OBAYASHI CORPORATION

CORPORATE PROFILE

MAKE BEYOND

TRANSCENDING THE ART AND SCIENCE OF MAKING OF THINGS

OBAYASHI

Obayashi Basic Principles

Obayashi Philosophy

Obayashi's Vision and Mission in Society

A Leading Sustainability Company

1 Exercise honest craftsmanship with superior technologies and create new value in every space.
2 Care for the global environment and create solutions to social challenges as a good corporate citizen.
3 Value each person with a stake in our business.

By keeping these promises, Obayashi Corporation contributes to realizing a sustainable society.

Obayashi Code of Conduct

These guidelines help us realize the Obayashi Philosophy and continue being an enterprise trusted by all stakeholders

1 Fulfill our social mission

(1) Provide high-quality buildings, infrastructure, and services
(2) Foster an environmentally responsible society
(3) Value every one of our associates
(4) Build stronger mutual trust with suppliers
(5) Build good relationships with communities

2 Ensure strict adherence to corporate ethics

(1) Comply with laws and regulations and take a sensible course of action
(2) Promote fair and free competition
(3) Maintain appropriate relationships with stakeholders
(4) Avoid all contact with antisocial forces
(5) Ensure appropriate information disclosure and transparency of management

Obayashi Three Pledges

The spirit that has guided us since our founding

Quality, Value, and Efficiency

Brand Vision

MAKE BEYOND

TRANSCENDING THE ART AND SCIENCE OF MAKING OF THINGS

The Obayashi Group's hope for the future is to take the craftsmanship technology and knowledge we have cultivated over our history, attune them to our present times, and develop them into new paths forward, and to grow in ways that reach beyond the framework of our existing business.

Realizing a sustainable society

Since its founding in 1892, the Obayashi Group has held to the spirit of the Obayashi Three Pledges: Quality, Value, and Efficiency. As such, we have worked to develop society and the economy and raise people's quality of life by exercising true craftsmanship and employing superior technologies.
Society is changing quickly in recent years, and people's needs are becoming more diverse. Now in its 130th year in business, the Obayashi Group has adopted the "MAKE BEYOND　Transcending the art and science of making of things" Brand Vision. Under it, we will open up new fields and possibilities by leveraging our strengths: the craftsmanship technology and knowledge that we have cultivated over our history.
In view of changes in the business environment, in May FY2024, we partially revised the five-year "Obayashi Group Medium-Term Business Plan 2022" launched in FY2022. Based on this revised Medium-Term Business Plan, will continue to strive for strengthening the business foundation and accelerating company-wide transformation in line with our three fundamental strategies: Strengthen and Expand the Foundation of the Construction Business; Innovate Technologies and Businesses; and Expand Business Portfolio for Sustainable Growth.
To realize a sustainable society as stated in the Obayashi Philosophy, we will ensure rigorous compliance while providing safe and secure high-quality buildings, infrastructure and services and helping foster an environmentally responsible society that is comfortable to live in, thereby contributing to solving social issues.

President and CEO
Kenji Hasuwa

OUR HISTORY

Obayashi Group's History

Since its founding in 1892, Obayashi's members have handed down its DNA of honest craftsmanship and technology. It has relied on that DNA to complete numerous projects emblematic of their era, including Tokyo Central Station (today's Tokyo Station), Kansai International Airport, Tokyo Bay Aqua-Line, and TOKYO SKYTREE®. We supported Japan's modernization and post-World War II reconstruction and helped build the infrastructure for the nation's growth into an economic powerhouse. We continue to take the challenge of creating new value by doing business in partnership with changing societies. These pages trace the Obayashi Group's over 130 years of history.

1892-1945

Supporting Japan's Modernization and Laying the Cornerstone of the Construction Industry

Obayashi was founded as the "Obayashi Store," a civil engineering and building construction contractor, in 1892. The demand for factory construction with the yarn spinning boom of the time gave a big boost to Obayashi's business in the early years. Subsequently, Obayashi entered the market to construct large factories and offices as well as infrastructure construction projects like ports and railroads. Having grown into one of Osaka's premiere construction companies, Obayashi went on to establish a foothold in Tokyo. This period started with the construction of Tokyo Central Station, completed in 1914. It constructed numerous concrete buildings after the Great Kanto Earthquake of 1923, thereby contributing to Tokyo's recovery. Obayashi's track record in public works and other projects grew in the 1930s and beyond, building it into a nationwide construction company.

