vertical activation bars are preferred (Figure 4.1.6.10).

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

The minimum *clear* opening of doorways shall be 950 mm (37- 1/2 in.), 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 this clearance, the minimum *clear* opening of doorways may be reduced to 865 mm (34 in.).

Doors shall have level wheelchair-manoeuvring *space* on both sides of the door, unless equipped with a power door operator. Doors shall have *clear space* beside the latch (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.

The minimum *space* between two hinged or pivoted doors in series shall be 1525 mm (60 in.), plus the width of any door swinging into the *space*.

Where doors in a series do not align, a turn circle of at least 1525 mm (60 in.) shall be provided within the vestibule area, *clear* of any door swing (Figure 4.1.6.6).

Thresholds shall

- be not more than 13 mm (1/2 in.) high; and
- where over 6 mm (1/4 in.) high, be bevelled at a maximum slope of 1:2 (50%).

Context	Floor Space Required (in mm)		
	Depth	**Width**	**Space beside latch**
Side-hinged door - Front approach (Figures 4.1.6.3a, 4.1.6.3b)			
Pull side	1525 (60 in.)	1600 (63 in.) (*1525 (60 in.))	600 (23-5/8 in.)
Push side	1370 (54 in.)	1250 (49-1/4 in.) (*1220 (48 in.))	300 (11-3/4 in.)
Side-hinged door - Latch-side approach (Figures 4.1.6.2a, 4.1.6.2b)			
Pull side	1370 (54 in.) (*1220 (48 in.))	1600 (63 in.) (*1525 (60 in.))	600 (23-5/8 in.)
Push side	1370 (54 in.) (*1100 (43-1/4 in.))	1525 (60 in.)	600 (23-5/8 in.)
Side-hinged door - Hinge-side approach (Figures 4.1.6.1a, 4.1.6.1b)			
Pull side	2440 (96 in.) (*1525 (60 in.))	2440 (96 in.) (*1525 (60 in.))	600 (23-5/8 in.)
Push side	1370 (54 in.) (*1100 (43-1/4 in.))	1830 (72 in.)	450 (17-3/4 in.)
Sliding door (Figures 4.1.6.4a, 4.1.6.4b)			
Front approach	1370 (54 in.)	1550 (61 in.)	300 (11-3/4 in.)
Side approach	1370 (54 in.) (*1100 (43-1/4 in.))	2150 (84-5/8 in.)	600 (23-5/8 in.)
Note: 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 (*).			

Table 4.1.6:
Manoeuvring *Space* at Doors

Design Requirements (continued)

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

- be operable with one hand using a closed fist;
- not require fine finger control, tight grasping, pinching, or twisting of the wrist to operate; and
- be mounted between 900 mm (35-1/2 in.) and 1100 mm (43-1/4 in.) from the floor.

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 no more than

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

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

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

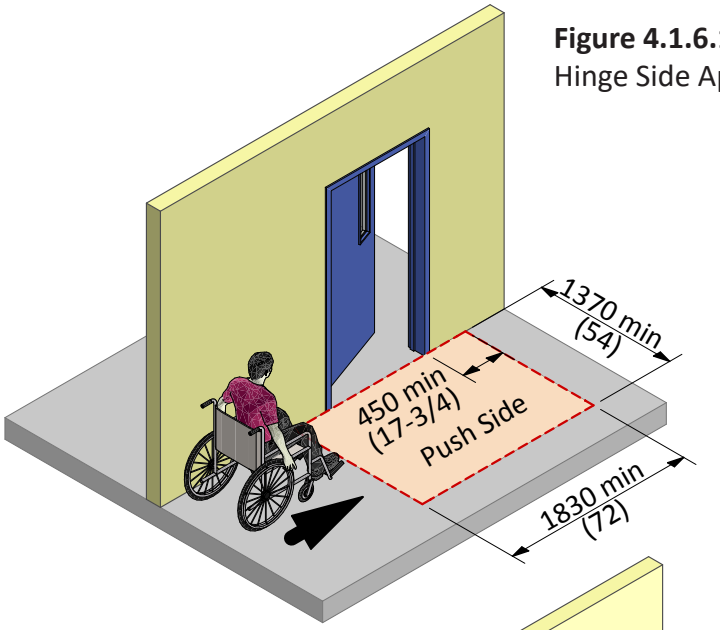


Figure 4.1.6.1a:
Hinge Side Approach at Hinged Door

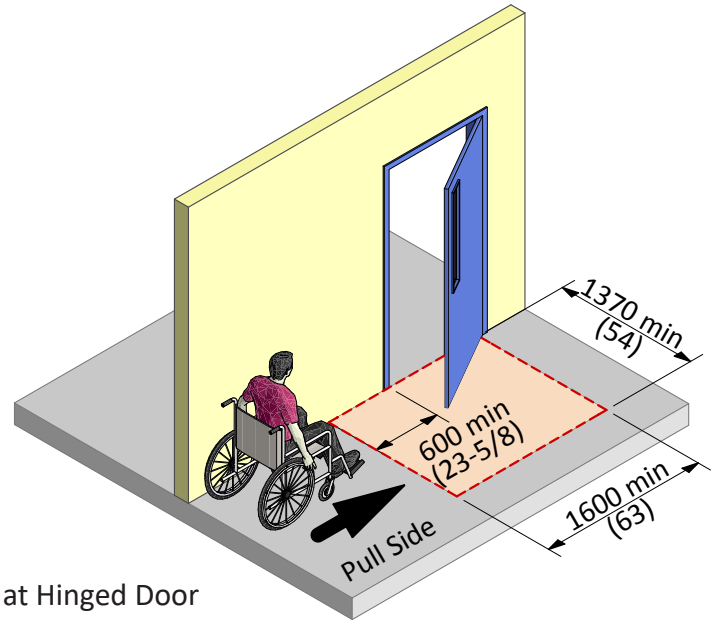


Figure 4.1.6.2a:
Latch Side Approach at Hinged Door

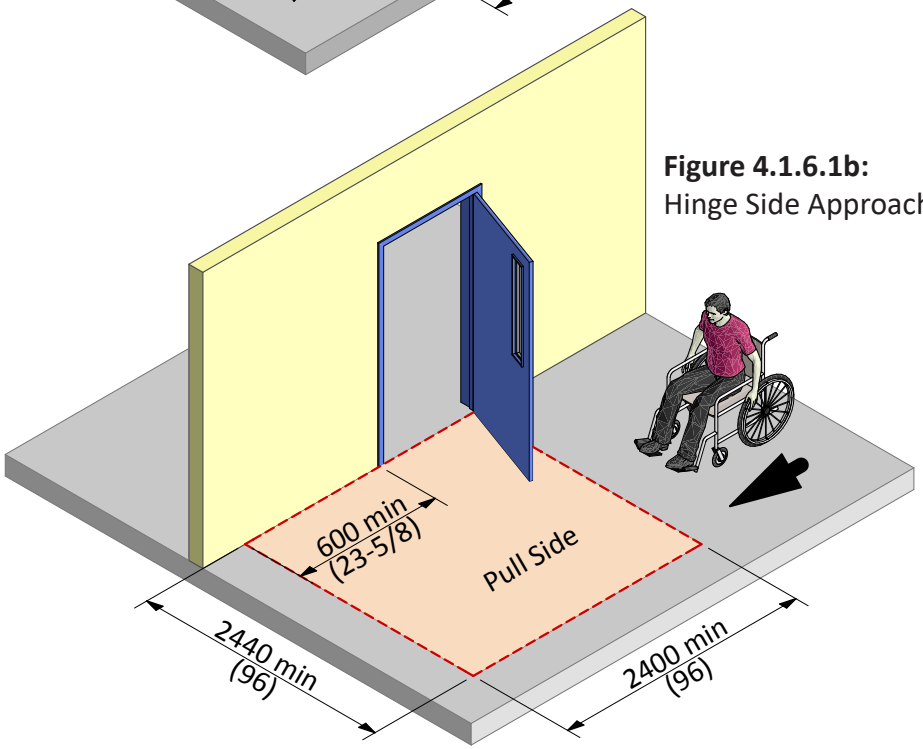


Figure 4.1.6.1b:
Hinge Side Approach at Hinged Door

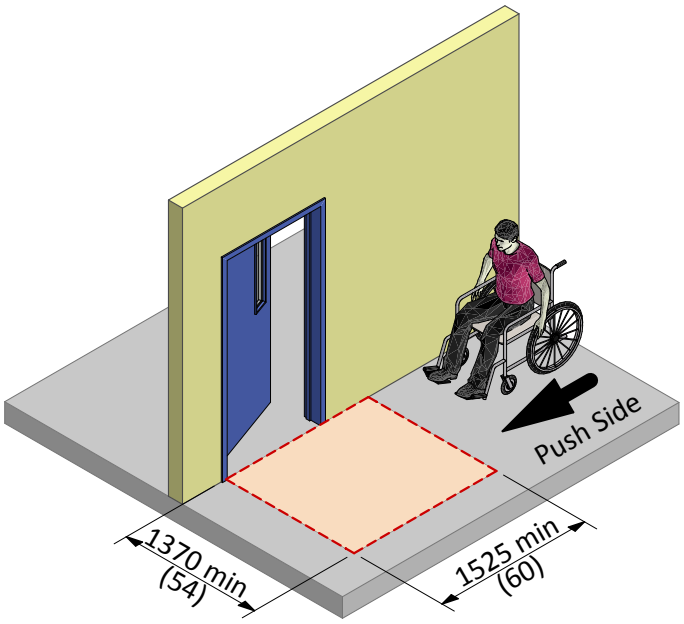


Figure 4.1.6.2b:
Latch Side Approach at Hinged Door

Design Requirements (continued)

Power-assisted swinging doors shall

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

Permanent mats and metal gratings at *entrances* and in vestibules shall be sunk level with the floor, so as not to create a tripping hazard.

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 manually-activated power door operators are provided they shall

- be clearly visible when approaching the door;
- be located to allow a person using a wheelchair or scooter to stop immediately adjacent to the control (Section 4.1.1);
- be located at least 600 mm (23-5/8 in.) from any inside corner;
- be located on the latch side of the door; and
- where the door opens towards the user, the controls shall be located not less than 600 mm (23-5/8 in.) and not more than 1525 mm (60 in.) beyond the door swing.

Controls for manually activated power door operators shall

- incorprate the International Symbol of Access for Persons with *Disabilities*; and
- be configured as
  - a circular push plate minimum 150 mm (6 in.) in diameter, located with its centre 900 -1100 mm (35-1/2 - 43-1/4 in.) above the finished ground/floor surface; OR
  - a vertical activation bar that is at least 50 mm (2 in.) wide, which can be activated between 200 mm (7-7/8”) and 900 mm (35-1/2 in.) above the finished ground/floor surface. The vertical activation bar is preferred (Figure 4.1.6.10).

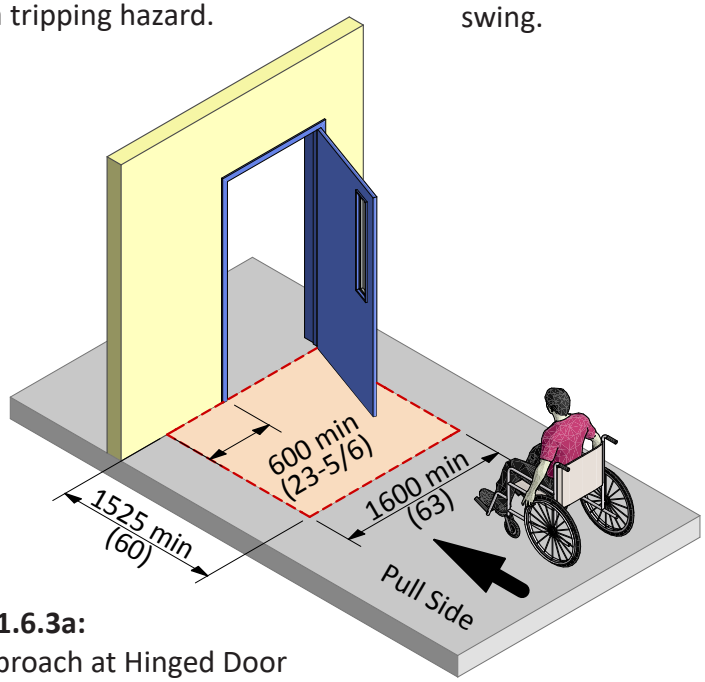


Figure 4.1.6.3a:
Front Approach at Hinged Door

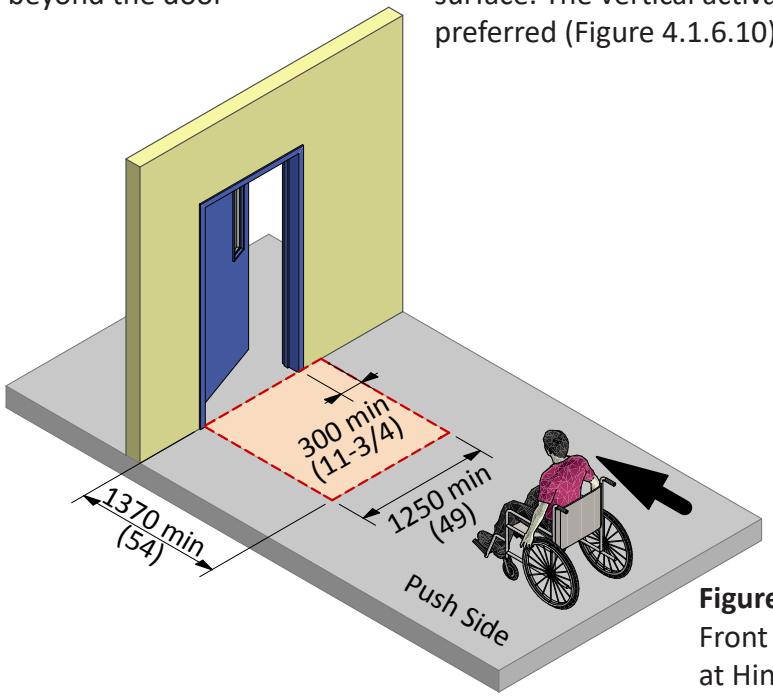


Figure 4.1.6.3b:
Front Approach at Hinged Door

Design Requirements (continued)

Where pressure-sensitive mats, overhead beams or proximity scanners are used to activate power door operators, the system shall detect individuals using wheelchairs or scooters.

Where exterior doors swing open across a primary pedestrian *path of travel*, incorporate safety *guards* that comply with Section 4.1.3, projecting a minimum of 300 mm (11-3/4 in.) beyond both sides of the open door (Figure 4.1.6.8).

Where doors are not equipped with a closing device, the edge of door shall be *colour/tonal contrasted* to the face of the door. (Figure 4.1.6.9)

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

Doors shall have vision panels either in the door itself or a directly adjacent side light, except where privacy concerns make them unfeasible (Section 4.1.8).

Power door operators should be located *clear* of obstructions, like garbage receptacles, *signage*, and furniture.

Where a door incorporates glazing or is fully glazed, it shall comply with Section 4.1.8 (Windows, Glazed Screens and Sidelights).

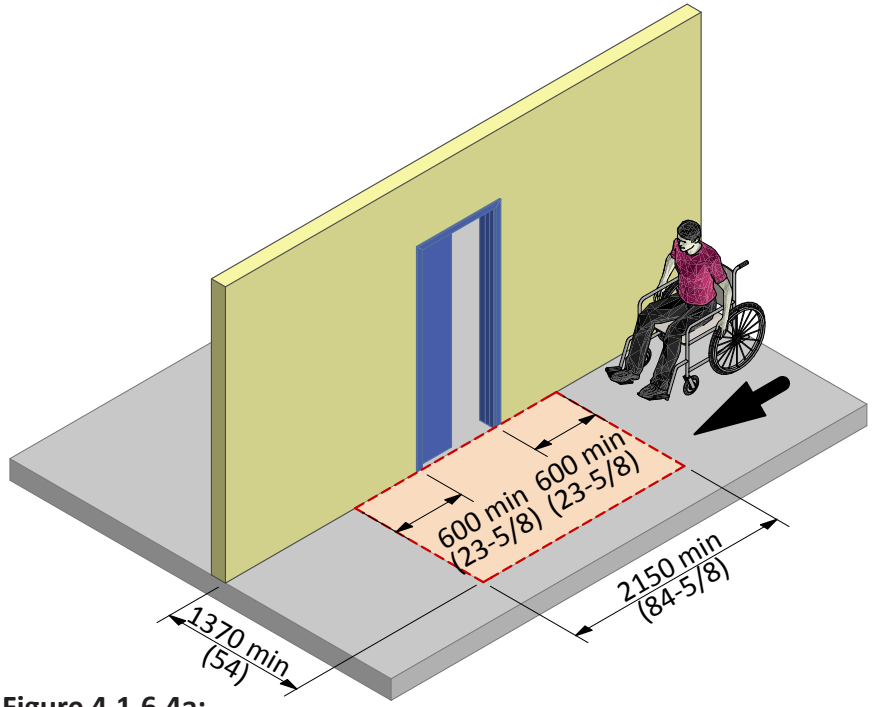


Figure 4.1.6.4a:
Side Approach at Sliding Door

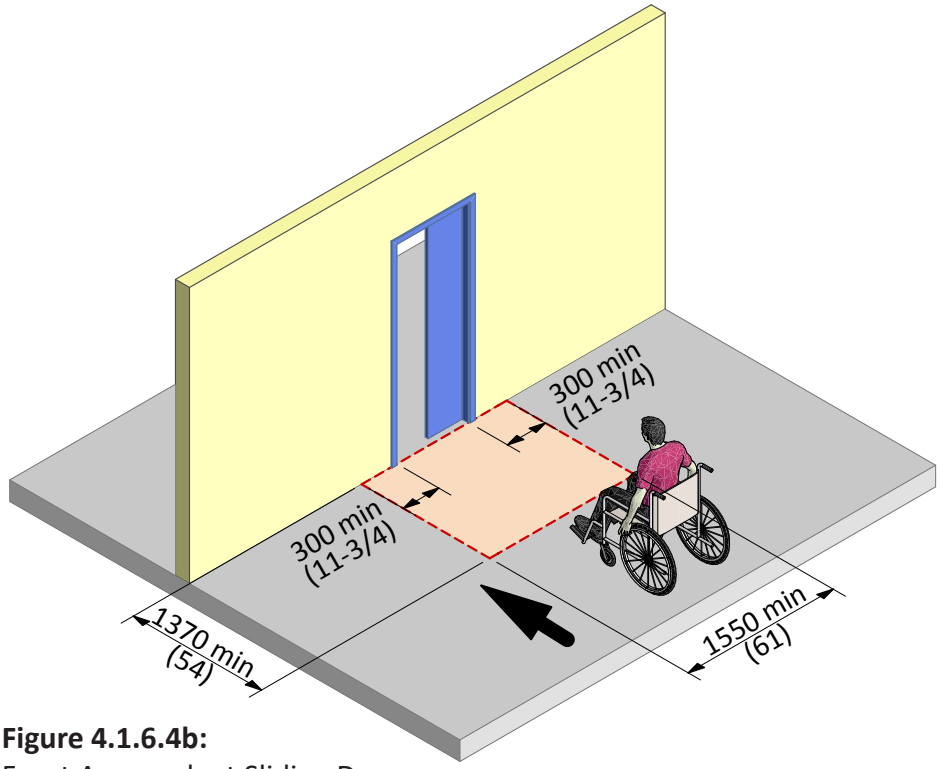


Figure 4.1.6.4b:
Front Approach at Sliding Door

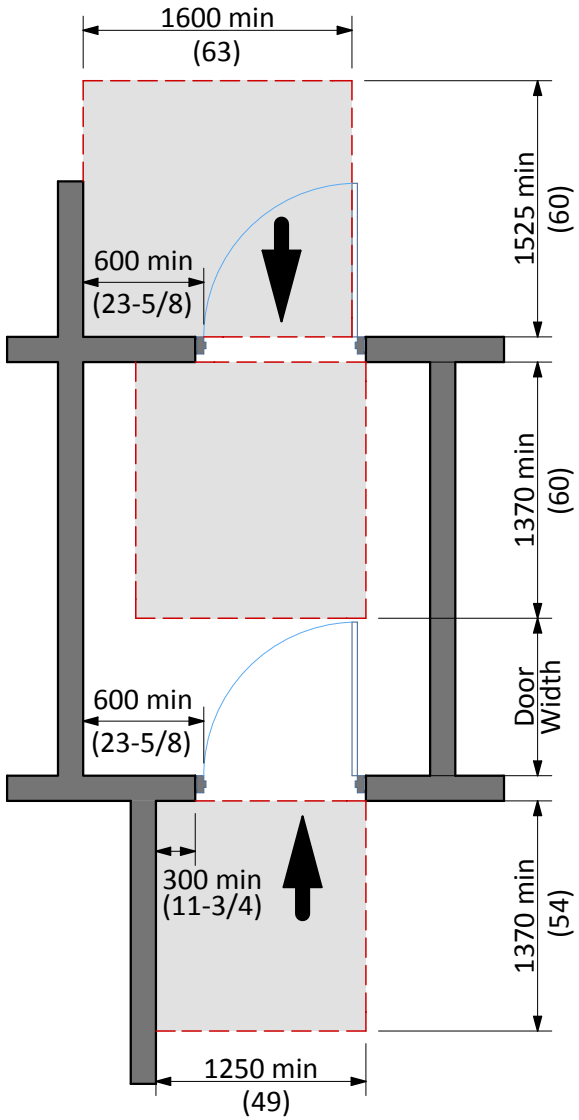


Figure 4.1.6.5:
Manoeuvring *Space* at Doors in Series

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
4.4.7 Signage
4.4.10 Information Systems
4.4.11 Card Access, Safety and Security Systems

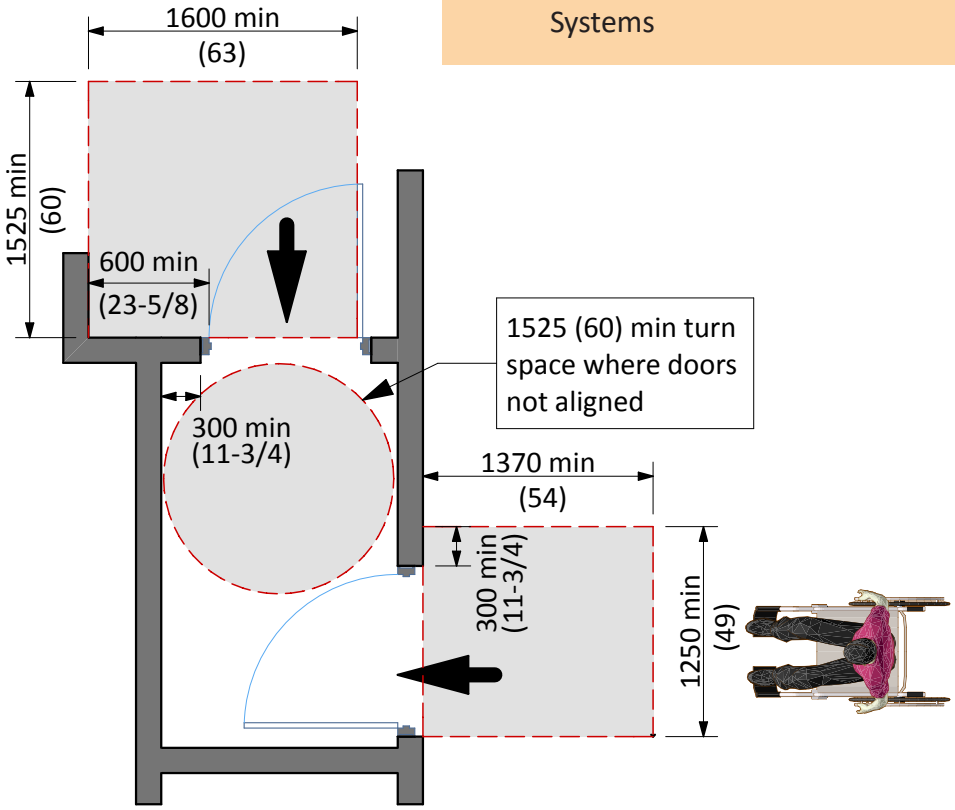


Figure 4.1.6.6:
Manoeuvring *Space* at Doors in Series

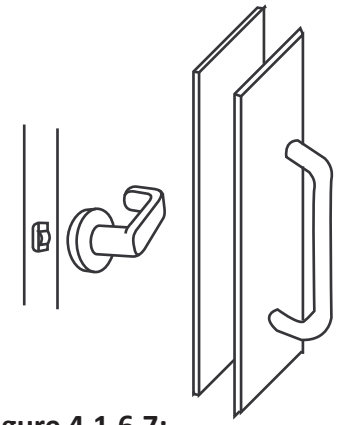


Figure 4.1.6.7:
Examples of *Accessible* Hardware

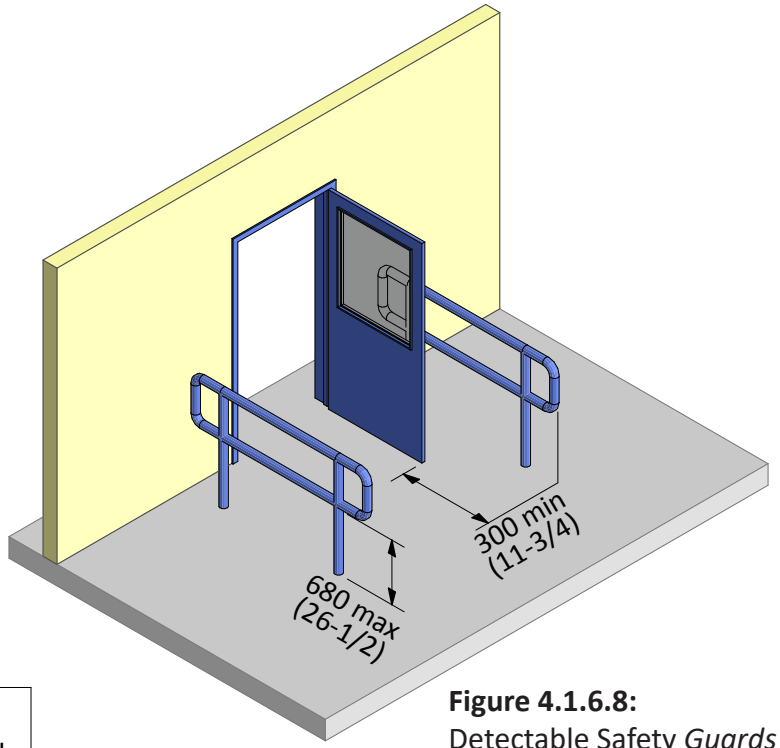


Figure 4.1.6.8:
Detectable Safety *Guards*

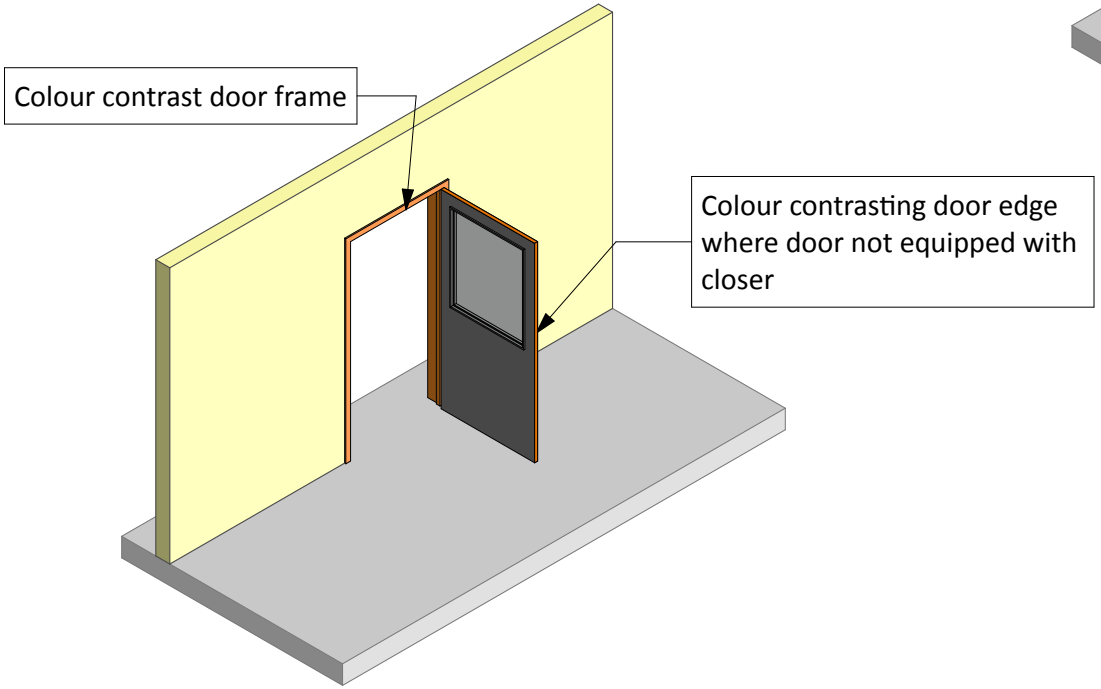


Figure 4.1.6.9:
Colour/tonal contrast at Doors

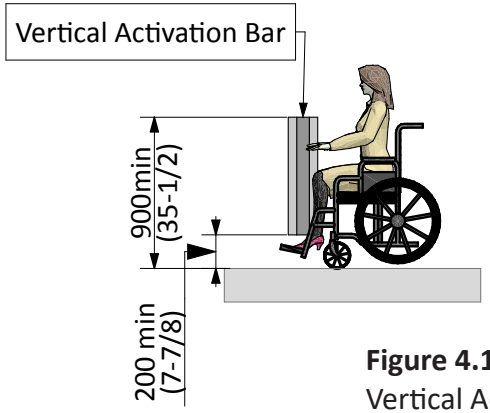


Figure 4.1.6.10:
Vertical Activation Bar

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 for persons using canes or crutches, or persons with poor balance. An adjacent opening of an *accessible* width is essential for wheelchair access, as well as access for those using other *mobility devices*, strollers, walkers or delivery carts.

Application

Gates, turnstiles and openings shall comply with this section.

Design Requirements

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 (37-1/2 in.) 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 the International Symbol of Access for Persons with *Disabilities*.

Turnstiles shall incorporate a pronounced *colour/tonal 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/tonal contrast* from the fence and the surrounding environment.

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
4.4.7 Signage
4.4.10 Information Systems
4.4.11 Card Access, Safety and Security Systems

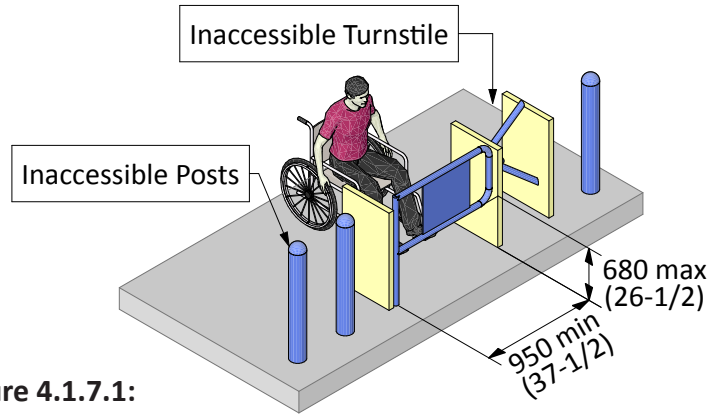


Figure 4.1.7.1:
Access at Turnstile

4.1.8 Windows, Glazed Screens and Sidelights

Rationale

Broad expanses of glazing in screens, sidelights and doors can be difficult to detect. While this may be a particular concern to persons with vision loss, 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, including window coverings, should also respect the limitations of hand strength or dexterity encountered with different types of *disabilities*, including arthritis.

Application

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

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

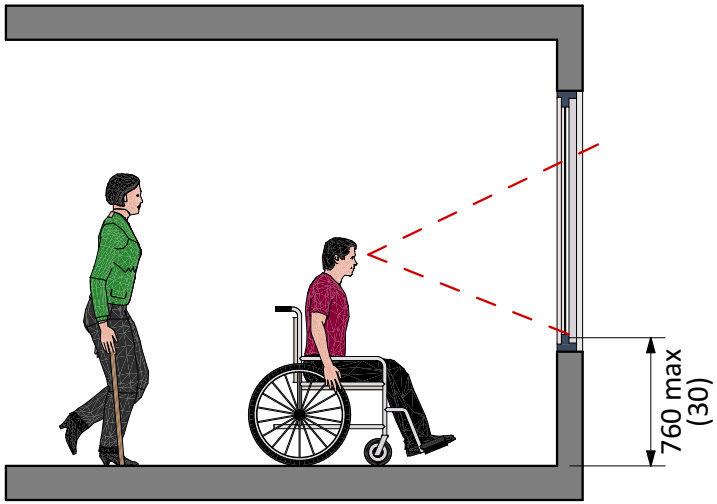


Figure 4.1.8.1:
Window Sill Height

Design Requirements

Fully-glazed doors and sidelights at exterior *entrances* or vestibules, as well as fully-glazed interior doors, screens and sidelights shall be marked with opaque strips that

- are 50% *colour/tonal contrasted* to the background environment;
- are located across the width of the door or sidelight, configured as a single strip 125 mm (5 in.) wide with its lower edge at 1200 mm (47-1/4 in.) high, or two strips at least 50 mm (2 in.) wide;
  - the first strip at a height of 1350 to 1500 mm (53-1/8 to 59 in.); and
  - the second strip with its centreline 1220 mm (48 in.) above the finished floor;
- may incorporate a logo or symbol provided such logo or symbol does not diminish
  - the opacity of the strip;
  - the width of the strip;
  - the colour and brightness contrast of the strip to the background of the door; and
  - the continuity of the strip across the width of the door.

Design Requirements (continued)

Where individual decals are used in lieu of a continuous opaque strip, they shall be configured such that the *space* between decals is no more than the width of the individual decals.

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

Where frameless glass vision panels are used, exposed edges shall be identified with a vertical safety stripe, applied to cap the ends of each exposed glass panel.

Where viewing windows or vision panels are provided,

- the sill height shall be no more than 760 mm (30 in.) from the floor;
- no more than 250 mm (9-7/8 in.) from the latch side of the door; and
- where horizontal transoms are incorporated, the transoms shall not be located between 1060 mm (42 in.) and 1220 (48 in.) from the floor.

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

- be mounted between 400 mm (15-3/4 in.) and 1200 mm (47-1/4 in.) from the floor;
- be operable with one hand using a closed fist; and
- not require fine finger control, tight grasping, pinching, or twisting of the wrist to operate.

Related Sections

4.1.1 Space and Reach Requirements
4.4.2 Controls and Operating Mechanisms

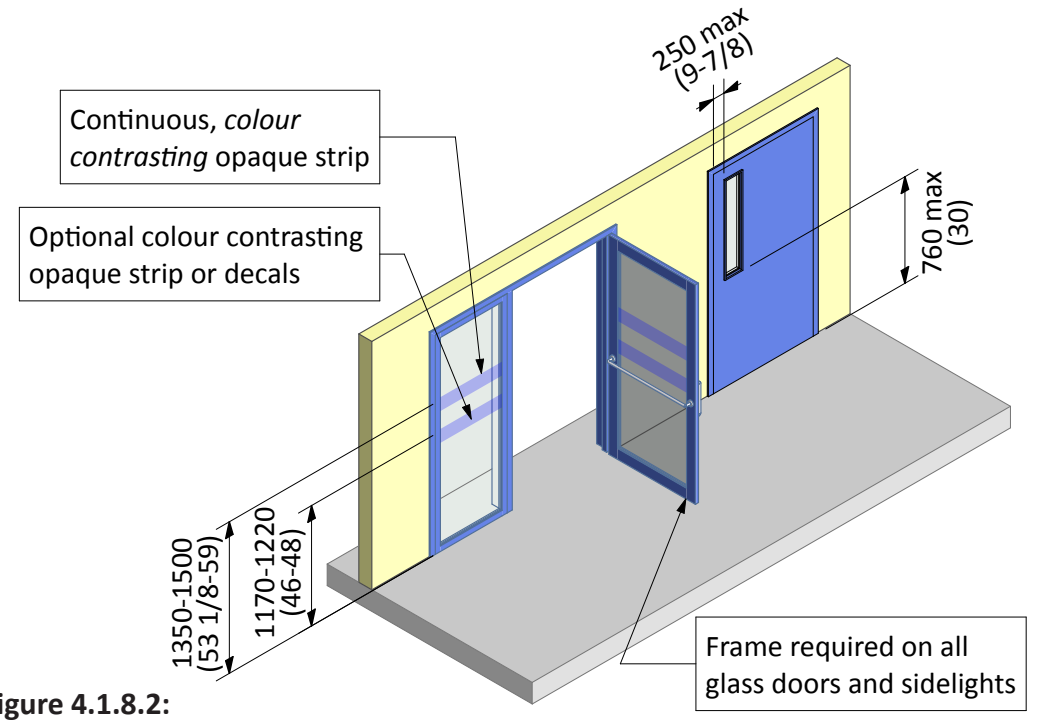


Figure 4.1.8.2:
Fully Glazed Doors, Sidelights and Vision Panel Markings

4.1.9 Ramps

Rationale

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

The design of the *ramp* is critical to its usefulness and safety. A steeply inclined *ramp* is difficult to ascend when using a wheelchair, and can increase the risk of the wheelchair tipping backwards. Descending a steep *ramp* can also be hazardous. Any *cross slope* will further increase the effort required to negotiate the *ramp*. Manoeuvring *space* at the top and bottom are also important factors in a *ramp*'s usability. Landing 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 1:25 (4%) 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.

Ramps should be designed to ensure a perpendicular approach.

Where an *accessible ramp* is located in a *barrier*-free *path of travel* serving a *building entrance*, *signage* in compliance with Section 4.4.7 shall be installed to indicate the location of the *accessible ramp* and the *accessible entrance*.

The *running slope* shall be between 1:20 (5%) and 1:25 (4%). In a *retrofit* situation where it is *technically infeasible* to provide a *ramp* with a *running slope* between 1:20 (5%) and 1:25 (4%), a *running slope* not steeper than 1:15 (6.7%) at exterior *ramps* and 1:12 (8.3%) at interior *ramps* may be used. Shallower slopes are preferred.

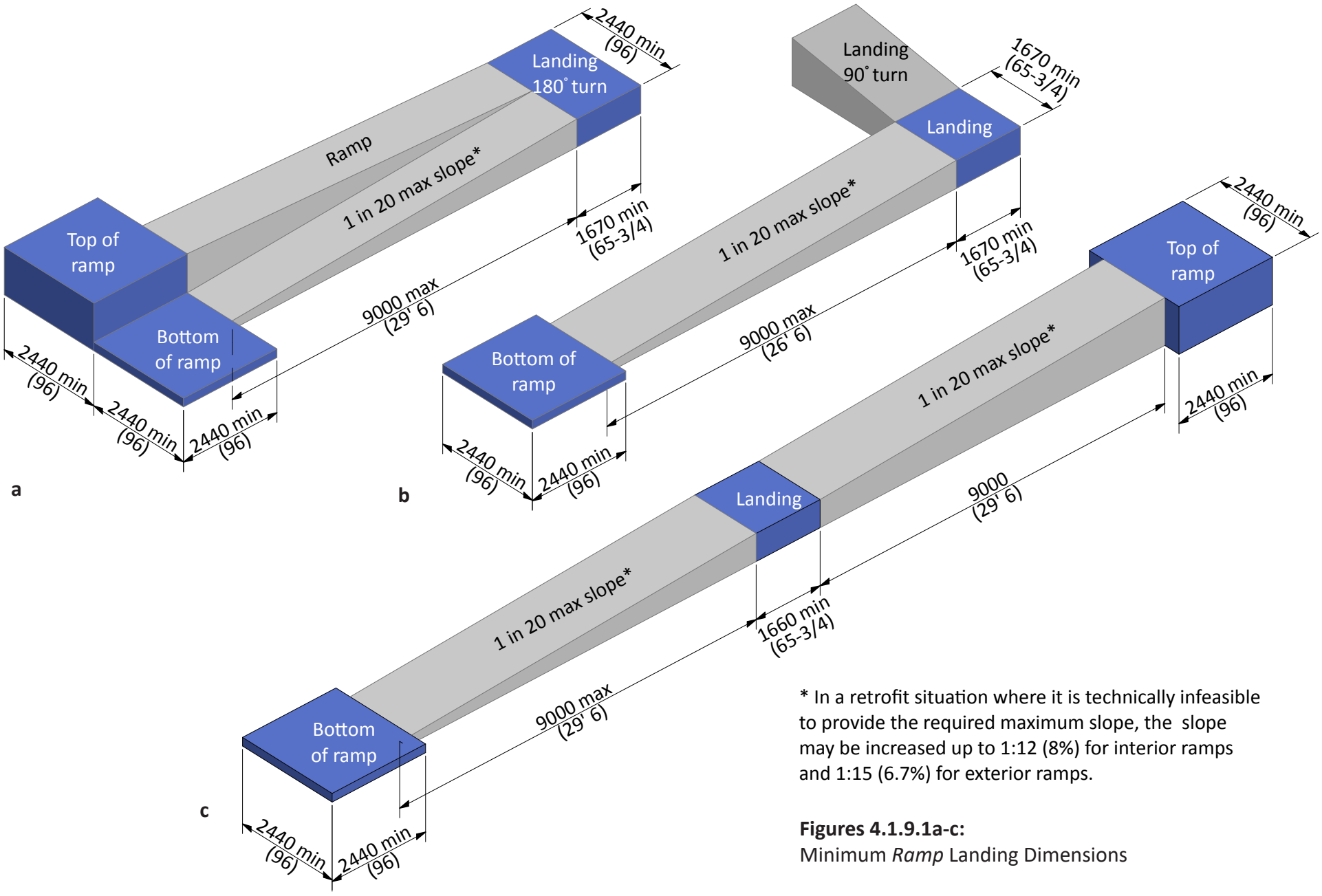
The maximum *cross slope* of *ramp* surfaces shall be 1:50 (2%). *Ramps* shall have level landings at the top and bottom of each run and also where the *ramp* changes direction.

The maximum horizontal length between landings shall not exceed 9 m (29 ft. - 6 in.).

Ramps shall have level landings at the top and bottom of each run including intermediate landings (Figures 4.1.9.1a to c).

Landings shall

- be at least as wide as the widest *ramp* run leading to it;
- have a minimum size not less than 2440 x 2440 mm (96 x 96 in.) if located at the top or bottom of a *ramp* or if served by a doorway. (In a *retrofit* situation where creating a suitably sized landing is *technically infeasible*, the required landing size may be reduced to 1670 x 1670 mm. (65-3/4 x 65-3/4 in.));
- where an intermediate landing at the switchback of a U-shaped *ramp* (Figure 4.1.9.1a), have a length not less than 1670 mm (65-3/4 in.) and a width not less than 2440 mm (96 in.). In a *retrofit* situation where creating a suitably sized landing is *technically infeasible*, the required landing width may be reduced to 2120 mm (84 in.);
- where there is a change of 90° or more in the direction of a *ramp*, have a length not less than 1670 mm (65-3/4 in.) and a width not less than the width of the *ramp* (Figure 4.1.9.1b); and
- where an intermediate landing at a straight *ramp* (Figure 4.1.9.1c), have a length not less than 1670 mm (65-3/4 in.).



* In a retrofit situation where it is technically infeasible to provide the required maximum slope, the slope may be increased up to 1:12 (8%) for interior ramps and 1:15 (6.7%) for exterior ramps.

Figures 4.1.9.1a-c:
Minimum *Ramp* Landing Dimensions

Design Requirements (continued)

Ramp and landing surfaces shall be slip-resistant.

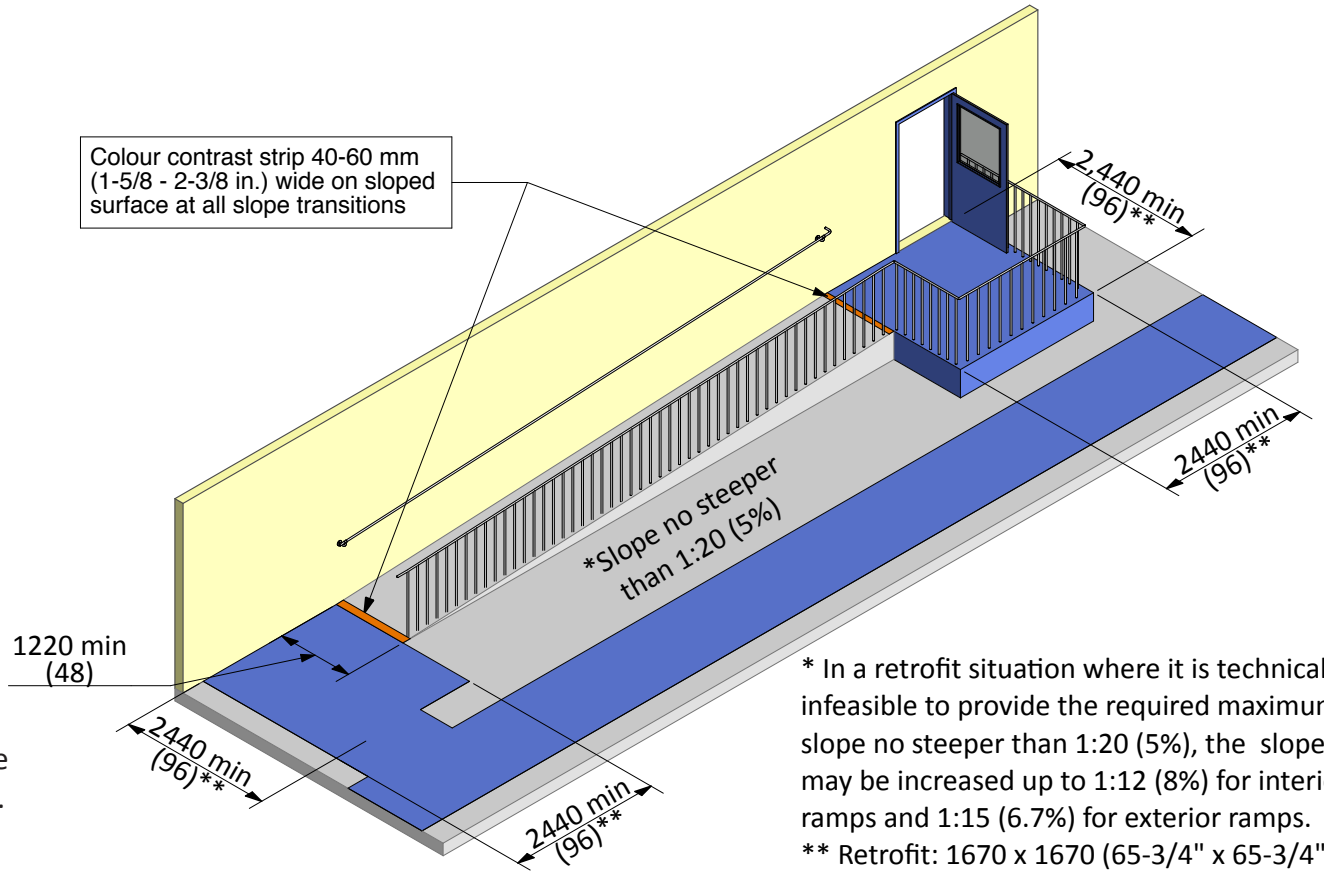
At slope transitions, *ramps* shall have a 40 - 60 mm (1-5/8 - 2-3/8 in.) wide *colour/tonal contrasted* strip across the width of the *ramp*, located on the sloped surface.

