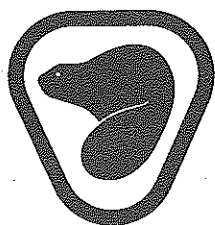


Access Series



Design Guidelines for Accessible Outdoor Recreation Facilities



Canadian Heritage
Parks Canada

Patrimoine canadien
Parcs Canada

Canada

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1.0 Introduction

Outdoor accessibility should encompass the global experience, not just provide a means of access to an area. Careful design and planning of outdoor facilities, as well as consideration of visitor needs and abilities, can create a more fulfilling recreation experience for everyone.

All individuals want to enjoy the outdoors with their families, friends and companions, as well as other visitors; therefore, accessible facilities should not be segregated. Close attention to the design and retrofit of outdoor facilities is needed to make them accessible to senior citizens and persons who have disabilities. As more and more people favour outdoor recreation experiences, an increased demand for accessible facilities is to be expected. Facilities designed to accommodate people with mobility, visual, and hearing impairments can incorporate elements that will enhance the recreation experience for everyone.

To have all recreation opportunities conform to accessibility standards is neither feasible nor desirable. All individuals, including those who have disabilities, elect areas that provide different experiences and varying degrees of challenge and difficulty. Visitor Activities planners should provide facilities, or portions of facilities, that conform to accessibility requirements, as well as other areas with different levels of challenge.

Accessibility standards, such as the Canadian Standards Association's CSA-B651 Barrier-Free Design, were developed primarily for buildings and their ancillary components; however, much of the information contained in this standard is applicable to outdoor recreation. The present document complements the CSA-B651 standard. It is a compilation of Parks Canada expertise in the field along with the best available information from Canada, US and Europe.

Where applicable, the specifications either match or exceed those contained in the CSA-B651. Matching requirements indicate the CSA reference number in brackets. Commentaries and drawings are included for explanatory and illustrative purposes. Commentaries are printed in ***bold italic*** to distinguish them from the requirements. Dimensions on the illustrations are expressed in millimetres, unless otherwise specified.

1.1 Federal Accessibility Requirements

The Government of Canada has developed its own requirements to ensure that all federal facilities are accessible to persons who have disabilities. Those requirements are contained in the Treasury Board (TB) policy on Accessibility (Chapter 1-6 of the TB Manual, Real Property volume) which, in turn, references the CSA-B651 Barrier-Free Design standard as the technical reference document to achieve accessibility. The objective of the policy is *"to ensure that persons with disabilities can gain access to, and use, federal real property"*. The policy also states: *"Custodian departments have primary responsibility for ensuring accessibility to persons with disabilities, and for planning appropriate capital and maintenance programs to ensure implementation of the accessibility policy"*.

Parks Canada is the custodian of Canada's national parks and historic sites and canals. Therefore, it has the responsibility to ensure that these facilities are accessible to all Canadians. To this effect, Parks Canada established the Access Program in 1990. The Access Program produced 118 access plans in 1990-91 and has since been overseeing the implementation of the federal accessibility policy in Canada's national parks and historic sites and canals. Parks Canada has acquired an international reputation for its commitment to accessibility and its achievements in the field.

1.2 Philosophy

Making national parks and historic sites and canals accessible to people who have disabilities can be quite a challenge. When building new facilities, custodian departments must comply with the TB policy on Accessibility and the CSA-B651 Barrier-Free Design standard. As for the retrofit of existing facilities, some leniency may be exercised if existing areas or components are within an acceptable range of the specified standard and can effectively be used by persons who have disabilities.

As a rule, it does not make sense to modify an area or component to standards less stringent than those specified in the CSA-B651 standard. However, when it comes to national parks and historic sites and canals, we may not have the choice. Terrain conditions or topography, fixed building constraints, or historic fabric, may make it difficult to apply the accessibility requirements to the letter. Should a decision be made to modify areas or facilities to a less stringent degree of accessibility, Parks Canada will consult agencies that represent persons who have disabilities.

Persons with disabilities visiting national parks or historic sites and canals should be able to experience equivalent amenities if it is impossible to make an entire facility fully accessible. This could mean making one or two representative trails accessible to persons with disabilities. Or else provide a video, scale model or photo album of second-floor exhibits in a heritage building where second-floor accessibility would involve irreversible damage to the historic fabric of the facility.

Facilities, although not fully accessible, can be used by some persons with disabilities. This concept is discussed in the section on trails. It involves the notion of *levels of challenge* and implies objectively describing an area or facility at its entrance or starting point, so that persons with disabilities can decide whether or not to participate in a particular recreation opportunity in light of their self-assessed abilities.

2.0 Auxiliary Facilities

2.1 Accessible Parking

All designated parking spaces must be connected to a continuous accessible route of travel. Accessible parking spaces must be provided in conformance with the table below.

The following parking requirements are included in section 1.1, Appendix B, of the TB policy on Accessibility.

Total number
of parking spaces

Minimum number
of accessible spaces

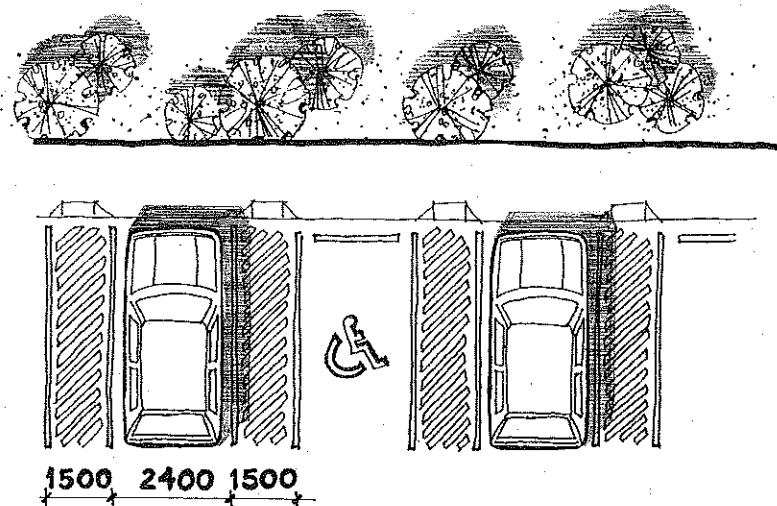
| | |
|----------------------|--------------------|
| up to 25 | 1 |
| 26 - 50 | 2 |
| 51 - 75 | 3 |
| 76 - 100 | 4 |
| 101 - 150 | 5 |
| 151 - 200 | 6 |
| 201 - 300 | 7 |
| 301 - 400 | 8 |
| 401 - 500 | 9 |
| more than 500 | 2% of total |

2.1.1 Car Parking Spaces (CSA 7.2)

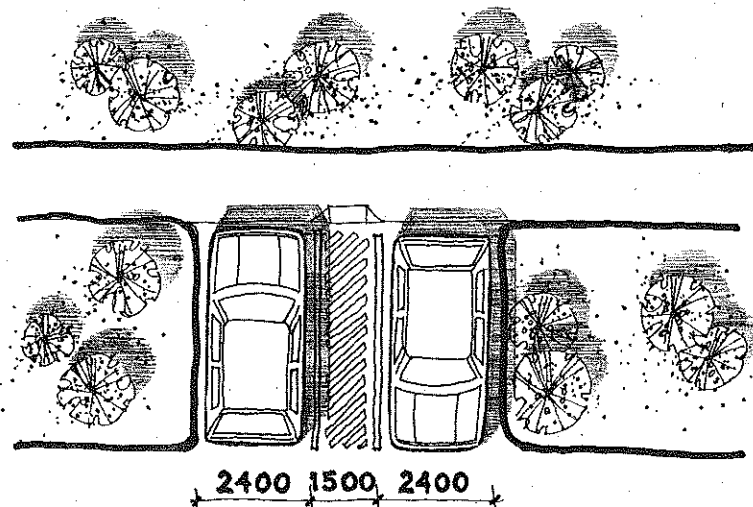
Car parking spaces shall

- a) be at least **2400** mm wide;
- b) have an adjacent access aisle at least **1500** mm wide;
- c) have a firm, level surface; and
- d) where surfaces are paved, have access aisles clearly indicated by markings.

Accessible parking spaces should be located on the shortest possible circulation route to the entrance or starting point of a facility. Their location should not require persons in wheelchairs to travel behind parked cars.



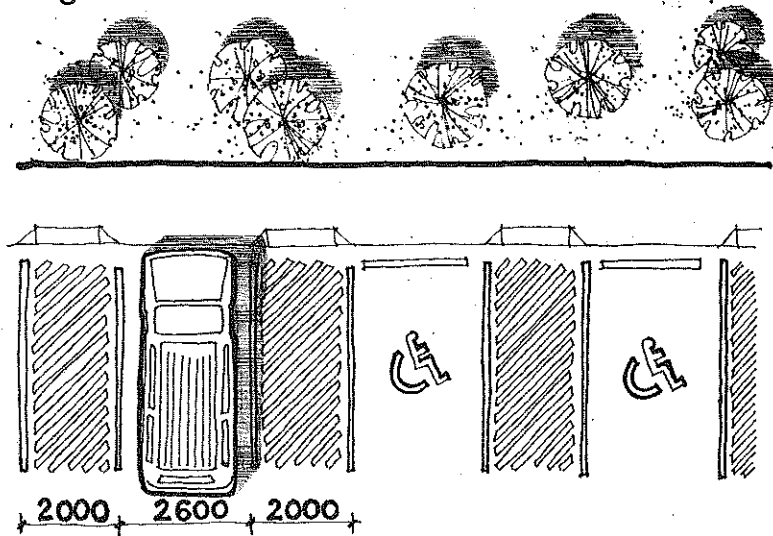
Where space is limited, two vehicles may share a common access aisle.



2.1.2 Van Parking Spaces (CSA 7.3)

Van parking spaces shall

- a) be at least **2600** mm wide;
- b) have an adjacent access aisle at least **2000** mm wide;
- c) have a height clearance of at least **2750** mm;
- d) where surfaces are paved, have access aisles clearly indicated by markings; and
- e) for parallel parking spaces, be at least **2600** mm wide x **7400** mm long.

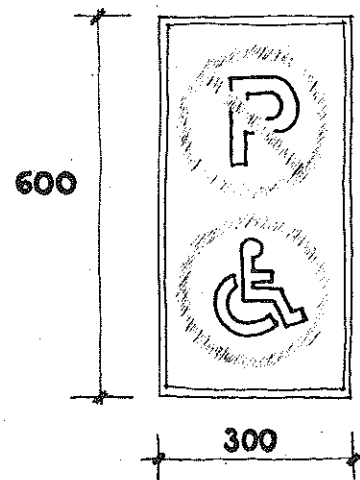


Although the TB policy is not specific on the type of parking spaces to be provided, some van parking spaces should be available at Parks Canada facilities.

2.1.3 Signs (CSA 7.4)

Accessible parking stalls shall be designated as reserved for use by persons with physical disabilities by

- a) the uniform traffic control sign, mounted vertically at a height of **1500** mm from the ground; and
- b) where surfaces are paved, by the international access symbol, **1000** mm long, centered on the parking space.



2.1.4 Passenger Loading Zones (CSA 7.5)

Passenger loading zones shall

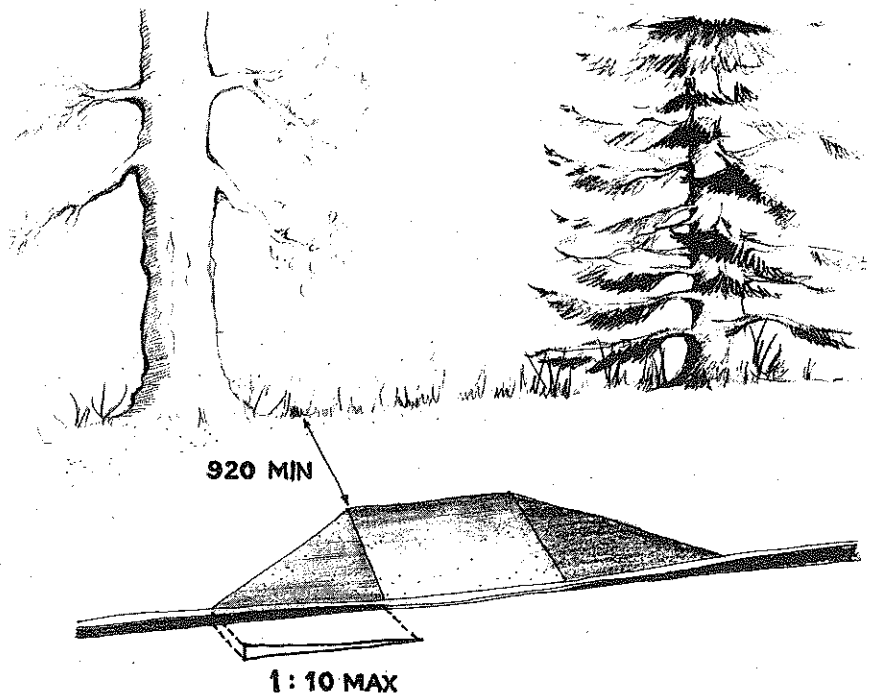
- a) provide an access aisle at least **1500 mm** wide and **6000 mm** long adjacent and parallel to the vehicle pull-up space; and
- b) have a curb ramp complying with section 2.1.5 where there is a curb between the access aisle and the accessible route leading to a facility.

2.1.5 Curb Ramps (CSA 4.4)

Curb ramps shall

- a) have a maximum running slope of **1:8**;
- b) have a minimum width of **1200 mm**, exclusive of flared sides;
- c) have a slip-resistant surface that is colour- and texture-contrasted with the adjacent surfaces;
- d) have immediately adjacent gutters and road surfaces with a maximum counterslope of **1:20**; and
- e) have flared sides with a maximum slope of **1:10** where pedestrians are likely to walk across them.

Curb ramps do not require handrails. They should be as gradual as possible and should not project onto a road surface. Where possible, there should be a level walking space at least 920 mm wide at the top of curb ramps so pedestrians can avoid walking across them.



2.2 Built Facilities

2.2.1 Contemporary Buildings

The visitor reception centre (VRC) as well as other buildings and their immediate surroundings must comply with the Treasury Board policy on Accessibility (Chapter 1-6, TB Manual, Real Property volume) and the CSA-B651 Barrier-Free Design standard. Public Works and Government Services Canada has published the *Accessibility Evaluation Guide* to help assess federal buildings against the above-mentioned accessibility requirements.

2.2.2 Heritage Buildings

With respect to historic buildings, the TB policy states the following in section 5, Appendix B:

"The requirements for heritage facilities are the same as those for other Crown-owned facilities except where these requirements will significantly reduce the heritage quality of the facility. Some deviation from the standard is permitted provided a local or regional committee consisting of persons with expertise in accessibility issues and the Federal Heritage Buildings Review Office (FHBRO), which represents federal heritage considerations, have agreed to the accessibility requirements, and the following requirements are met:

- *access must be provided to at least one main level in the facility;*
- *there must be full access to government services and employment opportunities;*
- *where washroom facilities are provided in an inaccessible location, equivalent facilities that are accessible must also be provided; and*
- *for inaccessible exhibitions, another version of the exhibition, such as a video display, must be provided in an accessible area."*

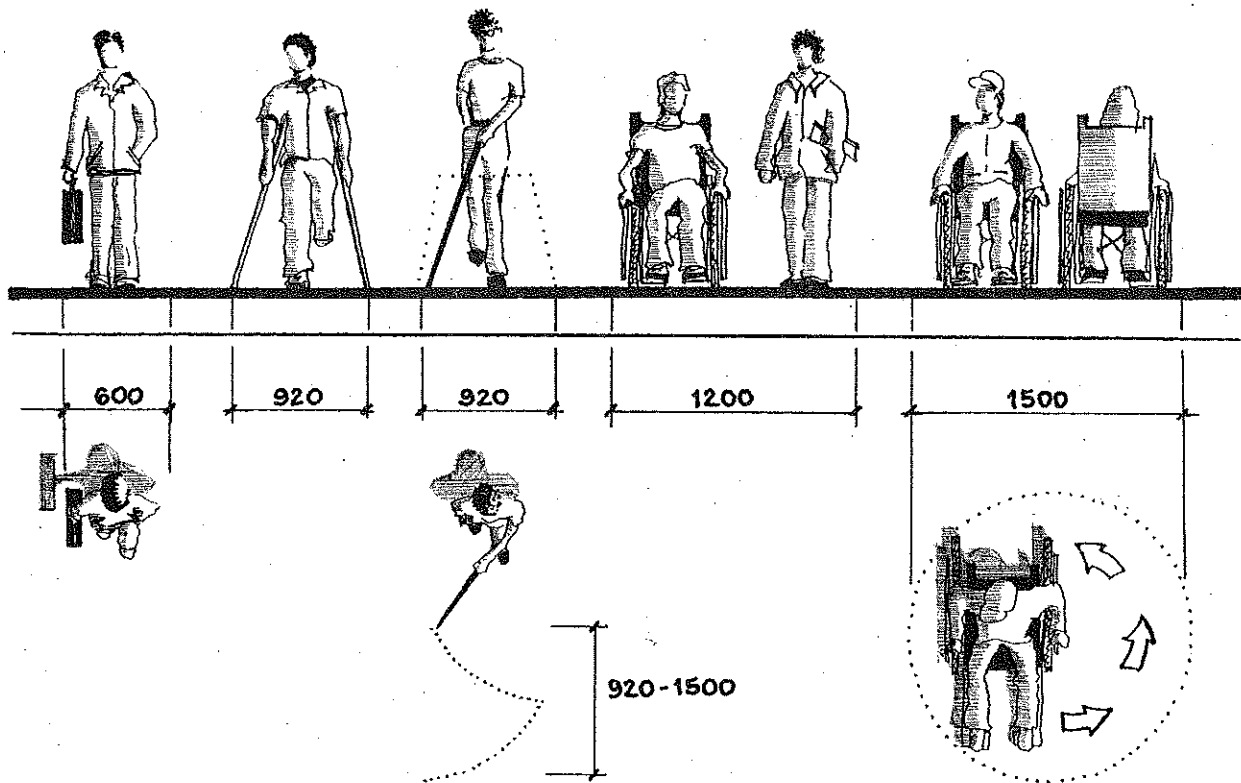
The Heritage Conservation Program, Architecture and Engineering for Parks Canada, has produced a document entitled *Accessibility for Historic Properties* which helps designers with the delicate task of providing access to historic buildings with the least impact on heritage character.

3.0 General Requirements

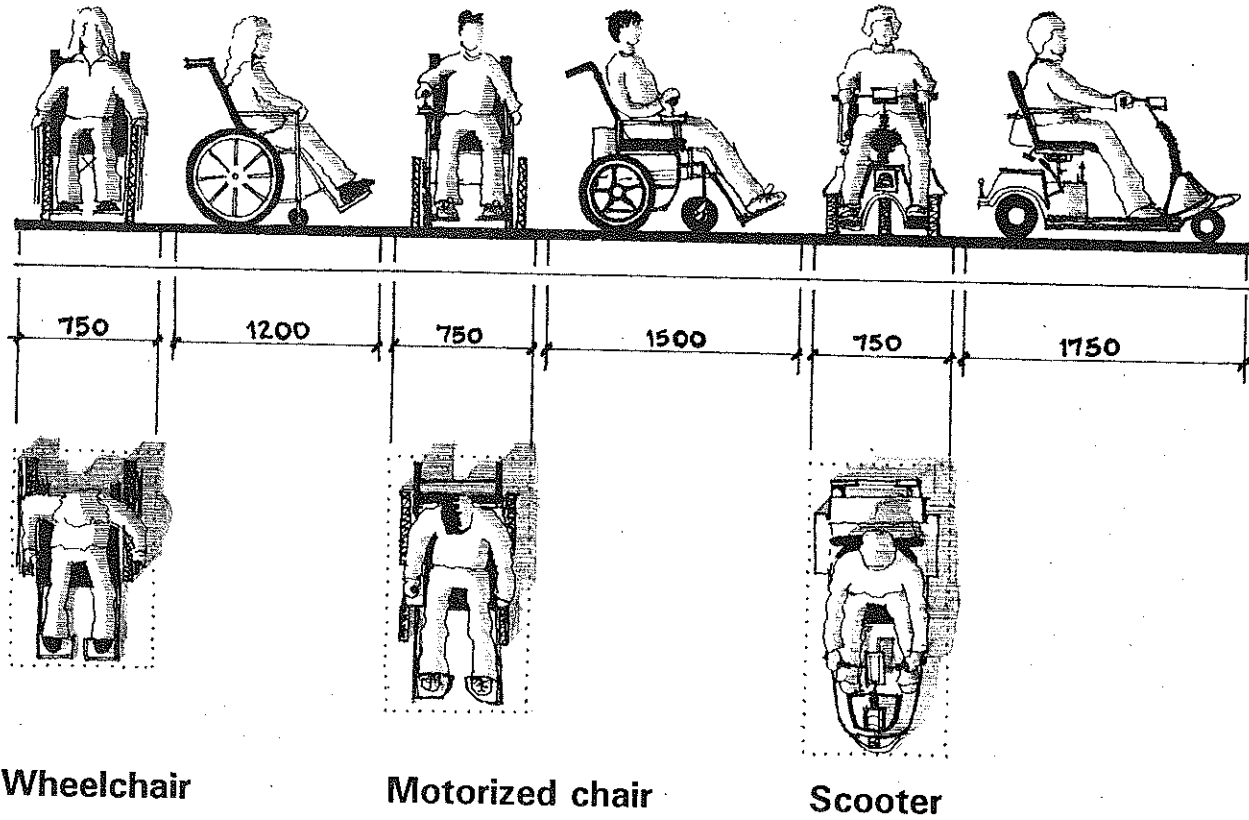
3.1 Reference Dimensions

This section contains dimensions that can be used for guidance when designing facilities and equipment to be used by persons who have disabilities.

