

# Environment

As a sustainability-driven, good corporate citizen, the Obayashi Group considers the commitment to voluntarily engage in, and consistently improve, environmental initiatives to be one of the priority issues in its business management. Obayashi seeks to help achieve the sustainability of the planet, society, and people as stipulated in Obayashi Sustainability Vision 2050 through its business activities.

## Environmental Management

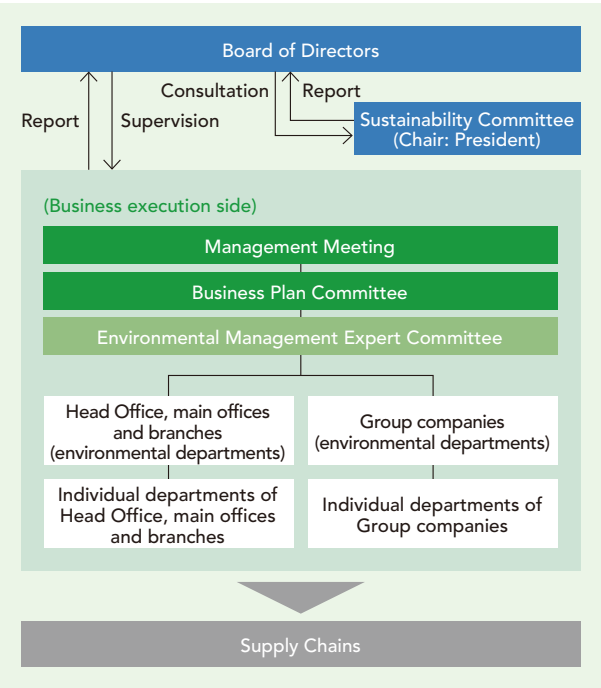
### Promotion Framework

Under the Business Plan Committee commissioned by the president, Obayashi has established the Environmental Management Expert Committee chaired by the officer responsible for environment-related matters. The expert committee develops strategies and policies on the Obayashi Group's environmental management and strives for continual self-improvement by reviewing targets and initiatives based on the evaluation results of its environmental management system.\* The environmental departments in the Head Office, main offices, branches, and Group companies drive Obayashi's environmental efforts and take concrete actions based on the plans and targets set by the Environmental Management Expert Committee.

At Obayashi, environmental compliance is more than just following environmental laws and regulations. We adhere to even stricter standards and respond appropriately based on those standards. Environmental law and regulation supervisors are appointed at branches throughout Japan, and we also strive to raise knowledge and awareness of environmental laws and regulations by offering e-learning courses and group training sessions.

\* Obayashi Corporation acquired ISO 14001 certification for all organizations in Japan

### Environmental Management Promotion Framework



### Environmental Management Promotion Activities

Organization	Overview of organization	Overview of activities
Board of Directors	<ul style="list-style-type: none"><li>Comprised of individual directors</li></ul>	<ul style="list-style-type: none"><li>Meets about 15 times a year</li><li>Supervises climate-related risks and opportunities</li></ul>
Sustainability Committee	<ul style="list-style-type: none"><li>Chair: President</li><li>Members: Independent directors, etc.</li><li>Secretariat: Corporate Strategy Division</li></ul>	<ul style="list-style-type: none"><li>Meets twice or more a year</li><li>Examines policies on how to address sustainability issues, including climate change, makes their recommendations to the Board accordingly and assesses the status of execution of these matters</li></ul>
Management Meeting	<ul style="list-style-type: none"><li>Chair: President</li><li>Members: Executive officers, including heads of divisions</li><li>Secretariat: Corporate Strategy Division</li></ul>	<ul style="list-style-type: none"><li>Meets about 30 times a year</li><li>Reports, discusses, instructs, and resolves important matters regarding sustainability issues, including climate change</li></ul>
Business Plan Committee	<ul style="list-style-type: none"><li>Chair: Executive officer responsible for business planning</li><li>Members: Heads of divisions, etc.</li><li>Secretariat: Corporate Strategy Division</li></ul>	<ul style="list-style-type: none"><li>Meets about 12 times a year</li><li>Formulates policies related to sustainability issues (including climate change), and manages progress of their implementation</li></ul>
Environmental Management Expert Committee	<ul style="list-style-type: none"><li>Placed under Business Plan Committee</li><li>Chair: Executive officer responsible for the environment</li><li>Members: Environmental supervisors for individual departments of Head Office</li><li>Secretariat: Environmental Management Division</li></ul>	<ul style="list-style-type: none"><li>Meets twice or more a year</li><li>Formulates strategies and promotes environmental management based on the Obayashi Group Environmental Policy, compiles information on and evaluates the results of activities based on our environmental management system, and sets targets for and promotes activities in the subsequent fiscal year and beyond.</li></ul>
Environmental departments	<ul style="list-style-type: none"><li>Head Office, main offices and branches (environmental departments)</li><li>Group companies (environmental departments)</li></ul>	<ul style="list-style-type: none"><li>Head Office, main offices and branches, and Group companies take specific actions based on the action plans and targets set by the Environmental Management Expert Committee</li></ul>

## Information Disclosure Based on TCFD Recommendations

Obayashi declared its support for the Task Force on Climate-related Financial Disclosures (TCFD) recommendations in July 2020. Since then, we have conducted scenario analysis in order to identify and assess climate-related risks and opportunities and understand the medium- to long-term impact that climate problems may have on our business, and have disclosed climate-related information.

### Governance

The Sustainability Committee, which is chaired by the president and composed of independent directors and other members, identifies climate-related issues, examines policies for addressing identified climate-related issues, submits reports to the Board of Directors, and reviews the status of execution of any relevant measures. The Board decides on management policy and other matters based on the discussions conducted in the Sustainability Committee.

### Strategy

Obayashi conducted scenario analysis based on the assumed operation of four major businesses in Japan\* as of the year 2030. The purpose was to identify and assess risks and opportunities and understand the medium-to-long-term impact that climate problems may have on our business. In the analysis process, we identified climate change-related transition risks and physical risks under each scenario. We then quantitatively and qualitatively verified the degree of impact each of approximately 30 risks could have on our business, ranked that impact on three levels (major, medium, or minor), and incorporated ways to address the identified risks and opportunities into our business measures.

\* Building Construction Business, Civil Engineering Business, Real Estate Development Business, and New Business Initiatives

Important risks and opportunities		Overview	4°C scenario	2°C scenario	Overview of activities
Transition	Risk: Introduction of carbon taxes	<ul style="list-style-type: none"><li>Taxes could be levied on CO<sub>2</sub> emitted by construction and other business activities, causing cost increases</li><li>Price of construction materials, the production of which consumes much energy, could rise, causing procurement cost increases</li></ul>	Minor	Major	<ul style="list-style-type: none"><li>Promote energy conservation at construction stage (less fuel consumption, less electric power usage)</li><li>Promote zero emissions, increase construction waste recycling rate, use recycled and low-carbon materials</li><li>Establish mid- to high-rise wooden building design and construction technologies and build supply chains</li><li>Work with supply chains to decarbonize construction machinery</li></ul>
	Opportunity: Increasing need for energy conservation/renewable energy technology	<ul style="list-style-type: none"><li>Our energy saving technology and ZEB designed to meet society's needs are increasingly superior</li><li>Renewable energy continues to replace conventional forms of energy</li><li>There is growing demand for offices with green building certification</li></ul>	Medium	Major	<ul style="list-style-type: none"><li>Promote development and practical application of ZEB technology that provides comfort and is business-feasible</li><li>Strengthen marketing of value-enhancing and energy-conserving renovation services for existing facilities</li><li>Promote the renewable energy business</li><li>Supply office buildings that have high added value and outstanding environmental performance</li></ul>
Physical	Risk: Higher summer temperatures	<ul style="list-style-type: none"><li>Risks to construction site worker health, including heat stroke risk, are rising</li><li>Poorer work conditions at construction sites could make worker shortage worse</li></ul>	Major	Major	<ul style="list-style-type: none"><li>Further increase productivity and construction safety using labor-saving technology and ICT</li><li>Develop innovative technologies to improve working conditions at construction sites</li></ul>
	Risk: More severe natural disasters (typhoons, heavy rains, flooding, etc.)	<ul style="list-style-type: none"><li>Increasing impact from natural disasters could damage buildings and infrastructure during construction or could interrupt construction. There is also increasing risk of needing to respond to damage at suppliers of construction equipment and materials.</li><li>Value of real estate we own in areas with high flood risk could decline</li></ul>	Medium	Medium	<ul style="list-style-type: none"><li>Strengthen ability to make BCP response during disaster by building strong networks with suppliers</li><li>Promote redevelopment projects to enhance environmental, disaster prevention, and business continuity performance</li></ul>
	Opportunity: National resilience initiatives	<ul style="list-style-type: none"><li>There is rising demand for infrastructure construction, maintenance, and repair to prevent and mitigate disasters and build national resilience</li></ul>	Major	Major	<ul style="list-style-type: none"><li>Promote development and practical application of technologies to prevent and mitigate disasters and build national resilience</li><li>Strengthen marketing of infrastructure construction, maintenance, and repair</li><li>Promote one-stop business including everything from surveys and inspections using ICT to evaluations, diagnoses, repair, and reinforcement</li></ul>

### Risk Management

The Sustainability Committee discusses climate-related risks and reports these discussions to the Board of Directors, which deliberates them as needed. Moreover, each department on the execution side assesses the risks inherent in its business processes, and incorporates the necessary avoidance and mitigation measures into those processes before performing them. Meanwhile, the Internal Control Audit Department, which is Obayashi's internal audit arm, audits each department's risk management efforts.

### Metrics and Targets

To achieve decarbonization by 2050, Obayashi has set targets for reducing greenhouse gas emissions and is working to reduce CO<sub>2</sub> emissions from its business activities and supply chain.

#### CO<sub>2</sub> Reduction Targets

Metric	Base year	Target year	Target
Scope 1+2 reduction rate	2019	2030	46.2%
		2050	100%
Scope 3 reduction rate	2019	2030	27.5%

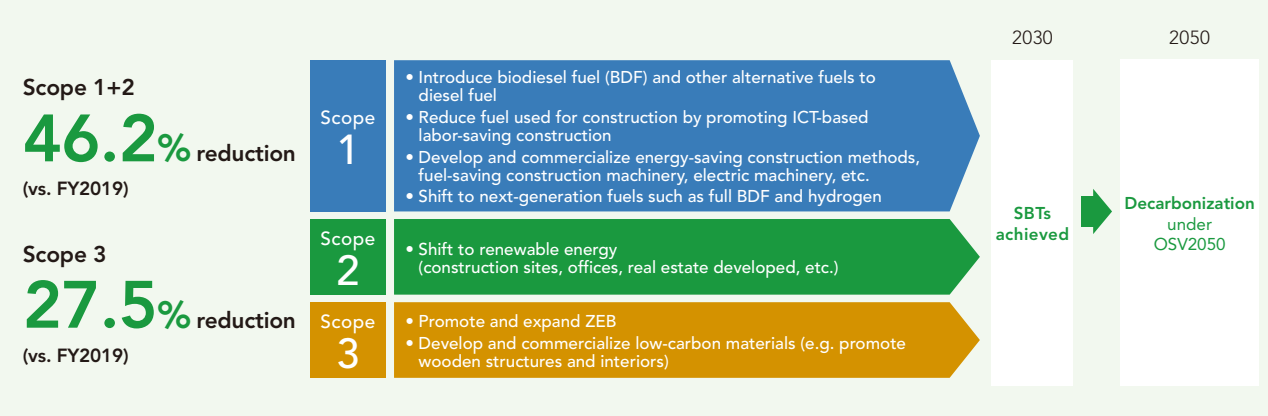
Environment

Promoting Decarbonization

In order to achieve the decarbonization goal that is stipulated in Obayashi Sustainability Vision 2050 (OSV2050), the Obayashi Group has incorporated carbon neutrality into its business plan as a key business opportunity and is promoting concrete initiatives to realize this vision.

