

New National Stadium Development Project

- To let you know more about the project -

Develop the future, with the power of sports

Stadium open to everyone, blending in with the forest of Jingu

The forest of Jingu inherits the historic greenery spreading from the Inner Garden of Meiji Jingu Shrine to the Imperial Palace. To preserve the precious greenery of the area, Stadium in Forest, a stadium open to everyone and blending in with the surrounding nature, will be built as a great living tree rooted in the earth, looking at 100 years from now.



Stadium in Forest forming a green network

Green network spreading from the Inner Garden of Meiji Jingu Shrine to the Imperial Palace

 The stadium, surrounded by the abundant greenery of the Outer Garden of Meiji Jingu Shrine, forms a green network spreading from the Inner Garden of Meiji Jingu Shrine to the Imperial Palace through the Shinjuku Imperial Gardens and the Akasaka Detached Palace.



Forest of the Earth creating a landscape of abundant forest and town

Three zones utilizing features of the surrounding area

 By utilizing features of the location where the Forest of the Outer Garden of Meiji Jingu Shrine and the Town of the urban area are in contact with each other, Forest of the Earth will be developed in harmony with the surrounding greenery.



Forest of the Earth composed of Forest of the Deep Greenery, Garden of the Great Tree, and Waterfront Garden

Flat roof structure minimizing the height of the building

The height of the building will be 50 meters or less to ease a feeling of pressure.

• To blend in with the landscape of the Outer Garden of Meiji Jingu Shrine, the height of the building will be 50 meters or less. The spectators' seats, having a capacity of up to 80,000 people, will be placed as compactly as possible and the top of the stand will have a flat roof structure.

Minimize the height of the building 🦊 🕠 ,



View of the three-dimensional surface from the west

Center of sports cluster open to everyone

Forest of the Earth and Grove of the Sky leading to citizens' activities

 The stadium features spaces for everyone: the Forest of the Earth connected to the surrounding parks and the Grove of the Sky on the top floor with a circumference of approximately 850 meters. This unique stadium will become a "New center of sports cluster" where everyone can enjoy taking walks and doing various types of sports.



View of Grove of the Sky

Wood and green stadium featuring Japanese climate, culture, and tradition

The eaves around the outer perimeter of the stadium keep out the sunlight and rain and also provide faint shadow and mild texture. Eaves are one of the features of traditional Japanese construction suitable for Japanese climate and culture. They will create a very Japanese stadium, gently blending the architecture in with the green environment.



Eaves providing gentle shade

Eaves covered with vertical cedar lattice blending in with surrounding trees

- The eaves, located around the outer perimeter of the stadium and covered with vertical cedar lattice, give the stadium faint shadow and mild texture and blend in with surrounding trees. The mild cedar texture warmly welcomes all visitors.
- The greenery on the eaves blends with the forest of the Outer Garden of Meiji Jingu Shrine in with the stadium.



Exterior view from southeast

Traditional Japanese lights fitting in with the surrounding environment

 Traditional Japanese lights (stone and paper lanterns like Bonbori, Toro, Chochin) provide the entire stadium with soft light.



Exterior view of the south gate (night)

Space with the spirit of hospitality, using traditional design

Japanese design

• Interior design applying traditional Japanese designs such as Yamato-bari (a method of laying boards) and warm wooden texture creates a very Japanese space.



View of entrance

World-class stadium using domestic lumber

Spectators will feel the warmth of wood through the combination of lumber and steel for the truss of the Large Roof. Lumber will also be prominently used inside the stadium and for the eaves of the outer perimeter to achieve a very Japanese and world-class stadium. Domestic lumber obtaining forest certification will be used for the Large Roof and eaves.



Large Roof and eaves using lumber will embrace all spectators.

Using wooden material for the truss of the Large Roof

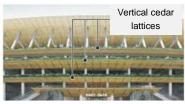
- Materials used for the truss of the Large Roof are mainly steel, which has sufficient strength, and lumber, to suppress deformation in case of an earthquake or strong wind.
- Laminated lumber made of larch and cedar will be used for the truss.



