

Project on occupational accident prevention measures implemented for the construction demand related to
the Tokyo 2020 Olympic and Paralympic Games

Study of occupational accident prevention measures that should be handed
down as legacy measures

2020 Report

March 2021

Japan Construction Occupational Safety and Health Associations

Introduction

This association has been entrusted with the Tokyo 2020 Olympic and Paralympic Games Occupational Accident Prevention Measures Project commissioned by the Ministry of Health, Labour and Welfare. Accordingly, we have performed the project implementation item of “study of occupational accident prevention measures that should be handed down as legacy measures.” This study was a domestic case study of construction related to the Tokyo 2020 Olympic and Paralympic Games. The contents of the study were: (1) measures to prevent occupational accidents that should be handed down; and (2) examples of Japan’s pioneering efforts, such as the designer’s considerations made to reduce the risk of construction work in advance from the building design stage, etc. This study looked at examples of systems and efforts made by the clients and other stakeholders of the eight businesses involved in the corresponding construction.

Based on the study results, the occupational accident prevention measures that should be handed down as legacy measures are: ① Health and safety measures by clients: ② Promotion of risk assessment and so on: ③ Thorough prevention of fall accidents: ④ Creating more attractive construction sites: It is our opinion that these measures should become commonplace efforts throughout Japan.

Finally, we would like to express our sincere gratitude to all the clients who cooperated in the study of this project. We would also like to express our deep gratitude to Chairman Katsutoshi Ohdo and other members of each working group for their enthusiastic cooperation on this project.

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1 Project methodology

This association has been entrusted with the Occupation Accident Prevention Measures Project for the Tokyo 2020 Olympic and Paralympic Games, which is a project commissioned by the Ministry of Health, Labour and Welfare. This report summarizes the project implementation item of “study of occupational accident prevention measures that should be handed down as legacy measures.”

This study is a domestic case study of construction related to the Tokyo 2020 Olympic and Paralympic Games.

In carrying out this project, this association set up a working group of experts to tackle the item of “occupational accident prevention measures that should be handed down as legacy measures.” This working group worked on the study content and methods.

The contents of the study were: (1) measures to prevent occupational accidents that should be handed down; (2) the designer’s considerations made to reduce the risk of construction work in advance from the building design stage, etc. This study focused on pioneering examples of systems and efforts made by the clients and other stakeholders in Japan.

*Clients and other stakeholders: Clients, designers, and builders

2 Establishment of the working group

2.1 Outline of the establishment of the working group

Project on occupational accident prevention measures implemented for the construction demand related to the Tokyo 2020 Olympic and Paralympic Games

Outline of the establishment of the working group for measures to prevent occupational accidents that should handed down as legacy

1. Purpose

To thoroughly implement fundamental safety measures by summarizing the various problems and countermeasures for occupational accident prevention at each site pertaining to the construction investment for the Tokyo 2020 Olympic and Paralympic Games, which were originally scheduled to be held in 2020.

2. Name of the working group

Working group to study the occupational accident prevention measures that should be handed down as legacy measures based on the occupational accident prevention measures implemented for the construction demand related to the Tokyo 2020 Olympic and Paralympic Games

3. Content of the study

- (1) Examination of case study methods and study content used for the clients and other stakeholders
- (2) Examination of the content of reports, etc.
- (3) Other items related to business operations

4. Implementation period

April 2020 to March 2021

5. Implementing entity

Japan Construction Occupational Safety and Health Association

2.2 Committee members

Committee member list		
Chairman	Katsutoshi Ohdo	Director-General Center for Research Promotion and International Affairs National Institute of Occupational Safety and Health, Japan
Committee members	Yasumichi Hino	Senior Researcher Construction Safety Research Group National Institute of Occupational Safety and Health, Japan
	Naotaka Kikkawa	Senior Researcher Construction Safety Research Group National Institute of Occupational Safety and Health, Japan
	Masahiro Miyazawa	Executive Director Construction Labor Safety Research Group
	Isao Oki	Chairman of the Japan Building Construction Association (General Incorporated Association Construction Industry Professional Association)
	Seizi Kunii	Manager Environmental Safety Department Nakano Corporation
	Hisanori Kubo	Manager (Tokyo) Safety and Quality Environment Headquarters ASANUMA CORPORATION
	Yasunari Asakura	General Incorporated Association National Small and Medium Construction Industry Association (Asakuragumi Co., Ltd.)
	Hiroyuki Shibazaki	General Incorporated Association National Small and Medium Construction Industry Association (Asakuragumi Co., Ltd.)
	Yuji Munakata	Counselor Safety Education Division, Design and Construction Promotion Department MISAWA HOMES CO., LTD. (National Low-rise Housing Labor Safety Council)
	Ministry of Health, Labour and Welfare	Kei Saruwatarai
Saori Ogawa		Guidance Manager Safety Division Construction Safety Measures Office Labour Standards Bureau

(listed in random order with titles omitted)

2.3 Study background of the working group

(1) 1st working group meeting

Implementation date: Friday, June 12, 2020

Meeting style: A “document meeting” in which opinions were exchanged using documents sent in by participating members during an study period of about one week

Content of the study: Examination of the study methods and content of the clients and other stakeholders

Study results: (1) Study methods of the clients and other stakeholders

- Due to the impact of COVID-19, it is difficult to hold traditional discovery style meetings. Therefore, the option chosen was for a “document meeting,” with the understanding that should the situation surrounding COVID-19 change, the transition would be made to a traditional discovery style meeting.

(2) Content of the study

- Main opinions about the content of the questionnaires:

“Was BIM/CIM used during the design and construction stages? If so, please explain how the use of BIM/CIM seemed to have contributed to health and safety.”

“Did you create something like a hazard or risk checklist to consider ways to reduce risks during the design and construction stages?”

“Construction methods and key points adopted to reduce the work-related risks during the construction stage. (Good examples: examples of labor saving and industrialization such as new technologies.)”

“Were design review meetings and related meetings held with the clients and designers at each stage of basic design, implementation design, and so forth? If so, were considerations made in those design reviews to reduce possible hazards and risks?”

“This study is focused on the clients and other stakeholders. However, do you think it is necessary to study specialized contractors in other to adopt to other construction sites in the future?”

After summarizing the opinions of each member and confirming with the chairman and the Ministry of Health, Labour and Welfare, it was decided to request confirmation of each member again at the second working group meeting.

(2) The 2nd working group meeting

Implementation date: Wednesday, August 12, 2020

Meeting style: A “document meeting” in which opinions were exchanged using documents sent in by participating members during an study period of about one week

Content of the study: Confirmation of study content and interim reports

Study results: We did not make any major changes to the content but changed the way we asked questions to a more easy-to-understand style. We created three types of questionnaires for clients, designers, and builders. The content of each are described in 3.2 Study Forms.

3 Study of clients and other stakeholders

3.1 Method of Study

Using the study form the content of which was decided by the working group, the study was conducted among the clients and other stakeholders of eight business establishments from the following Table for the corresponding construction projects. Initially, a traditional discovery meeting was planned, but due to countermeasures for COVID-19, the study was done in writing via email and traditional mail. We prepared three types of study forms, one for the clients, one for the designers, and one for the builders.

(Current as of October 2019)

Venue Name		Owner	Period of Construction	Type of Construction	Competition/Type
1	Japan National Stadium (Olympic Stadium)	JAPAN SPORT COUNCIL	Oct. 5, 2016 – Nov. 30, 2019	Permanent facility	[Olympic] Opening and Closing Ceremonies, Athletics and Football [Paralympic] Opening and Closing Ceremonies, Athletics
2	Kokyo Gaien National Garden	The Tokyo Organising Committee of the Olympic and Paralympic Games	Feb. 2020 – Jul. 2020	Temporary facility	[Olympic] Athletics (Race Walk)
3	Ariake Arena	Tokyo Metropolitan Government	Jan. 30, 2017 – Dec. 9, 2019	Permanent facility	[Olympic] Volleyball [Paralympic] Wheelchair Basketball
4	Ariake Gymnastics Centre	The Tokyo Organising Committee of the Olympic and Paralympic Games	Nov. 15, 2017 – Oct. 2019	Temporary facility	[Olympic] Artistic Gymnastics [Paralympic] Bocca
5	Aomi Urban Sports Park	The Tokyo Organising Committee of the Olympic and Paralympic Games	Apr. 2019 – Sep. 2019 Dec. 2019 – Jun. 2020	Temporary facility	[Olympic] Cycling (BMX Freestyle, BMX Racing), Skateboarding
6	Ariake Tennis Park	Tokyo Metropolitan Government	Oct. 5, 2017 – Mar. 18, 2020	Existing facility (renovation)	[Olympic] Tennis [Paralympic] Wheelchair Tennis
7	Odaba Marine Park	The Tokyo Organising Committee of the Olympic and Paralympic Games	Dec. 2019 – Jun. 2020	Temporary facility	[Olympic] Triathlon, Swimming (Marathon Swimming 10km) [Paralympic] Triathlon
8	Shiokaze Park	The Tokyo Organising Committee of the Olympic and Paralympic Games	Dec. 2019 – Jun. 2020	Temporary facility	[Olympic] Volleyball (Beach Volleyball)
9	Oi Hockey Stadium	Tokyo Metropolitan Government	Jan. 5, 2018 – Jun. 27, 2019	Permanent facility	[Olympic] Hockey
10	Sea Forest Cross-Country Course	The Tokyo Organising Committee of the Olympic and Paralympic Games	May 2019 – Jul. 2019 Nov. 2019 – May 2020	Temporary facility	[Olympic] Equestrian (Evening: Cross Country)
11	Sea Forest Waterway	Tokyo Metropolitan Government	Jul. 29, 2016 – May 31, 2019	Permanent facility	[Olympic] Rowing, Canoe Sprint [Paralympic] Canoe, Rowing
12	Kasai Canoe Slalom Centre	Tokyo Metropolitan Government	Jun. 8, 2017 – Dec. 17, 2019	Permanent facility	[Olympic] Canoe Slalom
13	Yumenoshima Park Archery Field	Tokyo Metropolitan Government	Aug. 15, 2016 – Mar. 31, 2017	Permanent facility	[Olympic] Archery [Paralympic] Archery
14	Tokyo Aquatics Centre	Tokyo Metropolitan Government	Oct. 1, 2016 – Feb. 28, 2020	Permanent facility	[Olympic] Swimming (Swimming, Diving and Artistic Swimming) [Paralympic] Swimming
15	Asaka Shooting Range	The Tokyo Organising Committee of the Olympic and Paralympic Games	Feb. 2019 – Mar. 2020	Temporary facility	[Olympic] Shooting [Paralympic] Shooting
16	Olympic Village / Paralympic Village (Type 1 Urban Redevelopment Project in the West Harumi 5-Chome District)	11 companies including Mitsui Fudosan Residential Co., Ltd.	Jan. 18, 2017 – Dec. 31, 2019	Permanent and temporary facilities	

* Does not include land development or surrounding infrastructure construction under the contract independent from the main construction.

2 . Was BIM/CIM used during the design and/or construction stages? If so, please provide examples of how the use of BIM/CIM contributed to health and safety during construction.

Yes/No	
If yes, please provide specific information. Please attach any relevant documents.	

3 . As the Client, are there any hazards you wish the designer had considered during the design stage? If yes, what hazards do you wish had been considered?

Yes/No	
If yes, please provide specific information. Please attach any relevant documents.	

4. Was the issue of reducing possible hazards during construction taken into consideration during the design stage? For example, did the Client and designer meet or otherwise coordinate on this issue? In the case of an inclusive order for both design and construction or ECI (early contractor involvement) or other contract, did the Client, designer, and Contractor hold meetings or otherwise coordinate from the initial design stage? If so, what type of issues did this coordination focus on?

5. As the client, do you think that taking the elimination or reduction of risks into consideration from the design stage leads to better health and safety during construction? Please note your opinion regarding this question.

6 . Please note the construction methods used and key elements adopted, including the implementation of risk assessments, to eliminate or reduce work risks during the design and/or construction stages. In these cases, please note the stage at which these methods and elements were adopted. (Give examples of constructions and methods that saved labor or mechanized process, including construction cases and new technologies.)

Please provide specific information. Please attach any relevant documents.

7 . Did any measures focus on preventing the falls, collisions, or public injury that often occur during construction work? If so, please note the measures that were taken.

Yes/No
If yes, please provide specific information. Please attach any relevant documents.

8 . Did any measures focus on ensuring a safe, secure, and rewarding worksite for women and younger workers? If so, please note the measures that were taken.

Yes/No
If yes, please provide specific information. Please attach any relevant documents.

9 . Please note any other health and safety measures taken during construction on this project that seem to you, as the client, unique.

1 0 . What occupational accident prevention measures do you wish to see the construction industry retain in the future? These do not need to be examples of measures actually taken. Please note your opinion as an client ordering construction.

1 1 . Please note your impressions of the construction of facilities for the Olympic and Paralympic Games.

Date:			
Company address	Postal Code		
Tel.		Fax	
Company name			
Department		Officer in charge	
Email address of officer in charge	Please provide an email address so that, if necessary, we may contact you to request additional information on the answers you provided.		

* Thank you for your cooperation.

(2) Designer Survey Form

Commissioned by the Ministry of Health, Labour and Welfare

Measures to prevent occupational accidents associated with rise in construction demand with 2020 Tokyo Olympic and Paralympic Games-related projects
Review of Occupational Accident Prevention Measures passed on to future construction industry as legacy Case Study (Designer)

We are surveying pioneering measures to prevent occupational accidents taken in construction of facilities as one of the lasting benefits of the 2020 Tokyo Olympic and Paralympic Games. As part of this survey, we would like to ask about the construction your company has ordered. The information you provide and documents you attach may be included in our report and made available to the public. Please note any information that you wish to remain private.

Construction Overview * Please attach an overview of construction. If you are unable to attach an overview, please answer the following.

Name of facility	
Location of facility	
Client name	
Contractor	
Construction period	

1. Did the designer conduct risk assessments or take any other steps during the design stage or review hazards that must be considered during construction to reduce the risk of occupational accidents? Did the client establish any other systems or measures? If yes, please note the specifics.

Yes/No
If yes, please provide specific information. Please attach any relevant documents.

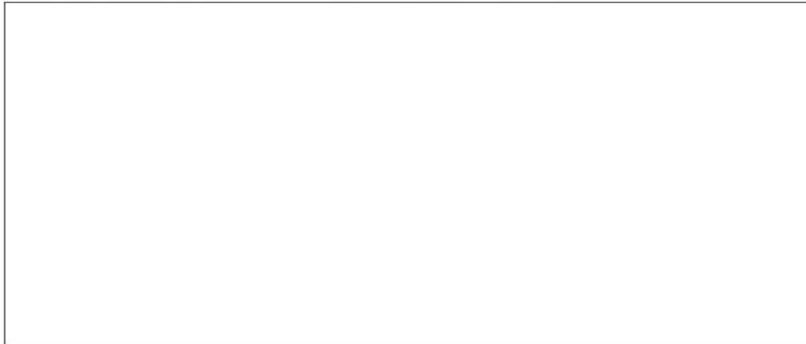
2. Was BIM/CIM used during the design and/or construction stages? If so, please provide examples of how the use of BIM/CIM contributed to health and safety during construction.

Yes/No
If yes, please provide specific information. Please attach any relevant documents.