The FY2030 greenhouse gas emission reduction targets that we set in 2022 were certified as Science Based Targets in October 2022 on the recognition that they are science-based targets aligned with the Paris Agreement.

Greenhouse Gas Reduction Targets for FY2030



Introducing Diesel Fuel Alternatives and Other Initiatives Scope 1

Most of the CO<sub>2</sub> emitted through our business activities is generated from the combustion of the diesel oil we use to fuel construction machinery at construction sites and for other purposes. The Obayashi Group is actively promoting the use of diesel fuel alternatives derived from natural gas to reduce CO<sub>2</sub> emissions, and plans to start using 100% biodiesel fuel in FY2023.

The Group is also working to reduce the use of diesel fuel by expanding labor-saving construction that utilizes ICT and promoting the introduction of hybrid construction machinery.

Obayashi Road Corporation, a member of the Obayashi Group, is conducting demonstration experiments using hydrogen fuel to help reduce greenhouse gas emissions from mixing burners during the manufacturing of asphalt mix used to pave roads. We have established a stable combustion control method for hydrogen alone or with a combination of hydrogen and city gas, and we have successfully produced asphalt mixes in burners using 100% hydrogen as fuel.

FY2022 results of implementing diesel fuel alternatives and other initiatives: **128** construction sites

- Construction sites using diesel fuel alternatives: 59
- Construction sites implementing energy-savings: 69

Switching In-House Electricity to Renewable Energy Scope 2

We are gradually switching the power we use in construction sites, offices, and company-owned facilities to renewable energy. In terms of construction sites, we are starting by promoting the introduction of renewable energy at new construction sites, and 54 sites use renewable energy as of the end of March 2023. In

terms of offices and Company-owned facilities, we have introduced renewable energy at the Shinagawa Head Office, the Osaka Main Office, Company-owned dormitories and recreation centers in the Tokyo metropolitan area, and some Company-owned dormitories in Osaka.

Circular Timber Construction®: A Recycling-Oriented Business Model for Forestry Resources Scope 3

The Obayashi Group has adopted a new business model, Circular Timber Construction®, which optimizes the entire supply chain for the construction of wooden structures and interiors.

The Group draws on its experience, expertise, and knowledge in the conservation and utilization of forest resources to ensure a complete and sustainable cycle for domestic timber, from material production to sawmilling, usage, and forestation. This cycle encompasses operations upstream (tree planting and cultivation), midstream (processing and procurement), and downstream (construction, power generation, reuse and recycling).



■ Developing Technologies for Cultivating Saplings Using Artificial Light (Upstream: Tree planting and cultivation)

Ensuring a stable supply of timber has always been the goal of upstream tree planting and cultivation operations. One issue that arises is that, because young trees have conventionally been cultivated in open fields, they are more susceptible to the weather and require as long as two years before they can be shipped.

Against that backdrop, Obayashi has developed a technology employing artificial light to stably cultivate and nurture larch and other saplings that can be used as structural components for mid- to high-rise wooden structures. It is possible to conduct stable and efficient production from sowing to the shipment stage, irrespective of the environment or season, by appropriately controlling the indoor environment according to the growth stage of the saplings.



Saplings cultivated in growing shelves

■ Capital Alliance with Cypress Sunadaya Co., Ltd. (Midstream: Processing and Procurement)

Obayashi entered into a capital alliance with Cypress Sunadaya, the leading manufacturer of Japanese cypress timber products, which boasts advanced processing technology, large-scale production capacity, and price competitiveness. Cypress Sunadaya owns facilities that are capable of manufacturing Japan's largest cross-laminated timber (CLT)\* boards, a new engineered wood that is attracting considerable attention. Cypress Sunadaya supplied CLT for Obayashi's PortPlus® building and Sendai Umeda dormitory and also supplies many other companies. This capital alliance will enable Obayashi to work with Cypress Sunadaya in developing new products and expanding its distribution network. The Group aims to strengthen the supply chain for wooden structures by ensuring a reliable supply of quality timber products at competitive prices.



A CLT board manufacturing facility, one of the largest in Japan

\* A thick wooden panel produced by gluing together layers of boards, where each layer is oriented perpendicular to adjacent layers



Environment

■ Biomass Power Generation (Downstream: Construction, Power Generation, Reuse and Recycling)

The Obayashi Group is also working on ways to use wood as energy. It now operates the Otsuki Biomass Power Plant, which utilizes domestically sourced woody biomass,\* and the Obayashi Kamisu Biomass Power Plant that uses mainly imported wood pellets with sustainability certification. We are also working on

reusing and recycling wood as construction materials to ensure the sustainable recycling of forests.

\* Biomass is a renewable organic natural resource derived from living organisms (except fossil fuels) and woody biomass is derived from wood. Such materials include what is left over in forest land, such as branches and leaves pruned during tree trimming and log production; tree bark and sawdust generated at lumber mills; wood from demolished housing; and branches from pruned roadside trees.

■ Promoting Mid- to High-Rise Wooden Structures (Downstream: Construction, Power Generation, Reuse and Recycling)

Construction on nonowa Kunitachi SOUTH, JR East Group's first wooden commercial building, began in March 2023. The building was selected by Japan's Ministry of Land, Infrastructure, Transport and Tourism as a wooden structure that helps convey and broaden understanding of leading technologies used to construct wooden structures under the Fiscal Year 2022 Sustainable Building Leadership Project (Wooden Leadership Type). Introducing our technologies for mid- to high-rise wooden structures will facilitate the fixation of CO<sub>2</sub> through the active use of wood for structural and other components, and help revitalize local economies, including the forestry and timber industries, by using local timber in the Tama district.



nonowa Kunitachi SOUTH (Rendering of completed building)

**FY2022 wooden structure and interior construction orders: 5**

- In-house designs: 3
- Third-party designs: 2

Promote environmentally friendly businesses

ZEB Initiatives Scope 3

The Kubota Global Institute of Technology building was completed in July 2022. Obayashi was responsible for designing and constructing this R&D base for Kubota Corporation in Sakai City, Osaka. The Design and Research Building is the heart of the facility. Here, Obayashi constructed eaves, which blend in with the design while providing shade, and reduced heat load on the building exterior with stronger insulation. Various efforts have been made to utilize unused energy sources, such as geothermal heat and waste heat recovered from production processes as well as implementing building design to catch

natural light from the skylights and natural ventilation from prevailing winds. We created a net zero-energy building (ZEB) by combining these energy-saving technologies with energy-creating solar power generation facilities.

The office-use portion of the Design and Research Building obtained ZEB certification and the building as a whole obtained Nearly ZEB certification for reducing energy consumption by 109% and 76% respectively compared to the standard value.



Design and Research Building, Kubota Global Institute of Technology

**FY2022: Number of ZEB certification (design and construction projects): 6**

- Nearly ZEB: 1 (ZEB certification for office-use portion)
- ZEB Ready: 4
- ZEB Oriented: 1

A Word from the Head of Marketing Division

Carbon neutrality initiatives are vital to maintaining and further developing current social and economic activities, and decarbonization is an urgent issue that must be addressed.

As part of its quest to help bring about a sustainable society, the Obayashi Group has been developing and commercializing low-carbon materials. We are actively developing energy-saving technologies to reduce carbon emissions during the operation of a building, and are creating net zero-energy buildings and other buildings that boast high environmental performance. We obtained science based targets certification in 2022 and are currently accelerating efforts to achieve our targets for reducing greenhouse gas emissions.

We place particular emphasis on the use of wood as a low-carbon material, and are actively promoting the construction of wooden structures and interiors to help establish a recycling-oriented society. Our track record in this area includes the construction of our own Port Plus® training facility and the Sendai Umeda dormitory, through which we have demonstrated new technologies and construction methods. Furthermore, we have been able to deepen our knowledge and expertise of energy creation technologies through our green energy business. Combining the Group's reliable technologies and wealth of knowledge and expertise in providing comprehensive solutions that meet diverse needs will enable us to continue to support clients' progress toward carbon neutrality.



Atsushi Sasagawa  
Representative Director  
Executive Vice President  
Head of Marketing Division and  
Head of Tokyo Main Office

Introducing Electricity from Renewable Sources into Our Real Estate Holdings Scope 2

Obayashi's real estate development business seeks to introduce electricity from renewable sources into rental properties owned by the Company. The aim is to introduce electricity from renewable sources into all rental office buildings by FY2026 and

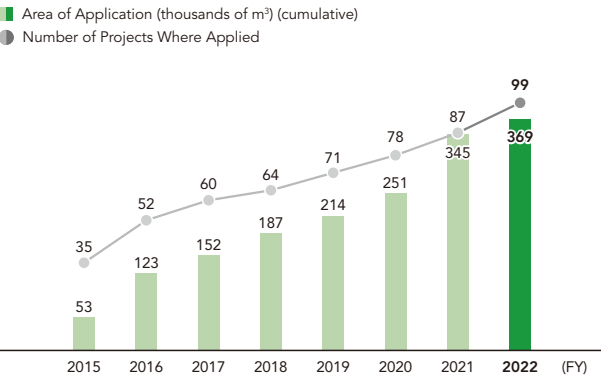
into all rental properties by FY2030. As of the end of FY2022, we had introduced it into 86% of rental offices and 85% of all rental properties, and we are making steady progress toward achieving targets.

Developing and Utilizing Low-Carbon Materials Scope 3

Clean-Crete® is a low-carbon concrete developed in house that enables us to reduce CO<sub>2</sub> emissions during production by up to 80% by replacing a portion of the cement with industrial by-products, such as granulated blast furnace slag, that result in lower CO<sub>2</sub> emissions. Approximately 370,000 m<sup>3</sup> of Clean-Crete® has been cast since the product was first developed in 2010. Having developed the basic technology, we then went on to develop Clean-Crete N®, which reduces CO<sub>2</sub> emissions by up to 120% by mixing calcium carbonate-based powders that absorb

and fix CO<sub>2</sub>. Clean-Crete N® was first used in March 2023 to build cast-in-place reinforced concrete (RC) walls. The Clean-Crete N® concrete blend that we used reduced CO<sub>2</sub> emissions by 106% compared to regular concrete, which enabled us to reduce CO<sub>2</sub> emissions by roughly 3.8 t through the construction project. This first application confirmed that Clean-Crete N® could be manufactured and applied in the same way as regular concrete and achieve a good finish. Going forward, we plan to roll out factory precast RC components made of Clean-Crete N®.

