Universal Design Guidelines for Facility Implementation

GL 4-3-1 July 2021

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1. Introduction

1-1. Purpose of the Guidelines

The Expo strives to ensure universal designs are properly executed so that people from across the world can enjoy their visits with ease regardless of their nationality, culture, ethnic background, gender, and age, or whether they have any form of disability. The Guidelines, therefore, establish common standards for implementing a site to be a visitor-friendly environment.

1-2. Universal Design (UD)

Universal Design was first proposed in 1985 by Ronald Mace of the North Carolina State University, as a strategy to change society. The main idea is to demonstrate better arrangements for people regardless of age, gender, ability, disability, and all other differences, thereby changing people's perception. In order to clarify this concept, seven principles are proposed.

These principles express that designs must be usable by all people whether they have disabilities, and regardless of their age or body shape, physical or intellectual abilities, etc. The principles apply to products, buildings, built environments, and services.

Seven principles of Universal Design

1. The design must provide usability equally to all people.
   (Equitable use)
2. It must be flexible in use.
   (Flexibility in use)
3. Use must be simple and self-explanatory.
   (Simple and intuitive)
4. All necessary information must be readily available.
   (Perceptible information)
5. It must anticipate errors in use.
   (Tolerance for error)
6. Use must not require too much physical exertion.
   (Low physical effort)
7. Sufficient size and space must be ensured for use.
   (Size and space for approach and use)

1-3. The Guidelines overview

The Guidelines comprise five chapters as follows:

-1. Introduction
Descriptions of the background and purpose of the Guidelines, together with the identification of applicable laws and regulations.

-2. Applicability of Universal Design Guidelines
Descriptions of the scope of the Universal Design Guidelines for Facility Implementation and how to apply the guidelines.

-3. Items and descriptions
Specific guidelines, providing for planning, etc. of facilities on site, such as pavilions in relation to universal designs.

-4. About submission of checklists
Details concerning the submission of checklists to ensure the compliance with the Universal Design Guidelines for Facility Implementation.

-5. References and relevant documents
A list of literature and documents relevant to the Guidelines.

1-4. Control and Guide

The Guidelines include items designated as either Control or Guide, as indices to aid participants with the designing, etc. of their on-site facilities such as pavilions to ensure compliance with the Guidelines.

In Chapter 3, Items and their descriptions are marked with alphanumeric codes, indicating respective Control or Guide standards.

C-00 Control provides for mandatory conditions or prohibitions in planning/designing, which must be satisfied as set forth therein.

G-00 Guide indicates conditions that are desirable in terms of the item concerned in order to ensure the pavilion(s) be planned/designed in alignment with the Expo purposes and objectives, and it describes the initiatives the Organiser expects of, or proposes to, the participants to pursue.

1-5. Compliance with laws and regulations

Participants must pursue the planning, designing, and construction of pavilions and other on-site facilities in compliance with relevant Japanese laws, Prefectural or Municipal Ordinances of Osaka, and other regulations, including the following (Please refer to the following websites in Japanese):

- Building Standards Act and Order for Enforcement of the Act
  (Building Standards Act) https://elaws.e-gov.go.jp/document?lawid=325AC0000000201
  (Order for Enforcement) https://elaws.e-gov.go.jp/document?lawid=325CO0000000338

- Act on Promotion of Smooth Transportation, etc. of Elderly Persons, Disabled Persons, etc. (Accessibility Improvement Act) and Order for Enforcement of the Act
  (Accessibility Improvement Act) https://elaws.e-gov.go.jp/document?lawid=418AC0000000091
  (Order for Enforcement) https://elaws.e-gov.go.jp/document?lawid=418CO0000000379

- Osaka Prefectural Ordinance on Welfare Communities and Enforcement Rules/Guidelines
  (Osaka Prefectural Government official website)
http://www.pref.osaka.lg.jp/kenshi_kikaku/fukushi_top/jigyosya-muke.html

- Osaka Municipal Government Guidelines for Accessible Urban Planning and Enforcement standards for the guidelines
  (Osaka City official website) https://www.city.osaka.lg.jp/toshikeikaku/page/0000481667.html

Other guidelines, including this one, and documents designated by the Organiser, as well as other standards relevant to specific plans, must also be complied with.

2. Applicability of Universal Design

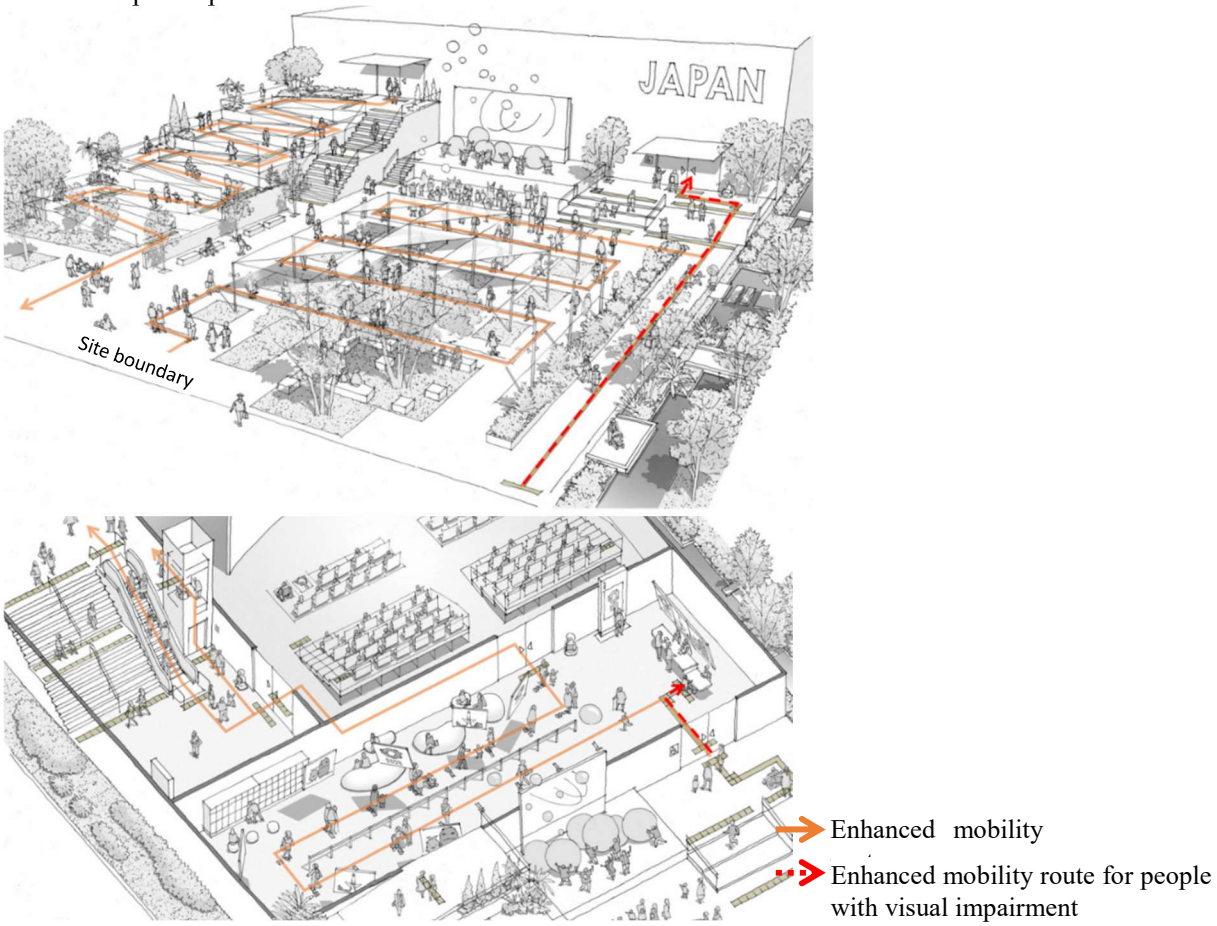
2-1. Scope of applicability of Universal Design Guidelines for Facility Implementation

The Guidelines apply to all facilities to be implemented on the Expo site, including buildings and outdoor public areas.

2-2. Guideline structure

There are three categories for Controls and Guides included in the Guidelines depending on the facilities to which they are applied.

- **Guidelines for facilities in general:** all facilities, both indoor and outdoor, where visitors use, must meet these guidelines, except backyard and other administrative areas. It is assumed that this category applies to items stated in Chapter 3 unless specified otherwise.
- **Guidelines for enhanced mobility routes:** this category applies, in addition to the guidelines for facilities in general, to at least one of the routes for each of the following (1) to (3) within the venues used by visitors:
  (1) Site boundaries - rooms (galleries, etc.)
  (2) Accessible toilets - rooms (galleries, etc.)
  (3) Accessible parking spaces - rooms (galleries, etc.)
- **Guidelines for enhanced mobility routes for people with visual impairment:** this category applies, in addition to the guidelines for facilities in general, to at least one of the routes from the site boundaries to on-site information points provided for visitors.



2-3. Visitor attributes that require special attention

To create a site with considered universal design, it is important to plan/design with thorough understanding of the attributes of facility users, as well as various laws, regulations, and guidelines, to ascertain that a diversity of needs will be catered for. The table below provides a summary of major attributes by facility user types.

Table Major attributes of facility users by user types

User type	Major attributes (specific conditions)
Senior people	- Difficulties in going up/down steps - Difficulties in walking long distances or standing for a long time - Unable to keep up with fast movements; their movements are generally slow
People with cognitive impairment	- Difficulties in memorising, remembering, or recalling (memory impairment) - Easy to be lost due to weakened sense of time, season, direction, etc. (dysfunction of orientation) - Slow cognitive functioning, easy to become disorientated (learning disabilities) - Unable to plan and organise (executive function deficit)
People with physical impairment (Wheelchair users)	Use of a wheelchair (including electric wheelchairs) - Prohibits a passage through steps - Requires a sufficient room/space for moving or in a vehicle - Lowers the user's eye level, making it difficult to get oriented in a crowd or look at signage posted at high positions - Makes it difficult to operate/work manually if the user has upper limb impairments - Otherwise, the user may have speech disorders due to cerebral palsy
People with physical impairment (Other than wheelchair users)	People using canes/crutches, prosthetic limb(s), prosthetic hip(s), etc. may have - Difficulties in going up/down steps or slopes - Difficulties in walking long distances or standing for a long time - Difficulties in operating/working manually if the person has upper limb impairments, etc.
People with invisible disabilities	- Their conditions are not apparent to others - Possible difficulties in mobility due to a sudden affliction of an episode - Easily fatigued, making it difficult to walk or stand for a long time - Purpose-built facilities required for ostomy bag users - Sufficient space required for those who carry aid equipment, such as an oxygen cylinder, due to their conditions
People with visual impairment	Some people are completely blind while others may be with low vision (severely impaired visual acuity) or colour-blinded: - Unable or less able to recognize and comprehend visual information - It is difficult for them to have spatial orientation or to understand the routes to their destinations - It is difficult for them to recognise texts or distinguish colours on information signage - Their disabilities are not always recognisable to others unless they use a white cane, etc.
People with auditory impairment/speech disorder	The disability may affect the person to varying degrees, thus: - Unable or less able to recognise voice information or to communicate verbally - Unable or less able to respond to announcement/alarm - May have speech disorders or difficulties in enunciation, or otherwise disrupted verbal communication - Their conditions are not apparent to others
Pregnant people	The pregnancy may cause: - Vulnerability for walking (esp. when descending steps, due to the obstructed view) - Difficulties standing up for a long time - Sudden nausea or fatigue - The pregnancy may not be recognisable in early stages - Post-natal women can also suffer from sudden sickness

People accompanying babies/infants	Use of prams, or walking with small children may cause: - Difficulties in passing through stairs/steps (especially with prams, bags, and children) - Difficulties standing for a long time (e.g., carrying the child in the arms) - Risks of hazard to the child(ren) due to their unexpected behaviour - They may require facilities for changing nappies, feeding, etc.
Other	- Difficulties due to temporary injuries (difficulties caused by the use of crutches or orthopaedic plaster casts) - Difficulties due to severe/temporary illnesses - Difficulties while carrying large/heavy load - Difficulties in orientation in unfamiliar places

3. Items and descriptions

This chapter describes the guidelines in detail, using the codes Control and Guide, providing for requirements and conditions for planning universal-designed pavilions and other on-site facilities. The codes are numbered in groups by sections.
Refer to the following illustration for Chapter 3 components.

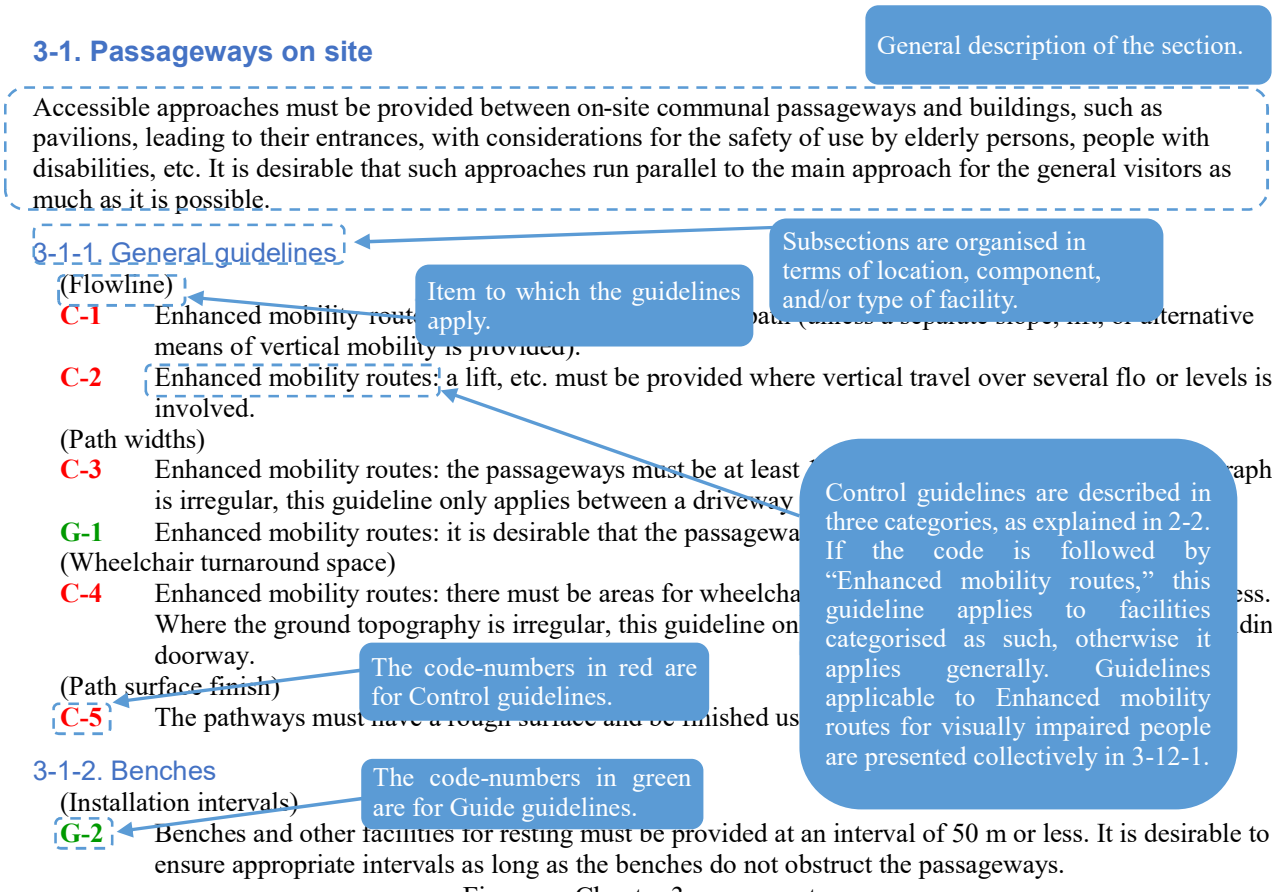
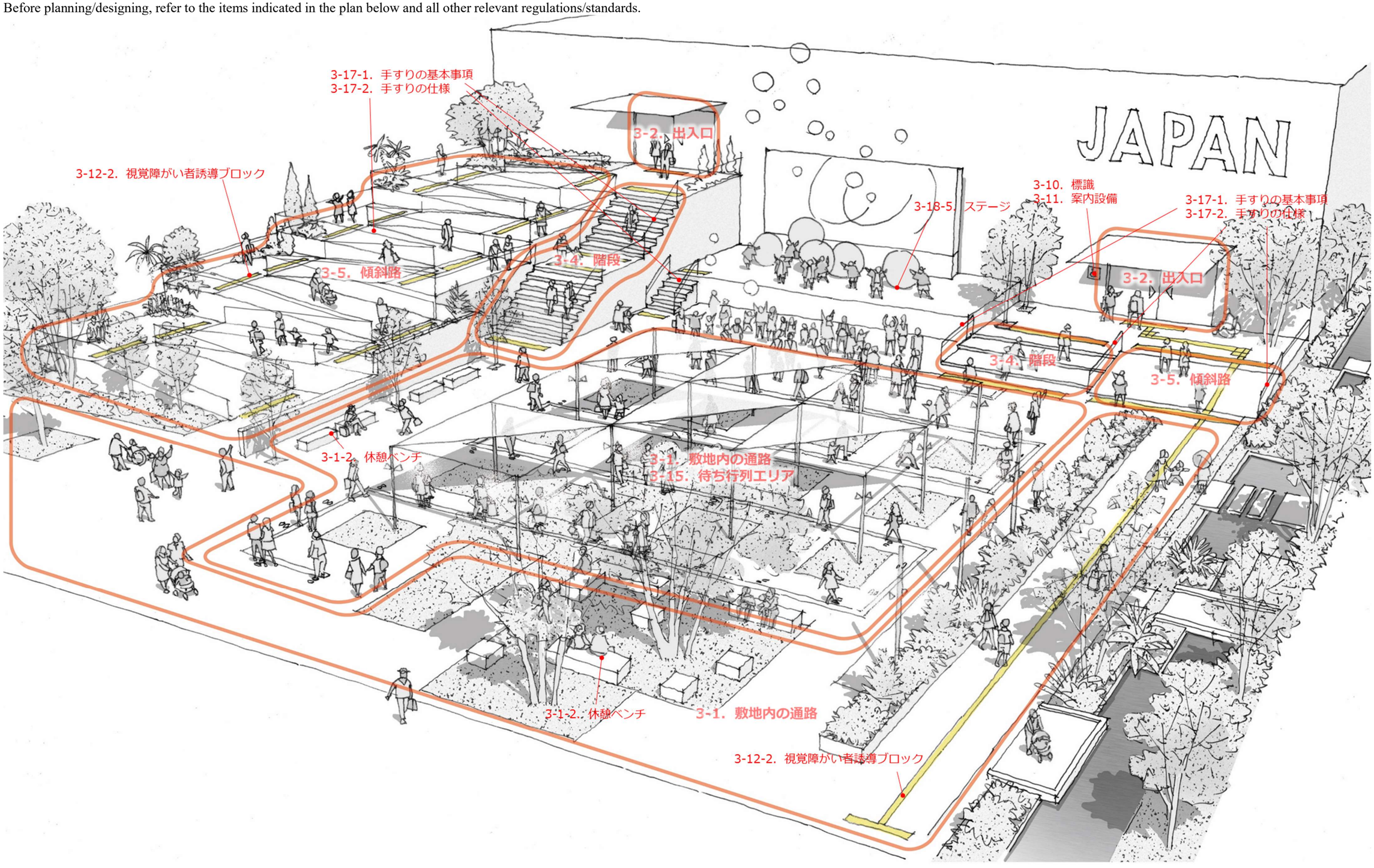
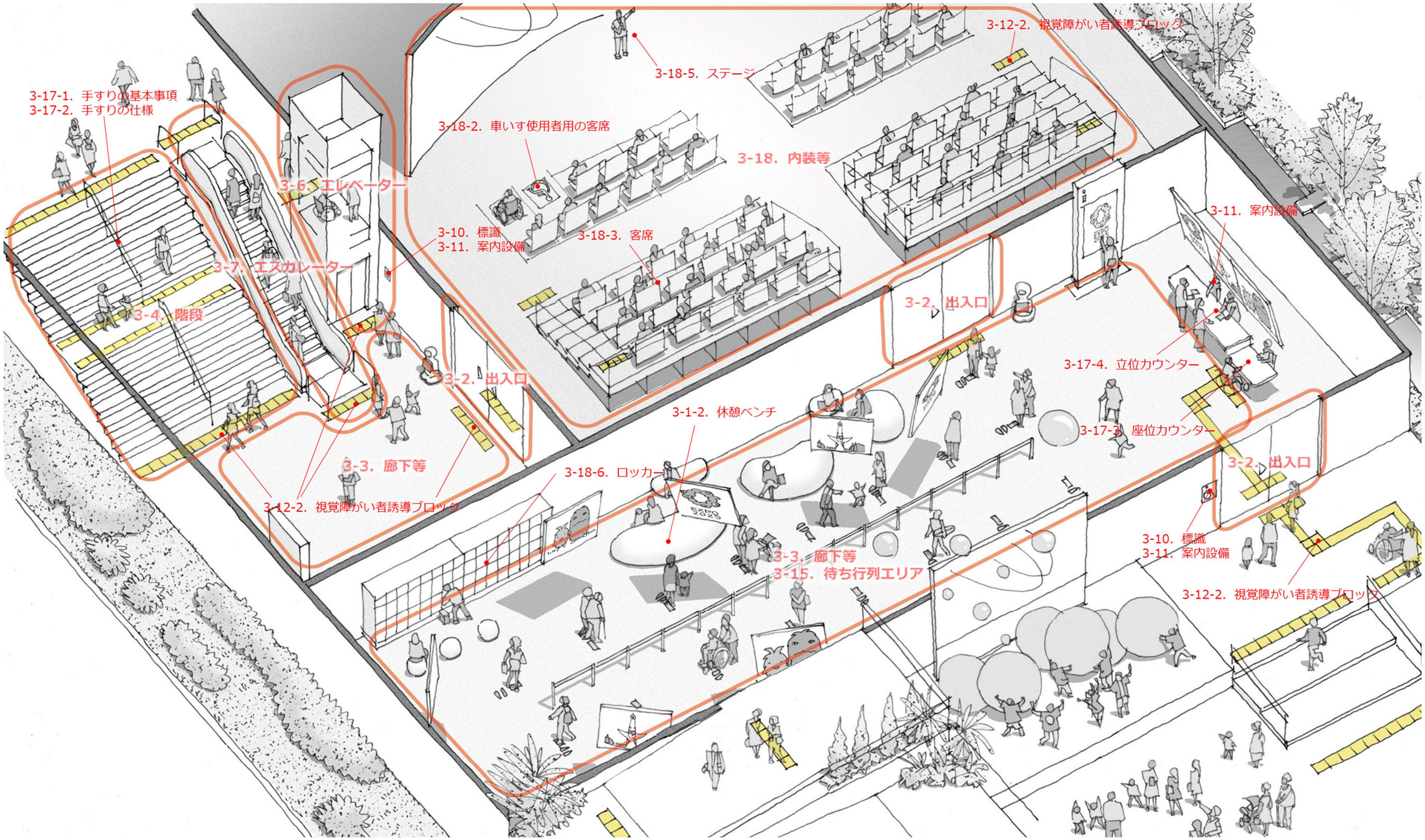


Figure Chapter 3 components

Pavilion exterior space concept plan
Before planning/designing, refer to the items indicated in the plan below and all other relevant regulations/standards.



Pavilion indoor space concept plan
Before planning/designing, refer to the items indicated in the plan below and all other relevant regulations/standards.



3-1. Passageways on site

Accessible approaches must be provided between on-site communal passageways and buildings, such as pavilions, leading to their entrances, with considerations for the safety of use by elderly persons, people with disabilities, etc. It is desirable that such approaches run parallel to the main approach for the general visitors as much as it is possible.

3-1-1. General guidelines

(Flowline)

C-1 Enhanced mobility routes: no stairs or steps along the path (unless a separate slope, lift, or alternative means of vertical mobility is provided).

C-2 Enhanced mobility routes: a lift, etc. must be provided where vertical travel over several floor levels is involved.

(Path widths)

C-3 Enhanced mobility routes: the passageways must be at least 120 cm wide. Where the ground topography is irregular, this guideline only applies between a driveway and a building doorway.

G-1 Enhanced mobility routes: it is desirable that the passageways are at least 180 cm wide.

(Wheelchair turnaround space)

C-4 Enhanced mobility routes: there must be areas for wheelchair turnaround at an interval of 50 m or less. Where the ground topography is irregular, this guideline only applies between a driveway and a building doorway.

(Path surface finish)

C-5 The pathways must have a rough surface and be finished using slip-resistant materials.

3-1-2. Benches

(Installation intervals)

G-2 Benches and other facilities for resting must be provided at an interval of 50 m or less. It is desirable to ensure appropriate intervals as long as the benches do not obstruct the passageways.

3-1-3. Lighting

(Luminosity)

G-3 It is desirable that the lighting has at least 100 lx luminosity.

3-1-4. General requirements for exterior passageways

(Slope)

G-4 It is desirable that longitudinal slope is no more than 1:15 and cross slope is no more than 1:50.

(Drains)

C-6 Enhanced mobility routes: Drains traversing a passageway must have covers that do not catch canes, crutches, or wheelchair wheels. However, where the ground topography is irregular, this guideline only applies between a driveway and a building doorway.