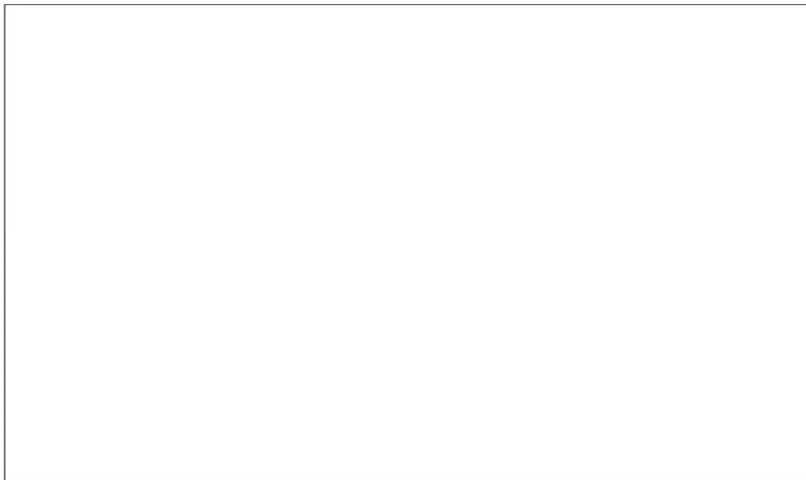
3. As the designer, were there any construction stage risks that you wish the client had instructed you to consider during the design stage? If yes, what risks do you wish you had been instructed to consider?

Yes/No
If yes, please provide specific information. Please attach any relevant documents.

4. Was the issue of reducing possible risks during construction taken into consideration during the design stage? For example, did the client and designer meet or otherwise coordinate on this issue? In the case of an inclusive order for both design and construction or ECI (early contractor involvement) or other contract, did the client, designer, and contractor hold meetings or otherwise coordinate from the initial design stage? If so, what type of issues did this coordination focus on?



5. As the designer, do you think that taking the elimination or reduction of risks into consideration from the design stage leads to better health and safety during construction? Please note your opinion regarding this question.



6. Please note the construction methods used and key elements adopted, including the implementation of risk assessments, to eliminate or reduce work risks during the design and/or construction stages. In these cases, please note the stage at which these methods and elements were adopted. (Give examples of constructions and methods that saved labor or mechanized process, including construction cases and new technologies.)

Please provide specific information. Please attach any relevant documents.

7. Did any measures focus on preventing the falls, collisions, or public injury that often occur during construction work? If so, please note the measures that were taken.

Yes/No
If yes, please provide specific information. Please attach any relevant documents.

8. Did any measures focus on ensuring a safe, secure, and rewarding worksite for women and younger workers? If so, please note the measures that were taken.

Yes/No
If yes, please provide specific information. Please attach any relevant documents.

9 . Please note any other health and safety measures taken during construction on this project that seem to you, as the designer, unique.

1 0 . What occupational accident prevention measures do you wish to see the construction industry retain in the future? These do not need to be examples of measures actually taken. Please note your opinion as a designer ordering construction.

1 1 . Please note your impressions of the construction of facilities for the Olympic and Paralympic Games.

Date:			
Company address	Postal Code		
Tel.		Fax	
Company name			
Department		Officer in charge	
Email address of officer in charge	Please provide an email address so that, if necessary, we may contact you to request additional information on the answers you provided.		

* Thank you for your cooperation.

(3) Contractor Survey Form

Commissioned by the Ministry of Health, Labour and Welfare

Measures to prevent occupational accidents associated with rise in construction demand with 2020 Tokyo Olympic and Paralympic Games-related projects
Review of Occupational Accident Prevention Measures passed on to future construction industry as legacy Case Study (Contractor)

We are surveying pioneering measures to prevent occupational accidents taken in construction of facilities as one of the lasting benefits of the 2020 Tokyo Olympic and Paralympic Games. As part of this survey, we would like to ask about the construction your company has received. The information you provide and documents you attach may be included in our report and made available to the public. Please note any information that you wish to remain private.

Construction Overview * Please attach an overview of construction. If you are unable to attach an overview, please answer the following.

Name of facility	
Location of facility	
Client name	
Contractor	
Construction period	

1. As the contractor, did the client or designer conduct risk assessments or take any other steps during the design stage or review hazards that must be considered during construction to reduce the risk of occupational accidents? Did the client establish any other systems or measures? If yes, what was your experience with these during the construction work?

Yes/No
If yes, please provide specific information. Please attach any relevant documents.


2. Was BIM/CIM used during the design and/or construction stages? If so, please provide examples of how the use of BIM/CIM contributed to health and safety during construction.

Yes/No
If yes, please provide specific information. Please attach any relevant documents.

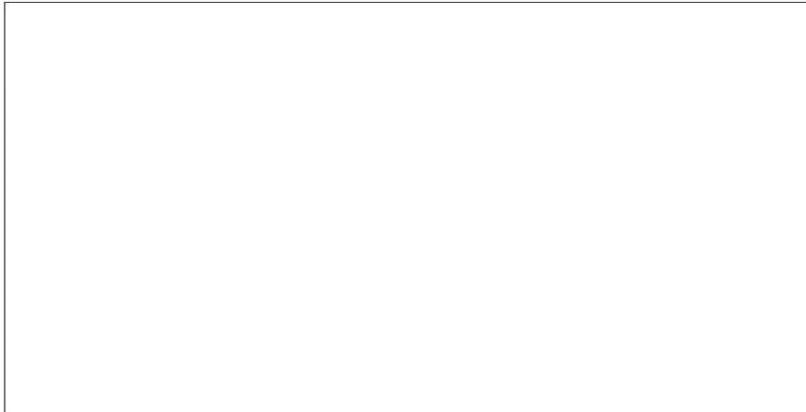
3. As the contractor, were there any construction stage risks that you wish the client or designer had considered during the design stage? If yes, what risks do you wish had been considered?

Yes/No
If yes, please provide specific information. Please attach any relevant documents.

4 . As the contractor, was the issue of reducing possible risks during construction taken into consideration during the design stage? For example, did the client and designer meet or otherwise coordinate on this issue? During the construction stage, how often did you, the contractor, meet or coordinate with the client on matters of construction-related health and safety? If so, what type of issues did this coordination focus on?



5 . As the contractor, do you think that clients or other parties taking the elimination or reduction of risks into consideration from the design stage leads to better health and safety during construction? Please note your opinion regarding this question.



6 . Please note the construction methods used and key elements adopted, including the implementation of risk assessments, to eliminate or reduce work risks during the design and/or construction stages. In these cases, please note the stage at which these methods and elements were adopted. (Give examples of constructions and methods that saved labor or mechanized process, including new technologies.)

Please provide specific information. Please attach any relevant documents.

7 . Did any measures focus on preventing the falls, collisions, or public injury that often occur during construction work? If so, please note the measures that were taken.

Yes/No
If yes, please provide specific information. Please attach any relevant documents.

8 . Did any measures focus on ensuring a safe, secure, and rewarding worksite for women and younger workers? If so, please note the measures that were taken.

Yes/No
If yes, please provide specific information. Please attach any relevant documents.

9 . Please note any other health and safety measures taken during construction on this site that seem to you, as the contractor, unique.

1 0 . What occupational accident prevention measures do you wish to see the construction industry retain in the future? These do not need to be examples of measures actually taken. Please note your opinion as a contractor ordering construction.

1 1 . Please note your impressions of the construction of facilities for the Olympic and Paralympic Games.

Date:			
Company address	Postal Code		
Tel.		Fax	
Company name			
Department		Officer in charge	
Email address of officer in charge	Please provide an email address so that, if necessary, we may contact you to request additional information on the answers you provided.		

* Thank you for your cooperation.

3.3 Study results

The results of the study of the eight businesses of Table (of which four are clients) are as follows. Please note that initially we focused on the clients and other stakeholders. Then, as we were going to extend the study to the designers and builders, we realized that the clients had already confirmed and consulted with the designers and builders in making their responses. As such, we deemed that the opinions of the designers and builders sufficiently covered. Therefore, we did not extend the study directly to the designers and builders.

Table List of surveyed sites

	Name of the Venue	Name of the Construction Project	Name of the Client
1	New National Stadium (Olympic Stadium)	New National Stadium Development Project	Japan Sport Council
2	Ariake Arena	Ariake Arena (working name) (27) New Construction	Tokyo Metropolitan Government
3	Ariake Tennis Park	Ariake Tennis Forest Park and Ariake Colosseum (29) Reconstruction and Renovation, and Other Construction, etc.	Tokyo Metropolitan Government
4	Shiokaze Park	Tokyo Olympics and Paralympics Temporary Overlay Development (No. 16) Shiokaze Park	The Tokyo Organising Committee of the Olympic and Paralympic Games
5	Sea Forest Cross-Country Course	Tokyo Olympic and Paralympic Games Temporary Overlay Development (Part 2) Sea Forest Cross-Country Course	The Tokyo Organising Committee of the Olympic and Paralympic Games
6	Canoe Slalom Venue	6-1 Kasai Canoe Slalom Venue Pump Equipment Construction 6-2 Kasai Canoe Slalom Venue Filtration Facility New Construction 6-3 Kasai Canoe Slalom Venue Filtration Equipment Construction 6-4 Kasai Canoe Slalom Venue Management Building Sash and Other Construction 6-5 Kasai Canoe Slalom Venue Management Building New Construction (Part 2) 6-6 Kasai Canoe Slalom Venue Management Building Elevator Construction Associated with New Construction 6-7 Kasai Canoe Slalom Venue Management Building Water Supply and Drainage Sanitary Equipment Construction Associated with New Construction	Tokyo Metropolitan Government

		<p>6-8 Kasai Canoe Slalom Venue Air-conditioning and Ventilation Equipment Construction Associated with New Construction of Management Building and Other Building (Part 2)</p> <p>6-9 Kasai Canoe Slalom Venue Electric Equipment Construction Associated with New Construction of Administration Building and Other Building (Part 2)</p> <p>6-10 Kasai Canoe Slalom Venue Development</p> <p>6-11 Kasai Canoe Slalom Venue Electrical Equipment Construction (Part 2)</p> <p>6-12 Kasai Canoe Slalom Venue Electrical Equipment Construction (Part 3) Part 2</p> <p>6-13 Kasai Canoe Slalom Venue Electrical Equipment Construction</p> <p>6-14 Kasai Canoe Slalom Venue Pavement Construction</p>	
7	Tokyo Aquatics Centre	Tokyo Aquatics Centre (working name) New Construction	Tokyo Metropolitan Government
8	Olympic Village (Harumi 5-chome West District Type 1 Urban Redevelopment Project)	<p>New Construction and Dismantling of Olympic Village</p> <p>Harumi 5-chome West District Type 1 Urban Redevelopment Project 5-3 Block Building Construction (working name)</p> <p>Harumi 5-chome West District Type 1 Urban Redevelopment Project 5-4 Block Building Construction (working name)</p> <p>Harumi 5-chome West District Type 1 Urban Redevelopment Project 5-5 Block Plate-Shaped Building Construction (working name)</p> <p>Harumi 5-chome West District Type 1 Urban Redevelopment Project 5-6 Block Plate-Shaped Building Construction (working name)</p>	Specified Builder Representative Company: Mitsui Fudosan Residential Co., Ltd., and association of ten companies

Investigation Results for the Client

1. Japan National Stadium

Construction Project Name: New National Stadium Development Project

Construction Site: 10-1 Kasumigaoka-machi, Shinjuku-ku, Tokyo

Client: Japan Sport Council

Designer: Taisei Corporation, Azusa Sekkei Co., Ltd., Kengo Kuma and Associates Joint Venture

Builder: Taisei Corporation, Tokyo Branch

Construction Period: December 1, 2016 - November 30, 2019 (Main construction period excluding preparation time)

1	Did the Client or other involved party conduct risk assessments or take any other steps during the design stage or review hazards that must be considered during construction to reduce the risk of occupational accidents? Did the owner establish any other systems or measures? If yes, please note the specifics.	<p>⇒Yes</p> <p>For the Japan National Stadium Development Project, the Design-Build was utilized. Further, consideration for workability and safety (elimination and reduction of occupational accident risks) based on construction method proposals from the construction team were incorporated during the design stage based on knowledge of construction work (construction technology investigations). In addition, those opinions were proactively incorporated into the actual design.</p> <p>In addition, discussions were held with the contractor to confirm that the construction schedule would not hinder safety, and the expenses required for various safety measures during construction have been added to the budget in accordance with the "Basic Policy for Health and Safety Measures in the Construction of Facilities for the Tokyo 2020 Olympic and Paralympic Games."</p>
2	Was BIM/CIM used during the design and/or construction stages? If so, please provide examples of how the use of BIM/CIM contributed to health and safety during construction.	<p>⇒Yes</p> <p>In order to speed up communication and improve drawing efficiency during the design stage, shapes that were difficult to draw in 2D were drafted using models, and their attributes were checked for inconsistencies. Further, virtual reality technology was used to visualize the design content.</p> <p>During the construction stage, 3D construction steps and virtual reality were used to investigate various construction plans to improve productivity and safety quality. Also, construction stakeholders were kept informed of the same. In addition, pre-construction was employed to investigate details of each of the construction materials and to confirm construction procedures.</p>
3	As the Client, are there any hazards you wish the designer had considered during the design stage? If yes, what hazards do you wish had been considered?	<p>⇒No</p>

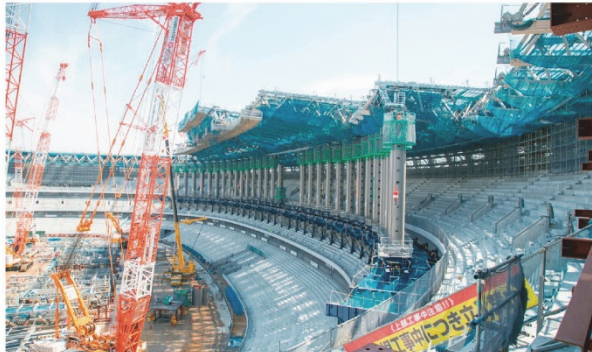
4	<p>Was the issue of reducing possible hazards during construction taken into consideration during the design stage? For example, did the Client and designer meet or otherwise coordinate on this issue? In the case of an inclusive order for both design and construction or ECI (early contractor involvement) or other contract, did the Client, designer, and Contractor hold meetings or otherwise coordinate from the initial design stage? If so, what type of issues did this coordination focus on?</p>	<p>The project utilizes the Design-Build.</p> <p>In the 1st phase of the contract (investigation of basic design, detailed design, and construction technology), meetings with the clients, designers and contractors, as well as specialized subcommittees, were held regularly. Verification was conducted for the construction processes and construction plans being considered by the business operator, to ensure that the proper process settings and safety would be in place for the more complicated and higher risk operations. In this way, it was confirmed that operation content was suitable, and where necessary, revisions were made to ensure that it was. This was all done by based on consensus among the three parties.</p>
5	<p>As the client, do you think that taking the elimination or reduction of risks into consideration from the design stage leads to better health and safety during construction? Please note your opinion regarding this question.</p>	<p>It is our opinion that the use of various construction methods that take health and safety into consideration from the design stage will greatly contribute to the reduction and elimination of danger at the site.</p> <p>It is our opinion that the creating a design drawing that incorporates health and safety measures during the design stage, eliminates the need for excessive health and safety management during the construction stage, which in turn will provide the added benefit of the site management operations being more productive and more streamlined.</p>
6	<p>Please note the construction methods used and key elements adopted, including the implementation of risk assessments, to eliminate or reduce work risks during the design and/or construction stages. In these cases, please note the stage at which these methods and elements were adopted. (Give examples of constructions and methods that saved labor or mechanized process, including construction cases and new technologies.)</p>	<p>The following construction method will be adopted during the construction stage:</p> <p>1. Development of large-scale falsework that utilizes the columns of a tower crane as a temporary falsework that is used to support the unit steel frame. This will make the assembly and disassembly of the temporary falsework of the roof steel frame more efficient, as well enable the assembly of a steel frames for the stand roof unit that will int turn reduce construction work in high places.</p> <p>*P30 Exhibit No. 1</p>
7	<p>Did any measures focus on preventing the falls, collisions, or public injury that often occur during construction work? If so, please note the measures that were taken.</p>	<p>⇒Yes</p> <p>The following construction methods will be adopted during the design stage:</p> <p>1. Unitization of the large roof division of the roof steel frame that reduces the danger of construction work in high places into three parts, assembly of structures on the ground level (installation of inspection corridor, lighting units, etc.), and then lifting those structures into place.</p> <p>*P30 Exhibit No. 2</p> <p>2. Precasting of the stadium frame, reducing risk by improving the efficiency of site operations.</p> <p>Foundation, stand floor slab, outer circumference SRC pillar (SRC), etc.</p> <p>*P31 Exhibit No. 3</p> <p>Creation of a full-scale mockup during the construction stage</p>