View of using lumber for the truss of the Large Root

Using vertical cedar lattice for the eaves around the outer perimeter of the building

 Vertical cedar lattice will be used for the eaves around the outer perimeter of the stadium. The warm cedar texture creates the appearance of a very Japanese stadium.



View of using lumber for the backs of the eaves around the outer perimeter

Proactively using lumber inside and outside the building

Utilization method suitable for lumber used on exterior surfaces

- Lumber will be used for the inner side of the Large Roof and the eaves where it is not likely to be exposed to the rain, which is the main cause for degradation.
- Lumber will be treated with pressure injection processes for antiseptic and anti-termite measures to increase durability.
 Interior space surrounded by wood
- Wooden texture in the interior space embraces spectators with a warm atmosphere.
- Domestic CLT* having high strength will be used for lockers in the athletes' dressing rooms.
- Domestic CLT* will be used for outdoor information boards and other independent boards requiring strength.



View of lounge

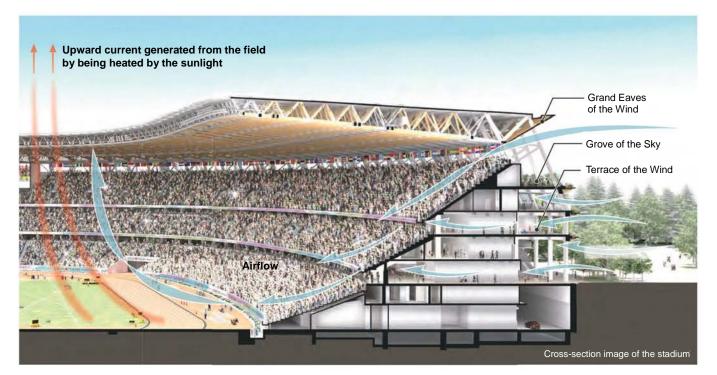


View of athletes' dressing room

*Cross Laminated Timber: Wood materials laminated and adhered after they are orthogonally placed

Improving the spectator environment by using the natural energy

Natural winds channeled into the stadium from Grand Eaves of the Wind and Terrace of the Wind circulate airflow and discharge heat and moisture generated from the field and spectators, which improves the thermal environment of the spectators' seats and field. In addition to the natural energy, an airflow-creating fan and a mist-cooling system will be installed to achieve further improvement of the thermal environment.



Improving the thermal environment of the spectators' seats by using prevailing winds

Grand Eaves of the Wind and Terrace of the Wind channeling winds into the stadium

- Grand Eaves of the Wind efficiently channel seasonal winds into the upper tier of the stadium. Channeling winds into upper tier of the stadium and utilizing the upward current effectively generated from the field by being heated by the sunlight, heat and moisture generated in the stadium are discharged.
- The Terrace of the Wind channels winds into the concourses and the lower tier of the stadium and improves the thermal environment of the spectators' seats.

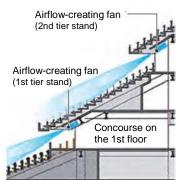


View of Grand Eaves of the Wind

Heat measures through high-performance facilities and equipment

Airflow-creating fan for reducing the perceived temperature

- Airflow-creating fans will be used in cases where winds are gentle, airflow feeling is not expected, or spectators' seats are exposed to the sun.
- Airflow-creating fans reduce spectators' perceived temperature and improve the spectator environment.



View of assumed positions where airflow-creating fans are installed

Mist-cooling system for reducing the external temperature

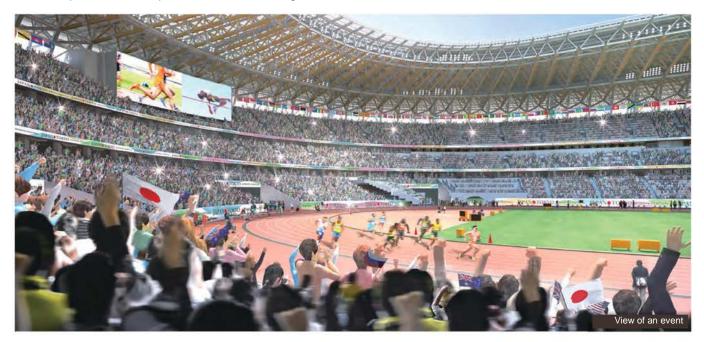
- A mist-cooling system, using water vaporization heat, will be installed near the entrance gates where many people gather and in some areas inside the stadium.
- It is expected to reduce the surrounding air temperature by spraying fine water particles.



