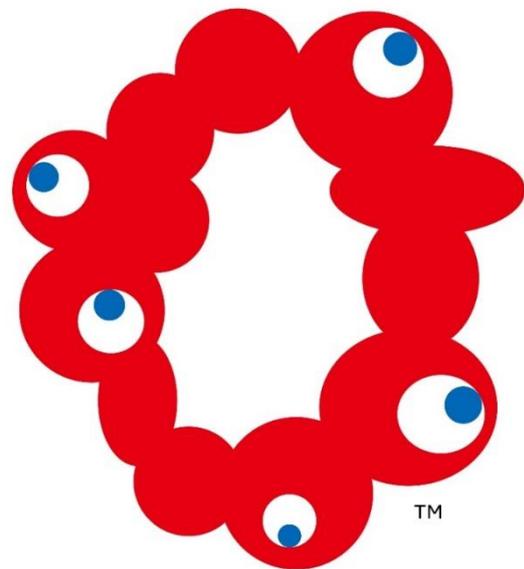


# Universal Design Guidelines for Facility Implementation



OSAKA, KANSAI, JAPAN

**EXPO**  
**2025**

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## Introduction (background to the revision)

With the event theme “Designing Future Society for Our Lives” and based on the venue design concept “Unity in Diversity,” the Expo 2025 Osaka, Kansai, Japan aspires to realize a universal design that is inclusive for all visitors coming from around the world, regardless of their background such as nationality, culture, race, gender, generation, and physical or otherwise disability.

For this reason, the organiser, that is the Japan Association for the 2025 World Exposition, prepared and published the *Universal Design Guidelines for Facility Implementation* (hereinafter referred to as “the UD Guidelines”) in July 2021, aiming to provide participating national governments, enterprises, etc. with common standards concerning the implementation of facilities on the Expo site in order to ensure an accessible and convivial environment for all visitors. The original UD Guidelines were based on the regulations provided for in the *Act on Promotion of Smooth Transportation, etc. of Elderly Persons, Disabled Persons, etc.*, *Osaka Prefectural Ordinance on Welfare Communities*, and *Osaka Municipal Government Guidelines for Accessible Urban Planning*, as well as some recommendations based on the characteristics of the Expo as an international event.

To implement a comprehensive revision of the UD Guidelines, every detail was reviewed from the perspectives of “equity,” “dignity”, and “functionality,” that are set forth as fundamental principles of the Accessibility Guide by the International Paralympic Committee, discussed with participation of people with disabilities in various forms, including physical (auditory, visual, and physical impairments), intellectual, psychological, and developmental, to enhance the accessibility of the Expo site for all visitors. The revision reflected these people’s viewpoints while taking into consideration the Accessibility Guidelines adopted for the Tokyo 2020 Olympic and Paralympic Games, aiming to achieve the universal design that meet the international standards.

In order to realise such universal design at the Expo, the Organiser shall pursue the implementation of the Expo site according to the revised UD Guidelines, and Participants shall comply with these Guidelines as they design and construct their pavilions etc. Furthermore, it is anticipated that the revised UD Guidelines will be proactively adopted for community development by a diversity of people, including those who are not directly involved in the Expo, to promote universal design in urban planning in the world, building on the success of the Expo as its legacy.

[Reference: the theme of the 2025 World Exposition (the Expo 2025 Osaka, Kansai, Japan)]

The theme “Designing Future Society for Our Lives” makes individuals think how they want to live and how they can maximise their potential. It is also intended to drive co-creation by the international community in designing a sustainable society that supports individuals’ ideas of how they want to live.

The venue design concept “Unity in Diversity” aspires to bring about a place for union between diverse cultures and lifestyles from all over the world, allowing people to celebrate rich diversity and, at the same time, experience connection beyond the divisive world, so that visitors will be able to experience unity in diversity and one world shared by innumerable diverse beings.

## **1. Introduction**

### **1-1. Purpose of the UD Guidelines**

These Guidelines provide for common standards of, and approaches to, the on-site facility implementation to ensure that the Expo venue facilitates all visitors, regardless of their background such as nationality, culture, race, gender, generation, disability, etc., to be able to circulate along the same routes, enjoy themselves without having anxieties or inconveniences, appreciate various exhibitions and events, and, in an emergency event such as a fire, safely evacuate from the venue with a help of accurate and timely information.

### **1-2. Basic approach to universal design at the Expo**

#### **1) Aspiring to an accessible and inclusive society, leaving no one behind**

The Expo 2025 Osaka, Kansai, Japan shall aspire to design a “Future Society for Our Lives” as stated in the Expo theme and pursue the implementation and operation of the universal design to realise an “accessible and inclusive exposition.”

To achieve this, it adopts the basic principles of accessibility and inclusion, aiming for building “an inclusive society that leaves no one behind”,<sup>\*1</sup> in which all people, regardless of the nationality, culture, race, gender, generation, and disability, respect each other’s human rights and dignity, support one another, and enjoy meaningful lives, removing boundaries attributed to individual circumstances and conditions, such as disabilities.

#### **2) Aiming to create higher standards for universal design reflective of an accessible and inclusive exposition**

The Expo 2025 Osaka, Kansai, Japan will be attracting many people and materials from across the world, offering a forum of worldwide knowledge to address various global issues. In order to make the venue embody an accessible and inclusive exposition inspired by one of the UN sustainable development goals (SDGs), “Leave no one behind,” the Universal Design 2020 Action Plan (adopted in 2017), Tokyo 2020 Accessibility Guidelines, and other initiatives hitherto pursued are positively considered, reviewed in view of the Expo, and further developed in the UD Guidelines.<sup>\*2</sup>

#### **3) Basic principles of accessibility and inclusion behind the UD Guidelines**

The basic principles behind the UD Guidelines are equity, dignity, and functionality, that form the principles of the IPC’s Accessibility Guide.

##### **Equity**

We will ensure that all people can enjoy the same standards of services regardless of their individual physical and functional states.

All visitors will be able to share the same levels of experiences, enjoy the same levels of privacy, and be provided with the same levels of safety and security through the arrangements of appropriate design and operation plans for the Expo venue and trained staff/volunteers, etc.

### **Dignity**

We will respect all people who use the Expo facilities and services, ensuring that the Expo operation will not compromise their dignity as individuals.

The plans concerning the design of the venue and operation of the Expo will be developed to offer diverse options so that visitors can choose one that suits their capacities and conditions.

### **Functionality**

The facilities and services offered on the Expo site will ensure to meet the needs of all stakeholders, including people with disabilities.

## **4) Inclusion of people with disabilities in the evaluation and integration of their viewpoints: active promotion of universal design workshops**

“Nothing about us, Without us!” is a widely recognised slogan of the Convention on the Rights of Persons with Disabilities. An effective way to develop facilities that offer benefits to people affected by disabilities or other forms of social barriers is to pursue facility implementation through the evaluation by people with disabilities and integration of their viewpoints, for example by holding universal design workshops with participation of diverse people with disabilities. It is positively recommended that the “accessible and inclusive exposition” takes an approach of accessibility and inclusiveness right from the preparatory phases to ensure the participation of diverse people with disabilities and integrate their viewpoints.

\*1: It is based on the following points:

- with reference to the principles underlying the Convention on the Rights of Persons with Disabilities, it is recognised that all people regardless of disabilities must be able to enjoy fundamental human rights and are acknowledged as social participants, in order to realise an inclusive society;
- it is mandatory that all people never discriminate people with disabilities (including unjustifiable discriminatory treatment and lack of reasonable considerations); and
- “disabilities” are created through an interaction between physical/psychological impairments and social barriers, and it is encouraged to pursue initiatives based on the social model of disability, which holds society to be responsible for removing social barriers.

\*2: Relevant models

- “Access is a basic human right,” IPC Accessibility Guide (2013)
- Aspiring to an inclusive society, the Convention on the Rights of Persons with Disabilities (adopted in 2006, approved by the Government of Japan in 2014)
- Realisation of “Society that leaves no one behind,” the sustainable development goals (SDGs) (adopted by the 2015 UN summit in September 2015)

### 1-3. Structure of the UD Guidelines

The UD Guidelines comprise the following five chapters:

- 1. Introduction  
The purpose of the guidelines, the implementation policies of the universal design at the Expo, and the laws and regulations to be complied with are described.
- 2. Approaches of the UD Guidelines  
The scope of applicability, approaches to the standards, standard dimensions, etc. pertaining to the guidelines are stated.
- 3: Items and descriptions  
Details of each guideline are described, concerning the planning conditions etc. for the universal design to be adopted in the implementation of pavilions and other facilities on the Expo site.
- 4: Management and procedures of the UD Guidelines  
The management and procedures concerning the UD Guidelines are explained for Participants.
- 5: References/relevant literature  
Reference materials and other relevant literature to the UD Guidelines are listed.

### 1-4. Compliance with laws and regulations

In pursuing the planning, designing, and construction of pavilions and other facilities on the Expo site, relevant Japanese laws, prefectural and municipal ordinances of Osaka, and other regulations shall be complied with. Furthermore, informative latest examples of guidelines from Japan and the world, such as the following, shall be consulted:

#### ■ Relevant laws and regulations

- 1) 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>
- 2) Basic Act for Persons with Disabilities  
(e-Gov Law Search Engine) <https://elaws.e-gov.go.jp/document?lawid=345AC1000000084>
- 3) Act for Eliminating Discrimination against Persons with Disabilities  
(e-Gov Law Search Engine) <https://elaws.e-gov.go.jp/document?lawid=425AC0000000065>
- 4) 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>
- 5) 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](http://www.pref.osaka.lg.jp/kenshi_kikaku/fukushi_top/jigyosya-muke.html)
- 6) 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>

#### ■ Reference standards

- 1) *Architectural Design Standards Taking into Consideration Smooth Use by Elderly People and Persons with Disabilities* (March 2021)  
(Ministry of Land, Infrastructure, Transport and Tourism official website) [https://www.mlit.go.jp/jutakukentiku/jutakukentiku\\_house\\_fr\\_000049.html](https://www.mlit.go.jp/jutakukentiku/jutakukentiku_house_fr_000049.html)
  - 2) IPC Accessibility Guide  
(Japan Paralympic Committee official website) <https://www.parasports.or.jp/paralympic/what/data.html>
  - 3) Tokyo 2020 Accessibility Guidelines  
(Tokyo 2020 official website) <https://www.tokyo2020.jp/ja/organising-committee/accessibility/index.html>
- Other guidelines, including this UD Guidelines, and documents designated by the Organiser, as well as other standards relevant to specific plans, must also be consulted and complied with.

## **2. Approaches of the UD Guidelines**

### **2-1. Scope of applicability of the UD Guidelines**

The UD Guidelines shall be applicable to the facilities (pavilions etc.) implemented by participating countries, international organisations, and corporate entities. Facilities on the Expo site shall be distinguished by the areas used by visitors and those used for the management and servicing purposes. The UD Guidelines shall only relate to the areas used by visitors, while the areas used for the management purposes, which are out of bounds for visitors, shall be arranged separately by participating countries etc. as necessary.

### **2-2. Visitor needs that require special attention**

To create a site with considered universal design, it is important to plan/design based on precise understanding of the attributes of visitors, as well as various laws, regulations, and guidelines, to ascertain that a diversity of needs will be catered for. Some of the attributes are as follows:

#### **Persons with difficulties in mobility**

People are more likely to have difficulties in walking as they age, becoming partially or totally unable to walk and in permanent or frequent need to use a wheelchair. Architectural structures and equipment that neglect the needs of wheelchair users may pose a considerable barrier. By contrast, providing sufficiently wide passageways, entrances/exits, toilets, lifts, seating areas, etc. will create an environment that is considerate not only of wheelchair users but also people accompanied by guiding helpers, pregnant people, people accompanying babies or infants, and other individuals who require spaces for more than one person.

Considerations are also required for those who need to use canes or other devices to assist with walking and have difficulties in walking long distances, persons with invisible, psychological, or developmental impairment, pregnant people, and people accompanying babies/infants, by ensuring shortest possible routes or providing equipment for resting in order to avoid standing up for an extended period, separate spaces for peaceful moments (to calm down or cool down), etc.

Also required is the consideration for assistance animals accompanying persons who need them.

#### **Persons with difficulties in manipulation and other manual tasks**

Considerations are required in the arrangements of door handles and buttons to operate lifts, toilet facilities, ticket machines, etc. for those who have physical impairments in their upper limbs and whose physical abilities, such as muscular strengths, are limited.

#### **Persons with difficulties in obtaining visual information**

People with visual impairment (completely blind, with severely impaired visual acuity (low vision), etc.) need support through indications in braille, auditory data, tactile maps, high-contrast signage, enlarged prints and other alternative forms of printed information, use of low-reflective materials, etc.

Considerations are also required for guiding animals accompanying persons who need their assistance.

#### **Persons with difficulties in obtaining auditory information**

People with auditory impairment need support through writing pads, transcription services, communication boards, etc. They may also need captioning in order to meaningfully enjoy exhibitions, stage performances, and theatre programs.

Not a few people with hearing impairment can benefit from hearing assistance equipment such as a hearing loop system, and this must be given appropriate considerations.

Considerations are also required for hearing animals accompanying persons who need their assistance.

## **Sign language users**

Sign language speakers (or interpreters) are required to communicate with persons whose main means of communication is sign language.

## **Persons with special needs in communication and comprehension**

People with cognitive impairment, psychological difficulties, developmental disabilities, etc. need support through clear and slow oral communication, succinct texts, illustrations/pictograms easy to understand, etc.

These modes of support are also required by persons who have difficulties in expressing themselves, learning new things, comprehending the surroundings, keeping time and space orientation, etc. due to certain reasons (illness, accident, etc.) or personal attributes.

Furthermore, the Expo staff and volunteers need to understand diverse situations in which communication is potentially restrained and undergo training to competently provide services in such situations.

A special attention is required to cater to the needs of persons with invisible impairment (cognitive, psychological, or developmental impairment, people in early stages of pregnancy, etc.) and of those who are unable, for a variety of reasons, to autonomously identify staff members and seek assistance from them.

## **Persons with diverse needs who would benefit from considered arrangements**

An accessible and inclusive environment is also helpful for individuals who have the following needs:

- Persons suffering from an intractable or temporary disease: people using an electric wheelchair or carrying a chargeable oxygen cylinder find it easier to have electric sockets installed on auditorium seats, in rest areas, etc. Ostomy bag users find it helpful if toilets have special purpose equipment (a sink of appropriate size, form, and height designed for emptying the pouches, and a faucet designed for cleaning them). Also, individual toilet spaces with considerate equipment (such as a shelf, hooks, etc.) or hygienic spaces provided outside the toilet facilities can be useful for persons who need periodical self-injections.
- Persons with injuries, such as sprained ankles, fractured bones, etc.
- Elderly people
- People living with dementia
- People in pregnancy or accompanying babies/infants
- Children
- Non-Japanese speakers
- LGBTQ people: individuals who identify themselves with a sexually minority group, such as lesbian (homosexual women), gay (homosexual men), bisexual, trans-gender (whose gender identity differs from the sex that they were assigned at birth), questioning (individuals who are unsure or indeterminate of their sexual orientation, identity, or gender), etc.
- People carrying large and heavy luggage
- Persons requiring a company of carers/service animals etc. for certain reasons
- First aid workers and other personnel on emergency call
- People who have never before been to the Expo site, pavilions, etc.
- People who do not possess a smartphone or other mobile devices

## 2-3. Approach to standards

The UD Guidelines provide guides to the design of pavilions and other on-site facilities in two categories of standards, **Guide** and **Control**.

It is not sufficient only to satisfy the minimum necessary standards in order to address a multitude of barriers that confront people with disabilities and others who require an accessible environment. For integrating needs of communities and implementing an “accessible and inclusive exposition,” it is desired that each stakeholder involved in the planning, designing, and constructing facilities proactively adopts the Guide category standards in these UD Guidelines. Where the adoption of Guide standards is realistically impossible, the Control standards must at least be met.

Note that, in Chapter 3 Items and descriptions, these guideline categories are indicated in codes comprising an alphabet and number, as shown below:

**G0-00 Guide** indicates a “desirable” item and is defined as a standard that desirably be met in order to realise safer and smoother mobility for visitors as well as enhance convenience and provide comfort in the use of the facility.

[Basis of these standards]

These standards are formulated based on comprehensive consideration of the *Recommended standards in the Tokyo 2020 Accessibility Guidelines*, the standards stated in the *Desirable facility development according to Prefectural Ordinances of Osaka etc.*, the design standards (preferred) stated in the *Architectural Design Standards Taking into Consideration Smooth Use by Elderly People and Persons with Disabilities (March 2021)*, and opinions of participating people with disabilities.

**C0-00 Control** indicates an item that should or must be ensured and is defined as a standard that should be complied with regardless of legal obligations.

[Basis of these standards]

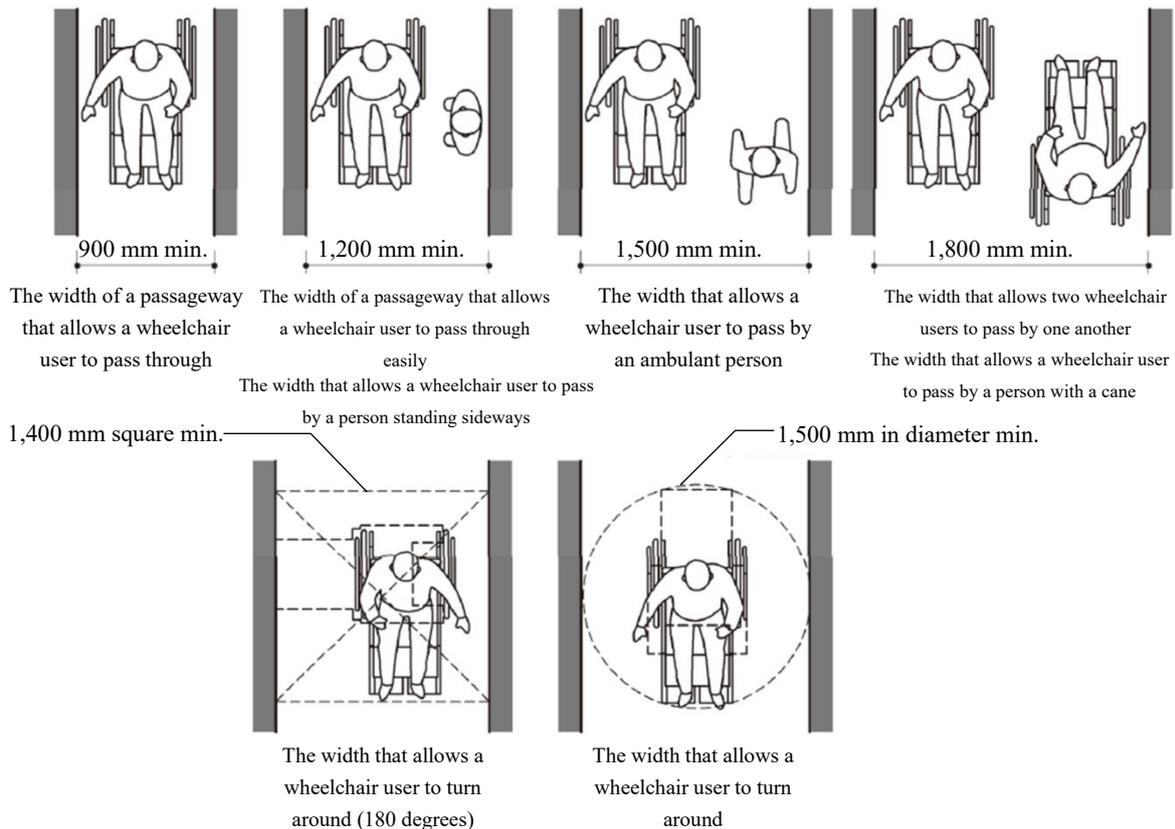
These standards are formulated based on the highest possible standards observed in the *General standards in the Tokyo 2020 Accessibility Guidelines*, *Standards recommended by the national government*, and *Facility development standards (preferred implementation) by Prefectural Ordinances of Osaka that are more strict than the National Government’s mandatory standards*, in addition to legally enforced standards.

## 2-4. Basic dimensions, etc.

The basic dimensions used in the UD Guidelines are explained as follows:

Table 2.4.1 Major dimensions and definitions

Dimensions	Definition
800 mm	The width that allows a wheelchair to pass through
900 mm	The width that allows a wheelchair to pass through easily The width of a passageway that allows a wheelchair to pass through
1,200 mm	The width of a passageway that allows a wheelchair to pass through easily The width that allows a wheelchair user to pass by a person standing sideways The width that allows a person with a cane can pass smoothly
1,400 mm	The width that allows a wheelchair user to turn around (180 degrees) The width of a stairway that allows a person with a cane to travel smoothly
1,500 mm	The width that allows a wheelchair user to turn around The width that allows a wheelchair user to pass by an ambulant person
1,800 mm	The width that allows a wheelchair user to turn around easily The width that allows two wheelchair users to pass by one another



Source: *Architectural Design Standards Taking into Consideration Smooth Use by Elderly People and Persons with Disabilities* (March 2021), the Ministry of Land, Infrastructure, Transport and Tourism

Figure 2.4.1 Dimensions adapted to wheelchair passage

1) Senior visitors

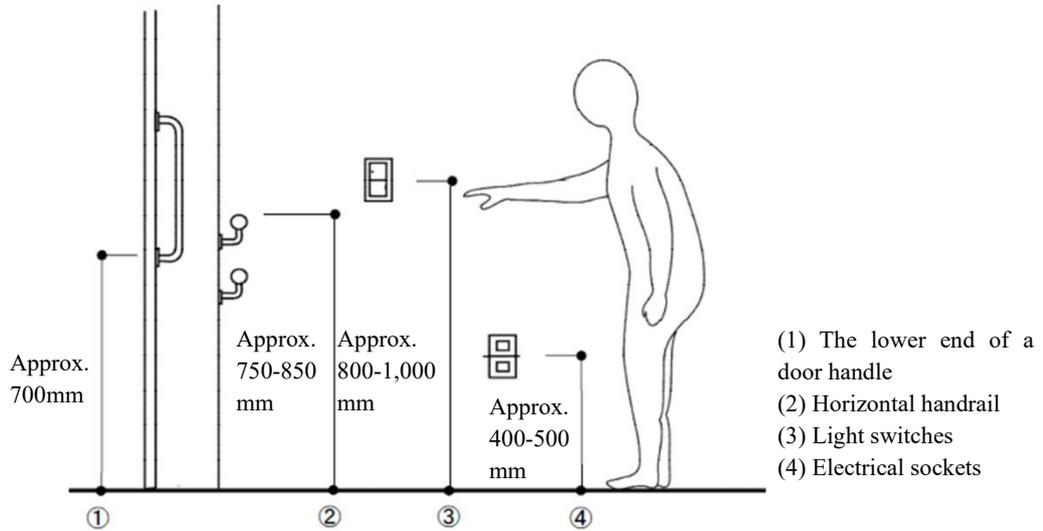


Figure 2.4.2 Accessible heights for elderly people

2) Persons with difficulties in mobility

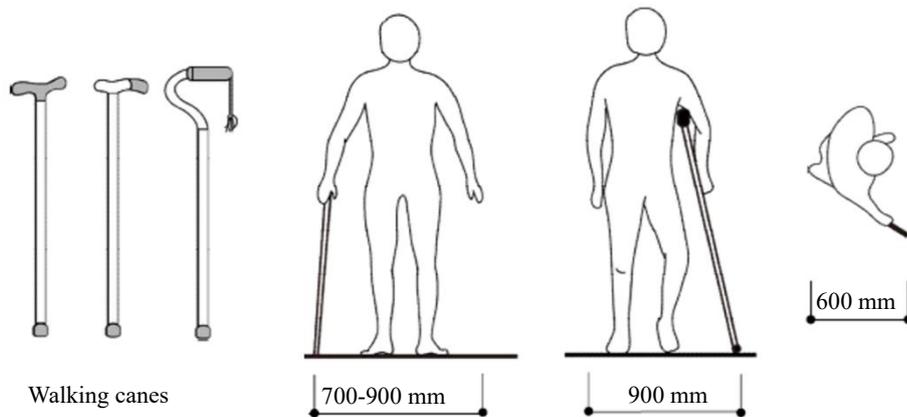


Figure 2.4.3 Spatial measurements required for a person with a cane

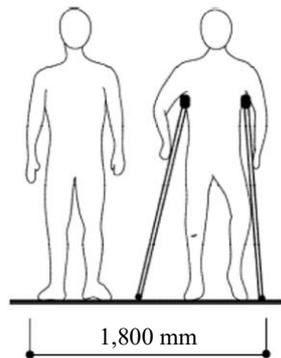


Figure 2.4.4 Spatial measurements required for an ambulant person and a person with crutches side by side

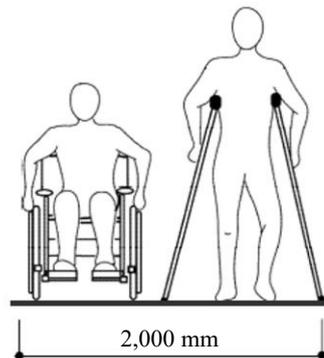


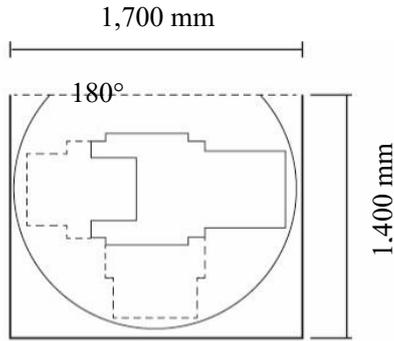
Figure 2.4.5 Spatial measurements required for a person with crutches and a wheelchair user side by side

Source: *Ordinance on Welfare Urban Planning: A Guide to Facility Implementation and Management (public facilities)* (April 2019), Prefectural Government of Hyogo

3) Wheelchair users

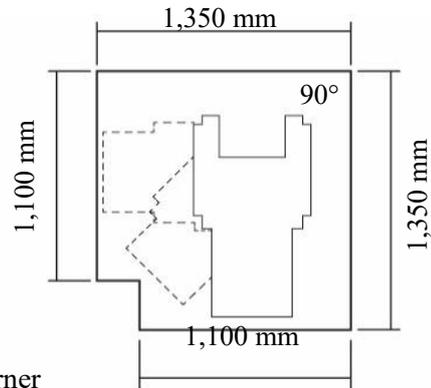
① Minimum space required to manoeuvre a hand-operated wheelchair

■ 180-degree turn (pivoted on the centre of wheel)

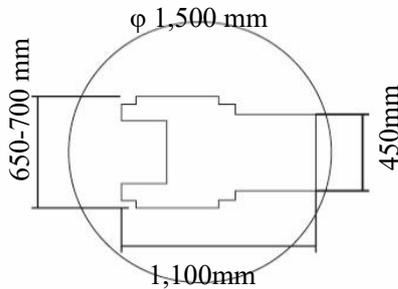


■ Minimum dimension for rotation

■ 90-degree turn (pivoted on the centre of wheelchair axle)

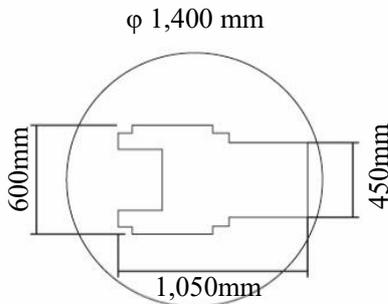


■ Right-angle corner



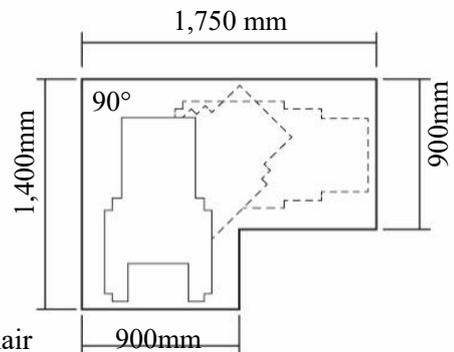
② Minimum space required to manoeuvre an electric wheelchair

■ 360-degree turn (pivoted on the centre of wheel)



■ Right-angle corner (outdoor passageway)

■ 180-degree turn (pivoted on the centre of wheelchair axle)



■ U-turn

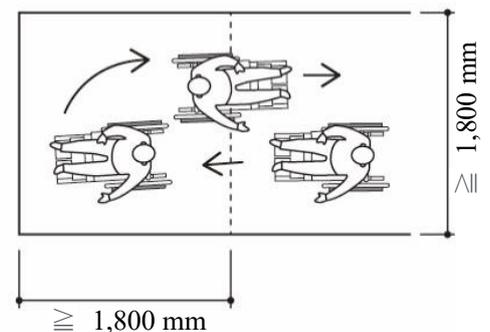
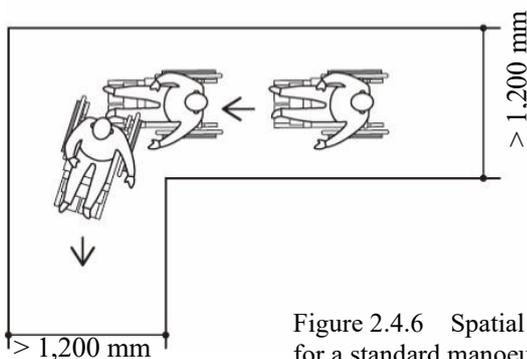
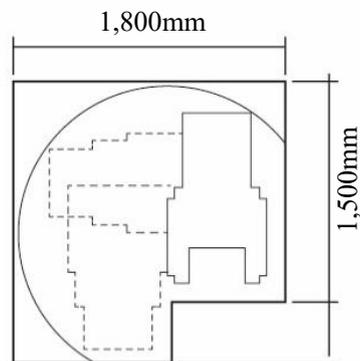


Figure 2.4.6 Spatial measurements required for a standard manoeuvre of a wheelchair

Source: *A Guide for Handicap-aware Designs—Architectural Design Planning Pamphlet No. 26* by the Architectural Institute of Japan (1984), published by Shokokusha Publishing

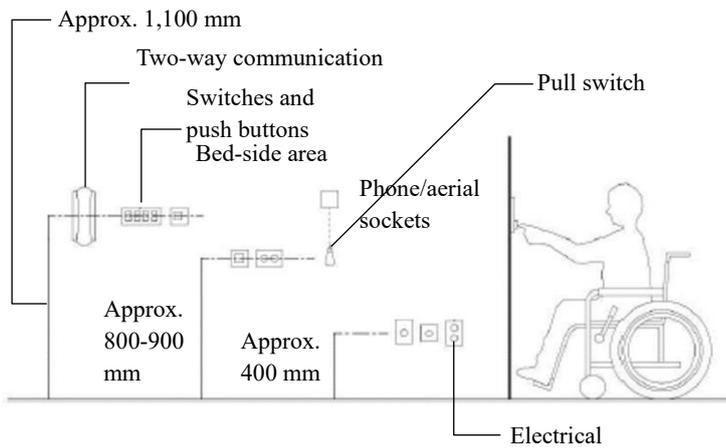


Figure 2.4.7 Spatial measurements for the wheelchair-accessible arrangements of wall sockets, switches, etc.

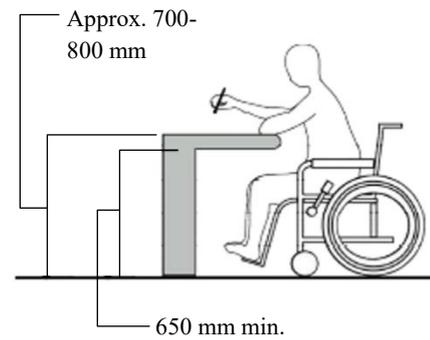


Figure 2.4.8 Dimensions of wheelchair-accessible tables etc.