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

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;
- be provided
  - with a curb at least 75 mm (3 in.) high on any side of the *ramp* where no solid enclosure or *guard* is provided; or
  - with railings or other *barriers* that extend to within 50 mm (2 in.) of the finished *ramp* (Figures 4.1.9.4a to c).



* In a retrofit situation where it is technically infeasible to provide the required maximum slope no steeper than 1:20 (5%), the slope may be increased up to 1:12 (8%) for interior ramps and 1:15 (6.7%) for exterior ramps.
** Retrofit: 1670 x 1670 (65-3/4" x 65-3/4")

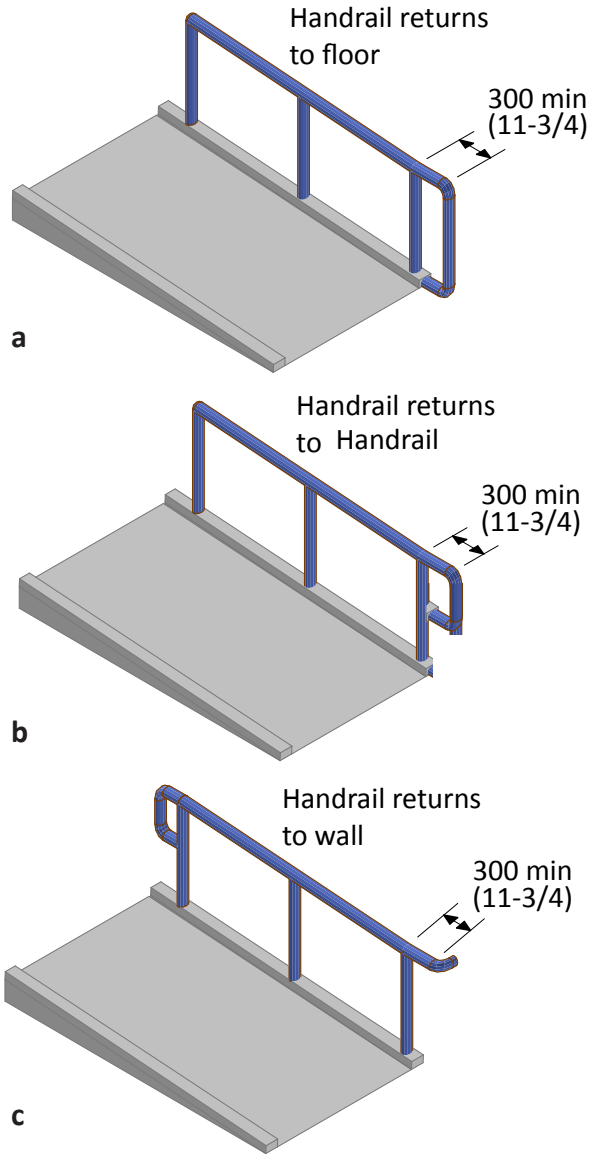
Figure 4.1.9.2:
Ramp Criteria

Design Requirements (continued)

A *ramp* with a rise greater than 150 mm (6 in.) shall have *handrails* which

- are on both sides;
- comply with Section 4.1.12;
- are continuous on the inside of switchback (U-shaped) or L-shaped *ramps*;
- extend horizontally at least 300 mm (11-3/4 in.) beyond the top and bottom of the *ramp* and return to the wall, floor, or post;
- measure between 865 mm (34 in.) and 920 mm (36 in.) from the *ramp* surface to the top of the *handrail*;
- have a width between at least one set of *handrails* of 950 - 1100 mm (37-1/2 - 43-1/4 in.); and
- terminate to a wall, floor, post or other manner that will not obstruct pedestrian travel or create a hazard.

EXCEPTION: Where a *ramp* serves as an aisleway for fixed seating, the requirement for *ramp handrails* does not apply.



Figures 4.1.9.3a-c:
Horizontal *Handrail* Extensions

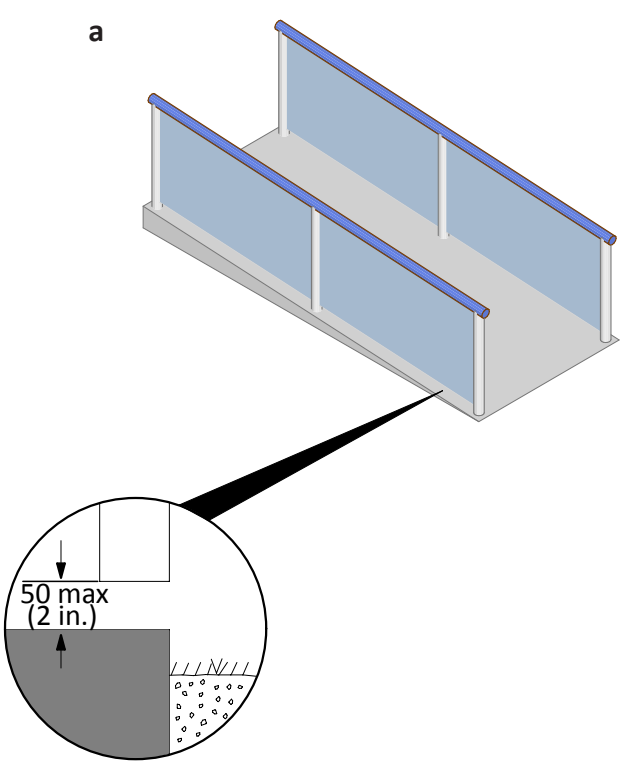
Where a *ramp* is more than 2200 mm (86-5/8 in.) wide, one or more intermediate *handrails* continuous between landings are to be provided and located so that there is no more than 1650 mm (65 in.) between *handrails*.

Where the location of a *ramp* is not readily evident for the main access route, provide a sign incorporating the International Symbol of Accessiblity and a directional arrow indicating the location.

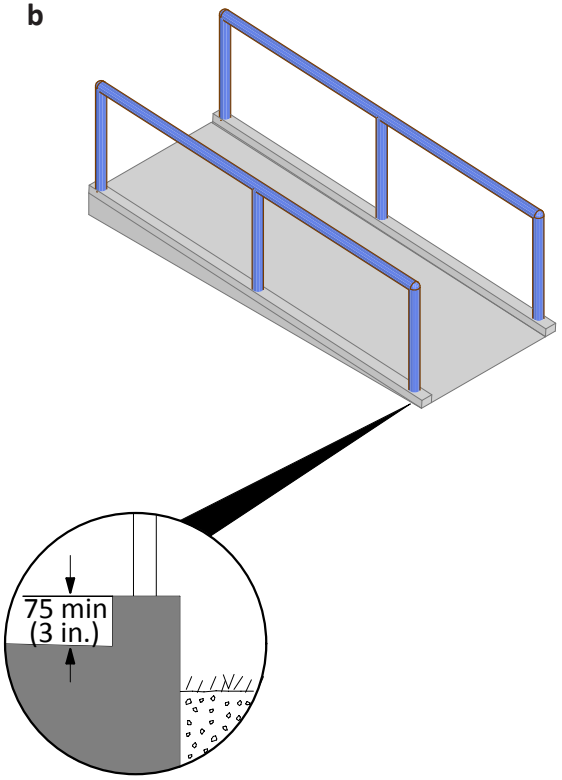
Designated areas for snow storage to be provided at exterior *ramps*, located away from pedestrian routes.

Related Sections

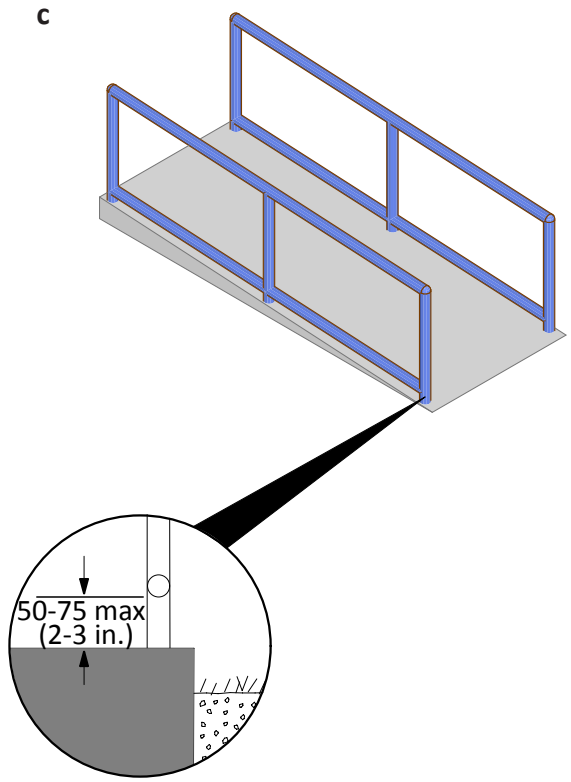
4.1.1 Space and Reach Requirements
4.1.2 Ground and Floor Surfaces
4.1.6 Doors
4.1.10 Curb Ramps
4.1.12 Handrails
4.4.7 Signage
4.4.8 Detectable Warning Surfaces
4.4.12 Glare and Light Sources
4.4.13 Lighting
4.4.14 Materials and Finishes
4.4.15 Texture and Colour



Solid *Barrier* Edge Protection - Cross Section



Curb Edge Protection - Cross Section



Rail Edge Protection - Cross Section

Figures 4.1.9.4a-c:
Edge Protection at *Ramps*

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 of an edge. While a smooth transition and minimal slope are ideal for someone in a wheelchair, they are a potential hazard to an individual with vision loss who may not notice the transition from sidewalk to street. Textured surfaces become an important safety feature in this scenario.

Detectable warning surfaces should include *colour/tonal contrast* to alert travelers with vision loss to the presence of a *curb ramp*, and proximity to a crossing opportunity.

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;
- align with the safe pedestrian crossing route across the vehicular roadway;
- have a *running slope* 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; and
- have a maximum *cross slope* of no more than 1:50 (2%).

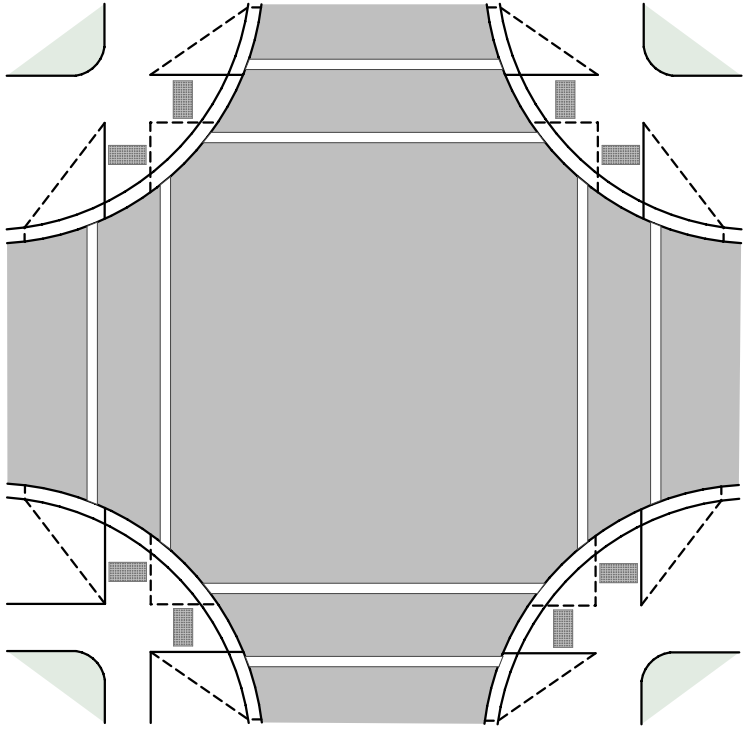


Figure 4.1.10.1:
Typical *Crosswalk* Layout

Design Requirements (continued)

The minimum width of *curb ramps*, exclusive of flared sides, shall be 1500 mm (59 in.) (Figure 4.1.10.2).

Flared sides shall typically be 900 mm (35-1/2 in.), measured at the curb location, with a slope not more than 1:12 (8.3%) where pedestrians are likely to *walk* across them (Figure 4.1.10.2).

Curb ramp configuration shall be as illustrated in Figures 4.1.10.1 and 4.1.10.2.

The maximum cross fall of gutters and road surfaces immediately adjacent to *curb ramps* shall be 1:20 (5%).

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

Surfaces of *curb ramps* shall

- be slip-resistant; and
- incorporate a truncated dome *detectable warning surface*
  - in compliance with Section 4.4.8;
  - located at the bottom portion of the *curb ramp*;
  - 610 mm (24 in.) in depth, starting 150 - 200 mm (6 - 7-7/8 in.) back from the edge of the curb;
  - extending the entire width of the *ramp*; and
  - have a smooth transition from the *ramp* and adjacent surfaces.

A *detectable warning surface* shall be used at entry points onto raised pedestrian crossings.

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

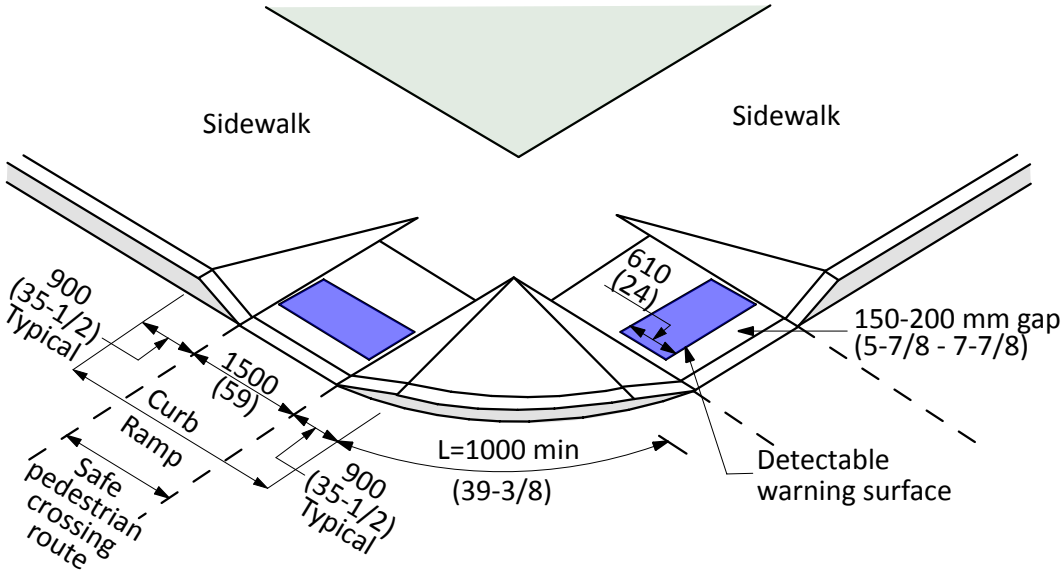


Figure 4.1.10.2:
Standard *Curb Ramp* at corner intersection

Design Requirements (continued)

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%);
- 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 4.4.8;
  - is located at the bottom portion of the depressed curb that is flush with the roadway;
  - is set back 150 - 200 mm (6 - 7-7/8 in.) from the curb edge; and
  - is a minimum of 610 mm (24 in.) in depth.

Related Sections

4.1.1 Space and Reach Requirements
4.1.2 Ground and Floor Surfaces
4.4.8 Detectable Warning Surfaces
4.4.12 Glare and Light Sources
4.4.14 Materials and Finishes
4.4.15 Texture and Colour

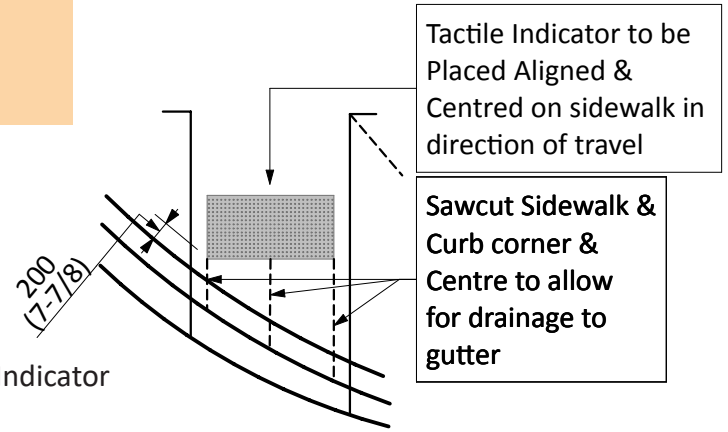


Figure 4.1.10.3:
Tactile Warning Surface Indicator for Pedestrian Crossing

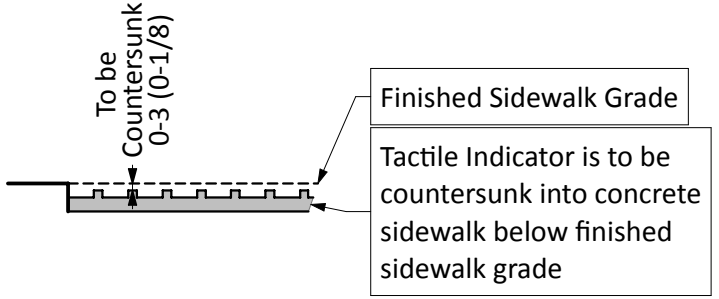


Figure 4.1.10.4:
Tactile Warning Surface Indicator for Pedestrian Crossing Section

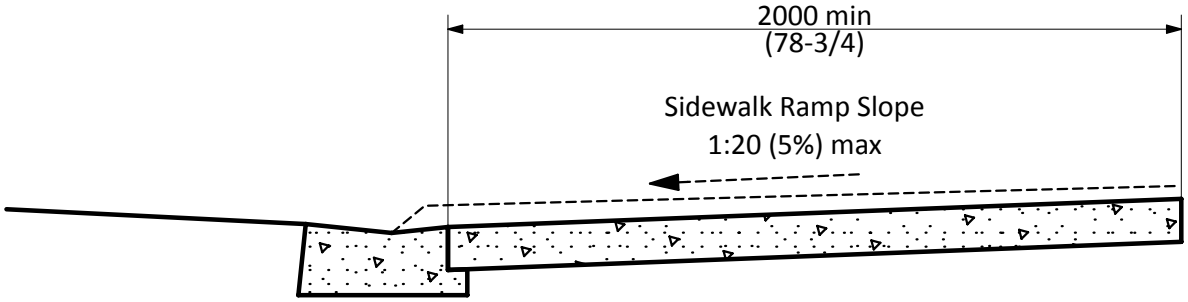


Figure 4.1.10.5:
Curb Ramp Section

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 nosings can present tripping hazards, particularly to persons with prosthetic devices or those using canes. Cues to warn a person with vision loss 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

- be designed to ensure a perpendicular approach
- have uniform riser heights (rise) and uniform tread depths (run);
- have a rise not more than 180 mm (7 in.) and not less than 125 mm (5 in.) high;
- have a run not more than 355 mm (14 in.) and not less than 280 mm (11 in.) deep, measured from riser to riser;
- incorporate *detectable warning surfaces* in compliance with Section 4.4.8.;
- have tread surfaces that are slip-resistant; and
- have no open risers.
- the underside of stairs should be enclosed. Alternately, where a pedestrian route passes a flight of stairs at least 2100 mm min (82 3/4 in.) of *clear* headroom should be maintained underneath the stairs. Where the underside of a flight of stairs is less than 2100 mm (82 3/4 in.), a cane detectable rail should be installed for the length and width of the portion below the required *clear* height (Figure 4.1.11.3).

Nosings shall

- project not more than 25 mm (1 in.);
- have no abrupt undersides;
- have a curved or bevelled leading tread edge of between 6 mm (1/4 in.) and 10 mm (3/8 in.);
- where projecting, be sloped to the riser at an angle not less than 60 degrees to the horizontal (Figure 4.1.11.2);
- be illuminated to a level of at least 100 lux (9.2 ft-candles);
- be slip-resistant; and
- have the horizontal and vertical surface of the stair nosing in *colour/tonal contrast* with the remainder of the riser and the tread.

Design Requirements (continued)

Stairs shall incorporate *detectable warning surfaces* in compliance with Section 4.4.8.

Handrails for stairs shall

- comply with Section 4.1.12;
- be installed on both sides;
- be of uniform height, ranging between 865 mm (34 in.) and 920 mm (36 in.) above the stair nosing;
- 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 (11-3/4 in.), at a height ranging between 865 mm (34 in.) and 920 mm (36 in.) above the floor;
- extend horizontally at the top of the stairs not less than 300 mm (11-3/4 in.), at a height ranging between 865 mm (34 in.) and 920 mm (36 in.) above the floor; and
- return to the wall, or post in a manner that will not obstruct pedestrian travel or create a hazard.

Stairs and landings forming part of a stair shall be protected by a wall or *guard* on both sides.

Where a *guard* is provided, it shall

- comply with the requirements of the Ontario *Building* Code;
- have a minimum height of 900 mm (35-1/2 in.) measured vertically to the top of the *guard* from a line drawn through the outside edge of stair nosings; and
- have a minimum height of 1070 mm (42-1/8 in.) around landings.

Where stairs are greater than 2200 mm (86-5/8 in.) wide, one or more intermediate *handrails* which are continuous between landings must be provided and located so that they are no more than 1650 mm (65 in.) apart and there is 900 mm (35-1/2 in.) between at least one set of *handrails*.

Where a stair is more than 2200 mm (86-5/8 in.) wide, one or more intermediate *handrails* continuous between landings are to be provided and located so that there is no more than 1650 mm (65 in.) between *handrails*.

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

RELATED SECTIONS

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

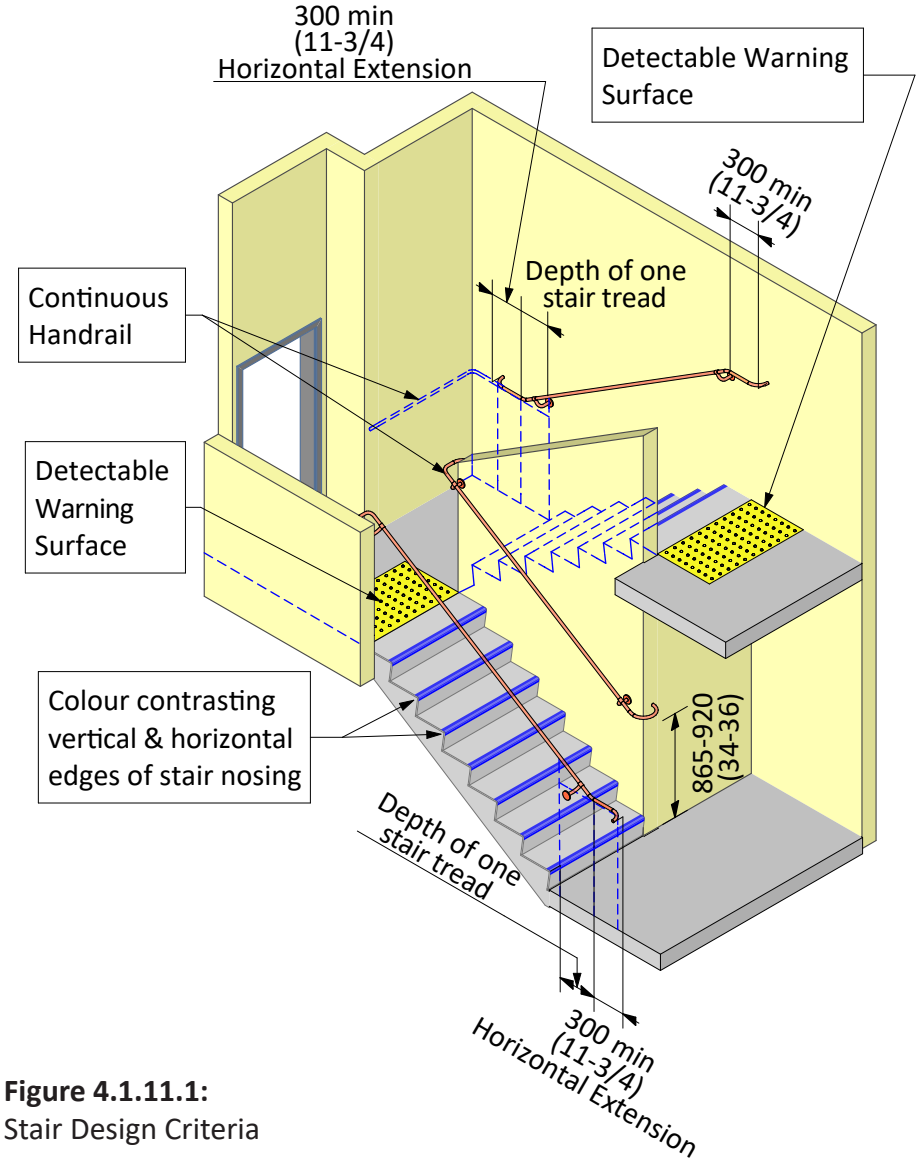


Figure 4.1.11.1:
Stair Design Criteria

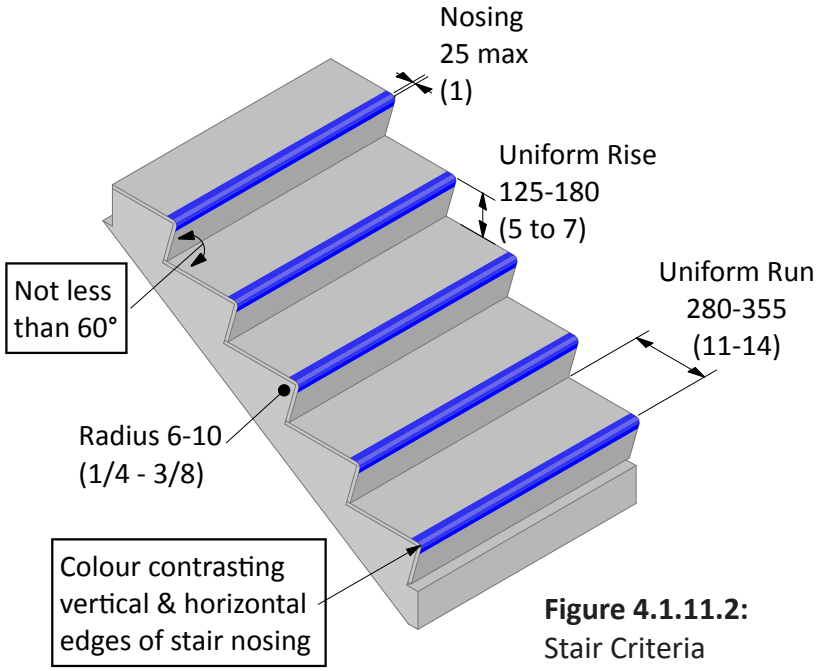


Figure 4.1.11.2:
Stair Criteria

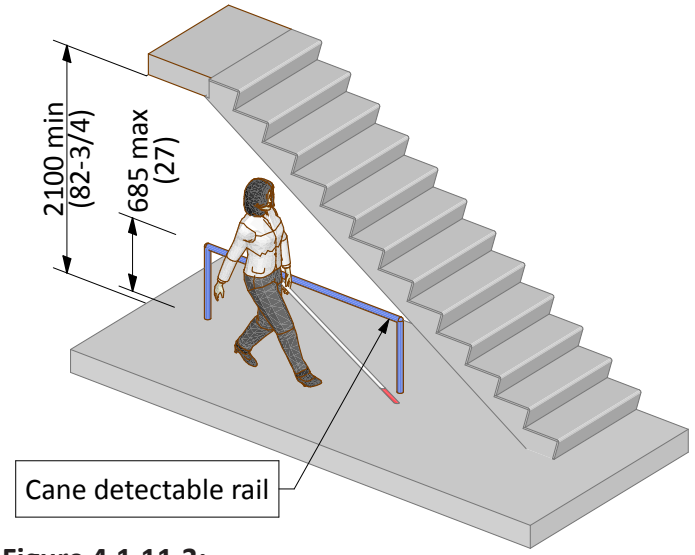


Figure 4.1.11.3:
Detectable Rail under Open Staircase

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 vision loss, 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 865 - 920 mm (34- 36 in.) high, measured vertically from a line drawn through the outer edges of the stair nosings or from the surface of a *ramp*;
- have a circular section 30-40 mm (1-3/16 in. – 1-9/16 in.) in diameter or any non-circular shape, with a graspable portion that has a perimeter not less than 100 mm (4 in.) and not more than 125 mm (5 in.) whose largest cross-sectional dimension is not more than 45 mm (1-3/4 in.);

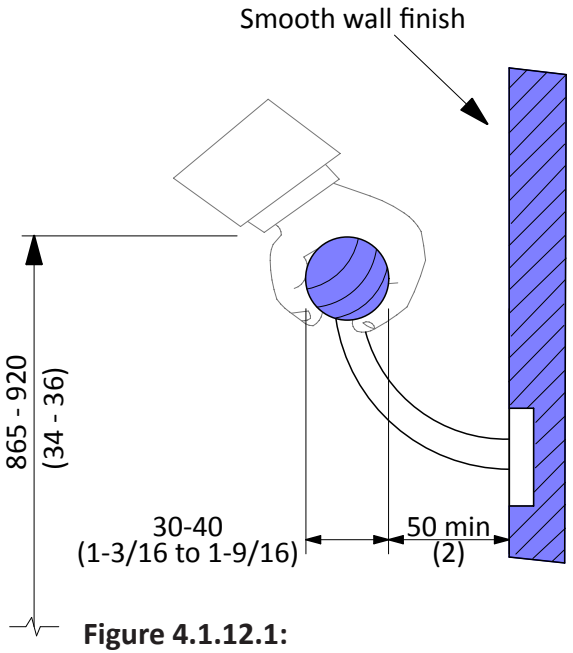


Figure 4.1.12.1:
Handrail

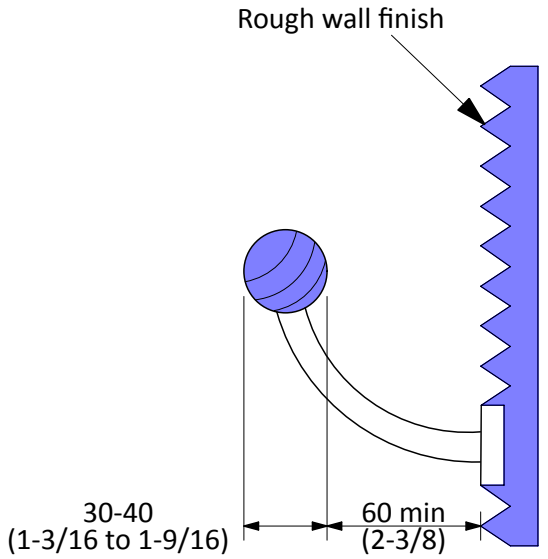


Figure 4.1.12.2:
Handrail at Rough Wall

Design Requirements (continued)

- 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; and
- have a *clear space* between the *handrail* and the wall of
  - at least 50 mm (2 in.) (Figure 4.1.12.1); or
  - at least 60 mm (2-3/8 in.) where the wall has a rough surface (Figure 4.1.12.2).
- extend parallel to the floor or ground surface a minimum distance of 300 mm (11-3/4 in.) beyond the beginning or end of a stair or *ramp* section; and
- be terminated in a manner that will not obstruct pedestrian travel or create a hazard.

A recess containing a *handrail* shall extend at least 450 mm (17-3/4 in.) above the top of the rail (Figure 4.1.12.3).

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

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

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

Related Sections

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

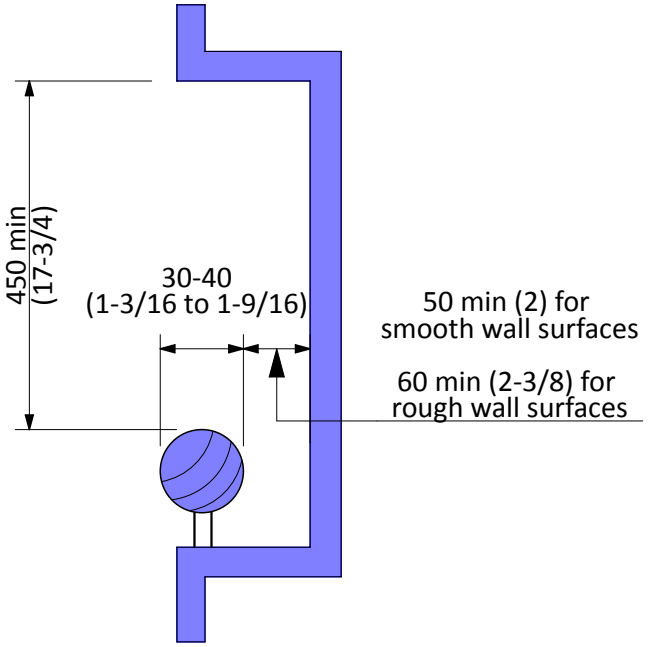


Figure 4.1.12.3:
Handrail in Recess

4.1.13 Escalators

Rationale

Boarding and stepping off of an escalator can be challenging for many persons who could have difficulty with the timing or agility. In addition, any lack of contrast on the edge of steps makes it difficult to determine the position of the steps or judge their speed. *Detectable warning surfaces* extending in front of the escalator provide warning to any pedestrian, especially someone with vision loss. 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.

In a *building* in which an escalator or inclined moving *walk*way provides access to any floor level above or below the *entrance* floor level, an interior *accessible route* shall be provided to that floor level.

The route from the escalator or inclined moving *walk*way to the *accessible route* shall be clearly indicated by appropriate signs.

In a *building* in which a moving *walk*way provides access between areas on the same floor level, as *accessible route* shall be provided between the areas served by the *walk*way.

Design Requirements

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

Detectable warning surfaces in compliance with 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 (18.4 ft-candles), evenly distributed, from a low-glare light source.

Escalators shall meet the requirements of the Technical Standards and Safety Authority (TSSA).

Related Sections

4.1.1 Space and Reach Requirements
4.1.2 Ground and Floor Surfaces
4.4.7 Signage
4.4.8 Detectable Warning Surfaces
4.4.12 Glare and Light Sources
4.4.13 Lighting
4.4.14 Materials and Finishes
4.4.15 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 vision loss, 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 vision loss to identify different floor levels, as well as the direction of travel. These features benefit anyone who uses an elevator. Adequate door-closing delays provide individuals using *mobility devices* additional time to reach, enter or exit the elevator car. The installation of an angled mirror can assist individuals using *mobility devices* to back out of an elevator where there is not sufficient *space* to turn around.

Application

One passenger elevator complying with this section shall serve each level, including *mezzanine*s, 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 employees.

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;
- to levels of fire halls and ambulance stations not served by grade-level entry, which do not contain *public use facilities*; and
- when platform lifts (wheelchair lifts) in compliance with Section 4.1.15 and applicable Provincial Codes are used in lieu of an elevator.

Design Requirements

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

Elevators shall meet the requirements of the Technical Standards and Safety Authority (TSSA).

Accessible elevators shall be identified by *signage* in compliance with applicable provisions of Section 4.4.7.

Elevators shall be automatic and be provided with a two-way automatic levelling device to maintain the floor level to ± 13 mm (1/2 in.).

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

The *clear* width for elevator doors shall be minimum 950 mm (37-1/2 in.). In a *retrofit* situation where it is *technically infeasible* to provide a *clear* width of 950 mm (37-1/2 in.), the *clear* elevator door width may be reduced to 900 mm (35-1/2 in.). In high-use public *facilities*, the door *clear* opening width should be not less than 1065 mm (42 in.).

Design Requirements (continued)

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 950 mm (37-1/2 in.), 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 (5 ± 1 in.) and 735 ± 25 mm (29 ± 1 in.) 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 x 1525 mm (68 in. x 60 in.). 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 x 1525 mm (80 in. x 60 in.). 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 (60 in.), may be used.

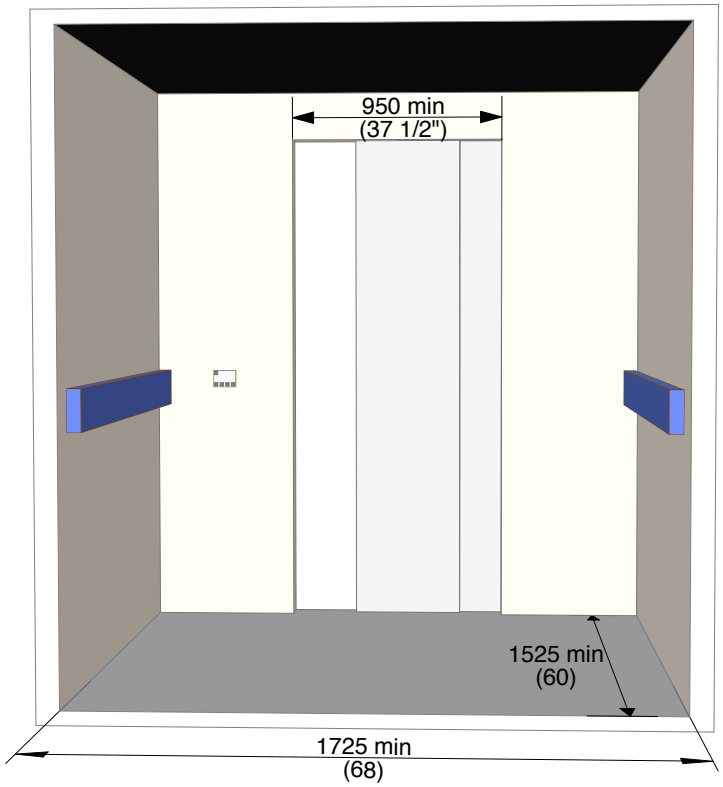


Figure 4.1.14.1:
Elevator Cab
* In high-use public *facilities*, increase minimum dimensions to 2030 x 1525 mm (80 x 60 in.)

Design Requirements (continued)

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

Car control buttons in elevator cabs shall

- be a minimum 19 mm (3/4 in.) 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 (3/8 in.); 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.

Car control buttons shall be of a contrasting colour to the control panel, and the control panel shall be of a contrasting colour to the adjacent wall surfaces.

All car control buttons shall be designated by Grade 2 Braille characters and by raised standard alphabet characters for letters, Arabic characters for numbers, and standard symbols. Markings shall be a minimum of 16 mm (5/8 in.) high and raised a minimum of 0.75 mm (1/32 in.), placed immediately to the left of the buttons to which they apply.

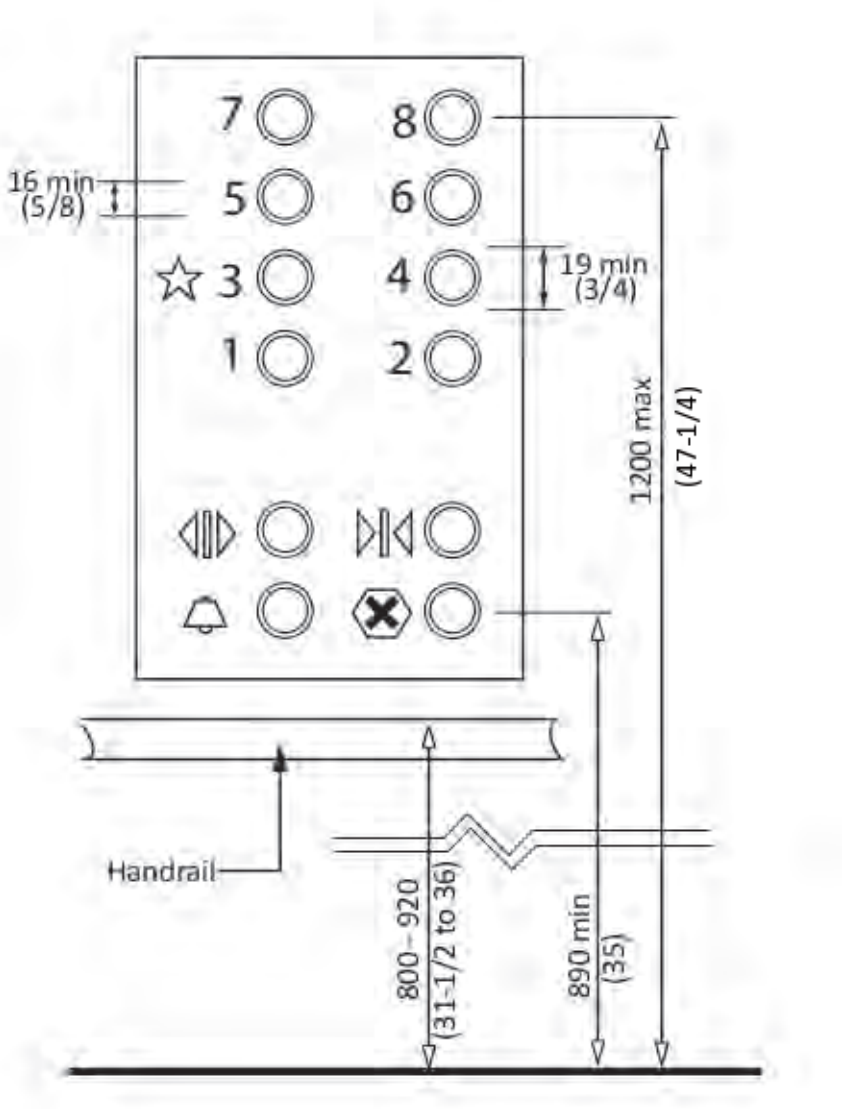


Figure 4.1.14.2:
Control Panel

Design Requirements (continued)

Emergency car controls and door-operating buttons shall be grouped together at the bottom of the control panel. The centre line of the alarm button and the emergency stop switch shall be not less than 890 mm (35 in.) above the floor. The centre line of the highest floor button shall be no higher than 1200 mm (47-1/4 in.) above the floor. Other controls may be located where it is convenient.

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 (5/8 in.) high.

Floors of elevator cabs 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 800 to 920 mm (31-1/2 to 36 in.) with a *space* of 40 to 45 mm (1-9/16 to 1- 3/4 in.) between the rails and wall.

The illumination at the car controls and landing sill shall be not less than 100 lux (10 ft-candles). The centre line of hall buttons shall be 920 ± 25 mm (36 ± 1 in.) above the floor. Buttons shall be a minimum of 20 mm (13/16 in.) in size, mounted one above the other.

For hall buttons, visual indication shall be provided to show each call that is registered and that is extinguished when the call is answered.

Hall or in-car lanterns shall be provided. The centre line of the fixture shall be a minimum of 1830 mm (72 in.) above the floor. An audible signal shall be provided when the elevator stops at the landing. Visual *elements* shall be a minimum of 60 mm (2-3/8 in.) in the smallest direction.

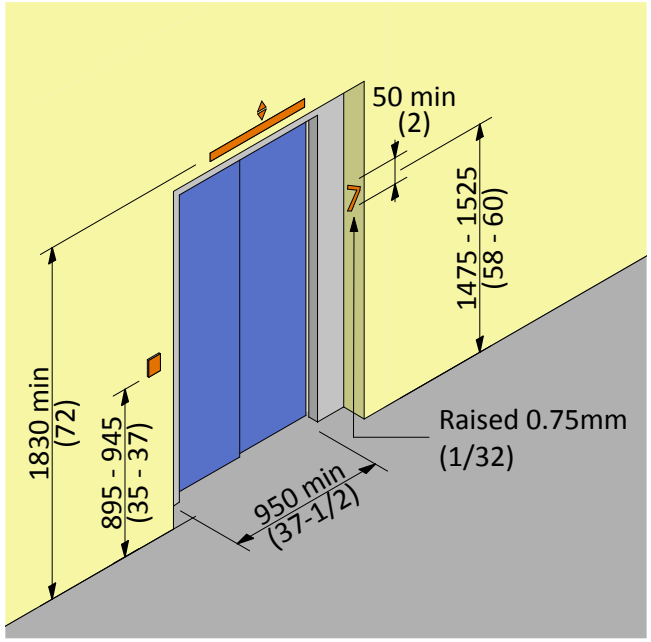


Figure 4.1.14.3:
Elevator Entry

Design Requirements (continued)

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 (2 in.) and at least 0.75 mm (1/32 in.) hall be placed on both sides of the door jambs, with the centreline at 1500 ± 25 mm (59 ± 1 in.) from the floor.

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 1100 mm (43-1/4 in.) 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 (1- 1/2 in.) high and raised a minimum of 0.75 mm (1/32 in.). 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 (29 in.). Additionally, the handset shall be equipped with a receiver that generates a magnetic field in the area of the receiver cap, and the handset shall have a volume control and shall comply with CSA Standard T515. If the system is located in a closed compartment, the compartment door and hardware shall conform to 4.4.2. The emergency intercommunication system shall not require voice communication.

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

Mirrors shall not be used below a height of 2000 mm (78-3/4 in.) within elevator cabs as a finish material on the wall opposite the door. Mirrors on side wall shall not be used.

Where the dimension of elevator cabs is less than 1500 mm (59 in.) in any direction, an angled mirror shall be provided above a height of 2000 mm (78-3/4 in.) on the wall opposite the door, to assist persons who use wheelchairs to back out. Floor finishes within elevator cabs shall comply with 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/tonal contrast*, to differentiate them from the surrounding environment.

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

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
4.4.7 Signage
4.4.9 Public Address Systems
4.4.11 Card Access, Safety and Security Systems
4.4.12 Glare and Light Sources
4.4.13 Lighting
4.4.14 Materials and Finishes
4.4.15 Texture and Colour

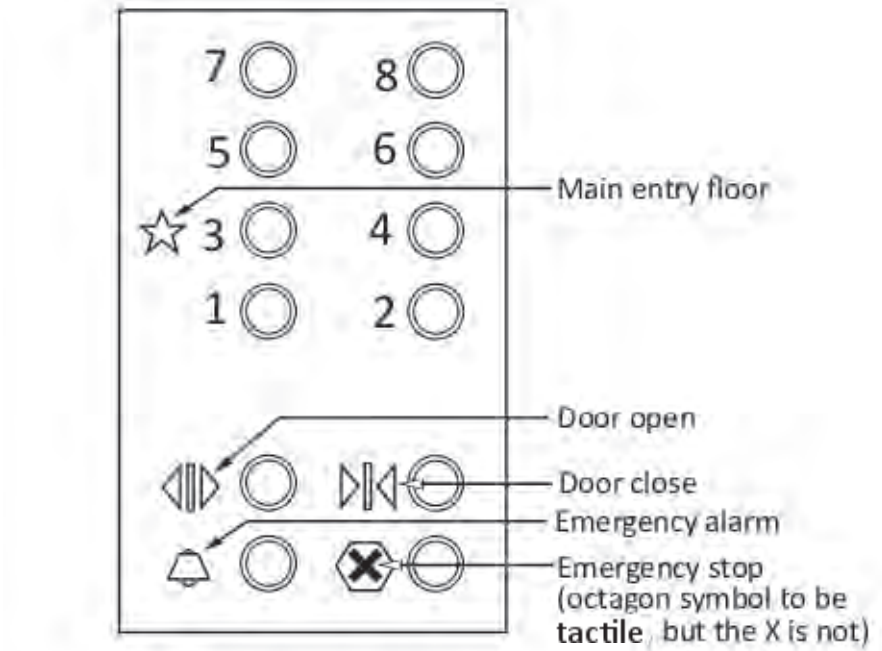


Figure 4.1.14.4:
Tactile Symbols

4.1.15 Platform Lifts

Rationale

The use of platform lifts is not recommended.

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

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

Application

Accessible platform lifts shall comply with this section. Platform lifts may only be used in lieu of an elevator or *ramp* only under the following conditions:

- to provide an *accessible route* to a performing area in an assembly occupancy;
- to comply with wheelchair viewing position line-of-sight and dispersion requirements of Section 4.3.2;
- to provide access to incidental occupied *spaces* and rooms that are not open to the general public and which house no more than five persons, including, but not limited to, equipment control rooms and projection booths; and
- to provide access to raised judges' benches, clerks' stations, speakers' platforms, jury boxes and witness stands or to depressed areas, such as the well of a court.

