

TOPICS

Developing and Implementing Construction 3D Printers to Further Improve Digital Construction Productivity

We have been working on developing technologies to promote digital construction for some time. As a part of those efforts, we developed the Shimz Robo-Printer, a construction 3D printer that supports on-site printing, to further improve the productivity of 3D printing construction. We conducted a demonstration at the construction site of our own facility, Smart Innovation Ecosystem NOVARE, currently under construction in Koto-ku, Tokyo. We expect this technology to enable batch printing of large laminates and eliminate the cost of transporting components.

Furthermore, Structural LACTM (Laminatable Cement-based Tough Material), which we developed in-house as a concrete material for 3D printing, was applied for the first time to the printed construction of a building structure used on the roof of a parking lot built at the same facility.

In the future, we intend to focus on technological development to expand the number of applicable projects and improve the efficiency of printed construction to further spread the use of 3D printed construction.



On-site 3D printing construction

Printed structure on the roof of a parking lot

Addressing the Renovation Market and Taking on Large-scale Remodeling Projects Leveraging Our Extensive Track Record in Construction

Leveraging our extensive track record in construction along with our traditional and cutting-edge technologies, we are strengthening our efforts to address the renovation market and take on large-scale remodeling projects.

In addition to general office buildings and production facilities, we completed the preservation and renovation of the former Tokyo Detention House after a period of approximately two years in FY2022. This was a large-scale renovation project to restore the exquisite design of the original building, which had been lost over the years.

Completed in 1929, it features a distinctive design resembling a bird flapping its wings and is regarded as a masterpiece of Expressionism. We will continue to leverage our track record and technology to actively develop sales and proposal activities that address our customers' changing needs, taking on various projects according to the building life cycle.



Exterior view of the former Tokyo Detention House (former Kosuge Prison) after completion of the preservation and renovation work (Katsushika-ku, Tokyo)

Historic Building Preservation and Restoration

We are carrying out preservation and repair work on the Aso Shrine Romon Gate, a nationally designated Important Cultural Property, and seismic repair work on the main building of the former Shibusawa Residence "Nakanchi," a cultural property (historic site) designated by Fukaya City. Both projects are scheduled for completion and delivery this fiscal year, and we are proceeding carefully while preserving the value of each building as a cultural property.

As part of our promotion of ESG management, we will also actively engage in business activities to pass on historic buildings as a legacy to future generations.

Second-story roof truss of Romon Gate under reconstruction



Aso Shrine immediately after the Kumamoto earthquake (Aso City, Kumamoto)



Tokyo Kabukicho Tower (Shinjuku-ku, Tokyo)

Fukuoka Daimyo Garden City (Fukuoka City, Fukuoka)

Building Construction Business

Contributing to the achievement of SDGs through business activities



We will develop and utilize advanced technologies, such as digitalization technology, to realize an even more reliable production system through the collective efforts of the Group and respond to diversifying customer needs.

In the domestic construction business, the core of our construction business, we aim to expand our business domain and build a stable revenue base by establishing a more reliable production system and accurately identifying societal changes and the corresponding diversification of customer needs.

Specifically, we will take on the challenge of improving productivity and leveling up our competitiveness by strengthening our efforts from the upstream stage and actively utilizing BIM and other digitalization technologies. We will also work to increase profitability in large-scale projects, strengthen our ability to handle diverse projects, and develop new business domains in construction-related fields.



Yoshito Tsutsumi
Executive Vice President
Director, Building Construction Headquarters,
In charge of Productivity Improvement and Nuclear Business, Building Construction Headquarters

Key Strategies

We will accelerate the key strategies aimed at strengthening competitiveness and will achieve further improvement in technological capabilities and take on the challenge of new business domains.

1. Improve productivity and sales capabilities

- Innovate our building production systems to improve productivity, save labor and increase cost competitiveness
- Segment strategically at the regional level, enhance upstream business development capabilities, and strengthen the PFI function

- Continue focused activities for nuclear power-related facilities, including plant decommissioning and next-generation power plants

3. Expand renovations and enter new businesses

- Leverage our extensive track record and expertise in construction to expand our business in building renovation, particularly large-scale interior renovation projects using BCP, ZEB/ WELL, etc.
- Identify and pursue opportunities for new business in building construction-related domains

2. Leverage technology to respond to customers' changing needs

- Innovate building construction operations through increased use of AI, BIM, digitalization and other advanced technology-based machines and construction methods

Strength

- Competitive edge in winning contracts that comes from our nationwide sales base, extensive track record, and advanced proposal capabilities
- Continuously evolving advanced technological capabilities, including skyscrapers
- Solid quality achieved through the unity of the entire supply chain
- Provision of reliability and satisfaction with a spirit of service to meet customer needs
- Sincere human resources with an unquenchable desire to innovate to support the above strengths

Future Development Based on Issues

- Ensure safety and quality by doing ordinary things in an extraordinary way
- Ensure appropriate profit levels in the domestic construction business
- Establish a production system and improve productivity amid increasing busyness
- Improve the working environment and secure and develop outstanding human resources
- Implement various measures to improve the attractiveness of the construction industry and disseminate information

TOPICS

Constructing the Asuwa River Dam, Japan's Largest Flood Control Dam

The Asuwa River Dam is currently under construction in Fukui Prefecture. It is a flood control dam for adjusting water flow during floods and is being constructed on the Heko River, a tributary of the Asuwa River, which is part of the Kuzuryu River system. The purpose is to reduce flood damage along the Asuwa River, Hino River, and the lower reaches of the Kuzuryu River. Once completed, it will be Japan's largest flood control dam (dam height: approx. 96 m, dam volume: approx. 670,000 m³, flood control capacity: approx. 28.2 million m³). During normal times, a flood control dam does not store water but lets it flow through. It only temporarily stores water during floods to allow a safe amount of water to flow downstream. The river's current flow will be maintained, thus maintaining a near-natural matter cycle, including the water cycle, sediment cycle, and fish migration upstream and downstream of the dam. The cornerstone ceremony was held on November 19 last year, and the concrete pouring of the dam body is currently proceeding smoothly. We will contribute to regional disaster prevention and mitigation and national resiliency, aiming for the earliest possible completion of the dam while being fully mindful of safety.