Actual Clean-Crete® Application



Casting concrete using a concrete pump



Environment

Promoting Green Energy Business

Launching Japan’s First Large-Scale Commercial Offshore Wind Power Generation Project

In January 2023, the Akita Offshore Wind Corporation, a consortium led by Marubeni Corporation and of which Obayashi is a member, started full-scale operation of the Offshore Wind Farm Project at Akita and Noshiro Ports in Akita Prefecture, boasting total power generation capacity of approximately 140 MW.

In addition to the initial Kumiyaama Solar Power Station launched in July 2012, Obayashi’s renewable energy business has operated 28 solar power plants, two onshore wind farms, two woody biomass plants, and can now add offshore wind farms to the list. Going forward, we will continue the stable operation of existing power stations and expand our renewable energy business.



Offshore wind farm at Noshiro Port

On-Site PPA

As part of the first phase of our power purchase agreement (PPA) business to sell electricity from renewable sources directly to electricity consumers, in March 2023 we began commercially operating an on-site PPA using solar power generation for Group company Naigai Technos Corporation's Main Factory newly established main factory in Fujimino, Saitama Prefecture.

PPA is advantageous for the electricity consumer because it promotes decarbonization, secures a stable, long-term supply of electricity, improves power resilience in the event of a power outage, and requires no initial outlay.

We intend to use the knowledge and expertise we gain through this project as a PPA operator to propose solutions to clients that satisfy their decarbonization needs.



Naigai Technos Corporation's Main Factory

Hydrogen Business

As we look towards achieving carbon neutrality by 2050, expectations surrounding hydrogen as a next-generation energy source are growing because no CO<sub>2</sub> is emitted during use.

We are making efforts to build a supply chain to facilitate the use of hydrogen both domestic and overseas. In New Zealand, we have been selling green hydrogen manufactured using geothermal energy since December 2021 in collaboration with Tuaropaki Trust. We also jointly invested in AFCryo Global Limited, the holding company of Fabrum Solutions Limited. Fabrum Solutions develops hydrogen-related equipment in New Zealand and possesses cryogenic separation technology, which leverages the different boiling points for hydrogen and oxygen to separate and recover the two elements from water. We intend to further expand our hydrogen business by harnessing synergy benefits generated by the advanced technological capabilities and extensive sales network of Fabrum Solutions and Obayashi’s strong track record and experience.

Meanwhile, in July 2021, Obayashi began manufacturing and supplying green hydrogen manufactured using geothermal power in the town of Kokonoe, Kusu District, Oita Prefecture. In January 2023, we supplied the fuel to hydrogen mixed combustion burners being used in demonstration experiments by Obayashi Road Corporation at its asphalt plant in Saga Prefecture. Furthermore, since April 2022 we have been conducting test deliveries with high transportation efficiency of green hydrogen derived from existing renewable energy sources to multiple sites in the town of Namie, Futaba District, Fukushima Prefecture. The deliveries are part of a project commissioned by Japan’s Ministry of the Environment to spread the appeal of hydrogen and stimulate demand through actual use.

The Obayashi Group will continue to work together to promote further decarbonization initiatives.

Biodiversity Conservation

At every phase of its business activities, including R&D, design, construction, and maintenance, Obayashi remains committed to technological development that preserves and creates ecosystems with rich diversity, while endeavoring to avoid or mitigate environmental impact at construction sites and surrounding areas.

Conserving Ecosystems through Biotope Development and Maintenance

Yamanashi Prefecture’s central final disposal site for residential waste (Kainokuni Ecopark) was constructed by an Obayashi joint venture company.<sup>1</sup> When the facility was under construction in 2018, we created two biotopes<sup>2</sup> with the aim of preserving living organisms and the natural environment. The biotopes helped conserve a variety of fireflies, dragonflies, frogs, and other species that were confirmed to be living in the vicinity of the project site, and biotope maintenance and biota surveys were conducted over a four-year period from 2019 to 2022. When constructing the biotope, we made the most of the project site’s topography and surrounding vegetation and arranged ponds, small streams, wetlands, and grassland to provide diverse habitats for organisms. The survey results confirmed the presence of the targeted organisms for conservation each year. They also confirmed that the creation and regular maintenance of the two biotopes, with their different environmental conditions, helped maintain and improve biodiversity in the vicinity of the project site. We will continue to strive to preserve biological and natural environments that are affected by construction projects.



Upstream biotope

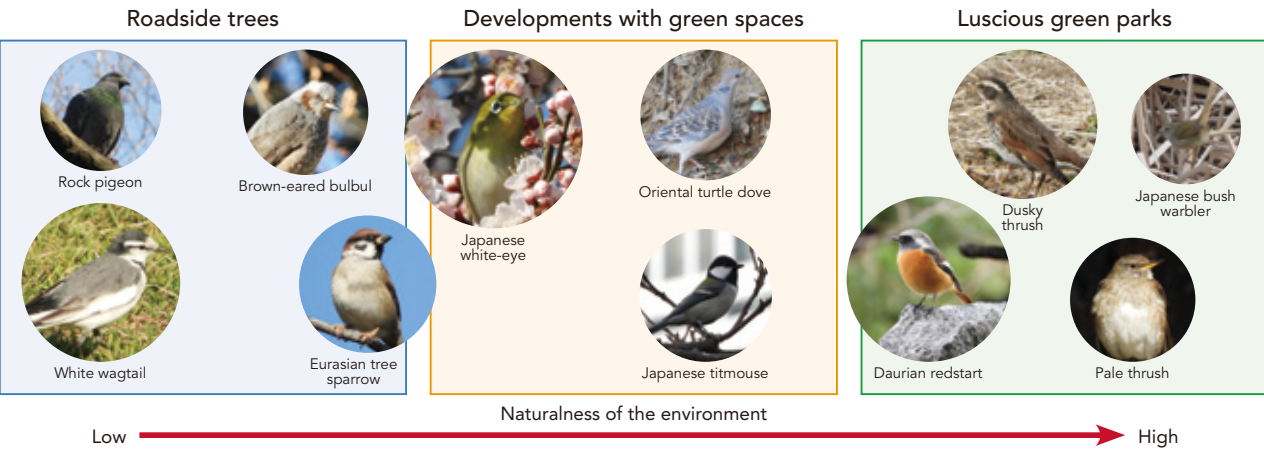


Genji firefly Schlegel's green tree frog Veronica undulata  
1. Obayashi/Kubota Environmental Engineering/Yuzawa Kogyo/Naito Construction Joint Venture Company  
2. Biotope is a term coined from the Greek words *bios* (life) and *topos* (place), and refers to a space where organisms (animals and plants) live.

Creating Biodiversity in Cities

In recent years, urban redevelopment projects have tended to include the development of green spaces. Obayashi conducted surveys of birds in various green spaces and city streets, including the Akasaka Intercity AIR and Shinagawa Intercity properties that we constructed, to verify whether the development of green spaces is improving urban biodiversity. The survey showed that birds, such as the Japanaese white-eye and Japanese titmouse, appeared much more frequently in urban areas with developed green spaces than in urban areas with only roadside trees. This suggests that this type of greening

is improving urban biodiversity to a certain extent. Obayashi has developed a model for assessing the habitats of organisms, which it uses as a tool for creating preferred environments for birds and for supporting urban greening. It also developed the Ikimono-NAVI® environmental assessment system for contributing to urban biodiversity. Going forward, Obayashi will continue to utilize these technologies, knowledge, and expertise to propose ways in which clients can help create urban biodiversity.



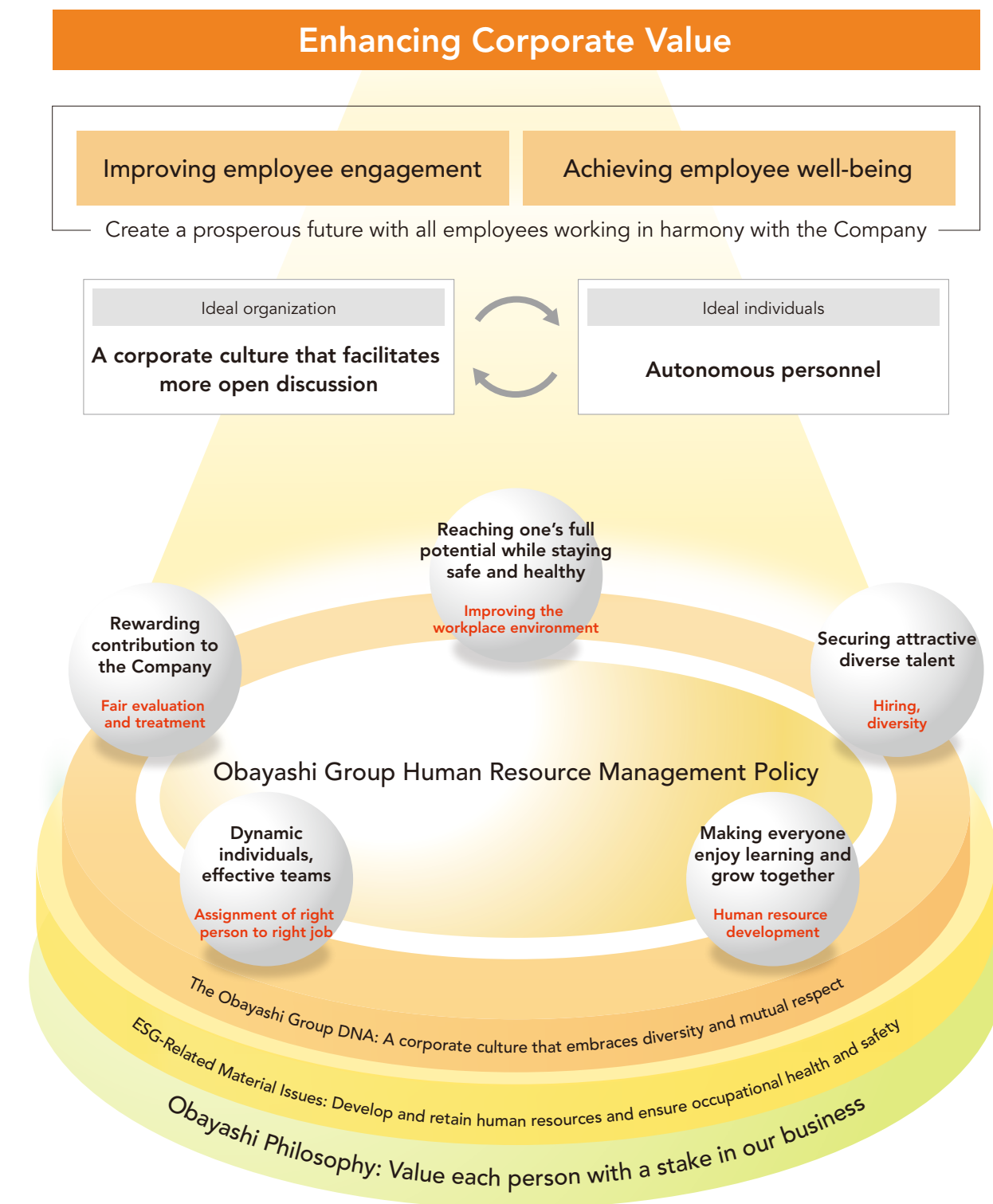
Birds that have been confirmed as characteristically appearing at each survey site

# Human Resource Management

<https://www.obayashi.co.jp/en/sustainability/employee.html>

The Obayashi Group believes it is essential to value each person with a stake in its business, as stated in the Obayashi Philosophy, because it is the strength of each and every employee that supports companies. Based on a corporate culture that embraces diversity and mutual respect, we have established “developing and retaining human resources” and “ensuring occupational health and safety” as material ESG issues for the Group, and initiatives are in place to address those issue.