View of mist cooling system

Creating an environment allowing athletes to give their best performance

The circulation route and room placement designed for athletes create an environment where they can smoothly travel, comfortably use the stadium, and maintain their concentration. The stands will be developed to create a sense of unity among the athletes and spectators. In addition, the high-performance field maintenance system makes it possible to keep the best condition regardless of the season or weather.



Circulation route enabling athletes' smooth traveling

Athletes' traffic lane during track and field events

- Athletes can enter the track from the sub-track via the special passageway and practice track.
- The interview zone and doping-control rooms placed near the finish line allow athletes smooth access.

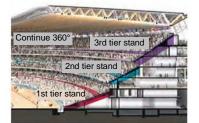
Athletes' circulation route during football matches

- Athletes can quickly enter the dressing room via the bus parking and entrance for the athletes. They can also smoothly enter the pitch via the special passageway.
- Event management personnels will access from the special entrance so that their circulation routes do not meet with the circulation routes of the athletes and their related persons.

Stands creating a sense of unity among the athletes and spectators

Three-layer stands

 Bowl-shaped three-layer stands, whose inclination gradually becomes steeper, continue 360° around the field. By surrounding the field with the spectators' seats, a sense of unity among the athletes and spectators will be created.

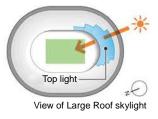


View of stand composition

Skylight for growing natural lawn

The most appropriate form based on the sunshine distribution simulation

- The skylight installed in the southern portion of the Large Roof efficiently takes natural light onto the natural lawn.
- The form of the skylight is based on the simulation of sunshine distribution to the pitch surface. It is the most appropriate form for growing natural lawn in winter.



High-performance field maintenance system

Lawn sprinkler system

- A pop-up sprinkler will uniformly sprinkle the surface of the field with its natural lawn.
- The system will be operated and managed through system control, timer control, and rainfall sensor control.

Field drainage facilities

 Facilities installed below the field, including a buried pipe designed to uniformly and quickly drain water, will smoothly discharge water in case of concentrated downpour.

Underground temperature control system

 A pipe with a total length of approximately 25 kilometers will be buried beneath the lawn to circulate cool water in summer and heated water in winter, respectively, to maintain the optimum environment for growing natural lawn throughout the year.

Universal design 1

Stadium allowing everyone to feel comfortable while watching events

Based on the opinions through the workshop with 14 organizations for persons with disabilities etc., an environment where everyone can comfortably use the stadium will be developed with due considerations to various users regardless of age, sex, nationality, and presence or absence of disabilities.

Washing

button

Call button

Paper roll

dispenser

Ň. lol

Typical example of

Toilet plan enabling comfortable use by all users

Due consideration to various users

- · For the elderly, handrails will be installed for urinals, lavatory counters, and all the toilet booths.
- · For persons with visual impairment, arrangement according to JIS S 0026 will be applied to all the general toilet booths.
- · The parent-and-child booth and ostomate booth will be placed in an area visible from the entrance of the general toilets, and the diaper-changing stand will be placed near the lavatory counter area.
- · For children, all the urinals will be low-lip urinals and some low lavatory counters will be installed in each general toilet. In addition, a children's urinal will be placed in the women's toilet area.
- · Toilets for assistance dogs will be placed, one inside and one outside the stadium.

Rooms enabling comfortable use by all users

Rooms for infants

- Nursing rooms will be placed on each floor in a balanced manner and stroller spaces will be placed near the entrances of the rooms. The rooms will be arranged to be used by wheelchair users.
- 2 The day nursery and children's room will be placed on the 1st floor where users can smoothly evacuate in case of a disaster.
- 3 The stroller spaces will be placed around the information counters near the gates. Strollers can be placed promptly after entering a gate.

Resting rooms considering persons with intellectual, mental, and developmental disabilities

Resting rooms will be placed each floor in a balanced 4 manner as rooms for calming down.

