

PROGRESS STATUS OF PROJECT PROPOSALS CONCERNING THE IMPERIAL STEEL WORKS AND ONGA RIVER PUMPING STATION

PROJECT PROPOSALS FOR THE IMPERIAL STEEL WORKS AND ONGA RIVER PUMPING STATION, COMPONENT PARTS OF THE “SITES OF JAPAN’S MEIJI INDUSTRIAL REVOLUTION: IRON AND STEEL, SHIPBUILDING, AND COAL MINING”

PREFACE

The purpose of this report is to give an update on the project proposals reported in 2017 for the Imperial Steel Works and Onga River Pumping Station, component parts of the “*Sites of Japan’s Meiji Industrial Revolution: Iron and Steel, Shipbuilding, and Coal Mining.*” While these projects are not regarded as having an adverse impact on the Outstanding Universal Value of these properties, this report is submitted in response to the technical review given by the World Heritage Centre in April 2018, and in accordance with the stipulation in the Operational Guidelines for the Implementation of the World Heritage Convention, Paragraph 172, to notify the World Heritage Committee of possible impacts, including positive ones, on conservation of the Outstanding Universal Value (OUV).

1. PROJECT PROPOSALS PREVIOUSLY REPORTED

These project proposals impact four buildings in two component parts of the *Sites of Japan’s Meiji Industrial Revolution: Iron and Steel, Shipbuilding, and Coal Mining*. The work concerns preservation and interpretation of assets inside the steel works, to which entry by the general public is currently restricted.

The two component parts noted above are the Imperial Steel Works and Onga River Pumping Station. The four buildings are the First Head Office, the Former Forge Shop, and the Repair Shop of the Imperial Steel Works, and the Onga River Pumping Station.

Project outline

First Head Office: Interior restoration and conservation was begun in May 2018, and by the end of July 2019, work was completed on the east portion of the ground floor.

Former Forge Shop: Aseismic design was conducted based on the results of the aseismic survey implemented in 2018. Construction methods are being studied that will enable the seismic reinforcement work to be performed in parallel with the building exterior conservation work.

Repair Shop: Aseismic design was conducted based on the results of the aseismic survey implemented in 2018. Construction methods are being studied that will enable the seismic reinforcement work to be performed in parallel with the building exterior conservation work.

Onga River Pumping Station: An additional aseismic survey was conducted, taking into consideration that it is a brick and steel-frame structure, and the aseismic design is currently under study.

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2. PROJECT PROGRESS STATUS

First Head Office: Interior restoration (reproduction and conservation) was begun in May 2018, and by the end of July 2019, work was completed on the east portion of the ground floor (approximately one-fourth of the work in terms of total floor space). The remaining work is currently under way, aiming for completion by the end of September 2020.

Former Forge Shop: Aseismic design work was carried out in FY2018 based on the results of the aseismic diagnosis performed in FY2017.

Repair Shop: Aseismic design work was carried out in FY2018 based on the results of the aseismic diagnosis performed in FY2017.

Onga River Pumping Station: An additional aseismic survey was conducted in FY2018, taking into consideration that it is a brick and steel-frame structure.

Conservation and management of the buildings of the Imperial Steel Works are carried out in cooperation with stakeholders, based on the General Principles and Strategic Framework for Conservation and Management formulated by the Cabinet Secretariat. Nippon Steel Corporation (renamed from Nippon Steel & Sumitomo Metal in April 2019), the owner of the property, drew up policies and plans in consultation with experts, and having obtained approval of the Yawata Local Conservation Council (Kitakyushu City and Nakama City, Cabinet Secretariat, etc.), reported the project proposal to the World Heritage Centre jointly with Kitakyushu City and Nakama City (“the municipalities”). Work was begun following a technical review by the Centre. Thereafter, the detailed specifications were decided while consulting with experts on engineering matters involved in the actual construction work. As the work proceeded, progress reports were submitted for approval to the Yawata Local Conservation Council. The reporting and approval process with these institutions will continue as the work is carried out.

Representatives of these institutions, as well as of the owner, Nippon Steel Corporation, are also members of the planning group responsible for drafting this project proposal.

3. SUPPLEMENTARY MATERIALS

3.1 Project description (progress)

These project proposals impact four buildings in two component parts of the *Sites of Japan's Meiji Industrial Revolution: Iron and Steel, Shipbuilding, and Coal Mining*, namely, the First Head Office, the Former Forge Shop, and the Repair Shop of the Imperial Steel Works, and the Onga River Pumping Station. The progress of each of the projects is as follows.

