



Architectural & Construction Guidance for Type A Pavilions

July 8th, 2022

Japan Association for the 2025 World Exposition

Opening Remarks

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Agenda

Opening Remarks

1. Site Configuration

2. Type A Schedule & Current Concerns

3. Regulations & Guidelines

4. Design Guideline

5. Universal Design Guideline

6. Construction and Demolition Work Guidelines

7. FAQ

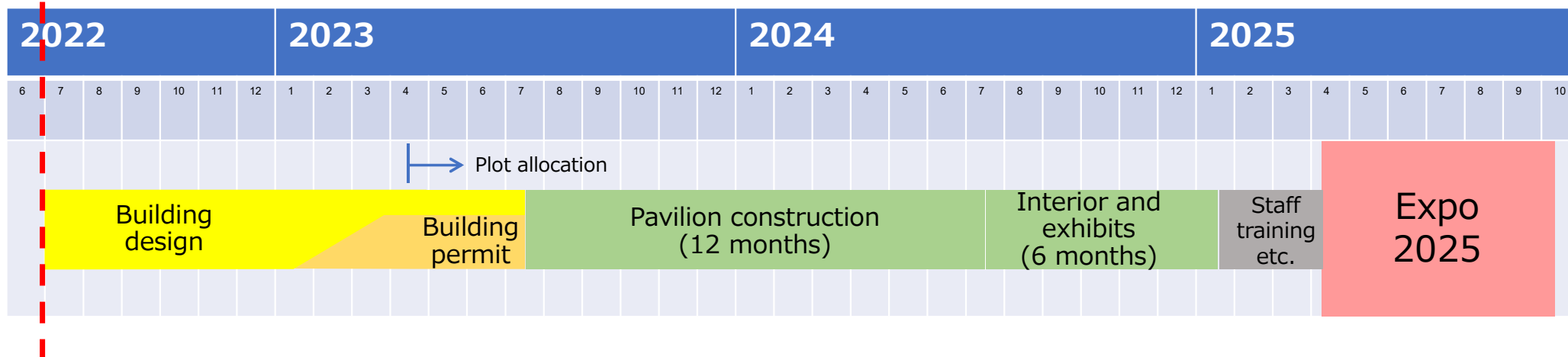
Site Plan



Schedule for Type A Pavilions

Example of Schedule for Type A Pavilion

→ * Assuming that design starts now, and construction period is 18 months



- Launch building design and appoint contractor early.
- Contacting design and construction firms licensed in Japan early will contribute to a reduction of rework, acceleration of construction works and cost saving.
- Supplier list posted on Participant Portal will introduce to you businesses engaged in design, construction, display, PR, etc.

Schedule for Type A Pavilions

The points to be considered when building pavilions at Expo 2025

- Compliance with Japanese laws and regulations, procedure performance, ensuring occupational safety and health
- Congestion of construction works by participants is likely to occur in a limited space located on the artificial island
- Concerns about procurement delays and price increase in world's construction materials, etc.
- The construction industry in Japan is forecast to keep growing successively beyond 2022. (Japanese construction industry will be continuously busy)



- **Secure reasonable periods for design, building permit and construction!**
- **Launch the project at an early date because it is not easy to shorten a schedule!**

Building Legislation in Japan

- **Building Standards Act (related to buildings)**
 - ⇒ Establishes the minimum necessary standards for building sites, structure, equipment, and use
- **Act on Architects and Building Engineers (related to engineers)**
 - ⇒ Establishes qualifications for engineers (architects) engaged in design, construction supervision, etc.
Only architects may provide design or construction supervision of certain buildings
- **Construction Business Act**
 - ⇒ Intended to ensure proper execution of construction work, protection of ordering party, etc.
Contract with a construction company licensed under the Construction Business Act
- **Other related regulations**
 - ⇒ City Planning Act, Fire Service Act, Barrier-free Act, various business laws, etc.

Construction-Related Guidelines

● Guidelines related to design

Design Guidelines for Type A (Self-Built) Pavilions

- Provide specific design requirements, procedures for submission and approval of design plans for the Pavilion, etc.

BIM Requirements for Type A (Self-Built) Pavilions

- Provide requirements for mandatory BIM data in guidelines related to design

● Guidelines related to universal design

Universal Design Guidelines for Facility Implementation

- Provide common standards and approaches to universal design related to on-site facility implementation

● Guidelines related to construction and demolition

Construction and Demolition Work Guidelines for Self-Built Pavilions (Type A)

- Provide requirements for construction and demolition/removal works, items related to management performed by Organiser

Construction-Related Guidelines

Control and Guide

Every Guideline provides two types of indices – **Control** and **Guide** – to help participants design their pavilions in compliance with the guidelines; the Organiser will also use these indices when approving documents submitted by participants.

C-00 (Control) indicates what “must be done”, thus defining requirements that participants must comply with and what is restricted or prohibited in planning, design, construction and demolition/removal works.

G-00 (Guide) indicates what is “desirable to do”, thus defining efforts and proposals expected by the Organiser from participants to meet the Expo purposes and objectives in pavilion planning, design, construction and demolition/removal works.

* In the Universal Design Guidelines, this index pertains to desirable standards to realise safer and smoother mobility for visitors as well as enhance convenience and provide comfort in the use of the facility.

Guidelines Related to Design

Design Guidelines for Type A (Self-built) Pavilions describe issues relating to the planning and management of pavilions to ensure that participants design Type A (self-built) pavilions for Expo 2025 Osaka, Kansai, Japan appropriately.

In addition, this document presents an overview of the Master Plan (site plan) developed by the Organiser to enable each participant to design their pavilion based on the Theme and Subthemes of the Expo.

- **Purposes of Guidelines**

- Setting out a clear design policy to realise the Expo site aimed in the site plan
- Ensuring consistency of pavilions with public spaces within the venue while securing functionality of the venue as a whole
- Ensuring consideration for sustainability in planning, management and operation of the pavilions

Guidelines Related to Design

Outline of Guidelines

Item	Description
1. Introduction	Purpose, overview of guidelines, Control and Guide, compliance with laws and regulations
2. Outline of Master Plan	Overview of Master Plan
3. Design Requirements	General principles of design, <u>planning conditions</u> , design consideration for better operation, environmental consideration, construction methods, demolition and removal are described using Control (C) and Guide (G) codes.
4. Pavilion Plot Sheet	Examples of plot sheet (small/medium/large)
5. Submission of Design Plan	First and second sets of documents to be submitted

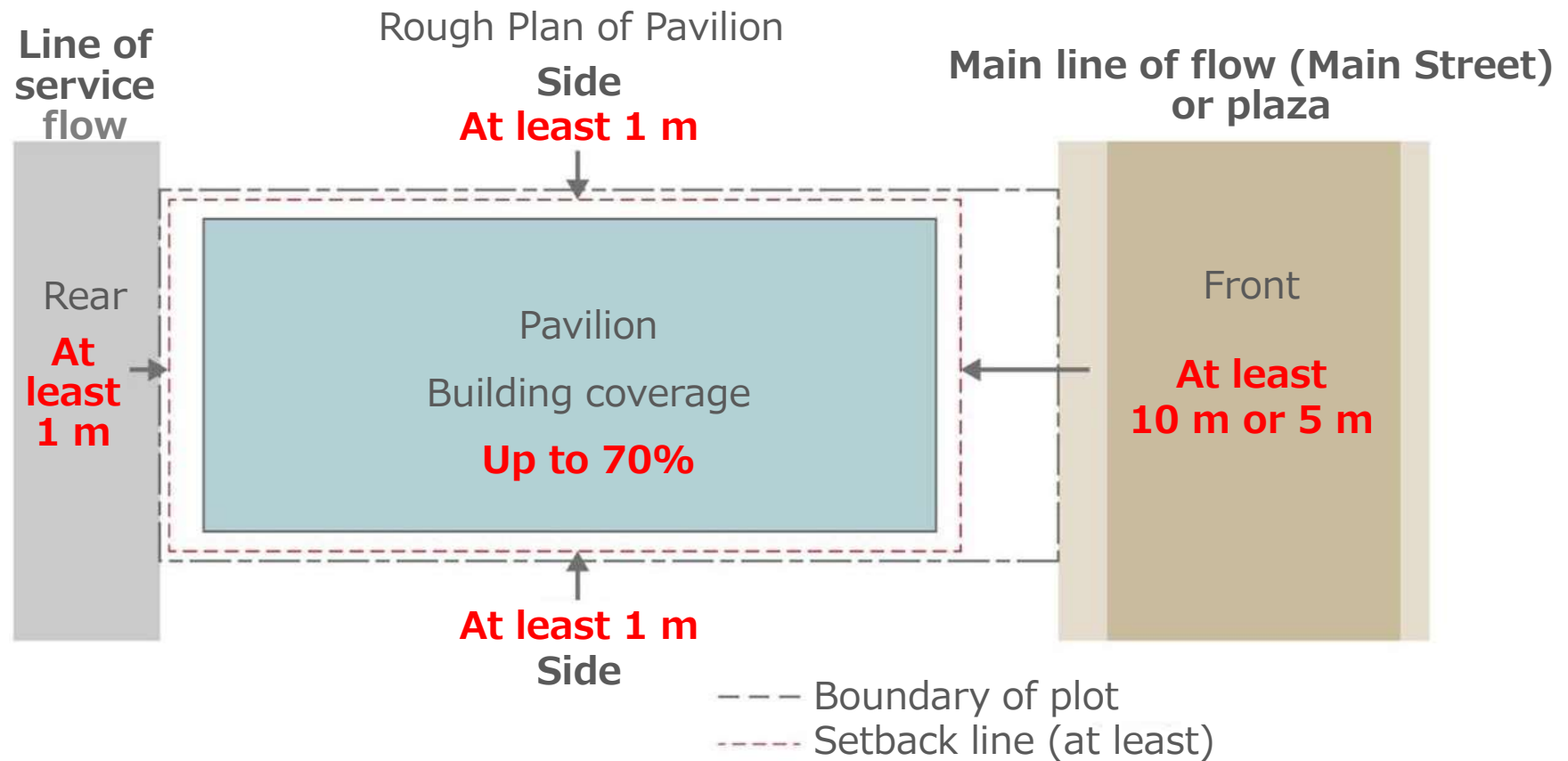
Guidelines Related to Design

Design Requirements

Item	Description
3-1 General Principles of Design	Theme, landscape, natural materials, universal design, management and operation (Universal Design Guidelines) Legal procedures in Japan, ground conditions of reclaimed land, etc.
3-2 Planning Conditions	Setback, building coverage, height and size of pavilions, etc.
3-3 Design Consideration for Better Operation	Queue management, line of service flow, disaster prevention and security, etc.
3-4 Environmental Consideration	Ensuring comprehensive environmental efficiency, energy and global environment, promotion of resource recycling and 3R, protection against heat, ventilation, measurement
3-5 Construction Methods, Demolition and Removal	Participation of contractors in Communication and Coordination Council, plot restoration, health and safety, construction methods related to ground conditions, etc.

Guidelines Related to Design

Setback and Building Coverage



Guidelines Related to Design

Pavilion Size and Setback

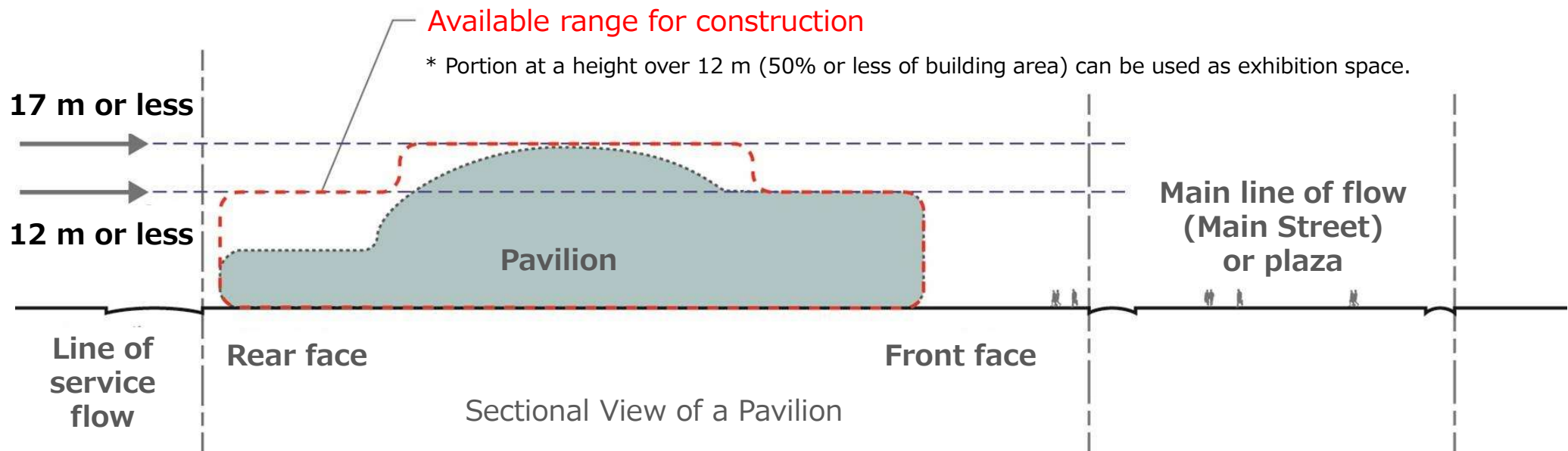
Plot Size	Plot Area	Setback (Front)	Setback (Side/Back)
Large Plot	About 3,500 m ²	10 m or more	1 m or more
Medium Plot	About 1,750 m ²	10 m or more	1 m or more
Small Plot	About 900 m ²	5 m or more	1 m or more

C-05 Participants must secure a setback of at least 10 m (at least 5 m in case of small plots) from the main line of flow (Main Street), other lines of flow (streets other than the Main Street), or the boundary of a plaza in front of the pavilion. However, such setback is required at only one side if the plot is at a corner; when, however, a corner plot faces the main line of flow, the setback must be secured at the side facing the main line of flow.