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

Platform lifts shall meet the requirements of the Technical Standards and Safety Authority (TSSA)

Design Requirements

Accessible platform lifts shall

- be on an *accessible route* complying with Section 4.1.4;
- be identified with *signage* complying with applicable provisions of Section 4.4.7;
- comply with CSA standard CAN/ CSA B355 (latest edition); and
- facilitate unassisted entry, operation, and exit from the lift. The platform size shall be no less than 890 x 1525 mm (35 x 60 in.).

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

The doors to the platform lift shall comply with Section 4.1.6.

Controls and operating mechanisms shall comply with Section 4.4.2.

Design Requirements (continued)

Platform lifts 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 two-way communication system shall be a maximum of 1200 mm (47-1/4 in.) from the floor of the platform. If the system uses a handset, then the length of the cord from the panel to the handset shall be at least 735 mm (29 in.). If the system is located in a closed compartment, the compartment door and hardware shall conform to Section 4.4.2.

Floor finishes within platform lifts shall comply with Section 4.1.2 and Section 4.4.14.

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
4.4.7 Signage
4.4.9 Public Address Systems
4.4.11 Card Access, Safety and Security Systems
4.4.12 Glare and Light Sources
4.4.13 Lighting
4.4.14 Materials and Finishes
4.4.15 Texture and Colour

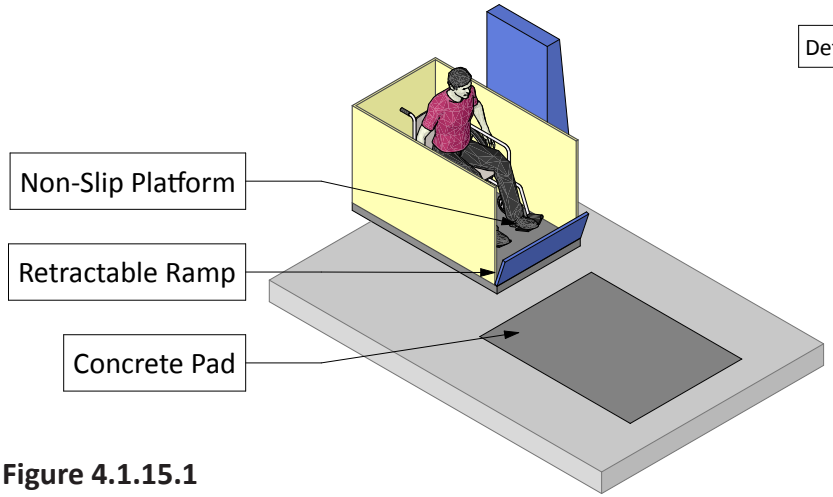


Figure 4.1.15.1
Vertical Platform Lift

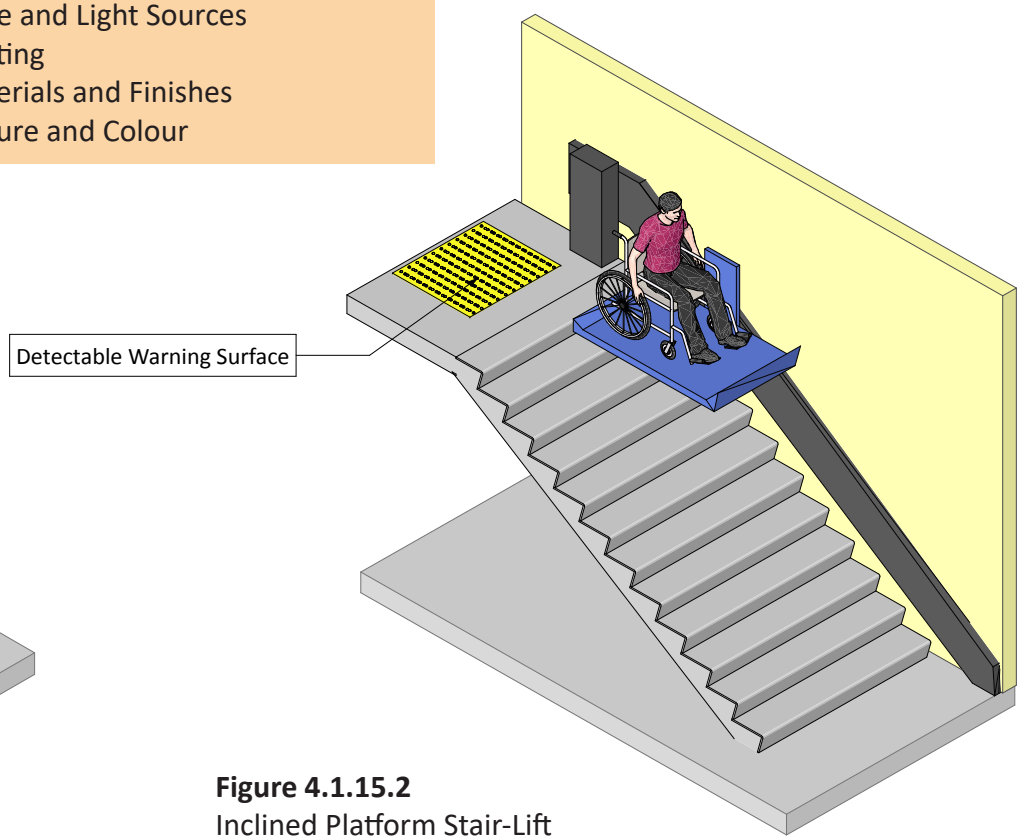


Figure 4.1.15.2
Inclined Platform Stair-Lift

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 inappropriate and a *universal 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 vision loss would also benefit from *accessible signage*. Features such as *colour/tonal 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*.

The minimum number of *universal washrooms* per *building* shall be as shown on Table 4.2.1.

The minimum number of *accessible* toilet stalls within washrooms shall comply with Section 4.2.2.

In a *retrofit* situation where it is *technically infeasible* to make any of the existing public or *common use* toilet *facilities accessible*, the installation of at least one new *universal washroom* shall be provided instead of following Table 4.2.1. These new washrooms shall be located in the same area or within visual range of existing toilet *facilities* and shall be provided instead of modifying existing toilet *facilities*.

If *accessible* 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 Section 4.2.8, and other applicable sections of this standard.

For single-user portable toilet units clustered at a single location, a minimum of 5% but no less than one toilet unit in compliance with this section shall be provided at clusters wherever typical in*accessible* units are provided. (Exception: Portable toilet units at construction *sites* used exclusively by construction personnel are not required to comply with this section.)

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 4.4.7;
- 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 200 lux (20 ft-candles).

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 (67) clearance between the inside face of an in-swinging *entrance* door and the outside face of an adjacent toilet stall; and
- be configured to ensure there are no sightlines to fixtures within toilet *facilities*.

NOTE: It is preferable to have no doors at *entrances* to public or common-use toilet *facilities*

Accessible fixtures and controls within toilet and bathing rooms shall

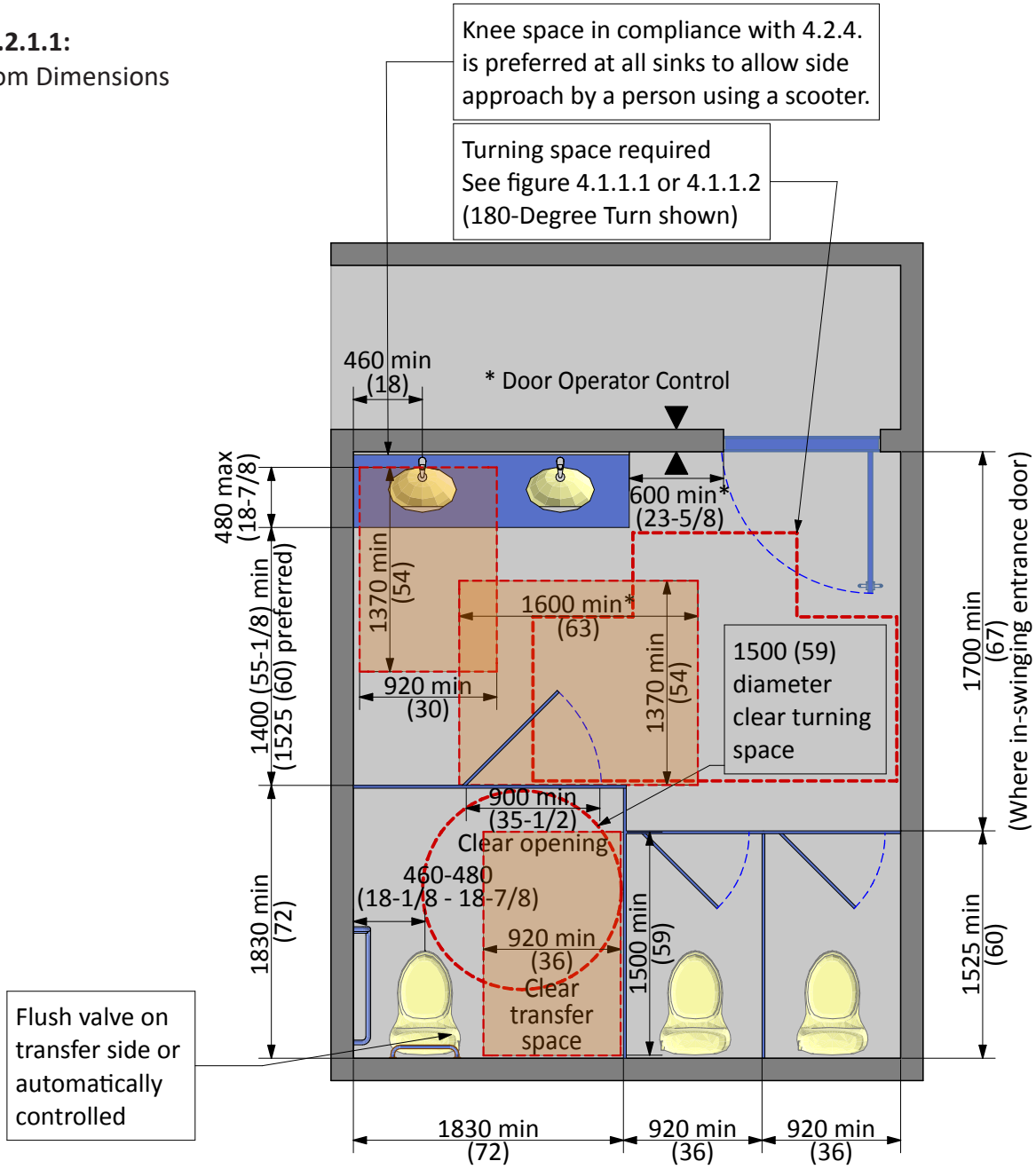
- be on an *accessible route* complying with Section 4.1.4.
- have a minimum clearance of 1400 mm (55-1/8 in.) between the outside face of the *accessible* stall and any wall-mounted fixture or obstruction, with a preferred clearance of 1525 mm (60 in.).

Provide a motion detector for lights in all *accessible* washrooms. In a multi-unit washroom ensure that the sensor will detect motion within the *accessible* stalls.

Number of Storeys in Building	Minimum number of Universal Washrooms per Building
1 to 3	1
4 to 6	2
Over 6	3, plus 1 for each additional increment of 3 *storeys* in excess of 6 *storeys*
In a *retrofit* situation where it is *technically infeasible* to make any of the existing public or *common use* toilet *facilities accessible*, the installation of at least one new *universal washroom* shall be provided instead of following Table 4.2.1.	
In addition to any *accessible* public or *common use* toilets, at least one *universal washroom* in compliance with Section 4.2.7 shall be provided in all public *buildings* and on every floor level in *assembly areas* where the floor incorporates common or *public use* washroom *facilities* containing four or more toilet and/or urinal fixtures.	

Table 4.2.1:
Minimum number of *Universal Washrooms* per *building*.
2012 Ontario *Building* Code Requirement.

Figure 4.2.1.1:
Washroom Dimensions



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
4.4.7 Signage
4.4.12 Glare and Light Sources
4.4.13 Lighting
4.4.14 Materials and Finishes
4.4.15 Texture and Colour

* Refer to Section 4.1.6 for required latch side clearances and power operator requirements.

Refer to Section 4.2.2 for accessible toilet stall requirements.

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, 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 to accommodate persons of large stature or parents with small children.

Where possible toilet stalls should be designed such that the open door of the *accessible* stall does not obstruct the *path of travel*.

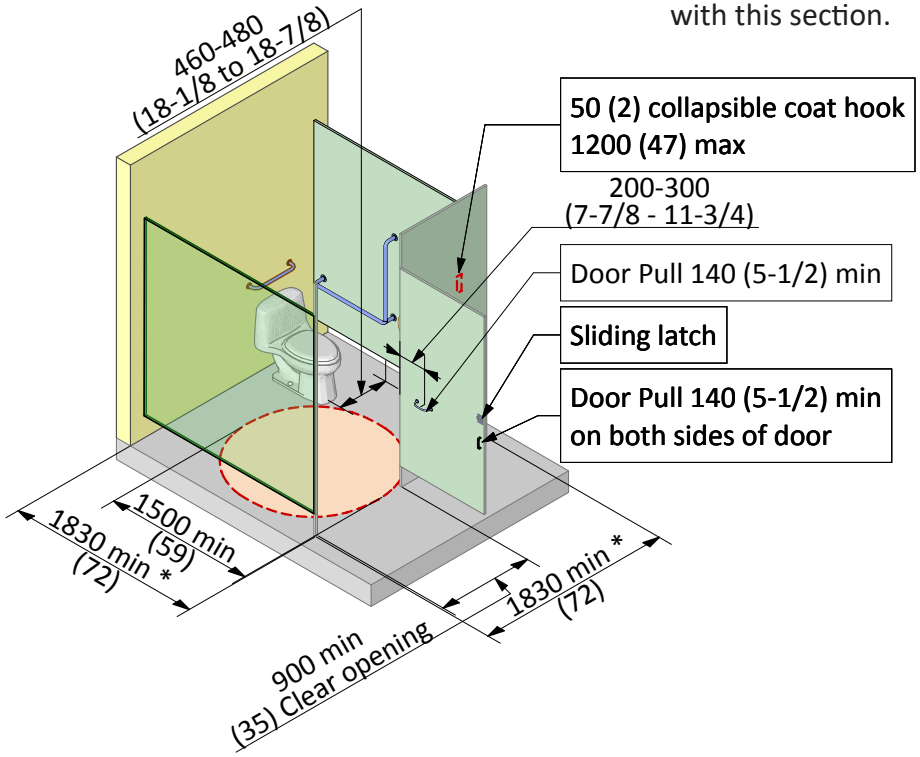
Application

Accessible toilet stalls shall comply with this section.

In the case where multiple change rooms are provided, only the *accessible* change rooms must meet this requirement.

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 920 mm (36 in.) wide by 1525 mm (60 in.) long, and shall incorporate door-locking mechanisms in compliance with this section.



NOTE: In a retrofit situation where it is technically infeasible to provide the required clearances, the dimensions marked with an * may be reduced. Refer to 4.2.2 - Design Requirements.

Figure 4.2.2.1:
Accessible Toilet Stall

Application (continued)

At least one toilet stall within each non-*accessible* washroom shall be designated as an *ambulatory toilet stall* and shall comply with the ambulatory stall requirements of this section. This is a 2012 Ontario Building Code requirement.

Number of toilet stalls within the washroom	Required number of accessible toilet stalls
1 to 5	1
6 to 16	2
17 to 20	3
21 to 30	4
over 30	5 plus 1 for each additional increment of 10

Table 4.2.2:
Number of *Accessible* Toilet Stalls

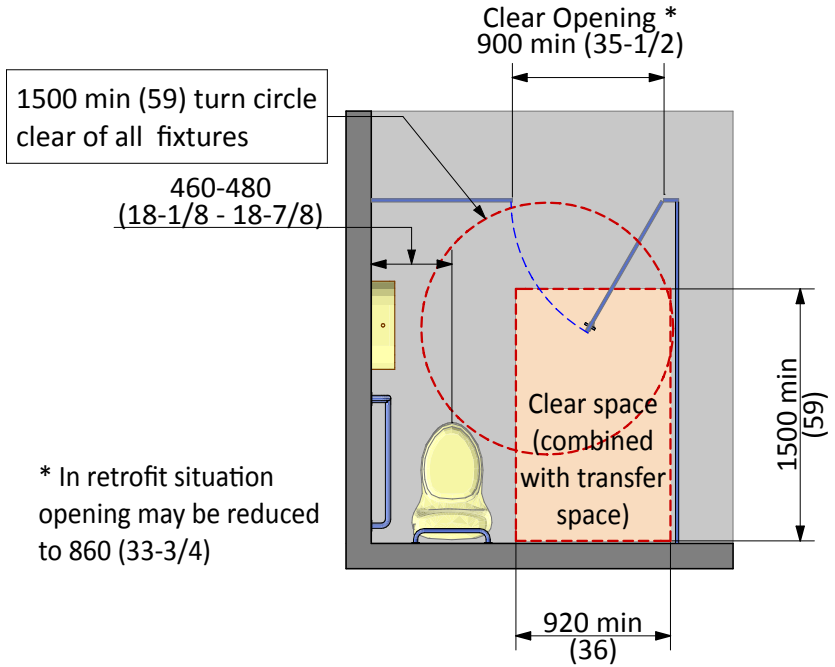


Figure 4.2.2.2:
Accessible Toilet Stall with In-Swinging Door

Design Requirements

All toilet stall doors shall be capable of being locked from the inside by a device that is operable with one hand; does not require fine finger control, tight grasping, pinching, or twisting of the wrist; and requires a force of not more than 22 N (4.9 lb.) to activate (e.g., sliding bolt or lever).

Accessible toilet stalls shall

- be on an *accessible route* in compliance with Section 4.1.4;
- have internal dimensions at least 1830 x 1830 mm (72 x 72 in.);
- have a *clear* turn *space* within the stall of at least 1500 mm (59 in.) in diameter;
- have a toilet fixture in compliance with Section 4.2.3;
- be equipped with a coat hook mounted not more than 1200 mm (47-1/4 in.) above the floor on a side wall and projecting not more than 50 mm (2 in.) from the wall; and
- have a minimum 920 mm (36 in.) wide *clear* transfer *space* on one side of the toilet fixture.

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.

Design Requirements (continued)

Toilet stall doors shall incorporate operating hardware (devices such as handles, pulls, latches and locks) that

- is capable of being locked from the inside and being released from the outside in case of an emergency;
- is operable with one hand, using a closed fist;
- is operable without the use of fine finger control, tight grasping, pinching, or twisting of the wrist;
- requires a force of not more than 22.2N (5 lbs) to activate (e.g. sliding bolt or level); and
- is mounted between 900 mm (35-1/2 in.) and 1100 mm (43-1/4 in.) above the floor.

Accessible toilet stall doors shall

- provide a *clear* opening of at least 900 mm (35-1/2 in.) with the door in the open position. In a *retrofit* situation where it's *technically infeasible* to provide the required *clear* opening, the *clear* opening may be reduced to 860 mm (33-3/4 in.);
- swing outward, unless additional *clear floor space* of at least 920 mm x 1500 mm (36 in. x 59 in.) is provided within the stall and does not interfere with the arc of the door swing;
- be aligned with the *clear* transfer *space* adjacent to the toilet fixture;
- be equipped with gravity hinges so that the door closes automatically;
- be provided with a "D"-type contrasting-coloured door pulls
  - at least 140 mm (5-1/2 in.) long;
  - on both sides of the door;
  - located so that the centre line is between 200 and 300 mm (7-7/8 and 11-3/4 in.) from the hinged side of the door on the inside of an out-swinging door; and
  - mounted between 750 - 850 mm (29-1/2 - 33-1/2 in.).

Designated *ambulatory toilet stalls* shall

- be at least 1500 mm (59 in.) deep and 920 - 940 mm (36 - 37 in.) wide;
- have the toilet fixture centred between the partition walls;
- have a door that provides a *clear* opening width of at least 810 mm (32 in.), which swings out unless the minimum stall dimensions are not located within the door swing;
- be equipped with gravity hinges; and
- have latch-side pulls in compliance with this section.

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

- be operable by one hand, using a closed fist;
- not require fine finger control, tight grasping, pinching, or twisting of the wrist to operate; and
- be mounted between 810 mm (32 in.) and 1200 mm (47-1/4 in.) above the floor.

Toilet stall partitions and doors shall be *colour/tonal contrasted* with the surrounding environment.

Where an airport style (door- free) washroom entry is used, the set back wall shall be painted a contrasting colour for easier depth perception and entry wayfinding.

Toilets, flush controls and other *elements* shall be designed to meet the requirements of Section 4.2.3.

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

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.

Application

Accessible toilets shall comply with this section. Wall-mounted toilets are preferred.

Design Requirements

Accessible toilet fixtures shall

- have the top of the seat between 430 and 485 mm (17 and 19-1/8 in.) above the floor;
- not have a spring-activated seat;
- have a back support where there is no seat lid or tank;
- where a tank is used, have the tank top securely attached;
- be located between 460 and 480 mm (18-1/8 to 18-7/8 in.) away from the adjacent wall measured from the centre line of the toilet to the surface of the wall; and
- have a *clear* transfer *space* in all *accessible* toilet stalls (see 4.2.2.) and in *universal washrooms* (see 4.2.7.), minimum 920 mm (36 in.) wide and 1500 mm (59 in.) deep from the edge of the water closet on one or both sides of the toilet fixture, designed to permit a wheelchair or scooter to back into the *clear space*.

The *clear* transfer *space* shall be *clear* of obstructions (such as garbage bins or baby change tables). Exception: Sanitary napkin disposal units may be installed within the transfer *space* provided they are recessed or protrude not more than 100 mm (4 in.) into this *space*.

Toilet flush controls shall be

- operable by use of one hand in a closed fist with a force of not more than 22N; and
- located on the transfer side of the toilet; or
- be electronically automatically controlled.

Hand-operated flush controls shall comply with Section 4.4.2.

Design Requirements (continued)

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

- comply with Section 4.2.10;
- are L-shaped with 750 mm (29-1/2 in.) long horizontal and vertical components mounted with the horizontal component 750 mm (29-1/2 in.) above the floor and the vertical component 150 mm (6 in.) in front of the toilet bowl; and
- be at least 600 mm (23-5/8 in.) in length, mounted horizontally on the wall behind the toilet, from 840 mm (33 in.) to 920 mm (36 in.) above the floor, and, where the water closet has a water tank, be mounted minimum 150 mm (6 in.) above the tank.

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

- comply with Section 4.2.10;
- are at least 760 mm (30 in.) long;
- are mounted on the wall behind the toilet with the horizontal component 750 mm (29-1/2 in.) above the finished floor and 390 - 410 mm (15-3/8 - 16-1/8 in.) from the centre line of the toilet; and
- one grab bar will have the toilet paper dispenser attached.

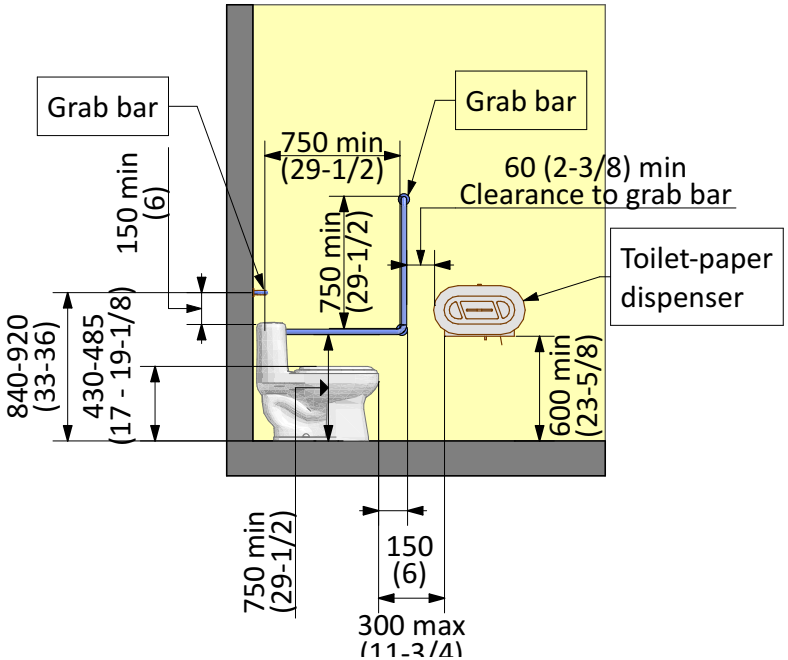


Figure 4.2.3.1:
Grab Bar Configuration

Design Requirements (continued)

In addition to the required grab bars, an optional fold-down grab bar in compliance with Section 4.2.10 and this section may be provided on the transfer side of the toilet.

Where provided, a fold-down grab bar shall

- be mounted on the wall behind the toilet
  - with the horizontal component 750 mm (29-1/2 in.) above the finished floor; and
  - not less than 390 mm (15-3/8 in.) and not more than 410 mm (16-1/8 in.) from the centre line of the water closet;
- not require a force of more than 22.2 N (5 lbs.) to pull it down;
- be at least 760 mm (30 in.) in length;
- be installed to resist a load of at least 1.33 kN (300 lbs.) applied vertically or horizontally;
- be not less than 35 mm (1-3/8 in.) and not more than 40 mm (1-9/16 in.) in diameter; and
- have a slip-resistant surface.

Toilet fixtures within designated *ambulatory toilet stalls* shall have L-shaped grab bars on both sides in compliance with this section.

Toilet-paper dispensers shall be

- wall mounted;
- located below the grab bar;
- in line with or not more than 300 mm (11-3/4 in.) in front of the toilet seat;
- not less than 600 mm (23-5/8 in.) above the floor; and
- contrasting in colour to the wall.

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
4.4.13 Lighting
4.4.15 Texture and Colour

4.2.4 Lavatories

Rationale

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

Hand drying *facilities* must be usable by persons with *disabilities*.

Powered hand dryers that require users to move their hands vertically into and out of the unit are not *accessible*.

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;
- located to ensure a perpendicular approach
- be mounted so that the minimum distance between the centre line of the fixture and the side wall is 460 mm (18-1/8 in.);
- have the top located between 820 mm (32-1/4 in.) and 840 mm (33 in.) above the floor;
- have a knee *space* of at least
  - 920 mm (36 in.) wide;
  - 735 mm (29 in.) high at the front edge;
  - 685 mm high (27 in.) at a point 205 mm (8-1/8 in.) back from the front edge; and
  - 350 mm (14 in.) high over the distance from a point 300 mm (11-3/4 in.) from the front the lavatory to the wall;
- have a minimum *clear floor space* 760 mm wide (30 in.) and 1370 mm (54 in.) deep, of which a maximum of 480 mm (18-7/8 in.) in depth may be under the lavatory;
- have hot water and drain pipes insulated if they abut the clearances noted above, or limit the water temperature to a maximum of 43 degrees Celsius (100 degrees F); 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 the lavatory to access the devices);
  - located so that the dispensing height is between 900 - 1100 mm (35-1/2 - 43-1/4 in.) above the floor and located not more than 610 mm (24 in.) from edge of the lavatory;
  - located in close proximity to the *accessible* lavatory;
  - operable with one hand;
  - *colour/tonal contrasted* from the surrounding environment; and
  - in compliance with Section 4.4.2.

Design Requirements (continued)

Faucets and other controls shall

- be in compliance with Section 4.4.2;
- have lever-style handles (not self-closing) operable with a clenched fist, or be electronically controlled; and
- be located so that the distance from the centre line of the faucet to the edge of the basin, or where the basin is mounted in a vanity, to the front edge of the vanity is not more than 485 mm (19-1/8 in.).

The front apron of a vanity shall have a minimum clearance of 760 mm (30 in.) wide by 735 mm (29 in.) high.

Shelves or other projections shall;

- be located as not to present a hazard to children or persons with vision loss;
- be located not more than 200 mm (8 in.) above the surface of the lavatory;
- be not more than 1100 mm (43-1/4 in.) above the finished floor; and
- project no more than 100 mm (4 in.) from the wall.

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

Lavatories should be *colour/tonal contrasted* to the surrounding environment.

Lavatories should be located such that they do not create an obstacle for persons with vision loss using a long cane for mobility.

Related Sections

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

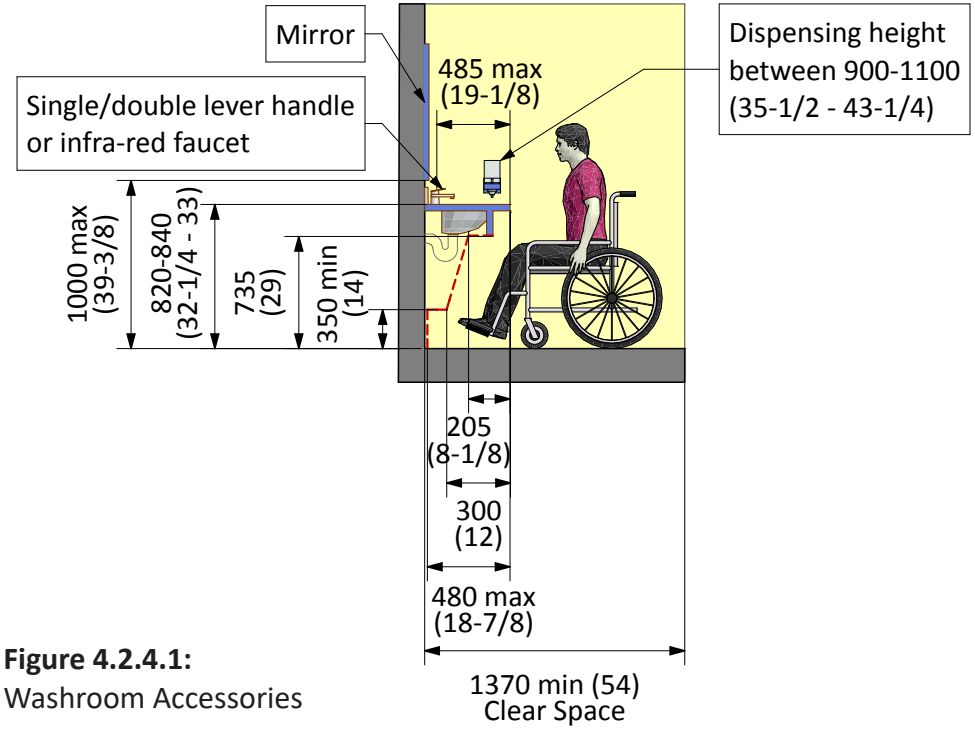


Figure 4.2.4.1:
Washroom Accessories

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/tonal contrasts* between the urinal, the wall and the floor will assist persons with vision loss.

Application

Where urinals are provided in an *accessible* toilet or bathing *facility*, at least one shall comply with this section.

Design Requirements

Urinals shall be

- be designed at floor level with no step in front of the fixture;
- wall-mounted with an elongated rim located no higher than 430 mm (17 in.) above the finished floor; or
- floor-mounted with the rim at the finished floor level. Urinals shall be at least 345 mm (13-1/2 in.) deep, measured from the outer face of the urinal rim to the back of the fixture.

A *clear floor space* of 810 mm x 1370 mm (32 in. x 54 in.) 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.

Where privacy screens are provided

- there shall be at least 920 mm (36 in.) of clearance between them; and
- they shall incorporate a pronounced *colour/tonal contrast*, to differentiate them from the surrounding environment, with a vertical outer edge that contrasts with the screen and the surrounding environment.
- there shall be a clearance of at least 50 mm (2 in.) from the grab bar.

Design Requirements (continued)

Urinals shall have grab bars installed on each side that

- comply with Section 4.2.9;
- are not less than 600 mm (23- 5/8 in.) long;
- are mounted vertically
- not more than 380 mm (15 in.) from the centre line of the urinal; and
- with the lowest end located between 600 - 650 mm (23-5/8 - 25-1/2 in.) above the floor.

Flush controls shall be hand-operated or automatic, mounted at no more than 1100 mm (43-1/4 in.) above the finished floor, and shall comply with Section 4.4.2.

Urinals should be *colour/tonal contrasted* to the surrounding environment.

Related Sections

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

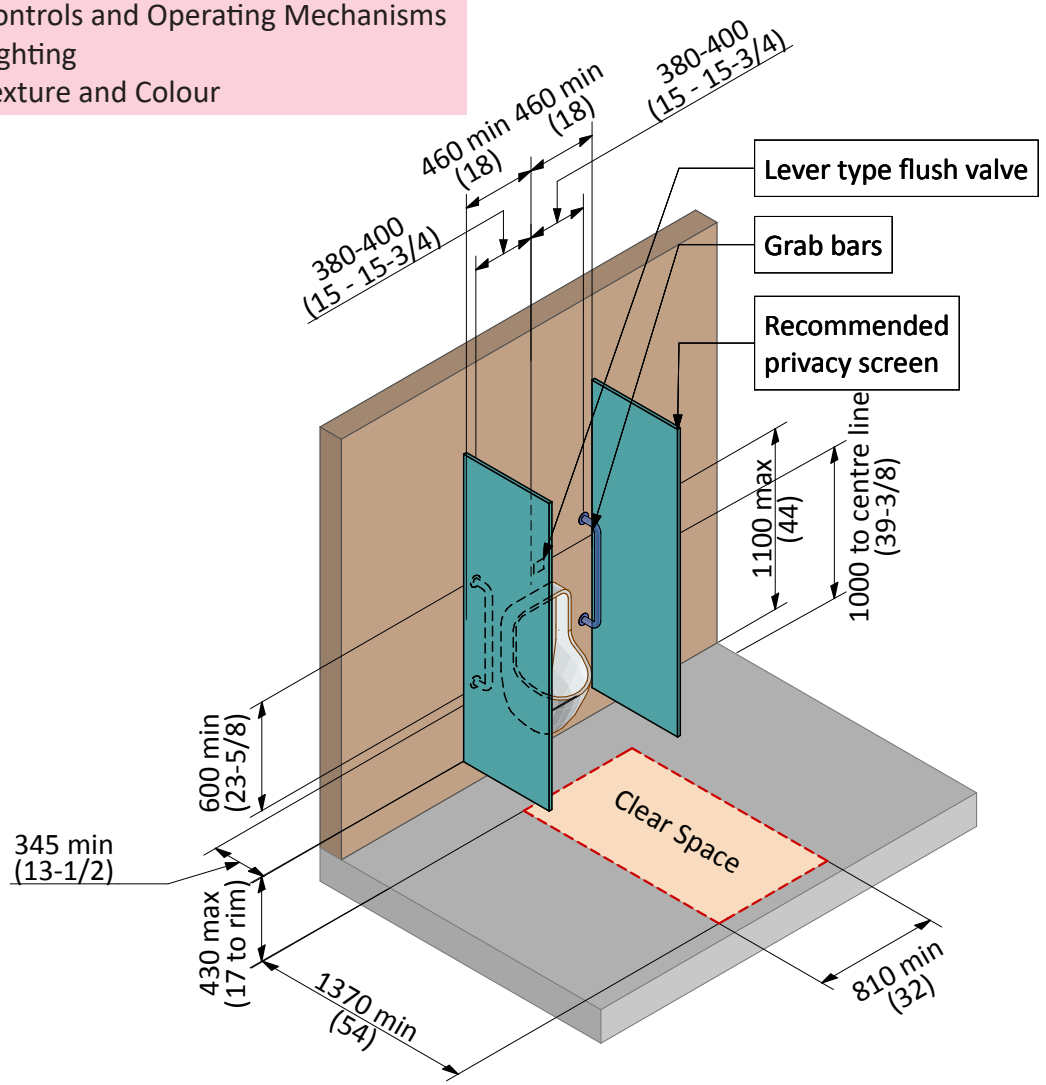


Figure 4.2.5.1&2:
Urinal

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 such as hand-operated dispensers, hand- dryers, built-in garbage receptacles, etc. 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 Section 4.2.2 and 4.2.4, shall have *operable portions* and controls mounted between 900 mm (35-1/2 in.) and 1200 mm (47-1/4 in.) above the floor.

A *clear floor space* of 760 mm x 1370 mm (30 in. x 54 in.) shall be provided in front of the *operable portions* and controls to allow for a forward approach. This *clear floor space* shall adjoin or overlap an *accessible route* and shall comply with Section 4.1.1.

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 (39-3/8 in.) from the floor; and
- have a minimum mirror height of 1000 (39-3/8 in.).

Tilt mirrors shall not be used.

Design Requirements (continued)

Where provided, full length mirrors should not be mounted less than 178 mm (7 in.) above the floor to prevent people with vision loss from perceiving the mirror as an *open space*. Mounting the mirror on a *colour/tonal contrasting* wall is ideal.

Washroom accessories shall be *colour/tonal contrasted* to the surrounding environment.

Powered hand dryers that require users to move their hands vertically into and out of the unit are not *accessible*.

Related Sections

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

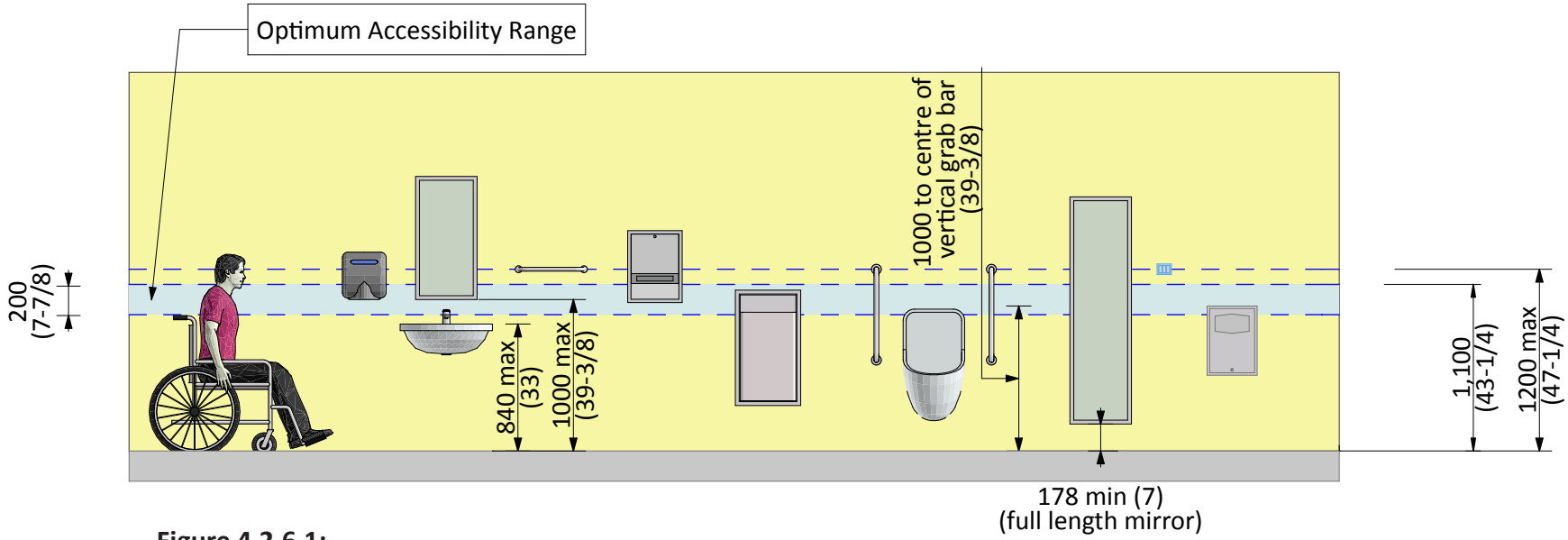


Figure 4.2.6.1:
Washroom Accessories
Note: Objects protruding from the wall more than 100 mm (4 in.) must have their lowest edge no higher than 680 mm (26-3/4 in.).

4.2.7 Universal Washrooms

Rationale

The provision of a separate *universal washroom* is advantageous in a number of instances. For a person using a wheelchair, the extra space provided with a separate washroom is preferred to an *accessible* stall. Should a person 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 person in this type of washroom, an emergency call switch and a means of unlocking the door from the outside are required safety features.

Application

Universal washrooms shall comply with this section.

At least one *universal washroom*, in addition to any *accessible public use* or *common use* toilets, shall be provided

- in all public *buildings*; and
- on every floor level in assembly *buildings* where the floor incorporates common or *public use* washroom *facilities* containing four or more toilet and/or urinal fixtures.

For the minimum number of *universal washrooms* per *building* refer to Table 4.2.1.

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

Universal washrooms shall

- be on an *accessible route* in compliance with Section 4.1.4; and
- be identified with *signage* in compliance with applicable provisions of Section 4.4.7.
- be designed to permit a wheelchair to turn within an *open space* that has a diameter of not less than 2440 mm (96 in.). In a *retrofit* situation where providing the required turning *space* is *technically infeasible*, the turning *space* may be reduced to not less than 2130 mm (84 in.);
- be provided with a lavatory conforming to Section 4.2.4;
- be equipped with a toilet fixture conforming to Section 4.2.3;
- be 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 4.2.10;
- have fixture clearances conforming to Sections 4.2.3 and 4.2.4;
- be provided with a *clear* transfer *space* adjacent to the toilet fixture, as required by Section 4.2.3;

Design Requirements (continued)

- be equipped with
  - a collapsible coat hook mounted not more than 1200 mm (47-1/4 in.) from the floor on a side wall and projecting not more than 50 mm (2 in.) from the wall;
  - a shelf mounted not more than 1100 mm (43-1/4 in.) above finished floor; and
  - a mirror and washroom accessories complying with Section 4.2.6.
- have lighting controlled by a motion sensor.

Universal washrooms may be equipped with an optional fold-down grab bar at least 760 mm (30 in.) in length at the open side of the toilet, mounted 420 - 440 mm (16-1/2 - 17-3/8 in.) from the centre line of the toilet and 630 - 690 mm (24-3/4 - 27-1/8 in.) above the floor.

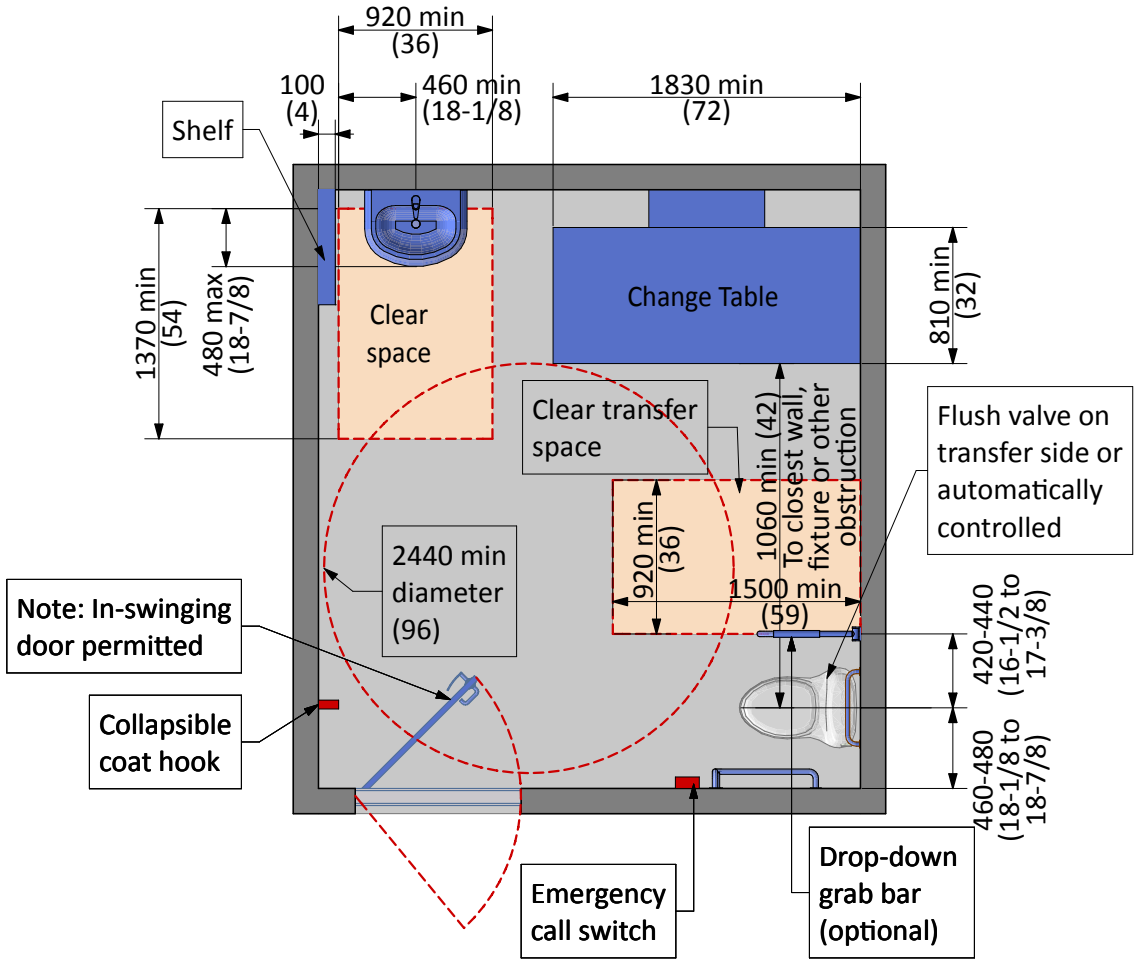


Figure 4.2.7.1:
Universal washroom

Design Requirements (continued)

Universal washroom doors shall

- comply with Section 4.1.6;
- be equipped with a power operator;
- be capable of being locked from the inside
  - with a closed fist;
  - without tight grasping, pinching or twisting of the wrist; and
  - with a force less than 22.2 N (5 lbs.)
- have a latch operating and locking mechanism located not less than 900 mm (35 1/2 in.) and not more than 1100 mm (43-1/4 in.) above the floor;
- where equipped with a power locking mechanism, have
  - a push-to-unlock button on the inside of the washroom that also activates the power door operator;
  - *signage* indicating the door locking/unlocking procedures installed next to the locking/unlocking buttons;
  - a sign on the inside of the washroom that is illuminated with the word "LOCKED" when the door is locked;
  - a sign on the outside of the washroom that is illuminated with the words "IN USE" when the door is locked; and
- can be released from the outside in case of emergency.

Universal washrooms shall incorporate an emergency call system linked to a central monitoring location, where applicable. The emergency call shall also

- be equipped with audible and visual signals both inside and outside washroom;
- be activated by a control device inside washroom within reach of the toilet;
- 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 (1 in.) high with a 5 mm (1/4 in) stroke and that is posted above the emergency button; and
- where central monitoring is not provided, such as in the case of a small *building* or a stand alone washroom in a park, an additional sign informing the washroom users that there is no central monitoring may be appropriate.

Design Requirements (continued)

In *facilities* used by the public, *universal washrooms* shall incorporate an adult-sized change table (Figure 4.2.7.2)

- at least 810 mm (32 in.) wide by 1830 (72 in.) long;
- with an adjustable surface height range of 450 - 500 mm (17-3/4 in. to 19-5/8 in.) at low range and 850 - 900 mm (33-1/2 - 35-1/2 in.) at high range;
- with an adjacent *clear floor space* not less than 900 mm (35-1/2 in.) along the entire length of the change table;
- designed to carry a minimum load of 1.33 kN (300 lbs.);
- located on an *accessible route* in compliance with 4.1.4; and
- if it is a fold-down type, have no *operable portions* higher than 1200 mm (47-1/4 in.).