First Head Office: Interior restoration (reproduction and conservation) was begun in May 2018, and by the end of July 2019, work was completed on the east portion of the ground floor (approximately one-fourth of the work in terms of total floor space). The remaining work is currently under way, aiming for completion by the end of September 2020. Regarding public showing of the building, since the Imperial Steel Works is a working property, studies and discussions are being conducted carefully, including ways of avoiding any hindrance to the business activities of the owner. There are many issues for public showing, however. Detailed studies are therefore being conducted concerning methods for public showing within a scope that does not hinder the owner's business activities, and road and land design in the vicinity of the building.

Former Forge Shop: Aseismic design work was carried out in FY2018 based on the results of the aseismic diagnosis performed in FY2017. The design limits the number of columns to be reinforced to the minimum necessary, giving priority to interior reinforcement of the main building for preserving the internal steel frame and exterior appearance, the needs for safety, usability, mitigation of quake damage, and provision of reinforcing methods enabling quick restoration in case of damage. It should be noted also that construction methods are being studied that will enable the seismic reinforcement work to be performed in parallel with the building exterior conservation work (reported previously).

Repair Shop: Aseismic design work was carried out in FY2018 based on the results of the aseismic diagnosis performed in FY2017. The design limits the number of columns to be reinforced to the minimum necessary, giving priority to interior reinforcement of the main building for preserving the internal steel frame and the exterior appearance, the needs for safety, usability of building interior for operations and of the central wing crane¹, mitigation of quake damage, and provision of reinforcing methods enabling quick restoration in case of damage.

Onga River Pumping Station: An additional aseismic survey was conducted in FY2018, taking into consideration that it is a brick and steel-frame structure. The aseismic design is currently under study. The design will take into consideration the outside appearance of the building, safety, and usability of the building for operations.

¹ The cranes in the south and north wings and in the west annex are inoperable; but the existing cranes with high historical value located in the south and north wings will be retained, while the three hoist cranes in the south wing and west annex, which are relatively new and believed to be of little historical value, will be removed to enable continuation of operations in the building. Note also that construction methods are being studied that will enable the seismic reinforcement work to be performed in parallel with the building exterior conservation work (reported previously).

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Note also that construction methods are being studied that will enable the seismic reinforcement work to be performed in parallel with the building exterior conservation work (reported previously).



Repair Shop (view of west side)



Onga River Pumping Station
(view of west side)

3.1.1. First Head Office (from report by Nippon Steel Corporation)

FY2018 project (progress of interior conservation work in First Head Office)

I. Reported matters

This work began in May 2018, after a summary of the plans was reported at the 6th meeting of the Yawata Local Conservation Council on April 24. It is currently being carried out with technical support and supervision by engineering advisors introduced by domestic experts, and while confirming approaches, observing on site, and filing progress reports together with experts in Japan and in the local area. (Details: See 3.1.4)

Since about a year has passed since the work began, reports are given here on the “Current state of progress” that was to have been reported at the last Local Conservation Council meeting, and “Change of specifications for indoor exhibits premised on public showing, as requested by the municipalities.”

The detailed progress status has been updated in an interim report to the municipalities. (Reported January 18, 2019)

II. Work progress status

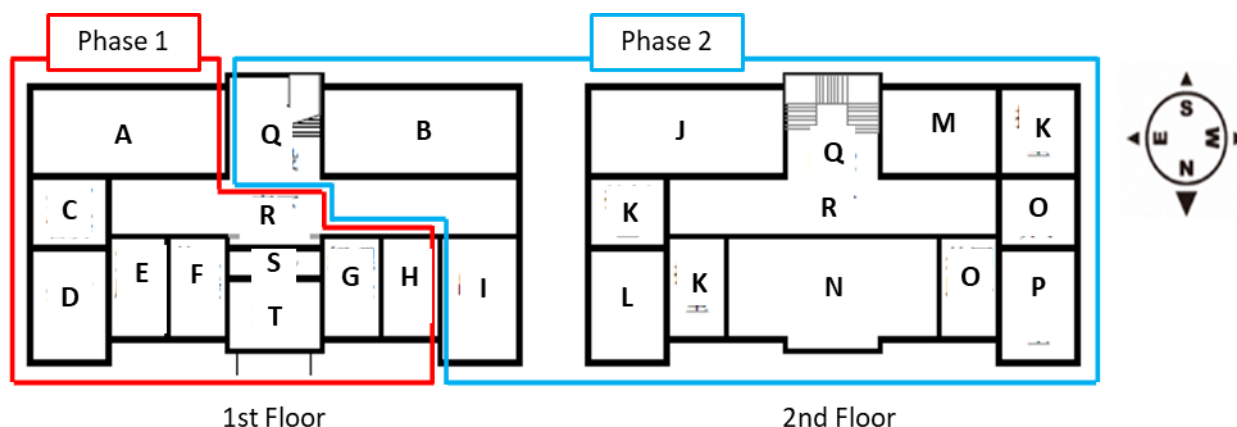
1. Basic policies

- (1) As a rule, the exterior (roof, walls) and existing seismic reinforcement members are to be retained as is.
- (2) The restoration work is to be based on remaining parts and materials, old photos, old drawings, and the initial First Head Office study report (September 1998, Dr. Hiroshi Katano, Kyushu Institute of Design, Department of Environmental Design). In the case of portions for which such evidence is unclear, reproduction, repair, and conservation will be carried out with reference to examples of buildings from the same era.
- (3) Certain functional measures will be reflected for the sake of readiness for facility maintenance and public utilization (water and condensation measures, facility upkeep, exhibits, safety measures, etc.).