C-06 Participants must secure a setback of at least 1 m from the boundaries other than those specified in C-05 (an adjacent plot and the boundary of the line of flow of service providers at the back of the pavilion).

Guidelines Related to Design

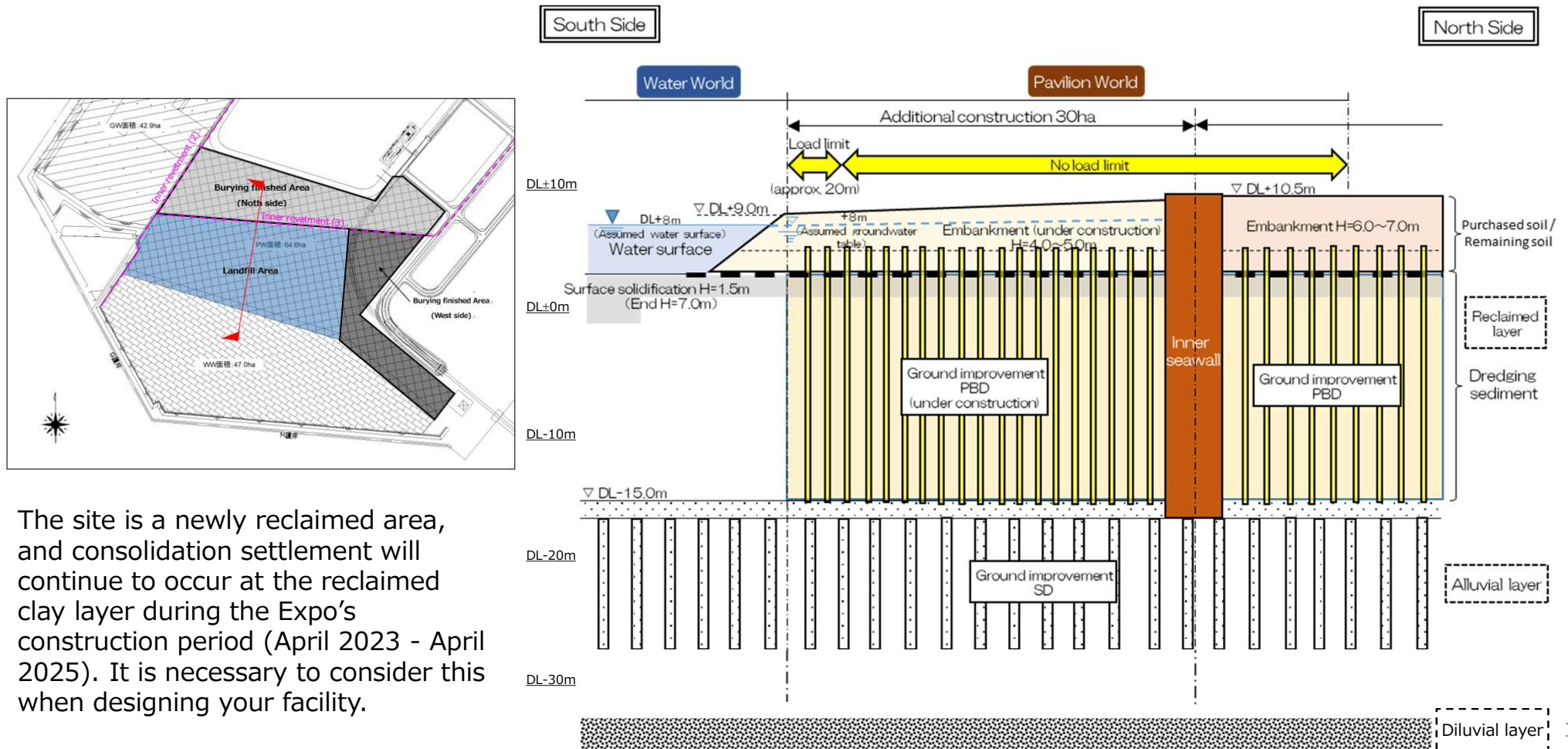
Height and Size of Pavilions



C-10 The height of pavilions must be 12 m or lower. If, however, the total horizontal sectional area of a pavilion at a height exceeding 12 m is 50% or less of the pavilion's building area, the height of the pavilion can be up to 17 m when the pavilion is located on the inner side from the main line of flow (Main Street) or up to 20 m when the pavilion is located on the exterior side from the main line of flow.

Guidelines Related to Design

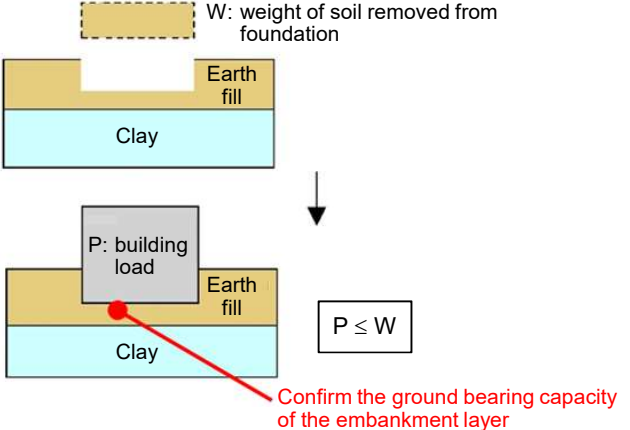
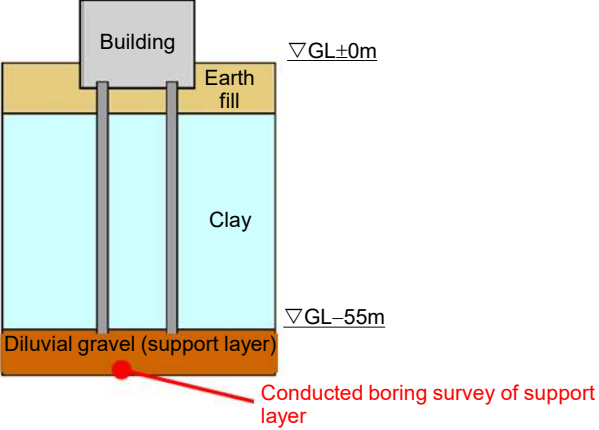
About Yumeshima's Foundation (Boring data is available on the Osaka Port and Harbor Bureaus, and Organiser websites)



The site is a newly reclaimed area, and consolidation settlement will continue to occur at the reclaimed clay layer during the Expo's construction period (April 2023 - April 2025). It is necessary to consider this when designing your facility.

Guidelines Related to Design

Preventive Measure against the Settlement of Buildings (Reference Example)

Type of Foundations	Floating Foundation (Direct Foundation)	Pile Foundation
Diagram	 <p>W: weight of soil removed from foundation</p> <p>Earth fill</p> <p>Clay</p> <p>P: building load</p> <p>Earth fill</p> <p>Clay</p> <p>$P \leq W$</p> <p>Confirm the ground bearing capacity of the embankment layer</p>	 <p>Building</p> <p>Earth fill</p> <p>Clay</p> <p>Diluvial gravel (support layer)</p> <p>∇GL±0m</p> <p>∇GL-55m</p> <p>Conducted boring survey of support layer</p>
Overview	<p>By setting “the weight of building (P) ≤ the weight of soil removed from the foundation (W)”, the occurrence of consolidation settlement and uneven settlement due to building construction can be prevented.</p>	<p>By using a pile foundation for the support layer existing near GL-55 m, the occurrence of consolidation settlement and uneven settlement will be prevented.</p> <p>* Pile removed after the end of the Expo</p>
Target Facility	<p>Average building weight about 4 tf/m²* (Equivalent to an S-structured one-story building with two-floors)</p> <p>* When designed with a foundation excavation depth of 2.5 m</p>	<p>Buildings with an average weight of over 4 tf/m² (Equivalent to 3 stories or more of S structure)</p>

Guidelines Related to Design

Environmental Consideration

Item	Excerpt of C (Control) and G (Guide)
Ensuring comprehensive environmental efficiency	<p>C: Rank A or above in the Comprehensive Assessment System for Built Environment Efficiency (CASBEE®) for temporary construction (* Rank A for Organiser's design)</p>
Energy and global environment	<p>C: Installation of equipment and apparatus with high energy efficiency</p> <p>G: In order to achieve carbon neutrality, it is recommended that participants proactively pursue energy saving and adoption of renewable energies in design</p> <ul style="list-style-type: none"> • Sustainability standards for Expo 2025 will be developed and published.
Promotion of resource recycling and 3R	<p>C: Use of recycled materials</p> <p>C: Construction structures and methods that allow easy separation of scrap when demolishing</p>
Protection against heat	<p>C: Installation of sun control devices in queue areas</p>
Ventilation	<p>C: Securing indoor ventilation of 30 m³/h per person</p> <ul style="list-style-type: none"> • Based on the trend and latest knowledge of infectious disease control, the Organiser will consider appropriate measures as necessary.
Measurement	<p>C: Installation of equipment to measure power output generated using renewable energies</p>

Guidelines Related to Design

Environmental Consideration: CASBEE Assessment Items

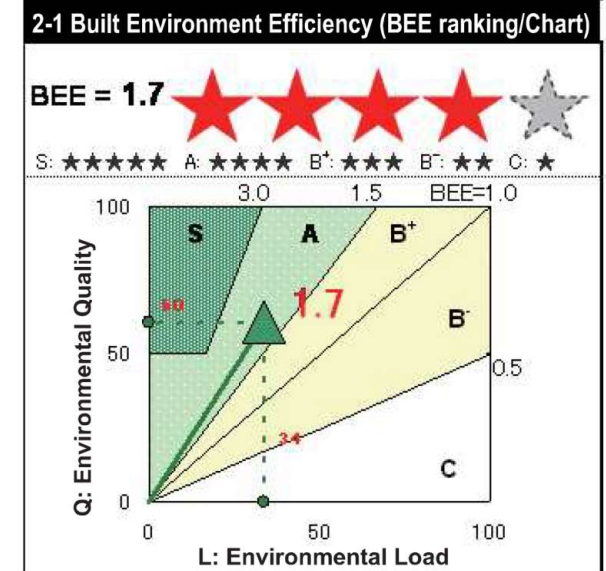
<Items related to **environmental quality** of buildings>

Q1 Indoor Environment
1. Sound Environment
2. Thermal Comfort
3. Lighting & Illumination
4. Air Quality
Q2 Quality of Service
1. Service Ability
2. Durability & Reliability
3. Flexibility & Adaptability
Q3 Outdoor Environment (On-site)
1. Preservation & Creation of Biotope
2. Enriched Outdoor Environment
3. Townscape & Landscape
4. Local Characteristics & Outdoor Amenity

<Items related to reduction of **environmental load** of buildings>

LR1 Energy
1. Control of Heat Load on the Outer Surface of Buildings
2. Natural Energy Utilization
3. Efficiency in Building Service System
4. Efficient Operation
LR2 Resources & Materials
1. Water Resources
2. Reducing Use of Non-renewable Resources
3. Avoiding the Use of Materials with Pollutant Content
LR3 Off-site Environment
1. Consideration of Global Warming
2. Consideration of Local Environment
3. Consideration of Surrounding Environment

Example of Assessment Results



Source: Assessment Manual CASBEE® for New Construction, 2014 ed.

Scoring Method

- Scores are given based on scoring criteria (level1: 1 point – level5: 5 points) for each assessment item
- A weighting coefficient is assigned to each item to calculate scores.