		<p>1. A mockup of the full-scale roof steel frame will be used on the ground to check assembly, work procedures, etc., in advance to reduce the danger of work in high places and the large roof unit.</p> <p>*P31 Exhibit No. 4</p>
8	<p>Did any measures focus on ensuring a safe, secure, and rewarding worksite for women and younger workers? If so, please note the measures that were taken.</p>	<p>Women-Oriented Initiatives ⇒Yes</p> <p>In connection to the initiatives to more fully use female employees on the project, the contractor implemented its “Jingu Komachi” initiative that was created by its female employees to aid in improving the working environment from a female perspective (e.g., installation of powder rooms, etc.). Also, the “Rikochalle” aimed at 4th to 12th grade female students and sponsored by the Japan Federation of Construction Contractors was held at the site (August 27, 2018). In this way, the contractor has been engaged in public relations activities for women and youth.</p> <p>Youth-Oriented Initiatives ⇒Yes</p> <p>Another activity of the contractor was to display a panel of photos of the workers working with enthusiasm at the site. They also included such photos of their workers in awards and other materials to present to the workers and their families (such as The Craftsman Award). In addition, the contractor has been actively engaged in activities that are rewarding for working colleagues and youth who will lead the future, such as support for acquiring qualifications and recognition awards for young leaders for the purpose of developing youth.</p>
9	<p>Please note any other health and safety measures taken during construction on this project that seem to you, as the client, unique.</p>	<p>The construction project had the mission of completing a large-scale stadium by the deadline on a limited site in an urban area while taking into consideration the surrounding environment. During peak hours, this involved more than 2,800 construction workers a day. It is our opinion that one critical challenge was that of creating a comfortable working environment where the workers could work safely and comfortably. In awareness of this, the prime contractor proactively addressed health and safety at the site by devising temporary facility plans before the start of construction, tracking daily labor plans, etc., and maintaining a comfortable working environment throughout the entire construction period. In order to maintain and provide the above, the contractor implemented specific health and safety measures for each construction period in advance, and actively incorporated the voices and opinions of the workers working at the site in foreman's meetings, etc. Such feedback was used to make revisions to the original plan and add safety measures where necessary.</p> <p>(Example: Comfortable worker rest area, health counseling room with resident nurses, health counseling office, heat stroke prevention, mental health measures, etc.)</p>

10	<p>What occupational accident prevention measures do you wish to see the construction industry retain in the future? These do not need to be examples of measures actually taken. Please note your opinion as a client ordering construction.</p>	<p>It is our opinion that it is necessary for both the client and the contractor to actively work on prevention of occupational accidents by further embodying the efforts so far:</p> <ul style="list-style-type: none"> • Maintaining a comfortable working environment with the goal of zero occupational accidents • Use of construction methods that eliminate and reduce risk factors • Development of a comfortable and safe work environment that takes into consideration the health status of the workers • Development of a work environment where safety education in the workplace and awareness-raising activities for the safety of each person are actively implemented
11	<p>Please note your impressions of the construction of facilities for the Olympic and Paralympic Games.</p>	<p>In the development of the Japan National Stadium, which will be the main stadium of the Tokyo 2020 Olympic and Paralympic Games, the basic principles of the mission to carry out the Olympic and Paralympic Games in a sure manner are: (1) athletes first; (2) the world's best universal design; and (3) harmony with the surrounding environment while at the same time maintaining a unique Japanese spirit. Since the development period was limited, a public offering was conducted by the open recruitment type proposal method (design negotiation / construction type) among potential contractors that consistently perform Design and Build, and the stadium was completed brilliantly in a period of about four years from the start of design. We thank all the people who participated in this large-scale project. We are convinced that the Tokyo 2020 Olympic and Paralympic Games, which have been postponed to next summer, will be held safely, and people in Japan and around the world will be able to experience the wonder of this stadium. We are confident that it will be a place where all that come will be impressed. Even after the games are over, we will continue to properly maintain and manage the legacy of this stadium to ensure it will continue to be a dear and loved stadium in the future as well.</p>

Exhibit No. 1: Formwork and falsework

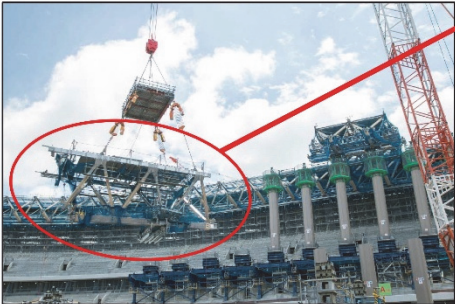
Temporary falsework for roof steel frames to reduce construction risk



Temporary falsework using tower crane columns

Exhibit No. 2: Large roof unit

Unitization of large roof for the prevention of crashes and falls, etc.



Roof materials unitization plan

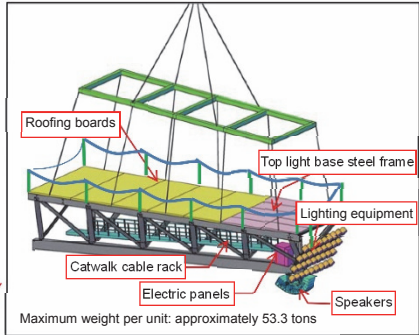


Exhibit No. 3 Building Frame PC

Precast stadium building frame for the prevention of crashes and falls



Foundation



Floor slab receiving raker beam



Floor slab



Outer SRC pillar

Exhibit No. 4 Large roof mockup

Large roof unit full-scale mockup for the prevention of crashes and falls, etc.



Assemble a full-scale mockup on the ground to check work procedures

2. Ariake Arena

Construction Project Name: Ariake Arena (working name) (27) New Construction

Construction Site: 1-11 Ariake, Koto-ku, Tokyo

Client: Tokyo Metropolitan Government

Designer: Takenaka Corporation, TOKO ELECTRICAL CONSTRUCTION CO., LTD., Asahi Kogyosha Co., Ltd., Takasago Thermal Engineering Co., Ltd. (DB method)

(Basic Design and Work Supervisor: Kume Sekkei Co., Ltd.)

Builder: Takenaka Corporation, TOKO ELECTRICAL CONSTRUCTION CO., LTD., Asahi Kogyosha Co., Ltd., Takasago Thermal Engineering Co., Ltd. (DB method)

Construction Period: March 3, 2016-December 9, 2019

1	Did the Client or other involved party conduct risk assessments or take any other steps during the design stage or review hazards that must be considered during construction to reduce the risk of occupational accidents? Did the owner establish any other systems or measures? If yes, please note the specifics.	<p>⇒Yes</p> <p>For the roof construction, creative measures were implemented to change the sound insulation ceiling material from lightweight steel frame and board to ALC material. This made it possible to reduce the amount of work required in high places compared to that of conventional construction methods. The design made it possible for the stainless steel roof to be constructed step by step. Further, this made it possible to implement a traveling method whereby a large-space scaffold-free means of construction could be achieved. In addition, each building frame part was converted into PC to reduce site operations and work in high places, as well as achieve standardization of operations. In addition, in order to prevent third-party accidents, a temporary design drawing that separates the flow lines of general people such as pedestrians inside and outside the construction site from the flow lines of construction vehicles were investigated and implemented during construction.</p>
2	Was BIM/CIM used during the design and/or construction stages? If so, please provide examples of how the use of BIM/CIM contributed to health and safety during construction.	<p>⇒Yes</p> <p>Virtual construction simulation was made possible using BIM. Such construction simulation made it possible to verify in advance whether there would be any dangers or difficulties during construction, thereby making it possible to eliminate predictable dangers in advance to ensure safety, contributing to the overall health and safety of the project.</p>
3	As the Client, are there any hazards you wish the designer had considered during the design stage? If yes, what hazards do you wish had been considered?	<p>⇒No</p>

4	<p>Was the issue of reducing possible hazards during construction taken into consideration during the design stage? For example, did the Client and designer meet or otherwise coordinate on this issue? In the case of an inclusive order for both design and construction or ECI (early contractor involvement) or other contract, did the Client, designer, and Contractor hold meetings or otherwise coordinate from the initial design stage? If so, what type of issues did this coordination focus on?</p>	<p>During the overall regular meetings and task force meetings in the design stage, the client, designers, supervisors and contractors worked together to ensure safety, investigate construction issues, and to achieve coordination between all facets of the construction project.</p>
5	<p>As the client, do you think that taking the elimination or reduction of risks into consideration from the design stage leads to better health and safety during construction? Please note your opinion regarding this question.</p>	<p>It is our opinion that investigating ways to reduce site risks during the design states helps improve health and safety during construction.</p>
6	<p>Please note the construction methods used and key elements adopted, including the implementation of risk assessments, to eliminate or reduce work risks during the design and/or construction stages. In these cases, please note the stage at which these methods and elements were adopted. (Give examples of constructions and methods that saved labor or mechanized process, including construction cases and new technologies.)</p>	<p>As a means of risk assessment during construction stage, a risk prediction meeting was held for each operation, and safety management was performed daily using the risk assessment method.</p>
7	<p>Did any measures focus on preventing the falls, collisions, or public injury that often occur during construction work? If so, please note the measures that were taken.</p>	<p>⇒Yes Workers working at in high places used full harness type fall arrest system. For roof construction, the traveling method was adopted to reduce the amount of work on scaffolding, and the overall range of work in high places was reduced by performing construction on a temporary gantry. In addition, since the gate for loading and unloading faced a prefectural road, a traffic control staff person was stationed near the entrance and exit for the construction vehicles with a priority given to pedestrians.</p>

8	Did any measures focus on ensuring a safe, secure, and rewarding worksite for women and younger workers? If so, please note the measures that were taken.	<p>Women-Oriented Initiatives ⇒Yes</p> <p>Improvements were made to the working environment by installing women-only toilets and changing rooms. Efforts were made to proactively gather opinions from female staff to select the types of powder rooms and tile carpets used. In addition, a security camera was installed at the entrance of the women's changing room to prevent suspicious people from entering.</p> <p>Youth-Oriented Initiatives ⇒Yes</p> <p>In an effort to prevent accidents, health and safety training was thoroughly conducted with a focus on inexperienced workers for all work involving machines and tools.</p>
9	Please note any other health and safety measures taken during construction on this project that seem to you, as the client, unique.	There were many inspections of the construction site by the IOC, IF, and a variety domestic and foreign media at the time of construction. At times it was difficult to support such visits as they involved safety and process management, such as setting up a safety zones along the inspection routes and other adjustments to the construction site on the days such inspections took place. In addition, vein recognition and baggage inspection were carried out at the worker entrance to ensure that only authorized workers entered the site.
10	What occupational accident prevention measures do you wish to see the construction industry retain in the future? These do not need to be examples of measures actually taken. Please note your opinion as a client ordering construction.	In our opinion, frontloading the investigation into ways to prevent occupational accidents at the construction site while still in design stage is an effective countermeasure to prevent occupational accidents.
11	Please note your impressions of the construction of facilities for the Olympic and Paralympic Games.	Since the construction site garnered worldwide attention, a wide range of activities such as strict adherence to the construction period, security measures, use of environmentally friendly materials, and accessibility support were implemented in addition to health and safety management. In our opinion, promoting optimal facility development for building applications should take place at any facility, but having the clear purpose of building for the Olympic and Paralympic Games made it easier for people involved in the field to hold a common understanding, resulting in an increased sense of unity at the site.

3. Ariake Tennis Park

Construction Project Name: Ariake Tennis Forest Park and Ariake Colosseum (29) Reconstruction and Renovation, and Other Construction, etc.

Construction Site: 2-2-22 Ariake, Koto-ku, Tokyo

Client: Tokyo Metropolitan Government

Designer: ENVIRONMENT DESIGN INSTITUTE

Builder: Kanto, Kikuchi, Ozawa Construction Joint Venture, etc.

Construction Period: October 5, 2017-March 18, 2020 (all construction on the premises)

1	Did the Client or other involved party conduct risk assessments or take any other steps during the design stage or review hazards that must be considered during construction to reduce the risk of occupational accidents? Did the owner establish any other systems or measures? If yes, please note the specifics.	<p>⇒Yes</p> <p>During the design stage, consideration was given to the construction details of each building to be constructed. The comprehensive temporary construction needed during for each stage of construction was studied. In particular, the passage for local residents (hereinafter referred to as "Symbol Road"), which runs through the construction site and was requested by local residents, is clearly separated by a temporary flat panel enclosure, to ensure the safety of third parties. In addition, discussions were held with the local police during the design stage pertaining to the entrances and exits to be used by construction vehicles.</p> <p>Special temporary construction such as hanging scaffolding for carrying out steel painting repair of the roof of Ariake Colosseum was studied during the design stage.</p> <p>In addition, in order to prevent third-party accidents, a temporary design drawing that separates the flow lines of general people such as pedestrians inside and outside the construction site from the flow lines of construction vehicles were investigated and implemented during construction.</p>
2	Was BIM/CIM used during the design and/or construction stages? If so, please provide examples of how the use of BIM/CIM contributed to health and safety during construction.	<p>⇒No</p>
3	As the Client, are there any hazards you wish the designer had considered during the design stage? If yes, what hazards do you wish had been considered?	<p>⇒No</p>

4	<p>Was the issue of reducing possible hazards during construction taken into consideration during the design stage? For example, did the Client and designer meet or otherwise coordinate on this issue? In the case of an inclusive order for both design and construction or ECI (early contractor involvement) or other contract, did the Client, designer, and Contractor hold meetings or otherwise coordinate from the initial design stage? If so, what type of issues did this coordination focus on?</p>	<p>During the design stage, there was a plan in place to hold meetings and liaison coordination with the designers to reduce the assumed construction risks.</p> <p>No special construction methods needed to be employed, as it was judged that construction could be done safely without any danger at the construction stage based on the details of the design.</p>
5	<p>As the client, do you think that taking the elimination or reduction of risks into consideration from the design stage leads to better health and safety during construction? Please note your opinion regarding this question.</p>	<p>It is our opinion that studying ways to reduce site risks during the design stage helps improve health and safety during construction.</p>
6	<p>Please note the construction methods used and key elements adopted, including the implementation of risk assessments, to eliminate or reduce work risks during the design and/or construction stages. In these cases, please note the stage at which these methods and elements were adopted. (Give examples of constructions and methods that saved labor or mechanized process, including construction cases and new technologies.)</p>	<p>For the repair of the steel frame coating on the roof of the Ariake Colosseum, a construction method for the suspended scaffolding was experimentally carried out at a low height (about 20 to 30 cm) during the construction stage to confirm and verify the work procedure and safety thereof.</p> <p>For the wooden trusses for the clubhouses and indoor courts, mockups were made on-site during the construction stage to verify workability and fit, and to investigate the safety thereof.</p>
7	<p>Did any measures focus on preventing the falls, collisions, or public injury that often occur during construction work? If so, please note the measures that were taken.</p>	<p>⇒Yes</p> <p>In order to reduce work in high places, assembly on the ground was employed as much as possible for steel frame and PC construction.</p> <p>In order to ensure safety when installing and dismantling the scaffolding, the advanced guardrail construction method that is the standard of Tokyo was employed.</p> <p>Workers working in high places for scaffolding assembly, steel frame construction, roof construction, etc. used full harness type fall arrest system.</p> <p>For Symbol Road used by the general public, consideration was given to ensure the safety of third parties depending on the details of the given construction activity such as stationing security guards, etc.</p>

8	Did any measures focus on ensuring a safe, secure, and rewarding worksite for women and younger workers? If so, please note the measures that were taken.	Women-Oriented Initiatives ⇒Yes
		Improvements were made to the working environment by installing women-only toilets and changing rooms.
		Youth-Oriented Initiatives ⇒No
9	Please note any other health and safety measures taken during construction on this project that seem to you, as the client, unique.	<p>There were many inspections of the construction site by the IOC, IF, and a variety domestic and foreign media at the time of construction. At times it was difficult to support such visits as it meant safety and process management, such as setting up a safety zones along the inspection routes and other adjustments to the construction site on the days such inspections took place. Construction-related vehicles were prohibited from entering and exiting the site during elementary school commuting hours.</p> <p>A temporary pedestrian bridge was installed on the construction area side so that flow lines of the local residents who use Symbol Road and the construction personnel who come and go to the construction site would not cross each other.</p>
10	What occupational accident prevention measures do you wish to see the construction industry retain in the future? These do not need to be examples of measures actually taken. Please note your opinion as a client ordering construction.	<p>In our opinion, front-loading the investigation into ways to prevent occupational accidents at the construction site while still in design stage is an effective countermeasure to prevent occupational accidents.</p> <p>In our opinion, the prevention of crashes and falls is critical.</p>
11	Please note your impressions of the construction of facilities for the Olympic and Paralympic Games.	<p>Since the construction site garnered worldwide attention, a wide range of activities such as strict adherence to the construction period, security measures, use of environmentally friendly materials, and accessibility support were implemented in addition to health and safety management.</p> <p>Owing to the fact that it was an Olympic and Paralympic competition facility, the scale of construction was large, and the number of contractors and the number of workers working on-site every day were very high. Even though there were concerns about the difficulty of conveying safety-related information to all workers, in our opinion, it was exceptionally commendable that the construction was able to be completed without any accidents thanks to the daily efforts of each contractor.</p>

4. Shiokaze Park

Construction Project Name: Tokyo Olympics and Paralympics Temporary Overlay Development

(No. 16) Shiokaze Park

Construction Site: 1 Higashiyashio, Shinagawa-ku, Tokyo

Client: The Tokyo Organising Committee of the Olympic and Paralympic Games

Designer: Daiwa Lease Co., Ltd.