Our HR strategy is an important element of the platform development strategy of Obayashi Group Medium-Term Business Plan 2022. In December 2022, the Obayashi Group Human Resource Management Policy was formulated to improve employee engagement and well-being. We will strive to provide professional growth opportunities and create rewarding workplaces for our employees as part of our quest to improve corporate value by maximizing individual and organizational performance.



## Reaching One's Full Potential While Staying Safe and Healthy

The Obayashi Group believes that, in order for each employee to maximize their abilities, it is important to maintain good physical and mental health, to respect their peers, and to be able to engage in constructive discussion based on trust. We seek to further strengthen and invigorate our organizational capabilities by creating healthy, comfortable, and open working environments.

### FY2022 Results

• Number of fatal accidents: **1\***

• Ratio of reported findings in employee health check: **38.6%**

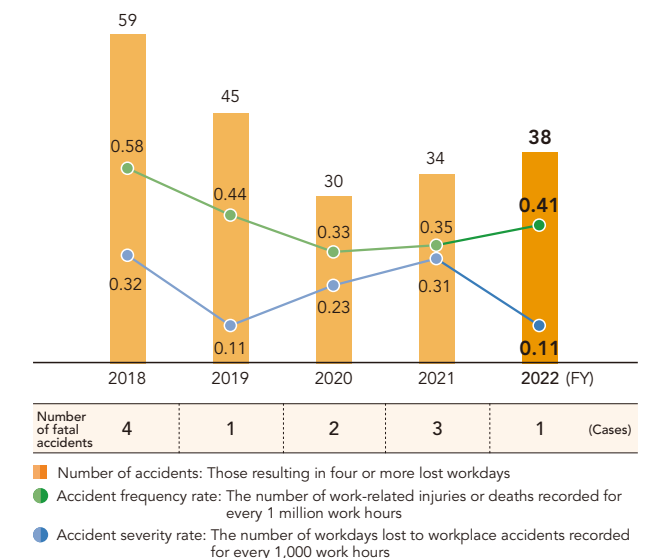
(Including skilled workers on construction sites)

## Ensuring Occupational Health and Safety

In line with our Health and Safety Principles, which emphasize our resolve to ensure the health and safety of workers and create comfortable workplace environments, we are promoting health and safety activities on a daily basis. Safety at construction sites in particular is of the utmost importance because many people work on those sites. In FY2023, the Company set the goal of eliminating fatal and serious accidents, and is working on priority measures to ensure that goal is achieved. We are also working to enhance and promote safety training. In addition to conducting group training (using actual cases of accidents as examples) for all employees working on construction sites, we provide hazard simulation training for workers using virtual reality and other means. Interactive patrols have been introduced into on-site patrol activities that check the status of health and safety in order to raise safety awareness and sensitivity to danger across each construction site. Dialogue within the construction site helps identify potential risks and issues and facilitates the implementation of more effective safety measures.

### Occupational Accidents on Construction Sites

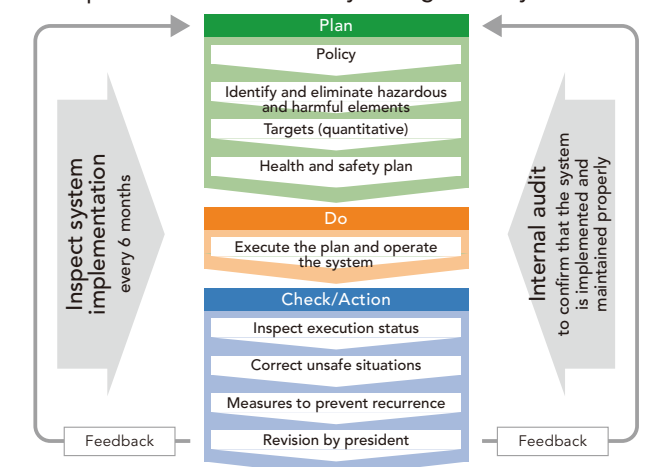
(Including skilled workers on construction sites)



## Occupational Health and Safety Management System

The Central Health and Safety Committee, chaired by the president, meets at least twice a year to discuss fundamental issues relating to health and safety, such as how to prevent occupational accidents and health problems, and maintain and promote wellness. We also operate the Occupational Health and Safety Management System, which promotes the systemic management of safety-related issues in order to help realize our Health and Safety Principles. We set policies and targets and implement a PDCA cycle, and we are always working to improve the system. We have also established a system for the smooth conveyance of information between the main offices and branches and construction sites in the event of an emergency, such as a disaster at a construction site.

### Occupational Health and Safety Management System





Human Resource Management

Promoting Health and Productivity Management

The Obayashi Group regards health and productivity management as an important element of its HR strategy. In December 2022, we formulated the Obayashi Health and Productivity Management Policy and established the Health and Productivity Management Promotion Expert Subcommittee to actively pursue health and productivity management issues and determine ultimate targets and indicators for specific health management issues.

**Health and Productivity Management Policy**

For the well-being of our employees and their families, the Obayashi Group strives to provide a fulfilling workplace and support initiatives to improve, maintain, and enhance our employees' mental and physical health.

The Group makes use of in-house clinics to provide general medical care and medical advice including how to quit smoking. We strive to maintain and improve the physical and mental health of employees by boosting the rate of participation in stress checks, promoting follow-up medical care, and holding various health-related events. We also focus on making consultation desks easier for employees to use, and provide specialist doctors and clinical psychologists to support employee wellness. In February 2023, we introduced a welfare platform, available to all Group employees and their families, that deals with health issues at every stage of life. We offer seminars that provide vital health information for planning a career and various life events, and provide an anonymous community for advice seeking.

Reducing Working Hours

To help correct the issue of long working hours, Obayashi has established an inter-departmental organization called the Work Style Reform Project Team and is working to reduce total working hours. The 100% achievement of the cap on overtime work hours included in the revised Labor Standards Act (application from FY2024) was set as a KPI in FY2021, and initiatives are currently underway to help achieve that target in FY2023, one year before the revised regulations come into force in the construction industry. We implement e-learning for all employees that deals with attendance management, and are seeking to improve operational efficiency through the use of ICT. As a result, we attained 86.9% of all standards in FY2022, compared to 78.9% in FY2021.

We are also working to ensure employees on construction sites are offered eight days off every four weeks.



Annual KPI Achievement Rate for Overtime Work Hours (FY2022 Results)			
General Rule	Special Measure	Achievement rate (%) (construction sites)	FY2021 comparison results (pt) (construction sites)
No more than 45 hours/month No more than 360 hours/year	Yearly limit No more than 720 hours/year	94.6 (91.0)	+3.3 (+4.5)
	Multiple-month average limit No more than 80 hours on average over 2-6 months*	92.2 (88.2)	+4.4 (+4.9)
	Single-month limit Less than 100 hours/month*	96.6 (95.4)	+3.4 (+4.3)
Special measure limit Special measure (more than 45 hours/month) up to 6 times/year		89.5 (83.0)	+7.4 (+9.8)
Achievement of all criteria		86.9 (79.5)	+8.0 (+10.0)

\* Includes work on legally mandated days off

Securing Attractive Diverse Talent

We believe that each and every employee supports the Company and so we are committed to promoting diversity and inclusion in order to continue to create new value. We strive to create workplaces where diverse human resources can fulfill the same role, irrespective of their gender, nationality, culture, generation, or ability/disability. We are also working to hire more talent and to encourage the active participation of our personnel.

**FY2022 Results**

- Ratio of women in managerial positions (Section manager level or above)/Female engineers: **5.3% / 10.4%**
- Ratio of eligible male employee taking childcare leave or other leave for the purpose of childcare: **81.3%**

Promoting Diversity and Inclusion

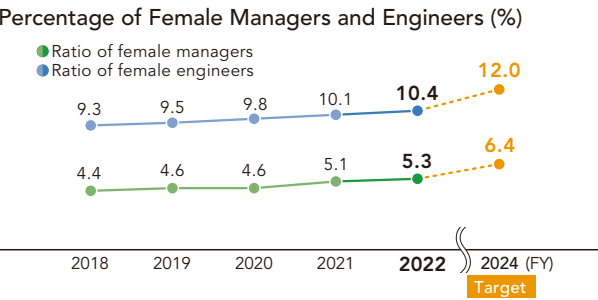
In April 2021, Obayashi established the Diversity & Inclusion Promotion Department to ensure the well-being of employees and to help foster a corporate culture that embraces diverse thinking. This was part of the Company's aim to build an organizational foundation that positively promotes change and the active participation of diverse human resources. The department is tasked with raising awareness among all

employees by distributing messages from the president promoting diversity and inclusion, conducting various training programs focused on such themes as unconscious bias, and implementing office reforms to accommodate diverse employees, such as installing all-gender restrooms and breast milk expression spaces, and others.

Promoting Opportunities for Female Employees

Obayashi has striven from an early stage to create working environments that allow employees to utilize their individual skills and abilities, and to enable both men and women to play an active role based on their abilities, rather than their gender. The Company aims to increase the percentage of female managers to 6.4% and the percentage of female employees in engineering fields to roughly 12% by FY2024 as part of our second action plan based on Japan's Act on the Promotion of Women's Participation and Advancement in the Workplace. We also endorsed the Keidanren (Japan Business Federation) “#Here We Go 203030” initiative, which seeks to increase the percentage of executive positions held by women to 30% or more by 2030. Obayashi provides career support to help women transition through individual life stages. That support includes the organization of gatherings for female engineers to share their views and experiences and online roundtable discussions with employees currently on childcare leave. Female students

interested in science and engineering can also take part in on-site tours conducted as part of the next-generation training program. In October 2022, Obayashi attained the highest three-star rating of L-boshi certification from the Japanese Minister of Health, Labour and Welfare, which is based on the above-mentioned Act.