Scoring Result : Assessment by BEE value and ranking

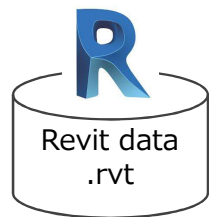
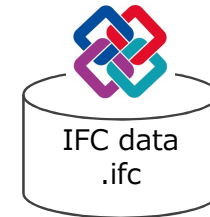
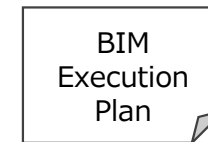
- $BEE = Q$ (Built Environment Quality)/ L (Built Environment Load)
- Ranking: 5 grades (S (excellent), A (very good), B+ (good), B (fairly poor), C (poor))

Guidelines Related to Design

Outline and Overview of BIM Requirements

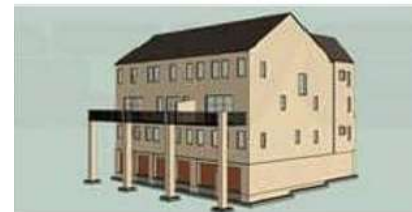
Item	Description
Introduction	Background, objectives, definition
Details of BIM Implementation	Objectives of BIM implementation, coverage required by Organiser
Organisation to Implement BIM	Organisation and promotion of BIM by participants and Organiser
BIM Execution Plan	Purposes of and guidelines for BIM Execution Plan
Software to be Used	Type of BIM software, format of BIM data, integrated model, treatment of intellectual property rights in submitted data
Data Submission	Method, <u>contents</u> , and checking of submitted data
LOD of Models	Definition of LOD (Level of Detail) in the Expo Data submission and <u>objects to be presented in each phase</u>
Input Guidelines	Input guidelines of each attribute information, coordinate system, language

■ Submitted Contents



■ Objects to be Presented in Each Phase

General Design	Final Design
LOD200	LOD300
Presenting design of objects (external form/internal space), main components, equipment and locations.	Presenting accurate design by refining external form and interior. Size, quantity, processing methods and other details of necessary components and equipment.



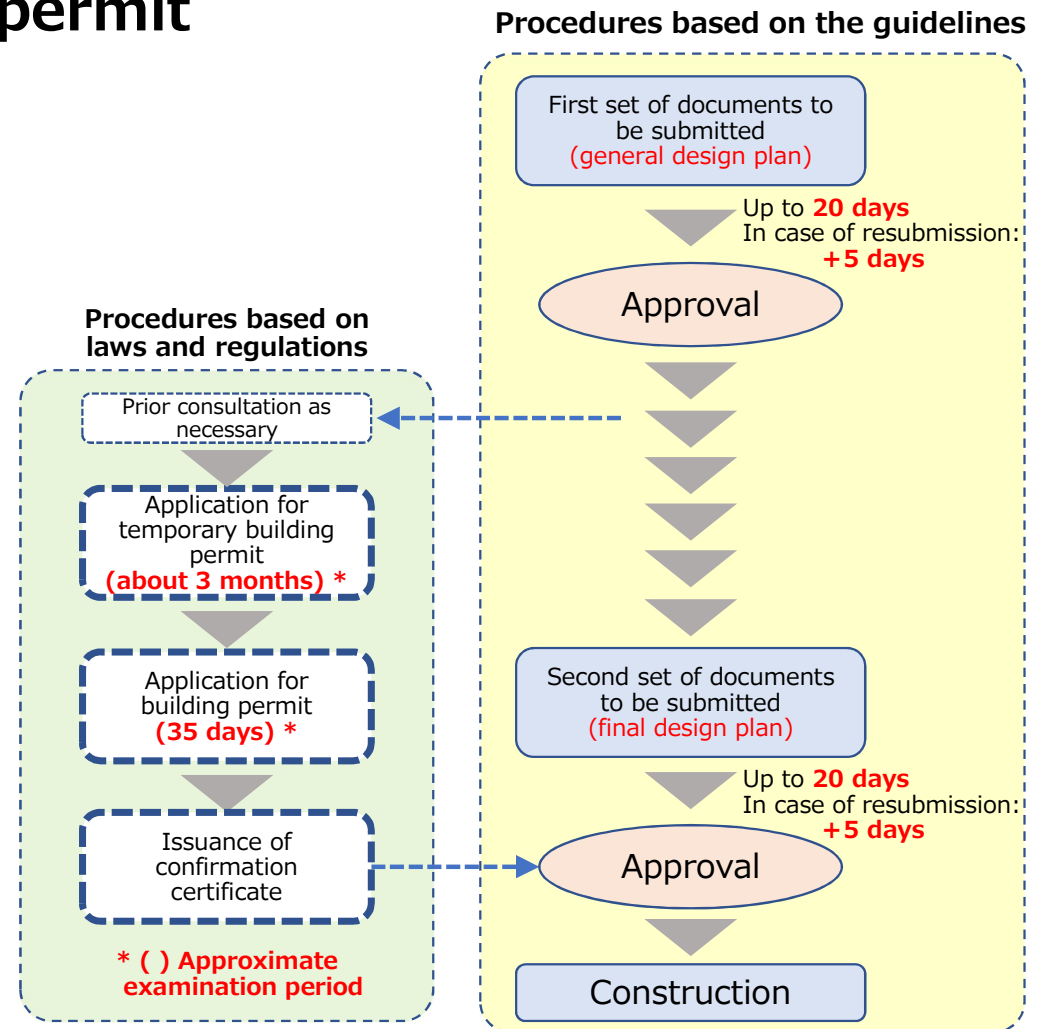
Guidelines Related to Design

Design procedures for Building permit

- First set of documents to be submitted
Submission of **general design plan**
After approval, proceed to the next phase
- Second set of documents to be submitted
Submission of **final design plan**
After approval, construction may begin
<Notification of building permit must be received>

* Drawings must be submitted as CAD and BIM data

All documents must be submitted in Japanese by architects licensed in Japan



Universal Design Guidelines

About revision of UD Guidelines (June 2022)

The revision was made with participation of people with various disabilities to reflect their viewpoints, aiming at realisation of international level UD.

* Previous version of the Guidelines: July 2021

Purpose of the UD Guidelines

The guidelines provide common standards of the on-site facility implementation, and aim to realise environmental improvement for all visitors to the Expo, regardless of their nationality, culture, race, gender, generation, disability, etc., to be able to move along the same routes, enjoy themselves without anxieties or inconveniences, appreciate various exhibitions and events, and in case of emergency like fire, safely evacuate from the venue using accurate and timely information.

Universal Design Guidelines

Basic approach to universal design at the Expo

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

- 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.”

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

- Universal Design 2020 Action Plan (adopted in 2017), Tokyo 2020 Accessibility Guidelines, and other initiatives are positively considered, reviewed in view of the Expo, and further developed.

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

- The three basic principles behind the UD Guidelines are **equity, dignity** and **functionality** also stipulated in the IPC’s Accessibility Guide.

4) Inclusion of people with disabilities in the evaluation and integration of their viewpoints

- active promotion of universal design workshops -

- It is **positively recommended to promote participation of diverse people with disabilities and integrate their viewpoints** toward an “accessible and inclusive exposition” right from the preparatory phases of the Expo.

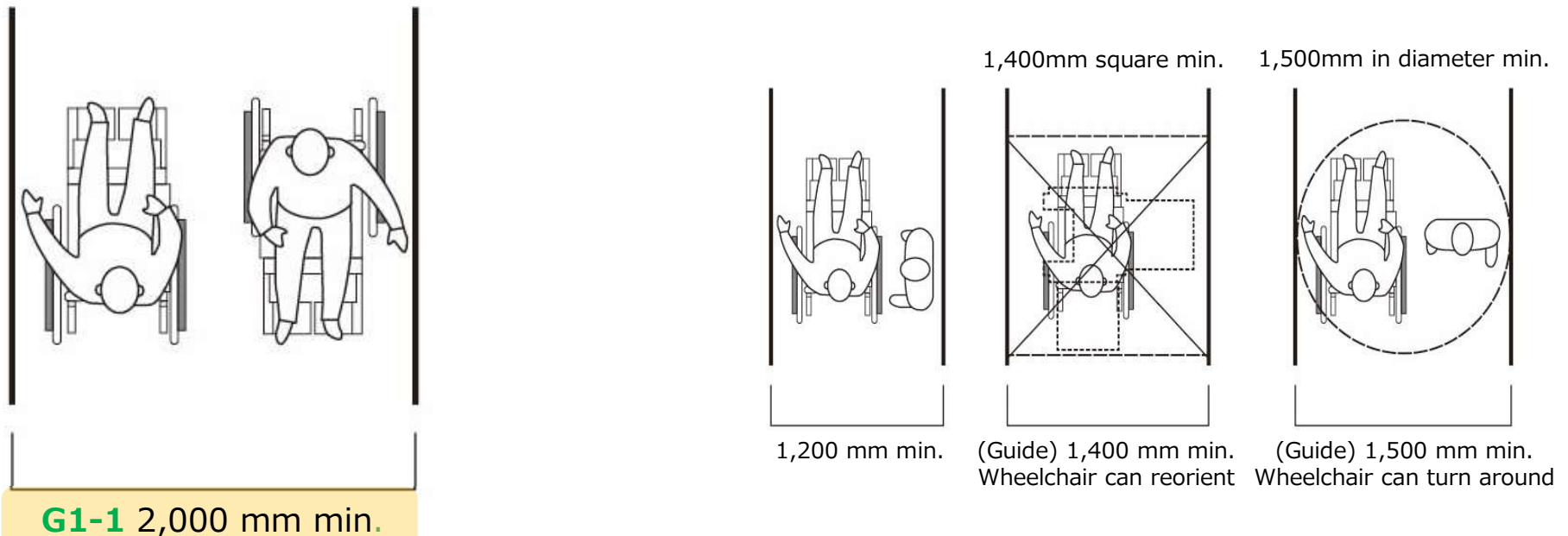
Universal Design Guidelines

Outline of Guidelines

Item	Description
1. Introduction	Purpose, basic approach, structure, compliance with laws and regulations
2. Approaches of the UD Guidelines	Scope of applicability, visitor needs that require special attention, approach to standards, basic dimensions, etc.
3. Items and Descriptions	On-plot passageways (outdoor), doorways, corridors etc. (indoor), stairways, slopes, passenger lifts, escalators, platform lifts, toilet facilities, auditorium, calm down/cool down rooms, food service/retail vendor areas, notices (signage), guiding tiles and other assistance for people with visual impairment, areas for waiting/queueing, baby care rooms, prayer rooms, fixtures (handrails, counters, vending machines, etc.), interior design (interior decorations, equipment, other arrangements), evacuation equipment, etc.
4. Management of the UD Guidelines	Documents to be submitted
5. References/Relevant Literature	Convention on the Rights of Persons with Disabilities, Universal Design 2020 Action Plan, etc.

Universal Design Guidelines

Passageways on site (outdoor)



C1-3 The passageways must ensure appropriate widths based on the anticipated visitor volumes. The minimum width to be ensured is 1,800 mm.

Figure: Effective width of Passageways on site (outdoor)

Universal Design Guidelines

Doorways

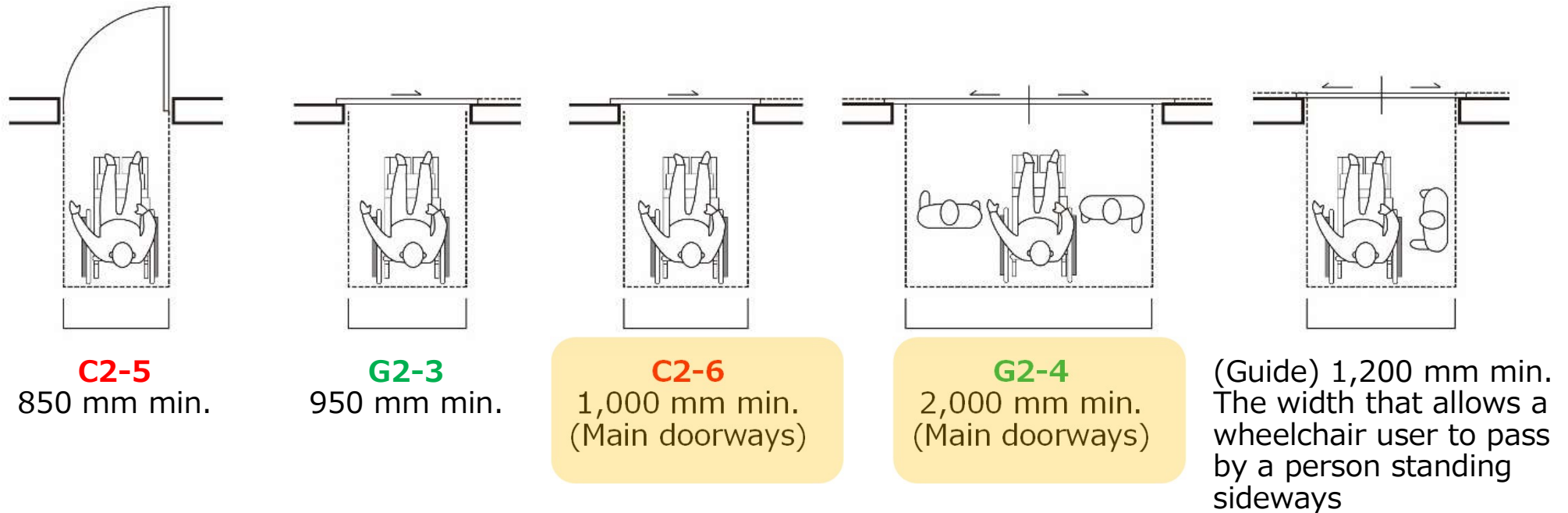


Figure: Effective width of doorways

Universal Design Guidelines

Corridors etc.