Source: *Ordinance on Welfare Urban Planning: A Guide to Facility Implementation and Management (public facilities)* (April 2019), Prefectural Government of Hyogo

#### 4) Persons with visual impairment

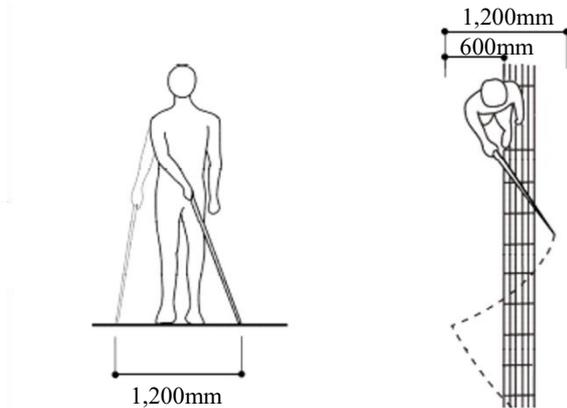


Figure 2.4.9 Spatial measurements required for a white cane user and illustration of manoeuvring

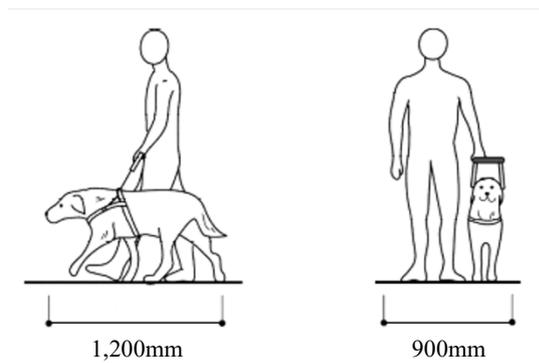


Figure 2.4.10 Spaces required for persons with a guide dog

#### 5) Persons accompanying babies/infants

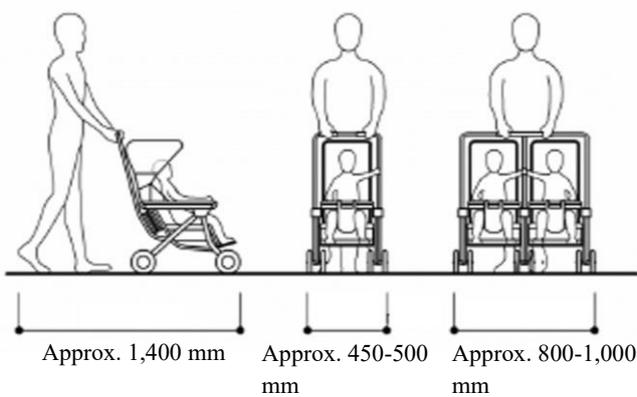


Figure 2.4.11 Spatial measurements required for persons with prams

#### 6) Children

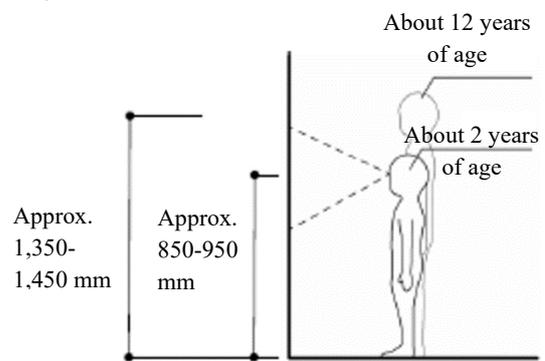


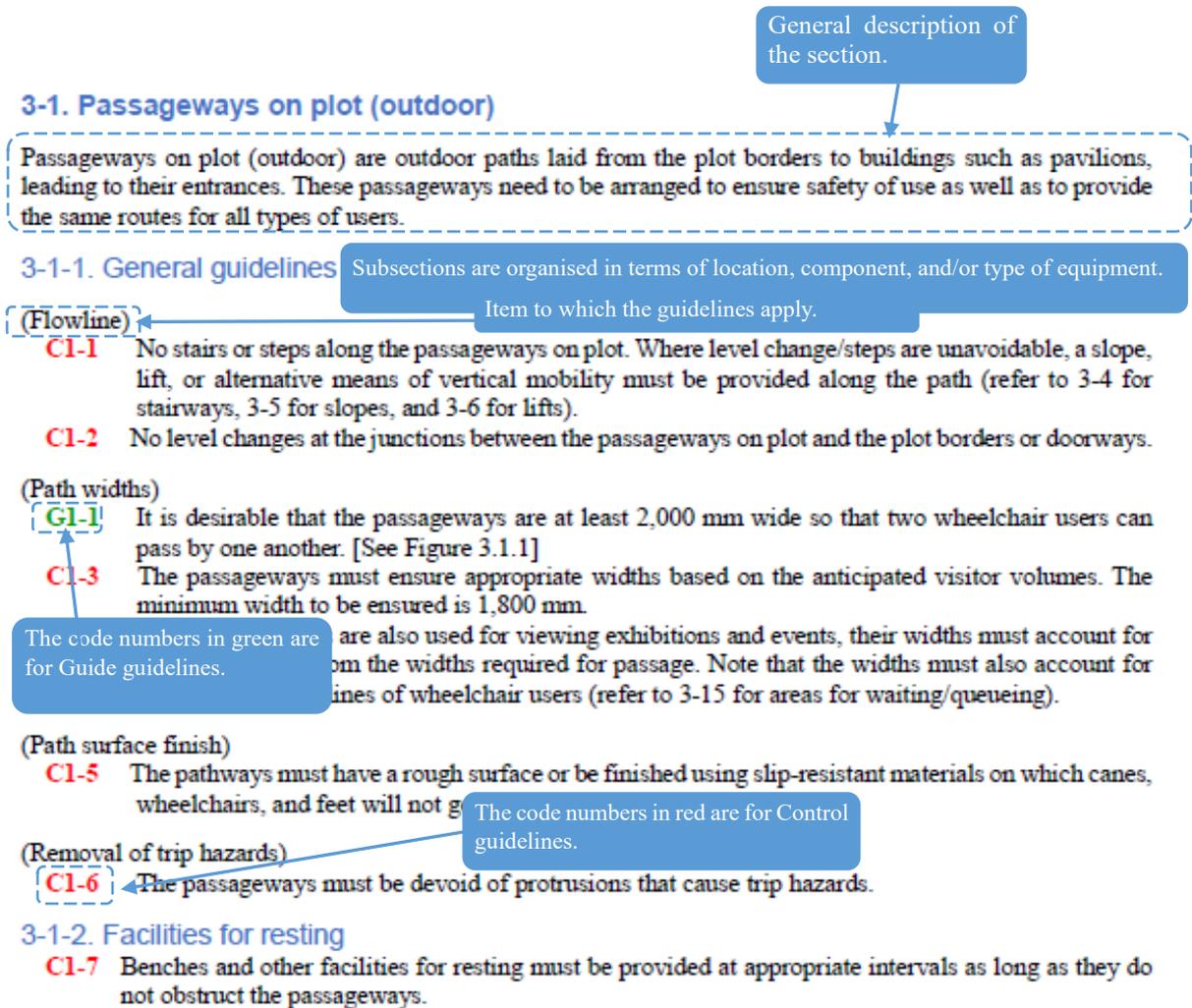
Figure 2.4.12 Eye levels of infants and children

Source: *Ordinance on Welfare Urban Planning: A Guide to Facility Implementation and Management (public facilities)* (April 2019), Prefectural Government of Hyogo

### 3. Items and descriptions

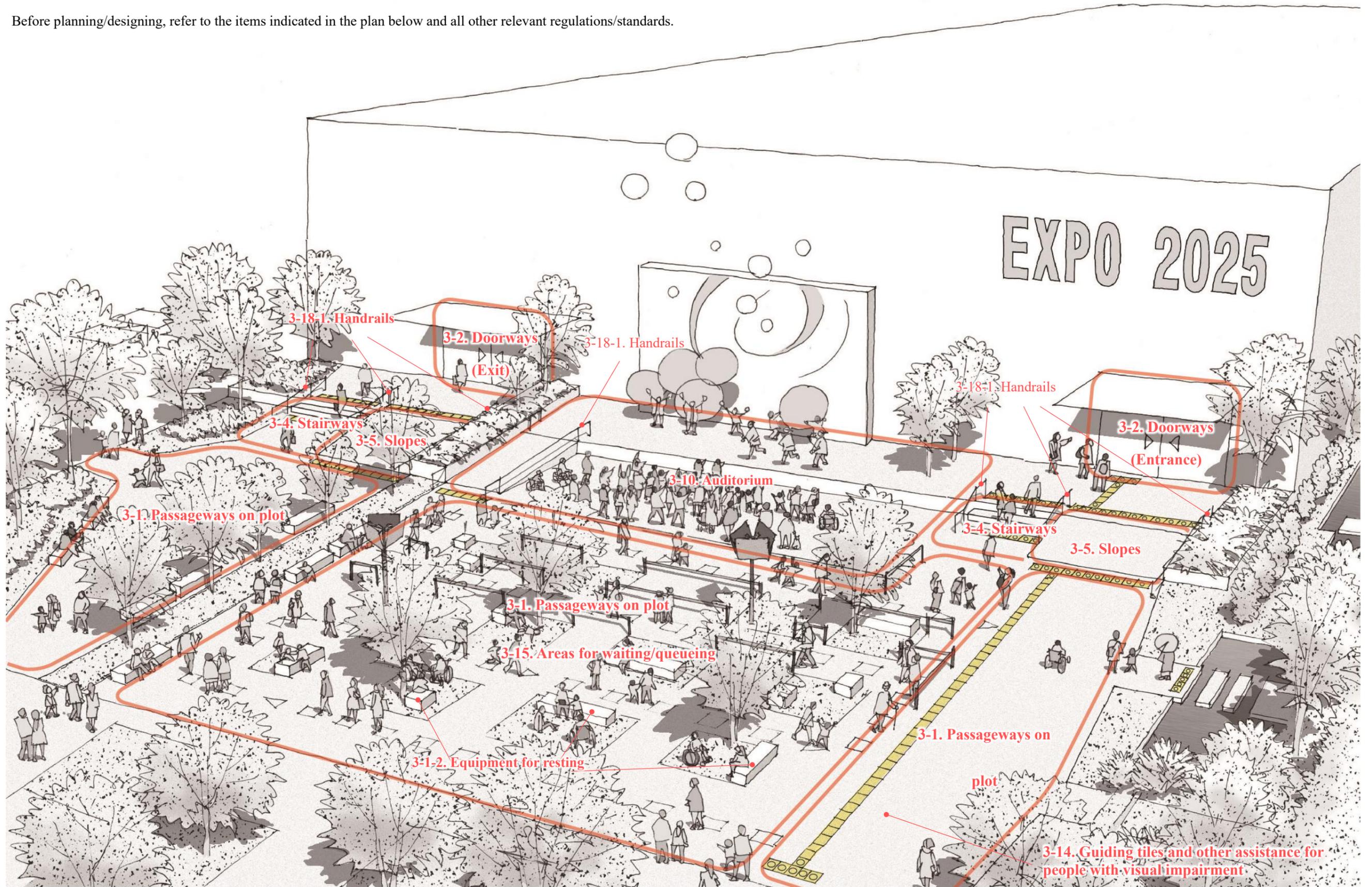
This chapter describes the specifics of each guideline for the universal design to be adopted in designing pavilions and other on-site facilities, using the Guide and Control codes.

The organisation of Chapter 3 pages is illustrated below.



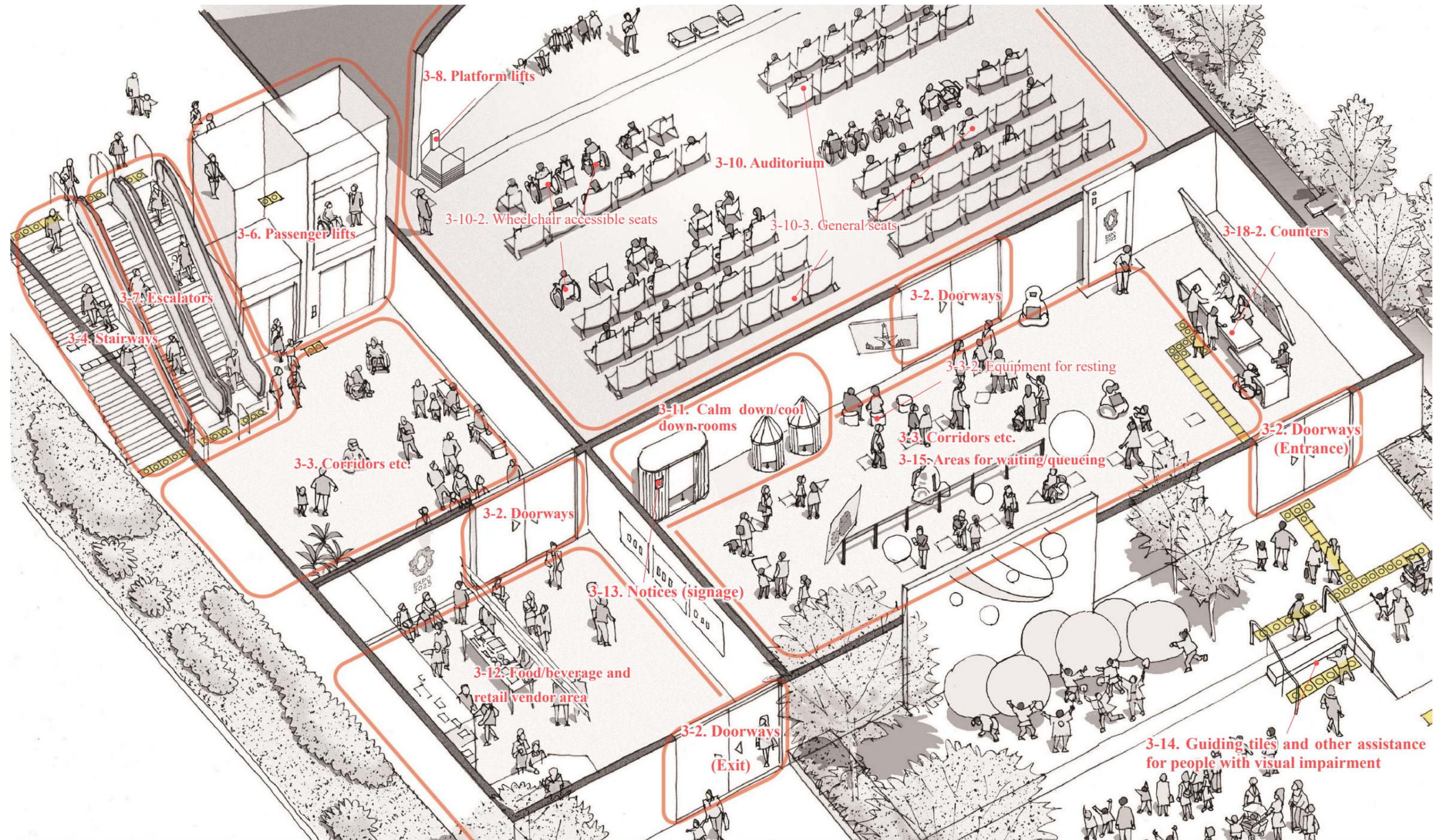
## Pavilion exterior space concept plan

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



## Pavilion interior 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 plot (outdoor)

Passageways on plot (outdoor) are outdoor paths laid from the plot borders to buildings such as pavilions, leading to their entrances. These passageways need to be arranged to ensure safety of use as well as to provide the same routes for all types of users.

#### 3-1-1. General guidelines

(Flowline)

- C1-1** No stairs or steps along the passageways on plot. Where level change/steps are unavoidable, a slope, lift, or alternative means of vertical mobility must be provided along the path (refer to 3-4 for stairways, 3-5 for slopes, and 3-6 for lifts).
- C1-2** No level changes at the junctions between the passageways on plot and the plot borders or doorways.

(Path widths)

- G1-1** It is desirable that the passageways are at least 2,000 mm wide so that two wheelchair users can pass by one another. [See Figure 3.1.1]
- C1-3** The passageways must ensure appropriate widths based on the anticipated visitor volumes. The minimum width to be ensured is 1,800 mm.
- C1-4** If the passageways are also used for viewing exhibitions and events, their widths must account for these uses apart from the widths required for passage. Note that the widths must also account for securing the sight lines of wheelchair users (refer to 3-15 for areas for waiting/queueing).

(Path surface finish)

- C1-5** The pathways must have a rough surface or be finished using slip-resistant materials on which canes, wheelchairs, and feet will not get easily caught on.

(Removal of trip hazards)

- C1-6** The passageways must be devoid of protrusions that cause trip hazards.

#### 3-1-2. Equipment for resting

- C1-7** Benches and other equipment for resting must be provided at appropriate intervals as long as they do not obstruct the passageways.

#### 3-1-3. Lighting equipment

- C1-8** Lighting equipment must be installed to ensure safe passage during dark hours.
- C1-9** In order to enhance the visibility of the path surfaces, the passageways must be installed with lighting equipment below the eye level, in addition to standard lighting.
- C1-10** Arrangements must be made so that light sources are hidden from the eyes.

#### 3-1-4. Guiding tiles and other assistance for people with visual impairment

Refer to 3-14. Guiding tiles and other assistance for people with visual impairment for the general guidelines concerning these facilities.

- G1-2** Where the installation of guiding tiles is impossible as, for example, the passageway between the plot border and the building doorway being too short, it is desirable that other means of guiding assistance are provided, such as voice information guide and personal escort by employees etc.

#### 3-1-5. Other

(Cross slope)

- C1-11** The passageways must be flat and horizontal, except where drainage gradient is required.
- G1-3** Where drainage gradient is required, it is desirable that permeable paving materials are used to ensure smooth drainage, and the cross slope is 1% maximum.
- C1-12** Where drainage gradient is required, the cross slope must not exceed 2%.

(Drainage)

**C1-13** Drains traversing a passageway must have covers that do not catch canes, crutches, or wheelchair wheels.

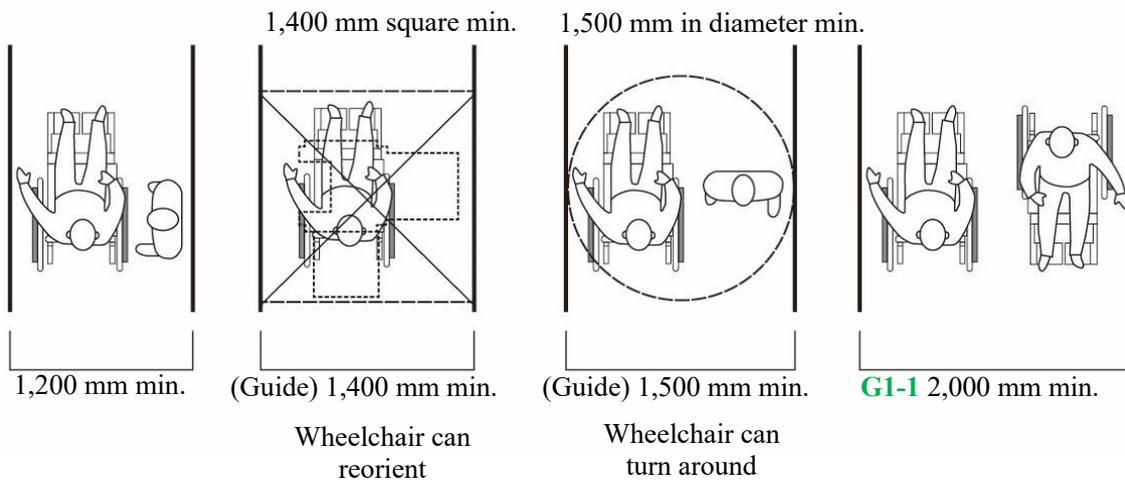


Figure 3.1.1 Effective widths of passageways on plot (outdoor)

## 3-2. Doorways

Doorways are entrances and exits of buildings and rooms. The doorways need to ensure safe and comfortable passage into/out of buildings and rooms by all types of users. They must be free of steps and other level differences and installed with sliding or automatic doors etc. for easy door operation to ensure accessibility to wheelchair users etc. Furthermore, the doorways must also be equipped with areas on both sides where a wheelchair can be stationed.

### 3-2-1. General guidelines

(Ensuring flat and horizontal surfaces)

- C2-1** The floors of the doorways into/out of buildings and on major routes must be flat and horizontal, free of stairs and steps (except where a slope, lift, or other means of vertical mobility is provided).
- C2-2** No level differences on both sides of the doors.

(Floor finish)

- G2-1** It is desirable that floors are finished using shock-absorbing materials in case of fall accidents.
- G2-2** It is desirable not to use thick carpets as these pose a considerable burden on driving wheelchairs.
- C2-3** The floor must have a rough surface and be finished using slip-resistant materials.

(Installation of eaves)

- C2-4** A shade or eave of a sufficient size must be installed over an exterior doorway in order to create a shelter from the sun and rain.

### 3-2-2. Doors

(Effective widths) [See Figures 3.2.1 and 3.2.2]

- G2-3** It is desirable to have at least 950 mm of effective width for doorways.
- C2-5** The doorways must have at least 850 mm of effective width. Considerations are required to account for the door panel thickness, the door width that does not clear the doorway opening, etc. in order to ensure an appropriate effective width.
- G2-4** It is desirable to have at least 2,000 mm of effective width for main doorways.
- C2-6** The main doorways must have at least 1,000 mm of effective width.

(Styles) [See Figure 3.2.2]

- G2-5** It is desirable that automatic doors are installed at main doorways.
- G2-6** It is desirable that sliding doors are installed at the doorways on a corridor.
- G2-7** It is desirable that the doors can be held and operated with little force (30 N max.)
- C2-7** The doors must have structures that allow wheelchair users to operate and pass through easily.
- C2-8** Revolving doors are not acceptable.
- C2-9** Hand-operated sliding doors must be easy to open and close.

(Door handles)

- C2-10** Door handles must be of either a lever, push, or panic-bar type that is large and easy to operate. [See Figure 3.2.3]
- C2-11** The door handles must be installed at approximately 900 mm above the floor level.

(Room name plates/signs)

- C2-12** Room names etc. must be indicated on the door or the wall on the door handle side, in embossed lettering and with a label in braille as necessary.

(Effective distance between doors in series)

- C2-13** The effective distance between two doors in series should be the widths of both doors plus 1,500 mm.

(Materials)

- G2-8** It is desirable that the doors of frequent use are equipped with kick plates or the materials that serve the same purpose, up to 250 mm above the floor level.

- C2-14** Use of glass must be avoided within the area touched by wheelchair footrests (up to approx. 350 mm above the floor level).

(Glass pane doors and windows on doors)

- G2-9** Where glass panes are installed in doors or the walls adjacent to the door, it is desirable that these are marked by some means, such as horizontal muntin or warning stickers, to avoid collision.

- C2-15** The doors must have a glass pane (of laminated or tempered glass) fitted in to reduce the risk of collision, at the height or in the position that allows to visually identify the existence of children or wheelchair users on the other side. However, this guideline does not apply where privacy is concerned or such an arrangement may spoil the appreciation of the exhibition.

(Door closer performance)

- C2-16** For the considerations of elderly people, wheelchair users, etc., door closers must be fitted and adjusted to ensure that the door closes slowly.

- C2-17** Where door closers with a delayed action feature are used, it is desirable to ensure sufficient time for opening/closing of the door for safety.

(Safety measures)

- C2-18** Doors must be clearly identifiable to reduce the collision risks.

(Securing door-side walls)

- C2-19** Where a recessed door is installed, it is desirable that the doorway opening is offset at least 450 mm from the side wall on the door-handle side.

### 3-2-3. Automatic doors

(Styles)

- G2-10** It is desirable that the automatic door is either of a single or double panel sliding type.

(Structures)

- C2-20** The operating system must be sensor-operated or other system without push buttons, to remove the necessity of manual operation.

- C2-21** The automatic doors must remain open for a sufficient period of time.

- C2-22** Safety systems (such as photoelectric beam sensors) must be installed on both sides of the door frame at an appropriate height to avoid door strike injury risks.

(Emergency safety measures)

- C2-23** The doors must be able to be manually operated in an emergency. Alternatively, an additional manually operated door must be installed.

### 3-2-4. Lighting equipment

- C2-24** Lighting equipment must be installed to ensure sufficient and even luminance for safe passage.

- C2-25** In order to enhance the visibility of the floor surfaces, the doorways must be installed with lighting equipment below the eye level, in addition to standard lighting.

### 3-2-5. Guiding tiles and other assistance for people with visual impairment

Refer to 3-14. Guiding tiles and other assistance for people with visual impairment for the general guidelines concerning these facilities.

- C2-26** A few guiding tiles must be installed in front of the doorways and entrance mats of buildings, information counters, and other information equipment such as guides in braille, voice, etc. so that people with visual impairment can easily recognise these features.

- G2-11** It is desirable that entrance enclosures do not necessitate people's reorientation through the passage.

### 3-2-6. Approach to the facilities

- C2-27** The doorways must have flat and horizontal areas of at least 1,400 mm square on both sides to allow wheelchair users to move straight or reorient.

### 3-2-7. Space for assistance dogs (and other service animals)

As a general rule, all areas for visitor use must be accessible to persons accompanied by assistance dogs or other service animals. Where it is practically difficult for the animals to accompany due to the nature of the exhibition, event, attraction, etc. in the facilities, a dedicated space for them to stay must be provided, and the persons must be given appropriate support such as human attendants to accompany them.

(Size)

**G2-12** It is desirable that the spaces have a floor size of at least 3,000 mm x 4,000 mm and are enclosed with a fence of approximately 1,200 mm high.

(Equipment)

**G2-13** It is desirable that a litter bin and plastic bag dispenser are provided in these dedicated spaces for assistance animals.

**G2-14** It is desirable to provide toilet facilities for assistance animals.

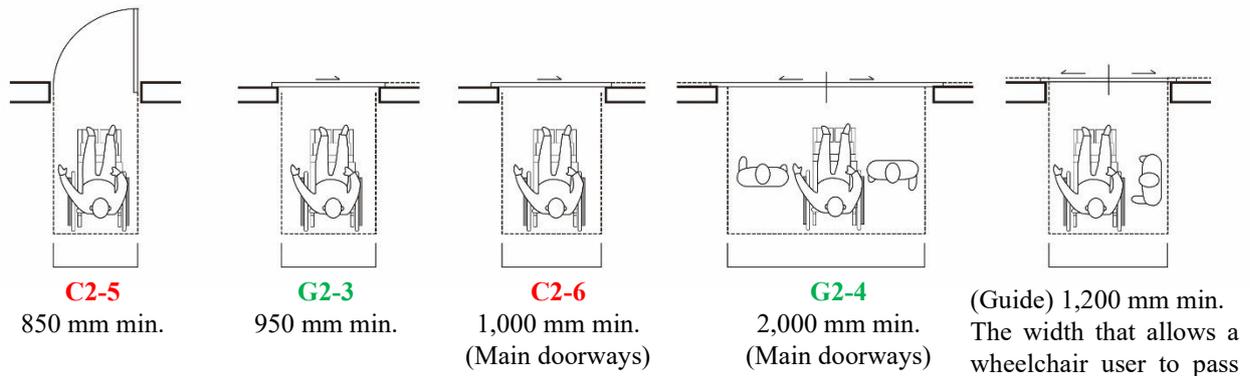
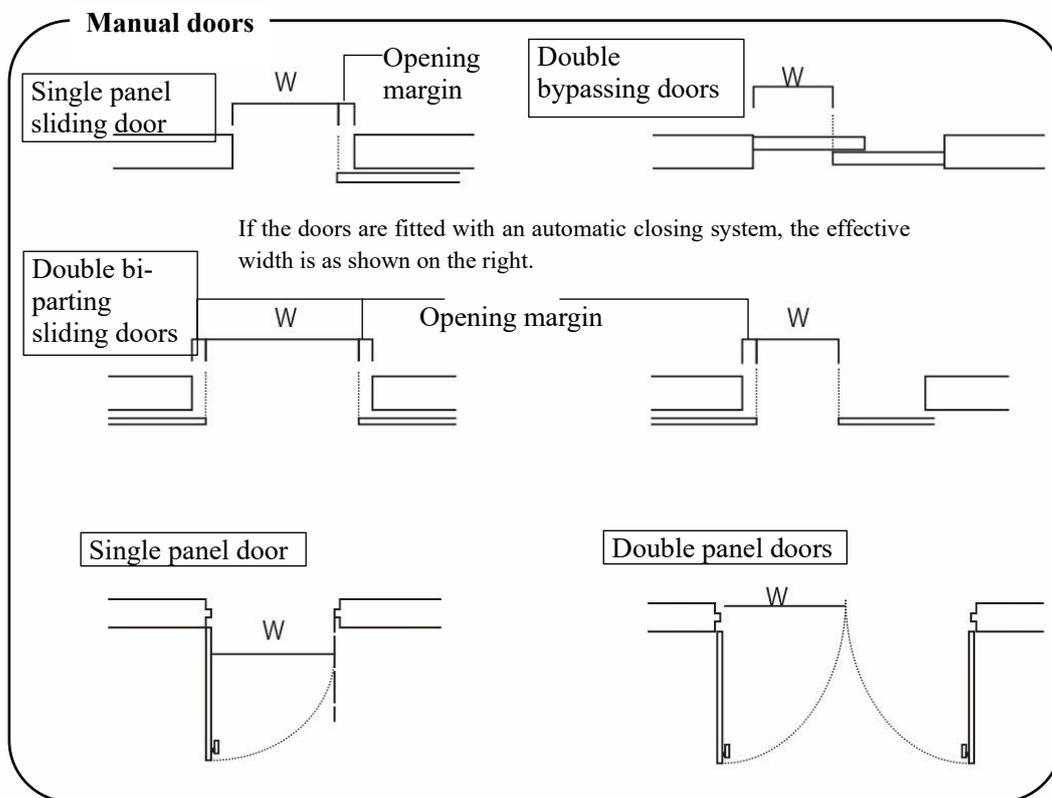
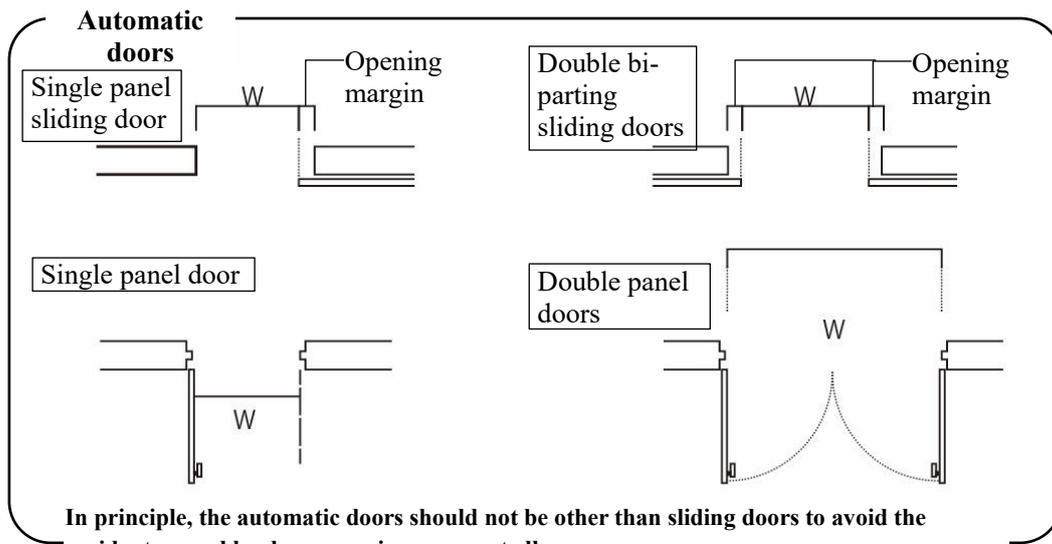
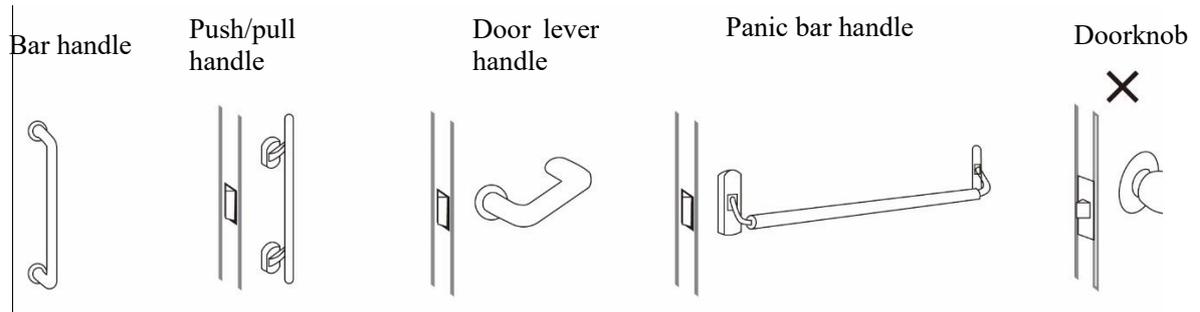


Figure 3.2.1 Effective widths of doorways



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

Figure 3.2.2 Ensuring appropriate widths



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

Figure 3.2.3 Easy-to-use handles

### 3-3. Corridors etc. (indoor)

Corridors etc. are passages provided within the facilities (indoor). The corridors etc. must have sufficient widths based on the anticipated visitor volumes and be organised to facilitate easy orientation and navigation, with considerations for emergency evacuation. They must be designed to ensure safe and smooth passage for everyone, and protrusions on the walls must be avoided if possible as these may obstruct the passage.

