



Access for All

City of Brampton Accessibility Technical Standards



Land Acknowledgement

The City of Brampton is located on the traditional territories of the Mississaugas of the Credit, Haudenosaunee, and Wendat Nations who have called this land home since time immemorial. We recognize the Mississaugas of the Credit as the original rights holders and the signatories of Treaty 19 – the Ajetance Purchase of 1818 – and that the agreements made therein are foundational to our nation-to-nation relationship.

As a City, we are committed to our ongoing role in reconciliation through meaningful action rooted in truth, justice, and respect. We are grateful to the original caretakers of this land who have ensured we are able to work, play, and live in Brampton now and in the future.

Brampton's Commitment to Accessibility

The City's mission is to be a vibrant, safe and attractive city of opportunity where efficient services make it possible for families, individuals and the business community to grow, prosper and enjoy a high quality of life.

The City values diversity and inclusiveness and the unique contribution that each resident makes to the local community.

The City recognizes that preventing new *barriers*, reducing and removing existing *barriers* and enhancing access to our goods, services and facilities is essential to providing increased opportunities that foster independence, inclusion and dignity for people of all ages and abilities.

Brampton's Accessibility Responsibilities

In December 2004 the Province of Ontario introduced new legislation designed to make Ontario fully accessible for people with disabilities. Bill 118, *Accessibility for Ontarians with Disabilities Act* (AODA) 2005, received Royal Assent and focused on improving accessibility in areas such as buildings and spaces, employment, customer service, communications and transportation. The scope of the legislation is much broader than the scope of the Ontarians with Disabilities Act (ODA) and includes the private sector as well as government and the broader public sector.

Accessibility standards have been created as part of the Accessibility for Ontarians with Disabilities Act. These standards are rules that businesses and organizations in Ontario need to follow to identify, remove and prevent *barriers* so that people with disabilities have more opportunities to participate in everyday life.

The Accessibility Standard for Customer Service was the first standard to become law. Standards for Information and Communications, Employment, Transportation and the Design of Public Spaces have been combined under one regulation, the Integrated Accessibility Standards Regulation 191/11 (IASR).

In December 2012 the IASR was amended to include the Accessibility Standards for the Design of Public Spaces (DOPS). The requirements of DOPS regulate features in the exterior environment and apply to new construction and the redevelopment of elements in *public spaces*.

Minimum accessibility standards for buildings will continue to be regulated through Ontario Building Code (O Reg 332/12).

Acknowledgements

The Accessibility Technical Standards were developed with the assistance of the City of Brampton Ontarians With Disabilities Act (ODA) Staff Committee and Technical Sub-Committee (2005) and through research and application of benchmarks identified in the following resources:

- ❖ **The base document from which the City of Brampton Accessibility Technical Standards grew was the City of London Facility Accessibility Design Standards, adopted by that City in 2001 and revised in 2007**
- ❖ **Ontario Building Code (2024)**
- ❖ **Barrier-Free Requirements - Illustrated Code Series
(Based on the Ontario Building Code, 2012, O. Reg. 332/12)**
- ❖ **Province of Ontario – Accessibility Standards for the Design of Public Spaces**
- ❖ **Province of Ontario – Standards for Barrier Free Design of Ontario Government Facilities**
- ❖ **Canadian Standards Association Barrier Free Design Standards**
- ❖ **Canadian Standards Association Z614-07 (R2012) – Children’s Playspaces and Equipment**
- ❖ **Illustrated Technical Guide to the Accessibility Standard for the Design of Public Spaces – Gaates – Global Alliance on Accessible Technologies & Environments**
- ❖ **Americans With Disabilities Act**
- ❖ **Other Canadian and International Best Practices**

Table of Contents

Land Acknowledgement	2
Brampton’s Commitment to Accessibility	2
Brampton’s Accessibility Responsibilities	3
Acknowledgements	4
I Introduction	9
II Glossary and Definitions	11
Graphic Conventions.....	11
General Terminology.....	11
Definitions	11
III Scope, Application and Enforcement	18
Interior Design – General	18
Application Based On Facility Use	18
Work Areas and Employee-Designated Areas	18
Temporary Facilities	19
Retrofitting, Alterations and Additions	19
Heritage Facilities.....	20
Safe egress from a <i>Heritage facility</i> is required.....	21
Equivalent Facilitation	21
Enforcement.....	21
IV Design Standards – Interior.....	22
Section IV.1 Access and Circulation	23
IV.1.1 Space and Reach Requirements.....	23
IV.1.2 Ground and Floor Surfaces.....	26
IV.1.3 Protruding Objects.....	28
IV.1.4 Accessible Routes, Sidewalks and Corridors	30
IV.1.5 Entrances.....	34
IV.1.6 Doors.....	35
IV.1.7 Gates, Turnstiles and Openings	42
IV.1.8 Windows, Glazed Screens and Sidelights	44
IV.1.9 Ramps	46
IV.1.10 Stairs	50
IV.1.11 Handrails.....	53
IV.1.12 Elevators.....	55
IV.1.13 Platform and Stair Lifts.....	60

IV.1.14	Exterior Accessible Routes, Access and Passenger Loading Zones	62
Section IV.2	Washroom Facilities	65
IV.2.1	Toilet and Bathing Facilities.....	65
IV.2.2	Toilet Stalls	69
IV.2.3	Toilets	75
IV.2.4	Lavatories/Hand Basins	77
IV.2.5	Urinals.....	80
IV.2.6	Washroom Accessories	82
IV.2.7	Individual/Family Washrooms.....	83
IV.2.8	Bathtubs	88
IV.2.9	Shower Stalls.....	90
IV.2.10	Grab Bars.....	94
Section IV.3	Other Amenities	96
IV.3.1	Drinking Fountains	96
IV.3.2	Viewing Positions	98
IV.3.3	Elevated Platforms.....	104
IV.3.4	Dressing Rooms.....	106
IV.3.5	Offices, Work Areas and Meeting Rooms	108
IV.3.6	Waiting and Queuing Areas	110
IV.3.7	Tables, Counters and Work Surfaces.....	113
IV.3.8	Information, Reception and Service Counters	115
IV.3.9	Storage, Shelving and Display Units.....	118
IV.3.10	Lockers and Baggage Storage.....	119
IV.3.11	Balconies, Porches, Terraces and Patios	120
Section IV.4	Systems and Controls	121
IV.4.1	Emergency Exits, Fire Evacuation and Areas of Rescue Assistance	121
IV.4.2	Controls and Operating Mechanisms.....	124
IV.4.3	Vending and Ticketing Machines.....	127
IV.4.4	Visual Alarms	129
IV.4.5	Public Telephones	130
IV.4.6	Assistive Listening	133
IV.4.7	Signage	135
IV.4.8	Detectable Warning Surfaces.....	139
IV.4.9	Public Address Systems	141
IV.4.10	Information Systems.....	142

IV.4.11	Card Access, Safety and Security Systems	143
IV.4.12	Glare and Light Sources.....	145
IV.4.13	Lighting.....	147
IV.4.14	Materials and Finishes.....	150
IV.4.15	Texture and Colour	152
IV.4.16	Acoustics	155
Section IV.5	Facility –Specific Requirements	156
IV.5.1	Swimming Pools and Saunas/Steam Rooms.....	156
IV.5.2	Cafeterias.....	159
IV.5.3	Libraries	161
IV.5.4	Municipal Courts	164
IV.5.5	Transportation Facilities	167
IV.5.6	Kitchens.....	169
V	Design Standards – Exterior	172
Section V.1	Exterior Paths of Travel.....	172
V 1.1	Sidewalks and Walkways	172
V.1.2	Ramps on Exterior Paths of Travel.....	174
V.1.3	Stairs on Exterior Paths of Travel.....	177
V.1.4	Rest Areas	179
V.1.5	Street Furniture on Exterior Paths of Travel.....	180
V.1.6	Benches and Seating.....	182
V.1.7	Curb Ramps.....	184
V.1.8	Depressed Curbs	185
V.1.9	Accessible Pedestrian Signals	186
Section V.2	Recreational Trails.....	187
V.2.1	General.....	187
V.2.2	Boardwalks.....	189
V.2.3	Ramps on Recreation Trails.....	190
Section V.3	Beach Access Routes	193
V.3.1	General.....	193
V.3.2	Boardwalks on Beach Access Routes	195
V.3.3	Ramps on Beach Access Routes	196
V.3.4	Exceptions for Beach Access Routes.....	198
Section V.4	Outdoor Public Use Eating Areas.....	199

V.4.1	Outdoor Public Use Eating Areas	199
Section V.5	Outdoor Play Spaces and Recreational Amenities	201
V.5.1	Outdoor Play Spaces	201
V.5.2	Landscaping Materials and Plantings	203
Section V.6	Accessible Parking	205
V.6.1	Off-Street Parking and Parking Garages.....	205
V.6.2	Accessible On-Street Parking.....	210
V.6.3	Accessible Electric Vehicle Charging Stations	212
Section V.7	Exceptions	216
Appendix A	The Principles of Universal Design	217
Appendix B	Tactile Walking Surface Indicators (TWSI)	220

I Introduction

The City of Brampton Accessibility Technical Standards have been developed to respond to the design, development and construction of new facilities and exterior *public spaces* as well as the retrofit and renovation of existing facilities and *public spaces* that the City owns, operates or leases. The Accessibility Technical Standards address the needs of people of all ages and abilities with emphasis on the needs of persons with disabilities.

These standards incorporate the belief in universal design recognizing 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 philosophy of universal design is structured around the seven design principles listed below. For additional information on the Principles of Universal Design please refer to Appendix A.

Principles of Universal Design

1. **Equitable Use**
The design is useful and marketable to people with diverse abilities.
2. **Flexibility in Use**
The design accommodates a wide range of individual preferences and abilities.
3. **Simple and Intuitive Use**
Use of design is easy to understand, regardless of the user’s experience, knowledge, language skills.
4. **Perceptible Information**
The design communicates necessary information effectively to the use, 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.

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Dimensional criteria used for these standards reflect the minimum requirements for an adult person. Prior to the design stage of a project, focus should be directed on the function of the *facility* and the customers who will use it. There may be instances when the standard may need to be reviewed and upgraded to meet the needs of a particular type of user, for example children or older persons.

Where conflicts arise 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 and the Integrated Accessibility Standard Regulation - Accessibility Standards for the Design of Public Spaces***.

On-going and regular review of these standards is needed to reflect technological advancement and new construction practices, as well as changes to the *barrier-free* design requirements of the ***Ontario Building Code, the Integrated Accessibility Standard Regulation – Accessibility Standards for Design of Public Spaces*** and the ***CSA Standard B651 - Barrier-Free Design***.

This document recognizes the concept of equivalent facilitation to encourage new and innovative design ideas and solutions. Departures from technical and scoping requirements of this standard using other designs and technologies are encouraged when the alternatives will provide substantially equivalent or greater access to the usability of the *element, public space* and/or *facility*.

Design departures from information provided and referenced in this document will 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 Brampton. Dimensions used in these technical standards are in metric units.

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

Some facilities and right of way public infrastructure operate under specified operational demands that require considered application of these standards. "Transit facilities" can include other facilities such as transit stops that will vary in some degree from the application of this standard in order to meet operational realities that are *technically infeasible* and practicable.

The City of Brampton encourages all users of this document to provide feedback, as well as to make proposals for changes, additions and/or deletions.

II Glossary and Definitions

Graphic Conventions

Dimensions that are not marked maximum or minimum are absolute, unless otherwise indicated.

General Terminology

comply with Meet one or more specifications of this standard.

if ... then Denotes a specification that applies only when the conditions described are present.

may Denotes an option or alternative.

shall Denotes a mandatory specification or requirement.

should Denotes an advisory specification or recommendation.

Definitions

Abrupt change: A change in direction of 90 degrees or more.

Access aisle: An *accessible* pedestrian *space* between *elements*, such as parking *spaces*, seating and desks, that provides clearances appropriate for the use of the *elements*.

Accessible: Describes a *site*, *building*, *facility* or portion thereof that can be approached, entered and used by all persons, including those with physical, sensory or cognitive disabilities.

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

Accessible route: A continuous unobstructed path of travel 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. This definition does not apply or refer to transit references to routes that utilize accessible vehicles.

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

Accessibility signs: Signs incorporating the International Symbol of Access (wheelchair).

Adaptable: The ability of certain *building spaces* or *elements*, such as kitchen counters, sinks, and grab bars, to be added or altered so as to accommodate the needs of individuals with or without *disabilities* or to accommodate the needs of persons with different types or degrees of *disabilities*.

Adaptable seating: A fixed seat or seats designed to facilitate a side transfer from a wheeled mobility device.

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

All-Inclusive Washrooms and Changerooms: All-Inclusive washrooms and changerooms can be used by anyone, regardless of gender identity or expression. They may be designed as single-stall or multi-stall rooms.

Alteration: A change to a *facility* that affects or could affect the usability of the *facility* or part thereof. *Alterations* include, but are not limited to, remodelling, renovation, retrofitting, rehabilitation, reconstruction, historic restoration, resurfacing of *circulation paths* or *vehicular ways*, changes or rearrangement of the structural parts or *elements*, and changes or rearrangement in the plan configuration of walls and full-height partitions. Normal maintenance, painting or wallpapering, or changes to mechanical or electrical systems are not *alterations*, unless they affect the usability of the *building*.

Ambulatory stall: Ambulatory accessible stalls are equipped with parallel grab bars and are suitable for individuals with limited balance or who use an assistive device such as a cane or walker.

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.

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 prevents a person with a *disability* from fully participating in all aspects of society because of his or her *disability*, including a physical barrier, and architectural barrier, an information or communication barrier, an attitudinal barrier, a technological barrier, a policy or practices (“obstacle”);

Barrier-free: Describes the site, building or portion thereof that is defined by the requirements of this Standard.

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

Building: A structure occupying an area greater than ten square meters, 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 meters or less that contains plumbing, including the plumbing appurtenant

thereto; or structures designated in the Ontario Building Code.

Cane-detectable: Any object or a change in surface texture that falls within the detection range of a long white cane.

Circulation path: An exterior or interior way of passage from one place to another for pedestrians, including, but not limited to, *walks*, hallways, courtyards, stairways, and stair landings.

Clear: Unobstructed.

Clear floor space: The minimum unobstructed floor or ground *space* required to accommodate a single, stationary wheelchair, scooter or other mobility device, including the user.

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

Colour/Tonal Contrast: A significant contrast (minimum 70%) in colour or tone between an element and its surrounding environment.

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

Companion seating: Seats in close proximity to the accessible seating that allows someone to sit with or beside someone who uses an assistive mobility device.

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

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

Detectable warning: A standardized surface feature built into or applied to walking surfaces or other *elements* to warn visually impaired people of hazards on a *circulation path*.

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

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 to a *building* or portion of a *facility* used for the purposes of entering. An *entrance* includes the approach *walk*, the vertical access leading to the *entrance* platform, the *entrance* platform itself, vestibules (if provided), the entry door(s) or gate(s), and

the hardware of the entry door(s) or gate(s).

Facility or Facilities: All or any portion of *buildings*, structures, *site improvements*, complexes, equipment, roads, *walkways*, passageways, *parks*, parking lots or other real or personal property located on a *site*.

Glare: The reflection from a polished surface.

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.

Heritage facility: *Facility* or portions thereof designated under the *Ontario Heritage Act*, or listed on the City of Brampton Heritage Inventory (See *Public Heritage Facility*)

Illumination: The intensity of light, as measured in lux.

Impairment: A disturbance or interference that is measured in terms of its presence or absence. Examples: spinal injury, loss of limb, or damage in the brain because of a stroke.

Individual/family washroom: A separate individual washroom. May be gender specific or non-specific.

Lavatory: Hand basin or sink used for personal washing (such as in a washroom).

Mezzanine or Mezzanine floor: That portion of a *storey* that 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*.

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, plazas, picnic areas, playgrounds, water features, *spaces* for free play and leisure.

Pedestrian crosswalk: Any portion of a road, at an intersection or elsewhere, designated and distinctly indicated for pedestrian crossing by signs on the highway and lines or other

markings on the surface of the roadway.

Platform lift: A mechanical elevating device that is used to transport a person (with or without assistive equipment) between levels. A vertical *platform lift* is a less complex but more affordable elevating device than an elevator. It can be either a prefabricated, self-contained unit, or a unit that is installed within a constructed enclosure. An inclined *platform lift* is installed over stairs and moves in the stairway space.

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.

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.

Public heritage facility: A *facility* designated under the *Ontario Heritage Act* that is open and accessible to the public. (See *Heritage Facility*)

Public space: A *space* that is intended for use by the public, primarily an exterior *space* that is not regulated by the *Ontario Building Code*.

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

Ramp: A walking surface that has a *running slope* greater than 1:25.

Reasonable accommodation: The response of the municipality to reach technically feasible and practicable accessibility provisions, programs and services that meet the required needs of people with disabilities.

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.

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, and any descriptive and directional informational erected or displayed for *public use*.

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 *mezzanines*.

Structural frame: The columns and the girders, beams, trusses and spandrels having direct connection to the columns and all other members which are essential to the stability of the *building* as a whole.

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

TTY:(Teletypewriter): See *Text telephone*.

Tactile: Describes an object that can be perceived using the sense of touch through tactile markings, raised lettering and graphics that are slightly raised above the surface of a sign.

Tactile Attention Indicators: Detectable warning surfaces that provide visual and tactile cues for persons with little or no vision. They alert pedestrians to potential hazards such as stairs, ramps and platform edges.

Tactile Walking Surface Indicator (TWSI): A raised *tactile* surface with a specific shape, size and pattern that is detectable under foot by people who are blind or who have a vision impairment. Attention and guiding patterns are used to warn of potential dangers or hazards and to provide direction for walking and movement.

Technically infeasible: Means, with respect to an *alteration* of a *building*, *facility*, *public right of way* or *roadway*, that meeting the technical requirement 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: *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 *TDDs* (telecommunication display devices or telecommunication devices for deaf persons) or computers with special modems. *Text telephones* are also called *TTYs*, an abbreviation for

teletypewriter.

Transfer space: An unobstructed area adjacent to a fixture, allowing the positioning of a wheelchair to enable a person to transfer to that fixture.

Vehicular way: A route intended for vehicular traffic, such as a street, driveway or parking lot on a site.

III Scope, Application and Enforcement

Interior Design – General

The requirements of these standards shall be:

- mandatory for all newly constructed and retrofitted or renovated *facilities, public spaces* and *right of ways* that are owned, leased or operated by the **City of Brampton**; and
- encouraged for all other *facilities*, whether new or retrofitted, and subject to the reasonable accommodation clause.

These standards do 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* that are not intended to be occupied on a daily or fulltime basis, including, but not limited to, automatic telephone exchanges, pump houses and substations.

All areas of newly designed or newly constructed *facilities* and altered portions of existing *facilities* shall comply with Interior Design Sections IV.1 to IV.4 of these standards, unless otherwise provided in this section or as modified in Section IV.5, Facility Specific Requirements.

Requirements of Sections IV.1 to IV.4 do not apply to:

- *service rooms*
- elevator machine rooms
- janitor rooms
- *service spaces*
- *crawl spaces*
- *attic* or *roof spaces* not intended to be used as an amenity space

Application Based On Facility Use

The specific *facility* types listed in Section IV.5 shall, in addition to all of the provisions specified in Sections IV.1 to IV.4, comply with the additional design requirements specified in Section IV.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 customers/users. All areas intended for use by employees shall be designed and constructed to comply with this standard.

Exterior Design – General

The requirements of these standards shall be:

- mandatory for all newly constructed and retrofitted or renovated *public spaces* and *right of ways* that are owned, leased or operated by the **City of Brampton**; and
- encouraged for all other public space *facilities*, whether new or retrofitted and subject to the reasonable accommodation clause.

Exceptions to the requirements or some of them are permitted when one or more of the following can be demonstrated:

- would likely affect the cultural heritage value or interest of a property identified, designated or otherwise protected under the Ontario Heritage Act as being of cultural heritage value or interest;
- would affect the preservation of places set apart as National Historic Sites of Canada by the Minister of the Environment for Canada under the Canada National Parks Act (Canada);
- would affect the national historic interest or significance of historic places marked or commemorated under the Historic Sites and Monuments Act (Canada);
- might damage, directly or indirectly, the cultural heritage or natural heritage on a property included in the United Nations Educational, Scientific and Cultural Organisation's World Heritage List of sites under the Convention Concerning the Protection of the World Cultural and Natural Heritage;
- would adversely affect water, fish, wildlife, plants, invertebrates, species at risk, ecological integrity or natural heritage values, whether the adverse effects are direct or indirect; and
- are not practicable because existing physical or site constraints prohibit modification or addition of elements, spaces or features, such as where surrounding rocks bordering the recreational trail or beach access route impede achieving the required clear width.
O. Reg. 413/12, s. 6.

Temporary Facilities

These standards apply to temporary *facilities*, as well as permanent *facilities*.

Retrofitting, Alterations and Additions

Each *addition* to an existing *facility* or *public space* shall be regarded as an *alteration*. Each *space* or *element* added to the existing *facility* or *public space* shall comply with the applicable provision(s) of these standards. 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* or *public space* to below the requirements for new construction at the time of *alteration*.

If existing *elements*, *spaces* or common areas are altered, then each such altered *element/space/feature/area* shall comply with all applicable provisions.

If the applicable provision for new construction requires that an *element/space/feature/area* be on an *accessible route* and the altered *element/space/feature/area* is not on an *accessible route*, this route shall be altered to become *accessible*.

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

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

If an escalator or stairs are proposed as a means of access where none existed previously, and major structural modifications are necessary for such installations, then a means of *accessible* access shall also be provided. If a planned *alteration* entails alterations to an *entrance*, and the *facility* has an *accessible entrance*, the *entrance* being altered is required to be *accessible*.

If the alteration work is limited solely to the electrical, mechanical or plumbing system, or to hazardous material abatement, or to automatic sprinkler retrofitting, and does not involve the alteration of any *elements* or *spaces* required to be *accessible* under these standards, 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 path of travel to the altered area, the restrooms, telephones and drinking fountains serving the altered area are readily *accessible* to and usable by individuals with *disabilities*. Where the provision of *accessible* features is *technically infeasible*, and the standard allows a reduction of manoeuvring space from the requirements for new construction, the reduced dimensions are minimums. Where possible, larger manoeuvring spaces must be provided.

Heritage Facilities

These standards will generally 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* that 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 a case-by-case basis, to determine the most effective and least disruptive means of retrofit, where required. Consideration should be given to the following general standards:

- *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 *walkways* 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; and

- Access to above- and below- grade areas is not necessary if the context of those areas can be adequately provided on the *accessible* floor level. If retrofit for accessibility of a main public *entrance* in a *Heritage facility* would substantially threaten or destroy the historic significance of the *facility*, access shall be provided at an alternative *entrance* with directional signs at the main public *entrance*. The *accessible entrance* should have a notification system (if not generally used by the public) and remote monitoring (if security is an issue).

Safe egress from a *Heritage facility* is required.

Equivalent Facilitation

In a retrofit situation where the requirements of a section of this standard are *technically infeasible* to implement, equivalent facilitation may be proposed. A committee appointed by the City of Brampton will review and approve equivalent facilitation proposals on an individual basis.

Enforcement

The City of Brampton and city departments, through the project management function, shall ensure compliance to this standard during the pre-planning, design, construction documents preparation and contracts administrative phase.

IV Design Standards – Interior

The interior design standards ensure that people with disabilities can enter, circulate, use facilities and amenities within a building and exit the building safely and independently without assistance from others.

This section covers all interior components and amenities and exterior components that are needed to access a building, including paths of travel around the building and access to and from parking areas.

All areas of newly designed or newly constructed *facilities* and renovated and retrofitted portions of existing *facilities* shall comply with this section, unless otherwise provided in Section III or as excepted below.

The requirements of this section apply to all facilities except:

- residential occupancies;
- *buildings* of Group F Division 1 occupancy, as defined by the Ontario Building Code (latest edition with all amendments); and
- *buildings* that are not intended to be occupied on a daily or fulltime basis, including, but not limited to, automatic telephone exchanges, pump houses and substations.

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

- *service rooms*;
- elevator machine rooms;
- janitor rooms;
- *service spaces*;
- *crawl spaces*; and/or
- *attic* or *roof spaces* not intended to be used as amenity space.

Any reference to Sections in this Part IV refers to Design Standards Interior.

Section IV.1 Access and Circulation

IV.1.1 Space and Reach Requirements

Rationale

Traditionally, accessibility standards have taken a conservative approach to wheelchair manoeuvrability, reflecting the needs of the average user in an average-sized wheelchair. Accessibility standards need to more accurately reflect the vast array of equipment that is used by persons to access and use facilities, as well as the diverse range of user ability. Standards should incorporate more generous *space* requirements, particularly related to the dynamic movement of people using wheelchairs or other assistive devices.

Application

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

Design Requirements

- The *space* required for a wheelchair to make a 360-degree turn is a *clear space* of 2440 mm diameter (Figure IV.1.1.1) or a 180-degree turn as shown in Figure IV.1.1.2;
- The minimum *clear* floor or ground *space* required to accommodate a single, stationary wheelchair or scooter and occupant shall be 810 mm x 1370 mm. (Figure IV.1.1.3 and Figure IV.1.1.4). The minimum *clear* floor or ground *space* for wheelchairs may be positioned for forward or parallel approach to an object. *Clear* floor or ground *space* for wheelchairs may be part of the *knee space* required under some objects;
- One full, unobstructed side of the *clear* floor 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 space* is located in an alcove or otherwise confined on all or part of three sides, additional manoeuvring clearances shall be provided;
- The surface of *clear* floor or ground *spaces* for wheelchairs shall comply with Section IV.1.2;
- If the *clear floor space* only allows forward approach to an object, the maximum high forward reach shall be 1200 mm. The minimum low forward reach is 400 mm (Figure IV.1.1.5). If the high forward reach is over an obstruction, reach and clearance shall be provided. (Figure IV.1.16); and
- If the *clear floor space* allows parallel approach to an object, the maximum high side reach allowed shall be 1370 mm and the low side reach no less than 230 mm above the floor. If the side reach is over an obstruction, the reach and clearances shall be as shown (Figure IV.1.1.7, Figure IV.1.1.8 and Figure IV.1.1.9).

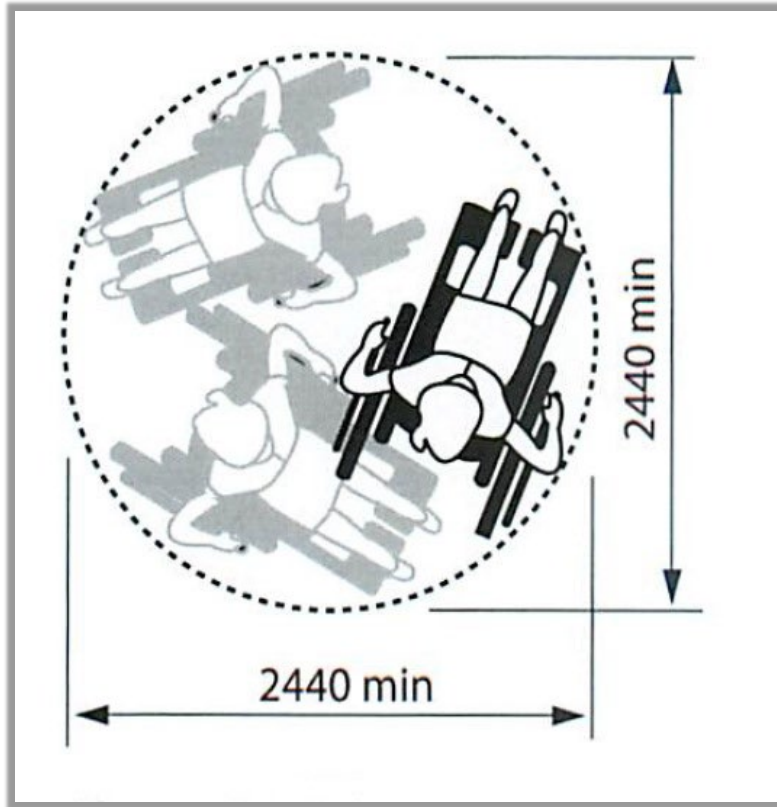


Figure IV. 1.1.1: 360° Turning Space

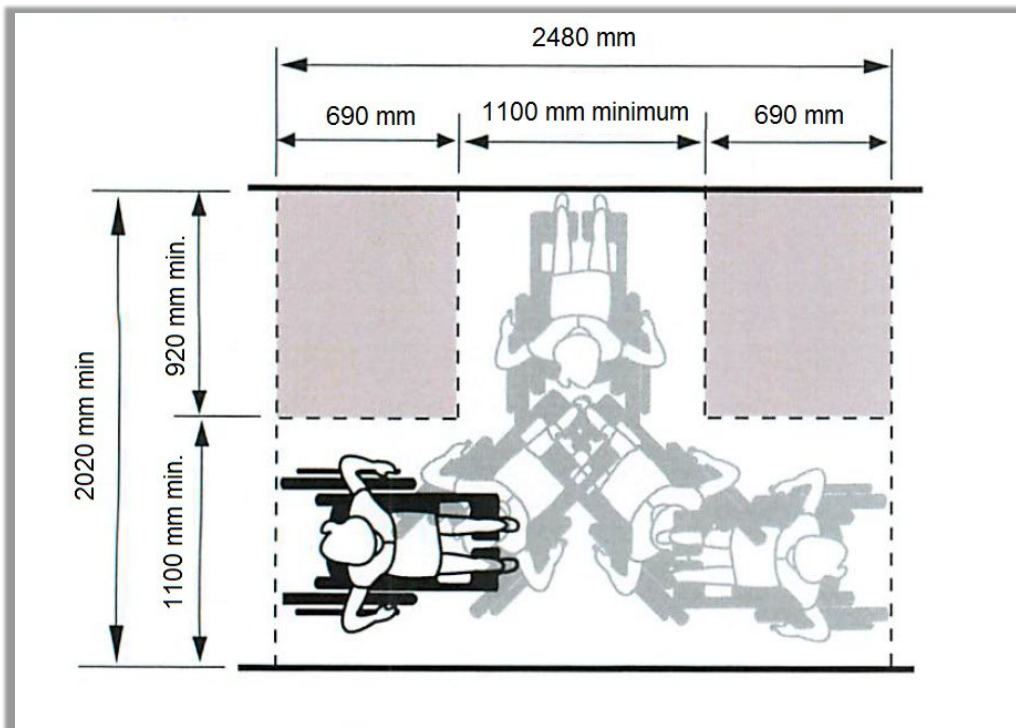


Figure IV.1.1.2: 180° Turn

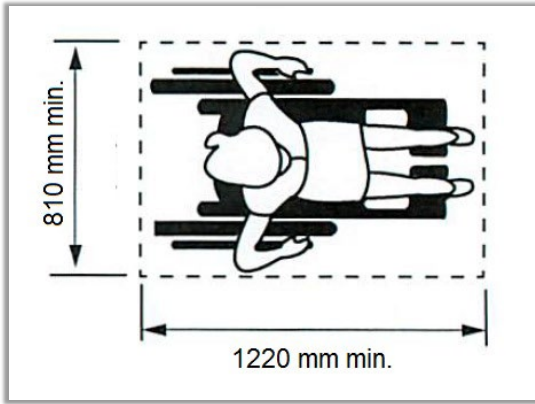


Figure IV.1.1.3: Clear Floor Space Wheelchair

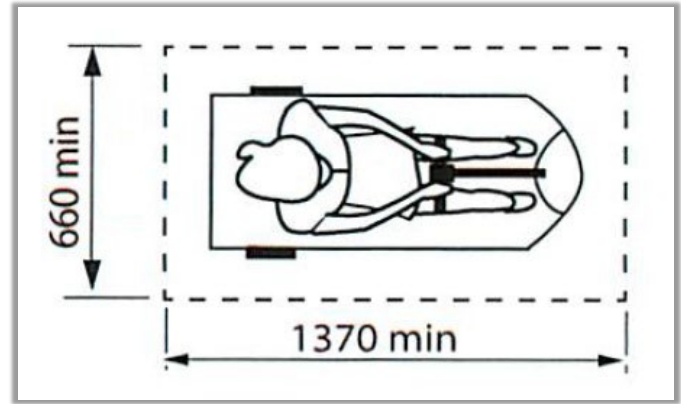


Figure IV.1.1.4: Clear Floor Space Scooter

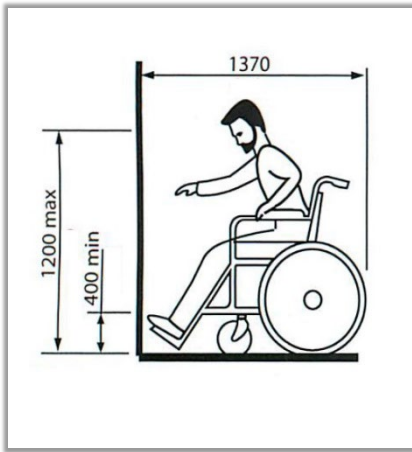


Figure IV.1.1.5: Forward Reach

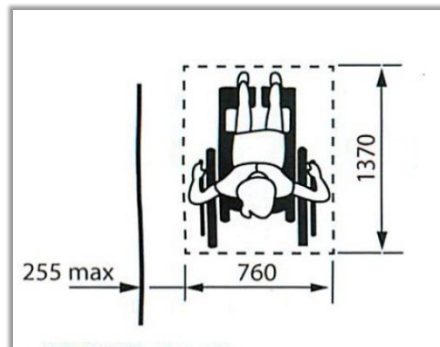


Figure IV.1.1.6: Side Reach – Maximum Distance to Wheelchair

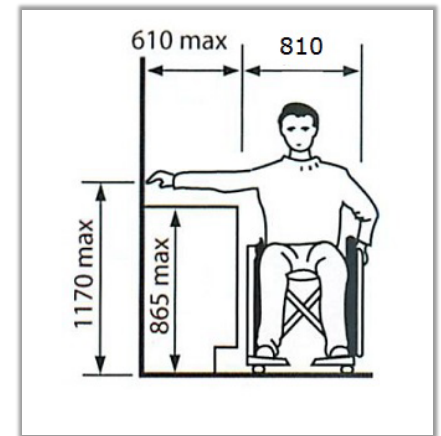


Figure IV.1.1.7: Side Reach Over an Obstruction

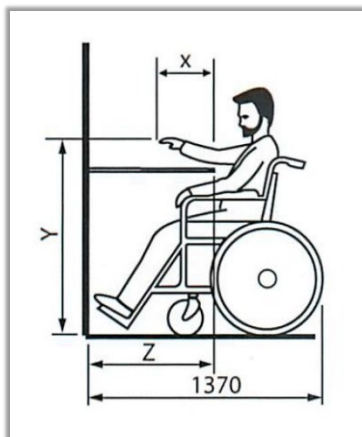


Figure IV.1.1.8: Forward Reach Over an Obstruction

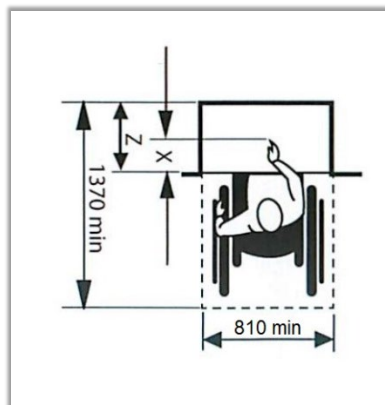


Figure IV.1.1.9: Forward Reach Over an Obstruction

Note: In Figures 1.1.8 and 1.1.9, X shall be less than or equal to 635 mm; Z shall be greater than or equal to X.

When X is less than 510 mm, then Y shall be 1220 mm maximum.

When X is 510 to 635, then Y shall be 1120 mm maximum.

IV.1.2 Ground and Floor Surfaces

Rationale

The type of ground and floor surfaces used influence every person who enters the building. Irregular surfaces, such as cobblestones or pea-gravel finished concrete, are difficult for people who are walking or pushing a wheelchair. Slippery surfaces are more difficult for a person who is ambulatory than the person using a wheelchair. Appropriate floor surfaces are especially important for children and seniors who may not be surefooted.

The glare from polished floor surfaces can obscure important orientation and safety features and can disorient a person with a visual impairment, making them unsure of the location of the ground. Pronounced colour contrast between walls and floor finishes and changes in colour and texture where a change in level or function occurs, may be helpful for a person with a visual impairment.

Carpeting with a thick pile makes manoeuvring a wheelchair very difficult. Small and uneven changes in floor level create a barrier to persons using a mobility device and present a tripping hazard to ambulatory persons. Highly patterned floors can create visual confusion and should be avoided. The use of directional way finding patterns within the surface is encouraged.

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.

Design Requirements

- Ground and floor surfaces shall be stable, firm, slip resistant, glare – free and not heavily patterned.
- Changes in level, except for elevator, other elevating devices and curb ramps shall conform to Table 1.2.

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

Table 1.2: Changes in Level

- 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; and
 - have exposed edges fastened to floor surfaces with trim conforming to Table 1.2.

- The smell of new carpets can adversely affect people with environmental sensitivity. Where feasible the use of carpets that have been off gassed prior to installation is suggested.
- It is preferable to avoid locating gratings in an accessible route of travel. Where gratings are located in pedestrian walking surfaces, they shall:
 - have spaces and openings not greater than 13 mm wide in one direction; and
 - be placed so that the long dimension is across the dominant direction of travel. (Figure IV.1.2.1).

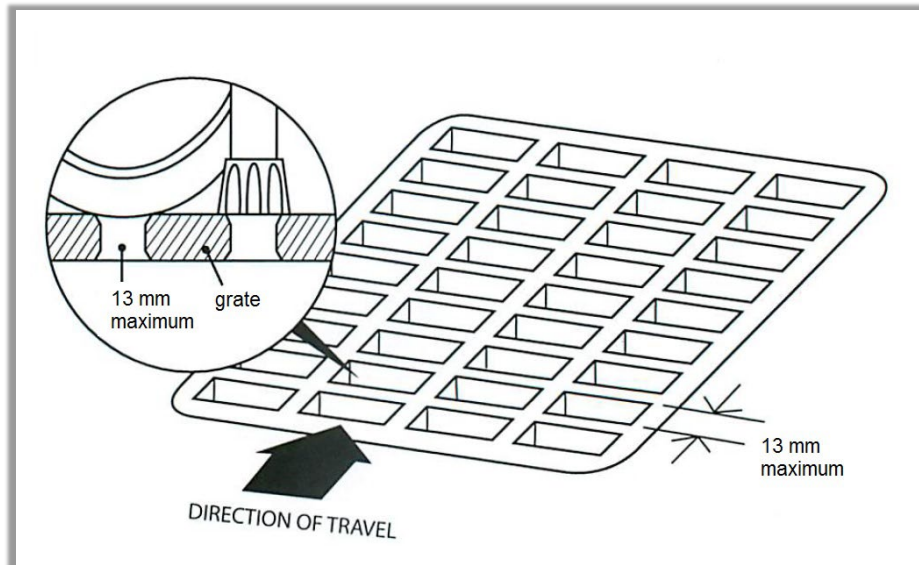


Figure IV.1.2.1: Grills and Gratings

Related Sections

- IV.1.4 Accessible Routes, Sidewalks, and Corridors
- IV.4.8 Detectable Warning Surfaces
- IV.4.14 Materials and Finishes
- IV.4.15 Texture and Colour

IV.1.3 Protruding Objects

Rationale

Pathways free of protruding objects or freestanding obstacles are important to all *facility* users. For a person with a visual impairment an object protruding from a wall above the detection range of a cane is dangerous. It is equally hazardous to a pedestrian who is distracted by a conversation. Detectable surfaces around freestanding obstacles, such as light standards, are an advantage to anyone using a pathway. Protruding obstructions include signs, telephone enclosures, drinking fountains, fire extinguishers and the underside of stairways or escalators.

Application

Protruding objects from a wall, ceiling or other location shall comply with this section. Exclusion from this section is where it is not “practicable” for temporary public services.

Design Requirements

- Objects protruding from walls with their leading edges between 680 mm and 2100 mm from the floor shall protrude not more than 100 mm into pedestrian areas, such as walkways, halls, corridors, passageways or aisles. (Figure IV.1.3.1);
- Objects attached to a wall with their leading edges at or below 680 mm from the floor may protrude any amount. (Figure IV.1.3.2);
- Freestanding objects shall not have any overhang of more than 300 mm between 680 mm and 2100 mm from the ground or floor;
- The maximum height of the bottom edge of freestanding objects with a *space* of more than 300 mm between supports shall be 680 mm from the ground or floor;
- Protruding objects shall not reduce the *clear* width required for an *accessible route* or manoeuvring *space*;
- The minimum *clear* headroom in pedestrian areas, such as walkways, halls, corridors, passageways, or aisles, shall be 2100 mm; and
- A detectable guard: a guardrail or other barrier having its leading edge at or below 680 mm from the floor shall be provided where the headroom of an area adjoining an *accessible route* is reduced to less than 2100 mm. (Figure IV.1.3.3).

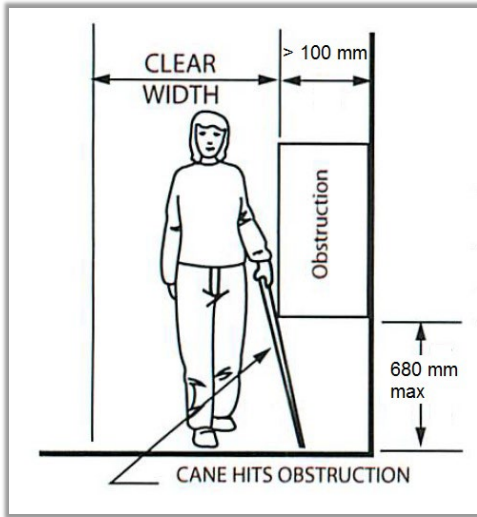


Figure IV.1.3.1: Limits of Protruding Objects

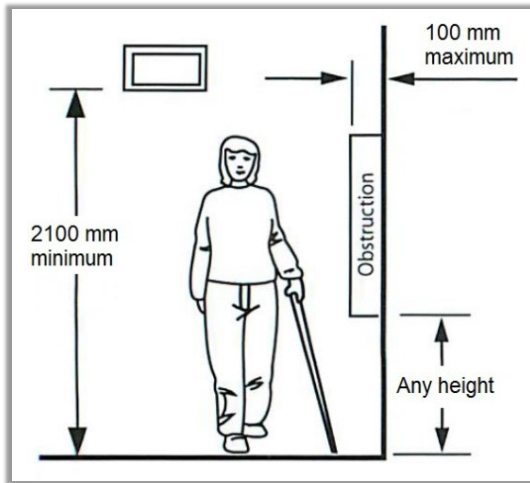


Figure IV.1.3.2: Limits of Protruding Objects

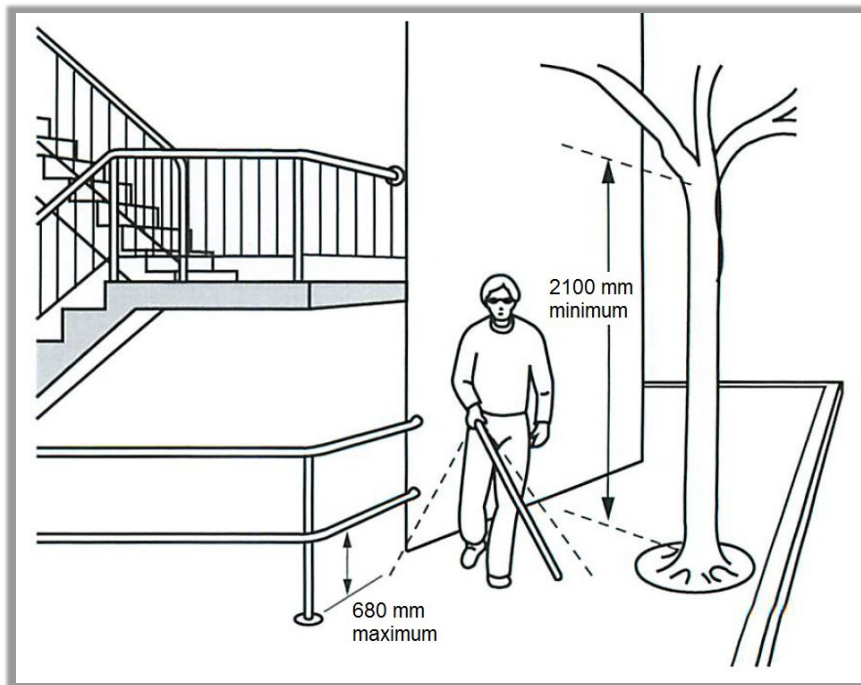


Figure IV.1.3.3: Overhead Obstructions

Related Sections

- IV.1.4 Accessible Routes, Sidewalks, and Corridors
- IV.4.8 Detectable Warning Surfaces
- IV.4.14 Materials and Finishes
- IV.4.15 Texture and Colour

IV.1.4 Accessible Routes, Sidewalks and Corridors

Rationale

Maintaining a clear route of travel into, through and out of a facility is essential. Any route of travel must provide the *clear* width necessary for persons using wheelchairs or scooters, those in strollers or those traveling in pairs. Consideration should be given not just to the width of mobility devices, but also to their manoeuvrability. While a corridor may be wide enough for a scooter driven in a straight line, it may not be possible to make a turn around a corner or to permit movement of opposing pedestrian traffic. The preferred minimum width for *accessible routes* is 1830 mm for passage.

Strong colour contrasts and/or tactile pathways set into floors can be used to assist visually impaired individuals to negotiate an environment.

Application

Wherever possible, all routes, paths or corridors shall comply with this section. A *barrier-free* path of travel is permitted to include ramps, passenger elevators or other platform equipped passenger elevating devices to overcome a difference in level.

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 sidewalks and pathways 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*. If a *walkway* or pedestrian bridge connects two *barrier-free storeys* in different *buildings*, the path of travel from one *storey* to the other *storey* by means of the *walkway* or bridge shall be *barrier-free*.

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, including to and throughout a rooftop amenity space served by a passenger elevator or other platform passenger elevating device.

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 not intended to be used as an amenity space*;
- 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, seats designated for adaptable seating, and storage spaces for assistive mobility device; 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 IV.1.13) where there exists a difference in elevation.

Design Requirements

- The minimum *clear width of accessible routes* shall be 1100 mm except:
 - at doors, it shall be 950 mm;
 - where there is movement with opposing traffic, it shall be 1370 mm (Figure IV.1.4.1);
 - where additional manoeuvring *space* is required at doorways (See Section IV.1.6);
 - at U-turns around obstacles less than 1220 mm wide, it shall be 1220 mm where the width of the separating wall is less than 1220 mm (Figure IV.1.4.3);
 - at U-turns around obstacles are 1220 mm or greater, it shall be a minimum of 1100 mm (Figure IV.1.4.2);
 - for exterior routes, it shall be 1220 mm; and
 - where *space* is required for two wheelchairs to pass, it shall be 1830 mm (Figure IV.1.4.1).
- *Accessible routes* shall:
 - have a *running slope* not steeper than 1:25; and
 - have a *cross slope* not steeper than 1:50.

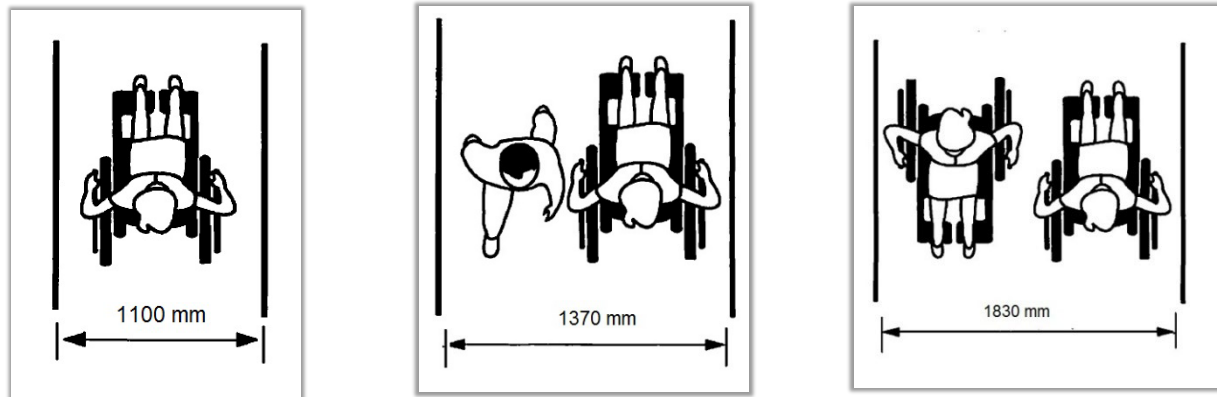


Figure IV.1.4.1: Access Widths

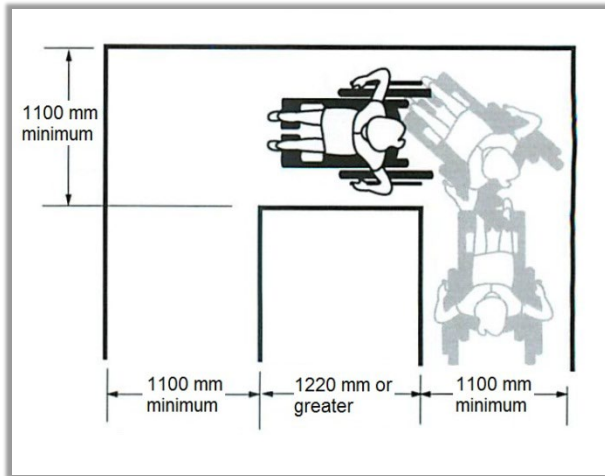


Figure IV.1.4.2: Turn Around an Obstacle

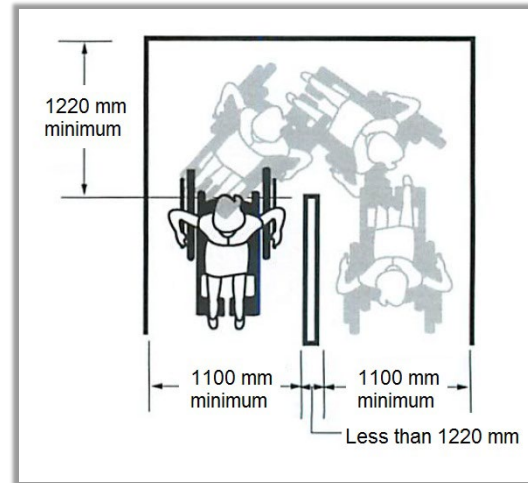


Figure IV.1.4.3: Turn Around an Obstacle

- Every *accessible route* less than 1830 mm wide shall be provided with an unobstructed resting space of not less than 1830 mm in width and 1830 mm in length, located not more than 30 meters apart;
- Except at stairs and at elevated platforms such as performance areas or loading docks, where the edges of *accessible routes*, paths or corridors are not level with the adjacent surface, they shall be protected:
 - where the change in level is over 100 mm to 600 mm below the route, path or corridor, by a colour contrasting curb at least 75 mm high (Figure IV.1.4.4); and
 - where the change in level is greater than 600 mm, by a guard that meets the requirements listed in Section IV.1.9.