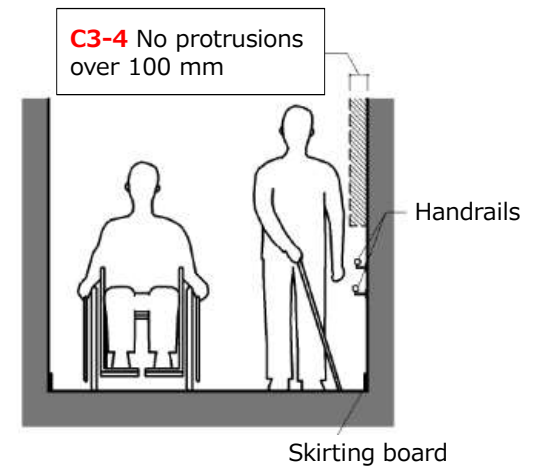
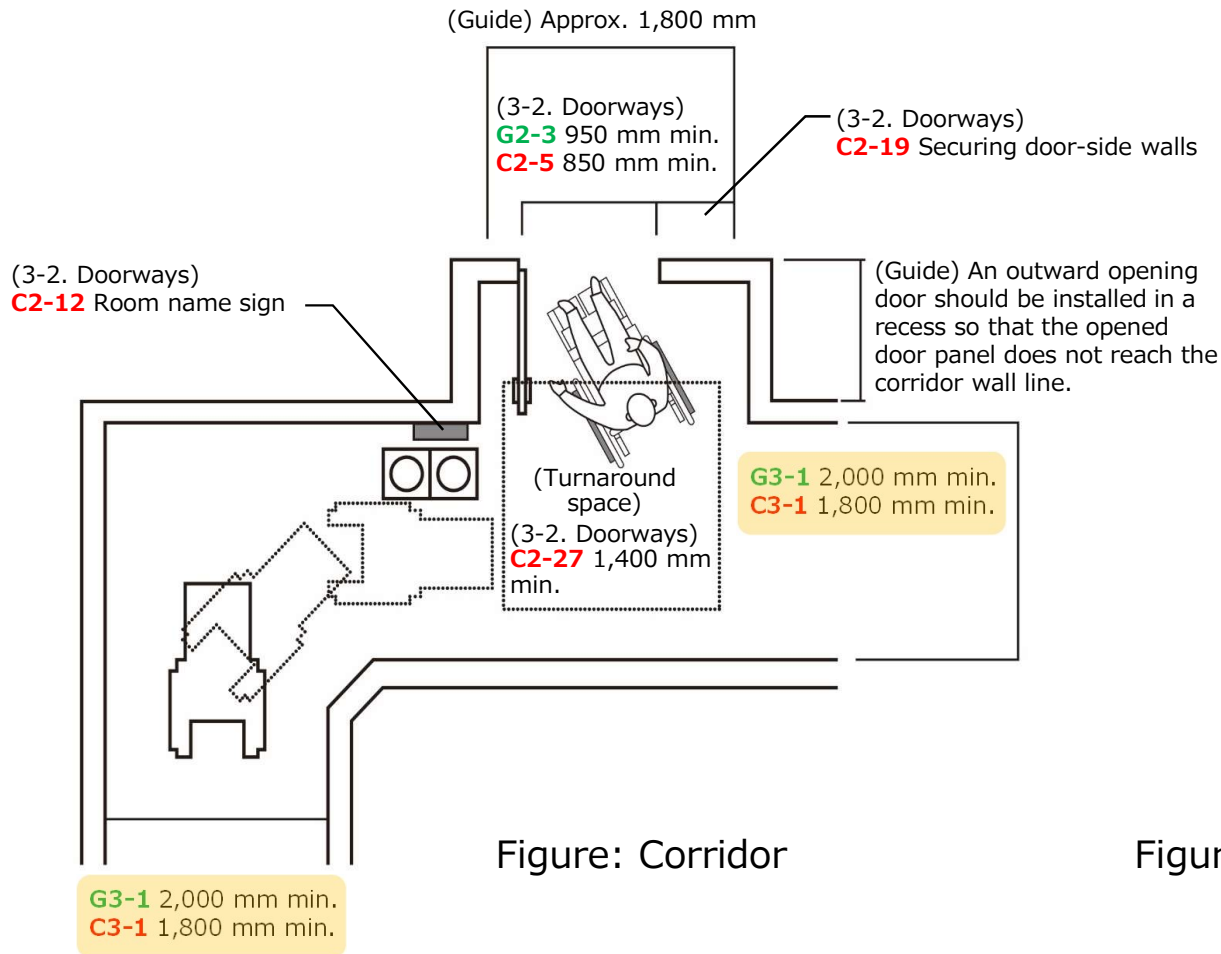


Figure: Protrusion on passageway wall

Universal Design Guidelines

Stairways

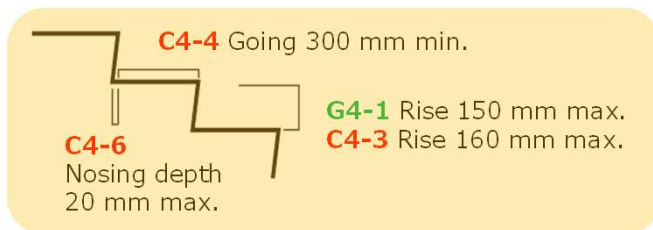
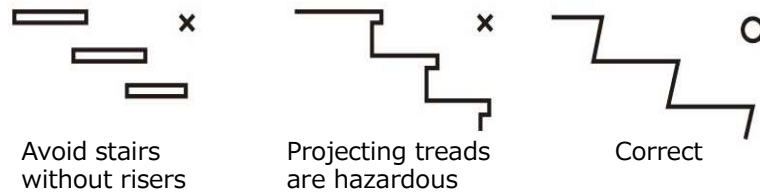


Figure: Rise, going, nosing depth

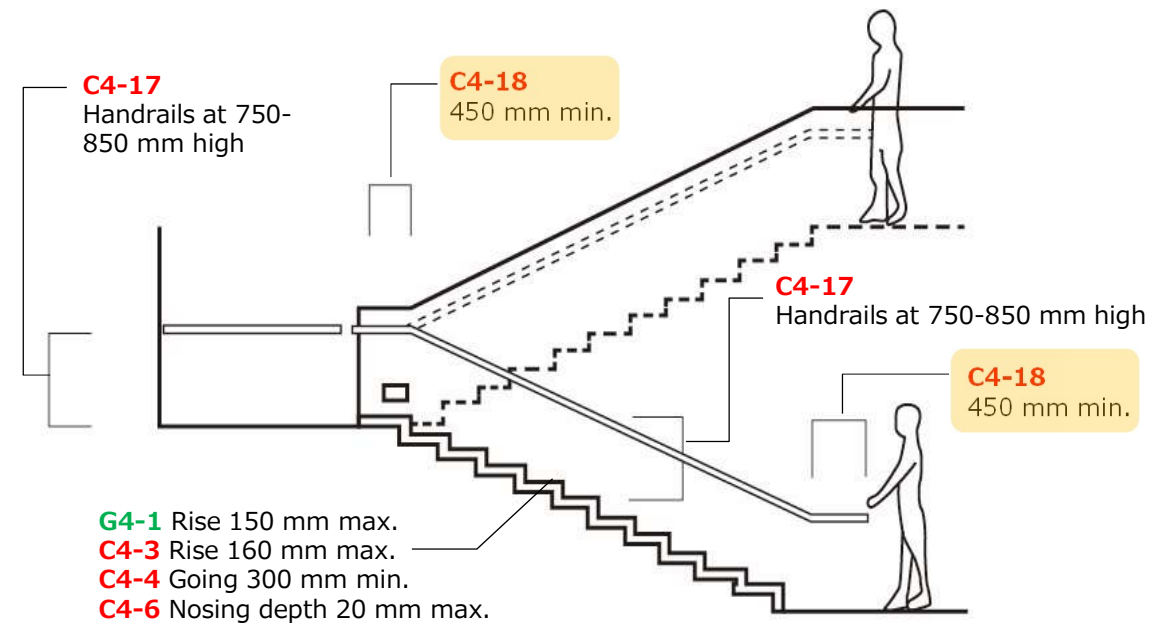


Figure: Measurements for stairways

(Width of Stairways)

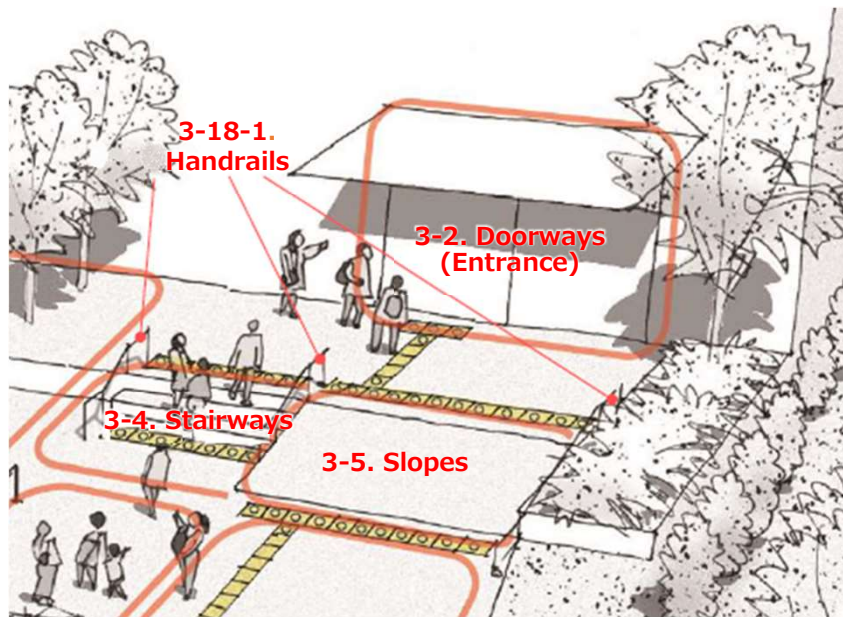
G4-2 2,000 mm min.

C4-7 1,800 mm min.

C4-8 The stairways must ensure appropriate widths based on the anticipated number of visitors.