#### 3-3-1. General guidelines

(Path widths)

- G3-1** It is desirable that the corridors etc. are at least 2,000 mm wide so that two wheelchair users can pass by one another.
- C3-1** The corridors etc. must ensure appropriate widths based on the anticipated visitor volumes. The minimum width is 1,800 mm.
- C3-2** If the corridors etc. are also used for viewing exhibitions and events, their widths must account for these uses apart from the widths required for passage. Considerations are also required to ensure that the routes for passage do not obstruct the sights of the viewing people.

(Protrusions)

- C3-3** No protruding objects must be mounted in the corridors etc. unless necessary measures are implemented to ensure safe passage of persons with visual impairment.
- C3-4** If it is essential to mount a protruding object on a wall at 650 to 2,100 mm above the floor level, the protrusion must be no more than 100 mm with the consideration for people with visual impairment who use a cane. [See Figure 3.3.2]

(Angled walls in corners)

- G3-2** It is desirable that the angled walls in corners of corridors etc. are tapered or rounded to lower the risk of collision and also to facilitate easy reorientation for wheelchair users. [See Figure 3.3.3]

(Floor finish)

- G3-3** It is desirable that floors are finished using shock-absorbing materials in case of fall accidents.
- G3-4** It is desirable not to use thick carpets as these pose a considerable burden on driving wheelchairs.
- C3-5** The floor must have a rough surface and be finished using slip-resistant materials.

(Wall finish)

- G3-5** It is desirable that walls are protected with kick plates up to approximately 350 mm above the floor level, where wheelchair footrests can bump on easily (protection of wheelchairs, walls, etc.).

(Ensuring identifiable arrangements for floors and walls)

- C3-6** Finishing materials for floors and walls must assist easy distinction between the wall and floor by using colours of different brightness, hue, or chroma

#### 3-3-2. Equipment for resting

- G3-6** It is desirable that equipment for resting is installed in appropriate arrangements so long as they do not obstruct people's movements.
- G3-7** It is desirable to have equipment for resting adapted to the use by wheelchair users.

### 3-3-3. Lighting equipment

- C3-7** Lighting equipment must be installed to ensure sufficient and even luminance for safe passage.
- C3-8** In order to enhance the visibility of the floor surfaces, the corridors etc. must be installed with lighting equipment below the eye level, in addition to standard lighting.

### 3-3-4. Guiding tiles and other assistance for people with visual impairment

Refer to 3-11. Guiding tiles and other assistance for people with visual impairment for the guidelines concerning these facilities.

- G3-8** It is desirable that continuous lines of guiding tiles are installed in corridors etc. depending on the purpose of use of the facility.

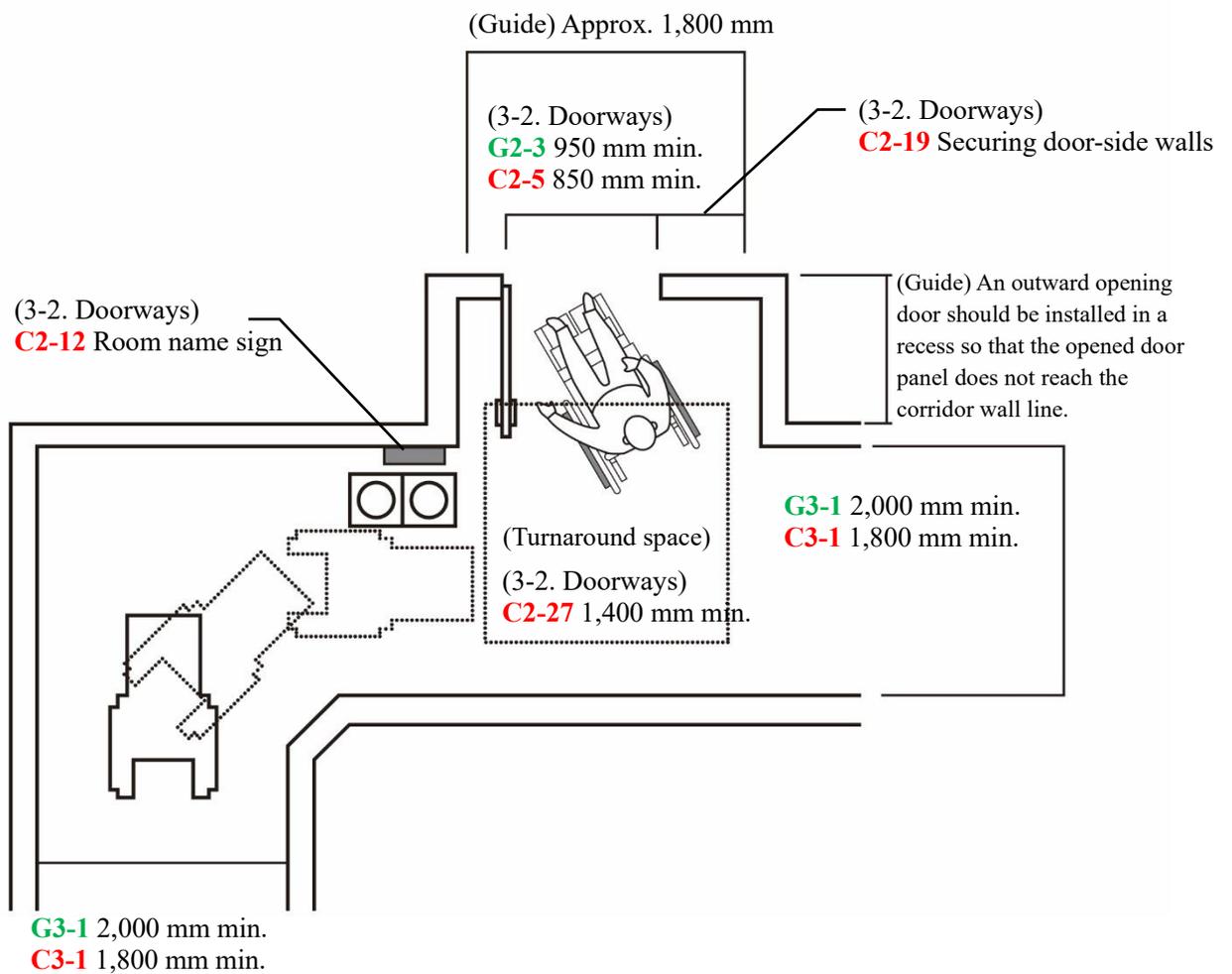


Figure 3.3.1 Illustration of corridor

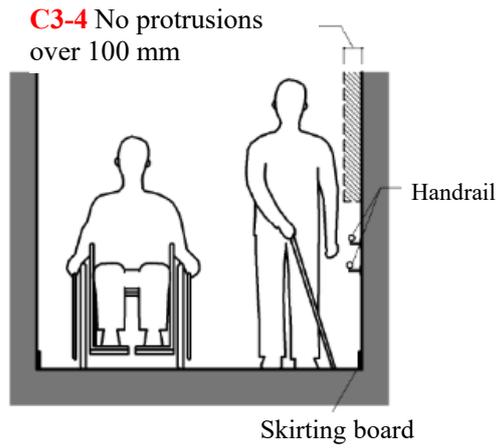


Figure 3.3.2 Protruding object on a passageway wall

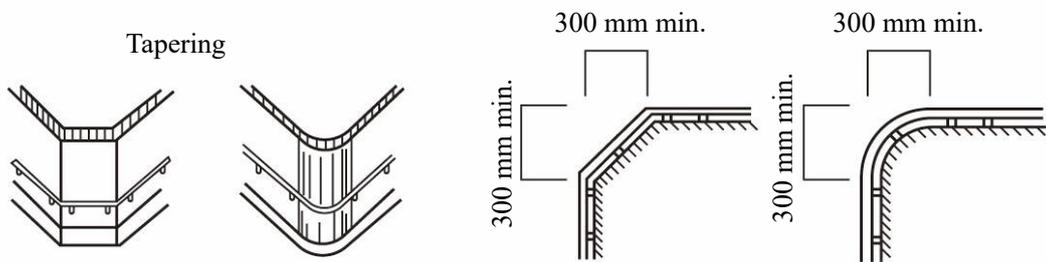


Figure 3.3.3 Tapering/rounding of corner walls (guide)

### 3-4. Stairways

Stairways require the elderly, people with disabilities, etc. to exert significant strengths to pass through. They also pose fall hazards. Therefore, arrangements must be made to reduce the risks and to lighten their exertion.

#### 3-4-1. General guidelines

(Styles) [See Figures 3.4.1 and 3.4.2]

**C4-1** Stairways must not involve winders.

**C4-2** The dimensions of going and rise must be consistent in a single flight of stairs.

(Rise) [See Figure 3.4.3]

**G4-1** It is desirable that the rise is no more than 150 mm.

**C4-3** The rise must not exceed 160 mm.

(Going) [See Figure 3.4.3]

**C4-4** The going must be at least 300 mm. Note that the going must be proportionate to the rise for easy and comfortable passage.

(Nosing)

**C4-5** Steps must avoid projected nosing or similar structures that may be tripping hazards.

(Nosing depth) [See Figure 3.4.3]

**C4-6** The nosing depth must be 20 mm maximum.

(Stair widths)

**G4-2** Where the main passageway involves stairs without slopes, it is desirable that these stairs, whether they are installed outdoor or indoor, are at least 2,000 mm wide.

**G4-3** It is desirable that all stairways are at least 1,400 mm wide with the consideration for people who use a cane or crutches.

**C4-7** Where the main passageway involves stairs without slopes, these stairs, whether they are installed outdoor or indoor, must be at least 1,800 mm wide.

**C4-8** The stairways must ensure appropriate widths based on the anticipated number of visitors likely to use them.

(Tread finish) [See Figure 3.4.2]

**C4-9** The treads must have a rough surface and be finished using slip-resistant materials.

**G4-4** It is desirable that the treads are finished using shock-absorbing materials in case of fall accidents.

**C4-10** The treads must be demarcated for easy distinction between their edges (nosing) and surrounding areas (tread surface etc.) by colours of different brightness, hue, or chroma.

**G4-5** To enhance the distinction of steps, it is desirable that the tread edges are demarcated in different luminance from the surrounding areas.

(Safety measures under stairways)

**C4-11** Where a headroom is small, safety measures must be implemented to prevent head collisions.

(Installation of raised rails)

**G4-6** It is desirable that, if a stairway is fitted with balustrade, the stair rail is raised at least 50 mm.

#### 3-4-2. Lighting equipment

**C4-12** Lighting equipment must be installed to ensure sufficient and even luminance for safe passage.

**C4-13** In order to enhance the visibility of the floor surfaces, the stairways must be installed with lighting equipment below the eye level, in addition to standard lighting.

#### 3-4-3. Turnings

(Collision prevention on landings)

**G4-7** It is desirable that stairways with turns are equipped with mirrors on the landings to prevent people from colliding.

### 3-4-4. Guiding tiles and other assistance for people with visual impairment

Refer to 3-14. Guiding tiles and other assistance for people with visual impairment for the general guidelines concerning these facilities.

- C4-14** The stairways must have tactile warning markings, such as textured floor tiles, at both ends of the flight and on the edges of the landing where a flight begins. [See Figure 3.4.2]

### 3-4-5. Handrails

Refer to 3-18. Fixtures and equipment (handrails, counters, vending machines, etc.) for the general guidelines concerning the handrails.

(Locations) [See Figures 3.4.4 and 3.4.5]

- C4-15** Stairways must be installed with continuous handrails, including the landings.
- C4-16** Handrails must be installed to match the gradient along the stairways so that the gradient can be detected by users. Wavy handrails are not acceptable.
- C4-17** The handrails must be installed at approximately 750 to 850 mm above the nosing.
- C4-18** A horizontal overhang of at least 450 mm must be provided at each end of the handrails in stairways to support the pedestrian's body for taking the first step or guide people with visual impairment.

(Indication in braille)

- C4-19** At each end of stair handrails, indication/information/guide must be provided in braille, embossed lettering, etc. to notify of the present location and the floors above/below.

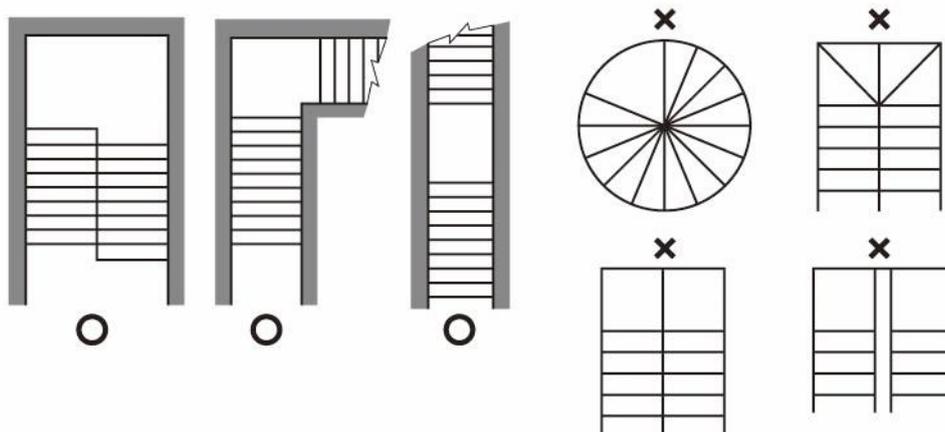


Figure 3.4.1 Shapes of stairways

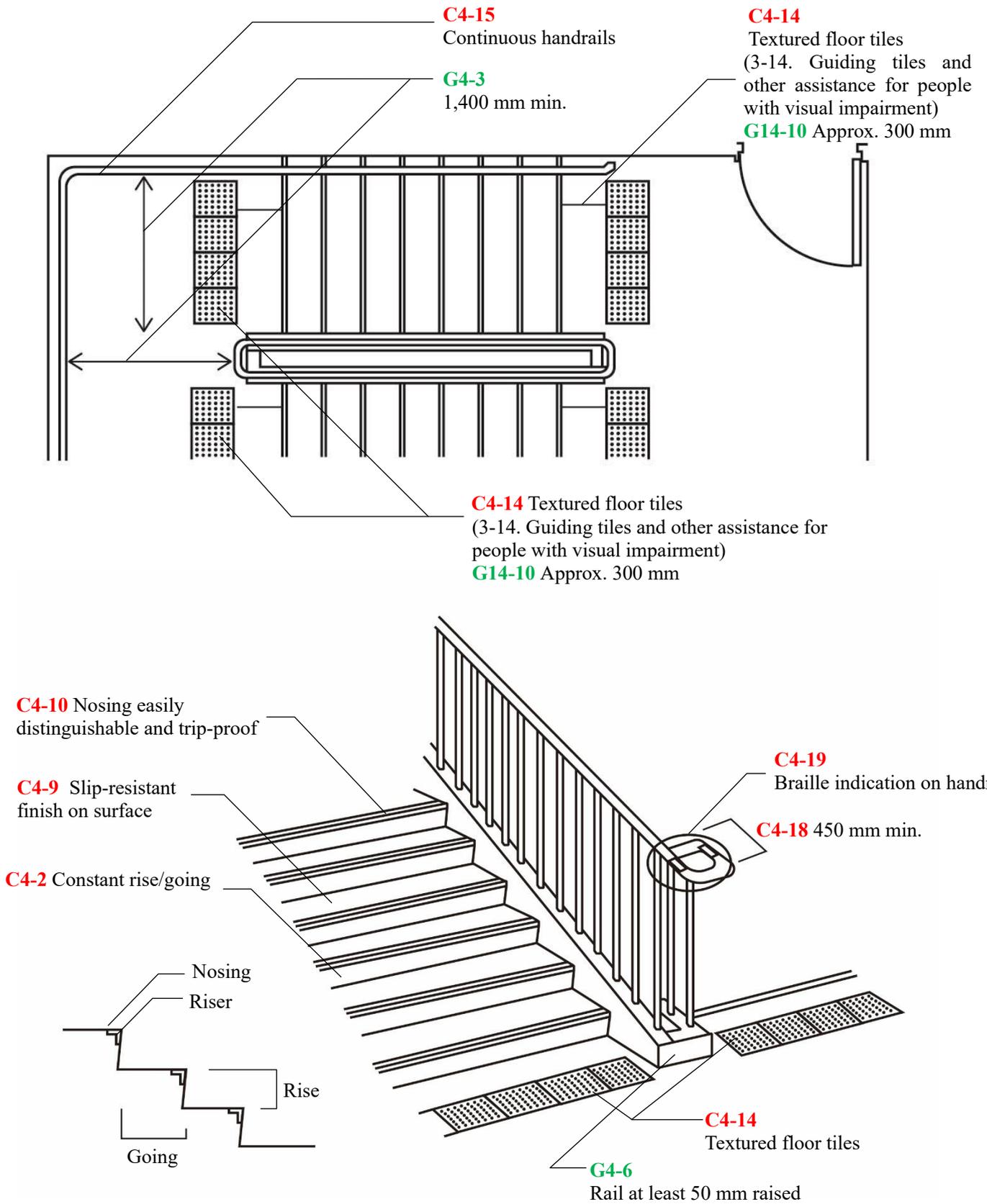


Figure 3.4.2 Safety measures in stairways

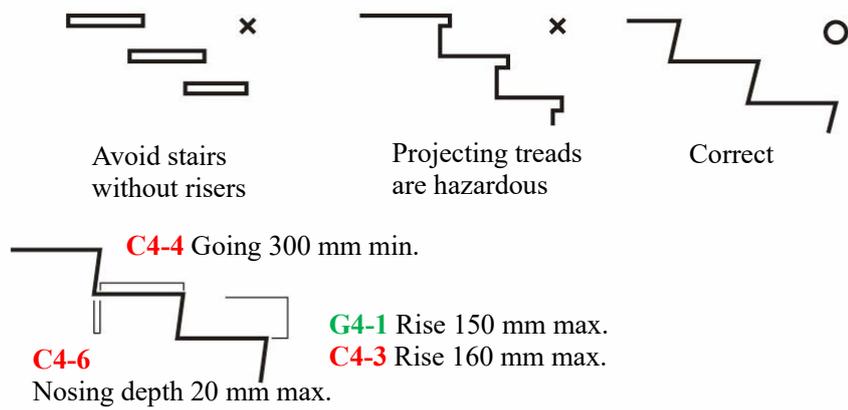


Figure 3.4.3 Rise, going, and nosing depth

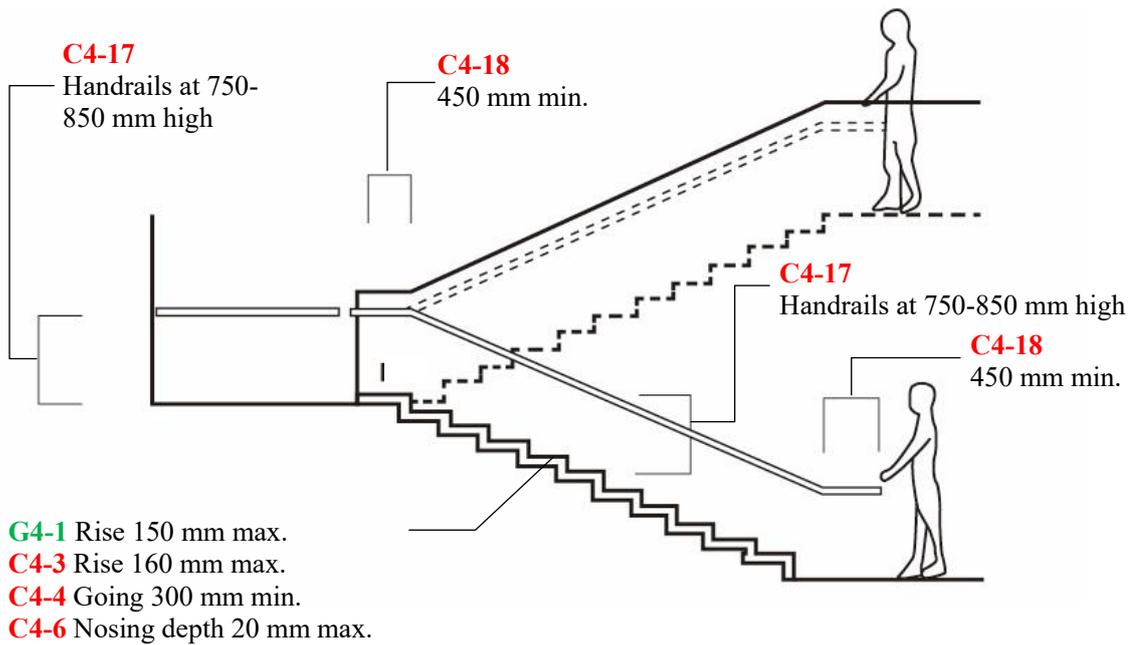


Figure 3.4.4 Measurements for stairways

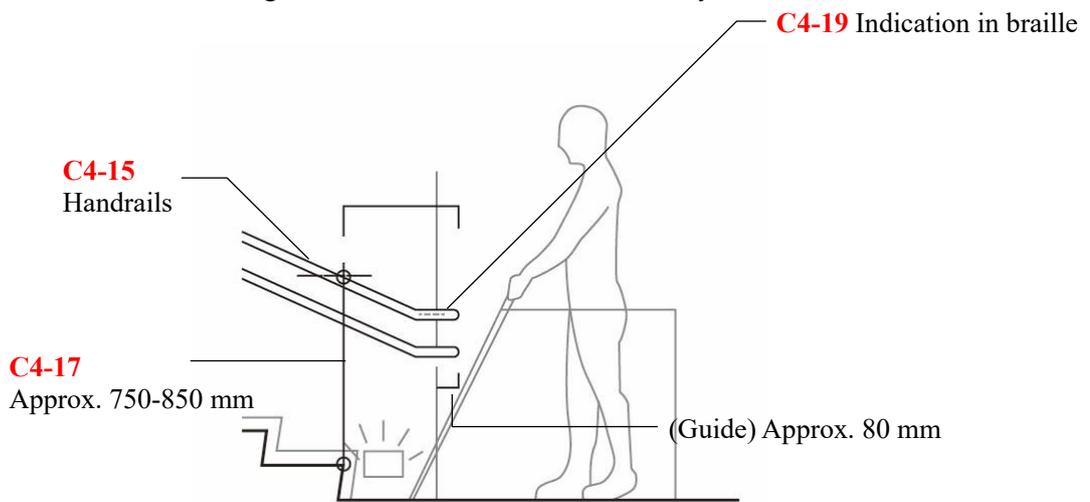


Figure 3.4.5 Stair handrails

### 3-5. Slopes

Slopes are the gradient surfaces installed to facilitate easy access to enter buildings or reach other destinations located on a different level. Facility implementation needs to ensure smooth access across different levels, and for this reason, main routes should be arranged with slopes where level differences are unavoidable. These will facilitate efficient mobility for all people, including wheelchair users, people with prams, and those who transfer heavy loads. This section describes the slopes to be implemented on the plots (outdoor) and in the buildings (indoor).

Note that gradients smaller than 600 mm in length and 75 mm in rise, such as dropped kerbs, are not considered slopes in the UD Guidelines.

#### 3-5-1. General guidelines

(Provision as a principle)

- G5-1** It is desirable to provide means of vertical mobility other than slopes, such as passenger lifts, where the slope would stretch over 60 m, or the rise exceeds 3 m.

(Widths)

- G5-2** It is desirable that the slopes on the main routes, whether outdoor or indoor, are at least 2,000 mm wide and no narrower than the passageways on plot, corridors, etc. Where it is essential to install a slope outside the main routes (e.g., an additional slope to a stairway), it desirably has a minimum width of 1,400 mm.
- C5-1** The slopes on the main routes, whether outdoor or indoor, must be at least 1,800 mm wide and no narrower than the passageways on plot, corridors, etc. Where it is essential to install a slope outside the main routes (e.g., an additional slope to a stairway), it must be at least 1,200 mm wide.

(Slope)

- G5-3** It is desirable that the gradient of the slopes on the passageways on plot (outdoor) is no greater than 1:20.
- C5-2** The gradient of slopes on the passageways on plot (outdoor) must be either 1:20 maximum (rise 151 mm min.), 1:10 maximum (rise between 76 mm and 150 mm), or 1:8 maximum (rise 75 mm max.).
- G5-4** It is desirable that the gradient of slopes in the corridors etc. (indoor) is either 1:20 maximum (rise 301 mm min.) or 1:14 maximum (rise 300 mm max.).
- C5-3** The gradient of slopes in the corridors etc. (indoor) must be either 1:20 maximum (rise 3,001 mm min.), 1:14 maximum (rise between 301 mm and 3,000 mm), or 1:12 maximum (rise 300 mm max.).

(Side rails)

- C5-4** The slopes must have walls or raised rails on both sides.
- G5-5** It is desirable that, if a slope is fitted with balustrade, the side rail is raised at least 50 mm.

(Path surface finish)

- C5-5** The slopes must have a rough surface or be finished using slip-resistant materials on which canes, wheelchairs, and feet will not get easily caught on.
- C5-6** The slopes must be demarcated for easy distinction from their connecting paths such as corridors etc. by colours of different brightness, hue, or chroma.

(Installation of steps alongside a slope)

- C5-7** If a slope and steps are installed in parallel as part of a route, their relative orientation must be consistent to the extent possible within a single building.
- G5-6** 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. Landings

(Installation intervals)

- G5-7** It is desirable that landings are provided within every 500 mm in rise.
- C5-8** Where the rise is more than 750 mm, the landings must be provided at a maximum interval of 750 mm.

(Landing lengths)

- C5-9** Landings must be at least 1,500 mm long regardless of their installation locations. Note that, in the turnings and corners along the run, the landings must have the length no smaller than the widths of the adjoining slopes.

(Locations)

- C5-10** For safe passage, pause, or turnaround, slopes must be provided with horizontal surfaces at least 1,500 mm long at each end, corner, turning of the run, and converging points with other passageways.

### 3-5-3. Lighting equipment

- C5-11** Lighting equipment must be installed to ensure sufficient and even luminance for safe passage.
- C5-12** In order to enhance the visibility of the floor surfaces, the slopes must be installed with lighting equipment below the eye level, in addition to standard lighting.

### 3-5-4. Guiding tiles and other assistance for people with visual impairment

Refer to 3-14. Guiding tiles and other assistance for people with visual impairment for the general guidelines concerning these facilities.

- C5-13** The corridors etc. must have makings of textured floor tiles on the approach to each end of a slope so that people with visual impairment can recognise the existence of the slope. [See Figure 3.5.1]
- C5-14** The landings must have markings of textured floor tiles on the approach to each end of a slope so that people with visual impairment can recognise the existence of the slope.

### 3-5-5. Handrails

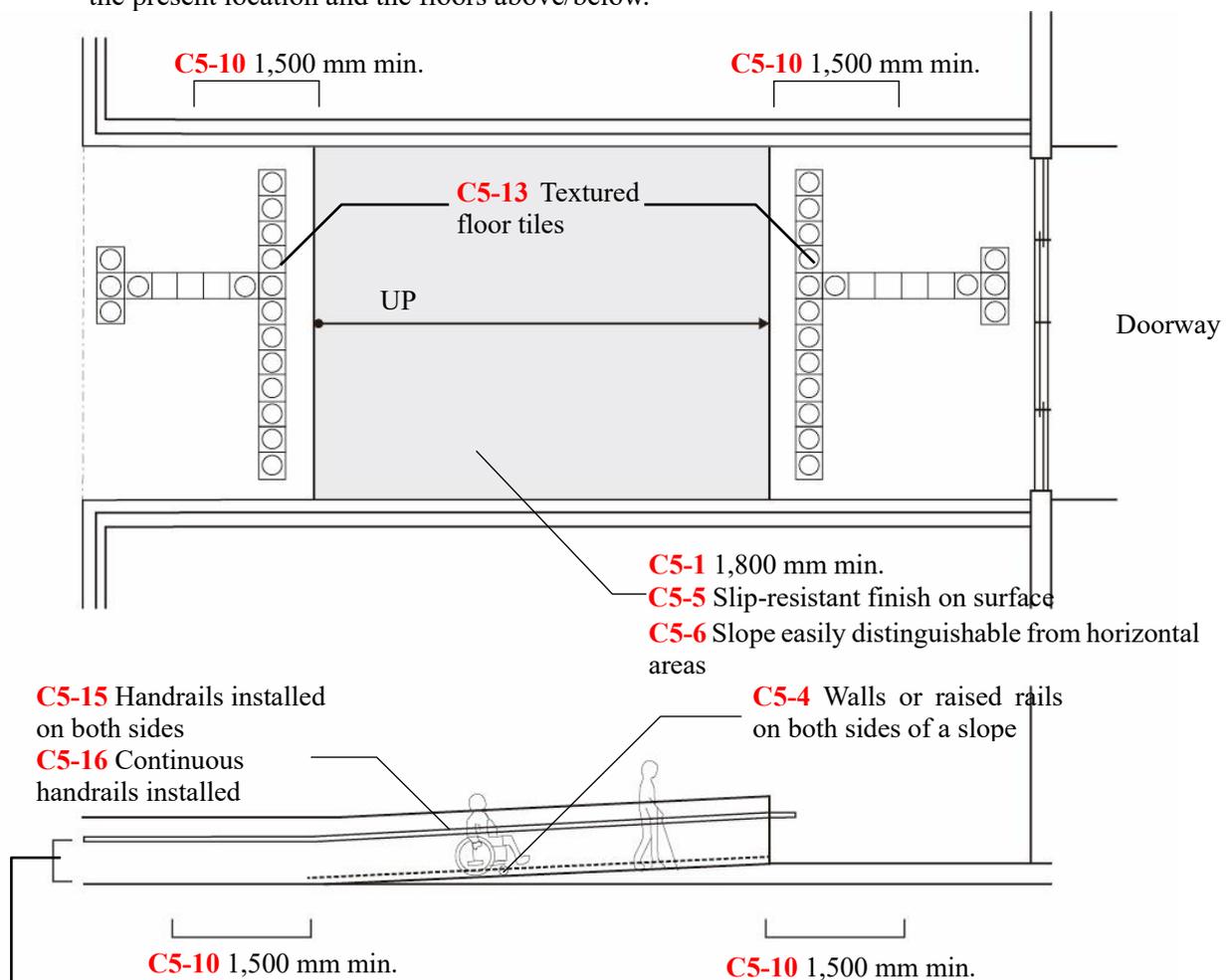
Refer to 3-18. Fixtures and equipment (handrails, counters, vending machines, etc.) for the general guidelines concerning the handrails.