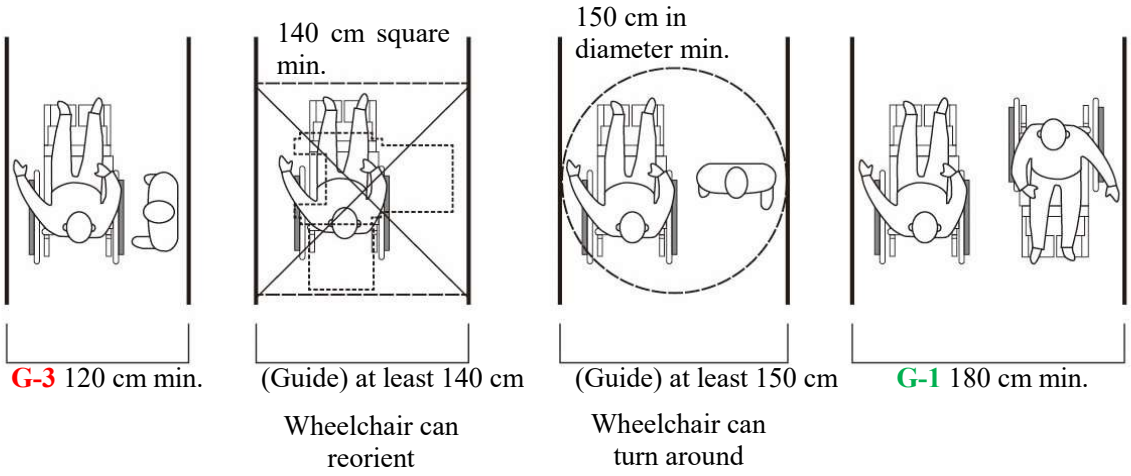


Figure 3.1 Effective widths for indoor passageways

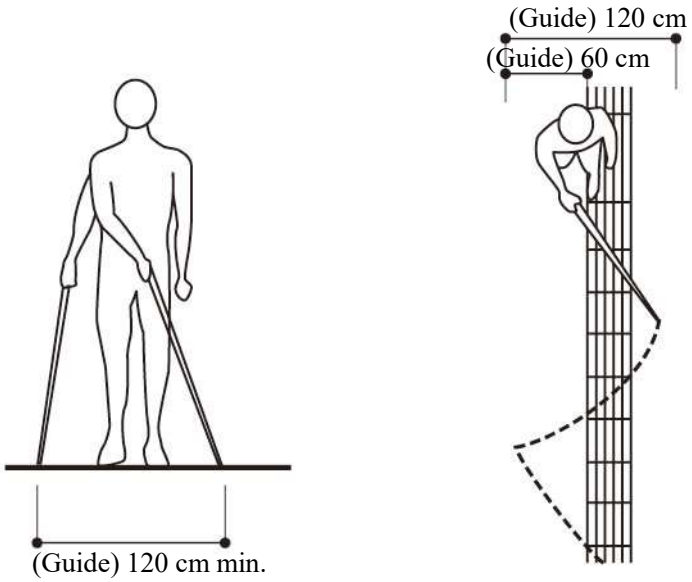


Figure 3.2 Spatial dimensions required by people with visual impairment

3-2. Doorways

Doorways must allow safe and smooth passage for elderly people, people with disabilities, etc. In principle, there must not be ramps or other obstacles across the doorway that make passage difficult for wheelchair users, etc., and its structure must incorporate easy-to-operate doors, such as sliding or automatic doors. The doorway must also be equipped with areas on both sides where a wheelchair can be stationed.

3-2-1. General guidelines

(Flowline)

G-1 It is desirable to provide at least one Enhanced mobility route between car access zones and venue entrances.

(Signage)

G-2 It is desirable that doors are indicated with the international symbol of access.

G-3 It is desirable that signs are posted to distinguish enhanced mobility routes from other routes.

(Information)

G-4 It is desirable to provide audio or app-accessible information about available services in the building.

G-5 It is desirable to provide audio information about the location, shape, etc. of the doors.

(Installation of eaves)

G-6 It is desirable to install a shade or eave over a doorway.

3-2-2. Doors

(Effective widths)

C-1 Enhanced mobility routes: doors must be at least 80 cm wide.

C-2 Enhanced mobility routes: the main doorways on evacuation floors must be at least 90 cm wide (80 cm in a building with a total floor area of 500 m^2 or smaller).

G-7 Considering people using mobility aids such as wheelchairs and canes, it is desirable to have at least 120 cm of effective width for main doorways, and 90 cm for other doorways.

G-8 It is desirable that doorways on evacuation floors are at least 80 cm wide (at least 90 cm for the doorways accessing car parks).

(Styles)

C-3 Enhanced mobility routes: Doors must adopt a system for easy operation, such as automatic doors, to allow wheelchair users to pass through easily.

G-9 It is desirable to use (automatic) sliding doors. Revolving doors should not be used on main passageways.

G-10 It is desirable that automatic sliding doors are designed with a suspended system.

G-11 It is desirable that corridor-facing doors are sliding doors, or otherwise they open inwards.

G-12 It is desirable that doors can be opened or halted their movements with little force (up to 30 N).

(Room name plates/signs)

C-4 Enhanced mobility routes: signs (the international symbol of access) must be posted near the doorways on evacuation floors indicating the availability of facilities for the elderly or people with disabilities.

G-13 It is desirable that room names, etc. are indicated either in embossed lettering or with a label in braille, on the door or the wall on the door handle side.

(Ensuring horizontality)

C-5 Enhanced mobility routes: the floor of doorways must be horizontal on both sides. However, where the ground topography is irregular, this guideline only applies between a driveway and a building doorway.

G-14 It is desirable that the floors of the doorways on evacuation floors are horizontal on both sides of the doors.

(Effective distance between doors in series)

G-15 It is desirable that the effective distance between two doors in series is at least the widths of both doors plus 120-150 cm.

(Materials)

G-16 It is desirable to avoid using glass below the wheelchair footrest line (up to 35 cm above the floor).

G-17 It is desirable that the doors of frequent use are equipped with kick plates up to 25 cm above the floor level.

(Glass pane doors)

G-18 It is desirable to use safety standard glass (laminated or tempered glass).

G-19 It is desirable that the glass is marked by some means, such as a horizontal muntins at the eye level, or coloured patterns (except in blue), to be easily identified.

(Door closer performance)

G-20 Where door closers with a delayed action valve are used, it is desirable to ensure sufficient time for opening/closing of the door for safety.

(Safety measures)

G-21 It is desirable that handrails are installed as buffers.

G-22 It is desirable that the door opening devices will continue functioning even under emergency alarm conditions.

(Windows on doors)

G-23 It is desirable that sliding doors have glass panes fitted in at the eye level of wheelchair users and/or children so that the other side of the doors can be visible (except, however, where privacy is an issue).

(Securing door-side walls)

G-24 Where a recessed door is installed, it is desirable that the doorway opening is offset from the side wall on the door-handle side.

3-2-3. Automatic doors

(Styles)

G-25 It is desirable that the automatic door is either of a single or double panel sliding type.

(Emergency safety measures)

G-26 It is desirable to install additional, manually operated doors.

3-2-4. Door handles

(Installation positions)

G-27 It is desirable that door handles are at approximately 90 cm above floor level.

3-2-5. Space for assistance animals

(Provision as a principle)

G-28 It is desirable to provide spaces for assistance animals.

(Locations)

G-29 It is desirable that these spaces are located adjacent to enhanced mobility routes, but not on ones that directly access building entrances.

(Size)

G-30 It is desirable that these spaces have a floor size of at least 300 cm x 400 cm, and enclosed with a fence of approx. 120 cm high.

(Amenities)

G-31 It is desirable that a litter bin and plastic bag dispenser are provided by the entrance.

G-32 It is desirable to provide toilet facilities for assistance animals.

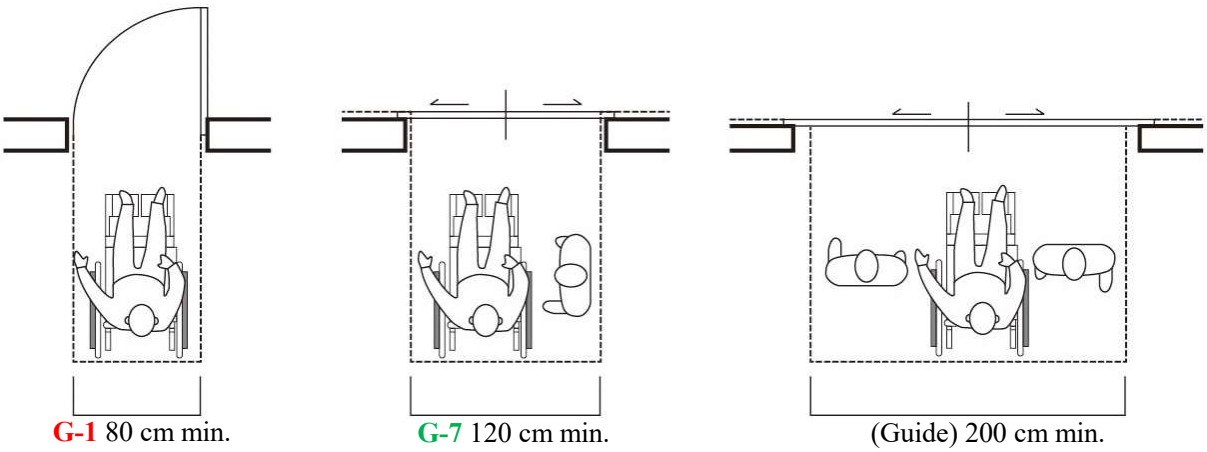


Figure 3.3 Effective widths of doorways

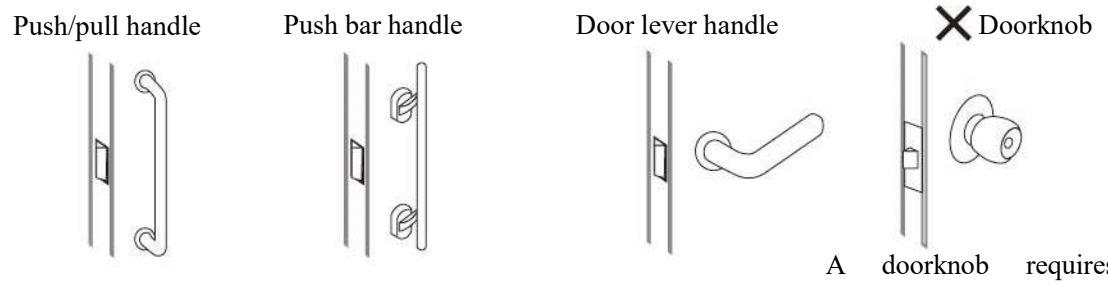
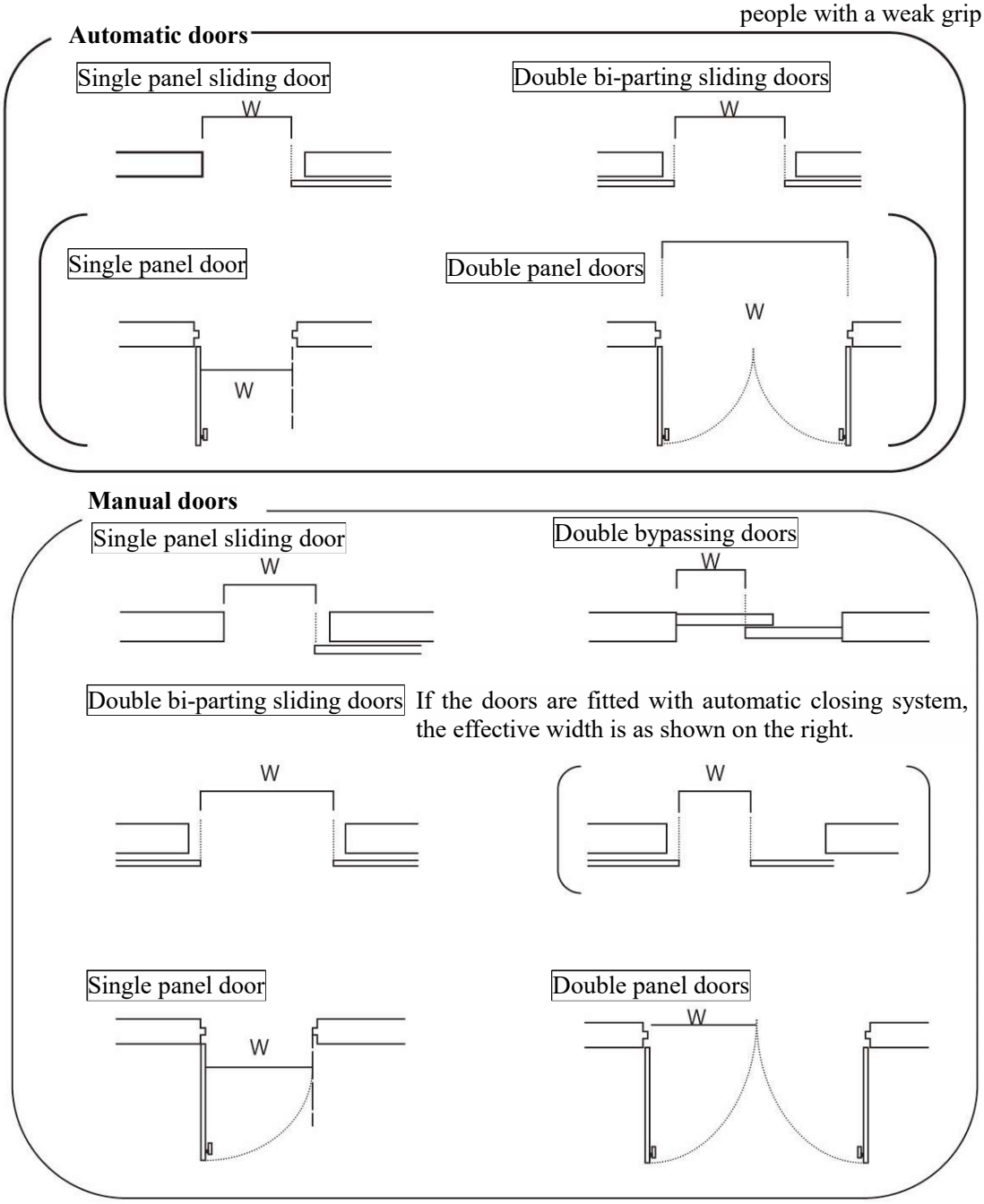


Figure 3.4 Easy-to-use handles

A doorknob requires more exertion to open the door than a door handle, thus not suitable for people with a weak grip



If the doors are fitted with automatic closing system, the effective width is as shown on the right.

*The widths refer to effective width, which is measured excluding the door panel thickness or the door width that does not clear the doorway opening.

Figure 3.5 Widths

3-3. Corridors, etc.

Corridors should be planned and designed to maximise the ease of passage for visitors with considerations for emergency evacuation. Protrusions on the walls must be avoided if possible as these may obstruct the passage of wheelchair users or pose hazards to the elderly, people with disabilities, etc.

3-3-1. General guidelines

(Path widths)

C-1 The width must be at least 120 cm.

G-1 It is desirable to have at least 180 cm to allow two wheelchairs to pass by one another.

(Floor finish)

C-2 The floor must have a rough surface and be finished using slip-resistant materials.

(Wheelchair turnaround space)

C-3 Areas large enough for a wheelchair to turn around must be provided at a maximum interval of 50 m.

G-2 It is desirable that a corridor extending over 25 m or longer, an evacuation floor, and a floor of no smaller than 200 m^2 provide 140 cm square areas within 10 m from each end of a corridor, and at a maximum interval of 50 m along the trajectory of the corridor.

G-3 It is desirable that walls are protected with kickplates up to approx. 35 cm above the floor level, where wheelchair footrests can bump on easily. (Protection of wheelchairs and walls, etc.)

(Protrusions)

G-4 If it is essential to mount a protruding object on a wall no lower than 65 cm above floor level, and it is desirable that the protrusion is 10 cm maximum with the consideration for people with visual impairment who use a cane.

3-3-2. Lighting

(Luminosity)

G-5 It is desirable that lighting facilities have the luminosity of at least 100 lx.

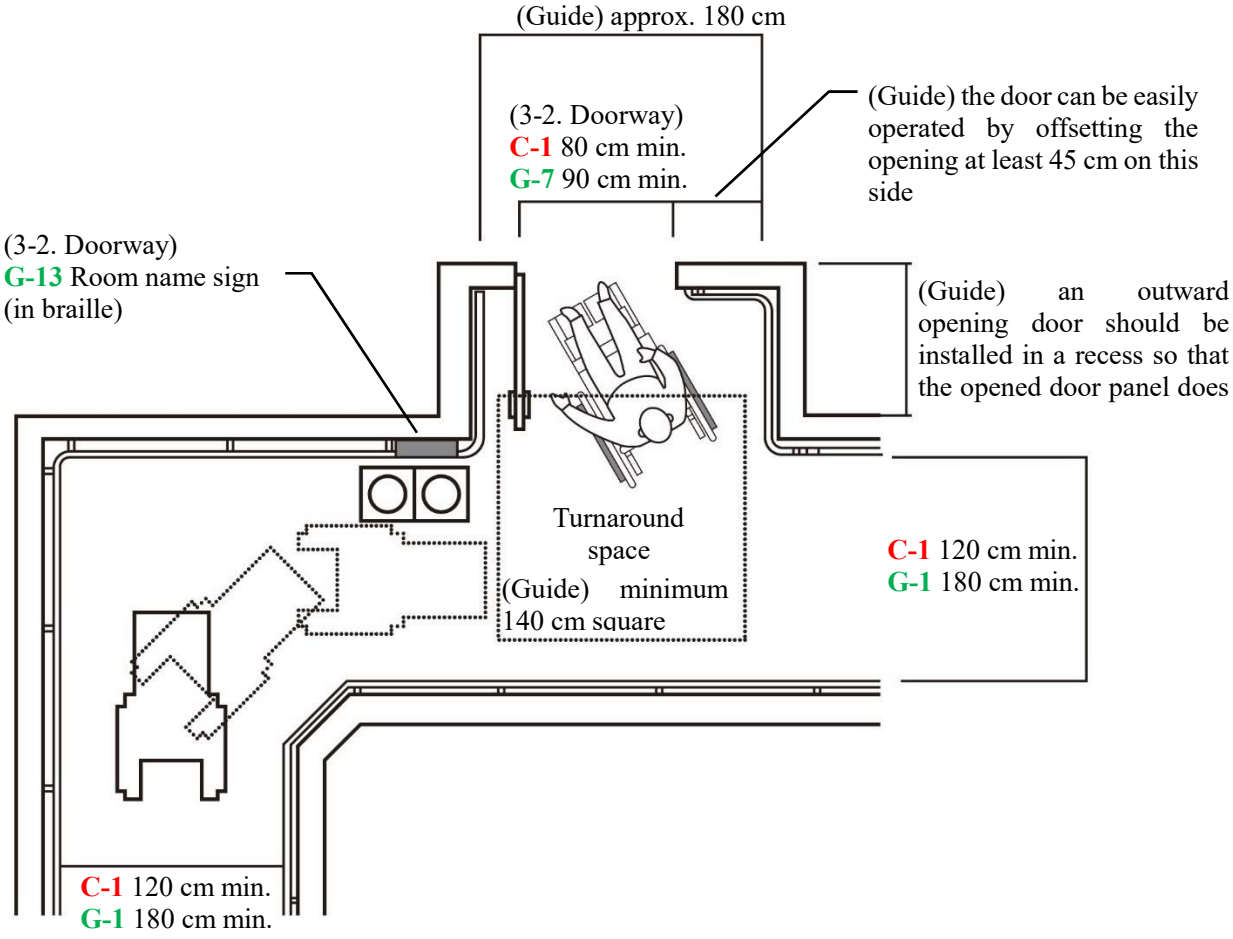


Figure 3.6 Illustration of corridor

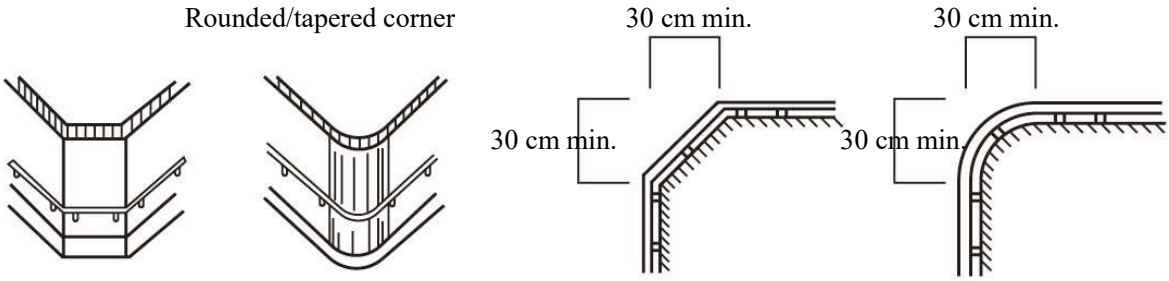


Figure 3.7 Tapering/rounding of corner walls (guide)

3-4. Stairways

Stairways require the elderly, people with disabilities, etc. to exert significant strengths to pass through. They also pose fall hazards. It is necessary to reduce the risks and make arrangements to lighten their exertion.

3-4-1. General guidelines

(Styles)

C-1 Stairways must not involve winders.

G-1 It is desirable that the dimensions of going and rise are consistent in a single flight of stairs.

(Rise)

G-2 It is desirable that the rise is no more than 16 cm.

(Tread)

C-2 Treads must be demarcated for easy distinction from their surrounding areas by colours of different brightness, hue, or chroma.

G-3 It is desirable that the going is at least 30 cm.

(Nosing)

C-3 Steps must avoid projected nosing or similar structures that may be tripping hazards.

(Nosing depth)

G-4 It is desirable that the nosing depth is 2 cm maximum.

(Stair width)

G-5 It is desirable that stairs are at least 140 cm wide considering the use by cane users.

(Tread finish)

C-4 The treads must have a rough surface and be finished using slip-resistant materials.

(Safety measures under stairways)

G-6 Where a headroom is small, it is desirable that safety measures are implemented to prevent head collisions.

(Installation of raised stair rails)

G-7 It is desirable that, if a stairway is fitted with balustrade, the stair rail is raised at least 5 cm.

3-4-2. Lighting

(Luminosity)

G-8 It is desirable that lighting facilities have the luminosity of at least 100 lx.

3-4-3. Turnings

(Collision prevention on landings)

G-9 It is desirable that stairways with turns are equipped with mirrors on the landings to prevent people from colliding.

3-4-4. End of flights

(Textured floor tiles)

C-5 The stairways (specifically ones for communal use or mainly used by people with visual impairment) must have tactile markings, using textured floor tiles, etc., on the edge of the landing where a descending flight begins, to warn visually impaired people. This control, however, does not apply to stairways exempted as non-hazardous to people with visual impairment by the Ministry of Land, Infrastructure, Transport and Tourism.

C-6 Textured floor tiles must be installed as warnings at the beginning and end of stairways.

3-4-5. Handrails

(Installation positions)

C-7 Handrails must be installed except on landings.

C-8 Handrails must be positioned at approx. 80 cm above the nosing, and preferably be continuous throughout.

G-10 It is desirable that handrails are continuous.

G-11 In stairways with balustrade, the balusters are preferably distributed at an interval of 11 cm maximum, to prevent children from falling through the balustrade.

G-12 It is desirable that handrails have a horizontal overhang of 45 cm minimum at each end to support the pedestrian's body for taking the first step or guide people with visual impairment.

(Indication in braille)

C-9 Handrails must have labels in braille, indicating the floor number and ascending/descending stairway

warning. This control, however, does not apply to the buildings where independent use by people with visual impairment is not anticipated, passage assistant is always present, or for any reason otherwise the building is regarded non-hazardous to visually impaired people.

G-13 It is desirable that indication/information/guide is provided at each end of stair handrails by means of braille, embossed lettering, or voice guide.

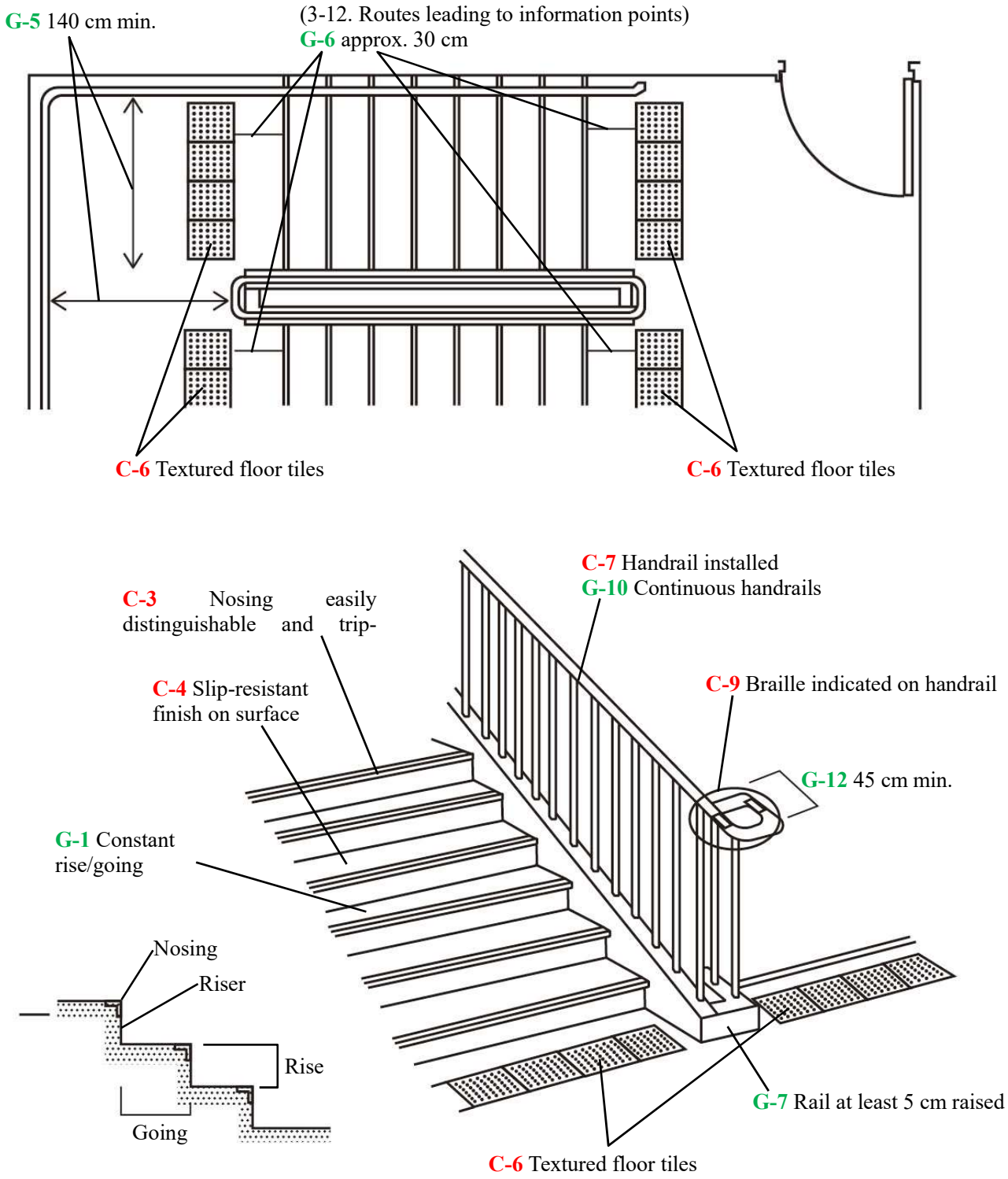


Figure 3.8 Stairways

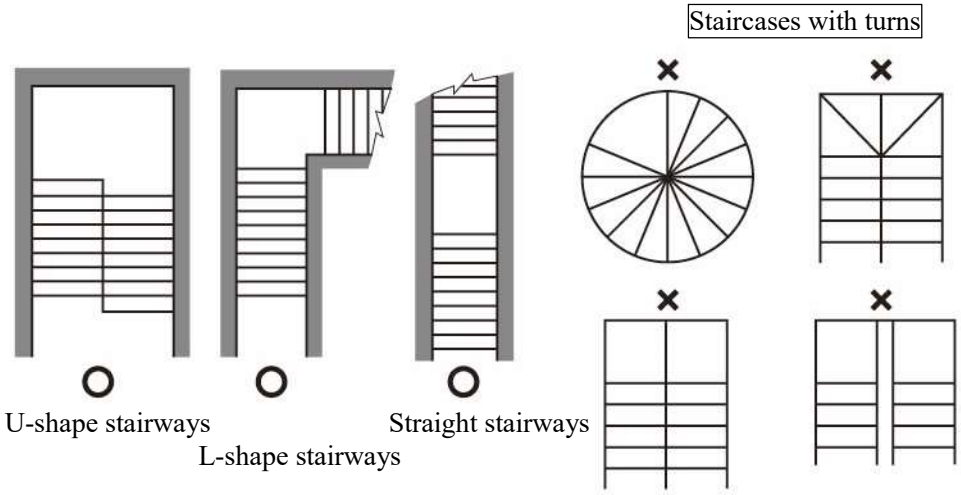
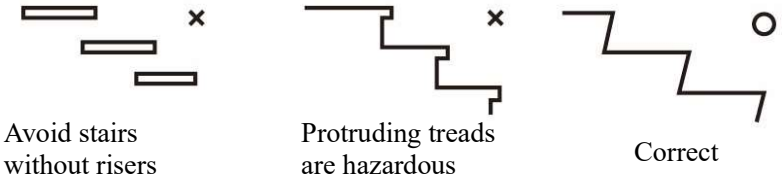