1914 Tokyo Central Station (today's Tokyo Station)

1931 Main Tower of Osaka Castle

1933 Osaka Subway (Yodoyabashi – Kita-Kyutaromachi)

1956 Nukabira Dam Power Generation Development on the Tokachi River system in Hokkaido

1964 Yoyogi National Stadium 2nd Gymnasium

1970 The Japan World Exposition (Theme Pavilion). Exposition theme: "Progress and Harmony for Mankind"

Business Expands with Construction of Infrastructure as a Foundation for Post-War Economic Development

During the post-war reconstruction era, the focus was on rebuilding government office buildings, schools, and hospitals. The 1950s and 1960s also brought Obayashi numerous projects for the public good, such as dams, power generation facilities, railroad networks, and station buildings. During these years, Obayashi endeavored to meet society's needs. Later, as construction technology progressed, more high-rise buildings were constructed. The Osaka Obayashi Building, completed in 1973, was the first high-rise tower in western Japan. Together with other projects, it kicked off an era in which Obayashi constructed many such towers in Tokyo and Osaka. In 1964, the same year as the Tokyo Olympics, Obayashi started expanding globally with the opening of its first overseas representative office in the Kingdom of Thailand. Then in 1970, the Tokyo Branch Office became the Tokyo Head Office and began overseeing business activities for all of Obayashi.

1946-1990

1991-2016

Obayashi Increasingly Becomes a Global Company as It Takes on More Large-Scale Projects in Japan and Overseas

In the years following 1991, just as Obayashi was approaching its 100th anniversary, Japan's era of powerful economic growth was coming to an end. In spite of the slump in private demand, Obayashi still won a number of domestic landmark projects, including Kansai International Airport, Roppongi Hills Mori Tower, and TOKYO SKYTREE. Outside Japan, the Company participated in large-scale projects like Taiwan's high-speed rail, the Hoover Dam Bypass bridge over the Colorado River, and the Dubai Metro. This era also saw increasing public interest in protecting the environment. In 1992, Obayashi established its Environmental Protection Action Plan and began initiatives designed both to pursue business and protect the environment.

1997 Tokyo Bay Aqua-Line

2012 TOKYO SKYTREE

2011 Dubai Metro Project (United Arab Emirates)

2018 Waterview Connection Tunnels and Great North Road Interchange (New Zealand)

2022 Kamikita Ogawara Wind Farm (Aomori Prefecture)

2017 to the present

Aiming to Realize a Sustainable Society and Enhance Corporate Value

Today, Obayashi continues history-making construction in Japan and overseas. Examples include ES CON FIELD HOKKAIDO and the Jewel Changi Airport in Singapore. We are also focusing on technological innovation utilizing IoT, AI, and robotics and stepping up our renewable energy business to help achieve a decarbonized society with solar, wind, and biomass power stations in operation, as well as working toward the social implementation of green hydrogen produced using geothermal electricity. Moving forward, we will continue to respond to the ever-changing and diverse needs and expectations of society, aggressively try to achieve new growth, and pursue sustainability for "the planet, society, and people."

2023 ES CON FIELD HOKKAIDO

01 Building Construction Business

We provide structures with a wide range of uses: office buildings, residential buildings, commercial facilities, factories, hospitals, schools, and more. From the stage of facility planning all the way through to operation maintenance management, the Obayashi Group works as a team to advance projects with many different departments, including marketing, design, procurement, construction, and technological development. Throughout each building's life cycle, we meet our clients' requests for safety, quality, comfort, economy, and energy efficiency while also helping solve social issues such as carbon neutrality and wellbeing.


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1 NIPPON LIFE YODOYABASHI BUILDING

Location: Osaka City, Osaka

High-grade Office Building in the Historic Central Business Area

Located at the center of the Yodoyabashi area, one of Osaka's leading business districts, the office building is directly connected to Yodoyabashi Station on the Keihan Main Line and Osaka Metro Midosuji Line. The entrance is impressively bright and open with the effects generated by the combination of an atrium from the basement level and glass walls. The building adopted vibration control with the BCP measures for superior earthquake resistance, and implemented high energy-efficient equipment to be environmentally friendly.

2 SHIROKANE THE SKY

Location: Minato City, Tokyo

A New Landmark in Shirokane, Tokyo, Enhancing the Attractiveness of the District

Located in a quiet residential district, this large-scale complex facility was built as a redevelopment project to create "a relaxing and peaceful community where people can continue to live securely and comfortably." The facility consists of two buildings with 45 floors and 19 floors respectively, housing a total of 1,247 residential units. The lower floors are used by commercial establishments, medical services, childcare facilities, and others. The complex was built using the LRV method, a construction method involving assembling precast elements such as columns and beams at the construction site, thereby achieving further reduction in delivery times and construction accuracy.