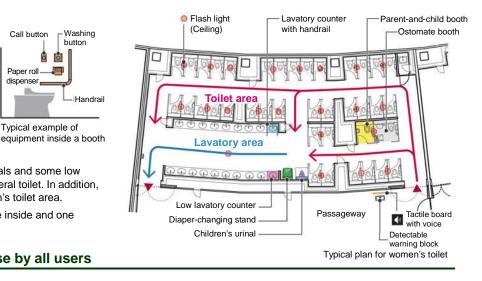
Sign plan that everyone can understand

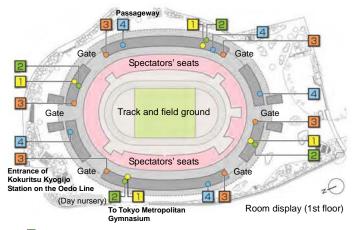
• A sign plan that everyone can understand regardless of the age, nationality, and presence / absence of disabilities achieves Universal Design (UD) environment.

Users requiring UD and examples of considerations in providing signs

| Iotally blind persons | information such as tactile boards, voice guide, and braille guide blocks, etc. |
|---|---|
| Persons with weak sight | Provide a large display surface with large characters and a strong contrast |
| • Persons with hearing disability | Provide visual information |
| Wheelchair users ······ | Secure spaces where they can comfortably watch signs |
| • The elderly and children | Secure a low viewpoint |
| Foreigners ····· | Provide pictograms (partly with multiple languages) |
| • Persons with intellectual disability | Provide simple information |
| Others ····· | Install an intercom at the information counters |

Basic policy for Universal Design (UD) in the sign plan





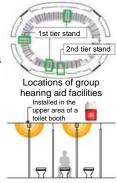
Considerations to persons with hearing disability

Distributed arrangement of group hearing aid facilities

• Group hearing aid facilities installed in multiple areas of the stands allow persons with hearing disability to watch events from various seats.

Emergency facilities

- · Flash lights installed in major toilets, resting rooms, and nursing rooms inform persons with hearing disabilities about emergency events.
- For safety evacuation guidance, textual information will be provided on the large display panel in the south and north stands



Installation of flash lights

the toilets.

Environment allowing wheelchair users to comfortably watch events from any area

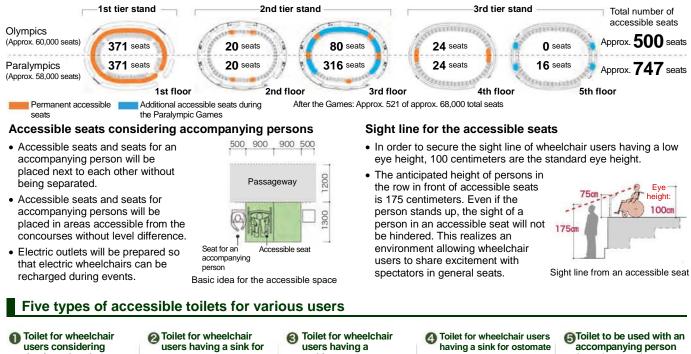
Accessible seats will be distributed on all tiers and floors of the stands. In particular, the 1st tier stand, having high frequency of use, will have many seats accessible from outside without level differences. This creates an environment which ensure visibility and comfort of wheelchair users to share excitement while watching events. In addition, toilets friendly to various user types will be prepared in order to allow everyone to comfortably use the stadium.



Stadium allowing wheelchair users to watch events from any area

Accessible seats will be arranged on all floors in a balanced manner

(For the 5th floor, the seats are prepared only during the Paralympic Games. Numbers of seats are at the time of design phase.)

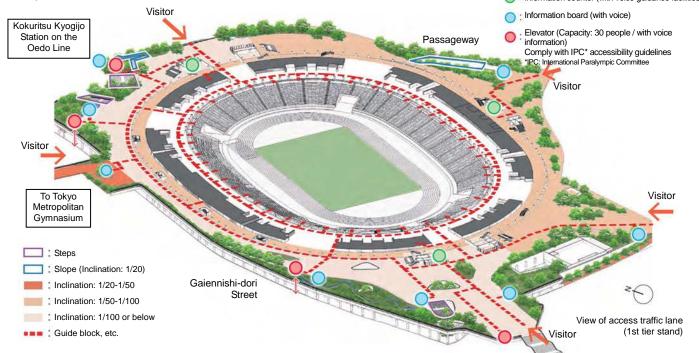




*LGBT: LGBT stands for Lesbian, Gay, Bisexual, and Transgender, which means sexual minorities.