Figure 3.9 Shapes of stairways



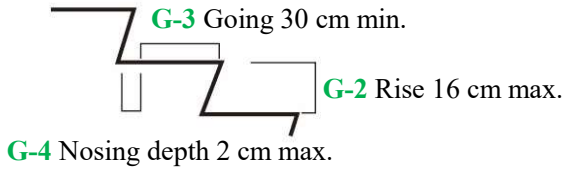


Figure 3.10 Rise, going, and nosing depth

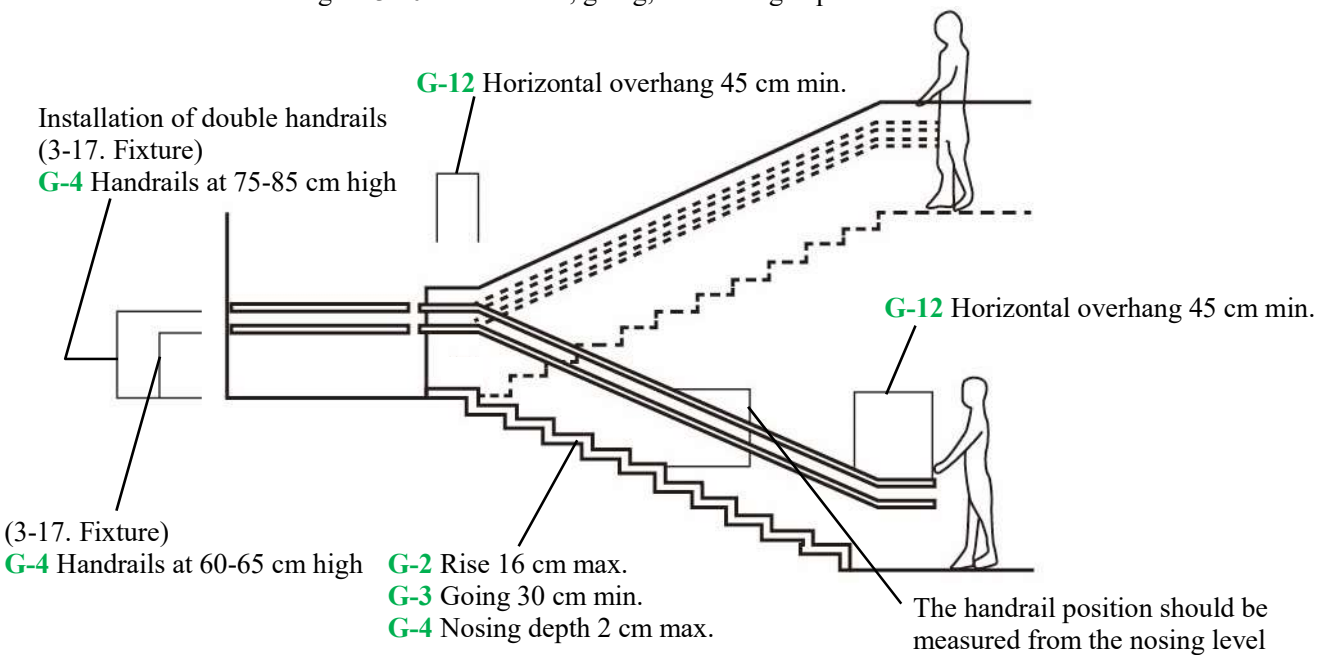


Figure 3.11 Desirable measurements of stairway

3-5. Slopes

Routes from roads, etc. to rooms, wheelchair-accessible toilets, or accessible parking spaces must provide step-free access for senior people, people with disabilities, etc. This section describes slopes installed inside a building. (For exterior slopes, see 3-1. Passageways on site)

3-5-1. General guidelines

(Need for slopes)

G-1 It is desirable to install a slope where there are level changes.

(Widths)

C-1 Enhanced mobility routes: The width of a slope must be 120 cm minimum if it replaces stairways, and 90 cm minimum if it runs parallel to a stairway. However, where the ground topography is irregular, this guideline only applies between a driveway and a building.

G-2 The width of a slope is desirable to be 150 cm or wider if it replaces stairways, and 120 cm or wider if it runs parallel to a stairway.

(Slope)

C-2 Enhanced mobility routes: the gradient must be 1:12 (1:8 if the rise is smaller than 16 cm) maximum.

(Installation of banister or raised edges)

C-3 Slopes must be equipped with banister or raised edges.

G-3 It is desirable that, if a slope is fitted with balustrade, the slope edge is raised at least 5 cm.

(Path surface finish)

C-4 The pathways must have a rough surface and be finished using slip-resistant materials.

C-5 Slopes must be demarcated for easy distinction from their surrounding areas by colours of different brightness, hue, or chroma.

(End of run)

C-6 Slopes (specifically ones for communal use or mainly used by people with visual impairment) must have tactile markings, using textured floor tiles, etc., on the edge of the landing adjacent to the top of run, to warn visually impaired people. This control, however, does not apply to slopes exempted as non-hazardous to people with visual impairment by the Ministry of Land, Infrastructure, Transport and Tourism.

C-7 Textured floor tiles must be installed as warnings on the landings adjacent to either end of a slope run.

(Installation of steps alongside a slope)

G-4 It is desirable that low-pitch steps with handrails are installed alongside a slope, as people with prosthetic limbs or hemiparesis may find steps easier to pass through than slopes.

3-5-2. Lighting

(Luminosity)

G-5 It is desirable that lighting facilities have the luminosity of at least 100 lx.

3-5-3. Landings

(Locations)

G-6 It is desirable that landings are provided at a corner and turning of a slope, and where a slope converges with other passageways.

G-7 For safe passage, pause, or turnaround, it is desirable that slopes are provided with horizontal surfaces at least 150 cm long at each end, corner, turning of the run, as well as converging points with other passageways.

(Installation intervals)

C-8 Enhanced mobility routes: where the rise is more than 75 cm, horizontal spaces at least 150 cm long must be provided at a maximum interval of 75 cm.

(Size)

G-8 It is desirable that these spaces are at least 150 cm long.

3-5-4. Handrails

(Installation requirements)

C-9 Handrails must be installed on slopes/ramps with a minimum gradient of 1:12 or the rise of 16 cm or more.

G-9 It is desirable that handrails on slopes/ramps have a horizontal overhang of 45 cm minimum at each end to support the pedestrian's body for taking the first step or guide people with visual impairment.

G-10 It is desirable that handrails are continuous.

G-11 It is desirable that handrails are installed on both sides of the path.
(Indication in braille)
G-12 It is desirable that handrails near doorways have labels indicating the room name, current location, etc. in braille.

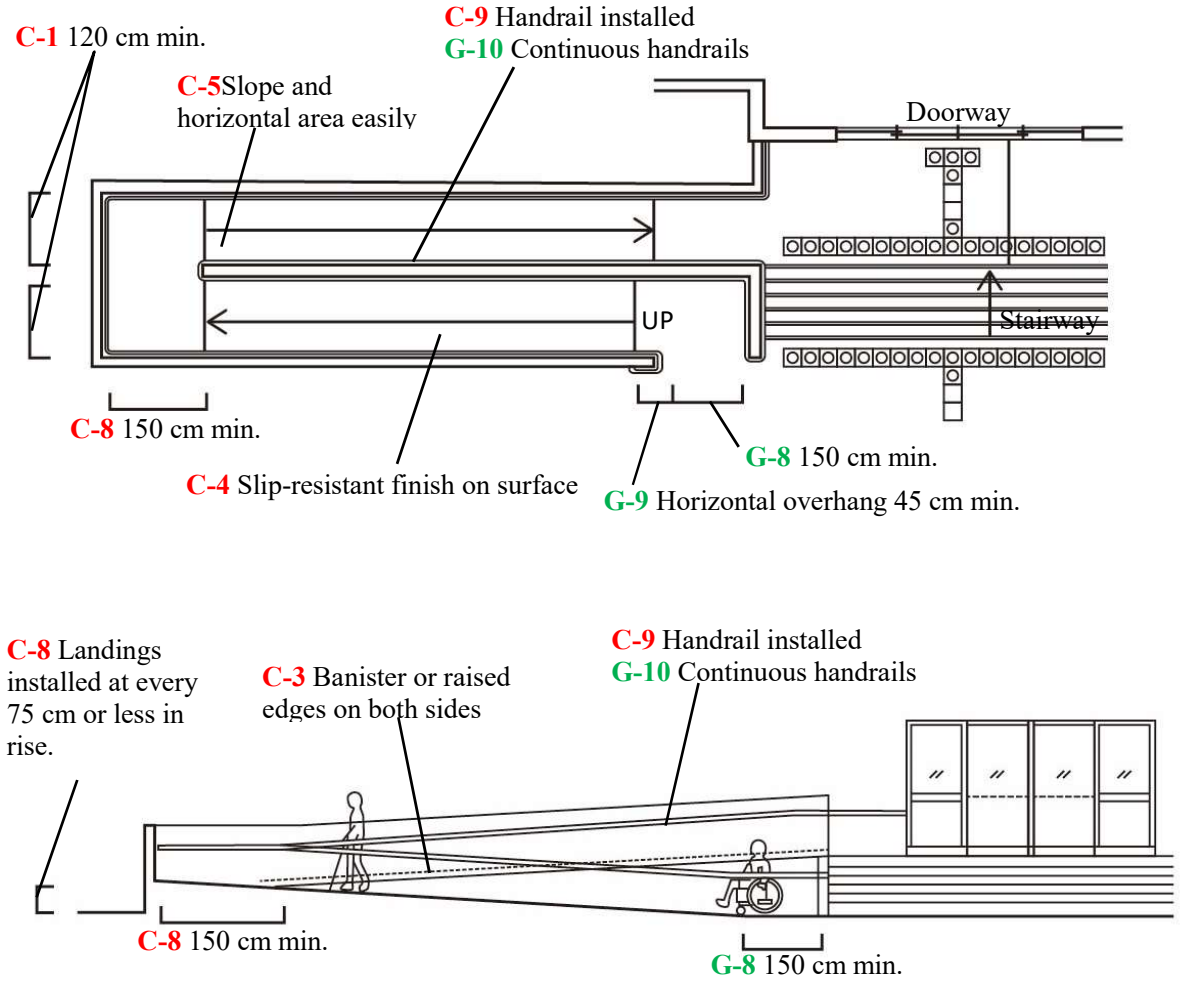


Figure 3.12 Slopes/ramps

3-6. Passenger lifts

Lifts are an important perpendicular mobility means for the elderly, people with disabilities, etc. Should the perpendicular mobility be required inside a pavilion, it is desirable to have lifts installed. Such lifts should be easy to operate, designed with senior people and people with disabilities in mind.

3-6-1. General guidelines

(Locations)

G-1 If there are more than one lift landing area in the building, it is desirable that each landing provides at least one passenger lift catering for the special needs.

(Styles)

C-1 Enhanced mobility routes: if the passenger lifts or alternative means of vertical mobility have special structures or uses, they must comply with the provisions of Article 1-9 of the Public Notice of the Ministry of Construction No. 1413 of 2000.

G-2 It is desirable that the passenger lifts comply with the Standards for elevators compatible with wheelchair users (JEAS-C506B) and the Standards for elevators compatible with people with impaired vision (JEAS-515E) (both standards are provided by the Japan Elevator Association).

G-3 It is desirable that the lifts are equipped with features of emergency operation in the event of a power loss, earthquake, and fire.

(Serviced floors)

C-2 Enhanced mobility routes: cars (the lift cabin in which people travel between floors. The same applies hereafter) must stop at floors with access to rooms, wheelchair-accessible toilets, wheelchair-accessible car parking areas, and the ground floor.

(Features)

C-3 Enhanced mobility routes: where a multiple number of passenger lifts are operated under a group control system etc., the lifts other than those accessible ones described in this Item must be equipped with the following features with the considerations for the use by people with visual impairment. However, this control provision does not apply in the case where the lifts are so controlled that the first arriving lift after pressing a call button for ordinary passengers in the access hall, above the textured floor tiles, is always the accessible passenger lift.

- The call buttons in the access hall and the operation buttons in the car for ordinary passengers be push buttons.
- The indication of call buttons for ordinary passengers and current floor number (in braille)
- The indication (in braille) of each main operation button in the car
- Visual indication and voice information in the lift landing to inform people waiting in the hall about whether the arriving lift goes up or down. However, this does not apply if the lifts only stop at the floors described in C-2.
- Voice information in the car, informing the direction of motion and the next floor to stop, as well as warning the closing doors.

(Eaves)

G-4 Where the lift accesses directly outside the building, it is desirable that the access point is fitted with an eave.

(Fire zoning)

G-5 Erecting frames/columns for fire doors near lifts, in order to segregate the lift shafts, can not only be an obstacle for people with visual impairment but also cause hazards of collisions. Therefore, it is desirable to design the fire zoning that can avoid such an arrangement.

(Escort)

G-6 Where a convergence of a large number of visitors is anticipated (e.g., theatres, indoor arenas), it is desirable to provide senior people and people with disabilities with human assistance, such as escorting, to use the lift.

3-6-2. Doors

(Styles)

C-4 Enhanced mobility routes: lifts must be equipped with a feature to delay the closing of the doors of a car and those of a lift entrance.

(Effective widths)

C-5 Enhanced mobility routes: the doorways of a car and a lift entrance must be at least 80 cm wide.

C-6 Enhanced mobility routes: if the passenger lifts or alternative means of vertical mobility have special

structures or uses, the car must be 70 cm wide and 120 cm deep minimum.

C-7 Enhanced mobility routes: if the passenger lifts or alternative means of vertical mobility have special structures or uses, they must have a sufficient internal space so that a wheelchair user can turn around inside.

G-7 It is desirable that lift doorways are at least 90 cm wide, considering the use by wheelchair users.

(Door opening duration)

G-8 It is desirable that the lift doors stay open at least for 4 seconds (for approx. 10 seconds when they are operated by pressing accessible buttons).

(Ensuring visibility)

C-8 Enhanced mobility routes: doors of the cars and of lift entrances must have glass panes or the like, or an alternative system, that allow to view the inside of a car from outside.

G-9 It is desirable that the doors of the cars are fitted with glass panes, etc. to ensure visibility from inside to outside, and vice-versa.

(The International Symbol of Access)

C-9 Enhanced mobility routes: the international symbol of access to be displayed near the lift entrances must be in deep blue and white, or black and white (preferably between 10 cm and 45 cm square in size).

(Safety system)

C-10 Enhanced mobility routes: the doorways of a lift car and entrance must be equipped with a system to automatically hold the doors open when a user is detected.

3-6-3. Cars

(Effective dimensions)

C-11 Enhanced mobility routes: cars must be at least 135 cm deep.

C-12 Enhanced mobility routes: passenger lifts installed in a building with a floor size of 2,000 m^2 or larger and that is used by many visitors must have cars that are at least 140 cm wide and have a sufficient space for a wheelchair to turn around inside.

C-13 Enhanced mobility routes: if a building has a total floor area of 5,000 m^2 or more, a lift doorway must be at least 160 cm wide.

G-10 It is desirable that lift cars are at least 160 cm wide depending on the conditions under which the facility will be used.

(Luminosity)

G-11 It is preferable that the in-car lighting has the luminosity of at least 100 lx (approximately the same as the luminosity of lift access halls and their adjacent passageways).

(Handrail positions)

C-14 Enhanced mobility routes: handrails must be installed on both side walls of a car.

(Position indicating system)

C-15 Enhanced mobility routes: cars must be equipped with a system that displays the current position and the next stop in terms of floor levels.

C-16 Enhanced mobility routes: passenger lifts that are used by many visitors or mainly by people with visual impairment (except the lifts and landing areas in car parks) must have their cars equipped with a voice information system that announces the next level to stop and warns of the closing doors.

(Information display)

G-12 It is desirable that lift cars are equipped with electronic displays that can provide information at the time of a breakdown.

G-13 It is desirable that the cars are fitted with a voice information system, or electronic/digital displays that can render sign language, to provide information.

(Operation panels)

C-17 Enhanced mobility routes: the operation panel inside a car must have at least one call button linked to a two-way communication system.

C-18 Enhanced mobility routes: passenger lifts installed in a building with a floor size of 2,000 m^2 or larger and that is used by many visitors must have cars equipped with operation panels on both side walls (if the lifts only stop at the floors described in C-2 and are automatically operated, on either side wall). Similarly, if the car width is 140 cm or wider, operation panels must be mounted on both side walls of the car, even if the building floor size is smaller than 2,000 m^2.

C-19 Enhanced mobility routes: passenger lifts that are used by many visitors or mainly by people with visual impairment (except the lifts and landing areas in car parks) must have operation panels accessible to people with visual impairment, by means of braille and other methods (embossed lettering, voice information system, etc.).

C-20 Enhanced mobility routes: operation panels must be installed in the middle of both side walls of a car (if the lifts only stop at the floors described in C-2 and are automatically operated, on either side wall) for the ease of operation by wheelchair users.

(Installation of mirrors)

C-21 Enhanced mobility routes: mirrors must be installed inside cars so that wheelchair users can ascertain their safe passage around the doorway when entering or leaving the car. This control, however, does not apply to those passenger lifts with a multiple number of doorways and equipped with a system that allows wheelchair users a smooth transition (only those with a voice system to announce the doorway that opens next).

3-6-4. Operation panel and information system

(Installation positions)

C-22 Enhanced mobility routes: operation panels must be installed in lift cars and landing areas at positions that allow wheelchair users to use them easily.

G-14 If an operating panel for ordinary users is installed on one side, it is desirable that it is installed on the right-hand side.

(Operation buttons)

C-23 Enhanced mobility routes: passenger lifts that are used by many visitors or mainly by people with visual impairment (except the lifts and landing areas in car parks) must be equipped with operating panels with push buttons.

G-15 It is desirable that the buttons to select the level of destination have level numbers printed in embossed lettering (tactically recognisable).

G-16 It is desirable that the operation is supported by a sound system.

G-17 It is desirable to have an operation panel with kick buttons so that wheelchair users who are not able to use their hands or elbows can operate the lift.

(Indication in braille)

C-24 Enhanced mobility routes: where passenger lifts are used by many visitors or mainly by people with visual impairment (except the lifts and landing areas in car parks), the operation panels installed in the car and in the landing (except those installed at a position that allows wheelchair users to operate easily) must have accessibility features for people with visual impairment, such as marking in braille or other means required by the Minister of Land, Infrastructure, Transport and Tourism.

(Positions of braille information)

G-18 It is desirable that braille information on an operation button is placed to the left-hand side of the button.

(Information devices)

G-19 It is desirable that lift access points and cars have displays with information on services available on the next destination floor, including the types of space use, access to pedestrian decks, underground malls, underground passages, railway stations, etc.

(Voice information systems)

C-25 Enhanced mobility routes: where passenger lifts are used by many visitors or mainly by people with visual impairment (except the lifts and landing areas in car parks), the cars or landing areas must have a voice information system that informs the direction of travel of an arriving lift.

G-20 It is desirable that passenger lifts with doorways in two directions are equipped with a voice information system that informs the direction of exit at the next stop.

(Overload alarm)

G-21 It is desirable that indication lamps to alarm overload are installed.

(Emergency communication systems)

C-26 Enhanced mobility routes: the operation panels in a car (except those installed at a position that allows wheelchair users to operate easily) must have a device to display external responses in emergencies, such as a power loss, to assist people with auditory impairment.

G-22 It is desirable that, in the event where the lift comes under emergency operation, information is given to those who are inside the car by means of a voice information system and electronic/digital display.

3-6-5. Lift landing areas

(Size)

C-27 Enhanced mobility routes: lift landing areas must have a level surface, and measure at least 150 cm both in width and length.

G-23 It is desirable that the lift landing areas are larger than 180 cm square.

(Level gap between car and landing)

G-24 It is desirable that the car floor and landing floor are aligned, and the gap between them is no more than 3 cm to prevent wheelchair caster wheels from being caught.

(Information display)

C-28 Enhanced mobility routes: landing areas must be equipped with a system that indicates the direction of travel of an arriving lift.

(Indication of lift location)

C-29 Enhanced mobility routes: where passenger lifts are used by many visitors or mainly by people with visual impairment (except the lifts and landing areas in car parks), the floor below an operation panel in the landing must have textured floor tiles, etc. to inform people with visual impairment the existence of the operation panel. (two tiles)

(Adjacent areas)

G-25 It is desirable that lift landing areas have no stairs or steps near them.

G-1 It is desirable that the floor right below the lift operation panel for ordinary passengers in the landing is marked with two textured floor tiles for the benefit of people with visual impairment.

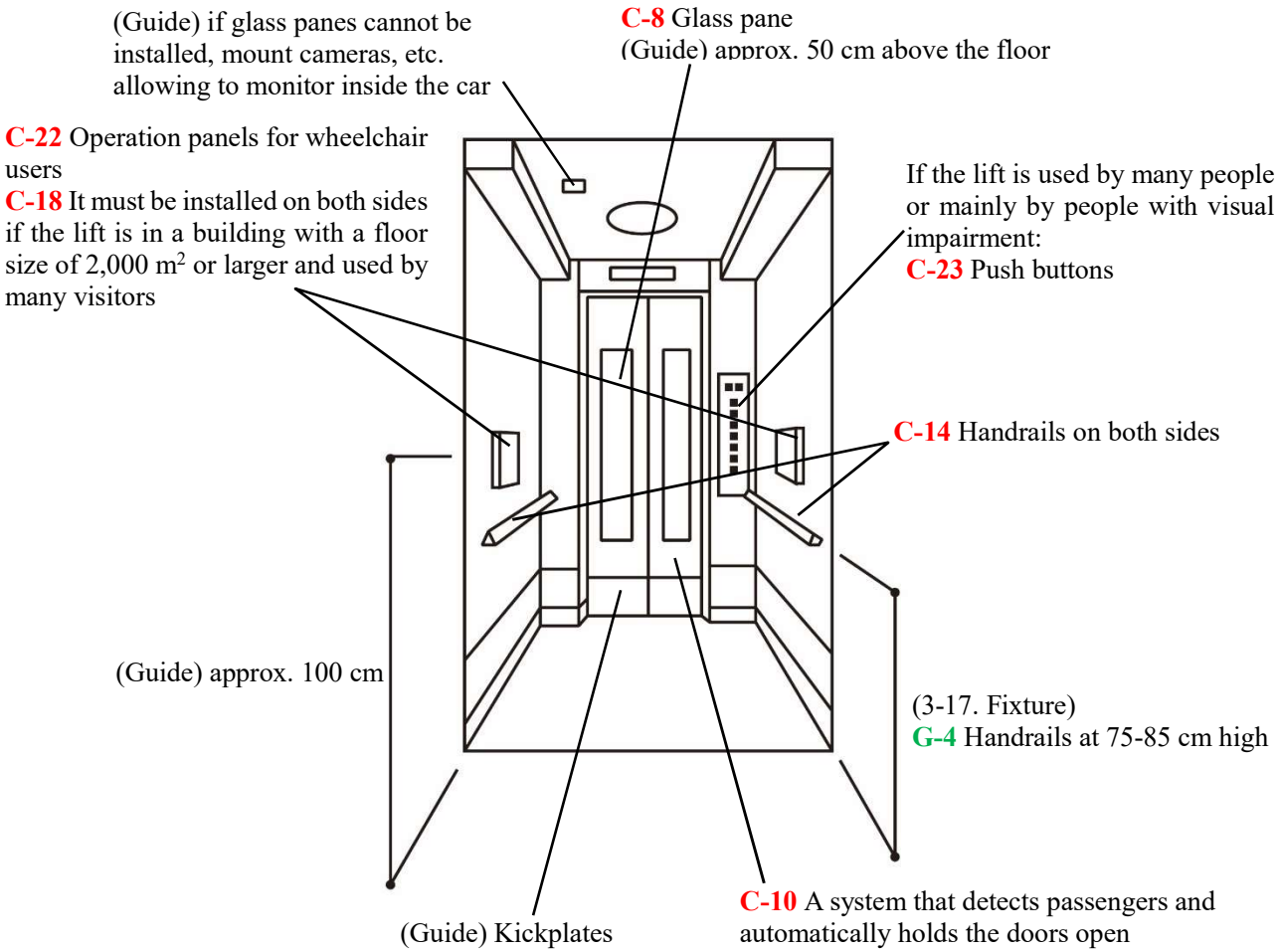


Figure 3.13 Lift design illustration (1)