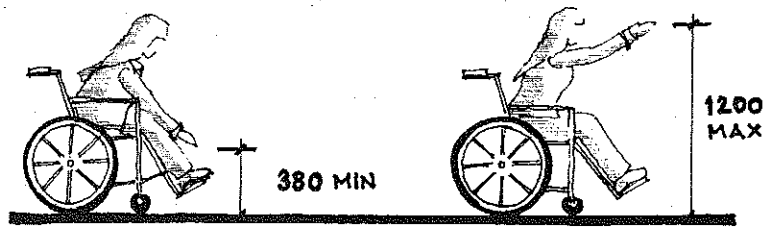
3.1.1 Space Allowances



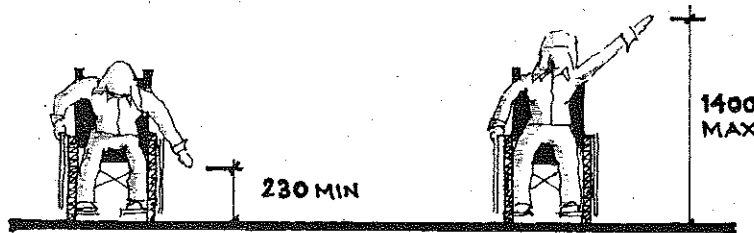
The minimum clear floor or ground area required to accommodate a single, stationary wheelchair, motorized wheelchair or scooter are as follows:



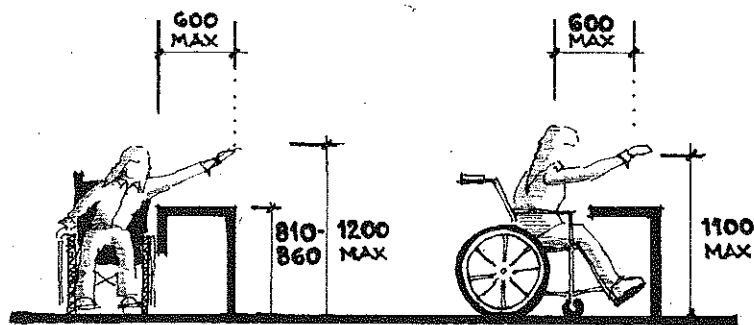
3.1.2 Reach Ranges of a Person in a Wheelchair



Forward reach without obstruction



Side reach without obstruction



**Side reach
over obstruction**

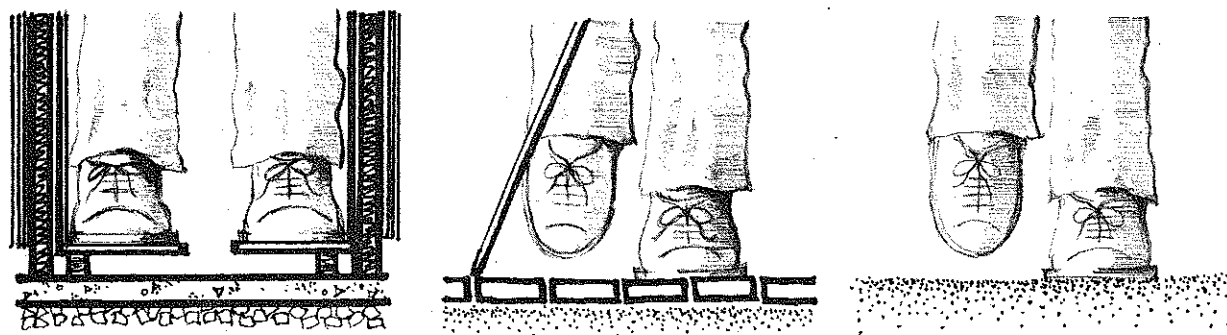
**Forward reach
over obstruction**

3.2 Ground Surfaces

3.2.1 General

Ground surfaces shall be firm, stable and slip-resistant (CSA 3.3.1).

A **firm** surface is highly resilient to deformation under concentrated loads. For example, the bearing surface of a crutch, cane tip or wheelchair tire is considerably smaller than the net area of the average shoeprint. A **stable** surface is one that does not move unpredictably when subjected to pedestrian traffic. A **slip-resistant** surface is, by definition, not slippery under wet or dry conditions.



In decreasing order of accessibility, the following surfaces offer different levels of challenge.

Consideration should be given to selecting surfaces that blend with the environment, whether urban, natural or historic.

Concrete:

Concrete must be placed on a well prepared base that is clean and free of debris. Finishes should have a light texture - such as a broom finish - so that the surface is not slippery when wet. The trail or pathway should drain the water off the surface so that it does not stand or freeze.



Asphalt:

Asphalt should also be carefully laid and maintained. An epoxy finish, coated with sand, may be used to give a natural appearance to the pathway and reduce softening problems in very sunny locations.



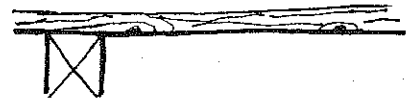
Crushed Aggregate Screenings:

Crushed aggregate screenings (CAS) can be any decomposed granite, crushed stone, chat, limestone, quarry fines or stone dust that is 6 mm (1/4") or finer in size. Trails or pathways surfaced with CAS can be accessible if correctly designed and constructed, and adapted to regional climatic conditions. A soil binder can be used to stabilize the surface.



Wood Decking:

Wood decking may be used for trails and pathways, providing joints are less than 13 mm wide and the planks are laid perpendicular to the direction of travel. Warpage and movement of the material should be controlled.



Concrete Pavers:

Concrete pavers, set on a properly constructed base, can provide an accessible surface. However, movement of the material over time may cause unacceptable irregularities.



Grass:

A grass surface can be passable if it is level and well maintained. Grass can be reinforced by using commercially produced sub-surface matting.

**Untreated Soil:**

Untreated soil is highly variable. Some situations may be acceptable, and others more difficult. Soil is likely to change significantly due to precipitation, erosion, or wear.

**Gravel:**

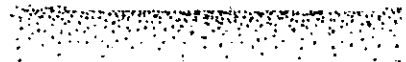
Loose gravel is not recommended. It can be difficult for a person in a wheelchair or with walking aids. Packed gravel may be suitable for challenge opportunities.

**Wood Chips:**

Small gauge chips make an attractive surfacing material. When well compacted, wood chips may be passable for challenge opportunities.

**Sand:**

Loose sand is not recommended for trail surfaces. Packed sand may be passable.



3.2.2 Changes in Level (CSA 3.3.2)

Changes in level between 0 and 6 mm may be vertical, and between 6.1 and 13 mm shall be bevelled to a maximum slope of 1:2. Changes in level greater than 13 mm shall be treated as a curb ramp or ramp.

3.2.3 Changes in Material, Texture, Colour

Where possible, use separate textural or colour cues to indicate

- a) risk areas, such as steps, ramps or intersections; and
- b) functional changes, such as seating areas or view points.

Warning textures should begin at least 900 mm before a hazard or point of interest is encountered, and convey a consistent message. Grade changes between materials should be less than 6 mm high.

Tactile and visual cues alert blind and visually-impaired persons that they are approaching an area of concern or interest. Differentiate the colour and texture of the ground surface when a change in level occurs, otherwise, persons with visual impairments may overlook ramps or steps. Materials with different noise and resiliency characteristics are more detectable than changes in texture alone. Warning textures and colours should be used, where possible, in urban settings and other high-use areas. If used on a site, they must be used consistently throughout. Partial or inconsistent use will be dangerous.

3.2.4 Gratings (CSA 3.3.4)

Gratings located on walking surfaces shall

- a) be securely fixed;
- b) have spaces not greater than 13 mm wide in one direction; and
- c) be placed so that their long dimension is perpendicular to the dominant direction of travel.

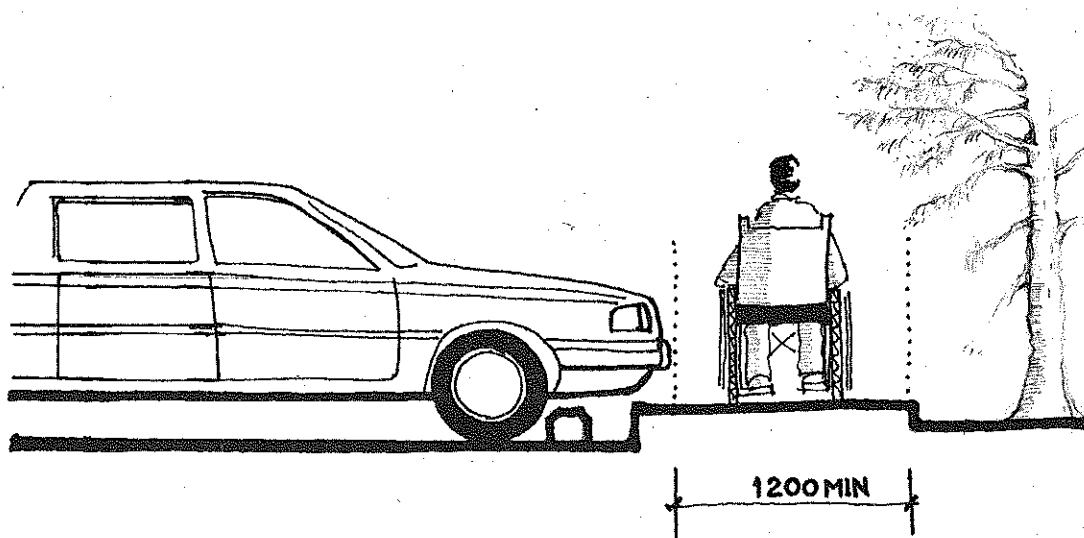
3.3 Circulation

An accessible route of travel should conform to the following specifications:

3.3.1 Width (CSA 4.1.1 e,f)

The minimum clear width of outdoor accessible routes shall be 1200 mm except where space is required for two wheelchairs to pass, it shall be 1500 mm.

The width of a trail or pathway is the narrowest clear dimension along its length. A trail that averages 1500 mm but narrows to 1200 mm should be defined as a 1200 mm trail. On busy two-way trails or pathways less than 1500 mm wide, passing areas a minimum of 1500 x 1500 mm should be provided every 45 to 120 m, depending on the level of challenge (see 3.3.3).

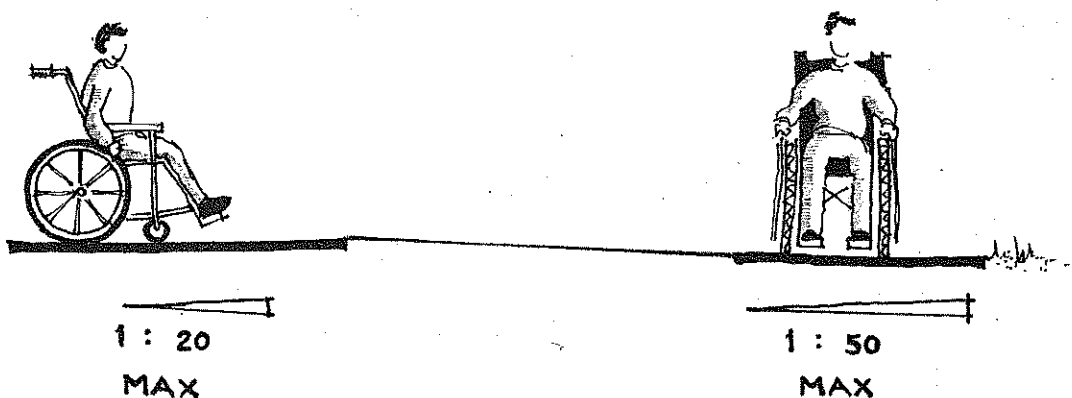


3.3.2 Slope (CSA 4.1.2)

Accessible routes shall

- a) have a running slope not steeper than **1:20**;
- b) have a cross slope not steeper than **1:50**; and
- c) be designed as a ramp complying with section 4.4, if the slope is steeper than **1:20**.

Natural topography or historic grounds may not make it possible to achieve a 1:20 slope. Routes that do not fully comply with accessibility standards but that may be useable by persons in wheelchairs - with or without assistance - should not have vertical changes in level exceeding 6 mm along their path, and have a sign at their starting point objectively describing the terrain conditions ahead. In certain areas, handrails can be added for guidance or support.



3.3.3 Sustained Grades

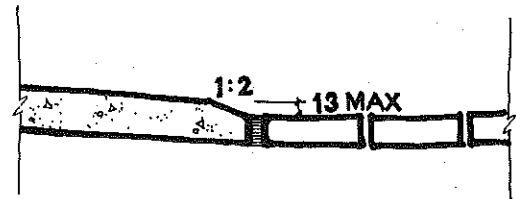
A sustained grade should

- a) have a running slope not steeper than **1:20**;
- b) have a maximum length between **45** and **120** m, depending on the level of challenge (see table in section 4.2.7); and
- c) have a level rest area a minimum of **1500 x 1500** mm at the end of each length of slope.

3.3.4 Thresholds (CSA 4.2.5)

Thresholds shall

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



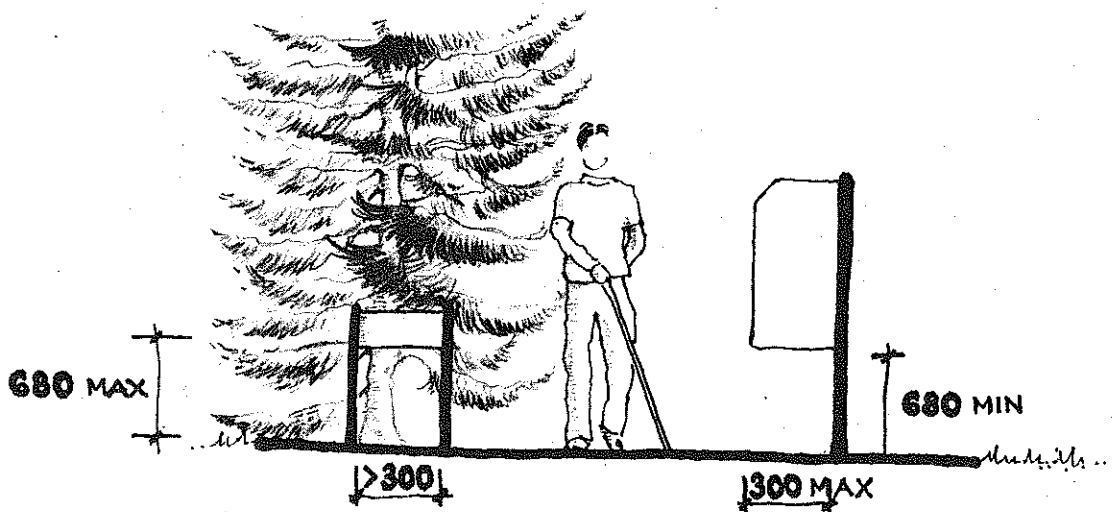
3.3.5 Freestanding Objects (CSA 3.4.3 & 3.4.4)

Freestanding objects shall not reduce the clear width required for an accessible route or for manoeuvring space. They shall not have an overhang of more than **300 mm** when situated between **680** and **1980** from the ground.

Obstacles that project into the line of travel, (e.g. protruding site furniture, signs or vegetation) create hazards. The trail should be cleared to the desired width to provide safe and unimpaired movement.

Freestanding objects with a space of more than **300 mm** between supports shall have their bottom edge not more than **680 mm** from the ground.

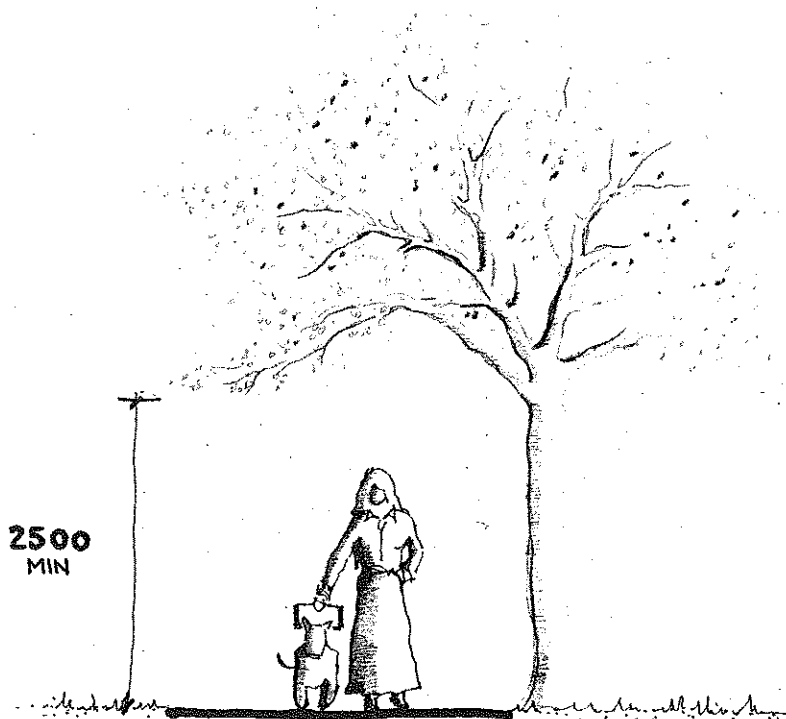
*A horizontal element placed between supports at or below **680 mm** from the ground will act as a tactile cue as well as brace the installation.*



3.3.6 Headroom

The minimum clear headroom in outdoor pedestrian areas, such as pathways, trails, campgrounds, playgrounds and beaches, should be **2500 mm**. Indoors, a minimum clear headroom of **1980 mm** is sufficient (CSA 3.4.5).

Barriers that project into the line of travel (e.g. guy wires, low-hanging branches) create hazards for all trail users, but particularly for people who are blind or visually impaired. If trails or pathways are used in winter, the clear headroom should not be reduced by snow accumulation.



3.3.7 Detectable Guard (CSA 3.4.5.2)

A railing or other cane-detectable barrier having its leading edge at or below **680 mm** from grade shall be provided where the headroom of an area adjoining an accessible route is reduced to less than **1980 mm**.

These barriers will prevent blind and visually-impaired individuals from walking into potentially hazardous areas, such as the underside of stairs or bleachers.

4.0 Outdoor Recreation Facilities

4.1 Signs

Signs should comply with the Parks Canada Sign Manual. A well planned and designed sign system is an essential component of an access network. Signs must be clearly visible and logically placed. Areas identified as accessible should meet all the specified requirements. When an area or facility does not meet all the accessibility criteria, it is essential to objectively describe that area or facility to persons with disabilities to assist them in deciding whether or not to enter it:

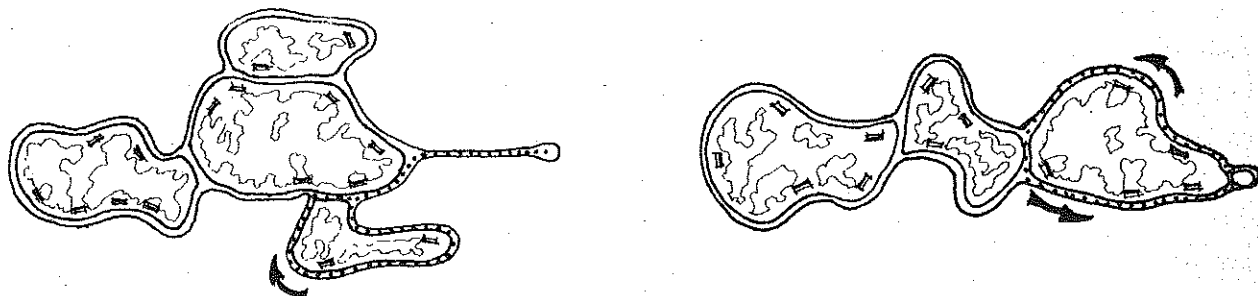
4.2 Trails

Trails designed to accommodate persons with disabilities can incorporate elements that will enhance the recreation experience for all people: wider trails with firm, level surfaces and defined edges offer safe and easy access to all, including parents with strollers, children and elderly persons.

Trails should comply with section 3.3 on circulation and with the following specifications.

4.2.1 Form

There is no particular form of trail best suited for accessibility. Trail layouts that offer opportunities for a number of distance combinations and graduated challenges in terrain conditions, such as the loop form or variations of it, are most suitable.



4.2.2 Length

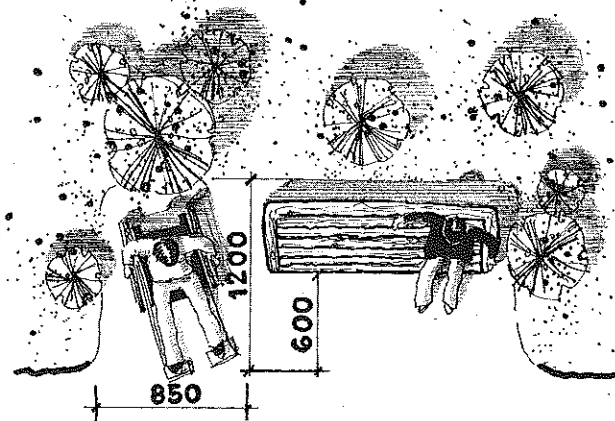
The length of a trail or pathway is the distance between two facilities, such as a parking area and a lookout. The entire length of a trail should meet the level of challenge for which it was designed. It is difficult to establish arbitrary trail lengths for accessibility. Trail lengths are determined by individual endurance levels, difficulty of terrain, and degree of grade changes. Accordingly, a relatively short trail (e.g., less than 1 km) may be as demanding if the terrain is difficult as a much longer trail (e.g. 5 or 6 km) where the terrain is firm and level. There is no maximum limit. The solution is to provide options and graduated challenges.

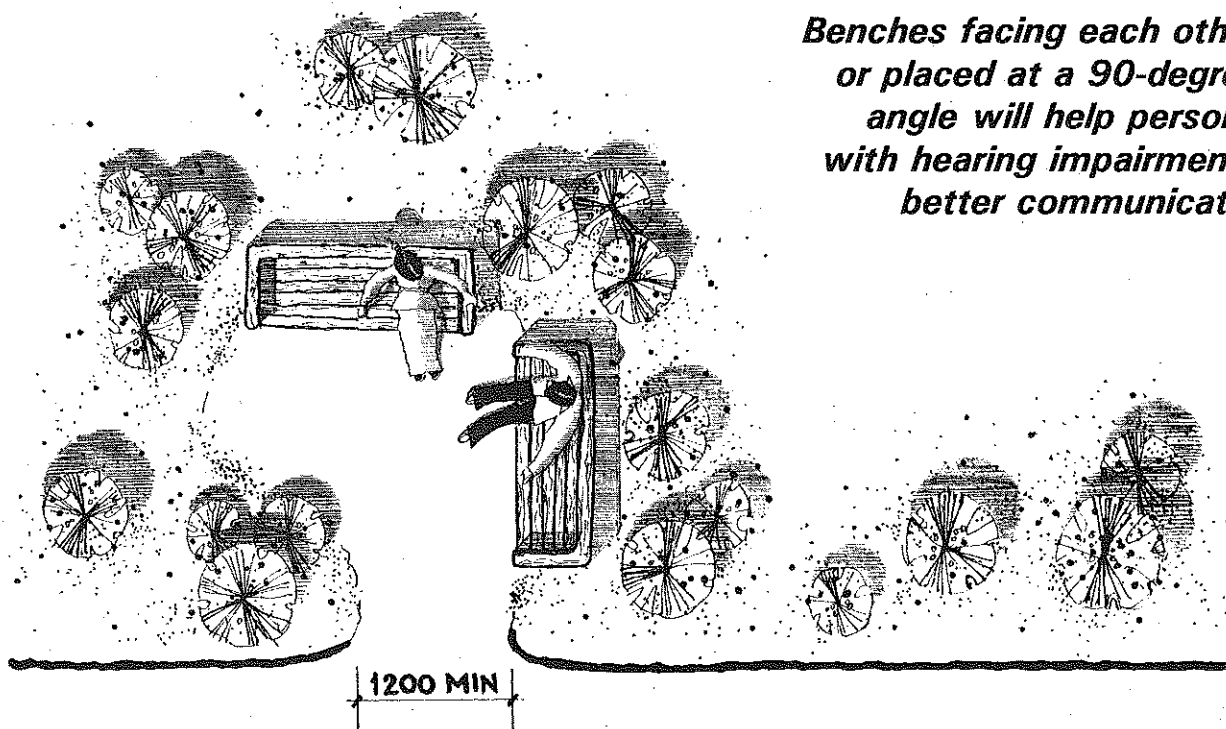
The trail length and terrain conditions should be clearly indicated at the trailhead.