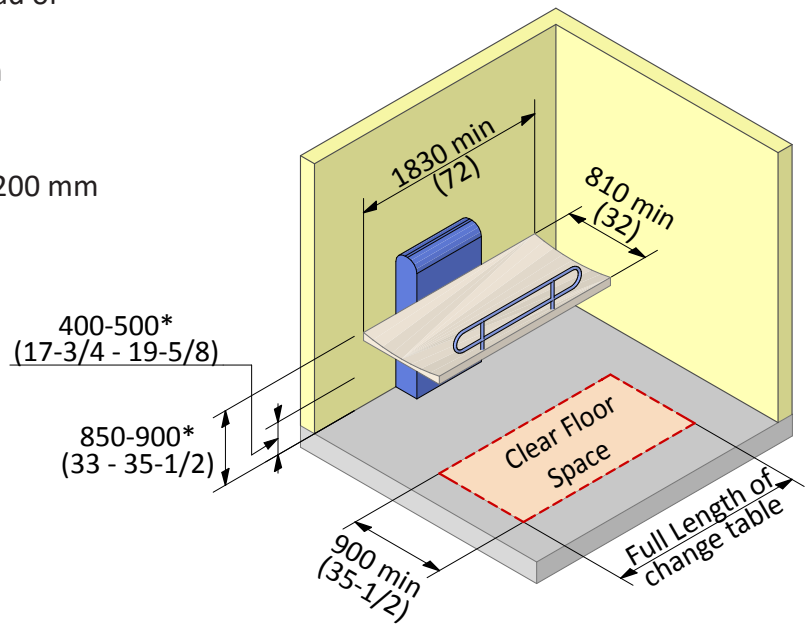


Figure 4.2.7.2:
Adult Change Table

*Adjustable height range at upper and lower edge of range

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
4.4.7 Signage
4.4.11 Card Access, Safety and Security Systems
4.4.12 Glare and Light Sources
4.4.13 Lighting
4.4.14 Materials and Finishes
4.4.15 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 vision loss.

Application

Where showers are provided, at least one shower shall comply with this section.

Where more than 7 showers are provided, not less than two *accessible* showers shall be provided plus one additional *accessible* shower for each further increment of 7.

Design Requirements

Accessible showers shall

- be on an *accessible route* complying with Section 4.1.4;
- be at least 1525 mm (60 in.) in width and 920 mm (36 in.) in depth;
- have a *clear floor space* at the *entrance* to the shower of at least 920 mm (36 in.) in depth and the same width as the shower, except that fixtures are permitted to project into that *space*, provided access to the shower is not restricted;
- have a slip-resistant floor surface, sloped no steeper than 1:100 (1%);
- have
  - no threshold; or
  - a bevelled threshold not exceeding 13 mm (1/2 in.) above the finished floor;
- have a trench-style drain system across the entry to the shower, or other measures to contain water within the shower area. In a *retrofit* situation where it is *technically infeasible* to provide a trench drain system, a collapsible shower dam is permitted to assist with water containment;

Design Requirements (continued)

- be equipped with a wall-mounted folding seat that is not spring-loaded or a fixed seat that is
  - not less than 450 mm (17-3/4 in.) wide and 400 mm (15 in.) deep;
  - mounted 430 - 485 mm (17 - 19-1/8 in.) above the floor;
  - located within 500 mm (19-5/8 in.) of shower controls; and
  - designed to carry a minimum load of 1.33 kN (300 lbs.);
- be equipped with an L-shaped grab bar that
  - conforms to Section 4.2.10;
  - is located on the same wall as the controls;
  - has a horizontal component at least 920 mm (36 in.) long and a vertical component at least 920 mm (36 in.) long; and
  - is mounted so that the horizontal component overlaps the seat by at least 300 mm (11 3/4 in.), and at 850 mm (33-1/2 in.) above the floor.
- be equipped with a vertical grab bar on each end wall that
  - is at least 760 mm (30 in.) in length;
  - is mounted 80 - 120 mm (3-1/8 - 4-3/4 in.) from the front edge, at a point 700 and 800 mm (27-1/2 and 31-1/2 in.) above the finished floor; and
  - conforms to Section 4.2.10;
- 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 1000 mm (39-3/8 in.), maximum 685 mm (27 in.) from 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 1525 mm (60 in.) of flexible hose that can be used both as a fixed position shower head and as a hand held shower head;
  - with shower spray unit that is reachable from the seated position; and
  - has an on/off control.

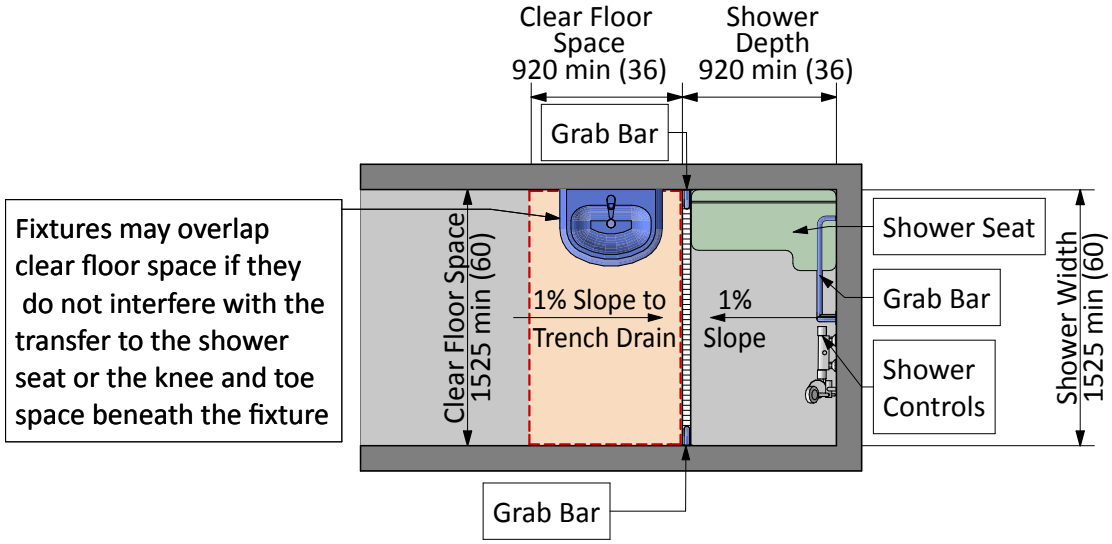


Figure 4.2.8.1:
Plan View of *Accessible* Shower

Design Requirements (continued)

Exception: The use of two fixed-height shower heads with the capability of adjusting the direction of water flow is permitted instead of a hand-held spray unit in *facilities* that may be subject to vandalism. The height of the higher shower head to be 1825 mm (72 in.). The height of the lower shower head to be 1400 mm (55-1/8 in.). A valve to direct water between the shower heads, in compliance with Section 4.4.2, shall be located adjacent to the shower control/mixing valve.

Where the shower head 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.

Related Sections

4.1.1 Space and Reach Requirements
4.1.2 Ground and Floor Surfaces
4.2.6 Washroom Accessories
4.2.9 Grab Bars
4.4.2 Controls and Operating Mechanisms
4.4.13 Lighting
4.4.15 Texture and Colour

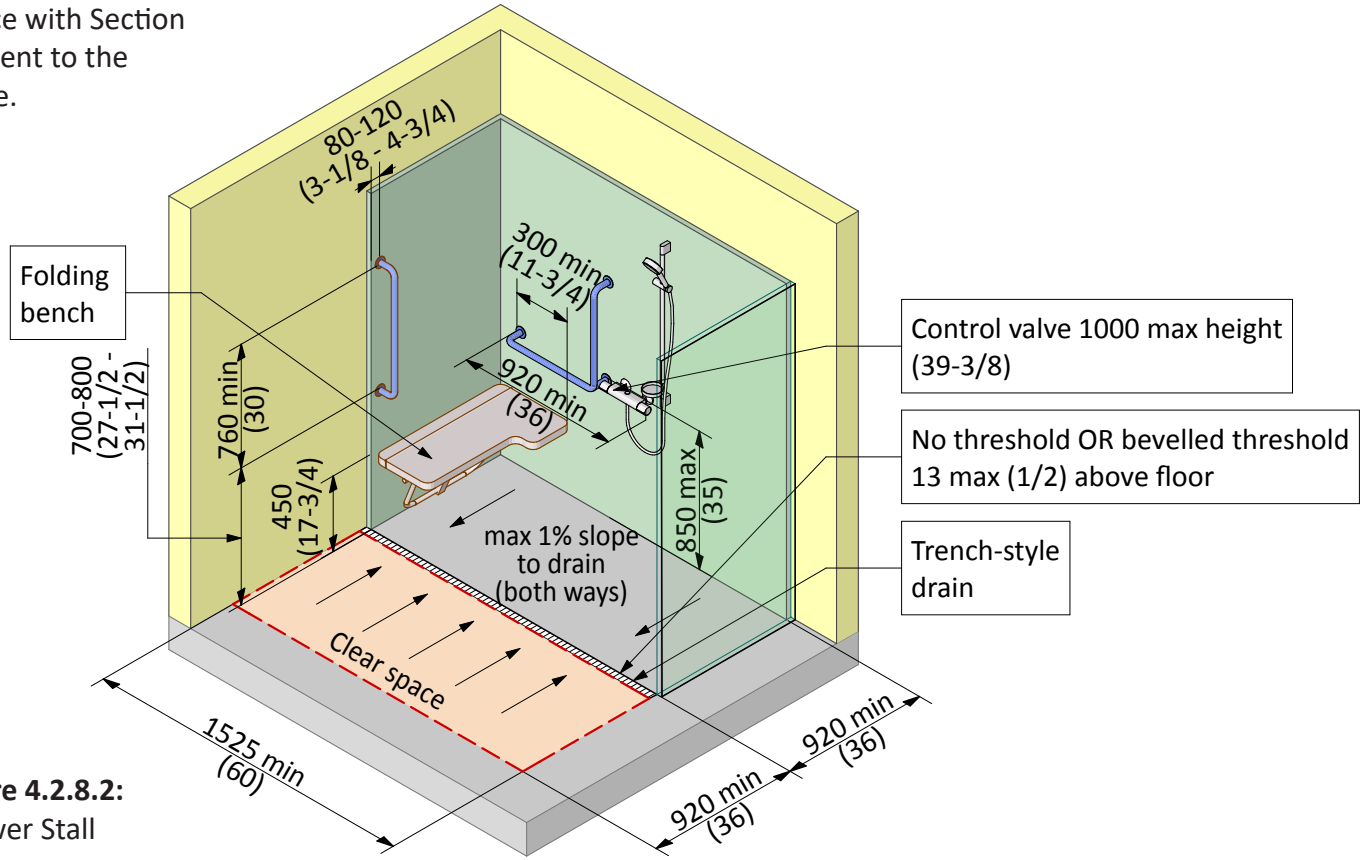


Figure 4.2.8.2:
Shower Stall

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.

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 (300 lb.), applied vertically or horizontally;
- be not less than 35 mm (1-3/8 in.) and not more than 40 mm (1-9/16 in.) in diameter;
- be free of any sharp or abrasive *elements*;
- be *colour/tonal contrasted* with the surrounding environment; and
- have a slip-resistant surface.

Wall-mounted grab bars shall have a clearance of 50 mm (2 in.) to the wall.

Fold-down grab bars shall comply with Section 4.2.3 and this section.

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

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
4.4.13 Lighting
4.4.15 Texture and Colour

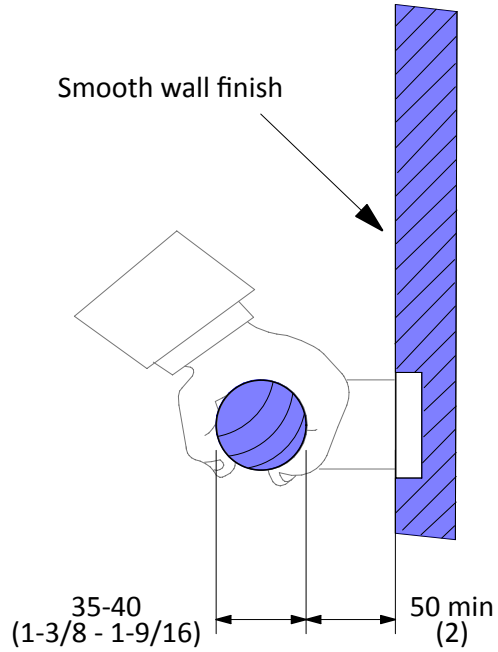


Figure 4.2.9.1:
Grab Bar

4.3.1 Drinking Fountains

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. Angled recessed alcove designs 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 not more than 900 mm (35-1/2 in.) above the floor or ground surface;
- project a water stream at least 100 mm (4 in.) high; and
- 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 (4.9 lb.), or be automatically operable.

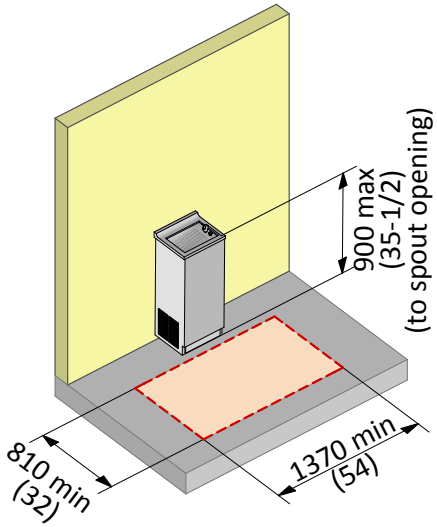


Figure 4.3.1.1:
Parallel Approach

Design Requirements (continued)

Cantilevered drinking fountains shall

- have a *clear floor space* of at least 810 mm (32 in.) by 1370 mm (54 in.);
- have a knee *space* between the bottom of the apron and the floor or ground of at least 810 mm (32 in.) wide, 500 mm (19-1/2 in.) deep and 735 mm (29 in.) high;
- have a toe *space* not less than 760 mm (30 in.) wide, 300 mm (11-3/4 in.) deep, and 350 mm (14 in.) high; and
- be recessed or otherwise located out of the circulation route (Figures 4.3.1.2 and 4.3.1.3).

Freestanding or built-in fountains not having a knee *space* shall have a *clear floor space* at least 1370 mm (54 in.) wide by 810 mm (32 in.) deep in front of the unit to accommodate a parallel approach (Figure 4.3.1.1).

Fountains that protrude into the *path of travel* and are mounted above the cane detectable height should incorporate *detectable warning surface* (Refer to Sections 4.4.8 and 4.4.15). The texture and colour shall be used consistently throughout the *site* to identify hazards.

Bottle fill stations shall have the fill button on the front of the unit, no more than 1200 mm (47-1/4 in.) high, easily operated from a wheelchair or scooter using one hand with a force of not more than 22 N (4.9 lb.), or be automatically operable.

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
4.4.13 Lighting
4.4.14 Materials and Finishes
4.4.15 Texture and Colour

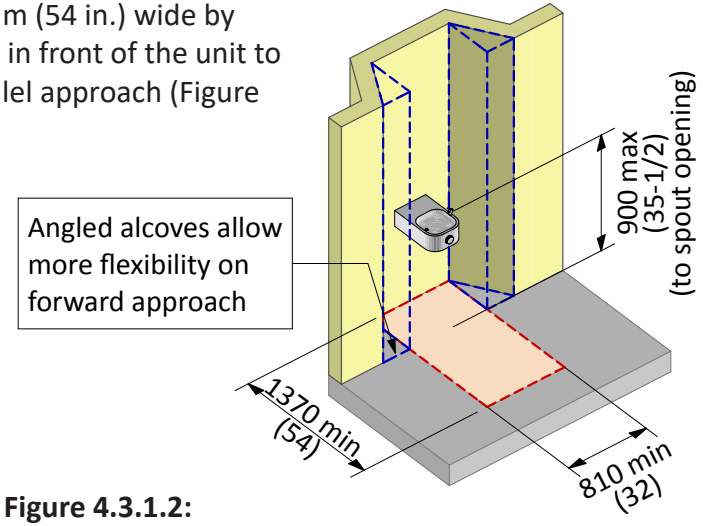


Figure 4.3.1.2:
Forward Approach

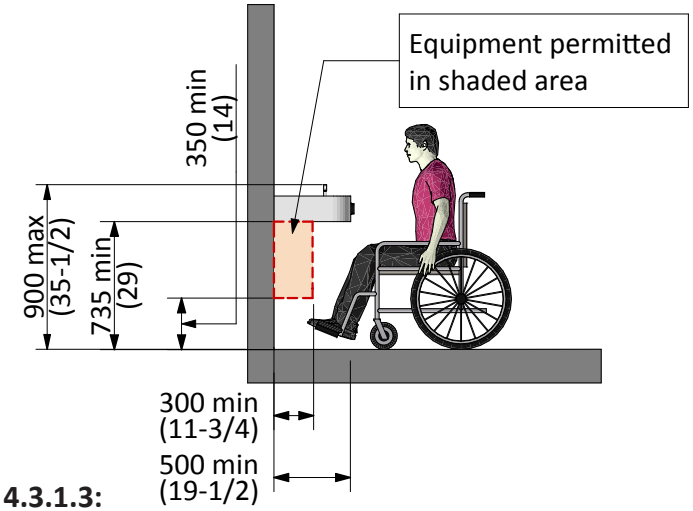


Figure 4.3.1.3:
Clearances

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. Consider also the lower eye-level of children when configuring seating and *accessible* wheelchair locations to provide unobstructed sightlines. A choice of . A choice of locations and ticket price range should be available.

Application

In places of assembly occupancy with fixed seating, *accessible* wheelchair/scooter locations shall comply with this section and shall be provided in numbers as indicated by Table 4.3.2.

Adaptable seats shall be provided in compliance with Table 4.3.2.

Spaces for the storage of wheelchairs and other *mobility assistive devices* shall be provided to accommodate the users of the *adaptable* seats in compliance with Table 4.3.2.

Design Requirements

Accessible wheelchair/scooter 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.

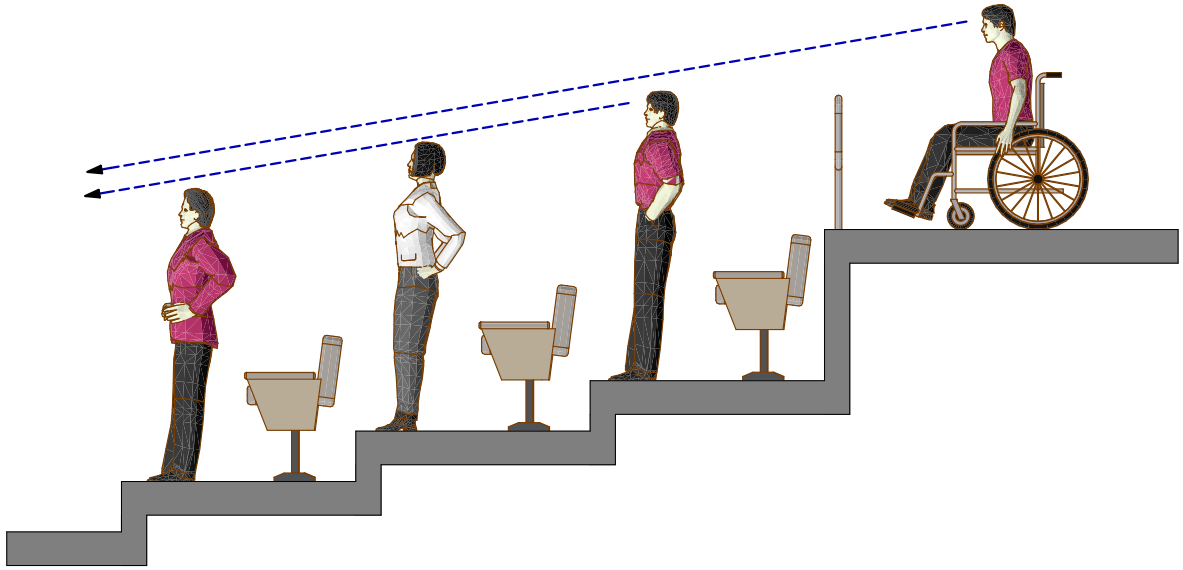


Figure 4.3.2.1:
Sight Lines at Wheelchair Locations

Design Requirements (continued)

Each *accessible* wheelchair/scooter location shall be

- situated as part of the designated seating plan, distributed in a manner that provides people with physical *disabilities* a choice of admission prices 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 920 mm (36 in.) wide and 1525 mm (60 in.) long;
- if the wheelchair/scooter enters from a front or rear approach, not less than 920 mm (36 in.) wide and 1370 (54 in.) long;
- arranged so that at least two designated wheelchair/scooter locations are side by side;
- located without infringing on egress from any row of seating or aisle;
- 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* (Table 4.3.2); and
- provided in more than one location where the seating capacity exceeds 100.

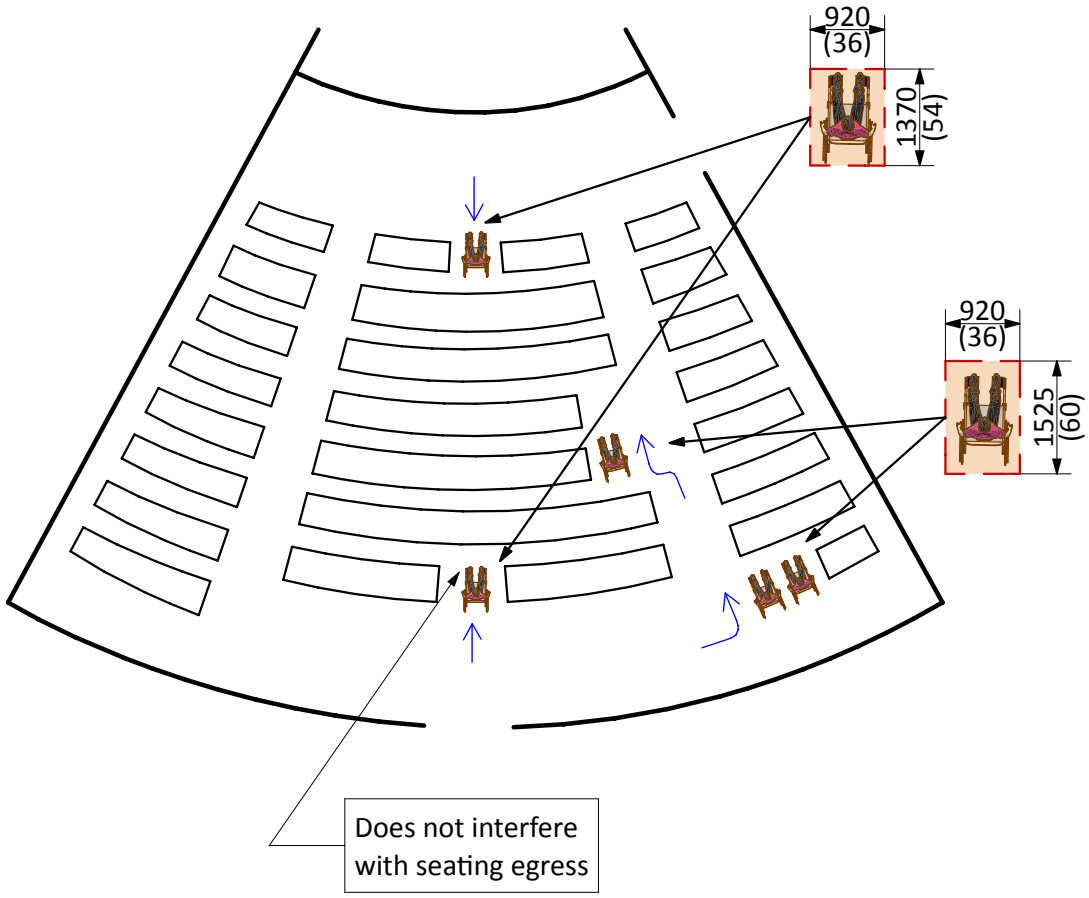


Figure 4.3.2.2:
Distribution of
Wheelchair Locations

Design Requirements (continued)

Fixed seats designated for *adaptable* seating shall be

- located without infringing on egress from any row of seating or aisle;
- equipped with moveable or removable arm rest on the side of the seat adjoining the *barrier*-free *path of travel*; and
- situated as part of the designated seating plan to provide choice of viewing location and *clear* view of the event taking place.

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

- have a minimum floor *space* of 810 mm (32 in.) by 1370 mm (54 in.) for each device; and
- be located on the same level and as close as practicable to the designated seating locations.

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
4.4.6 Assistive Listening Systems
4.4.7 Signage
4.4.9 Public Address System
4.4.14 Materials and Finishes
4.4.15 Texture and Colour
4.4.16 Acoustics

Number of fixed seats in seating area	Minimum number of spaces required for wheelchairs	Minimum number of adaptable seats	Minimum number of storage facilities for wheelchairs
Up to 40	2	2	2
41 to 80	3	4	
81 to 100	4	5	
101 to 150	5	5% of all aisle seating	2, plus 2 for every additional 100 seats
151 to 200	6		
201 to 300	9		
301 to 400	12		
401 to 600	15		
Over 600	Not less than 3% of the seating capacity		

Table 4.3.2:
Wheelchair viewing locations

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 with vision loss.

Application

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

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 (9.3 ft-candles) 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 (9-7/8 in.) above the ground or floor surface and not protected by a *guard*, have a *detectable warning surface*.

A *ramp* shall be provided for stages in compliance with Section 4.1.9.

The *detectable warning surface* on elevated platforms shall

- consist of flat topped domes or cones in compliance with Section 4.4.8;
- be positioned parallel to the open platform edge, extending the full length of the platform; and
- be a minimum depth of 610 mm (24 in.) and a maximum of 920 mm (36 in.), flush from the open edge of the platform.

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
4.4.13 Lighting
4.4.14 Materials and Finishes
4.4.15 Texture and Colour

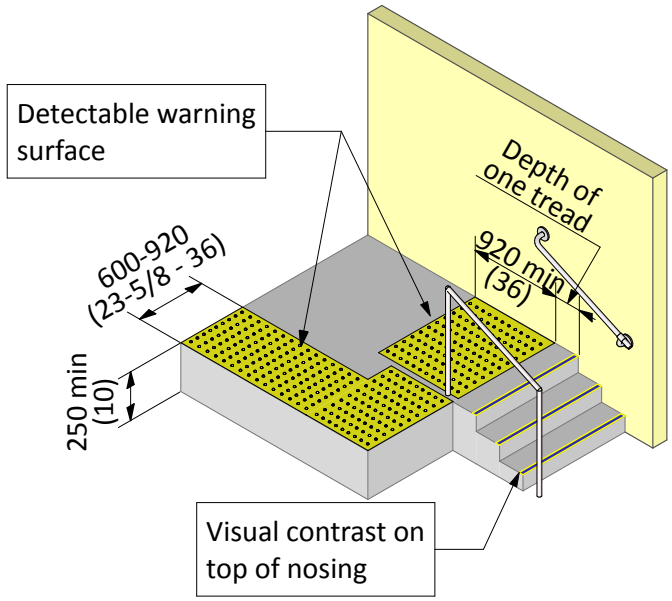


Figure 4.3.3.1:
Detectable Warning Surfaces at Elevated Platform

4.3.4 Change/Dressing Rooms

Rationale

In addition to *accessible common use* change/dressing rooms, a separate unisex change/dressing room is useful. This is valuable in a scenario where an attendant of the opposite sex 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 change/dressing rooms to pool, gymnasium and other activity areas, will be of benefit to many *facility* users.

Application

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

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

Design Requirements

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

Accessible change/dressing rooms shall be labelled with the international symbol of accessibility.

Private *accessible* change/dressing 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* change/dressing room. Turning *space* is not required within a private *accessible* change/dressing room accessed through a curtained opening of at least 950 mm (37- 1/2 in.) wide, if *clear floor space* complying with Section 4.1.1 renders the change/dressing room usable by a person in a wheelchair or scooter.

All doors to *accessible* change/dressing 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* change/dressing room shall have a 810 mm (32 in.) x 1830 mm (72 in.) bench fixed to the wall along the longer dimension. The bench shall

- be mounted 450 to 500 mm (17-3/4 in. to 19-5/8 in.) above the finished floor;
- have *clear floor space* of at least 760 mm (30 in.) wide provided alongside the bench to allow a person using a wheelchair or scooter to make a parallel transfer onto the bench; and
- be designed to carry a minimum load of 1.33 kN (300 lb.).

4.3.4 Change/Dressing Rooms

Design Requirements (continued)

Where coat hooks are provided, they shall be a collapsible style, projecting no more than 50 mm (2 in.) from the wall. At least two collapsible coat hooks shall be provided, mounted no higher than 1200 mm (47-1/4 in.) above the floor, and immediately adjacent to the *accessible* bench. (Note: Coat hooks should NOT be located over the *accessible* bench)

Where change/dressing 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 change/dressing rooms of the same use, *accessible* change/dressing rooms shall incorporate a full-length mirror or other reflective surface measuring at least 460 mm (18 in.) wide by 1370 mm (54 in.) 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.

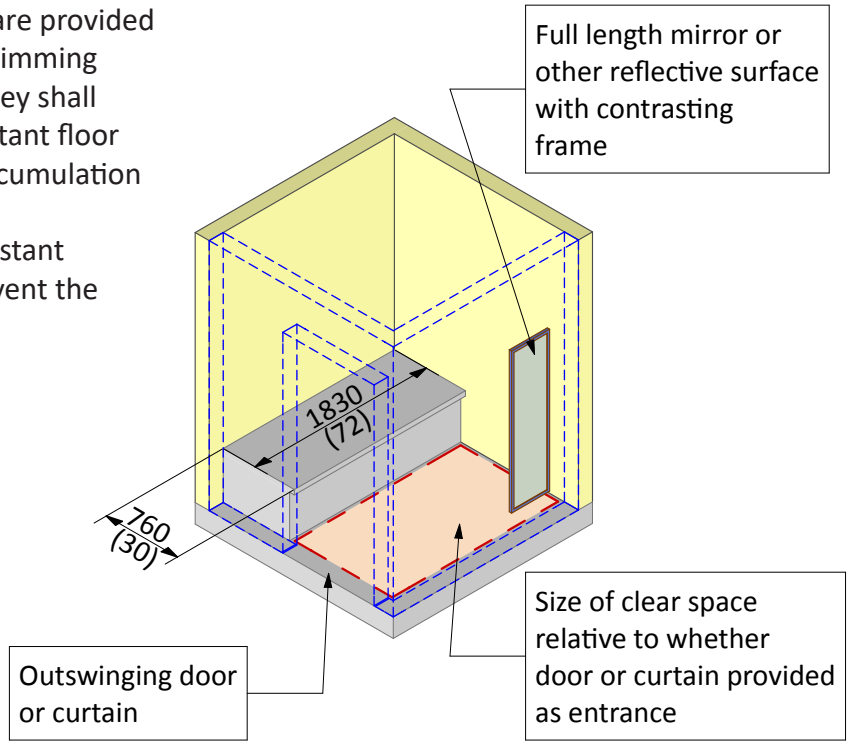


Figure 4.3.4.1:
Private *Accessible* Change/dressing Room

Full length mirrors should not be mounted less than 178 mm (7 in.) above the floor to prevent people with vision loss from perceiving the mirror as an *open space*. Mounting the mirror on a *colour/tonal contrasting* wall is ideal.

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

For open area large group change areas (such as locker rooms) refer to section Section 4.3.10.

Where lockers are provided, they should comply with Section 4.3.10.

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
4.3.10 Lockers and Baggage Storage
4.4.13 Lighting
4.4.14 Materials and Finishes
4.4.15 Texture and Colour

4.3.5 Offices, Work Areas and Meeting Rooms

Rationale

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

All persons, but particularly those with a hearing loss, would benefit from having a quiet acoustic environment - background noise from mechanical equipment such as fans, should be minimal. Telephone equipment for individuals with hearing loss may also be required.

The provision of assistive speaking devices is important for the range of individuals who may have difficulty with low vocal volume thus affecting production of normal audible levels of sound.

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

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

When designing *spaces*, consideration should be given to layouts that promote and assist hearing for those that may not require assistive hearing devices, but who may still miss information during meetings. Layouts that allow for round or oval tables position participants so they are better able to see each other, and so their voices are directed more consistently to others.

Application

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

Where multiple workstations, offices or *meeting rooms* are provided, at least 5% but not less than one shall have height adjustable work surfaces.

4.3.5 Offices, Work Areas and Meeting Rooms

Design Requirements

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

- be located on an *accessible route* complying with 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 360-degree turn (Figure 4.1.1.1), a 180-degree turn (Figure 4.1.1.2) or an *accessible* circuit around the room;
- 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 general public, clients 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, clients or customers; and
- be equipped with an assistive listening system that complies with Section 4.4.6, where an assistive listening system is required.

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
4.4.6 Assistive Listening Systems
4.4.12 Glare and Light Sources
4.4.13 Lighting
4.4.14 Materials and Finishes
4.4.15 Texture and Colour
4.4.16 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 vision loss. The provision of seating in waiting areas is important for individuals who may have difficulty with standing for extended periods.

This section has been developed to meet the legislated requirements of the *AODA*, Design of Public Spaces Standard.

Application

In addition to the design requirements specified in 4.1 to 4.4, waiting and queuing areas shall comply with this section.

In waiting rooms with fixed seating, 3%, but not less than one sear of the total seating provided shall be located to adjoin an *accessible route* complying with Section 4.1.4, without infringing on egress from any other seating location. One companion seat shall be provided at each *accessible* wheelchair/scooter seating location.

Design Requirements

Barriers at queuing areas shall be laid out in parallel, logical lines. The *clear* width of the *accessible route* between fixed queuing lines and *barriers* shall comply with Section 4.1.4.

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.

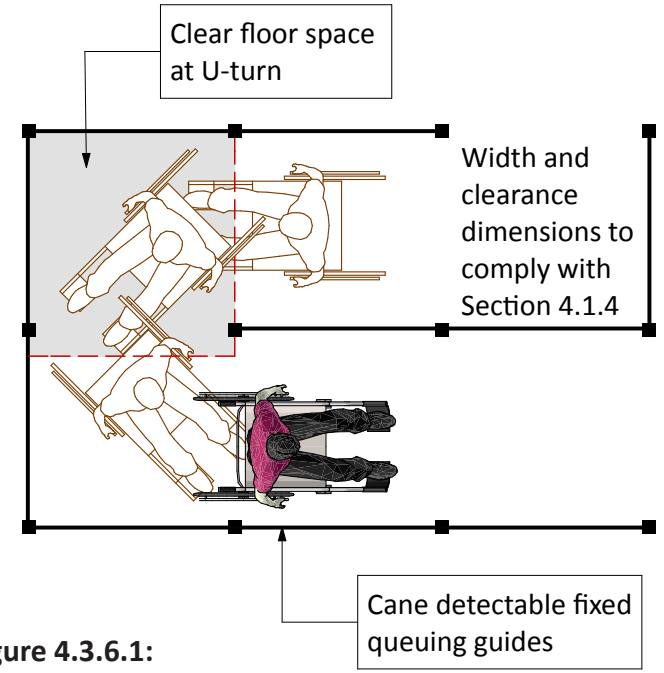


Figure 4.3.6.1:
Fixed Queuing Guides

4.3.6 Waiting and Queuing Areas

Design Requirements

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 vision loss/no vision.

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

Provide sufficiently *clear* floor area to permit *mobility assistive devices* to turn where queuing lines change direction (Figures 4.1.4.5 and 4.1.4.6).

Fixed queuing guides must be cane detectable.

Accessible wheelchair/scooter seating locations in waiting or queuing areas shall comply with the design requirements of Section 4.3.2.

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 Public Telephones
4.4.6 Assistive Listening Systems
4.4.7 Signage
4.4.9 Public Address Systems
4.4.10 Information Systems
4.4.12 Glare and Light Sources
4.4.13 Lighting
4.4.14 Materials and Finishes
4.4.15 Texture and Colour
4.4.16 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, scooter or other *mobility assistive device*.

Tables that have the support leg(s) in the centre of the table provide a higher level of accessibility.

Ensure that chairs with armrests are provided for banquet halls, restaurants and cafeterias.

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.

It is preferred to locate counters out of the circulation route so they do not become an obstacle for persons who use canes and or persons with vision loss/no vision.

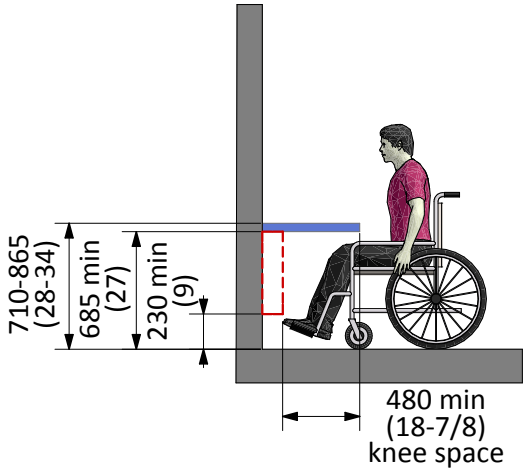


Figure 4.3.7.1:
Clearances

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.

To allow for a frontal or parallel approach, wheelchair seating *spaces* at *accessible* tables, counters and work surfaces shall incorporate a *clear floor space* that

- is at least 810 mm (32 in.) x 1370 mm (54 in.); and
- has no more than 480 mm (18-7/8 in.) of it's length extending under the counter or work surface where a forward approach is used (Figures 4.3.7.2 and 4.3.7.3).

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

- a *clear* knee *space* of at least 810 mm (32 in.) wide, 480 mm (18-7/8 in.) deep and 685 mm (27 in.) high shall be provided; and
- a *clear* toe *space* at least 810 mm (32 in.) wide and 230 mm (18-7/8 in.) high shall be provided beyond the knee *space*, extending to a depth at least 610 mm (24 in.) from the front edge of the work surface. (Figure 4.3.7.2)

Design Requirements (continued)

The top of *accessible* tables, counters and work surfaces shall be located between 710 mm (28 in.) to 865 mm (34 in.) above the finished floor or ground surface. It is preferred to provide height- adjustable furnishings.

Where speaker podiums 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 mm (32 in.) by 1370 mm (54 in.), configured for forward approach;
- incorporate *clear* knee *space* of at least 810 mm (32 in.) wide, 480 mm (18-7/8 in.) deep and 685 mm (27 in.) high; and
- incorporate controls and operating mechanisms in compliance with Section 4.4.2.

Related Sections

4.1.1 Space and Reach Requirements
4.1.3 Protruding and Overhead Objects
4.1.4 Accessible Routes, Paths and Corridors

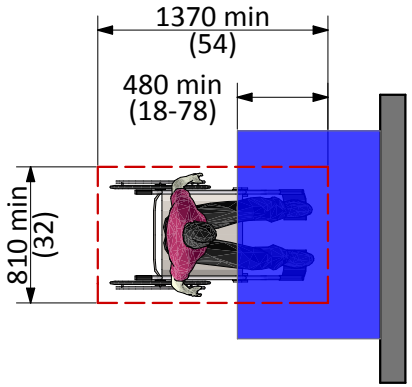


Figure 4.3.7.2:
Forward Approach

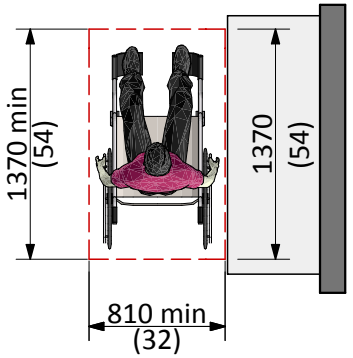


Figure 4.3.7.3:
Parallel Approach

4.3.8 Information, Reception and Service Counters

Rationale

Information, reception and service counters should be *accessible* to the full range of users, including the public and staff. 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 assistive speaking devices is important for the range of individuals who may have difficulty with low vocal volume thus affecting production of normal audible levels of sound.

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

The use of *colour/tonal contrast*, *tactile* difference or audio landmarks (e.g., receptionist voice or music source) can assist individuals with vision loss 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, scooter or other *mobility assistive device*.

Counters shall be *accessible* for both public and employees.

Where a single queuing line serves one or more service counters, each service counter shall comply with this section.

Where not all service counters are *accessible*, *accessible* service counters shall be clearly identified using the International Symbol of Accessibility.

Where not all service counters are *accessible*, the *accessible* service counter(s) shall be the closest counter(s) on the *accessible route*.

Information, reception and service counters shall provide at least one type of Assistive Speaking Device at each counter of varying heights:

- Speech Transfer Intercom System with volume controls for both staff and customers - this can be in a counter system or speaking port;
- gooseneck or cordless microphone; or
- telephone system with voice/ speech amplification.

4.3.8 Information, Reception and Service Counters

Design Requirements

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

Accessible service counters shall incorporate at least one section that

- has a counter height located between 710 mm (28 in.) and 865 mm (34 in.) above the finished floor or ground;
- has a counter surface width of at least 920 mm (36 in.); and
- has knee *space* on both sides of the counter, below the counter surface, of at least 685 mm (27 in.) high by 480 mm (18-7/8 in.) deep by 810 mm (32 in.) wide, and overlaps the *clear floor space* by a maximum of 480 mm (18-7/8 in.).

Wheelchair seating *spaces* at *accessible* sections of service counters shall incorporate a *clear floor space* not less than 760 mm (30 in.) by 1370 mm (54 in.).

Where a forward approach is used to access a wheelchair seating *space*, a *clear* knee *space* of at least 810 mm (32 in.) wide, 480 mm (18-7/8 in.) deep and 685 mm (27 in.) high shall be provided. It may overlap the *clear floor space* by a maximum of 480 mm (18-7/8 in.).

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 (42 in.) above the finished floor or ground.

Related Sections

4.1.1 Space and Reach Requirements
4.1.4 Accessible Routes, Paths and Corridors
4.3.6 Waiting and Queuing Areas
4.4.6 Assistive Listening Systems
4.4.7 Signage
4.4.10 Information Systems
4.4.12 Glare and Light Sources
4.4.13 Lighting
4.4.14 Materials and Finishes
4.4.15 Texture and Colour
4.4.16 Acoustics

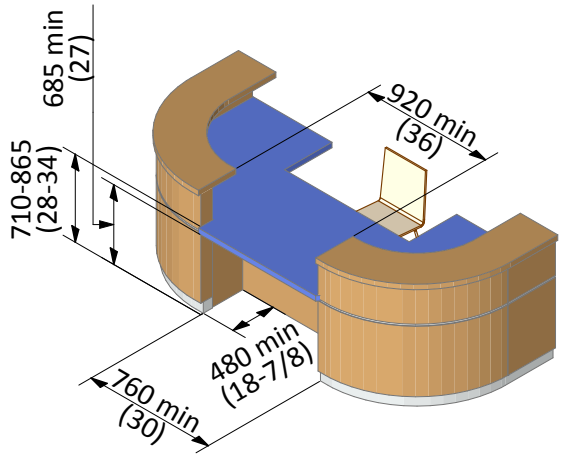


Figure 4.3.8.1:
Service Counter

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 sight-lines 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/tonal contrast* is particularly important for persons with vision loss.

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.

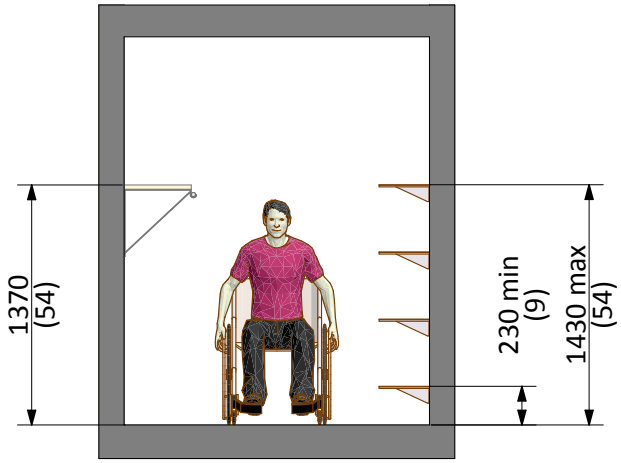


Figure 4.3.9.1:
Reach Limits for Storage

Design Requirements

A *clear floor space* at least 810 mm (32 in.) by 1370 mm (54 in.) 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 1370 mm (54 in.) above the finished floor for a side approach. Where the distance from the wheelchair to the clothes rod or shelf is 255 – 535 mm (10-21 in.) (as in closets without *accessible* doors) the height of the rod or shelf shall be no more than 1200 mm (47-1/4 in.).

Where coat hooks are provided, they shall all be collapsible coat hooks, mounted no higher than 1200 mm (47-1/4 in.) above the floor. (Note: Coat hooks should NOT be located over benches)

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

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 persons using *mobility assistive devices*.

It is preferred to provide an *accessible* bench in close proximity to *accessible* lockers.

The provision of lockers at lower heights serves the reach restrictions of children or a person using a *mobility assistive device*. 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.

Accessible lockers and baggage storage units shall have their bottom shelf no lower than 400 mm (15-3/4 in.) and their top shelf no higher than 1200 mm (47-1/4 in.) above the floor or ground.

Locks for *accessible* lockers and baggage storage units shall be mounted no higher than 1060 mm (42 in.) from the floor or ground and shall comply with Section 4.4.2.

Unless all lockers are *accessible*, *accessible* lockers shall be identified by the International Symbol of Access.

Numbers or names on lockers and baggage storage units should be in clearly legible lettering, raised or recessed and of a highly contrasting colour or tone (in compliance with the relevant parts of Section 4.4.7).

4.3.10 Lockers and Baggage Storage

Design Requirements (continued)

Baggage racks or carousels for suitcases, etc. shall have the platform surface no higher than 460 mm (18-1/8 in.) from the floor and shall incorporate a continuous *colour/tonal contrasting* strip at the edge of the platform surface.

Aisle *spaces* in front of *accessible* lockers, baggage compartments and carousels should be at least 1500 mm (59 in.) wide, to permit forward and lateral approach by a person using a *mobility assistive device*.