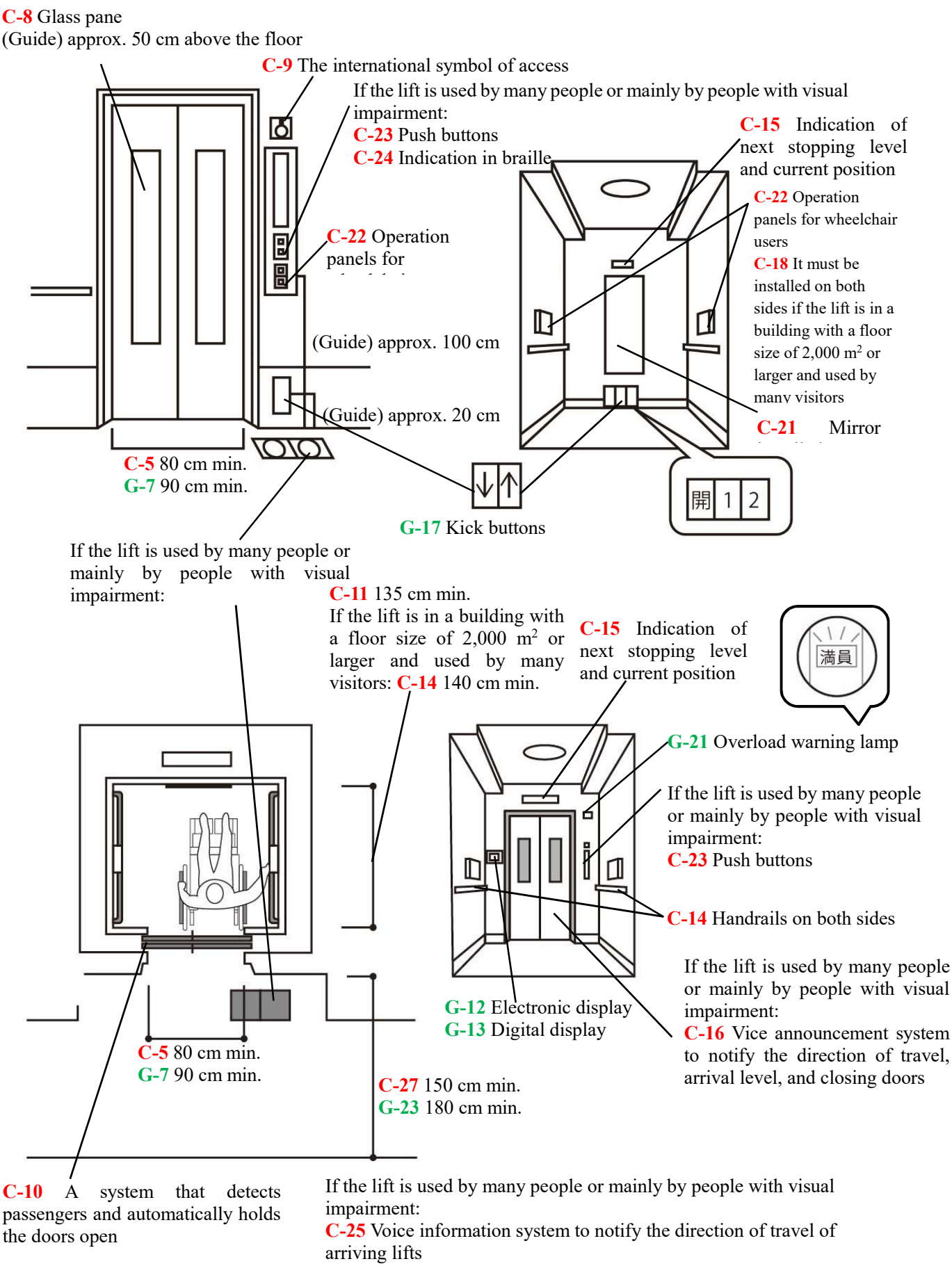


Figure 3.14 Lift design illustration (2)

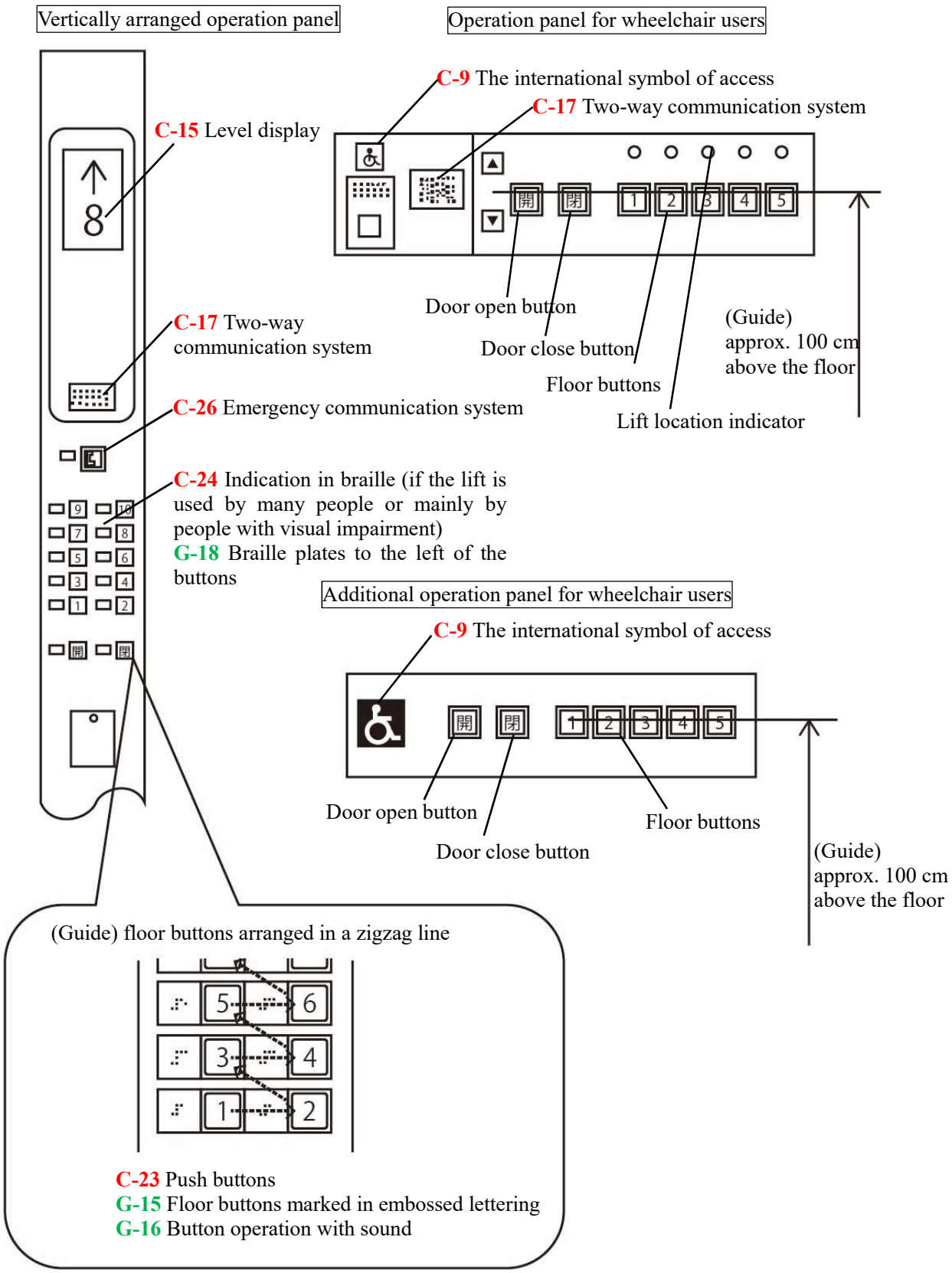


Figure 3.15 Operation panels

3-7. Escalators

While lifts are a fundamental means of vertical travel that caters for the special needs of the elderly and people with disabilities, escalators are also a viable means, with a capacity to transfer large numbers of people. Where escalators are to be installed, due considerations must be given to senior people and people with disabilities.

3-7-1. General guidelines

(Styles)

C-1 Escalators with special structures or uses must comply with the requirement of wheelchair accessibility as stipulated in a proviso of Article 1 of the Public Notice of the Ministry of Construction No. 1417 of 2000.

(Widths)

G-1 It is desirable that the width is in alignment with the type-1000 (the effective width of step approx. 100 cm).

(Distinctiveness of steps)

C-2 With cascading escalators, the steps must be demarcated for easy distinction from their surrounding areas and from one another by colours of different brightness, hue, or chroma.

C-3 Landing plates and steps (or pellets of moving walks. The same applies hereafter) must be demarcated for easy distinction from one another by colours of different brightness, hue, or chroma.

(Number of steps before reaching the nominal step height)

G-2 It is desirable to have approximately 5 steps before steps reach the nominal height.

(Structure of moving handrails)

G-3 It is desirable that moving handrails have horizontal extension of 120 cm minimum before steps start rising or dropping at each end of the flight.

G-4 It is desirable that moving handrails extend approx. 70 cm from the comb before boarding and after alighting.

G-5 It is desirable that measures are put in place to prevent injuries as a result of being caught in the gap between the moving and fixed handrails.

(Level steps)

G-6 It is desirable to have approx. 3 steps to ensure level areas at each end of the flight.

(Lighting)

G-7 It is desirable to install appropriate foot lights at boarding/alighting points.

3-7-2. Cautionary notice

(Signage/notices/markings)

G-8 It is desirable to provide signs indicating escalators near them.

G-9 It is desirable to provide cautionary notices to prevent accidents (body parts being caught, falling, etc.).

(Textured floor tiles)

C-4 Textured floor tiles must be installed approx. 30 cm before landing plates.

3-7-3. Measures for guiding

(Installation of guiding handrails)

G-10 It is desirable that fixed handrails, 100 cm minimum, are installed at escalator boarding/alighting points.

(Guiding tiles for people with visual impairment)

G-2 It is desirable to install textured tiles, etc. (as a warning) on the floor inside the fixed handrails, approx. 30 cm away from the landing plates at the boarding/alighting points of an escalator.

(Voice information systems)

C-5 Voice information systems must be installed to provide information about the escalator's destination or direction of travel (ascending/descending; in the case of moving walks, entry/exit).

3-7-4. Emergency safety measures

(Emergency stop buttons)

G-11 It is desirable that escalators are fitted with emergency stop buttons on the walls or pillars near the boarding/alighting points.

(Sensors to prevent entry in the wrong direction)

G-12 It is desirable that escalators are fitted with the sensors to prevent people from entering in the wrong direction.

(Monitoring cameras)

G-13 It is desirable that observation cameras are installed to monitor the operation of escalators.

(Communication system to call for assistance)

G-14 It is desirable that communication systems to call for assistance are provided at escalators accessible for wheelchair users.

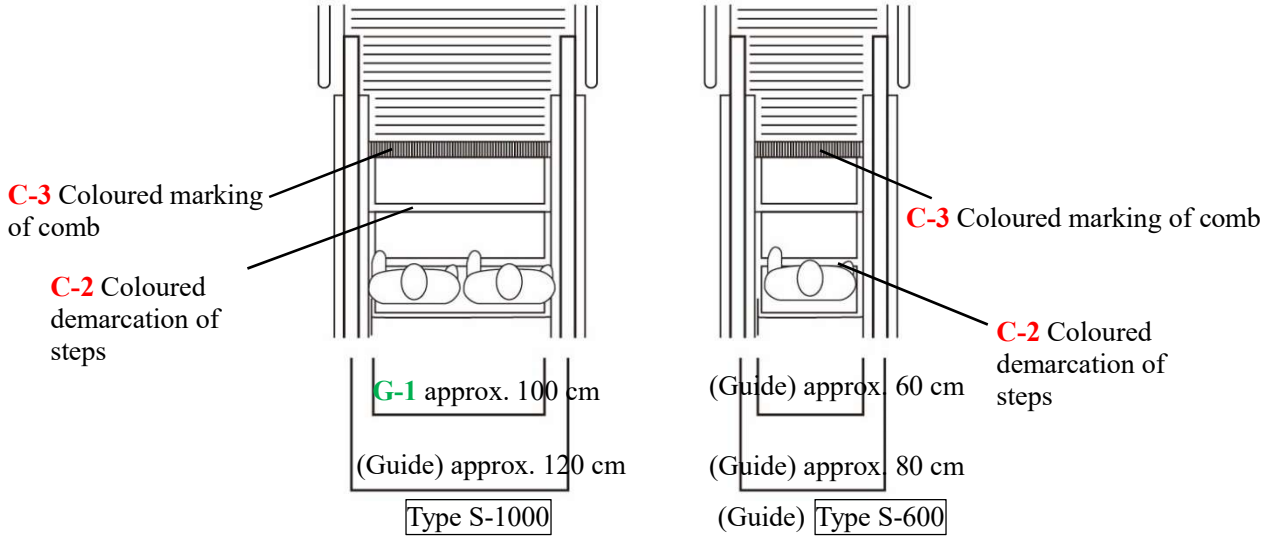
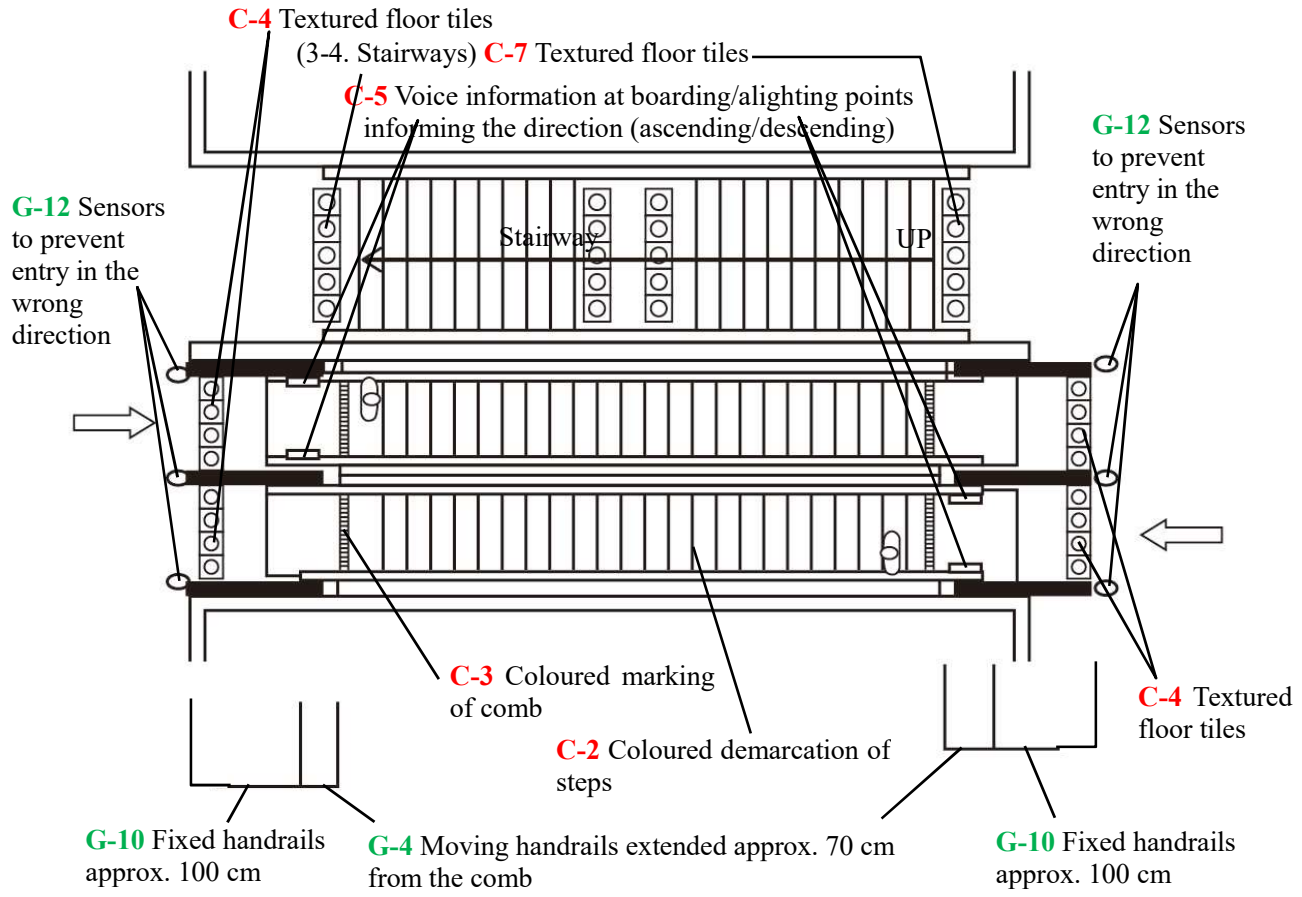


Figure 3.16 Escalator widths



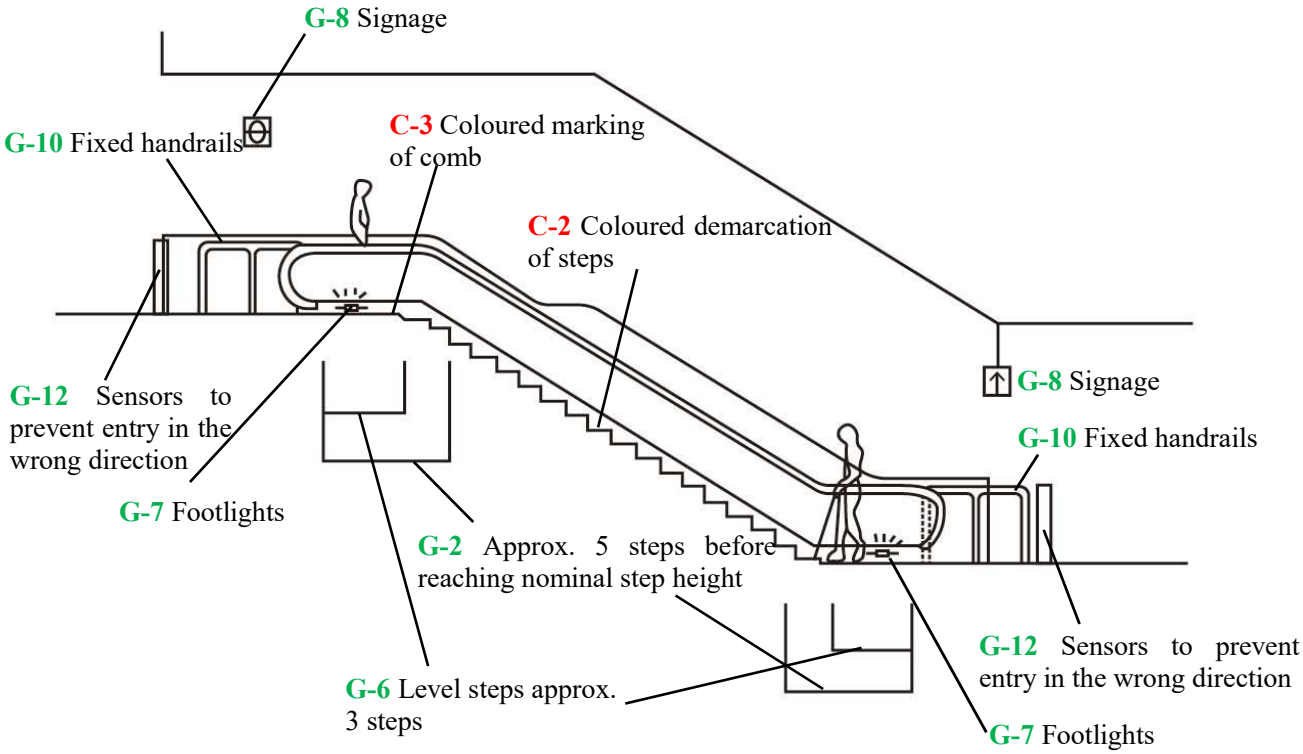


Figure 3.17 Escalators

3-8. Platform lifts

While passenger lifts are a fundamental means of vertical travel that caters for the special needs of the elderly and people with disabilities, platform lifts may also serve the same purpose effectively for wheelchair users where the travel required is between about two floors. Where platform lifts are to be installed, due considerations must be given to wheelchair users.

3-8-1. General guidelines

(Dimensions)

G-1 It is desirable that the platform measures at least 90 cm wide and 150 cm long.

(Adjacent areas)

G-2 It is desirable that an area of at least 150 cm square is provided to use the facility.

(Positions of call buttons in height)

G-3 It is desirable that call buttons are installed at approx. 70-120 cm above the floor.

(Doorway)

G-4 It is desirable that the doorway is at least 90 cm wide.

G-5 It is desirable that the doorway is offset from the side wall on the door-handle side to provide a room for operating the door easily.

(Handrails)

G-6 It is desirable that platform lifts are fitted with at least two handrails, each mounted at approx. 80-100 cm above the floor.

(Operation panels)

G-7 It is desirable that the operation panels can be operated with the elbow.

G-8 It is desirable that operation panels are also provided outside to operate the lift externally.

(Distance of travel)

G-9 It is desirable that the rise is: 2 m for lifts without doors in public infrastructure, 3 m for lifts without doors in residential buildings, and 4 m for lifts with doors.

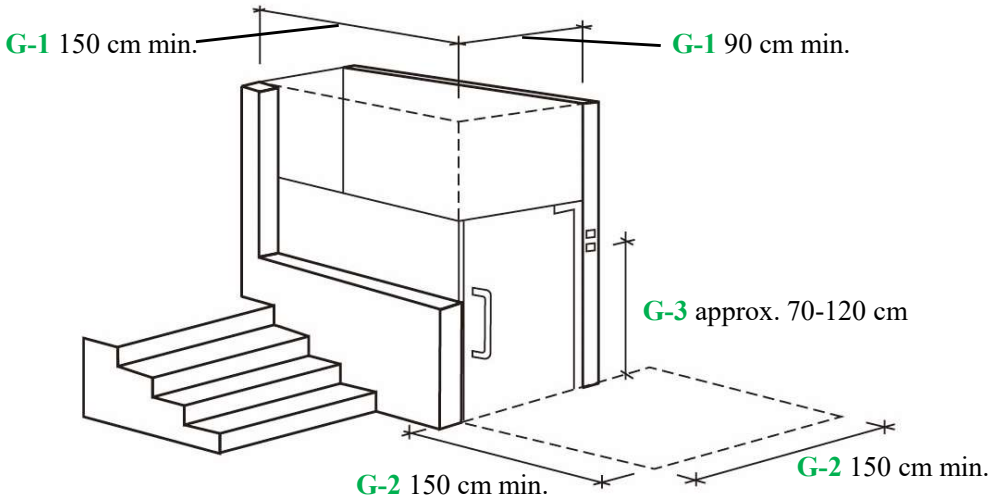


Figure 3.18 Platform lifts

3-9. Toilets

It is necessary to give considerations for the use by all kinds of people, including the elderly, people with disabilities, and pregnant women. Considerations are also required to ensure availability by some measures, given the recent trend that people opt for using accessible toilets more. As for the facilities for babies/infants (benches/chairs for small children), see 3-13. Family support facilities.

3-9-1. Locations

(Accessible toilets)

G-1 It is desirable to provide accessible toilets that cater for various needs of a variety of users, such as wheelchair users, ostomy bag users, and people accompanying babies/infants.

(Wheelchair-accessible toilets)

C-1 At least one toilet cubicle must comply with the specifications issued by the Minister of Land, Infrastructure, Transport and Tourism, to make the facilities easily accessible to wheelchair users.

C-2 Wheelchair-accessible toilets must be planned as integral part of a lavatory wherever it is possible.

G-2 It is desirable that at least one wheelchair-accessible toilet is provided at a location accessible both to men and women.

G-3 Where the toilets are in a building of more than two levels, it is desirable that wheelchair-accessible toilets are installed on the floor that has direct access to the ground level.

(Toilets accessible for ostomy bag users)

C-3 At least one toilet must provide facilities for emptying ostomy bags.

3-9-2. Doors

(Widths)

C-4 All doorways to lavatories must be at least 80 cm wide.

C-5 Doorways to wheelchair-accessible toilets must be at least 85 cm wide.

G-4 It is desirable that toilet doorways are at least 75 cm wide, considering the use by wheelchair users.

G-5 It is desirable that wheelchair-accessible toilet doorways are at least 90 cm wide.

(Styles)

C-6 Wheelchair-accessible toilets must have a sliding door but not the accordion type (if structurally restricted, an outward opening door).

G-6 It is desirable that wheelchair-accessible toilets are equipped with an automatic door.

G-7 It is desirable that all inward-opening doors are dismountable in case of an emergency.

(Approach to the toilet)

G-8 It is desirable to install a slope where there are level changes at the doorway.

(Door handle styles)

G-9 It is desirable that, where an outward-opening door is installed, it is fitted with a horizontal bar handle.

(Door operation buttons)

G-10 It is desirable that the operation panel for the automatic sliding door has push buttons, as some people are unable to use the system that involves holding a hand over a sensor.

G-11 Where the door operation panel is installed inside the toilet cubicle, it is desirable that the panel is mounted at least 70 cm away from the door so that it does not become an obstacle to passage.

(Features)

G-12 It is desirable that toilet doors are in the open position when the toilets are not occupied.

G-13 It is desirable that wheelchair-accessible toilet doors are fitted with speed control and/or damping systems.

(Locks)

C-7 Wheelchair-accessible toilets must have a door locking system that is easily operated and allows unlocking from outside, using spare keys, etc.

G-14 Where the toilets are fitted with manual sliding doors, it is desirable that the lock system can be operated easily by people who have difficulties using their fingers, and that the doors can be unlocked from outside in case of an emergency.

(Status-of-use indication)

C-8 Wheelchair-accessible toilets must have a system to display an "occupied" sign on the outside.

G-15 It is desirable that toilet doors are fitted with a device that indicates the occupancy statuses.

3-9-3. Toilet cubicles

(Size of wheelchair-accessible toilet cubicles)

C-9 The toilets must ensure sufficient space for wheelchair users inside the cubicle.

(Toilet bowl access in wheelchair-accessible toilets)

G-16 It is desirable that the toilet bowl in a wheelchair-accessible toilet is positioned so that it allows not only to approach from the front end, but also to slide onto the seat from a side.

(Space for a wheelchair on one side of a toilet bowl in wheelchair-accessible toilets)

G-17 It is desirable that accessible toilets have a space 75 cm wide minimum (80+ cm recommended) inside the cubicle to accommodate a wheelchair so that its user can slide onto the toilet seat sideways.

(Handrails)

C-10 Urinals must be installed with at least one handrail on a side.

C-11 Wheelchair-accessible toilets must be equipped with appropriate handrails.

G-18 It is desirable that handrails in wheelchair-accessible toilet cubicles include vertical and horizontal ones next to the toilet bowl on both sides, and the vertical handrails must be firmly fixed on a wall, etc.

G-19 It is desirable that Japanese-style toilets, if any installed, are fitted with handrails.

(Handrail strengths)

G-20 It is desirable that the handrails inside a toilet cubicle can sustain 1 kN of load in any direction.

(Handrail styles)

G-21 It is desirable that one of the handrails by the toilet bowl in a wheelchair-accessible toilet is of a movable type so that it can assist a wheelchair user to slide onto the toilet seat.

(Handrail positions)

G-22 It is desirable that horizontal handrails inside a wheelchair-accessible toilet cubicle are firmly fixed at 65-70 cm from the floor.

3-9-4. Toilet bowls/urinals

(Styles)

C-12 At least one standard seated-style (as opposed to Japanese squatting-style) toilet must be provided in every lavatory.