Stadium for Everyone for impartially welcoming all visitors

The stadium will have an environment where all visitors can safely travel with less physical burden regardless of their age or presence/absence of disabilities. Everyone can approach with the gentle slope, which allows wheelchair users and persons having difficulty in moving about to safely and comfortably access the stadium. Guide blocks and voice information boards will be prepared on major routes for the safe access of persons with visual impairment.

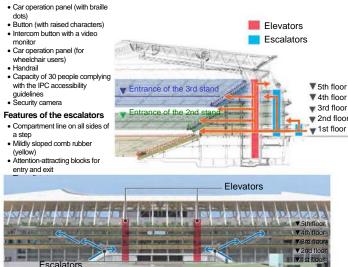


Safely reaching spectators' seats on all floors

Three-layer stands for reducing physical burdens

- Three-layer stands reduce vertical travel distance on foot
- Elevators will land on all floors. For reducing burdens in traveling, dedicated escalators will be installed for entry to the 2nd and 3rd stands. Voice guide and other facilities will allow all visitors to travel safely.

Features of the elevators



Safe travelling between layers by using elevators and escalators

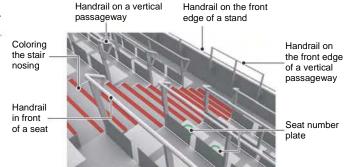
Barrier-free passageway in the stands

Handrail on vertical passageways

 Handrails will be installed in the vertical passageways in all the tiers for the safe travelling of persons having difficulty in moving about.

Improving the visibility of vertical passageways

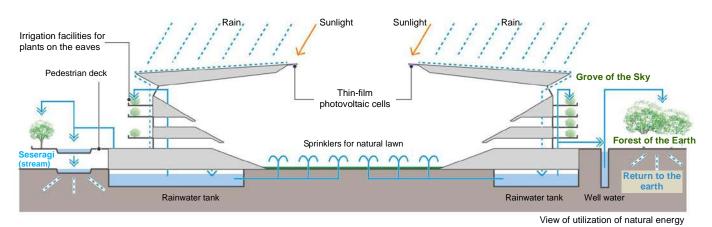
- Vertical passageways in the stands will be colored to improve their visibility. Stair nosing will be painted a different color to prevent spectators from losing their footing or tripping on the stairs.
- A plate providing the seat number will be placed on the upper and visible part of each seat back. (Numbers will be printed with ink and in braille.)



Forms of handrails (3rd tier stand)

Earth-friendly stadium with low environmental load

The stadium will take full advantage of the natural energy to be an environment-symbiotic stadium. It will proactively and effectively use natural energy, such as photovoltaic power, rainwater, and well water. The Building Energy Management System (BEMS) for effective operation of high-efficiency equipment and a system to reduce energy consumption waste will realize effective and energy-saving operation.



Reducing environmental load by proactively using natural energy

Thin-film photovoltaic cells on the glass part of the edge of the Large Roof

 Building-integrated see-through thin-film photovoltaic cells will be installed on the glass part of the edge of the Large Roof to be viewed from all the spectators' seats.



on the edge of the Large Roof

Effectively using rainwater and well water on the entire premises

- Rainwater falling on the roof and pavement will be collected in the rainwater tank and used for the irrigation facilities for plants on Grove of the Sky and the eaves.
- Irrigation facilities for green spaces of Forest of the Earth will use well water and rainwater. The facilities will circulate water resources by returning water to the earth.
- Well water can be used as an emergency water resource in case of water failure due to a disaster.

