



ACKNOWLEDGEMENTS

June, 2005

Re: Town of Whitby Accessibility Standards

Dear reader/user of these standards,

On behalf of the Corporation of the Town of Whitby we are pleased to be able to present to you the Town of Whitby Accessibility Standards which are intended to apply to all newly constructed and/or renovated Town of Whitby owned, leased or operated facilities. We would like to thank and recognize the contributions of:

- Mr. Bob Topping and Mr. Matthew Fleet and other staff of Designable Environments Inc. of 1238 Stavebank Road North, Mississauga ON, L5G 2V2, (Tel:(905) 891-5232), who have been instrumental in creating the Town of Whitby Accessibility Standards.
- The community participants who attended a number of focus-group sessions and who reviewed the original City of London Facility Accessibility Design Standards:



Brain Injury Association of London

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Ms. Lynne Swanson

Thames Valley Childrens' Centre

Ms. Patricia Baldwin
Ms. Lisa Havens
Ms. Karen Faragher

ACKNOWLEDGEMENTS (Continued)

We would like to acknowledge the following documents that were utilized to develop the City of London's Accessibility Standards:

Accessibility Guidelines for the City of Toronto

Accessibility Guidelines for Buildings and Facilities (ADAAG)
- The American with Disabilities Act

Barrier-Free Design
- CAN/CSA-B651-95

Barrier-Free Design Guidelines - Alberta Safety Codes Council

Barrier-Free Design Guidelines - City of North York

Barrier-Free Design Standards -

Regional Municipality of Hamilton

-Wentworth and the Corporation of the City of Hamilton

Joint Municipal Guidelines for Accessibility for the Towns of Richmond Hill, Markham and Vaughan

We would also like to thank Mr. Gerry Baron, of the Alberta Safety Codes Council and Heidi Baron Graphics for allowing Designable Environments to incorporate some of the diagrams contained in the Alberta Safety Codes Council's "Barrier-Free Design Guide" into the 2001 Facility Accessibility Design Standards.

In addition to our use of these standards for our own facilities, we encourage the use of the Town of Whitby Accessibility Standards throughout the community and hope that you find them interesting and valuable for your facility construction and/or renovation projects. The Town of Whitby would especially like to thank the City of London for sharing and allowing the Town to use their Facility Accessibility Design Standards.

Robert Short, Planning Director
Corporation of the Town of Whitby
Planning Department

TABLE OF CONTENTS

| | | | |
|--|-----------|---|----|
| 1.0 Introduction | 1 | 4.2.7 Individual Washrooms .. | 61 |
| 2.0 Glossary and Definitions | 3 | 4.2.8 Bathtubs..... | 64 |
| 3.0 Scope and Application | 8 | 4.2.9 Shower Stalls | 66 |
| 4.0 Design Standards..... | 11 | 4.2.10 Grab Bars | 68 |
| 4.1 Access and Circulation | | 4.3 Other Amenities | |
| 4.1.1 Space and Reach Requirements | 12 | 4.3.1 Drinking Fountains..... | 69 |
| 4.1.2 Ground and Floor Surfaces | 15 | 4.3.2 Viewing Positions | 71 |
| 4.1.3 Protruding Objects | 17 | 4.2.3 Elevated Platforms | 73 |
| 4.1.4 Accessible Routes, Paths and Corridors | 19 | 4.3.4 Dressing Rooms..... | 74 |
| 4.1.5 Entrances | 22 | 4.3.5 Offices, Work Areas and Meeting Rooms..... | 75 |
| 4.1.6 Doors | 24 | 4.3.6 Waiting and Queuing Areas | 77 |
| 4.1.7 Gates, Turnstiles and Openings | 29 | 4.3.7 Tables, Counters and Work Surfaces | 78 |
| 4.1.8 Windows, Glazed Screens and Sidelights | 30 | 4.3.8 Information, Reception and Service Counters ... | 79 |
| 4.1.9 Ramps..... | 32 | 4.3.9 Storage, Shelving and Display Units | 80 |
| 4.1.10 Curb Ramps | 36 | 4.3.10 Lockers and Baggage Storage | 81 |
| 4.1.11 Stairs | 38 | 4.3.11 Balconies, Porches, Terraces and Patios.... | 82 |
| 4.1.12 Handrails | 40 | 4.3.12 Parking..... | 83 |
| 4.1.13 Escalators | 42 | 4.3.13 Passenger Loading Zones..... | 86 |
| 4.1.14 Elevators | 43 | 4.3.14 Landscaping Materials and Plantings | 88 |
| 4.1.15 Platform Lifts..... | 48 | 4.3.15 Benches | 90 |
| 4.2 Washroom Facilities | | 4.3.16 Picnic Tables | 91 |
| 4.2.1 Toilet and Bathing Facilities | 50 | 4.3.17 Street Furniture..... | 92 |
| 4.2.2 Toilet Stalls | 53 | | |
| 4.2.3 Toilets | 55 | | |
| 4.2.4 Lavatories | 57 | | |
| 4.2.5 Urinals..... | 59 | | |
| 4.2.6 Washroom Accessories . | 60 | | |

TABLE OF CONTENTS (Continued)**4.4 Systems and Controls**

| | |
|--|-----|
| 4.4.1 Emergency Exits, Fire Evacuation and Areas of Rescue Assistance..... | 93 |
| 4.4.2 Controls and Operating Mechanisms | 95 |
| 4.4.3 Vending and Ticketing Machines | 97 |
| 4.4.4 Visual Alarms | 98 |
| 4.4.5 Public Telephones | 99 |
| 4.4.6 Assistive Listening Systems | 102 |
| 4.4.7 Signage | 103 |
| 4.4.8 Detectable Warning Surfaces | 106 |
| 4.4.9 Public Address Systems | 108 |
| 4.4.10 Information Systems | 109 |
| 4.4.11 Card Access, Safety and Security Systems..... | 110 |
| 4.4.12 Glare and Light Sources | 111 |
| 4.4.13 Lighting | 113 |
| 4.4.14 Materials and Finishes | 115 |
| 4.4.15 Texture and Colour .. | 116 |
| 4.4.16 Acoustics | 118 |

4.5 Facility-Specific Requirements

| | |
|--|-----|
| 4.5.1 Arenas, Halls and Other Indoor Recreational Facilities | 119 |
| 4.5.2 Outdoor Recreational Facilities | 120 |
| 4.5.3 Swimming Pools | 123 |
| 4.5.4 Libraries | 125 |
| 4.5.5 Transportation Facilities | 128 |

APPENDICES

| | |
|---|-----|
| A Universal Design Principles and Guidelines..... | 129 |
|---|-----|

1.0 INTRODUCTION

This standard is set to respond to the needs of the Town of Whitby for both the design and construction of new *facilities*, as well as the retrofit, *alteration* or *addition* to existing *facilities*, owned, leased or operated by the Town.

This standard particularly addresses the needs of persons with *disabilities*, including, but not limited to, persons who are mobility impaired, hearing impaired, visually impaired or cognitively impaired, persons who are deaf-blind and persons with limited stamina and/or dexterity.

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

This standard incorporates the belief in universal design that recognizes the broad diversity of people who use *facilities*.

Universal design is defined as:

"The design of products and environments to be usable by all people, to the greatest extent possible, without the need for adaptation or specialized design."

The universal design philosophy is structured around the seven design principles listed below. (Refer to Appendix A for further information on the universal design principles and their guidelines.)

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

Where conflicts exist between scoping and/or dimensional requirements of this standard and legislation enacted by the federal or provincial governments', the most accommodating requirements shall apply

(i.e., the requirement(s) that will result in the most accommodating environment but never less than the minimum requirements of the current Ontario Building Code).

The Planning and Public Works Departments of the Town of Whitby shall review and/or update this standard every 3-5 years, to reflect technological advancement and new construction practices, as well as changes to the barrier-free design requirements of the Ontario Building Code and the CSA Standard B651 - Barrier-Free Design.

This standard recognizes the concept of equivalent facilitation as a means to encourage new and innovative design ideas and solutions. Departures from particular technical and scoping requirements of this standard by the use of other designs and technologies are encouraged when the alternatives will provide substantially equivalent or greater access to the usability of the *element* and/or *facility*. Design departures from information provided and referenced in this standard should be carefully assessed to determine the validity of the application

1.0 INTRODUCTION (Continued)

and may require review by a committee appointed for this purpose by the Town of Whitby.

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

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

1. EQUITABLE USE:

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

2. FLEXIBILITY IN USE:

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

3. SIMPLE AND INTUITIVE USE

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

4. PERCEPTIBLE INFORMATION:

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

5. TOLERANCE FOR ERROR:

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

6. LOW PHYSICAL EFFORT:

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

7. SIZE AND SPACE FOR APPROACH AND USE:

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

The Principles of **UNIVERSAL DESIGN**

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2.0 GLOSSARY AND DEFINITIONS

GRAPHIC CONVENTIONS

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

GENERAL TERMINOLOGY

comply with Meet one or more specifications of this standard.

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

may Denotes an option or alternative.

shall Denotes a mandatory specification or requirement.

should Denotes an advisory specification or recommendation.

DEFINITIONS

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

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

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

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

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

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

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

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

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.

2.0 GLOSSARY AND DEFINITIONS

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)

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 metres, consisting of a wall, roof and floor or any of them, or a structural system serving the function thereof, including all plumbing, fixtures and service systems appurtenant thereto; or a structure occupying an area of ten square metres or less that contains plumbing, including the plumbing appurtenant thereto; or structures designated in the Ontario Building Code.

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

Clear: Unobstructed.

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

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

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

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

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*.

2.0 GLOSSARY AND DEFINITIONS

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, *walks*, passageways, *parks*, parking lots or other real or personal property located on a *site*.

Ground floor: Any *occupiable* floor less than one *storey* above or below grade with direct access to grade. A *facility* always has at least one *ground floor* and may have more than one *ground floor*, as where a split-level *entrance* has been provided or where a *facility* is built into a hillside.

Handicap: A disadvantage for a given individual, resulting from an *impairment* or *disability* that limits or prevents the fulfillment of a role that is normal (depending on age, sex, social and cultural factors) for that individual. A *handicap* is an external factor which limits the full use of a *facility/function* for a specific individual.

Heritage Facility: *Facility* or portions thereof designated under the Ontario Heritage Act, or certified by the Local Architectural Conservation Advisory Committee.

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

Mezzanine or Mezzanine floor: That portion of a *storey* which is an intermediate floor level, placed within the *storey* and having *occupiable space* above and below its floor.

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

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.

Official Sign: The sign referred to and illustrated in Section 11 of Ontario Regulations 581, R.R.O. 1990, as may be amended from time to time and any successor regulations in substitution thereof.

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).

2.0 GLOSSARY AND DEFINITIONS

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.

Parking Space, Designated: An off-street parking space for persons with disabilities, identified by an *official sign* for the exclusive use for a vehicle displaying a *permit* in accordance with the requirements of the Highway Traffic Act, R.S.O. 1990, c.II.8, as may be amended from time to time.

Permit: A Disabled Person Parking Permit issued under Section 26 of the Highway Traffic Act or a valid permit, number plate or other marker or device, bearing the international symbol of access for the disabled, issued by another jurisdiction and recognized under the Highway Traffic Act.

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.

Service entrance: An *entrance* intended primarily for delivery of goods or services and not intended for use by the public.

Service room: A room provided in a *building* to contain equipment associated with *building* services.

Service space: A space provided in a *facility* to facilitate or conceal the installation of *facility* service *facilities* such as chutes, ducts, pipes, shafts or wires.

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

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

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

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*.

2.0 GLOSSARY AND DEFINITIONS

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

Technically infeasible:

Means, with respect to an *alteration* of a *building* or a *facility*, that it has little likelihood of being accomplished, because - existing structural conditions would require moving or altering a load-bearing member which is an essential part of the *structural frame*; or - other existing physical or *site* constraints prohibit modification or addition of necessary *elements*, *spaces* or features which are in full and strict compliance with the minimum requirements for new construction.

Temporary structure:

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.

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

Walk: An exterior pathway with a prepared surface intended for pedestrian use, including general pedestrian areas, such as plazas and courts, within the boundary of the *site*.

3.0 SCOPE AND APPLICATION

GENERAL

The requirements of this standard shall be

- mandatory for all newly constructed and retrofitted *facilities* owned, leased or operated by the Town of Whitby; and
- encouraged for all other *facilities*, whether new or retrofitted.

Exceptions: This standard does not apply to

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

GENERAL APPLICATION

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

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

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

APPLICATION BASED ON FACILITY USE

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

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

WORK AREAS AND EMPLOYEE-DESIGNATED AREAS

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

TEMPORARY FACILITIES

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

RETROFITTING, ALTERATIONS AND ADDITIONS

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

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

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

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

3.0 SCOPE AND APPLICATION

shall be altered to become *accessible*.

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

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

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

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

If the alteration work is limited solely to the electrical, mechanical or plumbing system, or to hazardous material abatement, or to automatic sprinkler retrofitting, and does not involve the alteration of any *elements*

or *spaces* required to be *accessible* under these guidelines, 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

This standard 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 which are deemed to alter the essential nature or

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

- *Facilities* and/or areas that are generally used independently by the public and have undergone extensive modernization should be permanently and fully *accessible*. This includes parking areas, reception areas, washrooms, food service areas and gift shops. It can also include *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.

3.0 SCOPE AND APPLICATION

HERITAGE FACILITIES

(Continued)

- It is desirable to provide a complete experience of a *Public Heritage Facility*. If an *accessible* area or areas can be provided to fully experience a given *site* or *facility* context, access to the entire *site* or *facility* is not necessary.
- Access to above- 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.

4.0 DESIGN STANDARDS

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

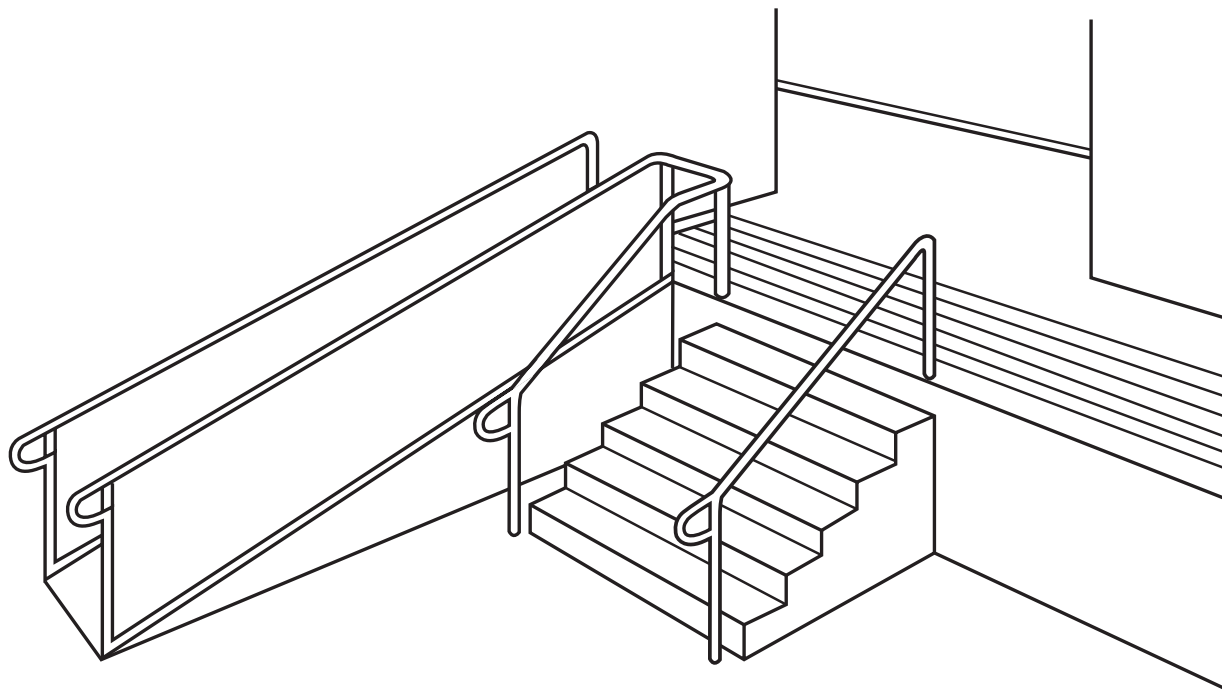
The requirements of this section apply to all facilities except

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

pump houses and substations.

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

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



4.1 ACCESS AND CIRCULATION

4.1.1 SPACE AND REACH REQUIREMENTS

RATIONALE

The dimensions and manoeuvring characteristics of wheelchairs and other mobility devices are as varied as the people who use them. Traditionally, accessibility standards have taken a conservative approach to wheelchair manoeuvrability, reflecting the needs of the average user in an average-sized wheelchair. Such an approach excludes the many users who are not average. This standard more accurately reflects the vast array of equipment that is used by persons to access and use facilities, as well as the diverse range of user ability. This standard incorporates more generous *space*

requirements, particularly related to the dynamic movement of people using wheelchairs, scooters or other assistive devices.

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 (96 in.) diameter (Figure 4.1.1.1) or a 180-degree turn as shown in Figure 4.1.1.2.

The minimum *clear* floor or ground *space* required to accommodate a single, stationary wheelchair or scooter and occupant shall be 760 mm (30 in.) x 1370 mm (54 in.). (Refer to Figures 4.1.1.5 and 4.1.1.6)

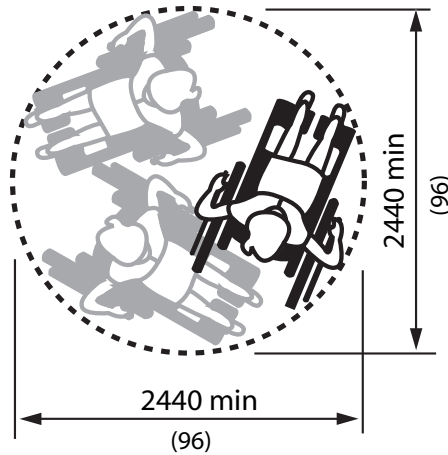
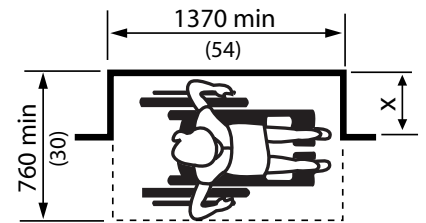


Figure 4.1.1.1
360° Turning Space



Parallel Approach - where X is 380 mm (15 in.) or less

Figure 4.1.1.3
Clearances at Alcove

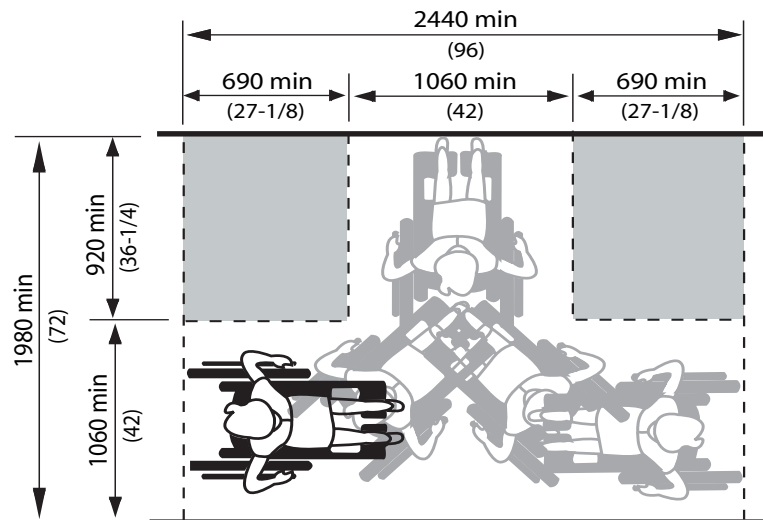
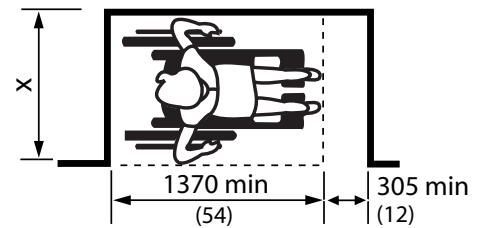


Figure 4.1.1.2
180° Turn



Parallel Approach - where X is more than 380 mm (15 in.)

Figure 4.1.1.4
Clearances at Alcove

4.1.1 SPACE AND REACH REQUIREMENTS

4.1 ACCESS AND CIRCULATION

The minimum *clear floor* or ground *space* for wheelchairs or scooters 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 as shown in Figures 4.1.1.3, 4.1.1.4, 4.1.1.7 and 4.1.1.8.

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

If the *clear floor space* only allows forward approach to

an object, the maximum high forward reach allowed shall be 1200 mm (47 in.). The minimum low forward reach is 400 mm (16 in.). Refer to Figure 4.1.1.11. If the high forward reach is over an obstruction, reach and clearances shall be as shown in Figures 4.1.1.12 and 4.1.1.13.

If the *clear floor space* allows parallel approach to an object, the maximum high side reach allowed shall be 1370 mm (54 in.) and the low side reach

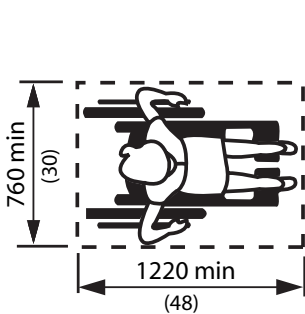


Figure 4.1.1.5
Clear Floor Space for Wheelchair

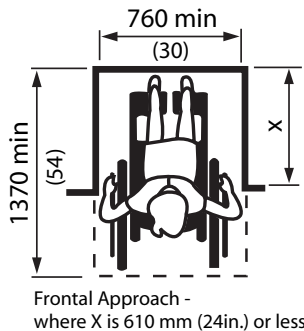


Figure 4.1.1.7
Clearances at Alcove

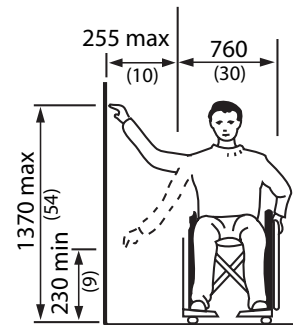


Figure 4.1.1.9
Side Reach

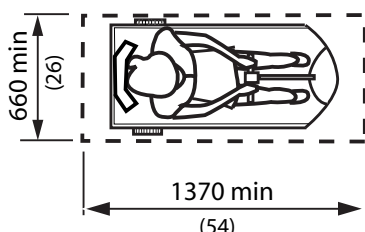


Figure 4.1.1.6
Clear Floor Space for Scooter

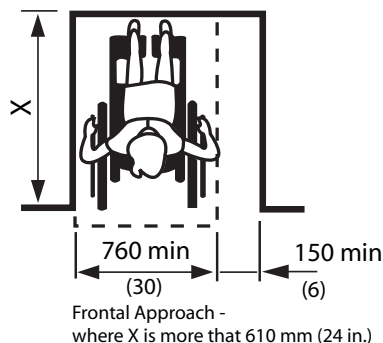


Figure 4.1.1.8
Clearances at Alcove

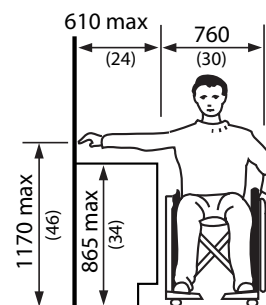


Figure 4.1.1.10
Side Reach over an Obstruction

4.1 ACCESS AND CIRCULATION

4.1.1 SPACE AND REACH REQUIREMENTS

DESIGN REQUIREMENTS

(Continued)

no less than 230 mm (9 in.) above the floor. Refer to Figure 4.1.1.9. If the side reach is over an obstruction, the reach and clearances shall be as shown in Figure 4.1.1.9 and 4.1.1.13. Notwithstanding these requirements, the Ontario Building Code requires all controls for the operation of *facility* services or safety devices, including electrical switches, thermostats and intercom switches, be mounted at not more than 1200 mm (47 in.) above the floor.

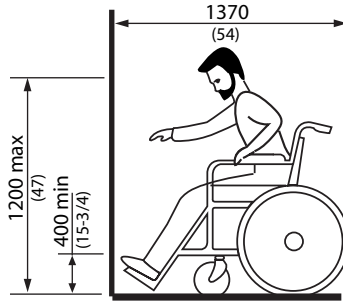


Figure 4.1.1.11
Forward Reach

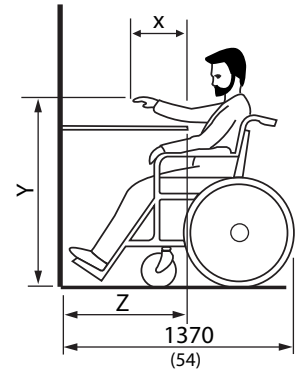


Figure 4.1.1.12
Forward Reach over an Obstruction

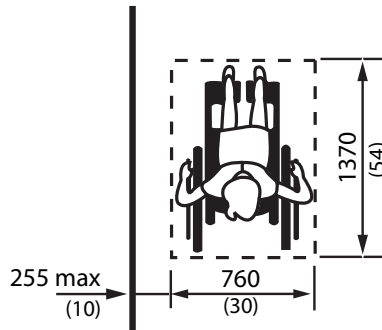


Figure 4.1.1.13
Side Reach - Maximum Distance to Wheelchair

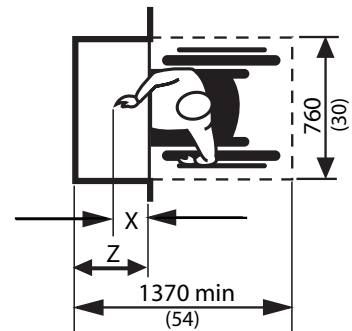


Figure 4.1.1.14
Forward Reach over an Obstruction

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

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

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

4.1.2 GROUND AND FLOOR SURFACES

4.1 ACCESS AND CIRCULATION

RATIONALE

Design decisions related to ground and floor surfaces will influence every person who enters the building. Irregular surfaces, such as cobblestones or pea-gravel finished concrete, are difficult for either walking or pushing a wheelchair. On slippery surfaces, it is the ambulatory person who is more disabled than the wheelchair user. Appropriate floor surfaces are especially important for children and seniors who may not be sure-footed.

Glare from polished floor surfaces is a particular obstacle to persons with a visual impairment. Glare can obscure important orientation and safety features. It can also disorient persons with low vision, as they are unsure of the location of the ground. Pronounced colour contrast between walls and floor finishes may be helpful for a person with a visual impairment, as are changes in colour/texture where a change in level or function occurs.

Thick pile carpeting makes pushing a wheelchair very difficult. Small and uneven changes in floor level represent a further barrier to wheelchair users

but also present a tripping hazard to ambulatory persons. Patterned floors should be avoided, as they can create visual confusion.

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 and glare-free.

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

Carpets or carpet tile shall

- be securely fixed;
- have a firm cushion, pad or backing, where used;
- have a level loop, textured loop, level cut pile, or level cut/uncut pile texture with a maximum pad and pile height of 13 mm (1/2 in.); and
- have exposed edges fastened to floor surfaces with trim conforming to Table 4.1.2.

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

Table 4.1.2
Changes in Level

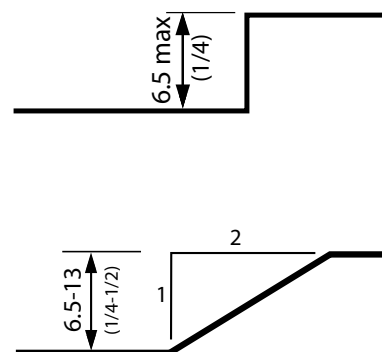


Figure 4.1.2.1
Changes in Level

4.1 ACCESS AND CIRCULATION

4.1.2 GROUND AND FLOOR SURFACES

DESIGN REQUIREMENTS
(Continued)

Gratings located in walking surfaces shall

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

RELATED SECTIONS

- 4.1.4 Accessible Routes, Paths and Corridors
- 4.4.8 Detectable Warning Surfaces
- 4.4.14 Materials and Finishes
- 4.4.15 Texture and Colour

OPENINGS LARGER THAN 13 (1/2 in.) MAY CATCH WHEELCHAIR WHEELS OR CANES

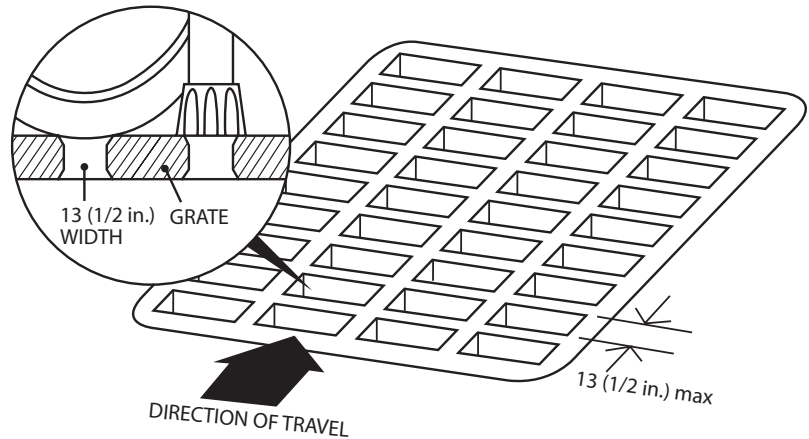


Figure 4.1.2.2
Grills and Gratings

4.1.3 PROTRUDING OBJECTS

4.1 ACCESS AND CIRCULATION

RATIONALE

The creation of pathways free from protruding objects or freestanding obstacles is important to all *facility* users. An object protruding from a wall above the detection range of a cane is dangerous for an individual with a visual impairment but is equally hazardous to a pedestrian distracted by a conversation. Detectable surfaces around freestanding obstacles, such as light standards, are advantageous to anyone using a pathway.

