

Initiatives to Resolve Major Objectives (Materiality)

Sustainable Architecture and Urban Creation



Creating social systems for sustainable urban areas

|| Promoting business operations by building social systems

As a comprehensive engineering firm for urban creation, we contribute to sustainable social change through our initiatives in various parts of Japan, which are designed to resolve social issues with a wide range of stakeholders.

Attractive renewal

In 2020, together with two other companies we employed our unique capabilities with design and technology to embark on a project with the theme of "attractive renewal" in order to preserve and utilize the Hori Building, a registered Tangible Cultural Property located in Shimbashi, Minato City, Tokyo. In 2021, the project was completed, and the building was opened for use.

[Click here for further details.](#)

Urban creation in coordination with Shiojiri City, Nagano Prefecture

In January 2020, we concluded a community partnership agreement with Shiojiri City for an initiative centering on our Forest Grand Cycle, which is aimed at forestry restoration and circular economies through the use of wood materials. Under this agreement, we are restoring traditional homes and buildings in Narai-juku in order to promote the town's charm.

[Click here for further details.](#)

Locate Plus Series, a location tracking app for construction sites

In an effort to address the shortage of employees and workers at construction sites, we developed the Locate Plus Series, an application that records the location of people and aerial work platforms. Full-scale external sales began in 2020, and in the future we are considering additional features and linking functions that will output each piece of information acquired by the application to BIM.

Clean energy initiatives

As part of our clean energy initiatives toward a decarbonized society, in 2021 we launched a geothermal power generation project in Gifu Prefecture, Takenaka Okuhida Geothermal Power Plant. Then in 2022, we built and began operation of Uchiko Ryuo Biomass Power Plant, which utilizes locally produced materials, in collaboration with five companies.

KPI

Number of new business operations

Result: 5 in 3 years

(Target: 2 or more in 3 years)

Extending building life spans and improving stock maintenance and utilization

Strengthening research and proposal technologies for asset management and facility operation that will continue to create value

In order to extend building life spans, it is important not only to reduce their environmental impact through decarbonization, but also to maintain basic functional requirements, and to carry out maintenance and management in order to ensure that buildings keep up with social and environmental changes. Accordingly, we have developed various solutions technologies for structural inspection and diagnosis, maintenance and management. Some examples are our Smart Tile Saver system, which employs drones for AI-based detection of loose exterior wall tiles, and our Kaberoku system for visualizing the results of exterior wall surveys using a chaired gondola equipped with a camera. We are putting these systems into practical use on various structures to maintain the reliability of inspections.

KPI

Number of cases in which promoted component technologies were applied

Result: 6 (Target: 6)

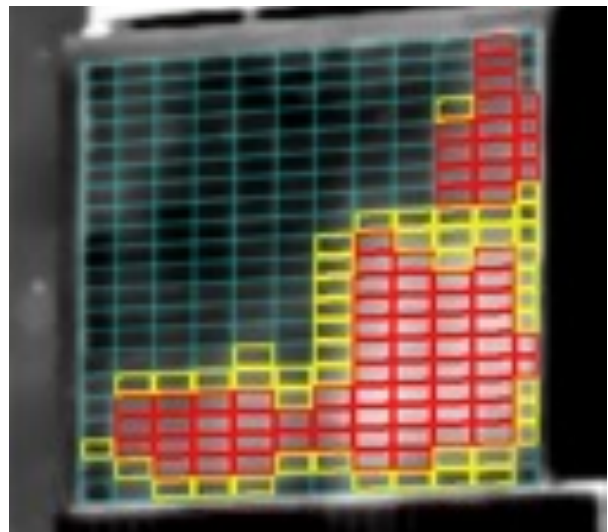
KPI

Number of proposals contributing to extending property life

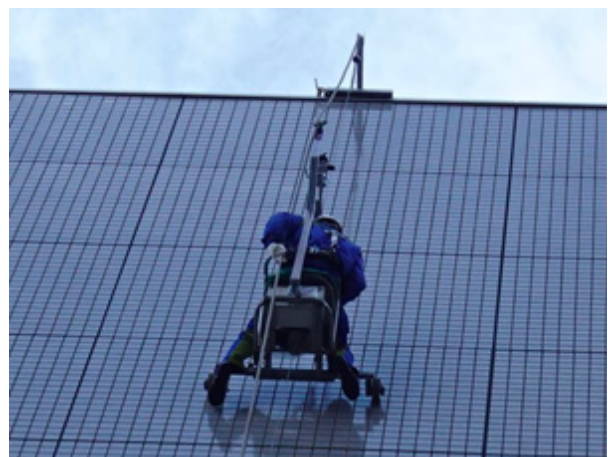
Result: 6 (Target: 4)