2. Scope of work and construction period

- (1) Due to a request from the municipalities for specification changes related to indoor exhibits, it became necessary to include the accounting manager’s office and accounting section in the Phase 1 work. The scheduled completion for Phase 1 was therefore changed to July 2019 (originally scheduled for March 2019).
- (2) Phase 2 work is currently progressing toward completion in September 2020 as originally planned.

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- | | |
|---------------------------------|---|
| A: General Affairs Section | J: Drafting Room |
| B: Procurement Section | K: Engineer's Office |
| C: Director General Secretariat | L: Chief Engineer's Office |
| D: Director General's Office | M: Clark's office |
| E: First Reception Room | N: Conference Room |
| F: Second Reception Room | O: Foreign Engineer's Office |
| G: Accounting Manager's Office | P: Foreign Consultant Engineer's Office |
| H: Accounting Section | Q: Staircase |
| I: Treasurer's Section | R: Corridor |
| | S: Hall |
| | T: Entrance |

III. Change of specifications for indoor exhibits

In response to a request by the municipalities for indoor exhibits premised on public showing, specification changes were made to the interior conservation work and the following measures are being implemented.

The overall exhibit plans are under further study by the municipalities based on the changed specifications.

Measure	Place	Main specifications	Reason for measure
Making into staff rooms	Accounting Manager's Office	Simple interior finish	Consolidate and conceal electrical equipment and prevent contact with the equipment
	Accounting Section	Simple interior finish	Deployment of permanent administrative staff, measures for sick and injured
	Treasurer's Section	Simple interior finish	Replacement of exhibits, storage of facility administration materials, etc.
Exhibit measures	First Reception Room	Floor opening, earth dredging, installation of lighting under floor and glass guardrail around opening	Display of underfloor foundation arch
	Conference Room	Carpeting	Exhibit reconstructed from old photographs
	Foreign Engineer's Office	Installation of roof frame lighting and arrangement of original flooring pieces	Roof frame, seismic reinforcement, display of floor materials, etc.

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	Each room	Installation of electrical outlets embedded in floor	Provision of electric power for exhibits
	Drafting Room	Installation of independent light switches	Operations when using room for seminars, etc.
Safety measures	General Affairs Section, Accounting Section	Installation of air conditioners including outdoor units and new 200V power source	Preventing heat stroke in summer (2 units in general affairs section, 1 in accounting section)
	Around staircase	Installation of, double handrails	Prevent stumbles by visitors

IV. Next steps

While continuing to collaborate with domestic and local experts, work will be carried forward under the guidance of engineering advisors, and progress will be reported at the next Council meeting.

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Completion status of interior conservation work on east side of ground floor in First Head Office (as of August 30, 2019)

Exterior view (north side)



Entrance



Entrance



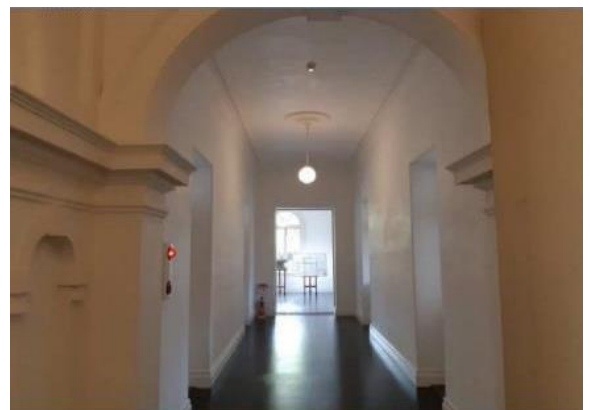
Entrance hall



Entrance hall



1F east side corridor



1F east side corridor



General Affairs Section



Director General's Office



First Reception Room



Second Reception Room



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3.1.2. Former Forge Shop and Repair Shop (from report by Nippon Steel Corporation)

FY2018 project (aseismic design of Former Forge Shop and Repair Shop)

1. Timeline and objectives

These facilities were found to have inadequate aseismic performance as a result of deterioration surveys in FY2014, building surveys in FY2016, and aseismic diagnosis in FY2017. Accordingly, seismic reinforcement proposals were studied in FY2018 with public funding. While consulting with domestic experts on the study policy and proposed methods of reinforcement, a reinforcement plan was drawn up. A summary of the plan is therefore to be reported to the Council. The detailed plans have been reported to the municipalities. (Reported January 9, 2019)

2. Basic policies

The extent of reinforcement measures is to be kept to the minimum necessary, taking into account how the building is to be used, so as not to harm the value of the historical buildings. While favouring provisional reinforcement, consideration will be made for minimizing quake damage and enabling fast recovery.