Energy-saving system considering the characteristics of facility operation

Introducing a next-generation BEMS^{*1} to support operation management

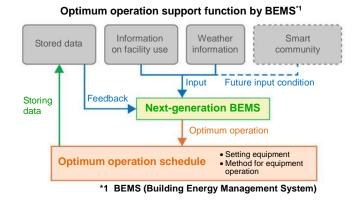
 In addition to the introduction of high-efficiency equipment, effective facility operation is important for reducing environmental load. Based on the characteristics of the building, operating rate, weather condition, and past performance data, a next-generation BEMS^{*1} will be introduced to support the optimum operation management.

Reducing load loss caused by standby power consumption and transformers

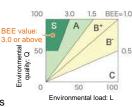
 The operating rate of the facilities is lower when events are not held than when events are held. By separating electrical systems which will not be used, transformers can be shut off when events are not held. This will reduce load loss caused by standby power consumption and transformers and waste of energy consumption.

Achieving the highest ranking in CASBEE

- By adopting environmental technology, the environmental performance of the building achieves the S rank (BEE value: 3.0 or above), the highest ranking in the Comprehensive Assessment System for Built Environment Efficiency (CASBEE^{*2}).
- *2 CASBEE (Comprehensive Assessment System for Built Environment Efficiency): A method by Institute for Building Environment and Energy Conservation for rating the environmental performance of buildings and a system for comprehensively evaluating the quality of buildings including degree of internal comfort and consideration to surrounding landscape



 The stadium achieves Reduction of the Perimeter Annual Load (PAL*) of a building by 20% or above and reduction of the Energy Reduction Ratio (ERR) of the entire facility system by 11% or above. These are energy-saving performance standards based on Tokyo metropolitan environment plan system.

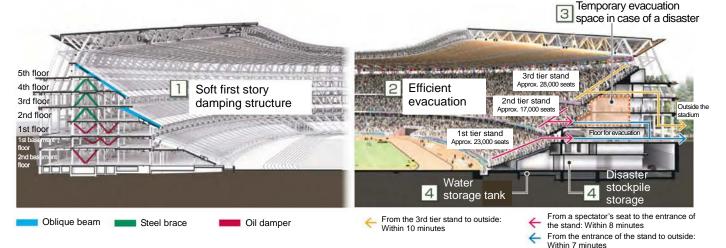


Disaster-resilient stadium for increasing local disaster risk reduction capacity

Being located in a local evacuation area in Tokyo, the stadium gives first priority to securing human life in case of emergency and secures the seismic capacity enabling the stadium to be used safely without being extensively repaired even after a huge earthquake. The stadium also takes into account the BCP* measures for early restoration of necessary functions after the restoration of lifelines.

| Development stand | Jards — |
|---|--|
| Seismic capacity | The aims of the capacity are to allow the building to be used after a huge earthquake without extensive repair of the building structure and to secure human life and prevent a secondary disaster in case of damage or movement of non-structural components of the building. |
| BCP measures | Necessary functions may be temporarily limited in case of disruption of lifelines. However, the measures enable the performance of minimum operation by maintaining a part of the functions, and secure standards to promptly restore the necessary functions after the restoration of lifelines. |
| Measures for people who are unable to return home | In accordance with Tokyo metropolitan ordinance on measures for people who are unable to return home, the stadium will, as a facility to attract visitors, take necessary measures for protecting the visitors if there are many visitors inside the stadium who are unable to return home. The stadium will have a disaster stockpile storage for drinking water, food, and other necessary goods for the visitors. |

*BCP (Business Continuity Plan): A plan to strategically prepare for business continuity in the absence of disaster for continuation or early restoration of core business in case of damage by a natural disaster or accident



Disaster-resilient stadium

Adopting a damping structure excellent for earthquake resistance

• Oblique beams and steel braces installed in the upper floors of the stands prevent deformation in case of an earthquake. Oil dampers installed throughout the lower floors of the stands (from 2nd basement floor to 1st floor) composed of relatively soft frames achieve a **Soft first story damping structure** which reduces a quake by efficiently absorbing earthquake energy. These ensure a high seismic safety for the entire stadium.