G-23 It is desirable that lavatories are generally equipped with the standard type toilets both for men and women.

G-24 It is desirable that toilets are fitted with a spray wash feature (JIS S20026).

(Types of wheelchair-accessible toilet bowls)

C-13 The toilet bowls must be of a seating type.

G-25 It is desirable that the toilet bowl is fitted with a back rest.

G-26 It is desirable that the bowls are of the floor mounted type, with a small trap projection, so that a wheelchair (including electric ones) can approach close to it without the footrests getting in the way.

(Toilet seat heights)

G-27 It is desirable that wheelchair-accessible toilet seats are approx. 40-45 cm high excluding the lid.

(Provision of urinals)

C-14 Where men's lavatory includes urinals, at least one urinal must comply with the following or similar requirements:

(1) Floor or wall mounted urinal (35 cm max. from floor to lip of the bowl).

(2) Handrails provided to assist people with physical impairments, such as cane users, to hold on to stabilise their bodies.

(3) It must be installed at a position nearest to the lavatory entrance.

(Amenity goods for urinals)

G-28 It is desirable that urinals have some arrangements to maintain a hygienic environment, such as target point marking and footprint markings.

G-29 It is desirable that a hook or similar device to rest a cane, umbrella, etc. on is provided near each urinal.

G-30 It is desirable that a shelf/stand for bags, etc. is provided by each urinal. The shelf/stand should be reachable by a person in a wheelchair (including electric ones).

3-9-5. Flooring

(Finish)

C-15 The floor must have a rough surface and be finished using slip-resistant materials. The finish materials must also have a level of elasticity to lessen the trip injury risks.

3-9-6. Accessories in toilet cubicles

(Flush buttons)

G-31 It is desirable that, if a flush button is mounted on a side wall, it is positioned in compliance with the standard JIS S0026.

(Flushing systems)

C-16 The flushing system installed in wheelchair-accessible toilets and those accessible for ostomy bag users must be equipped with push buttons or other easy-to-operate mechanism.

C-17 Wheelchair-accessible toilets must have a flush button on the cubicle wall, with a label in braille.

G-32 It is desirable that the toilet bowl is equipped with a warm water spray feature (that cleans the rear side with warm water).

G-33 Where a sensor-type flush system is installed, it is desirable that a push button option is also provided.

(Provision of call buttons)

G-34 It is desirable that, if a call button is mounted on a side wall, it is positioned in compliance with the standard JIS S0026.

G-35 It is desirable that the call button is positioned on the side wall of the cubicle and one close to the floor so that it is reachable from the toilet seat.

G-36 It is desirable that the call button has a label in braille, clearly distinguishable from the flush button.

(Positions of toilet roll holders)

C-18 Toilets accessible for ostomy bag users must be equipped with paper (roll) holders, provided that the building has 10,000 m^2 or more of floor area (except service premises).

C-19 The paper holders in wheelchair-accessible toilets must be positioned so that they are reachable from the toilet seats.

G-37 It is desirable that, if a paper holder is mounted on a side wall, it is positioned in compliance with the standard JIS S0026.

(Facilities to communicate information in emergencies)

G-38 It is desirable that toilet cubicles are equipped with emergency call system with a lamp to acknowledge response, that an emergency call lamp is mounted at the lavatory doorway, and that alarm panel is fitted in the office.

G-39 It is desirable that light-based alarm system is installed, such as a display system to show letters or signs, flash lights, etc. to communicate information in emergencies.

(Installation of stands/shelves, etc.)

C-20 Cubicles of toilets accessible for ostomy bag users must have shelves for bags, etc. (only for those facilities installed in a building with a total floor area of 10,000 m^2 or larger).

(Provision of hot-water facilities)

G-40 It is desirable that toilets accessible for ostomy bag users are equipped with a hot-water facility.

(Provision of sanitary bins)

C-21 Toilets accessible for ostomy bag users must be equipped with sanitary bins, provided that the building has 10,000 m^2 or more of floor area (except service premises).

G-41 It is desirable that toilets accessible for ostomy bag users are equipped with sanitary bins.

(Provision of changing benches for adult use)

C-22 The cubicle of accessible toilets for ostomy bag users must be equipped with at least one bench of 1.2 m min. that can be used by an adult to change diapers, and it must be sign-posted at its doorway (only for those facilities installed in a building with a total floor area of 10,000 m^2 or larger).

(Dimensions of changing benches for adult use)

G-42 In the cubicle of accessible toilet for ostomy bag users, it is desirable that the changing bench for adult use is approx. 150-180 cm long, and mounted at approx. 60 cm high.

(Provision of flushing basin)

G-43 It is desirable that toilets accessible for ostomy bag users are equipped with flushing basins fitted with a flush valve.

(Provision of changing platform/mirror)

G-44 It is desirable that cubicles of toilets accessible for ostomy bag users are equipped with a changing platform and a large mirror (a flat mirror, approx. 100 cm long, mounted at 75-80 cm above the floor).

(Provision of clothes hooks)

C-23 Cubicles of wheelchair/ostomy-bag-user accessible toilets must provide at least one clothes hook (at least two in toilets accessible for ostomy bag users installed in a building with the floor area of 10,000 m^2 or more).

C-24 In wheelchair-accessible toilets, clothes hooks must be mounted at two different heights so that people in wheelchairs can use at least one of them.

G-45 It is desirable to mount the clothes hooks at approx. 100 cm high for wheelchair users and approx. 170 cm high for others.

G-46 It is desirable that at least two hooks are provided in a cubicle of toilet accessible for ostomy bag users, one for clothes and the other for catheters.

(Principles for the structures and installation of baby/infant-related facilities)

C-25 Chairs and benches for babies must be provided and labelled (in braille) (only in a building with the floor area of 1,000 m^2 min.).

G-47 It is desirable that a diaper changing bench is equipped with measures to prevent falls.

G-48 It is desirable that due consideration is given in terms of the arrangement of equipment so that the baby/infant on the changing bench will not directly see the lighting.

(Provision of air conditioning)

G-49 It is desirable that wheelchair-accessible toilet cubicles equipped with ostomy bag cleaning facility, changing benches, etc. are fitted with air conditioning.

(Provision of liquid soap dispensers)

C-26 Toilets accessible for ostomy bag users must be equipped with liquid soap dispensers, provided that the building has 10,000 m^2 or more of floor area (except service premises).

G-50 It is desirable that accessible toilets are equipped with liquid soap dispensers mounted at 70-120 cm above the floor.

3-9-7. Washing basin

(Positions of washing basin auxiliaries)

G-51 It is desirable that additional equipment for washing basin is installed within the area approx. 80-100 cm above the floor finish level and within approx. 75 cm from the centre of the washing basin.

G-52 It is desirable that each basin has all the equipment available.

G-53 For the use by children, it is desirable to provide another basin approx. 45 cm long, mounted at approx. 65 cm above the floor (easily reachable for the water tap).

(Clearance under washing basin)

C-27 At least one (hand) washing basin in wheelchair-accessible toilets must have a leg space underneath it to make it easily accessible to wheelchair users.

G-54 It is desirable that washing basins in wheelchair-accessible toilets have a leg space underneath them (approx. 65 cm high, 55-60 cm deep) to make them accessible to wheelchair users.

(Positions of mirrors)

C-28 If mirrors are installed with the washing basins in wheelchair-accessible toilets, they must be positioned so that people other than wheelchair users can also use them.

G-55 It is desirable that the mirrors in wheelchair-accessible toilet cubicles are installed in such a way that the lower edge is as close as possible to the top of the washing basin, and the mirror is 100 cm high minimum.

(Arrangements for washing basins)

G-56 It is desirable that at least one washing basin in a lavatory is equipped with handrails, a liquid soap

dispenser, etc.

G-57 For wheelchair-accessible toilets, it is desirable that the washing basin installed at 65 cm or higher is mounted firmly on the wall, equipped with handrails, etc. so that the user can lean on it.

(Hand washing basins)

G-58 It is desirable that wheelchair-accessible toilets are equipped with a hand washing basin that can be used by a person in a wheelchair.

(Types of water taps)

C-29 In a lavatory, at least one cubicle must be equipped with a washing basin that is easily accessible for senior people, people with disabilities, etc.

C-30 The (hand) washing basin in wheelchair/ostomy-bag-user accessible toilets must be equipped with at least one tap that can be operated easily.

C-31 Cubicles of toilets accessible for ostomy bag users must have a washing basin provided with warm water (only for those facilities installed in a building with a total floor area of 10,000 m^2 or larger).

C-32 At least one washing basin must be equipped with a lever-type water tap or hands-free sensor tap.

G-59 It is desirable that water taps can be switched between automatic and manual modes.

(Positions of water taps)

G-60 It is desirable that water taps for washing basins in wheelchair-accessible toilet cubicles are mounted in a position easily accessible for wheelchair users (approx. 30-35 cm deep from the front end of the basin).

(Shelves)

G-61 It is desirable that shelves are provided.

G-62 It is desirable that, in wheelchair-accessible toilet cubicles, a shelf/stand for bags, etc. is installed where it is easily reachable by a person in a wheelchair (including electric ones).

(Paper towel dispensers)

G-63 It is desirable that a paper towel dispenser that can be operated with a lever or hands-free is installed within approx. 75 cm from a washing basin (except ones on the opposite wall), mounted so that the operation mechanism and outlet are at approx. 80-100 cm above the floor.

(Drain traps)

G-64 It is desirable that P-type traps are used for drains.

3-9-8. Markings/information boards/labels

(Signage by doorways)

C-1 Textured floor tiles must be installed on the floor in front of the doorways of wheelchair/ostomy-bag-user accessible toilets (except where voice information is provided).

C-33 Lavatories equipped with wheelchair/ostomy-bag-user accessible toilets must have information about the facility sex distinction, facility layouts, etc. for people with visual impairment in braille and/or by other means (embossed lettering, auditory information), by the lavatory doorway.

C-34 Each lavatory must have, by its doorways, signs in pictogram, etc. (with braille, or where possible with voice information) indicating the sex the facility is intended for.

G-65 It is desirable that information about toilets with specific features on other floors/locations is provided near toilet cubicles.

G-66 It is desirable that, where both the standard and Japanese style toilets are provided, these are sign-posted.

G-67 It is desirable that these signs are placed at a height 140-150 cm from the floor to the centre of the sign.

(Indication in braille)

C-35 Wheelchair-accessible toilets must be marked with a sign (the international symbol of access) to indicate that they are provided for all types of users, and must have labels in braille (use the phrase “Toilet for all types of users”).

C-36 Signs must be installed by the toilet doorway to indicate that facility for ostomy bag users and/or adult use changing bench are available, together with labels in braille.

(Provision of voice guide system)

G-68 Where a voice guide is provided, it is desirable that the voice informs of the male/female facilities.

G-69 Where tactile graphic boards are provided, it is desirable to install a voice information system to inform of their locations.

(Tactile graphic boards)

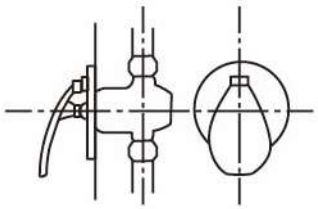
G-70 It is desirable that the tactile graphic boards installed near the lavatory doorway describe the features in the accessible cubicles and indicated their respective positions.

G-71 It is desirable that the tactile graphic boards are installed by the lavatory doorways.

G-72 It is desirable that two textured floor tiles are installed on the floor in front of the tactile graphic boards for the toilets.

C-16 Push button

(Guide) Leverage type



(Guide) Infrared hands-free type

Hands-free sensor type may be difficult for people with visual impairment to operate.

Figure 3.19 Easy-to-operate flushing systems

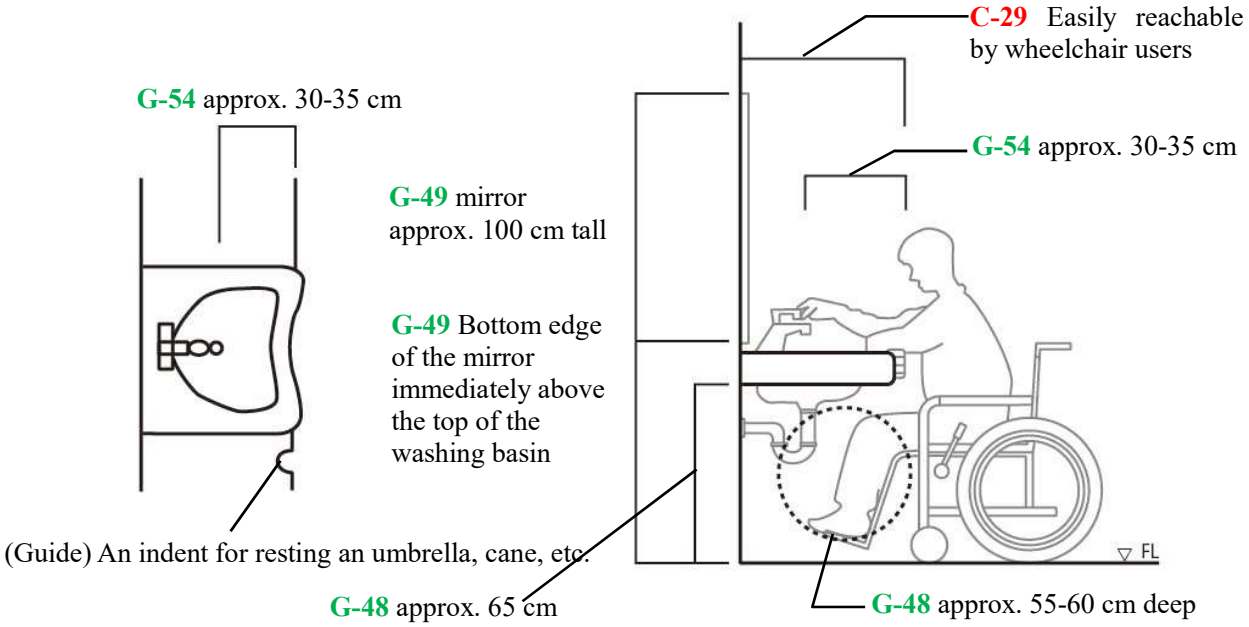


Figure 3.20 Washing basin accessible for wheelchair users

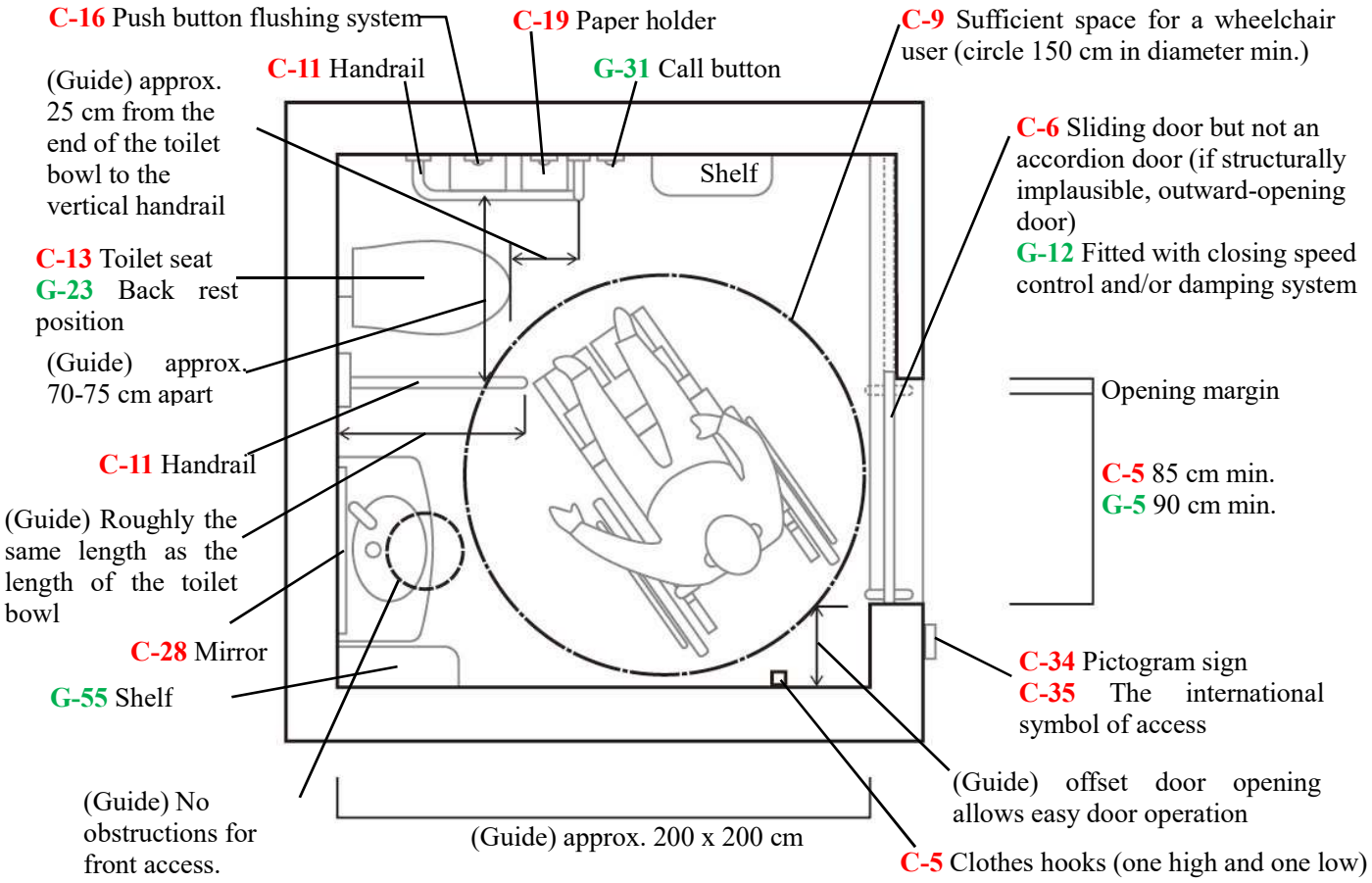


Figure 3.21 Illustration of wheelchair-accessible toilet cubicle design

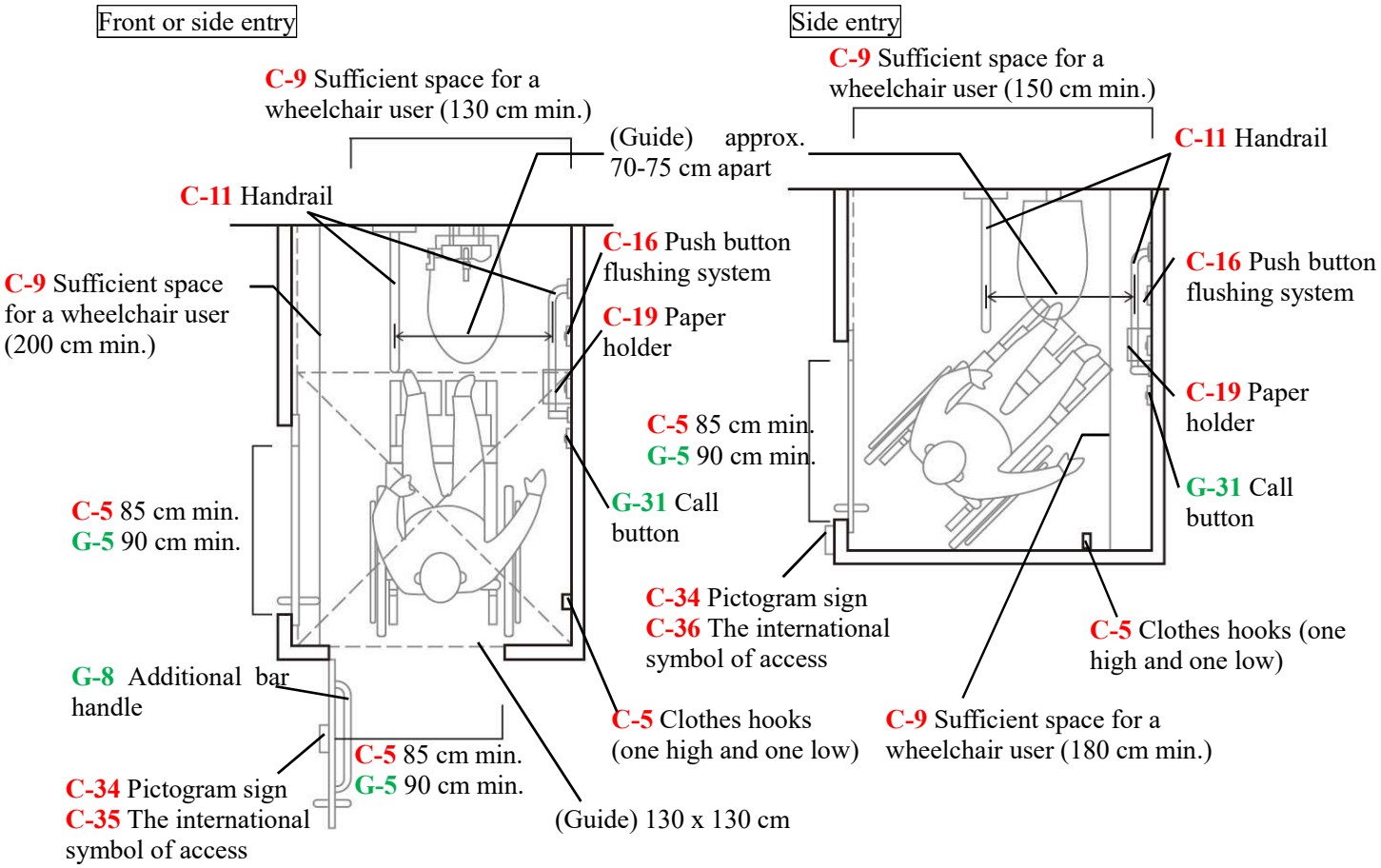


Figure 3.22 Illustration of minimal wheelchair-accessible toilet cubicle design

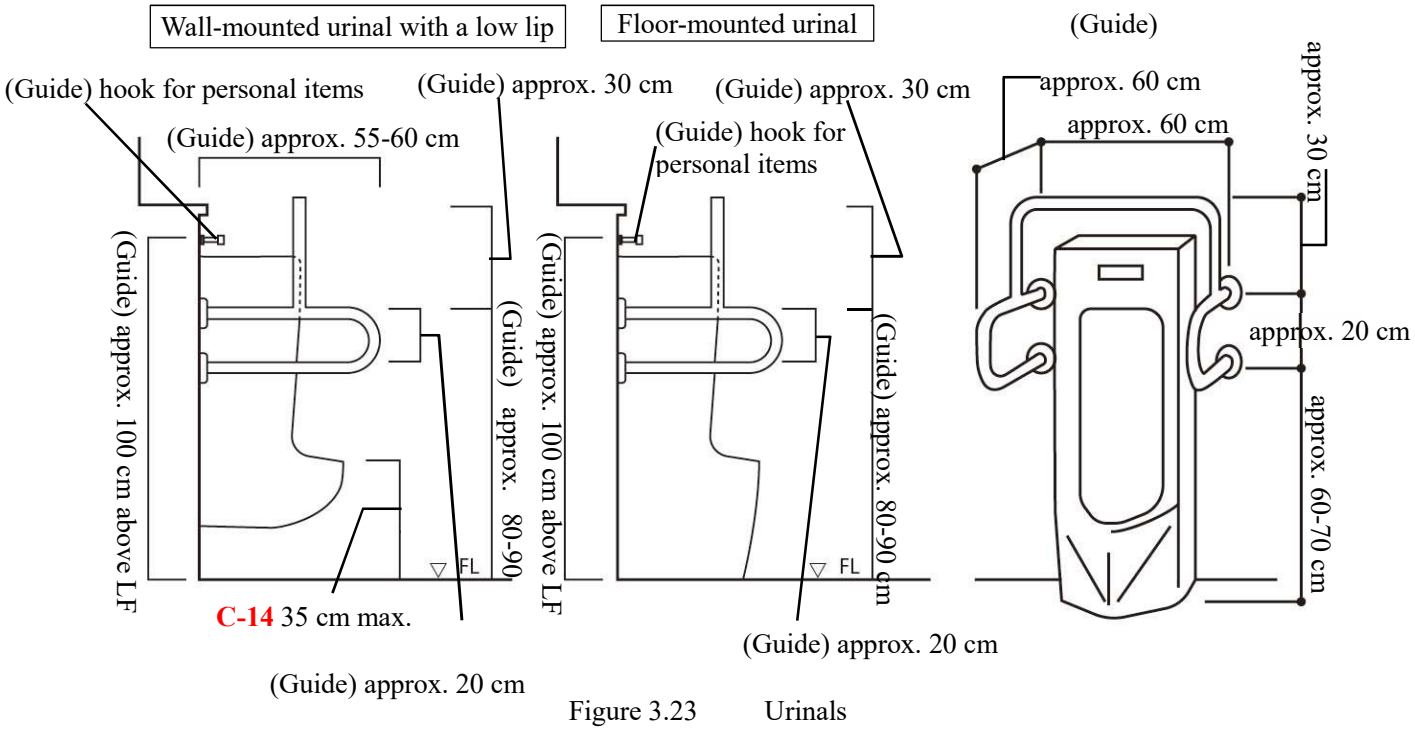


Figure 3.23 Urinals

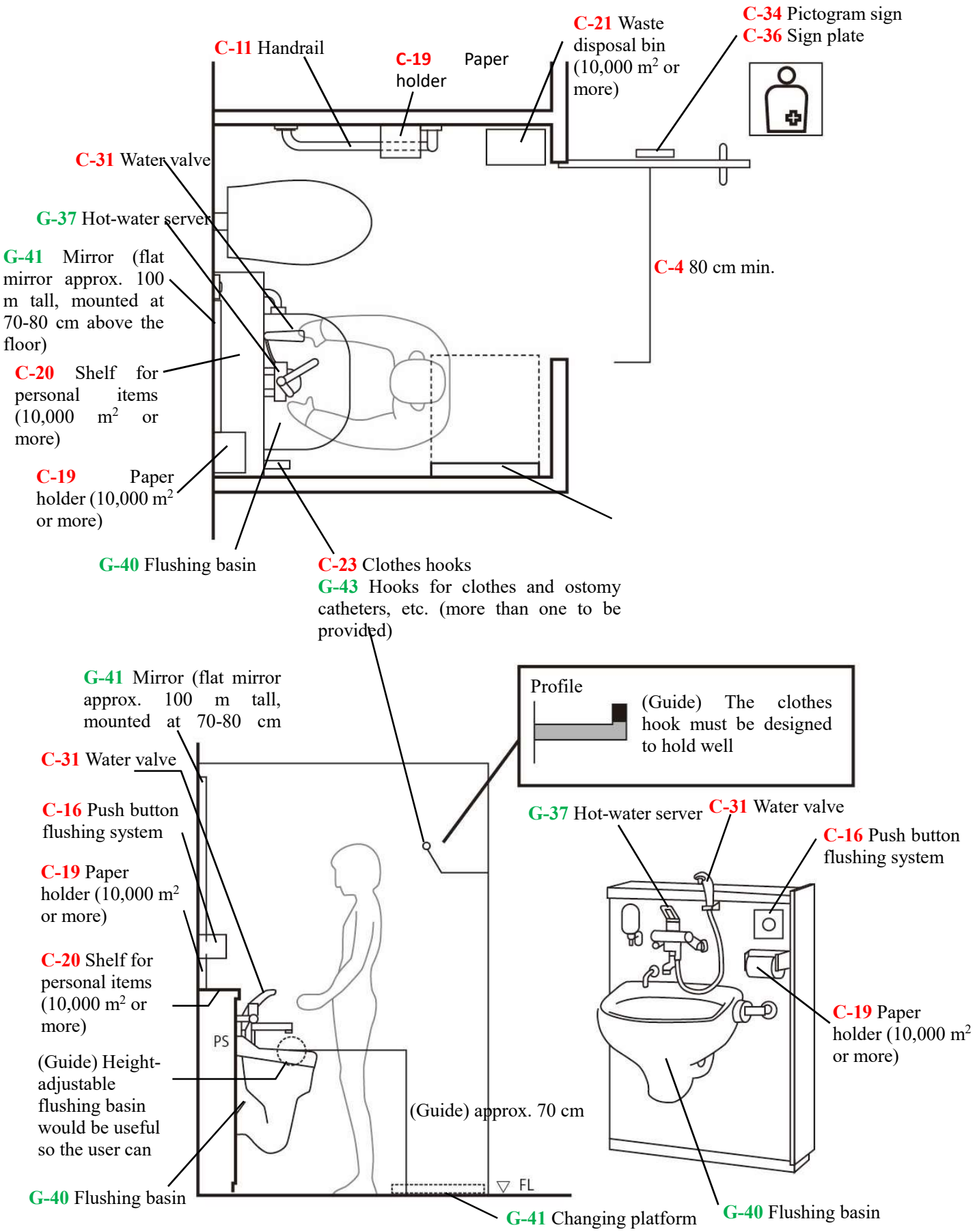


Figure 3.24 Cubicle of toilet accessible for ostomy bag users

- Attention: dimensions, load capacities, etc. may differ between changing benches for adult use and ones for babies/infants.