(1) Extent of reinforcement

- Priority will be given to reinforcement of the main building for preserving the especially important internal steel frame and the exterior appearance.
- Additional buildings will have their usage limited and will not be included in the scope of reinforcement to the extent third parties do not come near them.
- Measures to prevent collapse and other safety measures will be made for brick exteriors if there is a possibility of random visitors coming near them.

(2) Provisional reinforcement

- Since workers come and go infrequently, the concept of provisional reinforcement will be introduced, and a restorable level aimed for.
 - Restorable level: The level of reinforcement at which, while there is a danger of collapse in the case of seismic ground motion, restoration as a cultural property is possible
 - Safe level: The level of reinforcement at which the structure will not collapse in the case of seismic ground motion
- Provisional reinforcement means that reinforcement members are added each time damage recovery is made, and reinforcement is premised on corrective maintenance.

(3) Minimizing quake damage and enabling fast recovery

- A reinforcement plan will be drawn up assuming zero as the existing level of aseismic performance. (Existing seismic reserve capacity is for mitigating damage and keeping down restoration cost.)
- A reinforcement method will be readied that enables fast restoration in case of damage from a large quake, etc.

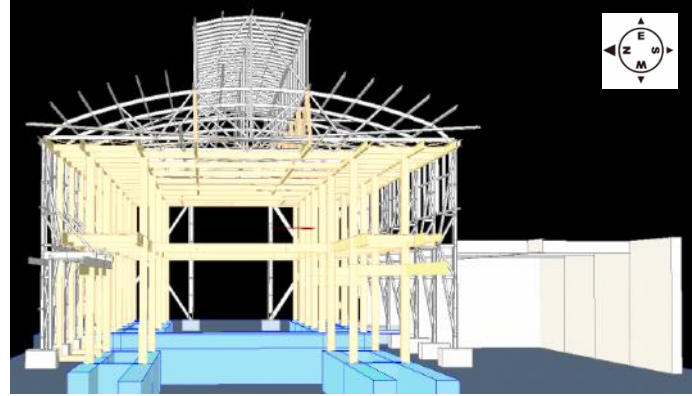
3. Former Forge Shop

(1) Proposed reinforcement method (Work period: around one year (after relocation of historical materials))

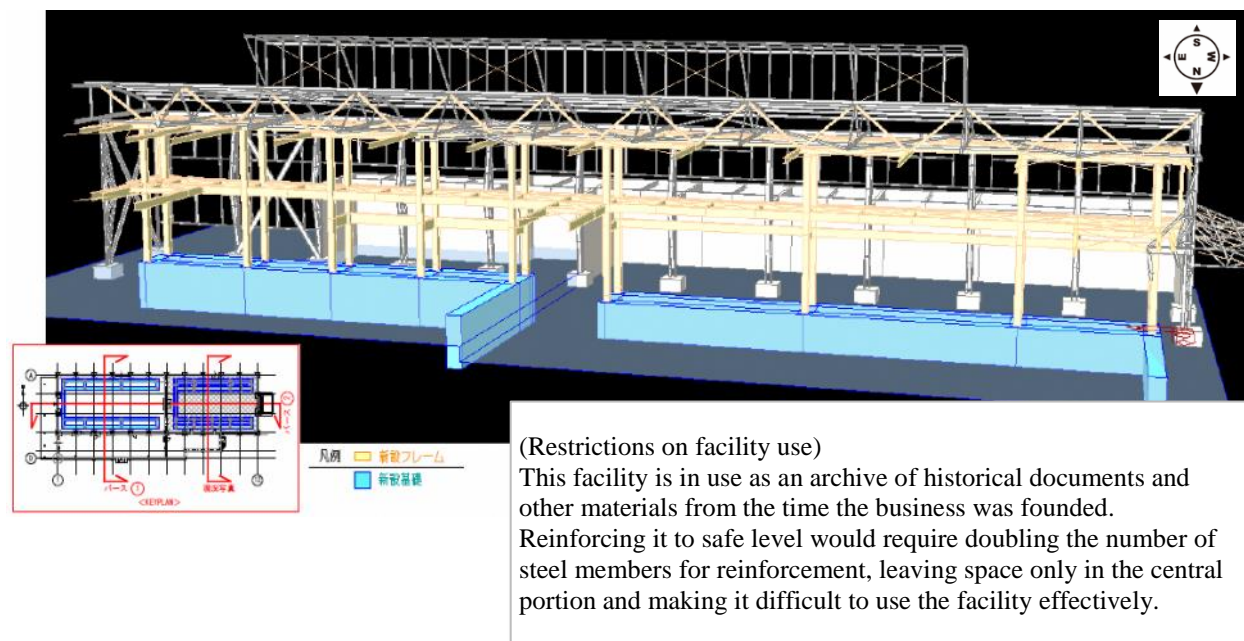
1) Current status photo (west → east)



