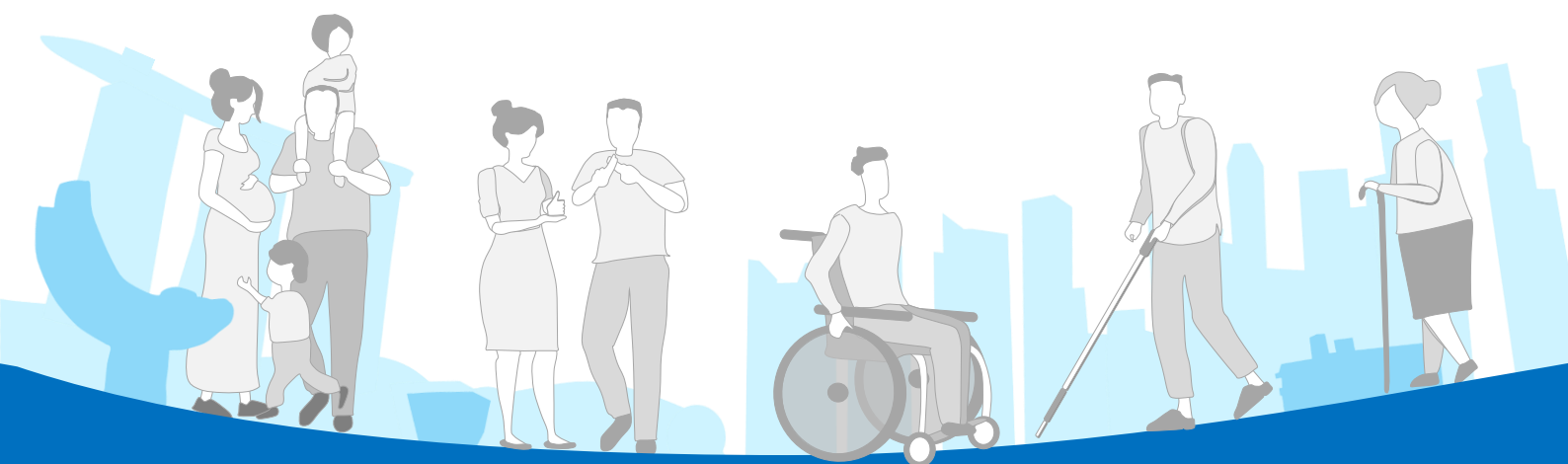




COMPANION GUIDE

TO CODE ON ACCESSIBILITY
IN THE BUILT ENVIRONMENT 2025



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INTRODUCTION

Purpose and Scope

This Companion Guide serves as a resource for built environment professionals seeking to achieve design excellence beyond minimum regulatory compliance. The Building Control Regulations and the Code on Accessibility in the Built Environment establish performance requirements and acceptable solutions. This guide expands upon these by providing additional design recommendations based on insights from the Code Review Committee, industry and public feedback, research findings and current design trends.

This guide recognises that thoughtful designs extending beyond minimum compliance create environments that are not only accessible but truly inclusive, fostering independence and dignity for users of different ages and abilities.

It encompasses a broader scope of building contexts and provides additional approaches and alternative solutions that designers can adapt to meet the specific needs and circumstances of different projects. By presenting a range of options, this guide acknowledges that accessibility excellence can be achieved through various pathways, each tailored to unique project constraints and opportunities.

How to Use This Guide

This guide is organised to complement the Code, with cross-references to relevant Code sections provided throughout. The document is structured to support both sequential reading and targeted reference, allowing users to focus on specific building elements or design challenges as needed.

The guidance presented represents current best practices at the time of publication. As people's needs and technologies continue to evolve, readers are encouraged to stay informed of emerging practices and embrace universal design principles. By implementing the recommendations outlined in this guide, practitioners can contribute to creating a more accessible and inclusive built environment.

A. Passenger Alighting and Boarding Points

Baseline Mandatory Requirements

Refer to Clauses under Section 3.2 of the Code.

Design Recommendations

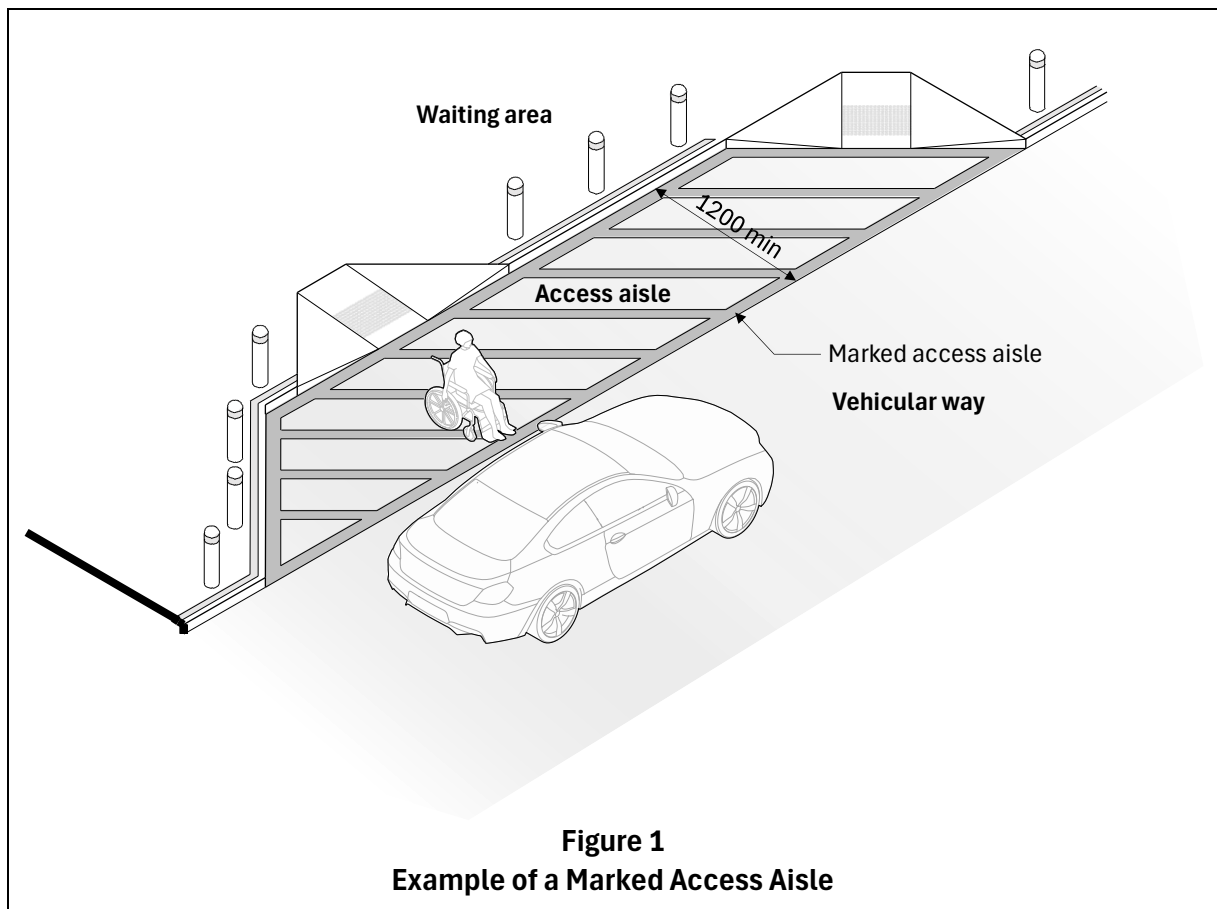
Passenger alighting and boarding points serve as critical transition zones where persons with disabilities transfer from vehicles to the built environment. These spaces should accommodate the time and space needed for safe transfers, particularly for wheelchair users, persons using mobility aids, or those requiring assistance from caregivers.

A.1 Placement of Alighting and Boarding Points

A.1.1 Passenger alighting and boarding points should be situated:

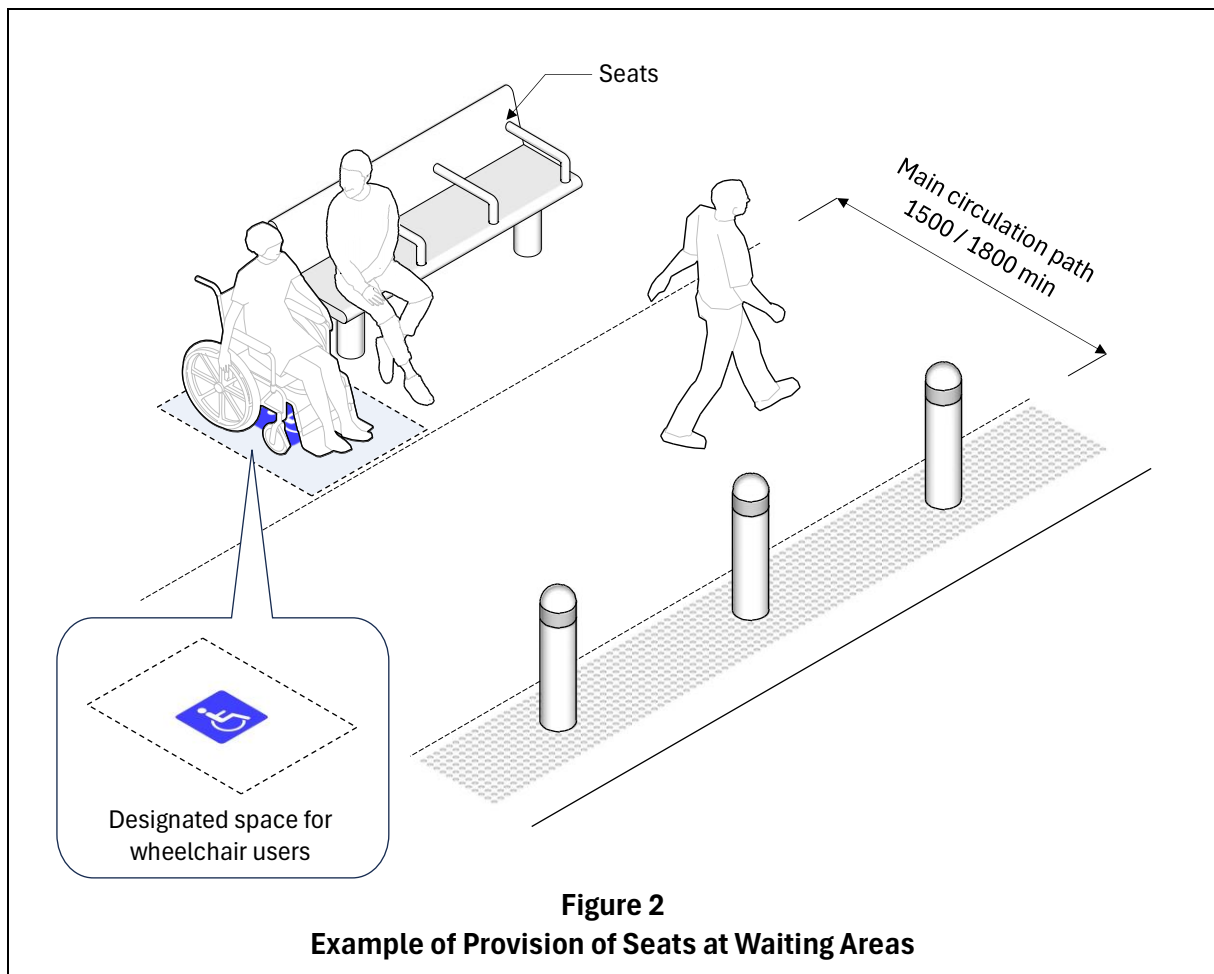
- (a) at the same level as the main entrance that enables persons with disabilities to safely and conveniently alight from and board vehicles; and
- (b) as close as practicable to an accessible entrance to the building or facility.

A.1.2 Access aisle surfaces should be clearly marked as shown in Figure 1 to discourage parking in the access aisle, which serves as safe buffer zones for persons with disabilities to alight from and board the vehicle safely.



A.2 Provision of Seats at Waiting Areas

- A.2.1 Seats provided at waiting areas should include designated spaces for wheelchair users that are clearly marked with the international symbol of access.
- A.2.2 All seating arrangements, including designated areas for wheelchair users, should be positioned outside the main circulation paths to avoid obstructing pedestrian flow, as shown in Figure 2.



- A.2.3 A variety of seating facilities should be provided to offer people a place to wait and rest. Seating design should incorporate the following considerations:
- use non-reflective materials with visual contrast against the background to assist persons with visual impairment in identifying seating areas;
 - provide suitable armrests and backrests to assist persons with ambulant mobility impairment or the elderly when sitting and standing;
 - avoid bum rests and perch seats as they do not provide adequate support for persons with ambulant mobility impairment or the elderly;
 - the seats should be stable and secured to a firm and level surface; and
 - provide seats of varying heights for different users.

An example of a seat design with the dimensions and profile is shown in Figure 3.

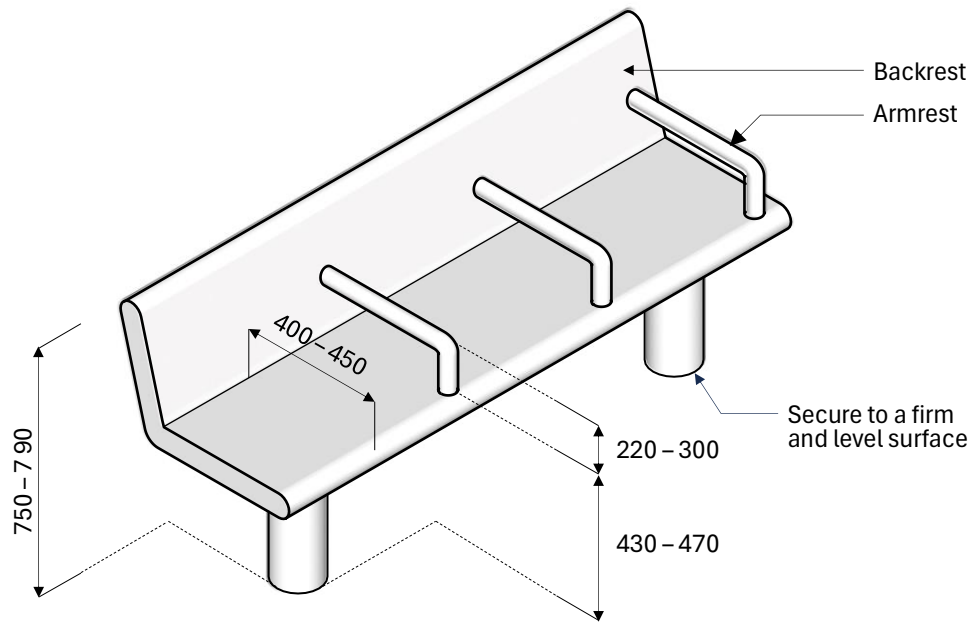


Figure 3
Example of a Seat with Armrests and Backrest

B. Accessible Vehicle Parking

Baseline Mandatory Requirements

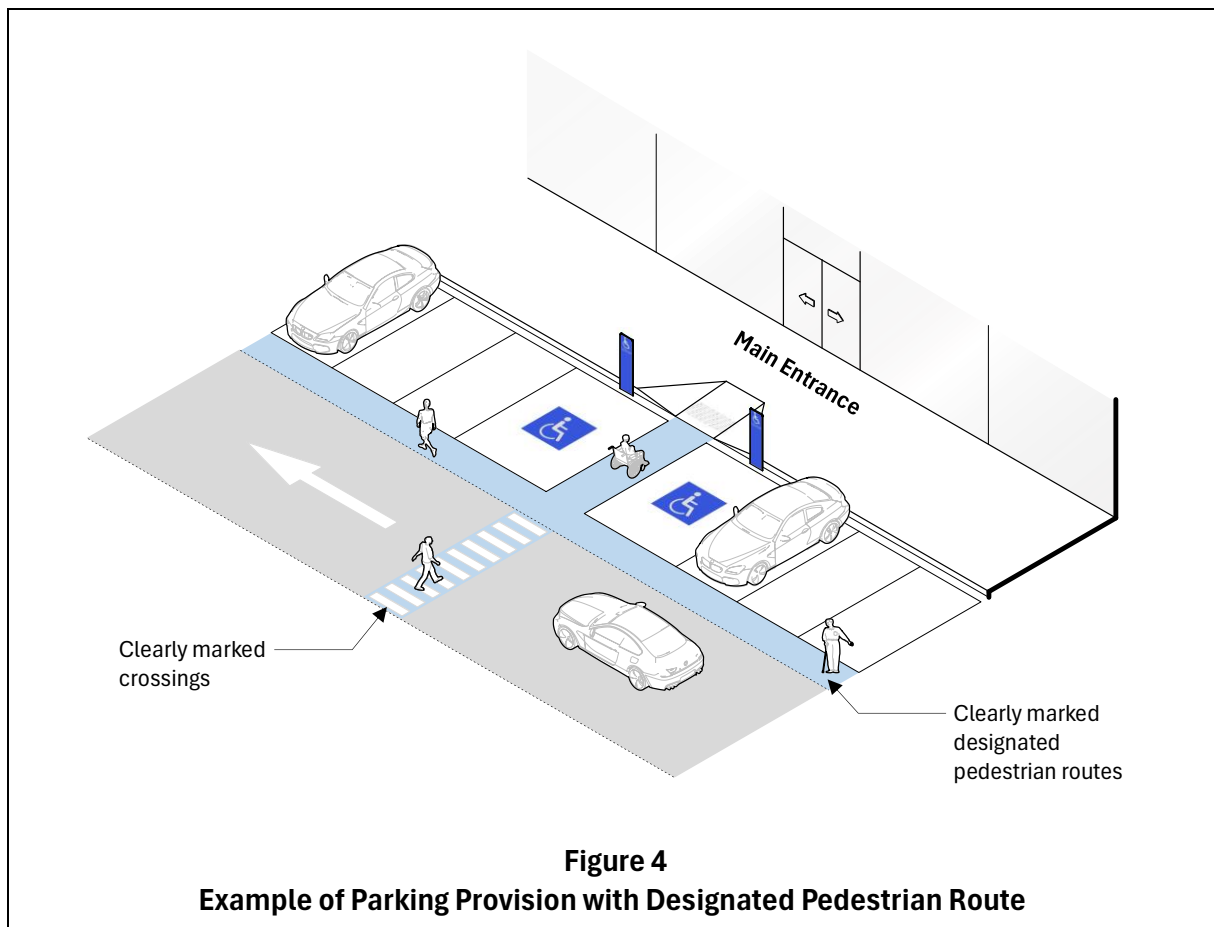
Refer to Clauses under Section 3.3 of the Code.

Design Recommendations

Accessible parking design should consider placement strategies, emerging technologies and the complete user journey from vehicle arrival to building entrance. These recommendations address how drivers and passengers with disabilities navigate parking facilities and access buildings safely and independently.

B.1 Placement of Accessible Vehicle Parking

- B.1.1** Accessible vehicle parking lots should be located to allow persons with disabilities to reach accessible entrances without having to cross driveways, reversing zones, or other vehicular areas.
- B.1.2** Where direct access is not possible, clearly marked designated pedestrian routes and crossings should be provided to ensure safe access to the nearest entrances, as shown in Figure 4. Such routes should run in front of, instead of behind, parking spaces for greater safety.



B.1.3 Accessible vehicle parking lots should be dispersed to serve different floors, entrances and building usages.

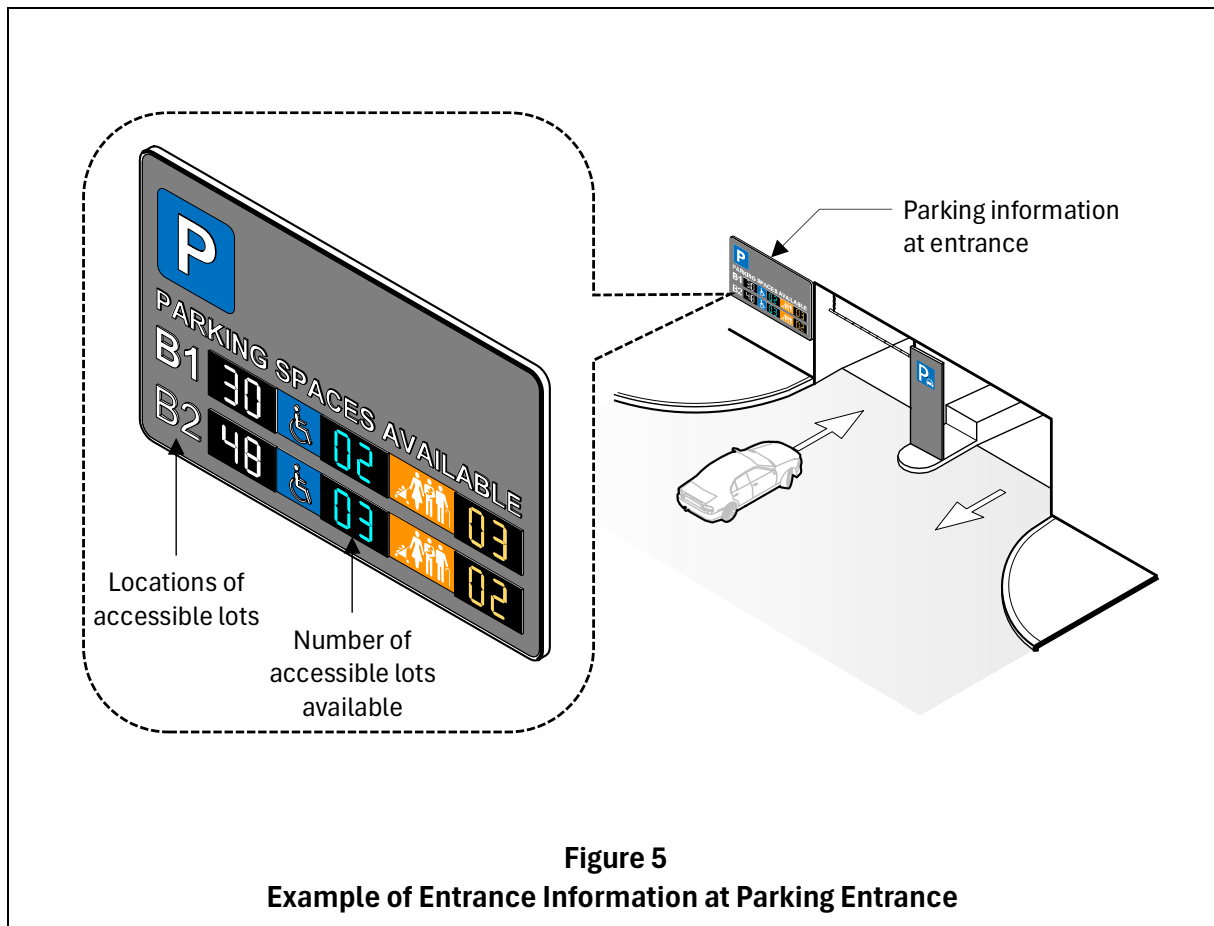
B.1.4 For development with high footfall such as healthcare facilities, shopping areas and places of public resort, consider providing a greater number of accessible vehicle parking lots.

B.2 Wayfinding and Information Systems

B.2.1 Entrance Information

B.2.1.1 To enable drivers with disabilities to quickly locate available accessible vehicle parking lots, information should be provided at vehicle park entrances, as shown in Figure 5, displaying:

- (a) the number of accessible vehicle parking lots available; and
- (b) locations of accessible vehicle parking lots within the facility.

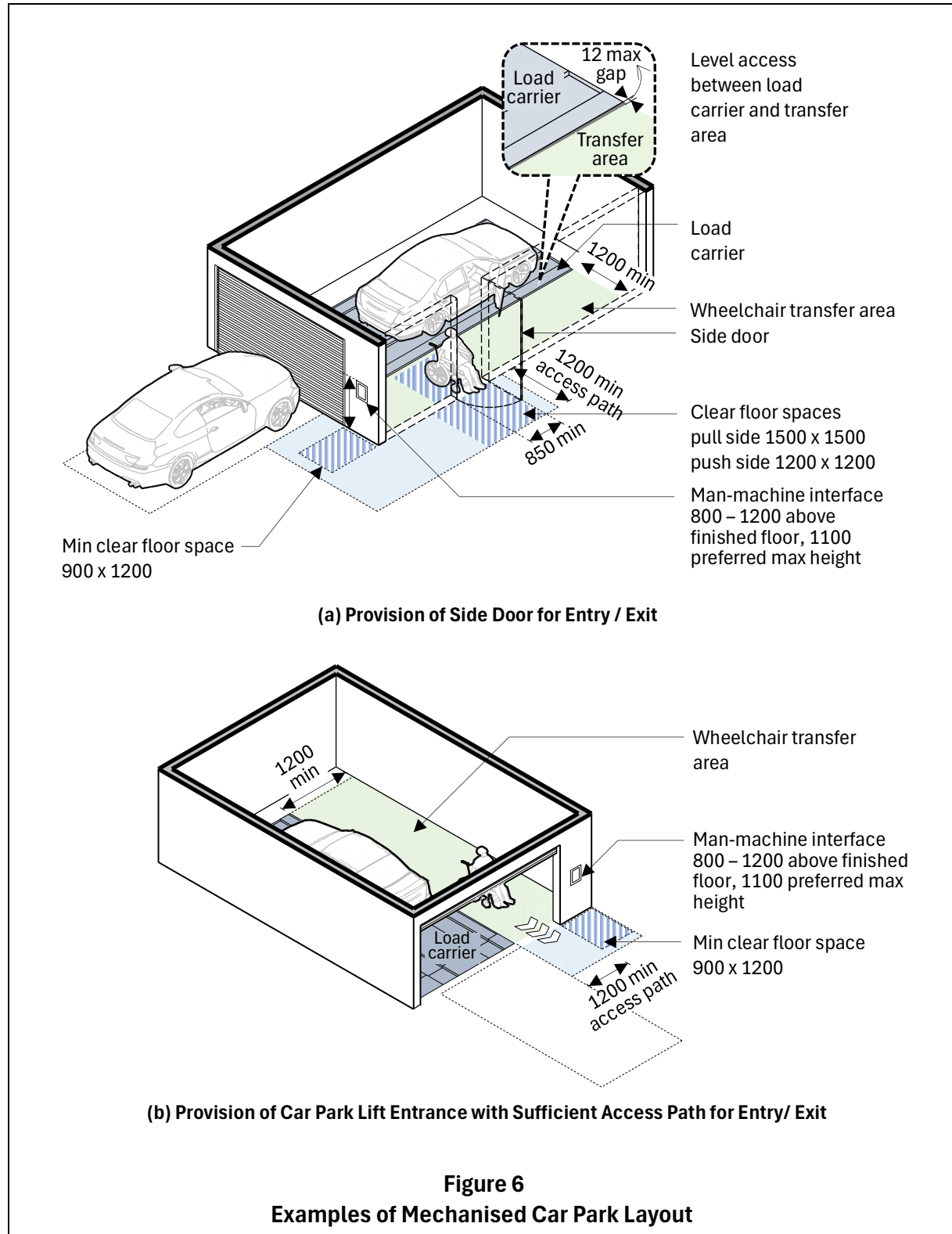


B.2.2 Directional Signage

B.2.2.1 In addition to directional signage installed along driving routes to accessible vehicle parking lots, additional signage should be provided where these lots are not immediately visible from approach points.

B.3 Mechanised Car Park Systems

B.3.1 Mechanised Car Park Systems (MCPS) usually require customisations and additional operational considerations to meet the needs of persons with disabilities. Standard accessible vehicle parking lot is preferred.



- B.3.2** Where MCPS are used, the design should incorporate the following considerations:
- (a) if drivers with disabilities remain in their vehicles during the parking sequence (semi-automatic or manual systems), accessible transfer areas should be provided at the load carrier platform;
 - (b) if drivers with disabilities do not accompany their vehicles (automatic systems), accessible transfer areas should be provided at the loading and unloading area for drivers and passengers with disabilities.
- B.3.3** All MCPS man-machine interface (MMI) components, including control panels and operational interfaces, as shown in Figure 6, should be:
- (a) positioned within accessible reaching ranges between 800 mm and 1200 mm from floor level;
 - (b) provided with clear floor space of minimum 900 mm width by 1200 mm depth in front of controls; and
 - (c) accessible via an access path of minimum 1200 mm width.
- B.3.4** The load carrier and transfer area in MCPS should incorporate the following design considerations to facilitate safe vehicle transfer for drivers and passengers with disabilities, as shown in Figure 6:
- (a) the load carrier should be level with the transfer area platform with no raised or protruding elements;
 - (b) gaps between the load carrier and transfer area should not exceed 12 mm to prevent mobility aid wheels from becoming trapped;
 - (c) the transfer area should have a minimum clear width of 1200 mm; and
 - (d) the transfer area should remain unobstructed by mechanical and electrical equipment compartments to ensure safe passage.
- B.3.5** A minimum 1200 mm wide egress path should be provided from the transfer area to an accessible exit door, leading to the MMI control panel for system operation if drivers with disabilities are required to operate the MMI, as shown in Figure 6.

B.4 Electric Vehicle Charging Stations

- B.4.1** Where a parking facility includes electric vehicle charging stations, accessible vehicle parking lots should be equipped with accessible charging stations or be located in close proximity.

Note The design and installation of electric vehicle charging stations should comply with Land Transport Authority (LTA) guidelines.

C. Floor and Ground Surfaces

Baseline Mandatory Requirements

Refer to Clauses under Section 4.1 of the Code.

Design Recommendations

Accessible surfaces should be stable, firm and slip-resistant in both dry and wet conditions. Wheelchair users require smooth, firm surfaces for easy manoeuvring, while people with vision impairments need non-reflective surfaces with uniform textures for tactile guidance. Those using walking aids require secure surfaces that will not catch or obstruct their equipment.

C.1 Protection from Elements

- C.1.1 All floor finishes along accessible routes exposed to weather conditions should comply with the current edition of *Singapore Standard SS 485 Specification for slip resistance classification of pedestrian surface materials*.
- C.1.2 Exterior accessible routes should be protected from rain, sun, and other weather elements wherever practicable.
- C.1.3 Entrances should incorporate floor mats, recessed drains, or other flooring systems that effectively remove water and debris from footwear and wheelchair wheels, with adequate floor area for full wheelchair wheel rotation and expected pedestrian traffic volumes.

C.2 Floor Material Selection

- C.2.1 Avoid floor surfaces that can cause visual confusion or discomfort, such as highly polished floors that create glare and bold patterns or colours that make it difficult to see safety features or may disorient people with vision or sensory difficulties.
- C.2.2 Provide adequate colour contrast between floors and walls to support wayfinding. In large spaces such as halls, shops, or restaurants, create visual distinction between walkways and furnished areas using colour contrast in flooring, regardless of the material, enabling people to identify distinct zones.
- C.2.3 Floor surfaces that meet or connect should have similar slip resistance to ensure consistent traction for both foot traffic and wheeled mobility devices.
- C.2.4 Avoid rough surfaces like cobblestones that cause vibrations and discomfort for users of wheeled mobility aids.
- C.2.5 Floor mats should be recessed, flushed with surrounding finishes, securely fastened and feature ribbed surfaces to ensure seamless accessibility and provide firm traction for wheelchair users.