4.2.3 Rest Areas

Accessible trails should provide rest areas at intervals of **45 to 60 m**. The rest areas should be level, out of the way of circulation, and should have benches conforming to section 5.1.7. of this document. Rest areas should be set back a minimum of **600 mm** to avoid creating obstacles along the trail. Where possible, the surface of the rest area should contrast with the surface of the trail.

Shelter from the weather may be desirable where it is very hot or where there is frequent rainfall. Take advantage of natural shade where possible. Rest areas should be farther apart on more challenging trails to maintain the desired experience.





Benches facing each other or placed at a 90-degree angle will help persons with hearing impairments better communicate.

4.2.4 Shoulders

The shoulders of an accessible trail should be cleared a minimum of 500 mm wide with a slight slope away from the trail. A 2500 mm vertical clearance should also be maintained.

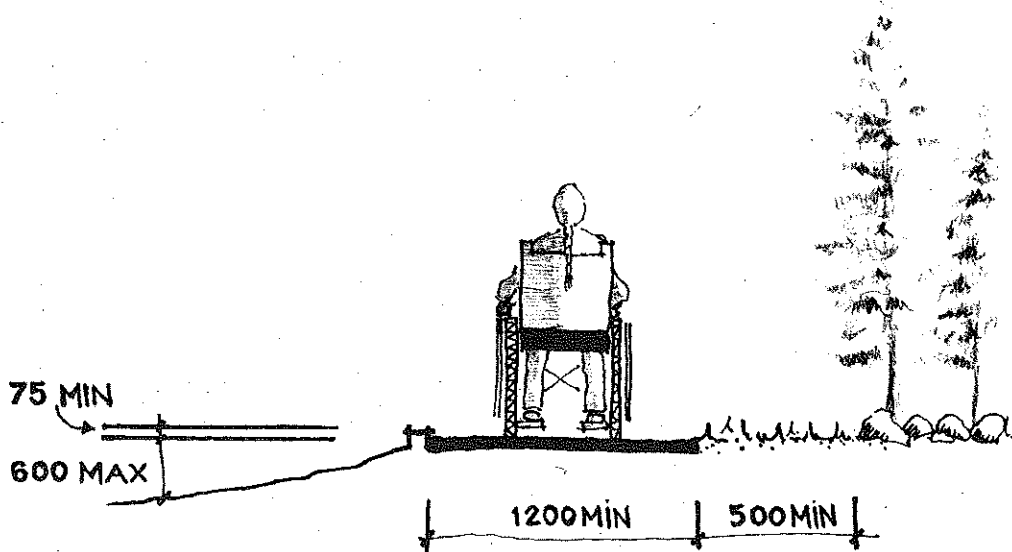
A texture or colour contrast between the trail surface and the shoulder will help blind and visually-impaired hikers remain on the trail. The natural contrast offered by vegetation, underbrush or ground cover may be sufficient.

4.2.5 Edges

A 75 mm curb should be provided where the vertical drop from the trail exceeds 75 mm, and where there are hazards along the trail.

A 1070 mm guard should be provided where the vertical drop from the trail exceeds 600 mm, and where needed for safety, as detailed in section 4.3.

The trail edge should be well defined and consistent. Even if no vertical drops or hazards are present, providing a 75 mm curb on at least one side of the trail will offer a "shoreline" for blind and visually-impaired persons who use canes. Higher curbs may present a tripping hazard.



4.2.6 Site Contouring

When planning site contouring for physical definition of the trail edge or location of clear viewing points, consider that the eye level of a person in a wheelchair is situated between 1100 and 1300 mm from the ground.

4.2.7 Levels of Challenge

Accessible trails should meet the requirements of the CSA-B651 Barrier-Free Design standard and be identified as such with the international symbol of access.

Other trails that do not meet the legal accessibility requirements may nonetheless be useable by some people with disabilities. Trailhead signs should objectively describe the trail length and conditions, so that visitors can decide for themselves whether or not to use the trail.

The headings Useable and Difficult are used for internal categorization purposes and must not be present on trailhead signs. Trails with conditions more challenging than those defined as Difficult should be described as well for the benefit of more adventurous hikers with disabilities. Portions of Useable or Difficult trails can have naturally accessible slopes and widths.

| Trails | Accessible | Useable | Difficult |
|-----------------------------------|---|--|---|
| General | Stable, firm and slip-resistant surface with light texture. Maximum widths. Flat to easy slopes. Defined edges. Frequent rest areas. No obstacles. | Stable, firm and slip-resistant surface with moderate texture. Average widths. Moderate slopes. Implied edges. Less frequent stops. No obstacles. | Firm surface. Difficult slopes. Some defined edges. Natural stops and rest areas. May find obstacles. |
| Maximum running slope | 1:20 (5%) | 1:16 (6.25%) | 1:12 (8.33%) |
| Maximum slope for short pitches | Over 1:20 (5%) : must be designed as a ramp | 1:12 (8.33%) | 1:8 (12.5%) |
| Maximum cross slope | 1:50 (2%) | 1:30 (3.33%) | 1:20 (5%) |
| Width | 1200 - 1500 mm | 920 - 1200 mm | 810 - 920 mm |
| Edge | 75 mm curb on at least one side and where change in level is more than 75 mm high. 1070 guard where over 600 mm. | Distinct change of material at the edge of the trail. 75 mm curb and 1070 mm guard at difficult and hazardous locations. | 75 mm curb at difficult and hazardous locations. |
| Surface | Concrete, asphalt, pavers, stabilized crushed aggregate screenings (CAS), perpendicular wood decking. | Packed crushed aggregate screenings, grass, untreated soil. | Gravel, wood chips. |
| Interval between level rest areas | 45 - 60 m | 90 - 120 m | 300 - 400 m |

4.3 Guards and Handrails

4.3.1 Guards

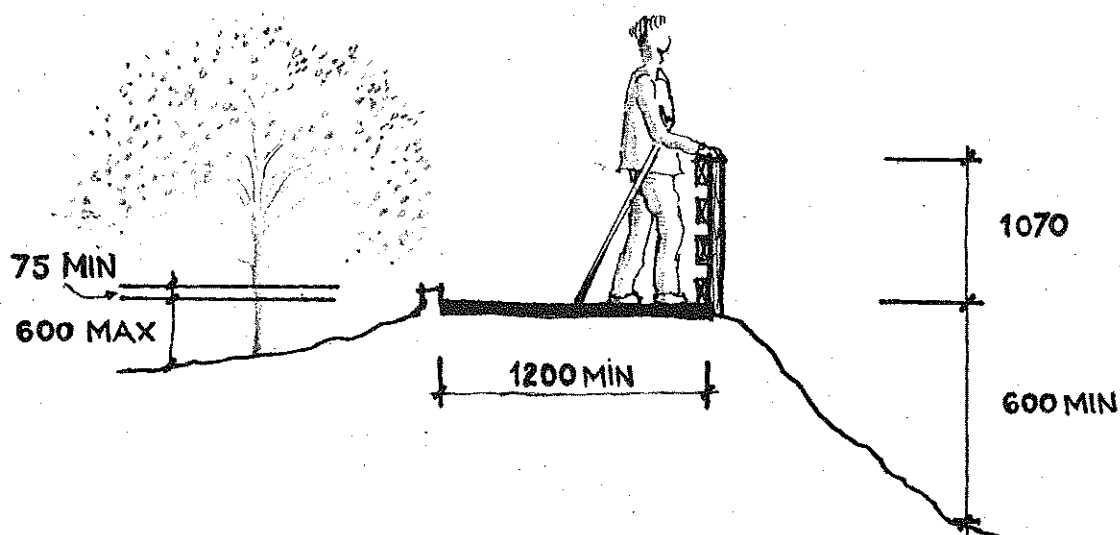
A guard should be provided at the edge of accessible routes

- where the change in level is greater than 600 mm; and
- at hazardous locations.

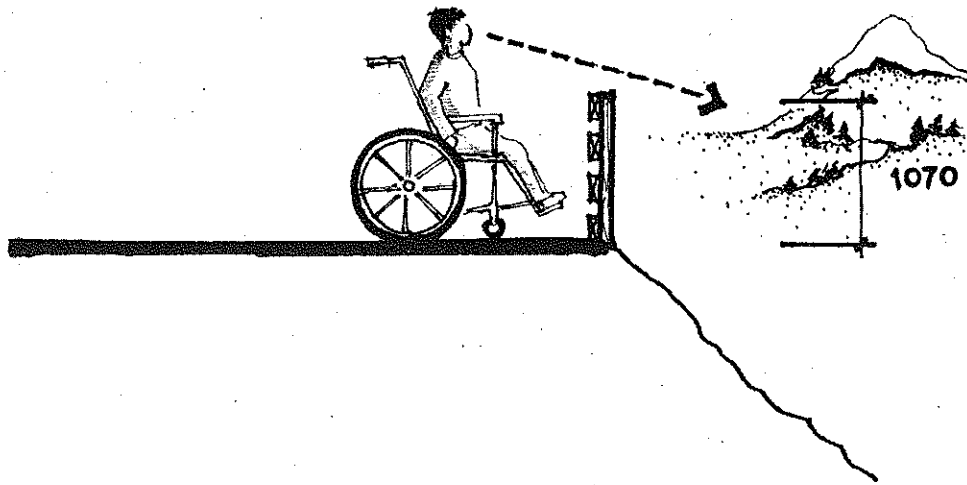
Guards should

- be **1070** mm high;
- have horizontal guardrails equally spaced, parallel and not more than **460** mm apart, or balusters equally spaced, parallel and not more than **200** mm apart; and
- be firmly fixed and be able to resist a force of up to **1.3 kN** (300 lbs) applied vertically or horizontally.

A guard is a protective barrier used between level changes to prevent accidental falls from one level to another. Bridges, lookouts, fixed or floating boardwalks may be potential hazards if no guards are present. Most guards consist of posts, guardrails or balusters, and curb rails. Handrails should be added when needed for support or guidance.



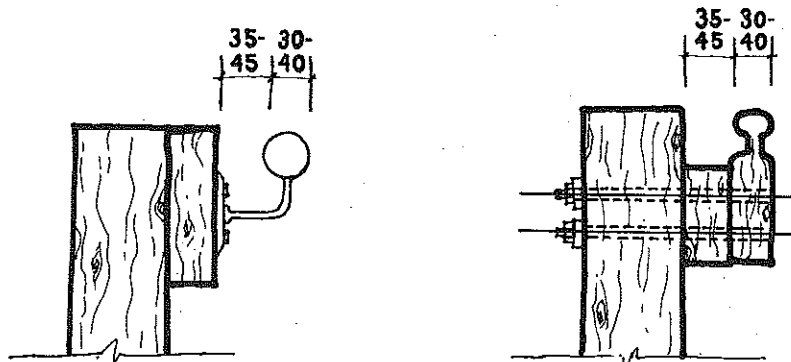
At view points, ensure that guardrails or balusters do not obstruct the view of children or persons in wheelchairs. Consider that the eye level of a person in a wheelchair is situated between 1100 and 1300 mm from the ground.



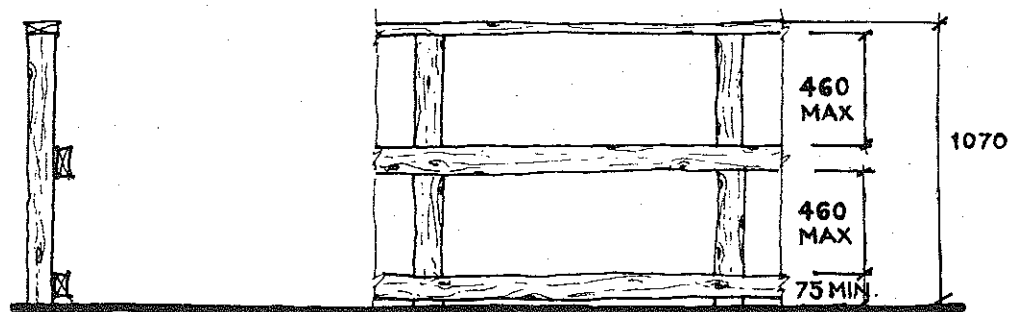
4.3.2 Handrails (CSA 4.6.1)

Handrails shall

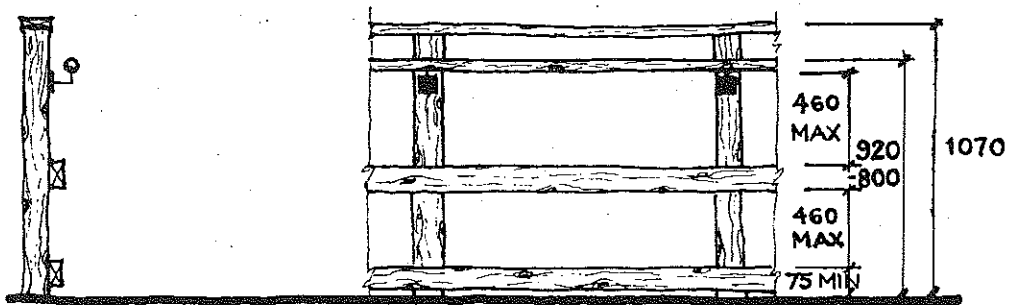
- have a circular section **30** to **40** mm in diameter or an alternative shape providing the same gripping surface;
- be free of any sharp or abrasive elements;
- be firmly fixed and be able to resist a force of up to **1.3 kN** (300 lbs) applied vertically or horizontally;
- have continuous gripping surfaces, without any interruption by newel posts, other construction elements, or obstructions that can break a hand hold; and
- have a clear space between the handrail and the adjoining surface of **35** to **45** mm, or at least **60** mm where the surface is rough.



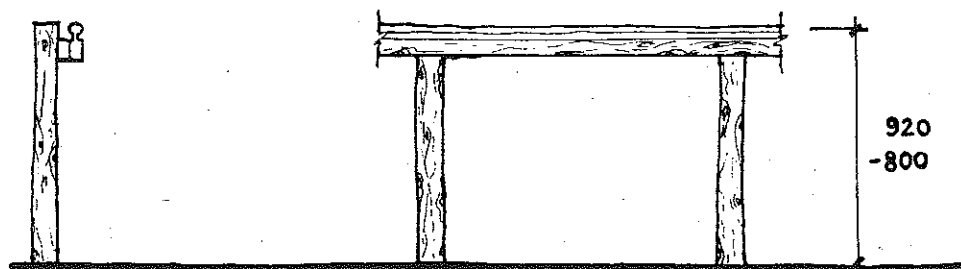
A handrail is a linear structure designed to guide movement, support weight, and aid wheelchair users in pulling themselves up slopes. Handrails must be graspable and continuous.



Guard



Guard with handrail



Handrail

4.4 Ramps

In built environments and in high-use outdoor areas, stairs should be provided adjacent to ramps because some mobility-impaired individuals prefer stairs to ramps.

4.4.1 Running Slope

The allowable slope varies with the vertical rise and horizontal run, and should conform to the following table:

| Slope | Maximum horizontal run between landings | Maximum vertical rise between landings |
|-------------------------------|---|--|
| 1:20 or less (5% or less) | No maximum | No maximum |
| 1:12 - 1:19.9 (5.1 - 8.3%) | 9000 mm | 750 mm |

4.4.2 Cross Slope (CSA 4.3.2)

The maximum cross slope of ramp surfaces shall be **1:50 (2%)**.

4.4.3 Width (CSA 4.3.3)

The minimum clear width of an outdoor ramp shall be **920 mm**.

The width of an outdoor ramp should vary according to the volume of pedestrian circulation. Where an alternate means of vertical circulation is provided, such as stairs, a 920 mm width is sufficient. If the ramp is the only way up to an area or facility, it should be wide enough to accommodate two-way circulation, i.e. a minimum of 1200 mm wide.

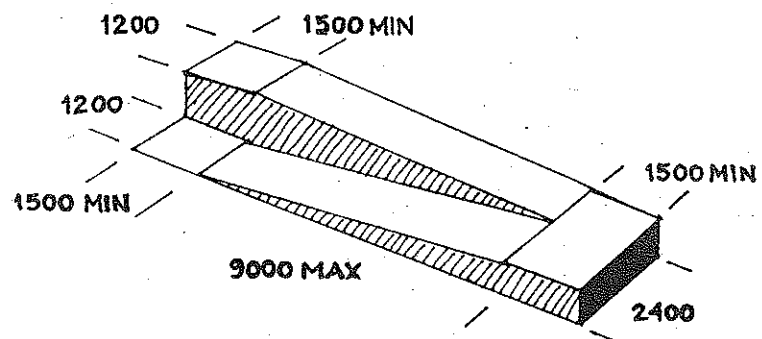
4.4.4 Landings (CSA 4.3.4)

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

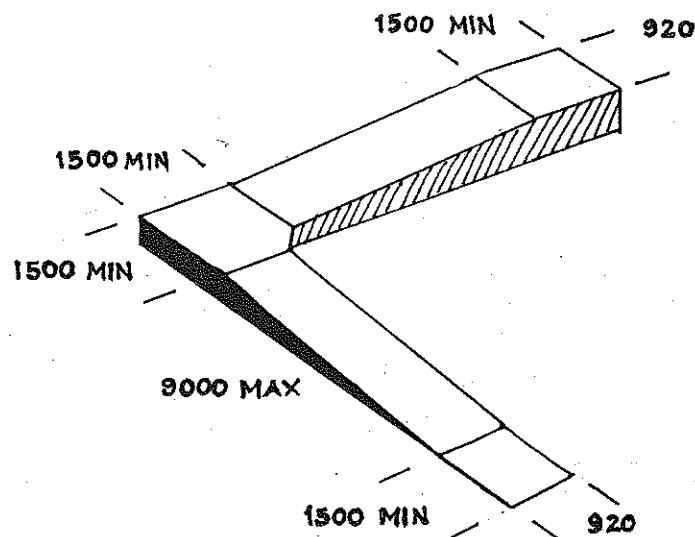
The landing shall

- a) be at least as wide as the widest ramp run leading to it;
- b) have a length of not less than **1500 mm**; and
- c) have a minimum size not less than **1500 x 1500 mm**, if served by a doorway.

If a door opens onto a landing, a 600 mm level manoeuvring space must be provided next to the latch on the pull side of the door. If the door opens in, 300 mm next to the latch is sufficient.



These drawings illustrate lengths and widths of ramp runs and landings. They are shown without handrails and edge protection for the purpose of the illustration.



4.4.5 Surfaces (CSA 4.3.5)

Ramp and landing surfaces shall be slip-resistant.

4.4.6 Outdoor Conditions (CSA 4.3.6)

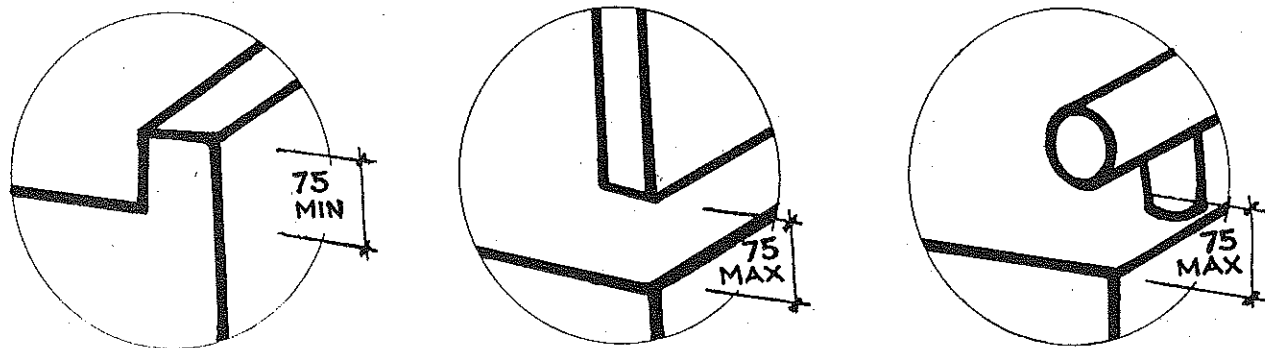
Outdoor ramps and their approaches shall be designed so that water will not accumulate on walking surfaces.

Ramps should be well maintained and free of debris and other hazards. They should provide secure footing under wet and dry conditions. If used in winter, ice and snow should be removed frequently to allow unrestricted movement.

4.4.7 Edge Protection (CSA 4.3.7)

Ramps and landings not at grade or adjacent to a wall shall have edge protection such as a

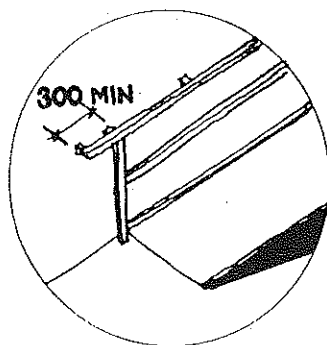
- curb with a minimum height of **75 mm**;
- raised barrier with its lower edge not more than **75 mm** from the ramp or landing surface; or
- rail with the bottom edge not more than **75 mm** from the ramp or landing surface.



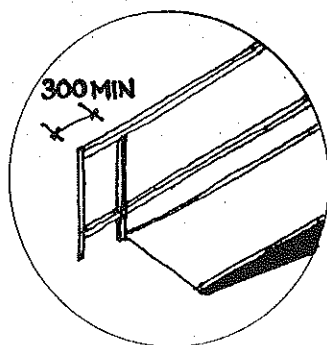
4.4.8 Handrails (CSA 4.3.8)

Ramp handrails shall

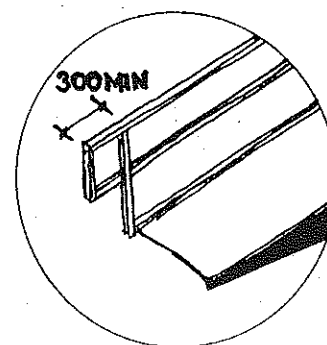
- be on both sides;
- comply with section 4.3.2 of this document;
- be continuous on the inside of switchback or dogleg ramps;
- when not continuous, extend horizontally at least **300 mm** beyond the top and bottom of the ramp and return to the wall, ground, or post;
- have their top between **800** and **920 mm** from the ramp surface.