(Installation requirements) [See Figure 3.5.2]

- C5-15** Handrails must be installed on both sides of a slope with a minimum gradient of 1:12 or a minimum rise of 160 mm. This control, however, does not apply if it is practically unrealisable due, for example, to the topographical conditions of the ground.
- C5-16** The handrails must be continuous.
- C5-17** The handrails must be installed to match the gradient along the slopes so that the gradient can be detected by users. Wavy handrails are not acceptable.
- C5-18** A horizontal overhang of at least 450 mm must be provided at each end of the handrails in slopes to support the pedestrian's body for taking the first step or guide people with visual impairment.

(Indication in braille)

- C5-19** The horizontal parts of handrails must have labels in braille, embossed lettering, etc. to notify of the present location and the floors above/below.



- (3-18. Fixtures and equipment) **G5-3** 1:20 max.
- C18-1** Approx. 750-850 mm
- C5-2** Gradient 1:20 max. (Rise 151 mm min.)  
Gradient 1:10 max. (Rise 76-150 mm)  
Gradient 1:8 max. (Rise 75 mm max.)

Figure 3.5.1 Slopes (outdoor)

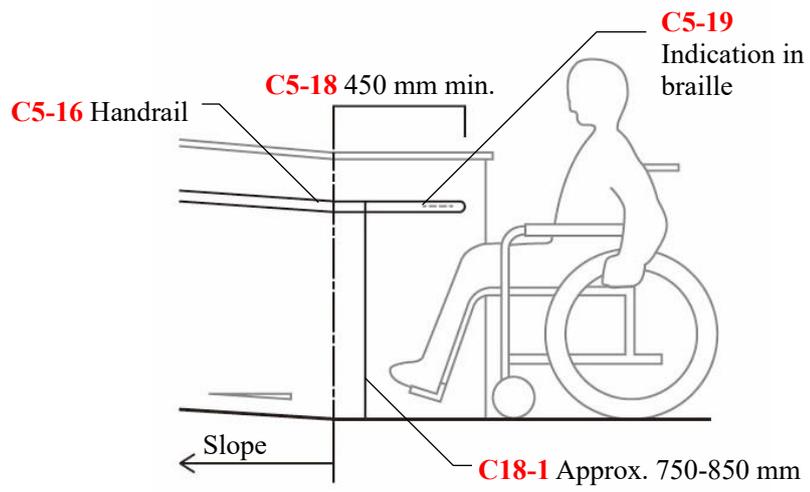


Figure 3.5.2 Handrails in slopes

### 3-6. Passenger lifts

Lifts are a necessary perpendicular mobility means for the elderly, people with disabilities, people in pregnancy, people accompanying babies/infants, etc. for safe and smooth passage. In large-scale commercial facilities, theatres, etc., where a number of wheelchair users etc. may converge at a time, the operational capacity of passenger lifts can drop during specific hours. For this reason, considerations are required to minimise the inconveniences people may experience in their ways, in terms of the number, position, car size, doorway width, ease of access, etc. of the lifts to be implemented.

A platform lift installed as an alternative to steps, if it is located further away from the main passageway, will cause inconveniences to those who need to use this facility. Therefore, it is necessary to arrange the lifts, slopes, escalators, and stairways as close to the main routes as practically possible.

Considerations are also necessary to ensure that persons with visual/auditory impairment are provided with information.

#### 3-6-1. General guidelines

(Locations)

**C6-1** Passenger lifts must be provided along or close to the main routes. Slopes, escalators, stairways, etc. must be located as close to the passenger lifts as possible.

(Tactile markings for passenger lifts)

**C6-2** Textured floor tiles must be installed on the floor below the lift call buttons in lift landing areas so that people with visual impairment can recognise their locations.

(Styles)

**G6-1** It is desirable that lift cars have two access doors located in the front and back so that wheelchair users can use them without having to turn around in the car.

**G6-2** Where several lifts are installed in one area, it is desirable that they are of the same specifications.

**C6-3** Passenger lifts must comply with both the Standards for elevators compatible with wheelchair users (JEAS-C506B) and the Standards for elevators compatible with people with impaired vision (JEAS-515E) (both issued by the Japan Elevator Association).

**C6-4** The passenger lifts must be equipped with a central control system in the event of power outage, earthquake, and fire.

(Serviced floors)

**C6-5** The passenger lifts must provide access to all floors that can be reached by stairways, escalators, and other means of mobility.

(Eaves)

**C6-6** A shade or eave of a sufficient size must be installed over an exterior access point to passenger lifts in order to create a shelter from the sun and rain.

(Fire zoning)

**G6-3** 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)

**G6-4** 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

(Effective widths)

**G6-5** It is desirable that the doorways of a car and lift entrance are at least 1,100 mm wide.

**C6-7** The doorways of a car and lift entrance must be at least 1,000 mm wide. Note that the doorway widths in compliance with the JIS standards corresponding to the car size are acceptable.

(Door-side walls)

**G6-6** It is desirable that the doorways of a car and lift entrance have no door-side walls, otherwise a door-side wall only on one side of the door.

(Door opening duration)

**C6-8** The passenger lifts must be equipped with a feature to hold the doors of the lift car and entrance open for a longer period.

**C6-9** The lift doors must stay open for approximately 10 seconds.

(Ensuring visibility)

**C6-10** The doors of the cars and of lift entrances must be fitted with glass panes or the like, or an alternative system (such as visual equipment), that allow to view the inside of a car from outside. The glass panes etc. must be installed no lower than 300 mm above the floor. However, this guideline does not apply where such an arrangement may spoil the appreciation of exhibitions.

**G6-7** It is desirable that the passenger lifts are visually identifiable from distance by the use of different or distinct colours.

(Safety system)

**C6-11** The doorways of a car and lift entrance must be equipped with a system to automatically hold the doors open when a user is detected.

### 3-6-3. Lift cars

(Sizes)

**G6-8** It is desirable that, taking into account the traffic volumes and venue sizes, the lift cars are at least 2,100 mm wide and 1,500 mm long or of an equivalent standard size (JIS A4301: 2,150 mm wide x 1,600 mm long; or 2,000 mm wide x 1,750 mm long (with a capacity of 24 passengers)), and that several lifts are provided.

**C6-12** The lift cars must be at least 1,700 mm wide x 1,500 mm long, or of equivalent standard sizes (JIS A4301: 2,000 mm wide x 1,350 mm long; or 1,800 mm wide x 1,500 mm long (with a capacity of 17 passengers)). Where it is practically impossible to provide the cars of the specified sizes for structural reasons, lift arrangements must be planned to ensure smooth mobility of visitors by, for example, providing a multiple number of lifts.

(Luminosity)

**C6-13** The in-car lighting must have the luminosity that is approximately equal to the luminance in the lift access halls and adjacent passageways. It must ensure even brightness without flickering.

(Handrails)

Refer to 3-18. Fixtures and equipment (handrails, counters, vending machines, etc.) for the general guidelines concerning the handrails.

**C6-14** The lift cars must be fitted with handrails on both side walls.

(Installation of mirrors)

**G6-9** It is desirable that the lift cars are fitted with a mirror (in stainless, safety glass, etc.) on the wall opposite the doorway opening, installed from the floor level up to approximately 1,500 mm high and 800-1,000 mm wide, so that wheelchair users can view the area around the doorway and ascertain safe use of the lift.

**C6-15** Mirrors must be installed inside cars so that wheelchair users can ascertain their safe passage around the doorway of the car and lift entrance 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 the equipment that announces the next-opening doorway in voice).

### 3-6-4. Call buttons, operation panels, and information systems

(Installation positions)

**C6-16** The floor call buttons (control system) inside lift cars and the operation panels (control system) in landing areas must be installed at approximately 1,000 mm above the floor level so that wheelchair users can operate them easily. Inside a car, the facility must be positioned above the handrail level.

**C6-17** The cars must have operation panels fitted on both side walls (a main and additional panels).

**C6-18** At least one operation panel in a car must be equipped with a two-way communication system and a call button.

**G6-10** If only one operation panel can be provided in a car, it is desirable that this is mounted on the right wall when facing the doorway from inside the car.

(Call buttons and operation panel buttons)

**G6-11** It is desirable that the buttons to operate the lifts are large and round in shape. It is also desirable that the buttons light up and chime when pressed so that persons with visual or auditory impairment can understand a successful operation.

**G6-12** It is desirable that the lettering on the buttons is easily distinguishable from the surrounding areas by colours of different brightness, hue, or chroma with the consideration for people with low vision.

**G6-13** It is desirable that kick buttons, infrared non-contact door-operating system, etc. are also provided with the consideration for the users who are unable to use their hands/elbows to operate the buttons on an operation panel.

**C6-19** Call buttons and buttons on operation panels must have the features that allow people with visual impairment to operate them without difficulties, such as labelling in braille as well as embossed lettering, voice guide, and the like.

(Indication in braille)

**C6-20** Indication in braille must be provided for each button on an in-car operation panel (floor call, door operation, and emergency call buttons as well as a two-way communication system) installed at a position to be operated by an ambulant person.

**C6-21** The braille indication must comply with the JIS T 0921 standards.

**C6-22** The braille indication must be positioned to the left of the buttons arranged vertically, or above the buttons arranged horizontally.

(Information systems)

**C6-23** The lift cars must be equipped with a system that indicates the floors to stop at and the present position, fitted at a position that is clearly visible to everyone in the car.

**C6-24** The lift cars must be equipped with a voice information system that announces the next floor to stop and warns of the closing doors.

**C6-25** The lift cars must be equipped with a voice information system that announces the car's direction of travel.

**G6-14** It is desirable that information is provided in the lift access halls and lift cars about the usage of spaces and available services on each serviced floor.

**G6-15** It is desirable that dual-doorway lifts are equipped with a voice information system that announces the next opening doorway.

(Overload alarm)

**G6-16** It is desirable that lift cars are equipped with indication lamps and an automated announcement system to alarm overload.

(Emergency communication system)

**C6-26** The lift cars must have equipment that allows people inside the car to communicate with the facility administrator etc. in emergencies, such as a lift breakdown and power outage. This equipment must include voice announcements, electronic/digital information display, and monitoring system (which can capture the in-car environment) enabling communication in sign language.

### 3-6-5. Lift landing areas

(Size)

**G6-17** It is desirable that lift landing areas measure at least 2,000 mm both in width and length.

**C6-27** The lift landing areas must involve no level differences and measure at least 1,800 mm both in width and length. Note that the area size must be able to accommodate waiting visitors comfortably and facilitate smooth transition with considerations for the building size and traffic volume.

(Level gap between car and landing)

**C6-28** The car floor and landing floor must be aligned, and the gap between them must be no more than 30 mm to prevent wheelchair caster wheels from being caught.

(Information display)

**C6-29** The lift landing areas must be equipped with an information system that notifies the arriving car's travelling direction.

### 3-6-6. Guiding tiles and other assistance for people with visual impairment

Refer to 3-14. Guiding tiles and other assistance for people with visual impairment for the general guidelines concerning these facilities.

**C6-30** Floor markings using textured floor tiles must be installed below the lift call buttons so that people with visual impairment can easily recognise the location of the call buttons.

(Guide) If glass panes cannot be installed, mount cameras etc. allowing to monitor inside the car

**C6-16** Control system  
**C6-17** Installed on both sides

(Guide) Approx. 1,000 mm

(Guide) Kick plates

**C6-23** Indication of next stopping level and current position

**C6-10** Glass panes installed at 300 mm and up above the floor



**G6-16** Overload alarm lamp

**C6-16** Floor call buttons/operation panel buttons

**C6-19** Indication in braille

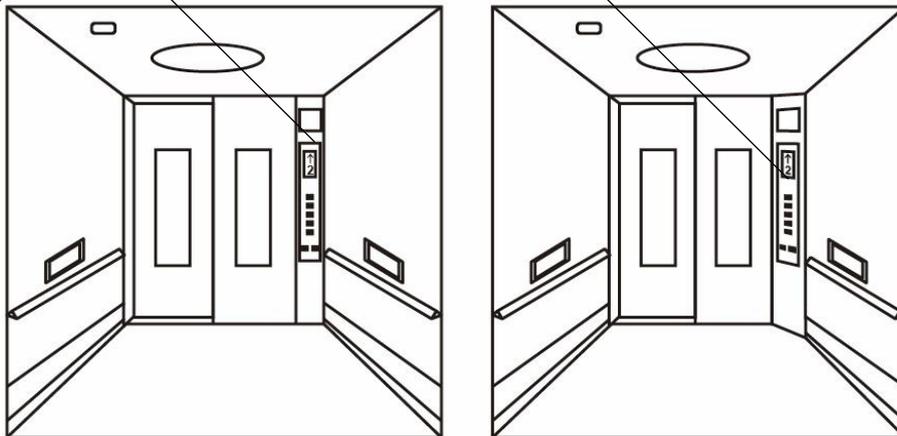
**C6-14** Handrails installed on both sides

(3-18. Fixtures and equipment)

**C18-1** Handrails at approx. 750-850

**C6-11** A system that detects passengers and automatically holds the doors open

**G6-10** Installed on the right hand side facing the doorway from inside the car



**G6-10** Single operation panel installation position

Figure 3.6.1 Lift design illustration (1)

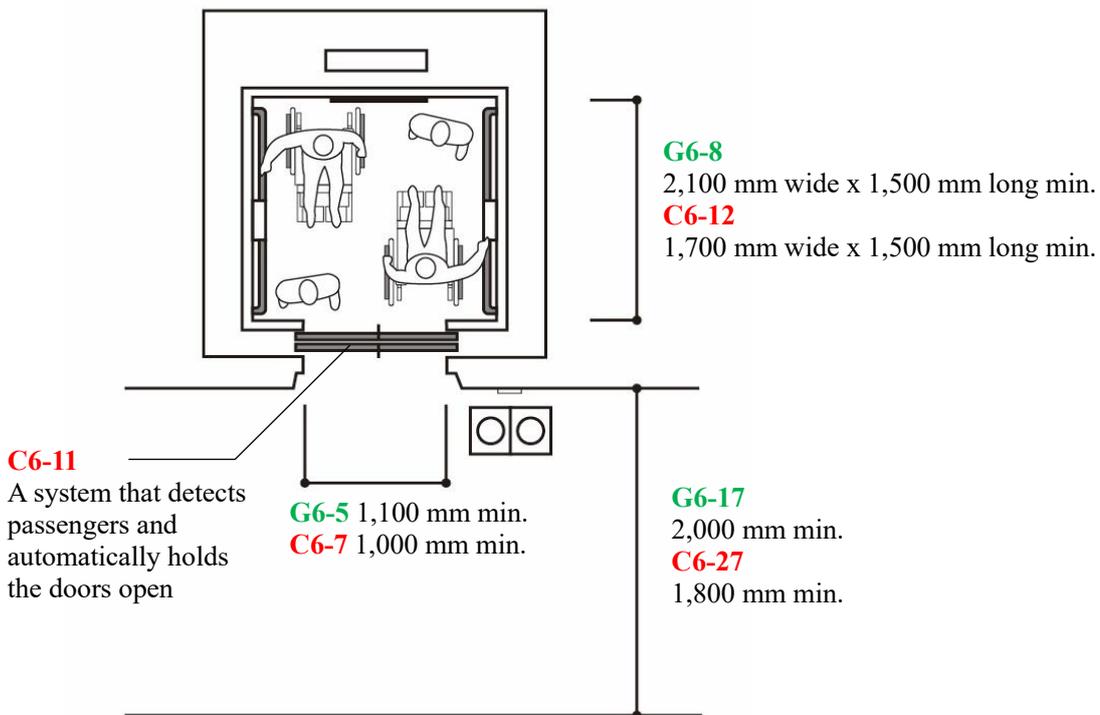
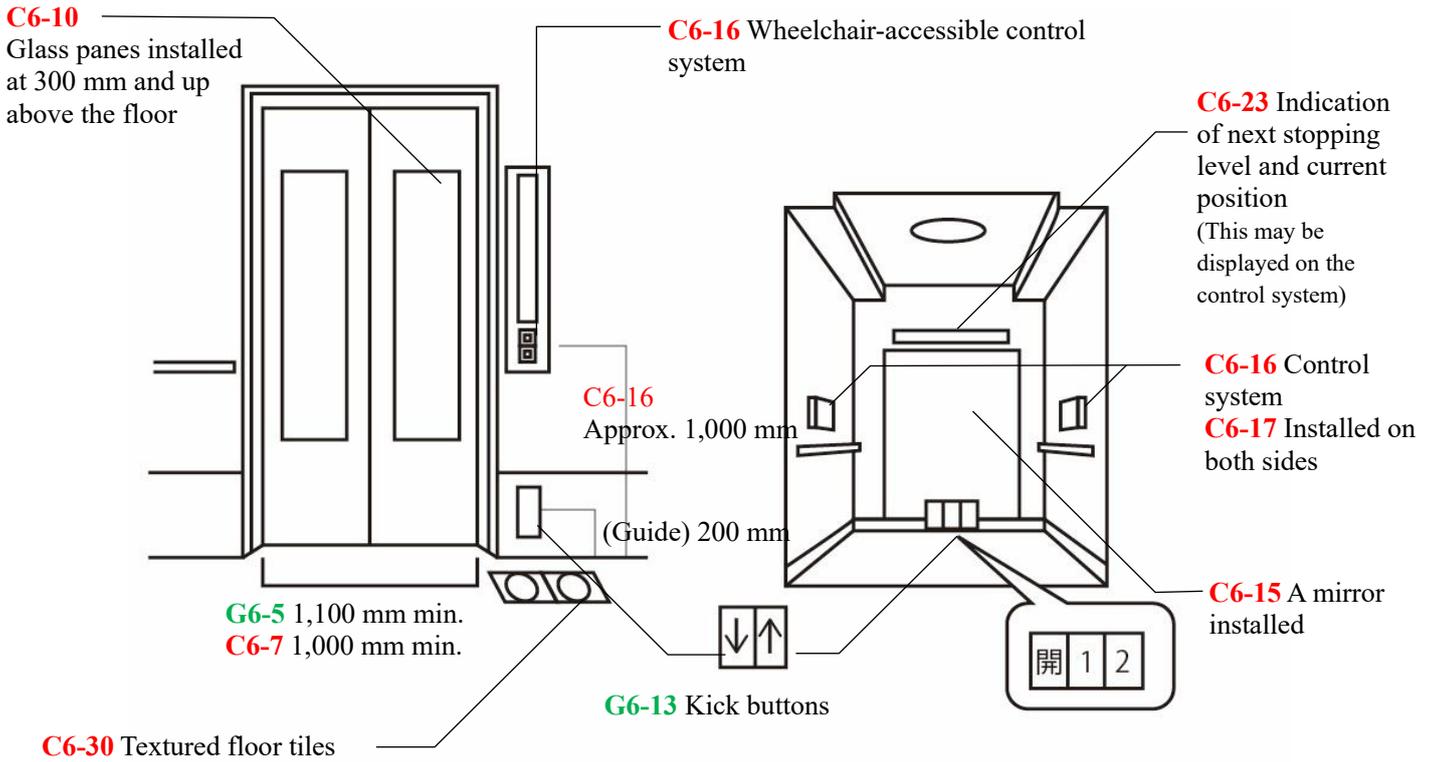


Figure 3.6.2 Lift design illustration (2)

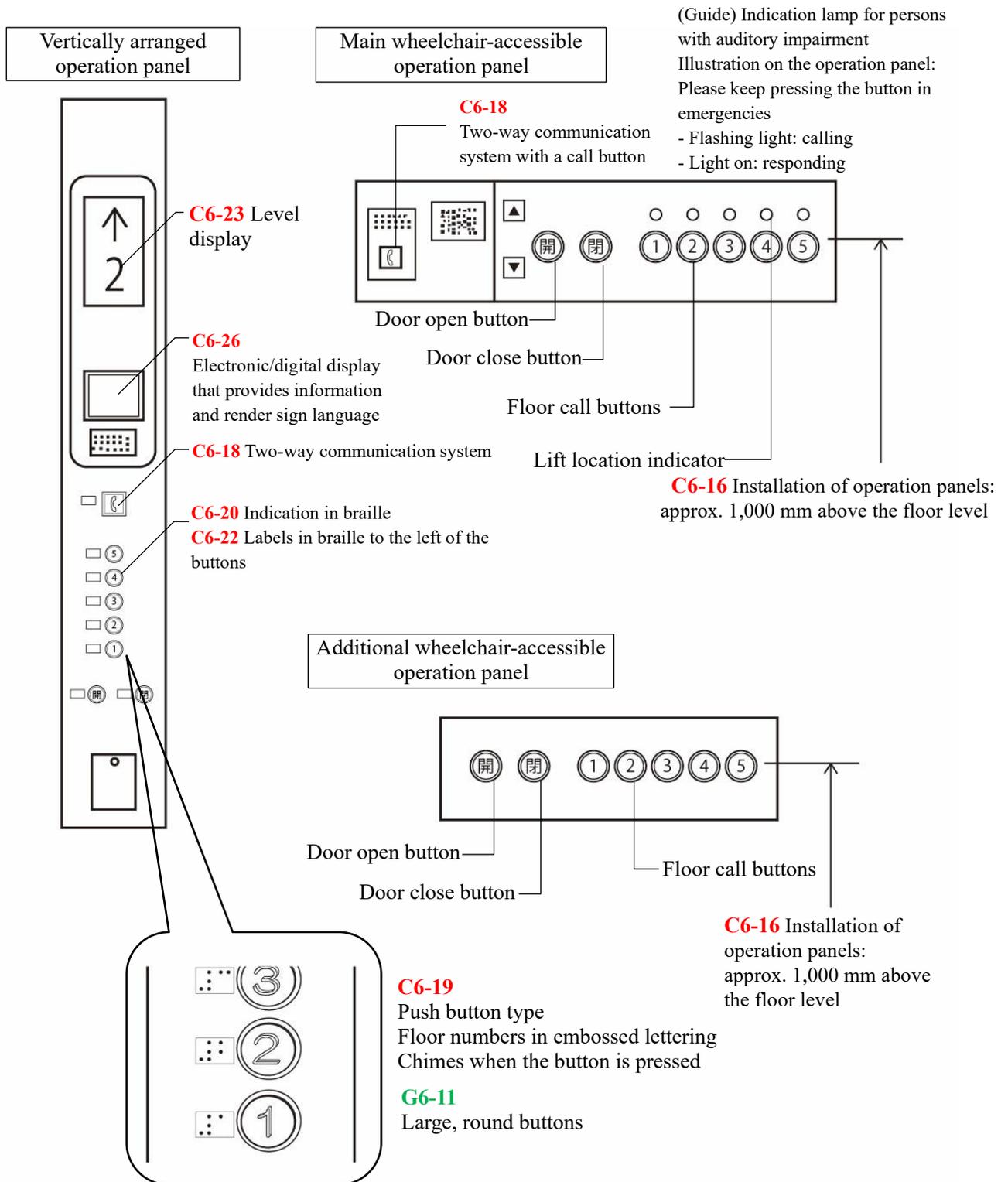


Figure 3.6.3 Control system

### 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 for many, including people without disabilities. Where escalators are to be installed, due considerations must be given to senior people and persons with disabilities. As for the escalators for horizontal mobility, these must be based on the standards set forth in these guidelines for the escalators for horizontal mobility.

#### 3-7-1. General guidelines

(Widths)

**G7-1** It is desirable that the width is in alignment with the type-1000 (the effective width of step approx. 1,000 mm).

(Distinctiveness of steps)

**C7-1** The steps must be easily distinguishable from the combs by the use of colours of different brightness, hue, or chroma.

**C7-2** The steps must be demarcated on the side edges for easy distinction from one another by colours of different brightness, hue, or chroma.

**G7-2** It is desirable that the steps are demarcated on all edges for easy distinction from one another (for example, side edges in yellow and nosing in green).

(Level steps)

**C7-3** The level area on a flight must have approximately three steps.

(Number of steps before reaching the normal step height)

**G7-3** It is desirable to ensure a slow, gradual transition from the horizontal area to the normal step height.

**C7-4** The number of steps before reaching the normal step height must be approximately 5 steps.

(Structure of moving handrails)

**C7-5** Moving handrails must have horizontal extension of 1,200 mm minimum before steps start rising/dropping at each end of the flight.

**G7-4** It is desirable that the moving handrails extend approximately 700 mm from the comb before boarding and after alighting.

**G7-5** It is desirable that measures are put in place to prevent injuries as a result of being caught between the moving and fixed handrails.

(Installation of fixed handrails)

**G7-6** It is desirable that the boarding and landing areas of escalators are provided with fixed handrails at least 1,000 mm long.

(Lighting equipment)

**C7-6** The floors of boarding/landing areas must be appropriately lit.

(Other)

**C7-7** Where escalators are installed in parallel for both ascending and descending, the direction of travel must be on the left one.

### 3-7-2. Cautionary notice

(Signage/notices/markings)

**C7-8** Notices (signage) for escalators must be provided near the escalators.

**G7-7** It is desirable that the escalators have notices displayed to caution against the risks of injuries by being caught in or falling.

(Textured floor tiles)

**C7-9** Textured floor tiles as warning markings must be installed on the floor inside the fixed handrails, at approximately 300 mm before the landing plate at the boarding and landing areas of an escalator.

### 3-7-3. Measures for guiding

(Voice information systems)

**C7-10** Voice guidance equipment 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)

**C7-11** The escalators must be fitted with emergency stop buttons on the walls or pillars near the boarding and landing areas.

(Sensors to prevent entry in the wrong direction)

**C7-12** The escalators must be equipped with sensors to prevent people from entering in the wrong direction.

(Monitoring cameras)

**G7-8** It is desirable that observation cameras are installed to monitor the escalator operations.

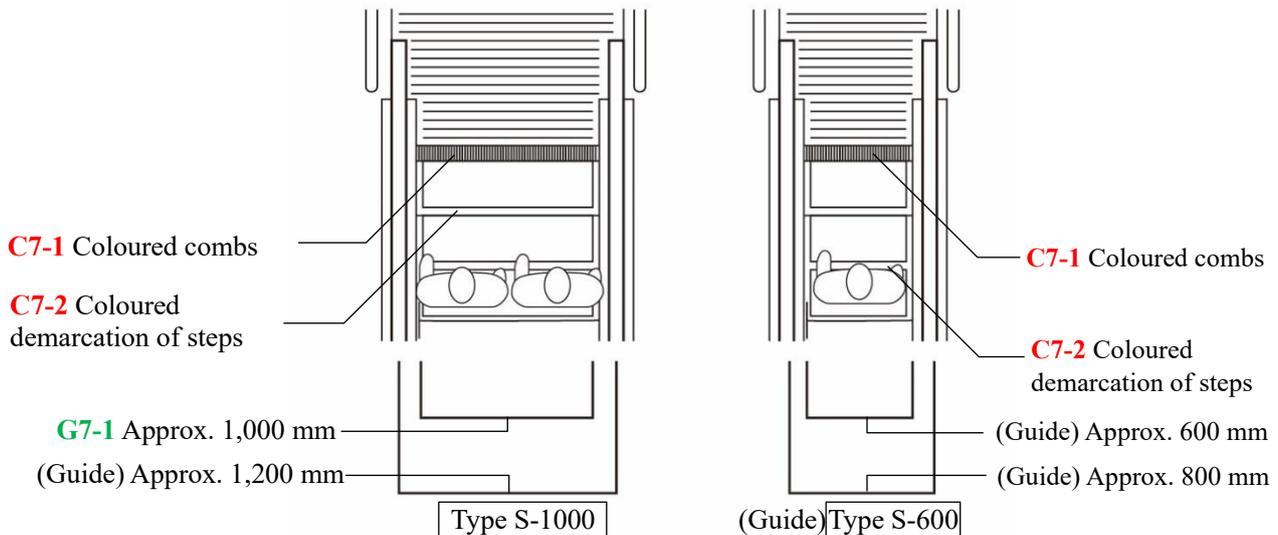


Figure 3.7.1 Escalator widths

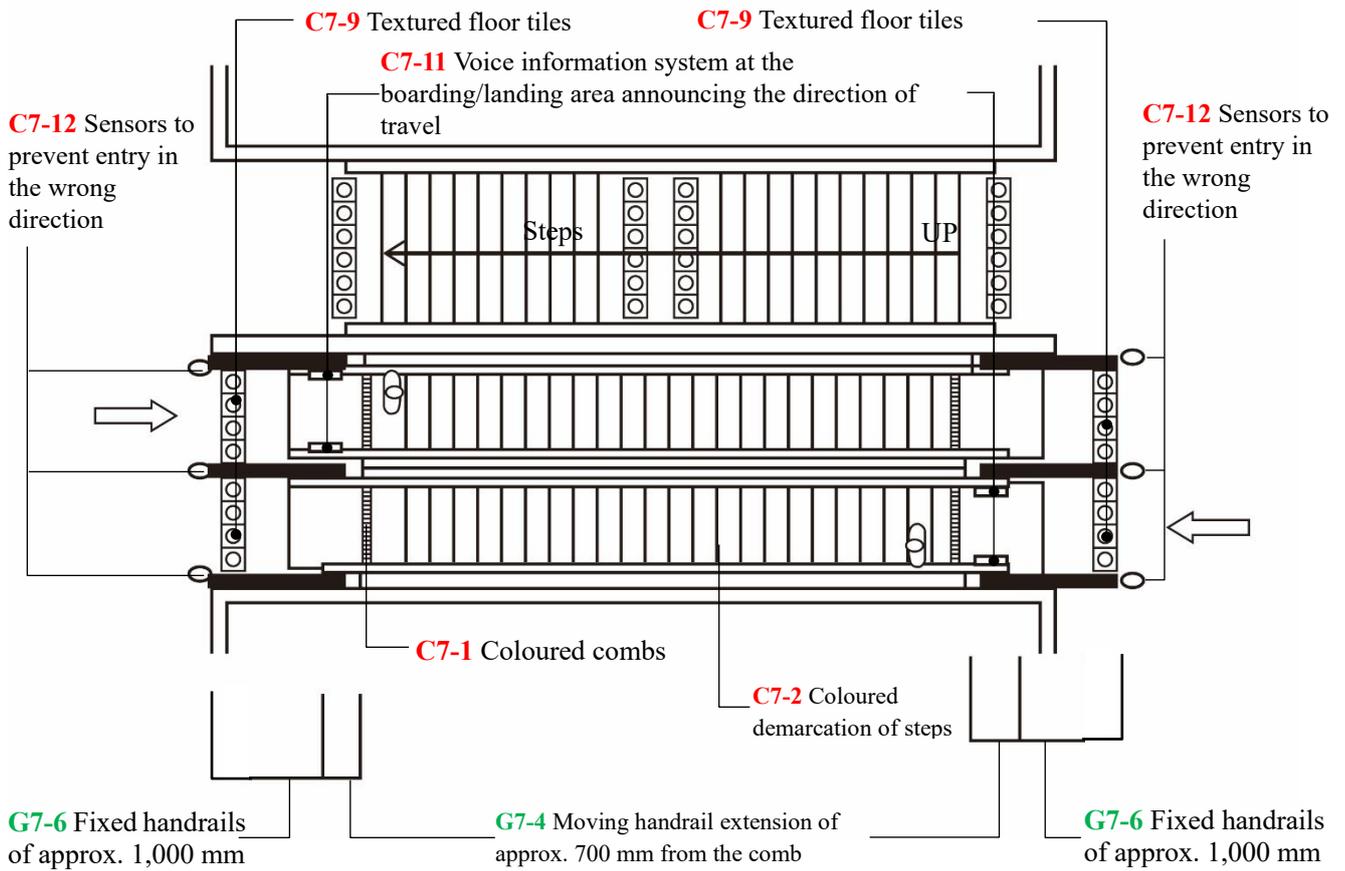


Figure 3.7.2 Illustration of escalator designs (plan view)

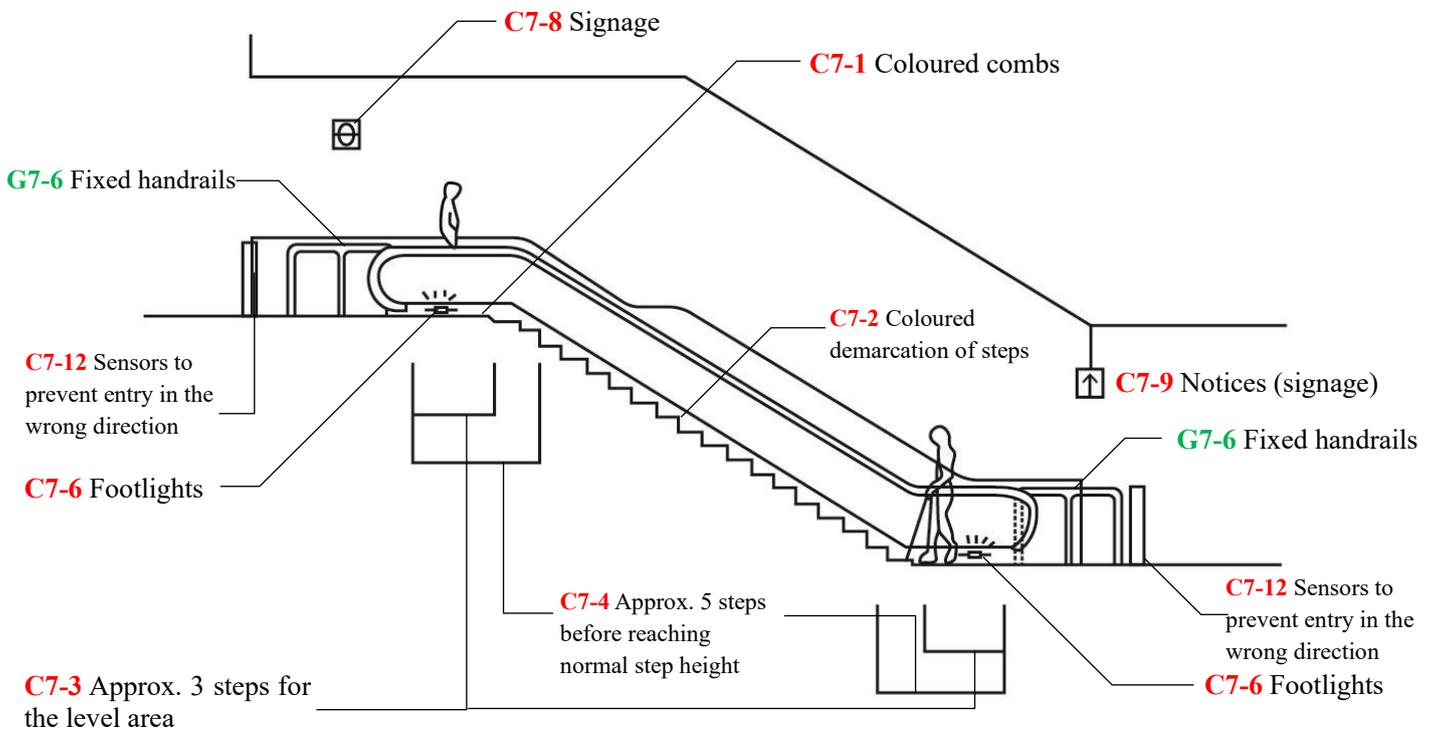


Figure 3.7.3 Illustration of escalator designs (section view)

### 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.

Platform lifts are devices which wheelchair users can operate in their seated position. The car has the rated speed of 15 m/minute maximum and the floor area of 2.25 square meters maximum.