Using a drone to inspect exterior wall tiles (with infrared cameras)



AI-based defective tile detection system



Kaberoku exterior wall survey recording system

Harmonization with the environment



Responding to future climate change

- Design: Establishing guidelines for adapting planning to climate change
- Construction: Developing and implementing construction technologies in response to climate change

Developing ECOFFICE Residence, a prefabricated housing unit, to reduce CO₂

In cooperation with Asahikizai Co., Ltd., we have developed ECOFFICE Residence, which is being regularly installed at work sites. With improved insulation performance and LED lighting fixtures as standard equipment, this prefabricated temporary housing unit is expected to reduce CO₂ emissions compared to conventional units. Just by installing it, CO₂ emissions are reduced by 20 percent, and it is also fire-resistant. In addition, the specifications have been designed to flexibly address climate change with options such as joint insulation panels to enhance insulation performance, window and door screens to further save energy by utilizing natural ventilation in the middle of the year, and solar panels to generate electricity while reducing temperature rise on roof surfaces.



KPI

Degree of progress

Design: Ongoing preparation of application planning guidelines

(Target: Establishing guidelines for applicable plans)

Construction: Starting technology trials to address rising temperatures

(Target: Starting technology trials to address rising temperatures)

Recycling resources and reducing waste

- Examining resource recycling and waste reduction from the upstream stage of design and procurement
- Promoting waste recycling at new construction sites

Implementing new material recycling for waste plastic

Soft and hard plastics require different treatment methods due to their different materials, and plastics containing chlorine generally cannot be recycled, albeit with a few exceptions. In accordance with the "Law Concerning the Promotion of Resource Recycling of Plastics" (abbreviated as "Plastic Resource Recycling Law"), which came into effect on April 1, 2022, we set up a new sorting method for waste plastics and introduced it at a model work site in order to improve recycling. By devising easy-to-understand labels for sorting items and boxes, sorting activities have taken root, and this is contributing to an increase in the recycling rate of waste plastics.



KPI

New construction by-products recycling rate (per volume)

Result: 94.3% (Target: 94.0%)

Technical innovation and cocreation



Promoting cocreation activities

Community participation and partnerships

Create venues and schemes for exchange by diverse people

Under the slogan "We want to see the future built with Hokkaido timber," our Hokkaido Branch Office is working to revitalize the use of local timber through the promotion of wooden structures and buildings. In 2019, we signed a tie-up business collaboration agreement with the Hokkaido Government Department of Fisheries and Forestry, and through this public-private partnership we are working to promote the use of Hokkaido timber and raise awareness about the importance of forests with the aim of realizing Hokkaido's goal of cyclical use of forest resources and our Forest Grand Cycle. In 2022, seeking to revitalize the circulation of forest resources, economy, and carbon through higher processing and utilization of Hokkaido's timber, we held tours of model work sites and invited experts involved in the use of timber in Hokkaido, such as government officials and university educators. We also raised awareness of forest utilization in high school

"inquiry" classes, and in collaboration with the same government department, we held talk sessions with various players from the upstream to downstream of Hokkaido forests that were involved in the realization of wooden buildings (our Hokkaido District FM Center).



Talk session about the uses of Hokkaido forests

KPI
Number of exchange venues and events
Result: 4 (Target: 4 or more)

Implementing total urban creation development activities through area management and community design

In Koto City where our Tokyo Head Office is located, we are working on revitalizing the waterfront and making it more attractive by serving as the secretariat for the Toyo-Shinsuna Canal Renaissance Conference. In Osaka City where our Osaka Main Office is located, we are playing a central role in area management for the Midosuji Urban Creation Network, Nakanoshima Future City Planning Council and Osaka Business Park Council. There we are working on various cocreation activities such as promoting the city through planning and organizing events, developing a vision for the city and formulating area disaster preparedness measures and design guidelines. In Unnan City Shimane Prefecture, our employees are acting as a bridge between businesses and the local community to realize Unnan Social Challenge Valley, which is a comprehensive strategy for the creation of the urban area, people, and work environment, and we are also working to create projects aimed at resolving social issues.



Toyo-Shinsuna Canal Renaissance Conference



Liaison council for the business challenge, Unnan City

KPI
Number of activities through area management and community design
Result: 5 (Target: 5)

Work style and productivity reform



Pursuing construction processes that are sustainable and highly productive

Reducing work-hours by reflecting highly efficient construction methods early in construction plans and moving work off site (industrialization, etc.)

Improving productivity through BIM and digital construction technology

Since 2020, we have deployed Takenaka Advanced Construction Integration, which is a productivity improvement initiative that streamlines the entire construction process from planning to construction. In order to actualize this, it is important to incorporate things before the start of construction. Then by effectively using digital technology such as BIM, we are working together with customers to resolve project issues as well as improve productivity.