Wall

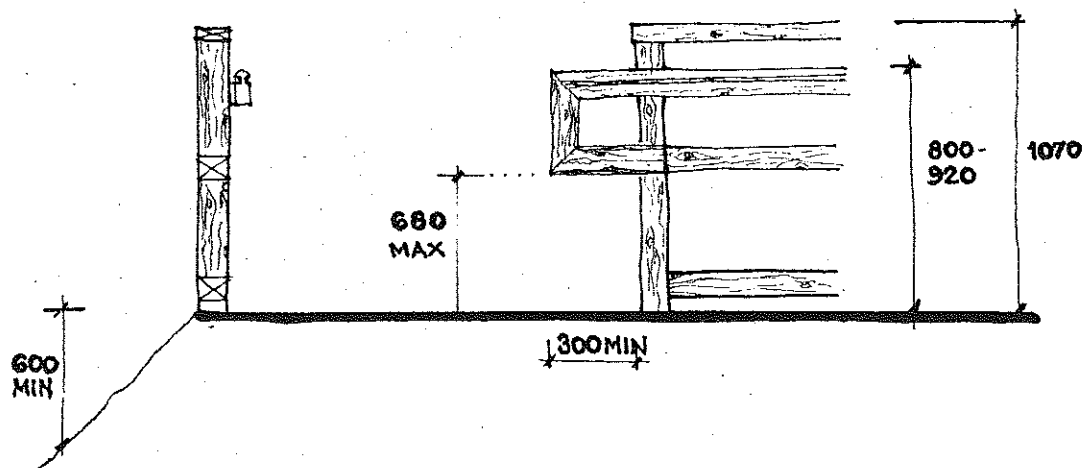


Ground

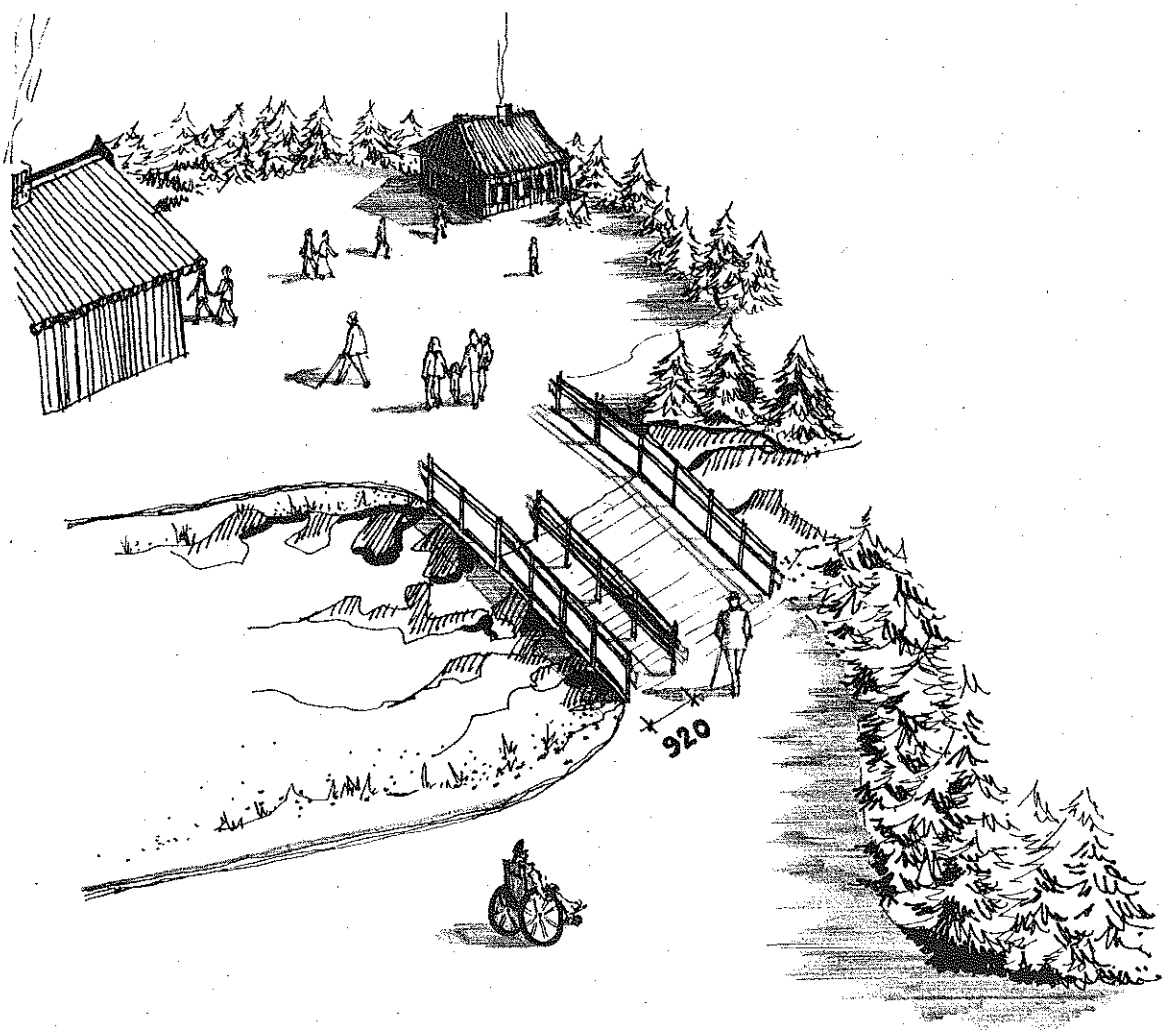


Post

Handrails are not required on ramps that have a vertical rise of 150 mm or less, and when the slope is 1:20 (5%) or less. Handrail extensions at the top and bottom of ramps provide tactile cues for persons who are blind and visually impaired as well as support for persons who need help to negotiate ramps. Handrail extensions must not project into a path of travel, and return to a wall, ground, or post so as not to constitute a hazard to pedestrians. Handrails extending around landings are desirable as they act as a support for persons with mobility impairments, and as a guide for persons who are blind and visually impaired.



Although not specified in the CSA-B651 standard or in the National Building Code (NBC) 1990, there should be a maximum spacing between handrails for people in wheelchairs who use handrails to pull themselves up a slope. A single ramp 920 mm wide provides a comfortable width to do just that. If a wide ramp provides access to a facility, a portion of that ramp should be designed as a single ramp. The result would be a wide ramp with handrails on both sides, and with a freestanding intermediary handrail providing sufficient width for a single ramp. This variation to the CSA-B651 should be implemented in high-use areas only.



4.4.9 Lighting

Exterior ramps should be illuminated to a level of at least 20 lx.

Ramps should be located where there is adequate natural light and if used at night, such as in outdoor amphitheatres or near buildings or campsites, they should have appropriate artificial lighting.

4.4.10 Live Load

Ramps should be designed to carry a minimum live load of 488 kg/m² (100 psf).

4.5 Stairs

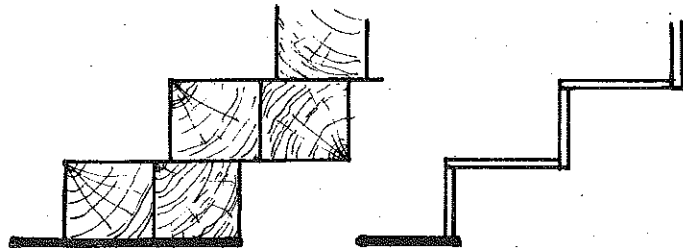
Stairs should be wide enough for easy passing and should provide secure footing under wet and dry conditions.

4.5.1 Treads and Risers (CSA 4.5)

A flight of stairs shall have

- a) uniform riser heights and tread depths;
- b) risers not more than 180 mm high;
- c) treads not less than 280 mm deep, measured from riser to riser; and
- d) no open risers.

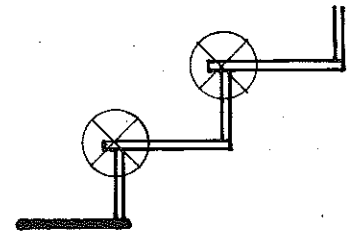
Open risers can create a hazard for cane users and for people wearing leg braces as they climb stairs. They should be avoided in urban settings and in high-use outdoor areas. Open risers are acceptable on one-way trails going down.



4.5.2 Nosings (CSA 4.5.2)

Nosings shall

- a) have no abrupt undersides;
- b) be slip-resistant; and
- c) have the horizontal face in a colour contrasting with the tread.

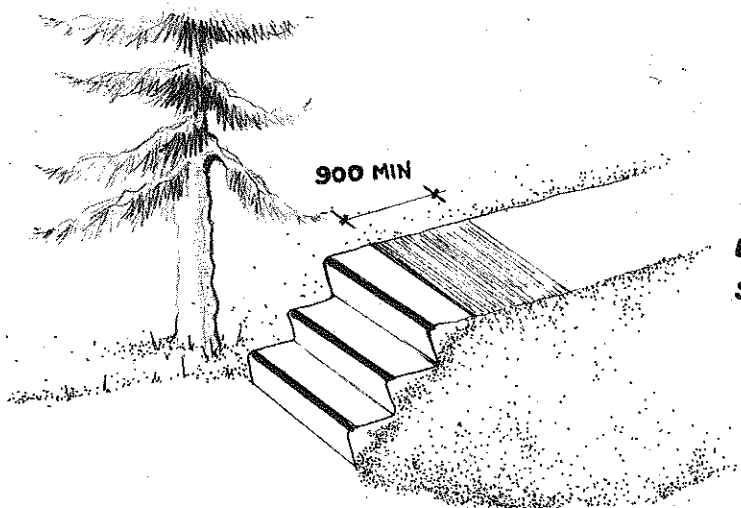


The vertical face of the stair nosing should be flush with the riser so as not to form an abrupt underside. Colour-contrasted nosings allow stair users to better perceive each step in descent.

4.5.3 Detectable Warning Surfaces (CSA 4.5.3)

Detectable warning surfaces shall

- a) be provided at the top of stairs;
- b) extend the full width of the stair for a depth of at least 900 mm commencing one tread depth back from the stair; and
- c) consist of a surface material that is contrasting in colour and texture from the surrounding surfaces.



Detectable warning surfaces warn blind and visually-impaired individuals of an upcoming stair. Their effectiveness is questionable outdoors, especially in winter conditions. They should be used, where possible, in urban settings and in high-use areas. If used on a site, they should be used consistently throughout.

This stair is shown without handrails for the purpose of the illustration.

4.5.4 Lighting

Exterior stairs should have a minimum illumination level of **50 lx**, measured at the nosing.

Stairs should be located where there is adequate natural light and if used at night, such as in outdoor amphitheatres or near buildings or campsites, they should have appropriate artificial lighting. Where possible, lighting should come from overhead in order to shadow the risers and illuminate the treads.

4.5.5 Outdoor Conditions

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

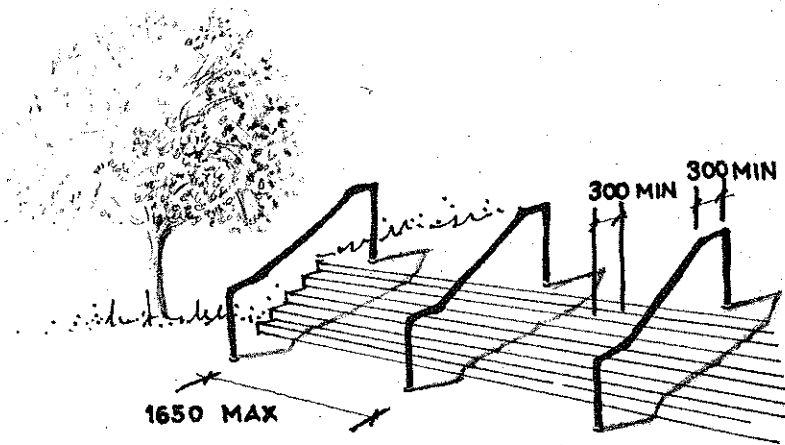
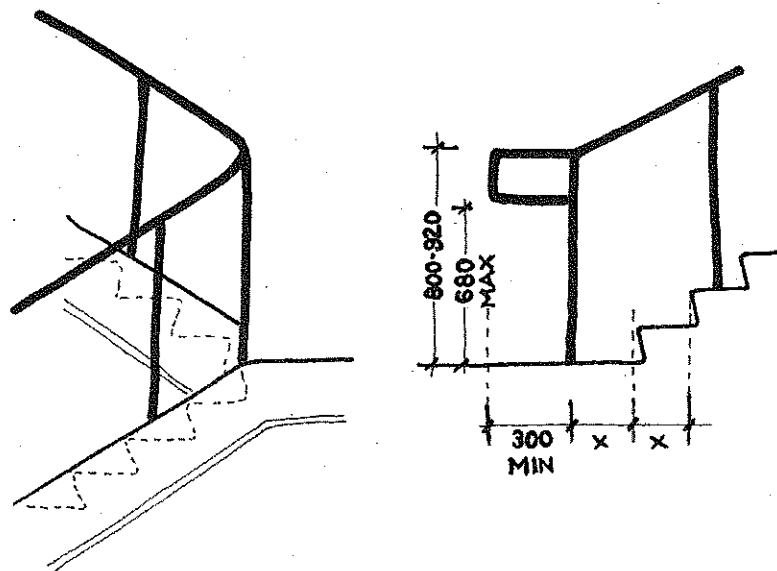
Outdoor stairs should be well maintained and free of debris and other hazards. If used in winter, ice and snow should be removed frequently to allow unrestricted movement.

4.5.6 Handrails (CSA 4.5.4)

Handrails for stairs shall

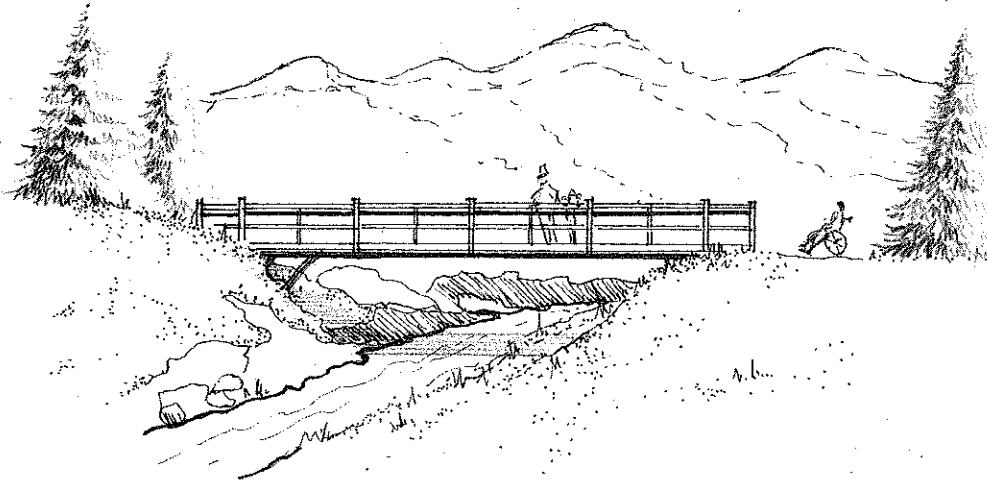
- a) comply with section 4.3.2 of this document;
- b) be installed on both sides;
- c) have their top between **800** and **920** mm from the stair nosing;
- d) have a continuous inside handrail on switchback or dogleg stairs;
- e) where not continuous,
 - i) extend at the top of the stair parallel with the ground surface not less than **300** mm;
 - ii) continue at the bottom of the stair to slope for a distance equal to the depth of one tread, and then extend parallel to the ground surface not less than **300** mm; and
 - iii) return to the wall, ground, or post; and
- f) be spaced not more than **1650** mm apart, if the stair is more than **2200** mm wide (NBC, 1990).

A 300 mm extension that returns to the post should be cane-detectable and, therefore, have its lower edge at not more than 680 mm from the ground. Handrail extensions should not project into a perpendicular path of travel.



4.6 Bridges & Boardwalks

Provide boardwalks where the topography is broken or rough, where vegetation is sensitive to compaction, where the ground is permanently or seasonally wet or soft, or where access must be provided to wetlands or wet areas for interpretive purposes.



4.6.1 Width

The minimum clear width of bridges and boardwalks should be **1200** mm except where space is required for two wheelchairs to pass, it should be **1500** mm.

4.6.2 Slope (CSA 4.1.2)

Accessible bridges and boardwalks shall

- a) have a running slope not steeper than **1:20**;
- b) have a cross slope not steeper than **1:50**; and
- c) be designed as a ramp complying with section 4.4, if the slope is steeper than **1:20**.

4.6.3 Thresholds (CSA 4.2.5)

The thresholds of bridges and boardwalks shall

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

4.6.4 Outdoor Conditions

Bridges and boardwalks and their approaches should be designed so that water will not accumulate on walking surfaces.

Bridges and boardwalks should be well maintained and free of debris and other hazards. If used in winter, ice and snow should be removed frequently to allow unrestricted movement.

4.6.5 Guards

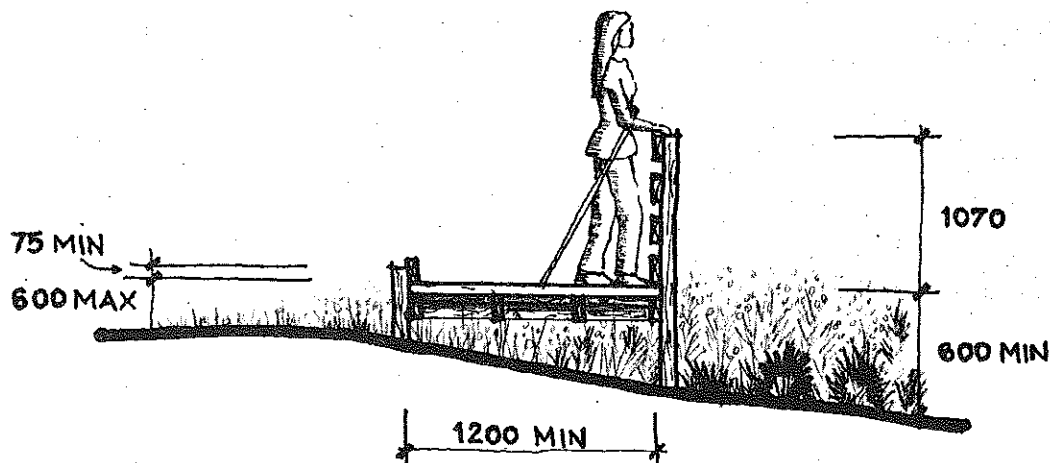
Guards complying with section 4.3.1 should be installed on the edges of bridges and boardwalks that are more than 600 mm above the ground or water.

Bridges should have guards on both sides. Boardwalks built on sloped terrain may require a guard on one side only. If the other side is situated between 75 and 600 mm above the ground, a 75 mm curb rail will be sufficient.

4.6.6 Handrails

Handrails complying with section 4.3.2 should be provided when support or guidance along bridges and boardwalks is required.

Floating boardwalks built on bogs may be unstable and should provide a handrail on at least one side. If only one handrail is installed, a 75 mm curb rail should be present on the other side.



4.6.7 Edge Protection (CSA 4.3.7)

Boardwalks built 75 mm or more above grade should have edge protection such as a

- a) curb with a minimum height of 75 mm;
- b) raised barrier with its lower edge not more than 75 mm from the surface; or
- c) rail with the bottom edge not more than 75 mm from the surface.

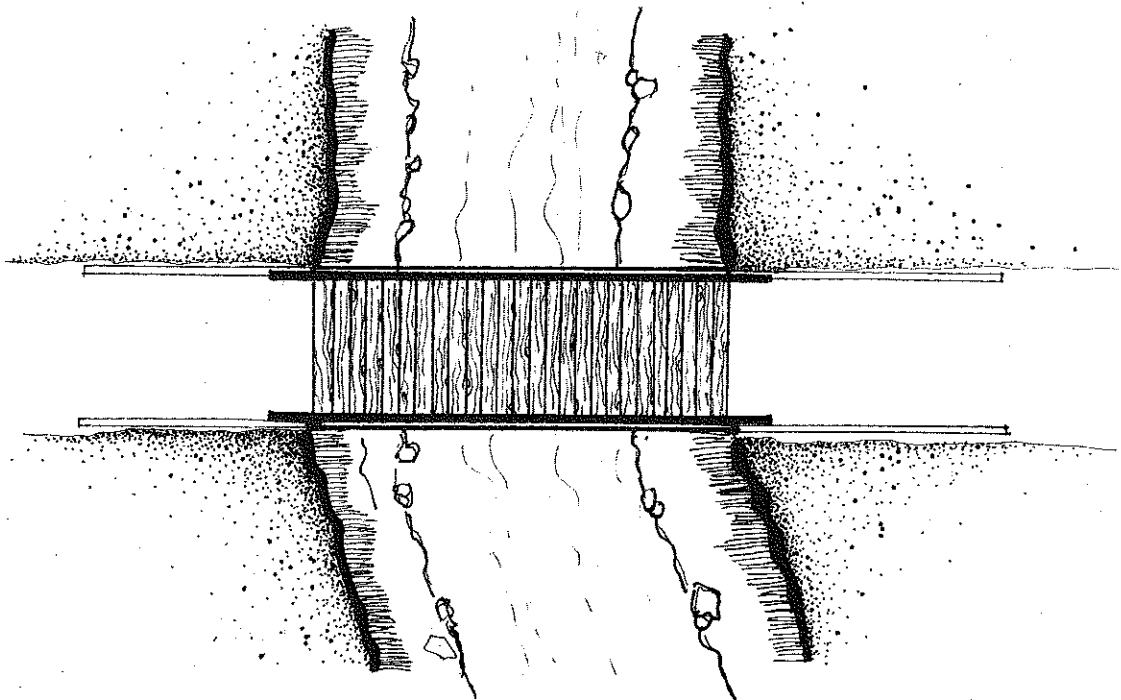
4.6.8 Lighting

Bridges and boardwalks should be illuminated to a level of at least 20 lx.

Bridges and boardwalks should be located where there is adequate natural light and if used at night, such as near buildings or campsites, they should have appropriate artificial lighting.

4.6.9 Live Load

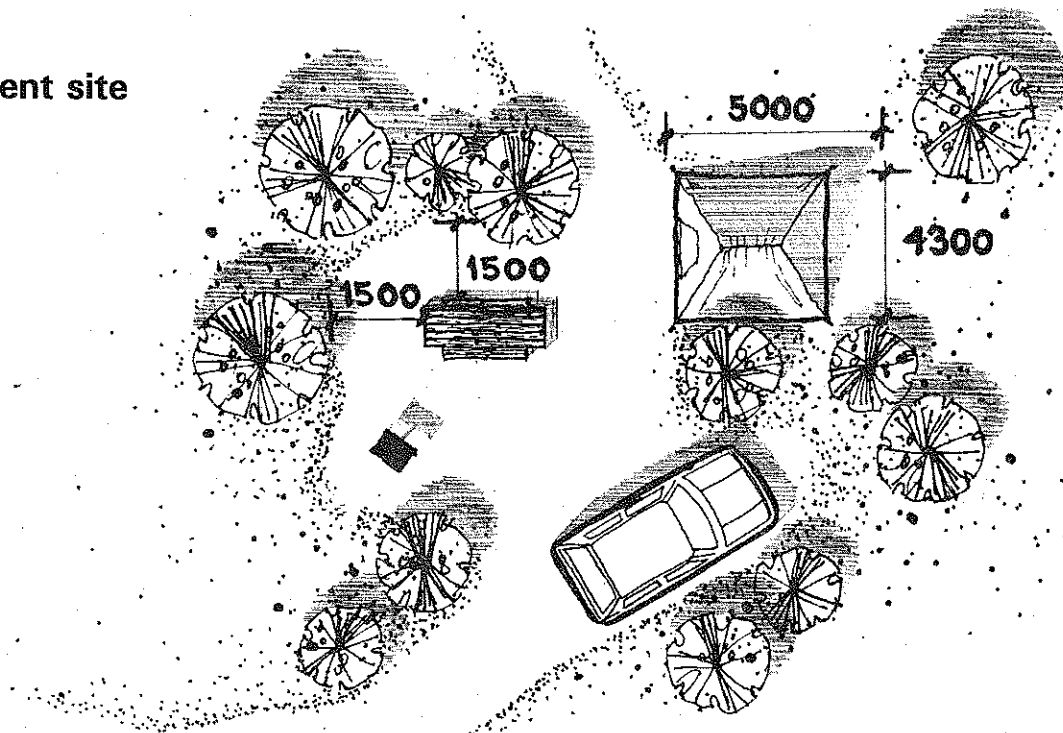
Bridges and boardwalks should be designed to carry a minimum live load of 488 kg/m² (100 psf).