#### 3-8-1. General guidelines

(Dimensions)

**C8-1** The platform must be at least 900 mm wide and 1,500 mm long.

(Adjacent areas)

**C8-2** An area of 1,500 mm square minimum must be provided to access the platform lift.

(Positions of call buttons in height)

**C8-3** Call buttons must be installed at approximately 700-1,200 mm above the floor.

(Doorways)

**C8-4** The doorway must be at least 900 mm wide.

**C8-5** Door-side walls must be installed.

(Handrails)

**G8-1** It is desirable that the platform lifts are fitted with at least two handrails, each mounted at approximately 800-1,000 mm above the floor.

(Control system)

**G8-2** It is desirable that the operation panels can be operated with the elbow.

**G8-3** It is desirable that operation panels are also provided outside to operate the lift externally.

(Distance of travel)

**C8-6** The maximum distance of travel must be 2,000 mm for lifts without doors and 4,000 mm for lifts with doors.

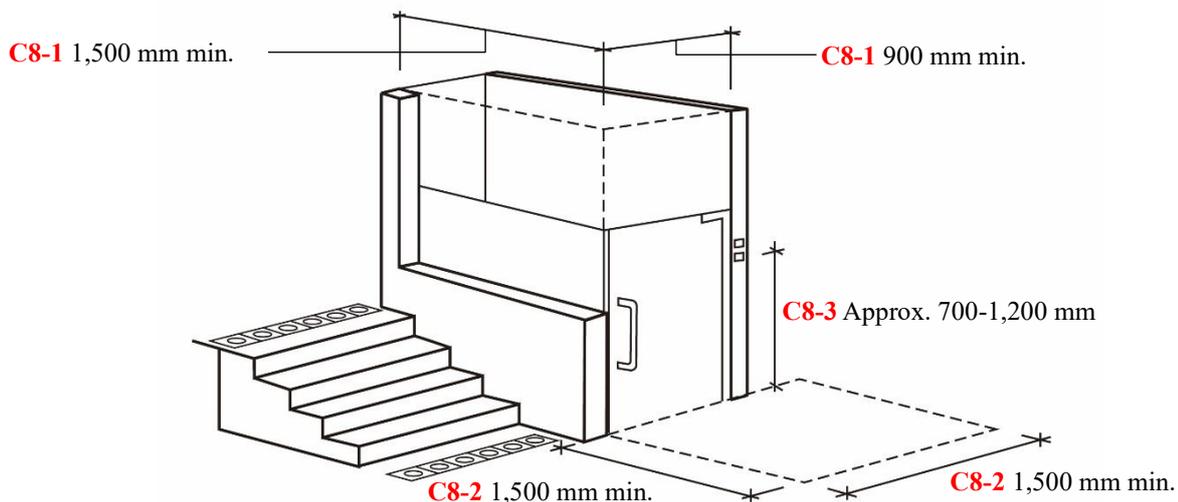


Figure 3.8.1 Platform lifts

### 3-9. Toilet Facilities

It is necessary that toilet facilities are planned and designed according to the purpose and scale of the facilities, that is easily accessible by all people, including the elderly, people with disabilities, caregivers of all genders, transgender individuals, and people accompanying babies/infants.

Given the recent trend for people to opt using accessible toilets which integrate conventional features, those who truly require those features find them unavailable when needed. It is necessary for specific features to be available among general individual toilet spaces through slight modifications and for the toilet facilities to be in dispersed locations to ensure availability for use by all kinds of people.

Pavilions are not obligated to provide toilet facilities, but it is desirable for toilet facilities to be available for visitors to use according to the Guidelines in facilities where the duration a visitor stays is generally long, the traveling distance is long, or where eating and drinking is entailed.

See 3-16. Baby care rooms for information on equipment for babies/infants.

### 3-9-1. Locations

(Wheelchair-accessible individual toilet space)

- C9-1** At least one individual toilet space must be provided that is easily accessible to wheelchair users when installing toilet facilities. [See Figure 3.9.1]
- C9-2** Wheelchair-accessible individual toilet space must be planned as an integral part of a toilet facility wherever it is possible.
- C9-3** At least one wheelchair-accessible individual toilet space that is in consideration of caregivers or people accompanying wheelchair users of all genders must be provided in a location that can be used by anyone.

(Individual toilet spaces accessible for ostomy bag users)

- C9-4** At least one individual toilet space must provide facilities for emptying ostomy bags.

(Specific features, dispersed locations) [See Figure 3.9.3]

- G9-1** To prevent overcrowding of wheelchair-accessible individual toilet spaces equipped with various features, it is desirable for individual toilet spaces with the following specific features to be installed in dispersed locations. [See Figure 3.9.4]
  - Install toilets that are all-gender other than as part of wheelchair-accessible individual toilet spaces.
  - Install a minimal wheelchair-accessible individual toilet space (with doorways having effective width and minimum space for wheelchair users) in men's and women's toilet facilities as well [See Figure 3.9.9]
  - Install ostomy equipment and baby/infant equipment in men's and women's toilet facilities.
- C9-5** When installing multiple individual toilet spaces to prevent crowding of wheelchair-accessible individual toilet spaces equipped with more features, from among minimal wheelchair-accessible individual toilet spaces, ostomy equipment, baby/infant equipment, etc., specific features with the most demand that will help alleviate overcrowding are to be installed in individual toilet spaces in dispersed locations. [See Figure 3.9.4]

### 3-9-2. Doors

(Widths)

- G9-2** It is desirable for doorways to wheelchair-accessible individual toilet spaces to be at least 950-1,000 mm wide.
- C9-6** Doorways to wheelchair-accessible individual toilet spaces must be at least 850 mm wide.
- G9-3** It is desirable for doorways to general individual toilet spaces to be at least 750 mm wide which makes them accessible to wheelchair users.
- C9-7** All doorways to toilet facilities leading to individual toilet spaces must be at least 800 mm wide.

(Styles)

- G9-4** It is desirable for doorways to wheelchair-accessible individual toilet spaces and minimal wheelchair-accessible individual toilet spaces to be equipped with an automatic door.
- C9-8** Doorways leading to wheelchair-accessible individual toilet spaces and minimal wheelchair-accessible individual toilet spaces must have a sliding door but not the accordion type (if structurally restricted in the case of minimal wheelchair-accessible individual toilet spaces, a folding-type door is acceptable but it must be one that a wheelchair user is able to open and close unassisted.)

- C9-9** Manual sliding doors must be fitted with bar handles that put easy grip into consideration. Hinged doors must be equipped with lever handles that are large enough for easy operability.

(Approach to the toilet)

- C9-10** There must be no level changes in the approach to the doorway of toilet facilities. If it is structurally unavoidable, a slope must be installed.
- C9-11** The area in front of doorways to wheelchair-accessible individual toilet spaces and toilet facilities equipped with wheelchair-accessible individual toilet spaces must include space with a level surface that is at least a 1,400 mm square.

(Door operation buttons)

- C9-12** If using automatic door operation buttons in toilet areas, push buttons must be installed for easy operability as some people are unable to use the system that involves holding a hand over a sensor.
- C9-13** If using automatic door operation buttons in toilet areas, push buttons must be installed at least 700 mm away from the door so that it does not become an obstacle to passage.

(Features)

- C9-14** Doors for general individual toilet spaces must be structured so as to be in the open position when unoccupied.
- G9-5** It is desirable for doors to wheelchair-accessible individual toilet spaces to be fitted with speed control and/or damping systems.

(Locks)

- C9-15** The door locking system for wheelchair-accessible individual toilet spaces must be easy to operate by people who have difficulties using their hands, and it must be possible for doors to be unlocked from outside in case of an emergency. [See Figure 3.9.6]
- C9-16** Where the individual toilet spaces are fitted with manual sliding doors, the lock system must be one that 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.
- C9-17** The door locking system must be fitted around the doorknob so that it is easy to find for people with visual impairment, and any baby chairs that are installed must be placed where babies/infants cannot reach the door locking system.
- G9-6** It is desirable for the door locking system to wheelchair-accessible individual toilet spaces to be fitted in two places, one at a height that is easy to reach for wheelchair users and another that is easy to use in a standing position. (To prevent unlocking by children)

(Occupancy indicator)

- C9-18** Wheelchair-accessible individual toilet spaces must have a system to display an “occupied” sign in a location conspicuous from the outside.
- G9-7** It is desirable that doors for general individual toilet spaces are fitted with a device that indicates occupancy status.

### 3-9-3. Individual toilet spaces

(Size of wheelchair-accessible individual toilet space)

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

- C9-19** Dimensions inside wheelchair-accessible individual toilet space must be at least 2,200 mm x 2,200 mm with a turning space of at least 1,800 mm in diameter, so that users of large electric wheelchairs can rotate inside.
- G9-8** Assuming features are in dispersed locations, it is desirable for space to be secured according to the added features.  
[See Figure 3.9.5]

(Toilet bowl access in wheelchair-accessible individual toilet spaces)

- C9-20** The toilet bowl in a wheelchair-accessible individual toilet space must be positioned so that it allows not only to approach from the front end, but also to slide onto the seat from the left or right side.
- C9-21** When installing more than one wheelchair-accessible individual toilet space, there must be at least

one toilet bowl each that allows sliding onto the seat from the right side and from the left side.

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

**C9-22** Wheelchair-accessible individual toilet spaces must have a space at least 750 mm wide (800 mm or more recommended) inside the cubicle so that a wheelchair user can slide onto the toilet seat sideways.

(Size of minimal wheelchair-accessible individual toilet spaces) [See Figure 3.9.9]

**C9-23** At least 2,000 mm x 1,300 mm must be secured for front/side entry.

**C9-24** At least 1,800 mm x 1,500 mm must be secured for side entry.

(Handrails)

**C9-25** Wheelchair-accessible individual toilet spaces must be equipped with appropriate handrails on both the left and right-hand sides.

**C9-26** Handrails in wheelchair-accessible individual toilet space must 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. and the other must be a movable type.

**C9-27** The handrail alongside the wall of a wheelchair-accessible individual toilet space must be L-shaped, height of horizontal handrails approx. 200-250 mm from the toilet seat, vertical handrails mounted approx. 250 mm apart from the end of the toilet bowl, handrails installed on both sides be approx. 700-750 mm apart, and handrails on both sides be installed in an even distance from the centre of the toilet seat. [See Figure 3.9.1]

**G9-9** It is desirable that the handrails inside an individual toilet space can sustain 1 kN of load in any direction.

**G9-10** It is desirable that the handrails, toilet bowl, and walls inside an individual toilet space are in contrast from each other in consideration of people with low vision.

#### 3-9-4. Toilet bowls/urinals

(Styles)

**C9-28** Toilet bowls must be of a seating type (standard style) in general.

**G9-11** It is desirable that toilets are fitted with a spray wash feature.

**G9-12** It is desirable that a toddler urinal is installed in all toilet facilities.

(Types of bowls in wheelchair-accessible individual toilet space)

**C9-29** The toilet bowls must be of a seating type.

**C9-30** Toilet bowls must be fitted with a back rest.

**C9-31** Toilet bowls must be of the floor mounted type, with a small trap projection, so that wheelchairs (including electric ones) can approach close to it without the footrests getting in the way.

(Toilet seat heights for wheelchair-accessible individual toilet spaces) [See Figure 3.9.1]

**C9-32** Seats in wheelchair-accessible individual toilet space must be approx. 420-450 mm high excluding the lid.

(Provision of urinals)

**C9-33** Where men's toilet facility includes urinals, at least one urinal must comply with the following requirements. [See Figure 3.9.10]

(1) Floor or wall mounted urinal (350 mm 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) Must be installed at a position nearest to the lavatory entrance.

(Amenity goods for urinals)

**G9-13** It is desirable that urinals have target point marking or footprint markings.

**G9-14** It is desirable that a hook or similar device to rest a cane, umbrella, etc. on is provided near each urinal.

**G9-15** It is desirable that a stand for personal belongings is provided by each urinal that is reachable by a person in a wheelchair (including electric ones).

### 3-9-5. Flooring

(Finish)

**C9-34** The floor must have a rough surface or be finished using slip-resistant materials.

**G9-16** The finish materials must also have an appropriate level of elasticity to lessen the trip injury risks.

### 3-9-6. Auxiliaries in individual toilet spaces

(Installation of operation equipment etc.)

**C9-35** When mounted on a side wall, flush buttons, call buttons, and paper (roll) holders must be positioned in compliance with the standard JIS S0026 (ISO19026) in principle and take into consideration being in contrast from their surroundings.

(Flushing system)

**C9-36** The flushing system installed for toilet bowls in wheelchair-accessible individual toilet space and those accessible for ostomy bag users must be equipped with push buttons or other easy-to-operate mechanisms. [See Figure 3.9.7]

**C9-37** Wheelchair-accessible individual toilet spaces must have a flush button on the cubicle wall, with a label in braille.

**C9-38** Operation of the flushing system is to use push buttons in principle, and where a sensor-type flush system is installed, a push button option must also be provided that is easy to find for people with visual impairment.

(Toilet paper holders)

**C9-39** Individual toilet spaces accessible for ostomy bag users must have a separate paper holder that is positioned for easy use.

**C9-40** Wheelchair-accessible individual toilet spaces must have a separate paper holder that is positioned for easy use with a single hand from a seated position.

**G9-17** It is desirable for paper holders to be mounted on a side wall for all toilet facilities, as those built in to the wall are difficult for people with visual impairment to find.

(Equipment to communicate information in emergencies)

**C9-41** Wheelchair-accessible individual toilet spaces must be equipped for emergencies with a call system with lamp to acknowledge response, an emergency call lamp mounted at the lavatory doorway, and an alarm panel fitted in the management facilities.

**C9-42** The call button must be positioned at a low height on the wall to be reachable from a seated position and also after falling from a seated position.

**C9-43** The call button must have a label in braille, clearly distinguishable from the flush button.

**C9-44** Lavatories of facilities equipped with automatic fire alarm equipment must have a light-based alarm system such as a display system for showing letters or signs, flash lights, and rotary beacon lights installed in a position that can be sufficiently confirmed from all individual toilet spaces and provide information regarding emergency situations such as fires for all people, including those with auditory impairment.

(Installation of stands/shelves, etc.)

**C9-45** Individual toilet spaces accessible for ostomy bag users must have a shelf, etc. for personal belongings.

(Provision of sanitary bins)

**C9-46** Individual toilet spaces accessible for ostomy bag users must be equipped with sanitary bins.

(Large-sized bed) [See Figure 3.9.12]

**C9-47** Wheelchair-accessible individual toilet spaces must be fitted with a large-sized bed.

**C9-48** The size of large-sized beds must be approx. 600-800 mm in width and 1,500-1,800 mm in length, and there must be a sign regarding its presence posted at the doorway.

**C9-49** Layout of the toilet cubicle must be such that a wheelchair user is able to approach the large-sized bed in its flattened-out position.

(Provision of flushing basin)

**G9-18** It is desirable that individual toilet spaces accessible for ostomy bag users are equipped with

flushing basins fitted with a flush valve.

(Provision of changing platform/mirror)

**G9-19** It is desirable that individual toilet spaces accessible for ostomy bag users are equipped with a changing platform and a large mirror (a flat mirror, approx. 1,000 mm in length, mounted at 700-800 mm above the floor).

(Provision of clothes hooks)

**C9-50** Cubicles of wheelchair-accessible/ ostomy-bag-user individual toilet spaces must provide at least one clothes hook.

**C9-51** In wheelchair-accessible individual toilet spaces, clothes hooks must be mounted at two different heights.

**C9-52** Clothes hooks must be mounted at approx. 1,000 mm high for wheelchair users and approx. 1,700 mm high for others.

**G9-20** It is desirable that at least two hooks are provided in individual toilet spaces accessible for ostomy bag users, one for clothes and the other for catheters.

(Principles for the installation of baby/ infant-related equipment)

**C9-53** Baby chairs and diaper changing tables must be provided and labelled. Diaper changing tables may be installed outside individual toilet space.

**C9-54** Baby chairs, diaper changing tables, and other auxiliary facilities that may restrict the passageway for a wheelchair must not be installed near doorways.

(Baby changing benches)

**G9-21** It is desirable that diaper changing tables are approx. 800-850 mm tall, minimum of 700-750 mm clearance underneath and approx. 500 mm wide, equipped with measures to prevent babies from falling.

**G9-22** It is desirable that due consideration is given in terms of the arrangement of equipment so that the baby/infant on the changing tables will not directly see the lighting.

(Provision of air conditioning equipment)

**G9-23** It is desirable that wheelchair-accessible individual toilet spaces equipped with ostomy bag cleaning facility, large-sized beds, etc. are fitted with air conditioning equipment.

(Stands)

**G9-24** It is desirable for general individual toilet spaces to be equipped with shelves for personal belongings.

**C9-55** A stand for personal belongings must be provided in wheelchair-accessible individual toilet spaces that is reachable by a person in a wheelchair (including electric ones).

(Provision of liquid soap dispensers)

**C9-56** Individual toilet spaces accessible for ostomy bag users must be equipped with liquid soap dispensers.

**C9-57** Wheelchair-accessible individual toilet spaces must be equipped with liquid soap dispensers mounted at 700-1,200 mm above the floor.

### 3-9-7. Washing basin

(Positions of washing basin auxiliaries)

**C9-58** Additional equipment for washing basins must be installed within the area approx. 800-1,000 mm above the finished floor level and within approx. 750 mm from the centre of the washing basin.

**G9-25** It is desirable that each basin has all auxiliaries available to it.

**G9-26** In addition to the standard type, it is desirable to provide another basin approx. 450 mm deep, mounted at approx. 650 mm above the floor (able to easily reach the water tap) for use by children, etc.

(Clearance under washing basin)

**C9-59** Including all general individual toilet spaces, at least one (hand) washing basin must have leg space

underneath it to make it easily accessible to wheelchair users.

- C9-60** Washing basins in wheelchair-accessible individual toilet spaces must have leg space underneath them (approx. 650 mm high, 550-600 mm deep) to make them accessible to wheelchair users. [See Figure 3.9.8]

(Positions of mirrors)

- C9-61** If mirrors are installed with the washing basins in wheelchair-accessible individual toilet spaces, they must be positioned so that people other than wheelchair users can also use them.
- C9-62** Mirrors in wheelchair-accessible individual toilet spaces must be 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 approx. 1,000 mm tall. [See Figure 3.9.8]

(Arrangements for washing basins)

- C9-63** At least one washing basin in a toilet facility must be equipped with handrails and a liquid soap dispenser.
- C9-64** For wheelchair-accessible individual toilet spaces, the washing basin installed at 650 mm or higher must be mounted firmly on the wall or equipped with handrails, etc. so that the user can lean on it.

(Hand washing basins)

- G9-27** It is desirable that wheelchair-accessible individual toilet spaces are equipped with a hand washing basin that can be used by a person in a wheelchair. [See Figure 3.9.2]

(Types of water taps)

- G9-28** It is desirable for the water tap to be automatic, such as with a light sensor.
- C9-65** Water taps must be an easy-to-operate lever-type or a hands-free sensor tap.
- C9-66** Individual toilet spaces accessible for ostomy bag users must have a washing basin provided with warm water.

(Positions of water taps)

- C9-67** Water taps for washing basins in wheelchair-accessible individual toilet spaces must be mounted in a position easily accessible for wheelchair users (300 mm max. deep from the front end of the basin). [See Figure 3.9.8]

(Paper towel dispensers)

- C9-68** When installing a paper towel dispenser, it must be one that can be operated with a lever or hands-free, installed within approx. 750 mm from a washing basin (except ones on the opposite wall), mounted so that the operation mechanism and outlet are at approx. 800-1,000 mm above the floor.

(Drain taps)

- G9-29** It is desirable that the horizontal type (P-trap) is used for drains.

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

(Location indicator)

- G9-30** It is desirable for each toilet facility to have, by its doorways, markings in pictogram in white against the entire entrance walls in black (navy blue) or red.
- G9-31** It is desirable that these markings are placed at a height of 1,400-1,500 mm from the floor to the centre of the sign.
- G9-32** If there are individual toilet spaces with specific features on other levels/locations, it is desirable that information about the location of these individual toilet spaces be provided near these spaces.
- C9-69** Each toilet facility must have, by its doorways, markings in pictogram, etc. (being in contrast, with braille) indicating the sex the facility is intended for.
- C9-70** Doorways or doors to individual toilet spaces with specific equipment and features must have pictograms, etc. indicating those features in an obvious manner.
- C9-71** Wheelchair-accessible individual toilet spaces must be marked with the international symbol of access and must have labels in braille. (Use the phrase “Wheelchair-accessible individual toilet spaces”).

(Toilet location indicator)

- C9-72** Tactile graphic boards or some other equipment (embossed lettering, auditory information) must be installed near the toilet facility doorway to inform people with visual impairment of the facility sex distinction, facility layout, specific features in the accessible cubicles, etc.
- G9-33** It is desirable to provide a voice guide near the toilet facility doorway.
- C9-73** Where a voice guide is provided, the voice must inform of the men's, women's or shared facilities.
- G9-34** It is desirable that the toilet facility tactile graphic boards describe the specific features in the accessible individual toilet spaces and indicate their respective positions.
- G9-35** Where tactile graphic boards are provided, it is desirable to install a voice information system to inform of their locations.
- C9-74** Two textured floor tiles must be installed on the floor in front of the tactile graphic boards for the toilet facilities (except when a voice information system is provided).
- C9-75** Where a guide for routes to toilet facilities such as guiding tiles are provided for people with visual impairment, it must lead to toilet facilities other than wheelchair-accessible individual toilet spaces.
- G9-36** It is desirable that textured floor tiles are installed in front of urinals and doors of individual toilet space so that people with visual impairment know where they are positioned in toilet facilities.

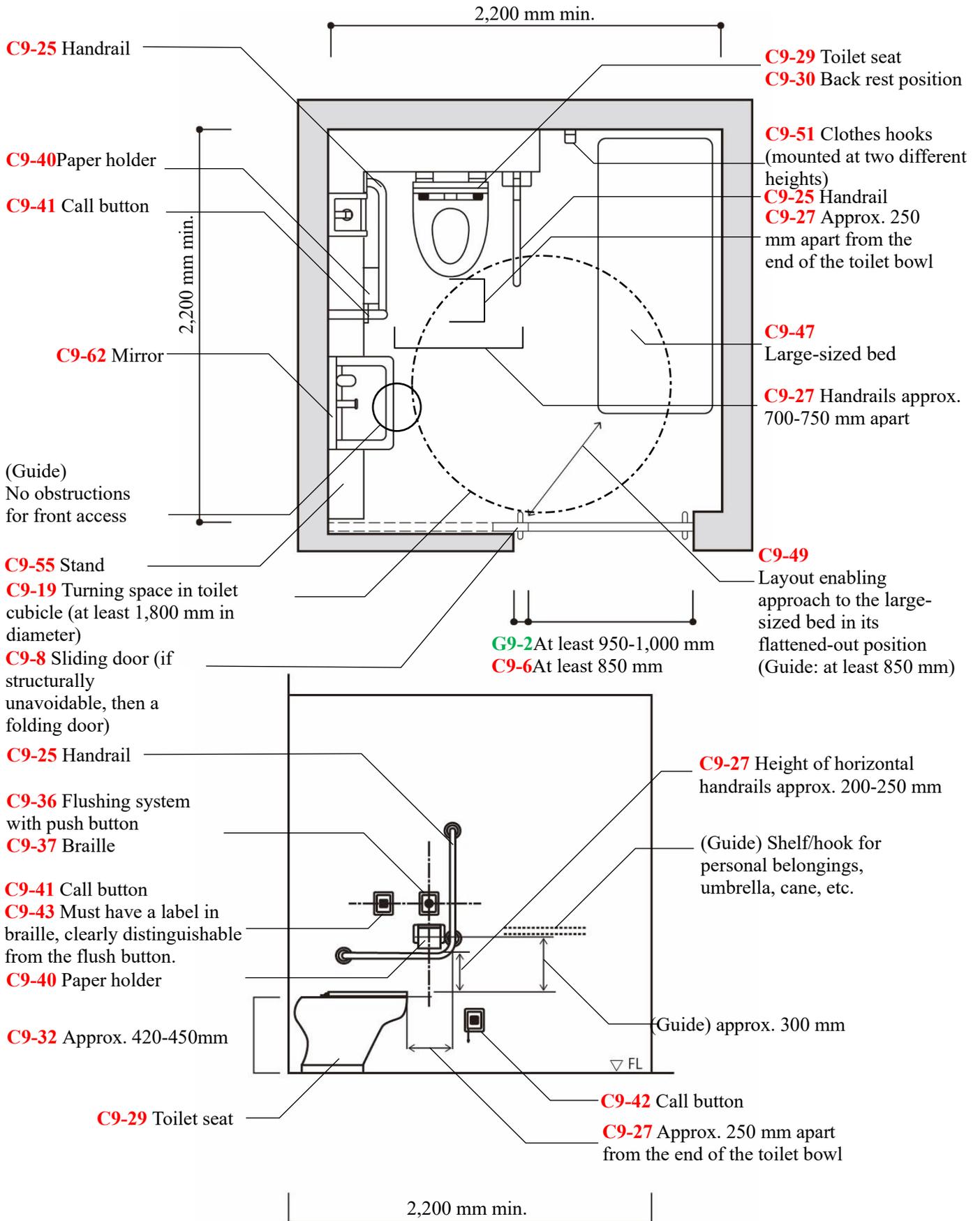


Figure 3.9.1 Illustration of design for wheelchair-accessible individual toilet space