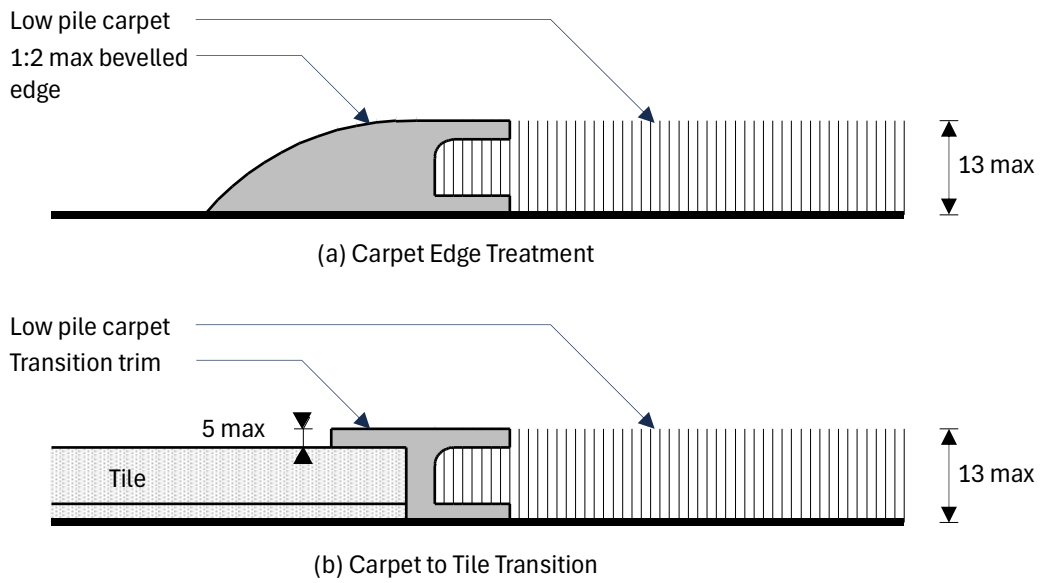


Figure 7
Examples of Carpet Termination

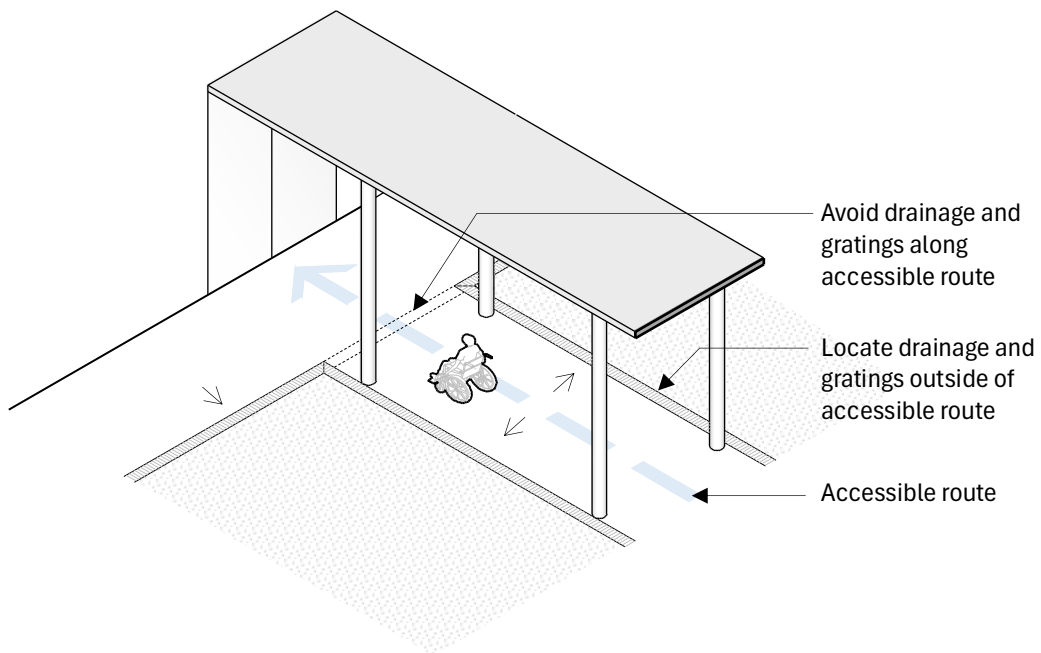


Figure 8
Example of Drainage Layout along Accessible Route

C.3 Carpet Specifications

C.3.1 Use low-pile carpets with dense weave on accessible routes to ensure easy wheelchair navigation and walking aid movement while maintaining comfort and acoustic benefits. Avoid high-pile carpets as deep fibres impede mobility.

C.3.2 Carpet specifications for accessible routes, as shown in Figure 7, should include:

- (a) maximum 13 mm pile height from backing;
- (b) level or textured loop, level cut pile, or level cut/uncut pile;
- (c) firm backing or no cushioning; and
- (d) secure attachment to prevent shifting under wheeled traffic.

C.4 Drainage and Grating

C.4.1 Drainage and gratings should be located outside the accessible route, as shown in Figure 8.

D. Accessible Routes, Corridors and Paths

Baseline Mandatory Requirements

Refer to Clauses under Section 4.2 of the Code.

Design Recommendations

Accessible routes with strategic planning and design serve as the primary circulation network, enabling independent movement for persons with disabilities throughout all building areas and outdoor spaces. Well-designed routes provide continuous, logical pathways that connect key destinations directly without forcing users through hazardous or inappropriate areas—wheelchair users benefit from consistent widths and smooth surfaces; persons with limited endurance require strategic rest areas at appropriate intervals; those with visual impairment need clear wayfinding and obstacle-free paths. Effective design maintains appropriate lighting and eliminates barriers while ensuring seamless connections between different levels and areas.

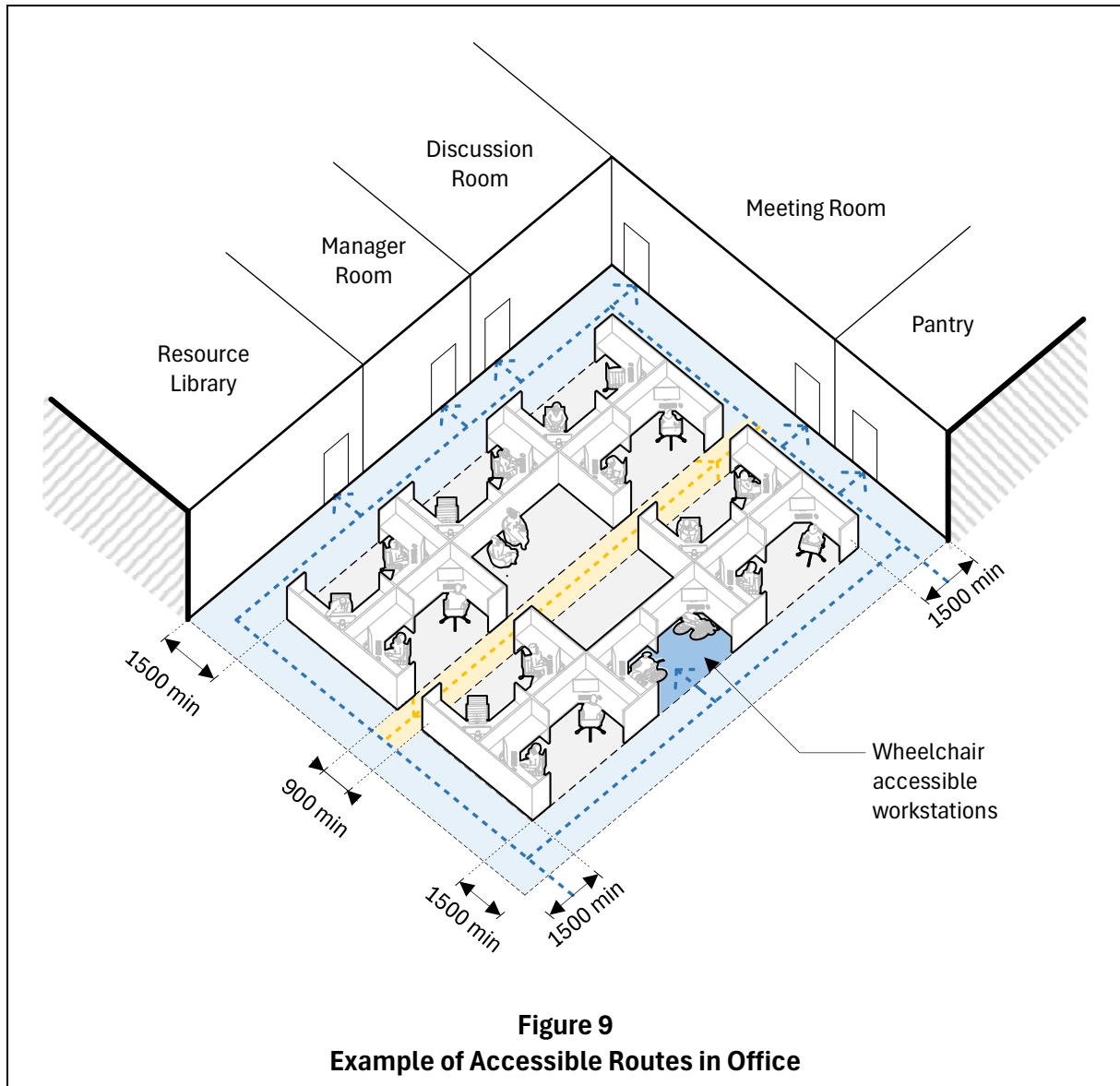
D.1 Accessible Route Planning Principles

- D.1.1 Accessible routes should provide continuous, logical pathways connecting all key destinations without requiring persons with disabilities to travel through hazardous or inappropriate areas such as loading and unloading areas, back-of-house spaces, or service corridors.
- D.1.2 Avoid dead ends or routes that require persons with disabilities to backtrack due to inaccessibility.

D.2 Provision of Accessible Routes in Different Building Types

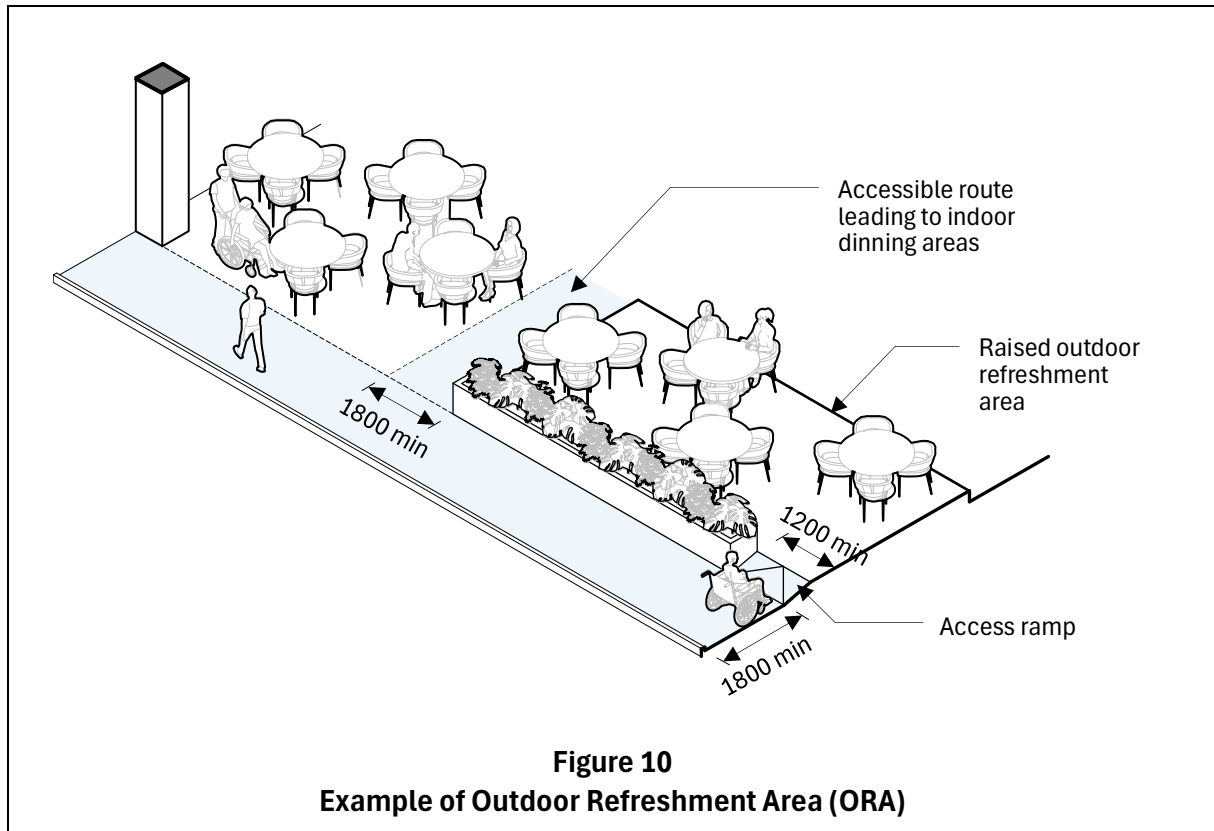
D.2.1 Office Environments

- D.2.1.1 Primary circulation paths within office environments should be accessible, including routes delineated by permanent walls, partitions, counters, or fixed furnishings.
- D.2.1.2 In open-plan office layouts, accessible circulation routes should provide direct pathways between workstation groupings without requiring passage through individual workspace areas, as shown in Figure 9.
- D.2.1.3 Height-adjustable tables and chairs should be provided, with socket outlets positioned at accessible locations. Where meeting pods are used, they should be accessible to wheelchair users.



D.2.2 Restaurant Spaces

- D.2.2.1 In restaurants and cafeterias, accessible routes to all dining areas include those that are raised, or sunken or located outdoors such as outdoor refreshment areas (ORAs), as shown in Figure 10.
- D.2.2.2 To enable persons with disabilities to independently access all food service options, accessible routes should connect dining areas to service counters, self-ordering kiosks, buffet stations, salad bars and self-service areas.

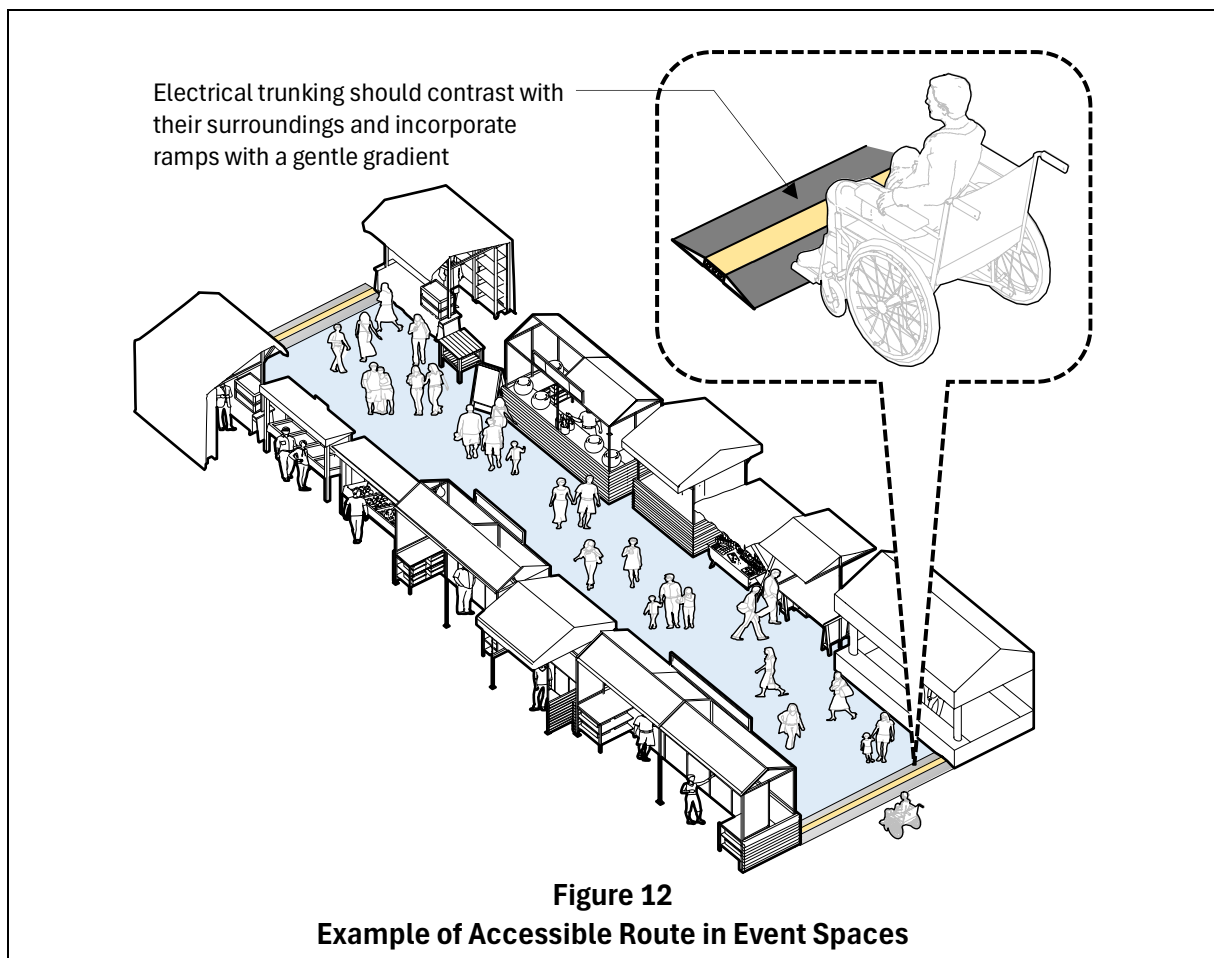
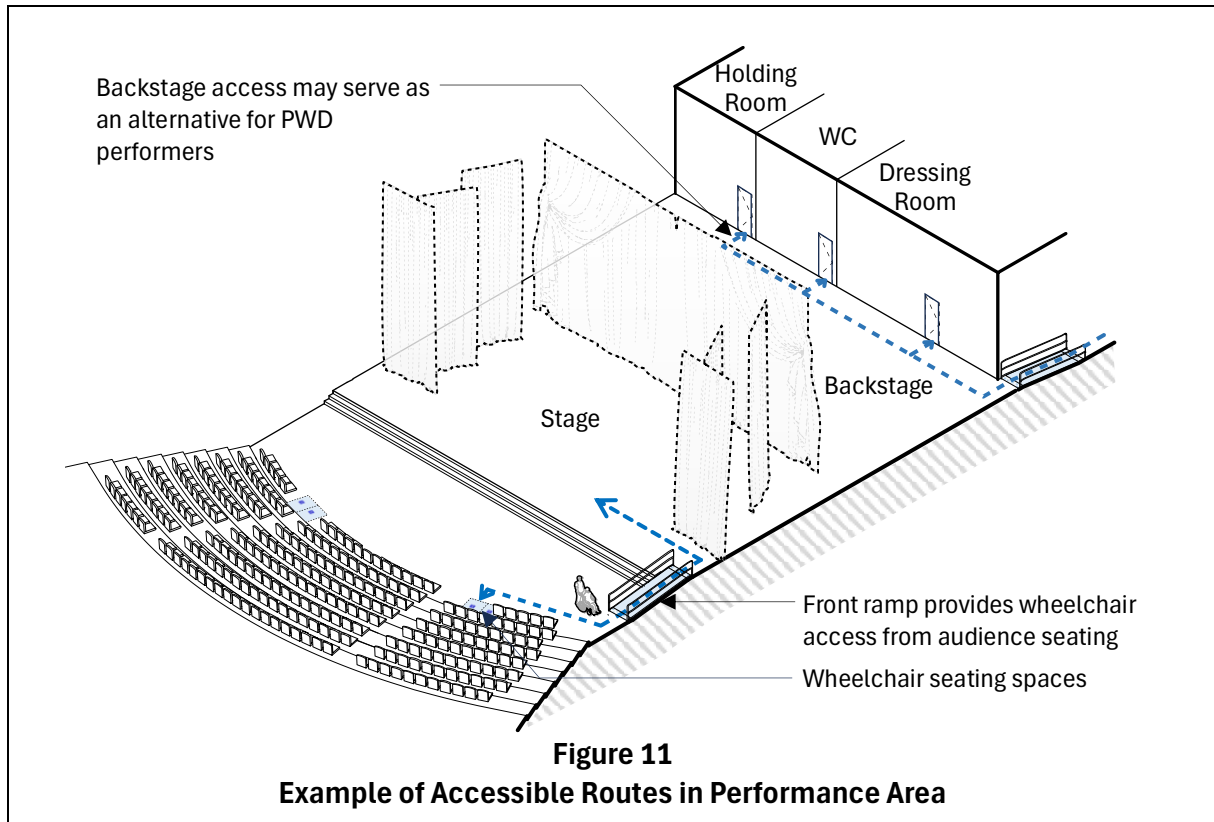


D.2.3 Performance Areas

- D.2.3.1 Provide accessible routes to connect stages and performance areas with backstage areas, including rehearsal spaces, dressing rooms and other sanitary facilities used by performers.
- D.2.3.2 Consider accessible routes that separate performer and audience circulation where security or operational requirements necessitate such separation, whilst maintaining full accessibility for both user groups, as shown in Figure 11.

D.2.4 Event Spaces

- D.2.4.1 Event spaces such as night markets, carnivals, exhibitions and outdoor performance areas should be accessible to persons with disabilities.
- D.2.4.2 Provide accessible routes that connect event spaces to adjacent buildings, commuter and street-level facilities to ensure seamless connectivity.
- D.2.4.3 Design accessible routes that navigate around or mitigate level differences caused by steps, electrical trunking, terracing, or raised planters, as shown in Figure 12.



D.2.5 Parks and Open Spaces

- D.2.5.1** Create diverse trail systems with varying surfaces, widths, slopes, lengths and rest stop frequencies to accommodate users of all abilities. Design trails with different difficulty levels, enabling people to choose experiences that match their capabilities whilst providing meaningful recreational opportunities for shared use between people with and without disabilities.
- D.2.5.2** Plan accessible routes connecting various entry and exit points of recreational facilities within parks and open spaces. Provide maps and wayfinding signage to help users navigate through accessible pathways, locate facilities, and amenities.
- D.2.5.3** The surfaces of accessible routes should be designed with the following considerations for wheelchair users:
- (a) impact-attenuating tiles;
 - (b) compacted engineered wood fibre; or
 - (c) other materials that provide firm, stable surfaces.
- D.2.5.4** Consider the provision of fitness stations, playgrounds, or outdoor facilities that are accessible to persons with disabilities to create an inclusive recreational space for everyone.

D.3 Resting Areas

- D.3.1** Resting areas with seats should be provided along long paths of travel. The maximum intervals for the resting areas should be:
- (a) 50 m for footpaths and park connectors; and
 - (b) 30 m in parks and open spaces.
- D.3.2** Where resting areas are provided, the design of seats should refer to A.2.3.
- D.3.3** Resting areas, as shown in Figure 69, should be:
- (a) recessed from main circulation paths to avoid obstruction;
 - (b) designed to accommodate wheelchair users and allow passing space for two wheelchair users to pass each other; and
 - (c) provided with weather protection where possible.

E. Doors

Baseline Mandatory Requirements

Refer to Clauses under Section 4.4 of the Code.

Design Recommendations

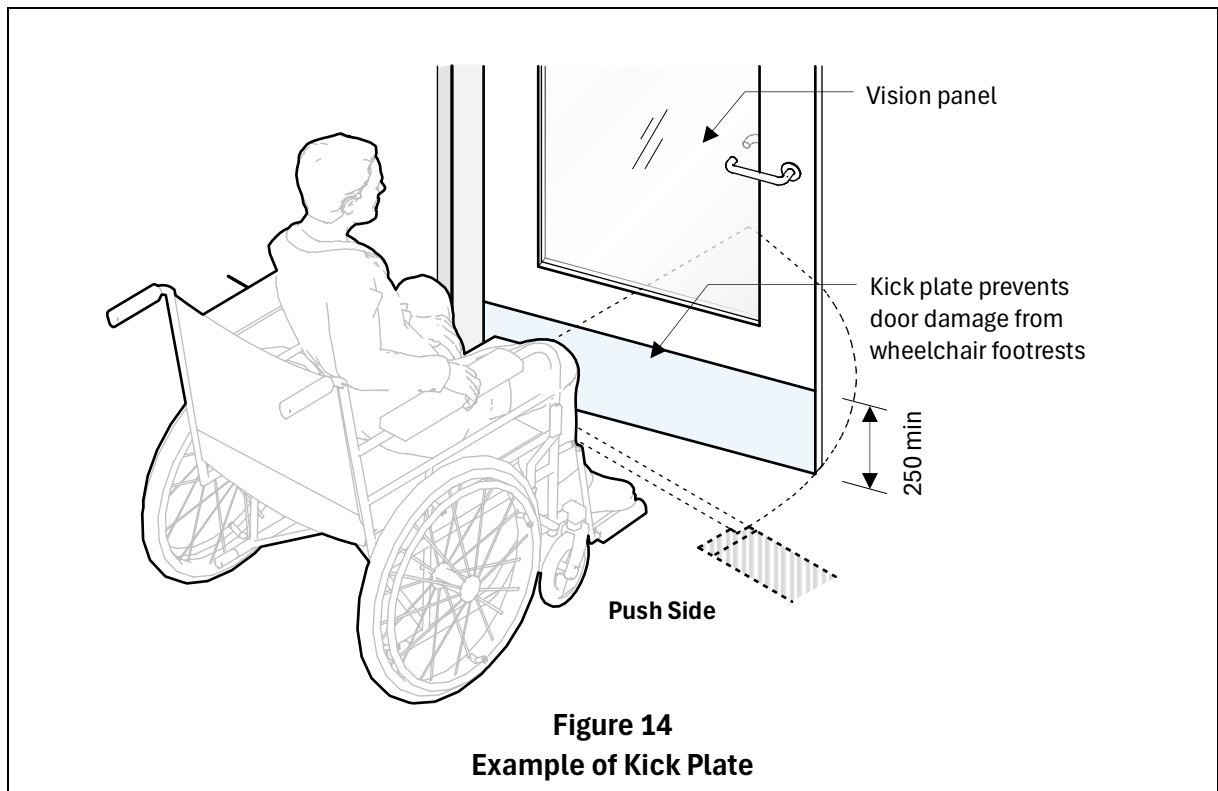
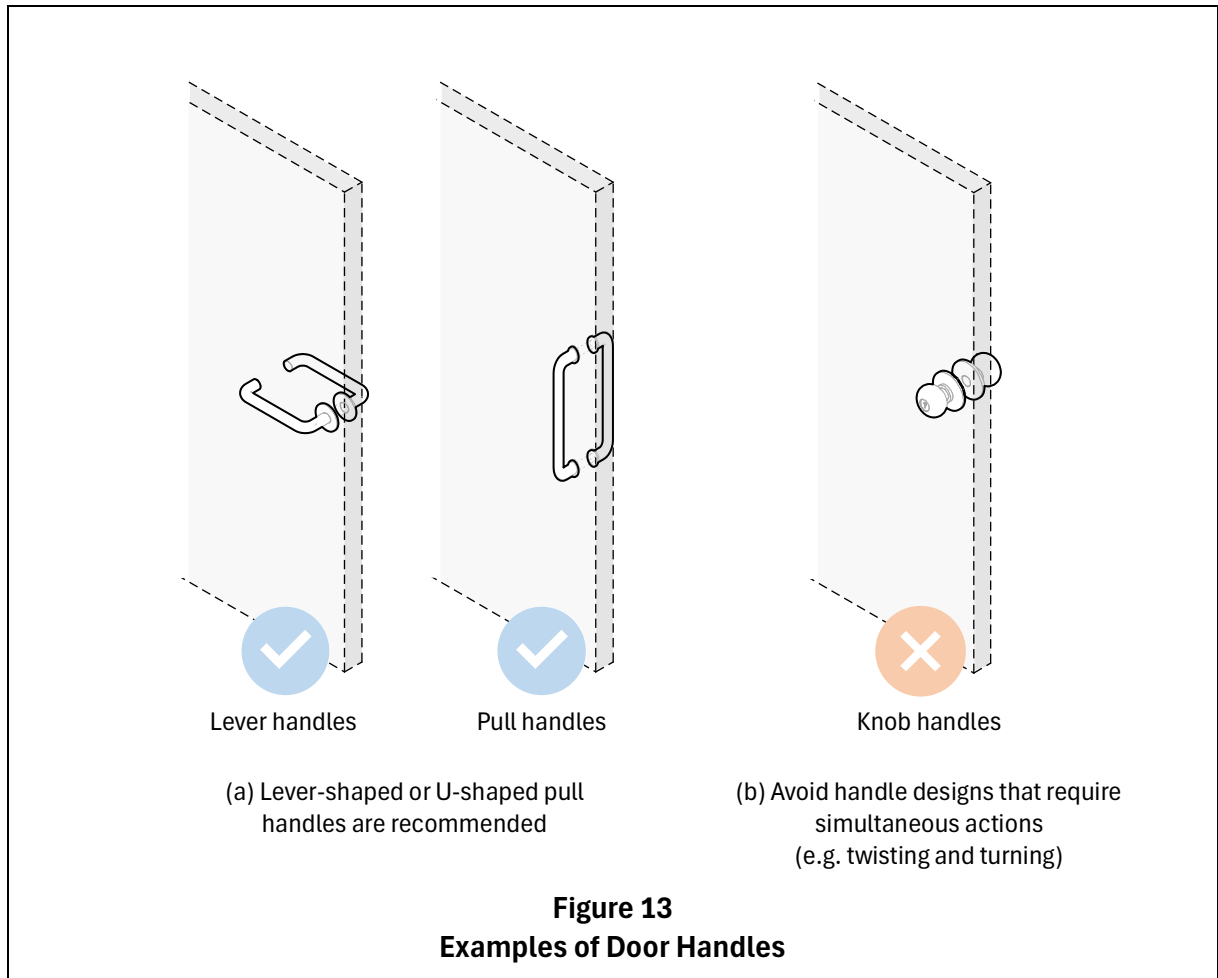
Effective door designs recognise that user approach and operate doors in different ways — some may use alternative grip methods, require additional manoeuvring space, or need more time for passage. Appropriate hardware selection ensures that doors can be operated by users with varying hand function and strength capabilities. Sufficient spacing and manoeuvring areas accommodate wheelchairs and mobility aids, while safety features like vision panels and proper markings help prevent accidents. These recommendations create door designs that support independent use across all ability levels

E.1 Door Hardware

- E.1.1 Door handles should be lever-shaped or U-shaped pulls that accommodate the greatest range of users, as shown in Figure 13, and meet the following:
- (a) lever ends should have designs that reduced risk of injury and prevent catching on clothing;
 - (b) handles should be operable with either a loose grip or closed fist;
 - (c) designs should avoid requiring simultaneous actions, such as thumb latch levers, push-button lever handles, twist and turn mechanisms; and
 - (d) handle height should be consistent throughout the building.

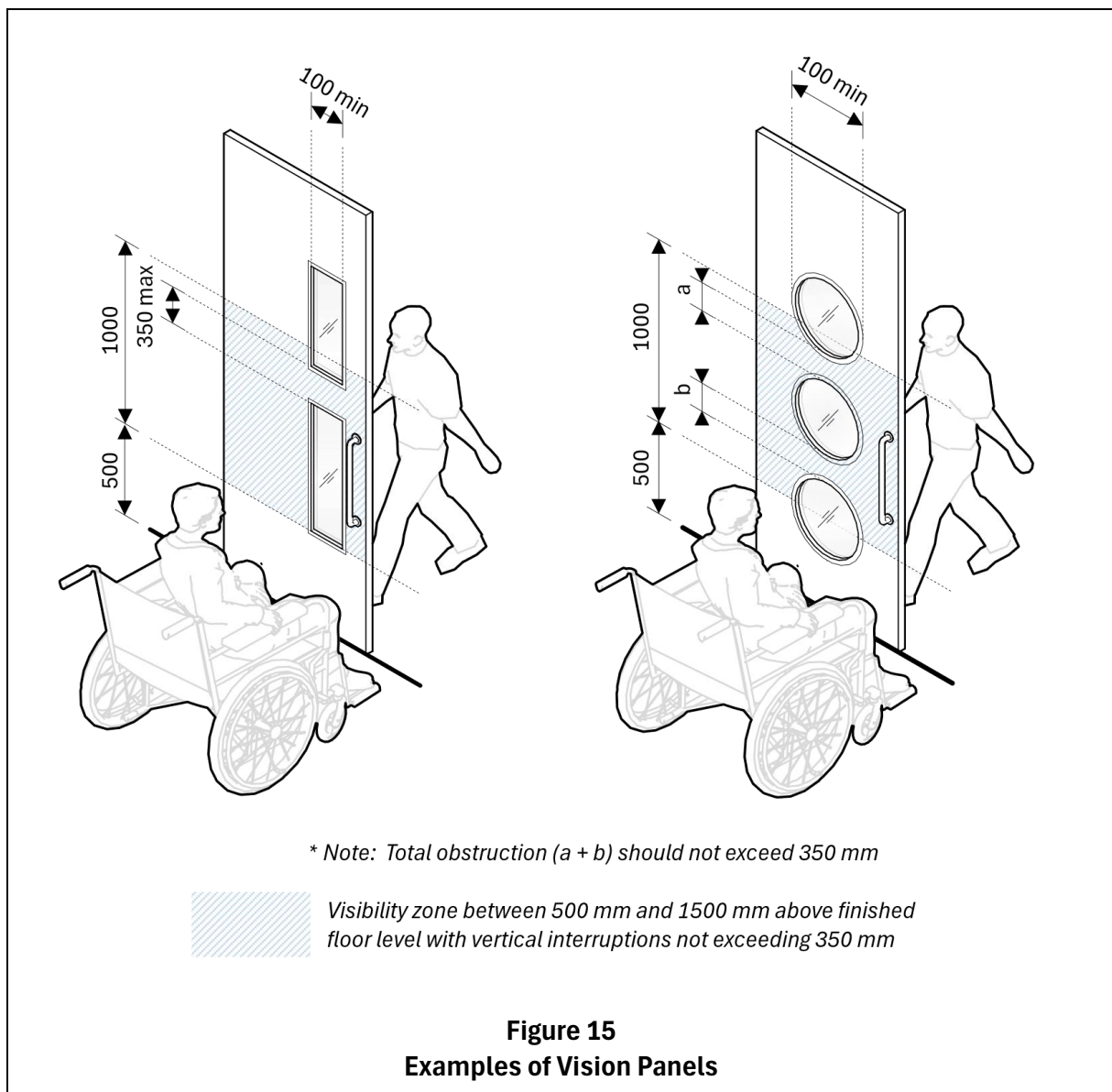
E.2 Kick Plates

- E.2.1 Kick plates in high-use areas should have a minimum height of 250 mm on the push side to protect doors from damage caused by wheelchair footrest, as shown in Figure 14.
- E.2.2 Kick plate surfaces should be smooth without sharp edges to accommodate mobility aids used for pushing or propping doors open.
- E.2.3 Any gaps between kick plates and door surfaces should be closed or capped.