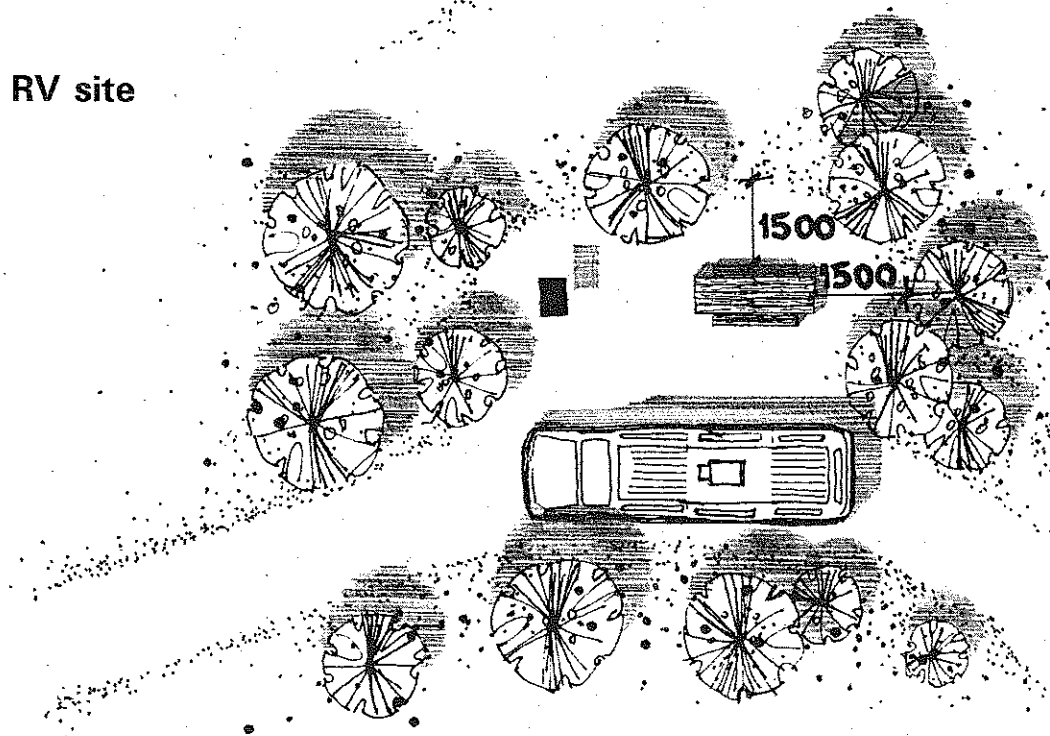
4.7 Campgrounds

A minimum of 2%, but not less than 2 campsites per campground, should be accessible.

Tent site



RV site



4.7.1 Campsites

Accessible campsites should

- a) be connected to a continuous accessible route; and
- b) have all elements and spaces useable by persons who have disabilities.

4.7.2 Living space

The living space should

- a) have a firm, stable and level surface;
- b) have a minimum of **920** mm of clear space between fixed elements, such as tent pads, barbecue grills and fire pits, and the campsite edges; and
- c) have a minimum of **1500** mm of clear space around picnic tables and fire pits, or in front of barbecue grills.

The tent pad, if provided, should be a minimum of **4300 x 5000** mm and be flat, stable, and located adjacent to firm surfaces.

Campsites should have natural-looking firm surfaces that contribute to the desired camping experience. Paved sites are not acceptable.

4.7.3 Edges

The edges of the campsite should be well defined with a contrasting texture or colour change.

Vegetation and underbrush may provide an adequate texture or colour contrast for blind and visually-impaired campers. Curbs should be provided near hazards, such as abrupt changes in level and water.

4.7.4 Parking

Accessible campsites should have a parking pad that

- a) is firm, stable and level;
- b) is at least **4600** mm wide and **6000** mm long;
- c) has no change in level between the parking space and the campsite; and
- d) is directly adjacent to the campsite living space.

4.7.5 Sanitary Facilities

There must be an accessible path of travel from each accessible campsite to accessible sanitary facilities. Accessible washrooms and showers should be within **60** m of the campsite.

Washroom and shower facilities should be designed as described in section 5 of the CSA-B651 Barrier-Free Design standard. Accessible privies should be designed as specified in section 5.1.9 of this document.

4.7.6 Site Furniture

If provided, water faucets, picnic tables, drinking fountains, barbecue grills, fire pits, wood bins, trash receptacles and other site furniture should comply with section 5.0 of this document and the CSA-B651 standard.

4.7.7 Accessibility Signs

In campgrounds where people choose their own sites, mark accessible sites with the international symbol of access. Where staff members assign campsites, accessible sites can be unmarked and reserved on request.

Campers should be able to flip or turn over accessibility signs if they wish to do so. In peak periods, unoccupied accessible campsites could be relinquished to other campers after an agreed-upon time.

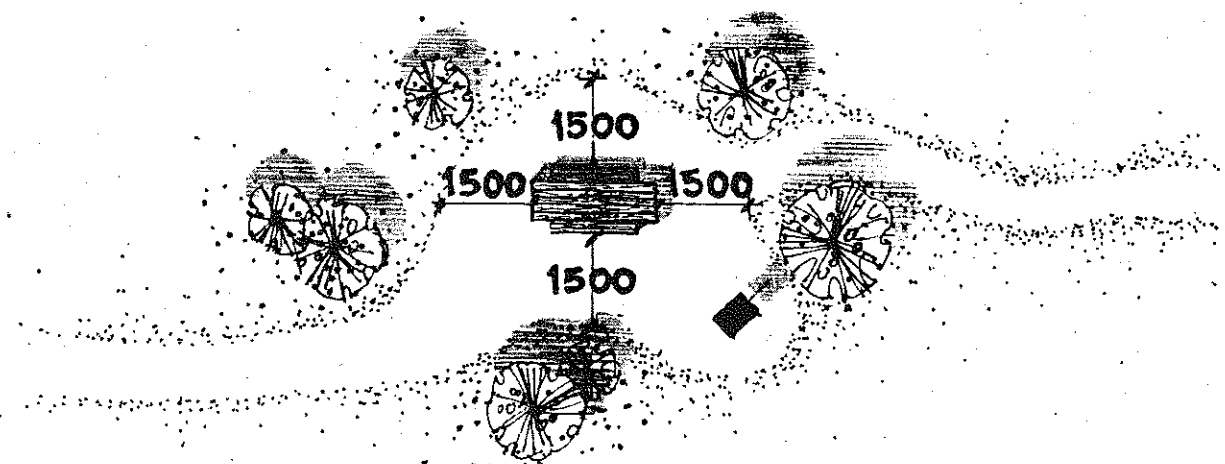
4.8 Picnicking

In an accessible picnic area, **10%** of the picnic tables should be accessible.

An accessible picnic area should

- a) be connected to a continuous accessible route;
- b) have a surface that is firm, stable and slip-resistant;
- c) have a minimum of **920 mm** of clear space between fixed elements and the edges of the picnic pad; and
- d) have a minimum of **1500 mm** of clear space around the picnic table and fire pit, or in front of the barbecue grill.

Well compacted crushed aggregate screenings, or reinforced grass, (see section 3.2.1) can constitute a natural-looking firm surface for picnic areas. Accessible picnic tables should be located throughout the picnic area, and some should be in shaded areas. If shelters are provided, they should be accessible using the same criteria as above.



4.9 Outdoor Amphitheatres

Amphitheatres, grandstands and bleachers should have accessible seating complying with the following table:

| Seating | Minimum number of wheelchair spaces |
|-------------|-------------------------------------|
| Under 100 | 2 |
| 101 - 400 | 4 |
| 401 or more | 1% |

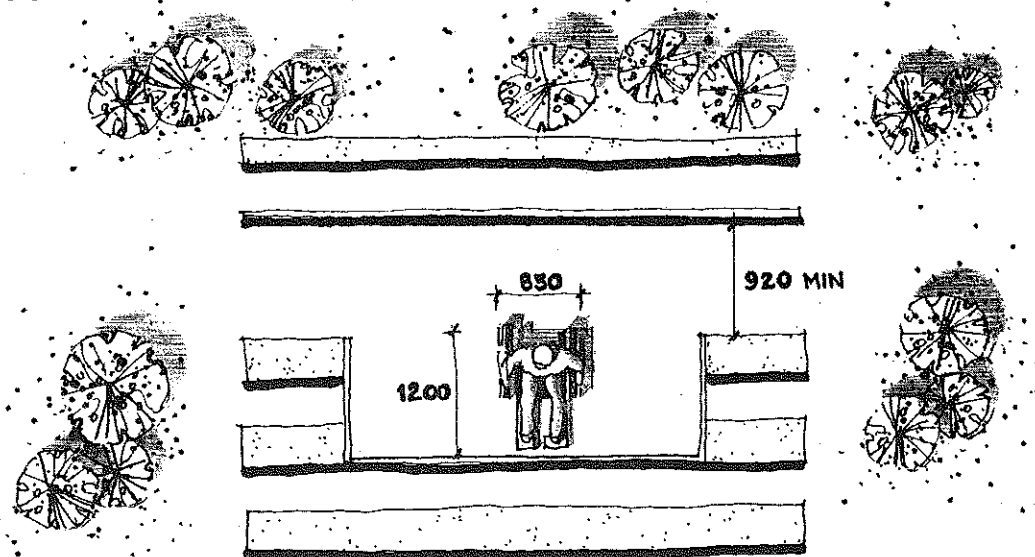
The accessible outdoor amphitheatre should

- be connected to a continuous accessible route;
- have at least one accessible ticket booth or counter, where provided; and
- have accessible seating complying with section 4.9.1.

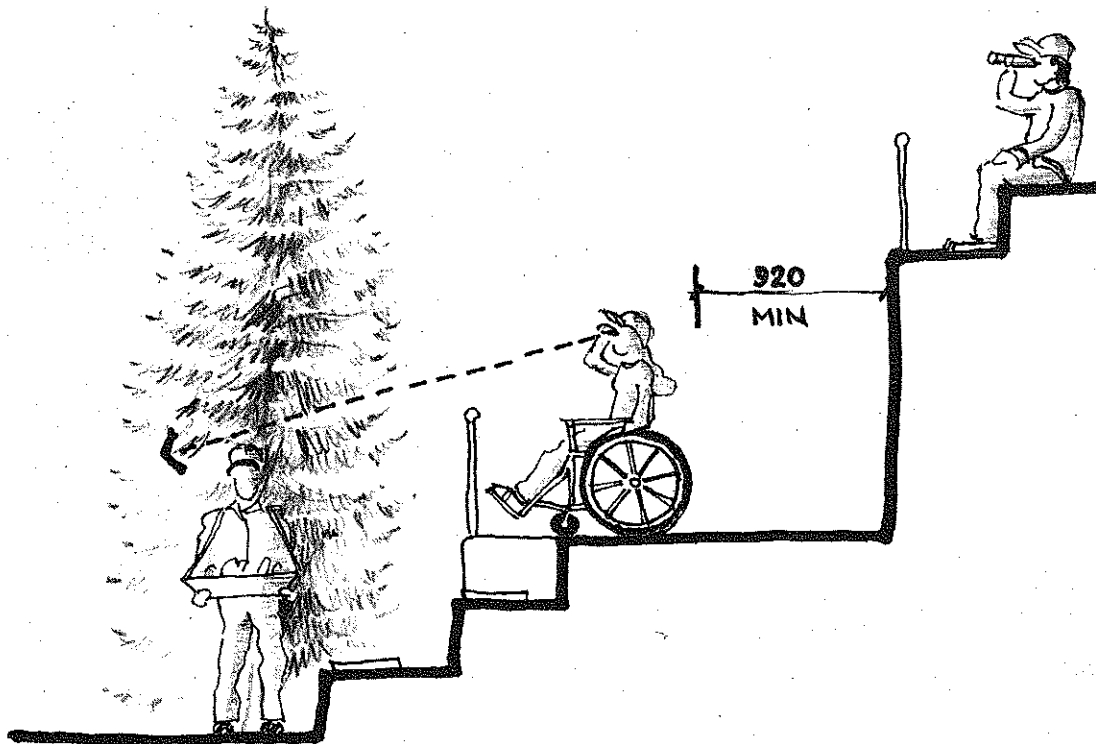
4.9.1 Seating

Each wheelchair viewing position should have a clear, level ground area at least **850 x 1200 mm**, with an access aisle at least **920 mm** wide leading to it.

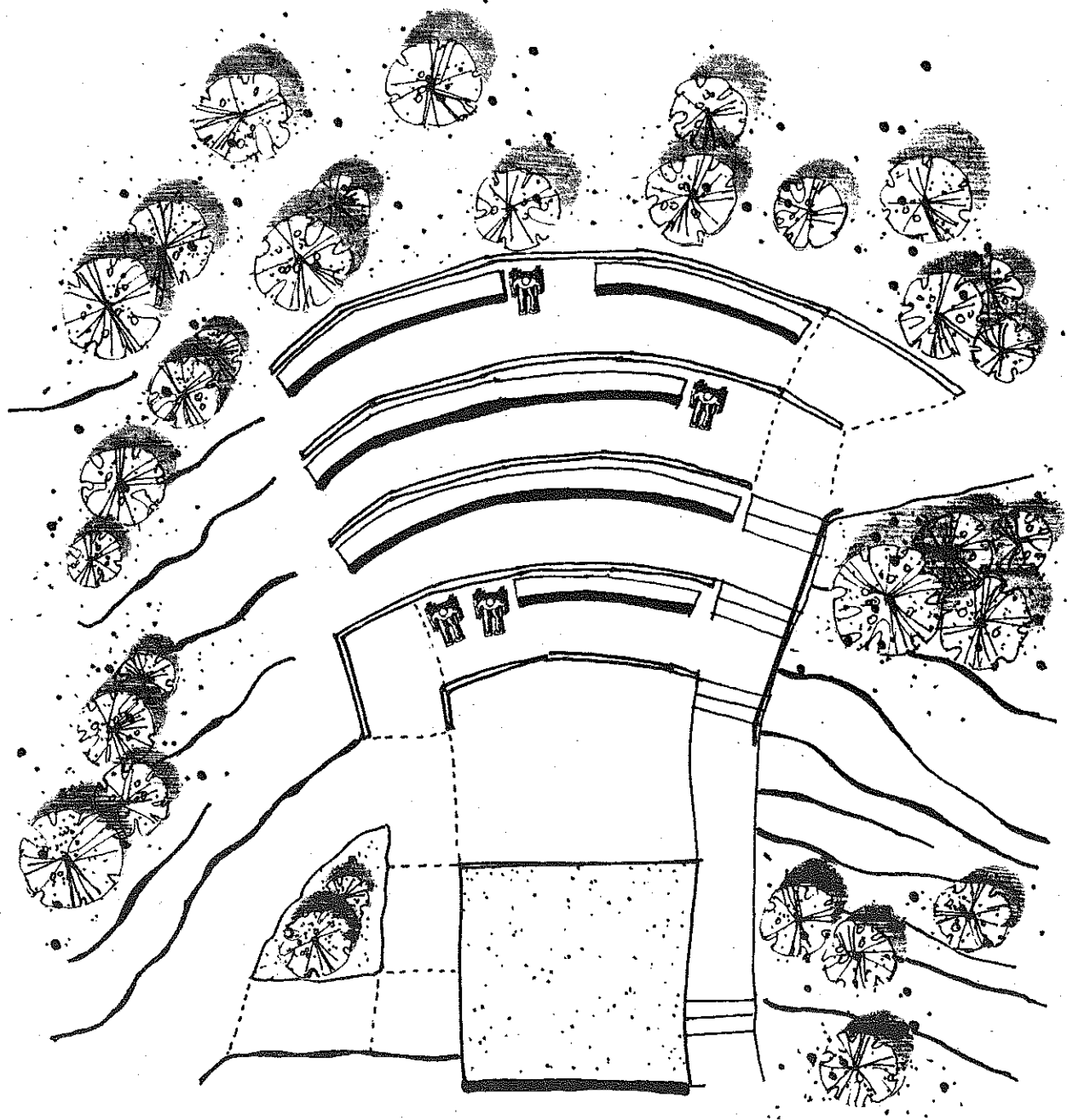
Many people with mobility impairments do not use a wheelchair but may have difficulty navigating narrow aisles. A **600 mm** clear leg space should be provided, measured from the front of the seat to the nearest obstruction.



Accessible viewing areas should be located to provide lines of sight comparable to all viewing areas. Two wheelchair spaces should be provided side-by-side in any one location, with adjacent seating provided for ambulatory companions. Persons in wheelchairs usually sit higher than persons in standard seating positions; therefore, care should be taken so that their placement does not obstruct the view of persons seated behind.



Wheelchair spaces in amphitheatres and other assembly areas should be an integral part of any seating plan. They should be dispersed throughout the seating area and can be provided by removing seats. Wheelchair seating areas should adjoin the accessible route and allow for quick egress in case of emergency. Handrails should be provided on the outside edge of steps.



4.9.2 Stage

The stage should be accessible and connected to an accessible route.

The edge of the stage should be marked with a colour-contrasted strip for persons with visual impairments.

4.9.3 Assistive Listening Devices

Outdoor amphitheatres should be equipped with an assistive listening system for hard-of-hearing spectators.

If an outdoor amphitheatre is not equipped with an integrated infrared or FM broadcasting system, portable FM receivers should be made available to hard-of-hearing spectators. A sign should indicate that this service is available.

4.9.4 Captioning

All movies, videos, and other audio-visual presentations shown on a regular basis must have a captioned version available. All new films and videos must be captioned.

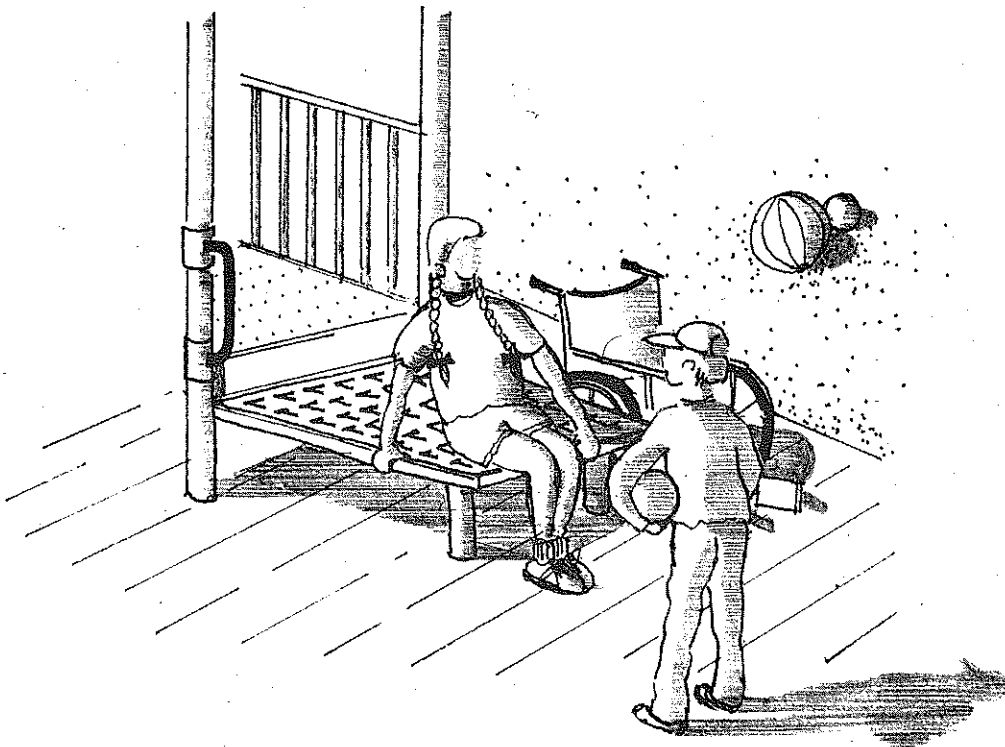
Captioning can be automatic or activated on request. Ensure that adequate signs inform visitors of the captioned option, if not showing on a continuous basis.

4.10 Accessible Playgrounds

Accessible playgrounds should provide children who have disabilities with a safe and adapted environment for playing, socializing and learning with other children. Playground design is highly specialized and should be developed by knowledgeable planners and designers.

An accessible playground should provide all children with access to play opportunities. It should also provide opportunities for parents with disabilities to play with their children. Although making each and every feature or event useable by every child may not be feasible, it is essential to provide similar experiences for all. Play experiences for children who have disabilities should be integrated.

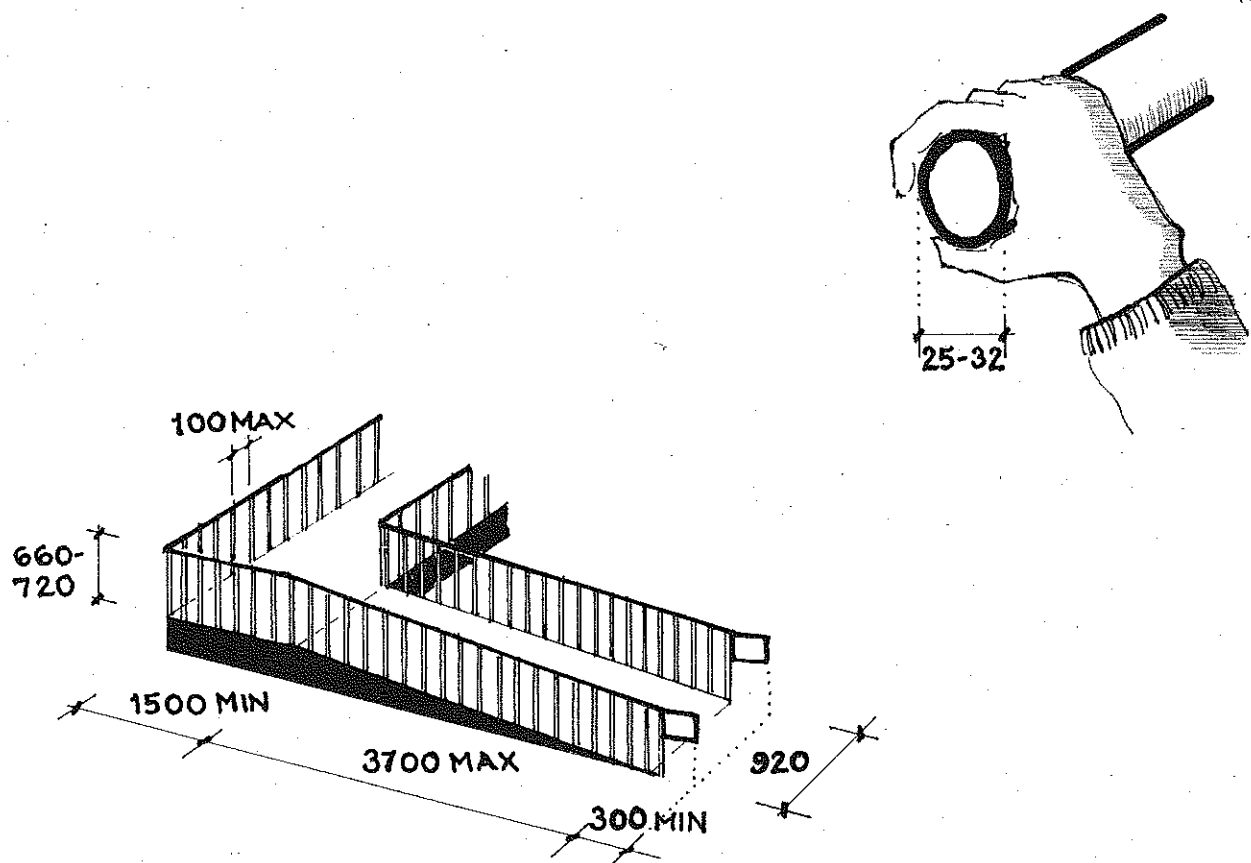
Since most children spend more time talking than actually using the playground equipment, it is important to emphasize communal gathering places such as playhouses, sandboxes and gazebos in accessible playground design. Children learn from observation and imitation. Therefore, it is important that children with disabilities have access to their friends at play even if they cannot participate in the play activity. All children want to explore, take risks, and master challenges in a play environment. A good accessible playground provides variety, participation, physical comfort, and safety for all its users.