Asuwa River Dam construction as seen from upstream (Ikeda Town, Imadate District, Fukui)

New PC (prestressed concrete) Road Bridge Slab Manufacturing Line Established at Group Company SC PRE-CON CORP

Expressways constructed during the high-growth period are now coming due for renovation, and demand for large-scale renovation work is on the rise. Slab replacement work accounts for a significant 60% of expressway renovation projects, estimated at a total of 5 trillion yen. We expect ongoing orders to be placed for construction. Under these circumstances, we have established a new manufacturing line dedicated to PC road bridge slabs, applying the PCa production expertise and resources of SC PRE-CON CORP., a group company that has mainly



Completed PC road bridge slab

manufactured secondary concrete products for construction work, to the civil engineering field. The purpose of this was to strengthen our supply chain for slab replacement work. Production will begin in earnest in the autumn of this year, and we plan to begin supplying materials for slab replacement work underway all over Japan.

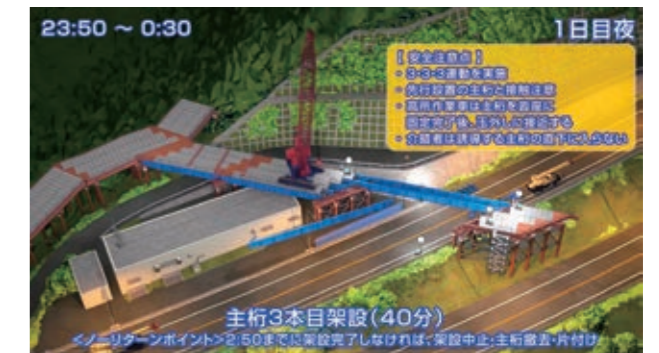
By bringing the production of materials in-house, we will ensure a stable supply of materials to construction sites and reduce procurement costs, thereby addressing the demand for renovation of existing expressways.

Engaging in Construction Near the Expressway Utilizing BIM/CIM

The Shin-Meishin Expressway, which is currently under construction, is an expressway designed to provide an alternate route in the event of a disaster, alleviate congestion, and revitalize logistics and tourism by creating a dual network with the Meishin Expressway. In this project, we are in charge of the Kajiwara Tunnel, currently under construction in Takatsuki City, Osaka. This project spans roughly 2 km of the total 10.7 km connecting the Yawata-Kyotanabe junction/interchange to the Takatsuki junction/interchange and consists mainly of tunnel and bridge substructure construction.

For this construction project, we adopted temporary scaffolding installed above the Meishin Expressway, which is in service, during the limited time of the intensive nighttime construction period. We held a VR-based remote construction review meeting using a 3D construction simulation and a VR system to establish an agreement between client and contractor. After that, the work was safely completed as planned.

We will continue to promote the utilization of BIM/CIM to ensure safer construction.



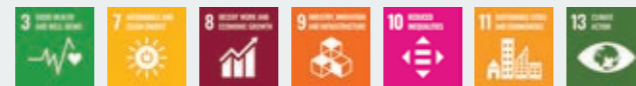
3D construction simulation of the Kajiwara Tunnel (Takatsuki City, Osaka)



Kyoto racecourse renovation project (racetrack area) (Fushimi-ku, Kyoto) Constructing Baba Section in Joint Venture with The Nippon Road Co., Ltd.

Civil Engineering Business

Contributing to the achievement of SDGs through business activities



We will contribute to realizing affluent, safe, and secure lives for people by developing social infrastructure, including roads, railways, and water and sewage systems.

We will accurately address the dynamic changes in the environment surrounding the civil engineering business, such as carbon neutrality initiatives and measures for disaster prevention and mitigation, national resiliency, and aging infrastructure. At the same time, we will work to address the construction needs of society and customers and solve challenges by developing and implementing new technologies and expanding our business domain into new fields. Furthermore, we will improve productivity and profitability by strengthening our sales, design, and construction organizations and utilizing DX and ICT.



Kentaro Ikeda
Executive Vice President and Representative Director
Executive Vice President and Executive Officer
Director, Civil Engineering Headquarters

Key Strategies

We will improve productivity and profitability by strengthening our organization and technological development, and will expand our business domains through external partnerships.

1. Strengthen organizational capabilities

- Increase the number of civil engineers, develop technically skilled talent for design and construction and renewable energy engineering, implement training to consistently transfer and embed expertise
- Develop sales personnel with advanced customer response and communication skills

2. Improve productivity through technology and innovation

- Full-scale implementation of i-Construction and CIM (Construction Information Modeling/Management); innovate production and management systems

- Develop differentiating technologies in key areas including infrastructure renovation, disaster prevention and mitigation, and energy

3. Expand businesses

- Grow the maintenance management and consulting businesses
- Expand upstream and downstream business by strengthening design and technology core competencies

Strength

- Accumulation of extensive track record in the construction of highly challenging large-scale projects
- Realization of high quality through advanced construction technology and a solid production system
- High productivity through efficient construction and management leveraging DX and ICT
- Contribution to the renewable energy field, including wind and hydroelectric power generation
- Collaboration with group companies in large-scale highway renovation projects

Future Development Based on Issues

- Secure a revenue base by continuously winning orders for challenging large-scale projects
- Maintain and build a solid production system by securing and developing outstanding human resources
- Further utilize DX and ICT and develop and implement labor-saving and automation technologies
- Accumulate technological capabilities and expand orders in the offshore wind power generation construction market
- Achieve synergy through strengthened cooperation with group companies

Overseas Construction Business

Contributing to the achievement of SDGs through business activities



Using our technological and proposal capabilities cultivated as a general construction company, we are developing businesses rooted in various countries.

Our full-scale overseas operations date back to the 1970s. Since then, we have been providing our clients with solutions that leverage the collective capabilities of the Group, including not only construction and design technologies but also investment development and engineering. As the COVID-19 pandemic subsides, overseas construction demand is returning to normal. Capital investment related to Digital Transformation, advanced medical care, etc., is expanding as a reflection of the social environment. We will continue to respond swiftly to these changes in social and customer needs and provide high-value-added services.



Hitoshi Fujita
 Managing Officer
 Director, Global Business Headquarters

Key Strategies

We will utilize our proposal and technological capabilities and integrated strengths to pursue a strategy of differentiation and diversification, and build a resilient structure for surviving in the global market.