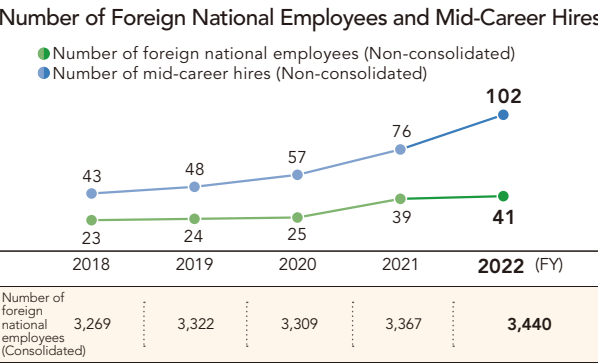
Securing Specialized Human Resources

Obayashi appoints personnel to positions based on ability, irrespective of whether they are foreign nationals, mid-career hires, senior workers, or other personnel types. The number of foreign nationals and mid-career hires is increasing every year across the Group, and locally hired national staff play an active role as core personnel responsible for business administration and management at our overseas Group companies.

Senior workers can serve as important human resources that help develop young talent and pass on skills to the next generation of employees. We have therefore created an environment that encourages senior workers to continue to play an active role even after retirement and have re-employed 100% of those who wished to utilize the system.

In April 2023, Obayashi significantly revised the annual salary level for senior workers appointed to such positions as managers with important responsibilities at construction sites.

In this and other ways, the Company actively promotes measures to enhance employee engagement.



Achieving a Good Work-Life Balance

Obayashi strives to encourage a good work-life balance by improving its workplace culture and reforming systems so motivated employees know they can continue to work with no detriment to their career even during different life stages, such as when they have childcare or nursing care commitments.

With regard to childcare support, we strive to create comfortable workplaces that enable employees to balance work and private commitments regardless of gender by, for instance, ensuring 100% of eligible male employees take childcare leave or other leave for childcare by FY2024. Employees looking to utilize these systems or return to work are fully supported. The Company is also attempting to raise awareness of management personnel and to change their mindset. In Japan, an Iku-Boss is a

manager who encourages his or her team to pursue a healthy work-life balance and sets a good example. Our president and the heads of each division have themselves implemented the Obayashi Iku-Boss Declaration, and we conducted Iku-Boss training for approximately 590 managers in FY2022.

Employees can also utilize various nursing care support systems, such as nursing-care leave and shortened working hours to help their family care responsibilities with more peace of mind. We also hold seminars on dementia, nursing care, and other themes to help deepen understanding not only for the employees in question, but among all employees in the workplace.

## Human Resource Management

### Making Everyone Enjoy Learning and Grow Together

The Obayashi Group has positioned human resource development as one of its most important measures because we believe that human resources are a key management resource. The Group fosters a corporate culture that encourages employees to view their own work and work environment as an opportunity to grow. It also helps employees take the initiative in developing skills and building their own career path by supporting the acquisition of skills and knowledge and providing development opportunities through such means as training and overseas study.

<b>FY2022 Results</b>	<ul style="list-style-type: none"> <li>Training expenditure per employee: <b>¥44,000</b></li> <li>Ratio of employees with important construction management credentials: <b>82.7%</b></li> </ul>
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#### Human Resource Development

The Obayashi Group offers level-specific training according to age and job responsibilities and also provides specialist training for specific job types, business segments, and areas of responsibility. The development of human resources to fuel global business development is a key focus, and the Group is currently expanding this kind of training. For example, the basic training program that had been offered to candidates for international assignment has been incorporated into level-specific training for all young employees from FY2023.

Initiatives to help employees develop skills independently have been underway since FY2022. These initiatives include the holding of various workshops on improving productivity by looking at how employees conduct their work and communicate, in addition to

seminars on career support and online self-learning programs that offer employees the opportunity to learn new or different skills.



Training on global human development for young employees

#### Supporting Employees Seeking New Qualifications

The Group extends proactive support to employees seeking to gain new qualifications so they can acquire further expertise, independently progress their careers, and be motivated to improve themselves. We have set incentives for each business segment, area of responsibility, and type of job, and cover a portion of the cost of learning materials and examinations. We are also working to improve the number of employees seeking to acquire priority qualifications that are particularly important for our management and business operations. Systematic progress has been made in this area. In addition to financial rewards for passing exams, allowances for priority qualifications were also introduced in FY2022.

Number of Employees with Key Qualifications (As of March 31, 2023, non-consolidated)	
Professional engineer	1,159
Registered first-class architect	2,179
Registered first-class construction management engineer (building construction)	2,926
Registered first-class construction management engineer (civil engineering)	1,746

### Rewarding Contribution to the Company

The Obayashi Group rewards employees who contribute to the Group's business performance and medium- to long-term growth in a timely and appropriate manner, and strives to maintain and increase the motivation of employees. Ensuring that employees are treated appropriately based on fair and equitable personnel evaluations is the bedrock of our personnel system. We have also established various internal award systems to honor and reward the contributions employees make to their organization. In addition to awarding employees, we offer special commendations to recognize efforts and achievements of people outside the Company.

<b>Major Internal Awards for FY2022</b>	
<ul style="list-style-type: none"> <li>President's special commendation: Honoring COVID-19 measures team</li> <li>Work Style Reform Award: 16 construction sites</li> </ul>	<ul style="list-style-type: none"> <li>Safety and Quality Distinguished Service Award: 25 people</li> </ul>

### Dynamic Individuals, Effective Teams

The Obayashi Group strives to maximize the performance of individuals and organizations and, as such, seeks to assign the right person to the right job based on the abilities and aptitudes of each employee and the career paths they choose. We also share our vision and goals with all employees to help create a workplace in which all employees can feel motivated and satisfied in their daily work.

<b>FY2022 Results</b>	<ul style="list-style-type: none"> <li>Employee satisfaction rate: <b>78.4%</b></li> </ul>
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#### Assignment of Right Person to Right Job

To further advance our human resource management, we introduced a talent management system in March 2023 that is designed to encourage employees to systematically build their careers and develop their skills, as well as to optimize the allocation of those human resources.

The system enables us to gain a good understanding of the

skills acquired through work experience by visualizing each employee's detailed work experience and qualifications, and enables us to assign the right person to the right job. Employees can also use the system to get an overview of their own experience and skills, enabling them to draw up career plans for discussion in personnel interviews and other settings.

#### Helping Instill Our Vision and Goals

We share our vision and goals with all employees and provide opportunities for dialogue with management to ensure each employee can concentrate on their work with a clear awareness of the Group's goals. The president and other members of the senior management team visited all our branches when our brand vision and Medium-Term Business Plan 2022 were created to explain the details and engage in dialogue. In November 2022, we held Medium-Term Business Plan 2022 live meetings attended by the president and mid-career and young employees to deepen support for the plan and the ideal future structure and aims of the Group. The meetings were also streamed webinar-style, and attracted a total of over 500 employees. Employees shared their opinions on the philosophies and policies they could

get behind, the significance of the Group and its social role, their reasons for working, their dreams for the future, and other topics.



The Medium-Term Business Plan 2022 Live Meeting

#### A Word from a Live Meeting Participant

The ideals and future vision for myself and the Group are things that I rarely have time to think about in my daily work. The live meeting proved a valuable opportunity to hear the views of our president directly and to exchange opinions and think together with colleagues of my age group. I was able to not only understand the background and reasons that led to formulation of the 2022 medium-term plan, but also to form a clear perspective on what I can do at present and how I can go on contributing to reaching our future goals. The live meeting triggered a change in my actions. In my work on internal communications, I now constantly ask myself whether my articles prompt or encourage change in employees' awareness and enable them to rediscover the appeal of the construction business as well as their fulfillment in being part of it.



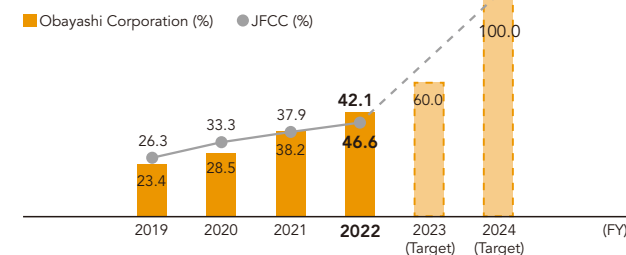
Rina Inamura  
Corporate Communications  
Department



## Feature: Aiming to Close Construction Sites Eight Days out of Every Four-Week Period

Obayashi has set a KPI of closing construction sites eight days out of every four-week period (104 days or more a year) at 100% of its construction sites by FY2024 in line with the basic policy advocated by Japan Federation of Construction Contractors (JFCC). However, in FY2022, the achievement rate was below 50% for the Company's building construction and civil engineering sites in Japan. Obayashi is now promoting various initiatives to help achieve this ambitious goal.

### Construction Sites Closed Eight Days out of Every Four-Week Period



## Standardizing Operations and Sharing Best Practices

While each construction site is faced with different conditions and requires different measures to suit the site, Obayashi is working to standardize operations by developing standard construction management guidelines. We are also applying construction site best practices accumulated across the Company to other construction sites. In addition, to reduce travel time we have started holding online morning meetings that personnel can attend without leaving their work areas and setting up satellite offices within construction sites, while also introducing measures such as streamlining administration through paperless operations.



Periodic online articles covering best practices in construction site work style reform for Company-wide application through our intranet

## Getting Clients on Board

To close construction sites for eight days out of every four-week period, it is necessary to set appropriate construction periods. Obayashi explains this to the client when receiving orders, and clients are becoming more accommodating on this issue. The proportion of projects for which the system of closing eight days

out of every four-week period is accepted is increasing each year. In FY2022, the proportion of orders received with that stipulation rose to 34%\* in the domestic building construction business.

\* Proportion of construction work with a contract fee of at least ¥100 million, or a construction period of at least four months

## Utilizing ICT Tools

Obayashi is promoting the use of ICT tools. Not only does the Company decide in advance which ICT tools will be introduced at which site, but it also seeks to promote the use of ICT tools by

assigning digital concierges to construction sites and providing ongoing skill-building training.

### eYACHO® App for Construction Sites

Obayashi was one of the first in the industry to introduce tablet computers, develop various apps, and promote their on-site use. eYACHO® is an app that was jointly developed with MetaMoJi Corporation to digitize the field book used at construction sites. Using the app, construction site personnel can create daily logs and instruction manuals, record on-site inspections and patrols, manage quality records, and create machinery and scaffolding inspection checklists. They can also share information with other employees as well as our suppliers and subcontractors in a timely manner. In these

ways, the app helps reduce the amount of time spent in the office on administrative tasks.



Real-time sharing of information with other employees and with suppliers and subcontractors by entering progress updates and corrective instruction into eYACHO® at construction site

## Human Rights

<https://www.obayashi.co.jp/en/sustainability/employee/humanrights.html#section1>

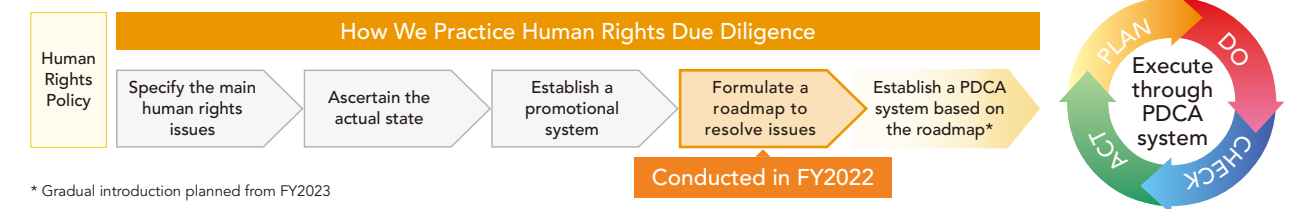
The Obayashi Philosophy is founded upon a commitment to value each person with a stake in our business, and we are therefore striving to be a company that values every one of its associates. Not only do we comply with the laws and regulations of each market in which we operate, but we also formulated the Obayashi Group Human Rights Policy in accordance with the United Nations Guiding Principles on Business and Human Rights, an international standard, and promote initiatives to uphold human rights based on this policy.