Note that a bench for adults may be installed and also serve as a baby/infant use bench.

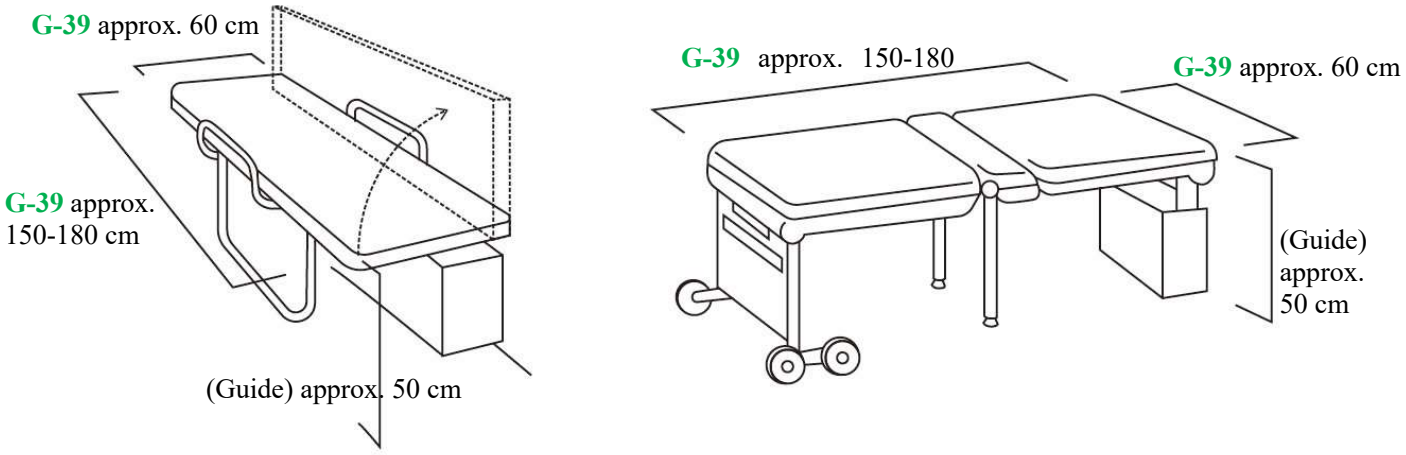


Figure 3.25 Adult use changing bench

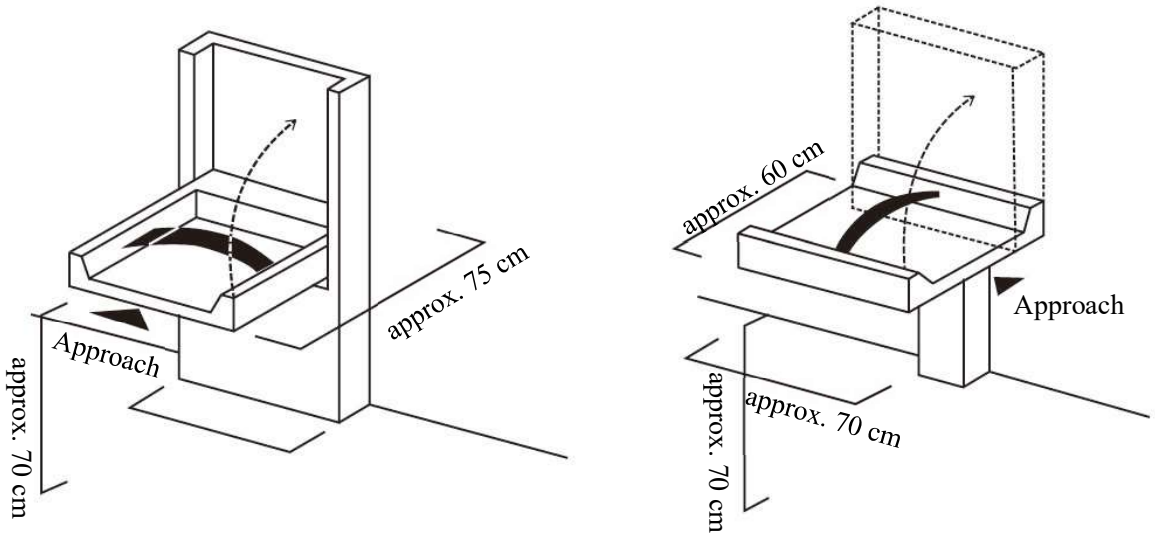


Figure 3.26 Baby/infant changing bench (guide)

3-10. Signage

Signs, or pictographs, are useful means to indicate the usage of specific rooms or entire space, routes, etc. They have an advantage of being easily comprehended by people with disabilities, children, etc. by virtue of using symbols rather than letters. It is necessary, therefore, to appropriately place signs in clearly visible positions to ensure that information is communicated.

3-10-1. General guidelines

(Locations)

G-1 In buildings that are connected to pedestrian decks, underground malls, underground passages, or railway stations, it is desirable that signs are posted to indicate that accessibility-enhanced passenger lifts or other types of transfer means are in the buildings, and the signs are clearly recognisable from the pavement, underground passageways, etc.

(Recognisability of signs)

C-1 Signs must be easily identifiable (compliant with JIS Z8210 standards).

G-2 It is desirable that, for the public information symbols outside the scope of the JIS Z8210, the Amended Public Information Symbols Guideline (July 2017) is consulted.

(Colours for the international symbol of access)

C-2 The international symbol of access must be either in dark blue and white, or black and white.

(Size of the international symbol of access)

G-3 While the international symbol of access must be between 10 cm square and 45 cm square, it is desirable that it is much larger to be printed on the car park floor/ground.

(Pictogram sign)

G-4 It is desirable that pictogram signs are embossed.

3-11. Public information facilities

Facilities to provide public information about the building must be available to visitors. These include manned information point/reception, and other means which should be easily comprehended by senior people, people with disabilities, etc.

3-11-1. Specifications

(Locations to install and information to be provided)

C-1 Information about where to find lifts and alternative means of vertical mobility, lavatories, and/or car parking facilities, must be posted clearly in easily visible locations (unless everything is within sight).

G-1 It is desirable that an information facility to locate lavatories and toilets inside the building is erected at all public information facilities or in major spots in the building.

G-2 It is desirable that the information boards are provided on every floor.

G-3 It is desirable that the information to be provided includes locations of lifts/other means of vertical mobility, lavatories, car parking facilities, purposes of the entire space or specific rooms, services available in the building/facility, available baby/infant care facilities, etc.

G-4 In theatres, cinemas, etc., it is desirable to indicate the locations of places for wheelchair users on an information board.

(Installation of information centre)

C-2 As an alternative to information display, an information centre must be provided.

(Tactile graphic boards)

G-5 It is desirable that tactile graphic boards have printed descriptions, and voice guide is provided.

G-6 If there are no receptions, it is desirable that the tactile graphic boards are installed with a two-way communication device (with a display).

(Arrangements for people with visual impairment)

C-3 Facilities must be put in place to make information about the locations of lifts, other means of vertical mobility, lavatories, etc. available to people with visual impairment in braille or by other means (boards printed in embossed lettering, voice guide).

C-4 If there are no other information facilities than information boards, two-way communication systems (this must be ones which people with visual impairment can operate with ease) must be provided, enabling users to contact the building management office at any time.

G-7 It is desirable that the two-way communication system (with a display) is installed at approx. 100 cm above the floor.

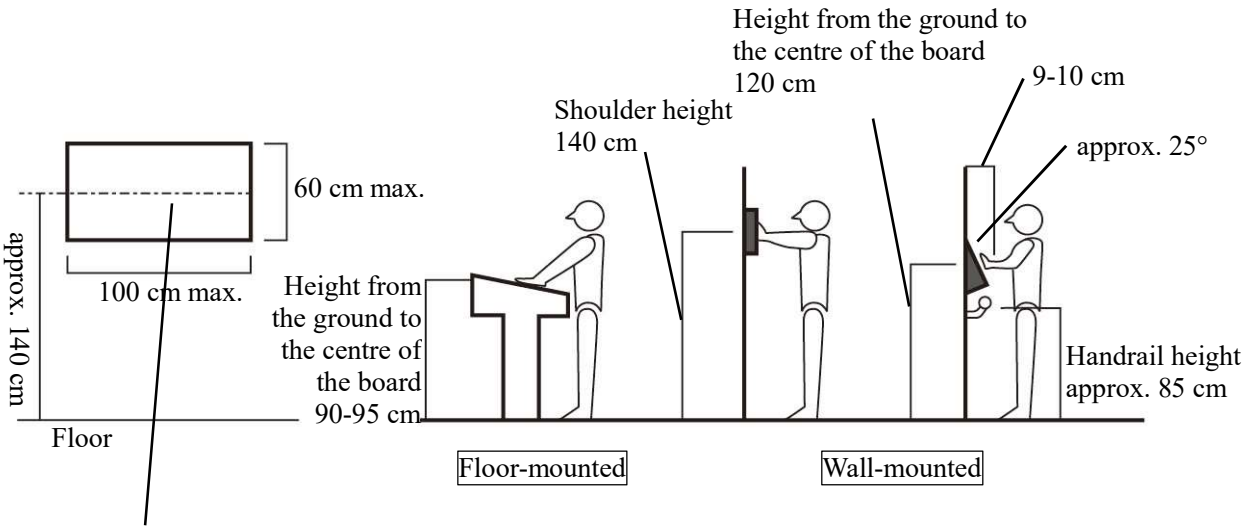
G-8 It is desirable that the two-way communication system installed alongside the tactile graphic boards or receptions are accompanied with instructions for use in braille.

(Arrangements for non-Japanese people)

G-9 For some facilities, it is desirable that public information is also provided in foreign languages.

(Signs for people with auditory impairment)

G-10 It is desirable that auditory information such as in-building announcements and emergency sirens is also conveyed visually by means of images, light, vibration, etc.



Information to be provided on the tactile graphic boards

The boards must at least include the basic plan of the building, with indications of the current location, accessibility-enhanced lifts/other means of vertical mobility, lavatories, and car parking facilities.

Figure 3.27 Tactile graphic boards (guide)

3-12. Routes leading to information points

To ensure that people with visual impairment have the information about the facility they visit, appropriate routes leading to information points must be provided (see Enhanced mobility routes for visually impaired people: 2-2 Guideline structure). Site designs must take into consideration the characteristics of people with visual impairment, that they rely on sounds, traffics of people, winds, tactile sensation, etc. The routes are preferably equipped with an effective combination of tactile signs such as textured floor tiles, voice information, guiding chimes, etc.

3-12-1. Routes leading to information points

(Provision of guiding assistance facilities)

C-1 Enhanced mobility routes for visually impaired people: routes to information points (except entrance enclosures in which no turnings are involved) must be supported by textured floor tiles or audio guiding systems.

C-2 Enhanced mobility routes for visually impaired people: textured floor tiles must be installed in the following parts of the routes:
(1) Where the routes meet a carriageway
(2) Each end of steps or slopes, before the route reaches the flight (except where the gradient is 1:20 or less, the rise is 16 cm or smaller and the gradient is 1:12 or less, or where continuous handrails are installed along the steps/slopes extending into level landings).

C-3 Enhanced mobility routes for visually impaired people: audio or other means of guiding assistance must be provided.

G-1 It is desirable that the textured tiles (guiding assistance for people with visual impairment) are installed on the routes leading to lavatories, lifts, major rooms of frequent access, etc.

G-2 It is desirable that the textured tiles (combination of dotted and lined types) are installed on the routes from adjacent roads leading to information points.

(On-route features)

C-4 Enhanced mobility routes for visually impaired people: routes must not involve steps/stairs.

3-12-2. Guiding tiles for people with visual impairment

(Routing guidelines)

G-3 It is desirable in principle that the guiding tiles are laid down in straight lines, no curves, and turnings are right angles.

G-4 It is desirable that guiding tiles are laid on the main footpath routes so that people with visual impairment do not have to walk longer distances unnecessarily.

G-5 It is desirable that textured tiles, etc. are not interrupted by drain box covers, etc. along on-site passageways.

(Shapes and sizes of tiles)

G-6 It is desirable that the tiles are 30 cm square.

G-7 It is desirable that the shapes, sizes, and arrangements of the tiles comply with the JIS T9251 standards.

(Colours)

G-8 It is desirable that the colour of the tiles is consistent.

G-9 It is desirable that the relative luminance of the textured floor tiles for people with visual impairment has at least 2.0:1 contrast ratio with the adjacent floor/ground surface finish.

G-10 It is desirable that the tiles are yellow (provided that the contrast ratios for colour values and luminance are ensured with the adjacent surface materials).

(Positioning)

G-11 It is desirable that textured tiles are installed on the points just before where there are potential hazards or direction changes.

G-12 It is desirable that dot/line-type textured tiles are laid down at least 30 cm away from, and along the entire length of, hazards.

(Arrangements for senior people and wheelchair users)

G-13 It is desirable that plans for the installation of textured tiles for people with visual impairment takes into account the arrangements for senior people and wheelchair users by leaving sufficient room for these people's safe and easy passage.

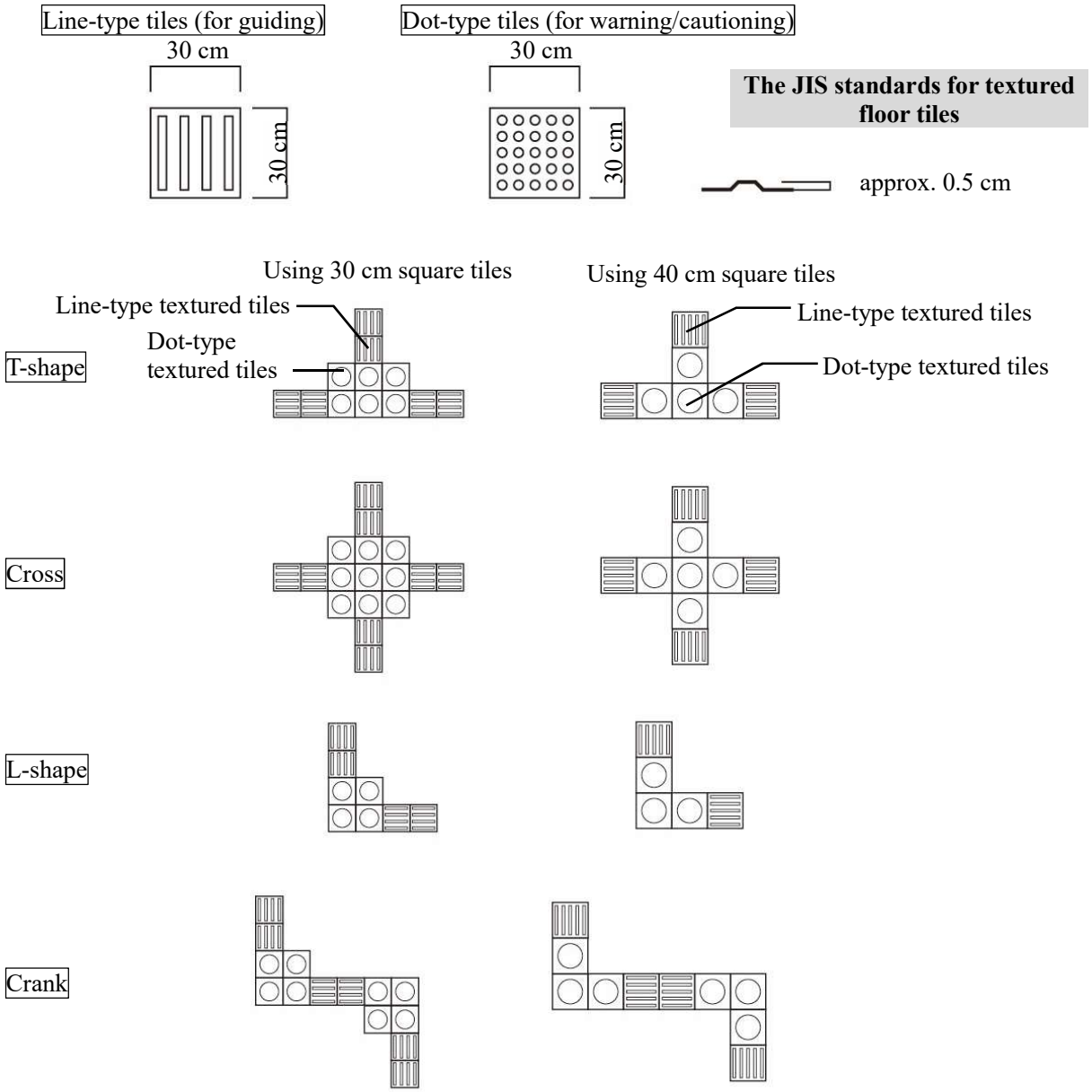


Figure 3.28 Guiding tiles for people with visual impairment (guide)

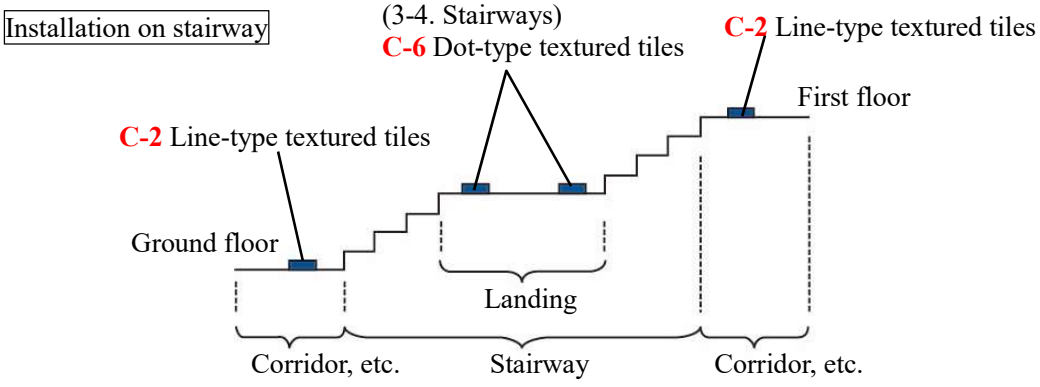


Figure 3.29 Textured floor tiles, etc. to be installed on points approaching the ends of stair/slope flight

3-13. Family support facilities

In planning facilities to make the site family-friendly, due considerations must be given, including the environment accessible for pram uses or any other types of users.

3-13-1. Doorways

(Styles)

G-1 It is desirable to install sliding doors which include a transparent section so that the other side is visible.

G-2 It is desirable that baby care rooms are designed so that users can walk into them pushing their prams.

(Approach to the facilities)

C-1 There must be no steps that obstruct passage.

G-3 It is desirable to install a slope where there are level changes at the doorway.

(Installation of signs)

C-2 Signs must be installed by the doorway to indicate that the facility is equipped with baby chair and child changing bench, and this information must be also available in braille.

C-3 Enhanced mobility routes: sings must be posted by the doorway, indicating a breastfeeding room, and this information must be also available in braille.

3-13-2. Baby-feeding rooms

(Provision as a principle)

C-4 In a building with a total floor area of 5,000 m^2 or more, at least one place must be provided as a facility for parents to feed their babies and/or change their diapers, and signs for this facility must be posted nearby. This guideline does not apply where other facilities in the building serve these purposes.

G-4 In a building with a total floor area of 1,000 m^2 or more (50 m^2 or more for public lavatories), it is desirable that at least one place is provided as a facility for parents to feed and/or change their babies.

(Ensuring privacy of breastfeeding mothers)

G-5 It is desirable that the facility provides a space for breastfeeding.

(Arrangements for male users)

G-6 It is desirable that the facility provides a space for feeding babies with a baby bottle that is accessible both for men and women.

G-7 It is desirable that the facility layout is displayed considering the use by men, and that a hot-water server is installed.

(Amenities)

G-8 It is desirable that the room is equipped with chairs, baby changing benches, and sanitary bins.

G-9 It is desirable that tubs or washing basins are provided.

(Chairs)

G-10 It is desirable that chairs for feeding babies are either long benches, or chairs with backrest and armrests.

(Water taps)

G-11 It is desirable that at least one washing tub or basin is equipped with a lever-type or hands-free sensor tap.

3-13-3. Baby changing benches

(Locations)

G-12 It is desirable that baby changing benches are installed in both lavatories for men and women.

(Configuration)

G-13 It is desirable that baby changing benches are approx. 80-85 cm tall, approx. 50 cm wide, with a minimum of 70-75 cm clearance underneath.

3-13-4. Additional equipment

(Provision of vending machines)

G-14 It is desirable that vending machines are installed to provide diapers, baby food, etc.

G-15 It is desirable that vending machines of beverages and/or water servers are installed.

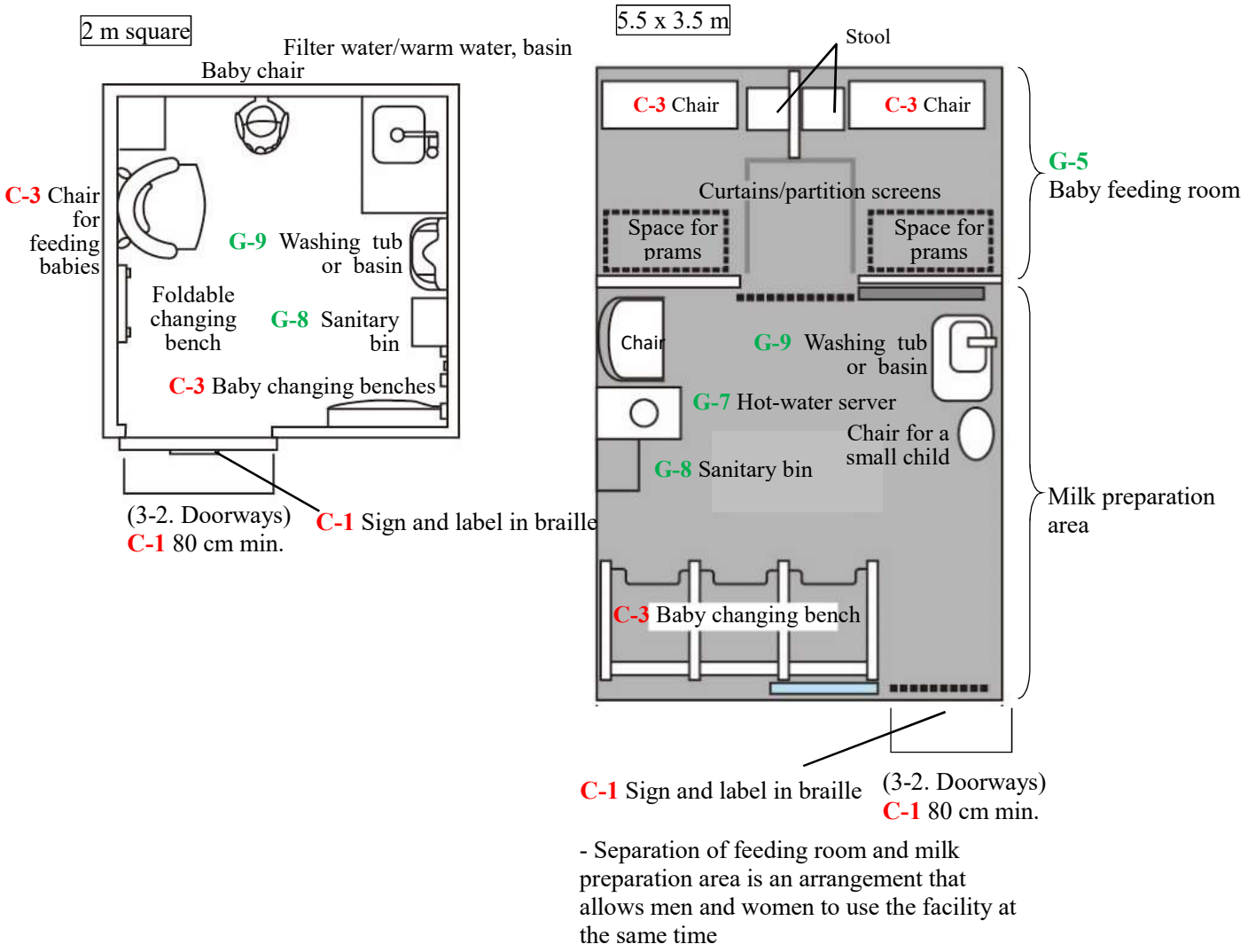


Figure 3.30 Illustration of baby feeding room

3-14. Food service area (cafeterias, restaurants, etc.)

Where cafeterias, restaurants, and other food vendors are serving, necessary arrangements must be made within the area for easy access by senior people, people with disabilities, etc.