APPLICATION

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

DESIGN REQUIREMENTS

Objects protruding from walls with their leading edges between 680 mm (26-1/2 in.) and 2100 mm (82-3/4 in.) from the floor shall protrude not more than 100 mm (4 in.) into pedestrian areas, such as walkways, halls, corridors, passageways or aisles.

Objects attached to a wall with their leading edges at or below 680 mm (26-1/2 in.) from the floor may protrude any amount.

Freestanding objects shall not have any overhang of more than 300 mm (12 in.) between 680 mm (26-1/2 in.) and 2100 mm (82-3/4 in.) from the ground or floor.

The maximum height of the bottom edge of freestanding objects with a *space* of more than 300 mm (12 in.) between supports shall be 680 mm (26-1/2 in.) from the ground or floor.

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

The minimum *clear* headroom in pedestrian areas, such as walkways, halls, corridors, passageways, or aisles, shall be 2030 mm (82-3/4 in.).

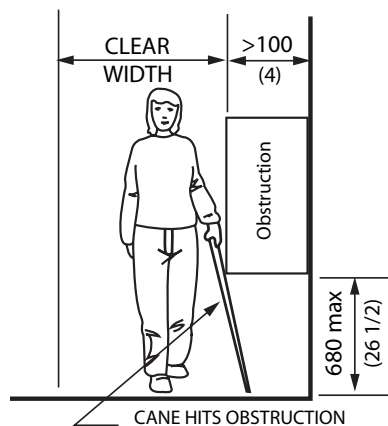


Figure 4.1.3.1
Limits of Protruding Objects

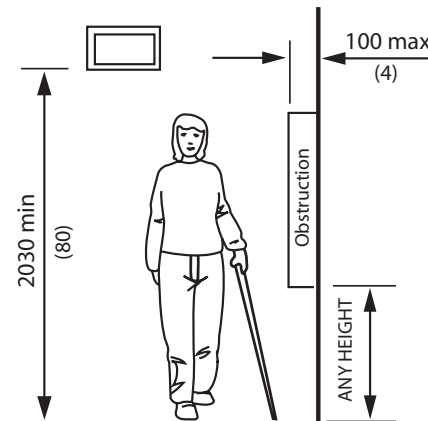


Figure 4.1.3.2
Limits of Protruding Objects

4.1 ACCESS AND CIRCULATION

4.1.3 PROTRUDING OBJECTS

DESIGN REQUIREMENTS
(Continued)

A detectable guard: a guardrail or other barrier having its leading edge at or below 680 mm (26-1/2 in.) from the floor shall be provided where the headroom of an area adjoining an *accessible route* is reduced to less than 2100 mm (82-3/4 in.).

RELATED SECTIONS

- 4.1.4 Accessible Routes, Paths and Corridors
- 4.4.8 Detectable Warning Surfaces
- 4.4.14 Materials and Finishes
- 4.4.15 Texture and Colour

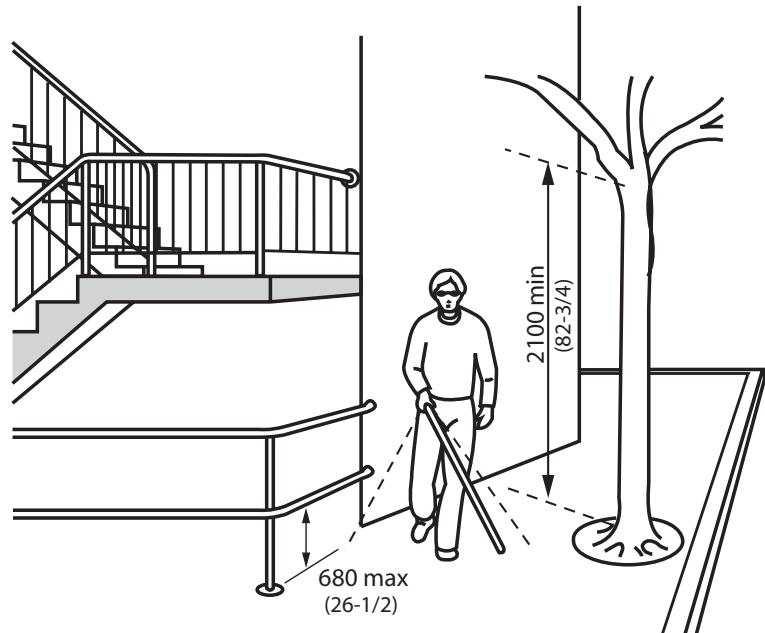


Figure 4.1.3.3
Overhead Obstructions

4.1.4 ACCESSIBLE ROUTES, PATHS & CORRIDORS

4.1 ACCESS AND CIRCULATION

RATIONALE

Maintaining a clear route of travel through 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 travelling in pairs. Consideration should be given not just to the width of items, such as wheelchairs and scooters, but also to their manoeuvrability. While a corridor may be wide enough for a scooter driven in a straight line, it may not be possible to make a turn around a corner. The preferred minimum width for *accessible routes* is 1830 mm (72 in.).

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

APPLICATION

Wherever possible, all routes, paths or corridors shall comply with this section.

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

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

Except where essential obstructions in a work area would make an *accessible route* hazardous, an *accessible route* shall connect *accessible entrances* with all *accessible spaces and elements* within the *facility*. An *accessible route* complying with this section shall be provided within all normally *occupiable* floor areas. Exceptions: The provision of an *accessible route* does not apply

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

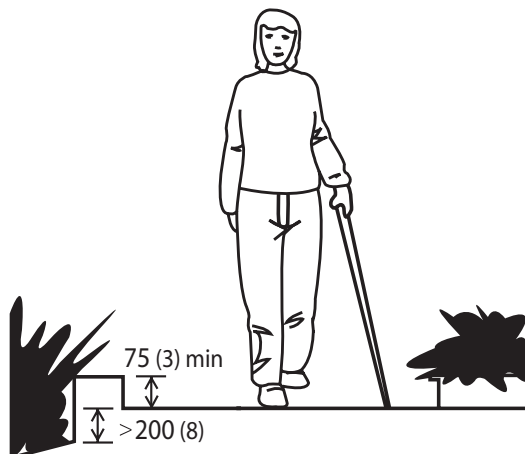


Figure 4.1.4.1
Edge Protection

4.1 ACCESS AND CIRCULATION

4.1.4 ACCESSIBLE ROUTES, PATHS & CORRIDORS

APPLICATION

(Continued)

Accessible routes are permitted to include *ramps, curb ramps, stairs, elevators* or other elevating devices (as permitted in 4.1.15) where there exists a difference in elevation.

DESIGN REQUIREMENTS

The minimum *clear* width of *accessible routes* shall be 1060 mm (42 in.) except

- at doors, it shall be 950 mm (37-1/2 in.);
- where additional manoeuvring *space* is required at doorways (See 4.1.6);
- at U-turns around obstacles less than 1220 mm (48 in.) wide, it shall be 1220 mm (48 in.);
- for exterior routes, it shall be 1220 mm (48 in.); and
- where *space* is required for two wheelchairs to pass, it shall be 1830 mm (72 in.).

Accessible routes shall

- have a *running slope* not steeper than 1:25; and
- have a *cross slope* not steeper than 1:50.

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

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 200 mm (8 in.) to 600 mm (23-5/8 in.) below the route, path or corridor, by a colour contrasting curb at least 75 mm (3 in.) high; and
- where the change in level is greater than 600 mm (23-5/8 in.), by a guard which meets the requirements listed in 4.1.9.

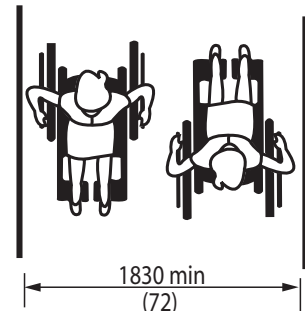
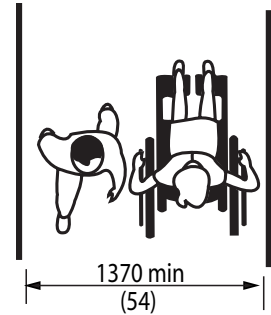


Figure 4.1.4.2
Access Widths

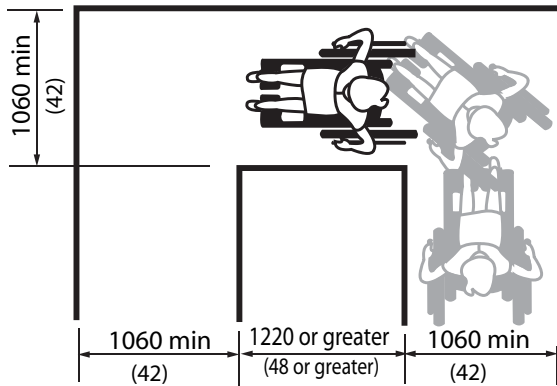
4.1.4 ACCESSIBLE ROUTES, PATHS & CORRIDORS**4.1 ACCESS AND CIRCULATION**

Figure 4.1.4.3
Turn around an Obstacle

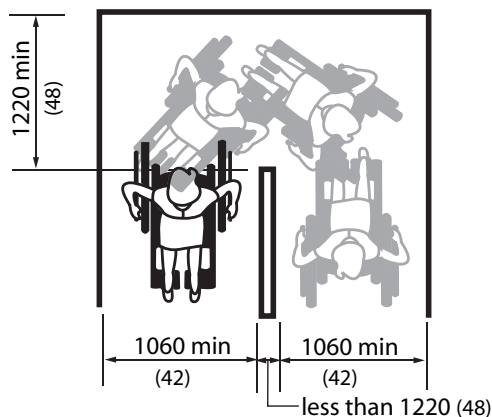


Figure 4.1.4.4
Turn around an Obstacle

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 *accessible routes* shall be equipped to provide a level of illumination of at least 50 lux (4.6 ft-candles). Exception: Outdoor park settings where routes are not normally illuminated.

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

RELATED SECTIONS

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

4.1 ACCESS AND CIRCULATION

4.1.5 ENTRANCES

RATIONALE

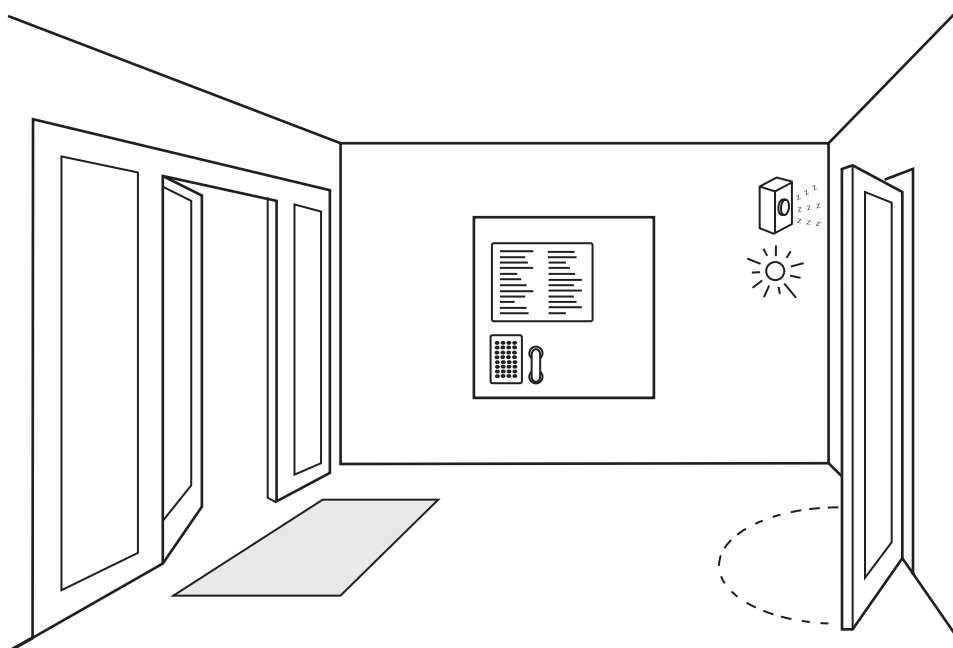
Design decisions concerning doors will have a direct influence on the independence and dignity of everyone entering or exiting a facility. Features such as canopies can limit the influence of weather conditions on this already busy area and also make an entrance more obvious to someone with a cognitive disability 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*.)



4.1.5 ENTRANCES

4.1 ACCESS AND CIRCULATION

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

If direct access is provided for pedestrians from an enclosed parking garage to 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 4.4.7 which indicates the nearest *accessible entrance*.

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

RELATED SECTIONS

- 4.1.1 Space and Reach Requirements
- 4.1.6 Doors
- 4.1.7 Gates, Turnstiles and Openings
- 4.1.8 Windows, Glazed Screens and Sidelights
- 4.4.2 Controls and Operating Mechanisms
- 4.4.7 Signage
- 4.4.10 Information Systems
- 4.4.11 Card Access, Safety and Security Systems
- 4.4.13 Lighting

4.1 ACCESS AND CIRCULATION

4.1.6 DOORS

RATIONALE

Sufficiently wide doorways will be advantageous to individuals using wheelchairs, pushing strollers, or making a delivery. However, a raised threshold at the base of the door could impede any one of these same individuals. This same group, with the addition of children, seniors or even someone carrying packages, would have difficulty opening a heavy door and would benefit from some form of automatic door opener.

Careful thought to the direction of the door swing can enhance the usability and limit the hazard to other pedestrians. Sliding doors can be easier for some individuals to operate, and can also require less wheelchair manoeuvring *space*. Doors that require two hands to operate are not considered to be accessible. With revolving doors, *space* may be an issue for persons using wheelchairs and strollers, while the timing may be difficult for children 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 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 4.1.6 shall be equipped with a power door operator in

- *buildings* of Group B Division 2 or 3 major occupancy (as defined by the Ontario Building Code); and
- *buildings* of Group A, D or E major occupancy (as defined by the Ontario Building Code) having more than 300 sq.m. (3230 sq.ft.) in *building area*.

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 (20 in.) minimum.

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

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

Mats and mat sinkages at doors shall comply with this section.

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

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

4.1.6 DOORS

4.1 ACCESS AND CIRCULATION

DESIGN REQUIREMENTS

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

The minimum *clear* opening of doorways shall be 950 mm (37-1/2 in.), measured between the face of the door and the stop with the door open 90 degrees. In retrofit situations where it is *technically infeasible* to provide this clearance, the minimum *clear* opening of doorways may be 810 mm (32 in.).

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.

Doorways shall have wheelchair-manoeuvring *space* on both sides of the door, and a *clear space* beside the latch, as described in Table 4.1.6, except where access is only required from one side, such as to a closet.

The minimum *space* between two hinged or pivoted doors in series shall be 1370 mm (54 in.), plus the width of any door swinging into the *space*.

Thresholds shall

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

| Context | Floor Space Required (in mm) | | |
|--|-----------------------------------|---------------------------------------|--------------------|
| | Depth | Width | Space beside latch |
| Side-hinged door - Front approach (Figure 4.1.6.4) | | | |
| Pull side | 1525 (60 in.) | 1600 (63 in.) (*1525 (60 in.)) | 600 (24 in.) |
| Push side | 1370 (54 in.) | 1250 (49-1/4 in.) (*1220 (48 in.)) | 300 (12 in.) |
| Side-hinged door - Latch-side approach (Figure 4.1.6.3) | | | |
| Pull side | 1370 (54 in.) (*1220 (48 in.)) | 1600 (63 in.) (*1525 (60 in.)) | 600 (24 in.) |
| Push side | 1370 (54 in.) (*1060 (42 in.)) | 1525 (60 in.) | 600 (24 in.) |
| Side-hinged door - Hinge-side approach (Figure 4.1.6.2) | | | |
| Pull side | 2440 (96 in.) (*1525 (60 in.)) | 2440 (96 in.) (*1525 (60 in.)) | 600 (24 in.) |
| Push side | 1370 (54 in.) (*1060 (42 in.)) | 1830 (72 in.) | 450 (18 in.) |
| Sliding door (Figure 4.1.6.5) | | | |
| Front approach | 1370 (54 in.) | 1060 (42 in.) (*920 (36 in.)) | 50 (2 in.) |
| Side approach | 1370 (54 in.) (*1060 (42 in.)) | 1550 (61 in.) (*1370 (54 in.)) | 540 (21-1/2 in.) |

Table 4.1.6 Manoeuvring Space at Doors

In retrofit situations where it is *technically infeasible* to provide the required clearances at doors, the clearances may be reduced as shown by the *.

4.1 ACCESS AND CIRCULATION

4.1.6 DOORS

DESIGN REQUIREMENTS
(Continued)

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

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

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

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

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

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

Power-assisted swinging doors shall

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

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

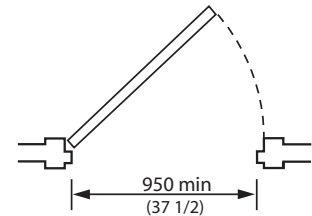


Figure 4.1.6.1
Minimum Clear Width at Doors

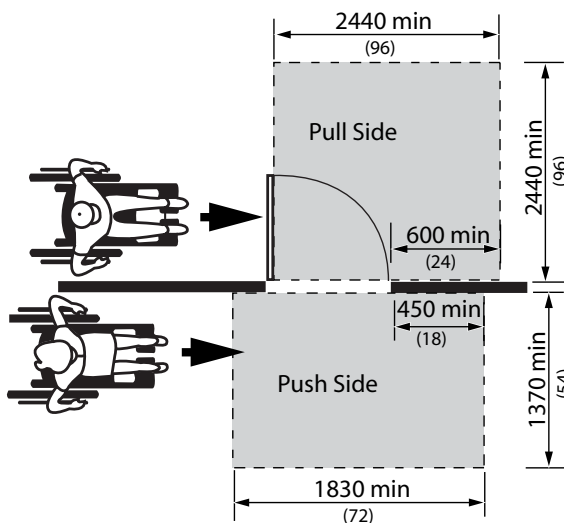


Figure 4.1.6.2
Hinge Side Approach at Hinged Doors

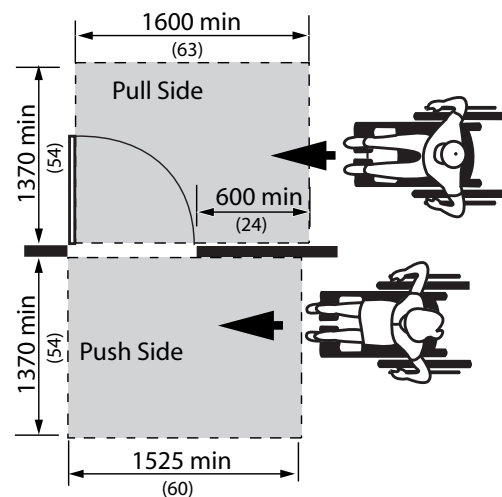


Figure 4.1.6.3
Latch Side Approach at Hinged Doors

4.1.6 DOORS

4.1 ACCESS AND CIRCULATION

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

Where power door operators are provided

- where manually operated, they shall have controls that are clearly visible which are at least 150 mm (6 in.) in diameter,

located in front and clear of the door swing, with sufficient approach space to accommodate a wheelchair or scooter (refer to 4.1.1);

- 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 wheelchair users are detected; and

- where exterior doors swing open into a pedestrian area, they shall incorporate safety guards that comply with 4.1.3, projecting a minimum of 300 mm (12 in.) beyond both sides of the open door. (See Figure 4.1.6.6)

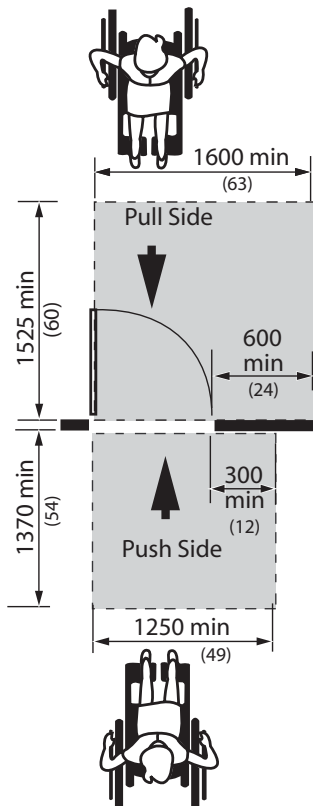


Figure 4.1.6.4
Front Approach at Hinged Doors

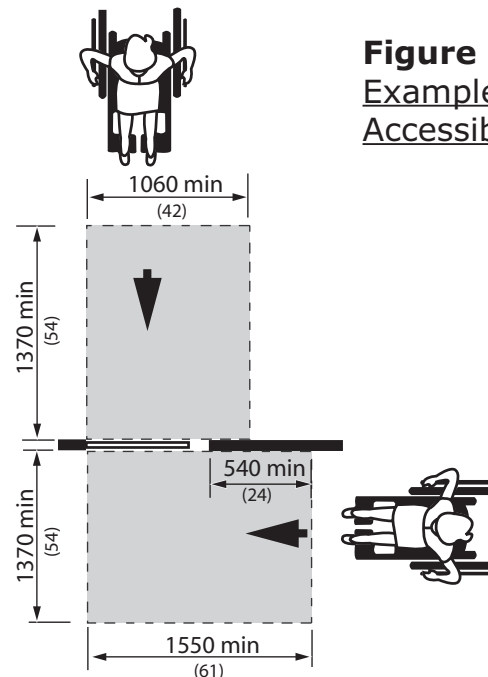


Figure 4.1.6.5
Front and Side Approach at Sliding Doors

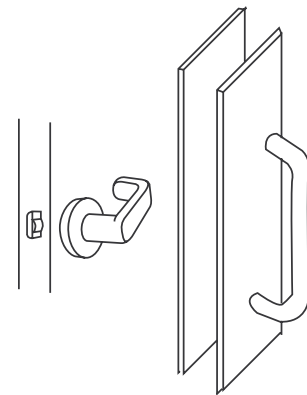


Figure 4.1.6.8
Examples of Accessible Hardware

4.1 ACCESS AND CIRCULATION

4.1.6 DOORS

DESIGN REQUIREMENTS
(Continued)

Doors shall incorporate pronounced colour contrast, to differentiate them from the surrounding environment. Similarly, 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 4.1.8 (Windows, Glazed Screens and Sidelights).

RELATED SECTIONS

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

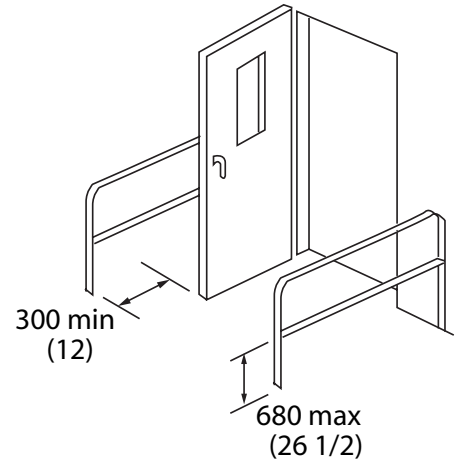


Figure 4.1.6.9
Detectable Safety Guards

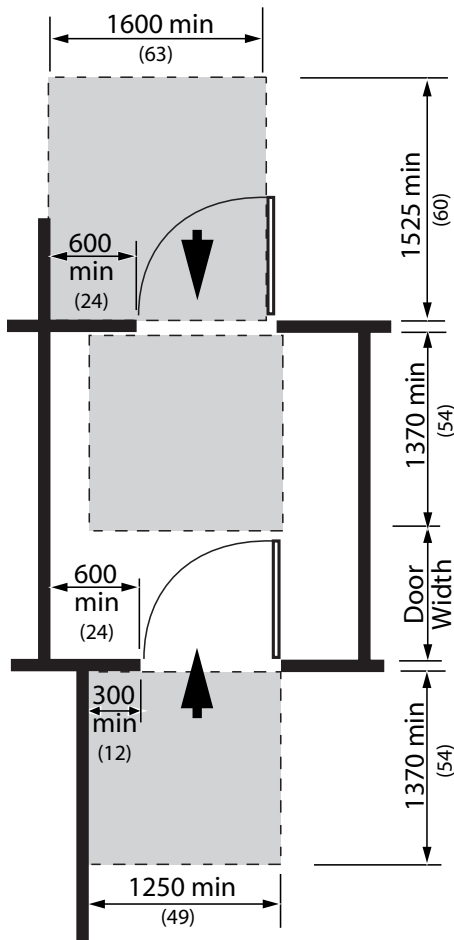


Figure 4.1.6.6
Manoeuvring Space at Doors in Series

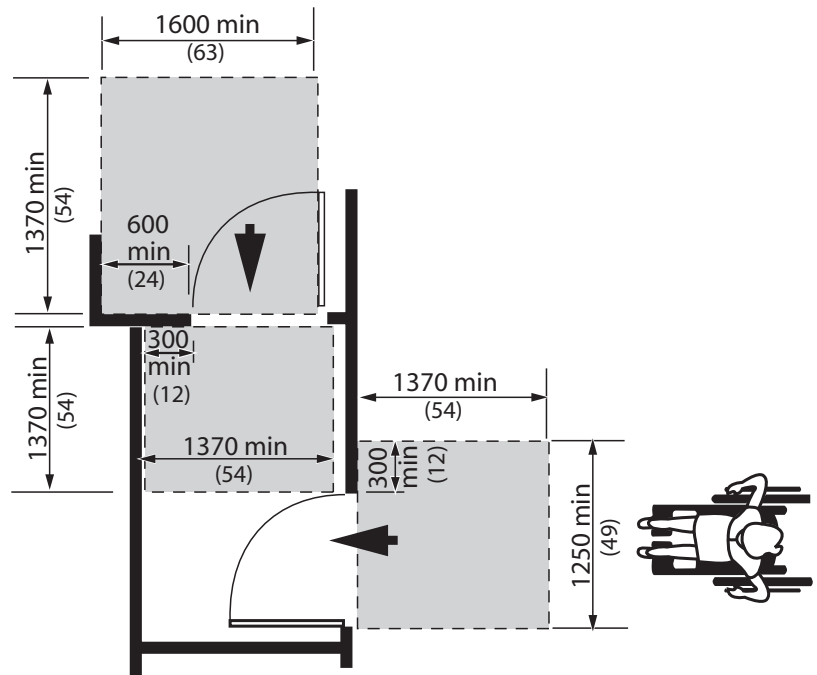


Figure 4.1.6.7
Manoeuvring Space at Doors in Series

4.1.7 GATES, TURNSTILES AND OPENINGS

4.1 ACCESS AND CIRCULATION

RATIONALE

The single-bar gates designed to be at a convenient waist height for ambulatory persons are at neck and face height for children and persons in wheelchairs.

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

APPLICATION

Gates, turnstiles and openings shall comply with this section.

DESIGN REQUIREMENTS

Where gates or openings are provided through fences or screens to *public use* areas beyond, such openings shall be *accessible* (i.e., a minimum of 950 mm (37-1/2 in.) wide, to allow free passage of a person in a wheelchair. Hardware should be

suitable for autonomous use, and any closing device should not be spring-loaded).

Where turnstiles or other ticketing control devices which are not wheelchair *accessible* are utilized, then a gate or opening which is *accessible* shall also be provided in the same location.

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

Where gates are incorporated into a chain-link fencing system, the poles at either side of the

gate shall incorporate a pronounced colour contrast from the fence and the surrounding environment.

RELATED SECTIONS

- 4.1.1 Space and Reach Requirements
- 4.1.6 Doors
- 4.1.8 Windows, Glazed Screens and Sidelights
- 4.4.2 Controls and Operating Mechanisms
- 4.4.7 Signage
- 4.4.10 Information Systems
- 4.4.11 Card Access, Safety and Security Systems

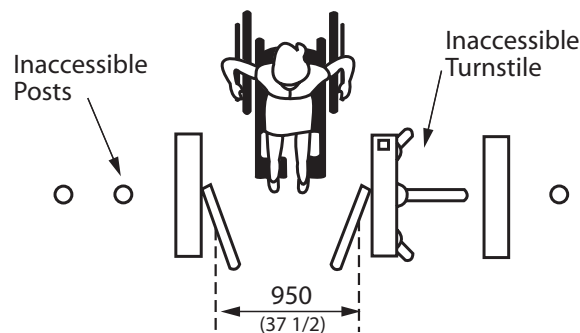


Figure 4.1.7.1
Access at Turnstile

4.1 ACCESS AND CIRCULATION

4.1.8 WINDOWS, GLAZED SCREENS & SIDELIGHTS

RATIONALE

Broad expanses of glazing in screens, sidelights and doors can be difficult to see. While this may be a particular 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 or scooters experience the *facility* from a seated position, this lowers their eye level. Operating mechanisms on windows, blinds, louvres, etc. should respect the limited reach of persons using wheelchairs, and those with other 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, minimum 50 mm (2 in.) wide and of highly contrasting colour, mounted with its centre line between 1475 mm (58 in.) and 1525 mm (60 in.) from the floor or ground. Additionally, a second row of decals, or a continuous stripe, a minimum 50 mm

(2 in.) wide and of highly contrasting colour shall be provided, mounted with its centreline between 1170 mm (46 in.) and 1220 mm (48 in.) above the floor or ground.

Where decals are used, they shall be located at a maximum of 150 mm (6 in.) from centre to centre. The decals can either be 50 mm (2 in.) 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.