## Conducting Human Rights Due Diligence

We conduct human rights due diligence through our Human Rights Expert Committee (chaired by the officer in charge of human resources) and the Supply Chain Management Expert Committee (chaired by the head of the Building Construction Division) on the executive side. The committees also strive to resolve human rights issues across our supply chains, and to promote human rights awareness.

In FY2019, we identified significant human rights issues for our main businesses. To ensure we fully understand the current

situation regarding these issues, we enlisted the help of external experts to conduct interviews with each of our businesses and responsible departments in FY2020 and with our main Group companies in Japan in FY2021. In FY2022, we conducted a survey of our overseas Group companies, organized concrete action plans based on the survey responses on current conditions collected to date, and formulated a roadmap for human rights due diligence. Going forward, we intend to promote initiatives for upholding human rights based on the roadmap.



\* Gradual introduction planned from FY2023

## Establishing Human Rights Help Desks

We have set up help desks for consultation and whistleblowing both inside and outside the Company based on our Corporate Ethics Consultation and Reporting System to serve as contact points for people seeking assistance on human rights-related issues. We have also set up a contact point dedicated to harassment-related matters. Both help desks can be accessed openly or anonymously by all Group employees as well as external stakeholders, such as suppliers and job seekers. The content of

any submitted report is confidential and thoroughly protected to prevent any disadvantageous treatment of whistleblowers.

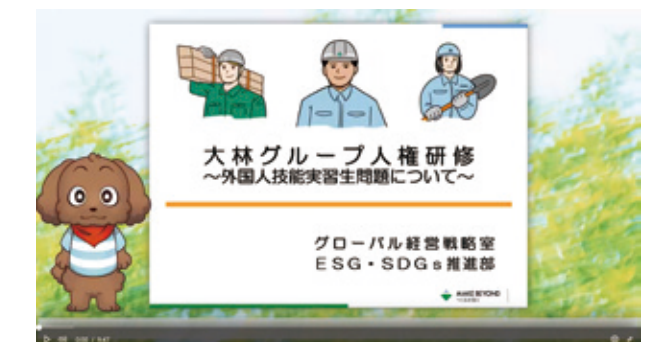
Number of consultations and reports in FY2022: **223\***

\* Including whistleblowing on such issues as legal violations not related to human rights

## Human Rights Awareness Activities

The Obayashi Group has established the Human Rights Expert Committee chaired by the officer in charge of human resources. We strive to prevent human rights violations, identify and resolve any human rights issues, and pursue initiatives to raise awareness of human rights. Each year, we provide education on basic human rights knowledge in new hire training and job level-specific training. In FY2022, we also conducted e-learning for all Group employees on issues relating specifically to foreign technical intern trainees (95.6% participation rate). We convey information about our human rights policy and help desks in these training sessions to ensure full employee awareness and understanding.

Meanwhile, the specialized Harassment Prevention Department conducts annual e-learning for all Company employees on harassment and implements awareness-raising activities to eliminate incidents of harassment.



Themed e-learning video regarding foreign technical intern trainees



## Supply Chain Management

The Obayashi Group has set the co-creation of a sustainable supply chain as one of the 2040–2050 targets of Obayashi Sustainability Vision 2050. With that aim in mind, the Group has been working across the whole supply chain to strengthen competitiveness and secure the workers we need to support our future.

That means tackling various challenges under the guidance of the Supply Chain Management Expert Committee, including improving working environments for skilled workers on construction sites and using construction DX to improve the productivity of the Obayashi Group, its suppliers, and subcontractors, as well as addressing human rights and other issues in the supply chain both inside and outside Japan.

### The Obayashi Group CSR Procurement Policy

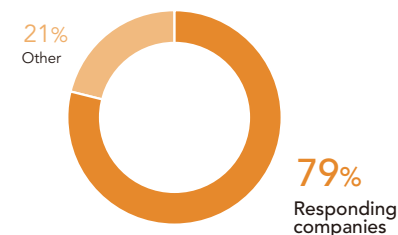
The Obayashi Group formulated the Obayashi Group CSR Procurement Policy to help create a sustainable society as called for in the Obayashi Basic Principles. Within the overall policy, the Basic Policy on CSR Procurement Initiatives covers items that Group employees need to comply with when pursuing CSR procurement. Meanwhile, the CSR Procurement Guidelines

define practices that the Group requires of suppliers based on the overall policy. We strive to ensure that the guidelines are understood and take root across our suppliers' supply chains as well, as part of the broader effort to promote CSR initiatives in all related supply chains.

### CSR Procurement Questionnaires

Obayashi conducts questionnaires across the supply chain every fiscal year to confirm the widespread awareness and acceptance of the Obayashi Group CSR Procurement Guidelines, and the degree of compliance. In FY2022, the survey covered approximately 1,450 companies, including members of the Obayashi Rin-yu-kai and companies that conduct regular business with the Group (response rate: 89.0%). We intend to share opinions and promote CSR procurement initiatives based on the survey results.

Proportion of Procurement from Survey Respondents in Total Procurement in Japan



### Traceability Survey

In response to the growing social concern surrounding human rights violations, environmental destruction, and other issues in supply chains, we started conducting traceability\* surveys in FY2021 on wood products and solar panel components that are procured overseas and are thought to carry a high degree of human rights risk.

The survey broadly confirmed the traceability of products in both areas and no risk of human rights violations or

environmental destruction was detected at the time.

We will conduct regular surveys to maintain a clear understanding of the latest situation and also encourage deeper understanding of the CSR Procurement Guidelines among suppliers and subcontractors.

\* A means of clarifying the production processes (raw materials procurement, production, consumption, disposal) and distribution channels for a particular product

### Survey on the Reception of Foreign Technical Intern Trainees

Potential human rights violations against foreign technical intern trainees have been pinpointed as a social concern, so Obayashi conducted a questionnaire on how foreign technical intern trainees are being accepted at relevant suppliers and subcontractors. Interviews and discussions were conducted with five suppliers and subcontractors based on the survey results.

The survey did not reveal any obvious human rights violations, but it did highlight some areas for improvement. We will continue to conduct surveys and consult on potential improvements.



Interviewing suppliers and subcontractors

<https://www.obayashi.co.jp/en/sustainability/suppliers.html>

### Engaging with Suppliers and Subcontractors

Every year, Obayashi holds a meeting with Obayashi Rin-yu-kai member companies to discuss a wide range of issues that encompass quality, safety, and environmental consideration, as well as how to reform work styles, improve productivity, and secure workers. Any useful opinions or examples shared during the discussion are applied across the entire Company and incorporated into subsequent activities. Every six months, suppliers and subcontractors are evaluated on a five-level scale based on seven factors, including quality, safety, and environmental consideration. Each participating company is individually notified of the evaluation results, guidance is provided in the form of interviews and other means to spur improvements, and awards are presented to excellent suppliers and subcontractors.

Obayashi seeks to raise awareness of CSR procurement

among its suppliers and subcontractors through effective engagement, and to build beneficial partnerships.



A meeting with Obayashi Rin-yu-kai members

### Securing Talented Workers

Obayashi Rin-yu-kai is made up of suppliers and subcontractors across Japan and boasts approximately 1,200 member companies engaging in various types of construction work and businesses. In 2014, Obayashi Corporation and Obayashi Rin-yu-kai launched the Obayashi Rin-yu-kai Vocational Training School. The school aims to train skilled workers of Obayashi Rin-yu-kai member companies and transfer skills to the next generation of workers. As of March 31, 2023, a total of 428 people had completed the program and were actively engaged on construction sites. In March 2023, the school set up a new O-DX Room and started offering training on crane slinging\* operations using virtual reality (VR) tools. Going forward, the school will enhance its training programs so that workers can acquire a more diverse range of skills. The school will also strive to contribute to securing more workers.

\* The work of securing a load to the crane when lifting loads with a crane



A slinging training session using VR technology

### Establishing the Business and Skills Transfer Support Center

The business continuity of specialized construction companies has become a challenge for the industry, due to the aging of skilled workers and the lack of successors to take over the management of such companies. Obayashi Rin-yu-kai member companies, which are important Obayashi stakeholders, face similar problems, so, in April 2023, Obayashi opened the Business and Skills Transfer Support Center to help solve these management issues and provide the necessary support.

The center has set up a consultation desk for individual companies to discuss business succession (M&A, internal successor training), talent recruitment, human resource development and retention, the use of IT, and other issues, and receive individualized support from specialist consultants. Obayashi will also provide educational opportunities by holding

training sessions for management and employees and streaming e-learning programs.



Group discussion at a training session for prospective business successors

# Intellectual Property

[https://www.obayashi.co.jp/en/sustainability/intellectual\\_property.html](https://www.obayashi.co.jp/en/sustainability/intellectual_property.html)

In order to innovate technologies and businesses, which is one of the basic strategies of Medium-Term Business Plan 2022, the Obayashi Group is seeking to create, utilize, and protect its expertise and other intellectual property as well as its patents and other industrial property rights.

The Group also pursues initiatives centered around intellectual property to help address its aims of carbon neutrality and well-being, and achieve Obayashi Sustainability Vision 2050. Intellectual property strategies are now an important part of the Group’s management strategy. The new Obayashi Group Intellectual Property Policy was formulated in April 2023 to convey this fact to internal and external stakeholders.

## Obayashi Group Intellectual Property Policy

The Obayashi Group strives to “exercise honest craftsmanship with superior technologies and create new value in every space,” as stated in its corporate philosophy.

We define intellectual property as overall intellectual assets encompassing a broad spectrum of techniques, ideas, know-how, accumulated data, and networks built with external partners, regardless of whether or not they are protected by statutory industrial property rights, such as patent and design rights, linked together in an organic fashion. We will create and utilize these assets effectively to generate value, in order to ensure the sustainable advantage of our business and contribute to solving social issues.

To the that end, we need to have an appropriate intellectual property strategy to organically link technological development strategies with business strategies. We have therefore established the Intellectual Property Policy to provide guidelines for developing intellectual property activities in an integrated manner, with the aim of achieving a sustained increase in the Obayashi Group’s corporate value.

- Create**  
We effectively acquire intellectual property to realize the vision and business strategies of the Obayashi Group.
  - Utilize**  
We make the most effective use of intellectual property so acquired in order to create new value on an ongoing basis.
  - Protect**  
In order to ensure the protection of intellectual property, we secure and exercise our legitimate rights to such property while respecting those of others.
  - Communicate**  
We communicate with our stakeholders in a comprehensible way about our activities aimed at achieving the Obayashi Group’s sustainable growth—growth that is achieved by creating value through the acquisition and utilization of intellectual property.
- We promote these intellectual property activities in a bid to achieve a sustained increase in our corporate value.