Builder: Daiwa Lease Co., Ltd.

Construction Period: December 1, 2019-March 31, 2022

(Temporary Suspension of Construction: July 1, 2020-January 5, 2021)

1	Did the Client or other involved party conduct risk assessments or take any other steps during the design stage or review hazards that must be considered during construction to reduce the risk of occupational accidents? Did the owner establish any other systems or measures? If yes, please note the specifics.	<p>⇒Yes</p> <p>Design stage Taking advantage of the features of the Design-Build, the safety was also fully coordinated and planned for with the construction builder from the actual design stage.</p> <p>Other initiatives During the construction stage, in addition to the development of temporary infrastructure such as prefabricated tents for operation, seats for spectators, and competition space, various tasks such as bringing in and installing equipment necessary for operation were planned, and differing tasks were performed side by side. The requirement in the contract was to have the contractor implement a system that provided safety management supervision to prevent accidents no matter what manner of construction workers enter the venue.</p> <p>Contact procedures to quickly grasp accurate information and respond appropriately in the event of an accident were developed. A communication system within the Organising Committee was clarified, a report format was prepared, and a confirmation system for recurrence prevention measures was also established.</p> <p>A safety patrol system was implemented by the client of this project. Documents such as those for the construction system were directly confirmed at the site along with clothing, protective equipment, work environment, etc.</p>
2	Was BIM/CIM used during the design and/or construction stages? If so, please provide examples of how the use of BIM/CIM contributed to health and safety during construction.	⇒No
3	As the Client, are there any hazards you wish the designer had considered during the design stage? If yes, what hazards do you wish had been considered?	⇒No

4	<p>Was the issue of reducing possible hazards during construction taken into consideration during the design stage? For example, did the Client and designer meet or otherwise coordinate on this issue? In the case of an inclusive order for both design and construction or ECI (early contractor involvement) or other contract, did the Client, designer, and Contractor hold meetings or otherwise coordinate from the initial design stage? If so, what type of issues did this coordination focus on?</p>	<p>A regular meeting was held once a week involving the designers, the builder, and the client. All arrangements were made in close cooperation with each other.</p> <p>As much as possible, construction preparation and plans were shared with other departments within the Organising Committee that placed orders for temporary wiring, security systems, and equipment maintenance for competitions.</p>
5	<p>As the client, do you think that taking the elimination or reduction of risks into consideration from the design stage leads to better health and safety during construction? Please note your opinion regarding this question.</p>	<p>It is possible to reduce the risk of danger if the designer proceeds with the design while envisioning construction preparations and adjustments to certain extent.</p> <p>Specifically, due to the characteristics of the park, the plan was to use a limited space. So, the plan was to maintain awareness of distance relationship to construct the parts that can be constructed with a certain distance between the buildings so that the buildings would not be too close to each other.</p>
6	<p>Please note the construction methods used and key elements adopted, including the implementation of risk assessments, to eliminate or reduce work risks during the design and/or construction stages. In these cases, please note the stage at which these methods and elements were adopted. (Give examples of constructions and methods that saved labor or mechanized process, including construction cases and new technologies.)</p>	<p>There were plans to install completely different things such as unit house installation, security fence installation, wiring, and competition field and equipment maintenance. It is our opinion, that the delivery and adjustment of work processes in consideration of each construction order were important factors for safety management. In addition, process coordination was carried out between the ordering parties in consideration of safe construction by coordinating information with the contractor pertaining to construction orders placed by other departments of the Organising Committee.</p>
7	<p>Did any measures focus on preventing the falls, collisions, or public injury that often occur during construction work? If so, please note the measures that were taken.</p>	<p>⇒Yes</p> <p>Because there was construction work on temporary stands and lighting towers in high places during this project, periodic inspections of materials and temporary materials based on laws and regulations were carried out, and the workers were thoroughly informed of dangerous places and construction details to prevent accidents.</p>
8	<p>Did any measures focus on ensuring a safe, secure, and rewarding worksite for women and younger workers? If so, please note the measures that were taken.</p>	<p>Women-Oriented Initiatives</p> <p>⇒Yes</p>
		<p>There was a toilet for women installed.</p>
		<p>Youth-Oriented Initiatives</p> <p>⇒No</p>
		<p></p>

9	Please note any other health and safety measures taken during construction on this project that seem to you, as the client, unique.	For the construction preparations, the construction staff of other departments within the Organising Committee reported to the construction staff of the venue development bureau and confirmed and cooperated regarding the construction details. In addition, construction contractors from other departments attended the overall construction meeting and carried out the various construction before the main construction took place. Because it was a coastal area, there was a risk of strong winds, so materials were covered with a shatterproof sheet as a safety measure.
10	What occupational accident prevention measures do you wish to see the construction industry retain in the future? These do not need to be examples of measures actually taken. Please note your opinion as a client ordering construction.	It is our opinion that one of the measures that must be implemented is to thoroughly check daily during the morning assembly meeting and so forth to ensure that workers are informed of dangerous places and other such construction details for accident prevention.
11	Please note your impressions of the construction of facilities for the Olympic and Paralympic Games.	Since there are many stakeholders involved, there are many adjustments and difficulties in advancing the plan and construction preparation. However, it is our opinion that there is a high level of motivation to successfully host the games.

5. Sea Forest Cross-Country Course

Construction Project Name: Tokyo Olympic and Paralympic Games Temporary Overlay Development
(Part 2) Sea Forest Cross-Country Course

Construction Site: 3-chome, Aomi, Koto-ku, Tokyo

Client: The Tokyo Organising Committee of the Olympic and Paralympic Games

Designer: Daiwa House Industry Co., Ltd.

Builder: Daiwa House Industry Co., Ltd.

Construction Period: May 10, 2019-December 31, 2021

(Temporary Suspension of Construction: August 1, 2020-January 31, 2021)

1	Did the Client or other involved party conduct risk assessments or take any other steps during the design stage or review hazards that must be considered during construction to reduce the risk of occupational accidents? Did the owner establish any other systems or measures? If yes, please note the specifics.	<p>⇒Yes</p> <p>Design stage Taking advantage of the features of the Design-Build, the safety was also fully coordinated and planned for with the contractors from the actual design stage.</p> <p>Other initiatives During the construction stage, in addition to the development of temporary infrastructure such as prefabricated tents for operation, seats for spectators, and competition space, various tasks such as bringing in and installing equipment necessary for operation were planned, and differing tasks were performed side by side. The requirement in the contract was to have the contractor implement a system that provided safety management supervision to prevent accidents no matter what manner of construction workers enter the venue.</p> <p>Contact procedures to quickly grasp accurate information and respond appropriately in the event of an accident were developed. A communication system within the Organising Committee was clearly formulated, a report format was prepared, and a confirmation system for recurrence prevention measures was also established.</p> <p>A safety patrol system was implemented by the client of this project. Documents such as those for the construction system were directly confirmed at the site along with clothing, protective equipment, work environment, etc.</p>
2	Was BIM/CIM used during the design and/or construction stages? If so, please provide examples of how the use of BIM/CIM contributed to health and safety during construction.	<p>⇒No</p>

3	As the Client, are there any hazards you wish the designer had considered during the design stage? If yes, what hazards do you wish had been considered?	<p>⇒Yes</p> <p>At this site, we asked the person in charge of construction for opinions at the time of design. Although they were endeavoring to secure a safe flow line at the site, we think they should consider the heavy equipment and the layout thereof when constructing each facility.</p> <p>Construction sites in Tokyo are often exceedingly small in footprint, and when using large heavy machinery (rough terrain cranes, etc.), it is better to investigate detours in the construction flow line and the layout of traffic guards in advance, whereby helping avoid danger from occurring.</p>
4	Was the issue of reducing possible hazards during construction taken into consideration during the design stage? For example, did the Client and designer meet or otherwise coordinate on this issue? In the case of an inclusive order for both design and construction or ECI (early contractor involvement) or other contract, did the Client, designer, and Contractor hold meetings or otherwise coordinate from the initial design stage? If so, what type of issues did this coordination focus on?	<p>Design-Build</p> <p>Leveraging the benefits of the design-build, a safe and reasonable construction method was selected, and the process thereof confirmed, based on discussion with the person in charge of construction during the design stage. Specifically, the person in charge of construction was invited to attend the regular design meeting once a week to confirm the construction method and process.</p>
5	As the client, do you think that taking the elimination or reduction of risks into consideration from the design stage leads to better health and safety during construction? Please note your opinion regarding this question.	<p>Consideration of the elimination or reduction of danger starting from the design stage will naturally lead to the improvement of safety during construction because it will be necessary to consider the selection of a reasonable construction method and resulting adjustments to processes.</p>
6	Please note the construction methods used and key elements adopted, including the implementation of risk assessments, to eliminate or reduce work risks during the design and/or construction stages. In these cases, please note the stage at which these methods and elements were adopted. (Give examples of constructions and methods that saved labor or mechanized process, including construction cases and new technologies.)	<p>Installation of unit houses, installation of security fences, wiring, and maintenance of fields and equipment for the competitions are planned to be completely different for each operation. It is our opinion that the delivery and adjustment of work processes in consideration of each construction order will be important factors for safety management. In addition, process coordination was carried out with the client in consideration of safe construction by coordinating information with the contractor in regard to construction orders placed by other departments of the Organising Committee.</p> <p>In parallel, safety management was carried out at this site through conventional KY (danger prediction) activities.</p>
7	Did any measures focus on preventing the falls, collisions, or public injury that often occur during construction work? If so, please note the measures that were taken.	<p>⇒Yes</p> <p>After the revision of the law in 2019, the contractor at this site made every effort to prevent falls by making sure all applicable workers wore the full harness type fall arrest system. In addition, all the contractor staff and workers who work in high places are taking the special training related to the above.</p>

8	Did any measures focus on ensuring a safe, secure, and rewarding worksite for women and younger workers? If so, please note the measures that were taken.	Women-Oriented Initiatives ⇒Yes
		Since female workers sometimes come to the venue, women's changing rooms and women's toilets were installed.
		Youth-Oriented Initiatives ⇒No
9	Please note any other health and safety measures taken during construction on this project that seem to you, as the client, unique.	Before the test event, the work of ordering by multiple departments of the Organising Committee was conducted at the same time. In order to establish a close contact system, the rules of the venue were established through the holding of overall regular meetings and the establishment of a contact system. Efforts were made to communicate and share points of danger.
10	What occupational accident prevention measures do you wish to see the construction industry retain in the future? These do not need to be examples of measures actually taken. Please note your opinion as a client ordering construction.	Assuming that the number of foreign workers will increase, one issue will be how to eliminate the language barrier at the site. In our opinion, it is necessary to promptly accommodate multiple languages (Chinese, English, Korean, Japanese) in the displaying of safety documents and warning signs at the site.
11	Please note your impressions of the construction of facilities for the Olympic and Paralympic Games.	There was not anything in particular done only because this project was for the development of an Olympic facility. We were able to confirm that through construction coordination with foreign companies and their personnel that safety measures were very precise and strict, in keeping with Japan law, and supportive of Japan's high technological capabilities.

6. Canoe Slalom Venue

6-1. Construction Project Name: Canoe Slalom Venue Pump Equipment Construction

Construction Site: 6-chome, Rinkai-cho, Edogawa-ku, Tokyo

Client: Tokyo Metropolitan Government Construction Bureau Eastern Park Green Space Office

Construction Division Olympic / Paralympic Venue Maintenance Office

Designer: PACIFIC CONSULTANTS CO., LTD.

Builder: TSURUMI MANUFACTURING CO., LTD.

Construction Period: December 29, 2018-May 31, 2019

1	Did the Client or other involved party conduct risk assessments or take any other steps during the design stage or review hazards that must be considered during construction to reduce the risk of occupational accidents? Did the owner establish any other systems or measures? If yes, please note the specifics.	⇒No
2	Was BIM/CIM used during the design and/or construction stages? If so, please provide examples of how the use of BIM/CIM contributed to health and safety during construction.	⇒No
3	As the Client, are there any hazards you wish the designer had considered during the design stage? If yes, what hazards do you wish had been considered?	⇒No
4	Was the issue of reducing possible hazards during construction taken into consideration during the design stage? For example, did the Client and designer meet or otherwise coordinate on this issue? In the case of an inclusive order for both design and construction or ECI (early contractor involvement) or other contract, did the Client, designer, and Contractor hold meetings or otherwise coordinate from the initial design stage? If so, what type of issues did this coordination focus on?	NA
5	As the client, do you think that taking the elimination or reduction of risks into consideration from the design stage leads to better health and safety during construction? Please note your opinion regarding this question.	In our opinion, if the construction period can be set in consideration for work congestion with other related works, health and safety will be improved.

6	Please note the construction methods used and key elements adopted, including the implementation of risk assessments, to eliminate or reduce work risks during the design and/or construction stages. In these cases, please note the stage at which these methods and elements were adopted. (Give examples of constructions and methods that saved labor or mechanized process, including construction cases and new technologies.)	NA
7	Did any measures focus on preventing the falls, collisions, or public injury that often occur during construction work? If so, please note the measures that were taken.	⇒Yes Implementation of construction safety patrol.
8	Did any measures focus on ensuring a safe, secure, and rewarding worksite for women and younger workers? If so, please note the measures that were taken.	Women-Oriented Initiatives ⇒No
		Youth-Oriented Initiatives ⇒Yes
		Technology succession by conducting construction site inspections.
9	Please note any other health and safety measures taken during construction on this project that seem to you, as the client, unique.	Since multiple works are in operation at the site, a weekly process liaison meeting was held with the client to share the schedule of each operation and safety management information.
10	What occupational accident prevention measures do you wish to see the construction industry retain in the future? These do not need to be examples of measures actually taken. Please note your opinion as a client ordering construction.	Securing construction technology and site supervision ability.
11	Please note your impressions of the construction of facilities for the Olympic and Paralympic Games.	When constructing the competition facility, it was difficult to coordinate with external organizations (ICF, Organising Committee, Olympic Bureau, etc.) within a limited time. However, the designers, the contractors, and the clients came together as one to complete the coordination successfully.