1. Improve profitability of projects

- Establish competitive advantage for projects requiring advanced technology and expertise
- Increase Design and Build projects in new markets

2. Build organizational capabilities

- Retain and develop more global talent to deliver highly complex projects, grow related businesses, and increase resiliency
- Strengthen proposal skills through greater internal collaboration (process engineering for production facilities, BCP, and renovation)

3. Expand and broaden global presence

- Build global alliances with leading companies in construction-related fields, IT, real estate development, smart cities, and renewable energy
- Grow the PPP, infrastructure operations, construction management and consulting businesses

Strength

- A proven track record and trust built up in many countries
- Diverse proposal capabilities based on technical capabilities, design and construction expertise, and other capabilities
- Abundant global talent to support each country and region
- Proactive initiatives for WELL certification and ZEB

Future Development Based on Issues

- Promote business strategies focused on each country's market
- Improve customer responsiveness by leveraging organizational capabilities
- Ensure and improve construction quality in each country
- Improve the crisis management system for geopolitical and market risks
- Continuous recruitment, training, and promotion of global talent

Grasping Needs and Materializing with Technology (Building Construction)

We continue to focus on commercial and office buildings, including various production facilities, medical facilities, and skyscrapers. In addition to these, in recent years, we have also built up a track record in the field of data centers, particularly in Asia.

In the medical field, we have completed highly advanced medical facilities in Singapore and Taipei. We are building primary-level hospitals that provide basic medical care in provincial cities as a grant aid in Zambia, Africa. We will continue actively pursuing such projects, leveraging our wealth of experience in Japan along with our overseas achievements.

We are constructing large-scale office buildings in Singapore and Indonesia with consideration for both the environment and people, obtaining Green Mark, WELL, LEED, and other certifications. In addition, we have newly expanded into Djibouti, Africa, where we are currently constructing elementary and junior high schools.

Moving forward, we will continue to hone our advanced technological capabilities and genuine responsiveness to solve individual problems.



Mount Alvernia Hospital (Singapore)



The Project for Upgrading Health Centres to District Hospitals in Copperbelt Province (Zambia)



News Release
 Shimizu JV Awarded Contract for Jakarta MRT North-South Line Phase 2, Following on Phase 1
<https://www.shimz.co.jp/en/company/about/news-release/2020/2019049.html>



News Release
 Road Improvement Project awarded in Côte d'Ivoire, West Africa
<https://www.shimz.co.jp/en/company/about/news-release/2022/2022052.html>

Contributing to Growth in Asia and Africa through Infrastructure Construction (Civil Engineering)

We are building infrastructure contributing to economic growth and urbanization in many parts of the world. We have been involved in numerous infrastructure projects in Philippines, Indonesia, Singapore, Vietnam, Bangladesh, Malaysia, Taiwan, Hong Kong, other parts of Asia, and African countries. In developing these projects, we have adapted to the unique construction conditions of each region while at the same time deploying Japanese technology and expertise and employing and training local talent.

In Manila, Philippines, we are currently constructing the country's first subway system. Meanwhile, in Jakarta, Indonesia, we have entered the second phase of construction of the MRT* North-South Line. In Africa, we are rehabilitating a national road connecting Ghana's second-largest city to an international highway and working on road improvement in Kampala, the capital of Uganda, to ease traffic congestion. In Cote d'Ivoire, we won a new contract for road improvement work. We will continue to contribute to growth around the world through infrastructure construction.

* Mass rapid transit, including subways



President Marcos presses the button to launch the shield machine at the Manila Metro ceremony



Renovation of the national highway connecting Kumasi, Ghana's second-largest city, to the coast



News Release
 TBM launching, Philippines' first subway construction
<https://www.shimz.co.jp/en/company/about/news-release/2023/2022062.html>



JAKARTA MORI TOWER (Indonesia)

TOPICS

Work Started on “Chofugaoka 3-chome Plan,” an Apartment Complex Based on the Concept of a New Normal Residence in the Post-COVID-19 Era

Construction of the “Chofugaoka 3-chome Project” (tentative name; 79 units in total), a joint project of Shimizu Corporation and The Yamaguchi Bank, Ltd., began in September 2022. The aim of this project is to allow residents to work with peace of mind and live in comfort, the new normal for housing. We are designing living spaces with versatile floor plans incorporating dedicated workspaces. We also collaborated with Professor Satoshi Hori of Juntendo University Graduate School on some units to create what we call “Pandemic Ready New Normal Housing,” which includes ventilation systems that control airflow to reduce the risk of infection within households.*1 We will continue to focus the collective strength of Shimizu on completing the construction in December 2023 as an apartment complex for the New Normal.

*1. Published in an article in the Nihon Keizai Shimbun on June 10, 2022.



Perspective drawing of Chofugaoka 3-chome Project (tentative name; Chofu City, Tokyo)

Construction of S.LOGi Fukuoka Airport, the First Logistics Facility in Kyushu of the Investment and Development Business, Completed

In August 2022, we completed the construction of S.LOGi Fukuoka Airport, the first leased logistics facility in Kyushu. This facility is leased in its entirety to Nishi-Nippon Railroad Co., Ltd., and has been operational as an international logistics hub connecting Kyushu and Asia since September 2022. It is located near the Fukuoka Airport cargo area and the Hanmichibashi Interchange on the Fukuoka Urban Expressway Circular Route, an area in high demand from logistics companies. While offering versatility as a leased logistics facility, it is equipped with functions that complement the characteristics of the location, such as berths that can accommodate 40-ft trailers, support for air cargo transportation needs, and temperature-zone management equipment for stocking perishable goods. We will continue to leverage our strengths as a general construction company to develop logistics facilities that provide new value to tenant companies.



S.LOGi Fukuoka Airport (Fukuoka City, Fukuoka)

Launch of Services at Shimizu Private REIT, Inc.

Shimizu Private REIT, Inc. launched services on January 11, 2023. This private REIT is one of the measures aimed at expanding recurring revenue model businesses in real estate. By reinvesting funds from property sales in new development properties, we hope to supply society with high-quality properties and provide investors with opportunities for ESG investment and financing, thereby contributing to realizing a sustainable society.