E.3 Vision Panels

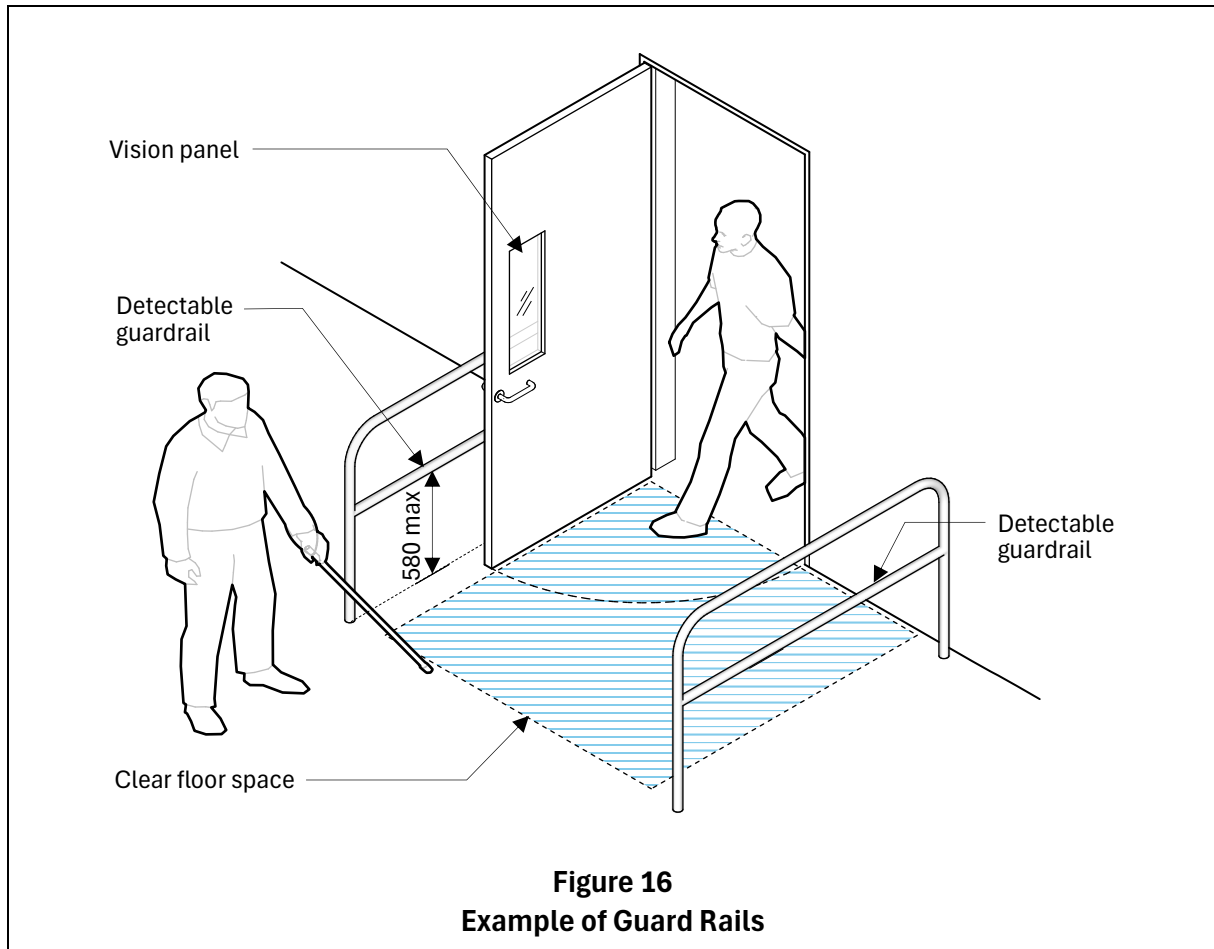
- E.3.1 Vision panels should provide visibility between 500 mm and 1500 mm from floor level to accommodate both wheelchair users and persons with ambulant mobility impairment, preventing accidental collisions.
- E.3.2 Vision panels should be positioned centrally on the door or offset towards the leading edge.
- E.3.3 Where multiple panels are used, opaque areas should not obstruct more than 350 mm of the vertical visibility zone. If interrupted, panels should be provided at both top and bottom of the zone, as shown in Figure 15.



E.4 Door Swing

E.4.1 Guard rails, as shown in Figure 16, should be:

- (a) provided if door swings automatically into the path of travel;
- (b) extended at right angles to the wall containing the door; and
- (c) detectable by white cane at height of 580mm or less.



E.5 Door Opening Force

E.5.1 Door closers should be calibrated with minimum force necessary for closure. Automation is recommended.

E.5.2 Door opening force should not exceed 22 N, with 15 N recommended for optimal accessibility. This force limit applies to keeping the door moving once opened, not the initial push needed to break door seals.

E.5.3 Self-closing doors are difficult for wheelchair users, people using walking aids or guide dogs, and those with limited strength or mobility. Where self-closing doors are too heavy to open (such as in pressurised lobbies), use power-operated doors instead.

Note This recommendation should be read in conjunction with the Fire Safety Code.

E.6 Power-Operated & Automatic Doors

E.6.1 Power-operated doors and automatic doors should be provided at key entrances for ease of access by persons with disabilities.

E.6.2 Power-operated doors should be:

- (a) automatically activated by motion sensor; or
- (b) manually activated by push pad, card reader, or touchless wave sensor that is positioned at a height between 800 mm and 1100 mm.

E.6.3 Automatic doors opening towards users should:

- (a) display clear signage indicating automatic operation and swing direction;
- (b) have detection devices positioned at appropriate distances for safe activation; and
- (c) be equipped with audio announcements to indicate door opening and closing operations.

E.6.4 Manual activation controls should:

- (a) have visual contrast against the background; and
- (b) be positioned as close to the door as possible without creating safety hazards.

Note However, for swing doors, controls must be at least 1000 mm away from the door, and for sliding doors, controls should not be installed on the door itself.

F. Ramps

Baseline Mandatory Requirements

Refer to Clauses under Section 4.6 of the Code.

Design Recommendations

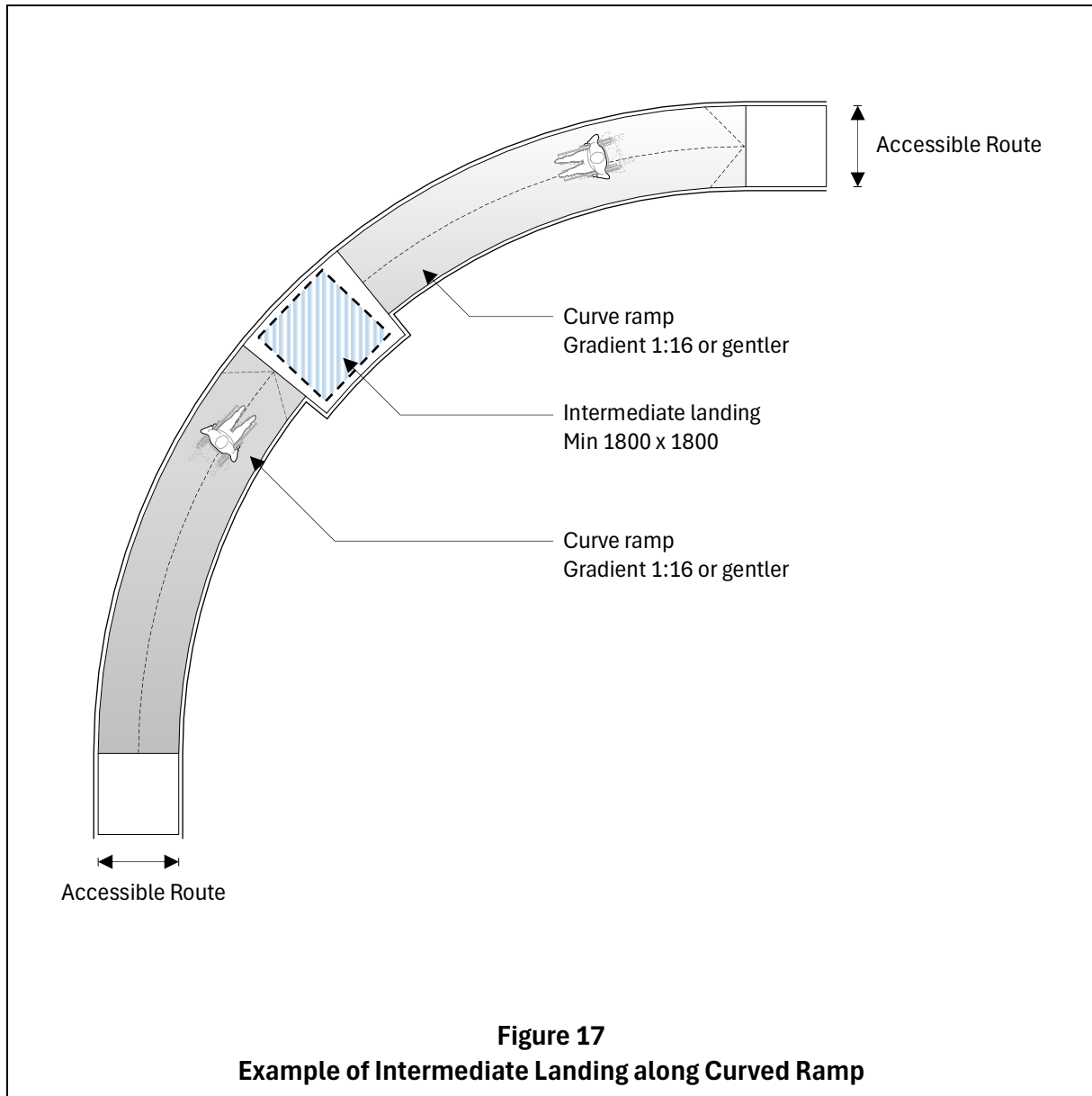
Ramps provide essential vertical circulation that enables access to different building levels for wheelchair users and persons with mobility impairments. Well-designed ramps balance accessibility requirements with user comfort and safety considerations, such as incorporating appropriate gradients, adequate landing areas for rest and manoeuvring, and comprehensive handrail design that provides support for users of varying statures. These recommendations guide the design of ramps that offer safe, comfortable passage while integrating well with overall building circulation, ensuring that level changes facilitate rather than hinder building accessibility.

F.1 General

- F.1.1 Ramps should be as gentle as possible within the available space, with 1:15 or gentler slopes being more accessible.
- F.1.2 Ramps should be limited to 4 runs with 3 intermediate landings to prevent user fatigue. Where level changes require more than 4 runs, consider alternative solutions such as:
 - (a) multiple shorter ramps combined with lifts or platform lifts; or
 - (b) design modifications to reduce the total level change.
- F.1.3 Provide intermediate landings with minimum dimensions of 1800 mm by 1800 mm on curved or long ramps where users cannot see oncoming users and on any ramp with three or more runs, to allow wheelchair users to pass safely or rest without obstructing the ramp, as shown in Figure 17. Consider installing wide-angle mirrors at strategic locations to eliminate blind spots and improve visibility for all users.

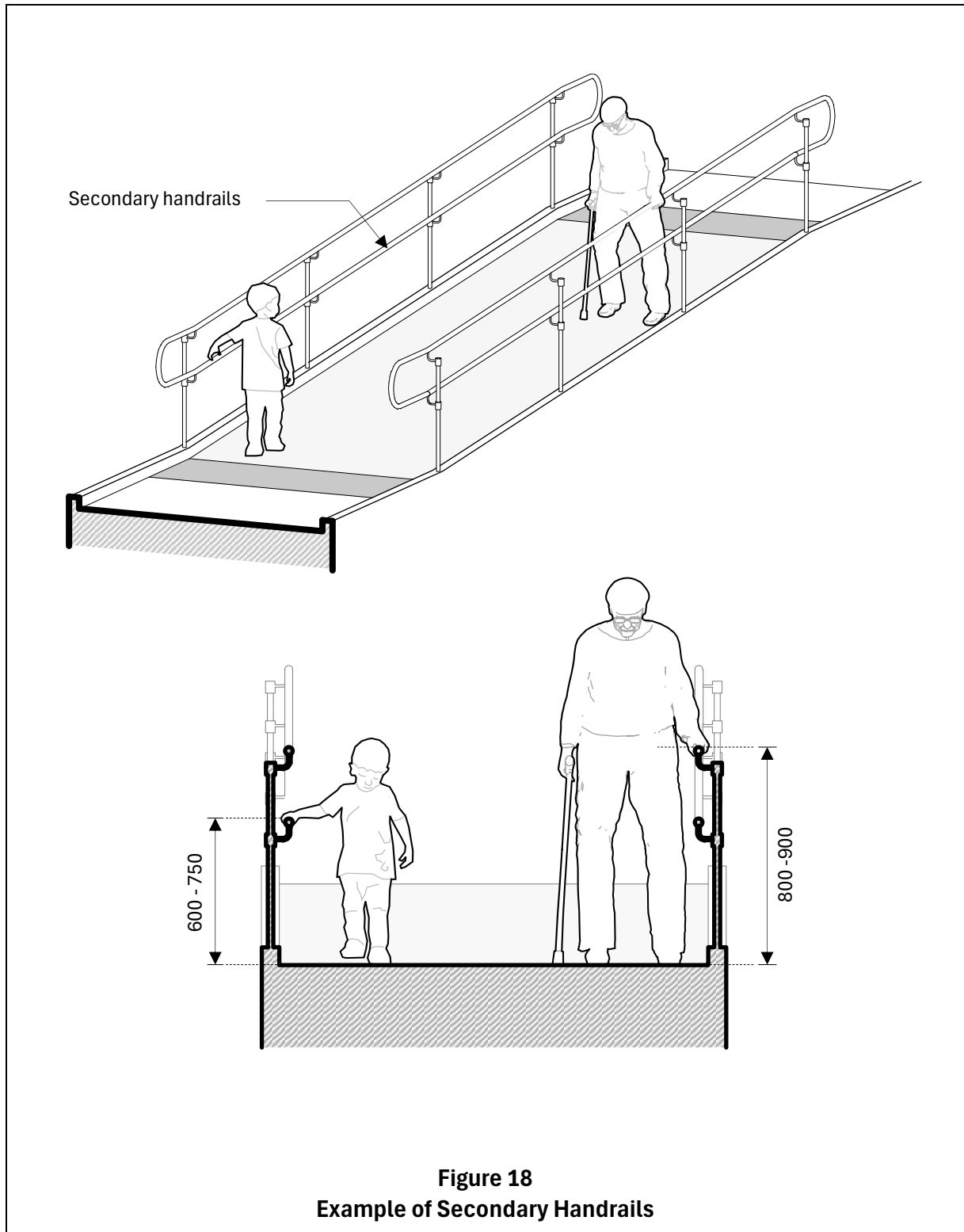
F.2 Combination of Ramps and Stairs

- F.2.1 Provide stairs and ramps adjacent to each other to accommodate different user preferences and mobility needs. Where stairs and ramps are not adjacent to each other, provide directional signage to the ramps.



F.3 Handrails

- F.3.1 Handrails should be clearly identifiable through the use of visual contrast against background surfaces to enhance visibility.
- F.3.2 Secondary handrails should be provided to cater to people with short statures at a height between 600 mm and 750 mm, as shown in Figure 18.



G. Stairs

Baseline Mandatory Requirements

Refer to Clauses under Section 4.7 of the Code.

Design Recommendations

Staircases with uniform steps and continuous handrail support benefit all users, especially persons with ambulant mobility impairment who rely on predictable dimensions to maintain balance and orientation, while tactile and visual cues help persons with sensory impairments identify level changes and potential hazards. Thoughtful material selection eliminates visual confusion from patterned surfaces and glare that can disorient users, while proper handrail extensions and tactile signage provide the additional guidance and support that enable confident, independent stair use.

G.1 Floor Finishes and Materials

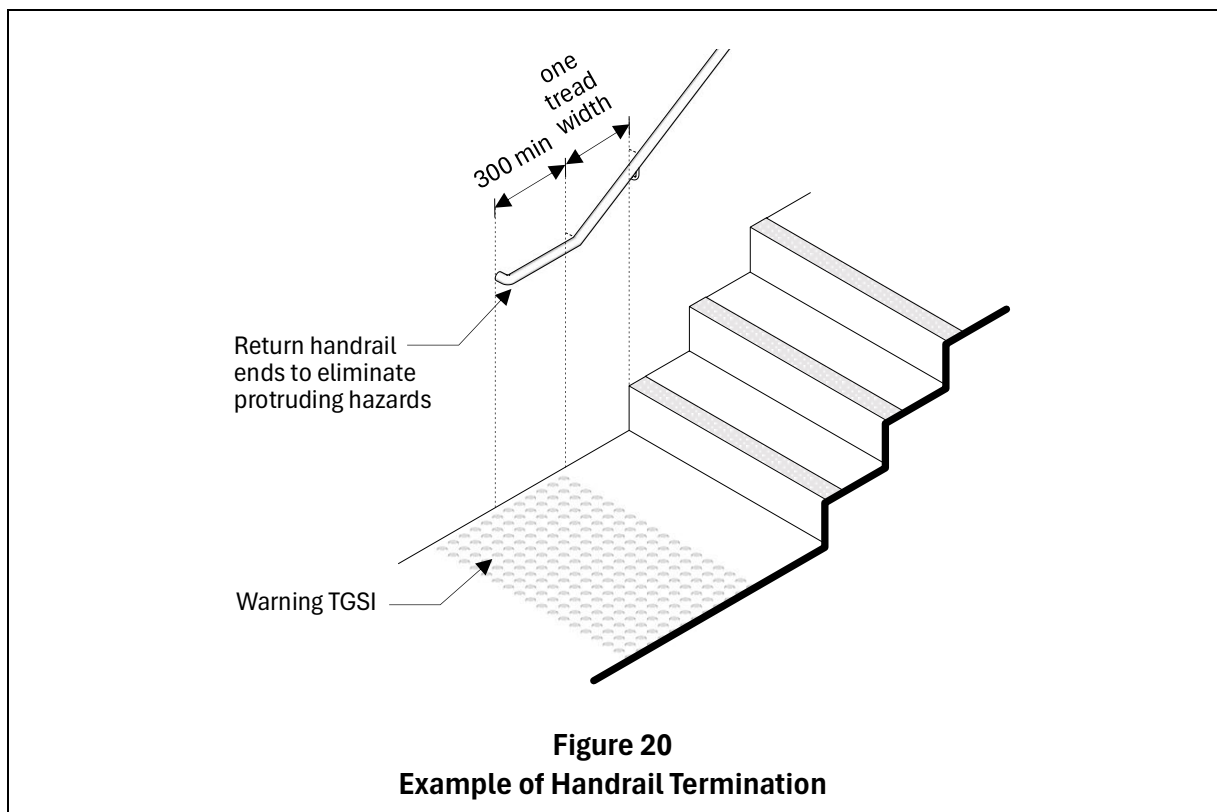
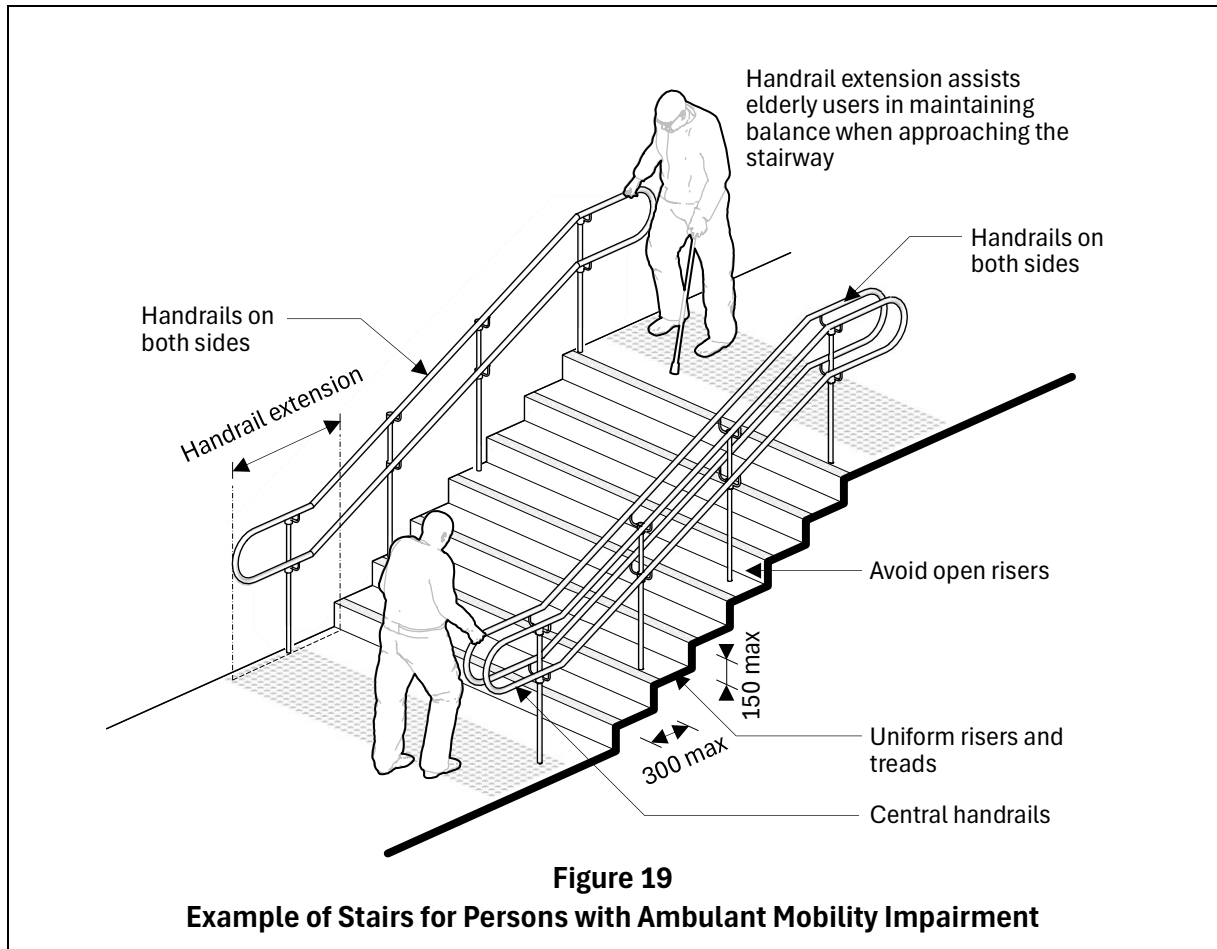
- G.1.1 Strong carpet patterns on stairs reduce visual contrast between steps, making it harder to navigate safely and increasing trip hazards.
- G.1.2 Bright stainless steel or polished brass nosing strips or insets should not be used as they cause glare that can disorient persons with visual impairment.

G.2 Stairs for Persons with Ambulant Mobility Impairment

- G.2.1 Stairs for persons with ambulant mobility impairment and the elderly should be provided where possible, as an optional means of vertical travel. They should, as shown in Figure 19, be designed with:
 - (a) handrails installed on both sides;
 - (b) continuous handrail along the entire length;
 - (c) handrail extensions not less than 300 mm;
 - (d) uniform risers of maximum 150 mm and treads of minimum 300 mm;
 - (e) no open risers; and
 - (f) additional central handrails for staircases exceeding 2000 mm in width.

G.3 Handrails

- G.3.1 Handrail extensions should be provided horizontally beyond the first and last step of the stairs, as shown in Figure 20, to provide support for all users.



H. Lifts

Baseline Mandatory Requirements

Refer to Clauses under Section 4.8 and 4.9 of the Code.

Design Recommendations

Lift accessibility extends beyond basic dimensional compliance to address the diverse ways persons with disabilities interact with vertical transportation systems. Users with sensory impairments require multiple forms of information—visual displays, tactile controls, and emergency communication options—to operate lifts independently and safely. Wheelchair users need consistent control placement and adequate manoeuvring space, while persons with limited dexterity benefit from accessible control design. Comprehensive lift design ensures that all users can access every floor served by the building, rather than limiting accessibility to designated units that may restrict movement and independence.

H.1 Lift Provisions

- H.1.1 Multi-storey buildings should have at least two lifts designated for wheelchair users to ensure continued access during breakdowns or maintenance.

H.2 Lift Location and Signage

- H.2.1 Wheelchair manoeuvring space should be located away from walkways and not directly opposite stairs. Where stairs face lift doors, maintain at least 2100 mm clearance from descending stairs to allow safe manoeuvring, as shown in Figure 21.

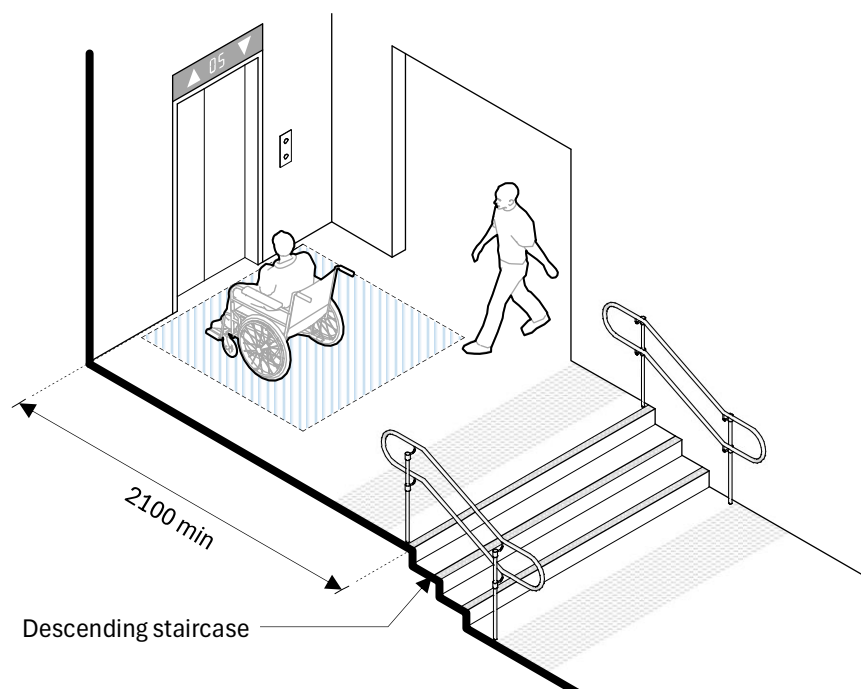
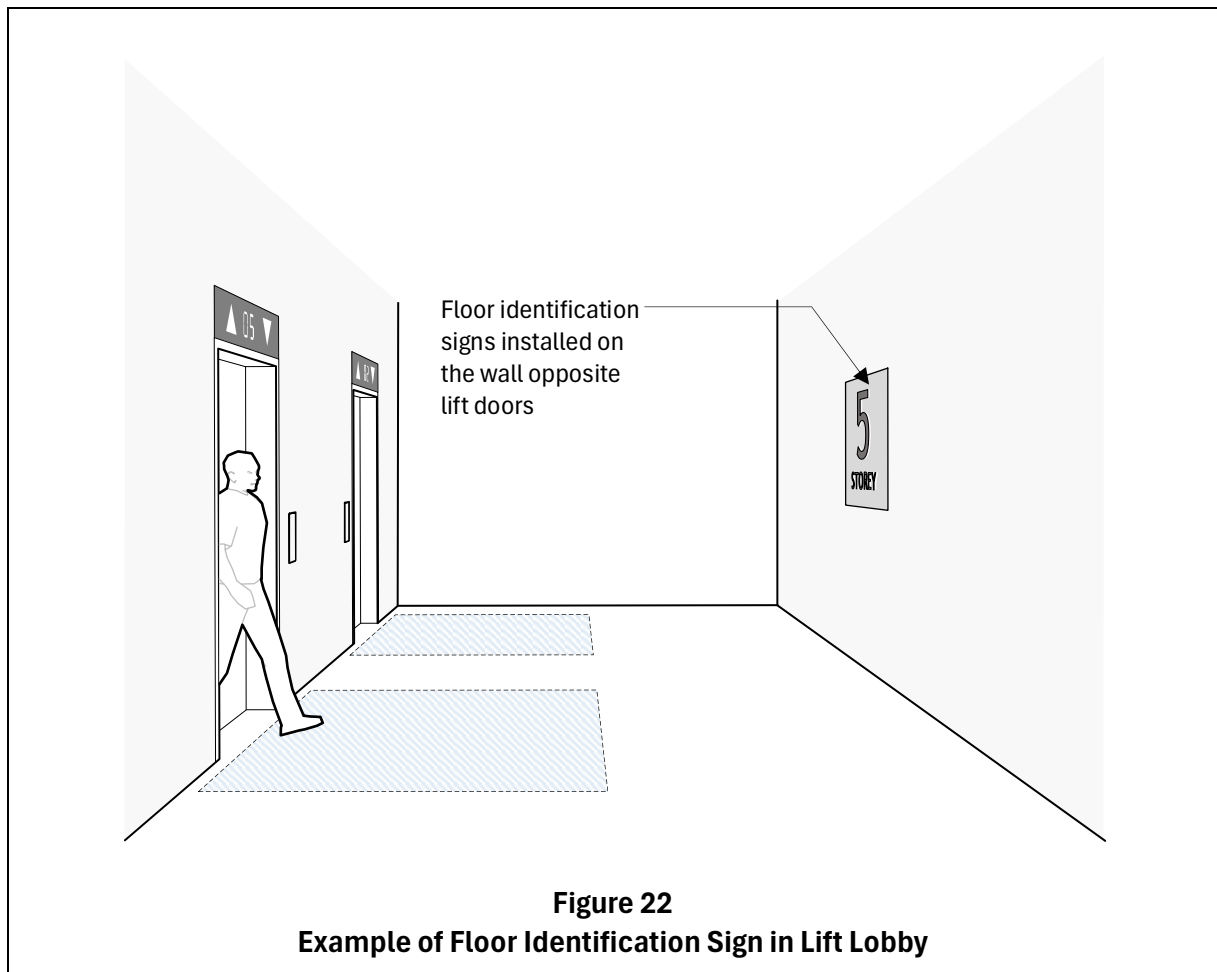


Figure 21
Clearance from Lift Door to Descending Stairs

H.2.2 Position lifts for wheelchair users adjacent to stairs or escalators to enhance accessibility and accommodate diverse mobility needs. This co-location enables wheelchair users and persons with ambulant mobility impairment to easily locate accessible routes.