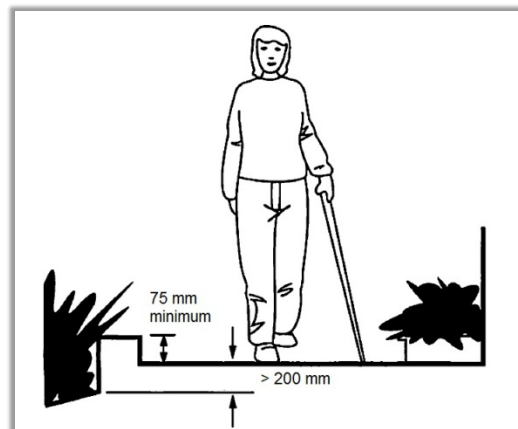


Figure IV.1.4.4: Edge Protection

- Where there is a change in direction along an *accessible route* and the intended destination of the route is not evident, directional signage shall be provided;
- All portions of exterior *accessible routes* shall be equipped to provide a level of illumination in accordance with the Illuminating Engineering Society of North America (IESNA) standards. The exception is in outdoor park settings where routes are not normally illuminated;
- Where exterior barrier-free paths of travel lead to a vehicular route and where the

pedestrian route is not separated by a curb or other element, a *tactile attention indicator* shall be installed in accordance with Section IV.4.8 Detectable Warning Surfaces; and

- *Accessible routes*, paths or corridors having a slope steeper than 1:25 (4%) shall be designed as *ramps*, in compliance with Section IV.1.9.

Related Sections

IV.1.2	Ground and Floor Surfaces
IV.3.3	Elevated Platforms
IV.4.7	Signage
IV.4.8	Detectable Warning Surfaces
IV.4.12	Glare and Light Sources
IV.4.13	Lighting
IV.4.14	Materials and Finishes
IV.4.15	Texture and Colour

IV.1.5 Entrances

Rationale

Entrances and doors have a direct influence on the independence and dignity of everyone entering or exiting a facility. Design features such as canopies can limit the influence of weather conditions and can make an entrance more obvious to someone with a cognitive disability, a visual impairment or someone unfamiliar with the facility.

Application

All *entrances* used by staff or the public shall be *accessible* and comply with this section. In retrofit situations 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 retrofit situations where it is *technically infeasible* to make all public *entrances accessible*, the primary 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*.

In municipal courts subject to Sections IV.5.6, public *entrances* that are secured shall be *accessible*, as required in Sections IV.5.6.

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

If access is provided for pedestrians from a pedestrian tunnel or elevated walkway, one *entrance* to the *facility* from each tunnel or walkway must be *accessible*.

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

Entrances which are not *accessible* shall have directional *signage* complying with Section IV.4.7 which indicates the nearest *accessible entrance*.

Related Sections

IV.1.1	Space and Reach Requirements
IV.1.6	Doors
IV.1.7	Gates, Turnstiles and Openings
IV.1.8	Windows, Glazed Screens and Sidelights
IV.4.2	Controls and Operating Mechanisms
IV.4.7	Signage
IV.4.10	Information Systems
IV.4.11	Card Access, Safety and Security Systems
IV.4.13	Lighting

IV.1.6 Doors

Rationale

Sufficiently wide doorways are advantageous to individuals using wheelchairs or other mobility devices, pushing strollers, or making a delivery. Raised thresholds at the base of the door can create an impediment, as can heavy doors. Children, seniors, someone carrying packages and individuals using wheelchairs and mobility devices can benefit from some form of automatic door opener.

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 require less wheelchair manoeuvring *space*. Doors requiring two hands to operate are not considered to be accessible. With revolving doors, *space* may be an issue for persons using wheelchairs and strollers, while the timing may be difficult for children, seniors or someone with a cognitive or visual disability.

Glazed doors can present a hazard to persons who are visually impaired. The inclusion of colour contrast strips across the glass, mounted at eye level, as well as colour-contrasting doorframes and door hardware, will increase the visibility of a glazed door for a person with a visual impairment.

Application

Wherever possible, all entrance doors used by staff or the public shall comply with this section.

At each *accessible entrance* to a *facility*, at least one door shall comply with this section.

The door(s) for the *accessible entrance(s)* described in Section IV.1.6 shall be equipped with a power door operator.

Within a *facility*, all doors at each *accessible space* shall comply with this section. In a retrofit situation where it is *technically infeasible* to make all doors at each *accessible space accessible*, at least one door at each *accessible space* shall comply with this section.

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

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

Each door required by Section IV.4.1 (Emergency Exits, Fire Evacuation and Areas of Rescue Assistance) shall comply with this section.

Mats and mat sinkage 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.

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

Design Requirements

- *Accessible* doors shall be on an *accessible route* that complies with Section IV.1.4;
- Doors that open automatically by means of motion detectors are preferable, since the manual controls required for activating *power-assisted doors* are more difficult to operate. Sliding automatic doors are generally more convenient to use, since they do not require guardrails for protection and provide a smoother traffic flow;
- Power door operators shall be provided for doors and doorways that:
 - provide a barrier-free path of travel through a barrier-free entrance;
 - are hinged glass doors;
 - lead from a vestibule to the floor area;
 - are entrances to barrier-free washrooms; and/or
 - serve an individual/universal/family washroom.
- The minimum *clear* opening of doorways shall be 950 mm from jam to jam. (Figure IV.1.6.1);
- *Clear* opening width for swinging doors, is measured between the face of the door or the panic hardware and the face of the stop with the door open 90 degrees;
- *Clear* opening width for sliding doors it is measured between the edge of the open door and the doorframe;
- If doorways have two independently operated door leaves, at least one active leaf shall comply with minimum clear opening width requirements and manoeuvring space at door requirements. In double doors, the use of a center post should be avoided;
- The minimum space between two doors in a series shall be 1500 mm, plus the width of any door swinging into the space. (Figure IV.1.6.5 and Figure IV.1.6.6);
- Unless equipped for power door operation, a door in a *barrier-free* path of travel shall have a clear space on the latch side extending the height of the doorway and not less than:
 - 600 mm beyond the edge of the door opening if the door swings toward the approach side; and
 - 300 mm beyond the edge of the door opening if the door swings away from the approach side. (Figure IV.1.6.3 and Figure IV.1.6.4).
- Thresholds shall:
 - be not more than 13 mm high;
 - exterior sliding doors, be not more than 19 mm high; and
 - where over 6 mm high, be bevelled at a maximum slope of 1:2.
- Door hardware (operating devices such as handles, pulls, latches, and locks) shall:
 - be operable with a closed fist;
 - not require fine finger control, tight grasping, pinching, or twisting of the wrist to operate;
 - be mounted between 900 mm and 1100 mm from the floor; and

- be operable with a force not to exceed 22 N.
- Sliding glass doors shall:
 - have operating hardware exposed and usable from both sides when sliding doors are fully open;
 - have the sweep period of door closers 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;
 - provide 600 mm on the latch side on both sides of the door; and
 - provide a minimum clear floor space of 1500 mm by 1500 mm on both sides of door. (Figure IV.1.6.7).
- The maximum door opening force for pushing or pulling open a door shall be:
 - 38 N for exterior hinged doors;
 - 22 N for interior hinged doors; and
 - 22 N for sliding or folding doors.

These forces do not apply to the force required to retract latch bolts or disengage other devices that may hold the door in a closed position.

- *Power-assisted* swinging doors shall:
 - take not less than 3 seconds to move from the closed to the fully open position;
 - require a force of not more than 66N to stop door movement;
 - remain fully open for a minimum of 5 seconds; and
 - where they open into a route of travel, have guards or other barriers at a cane detectable height at right angles to the wall containing the door.
- 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 vision panels are provided, they shall:
 - be mounted so bottom edge of vision panel is not more than 900 mm from the finished floor;
 - be a minimum 150 mm wide and have the edge of the panel located not more than 250 mm from the latch side of the door. (Figure IV.1.6.8); and
 - kick plates at least 250 mm high on the push side of doors should be considered in high use areas to protect the door and assistive device from damage.
- Where power door operators are provided:
 - where manually operated, they shall have controls that are colour contrasted with the adjacent surface; which are at least 150 mm in width, located in front and *clear* of the door swing, with sufficient approach *space* to accommodate a wheelchair or scooter (see Section IV.1.1); be operable by touching any part of the surface with a fist or an arm and be marked with the International Symbol of Access; and
 - where pressure-sensitive mats, overhead beams or proximity scanners are used to detect traffic, the layout of mat, beam or scanner coverage shall ensure

- that persons who use wheelchairs are detected; and
 - where exterior doors swing open into a pedestrian area, they shall incorporate safety guards that project a minimum of 300 mm beyond both sides of the open door and be cane detectable. (Figure IV.1.6.10).
- Where motion detectors do not provide automatic activation, controls to open power assisted doors shall:
 - be located along the route of travel;
 - be clearly visible before reaching the door;
 - have a clear floor area of 750 mm by 1200 mm in front of them;
 - be clear of the door swing or any other fixture; and
 - be at a height between 800 mm and 1200 mm (need in) from the floor.
- The control for a power door operator shall:
 - be located in a clearly visible position;
 - be located on the latch side of the door;
 - be located 600 mm to 1500 mm beyond the door swing, where the door opens in towards the control;
 - have its centre located not less than 900 mm and not more than 1100 mm from the floor level or ground;
 - for wall mounted or a free standing elongated control bar, be located a maximum of 200 mm from the floor and be a minimum of 900 mm in height;
 - be not less than 150 mm in diameter or width; and
 - contain the International Symbol of Access (Figure IV.1.6.9).
- Doors in public corridors in normally occupied areas that are not required to have a barrier-free path of travel shall:
 - have a clear width of 950 mm;
 - have opening devices operable with a closed fist, mounted 900 mm to 1100 mm from the finished floor;
 - where a vision panel is provided it must be a minimum 150 mm wide, be mounted at not more than 900 mm from the finished floor and be located within 250 mm from the latch side (Figure IV.1.6.8); and
 - where a glass door is provided, it shall comply with Section IV.1.8 (Windows, Glazed Screens and Sidelights).
- Doors shall incorporate pronounced colour contrast, to differentiate them from the surrounding environment. Similarly, door frames, door handles and other operating mechanisms shall incorporate pronounced colour contrast, to differentiate them from the door itself. Where a door is fully glazed, it shall comply with Section IV.1.8 (Windows, Glazed Screens and Sidelights).

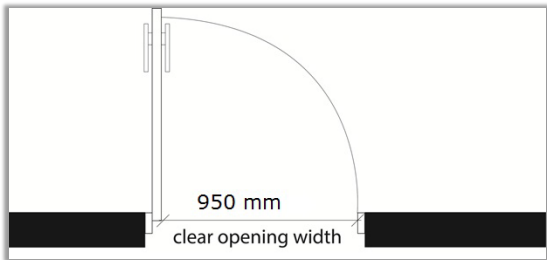


Figure IV.1.6.1: Minimum Clear Width at Doors

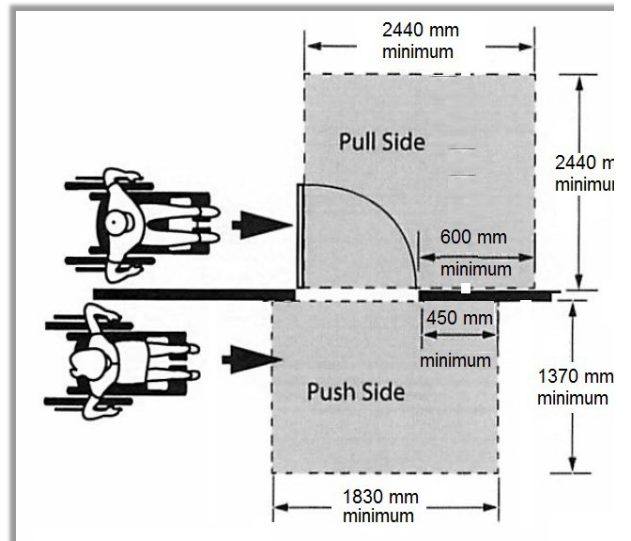


Figure IV.1.6.2: Hinge Side Approach at Hinged Doors

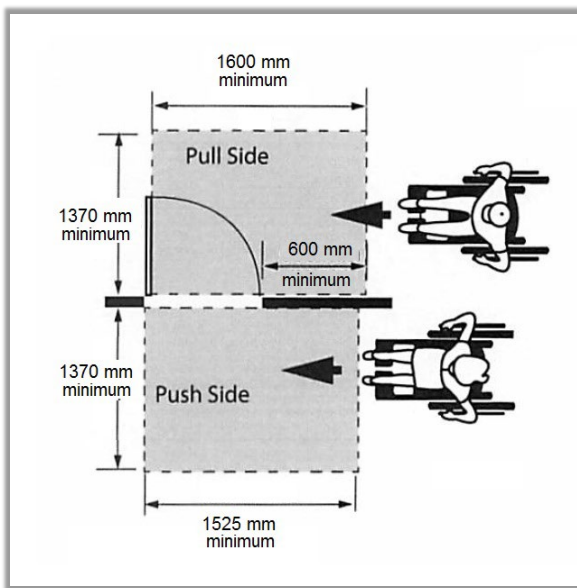


Figure IV.1.6.3: Latch Side Approach at Hinged Doors

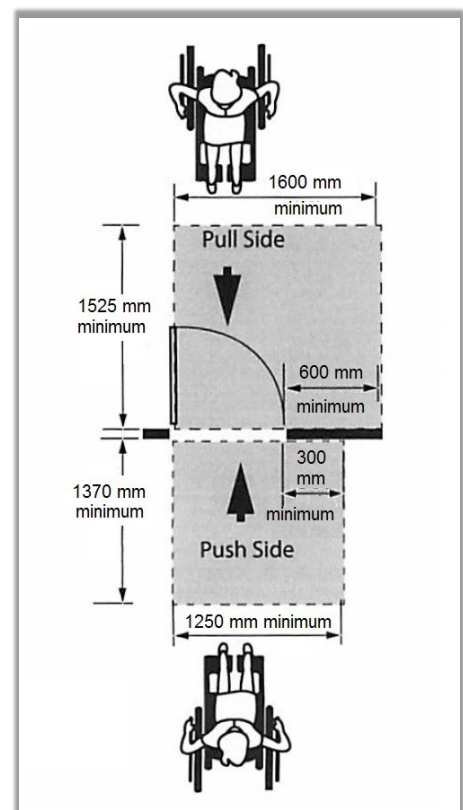


Figure IV.1.6.4: Front Approach at Hinged Doors

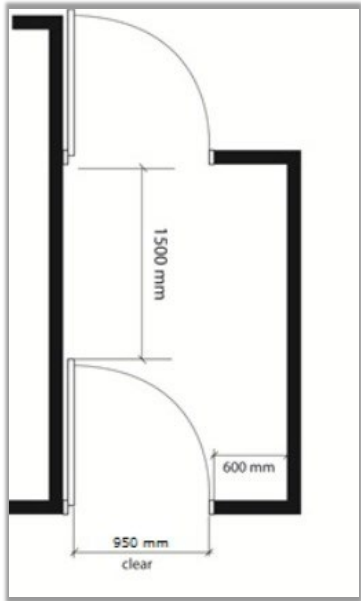


Figure IV.1.6.5: Manoeuvring Space at Doors - Series - Aligned

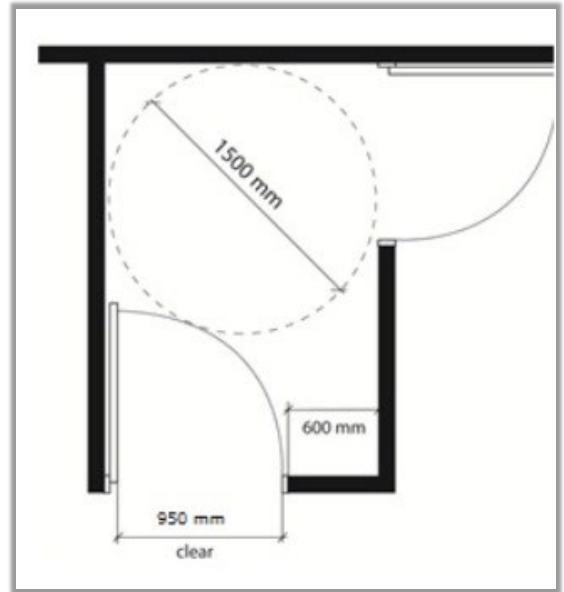


Figure IV.1.6.6: Manoeuvring Space - Doors Series – Not Aligned

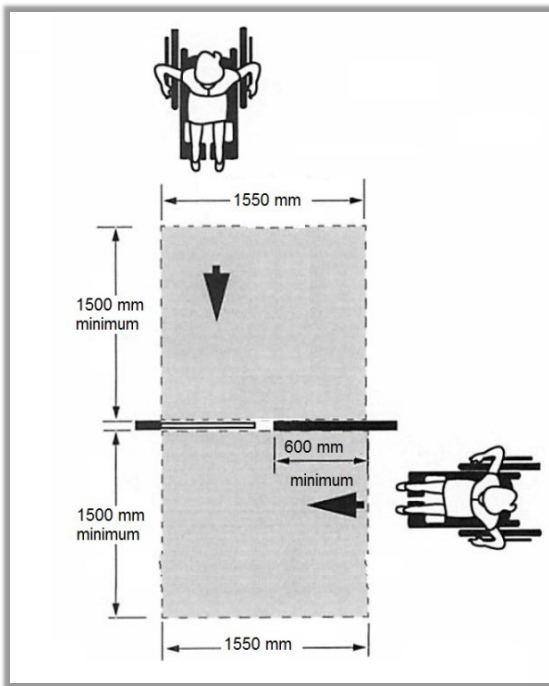


Figure IV.1.6.7: Front and Side Approach at Sliding Doors

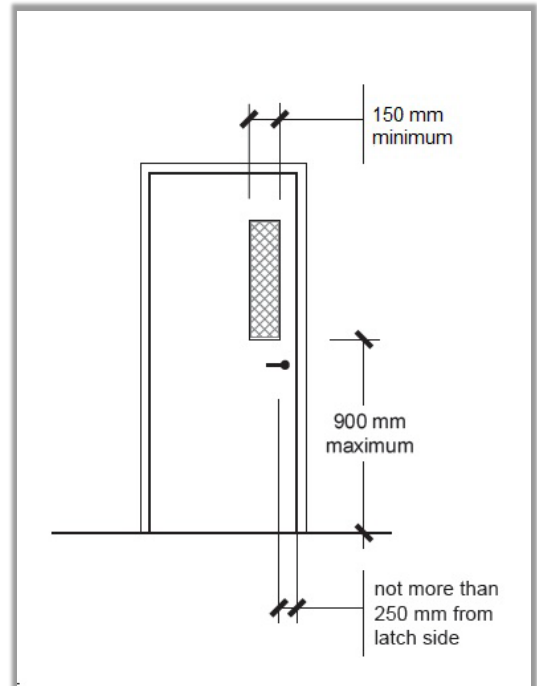


Figure IV.1.6.8: Vision Panel

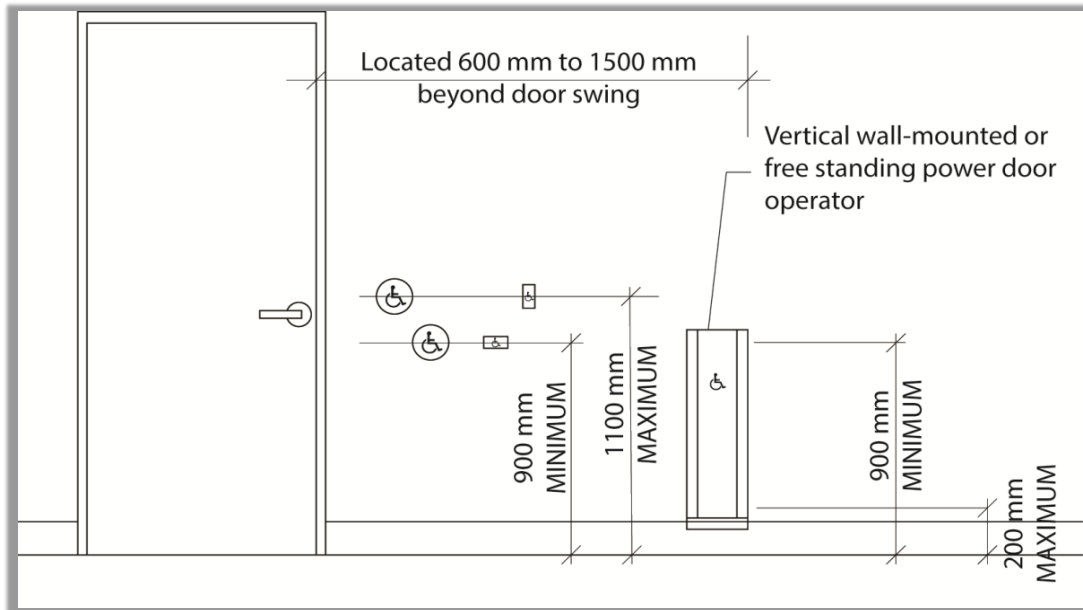


Figure IV.1.6.9: Door Operator Locations

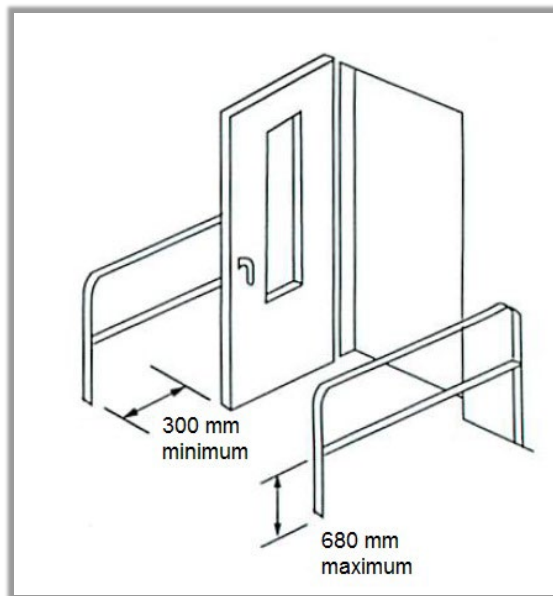


Figure IV.1.6.10: Door Guards

Related Sections

- IV.1.1 Space and Reach Requirements
- IV.1.7 Gates, Turnstiles and Openings
- IV.1.8 Windows, Glazed Screens and Sidelights
- IV.4.2 Controls and Operating Mechanisms
- IV.4.7 Signage
- IV.4.10 Information Systems
- IV.4.11 Card Access, Safety and Security Systems

IV.1.7 Gates, Turnstiles and Openings

Rationale

Gates with an adjacent opening of an appropriate width are essential for wheelchair access, as well as for others using various mobility aids and devices, strollers or delivery carts. Single-bar gates may be at a convenient waist height for ambulatory persons but are at neck and face height for children and persons who use wheelchairs. Revolving turnstiles are impossible to negotiate for someone using a wheelchair, a cane or crutches or for someone with poor balance.

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 beyond, such openings shall be *accessible* (i.e., a minimum of 950 mm) wide, to allow free passage of a person who uses a wheelchair. Hardware should be suitable for autonomous use, and any closing device should not be spring-loaded. (Figure IV.1.7.1);
- Where turnstiles or other ticketing control devices that are not wheelchair accessible are utilized, then a gate or opening that is accessible shall also be provided in the same location. Turnstiles shall incorporate a pronounced colour contrast, to differentiate them from the surrounding environment, shall have a minimum entry width of 950 mm and a maximum height of 680 mm from the finished floor. (Figure IV.1.7.1 and Figure IV.1.7.2); and

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

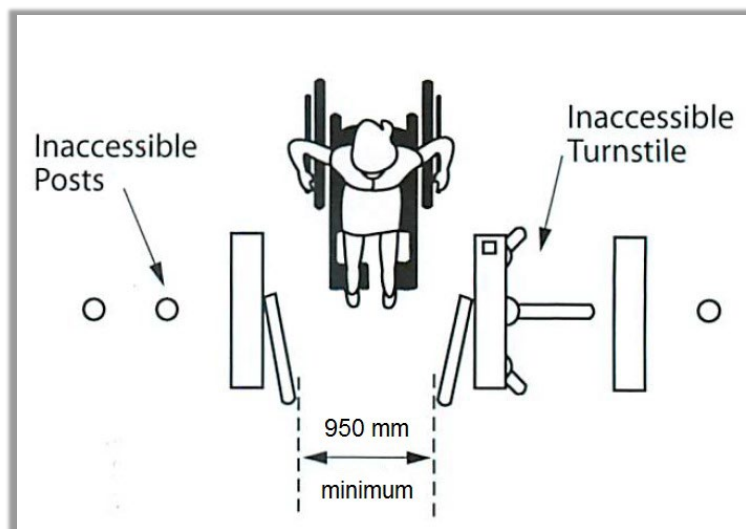


Figure IV.1.7.1: Access at Turnstile

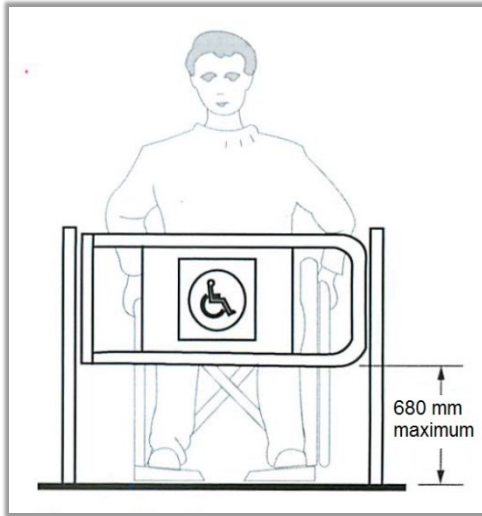


Figure IV.1.7.2: Access at Turnstile

Related Sections

- IV.1.1 Space and Reach Requirements
- IV.1.6 Doors
- IV.1.8 Windows, Glazed Screens and Sidelights
- IV.4.2 Controls and Operating Mechanisms
- IV.4.7 Signage
- IV.4.10 Information Systems
- IV.4.11 Card Access, Safety and Security Systems

IV.1.8 Windows, Glazed Screens and Sidelights

Rationale

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

Persons who use wheelchairs experience the *facility* from a seated position at a lower eye level. Operating mechanisms on windows, blinds, louvers, etc. should respect the limited reach of persons using wheelchairs, and others with reach limitations. Window controls and operating devices should also respect the limitations of hand strength or dexterity encountered with different *disabilities*, including arthritis.

Application

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

Design Requirements

- Fully-glazed sidelights at exterior *entrances* or vestibules, as well as fully-glazed screens, shall be clearly identified with a horizontal row of decals, or a continuous stripe, a minimum of 50 mm wide and of highly contrasting colour, mounted with its centre line at a height of 1350 from the floor from the floor or ground. (Figure IV.1.8.2);
- Where decals are used, they shall be located at a maximum of 150 mm from centre to centre. The decals can be a minimum of 50 mm square or round, and/or of a special design (e.g., a logo) provided the solid portion of the decals provides high colour contrast and is easy to identify by persons who are visually impaired;
- Where etched or patterned glass is used, decals or a stripe of highly contrasting colour shall still be provided;
- Where frameless glass panels are used, exposed edges shall be identified with a vertical safety stripe, applied to cap the end glass panel;
- Where viewing windows are provided:
 - the sill height of the window shall be no more than 765 mm from the floor (Figure IV.1.8.1); and
 - where horizontal transoms are incorporated in windows, the transoms shall not be located between 1060 mm and 1220 from the floor.
- In *facilities* with operable windows, window opening hardware shall:
 - be mounted between 400 mm and 1200 mm from the floor;
 - be operable using one hand; and
 - not require fine finger control, tight grasping, pinching, or twisting of the wrist to operate.
- Doors that are entirely glass should have a colour contrast band no less than 50 mm around the perimeter of the door and around the perimeter of the surround opening.

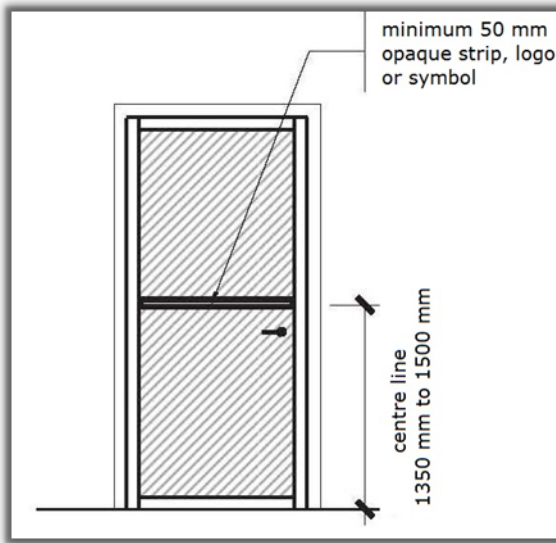


Figure IV.1.8.1: Decals

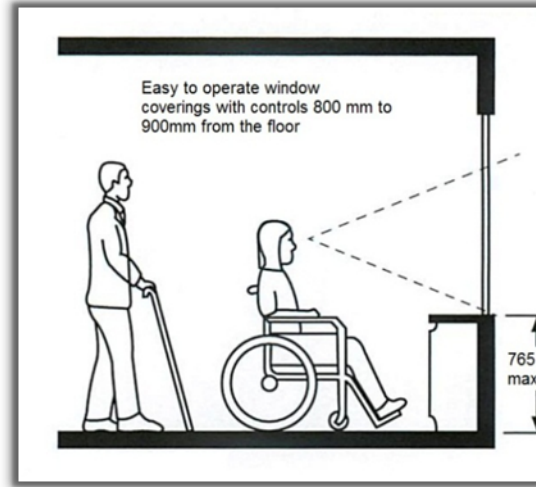


Figure IV.1.8.2: Window Sill Height

Related Sections

- IV.1.1 Space and Reach Requirements
- IV.4.2 Controls and Operating Mechanisms

IV.1.9 Ramps

Rationale

Where for many years *ramps* have been synonymous with wheelchair accessibility; *ramps* should be considered a last resort in providing accessibility. *Ramps* can be difficult and dangerous to negotiate, and 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, pushing strollers or moving packages on a trolley.

The design of the *ramp* is critical to its usefulness and safety. A steep ramp is difficult to ascend and dangerous to come down for a person using a wheelchair or other mobility device. A cross slope that requires increased effort to negotiate the *ramp* must be avoided. The placement of the *ramp* is also important to its accessibility. *Space* at the bottom and flat areas at points along a long *ramp* enables an individual to slow down or to rest. Textured surfaces, edge protection and handrails all provide important safety functions.

Application

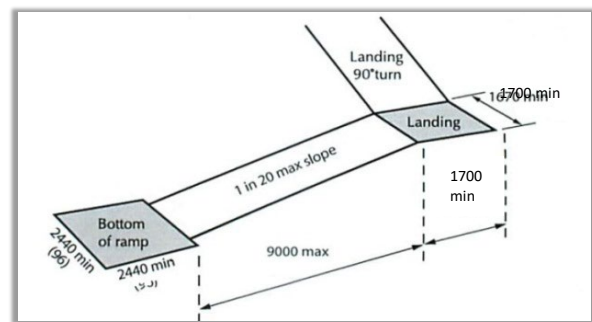
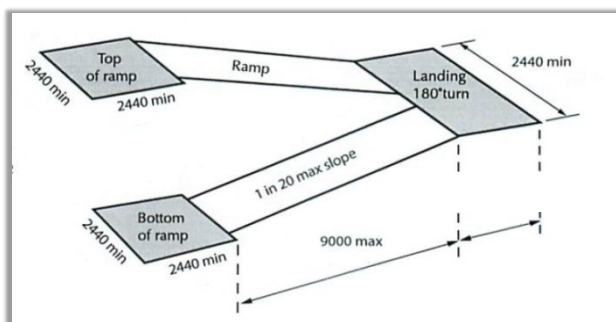
Where ever possible graded access is the preferred route rather than ramping. If ramping is required, it should be located at the primary entrance. Any part of an *accessible route* with a slope steeper than 1:25 shall be considered a *ramp* and shall comply with this section. The definition of *ramp* applies to facilities and not municipal streets and parks.

Design Requirements

- *Accessible ramps* shall be on an *accessible route* complying with Section IV.1.4.
- The maximum *cross slope* of *ramp* surfaces shall be 1:50.
- The minimum width of a *ramp* between handrails shall be 1000 mm.
- *Ramps* shall have level landings at the top and bottom of each run and where the *ramp* has an *abrupt change* in direction.
- Landings shall:
 - be at least as wide as the widest *ramp* run leading to it;
 - have a minimum size not less than 2440 mm by 2440 mm if located at the top or bottom of a ramp or if served by a doorway;
 - incorporate *tactile attention indicators* at the leading edge of landings in accordance with Section IV.4.8 Detectable Warning Surfaces;
 - where an intermediate landing at the switchback of a U-shaped ramp (Figure IV.1.9.1), have a length not less than 1700 mm and a width not less than 2440 mm;
 - where an intermediate landing at the corner of an L-shaped ramp (Figure IV.1.9.1), have a length and width not less than 1700 mm;
 - where an intermediate landing at a straight ramp (Figure IV.1.9.1), have a length not less than 1700 mm; and
 - where a landing meets a slope change have a 50 mm ± 10 mm wide colour contrasted strip the width of the ramp. (Figure IV.1.9.1).

- *Ramp* and landing surfaces shall be slip-resistant.
- Outdoor *ramps* and their approaches shall be designed so that water will not accumulate on walking surfaces.
- *Ramps* and landings not at grade shall have a wall or guard on both sides.
- Where a ramp is wider than 2200 mm an intermediate handrail shall be provided with a clear width of 900 mm between the intermediate handrail and one of the other handrails.
- Where a guard is provided, it shall:
 - be not less than 1070 mm measured vertically to the top of the guard from the *ramp* surface;
 - be designed so that no member, attachment or opening between 140 mm and 900 mm above the *ramp* surface being protected by the guard will facilitate climbing; and
 - be provided with a curb at least 50 mm high on any side of the *ramp* where no solid enclosure or solid guard is provided; and with railings or other barriers that extend to within 50 mm of the finished *ramp* or have a curb not less than 50 mm high. (Figure IV.1.9.2).
- A *ramp run* with a rise greater than 150 mm shall have handrails which:
 - are on both sides;
 - comply with Section IV.1.11;
 - are continuous on the inside of switchback (U-shaped) or dogleg (L-shaped) *ramps*;
 - when not continuous, extend horizontally at least 300 mm beyond the top and bottom of the *ramp* and return to the wall, floor, or post;
 - measure between 865 mm and 965 mm from the *ramp* surface to the top of the handrail; and
 - have a minimum horizontal distance between handrails of 1000 mm. (Figure IV.1.9.3)

EXCEPTION: Where a *ramp* serves as an aisle way for fixed seating, the requirements for *ramp* handrails do not apply.



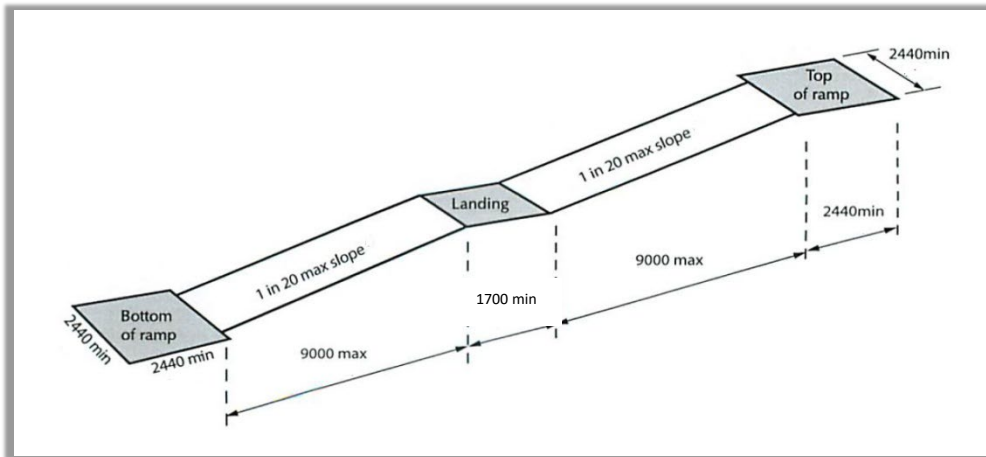


Figure IV.1.9.1: Minimum Ramp Landing Dimensions

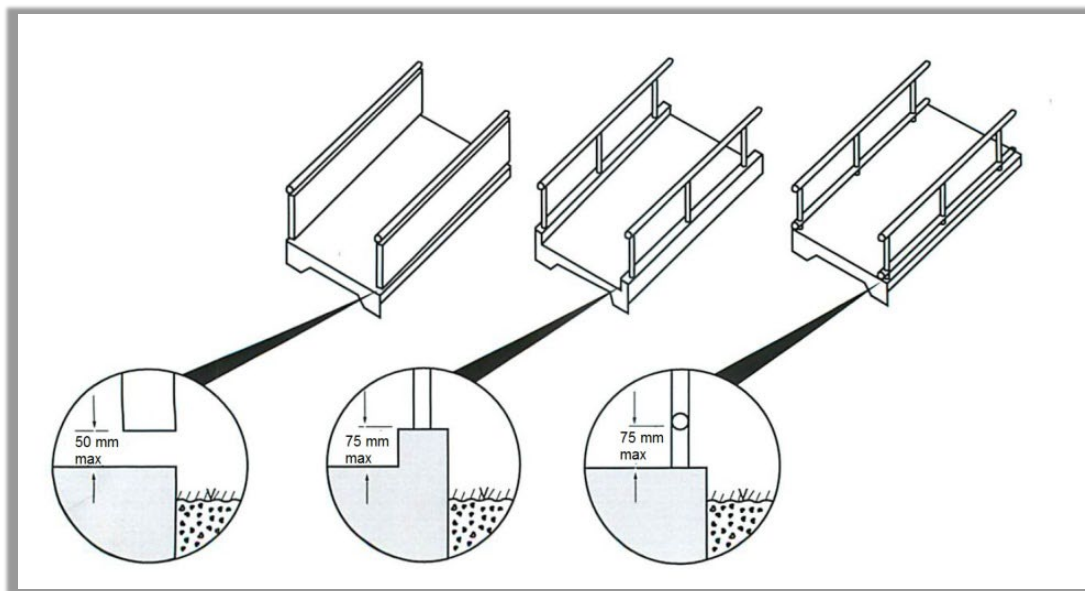


Figure IV.1.9.2: Edge Protection at Ramps

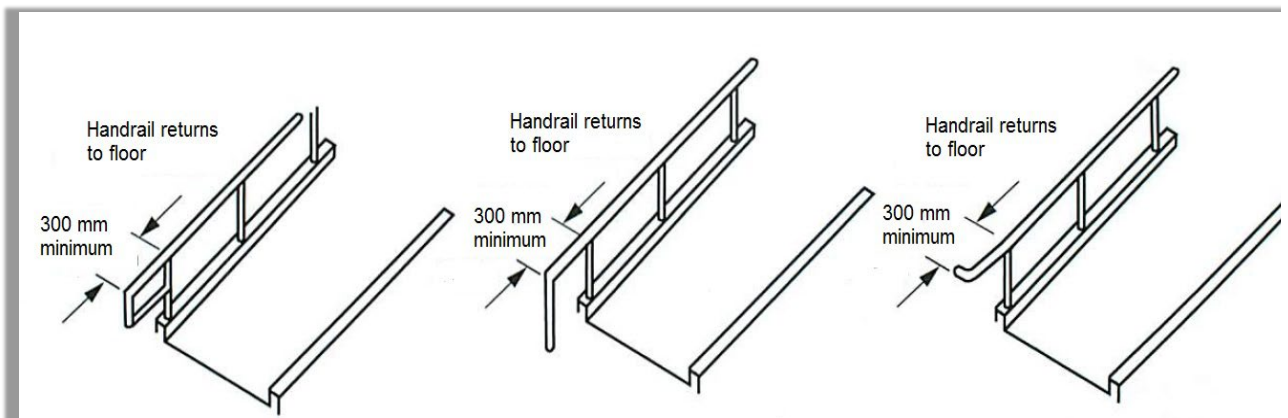


Figure IV.1.9.3: Horizontal Handrail Extensions

Related Sections

IV.1.1	Space and Reach Requirements
IV.1.2	Ground and Floor Surfaces
IV.1.6	Doors
IV.1.11	Handrails
IV.4.7	Signage
IV.4.8	Detectable Warning Surfaces
IV.4.12	Glare and Light Sources
IV.4.13	Lighting
IV.4.14	Materials and Finishes
IV.4.15	Texture and Colour

IV.1.10 Stairs

Rationale

Stairs that are comfortable for an adult may be challenging for children, seniors or persons of short stature. Poorly designed nosing can present tripping hazards, particularly to persons with prosthetic devices or those using canes. Cues warning a person of an upcoming set of stairs are vitally important as are stairs designed with contrasting edges on treads.

Application

Interior stairs shall comply with this section. In a retrofit situation, stairs need not comply if they connect levels *accessible* by an elevator, *ramp* or other *accessible* means of vertical access.

Design Requirements

- A flight of stairs shall have:
 - uniform riser heights and tread depths;
 - risers not more than 200 mm and not less than 125 mm high, with a preference for closed risers (Figure IV.1.10.2);
 - run not less than 255 mm and not more than 355 mm deep, measured from riser to riser and 280-355mm for new construction and preferred application for reconstruction (Figure IV.1.10.2);
 - be illuminated to at least 100 lux; and
 - slip resistant materials or treatments applied and where carpeted, avoid the use of strongly patterned carpet.

- Nosing shall:
 - project not more than 25 mm;
 - have a curved or bevelled leading edge of the tread between 8 mm and 13 mm;
 - where projecting, be sloped to the riser at an angle not less than 60 degrees to the horizontal;
 - be illuminated to a level of at least 100 lux ;
 - be slip-resistant; and
 - have a horizontal face of 40 mm and a vertical surface of the stair nosing 19 mm to 40 mm deep, extending the full width of the tread with pronounced colour contrast with the remainder of the riser and tread, colours in the warm end of the spectrum (yellow, orange, bright red) are easier to recognize, black shall not be used.

- Stairs shall incorporate:
 - colour contrasting or distinctive visual pattern to demarcate the leading edge; and
 - *tactile attention indicators* that comply with Section IV.4.8 at the top edge of the top stair one tread depth back from the edge of the top stair. (Figure IV.1.10.3).

- Handrails for stairs shall:
 - comply with Section IV.1.13;
 - be installed on both sides;
 - be of uniform height, ranging between 865 mm and 920 mm from the stair nosing;
 - have a continuous inside handrail on switchback or dogleg stairs;
 - be continuous around landings less than 2100 mm in length, except where the landing is intersected by an alternate path of travel; or has an entry door leading on to it;
 - be continuous where located on the inside edge of stairs (Figure IV.1.10.1); and
 - where not continuous:
 - extend horizontally at the top and bottom of the stairs not less than 300 mm, at a height ranging between 865 mm and 920 mm above the floor; and
 - return to the wall, or post in a manner that will not obstruct pedestrian travel or create a hazard.

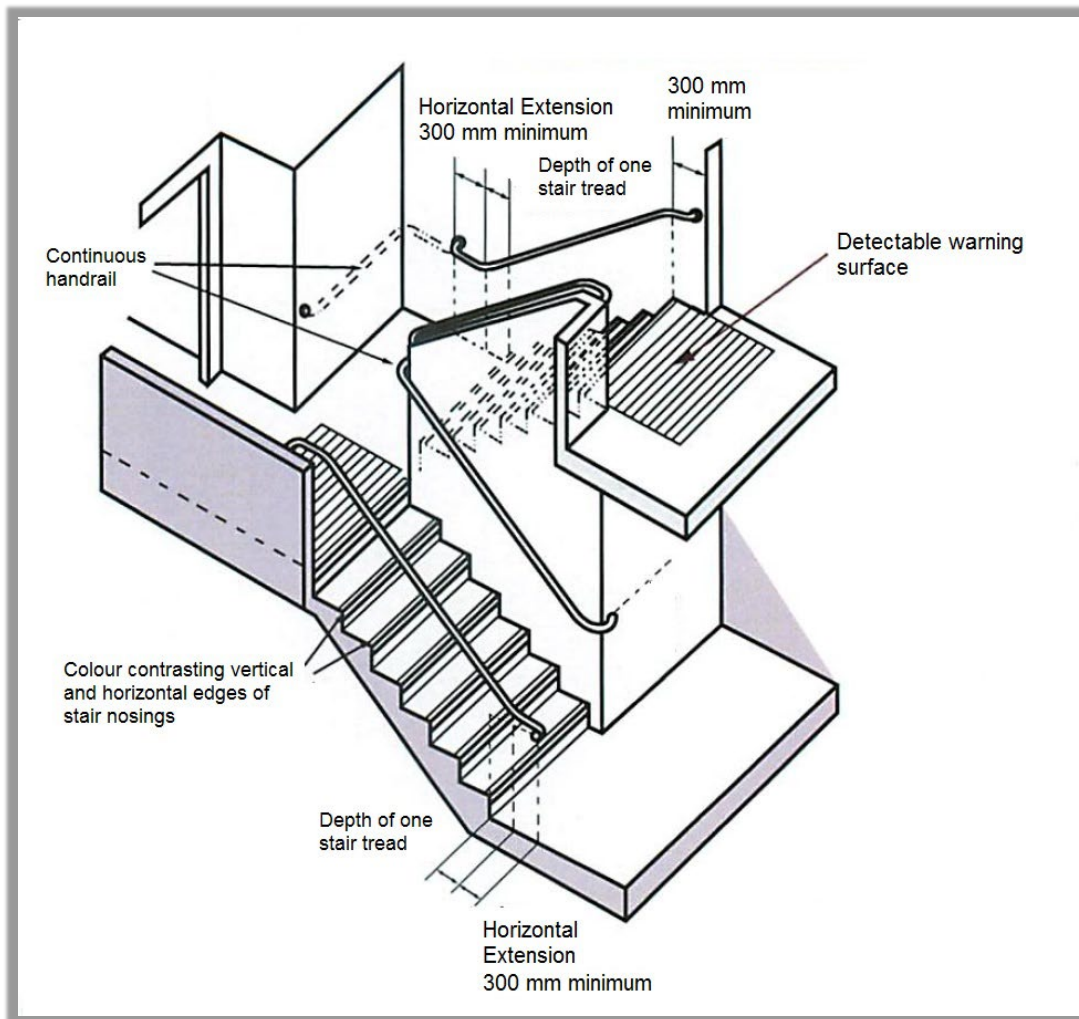


Figure IV.1.10.1: Stair Design Criteria

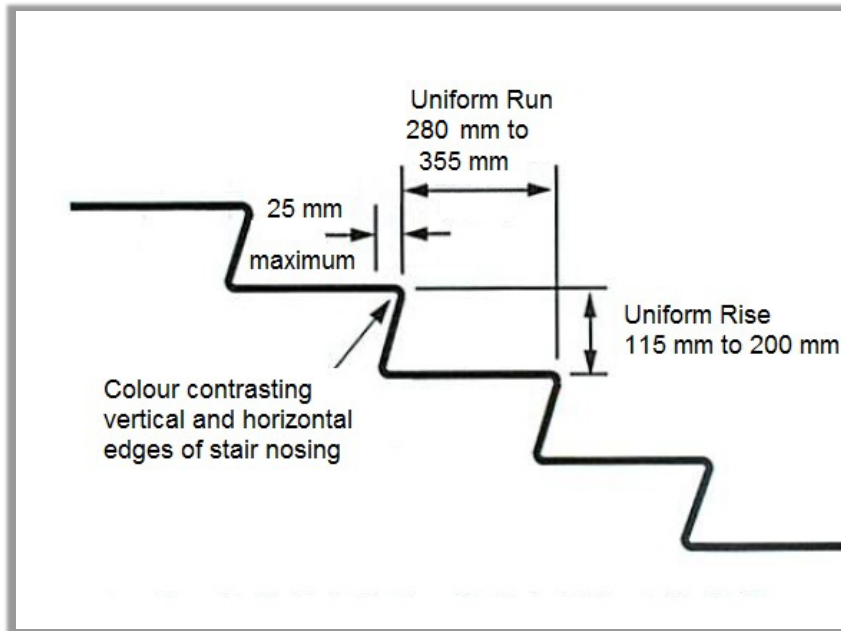


Figure IV.1.10.2: Stair Tread Criteria

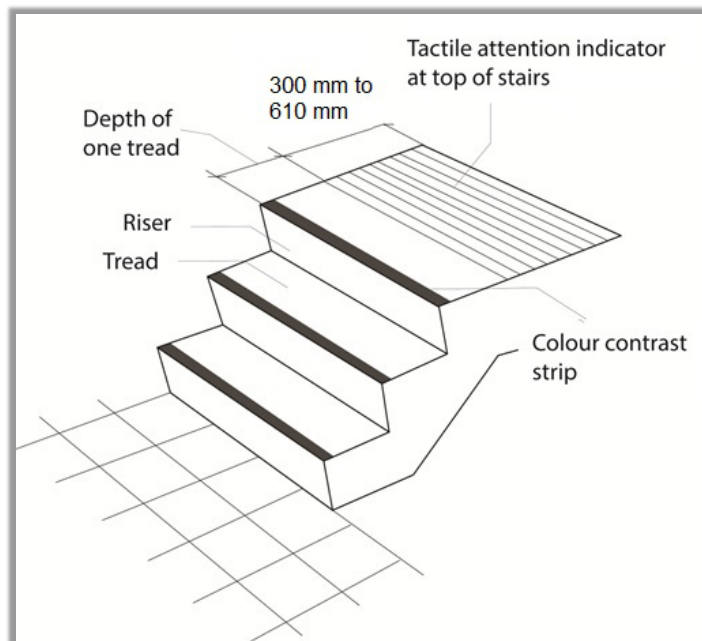


Figure IV.1.10.3 Tactile attention indicator

Related Sections

IV.1.1	Space and Reach Requirements	IV.4.8	Detectable Warning Surfaces
IV.1.2	Ground and Floor Surfaces	IV.4.12	Glare and Light Sources
IV.1.6	Doors	IV.4.13	Lighting
IV.1.11	Handrails	IV.4.14	Materials and Finishes
IV.4.7	Signage	IV.4.15	Texture and Colour

IV.1.11 Handrails

Rationale

The design of handrails must consider the range of hands that will grasp them. A handrail suited to an adult's hand may be difficult for a child or a person with arthritis to use. The same is true for the heights of handrails.

Extensions of the handrails at the top and bottom of stairs and the use of a contrasting colour, provide important cues for a visually impaired individual. Handrails 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 on both sides.

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

Application

Handrails shall comply with this section.

Design Requirements

- Handrails shall:
 - have a circular section 30 mm to 40 mm in diameter be free of any sharp *elements*;
 - have continuous gripping surfaces, without interruption by newel posts, other construction *elements*, or obstructions that can break a handhold;
 - have a *clear space* between the handrail and the wall of
 - 50 mm (Figure 1.11.1); or
 - at least 60 mm where the wall has a rough surface (Figure 1.11.2); 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 above the top of the rail. (Figure IV.1.11.3)
- 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 applied at any point and in any direction; and
 - a uniform load of not less than 0.7 kN/m applied in any direction to the handrail.
- Handrails shall incorporate a pronounced colour contrast, to differentiate them from the surrounding environment.

- The width between handrails on ramps must have a minimum width of at least 1000 mm between handrails.