Achieving efficient evacuation in case of a disaster

2 Spectators' seats allowing prompt evacuation

- The facility plan giving first priority to spectators' safety evacuation realizes smooth evacuation. The plan allows spectators to safely evacuate outside the stadium within 15 minutes from any seat (for 3rd tier stand, within 10 minutes).
- Evacuation guidance elevators and temporary evacuation areas will be distributed for safe evacuation of wheelchair users.

- Protecting facility users and maintaining facility function in case of a disaster
- 3 Temporary evacuation space in case of a disaster
- Concourses on the 2nd and 3rd floors (approx. 10,000 m²) can be used as a temporary evacuation space. In addition to illumination, electric outlets will be prepared in the spaces for recharging mobile phones and using electric stoves in case of a disaster.



4 Measures for maintaining facility function in case of a disaster

Countermeasures for power failure

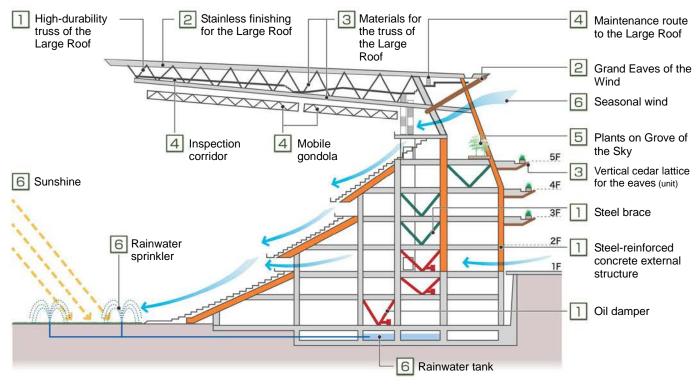
- Emergency power generator
- Security power generator
- Hybrid solar outdoor light
- 15 manhole toilets

Water tanks in case of failure of water and sewer systems

- Head tank/Intermediate tank/ Sewage tank
- Disaster stockpile storage
- Approx. 480 m² (for approx. 80,000 people)

Maximizing life-span for reducing maintenance and management costs

To extend its life-span, the stadium will adopt high-durability specifications and finishing materials and the main structure will require no major repair for 100 years. Consideration will be given in terms of maintenance and renewal of the parts of the stadium towards the reduction of maintenance and management costs of the entire facility.



High-quality and high-durability facilities

1 Structure requiring no major repair

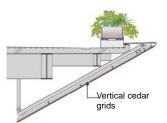
- Steel braces installed in the upper floors, relatively soft frames composing the lower floors, and the damping structure with oil dampers ensure a high seismic capacity.
- High-durability materials will be used for the external structure and the truss of the Large Roof for extending the life-span of the main structures.

2 Extending the life-span of finishing materials

 Long-life materials suitable for parts exposed to the rain will be selected, such as stainless finishing for the Large Roof and wood-like aluminum louver for Grand Eaves of the Wind, etc.

Pressure injection processing will be added throughout to increase the durability of exterior lumber

- As antiseptic and anti-termite measures, pressure injection processing will be added to increase the durability of laminated lumber for the truss of the Large Roof and vertical cedar grids for the eaves.
- Vertical cedar lattice will be used for the downside of the eaves which are not greatly exposed to the rain.



Cross-section image of the eaves

Easy-to-use facilities giving consideration to daily maintenance

4 Securing smooth inspection of the facilities and improvement of the renewing property

- The mobile gondola below the truss of the Large Roof and the inspection corridor in the truss enable safe and smooth inspection of lighting and audio equipment and truss materials.
- The route to access to the top of the Large Roof makes it easy to perform maintenance of the roof top.

5 Planting design considering the selection of tree species and the placement of plants

- Tree species for Grove of the Sky on the 5th floor will be selected based on sunshine conditions and wind environment, and planted around the portion of the outer perimeter expected to be exposed to the rain.
- Native species will be mainly selected as large trees for Forest of the Earth and planted in the ground for sound growth and preventing dying and insect pests.