The assets initially included in the portfolio are mainly properties we have developed that combine environmental performance and BCP functions and have already obtained environmental certification. In addition, the entire facility is powered by electricity derived from renewable energy sources, and the funds required to acquire assets have been procured through green loans since the launch of operations.

Shimizu Enters the Rental Housing Business in Philadelphia, USA

In November 2022, we acquired Rittenhouse Row Apartment, a residential rental property in Philadelphia, through our U.S. subsidiary Shimizu Realty Development (U.S.A), Inc. The property is in a prime location, about a five-minute walk from the City Hall at the center of Philadelphia, and is close to the office district and its forest of skyscrapers. The occupancy rate is stable at a high level, but we aim to further increase profitability by improving the property's competitiveness through upgrades to the equipment specifications in both the private and common areas and resident services. The division plans to continue to invest in real estate in major American cities.



Rittenhouse Row Apartment, an apartment building in Philadelphia, USA



Perspective drawing of Nagoya Marunouchi 1-Chome Project to be completed in 2024

Investment and Development Business (Real Estate Development Business)

Contributing to the achievement of SDGs through business activities



To respond flexibly to the changing business environment, we will advance a real estate development business that generates stable revenue through both leasing and sales. We aim to build an optimal portfolio by leveraging the technology and collective strength of the Shimizu Group.

Starting in fiscal 2022, we also began forming and managing private REITs to build a real estate value chain and expand our recurring revenue model businesses through group collaboration. In addition to working on business plans from the perspective of SDGs and ESG, we will take on the challenge of new growth fields and reform our business promotion structure to expand our business domain and enhance profitability.



Haruhiko Washimi

Managing Officer
Director, Investment and Development Div.

Key Strategies

We will expand business domains and areas with the optimal portfolio for further growth in mind and will utilize Shimizu Group technologies to develop comfortable, efficient communities.

1. Expand asset portfolio

- Increase the amount of assets for sale and lease
- Expand the logistics facility business and develop other growth markets

2. Create new value through all facets of urban development

- Create new value in office buildings through ecoBCP, renovation, and innovations in sustainability
- Increase activities in regionally focused community development and large scale urban planning and development

3. Optimize overseas portfolio

- Diversify the countries targeted for investment based on growth potential and risk profile
 - i : Singapore: New development and leasing of offices and other buildings, and redevelopment of former company sites
 - ii : ASEAN: Housing development lots, development and leasing of offices and other buildings
 - iii : U.S.: Renovation and development to increase the value of existing properties, and new development of rental housing and industrial properties
- Strengthen alliances

Strength

- Extensive domestic and international sales network built over the course of our 210-year history
- Collective strength of a general contractor (architecture, civil engineering, engineering, LCV, group companies)
- Cutting-edge technologies in the DX, Smart City, environmental, and BCP fields
- Ownership of investment advisory firms that contribute to the expansion of recurring revenue model businesses in real estate

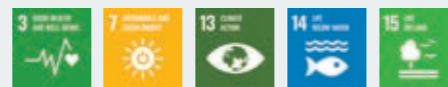
Future Development Based on Issues

- Generate new deals by matching sales information from a wide range of clients
- Take on properties of varying sizes and grades through collaboration within the Group
- Promote business through further collaboration with business partners overseas
- Develop business from the perspective of SDGs and ESG, leveraging environmental technology and expertise
- Promote utilization of external funds through private REITs and promote a cyclical real estate business



SEP vessel BLUE WIND for construction of offshore wind farms

Contributing to the achievement of SDGs through business activities



Engineering Business

With our engineering, we support the realization of a zero-carbon society and a safe, secure, and healthy living environment through GX by means of renewable energy facilities and DX by means of smart buildings and towns.

Shimizu is expanding and strengthening the four core areas of energy, environmental purification, plant and ICT on an ongoing basis to build a sustainable growth base. We will also strive to utilize the potential of these four areas without limiting ourselves to the existing framework to break into new businesses and create value that exceeds the expectations of society.



Yutaka Shimizu
Director, Engineering Headquarters

Key Strategies

We will focus on energy, environmental purification, life sciences, and digital solutions and realize zero carbon communities and safe, secure, and healthy living environments.

1. Expand the EPC business in the four core areas of energy, environmental purification, plant and ICT

- Increase Shimizu's share of large onshore and offshore wind farm projects
- Broaden environmental decontamination engineering capabilities building on existing soil decontamination technologies
- Increase orders of efficient plant turnkey operations by automating advanced production facilities
- Expand ICT systems projects

2. Enter new markets and diversify our revenue base

- Break into new areas such as next-generation energy, life sciences, advanced digital technology, and marine resource development; pursue alliances with venture firms and cross-industry players
- Move into advanced facility operation and management

Strength

- Leading share of onshore wind EPC in renewable energy
- Plant turnkey orders for pharmaceuticals, food, chemicals, semiconductors, etc.
- Soil purification such as soil washing and reduction of radiation-contaminated soil and in-situ purification through thermal desorption
- ICT, AI, and IoT integration business to meet facility application and customer business needs
- Offshore wind power EPC through self-propelled SEP vessel

Future Development Based on Issues

- Offshore wind power EPC development through self-propelled SEP vessel
- Promotion of plant engineering utilizing digital twin
- Promotion of technological development for soil purification and cleanup efforts for new hazardous substances
- Expansion of ICT solutions utilizing building OS (DX-Core)
- Global business development in the plant and environmental fields

TOPICS

Energy Field

Marine resource development and wind power generation initiatives

In onshore wind power, in fiscal 2022, we worked on construction of seven power generation facilities (total of 139 windmills with a total capacity of 519.9 MW) while also planning new projects and engaging in marketing activities. In offshore wind power, we completed construction of our SEP vessel BLUE WIND and made steady progress in building a project execution system. In addition, as for domestic deep seawater EPC, we constructed a second intake facility in Nyuzen-machi, Toyama.



JRE Oritsumedake (South) Wind Farm No. 1 (Ninohe City, Iwate)

Plant Field

Building plants that can continue growing 10 years from now

Working with our customers, we provide turnkey engineering integrating production equipment and buildings covering everything from planning and design to trial operation. We are proposing a new engineering service called "Growing Factory," which aims to optimize facility value while continuously utilizing the digital twin from the initial design stage to the operational stage.