Universal Design Guidelines

Slopes



(3-18. Fixtures and equipment)
C18-1
Approx. 750-850 mm

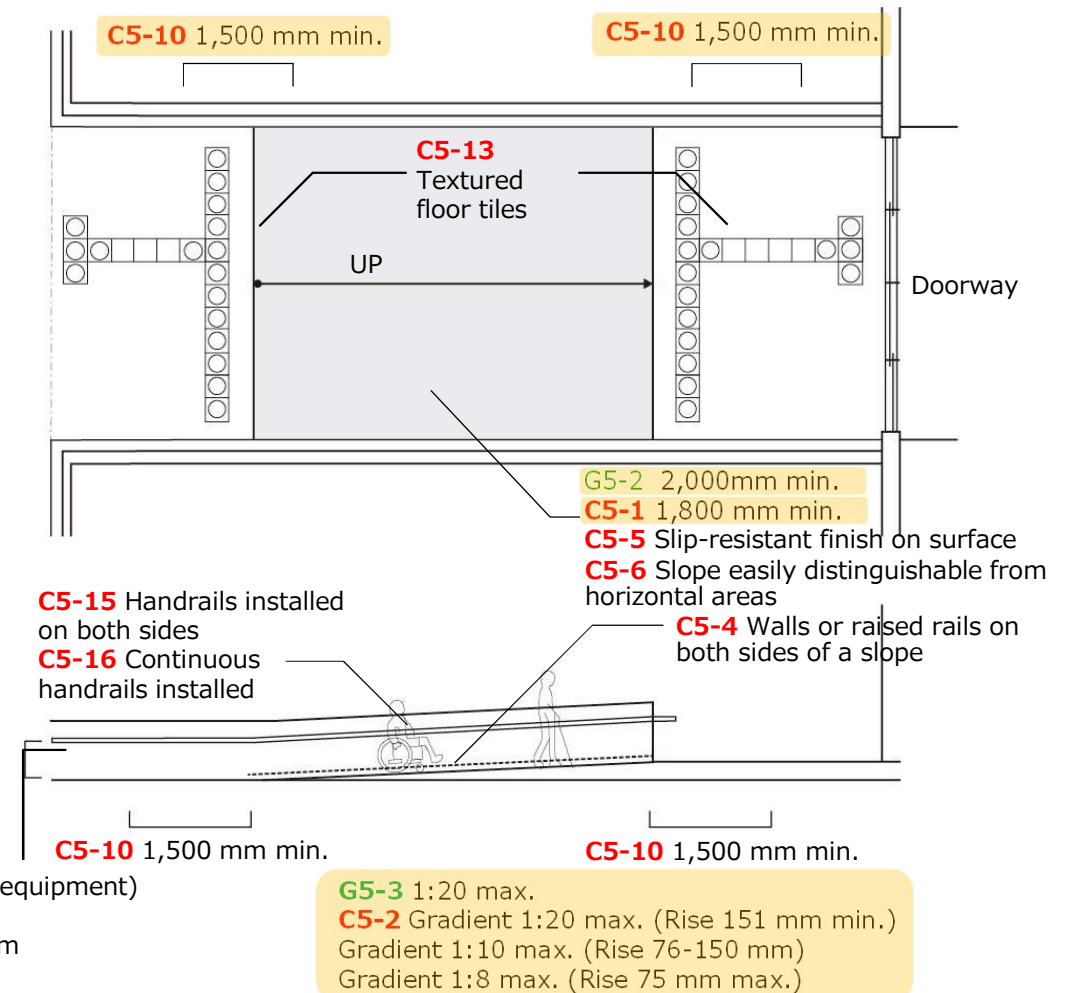
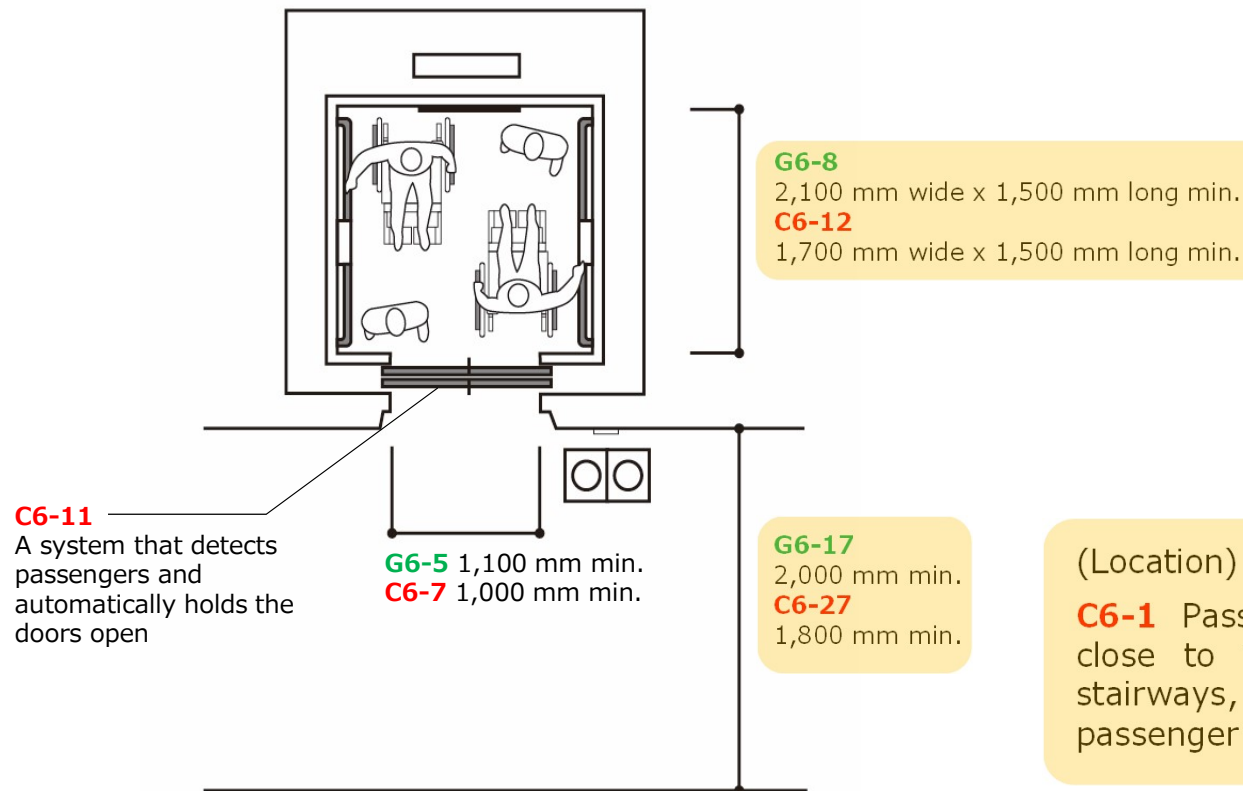


Figure: Slopes (outdoor)

Universal Design Guidelines

Passenger lifts



(Location)
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.

Figure: Example of lift design

Universal Design Guidelines

Toilet facilities

Pavilions are not obligated to provide toilet facilities, but it is desirable that toilet facilities be made available for visitors to use, according to the Guidelines, in facilities where visitors stay for a long time, the traveling distance is long, or where eating and drinking take place.

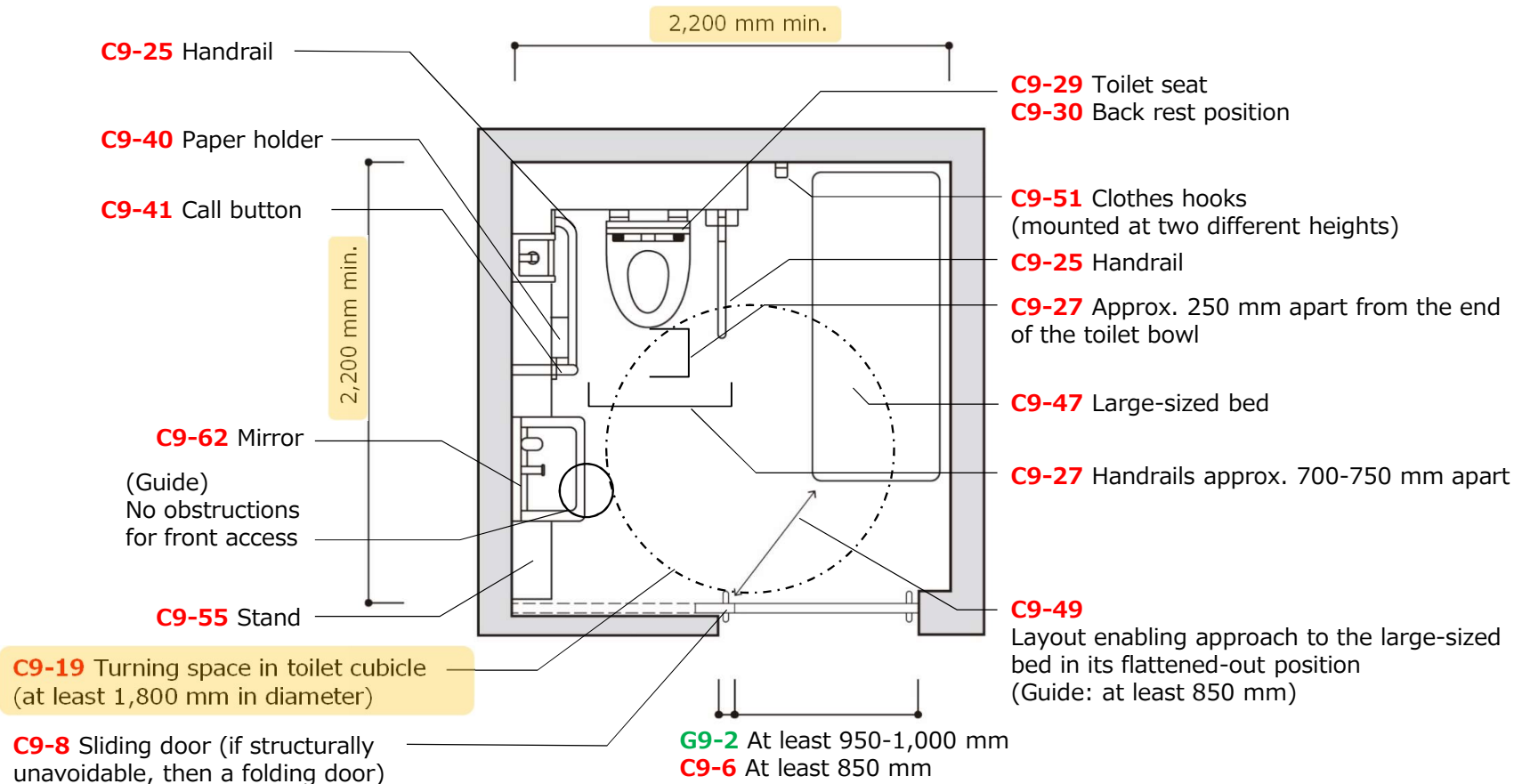


Figure: Design example of wheelchair-accessible individual toilet space

Universal Design Guidelines

Auditorium

C10-13 Arrangements such as guard rails to prevent falls
C10-16 Height of guard rails, handrails 800 mm max.