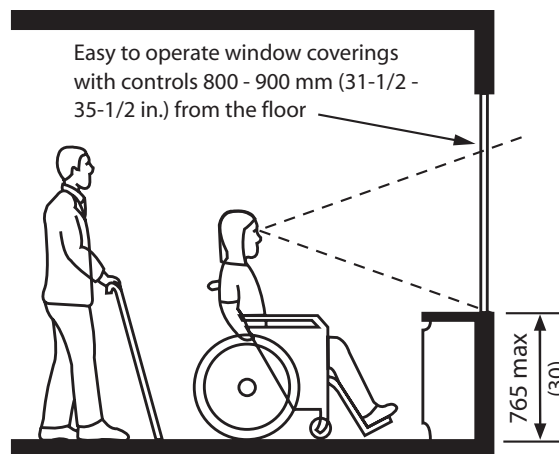


Figure 4.1.8.1
Window Sill Height

4.1.8 WINDOWS, GLAZED SCREENS & SIDELIGHTS**4.1 ACCESS AND CIRCULATION**

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 (30 in.) from the floor; and
- where horizontal transoms are incorporated in windows, the transoms shall not be located between 1060 mm (42 in.) and 1220 (48 in.) from the floor.

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

- be mounted between 400 mm (16 in.) and 1200 mm (47 in.) from the floor;
- be operable using one hand; and
- not require fine finger control, tight grasping, pinching, or twisting of the wrist to operate.

RELATED SECTIONS

- 4.1.1 Space and Reach Requirements
- 4.4.2 Controls and Operating Mechanisms

4.1 ACCESS AND CIRCULATION

4.1.9 RAMPS

RATIONALE

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

The design of the ramp is critical to its usefulness and safety. A steeply inclined ramp is too difficult to push up when using a wheelchair, and it increases the risk of the wheelchair tipping backwards. A steep ramp is difficult to ascend and dangerous to come down. A cross slope must be avoided, as it will increase the effort required to negotiate the ramp. The placement of the ramp is also important to its

accessibility. *Space* at the bottom of a ramp may be needed for an individual to slow their speed. Similarly, flat areas at points along a long ramp enable an individual to slow down or to rest. Textured surfaces, edge protection and handrails all provide important safety functions.

APPLICATION

Any part of an *accessible route* with a slope steeper than 1:25 shall be considered a *ramp* and shall comply with this section.

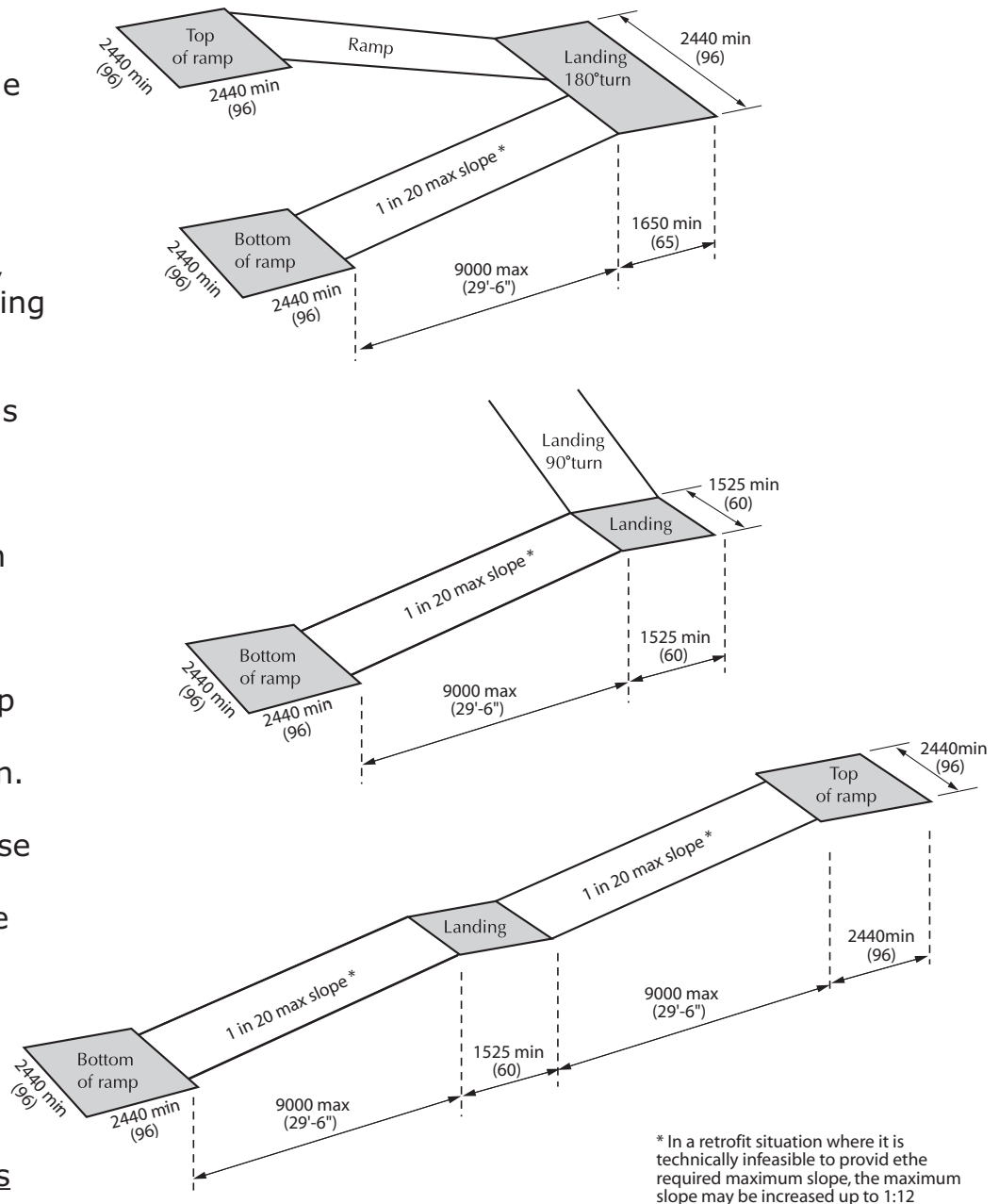


Figure 4.1.9.1
Minimum Ramp
Landing Dimensions

4.1.9 RAMPS

4.1 ACCESS AND CIRCULATION

DESIGN REQUIREMENTS

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

The *running slope* shall be between 1:20 and 1:24.9 and the maximum horizontal length between landings shall not exceed 9 m (29'-6"). In retrofit situations where it is *technically infeasible* to provide a *ramp* with a *running slope* between 1:20 and 1:24.9, a *running slope* not steeper than

1:12 may be used, and the maximum horizontal length between landings shall not exceed 9 m (29'-6").

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

The minimum width of a *ramp* between handrails shall be 950 mm (37-1/2 in.).

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

Landings shall

- be at least as wide as the widest *ramp* run leading to it;
- have a minimum size not less than 2440 x 2440 mm (96 x 96 in.) if located at the top or bottom of a ramp or if served by a doorway. (In a retrofit situation where creating a suitably sized landing is *technically infeasible*, the required landing size may be reduced to 1525 x 1525 mm. (60 x 60 in.);
- where an intermediate landing at the switchback of a U-shaped ramp (Refer to Figure 4.1.9.1), have a length not less than 1650 mm (65 in.) and a width not less than 2440 mm (96 in.).

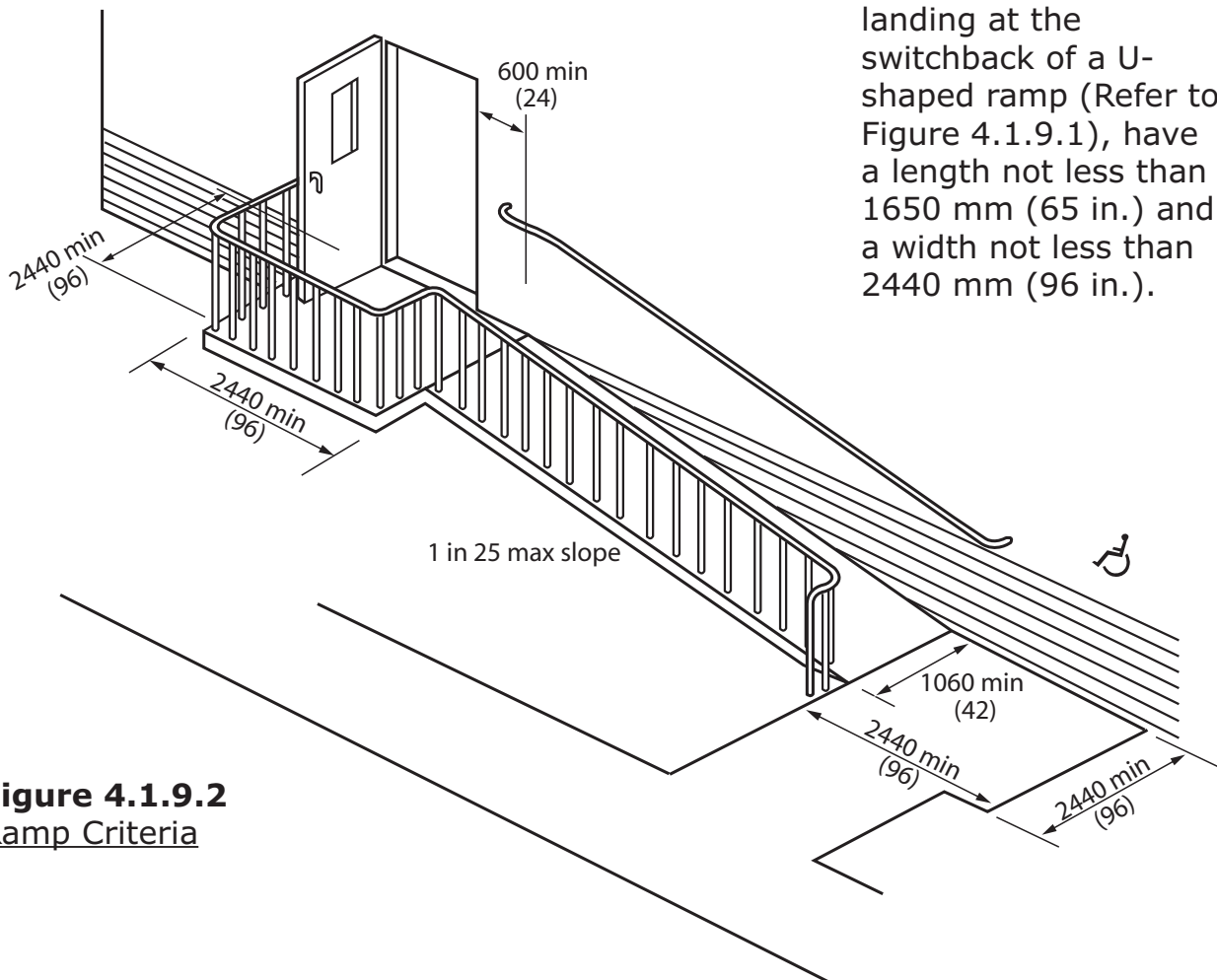


Figure 4.1.9.2
Ramp Criteria

4.1 ACCESS AND CIRCULATION

4.1.9 RAMPS

DESIGN REQUIREMENTS
(Continued)

(In a retrofit situation where creating a suitably sized landing is *technically infeasible*, the required landing length may be reduced to 1525 mm (60 in.). The width may be reduced to 2120 mm (84in));

- where an intermediate landing at the corner of an L-shaped ramp (Refer to Figure 4.1.9.1), have a length and width not less than 1525 mm (60 in.); and
- where an intermediate landing at a straight ramp (Refer to Figure 4.1.9.1), have a length not less than 1525 mm (60 in.).

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.

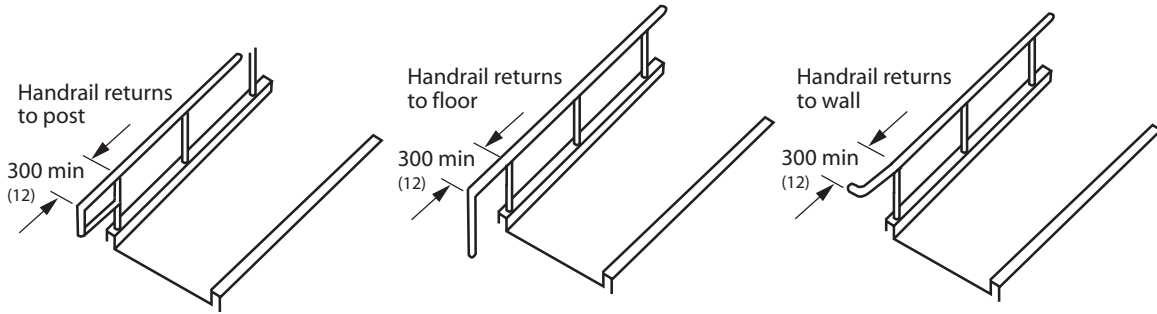


Figure 4.1.9.3
Horizontal
Handrail
Extensions

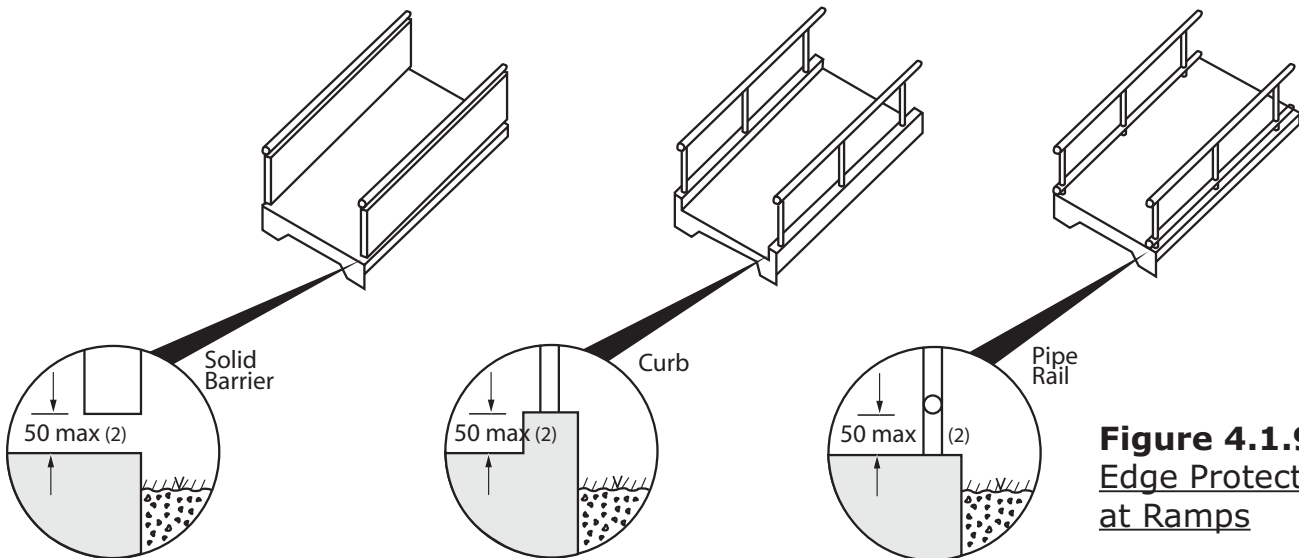


Figure 4.1.9.4
Edge Protection
at Ramps

4.1.9 RAMPS**4.1 ACCESS AND CIRCULATION**

Where a guard is provided, it shall

- be not less than 1070 mm (42 in.) measured vertically to the top of the guard from the *ramp* surface;
- be designed so that no member, attachment or opening between 140 mm (5-1/2 in.) and 900 mm (35 in.) above the *ramp* surface being protected by the guard will facilitate climbing; and
- be provided
 - with a curb at least 50 mm (2 in.) 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 (2 in.) of the finished *ramp*, or have a curb not less than 50 mm (2 in.) high.

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

- are on both sides;
- comply with 4.1.13;
- are continuous on the inside of switchback (U-shaped) or dogleg (L-shaped) *ramps*;
- when not continuous, extend horizontally at least 300 mm (12 in.) beyond the top and bottom of the *ramp* and return to the wall, floor, or post;
- measure between 865 mm (34 in.) and 920 mm (36 in.) from the *ramp* surface to the top of the handrail; and
- have a distance between handrails of 950 mm (37-1/2 in.) to 1000 mm (39-1/2 in.).

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

RELATED SECTIONS

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

4.1 ACCESS AND CIRCULATION

4.1.10 CURB RAMPS

RATIONALE

In the interest of moving people safely and efficiently off a roadway, the design of curb ramps is very important. The same issues related to the slopes of ramps apply equally to slopes of curb ramps. A well-designed curb ramp can be spoiled by an uneven or gapped transition between the road surface and curb ramp. Flared sides on the curb ramp eliminate the hazard of pedestrians stepping off an edge. While a smooth transition and minimal slope are ideal for someone in a wheelchair, they are a potential hazard to an individual

with a visual impairment who may not notice the transition from sidewalk to street. Textured surfaces become an important safety feature in this scenario.

APPLICATION

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

DESIGN REQUIREMENTS

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

The maximum *running slope* shall conform to

Table 4.1.10, and the maximum horizontal length shall not exceed 2000 mm (79 in.).

The maximum counter slope of gutters and road surfaces immediately adjacent to *curb ramps* shall be 1:20.

The minimum width of *curb ramps*, exclusive of flared sides, shall be 1220 mm (48 in.).

Surfaces of *curb ramps* shall

- be slip-resistant;
- have a *detectable warning* surface that is colour- and texture-contrasted with the adjacent surfaces; and
- have a smooth transition from the *ramp* and adjacent surfaces.

| Maximum vertical rise between landings, mm | Slope |
|--|----------------|
| 150 (6 in.) | 1:10.1 to 1:12 |
| 75 (3 in.) | 1.8 to 1:10 |

Table 4.1.10
Curb Ramp Rise and Slope

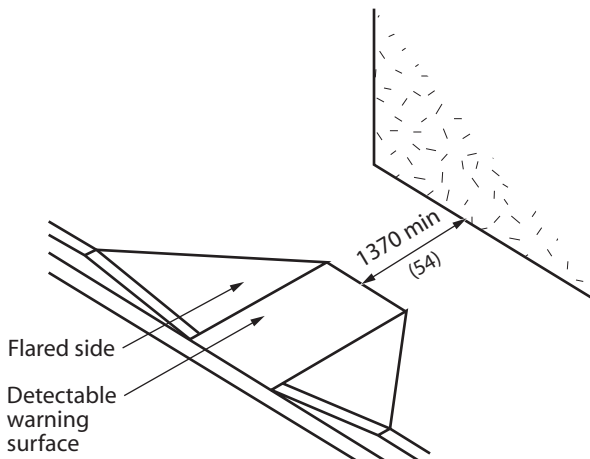


Figure 4.1.10.1
Curb Ramp with Flared Sides

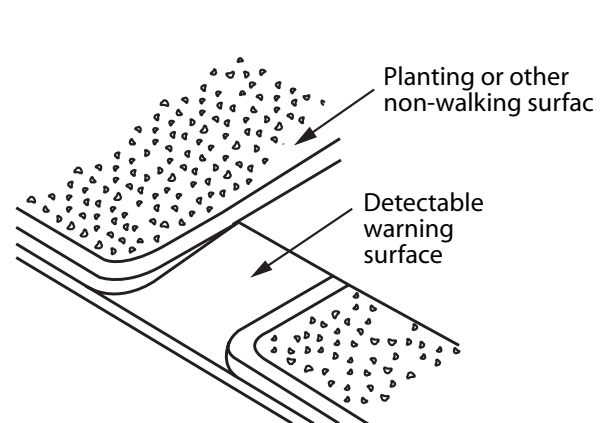


Figure 4.1.10.2
Curb Ramp with Returned Sides

4.1.10 CURB RAMPS

4.1 ACCESS AND CIRCULATION

Curb ramps shall have flared sides where pedestrians are likely to walk across them.

The maximum slope of flared sides shall be 1:10.

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

Raised islands in crossings shall

- be cut through level with the street; or

- have *curb ramps* at both sides and a level area not less than 1370 long (54 in.) in the middle.

Islands level with the street shall have within the area designated for pedestrian use *detectable warning* surfaces in compliance with 4.4.8 that are

- at least 920 mm (36 in.) long; and
- of a texture and colour that contrast with the surrounding walking surfaces.

RELATED SECTIONS

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

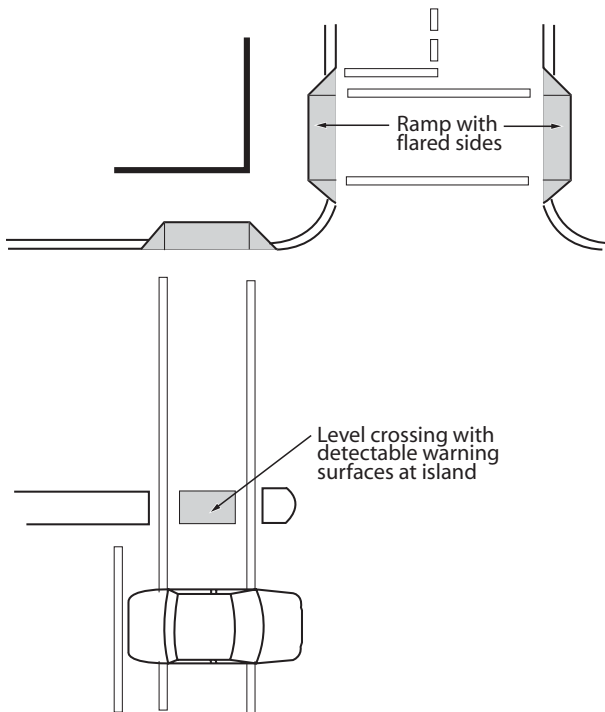


Figure 4.1.10.3
Curb Ramp Locations at Pedestrian Crosswalks

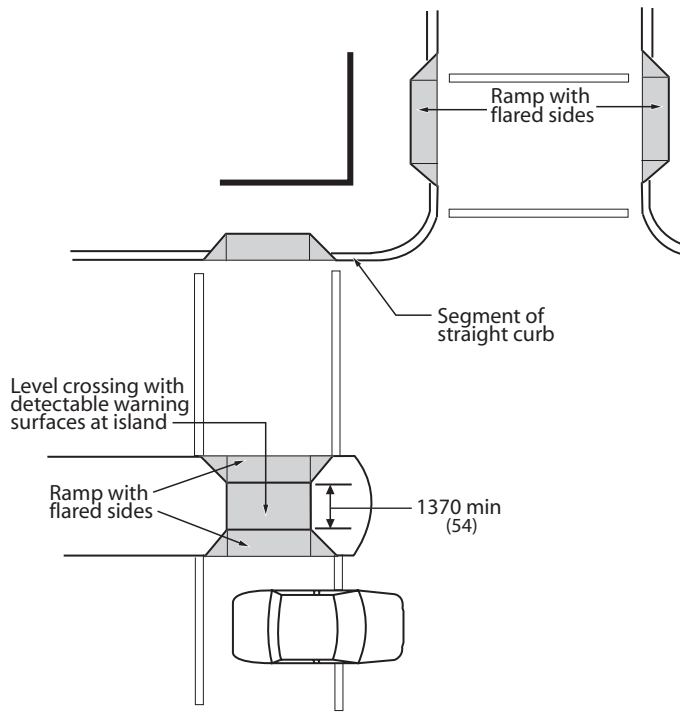


Figure 4.1.10.4
Curb Ramp Locations at Pedestrian Crosswalks

4.1 ACCESS AND CIRCULATION

4.1.11 STAIRS

RATIONALE

Stairs that are comfortable for an adult may be challenging for children, seniors or persons of short stature. Poorly designed nosings can present tripping hazards, particularly to persons with prosthetic devices or those using canes. Cues to warn a person with a visual impairment of an upcoming set of stairs are vitally important. These persons will also benefit from stairs designed with contrasting edges on treads.

APPLICATION

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

DESIGN REQUIREMENTS

A flight of stairs shall have

- uniform riser heights and tread depths;
- risers not more than 180 mm (7 in.) and not less than 125 mm (4-7/8 in.) high;
- run not less than 280 mm (11 in.) and not more than 355 mm (14 in.) deep, measured from riser to riser; and
- no open risers.

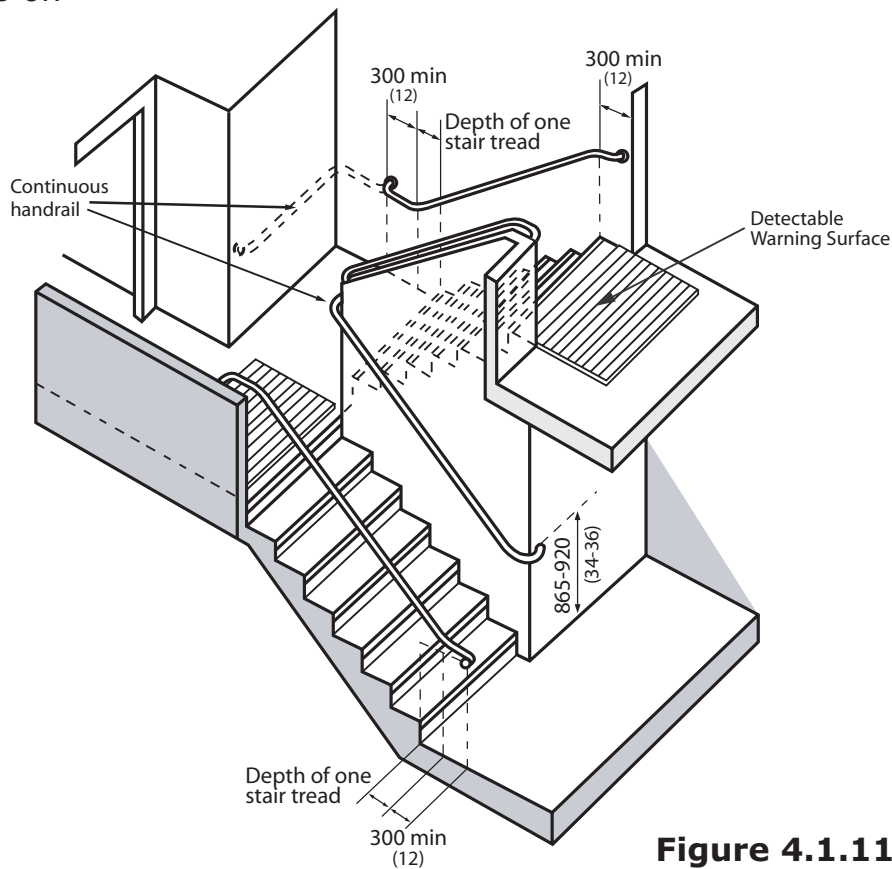


Figure 4.1.11.1
Stair Design Criteria

4.1.11 STAIRS**4.1 ACCESS AND CIRCULATION**

Nosings shall

- project not more than 25 mm (1 in.);
- have no abrupt undersides;
- have a curved or bevelled leading edge of the tread between 8 mm (5/16 in.) and 13 mm (1/2 in.);
- 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 (9.2 ft-candles);
- be slip-resistant; and
- have the horizontal and vertical surface of the stair nosing in colour contrast with the remainder of the riser and tread.

Stairs shall incorporate *detectable warning* surfaces that comply with 4.4.8.

Handrails for stairs shall

- comply with 4.1.13;
- be installed on both sides;
- be of uniform height, ranging between 865 mm (34 in.) and 920 mm (36 in.) from the stair nosing;
- have a continuous inside handrail on switchback or dogleg stairs; and

- where not continuous
 - extend horizontally at the top and bottom of the stairs not less than 300 mm (12 in.), at a height ranging between 865 mm (34 in.) and 920 mm (36 in.) above the floor; and
 - return to the wall, or post in a manner that will not obstruct pedestrian travel or create a hazard.

RELATED SECTIONS

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

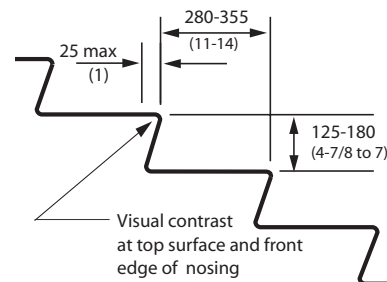


Figure 4.1.11.2
Stair Tread Criteria

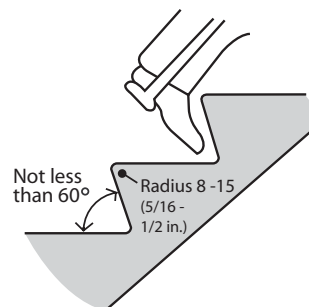


Figure 4.1.11.3
Raked Riser

4.1 ACCESS AND CIRCULATION

4.1.12 HANDRAILS

RATIONALE

In the design of handrails, one 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, along with the use of a contrasting colour, provide important cues for a visually impaired individual, and provide

a support to ensure a safe and stable gait before ascending or descending the stairs. A continuous handrail with no interruptions ensures that a handhold will not be broken.

The *clear space* between the wall and handrail is also essential, as it must provide a *clear* area for the hand and knuckles but must not offer 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 30-40 mm (1-3/16 in. – 1-9/16 in.) in diameter or any non-circular shape, with a graspable portion that has a perimeter not less than 100 mm (4 in.) and not more than 155

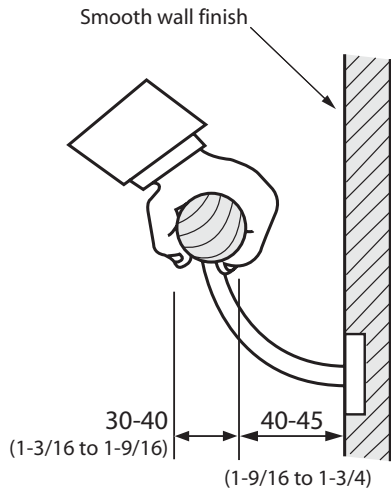


Figure 4.1.12.1
Handrail

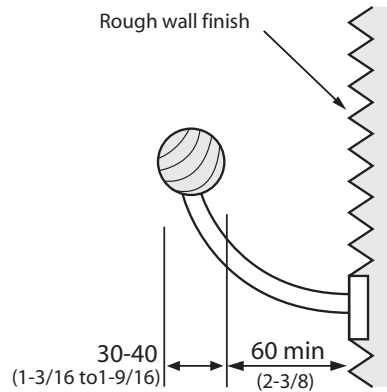


Figure 4.1.12.2
Handrail at Rough Wall

4.1.12 HANDRAILS**4.1 ACCESS AND CIRCULATION**

- mm (6-1/8 in.) whose largest cross-sectional dimension is not more than 57 mm (2-1/4 in.);
- be free of any sharp or abrasive *elements*;
- have continuous gripping surfaces, without interruption by newel posts, other construction *elements*, or obstructions that can break a handhold; and
- have a *clear space* between the handrail and the wall of
 - 40-45 mm (1-9/16 in. - 1-3/4 in.); or
 - at least 60 mm (2-3/8 in.) where the wall has a rough surface.
- be terminated in a manner that will not obstruct pedestrian travel or create a hazard.