Optimization system for production facilities using Digital Twin (Growing Factory)

Environmental Purification field

Removing soil contamination through soil washing, in-situ purification, etc.

We are actively working on the development of technologies such as in-situ purification that can be applied on-site in various contamination situations. With technologies suitable for the purification of contaminants, we implement in-situ thermal treatment without excavating the soil. Additionally, we have developed technology to efficiently purify contaminated water containing newly identified organic fluorine compounds (PFAS) that are potentially harmful to the human body.



Organic fluorine compound (PFAS) sewage purification demonstration facility (Okinawa, Japan)

ICT Field

New urban development linking buildings and equipment through DX

We have developed many solutions to address diverse facility applications and customer needs. We conducted a field test for a service that links various facilities and systems with transport robots at hospitals. In the future, we will develop and roll out cutting-edge services through a variety of data linkages between facilities and robots and even mobility solutions as we promote initiatives for new urban development.



Automated hospital medicine delivery robot



News Release
Shimizu's "BLUE WIND", World's Largest Class SEP Vessel Completes
<https://www.shimz.co.jp/en/company/about/news-release/2022/2022046.html>



Dokkyo Medical University Nikko Medical Center Carport solar power generation: Carbon neutral partner initiative

LCV

Contributing to the achievement of SDGs through business activities



We will build a sustainable society and a new future by providing various services such as energy, management, and operation.

Based on the business concept of Life Cycle Valuation (LCV), Shimizu is building a sustainable future by realizing sustainable value enhancement over the life cycles of buildings, infrastructure, energy, and communities and providing comprehensive service solutions to address our customers' increasingly diverse and sophisticated needs.



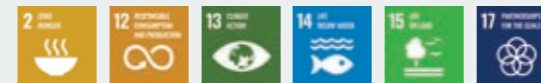
Takeshi Sekiguchi
 Director, Senior Managing Officer
 Senior Managing Officer and
 Executive Officer
 Director, LCV Headquarters



Illustration of the launch of small KAIROS rocket (Space One Co., Ltd.)

Emerging Frontier Business

Contributing to the achievement of SDGs through business activities



We contribute to the sustainable development of the planet and humankind by expanding the scope of human activities from land to sea and from Earth to space.

We are working toward early commercialization in the fields of space development and ocean development. We will invest in startups as a stepping stone to contributing to climate change and the global environment through our Harmony with Nature Business and acquiring next-generation construction technologies. Investee Space One Co., Ltd. plans to launch a small rocket from Kushimoto Town, Wakayama Prefecture. In this business, we are contributing to the construction and operation of the first civilian rocket range.



Shinichi Takiguchi
 Managing Officer
 Director, Emerging Frontiers Div.

TOPICS

Low-Cost, Green Hydrogen Manufacturing Demonstration Plant

We are conducting demonstration experiments at our demonstration plant for applying low-cost green hydrogen manufacturing technology in Kokonoe Town, Oita Prefecture. We aim to utilize geothermal energy and biomass resources such as wood, which are plentiful in Japan, to bring CO₂ emissions during manufacturing down to less than one-tenth of hydrogen currently on the market and manufacturing costs down to less than one-third of hydrogen from water electrolysis using renewable energy sources such as solar power.

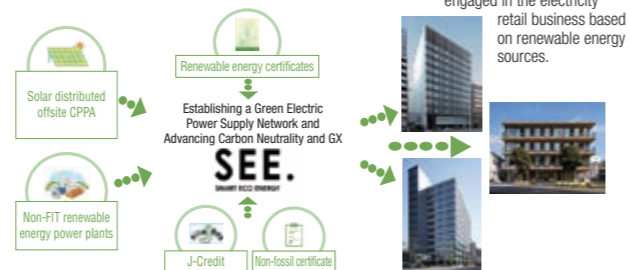


Hydrogen manufacturing demonstration plant (Kokonoe Town, Oita)



Providing Green Electric Power Solutions

SEE.* provides green electric power supplied directly to consumers from non-FIT renewable energy power plants and the non-FIT environmental value of renewable energy certificates to support customers in their decarbonization management. Off-site CPPAs supply electric power from a remotely located power plant through SEE. By installing distributed power generation facilities offsite, they ensure a stable power generation volume, allowing customers to procure electric power derived from renewable energy sources effectively.



SEE. provides various decarbonization solutions



* SEE.: Smart Eco Energy Co., Ltd.
 A wholly-owned subsidiary engaged in the electricity retail business based on renewable energy sources.

TOPICS

Space Development Developing a Dynamic Observation System for Structures

We developed a system that utilizes satellite positioning to provide low-cost, high-precision, and automatic measurement and analysis of structural displacement. Utilizing it in building and infrastructure construction, we will contribute to realizing a safe and resilient society.



QuartetS GNSS dynamic observation system

Ocean Development Realizing a Float City

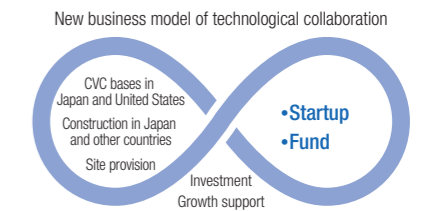
We have come up with the concept of a "Float City" in the ocean with a low environmental impact as a measure to address rising sea levels and overpopulation. To make it a reality, we are working on technological development and market creation for residential and energy-related facilities.



Illustration of floating structure (marine commercial complex)

Utilizing Corporate Venture Capital

We promote investment in startups in Japan and other countries that generate synergy with our businesses. We also operate a corporate venturing system that allows employees to take on the challenge of starting businesses based on their own ideas.



Number of investments to date: 10
 Number of demonstration experiments (in Japan and overseas): 29
 Promoting collaboration with startups in Japan and other countries

Technological Development

Contributing to the achievement of SDGs through business activities



We are developing new technologies ahead of the times for the realization of a sustainable future society where people can enjoy prosperity and happiness.