3 Shiseido Fukuoka Kurume Factory

Location: Kurume City, Fukuoka

Environmentally Sustainable Factory Contributing to a Sustainable Society

Followed by the Shiseido Nasu Factory in Otawara City, Tochigi Prefecture in 2019, we built another factory in Kurume City, Fukuoka Prefecture for the company, where skin-care products are manufactured for domestic and overseas markets. Jojima tiles the city's traditional craft were used partly as exterior material. The factory is also eco-friendly as its exterior walls and roofs are highly insulated and is ranked A in Comprehensive Assessment System for Built Environment Efficiency (CASBEE), which is a highly evaluated case for factories.

4 Kubota Global Institute of Technology

Location: Sakai City, Osaka

A Core Hub of the Global R&D System for Agricultural and Construction Machinery

An R&D hub was built in Sakai City, Osaka Prefecture through collaboration between our building construction and civil engineering construction staff members. The institute has a design and research building involving a single floor of approximately 18,000 m^2 for office space with an adjacent test course and other facilities. The exterior walls of the building were built with 3D-curbed surfaces using precast concrete material, presenting an iconic design. The office space is Net Zero Energy Building (ZEB) certified, and the design and research building is Nearly ZEB certified.

02 Civil Engineering Business

We provide various types of social infrastructure including tunnels, bridges, dams, river works, urban civil engineering and railways. From the viewpoint of matters such as energy efficiency, environmental awareness and appropriate maintenance management, the Obayashi Group combines its technological capabilities at every step of a project from assessment to design, construction and maintenance management. Our aim is to increase the service life and accessibility of social infrastructure, provide society with safety and security, and contribute to disaster prevention and mitigation.


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1 Kamaishi City Katagishi and Unosumai Area Post-Earthquake Reconstruction Project

Location: Kamaishi City, Iwate

Supporting Reconstruction through Construction Management at Risk (CMAR) System

Obayashi conducted the reconstruction/community development project covering about 75 ha in the Katagishi and Unosumai Area of Kamaishi City, which was struck by the Great East Japan Earthquake. Land was elevated by an average of about 1.7 m, after which residential land and infrastructure for daily life were built and a school site and other places were developed that could serve as evacuation areas. By using a Construction Management at Risk (CMAR) system, Obayashi could manage surveying, design, and construction in a unified way, which helped to smooth the project and ensure a faster recovery.

2 Kawakami Dam

Location: Iga City, Mie

Concrete Gravity Dam Using Latest Technologies

A concrete gravity dam was constructed in Iga City, Mie Prefecture, for the major purposes of which are to reduce flood damage to the areas along the Maefukase River, the Kizu River, and the main river of the Yodo River, as well as to supply city water to Iga City. Considering its future maintenance and management from the stages of design and construction, we structured a CIM that can add attribute information, such as construction management data, to 3D-converted models. In addition, we adopted various new technologies, including autonomous operation of one of the largest tower cranes in Japan and use of precast material. The dam construction completed with no accidents or disasters.

3 Shin-Tomei Expressway Nakajima Viaduct

Location: Sunto-gun, Shizuoka

Viaduct with a Maximum Height of 46 m Built from Design to Construction

In the construction of the Shin-Tomei Expressway, an artery connecting the Tokyo metropolitan area and the Chukyo metropolitan area, we undertook the construction of a viaduct located in the section between Shin-Hatano IC and Shin-Gotemba IC and completed the viaduct with a maximum height of 46 m, closely commanding a magnificent view of Mt. Fuji.
The completed viaduct will help reduce traffic congestion due to traffic concentration and road maintenance, and enhances safety by providing an alternative traffic route in case of an accident or disaster. An economic ripple effect is also expected as more tourists from the Kanto region are motivated to visit the surrounding areas.

4 Hokuriku Shinkansen Kanazawa～Tsuruga Extension

Location: Fukui City, Fukui; Kaga City, Ishikawa; etc.