6-2. Construction Project Name: Canoe Slalom Venue Filtration Facility New Construction

Construction Site: 6-chome, Rinkai-cho, Edogawa-ku, Tokyo

Client: Tokyo Metropolitan Government Construction Bureau Eastern Park Green Space Office

Construction Division Olympic / Paralympic Venue Maintenance Office

Designer: PACIFIC CONSULTANTS CO., LTD.

Builder: SHIN Co., Ltd.

Construction Period: June 27, 2017-May 31, 2019

1	Did the Client or other involved party conduct risk assessments or take any other steps during the design stage or review hazards that must be considered during construction to reduce the risk of occupational accidents? Did the owner establish any other systems or measures? If yes, please note the specifics.	⇒Yes At the construction stage, at regular construction meetings, the client regularly distributed and explained to the contractor the precautions regarding construction safety measures and materials related to countermeasure examples to promote the improvement of safety measures.
2	Was BIM/CIM used during the design and/or construction stages? If so, please provide examples of how the use of BIM/CIM contributed to health and safety during construction.	⇒No
3	As the Client, are there any hazards you wish the designer had considered during the design stage? If yes, what hazards do you wish had been considered?	⇒No
4	Was the issue of reducing possible hazards during construction taken into consideration during the design stage? For example, did the Client and designer meet or otherwise coordinate on this issue? In the case of an inclusive order for both design and construction or ECI (early contractor involvement) or other contract, did the Client, designer, and Contractor hold meetings or otherwise coordinate from the initial design stage? If so, what type of issues did this coordination focus on?	No
5	As the client, do you think that taking the elimination or reduction of risks into consideration from the design stage leads to better health and safety during construction? Please note your opinion regarding this question.	When a contractor's technical ability is low, the knowledge and ability regarding health and safety are often low. By carefully examining the contents related to health and safety such as temporary design drawings from the design stage and attaching materials related to health and safety, such as temporary design drawings as reference drawings, when ordering, the quality of safety consideration can be ensured at a certain level and construction work. It is our opinion that such actions will greatly improve the safety of the construction.

6	Please note the construction methods used and key elements adopted, including the implementation of risk assessments, to eliminate or reduce work risks during the design and/or construction stages. In these cases, please note the stage at which these methods and elements were adopted. (Give examples of constructions and methods that saved labor or mechanized process, including construction cases and new technologies.)	NA
7	Did any measures focus on preventing the falls, collisions, or public injury that often occur during construction work? If so, please note the measures that were taken.	⇒Yes The client carried out a construction safety patrol at the site and proceeded with the construction while making efforts to identify unsafe points and confirming the correction status thereof.
8	Did any measures focus on ensuring a safe, secure, and rewarding worksite for women and younger workers? If so, please note the measures that were taken.	Women-Oriented Initiatives ⇒No
		Youth-Oriented Initiatives ⇒No
9	Please note any other health and safety measures taken during construction on this project that seem to you, as the client, unique.	This project was not limited to electrical and mechanical equipment work related to construction work, but also involved simultaneously carrying out civil engineering work for the entire venue and various equipment work related to it, so many contractors were on the same site. The contractor for civil engineering work took the lead in examining the safety rules for the entire site, planning the flow lines, clarifying the roles, and so on, in cooperation with other contractors.
10	What occupational accident prevention measures do you wish to see the construction industry retain in the future? These do not need to be examples of measures actually taken. Please note your opinion as a client ordering construction.	Review of contracting and ordering methods and construction industry-related regulations to ensure that construction is carried out by contractors with experience and technical skills appropriate to the size, content and difficulty of the work. If a contractor lacking in personnel or a contractor who can only assign engineers with little on-site experience to match this project wins a bid for construction, there is a risk that the site management and eventually safety measures will be delayed because not every corner of the site will be noticed. Therefore, it is necessary to revise the construction contracts and related systems of the construction industry in order to make sure the right people are in the right places.
11	Please note your impressions of the construction of facilities for the Olympic and Paralympic Games.	In order to strictly adherence to the construction period, it seems that both the client and the contractor spent a lot of effort in order to proceed with the construction while coordinating a large number of construction contracts and contractors on the same site.

6-3. Construction Project Name: Canoe Slalom Venue Filtration Equipment Construction

Construction Site: 6-chome, Rinkai-cho, Edogawa-ku, Tokyo

Client: Tokyo Metropolitan Government Construction Bureau Eastern Park Green Space Office

Construction Division Olympic / Paralympic Venue Maintenance Office

Designer: PACIFIC CONSULTANTS CO., LTD.

Builder: METAWATER Co., Ltd.

Construction Period: July 5, 2017-May 31, 2019

1	Did the Client or other involved party conduct risk assessments or take any other steps during the design stage or review hazards that must be considered during construction to reduce the risk of occupational accidents? Did the owner establish any other systems or measures? If yes, please note the specifics.	⇒No
2	Was BIM/CIM used during the design and/or construction stages? If so, please provide examples of how the use of BIM/CIM contributed to health and safety during construction.	⇒No
3	As the Client, are there any hazards you wish the designer had considered during the design stage? If yes, what hazards do you wish had been considered?	⇒No
4	Was the issue of reducing possible hazards during construction taken into consideration during the design stage? For example, did the Client and designer meet or otherwise coordinate on this issue? In the case of an inclusive order for both design and construction or ECI (early contractor involvement) or other contract, did the Client, designer, and Contractor hold meetings or otherwise coordinate from the initial design stage? If so, what type of issues did this coordination focus on?	NA
5	As the client, do you think that taking the elimination or reduction of risks into consideration from the design stage leads to better health and safety during construction? Please note your opinion regarding this question.	In our opinion, if the construction period can be set in consideration for work congestion with other related works, health and safety will be improved.

6	Please note the construction methods used and key elements adopted, including the implementation of risk assessments, to eliminate or reduce work risks during the design and/or construction stages. In these cases, please note the stage at which these methods and elements were adopted. (Give examples of constructions and methods that saved labor or mechanized process, including construction cases and new technologies.)	NA
7	Did any measures focus on preventing the falls, collisions, or public injury that often occur during construction work? If so, please note the measures that were taken.	⇒Yes Implementation of construction safety patrol.
8	Did any measures focus on ensuring a safe, secure, and rewarding worksite for women and younger workers? If so, please note the measures that were taken.	Women-Oriented Initiatives ⇒Yes Installation of women-only toilets Youth-Oriented Initiatives ⇒Yes Technology succession by conducting construction site inspections.
9	Please note any other health and safety measures taken during construction on this project that seem to you, as the client, unique.	Since multiple works are in operation at the site, a weekly process liaison meeting was held with the client to share the schedule of each operation and safety management information.
10	What occupational accident prevention measures do you wish to see the construction industry retain in the future? These do not need to be examples of measures actually taken. Please note your opinion as a client ordering construction.	Securing construction technology and site supervision ability.
11	Please note your impressions of the construction of facilities for the Olympic and Paralympic Games.	When constructing the competition facility, it was difficult to coordinate with external organizations (ICF, Organising Committee, Olympic Bureau, etc.) within a limited time. However, the designers, the contractors, and the clients came together as one to complete the coordination successfully.

6-4. Construction Project Name: Canoe Slalom Venue Management Building Sash and Other Construction

Construction Site: 6-chome, Rinkai-cho, Edogawa-ku, Tokyo

Client: Tokyo Metropolitan Government Construction Bureau Eastern Park Green Space Office

Construction Division Olympic / Paralympic Venue Maintenance Office

Designer: PACIFIC CONSULTANTS CO., LTD.

Builder: Tamasyokou Co., Ltd.

Construction Period: June 22, 2018-May 31, 2019

1	Did the Client or other involved party conduct risk assessments or take any other steps during the design stage or review hazards that must be considered during construction to reduce the risk of occupational accidents? Did the owner establish any other systems or measures? If yes, please note the specifics.	⇒Yes At the construction stage, at regular construction meetings, the client regularly distributed and explained to the contractor the precautions regarding construction safety measures and materials related to countermeasure examples to promote the improvement of safety measures.
2	Was BIM/CIM used during the design and/or construction stages? If so, please provide examples of how the use of BIM/CIM contributed to health and safety during construction.	⇒No
3	As the Client, are there any hazards you wish the designer had considered during the design stage? If yes, what hazards do you wish had been considered?	⇒No
4	Was the issue of reducing possible hazards during construction taken into consideration during the design stage? For example, did the Client and designer meet or otherwise coordinate on this issue? In the case of an inclusive order for both design and construction or ECI (early contractor involvement) or other contract, did the Client, designer, and Contractor hold meetings or otherwise coordinate from the initial design stage? If so, what type of issues did this coordination focus on?	No
5	As the client, do you think that taking the elimination or reduction of risks into consideration from the design stage leads to better health and safety during construction? Please note your opinion regarding this question.	When a contractor's technical ability is low, the knowledge and ability regarding health and safety are often low. By carefully examining the contents related to health and safety such as temporary design drawings from the design stage and attaching materials related to health and safety, such as temporary design drawings as reference drawings, when ordering, the quality of safety consideration can be ensured at a certain level and construction work. It is our opinion that such actions will greatly improve the safety of the construction.

6	Please note the construction methods used and key elements adopted, including the implementation of risk assessments, to eliminate or reduce work risks during the design and/or construction stages. In these cases, please note the stage at which these methods and elements were adopted. (Give examples of constructions and methods that saved labor or mechanized process, including construction cases and new technologies.)	NA
7	Did any measures focus on preventing the falls, collisions, or public injury that often occur during construction work? If so, please note the measures that were taken.	⇒Yes The client carried out a construction safety patrol at the site and proceeded with the construction while making efforts to identify unsafe points and confirming the correction status thereof.
8	Did any measures focus on ensuring a safe, secure, and rewarding worksite for women and younger workers? If so, please note the measures that were taken.	Women-Oriented Initiatives ⇒No Youth-Oriented Initiatives ⇒No
9	Please note any other health and safety measures taken during construction on this project that seem to you, as the client, unique.	This project was not limited to electrical and mechanical equipment work related to construction work, but also involved simultaneously carrying out civil engineering work for the entire venue and various equipment work related to it, so many contractors were on the same site. The contractor for civil engineering work took the lead in examining the safety rules for the entire site, planning the flow lines, clarifying the roles, and so on, in cooperation with other contractors.
10	What occupational accident prevention measures do you wish to see the construction industry retain in the future? These do not need to be examples of measures actually taken. Please note your opinion as a client ordering construction.	Review of contracting and ordering methods and construction industry-related regulations to ensure that construction is carried out by contractors with experience and technical skills appropriate to the size, content and difficulty of the work. If a contractor lacking in personnel or a contractor who can only assign engineers with little on-site experience to match this project wins a bid for construction, there is a risk that the site management and eventually safety measures will be delayed because not every corner of the site will be noticed. Therefore, it is necessary to revise the construction contracts and related systems of the construction industry in order to make sure the right people are in the right places.
11	Please note your impressions of the construction of facilities for the Olympic and Paralympic Games.	In order to strictly adherence to the construction period, it seems that both the client and the contractor spent a lot of effort in order to proceed with the construction while coordinating a large number of construction contracts and contractors on the same site.

6-5. Construction Project Name: Canoe Slalom Venue Management Building New Construction (Part 2)

Construction Site: 6-chome, Rinkai-cho, Edogawa-ku, Tokyo

Client: Tokyo Metropolitan Government Construction Bureau Eastern Park Green Space Office

Construction Division Olympic / Paralympic Venue Maintenance Office

Designer: PACIFIC CONSULTANTS CO., LTD.

Builder: TAKANAKA Corporation

Construction Period: January 18, 2019-December 17, 2019

1	Did the Client or other involved party conduct risk assessments or take any other steps during the design stage or review hazards that must be considered during construction to reduce the risk of occupational accidents? Did the owner establish any other systems or measures? If yes, please note the specifics.	⇒Yes At the construction stage, at regular construction meetings, the client regularly distributed and explained to the contractor the precautions regarding construction safety measures and materials related to countermeasure examples to promote the improvement of safety measures.
2	Was BIM/CIM used during the design and/or construction stages? If so, please provide examples of how the use of BIM/CIM contributed to health and safety during construction.	⇒No
3	As the Client, are there any hazards you wish the designer had considered during the design stage? If yes, what hazards do you wish had been considered?	⇒No
4	Was the issue of reducing possible hazards during construction taken into consideration during the design stage? For example, did the Client and designer meet or otherwise coordinate on this issue? In the case of an inclusive order for both design and construction or ECI (early contractor involvement) or other contract, did the Client, designer, and Contractor hold meetings or otherwise coordinate from the initial design stage? If so, what type of issues did this coordination focus on?	No
5	As the client, do you think that taking the elimination or reduction of risks into consideration from the design stage leads to better health and safety during construction? Please note your opinion regarding this question.	When a contractor's technical ability is low, the knowledge and ability regarding health and safety are often low. By carefully examining the contents related to health and safety such as temporary design drawings from the design stage and attaching materials related to health and safety, such as temporary design drawings as reference drawings, when ordering, the quality of safety consideration can be ensured at a certain level and construction work. It is our opinion that such actions will greatly improve the safety of the construction.

6	Please note the construction methods used and key elements adopted, including the implementation of risk assessments, to eliminate or reduce work risks during the design and/or construction stages. In these cases, please note the stage at which these methods and elements were adopted. (Give examples of constructions and methods that saved labor or mechanized process, including construction cases and new technologies.)	NA
7	Did any measures focus on preventing the falls, collisions, or public injury that often occur during construction work? If so, please note the measures that were taken.	⇒Yes The client carried out a construction safety patrol at the site and proceeded with the construction while making efforts to identify unsafe points and confirming the correction status thereof.
8	Did any measures focus on ensuring a safe, secure, and rewarding worksite for women and younger workers? If so, please note the measures that were taken.	Women-Oriented Initiatives ⇒No
		Youth-Oriented Initiatives ⇒No
9	Please note any other health and safety measures taken during construction on this project that seem to you, as the client, unique.	This project was not limited to electrical and mechanical equipment work related to construction work, but also involved simultaneously carrying out civil engineering work for the entire venue and various equipment work related to it, so many contractors were on the same site. The contractor for civil engineering work took the lead in examining the safety rules for the entire site, planning the flow lines, clarifying the roles, and so on, in cooperation with other contractors.
10	What occupational accident prevention measures do you wish to see the construction industry retain in the future? These do not need to be examples of measures actually taken. Please note your opinion as a client ordering construction.	Review of contracting and ordering methods and construction industry-related regulations to ensure that construction is carried out by contractors with experience and technical skills appropriate to the size, content and difficulty of the work. If a contractor lacking in personnel or a contractor who can only assign engineers with little on-site experience to match this project wins a bid for construction, there is a risk that the site management and eventually safety measures will be delayed because not every corner of the site will be noticed. Therefore, it is necessary to revise the construction contracts and related systems of the construction industry in order to make sure the right people are in the right places.
11	Please note your impressions of the construction of facilities for the Olympic and Paralympic Games.	In order to strictly adherence to the construction period, it seems that both the client and the contractor spent a lot of effort in order to proceed with the construction while coordinating a large number of construction contracts and contractors on the same site.

6-6. Construction Project Name: Canoe Slalom Venue Management Building Elevator Construction

Associated with New Construction

Construction Site: 6-chome, Rinkai-cho, Edogawa-ku, Tokyo

Client: Tokyo Metropolitan Government Construction Bureau Eastern Park Green Space Office

Construction Division Olympic / Paralympic Venue Maintenance Office

Designer: PACIFIC CONSULTANTS CO., LTD.

Builder: CHUO ELEVATOR INDUSTRY CO., LTD

Construction Period: February 16, 2018-December 17, 2019

1	Did the Client or other involved party conduct risk assessments or take any other steps during the design stage or review hazards that must be considered during construction to reduce the risk of occupational accidents? Did the owner establish any other systems or measures? If yes, please note the specifics.	⇒No
2	Was BIM/CIM used during the design and/or construction stages? If so, please provide examples of how the use of BIM/CIM contributed to health and safety during construction.	⇒No
3	As the Client, are there any hazards you wish the designer had considered during the design stage? If yes, what hazards do you wish had been considered?	⇒No
4	Was the issue of reducing possible hazards during construction taken into consideration during the design stage? For example, did the Client and designer meet or otherwise coordinate on this issue? In the case of an inclusive order for both design and construction or ECI (early contractor involvement) or other contract, did the Client, designer, and Contractor hold meetings or otherwise coordinate from the initial design stage? If so, what type of issues did this coordination focus on?	NA
5	As the client, do you think that taking the elimination or reduction of risks into consideration from the design stage leads to better health and safety during construction? Please note your opinion regarding this question.	In our opinion, if the construction period can be set in consideration for work congestion with other related works, health and safety will be improved.