To develop technologies anticipating the diversifying needs of society and our customers, we establish and prioritize the implementation of company-wide, cross-organizational technology strategies. In addition to enhancing carbon neutrality-related technologies to realize Shimz Beyond Zero 2050, we are utilizing rapidly progressing digital technologies to realize GX and DX, thereby contributing to solutions to issues facing society and our customers. Specifically, we are actively engaged in innovative technological development whereby we lead the industry. This includes BILMUS[®], which is the fourth kind of earthquake countermeasure technology to be put to practical use for the safe and high-quality construction of skyscrapers exceeding 300 meters in height and ultra-large-section tunnels (the other three being seismic resistance, vibration control, and seismic isolation). It also includes the development of the next-generation technologies required for the society of the future, such as the 3D printer LACTM[®]* and building service platforms DX-Core[®]* and Mobility-Core[®]*. We are also accelerating efforts to address our own challenges, such as robotics and productivity-enhancing technologies, in response to the 2024 problem.

* BILMUS[®], LACTM[®], DX-Core[®], and Mobility-Core[®] are registered trademarks of Shimizu Corporation in Japan.



Akira Yamazaki

Senior Managing Officer
Director, Construction Technology Div.,
Building Construction Headquarters,
In charge of Building Construction
Headquarters and Technology

Main Technical Development Issues

We identify technical development issues based on company-wide materiality.

Promoting a sincere approach to monozukuri (superb craftsmanship)

Mechanization, robotization, computer-aided construction, safety improvement, quality control, etc.

Realizing a sustainable society where future generations can inherit a well-cared for environment

LCA, renewable energy, ZEB, wooden construction, green infrastructure, etc.

Realizing a resilient society where everyone can feel safe and secure

Disaster prevention, BCP, civil engineering infrastructure construction, etc.

Realizing an inclusive society where all people can live together in comfort and health

Smart City infrastructure, wellness workplace environment, etc.

Creating of new technologies and value that is ahead of the times

Computational design, cutting-edge domains (aerospace and ocean), etc.

Fundamental technologies

Structural work methods, new materials, decarbonization, resource recycling, AI, robotics, etc.

Institute of Technology: Preparing for the Future 10 Years from Now

With approximately 200 researchers with diverse expertise in everything from building construction and civil engineering to machinery, electricity, materials, medicine, pharmacology, and information, the mission of the Institute of Technology is to always "prepare for the future 10 years from now."

It serves as an R&D hub that anticipates the changes and advancements of the times and a place for demonstrating the developed technologies. This includes addressing social issues such as resilience, inclusiveness, and sustainability and utilizing cutting-edge technologies.

Taking advantage of its location in the heart of the city, we are actively providing information through tours of the showroom and laboratory buildings and Shimizu Open Academy.



Exterior of Institute of Technology (Koto Ward, Tokyo)

TOPICS

Robo-Carrier Automatic Material Conveyance Robot

The construction industry is faced with challenges that include a shortage of workers and the need to reform workstyles. As such, autonomous robots equipped with state-of-the-art technology are being introduced at construction sites to improve productivity and save manpower.

Robo-Carrier is a robot that autonomously conveys materials. When you enter the storage location and destination in the app on a tablet, instructions are sent from the cloud server, allowing multiple robots and automatic elevators work in parallel and coordinate with each other to perform automatic conveyance. This eliminates the need for multiple workers to push the carts, saving manpower and avoiding hazardous work.

We have currently introduced the robots at several of our construction sites, including hotels, offices, and plants. We are also rolling them out to external activities, including the Construction RX Consortium.



Robo-Carrier improves conveyance efficiency

Hydro Q-BiC[®]* Hydrogen Energy Utilization System for Buildings

To achieve sustainable urban development, it is essential not only to advance energy-saving technologies but also to actively promote renewable energy, expanding from individual buildings to entire city blocks.

Based on the premise that nearby facilities will use CO₂-free hydrogen (meaning no CO₂ is emitted during power generation) as an energy source, we have developed a proprietary hydrogen storage alloy that is safe and suitable for use in constructing mass storage tanks. Building-attached hydrogen energy utilization system Hydro Q-BiC utilizes surplus electric power derived from renewable energy to produce, store/transport, and use CO₂-free hydrogen. Following a field test in Koriyama City, Fukushima Prefecture, we introduced the system into our office building for the first time in Japan. We are actively promoting its social implementation as a technology for the efficient use of renewable energy.

* Hydro Q-BiC[®] is a registered trademark of Shimizu Corporation in Japan.

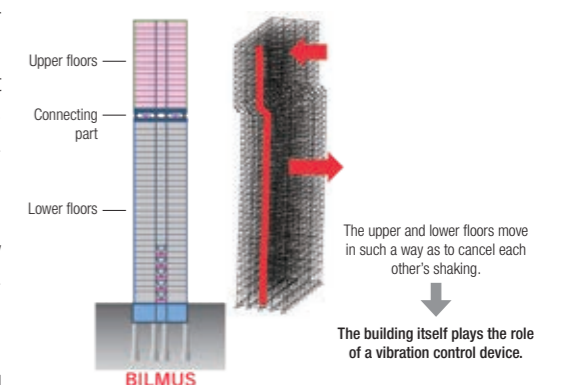


Hydro Q-BiC in operation at our Hokuriku Branch

BILMUS System Turns Entire Building into Vibration Control Device

There are concerns about future major earthquakes, such as an earthquake directly under the Tokyo metropolitan area or massive earthquakes in the Nankai Trough and Sagami Trough. We are developing various technologies so that we can make proposals that meet the needs of diverse facilities. These include seismic isolation and vibration control technologies to reduce damage caused by the shaking of buildings, seismic retrofitting methods for ceilings and facilities, and tsunami countermeasure technologies.

The BILMUS[®] system transforms the entire building into a vibration control device and reduces seismic shaking by half. The upper and lower floors of the building are structurally independent and connected by laminated rubber bearings and oil dampers used in seismic isolation construction. During an earthquake, the upper and lower floors move in such a way as to cancel each other's shaking, and the building itself plays the role of a vibration control device. This significantly reduces the number of vibration control devices compared to conventional systems and dramatically increases the degree of design freedom.



BILMUS system turns entire building into vibration control device to reduce seismic shaking by half



Institute of Technology
<https://www.shimz.co.jp/en/company/about/sit/>



Steel bridge footings in Iitaka-cho area on Yamato Gose Road (Kashiwara City, Nara) FaB-Tec Japan Corporation

Domestic Group Companies

Contributing to the achievement of SDGs through business activities



We intend to build a swift-footed Group management structure.