Note: For escalators, at least 3 flat steps should be provided at the beginning and at the end of the escalator. Clear and conspicuous signs should be provided to indicate the direction of escalator movement.

H.2.3 Install floor identification signs with contrasting colours on the wall opposite lift doors in each lobby to provide clear visibility from inside the lift, as shown in Figure 22.



H.3 Lift Control Panel Design and Placement

H.3.1 In high-rise buildings where it is impractical to accommodate both a standard control panel and a separate lower control panel for wheelchair users in the lift car, a keypad control panel positioned for wheelchair accessibility may be installed as an alternative, whilst maintaining the standard control panel at eye level.

Note The design of the keypad should comply with Clause 4.8.2.8 of the Code.

H.3.2 Horizontal control panels should be placed on the right side of the lift car wall when entering the lift to ensure consistent, intuitive operation.

H.3.3 Use permanent tactile and Braille markings instead of paste-on options as it can detach and create safety hazards.

H.3.4 Large lift cars should have duplicate control panels on opposite walls to accommodate wheelchair users regardless of their position within the car.

H.4 Safety Features and Emergency Systems

H.4.1 Vision panels should be provided on lift doors to enable persons who are deaf or hard-of-hearing to signal for help or assistance in the event of an emergency.

H.4.2 Lift grab bars should return to the wall and have no open ends to prevent hooking of clothing or mobility aid.

H.5 Lift Door Configuration and Accessibility Consideration

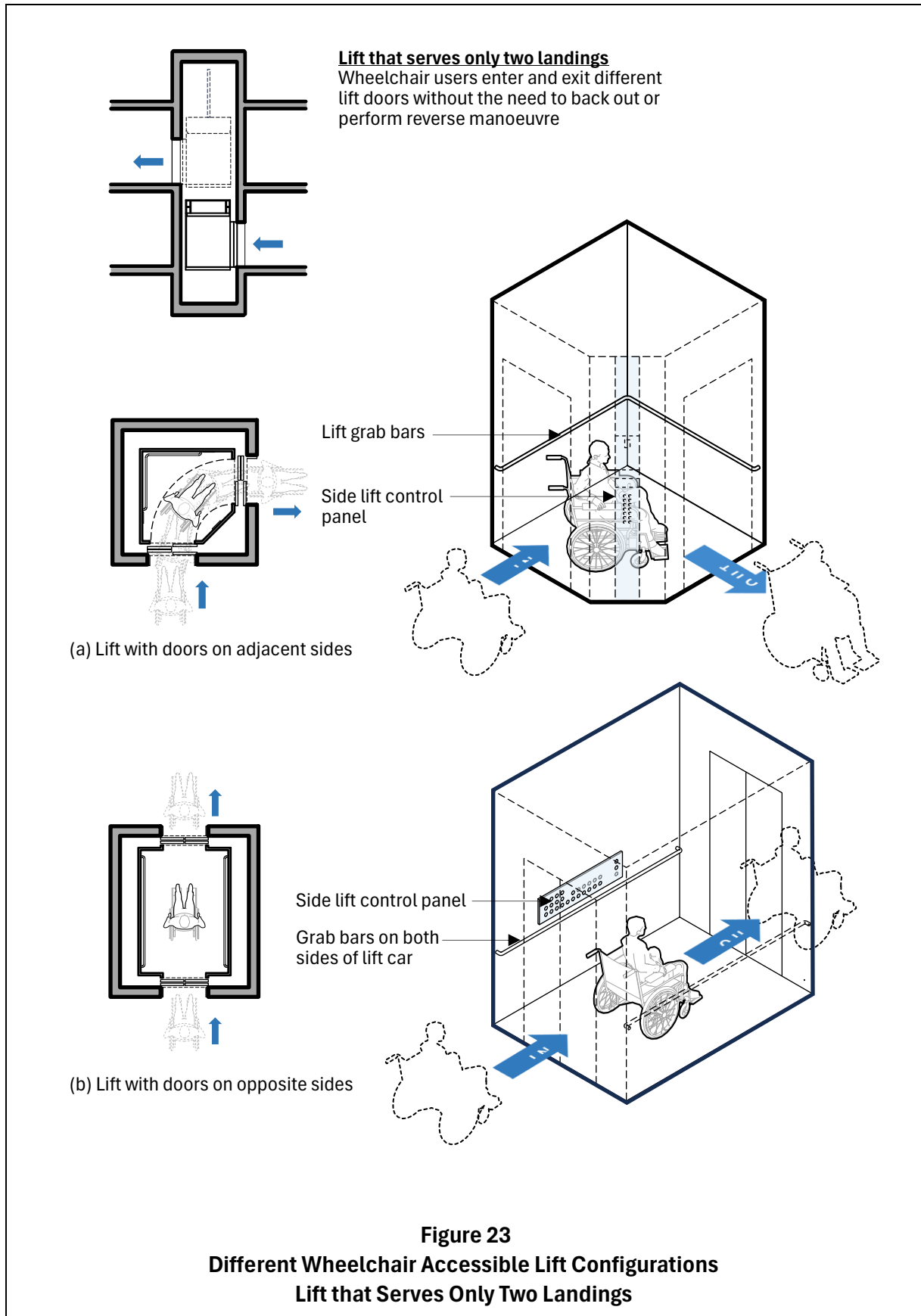
H.5.1 Lift cars with multiple door openings, such as through-car lifts with doors on opposite sides or doors on adjacent sides, require additional considerations to ensure accessibility and usability, as shown in Figure 23 and Figure 24.

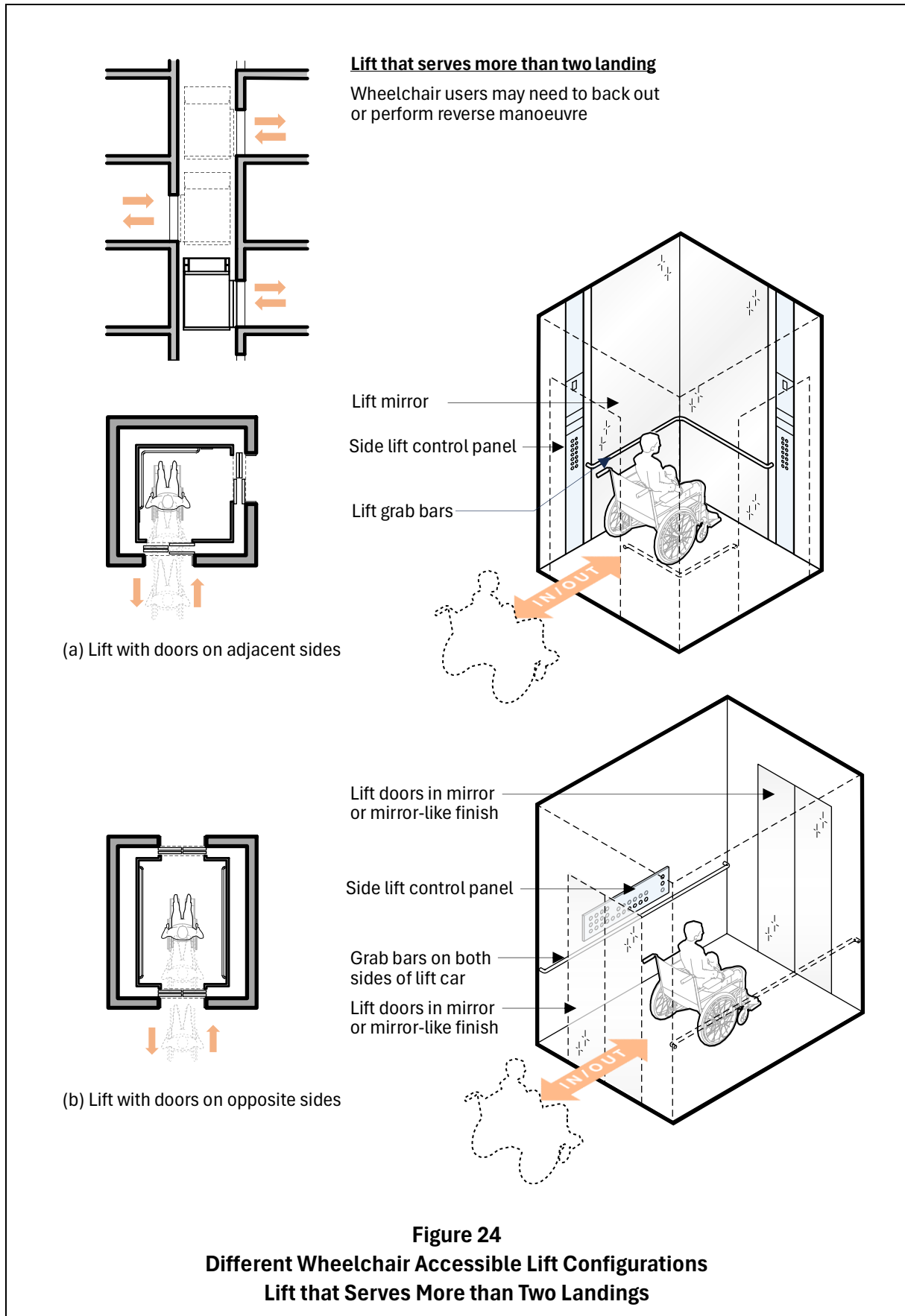
H.5.2 Lifts with doors on opposite sides of through-car lifts:

- (a) lift car doors should be positioned at the narrow end of cars with a minimum unobstructed entrance width of 900 mm;
- (b) for lifts serving more than two landings, mirrors or mirror-like finish surfaces should be provided on the internal surface of both lift car doors to assist wheelchair users who may need to reverse out of either door;
- (c) visual or audio announcements should be provided to indicate which door will open at each landing.

H.5.3 Lifts with doors on adjacent sides:

- (a) when the lift serves more than two landings, sufficient lift internal dimensions should be provided to facilitate wheelchair manoeuvring;
- (b) for lifts serving more than two landings, mirrors or mirror-like finish surfaces should be used to provide feedback for wheelchair reversing and manoeuvring;
- (c) side control panels should be located at appropriate position to allow users to reach controls when entering from either direction;
- (d) visual or audio announcements should be provided to indicate which door will open at each landing.





I. Platform Lifts and Wheelchair Stairlifts

Baseline Mandatory Requirements

Refer to Clauses under Section 4.10 of the Code.

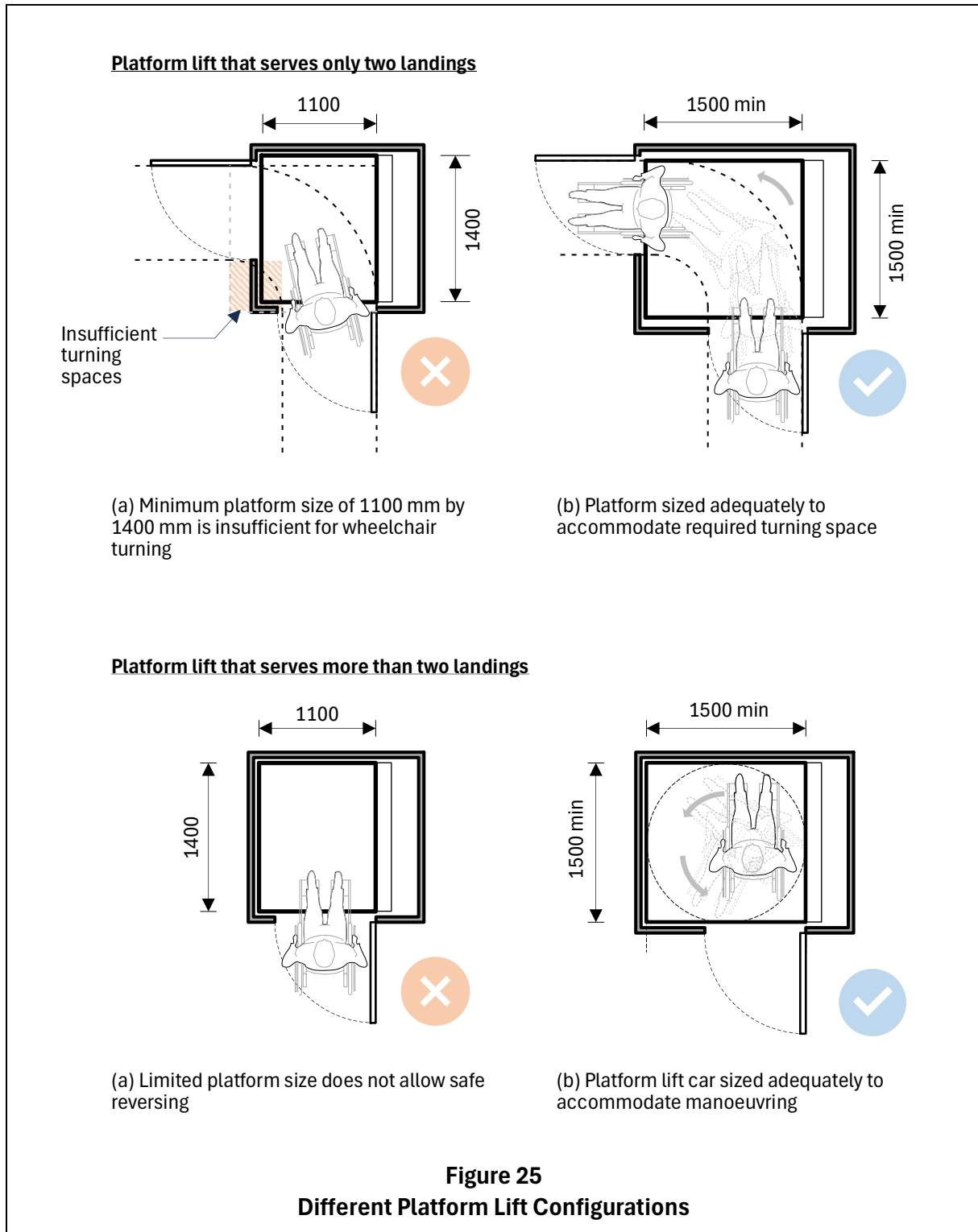
Design Recommendations

Platform lifts and wheelchair stairlifts are not equivalent alternatives to passenger lifts or ramps and should only be considered where conventional solutions are technically infeasible. These installations should be safely and independently usable by all users without requiring assistance or key operation during operational hours.

All control devices should be accessible for all users. Emergency communication systems and clear operating instructions are essential safety features that enable users to get help when needed.

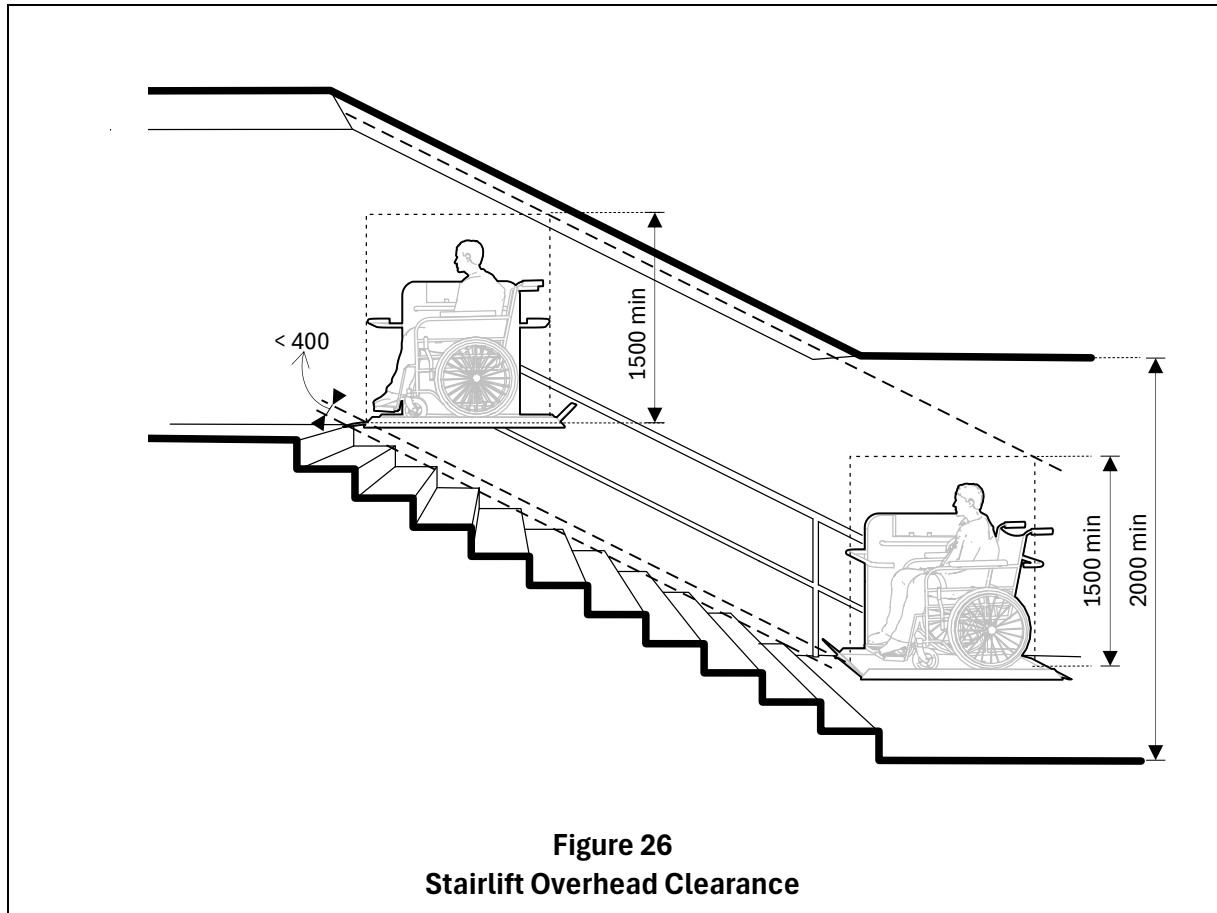
I.1 Platform Lifts

- I.1.1 Platform lifts should remain unlocked during operational hours to allow unassisted operation. Where security concerns exist, use alternative access control methods that do not impede independent use.
- I.1.2 Emergency alarm systems with two-way voice communication should be provided to enable users to request assistance. Clear operating instructions should be displayed.
- I.1.3 Platform lifts should provide audible and visual information to indicate arrival at each level and current floor position.
- I.1.4 Where a platform lift is unable to accommodate one-way entry and exit without turns, its internal dimensions should be enlarged to provide sufficient wheelchair turning space, as shown Figure 25.



I.2 Wheelchair Stairlifts

- I.2.1 When wheelchair stairlifts are installed, building owners should ensure trained personnel are available during operational hours to provide user assistance.
- I.2.2 A minimum clearance of 1500 mm above the platform to any overhead obstacle should be provided, as shown in Figure 26.



J. Accessible Individual Washrooms

Baseline Mandatory Requirements

Refer to Clauses under Section 5.1 and 5.2 of the Code.

Design Recommendations

Accessible washrooms should meet the diverse needs of persons with disabilities, including those who use mobility aids, have limited dexterity, or need caregiver assistance. The design should prioritise independence whilst ensuring safety and dignity for all users. Construction variations can significantly impact usability, especially affecting transfer space and fixture positioning, so tolerances should be carefully considered during design and construction.

J.1 Doors

- J.1.1 Use power-operated sliding doors with button controls where possible, as these eliminate the need for users to handle heavy doors or navigate swing clearances while using mobility aids.
- J.1.2 All power-operated doors should be equipped with audio announcements to indicate door opening and closing operations.
- J.1.3 For outward-opening doors, they should be located in a recess at least as deep as the width of the door leaf, or preferably the wheelchair manoeuvring clear floor space, when opening towards corridors, as shown in Figure 27.

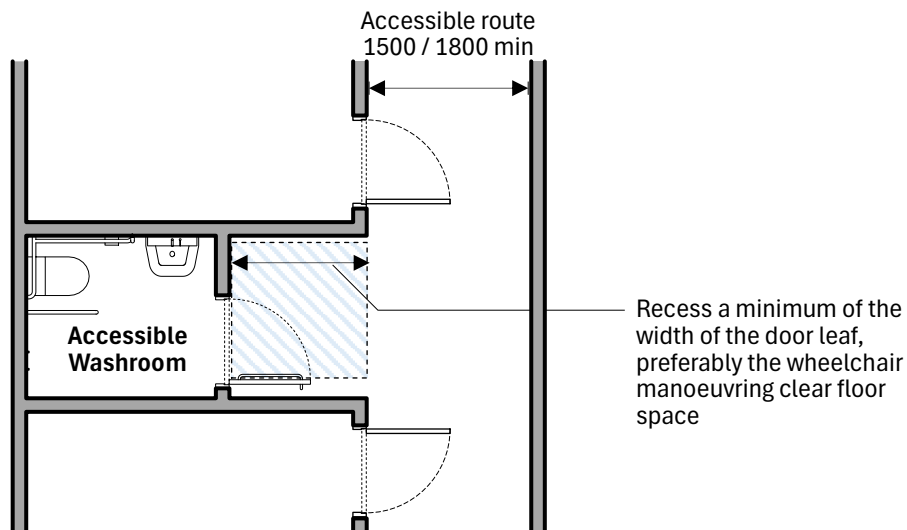


Figure 27
Accessible Individual Washroom with Outward-Opening Door

J.2 Washroom Accessories

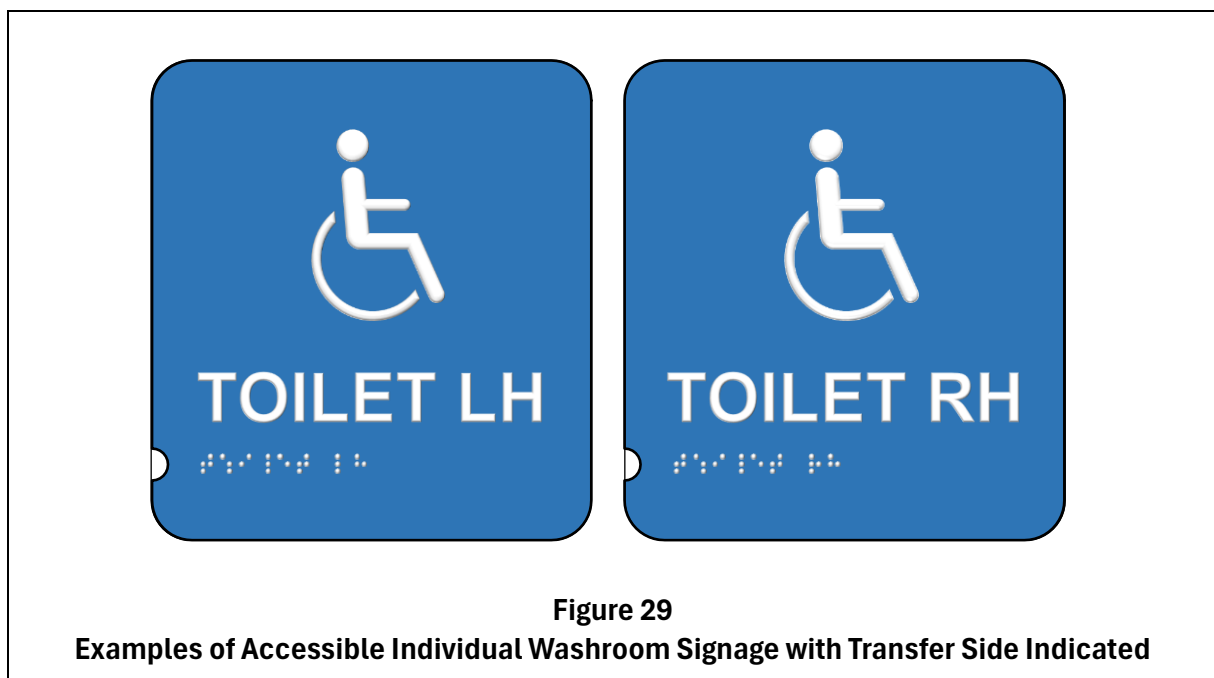
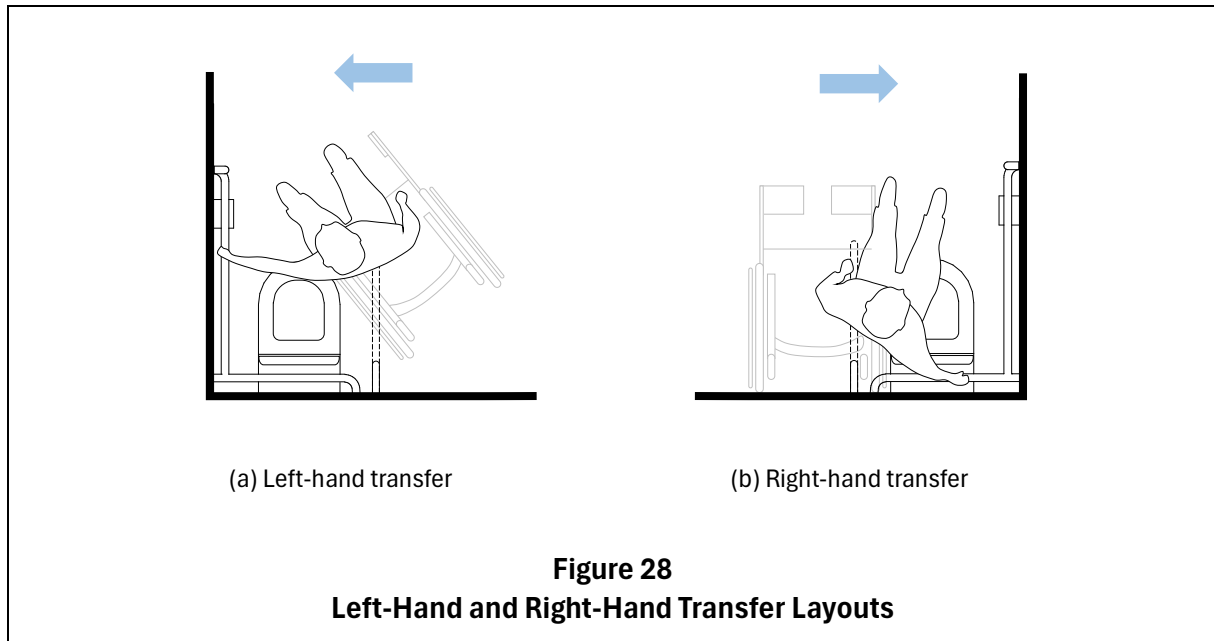
- J.2.1 Washroom accessories including sensor-operated litter bins and hand dryers should be positioned so they do not obstruct wheelchair movement while remaining within reach.
- J.2.2 Hand dryers and paper towel dispensers should be positioned near accessible wash basins so that wheelchair users do not need to move across the washroom with wet hands, which can compromise grip and safety.
- J.2.3 Mirrors should be tilted to accommodate users of different heights, including wheelchair users and people of shorter stature.

J.3 Lighting and Control Devices

- J.3.1 Lighting should not shine directly onto mirrors to avoid glare.
- J.3.2 Control and operating devices should include tactile and Braille information to assist persons with visual impairment.
- J.3.3 Occupancy indicators at washroom entrances should clearly display "vacant" or "occupied" with colour change indicators.

J.4 Left-Hand and Right-Hand Transfer Layout

- J.4.1 Wheelchair users employ various transfer techniques (side/parallel, frontal, diagonal approaches) and may prefer right-hand or left-hand transfers as shown in Figure 28.
- J.4.2 Where multiple accessible washrooms are available, provide both right-hand and left-hand transfer configurations to accommodate different user preferences based on mobility limitations, dominant side strength, or wheelchair configuration. If only one accessible washroom is provided, design for right-hand transfer as this suits most users.
- J.4.3 Clear signage indicating the transfer configuration should be provided to help users identify the most suitable facility, as shown in Figure 29.



J.5 Ostomy-Friendly Accessible Washrooms

- J.5.1** Accessible individual washrooms and cubicles should accommodate users with ostomies and other medical conditions requiring additional facilities for dignity and hygiene. These provisions benefit not only ostomates but also users with catheters, feeding tubes and other medical equipment.
- J.5.2** A shelf or counter should be installed with minimum dimensions of 400 mm width by 125 mm to 150 mm depth, positioned at a height of 900 mm to 1100 mm from the floor, as shown in Figure 30. This placement allows users to stand directly in front of the surface, providing a hygienic area for medical supplies and equipment.

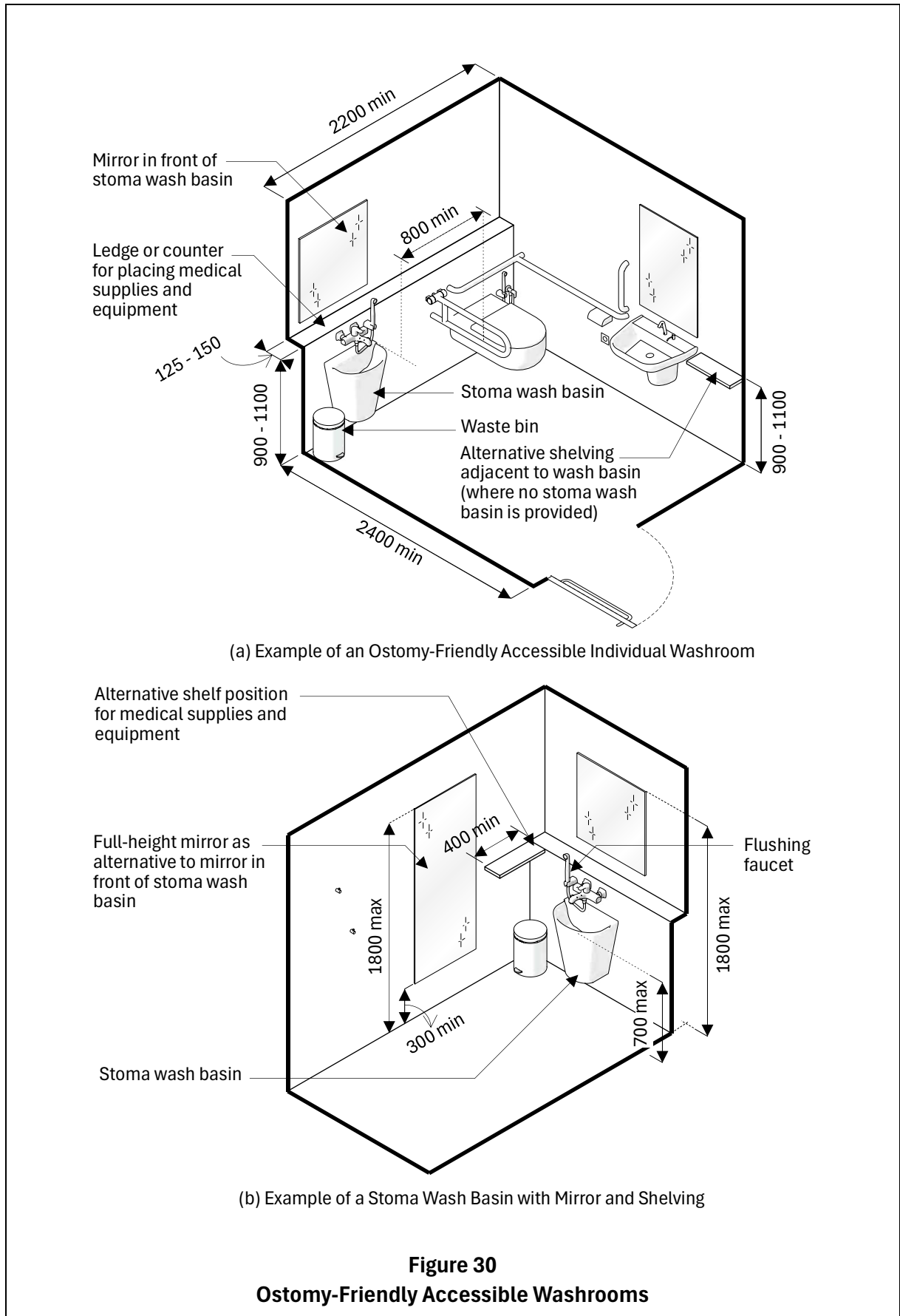


Figure 30
Ostomy-Friendly Accessible Washrooms

- J.5.3 A full-length mirror should be provided to enable users to see their stoma or medical equipment whilst changing appliances, as shown in Figure 30(b).
- J.5.4 Pictograms indicating ostomy-friendly facilities should be displayed where such provisions are available, as shown in Figure 31.