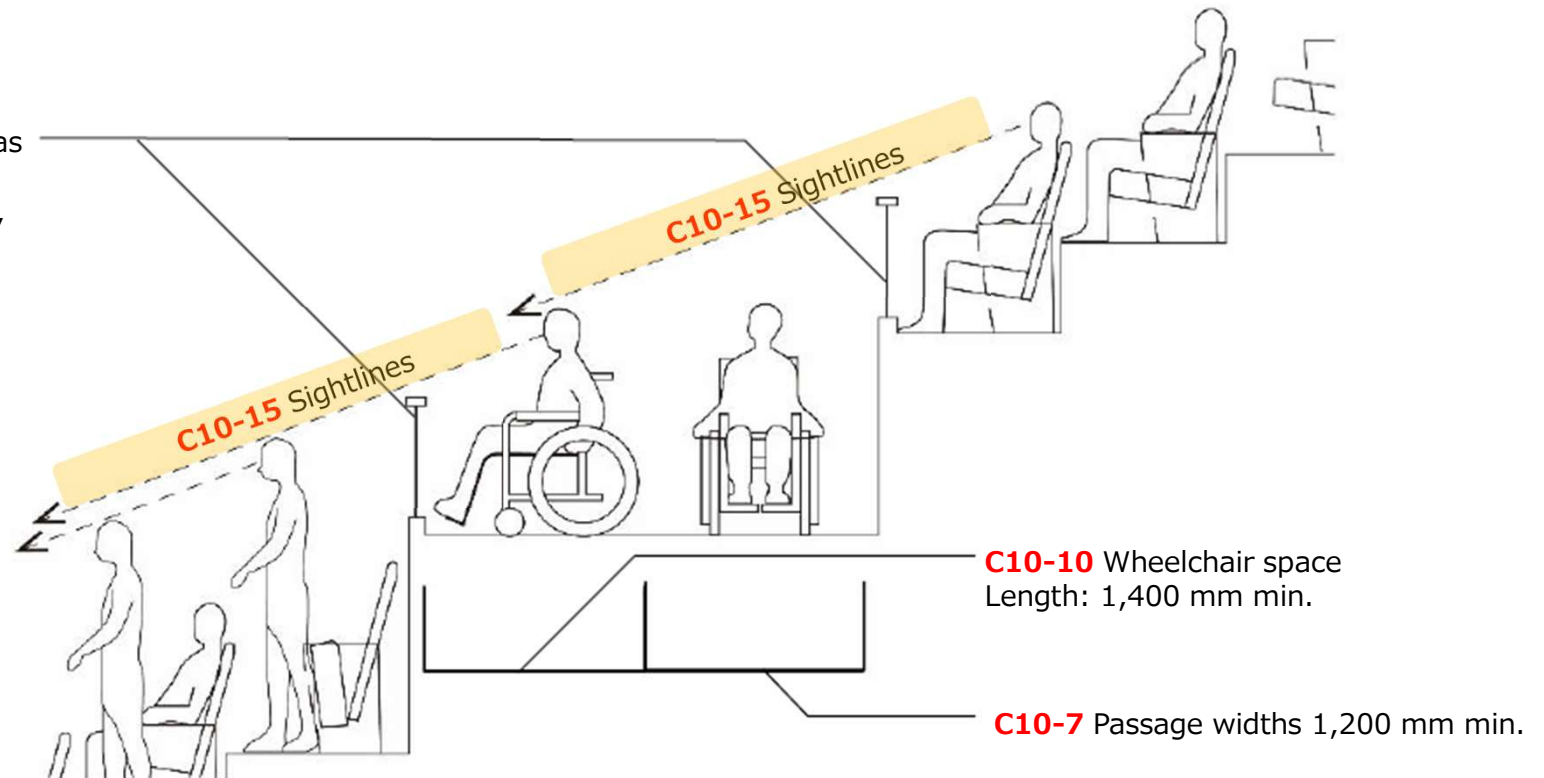


Figure: Auditorium seating

Universal Design Guidelines

Auditorium

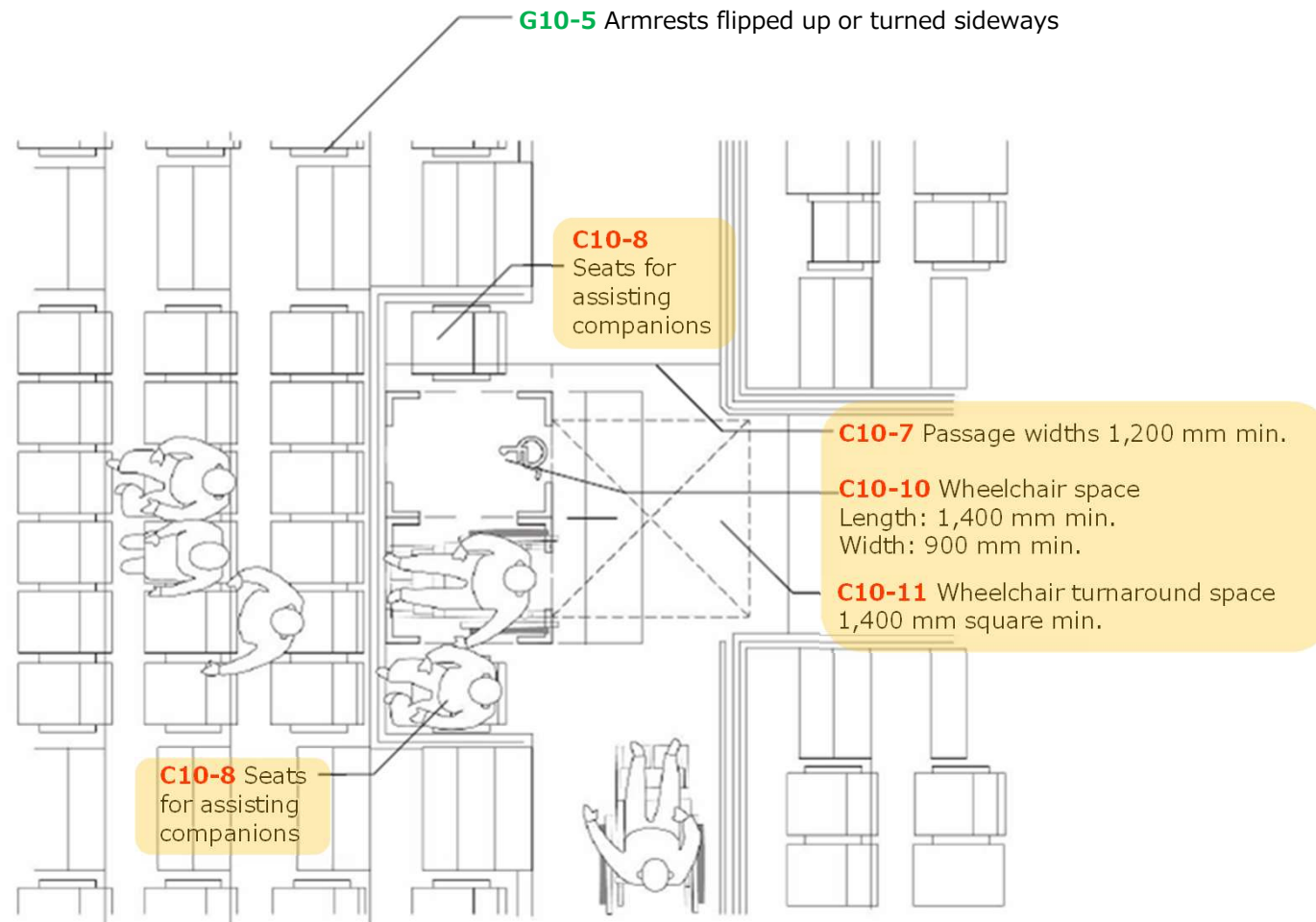
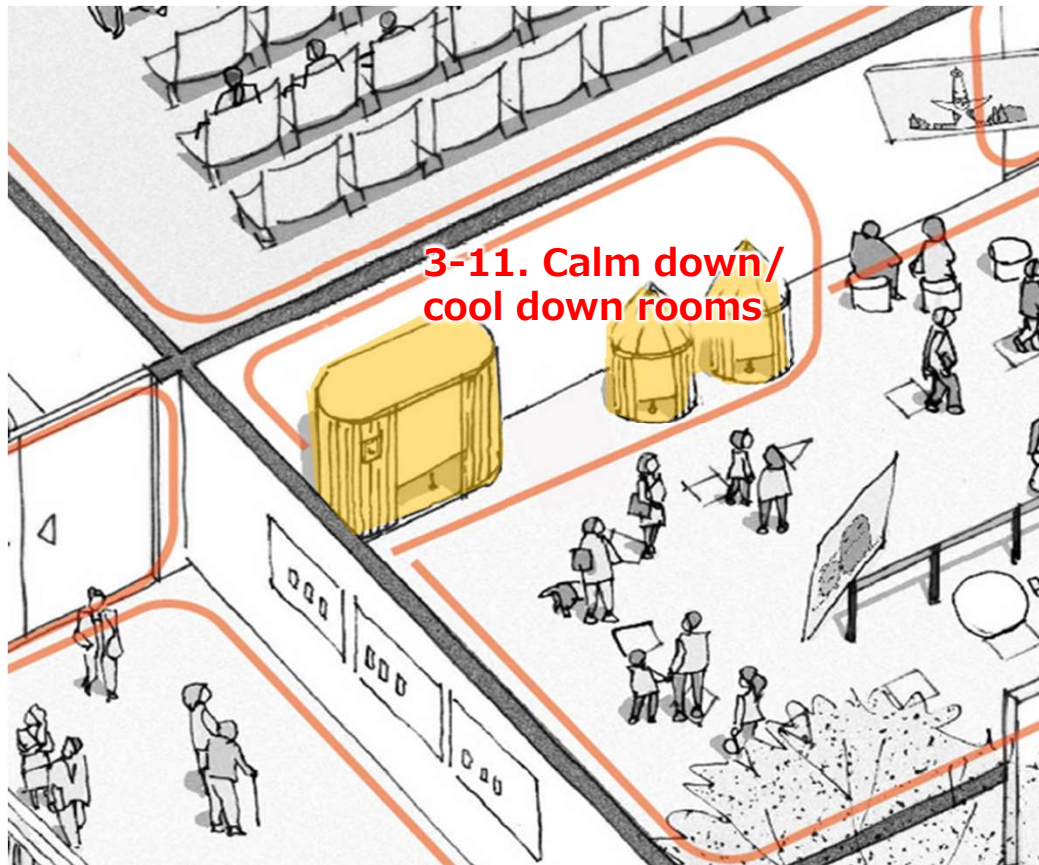


Figure: Auditorium seating

Universal Design Guidelines

Calm down/cool down rooms



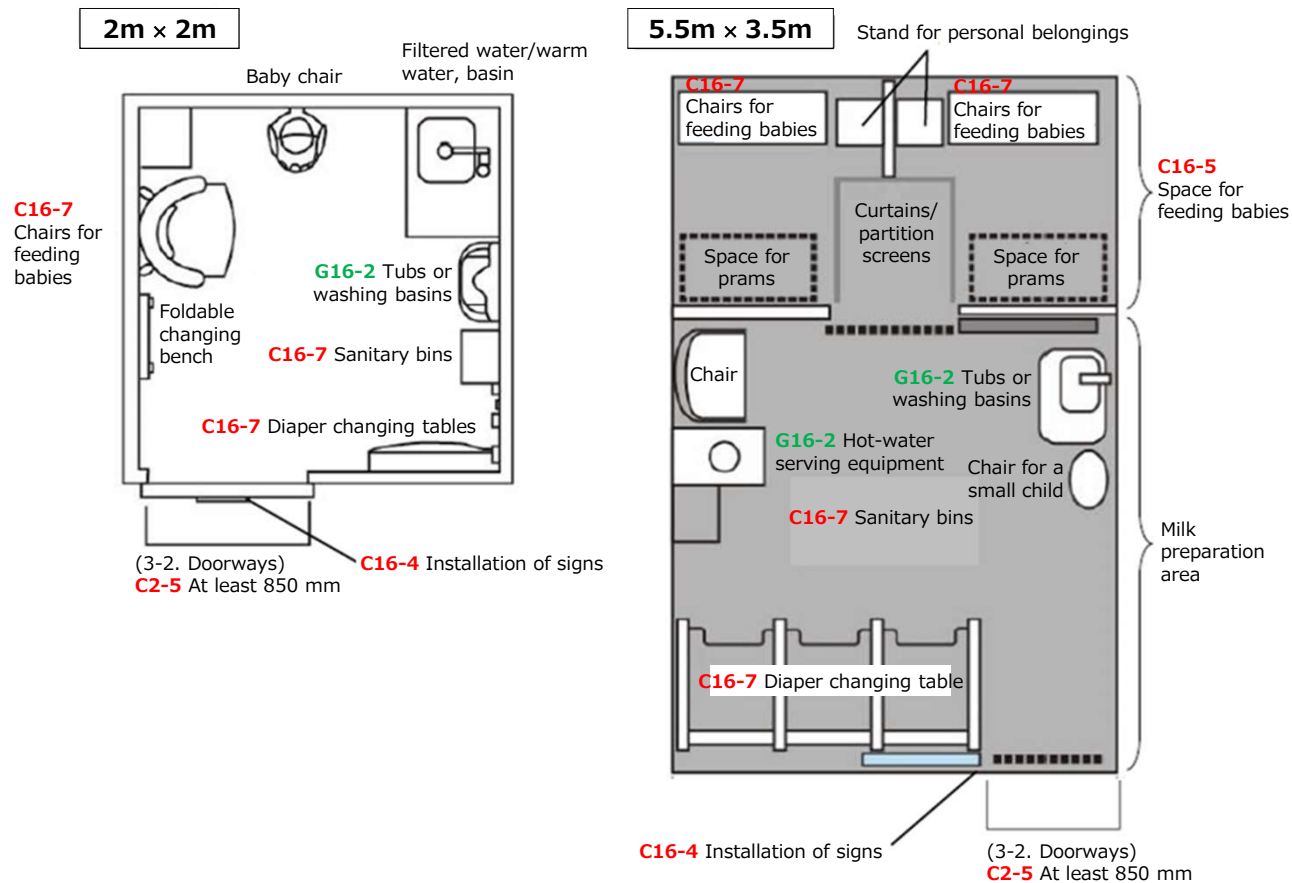
C11-1 Calm down/cool down rooms (individual rooms or space) must be provided where visitors can calm themselves in facilities where a large number of visitors gather in a large space and where stimulation from sound, lighting, and videos may be strong.



Example of calm down space (Narita Airport)
from MLIT website

Universal Design Guidelines

Baby care rooms



C16-1 In a facility with a total floor area of 5,000 m² 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 m², it is desirable for a baby care room to be provided depending on the purpose and type of usage of the facility.

Figure: Example of baby care room

Guidelines Related to Construction and Demolition

These Guidelines describe requirements for implementation of construction and demolition/removal works of Type A (Self-Built) Pavilions as well as issues related to the management of such works by the Organiser.

Purpose of the Guidelines

- To provide clear guidance to enable the smooth implementation of construction and demolition/removal works while many contractors execute works at the Expo Site at the same time.
- To explain the flow of the construction work of Pavilions and clarify requirements and procedures to be followed.
- To comply the Environmental Impact Assessment Document and ensure that construction and demolition/removal works consider sustainability.

Guidelines Related to Construction and Demolition

Outline and Overview of Construction and Demolition Work Guidelines for Self-Built Pavilions (Type A)

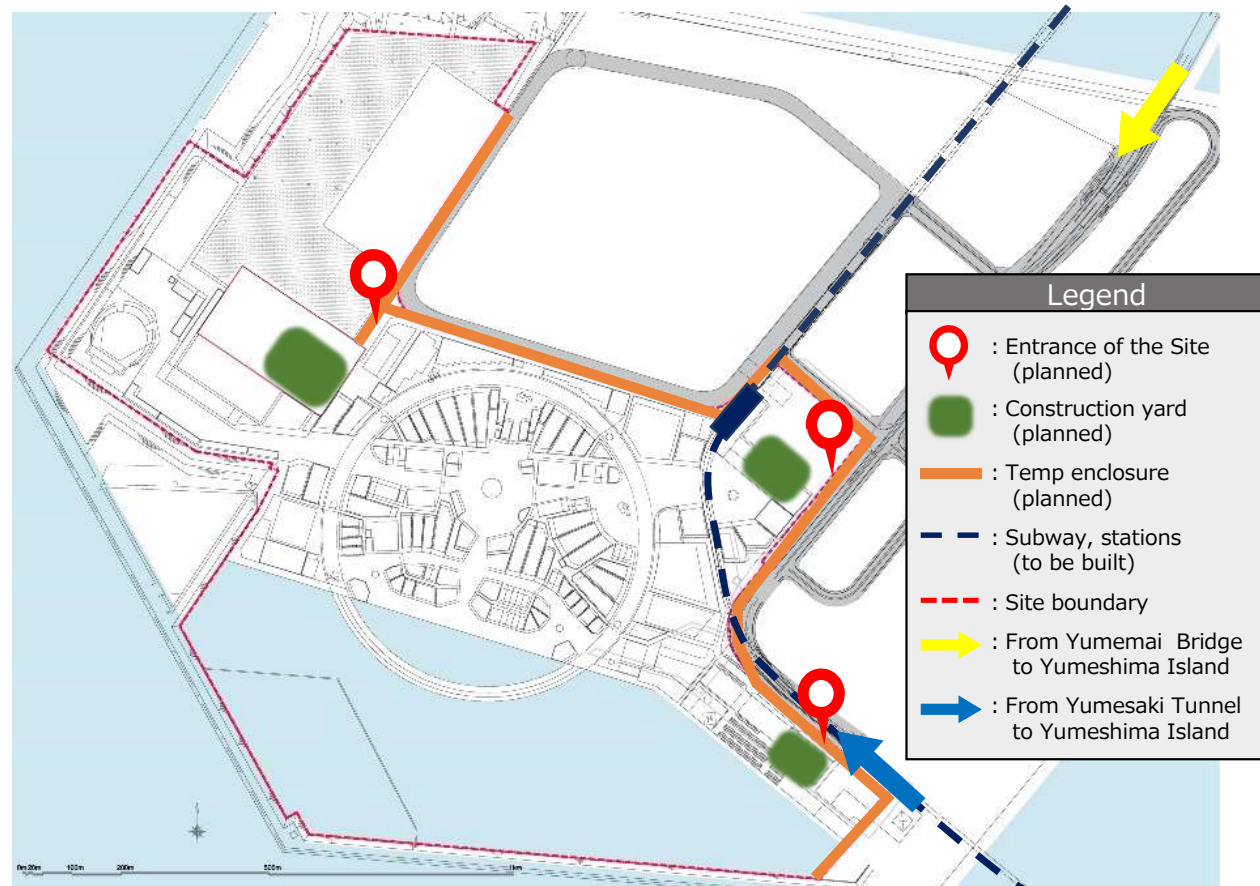
Item	Description
Introduction	Purpose, overview, control and guide, compliance with laws and regulations
1. Overview of Overall Process From Construction Through Demolition/Removal of Buildings and Return of Plot	Organiser's requirements for participants in each phase from pavilion construction through demolition/removal
2. Rules and Management of Construction Work Within Expo Site	Rules of construction works in the Expo site and requirements for work management to support participants engaged in building of pavilions (participation in Communication and Coordination Council etc.)
3. Requirements for Fire Prevention and Security	Installation of fire fighting equipment and pavilion security measures required to prevent fires and ensure security
4. Access to Utility Services	Requirements for access to utility services (water supply, sewage (wastewater, rain water), electricity, telecommunications and chilled water)
5. Securing Occupational Safety and Health	Requirements for safety, health environment and work environment on construction site
6. Sustainability Efforts	Explanation about sustainability efforts and environment impact assessment system (environmental assessment system)
7. Information Management System and Compliance with Quality Control	Information management systems required of participants, procedures for notification, and quality control
8. Demolition/Removal Work and Return of Plot	Procedures and rules for demolition/removal work and return of plot
9. Procedures for Notifications, Approvals, and Authorisations	Requirements for main procedures based on these Guidelines and Japanese laws