2) Perspective drawing (west → east)



3) Perspective drawing (overall)



(Restrictions on facility use)

This facility is in use as an archive of historical documents and other materials from the time the business was founded. Reinforcing it to safe level would require doubling the number of steel members for reinforcement, leaving space only in the central portion and making it difficult to use the facility effectively.

Note: The cream and sky blue coloration in the drawings is for making clear the scope of work.

(2) Remaining issues

- Detailed studies of exterior conservation (reported to UNESCO 2017) are under way premised on carrying this out in the same period as seismic reinforcement, from the standpoint of keeping down costs.
- Also under study is relocation of the stored historical materials when the reinforcement is carried out. (Handling of the historical materials is being studied in consultation with the municipalities.)
- Seismic reinforcement (including relocation of historical materials) and exterior conservation are not needed for operations by the private company but are measures for

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preservation of World Heritage value. Accordingly, the division of costs is under discussion with the municipalities.

4. Repair Shop

(1) Proposed reinforcement method (Work period: around two years (including measures for obtaining spare materials storage capacity and relocation))

1) Current status photo (east → west)

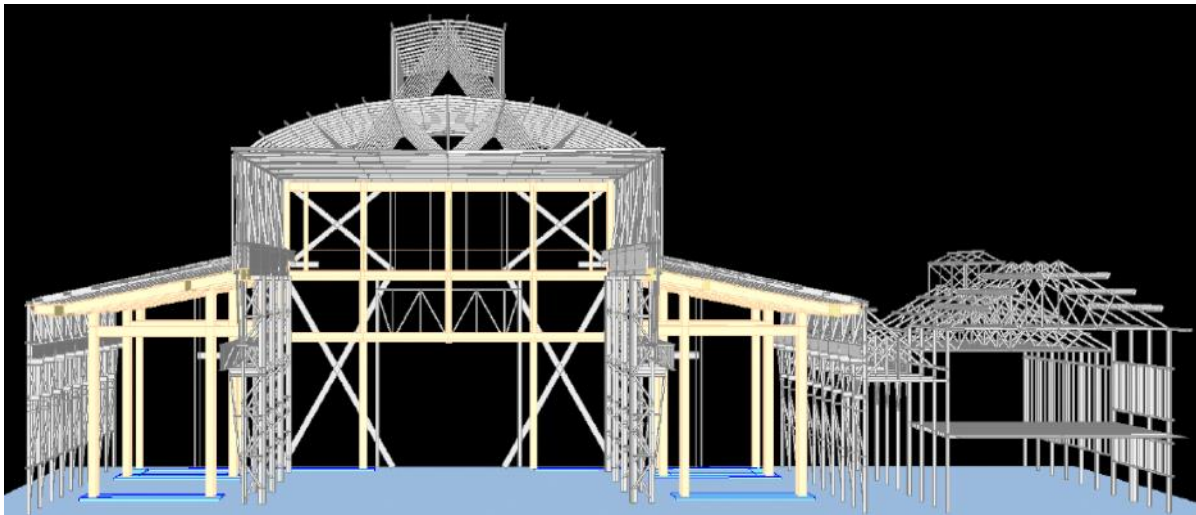


(Restrictions on facility use)