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

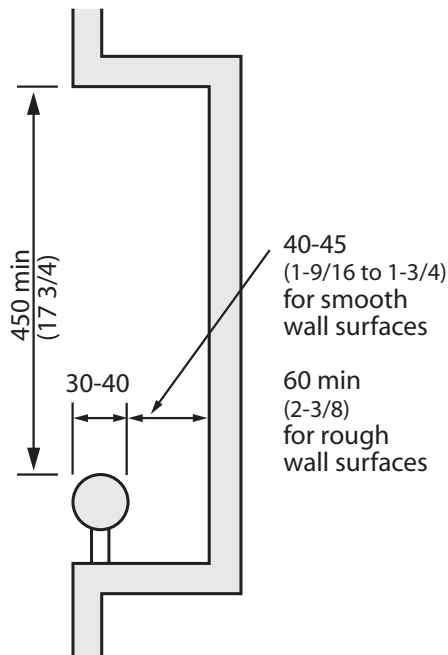


Figure 4.1.12.3
Handrail in Recess

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

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

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

RELATED SECTIONS

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

4.1 ACCESS AND CIRCULATION

4.1.13 ESCALATORS**RATIONALE**

Entering and exiting an escalator can be challenging for many persons. This is largely due to the speed of the escalator operation. In addition, the lack of contrast on the edge of steps makes it difficult for many to determine the position of the steps or judge their speed. Platforms of a different texture extending in front of the escalator provide warning to any pedestrian, especially someone with a visual impairment. Contrasting colour strips on stair edges are also necessary.

APPLICATION

Escalators shall comply with this section.

DESIGN REQUIREMENTS

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

Detectable warning surfaces that comply with 4.4.8 shall be provided at the head and foot of the escalator.

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

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

RELATED SECTIONS

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

4.1.14 ELEVATORS

4.1 ACCESS AND CIRCULATION

RATIONALE

The buttons used on elevators need to address a range of functional issues, including reach, dexterity and visual impairments, as discussed in 4.4.2 and 4.4.15. 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. These are, in fact, of benefit to anyone who uses the elevator. Adequate door-closing delays provide individuals using mobility devices additional time to reach, enter or exit the elevator car.

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.

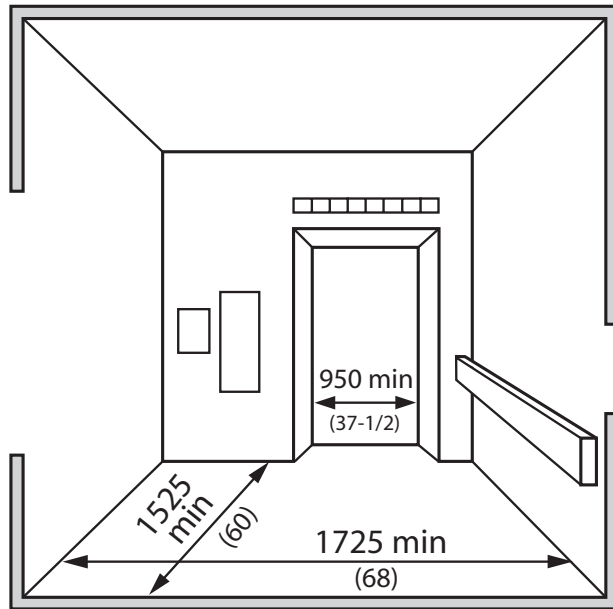


Figure 4.1.14.1
Elevator Cab

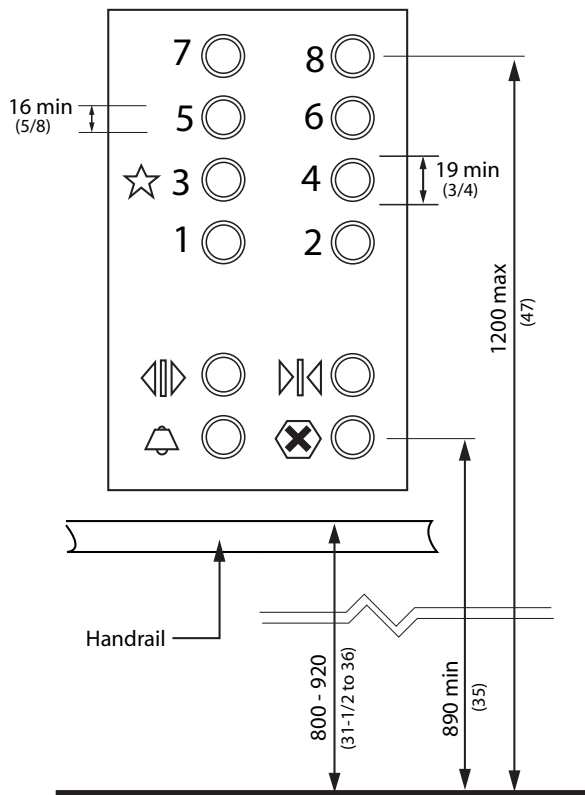


Figure 4.1.14.2
Control Panel

4.1 ACCESS AND CIRCULATION

4.1.14 ELEVATORS

APPLICATION

(Continued)

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 4.1.9 are used in lieu of an elevator; and
- When platform lifts (wheelchair lifts) complying with 4.1.15 and applicable Provincial Codes are used in lieu of an elevator, only

under the following conditions:

- to provide an *accessible route* to a performing area in an assembly occupancy;
- to comply with wheelchair viewing position line-of-sight and dispersion requirements of 4.3.2;
- 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 4.1.4.

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

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

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

The *clear* width for elevator doors shall be at least 950 mm (37-1/2 in.). In a retrofit situation where it is *technically infeasible* to provide a *clear* elevator door width of 950 mm (37-1/2 in.), the *clear* elevator door width may be reduced to 910 mm (35-7/8 in.).

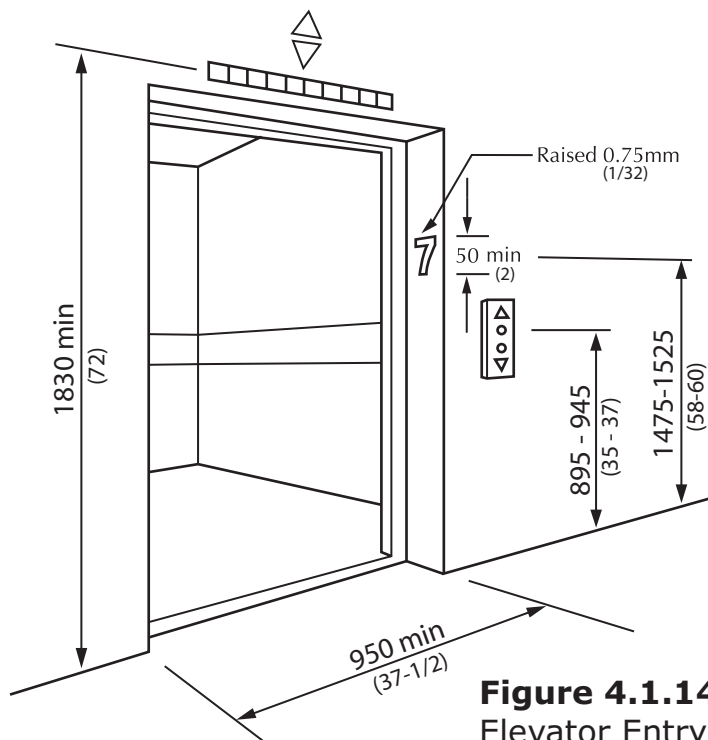


Figure 4.1.14.3
Elevator Entry

4.1.14 ELEVATORS

4.1 ACCESS AND CIRCULATION

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 (37-1/2 in.), 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 ± 25 mm (5 ± 1 in.) and 735 ± 25 mm (29 ± 1 in.) above the floor without requiring contact for activation.

From the time the doors start to open, a minimum of 4 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 1725 x 1525 mm (68 in. x 60 in.). In facilities with high public use, such as arenas, libraries or entertainment complexes, the distance between walls or between wall and door shall be 2030 x 1525 mm (80 in. x 60 in.).

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 (3/4 in.) in size and may be raised, flush or recessed. The depth of flush or recessed buttons when they are being operated shall not exceed 10 mm (3/8 in.); and
- be provided with visual and momentary audible indicators to show when each call is registered. The visual indicators shall be extinguished when each call is answered.

All car control buttons shall be designated by Grade 2 Braille characters and by raised standard alphabet characters for

letters, Arabic characters for numbers, and standard symbols. Markings shall be a minimum of 16 mm (5/8 in.) high and raised a minimum of 0.75 mm (1/32 in.), placed immediately to the left of the buttons to which they apply. Exception: Where the call buttons are mechanical, the raised markings may be on the buttons.

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

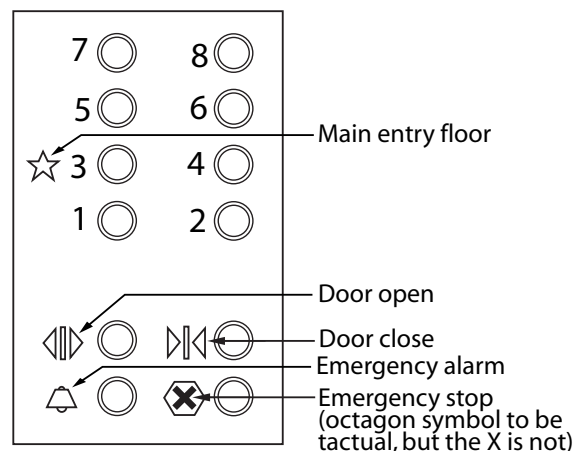


Figure 4.1.14.4
Tactile Symbols

4.1 ACCESS AND CIRCULATION

4.1.14 ELEVATORS

DESIGN REQUIREMENTS
(Continued)

An indicator shall be provided in the car to show the position of the car in the hoist way, by illuminating the indicator corresponding to the landing at which the car is stopped or passing. Indication characters shall be on a contrasting colour background and a minimum of 16 mm (5/8 in.) high.

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

Handrails shall be provided on all non-access walls at a height of 800 to 920 mm (31-1/2 to 36 in.) with a *space* of 40 to 45 mm (1-9/16 to 1-3/4 in.) between the rails and wall.

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

The centre line of hall call buttons shall be 920 ± 25 mm (36 ± 1 in.) above the floor. Buttons shall be a minimum of 20 mm (13/16 in.) in size, mounted one above the other.

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 (72 in.) above the floor. An audible signal shall be provided when the elevator stops at the landing. Visual *elements* shall be a minimum of 60 mm (2-3/8 in.) in the smallest direction.

All elevator hoist way *entrances* shall have raised Arabic numerals and Braille floor designations provided on both jambs. The characters shall be a minimum of 50 mm high (2 in.) and at least 0.75 mm (1/32 in.) shall be placed on both sides of the door jambs, with the centreline at 1500 ± 25 mm (59 ± 1 in.) from the floor.

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

Elevators shall be linked by an emergency call system to a monitored location within the *facility*, with two-way communication ability. The highest *operable portion* of the 2-way communication system shall be a

4.1.14 ELEVATORS**4.1 ACCESS AND CIRCULATION**

maximum of 1200 mm (47 in.) 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 (1-1/2 in.) high and raised a minimum of 0.75 mm (1/32 in.). Permanently attached plates are acceptable. If the system uses a handset, then the length of the cord from the panel to the handset shall be at least 735 mm (29 in.). Additionally, the handset shall be equipped with a receiver that generates a magnetic field in the area of the receiver cap, and the handset shall have a volume control and shall comply with CSA Standard T515. If the system is located in a closed compartment, the compartment door and hardware shall conform to 4.4.2. The emergency

intercommunication system shall not require voice communication.

Lighting in elevator cabs shall be at least 100 lux (9.2 ft-candles), 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 4.1.2.

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.

RELATED SECTIONS

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

4.1 ACCESS AND CIRCULATION

4.1.15 PLATFORM LIFTS

RATIONALE

As with *ramps*, platform lifts have long been considered an accessibility requirement. In fact, these lifts tend to segregate persons with disabilities and limit space at *entrance* and stair locations. Furthermore, 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.

If there are no suitable alternatives, lifts must be selected to permit the use of scooters, as well as wheelchairs.

APPLICATION

Accessible platform lifts shall comply with this section.

Platform lifts may only be used in lieu of an elevator or *ramp* where allowable under 4.1.14.

DESIGN REQUIREMENTS

Accessible platform lifts shall

- be on an *accessible route* complying with 4.1.4;
- be identified with *signage* complying with applicable provisions of 4.4.7;
- comply with CSA standard CAN/CSA B355; and
- facilitate unassisted entry, operation, and exit from the lift.

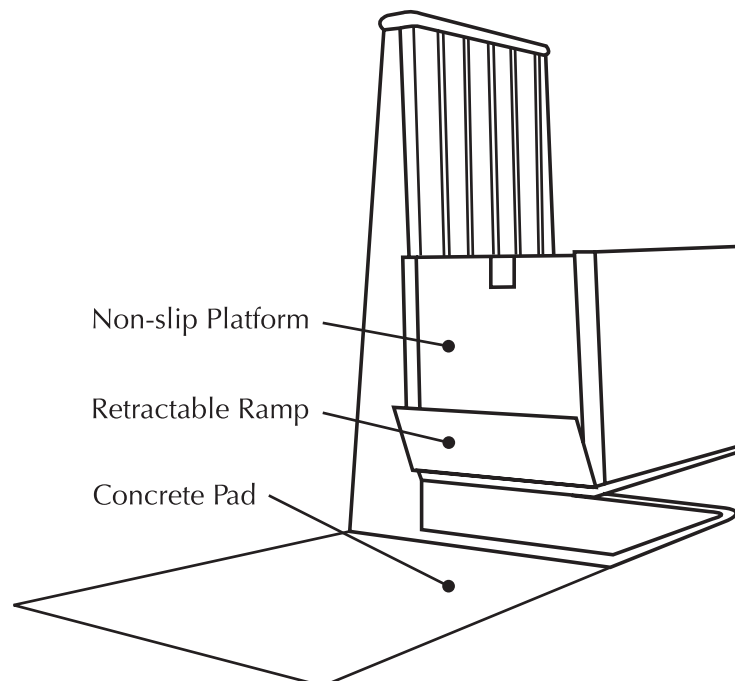


Figure 4.1.15.1
Vertical Platform Lift

4.1.15 PLATFORM LIFTS

4.1 ACCESS AND CIRCULATION

The platform size shall be no less than 1220 x 1525 mm (48 x 60 in.).

The doors to the platform lift shall comply with 4.1.6.

Controls and operating mechanisms shall comply with 4.4.2.

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 (47 in.) 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 735 mm (29 in.). If the system is located in a closed compartment, the compartment door and hardware shall conform to 4.4.2.

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

RELATED SECTIONS

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

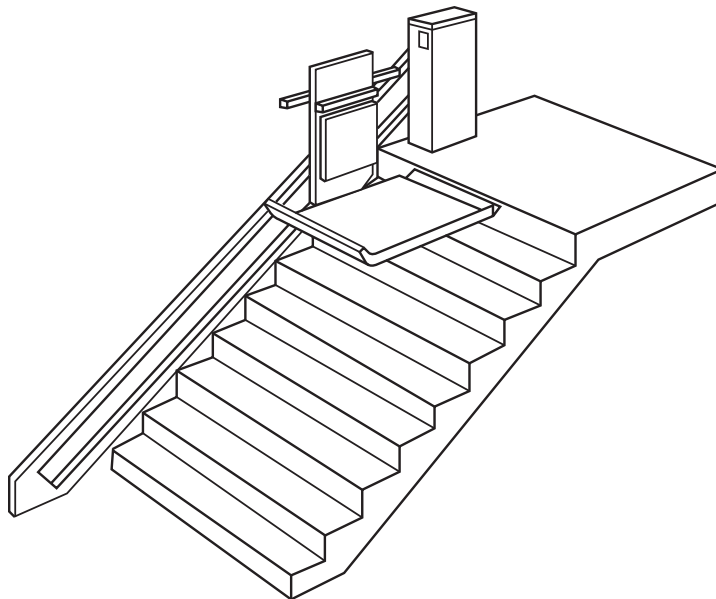


Figure 4.1.15.2
Inclined Platform Stair-Lift

4.2.1 TOILET AND BATHING FACILITIES

4.2 WASHROOM FACILITIES

APPLICATION

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

In a retrofit situation where it is *technically infeasible* to make existing public or *common use* toilet *facilities* *accessible*, the installation of at least one individual washroom complying with 4.2.7 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, at least one individual washroom complying with 4.2.7 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 4.4.7 shall be provided.

Where a *common* or *public use* washroom contains four or more toilet and/or urinal fixtures, an individual washroom complying with 4.2.7 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 4.4.7 shall be provided.

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. (Exception: Portable toilet units at construction *sites* used exclusively by construction personnel are not required to comply with this section.)

Where an individual washroom is provided primarily for the use of persons of both sexes with physical *disabilities*, in lieu of *facilities* for persons with physical *disabilities* in washrooms used by the general public, the individual washroom shall be provided on the same floor level within 45 m (147 ft. 8 in.) of the washrooms used by the general public.

4.2 WASHROOM FACILITIES

4.2.1 TOILET AND BATHING FACILITIES**DESIGN REQUIREMENTS**

Accessible toilet and bathing *facilities* shall be on an *accessible route* complying with 4.1.4.

All doors to *accessible* toilet and bathing rooms shall comply with 4.1.6. Doors shall not swing into the *clear floor space* required for any fixture.

The *accessible* fixtures and controls within toilet

and bathing rooms shall be on an *accessible route* complying with 4.1.4.

Washrooms shall incorporate a *clear floor space* to allow a person in a wheelchair to make a 180-degree turn.

Accessible toilet and bathing *facilities* shall be identified with *signage* complying with applicable provisions of 4.4.7.

RELATED SECTIONS

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

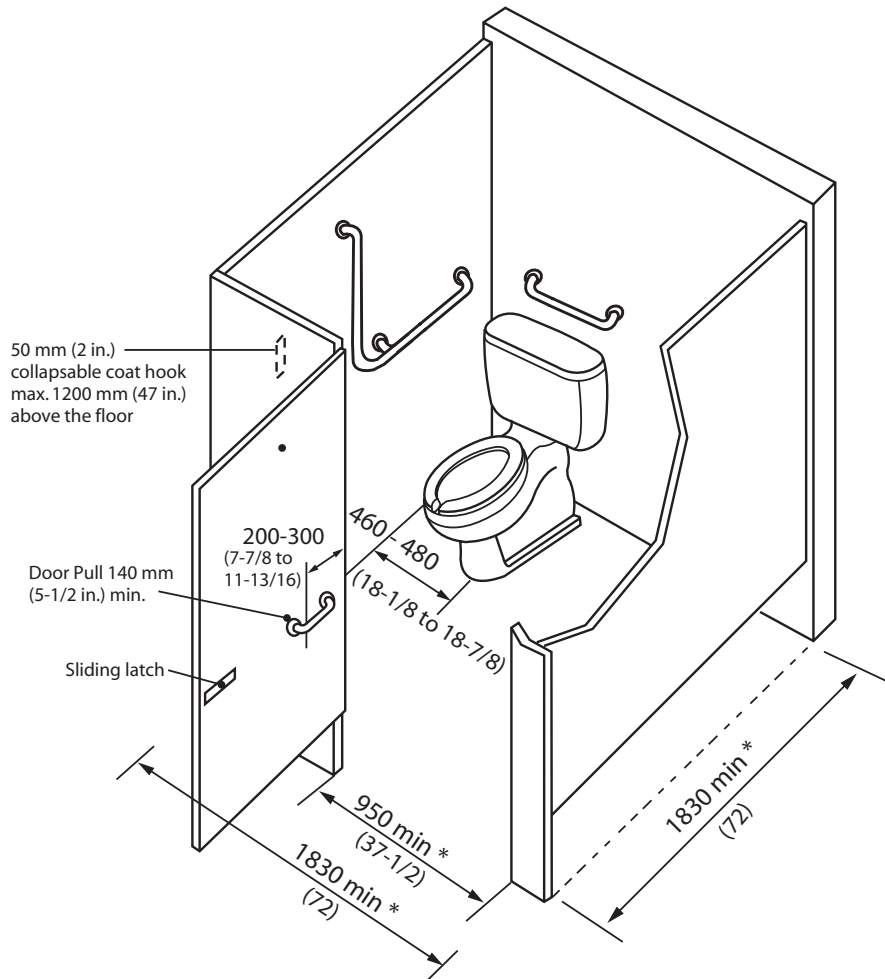
4.2.2 TOILET STALLS

4.2 WASHROOM FACILITIES

RATIONALE

Manoeuvrability of a wheelchair or scooter is a principal consideration in the design of an accessible stall. Not only is *space* required for the mobility equipment but there may also be instances where an individual requires assistance and the stall will have to accommodate a second person. Door swings are normally outward for safety reasons and *space* considerations, but this makes it difficult to close the door once inside. A handle mounted part way along the door may make it easier for someone to close the door behind them.

The increased size of an accessible stall is required to ensure there is sufficient *space* to facilitate the proper placement of a wheelchair or scooter to accommodate a transfer onto the toilet fixture.



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

Figure 4.2.2.1
Accessible Toilet Stall

APPLICATION

If toilet stalls are provided in a toilet or bathing *facility*, then the number of *accessible* toilet stalls designated to accommodate disabled persons shall comply with Table 4.2.2.

Accessible toilet stalls shall comply with this section.

| # of toilet stalls within the washroom | Required # of <i>accessible</i> toilet stalls |
|--|---|
| 1-5 | 1 |
| More than 5 | 2 |

Table 4.2.2
Number of Accessible Toilet Stalls

4.2 WASHROOM FACILITIES

4.2.2 TOILET STALLS

APPLICATION

(Continued)

All other toilet stalls within a facility (i.e., those considered to be non-*accessible*) shall be minimum 920 mm (36 in.) wide by 1525 mm (60 in.) long, and shall incorporate door-locking mechanisms in compliance with this section.

DESIGN REQUIREMENTS

Accessible toilet stalls shall

- be on an *accessible route* complying with 4.1.4.
- have internal dimensions at least 1830 x 1830 mm (72 x 72 in.). (In a retrofit situation where providing the required internal dimensions is *technically infeasible*, the internal dimensions may be reduced to 1525 x 1525 mm (60 x 60 in.);
- have a toilet complying with 4.2.3; and
- be equipped with a collapsible coat hook mounted not more than 1200 mm (47 in.) from the floor on a side wall and projecting not more than 50 mm (2 in.) from the wall.

Toilet stall doors shall

- be capable of being locked from the inside by a device that is operable with one hand; does not require fine finger control, tight grasping, pinching, or twisting of the wrist; and requires a force of not more than 22 N (4.9 lb.) to activate (e.g., sliding bolt or lever);
- provide a clear opening of at least 950 mm (37-1/2 in.) with the door in the open position. In a retrofit situation where it's *technically infeasible* to provide the required *clear* opening, the *clear* opening may be reduced to 810 mm (32 in.);
- swing outward, unless additional *space* is provided within the stall for the door swing;
- be equipped with gravity hinges so that the door closes automatically;
- be provided with a "D"-type contrasting-coloured door pull, at least 140 mm (5-1/2 in.) long, on the inside of an out-swinging door,

located so that the centre line is between 200 and 300 mm (7-7/8 in. and 11-13/16 in.) from the hinged side of the door, at outside door-handle height; and

- be provided with a "D"-type contrasting-coloured door pull at least 140 mm (5-1/2 in.) long, on the outside, near the latch side of the door.

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.

RELATED SECTIONS

- 4.1.1 Space and Reach Requirements
- 4.1.3 Protruding Objects
- 4.1.6 Doors
- 4.2.3 Toilets
- 4.2.6 Washroom Accessories
- 4.2.10 Grab Bars
- 4.4.2 Controls and Operating Mechanisms
- 4.4.15 Texture and Colour

4.2.3 TOILETS

4.2 WASHROOM FACILITIES

RATIONALE

Automatic flush controls are preferred. If flushing mechanisms are not automated, then consideration must be given to the ability to reach a switch and the hand strength or dexterity 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 400 and 460 mm (15-3/4 and 18-1/8 in.) from the floor;
- no spring-activated seat;
- a back support where there is no seat lid or tank;
- the tank top securely attached.

Toilets shall be located 460 to 480 mm (18-1/8 to 18-7/8 in.) from the centre line to the adjacent wall.

A minimum 915 mm (36 in.) - wide *clear transfer space* shall be provided on one side of the toilet fixture. In a retrofit situation where it is *technically infeasible* to provide a 915 mm (36 in.)- wide *clear transfer space*, the *space* may be reduced to 760 mm (30 in.). No devices, such as sanitary napkin disposals, shall be mounted within the minimum *clear transfer space*.

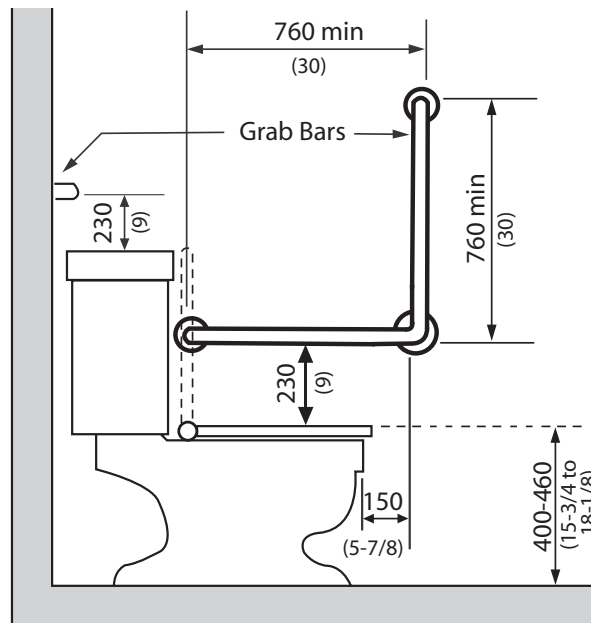


Figure 4.2.3.1
Grab Bar Configuration

4.2 WASHROOM FACILITIES

4.2.3 TOILETS

DESIGN REQUIREMENTS
(Continued)

Toilet flush controls shall be

- hand-operated on the transfer side of the toilet; or
- be electronically automatically controlled.

Hand-operated flush controls shall comply with 4.4.2.

Toilets shall be equipped with grab bars that shall

- comply with 4.2.10;
- be L-shaped with 760 mm (30 in.) long horizontal and vertical components mounted with the horizontal component 230 mm (9 in.) above the toilet seat and the vertical component 150 mm (5-

7/8 in.) in front of the toilet bowl; and

- be at least 600 mm (23-5/8 in.) in length, mounted horizontally on the wall behind the toilet, from 840 mm (33 in.) to 920 mm (36 in.) above the floor, and, where the water closet has a water tank, be mounted 150 mm (5-7/8 in.) above the tank.

When a toilet-paper dispenser is provided, the dispenser shall be

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

RELATED SECTIONS

- 4.1.1 Space and Reach Requirements
- 4.2.2 Toilets Stalls
- 4.2.10 Grab Bars
- 4.4.2 Controls and Operating Mechanisms
- 4.4.15 Texture and Colour

4.2.4 LAVATORIES

4.2 WASHROOM FACILITIES

RATIONALE

The accessibility of lavatories will be greatly influenced by their operating mechanisms. While faucets with remote-eye technology might initially confuse some individuals, their ease of use is notable. Individuals with hand strength or dexterity difficulties can use lever-style handles. For an individual in a wheelchair, a lower

counter height and clearance for knees under the counter would be required. This lower counter may also serve children. The insulation of pipes protects an individual in a wheelchair whose legs may come in contact with hot water pipes. This is particularly important when a disability impairs sensation such that the individual would not sense their legs were being burned.

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.