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

Related Sections

4.1.1 Space and Reach Requirements
4.1.4 Accessible Routes, Paths and Corridors
4.4.2 Controls and Operating Mechanisms
4.4.7 Signage
4.4.13 Lighting
4.4.15 Texture and Colour

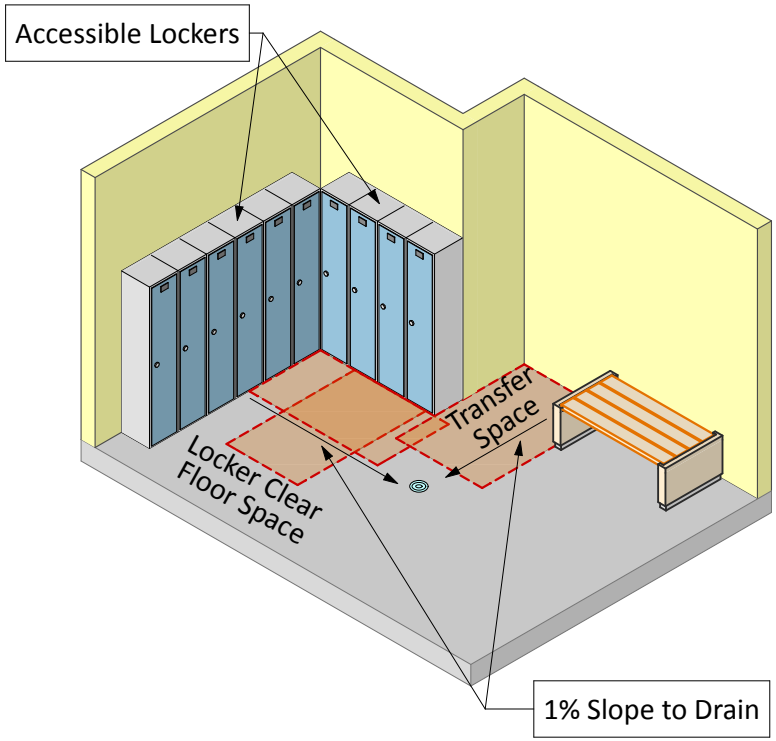


Figure 4.3.10.1:
Locker Room *Clear* Floor *Space* Requirements

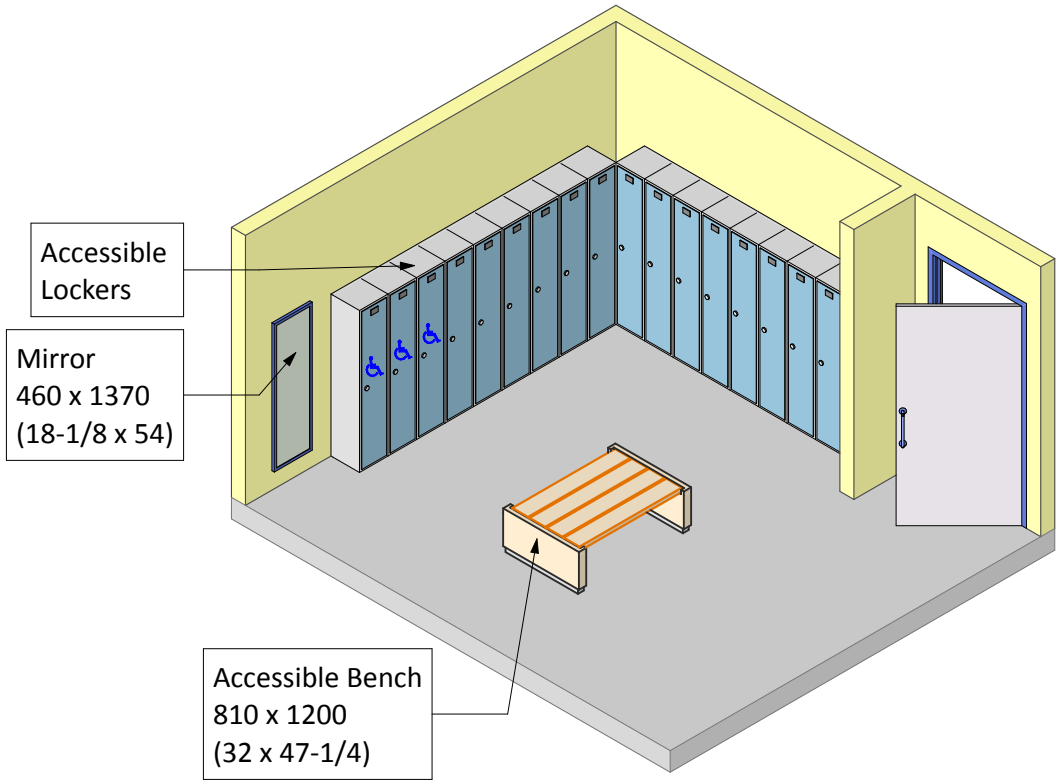


Figure 4.3.10.2:
Locker Room sample layout

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 sun or heat. Doors to these spaces typically incorporate large expanses of glazing. These should be appropriately marked to increase their visibility. Thresholds at balcony doors should be avoided.

Application

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

Design Requirements

Balconies, porches, terraces and patios shall

- be located on an *accessible route* complying with Section 4.1.4; and
- have a minimum depth of 2440 (96 in.). In retrofit situations where providing a depth of 2440 mm (96 in.) is *technically infeasible*, the minimum depth may be reduced to 1525 mm (60 in.).
- where an outswinging door is used, shall be located to open against a side wall or rail, and have a minimum depth of 1100 mm (43-1/4 in.) between the door and any adjacent *guard*, railing or other obstruction opposite.

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/ tonal contrast* between the railings and *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
4.4.14 Materials and Finishes
4.4.15 Texture and Colour

Rationale

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

In addition to the proximity to *entrances*, the spatial requirements of *accessible* parking spaces is important. A person using a *mobility assistive device* such as a wheelchair requires a wider parking stall to accommodate the manoeuvring of the wheelchair beside the car or van. A van may also require additional *space* to deploy a lift or *ramp* through the side or back door. An individual would then require *space* for the deployment of the lift itself as well as additional *space* to manoeuvre on/off the lift.

Heights along the routes to *accessible* parking is a factor. *Accessible* vans may have a raised roof resulting in the need for additional overhead clearance. Alternatively, the floor of the van may be lowered, resulting in lower tolerances for speed bumps and pavement slope transitions. The number of *accessible* parking spaces required by this section may not be sufficient in some *facilities* (such as seniors' centres and medical *facilities*) where increased numbers of persons with *disabilities* may be expected. In this situation, the number of *accessible* parking spaces may be increased from the requirements in this standard.

The number of *accessible* parking spaces shall take into account the following for the determination of an acceptable number of spaces

- the number of employees with *disabilities* employed in the *facility*;
- the nature of the usage of the *facility*; and
- the anticipated estimated number of members of the public who will be visiting the *facility* who will require *accessible* parking.

Wherever possible locate parking signs away from pedestrian routes, as they may constitute an overhead and/or protruding hazard. It is preferable that the sign be placed at the curb line to denote the end of the parking space.

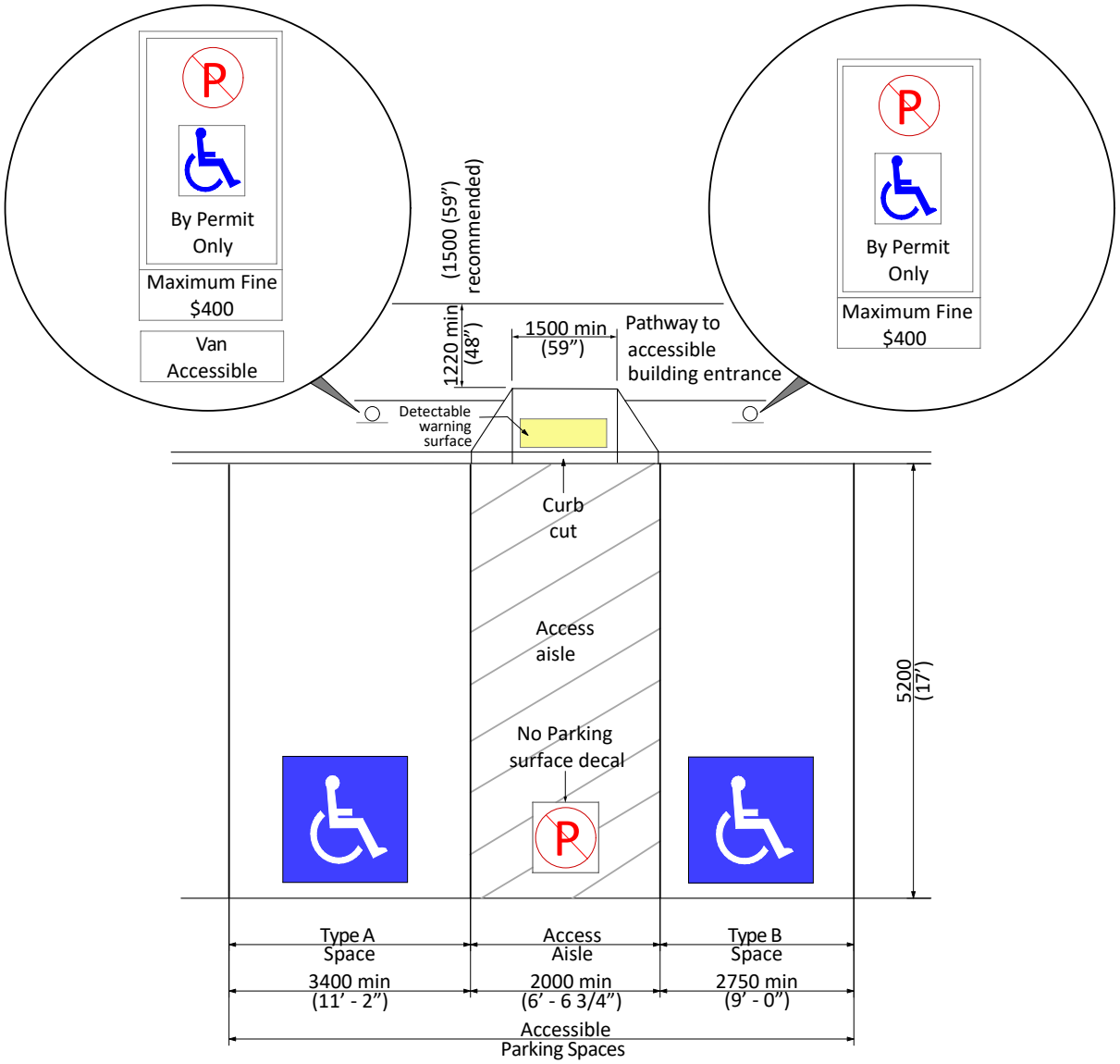


Figure 4.3.12.1:
Accessible Parking *Spaces*

Application

This standard is applicable to all new parking structures and surface parking lots. For existing structures and surface parking lots undergoing renovations/*alterations*, standards should be employed to the greatest extent possible, but in no case shall be less than the requirements of the *AODA* Design of Public Spaces Standards.

The number of designated parking spaces shall be in accordance with both Bylaw 2020 and Table 4.3.12.

Designated parking spaces shall be located on the shortest possible circulation route to an *accessible facility entrance* (e.g., in lots serving a particular *facility*) or to an *accessible* pedestrian *entrance* of the parking *facility* (e.g., in lots not serving a particular *facility*). Access routes should avoid travel behind parked cars or crossing vehicle routes wherever possible.



Figure 4.3.12.2:
Accessible Parking Directional *Signage*

Application (continued)

In *facilities* with multiple *accessible entrances* with adjacent parking, designated parking spaces shall be dispersed and located closest to the *accessible entrances*.

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

If more than one off-street parking *facility* is provided, parking spaces for the use of persons with *disabilities* shall be distributed among the multiple lots to provide equivalent or greater accessibility in terms of distance from an *accessible entrance* or user convenience.

Efforts should be made to provide a higher number of *accessible* parking spaces than required by the *AODA*'s Accessibility Standards for the Design of Public Spaces, for *facilities* that have a higher user population with mobility *disabilities*, such as senior's centres.

Design Requirements

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

Designated parking spaces shall

- be located on an *accessible route* complying with Section 4.1.4;
- have a firm, level surface with a maximum of 1.5% *running slope* for drainage;
- have a maximum *cross slope* of 1%;
- have a height clearance of at least 2750 mm (9 ft.) at the parking space and along the vehicle access and egress routes; and
- incorporate *signage* as outlined in this section.

Accessible parking spaces shall

- be provided in two sizes;
  - **Type A** shall have an unobstructed rectangular area with a minimum width of 3400 mm (11 ft. 2 in.) and a minimum length of 5200 mm (17 ft.);
  - **Type B** shall have an unobstructed rectangular area with a minimum width of 2750 mm (9 ft.) and a minimum length of 5200 mm (17 ft.);
- incorporate pavement markings containing the International Symbol of Access in accordance with Figure 4.3.12.1. Markings to include a 1525 x 1525 (5 ft. x 5 ft.) white border and symbol with a blue background field colour;
- have an adjacent *access aisle* that is at least
  - 2000 mm (78-3/4 in.) wide;
  - is clearly marked with high tonal contrast diagonal lines;
  - may be shared between two spaces; (Figures 4.3.12.1 and 4.3.12.2); and
  - where possible, provide the option of *access aisles* on either side of an *accessible* parking space; and
- have a height clearance at the parking space and along the vehicle access and egress routes,
  - of at least 2750 mm (108 in.) at outdoor parking; and
  - of at least 2590 mm (98 in.) at indoor parking, including vehicular *entrances*.

Design Requirements (continued)

In a *retrofit* situation where it is *technically infeasible* to provide the required height clearances, the OBC minimum height of 2100 mm (82-3/4 in.) can be used.

Accessible parallel parking stalls should be at least 7250 mm (23ft-10in.) in length and 4600 mm (15 ft.) in width. In a *retrofit* situation where it is *technically infeasible* to provide a depth of 4600 mm (15 ft.), the depth may be reduced to match the other parallel parking spaces on the street.

It is preferred to provide a *clear space* of at least 2440 mm (96 in.) by 2440 mm (96 in.) at the curb level, adjacent to the passenger side for parallel parking spaces.

Indoor parking *facilities* shall incorporate a sign at the vehicle *entrance* indicating the minimum overhead clearance at the parking space and along the vehicle access and egress routes.

Multi story parking *facilities* shall incorporate a sign at the vehicle *entrance* indicating which floor(s) the *accessible* parking spaces are located.

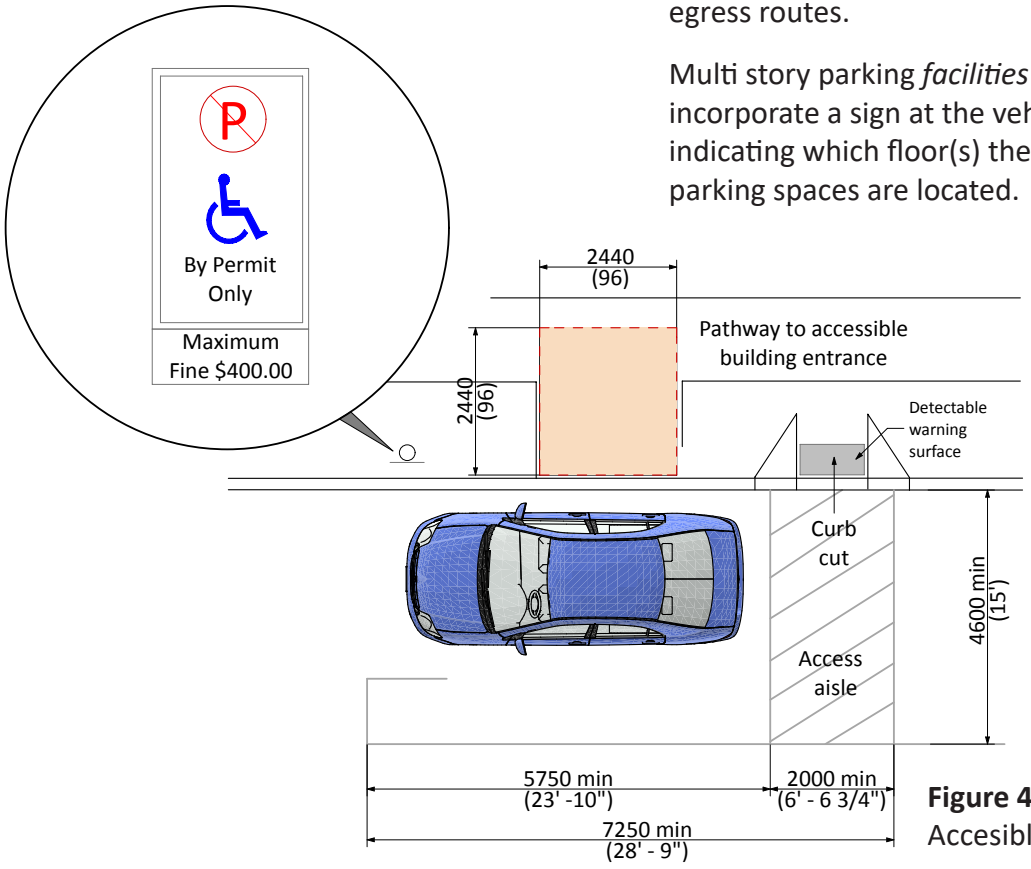


Figure 4.3.12.3:
Accesible Parallel Parking *Space*

Signage of *accessible* parking spaces shall incorporate an official designated *accessible* parking space sign developed by the Ministry of Transportation (1991).

Each *accessible* parking space shall be designated with *signage* that is

- mounted vertically on a post that is *colour/tonal contrasted* with the background environment;
- at least 300 mm (11-3/4 in.) wide x 450 mm (17-3/4 in.) high;
- be made of aluminum with Scotch Light reflective vinyl background and lettering
- be visible day and night (reflectorized or illuminated)
- have a white background
- have the proper symbols and lettering
- "No Parking" with red circle with black "P"
- International Symbol of Accessibility be blue & white
- "By Permit Only" in black lettering
- installed at a height of 1500 mm (59 in.) to 2500 mm (98 in.) from the ground/ floor surface to the centre line of the sign;
- for perpendicular parking, centred on the parking space; and
- for parallel parking, located toward the end of the parking space, on the opposite side from the *access aisle*.

Design Requirements (continued)

Signs shall be mounted on a permanent post, pillar, wall, or other permanent structure.

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

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

Consultation Requirement

When constructing new or redeveloping existing on-street parking spaces, the Municipality shall consult with the public, persons with *disabilities*, and their municipal accessibility advisory committee on the need, location and design of the *accessible* on-street parking spaces. (*AODA* Requirement - Design of Public Spaces Standard)

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
4.1.10 Curb Ramps
4.4.7 Signage
4.4.8 Detectable Warning Surfaces
4.4.13 Lighting
4.4.14 Materials and Finishes
4.4.15 Texture and Colour

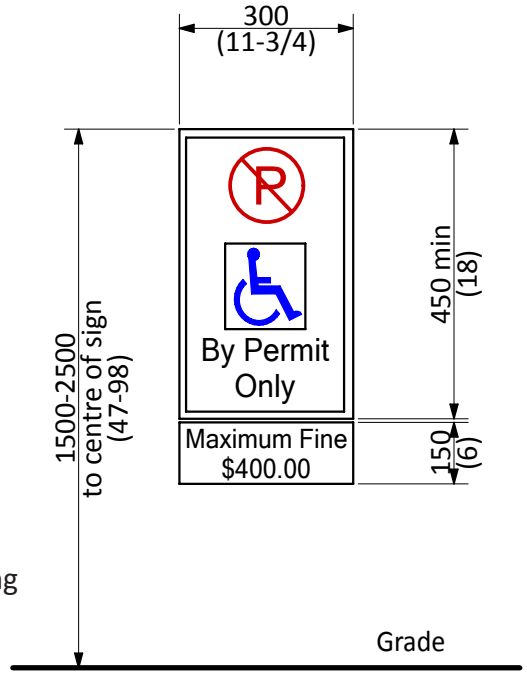


Figure 4.3.12.4:
Designated Parking *Signage*

Total number of required parking spaces through Design of Public Spaces Standard	%	Type A - Van (3400 mm)	Type B (2750 mm)
25 or less	-	1	0
26 to 100	4%	even = equal odd = +1 Type B	
101 to 200	1 + 3%	even = equal odd = +1 Type B	
201 to 1000	2 + 2%	even = equal odd = +1 Type B	
Over 1000	11 + 1%	even = equal odd = +1 Type B	
* Please note that additional parking requirements are found in the City of Burlington Zoning By-Law 2020.			

Table 4.3.12:
Designated parking *spaces* requirement

4.3.13 Passenger Loading Zones

Rationale

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

Bollards between the *access aisle* and the lay-by can be used to prevent vehicles from pulling into the *access aisle*.

Application

A passenger loading zone typically includes a driveway, a lay-by for the stopped vehicles, the *access aisle* for the loading and unloading, and the pedestrian *path of travel*.

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

Accessible passenger-loading zones shall be identified with *signage* complying with applicable provisions of 4.4.7.

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

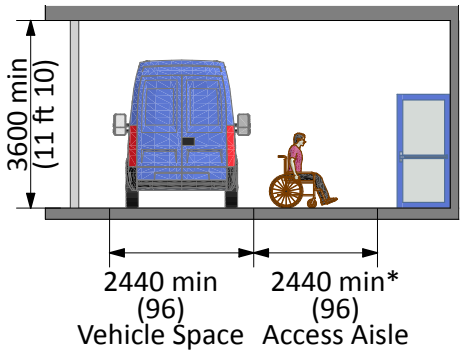


Figure 4.3.13.1:
Clearances at Passenger Loading Zone

Design Requirements

Passenger-loading zones shall

- be on an *accessible route* complying with Section 4.1.4;
- provide an *access aisle* that is
  - at least 2440 mm (96 in) wide and 7400 mm (24 ft. 3 in.) long;
  - adjacent and parallel to the vehicle pull-up *space*; and
  - separated from the *walk*way either by a curb containing a *curb ramp* that complies with Section 4.1.10 or by a *detectable warning surface* that complies with Section 4.4.8.
- have a *curb ramp* complying with Section 4.1.10 where there are curbs between the *access aisle* and the vehicle pull-up *space*; and
- have a minimum vertical clearance of 3600 mm (11 ft. 10 in.) at the loading zone and along the vehicle access route to such areas to and from the *site entrances*.

In a *retrofit* situation where providing a 2440 mm (96 in.) wide *access aisle* is *technically infeasible*, the *access aisle* width may be reduced to 2000 mm (78-3/4 in.)

4.3.13 Passenger Loading Zones

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
4.1.10 Curb Ramps
4.4.7 Signage
4.4.8 Detectable Warning Surfaces
4.4.13 Lighting
4.4.14 Materials and Finishes
4.4.15 Texture and Colour

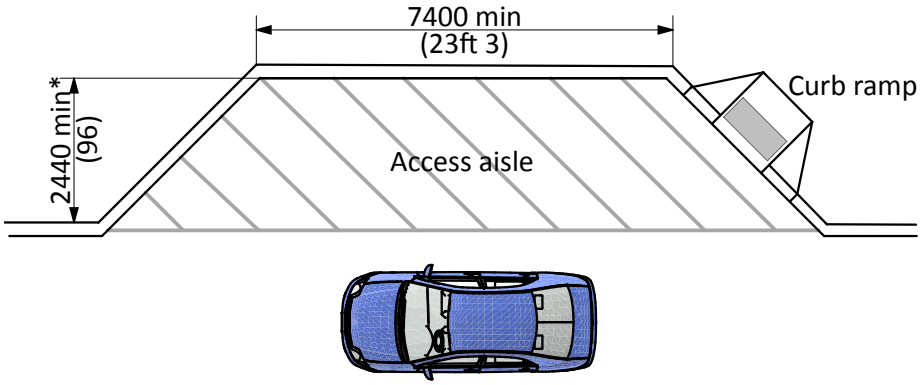


Figure 4.3.13.2
Passenger Loading Zone

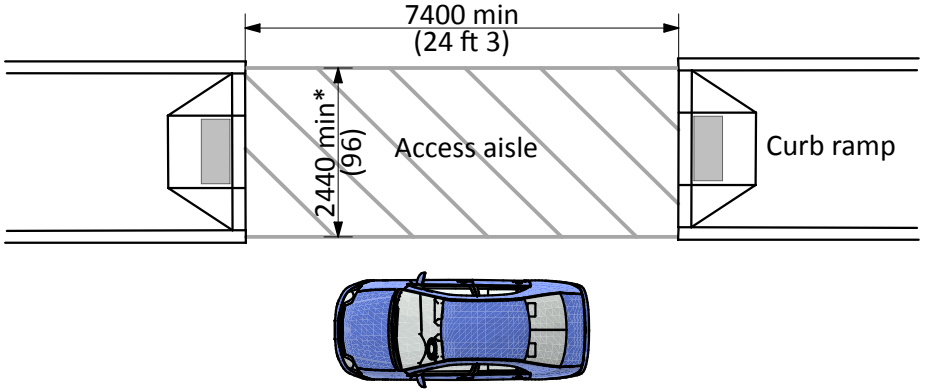


Figure 4.3.13.3
Alternate Passenger Loading Zone Configuration

4.3.14 Landscape 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 vision loss. Using contrasting flowers near *walk*ways 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 vision loss.

Raised planting beds can better accommodate persons who use a *mobility device* or those that have difficulty in bending to enjoy or tend to plantings.

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.

Design Requirements

The edges of planting beds located immediately adjacent to pedestrian *walks*, shall incorporate clearly defined, cane-detectable curbs at least 75 mm (3 in.) high.

Where variations in grading immediately adjacent to pedestrian *walks* are potentially hazardous (particularly to persons with vision loss), the hazardous edges of the *walk* shall incorporate clearly defined, cane-detectable curbs at least 75 mm (3 in.) high.

No toxic plants or poisonous rodent controls shall be used along the *path of travel* as to not endanger the health of service animals. Cocoa Bean mulch shall not be used.

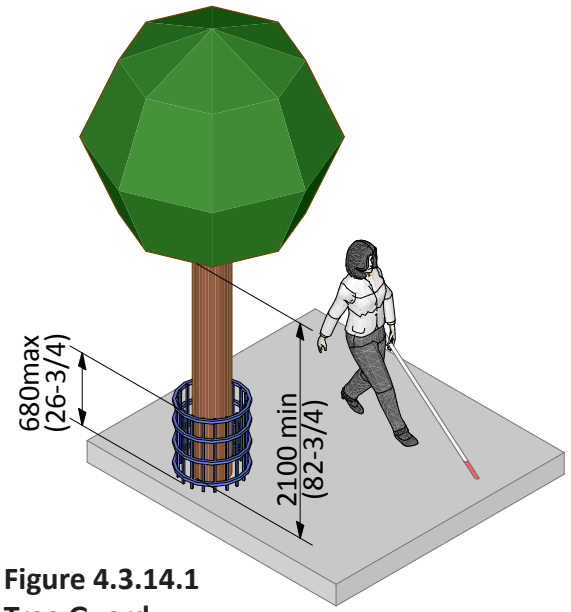


Figure 4.3.14.1
Tree Guard

Shrubs with thorns and sharp edges shall be planted at least 920 mm (36 in.) away from *accessible pathways* and seating areas.

Plants that drop large seed pods shall not overhang or be positioned near *accessible paths* or *walk*ways. Permanent guide wires shall not be used in any area which is intended for use by the general public, clients, customers or employees. Temporary guide wires, such as those used when planting new trees, shall be clearly identified using strong *colour/tonal contrast*.

Tree *guards* shall conform to Section 4.1.3 (Figure 4.3.14.1).

Overhanging branches of trees or shrubs over *walk*ways or *paths* shall not reduce the available headroom at any part of the *walk*way or *path* to less than 2100 mm (82-3/4 in.).

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

4.3.15 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 *walk*ways to provide convenient rest places without becoming potential obstructions. Appropriate seat heights and armrests can facilitate sitting and rising for individuals such as senior citizens. A person with vision loss 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.

Application

All benches, except those located in unpaved areas of parks, wilderness, beach or unpaved *public use* eating 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 450 mm (17-3/4 in.) and 500 mm (19-5/8 in.) from the ground;
- have arm and back rests;
- be of contrasting colour to their background; and
- have an adjacent level, firm ground surface at least 920 mm (36 in.) x 1400 mm (55-1/8 in.).

Benches or seats should be set back from the route of travel. The level area adjacent to the seat may accommodate a user with a wheelchair, guide dog, stroller, *walk*er, etc. The ground or floor surface of the seating area should contrast in colour and texture with the surrounding surface to help a person with vision loss to locate the seating. If the area adjacent to the seat abuts a downward slope that is potentially hazardous, then a curb should be provided around the level area.

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

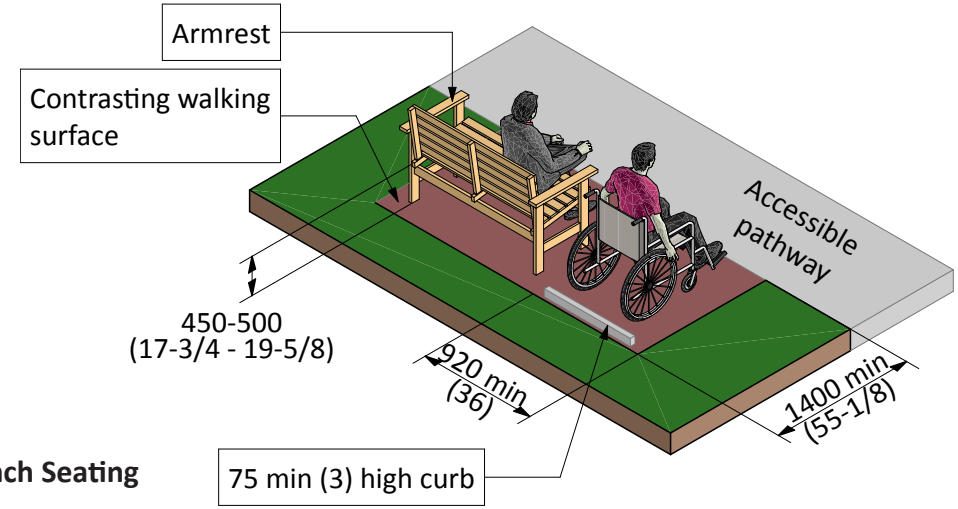


Figure 4.3.15.1
Rest Area and Bench Seating

4.3.16 Public Use Eating Areas and Picnic Tables

Rationale

This section applies to indoor and outdoor *public use* eating areas.

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 and scooter accessibility. A change in texture from a *pathway* to the table area is an important cue for a person with vision loss/no vision.

Tables that have the support leg(s) in the centre of the table provide a higher level of accessibility and are preferred.

Ensure that chairs with armrests are provided for banquet halls, restaurants and cafeterias.

Fixed *accessible* tables that cannot be moved to inaccessible locations are recommended.

Application

If tables are provided in an *accessible* public or common-use 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.

Accessible outdoor table seating should provide a variety of locations that allow a choice of view, sun or shade, and protection from outdoor *elements* such as wind or rain.

Where not all tables are *accessible*, provide *signage* incorporating the International Symbol of Accessibility indicating the locations of the *accessible* tables.

Design Requirements

Public use eating areas shall

- be accessed by and adjacent to an *accessible route* complying with Section 4.1.4;
- have knee *space* under the table at least 810 mm (32 in.) wide by 480 mm (19 in.) deep and 685 mm (27 in.) high;
- have its top surface located between 710 mm (28 in.) to 865 mm (34 in.) above the finished floor or ground surface;
- be of contrasting colour to the background; and
- have a level, firm ground surface extending min. 2000 mm (78-3/4 in.) where *accessible space* is provided at a picnic table for persons who use wheelchairs or scooters and min. 1220 mm (48 in.) on all the other sides.

Where outdoor lighting is provided it shall comply with the requirements of Section 4.4.13.

In a *retrofit* situation where it is *technically infeasible* to provide the required level surface, the dimensions may be reduced to min. 1220 mm (48 in.) on all sides.

4.3.16 Public Use Eating Areas and Picnic Tables

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 Signage
4.4.8 Detectable Warning Surfaces
4.4.14 Materials and Finishes
4.4.15 Texture and Colour

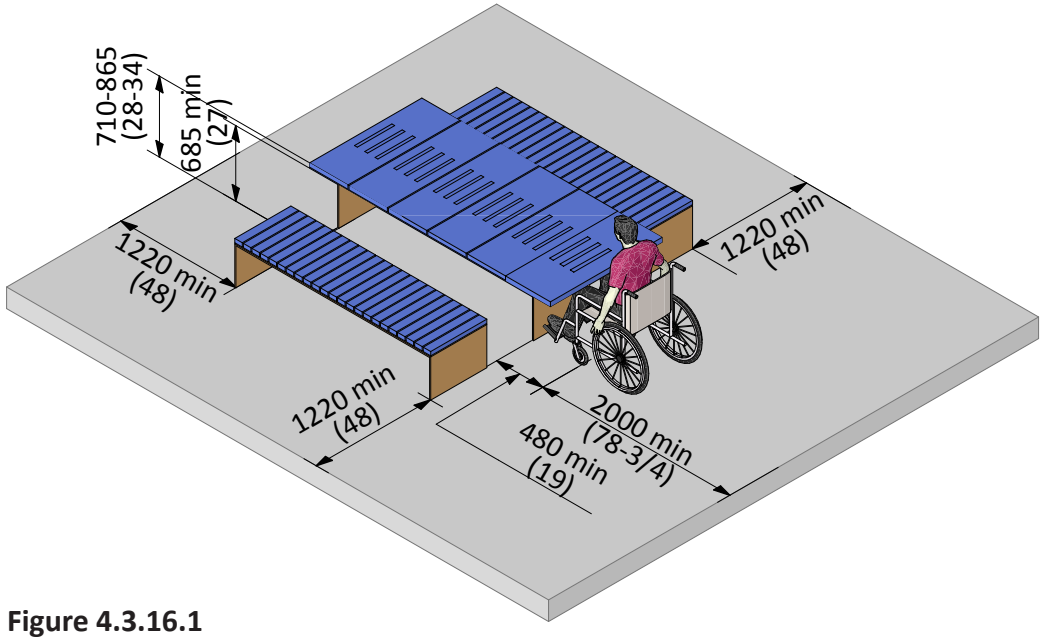


Figure 4.3.16.1
Height and Knees *Space* at *Accessible* Tables

4.3.17 Street Furniture

Rationale

Street furniture can provide a resting place for any individual with difficulty *walk*ing distances. Such furniture should incorporate strong *colour/tonal contrasts* and be located off *pathways*, to minimize its potential as an obstruction to pedestrians.

Application

Street furniture, including but not limited to, waste receptacles, light standards, signs, planters, mail boxes, vending machines benches, traffic signals and utility boxes contained within the *site*, shall comply with this section, including furniture that is located inside or outside of *facilities*.

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

Design Requirements

Street furniture shall

- not reduce the required width of an access route as specified in Section 4.1.4;
- be cane-detectable, in compliance with Section 4.1.3;
- be located consistently to one side of the normal *path* of pedestrian travel; and
- be securely mounted.

Waste receptacles in *accessible* open areas, such as parks, wilderness areas, beaches or *public use* eating areas, shall be mounted on firm, level pads.

Where lids or openings are provided on waste receptacles, they shall be mounted no higher than 1060 mm (42 in.) above the adjacent floor or ground surface. Opening mechanisms shall comply with Section 4.4.2.

An exterior waste receptacle shall be provided close to each *accessible* public *entrance*.

Street furniture shall incorporate pronounced *colour/tonal contrast* to differentiate it from the surrounding environment.

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
4.3.15 Benches
4.4.8 Detectable Warning Surfaces
4.4.14 Materials and Finishes
4.4.15 Texture and Colour

4.3.18 Kitchens and Kitchenettes

Rationale

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

The use of *colour/tonal contrast* between kitchen *elements* will assist persons with low vision 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 storage *facilities* shall comply with this section.

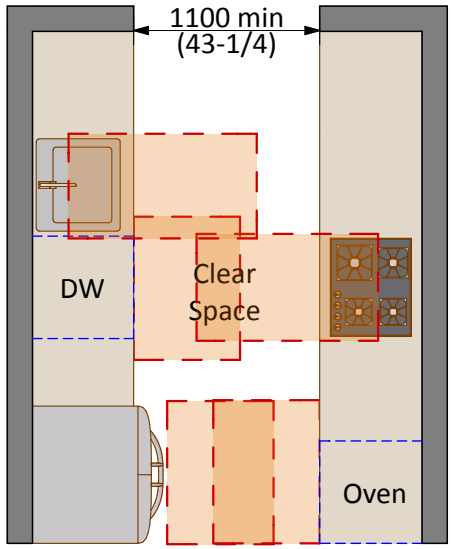


Figure 4.3.18.1
Pass-Through Kitchen

Design Requirements

Pass-through kitchens (Figure 4.3.18.1) shall have

- where counters, appliances or cabinets are on two opposing sides, or when counters, appliances or cabinets are opposite a parallel wall, clearance between all opposing base cabinets, counter tops, appliances, or walls within a kitchen work area of 1100 mm (43-1/4 in.) minimum; and
- two entries.

U-shaped kitchens (Figure 4.3.18.2) enclosed on three continuous sides shall have a minimum clearance of 2440 mm (96 in.) between all opposing base cabinets, counter tops, appliances, or walls within kitchen work areas. In a *retrofit* situation where providing a 2440 mm (96 in.) *space* is *technically infeasible*, this *space* may be reduced to 2130 mm (84 in.).

L-shaped kitchens (Figure 4.3.18.3) along two adjacent walls shall have a minimum clearance between all opposing base cabinets, counters, appliances, islands or walls within a kitchen work area of 1100 mm (43-1/4 in.) minimum.

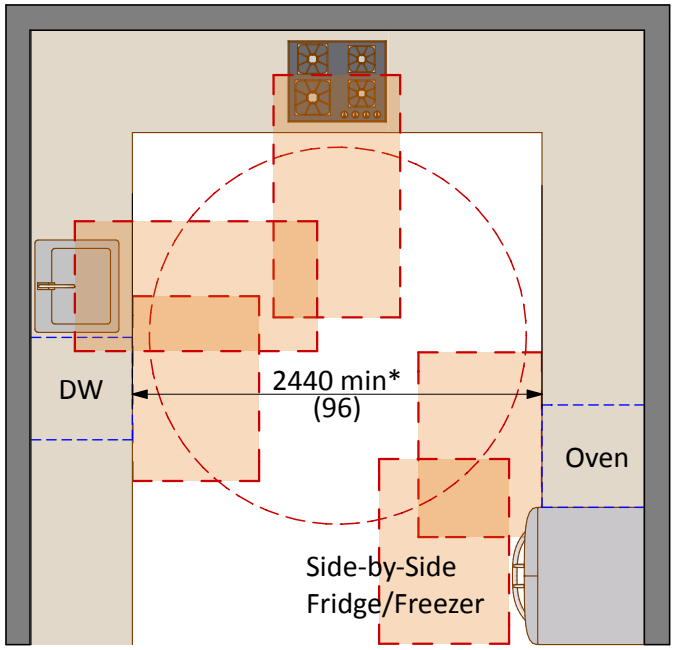
Design Requirements (continued)

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.

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;
- where a forward approach is provided, incorporate knee *space* below at least 810 mm (32 in.) wide, 480 mm (18-7/8 in.) deep, and 685 mm (27 in.) high;
- have the height of the rim or the counter top (whichever is higher) 710–856 mm (28-34 in.);
- 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.



* In a retrofit situation where it is technically infeasible to provide 2440 (96), this dimension may be reduced to 2130 (84)

Figure 4.3.18.2
U-Shaped Kitchen

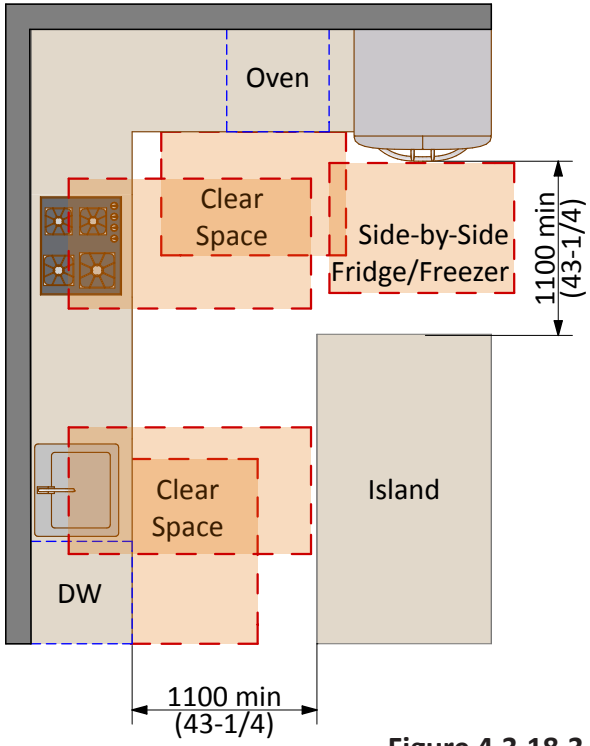


Figure 4.3.18.3
L-Shaped Kitchen with Island

Design Requirements (continued)

Kitchen appliances shall

- be located on an *accessible route* with adjacent *clear floor space* in compliance with 4.1.1; and
- incorporate controls and *operable portions* in compliance with Section 4.4.2. Exceptions: Appliance doors and door latching devices

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

Ranges and cooktops shall

- incorporate controls that are located to avoid reaching across the burners; and
- where a forward approach is provided
  - incorporate knee *space* below at least 810 mm (32 in.) wide, 480 mm (18-7/8 in.) deep, and 685 mm (27 in.) high; and
  - insulate or otherwise configure the appliance to prevent burns, abrasions, or electrical shock.

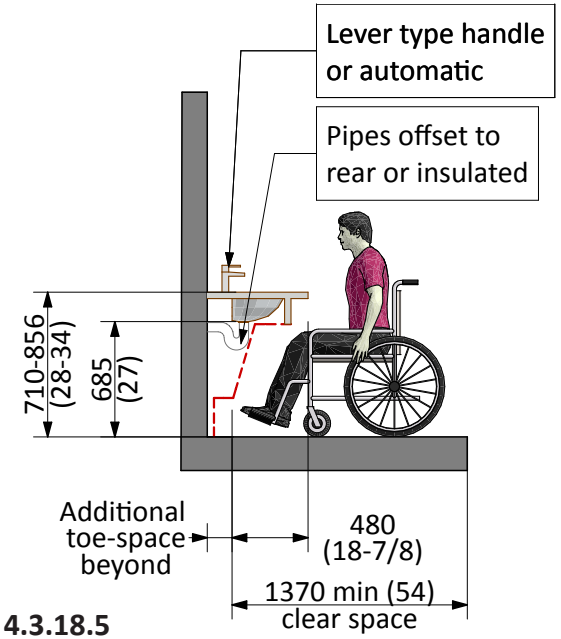


Figure 4.3.18.5
Kitchen Sink

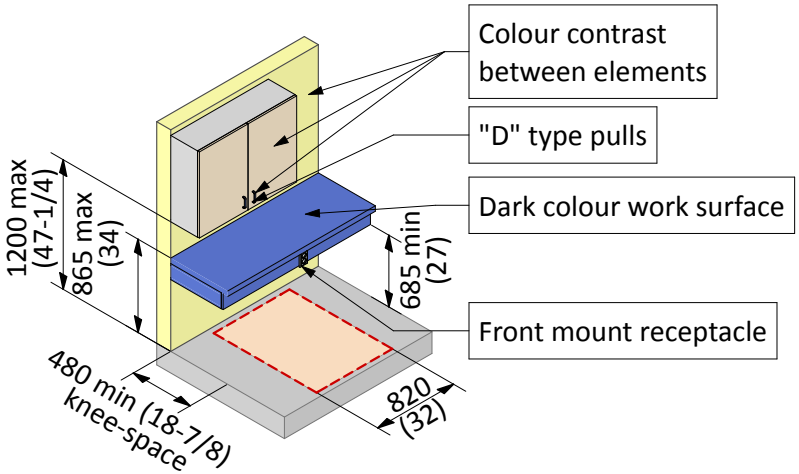


Figure 4.3.18.4
Storage *Elements*

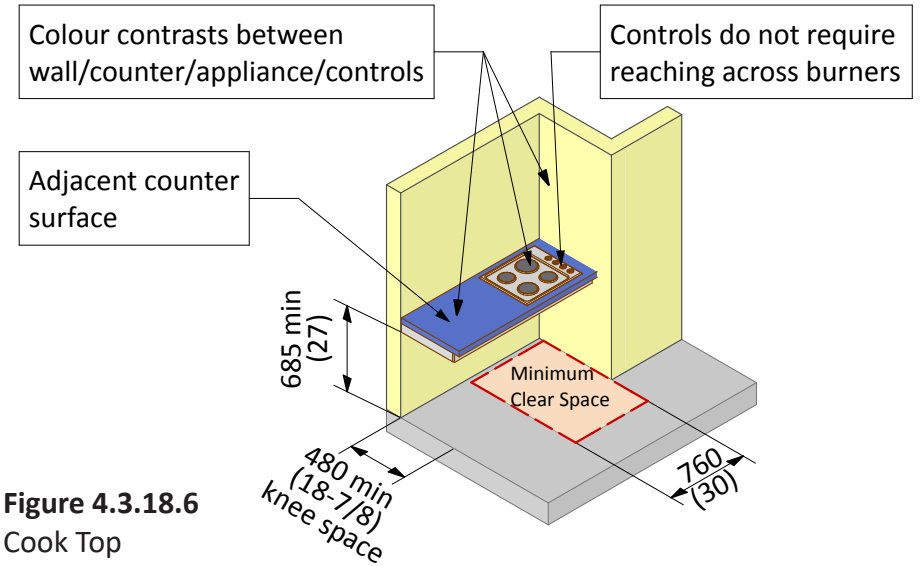


Figure 4.3.18.6
Cook Top

Design Requirements (continued)

Ovens shall

- have controls located on the front panels, mounted no higher than 1400 mm (55-1/8 in.);
- 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 childrens' programs, ranges, cooktops and ovens shall be equipped a safety switch to deactivate appliance controls.

Refrigerators/freezers shall

- be configured with at least 50% of the freezer *space* maximum 1370 mm (54 in.) above the floor; and
- incorporate *clear floor space* in front, positioned for a parallel approach immediately adjacent to the refrigerator/freezer, with the centre-line of the *clear floor space* offset 610 mm (24 in.) maximum from the front face of the refrigerator/freezer.

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

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 Glare and Light Sources
4.4.13 Lighting
4.4.14 Materials and Finishes
4.4.15 Texture and Colour

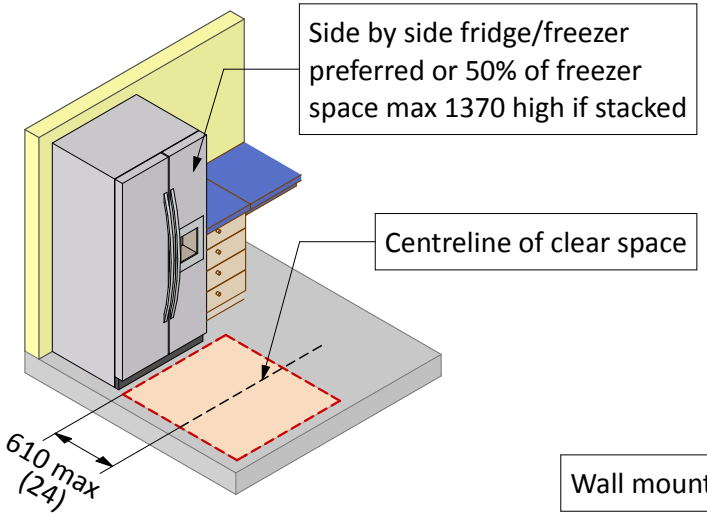


Figure 4.3.18.7
Fridge/Freezer

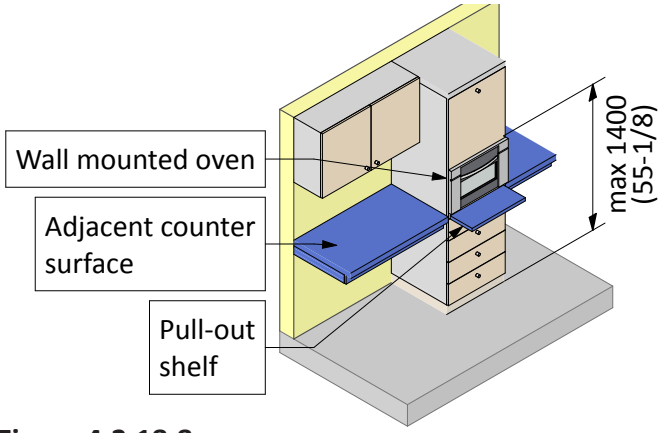


Figure 4.3.18.8
Wall-Mounted Oven

4.4.1 Emergency Exits, Fire Evacuation and Areas of Rescue Assistance

Rationale

To be *accessible* to all individuals, emergency exits must include the same accessibility features as other doors specified in 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 different language. Persons with vision loss will need a means of quickly locating exits – audio or talking signs could assist. In the event of fire when elevators cannot be used, *areas of rescue assistance* are an asset to anyone who would have difficulty traversing sets of stairs.