Guidelines Related to Construction and Demolition

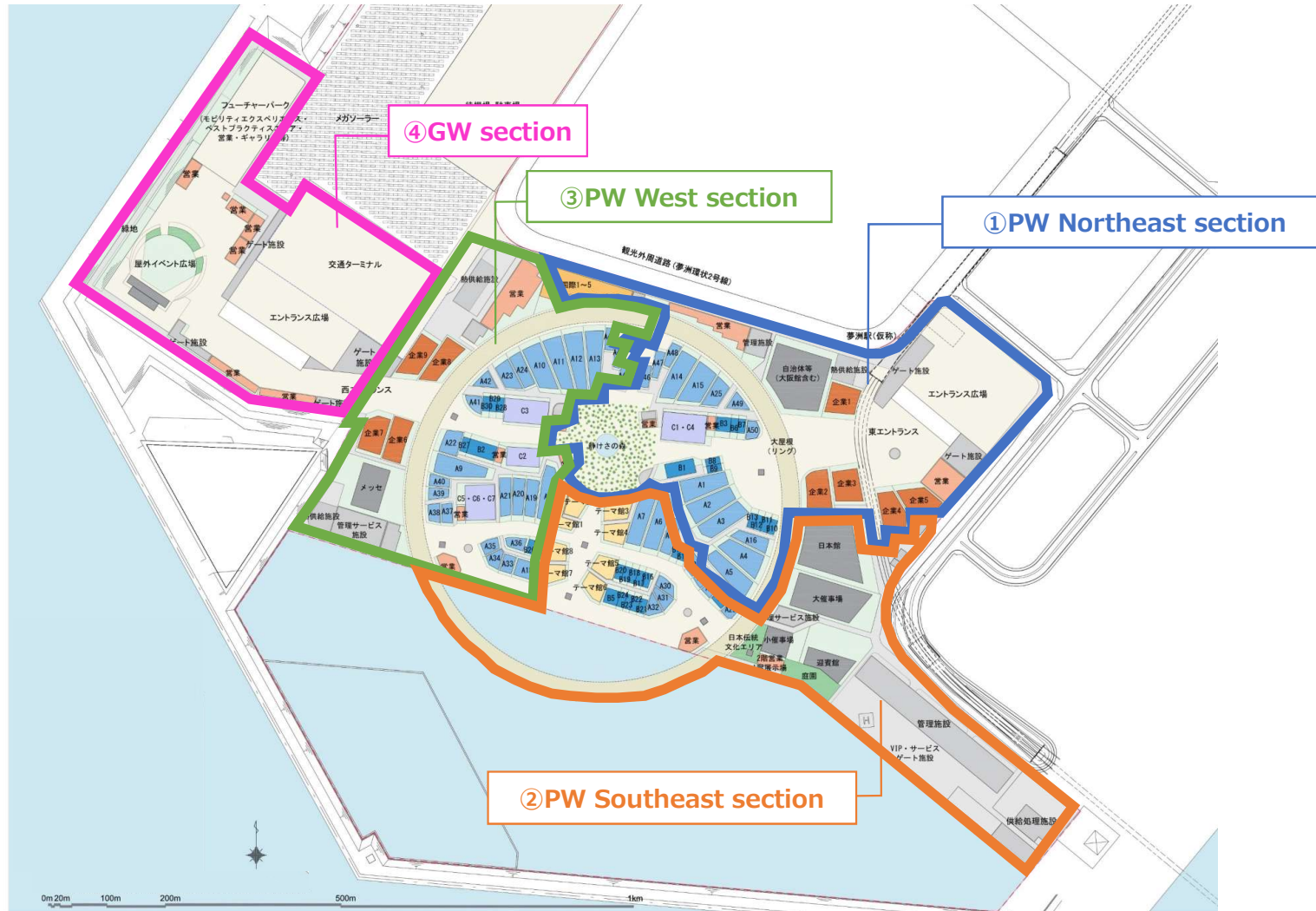
Construction conditions within Expo site

- One has to pass Yumemai Bridge or Yumesaki Tunnel to get to Yumeshima Island
- Roads, subways and infrastructure will be constructed simultaneously on Yumeshima

Participants will participate in the **Communication and Coordination Council** to restrict the number of vehicles used in construction and set out an entrance/exit schedule.

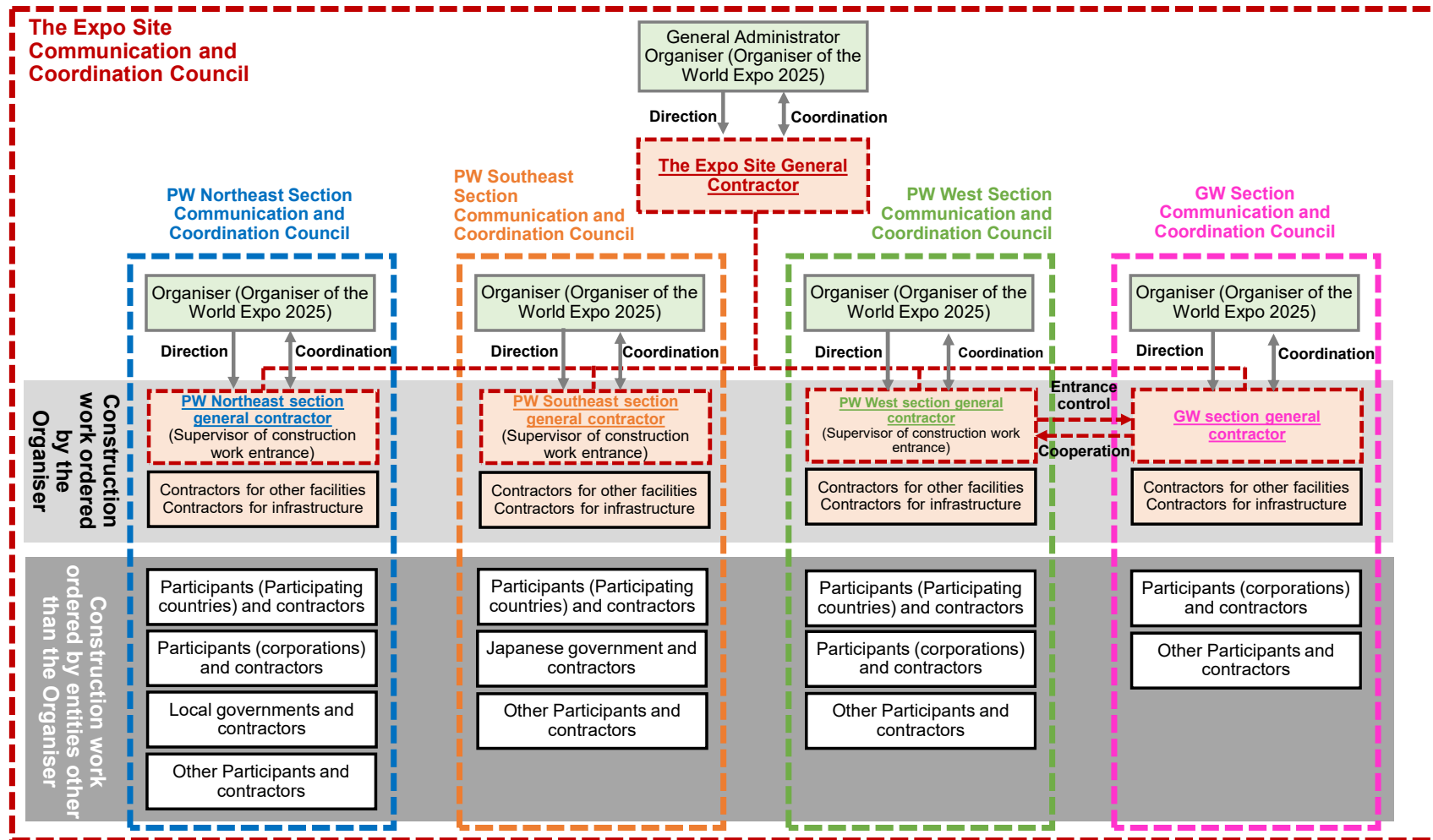


Guidelines Related to Construction and Demolition



Guidelines Related to Construction and Demolition

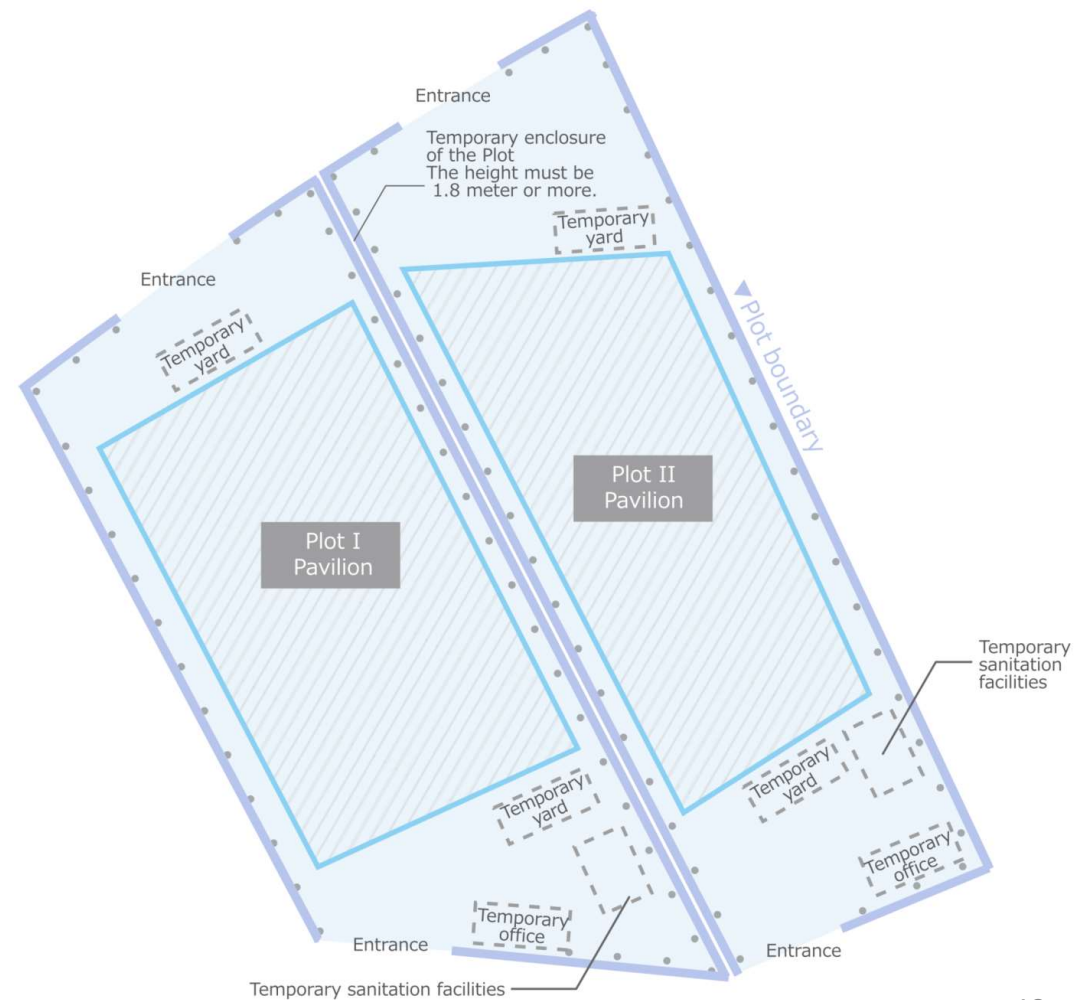
Schematic Diagram of Communication and Coordination Council (Draft)



Guidelines Related to Construction and Demolition

Temporary facilities within plots

- Participants shall erect at their own expense temporary enclosures, construction offices, resting spaces for workers, material storage yards, waste storage and other temporary facilities within their plots.
- Participants shall appropriately maintain and manage temporary construction facilities.