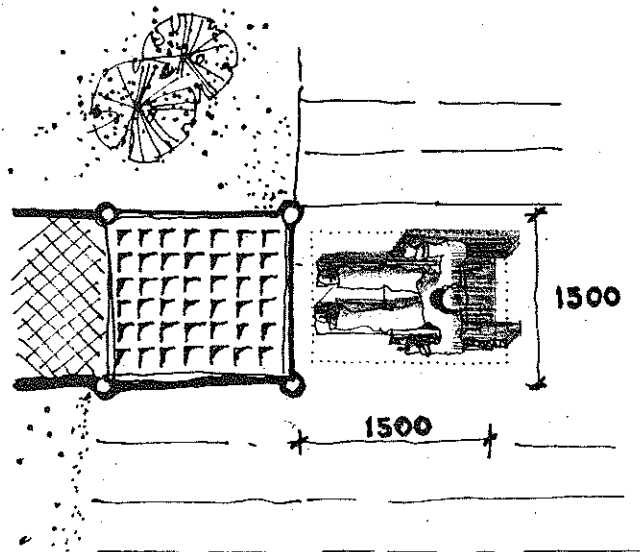
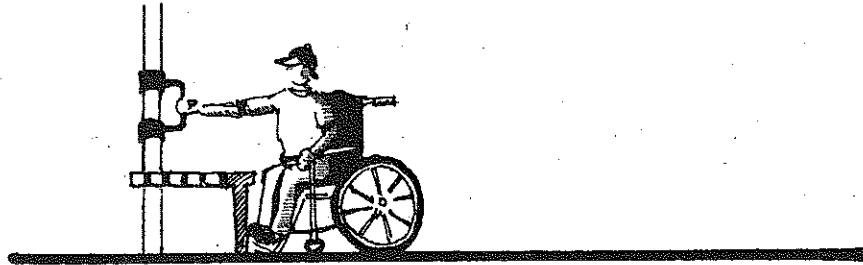
An accessible playground should be connected to a continuous accessible route. An accessible path of travel should be provided from the entrance of the playground to each play activity. If the use zone of a playground is not entirely surfaced with an accessible material, at least one accessible route within the use zone should be provided from the perimeter to all accessible play structures within the playground. Each play activity surface must be accessible and safe.

Accessible routes within the playground should comply with section 3.3 of this document, except that they should have a clear width of not less than **1500 mm** to allow two wheelchairs to pass.

Children in wheelchairs should be able to get onto play equipment or structures by using a ramp or by transferring onto a platform or deck. Ramps for children should have a shorter run and their handrails should be smaller in size.



Transfer platforms should be at wheelchair seat height and be equipped with handrails or grab bars. Stepped platforms, as described in section 4.13.2 of this document, will help children with mobility impairments move from one height to another.

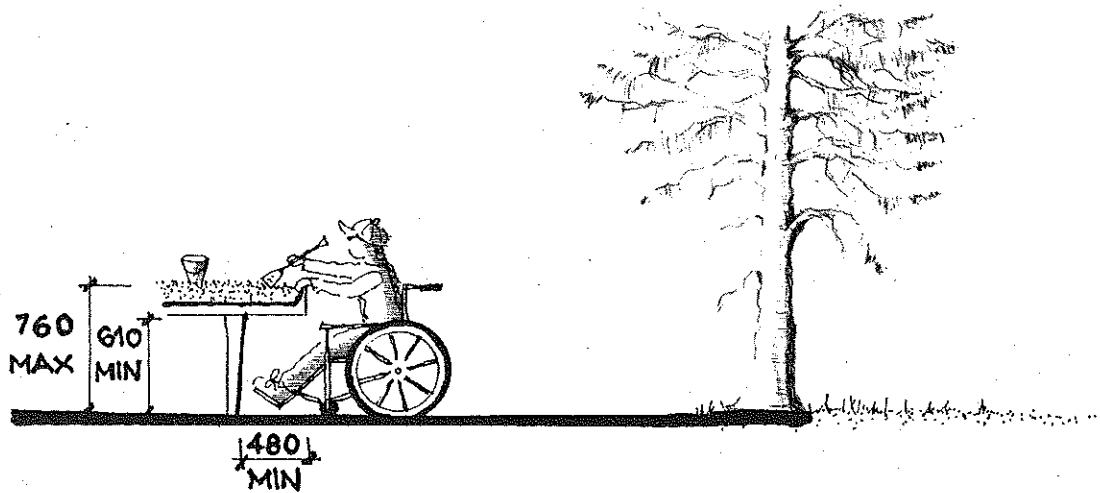


4.10.1 Playground Equipment and Structures

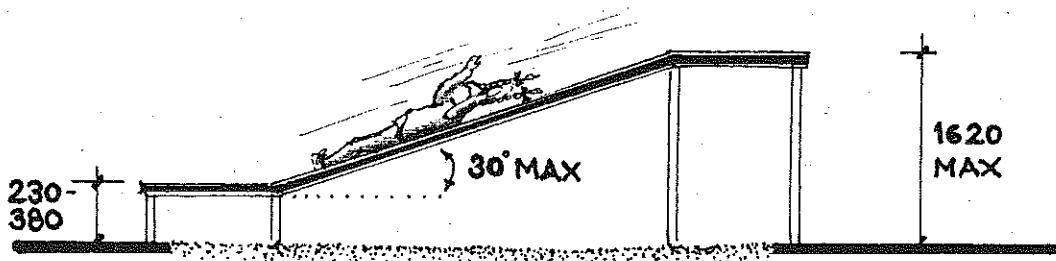
Several companies specialize in the fabrication of accessible playground equipment and structures and should be consulted along with playground designers. The following are examples of simple equipment that can be incorporated into existing playgrounds.

Counter-style equipment, such as water and sand tables, require the user to pull partially under the equipment and should

- a) have knee space at least **610 mm** high x **480 mm** deep;
- b) have a **750 x 1200 mm** clear ground area for each play space; and
- c) have the top of the playing surface not more than **760 mm** above the ground.

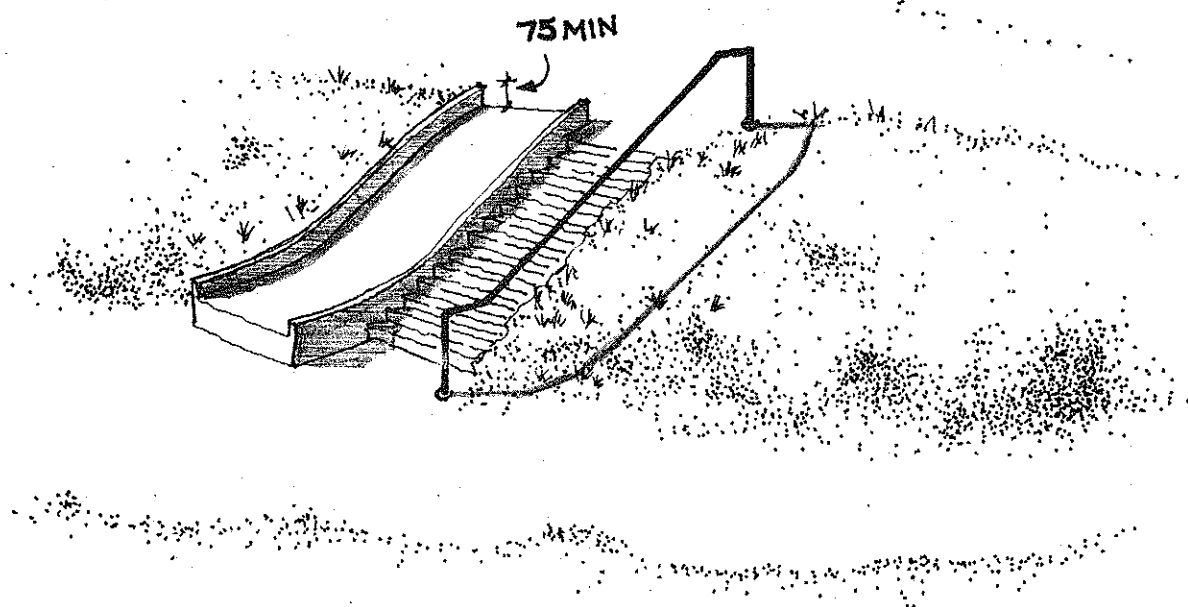


Slides should be restricted to **1620 mm** in overall vertical fall distance unless installed on slopes. If slide heights are greater than **1200 mm**, access decks should be properly enclosed with a **920 mm** non-climbable structure. The average incline of the sliding surface should not exceed **30 degrees**. Slide chute side rails should be **75 mm** high. Slide exit zones should be a minimum of **400 mm** long with a height between **230 and 380 mm** from the ground.

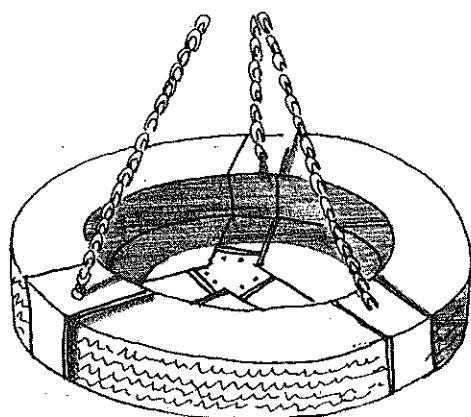


Play settings should have many different types of slides. Free-standing slides should be avoided, unless the steps are fully enclosed.

Polyethylene slides are preferred to stainless steel slides because they do not get hot in sunny weather. One-piece slides should be used where possible. Otherwise, slides with lap joints should be used rather than slides with butt joints.



Accessible swings must have a back and side support, or a hole or indentation for the child's backside. Only the rubber-belt type and triple-hung auto tire swings are acceptable accessible swings.



Swings should be located in their own area, separate from the rest of the playground, and set back twice the height of the swing beam from any obstacle. They should be suspended from a variety of heights to cater to different age groups, and to provide a range of movement.

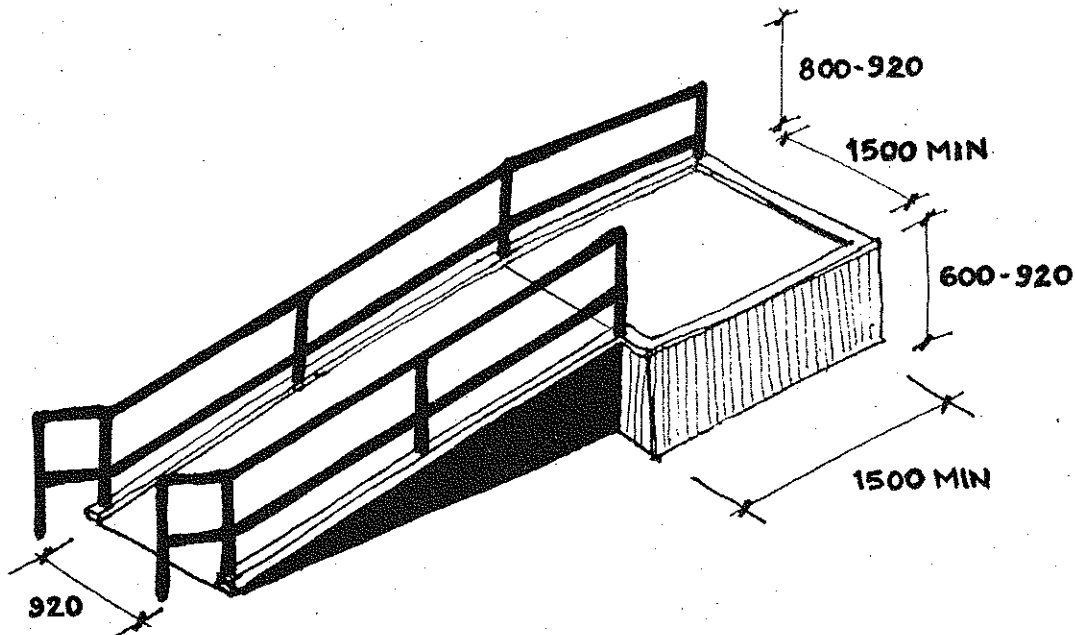
4.11 Equestrian Activities

Equestrian facilities should be located on a continuous access network with appropriate support facilities.

For some riders, mounting and dismounting is made easier by getting to the level of the horse's stirrups.

Mounting platforms should

- a) be at least **1500 x 1500** mm;
- b) be between **600** and **920** mm above the ground;
- c) have a handrail on one side;
- d) have edge protection complying with section 4.4.7; and
- e) be accessible by a ramp complying with section 4.4 of this document.



4.12 Beaches

Beaches and shores available to the public should be located along a continuous access network with appropriate support facilities.

The major obstacle to beach and shore access by persons with mobility impairments is the difficulty in crossing loose sand or soil to get to the water. Integration of permanent hard-surface paths into the environment may not be easy nor desirable. Nevertheless, an accessible walking surface that is firm, stable, safe, appropriate to site conditions, and in compliance with maximum slope requirements, should be provided. Beaches should be kept free of driftwood and other hazards and have swimming areas marked off with buoys in bright contrasting colours. Abrupt bottom changes and irregularities, obstructions, and sharp objects should not be present in the water or on the beach. Connected floating buoys should be used to delineate the extent of the swimming area and to discourage entry into deeper waters. Both audio and visual emergency signals should be available, if provided.

4.12.1 Beach Access Path

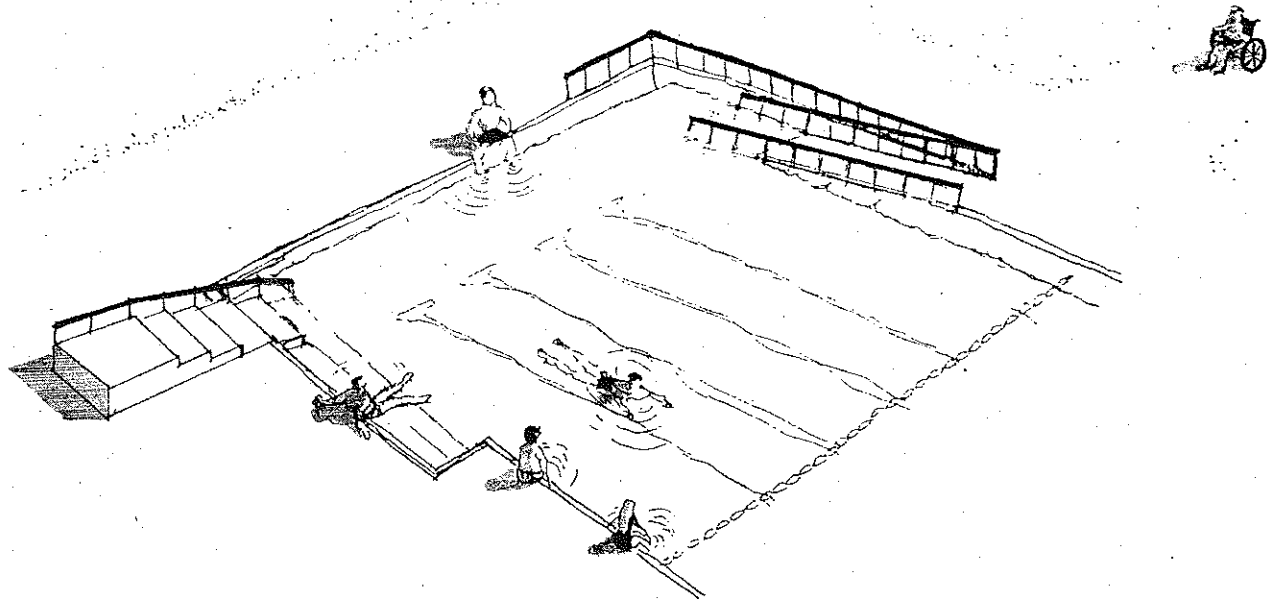
The beach access path should

- a) be firm, stable and slip-resistant;
- b) have a minimum clear width of **1200 mm**;
- c) have a slope of **1:20** (5%) or less; and
- d) have a cross slope not greater than **1:50** (2%).

Accessible walking surfaces over unstable sand or soil include flexible rubber runners, beach mats, or a fixed or moveable boardwalk. Snow fencing or conveyor belts may be also used as a temporary solution for limited access. Boardwalks should comply with section 4.6 of this document. A wooden boardwalk built in sections can be used seasonally on beaches where severe winter conditions prevail. Clay-stabilized sand paths will need to be reconstructed each season. Accessible surfaces leading into the water should not exceed a depth of 750 mm.

4.13 Swimming Pools

Swimming pools should be connected to a continuous system of firm, stable and slip-resistant paths. Accessible washrooms, change rooms and lockers, drinking fountains, as well as a shaded area with benches should also be provided. Colour and textural cues should be used to indicate edges and other hazards. Colour-contrasted floats and markings should warn swimmers of increasing water depth.



4.13.1 Pool Area Surface

The pool area surface should

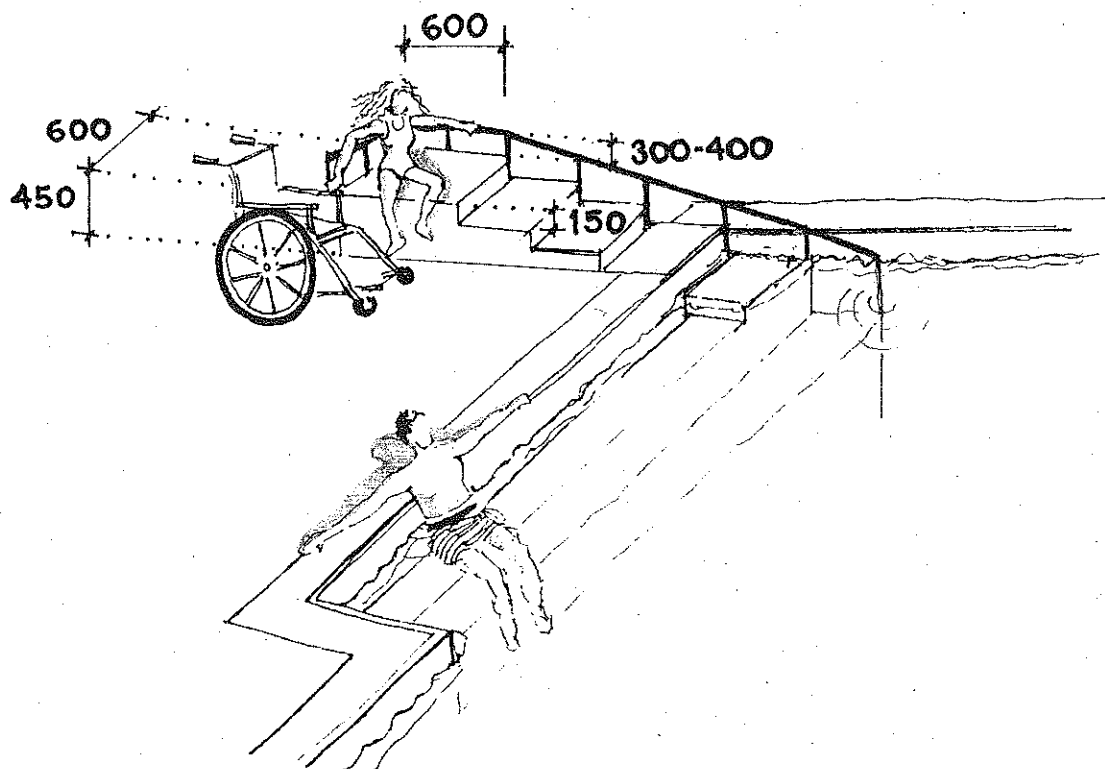
- a) be firm, stable, slip-resistant and free of glare;
- b) have joints in tiles or pavers not greater than **6 mm**, or in wood decking not greater than **13 mm**;
- c) have no sharp or protruding objects, and all corners rounded; and
- d) have all skimmers, gutters, etc., covered with a hard plastic or metal grate that is flush with the pool area surface.

4.13.2 Stepped Platform

The stepped platform should

- a) have a slip-resistant, non-abrasive surface;
- b) have a transfer area **600 x 600 mm** with its top located at **450 mm** from the pool area surface;
- c) have steps that are **150 mm** high, **600 mm** wide and **450 mm** deep leading below the water surface to a depth of not more than **300 mm**; and
- d) have one continuous handrail along the back of the platform and along the side opposite the transfer space at a height between **300** and **400 mm** above the platform and nosings.

Stepped platforms provide the easiest form of entry into a pool. They can also be used for access to water from docks.



4.13.3 Seating

In-pool step seats should be **300** mm high and **450** mm deep. Seating should be at a depth of not more than **300** mm below the water surface.

In-pool seating is necessary for resting and for people with limited mobility. The seating should be easily identifiable and should be isolated from swimmers jumping or diving into the water. In-pool seating should be accessible via a stepped platform (section 4.13.2). Fixed or removable cushions will provide increased comfort to step seat users.

4.13.4 Ramps

Pool ramps should comply with section 4.4 of this document, that is,

- a) have a maximum slope of **1:12**;
- b) have handrails on both sides at a height between **800** and **920** mm from the ramp surface;
- c) have edge protection;
- d) have a firm, stable and slip-resistant surface; and
- e) have a clear width of **920** mm.

Pool ramps enable a person with a disability to wheel a chair into the water until it is possible for the person to float off the chair.