First Use of LRV Method in Civil Engineering Contributing to a Significant Reduction in Construction Time

On the extended Hokuriku Shinkansen line between Kanazawa and Tsuruga with a total length of 115 km, we were responsible for the construction of approximately 14.9 km of the railway (elevated railway: approx. 6.3 km; tunneled railway: approx. 8.6 km). Because the viaduct construction site was tight, enclosed by Japan Freight Railway Minami-Fukui Station and the conventional railway line, for the first time in any of our civil engineering projects, we adopted the LRV method—precasting concrete columns and beams at the factory and assembling them on site. The absence of on-site concrete placing improved productivity and significantly reduced construction time.
(Photo: No.3 Minami-Fukui Viaduct in an elevated railway section)

03 Real Estate Development Business

We develop and hold excellent properties for lease in favorable locations, primarily in urban areas, providing safe, secure and comfortable spaces for tenants and users. We apply the knowledge we learned in the construction industry and the latest technologies and functions to maintain facilities. As a business partner and specified agent for urban redevelopment projects and as a private-sector large-scale development business, we contribute to the low-carbon society and sustainable community development.


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1 YOKOHAMA SYMPHOSTAGE

Location: Yokohama City, Kanagawa

The Urban Development Project that Contributes to the Achievement of SDGs

Completed in March 2024, this project consists of two towers (WEST TOWER with 30 floors above ground and one underground floor, and EAST TOWER with 16 floors above ground and one underground floor) for use as offices, hotels, and shops, etc. that are ideally situated only an eight-minute walk from Yokohama Station. In cooperation with surrounding facilities, we will strive to enhance the value of the Minato Mirai 21 Central Zone District as a new landmark that will provide new experiences and inspirations to people visiting the district for various purposes as well as support for diversifying lifestyles and users' wellbeing to help open up future opportunities.

2 NLC Osaka Katano (Nissay Logistics Center Osaka Katano)

Location: Katano City, Osaka

A Logistics Facility with Convenient Transportation Directly Connecting Osaka and Kyoto

A logistics facility (jointly owned with Nippon Life Insurance Company) that is 5 floors above ground established in an area developed through a land readjustment project, with approximately 82,800 m² of floor area for lease. This facility has extremely convenient transportation access as a logistics base, situated in an excellent location approximately 15 km and 20 km from Osaka and Kyoto, respectively, with direct access via Daini-Keihan Road to the two major centers of consumption in the Kinki region (Osaka and Kyoto).

3 oak Konan Shinagawa Office

Location: Minato City, Tokyo

Diverse Services Provided through Adopting WELCS place®

Conveniently located with excellent access to Shinagawa Station and Tennozu Isle Station, this 12-story rental office building with one basement floor is seismically isolated, capable of supplying electricity for 72 hours in case of emergency, and BCP compliant. The building features a column-free floor space of over 1,000 m² by attaching external walls directly to the building structure, and moreover, it was certified as ZEB Ready by installing high-efficiency air conditioners and lighting. WELCS place, a smart building platform that we developed, will be incorporated into the building to provide a variety of services to facility users as a smart building.

4 O-NES TOWER

Location: Thailand

A State-of-the-art Office Building Unlike any Other in Thailand

The state-of-the-art office building (photo: the building in the middle; 29 floors above ground and 5 underground floors) that has a direct access to the adjacent Nana Station on one of the lines of the BTS Skytrain (elevated rapid transit system) in the heart of Bangkok. Group company Thai Obayashi Corporation Ltd. has developed everything from land acquisition to planning, design, and construction entirely in-house, and the building is the largest rental property owned solely by the Obayashi Group. A column-free square office space with a depth of more than 20 m has been achieved, and the building provides a comfortable working environment that is also designed for energy efficiency and wellness.

04 New Businesses

The Obayashi Group is actively pursuing projects beyond the fields of construction and real estate development. New businesses include electric power generation from renewable energy (solar, wind, biomass, and geothermal), building hydrogen supply chains and forming public-private partnerships (PPPs*). In keeping with changes in the times and environment, we will use the technologies and expertise cultivated through the construction business to diversify our revenue base and contribute to the realization of the Sustainable Development Goals (SDGs).

*Public Private Partnership (PPP) is a concept that seeks to operate public services efficiently through cooperation between public and private sectors.


1 photo：Akita Offshore Wind Corporation


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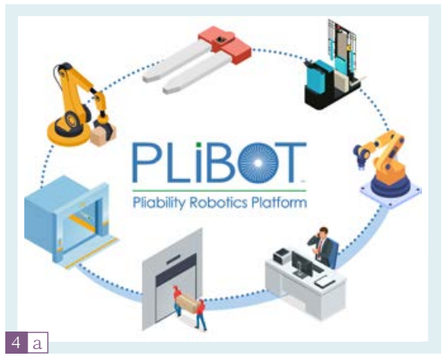