## Structure on Intellectual Property Strategy

In the past, the Group’s intellectual property strategy and management was carried out by multiple departments within the Technology Division. When formulating the Intellectual Property Policy, Obayashi also reorganized the department responsible for intellectual property in the Technology Division and established the Intellectual Property Strategy Department. The purpose was to build a system for creating intellectual property considering internal and external technological needs in line with the Intellectual Property Policy and to promote an Intellectual Property (IP) landscape.\* The department works together with business divisions to promote initiatives, from the formulation of technology strategies and technology development to the acquisition, utilization, and protection of IP rights.

Obayashi also established the Technology Strategy Expert Committee, which is chaired by the head of the Technology

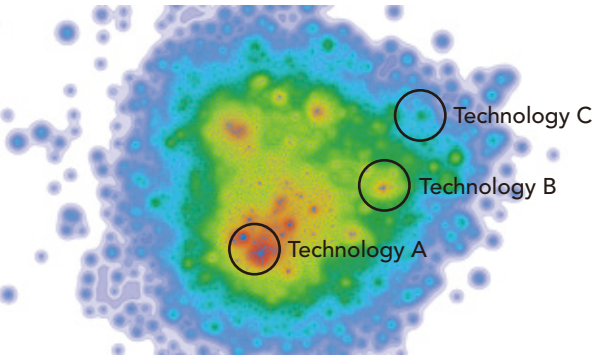
Division and under the jurisdiction of the Business Plan Committee commissioned by the president. The Technology Strategy Expert Committee considers and formulates policies and strategies across all departments on the acquisition of intellectual property with an eye on the future business environment, as well as the active use of existing intellectual property. In FY2022, the expert committee examined strategies for important themes, such as carbon neutrality.

\* The method of (1) conducting analysis that incorporates intellectual property information into management and business information, and (2) sharing the analysis results (overview of current situation, future prospects, and other aspects) with managers and business executives when formulating management or business strategies (Sharing is defined as interactive exchanges in the form of debates and discussions on the formulation and consideration of management or business strategies and receiving feedback on the analysis results.) (Source: Overview of research on intellectual property information analysis and utilization that contribute to management strategies [Japanese only], Japan Patent Office, April 2021)

## Example of Analysis Assessment

The Obayashi Group is using intellectual property analysis tools and other means to visualize its intellectual property and coordinate management, intellectual property, and business strategies, as it seeks to further improve the value of its intellectual property and identify areas requiring additional reinforcement.

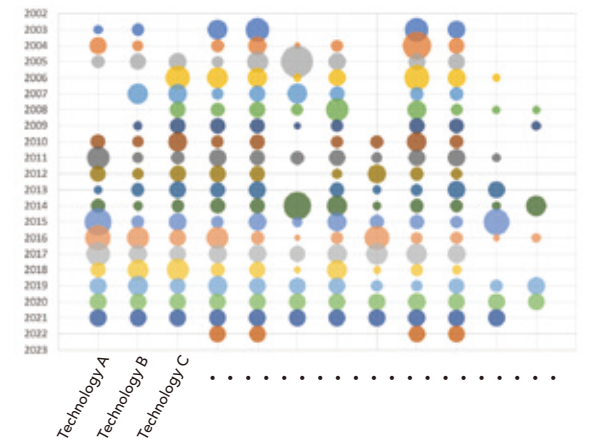
Example of Analysis of General Contractor Patents<sup>1</sup>



Tools for analyzing trends in industrial property rights filings are used to identify such aspects as differences in the focus areas of the Obayashi Group and other companies, and that knowledge is applied to the formulation of technology development strategies.

1. Created using VALUENEX Radar provided by VALUENEX Japan Inc.

Example of Value Assessment of Obayashi Group Patents<sup>2</sup>

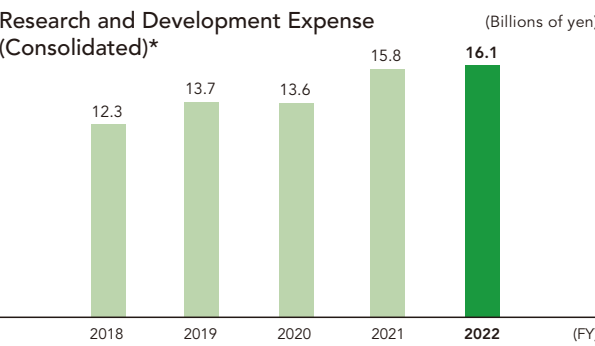


Change in the value of industrial property rights over time in the relevant technology field is determined so that industrial property rights can be used effectively.

2. Created using data from the LexisNexis® PatentSight® patent analysis tool

## Investing in Intellectual Property Creation and Education

Under Medium-Term Business Plan 2022, the Obayashi Group intends to invest ¥80 billion (an average of ¥16 billion each fiscal year) in technology-related areas over the five years from FY2022. Bearing in mind our carbon neutrality and well-being goals, we are seeking to advance research and development for the future and improve corporate value.



\* Figures up to FY2021 are research and development expense included in “Selling, general and administrative expenses” as stated in the consolidated statements of income. From FY2022, figures are expenses for technology-related investment in Medium-Term Business Plan 2022

The Obayashi Group engages in educational activities to help instill the importance of intellectual property across all Group companies. In FY2022, a total of 540 people participated in e-learning on intellectual property rights, which was made available to all employees in Japan. The training has helped improve understanding of the importance of intellectual property

and how to use it, not only among staff in technology departments, but also among employees engaging in marketing and other operations.

The Group also held Management of Technology (MOT) study sessions for next-generation leaders in departments responsible for R&D, new businesses, and other areas, and 57 people attended in FY2022. We view technical prowess and the fruits of R&D as key management resources, and nurture leaders with a strategic perspective.

We have held a total of 13 IP landscape briefings for researchers and others at the Technology Research Institute and technology-related departments to help deepen internal understanding of IP landscapes. We also hold study sessions and other such events at the Technology Research Institute when necessary, primarily to help raise awareness of intellectual property-related matters.

These educational activities are designed to help promote technological development in accordance with our management and business strategies.

Actual Education Results (FY2022)	
• E-learning on intellectual property rights	540 attendees
• Study session on MOT	57 attendees
• Briefings on IP landscape	13



## Technologies in Focus

### 3dpod™ Japan’s First 3D-Printed Building, Certified by Minister of Land, Infrastructure, Transport and Tourism

The 3dpod™ is the first 3D-printed building made from cement-based materials in Japan to obtain certification from the Minister of Land, Infrastructure, Transport and Tourism under the Building Standards Act. A 3D printer was used to create all the aboveground structural components, such as the walls and floors.

Obayashi is developing structural design that uses a special mortar for 3D printers<sup>1</sup> that does not require rebars or steel beams and SLIM-crete<sup>®2</sup>, ultra-high strength fiber-reinforced concrete. In May 2022, the Company started constructing a 3D-printed demonstration building in accordance with building stipulations under the Building Standards Act aiming for the practical application of 3D printers in the construction field. The 3dpod™ was completed in March 2023.

Obayashi will continue to research 3D printer construction and develop technologies that are capable of carving a new future for construction.

1. Denka Printar<sup>®</sup> mortar developed by Denka Company Limited that does not lose its shape even immediately after pouring; allows parts to be made without formwork
2. A mortar material that hardens at room temperature and achieves a high degree of compressive, tensile, and flexural strength; can be used as building structure without reinforcement



3dpod™, 3D-printer demonstration building  
[https://www.obayashi.co.jp/en/news/detail/news20230425\\_1\\_en.html](https://www.obayashi.co.jp/en/news/detail/news20230425_1_en.html)

### Digital Twin App: Enabling Anyone to Easily Use 3D Models

Digital twin technology uses IoT and other technologies to acquire real-world information and recreate the same environment in cyberspace. Obayashi has applied the data linkage platform<sup>1</sup> approach to build a data integration mechanism,<sup>2</sup> and developed a digital twin app to improve the operability and usability of 3D models.

The app uses the Unity<sup>3</sup> game engine to easily run, display, and operate 3D models without a high-performance personal computer. Information linkage with the cloud allows for real-time checks of construction sites from anywhere, and any issues discovered during on-site patrols and related corrective instructions can be shared with and confirmed by relevant parties by attaching notes (annotations) on the digital twin.

While the use of BIM and CIM is progressing in the design phase, their use in the construction phase is still limited. In particular, managing a construction site where a digital twin is being built requires the use of high-performance PCs capable of handling 3D models and the acquisition of advanced skills in software operation. In addition, integrating static data such as BIM/CIM, topography, and point clouds with dynamic data on people, construction vehicles, and other aspects requires advanced technology. As a result, the reality is that this is only being done on a trial basis at some construction sites.

Obayashi will continue to employ this app at construction

sites and improve the app to establish an industry-standard environment that allows anyone anywhere to instantly create digital twins of construction sites. Going forward, the Company will also encourage the use of the app at other general contractors and specialized construction companies to promote DX in the construction industry and help to improve productivity and reform work styles.

1. A construction management system (developed by Obayashi and the School of Engineering at the University of Tokyo), for which the proof-of-concept stage has been completed. The system is aimed at improving construction management efficiency through the shared use of various data handled during construction management.
2. Jointly developed with TIS Inc.
3. Provided by Unity Technologies Japan Co., Ltd.



A screen on the digital twin app  
[https://www.obayashi.co.jp/en/news/detail/news20230412\\_2\\_en.html](https://www.obayashi.co.jp/en/news/detail/news20230412_2_en.html)

## Quality

<https://www.obayashi.co.jp/en/sustainability/quality.html>

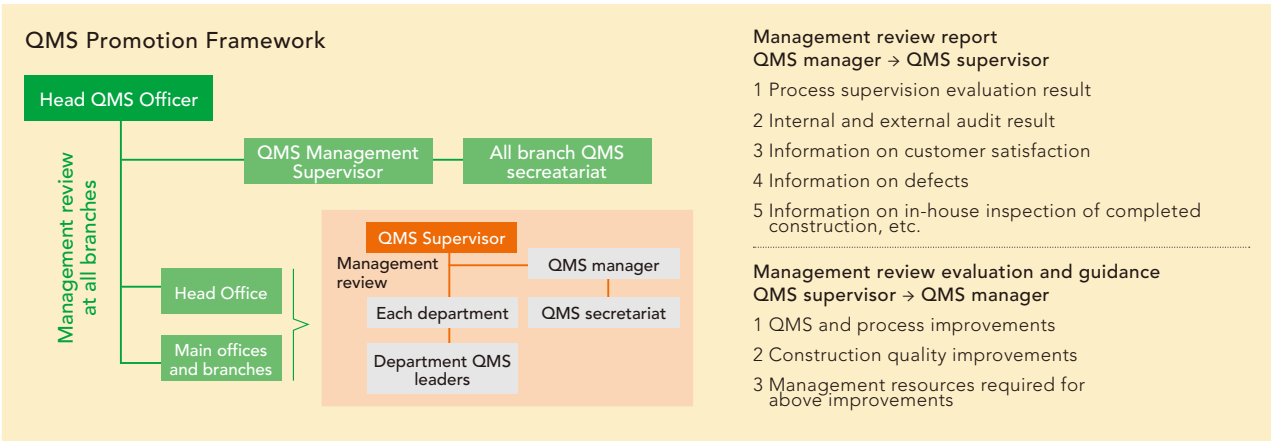
Quality is the foundation that supports the Obayashi Group's business. The Obayashi Quality Policy is based on our commitment to continuously improve business practices, and consequently customer satisfaction. It centers on providing buildings that customers can feel safe, satisfied, and proud to use. To that end, we consistently engage in technology development and improvement activities that help ensure rational quality control and enhance quality.