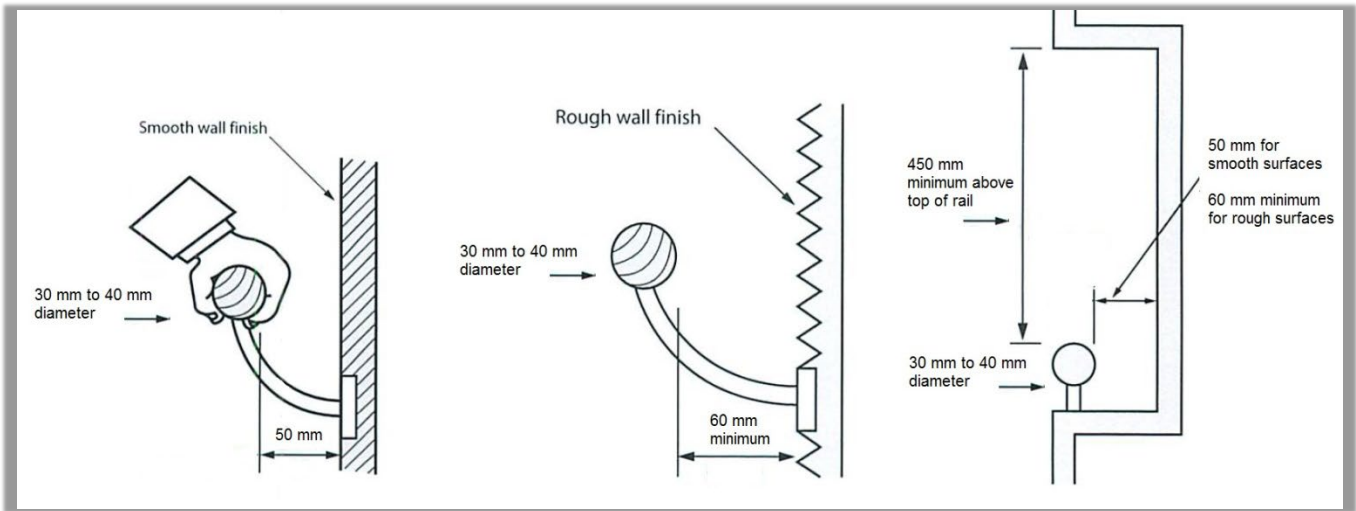


Figure IV.1.11.1: Handrail

Figure IV.1.11.2: Handrail Rough Wall

Figure IV.1.11.3: Handrail in Recess

Related Sections

- IV.1.1 Space and Reach Requirements
- IV.1.9 Ramps
- IV.1.10 Stairs
- IV.4.15 Texture and Colour

IV.1.12 Elevators

Rationale

Buttons used on elevators need to address a range of functional issues, including reach, dexterity and visual impairments, as discussed in Section IV.4.2 and Section IV.4.15. More specific to elevators is the need to provide audible cues for visually impaired individuals to identify different floor levels, as well as the direction of travel. Audible cues are a benefit to anyone who uses the elevator. Adequate door closing delays provide individuals using mobility devices additional time to reach, enter or exit the elevator car.

Application

One passenger elevator complying with this section shall serve each level, including *mezzanines*, in all multi-storey facilities, unless exempted below. If more than one elevator is provided, each passenger elevator shall comply with this section.

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

Elevators are not required:

- In facilities that are less than three storeys and not open to the general public;
- In, elevator pits, elevator penthouses, mechanical rooms, piping or equipment catwalks;
- When accessible ramps complying with Section IV.1.9 are used in lieu of an elevator; and
- When platform lifts (wheelchair lifts) complying with Section IV.1.16 and applicable Provincial Codes are used in lieu of an elevator, only under the following conditions:
 - to provide an accessible route to a performing area in an assembly occupancy;
 - to comply with wheelchair viewing position line-of-sight and dispersion requirements of Section IV.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.

Design Requirements

- Accessible elevators shall be on an accessible route complying with Section IV.1.4.
- Accessible elevators shall be identified with signage complying with applicable provisions of Section IV.4.7.
- Elevators shall be automatic and be provided with a two-way automatic maintaining levelling device to maintain the floor level to ± 13 mm.
- Power-operated horizontally sliding car and landing doors opened and closed by automatic means shall be provided.

- The *clear* width for elevator doors shall be at least 950 mm with preference given to 1065 mm for centered doors.
- Doors shall be provided with a door re-opening device that will function to stop and reopen a car door and an adjacent hoist way door to at least 950 mm, in case 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 mm \pm 25 mm and 735 mm \pm 25 mm above the floor without requiring contact for activation.
- From the time the doors start to open, a minimum of 5 to 7 seconds shall elapse before the door starts to close, if it is a hall call, and 3 seconds if it is a car call. 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 1725mm by 1525 mm. In facilities with high *public use*, such as arenas, libraries or entertainment complexes, the distance between walls or between wall and door shall be 2030 mm x 1525 mm. (Figure IV.1.12.1)
- Floors of elevator cabs shall have a firm and slip-resistant surface that permits easy movement of wheelchairs.
- Handrails shall be provided on all non-access walls at a height of 800 mm to 920 mm with a *space* of 30 mm to 45 mm between the rails and wall.
- Car controls shall be readily *accessible* from a wheelchair upon entering an elevator.
- Floor register buttons in elevator cabs shall:
 - be a minimum 19 mm in size and may be raised, flush or recessed. The depth of flush or recessed buttons when they are being operated shall not exceed 10 mm (Figure IV.1.12.2); 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.
- 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 high and raised a minimum of 0.75 mm, placed immediately to the left of the buttons to which they apply. Exception: Where the call buttons are mechanical, the raised markings may be on the buttons. (Figure IV.1.12.3).
- 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 from the floor. The centre line of the highest floor button shall be no higher than 1200 mm from the floor. Where number of floors is 16 or greater, the centre line of the highest floor button shall be no higher than 1375 mm from 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 high.
- The centre line of hall call buttons shall be 920 mm \pm 25 mm above the floor. Buttons shall be a minimum of 20 mm in size, mounted one above the other. (Figure IV.1.12.3).
- Hall 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 above the floor. An audible signal shall be provided when the elevator stops at the landing. Visual *elements* shall be a minimum of 60 mm in the smallest direction.
- All elevator hoist way *entrances* shall have raised Arabic numerals and Braille floor designations provided on both jambs. The characters shall be a minimum of 50 mm high and at least 0.75 mm with the centreline at 1500 mm \pm 25 mm from the floor. (Figure IV.1.12.3).
- As the car stops at a floor, the floor and direction of travel shall be announced using voice -annunciation technology.
- Elevators shall be linked by an emergency call system to a monitored location within the *facility*, with two-way communication ability. The highest *operable portion* of the 2-way communication system shall be a maximum of 1200 mm from the floor of the car. It shall be identified by a raised symbol and lettering located adjacent to the device. The symbol shall be a minimum of 38 mm high and raised a minimum of 0.75 mm. Permanently attached plates are acceptable. If the system uses a handset, then the length of the cord from the panel to the handset shall be at least 920 mm. Additionally, the handset shall be equipped with a receiver that generates a magnetic field in the area of the receiver cap, and the handset shall have a volume control and shall comply with CSA Standard T515. If the system is located in a closed compartment, the compartment door and hardware shall conform to Section IV.4.2. The emergency intercommunication system shall not require voice communication. (Figure IV.1.12.4).
- Lighting in elevator cabs shall be at least 100 lux , measured at the floor level and at the same lighting level as the adjacent lobby *space*.
- Mirror shall not be used within elevator cabs as a finish material on the wall *opposite* the door.
- Floor finishes within elevator cabs shall comply with Section IV.1.2.
- Elevator doors shall incorporate pronounced colour contrast, to differentiate them from the surrounding environment.
- There shall be a pronounced colour contrast between the car sill and the *facility* floor.

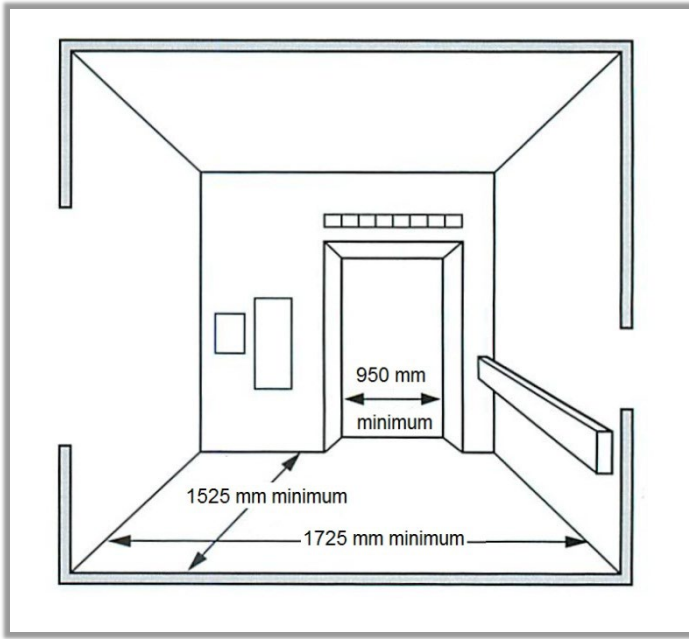


Figure IV.1.12.1: Elevator Cab

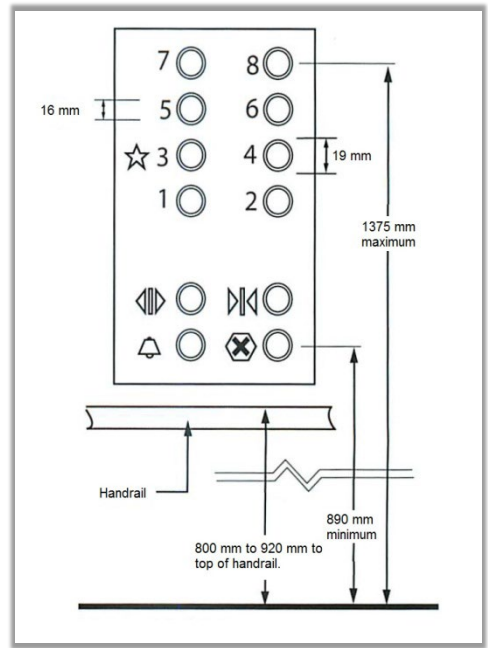


Figure IV.1.12.2: Control Panel

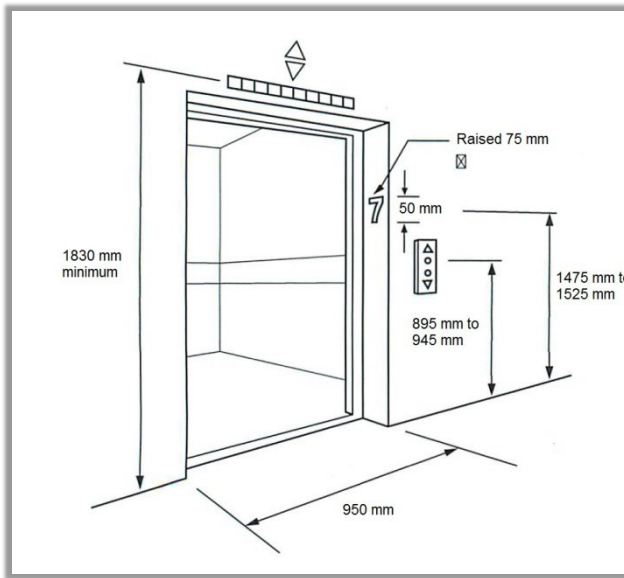


Figure IV.1.12.3: Elevator Entry

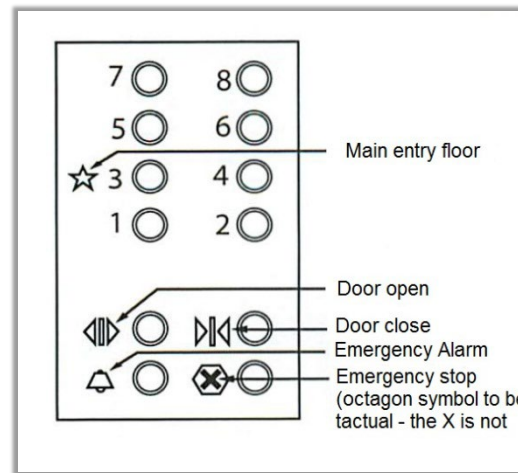


Figure IV.1.12.4: Tactile Symbols

Related Sections

IV.1.1	Space and Reach Requirements	IV.4.9	Public Address Systems
IV.1.2	Ground and Floor Surfaces	IV.4.11	Card Access, Safety and Security Systems
IV.1.6	Doors	IV.4.12	Glare and Light Sources
IV.1.11	Handrails	IV.4.13	Lighting
IV.4.2	Controls and Operating Mechanisms	IV.4.14	Materials and Finishes
IV.4.7	Signage	IV.4.15	Texture and Colour

IV.1.13 Platform and Stair Lifts

Rationale

Platform and stair lifts have long been considered an accessibility requirement although they tend to segregate persons with disabilities and limit space at *entrance* and stair locations. Independent access is often compromised, as access to platform lifts is controlled by key operation. Whenever possible, grading or integrated elevator access should be incorporated to avoid the use of lifts. Platform and stair lifts are not a preferred solution due to operational hazards and supervisory practicalities and should only be considered and applied where installation of other solutions is not technically feasible.

Application

Accessible platform and stair lifts shall comply with this section. Platform and stair lifts may only be used in lieu of an elevator or *ramp* where allowable under Section IV.1.13.

This section does not apply to platform lifts for transit vehicles.

Design Requirements

- *Accessible* platform and stair lifts shall:
 - be on an *accessible route* complying with Section IV.1.4;
 - be identified with *signage* complying with applicable provisions of Section IV.4.7;
 - comply with CSA standard CAN/ CSA B355; and
 - facilitate unassisted entry, operation, and exit from the lift.
- The platform size shall be no less than 1220 mm by 1525 mm. The doors to the platform lift shall comply with Section IV.1.6. Controls and operating mechanisms shall comply with Section IV.4.2.
- 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 from the floor of the car. If the system uses a handset, then the length of the cord from the panel to the handset shall be at least 920 mm. If the system is in a closed compartment, the compartment door and hardware shall conform to Section IV.4.2.
- Floor finishes within platform lifts shall comply with Section IV.1.2 and Section IV.4.14.

Related Sections

IV.1.1	Space and Reach Requirements
IV.1.2	Ground and Floor Surfaces
IV.1.6	Doors
IV.1.11	Handrails
IV.1.12	Elevators
IV.4.2	Controls and Operating Mechanisms
IV.4.7	Signage
IV.4.9	Public Address Systems
IV.4.11	Card Access, Safety and Security Systems
IV.4.12	Glare and Light Sources
IV.4.13	Lighting
IV.4.14	Materials and Finishes
IV.4.15	Texture and Colours

IV.1.14 Exterior Accessible Routes, Access and Passenger Loading Zones

Rationale

People with disabilities must be able to travel along an exterior path of travel to and from a facility, the parking lot and the street and have adequate space to enter that facility without the assistance of another person. Walkway surfaces must be level, firm and slip resistant and changes in level must be carefully designed to ensure a smooth and detectable transition. Adequate space must be provided at entry points to allow movement around doors and to access automated door operators and other assistive technologies. Passenger-loading zones are important features for individuals who may have difficulty in walking distances or those who use parallel transit systems. Spatial requirements for side-loading wheelchair lifts need to be accommodated.

Application

Exterior accessible routes provided to and from a facility, access to parking areas, passenger loading zones and *curb ramps* must comply with this section.

Design Requirements

- Exterior accessible routes shall:
 - be a minimum clear width of 1600 mm;
 - be permanent, firm and slip resistant;
 - have a gradient not exceeding 1:20 (5%) and where the gradient is greater than 1:20, be designed as a ramp in accordance with Section IV.1.9 Ramps;
 - have a surface of a different texture surrounding the walkway where the line of travel is level and even with the adjacent walking surfaces;
 - be free of obstructions for the full width of the walkway;
 - have a level area adjacent to the entrance doorway of a minimum of 2440 mm by 2440 mm (Figure IV.1.14.2); and
 - have a *tactile indicator* that is located to identify an entry into a vehicular route or where no curbs or other element separates the vehicular route or area from a pedestrian route.
- Where a difference in elevation is less than 200 mm, a curb ramp may be used, and shall:
 - have a running slope in accordance with Table 1.14 Curb Ramp Rise and Slope;
 - have a minimum width of 1500 mm exclusive of flared sides;
 - have a horizontal length that does not exceed 2000 mm;
 - have a maximum counter slope of gutters and road surfaces immediately adjacent to curb ramps of 1:20; and
 - have a surface including flared sides, that shall:
 - be slip resistant;
 - have a *detectable walking surface indicator* in accordance with Appendix B;
 - have a smooth transition from the ramp and adjacent surfaces; and
 - have flared sides with a slope of not more than 1:10 where pedestrians are likely to walk across them. (Figure IV.1.14.1).

Maximum Vertical Rise Between Landings, mm	Slope
Less than 75	1:8 to 1:10
75 to 200	1:10 to 1:12

Table 1.14: Curb Ramp Rise and Slope

- *Curb ramps at pedestrian crosswalks* shall be wholly contained within the area designated for pedestrian use.
- Where raised islands in crossings on vehicular paths of travel are used, they shall:
 - be cut through level with the vehicular path of travel; or
 - have *curb ramps* at both sides and a level area not less than 1370 mm long in the middle.
- Islands level with the street shall have within the area designated for pedestrian use *detectable warning* surfaces that are 920 mm long and in compliance with Section IV.4.8.
- Where exterior parking areas are provided an exterior accessible route shall be provided to the parking area.
- Where passenger-loading zones are provided, the passenger loading zones shall:
 - be on a direct *accessible route* complying with Section IV.1.4, between a barrier-free building entrance to the exterior passenger loading zone;
 - provide an *access aisle* at least 2440 mm wide and 7400 mm long, adjacent and parallel to the vehicle pull-up *space* (Figure IV.1.14.3);
 - have a *curb ramp* where there are curbs between the *access aisle* and the vehicle pull-up *space*;
 - incorporate an *accessibility sign*; and
 - have a minimum height clearance of 3600 mm at the loading zone and along the vehicle access route to such areas to and from the *site entrances*.
- Where it is feasible, covered passenger pick-up areas are recommended.

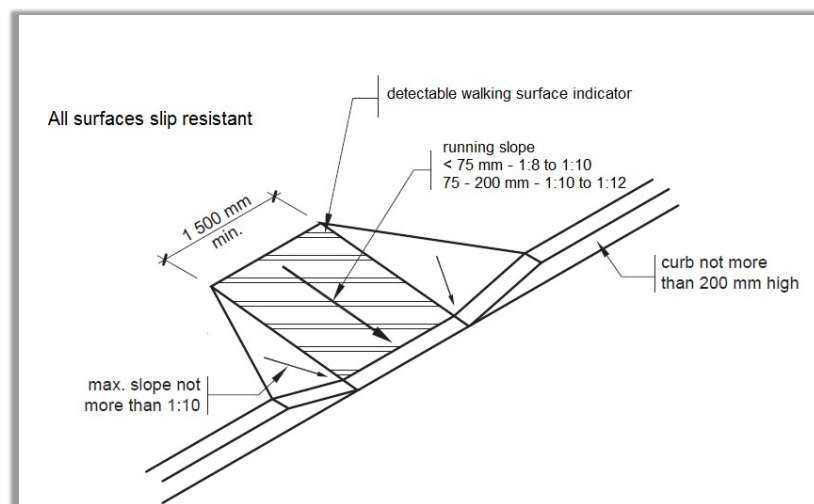


Figure IV.1.14.1: 360° Curb Ramp

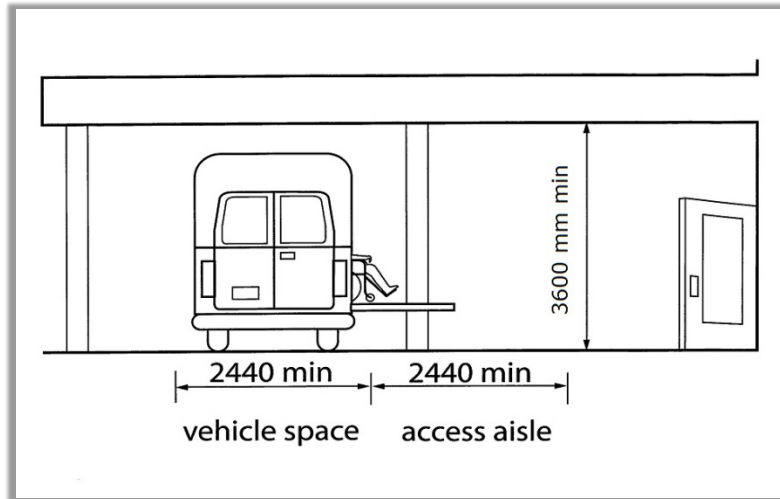


Figure IV.1.14.2: Clearances at Passenger Loading Zones

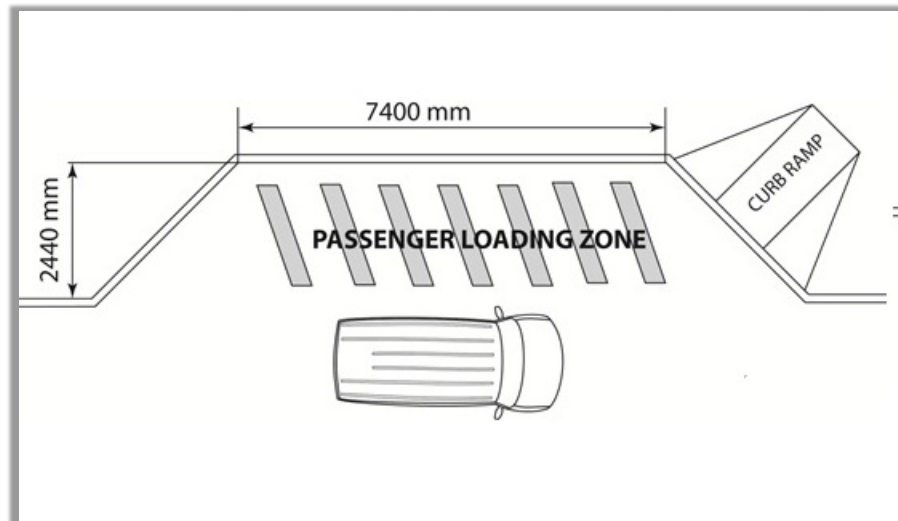


Figure IV.1.14.3: Passenger Loading Zones

Related Sections

- IV.1.1 Space and Reach Requirements
- IV.1.2 Ground and Floor Surfaces
- IV.4.8 Detectable Warning Surfaces
- IV.4.12 Glare and Light Sources
- IV.4.14 Materials and Finishes
- IV.4.15 Texture and Colour

Section IV.2 Washroom Facilities

IV.2.1 Toilet and Bathing Facilities

Rationale

Although most persons with disabilities use toilets and bathing facilities independently, some people do require assistance. If the assistant is of the same gender, providing assistance is easy in a gender-specific public washroom. Individual universal barrier-free washrooms are the preferred design approach.

Circumstances such as wet surfaces and transferring between toilet and wheelchair can make bathrooms accident-prone areas. Door swings are also safety consideration. A door that swings inward could prevent rescuers from opening the door if someone falls. Door swings are also critical in allowing a person using a wheelchair to enter the washroom stall, turn and close the door behind them.

The identification of washrooms is also important. For children or someone who cannot read text, a symbol or pictogram is preferred. For a person with a visual impairment large-print and/or some form of tactile lettering on *signage* is an important feature. Colour contrasting doorframes and door hardware will also assist many persons with a visual impairment.

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 adapted as required.

In a retrofit situation where it is *technically infeasible* to make existing public or *common use* toilet *facilities accessible*, the installation of at least one individual washroom complying with Section IV.2.7 per floor, located in the same area as existing toilet *facilities*, will be permitted in lieu of modifying existing toilet *facilities* to be *accessible*.

In *addition* to any *accessible* public or *common use* toilets, individual washrooms complying with Section IV.2.7 shall be provided in all public *buildings*. If the individual washroom is not visible from the common or *public use* washrooms, directional *signage* complying with Section IV.4.7 shall be provided.

Where a *common* or *public use* washroom contains four or more toilet and/or urinal fixtures, an individual washroom complying with Section IV.2.7 shall also be provided, in approximately in the same area as the *common* or *public use* toilet *facility*. Where male and female *public* or *common use* toilets are in the same area, one individual universal barrier-free washroom will suffice. Where there is more that one set of *common* or *public use* washrooms on a floor, and there is an *accessible route* connecting the washrooms, only one individual washroom is required on the floor. If the individual universal barrier-free washroom is not visible from the *common* or *public use* washrooms, directional *signage* complying with Section IV.4.7 shall be provided.

Where a washroom is provided in a storey that is not required to have a barrier-free path of travel, the washroom shall include an *ambulatory washroom stall* that meets the requirements of Section IV.2.3 through to Section IV.2.6, Section IV.2.10, Section IV.4.2 and all other

related sections.

If bathing *facilities* are provided on a *site*, then each such public or *common use* bathing *facility* shall comply with this section. For single-user portable toilet or bathing units clustered at a single location, at least 5%, but no less than one, toilet unit or bathing unit complying with this section shall be provided at cluster wherever typical inaccessible units are provided.

When portable toilets are used in public locations all conditions of this section shall apply except for construction *sites* used exclusively by construction personnel.

Preference is given to an *individual/family washroom* provided primarily for the use of persons of both sexes with *disabilities*, in lieu of *facilities* for persons with *disabilities* in washrooms used by the general public. The *individual/family washroom* shall be provided on the same floor level within 45 m of the washrooms used by the general public.

Design Requirements

- *Accessible* toilet and bathing *facilities* shall be on an *accessible route* complying with Section IV.1.4.
- All doors to *accessible* toilet and bathing rooms shall comply with Section IV.1.6.
- For washrooms other than *individual/family washrooms*, design preference should be given for entrances without doors that are easier for all to use. If doors are required, a single door is preferable to two doors in series.
- The *accessible* fixtures and controls within toilet and bathing rooms shall be on an *accessible route* complying with Section IV.1.4.
- Washrooms shall incorporate a *clear floor space* to allow a person in a wheelchair to make a 180-degree turn. The *space* required for a wheelchair to make a 360-degree turn is a *clear space* of 2440 mm diameter as shown in Section IV.1.1 Space and Reach Requirements Figure IV.1.1.1 or a 180-degree turn as shown in Figure IV.1.1.2. (Figure IV.2.1.1).
- *Accessible* toilet and bathing *facilities* shall be identified with *signage* complying with applicable provisions of Section IV.4.7.
- Automated door operators shall be installed for entry doors into a washroom facility with an accessible toilet stall and individual/family washrooms.

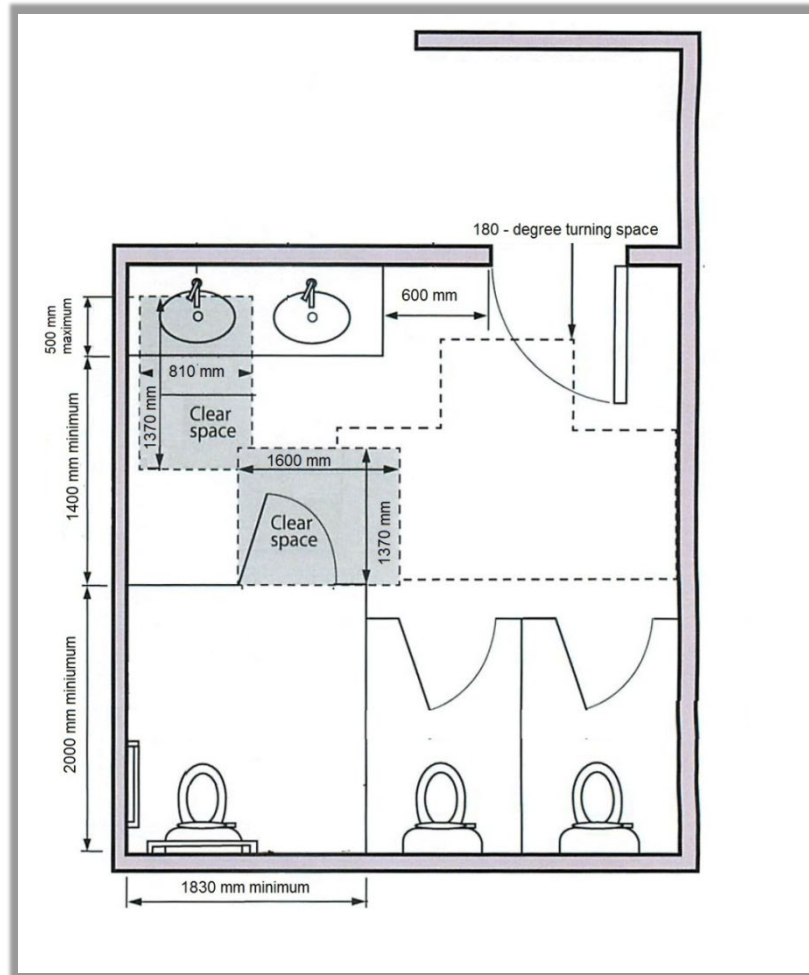


Figure IV.2.1.1 Washroom Dimensions

Related Sections

IV.1.1	Space and Reach Requirements
IV.1.2	Ground and Floor Surfaces
IV.1.3	Protruding Objects
IV.1.6	Doors
IV.2.2	Toilet Stalls
IV.2.3	Toilets
IV.2.4	Lavatories
IV.2.5	Urinals
IV.2.6	Washroom Accessories
IV.2.7	Individual Washrooms
IV.2.8	Bathtubs
IV.2.9	Shower Stalls
IV.2.10	Grab Bars
IV.4.2	Controls and Operating Mechanisms
IV.4.7	Signage
IV.4.12	Glare and Light Sources
IV.4.13	Lighting
IV.4.14	Materials and Finishes
IV.4.15	Texture and Colour

IV.2.2 Toilet Stalls

Rationale

The manoeuvrability of a wheelchair, scooter or other mobility device in the design of an accessible stall is critical. Consideration needs to be given to the *space* required for the mobility equipment and where an individual requires assistance, the space required to accommodate a second person. Increased space is needed to facilitate the placement of the mobility device to accommodate a transfer onto the toilet. A door that swings outward is ideal for safety reasons and *space* considerations but is difficult to close once inside the stall. A handle mounted part way along the door may make it easier for someone to close the door behind him or her.

Application

If 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 2.2. Consideration should be given to the use of the building and the possible need to include additional stalls.

Accessible, Ambulatory and All-Inclusive toilet stalls shall comply with this section.

All other toilet stalls within a facility (i.e., those considered to be non-*accessible*) shall be minimum 920 mm wide by 1525 mm long and shall incorporate door-locking mechanisms in compliance with this section.

IV.2.2.1 Design Requirements

IV.2.2.1.1 Accessible Toilet Stalls

Number of Toilet Stalls Within the Washroom	Number of Required Accessible Stalls
1 to 4	1
5 to 9	2
10 to 20	3
21 to 30	4
Over 30	5 plus 1 for each additional 10 regular stalls

Table 2.2: Number of Accessible Toilet Stalls

- *Accessible* toilet stalls shall:
 - be on an *accessible route* complying with Section 1.4;
 - have internal dimensions at least 1830 mm by 2000 mm to allow a clear turning space of 1500 mm;
 - have a toilet complying with Section 2.3; and
 - be equipped with a collapsible coat hook mounted not more than 1200 mm from the floor on a sidewall and projecting not more than 40 mm from the wall. (Figure IV.2.2.1).
- Toilet stalls shall be equipped with two grab bars:
 - one continuous L-shape with vertical and horizontal components 760 mm long,

- mounted on the side wall with the horizontal component 230 mm above the toilet seat and the vertical component 150 mm from front edge of the toilet bowl and mounted 750 mm from the finished floor;
- one horizontal grab provided on the wall behind the toilet that is a minimum of 600 mm in length, mounted 840 mm to 920 mm from the finished floor and mounted 150 mm above the water tank where a water tank is provided; and
 - in compliance with Section IV – 2.10 Grab Bars. (Figure IV.2.2.2).
- Toilet stall doors shall:
 - be capable of being locked from the inside by a device that is operable with a closed fist; does not require fine finger control, tight grasping, pinching, or twisting of the wrist and requires a force of not more than 22 N to activate (e.g., sliding bolt or lever);
 - provide a clear opening of at least 950 mm with the door in the open position;
 - be aligned with the clear *transfer space* adjacent to the toilet measuring 915 mm by 1500 mm;
 - swing outward, unless additional *space* is provided within the stall for the door swing;
 - be equipped with gravity/self-closing hinges so that the door closes automatically;
 - be provided with a “D”-type contrasting-coloured door pull, at least 140 mm long, on the inside of an out swinging door, located so that the centre line is between 200 and 300 mm from the hinged side of the door, at outside door handle height;
 - be provided with a “D”-type contrasting-coloured door pull at least 140 mm long, on the outside, near the latch side of the door;
 - be capable of having the latch released from the outside in case of an emergency; and
 - be self-closing so that when at rest, the door will not project more than 50mm beyond the jamb.
 - Where more than one *accessible* toilet stall is provided within a washroom, the stalls shall be configured with the *transfer space* (i.e., the *open space* beside the toilet) on opposite sides of the toilet fixtures.

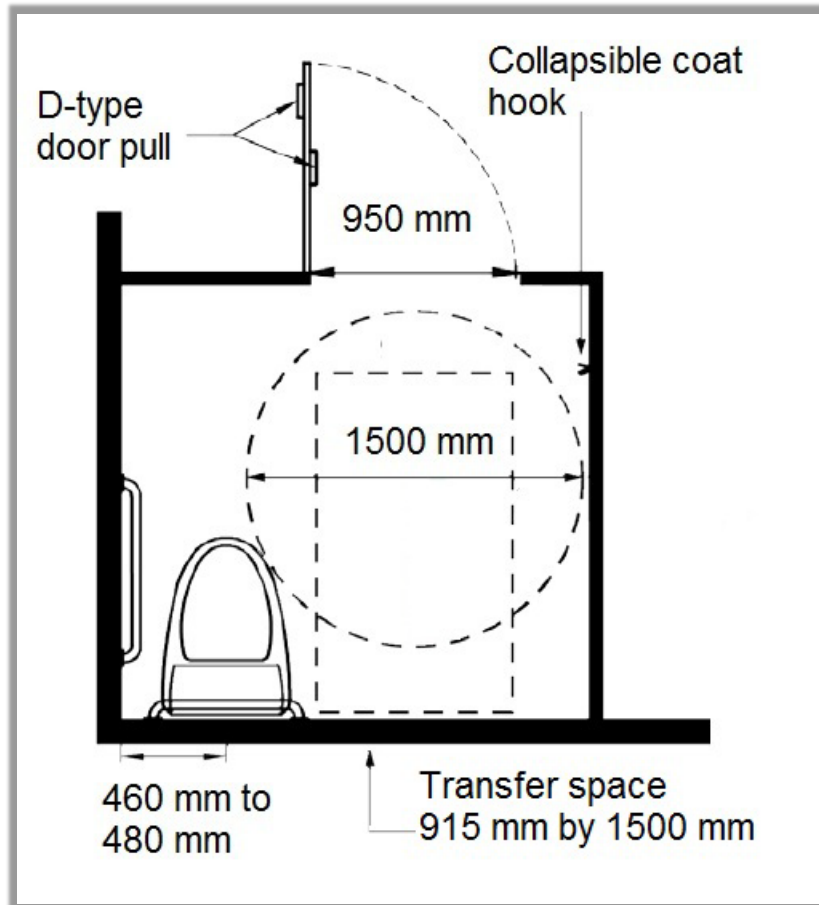


Figure IV.2.2.1: Stall Layout

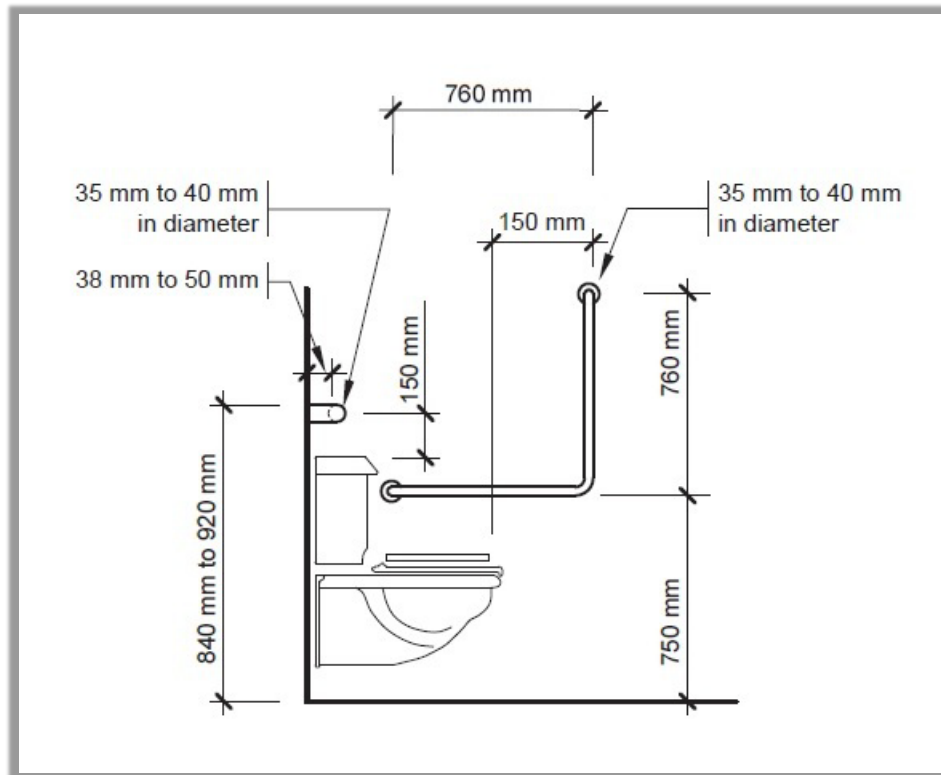


Figure IV.2.2.2: Grab Bar Configuration

IV.2.2.1.2 Ambulatory Toilet Stalls

- Where *ambulatory toilet stalls* are provided, they shall:
 - have internal measurements at least 1500 mm deep and a width of 890 mm to 940 mm;
 - have a toilet complying with Section IV.2.3;
 - have door hardware and locking mechanisms operable using a closed fist mounted at 900 mm to 1100 mm from the finished floor;
 - have a door that shall:
 - Provide a clear opening of at least 810 mm with the door in an open position that swings outward unless additional space is provided for the door swing;
 - be equipped with gravity/self-closing hinges so that the door closes automatically; and
 - be provided with a “D”-type contrasting-coloured door pull on both sides of the door, at least 140 mm long, on the inside of an out swinging door, located so that the centre line is between 200 mm and 300 mm from the hinged side of the door and mounted at a height of 900 mm to 1100 mm from the finished floor; and
 - be equipped with a collapsible coat hook mounted not more than 1200 mm from the floor on a sidewall and projecting not more than 40 mm from the wall; and
 - be equipped with grab bars on both sides of the toilet that:
 - have continuous L-shape with horizontal and vertical components 760 mm in length, wall mounted with the horizontal component 750 mm above the floor and the vertical component 150 mm in from of the toilet; and
 - comply with Section IV – 2.10 Grab Bars. (Figure IV.2.2.3)

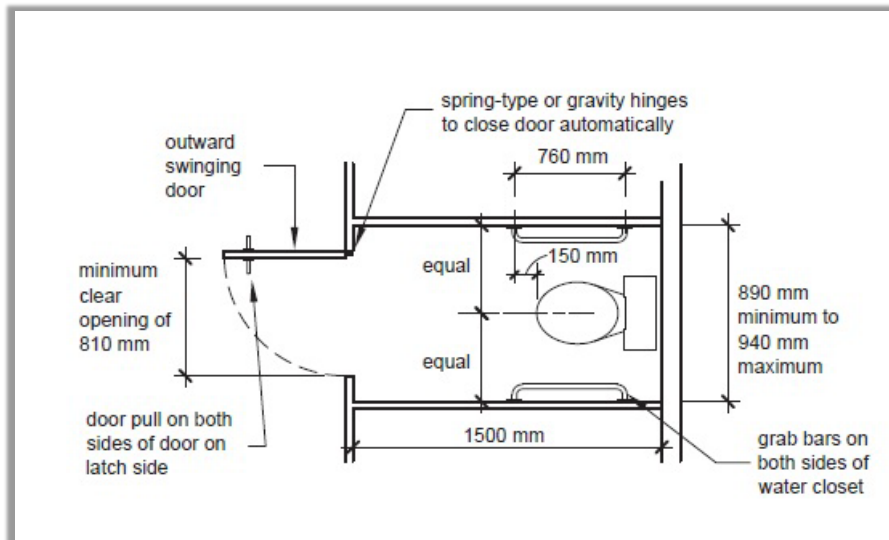


Figure IV.2.2.3: Ambulatory Stall Dimensions

IV.2.2.1.3 All-Inclusive Toilet Stalls

All-Inclusive washrooms can be used by anyone, regardless of gender identity or expression. The washroom may be designed as a single-stall or multi-stall washroom.

- Where *all-inclusive toilet stalls* are provided, they shall:
 - be located in the same vicinity as other washrooms;
 - be identified clearly with non-gendered signage that includes a toilet pictogram and raised text and braille, in accordance with applicable sections of IV.4.7;
 - have floor to ceiling height stall partitions and stall doors for privacy, allowing gaps for HVAC systems as applicable;
 - provide a locking mechanism that can be locked from the inside and released from the outside in case of an emergency;
 - provide one water closet, toilet paper dispenser, sanitary napkin disposal, and coat hook; and
 - have mirror, soap dispensers, paper towel dispensers, automatic hand dryers, and lavatories located:
 - in a common area where multi-stall washrooms are provided; or
 - in a single-stall washroom.

IV.2.2.1.4 Temporary Outdoor Toilets

For single-user portable toilet clustered at a single location, at least 5%, but no less than one portable toilet unit shall be provided at clusters wherever typical inaccessible units are provided. When portable toilets are used in public locations all conditions of this section shall apply except for construction sites used exclusively by construction personnel.

Where accessible portable toilets are provided, they shall:

- be located on an accessible route;
- have doors that are a width of at least 860 mm minimum;
- have accessible fixtures and controls within the toilet that are on an accessible route;
- have a clear floor space and turning radius of 1500 mm minimum; and

- be identified with signage complying with applicable provisions of Section IV.4.7.

Related Sections

IV.1.1	Space and Reach Requirements
IV.1.3	Protruding Objects
IV.1.6	Doors
IV.2.3	Toilets
IV.2.6	Washroom Accessories
IV.2.10	Grab Bars
IV.4.2	Controls and Operating Mechanisms
IV.4.15	Texture and Colour

IV.2.3 Toilets

Rationale

Automatic flush controls are preferred. If flushing mechanisms are not automated, consideration must be given to the ability to reach a switch and the hand strength or dexterity needed to operate it. Strategic placement of grab bars makes sitting and standing or transfers between toilet and wheelchair safer.

Application

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

Design Requirements

- Toilet fixtures shall have:
 - the top of the seat between 460 mm and 485 mm from the floor;
 - no spring-activated seat;
 - a back support where there is no seat lid or tank; and
 - the tank top securely attached. (Figure IV.2.3.2)
- Toilets shall be located 460 mm to 480 mm from the centre line to the adjacent wall.
- A minimum 915 mm wide by 1500 mm deep *clear transfer space* (Figure IV.2.3.1) shall be provided on one side of the toilet fixture measured from the edge of the toilet bowl. No devices, such as sanitary napkin disposals, shall be mounted within the minimum *clear transfer space*.
- Toilet flush controls shall be:
 - be electronically automatically controlled; or
 - be hand-operated by a lever on the transfer side of the toilet.
- Hand-operated flush controls shall comply with Section IV.4.2.
- The toilet-paper dispenser shall be:
 - wall mounted;
 - located below the grab bar;
 - mounted in line with or not more than 300 mm in front of the toilet seat;
 - located not less than 600 mm above the floor; and
 - contrasting in colour to the wall. (Figure IV.2.3.3).
- Toilets in *ambulatory stalls* shall be located so that the centre line of the toilet is centred between the partition walls. (Figure IV.2.3.4).

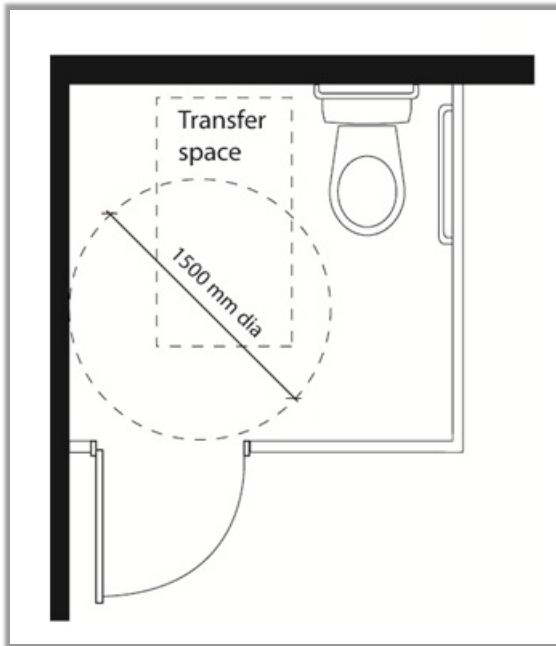


Figure IV.2.3.1: Clear Transfer Space

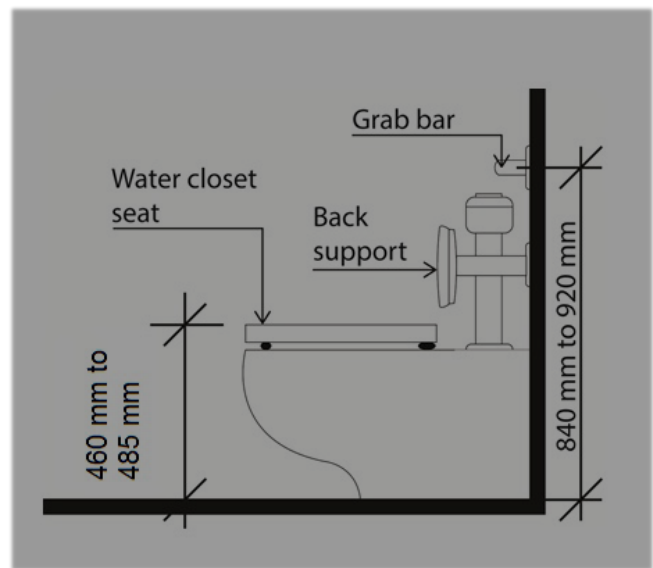


Figure IV.2.3.2: Toilet Fixture Height

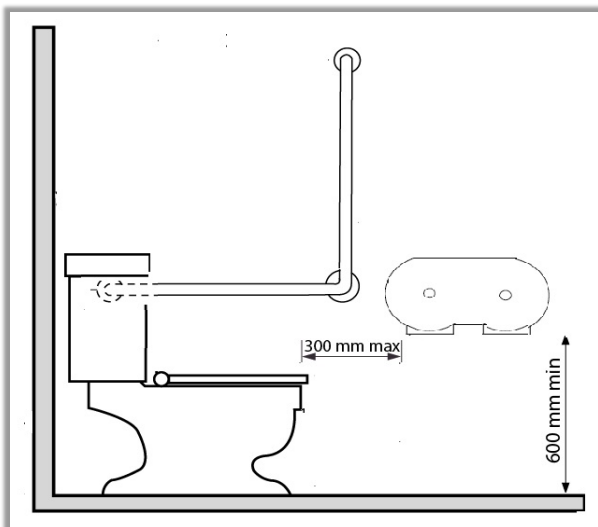


Figure IV.2.3.3: Dispenser Mounting Details Toilet

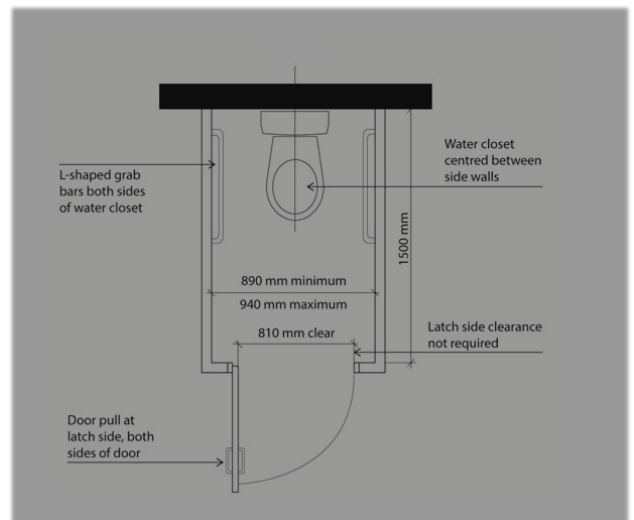


Figure IV.2.3.4: Ambulatory Stall

Related Sections

- IV.1.1 Space and Reach Requirements
- IV.2.2 Toilets Stalls
- IV.2.10 Grab Bars
- IV.4.2 Controls and Operating Mechanisms
- IV.4.15 Texture and Colour

IV.2.4 Lavatories/Hand Basins

Rationale

For an individual who uses a wheelchair, a lower counter height and clearance for knees under the counter is required. Preference is given to reversed and recessed drainage for unrestricted knee clearance. The insulation of pipes protects an individual who uses a wheelchair whose legs may come into contact with hot water pipes and is particularly important if a disability impairs sensation such that the individual would not sense that their legs were being burned. For individuals with hand strength or dexterity difficulties lever-style handles are usable. Electronically controlled faucets are safe and accessible for everyone.

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 IV.1.4;
 - be mounted so that the minimum distance between the centre line of the fixture and the side wall is 460 mm;
 - have the top located between 820 mm and 840 mm from the floor;
 - have a knee and toe *space* of at least:
 - 920 mm wide;
 - 735 mm high at the front edge;
 - 685 mm high at a point 205 mm back from the front edge; and
 - 350 mm high over the distance of 300 mm from the front edge of the lavatory to the wall. (Figure IV.2.4.2); and
 - have a minimum *clear floor space* 810 mm wide and 1370 mm deep, of which a maximum of 500 mm in depth may be under the lavatory (Figure IV.2.4.1);
 - have hot water and drain pipes insulated if they abut the clearances noted above, or have the water temperature limited to a maximum of 43 degrees Celsius;
 - have the hot water and drain pipes offset to the rear where possible; and
 - have soap and towel dispensers and hand dryers that are:
 - located within 610 mm of the lavatory;
 - located so that the dispensing height or operating control is 900 mm to 1200 mm above the floor and in a position that allows a forward approach;
 - be operable with a “hands-in” direction, allowing hands and arms being in a natural forward position;
 - colour-contrasted from the surrounding environment; and
 - in compliance with Section IV.4.2. (Figure IV.2.4.3); and
- Faucets and other controls shall:
 - be electronically controlled; or

- have handles of the lever style (not self-closing) at least 75 mm long from the centre of rotation to the handle tip, not spring loaded and angled to the front when in the off-position and be operable with a clenched fist;
 - 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; and
 - have a clear floor space of 1370 mm in front of controls or operating mechanisms in order to accommodate a frontal approach.
- The front apron of a vanity shall have a minimum clearance of 750 mm wide by 720 mm high.
 - Shelves or other projections above lavatories shall be located so they will not present a hazard to persons with a visual *disability*.
 - A mirror shall be provided above the lavatory or vanity unit, in compliance with Section IV.2.6.
 - The temperature of the water supplied to the lavatory shall be thermostatically controlled and not exceed 43 degrees Celsius.