The Shimizu Group has 126 subsidiaries and 20 affiliated companies. These companies operate various businesses, such as construction, development, engineering, and LCV businesses. Based on smooth communication, we are fostering a sense of unity as a group and promoting awareness of group optimization, including collaboration and mutual cooperation among group companies. In so doing, we are strengthening human resources management, corporate governance, and compliance, and promoting measures to expand our business.



Takao Haneda
Senior Managing Officer
In charge of Group Companies

Main Group Companies in Japan



THE NIPPON ROAD Group

THE NIPPON ROAD Co., Ltd.

Generating Further Synergy as a Member of the Shimizu Group

In March 2022, Nippon Road became a consolidated subsidiary of Shimizu, and the companies now make full use of each other's resources in areas such as joint orders for construction work, R&D, and human resources development. In July 2022, the company completed construction of a high-spec Advanced Driver Assistance System (ADAS) test course for the purpose of testing and researching advanced automotive safety technologies. It is actively working to develop new paving technologies to respond to changes in the social environment surrounding people and vehicles due to the evolution of mobility technologies.



THE NIPPON ROAD Co., Ltd.
<https://www.nipponroad.co.jp/english/>



New ADAS test course established within the JARI Shiroato Test Course (Shiroato-machi, Ibaraki)

ND LEASING SYSTEM CO.,LTD.

In addition to leasing automobiles and construction and civil engineering equipment, ND Leasing System handles a wide range of other services, including quantity surveys, development of systems related to piled timber mills, and sales of safety and environment-related products. It has developed and is selling the "Multi Job Car," a vehicle that integrates an office and restroom and can be used for various purposes such as desk work, meetings, breaks, and naps at paving sites.



Multi Job Car

kankyoryokka Co.,Ltd.

kankyoryokka undertakes landscaping and construction of parks and green spaces as well as surveying and consulting for environmental improvement plans. In addition to planting and landscaping, it provides green spaces for disaster prevention parks and walking trails as well as rooftop greening and biotope development.



Tire Park has a monument made from old tires (Ota-ku, Tokyo)

SHIMIZU BLC Co., Ltd.



Enhancing building BCP/LCP* using electric vehicle storage batteries

Providing Support over the Lifecycle of Customers' Buildings

Shimizu Building Life Care provides a one-stop solution for building management and renewal, offering a complete range of services needed throughout the lifetime of the building to maximize asset value and meet customer expectations. It also proposes services in a wide range of fields, such as enhancing building disaster prevention by utilizing electric vehicles (storage batteries), to accurately meet the increasingly diverse and complex needs of its customers as their building life partner.

*LCP: Stands for Life Continuity Planning and involves supporting the continuation of family life in the event of a disaster or other risk

MILX CORPORATION

Providing Full Support for Safety and Security at Work Sites

MILX CORPORATION provides a wide range of services to support group companies, including sales and leasing of construction equipment and materials, interior finishing work and rebar work, insurance agency services, security, and travel arrangements. With multiple large-scale projects currently in the planning stage, its 13 equipment and material centers nationwide support monozukuri by such means as participating from the planning stage to supply high-quality temporary construction materials and equipment suited to the specific construction application. It also contributes to the SDGs by efficiently reusing temporary construction materials through its rental business.



Head Office equipment and materials center (Funabashi City, Chiba Prefecture)

FaB-Tec Japan Corporation



Kesenuma Bay Crossing Bridge (Kesenuma City, Miyagi)

Kanae Ohashi Wins Tanaka Award

Kesenuma Bay Crossing Bridge (nicknamed "Kanae Ohashi"), which the Sendai Office of Rivers and National Highways, Tohoku Regional Development Bureau, Ministry of Land, Infrastructure, Transport and Tourism contracted us to fabricate and erect, won the 2022 Tanaka Award from the Japan Society of Civil Engineers. This award is presented for outstanding work related to bridges and structural engineering. Kanae Ohashi is a part of the Sanriku Expressway and measures 1,344 meters long, making it the longest cable-stayed bridge in Tohoku.

Shimizu Comprehensive Development Corporation

General Real Estate Company Handling Everything from Development to Management

Shimizu Comprehensive Development is involved in the development, management, and operation of self-branded properties, including condominiums for sale (VIEQU), rental offices (VPO), and condominiums for rent (VPR). In addition, the company offers a one-stop solution for project management (PM) and building management (BM) services (PBOS: PM&BM ONE-STOP SOLUTION). Integrating building asset management, real estate consulting, brokerage, and tenant leasing allows the provision of efficient services.



VIEQU BRIGHT TSUKISHIMA (Chuo-ku, Tokyo) (left)
VIEQU SUITE MATSUDO (Matsudo City, Chiba) (right)

Nihon Kensetsu Co., Ltd.

Providing Comprehensive Services from Design to Construction

Nihon Kensetsu became a member of the Shimizu Group in 2014 and has continued to develop further ever since. It leverages the mobility unique to medium-sized general contractors and expertise accumulated over many years along with the experienced talent in charge as well as the collective strength of the Shimizu Group to provide comprehensive solutions from design to construction.



Grand Maison Asakusa Hanakawado (Taito-ku, Tokyo) (left)
Toyosu Cubic Garden (JV) (Koto-ku, Tokyo) (right)

SC Machinery Corp.

Proposing Total Solutions for Construction Machinery

SC Machinery offers comprehensive rental services for a wide variety of machinery, including tower cranes, crawler cranes, and other large machinery, covering everything from planning and proposal to installation, operation, maintenance, and management. As part of its participation in the Construction RX Consortium, the company has installed a tower crane in the Tokyo Machinery Center and is working on establishing remote operation techniques and training.



Mainstay large tower crane

SC PRE-CON CORP.

PCa for Both Curtain Walls and Structural Framework

SC Precon provides high-performance, high-quality precast concrete (PCa) products for various construction projects, contributing to on-site labor savings, shorter construction periods, and environmentally friendly initiatives. Starting in fiscal 2023, the company will also contribute to the development of safe and secure social infrastructure through the supply of expressway PC slabs.