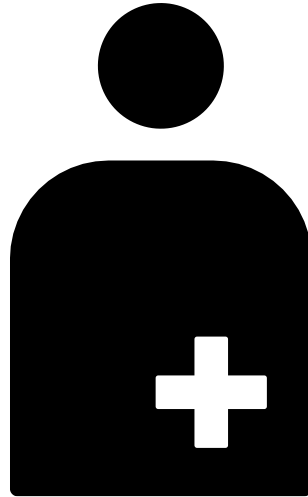


Figure 31
Signage for Ostomy-Friendly Accessible Washrooms

K. Accessible Changing Room

Baseline Mandatory Requirements

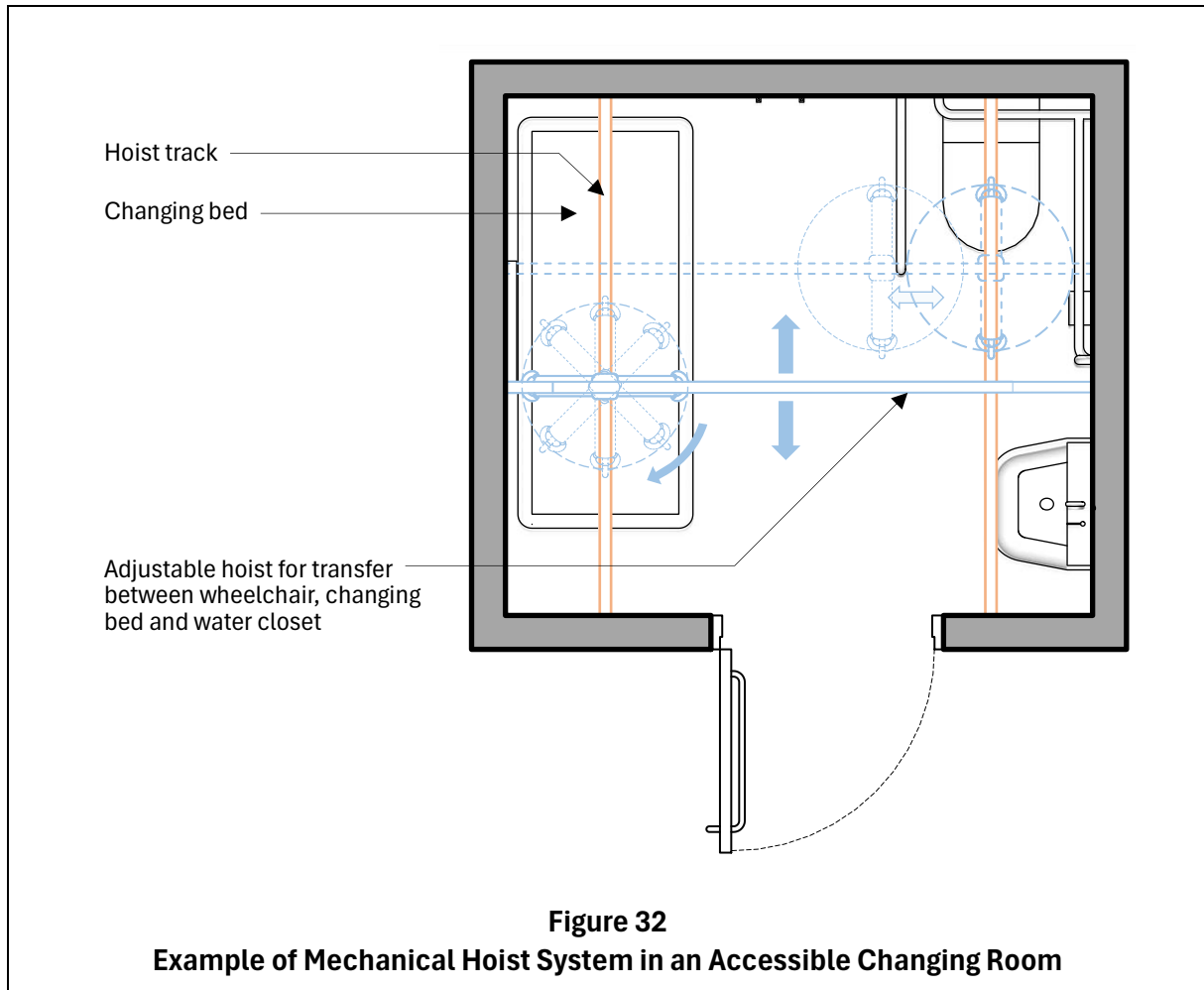
Refer to Clauses under Section 5.1 and 5.3 of the Code.

Design Recommendations

Accessible changing rooms, also known as Changing Places toilets in some countries, are designed to be completely accessible, providing sufficient space and equipment for people who are not able to use the toilet independently. These facilities serve people with complex and multiple impairments who require assistance from caregivers, including those with conditions such as cerebral palsy, muscular dystrophy, multiple sclerosis, profound and multiple learning disabilities, acquired brain injuries, motor neurone disease, head injuries, spinal injuries, stroke survivors, severe autism with challenging behaviours and older people requiring assistance. Accessible changing rooms are provided as an additional facility to standard accessible toilets for independent use, serving the specific needs of users requiring extensive assistance.

K.1 Hoist System

- K.1.1 Overhead tracked hoist system should be provided, either ceiling-mounted or wall-mounted, in the accessible changing room to enable caregivers to assist persons with disabilities with reduced physical effort and improved safety for both the user and caregiver.
- K.1.2 The hoist track should be positioned to allow transfer between the wheelchair, changing bed, basin and water closet, as shown in Figure 32. The track layout should accommodate different approach angles and transfer positions.
- K.1.3 Hoist controls should be positioned within easy reach of caregivers when assisting with transfers. Emergency stop controls should be clearly marked and easily accessible.
- K.1.4 The room structure and hoist track should be capable of supporting a safe working load of 200 kg, accounting for both static loads and dynamic forces during transfer operations.
- K.1.5 Clear instructions on hoist operation, weight limits and compatible sling types should be displayed adjacent to the equipment. Information should specify the type of sling connector provided and compatible sling types.



K.2 Changing Bed

- K.2.1 Provide a height-adjustable changing bed that accommodates caregivers of different heights and reduce physical strain during personal care activities. The adjustment range should typically be between 300 mm and 900 mm from floor level.
- K.2.2 The bed should provide safety rails that can be folded up or down for additional security during changing.
- K.2.3 The bed surface should be padded, waterproof, suitable for use during showering as well as changing, and easy to clean and disinfect. The covering should be slip-resistant when wet.

K.3 Maintenance and Training

- K.3.1 Regular maintenance schedules should be established for all mechanical equipment, including hoist systems and height-adjustable equipment.
- K.3.2 Training should be provided for personnel managing accessible changing facilities, covering equipment operation, emergency procedures and assistance protocols.

L. Accessible Shower and Bath Facilities

Baseline Mandatory Requirements

Refer to Clauses under Section 5.7 of the Code.

Design Recommendations

Accessible showers and bath facilities should be designed with flexibility to accommodate diverse user needs through adjustable features, choice in transfer layouts, level access with appropriate drainage slopes, and screening systems that maintain circulation space. Key considerations include height-adjustable washbasins and shower seats, positioning controls within reach from seated positions, and providing adequate space for dressing and transfer activities. Where bathtubs are provided, they should include appropriate seating and accessible tap controls, though roll-in showers are generally preferred by the elderly and persons with disabilities.

L.1 General

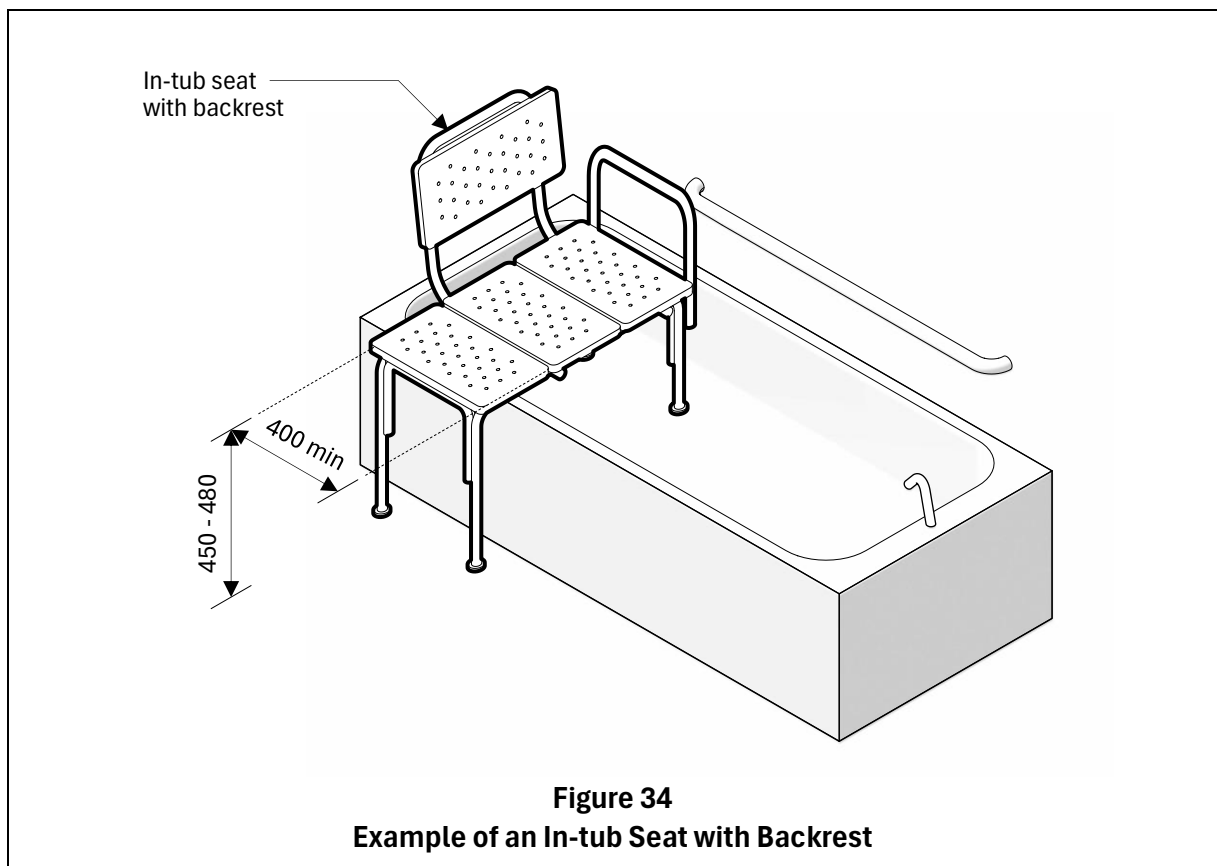
- L.1.1 Showers should be designed to accommodate people with different abilities and various mobility aids, including wheelchair users, the elderly, persons with ambulant mobility impairment, and those using shower chairs.
- L.1.2 When multiple showers or bath facilities for wheelchair users are provided, consider offering left-hand and right-hand transfer layouts to accommodate different user preferences. Where only one accessible shower is provided, it should preferably be designed for right-hand transfer. An example of signage indicating the type of transfer is shown in Figure 33.



Figure 33
Example of an Accessible Shower Room Signage with Transfer Side Indicated

L.2 Accessible Shower with Bathtub

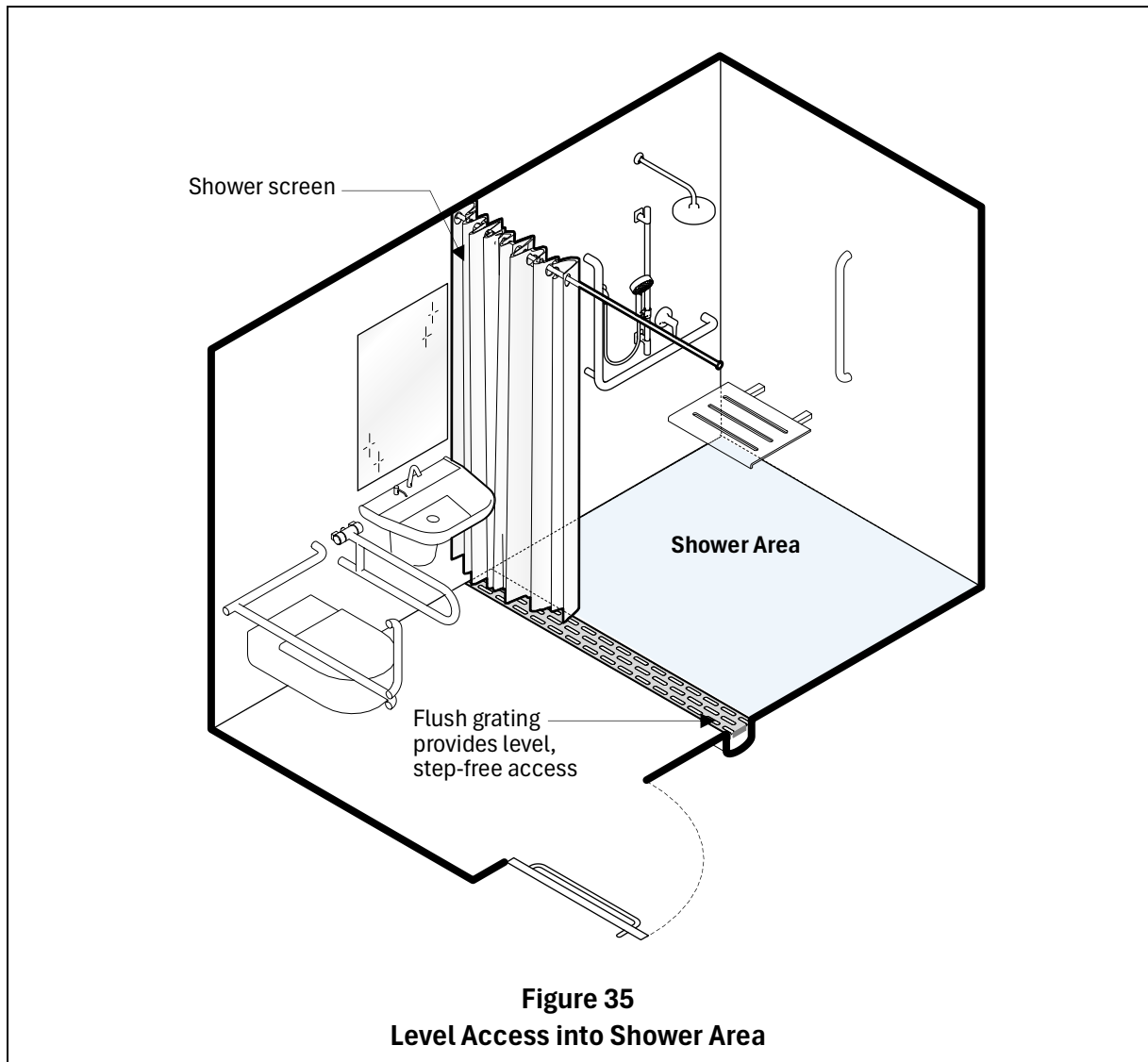
- L.2.1 An accessible shower is preferred over a bathtub to facilitate independent use by persons with disabilities and the elderly, as it avoids the need to step over the bathtub rim.
- L.2.2 Where bathtubs are provided, they should be equipped with either a removable in-tub seat or a permanent seat at the end of the tub.
- L.2.3 Where removable in-tub seats are provided, they should be secured to the tub to remain in place during transfer and use, as shown in Figure 34. The in-tub seats should:
- (a) withstand a vertical or horizontal force of 1.3 kN at any point on the seat, fastener, mounting device, or supporting structure; and
 - (b) come with back support.



L.3 Accessible Showers

- L.3.1 Shower area screening should be either a curtain or door that provides manoeuvring space without interfering with level access.
- L.3.2 Entry into the shower area should be level, without steps or kerbs, as shown in Figure 35.

- L.3.3 The shower floor should have a cross slope not exceeding 1:48.



L.4 Door

- L.4.1 If a swing door is used, adequate space should be provided to ensure there is no obstruction to the user or swing into fixture or accessories while opening and closing the door.

M. Family-Friendly Provisions

Baseline Mandatory Requirements

Refer to Clauses under Chapter 6 of the Code

Design Recommendations

Family-friendly provisions should be designed to support the practical needs of families with young children and nursing mothers, providing convenient, hygienic, and safe facilities. Key considerations include locating facilities close to main access points, ensuring adequate space for caregivers and equipment, and incorporating child-sized fixtures and fittings. When multiple facilities are provided, consider offering a combination of layouts to accommodate different family configurations and care needs.

M.1 Individual Family Washroom

M.1.1 Individual family washroom should be provided with the following:

- (a) wash basin with liquid detergent and paper towels;
- (b) dispenser for hot and cold water;
- (c) mirrors positioned at appropriate heights for both adults and children;
- (d) space for baby carriage or pram parking;
- (e) dispensers for disposable bed linen or wet wipes at diaper changing station;
- (f) non-slip flooring;
- (g) adequate storage provisions including hooks at various heights, shelves for personal belongings and secure storage for bags and equipment; and
- (h) seating for caregivers and older children where space permits.

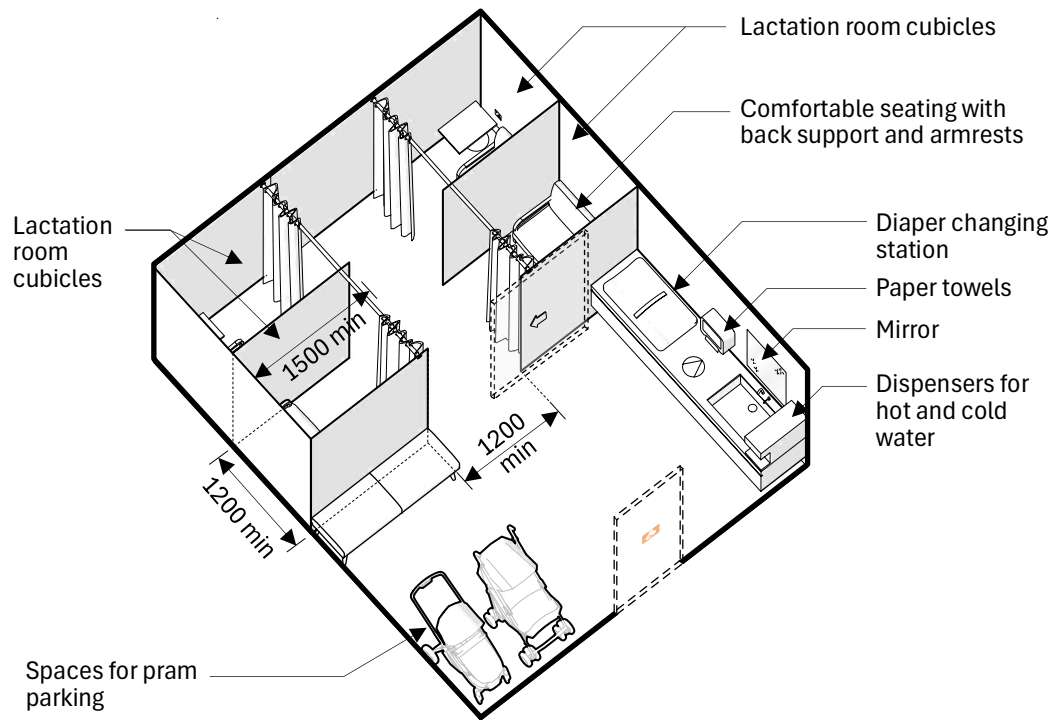
M.1.2 Diaper changing stations should be provided with clear instructions to facilitate safe use.

M.2 Child-friendly Sanitary Facilities

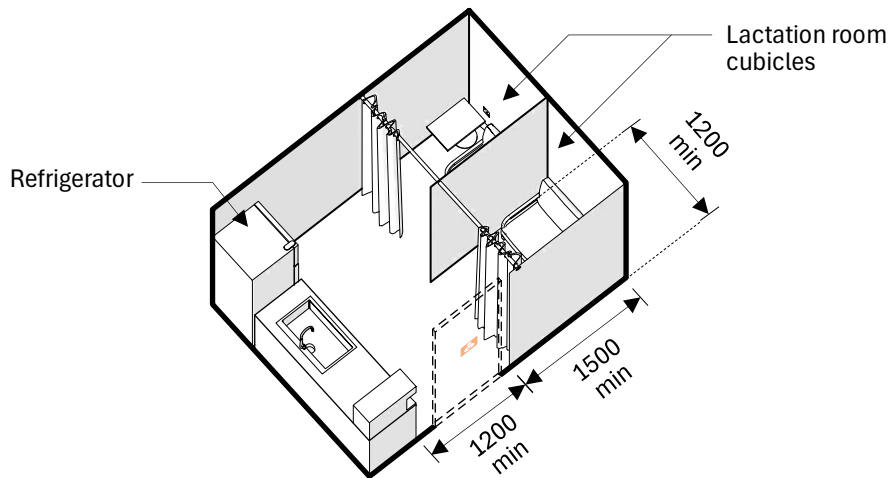
M.2.1 Provide child-friendly sanitary facilities for children of different age groups with appropriately sized fixtures for safe, independent use.

M.2.2 Water closet cubicles should include a soap dispenser and a flexible hose with spray head, as parents or guardians may need to clean their child.

M.2.3 Where appropriate, the design should allow caregivers to maintain visual contact with children in adjacent waiting or common areas whilst respecting privacy.



(a) Example of Lactation Room Cubicles in a Shopping Complex



(b) Example of Lactation Room Cubicles in an Office

Figure 36
Examples of Lactation Room Cubicles

M.3 Lactation Rooms

M.3.1 In addition to Code requirements, lactation rooms should be provided with the following, as shown in Figure 36:

- (a) a segregated diaper changing area;
- (b) litter bins for used diapers;
- (c) wash basins with soap dispenser and paper towels;
- (d) dispensers for hot and cold water;
- (e) refrigerators with freezers for milk storage; and
- (f) adequate storage for personal belongings and nursing equipment.

M.3.2 When provided in a workplace, the interior of lactation rooms should provide a calm and restful environment. Considerations should be given to comfort and acoustic privacy surrounding the lactation room, as breast pumps can be noisy.

N. Elder-Friendly Rooms

Baseline Mandatory Requirements

Refer to Clauses under Section 5.7 and 7.5.3 of the Code.

Design Recommendations

Elder-friendly rooms should provide safe, accessible environments through design features that accommodate declining mobility, vision and dexterity and minimise fall risks.

N.1 Design Principles

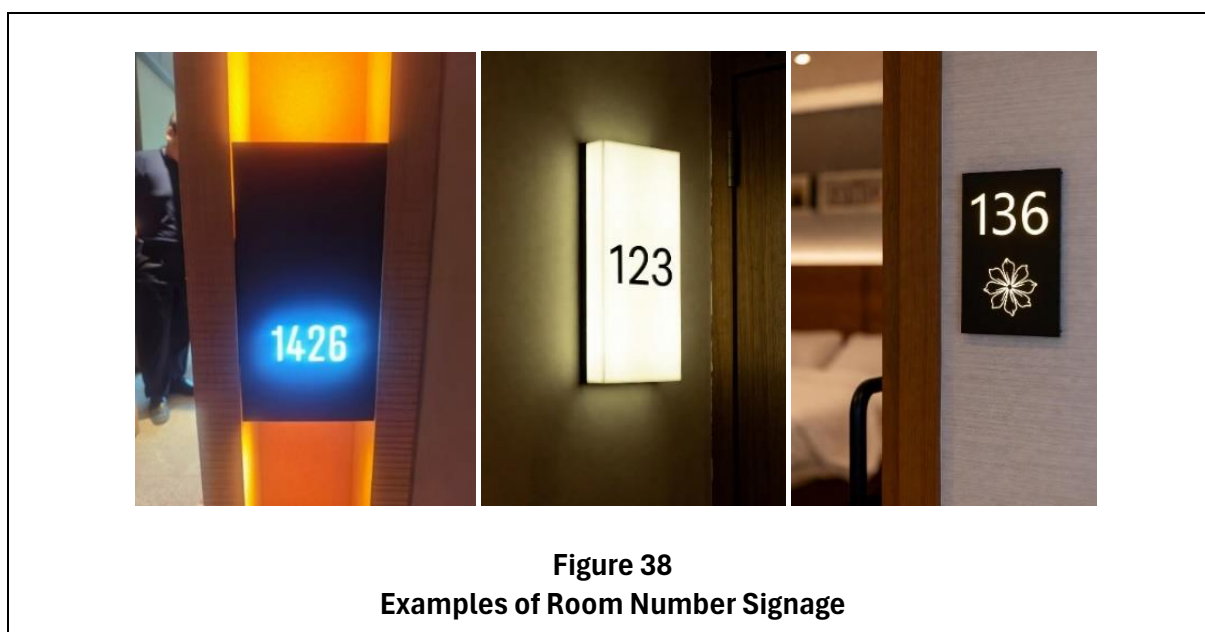
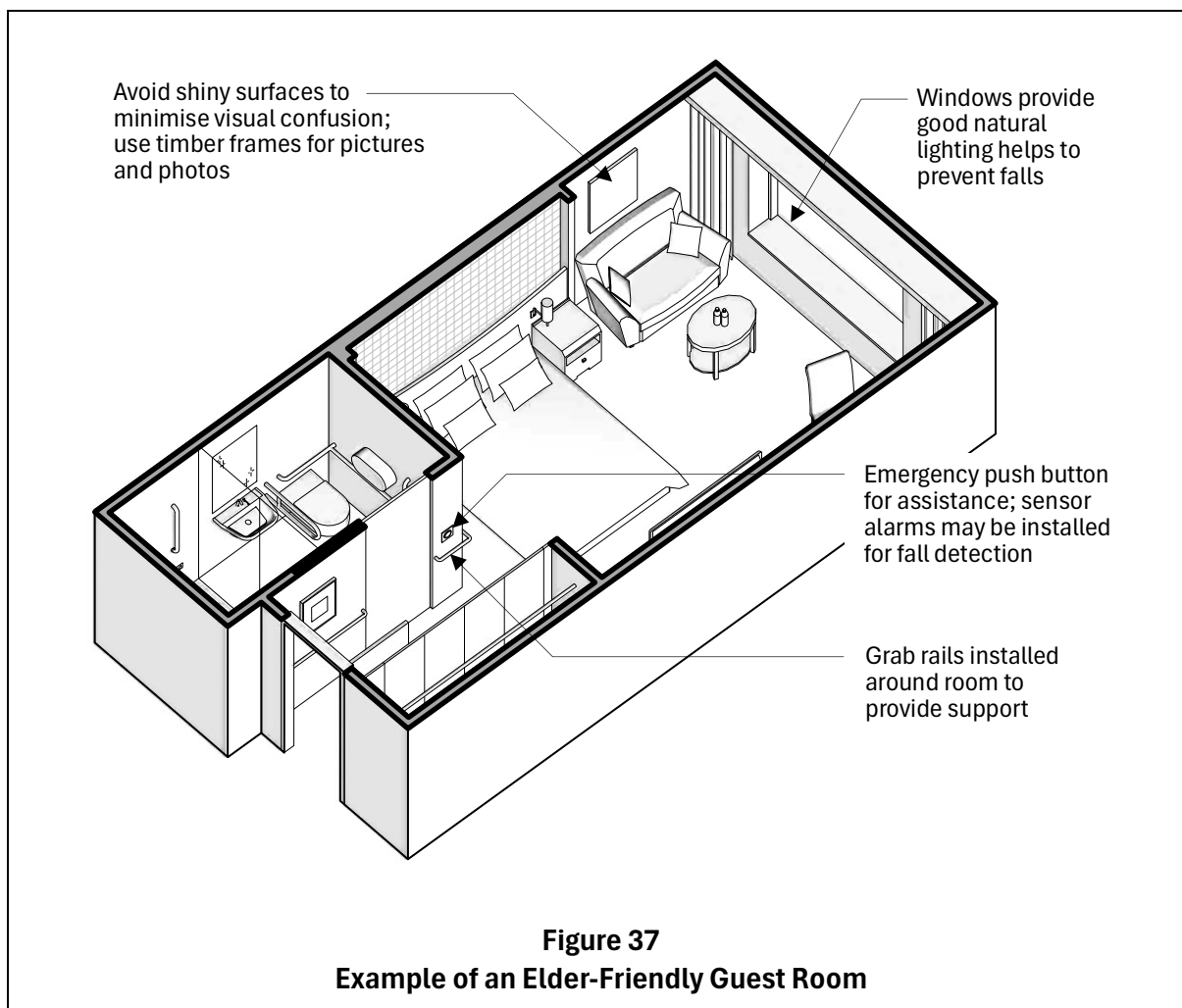
- N.1.1 Beyond the mandatory provision of elder-friendly rooms under the Code, 10% of total guest rooms should be designed for future conversion to elder-friendly rooms.
- N.1.2 The design of an elder-friendly room, as shown in Figure 37, should achieve the following:
- (a) **Safety** – Minimise accidental injury arising from tripping, slipping, falling, lifting and carrying.
 - (b) **Accessibility** – Accommodate users with ambulatory disabilities and using mobility aids.
 - (c) **Comfort** – Minimise physical and cognitive demands through intuitive, easy-to-use design.

N.2 General

- N.2.1 Grab bars should be installed at locations where support is needed for balance and transfers, including bathrooms, corridors and at changes in level.
- N.2.2 Adequate manoeuvring spaces and door widths should be provided for the elderly with mobility aids and their caregivers.
- N.2.3 Easily operable or power-operated doors should be provided.

N.3 Room Identification

- N.3.1 Room entrances should incorporate distinctive visual elements, such as floor patterns, colour schemes, motifs, or architectural features, to enhance identification and wayfinding.
- N.3.2 Room entrances should be well lit and feature room numbers with large, legible fonts and strong visual contrast to facilitate door operation and aid identification, as shown in Figure 38.



N.4 Eye Viewer

- N.4.1 Large diameter eye viewers should be used to accommodate the elderly with reduced vision.

N.5 Natural Lighting

- N.5.1 Natural lighting should be provided through windows or openings with an area between 10% and 20% of the floor area of the room to be lit.
- N.5.2 Wall and ceiling finishes should be provided in lighter colours to reflect daylight and improve overall lighting uniformity.

N.6 Artificial Lighting

- N.6.1 Adequate and uniform ambient lighting through indirect lighting in architectural features such as soffits, pelmets and coves should be provided to minimise glare.
- N.6.2 Harsh lighting that produces bright spots and strong shadows should be avoided, as dark and shadowy areas may cause feelings of fear and anxiety.
- N.6.3 Nightlights and automatic motion sensors for corridor and bathroom lighting should be provided to reduce fall risks and aid navigation.
- N.6.4 Dimmer controls should be provided so that lighting can be adjusted to different brightness levels.
- N.6.5 Two-way switches should be provided at both the room entrance and bedside to allow convenient lighting control from multiple locations.

N.7 Glare

- N.7.1 To avoid visual discomfort and impaired vision arising from direct and reflected glare, the following should be considered:
- (a) reflective surfaces on floors and walls should be avoided;
 - (b) light sources should be carefully positioned relative to mirrors, glazing and lighting to prevent optical illusions that may disorient elderly persons with dementia; and
 - (c) multiple light sources should be used instead of overly bright single light sources to provide uniform lighting and reduce glare, as shown in Figure 39.

N.8 Floor

- N.8.1 Floor surfaces should be stable, firm and slip resistant.
- N.8.2 Floor surfaces should not have voids or gaps that could create tripping hazards.
- N.8.3 Floor surfaces should contrast with walls in tone and colour or use skirting to clearly distinguish between floor and wall.

- N.8.4 Colour contrast should be used to highlight floor level differences.
- N.8.5 Highly polished surfaces such as granite, marble and glazed tiles should be avoided as they create slip hazards and may appear wet, causing users to misjudge surface safety.
- N.8.6 Cushioned or deep-pile carpets and carpets with strong patterns should be avoided, as they may impede walking aids, cause balance issues for the elderly with shuffling gaits and create perception of uneven surfaces.