Application

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

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

Every *occupiable* level in nonresidential 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.

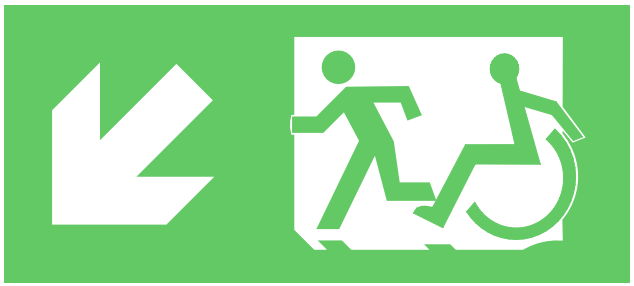


Figure 4.4.1.1:
Fire Exit *Signage*

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

Areas of rescue assistance shall comply with this section.

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

All required exits from the ground level must be *accessible*. *Signage* incorporating the International Symbol of Accessibility shall indicate the location of the ground level exits (Figure 4.4.1.1).

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

Table 4.4.1:
Number of rescue *spaces*

4.4.1 Emergency Exits, Fire Evacuation and Areas of Rescue Assistance

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 850 mm (33-1/2 in.) x 1370 mm (54 in.) 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 in *facilities* of more than three *storeys*;
- incorporate a 2-way voice communication system for use between each *area of rescue assistance* and the central alarm and control *facility*; and
- be identified with *signage* in compliance with the applicable provisions of Section 4.4.7, stating AREA OF RESCUE ASSISTANCE and incorporating the international symbol for accessibility for disabled persons.

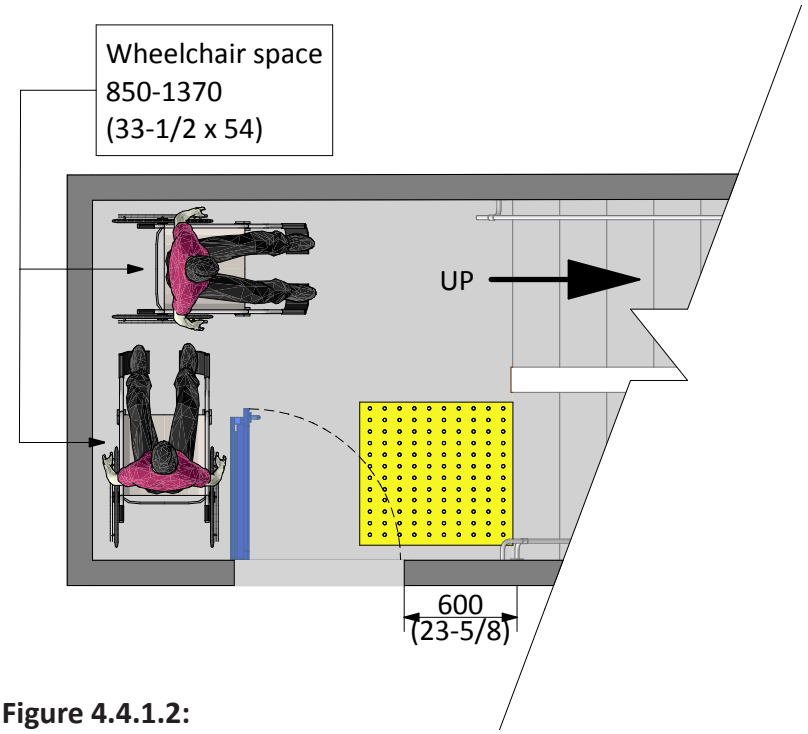


Figure 4.4.1.2:
Area of Rescue Assistance

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 Assistive Listening Systems
4.4.7 Signage
4.4.8 Detectable Warning Surfaces
4.4.9 Public Address Systems
4.4.14 Materials and Finishes
4.4.15 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 difficult 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 are also difficult for children or persons of short stature.

Individuals with vision loss may have difficulty with flush-mounted buttons, touch screens or controls without *tactile* markings. Controls that contrast in colour from their background, including *colour/tonal contrasted* raised letters, may be easier to find by an individual with vision loss. Actuated buttons paired with audible information allows people with vision loss to access automated mechanisms independently. Persons with intellectual *disabilities* 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: Resticted-access controls.

Design Requirements

A clear, level floor area at least 810 mm x 1370 mm (32 in. x 54 in.) shall be provided at controls and operating mechanisms, such as dispensers and receptacles.

The *operable portions* of controls and operating mechanisms such as electrical switches and intercom switches, shall be located between 900 mm (35-1/2 in.) and 1100 mm (43-1/4 in.) from the floor. Thermostats and manual pull stations shall be mounted 1200 mm (47-1/4 in.) above the floor. Exceptions: For elevators and power door operator controls, refer to Sections 4.1.6 and 4.1.14. For card-entry systems and encoded entry/exit systems such as keypads, refer to Section 4.4.11.

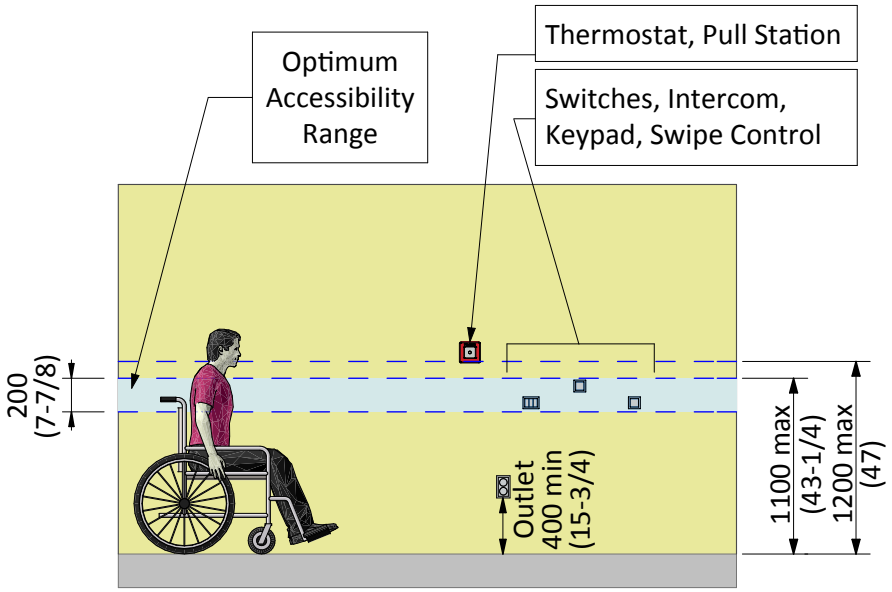


Figure 4.4.2.1: Reach Range for *Accessible* Controls

4.4.2 Controls and Operating Mechanisms

Design Requirements (continued)

Electrical outlets and other types of devices shall be located no lower than 400 mm (15-3/4 in.). Exception: Where electrical outlets are provided as components of systems furniture, these devices need not comply with this section provided they are installed in addition to electrical outlets required by the authority having jurisdiction.

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

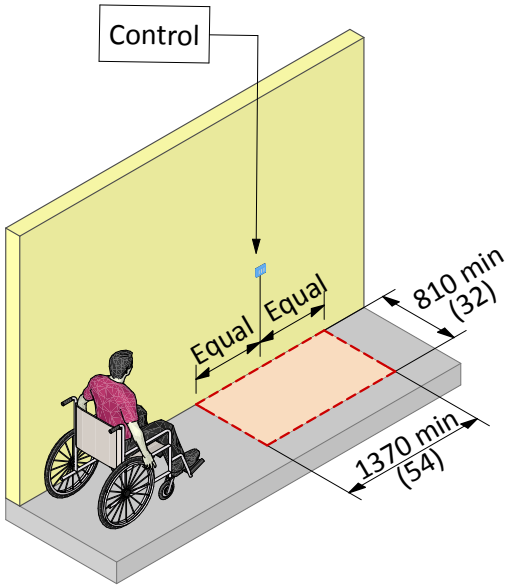


Figure 4.4.2.2:
Clear Floor Space at *Accessible* Controls

Hand-operated controls and mechanisms shall be operable

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

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

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

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
4.1.15 Platform Lifts
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 Change/Dressing 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
4.3.17 Street Furniture
4.4.3 Vending and Ticketing Machines
4.4.5 Public Telephones
4.4.10 Information Systems
4.4.11 Card Access, Safety and Security Systems
4.4.13 Lighting
4.4.15 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 a number of 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/tonal contrasts* make the machine more *accessible* to those with vision loss.

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 13 mm (1/2 in.) high. Ideally, lettering and *signage* shall comply with relevant parts of Section 4.4.7.

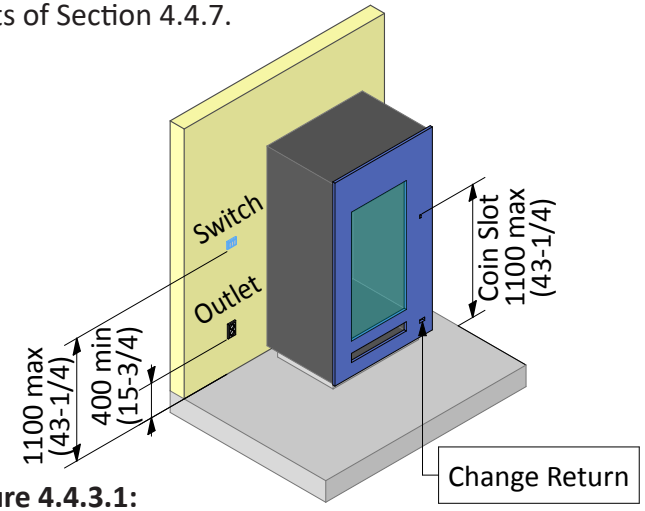


Figure 4.4.3.1:
Vending Machine

Related Sections

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

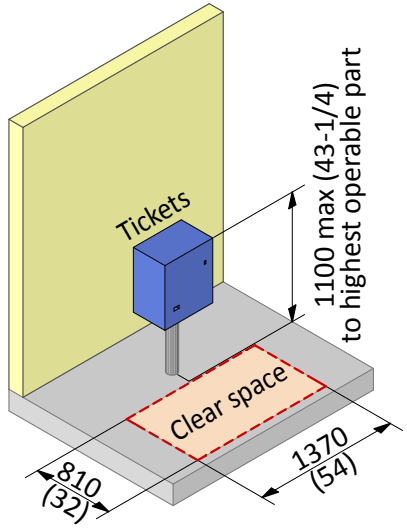


Figure 4.4.3.2:
Ticket Dispensing Machine

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 in *facilities* in each of the following areas: washrooms and any other general usage areas (e.g., *meeting rooms*), hallways, lobbies and any other areas for *common use*.

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

A signal intended for the public to indicate the operation of a *building* security system that controls access to a *building* shall consist of an audible and visual signal.

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 intensity shall be a minimum of 75 candela;
- the flash rate shall be a minimum of 1 Hz and a maximum of 3 Hz;
- 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 appliance shall be placed 2100 mm (82-3/4 in.) above the floor level within the *space* or 150 mm (6 in.) 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 (50 ft.) from the signal (in the horizontal plane). In large rooms and *spaces* exceeding 30 meters (98 ft. 5 in.) across, without obstructions 2000 mm (78-3/4 in.) above the finished floor, such as auditoriums, devices may be placed around the perimeter, spaced a maximum of 30 meters (98 ft. 5 in.) apart, in lieu of suspending appliances from the ceiling ;
- no place in common corridors or hallways in which visual alarm signalling appliances are required shall be more than 15 m (50 ft.) from the signal; and
- visual component to smoke alarms to conform to the requirements in 18.5.3. (Light, Colour, and Pulse Characteristics) of NFPA 72 “National Fire Alarm and Signalling Code”.

Related Sections

4.4.1 Emergency Exits, Fire Evacuation and Areas of Rescue Assistance

4.4.5 Public Telephones

Rationale

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

Application

Where public pay phones, public closed-circuit phones, or other public telephones are provided, they shall comply with this section to the extent required by Table 4.4.5.

All telephones required to be *accessible* shall be equipped with a volume control. In addition, 25%, but never less than one, of all other public telephones provided shall be equipped with a volume control and shall be dispersed among all types of public telephones, including *closed-circuit telephones*, throughout the *facility*.

Signage complying with applicable provisions of Section 4.4.7 shall be provided.

Where public pay telephones are provided and it is deemed necessary, a public *text telephone* (*TTY*) shall be provided in the *facility* in a *public use* area in accordance with CRTC Telecom Decision 2004-47.

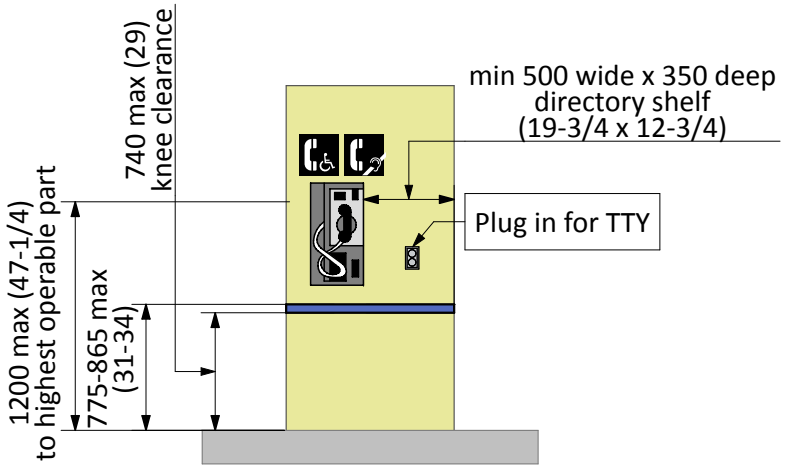


Figure 4.4.5.1:
Accessible Telephone for Persons who use *Mobility Devices*, who are Deaf, Deafened, Hard of Hearing, or Speech-Impaired

Design Requirements

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

Telephones, enclosures and related equipment shall comply with Section 4.1.3.

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

The minimum handset cord length of *accessible* telephones shall be 1000 mm (39-3/8 in.).

The minimum illumination level at operating mechanisms, the directory, and shelf of *accessible* telephones shall be 200 lux (18.4 ft-candles).

Accessible telephones provided for persons who use *mobility assistive devices* (Figures 4.4.5.1, 4.4.5.2 and 4.4.5.3) shall

- comply with CSA Standard T515;
- have the maximum height of *operable portions*, including the coin slot, 1200 mm (47-1/4 in.) above the floor;
- have *operable portions* within the reach ranges specified in 4.1.1;
- have a *clear floor space* of not less than 810 mm (32 in.) wide by 1370 mm (54 in.) deep centered in front of the telephone. This *space* may extend a maximum of 480 mm (18-7/8 in.) beneath the telephone only if a *clear* height of 740 mm (29 in.) is provided for knee *space*;
- have a flat telephone directory shelf with a top surface height between 775 mm (31 in.) and 865 mm (34 in.) above the finished floor surface.

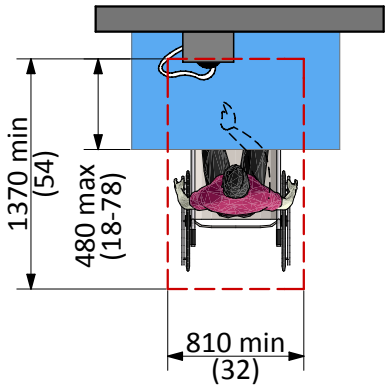


Figure 4.4.5.2:
Forward Approach to a Public Telephone

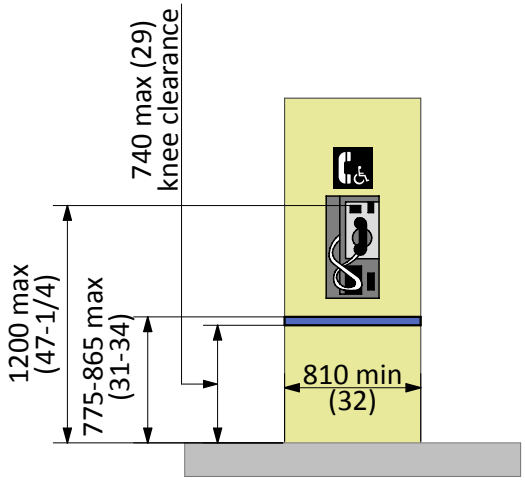


Figure 4.4.5.3:
Accessible Telephone for Persons who use *Mobility Devices*

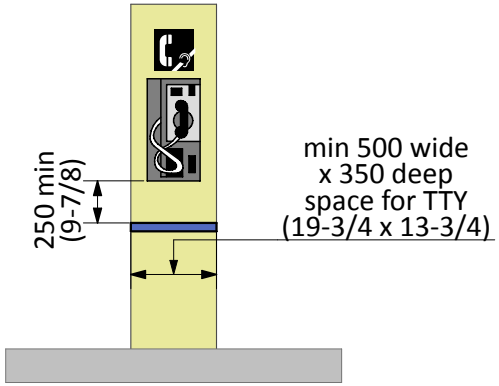


Figure 4.4.5.4:
Accessible Telephone for Persons who are Deaf, Deafened, Hard of Hearing, or Speech-
Impaired

4.4.5 Public Telephones

Design Requirements (continued)

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

Where telephones are for use by persons who are Deaf, deafened, hard of hearing or speech-impaired (Figures 4.4.5.1, and 4.4.5.4), the telephones shall

- be a separate telephone from those provided for persons who use wheelchairs or scooters;
- comply with CSA Standard T515;
- have a shelf at least 500 mm (19-3/4 in.) wide by 350 mm (13-3/4 in.) deep, with at least 250 mm (9-7/8 in.) *clear space* above the shelf, to accommodate the use of a portable *text telephone* (*TTY*);
- be equipped with an electrical outlet, within or adjacent to the telephone enclosure; and
- be equipped with a handset capable of being placed flush on the surface of the shelf (Figure 4.4.5.3).

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

When directional signs for telephones are installed, they shall include the appropriate access symbols.

Related Sections

4.1.1 Space and Reach Requirements
4.1.3 Protruding and Overhead Objects
4.1.4 Accessible Routes, Paths and Corridors
4.4.2 Controls and Operating Mechanisms
4.4.7 Signage
4.4.13 Lighting
4.4.15 Texture and Colour

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

Table 4.4.5:
Number of *accessible* telephones required.
(Note: a bank consists of two or more adjacent public telephones, often installed as a unit.

4.4.6 Assistive Listening Systems

Rationale

The provision of assistive listening devices is important for individuals who may have hearing loss.

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

Assistive Listening Systems connected to the Public Address System will direct people in an emergency situation.

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: (1) they accommodate at least 50 persons or where they have audio amplification systems or where greater than 100 sq.m. (1080 sq.ft.) in floor area; and (2) 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 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.

All environments with assistive listening requirements should be free of the interference that may be introduced by dimmer switches and other controls that incorporate transformer coils.

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

4.4.6 Assistive Listening Systems

Design Requirements (continued)

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

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

Where the listening system provided serves individual fixed seats, such seats shall be located within a 15 m (50-ft.) viewing distance of the stage or playing area and shall have a complete view of the stage or playing area.

Related Sections

4.4.7 Signage
4.4.13 Lighting
4.4.16 Acoustics

4.4.7 Signage

Rationale

The visual components of *accessible signage* systems will help everyone identify routes, *spaces* and *elements* in exterior environments and within *buildings*. Wherever information is provided visually through a *signage* system, the same information should be available in an alternate format for persons with vision loss. Methods for supplementing visual information include raised (*tactile*) lettering, Braille, and audio messages. Technologies are also evolving where signs incorporate information beacons that send text information to an application on a nearby mobile phone – the application converts the text to an audio message which provides the *signage* information audibly to the app user.

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

Distinct contrasts in colour make *signage* easier for anyone to read, particularly someone with vision loss. 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.

The most visible colours for signs 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.

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

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

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

Application

Permanent and temporary *signage* shall comply with this section.

Signs that designate permanent rooms or *spaces* shall be wall-mounted and include *tactile* characters and numbers. *Tactile* markings shall also supplement the text of

1. regulatory signs, such as prohibition and mandatory signs;
2. warning signs, such as caution and danger signs; and
3. identification signs, such as rooms, titles, names or numbers.

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

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

- parking spaces, designated as reserved for individuals with *disabilities*;
- *accessible* passenger loading zones;
- *accessible entrances* when not all are *accessible* (in*accessible entrances* shall have directional *signage* to indicate the route to the nearest *accessible entrance*);
- *accessible* toilet and bathing *facilities*, including single-use portable units, when not all are *accessible*;
- *accessible* telephones;
- *accessible* elevators and other elevating devices;
- *accessible means of egress*; and
- *areas of rescue assistance*.

Minimum character height (mm)	Maximum viewing distance (mm)
200 (7-7/8 in.)	6000 (19 ft. 8 in.)
150 (6 in.)	4600 (15 ft. 0 in.)
100 (3-15/16 in.)	2500 (8 ft. 2-1/2 in.)
75 (2-15/16 in.)	2300 (7 ft. 6-1/2 in.)
50 (2 in.)	1500 (4 ft. 11 in.)
25 (1 in.)	750 (2 ft. 5-1/2 in.)

Table 4.4.7.2:
Character height on signs

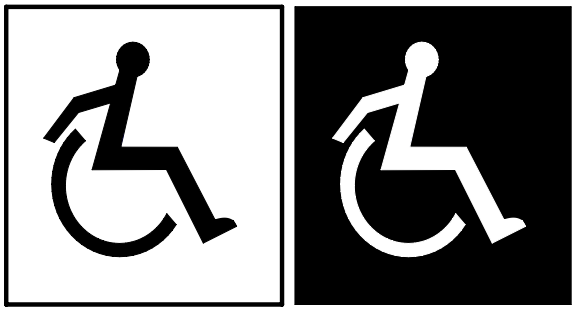


Figure 4.4.7.1:
Colour/tonal contrast on Signs

Background Surface	Sign Background	Colour of Lettering
Light brick or light stone	Dark (black preferred)	White/yellow
Whitewashed wall	Dark (black preferred)	White/yellow
Red brick or dark stone	White	Black, dark green or dark blue
Green Vegetation	White	Black, dark green or dark blue

Table 4.4.7.1:
Examples of effective *colour/tonal contrast* on signs (Source: CNIB)

Design Requirements

Letters and numbers on signs shall

- be sans serif (i.e. Helvetica, Univers 55, Verdana, Arial);*
- 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.

Character height dimensions for viewing distance shall comply with Table 4.4.7.2.

Signage should use a mix of upper and lower case letters.

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



Figure 4.4.7.2:
Pictograms

This is a **serif** font face

*This is a **sans serif** font face

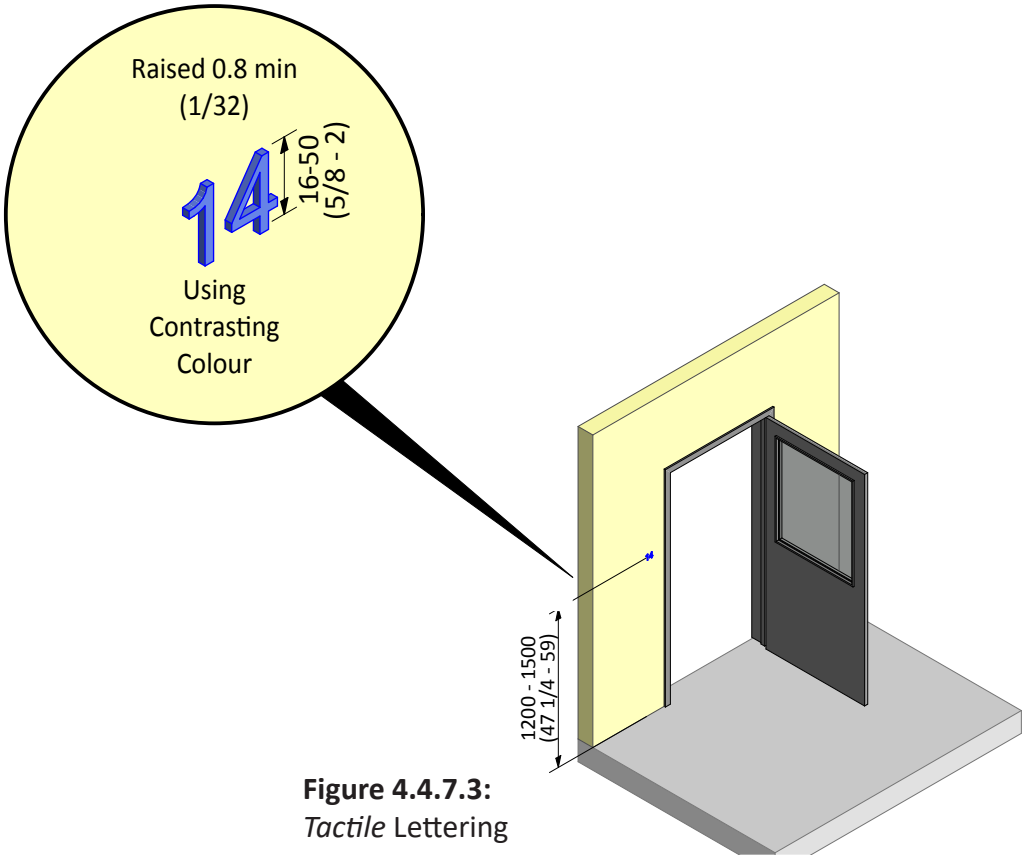


Figure 4.4.7.3:
Tactile Lettering

Design Requirements (continued)

Characters and symbols shall contrast with their background; either light characters on a dark background or dark characters on a light background. Text and other characters on signs should have 70% *colour/tonal contrast* to the sign surface.

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

- raised at least 0.8 mm (1/32 in.), not sharply edged;
- be between 16 mm (5/8 in.) and 50 mm (2 in.) high; and
- be sans serif, accompanied by Grade 1 Braille.

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 (6 in.) minimum in height.

Where permanent identification is provided for rooms and *spaces*, signs shall be installed on the wall adjacent to the latch side of the door, located with their centre line 1500 mm (59 in.) above the finished floor.

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.

Tactile characters, symbols or pictograms on signs shall be located as high as possible within the range of 1200 mm (47-1/4 in.) to 1500 mm (59 in.) above the finished floor.

The minimum level of illumination on signs shall be 200 lux (18.4 ft-candles).

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
4.1.15 Platform Lifts
4.2.1 Toilet and Bathing Facilities
4.2.7 Universal Washrooms
4.3.2 Viewing Positions
4.3.4 Change/Dressing Rooms
4.3.12 Parking
4.3.13 Passenger-Loading Zones
4.4.1 Emergency Exits, Fire Evacuation and Areas of Rescue Assistance
4.4.5 Public Telephones
4.4.13 Lighting
4.4.15 Texture and Colour

4.4.8 Detectable Warning Surfaces

Rationale

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

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

The preferred colour for *tactile* surfaces is safety yellow except where background contrast is inadequate.

Application

Detectable warning surfaces at *walk*ways, *curb ramps*, stairs and raised platforms shall comply with this section.

Top diameter of flat-topped domes or cones	Spacing
12 (0.5 in.)	42 to 61 (1.7 to 2.4 in.)
15 (0.6 in.)	45 to 63 (1.8 to 2.5 in.)
18 (0.7 in.)	48 to 65 (1.9 to 2.6 in.)
20 (0.8 in.)	50 to 68 (2.0 to 2.7 in.)
25 (1.0 in.)	55 to 70 (2.2 to 2.8 in.)
Bottom diameter of flat-topped domes or cones 10 ±1 greater than the top diameter.	

Table 4.4.8:
Size and spacing of flat-topped domes or cones

Design Requirements

All textured surfaces used as *detectable warning surfaces* shall be clearly detectable by *walk*ing upon as being different from the surrounding surface. (Refer also to Section 4.4.15). Note: Applying a paint finish to a concrete surface does not provide appropriate detectability.

Detectable warning surfaces shall be at least 50% *colour/tonal contrasted* to adjacent surfaces.

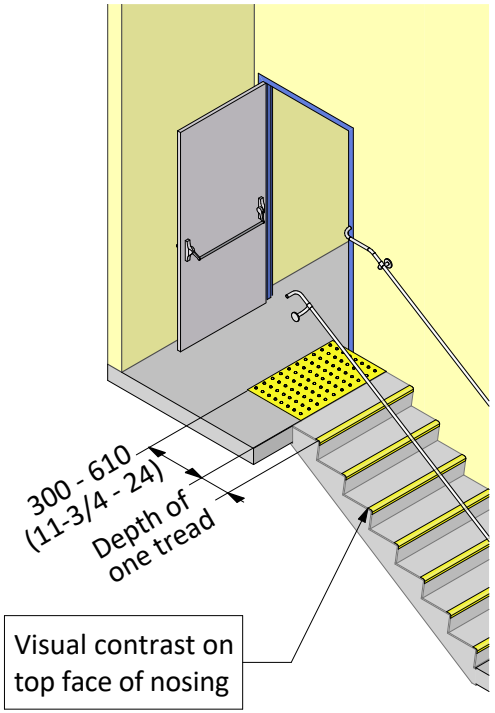


Figure 4.4.8.1:
Detectable Warning Surfaces at Stairs

4.4.8 Detectable Warning Surfaces

Design Requirements (continued)

Detectable warning surfaces shall be
- oriented perpendicularly to the line of travel; and
- slip-resistant.

Detectable warning surfaces at stairs shall
- be provided at the top of the stairs and at landings with an *entrance* to the stair system;
- extend the full width of the stair for a depth of not less than 300 mm (11-3/4 in.) and not more than 610 mm (24 in.), commencing one tread depth back from the stair. Refer also to Section 4.1.11.

At interior stairs, it is acceptable to provide *detectable warning surfaces* not more than 3 mm (1/8 in.) above or below adjacent surfaces, however flat-topped domes or cones are preferable.

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 - 5 mm (0.16 - 0.20 in.) high;
- have top and bottom dimensions as shown in Table 4.4.8; and
- are arranged in a regular pattern with spacing as shown in Table 4.4.8.

If a *walk* crosses or joins a *vehicular way* and the *walk*ing surfaces are not separated by curbs, railings or other *elements* between the pedestrian areas and vehicular areas, the boundary between the areas shall be defined by a continuous *detectable warning surfaces*, which is minimum 920 mm (36 in.) wide.

Refer also to CAN/CSA-B651-12 Accessible Design for the Built Environment

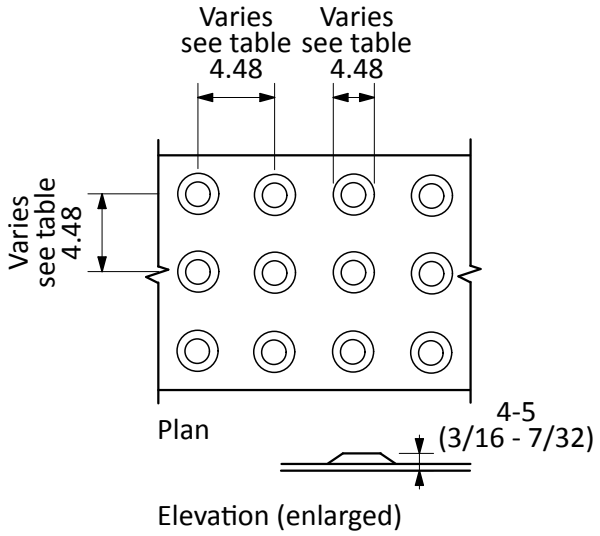


Figure 4.4.8.2:
Truncated Dome
Detectable Warning Surface

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
4.3.12 Parking
4.3.13 Passenger-Loading Zones
4.4.15 Texture and Colour

4.4.9 Public Address Systems

Rationale

Public address systems should be designed to best accommodate all users, especially those who are 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 individuals with a hearing loss 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
4.4.6 Assistive Listening Systems
4.4.16 Acoustics

4.4.10 Information Systems

Rationale

Information should be *accessible* to all *facility* users. Where universally *accessible* formats are not possible, alternate formats should be available. Video display terminals may present difficulties for persons with vision loss. Alternate technology or audio interfaces are required.

To ensure that a person using a wheelchair or scooter can access an information terminal, consideration should be given to the lower vantage point and reach ranges of all information systems provided.

Application

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

Design Requirements

Information systems shall be accessed by, and located adjacent to, an *accessible route* complying with Section 4.1.4.

Provide a minimum 1500 mm x 1500 mm (59 in. x 59 in.) *clear space* directly in front of the information/display system and a *clear path of travel* around it, as required for its approach and use. The *clear space* must be of a hard surface material.

Where information is provided by video display terminals to the general public, clients or customers, the same information shall be provided in an alternative format, such as audio, Braille and large-text print.

The minimum font size for large-text print shall be 16 point. Refer to the Canadian National Institute of the Blind "*Clear* Print Guidelines" for further detail. Information systems designed for direct access by the public, such as touch-screen video display, keyboard or keypad access, shall be mounted at a height suitable for use by a person using a wheelchair or scooter (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 audiotape and large-text print.

Push buttons or other controls for accessing public information systems should be clearly identifiable by colour and/or tone from the background colour, and should include raised numbers, numerals or symbols for easy identification by persons with vision loss.

Tactile identification shall comply with Section 4.4.15.

Exhibits that include important artifacts, labels and graphics, shall be placed 1000 - 1200 mm (39-3/8 - 47-1/4 in.) from the floor.

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

Inclined informational/interpretive panels that can not be read from 750 mm (29-1/2 in.) away shall have at least 660 mm (26 in.) of knee clearance and at least 470 mm (18 in.) depth. If displays are intended for viewing from 750 mm (29-1.2 in.) or further, less clearance is permitted to a minimum height of 220 mm (9 in.) for toe kick clearance. The top of the panel shall be not more than 1220 mm - 1380 mm (48 in. - 54 in.) high.

Design Requirements (continued)

Vertical informational/interpretive panels shall have text located no higher than 1750 mm (69 in.). Text shall not be lower than 750 mm (29-1/2 in.) 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.

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

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

Signage and other media for trails and footbridges shall conform with Section 4.5.2.

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
4.4.2 Controls and Operating Mechanisms
4.4.15 Texture and Colour

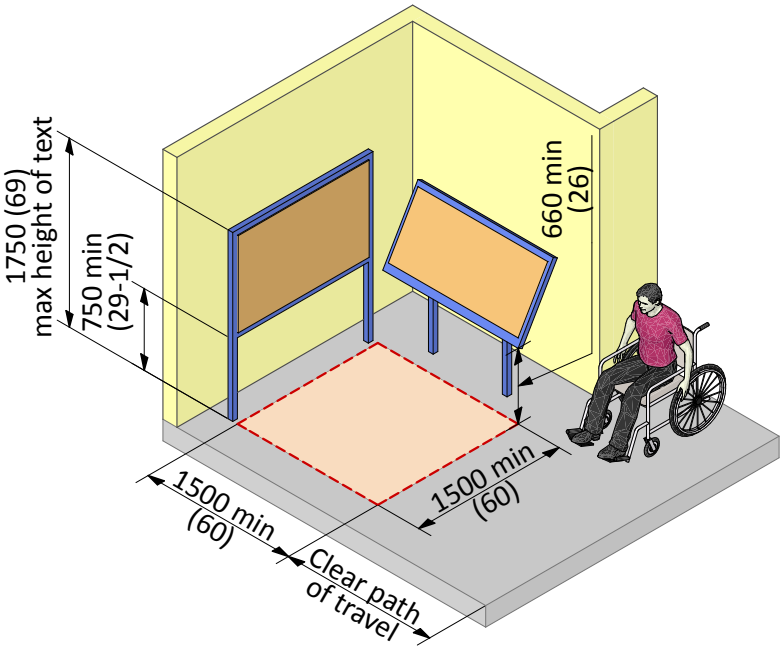
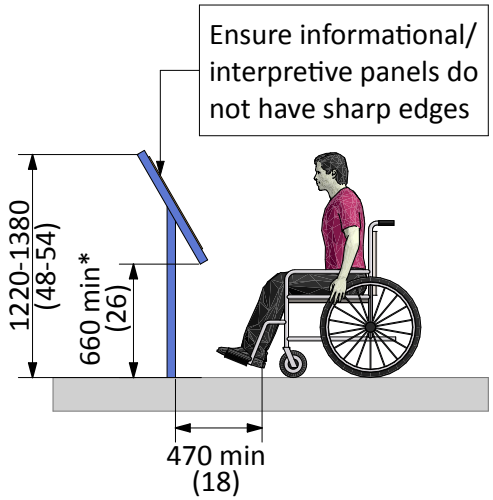


Figure 4.4.10.1:
Clear space and dimensions around information systems



* If sign is legible from 750 (65) or further then clearance can be lowered to a minimum toe clearance of 220 (9)

Figure 4.4.10.2:
Critical dimensions for information systems and displays

4.4.11 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 for safety and security to particular *facilities* or *spaces*, all systems and components selected and installed should be useable by people with *disabilities*, including people with reduced manual dexterity, difficulty with reaching, low or no vision. The use of heat-sensing activation buttons should be avoided, as they are indiscernible to persons with vision loss.

Touch screens are not appropriate as they are inaccessible to persons with vision loss, unless accompanied by another means of interaction/activation.

Application

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

Where signals intended for the public to indicate the operation of a *building* security system are provided, they shall consist of both audible alarms and visual signals.

Design Requirements

Adequate lighting shall be provided continuously along public *walk*ways, 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 shall incorporate an emergency call system linked to a central location (e.g., office or switchboard).

4.4.11 Card Access, Safety and Security Systems

Design Requirements (continued)

Card access mechanisms shall be operable
- with one hand;
- without tight grasping, pinching, or twisting of the wrist; and
- with a force of less than 22 N (5 lbf.)

Card-entry systems shall
- be wall-mounted, no higher than 1060 mm (42 in.) above the floor or ground, adjacent to the door and free of the door swing;
- be positioned on the latch side of the door, *clear* of the door swing or other operating components of the entry point;
- be *colour/tonal contrasted* from the surface on which they are mounted;
- have an audible alarm and a light indicator to inform the user that the card has been accepted and allow the door lock to be disarmed; 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, between 900 - 1100 mm (35-1/2 - 43-1/4 in.) 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 numerals or letters in a constant array.

It is preferred that keypads be installed at 1100 mm (43-1/4 in.) above the floor and be installed on an adjustable mounting surface that will enable the keypad to be read from the vertical surface, or tilted upward 90 degrees to be read from a horizontal position.

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
4.4.13 Lighting
4.4.15 Texture and Colour

4.4.12 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 low or no vision. Non-reflective materials and finishes, as well as mechanisms to control natural daylight should be integrated throughout a *facility*.

The strategic use of lighting is valuable to all individuals, and especially important for individuals with some form of vision loss. 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, as long as they do not result in large reflective surfaces.

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

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

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

Curtains, blinds or other sunscreening 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.

4.4.12 Glare and Light Sources

Design Requirements (continued)

Where surface-mounted fluorescent ceiling fixtures are mounted below 2440 mm (96 in.), they shall have darkened sides (eg. 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.

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
4.4.13 Lighting

4.4.13 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.

Lighting located within or adjacent to pedestrian routes should be configured to illuminate the surface of routes. Such lighting should not be directed upwards, or configured in a way that would orient direct light into the eyes of pedestrians – including people with lower eye-levels, such as children and persons who use wheelchairs.

Ideally, ground/floor-mounted light fixtures should be located out of pedestrian *paths of travel*. Where they are located within pedestrian *paths of travel*, fixtures must be cane-detectable and not become a tripping hazard.

Application

Exterior and interior lighting systems shall comply with this section.

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

All lighting should be evenly distributed to minimize pools of light and cast shadows. Shields, recesses or other features should be used to focus light and minimize reflective glare.

Changes in lighting level should not exceed a range of 100 lux to 300 lux (10 - 30 candles) from one *space* to the next.

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*, lighting levels should be minimum 100 lux (9.4 ft-candles) consistently over the *entrance* area, measured at the ground.

Over frequently used pedestrian routes, including *walk*ways, paths, stairs and *ramps*, lighting levels shall be minimum 30 lux (3 ft-candles) consistently over the route, measured at the ground.

At designated parking *spaces* including *accessible spaces* and limited mobility/ caregivers *spaces*, lighting levels shall be minimum 30 lux (3 ft-candles) consistently over each of these parking *spaces*, measured at the ground.

Lighting levels at passenger *drop-off* areas shall be minimum 30 lux (3 ft-candles) consistently over the *drop-off* area, 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 nosings.

Design Requirements (continued)

All lighting shall

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

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

Low/ground-level lighting (such as bollards) shall be high enough to *clear* normal snow accumulation.

Lighting fixtures shall comply with the relevant parts of Sections 4.1.3 and 4.3.17.

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 (20 ft-candles).

Lighting levels in washrooms and change/dressing rooms shall be evenly distributed and no less than 200 lux (20 ft-candles).

Lighting levels in office areas shall be evenly distributed and no less than 300 lux (30 ft-candles).

Emergency lighting over stairs and *ramps*, in an exit or *path of travel*, shall be at least 100 lux (10 ft-candles), generally at the *walk*ing surface, and in no place less than 50 lux (5 ft-candles).

Lighting over directional or informational *signage*, or highlighting other orientation features, at public telephones, information or service counters, and card or keypad security systems, shall be no less than 200 lux (20 ft-candles) measured at the working surface.

Lighting in *meeting rooms* and *assembly areas* shall be evenly distributed, and shall be capable of being adjusted (e.g., 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 ASL translator for persons who are Deaf.

Related Sections

4.1.3 Protruding and Overhead Objects
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
4.3.3 Elevated Platforms
4.3.4 Change/Dressing Rooms
4.3.5 Office, Work Areas and Meeting Rooms
4.3.8 Information, Reception and Service Counters
4.3.17 Street Furniture
4.4.2 Controls and Operating Mechanisms
4.4.5 Public Telephones
4.4.7 Signage
4.4.12 Glare and Light Sources

4.4.14 Materials and Finishes

Rationale

Materials and finishes used throughout a *site* or *facility* are critical to the safety and ease of movement for persons with *disabilities*, especially individuals using wheelchairs or scooters and those with low or no vision. Materials or finishes may also contribute to noise and echo, which impacts individuals with hearing loss.

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

Finishes that are slip-resistant and non-reflective promote safe travel.

Application

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

Design Requirements

Exterior Finish Materials

Suitable *walk*way surfaces are to be non-slip and firm, and include concrete, asphalt, brick or decking laid perpendicular to the *path of travel*. Concrete with a level, brushed surface is preferred. If paving stones, interlocking pavers, or decking are used as *walk*ways, they shall

- have joints that are no greater than 6 mm (1/4 in.) wide, with variations in level of no more than 3 mm (1/8 in) (Figure 4.4.14.2); and
- be laid to drain .

For contraction joints, saw cuts are required as it provides a smoother *path of travel* for individuals who use personal *mobility devices*, and reduces the *tactile element* of the traditional grooved tooled style for people with vision loss.

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.

Where possible, gratings and grills shall be located *clear* of the *accessible route*. Where this is not possible, the bars of the grating or grill shall be located perpendicular to the dominant *path of travel*, with openings of no greater than 13 mm (1/2 in.) (Figure 4.4.14.1).

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

Ramp surfaces shall be firm and non-slip.

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

Design Requirements (continued)

Interior Materials and Finishes

Carpet shall be of low-level loop construction, 10 or 12-gauge nonstatic fibre, directly glued to the sub-floor.

Where hard, monolithic materials are selected, they shall be nonslip and non-glare, complying with Section 4.4.12.

Where floor tiles, bricks or pavers are used, joints should be no wider than 6 mm (1/4 in.) and should be flush.

Wall surfaces in corridors shall be non-abraisive below 2000 mm (78- 3/4 in.).

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 Change/Dressing Rooms
4.3.5 Office, Work Areas and Meeting Rooms
4.4.12 Glare and Light Sources

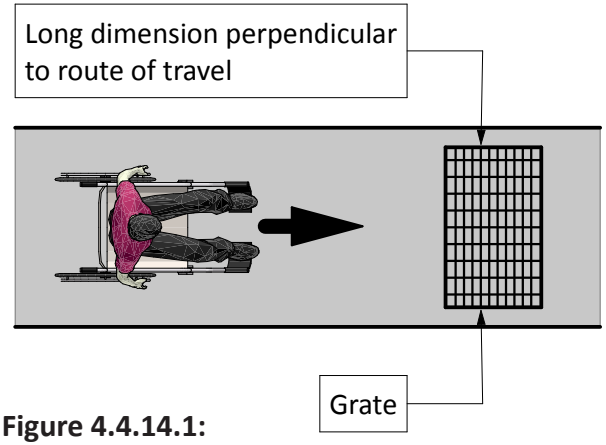


Figure 4.4.14.1:
Grate Orientation

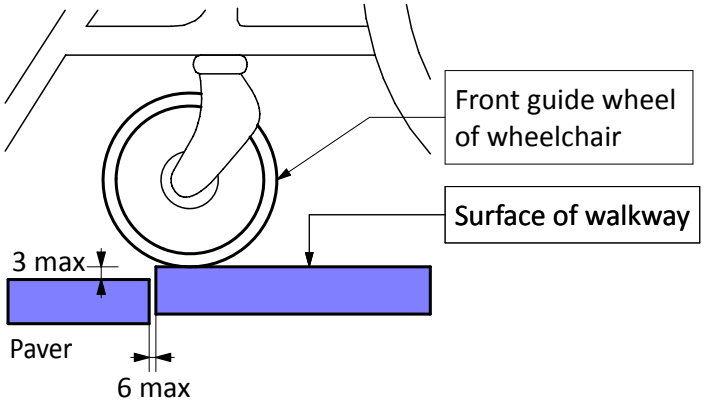


Figure 4.4.14.2:
Walkway surface variation

4.4.15 Textures and Colour

Rationale

The ability of an individual with low or no vision to navigate an environment can be enhanced through the strategic use of colour and texture.

Caution is recommended in the selection of heavy or distinct patterns on walls, floors, carpet and exterior *walk*ways, since these can add visual confusion to settings for persons with low vision. Simple, repetitive, non-directional patterns that feature monochromatic or low *colour/tonal contrast* are preferred. Changes in material or texture should not necessitate a threshold.

Consider the opportunity for communicating pedestrian route information through the strategic use of colour and textural contrast. Note that *colour/tonal contrast* on *walk*ing surfaces can indicate the presence of a potential obstacle or hazard along a pedestrian route. Where a continuous *accessible route* exists, omit contrasting colour within the *path of travel* to indicate a *clear accessible route*. *Colour/tonal contrast* should be applied along curb and *building* faces where doors may be opening into the *path of travel* or where *signage* and outdoor furnishings exists. Colour can be applied in areas where it is desirable to bring visual attention to a feature or design detail.

The preferred colour for *tactile* surfaces is safety yellow, except when background contrast is inadequate.

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/tonal 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.

Signage shall incorporate pronounced glare-free *colour/tonal 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. *Signage* should avoid using the colour combinations yellow/grey, yellow/ white, blue/ green, red/green, black/violet, or red/black, since these combinations are unreadable for people with various visual conditions (i.e. colour blindness.)

Colour/tonal contrast shall be used as a safety measure to define edges or boundaries of objects (eg., stair nosings, doors, *handrails*, etc.).

Colour or tone shall be used to visually define the boundaries of a room (eg. 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).

4.4.15 Textures and Colour

Design Requirements (continued)

Bright colours and/or a highly contrasting tone shall be used to assist with wayfinding. (e.g. If used as part of a *signage* band located on walls at eye level, this band is easier to follow than monolithic wall colouring, and can be the visual cue for other essential signs.)