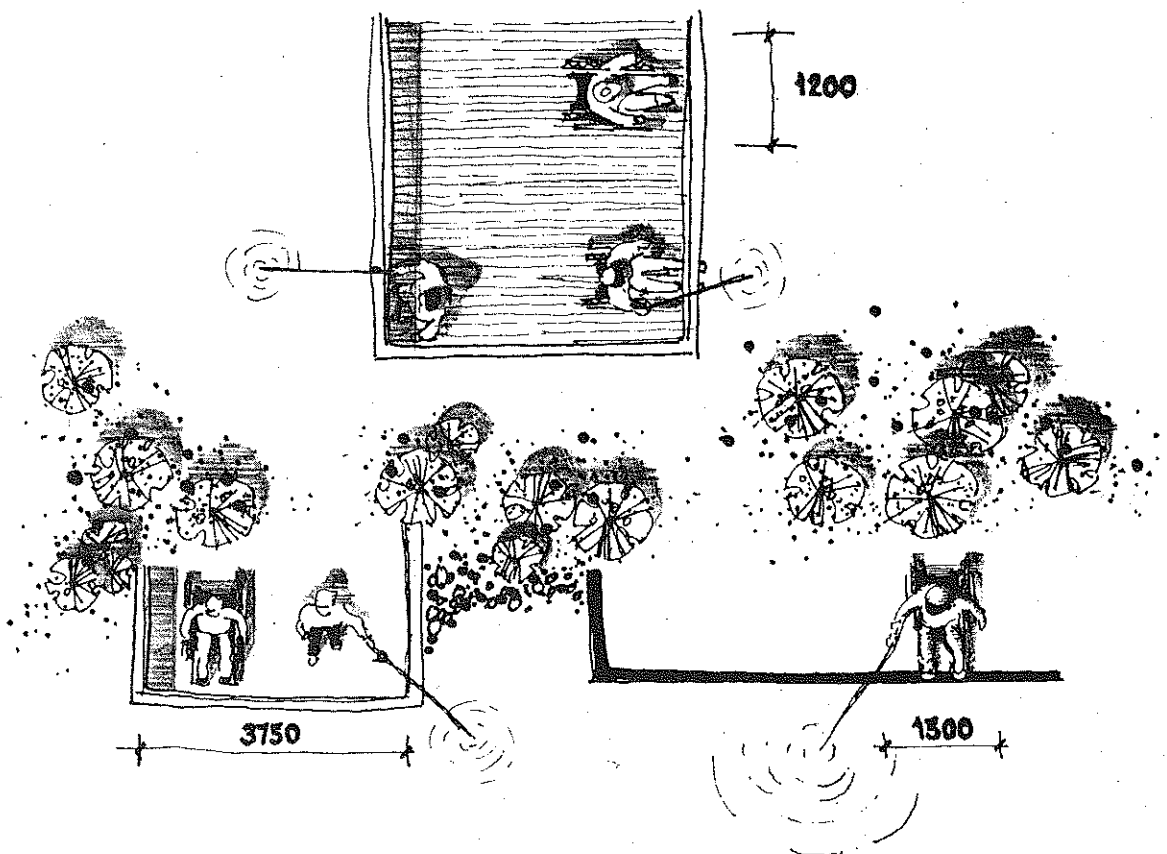
*Wheelchairs specifically designed for use in the water should be available if a pool ramp is provided. The water depth at and near the foot of the ramp should not exceed **750** mm.*

4.13.5 Mechanical Lifts and Swings

Mechanical lifts and swings are the least desirable form of pool entry. Several types are available. The most popular models fit into a sleeve on the deck and are removable. Removable lifts prevent children from playing on them when not in use.

4.14 Fishing

Anglers with disabilities should not be segregated from the rest of the fishing public. Careful planning, design and management can provide accessible facilities that provide a wide range of fishing choices. Fishing stations should be connected to a continuous accessible route.



4.14.1 Still Water

Fishing at still water sites is usually done from a stationary location or from a boat. The planning and design of a still water site focuses on the development of permanent fishing stations on the shore, the design of fishing docks or piers over the water, and/or the development of boat launching and docking facilities. Care must be taken to ensure that accessible fishing sites are located in good fishing locations.

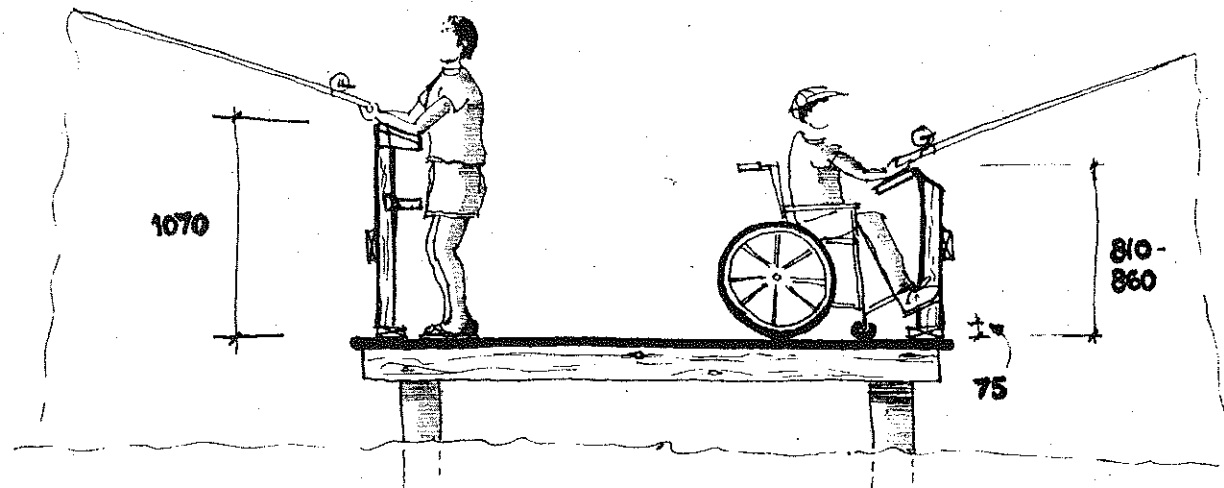
4.14.2 Fishing Stations

There should be one accessible fishing station for each accessible parking space.

Fishing stations should

- a) allow a minimum width of **1200 mm** per angler at docks, **1500 mm** per angler at shore pads, and **3750 mm** for two anglers;
- b) be a minimum of **2500 mm** in depth;
- c) provide **1 seat** for each **2 fishing stations**;
- d) have guards between **810** and **860 mm** high;
- d) have edge protection; and
- e) have a firm, stable and slip-resistant surface.

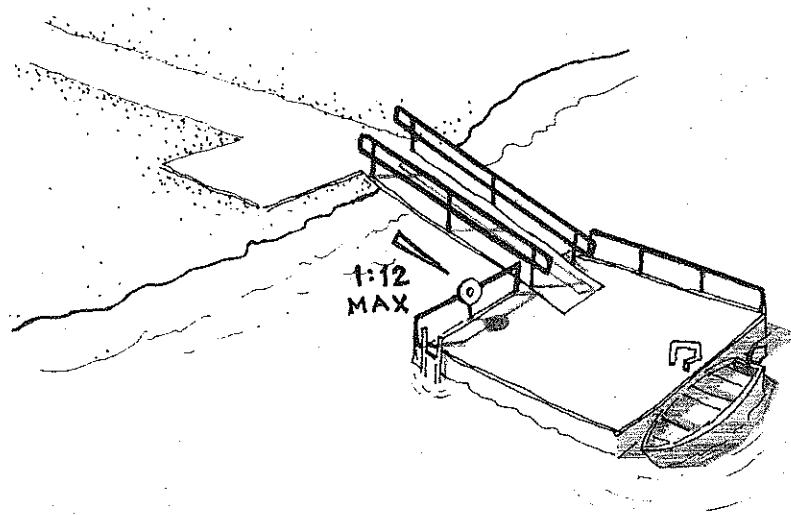
Exposure to hot sun and harsh weather can be a serious health risk to some people with disabilities. Shade from the sun and shelter are particularly important at still water fishing sites where people will be stationary for long periods of time.



4.15 Docks

Docks should be connected to a continuous accessible route. The slope of bridges and gangways to floating docks at low water should not exceed the allowable slope for ramps. Bridges and gangways must meet the same level of accessibility as ramps. Curbs and handrails are essential.

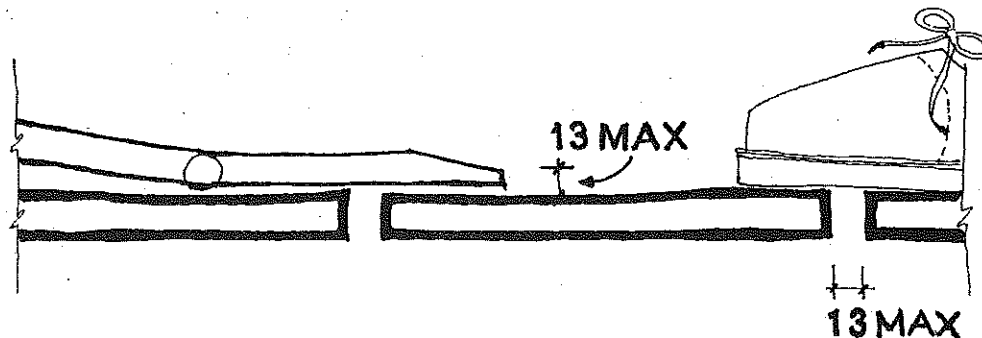
In locations with major water level changes, steeper slopes may be unavoidable.



4.15.1 Docks

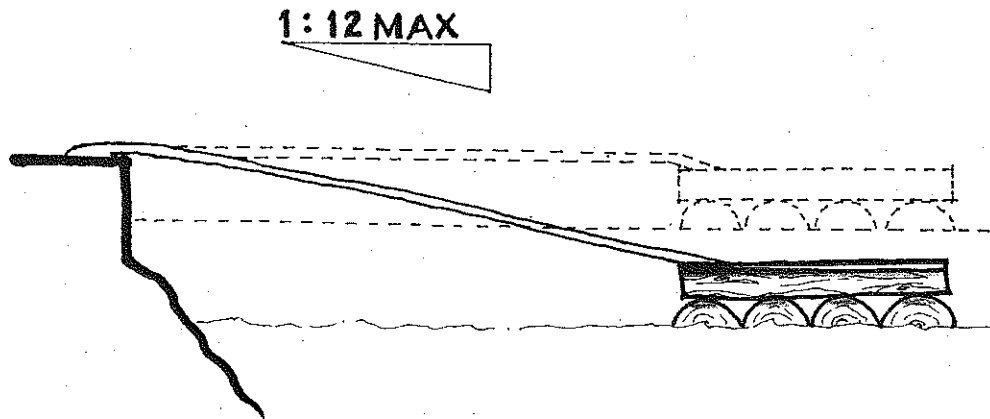
Docks should

- be firm, stable and slip-resistant;
- have no horizontal or vertical joints wider than 13 mm; and
- have edge protection.



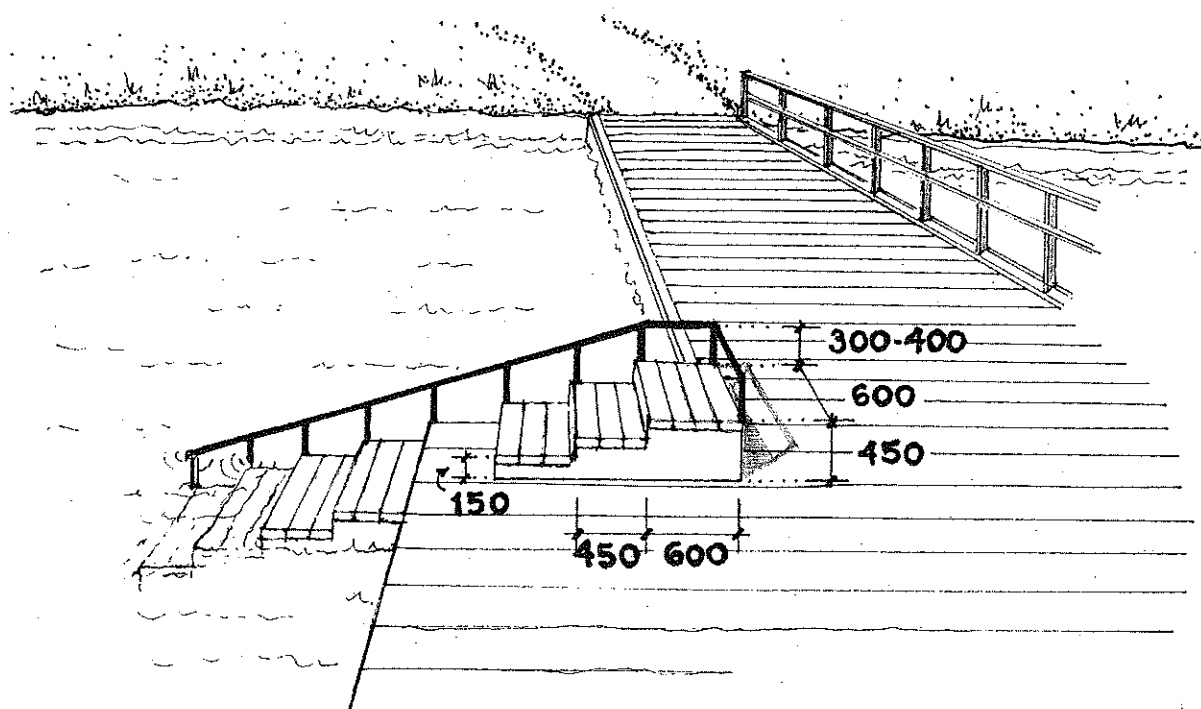
4.15.2 Floating Docks

Floating docks are appropriate for locations where the water level rises and falls. Disadvantages are instability and motion from the waves, movement of people, and a variable connection to the pathway or shore. There must be enough floatation to support both people and equipment without any significant tipping.



4.15.3 Access to Water

Access to the water from a dock is possible by using a stepped platform as described in section 4.13.2 of this document.



4.15.4 Access to Boats

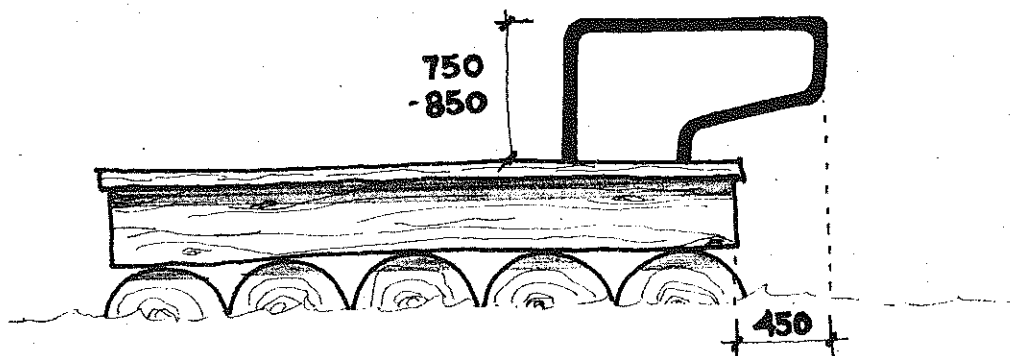
Methods used by persons with disabilities to transfer to boats vary widely depending on the type of disability and the type of transfer facility available. Fixed docks are appropriate for locations with stable water levels. Floating docks will rise and fall along with the water level changes. In both cases, the dock surface should not be more than **450** mm above the water level.

Ramps and platforms providing access to large touring or sightseeing boats should be flush with the embarkation point. The embarkation gate should have a clear opening at least **810** mm wide.

Persons with reduced mobility and stability can transfer into small boats by using an overhanging grab bar mounted onto the dock surface.

The overhanging grab bar should

- a) be of a bright, contrasting colour;
- b) have a circular section **30** to **40** mm in diameter;
- c) be firmly fixed and able to resist a force of up to **1.3** kN (300 lbs.) applied vertically or horizontally;
- d) have its top located between **750** and **850** mm from the dock surface;
- e) extend **450** mm beyond the edge of the dock.

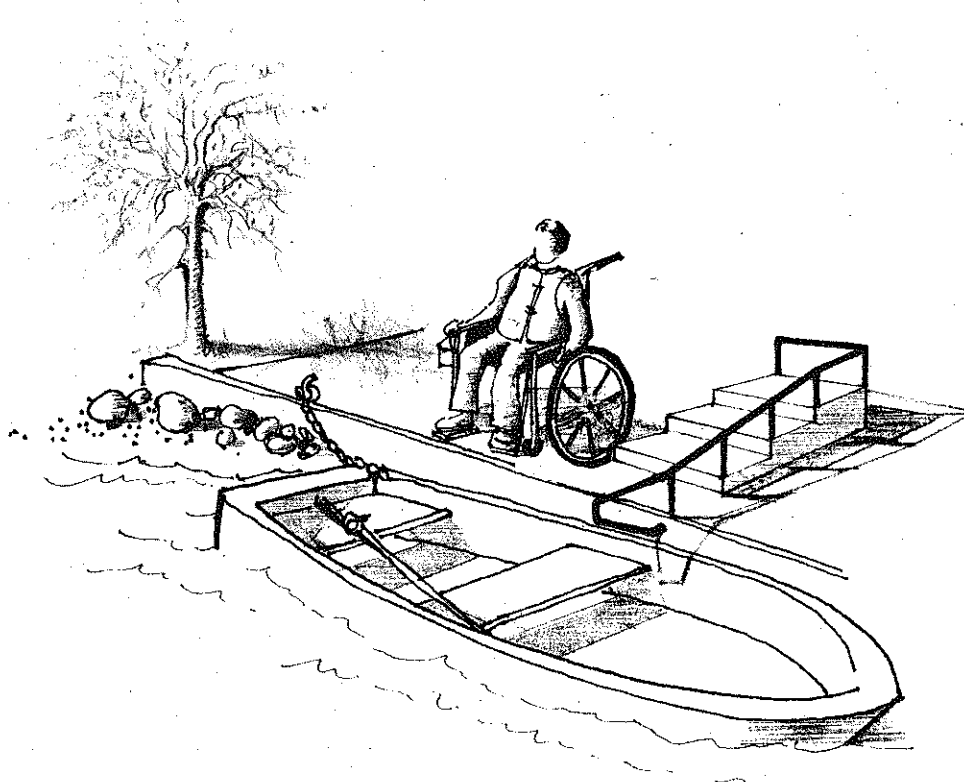


Access to small craft for persons in wheelchairs can be achieved by providing a stepped platform with an overhanging grab bar.

The stepped platform should

- a) have a slip-resistant, non-abrasive surface;
- b) have a transfer area **600 x 600 mm** with its top located at **450 mm** above the dock surface;
- c) have steps **150 mm** high, **600 mm** wide and **450 mm** deep leading to the dock surface; and
- d) have one continuous brightly-coloured handrail along the back of the platform and along the side opposite the transfer space, at a height between **300** and **400 mm** above the platform and nosings, and extending horizontally **450 mm** beyond the edge of the dock.

Shore transfers onto small craft may be possible if the boat is on the shore and the bank slopes gently into the water.



5.0 Components

5.1 General

All components should be connected to a continuous accessible route.

5.1.1 Controls and Operating Mechanisms (CSA 3.2)

The operable part of controls, such as water faucets, switches, gate hooks, and locks shall

- a) have a clear, level ground area at least **750 x 1200** in front of them;
- b) have operable parts of controls and operating mechanisms between **400** and **1200** mm from grade; and
- c) be operable with one hand without tight grasping, pinching or twisting of the wrist, and require a force of less than **22 N (5 lbs.)** to operate.

5.1.2 Public Telephones (CSA 6.2.5 & 6.2.6)

Where public telephones are provided, at least one public telephone should be accessible to persons in wheelchairs and one to persons who are deaf or hard-of-hearing.

Telephones for persons in wheelchairs shall

- a) have all operable parts, including the coin slot, at a height of not more than **1370** mm from the ground;
- b) have a handset cord a minimum of **1000** mm long;
- c) have a telephone directory shelf at least **500** mm wide and **350** mm deep;
- d) have a clear space **750 X 1200** mm in front of the telephone; and
- e) be cane-detectable as specified in section 3.3.5 of this document.

Telephones for persons who are deaf or hard-of-hearing shall

- a) have a volume control;
- b) have a handset cord a minimum of **1000** mm long;
- c) have a TTY shelf at least **250** mm wide and **350** mm deep, with at least a **250** mm clear space above the shelf;
- d) be identified by the international symbol of accessibility for deaf and hard-of-hearing persons; and
- e) be cane-detectable as specified in section 3.3.5 of this document.

When only one public telephone is available, it should be accessible to persons in wheelchairs as well as to persons who are deaf or hard-of-hearing and, therefore, incorporate both sets of requirements.

The illumination level at the shelf of outdoor phones should be at least 50 lx for people with visual impairments.

5.1.3 Drinking Fountains (CSA 5.11)

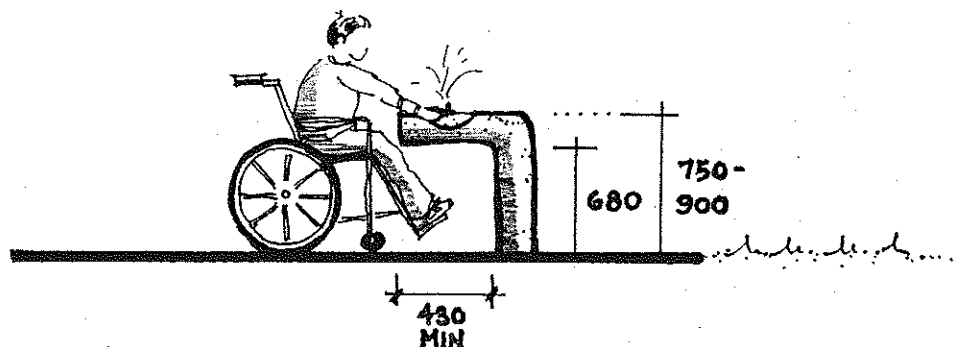
Drinking fountains should have a clear area of at least **750 x 1200 mm** in front of them, and be connected to a continuous accessible route. Knee space under the unit should be at least **750 mm** wide, **430 mm** deep and **680 mm** high.

Spouts shall

- a) be located between **750** and **900** mm from the ground;
- b) be located at the front of the unit;
- c) have a flow of water that is parallel or nearly parallel to the front of the unit; and
- e) have a flow of water at least **100** mm high.

Controls shall

- a) be at or near the front of the fountain;
- b) be operable with one hand;
- c) require no tight grasping, pinching, or twisting of the wrist; and
- d) require a force of less than **22 N** (5 lbs.) to operate.