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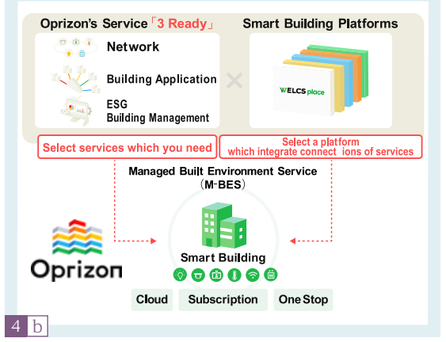

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1 [Offshore Wind Power Generation Business] Offshore Wind Farms at Akita Port and Noshiro Port

Location: Akita Port area and Noshiro Port area, Akita

First Large-Scale Commercial-based Offshore Wind Farms in Japan

Japan's first large-scale offshore wind farms (installed capacity: approx. 140 MW) in the areas of Akita Port and Noshiro Port went into full commercial operation in January 2023. This wind farm project was developed by Akita Offshore Wind Corporation (project leader: Marubeni Corporation), in which we also invested. By drawing on the knowledge and expertise gained through participating in the project, we are determined to further expand our renewable energy-related business.

2 [Hydrogen Business] Hydrogen Business in New Zealand

Location: New Zealand

Establishing a Green Hydrogen Supply Chain

We received the Award of Commissioner, Agency for Natural Resources and Energy in New Energy Award 2022 for our efforts to build green hydrogen supply chains utilizing geothermal energy in Japan and overseas. In December 2021, green hydrogen production commenced for sale in Taupo, New Zealand, and in July 2022, the green hydrogen began to be supplied to fuel cell (FC) busses and other services in Auckland. Going forward, we will continue to develop hydrogen demand aiming for the social implementation of hydrogen.

3 [Renewable Energy Business] Cypress Sunadaya Factory On-site PPA

Location: Saijo City, Ehime Prefecture

PPA-based Power Supply of 2 MW from Renewable Energy Launched in the Obayashi Group

Power Purchase Agreement (PPA) offers numerous benefits, such as helping users achieve carbon neutrality, long-term fixed electricity rates, and improved resilience (enhanced power resilience during a blackout) with no initial costs. As our group's second PPA project, a photovoltaic facility will be installed on the roof of a factory of our group company Cypress Sunadaya Co., Ltd., thereby supplying the electricity generated from renewable energy to its buildings of factory and office. We will utilize the knowledge and know-how gained as a PPA operator for our future proposals.

4 [Business in New Domain] Enterprises Established in New Business Domains Based on the Technologies and Networks Cultivated through Traditional Business Domains

4 a PLiBOT Co., Ltd.

The company provides a service of connecting a customer's equipment and a wide variety of Autonomous Mobile Robot (AMR), such as for transportation, cleaning, and security to a single integrated control platform which enables the customer to centrally manage autonomous operations. PLiBOT will strive to offer solutions that meet customers' needs.

4 b Oprizon, Ltd.

The company aims to be the leading smart building service provider that offers a comprehensive one-stop service, consolidating all necessary ingredients for a smart building: "construction," "equipment," "digital," and "systems." Oprizon, Ltd. will enable the building owners to operate confidently over long term.

05 Overseas Business

Together with our group companies, we are expanding into various areas of the construction business, with projects in regions such as North America, Southeast Asia and Oceania, leveraging technological capabilities cultivated through our domestic construction business. We combine broad experience, gained through over half a century of overseas business as a global contractor, with the capabilities of our worldwide network to respond properly to the diverse needs of each region.


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1 Nam Ngiep 1 Hydropower Project

Location: Laos

Concrete Gravity Dam Boasts Reservoir Capacity of 2.2 Billion m^3

Obayashi built the main dam and re-regulation dam with hydroelectric power stations (total output about 290,000 kW) on the Nam Ngiep River, a tributary of the Mekong River. As the Mekong forms much of the boundary between Thailand and Laos, the project is intended to provide a stable supply of electric power to the two nations. The body of the main dam measures 167 m in height with a crest length of 535 m and total volume of 2.36 million m^3. The concrete gravity dam has more than three times the maximum reservoir capacity of the Tokuyama Dam, which has the greatest such capacity in Japan at approximately 660 million m^3.

2 National Road No.5

Location: Cambodia

Reconstruction of National Road No.5 in Cambodia

This is a road improvement and widening project for National Road No.5 in Cambodia, which connects the capital city of Phnom Penh and Poi Pet, a town on the Thai border. Of a total construction length of 366 km, we were responsible for 47 km between the Pursat province and Battambang province in the middle section of the construction. Under the threat of floods and COVID-19, we managed to complete our part within the agreed construction period, contributing to improved transport capacity and smooth logistics operations.