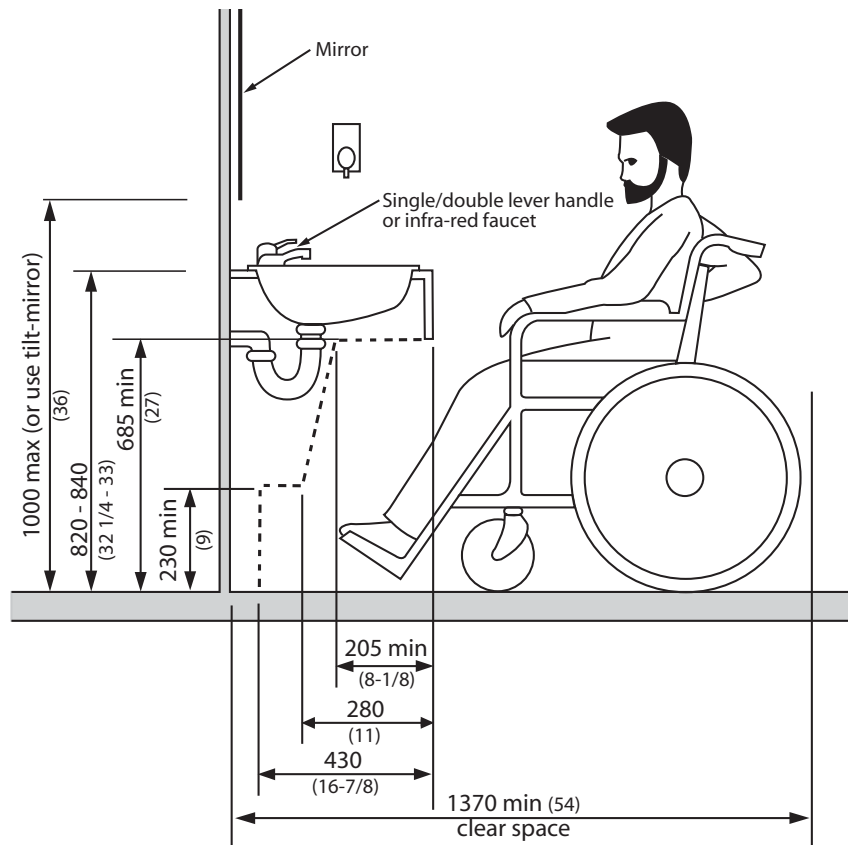


Figure 4.2.4.1
Lavatory Criteria

4.2 WASHROOM FACILITIES

4.2.4 LAVATORIES

DESIGN REQUIREMENTS

Lavatories shall

- be on an *accessible route* complying with 4.1.4;
- be mounted so that the minimum distance between the centre line of the fixture and the side wall is 460 mm (18-1/8 in.);
- have the top located between 820 mm (32-1/4 in.) and 840 mm (33 in.) from the floor;
- have a knee *space* of at least
 - 760 mm (30 in.) wide;
 - 735 mm (29 in.) high at the front edge;
 - 685 mm high (27 in.) at a point 205 mm (8-1/8 in.) back from the front edge; and
 - 230 mm (9 in.) high over the distance from a point 280 mm (11 in.) to a point 430 mm (16-7/8 in.) back from the front edge;
- have a minimum *clear floor space* 760 mm wide (30 in.) and 1370 mm (54 in.) deep, of which a maximum of 480 mm (18-7/8 in.) in depth may be under the lavatory;

- have hot water and drain pipes insulated if they abut the clearances noted above, or have the water temperature limited to a maximum of 43 degrees Celsius (100 degrees F); and
- have soap and towel dispensers that are
 - located to be *accessible* to persons in a wheelchair (i.e., not having to reach over the lavatory to access the devices);
 - located so that the dispensing height is not more than 1200 mm (47 in.) above the floor;
 - colour-contrasted from the surrounding environment; and
 - in compliance with 4.4.2.

Faucets and other controls shall

- have handles of the lever style (not self-closing) operable with a clenched fist, or be electronically controlled; and

- be located so that the distance from the centre line of the faucet to the edge of the basin, or where the basin is mounted in a vanity, to the front edge of the vanity is not more than 485 mm (19-1/8 in.).

The front apron of a vanity shall have a minimum clearance of 750 mm (29-1/2 in.) wide by 720 mm (28-3/8 in.) high.

Shelves or other projections above lavatories shall be located so they will not present a hazard to persons with a visual *disability*.

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

RELATED SECTIONS

- 4.1.1 Space and Reach Requirements
- 4.4.2 Controls and Operating Mechanisms
- 4.4.15 Texture and Colour

4.2.5 URINALS

4.2 WASROOM FACILITIES

RATIONALE

A *clear* floor space is required in front of urinals. Some using wheelchairs can pull themselves up to a standing position. Others may use the grab bar to steady themselves. Floor-mounted urinals make it easier to drain appliances. Flush controls should be lever or automatic (preferred).

APPLICATION

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

DESIGN REQUIREMENTS

Urinals shall be

- wall-mounted with an elongated rim located with the rim between 488 mm (19-1/4 in.) and 512 mm (20-1/8 in.) above the finished floor: or

- floor-mounted, with the rim level at the finished floor.

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

Where privacy screens are provided

- there shall be at least 800 mm (31-1/2 in.) of clearance between them; and
- they shall incorporate a pronounced colour contrast, to differentiate them from the surrounding environment, with a vertical outer edge that contrasts with the screen and the surrounding environment.

The urinal shall have grab bars installed on each side, vertically mounted, not less than 300 mm (12 in.) long, with the centre line 1000 mm (39 in.) above the floor and located not more than 380 mm (15 in.) from the centre line of the urinal. Grab bars shall comply with 4.2.10.

Flush controls shall be hand-operated or automatic, mounted at no more than 1120 mm (44 in.) above the finished floor, and shall comply with 4.4.2.

RELATED SECTIONS

- 4.1.1 Space and Reach Requirements
- 4.4.2 Controls and Operating Mechanisms
- 4.4.15 Texture and Colour

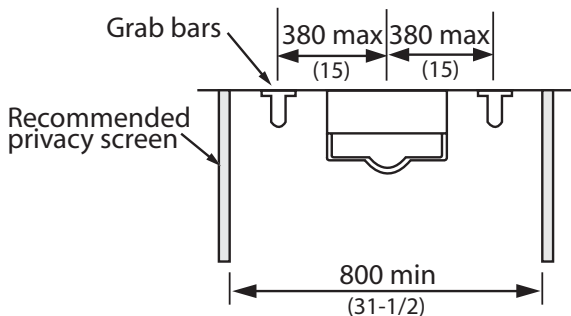


Figure 4.2.5.1
Urinal

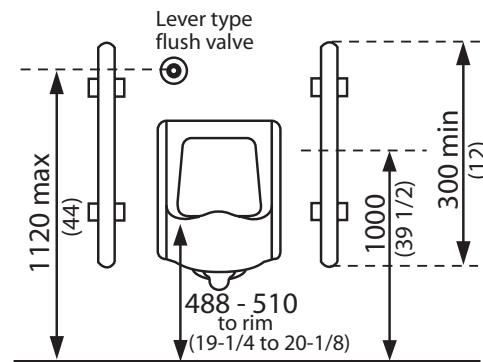


Figure 4.2.5.2
Urinal

4.2 WASHROOM FACILITIES

4.2.6 WASHROOM ACCESSORIES

RATIONALE

Design issues related to washroom accessories include the hand strength and dexterity required to operate mechanisms. Reaching the accessories is another concern. Accessories that require the use of two hands to operate can present difficulties for a range of disabled persons when the ability to reach or balance is impaired. Section 4.4.2 addresses operating mechanisms in greater detail.

APPLICATION

Where washroom accessories are provided in a toilet or bathing

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

DESIGN REQUIREMENTS

Each type of washroom accessory provided, except those located in toilet stalls as specified in 4.2.2 and lavatories as specified in 4.2.4, shall have *operable portions* and controls mounted between 900 mm (35 in.) and 1200 mm (47 in.) from the floor.

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

Where mirrors are provided, at least one shall be

- mounted with its bottom edge not more than 1000 mm (39-3/8 in.) from the floor; or
- inclined to the vertical to be usable by a person in a wheelchair.

RELATED SECTIONS

- 4.1.1 Space and Reach Requirements
- 4.1.3 Protruding Objects
- 4.4.2 Controls and Operating Mechanisms
- 4.4.15 Texture and Colour

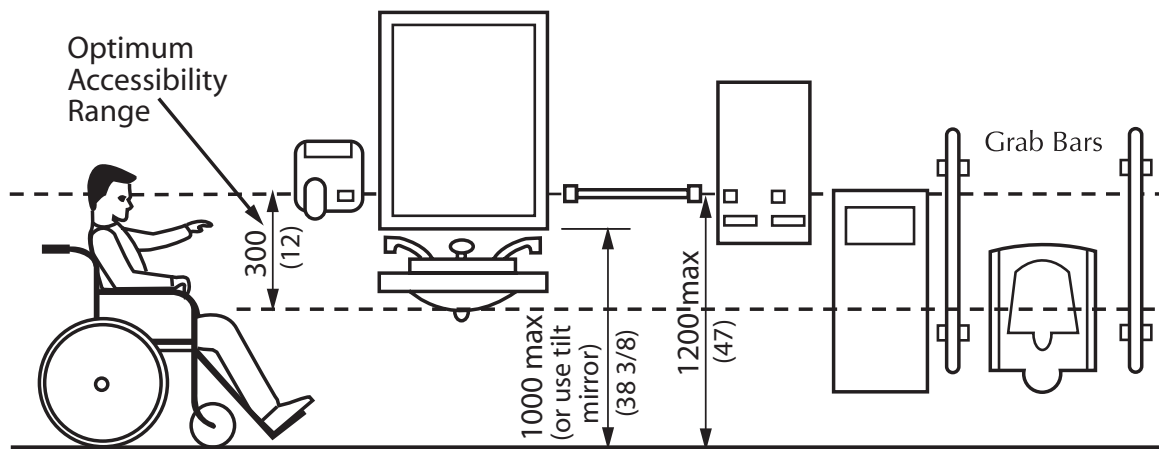


Figure 4.2.6.1
Washroom Accessories

4.2.7 INDIVIDUAL WASHROOMS

4.2 WASHROOM FACILITIES

RATIONALE

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

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

APPLICATION

Accessible 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 4.2.7 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 4.4.7 shall be provided.

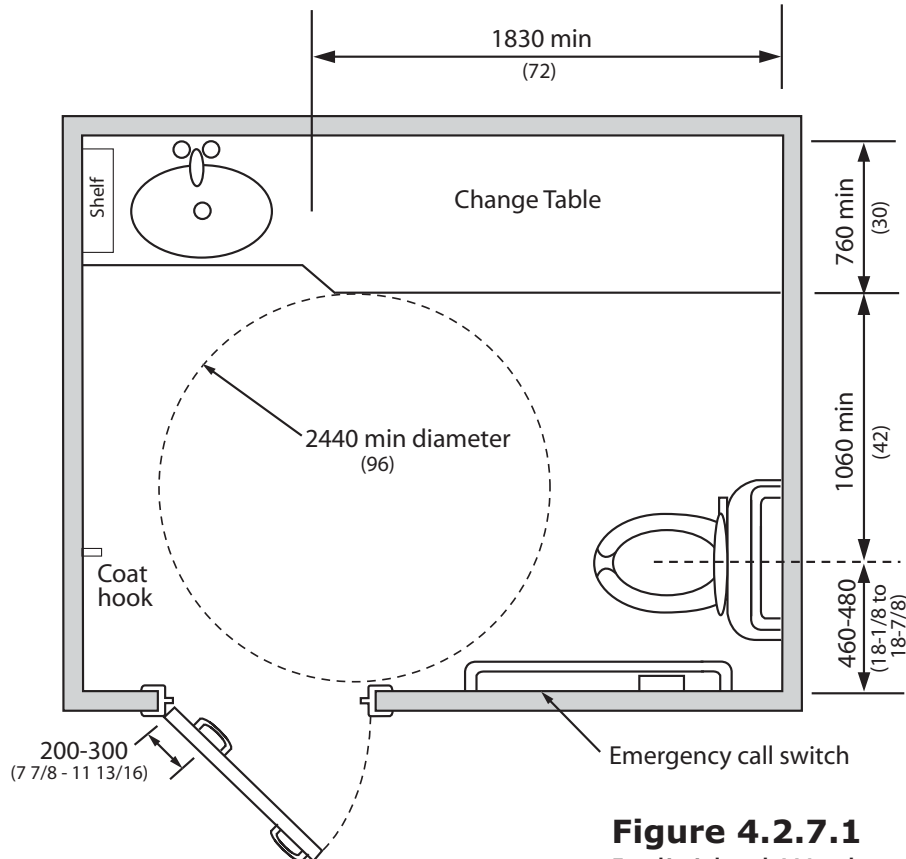


Figure 4.2.7.1
Individual Washroom

4.2 WASHROOM FACILITIES

4.2.7 INDIVIDUAL WASHROOMS

DESIGN REQUIREMENTS

Accessible individual washrooms shall be on an *accessible route* complying with 4.1.4.

Accessible individual washrooms shall be identified with *signage* complying with applicable provisions of 4.1.35.

Individual washrooms shall

- be designed to permit a wheelchair to turn in an *open space* that has a diameter of not less than 2440 mm (8 ft.). In a retrofit situation where providing a 2440 mm (8 ft.) wheelchair turning *space* is *technically infeasible*, the wheelchair turning *space* may be not less than 2130 mm (84 in.);
- be equipped with a door that
 - complies with 4.1.6;
 - 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 (35 in.) and not more than 1000 mm (39 in.) above the floor; and
 - if it swings outward, has a door pull not less than 140 mm (5-1/2 in.) long, located on the inside so that its midpoint is not less than 200 mm (7-7/8 in.) and not more than 300 mm (11-3/4 in.) from the hinged side of the door and not less than 900 mm (35 in.) and not more than 1000 mm (39 in.) from the floor;
- be provided with a lavatory conforming to 4.2.4;
- be equipped with a toilet conforming to 4.2.3 and located
 - so that its centre line is not less than 460 mm (18-1/8 in.) and not more than 480 mm (18-7/8 in.) from an adjacent wall on one side; and
 - not less than 1060 mm (42 in.) to the wall on the other side;
- be equipped with grab bars conforming to 4.2.10;
- have fixture clearances conforming to 4.2.3 and 4.2.4;
- be designed to permit a wheelchair to back into the *clear space* beside the toilet fixture;

4.2.7 INDIVIDUAL WASHROOMS

4.2 WASHROOM FACILITIES

- be equipped with
 - a collapsible coat hook mounted not more than 1200 mm (47 in.) from the floor on a side wall and projecting not more than 50 mm (2 in.) from the wall;
 - a shelf located not more than 1000 mm (39 in.) 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
 - a mirror and washroom accessories complying with 4.2.6.

Where *accessible* individual washrooms are provided in larger public *buildings, facilities*, the washroom shall incorporate an emergency call system linked to a central location (e.g., office or switchboard).

Accessible individual washrooms shall incorporate a change table

- at least 760 mm (30 in.) wide by 1830 (72 in.) long;
- located with the change surface no higher than 865 mm (34 in.);
- which incorporates an adjacent *clear floor space* not less than 760 mm (30 in.) by 1370 mm (54 in.);
- designed to support the weight of an adult;
- located on an *accessible route* in compliance with 4.1.4; and
- if of the fold-down type, have no operable portions higher than 1200 mm (47 in.).

RELATED SECTIONS

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

4.2 WASHROOM FACILITIES

4.2.8 BATHTUBS

RATIONALE

Bathtubs can present a slipping hazard. Slip-resistant surfaces are an important feature and will benefit any individual, including those with *disabilities*. Grab bars also provide stability. Operating systems are subject to limitations in 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 4.1.4.

Accessible bathtubs shall have

- a *clear floor space* at least 760 mm wide (30 in.) along the length of the bathtub (the lavatory can encroach a maximum of 300 mm (11-3/4 in.) into this *space*, provided there is *clear knee space* and *toe space* under the lavatory);

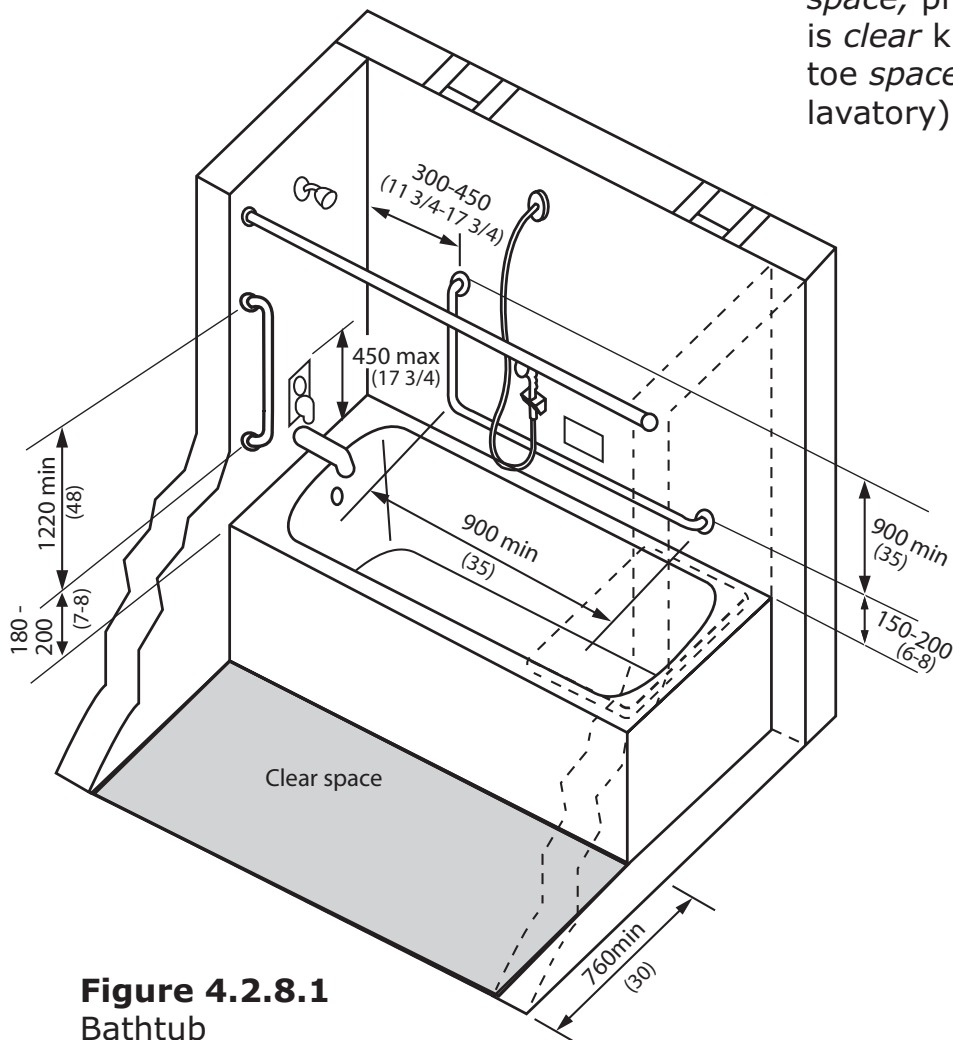


Figure 4.2.8.1
Bathtub

4.2.8 BATHTUBS

- 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 (17-3/4 in.) above the bathtub rim;
- a shower head complying with 4.2.9;
- unless the bathtub is freestanding, an "L"-shaped grab bar conforming to 4.2.10 mounted on the wall
 - with each leg of the "L" being at least 900 mm (35 in.) long;
 - with the legs of the "L" being separated by 90 degrees;
- with the horizontal leg of the "L" being located between 150 mm (5-7/8 in.) and 200 mm (7-7/8 in.) above and parallel to the rim of the bathtub; and
- with the vertical leg of the "L" being located between 300 mm (11-3/4 in.) and 450 mm (17-3/4 in.) from the control end of the bathtub;
- controls equipped with a pressure-equalizing or thermostatic-mixing valve, operable from the seated position and in compliance with 4.4.2;
- soap holder(s) which can be reached from the seated position, ideally fully recessed; and
- unless the bathtub is freestanding, a grab bar conforming to 4.2.10 which is at least 1220 mm (48 in.) long,

4.2 WASHROOM FACILITIES

mounted vertically at the foot end of the tub adjacent to the clear floor space, with the lower end 180 - 200 mm (7 - 8 in.) above the bathtub rim.

Enclosures for bathtubs shall not

- obstruct controls;
- interfere with a person transferring from a wheelchair; or
- have tracks mounted on the bathtub rim.

RELATED SECTIONS

- 4.1.1 Space and Reach Requirements
- 4.2.6 Washroom Accessories
- 4.2.10 Grab Bars
- 4.4.2 Controls and Operating Mechanisms
- 4.4.15 Texture and Colour

4.2 WASHROOM FACILITIES

4.2.9 SHOWER STALLS

RATIONALE

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

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.

DESIGN REQUIREMENTS

- Accessible shower stalls shall
- be on an *accessible route* complying with 4.1.4;
 - be at least 1525 mm (60 in.) in width and 920 mm (36 in.) in depth;
 - have a *clear floor space* at the *entrance* to the shower of at least 920 mm (36 in.) in depth and the same width as the shower, except that fixtures are permitted to project into that *space*, provided they do not restrict access to the shower;

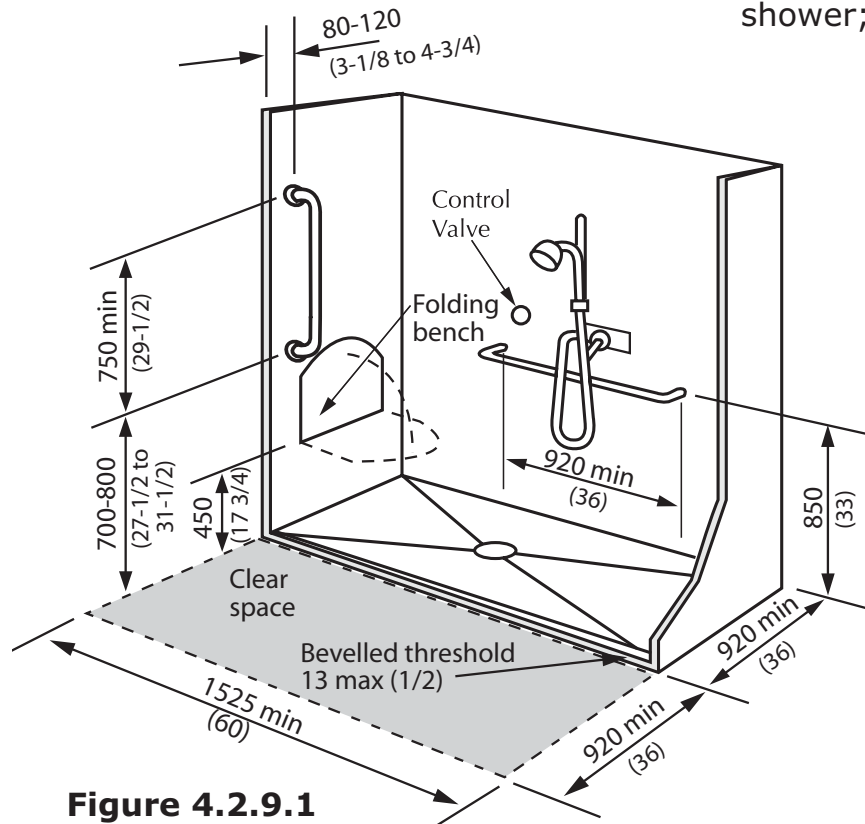


Figure 4.2.9.1
Shower Stall

4.2.9 SHOWER STALLS

- have a slip-resistant floor surface;
- have no threshold, or a bevelled threshold not exceeding 13 mm (1/2 in.) above the finished floor;
- be equipped with a wall-mounted folding seat that is not spring-loaded, or make provisions for a portable seat that is
 - 38 mm (1-1/2 in.) to 62 mm (2-1/2 in.) less than the shower compartment depth in width, and 430 mm (16-7/8 in.) to 530 mm (20-7/8 in.) in depth;
 - mounted approximately 450 mm (17-3/4 in.) above the floor; and
 - designed to carry a minimum load of 1.33 kN (300 lbs.);
- be equipped with a horizontal grab bar that shall
 - be at least 920 mm (36 in.) in length;
 - be mounted horizontally approximately 850 mm (33 in.) above the floor;
 - be located on the wall so at least 300 mm (11-3/4 in.) of its length is reachable from one side of the seat; and
 - conform to 4.2.10;
- be equipped with a vertical grab bar that shall
 - be at least 750 mm (29-1/2 in.) in length;
 - be mounted 80 - 120 mm (3-1/8 - 4-3/4 in.) from the front edge, starting between 700 and 800 mm (27-1/2 and 31-1/2 in.) from the floor; and
 - conform to 4.1.27;

4.2 WASHROOM FACILITIES

- be equipped with a pressure-equalizing or thermostatic-mixing valve, operable from the seated position and in compliance with 4.4.2;
- be equipped with a hand-held shower head with at least 1525 mm (60 in.) 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 soap holder(s) which can be reached from the seated position, ideally fully recessed.

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

RELATED SECTIONS

- 4.1.1 Space and Reach Requirements
- 4.2.6 Washroom Accessories
- 4.2.10 Grab Bars
- 4.4.2 Controls and Operating Mechanisms
- 4.4.15 Texture and Colour

4.2 WASHROOM FACILITIES

4.2.10 GRAB BARS

RATIONALE

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

APPLICATION

Grab bars shall comply with this section.

DESIGN REQUIREMENTS

Grab bars shall

- be installed to resist a load of at least 1.3 kN (300 lb.), applied vertically or horizontally;
- be not less than 30 mm (1-3/16 in.) and not more than 40 mm (1-9/16 in.) in diameter;
- have a clearance of 30 mm (1-3/16 in.) to 40 mm (1-9/16 in.) from the wall;
- be free of any sharp or abrasive *elements*;

- be colour-contrasted with the surrounding environment; and
- have a slip-resistant surface.

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

RELATED SECTIONS

- 4.1.1 Space and Reach Requirements
- 4.2.3 Toilets
- 4.2.5 Urinals
- 4.2.7 Individual Washrooms
- 4.2.8 Bathtubs
- 4.2.9 Shower Stalls
- 4.2.15 Texture and Colour

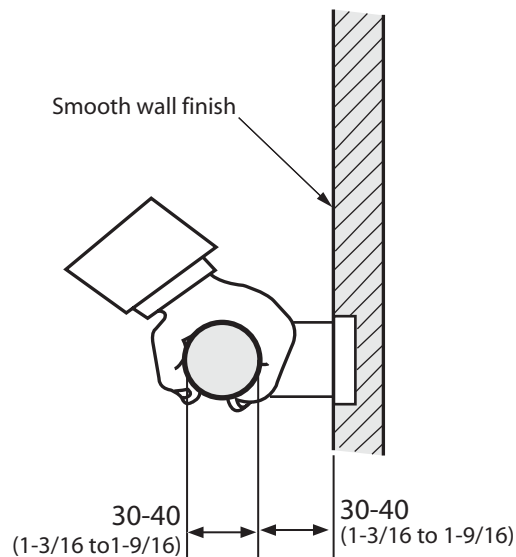


Figure 4.2.10.1
Grab Bar

4.3.1 DRINKING FOUNTAINS

4.3 OTHER AMENITIES

RATIONALE

Planning for the design of drinking fountains should consider the limited height of children or persons using a wheelchair. In the same respect, there may be individuals who have difficulty bending who would require a higher fountain. The operating system should account for limited hand strength or dexterity difficulties. The placement of the fountain is also impor-

tant. Fountains should be recessed, to avoid protruding into the path of travel of a person with a visual impairment.

APPLICATION

Where drinking fountains are provided on a floor, 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.

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

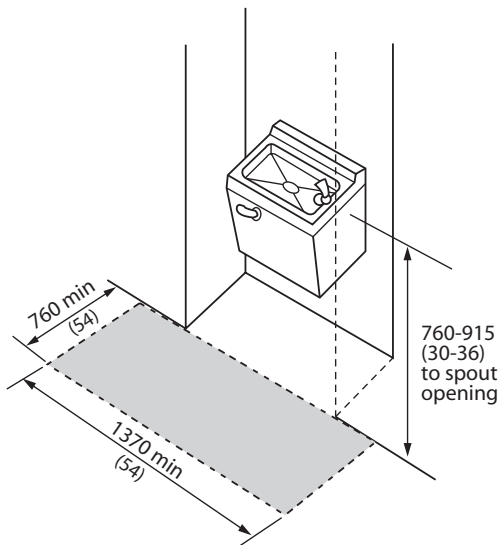


Figure 4.3.1.1
Parallel Approach

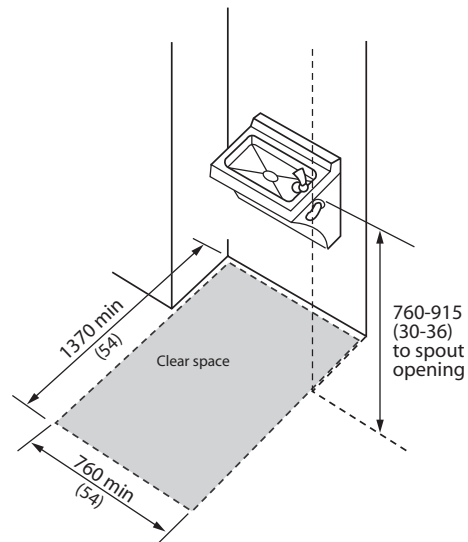


Figure 4.3.1.2
Frontal Approach

4.3 OTHER AMENITIES

4.3.1 DRINKING FOUNTAINS

DESIGN REQUIREMENTS

Accessible drinking fountains shall

- be located on an *accessible route* complying with 4.1.4;
- have a spout located near the front of the unit between 760 mm (30 in.) and 915 mm (36 in.) above the floor or ground surface;
- have a spout that directs the water flow in a trajectory that is parallel or nearly parallel to the front of the unit;
- have a spout that provides a water flow at least 100 mm (4 in.) high; and

- be equipped with controls that are easily operated from a wheelchair, using one hand, with a force of not more than 22 N (4.9 lb.), or be automatically operable.

- have a toe *space* not less than 760 mm (30 in.) wide, 230 mm (9 in.) deep, and 230 mm (9 in.) high; and
- be recessed or otherwise located out of the circulation route.

Cantilevered drinking fountains shall

- have a *clear floor space* of at least 760 mm (30 in.) by 1370 mm (54 in.);
- have a *knee space* between the bottom of the apron and the floor or ground of at least 760 mm (30 in.) wide, 200 mm (7-7/8 in.) deep and 685 mm (27 in.) high;

Freestanding or built-in fountains not having a *knee space* shall have a *clear floor space* at least 1370 mm (54 in.) wide by 760 mm (30 in.) deep in front of the unit.