6	Please note the construction methods used and key elements adopted, including the implementation of risk assessments, to eliminate or reduce work risks during the design and/or construction stages. In these cases, please note the stage at which these methods and elements were adopted. (Give examples of constructions and methods that saved labor or mechanized process, including construction cases and new technologies.)	NA
7	Did any measures focus on preventing the falls, collisions, or public injury that often occur during construction work? If so, please note the measures that were taken.	⇒Yes
		Implementation of construction safety patrol.
8	Did any measures focus on ensuring a safe, secure, and rewarding worksite for women and younger workers? If so, please note the measures that were taken.	Women-Oriented Initiatives
		⇒No
		Youth-Oriented Initiatives
		⇒No
9	Please note any other health and safety measures taken during construction on this project that seem to you, as the client, unique.	Since multiple works are in operation at the site, a weekly process liaison meeting was held with the client to share the schedule of each operation and safety management information.
10	What occupational accident prevention measures do you wish to see the construction industry retain in the future? These do not need to be examples of measures actually taken. Please note your opinion as a client ordering construction.	Securing construction technology and site supervision ability.
11	Please note your impressions of the construction of facilities for the Olympic and Paralympic Games.	When constructing the competition facility, it was difficult to coordinate with external organizations (ICF, Organising Committee, Olympic Bureau, etc.) within a limited time. However, the designers, the contractors, and the clients came together as one to complete the coordination successfully.

6-7. Construction Project Name: Canoe Slalom Venue Management Building Water Supply and Drainage

Sanitary Equipment Construction Associated with New Construction

Construction Site: 6-chome, Rinkai-cho, Edogawa-ku, Tokyo

Client: Tokyo Metropolitan Government Construction Bureau Eastern Park Green Space Office

Construction Division Olympic / Paralympic Venue Maintenance Office

Designer: PACIFIC CONSULTANTS CO., LTD.

Builder: iSi INDUSTRIAL CORPORATION

Construction Period: February 16, 2018-December 17, 2019

1	Did the Client or other involved party conduct risk assessments or take any other steps during the design stage or review hazards that must be considered during construction to reduce the risk of occupational accidents? Did the owner establish any other systems or measures? If yes, please note the specifics.	⇒No
2	Was BIM/CIM used during the design and/or construction stages? If so, please provide examples of how the use of BIM/CIM contributed to health and safety during construction.	⇒No
3	As the Client, are there any hazards you wish the designer had considered during the design stage? If yes, what hazards do you wish had been considered?	⇒No
4	Was the issue of reducing possible hazards during construction taken into consideration during the design stage? For example, did the Client and designer meet or otherwise coordinate on this issue? In the case of an inclusive order for both design and construction or ECI (early contractor involvement) or other contract, did the Client, designer, and Contractor hold meetings or otherwise coordinate from the initial design stage? If so, what type of issues did this coordination focus on?	NA
5	As the client, do you think that taking the elimination or reduction of risks into consideration from the design stage leads to better health and safety during construction? Please note your opinion regarding this question.	In our opinion, if the construction period can be set in consideration for work congestion with other related works, health and safety will be improved.

6	Please note the construction methods used and key elements adopted, including the implementation of risk assessments, to eliminate or reduce work risks during the design and/or construction stages. In these cases, please note the stage at which these methods and elements were adopted. (Give examples of constructions and methods that saved labor or mechanized process, including construction cases and new technologies.)	NA
7	Did any measures focus on preventing the falls, collisions, or public injury that often occur during construction work? If so, please note the measures that were taken.	⇒Yes
		Implementation of construction safety patrol.
8	Did any measures focus on ensuring a safe, secure, and rewarding worksite for women and younger workers? If so, please note the measures that were taken.	Women-Oriented Initiatives
		⇒No
		Youth-Oriented Initiatives
		⇒No
9	Please note any other health and safety measures taken during construction on this project that seem to you, as the client, unique.	Since multiple works are in operation at the site, a weekly process liaison meeting was held with the client to share the schedule of each operation and safety management information.
10	What occupational accident prevention measures do you wish to see the construction industry retain in the future? These do not need to be examples of measures actually taken. Please note your opinion as a client ordering construction.	Securing construction technology and site supervision ability.
11	Please note your impressions of the construction of facilities for the Olympic and Paralympic Games.	When constructing the competition facility, it was difficult to coordinate with external organizations (ICF, Organising Committee, Olympic Bureau, etc.) within a limited time. However, the designers, the contractors, and the clients came together as one to complete the coordination successfully.

6-8. Construction Project Name: Canoe Slalom Venue Air-conditioning and Ventilation Equipment
 Construction Associated with New Construction of Management Building and Other Building (Part 2)
 Construction Site: 6-chome, Rinkai-cho, Edogawa-ku, Tokyo
 Client: Tokyo Metropolitan Government Construction Bureau Eastern Park Green Space Office
 Construction Division Olympic / Paralympic Venue Maintenance Office
 Designer: PACIFIC CONSULTANTS CO., LTD.
 Builder: iSi INDUSTRIAL CORPORATION
 Construction Period: March 30, 2018-December 17, 2019

1	Did the Client or other involved party conduct risk assessments or take any other steps during the design stage or review hazards that must be considered during construction to reduce the risk of occupational accidents? Did the owner establish any other systems or measures? If yes, please note the specifics.	⇒No
2	Was BIM/CIM used during the design and/or construction stages? If so, please provide examples of how the use of BIM/CIM contributed to health and safety during construction.	⇒No
3	As the Client, are there any hazards you wish the designer had considered during the design stage? If yes, what hazards do you wish had been considered?	⇒No
4	Was the issue of reducing possible hazards during construction taken into consideration during the design stage? For example, did the Client and designer meet or otherwise coordinate on this issue? In the case of an inclusive order for both design and construction or ECI (early contractor involvement) or other contract, did the Client, designer, and Contractor hold meetings or otherwise coordinate from the initial design stage? If so, what type of issues did this coordination focus on?	NA
5	As the client, do you think that taking the elimination or reduction of risks into consideration from the design stage leads to better health and safety during construction? Please note your opinion regarding this question.	In our opinion, if the construction period can be set in consideration for work congestion with other related works, health and safety will be improved.

6	Please note the construction methods used and key elements adopted, including the implementation of risk assessments, to eliminate or reduce work risks during the design and/or construction stages. In these cases, please note the stage at which these methods and elements were adopted. (Give examples of constructions and methods that saved labor or mechanized process, including construction cases and new technologies.)	NA
7	Did any measures focus on preventing the falls, collisions, or public injury that often occur during construction work? If so, please note the measures that were taken.	⇒Yes
		Implementation of construction safety patrol.
8	Did any measures focus on ensuring a safe, secure, and rewarding worksite for women and younger workers? If so, please note the measures that were taken.	Women-Oriented Initiatives
		⇒No
		Youth-Oriented Initiatives
		⇒No
9	Please note any other health and safety measures taken during construction on this project that seem to you, as the client, unique.	Since multiple works are in operation at the site, a weekly process liaison meeting was held with the client to share the schedule of each operation and safety management information.
10	What occupational accident prevention measures do you wish to see the construction industry retain in the future? These do not need to be examples of measures actually taken. Please note your opinion as a client ordering construction.	Securing construction technology and site supervision ability.
11	Please note your impressions of the construction of facilities for the Olympic and Paralympic Games.	When constructing the competition facility, it was difficult to coordinate with external organizations (ICF, Organising Committee, Olympic Bureau, etc.) within a limited time. However, the designers, the contractors, and the clients came together as one to complete the coordination successfully.

6-9. Construction Project Name: Canoe Slalom Venue Electric Equipment Construction Associated with New Construction of Administration Building and Other Building (Part 2)

Construction Site: 6-chome, Rinkai-cho, Edogawa-ku, Tokyo

Client: Tokyo Metropolitan Government Construction Bureau Eastern Park Green Space Office

Construction Division Olympic / Paralympic Venue Maintenance Office

Designer: PACIFIC CONSULTANTS CO., LTD.

Builder: Bunkyo Denki Co., Ltd.

Construction Period: March 30, 2018-December 17, 2019

1	Did the Client or other involved party conduct risk assessments or take any other steps during the design stage or review hazards that must be considered during construction to reduce the risk of occupational accidents? Did the owner establish any other systems or measures? If yes, please note the specifics.	⇒No
2	Was BIM/CIM used during the design and/or construction stages? If so, please provide examples of how the use of BIM/CIM contributed to health and safety during construction.	⇒No
3	As the Client, are there any hazards you wish the designer had considered during the design stage? If yes, what hazards do you wish had been considered?	⇒No
4	Was the issue of reducing possible hazards during construction taken into consideration during the design stage? For example, did the Client and designer meet or otherwise coordinate on this issue? In the case of an inclusive order for both design and construction or ECI (early contractor involvement) or other contract, did the Client, designer, and Contractor hold meetings or otherwise coordinate from the initial design stage? If so, what type of issues did this coordination focus on?	NA
5	As the client, do you think that taking the elimination or reduction of risks into consideration from the design stage leads to better health and safety during construction? Please note your opinion regarding this question.	In our opinion, if the construction period can be set in consideration for work congestion with other related works, health and safety will be improved.

6	Please note the construction methods used and key elements adopted, including the implementation of risk assessments, to eliminate or reduce work risks during the design and/or construction stages. In these cases, please note the stage at which these methods and elements were adopted. (Give examples of constructions and methods that saved labor or mechanized process, including construction cases and new technologies.)	NA
7	Did any measures focus on preventing the falls, collisions, or public injury that often occur during construction work? If so, please note the measures that were taken.	⇒Yes Implementation of construction safety patrol.
8	Did any measures focus on ensuring a safe, secure, and rewarding worksite for women and younger workers? If so, please note the measures that were taken.	Women-Oriented Initiatives ⇒No
		Youth-Oriented Initiatives ⇒No
9	Please note any other health and safety measures taken during construction on this project that seem to you, as the client, unique.	Since multiple works are in operation at the site, a weekly process liaison meeting was held with the client to share the schedule of each operation and safety management information.
10	What occupational accident prevention measures do you wish to see the construction industry retain in the future? These do not need to be examples of measures actually taken. Please note your opinion as a client ordering construction.	Securing construction technology and site supervision ability.
11	Please note your impressions of the construction of facilities for the Olympic and Paralympic Games.	When constructing the competition facility, it was difficult to coordinate with external organizations (ICF, Organising Committee, Olympic Bureau, etc.) within a limited time. However, the designers, the contractors, and the clients came together as one to complete the coordination successfully.

6-10. Construction Project Name: Canoe Slalom Venue Development

Construction Site: 6-chome, Rinkai-cho, Edogawa-ku, Tokyo

Client: Tokyo Metropolitan Government Construction Bureau Eastern Park Green Space Office

Construction Division Olympic / Paralympic Venue Maintenance Office

Designer: PACIFIC CONSULTANTS CO., LTD.

Builder: Koike, Seibu, Tsuboi Kensetsu Joint Venture

Construction Period: June 8, 2017-May 31, 2019

1	Did the Client or other involved party conduct risk assessments or take any other steps during the design stage or review hazards that must be considered during construction to reduce the risk of occupational accidents? Did the owner establish any other systems or measures? If yes, please note the specifics.	⇒Yes In order to reduce the impact on the metropolitan park adjacent to the construction area, a temporary enclosure (height of 3 meters) was installed at the site boundary to ensure safety during construction. In addition, the construction vehicle route was established away from the park.
2	Was BIM/CIM used during the design and/or construction stages? If so, please provide examples of how the use of BIM/CIM contributed to health and safety during construction.	⇒No
3	As the Client, are there any hazards you wish the designer had considered during the design stage? If yes, what hazards do you wish had been considered?	⇒No
4	Was the issue of reducing possible hazards during construction taken into consideration during the design stage? For example, did the Client and designer meet or otherwise coordinate on this issue? In the case of an inclusive order for both design and construction or ECI (early contractor involvement) or other contract, did the Client, designer, and Contractor hold meetings or otherwise coordinate from the initial design stage? If so, what type of issues did this coordination focus on?	Since multiple construction are duplicated in the venue development, a construction step diagram was created out of consideration for workability and the construction time at the site was adjusted in advance.
5	As the client, do you think that taking the elimination or reduction of risks into consideration from the design stage leads to better health and safety during construction? Please note your opinion regarding this question.	While it is necessary to investigate such things during the design stage, it might be that there will be a difference in ability of the designers (client design staff, design consultant) to accurately ascertain risks.

6	Please note the construction methods used and key elements adopted, including the implementation of risk assessments, to eliminate or reduce work risks during the design and/or construction stages. In these cases, please note the stage at which these methods and elements were adopted. (Give examples of constructions and methods that saved labor or mechanized process, including construction cases and new technologies.)	NA
7	Did any measures focus on preventing the falls, collisions, or public injury that often occur during construction work? If so, please note the measures that were taken.	⇒Yes Based on accident cases at other sites, a full inspection of the site was made and members were informed of safety measures.
8	Did any measures focus on ensuring a safe, secure, and rewarding worksite for women and younger workers? If so, please note the measures that were taken.	Women-Oriented Initiatives ⇒Yes At the contractor's field office, a women-only toilet and a dedicated break room were installed to ensure comfort for women. Youth-Oriented Initiatives ⇒Yes On the contractor side, efforts were made to improve the image of the construction industry among youth and the community as a whole by installing comfortable toilets and measures against heat stroke by using air-conditioned clothes and installing ice makers to improve the working environment.
9	Please note any other health and safety measures taken during construction on this project that seem to you, as the client, unique.	Since multiple works are in operation at the site, a weekly process liaison meeting was held with the client to share the schedule of each operation and safety management information. In order to reduce long working hours, management was implemented by using recordkeeping of site entry and exit times of all workers (including prime contractors and subcontractors).
10	What occupational accident prevention measures do you wish to see the construction industry retain in the future? These do not need to be examples of measures actually taken. Please note your opinion as a client ordering construction.	Each accident case that has occurred so far is valuable teaching material for preventing future occupational accidents. There is no guarantee of safety at a site. Safety management means that each person working there is aware of the risks and acts accordingly.
11	Please note your impressions of the construction of facilities for the Olympic and Paralympic Games.	The construction of Japan's first artificial canoe slalom competition facility was a series of trial and error from design to construction, but the designers, the contractors, and the clients came together to complete a wonderful competition facility.

6-11. Construction Project Name: Canoe Slalom Venue Electrical Equipment Construction (Part 2)

Construction Site: 6-chome, Rinkai-cho, Edogawa-ku, Tokyo

Client: Tokyo Metropolitan Government Construction Bureau Eastern Park Green Space Office

Construction Division Olympic / Paralympic Venue Maintenance Office

Designer: PACIFIC CONSULTANTS CO., LTD.

Builder: ICT Field Support Co., Ltd.

Construction Period: October 7, 2019-January 31, 2020

1	Did the Client or other involved party conduct risk assessments or take any other steps during the design stage or review hazards that must be considered during construction to reduce the risk of occupational accidents? Did the owner establish any other systems or measures? If yes, please note the specifics.	⇒No
2	Was BIM/CIM used during the design and/or construction stages? If so, please provide examples of how the use of BIM/CIM contributed to health and safety during construction.	⇒No
3	As the Client, are there any hazards you wish the designer had considered during the design stage? If yes, what hazards do you wish had been considered?	⇒No
4	Was the issue of reducing possible hazards during construction taken into consideration during the design stage? For example, did the Client and designer meet or otherwise coordinate on this issue? In the case of an inclusive order for both design and construction or ECI (early contractor involvement) or other contract, did the Client, designer, and Contractor hold meetings or otherwise coordinate from the initial design stage? If so, what type of issues did this coordination focus on?	NA
5	As the client, do you think that taking the elimination or reduction of risks into consideration from the design stage leads to better health and safety during construction? Please note your opinion regarding this question.	In our opinion, if the construction period can be set in consideration for work congestion with other related works, health and safety will be improved.