Figure 39
Example of Guest Room with Uniform Lighting

N.9 Wall

- N.9.1 Switches and socket outlets should contrast with wall finishes for easy identification, as shown in Figure 40.
- N.9.2 Visual contrasts should be used to distinguish doorframes, furniture, windows, doors and curtains from adjacent surfaces.



Figure 40
Socket Outlet and Switch with Visual Contrast against Wall

N.10 Ceiling

- N.10.1 Ceiling design should avoid complex shapes or level changes that may cause visual confusion.
- N.10.2 Overhanging elements and unprotected falling hazards such as unsecured decorations and low-hanging light fittings should be avoided.

N.11 Bedroom Features

- N.11.1 The height of the bed, measured from the floor to the top of the mattress should be between 450 mm and 500 mm. A minimum clear space of 150 mm in height under the bed should be provided to accommodate hoisting equipment.
- N.11.2 Beds should include height and back adjustment features and bed rails to provide support for the elderly to get up and for added safety, as shown in Figure 41.
- N.11.3 Socket outlets should be positioned next to the bed within easy reach for convenient device charging and equipment use.
- N.11.4 Elder-friendly controls and devices should be provided, such as rocker switches, lever-type handles, large buttons, simple interfaces, high-contrast displays and large-keypad controls to accommodate the elderly with reduced grip strength and dexterity, as shown in Figure 41.



Figure 41
Elder-Friendly Features, Controls and Devices

N.12 Furniture

- N.12.1 Furniture should contrast in colour with floors and walls to prevent accidental collision and tripping.
- N.12.2 Furniture should be stable and sturdy with rounded corners and edges.
- N.12.3 Seating should include armrests, appropriate heights and firm seating surfaces for easier sitting and standing, as shown in Figure 42.

N.13 Wardrobe and Storage

- N.13.1 Storage areas and rails of wardrobes should be positioned no higher than 1200 mm above floor level to facilitate easy access by the elderly.
- N.13.2 Sensor lights should be provided in wardrobes to automatically illuminate when doors are opened.

N.14 Bathroom Features

- N.14.1 Adequate bathroom lighting should be provided for good visibility and safe use of bathroom facilities.
- N.14.2 Solid colours with contrast between surfaces should be used, while busy patterns should be avoided to prevent visual confusion.
- N.14.3 Shiny surfaces such as granite, marble and glazed tiles should be avoided for floors, walls and vanity tops, as they create slip hazards when wet and visual confusion due to reflections.
- N.14.4 Grab bars should be installed at entrances, water closets, showers and bathtubs.

- N.14.5 Bathtubs should be of a recessed design with reduced entry height, flat-bottomed with slip-resistant surfaces, and equipped with benches (as shown in Figure 34) and non-slip mats inside and outside.
- N.14.6 Bathtub tap controls should be offset and positioned close to outside rims with user-friendly grips that are not round or ball-shaped.
- N.14.7 Shower areas should be equipped with:
- (a) height-adjustable shower chairs;
 - (b) height-adjustable shower heads and flexible hoses of at least 1500mm length; and
 - (c) shower drains or outlets that are positioned away from doors.

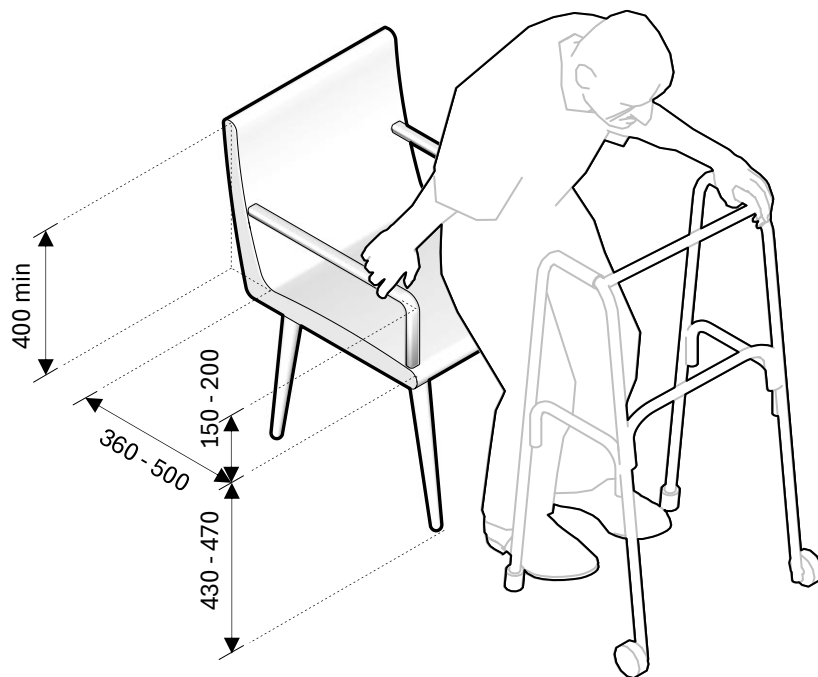
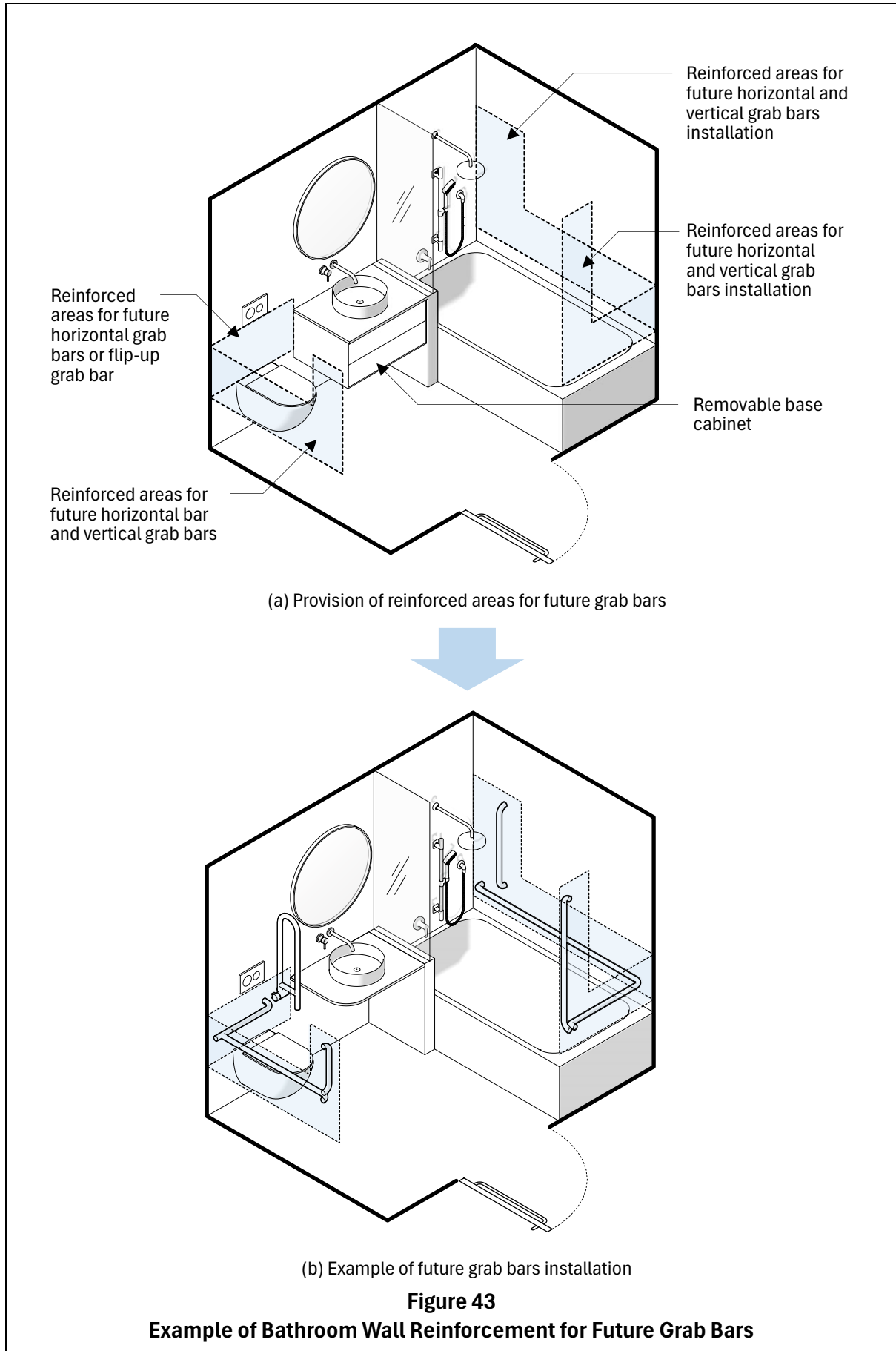


Figure 42
Example of Chair with Armrests and Firm Seating Surface

N.15 Reinforced Walls for Grab Bars

N.15.1 Planning and Installation

- N.15.1.1 To facilitate future conversion into elder-friendly rooms, location and reinforcement for grab bars should be considered during early design stages.
- N.15.1.2 Information on wall construction details, reinforcement locations and recommended installation methods for grab bars should be documented for future reference.



N.15.2 Grab Bars

N.15.2.1 Grab bars come in various lengths and can be mounted in different ways, with the choice of length depending on how and where the bar will be used.

N.15.2.2 Wall reinforcement should cover sufficient areas to support various grab bar lengths, configurations and designs, as shown in Figure 43.

N.16 Emergency Systems

N.16.1 Fire alarms should emit both visual and audible signals to alert the elderly who may be persons with low vision, deaf or hard-of-hearing.

N.16.2 Emergency assistance alarms should be provided and activated by pull cords or push buttons positioned for operation from both the bed and adjacent floor area. Reset controls should be accessible from both wheelchair and bed positions.

O. Accessible Rooms

Baseline Mandatory Requirements

Refer to Clauses under Section 7.5 and 7.6 of the Code.

Design Recommendations

Wheelchair accessible accommodations should provide equivalent facilities and location choices as standard rooms, while incorporating additional safety and accessibility features including bathroom grab bars and anti-slip surfaces, appropriately sized furniture with proper heights, enhanced lighting, wider doorways and emergency communication systems to ensure safe and comfortable stays for guests.

O.1 Design Principles

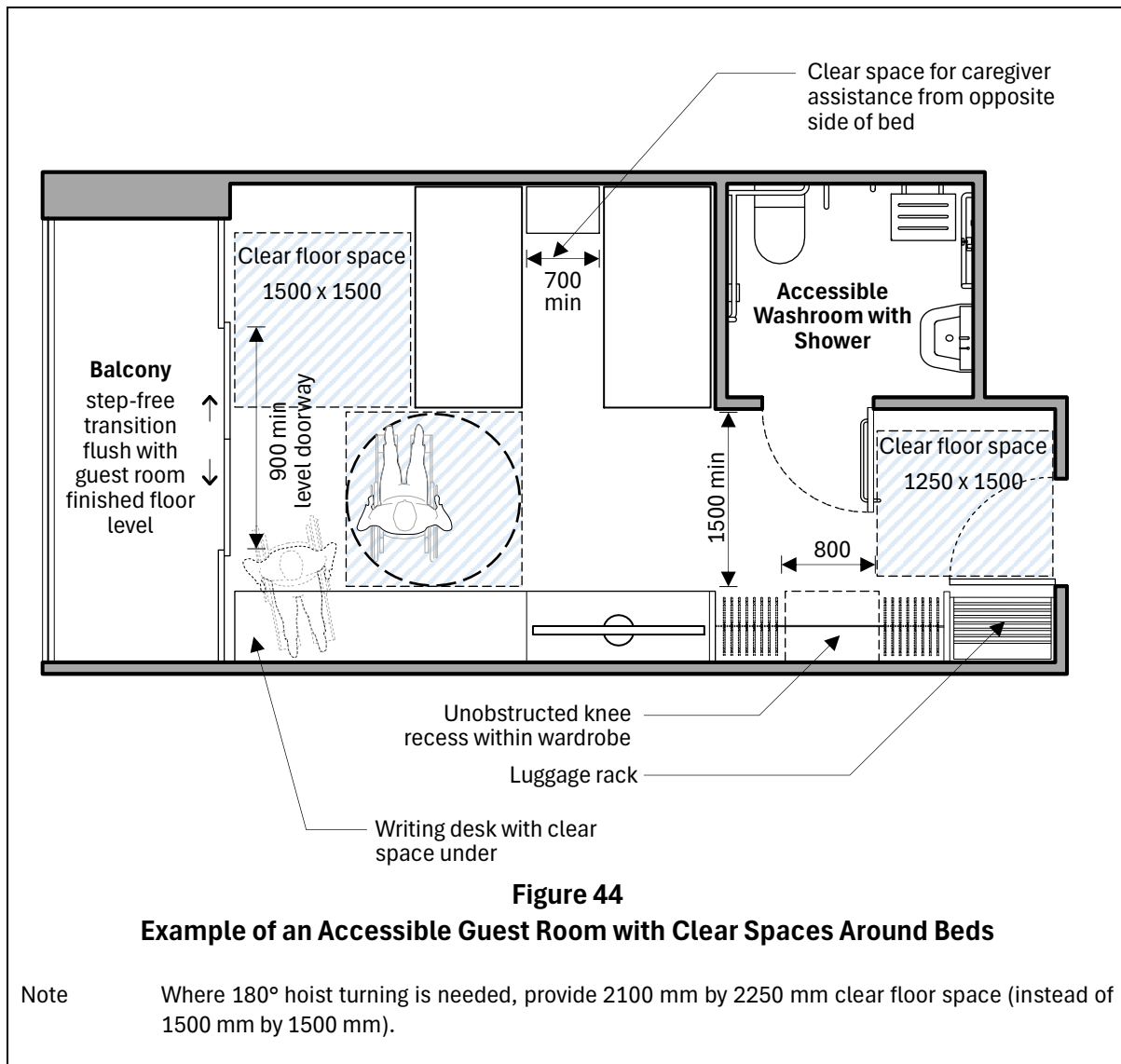
- O.1.1 Beyond the mandatory provision of accessible rooms under the Code, 5% of total guest rooms should be designed for future conversion to accessible rooms.
- O.1.2 The design of an accessible room should consider the following:
 - (a) **Inclusivity** – Accommodate the widest possible range of disabilities.
 - (b) **Accessibility** – Located on direct, obstruction-free accessible routes and positioned close to lifts.
 - (c) **Variety** – Where different room types are offered, accessible room options should reflect this variety and provide equal access to en-suite facilities, views, and amenities available to standard guest rooms.
- O.1.3 Accessible rooms should be provided with access to a connecting room for caregivers or family members. The connecting door should be accessible with a minimum clear width of 850 mm.

O.2 Eye Viewer

- O.2.1 Eye viewers should be installed at appropriate heights on entrance doors to accommodate wheelchair users.

O.3 Space Around Beds

- O.3.1 Clear space of at least 2100 mm wide by 2250 mm deep should be provided to allow wheelchair users access to one side of a bed and turn through 180°.
- O.3.2 A min 700 mm wide clear space should be provided (as shown in Figure 44) to accommodate equipment such as hoists, ensure proper caregiver body mechanics, and allow adequate space for cleaning or changing the person with disability.
- O.3.3 Beds and bedside tables should not be fixed to walls so that they can be moved to suit a person's preferred mode of transfer to the bed.



0.4 Beds

0.4.1 The height of the bed, measured from the floor to the top of the mattress should be between 450 mm and 500 mm. The mattress should be firm enough to support a person transferring from a wheelchair.

0.4.2 A minimum clear space of 150 mm in height under the bed should be provided to accommodate hoisting equipment.

0.5 Windows

0.5.1 Window fastenings for opening and closing should be located between 900 mm and 1000 mm above finished floor level.

0.5.2 Window controls should be easily operable without requiring tight grasping, pinching, twisting of the wrist or simultaneous use of two hands, such as lever handles. The controls should not be obstructed by fixed or loose furniture.

- O.5.3 Powered window systems eliminate manual operation requirements and should be considered where appropriate.

O.6 Balconies

- O.6.1 Balconies adjoining accessible rooms should provide sufficient space to accommodate a wheelchair user and preferably a companion, with level flooring between the room and balcony to ensure seamless access.
- O.6.2 Centre rails and transoms in balcony railings should not obstruct the view of the exterior enjoyed by wheelchair users or seated persons with ambulant mobility impairment.

O.7 Bathrooms

- O.7.1 When planning the layout of accessible baths and showers, a right-hand transfer layout is preferred (refer to Figure 28).
- O.7.2 Where multiple accessible rooms are provided, choices should be offered between shower or bath facilities, left-hand or right-hand transfer layouts for water closet and bathing facilities.

O.8 Wardrobes

- O.8.1 Wardrobes should be designed with open-fronted access where possible to facilitate wheelchair user access.
- O.8.2 Clear space of at least 1200 mm should be provided in front of open-fronted wardrobes for wheelchair users.
- O.8.3 Wardrobes should incorporate adjustable shelving, removeable hangers and pull-down rail where possible, as shown in Figure 45. For fixed systems, provide low rails at maximum 700 mm height and high rails at maximum 1100 mm height, with no plinths and adequate knee space for accessibility.

O.9 Furniture

- O.9.1 Tables or desks used for writing should be provided with adequate knee space.
- O.9.2 Kitchen counters should be designed with adequate knee space.

O.10 Switches, Sockets and Controls

- O.10.1 The operation of curtains, blinds and shutters should be automated or remotely operated where possible to ensure accessibility for wheelchair users.

Note Rods or pull cords for manually opening and closing curtains are acceptable.

- O.10.2 Main lights, bedside lights and telephone controls should be operable from positions on both sides of double beds or from both twin beds, and accessible from wheelchairs.
- O.10.3 Telephones with volume control suitable for the hard-of-hearing should be provided.
- O.10.4 Socket outlets should be positioned next to the bed within easy reach for convenient device charging and equipment use.



Figure 45
Example of Accessible Wardrobe with Pull-Down Rail

O.11 Emergency Systems

- O.11.1 Fire alarms should emit both visual and audible signals to alert people who are blind, partially sighted, deaf or hard of hearing.
- O.11.2 Emergency assistance alarms should be provided and activated by pull cords and push buttons positioned for operation from both the bed and adjacent floor area. Reset controls should be accessible from both wheelchair and bed positions.

P. Children with Disabilities

Design Recommendations

Buildings serving children with disabilities, including those with mobility impairments, require specialised design considerations that recognise the unique physical and developmental needs of young users. These environments should incorporate size-appropriate dimensions for essential elements such as handrails, grab bars, tables, and water closets. Through thoughtful design of play areas, learning environments, and support facilities that emphasise not just accessibility but also sensory awareness and flexibility, these buildings can create inclusive environments where children with disabilities participate fully alongside their peers in daily activities and social development.

P.1 Design Principles

- P.1.1 The following guidelines should be considered for buildings and premises whose principal users are children, such as kindergartens, pre-schools, and primary schools, that are accessible to children with disabilities.
- P.1.2 The term “children with disabilities” in the context of these guidelines should be taken to mean children between the ages of 3 and 12 who use wheelchairs for mobility or have ambulant mobility impairment.
- P.1.3 The design of facilities for children with disabilities should consider the following:
- (a) **Accessibility** – Simple, clear layouts with safe clearances and ergonomic details (e.g. door handles).
 - (b) **Sensory Awareness** – Glare-free lighting, good acoustics, visual and texture contrast, reduced stimuli, and sensory elements (e.g. aromatherapy, colour, light and sound).
 - (c) **Flexibility and Adaptability** – Adaptable spaces with minimal fixed furniture to accommodate changes in function and size.
 - (d) **Health and Safety** – Accessible personal care facilities, good ventilation, minimal noise disturbance, and clear sight lines for supervision.

P.2 Children’s Reach Ranges

- P.2.1 Building elements such as coat hooks, lockers, controls or operating mechanisms that are designed for use by children with disabilities should refer to the dimensions as recommended in Table 1 and Table 2 on the reach ranges for children according to their age groups.

Table 1
Forward Reach

Age (years)	Reach (low) (mm)	Reach (high) (mm)
3 to 6	500	900 to 1000
7 to 12	400	1000 to 1100

Table 2
Side Reach

Age (years)	Reach (low) (mm)	Reach (high) (mm)
3 to 6	500	960 to 1070
7 to 12	400	1070 to 1170

P.3 Railings

P.3.1 Handrails

P.3.1.1 A second set of handrails should be provided at ramps and staircases to assist children with disabilities. These handrails should be installed at a height of between 600 mm and 750 mm, measured vertically from the ramp surface or stair pitch line to the top of the handrails.

P.3.2 Barriers

P.3.2.1 Safety barriers are recommended to be at least 1500 mm high at staircase landings and corridors, and at least 1800 mm high at above-ground areas used by children (including playgrounds) where there is a risk of falling to a lower level.

P.4 Tables and Counters

P.4.1 Where accessible tables, counter tops or writing surfaces are provided, they should be at a height between 700 mm and 780 mm from the floor. Tables with adjustable height are recommended.

P.4.2 A clear floor space of at least 900 mm wide by 1200 mm deep should be provided at counters, tables or work surfaces for children using wheelchairs.

P.4.3 Where a forward approach is used, a clear knee space of at least 700 mm wide, 400 mm deep and 700 mm high should be provided.

P.5 Drinking Fountains

P.5.1 The spout opening should be located at the front of the unit, between 740 mm and 780 mm from the floor or ground surface.

P.6 Grab Bars

P.6.1 Where grab bars are provided, the height should meet the need of specific age groups as recommended in Table 3.

P.6.2 The grab bars should have a diameter of between 30 mm and 35 mm or a shape that provides an equivalent gripping surface.

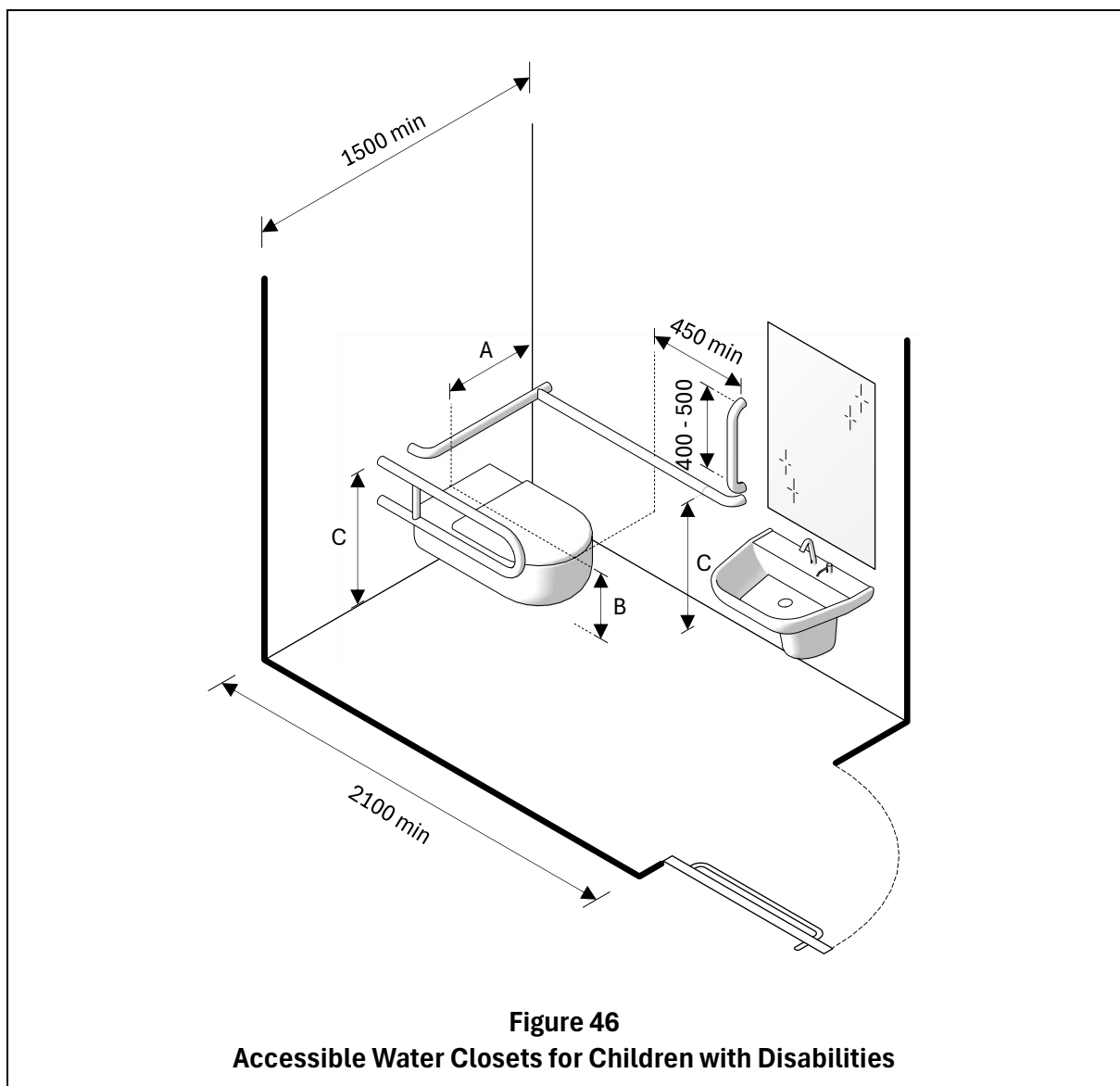
Table 3
Grab Bar Height

Age (years)	Height of grab bar (mm)
3 to 6	450 to 580
7 to 12	580 to 700

P.7 Sanitary Provisions

P.7.1 Accessible Water Closets

P.7.1.1 Accessible water closet cubicles for children with disabilities should have clear internal dimensions of at least 1500 mm by 2200 mm, as shown in Figure 46.



P.7.1.2 Accessible water closets should be provided with grab bars and features as recommended in Table 4.

Table 4
Distances and Heights in Accessible Water Closets for Children with Disabilities

	Ages 3 and 4	Ages 5 through 8	Ages 9 through 12
Water Closet Centreline (A)	300	300 to 380	300 to 450
Toilet Seat Height (B)	280 to 300	300 to 380	300 to 450
Grab Bar Height (C)	450 to 510	510 to 640	640 to 680

P.7.2 Mirrors

P.7.2.1 A full-length mirror should be provided to accommodate all users. If a full-length mirror is not provided, the mirror's bottom edge should be positioned at a height of 600 mm or less from the floor level, and the top edge at least 1600 mm from the floor level.

P.8 **Lifts**

P.8.1 Lift landing call buttons and lift car controls for children with disabilities should be positioned between 800 mm and 1000 mm from the floor level.

P.9 **Entrances**

P.9.1 Where turnstiles are provided at an accessible entrance or along an accessible route, an auxiliary side-hung door or accessible gate should be provided immediately adjacent to them.

P.10 **Playgrounds**

P.10.1 Play Value

P.10.1.1 Playgrounds should be accessible and inclusive for children and young people of all ages and abilities, including those who are neurodivergent or have a disability.

P.10.1.2 Equipment and elements for all abilities and ages should be provided, with graduated challenges from easy to difficult for both physical and cognitive skills.

P.10.1.3 Playgrounds should support all kinds of play, including pretend play, building and creating, exploring nature, hands-on sensory activities, adventure and exploration, thinking and problem-solving, as well as social, solitary, competitive and physical activities, such as the examples shown in Figure 47, Figure 48 and Figure 49.



Figure 47
In-Ground Trampoline



Figure 48
Pretend Play and Musical Play



Figure 49
Slide with Transfer Modules

P.10.2 **Inclusion**

- P.10.2.1** Sufficient benches and seating with armrests and backrests should be provided for parents, caregivers, and children to rest and allow supervision.
- P.10.2.2** For information boards and play charts, multiple communication options like Braille, maps and pictures should be made available so everyone can access and understand information regardless of their needs or abilities.
- P.10.2.3** Spaces and play equipment for children with disabilities to play alone, with a friend and with groups of children should be provided, such as the examples shown in Figure 50, Figure 51 and Figure 52.
- P.10.2.4** Playground equipment design, such as the examples shown in Figure 53 and Figure 54, should accommodate sensory processing differences and sensitivities across all sensory systems:
- (a) **Visual** (contrasting colours, visual complexity, mirrors, illusions);
 - (b) **Tactile** (varied textures and surfaces);
 - (c) **Auditory** (sound-producing elements, noise levels);
 - (d) **Olfactory** (natural scents from plants within environment);
 - (e) **Proprioceptive** (equipment that provides body awareness feedback through climbing, pushing, pulling, jumping); and
 - (f) **Vestibular** (swinging, spinning, sliding, rocking activities that support balance and movement).



Figure 50
Swing with Harness



Figure 51
Social Swing



Figure 52
Basket Swing



Figure 53
Dome



Figure 54
Sensory Panel

P.10.3 Accessibility

- P.10.3.1 Accessible washrooms with changing facilities for children with disabilities should be located within proximity to the play space.
- P.10.3.2 Sufficient circulation space and buffer space around play equipment should be provided for access and safety.
- P.10.3.3 Flat and firm surfaces should be provided to accommodate wheeled mobility aids such as wheelchairs, walkers and prams.
- P.10.3.4 Ramps should be provided to allow access to higher platforms.
- P.10.3.5 Garden beds, water play and sand pits should have raised edges and paths should have visual contrast with the surroundings to enable easier wayfinding, as outlined in clause S.5.1.
- P.10.3.6 Flush-to-floor play equipment should be provided for wheelchair and physical disability access, such as the examples shown in Figure 55 and Figure 56.



Figure 55
Flush to Ground Carousel



Figure 56
Playground Ramp to allow Access for Users with Wheeled Equipment

P.10.4 Environment

- P.10.4.1 Play areas should be shaded with overhead elements such as trees or purpose-built canopies to encourage outdoor play during hot and humid conditions.
- P.10.4.2 Equipment should be constructed from materials that can withstand heat, rain, and humidity whilst maintaining low thermal conductivity to prevent burns, such as avoiding metal components on slides.
- P.10.4.3 Boundary enclosures should be provided around play spaces for child safety, especially near roads and water bodies.
- P.10.4.4 Only non-toxic plants should be used, as children may attempt to consume plant material.

P.11 **Quiet Spaces**

- P.11.1 A dedicated quiet room or space should be provided for neurodivergent users to manage sensory and neurological processing needs, particularly in environments where stress and sensory overload are likely to be intense.
- P.11.2 Where such a room or space is provided, it should have the following features:
 - (a) a calm, quiet space with minimal visual distractions and low noise levels;
 - (b) either two separate rooms, or one room that can be divided into two sections with separate entrances for male and female users;
 - (c) soft-surface walls such as padded or cushioned finishes;
 - (d) washing facilities, either inside the room or in a nearby adjacent room; and
 - (e) an "occupied" or "in use" sign on the door.

Q. Signage and Wayfinding

Baseline Mandatory Requirements

Refer to Clauses under Chapter 8 of the Code.

Design Recommendations

Buildings require comprehensive wayfinding and orientation systems that enable safe and independent navigation for all users, particularly those with visual, hearing, or cognitive impairments, such as dementia. These systems should employ multi-sensory design principles that provide information through at least two sensory channels. Through thoughtful integration of signage, tactile indicators, landmarks, and information displays, these wayfinding systems can create intuitive navigation environments that support user confidence and independence for all occupants.

Q.1 Design Principles

Q.1.1 Objective

- Q.1.1.1 The built environment should be designed to enable safe and independent navigation for all users, allowing people to orientate themselves, navigate without confusion, avoid hazards, and identify destinations clearly.

Q.1.2 Two-Sense Principle

- Q.1.2.1 All wayfinding information should be accessible through at least two sensory channels to ensure usability by persons with different abilities:
- (a) **Visual information** (for persons who are deaf or hard-of-hearing)
 - (b) **Audible and tactile information** (for persons with visual impairment)

Q.1.3 Basic Provision

- Q.1.3.1 Every building should provide clear and accessible wayfinding information at main entrances and critical decision points, including:
- (a) Building location and purpose
 - (b) Internal layout and floor plans
 - (c) Key destinations and facilities
- Q.1.3.2 Critical decision points include main and secondary entrances, lift lobbies, staircases, corridor intersections, directional changes, and transitions between different building zones or functions, where reassurance should be given.
- Q.1.3.3 Wayfinding elements should be made from durable materials with appropriate colour contrast and non-reflective finishes to reduce glare. Tactile ground surface indicators should be provided at strategic locations for guidance and safety.