A key challenge identified in Medium-Term Business Plan 2022 is the continuation of our corporate culture, which places the utmost importance on safety and quality, and aims to create new value for customers by viewing the assurance of well-being (safety, security, comfort, and health) as a business opportunity.

### Quality Control Framework

Inspired by the Obayashi Quality Policy, we established a quality management system (QMS) based on ISO 9001, where the officers in charge of quality for the domestic building construction and civil engineering business segments serve as

head QMS officers. We conduct consistent quality control and make continuous improvements in all processes from marketing, design, construction, and aftersales services.



### Ensuring Quality and Raising Awareness

Quality Week is observed across the whole Group once a year to raise awareness of quality and encourage quality control activities. We conduct quality control activities appropriate for the content of each of our business operations, including quality patrols, study sessions, and follow-up measures on quality planning documents at our construction sites, and quality control training and lectures by department managers for our office-based staff.

We also conduct training designed to improve our engineers' construction management skills as part of our quest to maintain and improve quality. We provide training at the

interactive facilities of our Robotics Centers using mock-ups of reinforcing bars and steel frames, not just for Company employees, but also for employees from Group companies as well as suppliers and subcontractors. This training helps them acquire the specialized knowledge they need for their particular jobs and learn techniques in construction management. We also provide various high-level training programs at our construction sites and the Technology Research Institute. This training includes, for example, hands-on technical training to enable participants to acquire the latest techniques.



A quality patrol



Interactive mock-up training



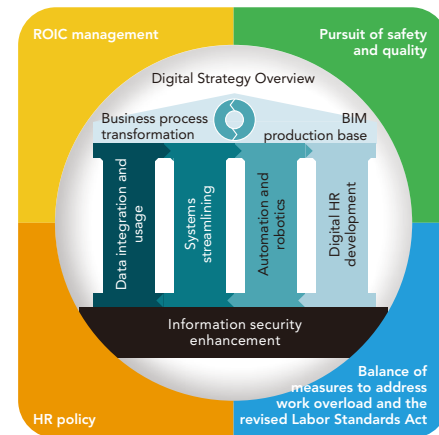
## DX: The Bridge Linking Today with Our Future Ideal Structure

### Four Priority Digitalization Challenges

The Obayashi Group's digital strategy has three main components: (1) Production DX,<sup>1</sup> supported by (2) backoffice DX,<sup>2</sup> along with the enhancement of information security that forms a comprehensive base for all activities related to the above.

The Group is working on four key issues based on this digital strategy: (1) the pursuit of safety and quality, (2) the balance of measures to address work overload and Japan's revised Labor Standards Act, (3) our HR policy, and (4) the promotion of ROIC management.

1. The sweeping transformation of business processes through BPR and the enhancement of the information infrastructure of the construction business through a complete shift to the BIM production base
2. Data integration and usage, systems streamlining, automation and robotics, and digital HR development



### Expanding BizXBase™ Digital Business Platform

As part of its BPR activities, Obayashi has developed the BizXBase™ business platform, which uses digital technology to fundamentally review business processes, unfettered by conventional construction business customs and accepted norms. BizXBase™ is a digital business platform that centrally manages a variety of business information (from before order receipt to the after-sales service stage), and is being increasingly used in our building construction and civil engineering businesses at all main offices and branches. The system is currently being built out for our Real Estate Development Business as well.

We are also pressing ahead with business transformation based on the construction bill of materials (BOM)<sup>2</sup>, a new format for listing building information as structured data items. The use of construction BOM enables us to centrally manage all building information from design to cost calculation and price quotation, construction, and maintenance in a coherent and consistent manner.

1. Former Integrated Product Management [PM] System
2. A components list (chart), made by extracting information on components such as pillars, beams, walls, fixtures, and windows from the BIM model

### Using BIM/CIM to Improve Productivity in the Construction Industry

In the field of BIM and CIM, SBS,\* which had been established in 2018 as the standard rule for the integrated use of data from design through construction, was publicly disclosed in January 2023. By working to standardize BIM models through the announcement of SBS, we are promoting the consistent use of BIM across companies to help improve the productivity of construction processes.

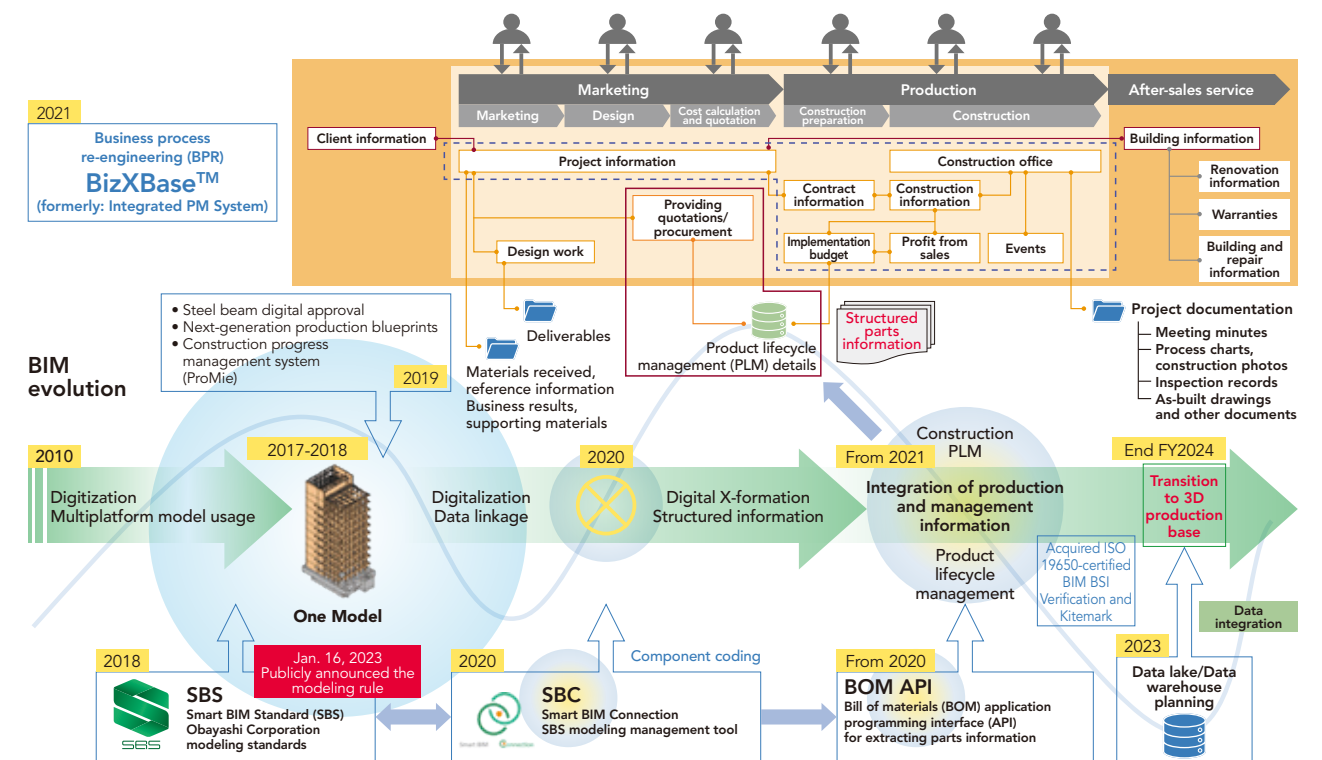
Obayashi uses high-quality BIM. In addition to acquiring British Standards Institute (BSI) verification on BIM Design and

Construction based on ISO 19650 in August 2021, the Company also acquired the more stringent BSI Kitemark for BIM Design and Construction in June 2022. Obayashi is a certified training provider for buildingSMART Professional Certification, which is an international standard for measuring BIM skills, and supports the promotion of BIM in the construction industry.

\* Obayashi's Smart BIM Standard (SBS) modeling rules

### TOPIC Named among DX Stocks 2023

In May 2023, Obayashi was named as one of the DX Stocks 2023, which are selected jointly by Japan's Ministry of Economy, Trade and Industry and the Tokyo Stock Exchange. The Company was highly praised for its efforts not only in strengthening existing businesses, but in presenting a clear DX strategy with a view to pursuing new businesses and transforming business models, as well as for putting a system in place to promote that process. It was also noted that for these reasons, the Company can be expected to achieve results through steady pursuit of its strategy.



### Expanding Data Lakes and Warehouses to Further Promote Data-Driven Management

The building of platforms for data integration and usage (data lakes and data warehouses) is an essential part of data-driven management. Obayashi not only strives to improve the performance of the data virtualization platform that it introduced and has been using well ahead of its competitors, but is also expanding the environment for storing documents, photos, and other unstructured data in data lakes that facilitate high-speed searches and utilization of that data.

The Company is also working toward the day when all projects can be managed horizontally and when the aforementioned BIM data can be stored in data lakes and data warehouses. Building this infrastructure will help improve on-site quality, cost, delivery, safety, and environmental factors, such as the visualization and analysis of productivity indicators and the evaluation of fair procurement prices.

### Promoting DX of Managerial Departments, Training and Utilizing Digital Talent

To promote DX in managerial departments, Obayashi is actively moving core systems onto the cloud and formulating a grand design for next-generation core systems, while streamlining systems by reducing legacy systems and taking other steps to lower operating costs. The Company has introduced a talent management system to help utilize human capital.

We are also focusing on recruiting and developing digital talent, and we have already introduced a scheme for recruiting specialized human resources. We also promote various forms of

training and encourage employees to consider acquiring the three qualifications based on the Di-Lite framework (under the Global Digital Literacy Council) including the IT Passport Exam, as well as the above-mentioned buildingSMART Professional Certification for the purpose of helping employees improve their BIM literacy. Training on BIM for workers newly assigned to construction sites and on information security measures is also offered to members of our supply chain.

### A Word from the Head of Digital Transformation Division

Strengthening the business foundation and accelerating Company-wide transformation through DX is the guideline of the Group's initiatives to utilize digital technology. The Digital Transformation Division regularly evaluates the progress of each measure within that theme, and is committed to promoting ROIC management and improving productivity in the Group and the construction industry as a whole.

Eiichiro Okano  
Managing  
Executive Officer  
Head of Digital  
Transformation  
Division