6	Please note the construction methods used and key elements adopted, including the implementation of risk assessments, to eliminate or reduce work risks during the design and/or construction stages. In these cases, please note the stage at which these methods and elements were adopted. (Give examples of constructions and methods that saved labor or mechanized process, including construction cases and new technologies.)	NA
7	Did any measures focus on preventing the falls, collisions, or public injury that often occur during construction work? If so, please note the measures that were taken.	⇒Yes Implementation of construction safety patrol.
8	Did any measures focus on ensuring a safe, secure, and rewarding worksite for women and younger workers? If so, please note the measures that were taken.	Women-Oriented Initiatives ⇒No
		Youth-Oriented Initiatives ⇒No
9	Please note any other health and safety measures taken during construction on this project that seem to you, as the client, unique.	Since multiple works are in operation at the site, a weekly process liaison meeting was held with the client to share the schedule of each operation and safety management information.
10	What occupational accident prevention measures do you wish to see the construction industry retain in the future? These do not need to be examples of measures actually taken. Please note your opinion as a client ordering construction.	Securing construction technology and site supervision ability.
11	Please note your impressions of the construction of facilities for the Olympic and Paralympic Games.	When constructing the competition facility, it was difficult to coordinate with external organizations (ICF, Organising Committee, Olympic Bureau, etc.) within a limited time. However, the designers, the contractors, and the clients came together as one to complete the coordination successfully.

6-12. Construction Project Name: Canoe Slalom Venue Electrical Equipment Construction (Part 3) Part 2

Construction Site: 6-chome, Rinkai-cho, Edogawa-ku, Tokyo

Client: Tokyo Metropolitan Government Construction Bureau Eastern Park Green Space Office

Construction Division Olympic / Paralympic Venue Maintenance Office

Designer: PACIFIC CONSULTANTS CO., LTD.

Builder: YASKAWA Electric Corporation

Construction Period: October 1, 2019-January 31, 2020

1	Did the Client or other involved party conduct risk assessments or take any other steps during the design stage or review hazards that must be considered during construction to reduce the risk of occupational accidents? Did the owner establish any other systems or measures? If yes, please note the specifics.	⇒No
2	Was BIM/CIM used during the design and/or construction stages? If so, please provide examples of how the use of BIM/CIM contributed to health and safety during construction.	⇒No
3	As the Client, are there any hazards you wish the designer had considered during the design stage? If yes, what hazards do you wish had been considered?	⇒No
4	Was the issue of reducing possible hazards during construction taken into consideration during the design stage? For example, did the Client and designer meet or otherwise coordinate on this issue? In the case of an inclusive order for both design and construction or ECI (early contractor involvement) or other contract, did the Client, designer, and Contractor hold meetings or otherwise coordinate from the initial design stage? If so, what type of issues did this coordination focus on?	NA
5	As the client, do you think that taking the elimination or reduction of risks into consideration from the design stage leads to better health and safety during construction? Please note your opinion regarding this question.	In our opinion, if the construction period can be set in consideration for work congestion with other related works, health and safety will be improved.

6	Please note the construction methods used and key elements adopted, including the implementation of risk assessments, to eliminate or reduce work risks during the design and/or construction stages. In these cases, please note the stage at which these methods and elements were adopted. (Give examples of constructions and methods that saved labor or mechanized process, including construction cases and new technologies.)	NA
7	Did any measures focus on preventing the falls, collisions, or public injury that often occur during construction work? If so, please note the measures that were taken.	⇒Yes Implementation of construction safety patrol.
8	Did any measures focus on ensuring a safe, secure, and rewarding worksite for women and younger workers? If so, please note the measures that were taken.	Women-Oriented Initiatives ⇒No Youth-Oriented Initiatives ⇒Yes Technology succession by conducting construction site inspections.
9	Please note any other health and safety measures taken during construction on this project that seem to you, as the client, unique.	Since multiple works are in operation at the site, a weekly process liaison meeting was held with the client to share the schedule of each operation and safety management information.
10	What occupational accident prevention measures do you wish to see the construction industry retain in the future? These do not need to be examples of measures actually taken. Please note your opinion as a client ordering construction.	Securing construction technology and site supervision ability.
11	Please note your impressions of the construction of facilities for the Olympic and Paralympic Games.	When constructing the competition facility, it was difficult to coordinate with external organizations (ICF, Organising Committee, Olympic Bureau, etc.) within a limited time. However, the designers, the contractors, and the clients came together as one to complete the coordination successfully.

6-13. Construction Project Name: Canoe Slalom Venue Electrical Equipment Construction

Construction Site: 6-chome, Rinkai-cho, Edogawa-ku, Tokyo

Client: Tokyo Metropolitan Government Construction Bureau Eastern Park Green Space Office

Construction Division Olympic / Paralympic Venue Maintenance Office

Designer: PACIFIC CONSULTANTS CO., LTD.

Builder: YASKAWA Electric Corporation

Construction Period: November 7, 2017-May 31, 2019

1	Did the Client or other involved party conduct risk assessments or take any other steps during the design stage or review hazards that must be considered during construction to reduce the risk of occupational accidents? Did the owner establish any other systems or measures? If yes, please note the specifics.	⇒No
2	Was BIM/CIM used during the design and/or construction stages? If so, please provide examples of how the use of BIM/CIM contributed to health and safety during construction.	⇒No
3	As the Client, are there any hazards you wish the designer had considered during the design stage? If yes, what hazards do you wish had been considered?	⇒No
4	Was the issue of reducing possible hazards during construction taken into consideration during the design stage? For example, did the Client and designer meet or otherwise coordinate on this issue? In the case of an inclusive order for both design and construction or ECI (early contractor involvement) or other contract, did the Client, designer, and Contractor hold meetings or otherwise coordinate from the initial design stage? If so, what type of issues did this coordination focus on?	NA
5	As the client, do you think that taking the elimination or reduction of risks into consideration from the design stage leads to better health and safety during construction? Please note your opinion regarding this question.	In our opinion, if the construction period can be set in consideration for work congestion with other related works, health and safety will be improved.

6	Please note the construction methods used and key elements adopted, including the implementation of risk assessments, to eliminate or reduce work risks during the design and/or construction stages. In these cases, please note the stage at which these methods and elements were adopted. (Give examples of constructions and methods that saved labor or mechanized process, including construction cases and new technologies.)	NA
7	Did any measures focus on preventing the falls, collisions, or public injury that often occur during construction work? If so, please note the measures that were taken.	⇒Yes Implementation of construction safety patrol.
8	Did any measures focus on ensuring a safe, secure, and rewarding worksite for women and younger workers? If so, please note the measures that were taken.	Women-Oriented Initiatives ⇒No Youth-Oriented Initiatives ⇒Yes Technology succession by conducting construction site inspections.
9	Please note any other health and safety measures taken during construction on this project that seem to you, as the client, unique.	Since multiple works are in operation at the site, a weekly process liaison meeting was held with the client to share the schedule of each operation and safety management information.
10	What occupational accident prevention measures do you wish to see the construction industry retain in the future? These do not need to be examples of measures actually taken. Please note your opinion as a client ordering construction.	Securing construction technology and site supervision ability.
11	Please note your impressions of the construction of facilities for the Olympic and Paralympic Games.	When constructing the competition facility, it was difficult to coordinate with external organizations (ICF, Organising Committee, Olympic Bureau, etc.) within a limited time. However, the designers, the contractors, and the clients came together as one to complete the coordination successfully.

6-14. Construction Project Name: Canoe Slalom Venue Pavement Construction

Construction Site: 6-chome, Rinkai-cho, Edogawa-ku, Tokyo

Client: Tokyo Metropolitan Government Construction Bureau Eastern Park Green Space Office

Construction Division Olympic / Paralympic Venue Maintenance Office

Designer: PACIFIC CONSULTANTS CO., LTD.

Builder: TAKANAKA Corporation

Construction Period: November 5, 2019-February 10, 2020

1	Did the Client or other involved party conduct risk assessments or take any other steps during the design stage or review hazards that must be considered during construction to reduce the risk of occupational accidents? Did the owner establish any other systems or measures? If yes, please note the specifics.	⇒No
2	Was BIM/CIM used during the design and/or construction stages? If so, please provide examples of how the use of BIM/CIM contributed to health and safety during construction.	⇒No
3	As the Client, are there any hazards you wish the designer had considered during the design stage? If yes, what hazards do you wish had been considered?	⇒No
4	Was the issue of reducing possible hazards during construction taken into consideration during the design stage? For example, did the Client and designer meet or otherwise coordinate on this issue? In the case of an inclusive order for both design and construction or ECI (early contractor involvement) or other contract, did the Client, designer, and Contractor hold meetings or otherwise coordinate from the initial design stage? If so, what type of issues did this coordination focus on?	No
5	As the client, do you think that taking the elimination or reduction of risks into consideration from the design stage leads to better health and safety during construction? Please note your opinion regarding this question.	When a contractor's technical ability is low, the knowledge and ability regarding health and safety are often low. By carefully examining the contents related to health and safety such as temporary design drawings from the design stage and attaching materials related to health and safety, such as temporary design drawings as reference drawings, when ordering, the quality of safety consideration can be ensured at a certain level and construction work. It is our opinion that such actions will greatly improve the safety of the construction.

6	Please note the construction methods used and key elements adopted, including the implementation of risk assessments, to eliminate or reduce work risks during the design and/or construction stages. In these cases, please note the stage at which these methods and elements were adopted. (Give examples of constructions and methods that saved labor or mechanized process, including construction cases and new technologies.)	NA
7	Did any measures focus on preventing the falls, collisions, or public injury that often occur during construction work? If so, please note the measures that were taken.	⇒No
8	Did any measures focus on ensuring a safe, secure, and rewarding worksite for women and younger workers? If so, please note the measures that were taken.	Women-Oriented Initiatives ⇒No
		Youth-Oriented Initiatives ⇒No
9	Please note any other health and safety measures taken during construction on this project that seem to you, as the client, unique.	NA
10	What occupational accident prevention measures do you wish to see the construction industry retain in the future? These do not need to be examples of measures actually taken. Please note your opinion as a client ordering construction.	Review of contracting and ordering methods and construction industry-related regulations to ensure that construction is carried out by contractors with experience and technical skills appropriate to the size, content and difficulty of the work. If a contractor lacking in personnel or a contractor who can only assign engineers with little on-site experience to match this project wins a bid for construction, there is a risk that the site management and eventually safety measures will be delayed because not every corner of the site will be noticed. Therefore, it is necessary to revise the construction contracts and related systems of the construction industry in order to make sure the right people are in the right places.
11	Please note your impressions of the construction of facilities for the Olympic and Paralympic Games.	In order to strictly adherence to the construction period, it seems that both the client and the contractor spent a lot of effort in order to proceed with the construction while coordinating a large number of construction contracts and contractors on the same site.

7. Tokyo Aquatics Centre

Construction Project Name: Tokyo Aquatics Centre (working name) New Construction

Construction Site: 2-2 Tatsumi, Koto-ku, Tokyo

Client: Tokyo Metropolitan Government

Designer: Basic Design: YAMASHITA SEKKEI INC.

Final Design: OBAYASHI CORPORATION, TOKO ELECTRICAL CONSTRUCTION CO., LTD.,
ERGOTECH CO., LTD., TONETS CORPORATION Joint Venture

Builder: OBAYASHI CORPORATION, TOKO ELECTRICAL CONSTRUCTION CO., LTD., ERGOTECH
CO., LTD., TONETS CORPORATION Joint Venture

Construction Period: October 3, 2016-February 28, 2020

1	Did the Client or other involved party conduct risk assessments or take any other steps during the design stage or review hazards that must be considered during construction to reduce the risk of occupational accidents? Did the owner establish any other systems or measures? If yes, please note the specifics.	<p>⇒Yes</p> <p>From the design stage, the plan has been to assemble the large roof (steel frame, roof, finishing work) on the ground and then raise it to the specified height by the lift-up method. This approach is expected to improve workability and safety.</p> <p>In order to prevent third-party accidents, a temporary design drawing that separates the flow lines of general people such as pedestrians inside and outside the construction site from the flow lines of construction vehicles were investigated and implemented during construction.</p>
2	Was BIM/CIM used during the design and/or construction stages? If so, please provide examples of how the use of BIM/CIM contributed to health and safety during construction.	<p>⇒Yes</p> <p>Virtual construction simulation was made possible using BIM. Such construction simulation made it possible to verify in advance whether there would be any dangers or difficulties during construction, thereby making it possible to eliminate sure dangers in advance to ensure safety, contributing to the overall health and safety of the project.</p>
3	As the Client, are there any hazards you wish the designer had considered during the design stage? If yes, what hazards do you wish had been considered?	<p>⇒No</p>
4	Was the issue of reducing possible hazards during construction taken into consideration during the design stage? For example, did the Client and designer meet or otherwise coordinate on this issue? In the case of an inclusive order for both design and construction or ECI (early contractor involvement) or other contract, did the Client, designer, and Contractor hold meetings or otherwise coordinate from the initial design stage? If so, what type of issues did this coordination focus on?	<p>During the overall regular meetings and task force meetings in the design stage, the clients, designers, supervisors and contractors worked together to ensure safety, investigate construction issues, and to achieve coordination between all facets of the construction project.</p>

5	As the client, do you think that taking the elimination or reduction of risks into consideration from the design stage leads to better health and safety during construction? Please note your opinion regarding this question.	It is our opinion that studying ways to reduce site risks during the design states helps improve health and safety during construction.
6	Please note the construction methods used and key elements adopted, including the implementation of risk assessments, to eliminate or reduce work risks during the design and/or construction stages. In these cases, please note the stage at which these methods and elements were adopted. (Give examples of constructions and methods that saved labor or mechanized process, including construction cases and new technologies.)	<p>Construction stage</p> <p>Work areas, restricted areas around heavy machinery, and color cones used to display work passages are displayed in different colors. The goal was to realize visualization of danger.</p> <p>Digital signage was posted at the morning assembly venue and meeting rooms to make it easier to visually inform workers of daily safety.</p>
7	Did any measures focus on preventing the falls, collisions, or public injury that often occur during construction work? If so, please note the measures that were taken.	<p>⇒Yes</p> <p>Workers in high places used the full-harness-type fall arrest system.</p> <p>For the overhanging stand exterior work, work based on risk assessment was based on a plan to build a temporary stage on the entire surface up to the 3rd floor and reduce work in high places by reducing the height of the external scaffolding above the stage. A procedure manual was implemented and communicated to the workers.</p> <p>For the scaffolding, the advanced guardrail construction method was used for the scaffolding and measures for higher safety were implemented.</p>
8	Did any measures focus on ensuring a safe, secure, and rewarding worksite for women and younger workers? If so, please note the measures that were taken.	<p>Women-Oriented Initiatives</p> <p>⇒Yes</p> <p>Improvements were made to the working environment by installing women-only toilets and changing rooms.</p> <p>Discussion meetings and on-site patrols between female engineers and technicians were held to promote communication and technical exchange.</p> <p>Youth-Oriented Initiatives</p> <p>⇒Yes</p> <p>A training team was formed, a program to educate the youth was formulated, and various trainings were conducted according to the process and details of the construction.</p> <p>The taking of planned days off was promoted, and overtime hours were reduced using a suitable operation system.</p> <p>Information on work performed by the youth and various environmental improvement efforts was widely disseminated to society through public relations media such as the websites of contractors and partner companies.</p>

9	Please note any other health and safety measures taken during construction on this project that seem to you, as the client, unique.	<p>There were many inspections of the construction site by the IOC, IF, and a variety domestic and foreign media at the time of construction. At times it was difficult to support such visits as it meant safety and process management, such as setting up a safety zones along the inspection routes and other adjustments to the construction site on the days such inspections took place.</p> <p>Monthly construction explanations and discussions were held with the designated manager of Tokyo Tatsumi International Swimming Center. When the games are held with many participants and the surrounding roads are congested, traffic guides will be stationed at the "Tatsumi no Mori" intersection to prevent traffic accidents and public disasters.</p> <p>State-of-the-art construction management using digital tablets made it so that the situation and technical data of the site are stored in a server on the cloud, and can be accessed from the tablets using Wi-Fi on the site to ensure that the latest information was always available.</p>
10	What occupational accident prevention measures do you wish to see the construction industry retain in the future? These do not need to be examples of measures actually taken. Please note your opinion as a client ordering construction.	<p>In our opinion, front-loading the study of ways to prevent occupational accidents at the construction site while still in the design stage is an effective countermeasure to prevent occupational accidents.</p>
11	Please note your impressions of the construction of facilities for the Olympic and Paralympic Games.	<p>Since the construction site captured worldwide attention, a wide range of activities such as strict adherence to the construction period, security measures, use of environmentally friendly materials, and accessibility support were implemented in addition to health and safety management. In our opinion, in addition to satisfying the functions required of the Olympic and Paralympic Games facilities, construction personnel working toward the completion of the best swimming pool, such as by realizing facilities that are easy for users and managers to use, including Tokyo residents, made it easier for people involved in the field to hold common understanding, resulting in an increased sense of unity at the site.</p>

8. New Construction and Dismantling of Olympic Village

Construction Project Name: New Construction and Dismantling of Olympic Village

Construction Site: 5-9 Harumi, Chuo-ku, Tokyo, Other

Client: Mitsui Fudosan Residential Co., Ltd., NTT Urban Development, NIPPON STEEL KOWA REAL ESTATE CO., LTD., SUMITOMO CORPORATION, Sumitomo Realty & Development Co., Ltd., Daiwa House Industry Co., Ltd., TOKYU LAND CORPORATION, Tokyo Tatemono Co., Ltd., Nomura Real Estate Development Co., Ltd., Mitsubishi Estate Residence Co., Ltd.