**G9-27** Washing basin accessible for wheelchair users

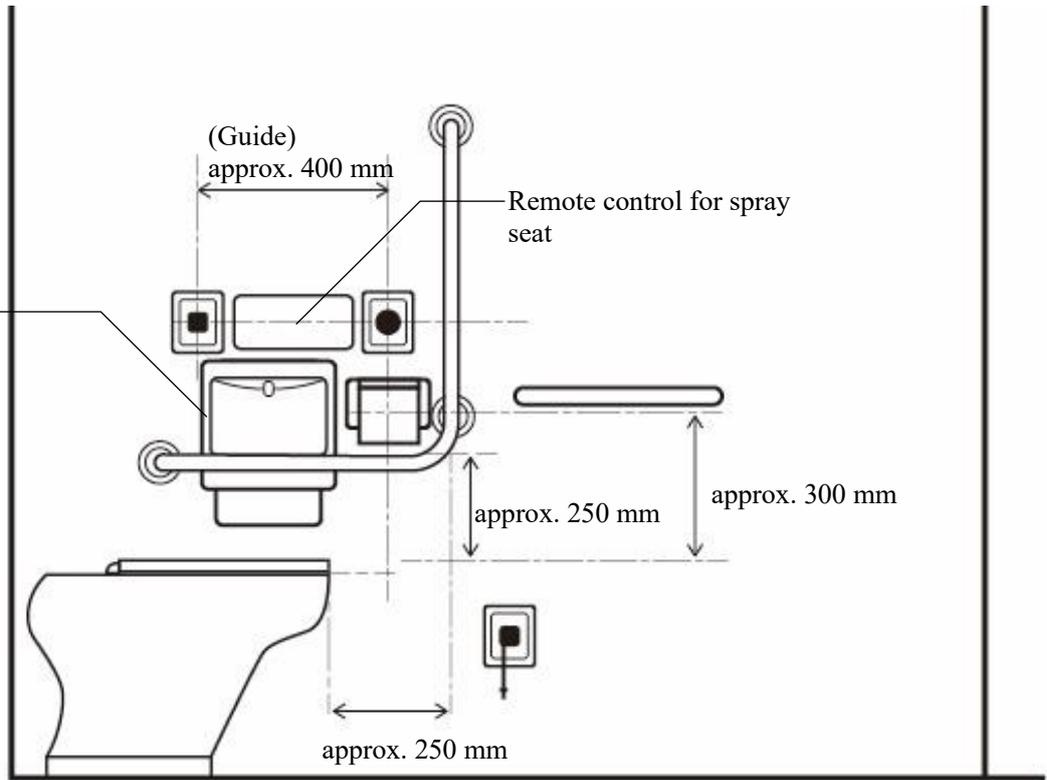


Figure 3.9.2 Illustration of design when installing a washing basin

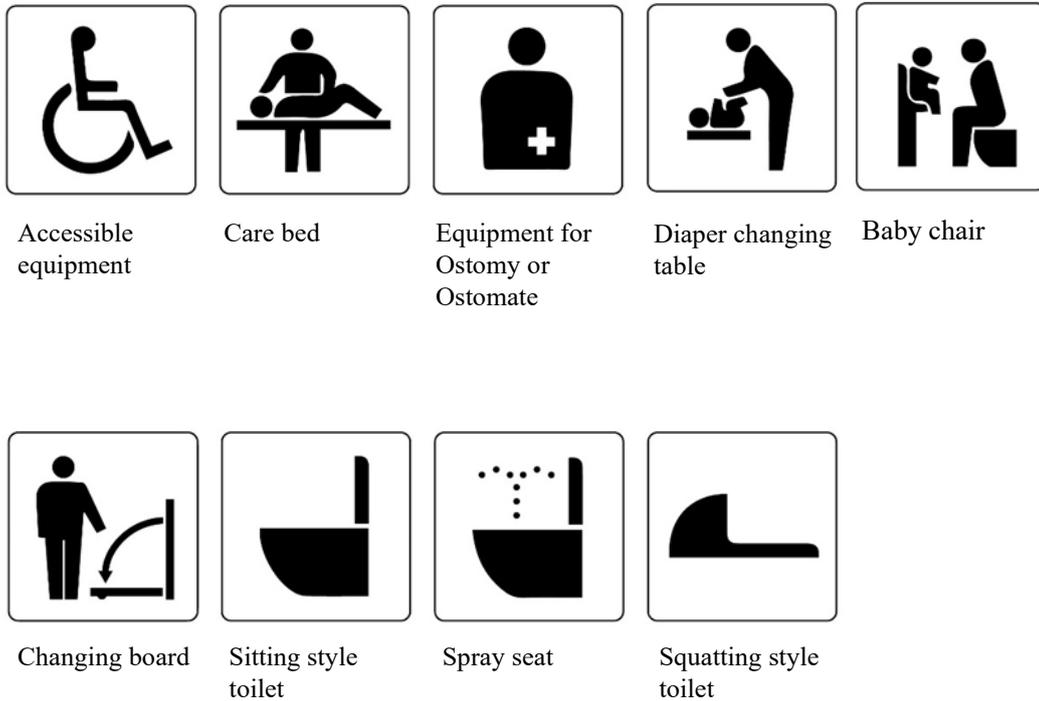
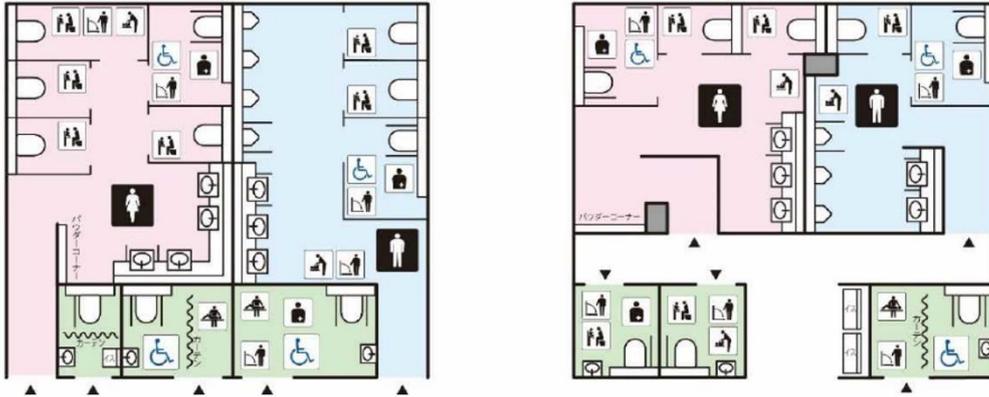
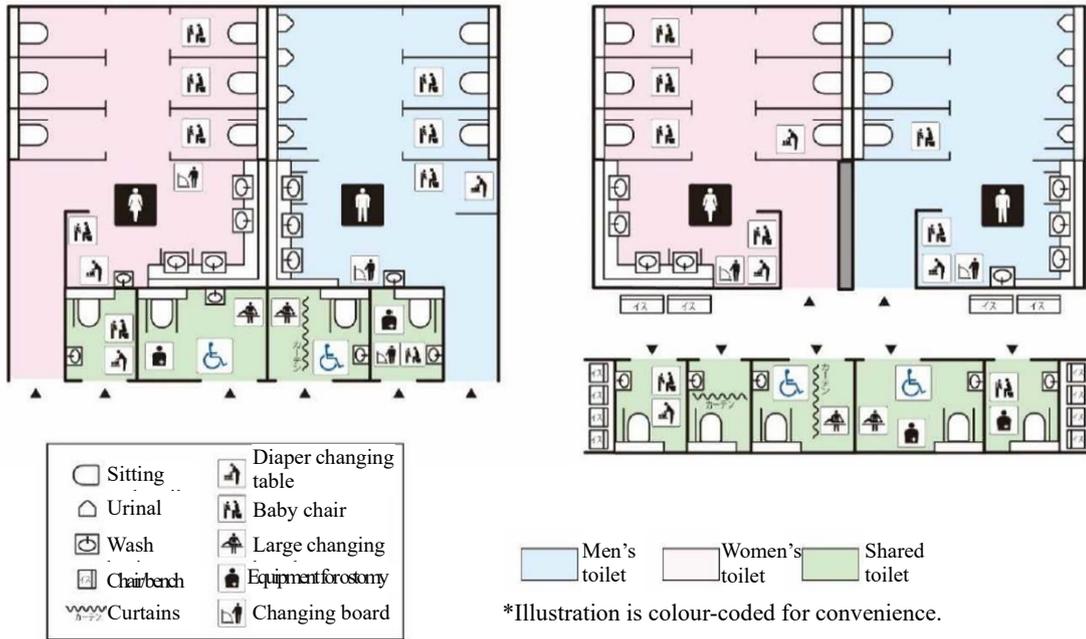


Figure 3.9.3 Examples of equipment (specific features) in individual toilet spaces

<Features dispersed between men's and women's toilets>



<Features dispersed among shared toilets>



\*Illustration is colour-coded for convenience.

Source: Report on Research Conducted to Improve Conditions Surrounding Toilets in a Symbiotic Society (March 2021)

Figure 3.9.4 Features dispersed among men's, women's, and shared toilets

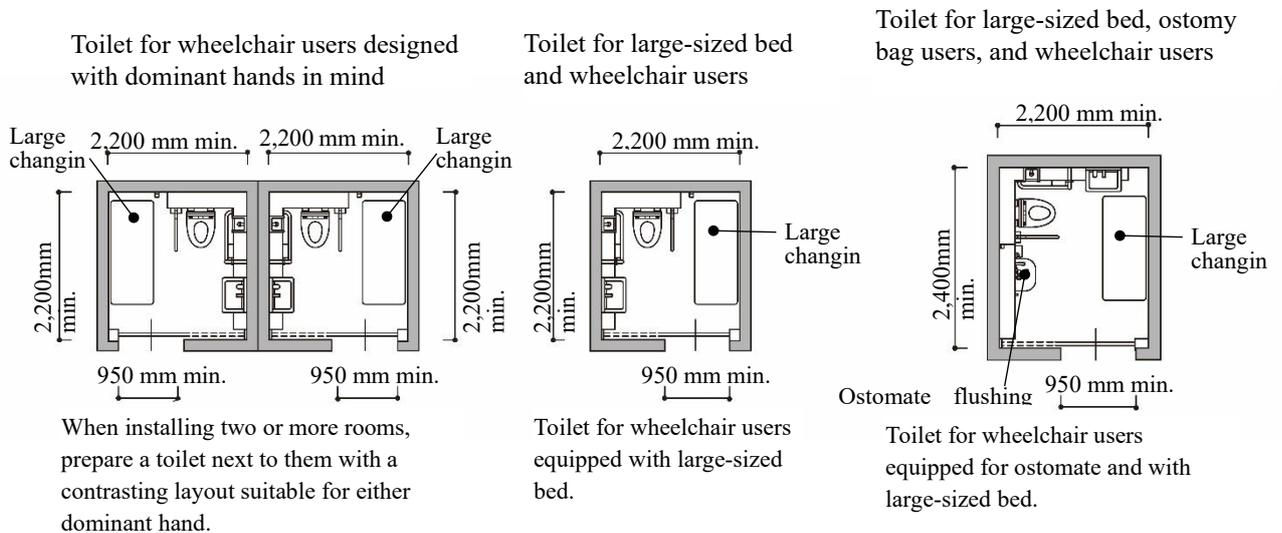


Figure 3.9.5 Recommended size for wheelchair-accessible individual toilet space with additional specific features

**C9-16**  
Lock system that can be operated easily such as a lever type

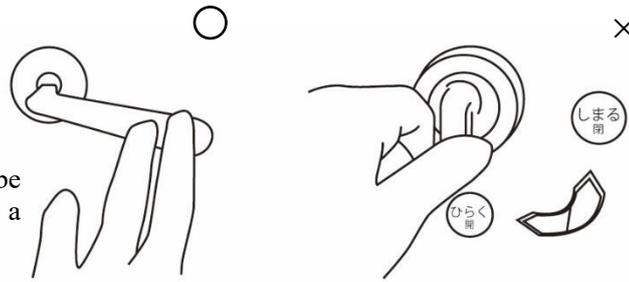


Figure 3.9.6 Lock system that can be operated easily

**C9-36** Push button type



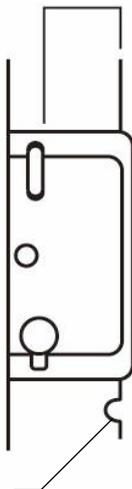
(Guide) Light sensor



Light sensors are difficult for people with visual impairment so push buttons must be added on

Figure 3.9.7 Flushing system that can be operated easily

**C9-67** 300 mm max.

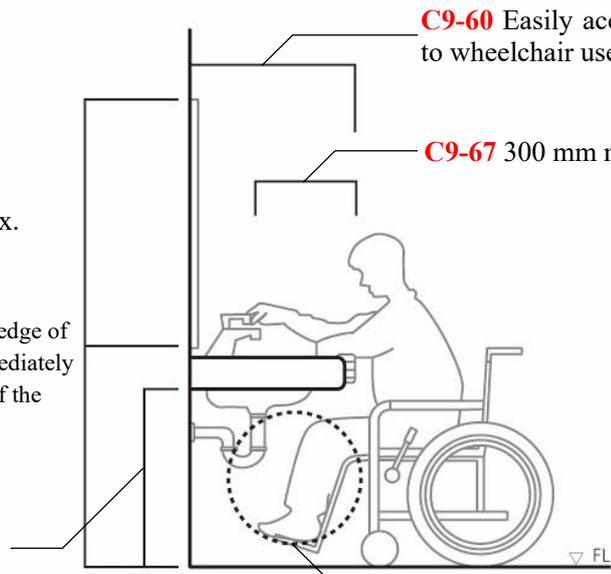


(Guide) An indent for resting an umbrella, cane, etc.

**C9-62**  
Mirror approx. 1,000 mm

**C9-62** Bottom edge of the mirror immediately above the top of the washing basin

**C9-60**  
Approx. 650 mm



**C9-60** Easily accessible to wheelchair users

**C9-67** 300 mm max.

**C9-60**  
Approx. 550-600 mm deep

Figure 3.9.8 Washing basin easily accessible for wheelchair users

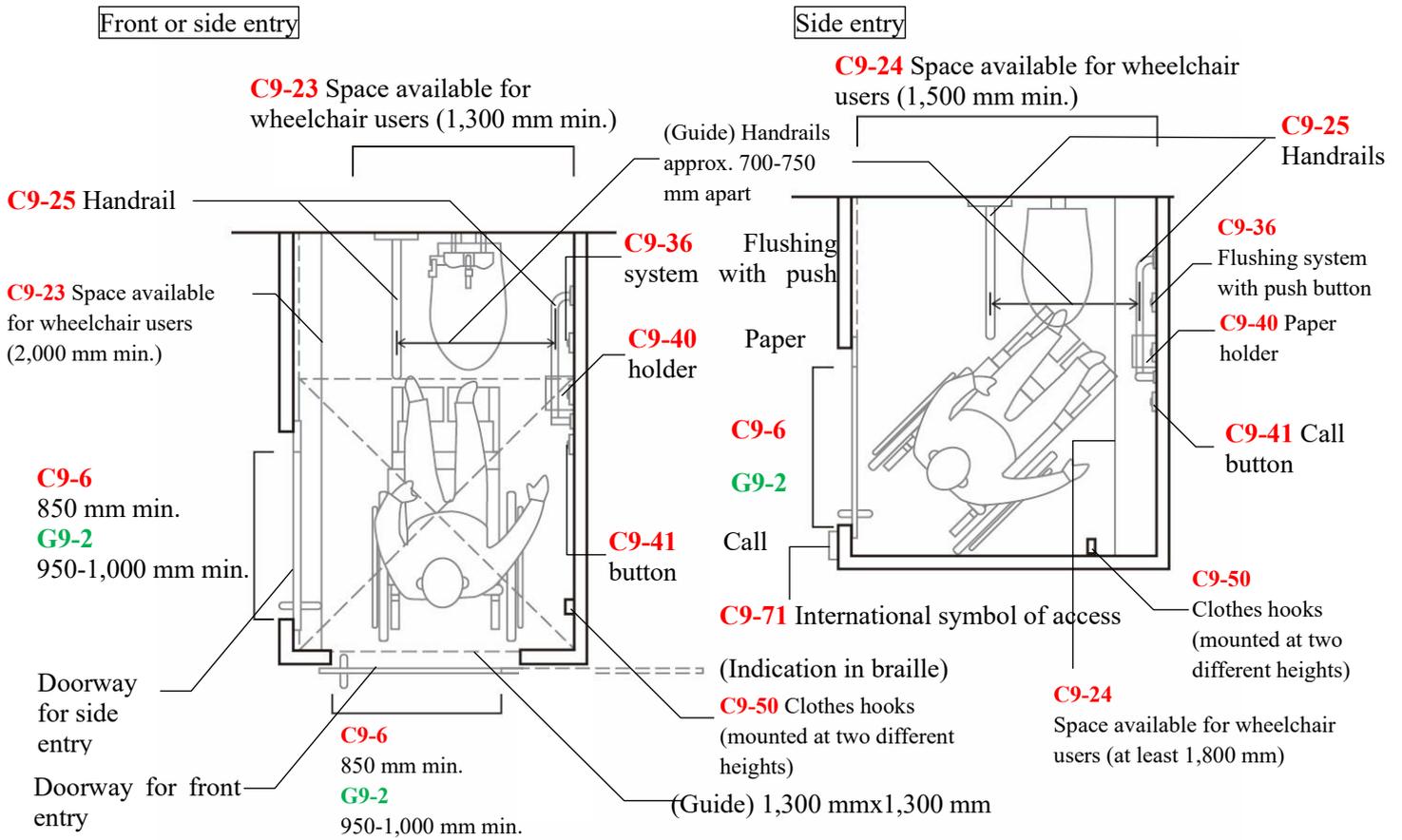


Figure 3.9.9 Illustration of minimal wheelchair-accessible individual toilet spaces

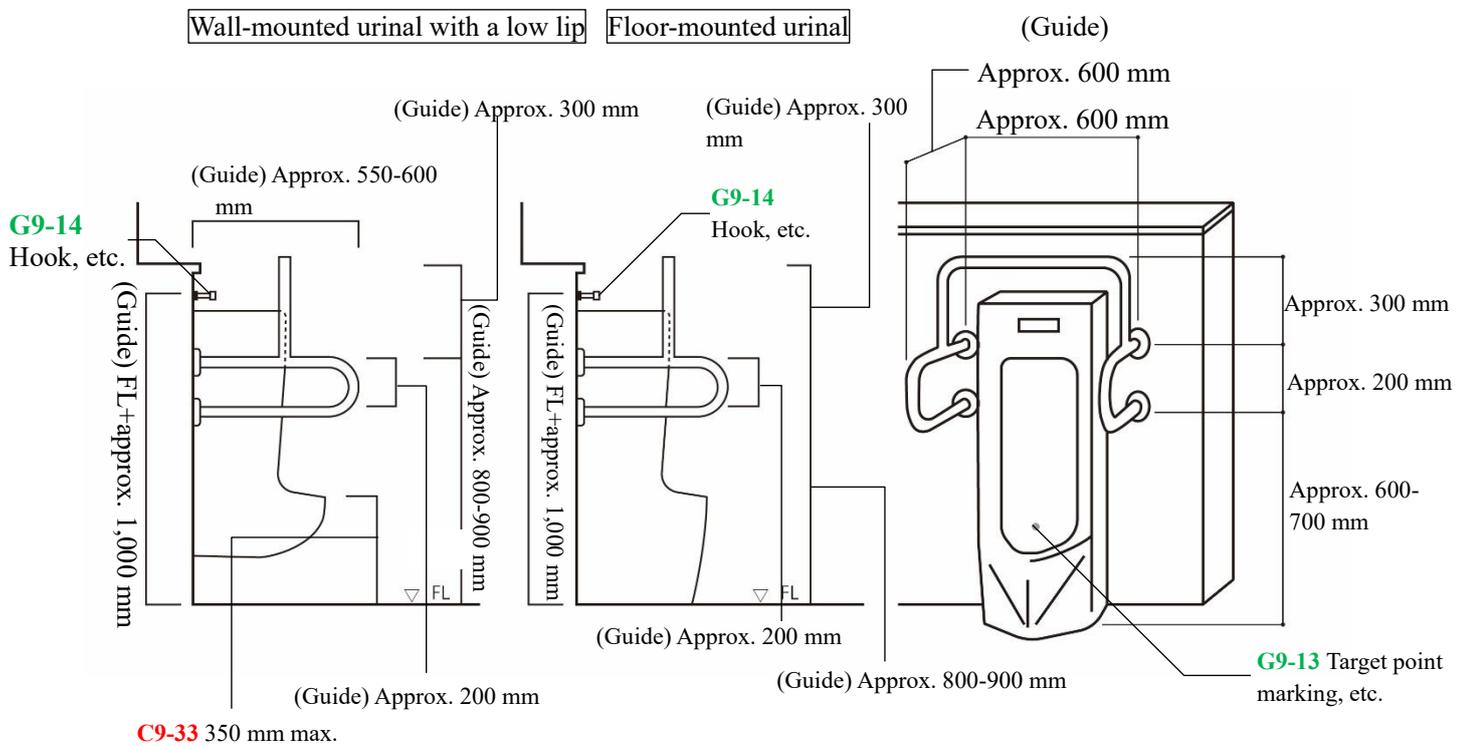


Figure 3.9.10 Urinal

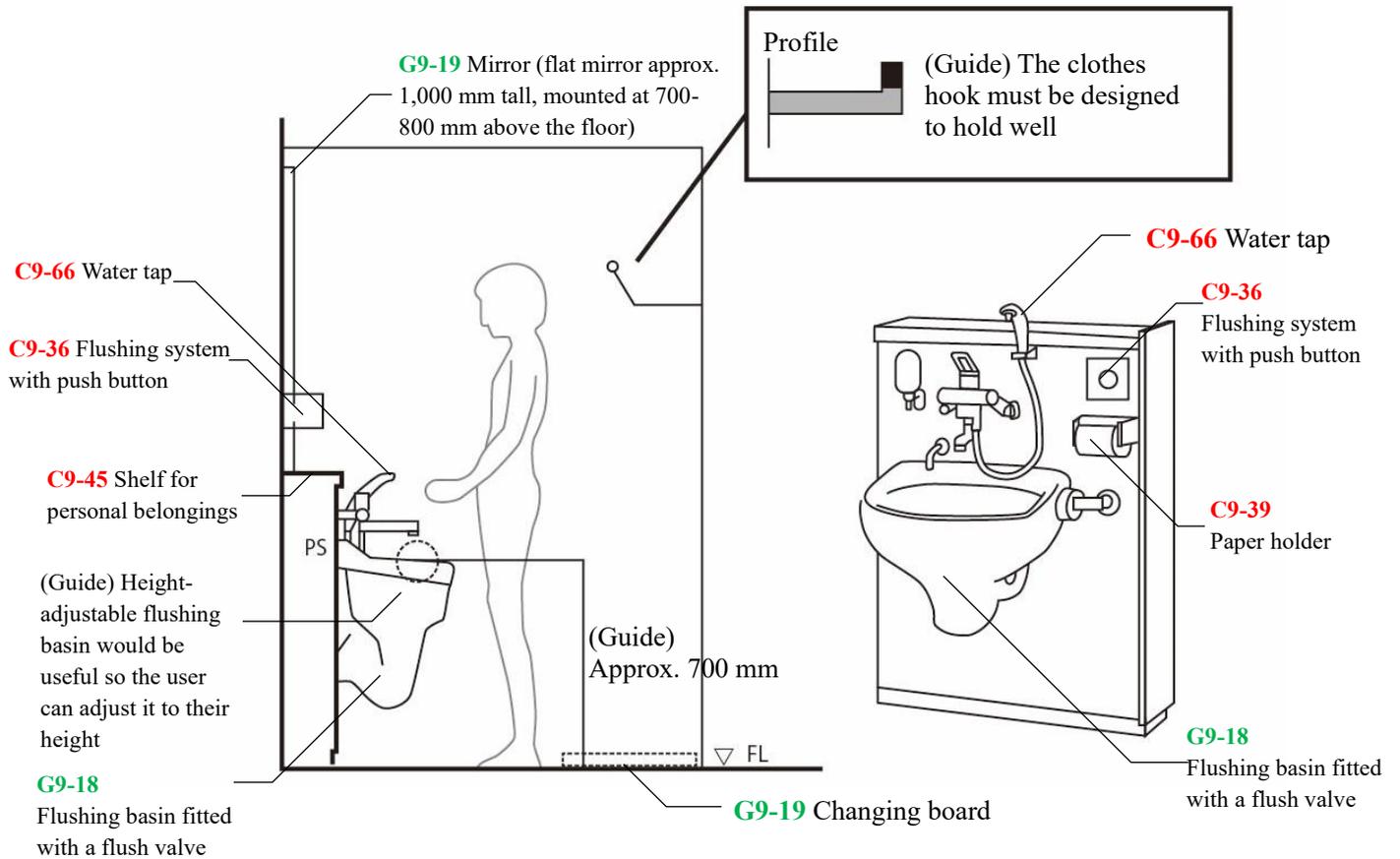
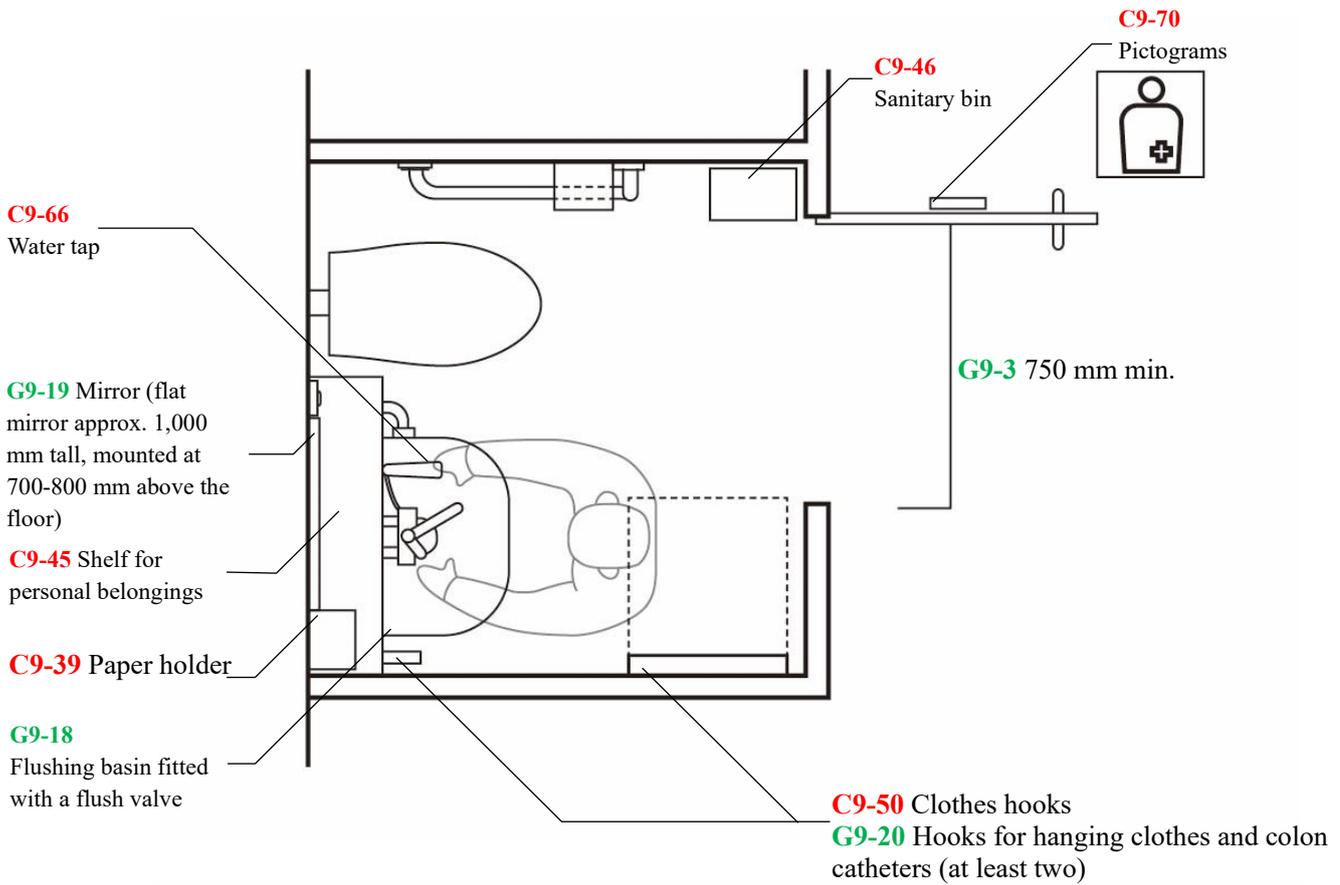


Figure 3.9.11 Individual toilet space accessible for ostomy bag users



### 3-10. Auditorium

The Expo Site will house many facilities for many people to enjoy a variety of offerings. In particular, the auditoriums visited by a large number of people at once must be designed taking into consideration the number and positioning of seats, passage widths, route formation, equipment in auditorium, etc. so that all visitors can have a good time in a safe and comfortable manner.

People with auditory and visual impairment are often disregarded during the design process for facilities so it is necessary to keep in mind the needs of users when shaping facilities.

#### 3-10-1. General guidelines

- C10-1** All routes leading to the auditorium and stage must be accessible, including the backstage area.
- C10-2** For the auditorium, doorways, lobbies, routes leading to accessible seats, toilets, rest areas, stage, etc. must all be planned in an integral and continuous manner.

#### 3-10-2. Wheelchair accessible seats

(Number/proportion of seats, locations)

- G10-1** It is desirable to secure the necessary number of wheelchair-accessible seats and to position seating space that enables group use by wheelchair users and a selection of locations to choose from.
- G10-2** If an auditorium is less than approx. 200, a flat floor seating style is desirable for users to freely choose a seating location.
- G10-3** It is desirable that seating space that is movable be provided in addition to fixed seating space for wheelchair-accessible seating.
- C10-3** The proportion of wheelchair accessible seats must be 2% for venues less than 200 seats (min. 2 seats), and 1%+2 seats or more for venues with 200 seats or more.
- C10-4** Wheelchair-accessible seats must be located in a dispersed manner in 2 or more different areas (different levels and horizontal locations) for wheelchair users to choose from. Except, however, where seating is less than four or a similar situation.
- C10-5** Each location with wheelchair-accessible seats must have dedicated space to accommodate 2 or more wheelchair users at the same time.

(Securing accessibility)

- C10-6** The route from doorways to wheelchair-accessible seats must be accessible for wheelchair users. A slope must be installed for any level changes. (See 3-5. Slopes regarding the slope gradient.)
- C10-7** Effective width for passageways leading to seating accessible to wheelchair users must be at least 1,200 mm, and wheelchair turnaround space at least a 1,400 mm square.

(Number and width of seats for assisting companions)

- C10-8** Seats for assisting companions of wheelchair users must be in the same proportion as the wheelchair accessible seats.
- C10-9** Seats for assisting companions must have same specifications as general seats.

(Size)

- C10-10** A wheelchair accessible seat space must be at least 900 mm wide and 1,400 mm long minimum.
- C10-11** Space surrounding a wheelchair accessible seat must be large enough for easy wheelchair passage and turnaround (at least a 1,400 mm x 1,400 square).

(Floors)

- C10-12** Floors for the seats must be horizontal and be finished to be slip-resistant.
- C10-13** Guard rails and kerbs to prevent a wheelchair from running off the path must be installed where there are fall hazards. In that case, space must be designed to allow both wheelchair user and assisting companion to be comfortable.

(Provision of electrical outlets)

- C10-14** Electrical outlets must be installed, one for every five fixed wheelchair-accessible seats indoors, for recharging electric wheelchairs.

(Sightlines for wheelchair-accessible seats)

- C10-15** Good sightlines must be ensured for all wheelchair-accessible seats. If there is the possibility of

spectators in the front rows standing up during a performance, level changes must be made accordingly or seats should be shifted among the rows.

**C10-16** It is desirable that guard rails, handrails, etc. are no higher than 800 mm so they do not obstruct sightlines.

**G10-4** It is desirable for sightlines to be secured using eye height of lower primary school students using wheelchairs (700-800 mm).

### 3-10-3. General seats

(Armrest types)

**G10-5** It is desirable that the armrests of isle-side seats can be flipped up or turned sideways.

(Seat number display)

**G10-6** It is desirable for row and seat numbers to be displayed with easy to see fonts (such as the UD font) alongside braille based on the JIS-T-0921 guidelines.

(Enhanced amenity seats/space)

**G10-7** It is desirable that enhanced amenity seats (for those with mobility constraints using an aide such as a cane except 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.

**G10-8** It is desirable to ensure there is approx. 500 mm of space on the side of an enhanced amenity seat.

(Arrangement for people accompanying babies/infants or people with auditory and visual impairment.

**G10-9** For the accessibility of people accompanying babies/infants, etc., it is desirable to provide a separate auditorium so as not to disturb other visitors.

**G10-10** It is desirable to gain the opinions of those directly involved so that sensor rooms and calm down/cool down rooms can be designed and positioned with visitors' flowlines and behavioural patterns in mind.

**C10-17** Calm down/cool down rooms (individual rooms or space) must be provided where visitors can calm themselves in facilities where a large number of visitors gather in a large space and where stimulation from sound, lighting, and images may be strong. (See 3-11 for necessary features)

**C10-18** So that various people including people with difficulty obtaining information aurally and visually can enjoy performances through various means, equipment (such as hearing loops) and space necessary to conform with provisions in guidelines formulated separately for exhibitions and events must be provided.