3-14-1. General guidelines

(Widths of passageways)

G-1 It is desirable that the passageways are at least 120 cm wide.

(Payment area space)

G-2 If a payment area is created, it is desirable to ensure sufficient space for this to be easily accessible for wheelchair/pram users.

3-14-2. Showcases/menus on display

(Price indication)

G-3 If there is a payment area, it is desirable that measures are in place so that people with auditory impairment are able to verify the prices due.

(Methods of displaying menus)

G-4 It is desirable that information is provided in visual and auditory forms.

G-5 It is desirable that the providers have at least one copy of menus in braille.

G-6 It is desirable that the providers have at least one copy of photographic menus.

(Product display)

G-7 It is desirable that no goods or props are displayed within the passageways 100 cm wide.

3-14-3. Counters

(Heights)

C-1 Where a reception counter or a table for filling in forms which can be used by more than one person is installed, it must be 75 cm tall minimum by standard.

(Widths)

C-2 Where a reception counter or a table for filling in forms which can be used by more than one person is installed, it must be 80 cm wide minimum.

(Clearance under the counter)

C-3 Where a reception counter or a table for filling in forms which can be used by more than one person is installed, it must have sufficient room underneath so that wheelchair users are able to have access easily.

G-8 It is desirable that this room is approx. 65-70 cm high, approx. 75 cm wide, and approx. 50 cm deep.

(Auxiliary equipment)

G-9 It is desirable that standing height counters are equipped with handrails and devices to hold umbrellas, canes, etc., according to their use.

3-14-4. Counters with tray slides

(Heights)

G-10 It is desirable that this type of counter in a cafeteria is approx. 70-80 cm above floor level.

(Depth)

G-11 It is desirable that this type of counter in a cafeteria is approx. 25 cm deep.

(Clearance under the counter)

G-12 It is desirable that this type of counter in a cafeteria has a clearance of 65-75 cm high underneath.

(Styles)

G-13 It is desirable that this type of counter in a cafeteria is a single-lane, continuous one from the tray dispensing point to the payment point.

3-14-5. Payment counter

(Heights)

G-14 It is desirable that the counter is approx. 70-80 cm high.

(Clearance under the counter)

G-15 It is desirable that under the counter space is approx. 65-70 cm high, approx. 75 cm wide, and approx. 50 cm deep.

(Widths)

G-16 It is desirable that the counter is approx. 75 cm wide.

(Depth)

G-17 It is desirable that the counter is approx. 50 cm deep.

(Doorway)

G-18 It is desirable that the payment area has a doorway 60 cm wide minimum.

3-14-6. Condiments counter

(Heights)

G-19 It is desirable that the countertop is approx. 70-80 cm high.

(Widths)

G-20 It is desirable that the counter is approx. 75 cm wide.

(Depth)

G-21 It is desirable that the counter is approx. 50 cm deep.

(Clearance under the counter)

G-22 It is desirable that the counter has a clearance of 65-75 cm high underneath.

(Free counter-top space)

G-23 It is desirable that the countertop has a clear space of 30 cm x 20 cm.

(Condiment containers)

G-24 It is desirable that condiments are arranged within 60 cm (depth) from the counter front edge.

3-14-7. Wheelchair accessible counters

(Provision as a principle)

G-25 It is desirable that standing height counters, etc. are fixed, and another counter, etc. is provided for wheelchair users.

G-26 It is desirable that a bar counter includes a low section for at least two seats (approx. 70-80 cm high, 160 cm wide min., with 65-75 cm high clearance underneath).

3-14-8. Passageways

(Passage widths between tables)

G-27 It is desirable that tables are arranged 90 cm apart minimum.

3-14-9. Seating

(Accommodation of babies/infants)

G-28 It is desirable that restaurants provide enough space to put prams.

3-14-10. Tables/chairs

(Shapes of tables)

G-29 It is desirable that restaurants use four-legged tables and separate chairs.

G-30 It is desirable that, where round single-leg tables are used, they have leg rooms of 50 cm measured from the edge of the table top to the edge of the leg base.

(Clearance under tables)

G-31 It is desirable that restaurant tables have approx. 65-75 cm high clearance underneath.

(Heights of tables)

G-32 It is desirable that restaurant tables are 80 cm high maximum.

(Styles of chairs)

G-33 It is desirable that chairs have armrests and a backrest, and has the legroom under the seat at least 1/3 of the seat depth.

3-14-12. Small shops (kiosk, etc.)

(Installation of eaves)

G-34 It is desirable that outdoor shops have a shade or eave.

(Counter heights)

G-35 It is desirable that counters are configured as 75-79 cm tall, projecting 48 cm maximum, and all the merchandise is displayed no higher than 120 cm.

3-15. Areas for waiting/queueing

If queues are anticipated, necessary arrangements must be put in place to ensure everyone, including senior people and people with disabilities, are able to queue safely and move along smoothly, such as line widths and placement of benches.

3-15-1. General guidelines

(Provision of a fast track)

G-1 It is desirable that a fast track is provided for the elderly, people with disabilities, etc.

(Information about waiting times)

G-2 If people queue standing, it is desirable that auditory and visual information is provided about the approximate time of waiting before entering the building.

(Provision of seats for those who are unable to queue standing)

G-3 If people queue standing, it is desirable that some chairs/benches are provided.

(Effective width of queueing lane)

G-4 It is desirable that lanes in the queueing area is approx. 150 cm wide.

(Maximum gradients of floors)

G-5 It is desirable that the floor of queueing area is horizontal or, if sloping, the gradient not exceeding 2%.

(Benches and shades)

G-6 It is desirable that benches, shades, and/or shelters are provided if queueing is expected to be extensive in length/time.

(Ensuring identifiable lanes)

G-7 It is desirable that queueing areas are clearly designated with distinct colour markings, using ropes, bars, partitions, etc. to differentiate lanes from surrounding areas.

3-16. Meditation/prayer rooms

The Expo will be visited by many people of diverse religious and cultural backgrounds. It is desired that the site is prepared to cater for special needs of those people. Where meditation/prayer rooms are installed, these are desired to have all the necessary arrangements, such as handrails, in place for easy access by senior people, people with disabilities, etc.

3-16-1. General guidelines

(Number of accessible areas)

G-1 It is desirable that the site has at least one unit which all kinds of people have access to.

3-16-2. Water taps

(Styles)

G-2 It is desirable that the unit is equipped with accessible water taps, either electronic or sensor-enabled.

3-16-3. Washing sink

(Locations)

G-3 It is desirable that this is located near the entrance door of the unit.

(Handrails)

G-4 It is desirable that the washing sink is equipped with horizontal handrails, one on each side, mounted at 70-80 cm above the floor.

(Auxiliary facilities and their locations)

G-5 It is desirable that a bidet shower system and soap/paper dispensers are installed near the washing sink.

G-6 It is desirable that the auxiliary facilities are installed at 70-120 cm above the floor.

(Provision of free-use space)

G-7 The washing sink must have a free space 120 cm wide in front of it, and it is desirable that this area surface has a differential light reflectance value of at least 30 LRV with its surrounding areas.

3-16-4. Doorways

(Securing passageway)

G-8 Necessary arrangements must be put in place so that shoes left at the entrance do not occupy the doorway. It is desirable that the passageway is marked with keep-clear mats to secure it if necessary.

(Installation of seats)

G-9 It is desirable that seats are provided at entrance, etc. where people take off their shoes.

3-16-5. Space for prayer

(Installation of seats)

G-10 It is desirable that the space for prayer is also equipped with some seating facilities for those who are unable to sit on the floor to pray.

3-17. Fixture (handrails, counters, vending machines, etc.)

Internal and external fixture are features vital for the usability of the unit and comfort of its users. While there are no established provisions regarding these guidelines in the Accessibility Improvement Act or ordinances of Osaka Prefectural Government, necessary and sufficient arrangements for users should be made.

3-17-1. General guidelines about handrails

(Locations)

G-1 It is desirable that handrails are installed on both sides of passages of travel such as corridors.

G-2 It is desirable that handrails are continuous along the side lines where the path involves protrusions such as structural columns.

G-3 It is desirable that corridors, stairways, slopes, etc. are equipped with double handrails in view of the use by children.

(Installation heights)

G-4 It is desirable that single handrails are installed at approx. 75-85 cm high, and in the case of double handrails, at 75-85 cm high for one, and 60-65 cm high for the other (for children), all continuous.

(Distance from the wall)

G-5 It is desirable that handrails are mounted 4-5 cm away from the wall and supported from underneath so that the mounting brackets do not obstruct the hand longitudinal movements.

3-17-2. Specifications of handrails

(Styles)

G-6 It is desirable that the handrail is approx. 3-4 cm in outer diameter (3 cm for handrails for children), in a shape that is easy to grip.

(End part treatment)

G-7 It is desirable that the ends of handrails are turned towards the wall or floor.

(Indication in braille)

G-8 It is desirable that handrails near doorways have labels indicating the room name, current location, etc. in braille.

G-9 It is desirable that handrails in corridors, etc. have labels indicating the current location, destination, etc. in braille, applied on terminals and corners.

G-10 It is desirable that handrails in stairways have labels indicating the floor level, current location, etc. in braille, applied on each end.

G-11 It is desirable that the labels in braille are fixed on a horizontal section of the stairway handrail.

3-17-3. Low seating counters

(Heights)

G-12 It is desirable that low counters accessible for wheelchair users are approx. 60-65 cm from the floor to the bottom end, and approx. 70 cm to the top end.

(Depth)

G-13 It is desirable that low counters accessible for wheelchair users are approx. 45 cm deep.

(Configuration)

G-14 It is desirable that these are fitted with supporting features, such as a cane holder, hook, etc.

G-15 It is desirable that these have a groove towards the front to make it easy to grab.

(Space in front)

G-16 It is desirable that the space in front of the counter, etc. is sufficiently large so that a wheelchair can turn around, and that the floor is horizontal.

(Chairs)

G-17 It is desirable that chairs are 40-46 cm high and with armrests are provided.

3-17-4. Standing height counters

(Heights)

G-18 It is desirable that the counters are 95-125 cm tall.

(Configuration)

G-19 It is desirable that these are fitted with supporting features, such as a cane holder, hook, etc.

G-20 It is desirable that these have a groove towards the front to make it easy to grab.

(Handrails)

G-21 It is desirable that handrails are installed to stabilise the body.

(Arrangements for wheelchair users)

G-22 It is desirable that these are fixed, and a separate counter is provided for wheelchair users.

3-17-5. Vending machines, ticketing machines, etc.

(Positions and heights of the machines)

G-23 It is desirable that all the operation interfaces, such as the money inlets, selection buttons, and product outlets, are located no lower than 40 cm and no higher than 110 cm from the floor.

(Information)

C-1 The routes to ATMs accessible for people with visual impairment must be indicated using textured floor tiles (dot- and line-types) (unless other means are provided, such as audio guiding information, tactile graphic information boards at information points within the building, etc.).

3-17-6. Litter bins

(Provision as a principle)

G-24 It is desirable that these are provided along enhanced mobility routes at every 50 m.

G-25 It is desirable that these are installed in places accessible to all people, including wheelchair users.

(Heights)

G-26 It is desirable that the litter bin opening is approx. 90 cm high (120 cm max.).

(Easy identification)

G-27 It is desirable that litter bins are easily identifiable in terms of their shapes and colours.

(Lid operation styles)

G-28 It is desirable that litter bins reflect the consideration that it may be difficult for some people to open a lid with hands or feet.

3-17-7. Gates

(Styles)

G-29 It is desirable that revolving gates are not installed.

(Effective widths)

G-30 It is desirable that the effective width of a gate is at least 85 cm.

G-31 It is desirable that at least one gate is 90 cm wide minimum.

(Opening direction)

G-32 It is desirable that gates open in the direction of travel.

(Arrangements for wheelchair users)

G-33 It is desirable that gates have at least one gate or doorway accessible for wheelchairs (including electric ones) installed adjacent to them.

3-17-8. Windows

(Handle styles)

G-34 It is desirable that window handles are ones that do not require a twisting action, preferably operable with the arms or elbows or automated to be opened/closed easily.

(Installation heights)

G-35 Windows are installed at 90 cm from the floor, and it is desirable that measures to prevent fall accidents are put in place if the windows are within 120 cm from the floor.

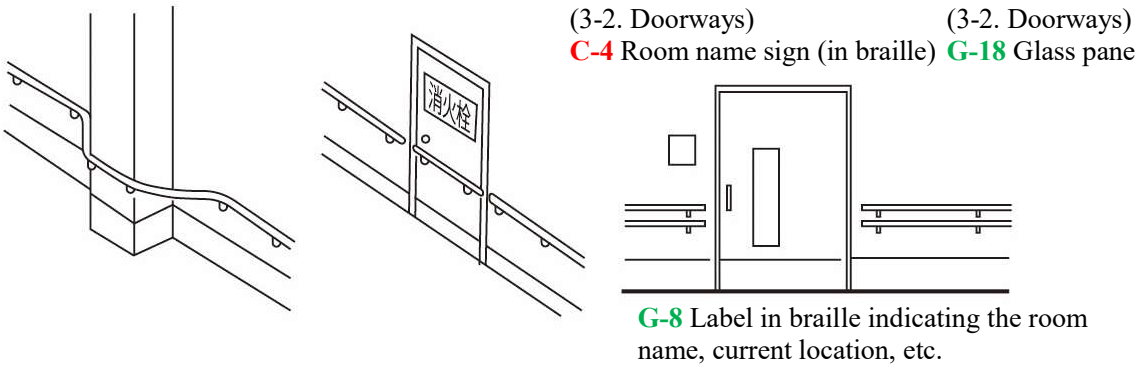


Figure 3.31 Handrails (illustration of continuous installation)

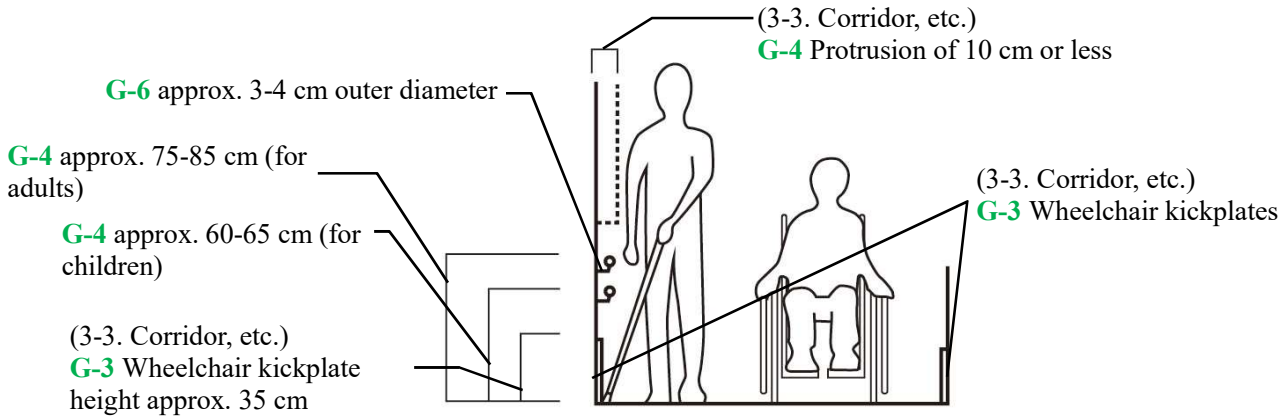


Figure 3.32 Handrails (illustration of wall-mounting)

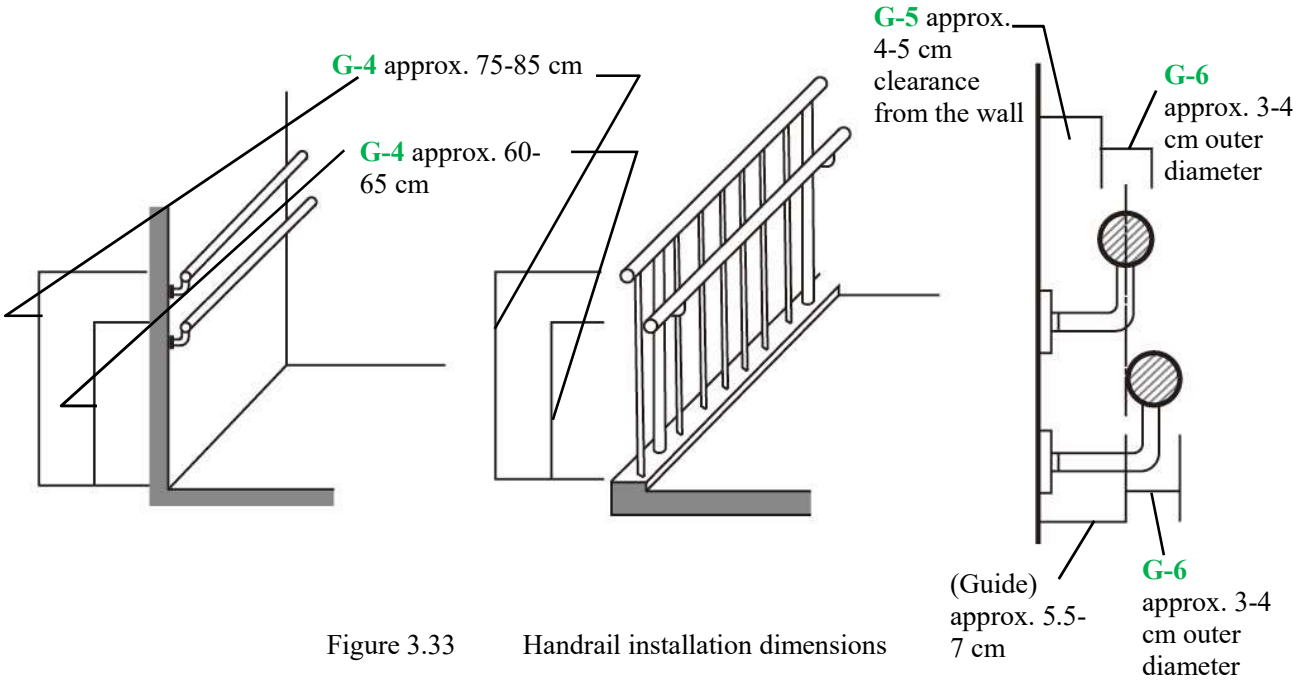


Figure 3.33 Handrail installation dimensions

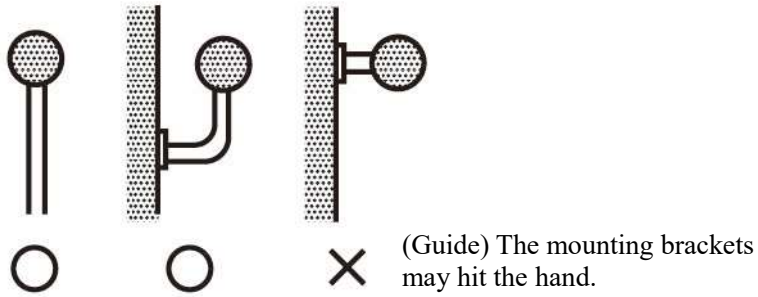


Figure 3.34 Handrail styles

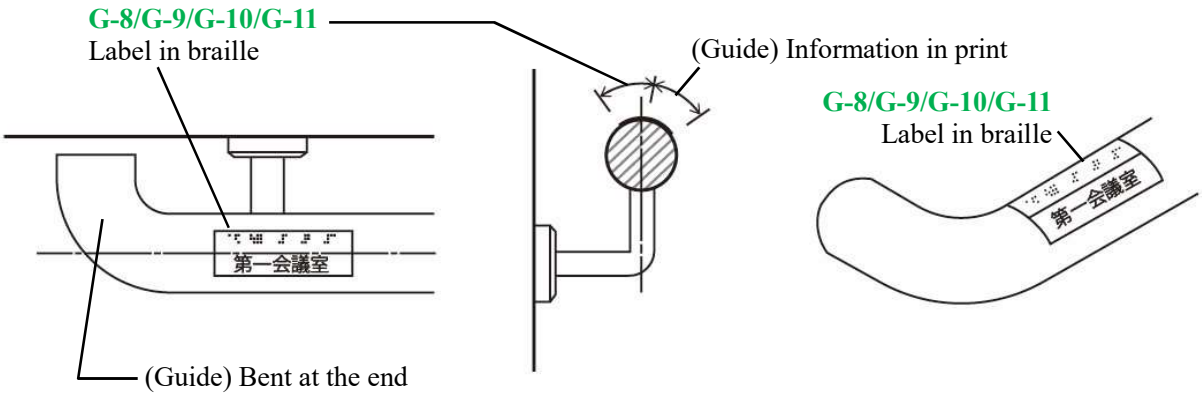


Figure 3.35 Braille labels on handrails

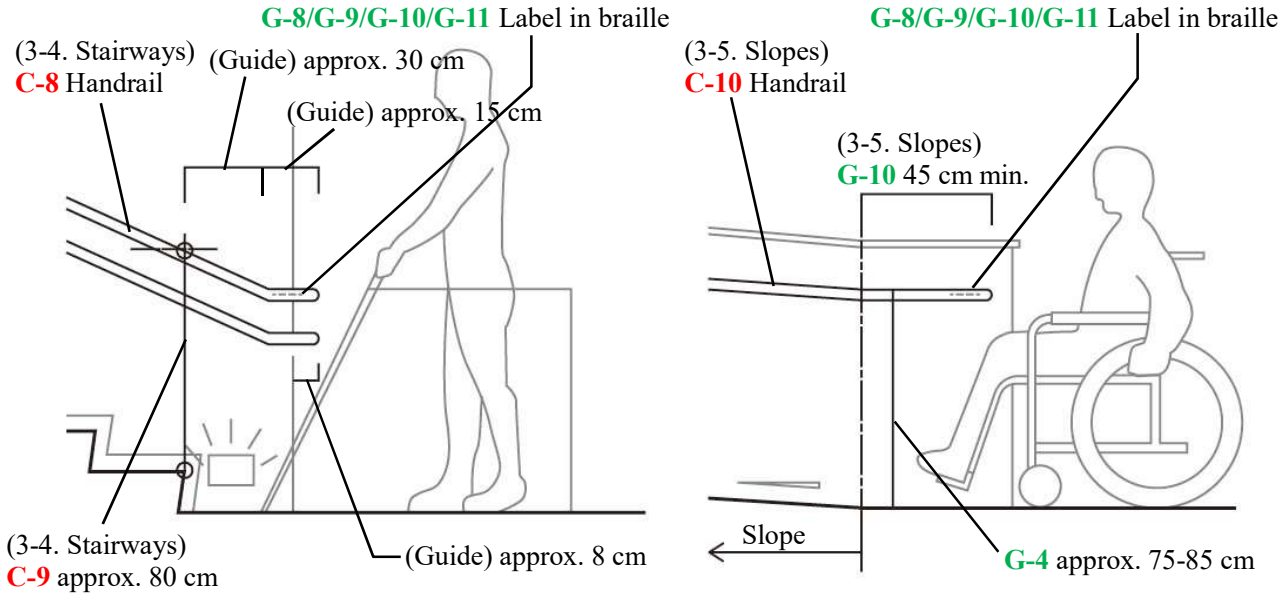


Figure 3.36 Handrails for stairways/slopes

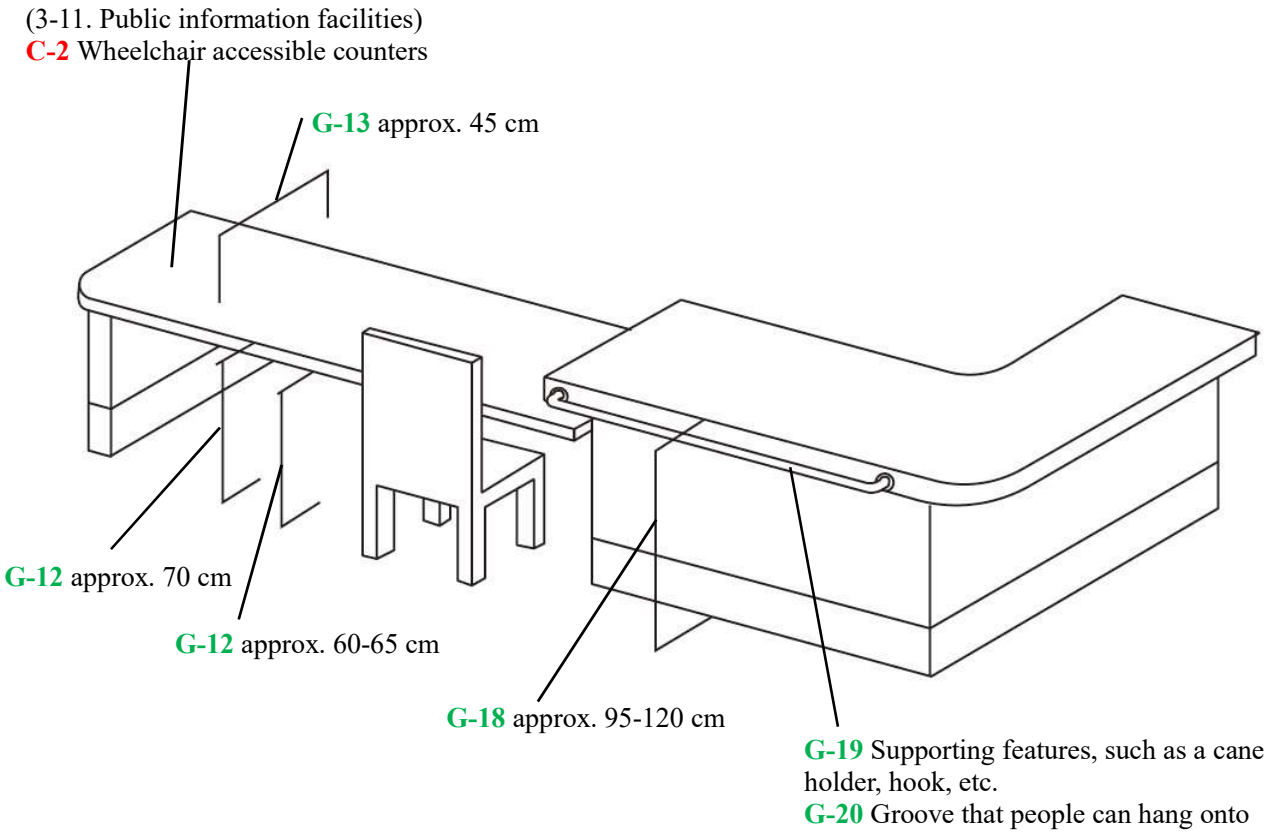


Figure 3.37 Information centre

3-18. Interior design (interior decorations, seats/benches, equipment, and other arrangements)

3-18-1. General guidelines

(Floor finish)

G-1 The floor in a shop or room should have no level changes. Where this is unavoidable, it is desirable that slopes are installed.