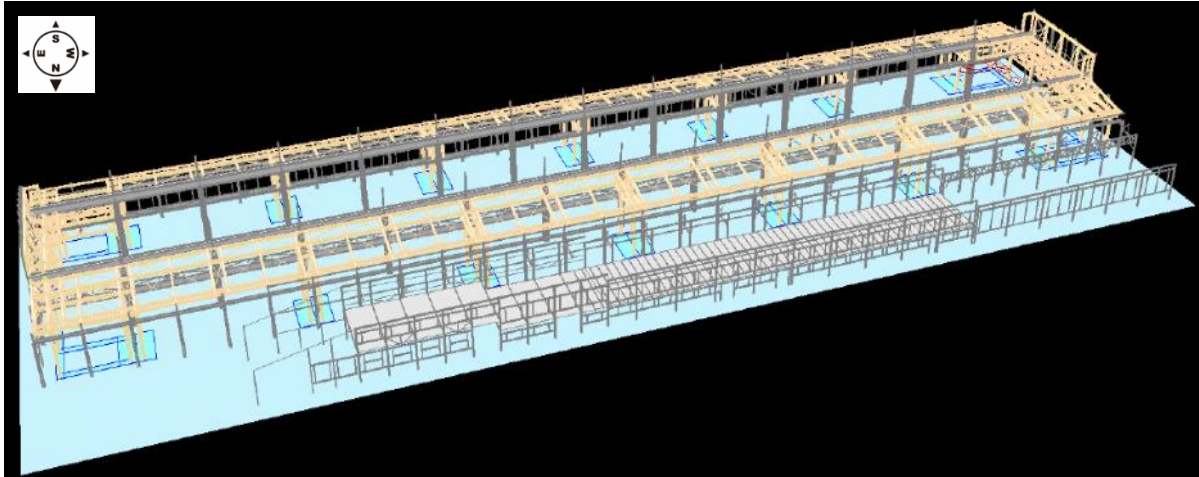
This facility is in use for offline operations during periodic repairs and as a storage place for spare materials. Reinforcing it to safe level would require doubling the number of steel members for reinforcement, leaving no space for storing spare materials and making it difficult to use the facility effectively.

In the case of this reinforcement proposal as well, measures will be needed such as relocation of spare materials racks interfering with reinforcement members in the north wing and provision of new racks due to inability to use the hoist crane in the south wing. Measures for obtaining storage capacity for spare materials are thus under study.

2) Perspective drawing (east → west)



3) Perspective drawing (overall)



Note: The cream and sky blue coloration in the drawings is for making clear the scope of work.

(2) Remaining issues

- Detailed studies of exterior conservation (reported to UNESCO 2017) are under way premised on carrying this out in the same period as seismic reinforcement, from the standpoint of keeping down costs.
- Installation of steel members for seismic reinforcement will result in a shortage of storage space for spare materials. Measures for securing such space are under study.
- Measures for relocation of spare materials during the seismic reinforcement work period and when work is complete are under study.
- Seismic reinforcement and exterior conservation are not needed for operations by the private company (the building is not used for main operations and workers come and go infrequently) but are measures for preservation of World Heritage value. Accordingly, the division of costs is under discussion with the municipalities.

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3.1.3. Onga River Pumping Station (from report by Nippon Steel Corporation)

FY2018 project (additional aseismic diagnosis of Onga River Pumping Station)

Objectives: A detailed aseismic diagnosis was conducted of the Onga River Pumping Station, for which it was determined that seismic reinforcement is necessary for carrying out conservation of facilities related to the Imperial Steel Works.

Applicable facility: Onga River Pumping Station

Implementation period: April 25, 2018 to March 31, 2019

Diagnosis costs: 8.96 million yen

Division of costs: All paid by private sector

Description of diagnosis: Diagnosis was conducted in accordance with the Guidelines for Assessing Seismic Resistance of Important Cultural Properties (Buildings) (Cultural Properties Department, Agency for Cultural Affairs), with reference to the standards of the Architectural Institute of Japan, including the Standards for Structural Design of Masonry Structures.

Summary of results

- Although the intrinsic energy in the east-west direction exceeds the input energy, Q_u/ZW (load resistance when interstitial deformation limit is 1/150) is small, indicating a lack of aseismic performance. In the out-of-plane direction, gable wall deformation is large, and both horizontal bending and perpendicular bending fail to meet the targets, so that reinforcement is necessary.
- In the north-south direction, roof braces will break first of all and not be able to transfer support to the two gabled brick walls, indicating a lack of aseismic performance. In the out-of-plane direction, deformation of the central portion is large, and both horizontal bending and perpendicular bending fail to meet the targets, so that reinforcement is necessary. In addition, eccentricity occurs.
- From the above analysis, in both the east-west and north-south directions, reinforcement is necessary to improve out-of-plane load resistance and reduce out-of-plane buckling.

An overview of the study results is given below.

(Values not meeting the assessment standards are given in red.)

Study method		Evaluation standard value	East-west	North-south
Main frame In-plane direction	Eccentricity	0.30 or less	0.010	0.461
	Study of wall shear force (C0=1.0)	Overall building safety factor 1.0 or above	2.32	1.35
		Single wall safety factor 1.0 or above	1.43	1.13
	Energy conservation property	In seismic ground motion, intrinsic E/input E 1.0 or above	4.36	0.39
		Qu/ZW		0.395
Out-of-plane direction	Finite element method	Moment safety factor 1.0 or above	Horiz. 0.16 (W463) Perp. 0.23 (W463)	Horiz. 0.04 (W463) Perp. 0.03 (W463)

OK if each safety ratio and intrinsic E/input E safety ratio is 1.0 or above.