Q.1.4 Large Scale Buildings

- Q.1.4.1** Large scale buildings should incorporate comprehensive multi-sensory wayfinding information systems, including visual, audible and tactile elements that follow the two-sense principle, such as combination of at least two or more of the following:
- (a) tactile maps and Braille signage;
 - (b) colour-coded or wayfinding schemes featuring clear, recognisable symbols;
 - (c) audio announcement and guidance systems;
 - (d) integration with mobile application with accessibility features.

Q.2 Signage**Q.2.1 Content**

- Q.2.1.1** Signs should be readable and legible for people with vision or cognitive impairments through proper illumination, clear design, and consistent mounting heights. Tactile elements such as raised motifs and Braille should be considered where appropriate.
- Q.2.1.2** Design should be simple, intuitive, uncluttered, and instantly recognisable, using pictograms and simple words that represent familiar images and everyday activities.
- Q.2.1.3** Characters on signage should consist of letters and numbers with the following:
- (a) Sans serif font, such as Helvetica or Arial
 - (b) Arabic numerals
- Q.2.1.4** Height of characters on signage should be determined according to viewing distance as recommended in Table 5, based on lowercase letter height dimensions. Each word should begin with an uppercase letter and continued with lowercase letters.
- Q.2.1.5** Graphical symbols or pictograms on signage should be sized according to the viewing distance as recommended in Table 6, integrated with the building's signage system.
- Q.2.1.6** Signage should be readable by persons with visual impairment through raised characters and Braille. Graphical symbols or pictograms should be accompanied by raised lettering and Braille to identify facility components. For further details on Braille, refer to Annex.
- Q.2.1.7** Colour contrast should be provided as recommended in Chapter R.

Table 5
Height of Letter

Required viewing distance (m)	Minimum height of letters (mm)
1.5	5
1.8	6
3.0	10
3.6	12
4.5	15
6.0	20
7.5	25
15.0	50
25.0	80
35.0	110
40.0	130
50.0	160

Note The text height is based on the lower case of letters.

Table 6
Size of Symbols

Viewing distance (m)	Minimum symbol size (mm)
Up to 7.0	60 x 60
7.0 to 18.0	100 x 100
Above 18.0	200 x 200 to 450 x 450

Q.2.2 Installation

Q.2.2.1 Signs and their frames should have no sharp edges.

Q.2.2.2 Signs should be positioned for clear visibility by all users whether walking, standing, or seated. In crowded areas, signs may be ceiling-suspended or wall-mounted at a minimum height of 2000 mm above the floor level, though suspended signs should be minimised as they may fall outside the field of vision of persons with visual impairment.

Q.2.2.3 In an existing environment, careful consideration should be given to how the viewing of signs can be affected by:

- (a) other signs and features (for example, lighting, advertising);
- (b) ambient and natural lighting; and
- (c) physical obstructions.

Q.3 Physical Cues

Q.3.1 Physical structures such as buildings, walls, rails and kerbs can serve as navigation cues. People using white canes can follow the structures by maintaining intermittent contact, provided there is an appropriate clear pathway alongside.

Q.3.2 Physical cues can be detected through white cane use, underfoot tactile feedback, or echolocation.

Q.4 Other Sensory Cues

Q.4.1 Persons with low vision rely on other senses such as touch, sound and smell to gather information. Where existing visual information is insufficient, additional tactile or audible elements should be considered.

Q.5 Landmarks and Mental Mapping

Q.5.1 Landmarks are unique features that assist with orientation and navigation by helping people with visual or cognitive impairments understand their location and surroundings. They serve as distinctive reference points that enable easier wayfinding than text-based signs, particularly for those with cognitive impairments, helping users create mental maps and establish direction.

Q.5.2 People with cognitive impairments use these mental maps to navigate independently. Examples of effective landmarks, as shown in Figure 57, include:

- (a) distinctive architectural elements such as artwork, sculptures, and entry markers
- (b) social spaces and activity nodes including plazas, rest stops, and pavilions
- (c) natural features such as distinctive trees and colourful plantings

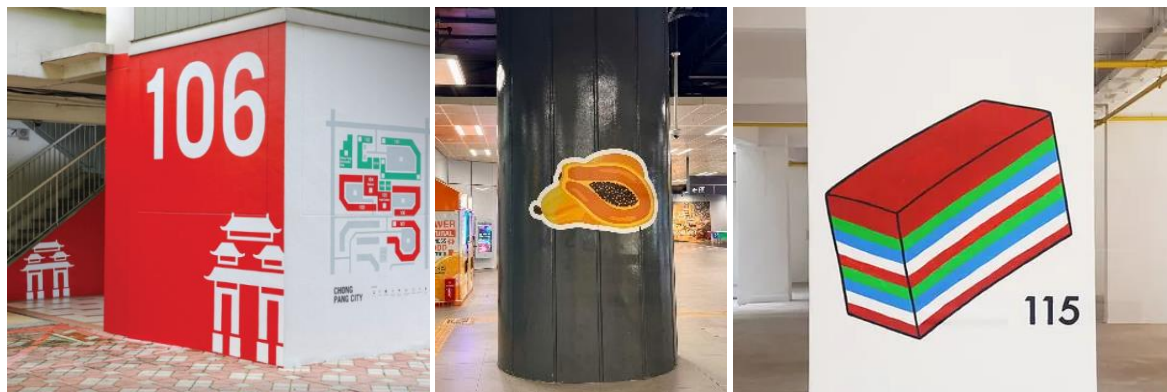


Figure 57
Examples of Landmarks

Q.6 Tactile Guide Maps

Q.6.1 General

- Q.6.1.1 Tactile guide maps should be provided at building and toilet entrances and exits, displaying only essential information including interior layouts and gender designation for toilets, using clear text and symbols.
- Q.6.1.2 Wall-mounted tactile guide maps should be centred at 1400 mm height with maximum dimensions of 1000 mm by 600 mm. They should be oriented with the top edge representing the front direction when users face the map, reflecting the actual site conditions.
- Q.6.1.3 Where inclined tactile guide maps are provided, they should be tilted at 30° to 45° with the bottom edge positioned 700 mm to 800mm from the floor, ensuring comfortable tactile reading, such as the example shown in Figure 58.
- Q.6.1.4 Tactile guide maps should include both tactile and Braille elements for persons with visual impairment. Audio guidance should be provided where appropriate.

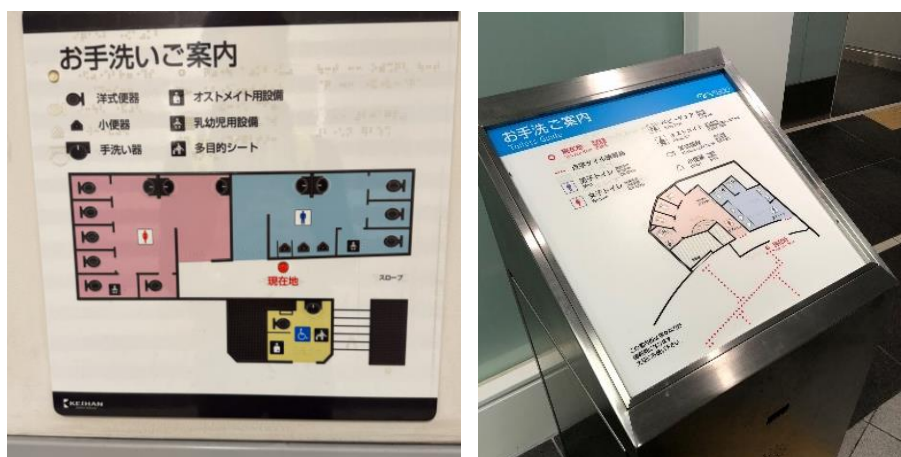


Figure 58
Wall-Mounted and Inclined Tactile Guide Maps

Q.6.2 Tactile Symbols and Characters

- Q.6.2.1 Tactile symbols and characters should provide visual contrast and legible font sizes for persons with low vision, particularly in busy environments (e.g. shopping centres, transport hubs) that may reduce contrast sensitivity, such as the examples shown in Figure 59.
- Q.6.2.2 Characters should be consistently positioned next to the tactile symbol of the objects they identify.

- Q.6.2.3 Tactile guide maps should incorporate the following:
- (a) include tactile symbol for current location;
 - (b) tactilely readable without sharp edges;
 - (c) durable and wear-resistant for long-term use;
 - (d) not too hot to touch (in outdoor environments);
 - (e) non-reflective to prevent glare;
 - (f) hygienic, easily cleanable, does not trap dirt; and
 - (g) non-allergenic surface.

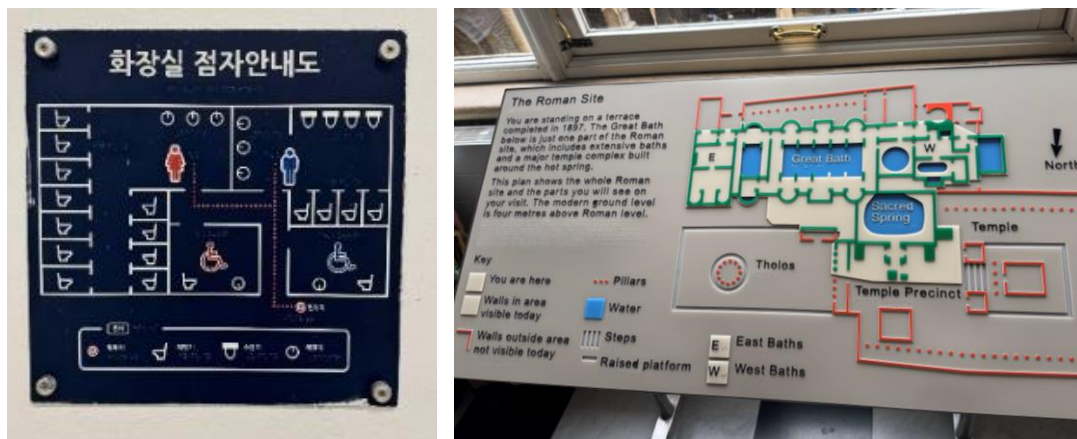


Figure 59
Examples of Tactile Guide Maps

Q.7 Information Displays

- Q.7.1 Information displays include directories, map boards, notice boards, and interpretive boards.
- Q.7.2 A clear floor space of at least 900 mm by 1200 mm should be provided in front of the information displays.
- Q.7.3 The reading height of text should be between 700 mm and 1800 mm above the floor.
- Q.7.4 Graphic-related text should be at least 5 mm minimum in height. Other text should be at least 8 mm minimum in height.
- Q.7.5 Information boards should be illuminated to at least a level of 200 lux.
- Q.7.6 If video and media information displays are used, they should avoid glare from artificial and natural lighting by being shaded or positioned out of direct light. A complementary audible information system should be provided.

- Q.7.7** For outdoor facilities, information on outdoor recreation access routes and accessible facilities should be indicated on relevant information boards. Directional signs should be positioned at least 600 mm from the outdoor recreation access route or trail, as shown in Figure 60.



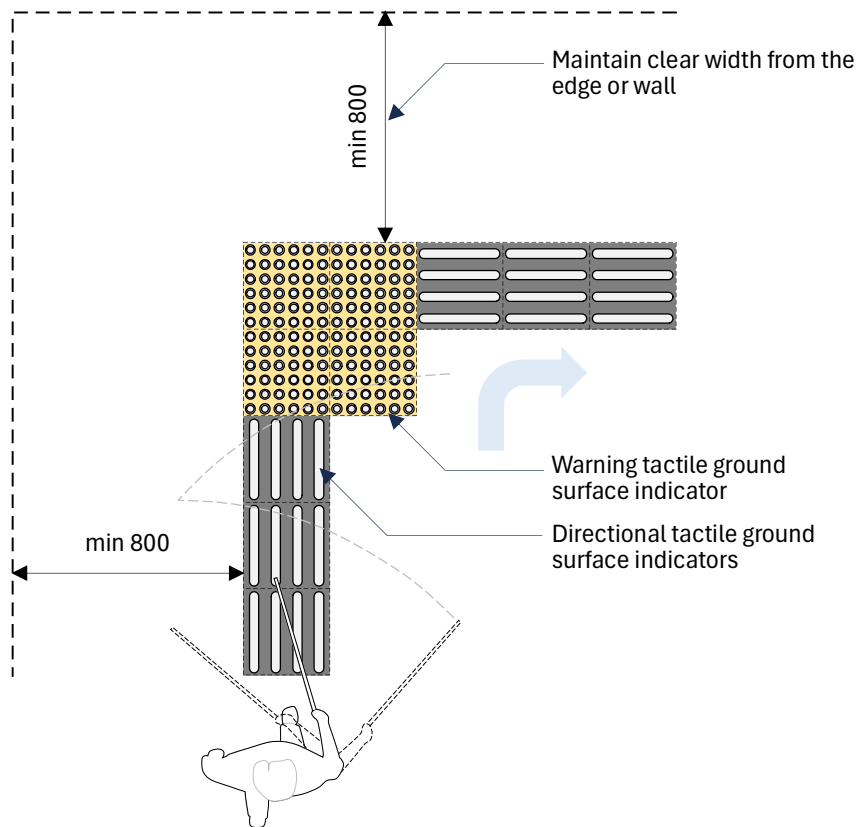
Figure 60
Examples of Information Display and Directional Signs

Q.8 Audio and Visual Communication Systems

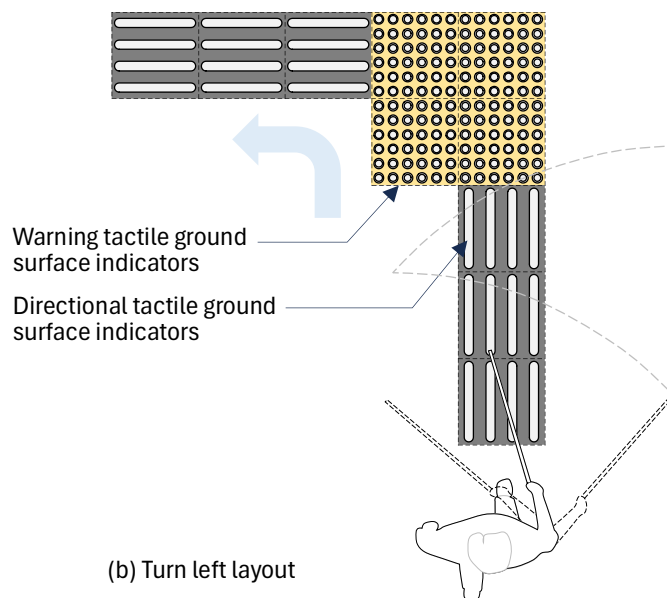
- Q.8.1** Public address systems for performances and announcements should be clearly audible and equipped with a hearing enhancement system. Where possible, announcements should be displayed on LED screens to ensure accessibility for users with hearing impairments.
- Q.8.2** Emergency alarm systems in buildings shall incorporate both audible and visual alarm components, such as flashing beacons or strobe lights, to ensure accessibility for all users, including persons with hearing impairments.

Q.9 Tactile Ground Surface Indicators

- Q.9.1** Tactile ground surface indicators (TGSIs) provide physical cues detectable under foot or by white cane, for conveying specific information about the surroundings. Examples of their application are shown in Figure 61 and Figure 62.
- Q.9.2** There are two types of tactile ground surface indicators:
- (a) warning indicators; and
 - (b) directional indicators.

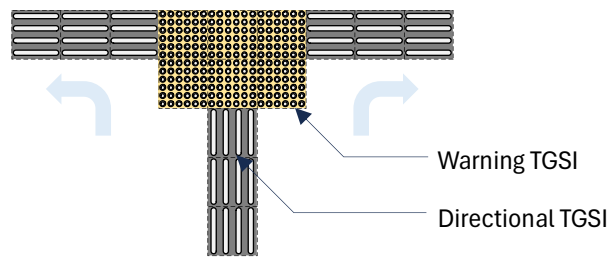


(a) Turn right layout

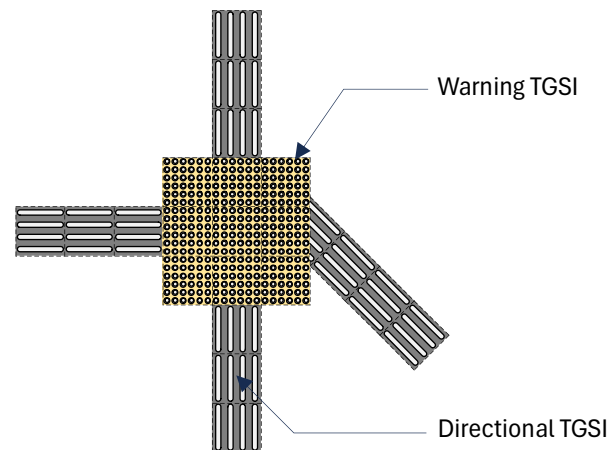
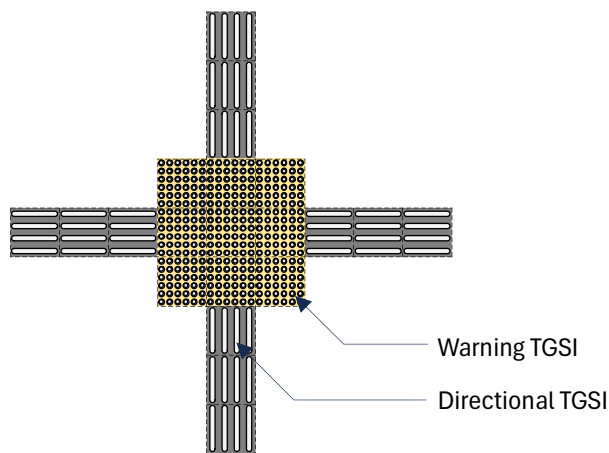


(b) Turn left layout

Figure 61
Directional and Warning Tactile Indicators at Two-Way Junctions



(a) 3-way junction directional and warning tactile indicator layout



(b) 4-way junction directional and warning tactile indicator layout

Figure 62
Directional and Warning Tactile Indicators at Three-Way and Four-Way Junctions

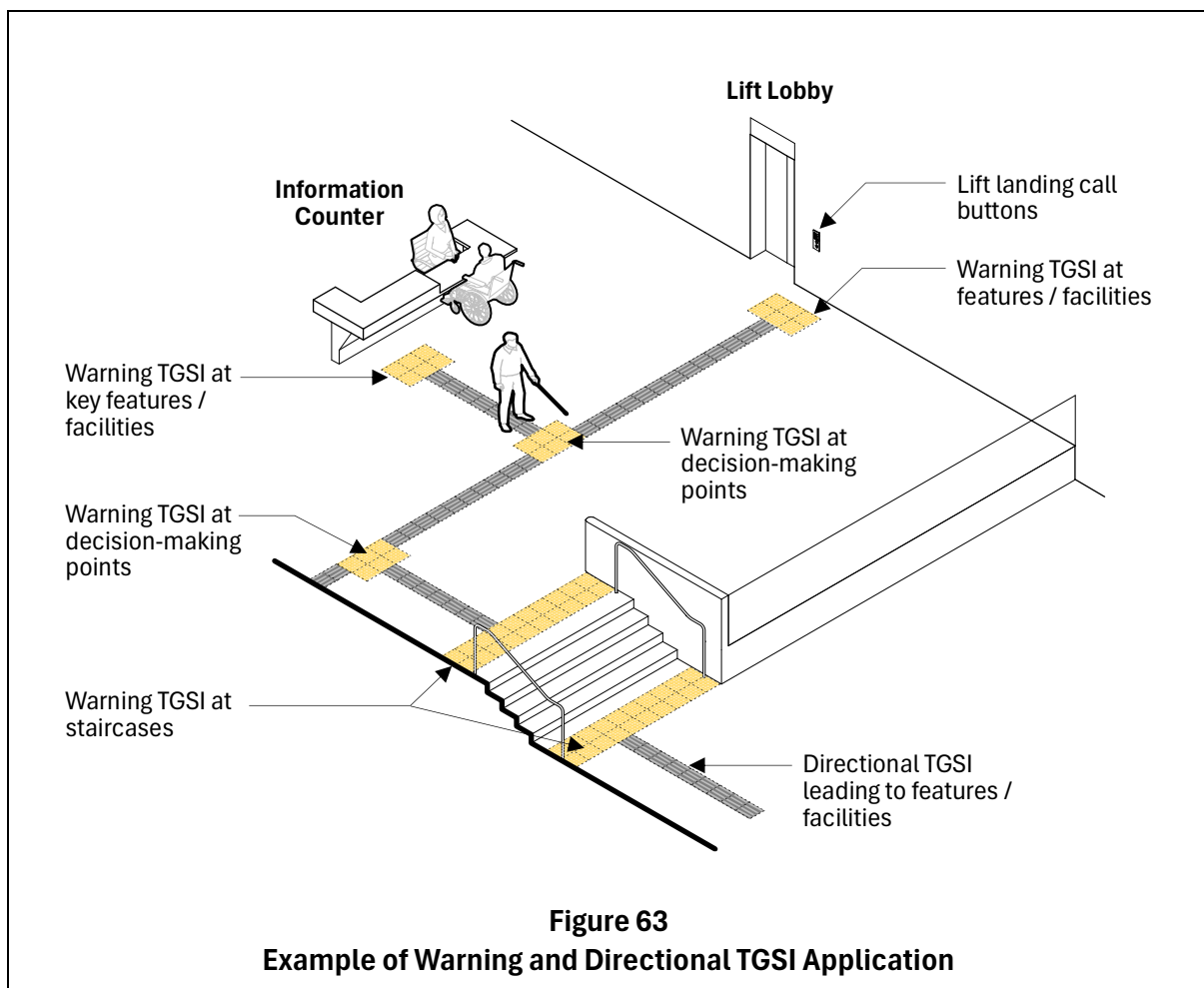
Q.9.3 Design Principles

Q.9.3.1 For the application of tactile ground surface indicators (TGSIs), the following principles should be considered:

- (a) **Minimalist Application** – TGSIs can help indicate the location of key amenities and facilities. They should be applied sparingly and strategically. Widespread or random application confuses users and reduces effectiveness.
- (b) **Colour and Luminance Contrast** – TGSIs should contrast with surrounding surfaces to assist users with residual vision. A minimum 30% luminance contrast is required for persons with low vision to detect changes in surface lightness and perceive tactile features. However, 50% or higher luminance contrast is recommended for optimal visibility across varying lighting conditions and different degrees of visual impairment.

Q.9.4 Warning Indicators

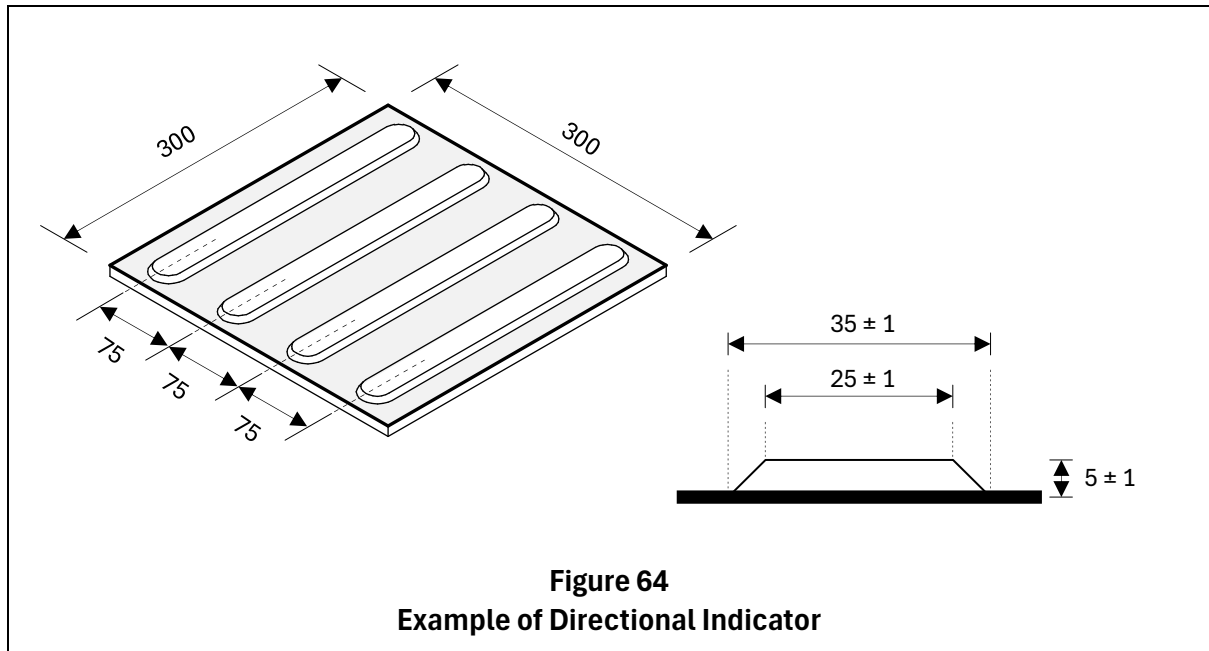
Q.9.4.1 Warning indicators should be provided at destinations to provide information about the location of amenities such as ticketing machines, toilet entrances where there are tactile maps, lift call buttons and the like, as shown in Figure 63.



Q.9.5 Directional Indicators

Q.9.5.1 Directional indicators should be provided to indicate continuous accessible paths of travel when other wayfinding cues are insufficient, such as in open pedestrian plazas and guiding users to specific amenities including ticketing machines, toilet entrances, tactile maps and lift controls.

Q.9.5.2 The dimensions of a directional indicator are shown in Figure 64.



R. Visual Contrast

Design Recommendations

Effective visual contrast systems and uniform lighting enable persons with visual impairment, colour blindness, or age-related vision decline to distinguish between surfaces, read signage, and navigate safely through different environments.

R.1 Types of Visual Contrast

R.1.1 Contrast refers to perceptible differences between regions of an image or scene. There are two fundamental types of visual contrast:

- (a) luminance or brightness contrast; and
- (b) colour contrast.

R.2 Luminance Contrast

R.2.1 Luminance contrast measures the relative amounts of light reflected from surfaces. Surfaces with different colours may appear identical in brightness, making them indistinguishable for persons with diminished colour perception or in poor lighting conditions.

R.2.2 A minimum 30% luminance difference is required for most persons with low vision to distinguish between surfaces. For context, black text on a white background provides 100% luminance contrast — the maximum possible difference. Grey paired with either black or white typically provides approximately 50% luminance contrast. Figure 65 illustrates these contrast relationships and demonstrates how different colour combinations achieve varying levels of luminance contrast.

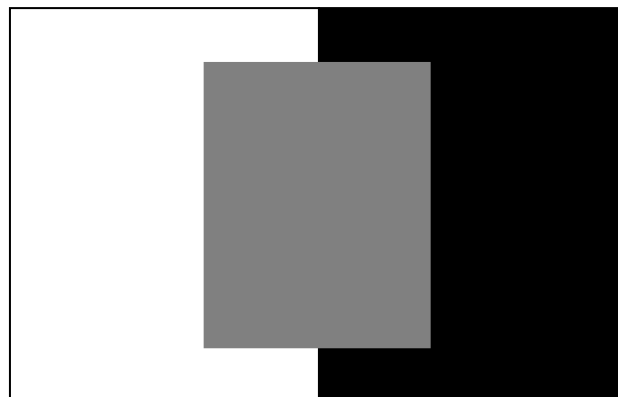


Figure 65
Effective Luminance Contrast

Note 1 Empirical testing showed that when the foreground luminance differed from the background by 30% or more, most users could distinguish shapes, read short text and identify building elements reliably.

Note 2 The Luminance Reflectance Value (LRV) provides an alternative acceptable method for measuring luminance difference between surfaces. For comprehensive guidance, refer to ISO 21542 Building Construction – Accessibility and Usability of the Built Environment.

Note 3 100% luminance contrast may create confusion for persons living with dementia, as they may appear as voids or "black holes" on floors or walls, which can lead to hesitation, missteps, or avoidance behaviours that increase fall risk.

R.3 Colour Contrast

R.3.1 Ageing, sight loss and colour blindness reduce colour perception sensitivity. Colours that appear contrasting to people with normal vision may be indistinguishable for persons with low vision.

R.3.2 The following attributes affect colour contrast:

- (a) **Lightness** – The relative amount of light reflected from a colour
- (b) **Saturation** – Colour intensity
- (c) **Hue** – Basic colour names (red, green, blue, etc.)

R.3.3 An effective design maximises lightness differences between foreground and background objects, regardless of saturation or hue differences.

R.3.4 Colours used on a signage scheme should be based on a specific colour referencing convention (e.g. Pantone, RGB, CMYK, RAL, etc).

R.3.5 Colours should be consistently implemented throughout a building for visual coherence and effective wayfinding.

R.3.6 Characters should contrast with their background with either light characters on a dark background or dark characters on a light background for optimal legibility. Some suggested basic colour schemes that provide acceptable contrast are recommended in Table 7. For detailed colour contrast requirements, refer to the current edition of *Singapore Standard SS 599 Guide for Wayfinding Signage in Public Places*.

Table 7
Examples of Colour Schemes with Acceptable Contrast

Background colour	Foreground colour	Example
Black	White	Contrast
	Yellow	Contrast
White	Red	Contrast
	Blue	Contrast
	Black	Contrast
Red	White	Contrast
	Yellow	Contrast
Yellow	Red	Contrast
	Blue	Contrast
	Black	Contrast
Blue	White	Contrast
	Yellow	Contrast

R.3.7 The colour combinations shown in Table 8 create a visually vibrating effect that reduces legibility and should be avoided. This effect occurs when bright, high-contrast complementary colours are placed adjacent to each other.

Table 8
Poor Colour Contrast

Background colour	Foreground colour	Example
Red	Green	Contrast
Green	Red	Contrast
Blue	Orange	Contrast
Orange	Blue	Contrast
Green	Magenta	Contrast
Magenta	Green	Contrast
Yellow	Cyan	Contrast
Cyan	Yellow	Contrast



Figure 66
Example of Signages with Acceptable Colour Contrast

R.4 Lighting

- R.4.1 Adequate lighting is essential for contrast perception, as low light levels diminish the ability to distinguish contrasting elements. Lighting should be uniform and approximately 25% higher for persons with low vision.
- R.4.2 Strong directional lighting and significant illumination fluctuations should be avoided, as these create shadows and reduce visibility due to slower eye adaptation.

S. Components of a Building

Baseline Mandatory Requirements

Refer to Clauses under Chapter 9 of the Code.