RELATED SECTIONS

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

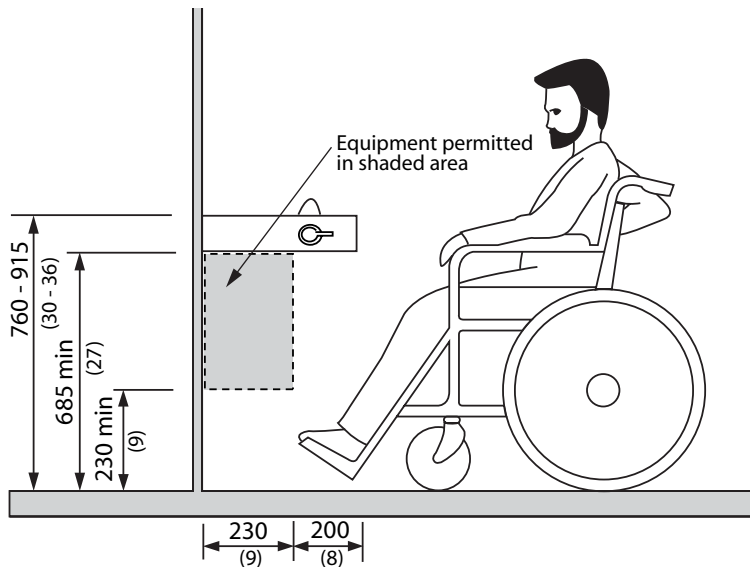


Figure 4.3.1.3
Clearances

4.3.2 VIEWING POSITIONS

4.3 OTHER AMENITIES

RATIONALE

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

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 4.3.2.

In addition, 1%, but not less than one, of all fixed seats shall be aisle seats with no armrests on the aisle side, or shall have removable or folding armrests on the aisle side. A sign or marker shall identify each of the seats. *Signage* notifying patrons of the availability of such seats shall be posted at the ticket office.

DESIGN REQUIREMENTS

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

| Number of Fixed Seats in Seating Area | Minimum number of <i>Spaces</i> Required for Wheelchairs |
|--|---|
| Up to 100 | 2 |
| 101 to 200 | 3 |
| 201 to 300 | 4 |
| 301 to 400 | 5 |
| 401 to 600 | 6 |
| Over 600 | Not less than 1% of the seating capacity |

Table 4.3.2
Wheelchair Viewing
Locations

4.3 OTHER AMENITIES

4.3.2 VIEWING POSITIONS

DESIGN REQUIREMENTS
(Continued)

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 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

(36 in.) wide and 1525 mm (60 in.) long;

- if the wheelchair enters from a front or rear approach, not less than 920 mm (36 in.) wide and 1370 (54 in.) long;
- arranged so that at least two designated wheelchair locations are side by side;
- arranged so that at least one companion fixed seat is provided next to each wheelchair seating area; and
- where the seating capacity exceeds 100, provided in more than one location

RELATED SECTIONS

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

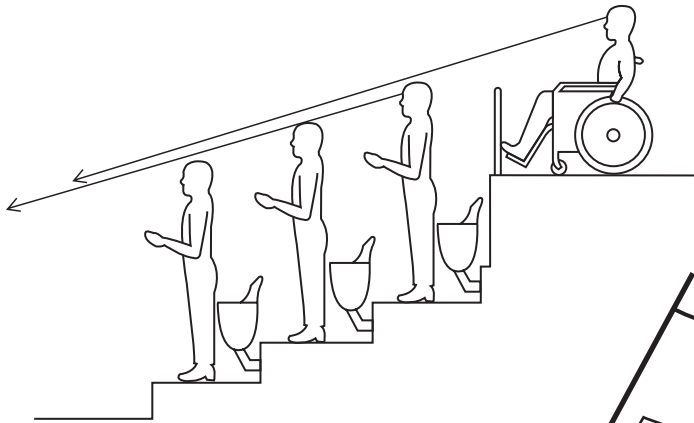


Figure 4.3.2.1
Sight Lines at Wheelchair Locations

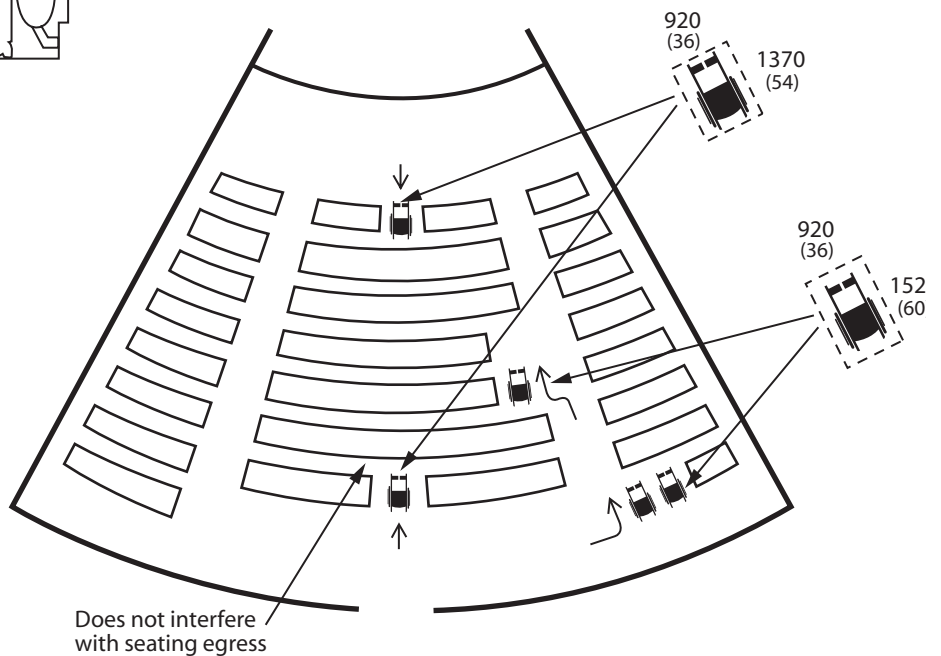


Figure 4.3.2.2
Distribution of Wheelchair Locations

4.3.3 ELEVATED PLATFORMS

4.3 OTHER AMENITIES

RATIONALE

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

APPLICATION

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

DESIGN REQUIREMENTS

- Elevated platforms shall
- be located on an *accessible route* that complies with 4.1.4;
 - be capable of being illuminated to at least 100 lux (9.3 ft-candles) at floor level at the darkest point;
 - be sized to safely accommodate wheelchairs and other mobility equipment in compliance with 4.1.1; and
 - have open platform edges defined by *detectable warning* surface.

The *detectable warning* surface on elevated platforms shall

- comply with the requirements of 4.4.8;
- 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 (24 in.) and a maximum of 915 mm (36 in.), flush from the open edge of the platform.

RELATED SECTIONS

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

4.3 OTHER AMENITIES

4.3.4 DRESSING ROOMS

RATIONALE

Similar to individual washrooms, a separate unisex dressing room is useful. This is valuable in a scenario where an attendant of the opposite sex or a parent is assisting a child. Sufficient space should be allowed for two people and a wheelchair, along with benches and accessories.

APPLICATION

Where dressing rooms are provided for use by the general public, patients, customers or employees, they shall comply with this section. In a retrofit situation where it is *technically infeasible* to have all dressing rooms comply with this section, 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 4.1.4.

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 (37-1/2 in.) wide if *clear floor space* complying with section 4.1.1 renders the dressing room usable by a person in a wheelchair.

All doors to *accessible* dressing rooms shall be in compliance with 4.1.6.

Every *accessible* dressing room shall have a 610 mm (24 in.) x 1220 mm (48 in.) bench fixed to the wall along the longer dimension. The bench shall

- be mounted 450 to 500 mm (17-3/4 in. to 19-5/8 in.) above the finished floor;
- have *clear floor space* 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 (300 lb.); 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.

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 (18 in.) wide by 1370 mm (54 in.) 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.

RELATED SECTIONS

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

4.3.5 OFFICES, WORK AREAS & MEETING ROOMS

4.3 OTHER AMENITIES

RATIONALE

Offices providing services or programs to the public should be *accessible* to all, regardless of mobility or functional profile.

Furthermore, office and related support areas should be *accessible* to staff and visitors with varying levels of ability.

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

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

Natural coloured task lighting, such as that provided through halogen bulbs, is a design feature that will facilitate use by all, especially persons

with vision impairments. In locations where reflective glare might be problematic, such as large expanses of glass with reflective flooring, consideration should be given to providing blinds that can be louvred upwards.

APPLICATION

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

DESIGN REQUIREMENTS

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 4.1.4;
- where equipped with a door, the door shall comply with 4.1.6;
- 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 4.1.4 that connects the primary activity *elements* within the office, work area or meeting room;
- incorporate knee clearances below work surfaces that comply with 4.3.7;
- incorporate access in compliance with 4.3.9 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 4.1.1, where equipment such as photocopiers are provided for use by the general public, clients or customers, ; and
- be equipped with an assistive listening system that complies with 4.4.6, where an assistive listening system is required.

4.3 OTHER AMENITIES

4.3.5 OFFICES, WORK AREAS & MEETING ROOMS**RELATED SECTIONS**

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

4.3.6 WAITING AND QUEUING AREAS

4.3 OTHER AMENITIES

RATIONALE

Queuing areas for information, tickets or services should permit persons in wheelchairs or others with disabilities to move through the line safely and conveniently.

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

APPLICATION

Waiting and queuing areas shall comply with this section.

DESIGN REQUIREMENTS

Barriers at queuing areas shall be laid out in parallel,

logical lines, spaced a minimum of 1060 mm (42 in.) apart.

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 4.4.15, as an aid to persons who are visually impaired.

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

RELATED SECTIONS

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

4.3 OTHER AMENITIES

4.3.7 TABLES, COUNTERS AND WORK SURFACES

RATIONALE

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

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 4.1.4.

An accessible route complying with 4.1.4 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 760 mm (30 in.) by 1370 mm (54 in.).

Where a forward approach is used to access a wheelchair seating space, a clear knee space of at least 760 mm (30 in.) wide, 480 mm (19 in.) deep and 685 mm (27 in.) high shall be provided. It may overlap the clear floor space by a maximum of 480 mm (19 in.).

The top of accessible tables, counters and work surfaces shall be located between 710 mm (28 in.) to 865 mm (34 in.) above the finished floor or ground.

RELATED SECTIONS

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

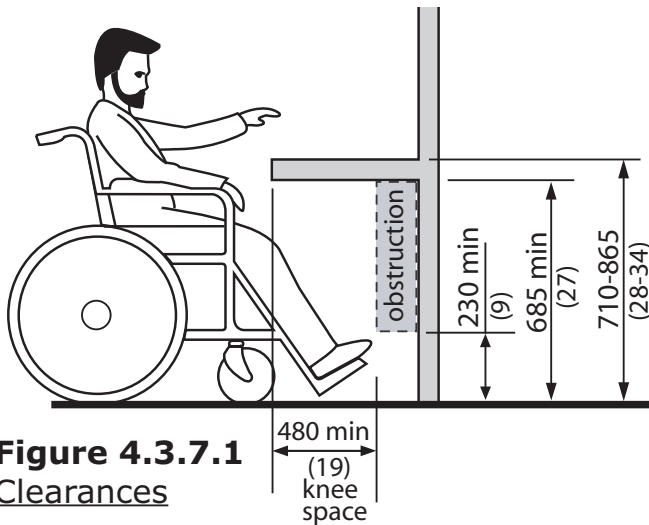


Figure 4.3.7.1
Clearances

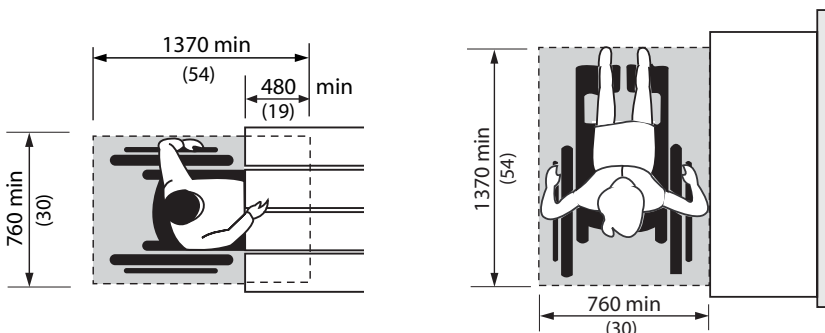


Figure 4.3.7.2
Frontal Approach

Figure 4.3.7.3
Parallel Approach

4.3.8 INFORMATION, RECEPTION AND SERVICE COUNTERS

4.3 OTHER AMENITIES

RATIONALE

Information, reception and service counters should be low enough to serve children, persons of short stature and persons using wheelchairs. This would include writing surfaces. A variety of counter heights is recommended to provide a range of options for a variety of persons. The use of colour contrast, tactile difference or audio landmarks (e.g., receptionist voice or music source) can assist individuals with visual impairment to more precisely locate service counters or speaking ports.

APPLICATION

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

DESIGN REQUIREMENTS

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

Counters for information or service shall incorporate at least one *accessible* section that is located between 710 mm (28 in.) and 865 mm (34 in.) above the finished floor or ground. This section shall be at least 915 mm (36 in.) wide.

Accessible sections of information, reception and service counters shall have, on both sides of the counter, knee *space* below of at least 685 mm (27 in.) high by 480 mm (19 in.) deep.

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

Where a forward approach is used to access a wheelchair seating space, a *clear knee space* of at least 760 mm (30 in.) wide, 480 mm (19 in.) deep and 685 mm (27 in.) high shall be provided. It may overlap the *clear floor space* by a maximum of 480 mm (19 in.).

Where speaking ports are provided at information, reception or service counters, at least one such position should have a speaking port no higher than 1060 mm (42 in.) above the finished floor or ground.

RELATED SECTIONS

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

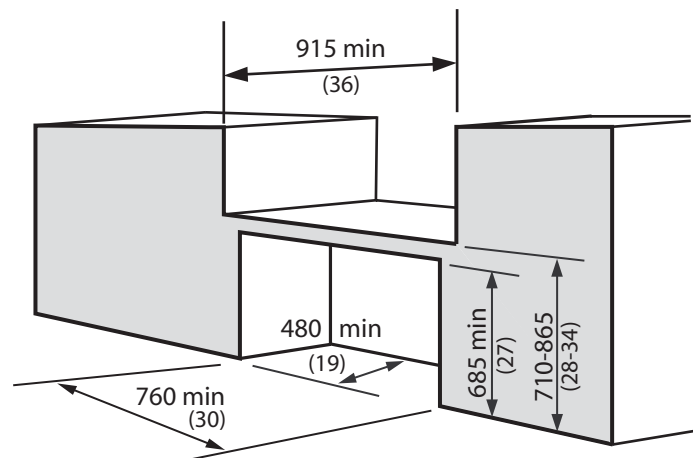


Figure 4.3.8.1
Service Counter

4.3 OTHER AMENITIES

4.3.9 STORAGE, SHELVING AND DISPLAY UNITS

RATIONALE

The heights of storage, shelving and display units should address the lower vantage points of children or persons using wheelchairs. The lower heights also serve the lower reach of these individuals. Having displays at two heights may also assist individuals with vision impairments, especially 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 4.1.4. Requirements for *accessible reach* ranges do not apply.

DESIGN REQUIREMENTS

A clear floor space at least 760 mm (30 in.) by 1370 mm (54 in.) complying with 4.1.1 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 4.1.1. Clothes rods or shelves shall be a maximum of 1370 mm

(54 in.) above the finished floor for a side approach. Where the distance from the wheelchair to the clothes rod or shelf is 255 – 535 mm (10-21 in.) (as in closets without accessible doors) the height of the rod or shelf shall be no more than 1200 mm (47 in.).

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

RELATED SECTIONS

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

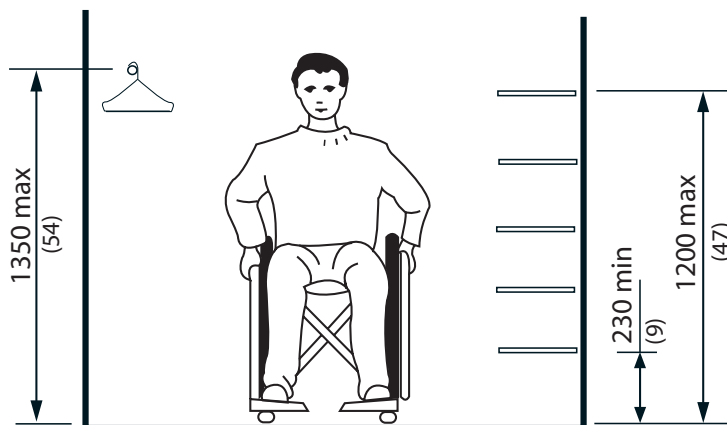


Figure 4.3.9.1
Reach Limits for Storage

4.3.10 LOCKERS AND BAGGAGE STORAGE

4.3 OTHER AMENITIES

RATIONALE

In schools, recreational facilities, transit facilities, etc., or wherever public or private storage lockers are provided, at least some of the storage units should be usable by persons in wheelchairs.

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

APPLICATION

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

DESIGN REQUIREMENTS

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

Lockers and baggage storage units shall have their bottom shelf no lower than 400 mm (16 in.) and their top shelf no higher than 1200 mm (47 in.) above the floor or ground.

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

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

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

Aisle *spaces* in front of lockers, baggage compartments and carousels should be a minimum of 1370 mm (54 in.) deep, to permit forward and lateral approach by wheelchair users.

RELATED SECTIONS

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

4.3 OTHER AMENITIES

4.3.11 BALCONIES, PORCHES, TERRACES AND PATIOS**RATIONALE**

Where a number of balconies, porches, patios or terraces are provided, it is desirable to consider options for different levels of sun and wind protection, as an aid to 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 4.1.4; and
- have a minimum depth of 2440 (96 in.). In retrofit situations where providing a depth of 2440 mm (96 in.) is *technically infeasible*, the minimum depth may be 1525 mm (60 in.).

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

Balcony, porch, terrace and patio surfaces shall

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

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

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

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

RELATED SECTIONS

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

4.3.12 PARKING

4.3 OTHER AMENITIES

RATIONALE

The provision of parking spaces near the entrance to a facility is important to accommodate persons with a variety of *disabilities*. Disabling conditions, such as arthritis or heart conditions, using crutches or pushing a wheelchair, all make it difficult to travel long distances. Minimizing travel distances is particularly important outdoors, where weather conditions and ground surfaces can make travel both difficult and hazardous. The *accessible route* of travel connecting the parking to the entrance should be well marked and free of steps and curbs.

Persons who are mobility impaired may use cars or vans. Consequently, *accessible parking spaces* should accommodate both. A person using a wheelchair requires a wider parking stall to accommodate the positioning of the wheelchair beside the car or van.

Additionally, the van may incorporate a lift or ramp. These lifts or ramps are often deployed through the side door of the van, but may also be installed in the rear of the vehicle. The person with a *disability* will require space not only for

the lift itself but additional manoeuvring *space* to access the lift platform in the lowered position.

Vans are typically modified to accommodate equipment and functional needs. The height of a van may be increased through modifying 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.

Except for at hospitals, medical centres or clinics, retirement homes and seniors' community centres, the number of *designated parking spaces* to accommodate persons with *disabilities* shall be provided in accordance with Table 4.3.12.1.

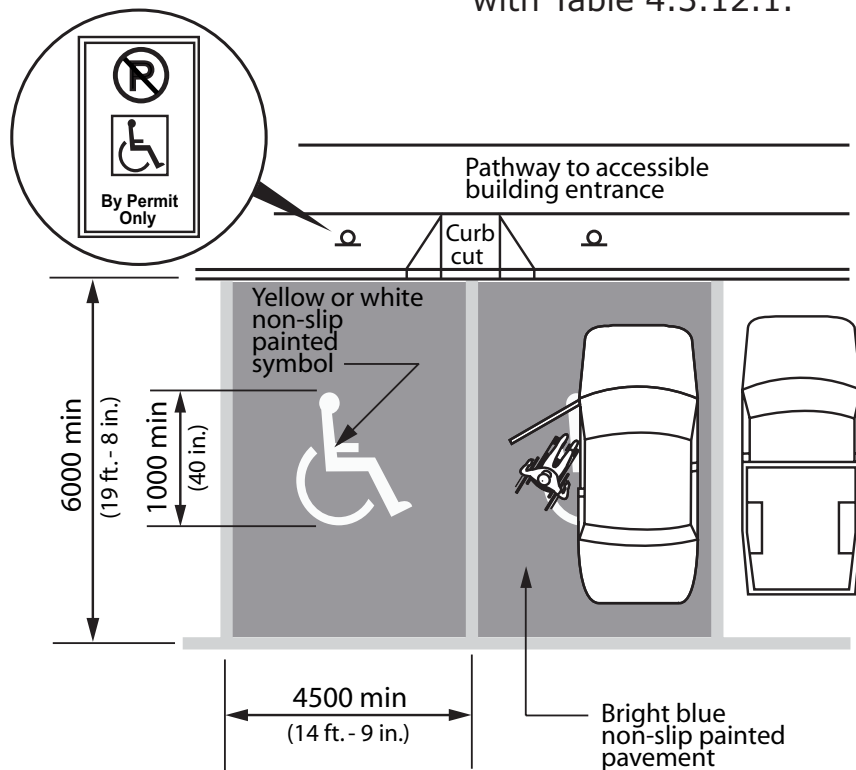


Figure 4.3.12.1
Designated Parking Spaces

4.3 OTHER AMENITIES

4.3.12 PARKING

APPLICATION

(Continued)

At hospitals, medical centres or clinics, retirement homes and seniors' community centres, the number of designated parking spaces to accommodate persons with disabilities shall be provided in accordance with Table 4.3.12.2.

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*).

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

DESIGN REQUIREMENTS

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

| Parking Area Spaces | Required Number of Designated Parking Spaces |
|--|--|
| 1-19 spaces | 1 space minimum |
| 20-200 spaces | 2 spaces minimum |
| 201-400 spaces | 4 spaces minimum |
| for each additional 400 spaces or part thereof | 1 space minimum to a maximum of 40 spaces |

Table 4.3.12.1
Designated Parking Spaces - General

| Parking Area Spaces | Required Number of Designated Parking Spaces |
|---|--|
| 1-30 spaces | 2 space minimum |
| 31-60 spaces | 4 spaces minimum |
| 61-100 spaces | 6 spaces minimum |
| for each additional 30 spaces or part thereof | 2 space minimum to a maximum of 40 spaces |

Table 4.3.12.2
Designated Parking Spaces for Hospitals, Medical Centres or Clinics, Retirement Homes, and Seniors' Community Centres

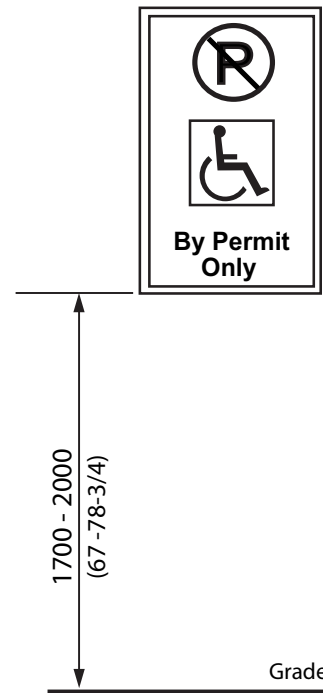


Figure 4.3.12.2
Parking Sign

4.3.12 PARKING**4.3 OTHER AMENITIES**

Designated parking spaces shall

- be located on an accessible route complying with 4.1.4;
- have a hard, level surface;
- incorporate a maximum running slope of 1.5%;
- incorporate a maximum cross slope of 1%;
- be at least 4500 mm (14 ft. - 9 in.) wide;
- be at least 6000 mm (19 ft. - 8 in.) long;
- incorporate at least 2750 mm (9 ft.) of vertical clearance;
- be clear of obstacles such as, but not limited to, light standards, waste receptacles, hand rails, fire hydrants, etc.;
- be identified by an official sign mounted with the base of the sign 1700-2000 mm (67 to 78-3/4 in.) above ground level; and

- be painted with a non-slip paint in bright blue, overlaid with the international symbol of access for the disabled which is
 - at least 1000 mm (3'-4") long;
 - located in the centre of the space; and
 - painted white or yellow.

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

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

RELATED SECTIONS

- 4.1.1 Space and Reach Requirements
- 4.1.2 Ground and Floor Surfaces
- 4.1.3 Protruding Objects
- 4.1.4 Accessible Routes, Paths and Corridors
- 4.1.10 Curb Ramps
- 4.4.7 Signage
- 4.4.8 Detectable Warning Surfaces
- 4.4.13 Lighting
- 4.4.14 Materials and Finishes
- 4.4.15 Texture and Colour

4.3 OTHER AMENITIES

4.3.13 PASSENGER-LOADING ZONES

RATIONALE

Passenger-loading zones are important features for individuals who may have difficulty in walking distances or those who use parallel transit systems. Spatial requirements for side-loading wheelchair lifts must be accommodated.

APPLICATION

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

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

DESIGN REQUIREMENTS

Passenger-loading zones shall

- be on an *accessible route* complying with 4.1.4;
- provide an *access aisle* at least 2440 mm (96 in.) wide and 7000 mm

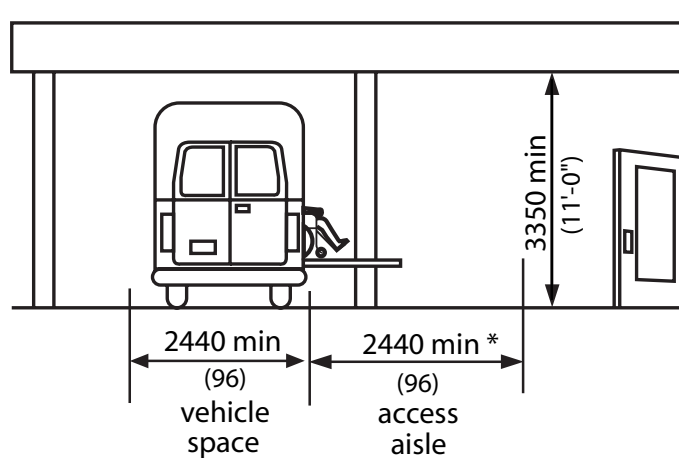


Figure 4.3.13.1
Clearances at
Passenger Loading Zone

4.3.13 PASSENGER-LOADING ZONES

(23 ft.) long, adjacent and parallel to the vehicle pull-up *space*. (In a retrofit situation where providing a 2150 mm (84 in.)-wide *access aisle* is *technically infeasible*, the *access aisle* width may be reduced to 2000 mm (78-3/4 in.);

- have a *curb ramp* complying with 4.1.10 where there are curbs between the *access aisle* and the vehicle pull-up *space*; and
- have a minimum vertical clearance of 3350 mm (11 ft.) at the loading zone and along the vehicle access route to such areas to and from the *site entrances*.

RELATED SECTIONS

- 4.1.1 Space and Reach Requirements
- 4.1.2 Ground and Floor Surfaces
- 4.1.3 Protruding Objects
- 4.1.4 Accessible Routes, Paths and Corridors
- 4.1.10 Curb Ramps
- 4.4.7 Signage
- 4.4.8 Detectable Warning Surfaces
- 4.4.14 Materials and Finishes
- 4.4.15 Texture and Colour

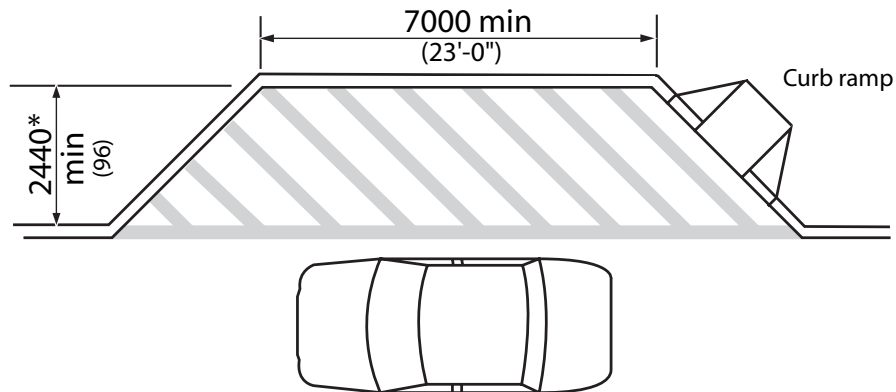


Figure 4.3.13.2
Passenger Loading Zone

* NOTE: In a retrofit situation where it is *technically infeasible* to provide the required *access aisle* width, the aisle width may be reduced to 2000 mm (78-3/4 in.)

4.3 OTHER AMENITIES

4.3.14 LANDSCAPING MATERIALS AND PLANTINGS

RATIONALE

Landscape materials, trees, shrubs and plants should be selected and located with a wide variety of disabled users in mind. For instance, plants and shrubs with a variety of fragrances can provide an interesting orientation cue for persons who are visually impaired, whereas plants with thorns or heavy berries may constitute a walking hazard. Using contrasting flowers near walkways can be helpful as a guide for landmarks.

Plants that drop large seed pods can present slipping hazards, as well as difficulties for pushing a wheelchair. Plantings that overhang pathways can impede both the disabled and non-disabled. Tree limbs overhanging pathways could be a

particular hazard to an individual with a visual impairment.

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

APPLICATION

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

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

DESIGN REQUIREMENTS

Accessible plant beds shall be

- raised 460 mm (18 inches) above the adjacent floor or ground surface; and
- located on an *accessible route* complying with 4.1.4.

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

4.3.14 LANDSCAPING MATERIALS AND PLANTINGS

4.3 OTHER AMENITIES

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 (4 in.) high.