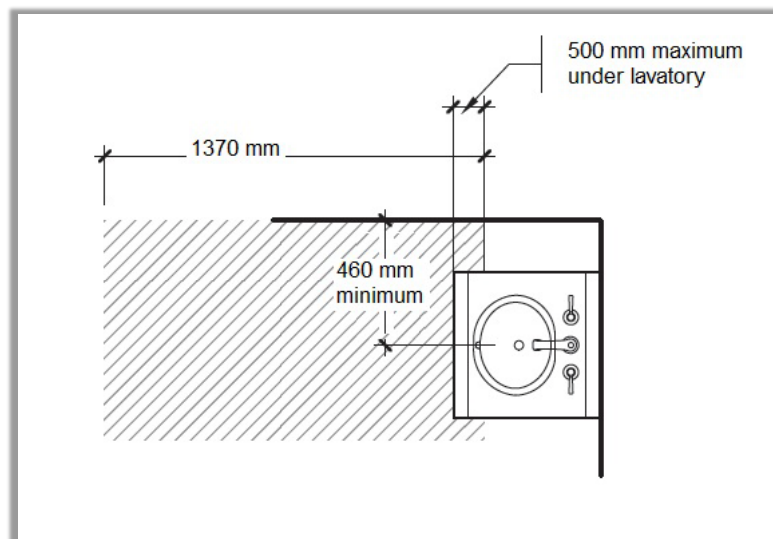


Figure IV.2.4.1: Clearances

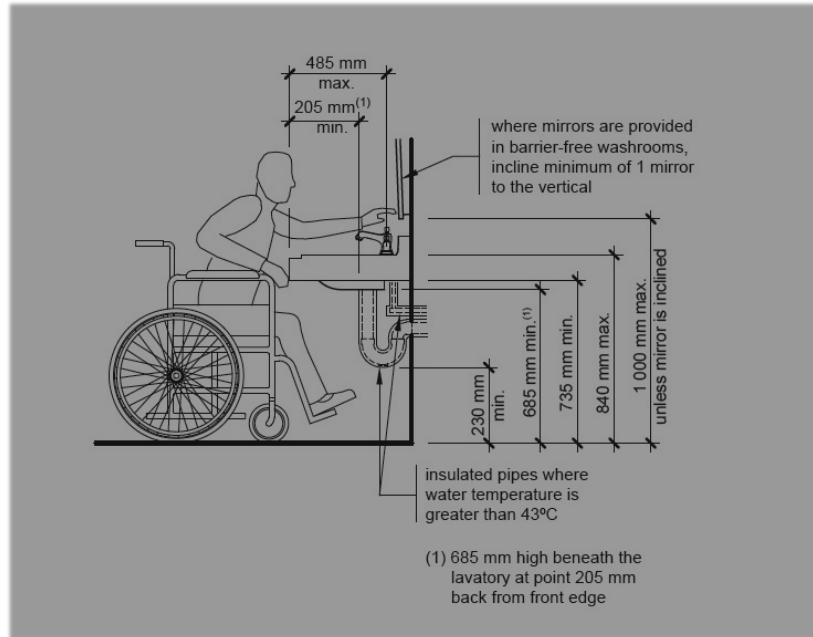


Figure IV.2.4.2 Lavatory Details

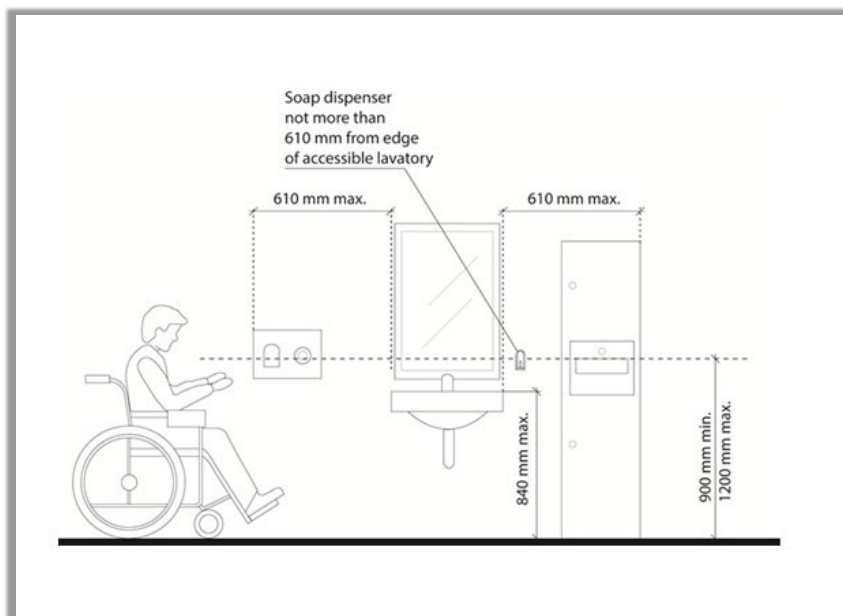


Figure IV.2.4.3 Mounting Heights

Related Sections

- IV.1.1 Space and Reach Requirements
- IV.4.2 Controls and Operating Mechanisms
- IV.4.15 Texture and Colour

IV.2.5 Urinals

Rationale

A *clear* floor space is required in front of urinals to accommodate wheelchairs and other mobility devices. Floor-mounted urinals make it easier to drain appliances. Automatic flush controls are preferred.

Application

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

Design Requirements

- A urinal shall be:
 - wall-mounted with an elongated rim located with the rim 430 mm above the finished floor; or
 - floor-mounted, with the rim level at the finished floor. (Figure IV.2.5.2).
- A *clear floor space* of 810 mm by 1370 mm shall be provided in front of the urinal to allow for a forward approach. This *clear space* shall adjoin or overlap an *accessible route* and shall comply with Section IV.1.1.
- Where privacy screens are provided, they shall:
 - be mounted a minimum of 460 mm from the centre line of the urinal;
 - have a clearance of at least 50 mm from the grab bars; and
 - incorporate a pronounced colour contrast, to differentiate them from the surrounding environment, with a vertical outer edge that contrasts with the screen and the surrounding environment. (Figure IV.2.5.1).
- Grab bars shall:
 - be installed on each side of the urinal;
 - be vertically mounted;
 - be not less than 300 mm long;
 - have the centre line 1000 mm above the floor;
 - be mounted so that each grab bar has the lower end between 600–650 mm from the floor;
 - be located 380 mm and 450 mm measured horizontally from the vertical centre line of the urinal; and
 - comply with Section IV.2.10. (Figure IV.2.5.1).
- Flush controls shall be automatic and may be manual if operable with a closed fist, mounted at no more than 1200 mm above the finished floor, and shall comply with Section IV.4.2. (Figure IV.2.5.2).

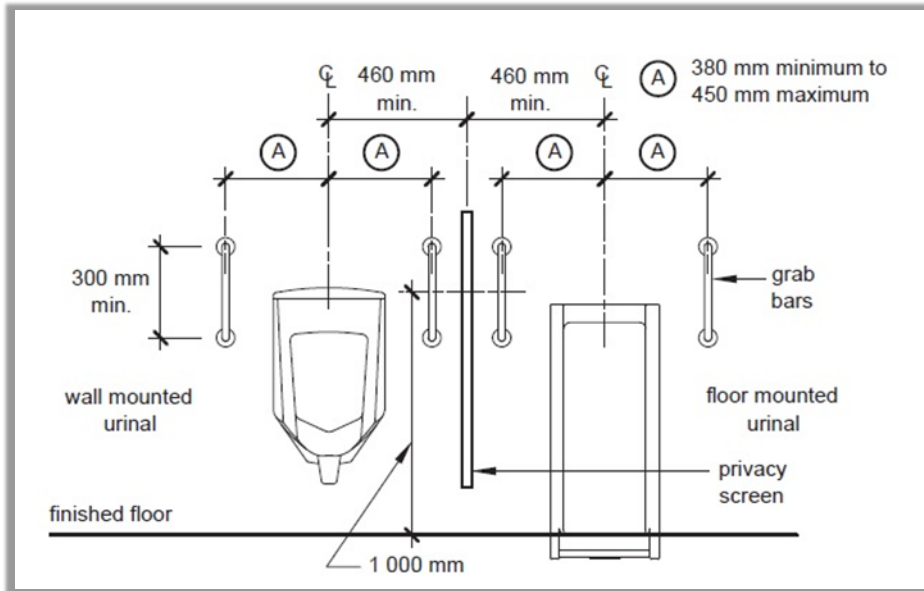


Figure IV.2.5.1: Urinal

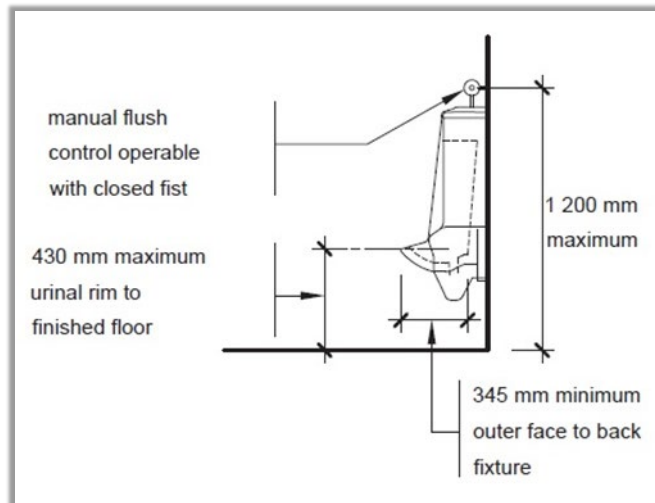


Figure IV.2.5.2: Urinal Side Elevation

Related Sections

- IV.1.1 Space and Reach Requirements
- IV.4.2 Controls and Operating Mechanisms
- IV.4.15 Texture and Colour

IV.2.6 Washroom Accessories

Rationale

Strength and hand dexterity required to operate mechanisms and placement of the fixtures are design issues to be considered for washroom accessories. A washroom accessory requiring the use of two hands to operate can present difficulties for some people whose ability to reach or balance is impaired. Section IV.4.2 addresses operating mechanisms.

Application

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

Design Requirements

- Each type of washroom accessory provided, except those located in toilet stalls as specified in Section IV.2.2 and lavatories as specified in Section IV.2.4, shall have *operable portions* and controls mounted between 900 mm and 1200 mm from the floor. Accessories such as towel dispensers and waste receptacles should be in compliance with Section IV.2.4. (Figure IV.2.7.1).
- The operable controls and mechanisms of washroom accessories shall comply with Section IV.4.2.
- At least one mirror shall be provided and shall be:
 - installed above the lavatory;
 - mounted with its bottom edge not more than 1000 mm from the floor; or
 - inclined to the vertical to be usable by a person in a wheelchair.

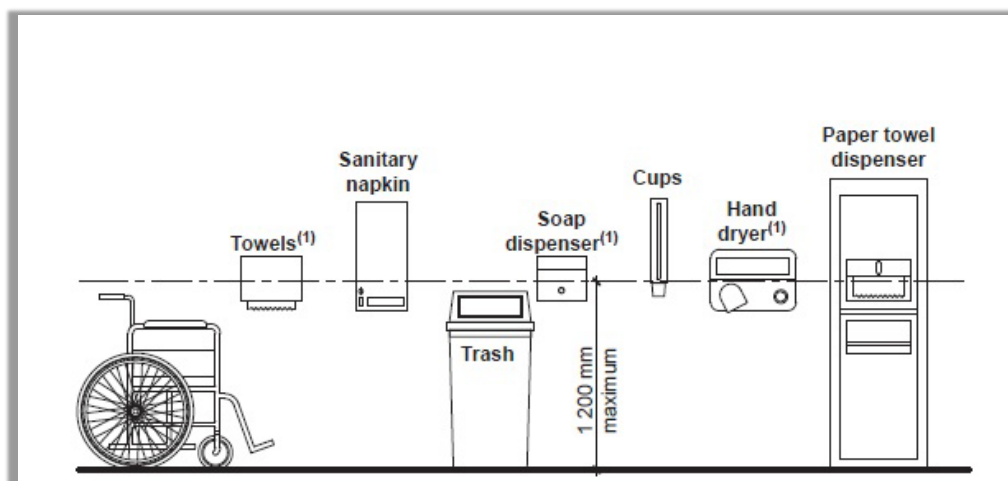


Figure IV.2.6.1: Washroom Accessories

Related Sections

IV.1.1 Space and Reach Requirements IV.4.2 Controls and Operating Mechanisms
IV.1.3 Protruding Objects IV.4.15 Textures and Colour

IV.2.7 Individual/Family Washrooms

Rationale

For an individual using a wheelchair or scooter, the extra *space* provided with a separate washroom is preferred to an accessible stall. For a person who requires an attendant to assist them, the *individual/family washroom* provides additional space and the complication of a woman entering a men's washroom or vice versa is avoided. The *individual/family washroom* is also a benefit for a parent with a child of a different gender.

Application

Accessible individual washrooms shall comply with this section.

Where a *common* or *public use* washroom contains four or more toilet and/or urinal fixtures, an individual washroom complying with Section IV.2.7 shall also be provided, in the same area as the *common* or *public use* toilet *facility*. Where male and female *public* or *common use* toilets are located in the same area, one individual washroom will suffice. Where there is more than one set of *common* or *public use* washrooms on a floor, and there is an *accessible route* connecting the washrooms, only one individual washroom is required on the floor. If the individual washroom is not visible from the *common* or *public use* washrooms, directional *signage* complying with Section IV.4.7 shall be provided.

Design Requirements

- The number of *accessible individual/family washrooms* provided in a building shall be in accordance with Table 2.7 and shall be on an *accessible route* complying with Section IV.1.4.

Number of Storeys in a building	Number Individual/Family Washrooms
1 to 3	1
4 to 6	2
Over 6	3 plus 1 each additional increment of 3 storeys in excess of 6 storeys

Table 2.7: Number of Individual/Family Washrooms

- *Accessible* individual washrooms shall be on an *accessible route* complying with Section IV.1.4.
- *Accessible* individual washrooms shall be identified with *signage* complying with applicable provisions of Section IV.4.7.
- Individual washrooms shall:
 - be served by a barrier-free path of travel;
 - be designed to permit a wheelchair to turn in an *open space* that has a diameter of not less than 2440 mm;
 - be provided with a minimum clear *transfer space* of 915 mm wide by 1500mm beside the toilet;
 - be equipped with a door that:
 - complies with Section IV.1.6;
 - is equipped with an automatic door operator and automated locking

- system;
 - is capable of being locked from the inside with one hand and being released from the outside in case of emergency;
 - has graspable latch operating and locking mechanisms located not less than 900 mm and not more than 1000 mm above the floor; and
 - if it swings outward, has a door pull not less than 140 mm long, located on the inside so that its midpoint is not less than 200 mm and not more than 300 mm from the hinged side of the door and not less than 900 mm and not more than 1000 mm from the floor; and
- be provided with a lavatory conforming to Section IV.2.4;
- be equipped with a toilet conforming to Section IV.2.3 and located:
 - so that its centre line is not less than 460 mm and not more than 480 mm from an adjacent wall on one side; and
 - not less than 1060 mm to the wall on the other side; and
- be equipped with grab bars for a single space transfer:
 - one L-shaped grab bar with vertical and horizontal components 760 mm long, mounted on the side wall with the horizontal component 230 mm above the toilet seat and the vertical component 150 mm from front edge of the toilet bowl and mounted 750 mm from the finished floor;
 - one horizontal grab bar provided on the wall behind the toilet that is a minimum of 600 mm in length, mounted 840 mm to 920 mm from the finished floor and mounted 150 mm above the water tank where a water tank is provided; and
 - that comply with Section IV – 2.10 Grab Bars; and
- have fixture clearances conforming to Section IV.2.3 and Section IV.2.4;
- be designed to permit a wheelchair to back into the *clear space* beside the toilet fixture;
- be equipped with:
 - a collapsible coat hook mounted not more than 1000 mm from the floor on a side wall and projecting not more than 40 mm from the wall;
 - a shelf located not more than 1000 mm above the floor in a location *accessible* to a person in a wheelchair. The shelf shall be colour-contrasting to the surrounding environment, with no sharp corners and project not more than 100 mm from the wall; and
 - a mirror and washroom accessories complying with Section IV.2.6. (Figure IV.2.7.1); and
- Individual washrooms shall be equipped with lighting controlled by a motion sensor.
- An emergency assistance call system not connected to the fire alarm system shall be provided, and shall:
 - consist of visual and audible signal devices both inside and outside of the washroom that are activated by a push control device inside the washroom;
 - include an emergency sign that contains the words “IN THE EVENT OF AN EMERGENCY PUSH EMERGENCY BUTTON AND AUDIBLE AND VISUAL SIGNAL WILL ACTIVATE” in letters at least 25 mm high with a 5 mm stroke and that is posted above the emergency button;
 - where facilities have the capacity and where staff is available, ensure the call system is linked to a display panel at a reception / information counter or to a centrally monitored station (e.g., security desk).

- mount the emergency call button 450 mm above the finished floor and within 600 mm of the front edge of the toilet; and
 - provide 2 way communications for all new installations.
- *Accessible* individual washrooms shall incorporate space for an adult change table:
 - with space at least 810 mm wide by 1830 mm long;
 - where the clear space is provided adjacent to a wall, install reinforcement in the wall to allow for future installation of the change table; and
 - with the washroom located on an *accessible route* in compliance with Section IV.1.4.
- Where an adult change table is installed, it shall:
 - have a surface height above the finished floor that can be adjusted from a low range of 450 mm to 500 mm to a high range of 850 mm to 900 mm;
 - be designed to carry a minimum load of 1.33 kN; and
 - have an adjacent clear floor space parallel to the table of not less than 810 mm by 1500 mm. (Figure IV.2.7.2).

Where a fold-down adult change table is installed, it shall:

- not encroach into the clear *transfer space* of the toilet; and
- have no operating mechanism higher than 1200 mm. (Figure IV.2.7.2).

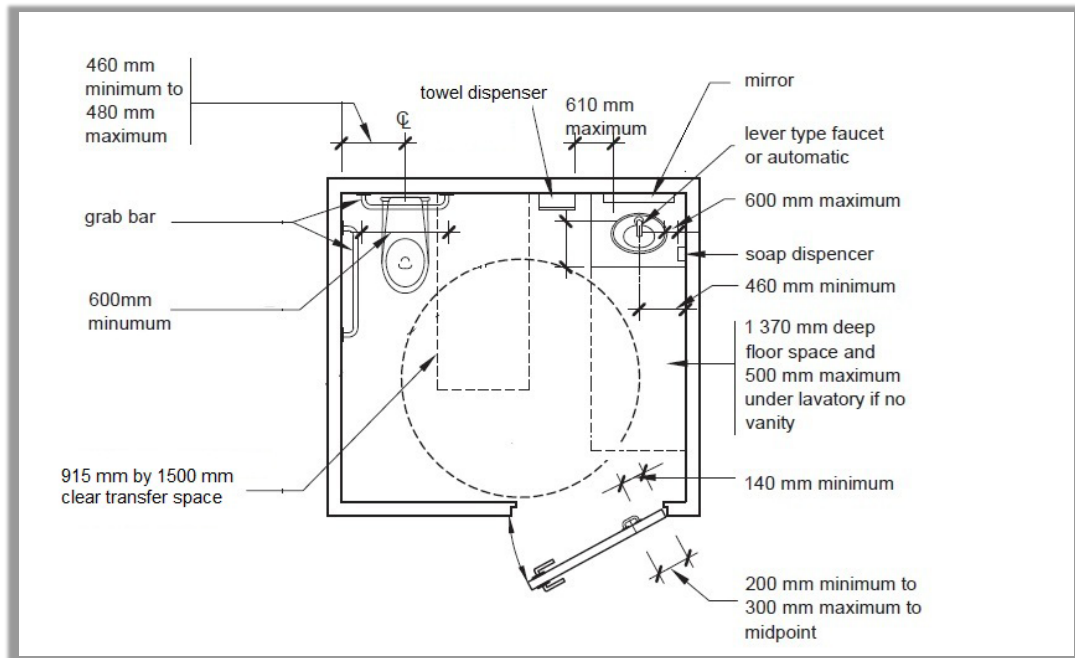


Figure IV.2.7.1: Individual Washroom Details

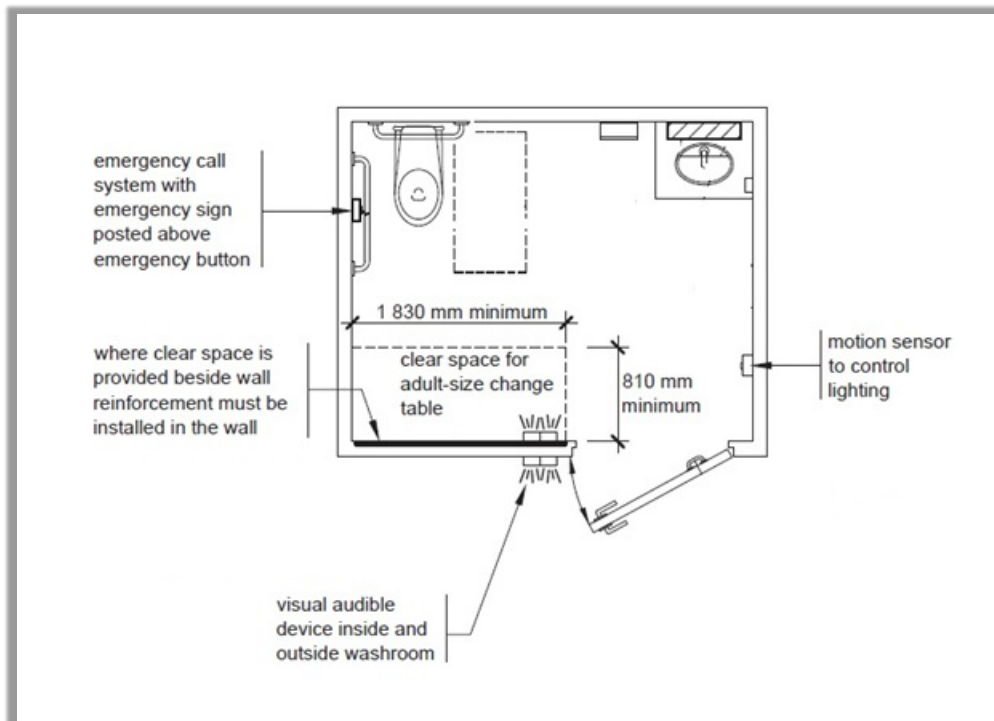


Figure IV.2.7.2: Adult Change Table and Emergency Call Button

Related Sections

IV.1.1	Space and Reach Requirements	IV.4.2	Controls and Operating Mechanisms
IV.1.2	Ground and Floor Surfaces	IV.4.7	Signage
IV.1.3	Protruding Objects	IV.4.11	Card Access, Safety and Security Systems
IV.1.6	Doors	IV.4.12	Glare and Light Sources
IV.2.3	Toilets	IV.4.13	Lighting
IV.2.4	Lavatories/Hand Basins	IV.4.14	Materials and Finishes
IV.2.5	Urinals	IV.4.15	Texture and Colour
IV.2.6	Washroom Accessories		
IV.2.10	Grab Bars		

IV.2.8 Bathtubs

Rationale

A slip-resistant surface for bathtubs is an important feature that benefits any individual, including those with *disabilities* and reduces the possibility of accidents. Securely installed grab bars provide stability and lever type faucets and controls are easier for individuals with limited hand strength or dexterity.

Application

Where bathtubs are provided, all bathtubs shall comply with this section. In a retrofit situation where it is *technically infeasible* to have all bathtubs comply with this section, at least 10%, but never less than one, in each bathing area shall comply with this section.

Design Requirements

- *Accessible* bathtubs shall be on an *accessible route* complying with Section IV.1.4.
- *Accessible* bathtubs shall have:
 - a *clear floor space* at least 810 mm wide along the length of the bathtub (the lavatory can encroach a maximum of 300 mm into this *space*, provided there is *clear knee space* and *toe space* under the lavatory);
 - faucet handles of the lever type that are not spring-loaded, or are automatically operable;
 - faucet handles that are located so as to be usable by a person seated in the bathtub;
 - faucets and other controls mounted not more than 450 mm above the bathtub rim;
 - a shower head complying with Section IV.2.9;
 - unless the bathtub is freestanding, an “L”-shaped grab bar conforming to Section IV.2.10 mounted on the wall:
 - with each leg of the “L” being at least 900 mm long;
 - with the legs of the “L” being separated by 90 degrees;
 - with the horizontal leg of the “L” located between 150 mm and 200 mm above and parallel to the rim of the bathtub; and
 - with the vertical leg of the “L” being located between 300 mm above and 450 mm from the control end of the bathtub; and
 - controls equipped with a pressure-equalizing or thermostatic-mixing valve, operable from the seated position and in compliance with Section IV.4.2;
 - soap holder(s) which can be reached from the seated position, ideally fully recessed;
 - unless the bathtub is freestanding, a grab bar conforming to Section IV.2.10 which is at least 1220 mm long, mounted vertically at the foot end of the tub adjacent to the clear floor space, with the lower end 180 mm to 200 mm above the bathtub rim;
 - a slip resistant base; and
 - use shower curtains, not sliding glass doors. (Figure IV.2.8.1).
- Enclosures for bathtubs shall not:

- obstruct controls;
 - interfere with a person transferring from a wheelchair; or
 - have tracks mounted on the bathtub rim.
- Temperature of the water supplied to the shower or bathtub shall:
 - be controlled by a pressure equalizing or an automatic thermostatically controlled valve; and not exceed 43 degrees Celsius.

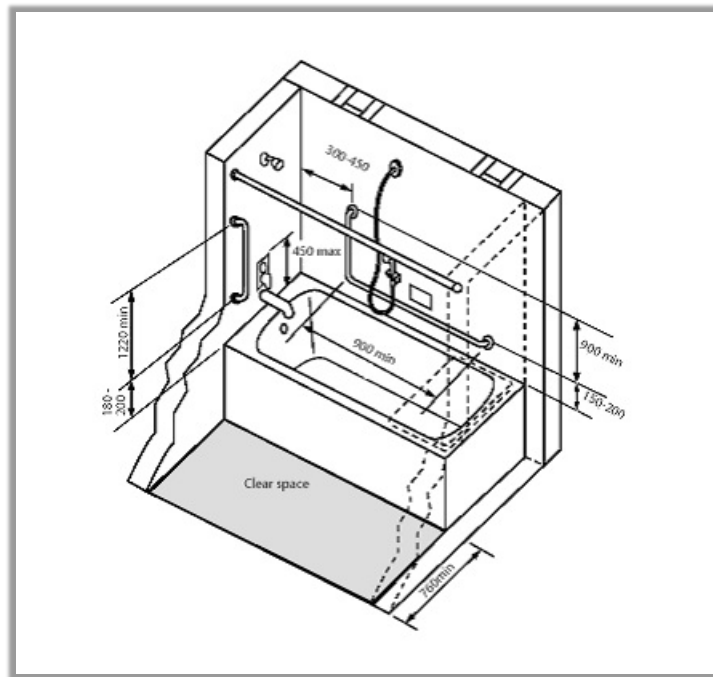


Figure IV.2.8.1: Bathtub

Related Sections

- IV.1.1 Space and Reach Requirements
- IV.2.6 Washroom Accessories
- IV.2.10 Grab Bars
- IV.4.2 Controls and Operating Mechanisms
- IV.4.15 Texture and Colour

IV.2.9 Shower Stalls

Rationale

The use of grab bars and non-slip materials are safety measures that support any individual. A hand-held shower or bench may be an asset to someone with a *disability* but is also convenient for others. Roll-in or curb less shower stalls eliminate the hazard of stepping over a threshold and are essential for persons with *disabilities*, particularly for those who use wheelchairs. Equipment and accessories of contrasting colour from the shower stall itself assists individuals with a visual impairment.

Application

Where shower stalls are provided, all shower stalls shall comply with this section. In a retrofit situation where it is *technically infeasible* to have all shower stalls comply with this section, at least 10%, but never less than one, in each bathing area shall comply with this section. Each location where a showering facility is provided for customers or as part of a common-use area for employees must have at least one universal and shower room.

Design Requirements

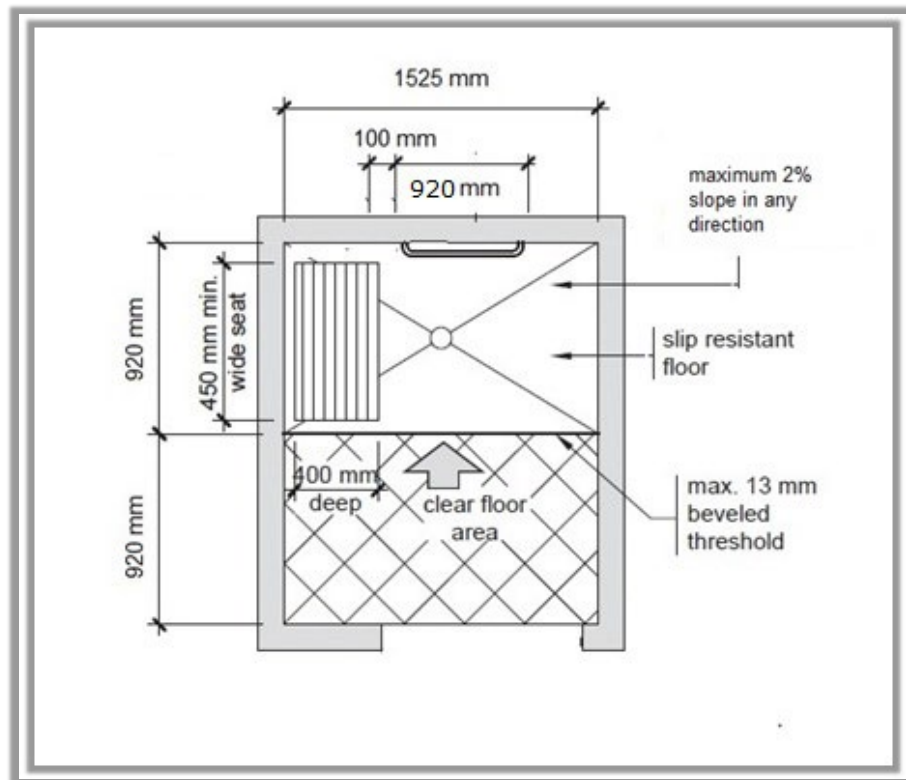
IV.2.9.1 Accessible Shower Stalls

- An accessible shower stall shall be provided in accordance with the following:
 - where 1 to 7 showers are provided in a group, 1 accessible shower is required; and
 - where 8 or more showers are provided in one group, there must be 1 accessible shower stall and 1 additional accessible shower stall for each additional increment of 7 showers.
- Accessible shower stalls shall:
 - be on an *accessible route* complying with Section IV.1.4;
 - be at least 1525 mm in width and 920 mm in depth;
 - have a *clear floor space* at the *entrance* to the shower of at least 920 mm in depth and the same width as the shower, except that fixtures are permitted to project into that *space*, provided they do not restrict access to the shower;
 - have a slip-resistant floor surface;
 - locate the drain below the seat or off to one side and trench drains should be avoided;
 - have a maximum slope of 2% in any direction to provide positive drainage;
 - have no threshold, or a bevelled threshold not exceeding 13 mm above the finished floor; and
 - be equipped with a wall mounted hinged seat that is not spring-loaded and that is:
 - not less than 450 mm wide and 400 mm deep;
 - mounted at a height of 450 mm to 485 mm from the finished floor;
 - located so that the edge of the seat is no more than 500 mm from the shower controls; and
 - designed to carry a minimum load of 1.33 kN (300 lbs.); and

- where it is not technically feasible to remove the curb of the shower stall, a seat shall be provided:
 - on the wall opposite the controls;
 - at least 400 mm wide extending the full depth of the stall, less a space allowed for the shower curtain;
 - with its top between 430 mm and 480 mm from the floor; and
 - with a smooth non-slip surface without rough edges; and
 - be equipped with an L-shaped grab bar:
 - located on the same wall as the controls;
 - with a horizontal component of 920 mm long mounted not more than 850 mm from the finished floor and a vertical component of 760 mm long mounted 100 mm from the edge of the shower seat; and
 - in compliance with Section IV.2.10 and not obstruct the use of the shower controls.
 - be equipped with a vertical grab bar that shall:
 - be at least 1000 mm in length;
 - be located on the side wall adjacent to the clear floor space, and mounted between 80 mm and 120 mm from the front edge of the shower, starting between 600 mm and 650 mm from the floor; and
 - conform with Section IV.2.10; and
 - be equipped with a pressure equalizing or thermostatic mixing valve, operable with a closed fist from the seated position and in compliance with Section IV.4.2;
 - be equipped with a hand-held shower head with at least 1525 mm of flexible hose, located so that it can be reached from the seated position, and equipped with a support so that it can be operated as a fixed shower head; and
 - have fully recessed soap holder(s) that can be reached from the seated position. (Figure IV.2.9.1 and Figure IV.2.9.2)
- Controls for showers with a curb shall:
 - be mounted within reach of the seat;
 - be not more than 1200 mm from the floor; and
 - be accessible from outside the stall.
 - Where the showerhead is mounted on a vertical bar, the bar shall be installed so as not to obstruct the use of the grab bar.
 - Enclosures for shower stalls shall not obstruct controls or obstruct transfer from wheelchairs onto shower seats.
 - A shower head shall be mounted to be adjustable between 1200 mm from the floor and upward; and where mounted on a vertical bar, not have the location of the bar obstruct the use of the grab bars; and shall be within reach as identified in Section IV.1.1.

IV.2.9.2 All-Inclusive Shower Stalls

- Where all-inclusive shower stalls are provided:
 - Identify clearly with signage complying with applicable sections of IV.4.7, that includes a pictogram for shower;
 - Install floor to ceiling height partitions and doors for privacy, allowing gaps for HVAC systems as required; and
 - Have locking mechanisms that can be locked from the inside and opened from the outside in case of emergency.



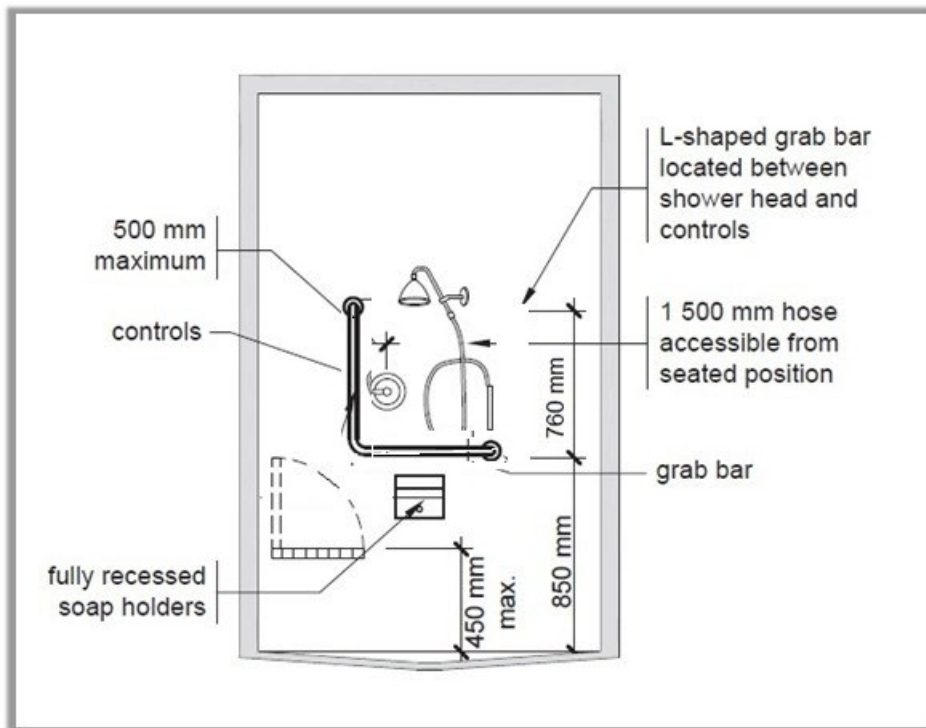


Figure IV.2.9.2: Seat and Shower Accessories Details

Related Sections

- IV.1.1 Space and Reach Requirements
- IV.2.6 Washroom Accessories
- IV.2.10 Grab Bars
- IV.4.2 Controls and Operating Mechanisms
- IV.4.15 Texture and Colour

IV.2.10 Grab Bars

Rationale

Grab bars are an important feature to those who require assistance in standing up, sitting down or stability while standing.

Application

Grab bars shall comply with this section.

Design Requirements

- Grab bars and fold-down grab bars shall:
 - be installed to resist a load of at least 1.3 kN (300 lb.), applied vertically or horizontally at any point on the grab bar, fastener mounting device or supporting structure;
 - be not less than 35 mm and not more than 40 mm in diameter (Figure IV.2.10.1);
 - have a clearance of 38 mm to 50 mm from the wall with edges to the inside surface of the grab bar (Figure IV.2.10.1);
 - be free of any sharp or abrasive *elements*;
 - be colour-contrasted with the surrounding environment ;
 - be made of non-corrosive material or finish; and
 - have a slip-resistant surface and not rotate within their fittings.
- Adjacent surfaces shall be free of any sharp or abrasive *elements*.

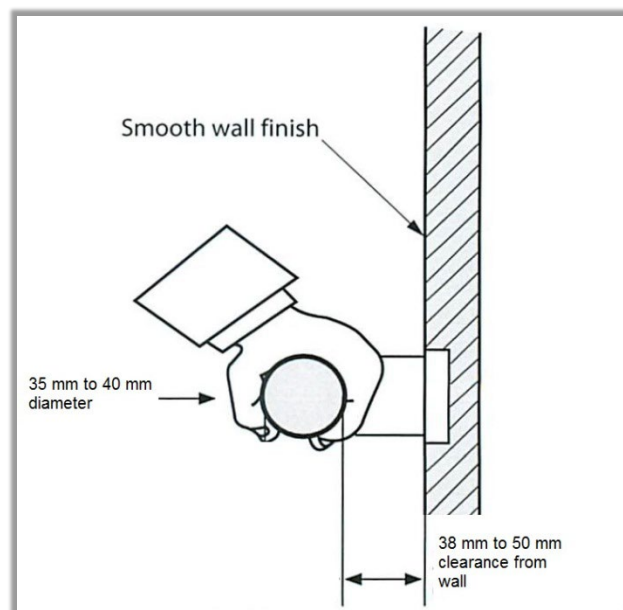


Figure IV.2.10.1: Grab Bar Details

Related Sections

IV.1.1	Space and Reach Requirements	IV.2.8	Bathtubs
IV.2.3	Toilets	IV.2.9	Shower Stalls
IV.2.5	Urinals	IV.4.15	Texture and Colour
IV.2.7	Individual/Family Washrooms		

Section IV.3 Other Amenities

IV.3.1 Drinking Fountains

Rationale

The design and placement of drinking fountains should consider the limited height of children and persons using a wheelchair in addition to the difficulties individuals might have with bending. The provision of two drinking fountains at different heights meets the needs of most people. The height of the water flow should allow for the insertion of a cup or glass. Provision for a frontal approach is preferred, and care needs to be taken to avoid the unit protruding into the path of travel.

Application

Where drinking fountains are provided on an accessible floor and normally occupied non-accessible floor areas, at least one shall be *accessible* and shall comply with this section.

Where only one drinking fountain is provided on a floor, it shall incorporate components that are *accessible* to individuals who use wheelchairs in accordance with this section, as well as components that are *accessible* to persons who have difficulty stooping or bending. Controls should be operable with one hand and not be foot operated.

Where more than one drinking fountain or water cooler is provided on a floor, 50% shall comply with this section.

It is preferable to locate a drinking fountain entirely out of the path of travel.

Design Requirements

- *Accessible* drinking fountains shall:
 - be located on an *accessible route* complying with Section IV.1.4;
 - have a spout located near the front of the unit between 810 mm and 915 mm above the floor or ground surface (Figure IV.3.1.1) ;
 - provide a water stream at a vertical angle of
 - up to 30°, where the spout is located less than 75 mm from the front of the fountain; and
 - 15° where the spout is located more than 75 mm and not more than 125 mm from the front of the fountain; and
 - have a spout that provides a water flow at least 100 mm high;
 - be cane detectable at or below 680 mm from the finished floor; and
 - be equipped with controls that are easily operated from a wheelchair, using one hand, with a force of not more than 22 N, or be automatically operable (Figure IV.3.1.1).
- Cantilevered drinking fountains shall:
 - have a *clear floor space* of at least 810 mm by 1370 mm;
 - be mounted not more than 915 mm from the finished floor;
 - have a *knee space* between the bottom of the apron and the floor or ground of at least 810 mm wide, 500 mm deep and 735 mm high;

- have a toe *space* at least 350 mm from the finished floor from a point 300 mm back from the front edge to the wall;
 - have a depth at the base of fountain of at least less than 700 mm; and
 - be cane detectable, recessed or otherwise located out of the route of travel; and be colour-contrasted against its background; and
- Freestanding or built-in fountains not having a knee *space* shall have a *clear floor space* at least 1370 mm wide by 810 mm deep in front of the unit. (Figure IV.3.1.1).

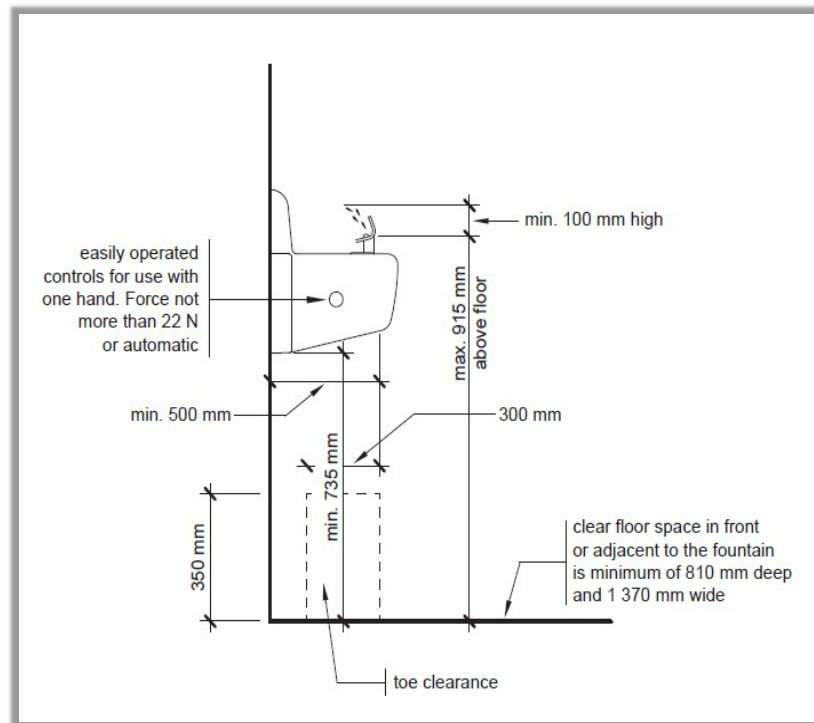


Figure IV.3.1.1: Drinking Fountain Details

IV.3.1.1 Water-Bottle Filling Stations

- Where water-bottle filling stations are provided, they shall:
 - be located along a barrier-free path of travel; and
 - have at least one water bottle filling station equipped with controls that activate automatically.

Related Sections

- IV.1.1 Space and Reach Requirements
- IV.1.2 Ground and Floor Surfaces
- IV.1.3 Protruding Objects
- IV.1.4 Accessible Routes, Sidewalks and Corridors
- IV.4.14 Materials and Finishes
- IV.4.15 Texture and Colour

IV.3.2 Viewing Positions

Rationale

Barrier-free designated viewing areas are required for individuals unable to use typical seating. Adequate *space* is needed to manoeuvre a mobility device and designated companion seating must be provided. Viewing areas should not be limited to one location but should be distributed throughout the venue. Guards or handrails around a viewing area should not interfere with the line of sight of someone sitting in a wheelchair. Where applicable a choice of locations and ticket prices should be available and appropriately positioned in preferred seating areas.

Provisions should be made for persons with visual impairments who may require seating locations in close proximity to activity. People who are hard of hearing may be dependent upon the provision of assistive listening devices.

Application

In places of assembly with fixed seating, *accessible* wheelchair locations shall comply with this section and shall be provided in numbers as indicated by Table 3.2.

In addition, *adaptable seating* shall be aisle seats with moveable armrests on the aisle side or shall have removable armrests on the aisle side. A sign or marker shall identify each of the seats. *Signage* notifying customers of the availability of such seats shall be posted at the ticket office.

Storage space for assistive mobility devices shall also be provided on the same level and in close proximity to the spaces designated for wheelchair use and seats designated for adaptable seating.

Persons using wheelchairs usually sit higher than persons in standard seating and care should be taken that wheelchair viewing positions be located so as not to obstruct the view of persons who may be seated behind.

Design Requirements

- *Accessible* wheelchair locations shall adjoin an *accessible route* complying with Section IV.1.4, without infringing on *egress* from any row of seating or any aisle requirement.
- Each *accessible* wheelchair location shall be:
 - an integral part of any seating plan. Seats shall be distributed in a manner that provides people with physical disabilities a choice of admission prices, seating locations and lines of sight comparable to those for members of the general public;
 - *clear* and level, or level with removable seats;
 - if the wheelchair enters from a side approach, not less than 920 mm wide and 1525 mm long (Figure IV.3.2.3);
 - if the wheelchair enters from a front or rear approach, not less than 920 mm wide and 1370 mm long;

- arranged so that at least two designated wheelchair locations are side by side;
 - arranged so that at least one companion fixed seat is provided beside:
 - each group of designated spaces if two or more spaces are arranged side by side; or
 - each designated space that is not part of a group; and
 - located adjoining a barrier-free path of travel without infringing on egress from any row of seating or any aisle requirements. (Figure IV.3.2.2 and Figure IV.3.2.3).
- Fixed seating designated for adaptable seating shall be:
 - located adjoining a barrier-free path of travel without infringing on egress from any row of seating or any aisle requirements;
 - equipped with moveable or removable armrests on the side of the seat adjoining the barrier-free path of travel (Figure IV.3.2.5); and
 - situated to provide a choice of viewing, location and lines of sight. (Figure IV.3.2.1).
- Wheelchair viewing spaces shall provide lines of sight that are:
 - comparable to those for all viewing positions; and
 - not reduced or obstructed by standing members of the audience.
- Guardrails protecting wheelchair viewing spaces should not interfere with viewing.
- Accent lighting should be provided along the edges of the aisle steps.
- In assembly occupancies with fixed seating storage space for wheelchairs and mobility assistive devices shall:
 - be 810 mm by 1370 mm in size;
 - provide at least one space where not more than 200 fixed seats are provided and at least 2 storage spaces where more than 200 fixed seats are provided; and
 - be located on the same level and in proximity to the spaces designated for wheelchair use and seats designated for accessible seating.
- An *accessible* path of travel, in accordance with Section IV.1.4 shall be provided to:
 - spaces designated for wheelchairs;
 - seats designated for adaptable seating; and
 - storage spaces for wheelchairs and mobility assistive devices. (Figure IV.3.2.4).
- The number of wheelchair spaces and adaptable seats required shall be in accordance with Table 3.2.