Designer: See Appendix

Builder: See Appendix

Construction Period: January 18, 2017-December 31, 2019

1	Did the Client or other involved party conduct risk assessments or take any other steps during the design stage or review hazards that must be considered during construction to reduce the risk of occupational accidents? Did the owner establish any other systems or measures? If yes, please note the specifics.	<p>⇒Yes</p> <p>To create the design documents, the construction conditions at the site were thoroughly studied. For the building frame construction, the goal is to reduce the amount of work in high places and edges and reduce the risk of workers falling by extensively using the PCa construction method.</p> <p>During the structural design stage, the benefits of the Design-Build were leveraged. At the detailed design stage, knowledge of construction and manufacturing was used to create implementation design drawings with the cooperation of specialized contractors.</p>
2	Was BIM/CIM used during the design and/or construction stages? If so, please provide examples of how the use of BIM/CIM contributed to health and safety during construction.	<p>⇒No</p>
3	As the Client, are there any hazards you wish the designer had considered during the design stage? If yes, what hazards do you wish had been considered?	<p>⇒No</p>
4	Was the issue of reducing possible hazards during construction taken into consideration during the design stage? For example, did the Client and designer meet or otherwise coordinate on this issue? In the case of an inclusive order for both design and construction or ECI (early contractor involvement) or other contract, did the Client, designer, and Contractor hold meetings or otherwise coordinate from the initial design stage? If so, what type of issues did this coordination focus on?	<p>Regular four-party meetings with the client, supervisor, designer, and contractor are held to check the construction conditions.</p>

5	As the client, do you think that taking the elimination or reduction of risks into consideration from the design stage leads to better health and safety during construction? Please note your opinion regarding this question.	By designing with due consideration of construction conditions, it will be possible to identify risks and take countermeasures in advance, including the construction method. This approach will contribute to improvements.
6	Please note the construction methods used and key elements adopted, including the implementation of risk assessments, to eliminate or reduce work risks during the design and/or construction stages. In these cases, please note the stage at which these methods and elements were adopted. (Give examples of constructions and methods that saved labor or mechanized process, including construction cases and new technologies.)	<p>Risk assessment of each work based on past accidents cases and near misses was performed and the results were posted to inform the workers.</p> <p>By incorporating the characteristics of the workplace into the results of the above risk assessment and into the work procedure manuals created by the collaborators, it will be possible to carry out risk reduction activities after understanding the risks more concretely.</p> <p>In order to increase the level of accident prevention activities, the accuracy of risk prediction is being improved by incorporating risk assessment methods into risk prediction activities conducted by workers on the front lines.</p> <p>Based on the "likelihood" and "severity" of the hazards identified in the hazard prediction activities, the "evaluation" (magnitude of risk) is quantified. Countermeasures for the most important items are formulated. In addition, additional safety measures are implemented immediately for particularly dangerous work.</p> <p>During the structural design stage, the benefits of the Design-Build was leveraged. At the detailed design stage, knowledge of construction and manufacturing was used to create the detailed design drawings with the cooperation of specialized contractors.</p>
7	Did any measures focus on preventing the falls, collisions, or public injury that often occur during construction work? If so, please note the measures that were taken.	<p>⇒Yes</p> <p>Same as above</p>
8	Did any measures focus on ensuring a safe, secure, and rewarding worksite for women and younger workers? If so, please note the measures that were taken.	<p>Women-Oriented Initiatives</p> <p>⇒Yes</p> <p>We are aiming to create a comfortable workplace by installing changing rooms, toilets, shower rooms, etc. exclusively for women.</p> <p>As a result of jointly registering with the "Kensetsu-Komachi" Construction Team of the Japan Federation of Construction Contractors and promoting activities, the four prime contractors who were involved in the construction in the area received the "Kensetsu- Komachi" Activity Promotion Special Award.</p> <p>Youth-Oriented Initiatives</p> <p>⇒Yes</p> <p>Awards are given to workers who have contributed to the improvement of the level of health and safety during Health and Safety Week and safety competitions.</p>

9	Please note any other health and safety measures taken during construction on this project that seem to you, as the client, unique.	Since it was a project in which the design company and the construction company were different across the various blocks of the city, and since it was necessary to proceed with construction at the same time, a cycle was established for the sharing information regularly as a whole to make it possible to share the knowledge of each company to prevent and solve issues.
10	What occupational accident prevention measures do you wish to see the construction industry retain in the future? These do not need to be examples of measures actually taken. Please note your opinion as a client ordering construction.	It is our opinion that it is important to share the causes and countermeasures of incidents at each site and pass on that information so that occupational accidents caused by similar causes will not be repeated.
11	Please note your impressions of the construction of facilities for the Olympic and Paralympic Games.	Since it was not a simple development project but a development of a town that will be handed down to future generations as a legacy, it was extremely complicated to keep construction activities reliable and safe in the midst of the congestion of conducting not only the construction of specific buildings but also of various infrastructure and revetment development. Fortunately, success was achieved thanks to the cooperation of many related parties including the Tokyo Metropolitan Government. We are committed to continue to collaborate with all concerned parties and aim for the completion of the construction.

Report on the implementation status of health and safety measures in the construction of the Olympic facility

Construction Project Name	Harumi 5-chome West District Type 1 Urban Redevelopment Project 5-3 Block Building Construction (working name)
Construction site	5-11 Harumi, Chuo-ku, Tokyo, and other (within 5-3 blocks)
Client	Specified Builder Representative Company: Mitsui Fudosan Residential Co., Ltd., and association of nine companies
Contractors	Designer: Nikken Housing System Ltd, TOKYU CONSTRUCTION CO., LTD., Joint Venture Builder: Building Project Metropolitan Branch, TOKYU CONSTRUCTION CO., LTD.
Construction Period	January 18, 2017-December 31, 2019

Outline of construction

Application scale: four plate-shaped houses + parking lot building

Building A: 384 units on the 17th floor

Building B: 382 units on the 17th floor

Building C: 378 units on the 15th floor

Building D: 393 units on the 15th floor

Buildings A to D total: 1537 units

Structure: Reinforced concrete construction

Foundation of residential part: cast-in-place concrete pile

Parking lot foundation: Direct foundation

Site area: 26,300.14m²

Report on the implementation status of health and safety measures in the construction of the Olympic facility

Construction Project Name	Harumi 5-chome West District Type 1 Urban Redevelopment Project 5-4 Block Building Construction (working name)
Construction site	5-502 Harumi, Chuo-ku, Tokyo (within 5-4 blocks)
Client	Specified Builder Representative Company: Mitsui Fudosan Residential Co., Ltd., and association of nine companies
Contractors	Designer: NIHON SEKKEI, INC., HASEKO Corporation, Joint Venture Builder: HASEKO Corporation
Construction Period	January 18, 2017-December 31, 2019

Outline of construction

Application scale: five apartment buildings

Building A: 179 units on the 18th floor

Building B: 78 units on the 14th floor

Building C: 78 units on the 14th floor

Building D: 177 units on the 18th floor

Building E: 174 units on the 18th floor

Buildings A to E total: 688 units

Structure: Reinforced concrete construction

Cast steel pipe concrete pile (STBC-SRII pile)

Parking lot foundation: Direct foundation

Site area: 23,633.2m²

Report on the implementation status of health and safety measures in the construction of the Olympic facility

Construction Project Name	Harumi 5-chome West District Type 1 Urban Redevelopment Project 5-5 Block Plate-Shaped Building Construction (working name)
Construction site	5-11 Harumi, Chuo-ku, Tokyo (within 5-5 blocks)
Client	Specified Builder Representative Company: Mitsui Fudosan Residential Co., Ltd., and association of nine companies
Contractors	Designer: Mitsubishi Jisho Sekkei Inc., MAEDA CORPORATION, Joint Venture Builder: Tokyo Building Construction Branch, MAEDA CORPORATION
Construction Period	January 18, 2017-December 31, 2019

Outline of construction

Application scale: six plate-shaped houses + parking lot building

Building A: 102 units on the 14th floor

Building B: 277 units on the 14th floor

Building C: 236 units on the 16th floor

Building D: 130 units on the 14th floor

Building E: 150 units on the 18th floor

Building F: 194 units on the 18th floor

Buildings A to F total: 1,089 units

Structure: Reinforced concrete construction

Pile for Housing Area: cast-in-place concrete pile

Pile for parking lot: ready-made concrete pile

Site area: 31,292.55m²

Report on the implementation status of health and safety measures in the construction of the Olympic facility

Construction Project Name	Harumi 5-chome West District Type 1 Urban Redevelopment Project 5-6 Block Plate-Shaped Building Construction (working name)
Construction site	504 Harumi, Chuo-ku, Tokyo (within 5-6 blocks)
Client	Specified Builder Representative Company: Mitsui Fudosan Residential Co., Ltd., and association of nine companies
Contractors	Designer: Nikken Housing System Ltd, Sumitomo Mitsui Construction Co., Ltd., The Office of Registered Architects, Joint Venture Builder: Tokyo Building Construction Branch, Sumitomo Mitsui Construction Co., Ltd.
Construction Period	January 18, 2017-December 31, 2019

Outline of construction

Application scale: six plate-shaped houses + parking lot building

Building A: 89 units on the 14th floor

Building B: 194 units on the 18th floor

Building C: 217 units on the 18th floor

Building D: 104 units on the 14th floor

Building E: 148 units on the 16th floor

Building F: 163 units on the 14th floor

Buildings A to F total: 915 units

Structure: Reinforced concrete construction

Pile for Housing Area: cast-in-place concrete pile

Pile for parking lot: ready-made concrete pile

4. Occupational Accident Prevention Measures to Be Passed on to Future Construction Industry as a Legacy

The Council for Health and Safety Measures for the Construction of Facilities for the Tokyo 2020 Olympic and Paralympic Games has established the Basic Policy for Health and Safety Measures for the Construction of Facilities for the Tokyo 2020 Olympic and Paralympic Games. The main points of the basic policy are as follows:

- 1) Health and safety measures by clients: Health and safety measures should start at the ordering and design stage so that serious risks such as occupational and public accidents can be better addressed.
- 2) Promotion of risk assessment and so forth: Drastic risk reduction measures including selection of construction method itself, thorough risk assessment, and detailed health and safety training for construction workers.
- 3) Thorough prevention of fall accidents: Focusing on the prevention of fall accidents and public disasters, which are common in construction work
- 4) Creating more attractive construction sites: Creating construction sites where women and young people can work safely, securely, and with satisfaction

In the past, the role of occupational health and safety oversight during construction has been mostly played by contractors, but the above basic policy states that the role should not be only for contractors but also for clients and designers.

On the other hand, as a part of the project for the prevention of occupational accidents in response to the demand for construction related to the Tokyo 2020 Olympic and Paralympic Games, which was entrusted to the Japan Construction Occupational Safety and Health Association by the Ministry of Health, Labour and Welfare, this report summarizes the Occupational Accident Prevention Measures to Be Passed on to Future Construction Industry as a Legacy. As the government declared a state of emergency immediately after the start of this project due to COVID-19, the committee was forced to hold its meetings by reviewing documents instead of holding face-to-face meetings in order to deal with the infection.

Despite this situation, we were able to conduct the survey based on the form of questionnaire prepared in accordance with the above basic policy in order to collect best practices of occupational accident prevention measures that should be passed on as a legacy from the construction projects related to the Tokyo 2020 Olympic and Paralympic Games. The questionnaire was sent to the main parties (clients) involved in the construction projects, and then they had kindly responded. The form of the questionnaire is designed to identify the specific measures that have been taken, matters that can be used in the future, and matters that will be issues in the future in response to the basic policy as described above. In this report, a certain number of questionnaires were collected, and from the results of these questionnaires, the Occupational Accident Prevention Measures to Be Passed on to Future Construction Industry as a Legacy was summarized as

follows:

- 1) Health and safety measures by clients: At the basic design, detailed design, and construction stages, the clients hold regular meetings with designers and contractors to set appropriate construction periods and to verify health and safety, and then they review those as appropriate to ensure communication among the three parties involved. In addition, the clients interview the contractors to confirm that the necessary expenses for health and safety measures during construction are properly accounted for so as not to compromise health and safety.
- 2) Promotion of risk assessment and so forth: Clients adopt the appropriate construction methods that take into account health and safety during construction from the design stage. BIM/CIM (Building Information Modeling or Construction Information Modeling) is used in the design phase to speed up communication, improve drafting efficiency, check inconsistencies, and visualize design content using VR and other means. In addition, virtual construction simulations using BIM/CIM are carried out to eliminate or reduce risks in advance by identifying the presence or absence of risks and difficult tasks during construction. It also leads to the clarification and rationalization of the construction process at the construction stage.
- 3) Thorough prevention of fall accidents: The roof is assembled as a unit on the ground to reduce the work at heights as much as possible and to reduce the risk of accidents due to falls. The clients apply the precasting of foundations, floor slabs, columns, and so forth in order to improve the efficiency of on-site work. These initiatives not only shorten the construction period but also drastically improve health and safety.
- 4) Creating more attractive construction sites: In order to develop skills of young people, the company will award young leaders, provide health and safety training mainly for inexperienced workers who handle machines and tools, support women and young people by acquiring qualifications, improve the working environment from a woman's point of view (for example, by providing restrooms, napping rooms, and powder rooms), and display photographs of women and young people working in a rewarding environment on site.

Thus, we can see that not only efforts are being made to improve health and safety from the construction stage, but they are also expanding to include efforts to improve health and safety by the clients and designers. These initiatives will not only improve health and safety, but they will also contribute to more sophisticated design, more efficient and rational construction, shorter construction periods and more opportunities for women and young people to actively participate in the construction industry.

These initiatives are not limited to the special construction projects related to the Tokyo 2020 Olympic and Paralympic Games, but they also should be rolled out horizontally to the entire Japanese construction industry.