3 New York Botanical Garden Conservatory Dome

Location: U.S.A.

Renovation of NY Botanical Garden Conservatory Dome without Transplanting Plants

The renovation of the New York Botanical Garden conservatory dome was undertaken by our group company E.W. Howell Co.,LLC. The company engaged in reinforcing the structure of the old and deteriorated glass dome, restoring and conserving the historically valuable decoration and exterior furnishings, and upgrading equipment, while safeguarding the tropical plants in the dome without transplanting them elsewhere, thereby successfully increasing the energy efficiency during building operation and extending the building's life.

4 Queen Sirikit National Convention Center

Location: Thailand

Rebuilding of One of the Largest International Conference Halls in Thailand, Used as a Venue for the 2022 APEC Summit

Our group company Thai Obayashi Corporation Ltd. rebuilt Queen Sirikit National Convention Center (QSNCC) in central Bangkok. The convention center, spanning a total floor area of approximately 290,000 m^2, is one of the largest international conference halls in Thailand, equipped with a vast column-free exhibition hall of 110 m by 198 m. The steel roof structure of the exhibition hall was built with the sliding method to shorten construction periods and reduce labor force. The QSNCC was chosen as a venue for the 2022 APEC Leaders' Meeting in Thailand.

06 Engineering Business

We provide the latest engineering technology with optimal cost performance for a wide range of fields and applications, including production facilities (pharmaceuticals, food products, etc.), environmental facilities (including renewable energy power generation facilities), the use of ICT for buildings and facilities, and soil and water pollution countermeasures. Leveraging the technologies and expertise we have developed as a general construction business, we provide end-to-end support for all types of needs, from project planning to design, procurement, construction, test operations, management, and maintenance.


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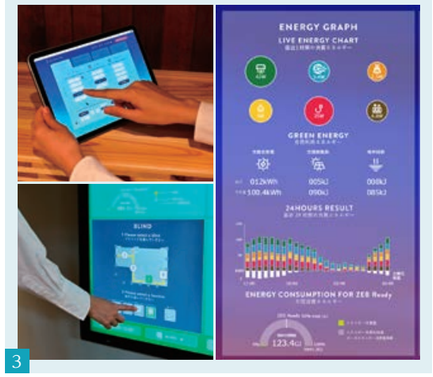

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1 Daiichi Sankyo Propharma Co., Ltd. Hiratsuka Plant Aseptic Formulation Building 2

Location: Hiratsuka City, Kanagawa

Pharmaceutical Plant with Thorough Quality Control and Safety Measures in Place

Obayashi undertook the construction of the manufacturing building by all-in contract including pharmaceutical production facility, inspection and packing facility, and automatic storage facility. The building had to be seismically isolated with enhanced redundancy of each facility to ensure a stable global supply of parenteral products even in the event of an earthquake or other disaster. Consequently, a best-suited and highly efficient plant was built thoroughly in place with quality control and safety measures for employees (preventing them from exposure to hazards) in the production of anticancer drugs.

2 EF-ON SHINGU INC.

Location: Shingu City, Wakayama

Wood-Burning Biomass Power Plant with 18,000 kW Generating-end Output

In the construction of the wood-burning biomass power plant, we engaged in the assembly, alignment, and construction management of facilities: two conveyers for carrying in and 14 conveyers for supplying fuel wood chips. We will continue to build biomass power plants based on the knowledge and expertise gained through construction management and commissioning unique to wood chips delivery facilities.

3 WELCS place®—a Smart Building Platform

Location: Yokohama City, Kanagawa

Improving Convenience for Both Building Manager and Users and Enhancing the Building's Added Value

We developed "WELCS place," a platform that addresses quickly and safely to the digitalization of a building and solves such issues as carbon neutrality and wellbeing. The platform, incorporated into Port Plus—a training and educational facility for our employees, connects room access control, lighting and blind operations, energy information, and other functions through digital signage, thereby enhancing the building's energy performance, convenience, and comfort.

4 Ege Ordinary-Waste Disposal Site

Location: Hiroshima City, Hiroshima

Municipal Waste Repository with Equipment that Responds to Heavy Rain-Induced Disasters

This landfill is installed with disaster management equipment, including a flood control reservoir that can respond to heavy rain that could happen once in 100 years, to prevent disasters due to torrential rain that have been occurring frequently in recent years. In addition, a surface lining system with double water-shielding sheets and impermeable soil layers is applied so that, if there should be any leakage of underground water, a vertical cut-off wall installed underground will prevent the water from diffusing.