Number of Fixed Seats in Seating Area	Minimum Number of Spaces Required for Wheelchairs	Minimum Number of Adaptable Seats
Up to 20	2	1
21 to 40	2	2
41 to 60	2	3
61 to 80	2	4
81 to 100	3	5
Over 100	3% of the seating capacity	The greater of 5 seats or 5% of the aisle seating capacity

Table 3.2 – Number of Wheelchair and Adaptable Seats

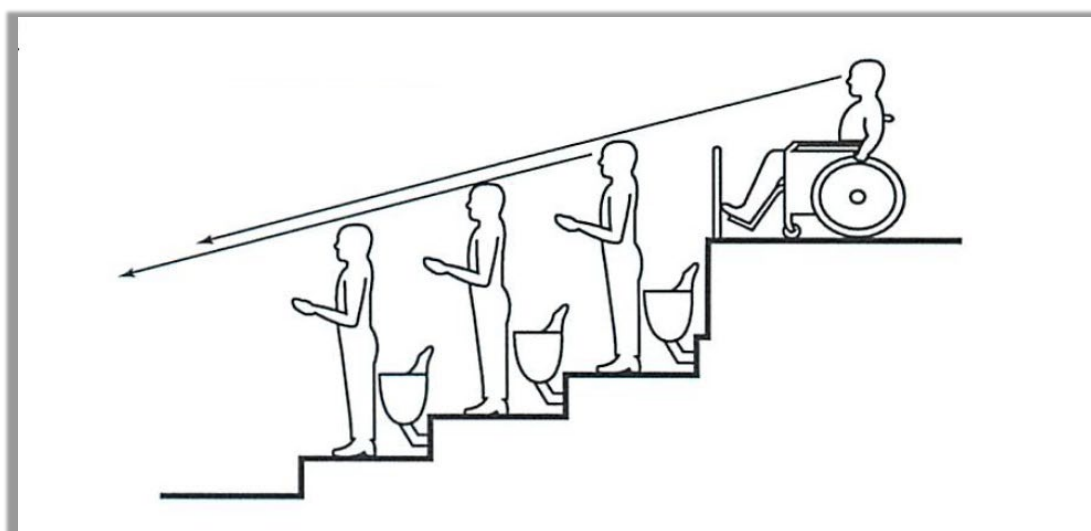


Figure IV.3.2.1: Sight Lines at Wheelchair Locations

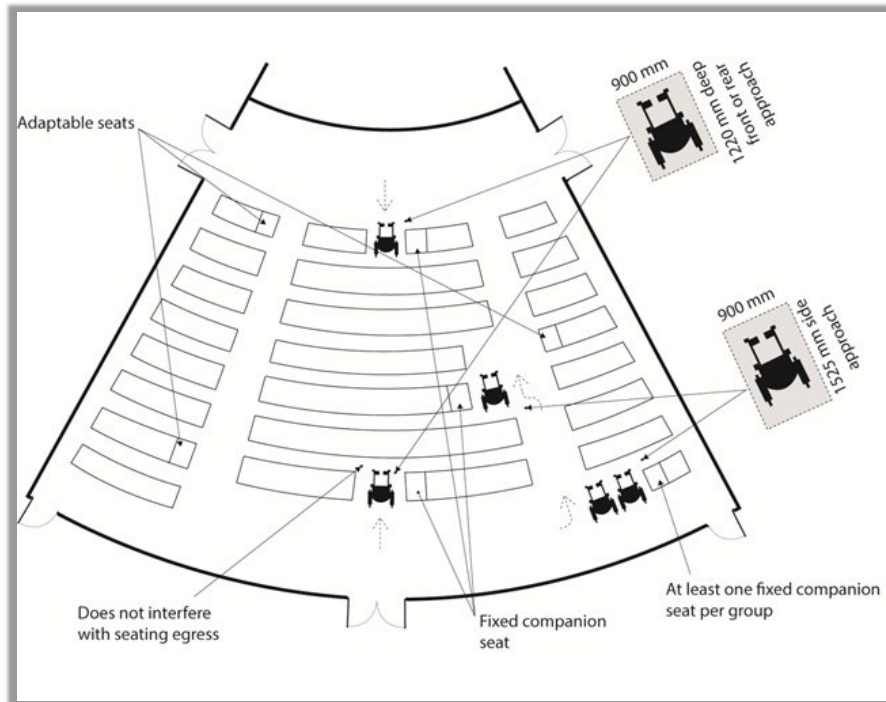


Figure IV.3.2.2: Distribution of Wheelchair Locations

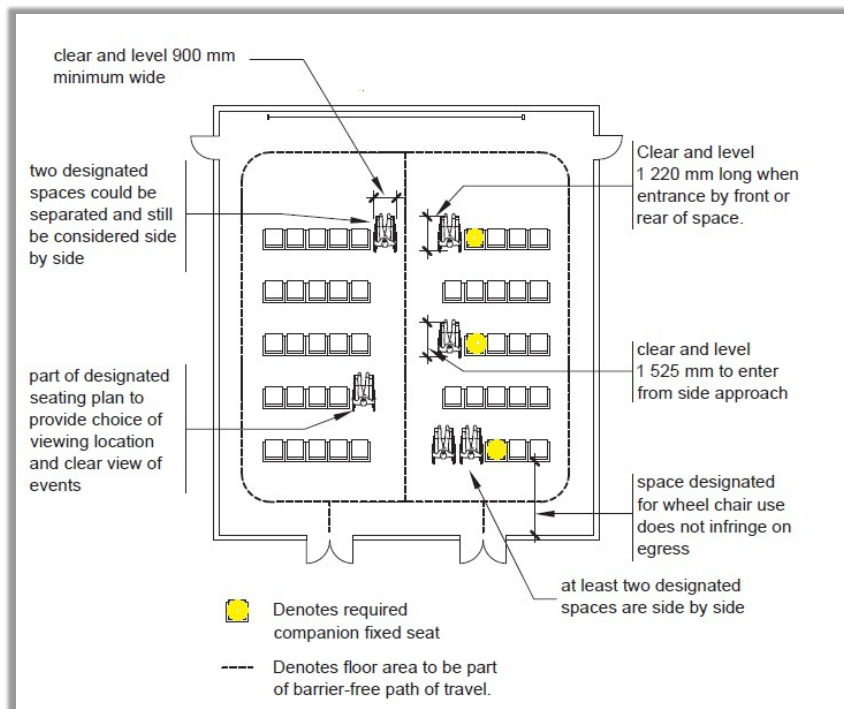


Figure IV.3.2.3: Accessible Seating Details

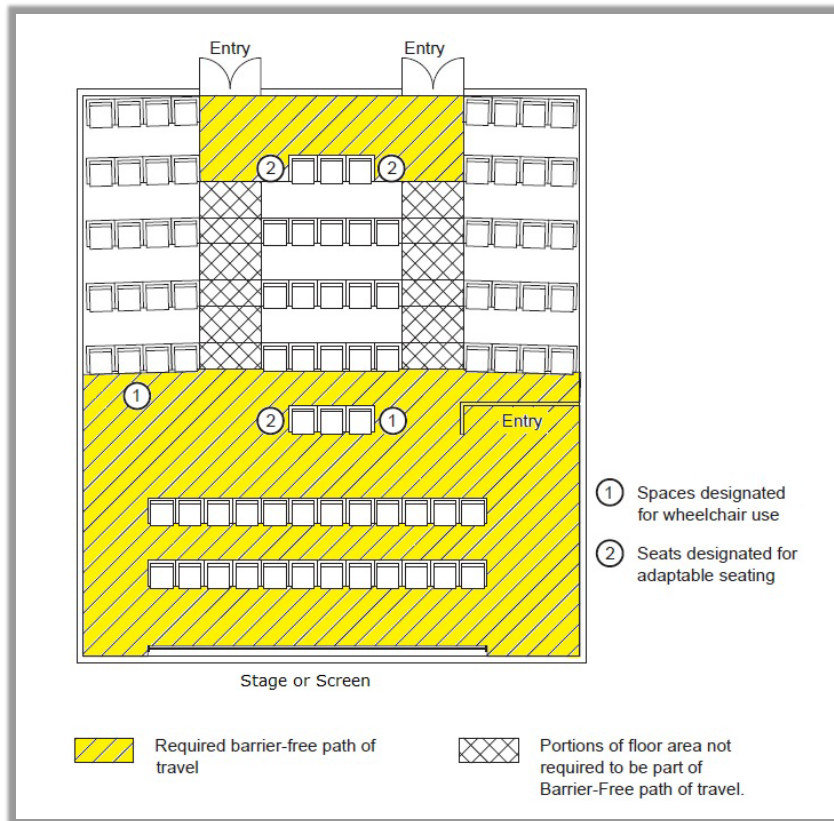


Figure IV.3.2.4: Accessible Paths of Travel

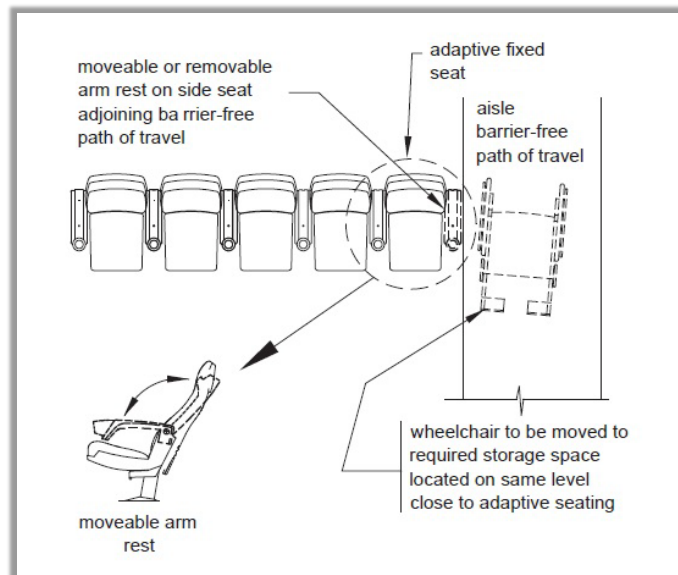


Figure IV.3.2.5: Adaptive Seating

Related Sections

IV.1.1	Space and Reach Requirements
IV.1.2	Ground and Floor Surfaces
IV.1.3	Protruding Objects
IV.1.4	Accessible Routes, Sidewalks and Corridors
IV.4.6	Assistive Listening
IV.4.7	Signage
IV.4.9	Public Address Systems
IV.4.14	Materials and Finishes
IV.4.15	Texture and Colour
IV.4.16	Acoustics

IV.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 that includes safety features to assist all persons with disabilities.

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 IV.1.4;
 - be capable of being illuminated to at least 100 lux at floor level at the darkest point;
 - be sized to safely accommodate wheelchairs and other mobility equipment in compliance with Section IV.1.1; and
 - have open platform edges defined by *detectable warning surface*.
- The *detectable warning surface* on elevated platforms shall:
 - be a *tactile attention indicator* that complies with the requirements of Section IV.4.8;
 - be consistent throughout the setting;
 - be positioned parallel to the open platform edge, extending the full length of the platform; and
 - be a minimum depth of 610 mm and a maximum of 915 mm, flush from the open edge of the platform. (Figure 3.3.1).

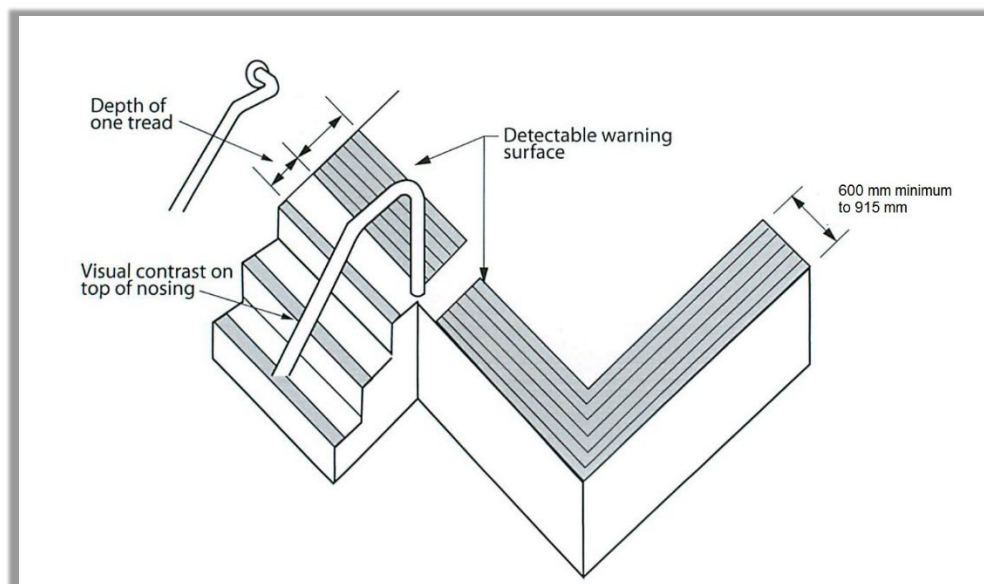


Figure IV.3.3.1: Elevated Platform Surfaces

Related Sections

IV.1.1	Space and Reach Requirements
IV.1.2	Ground and Floor Surfaces
IV.1.3	Protruding Objects
IV.1.4	Accessible Routes, Sidewalks and Corridors
IV.4.8	Detectable Warning Surfaces
IV.4.14	Materials and Finishes
IV.4.15	Texture and Colour

IV.3.4 Dressing Rooms

Rationale

As with *individual/family washrooms*, a separate unisex dressing room is useful and allows for an attendant or parent of the opposite sex to provide assistance. Space in the dressing room should allow for two people and a wheelchair or other mobility device, along with benches and accessories.

Application

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

Design Requirements

- *Accessible* dressing rooms shall be located on an *accessible route* complying with Section IV.1.4;
- A *clear floor space* allowing a person using a wheelchair to make a 180-degree turn shall be provided in every *accessible* dressing room entered through a swinging or sliding door. No door shall swing into any part of the turning *space*. Turning *space* shall not be required in a private dressing room entered through a curtained opening at least 950 mm wide if *clear floor space* complying with Section IV.1.1 renders the dressing room usable by a person in a wheelchair;
- All doors to *accessible* dressing rooms shall be in compliance with Section IV.1.6;
- Every *accessible* dressing room shall have a 610 mm by 1220 mm bench fixed to the wall along the longer dimension. The bench shall:
 - be mounted 450 mm to 500 mm above the finished floor;
 - have *clear floor space* provided alongside the bench to allow a person using a wheelchair to make a parallel transfer onto the bench;
 - be designed to carry a minimum load of 1.33 kN; and
 - where installed in conjunction with showers, swimming pools, or other wet locations, be designed so that:
 - water shall not accumulate upon the surface of the bench; and
 - the top surface is slip-resistant; and
- Where mirrors are provided in dressing rooms of the same use, then in an *accessible* dressing room, a full-length mirror measuring at least 460 mm wide by 1370 mm high 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.
- Where all-inclusive changerooms are provided:
 - identify clearly with signage complying with applicable sections of IV.4.7, that includes a pictogram for changeroom;
 - install floor to ceiling height partitions and doors for privacy, allowing gaps for HVAC systems as required; and

- have locking mechanisms that can be locked from the inside and opened from the outside in case of emergency.

Related Sections

IV.1.1	Space and Reach Requirements
IV.1.2	Ground and Floor Surfaces
IV.1.3	Protruding Objects
IV.1.4	Accessible Routes, Sidewalks and Corridors
IV.1.6	Doors
IV.4.14	Materials and Finishes
IV.4.15	Texture and Colour

IV.3.5 Offices, Work Areas and Meeting Rooms

Rationale

Offices and related support areas, work areas and meeting rooms should be *accessible* to all, including staff and visitors with varying levels of ability. Individual work spaces should provide an accessible approach and should be accessible based upon workplace accommodation requirements.

Circulation areas need to address the *space* requirements of mobility equipment. Workstations and tables need to address knee *space* requirements for wheelchairs and have provisions for additional task lighting for people with visual impairments and telephone equipment for individuals with hearing impairments. Blinds that can be louvered upwards should be provided in areas where reflective glare may be problematic.

Application

Offices, work areas or *meeting rooms* provided for use by the general public, employees, clients or customers, shall comply with this section where technically and operationally feasible.

Design Requirements

- Where offices, work areas and *meeting room* are provided for use by the general public, clients or customers, they shall:
 - be located on an *accessible route* complying with Section IV.1.4;
 - where equipped with a door, the door shall comply with Section IV.1.6;
 - incorporate a *clear floor space* allowing a person in a wheelchair to make a 180-degree turn;
 - incorporate an *accessible route* through the *space* that does not require the person in a wheelchair to travel backwards to enter/leave the *space*;
 - incorporate an accessible route in compliance with Section IV.1.4 that connects the primary activity *elements* within the office, work area or meeting room;
 - incorporate knee clearances below work surfaces that comply with Section IV.3.7;
 - incorporate access in compliance with Section IV.3.9 to storage, shelving or display units for use by the general public, clients or customers;
 - provide a *clear floor space* in front of the equipment that complies with Section IV.1.1, where equipment such as photocopiers are provided for use by the general public, clients or customers, and
 - be able to be equipped with an assistive listening system that complies with Section IV.4.6 pertaining to facility utilization, function and occupancy requirements listening system.

Related Sections

- IV.1.1 Space and Reach Requirements
- IV.1.2 Ground and Floor Surfaces
- IV.1.4 Accessible Routes, Sidewalks and Corridors
- IV.1.8 Windows, Glazed Screens and Sidelights
- IV.3.7 Tables, Counters and Work Surfaces
- IV.3.9 Storage, Shelving and Display Units
- IV.4.2 Controls and Operating Mechanisms
- IV.4.4 Visual Alarms
- IV.4.6 Assistive Listening
- IV.4.13 Lighting
- IV.4.14 Materials and Finishes
- IV.4.15 Texture and Colour
- IV.4.16 Acoustics

IV.3.6 Waiting and Queuing Areas

Rationale

Waiting and queuing areas for information, tickets or services should permit persons with disabilities to move through the line safely and conveniently. These areas need to provide *space* for mobility devices and queuing lines that turn corners or double back on themselves need to provide adequate *space* to manoeuvre mobility devices. Handrails in queuing lines provide useful support and guidance. Benches in waiting areas are important for individuals who may have difficulty with standing for extended periods.

Application

Waiting and queuing areas shall comply with this section.

Design Requirements

- Where seating spaces are provided, a minimum of 3% and no less than one space shall be designed to be accessible. (Figure IV.3.6.1);
- Accessible seating shall be provided on a barrier free path of travel and provide a minimum clear floor space of 810 mm wide by 1370 mm long;
- Where seating is provided, a choice of seating shall be provided including seats with armrest and seats without armrests that allow someone to transfer from a mobility device;
- Seating immediately adjacent to accessible seating to be designated as “Companion Seating”;
- Barriers at queuing areas shall be laid out in parallel, logical lines, spaced a minimum of 1100 mm apart. (Figure IV.3.6.2);
- Where queuing lines are longer than 10 metres, provide a rest area of minimum of 1000 mm by 1000 mm with seating;
- Queuing guides shall be configured to be cane detectable;
- A 2440 mm by 2440 mm turning space must be provided at the queuing line entry point. (Figure IV.3.6.2);
- Where barriers at queuing areas make an *abrupt change* or a change in direction, a 1700 mm by 1700 mm clear floor space shall be provided to allow adequate turning space for a mobility device. (Figure IV.3.6.2);
- Barriers at queuing areas, provided to streamline people movement, shall be firmly mounted to the floor, and should have rigid rails to provide support for waiting persons;

- 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 IV.4.15, as an aid to persons who are visually impaired; and
- There shall be a pronounced colour contrast between ropes, bars or solid barriers used to define queuing areas and the surrounding environment.

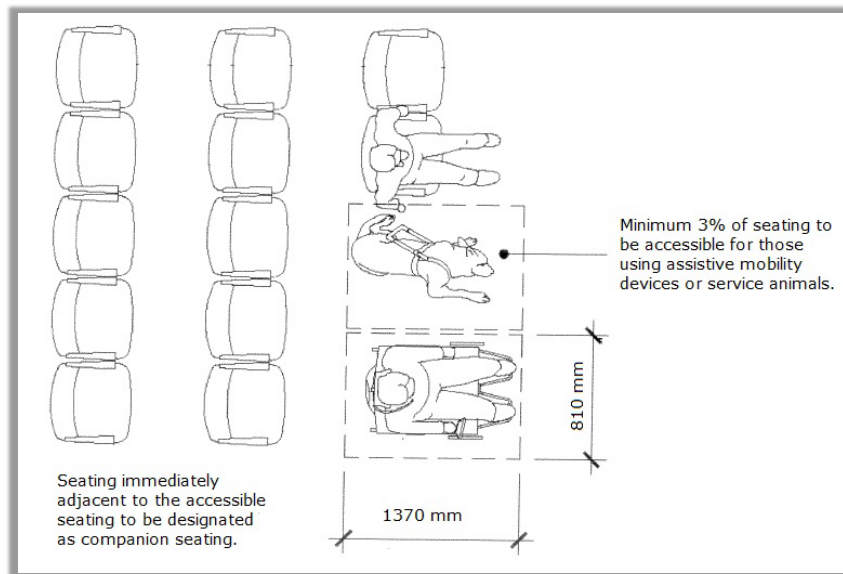


Figure IV.3.6.1: Accessible Seating

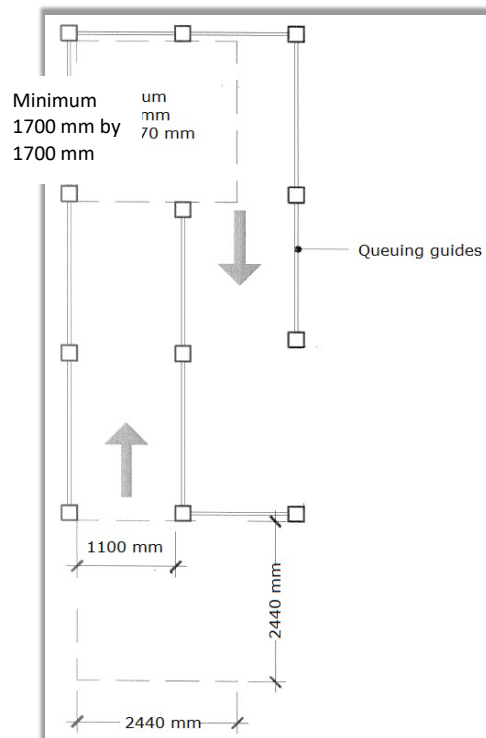


Figure IV.3.6.2: Queuing Lines

Related Sections

IV.1.1	Space and Reach Requirements
IV.1.2	Ground and Floor Surfaces
IV.1.4	Accessible Routes, Sidewalks and Corridors
IV.4.5	Public Telephones
IV.4.6	Assistive Listening
IV.4.7	Signage
IV.4.9	Public Address Systems
IV.4.10	Information Systems
IV.4.12	Glare and Light Sources
IV.4.13	Lighting
IV.4.14	Materials and Finishes
IV.4.15	Texture and Colour
IV.4.16	Acoustics
V.1.6	Benches and Seating

IV.3.7 Tables, Counters and Work Surfaces

Rationale

Tables, counters and work surfaces should accommodate the needs of a range of users. Standing use as well as seated use must be considered. For individuals using wheelchairs, tables need to be high enough to provide knee *space* and provide adequate *clear space* to pull into. Furniture placement at tables and manoeuvring space at counters should provide sufficient turning *space* for a person using a wheelchair or scooter.

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.

Design Requirements

- *Accessible* tables, counters and work surfaces shall be located on an *accessible route* complying with Section IV.1.4;
- An *accessible route* complying with Section IV.1.4 shall lead to and around such fixed or built-in tables, counters and work surfaces;
- Wheelchair seating *spaces* at *accessible* tables, counters and work surfaces shall incorporate a *clear floor space* of not less than 810 mm by 1370 mm. (Figure IV.3.7.2 and Figure IV.3.7.3);
- A forward approach for seating at tables and work surfaces is preferred. Where a forward approach is used to access a wheelchair seating space, a clear knee space of at least 810 mm wide, 480 mm deep and 685 mm high shall be provided. It may overlap the clear floor space by a maximum of 480 mm. (Figure IV.3.7.1); and
- The top of *accessible* tables, counters and work surfaces shall be located between 730 mm to 860 mm above the finished floor or ground.

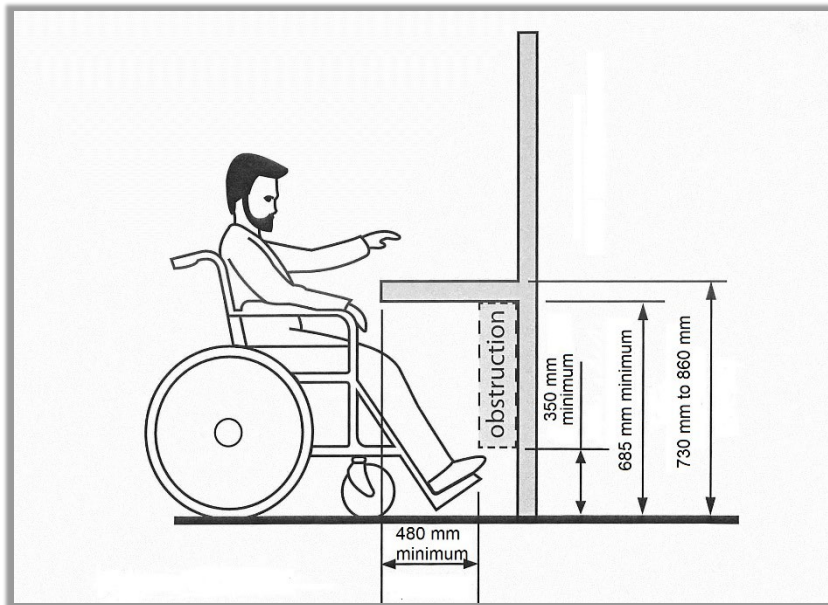


Figure IV.3.7.1: Clearances

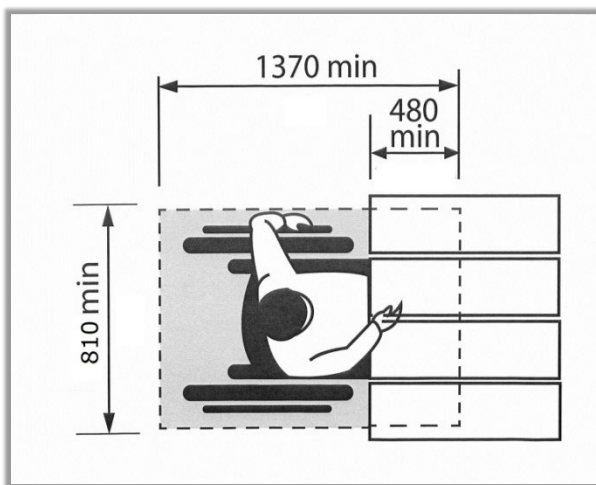


Figure IV.3.7.2: Frontal Approach

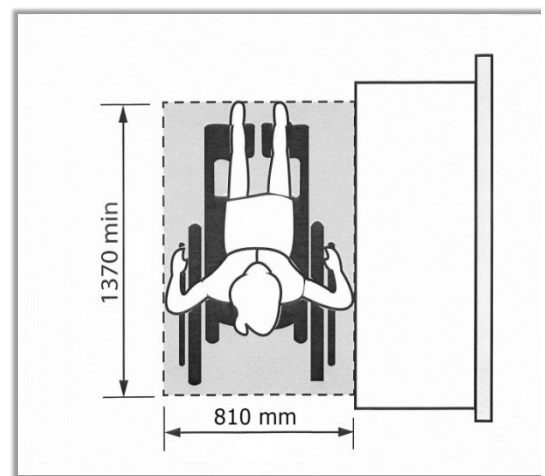


Figure IV.3.7.3: Parallel Approach

Related Sections

- IV.1.1 Space and Reach Requirements
- IV.1.4 Accessible Routes, Sidewalks and Corridors

IV.3.8 Information, Reception and Service Counters

Rationale

Information, reception, and service counters should be accessible for both the general public and staff utilization. Consideration should be given to a variety of counter heights and widths to provide a range of options for people using the counters. Use of colour contrast, tactile difference or audio landmarks (e.g. receptionist voice or music source) can assist individuals with visual impairments to more precisely locate service counters or speaking ports.

Application

Counters for information or service shall have at least one section usable by persons who use wheelchairs.

In areas used for transactions where counters have cash registers and are provided for sales and distribution of goods or services to the public, at least one of each type shall have a portion of the counter *accessible* and in compliance with this section. Such counters shall include but not be limited to counters in retail stores and distribution centres.

Where counters are dispersed throughout the *facility*, the *accessible* counters must also be dispersed throughout the *facility*.

In public *facilities* where counters or teller windows have solid partitions or security glazing to separate personnel from the public, at least one of each type shall provide a method to facilitate voice communication. Such methods may include, but are not limited to, grills, slats, talk-through baffles, intercoms or telephone handset devices.

Accessible counters shall be provided in conformance with Table 3.8.

Total counters	Minimum number of accessible counters
1-4	1
5-8	2
9-15	3
Over 15	3 plus 20% of additional aisles

Table 3.8: Accessible Counters

Design Requirements

- All accessible information, reception, sales and service counters shall be located on an *accessible route* complying with Section IV.1.4;
- Where a single queuing line services single or multiple counters, each service counter is to be designed to be accessible in compliance with this section;
- Counters for information or service shall incorporate at least one *accessible* section that is located between 730 mm and 860 mm above the finished floor or ground. This section shall be at least 920 mm wide;
- *Accessible* sections of information, reception, sales and service counters shall have on both sides of the counter, knee *space* below of at least 685 mm high by 480 mm deep;

- Wheelchair seating *spaces* at *accessible* sections of information, reception, sales and service counters shall incorporate a clear floor space not less than 810 mm by 1370 mm;
- Where a forward approach is used to access a wheelchair seating space, a *clear knee space* of at least 810 mm wide, 480 mm deep and 685 mm high shall be provided. It may overlap the *clear floor space* by a maximum of 480 mm;
- At least one service counter must be equipped with an assistive listening system in each location where services are provided to the public;
- Where speaking ports are provided at least one such position should have a speaking port no higher than 1060 mm above the finished floor or ground;
- 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 a portion of the counter that is at least 920 mm in length, with a height of 730 mm to 860 mm above the finished floor;
- 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 which is a minimum of 920 mm in length shall be provided with a height to the top surface of 710 mm to 730 mm; or
 - an auxiliary counter with a maximum height of 860 mm in close proximity to the main counter shall be provided. (Figure IV.3.8.1); and
- In public *facilities* where counters or teller windows have solid partitions or security glazing to separate personnel from the public, the method of communication provided shall be *accessible* to both individuals who use wheelchairs and individuals who have difficulty bending;
- The *clear* width of *accessible* service lines shall comply with Section IV.1.4, and the maximum adjoining counter height shall not exceed 965 mm above the finished floor. The top of the lip shall not exceed 1015 mm above the finished floor; and
- *Signage* identifying *accessible* service counters shall incorporate the *Accessibility Sign* and the availability of assistive listening systems.

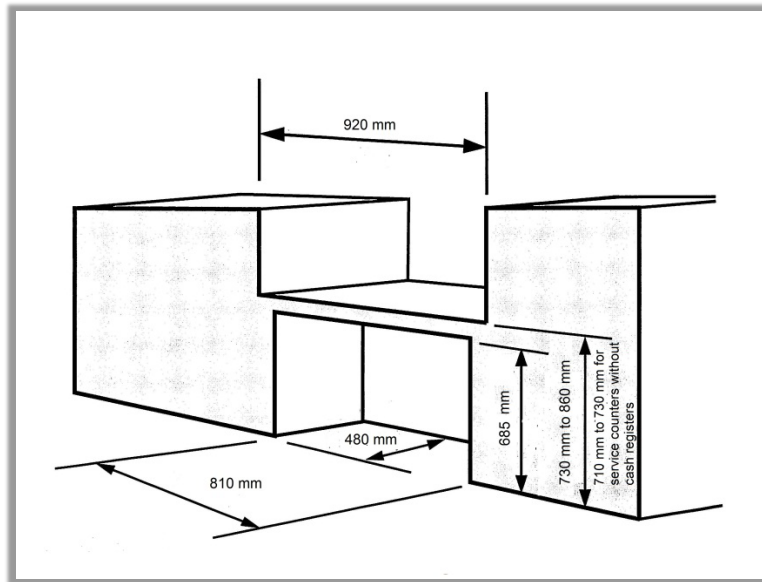


Figure IV.3.8.1: Service Counter

Related Sections

- IV.1.1 Space and Reach Requirements
- IV.1.4 Accessible Routes, Sidewalks and Corridors
- IV.4.6 Assistive Listening
- IV.4.7 Signage
- IV.4.10 Information Systems
- IV.4.12 Glare and Light Sources
- IV.4.13 Lighting
- IV.4.14 Materials and Finishes

IV.3.9 Storage, Shelving and Display Units

Rationale

The height of storage, shelving and display units should address the needs of a range of users including children and persons with disabilities. Displays at varying heights may assist individuals with vision impairments and those with back problems.

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* complying 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 IV.1.4.

Storage space should be provided for devices such as wheelchairs, shower chairs, walkers, transfer benches, and commode chairs.

Requirements for *accessible* reach ranges do not apply.

Design Requirements

- A *clear floor space* at least 810 mm by 1370 mm complying with Section IV.1.1 that allows either forward or parallel approach by a person using a wheelchair shall be provided at *accessible* storage facilities;
- *Accessible* storage *spaces* shall be within at least one of the reach ranges specified in Section VI.1.1. Clothes rods or shelves shall be a maximum of 1370 mm above the finished floor for a side approach;
- Where the distance from the wheelchair to the clothes rod or shelf is between 255 mm and 535 mm (as in closets without *accessible* doors) the height of the rod or shelf shall be no more than 1200 mm;
- Where shelves are provided, there should be at least three between 400 mm and 1200 mm from the floor; and
- Hardware for *accessible* storage *facilities* shall comply with Section IV.4.2. Touch latches and U-shaped pulls are acceptable.

Related Sections

IV.1.1	Space and Reach Requirements
IV.1.4	Accessible Routes, Sidewalks and Corridors
IV.4.2	Controls and Operating Mechanisms

IV.3.10 Lockers and Baggage Storage

Rationale

Provision of lockers at lower heights in schools, recreational facilities and transit facilities, etc., serves the reach restrictions of children or persons using wheelchairs. Operating mechanisms should 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. Lockers should have sufficient width and be positioned appropriately and consistent with related sections.

Design Requirements

- *Accessible* lockers and baggage storage units shall be located on an *accessible route* complying with Section IV.1.4 and shall be identified with the International Symbol of Access in compliance with the relevant parts of Section IV.4.7;
- Lockers and baggage storage units shall have their bottom shelf no lower than 400 mm and their top shelf no higher than 1200 mm above the floor or ground;
- Locks for *accessible* lockers and baggage storage units shall be mounted no higher than 1060 mm from the floor or ground and shall comply with Section IV.4.2;
- Numbers or names on all 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 IV.4.7;
- Baggage racks or carousels for suitcases, etc. shall have the platform surface no higher than 460 mm from the floor and shall incorporate a continuous colour-contrasting strip at the edge of the platform surface; and
- Aisle *spaces* in front of lockers, baggage compartments and carousels shall be a minimum of 1370 mm deep, to permit forward and lateral approach by persons who use wheelchairs.

Related Sections

IV.1.1	Space and Reach Requirements
IV.1.4	Accessible Routes, Sidewalks and Corridors
IV.4.2	Controls and Operating Mechanisms
IV.4.7	Signage
IV.4.13	Lighting
IV.4.15	Texture and Colour

IV.3.11 Balconies, Porches, Terraces and Patios

Rationale

The design for balconies, porches, patios or terraces should consider options for different levels of sun and wind protection for seniors and other persons with disabilities. 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 IV.1.4; and
 - be a minimum of 2440 mm by 2440 mm; and
- Exterior balconies, porches, terraces and patios, where directly *accessible* from the interior *spaces*, shall incorporate a threshold in compliance with Section IV.1.2. Doors opening out onto balconies should be located to open against a sidewall or rail; and
- Balcony, porch, terrace and patio surfaces shall:
 - comply with Section IV.1.2;
 - be sloped to ensure removal of water; and
 - be sloped no more than 2%; and
- Railings and guards at balconies, porches, terraces and patios shall:
 - be designed to allow *clear* vision below the rail for persons seated in wheelchairs; and
 - incorporate pronounced colour contrast between the railings and guards and the surrounding environment.

Related Sections

IV.1.1 Space and Reach Requirements

IV.1.2 Ground and Floor Surfaces

IV.1.4 Accessible Routes, Sidewalks and Corridors

IV.4.14 Materials and Finishes

IV.4.15 Texture and Colour

Section IV.4 Systems and Controls

IV.4.1 Emergency Exits, Fire Evacuation and Areas of Rescue Assistance

Rationale

Emergency exits must include the same accessibility features as other doors specified in Section IV.1.6. The doors and routes must be marked in a way that is *accessible* to all individuals, including those who may have difficulty with literacy. Audio or talking signs may assist persons with a visual impairment need to quickly locate exits. In the event of fire when elevators cannot be used, an area of rescue assistance can be an asset to anyone who has difficulty traversing sets of stairs.

Application

In *facilities*, or portions of *facilities*, required to be *accessible*, a minimum of two *accessible means of egress* shall be provided.

Where a required exit from an *occupiable* level above or below a level of *accessible* exit discharge is not *accessible*, an *area of rescue assistance* shall be provided on each such level (in a number equal to that of inaccessible required exits).

Areas of refuge 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*.

Exception: The requirements for protected elevators, separate fire zones, and areas of rescue assistance are not required in *facilities* having a supervised automatic sprinkler system.

Design Requirements

- Every *occupiable* level in non-residential occupancies above or below the first *storey* (as defined by the Ontario Building Code) that is *accessible*, shall:
 - be served by an elevator that has protection features, as specified in 3.3.1.7 of the Ontario Building Code; or
 - be divided into at least two zones by fire separations, as specified in 3.3.1.7 of the Ontario Building Code.
- In *occupiable* levels above or below the first *storey* in residential occupancies, the requirements for a protected elevator or two fire zones may be waived, if an appropriate balcony (as specified in 3.3.1.7 of the Ontario Building Code) is provided for each suite.
- Where emergency warning systems are provided, then they shall include both audible alarms and visible alarms. Visual alarms shall comply with Section IV.4.4.
- Emergency call systems shall:
 - be located in Individual/Universal/Family washrooms;

- consist of audible and visual signal devices inside and outside of the washroom; and
- have an emergency sign that contains the words – “In the event of an emergency push emergency button and audible and visual signal will activate.” in letters at least 25 mm high with a 5 mm stroke (width) posted above the emergency button.
- *Accessible means of egress* shall comply with Section IV.1.4.
- *Accessible means of egress* shall be identified with *signage* complying with applicable provisions of Section IV.4.7.
- Areas of rescue assistance shall be:
 - located on an *accessible route* complying with Section ;
 - of a size that allows a minimum floor *space* of 850 mm by 1370 mm per non-ambulatory occupant, with no fewer than 2 such *spaces*;
 - separated from the floor area by a fire separation having a fire resistance rating at least equal to that required for an exit;
 - served by an exit or fire fighters’ elevator;
 - designated as an *area of rescue assistance* for persons with disabilities on the *facility* plans and in the *facility*;
 - smoke protected in *facilities* of more than three *storeys*; and
 - identified with *signage* complying with applicable provisions of Section IV.4.7. (Figure IV.4.1.1).

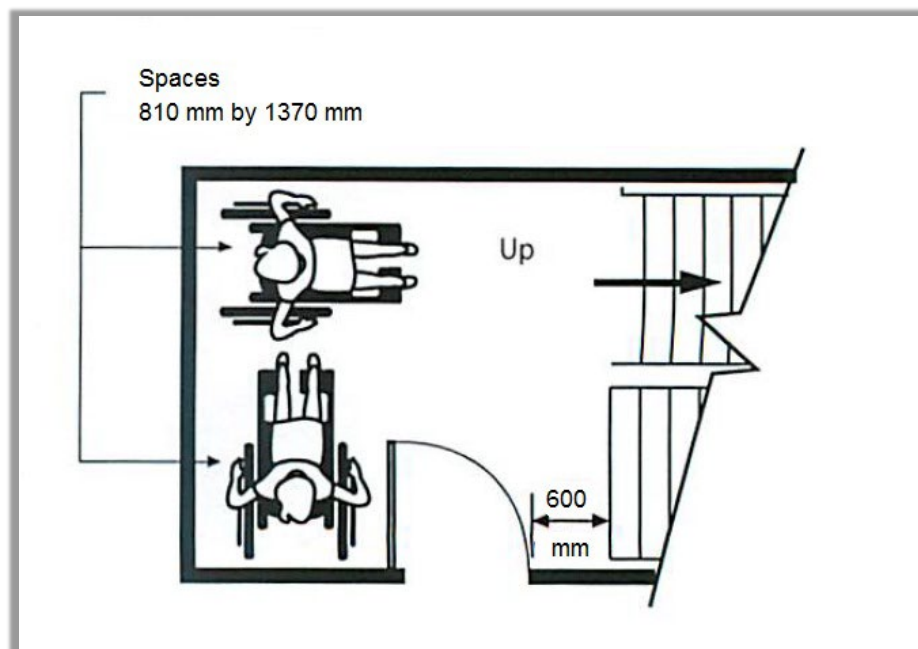


Figure IV.4.1.1: Area of Rescue Assistance

Related Sections

IV.1.1	Space and Reach Requirements
IV.1.2	Ground and Floor Surfaces
IV.1.3	Protruding Objects
IV.1.4	Accessible Routes, Sidewalks and Corridors
IV.1.6	Doors
IV.4.2	Controls and Operating Mechanisms
IV.4.4	Visual Alarms
IV.4.7	Signage
IV.4.8	Detectable Warning Surfaces
IV.4.9	Public Address Systems
IV.4.14	Materials and Finishes
IV.4.15	Texture and Colour

IV.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 be obstacles for children, individuals with arthritis or even someone wearing gloves. Controls that require two hands to operate can also be difficult for people 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. The height of the controls and the space to position a 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 a visual impairment may have difficulty with flush mounted buttons, touch screens or controls without Braille. Controls that contrast in colour from their background and incorporate raised letters, may be easier to find by an individual with a visual impairment. Persons with cognitive challenges may find counterintuitive controls or graphics difficult.

Application

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

Controls and operating mechanisms include, but are not limited to:

- door handles and locks;
- window openers and locks;
- faucets;
- electrical outlets and switches;
- thermostats;
- fire alarm pull stations;
- button pads and controls on dispensing machines; and
- security access card readers

Design Requirements

- A *clear*, level floor area at least 920 mm by 1370 mm shall be provided at controls and operating mechanisms, such as dispensers and receptacles;
- The *operable portions* of controls and operating mechanisms for elevators, power door controls, and controls for the operation of a building (including electrical switches and intercoms) shall be mounted not less than 900 mm and not more than 1100 mm from the finished floor. (Figure IV.4.2.1);
- Soap dispensers shall be located with the operable portion not more than 1200 mm above the floor, and accessible to persons in wheelchairs;
- Faucets and other controls can be hand-operated or electronically controlled;
- Card readers, manual pull stations and thermostats shall be located not more than 1200 mm above the floor, and accessible to persons in wheelchairs;

- Hand-operated controls and operating mechanisms shall be operable:
 - using a closed fist;
 - without tight grasping, pinching, or twisting of the wrist; and
 - with a force of less than 22N; and
- A control that needs to be read or adjusted should be angled in such a way that it is useable from a seated or a standing position;
- Controls and operating mechanisms shall be capable of being illuminated to at least a level of 100 lux; and
- Controls and operating mechanisms shall incorporate a pronounced colour contrast, to differentiate them from the surrounding environment. Where feasible control settings shall provide tactile information indicating function and position of controls. Information on visual displays shall be supplemented by tactile and/or auditory information; colour-contrasted; and glare-free.

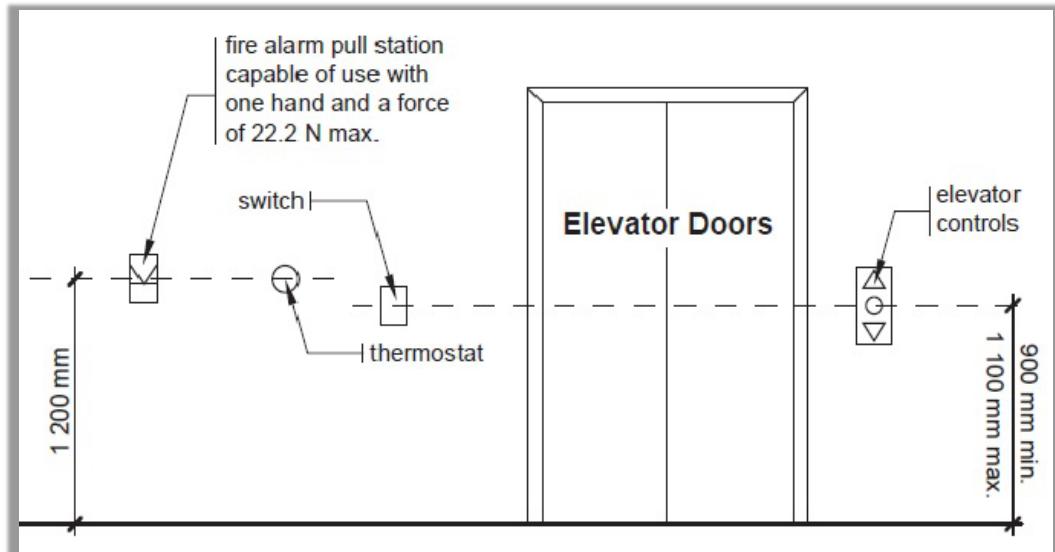


Figure IV.4.2.1: Reach Range for Accessible Controls

Related Sections

IV.1.1	Space and Reach Requirements	IV.2.9	Shower Stalls
IV.1.3	Protruding Objects	IV.3.1	Drinking Fountains
IV.1.4	Accessible Routes, Sidewalks and Corridors	IV.3.4	Dressing Rooms
IV.1.6	Doors	IV.3.5	Offices, Work Areas and Meeting Rooms
IV.1.7	Gates, Turnstiles and Openings	IV.3.9	Storage, Shelving and Display Units
IV.1.8	Windows, Glazed Screens and Sidelights	IV.3.10	Lockers and Baggage Storage
IV.1.12	Elevators	IV.4.3	Vending and Ticketing Machines
IV.1.13	Platform and Stair Lifts	IV.4.5	Public Telephones
IV.2.2	Toilet Stalls	IV.4.10	Information Systems
IV.2.3	Toilets	IV.4.11	Card Access, Safety and Security Systems
IV.2.4	Lavatories	IV.4.15	Texture and Colour
IV.2.5	Urinals	V.1.5	Street Furniture on Exterior Paths of Travel
IV.2.6	Washroom Accessories		
IV.2.7	Individual/Family Washrooms		
IV.2.8	Bathtubs		

IV.4.3 Vending and Ticketing Machines

Rationale

Space in front of and seating areas and tables adjacent to vending machines allows for manoeuvrability of mobility aids. Operating mechanisms should be within reach of children and individuals who use wheelchairs and be operable with one hand and minimal strength, to accommodate a host of disabilities. Lighting levels and colour contrasts make the machine more *accessible* to those with a visual *impairment*.

Application

Vending and ticketing machines shall comply with this section.

Design Requirements

- Vending and ticketing machines shall be located on an *accessible route* in compliance with Section IV.1.4;
- *Clear floor space* in front of vending and ticketing machines shall conform to Section IV.1.1;
- The controls and operating mechanisms on vending and ticketing machines shall comply with Section IV.4.2. (Figure IV.4.3.1); and
- *Signage* on vending and ticketing machines shall be in highly contrasting lettering, at least 13 mm high. Ideally, lettering and *signage* shall comply with relevant parts of Section IV.4.7.

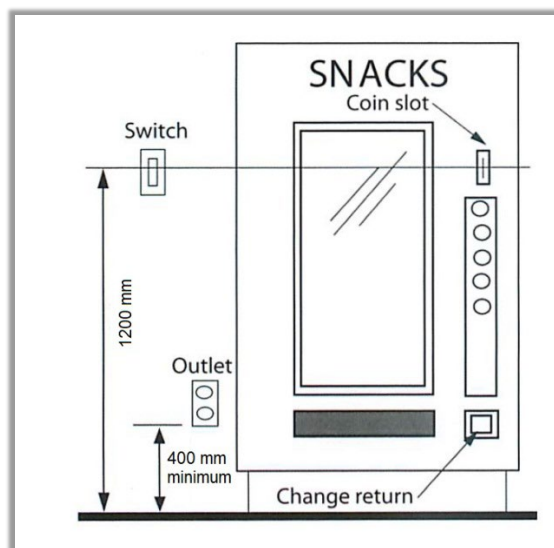


Figure IV.4.3.1: Controls and Operating Heights

Related Sections

- IV.1.1 Space and Reach Requirements
- IV.1.4 Accessible Routes, Sidewalks and Corridors
- IV.4.2 Controls and Operating Mechanisms
- IV.4.15 Texture and Colour

IV.4.4 Visual Alarms

Rationale

Visual alarms are essential for the deaf, deafened and hard of hearing individuals who may not hear audible alarms. Visual alarms are necessary devices in facilities such as theatres, arenas, and industrial applications where the environmental noise levels create hindrances to health, safety and emergency evacuation policies and procedures.

Application

Visual alarms shall comply with this section.

At a minimum, visual alarm appliances shall be provided in *facilities* in each of the following areas: restrooms and any other general usage areas (e.g., *meeting rooms*), hallways, lobbies 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.

Design Requirements

- Visual alarm signals shall have the following minimum photometric and location features:
 - the lamp shall be a Xenon strobe type or equivalent;
 - the colour shall be *clear* or nominal white (i.e. unfiltered or clear filtered white light);
 - the maximum pulse duration shall be two-tenths of one second (0.2 sec) with a maximum duty cycle of 40 percent. The pulse duration is defined as the time interval between initial and final points of 10% of maximum signal;
 - the intensity shall be a minimum of 75 candelas;
 - the flash rate shall be a minimum of 1 Hz and a maximum of 3 Hz;
 - the appliance shall be placed 2100 mm above the floor level within the *space* or 152 mm below the ceiling, whichever is lower;
 - in general, no place in any room or *space* required to have a visual signal appliance, shall be more than 15 meters from the signal (in the horizontal plane). In large rooms and *spaces* exceeding 30 meters across, without obstructions 2000 mm above the finished floor, such as auditoriums, devices may be placed around the perimeter, spaced a maximum of 30 meters apart, in lieu of suspending appliances from the ceiling; and
 - no place in common corridors or hallways in which visual alarm signalling appliances are required shall be more than 15 meters from the signal.

Related Sections

IV.4.1 Emergency Exits, Fire Evacuation and Areas of Rescue Assistance

IV.4.5 Public Telephones

Rationale

The placement of telephones should address the limited reach of children or persons seated in wheelchairs. 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 hard of hearing individuals, as are shelves that support a TTY device. A fold-down seat is an asset to someone having difficulty standing for extended periods. Telephones projecting from a wall may present a hazard, particularly to persons with a visual impairment, if the sides are not configured to be *cane-detectable*.

Application

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

Design Requirements

- *Accessible* telephones shall be on an *accessible route* complying with Section IV.1.4;
- Telephones, enclosures and related equipment shall comply with Section IV.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;
- The minimum illumination level at operating mechanisms, the directory, and shelf of *accessible* telephones should be 200 lux;
- Telephones for persons in wheelchairs shall:
 - have the maximum height of *operable portions*, including the coin slot, 1200 mm above the floor;
 - have a *clear floor space* not less than 810 mm wide by 1370 mm deep centred in front of the telephone, with no obstruction within 250 mm above the surface (Figure IV.4.5.1);
 - have a level telephone directory shelf at least 500 mm wide and 350 mm deep

- with a top surface less than 775 mm and not more than 875 mm from the finished floor and knee space not less than 740 mm high (Figure IV.4.5.2); and
- where a seat is provided, have a seat that is moveable so that a person using a wheelchair can approach the telephone.
- *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 additional telephones are provided for use by persons who are deaf or hard of hearing, and these telephones are designed to accommodate a portable *text telephone (TTY)*, the telephones shall:
 - comply with CSA Standard T515;
 - have a shelf at least 450 mm wide by 300 mm;
 - have at least 250 mm *clear space* above the shelf, to accommodate the use of a portable *text telephone*;
 - be equipped with an electrical outlet, within or adjacent to the telephone enclosure;
 - have graduated volume control; and
 - be equipped with a handset capable of being placed flush on the surface of the shelf.
- *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.

Number of each type of telephone provided on each floor	Number of telephones required to comply with this section
1 or more single unit	1 per floor
1 bank	1 per floor
2 or more banks	1 per bank. <i>Accessible</i> unit may be installed as a single unit in proximity to (either visible or with signage) the bank. At least one public telephone per floor shall meet the requirements for a forward reach telephone.

Table 4.5: Accessible Telephone Requirements

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

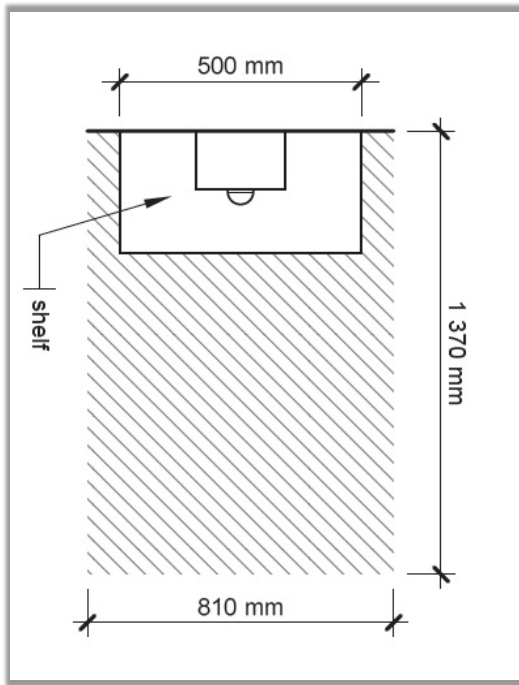


Figure IV.4.5.1: Public Telephone Layout

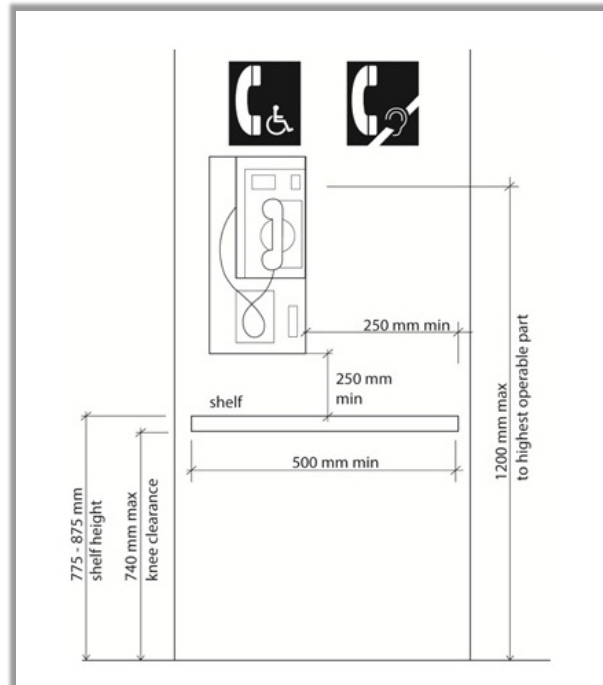


Figure IV.4.5.2: Public Telephone Details

Related Sections

- IV.1.1 Space and Reach Requirements
- IV.1.3 Protruding Objects
- IV.1.4 Accessible Routes, Sidewalks and Corridors
- IV.4.2 Controls and Operating Mechanisms
- IV.4.7 Signage
- IV.4.13 Lighting
- IV.4.15 Texture and Colour

IV.4.6 Assistive Listening

Rationale

The provision of assistive listening devices is important for individuals who may have difficulty hearing. Assistive listening systems amplify audible communication and can be used by persons who are hard of hearing, with or without hearing aids and do not interfere with the listening enjoyment of people with normal hearing.