***Based on the diagnosis performed in FY2018, aseismic design is scheduled to be carried out in FY2019. Thereafter, the aseismic reinforcement work is to be implemented.**

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3.1.4. Consultations with Experts (from report by Nippon Steel Corporation)

Status of consultations with domestic and local experts and studies with engineering advisors

Since the report to the 6th meeting of the Yawata Local Conservation Council held April 24, 2018, so far six meetings have been held with domestic and local experts for confirming policies and methods for each of the matters being studied, visits have been made to the site, and many discussions have been carried out.

In the interior conservation work on the First Head Office begun in May 2018, engineering advisors introduced by domestic experts took part, biweekly meetings were held, and specifications were decided while conducting on-site surveys and confirming construction methods. This work is now being implemented.

In the case of the studies on seismic reinforcement of the Repair Shop, Former Forge Shop, and Onga River Pumping Station, after confirming the study approach with domestic experts, many consultations were held with domestic experts regarding the proposed reinforcement methods for the Repair Shop and Former Forge Shop. As for the Onga River Pumping Station, additional aseismic diagnosis was completed by engineering advisors introduced by domestic experts, and proposed reinforcement methods will be studied hereafter.

1. Status of consultations with domestic and local experts

- | | |
|----------------|---|
| 1st
meeting | 11:00 a.m. to 12:00 noon, Friday, August 10, 2018
Consultation with: Domestic expert (Professor, Faculty of Architecture)
Agenda: Confirming proposed reinforcement methods for Repair Shop and Former Forge Shop |
| 2nd
meeting | 1:00 to 2:00 p.m., Wednesday, January 30, 2019
Consultation with: Local expert (university emeritus professor)
Agenda: Observing site of interior conservation work in First Head Office |
| 3rd
meeting | 1:00 to 2:00 p.m., Wednesday, February 13, 2019
Consultation with: Local expert (Industrial Heritage researcher with doctor's degree)
Engineering advisor on cultural properties (representative of class 1 registered architects office)
Agenda: Observing site of interior conservation work in First Head Office |
| 4th
meeting | 1:00 to 4:00 p.m., Thursday, April 18, 2019
Consultation with: Local expert (Industrial Heritage researcher with doctor's degree)
Engineering advisor on cultural properties (representative of class 1 registered architects office)
Agenda: Interim report on progress status of interior conservation work in First Head Office |
| 5th
meeting | 1:30 to 4:00 p.m., Friday, April 19, 2019
Consultation with: Local expert (university emeritus professor) |

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Engineering advisor on cultural properties (representative of class 1 registered architects office)

Agenda: Interim report on progress status of interior conservation work in First Head Office

6th
meeting

4:00 to 6:00 p.m., Wednesday, April 24, 2019

Consultation with: Domestic expert (Professor, Faculty of Architecture)

Engineering advisor on cultural properties (class 1 architect, executive director)

Agenda: Interim report on progress status of interior conservation work in First Head Office

Report on proposed reinforcement methods for Repair Shop and Former Forge Shop

Report on results of aseismic diagnosis for Onga River Pumping Station

Confirmation of approach to studying seismic reinforcement of Onga River Pumping Station

2. Status of studies with engineering advisors

- 1) Interior conservation work in First Head Office
Regular meetings: 21 times (dates shown below)

(2018/6/11, 6/21, 7/4, 7/18, 8/1, 8/22, 9/5, 9/19, 10/2,
10/17, 10/31, 11/14, 11/28, 12/12, 12/26,
2019/1/16, 1/30, 2/13, 2/27, 3/19, 4/4)

Observation study meeting: 1 time (2019/1/25 at Mitsui Club, Mojiko Station)

Engineering advisor on cultural properties (representative of class 1 registered architects office)

Agenda: On-site survey, construction method, deciding specifications, recording and reporting, other matters

- 2) Studying seismic reinforcement of Onga River Pumping Station
Irregular meetings: 3 times (2018/5/22, 7/25, 2019/2/15)

Engineering advisor on cultural properties (class 1 architect, executive director)

Agenda: On-site survey, aseismic diagnosis, method of studying seismic reinforcement, etc.

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4. ASSESSMENT OF POTENTIAL IMPACT ON OUV BY MEANS OF HERITAGE IMPACT ASSESSMENT (HIA)

4.1. Contribution to OUV

All four of the buildings that are objects of these projects are related to the establishment of the Imperial Steel Works, the first fully integrated steel works to be built successfully in Asia. These sites comprise two of the 23 component parts of the World Heritage “Sites of Japan’s Meiji Industrial Revolution: Iron and Steel, Shipbuilding, and Coal Mining.” These World Heritage sites clearly show the first successful wave of industrialization from the West to a non-Western country, and relate to accomplishments known as the Meiji industrial revolution.