End walls or return walls in long corridors shall be visually defined using highly contrasting colours or tone, to enhance a change of direction or the end of the *space*.

Floor patterns shall not be visually confusing.

Detectable warning surfaces shall be used to define potential hazards. (Section 4.4.8.). All textured surfaces used as *detectable warning surfaces* shall be shall be clearly detectable by *walk*ing upon as being different from the surrounding surface. Suitable textures include raised domes, dots or squares, deeply grooved concrete, terrazzo or other stone-like materials, with closely centred grooves at right angles to the *path of travel*, or applied carborundum grit or other non-slip strips for interior textures.

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 locations such as the junction between walls and floors, doorway recesses and corridor intersections.

The same texture shall be used consistently throughout any one *site* to identify the same type of hazard.

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
4.1.15 Platform Lifts
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 Change/Dressing 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
4.3.14 Landscaping Materials and Plantings
4.3.15 Benches
4.3.16 Public Use Eating Areas and Picnic Tables
4.3.17 Street Furniture
4.4.1 Emergency Exits, Fire Evacuation and Areas of Rescue Assistance
4.4.2 Controls and Operating Mechanisms
4.4.5 Public Telephones
4.4.7 Signage
4.4.8 Detectable Warning Surfaces
4.4.11 Card Access, Safety and Security Systems

4.4.16 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, clients, 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. (e.g., Hard surfaces such as marble or terrazzo will allow each foot step to be heard by persons who are visually impaired, but add another level of confusion for persons who are hearing impaired.)

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

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

Public address and call systems shall be capable of being zoned to key areas, rather than blanketing all areas of a *facility* at all times. (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 Public Telephones
4.4.6 Assistive Listening Systems
4.4.9 Public Address Systems

4.4.17 Pedestrian Signals

Rationale

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

This section has been developed to meet the legislated requirements of the *AODA*, Design of Public Spaces Standard.

Application

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

Design Requirements

Accessible pedestrian signals must;

- have a locator tone that is distinct from a *walk* indicator tone;
- be installed within 1500 mm (59 in.) of the edge of the curb;
- be mounted at a maximum of 1100 mm (43-1/4 in.) above ground level;
- have *tactile* arrows that align with the direction of crossing;
- include both manual and automatic activation features; and
- include both audible and vibro-*tactile walk* indicators.

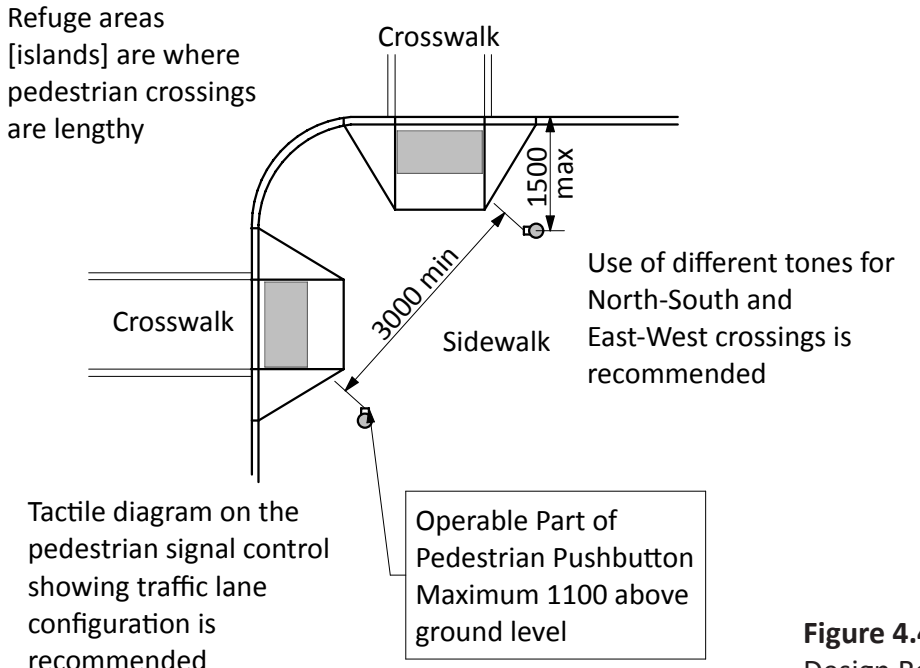


Figure 4.4.17.1:
Design Requirements for *accessible* pedestrian signals

Design Requirements (continued)

Where two *accessible* pedestrian signal assemblies are installed on the same corner, they must be a minimum of 3000 mm (118 in.) apart.

Where the *accessible* pedestrian signal cannot meet the 3000 mm (118 in.) minimum requirement due to *site* constraints or existing infrastructure, two *accessible* pedestrian signal assemblies can be installed on a single post, and when this occurs, a verbal announcement must clearly state which crossing is active.

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

The requirements of this section are requirements of the *AODA* Design of Public Spaces Standard.

Related Sections

4.1.4 Accessible Routes, Paths, And Corridors
4.4.2 Controls and Operating Mechanisms

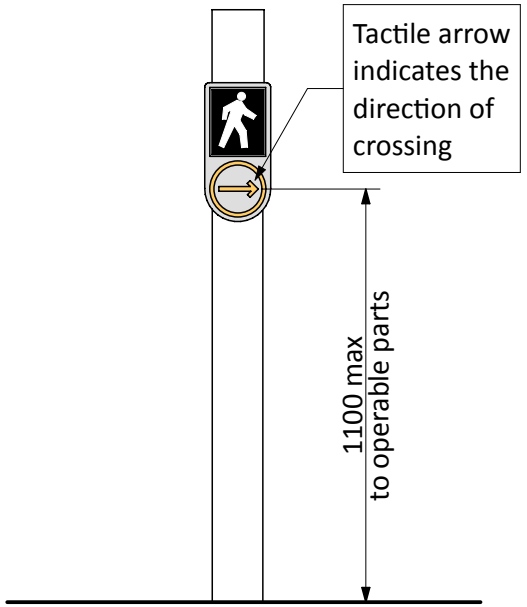


Figure 4.4.17.2
Accessible Pedestrian Signal control

4.5.1 Arenas, Halls and Other Indoor Recreation 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, change rooms and showers. Persons with a *disability* may be active participants, as well as spectators, coaches, 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.

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 4.4.8. 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 (37-1/2 in.) *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, change/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/ tonal contrasting* features;
- where dressing *facilities* are provided, have dressing *facilities* that comply with Section 4.3.4;
- where lockers or shelving is 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 Sections 4.2.1 and 4.2.8;
- where concessions or other service counters are provided, comply with Sections 4.1.3 and 4.3.8;
- where swimming pool, 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 sections 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 Swimming Pools, Therapeutic Pools and Public Spas

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 *impairment*s include *accessible* change *facilities* and a means of access into the water. *Ramp*ed access into the water is preferred over lift access, as it promotes integration (everyone will use the *ramp*) and independence. Many persons with vision loss 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.

Therapeutic pools are generally smaller, shallower pools that include a *ramp* access and provide submerged bench seating in addition to open exercise *space*.

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, therapeutic pools, and spas 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 change rooms; and
  - a direct *accessible route* in compliance with Section 4.1.4 from the change rooms to the pool deck;
- where the pool is outdoors,
  - an *accessible route* in compliance with Section 4.1.4 throughout the normally occupied portions of the pool; and
  - a pool deck that is minimum 1800 mm (70-7/8 in.) wide with a *clear accessible route* in compliance with Section 4.1.4 around the entire perimeter;
- access from the pool deck into the water, provided by a *ramp* that shall have
  - a *handrail* on either side at 865 - 965 mm (34 - 38 in.);
  - a *clear* width of at least 1100 mm (43-1/4 in.);
  - a curb or other means to prevent a wheelchair from falling off the side;
  - surface finishes capable of being kept clean, sanitary and slip-resistant;

Design Requirements (continued)

- where *ramp* is not submerged it shall
  - have a landing at the bottom of the *ramp* that is at least 450 - 550 mm (17-3/4 - 21-3/4 in.) below the top of the wall;
  - be equipped with a floor drain at the lowest point;
  - have a width at the top of the wall between the pool and *ramp* of 250 - 300 mm (9-7/8 - 11-3/4 in.);
  - have water depth at the landing clearly marked in figures at least 100 mm high on the top of the wall; and
  - have a maximum slope of 1:12 (8.3%);
- where *ramp* is submerged it shall
  - have water depth at the bottom of the *ramp* of 600 - 900 mm (23-5/8 - 35-1/2 in.);
  - have a hard-surfaced area that is at least 750 mm (29-1/2 in.) wide contiguous to the entire length of the submerged *ramp*;
  - have finishes that are different in colour or shade from each other and from that of the pool walls and bottom; and
  - have a maximum slope of 1:9 (11.1%);
- a shower chair available at each *facility* for use in transferring into the water and/or shower;
- where steps are provided into the pool,
  - steps shall be marked with a *colour/tonal contrasting* strip of at least 50 mm (2 in.) wide, at both the riser and the tread; and
  - *colour/tonal contrasting handrails* on both sides of the steps. Such *handrails* shall extend at least 300 mm (11-3/4 in.) beyond the pool edge;
- where a curb is provided as edge protection, it shall be a minimum of 200 mm (7-7/8 in.) and a maximum of 400 mm (15-3/4 in.) in height;
- pool boundaries clearly defined by both a textural change and a *colour/tonal contrast* to both the water surface and surrounding pavement;
- perimeter of pool deck clearly delineated by a *tactile* surface indicator around the pool;
- firm, slip-resistant materials and finishes used on the pool perimeter, deck or paved areas surrounding the pool;
- non-abrasive and easy-to-clean pool perimeter finishes;
- adequate drainage on the pool deck to drain water quickly;
- where pool-depth indicator marking is provided, depth-indicator markings, as well as 'SHALLOW END' and 'DEEP END' markings, of a highly contrasting colour and sufficient size to be easily visible;
- where diving boards or platforms are provided, they shall be clearly marked and protected. Overhead clearances should be a minimum of 2100 mm (82-3/4 in.) 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
- life*guard* chairs, slides and other pool related structures shall be in highly contrasting colours.

In *retrofit* situations where it is *technically infeasible* to provide a *ramp* from the pool deck into the water, a mechanical pool lift may be used.

4.5.2 Swimming Pools, Therapeutic Pools and Public Spas

Design Requirements (continued)

Where a mechanical pool lift is provided,

- it should not be installed where water level exceeds 1220 mm (48 in.) unless entire pool depth is more than 1220 mm (48 in.);
- the centerline of the seat should be located over the deck and a minimum 400 mm (15-3/4 in.) from the edge of the pool when in raised position;
- a *clear space* beside the seat opposite the water at least 915 mm (36 in.) wide and extend forward not less than 1220 mm (48 in.) from a line located 305 mm (12 in.) behind the rear edge of the seat;
- it shall be capable of unassisted operation from both deck and water levels and be unobstructed when the lift is in use; and
- shall have a weight capacity of at least 135 kg (300 lbs) and capable of static load at least 1.5 times the rated load.

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.

Public Spas

At least one *accessible* access point shall be provided into a public spa. The access point shall be a *ramp* in compliance with this section or a transfer wall. A transfer wall shall

- have a height of 405 - 485 mm (16 - 19-1/8 in.) above pool deck;
- have depth between 300 and 400 mm (11-3/4 - 15-3/4 in.);
- be slip-resistant and have edges rounded;
- have minimum one grab bar
  - perpendicular to pool and extending full depth of transfer wall;
  - located between 100 - 150 mm (4 - 6 in.) above transfer wall; and
  - with clearance of at least 610 mm (24 in.) on both sides;
- have adjacent *clear* deck area for lateral transfer to the transfer wall that
  - is outside of and adjacent to *barrier* free *path of travel*;
  - has no obstructions at side of transfer wall;
  - has *clear space* of 900 x 2200 mm (35-1/2 x 86-5/8 in.); and
  - has a slope less than 2% at base of transfer wall surface; and
- have adjacent *clear* deck area centred on the grab bar where one grab bar is provided, or centred on the *clear space* between grab bars where more than one is provided.

Therapeutic Pools

Water temperature shall be heated to between 33-34°C (92 - 94°F).

Temperature or other controls associated with the therapy pool (such as submerged water jets) shall meet requirements in Section 4.4.2.

Depth for the exercise portion of a therapy pool shall be between 1050 - 1200 mm (41 - 47-1/4 in.).

Submerged benches shall comply with Section 4.3.15.

Related Sections

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

4.5.3 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/tonal contrasts* and large print menus may assist persons with vision loss.

Tables that have the support leg(s) in the centre of the table provide a higher level of accessibility.

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 (34 in.) in height and counters are for use by customers seated on stools or standing at the counter, a minimum of 1525 mm (60 in.) 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 (43- 1/4 in.) 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.

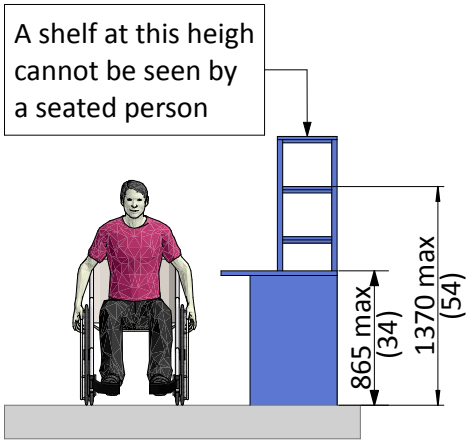


Figure 4.5.3.1:
Self Serve Counter

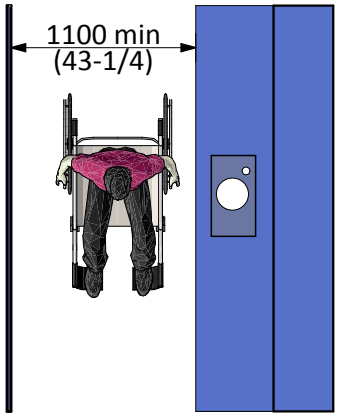


Figure 4.5.3.2:
Aisle Width

4.5.3 Cafeterias

Design Requirements (continued)

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*.

A minimum of 20% of the tables must be *accessible* to persons using mobility aids (*AODA*, IASR, Design of Public Spaces).

Access to outdoor eating areas shall comply with Section 4.3.11.

Food service lines shall have a minimum *clear* width of 1100 mm (43-1/4 in.).

Tray slides shall be mounted no higher than 865 mm (34 in.).

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*.

Self-service shelves, vending machines, dispensing devices for tableware, dishware, condiments, food and beverages, and other equipment shall be installed to comply with Section 4.1.1 and shall be located on an *accessible route* in compliance with Section 4.1.4.

Cashier locations shall feature at least one *access aisle*, which is a minimum of 1100 mm (43-1/4 in.) 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 Section 4.1.9 or Section 4.1.15, as well as Section 4.3.3.

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.

Related Sections

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

4.5.4 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. It is preferred to provide height-adjustable furnishings.

The provision of workstations equipped with assistive technology, such as large displays, screen readers, etc., will increase the accessibility of a library.

The provision of book drop-off slots at different heights for standing and seated use will enhance usability.

Where possible, shelves and displays should be fixed/stable and detectable by a long white cane. A-frame displays should be avoided as they create tripping hazards for persons with vision loss. Shelves should be placed at 90 degrees to create a grid pattern for ease of navigation for all persons.

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 no less than one shall be *accessible* and in compliance with this section. It is preferable to have all fixed seating, tables and study carrels *accessible*.

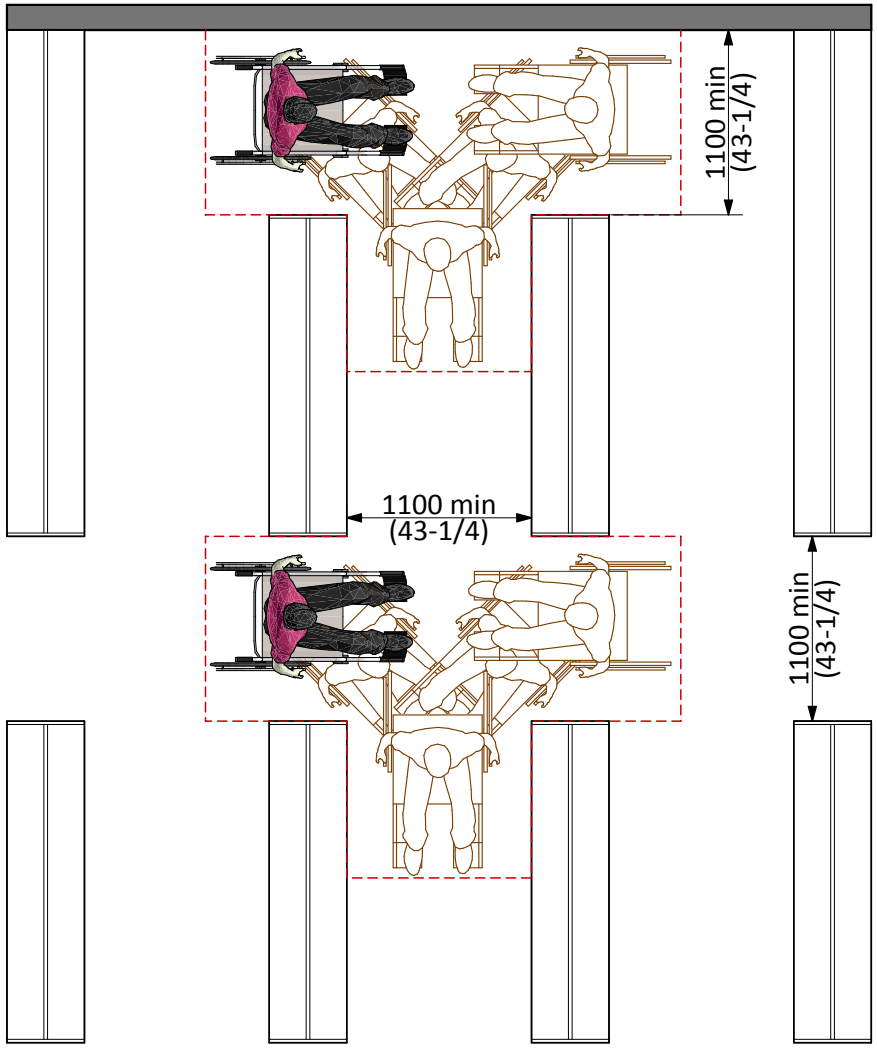


Figure 4.5.4.1:
Aisle Width

Application (continued)

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*.

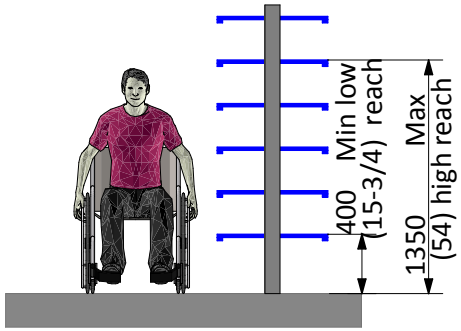


Figure 4.5.4.2:
Reach Heights

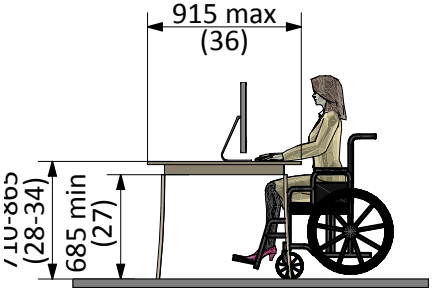


Figure 4.5.4.3:
Work Surfaces

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 1120 mm (44 in.).

Accessible fixed study carrels shall incorporate

- work surfaces and knee/toe clearance in compliance with Section 4.3.7;
- an electrical outlet; and
- lighting levels of at least 100 lux (9.3 ft-candles) at the work surface.

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

Minimum *clear* aisle *space* at Computer Catalogues and at stacks shall comply with Section 4.1.1.

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.

Shelf height in stack areas is unrestricted.

Circulation service counters and information service counters shall comply with Section 4.3.8.

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 maximum work surface height of 865 mm (34 in.); and
- a maximum table depth of 915 mm (36 in.).

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 2440 by 2440 mm (96 by 96 in.) level *clear floor space*. In a *retrofit* situation where it is *technically infeasible* to create a 2440 x 2440 mm (96 by 96 in.) *clear floor space*, the *space* may be reduced to 1525 x 1525 mm (60 by 60 in.); and
- have a slot that is operable using one hand, located between 860 mm (34 in.) and 900 mm (35-1/2 in.) above the floor.

Design Requirements (continued)

Lighting at book stacks shall be mounted directly over the aisle *space* and provide a minimum of 200 lux (20 ft-candles) at a nominal working height of 920 mm (36 in.).

The acoustic quality shall be free of unnecessary background noise and should permit comprehension by persons with hearing loss. (Section 4.4.16.)

Where CDs, tapes, talking books, etc. are available as part of the library resource materials, or for loan purposes, a separate *space* shall be provided for auditing this material without disturbing other library users.

Related Sections

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

4.5.5 Business, Mercantile and Civic

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* for employees with *disabilities*.

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 areas, reception, information and registration counters.

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. These provided methods of communication shall be *accessible* to both individuals who use a wheelchair or scooter and individuals who have difficulty bending.

In public *facilities* where security glazing is not required, no partitions or glazing is preferred.

The number of *accessible* checkout aisles provided shall be in conformance with Table 4.5.5.

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

Table 4.5.5:
Required number of *accessible* checkout aisles

Design Requirements

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

Where not all service counters are *accessible*, the *accessible* service counter(s) shall be the closest counter(s) on the *accessible route*.

In areas used for transactions where counters have cash registers and are provided for sales and distribution of goods or services to the public, the counter shall have at least one portion that is at least 920 mm (36 in.) in length, with a maximum surface height of 865 mm (34 in.) above the finished floor and shall have adjacent *clear floor space* of at least 1370 mm x 810 mm (54 x 32 in.) to allow for parrallel approach by a person using a wheelchair or scooter.

In areas used for transactions that may not have a cash register but at which goods and services are sold, including, but not limited to, ticketing counters, teller stations, registration counters, information counters, box office counters and library check-out areas either a portion of the main counter shall be a minimum of 865 mm (34 in.) in length, with a maximum height of 865 mm (34 in.) or an auxiliary counter with the required minimum dimensions shall be provided in close proximity to the main counter.

The *clear* width of *accessible* checkout lines shall comply with 4.1.4, and the maximum adjoining counter height shall not exceed 965 mm (38 in.) above the finished floor. The top of any counter edge protection shall be no more than 50 mm (2 in.) above the top of the counter surface on the aisle side of the check-out counter.

Signage identifying *accessible* transaction aisles shall incorporate the International Symbol of Access and shall be mounted above the checkout aisle in the same location where the checkout number or type of checkout is displayed.

Related Sections

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

4.5.6 Transportation Facilities

Rationale

Links to usable transportation should be *accessible* to all members of a community. Accessibility within terminals and use of systems should be addressed. This includes public and private bus, taxi, train, and airplane arrival and departure points. A variety of lift devices may need to be accommodated, and alternatives to audio and/or visual-only scheduling should be available.

It is important to provide appropriate wayfinding guidance in open areas, including *tactile* direction indicators.

Application

In addition to the design requirements specified in Sections 4.1 to 4.4, transportation *facilities* located within a *site* shall comply with this section.

Design Requirements

Bus Shelters

Bus shelters shall

- be located on firm, level pads approximately at the same elevation as the sidewalk or *walk*way;
- have clearances around at least two sides of the shelter, including the landing pad side, of at least 1500 mm (59 in.);
- provide a *clear* view of oncoming traffic;
- incorporate sufficient *clear floor space* to accommodate a person using a wheelchair or scooter; and
- feature at least one seat with armrests and a seat height between 450 mm and 500 mm (17-3/4 in. and 19-5/8 in.);

All glazed panels surrounding bus shelters shall incorporate decals, and other safety features as specified in Section 4.1.8.

Bus Stops

Bus stops shall

- incorporate a paved, firm, level surface, in compliance with local authority standards; and
- not be impeded by adjacent street furniture, such as dispensers, vending machines, waste boxes, planters, posts, signs and guide wires.

Design Requirements (continued)

Transit Terminals

Where bus platforms or other boarding platforms are provided, they shall allow safe access for persons who use a wheelchair or scooter, and where possible, provide level access into buses.

The edges of platforms shall incorporate a continuous *detectable warning surface* of at least 600 mm (23-5/8 in.) wide and in compliance with Section 4.4.8.

Lighting levels at all boarding platforms shall be at least 100 lux (10 ft-candles) at the platform or boarding-surface edge.

Boarding locations shall incorporate visible and audible warning signals to advise travellers of approaching vehicles.

Where special lifting devices are used, either on the vehicle or at the boarding point, appropriate manoeuvring *space* shall be provided around the boarding point for waiting passengers using wheelchairs.

Seating shall be provided in compliance with Section 4.3.15, at or close to boarding points.

Related Sections

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

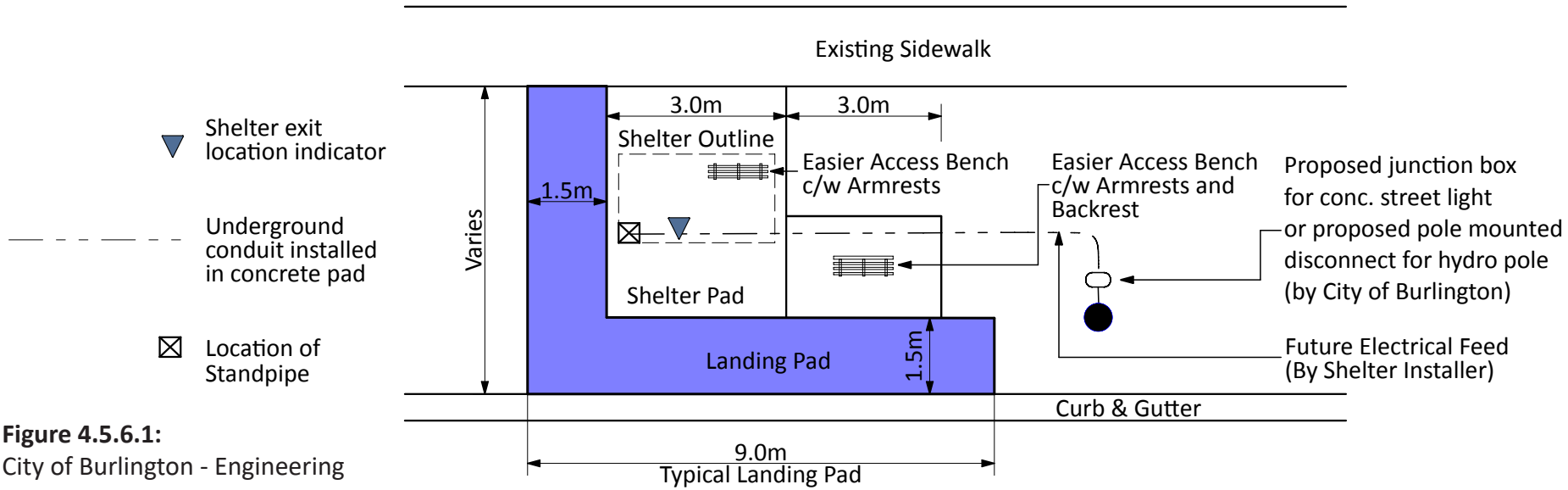


Figure 4.5.6.1:
City of Burlington - Engineering Department
Transit Shelter Layout

4.5.7 Heritage Facilities

Rationale

Providing people of all ages, interests and capacities with broad, general access to *public heritage facilities* places is a highly desirable social goal. It is important to ensure that such access is accompanied by adequate psychological comfort and dignity. Many users of *public heritage facilities* are the same demographic market that is growing older, becoming less mobile, and often has compromised hearing and vision.

Application

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.

Public 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, washrooms, food service areas and gift shops. It can also include *walk*ways and garden areas. If accessibility is limited by non-heritage *elements*, those *elements* should be revised.
- *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 *Public 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.
- 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.

Contemplated renovations to heritage assets shall be assessed for compliance with these standards on an individual basis to determine the most effective and least disruptive means of *retrofit*. Appropriate City and external stakeholders will be engaged to ensure an appropriate *building* transition plan is achieved.

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.

Design Requirements

In the Standards and Guidelines for the Conservation of Historic Places in Canada, the following recommendations are proposed for accessibility upgrades to Historic Places. Please refer to the entire document for further detail.

- Identify the heritage value of the historic place and character-defining *elements* - materials, forms, location, spatial configurations, uses and cultural associations or meanings - so that required accessibility modifications will not damage or destroy them.
- Comply with accessibility requirements in such a way that character-defining *elements* are conserved and heritage value maintained.
- Work with accessibility and conservation specialists and affected users to determine the most appropriate solution to access problems that will have the least impact on character defining *elements* and overall heritage value.
- Provide accessibility that promotes independence for the disabled person to the highest degree practicable, while conserving the heritage value and character-defining *elements*.
- Adapt the intervention to its anticipated lifespan, so that short-term improvements remain as reversible as possible.
- Find solutions to meet accessibility requirements that minimize the impact on the historic place and its environment.

Related Sections

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

4.5.8 Fire Stations

Rationale

Municipal fire stations should accommodate the accessibility needs of all potential *facility* users, including but not limited to

- staff returning to light duty work;
- injured staff attending a Captain's office or other meeting *space* within the *facility*;
- administration staff, Council Members, Consultants, etc. attending *site* visits;
- tours of non-work staff (School groups, etc.);
- occasional uses of the *facility* such as meeting spaces that are open to the public and/or used for municipal functions; and
- use by members of the general public in an emergency situation
  - pedestrian *walk*-up &/or vehicular drop-in requests for assistance/ emergency services; and
  - Emergency Reception Centre.

Areas of fire stations likely to be used by the public, including the apparatus bay and washroom, should be *accessible* for persons with *disabilities*.

Application

Areas of a fire station that are *accessible* to the public and/or intended for access/ viewing by visitors shall comply with this section.

Exception: *Facilities* for the exclusive use of firefighters such as hose towers, fitness rooms, dormitories, and any basement level storage *space*.

At least one *accessible* public washroom shall be provided.

Design Requirements

Public use entrances shall be *accessible* and in compliance with Section 4.1.5.

Firefighter *entrances* shall be *accessible* and in compliance with Section 4.1.5, except that a *power-assisted door* is not required, unless otherwise required by the Ontario *Building* Code.

An *accessible route* in compliance with Section 4.1.4 shall be provided from *accessible public use entrances*.

Within a station, areas that shall be *accessible* include

- at least one washroom and shower *facility*;
- the apparatus bay;
- the dispatch department; and
- the main floor level to provide an opportunity to access *spaces* on either side of a centrally positioned apparatus bay.

An *accessible public use* washroom shall be provided on the main floor level in close proximity to

- the primary *accessible entrance* to the *facility*; and
- the apparatus bay.

Design Requirements (continued)

Where more than 3 *entrances* are provided, minimum 2 *accessible entrances* shall be provided, in accordance with the Ontario *Building* Code.

Community and public *meeting rooms* within fire stations shall comply with Section 4.3.5.

Common-use areas within a fire station, such as the kitchen, shall comply with all relevant sections of this Standard.

Where a fitness room is provided, it shall

- be located on an *accessible route* in compliance with Section 4.1.4;
- have an *accessible entrance* in compliance with Section 4.1.6;
- have controls in compliance with Section 4.4.2; and
- have at least one 180 degree turn *space* in compliance with Section 4.1.1. In a *retrofit* situation where it is *technically infeasible* to provide the required 180 degree turning *space*, a *clear* area at least 1525 mm (60 in.) in diameter shall be provided.

The *accessible public use* washroom shall

- comply with Section 4.2.7 except that an adult-sized change table is not required (but *space* for an adult sized change table must be provided);
- have an *accessible* shower in compliance with Section 4.2.9; and
- have a baby change table.

Where public parking is provided, at least one *accessible* parking space shall be located close to the primary public *entrance*.

Related Sections

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

4.5.9 Training and Teaching Spaces

Rationale

Students, teachers and staff with *disabilities* should be accommodated in all training and teaching *spaces* throughout the *facility*. Basic accommodation includes the ability to enter and move freely throughout the *space*, gain access to an *accessible* washroom, as well as use the various built-in *elements* within (e.g. integrated technology, whiteboards, switches, computer stations, sinks, etc.)

Persons with *disabilities* frequently use learning aids and other *assistive devices* that require a power supply. The provision of additional electrical outlets throughout training and teaching *spaces* will better-accommodate the use of such equipment.

Where built-in *elements* are duplicated within individual training/teaching *spaces*, such as laboratory benches or pinboards, at least one of each type of *element* should be *accessible*.

Fixtures, fittings, furniture and equipment specified for training/teaching *spaces*, shall be flexible for use by students, teachers and staff with a wide range of abilities. Adjustable height tables and chairs, removable armrests and including rolling/locking casters on furniture allows an individual to make any adjustments needed to adapt the environment to meet their individual needs.

Application

All training and teaching *spaces* shall be *accessible* and shall comply with this section.

Where built-in *elements* such as fixed seating, tables or laboratory benches are provided within a training/teaching *space*, at least 10% but no less than one, shall be *accessible* and in compliance within this section.

At least 2% of the seating shall be wider seats with a load capacity of at least 227 kg (500 lbs).

At least 2% of tables and chairs shall be height adjustable.

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

Where writing surfaces are integrated into training/teaching *space* seating, 10% but no less than one shall accommodate persons who are left-handed.

At least 3% of the seating capacity within any training and teaching *space* shall be *accessible* and identified for use by persons who use a *mobility assistive device*.

The common-use areas of training/teaching *facilities* shall comply with all relevant sections of this Standard.

4.5.9 Training and Teaching Spaces

Design Requirements

Training and teaching *spaces* shall

- be located on an *accessible route* in compliance with Section 4.1.4;
- have interior circulation routes and *space* between tables (where provided) within the teaching/training *space* in compliance with Section 4.1.4;
- incorporate at least one entry/egress door in compliance with Section 4.1.6;
- incorporate *entrance* doors into training and teaching *spaces* with a capacity of over 60 people shall incorporate a *power-assisted door*;
- incorporate controls and mechanisms in compliance with Section 4.4.2;
- incorporate floor surfaces throughout in compliance with Section 4.1.2;
- where provided, incorporate windows, glazed screens and sidelights in compliance with Section 4.1.8;
- have access to assistive learning devices such as screen reading software or adapted keyboards on an as-needed basis;
- have access to an *accessible* washroom on the same floor level; and
- where applicable, training and teaching *spaces* shall incorporate assistive listening systems in compliance with Section 4.4.6.

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

- incorporate no less than two separate *accessible* seating locations, in compliance with Section 4.3.4; and
- allow persons with *disabilities* to access the primary presentation area.

Wheelchair seating *spaces* shall be places in close proximity to the room *entrance*. The minimum size of a *space* shall comply` with Section 4.3.2.

Where applicable, training and teaching *spaces* shall incorporate assistive listening systems in compliance with Section 4.4.6.

Where training and teaching *spaces* incorporate safety equipment such as fire extinguishers, eye-baths or deluge shower, such equipment shall be *accessible* to and usable by persons with *disabilities*.

Accessible work surfaces and other built-in *elements* within training and 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 positioned such that a personal assistant, service animal and/or extra equipment can be accommodated at each *accessible* seating location.

Provide access to data and electrical outlets within close proximity and easy reach to *accessible* seating *spaces*.

Work surfaces shall incorporate non-glare finishes.

Accessible storage *elements* within training and 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.

Design Requirements (continued)

Where pinboards, whiteboards, smartboards or other display systems are provided within training and 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 located no higher than 760 mm (30 in.).

Where training and teaching *spaces* incorporate demonstration areas such as laboratory benches, cooking prep stations, fume cabinets 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 as well as the use of cameras and a monitor screen for image display.

Where training and teaching *spaces* incorporate sinks, at least one shall comply with Section 4.3.18.

Where training and teaching *spaces* incorporate appliances such as dishwashers, ranges and/or cooktops, ovens and refrigerators/freezers, at least one of each type shall comply with Section 4.3.18.

Where training and teaching *spaces* incorporate kitchens, each kitchen shall

- comply with Section 4.3.18; and
- incorporate at least one work surface minimum 920 mm (36 in.) wide, located maximum 865 mm (34 in.) high, with knee *space* below at least 810 mm (32 in.) wide, 480 mm (18-7/8 in.) deep, and 685 mm (27 in.) high.
- Alternatively, provide height adjustable work surfaces.

Where provided, lockers shall comply with Section 4.3.10.

Where speaker podiums are provided they shall comply with Section 4.3.7.

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

Lighting levels in training and teaching *spaces* should be a minimum of 500 lux (50 fc) and 750 lux (75 fc) at the podium.

Where training and teaching *spaces* are intended primarily for the use of children (such as a childrens' area in a library), *spaces* and *elements* shall be designed to meet the alternate mounting height and reach range accommodating children as identified in Table 4.5.9.

Related Sections

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

Forward or Side Reach	Ages 3 - 4	Ages 5 - 8	Ages 9 - 12
High (maximum)	915 mm (36 in.)	1015 mm (40 in.)	1120 mm (44 in.)
Low (minimum)	510 mm (20 in.)	455 mm (18 in.)	405 mm (16 in.)
Children over the age of 12 have the same reach requirements as adults			

Table 4.5.9:
Alternate reach requirements for children

4.6.1 General

Rationale

Opportunities for recreation, leisure and active sport participation should be available to all members of the community. Access should be provided to playing fields and other sports *facilities*, including access to the *site*, to all activity areas, *recreational trails*, docks, swimming areas, *play spaces*, lockers, change rooms, and showers. Persons with a *disability* may be active participants, as well as spectators, volunteers and members of staff.

Picnic areas, *play areas* and rest areas should provide both sunny and shaded areas wherever possible.

Where docks are provided, consider the addition of a continuous curb edge or a *guard*/*handrail* as edge protection for all users, where is it would not conflict with access for activities such as boating, fishing, or swimming.

Application

In addition to the design requirements specified in Sections 4.1 to 4.4, outdoor public *spaces* listed below shall comply with this section.

Design Requirements

Waterfront Areas, Beach Access Routes and Docks

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 4.3.15.

Where parking is provided, it shall be located as close as possible to waterfront area. An *accessible route* in compliance with Section 4.1.4 shall be provided from the parking area to *paths* and/or lookout points (where provided).

Beach access routes shall

- be located on an *accessible route* in compliance with Section 4.1.4;
- have entry points, including gates or bollards, that provide at least 1000 mm (39-3/8 in.) of *clear* width;
- have surfaces that are firm and stable;
- have changes in level in compliance with Section 4.1.2;
- be at least 1000 mm (39-3/8 in.) wide;
- be *clear* of protruding and overhead objects and in compliance with Section 4.1.3;
- where sloped, have *running slopes* no steeper than 1:10 (10%);
- have a *cross slopes* no steeper than 1:50 (2%); and
- have no openings that will permit the passage of an object more than 20 mm (13/16 in.) in diameter, with elongated openings positioned approximately perpendicular to the direction of travel.

Ramps, stairs and *boardwalks* in beach access routes shall comply with Section 4.6.2.

Design Requirements (continued)

Where docks for fishing, boating or swimming are provided they shall

- be located on an *accessible route* in compliance with Section 4.1.4;
- incorporate smooth and stable surfaces at transition points (such as from a *walk*way to a dock, or between adjacent dock units);
- incorporate clearly painted markings at transition points;
- where changes in elevation are necessary, incorporate *ramps* or *curb ramps* in compliance with Sections 4.1.9 and 4.1.10. *Ramps* with a slope no greater than 1:12 are acceptable; and
- where steps are provided to access the water for swimming, incorporate *colour/tonal contrasting handrails* at the steps. Such *handrails* shall extend to a minimum of 600 mm (23-5/8 in.) above the dock surface and return down to the dock.

Natural Areas

Accessible pathways and footbridges shall be provided where environmental considerations will permit.

Exterior *accessible routes* and *walk*ways shall comply with Section 4.1.4. (Exception: *Recreational trails* shall comply with Section 4.6.2)

Garbage cans, light standards, benches and other potential obstructions shall be located adjacent to *pathways*. (Refer also to Section 4.3.17).

Colour/tonal contrast and textural contrast 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 outlooks.

Where steps, footbridges or *ramps* are used, the surfacing shall be of non-slip materials and include suitable *colour/tonal contrasting handrails* and/or *guards*.

The slope on footbridges shall not exceed 1:20.

Exterior *accessible routes* and *walk*ways shall incorporate rest areas with appropriate seating, in compliance with Section 4.1.4.

Parks accessibility shall encompass the development of routes, auxiliary services, planting and an overall environment which is *accessible* and provides a fulfilling recreational experience for all persons with a varying level of ability.

Entrance gates, *paths* and *walk*ways throughout *parks* shall be *accessible* to persons using *mobility assistive devices*.

Scenic lookouts shall

- be located on a pedestrian *pathway* in compliance with Section 4.6.2;
- incorporate smooth and stable surfaces at transition points;
- incorporate a continuous curb as edge protection, at least 75 mm (3 in.) high and of a contrasting colour around the edge of the outlook area;
- where waste receptacles, light standards, benches and other *elements* are provided, locate these *elements* so as not to obstruct the pedestrian *pathway*; and
- where provided be in compliance with Section 4.3.15.

Planting and trees along pedestrian *pathways* shall comply with Section 4.3.14.

Design Requirements (continued)

Sports Fields

Controlled access points shall be designed to accommodate a person using a wheelchair or scooter.

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

If bleachers are provided they should be *accessible* as per Section 4.3.2.

Where provided, public viewing areas
- shall be *accessible*;
- comply with Section 4.3.2; and
- have pedestrian *pathways* to spectator areas of sports fields in compliance with Section 4.6.2.

Where provided, public washrooms shall comply with Sections 4.2.1 to 4.2.9.

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

Public-Use Eating Areas

At least 20% of tables shall be *accessible* and shall
- be located on an *accessible route* in compliance with Section 4.1.4;
- have knee-and toe clearance in compliance with Section 4.3.7; and
- have clearance around the tables in compliance with Section 4.3.16.

Accessible picnic tables shall comply with Section 4.3.16.

Where public parking is provided to serve picnic *facilities*, *accessible* picnic areas should be within 30 m (98 ft. 5 in.) of the *accessible* parking *spaces* wherever possible.

Leash Free Dog Parks

Entrance gates into dog *parks* shall comply with Section 4.1.7

Pedestrian *pathways* within leash free dog *parks* shall comply with Section 4.6.2.

Swimming Pools

Outdoor swimming pools shall comply with Section 4.5.3.

Illumination (where provided)

Illumination levels shall
- be a minimum of 10 lux (1 ft-candle);
- be maintained at 5 lux (0.5 ft-candles) in areas of heavy trees and shrubbery; and
- be maintained at 5 lux (0.5 ft-candles) in all other areas of *park* at ground level.

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

Consultation Requirements

The Municipality shall consult with the public, persons with *disabilities*, and their municipal accessibility advisory committee on the need, location and design of rest areas on exterior *accessible routes* and *walk*ways.

4.6.2 Recreational Trails

Rationale

Opportunities for recreation participation should be available to all members of the community. Access should be provided to *recreational trails*.

Signage is a particularly important for *recreational trails*, as it provides the opportunity for everyone, including persons with *disabilities*, to evaluate the challenge of the trail and decide whether it matches their goals and abilities.

Application

Recreational trails shall comply with this section.

Design Requirements

Entrances to *recreational trails* shall have a *clear* opening of between 950 - 1000 mm (37-1/2 - 39-3/8 in.)

Wherever possible *recreational trails* shall comply with Section 4.1.4. *Recreational trails* shall never be less than 1000 mm (39-3/8 in.) wide.

Where significant changes in grade occur, *recreational trails* should ideally be sloped at no greater than 1:25 (4%) or have adjacent steps and *ramps*.

Recreational trail surfaces shall be firm and stable.

Where steps, stairs, footbridges or *ramps* are used, the surfacing shall be of non-slip materials and include suitable *colour/tonal contrasting handrails* and/or *guards*.

Wherever possible, *ramps* on *recreational trails* shall comply with 4.1.9. The *running slope* of *ramps* on *recreational trails* shall never be steeper than 1:10.

Wherever possible, steps and stairs on *recreational trails* shall comply with 4.1.11.

Where a protective *barrier* is not provided and a *recreational trail* is adjacent to water or a *drop-off* in grade greater than 200 mm (7-7/8 in.), a continuous curb shall be provided as edge protection, such that

- the top surface of the curb shall be at least 75 mm (3 in.) high;
- it is of a contrasting colour; and
- shall not impede the drainage of the trail surface.

Signage shall

- be provided at *trail head* and at any rest areas along the *recreational trail*;
- comply with Section 4.4.7 *Signage*; and
- identify
  - length of trail;
  - type of surface;
  - average and minimum width;
  - average and maximum *running slope* and *cross slope*; and
  - location of amenities, where provided.

Where other media is used (website, brochure, etc.) to provide information about the trail, beyond advertising, notice or promotion, the media must provide the same information as listed on required *trail head signage*.

Design Requirements (continued)

Exceptions to the requirements that apply to *recreational trails* are permitted where the requirements, or some of them, would likely affect the heritage, historic, cultural or natural heritage value of an area. Refer to Part IV.1 of Ontario Regulation 191/11 (Integrated Accessibility Standards).

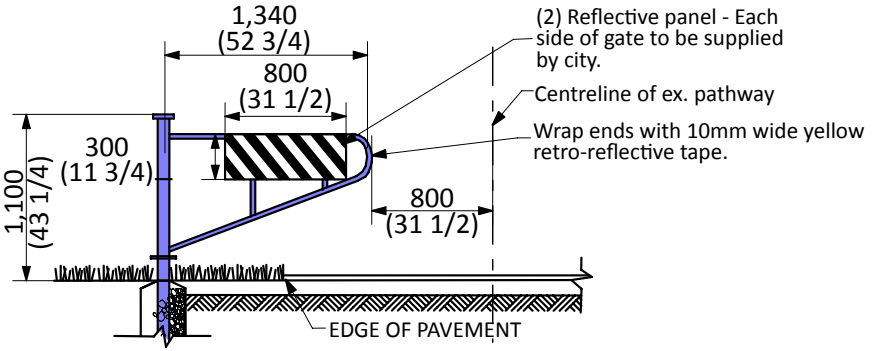
Where *boardwalks* are provided, they shall

- have a minimum width of 2000 mm (78-3/4 in.);
- have a *clear* height that provides a minimum headroom clearance of 2100 mm (82-3/4 in.) above the *boardwalk* surface;
- incorporate surfaces constructed of firm, stable, non-slip materials and comply with the Exterior Finish Materials Section of Section 4.4.14;
- where the grade *drop-off* is greater 200 mm (7-7/8 in.), incorporate a continuous curb of at least 75 mm (3 in.) high and of a contrasting colour to the surrounding terrain (Figure 4.1.4.1);
- where the grade *drop-off* is greater than 450 mm (17-3/4 in.) incorporate *handrails*, *guards* or other suitable *barriers* on both sides;
- incorporate access points that allow easy access by persons who use a wheelchair, scooter or other *mobility assistive device*;
- where the slope is steeper than 1:25 (4%), be considered a *ramp* and shall also comply with Section 4.1.9;
- where provided, have benches, garbage cans, drinking fountains, etc., located adjacent to the *boardwalk* on firm, level surfaces at the same elevation as the *boardwalk* (Section 4.3.17).