Design Recommendations

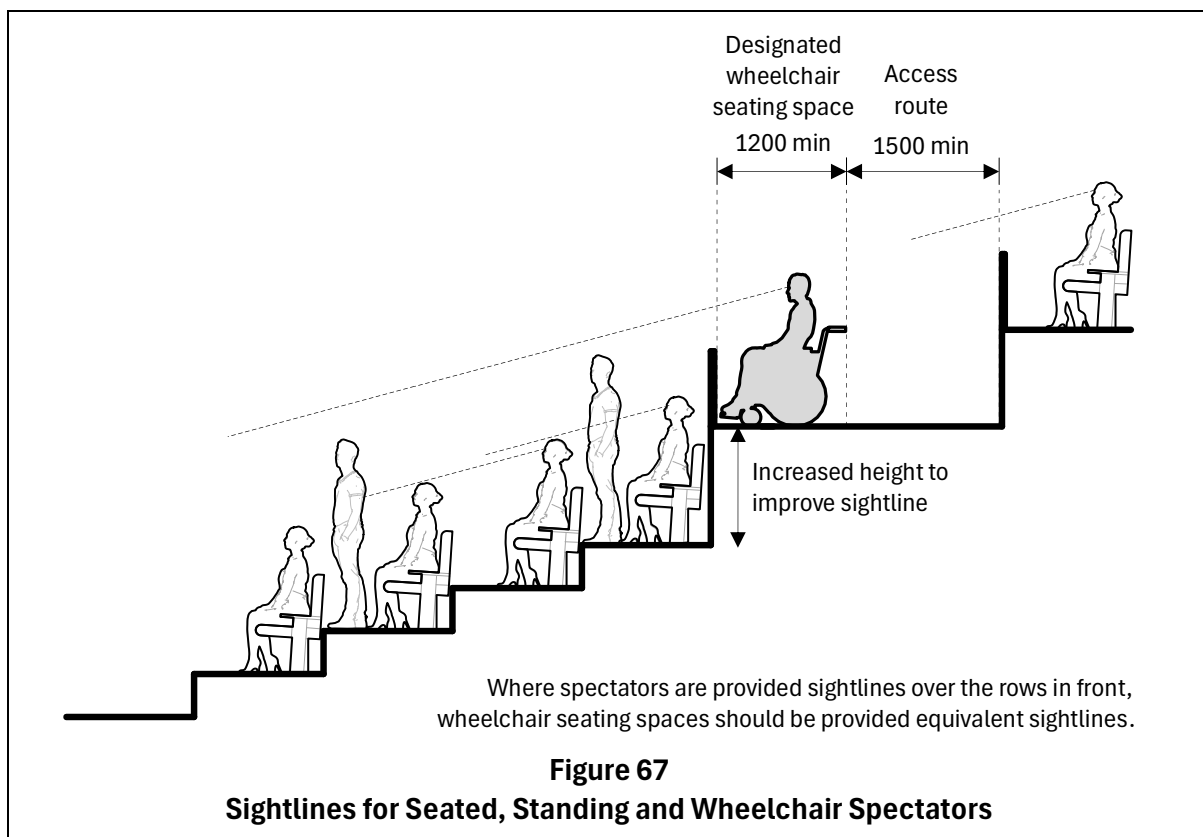
Building components such as seating and street furniture form integral parts of environments where persons with disabilities engage in recreational and community activities. These elements should be designed with integrated accessible features to ensure equitable access and to support inclusive participation in community life.

S.1 Seating Spaces for Wheelchair Users

S.1.1 Cinemas, Theatres, Concert Halls, Stadia and other Places of Public Resort

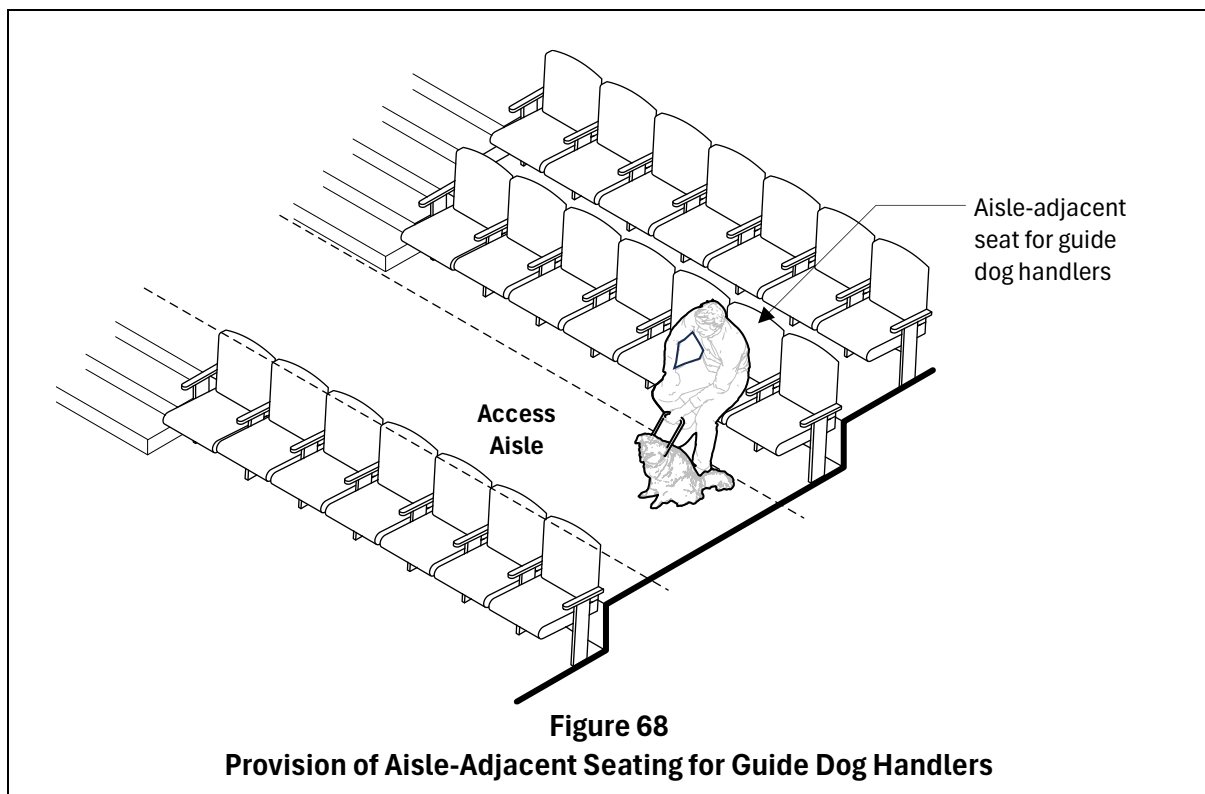
S.1.1.1 Wheelchair spaces should be integrated and dispersed throughout each pricing tier's seating plan to ensure equitable access across all categories.

S.1.1.2 Wheelchair seating should not obstruct views of audience behind and be provided with clear sight lines to speakers, interpreters, screens and performances, as shown in Figure 67.



S.1.1.3 Where multiple wheelchair spaces are provided, at least two should be located side by side to allow wheelchair users to sit together.

- S.1.1.4 Fixed seats should accommodate persons with ambulant mobility impairments and include armrests or grab bars to assist users when getting up.
- S.1.1.5 Adequate space should be provided along access routes for guide dog handlers and their guide dogs, with doorways having a minimum 1200 mm clear opening width.
- S.1.1.6 Seating for guide dog handlers should be provided adjacent to the aisle to facilitate a clear path for ushers to escort them, as shown in Figure 68.
- S.1.1.7 Sign language interpreters should be positioned where they are easily visible to the deaf or hard-of-hearing audience members, allowing them to view both the interpreter and performance with minimal disruption to the line-of-sight.



S.2 Service Counters

- S.2.1 As no single table, counter or worktop height suits all users with disabilities, adjustable-height surfaces within the range of 700 mm to 850 mm from the finished floor level are preferred.

S.3 Storage Facilities

- S.3.1 Accessible storage facilities include features such as cabinets, shelves, cupboards and drawers. They should meet the following requirements:
 - (a) **Accessible heights** – Be within the reach ranges of wheelchair users. Clothes-hanging rods or hooks should be located not more than 1200 mm above finished floor level.

- (b) **Clear floor space** – A clear floor space of not less than 900 mm by 1200 mm that allows either a forward or parallel approach by a wheelchair user.
- (c) **Hardware** – Accessible hardware, touch latches and D-shaped pulls are acceptable.
- (d) **Design Considerations** – Sliding door cupboards are preferred over swing door alternatives as they minimise impact on wheelchair manoeuvring space and reduce collision risk for persons with visual impairment. Lightweight gliders should be installed for smooth drawer operation.

S.4 Fitting Rooms

- S.4.1 Where fitting rooms are provided, at least one should be accessible for wheelchair users.
- S.4.2 Accessible fitting rooms should have clear internal dimensions of at least 1500 mm by 1500 mm beyond the door swing.
- S.4.3 A moveable bench should be provided at 430 mm to 480 mm height and minimum 1100 mm length, with a horizontal grab bar at 750 mm height mounted on the wall adjacent to the bench.
- S.4.4 Coat hooks should be provided at two different heights of about 1500 mm and 1100 mm from the floor level, protruding no more than 40 mm from the wall. A full-length mirror should also be provided.
- S.4.5 An emergency assistance alarm system with appropriate signage should be provided to activate indicator lights and audible signals both inside and outside the room for customer service assistance.

S.5 Circulation Paths

- S.5.1 For external footpaths with a direct drop of 200 mm or more along the accessible route, an upstand edge protection of at least 75 mm in height should be provided, as shown in Figure 69.

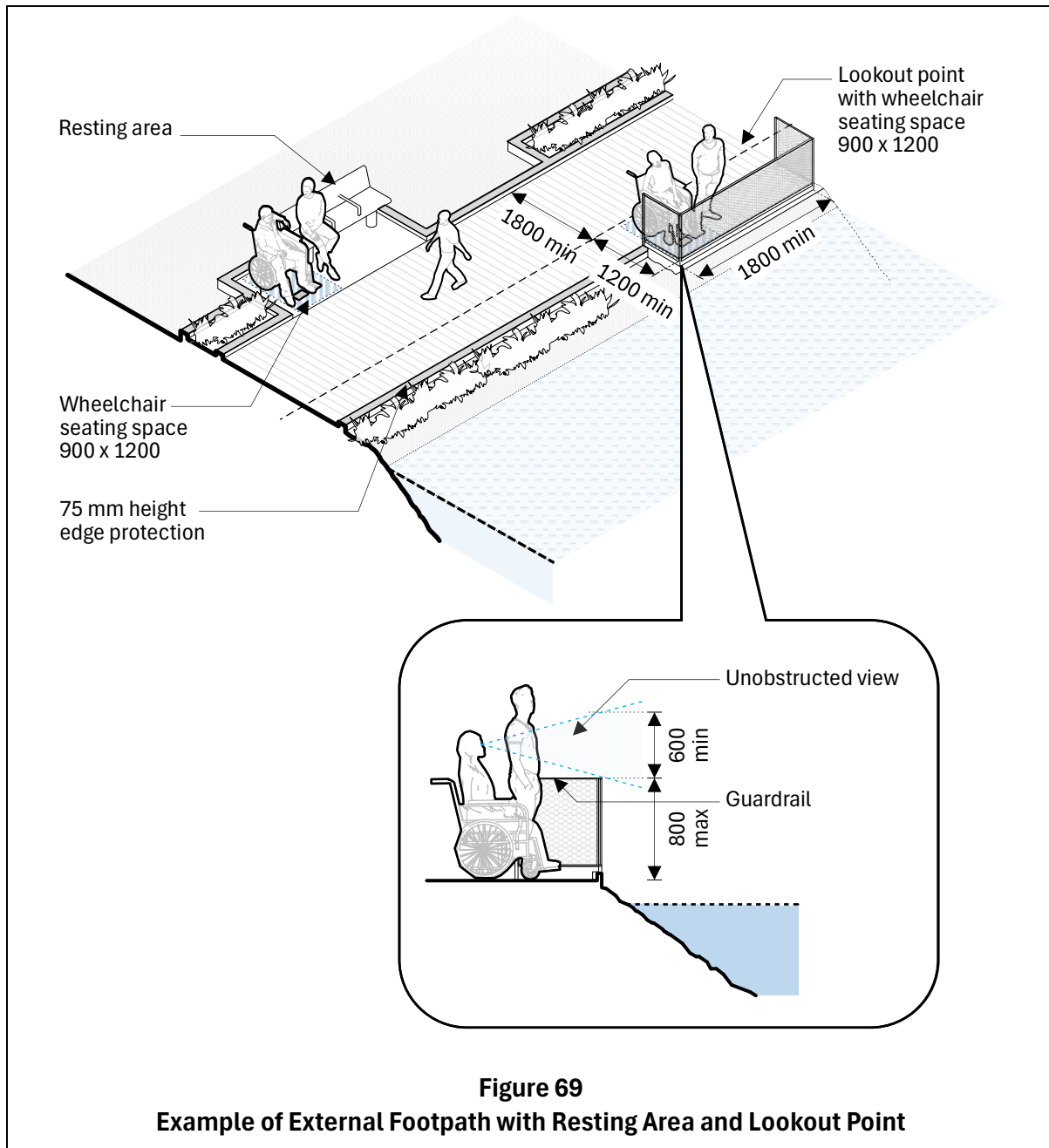
S.6 Resting Areas

- S.6.1 Sheltered resting areas of at least 1800 mm long and 1200 mm wide should be provided along the accessible route. These areas should include space for wheelchairs or prams next to the seating.
- S.6.2 Resting areas should be recessed from long paths of travel which can also act as a passing space for two wheelchair users to pass each other as shown in Figure 69.

S.7 Viewpoints

- S.7.1 At an observation deck, viewing gallery or lookout point, a clear space of at least 1800 mm by 1200 mm should be provided for wheelchair users. This space should allow front or side approach and should not obstruct the accessible route.

- S.7.2 An unobstructed view should be provided at a height between 800 mm and 1400 mm from the floor level at each distinct viewing location, as shown in Figure 69.



S.8 Street Furniture

- S.8.1 Street furniture in shopping and pedestrian malls, such as seats, tables, utility boxes and information kiosks, should be positioned outside of the required minimum clear width of the accessible route, on one side and be in a contrasting colour.

S.9 Drinking Fountains

- S.9.1 Where drinking fountains are provided, the fountain spout should:

- (a) have an opening located between 750 mm and 800mm from the floor or ground surface as shown in Figure 70;
- (b) be located at the front of the unit; and
- (c) be provided with push buttons or sensor or equivalent accessible control

S.9.2 Cantilevered drinking fountains as shown in Figure 70 should:

- (a) have a clear floor space of at least 750 mm by 1200 mm;
- (b) have a clear knee space between the bottom of the apron and floor or ground of at least 750 mm wide, 1200 mm deep and 700 mm high; and
- (c) have a toe space not less than 750 mm wide, 230 mm deep and 230 mm high.

S.9.3 Freestanding or built-in drinking fountains not having a knee space should have a clear floor space of at least 1200 mm wide by 750 mm in front of the unit.

S.9.4 A wall-mounted drinking fountain in an alcove is preferred because it does not create a hazard for persons with visual impairment. Drinking fountains that extend into corridors and have an open space underneath the fountain 680 mm in height should be protected by a wall guard.

S.9.5 The provision of two drinking fountains at different heights is very convenient for standing adults, wheelchair users and children.

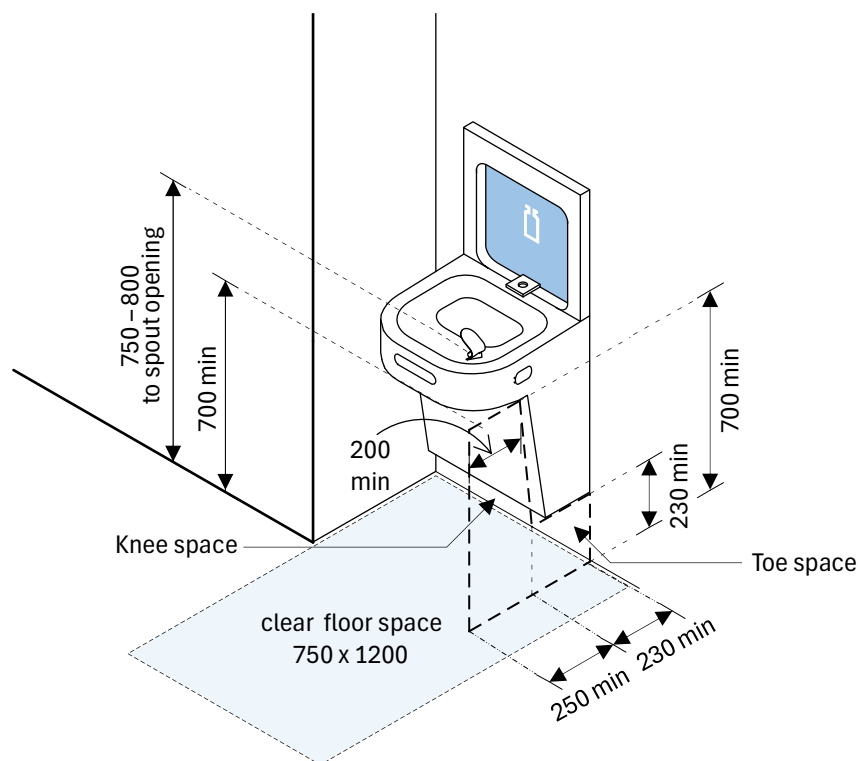
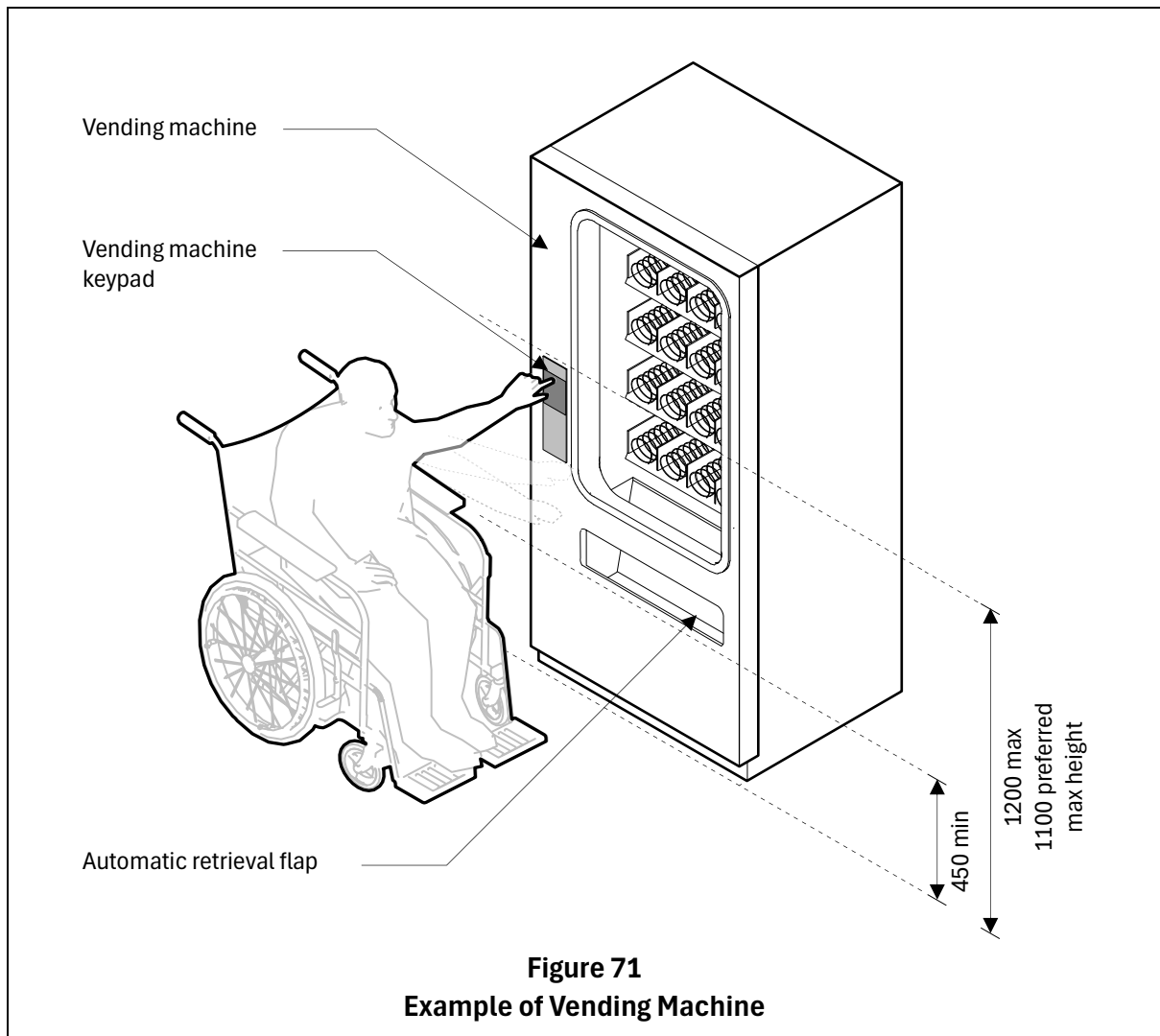


Figure 70
Example of Drinking Fountains



S.10 Letter Boxes

- S.10.1 Sufficient manoeuvring space to allow for a 360° wheelchair turn should be provided in front of the letter box.
- S.10.2 The operative components of letter boxes should be within the reach ranges of height between 450 mm and 1200 mm for wheelchair users.
- S.10.3 Spare letter boxes at varying heights should be provided to cater for different users, for future conversion as needed.

S.11 Vending Machines and Food Ordering Kiosks

- S.11.1 The height of the operating parts should be between 450 mm and 1200 mm above the floor level, as shown in Figure 71.
- S.11.2 Where practicable, knee and foot clearance should be provided beneath the machine.

- S.11.3 The controls should meet the following:
- (a) be clearly identifiable by touch and sight; and
 - (b) have a tactile surface to facilitate use by persons with visual impairment.

S.12 Outdoor Facilities

- S.12.1 Outdoor facilities include picnic tables, BBQ pits, trash and recycling receptacles, outdoor rinsing showers, benches and community garden planter boxes. They should be accessible and connected to an outdoor recreation accessible route.
- S.12.2 The size and location of the clear ground space should be in accordance with Table 9. At least one full unobstructed side of the clear ground space should adjoin or overlap an outdoor recreation accessible route or another clear ground space.

Table 9
Outdoor Constructed Features

Outdoor Constructed Features	Minimum Size & Location of Clear Ground Space
Picnic tables	900 mm by 1200 mm clear floor space adjacent to benches
BBQ pits	1200 mm by 1200 mm clear floor space adjacent to BBQ pits
Trash and recycling receptacles	900 mm by 1200 mm positioned for forward approach to the receptacle opening; or 800 mm by 1500 mm positioned for a parallel approach to the receptacle opening
Outdoor rinsing showers	1500 mm by 1500 mm with the shower heads positioned at the edge of the space (refer to Figure 72)
Benches	900 mm by 1200 mm positioned near the bench with one side of the space adjoining an outdoor recreation access route or trail, as applicable. The clear ground space should not overlap the outdoor recreation access route or trail, or other clear ground space.
Telescopes	900 mm by 1200 mm positioned for forward approach to the telescope. Provide knee and toe clearance as outlined in the Code clause 8.6.3 in the Code. Locate the space so that the eyepiece is centred on the space.
Community garden planter boxes	1200 mm by 1200 mm on all sides of the planter boxes.

S.13 Outdoor Rinsing Showers

- S.13.1 Outdoor rinsing showers should provide shower heads at varying heights: one at 1200 mm to 1400 mm above the floor and one at 1800 mm above the floor, as illustrated in Figure 72.

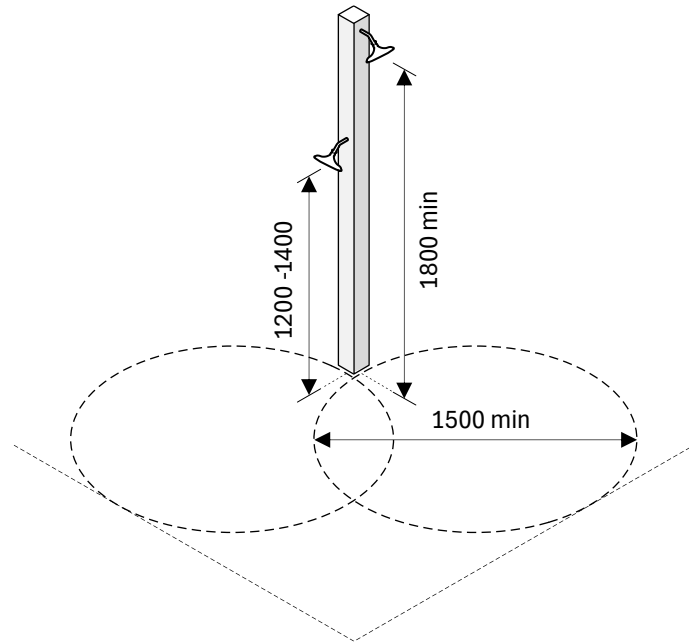


Figure 72
Example of Outdoor Rinsing Shower

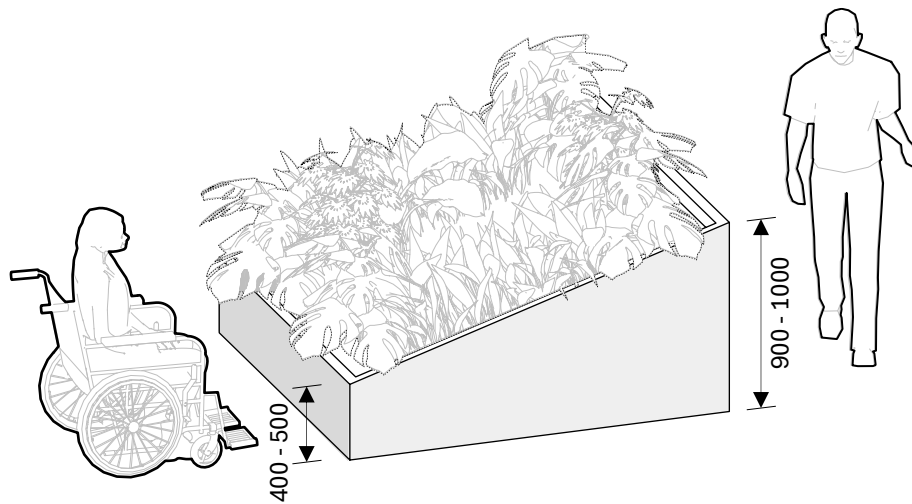
S.14 Planter Boxes

- S.14.1 Accessible planter boxes should be provided for wheelchair users, for general gardening, horticultural therapy or for ease of viewing, such as the examples shown in Figure 73. The height of the bed should allow wheelchair users to reach across to and access the plants.
- S.14.2 Planting surfaces should be between 700 mm and 1000 mm above the ground surface.
- S.14.3 A forward approach with a clear knee space of at least 700 mm wide, 480 mm deep and 700 mm high should be provided, as shown in Figure 74.

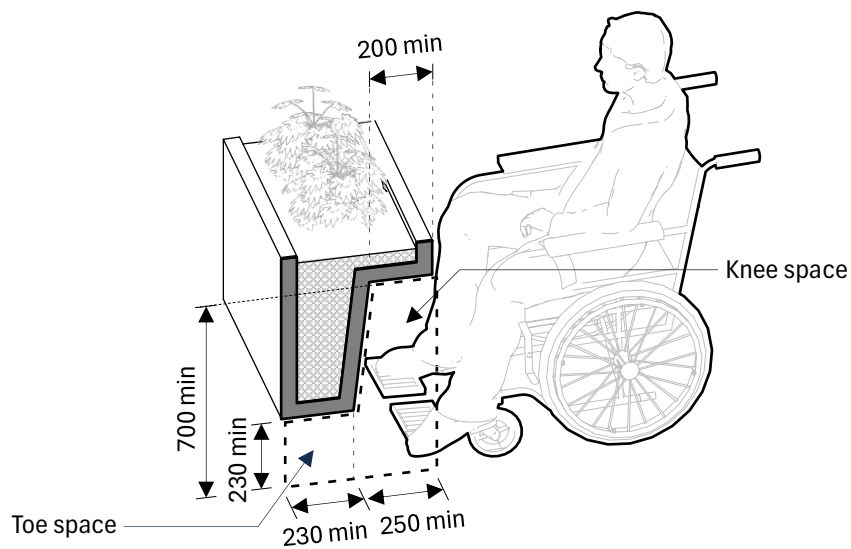


Figure 73
Accessible Planter Boxes

Source: National Parks Board



(a) Angled planter with varying heights to accommodate users of different abilities



(b) Accessible planter design enabling comfortable gardening

Figure 74
Examples of Accessible Planter Boxes

Annex

Unified English Braille (UEB) is the internationally recognised standard Braille code for the English language, developed to provide a single, consistent system for literary, technical and digital content across English-speaking countries. UEB builds on the traditional six-dot Braille cell and introduces clearer rules for spacing, punctuation, formatting and modern symbols such as email addresses and web links, helping make Braille more compatible with printed and digital text. In Singapore, UEB English Braille is used in educational and community services for persons with visual impairment, and local organisations such as the Singapore Association of the Visually Handicapped (SAVH) offer UEB Braille lessons and produce Braille materials to support literacy and inclusion. By aligning with the international standard, UEB ensures that learners in Singapore can access consistent Braille materials, engage with global content more easily, and benefit from assistive technologies that support accessible communication.

Alphabets

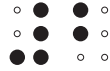
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o	p	q	r	s	t	u
⠏	⠕	⠖	⠞	⠎	⠹	⠹
v	w	x	y	z		
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Numbers

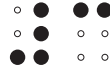
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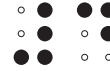
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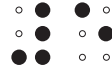
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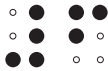
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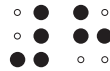
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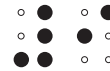
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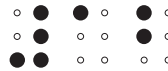
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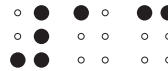
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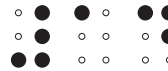
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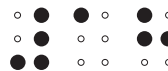
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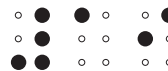
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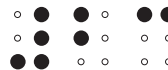
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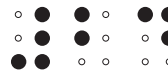
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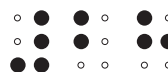
26



27



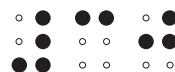
28



29



30



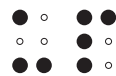
Commonly Used Braille

In Unified English Braille, Braille is presented in two forms: Grade 1 (uncontracted) and Grade 2 (contracted). Grade 1 (Uncontracted) Braille represents text letter by letter, with no abbreviations. Grade 2 (Contracted) Braille uses standard contractions to shorten common words or letter groups, making reading and writing more efficient.

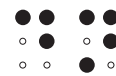
The Braille examples below are presented in Grade 1 (uncontracted) Braille. Terms marked with an asterisk (*) denote Grade 2 (contracted) Braille.

Passenger Lifts

UP



DN



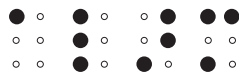
Open *



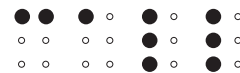
Close



Alarm *



Call



Tactile Map for Toilet

Basin *



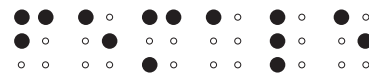
Urinal *



Male



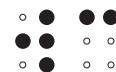
Female



Toilet

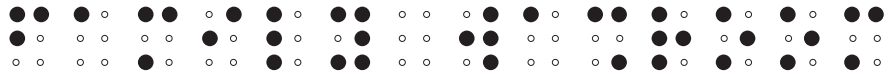


WC



Other Accessible Facilities

Family Washroom *



Accessible Toilet *



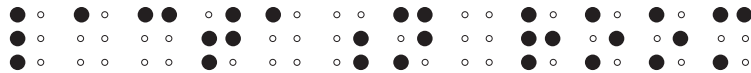
Accessible Shower *



Accessible Changing Room *



Lactation Room *



Note The Braille examples provided are for reference only. Professional advice should be sought to ensure accurate Braille translation.

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8. Ms. Elaine Tan, Mr. Adib Jalal and Ms. Lim Ren Ai, Centre for Liveable Cities (CLC)

References

1. International Standard ISO 21542 (Second Edition 2021-06): Building Construction — Accessibility and Usability of the Built Environment
2. International Standard ISO 28564-2 (First Edition 2016-09-01): Public Information Guidance Systems — Part 2: Guidelines for the Design and Use of Location Signs and Direction Signs
3. International Standard ISO 24508 (First Edition 2019-03): Ergonomics — Accessible design — Guidelines for Designing Tactile Symbols and Characters
4. International Standard ISO 23599 (First Edition 2012-03-01): Assistive Products for Blind and Vision-Impaired Persons — Tactile Walking Surface Indicators
5. British Standard BS 8300-1:2018: Design of an Accessible and Inclusive Built Environment
6. British Standard BS 8300-2:2018: Design of an Accessible and Inclusive Built Environment
7. British Standard BS EN 81-40:2020 Safety rules for the construction and installation of lifts. Special lifts for the transport of persons and goods - Stairlifts and inclined lifting platforms intended for persons with impaired mobility
8. British Standard BS EN 81-70:2021+A1:2022 Safety Rules for the Construction and Installation of Lifts. Particular Applications for Passenger and Goods Passenger Lift - Accessibility to Lifts for Persons including Persons with Disability
9. 2010 ADA Standards for Accessible Design
10. Singapore Standard SS 599 Guide for Wayfinding Signage in Public Places
11. Singapore Standard SS 485 Specification for Slip Resistance Classification of Pedestrian Surface Materials