(Wheelchair turnaround space)

G-2 It is desirable that one area is secured for a wheelchair to change its orientations.

3-18-2. Wheelchair accessible seats

(Proportions)

C-1 The number of wheelchair accessible seats must be 1 for a venue with less than 100-seat capacity, 2 for a venue with a capacity of up to 400 seats. For venues with more than 400 seats, it is calculated by 2 + (number of seats - 400) / 200.

G-3 It is desirable that the wheelchair accessible seats account for at least 1% of the total seating capacity.

(Locations)

G-4 It is desirable that accessible seats are not fixed, but selectable by, for example, making some ordinary seats removable.

G-5 It is desirable that the routes from the venue doorways to the accessible seats involve no steps (or slopes/lifts are provided).

(Proportion of seats for assisting people)

G-6 It is desirable that there are seats for people who accompany wheelchair users for assistance in the same proportion as the wheelchair accessible seats.

(Locations of seats for assisting people)

G-7 It is desirable that the seats for assisting people are located within or the nearest possible position to the wheelchair accessible seat area.

G-8 It is desirable that these are provided next to the wheelchair accessible seats.

(Configuration)

G-9 It is desirable that seats are removable so that wheelchair accessible seats can be positioned flexibly.

(Size)

C-2 A wheelchair accessible seat space must be 85 cm wide and 120 cm long minimum.

G-10 It is desirable that a wheelchair accessible seat area is 90 cm wide and 120 cm long minimum.

(Adjacent areas)

C-3 Guard rails, etc. must be installed where there are fall hazards. Necessary arrangements must be in place to ensure that the wheelchair user and assisting companion are not inconvenienced.

G-11 It is desirable to provide spaces for wheelchair turnaround in front and rear of these seats.

G-12 It is desirable that spaces are provided for stationing wheelchairs (including electric ones) and/or prams.

G-13 It is desirable that spaces are provided for assistance animals.

(Sightline)

C-4 Good sightlines must be ensured.

G-14 It is desirable that guard rails, handrails, etc. are no higher than 80 cm so they do not obstruct sightlines.

3-18-3. Auditorium

(Path widths)

C-5 Of all passageways in the auditorium that can be used to access wheelchair accessible areas, at least one is 120 cm wide minimum.

G-15 Where there are level changes along passageways in the auditorium, it is desirable that the passageway is at least 120 cm wide and maximum gradient 1:12, with slip-resistant surface.

G-16 It is desirable that passageways in auditoriums are at least 120 cm wide.

(Armrest types)

G-17 It is desirable that the armrests of isle-side seats can be flipped up or turned sideways.

(Seat numbers in braille)

G-18 It is desirable that seat numbers are labelled in prints and braille.

(Facilities to assist heard-of-hearing people)

G-19 It is desirable that the venue provides facilities to assist heard-of-hearing people, such as a collective hearing assistance system (magnetic loop), FM loop (wireless), IR hearing system, subtitles, etc.

(Proportion of enhanced amenity seats)

G-20 It is desirable that enhanced amenity seats (*for those with mobility constraints, except (electric) wheelchair users, people with an assistance animal, oversized people, etc. who require more space than ordinary seats) are provided to account for 1% minimum of the total seat number.

(Seating area identification)

G-21 It is desirable that seating areas are zoned and clearly colour-marked.

(Arrangements for people with children)

G-22 For the accessibility for people accompanying babies/infants, etc., it is desirable to provide a separate auditorium so as not to disturb other visitors.

(Locations of accessible toilets)

G-23 It is desirable that these toiles are located near the auditorium, and the distance between the toilets is 150 cm maximum.

3-18-4. Vicinity of steps in auditoriums

(Arrangements at the top of the flight)

G-24 It is desirable that seats next to steps are fitted with a handle.

(Locations of dot-style textured tiles at the top of the flight)

G-25 It is desirable that the floor adjacent to the top of the stair flight in the auditorium is marked with dot-type textured tiles.

3-18-5. Stage

(Path)

G-26 It is desirable that the path leading to the stage involves no steps (otherwise, provide a platform lift, handrails on the steps).

(Provision of worktop)

G-27 It is desirable that a worktop for note-takers using electronic devices is provided, sufficient for four people to work simultaneously.

(Subtitles/text information)

G-28 It is desirable that a space for setting up a projector and a screen to provide subtitles, text information, etc.

G-29 It is desirable that, where a video screen or scoreboard is involved, measures are in place, such as real-time open caption system, sign language interpreters, and live commentary broadcasting service.

(Arrangements for sign language interpreters)

G-30 It is desirable that the venue is equipped with a spotlight in case a sign language interpreter is employed.

3-18-6. Lockers

(Sizes)

G-31 It is desirable that a locker compartment is approx. 40 cm high.

G-32 It is desirable that lockers for wheelchair users and short people are placed 60-120 cm from the floor.

(Proportion of wheelchair-accessible lockers)

G-33 It is desirable that lockers designed for wheelchair users and short people account for at least 20%.

(Locker number display)

G-34 It is desirable that locker numbers are clearly indicated and labelled in braille.

(Benches)

G-35 It is desirable that, where benches are installed, they are free-standing and not fixed on the floor/ground.

3-18-7. Balconies

(Doorway)

G-36 It is desirable that the doorways are flat and horizontal.

G-37 It is desirable that the doorways are at least 90 cm wide.

G-38 It is desirable that the doorways are level with the adjacent floors wherever it is possible.

(Size)

G-39 It is desirable that balconies are joined together and wide enough for wheelchair users to pass through.

G-40 It is desirable that they have an area size of at least a 150 cm square.

(Floor finish)

G-41 It is desirable that floors have slip-resistant finish, and the skid resistance for horizontal floor or one with a gradient of up to 5% is between 35-45, and for floors with a gradient of more than 5% is 45 or higher.

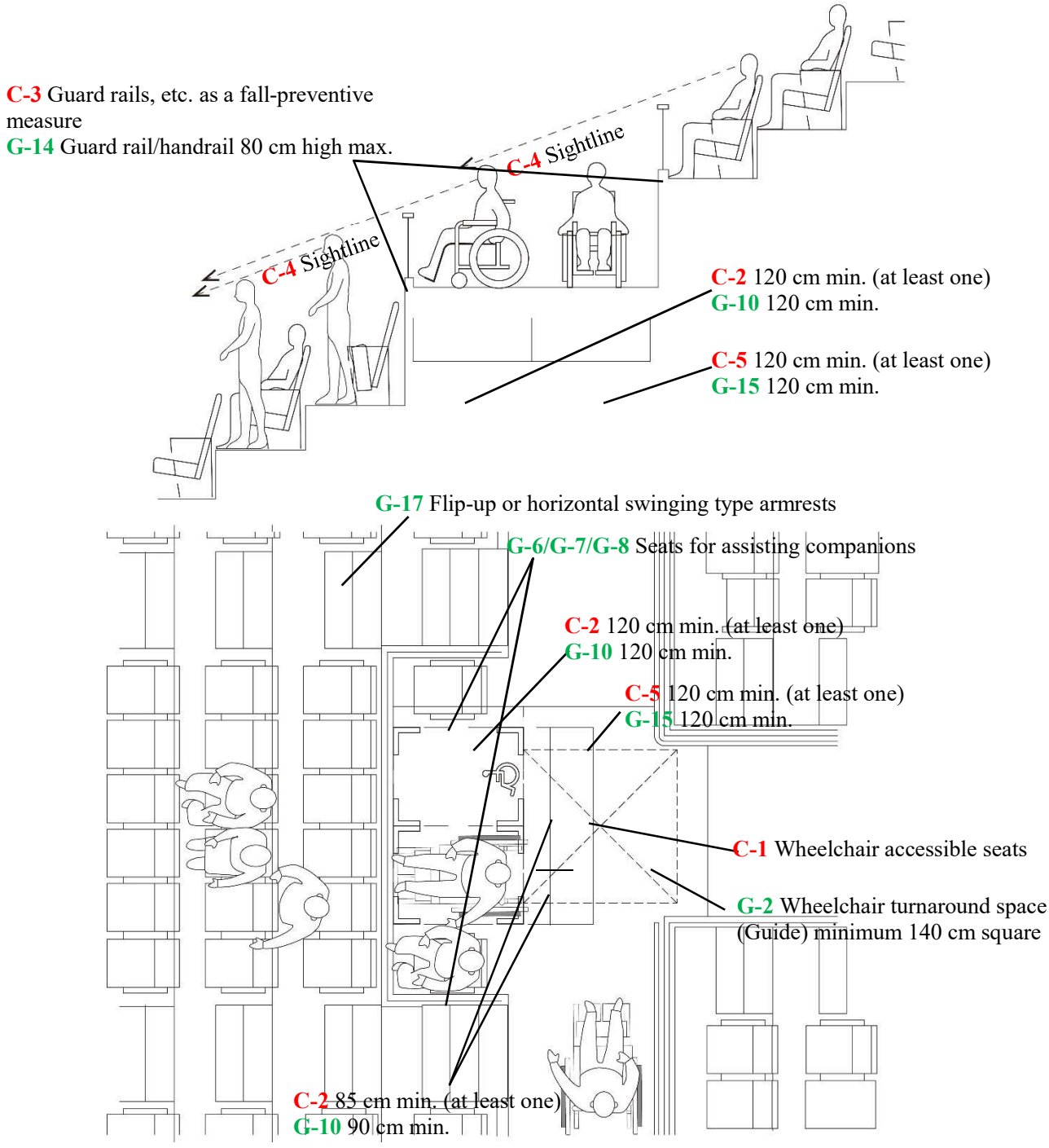


Figure 3.38 Auditorium/seats

3-19. Evacuation facilities, etc.

Necessary design arrangements must be in place by considering the characteristics of the venue users, the use of the place, and emergency protocols, in order to enable senior people, people with disabilities, etc. to evacuate smoothly in case of an emergency.

3-19-1. Emergency routes

(Flowline)

G-1 It is desirable that designated enhanced mobility routes are identical with emergency evacuation routes.

(Level changes along the path)

G-2 It is desirable that the evacuation routes are step-free.

(Provision of evacuation instructions)

G-3 It is desirable that emergency exit lights, travelling flashing lights systems, phosphorescent tiles, etc. are installed along the routes on the floor and/or at the waist level.

3-19-2. Temporary refuge area

(Provision as a principle)

G-4 It is desirable that temporary refuge areas are provided on the stairway landings to be used by wheelchair users while waiting for rescue.

G-5 It is desirable that these are provided in stairways and corridors.

G-6 It is desirable that these areas installed on the second floor or higher have fire-resistant structures and are smoke-tight.

(Size)

G-7 It is desirable that the routes have an effective width of 85 cm minimum.

(Capacity)

G-8 It is desirable that temporary refuge areas are marked clearly. It is also desirable that, where separate refuge spaces are provided on stairways or floors, these are clearly signed on their doorways.

G-9 It is desirable that temporary refuge areas are equipped with two-way communication systems to call for rescue, describe the current situations, etc.

3-19-3. Alarm/communication rooms

(Methods of communication)

G-10 It is desirable that these facilities are adapted to the use by people with visual or auditory impairments.

3-19-4. Fire alarms and fire extinguishers

(Locations)

G-11 It is desirable that these are installed in places accessible to all people, including wheelchair users.

G-12 It is desirable that the equipment can be handled no higher than 110 cm and mounted directly on walls.

(Handling heights)

G-13 It is desirable that the equipment can be handled no higher than 110 cm.

(Features)

G-14 It is desirable that emergency exit lights installed in a building with automatic fire alarm systems have a flash mode and audio guiding feature.

G-15 It is desirable that these lights do not trigger the flash mode or audio guiding when the automatic fire alarms on the path from the lights towards the evacuation points are set off.

3-19-5. Fire doors

(Widths)

G-16 It is desirable that fire doors have an effective width of 80 cm minimum.

(Styles)

G-17 It is desirable that fire shutters are designed to ensure the safety of wheelchair users, etc.

3-19-6. Emergency exits

(General guidelines)

G-18 It is desirable that alcoves are installed in front of emergency exit doors.

3-19-7. First aid rooms

(Locations)

G-19 It is desirable to provide escape routes accessible for wheelchair or mobility aid users.

G-20 It is desirable that these facilities have doors that are easily operated by anyone, and are situated in the passageway in front of the treatment rooms.

(Methods of communication)

G-21 It is desirable that these facilities are adapted to the use by people with visual or auditory impairments.

(Features)

G-22 It is desirable that examination benches are height adjustable and have wheels with stopper.

G-23 It is desirable that accessible toilets are located nearby.

G-24 It is desirable that these facilities are equipped with a table large enough to serve as a changing bench for adult use.

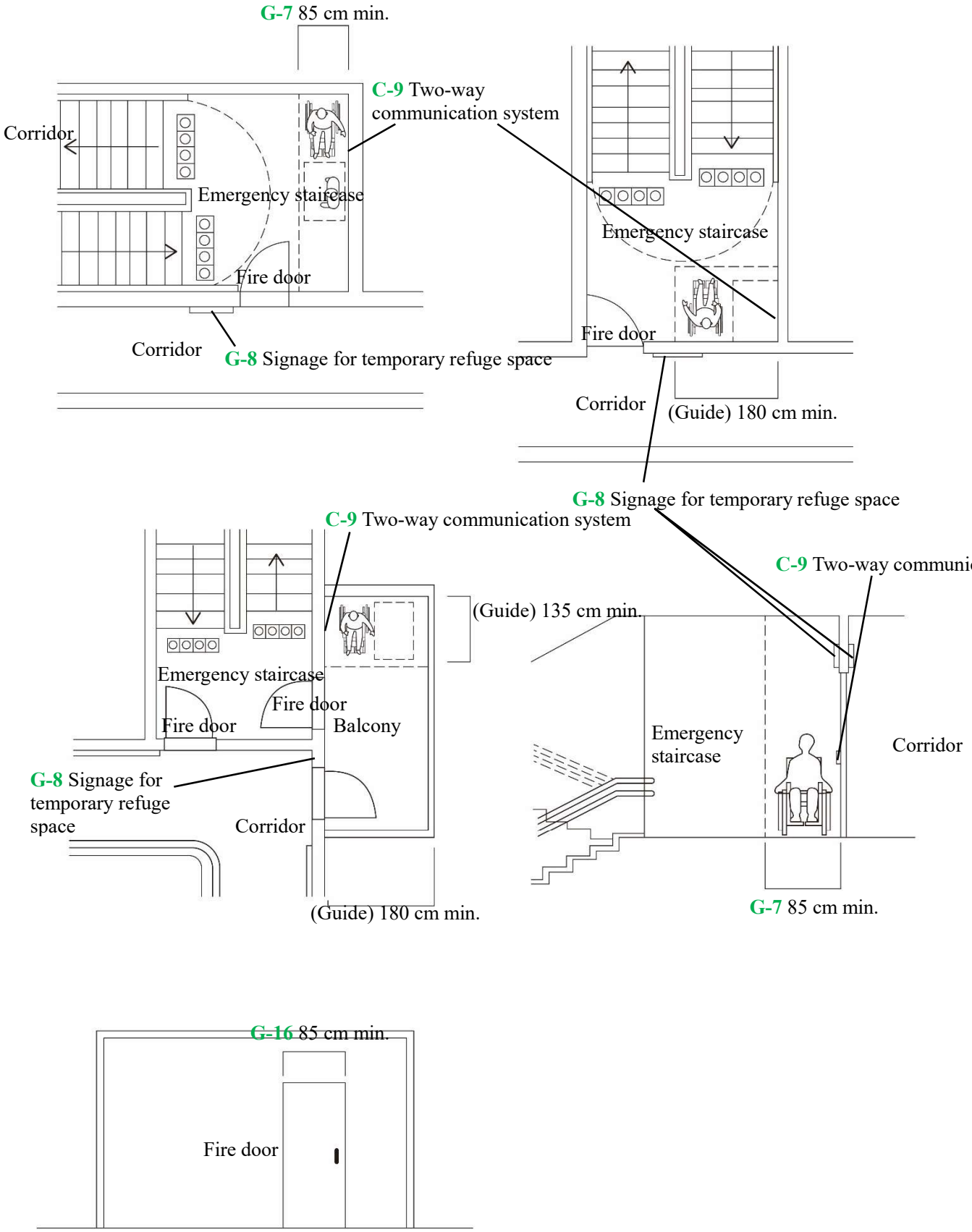


Figure 3.39 Illustration of temporary refuge space

3-20. Infrastructure (car parks, bike parking, access zones, etc.)

3-20-1. Car parks

(Arrangements for carriageway-footpath crossing)

G-1 It is desirable that footpaths, carriageways, and site boundaries are step-free.

3-20-2. Accessible parking spaces

(Provision as a principle)

C-1 Where car parks are provided, at least one of them must have no fewer than one parking space which wheelchair users can have easy access to.

C-2 Where there are 20 parking spaces or more, at least one of them is reserved for a car with wheelchair users.

G-2 It is desirable that car parks with up to 200 vehicle capacity make at least 2% of the total parking spaces wheelchair accessible, and those with more than 200 vehicle capacity make at least 1% of the total capacity plus 2 spaces for this purpose.

(Design principles)

C-3 Accessible parking spaces must be located so that the paths to rooms are as short as possible.

(Dimensions of the zone)

C-4 The width must be at least 350 cm.

G-3 It is desirable that lengths of accessible parking spaces take vehicle types into account, from small cars to coaches.

(Horizontality of access zone)

C-5 The floor/ground must be horizontal.

G-4 It is desirable that an accessible parking space and its access zone are horizontal.

(Direction of access)

G-5 It is desirable that access zones are provided on both sides of the parking space.

(Required signage)

C-6 Signage must be installed as necessary to guide vehicles from the car park entrance to the parking areas.

G-6 It is desirable that signage is installed at the car park entrances to indicate that accessible parking spaces are provided.

G-7 It is desirable that signage is installed to guide vehicles from the car park entrances to the accessible parking spaces.

(Application of the international symbol of access)

C-7 Accessible parking spaces must be indicated by applying the signs (the international symbol of access), signifying that it is for the vehicles with wheelchair user(s) onboard.

G-8 It is desirable that the parking area of an accessible parking space is painted in blue, the access zones are painted with hatched lines, and the international symbol of access is large.

(Provision of roofs/eaves)

G-9 It is desirable that roofs or eaves are provided.

3-20-3. Bike parking

(Provision as a principle)

G-10 It is desirable that bike parking is installed free from stairs or steep slopes in the vicinity.

G-11 It is desirable that these are provided outside enhanced mobility routes.

3-20-4. Access zones

(Level changes along the path)

G-12 It is desirable that the kerb is approx. 15 cm high (compatible with ultra-low-floor buses).

G-13 It is desirable that, if there are level differences between a footpath and access zone, at least one sloping kerb is provided.

(Lighting)

G-14 It is desirable that lighting facilities have the luminosity of at least 60 lx.

(Guiding tiles for people with visual impairment)

G-15 It is desirable that these (dot-type) tiles are installed along the length of the access zone, 30 cm away from the kerb stones.

3-20-5. Junctions between carriageways and footpaths

(Level changes along the path)

G-16 It is desirable that footpaths, carriageways, and site boundaries are step-free.

(Cross slope in junctions)

G-17 It is desirable that the cross slope in junctions is 1:50 maximum (recommended 1:100 max.).

3-20-6. Crosswalks

(Widths)

G-18 It is desirable that crosswalks are at least 4 m wide (where this is impossible, no narrower than 3 m). This guideline, however, does not apply where the crosswalk needs to be the same width as the adjacent footpath width to ensure continuity.

3-20-7. Traffic lights

(Methods of alerting)

G-19 It is desirable that crosswalks with traffic lights are supported by visual and auditory alerts. (Including human support)

G-20 It is desirable that the sound of alert is audible for the duration required for a person to cross the road at 0.6 m/s.

G-21 It is desirable that the sound alert is coordinated with flashing green light.

3-20-8. Telephone stands (public telephone)

(Features)

C-8 The stands must be labelled in braille, and the telephone must have a volume control feature.

(Arrangements for wheelchair users)

C-9 At least one telephone stand must be designed with wheelchair users in mind and has leg-space clearance, and the phone booth must provide sufficient space for easy wheelchair manoeuvres inside.

(Locations)

G-22 It is desirable that these are provided within 1.2 m from enhanced mobility routes.

(Ensuring identifiable arrangements)

G-23 It is desirable that these are painted in the colours that have the differential brightness of at least 30 degrees with the surrounding pavement colours.

(Handling heights)

G-24 It is desirable that the telephone stands are designed so that the centre of the telephone and push buttons on it come to 90-100 cm above the floor.

(Clearance under telephone stand)

G-25 It is desirable that a telephone stand has a clearance underneath, measured approx. 70 cm high and approx. 45 cm deep, so that wheelchair users can easily have access to the telephone.

G-26 It is desirable that a telephone stand does not have a phonebook holder, compartment, etc. under the top board.

(Installation of shelves)

G-27 It is desirable that chairs and shelves for personal items are provided.

3-20-9. Ticketing machines, ATMs, etc.

(Adjacent areas)

C-10 There must be no steps (prohibited) that obstruct the passage of wheelchair users.

(Style of buttons)

C-11 Buttons must be push buttons with necessary arrangements for people with visual impairment.

G-28 It is desirable that buttons are push buttons.

(Methods of information accessibility)

C-12 Information about the guidance of use must be made accessible to people with visual impairment by means of braille and voice instructions.

G-29 It is desirable that these facilities are equipped with instructions in braille and a voice instruction system.

G-30 It is desirable that payment machines are equipped with a display and voice instruction system.

(Handling heights)

G-31 It is desirable that ticketing machines, payment machines, etc. are installed in such a way that they are easily accessible for people with hand problems and wheelchair users in terms of locations, heights, etc.

(Clearance under the machines)

C-13 The machines must have appropriate clearance underneath for easy access by wheelchair users.

(Provision as a principle)

G-32 It is desirable that ticketing/payment machines are arranged so that people on the passenger side can also operate them.

(Provision of monitors)

G-33 It is desirable that ATMs are equipped with a two-way communication system that is also accessible to people with auditory impairment, such as by having a monitor.

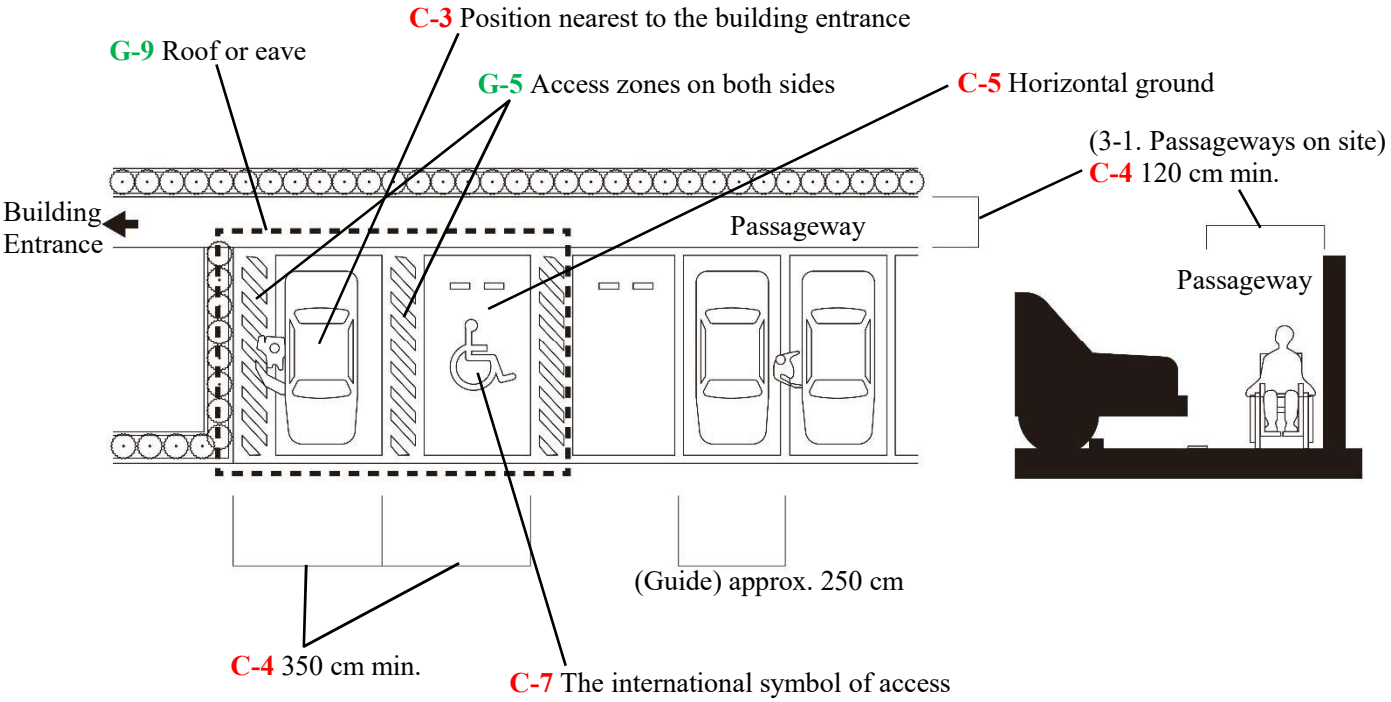


Figure 3.40 Car parks

4. About submission of checklists

Participant are required to submit the checklists concerning the universal design. The checklist to be submitted is the [Form No. 2] Itemised list of preliminary consultation agendas for buildings of special designation, issued by the Osaka Municipal Government through the preliminary consultation on buildings based on the municipal government's Guidelines for Accessible Urban Planning (https://www.city.osaka.lg.jp/toshikeikaku/page/0000481667.html) (in Japanese), and a copy of the list that is submitted to the Osaka City must be submitted if the building falls under the building category that requires a preliminary consultation.

For the details regarding the submission/application of Type A Pavilion design plan (self-construction on site), see 'the guidelines for designing Type-A pavilion (self-construction on site).'

5. References/relevant literature

Reference materials and other relevant literature to the preparation of the Guidelines are listed below. Use the links (in Japanese) provided under 1-5. Compliance with laws and regulations for the details of these texts and documents.

5-1. References

- Osaka Prefectural Ordinance on Welfare Communities Guidelines
- Osaka Municipal Government Guidelines for Accessible Urban Planning

5-2. Relevant literature

- Act on Promotion of Smooth Transportation, etc. of Elderly Persons, Disabled Persons, etc. (Accessibility Improvement Act)
- Osaka Prefectural Ordinance on Welfare Communities Guidelines
- Osaka Municipal Government Guidelines for Accessible Urban Planning

Contact:

Please use the Queries function on the Participant Portal to send your enquiries about guidelines and procedures or any other questions. If you have difficulty in using the Participant Portal, please contact us via email to participant@expo2025.or.jp (or any of our other email addresses).

Japan Association for the 2025 World Exposition