Application

Assistive listening systems shall comply with this section.

This section applies to *assembly areas* where audible communications are integral to the use of the *space* (e.g., concert theatres, *meeting rooms*, classrooms, auditoria, etc.). Such *assembly areas*, where: (1) they accommodate at least 50 persons or where they have audio amplification systems or where greater than 100 sq.m. in floor area; and (2) they have fixed seating, shall have a permanently installed listening system complying with this section.

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

Design Requirements

- *Signage* complying with applicable provisions of Section IV.4.7 (Figure IV.4.6.1) shall be installed to notify customers of the availability of a listening system;
- At least one service counter must be equipped with an assistive listening system in each location where services are provided to the public;
- Induction loops, infrared systems and FM radio frequency systems shall be considered acceptable types of assistive listening systems for persons who are hard of hearing;
- Where an induction loop system is installed, dimmer switches and other controls that incorporate transformer coils shall be located so as not to interfere with the audio induction loop;
- Where infrared assistive listening devices are used, overhead incandescent lights shall be located so as not to cancel out the infrared signal at the receiver;
- Although infrared is preferred for security and reception purposes, 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; and

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



Figure IV.4.6.1: Assistive Listening Device Symbol

Related Sections

IV.4.7	Signage
IV.4.13	Lighting
IV.4.16	Acoustics

IV.4.7 Signage

Rationale

Signage should be simple, uncluttered and incorporate plain language. Graphic symbols or pictograms are helpful for individuals such as children, people with literacy concerns or individuals speaking a different language. The intent of the symbol must be evident, culturally universal and not counterintuitive. Signs should be placed at a consistent height and in a consistent location throughout the *facility*.

Letters should be upper and lower case. Signs using all capital letters are harder to read because they provide less visual information to differentiate letters and give words shape. Very fine type and thick bolded type should be avoided.

Sharp contrasts in colour make signage easier for anyone to read, particularly those with a visual *impairment*. To enhance readability, raised *tactile* lettering should incorporate edges that are slightly smoothed.

Application

Signage shall comply with this section.

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

Signs that provide direction to, or information about, functional *spaces*, shall comply with this section.

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

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

Elements and *spaces* of *accessible facilities* where assistive listening systems are provided shall be identified with signage that includes the international symbol of access for hearing loss and appropriate graphical or textural information.

Design Requirements

- Letters and numbers on signs shall:
 - be sans serif;*
 - have Arabic numbers;

- have a width-to-height ratio between 3:5 and 1:1;
- have a stroke-width-to-height ratio between 1:5 and 1:10; and
- use an upper-case "X" for character measurement.



- Character height dimensions for viewing distance shall comply with Table 4.7.
- Where signage, including electronic display monitors, is provided, it shall:
 - have a glare free surface;
 - be of uniform design;
 - when used to give the same type of information within the same facility, be consistently shaped, coloured, and positioned; and
 - contrast with the surrounding surface.
- Characters, symbols and backgrounds of signs shall have an eggshell, matte or other glare-free finish.
- Characters and symbols shall contrast with their background: either light characters on a dark background or dark characters on a light background.
- Light emitting diode (LED) signage shall be white, yellow or light blue on a black background.
- Where signs are required to have *tactile* information, braille and tactile characters must be in accordance with the CSA B651 standard "Accessible Design for the Built Environment". Letters and numerals shall be:
 - raised 0.8 mm - 1.5 mm, not sharply edged;
 - be between 16 mm and 50 mm high;
 - be sans serif*, accompanied by Grade 2 Braille near the bottom edge of the sign; and
 - colour contrasted with their background by at least 70%.
- Where a tactile sign is provided, it shall:
 - have the leading vertical edge 150 mm ± 10 mm from the door jamb;
 - allow a person to approach the sign to within 100 mm without encountering protruding objects or standing within a door swing; and
 - have a clear wall area around the sign at least 75 mm wide.
- Pictograms shall be accompanied by the equivalent verbal description, placed directly below the pictogram. The border dimension of the pictogram shall be 150 mm minimum in height.

- Pictograms and symbols shall be:
 - raised between 0.8 mm – 1.5 mm;
 - placed on a sign at least 150 mm in height;
 - accompanied by the equivalent description in Grade 2 Braille placed directly below the pictograph or symbol; and
 - colour contrasted with their background by at least 70%.
- Where permanent identification is provided for rooms and spaces, signs shall be installed on the wall adjacent to the latch side of the door, located with their centre line at a height between 1350 mm and 1525 mm. Where there is no wall space to the latch side of the door, including at double leaf doors, signs shall be placed on the nearest adjacent wall; and
- The minimum level of illumination on signs shall be 200 lux.



Figure IV.4.7.1: Colour Contrast on Signs



Figure IV.4.7.2: Pictograms
(Note: Shall incorporate equivalent verbal description)

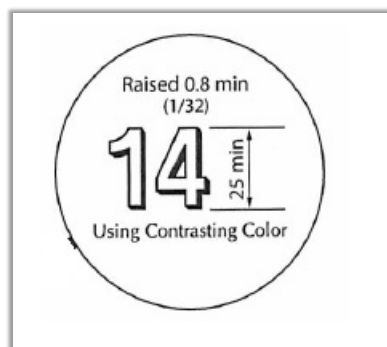


Figure IV.4.7.3: Tactile Lettering

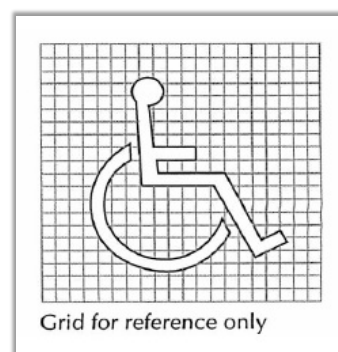


Figure IV.4.7.4: International Symbol of Access

Minimum character height, mm	Maximum viewing distance, mm
200	6000
150	4600
100	2500
75	2300
50	1500
25	750

Table 4.7: Character Height on Signs

Related Sections

- IV.1.4 Accessible Routes, Sidewalks and Corridors
- IV.1.5 Entrances
- IV.1.6 Doors
- IV.1.7 Gates, Turnstiles and Openings
- IV.1.9 Ramps
- IV.1.12 Elevators
- IV.1.13 Platform and Stair Lifts
- IV.2.1 Toilet and Bathing Facilities
- IV.2.7 Individual/Family Washrooms
- IV.3.2 Viewing Positions
- IV.3.4 Dressing Rooms
- IV.1.14 Exterior Accessible Routes, Access and Passenger Loading Zones
- IV.4.1 Emergency Exits, Fire Evacuation and Areas of Rescue Assistance
- IV.4.5 Public Telephones
- IV.4.15 Texture and Colour

IV.4.8 Detectable Warning Surfaces

Rationale

Detectable warning surfaces provide important cues for persons with a visual *impairment* to navigate an environment. These surfaces consist of features that are intended to be detected underfoot or by using a white cane. Detectable warning surfaces alert a person to potential hazards, such as crosswalks or stairs. Suitable surfaces include a change in texture and high colour contrast but should not be a tripping hazard. *Detectable warning* surfaces should be used consistently throughout a *facility*.

Application

Detectable warnings at walkways, curb ramps, stairs and raised platforms shall comply with this section.

Design Requirements

- All textured surfaces used as *detectable warning surfaces* shall be *cane-detectable* and clearly differentiated from the surrounding ground or floor surfaces. (See also Section IV.4.15);
- *Detectable warning surfaces* shall contrast visually with adjoining surfaces, being either light on dark or dark on light;
- *Tactile attention indicators* shall be provided at:
 - the top of stairs;
 - the leading edge of landings;
 - the beginning and end of a *ramp*;
 - unprotected drop-off edges (e.g. transit platform) where the change of elevation is greater than 250 mm, and the slope is steeper than in the ratio of 1:3 (33.3%);
 - at an entry into a *vehicular way* or where there are no curbs or any other element separating the *vehicular way* from a pedestrian route; and
 - *curb ramps*.
- Where *tactile attention indicators* are required, they shall:
 - be not less than 300 mm and not more than 610 mm deep;
 - extend the full width of the stair, landing or platform;
 - commence one tread depth back from the stair or landing;
 - have high contrast with the surrounding surface (Figure IV.4.8.1).; and
 - conform to Clauses 4.1.1 and 4.1.2 of ISO 23599, Assistive Products for Blind and Vision-Impaired Persons – Tactile Walking Surface Indicators (TWSI) (Note: Refer to Section IV.4.8 and Appendix B – Tactile Walking Surface Indicators); and
- Detectable warning surfaces shall be located at the unprotected edges of a reflecting pool.

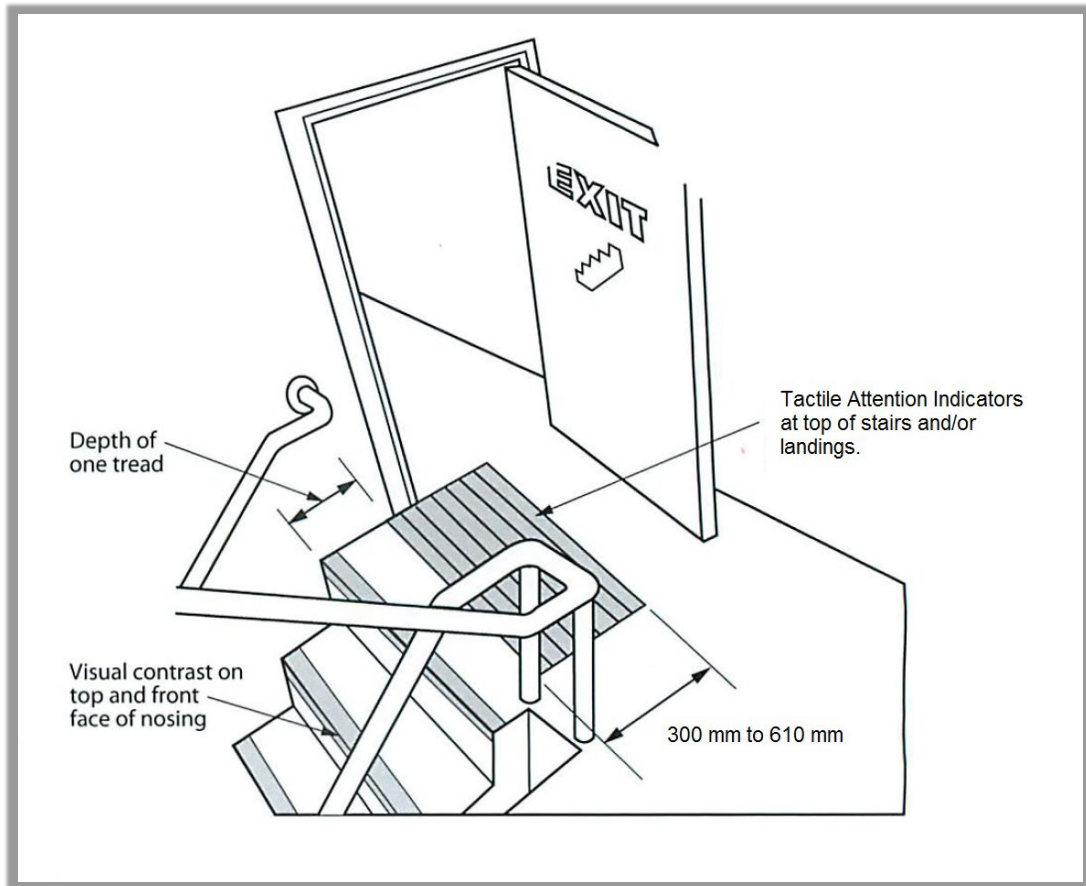


Figure IV.4.8.1: Detectable Warning Surfaces

Related Sections

- IV.1.3 Protruding Objects
- IV.1.4 Accessible Routes, Sidewalks and Corridors
- IV.1.9 Ramps
- IV.1.10 Stairs
- IV.3.1 Drinking Fountains
- IV.3.3 Elevated Platforms
- IV.4.15 Texture and Colour

IV.4.9 Public Address Systems

Rationale

Public address systems need to be easy to hear above the ambient background noise. There should be no distortion or feedback, to assist persons with hearing *impairments*. Background noise should be minimized.

Visual provisions for emergency evacuation purposes shall be made for individuals 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, facility operations will be responsive to client needs that may require the music to not be broadcast continuously or throughout the entire *facility*;
- All-point call systems shall only be utilized for fire and emergency information; and
- 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

- IV.4.1 Emergency Exits, Fire Evacuation and Areas of Rescue Assistance
- IV.4.16 Acoustics

IV.4.10 Information Systems

Rationale

Video display terminals may present difficulties for persons with visual *impairments*. Alternate technology or audio interfaces are required. Seated eye-level, reach and knee space provisions should also be considered, to ensure that a person using a wheelchair could access an information terminal.

Application

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

Design Requirements

- 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, telecommunications, Braille and large-text print. The minimum font size for large text print shall be 16 point;
- 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 persons using wheelchairs (Refer to Section IV.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; and
- 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 who are visually impaired. *Tactile* identification shall comply with Section IV.4.15.

Related Sections

IV.4.2 Controls and Operating Mechanisms
IV.4.15 Texture and Colour

IV.4.11 Card Access, Safety and Security Systems

Rationale

Seniors and persons with disabilities are conscious of their own vulnerability and tend to seek more reassurance and inherent security than in the past.

Where card-access systems are selected as a means of entry to particular *facilities* or *spaces*, the systems and components selected should be suitable for use by persons with varying abilities. The use of heat-sensing activation buttons should be avoided, as they are indiscernible to a blind person.

Application

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

Design Requirements

- Adequate lighting shall be provided continuously along public walkways, steps and *ramps* that are actively used at all times of year and/or where staff and public parking is provided;
- An audible signalling device (bell, buzzer, or similar device) or a two-way communication system shall be provided for persons requiring assistance at the primary *accessible entrance* and/or at any covered *accessible* parking areas;
- An *accessible* public telephone complying with Section IV.4.5 shall be located at, or close to, primary *accessible entrances*, for the use of persons requiring assistance;
- Card-entry systems shall:
 - be wall-mounted, no higher than 1200 mm above the floor or ground, adjacent to the door and free of the door swing;
 - 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, no higher than 1200 mm above the floor or ground, adjacent to the door and free of the door swing; and
 - incorporate buttons that:
 - are raised;
 - are mounted on a clearly differentiated coloured background; and
 - include raised numerals or letters in a constant array.

Related Sections

IV.1.1	Space and Reach Requirements	IV.1.13	Platform and Stair Lifts
IV.1.4	Accessible Routes, Sidewalks and Corridors	IV.2.7	Individual/Family Washrooms
IV.1.5	Entrances	IV.3.5	Offices, Work Areas and Meeting Rooms
IV.1.6	Doors	IV.4.2	Controls and Operating Mechanisms
IV.1.12	Elevators	IV.4.15	Texture and Colour

IV.4.12 Glare and Light Sources

Rationale

Direct or reflected glare of floors, walls or work surfaces is a major problem for persons with reduced vision. Light sources, materials and finishes should be selected which do not add to the problem, and ensure that natural daylight is controllable, particularly on west and southwest exposures.

Strategic use of lighting is valuable to all individuals, but it is especially important for individuals with some forms of visual *impairment*. Glare can make navigating an environment more difficult for an individual with a visual *impairment* and is uncomfortable for many other individuals. 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

- Monolithic floor surfaces, such as stone, granite, marble or terrazzo, shall have a matte or honed finish, to minimize reflected glare. Extensive high-gloss floor finishes are not acceptable but high-gloss materials may be incorporated into floor finish details, as long as they do not result in large reflective surfaces;
- 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. Extensive high gloss floor finishes are not acceptable, but high-gloss materials may be incorporated into floor finish details, as long as they do not result in large reflective surfaces;
- 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 sun screening systems shall be provided at windows and other places where direct sunlight can adversely affect the level of lighting and/or reflected glare;
- Light fixtures shall be selected with diffusers, lenses or recessed light sources, so that no glare is created;
- Where surface-mounted fluorescent ceiling fixtures are used, they shall have darkened sides (i.e., not wrap-around lenses) and be positioned perpendicular to the dominant direction of travel, or used in valance-type lighting at the sides of the *space*, so that the lighting is indirect; and

- The location of special features and key orientation *elements* shall be enhanced using supplementary lighting. Such lighting shall have upward or downward components only.

Related Sections

IV.1.2	Ground and Floor Surfaces
IV.1.4	Accessible Routes, Sidewalks and Corridors
IV.1.5	Entrances
IV.1.8	Windows, Glazed Screens and Sidelights
IV.1.9	Ramps
IV.1.10	Stairs
IV.1.12	Elevators
IV.1.13	Platform and Stair Lifts
IV.2.1	Toilet and Bathing Facilities
IV.3.8	Information, Reception and Service Counters
IV.4.13	Lighting

IV.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. Outdoor lighting should be provided at *entrances*, along frequently used access routes and at frequently used outdoor amenities. Adequate and controllable lighting is required for persons who lip-read, or those who require increased task lighting, due to visual *impairment*.

Application

Exterior and interior lighting systems shall comply with this section.

Design Requirements

Exterior Lighting

- Exterior lighting shall be in compliance with I.E.S.N.A. 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 amenities;
- At pedestrian *entrances*, lighting levels shall be consistent over the *entrance* area, measured at the ground;
- On pedestrian routes, including walkways, paths, stairs and *ramps*, lighting levels shall be consistent over the route and measured at the ground;
- At all *accessible* parking *spaces*, lighting levels shall be minimum 30 lux consistently over the parking *spaces*, measured at the ground;
- At steps and stairs, lighting shall be located at or beside the steps or stairs, to clearly define the treads, risers and nosing;
- All lighting shall:
 - be evenly distributed to minimize cast shadows; and
 - provide a good colour spectrum; and
- Supplementary lighting shall be provided to highlight key signage and orientation landmarks;
- Bollard and lighting located at a lower level shall be high enough to clear normal snow accumulation; and
- Lighting fixtures shall comply with the relevant parts of Section IV.1.3.

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. Where fluorescent or quartz light sources with a high blue content are used, the light quality should be enhanced with incandescent lights, to ensure the warm end of the spectrum is adequately present;
- 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 lighted to minimize tripping hazards;
- Lighting levels in elevator lobbies shall be similar to the lighting levels in elevator cabs, to minimize tripping hazards and measure 200 lux;
- Emergency lighting over stairs and *ramps*, in an exit or path of travel, shall be less than 50 lux;
- 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 100 lux at the working surface;
- Lighting in *meeting rooms* and *assembly areas* such as Council Chambers shall be evenly distributed, and shall be capable of being adjusted (e.g., dimmers); and
- Lighting at lecterns, podiums/platforms or other speaker locations shall be capable of being enhanced, even when other lighting is dimmed, to permit ease of lip-reading and/or viewing of the hand actions of a nearby signer for persons who are deaf.

Related Sections

IV.1.3	Protruding Objects
IV.1.4	Accessible Routes, Sidewalks, and Corridors
IV.1.5	Entrances
IV.1.9	Ramps
IV.1.10	Stairs
IV.1.12	Elevators
IV.1.13	Platform and Stair Lifts
IV.2.1	Toilet and Bathing Facilities
IV.3.1	Drinking Fountains
IV.3.3	Elevated Platforms
IV.3.4	Dressing Rooms
IV.3.5	Office, Work Areas and Meeting Rooms
IV.3.8	Information, Reception and Service Counters
IV.4.2	Controls and Operating Mechanisms
IV.4.5	Public Telephones
IV.4.7	Signage
IV.4.12	Glare and Light Sources

IV.4.14 Materials and Finishes

Rationale

The selection of flooring materials can be critical to the safe and easy movement of persons using all kinds of mobility aids, as well as persons with low vision.

Floor finishes, such as carpet, should be selected and installed so that persons using mobility aids can easily travel over them without using undue energy or tripping. Finishes should be slip-resistant and be selected to minimize reflected light and glare.

Application

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

Design Requirements

Exterior Finish Materials

- Suitable paving surfaces for walkways include asphalt, concrete, compacted gravel screenings, interlocking brick and patio stones. Such materials used as walkways, shall:
 - have joints that are no greater than 6 mm wide, with variations in level of no more than 3 mm; and
 - be laid to drain; and
- Where possible, gratings and grills shall be located to one side of the pedestrian walkways, so as not to impede the *accessible route*. Where this is not possible, the bars of the grating or grill shall be located perpendicular to the dominant path of travel, with openings of no greater than 13 mm;
- Steps shall be finished with a slip resistant material and incorporate highly contrasted nosing;
- *Ramp* surfaces shall be firm and non-slip;
- Handrails and guards shall be continuous, smooth and well maintained; and
- The finish of walls adjacent to *ramps* and stairs shall be non-abrasive.

Interior Materials and Finishes

- Carpet shall be of low-level loop construction, 10- or 12-gauge no static fiber, directly glued to the sub-floor;
- Where hard, monolithic materials are selected, they shall be non-slip and non-glare, complying with Section IV.4.12;
- Where floor tiles, bricks or pavers are used, joints should be no wider than 6 mm and should be flush; and

- Wall surfaces in corridors, adjacent to stairs or *ramps* or any other part of the normal path of travel should have a non-abrasive finish.

Related Sections

IV.1.2	Ground and Floor Surfaces
IV.1.4	Accessible Routes, Sidewalks and Corridors
IV.1.5	Entrances
IV.1.9	Ramps
IV.1.10	Stairs
IV.1.12	Elevators
IV.1.13	Platform and Stair Lifts
IV.2.1	Toilet and Bathing Facilities
IV.3.4	Dressing Rooms
IV.3.5	Offices, Work Areas and Meeting Rooms
IV.4.12	Glare and Light Sources
IV.4.15	Texture and Colour

IV.4.15 Texture and Colour

Rationale

Many persons with visual *impairments* are highly dependent on visual and tactile cues, which can be provided through the careful use of colour and texture.

Heavy or distinct patterns on walls or floors can add visual confusion to settings for persons with low vision and should be avoided. Simple, repetitive, non-directional patterns featuring monochromatic or low-colour contrast are preferred. Changes in material or texture should not necessitate a threshold.

Application

Textural and colour systems shall be used to enhance accessibility and shall comply with this section.

Design Requirements

- Exterior colour schemes shall incorporate a pronounced colour contrast, to differentiate boundaries of objects, distinguish objects from their background, and to generally enhance spatial orientation. Generally, for seniors and persons with low vision, colours in the warm end of the spectrum (yellow, orange, bright red, etc.) are easier to recognize than those at the cool end of the spectrum;
- Signs shall incorporate pronounced glare-free colour contrast. A minimum contrast of 70% light reflectance is required. For signs, the most visible colours are white or yellow on a black, charcoal or other dark background, such as brown, dark blue, dark green or purple. Black lettering on white is also acceptable, although less readable than the reverse. Unacceptable background colours are light gray and pastel colours. Red lettering on a black background is also unacceptable;
- Colour contrast shall be used as a safety measure to define edges or boundaries of objects (e.g., stair nosing, doors, handrails, etc.). Colour or tone shall be used to visually define the boundaries of a room (i.e., where the wall meets the floor). Baseboards in monochromatic environments shall be highly contrasting with the wall and floor colours, to provide boundary definition;
- Colour shall be used consistently to visually identify distinctive objects (e.g., exit doors);
- Bright colours and/or a highly contrasting tone shall be used to assist with way finding. (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*;
- *Detectable warning* surfaces shall be used to define potential hazards. (See Section IV.4.8.);

- All textured surfaces used as *detectable warning* devices shall be *cane-detectable* and clearly differentiated from the surrounding paving surfaces;
- Suitable exterior textures include saw-cut concrete with regular grooves, positioned no more than 50 mm apart; grooves should be at right angles to the path of travel;
- Suitable interior 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 or other non-slip strips;
- 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 way finding by defining such as the junction between walls and floors, doorway recesses and corridor intersections; and
- Throughout any one *site*, the same texture shall be used to identify the same type of hazard.

Related Sections

IV.1.2	Ground and Floor Surfaces	IV.3.6	Waiting and Queuing Areas
IV.1.4	Accessible Routes, Sidewalks and Corridors	IV.3.8	Information, Reception and Service Counters
IV.1.6	Doors	IV.3.9	Storage, Shelving and Display Units
IV.1.7	Gates, Turnstiles and Openings	IV.3.10	Lockers and Baggage Storage
IV.1.8	Windows, Glazed Screens and Sidelights	IV.3.11	Balconies, Porches, Terraces and Patios
IV.1.9	Ramps	IV.4.1	Emergency Exits, Fire Evacuation and Areas of Rescue Assistance
IV.1.10	Stairs	IV.4.2	Controls and Operating Mechanisms
IV.1.11	Handrails	IV.4.5	Public Telephones
IV.1.12	Elevators	IV.4.7	Signage
IV.1.13	Platform and Stair Lifts	IV.4.8	Detectable Warning Surfaces
IV.2.2	Toilet Stalls	IV.4.11	Card Access, Safety and Security Systems
IV.2.3	Toilets	V.1.5	Street Furniture on Exterior Paths of Travel
IV.2.4	Lavatories/Hand Basins	V.1.6	Benches and Seating
IV.2.5	Urinals	V.4.1	Outdoor Public Use Eating Areas
IV.2.6	Washroom Accessories	V.5.2	Landscaping Materials and Plantings
IV.2.7	Individual/Family Washrooms		
IV.2.8	Bathtubs		
IV.2.9	Shower Stalls		
IV.2.10	Grab Bars		
IV.3.1	Drinking Fountains		
IV.3.3	Elevated Platforms		
IV.3.4	Dressing Rooms		
IV.3.5	Offices, Work Areas and Meeting Rooms		

IV.4.16 Acoustics

Rationale

The acoustic environment of public buildings and spaces should accommodate the unique needs of persons who are hearing *impaired* and who need to differentiate essential sounds from general background noise. Acoustics can distort or enhance verbal information, as well as provide auditory information cues.

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 footstep to be heard by persons who are visually impaired but add another level of confusion for persons who are hearing impaired.);
- At *accessible routes* in large *facilities* where way finding 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. (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. (See Section IV.4.9.); and
- 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

IV.3.5	Office, Work Areas and Meeting Rooms
IV.3.8	Information, Reception and Service Counters
IV.4.5	Public Telephones
IV.4.6	Assistive Listening
IV.4.9	Public Address Systems

Section IV.5 Facility –Specific Requirements

IV.5.1 Swimming Pools and Saunas/Steam Rooms

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 with disabilities include *accessible* change facilities and a means of access into the water. Ramped access into the water is preferred over lift access, as it promotes integration – everyone will use the *ramp* – and independence. It is recommended that change rooms be equipped with a change table for persons who require attendant care assistance.

Many persons who are visually *impaired* will benefit from colour and textural cues along primary routes of travel and at potentially dangerous locations, such as the edge of the pool, at steps into the pool and at railings.

Application

In addition to the design requirements specified in Sections IV.1 to IV.4, swimming pools, wading pools, hot pools and therapy pools shall comply with this section.

Design Requirements

- Swimming pools, wading pools, hot pools and therapy pools, shall:
 - have at least one barrier-free access;
 - provide one ladder or set of steps in both the deep and shallow areas for entry into and egress from the pool;
 - provide a *ramp* that at a minimum meets the requirements of Section 3.11.5.1 of the Ontario Building Code or pool lift that conforms to the manufacturer's specifications
 - where a pool lift is installed, meet the requirements of Section 3.11.3.3 of the Ontario Building Code;
 - have a minimum 1800 mm wide path of travel around the perimeter of the pool deck and provide a clear barrier-free route within that path of travel in accordance with Section IV.1.4;
 - provide a colour contrasting tactile warning indicator in compliance with Section IV.4.8 around the perimeter of the pool deck and at locations where the pool deck could be confused with other surfaces;
 - where the pool is indoors, have a direct accessible route in compliance with Section 1.4 from the lobby/entrance to the change rooms;
 - have a direct accessible route in compliance with Section IV.1.4 from the change rooms to the pool deck;
 - have access from the pool deck into the water, provided by a *ramp* sloped no steeper than 1:12. In retrofit situations where it is *technically infeasible* to provide a *ramp*, a mechanical pool lift can be used;
 - have a shower chair available at each facility for use in transferring into the water and so that persons who use wheelchairs do not have to shower in their own chair;

- where steps are provided into the pool, have steps marked with a colour-contrasting strip at least 50 mm wide, at both the riser and the tread;
 - where steps are provided into the pool, have colour-contrasting handrails on both sides of the steps. Such handrails shall extend at least 300 mm beyond the pool edge;
 - where an up-stand edge is provided, it shall be a minimum of 200 mm and a maximum of 400 mm in height;
 - have pool boundaries clearly defined by both a textural change and a colour contrast to both the water surface and surrounding pavement;
 - have firm, slip-resistant materials and finishes used on the pool perimeter, deck or paved areas surrounding the pool;
 - have non-abrasive and easy-to-clean pool perimeter finishes;
 - have adequate drainage on the pool deck to drain water quickly;
 - where pool-depth indicator marking is provided, have depth- indicator markings, as well as 'SHALLOW END' and 'DEEP END' markings, of a highly contrasting colour and sufficient size to be easily visible;
 - where diving boards or platforms are provided, they shall be clearly marked and protected. Overhead clearances should be a minimum of 2100 mm or 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;
 - lifeguard chairs, slides and other pool related structures shall be in highly contrasting colours; and
 - where provided, 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.
- Saunas and steam rooms shall:
 - Where saunas and steam rooms are clustered, at least 5%, but no less than one of each type shall be accessible and shall provide a clear floor space allowing a person using a wheelchair to make a 180-degree turn.
 - Where seating is provided in the sauna/steam room, have at least one accessible bench to:
 - be mounted 450 mm to 500 mm above the finished floor;
 - have *clear floor space* provided alongside the bench to allow a person using a wheelchair to make a parallel transfer onto the bench;
 - be designed to carry a minimum load of 1.33 kN; and
 - where installed in conjunction with showers, swimming pools, or other wet locations, be designed so that:
 - water shall not accumulate upon the surface of the bench; and
 - the top surface is slip-resistant.
 - All doors to accessible sauna and steam rooms shall be in compliance with Section IV.1.6

Related Sections

All relevant parts of Sections IV.1, IV.2, IV.3 and IV.4.

IV.5.2 Cafeterias

Rationale

Cafeteria design needs to reflect the lower sight lines, reduced reach, knee-space and manoeuvring requirements of persons using mobility aids. Customers using mobility devices cannot hold a tray or food items while supporting themselves on canes or manoeuvring a mobility device. Tray slides should be designed to move trays with a minimum effort.

Application

In addition to the design requirements specified in Sections IV.1 to IV.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 IV.3.7. It is preferable to have all fixed tables *accessible* and *distributed* throughout the *space* of *facility*.

At least one lane at each cashier area shall be *accessible* and comply with this section. It is preferable to have all lanes at all cashier areas *accessible*.

Design Requirements

- Where food or drink is served at counters exceeding 865 mm in height for consumption by customers seated on stools or standing at the counter, a portion of the main counter which is 1525 mm in length (minimum) shall be provided in compliance with Section IV.3.8, or service shall be available at *accessible* tables within the same area;
- All *accessible* fixed tables shall be *accessible* by means of an *access aisle* at least 1100 mm *clear* between parallel edges of tables or between a wall and the table edges;
- Dining areas, including raised or sunken dining areas, and outdoor seating areas shall be *accessible*. In a retrofit situation where it is *technically infeasible* to provide access to all levels within a dining area, or to all parts of outdoor seating areas, at least one dining area shall be *accessible*. The *accessible* area must feature the same level of service and *décor* as the rest of the dining area, and it must not be restricted to use by people with *disabilities*;
- Food service lines shall have a minimum *clear* width of 1100 mm (Figure IV.5.2.2);
- Tray slides shall be mounted no higher than 865 mm (Figure IV.5.2.1);
- If self-service shelves are provided, at least 50% must be within the reach ranges specified in Section IV.1.1. It is preferable to have all self-service shelves *accessible*;

- Self-service shelves and dispensing devices for tableware, dishware, condiments, food and beverages shall be installed to comply with Section IV.1.1;
- In banquet rooms or *spaces* where a head table or speaker's lectern is located on a raised platform, the platform shall be *accessible* and comply with Section IV.1.9, Section IV.1.16, and Section IV.3.3;
- *Spaces* for vending machines, beverage dispensers and other equipment shall comply with Section IV.1.1 and shall be located on an *accessible route* in compliance with Section IV.1.4;
- Cashier locations should feature at least one *access aisle*, which is a minimum of 1100 mm wide. It is preferable to have all aisles *accessible*;
- Barriers and/or turnstiles, where provided to control access, shall comply with Section IV.1.7;
- Queuing areas shall comply with Section IV.3.6; and
- Access to outdoor eating areas shall comply with Section IV.3.11.

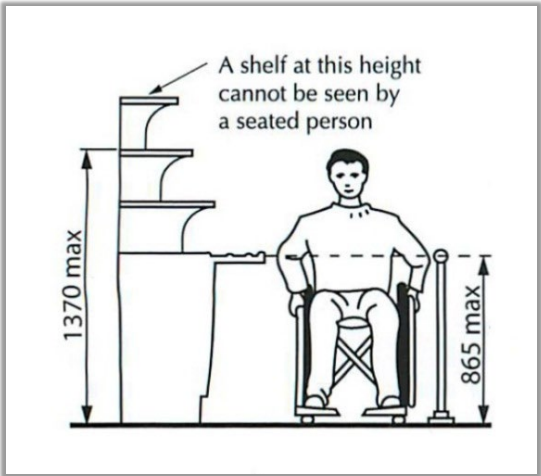


Figure IV.5.2.1: Self-serve Counter

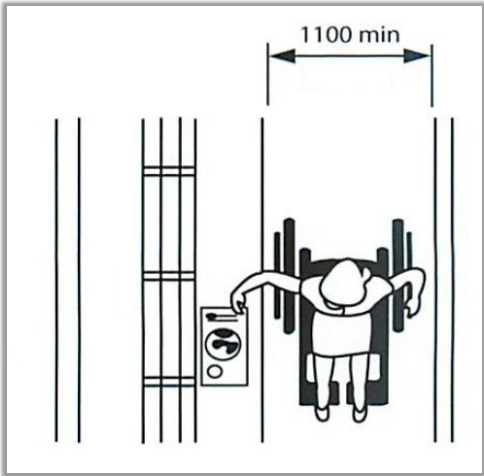


Figure IV.5.2.2: Aisle Width

Related Sections

All relevant parts of Sections IV.1, IV.2, IV.3 and IV.4.

IV.5.3 Libraries

Rationale

Traditional and automated systems should be available to all customers and staff. Both the design of the *facility* and the provision of services should be considered. Service counters and study carrels should accommodate knee space and armrest requirements of persons using wheelchairs. 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.

Application

In addition to the design requirements specified in Sections IV.1 to IV.4, libraries shall comply with this section.

Where fixed seating, tables or study carrels are provided, at least 10% shall be *accessible* and in compliance with this section. It is preferable to have all fixed seating, tables and study carrels *accessible*.

At least one lane at each checkout area shall be *accessible* and comply with this section. It is preferable to have all lanes at all checkout areas *accessible*.

Where workstations are provided, at least 50% shall be *accessible* and shall comply with this section. It is preferable to have all workstations *accessible*, including the provision of information in Braille and large print.

Design Requirements

- *Accessible* fixed seating, tables and study carrels shall be located on an *accessible route* in compliance with Section IV.1.4;
- Clearances between fixed seating, tables and study carrels shall comply with Section IV.1.4;
- Where shelving is provided at fixed seating, tables or study carrels, the shelving shall be no higher than 1350 mm;
- *Accessible* fixed study carrels shall incorporate:
 - work surfaces and knee/toe clearance in compliance with Section IV.1.1;
 - an electrical outlet; and
 - lighting levels of at least 100 lux at the work surface.
- Where provided, traffic control or book security gates shall comply with Section IV.1.7;
- Minimum *clear aisle space* at stacks shall be 1200 mm. Aisle configurations shall incorporate a *clear floor space* allowing a person who uses a wheelchair to make a 180-degree turn (Figure IV.5.3.1);

- Shelf height in stack areas is unrestricted based upon the facilitation of staff assistance. (Figure IV.5.3.2);
- Circulation service counters and information service counters shall comply with Section IV.3.8;
- Where provided, computer workstation shall incorporate:
 - knee and toe *space* below in compliance with Sections IV.1.1, and Section IV.3.7;
 - a maximum work surface height of 865 mm; and
 - a maximum table depth of 900 mm. 9 (Figure IV.5.3.3); and
- 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 IV.1.4;
 - be located adjacent to a 2440 mm by 2440 mm level platform; and
 - have a slot that is operable using one hand, located between 860 mm and 900 mm above the floor; and
- Lighting at book stacks shall provide a minimum of 100 lux at a nominal working height of 920 mm; and
- The acoustic quality shall be free of unnecessary background noise and should permit comprehension by persons with limited hearing. (See also Section IV.4.16.).

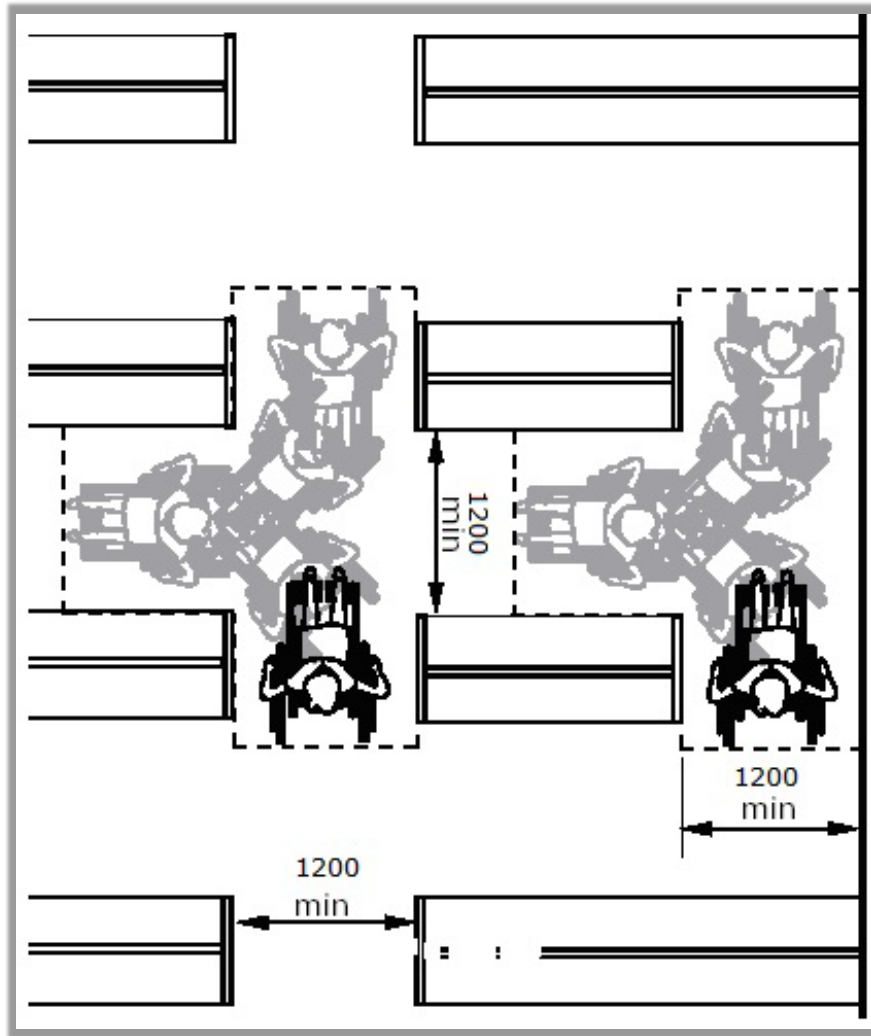


Figure IV.5.3.1: Aisle Width

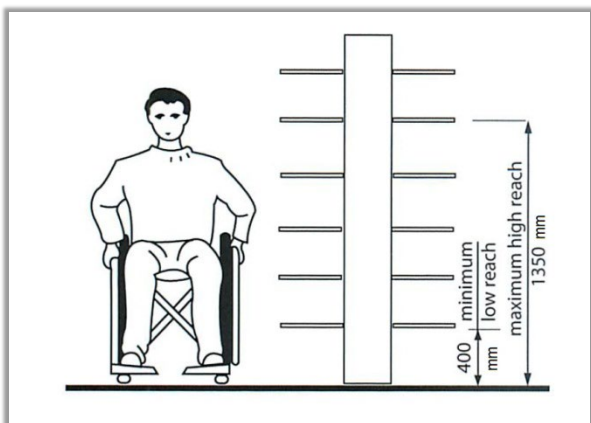


Figure IV.5.3.2: Reach Heights

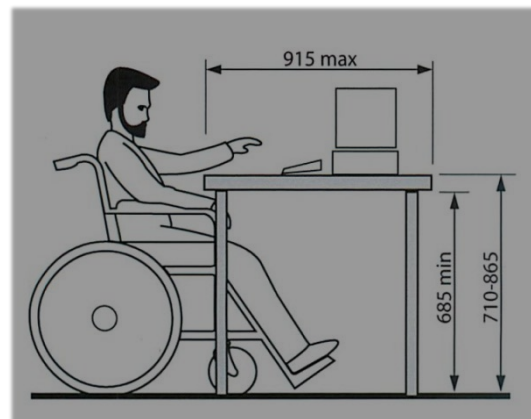


Figure IV.5.3.3: Work Surfaces

Related Sections

All relevant parts of Sections IV.1, IV.2, IV.3 and IV.4.

IV.5.4 Municipal Courts

Rationale

Municipal court facilities shall accommodate persons with *disabilities*, who may be members of the judiciary, court clerks or other officials, defendants, members of counsel and members of the public. Court facilities usually incorporate changes in level at the judge's dais and court officials' areas. While it is not required to make all of these areas fully *accessible*, it is a requirement that they be easy to adapt, should the need arise in the future to accommodate a person with a disability. Other areas of the court generally used by the public, defendants, witnesses and counsel should be *accessible* to all persons.

Application

In addition to the design requirements specified in Sections IV.1 to IV.4, municipal courts shall comply with this section.

In addition to the *accessible entrances* used by staff or the public as required in Section IV.1.5, where provided, at least one restricted *entrance* and one secured *entrance* to the facility shall be *accessible*. Restricted *entrances* are those *entrances* used only by judges, public officials, facility personnel or other authorized parties on a controlled basis. Secure *entrances* are those *entrances* to judicial facilities used only by detainees and detention officers.

Exception: Secured *entrances*, doors and doorways operated only by security personnel shall not be required to have *accessible* door hardware.

An *accessible* route complying with Section IV.1.4 shall be provided through fixed security barriers at required *accessible entrances*. Where security barriers incorporate equipment such as metal detectors, fluoroscopes, or other similar devices that cannot be made *accessible*, an *accessible* route shall be provided adjacent to such security screening devices, to facilitate an equivalent circulation path.

Where a two-way communication system is provided to gain admittance to a *facility*, or to restricted areas within a *facility*, the system shall provide both visual and audible signals and shall comply with Section IV.4.2.

Where provided, the following *elements* and *spaces* shall be on an *accessible* route complying with Section IV.1.4.

- Spectator, Press and other areas with Fixed Seats:
 - Each spectator, press and other areas with fixed seats having a seating capacity of 25 or less, shall have within its defined area a clear floor space complying with Section IV.1.1. Where the seating capacity of a spectator, press and other area with fixed seats is greater than 25, seating provision shall be provided in compliance with Section IV.3.2.
- Jury Boxes and Witness Stands:
 - Each jury box and witness stand shall have within its defined area clear floor space complying with Section IV.1.1.

- Judges' Benches and Courtroom Stations:
 - Judges' benches, clerks' stations, bailiffs' stations, court reporters' stations, and litigants' and counsel stations shall comply with Section IV.3.7.

Exceptions:

- Vertical access to raised judges' benches or courtroom stations need not be installed, provided that the requisite areas and manoeuvring *spaces* are installed at the time of initial construction, to allow future installation of a means of vertical access complying with Section IV.1.9 or IV.1.13 without requiring substantial reconstruction of the space.
- In alterations, *accessible* wheelchair *spaces* are not required to be located within the defined area of jury boxes or witness stands and may be located outside these spaces where *ramp* or lift access poses a hazard by restricting or projecting into a required means of *egress*.

Permanently installed assistive listening systems in compliance with Section IV.4.6 shall be provided in each courtroom. The minimum number of receivers shall be 4% of the room occupant load, but not less than two receivers. An informational sign indicating the availability of an assistive listening system shall be posted in a prominent place.

Where provided in areas for jury assembly or deliberation, the following *elements* or *spaces* shall be on an *accessible route* complying with Section IV.1.4 and shall comply with the following provisions:

- refreshment areas, kitchenettes and fixed or built-in refreshment dispensers shall be *accessible* to persons with *disabilities*; *and*
- where provided, drinking fountains shall comply with Section IV.3.1.

Where cells are part of the court facility, at least 2%, but not less than one, of the total number of cells shall comply with this section. Where special cells are provided (e.g., orientation, protective custody, disciplinary, segregation, detoxification or medical isolation), at least one of each purpose shall comply with this section. Such cells shall also be equipped with audible emergency warning systems or permanently installed telephones within the cell, in compliance with this section.

Design Requirements

- *Accessible* cells shall be located on an *accessible route* in compliance with Section IV.1.4;
- Where provided to serve *accessible* cells, the following *elements* or *spaces* shall be *accessible* and connected by an *accessible route*:
 - All doors and doorways on an *accessible route* shall comply with Section IV.1.6. Exception: Secured entrances, doors and doorways operated only by security personnel shall not be required to have *accessible* door hardware;
 - At least one toilet and one bathing facility shall comply with Section IV.2.1;
 - *Accessible* beds shall have manoeuvring space at least 950 mm wide along one side;
 - At least one drinking fountain and/or water cooler shall comply with Section

- IV.3.1;
 - Fixed or built-in tables, counters or work surfaces shall comply with Section 3.7;
 - At least one fixed bench shall comply with Section IV.3.15;
 - Fixed or built-in storage shall comply with Section IV.3.9; and
 - All controls intended for operation by detainees shall comply with Section IV.4.2; and
-
- Where audible emergency warning systems are provided to serve occupants of cells, visual alarms complying with Section IV.4.4 shall also be provided. Exception: Visual alarms are not required where detainees are not allowed independent means of egress; *and*
 - Where permanently installed telephones are provided within cells, they shall have volume controls.

Related Sections

All relevant parts of Sections IV.1, IV.2, IV.3 and IV.4.

IV.5.5 Transportation Facilities

Rationale

Links to usable transportation are essential to all members of a community. 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 information should be available.

Application

In addition to the design requirements specified in Sections IV.1 to IV.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 walkway;
- have clearances around at least one side of the shelter, including the landing pad side, of at least 1220 mm;
- provide a *clear* view of oncoming traffic;
- incorporate sufficient clear floor space to accommodate a person using a wheelchair or scooter;
- where seating is provided feature at least one seat with armrests and a seat height between 400 mm and 450 mm; and
- incorporate safety features as specified in Section IV.1.8 for all glazed panels surrounding bus shelters.

Bus Stops

Bus stops shall:

- incorporate a paved, firm, level surface and;
- ensure that the path of travel to and from the bus is not impeded by adjacent street furniture, such as dispensers, vending machines, waste boxes, planters, posts, signs and guy wires.

Transit Terminals

- Where bus platforms or other boarding platforms are provided, they shall allow safe access for persons using wheelchairs;
- The edges of platforms shall incorporate a continuous *detectable warning* surface at least 610mm wide that complies with Section IV.4.8;
- Lighting levels at all boarding platforms shall be at least 50 lux at the platform or boarding-surface edge;
- 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; and

- When seating is provided it shall in comply with Section V.1.6, at or close to boarding points.

Related Sections

All relevant parts of Sections IV.1, IV.2, IV.3 and IV.4 and V.1.

IV.5.6 Kitchens

Rationale

Kitchen and food preparation areas should be designed for a wide range of users including children and persons with disabilities. Reach requirements are important to consider when designing cooking spaces for access to storage counters, work surfaces and counter tops. Pull out work boards below the standard countertop level increases the accessibility of work surfaces. Consideration should be given to designing for standing use as well as seated use.

Appliances should be accessible to all. Side-by-side refrigerators are generally more accessible and models with pull out shelves are preferred. Side opening, self-cleaning ovens are preferred. Cook-tops with flat ceramic surfaces are not desirable for people with low vision.

A good basic rule for kitchen storage is to provide shelving above the counter and drawers below the counter. Full-extension drawers and shelves provide storage space that is easy to reach and use. Lazy-Susan trays also provide accessible storage.

Application

Kitchens and food preparation areas shall comply with this section. Where counters and work surfaces are included at least 10%, but not less than one, shall comply with this section.

Design Requirements

- The clear floor space between counters and all opposing base cabinets, countertops, appliances, or walls in kitchens shall be at least 1500 mm.
- At least one work surface shall:
 - have a clear floor area of at least 810mm x 1370 mm, which may extend up to 480 mm underneath the work surface;
 - have a centered knee clearance at least 810 mm wide by 480 mm deep by 740 mm high with a toe space of a minimum 205 mm deep by 230 mm high and a maximum height of 730 mm to 860 mm measured from the floor;
 - have no sharp or abrasive surfaces under it; and
 - have electrical outlets at the side or the front of it.
- A sink shall: have a minimum clear floor area at least 810 mm by 1370 mm, with a maximum of 480 mm underneath the sink:
 - be mounted so that the minimum distance between the centre line of the fixture and the side wall is 460 mm; with the top located between 820 mm– 840 mm from the floor;
 - have a knee clearance of at least 810 mm wide by 480 mm deep by 740 mm high with a toe space of 205 mm deep by 230 mm high;
 - have faucets with handles of the lever type that are operable with a closed fist or automatically activated;
 - have no sharp or abrasive surfaces under it; and
 - have hot water and drain pipes offset to the rear and insulated if they abut the above noted clearances.

- Illumination levels for the kitchen shall comply with Section IV.4.13.
- A range and cook-top shall have:
 - controls located where they do not require reaching across the burners to operate;
 - a surface height located between 820 mm – 860 mm from the floor;
 - an adjacent work surface at least 400 mm wide at the same height as the cook-top;
 - have a knee clearance centred on the cook-top at least 810 mm wide by 740 mm high; with a toe space 230 mm deep by 230 mm high;
 - insulation or other protection on the underside where the knee clearance is provided; and
 - a clear floor area at least 810 mm by 1370 mm, which may extend up to 480 mm underneath the cook-top.
- An oven shall have controls located on the front panel and for an oven equipped with a side opening door, a horizontal surface shall be provided:
 - beside the latch edge of the doors as a pull out shelf under the door that extends the width of the oven; and
 - pull out at least 250 mm.
- A refrigerator and freezer shall be self-defrosting, with a vertical side-by-side with shelf space and controls not more than 1200 mm from the floor.
- Microwave ovens shall:
 - be mounted at counter height with the operating panel not more than 1200 mm from the floor;
 - have a push button door opener; and
 - have a colour contrast operating panel.
- Cabinets, drawers, and shelf storage areas shall have:
 - at least one shelf not more than 1200 mm from the floor (where it is above a work surface); and
 - “D” type door pulls mounted close to the bottom of upper cabinet doors, and top of base cabinet doors.