Guidelines Related to Construction and Demolition

Temporary infrastructure within plot during construction work

C-041 Participants shall make necessary arrangement for temporary infrastructure until the Organiser completes installing infrastructure into each plot. In addition, the Organiser plans to set up several water supply locations in the Expo site that can be shared as temporary infrastructure.

Utility services

- Provided by Organiser (through each plot)

Water supply	March 2025 (planned)
Sewage (wastewater)	March 2025 (planned)
Sewage (rain water)	July 2024 (planned)
Electricity	July 2024 (planned)
Telecommunications	October 2024 (planned)
Chilled water	December 2024 (planned)
- Not Provided by Organiser

Gas	LPG can be used
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Guidelines Related to Construction and Demolition

• Expenses by participants

■ Obligatory expense items

- Vehicle management system
- Security guards (construction area gate)
- Commuter bus (including temp off-site parking)
- Tire washing equipment

Amount of expenses is to be determined when finalizing details of the construction plan after appointing a construction contractor.
Then the amount will be notified promptly.

■ Expense items in case of using shared facilities (non-obligatory)

- Temporary water supply
- Temporary toilet facilities
- Other shared facilities (eating and resting places, etc.) provided arbitrarily by General Contractor

■ Other expense items

- Permanent infrastructure usage fee

Guidelines Related to Construction and Demolition

Securing occupational safety and health

- Compliance with laws and regulations related to occupational safety and health
 - C-145** In building pavilions, participants must comply with Japanese laws, including the Act on Labour Standards and the Act on Labour Safety and Health, and relevant laws and regulations including, Ordinances of the Osaka Prefecture and Osaka City.
- Hours when construction work can be carried out
 - As a rule, construction work may be carried out from 8:00 to 18:00.
 - C-068** In principle, construction work at night or on weekends and holidays is prohibited.
 - G-014** To prevent long-hour labor, it would be preferred if Participants and contractors consider implementing construction plans and processes that allow all workers to rest two days a week (eight holidays in four weeks).

Sustainability efforts

- C-151** Participants must perform construction in compliance with the Sustainable Procurement Code.

Guidelines Related to Construction and Demolition

Procedures related to construction work etc.

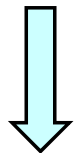
① Launch of construction work



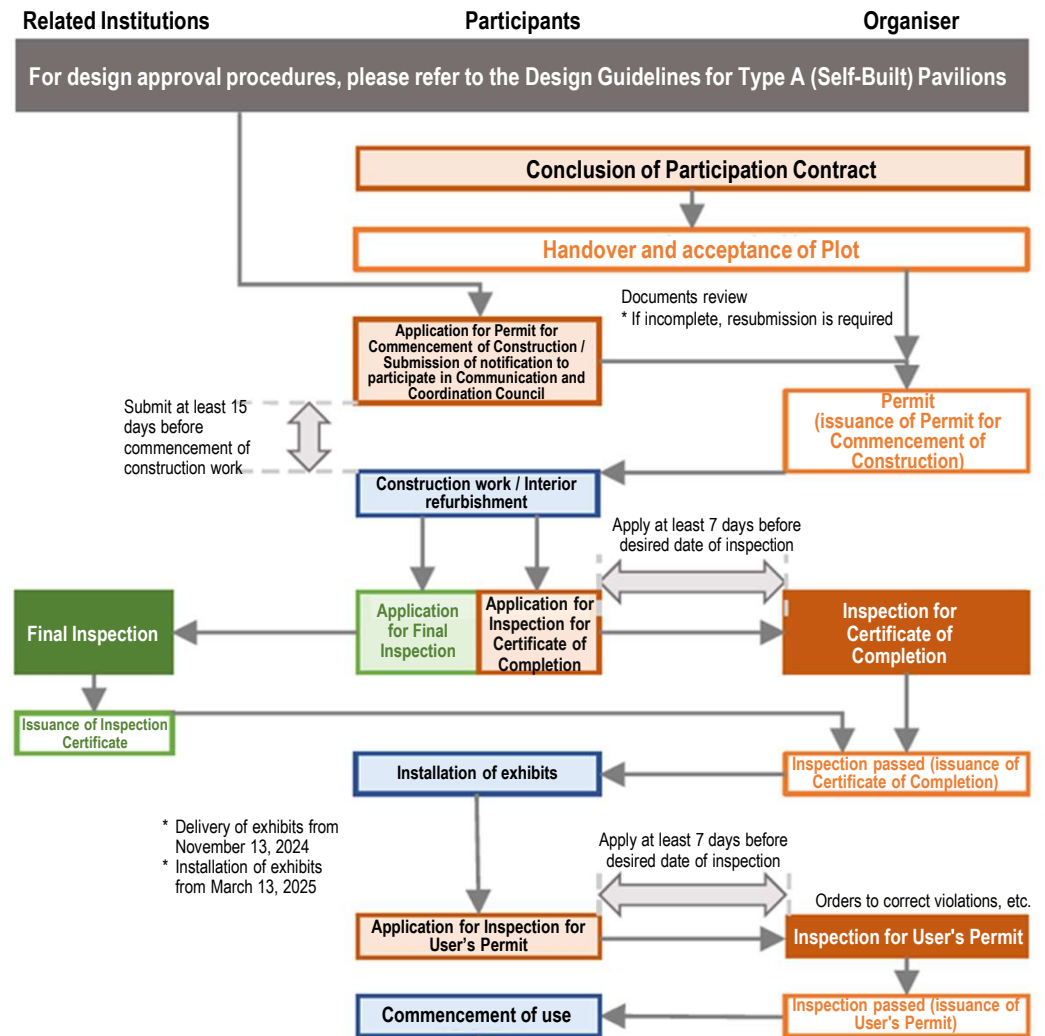
② Completion of construction and interior works



③ Installation of exhibits

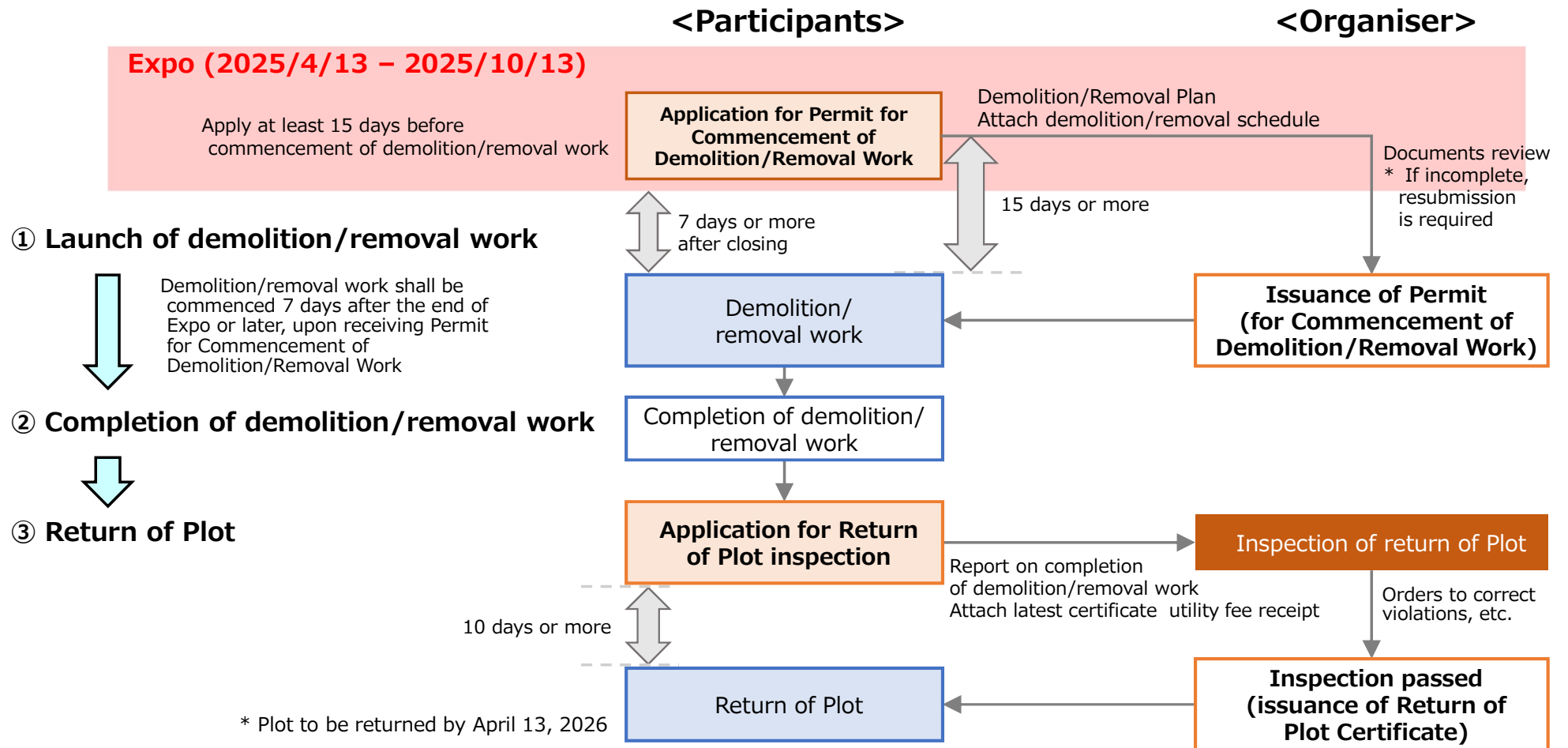


④ Commencement of use



Guidelines Related to Construction and Demolition

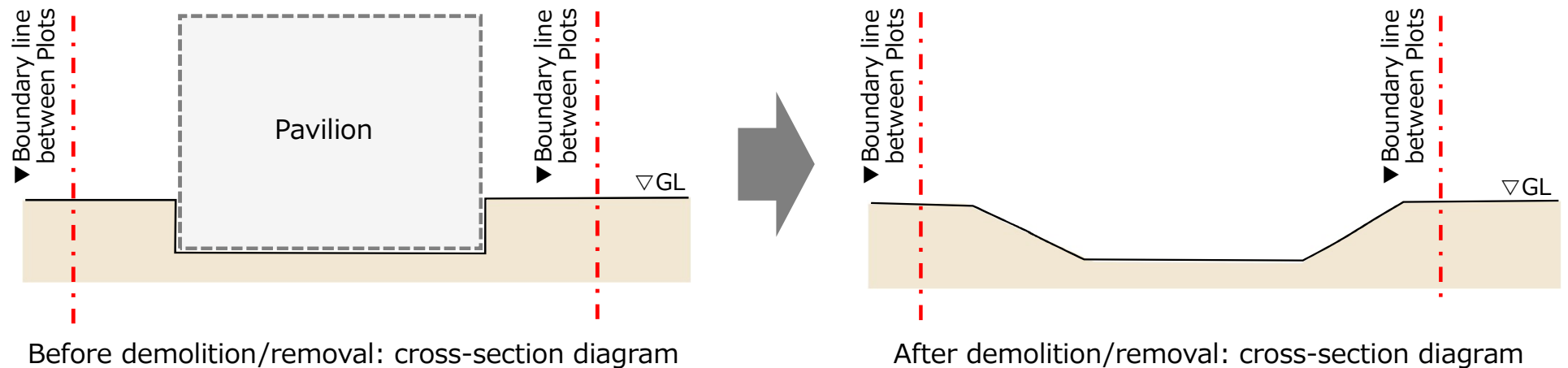
Procedures related to demolition/removal work etc.



Guidelines Related to Construction and Demolition

Demolition/removal work

② Completion of demolition/removal work (restoration of plot to original state)



- Participants must make sure that all structures (above ground and underground) installed by them are removed.
- After demolition/removal of pavilion foundation, underground structures, etc., the plot must be backfilled with earth etc., levelled, and then smoothed appropriately so as to not affect surrounding ground.

FAQ

Q: Are we allowed to connect the second or upper floors of the pavilion to the ring?

A: Pavilions are not allowed to connect to the ring or any other structures.

Q : Is the installation of balconies prohibited?

A : Balconies may be installed within the scope of laws and regulations.

Q: Will a parking space be provided on BoH of each pavilions?

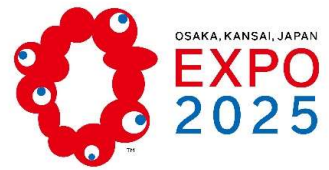
A: A parking space for Participants must be arranged on each pavilion plot when the use of cars is expected.

Inquiry Format

- Inquiry Format shown as below will be shared after this Guidance. Please fill out the format and send it to your country's Liaison if you have any inquiries.

No.	Inquiry Category	Inquiry	Reply	Date	Comments / Other Information
1					
2					
3					
4					
5					
6					
7					
8					
9					

Thank you for your interest and cooperation



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