Shrubs with thorns and sharp edges shall be planted at least 915 mm (36 in.) away from *accessible* pathways and seating areas.

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

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

Tree guards shall conform to 4.1.3.

Overhanging branches of trees or shrubs over walkways or paths shall not reduce the available headroom at any part of the *walkway* or path to less than 2030 mm (80 in.).

RELATED SECTIONS

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

4.3 OTHER AMENITIES

4.3.15 BENCHES

RATIONALE

Benches provide important resting places for individuals who may have difficulty with standing or walking for extended periods. Benches should be placed adjacent to pedestrian walkways to provide convenient rest places without becoming potential obstructions. Appropriate seat heights can facilitate sitting and rising for individuals such as senior citizens. Armrests may also provide assistance in sitting and rising. Persons who are blind will find it easier to locate benches if they are located adjacent to a landmark, such as a large tree, a bend in a pathway, or a sound source.

APPLICATION

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

DESIGN REQUIREMENTS

Benches shall

- be adjacent to an *accessible route* complying with 4.1.4;
- be stable;
- have a seat height between 450 mm

- (17-3/4 in.) and 500 mm (19-5/8 in.) from the ground;
- have arm and back rests;
- be of contrasting colour to their background; and
- have an adjacent level, firm ground surface at least 920 mm (36 in.) x 1370 mm (54 in.).

RELATED SECTIONS

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

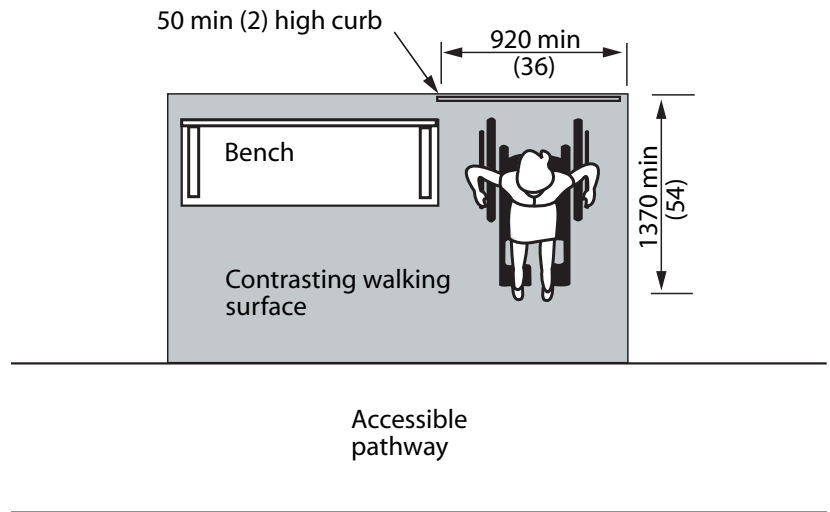


Figure 4.3.15.1
Rest Area

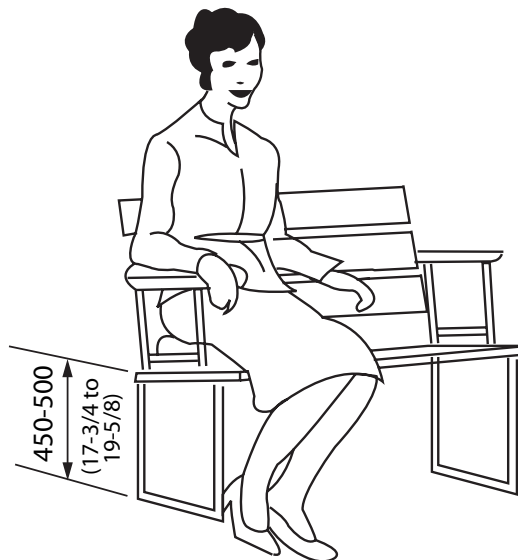


Figure 4.3.15.2
Bench Seating

4.3.16 PICNIC TABLES

4.3 OTHER AMENITIES

RATIONALE

Picnic tables with an extension of the table surface make them *accessible* to persons using wheelchairs. A firm, level surface around the table, with an *accessible* path leading to the table, is required for wheelchair accessibility. A change in texture from a pathway to the picnic table area is an important cue for a visually impaired individual.

APPLICATION

If picnic tables are provided in an *accessible* public or *common use* area, at least 10%, but not less than one, for each cluster of picnic tables shall comply with this section. It is preferable to have all picnic tables comply with this section.

DESIGN REQUIREMENTS

Picnic tables shall

- be adjacent to an *accessible route* complying with 4.1.4;
- have knee *space* under the table at least 760 mm (30 in.) wide by 480 mm (19 in.) deep and 685 mm (27 in.) high;
- be of contrasting colour to their background; and
- have a level, firm ground surface extending at least 2000 mm (78-3/4 in.) on all sides of the table.

The top of *accessible* picnic tables shall be from 710 mm (28 in.) to 865 mm (34 in.) above the finished floor or ground.

RELATED SECTIONS

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

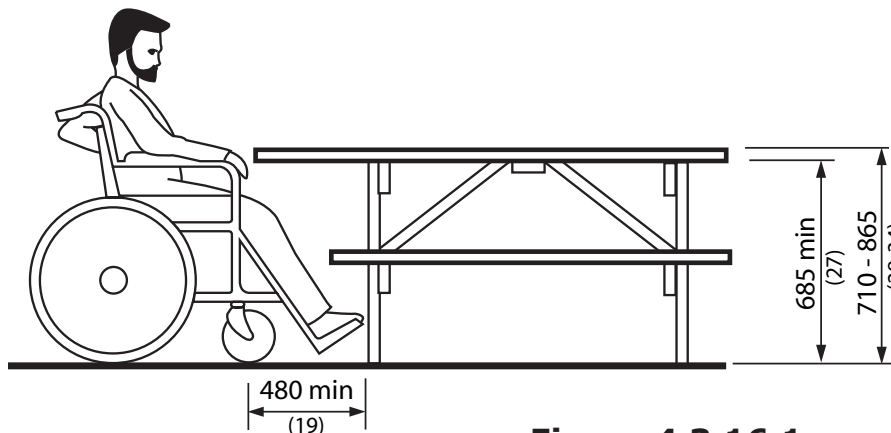


Figure 4.3.16.1
Picnic Table

4.3 OTHER AMENITIES

4.3.17 STREET FURNITURE

RATIONALE

Street furniture can provide a resting place for an individual with difficulty in walking distances. Such furniture should be located off pathways, to minimize its potential as an obstruction to pedestrians.

APPLICATION

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

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

DESIGN REQUIREMENTS

Street furniture shall

- not reduce the required width of an access route as specified in 4.1.4;
- be cane-detectable, in compliance with 4.1.3;

- be located to one side of the normal path of pedestrian travel, as illustrated in 4.3.15.1; and
- be securely mounted on an amenity strip, minimum 610 mm (24 in.) wide, located adjoining walkways, paths, sidewalks and other *accessible routes*.

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

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

Waste receptacles shall be clearly identified by suitable lettering, in compliance with the relevant parts of 4.4.7.

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

An exterior waste receptacle shall be

provided close to each *accessible public entrance*.

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

RELATED SECTIONS

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

4.4.1 EMERGENCY EXITS, FIRE EVACUATION AND AREAS OF RESCUE ASSISTANCE

4.4 SYSTEMS AND CONTROLS

RATIONALE

In order to be *accessible* to all individuals, emergency exits must include the same accessibility features as other doors specified in 4.1.6. The doors and routes must also be marked in a way that is *accessible* to all individuals, including those who may have difficulty with literacy, such as children or persons speaking a different language. Persons with a visual impairment will need a means of quickly locating exits – audio or talking signs could assist. In the event of fire when elevators cannot be used, areas of rescue assistance are an asset to anyone who would have difficulty traversing sets of stairs.

to that of inaccessible required exits).

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

- be served by an elevator that has protection features, as specified in 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.

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.

APPLICATION

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

Where 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

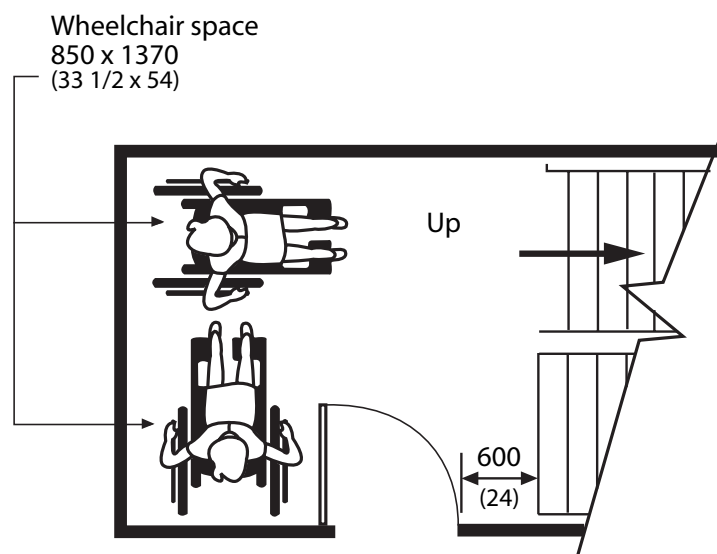


Figure 4.4.1.1
Area of Rescue Assistance

4.4 SYSTEMS AND CONTROLS

4.4.1 EMERGENCY EXITS, FIRE EVACUATION AND AREAS OF RESCUE ASSISTANCE

DESIGN REQUIREMENTS

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

Accessible means of egress shall comply with 4.1.4.

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

Areas of rescue assistance shall be

- located on an *accessible route* complying with 4.1.4;

- of a size that allows a minimum floor *space* of 850 mm (33-1/2 in.) x 1370 mm (54 in.) per non-ambulatory occupant, 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 firefighters' 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 4.4.7.

RELATED SECTIONS

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

4.4.2 CONTROLS AND OPERATING MECHANISMS**4.4 SYSTEMS AND CONTROLS****RATIONALE**

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

The placement of controls is integral to their accessibility. For the individual using a wheelchair, the height of the controls and the space to position the wheelchair in front of the controls are important. Controls

placed high on a wall are also difficult for children or persons of short stature.

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

APPLICATION

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

DESIGN REQUIREMENTS

A *clear*, level floor area at least 760 mm x 1370 mm (30 in. x 54 in.) shall be provided at controls and operating mechanisms, such as dispensers and receptacles.

The *operable portions* of controls and operating mechanisms, such as dispensers and receptacles, shall be located between 400 mm (15-3/4 in.) and 1200 mm (47 in.) from the floor.

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

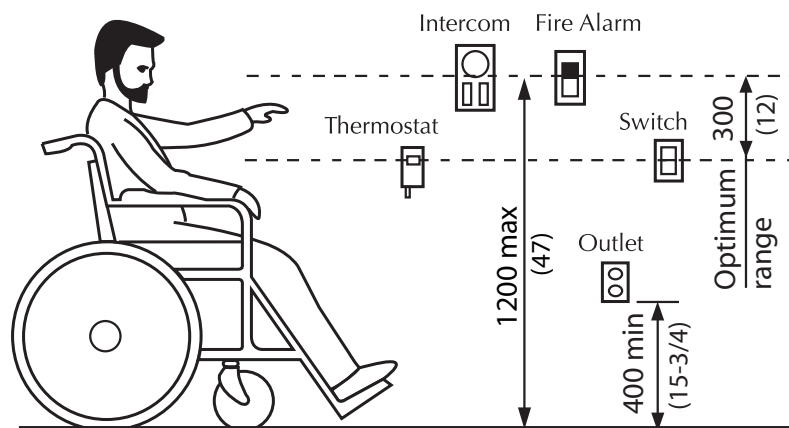


Figure 4.4.2.1
Reach Range for
Accessible Controls

4.4 SYSTEMS AND CONTROLS

4.4.2 CONTROLS AND OPERATING MECHANISMS

DESIGN REQUIREMENTS
(Continued)**RELATED SECTIONS**

Hand-operated controls and operating mechanisms shall be operable

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

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

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

- 4.1.1 Space and Reach Requirements
- 4.1.3 Protruding Objects
- 4.1.4 Accessible Routes, Paths and Corridors
- 4.1.6 Doors
- 4.1.7 Gates, Turnstiles and Openings
- 4.1.8 Windows, Glazed Screens and Sidelights
- 4.1.14 Elevators
- 4.1.15 Platform Lifts
- 4.2.2 Toilet Stalls
- 4.2.3 Toilets
- 4.2.4 Lavatories
- 4.2.5 Urinals
- 4.2.6 Washroom Accessories
- 4.2.7 Individual Washrooms
- 4.2.8 Bathtubs
- 4.2.9 Shower Stalls
- 4.3.1 Drinking Fountains
- 4.3.4 Dressing Rooms
- 4.3.5 Offices, Work Areas and Meeting Rooms
- 4.3.9 Storage, Shelving and Display Units
- 4.3.10 Lockers and Baggage Storage
- 4.3.17 Street Furniture
- 4.4.3 Vending and Ticketing Machines
- 4.4.5 Public Telephones
- 4.4.10 Information Systems
- 4.4.11 Card Access, Safety and Security Systems
- 4.4.15 Texture and Colour

4.4.3 VENDING AND TICKETING MACHINES**4.4 SYSTEMS AND CONTROLS****RATIONALE**

Space in front of vending machines allows for manoeuvrability of mobility aids. Seating areas and tables adjacent to vending machines offer convenience and should accommodate the spatial requirements of wheelchairs. The selection of the machines should include a number of factors. Operating mechanisms should be within reach of children and individuals in wheelchairs. The mechanisms should be operable with one hand and minimal strength, to accommodate a host of disabilities including arthritis, or the need to stabilize oneself with a cane or a handful of bags. Lighting levels and colour 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 4.1.4.

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

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

Signage on vending and ticketing machines shall be in highly contrasting lettering, at least 13 mm (1/2 in.) high. Ideally, lettering and *signage* shall comply with relevant parts of 4.4.7.

RELATED SECTIONS

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

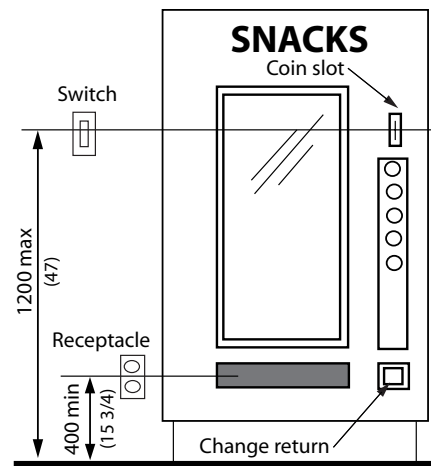


Figure 4.4.3.1
Vending Machine

4.4 SYSTEMS AND CONTROLS

4.4.4 VISUAL ALARMS

RATIONALE

Visual alarms are essential for the deaf, deafened and hard of hearing individuals who may not hear audible alarms.

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 candela;
- the flash rate shall be a minimum of 1 Hz and a maximum of 3 Hz;
- the appliance shall be placed 2030 mm (80 in.) above the floor level within the *space* or 152 mm (6 in.) below the ceiling, whichever is lower;
- in general, no place in any room or *space* required to have a visual signal appliance, shall be more than 15 meters (50 ft.) from the signal (in the horizontal plane). In large rooms and *spaces* exceeding 30 meters (100 ft.) across, without obstructions 2000 mm (6 ft.) above the finished floor, such as auditoriums, devices may be placed around the perimeter, spaced a maximum of 30 meters (100 ft.) 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 (50 ft.) from the signal.

RELATED SECTIONS

- 4.4.1 Emergency Exits, Fire Evacuation and Areas of Rescue Assistance

4.4.5 PUBLIC TELEPHONES

4.4 SYSTEMS AND CONTROLS

RATIONALE

The placement of tele-phones should address the limited reach of children or persons seated in wheel- chairs. Longer cords facili- tate the use of the phone for someone unable to get close to the phone due to a mobility device. Adjustable volume controls are impor- tant for hard of hearing

individuals, as are shelves that could support a TDD device. A fold-down seat is an asset to someone having difficulty standing for extended periods. Tele- phones 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 4.4.5.

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*.

| 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 <i>signage</i>) the bank. At least one public telephone per floor shall meet the requirements for a forward reach telephone. |

Table 4.4.5
Accessible Telephone Requirements

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

Signage complying with applicable provisions of 4.4.7 shall be provided.

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

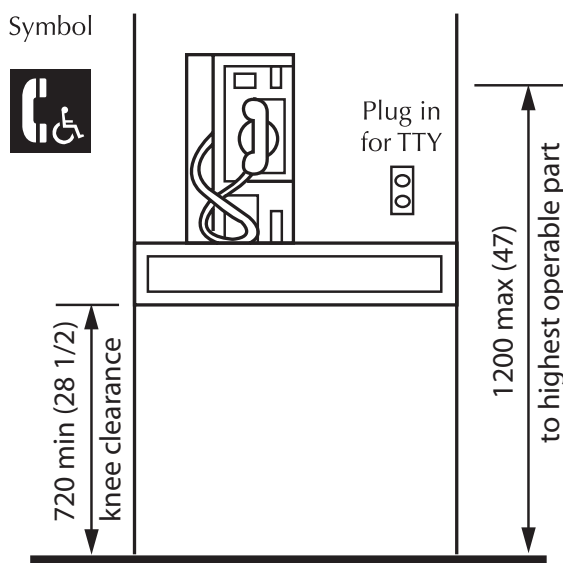


Figure 4.4.5.1
Telephone

4.4 SYSTEMS AND CONTROLS

4.4.5 PUBLIC TELEPHONES

APPLICATION

(Continued)

Where an interior public pay telephone is provided in the secured area of a detention or correctional facility subject to 4.5.8, then at least one public text telephone shall also be provided in at least one secured area. Secured areas are those areas used only by detainees or inmates and security personnel.

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

The minimum handset cord length of accessible telephones shall be 1000 mm (39 in.).

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

DESIGN REQUIREMENTS

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

Telephones, enclosures and related equipment shall comply with 4.1.3.

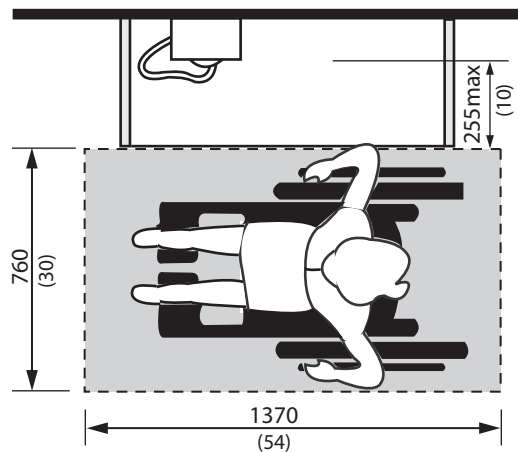


Figure 4.4.5.2
Parallel Approach

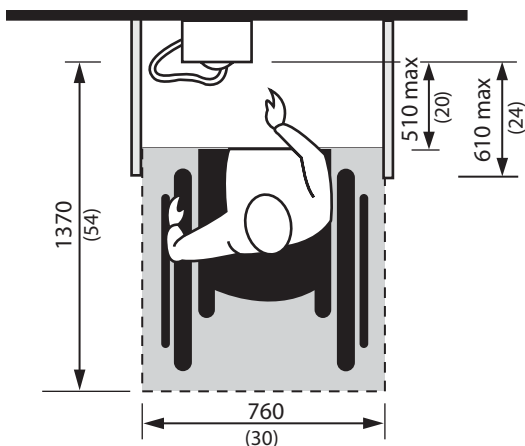


Figure 4.4.5.3
Frontal Approach

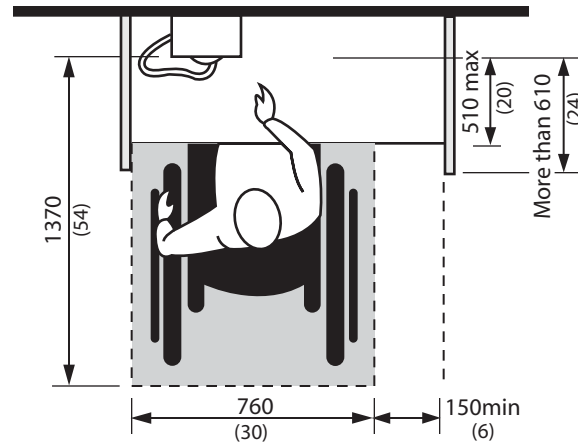


Figure 4.4.5.4
Frontal Approach

4.4.5 PUBLIC TELEPHONES

4.4 SYSTEMS AND CONTROLS

Telephones for persons in wheelchairs shall

- have the maximum height of *operable portions*, including the coin slot, 1200 mm (47 in.) above the floor;
- have a *clear floor space* not less than 760 mm (30 in.) wide by 1370 mm (54 in.) deep in front of the telephone, and this *space* may extend a maximum of 480 mm (18-7/8 in.) underneath the telephone if a *clear* height of 720 mm (28-3/8 in.) is provided for knee *space*; and
- have a flat telephone directory shelf at least 500 mm (19-3/4 in.) wide and 350 mm (13-3/4 in.) deep.

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 250 mm (9-7/8 in.) wide by 350 mm (13-3/4 in.) deep, with at least 250 mm (9-7/8 in.) *clear space* above the shelf, to accommodate the use of a portable *text telephone*;
- be equipped with an electrical outlet, within or adjacent to the telephone enclosure; and
- be equipped with a handset capable of being placed flush on the surface of the shelf.

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

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

RELATED SECTIONS

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

4.4 SYSTEMS AND CONTROLS

4.4.6 ASSISTIVE LISTENING SYSTEMS**RATIONALE**

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

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

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. (1080 sq.ft.) 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 4.4.7 shall be installed to notify patrons of the availability of a listening system.

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

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

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

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

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

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

RELATED SECTIONS

4.4.7 Signage
4.4.13 Lighting
4.4.16 Acoustics

4.4.7 SIGNAGE

4.4 SYSTEMS AND CONTROLS

RATIONALE

Signage should be simple, uncluttered and incorporate plain language. The use of graphic symbols is helpful for individuals such as children with literacy concerns or individuals speaking a different language. Sharp contrasts in colour make signage easier for anyone to read, particularly those with a visual *impairment*. The intent of the symbol must be evident, culturally universal and not counterintuitive. To enhance readability, raised *tactile* lettering should incorporate edges that are slightly smoothed.

APPLICATION

Signage shall comply with this section.

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

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

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

- parking spaces, designated as reserved for individuals with disabilities;
- *accessible* passenger loading zones;
- *accessible entrances* when not all are *accessible* (inaccessible *entrances* shall have

directional *signage* to indicate the route to the nearest *accessible entrance*);

- *accessible* toilet and bathing *facilities*, including single-use portable units, when not all are *accessible*;
- *accessible* telephones;
- *accessible* elevators and other elevating devices;
- *accessible means of egress*; and
- *areas of rescue assistance*.



Figure 4.4.7.1
Colour Contrast on Signs

* This is a **serif** font face

This is a **sans serif** font face

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

Table 4.4.7
Character Height on Signs

4.4 SYSTEMS AND CONTROLS

4.4.7 SIGNAGE

APPLICATION

(Continued)

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

DESIGN REQUIREMENTS

Letters and numbers on signs shall

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

Character height dimensions for viewing distance shall comply with Table 4.4.7.

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.



Figure 4.4.7.2

Pictograms (Note: Must incorporate equivalency verbal description)

4.4.7 SIGNAGE

4.4 SYSTEMS AND CONTROLS

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

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

Pictograms shall be accompanied by the equivalent verbal description, placed directly below the pictogram. The border dimension of the pictogram shall be 150 mm (6 in.) minimum in height.

Where permanent identification is provided for rooms and *spaces*, signs shall be installed on the wall adjacent to the latch side of the door, located with their centre line at a height between 1475 mm (58 in.) and 1525 mm (60 in.). Where there is no wall *space* to the latch side of the door, including at double-leaf doors, signs shall be placed on the nearest adjacent wall.

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

RELATED SECTIONS

- 4.1.4 Accessible, Routes, Paths and Corridors
- 4.1.5 Entrances
- 4.1.6 Doors
- 4.1.7 Gates, Turnstiles and Openings
- 4.1.9 Ramps
- 4.1.14 Elevators
- 4.1.15 Platform Lifts
- 4.2.1 Toilet and Bathing Facilities
- 4.2.7 Individual Washrooms
- 4.3.2 Viewing Positions
- 4.3.4 Dressing Rooms
- 4.3.12 Parking
- 4.3.13 Passenger-Loading Zones
- 4.4.1 Emergency Exits, Fire Evacuation and Areas of Rescue Assistance
- 4.4.5 Public Telephones
- 4.4.15 Texture and Colour

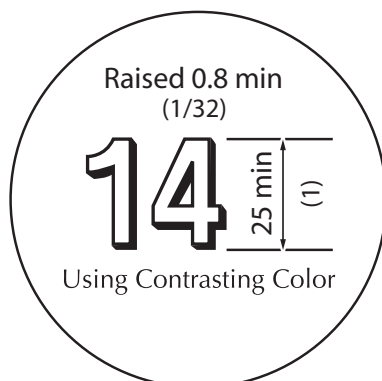
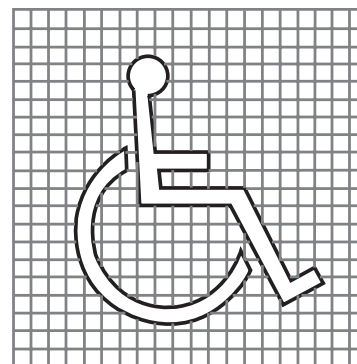


Figure 4.4.7.3
Tactile Lettering



Grid for reference only

Figure 4.4.7.4
International Symbol of Access

4.4 SYSTEMS AND CONTROLS

4.4.8 DETECTABLE WARNING SURFACES

RATIONALE

Detectable warning surfaces provide important cues for persons with a visual *impairment* to navigate an environment. These surfaces alert a person with a visual impairment 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. (Refer also to 4.4.15).

Detectable warning surfaces shall contrast visually with adjoining

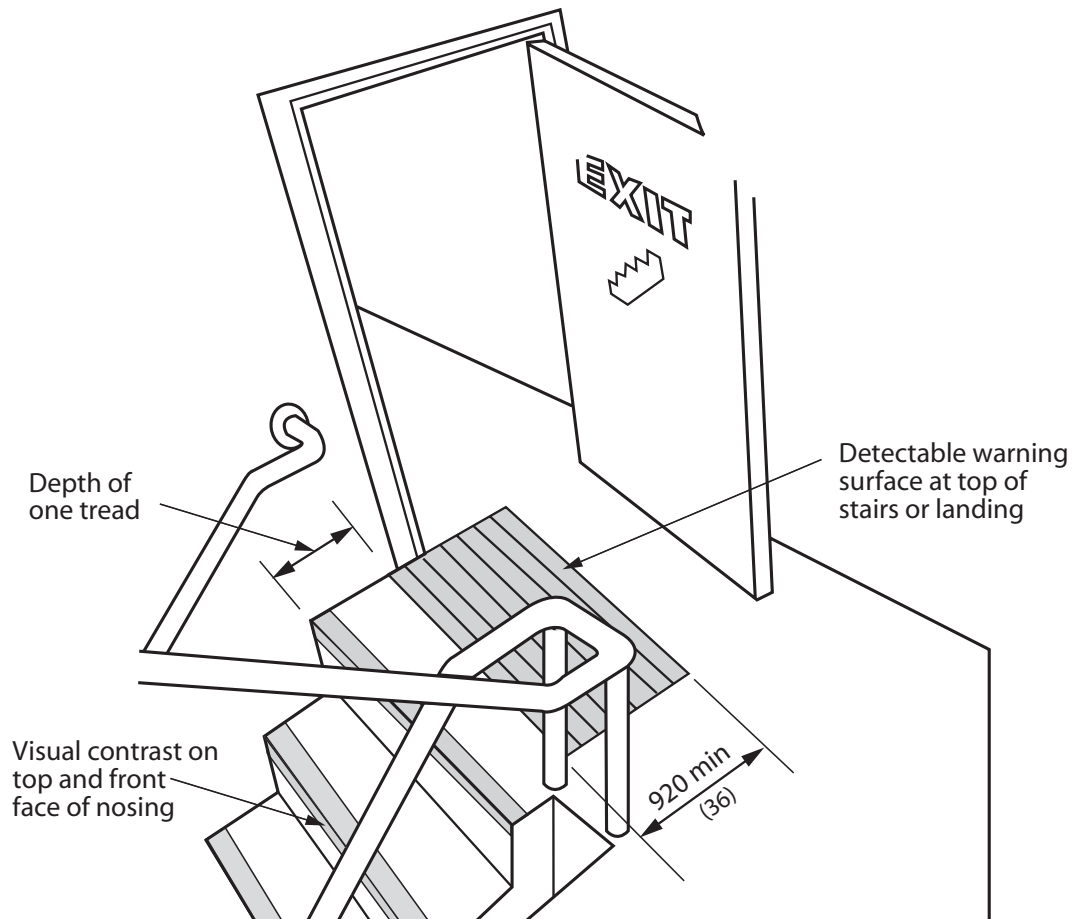


Figure 4.4.8.1
Detectable Warnings at Stairs

4.4.8 DETECTABLE WARNING SURFACES

4.4 SYSTEMS AND CONTROLS

surfaces, being either light on dark or dark on light.

Detectable warning surfaces at stairs shall

- be provided at the top of the stairs and at landings; and
- extend the full width of the stair for a depth of at least 920 mm (36 in.) commencing one tread depth back from the stair.