Related Sections

- IV.1.1 Space and Reach Requirements
- IV.1.2 Ground and Floor Surfaces
- IV.1.3 Protruding Objects
- IV.1.4 Accessible Routes, Sidewalks and Corridors
- IV.1.5 Entrances
- IV.1.6 Doors
- IV.1.8 Windows, Glazed Screens and Sidelights
- IV.3.7 Tables, Counters and Work Surfaces
- IV.3.8 Information, Reception and Service Counters
- IV.3.9 Storage, Shelving and Display Units
- IV.4.1 Emergency Exits, Fire Evacuation and Areas of Rescue Assistance
- IV.4.2 Controls and Operating Mechanisms
- IV.4.12 Glare and Light Sources
- IV.4.13 Lighting
- IV.4.14 Materials and Finishes
- IV.4.15 Texture and Colour

V Design Standards – Exterior

Section V.1 Exterior Paths of Travel

V 1.1 Sidewalks and Walkways

Rationale

Maintaining a clear exterior path of travel through public right of way is essential. Any exterior route of travel must provide the clear width necessary for persons using wheelchairs or scooters, those in strollers or those traveling in pairs. Consideration should be given not just to the width of mobility devices, but also to their manoeuvrability. Firm, stable and slip-resistant surfaces are critical characteristics of accessible routes. Overhead barriers or protruding objects are hazards for those with vision loss.

Application

These standards apply to exterior sidewalks and walkways that are part of a barrier-free path of travel intended to have a functional purpose as opposed to those provided for recreational purposes. They do not apply to paths of travel regulated by the Ontario Building Code (barrier-free entrance, passenger loading zones and parking lots with barrier-free parking)

Design Requirements

- Sidewalks and walkways shall:
 - have a minimum width of 1600 mm and can be reduced to 1200 mm at the top of a *curb ramp*;
 - have a surface of a different texture to that surrounding it;
 - have a running slope no steeper than 1:20 (5%) with the exception of sidewalks by roadways where the slope must be no steeper than the slope of the adjacent roadway;
 - have a cross slope no steeper than 1:20 (5%) for hard surfaces such as asphalt and concrete or 1:10 (10%) for all other surfaces;
 - provide changes in level in accordance with the following:
 - 1 mm to 5 mm – no bevel is required;
 - 6 mm to 13 mm – bevelled with a maximum ratio of 1:2 (50%);
 - 14 mm to 74 mm – running slope not steeper than 1:8 (12.5%) or provide a *curb ramp* in accordance with Section V.1.7;
 - 75 to 200 mm – running slope not steeper than 1:10 (10%) or provided a *curb ramp* in accordance with Section V.1.7; and
 - Greater than 200 mm – provide a *ramp* in accordance with Section V.1.2; and
 - have a minimum clear headroom of 2100 mm and where less than 2100 mm provide a cane detectable guard or other barrier where the clear height has been reduced;
 - have a minimum 1100 mm clear width at entry points to the sidewalk or walkway; and
 - have surface openings that do not allow the passage of an object more than 20 mm in diameter with elongated openings oriented perpendicular to the direction of the path of travel. (Figure V.1.7.1).

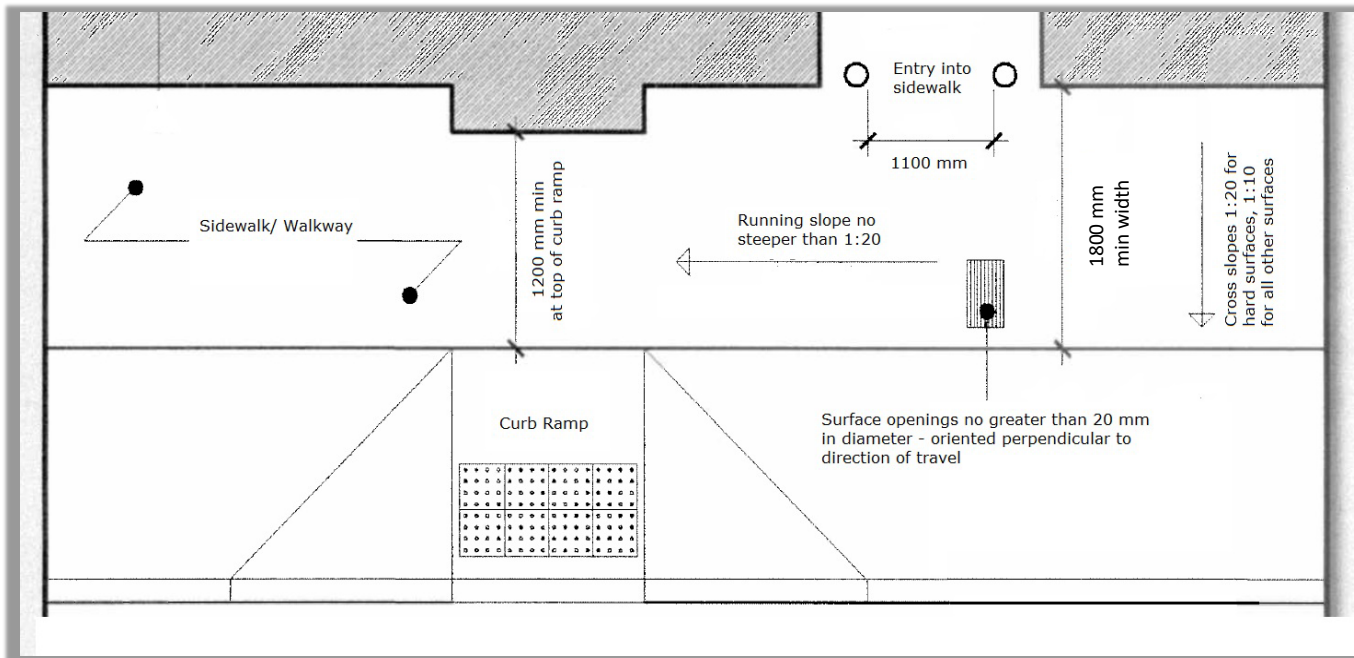


Figure V1.1.1: Sidewalk and Walkway Details

Related Sections

V.1.2 Ramps on Exterior Paths of Travel

V.1.7 Curb Ramps

Refer to [City Engineering & Construction Standards](#)

V.1.2 Ramps on Exterior Paths of Travel

Rationale

Ramps improve access for people using assistive mobility aids, pushing delivery carts or strollers and pulling wagons or carts. The steepness of the *ramp*, the turning space at landings, edge protection, textured surfaces and handrails are all important features for a safe and functional *ramp*.

Application

The requirements in this section apply to ramps that are newly constructed and re-developed in exterior *public spaces* that are not covered under the Ontario Building Code.

Design Requirements

- *Ramps* on exterior paths of travel shall:
 - have surfaces that are firm, stable and slip resistant. (Figure V.1.2.3);
 - be a minimum clear width of 1100 mm; and
 - have a running slope no steeper than 1:15 (6.7%). (Figure V.1.2.1)
- Landings shall:
 - be provided at top and bottom of *ramp*, at *abrupt changes* in direction, and at horizontal intervals not greater than 9 metres apart;
 - be a minimum of 1700 mm by 1700 mm and landings on a straight *ramp* to be a minimum of 1700 mm in length and at least the same width of the *ramp*;
 - have a cross slope to be a maximum of 1:50 (2%); and
 - have surface openings that do not allow the passage of an object more than 20 mm in diameter with elongated openings oriented perpendicular to the direction of the path of travel. (Figure V.1.2.1); and
- Handrails shall:
 - be provided on both sides of the ramp, including at landings;
 - have a minimum width of at least 1000 mm between handrails;
 - have intermediate handrails that are continuous between landings provided where a ramp is wider than 2200 mm;
 - be continuously graspable along the entire length without interruption by newel posts, other construction *elements*, or obstructions that can break a handhold;
 - be circular in shape and have a cross section with an outside diameter 30 mm to 40 mm;
 - be 865 mm and 965 mm high measured vertically from the surface of the *ramp* and the landings;
 - incorporate a pronounced colour contrast, to differentiate them from the surrounding environment;
 - terminate in a manner that will not obstruct pedestrian travel or create a hazard;
 - extend horizontal a minimum of 300 mm beyond the top and bottom of the *ramp*;
 - be free of any sharp *elements*;
 - have a minimum clearance of 50 mm between the handrail and the wall it is attached to; and

- be able to withstand loading values obtained from the non-current application of a concentrated load not less than 0.9kN applied at any point and in any direction and a uniform load not less than 0.7kN/metre applied in any direction to the handrail. (Figure V.1.2.2); and
- Walls or guards shall be provided on both sides of a *ramp*;
- Where a guard is provided it shall:
 - have the top must be not less than 1070 mm above the *ramp* surface (measured vertically);
 - have edge protection in addition to the guard is required where there is a gap between the guard and the *ramp* surface of more than 50 mm; and
 - be designed so that no element, attachment or opening be located between 140 mm and 900 mm above the *ramp* surface to facilitate climbing; and
- Edge protection shall be used where no solid enclosure or solid guard is provided or where it does not extend within 50 mm of the finished surface of the *ramp* and shall be:
 - a minimum of 50 mm high curb; or
 - railings or other barriers that extend within 50 mm of the finished *ramp* surface.

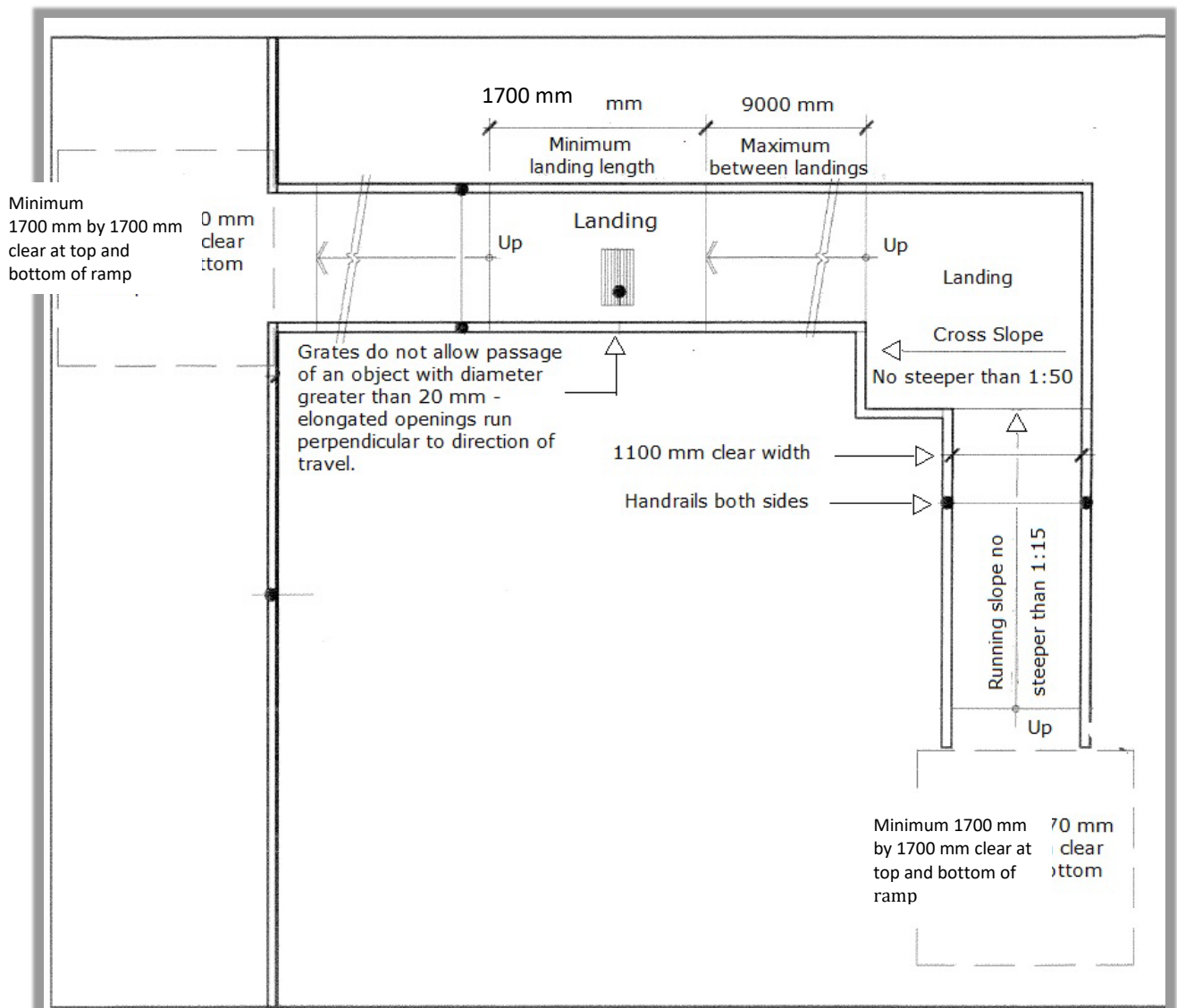


Figure V.1.2.1: Ramps on Exterior Path of Travel

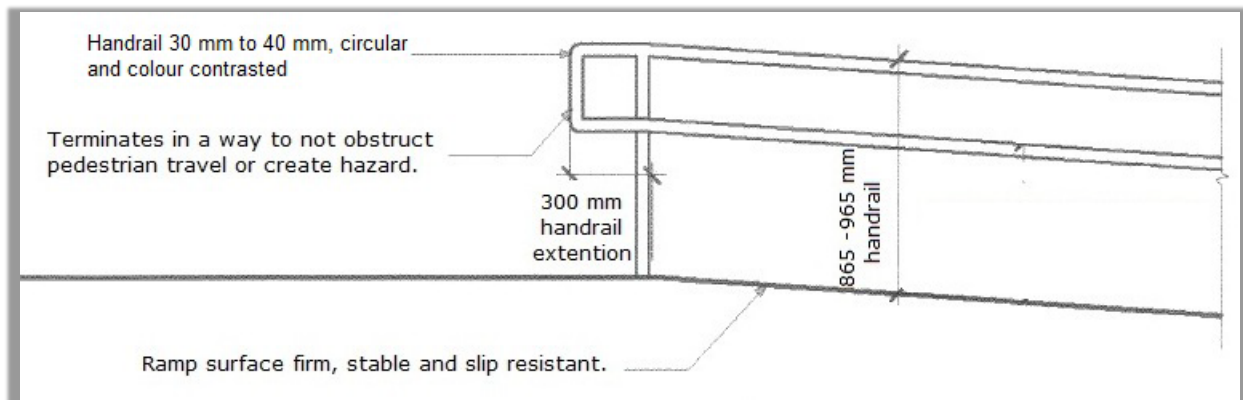


Figure V.1.2.2: Handrails

Legend			
	Potential for slipping is extremely low (most preferred surface)		
	Potential for slipping is low		
	Potential for slipping is moderate to low		
	Potential for slipping is moderate		
	Potential for slipping is high (least preferred surface)		
Surface Material	Potential for Slip		Remarks
	Dry and Unpolished	Wet	
Carpet	Extremely low	Low	Loose or worn carpets can present a trip hazard. Thick carpet is unsuitable for wheelchair movement
Cast Iron	Low	Moderate to low	If open treads are used, the potential for slip can be low in wet conditions
Ceramic Tiles (glazed or highly polished)	Low	High	
Ceramic Tiles (matte)	Low	Moderate to low	Wet slip potential is dependent on surface roughness. An Rz (din) value greater than 10 µm should be used for clean-water wet areas
Clay Pavers	Extremely low	Low	Brick Development Association can advise*
Clay Tiles	Low	Moderate to low	When surface is wet and polished, the potential for slip can be very high
Clay Tiles (carborundum finish)	Extremely low	Extremely low	Might be suitable for exterior stairs
Clay Tiles (textured)	Extremely low	Low	Might be suitable for exterior stairs

Figure V.1.2.3: Slip Resistant Values

V.1.3 Stairs on Exterior Paths of Travel

Rationale

Stairs may be an option for people with different types of disabilities and for all users of a facility or amenity. The climb up a short set of stairs may be an option over a long and circuitous *ramp*. The safety and usability of stairs depend on some key technical requirements including the size of each step, the use of *tactile walking surface indicators* and the appropriate design of handrails and guards.

Application

These requirements apply to newly constructed and redeveloped stairs with general site boundaries of buildings and public settings such as parks and municipal sidewalks.

Design Requirements

- Stairs on exterior paths of travel shall have:
 - slip resistant surface treads;
 - a uniform rise and run in any one flight;
 - a rise dimension of 135 mm to 180 mm between successive treads;
 - closed risers;
 - run dimensions of 280 mm to 355 mm between successive steps; and
 - nosing protection, a maximum of 38 mm with no abrupt undersides and high tonal contrast markings that extend the full tread-width of each step. (Figure V.1.3.1); and
- Handrails shall:
 - be provided on both sides, including around landings;
 - be continuously graspable along the entire length;
 - have a circular cross section with an outside diameter between 30 mm and 40 mm;
 - be located between 865 mm and 965 mm high, measured vertically from a line drawn through the outside edges of the stair nosings or the surface of landings;
 - terminate in a way that will not obstruct pedestrian travel or create a hazard;
 - extend horizontally a minimum of 300 mm beyond the top and bottom;
 - have a clearance of a minimum of 50 mm from any wall to which they are attached;
 - provide intermediate handrails where a stair is wider than 2200 mm with handrails that are continuous between landings and located so there is no more than 1650 mm between handrails; and
 - be able to withstand the loading values obtained from the non-current application of a load not less than 0.9kN applied to any point and in any direction and a uniform load of not less than 0.7kN/metre applied at any direction to the handrail; and

- **Tactile Walking Surface Indicators (TWSIs) shall:**
 - be provided at the top of all flights of stairs;
 - be at least 610 mm in depth;
 - extend the full width of the stair, starting one tread from the leading edge of the top step;
 - have the tactile element raised above the adjacent ground surface;
 - have a high tonal contrast to the adjacent ground surface; and
 - conform to Clauses 4.1.1 and 4.1.2 of ISO 23599, Assistive Products for Blind and Vision-Impaired Persons – Tactile Walking Surface Indicators (TWSI); and
- **Guards shall:**
 - be provided on each side of the stairway where the difference in elevation between ground level and the top of the stair is more than 600 mm and are not required where there is an adjacent wall or other barrier on that side; and
 - be a minimum of 920 mm measured vertically to the top of the guard from a line drawn through the outside edges of the stair nosing and be a minimum of 1700 mm around the landings.

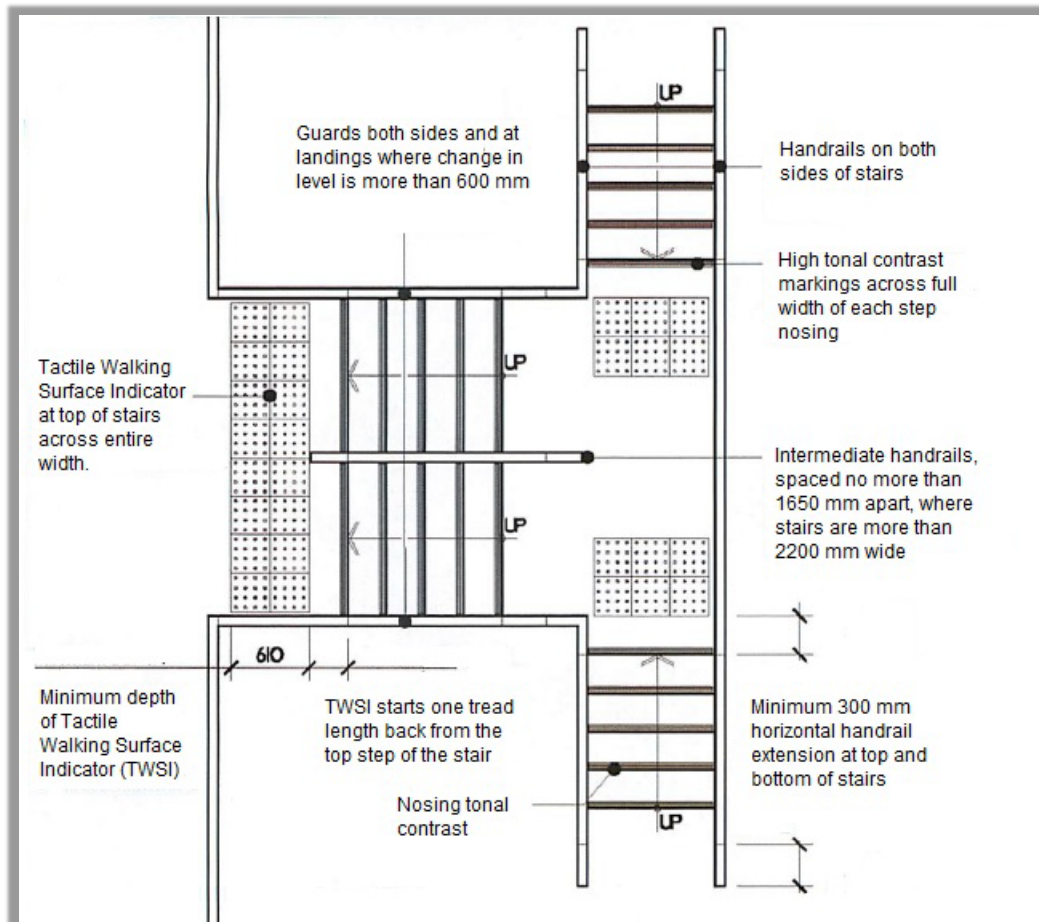


Figure V.1.3.1: Stairs

Related Sections

IV.4.8 Detectable Warning Surfaces

V.1.4 Rest Areas

Rationale

Rest areas along sidewalks, walkways and paths are important for those who have difficulty walking long distances. Seating in rest areas can provide a place for someone to meet up with friends or wait for rides and should be placed adjacent to pedestrian walkways to provide convenient rest places without becoming potential obstructions.

Application

These requirements apply to newly constructed and redeveloped exterior paths of travel in *public spaces*.

Design Requirements

- Seating in rest areas shall:
 - be adjacent to an *accessible route*;
 - be set back from the route of travel; and
 - be in compliance with Section V.1.6.

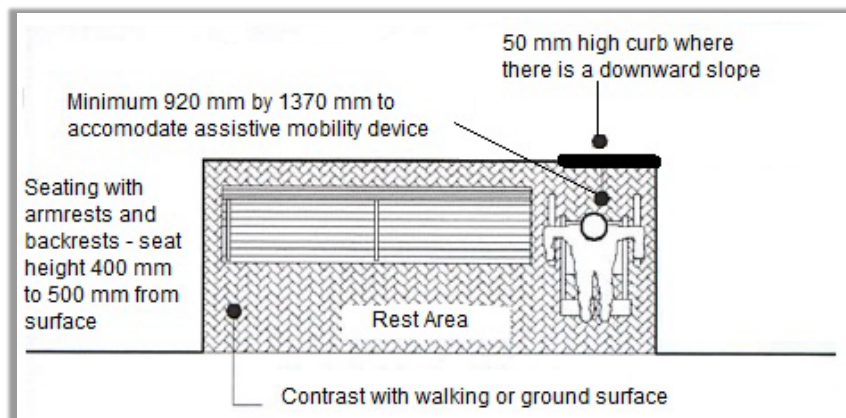


Figure V.1.4.1: Seating in Rest Areas

Related Sections

- V.1.1 Sidewalks and Walkways
- V.1.6 Benches and Seating

V.1.5 Street Furniture on Exterior Paths of Travel

Rationale

Street furniture is an important and essential part of the streetscape. Light standards, planters, waste receptacles, payment devices etc. are needed and must be located so as not to create potential barriers for people with disabilities. An appropriate location is also important to ensure they are usable and functional for all.

Application

Street furniture, including but not limited to, waste receptacles, light standards, signs, planters, mail boxes, parking meters and other payment devices, and vending machines 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 picnic areas or large industrial containers, shall be accessible to persons using wheelchairs or other mobility devices.

Design Requirements

- Street furniture shall;
 - be placed so as not reduce the required width of an access route as specified in Section;
 - be *cane-detectable*, in compliance with Section IV.1.3; and
 - be securely mounted and located outside the normal path of pedestrian travel; and
- Waste receptacles that have lettering shall be in compliance with the relevant parts of Section IV.4.7;
- Where lids or openings are provided on waste receptacles, they shall be mounted no higher than 1100 mm above the adjacent floor or ground surface and opening mechanisms shall comply with Section IV.4.2; and
- Street furniture shall incorporate pronounced colour contrast to differentiate it from the surrounding environment.

Related Sections

IV.1.1	Space and Reach Requirements
IV.1.2	Ground and Floor Surfaces
IV.1.3	Protruding Objects
IV.1.4	Accessible Routes, Sidewalks and Corridors
IV.4.8	Detectable Warning Surfaces
IV.4.14	Materials and Finishes
IV.4.15	Texture and Colour
IV.4.3	Vending and Ticketing Machines
V.1.1	Sidewalks and Walkways
V.1.6	Benches and Seating
V.2.	Recreational Trails
V.3	Beach Access Routes

V.1.6 Benches and Seating

Rationale

Benches and other seating areas provide important resting places for individuals who may have difficulty with standing or walking and should be placed adjacent to pedestrian walkways to provide convenient rest places without becoming potential obstructions. Appropriate seat heights and armrests can provide assistance in sitting and rising. People with visual impairments may find it easier to locate benches if 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 picnic areas, shall be *accessible* to persons using wheelchairs or other mobility devices.

Design Requirements

- Benches and seating shall:
 - be adjacent to an *accessible route*;
 - be stable;
 - have a seat height between 450 mm and 500 mm from the ground;
 - have arm and back rests; provide a mix of options, some with back rests, some with arm rests, and some with both (Figure V.1.6.2);
 - be of contrasting colour to their background; and
 - have an adjacent level, firm ground surface at least 920 mm by 1370 mm (Figure V.1.6.1); and
- Benches or seats shall be set back from the route of travel;
- Where the area adjacent to the seat abuts a downward slope or is not level a curb shall be provided around the level area and be in accordance with the City of Brampton Site Amenities – 800 Series – L874 – Park Bench with Concrete Pad with Wheelchair Parking.

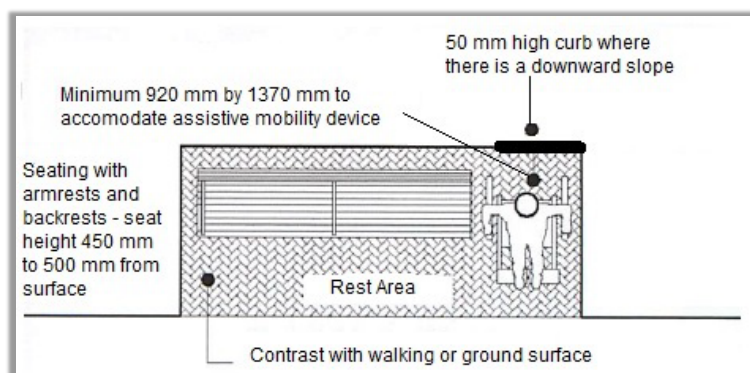


Figure V.1.6.1: Seating Area



Figure V.1.6.2: Seating Details

Related Sections

IV.1.1	Space and Reach Requirements
IV.1.2	Ground and Floor Surfaces
IV.1.3	Protruding Objects
IV.1.4	Accessible Routes, Sidewalks and Corridors
IV.4.8	Detectable Warning Surfaces
IV.4.14	Materials and Finishes
IV.4.15	Texture and Colour
V.1.1	Sidewalks and Walkways
V.2.	Recreational Trails
V.3	Beach Access Routes

V.1.7 Curb Ramps

Rationale

The design of *curb ramps* or curb cuts is very important in allowing people to move safely and efficiently off a roadway. A well-designed *curb ramp* can be spoiled by an uneven or gapped transition between the road surface and *curb ramp*. Flared sides on the *curb ramp* eliminate the hazard of pedestrians stepping off an edge. Smooth transitions and minimal slopes are ideal for someone in a wheelchair but are a potential hazard to an individual with a visual impairment who may not notice the transition from sidewalk to street. *Tactile walking surface indicators* warn people that they are entering a potentially hazardous area.

The choice of providing a *curb ramp* or a depressed curb (Section V.1.8) at a level change or pedestrian crossing depends on site characteristics, volume of pedestrian traffic and space availability.

Application

The requirements in this section apply to *ramps* that are newly constructed and re-developed in exterior *public spaces* that are not covered under the Ontario Building Code.

Design Requirements

- *Curb ramps* shall:
 - have a minimum 1200 mm clear width, exclusive of flared sides;
 - have running slopes no steeper than 1:8 (12.5%) where the elevation change is less than 75 mm and no steeper than 1:10 (10%) where the elevation change is 75 mm to 200 mm;
 - have cross slopes no steeper than 1:50 (2%);
 - have flared side slopes no steeper than 1:10 (10%); and
 - where located on an exterior path of travel, be aligned with the direction of travel; and
- *Tactile walking surface indicators (TWSIs)* shall:
 - be provided at the bottom end of *curb ramps* used for pedestrian crossings;
 - be at least 610 mm in depth;
 - extend the full width of the *curb ramp*, set back 150 mm to 200 mm back from the curb edge;
 - have tactile profiles raised above the ground surface;
 - provide a high tonal contrast from the adjacent ground surface; and
 - conform to Clauses 4.1.1 and 4.1.2 of ISO 23599, Assistive Products for Blind and Vision-Impaired Persons – Tactile Walking Surface Indicators (TWSI).

Refer to [City Engineering & Construction Standards](#)

Related Sections

IV.4.8 Detectable Warning Surfaces

V.1.8 Depressed Curbs

Rationale

Depressed curbs or dropped curbs improve the safety and usability of sidewalks, walkways and pathways for all pedestrians, particularly for people with disabilities. A depressed curb is a continuous length of curb along a pedestrian route that is lowered to the level of an adjacent roadway. Well-designed depressed curbs make it easier for people using assistive mobility devices to move from the sidewalk to street level and provide an appropriate warning of a transition for people with visual impairments.

Application

These requirements apply to newly constructed or redeveloped depressed curbs on exterior paths of travel in *public spaces*.

Design Requirements

- Depressed curbs shall:
 - have a running slope no steeper than 1:20 (5%); and
 - be aligned with the direction of travel; and
- *Tactile walking surface indicators* (TWSIs) shall:
 - be provided at the bottom end of *curb ramps* used for pedestrian crossings;
 - be at least 610 mm in depth;
 - extend the full width of the curb ramp, set back 150 mm to 200 mm back from the curb edge;
 - have tactile profiles raised above the ground surface;
 - provide a high tonal contrast from the adjacent ground surface; and
 - conform to Clauses 4.1.1 and 4.1.2 of ISO 23599, Assistive Products for Blind and Vision Impaired Persons – Tactile Walking Surface Indicators (TWSI).

Refer to [City Engineering & Construction Standards](#)

Related Sections

IV.4.8 Detectable Warning Surfaces

V.1.9 Accessible Pedestrian Signals

Rationale

Many pedestrians rely on cues to safely cross a road, like the walk/don't walk indicators, other pedestrians and the sound and movement of traffic. For some people with visual impairments these cues may not be so evident, and they rely on accessible pedestrian signals (APS) to be able to independently and safely cross. APS provide a locator tone to provide notice when it is safe to cross. The raised arrows on the push buttons provide a tactile indicator and tactile indicators on the *curb ramp* and depressed curb define the pavement edge and the direction of travel.

Application

Accessible pedestrian signals are required on all new pedestrian crossing signals and when existing pedestrian crossing signals are replaced.

Design Requirements

- Accessible pedestrian signals shall:
 - have a locator tone that is distinct from the walk indicator tone;
 - have an activation button located a maximum of 1100 mm from the ground surface (Figure V.1.9.1);
 - have tactile arrow symbols aligned with the direction of crossing;
 - have controls installed within 1500 mm of the edge of the curb;
 - have activation features that are both manual and automatic;
 - provide audible and vibro-tactile indicators; and
 - where two pedestrian signal controls are installed on the same corner, be a minimum of 3000 mm apart.
 - Two pedestrian signal assemblies can be installed on a single post when a 3000 mm separation cannot be met due to site constraints or existing infrastructure. Where this is in place, a verbal announcement must clearly state which crossing is active.

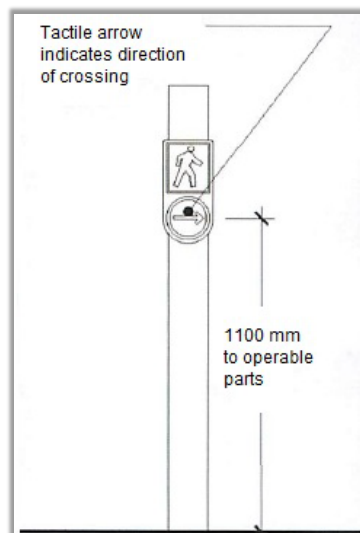


Figure V.1.9.1: Activation Button

Section V.2 Recreational Trails

V.2.1 General

Rationale

Accessible trails provide inclusive opportunities for people of all ages and abilities to enjoy the outdoors. Trails that are well-marked with signage help people to understand the characteristics of the recreational trail before using it. Providing information about surfaces, average widths, and slopes etc. will help a user decide if the challenge of the trail meets their needs.

Application

These requirements apply to newly constructed and redeveloped recreational trails that are intended to be maintained. These types of trails provide pedestrians with a recreational or leisure experiences such as walking through a park. Multi-use trails are covered by these standards.

Exclusions

To strike a balance between trails constructed to offer a specific experience such as a sport or physical challenge and trails that offer a leisure experience and are usable by everyone, the design requirements do not apply to the following:

- Trails that are not intended for pedestrian use;
- Trails solely constructed and intended for cross-country skiing, mountain biking or the use of motorized snow vehicles or off road vehicles; and
- Wilderness trails, backcountry trails and portage routes.

Design Requirements

- Recreational trails shall:
 - have trail entrance and exit points with a clear minimum width of 1200 mm through any gate, bollard or other element;
 - be a minimum clear width of 1100 mm;
 - have surfaces that are firm and stable; and
 - have surface openings that do not allow the passage of an object more than 20 mm in diameter with elongated openings oriented perpendicular to the direction of the path of travel. (Figure V.2.1.1); and
- Edge protection shall be provided where recreational trails:
 - do not have protective barriers;
 - run adjacent to water; and
 - are adjacent to a drop off in grade; and
- Edge protection shall:
 - consist of an elevated barrier that runs along the edge of the recreational trail;
 - be at least 50 mm above the trail surface; and

- not impede the drainage of the trail surface; and
- Trail signage shall:
 - be provided at each trail head;
 - use a sans serif font, such as Arial, Verdana or Helvetica;
 - have high tonal contrast to its background;
 - provide the following information:
 - trail length;
 - surface type/construction material;
 - average and maximum trail width;
 - average and maximum running slope;
 - average and maximum cross slope; and
 - location of any amenities;
- Where other media is used to provide information about the trail (beyond advertising, notice or promotion) such as a brochure, these sources shall include the same information as the trail signage.

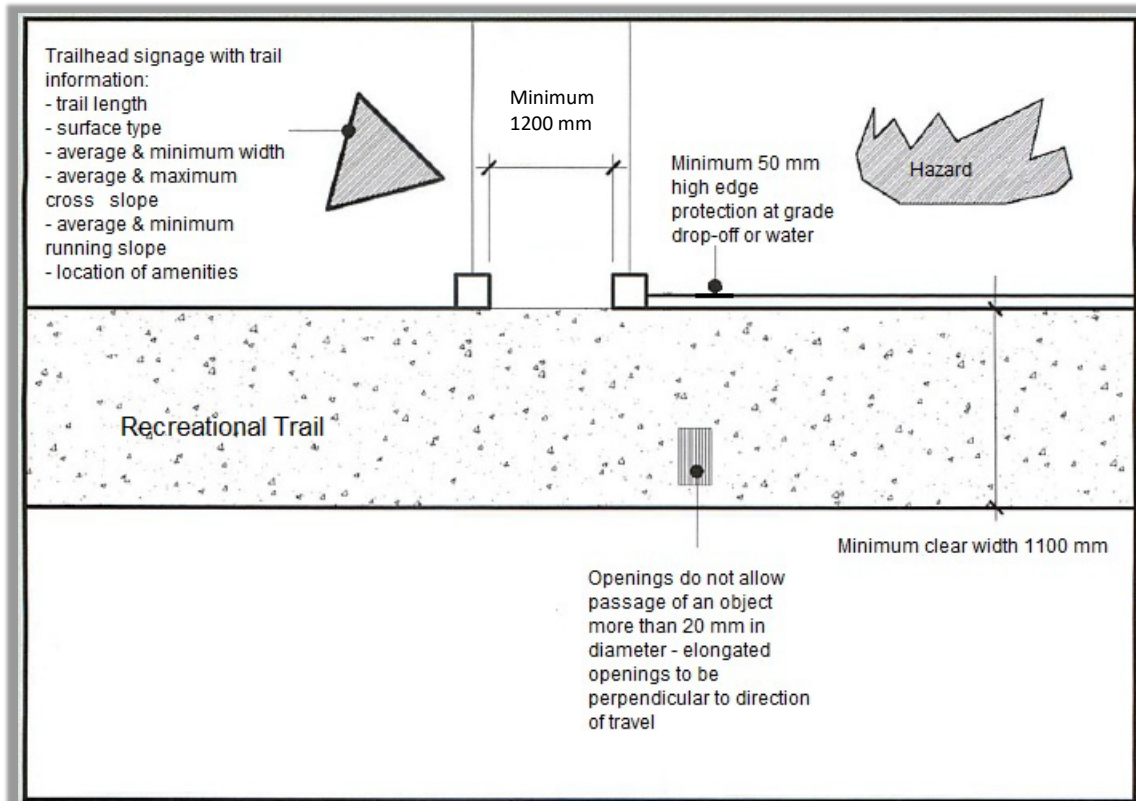


Figure V.2.1.1: Recreational Trails

Related Sections

IV.4.7 Signage

V.2.2 Boardwalks

Rationale

Boardwalks allow people of all ages and abilities to traverse through wet and soft areas.

Application

These requirements apply to boardwalks located on newly constructed or redeveloped recreational trails that the City intends to maintain.

Design Requirements

- Boardwalks shall:
 - have a minimum 1100 mm clear width;
 - provide a minimum 2100 mm clear headroom above the boardwalk;
 - have a surface that is firm and stable;
 - have surface openings that do not allow the passage of an object more than 20 mm in diameter and be positioned so that the openings are perpendicular to the direction of travel;
 - have running slopes steeper than 1:20 (5%) designed as a *ramp* in accordance with the requirements of Section V.2.2.3; and
 - provide edge protection a minimum 50 mm high. (Figure V.2.2.1)

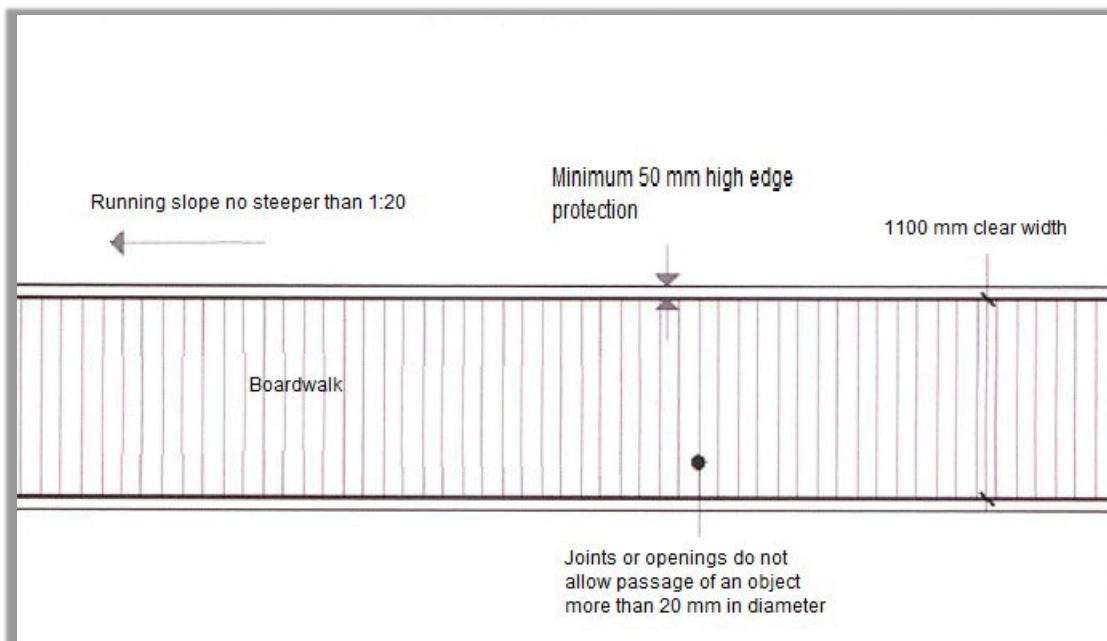


Figure V.2.2.1: Boardwalks

V.2.3 Ramps on Recreation Trails

Rationale

Properly designed *ramps* allow access for people who are unable to manage stairs or changes in level and where it is difficult to incorporate gently sloped walkways to negotiate changes in level.

Application

These requirements apply to boardwalks located on newly constructed or redeveloped recreational trails that the City intends to maintain. This requirement does not mandate that recreational trails include *ramps*.

Design Requirements

- *Ramps* along a barrier-free path of travel on recreation trails shall have:
 - a minimum clear width between handrails of at least 1000 mm;
 - firm and stable surfaces;
 - handrails provided on both sides of the *ramp*, including at landings; and
 - a running slope no steeper than 1:10 (10%).
- Landings on *ramps* shall:
 - be located at the top and bottom of the *ramp*, at abrupt changes in the direction of a *ramp* and at horizontal intervals of greater than 9 metres apart;
 - have a maximum cross slope of 1:50 (2%);
 - be a minimum of 2440 mm by 2440 mm at the top and the bottom of the *ramp*;
 - be a minimum of 1700 mm by 1700 mm at abrupt changes in the direction of the *ramp*; and
 - be a minimum of 1700 mm in length and at least the same width of the *ramps* for landings located along a straight *ramp*. (Figure V.2.3.1); and
- Surface openings shall not allow the passage of an object more than 20 mm in diameter and be positioned so that the openings are perpendicular to the direction of travel; and
- Handrails shall:
 - be provided on both sides of the *ramps*, including at landings;
 - be continuously graspable along the entire length;
 - have a circular cross section with an outside diameter between 30 mm and 40 mm;
 - be located between 865 mm and 965 mm high, measured vertically from a line drawn through the outside edges of the stair nosings or the surface of landings;
 - terminate in a way that will not obstruct pedestrian travel or create a hazard;
 - extend horizontally a minimum of 300 mm beyond the top and bottom;
 - have a clearance of a minimum of 50 mm from any wall to which they are attached;
 - have a clearance of minimum width of 1000 mm between handrails;
 - provide intermediate handrails where a stair is wider than 2200 mm with handrails that are continuous between landings and located so there is no more

- than 1650 mm between handrails; and
 - be able to withstand the loading values obtained from the non-current application of a load not less than 0.9kN applied to any point and in any direction and a uniform load of not less than 0.7kN/metre applied at any direction to the handrail. (Figure V.2.3.2); and
- A wall or guard shall be provided on both sides of the *ramp* and where provided shall:
 - have the top shall be not less than 1070 mm above the *ramp* surface, measured vertically; and
 - have no element, attachment or opening located between 140 mm and 900 mm above the *ramp* surface shall facilitate climbing; and
- Edge protection shall:
 - be provided where there is no solid enclosure or solid guard;
 - must have a curb a minimum of 50 mm high; or
 - railings or other barriers that extend to within 50 mm of the finished *ramp* surface; and
- A guard and edge protection shall be required where the gap between the guard and the *ramp* surface is more than 50 mm.

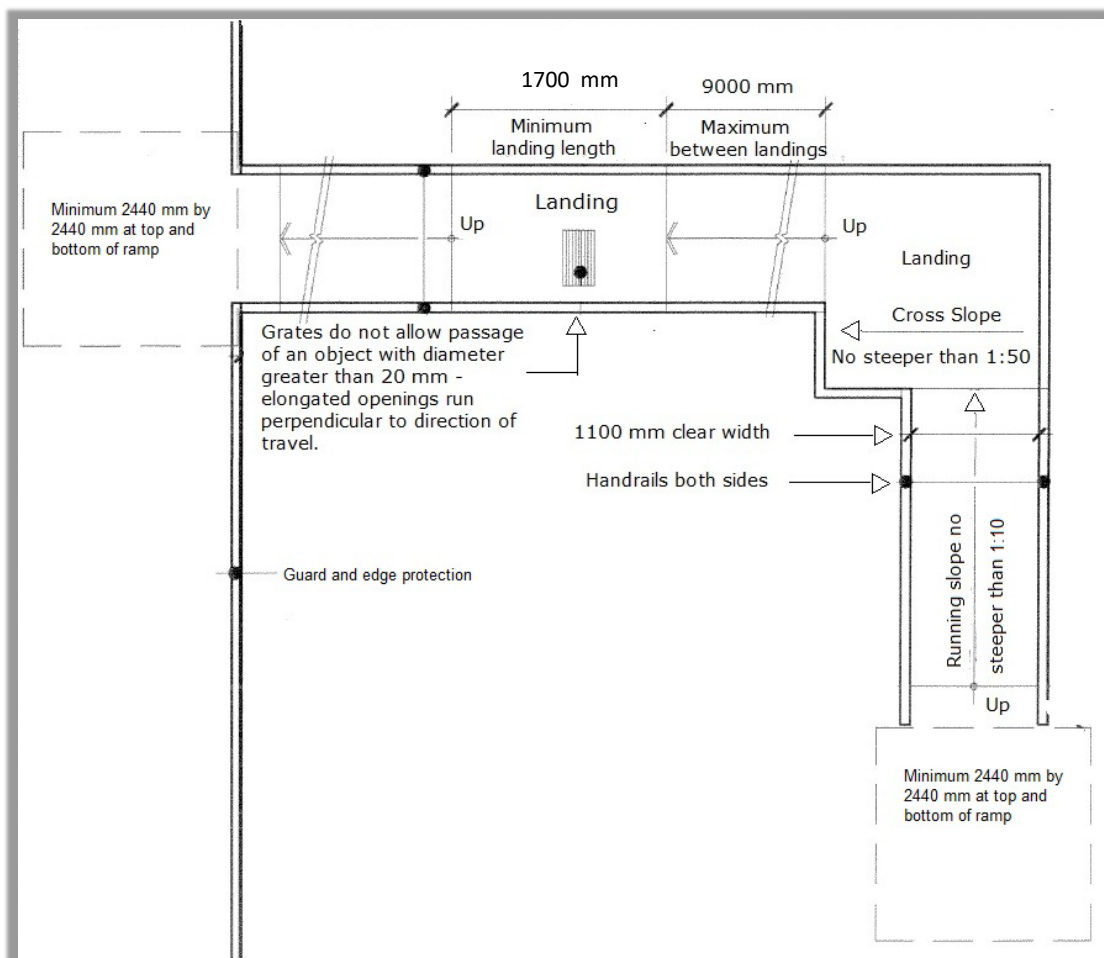


Figure V.2.3.1: Ramp on Recreational Trail

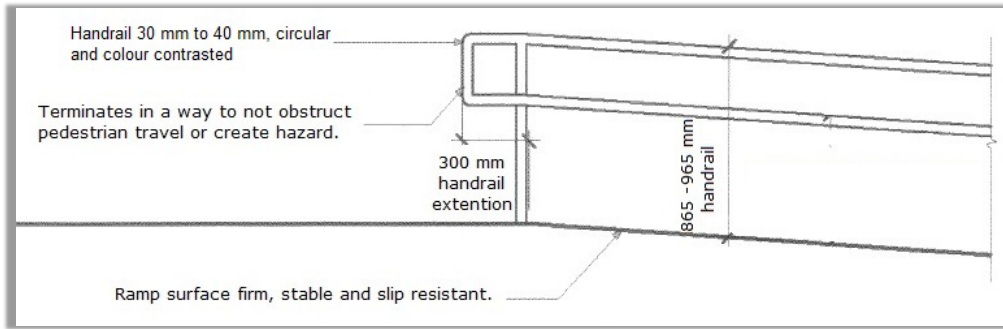


Figure V.2.3.2: Handrail Details

Section V.3 Beach Access Routes

V.3.1 General

Rationale

Accessible routes to beaches assist people using assistive mobility devices to travel over sand and other soft surfaces. They also provide a distinct path for people with visual impairments.

Application

These requirements apply to newly constructed or redeveloped beach access routes, whether permanent or temporary, that the City intends to maintain. The design requirements apply to both constructed beach access routes (concrete, wood boards, or crushed gravel) and to alternative measures such as specially designed mats.

Design Requirements

- Beach access routes shall:
 - provide a minimum clear space of 2440 mm by 2440 mm at the entry point and at the bottom or landing of the route;
 - have entry points with a minimum clear width of 1100 mm through any gate, bollard or other entry element;
 - have a minimum width 1100 mm;
 - have a minimum headroom height clearance of 2100 mm above the route;
 - have a firm and stable surface; and
 - have a maximum 1:10 (10%) running slope. (Figure V.3.1.1); and
- Constructed beach access routes shall:
 - have a maximum cross slope of 1:50 (2%);
 - where there is a change in level:
 - between 6 mm and 13 mm, be bevelled and sloped no steeper than 1:2 (50%);
 - between 14 mm and 200 mm, have a slope no steeper than 1:10 (10%); and
 - greater than 200 mm, be designed as *ramps* in accordance with Ramps in Beach Access Routes; and
 - have surface openings that do not allow the passage of an object more than 20 mm in diameter and be positioned so that the openings are perpendicular to the direction of travel; and
- Maximum cross slope for non-constructed beach access routes shall be the minimum slope required for drainage.

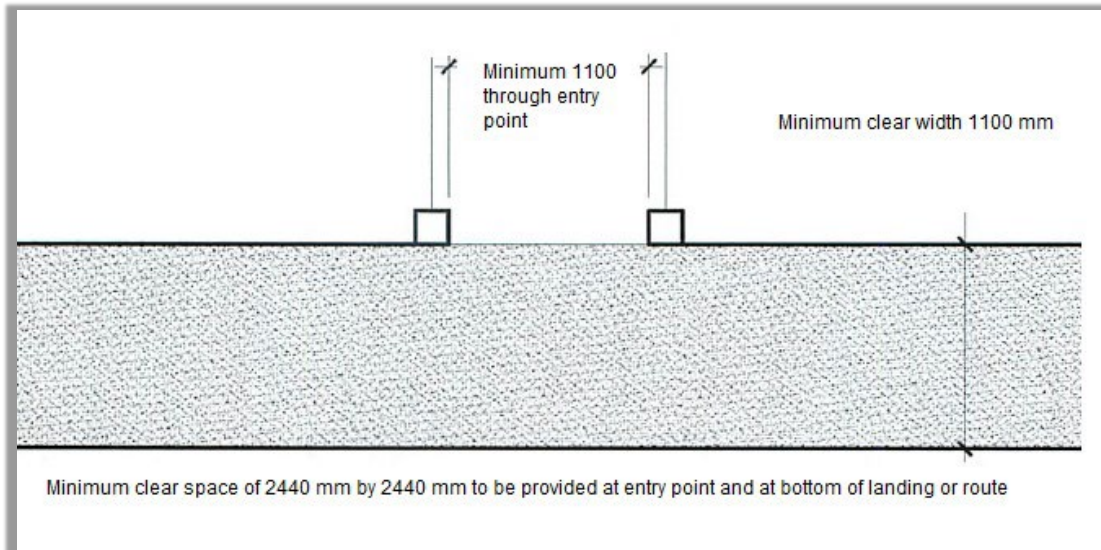


Figure V.3.1.1: Beach Access Routes

V.3.2 Boardwalks on Beach Access Routes

Rationale

Boardwalks can be effective solutions to provide beach access for people who use assistive mobility devices, who have poor balance and who are using strollers and other wheeled devices.