07 Technological Development

Technology is the engine that enables the Obayashi Group to fulfill its social mission. The Technology Research Institute leads Obayashi's proactive technology development efforts. This development not only benefits our customers' projects but also meets society's need to care for the environment and enjoy safety and security.

1 Technology Research Institute

Opened in 1965 as Source of Obayashi Technology

The Technology Research Institute in Kiyose City, Tokyo is our foremost technology development center. It has continued to advance technological frontiers since its opening in 1965. With an eye on society's future, the institute focuses its efforts on the fields of technology innovation, demonstration, and presentation, striving to develop new technologies meeting customers' and society's needs.

2 Techno-Station

First Carbon Neutral Research Facility in Japan

This is the core facility of the Technology Research Institute. The building is powered by renewable energy, making it Japan's first research facility to achieve carbon neutral status. The research facility brings together several Obayashi technologies. For example, Laputa® 2D Super Active Base Isolation System reduces vibration to the point where persons inside do not even feel it. The facility is also built to enhance human health and comfort.

3 Environmental Engineering Laboratory

The laboratory develops technologies for people and their environment. It is equipped to conduct experiments with wind, sound, light, heat, smoke, and living organisms. To help realize a safe and secure society and achieve the Sustainable Development Goals (SDGs), the entire laboratory was renovated in 2019. The wind tunnel and acoustic experimentation facilities were updated.

3 a Wind Tunnel Experimentation Facility

Proposing Solutions to Wind Blast Damage with World-First Experimentation Equipment

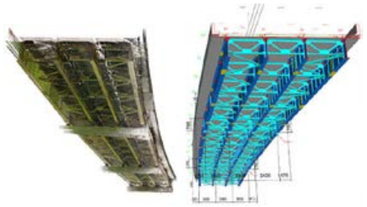
The facility is designed to evaluate the flow of wind around buildings and the wind force acting on them. Because wind noise is a problem that must increasingly be addressed, the entire multi-purpose wind tunnel testing equipment was built to dampen noise so experiments could be more precise. The new multi-fan dynamic flow wind tunnel can reproduce a wide variety of air flows, which researchers use to evaluate wind burst load and develop technologies to address it.

3 b Acoustic Experimentation Facility

Built to International Standards, Proposing Comfortable Acoustic Environments

The facility is comprised of an anechoic chamber and two reverberation chambers. Specimens of partition walls, exterior components, or other materials are placed in an opening between the two reverberation chambers to measure their sound damping performance. The rectangular chamber shape conforming to ISO international standards ensures more realistic evaluation results. Moreover, because the rectangular chamber has such a simple form, it is easier to perform theoretical analysis of experimental results. An automatic transport crane (capacity 9 tons) for moving specimens enhances the efficiency of experiments.

Technology Topics



Technologies for Updating Large-Scale Infrastructure

OBRIS®: Obayashi Bridge Renewal Integrated System

For large-scale highway bridge renewal projects, Obayashi developed OBRIS, a cloud-based integrated management system that centrally utilizes data on both existing and new structures. This system links data, such as 3D models, in the four phases of design, production, construction, and maintenance management, thereby improving efficiency in operation as well as quality, and safety.

Technologies for Promoting Construction DX

CONNECTIA®, an App Providing Virtual Duplication of the Construction Site

In collaboration with TIS Inc. and Unity Technologies Japan Co., Ltd., Obayashi developed CONNECTIA®, an app to build a digital twin of the construction site. Digital twin is a technology to reproduce the information collected from the physical space into the cyber space. The app is simple and intuitive to use digital twin, requiring no high-performance computer or special skills, and serves as a useful construction management tool as it can register, integrate, and draw 3D models.

Technologies for Proposing Hybrid Wooden Structure

WOODX®, an App Instantly Presenting Structure Image, Approximate Cost, and CO_2 Reduction

Jointly with Geometry Engineering Lab. (GEL), we developed WOODX, an app that enables comparison between hybrid wooden structure and steel structure. Upon inputting site layout and architectural design data into a tablet, the app will output information, such as exterior and interior images, the CO_2 reduction rate, and an approximate cost. The visual images of the wooden building presented to a customer will help build consensus at the planning stage. We will promote the use of wood for building construction, by installing the app in tablets of our sales staff.