Consultation Requirements

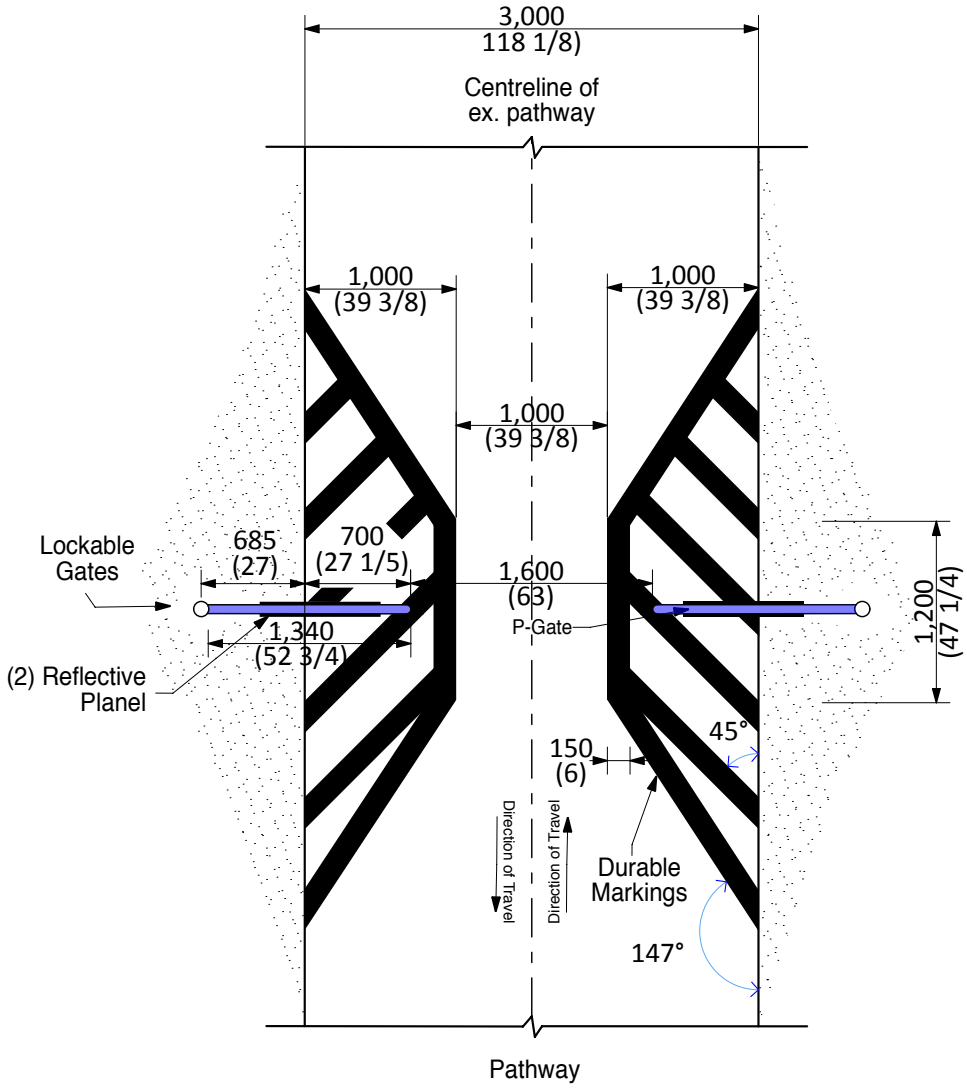
The Municipality shall consult with the public, persons with *disabilities*, and their municipal accessibility advisory committee on the need, location and design of *recreational trails*; more specifically

- trail slope;
- need for, and location of, *ramps* on the trail;
- need for, location, and design of
  - rest areas;
  - passing areas;
  - viewing areas;
  - amenities along the trail; and
  - any other pertinent feature.



NOTE:
Reflective panel to be 3m high-intensity yellow and black reflective sheeting with chevron pattern.

Figure 4.6.2.1:
Pathway Gate Elevation



NOTE:
All pavement markings should be retro-reflective yellow paint as per OPSS 1716 and 1750.

Figure 4.6.2.2:
Gates on *accessible pathway*

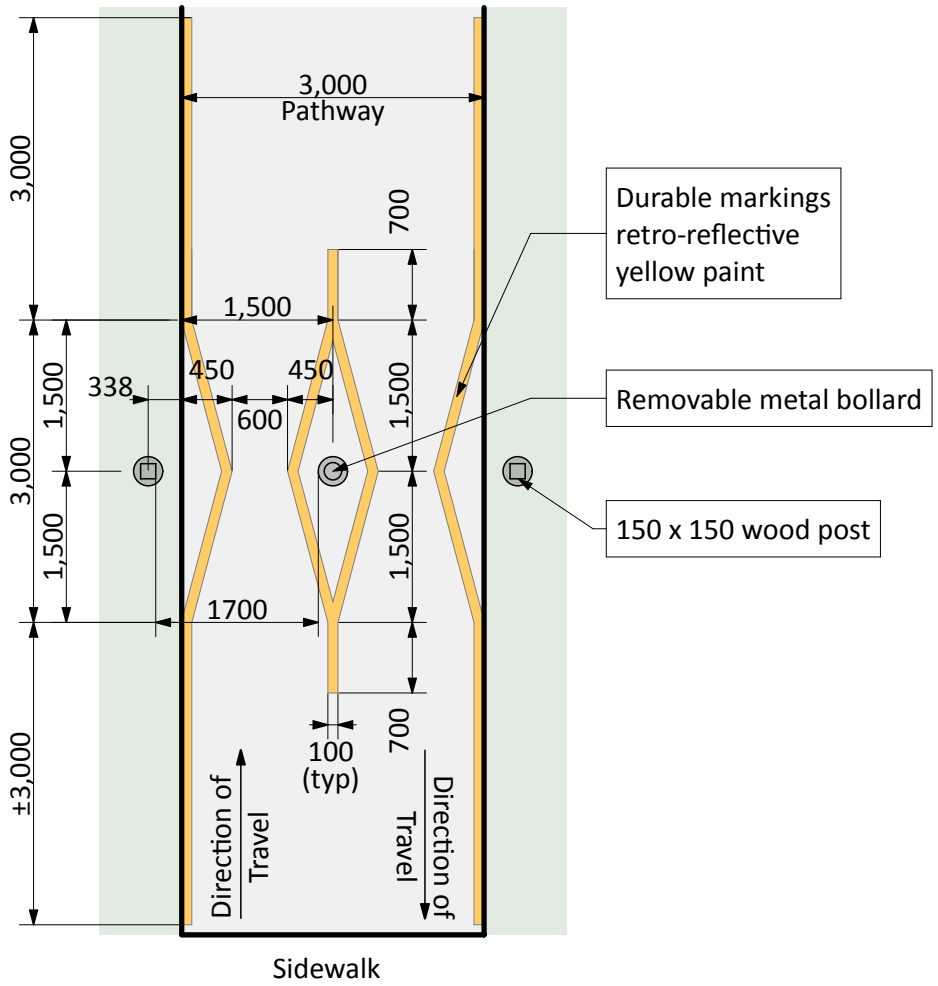


Figure 4.6.2.3:
Triple Bollard configuration on an *accessible* path

4.6.3 Outdoor Play Spaces

Rationale

Play is a natural and important part of a child's daily life and healthy development. All children, regardless of ability, should have the same opportunities to play. *Accessible* outdoor *play spaces* will allow all children to play together, increasing understanding and integration.

Application

Outdoor *play spaces* shall comply with this section.

Design Requirements

Playgrounds shall be located on an exterior pedestrian route in compliance with Section 4.6.2 and allow sufficient clearance for persons with *disabilities* to move through, in and around the outdoor *play space*.

Playground surfaces shall be firm, stable, 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, impact attenuating landing surface.

Where engineered wood fibres are used, include a transition curb to assist people to be able to exit the area.

Colour/tonal contrast shall be used to identify *elements* and potential obstacles.

Consultation Requirements

The Municipality shall consult with the public, persons with *disabilities*, and their municipal accessibility advisory committee on the needs of children and caregivers with various *disabilities* on playground *elements* including, but not limited to, sensory and active *play components*.

4.7 Maintenance and Operations

Rationale

Property maintenance is important to ensure an *accessible* environment that is safe and usable by everyone. Such maintenance involves the proper care, cleaning and repair of a *facility*, maintaining it in good order and safe condition. Snow and ice removal are particularly important components of property maintenance.

Application

All *accessible facilities*, *accessible elements* and systems within those *facilities*, and contained within the *facility site*, shall be maintained on a regular basis to ensure their continued usability and safety.

Maintenance Requirements

Accessible routes and emergency exits and *areas of rescue assistance* shall be maintained, and kept free of objects, debris, snow, ice and/ or excessive water accumulation. Maintenance shall include, but not be limited to, the timely removal of snow, ice, winter sand/salt, wet leaves and other debris from *accessible routes*, *curb ramps*, stairs, and *entrances*.

Designated areas for snow piling shall be provided at pedestrian routes, *entrances*, stairs, *ramps* and public parking areas. Snow storage shall not reduce the minimum width required for an exterior *accessible route*, or affect the usability of *accessible facilities*, *elements* or systems.

Catch basins and run-offs shall be kept *clear* to ensure rapid removal of water from melting snow or ice from all pedestrian routes.

Regular and systematic checks shall be undertaken to ensure that no obstacles have been located in pedestrian routes (e.g., newspaper vending machines and bicycle racks or garbage containers).

Where *accessible routes* are not cleared regularly, appropriate *signage* shall be used.

Garbage containers shall be emptied regularly to avoid the accumulation of extraneous garbage around the containers and the likelihood of bees/insects accumulating during warmer weather.

Light bulbs along pedestrian routes shall be replaced on a regular schedule, with lamps (of the same wattage) for which they were designed.

4.7 Maintenance and Operations

Maintenance Requirements (continued)

Operable *elements* installed on or adjacent to *accessible* interior and exterior routes shall be inspected, well maintained on a regular schedule, and kept in operable condition. These *elements* can include but are not limited to:

- Elevating devices;
- Power door operators;
- Swipe card access systems;
- *Signage*;
- Lighting;
- Controls;
- Gates;
- Closers;
- Mechanical chair lifts;
- Automatic ticket machines; and
- Other essential equipment.

When a portion of an *accessible route* is temporarily closed to users, a continuous alternative *accessible route* that complies with 4.1.4 (*Accessible Routes*, *Paths* and Corridors) shall be provided. The alternative *accessible route* shall be separated from *vehicular ways*, and the location and direction of the alternative *accessible route* shall be *clear* and easy to detect for individuals of all abilities. Provide alternate route *signage* including end date of disruption to be installed in compliance with Section 4.4.7.

Where maintenance work is contemplated/ underway *clear* notification must be posted to inform all users of alternate routes to *accessible* features such as washrooms, *ramps*, *TTY* services, escalators, elevators and other *elements* provided to accommodate the needs of people with *disabilities*. Notification signs should not only be located and maintained at the maintenance *sites* but also at all *facility entrances*, receptions, and service counters. It is also important to ensure that posted notification signs are well- maintained and provide advanced notice of disruption in service.

City of Burlington **Design Development and Assessment Checklist**		
Date: _____ Facility Name: _____ Facility Address: _____ _____ CW Client Group:_____ Client Contact:_____ Project Description:_____ _____	✓ Check One for Each Category Below	CITY OF Burlington
	Design Development ☐ Facility Assessment ☐	Comments
	New Construction ☐ Renovation ☐	Comments

The Accessibility Design Standards (ADS) document is a mandatory design aid applicable to the design and construction of new facilities, as well as the retrofit, alteration or addition to existing facilities owned, leased or operated by the City of Burlington. The Design Development and Assessment Checklist has been created to assist staff, designers and contracted consultants with the application of ADS and ensure each element has been applied to each project and to document elements of a project which may have been technically infeasible to implement. In a retrofit situation where a design element has little likelihood of being accomplished due to structural conditions or other existing physical or site constraints prohibit modification, the **Technically Infeasible Element** form shall be completed and signed by the Project Manager and maintained in the project file. This Checklist is a reference tool only and must be used in conjuction with the ADS document. It does **not** include all requirements or exceptions applicable to each design element. Staff, and the prime consultant where applicable, shall complete this checklist during the design phase of each project. Checklists are to be signed by the appropriate manager and maintained in the project file.

Section	Element	Design Requirement Description	Y	N	Comments or N/A
General Characteristics					
4.1.1	Space and Reach Requirements	2440 (96) turning space for wheelchairs/scooters; 1370 x 760 (54 x 30) footprint for wheelchairs and scooters; 230-1370 (9 - 54) reach range from seated position.	☐	☐	
4.1.2	Ground and Floor Surfaces	Surfaces stable, firm, slip-resistant, and glare-free; level changes: Up to 6 (1/4) may be vertical; 6.1-13 (9/32 – 1/2) to be bevelled; over 13 (1/2) to be sloped floor, ramp or curb ramp. Gratings max 13 (1/2) openings, perpendicular to direction of travel.	☐	☐	
4.1.3	Protruding and Overhead Objects	Objects projecting more than 100 (4) to be cane-detectable – lowest edge no higher than 680 (26-3/4). Min 2100 (82-3/4) headroom.	☐	☐	
4.1.4	Accessible Routes, Paths, and Corridors	Wherever possible, all routes to be accessible; 1500 (59) min width for exterior routes; 1100 (43-1/4) min width for interior routes; routes less than 1830 (72) wide to have passing places no more than 30 metres (98 feet 5 inches) apart; routes less than 2000 (78-3/4) wide to have turn space at dead ends; rest areas required every 30 metres (98 feet 5 inches); edge protection may be required; slope no steeper than 1:25 (4%), or design as ramp. Max 1:50 cross-slope.	☐	☐	
4.1.9	Ramps	Slope must be between 1:25 (4%) and 1:20 (5%); max cross slope 1:50 (2%) max 9 metres (29 ft. 6 in.) between landings; min 2440 x 2440 (96 x 96) landings at top and bottom, and at landings served by a door; min 1670 x 2440 (65-3/4 x 96) landings at switchbacks; min 1670 (65-3/4) long landings in straight ramps; handrails required both sides, with appropriate extensions where rise is greater than 150 (6); intermediate handrails required on stairs wider than 2200 (86-5/8) wide; 40 - 60 (1-5/8 - 2-3/8) colour/tonal contrast strip across full width of ramp at slope transitions.	☐	☐	
4.1.11	Stairs	Open risers must not be used; tread length 280 – 355 (11 - 14); uniform riser height 125 - 180 (5 – 7); must have detectable warning surface at top of flights; handrails required both sides, with appropriate extensions. Intermediate handrails required on stairs wider than 2200 (86-5/8) wide.	☐	☐	
4.1.12	Handrails	865 - 920 (34 - 36) high; colour/tonal contrast with surrounding environment; continuous graspable surface.	☐	☐	
4.3.3	Elevated Platforms	On an accessible route; Detectable warning surface min. 610 – 920 (24 - 36) deep flush to edge or drop-off.	☐	☐	
4.3.11	Balconies, Porches, Terraces and Patios	On an accessible route; Min. 2440 (96) deep; Thresholds shall be accessible; Surfaces shall be accessible; Railings/Guards colour contrasted to surroundings; Doors open against a side wall or rail.	☐	☐	

Section	Element	Design Requirement Description	Y	N	Comments or N/A
4.3.15	Benches	On an accessible route; Provide clear, level floor space 920 x 1400 (26 - 55-1/8) adjacent to bench for wheelchair; Bench seat 450-500 (17-3/4 - 19-5/8) above the ground; arm and back rests; colour contrasted to surroundings.	☐	☐	
4.3.16	Public Use Eating Areas and Picnic Tables	Min. 20% accessible; Variety of locations in each area; On an accessible route; Knee space at the table; Surface 710-865 (28-43) high; Clearance of 2000 (78-3/4) at accessible spaces and 1220 (48) on all other sides around each table; Lighting along paths of travel and at surfaces.	☐	☐	
4.4.7	Signage	All signage shall be accessible with san serif fonts, Arabic numbers; Character height by viewing distance as per Table 4.4.7.2; Character width to height ratio between 3:5 and 1:1; Stroke width to height ratio of 1:5 to 1:10; Mix of uppercase and lower case; Characters, symbols and background have eggshell, matte, or other non-glare finish; Characters and symbols contrast to background; Permanent rooms/space use wall-mounted signage with tactile characters and numbers; Accessibility facilities signage shall include the International Symbol of Accessibility; Tactile signage shall be on an accessible route and mounted from 1200 – 1500 (47-1/4 – 59) to the centreline; Lighting levels measured at sign surface min. 200 lux.	☐	☐	
4.4.8	Detectable Warning Surfaces	Colour contrasted to surroundings; Slip resistant; Provided at top and entry points to all stairs (circulation and exit); Min. 920 (36) deep and full width of stair; Flat-topped domes or cones.	☐	☐	
4.4.13	Lighting	Exterior: Meets Illuminating Engineering Society of North America Standards; Lighting levels measured at the ground; Evenly distrubuted with good colour spectrum; Pedestrian entrance min. 100 lux; Parking and passenger drop-off areas min. 30 lux.; Lighting fixtures placed high enough to clear normal snow accumulation. Interior: Full spectrum lighting; Evenly distributed at floor level to minimize pools of light and not create areas of shadow; elevator lobbies, washrooms and at signage min. 200 lux.; Office areas min. 300 lux.; Emergency lighting min. 100 lux.	☐	☐	
4.4.14	Materials and Finishes	Exterior: Non-slip and firm; Walkways to use accessible finishes; Where wood planks used, wood laid perpendicular to path of travel; Max. joints 6 (1/4) wide and lifts 3 (1/8); Gratings/Grills place to side of pedestrian routes or so narrow openings perpendicular to path of travel and max. 13 (1/2) Interior: Any carpeting low-level loop; Hard surfaces non-slip, non-glare and accessible; Joins max. 6 (1/4) and flush; Walls non-abrasive to 2000 (78-3/4) high.	☐	☐	

Section	Element	Design Requirement Description	Y	N	Comments or N/A
4.4.15	Texture and Colour	Exterior: Pronounced colour contrast to differentiate boundaries of objects, objects from backgrounds and enhance spatial orientation. Interior: Colour contrast to define edges (e.g. stair nosings, doors, handrails); Colour/tone define boundaries (e.g. wall to floor); Baseboard contrasted to walls and floor where monochromatic colour scheme selected; Enhance wayfinding.	☐	☐	
4.5.2	Swimming Pools, Therapeutic Pools and Public Spas	Swimming pools, Wading pools, Hot pools, Splash pads, Spray pads, Therapeutic pools and Spas shall be accessible; Pool has direct accessible route from lobby/entrance to change rooms through to pool deck; Ramp access to water; Mechanical pool lifts; Public Spas transfer walls; Therapeutic pools water temperature, controls, depth and submerged benches.	☐	☐	
Site Characteristics					
4.1.10	Curb Ramps	Min 1500 (59) wide; running slope 1:50 to 1:20 (2% to 5%); 900 (35-1/2) wide flared sides; must have detectable warning surface 610 (24) deep starting 150 - 200 (6 - 7-7/8) from curb edge; Aligned with pedestrian crossing route; Depressed curb slope max 1:20 (5%).	☐	☐	
4.3.12	Parking	All parking structures, underground parking and surface lots; Number of spaces as per Table 4.3.12 and By-Law 2020; Parking spaces should be joined to the building by an accessible route that does not travel behind parked vehicles or along driveways; Signage at parking spaces and directional signage to location of parking shall be accessible and not mounted on fences or building faces; Directional signage shall be provided where the accessible entrance is not obvious or distant; Public consultation required.	☐	☐	
4.3.13	Passenger Loading Zones	At least 1 shall be accessible; Identified with accessible signage; Includes space for the driveway, a layby and an access aisle; Connected to an accessible route; Curb ramp or drop curb with detectable warning surface; Min. 3600 (11 ft. 10 in.) vertical clearance; Access aisle min 2440 x 7400 (96 x 24 ft. 3 in.) adjacent and parallel to pull up space.	☐	☐	
4.3.14	Landscaping Materials and Plantings	Planting bed edges and variations in grading adjacent to pedestrian walks have cane-detectable curbs; No permanent guide wires; Min 2100 (83) headroom clearance; No toxic plants or plants that drop large seed pods near or overhanging path of travel.	☐	☐	
4.3.17	Street Furniture	On an accessible route; Including waste receptacles, light standards, signs, planters, mail boxes, vending machines, benches, traffic signals and utility boxes; Shall not reduce the width of an access route; Cane detectable; Located consistently to one side of path; Any operating mechanisms shall be accessible and provide a clear floor area for wheelchairs and scooters in front of usable parts; colour contrast to surroundings.	☐	☐	

Section	Element	Design Requirement Description	Y	N	Comments or N/A
4.4.17	Pedestrian Signals	Provided with a locator tone distinct from walk indicator; Max. 1500 (59) from curb edge and 1100 (43-1/4) above ground; Tactile arrows aligned with direction of travel; Manual and automatic activation features; Audible and vibro-tactile walk indicators; 3000 (118) distance between two accessible pedestrian signals on the same corner, or installed on single post with verbal announcement for active crossing.	☐	☐	
4.6.1	Outdoor Public Spaces - General	Accessible routes, auxiliary services, plantings; Waterfront areas, beach access routs and docks, natural areas, sports fields, public-use eating areas; leash free dog parks, swimming pools, illumination as per details provided; Consultation requirements are necessary.	☐	☐	
4.6.2	Recreational Trails	Entrance 950 - 1000 (37-1/2 - 39-3/8); min width 1000 (39-3/8); curb required where protective barrier is not provided adjacent to water or drop-off greater than 200 (7-7/8); signage; boardwalk min width 2000 (78-3/4); Consultation requirements are necessary.	☐	☐	
4.6.3	Outdoor Play Spaces	On accessible route; firm, stable, slip-resistant surfaces; exit transition curb required where engineered wood fibres are used; Consultation requirements are necessary.	☐	☐	
Building Characteristics					
Access and Circulation					
4.1.5	Entrances	All entrances used by staff and/or the public to be accessible.	☐	☐	
4.1.6	Doors	Power operators required at entrances, washrooms with an accessible stall, universal washrooms, change/dressing rooms with accessible toilet/ shower, and intermediate doors across primary routes. Revolving doors are not accessible. Clear ground/floor space on each side (See Table 4.1.6); min 950 (37-1/2) clear opening; doors in series to be min 1525 (60) plus width of any in-swinging door, apart; power door operator controls no closer than 600 (23-5/8) from inside corner and not less than 600 (23-5/8) and not more than 1525 (60) beyond the door swing; clear space at power door operator controls; hardware to be accessible; colour/tonal contrast with wall.	☐	☐	
4.1.7	Gates, Turnstiles and Openings	950 (37-1/2) min. clear width; pronounced colour/tonal contrast from surrounding environment.	☐	☐	
4.1.8	Windows, Glazed Screens and Sidelights	Frameless glass doors and/or sidelights must not be used. 760 (30) max height for lowest edge of viewing windows and vision panels. Operating hardware to be accessible. Opaque strips or decals to be used at fully glazed doors, sidelights and large expanses of glass to enhance visibility; exposed edges of frameless glass vision panels identified with vertical safety stripe.	☐	☐	

Section	Element	Design Requirement Description	Y	N	Comments or N/A
4.1.13	Escalators	Where provided, an alternate accessible route is required in the same vicinity as the escalator. Detectable warning surfaces required at top and bottom.	☐	☐	
4.1.14	Elevators	Min 1725 x 1525 (68 x 60) cab size (2030 x 1525 (80 x 60) in high use facilities); min 950 (37-1/2) clear opening at door; handrails on all non-access walls; 1370 x 810 (54 x 32) clear floor space at hall call buttons; emergency call system with two-way communication ability which does not solely rely on voice input; car control buttons accessible; colour/tonal contrast from buttons to panel, and panel to background; tactile and braille floor indicators on both jambs at hoistway entrances.	☐	☐	
4.1.15	Platform Lifts	On an accessible route; Platform lifts can only be used to access a performing area, comply with wheelchair viewing position dispersion requirements, an incidental space not accessible to the public with no more than 5 occupants, or raised judges benches and other raised areas in a courtroom; Linked by emergency call system to monitored location within facility with two-way communication.	☐	☐	
Washroom Facilities					
4.2.1	Toilet Facilities	Requirements for each public or common use toilet facility; 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; Min 1 universal washroom in addition to any accessible public or common use toilets, provided in all public buildings and on every floor level in assembly areas where the floor incorporates common or public use washroom facilities containing four or more toilet and/or urinal fixtures; Min 5% accessible portable toilets where used.	☐	☐	
4.2.2	Toilet Stalls	Where toilet stalls used the number of accessible toilet stalls see Table 4.2.2; Min 1 ambulatory toilet within each non-accessible washroom; door opening min. 900 (35-1/2); accessible stall door hardware; accessible stall min 1830 x 1830 (72 x 72); min 1500 (59) clear turn circle within stall.	☐	☐	
4.2.3	Toilets	Height of seat 430 - 485 (17 - 19-1/8); Back support; Clear transfer space; Toilet flush controls are accessible and on transfer side of the toilet; L-shaped grab bar; Rear grab bar; Drop-down grab bar; Toilet-paper dispenser.	☐	☐	
4.2.4	Lavatories	On an accessible route; Top 820 - 840 (32-1/4 - 33); Knee space; clear floor space 760 (30) wide x 1370 (54) deep with up to 480 (18-7/8 in.) under the lavatory; hot water and drain pipes insulated or temperature limited; Soap and Towel dispensers accessible; Accessible faucets and other controls; Shelves/other projections do not present hazard to persons with vision loss.	☐	☐	

Section	Element	Design Requirement Description	Y	N	Comments or N/A
4.2.5	Urinals	On an accessible route; No step in front of the fixture; Wall-mounted with elongated rim max 430 (17); Min. 345 (13-1/2) deep; Forward approach clear floor space 810 x 1370 (32 x 54) in front; Privacy screens; Grab bars both sides; Accessible flush controls; Min. one accessible urinal per toilet/ bathing facility.	☐	☐	
4.2.6	Washroom Accessories	Hand-operated dispensers, hand dryers, built-in garbage receptacles, mirrors, etc. accessible; 900 - 1200 (35-1/2 - 47); clear space in front of operable portions; Colour/tonal contrast; Min. mirror height 1000 (39-3/8) mounted with bottom edge min. 1000 (39-3/8) above floor; full length mirror mounted min. 178 (7) above floor; Tilt mirrors shall not be used.	☐	☐	
4.2.7	Universal Washrooms	Min 1 universal washroom in addition to any accessible public use or common use toilets for all public buildings and every floor of assembly buildings otherwise see Table 4.2.1; Emergency call system; Clear turn circle min. 2440 (96) diameter; Adult change table size, surface height, adjacent clear floor space, weight capacity, on an accessible route, and accessible controls.	☐	☐	
4.2.8	Shower Stalls	On an accessible route; min. 1 accessible shower; min. 2 accessible showers if more than 7 showers provided, plus 1 for each additional increment of 7 showers; size min. 1525 x 920 (60 x 36); entrance clear space 920 (36) deep along full length of shower; slip-resistant floor; no or bevelled threshold; Trench-style drain; Wall-mounted folding seat; L-shaped grab bar; Vertical grab bar on each end wall; Pressure equalizing or thermostatic mixing valve; Fully recessed soap holder; Accessible shower head.	☐	☐	
4.2.9	Grab Bars	Resist a load of at least 1.3 kN (300 lb.), applied vertically or horizontally; Diameter 35 – 40 (1-3/8 - 1-9/16); free of any sharp or abrasive Elements; Colour-contrasted with surrounding environment; slip-resistant surface.	☐	☐	
Other Amenities					
4.3.1	Drinking Fountains	On an accessible route; Cane detectable at or below 680 mm (26-3/4 in.); If cantilevered: Min 810 x 1380 (32 x 54) clear floor space with knee and toe space; If freestanding: Clear floor space for parallel approach; Bottle fill stations accessible control on front max height 1200 (47-1/4) high.	☐	☐	
4.3.2	Viewing Positions	On an accessible route without blocked egress; See Table 4.3.2 for number of required spaces; Include adaptable seating; Provide storage for wheelchairs and other mobility assistive devices; Integrate accessible locations in a distributed in a variety of admission prices; Clear level and minimum 920 (36) wide x 1525 (60) deep with min. 1 companion seat beside each space.	☐	☐	

Section	Element	Design Requirement Description	Y	N	Comments or N/A
4.3.4	Change/Dressing Rooms	On an accessible route; Private accessible dressing rooms include 180 degree turn space; Accessible dressing rooms have 810 x 1830 (32 x 72) bench with 760 (30) wide clear floor space parallel to bench; Collapsible coat hooks; Slip resistant for wet conditions for flooring and bench surfaces; Accessible mirror.	☐	☐	
4.3.5	Offices, Work Areas and Meeting Rooms	On an accessible route; Clear floor space for 180-degree turn, 360-degree turn, or circuit around room; Min 5% but not less than 1 have height adjustable work surface where multiple workstations/meeting rooms; Assistive listening system provided where required.	☐	☐	
4.3.6	Waiting and Queuing Areas	On an accessible route; Waiting rooms with fixed seating include min. 3% and not less than 1; clear floor spaces for assistive equipment; Queuing barriers arranged in parallel lines; Permanent queuing incorporate defined floor patters/colours/textures as wayfinding; Colour contrast provided for barriers from surrounding environment; Clear floor space where lines change direction; Guides must be cane detectable.	☐	☐	
4.3.7	Tables, Counters and Work Surfaces	Min 10% but not less than one to be accessible; Should be recessed; On an accessible route; Min 810 (32) wide x 1370 (54) deep clear floor space place with max. 480 under the surface; Clear knee and toe space; Surface height 710-865 (28-34) where not adjustable; Speaking podium controls and height accessible.	☐	☐	
4.3.8	Information, Reception, and Service Counters	Min 1 accessible for each type of service provided; Clearly identified by signage; Where a single queue line is provided all counters will be accessible; On an accessible route; Min 810 (32) wide x 1370 (54) deep clear floor space place with max. 480 under the surface; Clear knee and toe space; Surface height 710-865 (28-34) where not adjustable; Knee space provided for both staff and public sides; Speaking port controls and height accessible.	☐	☐	
4.3.9	Storage Shelving and Display Units	At least 1 of each type shall be accessible; Self-service unit shall be on an accessible route; Forward/parallel approach clear floor space min. 810 x 1370 (32 x 54); Cloths rods/shelves max. 1370 (54); Collapsible coat hooks max. 1200 (47-1/4); Hardware touch latch or U-shaped pulls.	☐	☐	
4.3.10	Lockers and Baggage Storage	At least 10% accessible; On an accessible route; Bottom shelf min. 400 (15-3/4); Top shelf max. 1200 (47-1/4); Locker IDs should be accessible; Baggage racks/carousels surface max. 460 (18-1/8) with continuous colour-contrasting strip at edge; Aisle spaces in front of accessible lockers to be min. 1500 (59) wide.	☐	☐	
4.3.18	Kitchens and Kitchenettes	For use by staff and public; Min 50% of shelf space accessible; Pass-through kitchens; U-shaped kitchens; L-shaped kitchens; Storage elements; Kitchen sinks; Appliances; Colour contrast.	☐	☐	

Section	Element	Design Requirement Description	Y N	Comments or N/A
Systems and Controls				
4.4.1	Emergency Exits, Fire Evacuation and Areas of Rescue Assistance	Accessible emergency exits shall be connected to an accessible route; Areas of rescue assistance on an accessible route; Each space 850 x 1370 (33-1/2 x 54) per non-ambulatory occupant; Total areas of rescue space see Table 4.4.1; Accessible identification signage; 2-way voice communication system.	☐ ☐	
4.4.2	Controls and Operating Mechanisms	Mounted between 900 - 1100 (35-1/2 – 43-1/4); Thermostat and Pull stations at 1200 (47-1/4); Electrical outlets no lower than 400 (15-3/4); Controls operable with a closed fist; clear space 810 x 1370 (32 x 54) at controls and operating mechanisms; Lighting at min. 100 lux; Colour contrasted from surroundings.	☐ ☐	
4.4.3	Vending and Ticketing Machines	On an accessible route; Clear floor space to access controls; Controls mounted at accessible heights; Signage on machines accessible.	☐ ☐	
4.4.4	Visual Alarms	Provided at least at restrooms, general usage areas (e.g. meeting rooms), hallways, lobbies and other common use areas; Spacing max. 15 m (50 ft.) apart; Mounted 2100 (82-3/4); Meet NFPA 72 Section 18.5.3.	☐ ☐	
4.4.5	Public Telephones	Number of public telephones to be accessible see Table 4.4.5; All accessible telephones and 25% of remaining require volume controls; Controls shall be accessible and meet CSA T515; Lighting minimum 200 lux.; Clear floor space for front or side approach; ID signage includes symbol of accessibility.	☐ ☐	
4.4.6	Assistive Listening Systems	To be provided in assembly areas; Accessible signage identifying listening system present; May include induction loop, infrared and FM radio frequency systems.	☐ ☐	
4.4.9	Public Address Systems	Zoned to provide information to key locations only; Minimize background noise; No continuous broadcast music; point calls for emergency only.	☐ ☐	
4.4.10	Information Systems	On accessible route; Including kiosks, video displays, maps, and information panels; Mounted to be usable for a person using a wheelchair or scooter; Controls shall be accessible; Clear floor space of 1500 x 1500 (59 x 59) for front or side use shall be provided; Also see CSA B651.1 and B651.2 standards.	☐ ☐	
4.4.11	Card access, Safety and Securtiy Systems	Signals are provided in both audible and visual signals; Card-entry systems and Encoded-entry/exit systems (e.g. keypads) will be accessible; On an accessible route; Clear floor space to access controls; Controls mounted at accessible heights; Colour/tonal contrast from mounting surface.	☐ ☐	

Section	Element	Design Requirement Description	Y	N	Comments or N/A
4.4.12	Glare and Light Sources	Low/no-gloss, matte, satin or honed finishes; Sun-screening systems provided where direct sunlight adversely affect lighting or create reflective glare; Light fixtures will protect users from a direct view of the bulb; Special features/key orientation elements enhanced with supplementary lighting.	☐	☐	
4.4.16	Acoustics	Finishes do not unduly amplify occasional noises; Accessible routes in large facilities aurally differentiate major and secondary paths of travel; Public address and call systems; Meeting rooms and assembly areas.	☐	☐	
Facility Specific Requirements					
4.5.1	Arenas, Halls and Other Indoor Recreation Facilities	Provide accessible seating options; Use detectable warning surfaces on stairs to access seating; Accessible route to arena/facility floor min. 950 (37-1/2) wide; Min. 10% coat hooks accessible; Staff areas to be accessible.	☐	☐	
4.5.3	Cafeterias	Min. 10% accessible where fixed tables or counters provided; Accessible tables and counters distributed throughout design; Min. 1 cashier to be accessible; Food/drink placed and Tray slides max. 865 (34) high; Min. 1100 (43-1/4) access aisles to and around accessible tables; Dining areas to be accessible; access aisles.	☐	☐	
4.5.4	Libraries	User elements on an accessible route; Min 10% of fixed seating, tables or study carrels accessible; Min 1 of each checkout area accessible; Min 50% of computer catalogues or workstations accessible; Shelving at fixed seating, tables and study carrels max. 1120 (44); Security gates and card catalogues accessible.	☐	☐	
4.5.5	Business, Mercantile and Civic	Minimum number of accessible transaction counters/cash registers as ber Table 4.5.6; On an accessible route; Where counters/teller windows separate public from staff the communication device shall be accessible; Checkout lines identified with International Symbol of Access signage and provide an accessible route.	☐	☐	
4.5.6	Transportation Facilities	Bus Shelter: clearance around at least 2 sides of shelter, including landing pad side; provides clear view of oncoming traffic; at least one seat with armrests and seat height between 450 - 500 (17-3/4 - 19-5/8); sufficient clear space for person in mobility device. Bus Stops: paved, firm, level surface; not impeded by street furniture. Transit Facilities: detectable warning surface along edge of platform; lighting level 100 lux; manoeuvring space at any required lifting device locations; accessible seating;	☐	☐	
4.5.7	Heritage Facilities	find solutions to meet accessibility requirements minimizing impact; consult with accessibility and conservation specialists and affected users;	☐	☐	

Section	Element	Design Requirement Description	Y	N	Comments or N/A
4.5.8	Fire Stations	Municipal fire stations accommodate accessibility needs of all potential facility users, including - Staff returning to light duty work; Injured staff attending a Captain's office or other meeting space within the facility; Administration staff, Council Members, Consultants, etc attending site visits; Tours of non-work staff (School groups, etc.); Occasional uses of the facility; Meeting spaces open to the public and used for municipal functions; and Use by members of the general public in an emergency situation.	☐	☐	
4.5.9	Training and Teaching Spaces	Students, teachers and staff with disabilities accommodated in all training and teaching spaces throughout the facility. Basic accommodation includes ability to enter and move freely throughout the space, as well as use the various built-in elements within (i.e. integrated technology, whiteboards, switches, computer stations, sinks, etc.); Additional electrical outlets throughout; Min 1 of each type of element should be accessible; Fixtures, fittings, furniture and equipment is accessible for students, teachers and staff; Adjustable height tables and chairs, removable armrests and rolling/ locking casters on furniture.	☐	☐	

I have utilized this Checklist as a design aid in conjunction with the FADS document throughout the design phase of this project, or during a *Facility* Assessment of an existing *building*.

Project_____Consultant/Firm:_____Date:_____

I have utilized this Checklist as a design aid in conjunction with the FADS document throughout the design phase of this project OR I have reviewed the design submissions of the Consultant and acknowledge FADS compliance throughout the project Scope of Work.

Project_____Consultant/Firm:_____Date:_____

Manager: _____Date:_____

Proposed Changes to
City of Burlington Accessibility Design Standards

Mail to: Accessibility Coordination
City of Burlington
Capital Works Department
426 Brant Street, P.O. Box 5013
Burlington, ON, L7R 3Z6

Name: _____ Phone: _____

Company or Organization: _____

Address: _____

E-mail Address: _____

_____

Proposed Change: (include proposed new or revised wording, or identification of wording to be deleted)

_____

_____

_____

_____

Reason for Change:

_____

_____

(attach additional information if required)

Rationale

"Wayfinding" is a term that describes the spatial problem- solving process that a person uses to reach a destination. A mental "map" is formed of the overall setting and the desired destination. This map is based on information obtained from "orientation cues" that are available from the setting's environment. These cues include not only *signage*, but also the overall spatial forms, structures, sounds, surface textures, colours, illumination levels, architectural features, etc. *Tactile* maps and/or recorded instructions can augment these orientation cues and enable people to find their way independently, even in complex settings. A well-designed setting can thus be spatially gratifying and simple enough for persons to "wayfind" if there are adequate, varied, and non-conflicting wayfinding cues available to the individual user.

Appropriate wayfinding ensures *building* users can answer the following questions:

- Where am I?
- Which way am I facing?
- Is this the route to my destination?
- Is it easy for me to find my way back and to all main public *facilities*?

Design Considerations

Way finding shall:

- Assume all *building* users are first time visitors;
- Provide journey based information – Providing information at appropriate points in a journey that allow users to know where they are, where their destination is, what route they should take, how to recognize the destination and how to find their way back;
- Keep messages and strategies simple – Uncluttered, ground and floor surfaces free of confusing or apparent directional patterns, comprehensible to people with a broad range of abilities and language skills;
- One message at a time – Allow users to travel from one decision point to the next with a step by step approach to reach destination;
- Employ Universal Design Strategies – Consistency of message and terminology, Consistency in typography and colour, Consistency in placement of messages, Placement of signs is critical and takes into account anthropometrics, age of reader, use of *assistive devices*;
- Provide Wayfinding Maps – You are here locations on each map, located at floor directories, *tactile* maps, simple and schematic (eg. *Principal entrance*, parking areas and pay books, information/reception desk(s), public zones and common-use destinations, exits, and kiosks or self help areas);
- *Signage* zones – Placed consistently on each floor such as near public elevators and along public circulation routes, *Clear floor space* minimum 1500 mm (59 in.) deep at *signage* and maps placed outside of the main *path of travel*;
- Information content – Will be organized in a logical order, use plain language and identify information such as *accessible* services/*facilities* on the premises, as well as other content appropriate to the *building* use and major occupancy;
- *Signage* locations shall indicate the *accessible route* from vehicular and pedestrian entry to the *site* to the parking and main *entrance*, *accessible site facilities*, passenger loading zones, directional *signage* to vertical circulation *elements*, information desk and washrooms; Elevator lobbies with floor directories, map of floor, directional *signage* to common destinations; Coordinate *signage* requirements with security needs;

Design Considerations (continued)

- Acoustics – Sound transmission/ reflection characteristics of finish materials shall aurally differentiate major and secondary *paths of travel*;
- Landmarks – Shall create an identity at specific decision making locations that helps to differentiate them from all other locations on the *site*; Shall be memorable visible and/or audible and/or scented; Include appropriate auditory cues along circulation routes and at destination points serve as useful wayfinding clues, especially for persons who rely upon hearing to orient themselves;
- *Tactile* direction indicators (or Guidance *Tactile* Warning Surface Indicators)– Shall be provided in large open floor areas, such as *building* entry lobbies, shopping malls or transportation terminals, to facilitate wayfinding by indicating the primary routes of travel. The TDIs shall lead from the *entrance* points to major destinations, such as an information or registration desk and elevator;
- Clearly defined boundaries – High colour and tonal contrast in materials in flooring shall enhance defining such as the junction between walls and floors, doorway recesses and corridor intersections;
- Visual characterizations – Regions or departments shall use some form of different visual characterization to define each as distinct from other areas;
- Another creative example is to use different coloured footprints to indicate the *path* to different sections in a *building*;
- *Handrails* – Provide along major corridors, all stairs and *ramps* to serve as a visual and *tactile* wayfinding guides as well as to help maintain balance, and prevent falls. Braille in-sets may be provided on the surface of *handrails* where they end at landings or *open spaces* that identify the users locations;
- Lighting – Provided to delineate the pedestrian route, as well as to emphasize *building* features, such as *entrances*, stairs, *ramps*, or *signage*; and
- Google indoor maps can be investigated and implemented for select public *facilities*.

References

CSA B651-12

Arthur, Paul, and Passini, Romedi. Wayfinding: People, Signs and Architecture. New York: McGraw- Hill, 1992.

Passini, Romedi. Wayfinding in Architecture. New York: Van Nostrand Reinhold, 1984. (Part of the Environmental Design Series #4.)

Sleeth, Jane. Way finding takes accessibility to the next level. Canadian Occupational Safety Magazine. http://www.cos- mag. com/Human-Resources/HR-Columns/ way-finding-takes-accessibility-to-the-next-level.html. 16 February 2012. Accessed 06 November 2014

Hanson + Jung Architects Inc., Wayfinding *Signage* Standard for Ontario Government *Facilities*, Ontario Realty Corporation, 18 December 2009.

Related Sections

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

Slip-Resistance Rating of Materials			
Material	**Slip Resistance Rating** (1)		**Remarks**
	Dry and Unpolished	**Wet**	
Cast Iron	Very Good	Very Good to Good	If open treads are used, the slip resistance can be very good in wet conditions.
Clay Tile (carborundum finish)	Very Good	Very Good	May be suitable for exterior stairs.
Carpet (2)	Very Good	Good	
Clay Tiles (textured)	Very Good	Good	May be suitable for exterior stairs.
Cork Tiles	Very Good	Good	
Float Glass	Very Good	Poor	Various techniques can be used to modify the surface of float glass, thus improving the wet potential for slip.
PVC with non-slip granules	Very Good	Good	Sufficiently uniformly distributed aggregate is required.
PVC	Very Good	Poor to Fair	Slip-resistance when wet may be improved in PVC is textured. Edges of sheet liable to cause tripping if not firmly fixed to base.
Rubber (sheets or tiles)	Very Good	Very Poor	Not suitable near *entrance* doors.
Wood (finished)	Very Good	Good	Applies to sealed, varnished or polished wood.
Wood (unfinished)	Good	Fair	
Mastic Asphalt	Good	Good	
Ceramic Tiles (glazed or highly polished)	Good	Poor	
Ceramic Tiles (matte) (3)	Good	Fair to Good	Slip potential is dependent on surface roughness. A value of 10 um is recommended for clean-water wet areas.
Clay Tiles	Good	Fair to Good	When surface is wet and polished it would be considered poor.
Concrete Pavers (interlock)	Good	Good	
Vinyl Tiles	Good	Fair	
Linoleum	Good	Poor to Fair	Edges of sheets may cause tripping if not securely fixed to base.

Slip-Resistance Rating of Materials			
Material	**Slip Resistance Rating (1)**		**Remarks**
	Dry and Unpolished	**Wet**	
Concrete (power float finish)	Good	Fair	Surface dust may cause problems especially on new floors.
Concrete	Good	Poor to Fair	If non-slip aggregate or a textured finish is used, slip-resistance when wet may be considered good.
Granolithic	Good	Poor to Fair	Slip-resistance when wet may be improved to good by incorporating a carborundum finish. Polished granolithic should not be used for stairs.
Clay Tiles	Good	Poor to Fair	Slip-resistance when wet and polished is very poor.
Terrazzo	Good	Poor to Fair	Non-slip nosing necessary on stairs. Slip-resistance when polished is very poor.
Marble/Granite	Good	Very Poor to Fair	Slip-resistance when wet and polished is very poor.

Notes:

(1) Ratings:
Very good means surface suitable for areas where special care is required.
Good means suitable for normal use.
Poor to Fair means surface not suitable.
Very Poor means surface not suitable.

(2) Thick carpet is unsuitable for wheelchair movement.

(3) 1” x 1” or 2” x 2” max should be used in pool or pool change rooms. If larger tiles are used, ensure it ahs a raised profile.

Acoustic Materials

Rationale

Different *spaces* within a *building* can have significantly different requirements for their acoustic environment. Offices for individuals typically benefit from a quieter environment, while an auditorium will require a more alive *space* to ensure that the sound can be distributed equally to all areas.

A number of criteria must be considered when creating an acoustical environment for a *space*. Room size, shape, use, location, proximity to mechanical or other background noise, as well as materials used for construction and furniture with the *space* all need to be evaluated when designing an acoustical appropriate environment.

Material selection is a significant component when controlling the acoustic properties of a *space*.

Design Considerations

Hard materials such as concrete, brick, and timber all reflect sound and contribute to higher levels of reverberation, creating a potentially noisy and echoing *space*. The advantage to these materials is that they tend to contain sound within the *space*.

Soft materials such as carpet, mineral fibre, and upholstery typically absorb reflected sound, minimizing reverberations, creating a quieter *space*. These materials typically do not prevent sound from leaving the *space*.

Where a surface is subject to impact noises, such as a floor, softer materials will reduce the transmission of the sound through the material, while the vibrations will pass through more dense materials to the other side.

Frequently a blend of different materials with different absorptive properties will be combined within a *space* to create a suitable acoustic environment for the intended purpose of the room.

Related Sections

4.4.16 Acoustics

Sound Absorptive Properties of Materials	
Material	**Absorptive/ Reflective**
Concrete	Reflective
Brick	Reflective
Plaster	Reflective
Timber	Reflective
Ceramic Tile	Reflective
Metal	Reflective
Wood Panel	Reflective
Hardwood Flooring	Reflective
Terrazzo	Reflective
Gypsum Board	Reflective
Glazing	Reflective
Cork	Absorptive
Carpet	Absorptive
Fabric Coverings	Absorptive
Mineral Fibre	Absorptive
Acoustic Ceiling Tiles	Absorptive
Upholstery	Absorptive
Acoustic Panels	Absorptive











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