Application

These requirements apply to newly constructed or redeveloped boardwalks intended for *public use*. This requirement does not mandate that beach access routes must include boardwalks.

Design Requirements

- Boardwalks on beach access routes shall:
 - be a minimum width of 1100 mm;
 - have a minimum headroom height clearance of 2100 mm above the boardwalk;
 - have a firm and stable surface;
 - have surface openings that do not allow the passage of an object more than 20 mm in diameter and be positioned so that the openings are perpendicular to the direction of travel; and
 - have running slopes steeper than 1:20 (5%) designed as *ramps* and meeting the requirements in Section V.3.3 (Figure V.3.2.1).

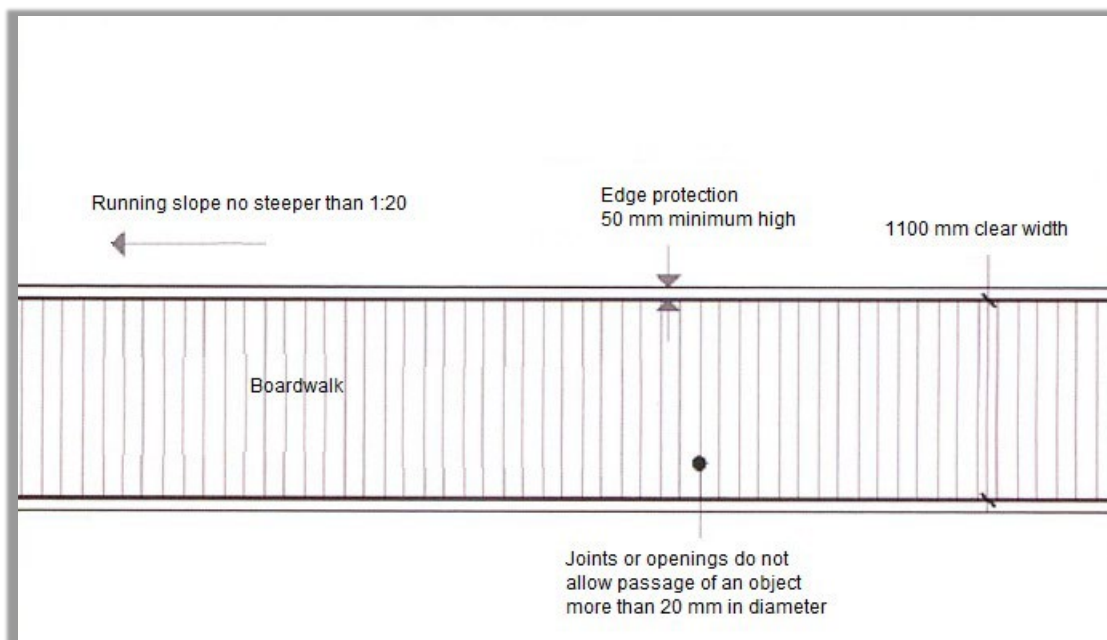


Figure V.3.2.1: Boardwalk on Beach Access Route

V.3.3 Ramps on Beach Access Routes

Rationale

Ramps may provide beach access for people using assistive mobility devices or for those using strollers or wagons where it is difficult to use gently sloped walkways to negotiate changes in level.

Application

These requirements apply to newly constructed or redeveloped *ramps* that the City intends to maintain. This requirement does not mandate that beach access routes must include *ramps*.

Design Requirements

- Ramps on beach access routes shall:
 - be a minimum clear width of 950 mm between handrails;
 - have a firm and stable surface;
 - have surface openings that do not allow the passage of an object more than 20 mm in diameter and be positioned so that the openings are perpendicular to the direction of travel;
 - have a running slope no steeper than 1:10 (10%); and
 - have handrails on both sides, including at landings. (Figure V.3.3.1); and
- Landings on *ramps* shall:
 - be located at the top and bottom of the *ramp*, at abrupt changes in the direction of a *ramp* and at horizontal intervals of greater than 9 metres apart;
 - have a maximum cross slope of 1:50 (2%);
 - be a minimum of 2440 mm by 2440 mm at the top and the bottom of the *ramp*;
 - be a minimum of 1700 mm by 1700 mm at abrupt changes in the direction of the *ramp*; and
 - be a minimum of 1700 mm in length and at least the same width of the *ramps* for landings located along a straight *ramp*. (Figure V.3.3.1); and
- Handrails shall:
 - be provided on both sides of the *ramps*, including at landings;
 - be continuously graspable along the entire length;
 - have a circular cross section with an outside diameter between 30 mm and 40 mm;
 - be located between 865 mm and 965 mm high, measured vertically from a line drawn through the outside edges of the stair nosings or the surface of landings;
 - terminate in a way that will not obstruct pedestrian travel or create a hazard;
 - extend horizontally a minimum of 300 mm beyond the top and bottom;
 - have a clearance of a minimum of 50 mm from any wall to which they are attached;
 - provide intermediate handrails where a stair is wider than 2200 mm with handrails that are continuous between landings and located so there is no more than 1650 mm between handrails; and
 - be able to withstand the loading values obtained from the non-current application of a load not less than 0.9kN applied to any point and in any

direction and a uniform load of not less than 0.7kN/metre applied at any direction to the handrail. (Figure V.3.3.2); and

- A wall or guard shall be provided on both sides and where provided shall:
 - at the top not be less than 1070 mm above the *ramp* surface, measured vertically; and
- have no element, attachment or opening located between 140 mm and 900 mm above the ramp surface to facilitate climbing; and
- Edge protection shall be provided where there is no solid enclosure or solid guard and shall be:
 - a curb a minimum of 50 mm high; or
 - railings or other barriers that extend to within 50 mm of the finished *ramp* surface; and
- A guard and edge protection shall be required if there is a gap between the guard and the *ramp* surface of more than 50 mm.

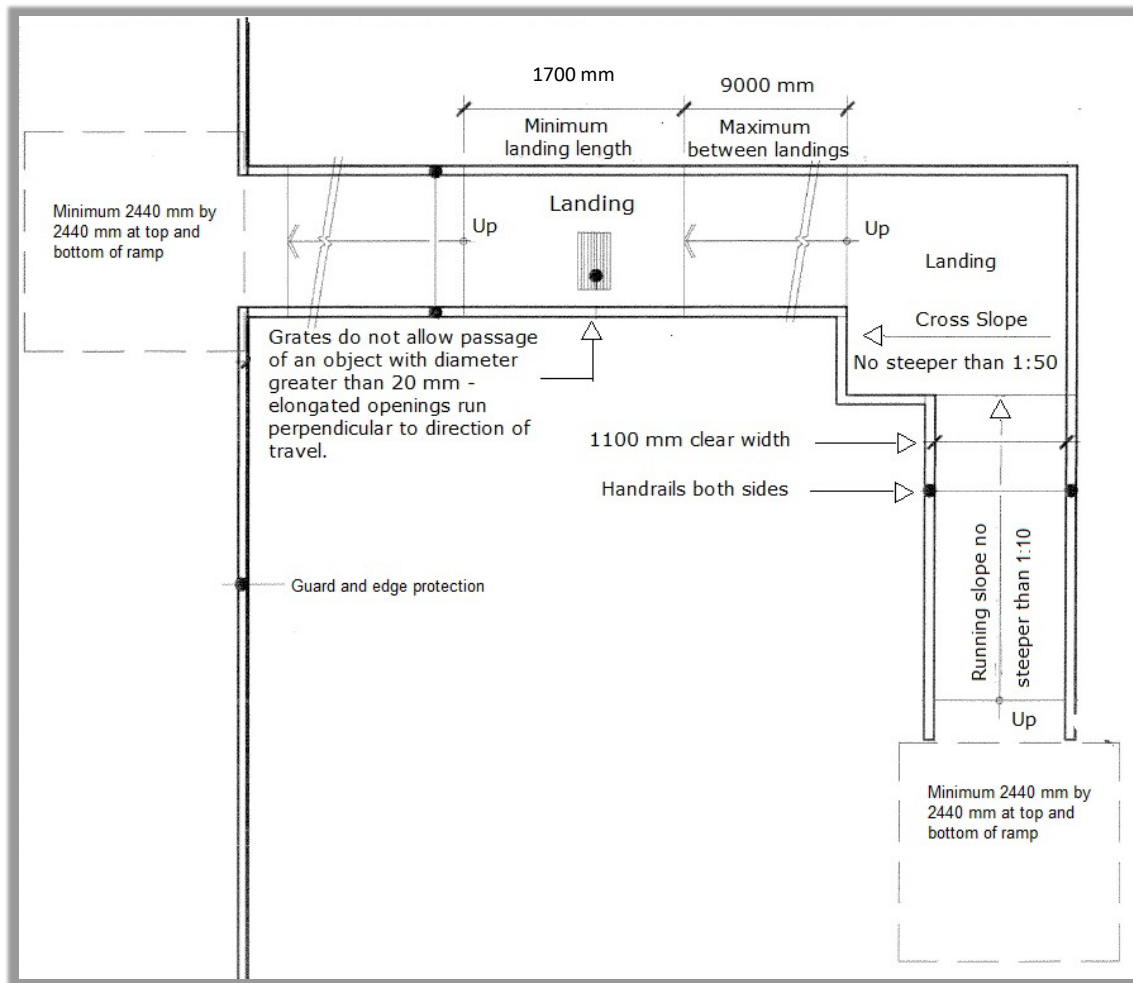


Figure V.3.3.1: Ramps on Beach Access Routes

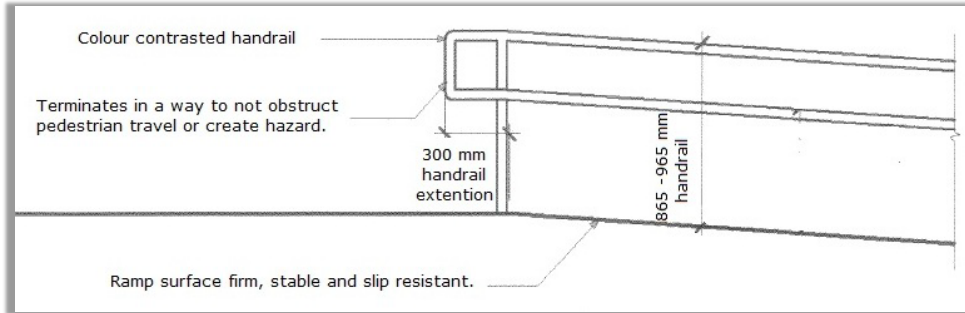


Figure V.3.3.2: Handrails

V.3.4 Exceptions for Beach Access Routes

Rationale

There may be instances where it is not possible to provide a beach access route that fully complies with the minimum requirements of this Standard. It is recognized that there can be exceptional situations where the need to provide accessible beach access routes may need to be balanced with other concerns. The expectation is to apply the Standards to the greatest extent possible.

Application

Where it can be successfully demonstrated that the cultural, heritage, national historic interest or ecological integrity would be negatively impacted by applying the requirements of the Standard exceptions may be granted. Exceptions may also be permitted where existing physical or site constraints do not allow for modifications or *additions*.

Section V.4 Outdoor Public Use Eating Areas

V.4.1 Outdoor Public Use Eating Areas

Rationale

An extension of the table surface of a picnic table makes it *accessible* to persons using wheelchairs. A firm, level surface around the table and an *accessible* path leading to the table, is required for accessibility. A change in texture from a pathway to the picnic table area is an important cue for a person who is visually impaired.

Application

The requirements apply to newly constructed and redeveloped outdoor public eating areas. It is preferable to have all picnic tables comply with this section.

Design Requirements

- A minimum of 20% of the picnic tables and never less than 1 accessible picnic table shall be provided;
- Picnic tables shall:
 - be adjacent to an *accessible route*;
 - have knee space under the table at least 810 mm wide by 480 mm deep and 685 mm minimum high at one end;
 - be stable;
 - be of contrasting colour to their background; and
 - have a level, firm ground surface extending at least 2000 mm on all sides of the table. (Figure V.4.1.1); and
- The top of *accessible* picnic tables shall be from 730 mm to 860 mm above the finished floor or ground. (Figure V.4.1.1).

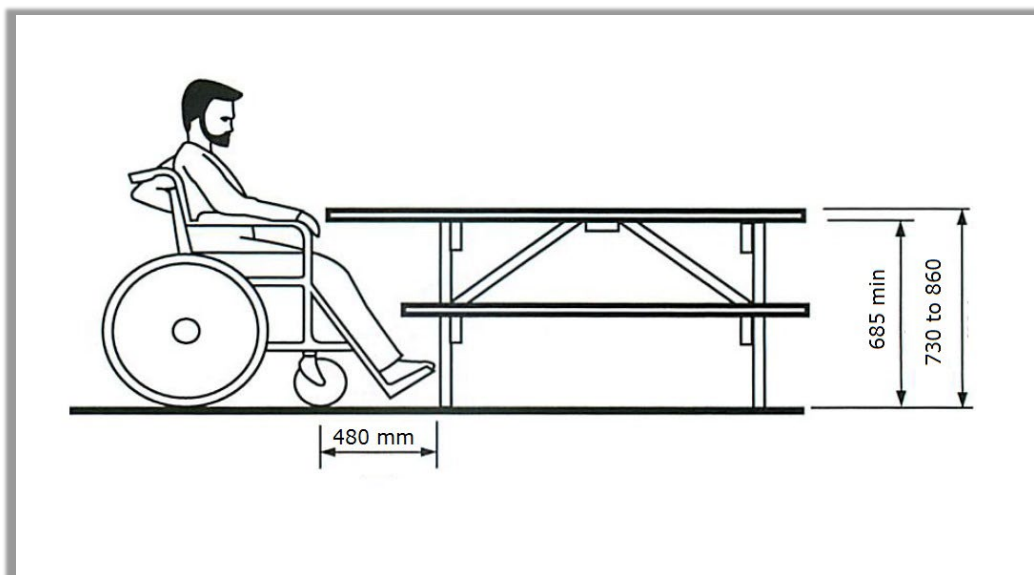


Figure V.4.1.1: Picnic Table

Related Sections

IV.1.1	Space and Reach Requirements
IV.1.2	Ground and Floor Surfaces
IV.1.3	Protruding Objects
IV.1.4	Accessible Routes, Sidewalks and Corridors
IV.4.8	Detectable Warning Surfaces
IV.4.14	Materials and Finishes
IV.4.15	Texture and Colour
V.1.1	Sidewalks and Walkways
V.1.4	Rest Areas

Section V.5 Outdoor Play Spaces and Recreational Amenities

V.5.1 Outdoor Play Spaces

Rationale

Opportunities for outdoor recreation, leisure and active sport participation should be available to all members of the community. Persons who are disabled may be active participants, as well as spectators, volunteers and members of staff. Access to playing fields and other sports facilities, including access to the site, all activity areas, outdoor trails, docks, swimming areas, play spaces, play structures, lockers, change rooms and showers should be provided.

Play is a natural and important part of a child's daily life and healthy development. All people, regardless of age or ability should have the same opportunities to play. Flexible designs that are creative and fun provide challenges for children of all ages and abilities.

Application

The requirements apply to all newly designed and constructed play spaces and to the redevelopment of existing play spaces to the greatest degree possible.

Design Requirements

- Play structures shall meet or exceed the standards identified in the Canada Standards Association's CAN/CSA Z614-07 (R2012) - Children's Play Spaces and Equipment, including Annex H – Children's play spaces and equipment that are accessible to persons with disabilities;
- Play structures shall incorporate a variety of accessibility features, including sensory and active play components and address the needs of people with disabilities, including caregivers;
- Surfaces for play structures shall be firm and stable with characteristics to reduce impact and injuries with an accessible entry point into the structure;
- Structures shall provide sufficient clearances throughout to allow movement through, in and around the space;
- Accessible paths of travel to and from all play spaces and other recreational amenities (playing fields, outdoor pools, docks, and footbridges) shall be in compliance with Section V.1 or Section V.2;
- All site amenities, including benches, picnic tables, comfort stations/washrooms and parking, where provided, shall be accessible and in compliance with the appropriate sections in this Standard;
- Where docks for fishing, boating or swimming are provided, they shall:
 - be located on an *accessible route*;
 - where changes in elevation are necessary, incorporate *ramps* or *curb ramps* in compliance with Section V.1.7 and V.1.2;

- incorporate continuous *Tactile Walking Surface Indicators* in compliance with Section IV.4.8, and a guard in compliance with Section V.3.2 and Section V.3.3 that is at least 100 mm high and of a contrasting colour where dock surfaces are greater than 200 mm above the surface of the water;
 - incorporate a guardrail where dock surfaces are greater than 450 mm above the surface of the water; and
 - where steps are provided to access the water for swimming, be in compliance with Section V.1.3 Stairs on Exterior Paths of Travel and incorporate colour-contrasting handrails at the steps. Such handrails shall extend to a minimum of 600 mm above the dock surface and return down to the dock; and
- Outdoor swimming pools shall comply with Section IV.5.1; and
 - Entry gates shall comply with Section IV.1.7 and where p-gates are provided comply with the City of Brampton Site Amenities – Series L842 – P-gates Option 2;
 - Where waste receptacles are provided, the operable portion shall be within 900 mm and 1100 mm from the ground/surface and be in compliance with Section Street Furniture;
 - Where playing fields are provided, they shall:
 - Have controlled access points designed to accommodate a person using a wheeled mobility device in accordance with Section IV.1.7;
 - Provide level seating areas beside the sports field; and
 - Where public viewing areas are provided, be compliance with Section IV.3.2;
 - Where public washrooms/comfort stations are provided, they shall be in compliance with Section IV.1, Section IV.2 and Section IV.3;
 - Where public showers and change rooms are provided, they shall be in compliance with Section IV.2.9 and Section IV.3.4;
 - Where waterfront areas are provided, they shall:
 - have paths and/or lookout points that are accessible to all individuals;
 - provide seating along paths and lookout points that are in compliance with Section V.1.4; and
 - where provided, offer accessible parking as close as possible to the waterfront area with an accessible route to the paths and lookout points.

Related Sections

IV.1.7	Gates, Turnstiles and Openings
IV.2	Washroom Facilities
IV.3	Other Amenities
IV.4	Systems and Controls
IV.5.1	Swimming Pool and Saunas/Steam Rooms
V.1	Exterior Paths of Travel
V.2	Recreational Trails
V.3	Beach Access Routes

V.5.2 Landscaping Materials and Plantings

Rationale

Landscape materials, trees, shrubs and plants should be selected and located considering a wide variety of persons with disabilities. Plants and shrubs with a variety of fragrances and using contrasting flowers near walkways can be helpful and provide an orientation cue for persons who are visually impaired. Plants with thorns or heavy berries may constitute a walking hazard.

Application

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

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

Design Requirements

- *Accessible* plant beds shall be:
 - raised 460 mm above the adjacent floor or ground surface; and
 - located on an *accessible route*; and
- The edges of planting beds located immediately adjacent to *barrier-free* pedestrian *walks*, shall incorporate a clearly defined, *cane-detectable* transition for a width of at least 600 mm;
- Where variations in grading immediately adjacent to pedestrian *walks* are potentially hazardous (particularly to persons who are visually impaired), the hazardous edges of the *walk* shall incorporate clearly defined, *cane-detectable* curbs at least 100 mm high;
- Shrubs with thorns and sharp edges shall be planted consistent with “protruding objects” (Section IV.1.3) away from *accessible* pathways and seating areas;
- Plants that drop large seed pods shall not overhang or be positioned near *accessible* paths or walkways;
- Permanent guy wires shall not be used in an area that is intended for use by the general public, clients, customers or employees. Temporary guy wires, such as those used when planting new trees, shall be clearly identified using strong colour contrast;
- Tree guards shall conform to Section IV.1.3; and
- Overhanging branches of trees or shrubs over walkways or paths shall not reduce the available headroom at any part of the *walkway* or path to less than 2100 mm.

Related Sections

- IV.1.1 Space and Reach Requirements
- IV.1.2 Ground and Floor Surfaces
- IV.1.3 Protruding Objects
- IV.1.4 Accessible Routes, Sidewalks and Corridors
- IV.4.8 Detectable Warning Surfaces
- IV.4.14 Materials and Finishes
- IV.4.15 Texture and Colour

Section V.6 Accessible Parking

V.6.1 Off-Street Parking and Parking Garages

Rationale

The provision of parking spaces near the entrance of a facility is important to accommodate persons with a variety of *disabilities*. Disabling conditions and the use of a wheelchair or other assistive mobility device, make it difficult to travel long distances particularly outdoors where here weather conditions and ground surfaces can make travel difficult and hazardous. The *accessible route* of travel connecting the parking to the entrance should be well marked and free of steps and curbs.

Accessible parking spaces should accommodate both cars and vans. A person using a wheelchair requires a wider parking stall to accommodate the positioning of the wheelchair beside the car or van. A van may incorporate a lift or *ramp* that deploys through the side door of the van or may be installed in the rear of the vehicle. Additional manoeuvring *space* is needed to access the lift platform in the lowered position. The height of a van may be increased through modification to the 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.

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 whenever feasible.

All designated *spaces* shall be located on the shortest possible circulation route, with minimal traffic flow crossing, 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*). The accessible route from the parking should allow the person to travel safely to and from the parking space without having to pass behind parked vehicles.

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

Design Requirements

- Type A and Type B parking spaces shall be provided:
 - Type A Van Accessible are wider spaces to accommodate a person who uses a vehicle equipped with a mechanical lift or wheelchair *ramp*; and
 - Type B are primarily intended for people who use other assistive devices such as canes, walkers or crutches who do not need extra space for a lift or *ramp* and for people who are unable to walk long distances.
- Type A spaces shall be a minimum of 3400 mm wide and at least as long as other parking spaces in the same area or a minimum of 5400 mm long and be identified with a Van Accessible sign in addition to the signage under the Highway Traffic Act. (Figure

V.6.1.1).

- Type B spaces shall be a minimum of 2700 mm wide and at least as long as other parking spaces in the same area or a minimum of 5400 mm long and be identified with signage under the Highway Traffic Act. (Figure V.6.1.2).
- Accessible parking spaces shall be located:
 - on a hard level surface where people with disabilities can easily access a building or facility via curb cuts, curb depressions or other means and where possible; and
 - so that drivers and/or passengers do not have to travel behind other parked vehicles.
- An *access aisle* must be provided for **each** accessible parking space and shall:
 - be a minimum of 1500 mm wide and may be shared by two accessible parking spaces;
 - be at least as long the parking space;
 - have a hard, level surface for the full length and width;
 - be marked with high tonal contrast diagonal lines to indicate that parking is prohibited in the space; and
 - be separate from a walkway or access into a building or facility.
- Painted lines, provided to delineate parking spaces and *access aisles*, shall:
 - be painted with slip resistant paint either white or yellow slip in colour;
 - if painted yellow, match the yellow traffic paint chip of the Ministry of Transportation, Ontario or U.S. Federal 595B, Yellow 33538
 - be 10 cm in width; and
 - have stall and *access aisle* width measurements calculated based on mid-point to mid-point of the painted lines. (Figure V.6.1.4)
- Each accessible parking space shall incorporate a pavement marking with the International Symbol of Access (wheelchair), that shall:
 - have a white symbol and border;
 - have a blue background under the symbol similar to the colour used on the Highway Traffic Act (HTA) Permit Only sign;
 - be painted with slip resistant paint; and
 - be installed in accordance with measurements provided in Figure V.6.1.3.
- Curb cuts, depressed curbs and *curb ramps* in accordance with Section IV.1.14 shall be provided where there is a change in grade and the *access aisle* abuts a raised surface or where a raised surface is in close proximity to the *access aisle*.
- Where *curb ramps* are provided, they shall not extend into the *access aisle* or parking space.
- Signage to be erected for each accessible parking space, and shall:
 - be visible to the public;
 - be located on a permanent post, building or structure;
 - have the bottom edge of the sign 1 metre to 1.5 metres above the surface;
 - be located mid-point at the top end of the parking space so as not to interfere

- with access to the curb cut, depressed curb or *curb ramp*;
 - be in accordance with the requirements of Section 11 of the *Highway Traffic Act, Ontario Regulation 581*;
 - for Type A parking spaces, include the wording “Van Accessible”;
 - include the wording “Maximum Fine \$5000” and “For Enforcement call 905-458-3424” on the same sign or on a sign located in close proximity to the accessible parking sign; and
 - be reflective in accordance with the requirements shown in Figure V.6.1.1 and Figure V.6.1.2.
- The number of accessible parking spaces shall be provided based on the number of parking spaces provided in accordance with Table 6.1.

Total number of parking spaces provided	Total Number of Accessible Parking Spaces Required	Type A Spaces – Van Accessible Required	Type B Spaces Required
1 – 25	1	1	0
26 – 50	2	1	1
51 – 75	3	1	2*
76 – 100	4	2	2
101 – 140	5	2	3*
141 – 170	6	3	3
171 – 250	7	3	4*
251 – 300	8	4	4
301 – 350	9	4	5*
351 – 400	10	5	5
401 – 450	11	5	6*
451 – 500	12	6	6
501 – 550	13	6	7*
551 – 600	14	7	7
601 – 650	15	7	8*
651 – 700	16	8	8
701 – 750	17	8	9*
751 – 800	18	9	9
801 – 850	19	9	10*
851 – 900	20	10	10
901 -950	21	10	11*
951 – 1000	22	11	11
1001 and over	11 plus 1%	equal	equal

Table 6.1 – Accessible Parking Spaces Required

- *Where an uneven number of accessible parking spaces are required, the extra Type B space may be changed to a Type A space.
- Where the number of accessible parking spaces exceeds 1000, provide 11 spaces plus 1% of the total number of spaces (rounded up to the next whole number), divided equally between Type A and Type B spaces. If an odd number of spaces is required, the extra space may be Type B.

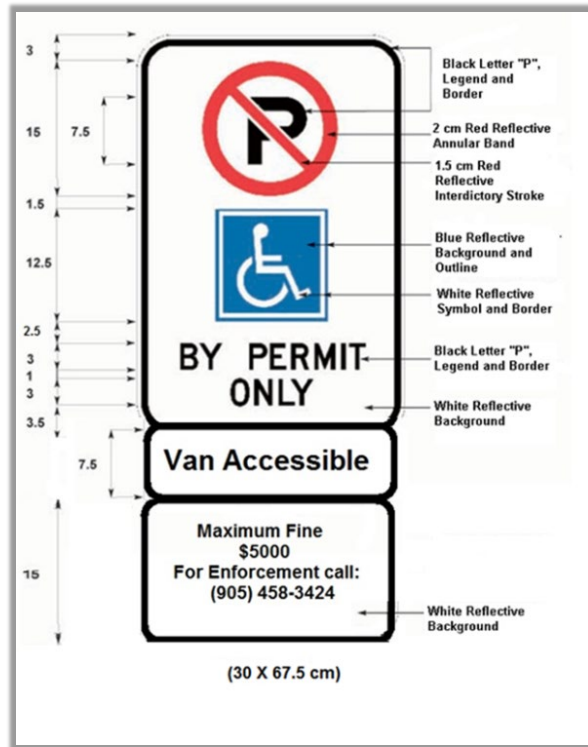


Figure V.6.1.1: Type A Permit Sign

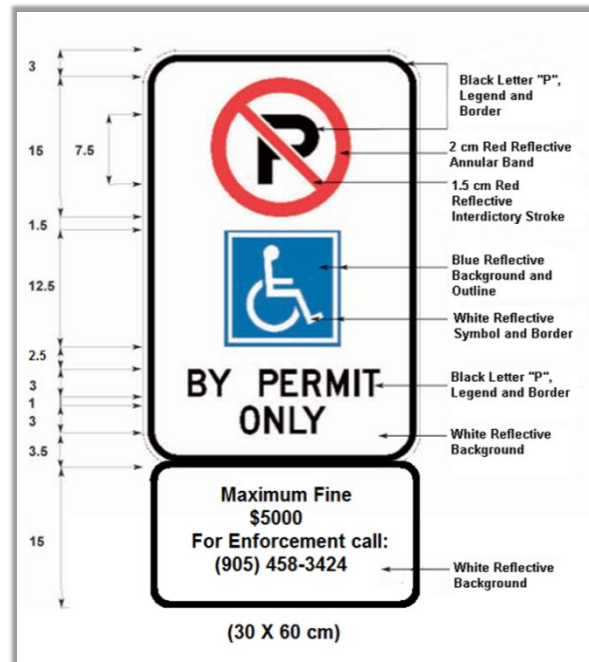


Figure V.6.1.2: Type B Permit Sign

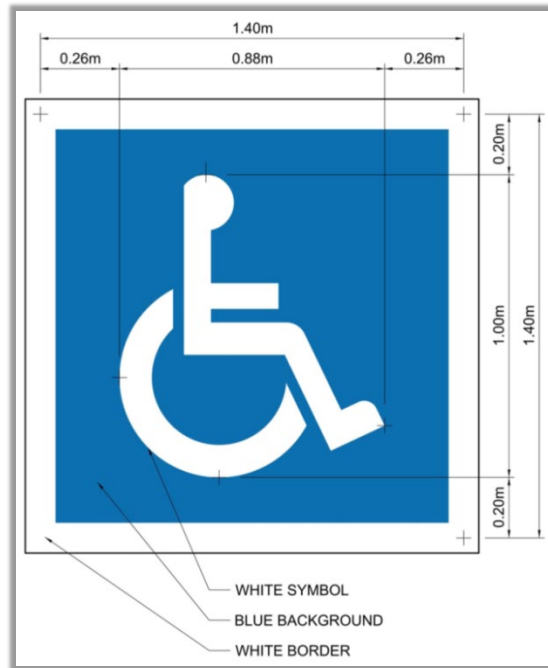


Figure V.6.1.3: Pavement Marking

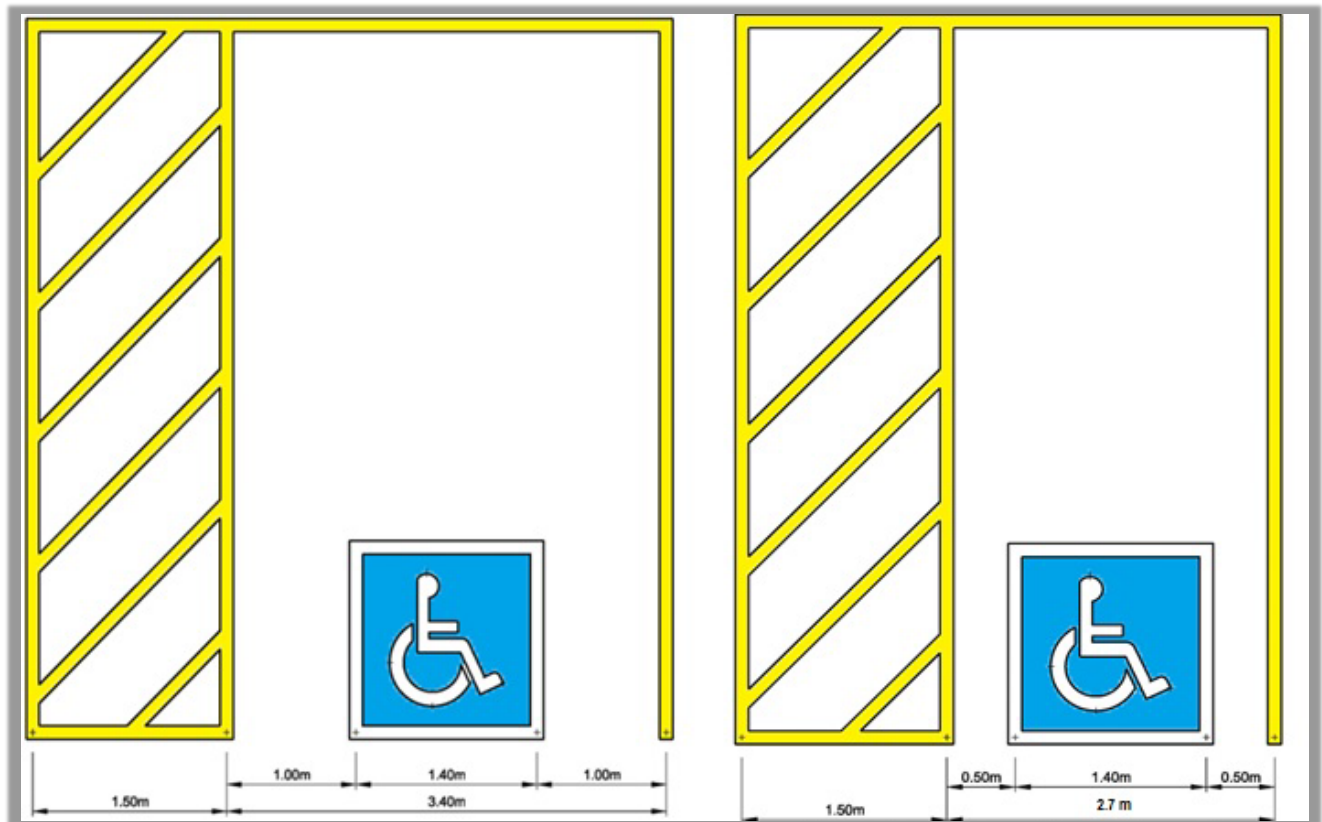


Figure V.6.1.4: Pavement Marking Layout

Related Sections

IV.1.14 Exterior Accessible Routes, Access and Passenger Loading Zones

V.6.2 Accessible On-Street Parking

Rationale

Accessible on-street parking benefits people who use it and businesses, schools and facilities served by the parking. Adjacent traffic, curbs, sidewalks, street furniture and space constraints all contribute to the challenge of designing appropriate accessible on-street parking.

Application

Requirements of this section apply to on-street parking spaces intended for *public use*, newly constructed or redeveloped streets, avenues, parkways, public highways or similar type of road. Application of these requirements are dependent upon consultation with the public, people with disabilities and the Accessibility Advisory Committee and are based on need, location and design of accessible parking spaces.

Design Requirements

- Accessible on-street parking spaces shall:
 - be a minimum of 2750 mm wide by 6500 mm long;
 - have an *access aisle* located behind the parking space;
 - incorporate the International Symbol of Access (Figure V.6.1.3).
- *Access aisles* shall:
 - be a minimum length of 2440 mm long and at least as wide as the parking space;
 - have a hard, level surface for the full length and width;
 - be marked with high tonal contrast diagonal lines to indicate that parking is prohibited in the space; and
 - be located where there is a curb cut, curb depression or *curb ramp*.
- Painted lines to be provided to delineate parking spaces and *access aisles*, and shall:
 - be painted with slip resistant paint either white or yellow slip in colour;
 - if painted yellow, match the yellow traffic paint chip of the Ministry of Transportation, Ontario or U.S. Federal 595B, Yellow 33538;
 - be 10 cm in width; and
 - have stall and *access aisle* width measurements calculated based on mid-point to mid-point of the painted lines (Figure V.6.1.4).
- Each accessible parking space shall incorporate a pavement marking with the International Symbol of Access (wheelchair), that shall:
 - have a white symbol and border;
 - have a blue background under the symbol similar to the colour used on the Highway Traffic Act (HTA) Permit Only sign;
 - be painted with slip resistant paint; and
 - be installed in accordance with Figure V.6.1.3.
- Signage to be erected for each accessible parking space, and shall:
 - be visible to the public;

- be located on a permanent post, building or structure;
- have the bottom edge of the sign 1 metre to 1.5 metres above the surface;
- be located mid-point at the top end of the parking space so as not to interfere with access to the curb cut, depressed curb or curb ramp;
- be in accordance with the requirements of Section 11 of the *Highway Traffic Act, Ontario Regulation 581*;
- for Type A parking spaces, include the wording “Van Accessible”;
- include the wording “Maximum Fine \$5000” and “For Enforcement call 905-458-3424” on the same sign or on a sign located in close proximity to the accessible parking sign;
- be reflective in accordance with the requirements shown in Figure V.6.1.1 and Figure V.6.1.2.

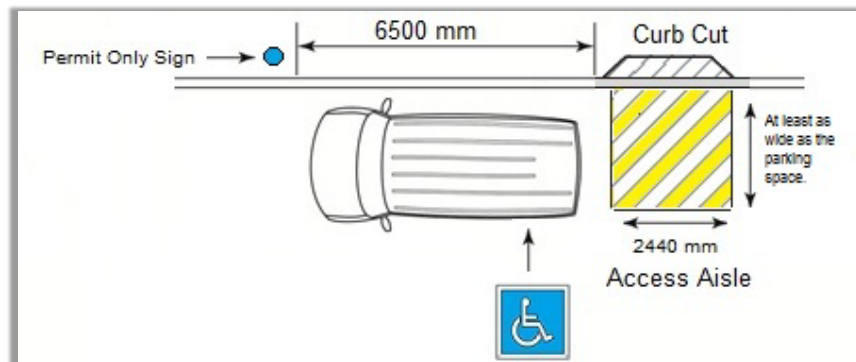


Figure V.6.2.1: On-street Parking Space

V.6.3 Accessible Electric Vehicle Charging Stations

Application

The City is committed to enhancing electric vehicle charging station accessibility and ease of use for persons with disabilities - including but not limited to the use of mobility aids and wheelchairs, limb differences, limited to no hand dexterity, upper extremity amputations, vision and hearing loss, and neurodiversity. Consultants and contractors designing and installing City owned charging infrastructure shall apply universal design principles and apply the following Accessible Design Guidelines and specifications to the best their ability.

Where novel circumstances result in challenges to apply these guidelines, the following resources shall be reviewed to determine a solution that best promotes unhindered access and use of charging equipment for everyone:

[British Standards Institution – EV – Accessible - Charging Specification](#)

[CSA Group – B651:23 - Accessible Design for the Built Environment](#)

[BC Hydro – EV Fast Charging – Design & Operational Guidelines](#)

[US Access Board - Design Recommendations for Accessible Electric Vehicle Charging Stations](#)

[ADA Requirements for Workplace Charging Installation](#)

This applies for all new City-owned EV charging installations for use by the general public and/or staff. This does not apply for chargers designated for fleet vehicles.

V.6.3.1 Number of Accessible Chargers

For new charging station installations, where design is initiated from 2025 onwards, the greater of one (1) or 5 per cent of parking spaces with AC (Level 2) chargers, and the first parking space with a DC Fast (Level 3) charger, with 50 kilowatts or higher power output, per site will be accessible for persons with disabilities, wherever feasible. **V.6.3.2 Use Last Policy**

The City will manage the use of public and staff charging stations via a ‘Use Last’ Policy, where parking spaces with accessible EV chargers should only be used by persons without disabilities if all other non-accessible EV charging spaces are in use.

V.6.3.3 Signage

The following signage must be installed to communicate the ‘Use Last’ policy. The height of the sign from the bottom edge to the top of grade/surface is minimum 1,000 mm to maximum 1,500 mm.



Figure V.6.3.3.1

V.6.3.4 Spatial and Mobility Requirements

- The access aisle shall:
 - be clearly indicated by high colour contrast diagonal pavement markings to indicate vehicles are prohibited from encroaching;
 - have a slope not greater than 1:20 or a cross slope greater than 1:48;
 - support ramps or curb cuts between level changes as needed to allow access to the charger, and connect directly to a marked path of travel to facility or amenity entrances; and
 - be shared by two parking spaces;

Given the location of an electric vehicle’s charging adapter and accessible egress may vary by vehicle model, in a scenario where an access aisle would not be shared between spaces (e.g. only one accessible charger is being installed), isolating the access aisle from the parking space via pavement markings may not be required. This can enhance flexibility on parking configuration to best maneuver personal mobility devices around the vehicle and charger. Multiple or longer curb cuts may be necessary in this circumstance if the charger is mounted on pathway that’s elevated from the parking space’s grade.

- Clear ground space at parking space must:
 - be level and not sloped more than 1:48;
 - have surfaces that are firm and slip resistant. Gravel must not be used; and
 - have a minimum vertical height clearance of 2100 mm where canopies or other infrastructure is installed for weather protection; and
- Chargers should be:
 - flush with grade if possible and have an unobstructed side reach; and
 - where an elevated concrete pad is required for mounting charging equipment, the edge of the pad shall not extend outward more than 250mm from any side with Operable Parts (connectors, RFID card reader, buttons, etc.); and

Where bollards or impact protection barriers are installed adjacent to chargers:

- they must not impede access or reach to the charger’s operable parts; and

Where there are multiple locations for charging equipment on a site:

- accessible chargers should be distributed to allow drivers with disabilities to park near as many accessible entrances as possible; and

Where space is available, pull-in configurations, with chargers located beside the vehicle and between parking stalls, are encouraged as cable reach is less of an issue and chargers are installed at the same grade as parking spaces.



Figure V.6.3.4.1

Where space is available, pull-through configurations, analogous to fuel pumps at a gas station, are encouraged as they can accommodate larger electric vehicles and the driver can easily align the car's charging port with the appropriate connector.

V.6.3.5 Operable Parts

Specified chargers should be designed with parts that are operable by the widest range of users with disabilities.

Operable parts shall:

- be in a range between 750 mm and 1,200 mm in height from grade;
- have the reach distance for operable parts not exceeding 250mm; and
- have the centerline for the charging connector's holster should target 900 mm from grade.

Connectors shall:

- be operable with one hand and a closed fist, and should not require tight grasping, pinching, twisting of the wrist, or more than 60 Newtons of activating force to use; and

Straps, loops and cable management systems shall:

- be added to connectors to assist with moving them to the vehicle's charging port; and
- cables for connectors should never block access aisles when plugged into a vehicle.

Screen or visual interface shall:

- have a bottom height of 800 mm and a maximum top height of 1200 mm;
- display screens must be:
 - visible 1000 mm above grade; or
 - if the screen is located below 1000 mm it shall be tilted at an angle between 10 and 20 degrees upwards from the vertical plane towards the user;
 - have text that is easily readable in an outdoor setting for people with vision impairments and colour blindness;
 - have adjustable text sizes or a minimum character height of 4.75 mm;
 - have internal lighting for illumination in darker conditions; and
 - have antiglare coatings and/or overhead canopies for shading; and
- have the bottom edge of the payment terminal between 800 mm and 1000 mm;
- have 70% colour contrast between the labels on keys and controls and their background; and
- use QWERTY keyboard and standard numerical layout if applicable.

V.6.3.6 Websites and Mobile Applications

- Specified charging equipment should have proven integrations with an EV Charging Station Service Provider's website and mobile application that promotes enhanced communication features for accessibility;
- Websites should adhere to Web Content Accessibility Guidelines (WCAG 2.1); and
- Mobile applications should facilitate contactless payments, enable speech output that is coordinated with information on the chargers' display screen, and provide a platform for two-way text messaging support.

V.6.3.7 Lighting

- Lighting around chargers should be sufficient for those with visual impairments to read signage, instructions, and controls, and navigate routes to nearby building entrances or amenities;
- Light levels should be 108 lux from the charger's face extending out a distance of 1,500 mm;
- From 1,500 mm up to 18,000 mm from the front and back of the charger, lighting should be at least 32 lux; and
- Bright and rapid flashing lights greater than three flashes per second must be avoided.

Related Sections

V.1.1	Sidewalks and Walkways
V.1.7	Curb Ramps
V.1.8	Depressed Curbs
V.6.1	Off-Street Parking and Parking Garages

Section V.7 Exceptions

The Accessibility Standard for the Design of Public Spaces establishes minimum requirements for all organizations to meet. Flexibility is also built in to give organizations the ability to respond to specific local needs and conditions.

Recognizing that there are existing site conditions and other considerations associated with constructing or redeveloping *public spaces*, the regulation identifies situations where exceptions may be made.

Where exceptions are required, organizations must be able to provide upon request proof that it was necessary and a rationale to explain why the requirement was not met.

The following are the exceptions addressed through the regulation:

Impact on Wildlife, the Environment and Cultural Heritage

Public spaces should be developed to maximize accessibility while minimizing impacts on wildlife, the environment and cultural heritage. For example:

- Recreational trails, beach access routes and exterior paths of travel may not be able to meet the accessibility requirement if construction would directly or indirectly have a negative effect on:
 - Water, fish, wildlife, plants, invertebrates, species at risk (as identified in *Ontario's Endangered Species Act, 2007*) ecological integrity or natural heritage values; or
 - Properties protected by the:
 - Ontario Heritage Act (<http://www.ontario.ca/laws/statute/90o18>);
 - Historic Sites and Monuments Act (Canada) (<http://laws-lois.justice.gc.ca/eng/acts/H-4/>);or
 - United Nations Educational, Scientific and Cultural Organization's (UNESCO) World Heritage List (Interactive Map of Canadian locations (<http://bit.ly/1az3Mah>)).

Existing Site Constraints

Existing site constraints may prevent parts of a project from complying with some accessibility requirements and the regulation allows for some exemptions.

Appendix A The Principles of Universal Design

Universal Design is the design of products and environments to be useable by all people, to the greatest extent possible, without the need for adaptation or specialized design.

The authors, a working group of architects, product designers, engineers and environmental design researchers, collaborated to establish the following Principles of Universal Design to guide a wide range of design disciplines including environments, products and communications. These seven principles may be applied to evaluate existing designs, guide the design process and educate both designers and consumers about the characteristics of more usable products and environments.

The Principles of Universal Design are presented here, in the following format: the name of the principle, intended to be a concise and easily remembered statement of the key concept embodied in the principle; definition of the principle, a brief description of the principle's primary directive for design; and guidelines, a list of the key elements that should be present in a design which adheres to the principle. (Note: all guidelines may not be relevant to all designs.)

Principle One: Equitable Use

The design is useful and marketable to people with diverse abilities.

Guidelines:

- 1a. Provide the same means of use for all users: identical whenever possible; equivalent when not.
- 1b. Avoid segregating or stigmatizing any users.
- 1c. Provisions for privacy, security and safety should be equally available to all users.
- 1d. Make the design appealing to all users.

Principle Two: Flexibility in Use

The design accommodates a wide range of individual preferences and abilities.

Guidelines:

- 2a. Provide choice in methods of use.
- 2b. Accommodate right- or left-handed access and use.
- 2c. Facilitate the user's accuracy and precision.
- 2d. Provide adaptability to the user's pace.

Principle Three: Simple and Intuitive Use

Use of the design is easy to understand, regardless of the user's experience, knowledge, language skills, or current concentration level.

Guidelines:

- 3a. Eliminate unnecessary complexity.
- 3b. Be consistent with user expectations and intuition.

- 3c. Accommodate a wide range of literacy and language skills.
- 3d. Arrange information consistent with its importance.
- 3e. Provide effective prompting and feedback during and after task completion.

Principle Four: Perceptible

The design communicates necessary information effectively to the user, regardless of ambient conditions or the user's sensory abilities.

Guidelines:

- 4a. Use different modes (pictorial, verbal, tactile) for redundant presentation of essential information.
- 4b. Provide adequate contrast between essential information and its surroundings.
- 4c. Maximize "legibility" of essential information.
- 4d. Differentiate elements in ways that can be described (i.e., make it easy to give instructions or directions).
- 4e. Provide compatibility with a variety of techniques or devices used by people with sensory limitations.

Principle Five: Tolerance for Error

The design minimizes hazards and the adverse consequences of accidental or unintended actions.

Guidelines:

- 5a. Arrange elements to minimize hazards and errors: most used elements, most accessible; hazardous elements eliminated, isolated, or shielded.
- 5b. Provide warnings of hazards and errors.
- 5c. Provide fail-safe features.
- 5d. Discourage unconscious action in tasks that require vigilance.

Principle Six: Low Physical Effort

The design can be used efficiently and comfortably and with a minimum of fatigue.

Guidelines:

- 6a. Allow user to maintain a neutral body position.
- 6b. Use reasonable operating forces.
- 6c. Minimize repetitive actions.
- 6d. Minimize sustained physical effort.

Principle Seven: Size and Space for Approach and Use

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

Guidelines:

- 7a. Provide a clear line of sight to important elements for any seated or standing user.

- 7b. Make reach to all components comfortable for any seated or standing user.
- 7c. Accommodate variations in hand and grip size.
- 7d. Provide adequate space for the use of assistive devices or personal assistance.

Please note that the Principles of Universal Design address only universally usable design, while the practice of design involves more than consideration for usability. Designers must also incorporate other considerations, such as economic, engineering, cultural, gender, and environmental concerns, in their design processes. These principles offer designers guidance to better integrate features that meet the needs of as many users as possible.

This information was compiled by advocates of universal design, listed in alphabetical order:

Bettye Rose Connell, Mike Jones, Ron Mace, Jim Mueller, Abir Mullick, Elaine Ostroff, Jon Sanford, Ed Steinfeld, Molly Story, and Gregg Vanderheiden

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Appendix B Tactile Walking Surface Indicators (TWSI)

Assistive Products for Blind and Vision-Impaired Persons ISO/FDIS 23599 Tactile Walking Surface Indicators (TWSI) Clauses 4.1.1 and Clause 4.1.2

Specifications for shape and dimensions of TWSIs

4.1.1 General

TWSIs shall be easily detectable from the surrounding or adjacent surface by raised tactile profiles. This can be achieved by complying with the shape and dimensions specified below.

4.1.2 Attention Patterns

4.1.2.1 Arrangements

- Truncated domes or cones shall be arranged in a square grid, parallel or diagonal at 45° to the principle direction of travel.

4.1.2.2 Height

- The height of truncated domes or cones shall be 4 mm to 5 mm. In indoor environment with exceptionally smooth surfaces, the minimum height of 4 mm may be preferable. Note: When truncated domes are surrounded by exceptionally smooth surfaces, such as terrazzo, plastic or rubber they can be detected more easily than when they are pavers. A height is that is more than necessary for reliable detection can cause tripping.

4.1.2.3 Diameter

- The top of truncated domes or cones shall range from 12 mm to 25 mm, as shown in Table 1, and the bottom of truncated domes or cones shall be (10 ± 1) mm greater than the top diameter. Note: Systemic research carried out on truncated domes or cones of various dimensions indicates a top diameter of 12 mm is the optional size for blind or vision-impaired persons to detect and distinguish through the soles of their shoes. Experiences indicate that the optimal top diameter for other groups within the community could be greater.

4.1.2.4 Spacing

- Spacing refers to the shortest distance between the centres of two adjacent truncated domes or cones which may be parallel or diagonal at 45° to the direction of travel. The spacing shall be within the ranges shown in relation to the top diameter in Table 1. The tolerance of the top diameter shall be ± 1 mm.

Table 1 – Top Diameter and Corresponding Spacing of Truncated Domes or Cones

Top diameter of flat-topped domes or cones mm	Spacing mm
12	42 to 61
15	45 to 63
18	48 to 65
20	50 to 68
25	55 to 70