3D-Printed Demonstration Building "3dpod™" Completed

Japan's First 3D-Printed Building Accredited by the Minister of Land, Infrastructure, Transport and Tourism

The construction of a building using a 3D printer started at the Obayashi Corporation Technology Research Institute in May 2022 and was completed in March 2023 as a 3D-printed demonstration building, named "3dpod." It is the first building in Japan to have been accredited by the Minister of Land, Infrastructure, Transport and Tourism under the Building Standards Law as a 3D-printed building using cement materials. All elements of the above-ground structures were produced with a 3D printer with all their walls directly printed on site. The building is equipped with electrical wiring, air conditioning, and water supply along with insulation.

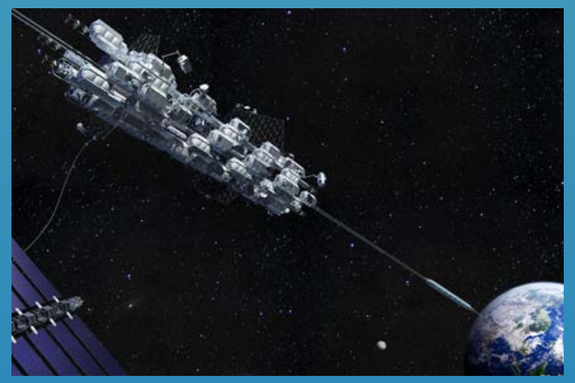
COLUMN

Conceptual Visions for the Future

Aiming to resolve social challenges and realize a sustainable society, the Obayashi Group envisions advanced societies, cities, and businesses powered by innovative future technologies.
Below are a few examples.

Linking the Earth to space
The Space Elevator Construction Concept

A space elevator is a transportation system for carrying people and goods to space, economically and in large numbers. A cable 96,000 km long would lead from earth to space. Obayashi will install experimental and research facilities to heights suited to their applications. As space development proceeds, going into space is no longer just a dream but becoming a social need. For example, space-based solar power generation and space resource exploration and usage are important elements that could be foundational to society in future. People are also interested in space tourism now. If the space elevator concept is realized, it will expand the possibilities in many space-related fields.



A city that coexists with the forest
The “LOOP50” Construction Concept

LOOP50 would be a recycling-oriented, self-supporting community that makes its buildings and energy solely from forest resources. Trees would grow for 50 years in the community-owned forest and then harvested to add a new section to the structure each year. Another section of the structure, having reached 50 years of age and served its purpose, would be dismantled and its wood used as an energy source (biomass power) for the community. While Japan has the second greatest forest cover of all OECD nations, its forests are being devastated by the decline of the forestry industry and the country’ s depopulation. In the concept, the LOOP50 community would be in a semi-mountainous area. It would make maximum use of Japan’ s abundant forest resources and use the trees in a cycle synchronized with the growth rate of the forest. The community would offer both sustainability and an attractive lifestyle.

The sustainable agriculture of the future
The “COMPACT AGRICULTURE” Concept

This concept visualizes what agriculture may look like in the future after the technology sufficiently develops. Specifically, in this vision, agriculture would supply people with an appropriate amount of food to sustain their lives, no matter the environment in which it is practiced. There would be local production for local consumption. And all of this could happen without damaging the global environment. Features of the concept include an automated, efficient food production system, a closed resource loop, and the use of AI and big data to control supply and demand. Together, these could realize sustainable agricultural practices anywhere in the world. Compact Agriculture could solve many social issues, such as eliminating the food waste that happens in processes from production to consumption and limiting food loss. It could also inspire ideas for ways to achieve the SDGs.

Website Profile

Obayashi’s website is a communication tool that helps us foster good relations with our stakeholders.
We manage our website to be useful and convenient for users by posting content
about Obayashi’s past and present and the future we aim to achieve.

https://www.obayashi.co.jp/en

Projects

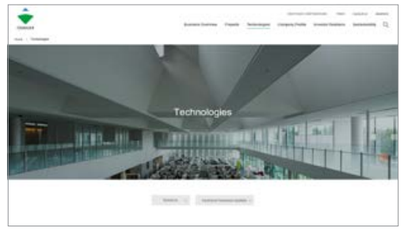
Showcases some of our construction projects. Regional landmarks, social infrastructure and many other buildings and structures can be searched by facility type, year of completion, and location.

https://www.obayashi.co.jp/en/works

Technologies

Topics include Obayashi’s technology and ideas for solving problems. Content is arranged according to type of need (safety and security, environment, etc.) and facility application.

https://www.obayashi.co.jp/en/solution_technology



Sustainability

Introduces our initiatives aimed at realizing a sustainable society. Conveys information on the ways we provide things like quality structures and contributes to local communities and environmental protection.

https://www.obayashi.co.jp/en/sustainability

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This booklet uses characters with an easy-to-read design based on universal design (UD) principles.

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