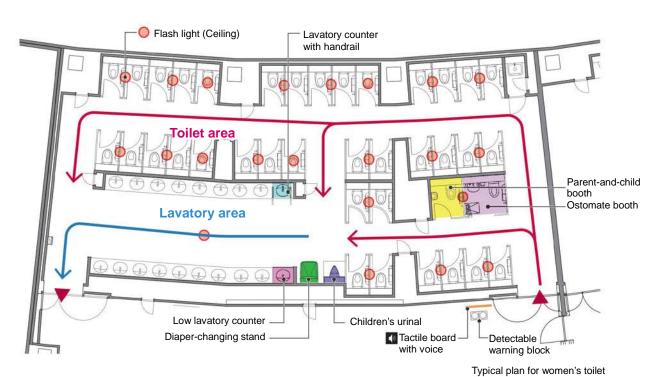
6 Maintaining and managing natural lawn by effectively using natural energy

- Summer lawn, which is easily maintained and managed throughout the year, will be selected.
- To reduce maintenance and management costs, natural energy will be proactively introduced such as appropriate sunshine and ventilation and the securing of rainwater, etc.

Enhanced toilet plan for realizing a Stadium for Everyone

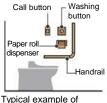
Toilets will have various functions to sufficiently respond to diverse needs according to age, sex, and presence / absence of disabilities. To create a stadium where everyone can feel safe and comfortable, the toilets will have an environment considering safety in case of emergency.

Toilet plan enabling comfortable use by all users



Due consideration to various users

- · For the elderly, handrails will be installed for urinals, lavatory counters, and all the toilet booths.
- · For persons with visual impairment, arrangement according to JIS S 0026 will be applied to all the general toilet booths.
- · The parent-and-child booth and ostomate booth will be placed in an area visible from the entrance of the general toilets, and the diaper-changing stand will be placed near the lavatory counter area.



equipment inside a booth

addition, a children's urinal will be placed in the women's toilet area. Toilets for assistance dogs will be placed, one inside and one outside the stadium. Flash lights installed in major toilets,

· For children, all the urinals will be low-lip urinals and some low

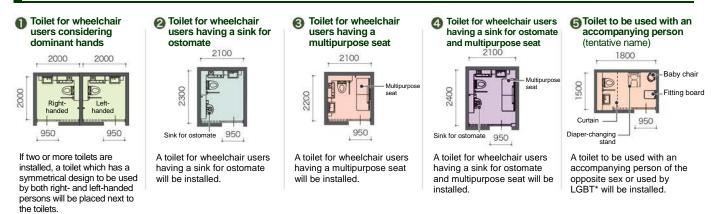
lavatory counters will be installed in each general toilets. In



resting rooms, and nursing rooms inform persons with hearing disabilities about emergency events.



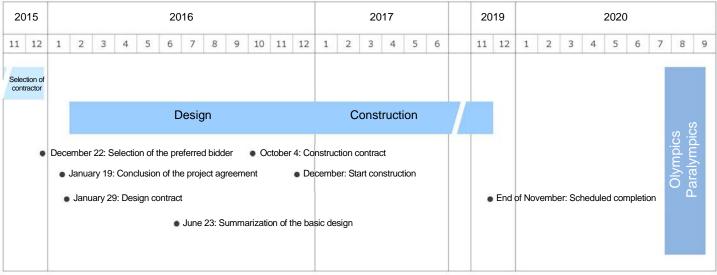
Five types of accessible toilets for various users



*LGBT: LGBT stands for Lesbian, Gay, Bisexual, and Transgender, which means sexual minorities

New National Stadium Development Project

| Site address | 10-1, Kasumigaokamachi, Shinjuku Ward, Tokyo |
|---------------------------|--|
| Site area | Approx. 113,000 m ² |
| Building coverage area | Approx. 72,400 m ² |
| Total floor area | Approx. 194,000 m ² |
| Number of floors | Two underground floors, and five floors above ground |
| Height | Approx. 47.4 m |
| Construction | Steel structure and Steel frame reinforced concrete structure, etc. |
| Seating capacity | Approx. 60,000 (Completion time) (plan to enable increasing capacity to approx. 80,000 in the future) |
| Construction period | From October 2016 (contract) to November 2019 (completion and delivery) |
| Contractor | New National Stadium Development Project Taisei Corporation, Azusa Sekkei Co., Ltd., and Kengo Kuma and Associates Joint Venture |



^{*}The above schedule is as of the present moment.