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

RELATED SECTIONS

- 4.1.3 Protruding Objects
- 4.1.4 Accessible Routes, Paths and Corridors
- 4.1.9 Ramps
- 4.1.10 Curb Ramps
- 4.1.11 Stairs
- 4.1.12 Escalators
- 4.3.1 Drinking Fountains
- 4.3.3 Elevated Platforms
- 4.3.12 Parking
- 4.3.13 Passenger-Loading Zones
- 4.4.15 Texture and Colour

4.4 SYSTEMS AND CONTROLS

4.4.9 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 should 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, the music shall not be broadcast continuously or throughout the entire *facility*.

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

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

RELATED SECTIONS

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

4.4.10 INFORMATION SYSTEMS**4.4 SYSTEMS AND CONTROLS****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 can 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, 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 or scooters (Refer to 4.4.2).

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

Push buttons or other controls for accessing public information systems should be clearly identifiable by colour and/or tone from the background colour, and should include raised numbers, numerals or symbols for easy identification by persons who are visually impaired. *Tactile* identification shall comply with 4.4.15.

RELATED SECTIONS

- 4.4.2 Controls and Operating Mechanisms
- 4.4.15 Texture and Colour

4.4 SYSTEMS AND CONTROLS

4.4.11 CARD ACCESS, SAFETY AND SECURITY SYSTEMS**RATIONALE**

Today, in urban, suburban and rural sites, seniors and persons with disabilities are conscious of their own vulnerability and therefore 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, including persons with reduced manual dexterity, poor vision or difficulty with reaching. The use of heat-sensing activation buttons should be avoided, as they are indiscernible to a 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 4.4.5 shall be located at, or close to, primary *accessible entrances*, for the use of persons requiring assistance.

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

Card-entry systems shall

- be wall-mounted, no higher than 1060 mm (42 in.) above the floor or ground, adjacent to the door and free of the door swing; 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 1060 mm (42 in.) above the floor or ground, adjacent to the door and free of the door swing; and
- incorporate buttons that
 - are raised;
 - are mounted on a clearly differentiated coloured background; and
 - include raised numerals or letters in a constant array.

RELATED SECTIONS

- 4.1.1 Space and Reach Requirements
- 4.1.4 Accessible Routes Paths and Corridors
- 4.1.5 Entrances
- 4.1.6 Doors
- 4.1.14 Elevators
- 4.1.15 Platform Lifts
- 4.2.7 Individual Washrooms
- 4.3.5 Offices, Work Areas and Meeting Rooms
- 4.4.2 Controls and Operating Mechanisms
- 4.4.15 Texture and Colour

4.4.12 GLARE AND LIGHT SOURCES

4.4 SYSTEMS AND CONTROLS

RATIONALE

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

While the strategic use of lighting is valuable to all individuals, it is especially important for individuals with some form of visual *impairment*. Glare can make navigating an environment more difficult for an individual with a visual *impairment* and is in fact uncomfortable for any other individual. In addition, offering a variety of task lighting at work areas is beneficial to all.

APPLICATION

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

DESIGN REQUIREMENTS

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.

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

4.4 SYSTEMS AND CONTROLS

4.4.12 GLARE AND LIGHT SOURCES**RELATED SECTIONS**

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

4.4.13 LIGHTING

4.4 SYSTEMS AND CONTROLS

RATIONALE

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

APPLICATION

Exterior and interior lighting systems shall comply with this section.

DESIGN REQUIREMENTS

EXTERIOR LIGHTING

Exterior lighting shall be in compliance with 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 should be minimum 100 lux (9.4 ft-candles) consistently over the *entrance* area, measured at the ground.

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

At frequently used *accessible* parking spaces, lighting levels shall be minimum 30 lux (3 ft-candles) consistently over the parking spaces, measured at the ground.

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

All lighting shall

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

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

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

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

INTERIOR LIGHTING

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

Light sources shall provide as full a spectrum of light as possible, as an aid to edge and colour definition. 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 in no case shall be less than 200 lux (20 ft-candles).

4.4 SYSTEMS AND CONTROLS

4.4.13 LIGHTING

DESIGN REQUIREMENTS
(Continued)

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

Lighting over directional or informational *signage*, or highlighting other orientation features, at public telephones, information or service counters, and card or keypad security systems,

shall be no less than 200 lux (20 ft-candles) at the working surface.

Lighting in *meeting rooms* and *assembly areas* shall be evenly distributed, and shall be capable of being adjusted (e.g., dimmers).

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

RELATED SECTIONS

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

4.4.14 MATERIALS AND FINISHES**4.4 SYSTEMS AND CONTROLS****RATIONALE**

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

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

APPLICATION

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

DESIGN REQUIREMENTSEXTERIOR FINISH MATERIALS

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

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

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

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

Ramp surfaces shall be firm and non-slip.

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

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 non-static fibre, directly glued to the subfloor.

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

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

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

RELATED SECTIONS

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

4.4 SYSTEMS AND CONTROLS

4.4.15 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.

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

APPLICATION

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

DESIGN REQUIREMENTS

Exterior colour schemes shall incorporate a pronounced colour contrast, to differentiate boundaries of objects, distinguish objects from their background, and to generally enhance spatial orientation. Generally, for seniors and persons with

low vision, colours in the warm end of the spectrum (yellow, orange, bright red, etc.) are easier to recognize than those at the cool end of the spectrum.

Signs shall incorporate pronounced glare-free colour contrast. A minimum contrast of 70% light reflectance is required. For signs, the most visible colours are white or yellow on a black, charcoal or other dark background, such as brown, dark blue, dark green or purple. Black lettering on white is also acceptable, although less readable than the reverse. Unacceptable background colours are light grey and pastel colours. Red lettering on a black background is also unacceptable.

Colour contrast shall be used as a safety measure to define edges or boundaries of objects (e.g., stair nosings, doors, handrails, etc.). Colour or tone shall be used to visually define the boundaries of a room (i.e., where the wall meets the floor). Baseboards in monochromatic environments shall be highly contrasting with the wall and floor colours, to provide boundary definition.

Colour shall be used consistently to visually identify distinctive objects (e.g., exit doors).

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

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

Detectable warning surfaces shall be used to define potential hazards. (Refer to 4.4.8.)

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 (2 in.) apart; grooves should be at right angles to the path of travel.

4.4.15 TEXTURE AND COLOUR**4.4 SYSTEMS AND CONTROLS**

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 wayfinding by defining such as the junction between walls and floors, doorway recesses and corridor intersections.

Throughout any one *site*, the same texture shall be used to identify the same type of hazard.

RELATED SECTIONS

- 4.1.2 Ground and Floor Surfaces
- 4.1.4 Accessible Routes, Paths and Corridors
- 4.1.6 Doors
- 4.1.7 Gates, Turnstiles and Openings
- 4.1.8 Windows, Glazed Screens and Sidelights
- 4.1.9 Ramps
- 4.1.10 Curb Ramps
- 4.1.11 Stairs
- 4.1.12 Handrails
- 4.1.13 Escalators
- 4.1.14 Elevators
- 4.1.15 Platform Lifts
- 4.2.2 Toilet Stalls
- 4.2.3 Toilets
- 4.2.4 Lavatories
- 4.2.5 Urinals
- 4.2.6 Washroom Accessories
- 4.2.7 Individual Washrooms
- 4.2.8 Bathtubs
- 4.2.9 Shower Stalls
- 4.2.10 Grab Bars
- 4.3.1 Drinking Fountains
- 4.3.3 Elevated Platforms

- 4.3.4 Dressing Rooms
- 4.3.5 Office, Work Areas and Meeting Rooms
- 4.3.6 Waiting and Queuing Areas
- 4.3.8 Information, Reception and Service Counters
- 4.3.9 Storage, Shelving and Display Units
- 4.3.10 Lockers and Baggage Storage
- 4.3.11 Balconies, Porches, Terraces and Patios
- 4.3.14 Landscaping Materials and Plantings
- 4.3.15 Benches
- 4.3.16 Picnic Tables
- 4.3.17 Street Furniture
- 4.4.1 Emergency Exits, Fire Evacuation and Areas of Rescue Assistance
- 4.4.2 Controls and Operating Mechanisms
- 4.4.5 Public Telephones
- 4.4.7 Signage
- 4.4.8 Detectable Warning Surfaces
- 4.4.11 Card Access, Safety and Security Systems

4.4 SYSTEMS AND CONTROLS

4.4.16 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.

APPLICATION

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

DESIGN REQUIREMENTS

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

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

Ceiling shapes shall be designed so that echoes do not occur. (Note: domed shapes tend to distort sound.)

Public address and call systems shall be capable of being zoned to key areas, rather than blanketing all areas of a *facility* at all times. (Refer to 4.4.9.)

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

RELATED SECTIONS

- 4.3.5 Office, Work Areas and Meeting Rooms
- 4.3.8 Information, Reception and Service Counters
- 4.4.5 Public Telephones
- 4.4.6 Assitive Listening Systems
- 4.4.9 Public Address Systems

4.5.1 ARENAS, HALLS AND OTHER INDOOR RECREATIONAL FACILITIES

4.5 FACILITY-SPECIFIC REQUIREMENTS

RATIONALE

Opportunities for recreation, leisure and active sport participation should be available to all members of the community. Access should be provided to halls, arenas, and other sports *facilities*, including access to the *site*, all activity spaces, gymnasia, fitness *facilities*, lockers, change rooms and showers. Persons who are disabled may be active participants, as well as spectators, volunteers and members of staff.

APPLICATION

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

Where dressing *facilities* are provided for use by the general public, clients, customers, performers or staff, at least 50%, but never less than one, for each type of use in each cluster of dressing *facilities* shall be *accessible* and in compliance with 4.3.4. It is preferable to have all dressing *facilities* *accessible*.

DESIGN REQUIREMENTS

Arenas, halls and other indoor recreation *facilities* shall

- where visitor, spectator and/or participant seating is provided, have *accessible* seating options in compliance with 4.3.2;
- provide an *accessible route* in compliance with 4.1.4 to the arena/*facility* floor and/or ice surface, including access panels or gates providing at least 950 mm (37-1/2 in.) *clear* width;
- where *facilities* are provided for performances and other events, have a direct *accessible route* in compliance with 4.1.4 from the lobby/*entrances* and viewing locations to all performing areas, including stages, dressing rooms, washrooms and all other *spaces* used by performers.
- where dressing *facilities* are provided, have dressing *facilities* that comply with 4.3.4;
- where lockers or shelving is provided, have lockers and

shelving that comply with 4.3.9 and 4.3.10;

- where coat hooks are provided, have at least 10%, but never less than one, within the reach ranges specified in 4.1.1;

- where toilets and bathing *facilities* are provided, have toilets and bathing *facilities* that comply with 4.2.1;
- where concessions or other service counters are provided, comply with 4.3.8;
- where swimming pool, hot pools or therapy pools are provided, comply with 4.5.3; and
- where staff accommodation and related support areas, offices or *meeting rooms* are provided, comply with all relevant sections of 4.1 to 4.4.

RELATED SECTIONS

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

4.5 FACILITY-SPECIFIC REQUIREMENTS

4.5.2 OUTDOOR RECREATIONAL FACILITIES

RATIONALE

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

APPLICATION

In addition to the design requirements specified in 4.1 to 4.4, the outdoor recreation *facilities* listed below shall comply with this section.

Where dressing *facilities* are provided for use by the general public, clients, customers, performers or staff, at least 50%, but never less than one, for each type of use in each cluster of dressing *facilities* shall be *accessible* and in compliance with 4.3.4. It is preferable to have all dressing *facilities* *accessible*.

DESIGN REQUIREMENTSGENERAL

Parks accessibility shall encompass the development of routes, auxiliary services, planting and an overall environment which is *accessible* and provides a fulfilling recreational experience.

BOARDWALKS

Where boardwalks are provided, they shall

- have a minimum width of 2440 mm (96 in.);
- incorporate surfaces constructed of firm, non-slip materials. (Where wooden planks are used, they shall be laid perpendicular to the path of travel and have joints no greater than 6 mm (1/4 in.);
- incorporate a continuous up-stand edge where the grade drop-off on any side of the boardwalk is greater than 200 mm (8 in.). The up-stand edge shall be at least 100 mm (4 in.) high and of a contrasting colour to the surrounding terrain;
- handrails, guards or other suitable barriers where the grade drop-off is greater than 450 mm (18 in.);
- access points to boardwalks that allow

easy wheelchair access; and

- benches, garbage cans, drinking fountains, etc., where provided, shall be located adjacent to the boardwalk on firm, level surfaces at the same elevation as the boardwalk. (Refer also to 4.3.17.)

DOCKS

Where docks for fishing, boating or swimming are provided they shall

- be located on an *accessible route* in compliance with 4.1.4;
- where changes in elevation are necessary, incorporate *ramps* or *curb ramps* in compliance with 4.1.8 and 4.1.9. *Ramps* with a slope no greater than 1:12 are acceptable;
- incorporate a continuous up-stand edge, at least 100 mm (4 in.) high and of a contrasting colour where dock surfaces are greater than 200 mm (8 in.) above the surface of the water;
- incorporate a guardrail where dock surfaces are greater than 450 mm (18 in.) above the surface of the water; and
- where steps are provided to access the water for swimming,

4.5.2 OUTDOOR RECREATIONAL FACILITIES**4.5 FACILITY-SPECIFIC REQUIREMENTS**

incorporate colour-contrasting handrails at the steps. Such handrails shall extend to a minimum of 600 mm (24 in.) above the dock surface and return down to the dock.

OUTDOOR POOLS

Outdoor swimming pools shall comply with 4.5.3.

TRAILS AND FOOTBRIDGES

Where significant changes in grade occur, trail routes shall ideally be sloped at no greater than 1:20, or have adjacent steps and *ramps*.

Where steps, footbridges or *ramps* are used, the surfacing shall be of non-slip materials and include suitable colour-contrasting handrails and/or guards.

The slope on bridges shall not exceed 1:20.

PATHWAYS

Accessible routes and walkways shall conform with 4.1.4.

Garbage cans, light standards, benches and other potential obstructions shall be located adjacent to pathways. (Refer also to 4.3.17.)

A different ground colour and/or texture shall be used to indicate the following:

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

(Refer also to 4.4.15.)

PLANTING AND TREES

Planting and trees along *accessible* pathways shall comply with 4.3.14.

REST AREAS

Rest areas shall

- be provided on trails, pathways and walkways;
- be positioned adjacent to the trail, pathway or walkway;
- have *accessible* ground surfaces in compliance with 4.1.2;
- use a contrasting ground finish material to identify functional change; and
- incorporate at least one bench, in compliance with 4.3.15.

PARKS, PARKETTES AND PLAYGROUNDS – GENERAL

Entrance gates, paths and walkways throughout the park shall be *accessible* to

persons using wheelchairs or scooters.

Picnic and play areas shall be provided in both sunny and shaded areas.

PLAYGROUNDS

Children's play areas and playground equipment, sandboxes or other amenities shall generally be designed to be *accessible* to and useable by children with varying disabilities. Colour contrast is important.

Playground surfaces shall be firm, level, non-abrasive and drain rapidly. Surfaces below playground equipment, including swings, slides and climbing structures, shall be level, free-draining and provide a safe, resilient landing surface.

PICNIC TABLES

Accessible picnic tables shall comply with 4.3.16.

Where public parking is provided to serve picnic *facilities*, *accessible* picnic areas shall be within 30 meters (100 ft.) of the *accessible* parking spaces.

DRINKING FOUNTAINS

Accessible drinking fountains shall comply with 4.3.1.

4.5 FACILITY-SPECIFIC
REQUIREMENTS**4.5.2 OUTDOOR RECREATIONAL FACILITIES****DESIGN REQUIREMENTS**
(Continued)**PUBLIC TELEPHONES**

Accessible public telephones shall comply with 4.4.5.

ILLUMINATION (WHERE PROVIDED)

Illumination levels shall

- be a minimum of 10 lux (1 ft-candle);
- be maintained at 5 lux (0.5 ft-candles) in areas of heavy trees and shrubbery; and
- be maintained at 5 lux (0.5 ft-candles) in all other areas of park at ground level.

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

WASHROOMS

Where washrooms are provided, they shall conform with 4.2.1.

WATERFRONT AREAS

Where paths and/or lookout points are provided, they shall be *accessible* to all individuals.

Seating shall be provided along paths and at lookout points, in compliance with 4.3.15.

Where parking is provided, it shall be located as close as possible to waterfront area. An *accessible route* shall be provided from the parking area to paths and/or lookout points (where provided).

NATURAL AREAS

Accessible pathways, trails and footbridges shall be provided where environmental considerations will permit.

Paths and trails shall incorporate rest areas with appropriate seating.

Where special lookout locations or wildlife viewing areas are provided, they shall be identified with *clear signage*.

Trails shall feature a *tactile* map at the start of the trail and periodically along its length.

Information and interpretive *signage* shall incorporate Braille.

GRANDSTAND AND OTHER VIEWING AREAS

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

PLAYING FIELDS

Controlled access points shall be designed to accommodate persons using wheelchairs. (e.g., Where turnstiles are used, an adjacent *accessible* gate shall be provided.)

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

Where provided, public viewing areas shall comply with 4.3.2.

Where provided, public washrooms shall comply with 4.2.1.

Where provided, public showers and change rooms shall comply with 4.2.1 and 4.3.4.

RELATED SECTIONS

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

4.5.3 SWIMMING POOLS

4.5 FACILITY-SPECIFIC REQUIREMENTS

RATIONALE

Swimming is an important recreational and therapeutic activity for many persons with *disabilities*. The buoyancy and freedom offered by an immersive water environment can be enabling in themselves. Primary considerations for accommodating persons who have mobility *impairments* include *accessible* change facilities and a means of access into the water. Ramped access into the water is preferred over lift access, as it promotes integration (everyone will use the ramp) and independence. Many persons who are visually *impaired* will benefit from colour and textural cues along primary routes of travel and at potentially dangerous locations, such as the edge of the pool, at steps into the pool and at railings.

APPLICATION

In addition to the design requirements specified in 4.1 to 4.4, 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

- where the pool is indoors, a direct *accessible route* in compliance with 4.1.4 from the lobby/*entrance* to the change rooms;
- a direct *accessible route* in compliance with 4.1.4 from the change rooms to the pool deck;
- access from the pool deck into the water, provided by a *ramp* sloped no steeper than 1:12. In retrofit situations where it is *technically infeasible* to provide a *ramp*, a mechanical pool lift can be used;
- a shower chair available at each *facility* for use in transferring into the water;
- where steps are provided into the pool, steps marked with a colour-contrasting strip at least 50 mm (2 in.) wide, at both the riser and the tread;
- where steps are provided into the pool, colour-contrasting handrails on both sides of the steps. Such handrails shall extend at least 300 mm (12 in.) beyond the pool edge;
- where an up-stand edge is provided, it shall be a minimum of 200 mm (8 in.) and a maximum of 400 mm (16 in.) in height;
- pool boundaries clearly defined by both a textural change and a colour contrast to both the water surface and surrounding pavement;
- firm, slip-resistant materials and finishes used on the pool perimeter, deck or paved areas surrounding the pool;
- non-abrasive and easy-to-clean pool perimeter finishes;
- adequate drainage on the pool deck to drain water quickly;
- where pool-depth indicator marking is provided, depth-indicator markings, as well as 'SHALLOW END' and 'DEEP END' markings, of a highly contrasting colour and sufficient size to be easily visible;
- where diving boards or platforms are provided, they shall be clearly marked and protected. Overhead clearances should be a minimum of 2030 mm (6'-8") or protected by suitable guards;

4.5 FACILITY-SPECIFIC
REQUIREMENTS

4.5.3 SWIMMING POOLS

DESIGN REQUIREMENTS
(Continued)

- where lanes, and/or lane markers are provided, they shall be of a highly contrasting colour. Tie-off devices for lane markers shall be positioned such that they do not create a tripping hazard;
- where starting blocks are provided, they shall be of a highly contrasting colour and capable of being securely fixed in place;

- safety equipment and other accessories shall be stored such that they do not present a tripping hazard; and
- lifeguard chairs, slides and other pool related structures shall be in highly contrasting colours.

Wading pool access shall be safe and gradual, so that a child with a *disability* can be assisted into the water easily and/or use a wheelchair to enter.

Swimming pools shall be of 'level-deck' design.

RELATED SECTIONS

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

4.5.4 LIBRARIES

4.5 FACILITY-SPECIFIC REQUIREMENTS

RATIONALE

Traditional and automated systems should be available to all patrons and staff. Both the design of the *facility* and the provision of services should be considered. Service counters and study carrels should accommodate the knee-space and armrest requirements of 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 4.1 to 4.4, 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 computer catalogues or workstations are provided, at least 50% shall be *accessible* and shall comply with this section. It is preferable to have all computer catalogues and workstations *accessible*, including the provision of information in Braille and large print.

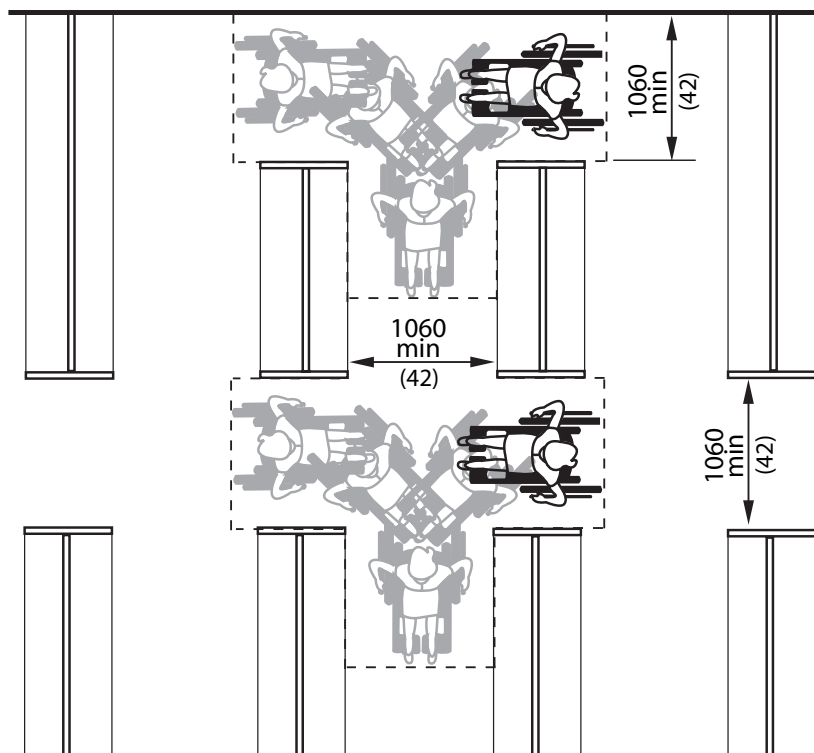


Figure 4.5.6.1
Aisle Width

4.5 FACILITY-SPECIFIC REQUIREMENTS

4.5.4 LIBRARIES

DESIGN REQUIREMENTS

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

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

Where shelving is provided at fixed seating, tables or study carrels, the shelving shall be no higher than 1200 mm (47 in.).

Accessible fixed study carrels shall incorporate

- work surfaces and knee/toe clearance in compliance with 4.1.1;
- an electrical outlet; and
- lighting levels of at least 100 lux (9.3 ft-candles) at the work surface.

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

Minimum *clear aisle space* at card catalogues and at

stacks shall comply with 4.1.1. Aisle configurations shall incorporate a *clear floor space* allowing a person in a wheelchair to make a 180-degree turn.

Maximum reach heights at card catalogues shall comply with 4.1.1.

Shelf height in stack areas is unrestricted.

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

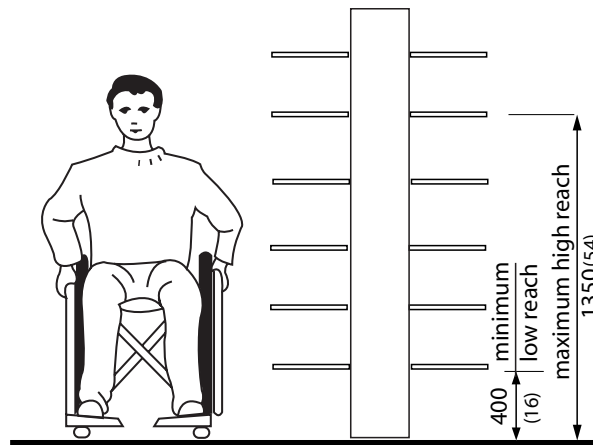


Figure 4.5.6.2
Reach Heights

4.5.4 LIBRARIES**4.5 FACILITY-SPECIFIC REQUIREMENTS**

Where provided, computer catalogue or computer workstation shall incorporate

- knee and toe *space* below in compliance with 4.1.1, and 4.3.7;
- a maximum work surface height of 865 mm (34 in.); and
- a maximum table depth of 900 mm (35 in.).

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

Book drop slots shall

- be located on an *accessible route* complying with 4.1.4;

- be located adjacent to a 2440 by 2440 mm (96 by 96 in.) level platform. In a retrofit situation where it is *technically infeasible* to create a 2440 x 2440 mm (96 by 96 in.) platform, the platform may be reduced to 1525 x 1525 mm (60 by 60 in.); and
- have a slot that is operable using one hand, located between 860 mm (34 in.) and 900 mm (35 in.) above the floor.

Lighting at book stacks shall be mounted directly over the aisle *space* and provide a minimum of 200 lux (20 ft-candles) at a nominal working height of 920 mm (36 in.).

The acoustic quality shall be free of unnecessary background noise and should permit comprehension by persons with limited hearing. (Refer also to 4.4.16.)

Where CDs tapes, talking books, etc. are available as part of the library resource materials, or for loan purposes, a separate *space* shall be provided for auditing this material without disturbing other library users.

RELATED SECTIONS

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

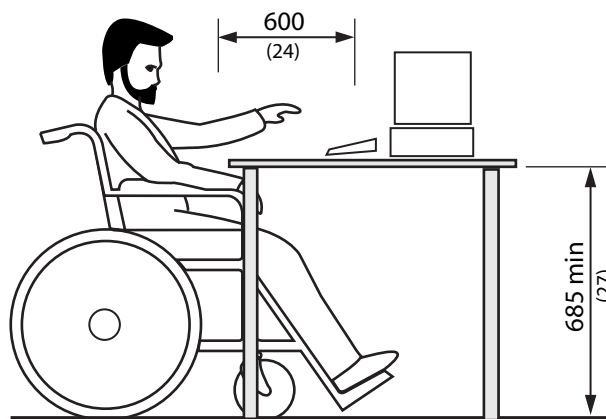


Figure 4.5.6.3
Work Surfaces

4.5 FACILITY-SPECIFIC REQUIREMENTS

4.5.5 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 should be available.

APPLICATION

In addition to the design requirements specified in 4.1 to 4.4, transportation *facilities* located within a site shall comply with this section.

DESIGN REQUIREMENTS

BUS SHELTERS

Bus shelters shall

- be located on firm, level pads approximately at the same elevation as the sidewalk or walkway;
- have clearances around at least two sides of the shelter, including the landing pad side, of at least 1220 mm (48 in.);
- provide a *clear* view of oncoming traffic;

- incorporate sufficient clear floor space to accommodate a person using a wheelchair or scooter; and
- feature at least one seat with armrests and a seat height between 400 mm and 450 mm (16 in. and 18 in.);

All glazed panels surrounding bus shelters shall incorporate decals, and other safety features as specified in 4.1.8.

BUS STOPS

Bus stops shall

- incorporate a paved, firm, level surface, in compliance with local authority standards; and
- not be impeded by adjacent street furniture, such as dispensers, vending machines, waste boxes, planters, posts, signs and guy wires.

TRANSIT TERMINALS

Where bus platforms or other boarding platforms are provided, they shall allow safe access for persons using wheelchairs, and where possible, provide level access into buses.

The edges of platforms shall incorporate a continuous *detectable warning* surface at least 610 mm (24 in.) wide that complies with 4.4.8.

Lighting levels at all boarding platforms shall be at least 100 lux (10 ft-candles) at the platform or boarding-surface edge.

Boarding locations shall incorporate visible and audible warning signals to advise travellers of approaching vehicles.

Where special lifting devices are used, either on the vehicle or at the boarding point, appropriate manoeuvring *space* shall be provided around the boarding point for waiting passengers using wheelchairs.

Seating shall be provided in compliance with 4.3.15, at or close to boarding points.

RELATED SECTIONS

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

UNIVERSAL DESIGN PRINCIPLES AND GUIDELINES

APPENDIX A

Version 2.0 - 4/1/97

Compiled by advocates of universal design, listed in alphabetical order: Bettye Rose Connell, Mike Jones, Ron Mace, Jim Mueller, Abir Mullick, Elaine Ostroff, Jon Sanford, Ed Steinfeld, Molly Story, and Gregg Vanderheiden

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

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UNIVERSAL DESIGN:

The design of products and environments to be usable by all people, to the greatest extent possible, without the need for adaptation or specialized design.

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

ers and consumers about the characteristics of more usable products and environments.

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

PRINCIPLE ONE: Equitable Use

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

Guidelines:

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

PRINCIPLE TWO: Flexibility in Use

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

Guidelines:

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

PRINCIPLE THREE: Simple and Intuitive Use

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

Guidelines:

- 3a. Eliminate unnecessary complexity.
- 3b. Be consistent with user expectations and intuition.
- 3c. Accommodate a wide range of literacy and language skills.
- 3d. Arrange information consistent with its importance.
- 3e. Provide effective prompting and feedback during and after task completion.

APPENDIX A

UNIVERSAL DESIGN PRINCIPLES AND GUIDELINES

PRINCIPLE FOUR: Perceptible Information

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

Guidelines:

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

PRINCIPLE FIVE: Tolerance for Error

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

Guidelines:

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

PRINCIPLE SIX: Low Physical Effort

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

Guidelines:

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

PRINCIPLE SEVEN: Size and Space for Approach and Use

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

Guidelines:

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

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