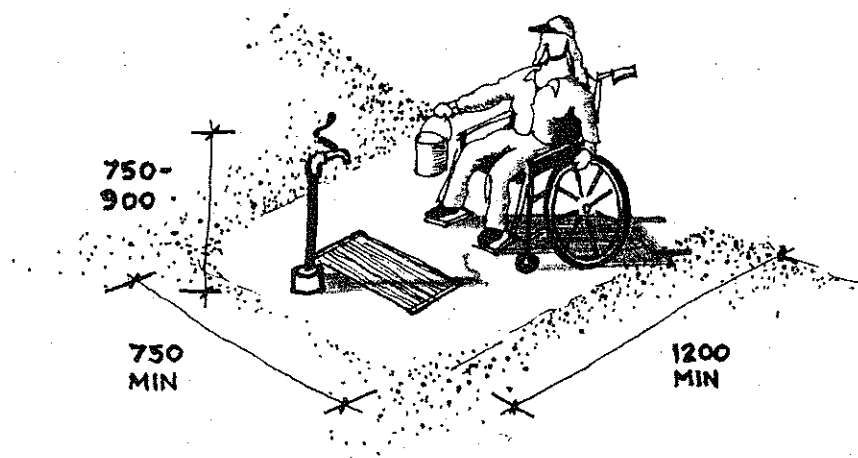
5.1.4 Water Faucets

Water faucets should

- a) be between **750** and **900** mm from the ground;
- b) have a firm and level clear area in front of them at least **750 x 1200** mm; and
- c) have openings in the drain grate below the faucet not greater than **13** mm wide and flush with the adjacent surface.

Controls should

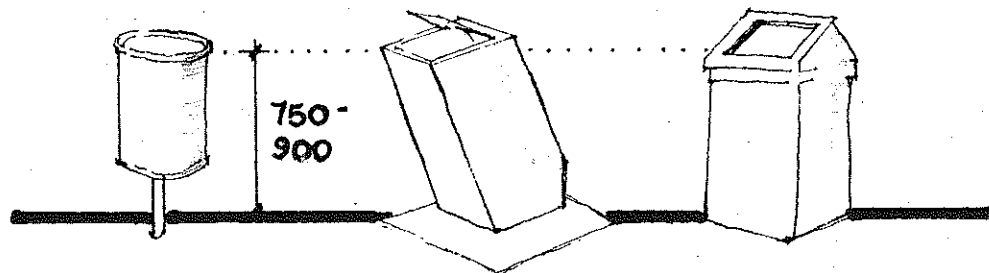
- a) be operable with one hand;
- b) require no tight grasping, pinching, or twisting of the wrist; and
- c) require a force of less than **22 N** (5 lbs.) to operate.



5.1.5 Trash Receptacles

Trash receptacles should

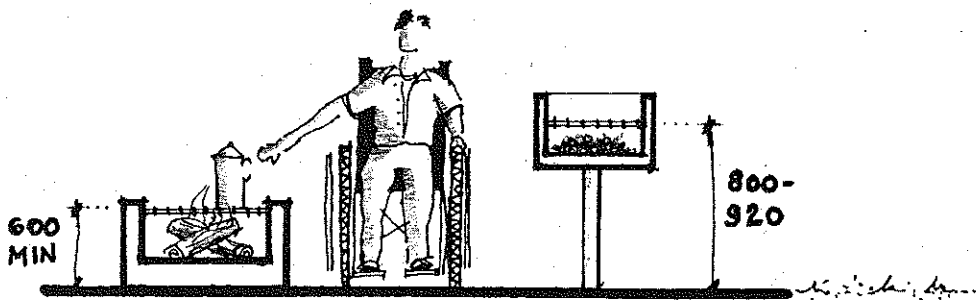
- a) have an opening between **750** and **900** mm from the ground; and
- b) have a firm and level clear area in front of them at least **750 x 1200** mm.



5.1.6 Barbecue Grills and Fire Pits

Fire pits should have a **1500 mm** clear, firm and level area around them, and have their grill at a height of at least **600 mm** from the ground. Barbecue grills should be between **800** and **920 mm** from the ground, and have a **1500 mm** clear, firm and level area in front of them.

If barbecue grills can be rotated, they should have a 1500 mm clear space all around them.

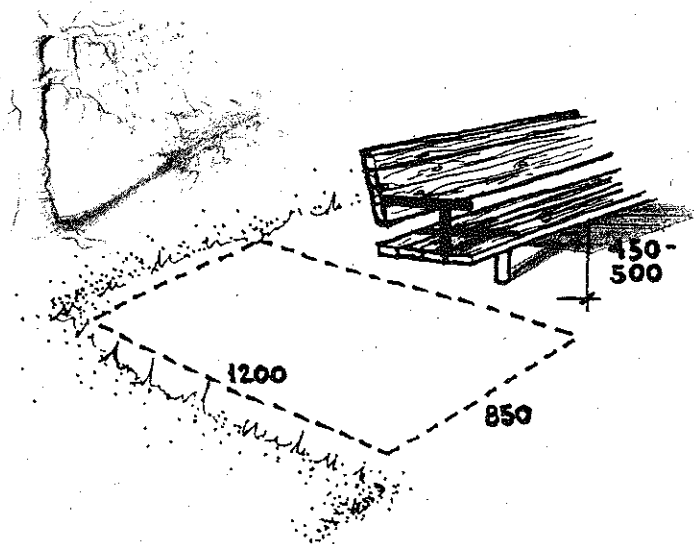


5.1.7 Benches (CSA 9.1)

Benches shall

- a) be adjacent to an accessible route;
- b) be stable;
- c) have the seat height between **450** and **500 mm** from the ground;
- c) have arm and back rests; and
- d) have an adjacent, level, firm ground surface at least **850 x 1200 mm**.

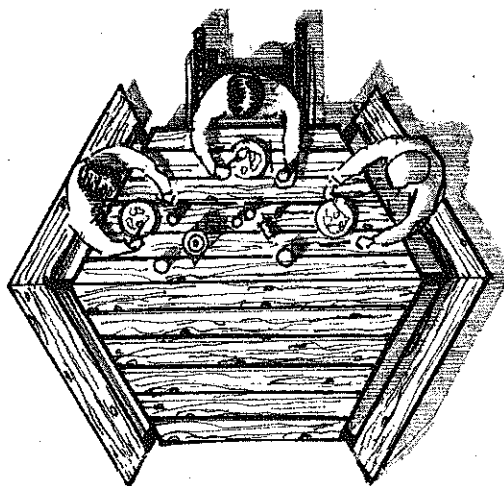
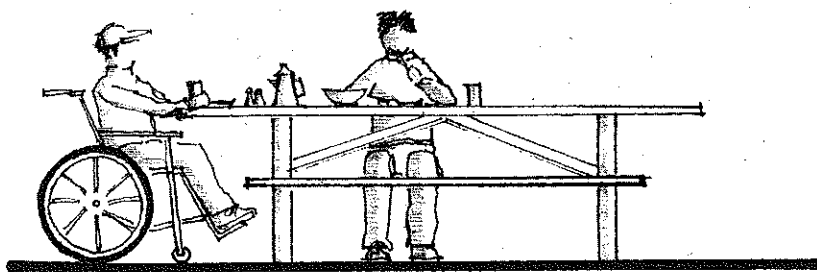
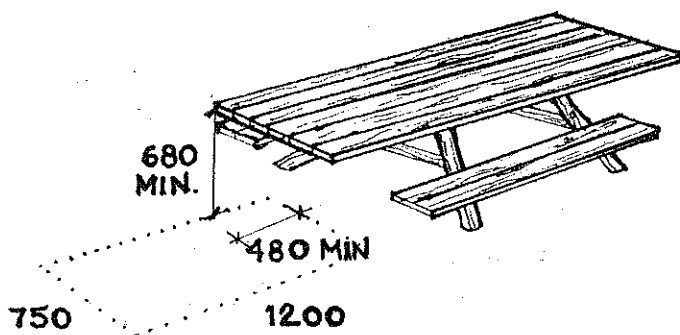
Benches should be set back a minimum of 600 mm from any circulation route.



5.1.8 Picnic Tables (CSA 9.2 a,b)

Picnic tables shall

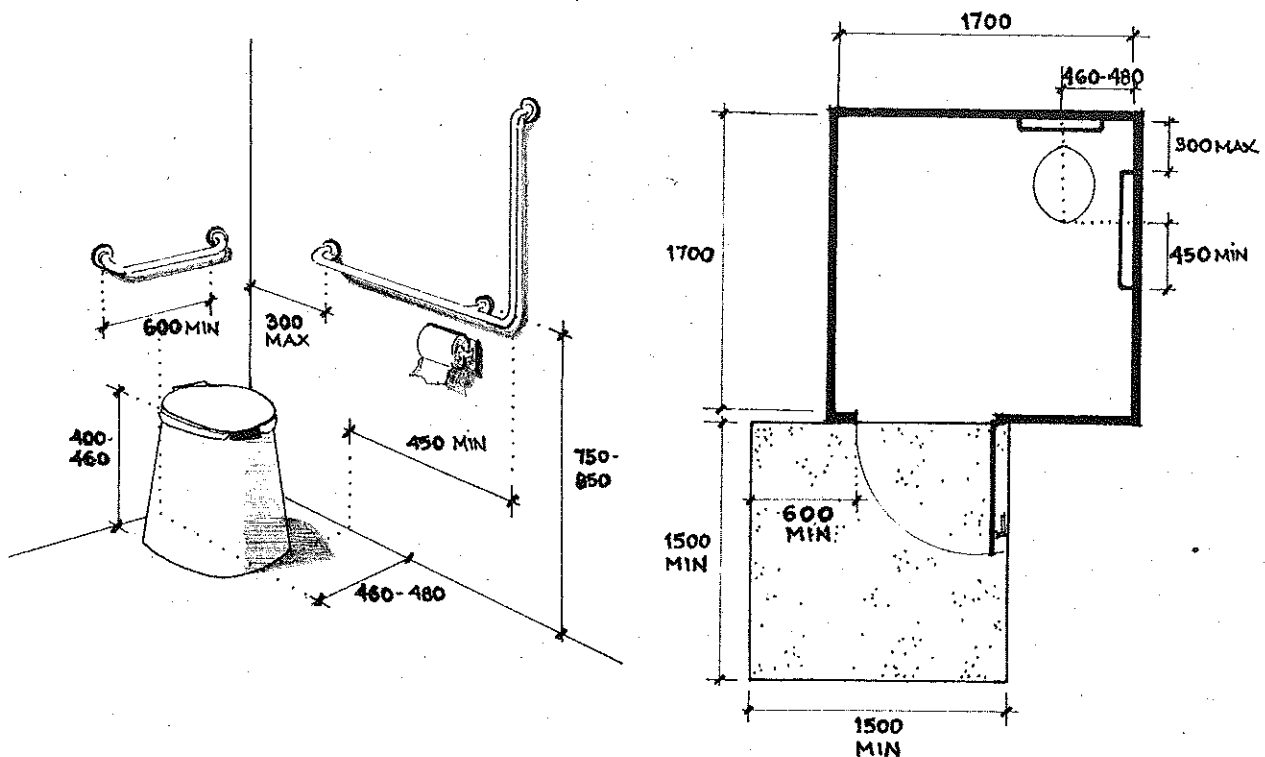
- a) be adjacent to an accessible route;
- b) have knee space under the table at least **750** mm wide x **480** mm deep x **680** mm high; and
- c) have a level, firm ground surface extending at least **1500** mm on all sides of the table.



5.1.9 Accessible Privies

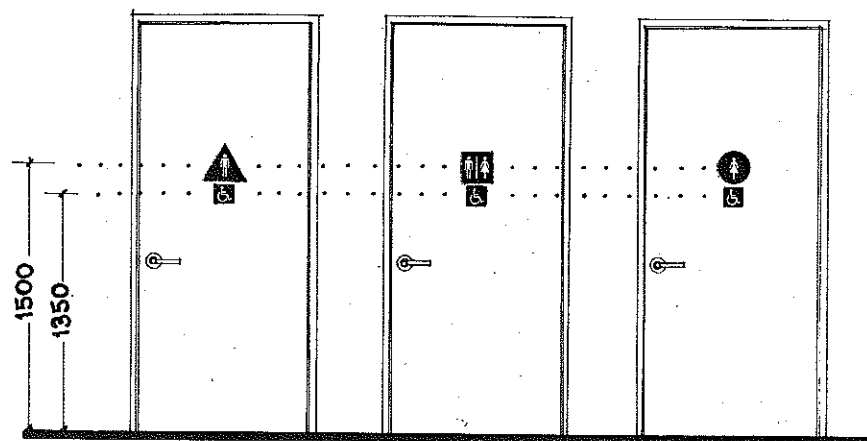
Accessible privies should

- a) have a floor area at least **1700 x 1700 mm**;
- b) have a toilet fixture with its centreline located between **460** and **480 mm** from the adjacent wall, and with the top of the seat between **400** and **460 mm** from the floor;
- c) have a **600 mm** horizontal grab bar mounted behind the toilet at a height between **750** and **850 mm** from the floor;
- d) have an L-shaped grab bar mounted on the adjacent wall closest to the toilet with the horizontal element mounted at a height between **750** and **850 mm** from the floor and extending from a point not more than **300 mm** from the rear wall to at least **450 mm** in front of the toilet seat, and with the vertical element at least **450 mm** long;
- e) have a toilet paper dispenser mounted below the side grab bar and not more than **300 mm** in front of the toilet seat; and
- f) be equipped with a coat hook mounted not more than **1400 mm** from the floor on a side wall and projecting not more than **40 mm** from the wall.



The privy door should

- a) swing out;
- b) have a clear opening at least **810** mm wide;
- c) be equipped with a lever handle that returns to the door, has a push-button lock and can be opened from the outside in case of emergency;
- d) close automatically with spring-type or gravity hinges;
- e) have a threshold not more than **13** mm high, and where over **6** mm high, bevelled at a slope of **1:2**;
- f) have a firm and level pad at least **1500** x **1500** mm serving the door, and extending at least **600** mm next to the door on the latch side; and
- g) have a washroom identification sign mounted in the centre of the door, with its centreline at a height of **1500** mm from the landing, and an international symbol of access mounted below the washroom identification sign, with its centreline at a height of **1350** mm from the landing.

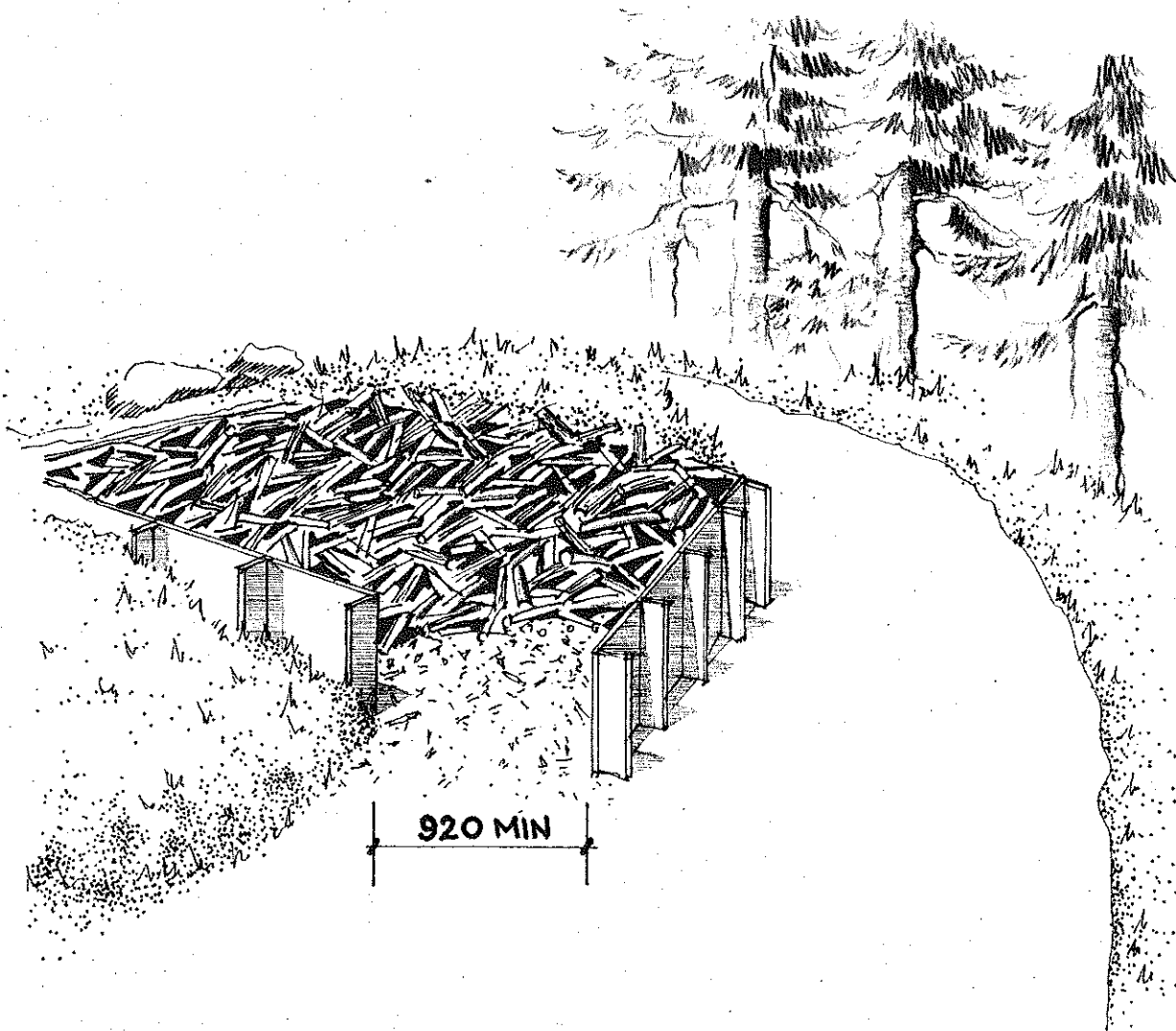


The TB policy states that *"tactile signs must be used for washrooms, emergency egress, elevators, stairwells and doors off main corridors"* (article 1.6, Appendix B). In response to this policy requirement, Parks Canada has developed tactile signs for its washrooms and privies.



5.1.10 Wood Bins

Wood bins should have a **920 mm** clear opening on one side to allow wheelchair users to have access to the firewood. The opening should be flush with the adjacent ground surface and remain unobstructed at all times.

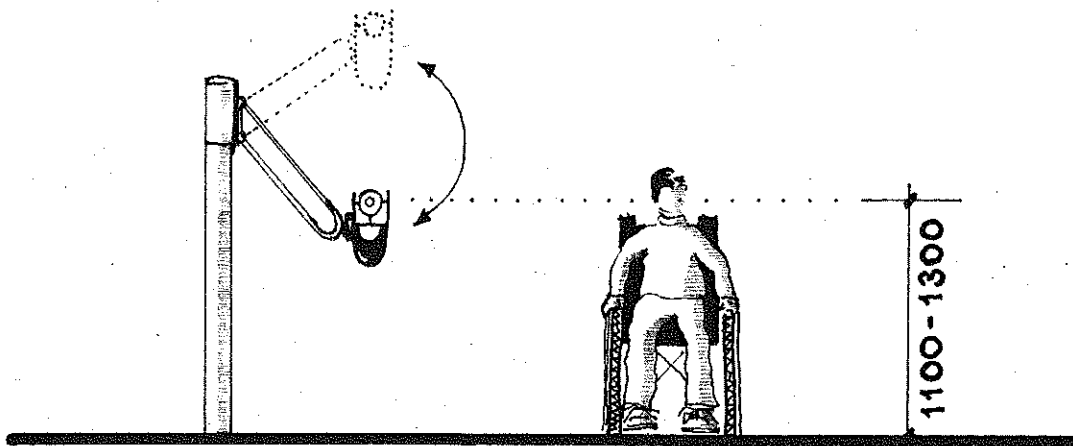


5.1.11 Viewing Scopes

Accessible viewing scopes should

- a) have a clear area at least **750 x 1200 mm** in front of them;
- b) have a clear knee space between the unit and the ground at least **750 mm wide, 430 mm deep and 680 mm high**; and
- c) have the optical lens located between **1100 and 1300 mm** from the ground.

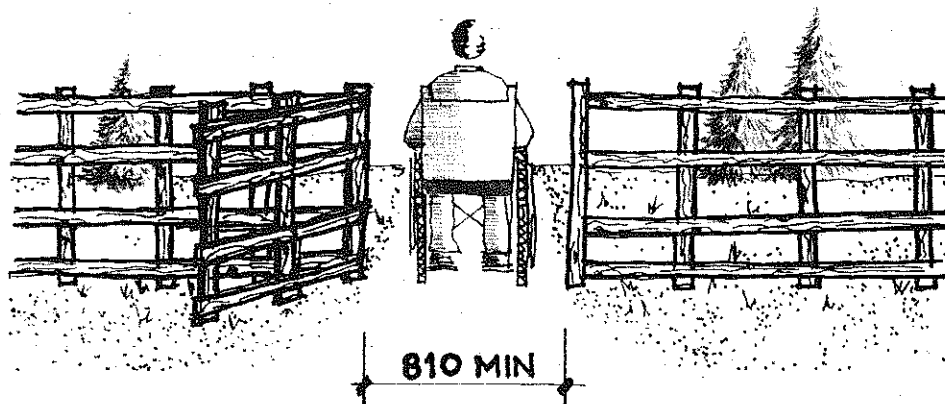
Variable-height viewing scopes are preferred to fixed scopes because they can be positioned at any viewer's eye level.



5.1.12 Gates

Gates shall

- a) have a minimum clear opening at least **810 mm** wide; and
- b) have, next to the latch, a clear, firm and level manoeuvring space at least **600 mm** wide on the pull side, and at least **300 mm** wide on the push side.



5.2 Outdoor Lighting

5.2.1 General

Outdoor lighting may be natural or artificial, and differ in intensity, direction, consistency and colour. Accessible lighting levels are specified in the CSA-B651 standard for elevator controls, stair nosings and telephone shelves in buildings. No accessible light levels are specified for outdoor situations, where natural light is usually sufficient. However, artificial lighting should be provided when facilities are expected to be used after dark.

Outdoor lighting poses particular problems as natural light is highly variable in intensity and direction. Because sunlight moves in an arc, outdoor panels and signs should be oriented to suit the season and time of day when most visitors are expected. Usually, exhibit panels should be oriented parallel to the direction of the sun's movement, roughly east-west. The Access Series document *Design Guidelines for Media Accessibility* should be consulted when installing signs or exhibit panels outside.

For reference purposes, 50 lx (4.65 fc) corresponds to the illumination level of a well-lit street. Potentially hazardous areas, such as stairs, should be illuminated at that level for the safety of its users after dark.

Adequate lighting should be provided on signs and exhibits, and at parking areas, walkways, stairs, ramps, boardwalks, bridges, washrooms and outdoor amphitheatres, if night use is anticipated. Adequate lighting in public areas is essential to facilitate lip reading and sign language communication.

Lighting fixtures and posts should be situated so as not to create a hazard to blind and visually-impaired persons. Fixtures should be placed so that light patterns intersect at 2100 mm above the ground. Low level fixtures and posts (i.e. below 1500 mm) should be designed to avoid creating glare.

Many persons with visual impairments and senior citizens are affected when lighting is either inadequate or inconsistent. Some of them may require a significant amount of time to adjust to abrupt changes in illumination levels (photo adaptation).

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