**C10-19** Display must be provided that indicates availability of equipment for access to information.

### 3-10-4. Vicinity of steps in auditorium

Arrangements at the top and bottom areas of steps

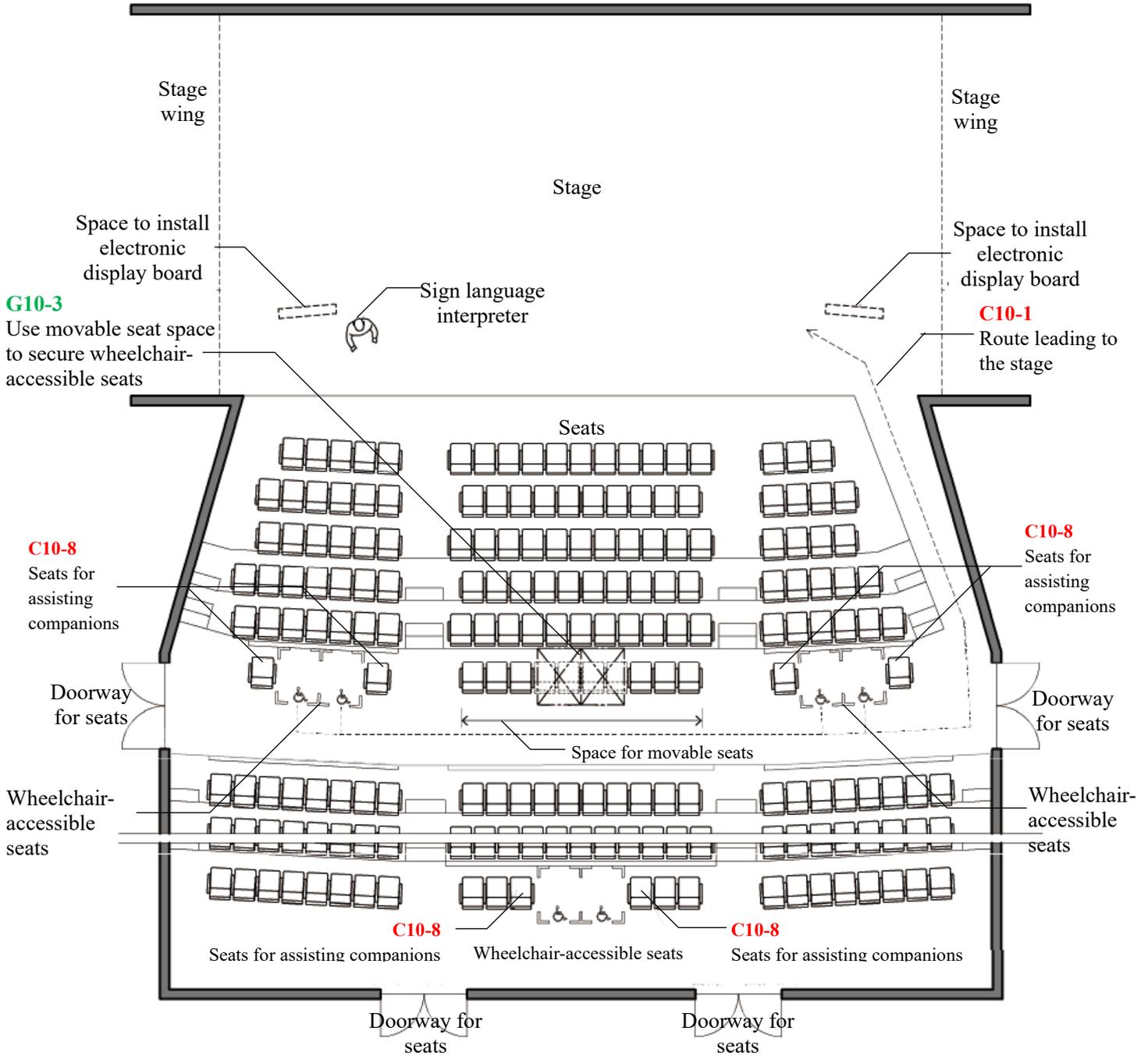
**C10-20** The floor at the top and bottom of stair flights in the auditorium must be marked with textured floor tiles.

**G10-11** It is desirable for nosing of steps to be in contrast from the tread through noticeable differences in colour brightness, hue, and saturation so that steps are easily distinguishable, and for foot lights to be installed.

**G10-12** It is desirable for components and parts to be installed that act as handrails and grab bars to prevent tripping and falling down along vertical passages.



<Illustration of auditorium/seats and the stage>



Source: *Architectural Design Standards Taking into Consideration Smooth Use by Elderly People and Persons with Disabilities* (March 2021)

Figure 3.10.2 Illustration of auditorium/seats and the stage

### 3-11. Calm down/cool down rooms

Calm down/cool down rooms are necessary as facilities for a person who is prone to panic when feeling anxiety or fear over crowds, sound, lighting and other external stimulation, to feel comfortable visiting and enjoying the Expo. To do so, it is desirable for such facilities to be planned and designed keeping in mind the need to incorporate the following objectives.

- Function in allowing users to enjoy exhibits and other venues at their own pace and desired manner
- Features that will help users avoid panicking or calm them down when panic sets in

(Location)

- G11-1** For facilities where a large number of visitors gather in a large space and where stimulation from sound, lighting, and images may be strong, it is desirable to provide a space where lighting is not too bright, sound is insulated, crowds and looks of others can be avoided for users to feel safe, and performances can be enjoyed through soundproof glass (sensor room).
- G11-2** It is desirable to gain the opinions of those directly involved so that sensor rooms and calm down/cool down rooms can be designed and positioned with visitors' flowlines and behavioural patterns in mind.
- C11-1** Calm down/cool down rooms (individual rooms or space) must be provided where visitors can calm themselves in facilities where a large number of visitors gather in a large space and where stimulation from sound, lighting, and images may be strong.

(Necessary features and equipment)

- C11-2** Sensor rooms as well as calm down/cool down rooms require the following features.
  - Shading and sound insulation must be ensured
  - Walls must be made from soft material (prepare buffering against collision)
  - Lighting must be equipped with brightness adjustment and light distribution feature
  - Security (locks, alarms for emergencies, etc.) must be fully in place
- G11-3** It is desirable that equipment to display the time, chair to sit in and relax, water dispensing equipment, and vending machines are provided.
- G11-4** To respond to various needs, it is desirable for diverse and multiple rooms for resting and space to be provided for users to choose from according to their own pace and preference.
- G11-5** To be equipped for overcrowding, it is desirable for calm down/cool down rooms to be prepared as movable and soundproof.
- G11-6** It is desirable for calm down/cool down rooms to be large enough to accommodate assisting companions who require use of the room.

### 3-12. Food service/retail vendor areas (cafeterias, restaurants, retail vendors, etc.)

If there are areas within facilities serving food such as cafeterias, restaurants, and areas where retail vendors sell souvenirs, etc., necessary arrangements must be made within the area for easy access by all people including the elderly, people with disabilities, etc. Matters for consideration will be noted here for doorways, passageways, counters, and seats of store areas to ensure moving around, getting seated, shopping, communicating, and payment transactions in the food and shopping zones are smooth for the users.

#### 3-12-1. Doorways

(Effective widths)

**G12-1** It is desirable to have at least 950 mm of effective width for doorways.

**C12-1** Effective width for doorways must be at least 850 mm, and there must be no level changes by the doorways.

(Doors)

**C12-2** When doors are installed in store entrances or along the main route of stores, they should be structured so as to make passing through them easy for wheelchair users, such as incorporating automatic doors.

**C12-3** Any door of an entrance must be the sliding type.

(Eaves, etc.)

**G12-2** For small-scaled stores and the like built outdoors and serving customers outdoors, it is desirable to install an eave or shade.

#### 3-12-2. Passageways within an area

(Widths)

**G12-3** It is desirable to have at least 1,800 mm of effective width for passageways in consideration of the flow of people.

**C12-4** Effective width for passageways must be at least 1,200 mm, and products or signage must not be placed along passageways.

**C12-5** Level changes must be kept to a minimum within store areas and a slope must be installed for any level changes that are present. (See 3-5. Slopes regarding slopes.)

Width of passageways between tables

**C12-6** Space between tables along a main passageway must be at least 900 mm, and tables and chairs must be movable wherever possible to allow people to move between the tables.

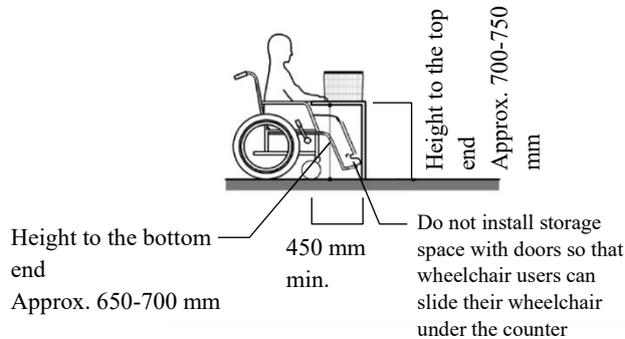
**C12-7** Space that is at least a 1,400 mm square must be appropriately secured along passageways to allow easy turnaround for wheelchairs.

### 3-12-3. Bagging counter

(Height of bagging counter)

**C12-8** When installing bagging counters (where users bag their purchased items) so that people including wheelchair users, the elderly, and those with disabilities have access to them, they must be approx. 650-700 mm from the floor to the bottom end and approx. 700-750 mm to the top end, and space below the counter must be at least 450 mm deep.

<Design illustration>



- Bagging counter  
(Height to the top end: 720 mm, to the bottom end: 680 mm)

Source: *Architectural Design Standards Taking into Consideration Smooth Use by Elderly People and Persons with Disabilities* (March 2021)

Figure 3.12.1 Example of a bagging counter

### 3-12-4. Counter with tray slides

(Height)

**G12-4** It is desirable that a counter with tray slides is approx. 700-800 mm above floor level.

**C12-9** In consideration of people who cannot sit at high counters such as wheelchair users or those who cannot use bar height chairs, counter seating must have low counter space that is able to accommodate wheelchairs as much as possible. (See 3-18-2 for wheelchair-accessible counters)

(Depth)

**G12-5** It is desirable that a counter with tray slides is 300 mm deep.

(Clearance under the counter)

**G12-6** It is desirable for a counter with tray slides to have approx. 650-750 mm above floor level for knee-high clearance.

(Styles)

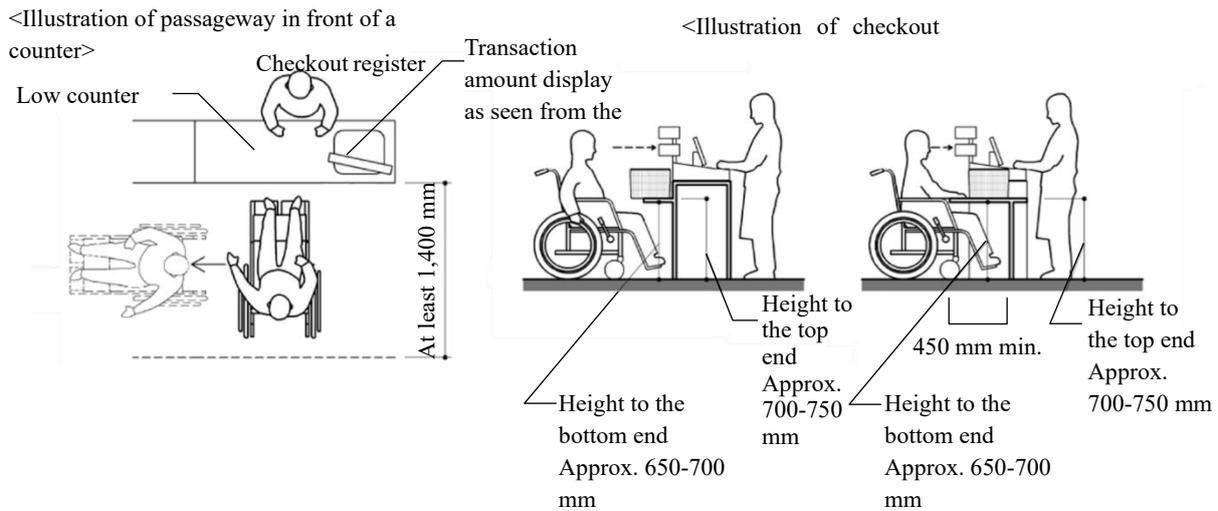
**G12-7** For counters with tray slides, it is desirable for distance from the point a tray is taken to the payment transaction location to be a continuous route.

### 3-12-5. Payment counter

**C12-10** For retail stores, when there are multiple checkout counters, or if the store only has unmanned checkout machines (self-checkout machine: cash register with which customers scan barcodes on products themselves and complete payment), then in addition to standing-style machines, at least one machine must be provided with a low counter that the elderly and those with disabilities can use.

**C12-11** Machines with low counters that the elderly and those with disabilities can use must be approx. 650-700 mm from the floor to the bottom end and approx. 700-750 mm to the top end, and space below the counter must be at least 450 mm deep.

**C12-12** Areas where employees and visitors come face to face, such as checkout and information counters and display cases, must have passageway width of at least 1,400 mm. If there is any floor area or structural limitations and it is unavoidable, then the width must be at least 1,200 mm.



Source: *Architectural Design Standards Taking into Consideration Smooth Use by Elderly People and Persons with Disabilities* (March 2021)

Figure 3.12.2 Illustration of checkout counter

### 3-12-6. Condiments counter

(Height)

**C12-13** Machines with low counters that wheelchair users can use must be 650-700 mm from the floor to the bottom end, 700-750 mm to the top end, and space below the counter must be at least 500 mm deep.

(Widths)

**G12-8** It is desirable for the width to be approx. 750 mm.

(Free countertop space)

**G12-9** It is desirable that the countertop has a clear space of 300 mm x 300 mm.

(Depth)

**G12-10** It is desirable that condiments are arranged within 600 mm (length) from the counter front edge.

### 3-12-7. Tables, seating, product shelves

(Location)

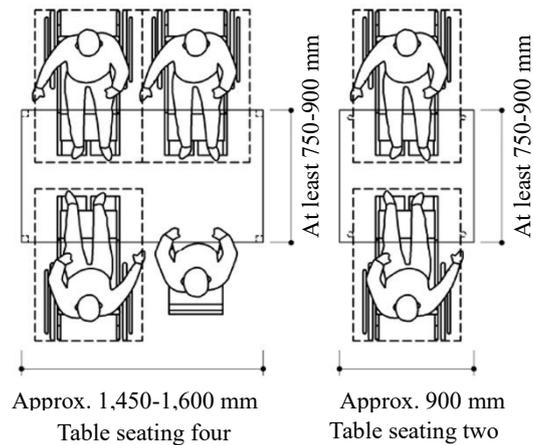
**C12-14** When arranging tables and chairs, the overall layout must be designed with table size and passageway width that are based on access by wheelchair users.

(Shapes and sizes of tables)

**G12-11** It is desirable for tables to have sizes and shapes as follows based on access by wheelchair users.  
 Table seating four: approx. width 1,450-1,600 mm x length 750-900 mm  
 Table seating two: approx. width 900 mm x length 750-900 mm  
 Height to the bottom end for all tables: approx. 650-700 mm  
 Height to the top end: approx. 700-750 mm

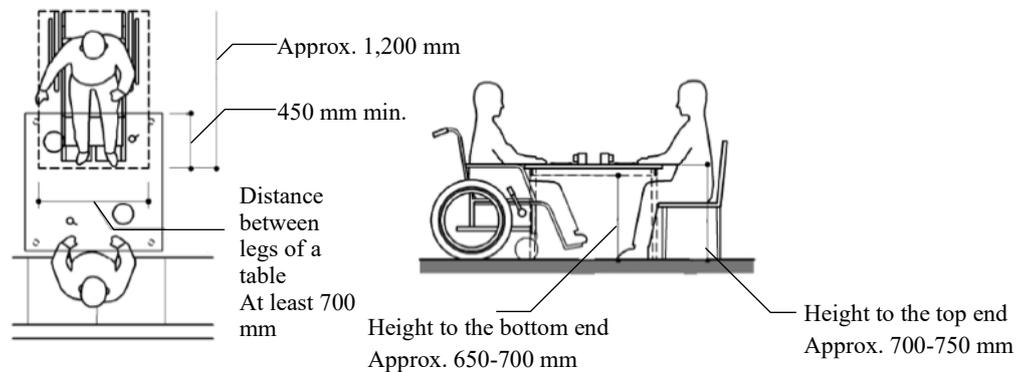
**G12-12** It is desirable for tables at restaurants to have legs on four corners and be separate from chairs.

**G12-13** For round tables in a restaurant with a central pillar leg, it is desirable for space between the edge of the table to the main part of the pillar to be 500 mm apart.



Source: *Architectural Design Standards Taking into Consideration Smooth Use by Elderly People and Persons with Disabilities* (March 2021)

Figure 3.12.3 Example of table size



Source: *Architectural Design Standards Taking into Consideration Smooth Use by Elderly People and Persons with Disabilities* (March 2021)

Figure 3.12.4 Illustration of a movable chair

(Number of seats)

**C12-15** Seats accommodating wheelchair and pram users must be provided in an amount necessary for seating in store areas. In that case, seats must be situated in several locations keeping in mind use by caregivers, assisting companions, and two or more wheelchair users.

(Styles of chairs)

**G12-14** It is desirable for all chairs to be movable in consideration of wheelchair users.

**C12-16** If providing fixed chairs, movable chairs must be available in an amount that is more than half the entire number of seats.

**G12-15** It is desirable for chairs to have armrests, a backrest, and leg room under the seat at least 1/3 of the seat depth.

(Product shelves, etc.)

**G12-16** It is desirable for product shelves to be of a height and depth that makes it easier for wheelchair users to choose and reach for products laid out on the shelves.

### 3-13. Notices (signage)

Notices (signage) refer to information symbols (pictograms) and accompanying text on display used 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.

#### 3-13-1. General guidelines

(Locations)

**C13-1** Signs must be posted to indicate that passenger lifts or other types of transfer means as well as toilet facilities are in the buildings, and the signs are located prominently on a wall close enough to be easily seen and clearly recognisable from the passageways.

**G13-1** It is desirable for signs that emphasise a specific area such as toilets to be easily perceived even in a crowd, by being installed on a door of an entrance at a height of 2,500 mm above the floor. It is also desirable that these signs are placed on a wall at a height of 1,400-1,600 mm from the floor in consideration of people with low vision.

(Sign specifications)

**C13-2** Signs must be easily identifiable (compliant with JIS Z8210 standards), and there must be distinct contrast between colours in figures and base colours (colour brightness at least 5 on the Munsell colour chart system between values 0 to 10).

**C13-3** When using information symbols (pictograms) and figures, add accompanying text on display.

**G13-2** It is desirable for information symbols to be compliant with JIS Z8210 standards in principle, and for information symbols (pictograms) not subject to JIS Z8210 to be in line with the Public Information Symbols Guideline 2021 (Foundation for Promoting Personal Mobility and Ecological Transportation) and to use standardized information symbols (pictograms).

(Size of notices/letters)

**G13-3** It is desirable for size of notices to be based on visual range, as follows.

Visual range	Size of notice
L < 7 m	60 mm×60 mm
7 m < L < 18 m	110 mm×110 mm
L > 18 m	200 mm×200 mm

**G13-4** It is desirable for size of letters to be based on visual range, as follows.

Visual range	Japanese text size	English text size
30 m	At least 120 mm	At least 90 mm
20 m	At least 80 mm	At least 60 mm
10 m	At least 40 mm	At least 30 mm
4-5 m	At least 20 mm	At least 15 mm
1-2 m	At least 9 mm	At least 7 mm

(International symbol of access)

**C13-4** The international symbol of access must be displayed in dark blue and white, or black and white.

**G13-5** It is desirable that the international symbol of access is larger than a 100 mm square but less than a 450 mm square.

### 3-14. Guiding tiles and other assistance for people with visual impairment

Standards are established here for routes to guide people with visual impairment from off-site locations to information equipment, as well as basic principles and specifications for guiding tiles for people with visual impairment.

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. Whether or not leading to information equipment, routes are preferably equipped with an effective combination of guiding tiles and other assistance for people with visual impairment, voice guide, guiding chimes, etc.

If points cannot be established in a uniform manner, it is desirable for the opinions of those directly involved to be put into consideration in planning the locations.

#### 3-14-1. Routes to guide people with visual impairment (routes leading to information equipment)

(Provision of guiding equipment)

- C14-1** Notices or other equipment must be provided in a building or other on-site location displaying locations of lifts, other means of vertical mobility, toilet facilities, and other universal service facilities of that building. (Except, however, where information points are provided in the vicinity of plot boundaries).
- C14-2** Dot/line-type textured floor tiles, voice guide system, and other equipment to guide people with visual impairment must be installed on the paths leading from the plot boundary to main information equipment or information points installed near building entrances (except entrance enclosures in which no turnings are involved).
- G14-1** It is desirable to provide guiding equipment to lavatories, lifts, major rooms of frequent access, etc. by installing guiding tiles and other assistance for people with visual impairment combined with other paths made of different material and having no protrusions, human support, ICT utilization, etc.
- G14-2** It is desirable to have combined dot- and line-type textured floor tiles installed to information equipment other than the ones mentioned above (including tactile graphic boards installed in toilet facilities and floor maps for each of the levels).

#### 3-14-2. Guiding tiles for people with visual impairment

(Routing guidelines)

- G14-3** It is desirable in principle that the guiding tiles are laid down in straight lines, no curves, and turnings are right angles.
- G14-4** 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.
- G14-5** It is desirable that textured tiles, etc. are not interrupted by drain box covers, etc. along on-site passageways.

(Shapes and sizes of tiles)

- G14-6** It is desirable that the tiles are a 300 mm square.
- G14-7** It is desirable that the shapes, sizes, and arrangements of the tiles comply with the JIS T9251 standards.

(Colours)

- G14-8** It is desirable that the luminance ratio of guiding tiles for people with visual impairment is 3.0:1 against the adjacent floor/ground surface finish, and luminance contrast of 50% so that it is easily distinguishable for people with low vision.
- G14-9** So as to avoid confusion among users with different coloured guiding tiles for people with visual impairment, it is desirable that the colour of the tiles is consistent in all locations.
- C14-3** Guiding tiles and other assistance for people with visual impairment must be yellow in principle, and the luminance ratio must be at least 2.0:1 against the adjacent floor/ground surface finish.

(Positioning)

- C14-4** Textured tiles must be installed on the points just before direction changes are necessary such as where there are potential hazards.
- G14-10** It is desirable that dot/line-type textured tiles are laid down at least 300 mm away from, and along the entire length of, hazards.

(Arrangements for the elderly and wheelchair users)

- G14-11** It is desirable that plans for the installation of guiding tiles for people with visual impairment takes into account the arrangements for the elderly and wheelchair users by leaving sufficient room for these people's safe and easy passage.
- G14-12** If indoors, a guiding mat can be used as guiding equipment in place of dot/line-type textured tiles.

In addition to the above, refer to the following regarding installation methods for the various unit spaces: 3-2. Doorways; 3-3. Corridors, etc.; 3-4. Stairways; 3-5. Slopes; 3-6. Passenger lifts; 3-7. Escalators; 3-8. Platform lifts; 3-9. Toilet Facilities.

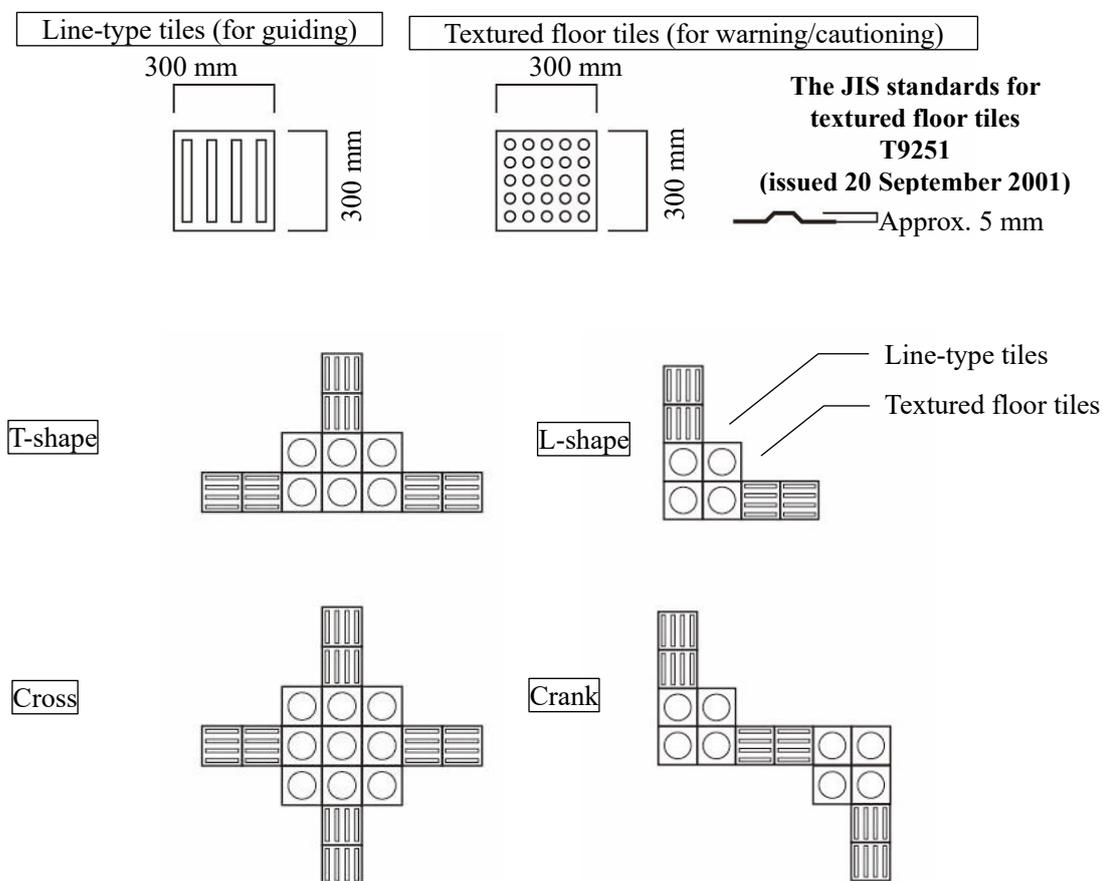


Figure 3.14.1 Guiding tiles for people with visual impairment (guide)

### 3-15. Areas for waiting/queueing

If queues are anticipated, it is necessary to put into consideration arrangements for the queueing and waiting spaces to ensure everyone, including the elderly and people with disabilities, are able to queue safely and move along smoothly. In addition to consideration of widths of passageways for queueing, placing trees for shade against the heat, and roofs / benches for resting, design arrangements are desired to secure adequate space

between people and fast tracks for shorter waiting times as measures to protect people who face physical and emotional difficulty when queueing for long periods, etc.

(Provision of a fast track)

**G15-1** It is desirable that a fast track is provided for the elderly, people with disabilities, pregnant people, people accompanying babies/infants, etc.

(Information about waiting times for facilities)

**C15-1** Auditory and visual displays about the approximate time for waiting before entering the facilities must be provided.

(Effective width of queueing lane)

**C15-2** Lanes in the queueing area must be approx. 1,500 mm wide.

(Maximum gradients of floors)

**G15-2** It is desirable that the floor of a queueing area is horizontal or, if sloping, the gradient does not exceed 2%.

(Equipment for resting and shades)

**C15-3** If queues require standing, install resting equipment such as benches to alleviate physical and emotional burden of the elderly, people with children, children, people with disabilities, etc. that are adequate for the type of queues.

For example,

- if queueing is expected to be longer than 50 m in length, install equipment at the 50 m location.

- if queue is a zigzag, install equipment at the U-turn location ensuring it does not obstruct those waiting in line.

**G15-3** It is desirable that shades are provided in the queueing area.

(Ensuring identifiable arrangements)

**C15-4** Queueing areas must be clearly designated with distinct colour markings, using ropes, bars, partitions, etc. to differentiate lanes from surrounding areas.

### 3-16. Baby care rooms

Baby care rooms refer to private booths for the care of babies and infants such as feeding babies, feeding infants, and changing diapers. The following points must be put into consideration in the location and securing of space for the rooms.

- Facilities used by people accompanying babies/infants must have space for feeding babies, both breastfeeding and with a baby bottle.
- Space for feeding babies must be closed-off space.
- Structure of the space for feeding babies and equipment arrangements etc. in these structures must account both for male and female users feeding babies with a baby bottle.

#### 3-16-1. Provision as a principle

**C16-1** In a facility with a total floor area of 5,000 m<sup>2</sup> or more, at least one baby care room must be provided.

**G16-1** Even in a facility with a total floor area less than 5,000 m<sup>2</sup>, it is desirable for a baby care room to be provided depending on the purpose and type of usage of the facility.

#### 3-16-2. Doorways

(Styles)

**C16-2** Width and style of doorways must put the use of prams into consideration. (See 3-2. Doorways)

(Approach to the facilities)

**C16-3** There must be no steps to be an obstacle to passage.

(Installation of signs)

**C16-4** Signs must be installed by the doorway to indicate that the equipment such as baby chairs and diaper changing tables are provided, together with their layouts, and this information must be also available in braille.

#### 3-16-3. Space for feeding babies

(Ensuring privacy of breastfeeding mothers)

**C16-5** Space must be closed off in consideration of privacy for breastfeeding. Privacy must be ensured with curtains, partitions, doors that locks from the inside (with status indicator), etc.

(Interior design)

**C16-6** Interior must be designed with colours clearly visible for people with visual impairment (low vision).

(Equipment)

**C16-7** The room must be equipped with chairs for feeding babies, baby chairs, diaper changing tables, and sanitary bins.

**G16-2** It is desirable that space for personal belongings, a hot-water serving equipment, and tubs or washing basins are provided.

(Chairs)

**G16-3** It is desirable that chairs for feeding babies are either long benches, or chairs with backrest and armrests.

(Water taps)

**G16-4** It is desirable that at least one washing tub or basin is equipped with a lever-type or hands-free sensor tap.

#### 3-16-4. Diaper changing table

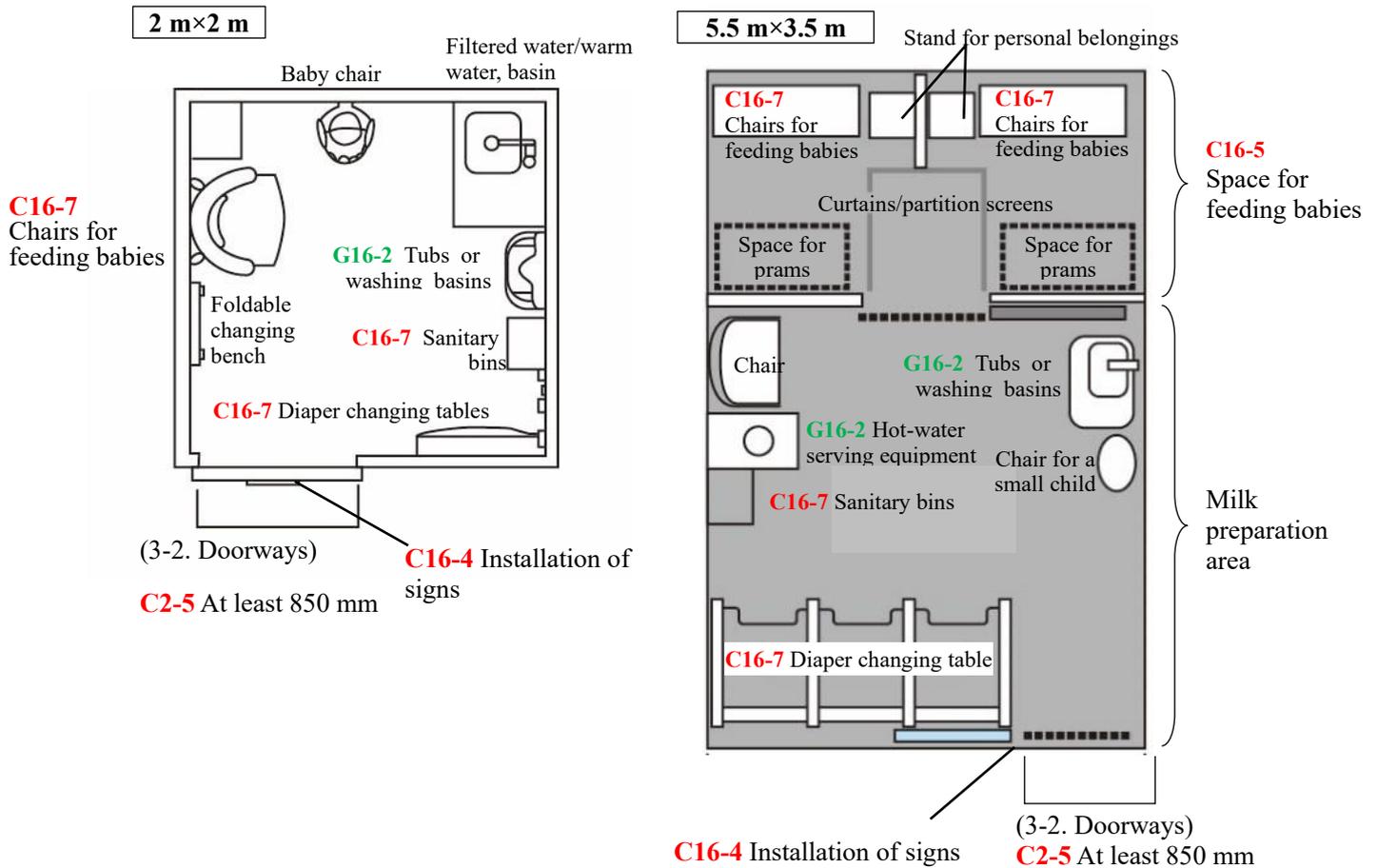
See 3.9. Toilet Facilities (Diaper changing tables) regarding structure of diaper changing tables.