KPI
Value of completed work rate
Result: ¥187,000/work-hour
(Target: ¥18,400/work-hour)

KPI
Value of completed work management rate
Result: ¥104,000/work-hour
(¥120,000/work-hour)

Eradicating discrimination and harassment

Implementing harassment environment surveys, and education and instruction

In our efforts to create a comfortable workplace environment, we are actively working to eradicate harassment under our policy to not tolerate any unfair behavior. Accordingly, we regularly conduct surveys of the workplace environments of all our employees to assess working conditions. Based on the findings, we provide power harassment prevention training (for managers), especially for all line managers who could potentially be involved in power harassment, and we provide training for new line managers every

year. We are also providing e-learning programs for all employees to acquire accurate knowledge about harassment. At Takenaka, we are making every effort to ensure a healthy work environment and the mental and physical health of our employees.

KPI
Education rate
Result: 100% (Target: 100%)

Securing, developing and retaining human resources

|| [Employees] Reviewing young employee training in response to environmental changes

During their first year, our employees stay in the Fukae Chikuyu Dormitory (Kobe City), which is exclusively for new employees, to gain OJT and other work experience in multiple business departments. Through these experiences, they acquire the necessary knowledge and professional mindset for personal growth, and they also gain an understanding of our traditional spirit. In 2019, we rebuilt the dormitory and revamped our new employee training program to improve both its tangible and intangible aspects. In addition, we have reexamined our education system for early and mid-career employees and introduced a career development program that started in April 2022. The emphasis here has been on early development by promoting autonomous learning focused on mid- to long-term career goals, and empirical learning through work performance.



New employee training

KPI

Education rate

Result: 5.3% (Target: 3.0% or less)

|| [Partner companies] Reviewing recruitment activities and payments in tandem with partner companies Training skilled workers and developing programs to pass on skills

Each year, in collaboration with partner companies, we hold hands-on workshops and work site tours for high school students as well as visiting schools. These activities are designed to make the construction industry appealing to students and teachers, including how construction work proceeds and the work of specialty construction companies. It is our hope that students will be encouraged to later join these types of companies. In recent years, we have been unable to hold many events due to COVID-19 measures, but we have continued to conduct recruitment activities through the use of a pamphlets for new hires produced in cooperation with partner companies, and by conducting virtual school visits over the Internet.

We also run a Takenaka Meister certification program to recognize and reward foremen and technical personnel at work sites for outstanding performance. This program motivates and encourages these people to take on various roles at their respective work sites to nurture younger workers who will inherit valuable construction skills.

KPI

Number of new skilled workers

Result: 1,629 (Target: 720)

Steady production processes



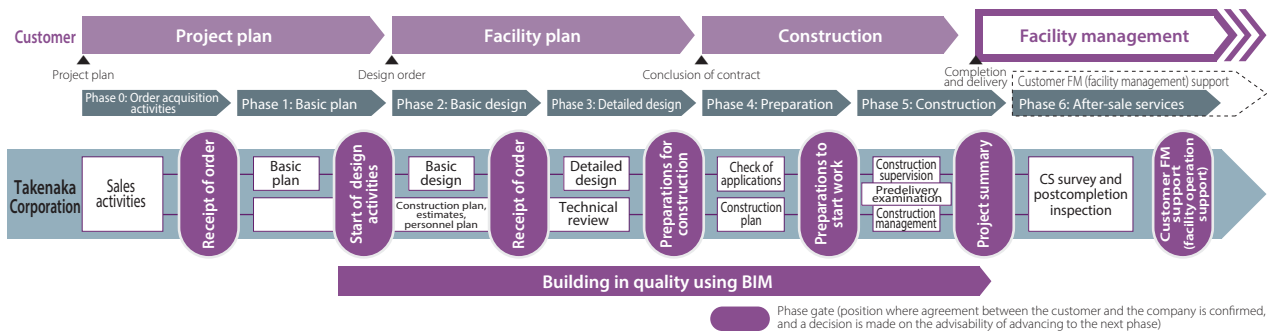
Providing high quality, and safe construction and services

Building in quality from the design stage including our partner companies.

We have standardized our workflow as a quality assurance system (ISO9001 certified) that capitalizes on the merits of integrated design-build. Then, by utilizing BIM from the design stage, the process of building in quality has been standardized for design, construction, and subcontractors working together, which ensures higher quality.