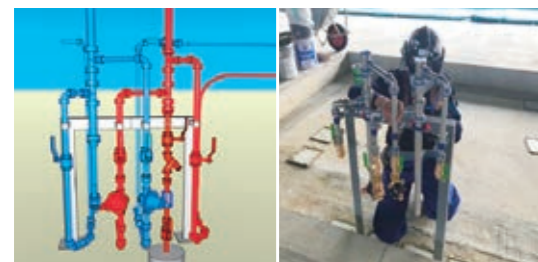


Nagoya Marunouchi 1-chome plan utilizing PC structural framework in exterior design (Nagoya City, Aichi)

Daiichi Setsubi Engineering Corporation

Comprehensive Planning of Building Facilities Including HVAC, Sanitation, and Electricity

In an effort to reduce work time, Daiichi Setsubi Engineering is working to streamline construction procedures while maintaining quality. The unitized construction method for plumbing installation requires precise work. It contributes to significant reductions in construction time and improvements in construction accuracy. The company will continue to promote various construction streamlining through this method.

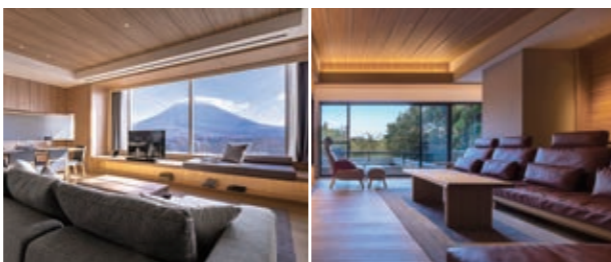


Example of unitization of water supply and hot water piping: Drawing (left) Assembly (right)

FIELD FOUR DESIGN OFFICE Co., Ltd.

Contributing to the Enhancement of the Shimizu Brand with Interior and Exterior Design

Field Four Design Office places great importance on creating comfortable spaces with a focus on light, greenery, and furniture design. From offices to residences and luxury hotels, the company plans, designs, and manages the production of new and renovated interior and exterior spaces for all types of uses, bringing about future change with the power of design.



Setsu Niseko guest room (Abuta District, Hokkaido) (left); Hotel Kinzan guest room (Kobe City, Hyogo) (right)

PD System Corporation

Buttressing Construction Projects with Design and Construction Support

PD System participates in building construction monozukuri through services in a wide range of fields from upstream to downstream of the building production process. As building construction professionals playing a part in monozukuri, the company will earn solid trust and contribute to society.



PR video (<https://www.pdstk.co.jp/movie.html>)

Tomato Farm Co.,Ltd.

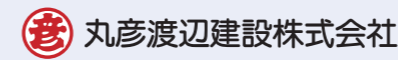
Cultivating Tomakomai Strawberries Year-Round in a Vast 4-hectare Facility

Tomato Farm made a new start as a subsidiary in 2022, actively shipping Tomakomai strawberries not only within Hokkaido but also to the Tokyo metropolitan area. It is working to expand its business partners while considering SDGs and the environment in its management, including circular agriculture where leaves and stems are collected and used to feed sheep.



Environmentally controlled field using ICT (Tomakomai City, Hokkaido)

TOPICS



Hokkaido-based general construction company Maruhiko Watanabe Construction Inc. was made a subsidiary on May 31, 2023. Since its founding in 1918, the company has engaged in building construction, civil engineering, renewal, and machinery and production support nationwide. It will work on strengthening its business foundation of building construction and civil engineering by integrating expertise from various business fields, including sales infrastructure and management resources.

Major Domestic Group Companies (as of March 31, 2023)

(Millions of yen)

	Corporate Name	Lines of Business	Sales in FY2022
Building Construction-related businesses	SC PRE-CON CORP.	Manufacture, sale, and construction of precast concrete products	7,294
	SC Machinery Corp.	Construction machinery rentals	35,316
	SHIMIZU BLC Co., Ltd.	Building renewal and management business	72,206
	Daiichi Setsubi Engineering Corporation	Building facility construction contract work	13,198
	Technology Network, Inc.	Sale of building construction-related technologies and products	2,349
	Nihon Kensetsu Co., Ltd.	Building construction contract work	14,114
	FaB-Tec Japan Corporation	Steel frame and bridge fabrication contract work	35,594
	PD System Corporation	Building design and management	5,489
	FIELD FOUR DESIGN OFFICE Co., Ltd.	Interior and landscaping design and supervision work	533
	MILX CORPORATION	Sales and lease of construction equipment and materials and insurance brokerage business	36,194
Development and real estate-related businesses	Shimizu Real Estate Asset Management Corp.	Real Estate Investment Management	440
	Shimizu Comprehensive Development Corporation	Development business, building management business, and lease brokerage business	27,486
	MINATO JISHO CORPORATION	Real estate sales business and real estate leasing business	453
Service-related businesses	OHSAKI RESEARCH INSTITUTE, INC.	Research, development, contracting, and consulting for analysis methods required to design nuclear structures and other special structures	408
	CSP Japan, Inc.	Space development-related studies and consulting	14
	SHIMIZU AGRI PLUS Inc.	Contract work for garlic chive shipment preparation (mechanized removal of unnecessary leaves, weight reduction, and binding)	28
	Shimizu Finance Co., Ltd.	Money lending business	632
	Shinshu Wood Power Co., Ltd.	Sales of electricity generated from wooden biomass	484
	TAMA MEDICAL PFI CORPORATION	PFI for Tokyo Metropolitan Tama Medical Center and Tokyo Metropolitan Children's Medical Center	12,790
	Daiya Building Service Co., Ltd.	Building maintenance (cleaning, equipment, security, and upkeep)	1,971
	Total Office Partner, Inc.	Management of Shimizu Corporation head office building, public relations and advertising, clerical work, and personnel dispatch business	7,376
	Tomato Farm Co.,Ltd.	Strawberry cultivation and sales business	386
	Nippon Road Group	THE NIPPON ROAD Co., Ltd.	Road construction and paving work
ND LEASING SYSTEM CO.,LTD.		General leasing, development, and sales of computer software, etc.	6,944
NDIC.co.,Ltd.		Insurance brokerage business	283
kankyoryokka Co.,Ltd.		Landscaping of parks, green spaces, gardens, etc.	383
SPORTS MEDIA inc.		Planning and management of sports facilities, etc.	441

* Maruhiko Watanabe Construction Inc. is not included in the table above as it was made a consolidated subsidiary on May 31, 2023.