### 3-16-5. Additional facilities

- G16-5** It is desirable that water servers are installed as well as vending machines to provide diapers, baby food, beverages, etc.
- G16-6** It is desirable to have an electrical outlet in a convenient location.

(Equipment to communicate information in emergencies)

- C16-8** Baby care rooms of facilities equipped with automatic fire alarm equipment must have a light-based alarm system such as a display system for showing letters or signs, flash lights, and rotary beacon lights installed and provide information regarding emergency situations such as fires for all people, including those with auditory impairment.



- Separation of feeding room and milk preparation area is an arrangement that allows both men and women to use the facility

Figure 3.16.1 Illustration of a baby care room

### 3-17. Prayer rooms

The Expo Site will be visited by many people of diverse religious and cultural backgrounds. It is desired that facilities are prepared to cater to special needs of those people. Matters concerning the prayer room that serves as a place for spiritual activity such as prayer, devotion, silent prayer, meditation, reflection, and pondering in a serene environment and a small ablution facility for cleansing one's body before prayer will be noted here. Accessibility by all must be considered when providing the facilities.

(Doorways)

**C17-1** If providing a room of worship, doorways must have an area free from obstructions, with space secured for removing shoes, and ensuring removed shoes do not block passageways.

**C17-2** Area for removing shoes must include chairs to sit on when removing shoes.

(Space for prayer)

**C17-3** Chairs must be provided in the prayer space for people who are unable to kneel in prayer.

(Ablution facility)

**G17-1** If providing a facility for ablution to cleanse one's body, it is desirable to position it close to the doorway.

**G17-2** It is desirable that handrails are placed horizontally on the wall of the ablution facility at a height of 700-800 mm.

**G17-3** It is desirable that shower sink, soap space, and paper towel dispensers are placed in the ablution facility at a height of 700-1,200 mm.

**G17-4** It is desirable for open space having a width of 1,200 mm to be available in front of ablution equipment.

### 3-18. Fixtures and equipment (handrails, counters, vending machines, etc.)

Internal and external fixtures and equipment are vital facilities for the convenience and comfort of visitors, and therefore the equipment need to be implemented in such a way that is accessible for all.

#### 3-18-1. Handrails

Handrails are necessary equipment for the elderly, people with disabilities, etc. as support to keep from falling, for standing up, moving around, and as guidance for people who are visually impaired, among others. Handrails must conform to positioning, shape and size fitting for the facility they will occupy, the location, and needs of users.

Standards common to all facilities are as follows. See 3-4 for stairs, 3-5 for slopes, 3-6 for lifts, 3-7 for escalators, and 3-9 for toilet facilities regarding individual standards based on the facility.

(Installation heights)

**C18-1** Single handrails must be installed at approx. 750-850 mm high.

**G18-1** In the case of double handrails, it is desirable for height to be at 750-850 mm for one, and 600-650 mm for the other.

(Continuity)

**C18-2** Handrails must be installed continuously from the starting point to the finishing point. Handrails must be installed to match the gradient along stairways and slopes so that the gradient can be detected by users.

(Location if installing double handrails)

**G18-2** It is desirable that corridors, stairways, slopes, etc. are equipped with double handrails in view of their use by children.

(Distance from the wall)

**G18-3** It is desirable that handrails are mounted 40-50 mm away from the wall and supported from underneath so that the mounting brackets do not obstruct hand movements.

(Shape)

**C18-3** Wavy handrails are not acceptable.

**G18-4** It is desirable that a cross-sectional view of the handrail is approx. 30-40 mm in outer diameter (30 mm for handrails for children), in a shape that is easy to grip.

**G18-5** In stairways with balustrade, the balusters are preferably distributed at an interval of 110 mm maximum, to prevent children from falling through the balustrade.

(End part treatment)

**G18-6** It is desirable that ends of handrails bend inward toward the wall to reduce the risk of collision and to avoid clothing from getting entangled.

**C18-4** If ends of handrails bend downward toward the floor, they must be treated to avoid entanglement.

(Materials)

**C18-5** Material must be pleasant to the touch, corrosion resistant, durable, and easy to manage and maintain.

(Indication in braille)

**C18-6** Indication in braille must conform with JIS-T-0921 guidelines and be displayed alongside same content in embossed lettering. See items regarding individual facilities for the content to be displayed in these facilities.

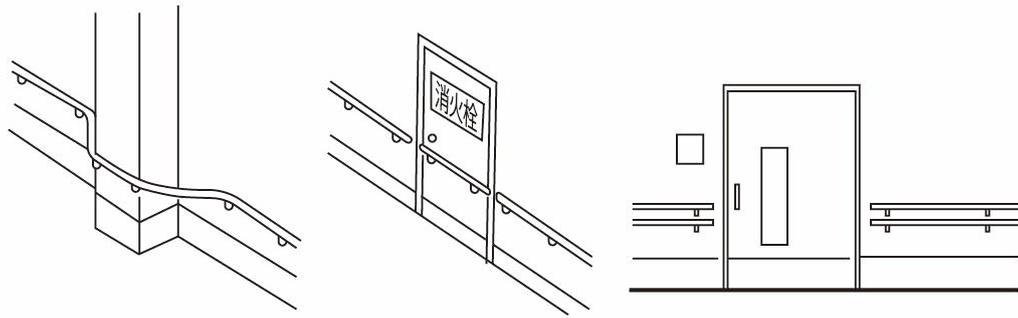


Figure 3.18.1 Handrails (illustration of continuous handrails)

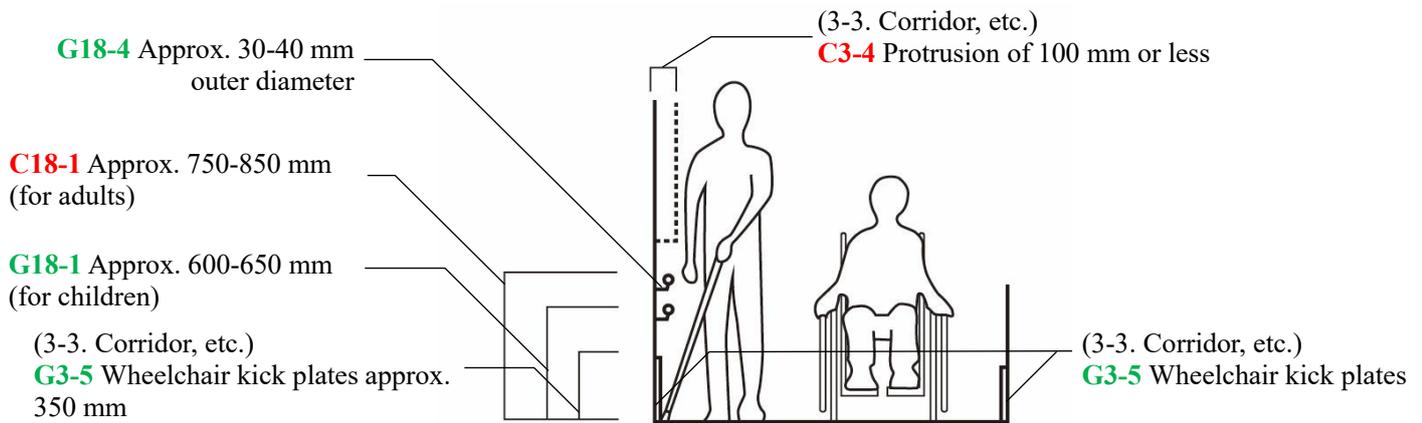


Figure 3.18.2 Handrails (illustration of wall-mounting)

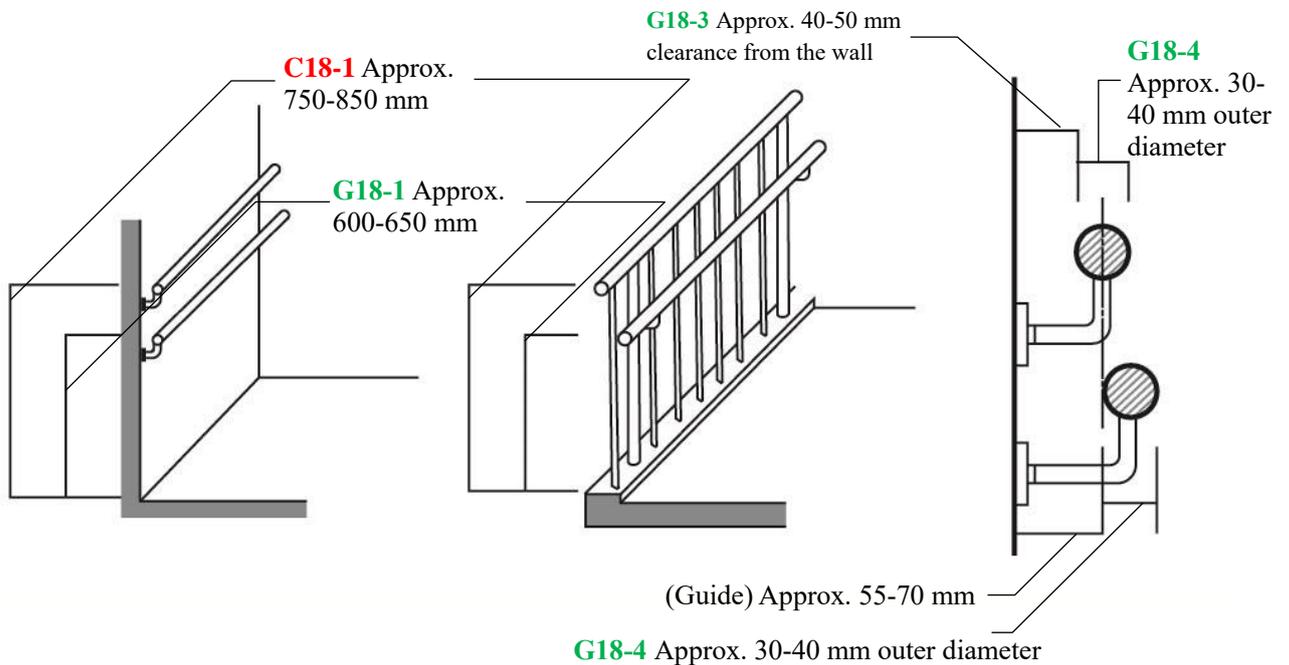


Figure 3.18.3 Handrail installation dimensions

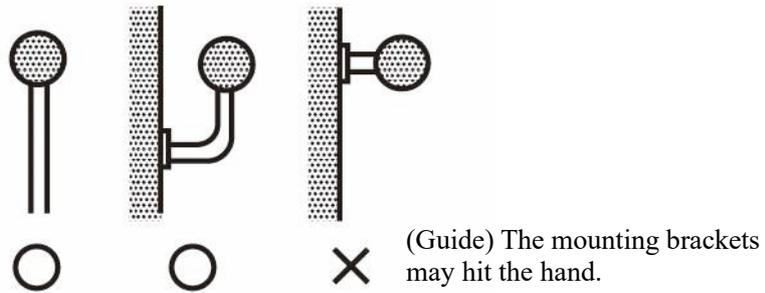


Figure 3.18.4 Handrail styles

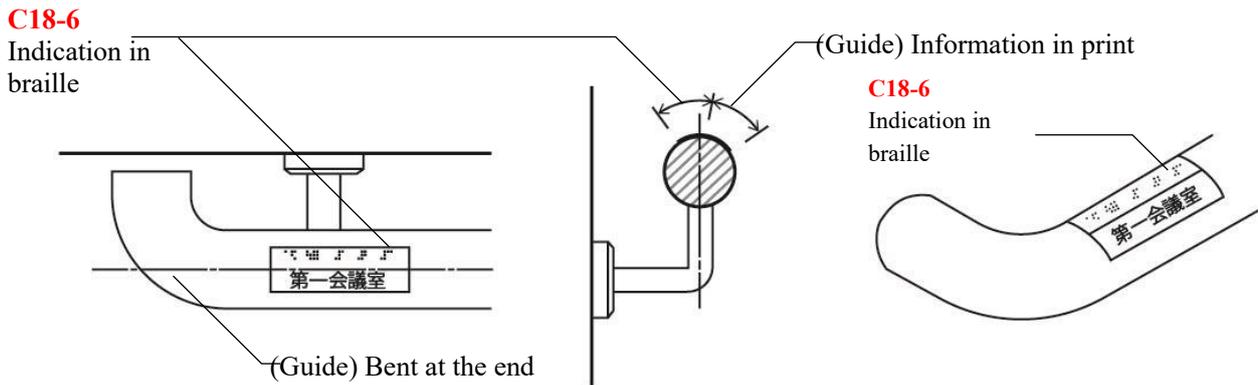


Figure 3.18.5 Braille labels on handrails

### 3-18-2 Counters

(General guidelines)

**C18-7** Where a reception counter which can be used by more than one person is installed, it must be approx. 750 mm tall and at least 1,000 mm wide.

**G18-7** It is desirable to have an indent for resting a cane, umbrella, or a hook or similar device to rest a cane.

(Wheelchair-accessible counters)

**C18-8** Tables and counters that wheelchair users can use must be 650-700 mm from the floor to the bottom end, 700-750 mm to the top end, and space below the counter must be at least 450 mm deep.

**C18-9** Space in front of the counter, etc. must be sufficiently large so that a wheelchair can turn around, and that the floor is horizontal.

**G18-8** It is desirable that these have a groove towards the front to make it easy to grab when getting up or approaching with a wheelchair.

(Low seating counters)

**G18-9** It is desirable that chairs for low seating counters are 400-460 mm high and with armrests provided.

(Standing height counters)

**G18-10** It is desirable that the counters are 900-1,000 mm tall.

**C18-10** It is desirable that the counter is fixed to stabilise the body and that handrails are installed as necessary for support. In addition to standing height counters, at least one counter with requirements set forth in this Item must be provided that the elderly, those with disabilities, and wheelchair users can access.

**G18-11** It is desirable to have a horizontal handrail installed to place a hand on when getting up.

### 3-18-3. Vending machines, ticketing machines, etc.

(Positions and heights of the equipment)

**G18-12** It is desirable that money inlets, selection buttons, and product outlets are located approx. 600-1,000 mm from the floor to be easily accessible for wheelchair users.

**G18-13** It is desirable that there are no level changes in front of the equipment.

(Specifications of the equipment)

**C18-11** The money inlet must be a type that is accessible to wheelchairs users (with a coin-receiving tray, multi coin acceptor, etc.).

(Information)

**G18-14** It is desirable to place textured floor tiles (dot/line-type) continuously to vending machines, ticketing machines, etc. that are accessible for people with visual impairment from routes to information equipment (unless other means are provided, such as audio guiding information, tactile graphic boards provided as information equipment within the building, etc.).

**G18-15** In consideration of people who are visually impaired, it is desirable that machines can be operated with voice guide (voice-operated buttons or app-accessible information).

### 3-18-4 Litter bins, electrical outlets

(Provision as a principle)

**C18-12** If litter bins are installed, they must be positioned so that all users have access to them.

**G18-16** It is desirable that litter bins be provided in toilets and by vending machines, benches for resting, spaces for feeding babies, and diaper changing tables.

**C18-13** Litter bins must not be installed near doors so as to ensure doors open, close, and lock easily.

(Height)

**C18-14** It is desirable that the litter bin openings are approx. 900 mm (1,200 mm max.) tall.

(Easy identification)

**C18-15** Litter bins must be easily identifiable in terms of their shapes and colours, with garbage classification displayed in an easy-to-understand manner.

(Lid operation styles)

**G18-17** It is desirable that litter bins reflect consideration of the fact that it may be difficult for some people to open a lid with hands or feet (avoid foot-pedal type lid).

(Provision of electrical outlets)

**G18-18** It is desirable to provide electrical outlets in appropriate locations within rooms for resting, resting areas, and information points for use by visitors.

### 3-18-5 Gates

(Styles)

**C18-16** Revolving gates must not be installed.

(Effective widths)

**G18-19** It is desirable that at least one gate is 900 mm wide minimum.

**C18-17** The effective width of a gate must be at least 850 mm.

(Opening direction)

**C18-18** Gates must open in the direction of travel.

(Arrangements for wheelchair users)

**C18-19** If there are turnstile gates or other ticketing control equipment installed that generally do not allow access by wheelchair users, at least one gate or doorway accessible for wheelchairs (including electric ones) must be installed adjacent to them.

### 3-18-6 Windows

(Handle styles)

**G18-20** It is desirable that window handles are ones that do not require a twisting action of the wrist, preferably operable with the arms or elbows or automated to be opened/closed easily.

(Installation heights)

**G18-21** It is desirable for windows to be installed at 900 mm from the floor. It is also desirable that measures are put in place to prevent trip and fall accidents if the windows are within 1,200 mm from the floor.

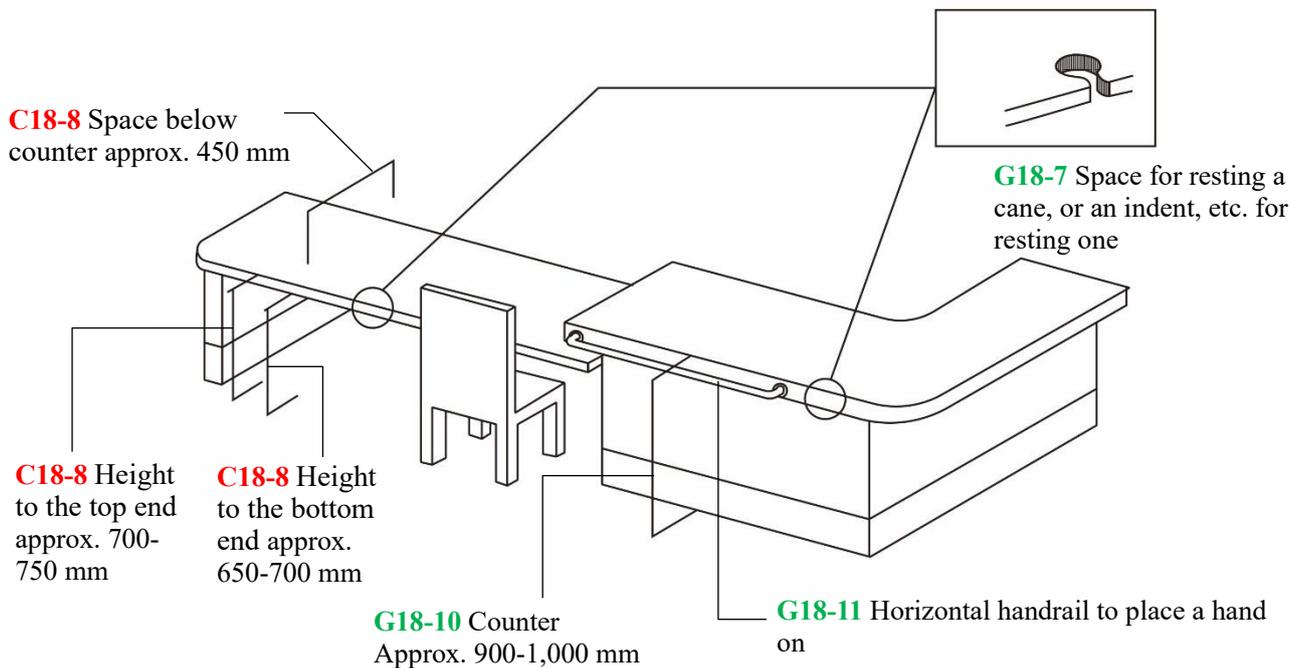


Figure 3.18.5 Illustration of a counter

### 3-19. Interior design (interior decorations, equipment, and other arrangements)

#### 3-19-1. Rooms

Matters noted here are common for all rooms inside buildings except for corridors, etc. (3-3); toilet facilities (3-9); auditorium (3-10); food service/retail vendor areas (3-12); baby care rooms (3-16); and prayer rooms (3-17).

(Floor finish)

**C19-1** There must be no level changes in rooms. If a level change is unavoidable, a slope must be installed. (Standards regarding slopes are noted in 3-5.)

(Turnaround space for wheelchairs)

**C19-2** Each of the rooms must have one or more space of at least 1,400 mm x 1,400 mm secured for a wheelchair to turn around.

#### 3-19-2 Lockers

(Installation heights)

**C19-3** Lockers for wheelchair users and short people must be placed 600-1,200 mm from the floor and account for at least 50% of all lockers.

(Locker number display)

**G19-1** It is desirable that locker numbers are clearly indicated, labelled in braille, and displayed in embossed lettering.

(Operation panel, etc.)

**G19-2** As touch panels are difficult for people with visual impairment to use, if installing such panels then it is desirable for there to be another version without touch panels (such as with keys) available as well.

#### 3-19-3. Balconies

(Doorways)

**C19-4** Doorways must be flat and horizontal.

**C19-5** Doorways must be at least 900 mm wide.

**C19-6** Doorways must be level with the adjacent floors wherever it is possible.

(Size)

**C19-7** Balconies must be joined together and wide enough for wheelchair users to pass through.

**C19-8** They must have an area size of at least a 1,500 mm square.

(Floor finish)

**C19-9** The floor must have a rough surface or be finished using slip-resistant materials on which canes, wheelchairs, and legs will not get easily caught on.

### 3-20 Evacuation equipment, etc.

Necessary planning and design arrangements with the following points in mind must be in place for evacuation routes to be put in place and for necessary information guidance to safely and quickly evacuate all people by considering the characteristics of the venue users, the use of the place, and emergency protocols for each of the pavilions and event facilities, in order to enable all people including the elderly, people with disabilities, etc. to evacuate smoothly in case of an emergency.

- Information on emergency situations such as fires and earthquakes must be swiftly and appropriately relayed to the elderly, those with disabilities, etc.
- Consideration must be given to ensure information is provided to people with visual impairment and those with auditory impairment.
- For the smooth evacuation of the elderly and people with disabilities, flowline design for emergency evacuation routes must be easily identifiable and information is to be provided for people to easily find the direction in which to evacuate.
- Assistance in evacuating wheelchair users and others is necessary depending on the use and size, etc. of facilities. Temporary refuge areas and routes to those areas must be provided as well as leading individuals to those areas as appropriate.

#### 3-20-1. Emergency routes

(Flowline)

- C20-1** Evacuation routes must be put in place for each of the pavilions and event facilities to safely and quickly evacuate all people.

(Treating level changes)

- C20-2** Evacuation routes must be step-free.

(Provision of evacuation instruction equipment)

- G20-1** It is desirable that emergency exit lights, travelling flashing lights systems, phosphorescent tiles, etc. are installed on the ceiling along the evacuation routes.
- C20-3** So that evacuation instructions can be relayed in case of disaster, equipment and mechanisms for emergency notification using texts and lights, in addition to sound, must be installed.

#### 3-20-2. Temporary refuge area

(Provision as a principle)

- G20-2** It is desirable that safe, temporary refuge areas are provided on stairway landings, on balconies connected to stairs, stair vestibules, and corridors, etc. in areas that do not block evacuation routes to be used while waiting for rescue in emergencies.

(Necessary features)

- C20-4** If providing a refuge area, so that wheelchair users have adequate space for refuge, there must be at least 900 mm x 1,300 mm of space per person secured.
- C20-5** Structure of the temporary refuge space shall be fire resistant and smoke- and flame-insulated as necessary for awaiting rescue.
- C20-6** The temporary refuge space shall be equipped with two-way communication equipment to call for rescue, describe current situations, etc., with the centre of selection buttons positioned at a height of approx. 1,000 mm from the floor.

(Indication)

- C20-7** Temporary refuge space must be clearly indicated as such to be easily identifiable. If a staircase or stair vestibule is to be installed, there must be indication by the entryway that temporary refuge space is provided there.

#### 3-20-3. Methods of communication

- G20-3** It is desirable that equipment be installed that takes into consideration the elderly, foreign nationals, people with intellectual disabilities, etc. in addition to those with visual and auditory impairment in communicating information in a way that is easy to comprehend.

### 3-20-4. Fire alarms and fire extinguishers

#### (Locations)

- C20-8** It is desirable that these are installed in places accessible to all people, including wheelchair users.
- C20-9** Equipment must be mounted directly on walls free from obstruction for use no higher than 1,100 mm.

#### (Features)

- C20-10** Emergency exit lights installed in a building with automatic fire alarm equipment must have a flash mode and audio guiding feature.
- C20-11** These exit lights must 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.

### 3-20-5. Other

- C20-12** Door opening devices must be able to continue functioning even under emergency alarm conditions.
- C20-13** Lighting must be installed so that evacuation routes leading out from areas under alert can be seen even under emergency alarm conditions.

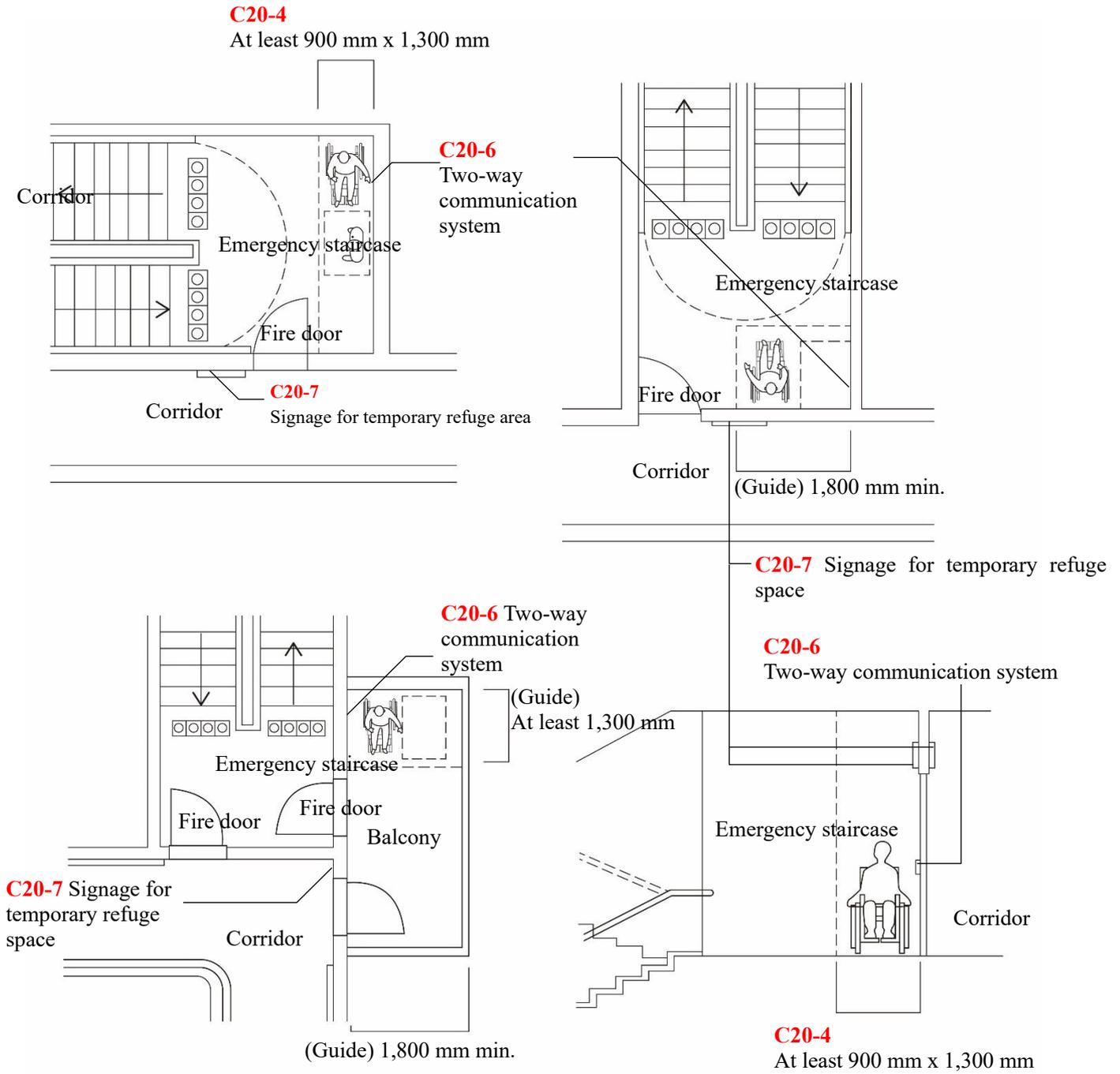


Figure 3.20.1 Illustration of temporary refuge area

## 4. Management of the UD Guidelines

Participants are required to submit documents concerning universal design, for each of the phases from the designing stage through completion of construction work. For details regarding submission/application, see ‘Guidelines for Designing Type-A Pavilion (Self-Built Pavilion).’

### 4-1. First set of documents to be submitted

#### **Document to be submitted: Universal design checklist**

Participants are required to submit the universal design checklist (form designated by the Organiser), after having confirmed its items based on the General Design Plan. Regarding items for which detailed dimensions and positioning are not provided during the general design stage, participants must write out their policy pertaining these items.

### 4-2. Second set of documents to be submitted

#### **Documents to be submitted: Plan regarding universal design Universal design checklist**

Participants are required to submit a plan regarding universal design incorporated in their final design, elaborating on matters they particularly paid attention to. They are to also submit the universal design checklist (form designated by the Organiser), after having re-confirmed its items based on the Design Plan.

### 4-3. Third set of documents to be submitted

#### **Document to be submitted: Universal design checklist**

Participants are required to submit the universal design checklist (form designated by the Organiser) after having confirmed its items regarding facilities and the plot after completion of construction work, and also submit a request for inspection after completion to be conducted by the Organiser to receive approval for completion of construction work.



## 5. References/relevant literature

Reference materials and other literature relevant to the preparation of the Guidelines are listed below. Use the links provided under 1-4. Compliance with laws and regulations for details of these texts and documents.

- Convention on the Rights of Persons with Disabilities
- IPC Accessibility Guide
- Universal Design 2020 Action Plan
- Tokyo 2020 Accessibility Guidelines
- Architectural Design Standards Taking into Consideration Smooth Use by Elderly People and Persons with Disabilities (March 2021)
- Act on Promotion of Smooth Transportation, etc. of Elderly Persons, Disabled Persons, etc. (Accessibility Improvement Act) and order for enforcement of the Act
- Osaka Prefectural Ordinance on Welfare Communities and Enforcement Rules/Guidelines
- Osaka Municipal Government Guidelines for Accessible Urban Planning and Enforcement Standards for the Guidelines
- Ordinance on Welfare Urban Planning: A Guide to Facility Implementation and Management (public facilities) (April 2019), Prefectural Government of Hyogo
- Dubai Universal Design Code (February 2017)
- A Guide for Handicap-aware Designs—Architectural Design Planning Pamphlet No. 26 by the Architectural Institute of Japan (1984)

## **Contact**

Inquiries regarding details of the Guidelines and questions regarding necessary procedures should be sent to the Organiser using the Queries function of the Participant Portal.

If there are any problems in using the Participant Portal, please contact the following email address:

[participant@expo2025.or.jp](mailto:participant@expo2025.or.jp) (other address is possible as well).



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