KPI
Number of serious quality problems
Result: 0 (Target: 0)

Incorporating BIM utilization



SOS (accident operation system) / AI-based preemptive safety tools

AI is used to forecast any accident that is highly likely to occur for any specific day for each job category at each work site, and the information is provided to the respective work sites on a daily basis. Information on accident events that are most likely to occur in a day is shared throughout the work site at morning meetings and RAKY meetings. This is then used for risk assessment prior to the start of work. SOS is based on accident data collected by our AIS safety data system and CONFIRM input data.



MOTION BOARD screen for each work site

Realizing sustainable supply chains

|| Disseminating and applying CSR procurement guidelines.

In the area of procurement, we established a [☞ Procurement Policy](#) along with action guidelines in 2013 in order to conduct procurement based on a clear policy and fulfill our corporate social responsibility. We also asked our suppliers to thoroughly implement a "Request to Suppliers." This consisted of nine items based on the action guidelines of the Procurement Policy, including compliance with social norms. In 2020, we revised "Request to Suppliers" to "[☞ Business Partners Action Guidelines](#)" by adding specific actions, such as compliance with laws and

regulations, and respect for human rights. Then in 2021, we created "Business Partners Action Guidelines (summary version)" in order to get the message to a wider audience. We continue to carry out annual dissemination activities, such as making these known to business partners, and strengthening CSR efforts throughout our supply chains.

KPI

Dissemination and application rate

Result: 100% (Target: 100%)

|| Continuing environmentally conscious green procurement

Aiming to contribute to the building of a decarbonized society, a resource recycling society and a society in harmony with nature, we are promoting green procurement at each stage of design, procurement, and work sites with priority on goods and services that have a low environmental impact. As the global movement toward decarbonization accelerates, we have been pursuing new decarbonized procurement since 2021 as a measure to decarbonize the construction industry where CO₂ emissions are high from using large volumes of concrete and steel frames. In the area of concrete, we are working on the development and adoption of ECM cement (a coined

word for energy and CO₂ minimum), and for steel frames, we are actively promoting the adoption of electric furnace steel.

Making the best use of our design-build strengths, our sales, design, engineering and work sites have come together to promote decarbonized procurement toward our goal of decarbonization.

KPI

Number of major green procurement items/1 project

Result: esign: 14 items/Work sites: 12 items
(Target: 10 or more items each)

Sound Organizational Foundation



Controlling and managing with the CSR Promotion Central Committee and Compliance/Risk Management Committee

|| Promoting respect for human rights

Based on the UN Guiding Principles on Business and Human Rights and in observing our Corporate Philosophy and Corporate Code of Conduct, we are promoting respect for human rights in our business activities. At present, we are continuing to work on high-risk issues that have been identified and assessed in September 2018.

Human rights-related measures are discussed and approved in the Compliance Committee, and the results are then reported to the Corporate Ethics Central Committee, chaired by the president. As a means of accepting complaints, we have multiple internal and external contact points for consultations and whistleblowing from within our company, group companies, and business partners, as well as from the general public.

In regard to human rights due diligence, when our Human Rights Policy was established in 2018, risks were identified and evaluated based on advice from experts and other factors, and five specific risk issues were addressed. Every year, we invite experts to review the activities we have carried out, and we reflect their findings in the next year's initiatives.

We continued this in 2022 as well and invited Mr. Hidemi Tomita, Representative Director of the Institute for Sustainability Management, to review our activities. Mr. Tomita suggested that while there had been steady implementation throughout previous years, future efforts will require us to clarify what we aim to achieve and link this to business targets. He also suggested further efforts to disclose information on our activities.

On the issue of long working hours, there has been an overall downward trend, but we were advised on the importance

of hours for individuals not becoming excessive, and even though hours at work sites have been steadily implemented as planned, Mr. Tomita suggested verifying to what extent closed work sites are contributing to the reduction of overtime.

In the area of harassment, he recommended workplace environment surveys as effective in understanding the overall picture and detailed information, and said it would be even better to grasp the effectiveness of ordinary measures. In overseas procurement, as part of our efforts with overseas suppliers, we have gone a step further from previous interview surveys by going to the actual place and checking the status of respect for the human rights of workers at a steel frame fabrication plant in South Korea.

In addition to an expert stating that steady progress was being made, Mr. Tomita also said that further expansion of traceability is expected, and with regard to foreign workers, it would be good to be able to visualize improvement through initiatives over time.

In addition to specific risk issues that we are currently working on, our risk assessment of overseas development projects was judged to be an important step forward for our company.

In education and awareness activities, all employees were informed of and able to deepen their understanding of our initiatives, government activities, educational materials, videos, etc. during Human Rights Week.

We created an abridged version of our Business Partners Action Guidelines (published in 2020) to raise awareness of human rights and other important issues in an easy-to-understand manner for our suppliers