The component parts of Yawata and the Onga River relate to the “iron and steel” aspects of this industrial revolution. Steelmaking took place in these facilities at the time Japan was emerging as an industrial nation in the last stage of the ongoing industrial revolution.

As shown in Table 1, the management plans for these component parts make clear their contribution to the Outstanding Universal Value (OUV) of the properties.

1. Elements of the Imperial Steel Works Indicating Outstanding Universal Value (OUV)

Elements	Contribution to OUV
First Head Office	Demonstrates the adoption and adaptation of Western architectural design and construction techniques in Japan. Reflects the nature of technological exchanges that underpinned the development of Japan’s industrial transformation. It also demonstrates (as the headquarters of the Yawata Steel Works) the organizational style adopted by Japanese steel makers to achieve the local development of an integrated steelworks.
Repair Shop	Demonstrates the transfer of German technology, followed very rapidly by the extension of the building in the same style using Japanese-made steel and design skills. This is reflected particularly in the progression of steel framing, the first section being labelled Gutehoffnungshütte (GHH), and subsequent expanded sections labelled with Yawata nameplate.
Former Forge Shop	Reflects one of the original functions of the steelworks, the original foundry function, necessary to the autonomous development of the steelworks, and the subsequent adaptation for materials testing. While its structure has been changed over time, the core building can still be recognized, and the changes it demonstrates echo the continuing expansion and refinement of the steelworks, and the adaptation of transferred technology to meet evolving local needs.
Onga River Pumping Station	Demonstrates the rapid growth of the steelworks and the increasing demand for water for steelmaking purposes. The pumping station is an accomplished “modern” industrial design reflecting the rapid development of design skills within the steelworks based on Western precedents but modified to meet Japanese conditions.

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4.2 Potential Impact of the Project Proposals on Outstanding Universal Value (OUV)

The impact of the construction work will be dealt with by interior restoration in the First Head Office, and the same decoration that was implemented in the important period continued since the Meiji era will be applied. In the project, the structure of the building, evidence of the skilful fusion of Japanese and Western architecture, will be restored; and in case it becomes possible to show this to the public, the contribution of this building to the OUV will be enhanced.

Since the building is a working property in a steel works, the municipalities and property owner will carefully study and consult on how the asset will be used and the extent to which it should be shown to the public, within the scope that no hindrance arises to the business activities of the owner.

There will be no adverse impact on the OUV of this asset. Rather there will be positive impacts, from the conservation measures on the building structure and from effectively showing the contribution of the First Head Office building to the OUV.

The seismic reinforcement work on the Repair Shop and Former Forge Shop, along with the building conservation, will make considerations for use of the buildings by the owner as a working property, and their exterior appearance. Such considerations will be efforts not to harm the buildings' contribution to OUV.

Likewise, the seismic reinforcement work on the Onga River Pumping Station, along with the building conservation, will make considerations for use of the building by the owner as a working property, and its exterior appearance. Such considerations will be efforts not to harm the building's contribution to OUV.

4.3 Assessment of Impact on the World Heritage

The project in the First Head Office has two objectives. The first is interior restoration following seismic reinforcement work that has already been completed. The second is conservation of interior shapes and decorations by which the original decoration or important decoration carried out later will be reproduced, with an eye on possible later conversion to an interpretation facility for visitors.

In both cases, it is believed that the OUV will be preserved by this project, while contributing to understanding of its value.

The work on the Former Forge Shop, the Repair Shop, and the Onga River Pumping Station is being conducted to preserve the value of the buildings as world heritages. All the projects, by implementing conservation work to the extent no hindrance arises to the business activities of the owner, so as to maintain the value as a working property, are necessary for receiving proper recognition as showing the contribution to OUV.

The project proposals will by no means narrow the extent of the building value as World Heritage, nor will they reduce the contribution to OUV of the properties. Rather they are a sound foundation for conservation of the buildings and their use hereafter. As for handling of visitors, this is currently being studied and discussed carefully among the local municipalities and the owner.

5. POLICY ON THESE PROJECTS AND MANAGEMENT PLANS AND SYSTEMS

The projects to be implemented this time, in accordance with the *Conservation Management Plan: Imperial Steel Works* (Nippon Steel & Sumitomo Metal, Kitakyushu City, Nakama City, 2014), will be carried out while favourably preserving the component parts and respecting the heritage value of the component parts. Regarding issues affecting the component sites, advice is being sought from specialists with relevant experience in heritage conservation and management, engineering support will be received, and work will be carried out through a process of decision-making in the Local Conservation Council. Records will be kept of substantial modifications to or interventions in the component parts, and of maintenance actions.